PC Items

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Architect: Fridstein & Fitch;

The Medical Merchandise Mart, Lincolnwood, Illinois, has prestressed concrete beams, roof, and floor sections throughout the building.

PRESTRESSED CONCRETE INSTITUTE

PUBLIC BUILDINGS

Prestressed concrete offers varied solutions for varied needs

Public buildings are often expected to satisfy a variety of needs and interests. A community center, for example, may require a completely flexible plan in order to accommodate many activities. A city hall may serve specific needs over a given period of time, but as the community grows and government functions change, it should be possible to adapt interior spaces to the new requirements. Library design also must take into account the need for future expansion.

One of the architect's fundamental design goals in creating a public building scheme is to produce a plan which is not only the most efficient with respect to the present needs, but also the most readily and economically adaptable to future changes. Prestressed concrete, with its potential for long, clear spans, aids in this planning.

Another major concern in public buildings is public safety. Compliance with building and fire codes can become expensive unless the structural system is carefully chosen. Prestressed concrete roof structures can, in most cases, meet fire codes without dropped ceilings or other methods of fireproofing. Double tee beams, for example, have a two-hour fire rating. Where a two-hour rating is acceptable and the roof structure can then be exposed, the advantage of using prestressed concrete is two-fold: no need for special fireproofing details or finishing. In addition, the concrete needs no special maintenance for the life of the building.

An example of the economy of prestressed concrete can be seen in the nursing home pavilion of the Jewish Home for the Aged in Portland, Maine, shown in Figures 1 and 2. The architect, William O. Armitage, notes that ". . . the price per sq. ft. of $11.77 or 56c per cu. ft. . . . shows that prestressed concrete is not only suitable for the more expensive, elaborate structures but can be used to advantage both esthetically and economically in buildings of average use and price range."

The building, which is Maine's first completely prestressed, precast concrete structure, is framed with prestressed columns and beams supporting double tee slabs on the first floor, and flat slabs and folded plate sections on the roof. The columns and beams were keyed, as shown in Figure 3, to provide weather-tight connections with the concrete foundations, masonry walls and curtain wall system.

The use of prestressed concrete floor and roof construction enabled the basement area under one wing to be qualified as a fall-out shelter.

Fire Station 21, shown in Figure 4, is the first of a series of new stations to be built in Omaha, Nebraska. Willis Regier, A.I.A., the architect, reports that there has been so much satisfaction with the operation of this station, that a second station has been built in Omaha which is similar to Fire Station 21. It is planned to construct several more stations using Station 21 as a prototype. As the photograph indicates, the building is framed with prestressed concrete beams, columns, and Y-sections.

A simple but effective use of prestressed concrete is shown in the Bellevue Theatre in Bellevue, Washington (Figure 5).

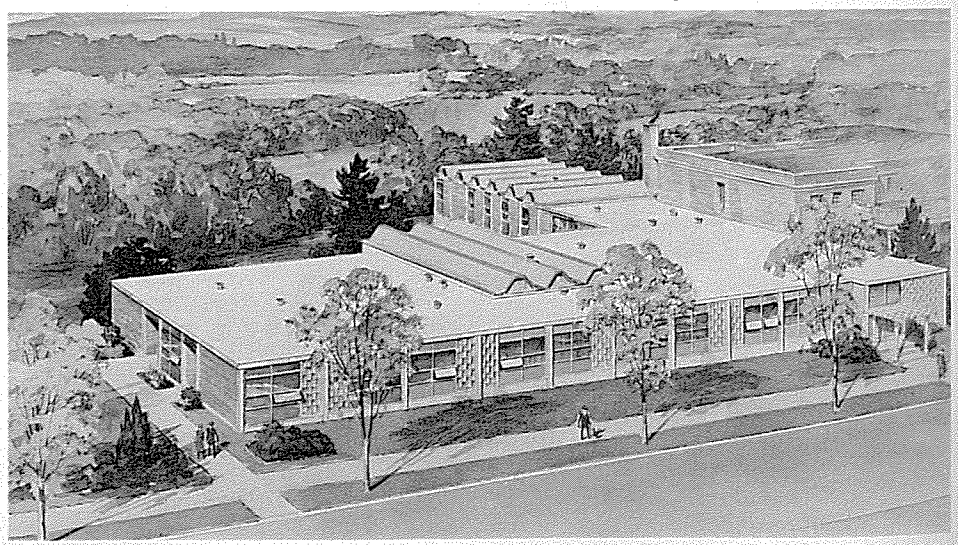
Double tees being installed on precast bents are shown in Figure 6. The buillding is a gymnasium for a community center in Denver, Colorado.

