JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

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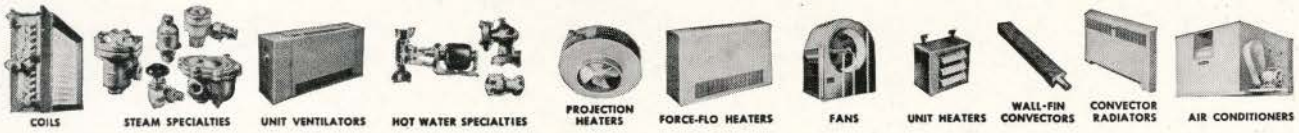
No. 11

THE COMPLETE LINE FOR '49



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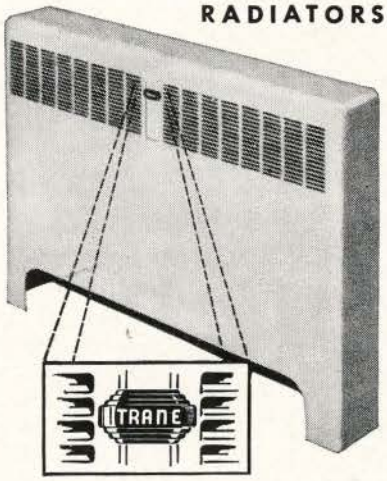

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JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

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PRESIDENT . . . . . A. J. HAZELGROVE (F)

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JOURNAL
R. A. I. C.
NOVEMBER 1949

WITH the Government's statement on low rental housing, 1949 marks a year of progress to which architects have long looked forward. Our own interest goes back to the beginning of the war, and particularly to the Committee on Housing and Community Planning, which was a Sub-committee of the Committee on Reconstruction. The work of that committee culminated in Report No. 4, which will be resurrected and read with interest by those who would prepare themselves for this new challenge to the profession. The numbers of the enthusiasts on that committee of 1944 have been depleted by the deaths of Mr. Ralph Ham and Mr. Marcel Parizeau. Both were staunch colleagues who gave unstintingly of their time and knowledge to the solution of the housing problem.

OUR information on the housing activities in Canada since 1944 is incomplete, but in 1943 the Ontario Association of Architects organized a convention which was the most interesting we have attended. We had a mixed bag of speakers that included a socialist parson, a tory M.P., a labor leader cheek by jowl with Mr. Mathers, a deputy minister and Mr. Anthony Adamson. Out of this melting pot of radicalism and conservatism came a brochure —Homes not Hovels. The highlight of the convention was the dinner speech of Miss Catherine Bauer, who kept an archbishop, distinguished citizens and one hundred architects wide awake for an hour and a quarter. The evening was hers till midnight had she chosen to go on.

THE checkered history of housing in the past in Canada is illuminated by several Acts. In 1913, the Ontario Housing Accommodation Act was passed by the government of that Province. It was a statute which made an appeal to public spirited citizens to risk something to improve housing in Toronto but the municipality itself guaranteed bonds up to 85% of the undertaking including land and buildings. So far as we know, the Company formed in Toronto under the Act has never called on the municipality for assistance. The Estate has been well managed, and comprises 242 apartments and eight houses. The late Mr. Eden Smith was the architect.

IN 1919, the report of the Ontario Housing Committee was published. The report is a model of its kind, an exhaustive study was made and credit, even thirty years later, must go to Prof. Sissons, the Secretary and to Capt. (sic) Marani, who was a member of the Committee. Even at that time, it was agreed that 15 to 20% of income was a desirable maximum for rent which the committee broke down as follows — "one day's wage for one week's rent; two days' wage for one week's food; one day's wage for one week's clothing; one day's wage for fuel, lighting and other incidentals; one day's wage for saving and pleasure". The committee adds the interesting observation "Obviously it depends on the use of the last whether or not he is to make a success of life".

ON the federal level we jump to 1938 with part II of the N.H.A. when a nice little sum of $30,000,000 went unspent. This section dealt, for the first time, with low rental housing. It could be undertaken either by a limited dividend company, which could borrow up to 80% of the value of the project at 1¾%, or by a municipality which could borrow up to 90% at 2%. The snags were twofold: 1—That the municipality had to agree to limit taxation to 1% of the project value in the case of a local authority and to forego all taxes if the limited dividend company could not otherwise make its payments to the government; 2—The Province had to guarantee principal and interest on all local authority or municipal borrowings under the Act. These provisions required enabling legislation from the Provinces and five, Ontario was not one, passed the necessary legislation. As we remember those distant days, housing activity was centred chiefly in Winnipeg, which was all set to go when war effectively blocked the realization of many good plans. The Act expired in 1940, and thirty million dollars, the total amount allotted, went back into the Treasury.

HOPES for present legislation look brighter because the situation is gloomier. The public is better informed and the inability of private enterprise to provide a house within the ability to pay of the majority of wage earners has been proved. In 1944 (Report No. 4) we could only say, without proof in Canada, that neither mass housing nor single houses could be built to meet the needs of those with incomes under $2,000 without a subsidy. Wartime Housing, builders' houses at $7,500 and Toronto's guinea pig, Regent's Park have settled that argument for "good and all".

Editor

BANK OF MONTREAL BUILDING, TORONTO

By R. SCHOFIELD MORRIS

THREE of the corners at the intersection of King and Bay Streets, Toronto, are occupied by Head Offices of Canadian banks. The fourth, or north-west corner, is occupied by the Bank of Montreal Building which, in addition to providing twelve floors of rentable office space, houses the offices of the Assistant General Manager of the Bank and Superintendent for Ontario and the main branch bank for Toronto. The building is sixteen storeys in height above ground with basement and sub-basement. The lot is one hundred and fifty-two feet on Bay Street to the east by ninety-four feet on King Street to the south. A private lane twenty feet wide bounds the property on the north, the property to the west being occupied by a two storey building. It is interesting to note that the first Toronto office of the Bank was on this site, remaining there until 1845 and returning one hundred and four years later. A low relief of this building appears on the observe side of one of the Bank's early coins and this design is recalled in one of the bronze medallions which ornament the main elevator doors on the ground floor.

The planning, design and finish of the Bank of Montreal building, Toronto, are described in this article, the structural and mechanical features and decorative sculpture being covered elsewhere in this issue.

The plan requirements of the building included, (1) as large a main banking room as was reasonably possible, (2) the avoidance of a split working space – that is, the division of the working space into two approximately equal areas, (3) two important entrances, one on King Street and one on Bay Street, (4) a separate important entrance to the rentable portion of the building, (5) a private elevator accessible from the street, serving the Bank offices and terminating at the Fifth Floor, (6) economic rental space in keeping with the building as a whole. The plan was controlled also by the work which had already been done when construction was stopped on the outbreak of War. The Architects at that time were Chapman & Oxley, to whose design the structure of the building consisting of the concrete walls and vaults in the basement and sub-basement and the steel structure up to the Third Floor, had been completed. Most of the rest of the steel had been fabricated and was stored during the War awaiting the resumption of building.

It was decided, when the War was over, to proceed as soon as conditions in the building trades made it feasible to do so, and to re-study the plan in the light of changes inevitable after the lapse of so long a time. As a result of Mr. Chapman's illness, two firms were joined to carry on the work, with Mr. K. R. Blatherwick, M.R.A.I.C., of the Bank staff as Associate.

The main elevators were placed on the west side of the building along the party line of the adjoining property where light would not be interfered with. These elevators are reached from an office building entrance on King Street.

Consideration of light and space produced an L shaped typical floor plan capable of being divided into many small offices of varying sizes or of being used as large open areas by a single tenant. A system of fenestration of almost equal wall and window, was adopted as giving the maximum of flexibility for the division of space into small or large offices.

The envelope of the building was designed within the limits of the City regulations governing such matters and, to keep within these limits, among other considerations, a ten foot set-back along Bay Street above the Second Floor was decided upon. This balances conveniently the space on King Street devoted to the elevator entrance on the west and enabled the centre line of the building and of the main Banking Room to be maintained. The regulations required a further set-back at the top of the building and this was fixed at the Fourteenth Floor.

The building is faced on all sides with Queenston limestone with a light bush hammered surface and the seven foot base at the grade line is of silver grey granite. The double hung windows are of wood with Sull Sash. Ornament is confined to the green bronze grilles and the Bank coat-of-arms over the revolving doors and to the low relief Architectural Sculpture which appears in the reveals of the entrances on King and Bay Streets and on the large curved lintels over these entrances.

Sub-Basement

A large part of this floor and of the Basement above is taken up by the Bank Vault where securities and records are placed for safe keeping. The floor also contains the boiler room and space for mechanical equipment, such as frequency converters, Diesel generators,

refrigerator equipment, etc., which are described elsewhere, repair shops, Engineers' and Building Superintendent's offices, lock-up spaces for tenants, and men and women cleaners' lockers and lavatories. The Vaults are serviced by a private elevator which runs from the Fifth Floor to the Sub-Basement.

Basement

A wide and easy monumental stair with bronze handrails, travertine treads and Crema Verteada marble walls, leads from the ground floor to a public space serving the Securities Department where the Bank's business in securities is conducted. The treatment of this space is very simple with comb grain oak counters finished in a light colour with a dado of equal height and similar finish. The floor is a warm grey terrazzo and the ceiling is flush and acoustically treated. The lighting is contained in recessed square panels with aluminum egg crate baffles.

The Safety Deposit Department adjoins the public space and is cut off from it by a monel metal grille of conventional design. This department consists of a vault control room which serves as an ante room to the safety deposit vault itself and to a series of small panelled offices on each side of a short corridor for the private use of customers. At the end of this corridor is a larger office for the use of estates, officials or others requiring more room for their business than that needed by the usual visitor. The general indirect lighting is placed on the tops of the seven foot partitions and is supplemented by bracket lights over the desks. Lights are also provided under the desks in order that any papers which may have fallen on the floor may be readily observed.

The materials used in the Vault Control Room are natural finished wood, French Rouge Antique marble and monel metal. The walls of the Vault itself are lined to the ceiling with safe deposit boxes which are of monel metal as is the ceiling. Lighting is by flush troffers with monel metal egg-crate baffles, thus avoiding the usual distracting multitude of pinpoint reflections produced by individual lighting fixtures on the polished surfaces of the walls and ceiling. A light green colour was introduced in the numbers of the boxes and in narrow strips which are part of the steel construction. A reddish tan carpet was used on the floor to relieve the austerity of the usual safe deposit vault and to provide a foil for the hard metallic interior.

Ground Floor

Almost the entire Ground Floor is occupied by the Toronto Branch banking room which is entered on the south from King Street and on the east from Bay Street. In order to take care of the difference in level between these two entrances, three steps separate the King Street Lobby from the main banking floor.

The public space is an area, inside the counters, twenty-three feet by one hundred and three feet by thirty-four feet high, and is flanked on each side by columns which carry trusses supporting the superstructure. These columns are encased in Belgium Black marble which was chosen for its colour, surface and absence of veining. Fluting was employed for play of light and in order to conceal the joints, which concealment was furthered by the absence of marking mentioned above. Above the columns is a plaster frieze containing fresh air supply grilles. In this frieze at the north end facing the King Street entrance, are three low relief sculptured compositions in plaster. The ceiling is of acoustic transite divided by plaster ribs, one member of which is picked out in gold leaf. The colour of the ceiling is a light cafe-au-lait. Surrounding the public space is a working area thirty-one feet deep on the east, twenty-six feet on the west and twenty-one feet on the north. The flooring of this space is of cork in alternating light and dark squares. The walls of the main Banking Room are panelled in comb grain oak of an intermediate light colour. The panelling system is simple, with the panels themselves raised above the stiles and rails — a system which was used with variation wherever panelling occurs throughout the building. The counters are of Loredo Chiaro marble with a slightly sloping face. The simple, low, above-counter fittings are of the same wood as the walls and the hinged wickets are fluted glass contained in a bronze frame. The spindles are plexiglass. The walls of the entrance lobby are Loredo Chiaro, which material extends partly into the main Banking Room and on the left hand side as you enter is a Memorial Tablet to the memory of those of the Bank staff who have given their lives in war. This Tablet contains an incised inscription in Botticino marble. Above this inscription is a low relief of the Canadian Coat of Arms, the whole being designed by Mr. Scott Carter of Toronto. The floor of the public space is dark green terrazzo divided by heavy bronze parting strips. The cheque desks are of the same wood as the walls with mahogany Formica tops and are furnished in the centre with Belgium Black marble and bronze fittings containing spaces for cheques and forms, calendars, ash receivers and waste paper receptacles. At each end of the cheque desks and forming part of them are leather covered seats for the weary.

Light brown glass cloth curtains, with a fine horizontal white stripe, hang at each side of the three north windows.

The lighting of the Banking Room is almost entirely downward from the ceiling. There are ten hanging fixtures, the design of which conforms to the eccentric shape of the reflectors which they contain. The purpose of these fixtures is to provide direct light on the ceiling over the public space where a contrast was desired between that area and the ceilings over the working spaces which are not directly illuminated. Light over the working spaces is provided by flush troffers with two fluorescent tubes behind glass panels. The double glazed bronze windows of the Banking Room are five feet nine inches wide and twenty-three feet six inches high.

