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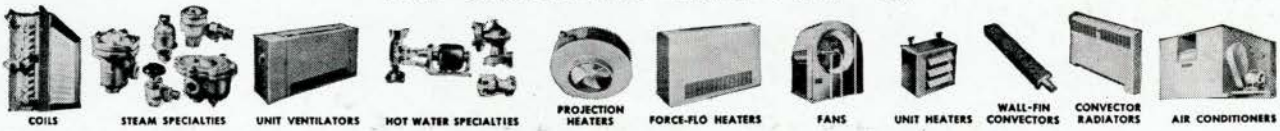
THE COMPLETE LINE FOR '49



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JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

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JOURNAL
R.A.I.C.
JUNE 1949

FOR some time we have known of a curious anachronism, which we have saved for the day when heat would drive better subjects for an editorial from this page. The Royal Canadian Academy is a body similar to our own Royal Architectural Institute with similar high ideals and proud traditions. We quarrel today with the Academy on one of its traditions which we can only describe as hoary, and in need of change. Occasionally, and with our entire, and, of course, uninvited approval, the Academy has thought fit to honour some of our more distinguished architects with Associate membership. The architect, so honoured, has to his record a list of admirable buildings, and the notice of his distinction is given appropriate place in the press and the *Journal*. Some years go by, the buildings increase in number and excellence of design, and our distinguished architect becomes due for a "raise" to full membership. We have now come to the sad part of our story. Our hero is not promoted on his record, but on his ability to do a picture in oil or water colour with his own hands. Nor will a perspective do — the subject must approach the sublime; preferably with grim ruins on a blasted heath framed by mountains.

WE are affected personally in this matter because for years we doff our cap when we meet our friend the A.R.C.A. and distinguished architect, but keep it on, and silently pass by when we meet the same friend, the R.C.A. and temporary water colourist. It is hard on us, and doubly hard on him with his guilty memory of the object that raised him to the hierarchy of the arts in Canada. We are all affected because of the natural desire, over the years, of the R.A.I.C. to raise to honorary fellowship distinguished painters and sculptors. The dignity and function of the profession are impugned in the inference that the architect is a long-haired, arty individual whose highest achievement rests not in the art of building, but in the execution of a single picture of exceedingly doubtful merit.

HONORARY Fellowship in the Institute is awarded an individual for high standing in his own, and not in some irrelevant field. The idea of asking a painter to write a Specification for a one-car garage in brick (overhead door, concrete floor), or a sculptor to do handsprings, did not occur to the writers of our Charter.

WE doubt whether this absurd regulation of the Academy goes back to the days of the Marquis of Lorne. It was probably added later by some practical joker, but while it lasts it should be unacceptable to architects. If some do still find it acceptable we can only say with the preacher *"vanitas vanitatum et omnis vanitas"*.

THE presence of three fine buildings in this issue and the promise of more to come, reminds us of those war days when the most innocent buildings were on the hush-hush list, and prayers and supplications to Ottawa failed to have them released to the *Journal*. A striking sign in these peaceful days is the extraordinary and willing co-operation between architects and publisher and editor. At the same time that we thank the architects represented in this issue for their assistance, we should like to congratulate them on the high standard of work which they submitted.

Editor

THE CANADIAN NATIONAL EXHIBITION GRANDSTAND

By M. F. ALLAN

MARANI AND MORRIS, Architects

Gordon L. Wallace - - - - - Structural Engineers

Thomas and Wardell - - - Mechanical Engineers

Karel R. Rybka - - - - - - Electrical Engineers

K. S. Gillies - - - - - Commissioner of Buildings

THE Canadian National Exhibition Grandstand, recently built by the City of Toronto in Exhibition Park and now known as the Stadium, is a dual-purpose structure and as such offered many interesting problems in planning design and construction.

The primary function of the Grandstand, as an integral part of the great Annual Exhibition, is to provide spectator seating for the pageants, shows and sporting events which have always been such an important part of the activities during the Exhibition. Seating alone, however, is not the complete answer to such a particular problem. Provision must be made for the comfort and convenience of thousands of people, a very large proportion of whom are spending the entire day at the Exhibition. To that end, the planning included, on the street level, two large restaurants, toilet and wash rooms for both the Grandstand occupants and the general public, and a large Exhibition Hall, again with service facilities.

Secondly, the Grandstand, in conjunction with the recently completed Sports Field and Track, will function as a Civic Sports Centre. In order to fulfil the requirements of teams and contestants, the Stadium on the lower level, contains men's and women's team rooms and dressing rooms with adjoining showers, toilet rooms, locker space, and first aid room.

There were, of course, additional factors influencing the development of the plan, such as the need for really large storage areas for the C.N.E., the large area required on the Roof for the complicated flood and stage lighting equipment and the necessity of easy and adequate entrances and exits, sufficient in number to prevent congestion in the adjacent areas which are always crowded during the busy Exhibition period.

Generally speaking, the dual purpose for which the Stadium is to function, largely dictated the plan in general.

The development of the plan in detail is shown in the following descriptive notes, plans and illustrations.

The Plan

First, some facts regarding the actual size of the building. The Stand is 808 feet long, 153 feet wide and 75 feet in height above the sidewalk. There are four levels in the building, three of these floors being beneath the seating slab and the fourth on top of the Roof.

The Basement level contains the four men's team rooms, the women's team room, first aid room, shower and locker space for team rooms and for kitchen employees. Two first aid bedroom suites are in each end of the building for emergency use. In addition, use is made of additional spaces as storage areas. Separate entrances to the team rooms open directly off the track and field without entering the Stadium proper.

At the Ground Floor is the street level for entrance to the Stadium seating by means of four large ramps leading to the 16-ft. central corridor running the full length of the building. Eighteen ramps again lead off this central corridor to the seating platform. Illuminated signs showing seat section and number are hung on the rear corridor walls and point to the ramp entrance to seating. The ramp approaches and exits have proven to be the most satisfactory solution for handling quickly a large number of people.

Toilet and washroom facilities for the occupants of the Stadium are situated off the central corridor. Here also are the public telephones of the new doorless type.

On this level and opening directly from the forty foot wide promenade, are the two restaurants, each capable of handling one thousand persons at a time. At the present time, both the East and West restaurants are set up as cafeterias. Behind the restaurants are the kitchens complete in every detail of equipment for storage, preparation and handling of food. A loading dock at each end of the building provides direct kitchen service facilities and entrance to the lower service corridor.

Also on the Ground or Street level is the Exhibition space, approximately 15,000 sq. ft. in area, with men's and women's toilet and wash room facilities. The Management of the C.N.E. felt that such an area would produce a revenue throughout the year as it could be leased for display conventions and exhibitions at any time other than during the Exhibition period. Water and gas lines are placed underneath the floor and result in fourteen points available for connections to display equipment.

The third level under the seating is the storage floor and space for ventilating equipment. The permanent storage room serviced by a large freight elevator runs the full length of the building and will be used to store C.N.E. permanent equipment from year to year. It is also intended to run to this area all terminations of the Bell Telephone system throughout the C.N.E. grounds, thus forming one central "home" for the entire system.

The top working level of the Stadium is situated on the Roof and is enclosed in an aluminum faced structure on the south edge of the Roof running the full length of the building.

Press room, radio control and broadcasting rooms are housed in the centre of this structure. The balance of the complete length is taken up by the array of flood and spot lighting equipment described later in more detail.

Design

The building is designed in a long curve, a shape which not only harmonizes with the present and future roadways but also brings the east and west ends of the seating closer to the Track and Field. It is safe to say that from any seat, one has an excellent view of either the Exhibition stage or pageant spectacle or the activities on the Sports Field itself. The north elevation and its detail directly express the plan. The main canopy provides shelter over the main Stadium entrances and entrance to Exhibition area. Canopies over each Dining Room entrance permit similar protection. The vertical stone-covered concrete pylons are structural members forming an anchor hinge at the top for the roof trusses. The large copper plaques in the centre of each bay of the north elevation provide ventilation and exhaust for the storage area, kitchens, lavatories and other parts of the building. The glazing at each end of the Stand and along the top of the building behind the rear top seats reduces winds and draught and thus adds to the comfort of the spectators. Incidentally, a very careful study was made by the designing Engineers in regard to wind velocities and possible built-up pressure before these areas were enclosed with glass.

Accent has been placed on colour throughout; the underside of the flush type roof over the seating has been painted a light pastel green; seats are enamelled in red, green, blue-green and grey; Entrance doors are baked enamel in light green and sash and mullions of the Dining Rooms carry a similar colour. The large Dining Rooms are different in colour scheme but a gay and festive air is given by the use of strong colours in yellow, turquoise, blue-green, black and pastel shades. The floor is red. The underside of the Dining Room canopies are painted dark blue while the main canopy soffit is finished in natural stone colour.

Seating

There are approximately 22,000 seats including the separate chair seats placed on the stepped concrete in front of the low parapet wall. Seats are anchored to the riser of the step behind, thus leaving the maximum traffic space. The seating is divided into single chair type seats with arms and double seats with arms at each end.

In designing the seating area, the primary objective was to achieve the best possible circulation from the moment of entrance until the final exit. We have already described the four main Stadium ramps (also acting as exits) to the central passage and through eighteen short ramps or vomitories to the seating area. Spectators clearing through the vomitories and central passage may exit to the centre ramps or either the east or west ends of the passage. In addition, each aisle between sections opens through the low front wall onto the twenty-one foot sidewalk stretching the full length of the building to gates at the east and west ends.

Lighting

Previous mention has been made of the stage lighting area complete with its own structure on the Roof. Folding doors in each bay allow the whole front of this area to be opened for the use of the lighting equipment. Ten times more illumination than was ever before provided, was used last year for the nightly performance before the Grandstand. Flood, arc and spot lights of more than 600,000 watt capacity light toward the front of the stage and even more than this amount can be used in back and side lighting. Twenty-one skilled technicians are required to operate the lighting. The arc spotlights are the most powerful obtainable in the world. Glass bulb rectifiers are employed to transform the 25 cycle current into direct current for these lamps. Each rectifier supplies direct current to two spotlights.