One of several bathing pavilions built in Montreal, Quebec, Canada can be seen in Figure 7. Block walls support 4 ft. wide, 14 in. deep, double tees.

A community center in St. Louis, Missouri (Figures 8 and 9) is composed of a prestressed single tee roof structure and precast exterior columns and spandrel beams. Precast aggregate panels complete the exterior walls.

Figure 1 Artist's rendering of the Jewish Home for the Aged nursing pavilion.

Prestressing: Structural Concrete Corporation



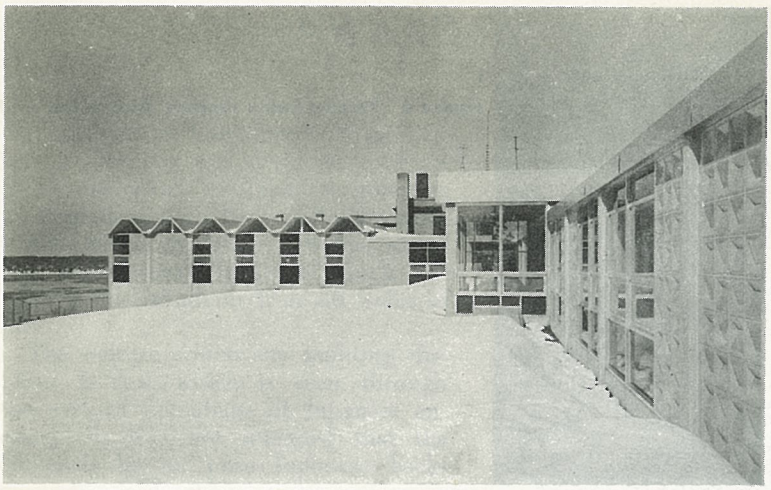


Figure 2 View showing folded plate roof sections.

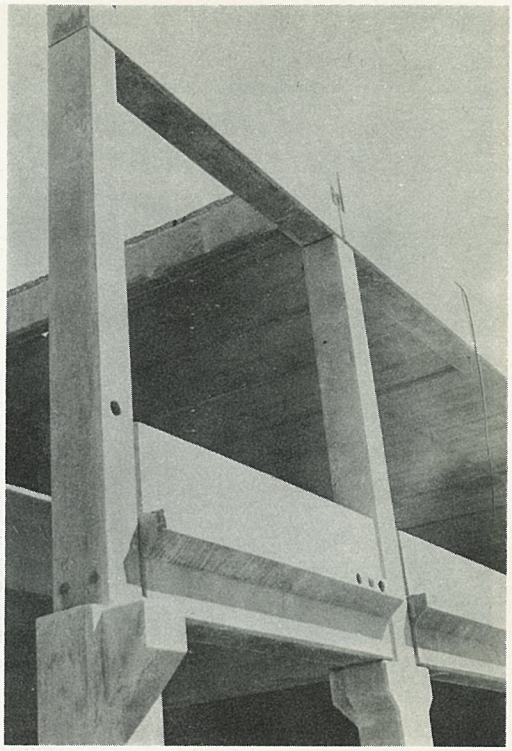


Figure 3 The structure is keyed to provide weather tight connections.