The walls of the King Street entrance lobby are lined, as before mentioned, with Loredo Chiaro marble, the openings being trimmed with French Rouge Antique which also was used in the high base which carries the line of the main banking floor.

Between the King Street Banking Room entrance and the main elevator lobby is another small lobby serving the private elevator. A bronze screen which may be closed during non-banking hours divides these two spaces. On the other side, "Armourplate" doors divide this small space from the elevator lobby.

The office building entrance and vestibule doors are "Armourplate". The lobby walls are Crema Verteada; the floors are a light coloured Terrazzo; and the ceiling is off white plaster with domed fixtures lighted by small hanging bowls.

The elevator doors have flush panels of brushed monel metal separated by light coloured bronze strips. Each panel contains a bronze medallion, the design of which is based on one of the early coins which was issued by the Bank before Canadian coinage existed.

The walls of the elevator cabs are lined with straight grain light coloured oak and the fittings and interiors of the doors are stainless steel.

Second Floor

The Second Floor contains the Board Room with its ante room, two private dining rooms with serving pantry, cafeteria and kitchen, men's and women's lounges and men's and women's locker rooms and lavatories.

The Board Room, ante rooms and large private dining room are panelled with comb grain oak with various panelling arrangements similar to the Main Banking Room and the floors are covered with specially woven broadloom in squares of contrasting pile of a light brown colour. In the Board Room a large suspended louvered fixture conceals the fluorescent lighting above. The wood of the special furniture in these rooms matches the panelling.

The cafeteria and lounges were designed for relaxation and are in contrast to the working areas. The cafeteria is twenty-three feet wide by eighty-one feet long and is designed to seat one hundred and eight people at tables for two and four. The floor is wood block, and the decorations are gay and full of colour. The room is designed en suite with the Women's Lounge so that the dividing Modernfold partition may be drawn aside for large entertainments or dances. The room is wired for sound with loud speakers flush with the ceiling.

Third and Fourth Floors

These floors are occupied by the private offices and staff of the Assistant General Manager for Ontario. The private offices are panelled in walnut with specially designed furniture of the same wood. The carpets are the same as those on the Second Floor.

Typical Floors

The typical floor was laid out to provide the maximum amount of area which could be day-lighted, the greatest use of street frontage and maximum flexibility. Standard twenty-foot bays were part of the 1939 design. Window and wall, each approximately five feet wide, give any width single windowed office up to fourteen feet and any double windowed office from fifteen feet to nineteen feet six inches. The depth from outside wall to corridor averages thirty-five feet. With these dimensions, no difficulty was experienced in laying out offices exactly to tenants' requirements without waste or dark areas. The ceilings are acoustic tile screwed to gypsum board which is in turn attached by means of metal clips to the angles of the furring. The floors are covered with light brown Jaspé linoleum. Corridor doors to tenants' suites are painted wood with single full panels of fluted and etched glass.

Elevator lobbies are lined to the ceiling with Rose Tavernelle marble and elevator doors are baked enamel of a soft green colour with flat dividing strips of stainless steel. The floors are pink terrazzo.

Public corridors are painted a pale blue-green colour with a fine stippled surface. They are lighted from the centre of the ceiling by one continuous louvered strip of sixty-cycle fluorescent light. This was done in order to avoid the inevitable spottiness of the conventionally lighted office building corridor. The walls have a Belgium Black base and the floors are covered with brown Jaspé linoleum.

Work was resumed on the building in March, 1946, under a cost plus a fixed fee contract. Delays common to that time, due to strikes in the building trades and to shortages of labour and materials, were encountered, and some months were required to complete changes to the original structure. The first tenants were moved into the upper floors in August, 1948, and the Bank's quarters were finished and building completed in September, 1949.

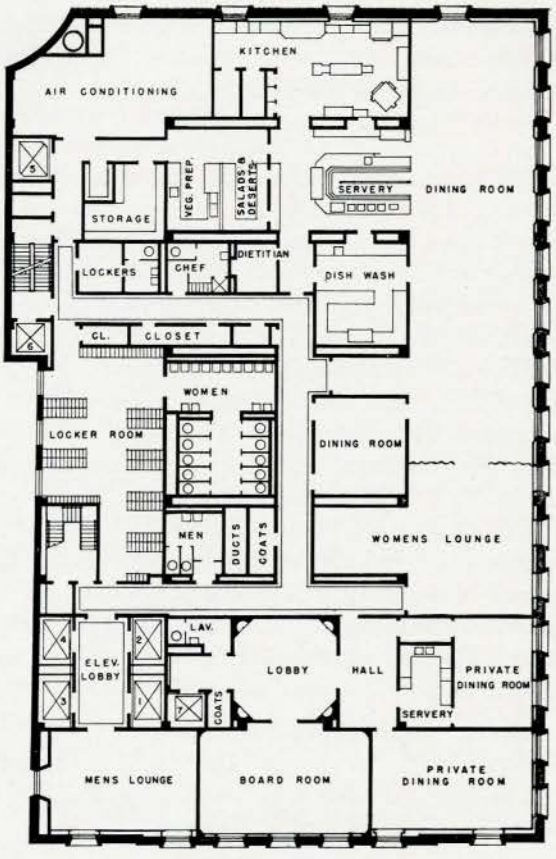
Under the direction of the principals concerned, the responsibility for the work was carried by:

For the Architects — J. A. Robertson, Planning and Construction; E. W. Wright, Superintendence; W. R. Winegar, Design; R. M. Wilkinson, Draughting Room.

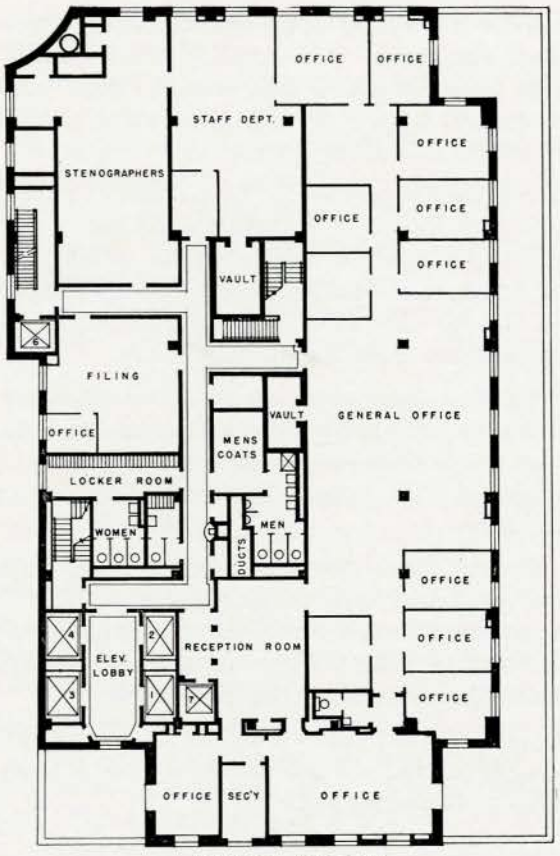
For the Mechanical Engineers — O. H. Smith.

For the Contractors — R. W. Johnstone, Vice-President and Manager for Ontario; and Peter Sheret, Superintendent.

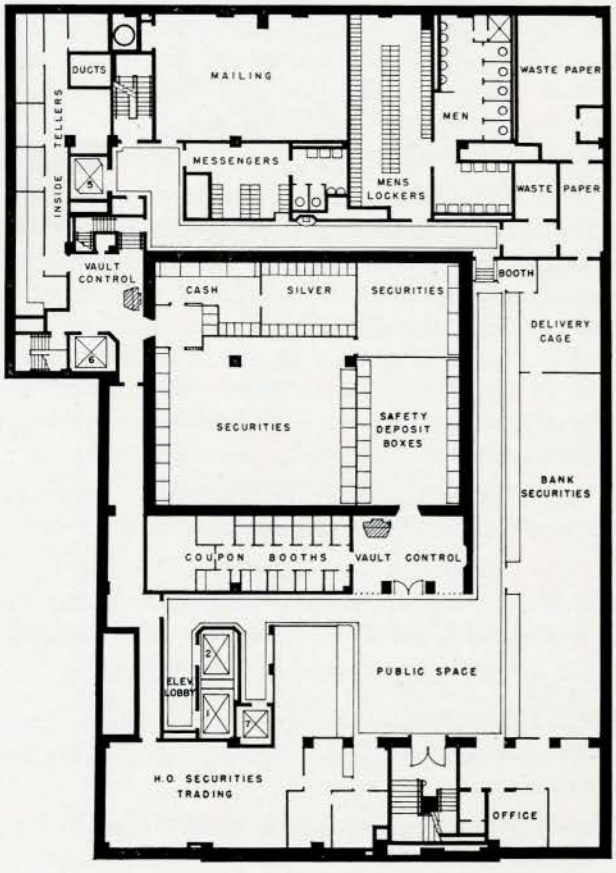
For the Owners — Isaac Ilsley, Clerk of Works.



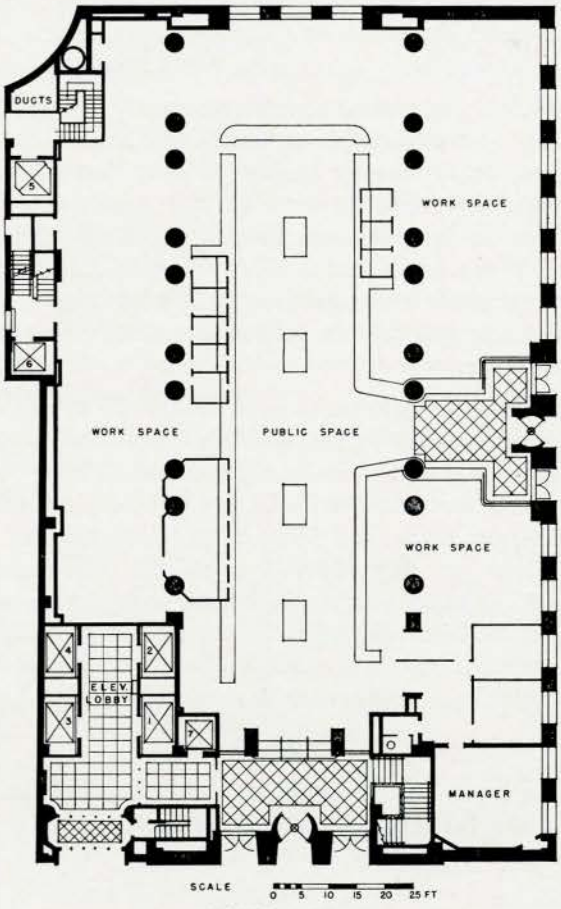
SECOND FLOOR



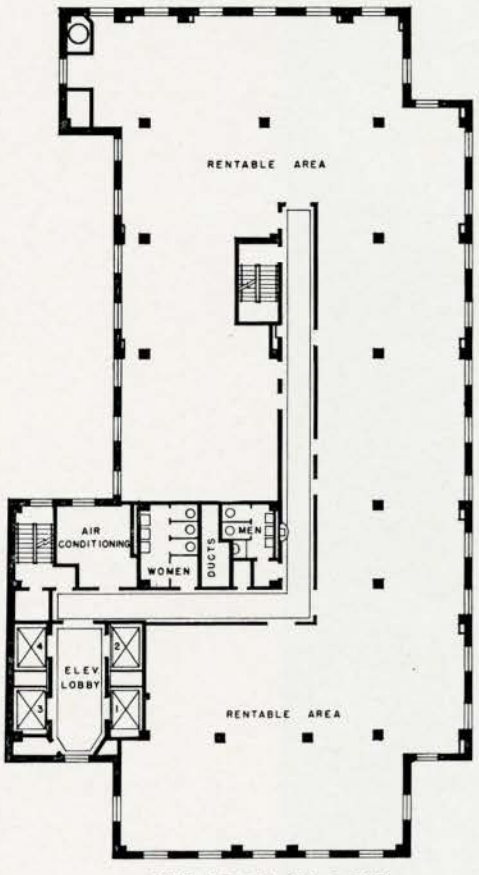
THIRD FLOOR



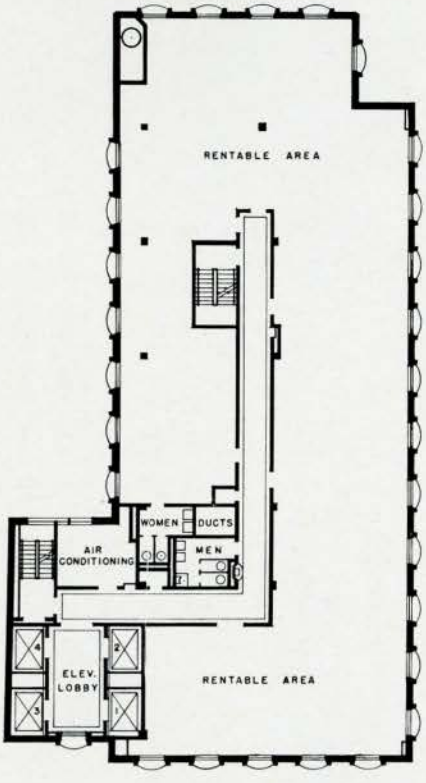
BASEMENT FLOOR



KING STREET
GROUND FLOOR



TYPICAL FLOOR



FIFTEENTH FLOOR

CONSTRUCTION OUTLINE:

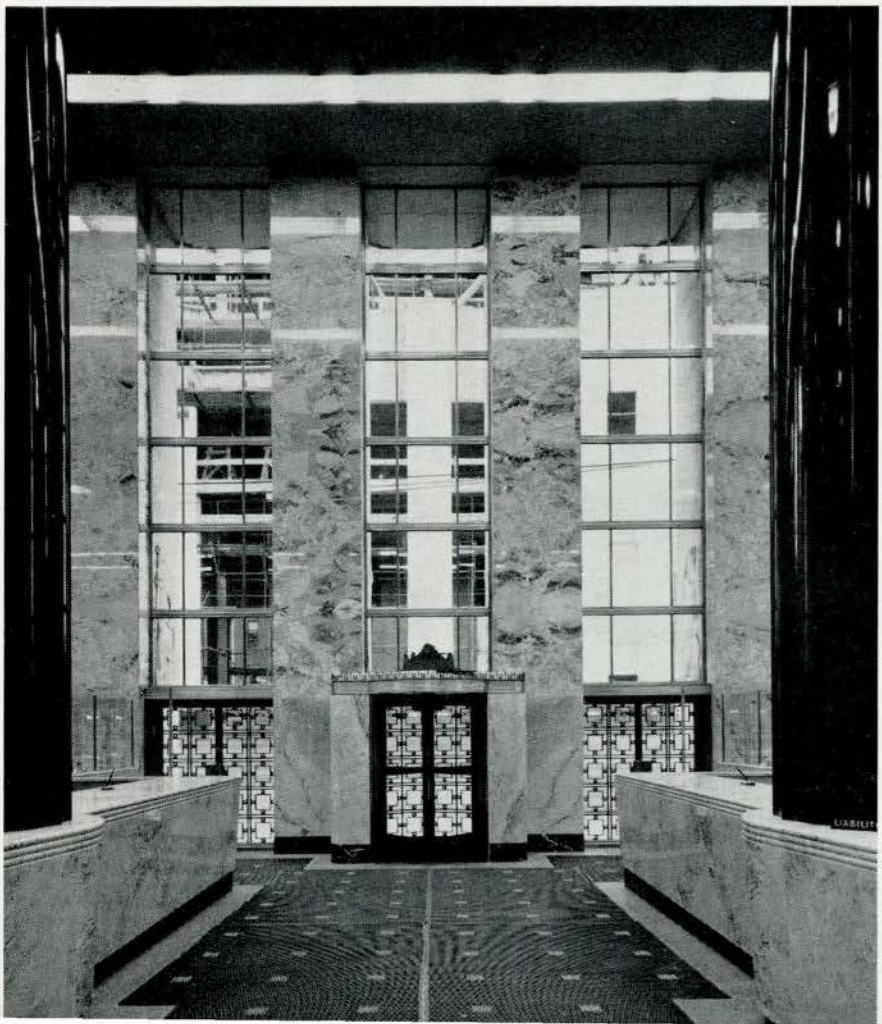
Frame — steel with haydite concrete floor and roof joists and slabs. **Walls** — Queenston limestone above a silver grey granite base; brick back-up; aluminum foil insulation; interior surfaces plaster or wood panelling. **Floors** — linoleum, terrazzo, cork tile. **Ceilings** — acoustic tile. **Roof** — two inches of cork insulation on top of slab; built-up roofing (with two inch concrete protective decks at set-backs). **Windows** — generally wood double hung; bronze in Banking Room; double glazing throughout. **Heating and Air Conditioning** — complete system in all areas; fin type convectors under windows.

Photographs by Warner Bros.

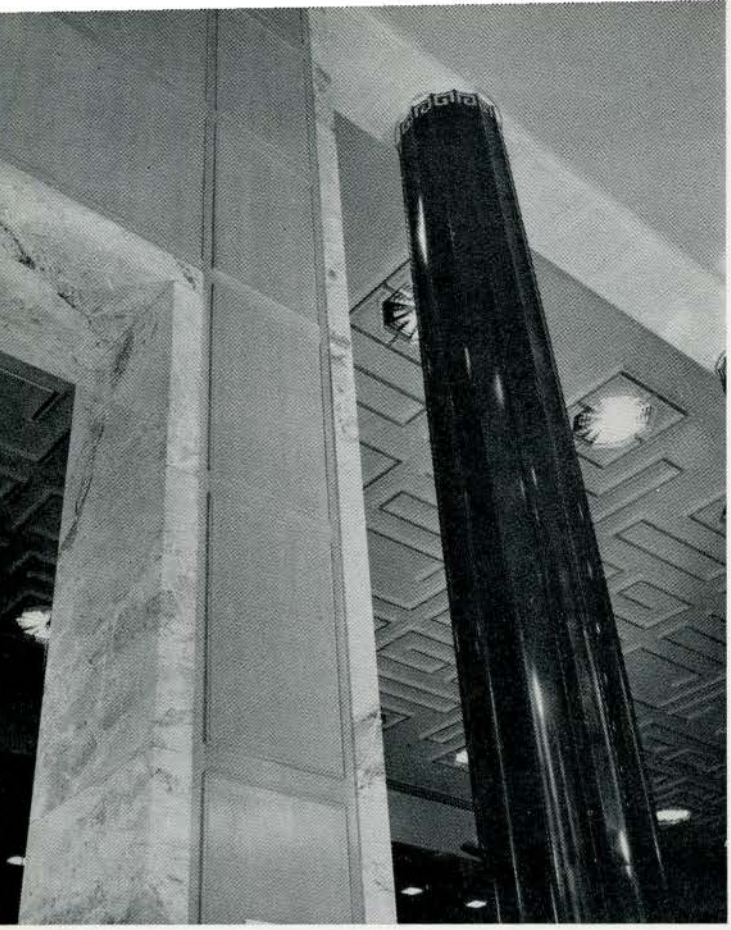
BANK OF MONTREAL BUILDING, KING AND BAY STREETS, TORONTO
CHAPMAN, OXLEY AND FACEY
MARANI AND MORRIS
ARCHITECTS
K. R. BLATHERWICK, ASSOCIATE ARCHITECT

KING STREET ENTRANCE
FROM MAIN BANKING ROOM

Photograph by Warner Bros.



BAY STREET ENTRANCE
FROM MAIN BANKING ROOM



CLOSE-UP OF MARBLE COLUMN AND OAK PANELLING IN MAIN BANKING ROOM

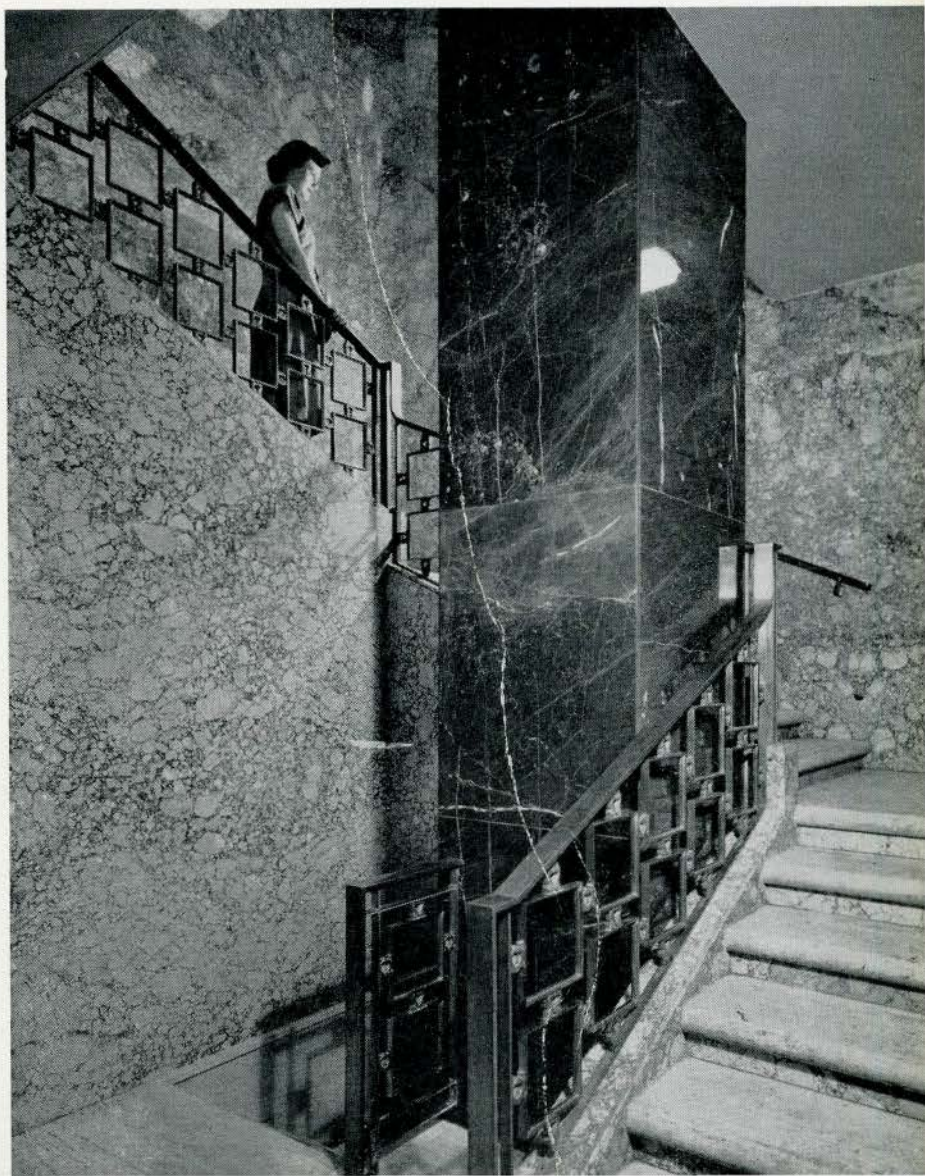
Photographs by Warner Bros.

MAIN BANKING ROOM

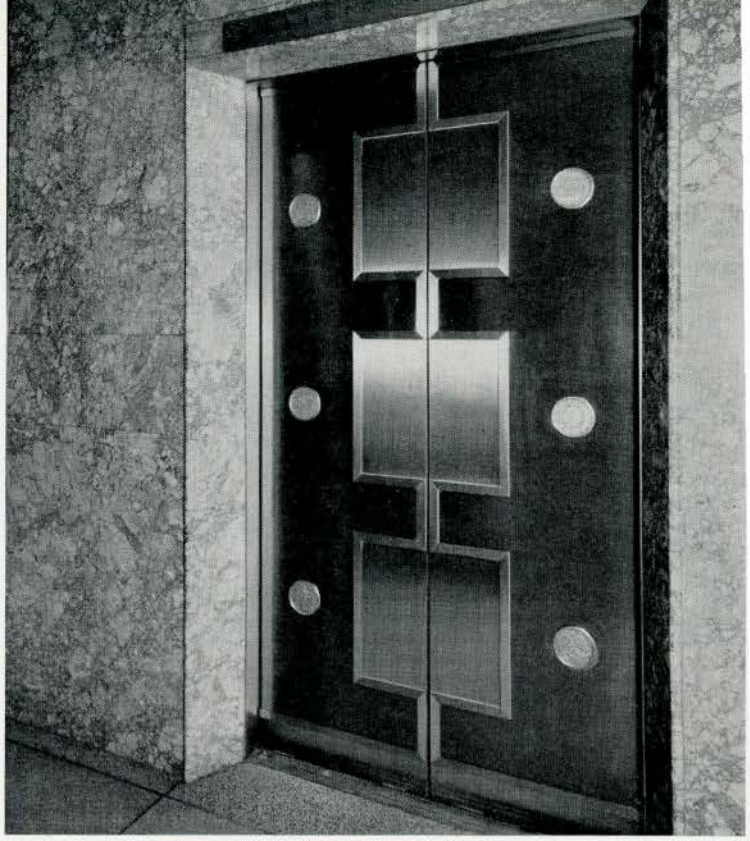
MONEL METAL GRILLE AND VAULT DOOR IN BASEMENT BANKING ROOM

BRONZE GRILLE BETWEEN MAIN BANKING ROOM AND ELEVATOR LOBBY

Photograph by Brigdens Limited



STAIRS TO BASEMENT BANKING ROOM

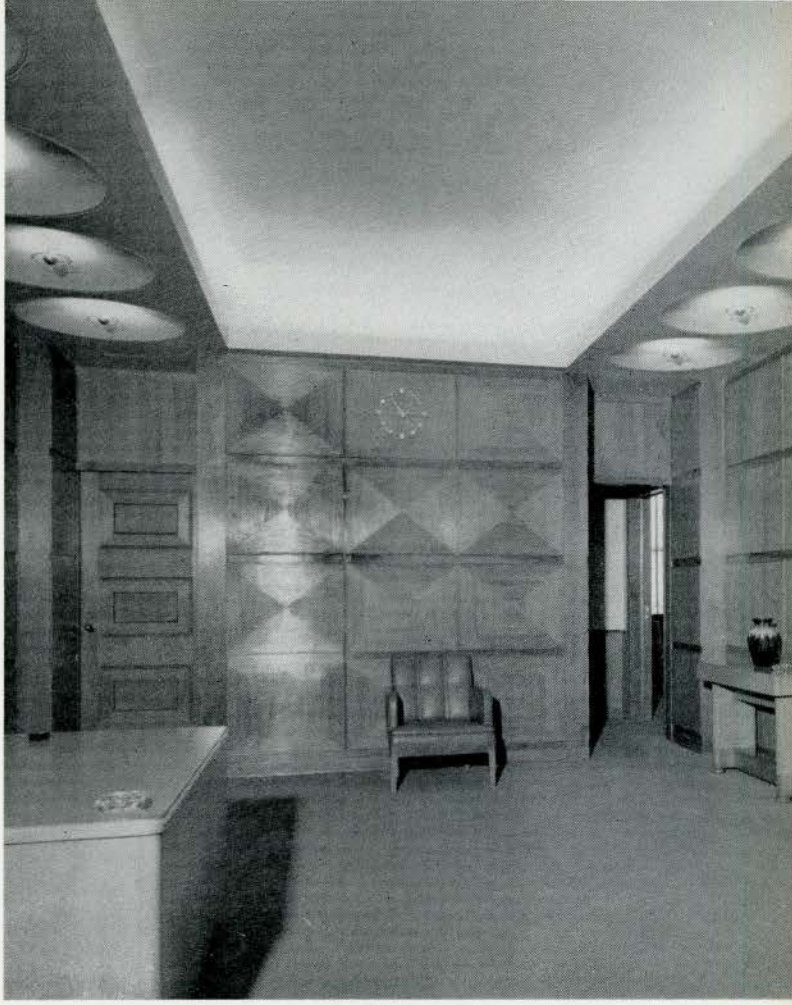


GROUND FLOOR ELEVATOR DOORS

Photograph by Warner Bros.

