

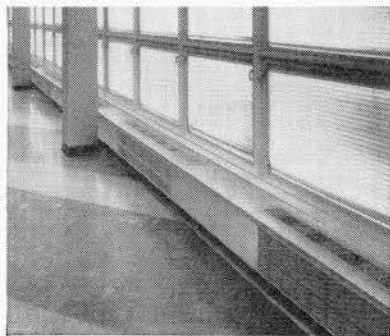
**RAIC** **JOURNAL**  
SEPTEMBER 1959



ROYAL ARCHITECTURAL INSTITUTE OF CANADA

INSTITUT ROYAL D'ARCHITECTURE DU CANADA

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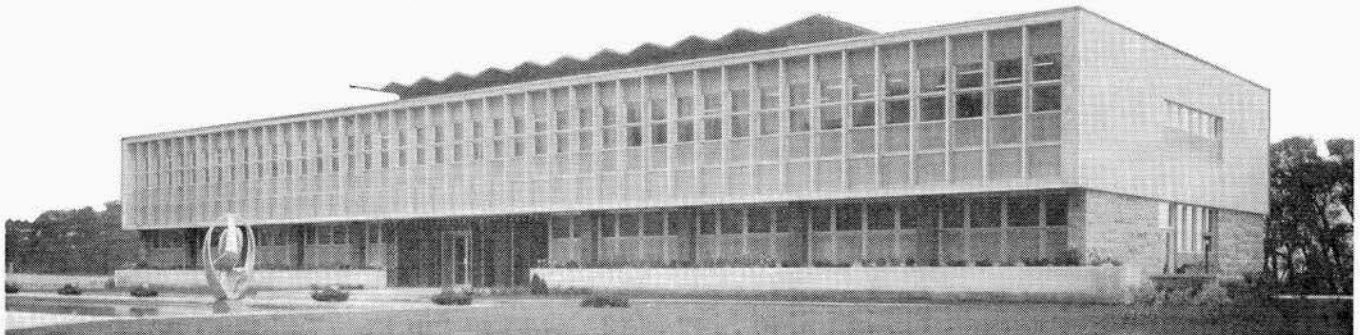
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COMPANY OF CANADA, LIMITED, TORONTO 14

*manufacturers of equipment for  
air conditioning, heating, ventilating.*



MODERN LES PREVUYANTS DU CANADA BUILDING, QUEBEC CITY

*Architect: M. LUCIEN MAINGUY, Quebec City  
Consulting Engineer: M. OSCAR DORVAL, Quebec City  
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# RAIC JOURNAL

SEPTEMBER, 1959

Serial No 409, Vol. 36, No 9

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Imperial Tobacco Sales Ltd  
Toronto. (See Page 306.)  
Photo by M & M.

*The Institute does not hold itself responsible for the opinions  
expressed by contributors*

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## EDITORIAL

BEFORE THIS PAGE is read in the *Journal*, Canadian architects will be aware that the Hon David J. Walker, the Minister responsible for the operations of CMHC, has announced that arrangements have been made for an enquiry by the RAIC into the design of new residential areas. The sum of \$30,000 has been granted under part V of the National Housing Act, and the committee of enquiry has been named. They are Peter Dobush, (Chairman) Montreal, John C. Parkin of Toronto and C. E. Pratt of Vancouver. Mr Alan Armstrong will serve as Secretary of the committee.

The whole proposal reflects credit on the Minister, CMHC and the RAIC. First of all, the enquiry itself has immense possibilities for the future happiness of thousands of Canadians; for better homes and, equally important, a healthier and a better environment.

We are not supposed to know, nor, for that matter, do we know, how the committee was appointed, but a more admirable choice could not be found. The indispensable person on such a committee is the Secretary, and in that role, Mr Alan Armstrong will be invaluable. The appointment of committees is an exceedingly delicate undertaking, and is too frequently based on age (assuming wisdom) and geography (involving politics). No such weakness has been shown here — a team has been selected that represents all that is best in the profession.

It was perhaps always true of the architectural profession that, in times of great emergency, idealists appeared, as if by magic, to give leadership and to instil a feeling of pride in the rank and file. We are in such an emergency today. The package deal and fee cutting have left an atmosphere of insecurity and suspicion among all ages in the profession. Our cities sprawl and new slums are created regardless of the warnings of experts and, on the whole, a not uninformed press. In spite of a building boom, there is much that is depressing, and much that we would like to forget. At such a time, it is an inspiration for all of us to see a committee such as this one ready to give its time and knowledge over many months in a field in which the members cannot possibly benefit except from such intangibles as the gratitude of future generations and the good wishes of their contemporaries.

*E. R. A.*

## EDITORIAL

LORSQUE CES LIGNES paraîtront dans le *Journal*, les architectes canadiens auront appris de l'hon David J. Walker, ministre dont relève la Société centrale d'hypothèques et de logement, l'institution d'une enquête, par l'Institut Royal, sur l'aménagement des nouveaux quartiers d'habitation. \$30,000 ont été accordés sous le régime de la Partie V de la Loi nationale sur l'habitation, et les membres de la commission d'enquête ont été nommés. Il s'agit de MM. Peter Dobush, président, de Montréal, John C. Parkin, de Toronto et C. E. Pratt, de Vancouver. Le secrétaire de la Commission sera M. Alan Armstrong.

Ce projet est tout à l'honneur du Ministre, de la Société centrale et de l'Institut. Des milliers de Canadiens pourront bénéficier, grâce à l'enquête, de meilleures maisons et d'un milieu plus sain.

Nul n'est censé savoir et nul ne sait, d'ailleurs, comment les membres de la Commission ont été choisis, mais le choix n'aurait pas pu être plus heureux. M. Armstrong rendra des services inestimables à la Commission, au poste toujours important de secrétaire. Tâche fort délicate que désigner les membres d'une commission, choisis trop souvent pour des motifs d'âge (ce qui devrait vouloir dire de sagesse) ou de répartition géographique (où entre la politique); on a su éviter ces périls ici, et l'équipe choisie groupe ce que la profession peut offrir de mieux.

Il semble que chez les architectes, dans chaque situation critique, des idéalistes soient apparus comme par magie pour diriger les autres et leur inspirer un sentiment d'orgueil. C'est dans une telle situation que nous nous trouvons aujourd'hui. Le contrat global et la réduction des honoraires ont jeté l'inquiétude et le doute chez les architectes de tout âge. Nos villes s'agrandissent et les taudis prolifèrent, en dépit des avertissements des experts et des journaux. Malgré une forte hausse de la construction, il s'accomplit beaucoup de travail sans valeur que l'on voudrait ne pas voir. Nous nous réjouissons donc d'autant plus de l'institution de la commission d'enquête dont les membres sont disposés à consacrer leur temps et leurs connaissances pendant des mois à une tâche d'où ils ne retireront que la gratitude des générations à venir et les vœux de succès fervents de leurs contemporains.

*E. R. A.*

## BLACKWOOD'S BEVERAGES BOTTLING PLANT

Winnipeg, Manitoba

*Architects*

*Waisman-Ross & Associates*

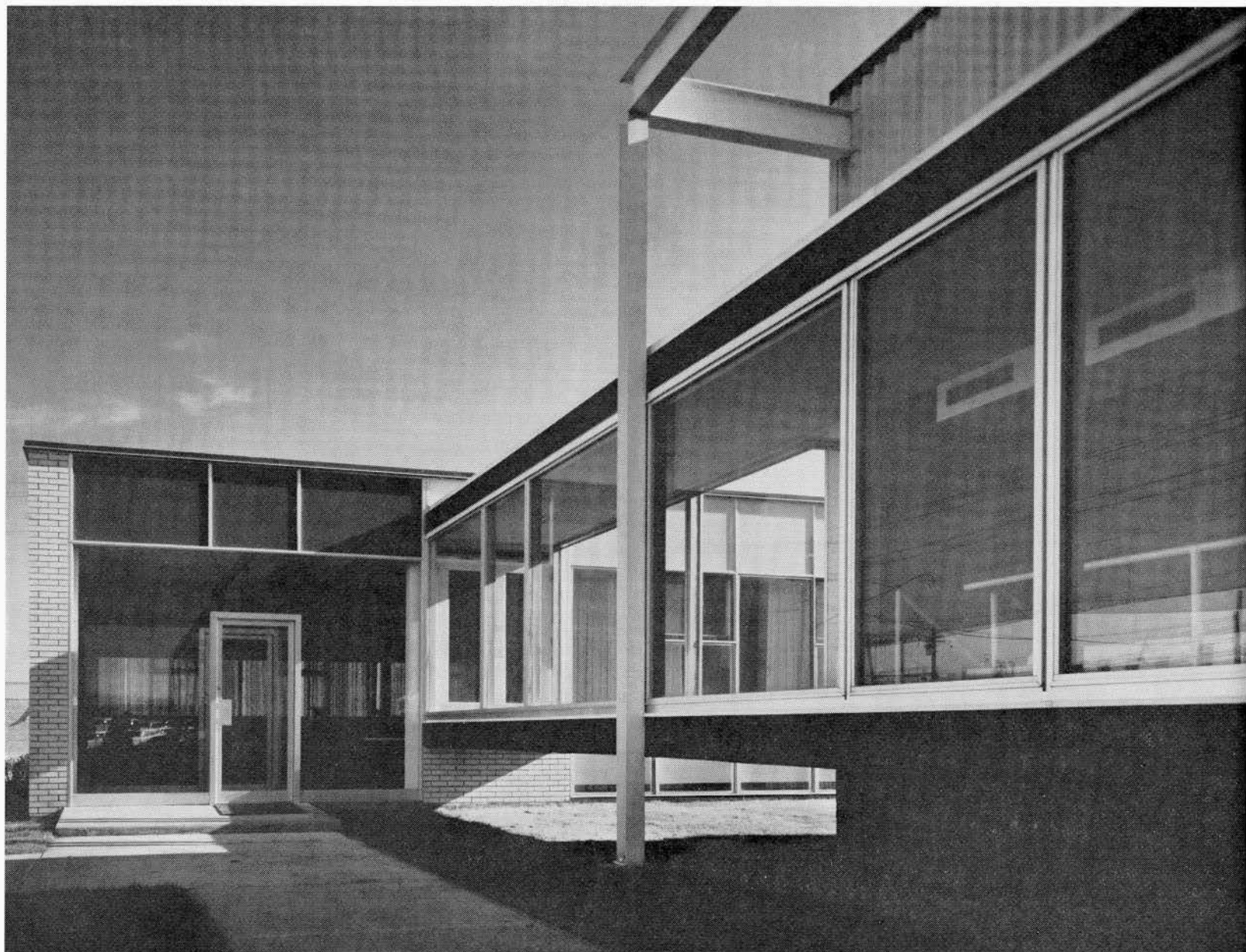
*Winnipeg*

*Construction:* structural steel frame, open web joists, with foundation on friction piles drilled to hardpan.

The plant walls are R.I. Galbestos panels in buff; interior metal partitions are Unistrut and the floors are quarry tile in acid alkali proof cement.

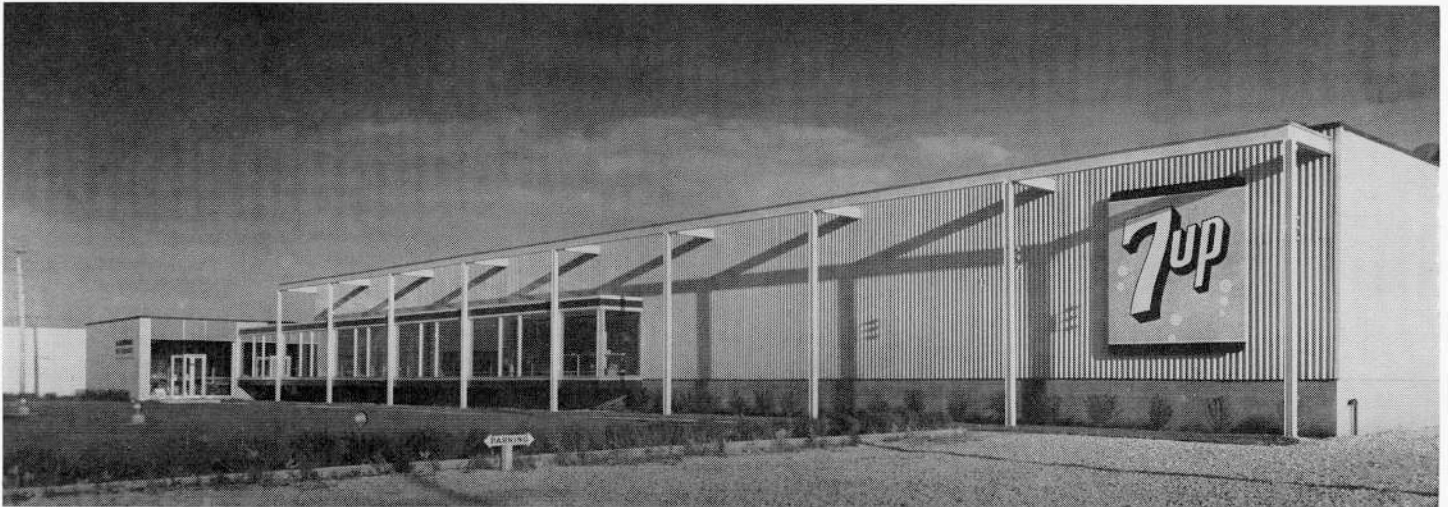
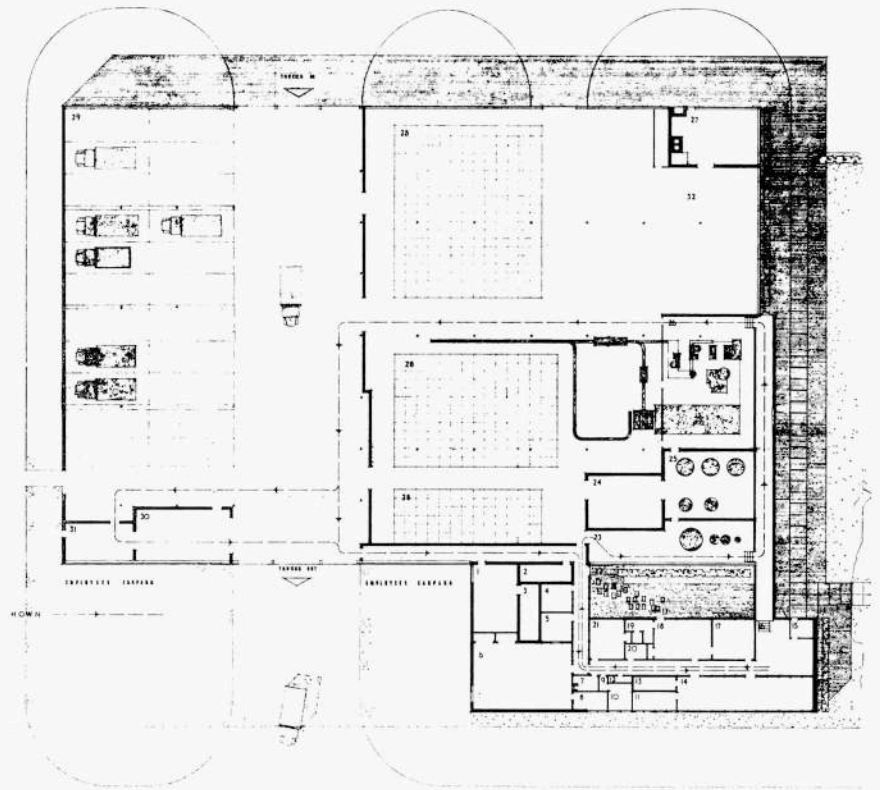
The office is masonry cavity walls and Williams and Williams curtain walls with Muroglas panels. Floors are carpeted in the executive offices and vinyl asbestos in the general office.

HENRY KALEN

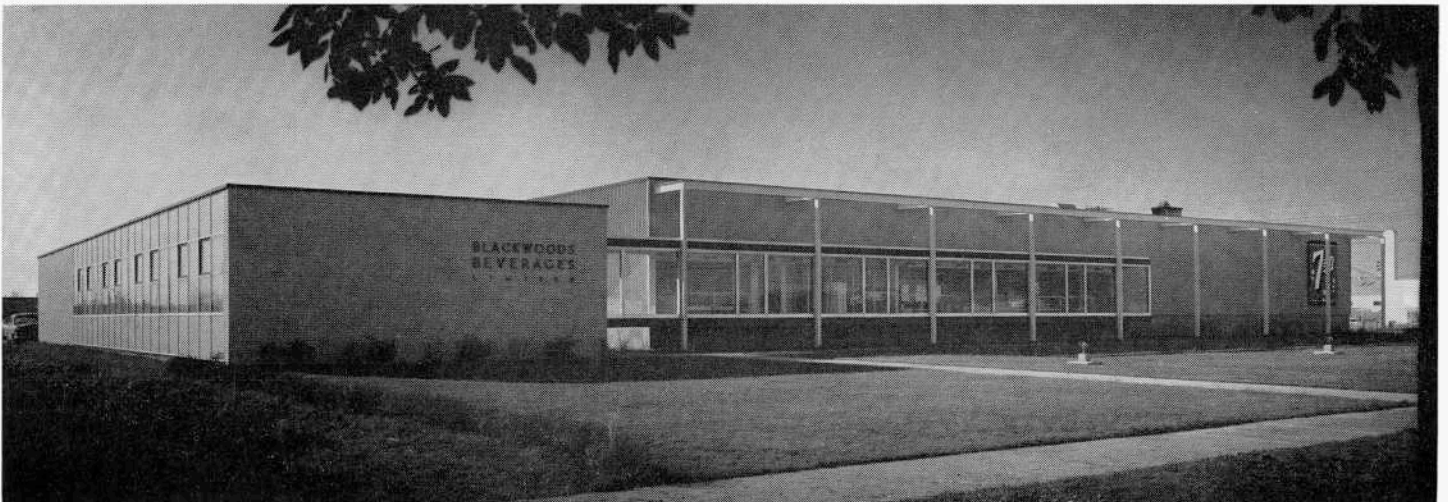


**KEY TO ROOM NUMBERS**

- 1. Men's Lockers
- 2. Women's Lockers
- 3. Men's Lavatory
- 4. Operations Manager
- 5. Supervisor
- 6. Sales Meetings
- 7. Cash In
- 8. Women's Lunch
- 9. Ante Space
- 10. Women's Washroom
- 11. Office Manager
- 12. Janitor
- 13. Office Vault
- 14. General Office
- 15. Vestibule
- 16. Waiting Area
- 17. Secretary-Treasurer
- 18. Manager
- 19. Manager's Washroom
- 20. Office Washroom
- 21. Sales Manager
- 22. Open Area
- 23. Water Conditioning
- 24. Sugar Store
- 25. Syrup Room
- 26. Bottling Room
- 27. Boiler Room
- 28. Stock and Stores
- 29. Truck Garage
- 30. Truck Paint Stall
- 31. Paint Shop
- 32. Future Bottling



HENRY KALEN



HENRY KALEN

Architects and Consulting Engineers  
 Moody, Moore & Partners, Winnipeg

General Contractors  
 Bird Construction Co. Ltd

# GRIFFIN STEEL FOUNDRIES LTD

Transcona, Manitoba

Area of plant	132,000 sq ft
Basement area	48,000 sq ft
Office area	3,600 sq ft

*Construction:* Steel frame and trusses.  
 Concrete flat slab floor system over basement.  
 Part of ground floor and all of basement floor on stabilized granular fill.

Walls above grade and sloping roofs embossed aluminum sandwich panel with a 1½" deep ribbed panel on outside and ½" corrugated on interior, with 1½" semi-rigid insulation between. Aluminum panels are site fabricated on Nelson studs welded to steel girts and purlins.

Flat roofs are built up asphalt and gravel.

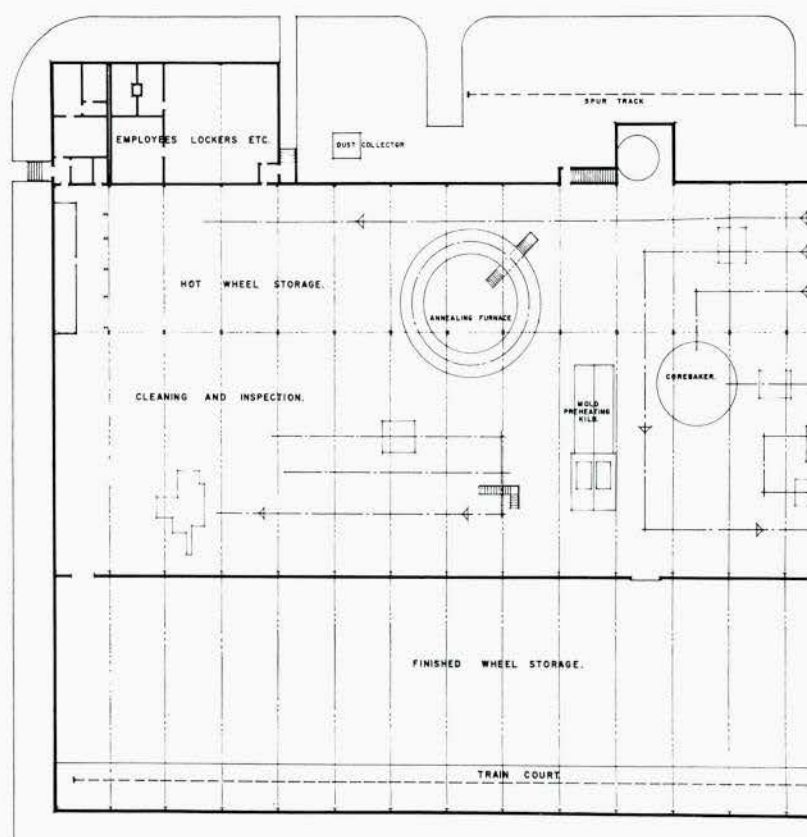
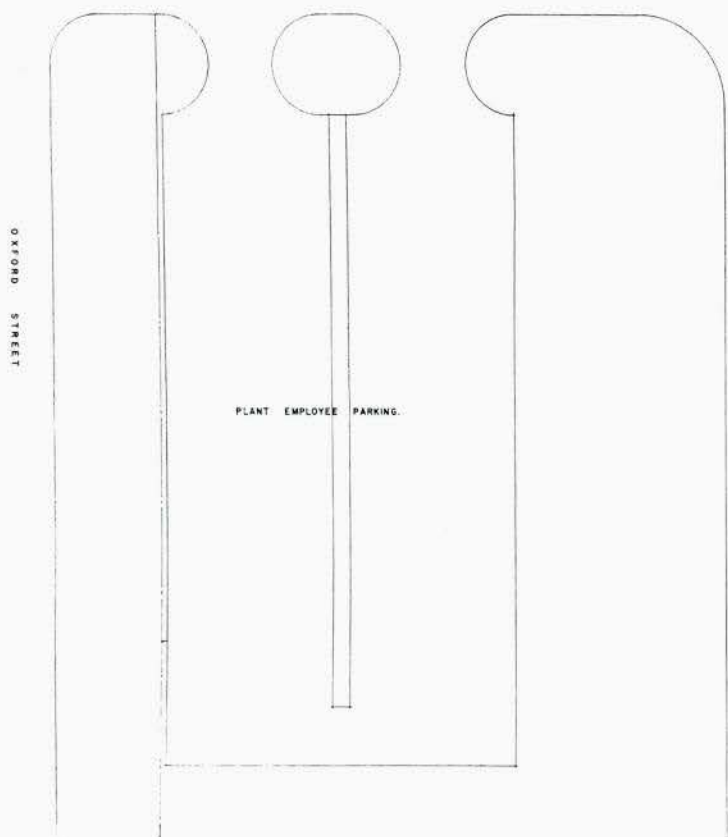
Foundations are cast-in-place concrete caissons bearing on hardpan at about 48' depth.