The lighting power of 5,000 hundred-watt bulbs can be directed on the Stage or Playing Field in front of the C.N.E. Grandstand. The lights are controlled by 200 levers, 40 circuits with two switches each and three dimmers, housed in a little room that resembles an electrician's nightmare.

The most expensive, powerful and modern outdoor lighting system on the Continent, and probably anywhere in the world, concentrates 50,000 candlepower of light on the foreground. You can realize how bright that is when you realize that a 100-watt electric light bulb gives off only 16 candlepower. There are 500,000 watts illumination when everything is turned on.

While the control console, a mammoth tabletop of gadgets, is on the Roof, the 18 tons of heavy equipment to which it is attached is housed in the basement of the Grandstand. The magic machine was designed in the U.S., but nearly all the parts for it were manufactured in the Canadian General Electric plant here. It was installed in record time by Canadian engineers.

Heating and Ventilating

Heat is supplied from the boiler house serving the Coliseum and Horse Palace. The steam line is carried underground from the Horse Palace to the north-east corner of the Grandstand, then upwards to the Storage Floor and along to the west end of the building. Heat can be supplied to one Dining Room and Kitchen, the Exhibition area, toilet and wash rooms, team rooms and adjacent wash rooms. Shut off valves are so placed that any part of the heated area can be used without supplying steam to the balance of the building.

Exhaust ventilation for Dining Rooms, Kitchens, Lavatories and all other interior rooms is carried up under the seating platform and over the suspended ceilings of the Dining Rooms. Ventilating equipment, including the fans, is located on the storage level floor and venting takes place through the large copper shields on the north elevation.

Construction

It might be interesting to quote a few actual construction figures. Approximately 20,000 cubic yards of earth was moved on the job. The 18,000 cubic yards of concrete was poured in place by pumping through seven- and eight-inch pipe from a central mixing plant located just in front of the Grandstand. Most of the concrete for the seating slab had to be poured during very cold winter weather in order to meet the work schedule. Heat was supplied by steam lines carried both under the fresh pour and over the slab. Each section of concrete after pouring was completely enclosed by canvas on a steel framework. Over one million brick and 22,000 cubic feet of Queenston limestone were used. The structural steel on the Roof amounted to 1,400 tons. For partition walls, storage areas, etc., 108,000 concrete blocks were placed. Construction started in April 1947 and was sufficiently completed to allow the Stand to be used for the 1948 Exhibition in August, a working period of sixteen months, and approximately two years from the time the architects were appointed. The contract was carried out by the Pigott Construction Company Limited. Due to the plasterers' strike, it was impossible to complete plastering of Dining Rooms, painting, and other interior trades before the opening of 1948. This work had to be done after the Exhibition period.

The construction particularly of the seating platform and of the Roof including the methods used for steel and truss erection, posed many interesting problems, some of which are described in more detail in the accompanying article in this issue by the Structural Designers, the office of Gordon L. Wallace.

The Sports Field

Any description of the Stadium itself would be incomplete without mention of the Sports Field and Track in the foreground. Considerable study was given to the grading, drainage and construction of the large Sports and Football fields in the United States and Canada and the design principles of the more successful ones were applied to the C.N.E. project. The Playing Field itself is drained by a herringbone pattern of six-inch pipe carried to twelve-inch ring drains on the north and south perimeters. This was followed in order by the placing and consolidation of four inches of coarse gravel, eight inches of sandy loam, six and one-half inches of top soil and one and one-half inches of sodding with top dressing. The Field has an eight inch longitudinal crown for surface drainage.

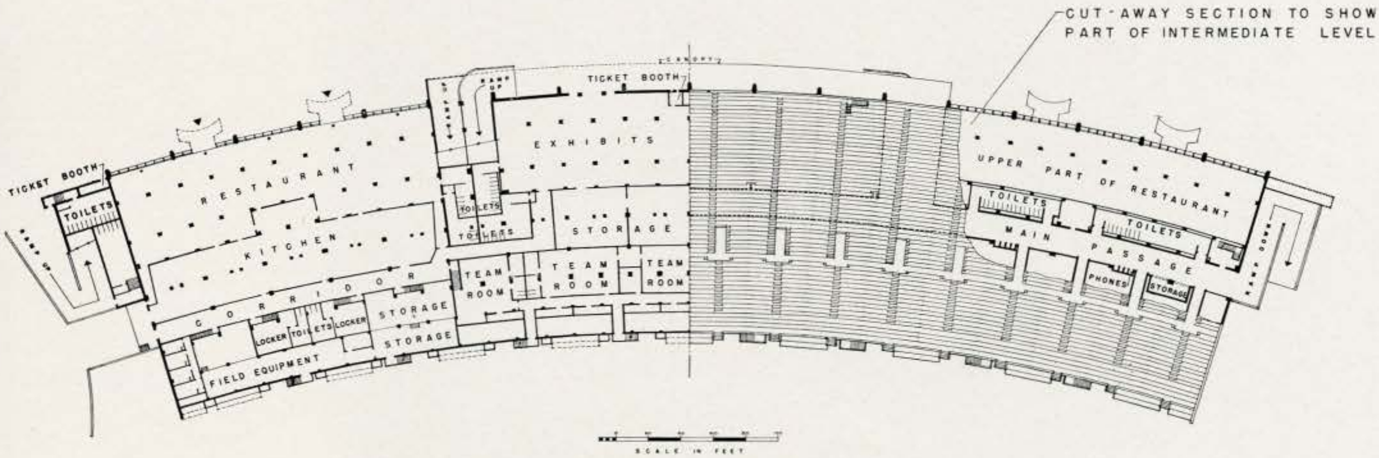
The running track circles the Playing Field and is at present a third of a mile in length. Provision has been made for completing an official quarter mile track by changing the curve at the ends, without affecting the space for rugby or soccer. The width of the track generally is thirty feet with the exception of that part directly in front of the Stadium where the surface has been widened to sixty-five feet, giving extra space required for musical rides and other spectacles. The sub-grade slopes to a central drain. Above the sub-grade, the construction consisted of eight inches of coarse gravel, four inches of medium cinders, four inches of fine cinders and a four-inch top dressing of screened cinders with a one-to-four clay loam content for consolidation.

Chain link fencing rather than a solid type was chosen as a surround, with a view to preserving the open park-like atmosphere of the C.N.E. Grounds.

Photograph by Gordon H. Jarrett

THE CANADIAN NATIONAL EXHIBITION GRANDSTAND, TORONTO

MARANI AND MORRIS, ARCHITECTS



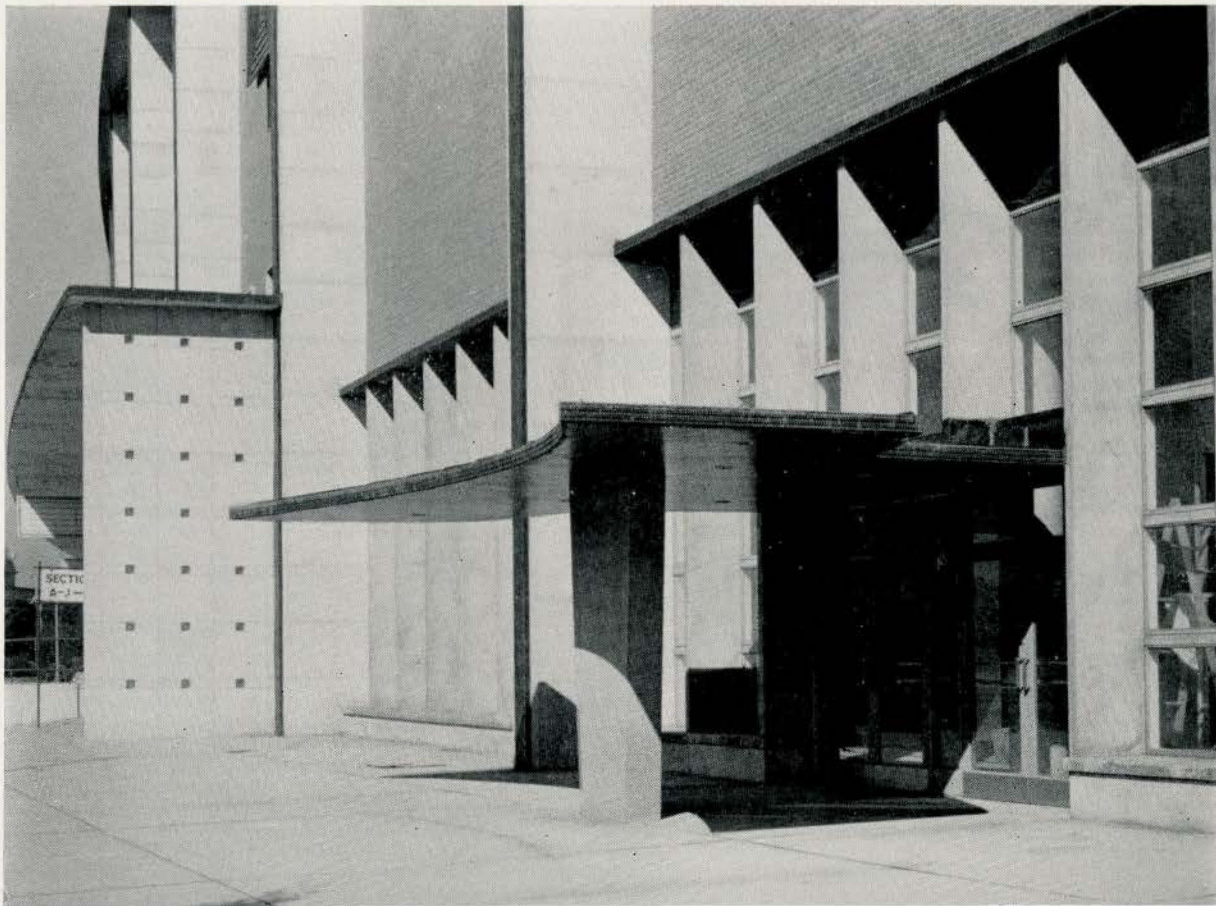
HALF-PLAN AT GROUND LEVEL　　　　HALF-PLAN OF SEATING

NORTH ELEVATION

Photographs by Warner Bros.