Photograph by Brigdens Limited

KING STREET ENTRANCE TO
MAIN ELEVATOR LOBBY



RECEPTION ROOM TO EXECUTIVE OFFICES

Photographs by Warner Bros.

PRIVATE OFFICE ON THE THIRD FLOOR

MAIN DINING ROOM

ONE OF THE PRIVATE DINING ROOMS

BOARD ROOM LOBBY

— AND SCULPTURE

By CLEEVE HORNE

WHEN a Canadian work of art — be it sculpture, architecture or painting —stirs the stolid public's indifference into active vocal camps of defense and offense, it is a sound indication that the creator has an excellent chance of making a worthy contribution to the country.

Every creative man fears the stamp of general praise. He fears it more than the oblivion of silent acceptance. But, Canadians are competitive individualists who are not generally prone to discussive or constructive criticism. Unlike our climate we get neither hot nor cold. This tepid temperament is fast dulling the fire of experimental creativeness in our more "progressive" talented personnel. It is destroying the pioneer spirit in our student body. Since a more than adequate living may be made in the reproduction of the traditional, why should we show any interest where there is little interest; and certainly when no pay-off will be forthcoming in the gamble of the experiment.

Canadian sculpture may now have arrived at the cross-roads of revival and retrogression. True, other countries face a similar situation today. But there is a clear indication that they have recognized the possibility of a renaissance in the correlation of contemporary sculpture to the contemporary building.

The destiny of our sculpture no longer depends upon the church, the government, the museum or the whim of the wealthy. It depends on the co-ordination of two courses of action.

First, the intermarriage of architects and sculptors into a professional team that is bonded by the faith of mutual understanding and appreciation of each other's aims and problems. (No, I am not an idealist.) Actually these aims and problems are remarkably parallel in character.

Second, a more advanced school for sculptors — instruction and experience in the use and plastic value of all media including concrete, metal and glass as applied to the field of architectural and monumental work. With the possible exception of a few who fortunately possess the experience of apprenticing abroad, the practising sculptors today have little opportunity to progress beyond the stage of the fragmentary — small commercial or exhibition pieces. Yet they are not without talent. Considering the little contribution that has been asked by Canada of her sculptors, much of her work could stand the test of international appraisal.

In a parallel vein, certain schools of architecture in this country might well re-examine the periods assigned to the subject of architecture — and sculpture, with a view to the development of a more effective course designed to stimulate not only an interest but indeed a more contemporary understanding of the correlation and aesthetic value of sculpture to the building of yesterday, today and tomorrow.

Let us be frank. Few architects today, very few, exhibit the knowledge, judgment or taste required to utilize on a modern structure, sculpture in its true aesthetic role. They will give you many reasons including building costs. Shielded by the frustration of doubt, perhaps ignorance but certainly inexperience, they will inevitably find themselves too busy to bother with carrying the design further. Creative thinking takes time and time is expensive.

Now, out of sheer decency I admit hearing rude noises in my ear — a staunch architect's voice saying: (part of quote) "Few sculptors today, indeed no one, appears to exhibit the knowledge . . . ". In all fairness, no one is to blame but the architects . . . and the sculptors.

Most of the carving and modelling on buildings in Toronto is likened to sculpture. Actually it is little more than decorative architectural motif. Certainly, this form of decoration has always found a place in architecture. But the role of sculpture was conceived to enlighten and enliven; in that almost intangible but aesthetic sense, to enrich and refine the cold geometric solid and void into a more human structure. And, by so doing, construct something worthy of our age.

I would like to believe that this was the desire of the men who designed the new Bank of Montreal building in Toronto. To a large extent I personally feel that they have succeeded. Few feel so, and few succeed. In the case of only two or three panels can one firmly express the opinion that they have failed to maintain the original concept as expressed by the group as a whole. Primarily, let us not judge or become too concerned over the merits of the individual work. This is a detail, and obviously an intregal part of the whole. It is the effect of the over-all countenance of the building as a unit that must be entertained. As in a work of art, a certain area or shape may appear somewhat "foreign" before the eyes of some lay or professional critic. Yet the work as a whole does radiate something that is unique, complete, absolute. For this reason, I have requested that no detail examples of unrelated sculpture be included with this paper. In its stead, I feel that the accompanying photographs more clearly reveal, under several light conditions, the interrelationship of the work to the building — even within the bank room lobby. (See illustration).

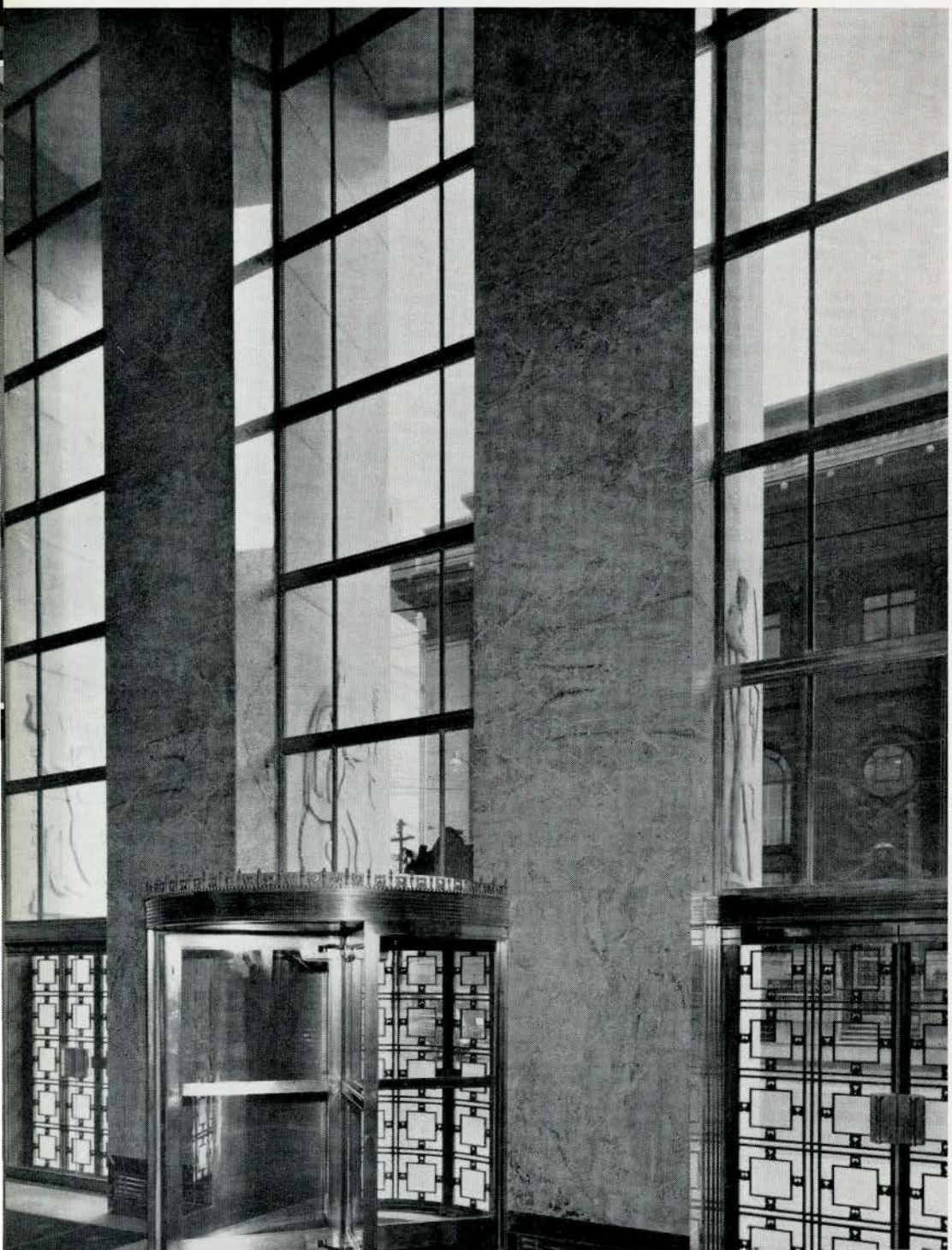
Perhaps one of the best examples in this direction, is an office building in Vienna where the facade stresses

an almost monotonous repetition of piers. The projection of a single elongated figure by Rudolf Schmidt between the central piers not only directs attention to the entrance but produces an extremely refreshing, a very human, almost feminine touch to otherwise stark architecture.

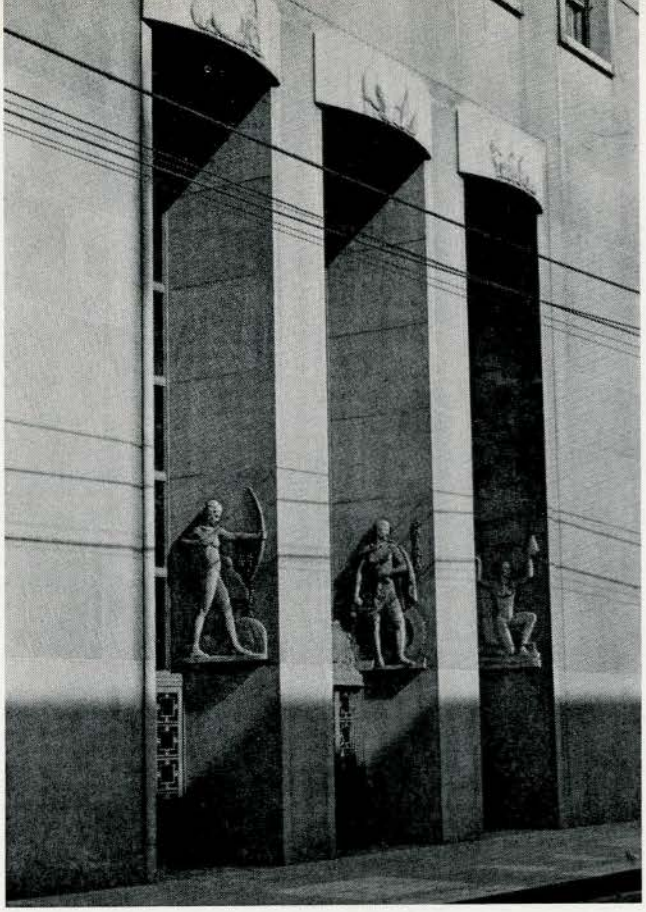
Both the designers and the Bank of Montreal are to be lauded for giving Canada a fine building. From a Canadian point of view, they deserve considerable credit for having the faith and foresight to embrace the work of six Canadian sculptors. They might perhaps have achieved greater unity, considering the areas involved, by the employment of only two sculptors. However, by working with these artists they have no doubt added immeasurably to their present knowledge and appreciation of the apparent esoteric position of sculpture in Canada. If the recent criticism of this work is any criterion, we may then look forward to the realization of even finer things from the draughting boards of firms like Marani & Morris. If not, I'd venture the dismal prediction that within the next decade we will witness a dearth of sculpture, and a consequent period of refrigerated architecture.

Sculptors who contributed and title of work; Emanuel Hahn – Arctic and N.W.T., Jacobine Jones – Alberta and British Columbia, Frances Loring – Ontario and Quebec, Donald Stewart – Newfoundland and Nova Scotia, Florence Wyle – Manitoba and Saskatchewan, Elizabeth Wyn Wood – New Brunswick and P.E.I.

Photographs by Warner Bros.