The plant is for the manufacture of steel wheels for railway cars. Griffin Steel Foundries Ltd were responsible for development and design of the machinery directly concerned with the manufacture of wheels.



HENRY KALEN

View of plant from office building





The concrete floor system was designed to suit a large variety of heavy machines, most of them requiring large pits of varying depth and shape. A basement in a foundry is unusual but soil conditions made a suspended floor necessary to ensure that moulding room conveyers remained level after installation.

In the furnace area equipment requirements necessitated a clear vertical height from floor to underside of trusses of 46' without any possibility of lateral support by means of a floor or struts. Immediately below the trusses provision was made for two 2-ton cranes on the same rails. Resistance to wind and lateral crane loads was taken care of by considering the wall piers as vertical reinforced concrete members cantilevered from heavy caissons. These piers extend 14' above the floor.

At this level the 30" wide flange columns were fixed with a hinged connection. Resistance to overturning is provided in the steel work by the column connections to upper and lower chords of the trusses. Simple two anchor bolt connections were used throughout at column bases with all resistance to overturning taken by the trusses through the chords to column connections. Truss depths are maintained to 6' at the ends to facilitate this method.

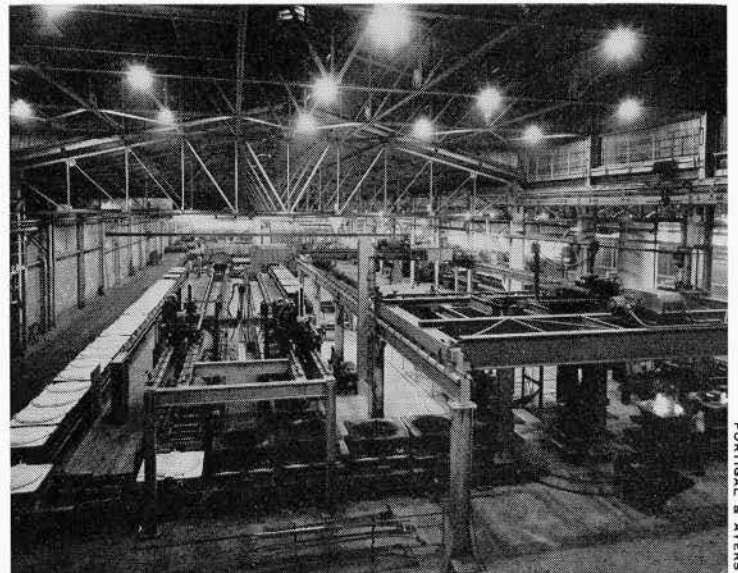
Ventilation is by large power roof exhausters, with make-up air admitted through manually controlled wall louvres.

The separate office building is a steel frame steel joist structure with concrete floor over crawl space. Exterior walls are masonry and glass. Interior partitions are exposed painted Haydite block.



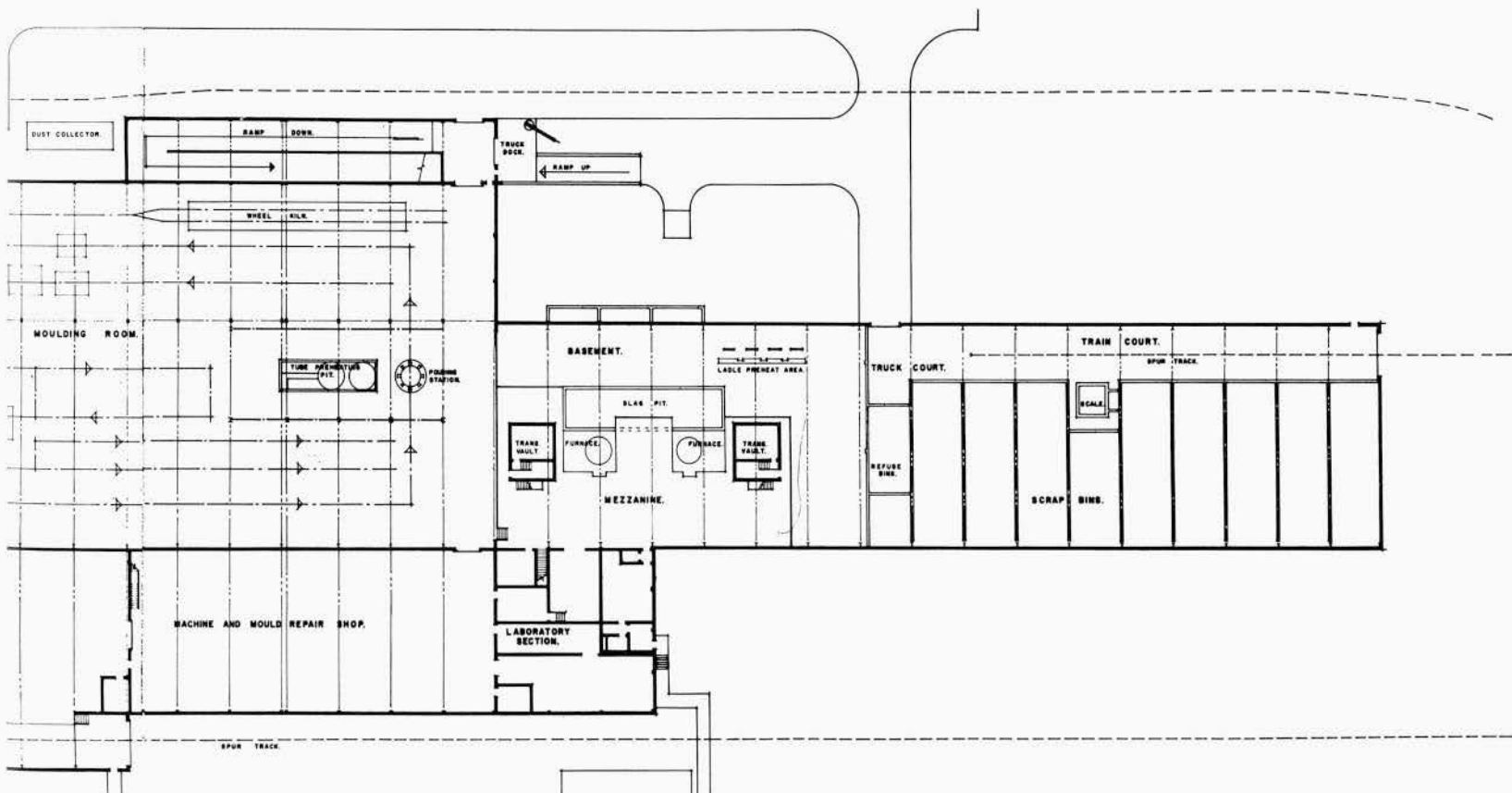
HENRY KALEN

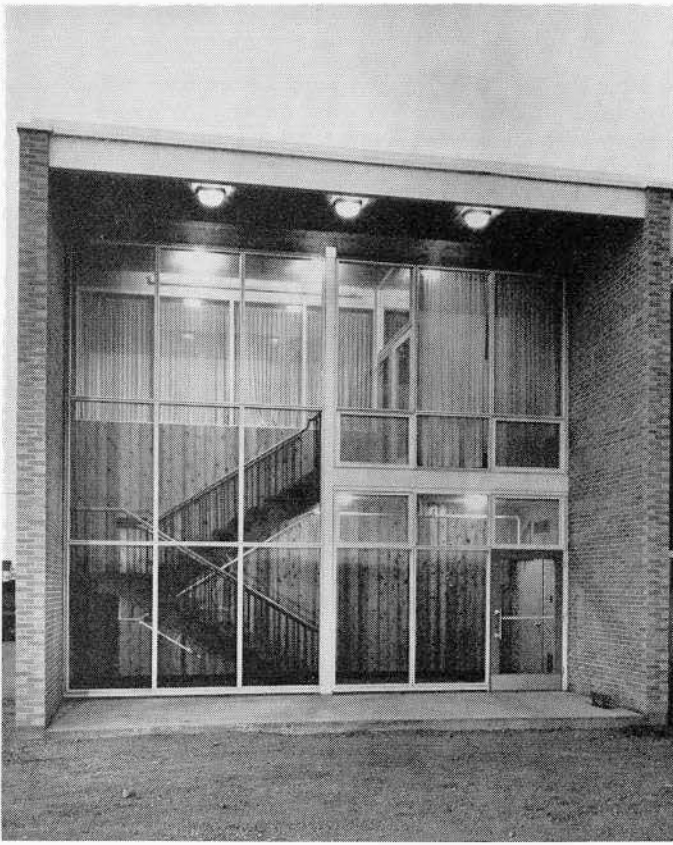
Office building from parking lot.



PORTIGAL & AYERS

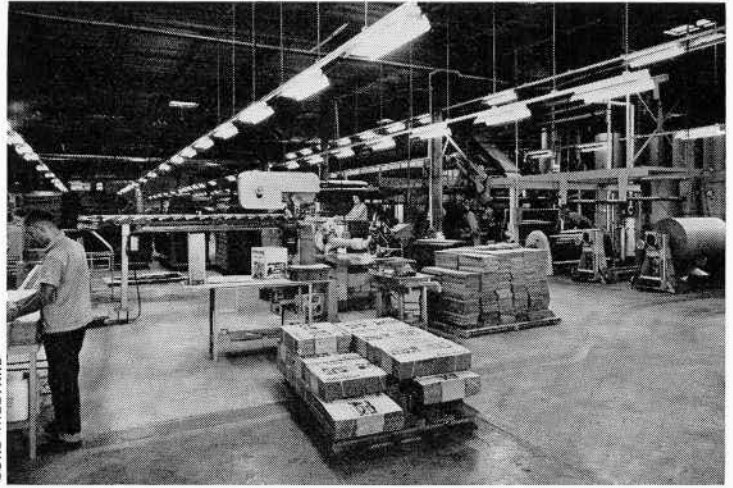
Moulding room. Pouring station right foreground; assembly of moulds left foreground.





## MARTIN PAPER PRODUCTS LTD

Regina, Saskatchewan

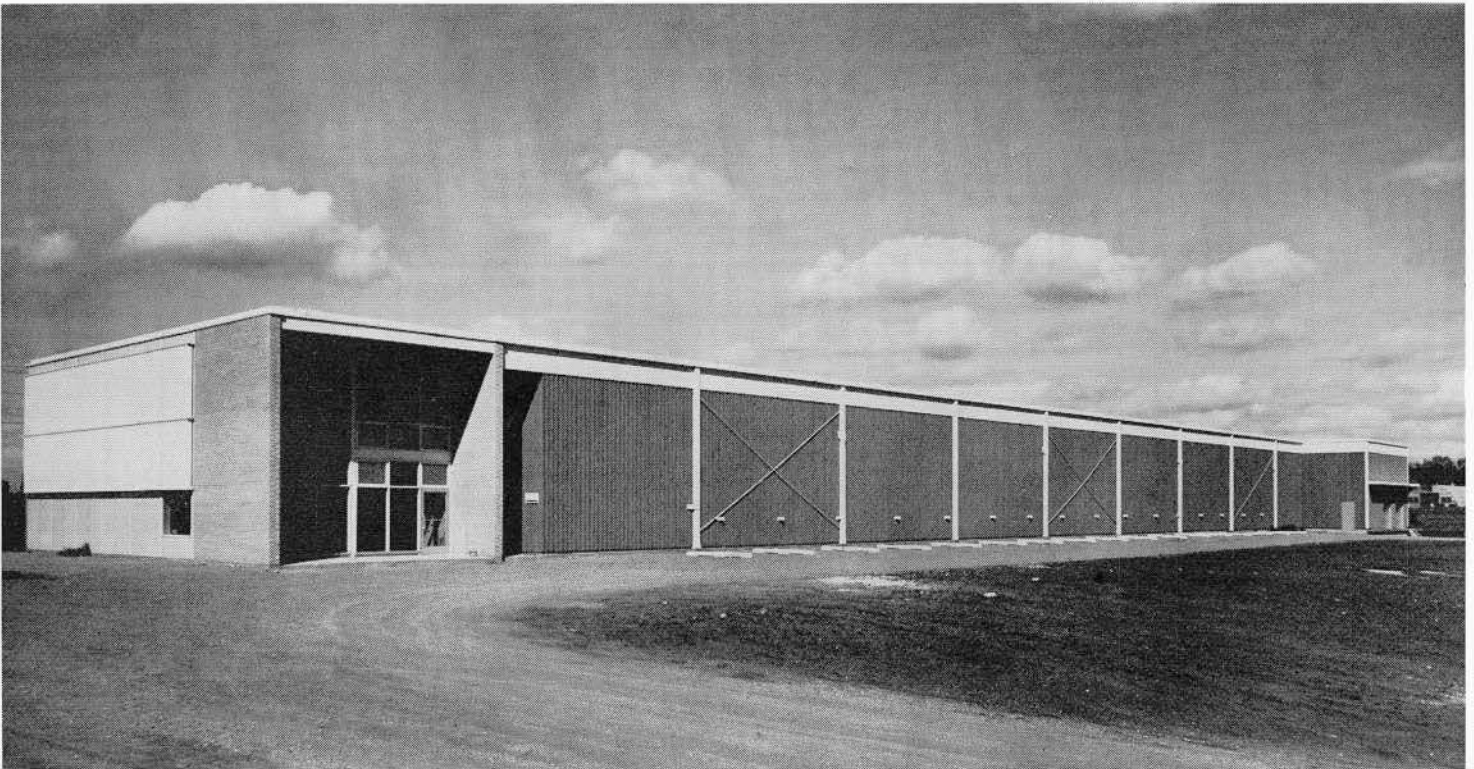


GORD HILLYARD

### *Architects*

*Waisman-Ross & Associates  
Winnipeg*

A plant for the manufacture of cardboard containers of all types. The manufacturing area is 48,000 sq ft with office space and staff facilities additional. Construction is of glue-laminated columns, beams and purlins, T & G wood roof deck, vertical red cedar board and batten, with Rez finish. The office section is masonry.



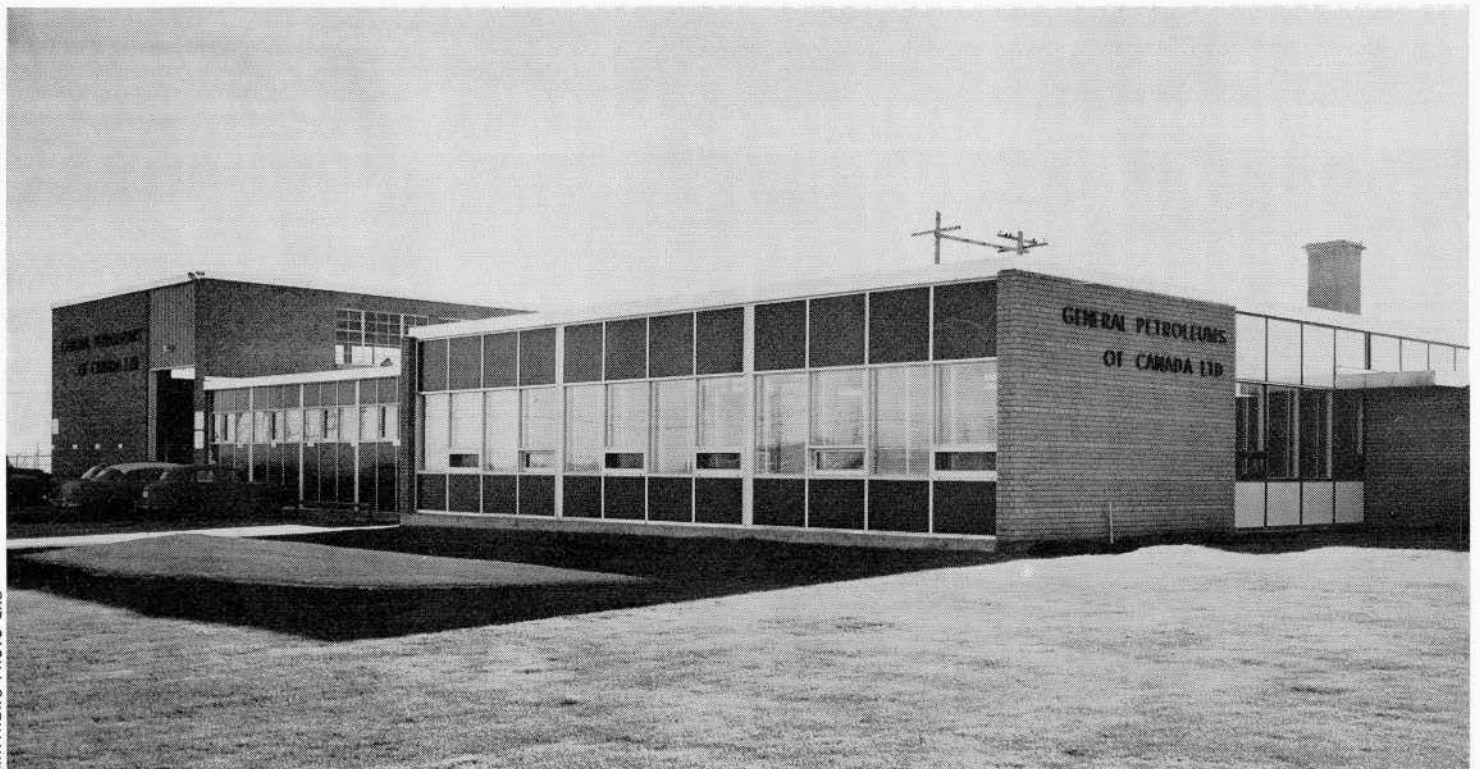
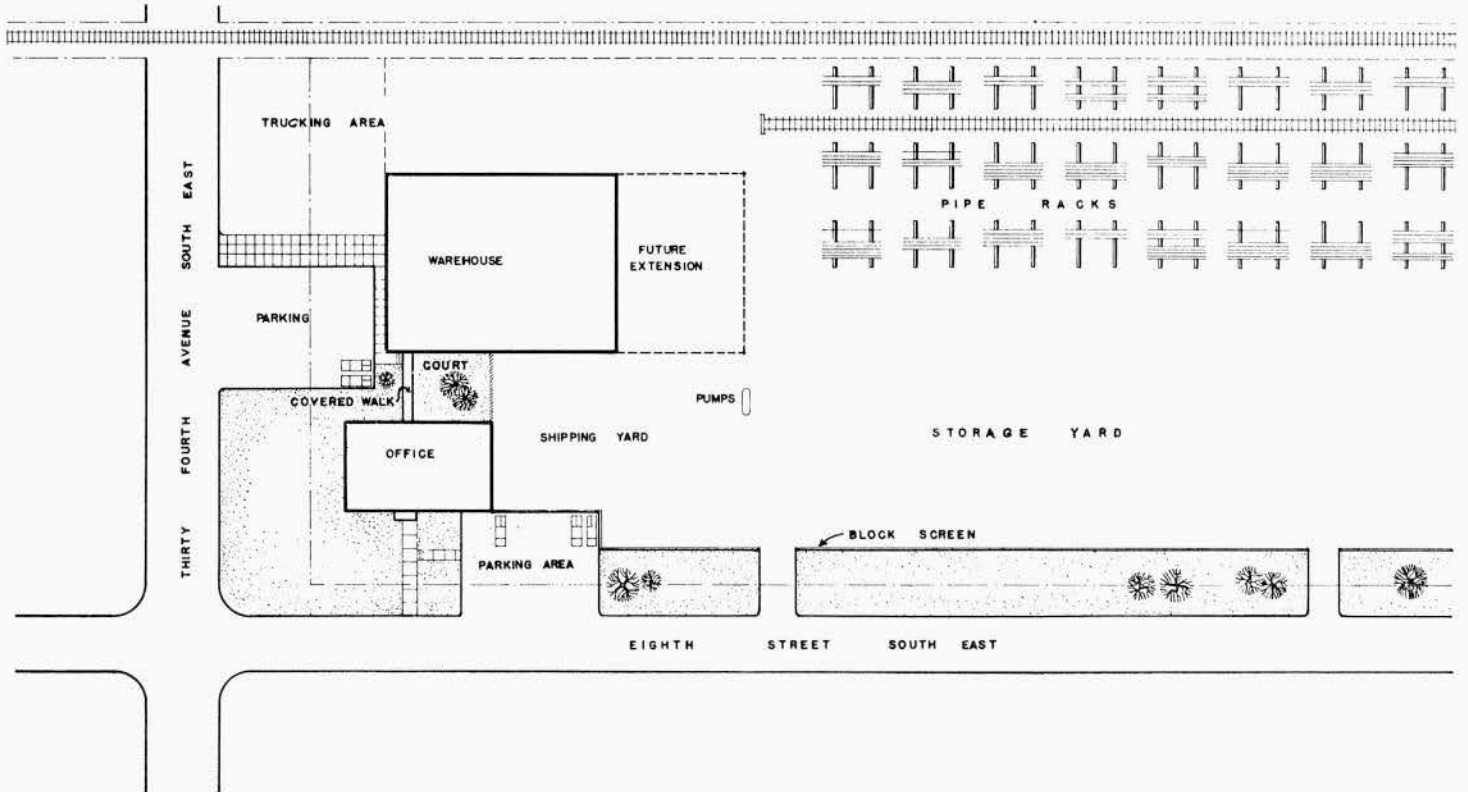
GORD HILLYARD

# GENERAL PETROLEUMS OF CANADA, LTD

Calgary, Alberta

Architects and Engineers  
J. Stevenson & Associates  
Calgary

The office wing, containing private and general offices and staff facilities in an area of 4,000 sq ft, is constructed of wood joists on masonry bearing walls. The exterior is faced with brick and porcelain enamel panels. The warehouse structure is wood deck and long span steel joists bearing on masonry walls and concrete columns with an area of 12,800 sq ft. It contains facilities for servicing and repairing all mechanical equipment used by the company in its oil and gas operations.