VIEW FROM NORTH-WEST

DETAIL OF RESTAURANT ENTRANCE



VIEW OF SEATING

WEST ELEVATION

STRUCTURAL FEATURES OF THE CANADIAN NATIONAL EXHIBITION GRANDSTAND

By CLARE D. CARRUTHERS, B.A.Sc., M.E.I.C., P.R.E. (Ont.)

Associate and Chief Designer of Gordon L. Wallace, Consulting Engineers

TO all members of the construction industry and even to many members of the general public the new grandstand has many interesting structural features.

There is no doubt that many people (some have written) wonder how the roof can be supported on what appears, from across the field, to be a line of oversized match sticks running up from the seats to a wooden ceiling supported by some light steel beams.

While the roof has the more spectacular appeal there are many structural features to the concrete stand supporting the roof. We will deal with some of these items first and later describe the roof.

The footings had no unusual features except possibly the size of the footings under the main roof columns. These footings carried a load of approximately 1,500,000 pounds and had a dimension of about 16 feet square. In calculating the area of these footings a lower soil value per square foot was used for dead load due to the disproportionate size of these footings to the general footings.

The diagrammatic section **Fig. 1** shows the various levels of the stand. Beam and slab construction was used throughout. One-way slabs were used except for the floor of the storage area which is largely two-way beam and slab because of the larger panels.

The seating area received the greatest amount of attention in the concrete design since this slab both supports the seating and forms a roof for many of the rooms below. It was early decided that there was little use in attempting to waterproof this slab by use of a membrane and a covering slab on top, or by integral waterproofing. The first would have been much more expensive due both to the cost of the membrane and concrete and the extra weight involved. The second does nothing that good concrete doesn't do. The final decision was to get the best possible concrete placed in such a

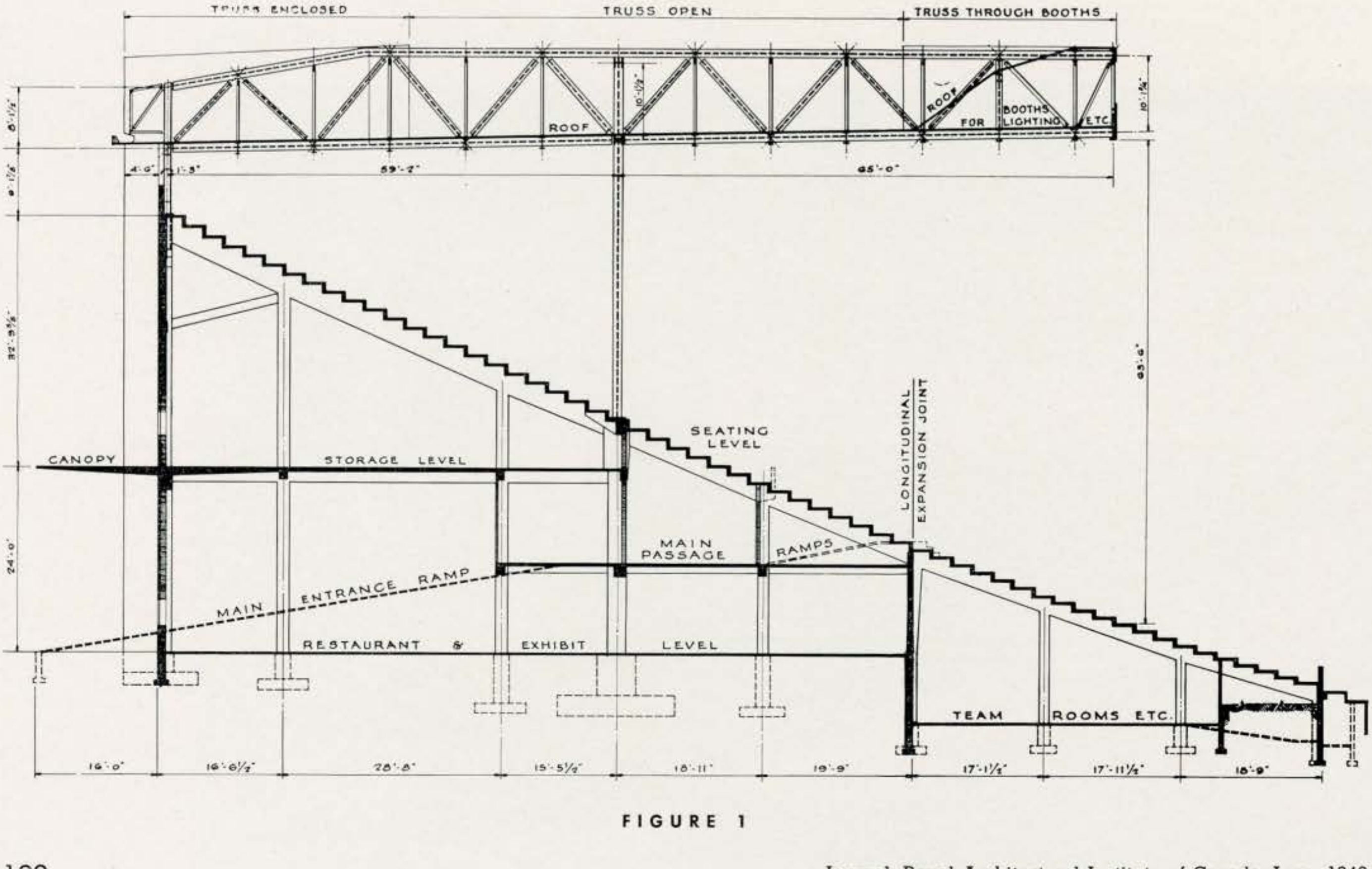


FIGURE 1

manner as to reduce cracking to a minimum and to localize to known lines the cracking that is almost bound to occur. These results were reasonably well achieved.

The seating slab is a series of 4-inch slabs, the flats or treads, supported by a series of joists formed by the risers of the steps. These are supported on girders running up the slope at about 20 foot spacing and supported on columns spaced as indicated in the diagrammatic section **Fig. 1.** The concrete was 3000 pound with a two-inch slump vibrated into place. For strength purposes a 3-inch slab, or even less, would have been quite satisfactory. A 4-inch slab was used to achieve a more waterproof job. This slab was reinforced with a 6″ x 6″ welded wire mesh with 2⅜ϕ longitudinal bars as added temperature reinforcement. The joists were reinforced top and bottom with reinforcing continuous between expansion or contraction joints.

In the complete length of building there are two transverse joints which allow for expansion and contraction called expansion joints, and three joints which allow for contraction only called contraction joints. The only real difference between them is that the expansion joints have a one-inch space between the concrete surfaces, whereas for the contraction joints the concrete was poured directly against concrete with the first pour being painted with bituminous material to break the bond. Both types of joints have double columns and have a continuous copper strip with waterproof joints. The space between the surfaces in the expansion joints was filled with a fibre board and a bituminous mastic material.

These joints divide the stand into about 120 foot lengths. Longitudinally a joint breaks the slab into two sections. This joint is on the line which is directly in front of the ramps from the Main Passage to the seating area.

In the pouring of the slab a length of approximately 40 feet was the maximum allowed in any direction for any pour. This required the pouring of the seating area checkerboard fashion, with the alternate areas poured a day or so later. This scheme was an attempt to reduce or even prevent noticeable shrinkage cracks. It was quite successful in this regard as there was very little random cracking due to shrinkage or temperature movement of the slab. Cracks that occurred at construction joints can be waterproofed wherever or whenever they develop.

Other items of some interest in the concrete work which, due to lack of space, can be merely mentioned are: (1) A fourteen-foot cantilever slab runs for about the center third of the north side. This has as its anchorage arm the storage level floor. (2) The precast paravanes or vertical mullions of some of the end windows which are only 3″ to 5″ thick, are about 4′-0″ wide by 20 feet long. Both these parts of the construction can be seen in **Fig. 2.**

The roof is 2″ x 3″ laminated wood on steel purlins at

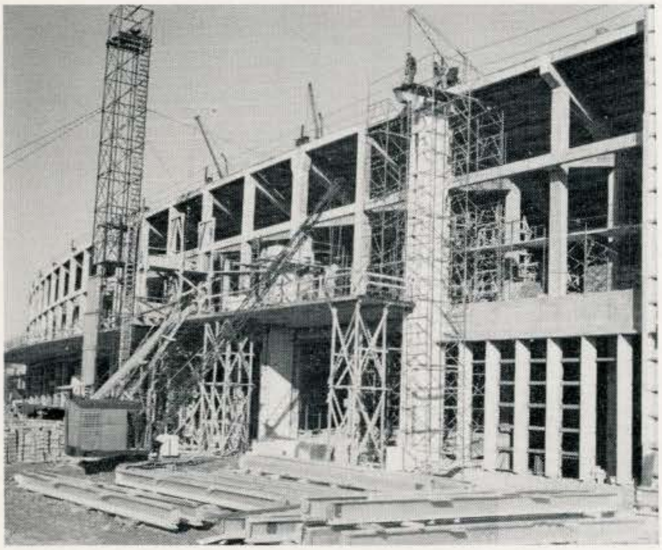


FIGURE 2

10′-0″ centers supported by steel trusses. The cantilever trusses run transverse to the roof on radius lines of a 2400-foot diameter circle at about 40′-0″ centers. They have a 65-foot cantilever with a 59-foot anchor arm. The supporting columns are at 80-foot centers necessitating a heavy longitudinal truss between columns to support the intermediate cantilever trusses which are framed through the longitudinal truss. The most novel feature of this truss system is the fact that it is above the roof with only the bottom chord showing below. The cantilever trusses are the reverse of the usual simple span truss in a building, in that it is the top chord that is in tension and the bottom chord in compression. Since it is the compression chord that requires the stiffest bracing it is not illogical to put the roof at the bottom chord. **Fig. 3** which shows the steel work one-third completed, illustrates better than words the arrangement of the

FIGURE 3

various parts of the roof construction and illustrates the method of erection to which we will refer later.