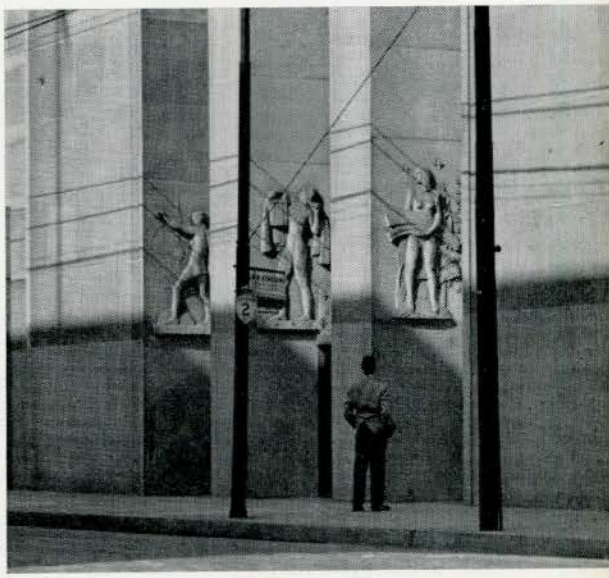


KING STREET ENTRANCE
FROM THE INTERIOR



KING STREET ENTRANCE

KING STREET LOOKING WEST



BAY STREET ENTRANCE LOOKING NORTH

THE STRUCTURE

By J. MORROW OXLEY

THE Bank of Montreal Building in Toronto is designed to accommodate the main Toronto branch of the Bank, the offices of the assistant general manager and superintendent for Ontario and twelve floors of office space for tenants. The site is the north west corner of King and Bay Streets.

Construction of the new building was started in 1939, but had been carried only to grade with the steel frame to the third floor level when, seventeen days after the declaration of war, it was decided to suspend operations because of the anticipated need for manpower and materials and the Government's desire to conserve resources and avoid any capital expenditures not immediately essential to the war effort. Work was resumed on actual construction in 1946, but shortages in manpower and materials and the reduced efficiency of labour have resulted in much slower progress than would have been possible under pre-war conditions.

General Description

The building consists of sixteen storeys above grade, rising to a height of 231 ft., and three floors below grade with the lowest or boiler room floor at a depth of 39 ft. over a portion of the area. The cubic content above grade approaches very nearly the maximum permitted under the city zoning regulations.

The sub-soil conditions in this part of the city are very good for construction purposes, consisting generally of stiff blue or yellow clay, becoming stiffer with increasing depth, underlaid with shale having some thin laminations of clay, and finally sedimentary limestone at a depth of about thirty-three feet below grade. Excavation in rock was not necessary except for the boiler room, some of the elevator pits and trenching for plumbing lines. Excavation in the stiff clay could be on vertical lines to the required finished dimensions, except where the original soil had been disturbed previously.

After the long interruption due to the war, and on reconsideration of the whole problem, in the light of development of ideas by owner and architect, it was decided to make some substantial changes in the design. These consisted primarily of moving the four main elevators from about the middle of the east front to near the south west corner; making the principal set backs at the third floor level on the east and west faces instead of on the north and south; a second set back at the fourteenth floor; and a completely new architectural treatment of the facades.

The changes necessitated a redesign of many elements of the steel frame and footings, but nearly all of the original steel was economically usable. In addition to the steel in position on the site a large proportion of the column and heavy beam sections had been stored during the interval, as they were not economically adaptable to war requirements.

The exterior of the building is of Queenston limestone with a silver grey granite base about 8 ft. high. In the lower portion the ashlar facing is in courses up to 4 ft. high with alternate blocks 10 in. and 6 in. thick. In the upper portion the courses are 2 ft. 6 in. and 1 ft. 4 in., with thicknesses of 4 in. and 8 in. respectively. The heaviest blocks are the lintels over the main entrances, which run up to nearly 8 ft. long, 3 ft. 1½ in. deep and over 3 ft. thick, and weigh about 7½ tons. The ashlar is backed up with brick to a total thickness of 2 ft. 6 in. in portions of the high first storey and 1 ft. 1 in. in the upper floors.

Structural Design

The principal structural elements consist of a riveted steel frame supported on steel slabs and grillages, in some cases resting directly on concrete footings on bed rock and in others on so-called caissons or concrete piers carried down to rock; reinforced concrete enclosing walls up to grade; walls of Queenston limestone above grade backed up with brick; floors and roofs of reinforced Haydite concrete joists carried on steel primary beams; partitions of terra cotta tile enclosing all stair and elevator wells and lavatories, and gypsum partitions for minor subdivisions. Open web steel joists were used in the mezzanine of the side aisles below the second floor, and for roof support in the pent houses to reduce dead load. No cantilever construction was required in the footings, as the foundation conditions were so good that it was possible to make the supports practically concentric with the loads in all cases. The design complied with the regulations of the Toronto Building By-Laws.

The structural steel design has no particularly unusual features except perhaps the two-storey trusses over the main banking room and the concentrated section of some columns designed to be enclosed with ornamental marble. The trusses (Fig. 1) have a span of 42 ft. 8½ in., and in addition to the distributed loads of the 2nd and 3rd floors have a column load from above of 1285 Kips near the centre of the span. It was necessary to use 1⅛ dia. rivets and ⅞ in. gusset plates for the connections. One corridor and two doorways pass through the trusses, which are fire-proofed with 3 inch terra cotta tile on each side.

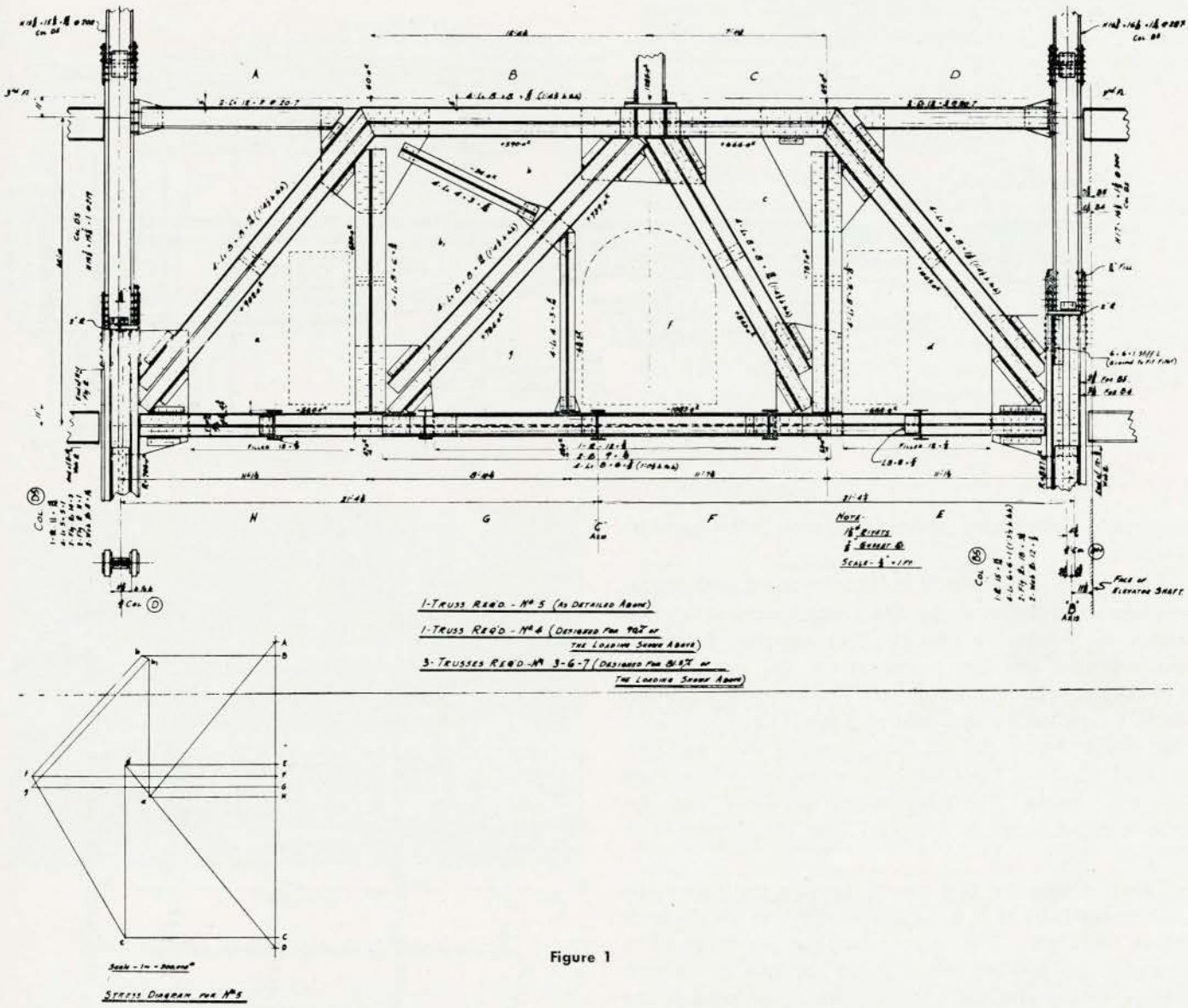


Figure 1

Except for the columns referred to above (Fig. 2) and a few other special cases all columns are of wide flange solid sections in two storey lengths, spliced by side plates at 1 ft. 6 in. above the floor line. There are some fairly heavy plate girders at the set backs, the maximum section consisting of a 40 in. by 15/16 in. web plate with flange angles 8 in. by 8 in. by 1 1/8 in. and flange plates 1 at 21 in. by 1 in. and 2 at 21 in. by 3/4 in. Two double web cantilever girders are required at the second floor level, north end, to transfer column loads of about 800 kips from 1 ft. 1 in. inside the wall line to 3 ft. 0 in. inside. (Fig. 3.)

Design for wind loads was based on the moment distribution method of allocating moments to columns and beams, on the assumption that points of contraflexure were at the mid height of columns, and moments proportionate to relative stiffness of the members. In spite of the irregular plan and location of columns the centre of gravity of applied loads so nearly coincided with that of the summation of joint stiffnesses that there was

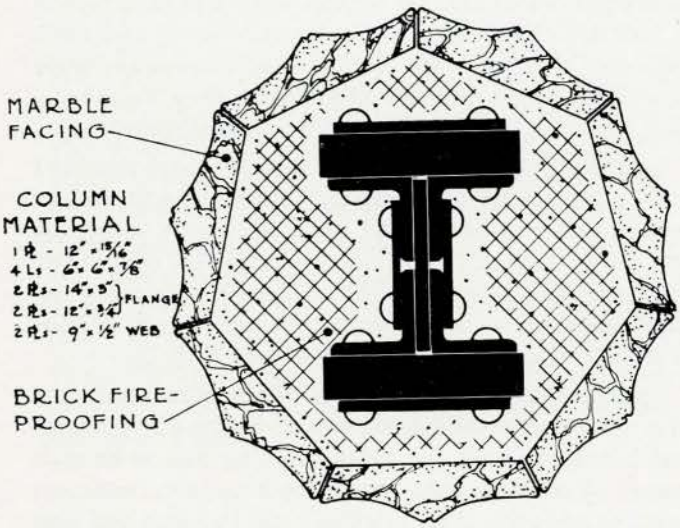


Figure 2

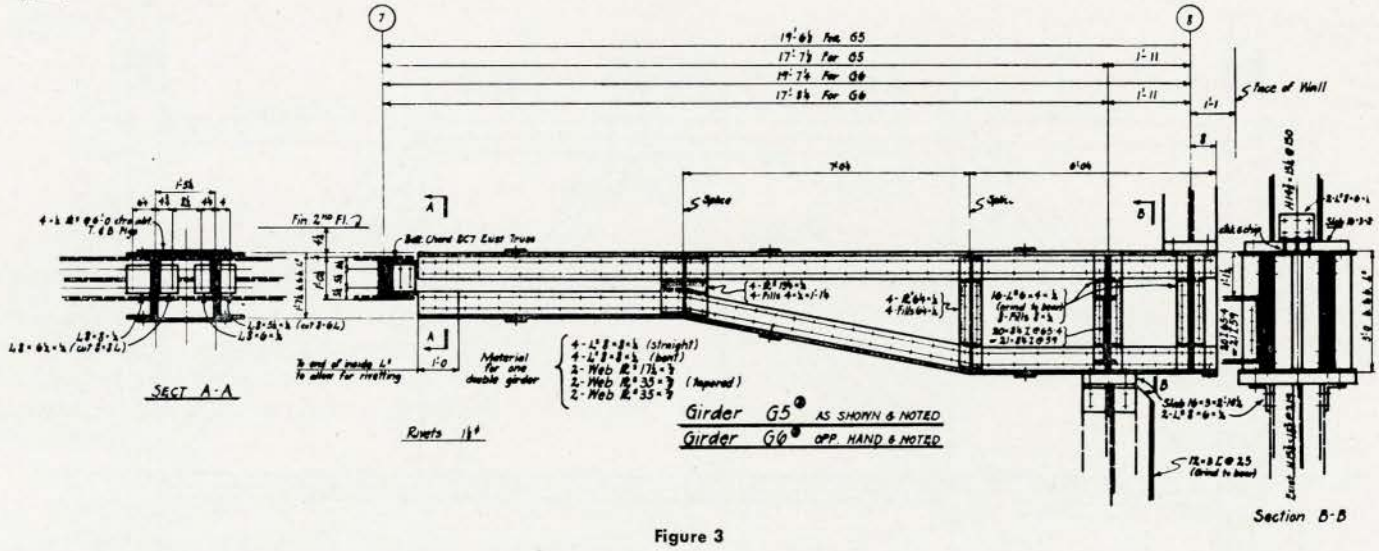


Figure 3

negligible eccentricity tending to torsion in the frame as a whole.