MATTHEWS PHOTO LAB

# EATON'S OF CANADA WAREHOUSE

Red Deer, Alberta

*Architect*

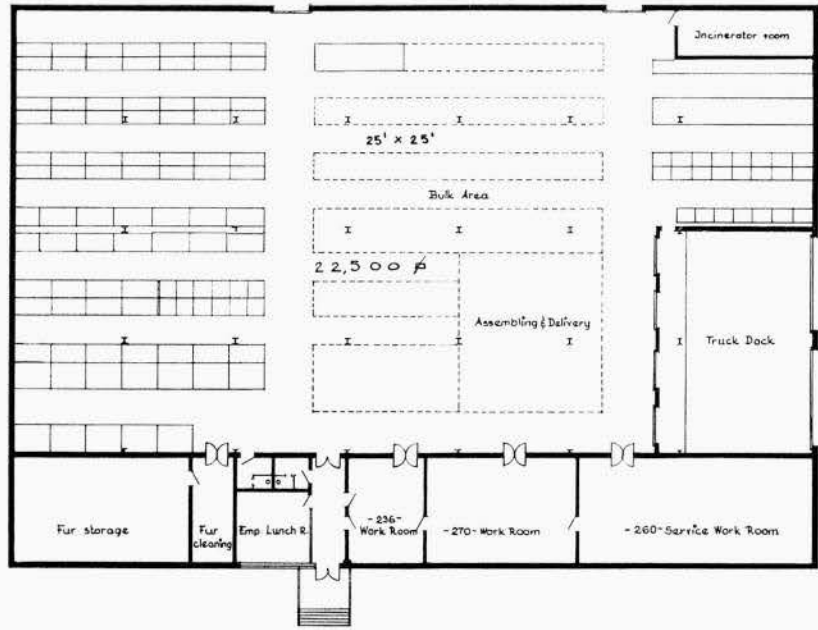
*E. L. Hankinson, Engineering and Design Dept.  
Head Office, The T. Eaton Co., Limited  
Toronto, Ontario*

*Associate Architects*

*Bissell and Holman  
Red Deer, Alberta*

*General Contractor*

*Burns and Dutton  
Edmonton and Calgary*



Simplicity and economy, with provision for future expansion, are the main elements in the design. Continuous skylights provide ample daylight in the warehouse area, making artificial illumination unnecessary during most of the year.

Size: 126' x 182'

Construction: concrete floors, structural steel frame, 2 x 6 T & G roof deck, open web steel joists, aluminum entrance, translucent fibreglass panels for glazing and continuous Marcolite skylights; gas fired unit heaters and Morse Bougler Kernerator incinerator, 200 lb per hour. Exterior is brown coloured concrete brick, treated with a silicone sealer. The building is fully sprinklered, and has fluorescent lighting throughout.



FOTO-ARTS STUDIO



FOTO-ARTS STUDIO

# COCA-COLA LTD

Kingston, Ontario

The building, approximately 27,000 sq ft, is a one storey bottling and distributing plant for Coca-Cola Ltd. Construction is exposed steel and glass with soft ivory coloured brick on the front elevation, and concrete block in the rear. The floor throughout is poured concrete to permit the use of fork-lift trucks, which handle all materials in the plant. Circular skylights provide daytime lighting in interior areas. The front elevation faces south and features a continuous 10' wide louvered cedar canopy. Like most Coca-Cola Ltd plants, the offices and bottling room facilities are all placed in the front elevation where the glass front emphasizes a contrasting interior colour scheme. Storage and distribution areas are at the rear. The general appearance is enhanced by a complete landscaping, supervised by the architects.

*Architects*  
*Mathers & Haldenby*  
*Toronto*

*General Contractor*  
*T. A. Andre & Sons*  
*Kingston*



WALLACE R. BERRY



WALLACE R. BERRY

# IMPERIAL TOBACCO SALES LIMITED

Toronto

*Architects*

*Weir-Cripps & Associates  
Toronto*

*General Contractor*

*E. S. Martin Construction Ltd  
Toronto*

*Landscape Architect*

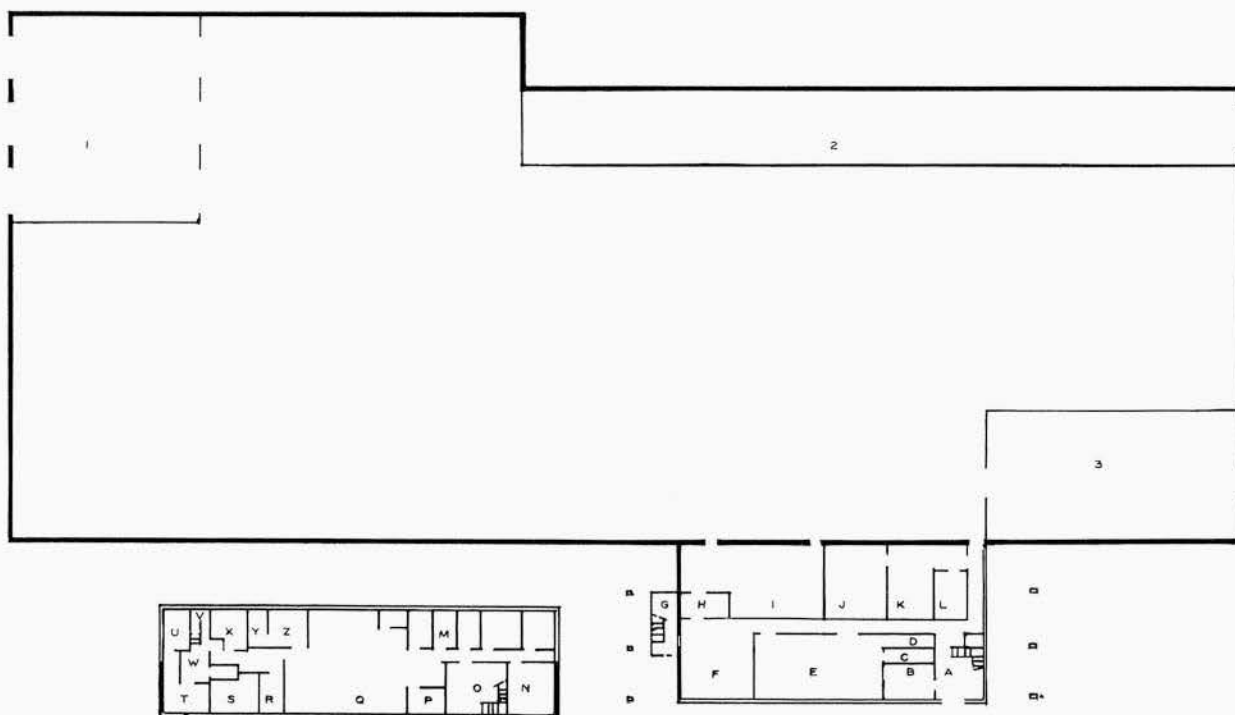
*Austin Floyd  
Toronto*

A warehouse and office building in Don Mills. The warehouse area of 68,836 sq ft serves chiefly for storage of finished tobacco products. A rail dock holds five freight cars and a truck dock serves four tractor trailers. Temperature and humidity are controlled at all times. To prevent condensation all exterior walls are of cavity construction and interior wall faces are covered with a sprayed vinyl vapour barrier. Ceiling is exposed steel deck, with all joints sealed. Floor is trap-rock surfaced for reduction of wear.

The office area is 8,918 sq ft on two floors. Exterior walls are chiefly curtain wall construction, with all vertical members aluminum anodized and horizontals anodized black. All masonry walls of this area are of glazed brick. White and the primary colours have been used. All interior walls are either plywood panelled or fabric covered. Office area is air-conditioned throughout. Cafeteria-lunchrooms are provided for warehouse and office staffs. Complete building is sprinklered.



M AND M

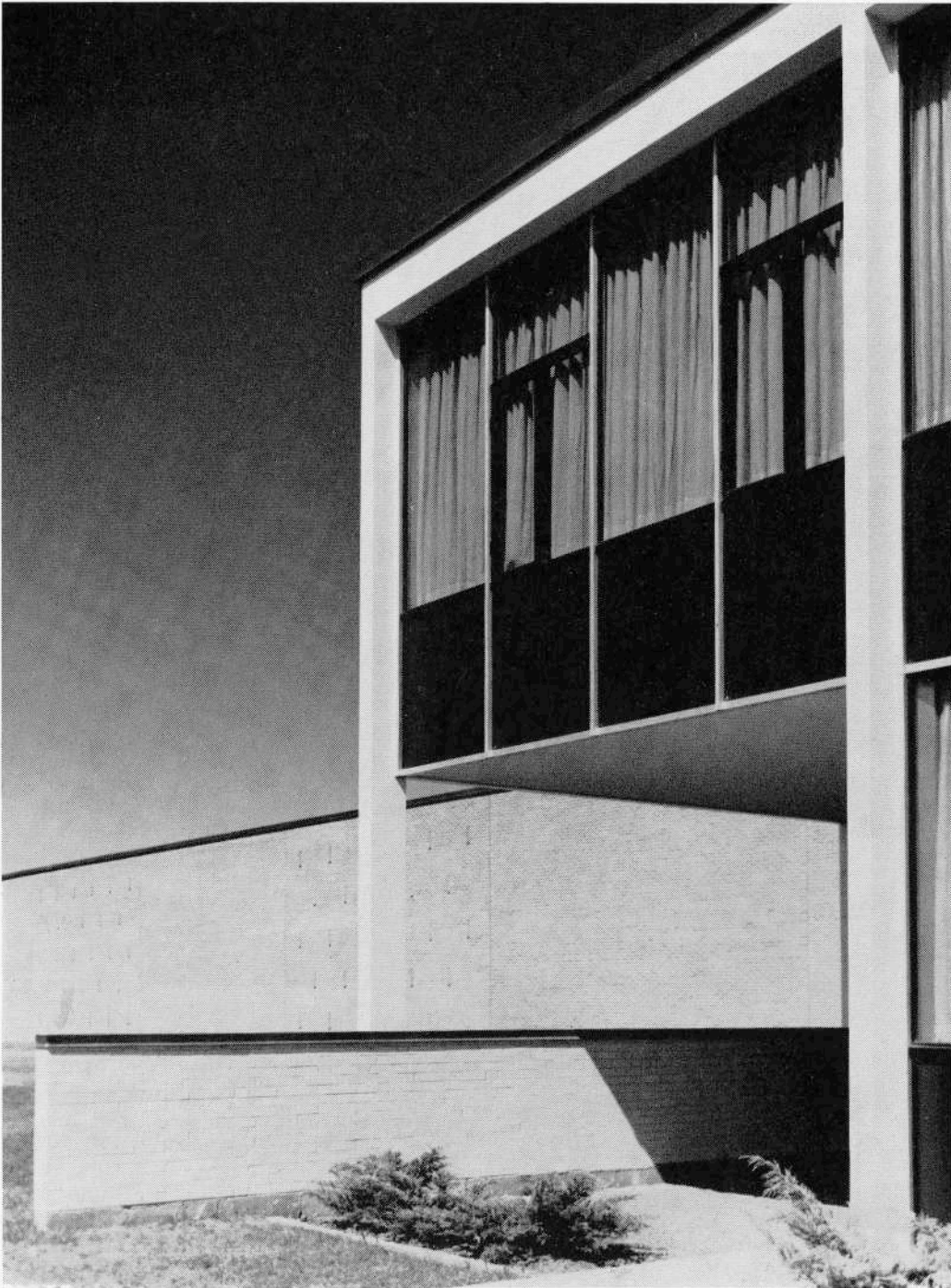


1. Loading dock
2. Railway dock
3. Advertising storage
- a. Entrance
- b. Sign space manager
- c. Coats
- d. Telephone room
- e. Meeting room
- f. Office lunch & lounge
- g. Stairway
- h. Kitchen
- i. Warehouse lunch room
- j. Boiler room
- k. Plant lockers
- l. Plant washroom
- m. 6 offices
- n. Branch manager
- o. Waiting & stairway
- p. Office manager
- q. General office
- r. Records & stationery
- s. Manager
- t. General office
- u. Zone manager
- v. Stairway
- w. Public space
- x. Men's washroom
- y. Women's washroom
- z. Lounge

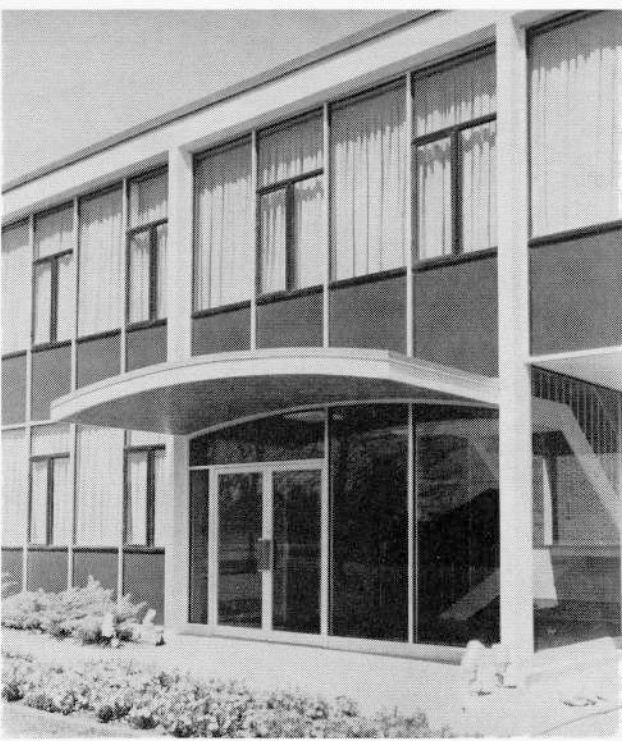
*Detail of secondary entrance to offices*



M AND M



M AND M



Detail of main office entrance

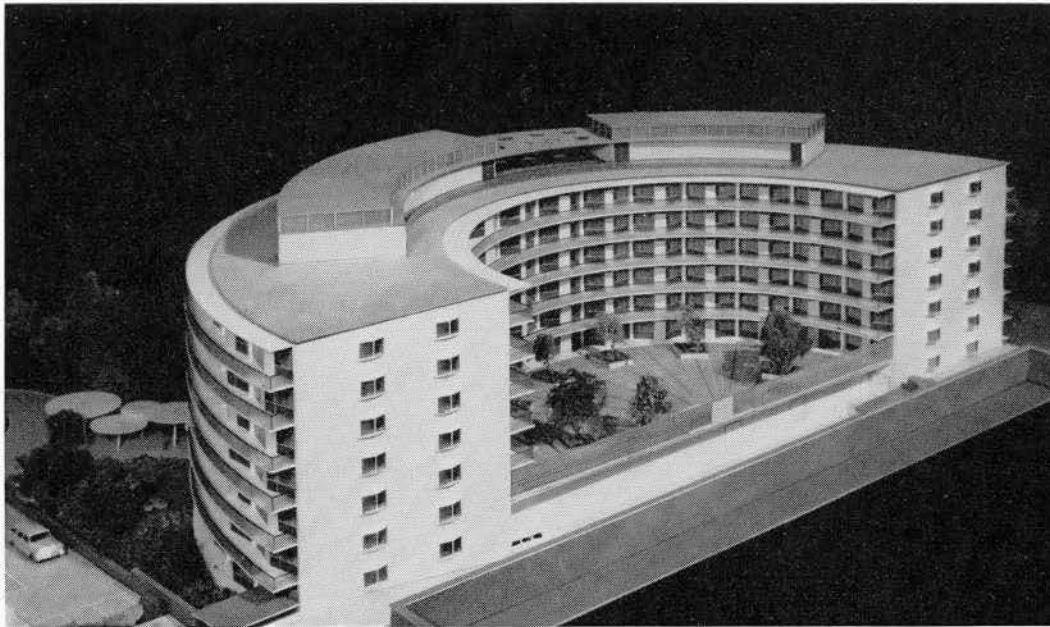


General meeting room



A section of warehouse and rail dock





## PROJECT

### RIVERDALE HOSPITAL

Toronto

A 600 bed convalescent hospital for the Municipality of Metropolitan Toronto.

*Architects*

*Chapman & Hurst  
Toronto*



Hugh Newton

## BIRMINGHAM'S "FLATTED FACTORIES"

BIRMINGHAM, THE SMOKY GIANT of England's industrial Midlands, had the questionable distinction during the recent war of being one of Britain's most heavily bombed cities – No 5 on the Luftwaffe's hit parade. Only London (which suffered more bombs than all other British cities together), Bristol, Liverpool and Coventry, Birmingham's near neighbour, were more heavily hit. From the time the Blitz commenced in July, 1940, to its sputtering out in April, 1942, Birmingham received 900 tons of enemy bombs (and was, incidentally, the last British city to feel a concentrated air attack before the remnants of the German air fleets were diverted to the Eastern front).

The Blitz smashed or damaged 100,000 Birmingham dwellings and levelled or made unfit for use hundreds of small and large factory, office and public buildings. The cathedral, the town hall, the art gallery and the Midland Institute were heavily hit.

In this, of course, Birmingham was typical of dozens of British cities outside the London area. And like Birmingham the bombed cities have undergone monumental rebuilding programmes. Today, wandering through the country with car and camera, one comes across, in one city after another, ambitious and often exciting examples of reconstruction, with modern office buildings, shopping centres, plazas, town halls, apartments, row houses and the inevitable parks and gardens, replacing the gutted rubble of the 'forties. Portsmouth, Bristol, Coventry, Winchester and Gloucester are typical of the cities where the town centres have been, or are still being, rebuilt. While deploring the destruction of mediaeval treasures and historic serenity, the visitor is struck at least with the improvement in traffic movement, in vista and in sanitary facilities.

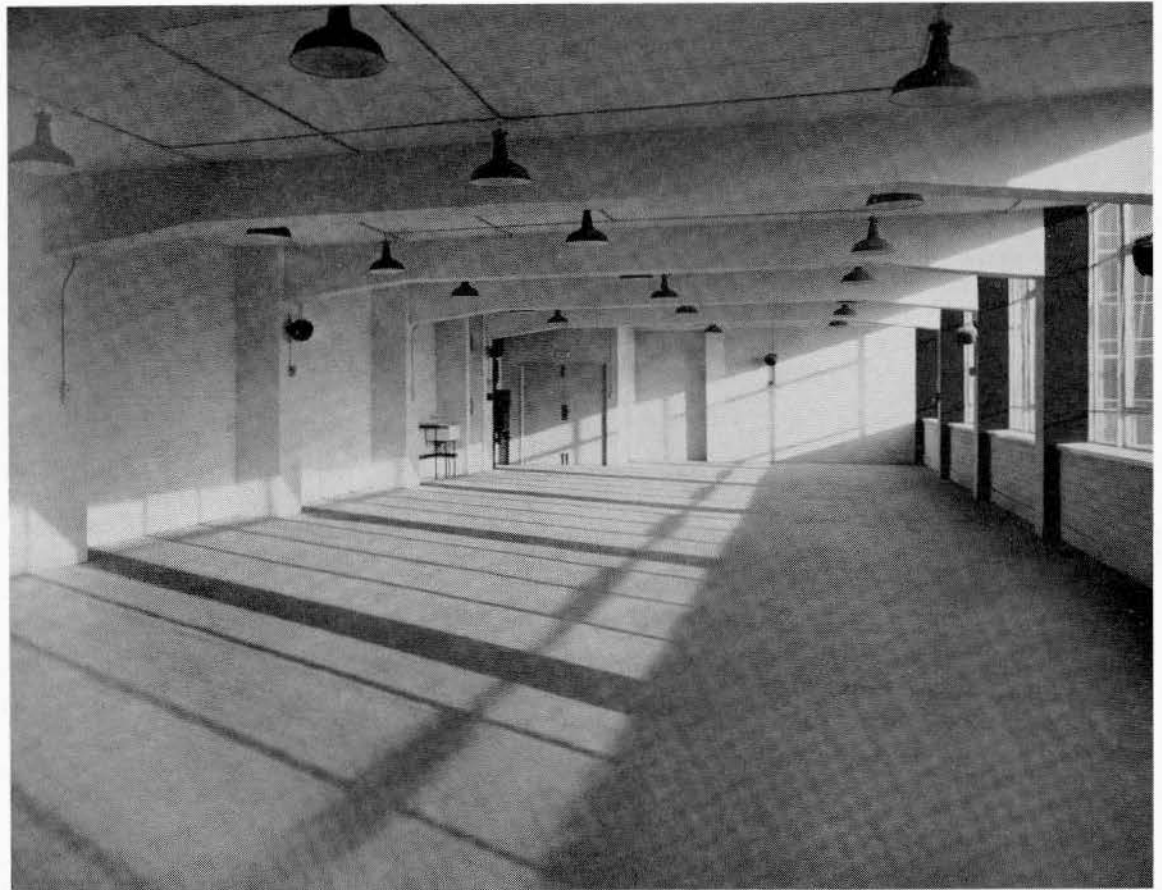
Birmingham's tradition for reconstruction is well implanted. As long ago as 1875 the City Corporation energetically em-



COURTESY THE ARCHITECTS' JOURNAL

LEFT: view of Netchell House, the first of Birmingham's new "flatted factories" from the northwest, showing an ancillary entrance at the end of Block B. The building, put up by the City of Birmingham as a pilot project, was the first of its kind in Britain. It provides space for 46 small industries over its eight floors, at nominal rental.