Prestressing: Wilson Concrete Company

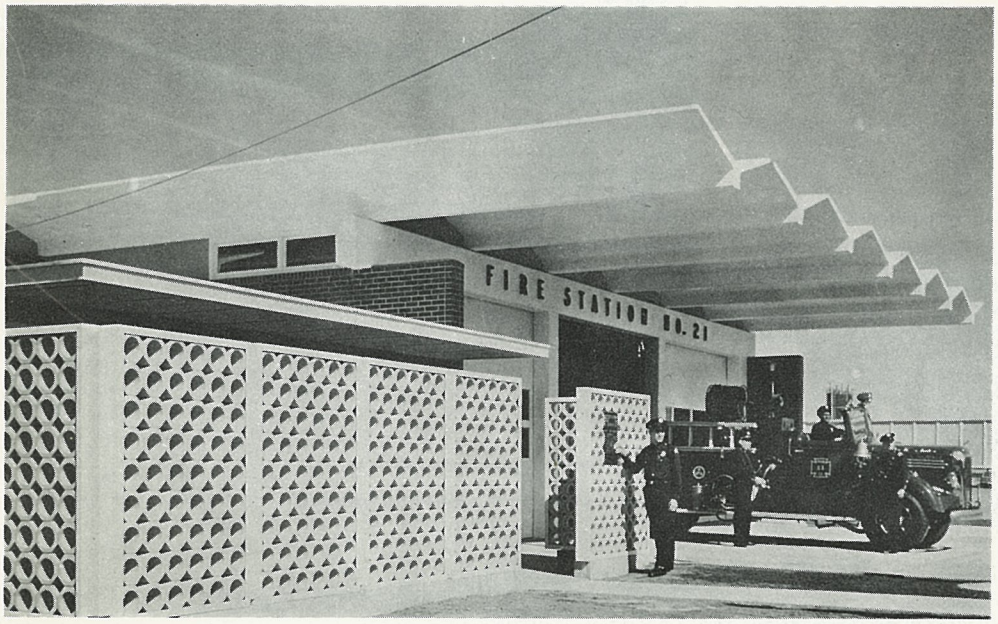


Figure 4 Fire Station 21 in Omaha, Nebraska.

Engineers: T. Y. Lin & Associates

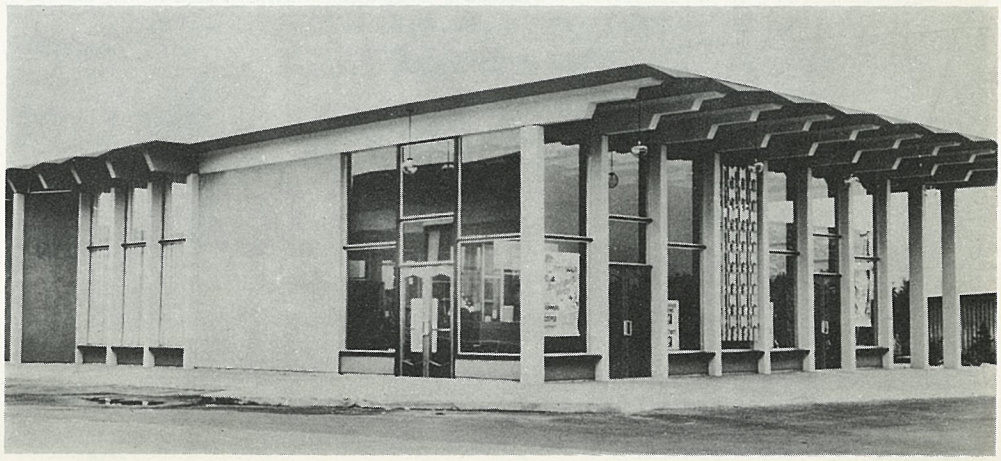


Figure 5 Beam webs become a decorative motif.