The height of the first floor (38 ft.) made it economical to place wind trusses in the mezzanine spaces in the side aisles, to reduce the effective free standing height of the columns and the moments on the connections. Typical beam to column connections are made with split wide flange beams and many of them require 1⅛ in. dia. rivets. Above the 8th floor masonry walls and permanent partitions have sufficient shear value to sustain all wind loads. The distribution of shear and the moments produced in a typical bent are illustrated in (Fig. 4).

Floors above the first are of Haydite concrete joists with spans from 14 ft. to 27 ft. and effective depths from 8¾ in. to 12¾ in. The idea of using Haydite arose when it was found that the use of stone concrete in the new design would produce excessive loads on some of the columns and footings already in place. The Haydite concrete cost about $6,000 more than normal sand and crushed stone or gravel concrete, but the overall saving resulting from its use was about $70,000 due to reduction in tonnage of structural and reinforcing steel and minimizing of changes in the foundations, footings and steel structure. As the Haydite produced a very harsh mixture, pozzolith was added to improve workability.

Underfloor ducts for electrical services were provided in all office areas. Generally they consist of a three-duct system to serve power and light, telephone, telegraph and intercommunication requirements in continuous lines about six feet apart. As compared with many designs the scheme used gave substantial savings in floor to ceiling depth, dead weight and cost. (Fig. 5).

Underpinning of adjacent buildings was necessary only on a portion of the west side, where a two storey and basement bank and office building had to be supported by concrete piers extending from their basement down to bed-rock. This relatively old building had also to be braced across its width by temporary vertical

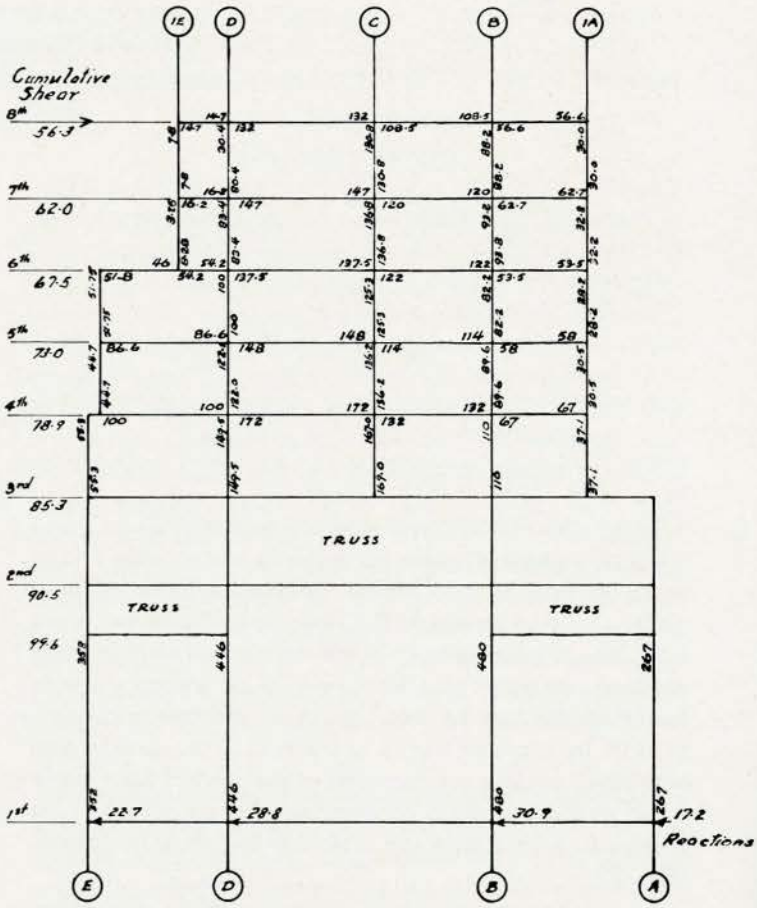


DIAGRAM SHOWING WIND MOMENTS
IN FOOT-KIPS
Moments on axis 5–100 % as shown above
" 2–99 %
" 3–89 %
" 4–87 %
" 6–86 %
" 7–84 %

Figure 4

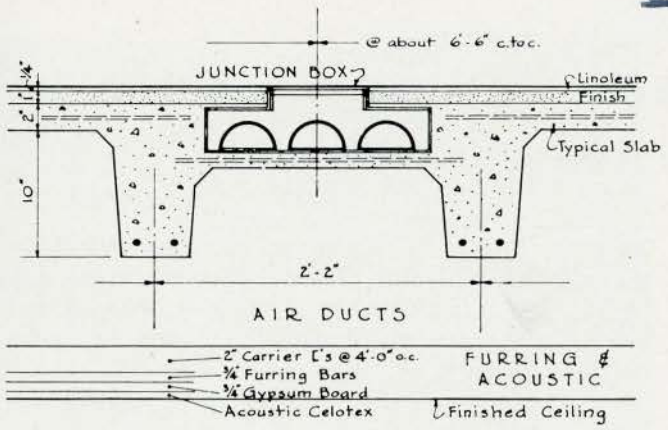


Figure 5

beams and cross ties, but the whole operation was performed without any evident movement. (Fig. 6.)

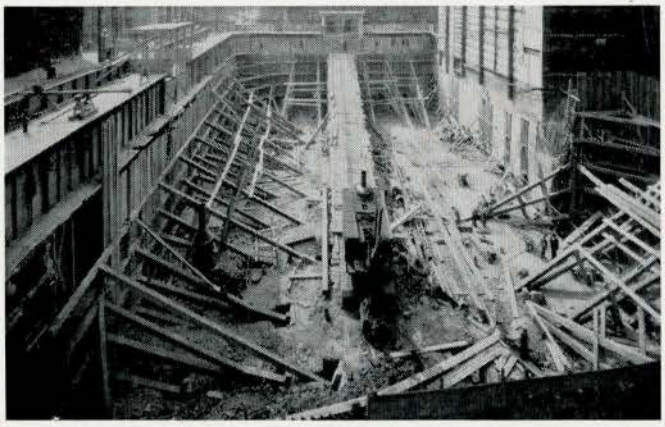


Figure 6

Wall Insulation, Glazing, Roofing

Wall insulation in general consists of a coating of asphalt sprayed on the interior brick and two thicknesses of crimped aluminum foil hung on cross bars in the furring to give three air spaces in addition to the heat reflective effect of the foil. In a few areas the conditions were met better by using two-inch compressed cork board. The building is glazed with double plate glass throughout and with a few exceptions the windows are not designed to be opened except for cleaning. For office floors Sull sash were used, and for the large windows in the Bank portion the Thermoglaze type.

All roofs are insulated with two inches of cork board or equivalent and, except for the promenade decks at the 3rd and 14th floor levels, are covered with five-ply felt and gravel, 20-year bonded roofing. The promenade decks have a surface consisting of two inches of concrete with integral colour, reinforced with mesh and divided into ten-foot squares with copper expansion joints surrounding each square and at junctions with walls and parapets. Flashings to roofing are of felt and plastic elastigum and flashings of coping and parapet walls are covered with 16 oz. copper carried down on the inside of parapets over the junction with the roof flashing.

Elevators

There are seven elevators – four serving to the 15th floor, of which two go to the sub-basement; one serving executives, sub-basement to 5th floor; one for bank staff, sub-basement to 5th and one freight service, sub-basement to 2nd floor. The four high rise elevators with 5 ft. by 7 ft. car platforms have a speed of 700 ft. per min., and are of the signal control type, as is the executives' car with a speed of 500 ft. per min. The other two have car switch control and a speed of 500 ft. per min.

Vaults

The main vaults are on two levels and are 59 ft. by 50 ft. in area. The security vault at the basement level, 15 ft. below the ground floor, has walls, roof and floor of very hard concrete, reinforced with heavy, closely spaced, interlaced bars of special steel. This vault is lined on floors, walls and ceiling with several layers of steel and copper of drill and torch resistive protection.

There are two separate entrances to the security vault, one to the securities portion for the bank's use only, the other to the safety deposit portion where there are at present some 3,000 safety deposit boxes for public rental. The two main doors are perhaps the show pieces of the vault equipment, and each of them has a weight of approximately 40 tons. They are duplicates in size, construction, and in security features. Each has actual solid metal thickness of 24 in., with liberal proportions of drill-resistive and torch-resistive metals.

With their crane hinges, periscopic sights for dual combination locks, quadruple movement time-locks and pressure clenching mechanism, they give the utmost in convenience for use and ease of operation. These doors and frames, prior to being embedded in the surrounding concrete, are plumbed to a nicety and exactness that is remarkable, for, once unlocked, the door can be moved from shut to open with a pull of not more than 15 lbs. Polished monel, rust-resisting, material has been used on all parts of the vault where mechanically possible, and where it is in view of the public; the result in the safety deposit portion is quite impressive – giving its effect of a solid steel structure, which in fact it is.

Particular attention has been given to the lighting of the vault interior, and for adequate ventilation of the vaults an independent air-conditioning system has been provided. The lower level of vault provides for fire and disaster proof storage of books and records and has not the steel lining and other special protective features of the security vault.

THE MECHANICAL AND ELECTRICAL INSTALLATIONS

By KAREL R. RYBKA

Introduction

DESCRIPTIONS of the building and structure are given elsewhere in this issue. The first plans of the project were prepared and construction was started before the last War. The entire structure below grade and in part up to the third floor was actually built, when work was stopped, not to be resumed until six years later. The building was replanned after the War, but the spaces and general arrangement for the main portions of mechanical and electrical services could not be economically altered as they were included in the already completed portion of the structure. This, and the necessity of adding certain services which were not originally contemplated, posed some serious problems in the course of construction.

Boiler Plant

Two main boilers are provided for winter and an auxiliary unit for the small heat requirements in summer. The plant also includes a small incinerator for destruction of documents and business papers.

Each of the two main boilers can deliver 10,000 lbs. of steam per hour at 30 lbs. per sq. in. and is of cross-drum straight water tube design, with steel cased fire brick setting, and equipped with "heavy" fuel oil burner. This type was selected because, in an office building, ease of cleaning and tube replacing outweighs the slightly better efficiencies of the newer bent tube boilers. The low operating pressure is used because the boilers are intended for heating and some kitchen services requiring under 30 lbs. per sq. in. steam pressure, and the increased maintenance cost of a high pressure plant would have been quite considerable.

The auxiliary boiler is of water walled fire box type; all three boilers are valved so that any one boiler or any combination can be used for maximum flexibility. Compressed air operated soot blowers are provided in boilers for maintenance of clean heating surfaces. The electrically driven air compressor of this system supplies also compressed air for cleaning of motors, elevator machinery and the like throughout the building.

The condensate from heating and other services is collected in a tank in pump room and two electrically driven boiler feed pumps force it back into the boilers. A similar smaller assembly with a single pump is provided for the low summer load.

Each boiler is equipped with a simple, float operated feed water regulator which supplies city water as make-up. The oil burners are of horizontal, low pressure, rotary atomizing type, for fully automatic modulating fire. They include oil heaters and temperature controls, which permit using any available commercial grade of fuel oil, and fuel oil storage of 13,000 gallons. A coal bunker for easy conversion to coal fuel is provided under the lane adjacent to the boiler room.

The plant contains supervisory instruments showing and recording steam flow, gas flow and flue gas temperature of each boiler, also instruments to record steam pressure, feed water temperature, and outside temperature.

Heating

The direct heating system in building consists of two separate sections. One for areas occupied by the Bank; this is equipped with individual automatic temperature control in the different spaces; the controls co-ordinate also the conditioned air supply with the direct heating.

The other heating section serves the tenant-occupied part of the building above the fifth floor, and is centrally controlled. The heating of each face of the building is varied in accordance with the weather, by a temperature controller placed outdoors, and the only corrections made by hand are those for sun effect. These manual adjustments are made in the engineer's office on a panel which guides the operator by temperature indications taken in 16 key rooms in the building, that are transmitted to the panel electrically. Entrances and basement areas are heated with forced hot air.

Cast iron convection type radiators are used, which are concealed behind grilled panels in window recesses; this placement counteracts the cold down-drafts from windows, and provides proper heating at night or over weekends when the air conditioning is inoperative. The large windows in main banking room have special deflectors and radiator enclosures to counteract the extremely heavy down-drafts which otherwise would ensue.

Air Conditioning and Ventilation

The building is equipped with all-year air conditioning with continuous supply of outdoor air and filtering and heating and humidifying in winter and cooling of air in summer. A central air conditioning plant is provided for each floor. To account for special conditions, separate air conditioning plants are provided for the large vaults in basement and sub-basement, and for the kitchen and services.