The trusses are composed of steel H sections for most of the members. The lighter members are beam sections of the same depth, and the lightest sections are a pair of angles spaced apart with steel batten plates. The maximum stress in the cantilever trusses is 925 kips and in the longitudinal trusses 1045 kips, requiring 14 H 176 and 14 H 219 respectively.

There are two expansion joints transverse to the structure spaced at 240-foot centers. At these expansion joints double columns and trusses are used. At these joints a connecting linkage was introduced between the columns just below the trusses. This linkage allowed only a small but reasonable amount of movement before bringing the next group of columns into play. For any severe conditions of wind load all columns will work together and not merely in units of four.

The framework was analyzed for the severest conditions of loading. For the cantilever truss this was live load plus dead load plus wind load down on the cantilever span; for the anchor truss the same loadings were used but with dead load only on the cantilever truss; for the longitudinal trusses the maximum load is with dead and live loads on cantilever and anchor spans, and with wind down on the cantilever and up on the anchor span. The wind loads were actually of minor importance in the design of the trusses. In the design of the columns the opposite was the case. The columns were greatly increased in size due to the action of the wind, particularly in the longitudinal direction, with the result that the typical column was 14 WF 298, one of the heaviest structural shapes rolled. Wind loads were based on a 100 mile an hour wind, something this city has never quite had, the maximum wind velocity recorded here being 94 miles per hour. The difference is small.

The laminated wood roof is supported on 18 WF beams running longitudinally between trusses to form what appears to be a series of concentric circles of very pleasing appearance. These purlins and any bracing, plates etc., were provided with wood lagging so shaped that there was not a toe hold left for pigeons or sparrows to perch. It must be done on the wing.

Along the front of the cantilever trusses for the full length of the stand are a series of rooms for lighting, broadcasting etc. which have a roof at the top chord level. At the back of these rooms the roof was sloped down at about 30° to avoid serious snow pocketing. For the same reason the trusses were left open except where covering was required for architectural appearance.

The short columns at the back of the anchor arm have an uplift of 139 kips under the worst conditions of loading. These columns were anchored by introducing a length of steel column into the top of the concrete column and anchoring this by means of lugs and hooked bars to pick up the necessary load from the concrete frame.

The erection scheme worked out by the Canadian Bridge Co., Ltd., the contractors for the structural steel work, was rather unique. The slabs and beams of the seating area were not capable of taking erection loads, but the columns and footings were capable of such loads. Temporary steel frames were built which fitted the concrete column spacing. There were two sets of two frames for each of the two lines of cranes located as shown in Fig. 3. The cranes were set on rails running on these frames which allowed the crane to move along by picking up one frame while sitting on the other and put it out in front ready for the next move. There was, therefore, no load placed on the concrete structure except over the top of the concrete columns.

The erection started by erecting the first two front columns and rear columns, the anchor trusses and the first longitudinal truss. The cantilever trusses were then added in sections working out from the front columns and longitudinal truss, and the purlins and bracing then filled in. This same procedure was followed through from one end to the other, after which one crane lifted the other off the concrete structure; using this method the 1410 tons of steel were erected in 9 weeks. Fig. 3 shows quite accurately the scheme of erection employed as well as showing very clearly the framing of the several parts of the steel structure referred to in this article.

The structural design was done in all parts by the office of Gordon L. Wallace, Consulting Structural Engineers. Mr. H. V. Spurr of New York was retained in an advisory capacity by the Architects and Engineers.

MECHANICAL BUILDING, UNIVERSITY OF TORONTO

By RICHARD A. FISHER

of the firm of Allward and Gouinlock, Architects

ONE of the most fundamental definitions of Traditionalism, particularly in reference to University buildings, is, we suppose, the following of long established basic traditions especially those expressed by the older English and European Universities, when they were faced with the problem of adding new buildings to those which had been standing in their cities, sometimes for hundreds of years. This tradition has been invariably the same (except for a slight lapse into romantic revivalism during the Victorian era)—that is, a universal acceptance of contemporary design; an attempt to allow the architects of any new building freedom to give expression to the moment in history in which it was designed.

The "contemporary" Italianate-classical New Buildings of Magdalen College, Oxford, built in the eighteenth century, closely adjoining the equally "contemporary" quadrangle of fifteenth century buildings of the same College, is one of hundreds of examples which springs to mind. Surely they prove that with the passage of time a succession of contemporary buildings can be absorbed into and become part of the patina of an orderly whole which a University (of all human institutions, one which must maintain an organic growth) must achieve if it is to avoid complete architectural sterility.

This tradition would appear to demonstrate a more mature and academic attitude than the "Modern" approach (in terms of the last century or so) which we are now happily outgrowing, during which the apparent stipulation for new buildings in many American Universities, and unfortunately in too many Canadian ones, was that they must fit into the Procrustean straight-jacket of Georgian or Collegiate Gothic envelopes, whether they consisted of small residential cells, great gymnasia, or large mechanical laboratories.

It is more than fortunate for architectural development that the Governors of the University of Toronto are following the long tradition of acceptance of contemporary expression.

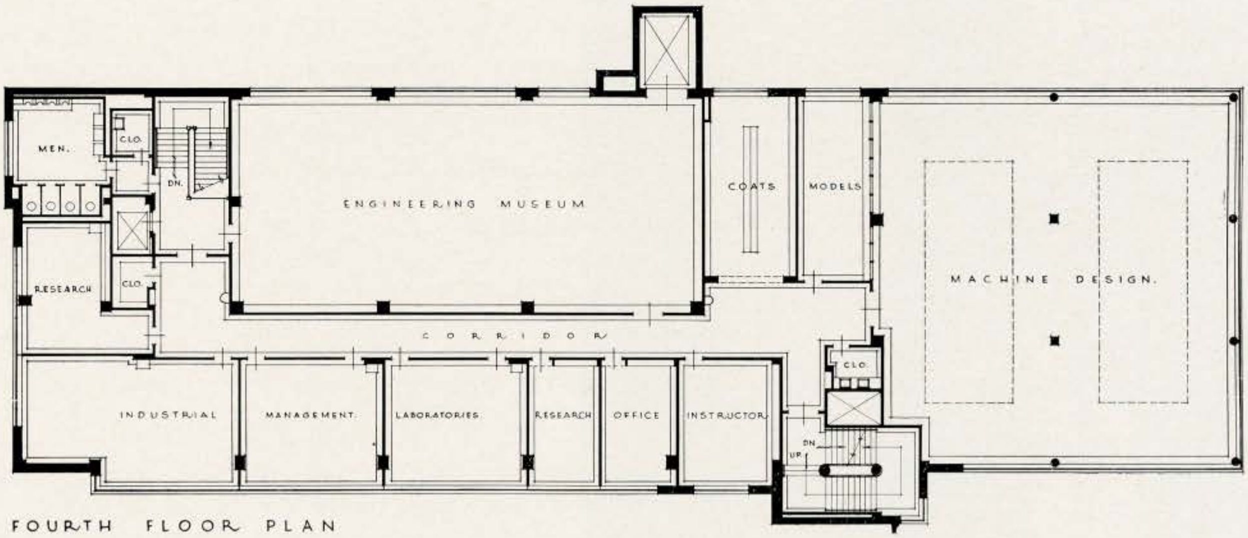
At the outset of the problem of designing the addition to the Mechanical Building, it was obvious that no honest or even workable expression could be given to the peculiar space-plan requirements of this building by attempting to emulate, for its exterior treatment, the misguided efforts of the Revivalists. Three large air-conditioned lecture rooms were to be provided, one-and-a-half to two stories in height, windowless for ease in visual education. These had to be grouped together for separate access without opening the rest of the building. A generous Stair Tower was to be provided to give access to these, and to a large and well-lit Draughting Room above. Also several very large Mechanical Laboratories and secondary stair adjoining and giving access to the original Mechanical Building. The Basement contains a large River-flow Laboratory, with towing channel two hundred feet long, and large storage tanks providing water at constant pressure for the operation of large scale models of dams, hydro installations, etc. Finally, and in a way, most important, (as this building is to be a Research as well as a teaching centre) three stories of offices, research rooms, laboratories and seminar rooms were required. These all had to be of widely varying sizes, yet planned to permit infinite flexibility for future changes. With the constantly accelerating tempo of developments in the mechanical sciences, this provision for flexibility was considered a most important element in the general design. The decision to use continuous sash in this area, with every mullion designed so that it could receive a future partition, appeared to give the ultimate in freedom for future sub-division. The Ground Floor Library, where future division is unlikely, is lit with conventionally spaced windows.

(Continued on page 199)

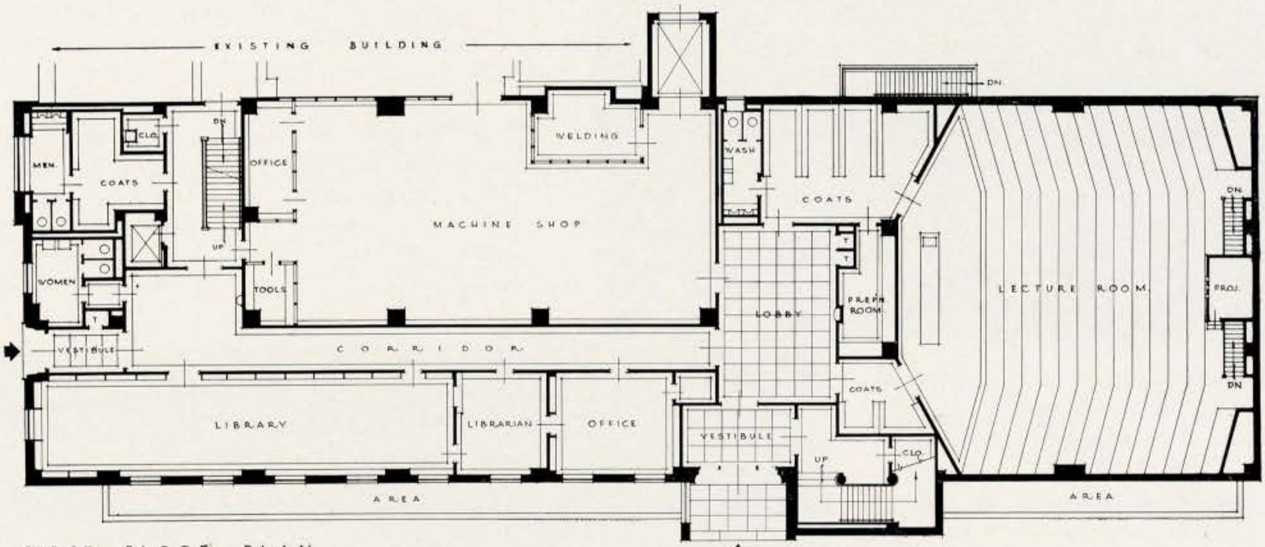
Photographs by Warner Bros.