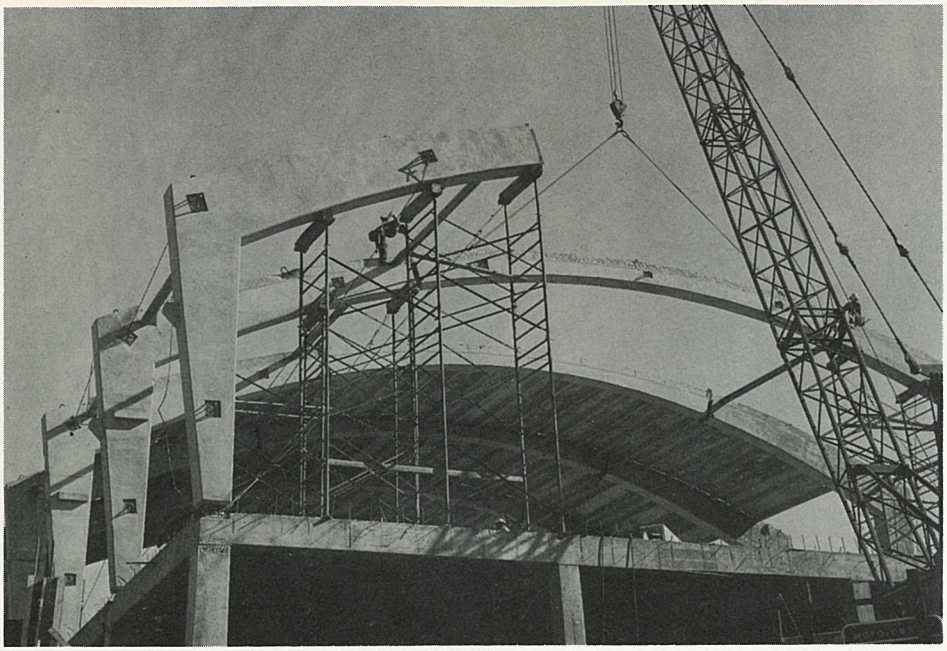
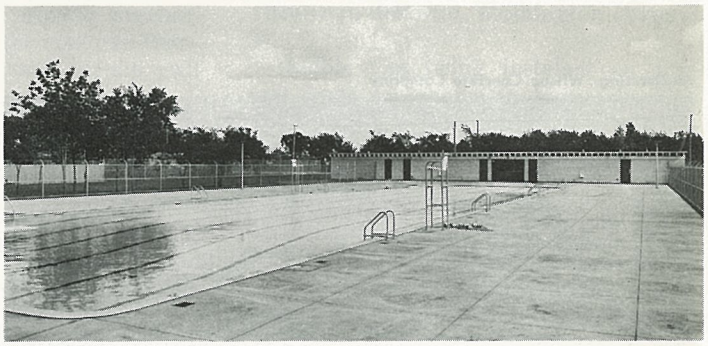


Figure 6 Precast bents support double tee roof.

Architect: Nat S. Sachter; Prestressing: Prestressed Concrete of Colorado, Inc.

Figure 7 Bathing pavilion in Montreal, Quebec.



Architect: Gerard Masson; Prestressing: Francon, Ltd.

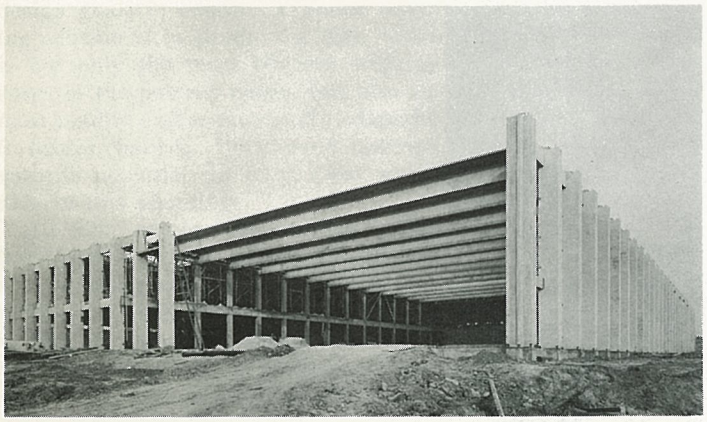
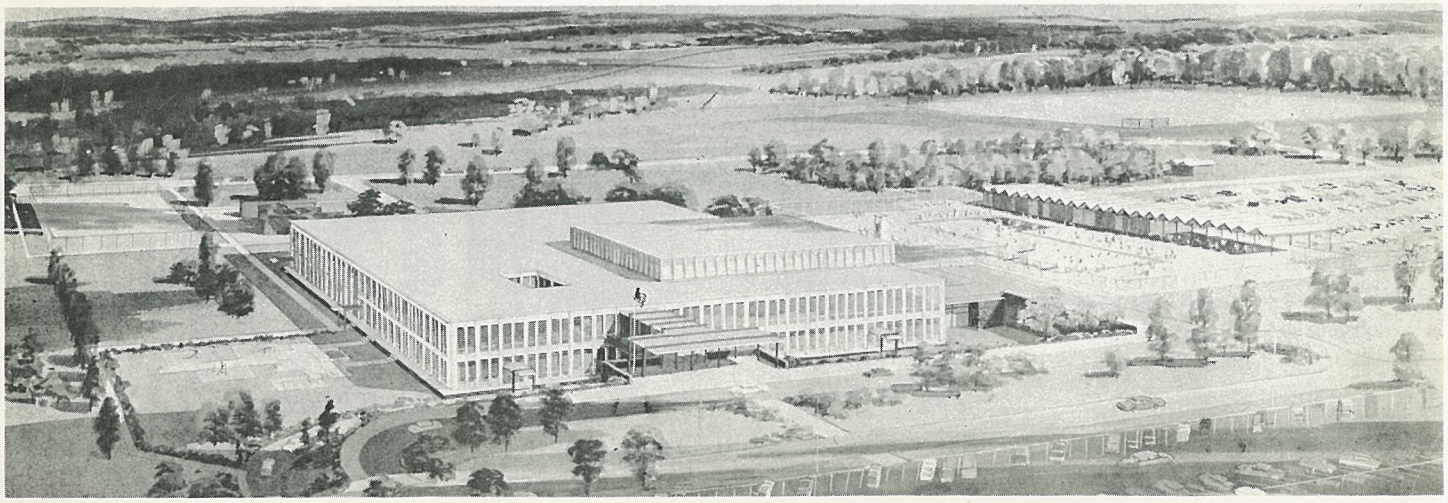