The sub-division of air conditioning by floors simplified some of the features of design, as it reduced space requirements for air ducts and air intakes and it avoided certain complications with fire regulations, encountered in multi-storey air conditioning plants. Most of the air conditioning assemblies are superimposed over each

Figure 1

other on the different floors, to keep piping costs to a minimum. Factory assembled, compact and space-saving, unit conditioners, consisting of air filters, heating and cooling coils, humidifier and a twin fan unit are used, except on ground floor and in the basement and sub-basement, where the required larger equipment was built-up in place. The air is supplied to the spaces through insulated metal ducts in ceilings – (Fig. 1) and adjustable grilles in beams or in partitions, located close to ceilings. Some air is returned to the air conditioners from the spaces by means of grilles and ducts similarly located.

The vertical sub-division posed however, a serious problem for temperature control, as it became difficult to sub-divide each floor in sections that would compensate heating and cooling in accordance with changes in weather and with sun effect in rooms with outside walls and windows, and simultaneously cool the interior rooms, to offset heat given off by occupants and lights. These effects are most noticeable in the winter owing to large temperature differences between outdoors and indoors. The heating system is therefore arranged to supply only the amount of heat lost through walls and windows to the outside and the air conditioning system then supplies air which is automatically maintained at sufficiently low temperature, to offset the heat gain inside. Venetian blinds and double glazing compensate for the bulk of the sun effect.

In the spaces occupied by the Bank separate thermostats in the diverse offices control radiator valves and co-ordinate cool air supply all year round with the cooling demand.

In addition to the air conditioning of offices and working spaces, considerable quantities of vitiated air are being exhausted from washrooms, kitchens, boiler room, pump rooms and store-rooms in the basements. A large amount of air is being exhausted from the ceiling space over main banking room, which houses about 100 KW of lighting equipment. The four exhaust fans are located in two fan rooms on the roof. Care has been taken in the design that the amount of air which is so exhausted from the building is slightly less than the quantity of outside air brought into the building by the air conditioning systems. All air conditioning and ventilating equipment, which is spread through the entire building, can be started and stopped at a central switchboard in refrigeration plant in sub-basement. Automatic controls are compressed air operated.

Sewerage and Drainage

The municipal sewer in the street is common for sanitary sewerage and storm drainage, but, anticipating that it will be split in the future, the sanitary drainage was kept separate from the storm water drainage inside of the building. The street sewer is above the level of the first basement and the sanitary house sewer and the storm sewer collects by gravity only the soil, wastes and storm water from the spaces and areas above grade. The soil and wastes from the large washrooms and other sanitary facilities in the basements are collected in a sump in the pump room near the boiler room, from which two automatic, motor driven centrifugal pumps, discharge them into the house sewer. The duplicate arrangement is meant for unusual peak loads and also as standby, should one pump fail. A single pump in a separate sump discharges into the storm sewer the clear wastes from boiler plant, equipment rooms, sub-soil drains, etc.

Water Supply

Water is supplied into the building from the municipal water main in Bay Street through a meter in the sub-basement. The water pressure in this main is approximately 80 lbs. per sq. in., and suffices to serve the plumbing, emergency fire protection, mechanical plant and air cooling coils in the lower portion of the building up to the seventh floor. The equipment in the upper part of building is supplied with water from a two-compartment 10,000 gallon storage tank in the penthouse on roof, which also serves as reserve for fire protection of upper stories. Two pumps in the pump room force water into the storage tank.

In the summer the water is first taken through the air cooling coils, before it reaches the storage tank and an automatic pressure governor is provided between upper and lower water supply system so that excess water from air cooling coils can be utilized for plumbing, mechanical plant and compressor cooling also in lower part of building.

A special pump delivers overflow water from air cooling coils in lower building to tanks, when this is found advantageous.

As the water from tank at times is stale or lukewarm, being waste water from the refrigeration plant, two small pumps force water to drinking fountains in upper building direct from the city main and they discharge continuously a small quantity into the storage tank to keep the supply to the fountains fresh. A similar arrangement serves fountains on lower floors. Whenever water for

air cooling is refrigerated, then the fountains are supplied from this source.

All the above mentioned pumps are electrically driven.

Hot Water Supply

Three steam heated storage tanks are provided in the boiler room. One of these is connected to the roof storage tank, and supplies hot water to the upper portion of building; the other two supply the lower part of building by city pressure; any two tanks can supply hot water to the entire building when the third is laid-up for maintenance.

Fire Protection

A fire protection main is taken from city water service in the basement, and it extends as a standpipe through the building and terminates in the water storage tank. A Siamese outlet above the sidewalk in the face of building allows feeding the standpipe by means of a hose from a municipal fire pump or from a hydrant of the municipal underground fire main that carries 300 lbs. per sq. in. water pressure whenever a fire alarm has been received from the downtown area. Provisions have been left in the building for a future fire pump.

The standpipe supplies one or more hose cabinets, recessed in wall, on each floor. These cabinets contain a hose-reel with 75 ft. of hose and nozzle and a chemical extinguisher for emergency fire fighting. In addition they contain a valve threaded for municipal fire department's hose.

In some of the spaces for storing of inflammable materials and paper, also in the carpenter's shop, and in tenants' storage rooms, automatic sprinklers are provided for fire protection.

Utilities' Electrical Services

For definite reasons the tenants each pay for the lighting current consumed on their premises. The building management pays for motor power throughout the building and for lighting current used in the premises occupied by the Bank and in corridors, lobbies, stairs, washrooms and other public spaces.

In the downtown area of Toronto, the Hydro Electric System supplies to new buildings alternating current of 208/120 volt 3 phase, 4-wire, 25 cycle for motors and for cooking and lighting, mainly to simplify the Utilities distributing network; this does not affect the rates charged to the consumer; the charges for commercial lighting are higher than those for cooking or for operation of motors, and power equipment, etc.

In view of the very large electrical load in this building, a T.H.E.S. sub-station was placed under the sidewalk immediately adjacent to the point of entrance of power service into the building. A set of heavy, bare copper bus-bars has been installed in a masonry compartment between the secondary buses in the sub-station and the terminals of the main switchboard in sub-basement.

The main switchboard is sub-divided into four sections —one for motor power throughout the building, one for cooking power for the Bank's highly electrified kitchens and social rooms on the second floor, one for lighting of the Bank and of all public spaces and one for tenants' floors. The first three sections include utilities meters immediately after their respective main circuit breakers. The last section is not metered, and the cables therefrom are carried to the distributing panels on tenanted floors, which are located in electric rooms off the main stair adjacent to elevator lobbies; there, separate service switches, meters and distributing centers are provided for each tenant, in addition to distributing panels required for public spaces.

The switchboard also includes a separate section for alternating current of 60 cycle 208/120 volt, 3-phase, 4-wire, which distributes approximately 100 KW of current, produced on the premises by three motor generators, and used for fluorescent lighting in some of the areas occupied by the Bank, and in the corridors throughout the building.

Emergency Power Supplies

For emergencies, a Diesel engine driven generator has been installed, which develops sufficient power for operation of one elevator, and of the more important mechanical equipment such as oil burners, most pumps, etc. Two of the 60 cycle motor-generators are also equipped with auxiliary Diesel engine drives, which light most of the spaces occupied by the Bank and the corridors throughout the building. This ensures service during the recently frequent interruptions in Utilities power supply.

As the Diesel engines are arranged for manual starting, and the selected circuits must be manually transferred to the emergency plant, a short delay will occur in case of an unforeseen power failure, before emergency power becomes available. A system of battery operated lights is therefore provided in all important spaces occupied by the Bank and in the basement and sub-basement corridors, in elevators, some internal stairs, etc. These lights come on automatically on power failure, and ensure reasonable safety until the Diesel engines are started. They are either integrated into the regular lighting fixtures, or arranged in a pattern wtih them, to ensure best appearance.

Lighting

The lighting in the tenanted portion of the building is semi-indirect, employing incandescent 300-watt lamps in translucent glass bowls, giving an average light intensity on the work plane of about 35 foot candles. The fixtures and wiring have been planned to permit an increase to about 50 foot candles through replacement of lamp socket and lamp with a larger unit.

The type of lighting was chosen mainly for economy; the more recent fluorescent lighting fixtures would have cost several times as much as incandescent lights and the power saving, with only at most 2,000 hours yearly

Figure 2

usage, would have compensated only for a small part of the additional cost. Another reason was that at the time of buying fixtures universal ballasts for fluorescent lighting were still in the design stage; as it seemed probable that conversion to 60 cycle will come soon, easily convertible lighting was given preference. Nevertheless, in the spaces occupied by the Bank, considerable fluorescent lighting has been introduced because much of the lighting equipment was placed in coves or troughs, or was flush mounted behind ornamental panels on ceilings, to suit architectural treatment and finishes. The stroboscopic effect of 25 cycle lighting, which becomes very noticeable under these conditions, decided in favour of 60 cycle current for this work.

Some parts of the exterior of the building may be floodlighted at night (Fig. 2). Special architectural street lighting was originally planned around the building, but had to be abandoned on pressure of the Municipality.

Wiring for Lighting

The complexity of the miscellaneous services and the need for utmost flexibility to permit easy changes in floor plans whenever desired, necessitated an extensive network for electrical distribution throughout the building. This was aggravated by separate metering of current for each tenant.

The ceiling lighting in each bay of the building is served from a centrally located outlet box, from which a conduit and branch wires are carried back to the electrical room. The wires can be easily transferred from

Figure 3

one tenant's panel to another, to allow for changes in tenancy.

"Power" for auxiliary electrical services, such as desk lights, business machines and the like is available at any point of the floor from wires in one channel of the three compartment underfloor duct system.

Underfloor Duct System

This consists of groups of three semi-circular fibre ducts spaced about 6 ft. apart and running the full length of each floor; they are interconnected through three or four sets of cross ducts. (Fig. 3.) Special junction boxes had to be designed for this installation, as, in the past, only two ducts were used in such systems — one for lighting current and one for telephone and other communications and signals. The additional "duct" was requested by the Bell Telephone Company, who had found of late considerable interference with telephone service through induction currents, etc., caused by bell wires, signals, fire alarms, electronics wiring, etc., that was carried in a common channel with Bell Telephone cables.

The "feeder" conduits and wires from junction boxes in the "power" channel of the underfloor ducts are terminated in the electrical room for easy transposal should tenancy change. It is also possible to supply any tenant a small quantity of 60 cycle power for special business equipment; this is then carried in the one duct channel with 25 cycle wiring. The third channel of underfloor ducts carries private communication and signals wiring and wiring which later may be required to keep abreast of new developments.

Communications and Protective Systems

The Bell Telephone System in the building contains an automatic private exchange on the fourth floor. The Bell Telephone trunk lines are brought to this point and the distributing cables are taken from there to panels on alternate floors and are extended therefrom to the telephone section in the underfloor duct system. This

network permits installing telephone outlets anywhere in the building without exposing more than the short connection from the floor fitting to the instrument. These facilities allow also ready installation of small private switchboards on diverse floors wherever they may be required for tenants' convenience.

Telephone service in the premises occupied by the Bank is rendered from a large manual switchboard adjacent to the telephone exchange; this handles all incoming calls and some of the outgoing calls.

The house telephone system serves the needs of the building staff. Instruments are placed in the electrical rooms on all floors and in the diverse equipment rooms, the chief engineer's office and the building manager's suite. This avoids use of tenants' telephones by staff members who wish to contact an officer. The C.P. and C.N. telegraph messenger call system consists of a service cable brought into the building underground from the nearest telegraph office. It is carried through a panel-board and from there runs adjacent to telephone risers to panels on alternate floors; wires are extended into the "signal" channel of the underfloor duct system and call stations may be installed anywhere within the building; on release of a button or crank they will ring in the telegraph office for a messenger.

The Dominion Electric Protection provides two services. One consists during the day of a hold-up alarm that is manually operable from diverse key points; at night it provides an automatic system of protection for vaults with timing devices, door controls and microphones.

The other service is a watchman's "check-in" feature which automatically advises the Dominion Electric Protection Company's central when the two night watchmen in the building have fulfilled the exact requirements of the hourly round of inspection. Connections for tenants' requirements may be added.

The fire alarm consists of one or two break-glass type alarm stations on each floor, which ring on an annunciator in the entrance lobby – to direct the municipal fire fighting crew on arrival – and in superintendent's and in chief engineer's offices. Sprinkler systems in storage spaces and workshops are also connected into the alarm circuits. Every signal rings in the fire department to ensure a quick response.

The centrally operated system of clocks and time stamps is intended mainly for the Bank, in order to coordinate operations and for the building manager for supervision of maintenance and operating staffs.

In addition to these services, miscellaneous signals such as door bells and alarms required around the building, various buzzers and annunciators in offices of the Bank, protective signals in tellers' cages, customers' booths, etc., are installed. In some of the tenants' offices separate systems of call bells, buzzers and annunciators have been provided to suit individual requirements.

Leads from an aerial for reception of broadcasts have been carried to dining rooms, social rooms and certain offices, to serve recreational and social functions and occasional business needs. A public address system can be used in conjunction with this installation.

Transportation Equipment

Four main elevators, mentioned elsewhere, serve the building at large and operate from the sub-basement to the 15th floor above the street. Two elevators that serve floors from sub-basement to 5th, inclusive, are mainly for use of Bank staffs. A freight elevator connects the boiler room, basement and kitchens on second floor with the service lane at rear of building. All elevators are of the most advanced design with controls and other features rendering them especially suitable for their particular duty.