RIGHT: a typical workspace on one of the upper floors of Netchell House. The side and end walls and ceiling are finished in light pastel shades, and the structural work in light grey. The outer face and sides of the perimeter columns are painted black. Beams are haunched 9 inches at both ends for greater headroom in the centre. Floors are plain, trowel-finished granolithic.



COURTESY THE ARCHITECTS' JOURNAL

barked on a slum clearance scheme. Over a six-year period virtually every dwelling in the centre of the city was torn down, and wide thoroughfares, such as Corporation Street, New Street and Colmore Row, pushed through. In 1918, the city put a public housing policy into effect. Of the 105,000 houses built between the two wars, more than half that number were erected by the Corporation. Even the exigencies of war did not completely stop Birmingham's local improvement programme and as late as 1943 the city was stubbornly continuing with a street widening programme commenced during the nineteen-thirties.

As the cradle of the Industrial Revolution, Birmingham has some of the oldest factory buildings in the realm and if one could view these matters with total objectivity, it was no great pity that some of these hoary piles were reduced by bombs. But their destruction also served to sharpen the need for new and expanded industrial accommodation.

Birmingham is a city of small industry as well as of great, of precise as well as of general. Besides making chemicals, railway cars, automobiles, guns and transformers, Birmingham also makes buttons, pen nibs, phonograph parts, jewellery and ladies' hats. There are hundreds of firms with from ten to thirty or forty employees, depending on the city for their immediate market and for their labour force, and which can not afford to, or do not want to, own factory property. To hold these industries within its boundaries, the obvious course for Birmingham was to rebuild on blitzed areas. The price of such land was high, but one could go up in the air, applying the same economics as to an office building, instead of spreading out in a luxurious sprawl as in the countryside.

The Corporation at first tried to interest private investors in development of rental factory property, but found no takers. It decided to set an example with a pilot structure of its own. The building, as visualized, would provide individual space for 40 to 50 industrial tenants, giving "maximum accommodation at the minimum outlay and provide a reasonable standard

of amenity." The visualization at first was not too clear. The design, style, structural materials, size and relationship of the units, the circulation for tenants, visitors and materials and the siting were unspecified. Furthermore, the Corporation had undertaken no research to determine what type of accommodation the prospective tenants would require.

This was the problem handed to the architects, Philip Skelcher, FRIBA, and Partners, of nearby Solihull. (Mr Skelcher, twice bombed out during the war and weary of searching through rubble for his pencils and drawings, had moved during the war from Birmingham but still does most of his work in the large city.)

The solution, Mr Skelcher thought, perhaps lay in a new type of structure being tried on the Continent. Rotterdam, the centre of which had been devastated in the infamous "error raid" in 1940, had been building "flatted factories," high-rise units in the main part of town, specifically designed to be let out in parcels to small manufacturers. The architect made several trips to Rotterdam to examine these projects, in order to arrive at a design which met the Corporation's rather vague but nevertheless economically containing conditions.

The site selected was of approximately 51,000 square feet, of oblique shape and containing the ruined basements of some 70 bombed-out, formerly sub-standard houses. The location, on Dartmouth Street, was almost in the centre of the city and surrounded by rather old, two-storey row housing and low industrial buildings. It was not the most cheerful locale.

Discussions between client and architect commenced early in 1954 and the drawings started in October of that year. Construction commenced in August, 1955, but the building was not completed until December, 1957, some seven months behind the original schedule. The delays are explained by difficulties in securing reinforcing rod for the concrete, extra work in clearing and filling the basements of the bombed houses, slowness of some sub-contractors and late changes by the client.

The completed structure is of two eight-storey blocks in

reinforced concrete and curtain wall, set at right angles to each other, in the form of a slightly left-heavy T, with a central circulation core at the intersection. The cross member of the T, Block A, is 222' x 59' and contains 32 workspaces, four to each floor, and the main stairway and passenger elevator (one only) at the intersecting point. The descending member, Block B, is 141' x 59', and contains 14 workspaces, two on each of the upper seven floors, and the freight elevators (two) served by ground floor loading bays. The main floor of this section contains meter rooms, services and storage space. The two blocks are joined by a linkway connecting seven of the eight floors, with a ground floor open passage, with 12-foot headroom, for vehicles. Additional stairways, for both general and emergency use, are provided at the three extremities of the building.

The 46 workspaces in all range in size from 1,500 to 3,800 square feet, giving a total area of 117,124 square feet of rentable space. Each unit is provided with its own supply of water, gas, electricity and telephones. Heating is by fan blower-type electric heaters, thermostatically controlled by each tenant. Industrial sinks are in each workspace, but hot water is provided by the building to the general lavatories only. Power is distributed to but not inside the workspaces, as it was assumed that each tenant would have different requirements. Holes have been left through the beams at the ceiling level to facilitate the installation of external conduit. Lighting is provided by the owner, to supply 10 lumens per square foot at three feet above floor level.

The central core wall common to all workspace is smooth-faced brick, finished with emulsion paint. This, in fact, together with smooth faced concrete, also painted, comprises the wall material throughout the building, except at the entrance and passenger elevator, where bright ceramic tile is used for a cheery relief.

Pastel colours — very light blues, pinks, yellows and browns — are used on the walls throughout the workspaces, with the structural work in light grey. The outer face and sides of the perimeter columns are painted black so as not to read externally. Floors in workspaces and corridors are two-inch plain concrete with trowelled finish.

The type of tenant is limited to a reasonably quiet operation, with noisy and odour-producing processes not permitted, although certain types of work, such as spraying, may be installed on the top two floors with provision for extract material. For economy purposes no sound-absorbent surfaces are provided in the workspaces. Machinery must be held in position by adhesives, as no fixings are allowed to penetrate the structural elements.

The emphasis on economy-utility by the owner limited the architect in his flexibility of design and if there should be a demand for further partitioning in the workspaces, this would require additional corridors, which would reduce the rentable space proportionately.

Because of the shortage of structural steel, reinforced concrete was used for frame, floors, roofs and stairs. The sides are clad with galvanized steel curtain walling and the end walls with precast exposed aggregate concrete blocks and brick. The generous use of colour has created an airy, cheerful and thoroughly eye-catching piece of decoration to the otherwise drab surroundings of the old city. Below the window sills, obscured, non-wired glass is used, with the colour applied on the inner face. On the two sides of the wing forming the lower part of the T these are a bright yellow, with the steel window frames enamelled white; and on Block A, which is the crossing of the T, they are maroon with yellow frames, achieving a rather spectacular elevation. Seventy per cent of the external

clad area is glass. The ratio of window areas to floor area is 0.241 to 1.

The precast concrete blocks on the end walls are 2' 6" x 3' 7" x 3", with centre dishing, each block held at the corners by copper ties. The blocks are laid on a checkerboard fashion, grey and buff. The edge panels are specials with a 90-degree turn to meet the curtain walling on the centre line of the last column. The block covers 22 per cent of the area. The remaining 8 per cent, including the linkway, penthouses and a plinth up to the sill for the lower ground floor, are of 2½-inch rough-textured, multi-coloured brick.

External doors to all sections are in galvanized pressed steel sections, finished with three coats of alkyd paint. Internal doors at the entrances to workspaces are 6' 6" x 3' 2", in pairs or single, solid core slab type, finished with three coats of alkyd paints. Plain but high quality door hardware was used throughout.

To save the postman walking to his calls in the building, a central letter box, with separate individually locking boxes was located in the central hallway of the main block.

Car parking is provided the tenants on a paved lot on the building site.

As a lighthearted touch, the architect provided flowers outside each window to the staircase over the entrance to Block B. These are artificial of the most enduring kind, being cut from sheet steel and painted bright blues, yellows and reds, with green leaves, in teak window boxes. The effect on a cold, blustery Birmingham winter day, according to one critic, "was most surprising."

Although there was virtually no previous experience in this type of structure, the cost of the completed project, £358,161, or about £2 4s per square foot, was not considered undue. While it is not precisely representative to translate sterling into dollars at the current \$2.80 rate, due to the higher value of the pound on its home ground, this does work out to about \$1,122,840 Canadian, or \$6.16 per square foot, which would not be an unattractive price on this side of the water.

Certainly the tenant gets an eminently reasonable deal, with an average rental of 5s 6d, (or about 80 cents Canadian) a square foot. The unknown factor to the tenant in costing will be heating, which is expected to be slightly higher than in a centrally-heated structure.

The Dartmouth Street flatted factory described in this article was opened in November, 1957, and named Nechells House. It was followed by a similar building in the Holloway Head area of Birmingham. The latter, opened in June, 1958, was named Lee Bank House. By mid-1959 Nechells House was either 30% let or in negotiation; and Lee Bank House 80% let or in negotiation.

Asked to comment on the success of the flatted factory project, the architects, Philip Skelcher and Partners of Solihull, wrote in August, 1959, "Lee Bank House is much nearer the centre of Birmingham than the other one and it is possible that because of this the accommodation has been more quickly taken up. It is, however, important to bear in mind that both of these buildings were constructed to form a reserve of accommodation which could be offered to manufacturers affected by the City's replanning scheme, and at this date there is space available for people who may not yet have been displaced.

"The factories were not built as an investment, though, of course, when fully occupied, the rents will show a good return on the capital.

"I have interviewed a number of the tenants in both factories and without exception they have all said how pleased they are and how happy the workers are in these buildings." ❧

## THE INSTITUTE'S COMMITTEE OF INQUIRY ON THE RESIDENTIAL ENVIRONMENT

*Left to right: John C. Parkin, Toronto; Alan H. Armstrong, Ottawa, Executive Secretary; Peter Dobush, Montreal, Chairman; and C. E. Pratt, Vancouver.*



READERS OF THE *Journal* should be the first to know of the progress being made on the resolution of the 1959 Annual Assembly to inquire into the design of the residential environment. Three well-known members have offered their services, a secretary has been appointed, funds have been made available under the National Housing Act, the Committee has met for a solid week, a tour across the country has been planned, press and radio (and television) announcements of the Committee's purposes and intentions have been made. This inquiry promises to be the vehicle through which Canadians will have an unsurpassed opportunity to say how the next million dwellings can combine in better communities than the last million have done. The success of the Institute's venture now depends on how many Canadians – be they builders, realtors, municipal officials, students of society, and they must include many architects – will come before the Committee as it moves through Canada. It wants to hear in specific terms about experience with housing development en masse, and how circumstances can be changed for the sake of better-designed results whenever residential areas are to be built or rebuilt.

For some years the Institute and Central Mortgage and Housing Corporation have had a joint committee on matters of mutual concern. The RAIC members of the joint committee last spring recommended that three senior members should act as a committee of inquiry into the design of the residential environment as an obligation of the profession to the nation. The 1959 Assembly adopted this idea by an overwhelming vote and the Institute was able to secure the services of Messrs Peter Dobush, John C. Parkin and C. E. (Ned) Pratt for the inquiry.

The members of this Committee of Inquiry need no account of their standing in the profession. It is of interest,

however, that Peter Dobush of Montreal, its Chairman, had a house design published by the Government in 1935, the first year of national housing legislation; he served for some years as architect-in-charge of the construction of Deep River, the new town built on the Ottawa River for Atomic Energy of Canada workers. John C. Parkin, also graduated by the University of Manitoba, and best known as designer of industrial, institutional and commercial projects, is the author of a group of flats for teachers in the uranium miners' town of Elliot Lake on the north shore of Lake Huron. Ned Pratt is normally more excitable about his next building than his last; the winner of the Institute's Gold Medal in 1939, not many know that his firm was among the first called in to design housing in Vancouver for families of low income under the provisions of the 1944 Housing Act. CMHC has made available for the term of the inquiry the services of Alan Armstrong as secretary to the Committee; a graduate of Toronto in the year ahead of Pratt, he was for six years Secretary of the Community Planning Association of Canada, has served in various professional posts in CMHC and is a Councillor of the Town Planning Institute of Canada. This group is to be joined by a representative of the provincial association of architects for its passage through each province.

The Committee has already sweltered through five days of briefing and planning in Ottawa's late August heat. They talked with senior members of the profession, officers of CMHC and spokesmen for the construction industry, mortgage lenders, the Canadian Housing Design Council and the press. Details of staff, records, itineraries and procedures are coming into focus. It is clear that there must be firm determination to pursue those threads that affect architectural quality when housing is built in bulk, necessarily overlooking other phases of this complex subject.

As one reporter remarked at the Committee's first press conference, "whatever the merits of individual houses or flats, when they are put together weird and wonderful things happen". The Committee agreed that its goal is to find out how these combined results can be made less weird, more wonderful.

The Committee wants to see as much as possible of the residential development described to it. For this reason, it has decided to visit the Prairies before winter sets in; then will follow visits to Ontario, Quebec and the Atlantic provinces. Early in the new year the inquiry will meet in British Columbia, to be followed by a week for national and local organizations in Ottawa. This itinerary involves nearly ten weeks of travelling, beginning in Edmonton on October 20 and ending in Ottawa about February 20. Then the mountain of evidence must be sifted in further weeks of work, to yield conclusions reflecting not only the convictions of three travelling architects, but also the blended experience of all engaged in the enterprise of fashioning a new metropolitan Canada in keeping with our natural advantages.

On this subject, the Committee may learn more with its eyes than with its ears, so it is not intended to keep verbatim records of oral evidence. Stenographic and tape-recording aids may be used for short statements the Committee wants to quote, and for brief synopses of oral evidence. Equally important in making specific design arguments will be photographs and drawings. To employ the time spent in meetings to fullest advantage, the Committee must have most of the main points of view from each place provided by mail in advance (see schedule at end). This means much reading on trains; but it also should mean that a tight schedule of appointments at each stop can be kept, and the actual hearings can be brief and informal, yet purposeful. Any point of written or oral evidence offered in confidence will be respected as such, in the discretion of those who offer it.

The Committee is using the Executive Office of the Institute as its mailing address. The staff has already sent out calls for testimony to dozens of professional and trade periodicals, and to large numbers of individuals and organizations known to have interest and experience in residential development. This does not mean that evidence offered by others will get less attention; the number of invitations could have been doubled had time allowed.

Any person with pertinent knowledge and ideas to volunteer should mail a postcard to the Secretary at the above address, indicating that a comment, statement, or brief for the Committee will follow, and from whom. The staff will then provide details of the time and place of the hearing nearest the correspondent, and the deadline for filing an advance outline of evidence. Priority in appearances will be given to those who provide the Committee by the stated deadline with 8 copies on letter-size paper of their main points or arguments and single copies of their exhibits. These may have to be retained by the Com-

mittee until it has readied its report — which it intends to do in time for the 1960 Assembly in Winnipeg.

It cannot be repeated too forcefully that the members of the Committee of Inquiry do not presume now to know what that report may contain; if they did, no inquiry would be necessary. These three volunteers are ready to give their time and wits to examination of all the material presented to them. The validity of the findings must in the end depend upon the care and completeness with which the facts and circumstances of Canadian mid-twentieth century residential development are brought before the Committee. The success of this enterprise will now be determined by the fullness and authority of the information offered in these coming weeks by Canadians of all sorts and conditions, not least by architects and their housing clients.

It is not the presumption of this inquiry that even most urban residential development of recent years is markedly defective. Rather is this effort based in the belief that Canada is certain to add living districts to her cities on a scale no people had experienced a few generations ago. The architectural profession believes that a national process involving design skills is always capable of improvement. In the short life of this Committee, it has already learned that many others share that belief about the physical environment. It is an official national belief, for the National Housing Act is headed "an Act for the improvement of housing and living conditions". To members of a profession enjoying a Royal Charter and provincially delegated powers, no more need be said.

The schedule of hearings of the Committee of Inquiry will be adjusted to the volume of presentations in the various centres it visits. These must of necessity be regional, and it is hoped that those with a story to tell the Committee will come in from surrounding places to meet the Committee. Main centres will be visited on or about the following dates:

Edmonton	October 20
Calgary	October 22
Regina	October 26
Winnipeg	October 28
Advance outline in Ottawa by	October 10
Toronto	November 3
Montreal	November 9
Quebec City	November 13
Advance outline in Ottawa by	October 20
Moncton	November 30
Halifax	December 3
St. John's	December 7
Advance outline in Ottawa by	November 6
Vancouver	January 18
Victoria	January 22
Ottawa	February 10
Advance outlines and national briefs for presentation in Ottawa to be filed by	December 31, 1959.

# LES COMITÉ D'ENQUÊTE SUR LE MILIEU D'HABITATION ÉTABLI PAR L'INSTITUT

IL REVIENT AUX LECTEURS DU *Journal* d'être mis au courant les premiers des dispositions prises pour donner suite à la résolution adoptée lors de l'Assemblée annuelle de 1959, demandant l'institution d'une enquête sur l'aménagement des quartiers d'habitation. Trois membres bien connus ont offert leurs services, un secrétaire a été désigné, une somme d'argent a été obtenue sous le régime de la Loi nationale sur l'habitation, les commissaires enquêteurs se sont réunis pendant une semaine entière, on a dressé les plans d'une tournée dans tout le Canada et, par la voie de la presse, de la radio et de la télévision, on a exposé les buts que la Commission poursuivra. Cette enquête offrira, semble-t-il, aux Canadiens une occasion sans précédent de dire comment le prochain million d'habitations pourront être aménagées en des quartiers et localités supérieurs à ceux du million d'habitations précédent. Le succès de cette initiative de l'Institut dépendra maintenant du nombre de personnes qui se présenteront devant la Commission au cours de son voyage à travers le Canada, que ces personnes soient des constructeurs, des agents immobiliers, des fonctionnaires municipaux, des sociologues et sans doute des architectes en grand nombre. Les commissaires veulent savoir quels fruits on a tirés de l'expérience dans le domaine de la construction d'habitations sur une grande échelle et quelles modifications il y aurait lieu d'apporter pour obtenir de meilleurs résultats lorsqu'il s'agit de construire ou de reconstruire des quartiers d'habitation.

Depuis quelques années, l'Institut et la Société centrale d'hypothèques et de logement ont un Comité mixte chargé d'étudier les questions d'intérêt commun. Les représentants de l'Institut auprès du Comité mixte ont recommandé que trois membres parmi les plus éminents fassent enquête sur l'aménagement des quartiers d'habitation en acquittement de la responsabilité des architectes envers la nation. L'Assemblée de 1959 a adopté cette proposition avec grand enthousiasme, et l'Institut a pu obtenir les services de MM. Peter Dobush, John C. Parkin, et C.E. (Ned) Pratt aux fins de l'enquête.

Il serait superflu de dire quelle place les membres de cette Commission d'enquête occupent au sein de la profession. Notons toutefois qu'en 1935, première année de législation fédérale en matière d'habitation, le gouvernement a publié un plan de maison dû à M. Peter Dobush, de Montréal, président de la Commission; M. Dobush a agi pendant quelques années comme architecte préposé à la construction de Deep River, la nouvelle ville construite sur la rivière Outaouais pour les ouvriers de l'Atomic Energy of Canada. Monsieur John C. Parkin, diplômé lui aussi de l'Université de Manitoba, est connu surtout comme auteur d'immeubles industriels et commerciaux et de bâtiments pour diverses institutions; il a aussi conçu un ensemble d'appartements pour les instituteurs d'Elliot Lake, ville des mineurs d'uranium, sur la rive nord du lac Huron. M. Ned Pratt s'émeut d'habitude plus facilement lorsqu'il s'agit du prochain immeuble qu'il construira plutôt que du dernier qu'il a réalisé; M.

Pratt a gagné la Médaille d'or de l'Institut en 1939. Peu de gens savent que l'étude dont il fait partie a été l'une des premières consultées lorsqu'il s'est agi de construire des habitations à Vancouver pour les familles ayant un faible revenu, selon les dispositions de la loi de 1944 sur l'habitation. La Société centrale a bien voulu prêter, pour la durée de l'enquête, les services de M. Alan Armstrong qui agira comme secrétaire de la Commission; diplômé de l'Université de Toronto un an avant M. Pratt, il a agi pendant six ans comme secrétaire de l'Association canadienne d'urbanisme, a occupé divers postes professionnels auprès de la Société centrale et il est conseiller de l'Institut d'urbanisme du Canada. Un représentant de chaque association provinciale d'architectes accompagnera le groupe lors de son passage dans la province.