MECHANICAL BUILDING, UNIVERSITY OF TORONTO

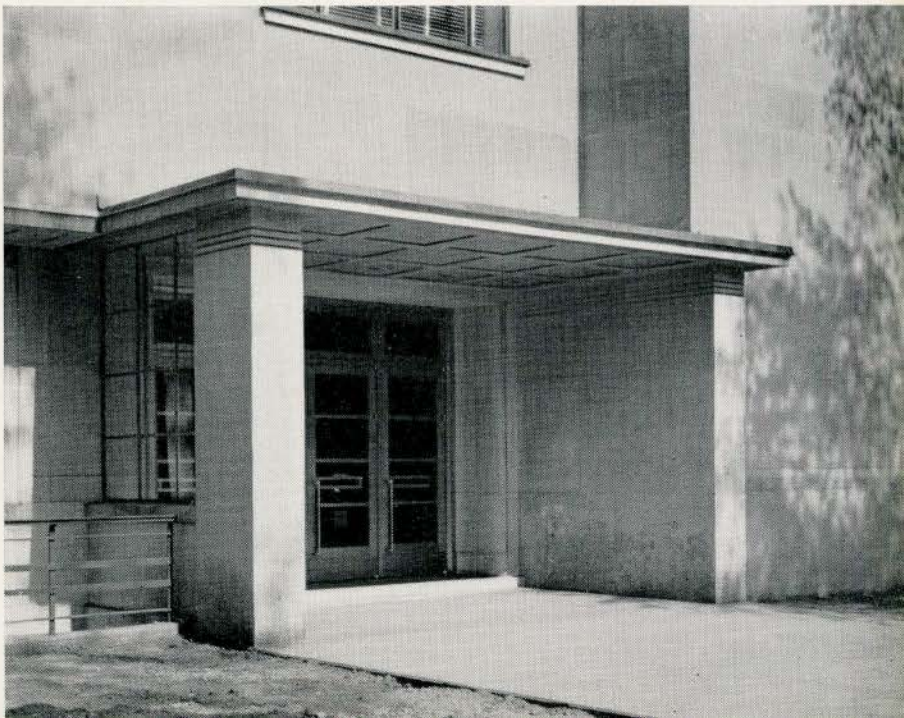
ALLWARD AND GOUINLOCK, ARCHITECTS



FOURTH FLOOR PLAN



FIRST FLOOR PLAN



DETAIL OF MAIN ENTRANCE

MAIN STAIR

MAIN ENTRANCE AND STAIR TOWER

MECHANICAL BUILDING, UNIVERSITY OF TORONTO

By E. A. ALLCUT

Professor of Mechanical Engineering and Head of Department

FOR many years, the motto of the architects was apparently "Si monumentum requiris—circumspice!" for most buildings seem to have been designed as monuments to the architects rather than as places in which to live, work or congregate. Fortunately, while exponents of this philosophy still exist, their number is rapidly decreasing, so that buildings are becoming more useful and habitable than heretofore. This was the sort of problem with which the staff of the Department of Mechanical Engineering was faced some five years ago, when the essentiality of additional accommodation became apparent. The Faculty had asked for permission to restrict registration in the post-war years to the number of students that could be handled with the facilities then existing. This request was refused by the Government and therefore plans had to be devised to accommodate four times the normal complement of engineering students and to provide appropriate equipment for their tuition, at a time when both materials and labour were scarce and expensive. Temporary accommodation for the two junior years was provided at Ajax, but the equipment of the heavy laboratories could neither be transplanted nor duplicated and therefore the new Mechanical and Chemical Buildings were given the highest priorities.

The Mechanical Engineering Department occupies a key position, because practically all engineering students receive instruction in Heat Engines, Hydraulics, Machine Design and Management and therefore its requirements are based on the total registration in the faculty rather than on the number of students registered in Mechanical Engineering. While the total enrolment reached a maximum of over 4000 in 1947-48, it was anticipated that ultimately it would fall to about 1500 and accordingly the plans were devised, in the first instance, for that number of undergraduates. It was realised also, that the strength and prestige of any University is derived from its contributions to the state of knowledge and that provision should be made, therefore, for a strong post-graduate research school. The arrangement and equipment of the new building were planned with these two ultimate objectives, bearing in mind moreover the immediate requirements of the enormous undergraduate enrolment. The latter have stressed the new facilities to the elastic limit as, during the past session, most of the laboratories have been operating from 12 to 14 hours a day.

Academic buildings for teaching engineering must have provision for four kinds of activity, namely, (1) Oral instruction, (2) Administrational and social, (3) Reading and discussion, (4) Experiment and demonstration and, accordingly, appropriate provision has been made for all these functions. Apart from the obvious necessities of good heating, uniform and adequate lighting and ventilation without drafts, the three lecture rooms have been designed to eliminate external disturbances and to give rapid and complete lighting control. Even in the large lecture room (350 seats) the speaker can be seen and heard easily — the seats are comfortable and are arranged conveniently for taking notes. The cloakrooms were designed specifically for safe storage and convenience, as they adjoin the lecture room and any stealing of coats, etc., must take place in full view of the audience. This will probably be a deterrent!

The offices are arranged so that, as far as possible, each member of the staff is near to the laboratory for which he is responsible, and each of the major laboratories has attached to it a conference or discussion room where small groups can be instructed or graduate seminars may be held. The opinion is strongly held that any and every department in a University should provide some place where students and/or members of the staff can meet together and exchange experiences and ideas, quite apart from the formal instruction given and received in the lecture room or laboratory. The staff and student common rooms have been designed for this purpose. The Carnegie Record Collection of the University is now housed in the Staff Common Room and the daily concerts of the Musical Club of the University will be given there in the 1949-50 session. Smoking and other student activities have been problems in the past and it is hoped that the provision of a Student Common Room will help in their solution.

For some years past, the library facilities have been entirely inadequate for the needs of the department and the new library, while still too small for present-day enrolments, should be adequate for "post-war" requirements. It contains a collection of books, not only for Mechanical Engineering, but also for Management, Economics, and the cultural courses that have recently been added to the Engineering curriculum. The office for the departmental secretary and librarian adjoins the library.

The large laboratories, each of which has an area of about 2600 square feet, are serviced by a four-ton freight elevator, so that heavy machinery can be delivered by truck to a receiving platform in the rear of the building and transported conveniently to any laboratory. This design also provides the necessary flexibility when rearrangement of equipment is necessary.

The Machine Design section includes a drafting room, mechanical laboratory and machine shop. The drafting room has an area of 3600 square feet with good natural lighting both from the side windows and also from the roof. Specially designed desks have been installed to accommodate 100 students simultaneously and each of these has drawers for six students. Fluorescent lighting is also provided for evening use. Provision has been made for an engineering museum but, at present, this also is used as a drafting room. As soon as circumstances permit, this room will house a collection of models and sectioned machines, which now have to be stored elsewhere. The Mechanical laboratory contains apparatus for the study of vibration, lubrication, stresses, power transmission and other problems of a similar nature. An important addition is a gauge room, for making fine measurements, which can be kept at a constant temperature by means of a unit which is located in the air conditioning laboratory on the floor above. The increasing use of high speed machinery is posing new problems both in dynamic balancing of rotating parts and the suppression of vibration and some research work is already being done in this field. Lubrication is also assuming greater importance. A new machine has been constructed and research work is now under way for determining the properties of lubricants for industrial and transportation operations. The workshop is equipped with a variety of machine tools for demonstration purposes, as well as for maintenance work and the fabrication of special research apparatus. An interesting point is the painting scheme adopted for the machines. The psychological effect of cheerful surroundings on workers in industry has been the subject of considerable study in recent years and many large firms have experimented with and adopted definite colour schemes in their shops. It has also been found in practice that, when moving parts are specially coloured, the accident risk has been reduced. Accordingly, the machine tools have been painted green and the working parts picked out in orange and yellow to exemplify this idea. Welding equipment has been installed, together with facilities for the examination of welds by means of X rays. It is anticipated that this laboratory will also be used for research work on cutting tools and lubricants.

The Heat Engine Section has been enlarged by a new Refrigeration and Air Conditioning Laboratory. Apparatus has been provided for very low temperatures (−100°F.) and a duct is equipped with facilities for heating, cooling, washing and humidifying air so that the characteristics of the various methods of conditioning air can be demonstrated and compared. Fans with different designs of impeller have been installed for testing and demonstration purposes. There is also a new fuel laboratory for testing solid, liquid and gaseous fuels. A recent innovation is a new heat transfer laboratory. This occupies three floors, on the topmost of which is the light equipment used for testing heat insulation for walls, roofs and piping. Some fundamental researches in this field are now under way to supplement the work that has already been done during the past twenty years. The middle floor will contain a constant temperature room (which is badly needed) and on the lowest floor, apparatus has been installed for testing radiators, convectors, and heat exchangers of the concentric tube and shell types. A heat pump has been provided for the further study of heating problems and, at the time of writing, an investigation is under way regarding the possible usefulness of this type of heating installation in the mining areas, where fuel is scarce and expensive and a considerable amount of waste heat is available. The transfer of some equipment from the old to the new building has made it possible to re-arrange the internal combustion engines, so that all the exhaust gases are now being collected in a common duct which is connected to a flue and fan in the new building. This will avoid the noise and nuisance that existed when each engine had its own outlet through the walls of the building. A common cooling system is also being installed and additional provision has been made for fundamental research in internal combustion. A new theory of combustion is now being investigated for the Defence Research Board and important and encouraging results have already been obtained and published.