For efficient and speedy transmission of written messages a system of small pneumatic tubes has been provided between certain departments of the Bank that have a frequent exchange of information, documents or securities. The Bank's filing department on the ground floor is connected with the diverse floors that are used by the Bank, by means of a large pneumatic tube system, which carries containers capable of carrying a bundle of cheques or securities, or the contents of a letter file. For speedy handling of mail and larger bundles of papers, a dumbwaiter is provided that serves the floors from basement to fifth, and is arranged for automatic delivery of its load on the desired floor.

General Comments

When first planning this building, the Architects and Engineers realized the added cost which would ensue in a project of this magnitude, if the space occupied by mechanical and electrical services added even a slight increment to the possible minimum floor height. Although a floor to floor height of 11′ 6″ was set for the typical floors, ceiling heights of about 9′ 3″ or better were maintained throughout, except in corridors, washrooms and similar spaces. This condition exacted very careful planning of the maze of air ducts, heating, plumbing and electrical pipes, etc. The execution of the work required the utmost co-operation of and coordination of all parts of the work by the architects, engineers and contractors. The net result of this combined effort is a building which has provided a maximum of usable space and the utmost scope of service in a minimum of building volume.

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NEWS FROM THE INSTITUTE

R.A.I.C. SCHOLARSHIP

A circular letter has been sent to all members of the Institute, advising them of the Institute Scholarship which is being offered for the first time this year. This announcement is the culmination of years of planning, for the Council has wished to make such an award possible for some time past. Since the formation of the College of Fellows, the Entrance Fees and Annual Dues have been set aside for this purpose, and sufficient funds are now available to make an award of $1,500 every second year.

The Scholarship's purpose is the advancement of architectural knowledge through travel, study or research, and it is open to Canadian citizens graduated from a Canadian School of Architecture who have taken their entire architectural course at a Canadian School or Schools. Application for the award must be made within five years of the date of graduation, and candidates for the 1950 award must submit their applications to the Institute Office by December 10th, 1949.

The full Conditions of Award, together with the formal Application Form, can be obtained from the Secretary of the Institute, and any inquiries concerning the Scholarship should be addressed to the Institute Office. It is hoped that this award may enable some promising architectural graduates to undertake worthwhile projects which they might otherwise be unable to accomplish.

CANADIAN INSTITUTE OF STEEL CONSTRUCTION

The Canadian Institute of Steel Construction requests that field painting of steel on buildings be eliminated from Structural Steel Specifications and Contract. After due consideration, the Executive Committee recommends that, in cases where it would be a definite advantage to the owner, the painting of structural steel be considered as a separate division of the contract. It was felt that no definite principle could be established with the Canadian Institute of Steel Construction, owing to variations of local practice.

NATIONAL ASSOCIATION OF MASTER PLUMBERS AND HEATING CONTRACTORS

By resolution of the annual convention of the National Association of Master Plumbers and Heating Contractors, the Institute was requested to recommend to members that tenders for plumbing, heating and air conditioning be submitted direct to architects rather than through General Contractors. The Institute was advised that this request was advanced to control certain practices regarded as unethical.

The opinion of the Executive Committee of the Institute is that, if the situation be as claimed, the remedy is in the hands of the parties themselves. During discussion by the Executive, some interesting points were developed. The practice of requiring names of subcontractors to be submitted with general contract tenders is in wide use. Alternatively, some firms call for separate tenders on the mechanical trades, and later incorporate the acceptable tender, plus a handling fee, into the General Contract.

DRAUGHTSMEN

Letters from Associates and students of the Royal Institute of British Architects, exploring the possibility of employment in Canada, are still being received at the Institute Office. Any of our members interested in offering employment to these young men may receive further information on application to the Secretary of the Institute. The applications are usually from persons who would need to start work immediately on arrival in Canada.

43RD ANNUAL ASSEMBLY

Members are reminded that the 43rd Annual Assembly of the R.A.I.C. will be held at the Fort Garry Hotel, Winnipeg, on Thursday, Friday and Saturday, February 23rd, 24th and 25th, 1950. We are looking forward to having a record attendance at the meetings, seminars and functions of the Assembly.

ANNOUNCEMENT

of a Scholarship for Graduate Study in Landscape Architecture at Harvard University, September 1950.

The Department of Landscape Architecture, Graduate School of Design, Harvard University, offers to those eligible for admission as regular students a scholarship for the next academic year with an income of six hundred dollars ($600.00), equal to the tuition fee.

Candidates must have received their Bachelor's degree, or equivalent, within the past three years; students who are candidates for the degree this June are also eligible.

The scholarship will be awarded on the basis of scholastic standing and evidence of interest in the field of landscape architecture. The Department reserves the right to make no award if such a decision is deemed advisable.

Further information will be furnished on request; all inquiries should be received before December 1, 1949, and should be addressed to: The Chairman, Department of Landscape Architecture, Robinson Hall, Harvard University, Cambridge 38, Massachusetts, U.S.A.

ALBERTA

Five-and-twenty years ago that extraordinary genius Mr. Noulan Cauchon of Ottawa was advocating, with strong and ingenious reasoning, the virtue of hexagonal planning, a method of arranging streets, especially in residential areas, as a network of hexagons. His arguments were set out at length on many pages of the Journal of the Town Planning Institute of Canada and were occasionally summarized in the *Journal* of the R.A.I.C. They were to a large extent endorsed by the no less famous Barry Parker who made a sketch plan for Wythenshawe laid out on the hexagonal principle. It was therefore of interest to me on my recent visit to England to find myself being driven through that same residential district of Wythenshawe which was added to the municipality of Manchester in 1930, giving an addition to the city equal to about one-quarter of its former area.

I had often wondered whether the hexagonal layout had anywhere really found favour and flourished in actual practice. I therefore asked my young friend who was driving how far these hexagons had been extended. He had, however, never so much as heard of them although he had been born and brought up within a mile or two of Wythenshawe. He was, nevertheless, sufficiently curious about them to suggest to me the following morning that we should go out to hunt hexagons. We did, after some search, run down one honest-to-goodness hexagon to which several of the adjoining blocks adjusted themselves. It appears that Mr. Parker had later modified his plan and it had ultimately been altered to such an extent that the hexagons have eventually become submerged—whether with advantage or not I will not venture to say. The actual layout of the district, which is a very pleasant one, is somewhat confusing to the stranger. One finds at a corner the name of a street clearly marked and, added to this, are the names of five or six minor streets to which the immediate street leads. Further exploration is needed to identify each of these. This and other experiences in the mazes of the residential streets of cities in England leads one to the conclusion that the curving and complicating of streets is quite easy to overdo. Some largeness of pattern and of scale is desirable and may quite well be preserved whilst at the same time providing the privacy and the picturesque appearance desirable in a residential neighbourhood. A small area laid out in hexagons around a large open area—which may have been Mr. Parker's original idea—could make a very successful layout. But were a very large area to be so handled, however simple and clear the plan on paper might be, it would, to the traveller in the street appear to be a wilderness in which he might easily get inextricably lost. The sun or stars are not at all times available—even in Manchester, and it should not be necessary to be continually referring to a compass during one's minor explorations.

The vogue—for it was at one time quite a vogue—for hexagonal planning may not be much alive today but that for winding ways has considerable life. I would suggest that whilst this has its merits it should be dominated by some largeness of vision and design.

Cecil S. Burgess.

OBITUARY

W. G. VAN EGMOND

The death occurred in Regina on October 9th of W. G. Van Egmond, one of Saskatchewan's Pioneer Architects. He was born in Egmondville, Ontario in 1883 and was educated in Ontario and New York.

Van, as he was familiarly known to his associates, practised his profession continuously in Regina for over forty years. In partnership with the late E. M. Storey, the firm of Storey and Van Egmond was founded early in 1907, and flourished until Mr. Storey's death in 1914. The firm of W. G. Van Egmond and Stan E. Storey was then founded and this partnership continued to the present time.

It would be futile to attempt to list the buildings designed and supervised under the two partnerships. Suffice to say there is scarcely a street in Regina, or a city or town in Saskatchewan but has at least one building designed by Mr. Van Egmond. These buildings range from large public buildings to private dwellings.

He was active in the old Regina Association of Architects, an unchartered organization, which sponsored a meeting of Saskatchewan Architects in 1908. This culminated in the incorporation of the Saskatchewan Association of Architects in 1911. His name appears on the original petition presented to the Saskatchewan Government in 1909 and on the first Council of the Association appointed by the Lieutenant Governor in Council in May, 1911.

At the first meeting of the Association Council he was elected Secretary-Treasurer, and the bulk of the organization and registration work fell on his shoulders.

At the first General meeting of the Association, the President, F. C. Clemeshaw paid tribute to him in the following words:—

"All will agree that we are particularly indebted to our Honorary Secretary-Treasurer for the arduous work that he has done since the meeting of this association.

"Certainly few can realize better than myself what a tax this has been upon his time, dating back as it does to the days when the Regina Association of Architects took upon themselves to address a circular letter to all known architects in the province, asking that they signify their willingness to participate in the formation of a Provincial Association.

"That seems a long time ago, today, but a great amount of work has had to be done and the greater part of it has fallen upon the shoulders of the present Secretary-Treasurer, and now that the organization is practically

completed and we are here assembled for our first meeting it is particularly fitting that we should acknowledge our indebtedness."

Throughout the years Mr. Van Egmond held every office within the gift of the Association, including a total of ten years as President. He served his association and his clients well and his passing leaves a gap in the Architectural life of Saskatchewan which will not soon be filled.

He is survived by his widow in Regina, two daughters, Mrs. J. T. Lockhart of Regina and Mrs. Roy E. Irwin of Oakville, Ontario.

E. J. Gilbert

PROVINCIAL ASPECTS OF BUILDING REGULATIONS

Bulletin from Division of Building Research, N.R.C.

Variations in building regulations in the different Provinces in Canada were discussed at a conference at Ottawa on 19 September at which representatives of provincial governments met with the Associate Committee on the National Building Code. The Associate Committee was formed by the National Research Council and is responsible for the National Building Code, a model document prepared as a general service.

This conference with the Provinces was suggested at a general meeting of building officials held in Ottawa last spring. Provincial legislation related to building construction was reviewed. Discussion revealed a marked similarity in problems of the different Provinces and put emphasis on a few important questions which would have to receive considerable attention if the goal of uniform and adequate building codes was to be attained.

The lack of knowledge which was shown to be prevalent throughout Canada, except in the larger cities, on the need for building codes and the significant part which they play in the development of communities was realized to be a major stumbling block. An extensive educational program was required, and the provincial representatives discussed with the Associate Committee how, through co-operative effort, this could be accomplished.

Another major question was that of inspection. Because of cost and shortage of trained inspectors, this important aspect of administration had become a problem to local and provincial governments.

Many other problems were disclosed, and provincial representatives left the meeting with a clear picture of existing conditions and the combined suggestions for improvement which developed from the discussion. It was agreed that another meeting should be held in a year's time, and it is fully expected that this inter-provincial meeting to discuss building codes will become an annual event.

CONTRIBUTORS TO THIS ISSUE

Cleeve Horne, A.R.C.A., P.O.S.A., S.S.C.

Painter: President of The Ontario Society of Artists and member of the Royal Canadian Academy of Arts. Chiefly known in the field of portraiture.

Sculptor: Member of the Sculptors' Society of Canada. Recently completed Memorial to Alexander Graham Bell, Brantford, Ontario; William Shakespeare Memorial, Stratford, Ontario.

Particularly interested in sculpture that is related to architecture.

R. Schofield Morris

Educated at Ashbury College, Ottawa, and Royal Military College, Kingston. Served with Royal Field Artillery and entered McGill University after World War I. Graduated in 1923.

Three years in New York City with Carrere & Hastings and H. T. Lindeberg and later with H. L. Fetherstonhaugh.

Entered present firm in 1929, becoming partner in 1930.

Past President Ontario Association of Architects. Elected to fellowship in Royal Architectural Institute of Canada, 1944.

J. Morrow Oxley, M.E.I.C., P. Eng., M.A.C.I.

Was born in Halifax and after early days in Ottawa and Montreal came to Toronto in 1902. From 1907 to 1915 was engaged in structural design and fabrication with Oxley & Chadwick, McGregor & McIntyre and Harkness & Oxley. Overseas from 1915 to 1919. Since 1919 with Chapman & Oxley who have been responsible for many buildings in Toronto and other places in Canada.

Active member of Building Code and Canadian Standards Association Committees since 1913.

Has contributed articles to technical journals on economic and structural problems.

Mr. Oxley's article in this issue was previously published in *The Engineering Journal* for August, 1949.

Karel R. Rybka

Mechanical and Electrical Engineer, graduated at Prague in 1923. In 1937 was awarded the Degree of Doctor of Science during a brief visit in Prague. Came to Canada in 1928 and has since been engaged in Consulting Engineering. Was prominently connected with the construction of some of the major buildings in Toronto, such as the Royal York Hotel, Eaton's College Street Store, Maple Leaf Gardens, Toronto Stock Exchange, some of the University Buildings, some large office buildings, factories, diverse recreational buildings, many moving picture theatres, etc. Is a member of The Association of Professional Engineers of Toronto, The Corporation of Professional Engineers of Quebec, The Association of Consulting Engineers of Canada, The Engineering Institute of Canada and other Engineering Societies.