La Commission s'est déjà réunie pendant cinq jours à Ottawa, dans la chaleur écrasante de la fin d'août, afin d'établir les plans et de définir la portée du travail à accomplir. Les enquêteurs ont consulté des architectes d'expérience, des fonctionnaires de la Société centrale et des représentants de l'industrie de la construction, des prêteurs sur hypothèque, du Conseil canadien de l'habitation-type, ainsi que de la presse. Les détails relatifs au personnel, aux archives, aux itinéraires et à la procédure se précisent. Il va sans dire qu'à cause du délai prévu, on devra à tout prix s'en tenir aux aspects qui influent sur la qualité architecturale lorsqu'il s'agit de construire des habitations sur une grande échelle, et qu'on devra nécessairement laisser de côté des autres aspects de ce problème complexe.

Les commissaires désirent voir le plus de choses possibles ayant trait aux projets d'habitation qu'on leur décrit. C'est pourquoi ils ont décidé de visiter les provinces des Prairies avant l'hiver. Suivront, les visites de l'Ontario, du Québec et des Provinces de l'Atlantique. Au tout début de la nouvelle année les enquêteurs se réuniront en Colombie Britannique, puis, pendant une semaine, ils entendront les représentants des sociétés nationales et locales à Ottawa. Cet itinéraire comporte près de dix semaines de voyages, depuis Edmonton, le 20 octobre, jusqu'à Ottawa vers le 20 février. Il faudra alors examiner attentivement les nombreux témoignages pendant plusieurs autres semaines de travail, afin d'atteindre des conclusions qui représenteront non seulement la conviction intime de trois architectes itinérants, mais aussi le fruit de l'expérience d'un grand nombre de leurs collègues qui tentent, eux aussi, de réaliser une conception d'urbanisme canadien conforme à nos avantages naturels.

Les commissaires en apprendront peut-être davantage sur ce sujet avec leurs yeux plutôt qu'avec leurs oreilles, de sorte qu'ils n'ont pas l'intention de garder la transcription des dépositions orales. Ils auront peut-être recours à la sténographie ou à l'enregistrement sur pellicule dans le cas de courtes déclarations qu'ils voudraient citer, et de courts résumés de témoignages oraux. Les photographies et les dessins auront au moins autant d'importance lorsqu'il s'agit de faire valoir des plans spécifiques. Pour que

les commissaires puissent tirer tout le parti possible du temps consacré aux réunions, on devra leur expédier d'avance par la poste, de chaque endroit, la plupart des principaux points de vue (voir l'annexe). C'est dire qu'il y aura beaucoup de lecture à faire à bord du train, mais aussi qu'il serait ainsi possible de s'en tenir à un programme rigide de réunions à chaque arrêt; les séances pourront de la sorte être brèves et sans formalités et pourront atteindre quand même leur but. Toute déposition écrite ou orale faite confidentiellement sera respectée à ce titre à la discrétion de son auteur.

On peut adresser toute correspondance destinée à la Commission au bureau de l'Institut (88, rue Metcalfe, Ottawa 4). Le personnel du bureau a déjà expédié des demandes de témoignages qui paraîtront dans un grand nombre de périodiques des professions et métiers, et en a envoyé à grand nombre de particuliers et d'organisations qui s'intéressent à l'habitation ou qui ont de l'expérience dans ce domaine. Cela ne signifie pas que l'on tiendra moins compte des témoignages des autres; si les quelques personnes qui se sont consacrées à cette tâche au cours de ces premières semaines avaient connu un plus grand nombre de particuliers ayant les mêmes qualités, et si elles avaient disposé d'un plus grand nombre de machines à écrire, les invitations auraient été deux fois plus nombreuses.

Les enquêteurs espèrent que tous ceux qui possèdent les connaissances et les idées voulues se présenteront et les exposeront sans attendre d'invitation officielle. Il suffit d'expédier une carte postale au secrétaire, à l'adresse ci-dessus, indiquant qu'un commentaire, une déclaration ou un mémoire à l'intention de la Commission suivra, ainsi que le nom de l'auteur. Le personnel indiquera alors au correspondant l'heure, la date et l'endroit de l'audience la plus rapprochée du lieu où il se trouve, ainsi que la date-limite à laquelle il doit produire d'avance un résumé de sa déposition. La priorité à l'audience sera accordée à ceux qui auront fourni aux enquêteurs, à la date-limite indiquée, 8 copies, sur papier de format correspondance, de leurs arguments ou points principaux et une seule copie de leurs pièces (photos, dessins, etc.). La Commission devra peut-être conserver ces documents jusqu'à ce qu'elle ait rédigé son rapport, ce qu'elle espère faire pour l'Assemblée annuelle de 1960, à Winnipeg.

On ne saurait répéter trop catégoriquement que les membres de la Commission d'enquête ne prétendent pas savoir déjà ce que leur rapport pourra contenir; s'ils le savaient, il n'y aurait pas besoin d'enquête. Ces trois volontaires sont disposés à consacrer leur temps et leurs énergies à l'étude de tout ce qu'on leur soumettra. La valeur des conclusions dépendra en dernière analyse du soin que l'on aura apporté à présenter aux enquêteurs tous les faits et toutes les circonstances qui ont trait à l'aménagement de l'habitation au Canada en ce milieu du XXe siècle. Le succès de cette initiative dépend maintenant de

l'étendue et de la valeur des renseignements fournis au cours des prochaines semaines par des Canadiens de toutes les disciplines et de toutes les conditions, parmi lesquels il y aura de nombreux architectes et leurs clients en quête d'habitations.

Cette enquête ne part pas du sentiment que la totalité ni même la plupart des réalisations urbaines en matière d'habitation au cours des dernières années laissent nettement à désirer. Cette tentative repose plutôt sur la croyance que le Canada ajoutera certainement à ses villes des quartiers d'habitation dans une mesure qu'aucun peuple n'avait connue il y a quelques générations, et qu'il construira selon des normes telles que nul autre pays ne peut nous offrir de modèles satisfaisants, même de nos jours. Les architectes croient qu'une activité qui exige des talents dans le domaine de la conception est toujours capable d'amélioration. Les enquêteurs, quelque jeune que soit encore la Commission, ont déjà appris que nombreux sont ceux qui partagent cette croyance relative au milieu physique. Il s'agit d'une croyance nationale officielle, incorporée au préambule de la Loi nationale sur l'habitation qui se lit ainsi: "Loi favorisant . . . l'amélioration des conditions de logement et de vie." Il n'est pas nécessaire d'en dire davantage aux membres d'une profession qui est munie d'une Charte royale et de pouvoirs délégués par les provinces.

Le programme des audiences de la Commission d'enquête sera adapté au volume des travaux présentés dans les divers centres qu'elle visitera. Il faudra nécessairement que ces centres servent pour toute la région; on espère que ceux qui ont quelque chose à dire aux enquêteurs viendront, des endroits environnants, les rencontrer. Voici la liste des principaux centres avec la date approximative à laquelle la Commission y siégera:

Edmonton	le 20 octobre
Calgary	le 22 octobre
Regina	le 26 octobre
Winnipeg	le 28 octobre

Un résumé de l'exposé doit être expédié à Ottawa au plus tard le 10 octobre.

Toronto	le 3 novembre
Montréal	le 9 novembre
Québec	le 13 novembre

Un résumé de l'exposé doit être expédié à Ottawa au plus tard le 20 octobre.

Moncton	le 30 novembre
Halifax	le 3 décembre
St-Jean(T.N.)	le 7 décembre

Un résumé de l'exposé doit être expédié à Ottawa au plus tard le 6 novembre.

Vancouver	le 18 janvier
Victoria	le 22 janvier
Ottawa	le 10 février

Un résumé de l'exposé ainsi que les mémoires des organismes nationaux devant être présentés à Ottawa, doivent être produits au plus tard le 31 décembre 1959.



## SYMBOLISM IN CONTEMPORARY ARCHITECTURE

This paper will not attempt to interpret the psychological side of symbolism, but will simply investigate the conscious relationship between buildings and citizens as a group, which has and must exist if architecture is to play its part in shaping our total environment. It would seem that architecture should be the most important determinant of environment, at least for city dwellers; but such is not necessarily the case.

Elements such as transportation facilities and sewer inverts seem to be increasing their influence at the expense of the architectural environment. From time to time in the past, architecture has indeed been the greatest among the arts, and the main determinant of environment. If there has been in modern times, a certain loss in the prestige of architecture, perhaps it is due to a loss of significant form in modern building, that is, a reduced presence, or a lack of understanding, of the symbolism which must be present to establish the necessary rapport between the citizen and his architectural environment. Until this critical connexion is made more manifest than it is today, architecture will not regain its eminence among the arts.

A study in symbolism in the past will involve, chiefly, the consideration of religious and public buildings. In all the historical periods, domestic architecture has seldom assumed a real importance in the development of new ideas. Houses usually followed trends set by important buildings, or else walled in vague paths of anonymity. In the recent past and present, domestic buildings have a new importance (as individual expressions or symbols, rather than collective symbols). Probably this phenomenon is a manifestation of a change in emphasis from the group (that is, neighbourhood, city or province) to the individual and his immediate family. In fact, such a change in the social order began with the loss of feudal society, and continued more strongly after the Industrial Revolution. Mass production, the basic tenet of industry, requires larger groups, both as producers and consumers; and larger groups inevitably lose their unity as the members revolt against their loss in relative importance. So we find the village growing into the metropolis, the town meeting into the Parliament, and the individual depending more on his family to give him the "importance" he desires. His home, considered as a symbol of his individual life, assumes greater importance than the palace, the meeting house, and even than the church. Of course, the whole process was not nearly so simple as this description would make it seem. The idea of greater individual freedom was inextricably involved in it. Even the law becomes less dogmatic and more flexible, with decisions handed down on the basis of past decisions *so far as they applied*, but with less and less emphasis on strict codes of detailed laws.

Architecturally speaking, the most cohesive society in the Western world was probably that of classical Greece. All life revolved about the several public buildings and spaces, while the housing formed an orderly, convenient and relatively sanitary background. Virtually all symbolic importance was vested in the temple, the meeting hall, the market place, the theatre and the sports grounds. Connexion between cities was by commerce rather than by politics; and the importance of the family was subservient to that of the citizens' meeting or the schooling and physical games of the young men. Yet the social make-up of these wonderful cities would be extremely distasteful to modern society, for less than one third of the inhabitants were citizens and able to enjoy a citizen's privileges. The rest were mostly slaves, and it was to them that the society owed its success; the citizens were then free to spend their time in political discussion and in the building of physical and mental agility, while the drudgery and labour of daily life was performed for them.

Suzanne Langer, in her book "Feeling and Form" defines the art of architecture as the image of a culture — "a physically present human environment that expresses the characteristic rhythmic functional patterns which constitute a culture. Such patterns are the alternation of sleep and waking, venture and safety, emotion and calm, austerity and abandon . . . the simple forms of childhood and the complexities of full moral stature, the sacramental and capricious moods that mark a social order, and are repeated, though with characteristic selection, by every personal life springing from that order". Greek society and architecture would seem to be the very embodiment of her definition. The class division, the freedom of thought (for the citizens), the love of intricate points of philosophy, the precision of movement in the theatre, all were truly symbolized in their cities. Obviously, however, such a society, and such a symbol, would be considered today as "anti-moral" as Ruskin ever considered the Gothic, if we were to attach the same moral importance to the symbol as to the actuality; but we may instead admire the symbol as architecture growing out of the existing social climate, although we may dislike some facets of that society. And at the same time, this argument should help to repel those who would like to see such historical styles imitated today.

Other societies also had their particular symbolisms. The Egyptians in very early times attached great significance to their temples, palaces and tombs. W. R. Lethaby, in his "Architecture, Nature and Magic", says that the Egyptian temple "was built in the image of the earth as the Egyptians imagined it". The Bible refers to Jerusalem as the "Gate of the Lord" into which the righteous were allowed to enter. This particular example illustrates a double symbolism, for the Gate represented, in most ancient cultures, the judgment place of the king (there he entered and left the city and held court on civil and criminal matters). Since the king was usually strongly identified with God, the gate took on a religious, mystic significance. So we find the form of the gate often transferred to the facade of Christian churches, and the canopy which usually protected the King becoming a baldachino over the altar, the symbolic throne of God. (This line of thought is further pursued by E. B. Smith in "Architectural Symbolism of Imperial Rome and the Middle Ages.")

Roman architecture, as a symbol, is more complex than the Greek, but none the less accurate as a mirror of society. We must consider works other than buildings now — roads, aqueducts, bridges — to get the true picture. And we also must look much farther afield than Rome or even Italy, to the distant colonies and conquered states to find a real cross-section of the Roman civilization, if we want to draw a proper analogy. Then Mrs Langer's definition can be applied again, and we can see the organic and disciplined life of a Roman citizen, the power of a Roman Caesar, the austerity of an army camp, the conquering and reforming might of a Roman Legion. Some of the Roman roads in themselves are fine symbols of their total civilization. These roads were built straight when possible, but always considering the march of a legion when hills were encountered; they were wide, so that troops would move up quickly when needed; they were well and carefully built; they extended to all parts of the world as it then was; and they were monuments to the hard labour of their builders. It is significant that historians base many investigations of the Roman character on the evidence of such works as this.

The Middle Ages too, have their form of civilization reflected in their architecture. It is often said that these centuries are the Age of Faith, as opposed to the later Age of Reason. So it is that the cathedral assumes chief importance in society. We

find tiny, almost insignificant towns and villages erecting huge buildings to the glory of God, cathedrals that could contain three or four times as many people as the village might have; and the mediaeval church is often condemned for allowing such display, when many of the citizens lived in squalor and poverty. But the church was the entire centre of community life. Markets and meetings, entertainments and executions, all took place in the cathedral square. Later, guild halls and minor buildings took over some of the public functions, but still usually grouped themselves around the cathedral. The cathedral itself became highly symbolic in all its parts as the forms developed; but more interesting to the student of the society is the relation it bore to the town pattern. Usually, two or more main streets led into the cathedral square, in such a manner that one of the important parts of the church formed the end of the vista. If the town was built on a hill, the church would usually have the dominating position on the top, or as in Paris, it might be built on an island in the river, and facing the most important road across the river. The people of the towns were apparently indefatigable in their efforts to glorify God – there is the example of the apse at Beauvais which collapsed three times before the project was abandoned.

Another interesting phenomenon of the middle ages is the craft guild system, and the social re-arrangement caused by it. The houses of the typical late mediaeval town might have four or five storeys; on the ground floor, the master craftsman (and owner) would have his shop and workroom, on the second his living quarters, on the third, his family's sleeping quarters, and in the upper storey, living quarters for his apprentices. So there was a new social group to be considered, manifested by a new type of house.

Taken as a whole, the mediaeval town was a complex but organic structure, revolving about the church, which produced a romantic, intriguing architectural unit with a certain flavour never duplicated in other cultures. This characteristic is also rather symbolic of the mystical side of mediaeval life – its great religious fervour and customs. It is easy to imagine the effect of an early morning service in a great cathedral, and the magnificence of the sight while the nave changed from candlelit gloom to full brilliance, with the morning sunlight pouring through the high apse windows. Surely that was a satisfying experience. Architects, and especially architectural students, often laud the spatial effects of the mediaeval town so that they might seem to wish a return to that type of city; but today conditions have changed so much that many of the best things about it are no longer applicable. However, we are beginning to turn back to some mediaeval spatial manipulation to re-establish the small humanly-scaled space in our immense cities.

Renaissance architecture would at first seem to be contrary to the "symbol" idea, for how could the classical styles be adopted by, and be held out as symbolic of a new period of history? The answer to such a question is a challenging subject in itself, and I will not attempt to investigate it. The history student, however, is well aware that Renaissance architecture was a far from static thing and really used classical forms only as a stepping stone to new triumphs. It must be remembered that building materials and methods really changed little in the period from Roman times to the days of the industrial revolution, especially if compared with the last hundred years. So some re-use of structural methods at least was almost inevitable. It is interesting to note that Hitler and Mussolini turned to neo-Renaissance architecture, the traditional building type of kings, as a symbol of their ruler-cult. For these dictators, modern building design had more tendency to individual or economic group symbolism, and was characterized by great freedom of thought. Either of these ideas was of course abhorrent to a dictator. The Russian Communist party of today continues to suppress most facets of modern art, for the same reasons.

In the eighteenth and nineteenth centuries, Britain took over leadership of the architectural thought of the world. British building was symbolic not only of the English civiliza-

tion but was a fair representative of all Europe. Great private houses (for the titled few) and the first great public and governmental buildings appeared around 1800. This is the first age of what might be called "service" building – hospitals, theatres, libraries, universities, banks, railways, stores – for the benefit and use of the citizens. Certainly that was a great change from the previous "Age of Faith" when churches, monasteries and palaces were almost the only important buildings. Functional planning of buildings became a more important part of architecture, although architects still seemed to concentrate on ornamentation and idealism, while plans developed in a less strained and more anonymous manner. At the same time, new developments in the use of iron and steel were occurring under the direction of a new professional man, the engineer. At this point, architecture (as practised by architects) really began to lose its vitality. True, there were in the nineteenth century several vital movements – notably William Morris' revival of arts and crafts – and more than several original and free-thinking architects. But all of them missed or ignored what was to be the most important generator of the Modern Movement, steel and the skeleton frame. Some engineering works, such as the Clifton Bridge (1836) and the famous Crystal Palace of 1851, foreshadowed greater things to come; but at the time they received only ridicule. In France, Labrousse designed a library (1845) and even a church (St Eugène, 1854), using an iron skeleton, which brought him at the time, no more than ridicule in most architectural circles. (It is at this time that Britain lost her lead in the architectural world, and the honours would henceforth be split between continental Europe and the United States.)

But does the varied architectural history of this period actually reflect the "characteristic rhythmic functional patterns" of the culture? The centuries described above saw the greatest and fastest social and economic revolution of history. The Industrial Revolution is often identified as "starting with the invention of –" or "caused by – event". It is much more reasonable to consider it as an outgrowth of the spirit of the times, brought about by a series of discoveries and inventions which in turn were the result of human curiosity. Hand in hand with growing industrialization went a tremendous migration to the cities, a resultant overcrowding, and slum building. Titled gentry found themselves relegated to second rank in the economic (and increasingly in the social) scale, as the great industrialists became more wealthy and powerful. City governments found themselves directing growing cities, providing new services, spending more money. To sum up all these points, one might say that theories and ideas received a great deal of attention; scientific investigation advanced by leaps and bounds; people were generally dissatisfied with the old order, eager to find something new. And the building of the time symbolized those shifting emphases, varied interests, and new discoveries. It is significant that the most important contributions to building were made not by architects, but by engineers, the men who had no ties with the past to restrain them from investigating the future. Architects, in the main, confined themselves to ornamentation of construction and re-working of the old styles – and some of them made some very noteworthy achievements along those lines, if we excuse their eclecticism. Others (Morris, Voysey, Shaw, Webb) moved along new lines in attempts to find proper expression for their society; but none of them realized the possibilities of what was to become the Machine Age. At the same time they contributed to the future by insisting that arts and crafts must be reunited, and that, to reach true success, must be far-reaching and "popular", rather than designated for a small group of wealthy connoisseurs. (I should like to come back to this idea again, in relation to architecture in the present, later in this paper.) All these ideas combined to produce an architecture varied and vigorous in a confined way, but lacking in any real direction and unity, if compared with other periods.

This last sentence seems to lead directly to a discussion of the difficulties of twentieth century architecture; it also seems to suffer from lack of direction. Yet the lack of direction can-

not be scored against ignorance of new ways of building or neglect of the "latest developments". On the other hand, so many new methods and ideas are being tried that none of them has come to have true significance. A single architect may build today in any one of many ways each time he is faced with a problem — and of course, freedom from academic styles is the very basis of the modern movement. However, the great emphasis in originality caused by this freedom leads to lack of development of the important ideas. A man like Mies Van der Rohe is the exact antithesis of this problem, if an opposite may serve to illustrate the point. Long ago, he chose and stated his direction — under the guiding principles of the modern movement — and now he continues to develop that idea in a rational, limited, but very exacting manner. This man is admired by most architects and copied by many, but few have the patience or vision to follow his method of working. He might almost be compared to the mediaeval man, who would spend a lifetime transcribing a single book, or building a single building. Modern man in general, is more prone to impatience, or perhaps more drawn to variety, and tends to find such singleness of purpose rather dull.

Of course, the modern movement, in 1959, is so new that it is difficult to compare it with others which lasted perhaps three hundred years. Yet in this short time it has made startling advances in technology as well as philosophy. It is at this point that I wish to return to William Morris, with his Arts and Crafts Movement. He mentioned that art could not reach its full ascendancy until it became "popular"; that is, within reach of the majority of the population, both in fact and in significance. Such might seem to be the case today. Architects find modern building so complex in both function and form that they find difficulty in understanding all that is done by their colleagues. How much more difficult must it be for the layman, with new forms, new materials, new uses, appearing almost daily. If William Morris was right, then architecture is failing in many ways, for it is addressed all too often only to the knowing few. It is also true that the unknowing many make little effort, or indeed offer resistance toward increased understanding of art. To elucidate these very general points, I would like to discuss three important types of contemporary building—the religious, the public, and the commercial.

Public buildings, since the power of religious orders decreased after the Middle Ages, have usually taken the lead in architectural style. In the twentieth century, however, there has been a certain reaction against great public buildings, occasioned by public dislike of their cost. Before democracies reached their ascendancy, kings or bishops erected public buildings, with money extracted from the citizenry by means fair or foul. Nowadays, however, efforts are usually made to reduce public spending as much as possible, and public buildings, except for the most important ones, are often rather niggardly. Our schools illustrate this point very well. Education is surely the single most important duty of all governmental systems, yet school budgets are regularly trimmed to the minimum, and certainly beyond the optimum, by thrifty municipal councils. As a symbol, these schools point out our shortsighted reaction to high public spending. In the past very few years, we have seen greatly increased interest in schools and in schooling, partly because some excellent schools have been produced, but chiefly because citizens have begun to realize the necessity of better educations to retain their country's place in the world. And it is quite likely that there will continue to be greater interest in schools, bringing with it a movement towards better architectural, as well as educational results.