Figure 8 Projecting columns give a repetitive texture to the building facade.

Figure 9 Artist's rendering of a community center in St. Louis, Missouri.

Architects: Schwarz & Van Hoefen



AWARD WINNING CANADIAN CENTER

1964 PCI Award of Merit winner

The Japanese Canadian Cultural Center in Toronto was designed to be a living memorial to Japanese pioneers in Canada and to be a cultural center which offers, as fringe benefits, social and recreational facilities which are open to all Canadians from all walks of life.

The culture which the building displays is that which is seen through the eyes of Canadians of Japanese ancestry; it was not intended that the emphasis be on pure Japanese background.

The words of the architect describe well the basic programming: "Since it was a living memorial to the early Japanese pioneers, the building should feel somewhat Japanese; but aside from that, the building was to crystallize the hopes and aspirations of present and future nisei, to make them proud of their strong cultural heritage and revere their life in Canada. A well-mannered relationship to the surroundings, nature and other structures was essential, but strength and vitality were mandatory to express freedom, growth and civic mindedness."

Because of a tight budget, it was necessary to use standard materials and to keep the structure as uncomplicated as possible. Concrete was selected as the basic material because of its character and low cost. The pre-cast, prestressed concrete portions of the structure include beams, handrails, double tee and channel members, and flexicore slabs.

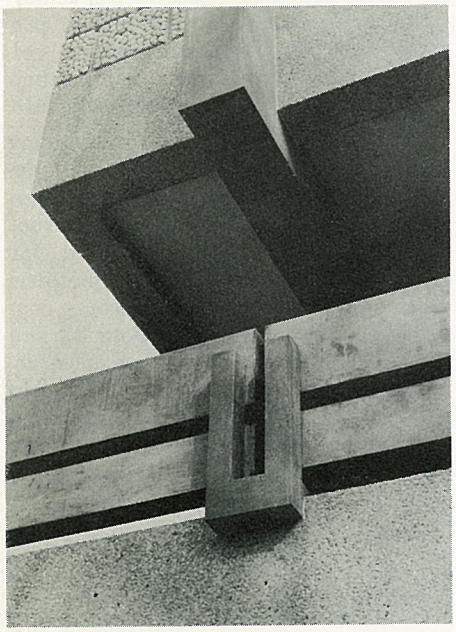
Again, to quote Mr. Moriyama, "The material characteristics and plasticity of concrete, precast and prestressed, made possible precise integration of the modular unit masonry walls, interior and exterior, with the structural system. Dimensions of beams and columns could be varied slightly to fit masonry dimensions in plan and vertical sections. There was, of course, considerable reduction in the size of structural members over standard poured-in-place members. Long clear spans in the auditorium and 8′ to 10′ cantilevers for balcony overhangs and mezzanine floors were readily achieved in this material.