Hydraulics includes all aspects of fluid flow and, in addition to the old hydraulic laboratories, a new river flow laboratory has been provided in the basement. Here are tested models of power plants, dams and flood control devices, which provide the necessary data for the design of the actual installations. The pumping equipment has a capacity of 9000 gallons a minute and this will service a large number of models simultaneously. At the present time there are five models in operation or under construction and provision has been made for very large models, such as those that will probably be required for the St. Lawrence waterway. In other countries, these are frequently constructed in the open air, but that cannot be done conveniently in Canada for obvious reasons. A water channel 200 feet long, with a machine for towing models has also been provided and there is now under construction a glass trough 3 feet wide, 4 feet deep and about 40 feet long for observing and photographing the flow of water over dams and other similar obstructions.

The industrial side has not been overlooked. Facilities have been provided for such things as plant layout, motion and time study, quality control and other industrial processes.

In general, these laboratories have been designed to promote safety of operation (by avoiding overcrowding near moving machinery), to demonstrate the variety of equipment and processes that the student is likely to encounter in actual practice and to provide that flexibility of arrangement that is essential in a science that is constantly changing. The necessity of cleanliness and the avoidance of excessive noise has also been carefully considered, and it is felt that the final result will become an increasingly important factor in the Canadian educational scheme.

MACLEAN-HUNTER PUBLISHING COMPANY LIMITED, TORONTO

By ALLWARD AND GOUINLOCK, Architects

THE site for the new Maclean-Hunter Publishing Company Printing Plant comprises some forty acres of property located on the outskirts of Toronto, on Yonge Street, a main traffic artery. The property was chosen with regard to the availability of employees' housing. It was fortunate that the location proved advantageous from the standpoint of advertising, and was of a size and extent that permitted the building being set on its own grounds, well back from traffic.

The owners embarked on this new project with many years of past experience in the publishing field in a multi-storey building. At no time was the new plant considered on any basis other than a single production floor. Such second floor portions of the plant as were built house recreational areas and those departments that have no intimate contact with production.

The new building provides accommodation for the equipment already operated by the owners, and makes provision for four new ultra-modern multi-colour presses. The output of this equipment is of such magnitude as to demand the utmost efficiency in the processing of raw material from the time it enters the receiving doors until its despatch from the shipping platforms. The detail and routing of operations throughout the plan were the outcome of close co-operation between the owners and the architects.

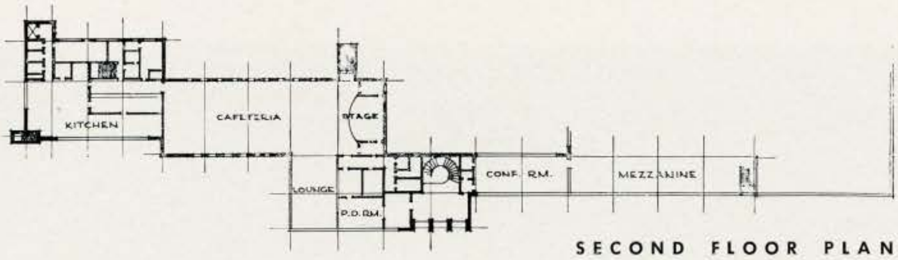
Within reasonable economic limits, the structure was designed with large clear spans and the avoidance of columns, thus permitting the maximum of flexibility in the placing of large press units. The roof is of precast lightweight masonry, the exterior walls are grey brick, with certain detail and running courses in cut stone.

It was not considered advisable to fully air-condition the building. Accurate humidity control is provided, however, so that low humidity conditions detrimental to press room operations are avoided during the winter months. Careful consideration was given to the ventilation of the press room proper.

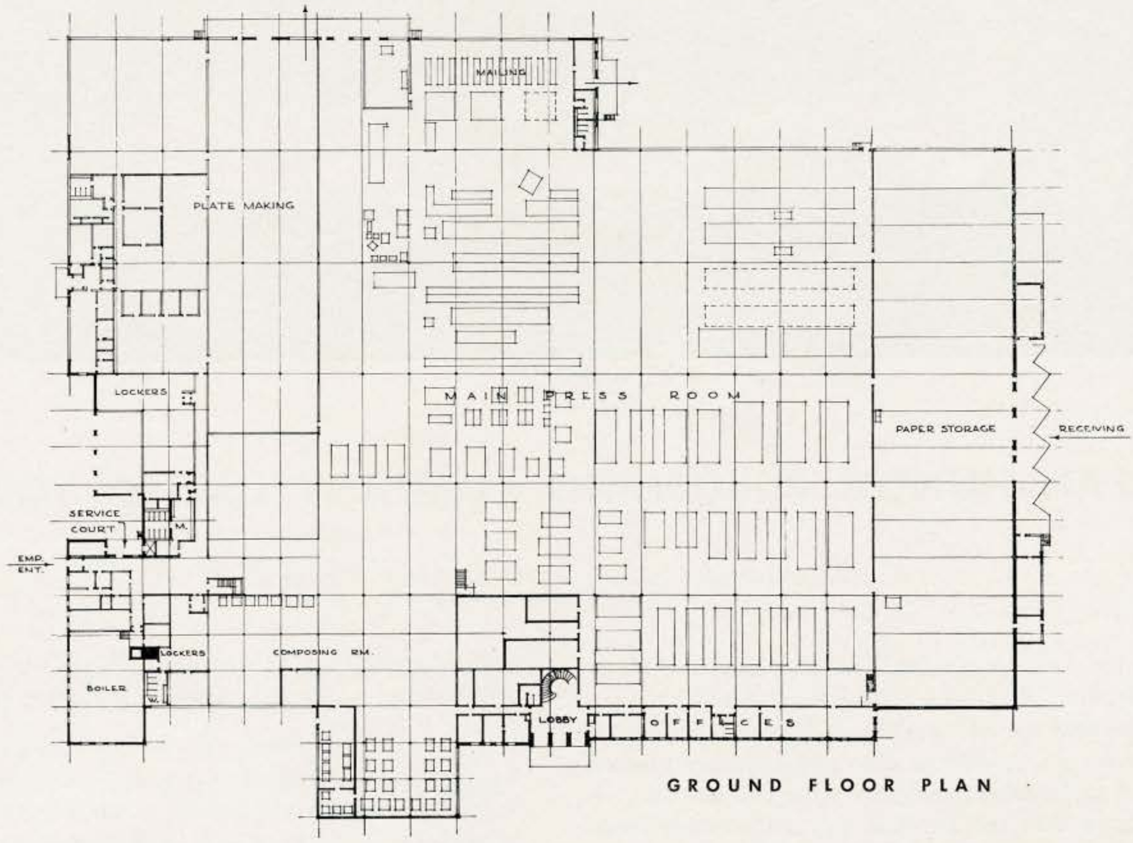
The owners were of the opinion that well finished working space, wash rooms, etc., all tended toward the maintenance of a high morale. The outside walls of all populated portions of the plant are lined with structural glazed tile; all washrooms, shower rooms, locker rooms, etc., are, likewise, tile lined. Terrazzo floors are provided in these spaces. The plant generally has heavily armoured concrete floors.

The cafeteria on the second floor is serviced by a kitchen of sufficient capacity to serve diversified meals. The dining room has a small stage, dressing rooms, etc., and is made available to the employees for recreational purposes.

The fenestration on the street elevation of the building was studied with regard to the usage of the areas deriving light from windows; moreover, it was desirable that every effort be made to achieve a pleasant composition and, hence, an advertising value for the owners. The architects in their efforts to achieve a well-mannered exterior, were accorded the utmost encouragement and understanding co-operation by the client.