The Toronto City Hall Competition is an excellent example of the present day confusion over symbolism in architecture. The entries covered the whole gamut of possibilities from the lifeless to the overpowering. As a symbol, the final winner has a very strong appeal to those who have a romantic or a baroque turn of mind, for it is a dynamic thing, expressive of a dynamic city. But at the same time, this design exhibits the present-day overemphasis on shape, and the great search for significant form. Although it is a very strong and elegant solution, one

wonders if it can really stand the test of time and live on as a symbol of our time. Yet this type of experimentation with new ideas must be made if architecture is to move ahead.

Commercial buildings especially are a type where new ideas are more and more being exploited. Businessmen have found that a "good" building can become a symbol of their business and therefore a tax-free asset. In fact, large corporations are now the patrons, if such organizations can be so called, of architecture. This too, is a fitting symbolic function, for if the Middle Ages could be called the Age of Faith, and the Renaissance the Age of Reason, the present is certainly the Machine Age, or the Material Age. Our greatest interest, as a civilization, is in things, not in faith, or in reason, so it then follows that our building should, if it is to fit into Mrs Langer's thesis, be symbolic of this fact. Steel mills, although hardly architecture in the classical sense, are one of the strongest symbols of our civilization. The new General Motors Technical Centre was called by the editors of *Architectural Forum*, "the modern industrial Versailles" — and an apt metaphor it is. Versailles was built purely and simply to exhibit the great power and prestige of the Sun King. It was built in an out-of-the-way location, at an exorbitant cost, and was largely unnecessary. The General Motors Centre was built at the hub of the auto industry, and was entirely necessary. How then can these two be compared? Simply by considering the result in each case; for each illustrates power, wealth and vision. In the case of Versailles, these qualities are to be imputed to Louis XVI; in the case of the General Motors Centre, to the many thousands of shareholders making up the corporation, and indirectly to the whole population of the United States.

Religious buildings in modern times are by far the most difficult to fit into a pattern of symbols — the direct antithesis to the situation of the Middle Ages, when the religious buildings of a town were the most outstanding and understandable. No longer is there the solidarity of a single church to create an important symbol. Instead, there are many churches, differing from each other in a greater or less degree. Even inside each denomination there are differing concepts of a church. The existence of these differences is a result of the freedom gained, in both thinking and acting, in the past centuries. One single change, and a most significant one, can be cited as having occurred in all churches; and that is the declining importance of religion in the lives of people. Its importance has been usurped in the main by greater material interests, in combination with less acceptance of faith and mystery in ecclesiastical teaching. In most cases, church buildings do not symbolize, in a sympathetic manner, these changing values. For instance, the Roman Catholic Church has evolved greatly since the Middle Ages; yet many of its new buildings are almost replicas of ancient ones. And Protestant denominations, whose *raison d'être* in the first place was their disagreement with Roman doctrines, use forms and symbols very close to or imitative of the ancient churches. In a way, this shows a proper respect for the genesis of Christianity, but in the main, it means simply confusion of purpose or lack of understanding. Instead of the great satisfaction (with their churches) evident in the history of the Middle Ages, in our time we see again the great search for significant religious forms. Churches of every imaginable shape, material and feeling can be found, yet still the search goes on. Religious buildings, more than any other type, are in need of symbols, in the form of architecture, if they are to become important in the twentieth century.

These last sentences lead immediately to another train of thought; we may ask if the architecture of a particular religious building must be the result of the strength or weakness of the religion; or may it also be the generator of that strength or weakness? I think we can safely say that, in general, architecture is the result or expression of a culture. Yet, with a special understanding, a gifted architect is able to lead by creating a symbol more significant, or more sensitive, to the real thought it is expressing. In a play by Paul Claudel (*L'Annonce Faite à Marie*) which tells of the life of a mediaeval

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## WOMEN IN THE ARCHITECTURAL PROFESSION

IN 1956, Canadian universities produced 53 female doctors, 24 female lawyers, and only one female architect. (Comparative figures for male graduates were 773, 605, and 90, respectively.) This proportion has remained at a consistently low level. The comprehensive 1951 Census revealed that there were only 43 female architects in Canada, or 2.5% of the total.

A 1958 United Nations report on women in the labour force contained some interesting comparative figures from other countries. The proportion in the United Kingdom was about 4%, in Italy, 5.5%, Austria, 6.9% and the U.S.S.R., 24.6%. The proportion in the United States was less; only 1% of the registered architects were women.

According to reports from the Women's Bureau of the Canadian Department of Labour, most professional women are still to be found in careers that have been traditionally feminine fields for some time. At least 75% of all professional women are in the fields of teaching or nursing. However, growing numbers of women are invading professions that were previously male preserves. Between 1931 and 1951, the proportion of female physicians and surgeons grew from 2% to 5%, and of chemists and metallurgists from 4% to 10%. In the same period, the proportion of female to male architects increased from .2% to 2.5%. The 1958 membership in Provincial Architectural Associations numbered 2,066, of whom only 20 were women.

What is causing this feminine aversion to entering the profession of architecture? To some, it is the parental objection to the long and arduous training which it is feared, will go to waste when she marries within a few years of graduation. To others, it is the fear of employer prejudice towards her sex. In some cases, there is a natural reluctance to entering what has been, hitherto, an almost exclusive male preserve.

These same arguments have been applied to almost every profession. In North America, particularly, marriage is regarded as the crowning achievement in a woman's life. This view is held by both men and women alike. Almost all the advertising directed towards the female sex helps to strengthen the illusion that marriage is a woman's inevitable and only goal. There is a widespread, erroneous impression that the pursuit of a profession jeopardizes a woman's chance of marriage. Recently, a married Canadian woman architect, well known in her profession, said, "Among women I found myself viewed

as a very strange bird." This experience has been confirmed by several other women who have achieved success in the architectural field.

Unquestionably, the education and training of a girl is influenced by her anticipated role of housewife and mother. Parents, perhaps unconsciously, play a most important part in this direction of interests. While the small boy is given toy bricks, building sets, bulldozers and trains to play with, his sister receives dolls, toy washing machines, stoves and miniature boxes of soap powder.

Very few sincere, creative questions posed by a girl are taken seriously by her parents. Indeed, she is frequently adjured to concentrate as much on social graces as upon matters of the mind. This has the effect, of course, of bringing many girls to the stage of resignation to the role of wife and mother.

It is not to be denied that this attitude has a great deal of merit in our society. At the same time, it has the tendency to stifle any creative urge outside the realm of domesticity.

The architectural profession is not the only one affected by this attitude. Some vocational guidance specialists, conscious of the hard struggle attending a professional woman, may try to persuade young women to enrol in general rather than professional university courses.

The New York Life Insurance Company's brochure, "*Should You Be an Architect?*" was written by Pietro Belluschi, an architect of international fame. The last paragraph could hardly be described as an encouraging one to prospective female architects:

*"You've noticed, I suppose, that I've directed my remarks to boys. I cannot, in whole conscience, recommend architecture as a profession for girls . . . the obstacles are so great that it takes an exceptional girl to make a go of it. If your daughter insists on becoming an architect, I would try to dissuade her. If she still insists, give her your blessing. She may be that exceptional one."*

It is interesting to note that, in the field of town planning, a profession young enough to have escaped these traditional attitudes, women are more readily accepted. Female graduates in both architecture and the social sciences have entered this field and are making significant contributions. Public opinion also accepts interior design as being a particularly suitable career for women.

What is the future for the female architect who overcomes the traditional prejudices, enters the profession and finally gets her degree? She will meet with the same arguments all over again when she looks for a job. Employers will expect her stay to be a short one, and her salary and prospects will suffer accordingly. She can expect to experience more difficulty than her male associates in becoming established and respected in her profession.

It has been said that the future of a female architect is limited because she cannot undertake the necessary supervision of construction on the site. This is not necessarily so. Gwyneth Cooper-Jones not only helped to design the 18-storey Lord Simcoe Hotel in Toronto, but was the resident architect in charge of 200 labourers, supervisors, draughtsmen and engineers.

Several prominent female architects have said that once a woman has overcome the traditional attitudes and proved her ability in the profession, she is fully accepted by both her associates and clients.

There is really no logical argument against a woman entering the architectural profession, provided that she accepts the fact that her talent as an architect can only be measured alongside her male peers in the realm of design. The suggestion that, because of her innate interest in the home and the family, she should be able to design kitchens, living rooms, houses and apartments much better than a man has no foundation in fact. Canadian female architects confirm that this is the case. They point out that a female architect, practising full time, has usually had comparatively little experience in running a home, and that a male architect, provided he has a sympathetic understanding of the function and, more important, is a good designer, can create just as satisfactory a kitchen, house or apartment as a female architect.

If a woman can make any unique contribution because of her sex, it probably lies in her greater supply of patience and tact in dealing with the client.

It is a paradox that once a woman has overcome the objections of the general public towards her choice of profession and is a qualified and established architect, the layman is prepared to place complete trust in her architectural ability. One female architect expressed the view that: "Clients usually don't have the same confidence in a woman as in a man, whatever the business. But in the design of houses they, peculiarly enough, seem to think our female intuition is enough to place us on a par,

if not ahead of, the male architect."

There are some grounds for believing that the traditional opposition to women entering the architectural profession is waning. Many European women have achieved international fame as architects and planners. Moreover, Canada has some good examples of buildings designed by successful women architects.

Aspiring female students can draw encouragement from the success, in North America, of such well known female architects as Jacqueline Tyrwhitt who teaches planning at Harvard, Mrs Stanislaw Nowicki who teaches architecture at the University of Pennsylvania, Mrs Blanche Lemco van Ginkel, a graduate of McGill, who has taught at both Harvard and Pennsylvania and who won the Vienna Grand Prix. They can observe the success of Jean Wallbridge and Mary Imrie who are partners in a successful architectural practice in Edmonton. Another example of feminine success is Natalie Saulkauskis, a student of architecture at the University of Toronto, who, this year, was the first female student to receive an award from the Ontario Association of Architects.

The only female architect engaged on the Place Ville Marie project in Montreal is Miss Anna Lam. Miss Lam studied architecture in Hong Kong and planning at McGill. In a recent newspaper interview she pointed out that, while men will appreciate the economic advantages of this city centre, women will be aware of its exterior aspect and of the visual and physical calm being created in the heart of the city.

These are examples of a few of the women who have made their mark in architecture. They have not only been accepted in their profession, but they are respected by their male associates.

The architectural profession is not an easy road to travel for a woman. Nevertheless, women who have demonstrated a talent and are prepared to face the hard work involved, should not be discouraged by the traditional objections they will meet. For the last thirty years, women have been overcoming similar prejudices in other professions. The woman who has the talent, and accepts the fact that creative design, in any field, is not necessarily the prerogative of either sex, can expect to achieve a full and satisfying life in the architectural profession. ♡

*Reprinted from "Habitat", CMHC*

# ARCHITECTURAL RESEARCH ITS NATURE AND PRACTICE

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RESEARCH IMPLIES SEARCH for the undiscovered or unrelated, whose past occurrence, once known and plotted, can shape principles by which we predict future happenings. What then shall we say about research in architecture? Building may be described as the process by which man changes his fixed physical environment. Those characteristics of building which affect him as a human being, constitute architecture. While building may be defined as the process of changing environment, architecture may be defined as those qualities of building that impinge themselves on the consciousness of man. Stated another way, architecture is how building seems to people.

## Research in Architecture

Having made these assumptions regarding the nature of research and of architecture, we can attempt a statement about the nature of architectural research. Since research in architecture is bound to lead us into the presently unknown, we will do well to seek a broad definition that will indicate direction rather than restrictive boundaries.

## Change in the Causes of Architecture

Architecture has to change because the forces that create it are changing. Our ways of life are changing, especially in areas such as transportation, communication and manufacturing. Populations are shifting and growing rapidly. That our techniques for building are changing radically is indicated by the synthesizing of materials, the development of new engineering methods, and the industrialization of the building process. These developments are seldom the doing of architects, but architects have to express and relate them to human needs. We cannot express them in architecture without understanding them, and we cannot understand them without experimenting with them. Since they are happening at too great a rate

of change for proper experimentation in the normal practice of architecture, we have to isolate the experiments and seek to establish principles that are generally applicable to the individual project.

## Architectural Research Defined

Architectural research is simply the process of seeking principles of architecture through the methods of research. Our definition of architectural research follows naturally from having defined research and architecture.

## The Tempo of Change

Architecture got along very nicely in past centuries without formalized research. Principles grew out of the slow, orderly development of buildings, with experimentation generally limited to minor deviations from a traditional norm. The cultural values which architecture expressed and served changed at a comparatively slow pace, and technical method was relatively static. What experimentation there was could happen as buildings were built; an unsuccessful experiment was simply not repeated, and since it represented a minor deviation from tradition, it was not a catastrophe. Principles of architecture were developed and established so slowly as to be assumed as traditions. The evolution of the Greek temple, the Maya ceremonial center, the Japanese house, was in each case slow and thorough. Identical, natural materials were used for centuries. Geographical areas of influence were limited. In sharp contrast, our century has witnessed violent explosions of change in the forces that create architecture, and the problems that have arisen are too great to be solved within the design process of individual buildings. This change of tempo can be illustrated with simple examples. The process of alloying bronze from copper and tin was discovered and developed during an early period in man's urban life, and through thousands of years was

simply used in building elements such as stone ties or temple doors. In striking contrast of time period, non-ferrous alloys of aluminum or chrome-nickel steel were discovered and intensively developed in research laboratories during a decade or two of this century. They immediately presented opportunities and problems beyond the possibility of solution by individual architects in the design of individual buildings. The incorporation of these alloys in areas of architecture such as curtain walls has already of necessity and with profit been a subject of architectural research. Similar contrasts can be found in the rate of development of transportation as indicated by the problems in architecture and planning due to the automobile and airplane. These problems have proven to be beyond solution on an individual project basis, but require collaborative research that will be available generally.

### **Research a Necessary Result of Accelerated Change**

Today our cultural needs are shifting, changing and expanding at an ever faster and accelerating rate. Materials and techniques are many, varied and complicated, and are becoming more so. Communication, notably by photograph, makes a building method or design evolved in one area immediately available over the rest of the world whether suitable for the area or not. Little Lever Houses irrationally spring up in unsuitable climates. The architect in his practice cannot afford to explore deeply enough the unknown areas where the search for desperately needed principle would lead him, and the individual project can seldom stand the degree of experimentation that is desirable. The choice then lies between timidity in practice or chaos in building. Since the forces that produce architecture are changing, the resultant architecture must change. The purpose of research in architecture is to analyze these forces and establish principles which relate the forces to the needs of man. Architecture is qualitative and man has learned that he can predetermine those qualities through the design process. Through architectural research he seeks principles which, once discovered and established as valid, can be applied to the individual project with known conclusion.

### **The Development of a Program**

How shall we go about our search for principles in architecture? In other words, how shall we go about architectural research? One way is to explore at random any area where problems are obviously troublesome. This has been our method in the past and a fair amount of valuable research has resulted. This is the method of the individual who simply sees a problem and attacks it. At the other extreme would be a carefully formulated program which would attempt to divide architecture into a series of segments. I do not believe that this is possible. Architecture is too all inclusive. It cannot be represented as a round pie to be neatly sliced into pieces of a research program. The very fact that we propose research, of itself tells us that we do not know all about the subject. The basis for a program lies somewhere between the random stabs of the curious individual and an all inclusive diagram. We have advanced far enough in our questioning to be aware of

definite areas of study within the vast subject of architecture. Here are some of the areas that are apparent.

1. *Analysis of the process of development of architecture.* How and why does architecture assume particular forms and characteristics in particular areas and times? Answers lie in the study of earlier cultures. Not only is there value in the analysis of the background of our own Western civilization, but it is also well to study cultures removed from the Judeo-Christian-European tradition, where we can be more objective in our analysis. The findings of archaeology and anthropology are our instruments. When we learn how earlier architecture came about, we are in a better position to condition our own. Research in architecture, from this aspect, consists of searching for the factors that have determined the nature of architecture in the past. We are seeking a philosophy of the history of architecture on an objective rather than an emotional or traditional foundation. The strata of the archaeologist and the anthropologist hold many answers about architecture.

2. *A study of the relation of architecture to the forces of nature.* Man seeks an optimum physical environment, and consequently designs his buildings so as to protect himself from extremes of heat and cold, of sound, of sun and wind, and of light and darkness. These natural forces are measurable and their impact on man is also largely measurable, as is man's best relationship to them. This area is sometimes referred to as research in environmental design, and includes the study of the relationship between architecture and climate. It envisions a well designed building as an ideal filter between man and nature, keeping out an undesirable element such as extreme heat in summer or cold in winter, and filtering in enough of the elements to create a stable and pleasing condition. The findings of physics are used in measuring the natural forces with the methods of biology and psychology available for measuring their effect on man. Through one type of architectural research we resolve these findings into principles on which the architect can design the buildings that stand between man and nature.

3. *Architecture as the expression of social forces and as environment for society.* Man's decision to live in groups in stable locations led to the building of towns and cities. The ways in which men organize society determine the nature of our cities, and in turn the nature of our cities has a profound effect on the nature of society. An extreme example of this is the slum. Architecture unrelated to the interests of society produces a slum as soon as it is built. The study of human ecology, which is concerned with the relation of society to physical environment, and vice versa, holds keys to the understanding of the nature of our cities which can lead to wise planning. The methods and findings of the social scientists are applicable in this area. Urban research, which is architectural research in its widest aspects, leads to principles badly needed for understanding and conditioning the growth and deterioration of cities. Necessary here are the findings and collaboration of sociologists, economists and political scientists, to mention several of the related disciplines. The growing demands for educational facilities, produced by population growth and higher standards, call for the development of

school buildings quite different from those existent, and research is being done by foundations and universities to find ways to meet this need. A similar statement can be made about hospitals. There is much still to be done in such fields.

We have come to realize that the areas to the east of Park Avenue in New York and behind the mining camp front of Michigan Avenue in Chicago are also architecture – bad architecture. Research both in the methods of urban renewal and in the design and financing of housing have received considerable support from government, although we are still going largely by a trial and error method. A great problem here is to find ways to relate the mass of reports to what is actually happening.

4. *The study of the organization and functioning of the building industry.* The building industry in the United States is the means by which man's environment is being changed at a rate never before equalled. We are in the biggest building boom in history. Quantitatively, it accounted for about sixty billion dollars in 1957, a seventh of our gross national product. The building industry is unlike any other industry. It is loosely integrated when integrated at all. It operates under a financial structure which plays a large part in determining what is built and where. It needs to be understood as the agency by which whatever is built is built. Its financial structure, largely consisting of the mortgage system, generally determines what can be built. Economic studies are revealing and constructive. The methods of the building industry have undergone a shift from handicraft to industrialization; understanding and channeling of this process toward the common welfare requires, and is a fruitful subject of, research.

5. *Technique.* Technique, or decision as to material and method in building, is bound to affect results in architecture, though it is hardly an end in itself. The materials that go into a building are the solid stuff with which we create the intangibles of architecture. Today they are numerous beyond count. They are offered and in use before we have had an opportunity to analyze their qualities. No single architect can be aware of all of them, and our piecemeal method of building is giving way to large assemblages of structural and finished units. Architectural research is quite beyond and different from product development, but the moment two new products are bought together in a building, a problem in architectural design and detailing arises. It is foolhardy to expect the best method for their combination to be worked out independently by each architect on each job, and so there is a need for research in methods of combining materials. An example of this occurs in practically any wall, with outside surface, structure, inside surface, insulation, openings and means of attachment, often each of different materials. Composing these elements into a satisfactory whole is a study of importance. It took our founding and settling fathers two hundred years to develop the balloon frame from the timber resources of this country, and yet we are expected to incorporate a multitude of new materials almost instantly in new buildings. Obviously there has to be centralized, intensive research into these problems with resultant principles of use. Fabrication and assem-

blage of materials has rapidly moved from handicraft operations in the field to mechanized processing in the factory. Control of the building operation has largely passed from individual skill to centralized management. Research has to stand behind the technical decisions of management. To a great extent this cannot be the responsibility of any single manufacturing company, since a number of materials are usually involved. The method used is the problem of architectural research.

6. *The impact of architecture on the consciousness of man.* Architecture, when logically executed, is an expression of man's needs and aspirations. Once executed it affects man. This has never been better said than in Churchill's often quoted statement that we shape our buildings and then they shape us. The impact of architecture reaches the individual through his senses, largely but not exclusively through the eye. Architecture is not solely a visual art. The life of the blind is conditioned by the architecture within which he moves. A good sleep can be affected by architectural design as sound, light, and heat are controlled. But essentially in this area we tend to deal with man's enjoyment of architecture; call it esthetics if you will. We badly need principles here. The method of the academy or atelier, with knowledge passed on through the individual master, has proved inadequate. But we are still affected too much by the emotional influence of the highly convinced and persuasive individual. Not one but many individuals would lead us in many directions at once. The stimulations of Wright, Mies and Le Corbusier, to mention three from three countries, cannot all be accepted as doctrine, nor is one enough.

We need research into the visual impact of space, the analysis of scale, the effect of color. The methods and findings of the natural sciences are available. Physics can certainly measure light, and psychology can tell us much about its effect on the eye and brain. It remains for the architect to relate them through design.

#### **How and Where Shall Architectural Research Be Done**

A good deal of architectural research has been done, more than may have appeared through limited means of communication, and in addition a tremendous volume of related research lies behind the area of architecture, conducted usually without thought of architecture.