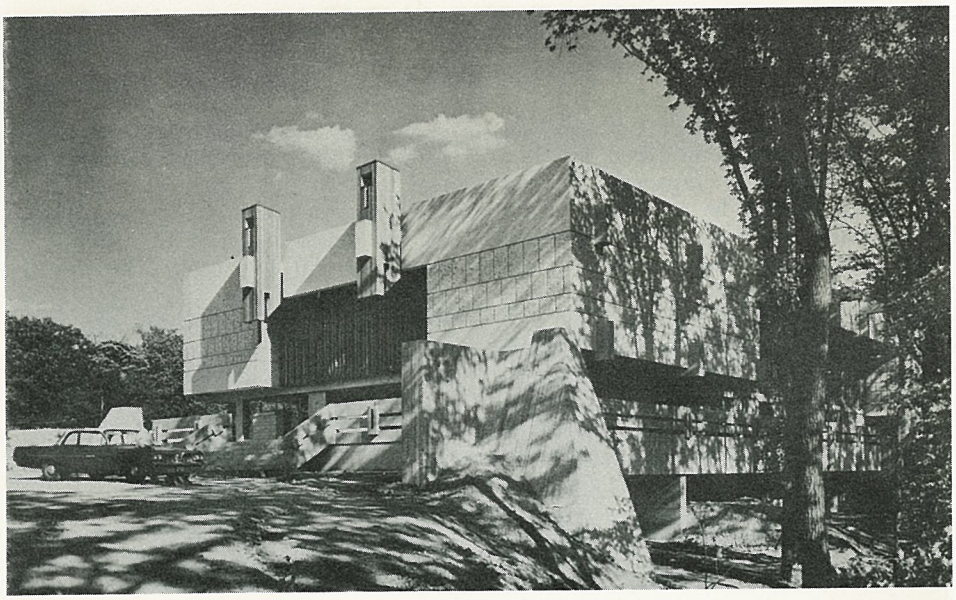
"Foundations for the building were laid in the late fall and once in place, the remainder of the building was essentially prefabricated and erected during the winter months. Positive quality control (textures and finish) was achieved by the very nature of the shop production of the components. Beams, columns and handrails were left in their natural finish in the completed structure.

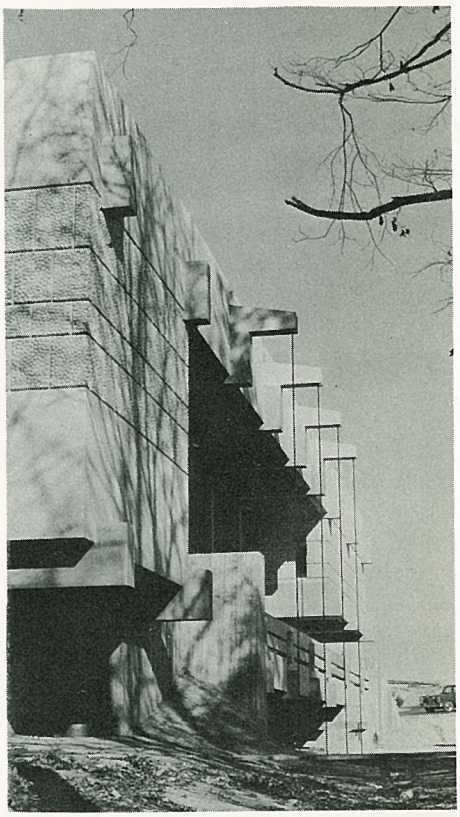
"From the point of view of economy and structural simplicity, it was decided to exploit the use of standard 'catalogue' members for floor and roof slabs. Channel slabs were used for sub-stage floor construction (the township by-laws required fireproof construction); flexicore slabs, both 8″ and 10″, were used for main floor construction with spans varying from 14′-8″ to 30′-0″; 18″ double tees were used for mezzanine floor and roof construction with spans frm 14′-8″ to 20′-0″ and some 6′-0″ cantilevers.

"The concrete construction also gave us very good sound isolation between areas, thus noise penetration from one area to another is almost nil—a distinct advantage in such a multi-function building."