SECOND FLOOR PLAN

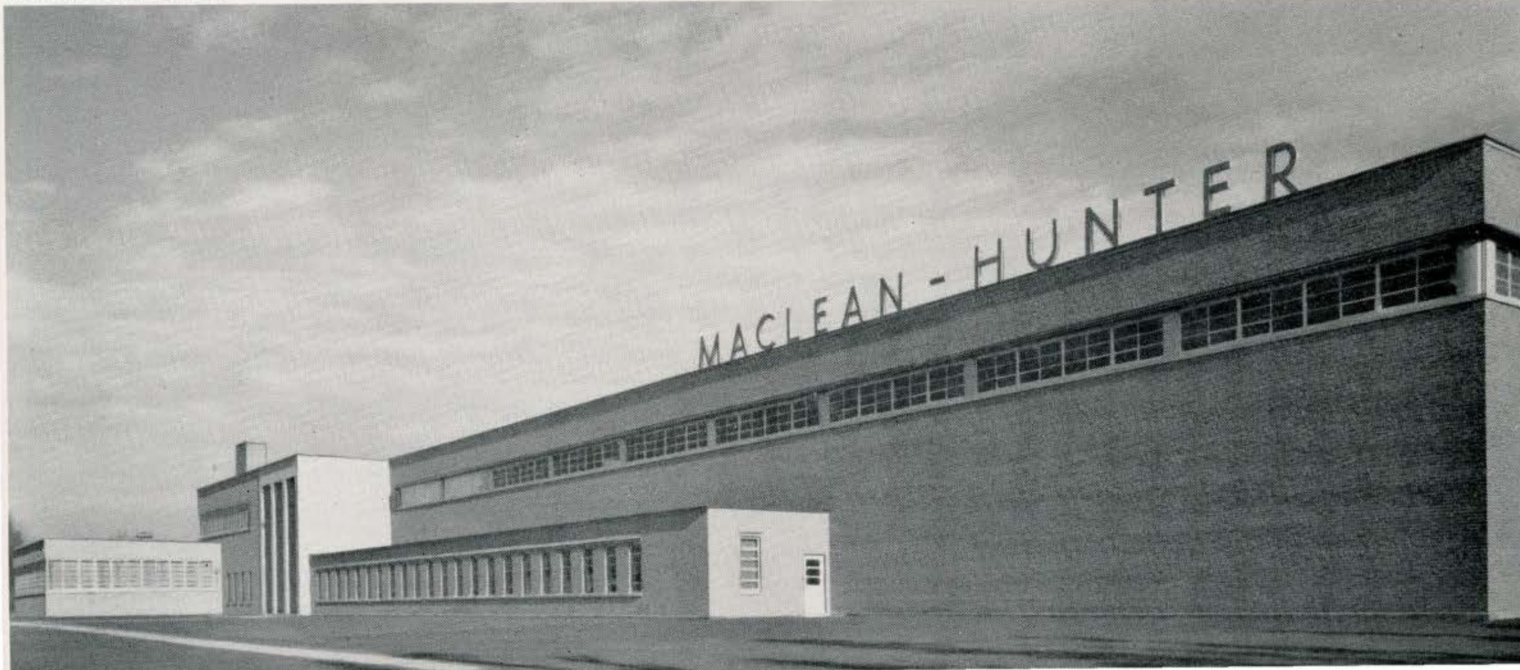


GROUND FLOOR PLAN

MACLEAN-HUNTER PUBLISHING COMPANY LIMITED, TORONTO

ALLWARD AND GOUINLOCK, ARCHITECTS

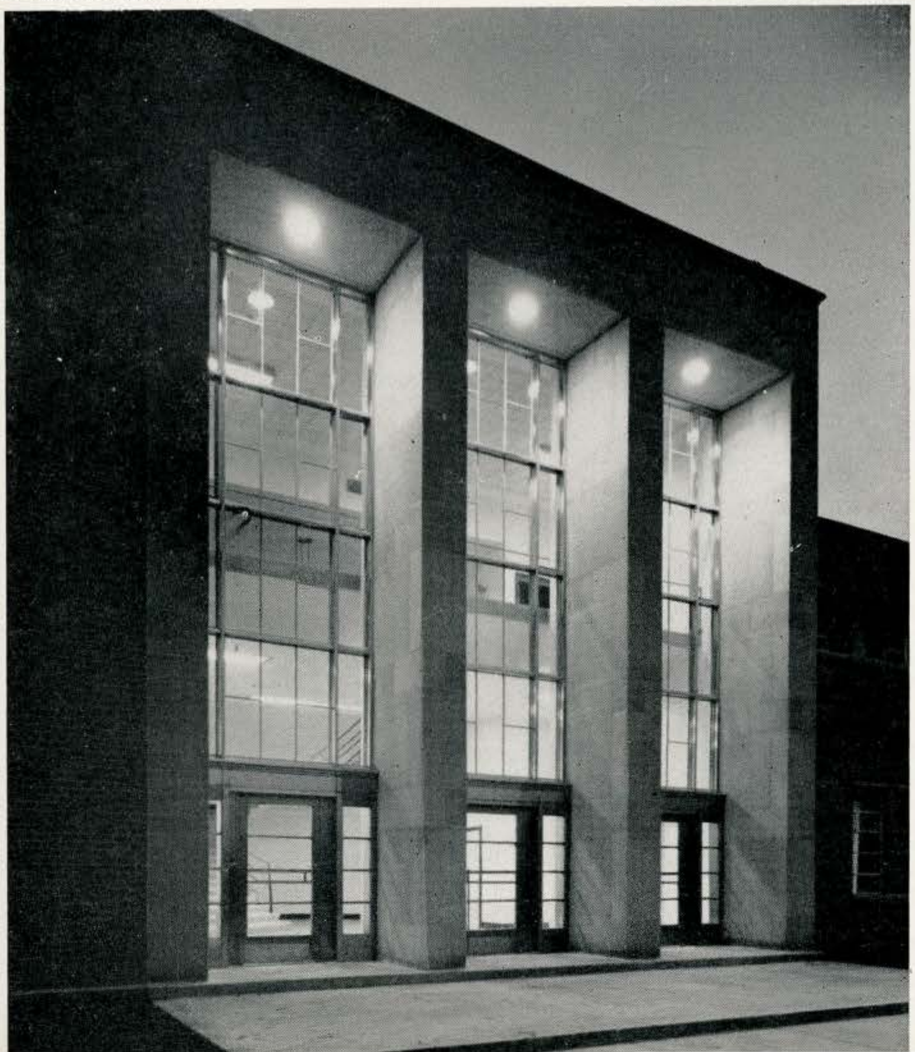
Photograph by Rice & Bell



MAIN ENTRANCE LOBBY

Photograph by Rice & Bell

Photograph by Warner Bros.



DETAIL OF MAIN ENTRANCE

Photographs by Warner Bros.

PRODUCTION FLOOR

GENERAL VIEW OF PRESS ROOM

MACLEAN-HUNTER PUBLISHING COMPANY LIMITED, TORONTO

By H. NAPIER MOORE

Editorial Director of the Maclean-Hunter Publishing Company Limited

WHEN artists, sculptors, practical businessmen and ordinary householders in adjoining communities voluntarily write letters expressing appreciation of its beauty, a new plant building represents quite an achievement.

It also represents a lot of co-operation between owners and architect. Particularly when the design had to be adapted to the complicated needs of machinery producing, from raw materials to finished product, more than 30 national magazines and business newspapers.

These things are true of the new printing plant of Maclean-Hunter Publishing Company, Ltd., Toronto; Architects, Allward and Gouinlock.

Referring to the plant, The Inland Printer, leading technical paper in its field in the United States, says "It takes more than dollars and bricks to create a printing plant where the maximum is achieved in utility, comfort and efficiency"; sums it up as "Triumphant evidence of intelligent planning."

The site for the building comprises some 40 acres of property in the northern outskirts of Toronto, fronting on Yonge Street, a main traffic artery. The property was chosen with regard to the availability of employees' housing. It is of size and extent that permitted the building being set well back from the highway. And the location has advantages in the matter of public attention.

Active planning of the building began two years before the first sod was turned on June 21, 1947. First consideration was that it must fit around the contents. Plant officials made a model layout and the various units of equipment were arranged and re-arranged until it was felt that the ultimate had been reached in desirable location. Heads of various departments were called into frequent consultation. Company executives made numerous trips throughout Canada and the United States in the course of research. Visiting publishers and printers from abroad were asked for latest developments in layout and design in their countries.

The main objectives arrived at were accessibility and mobility in production.

There must be accommodation for the equipment already operated by the owners and provision for as many as four new ultra-modern multi-color magazine presses, two of which are under construction.

Lighting and proper air conditions, essential to good printing, must receive close attention.

Finally, with all pertinent information co-related and set down, work in the field was commenced by the General Contractor, The Foundation Company of Canada.

Within reasonable economic limits, the structure was designed with large clear spans and the avoidance of columns, thus permitting the maximum of flexibility in the placing of large press units. Exterior walls are grey brick, with certain detail and running courses in cut stone. The roof is of precast light-weight masonry. It is designed to carry water for evaporation cooling of the plant during hot weather.

Because of the great weight and vibration of printing machinery, the foundation was made particularly solid. Concrete piers, 4 to 13 feet deep hold the superstructure to the base with steel anchor bolts. The particularly heavy Goss and Hoe presses were given foundations independent of the floor and going down 4½ feet.

Floors are concrete, armorized by 50 pounds of metal powder for each 100 square feet. Terrazzo was used to surface the floors of the entrance, washrooms and kitchens; linoleum for the composing room, cafeteria and lounge; mastic tile for the offices and health centre.

Maclean-Hunter officers were well aware that attractively finished working space, washrooms, etc., all tended toward the maintenance of a high employee morale. Walls of all populated portions of the plant are lined with structural glazed tile; all washrooms, shower rooms, locker rooms, and the five-room health centre are similarly lined. And, in certain sections, above the tiling light pastel tinted surfaces help to reduce shadows, an important matter in fine printing.

To obtain a maximum of light, window areas are enormous. One press-room window section is 160 feet long by 20 feet high. On the west side of the building, all windows are of special heat-absorbing glass.

About 100,000 square feet of land adjoining the building has been graded for outdoor sports. Adjoining, is a paved parking lot for 200 cars.

In so large a plant, materials-handling had to be given special attention. In the paper room, where as much as $250,000 worth of paper is stored at one time, and which extends the full width of the building, handling of rolls and skids is done by an overhead crane operated on tracks which enable it to travel north, south, east and west. A monorail can carry rolls from the stockroom direct to the presses.

Already, thousands of people have visited the plant. Mr. and Mrs. Layman think it is a fascinating and comfortable place in which to work. Technical men from other organizations are particularly impressed; agree with Inland Printer that it is a triumph of planning and a striking demonstration of complete co-operation between client and architect.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

INCORPORATED BY THE DOMINION PARLIAMENT 16th JUNE, 1908, 1st APRIL, 1912, AND 14th JUNE, 1929

NEWS FROM THE INSTITUTE

EXHIBITION OF CANADIAN ARCHITECTURE

1949 Canadian National Exhibition, Toronto, Ont.
(General Exhibits Building)

This Exhibition is sponsored by the Royal Architectural Institute of Canada, the Ontario Association of Architects, the Toronto Chapter of the Ontario Association of Architects, and the National Gallery of Canada, Ottawa.

Exhibition (Advisory) Committee:

Executive: G. K. Pokorny, Chairman, M. Bach, Gordon Bazeley, H. F. Brown, Murray Brown, E. C. S. Cox, George Englesmith, G. Gibson, Eric Hounsom, Basil Ludlow, Norman McMurrich, James Murray, F. Newton, Loren Oxley, John C. Parkin, G. Robb, A. Smyth, D. Stevens, E. Wilson, J. A. McDonald (Student), H. Wright (Student).

Provincial Representatives: Alberta: Peter L. Rule, British Columbia: R. A. D. Berwick, P. Thornton, Manitoba: Professor J. A. Russell, W. L. Katelnikoff, New Brunswick: D. W. Jonsson, Newfoundland: F. P. Meschino, Nova Scotia: C. D. Davison, Ontario: Watson Balharrie, Wilson Salter, Quebec: H. Mayerovitch, Saskatchewan: H. K. Black.