As an example, we can illustrate the involved relationship between architectural and non-architectural research, with a development such as that of thin shell concrete shapes. An inches-thick dome of reinforced concrete, spanning a hundred or more feet, and integrated as the roof of a building, becomes finally a product of architectural research. The inception of the process that made it possible, however, lies in the area of pure mathematics, applied to formulae which could then be used in engineering calculations, on the basis of which the dome could be structurally designed.

Research work in geology, physics and chemistry lies behind every bag of Portland cement that goes into the dome. A truckload of high tensile reinforcing rods, casually dumped at the site, is made possible by studies in metallurgy with all the ramifications of that discipline in



the physical sciences. So much for technique.

The question then arises as to the requirements of the particular use involved. Thin concrete shells have been used for the hulls of ships, sections of aqueducts, and for bridges and swimming pools. When the shell is considered as a method for covering a building, a whole new set of human needs arises, since the reason for building this dome lies in the people who will be living under and around it. Its use is now solidly in the realm of architecture and the principles for determining its use are the responsibility of research in architecture. The weather will have to be dealt with on its upper surface and problems of condensation on its inner surface if it is exposed to heated air. Means of acoustical correction will have to be considered, and natural and artificial lighting incorporated. The size and shape of the shell will be studied from the point of view of the use of the building and its relation to other buildings. It will be supported by wall or column elements whose design will be affected by technical factors such as concentration of stresses in the shell, the creep of the dome after pouring, and soil bearing capacity. In addition there are human factors such as how people are going to get in and out of the building, and how the shell will appear to people. This last factor of appearance is more than skin deep, because people's concept of a dome has been conditioned by the stone work of St. Peter's, which is not only of solid thickness but is visually buttressed with familiar architectural vocabulary borrowed from Rome. The viewing of the exposed edge or section of a dome only a few inches thick which spans an area equal to the crossing of St. Peter's may involve problems of security and adjustment for the man under or near the dome before he can indulge in what is known as architectural delight. (Perhaps this visual experience will produce a psychosis of insecurity which becomes the problem of another profession.) At any rate, esthetics are certainly involved.

Lurking behind all this design process will be economic studies, relating technical method and human needs to cost factors, weighing relative values of material, labor, time and engineering, and rates of depreciation and obsolescence. There will be a constant questioning as to the "rightness" of using a thin shell concrete dome instead of an alternative method, and in many instances the economic findings will be negative. So perhaps principles developed through research in the area of building economics will mean that the particular shell we have discussed as an example will never be built after all, unless principles are overridden by a controlling desire for architectural exhibitionism. (In that case we shall have to go to the psychologist for our answer.)

This example indicates the range of research which is relevant to architecture. We cannot imply any orderly process upwards from basic science, through degrees of applications leading inevitably to conclusions in architecture. It may be that the designer contemplated the shell of his breakfast egg and then and there wanted to do a thin shell concrete dome. If so, he still had to find the necessary principles of mathematics, engineering, technique, economics and esthetics. But it is clear that however the design process may work, whether inductively or deductively, many disciplines contribute to architecture, and their findings to architectural research.

For this reason the University appears to be a most suitable place for research in architecture. Nowhere else can the findings of related areas of knowledge be so readily brought together. And the professional Schools of Architecture are already there. The search for knowledge is fundamental to good teaching. Incidentally, to return to defining the area of architectural research, we can do worse than to say that whatever we teach to future architects is a proper subject for architectural research. We might also include what we would like to teach.

### **Architecture, Research and Principles**

History records man's constant effort to change and improve his environment. He has changed it through building, and improved it through architecture. He has also damaged his environment through architecture — bad architecture.

Building executed without regard for its impact on man, that is, building done without regard for its quality as architecture, is not just amoral, but immoral. Building is bound to condition human life as soon as man is affected by it, whether consciously or not. It never can avoid its responsibility to be architecture, and whoever decides what, where and how to build immediately assumes the functions of an architect. A responsibility of our profession is to try to see that building becomes good architecture; it cannot escape being architecture, whether good, bad or indifferent, as soon as man is aware of it. The determination of what is good and what is bad is a matter of principle, and the purpose of research in architecture is to discover and establish principles, principles that are scientifically demonstrable and universally applicable; and which when practiced will shape the gigantic and apparently chaotic forces of our time into a reasonable and orderly process of creating man's physical environment. Our purpose and hope is that this environment may be good. If we seek through research, and then apply through practice, principles that are demonstrably true, we shall be well on toward this goal.

*Reprinted from the Journal of the Architectural Institute of America.*

## VIEWPOINT

**“In the case of the very small client who wants, but cannot afford full architectural services, there is some professional responsibility for basic planning and design and public relations which should be passed on to the small office of the newcomer to the profession whose enthusiasm and low overhead would seem to suit him for such tasks.”**

When the very small client comes to my office, and when his first question is “How much do you charge for a set of blueprints?”, I know what type of client he is. I usually say: “Look, if you would need glasses, where would you go? The optometrist across the street will perhaps charge you 25 dollars; the chain store around the corner one dollar. The chain store is mass production and the optometrist’s glasses are custom built. The same pertains to “blueprints”: my design will be custom built, whereas the real estate broker’s blueprints are mass production.”

Often the very small client wants drawings for a house. All architects know that a house is an important project, since it highly directs the life of a family. They know also, how difficult it can be to design a good small house and that quite a number of details should be prepared for a really good job. No wonder that the architect’s minimum fee for small single houses is as high as 14% in some European countries! For 14% one can do a reasonably good job and still make a small profit.

Would the small Canadian client pay as much as 14%? I’m afraid not. The common man does all sorts of work in and around the house in Canada, where labour is so expensive. Various kinds of do-it-yourself literature will help him a great deal. He will soon consider himself an insider, although he has not got a clue of what designing is. His “design” is a collection of more or less practical (or crazy) ideas, put together in a poor sketch, which he presents to the architect.

It will take the architect a great deal of time and patience to discuss the problem with the small client and to transform the sketch into a real design; more than 8% will pay for! In many cases an architect rejects the commission, although his responsibility tells him not to.

By all means: let the older architect pass the job on to the young graduate; it will give him some experience and perhaps a good start.

*Jan H. Albarda, Weston*

If we assume that the “very small client” must obtain services from someone for the erection of his building, then he can afford full architectural services. In return for the fee, however, he should expect a better building for equal cost or the same building for less cost.

Surely this is the main reason for employing an architect for budget projects. Otherwise we would be out of business and the contractors and engineers would have it all.

I’m for helping the newcomer, but if This Viewpoint suggests he reduce the normal fee because he has a small overhead, or by supplying partial services, then I disagree most strenuously. This practice, as it becomes more prevalent by the newcomer to the profession, is contrary to our basic principles of service to the client, and if continued will only hasten the end of the profession as a profession.

*G. E. Wilson*

It is obvious that, for the protection of the client, the architect and the profession in general, all projects that are legitimately to be termed ‘Architect designed’ must be complete service jobs. Realistically, however a solution must be found by the profession to help the very small client obtain architectural advice or consultation, thereby benefitting the whole community.

Members of the general public must be informed of the fact that **NO JOB IS TOO SMALL FOR THE ARCHITECT.**

It of course follows that every firm is not set up to handle the very small job, but that if any firm is able to do this with a chance of some profit, it is the younger firm, the recent newcomer to the profession. It would benefit all concerned and lead to a more cohesive, consolidated feeling within the Association if the larger firms were to send on work that is, due to the nature of the job, impractical to look after. This all presupposes that these very small clients are approaching the architect at all . . . rather unusual, one would imagine.

As we look about and see the number of Architectural Mistakes in view, surely most of us wish that more people could obtain even the briefest architectural help or guidance.

It is the Profession’s obligation to allay the prevalent attitude that even to approach an Architect is a costly business.

Much could be done to improve our physical environment if these potential clients, though small, felt that they could consult with an architect for a short time to be given direction and a brief analysis of the nature of their problem.

This could be done in a ‘clinic’ form where all members of the profession might voluntarily consult, each member devoting as little as one half day per year in a city such as Toronto. If the problems required more than on-the-spot advice the consulting architect would be able to take on the job himself or send it on to the firm of his choice that would be able to undertake it.

In such a way all architects could justly feel that they were being of greater service to the public and therefor in the long run, to themselves.

*David H. G. Molesworth*

I do not believe that partial services “should be passed on to the small office of the newcomer to the profession” for public relations or any other reason.

I believe that partial services are a “necessary evil” and should be discouraged, but, must be coped with by all architects until eliminated.

I believe that such a large portion of the buildings being built are controlled by clients who want only partial services that we must realize that this volume of work will have a large bearing on the architectural scene of any community. In view of this fact and in view of the fact that I believe that architects should be concerned with the end result of the architectural scene, I feel that we must not let the clients prejudice this end result by limiting this type of service to the unskilled and the inexperienced.

In conclusion, therefore, I say that the conscience of the architects as a whole must of necessity suggest that partial services should be executed by the experienced and the expert wherever possible in order to display to the client the benefits of architectural services and thus encourage the use of full services on subsequent projects resulting in, one would hope, a general up-grading rather than down-grading of the architectural scene.

*Harry B. Kohl*

This seems to be a four sided question; (1) should the well established architect do it himself or pass such commissions on to a "newcomer to the profession"; (2) the helping of the "newcomer" to establish himself in practice; (3) public relations from the point of view of the profession as such and (4) the general question of "partial services".

To reverse the above order there is general agreement that "partial services" is a bad bargain for the owner, the architect and the profession of architecture. It would, therefore, seem to be a poor way for a new man to make his professional start. But refusal by architects to perform any partial services at all is obviously absurd and would be very much resented by the public. There are exceptions and this may be taken to be one of them. I would, however, base my grounds for exception in this case, not so much on the stature of the client and on his appreciation of architectural services as I would on the attitude of the new architect towards his professional future as determined by his character and early training. In other words, if he places such activities in their proper proportion in relation to his architectural future, he will do himself good and the profession no harm.

Most well established architects do recommend, and I am sure will continue to recommend, well qualified younger men for services which are better suited to these newcomers than to those who have become used to larger and probably more comfortable commissions. Formerly most young architects or newcomers to the profession hoped to make a start by doing houses. These opportunities are fewer now than heretofore and broader avenues have opened in all directions, but my hat continues to be off to the young architect who can design and direct in its entirety the building of a beautiful house — well detailed — well suited to the client's needs and to its surroundings with costs within the limits of his budget and which may become, over the years, a symbol of the family life.

R. Schofield Morris

Some may accept the statement "the very small client who wants, but cannot afford full architectural service" as being

valid. I do not. The very small client is the very one who cannot afford to be without full architectural services. The very small client obviously cannot afford a loss, and so will insure his building against fire damage. By this same token, he cannot afford inferior materials which will depreciate his building, nor can he afford repairs for faulty construction. His insurance protection against such potential misadventures is to use full architectural services.

This client has two choices. He can proceed without full architectural services, and hope by spending the savings on architect's fees on the building to get three or four per cent more accommodation. In this case he is gambling this increased accommodation against the possibility of inferior materials, poor workmanship, departures from drawings and or specifications, and other factors which may easily reduce the value of a building by a good deal more than three or four per cent.

His other choice is to use full architectural services to insure that not only basic planning and design are carefully considered, but also that these considerations are properly translated in terms of material and labour at a competitive price into a structure which is a good investment and a pleasure to its owner, and a credit to the architect.

Let us consider the parallel proposal that work for the small client be passed on to the small office, and to the newcomer to the profession. This, is an excellent idea. There is no doubt that many jobs which represent a financial loss to a larger firm are quite capably handled, and welcomed by the smaller office.

However in passing smaller jobs to smaller offices, let not the architect encourage full services for partial fees. For as all continuing practising architects have learned, no architect can give complete services for a partial fee and stay in business. Therefore to suggest that smaller offices do a complete job for a partial fee is introducing them to business failure. To suggest that they do a partial job for a partial fee is encouraging them to a watered-down practice of architecture, which is not only potentially dangerous to the client, but also a very bad start for the young architect.

F. Bruce Brown

## LETTERS TO THE EDITOR

Editor, RAIC *Journal*

Dear Sir:

I should like to draw your attention to a mis-statement in the *Journal* for August. The Editorial suggests the only school of architecture to be found eighty years ago was in Paris.

The Architectural Association School of Architecture in London (the A.A.) celebrated its centennary in 1948.

W. Noel Thomas, Ottawa

Editor of The *Journal*

Dear Sir:

Following the 1958 Assembly I wrote a letter to the Editor which was published in the September issue of the *Journal*. In this letter I stated that while the Assembly provided an ideal forum for the discussion of serious problems facing the profession, little attempt was made to deal with these problems during the Assembly.

This year's Assembly was completely different and those who arranged it deserve much credit for the evident improvement. Particular credit being due to the Windsor Architects who because of their small number must have each contributed many hours of work in making arrangements.

Mr Robbins Elliott and his staff kept the machinery of the Convention well oiled and his prior tour through the Provinces has enabled him to become acquainted in a very short time with a great number of architects and the particular problems of each province.

The Detroit visit and the luncheon talk by Yamasaki were entirely successful, giving all of us the opportunity to view at first hand some highly publicized and successful pieces of Architecture and to gain more insight into the philosophy of a distinguished designer.

The symposia were an innovation which I trust will be continued, providing as they do an opportunity for all attending to participate actively in the proceedings. I agree, however, with Eric Arthur and Jim Murray, that they should be held earlier in the program for they would then provide many topics for productive and entertaining discussion between members during the rest of the Assembly.

It is to be hoped that this year was an indication of the tenor of future Assemblies with continued improvements. We in British Columbia are already conscious of this trend in making our preliminary plans for 1962.

W. G. Leithead, Vancouver

## NEWS FROM THE INSTITUTE

### **Two New Committees Established**

President Maurice Payette announced recently that the Institute has established two new special committees as a result of recommendations submitted to the 1959 Annual Assembly at Windsor in May. During the "Profession at the Crossroads" seminar at the Assembly a syndicate recommendation favored the creation of a committee to bring about an inquiry into 'package deal' operations by an independent research body. The Executive Committee considers that the profession is handicapped through lack of essential information about the various methods employed by 'package' dealers and the extent of their operations on a nation-wide basis, but believes that the profession itself must accept responsibility for accumulating data.

Colin H. Copeman of Montreal has accepted the chairmanship of a new Special Committee on the Package Deal, and his group will gather information and submit a report to the RAIC in 1960.

Eric Arthur of Toronto has agreed to chair a new Committee for the Preservation of Historic Structures. It is hoped that it may be possible for the Institute to secure financial support from the Canada Council in arranging the cataloguing of buildings having especial architectural and historical significance.

Both chairmen are selecting committee members on a nation-wide basis.

### **1960 Annual Assembly Theme at Winnipeg: "Professional Responsibility"**

Executive Director Elliott recently met with a Winnipeg host committee to make tentative plans for the 1960 Annual Assembly, which is scheduled for the Fort Garry Hotel in Winnipeg from June 1-4 inclusive. The convention theme will be "Professional Responsibility". Associated with the Assembly will be a pre-convention homecoming for graduates of the Manitoba School of Architecture. A strong attendance of Manitoba grads is expected to be drawn to the Assembly by the new building for the School of Architecture, which is now nearing completion. Those who attended the 1950 Assembly in Winnipeg will be glad to hear that another gay Beaux Arts Ball is planned. A manufacturers exhibition will be lo-

cated on the seventh-floor ballroom of the Fort Garry convention headquarters.

### **Autumn Film Schedule**

A print of the film "Plan for Learning", produced by the U.S. Steel Corporation and given a premiere at the 1959 AIA Convention in June, may be secured by Provincial Associations and chapters on short-term loan from RAIC Headquarters during the period October 1-December 1.

### **"Architecture As a Vocation" Reprinted**

A revised version of "Architecture As a Vocation", edited mainly by Professor W. G. Raymore, has been received from the printers and has been furnished to Provincial Associations and Schools of Architecture. Copies are available upon request.

### **Important Meetings Scheduled for Ottawa**

The RAIC Legal Documents Committee under Chairman Randolph Betts of Montreal, will meet in Ottawa on Thursday, October 1 with the Standard Practices Committee of the Canadian Construction Association to discuss proposed amendments in documents used jointly by architects and contractors. A third meeting with the Department of Public Works since early May on the subject of the level of fees paid by the Federal government to private architects is also scheduled for October 1.

### **RAIC Sponsors Montreal Exhibit**

The office of Peter Dobush, of Dobush and Stewart, Montreal, deserves commendation for creating, on behalf of the RAIC Exhibition Committee under the chairmanship of Alvin Prack of Hamilton, an excellent group housing design exhibit at the Community Planning Association conference.

### **Fifth Massey Medals Competition Proposed for 1961**

Meeting at Ottawa headquarters recently, the RAIC Executive Committee decided that, subject to approval by the Massey Foundation, the Fifth Massey Medals competition should be held in the autumn of 1961, with the Exhibition at the new Lorne Gallery in Ottawa commencing Thursday, November 2, 1961. The last competition took place in the fall of 1958.

## BOOK REVIEWS

"APARTMENTS AND DORMITORIES" An Architectural Record Book published by F. W. Dodge Corporation, 1958. Price \$8.95.

Is it worth reading? Yes! Was it worth being written? Definitely! For the problem is enormous and the solutions, in the majority are bad. There are a few exceptions, and these are shining examples of the promise and possibility of a brighter tomorrow. The contributors are brilliantly informed and their papers are excellent, informative and constructive.

In the words of the contributors – The Problem – "Local redevelopment agencies often tend to think of projects rather than communities and try to recoup write-down costs by maximum densities."

"Income stratification is another example of the Mechanical approach to housing, and life itself, that cries out for reconsideration."

"Housing design is hedged in, surrounded and overwhelmed by a super-bureaucracy which would reduce everything to formula and put it on a punch card."

The Solution – "Mixed high and low densities" "acknowledge the desirability of urban living." "Its achievement guarantees the city's future."

The following are some of the book's best examples of fine solutions which are beautifully photographed: –

- Lake Shore Drive Apartments – 1951 – Chicago – L. Mies Van der Rohe – Architect
- 100 Memorial Drive Apartments – 1950 – Cambridge – Kennedy, Koch etc. Architects
- Vallingby – Stockholm Sweden – Höjer and Lundquist – Architects
- Park Forest – Illinois – Loeblich Schlossman & Bennett – Architects
- Prairie Ave. Courts – Chicago – G. F. Keck, Wm. Keck – Architects

In general, and by way of criticism, however, I found the multiplicity of small special projects of no general interest and of very little value. Further, I found that many of the reports on interesting projects were very very frustrating due to their brevity and incompleteness. It becomes very apparent, on reading this book, that there is much more bad rather than good design being built. Matter of fact the reasonably second rate work being done locally is on a par or even of a higher quality than the majority of apartment buildings reported on in this issue.

In conclusion, therefore, the "subject" needed this book, and more like it, because it concerns itself with a building type for which there is an enormous demand throughout Canada because of the growth of an element in our society that wants this type of accommodation. In view of this enormous demand a building has been created which because of its volume of demand will affect a large area of the architectural scene of our country and as such requires more thought and the recording of these thoughts, namely – more books about apartment design.

Harry B. Kohl

ARCHITECTS' WORKING DETAILS VOLUME 5 edited by D. A. C. A. Boyne and Lance Wright published by the Architectural Press London.

This volume contains a selection of specially prepared pages in which interesting solutions to many architectural problems are illustrated by means of photographs and detailed drawings. Many of these drawings appeared originally in the Architects' Journal.

Headings and sections in Volume 5 are basically the same as the preceding four volumes, and include the following: – Windows, Doors, Staircases, Walls and Partitions, Roofs and Ceilings, Heating, Lighting, Water Supply and Sanitation, Furniture and Fittings and Miscellaneous.

Any architectural office, I think, will find this type of book useful. This is particularly true in the case of a young architect without a large file of tried and successful details to call upon. Much of the clumsy process of trial and error can be eliminated. It is not intended to provide ready-made solutions to the architects' detailing problems, but it does give him a starting point to many of the unusual situations he encounters.

The wood detailing is particularly interesting. The Canadian architect will be a bit startled and envious to see the extensive use of fine woods, such as teak, sycamore, walnut and mahogany.

Unusual problems such as portable market stalls, running davits, laboratory fume cupboards and service ducts are skillfully solved.

The detailing with few exceptions is refined and sensitive. The design of the book, with a large full page photograph on one side and the full page drawing across-page, provides the ideal arrangement for the quick understanding of each subject.

The Architects' Working Details should make a useful addition to any architect's office.

Lucien Delean

CLASSICAL SINHALESE SCULPTURE. 300 BC – 100AD D. T. Devendra Alec Tiranti, London, 1958. 48 pp. 128 photographic plates with accompanying map.

Island cultures are a delight to study. As with England and Japan, the art of Ceylon shows a conservative classical bent, quite in contrast to the jagged cyclical experimentation of mainland art forms. Freed from the successive waves of conquest which disrupted the art of Northern India, Sinhalese sculptors were able to choose just those motifs from the religious iconography of Hinayanan Buddhism, which could contribute to a consistent evolution of style. Avoiding the excesses of the Mahayanan Buddhist art of the North and uncorrupted by Islamic elements, this sculpture provides an excellent case study of an art developed in relative isolation. Mr Devendra shows a knowing eye for the significant detail, whilst the accompanying plates, largely by Victor Sumathilapa are a visual delight. The studies of the inevitably realistic Elephant Relief and of the grotesque dwarfs at Isurumuniya, of the stele friezes at Mihintale, of almost Pompeian elegance, and of the classic dignity of the Avukana Buddha, indicate an art form which can offer instructive analogies to the best of European sculpture. All in all, a handsome addition to your shelf.

James H. Ackland

## FROM THE EXECUTIVE DIRECTOR'S DESK

IT HAS BEEN SUGGESTED that housing, "the industry capitalism forgot", is probably more maligned than it deserves. However that may be, the RAIC has secured the approval of Central Mortgage and Housing Corporation and the Federal government to establish a three-man architectural committee of inquiry to examine the manner in which our residential areas are being created.