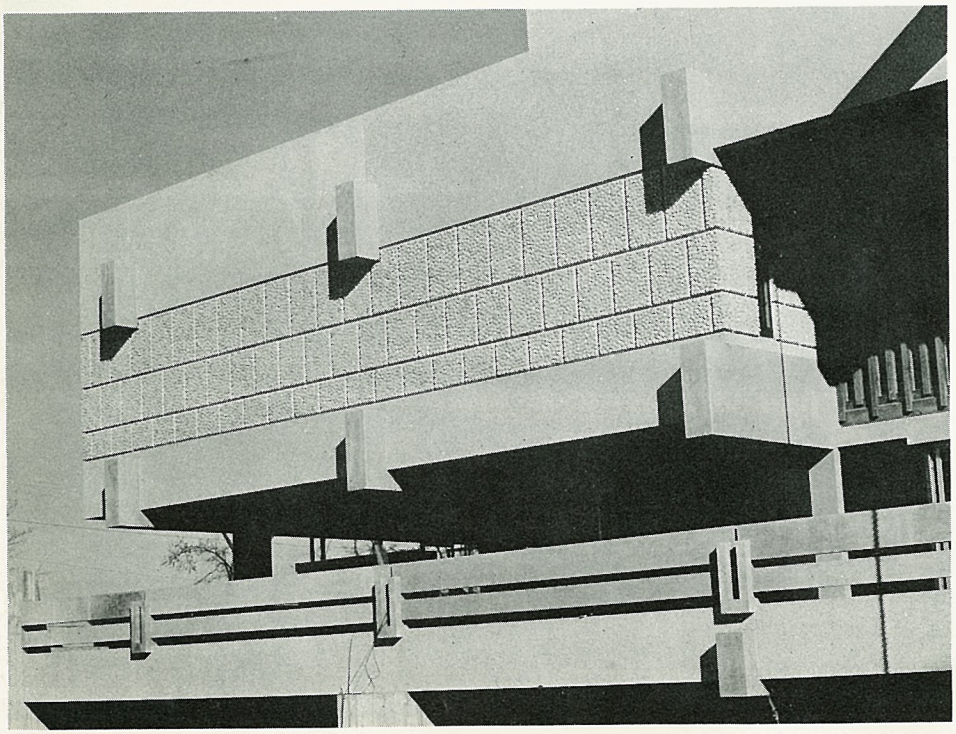
Architect: Raymond Moriyama; Precast and Prestressed Concrete: Pre-Con Murray Ltd. and Standard Prestressed Structures, Ltd.