Contents of Exhibition

The theme of the Exhibition is to be "PROGRESS THROUGH DESIGN," and it will be expressed in the following manner, with the display divided into three parts:

1. Entry: Definition of DESIGN – Integration of MATERIALS – STRUCTURAL MEANS – SOCIAL NEEDS, into a satisfying, visual, architectural unit. (Definition expressed in form of tableaux with superimposed photographs.)

2. Main Body – First Part: Theme of exhibition illustrated by successive stages of numerous fields of Architects' activities:

Schools – old school against new examples.

Hospitals – Gravenhurst against new research.

Municipal and Community Buildings – old C.N.E. Grandstand against model of new structure.

Factories – mill construction outlined behind examples of the new industrial buildings.

Commercial Buildings – old shops versus new examples.

Churches – similar presentation.

Transportation – Old C.N.R. and C.P.R. stations contrasted with TTC Terminal, Montreal Station.

Amusement – in form of photomurals; old gingerbread projected against recent buildings.

3. Main Body – Second Part: This presentation of successive stages will be carried over to and enlarged in the last section of the exhibit, which will show how an architect meets a problem, deals with it, and finally, integrates all items into a unified and satisfying structure. This section will be devoted to the CASE STUDY OF A HOUSE – a clinical study of the architectural operation: preliminary consultation with the client (diagnosis); preliminary planning and sketching (examination, elimination and integration); working drawings and specifications; financing; signing contract; supervision; payments, etc.

This Exhibition is planned to be National in scope and anonymous in execution. Most of the exhibition will be done in the form of easily removable panels, which are readily packed and shipped. At the end of the C.N.E., our exhibit will be taken over by the National Gallery of Canada and will become a travelling exhibition of Canadian Architecture, shown in art galleries, schools, etc., across Canada. The National Gallery is assuming the costs of shipment for this travelling display.

NO MECHANIC'S LIEN FOR FEES WHERE NO WORK DONE PURSUANT TO PLANS

The Master of the Supreme Court of Ontario has recently decided in a Mechanic's Lien action that an architect who prepares plans for a work which is not executed in whole or in part, has no lien on the land in question for his fees.

In this case, the architect had been employed to prepare plans for and to supervise alterations and additions to the client's property. His charges were divided into two parts, one to cover work on the original building, and the other, the preparation of plans for a building to be erected at the rear of the property.

The Master held that although the new building was to be connected with the existing building by a door, nevertheless for the purpose of the proceedings before him, it was to be considered as a separate building and the subject of a separate contract. The Master found that no work of any account covered by the plans for the new building was done on the land.

He referred in his judgement to the provisions of the Ontario Mechanic's Lien Act, which provide that "any person who performs any work or service upon or in respect of . . . any . . . building . . . for any owner . . . shall by virtue thereof have a lien for the price of such work or service". He expressed the view that the lien can only arise where the building is actually erected or being erected, and he said that he could find no case where an architect had been given a lien for the cost of plans where the building had not been proceeded with.

For the time being this decision seems to settle the law on this point in Ontario, but it is by no means free from doubt that a different view might not be taken if the point in question is later carried before a higher Court in some other case.

In the case referred to, the claim for the lien was not registered within the time required, and it failed on that ground alone. It became necessary, however, for the Master to decide the point because the architect sought a personal judgement in the proceedings apart from the claim for a lien, and it was necessary to determine whether or not a personal judgement could be given in proceedings under the Mechanic's Lien Act if it were shown that the claimant could not have enforced a lien under that Act in any event.

It is also noted that in quoting from the Mechanic's Lien Act the Master did not refer to the fact that it gives a lien to anyone who performs any work or service upon or in respect of *"land"* as well as buildings. It seems difficult to believe that the preparation of plans for a building to be erected on a specific parcel of land does not amount to work or services "in respect of" a particular piece of land.

It is also to be noted that the decision in question is that of the Master of the Supreme Court, and while he has all the jurisdiction of the Court when trying a case under the Mechanic's Lien Act, a decision at a trial in cases involving more than One Hundred Dollars may be appealed to the Court of Appeal. If, therefore, a case involving this point is carried to the Court of Appeal, it may take a different view of the matter.

On the other hand, if the above decision of the Master of the Supreme Court of Ontario is to stand, architects in Ontario and those in other provinces desiring to make sure of their position, may consider it desirable to seek legislation that will remove any doubt about their right to a lien on land for plans prepared for a building to be erected upon it, even though the building may not proceed.

A. L. Fleming, K.C.

ALBERTA

Experience in examinations in architecture calls attention to the difficulty which Canadian students inevitably experience in studying historical architecture or for that matter, in appreciating the value of the history of times long past. Canadian history does not go very far back and we have not examples of historical, as distinguished from what may be called recent architecture. The accounts and the illustrations given in books and even the examples illustrated by films have, to those who have not seen the actual work, something of the unreality of a dream, of something unrelated to actual life. Even a hasty journey through countries in which the older architecture may be seen, when made with the exclusive purpose of examining the buildings, may fail to impress the reality which these had for the people who built them and their essential value as expressions of humanity.

Whilst those who by intimate experience have absorbed something of the value of sympathy with the work and thoughts of other times and other peoples will always rate that value very highly, there is bound to be an increasing number of architects on this continent who, having no opportunity to make intimate acquaintance with the older work must make shift to do without it.

Very commonly approach both by the amateur and by the prospective architect is made with the idea that the great types of work of other times are to be brought up for comparison with one another and assessed according to some scale of values; the notion being that one can, and should, construct a value-meter by which any one of the designated styles may be rated on the scale as above or below others. It is apt to be looked upon as a proper exercise of intelligence to be able thus to assess and condemn any style of the past in relation to the others and more especially in relation to modern work. This approach generally tends to the conclusion that the work of our own time excels that of all past times, a comforting but not very intelligent summary.

This sort of attitude was, of course, the background of the "battle of the styles" as carried on by the protagonists of the gothic and classic schools in the latter half of the nineteenth century. One of the products of that battle was the practice of eclecticism. Many architects prepared themselves to design work in any given "style". The general public still has this eclectic idea firmly entrenched in its mind. "What style do you call that?" one is often asked, or "Is that pure in style?" with the idea that purity is related to some exact historical parallel.

Amongst present day architectural ideologies there is probably nothing more anathema than eclecticism of this sort. Yet eclecticism if understood as the absorption of the experience of the ages is the only wisdom. At the present day another "battle of the styles" goes merrily on between advocates of functionalism, internationalism, cubism and other "isms". Since a single devotion to any isolated line of thought is a sure way to artistic and mental unbalance, the path of truth is likeliest to be found in a broad view of the wide historic field of architecture.

The study of the whole course of architecture, even under the handicaps that Canadian students endure, is probably a good antidote to the many one-eyed theories that are to-day so extensively propagated. These may well be examined with the realization that none are fresh and revolutionizing revelations but all are only drops added to the ocean of the experience of the ages. Every single one of them, isolated by itself, is false, but all are required to complete the truth.

Cecil S. Burgess

MECHANICAL BUILDING, UNIVERSITY OF TORONTO

(Continued from page 185)

In keeping with the provision of adaptability for future (presently un-anticipated) use, pipe sleeves, duct openings, etc., have been provided in every floor slab and beam that the Structural Engineer would allow, so that major re-piping or ductwork could be installed if necessary without cutting of the original structure.

The structural frame of the building is generally of reinforced concrete, (North of the main Stair Tower) with the Second and upper floors cantilevered some four feet beyond the West column line. The Steel framing of the Southerly portion is rather unusual; a great steel truss about ten feet deep spans the width of the building just below the Fourth floor level. This truss carries the Fourth floor and Roof above it, while the sloping floors of the upper Lecture Rooms (at a level between the Second and Third floors) are hung from it, below—giving the main Lecture Room on the First Floor a clear span from wall to wall.

The overhanging portion of the Second and upper floors North of the Stair Tower can be explained by the need for increased space in these upper floors. But to this purely mechanistic explanation must be added an aesthetic one; in conjunction with the bold projection of the Stair Tower, this overhang gives the lightness and buoyancy of a three-dimensional composition, in a sculptural sense, to a design which with its plan-determined large areas of ashlar, could have been ponderous and earth-bound.

The original design called for a large panel of low relief sculpture, at heroic scale, in the great panel of masonry South of the Stair Tower. In few buildings could this sculptured panel have been more of an integral part of the composition, less of an embellishment. It is unfortunate that economy dictated its deletion.

NOTICE

The Committee on Legal Documents of the R.A.I.C. has been instructed to revise the Standard Form of Agreement Between Client and Architect, including the Conditions of Agreement. All members of the Institute are invited to forward suggestions for the revision of this Document as soon as possible to the Secretary of the R.A.I.C. The Committee on Legal Documents consists of R. Schofield Morris (F), Chairman, Chas. David (F), James S. Craig (F) and Harland Steele (F), with representatives appointed by the Provincial Associations.

CONTRIBUTORS TO THIS ISSUE

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Born in Delhi, Ont. — 1906. Educated in Hamilton schools. Graduated in Architecture 1929 — University of Toronto. Toronto offices — 1929-1930. Post graduate study in Fine Arts at the Sorbonne, Paris. Travel in Europe and work in the offices of Sir John Burnett, Tait and Lorne, London, and Gunther-Wentzel, Berlin, three years. During War, with Royal Canadian Engineers 1939-1945 — Colonel General Staff, H.Q. 21 Army Group. Partner, Marani and Morris.

Edgar Alfred Allcut

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Honours and Memberships: Fellow of the Royal Aeronautical Society, 1939; President, Affiliated Engineering Societies of Ontario 1946; Herbert Akroyd Stuart Prize, Institution of Mechanical Engineers, 1930; Plummer Medal, Engineering Institute of Canada, 1943; Member and Past Chairman of the Ontario Section of the American Society of Mechanical Engineers; Secretary of the Canadian Advisory Committee of the Institution of Mechanical Engineers.

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