The terms of reference of this Committee are presented in detail elsewhere in these pages. The Committee hopes that members of the profession in all areas of the country will accept an invitation to express their views about the housing industry. They share a strong opinion that the success of their Inquiry, and the effectiveness of their report to be submitted in 1960, will significantly depend upon the interest, enthusiasm and cooperation of Canadians, whether they sold the land, provided the mortgage, installed the storm sewers, designed or erected the dwelling, or lived in it.

What are the difficulties Messrs Dobush, Pratt and Parkin will face when they commence their cross-Canada deliberations at Edmonton, October 20? Housing suffers from a plethora of problems ranging from aesthetic controls to zoning strait-jackets. The central trouble is restrictions and controls on the industry imposed from outside. Home building is still only on the threshold of taking full advantage of 20th century methods—technological, managerial, fiscal, design and distribution—the methods that have produced in abundance autos and super highways, aircraft and rockets.

"The system of construction and mortgage finance," an American observer said recently, "the basis of building regulation and inspection, and the organization of the design profession itself, all show allegiance to the notion that houses are and will continue to be assembled at the site by skilled craftsmen under the direction of contractors who have estimated what it will cost to buy materials from local distributors . . ."

Another complaint is that most producers of building materials are either small concerns or are located at some distance from the job site. In the matter of supplying

materials, there is a great need to have more research undertaken at the level of the producer.

As any home buyer knows, the price of new homes is going up. The average 1956 house, for example, was priced 41% above the average 1950 house, although the newer unit was bigger and possessed more built-in equipment. The demand for new housing is on the rise. A continued population increase is in prospect in the years just ahead. The demand for suburban family homes, the mainstay of the industry's present output, will increase. But the sharpest increase in demand is likely to come from young married couples without children who desire in-town rental units, and from older couples whose children have left home.

The prospect in the 1960's for a major step-up in housing output will create not just a change, but a real need for new materials, designs and methods. It will be necessary for more architects to pay increased attention to the dollars and cents problems of fabricating, distributing, financing, site scheduling, erecting and servicing.

The Committee of Inquiry may find that the missing link in the search for better housing is an architect or designer who understands industrial production, its costs, its potential and limits, and who also is a skilled designer of shelter for living.

As more and bigger parts of houses are factory-assembled into components, architects will be lifting their sights from assembling houses from catalogues of parts, to the design of the big components. An unacceptable alternative role of the house architect in the future would be to move toward city planning, coping with site, neighborhood, town or perhaps regional design.

As the RAIC Inquiry assembles it is well to note that four major forces are driving the housing industry toward what may become a revolution in the sixties. Fed by pressure from the United States, these factors are: rising demand, an increasing size in builder or land developer operations, increasing off-site production, and for the first time, the entry into housing of major corporations with really important financial and management resources.

## UN MOT DU DIRECTEUR EXÉCUTIF

ON A PRÉTENDU qu'il se dit plus de mal de l'habitation, cette "industrie que le capitalisme a oubliée", qu'elle ne mérite. Quoi qu'il en soit, l'Institut a obtenu l'approbation de la Société centrale et du Gouvernement fédéral au sujet de l'établissement d'un comité de trois architectes chargés d'enquêter sur la façon dont sont créés nos quartiers d'habitation.

On trouvera ailleurs, dans le présent numéro, un exposé détaillé des pouvoirs dont est investi cet organisme créé par l'Institut. Les membres du Comité espèrent que les architectes de tous les coins du Canada se rendront à l'invitation qu'ils leur font d'exposer leurs opinions sur l'industrie de l'habitation. Ils sont tous fermement convaincus que le succès de leur enquête et l'efficacité du rapport qu'ils doivent soumettre en 1960 dépendront, dans une large mesure, de l'intérêt, de l'enthousiasme et de la collaboration des Canadiens, qu'il s'agisse de ceux qui ont vendu le terrain, fourni l'hypothèque, posé les égouts d'eaux pluviales ou dressé les plans de l'habitation, ou de ceux qui l'ont construite ou qui y demeurent.

Quelles seront les difficultés auxquelles devront faire face MM. Dobush, Pratt et Parkin lorsqu'ils commenceront le 20 octobre, à Edmonton, les délibérations qui doivent les conduire partout au Canada? L'habitation est assaillie par une pléthore de problèmes, depuis les exigences de l'esthétique jusqu'à la camisole de force du zonage. Le mal le plus grave consiste dans les restrictions et les freins qui lui sont appliqués de l'extérieur. La construction des maisons d'habitation ne fait que commencer à tirer parti des méthodes du XXe siècle, en matière de technique, de gérance, d'imposition, de conception et de distribution, méthodes qui ont permis de produire en abondance des automobiles et des autoroutes, des avions et des fusées.

Un observateur américain disait récemment que "le financement de la construction et des hypothèques, ainsi que la réglementation et l'inspection de la construction, de même que l'organisation de la profession d'architecte, reposent tous sur une conception selon laquelle les maisons sont et continueront d'être assemblées sur place par des ouvriers spécialisés, sous la direction d'entrepreneurs qui ont évalué le prix d'achat des matériaux chez des distributeurs de l'endroit . . ."

D'après un autre grief, la plupart des fabricants de matériaux de construction ou bien sont de petites entreprises ou bien sont situés à une bonne distance des chantiers de construction. Dans le domaine de la fourniture des matériaux, il faudrait entreprendre d'autres recherches au niveau du producteur.

Quiconque achète une maison sait que le prix des maisons neuves est à la hausse. Ainsi, en 1956, le prix moyen d'une maison était de 41 p. 100 plus élevé que le prix moyen de 1950, même si l'on tient compte du fait que la maison plus récente était plus grande et comptait un plus grand nombre d'appareils incorporés. La demande de nouvelles maisons augmente. On prévoit une hausse constante de la population au cours des prochaines années. Le besoin de maisons familiales dans les banlieues, qui est le principal soutien de l'industrie en ce moment, ne cessera pas de grandir. Mais la plus forte augmentation de la demande se fera sans doute sentir de la part des jeunes mariés sans enfants qui désirent louer un logis en ville, et de la part des parents plus âgés dont les enfants ont quitté la maison.

On prévoit une très forte augmentation de la construction de maisons au cours des années 60, qui créera non pas un simple changement mais un véritable besoin de conceptions, de méthodes et de matériaux nouveaux. Les architectes devront de plus en plus s'intéresser aux frais, en dollars et en cents, de fabrication, distribution, et financement, d'organisation sur le chantier, d'érection et de service.

Le Comité d'enquête pourrait bien découvrir que l'élément-clé d'une habitation meilleure est un architecte qui comprendrait ce que sont la production industrielle, son coût, ses possibilités et ses limites, et qui serait en même temps capable de concevoir une véritable demeure.

A mesure qu'un plus grand nombre de pièces de maisons, et de pièces de plus en plus considérables, seront assemblées à l'usine, l'architecte portera son attention de l'assemblage des maisons à l'aide de catalogues de pièces, sur la conception même des grosses pièces composantes. Un autre rôle, mais inacceptable, celui-là, que pourrait jouer à l'avenir l'architecte qui s'intéresse à la construction de maisons d'habitation, consisterait à se tourner vers l'urbanisme pour s'occuper de l'aménagement des sites, des quartiers, des villes ou même des régions.

Au moment où se réunissent les enquêteurs de l'Institut, retenons que quatre forces principales poussent l'industrie de l'habitation vers ce qui pourrait bien être sa révolution des années 60. Stimulés par la pression qu'exercent les Etats-Unis, ces facteurs sont: une hausse de la demande, l'augmentation du volume des opérations du constructeur ou de celui qui met des terrains en valeur, l'accroissement de la production des pièces loin du chantier et, pour la première fois, l'apparition, dans le domaine de l'habitation, de grandes sociétés qui disposent de vastes ressources financières et administratives.

## SYMBOLISM IN CONTEMPORARY ARCHITECTURE

(Concluded from page 319)

master builder, the hero is heard to compare the churches which he will build, given into his mind and care by God, with unborn children which he must lead to the fullness of life ("et qui sans moi mènerait à leurs noces ces naissantes églises dont Dieu m'a remis la charge"). This quotation is itself full of symbolism, as a building is compared to a human birth and life. In more modern usage, we might say that an architect, if he is a good one, has a certain sensitivity which enables him to interpret more correctly the culture he is concerned with, and so create a more adequate symbol. In such a way, architecture actually fashions civilization, as well as the reverse process. If, then, modern buildings are unsatisfactory as symbols, the blame can be laid not only at the feet of the architects, but also at those of the culture itself. Consequently, changes must be made in both our culture and our architecture, in order to reach a more satisfactory environment. And archi-

ects who labour thoughtfully and sensitively to create better symbols for civilization will surely contribute to its advancement, as well as expressing its fulfillment.

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L. Moholy-Nagy, *The New Vision*.  
Louis Sullivan, *Kindergarten Chats*.

### EDITORIAL BOARD CHANGES

The masthead of the *Journal* this month shows changes in the composition of the Editorial Board. F. Bruce Brown of Toronto and E. J. Turcotte of Montreal leave the Board, and three new appointments are made. Peter Collins of the staff of the School of Architecture of McGill University and Denis Tremblay of Sherbrooke are appointed to represent the Province of Quebec. L. E. Shore of Toronto joins the Ontario representation.

Mr Brown was appointed in 1943 and Mr Turcotte in 1949. To them is due the thanks of the Board and of the Institute for many years of faithful service. In welcoming the new members, I express the hope that they will find membership on the Board both interesting and rewarding.

*Robert C. Fairfield, Chairman, Editorial Board*

### SCHOLARSHIPS

#### CANADA COUNCIL SCHOLARSHIPS

The Canada Council announces that Scholarships of an average value of \$1,500 will be available in 1960 to architectural graduates for studying leading to a Master's degree. The Scholarships will be tenable in Canada or abroad.

Candidates must hold an appropriate Bachelor's degree and at the time of taking the award must have been admitted to graduate study. Renewal of the Scholarships is considered under certain circumstances.

Completed applications and supporting letters must reach the Canada Council's Office, 140 Wellington Street, Ottawa, not later than November 15th, 1959.

#### AMERICAN STANDARD PRODUCTS SCHOLARSHIP

The first award of American Standard Products (Canada) Scholarship for European Travel has been won by John H. Fisher of Scarborough, Ont., a fourth year student at the University of Toronto School of Architecture.

### POSITION WANTED

Architect with active practice in Western Canada for seven years desires to amalgamate and seeks partnership in a progressive firm. Replies strictly confidential, c/o the *Journal*.

### CONTRIBUTORS TO THIS ISSUE

**David Campbell Freeman**, whose essay on page 317 won the Colonna Company of Canada fifth year prize in the University of Toronto School of Architecture this year, asked for his biography, wrote: "I was born in a British hospital in Paris in 1935. In June of 1936 we returned to Canada and my father returned to his position at McMaster University, Hamilton, where he is at present professor of French. My 'formative years' were spent in Hamilton, with a short term in Chicago from 1948 to 1951. I completed high school at Westdale Collegiate, Hamilton, and presently moved into the School of Architecture at the University of Toronto. Since graduating this spring I have acquired a DKW station wagon, a wife (the former on credit, the latter by very good fortune) and many debts. I am now working for the firm of Craig, Madill, Abram and Ingleson in Toronto."

**Mrs Jennifer R. Joynes**, who writes on Women in the Architectural Profession on page 320, is Assistant to the National Director of the Community Planning Association of Canada. She has held a number of editorial positions, among them a writer on the Information staff at CMHC. Mrs Joynes is a graduate of the University of Manitoba, where she majored in Philosophy and English.

**Hugh Newton**, who wrote the article on Birmingham's "Flat-ted Factories" on page 310, is a public relations counsel in Toronto, and his clients include the Ontario Association of Architects. Mr Newton was born in Winnipeg, and chose radio and newspaper writing for his career. Between 1940 and 1950 he was active chiefly in the newspaper field, writing for papers and news agencies in Toronto, Montreal, Winnipeg and the Press Gallery at Ottawa. He founded his own public relations firm, Hugh S. Newton and Company, in Toronto in 1950. While on a visit to England, he met the architect of the buildings, Philip Skelcher, by chance in what he describes as a very pleasant pub in Solihull, and the article was the result.



# THE INDUSTRY

## CIRCLGRID—A NEW LUMINOUS CEILING PANEL

J. A. Wilson Lighting & Display Limited introduces Circlgrid—a new rigid luminous ceiling panel of non-burning vinyl. These versatile two-foot square panels will not support combustion and can be safely installed under sprinklers.

Circlgrid provides an attractive versatile lighting component which diffuses reflected light and provides a highly controlled quality of glare-free illumination. Vacuum formed sheets of vinyl are hermetically sealed every ½ inch to a centre membrane providing great structural strength. Circular openings allow free air circulation and glare-free efficiency.

Requiring a minimum of maintenance, the Circlgrid louvre panels fit easily into any simple inverted Tee bar support, and can be cut to any desired size.

Circlgrid is available in several material transparencies: white on both sides gives a low brightness panel recommended for high footcandle levels; frosty clear and white is the most popular and is suitable in brightness value for the average installation; frosty clear on both sides is a higher brightness panel suitable for many merchandising areas where some sparkle and brilliance is an asset.

## REVISED SONOAIRODUCT MANUAL AVAILABLE

A new revised installation manual covering the use of Sonoairduct for perimeter heating installations in slab-on-ground construction available on request from the manufacturers, Sonoco Products Company of Canada Limited, Brantford, Ont.

## RE-DESIGNED RADA MIXING VALVE

The Rada 621, "the world's smallest thermostatic mixing valve", is a re-designed version of the Rada Minor. It is intended for shower heads which require less water than the old-fashioned deluge types. The newer shower heads, or spray bib-taps, depend for their satisfactory operation on such low flows as from 1 to 3 g.p.m., for which requirement the Minor was widely and successfully used, and the Rada 621 has now been introduced.

A feature of the Rada 621 is its compact design and neat appearance, enhanced by the functional regulating handle and indicating scale-plate, which makes quick temperature selection easier.

Given the same flow capacity as the Minor, this valve is particularly suitable for use in shower cabinets, cubicles, and ships' cabins where little space is available and water and fuel conservation vital.

The thermostat assembly is self-contained and fits into the valve body as a cartridge fits into a gun. The valve can be dismantled with a screwdriver. The thermostat and valve mechanism unit is removed and replaced in a matter of minutes. This is an advantage especially welcome in hospitals and elsewhere as maintenance cannot interrupt the use of the equipment. Further information may be obtained from Walker, Crossweller and Co. Ltd., 16th Avenue East, Markham, Ont.

## FACTS ABOUT HAYDITE

Haydite is an expanded shale lightweight aggregate which replaces sand and stone in concrete, reducing its weight by one third without loss of strength. It is named after Stephen J. Hayde who invented the process for this versatile material in 1919. Mr Hayde personally supervised the setting up of the first Canadian Haydite plant for the Cooksville Company Ltd. (now Cooksville-Laprairie Brick Limited) at Cooksville, Ontario in 1928.

The Haydite manufacturing process consists of burning the shale in rotary kilns at a temperature of 2000°F, bloating the shale which emerges in clinker form. The clinker is then crushed and screened into separate aggregate sizes and stored for ageing in outside storage.

Haydite has come to be recognized as the outstanding lightweight aggregate for concrete both in Canada and the U.S.

Canadian rights to the name Haydite are owned exclusively by Cooksville-Laprairie Brick Limited.

Mr Hayde's initial purpose was to develop a lightweight concrete suitable for building ocean-going barges. A number were built in the early twenties and over 100 went to sea in the second world war.

Today the material is used principally in general construction in the form of ready-mix concrete for building frames, floors and bridge decks and in masonry units for exposed interiors in churches, homes, schools, and a wide range of other structures. In addition, Haydite is widely used in pre-cast floor and roof slabs and in prestressed concrete. It is becoming increasingly popular as the material for ornamental and functional grille-work, while such delicate construction details as church domes are fabricated quickly using expanded shale concrete with the new thin shell design concepts.

Through its unique combination of construction values, lightweight concrete has opened up new avenues in every field of construction. These values include: uniformly attractive texture, low shrinkage, close dimensional tolerances, excellent acoustics, low thermal conductivity, high structural strength, light weight, high fire resistance, durability, low maintenance, numerous pattern possibilities, mouldability, pleasing natural finish, non-staining and non-corrosive surface, enduring paint base, excellent plaster and stucco base, nail retentivity.

The acoustical quality of Haydite has given rise to many applications, particularly in schools, churches, auditoriums, halls and indoor sports areas such as bowling alleys. Ordinary hard wall surfaces absorb little sound and reflect most of it back into the room whereas Haydite absorbs up to 45 per cent due principally to its porous surface.

Expanded shale concrete is valued in construction for its low thermal conductivity, providing savings in the installation and operation of heating and cooling equipment.

Expanded shale masonry presents a uniformity of texture and a pleasing warmth of appearance which fulfill the architect's desire for natural finishes. The diversity of sizes available permits the imaginative use of a wide variety of patterned designs, ranging from the simplest running and stack bonds to the more intricate and highly attractive random ashlar.

As a finished wall, Haydite masonry units need no strapping and plastering but give all the necessary strength and fire resistance. They function not only as the structural wall, but also without further finishing provide textured beauty, acoustic value, and fire resistance in the same unit.

## NATIONAL ALUMINUM PRODUCTS CO. LIMITED ANNOUNCES HORIZONTAL SLIDING WINDOW AVAILABLE

The Napco Aluminum Horizontal Sliding Window is available for installation either in a wood buck or for a fin trim type of application. The window has one fixed light and one moving light, in the case of the smaller units, and on the larger units, there is a centre fixed light and two moving side lights. Both the fixed light and the moving lights are made for ease of re-glazing. The operation of the window is smooth, the sliding light running in a stainless steel track. Locking is positive and the locking handle has a handsome gold anodized finish.

This window represents a substantial advance on any previous similar type of window. The window has a very fine appearance both from outside and inside; it has narrow sight lines which do not obstruct vision or light and the rigid centre bar makes the unit self-supporting.

The vent is fully weatherstripped around the perimeter ensuring a weathertight joint when the window is closed.

The unit could also be supplied with a combination storm and screen window attached by means of a vinyl insulating strip, thus ensuring a complete thermal break from outside to inside. For further information write National Aluminum Products, Pickering, Ont.

# FACTS ABOUT GLASS

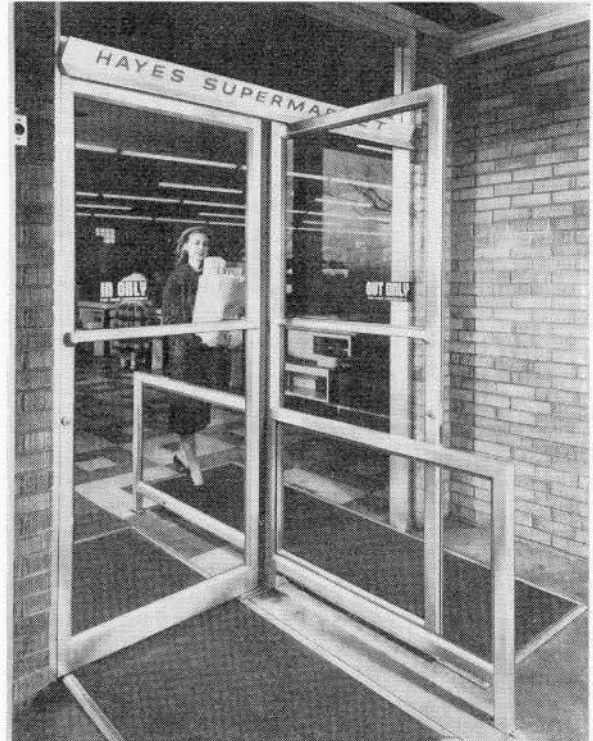
Vol. 7 No. 11

## ENTRANCES

### KAWNEER AUTOMATIC ENTRANCE

This is an all-electric automatic entrance designed as one unit comprising the automatic operating mechanism, the aluminum door, frame and vinyl electric mat.

A modern functional appearance with no protuberances is achieved by using a "narrow line" construction and *mounting the mechanism within a 4½" x 4" transom bar*. The placing of the mechanism up off the floor eliminates extensive alterations or installations below the floor level. When service is required a replacement unit can be installed in the transom bar in approximately ten minutes, with practically no disruption of traffic flow.



#### Safety features:



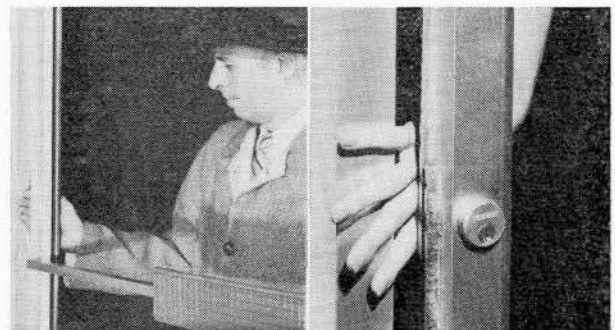
1. The Kawneer entrance is designed not to open until the mat is clear on the opposite side. It is virtually impossible to accidentally strike a person from behind.



2. Should a person decide to turn back through the entrance he or she cannot be hit as the door automatically stops immediately, on the closing cycle when the "safety side" of the mat is activated.

4. A *dampening* speed that moves the door to a safe-close together with a cushion of neoprene on the pivot jamb prevents damage to fingers, especially those of children, that are accidentally caught in the door.

3. The panic breakaway feature lets a person go through this door in the reverse direction simply by exerting slightly more than the normal pressure. When the door is clear it returns to its normal position without further need of adjustment. This reverse feature of the door also works with the power off, except that the door will not return to its closed position automatically.



References and members are those of the Kawneer Canada Limited.

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