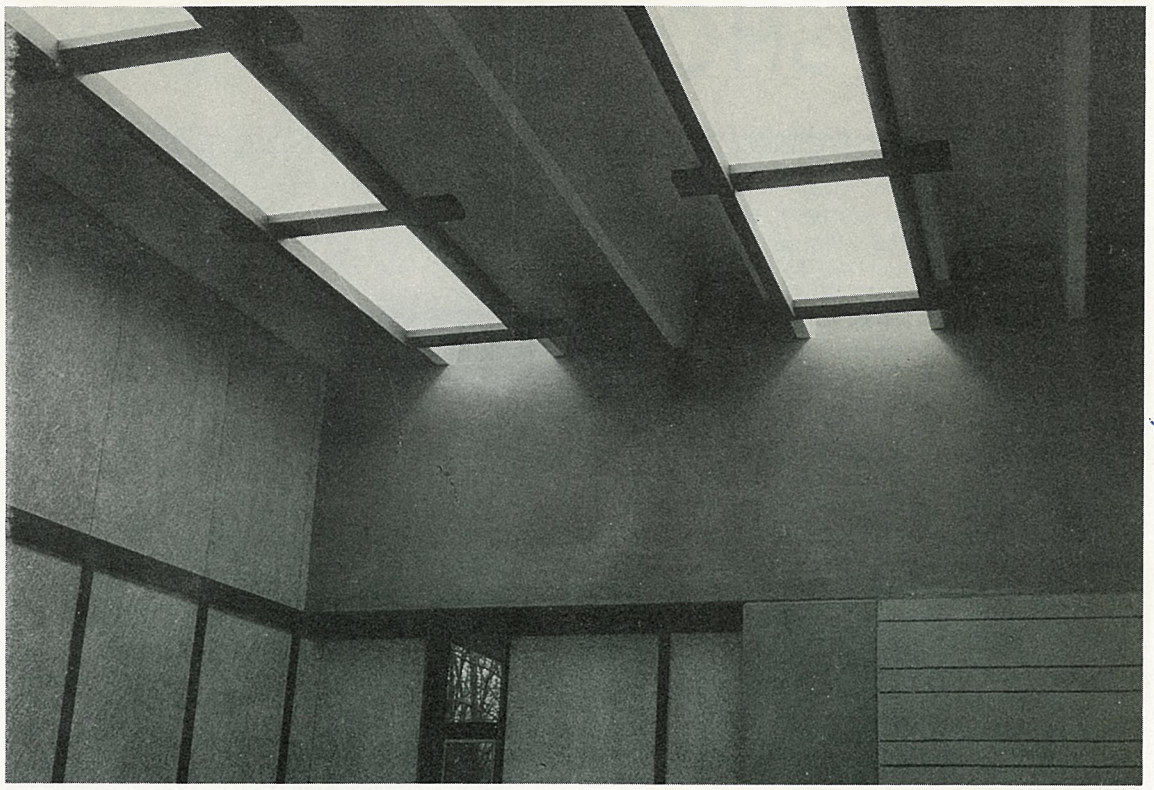


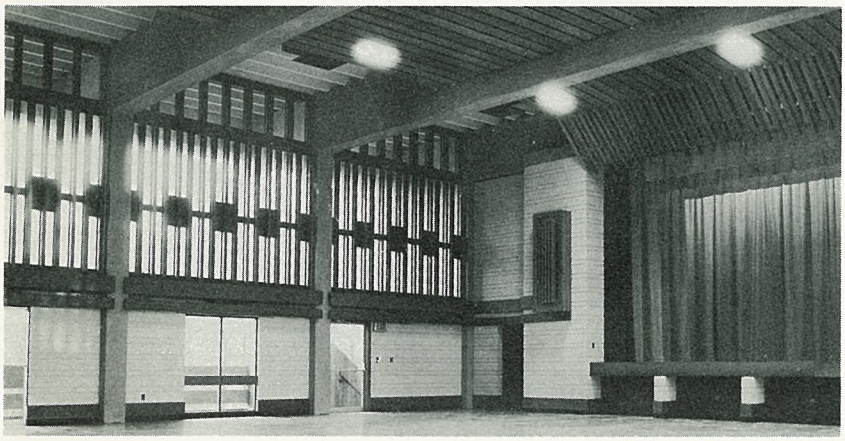


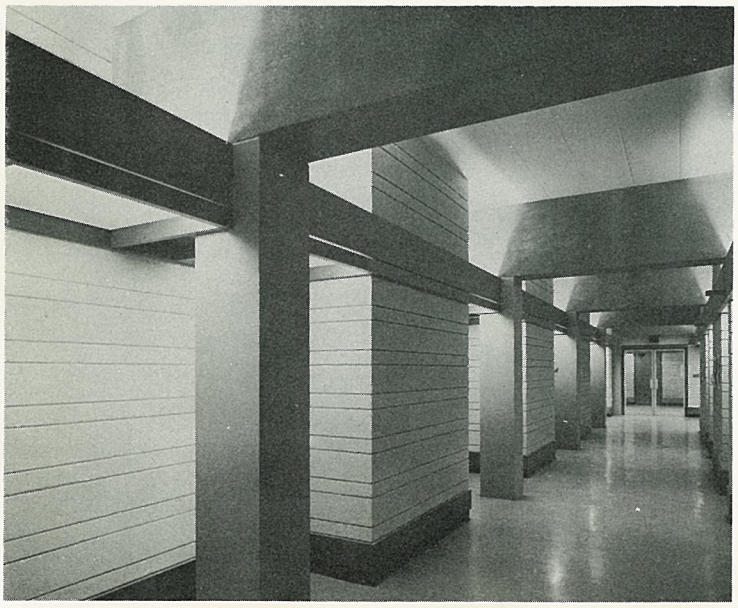


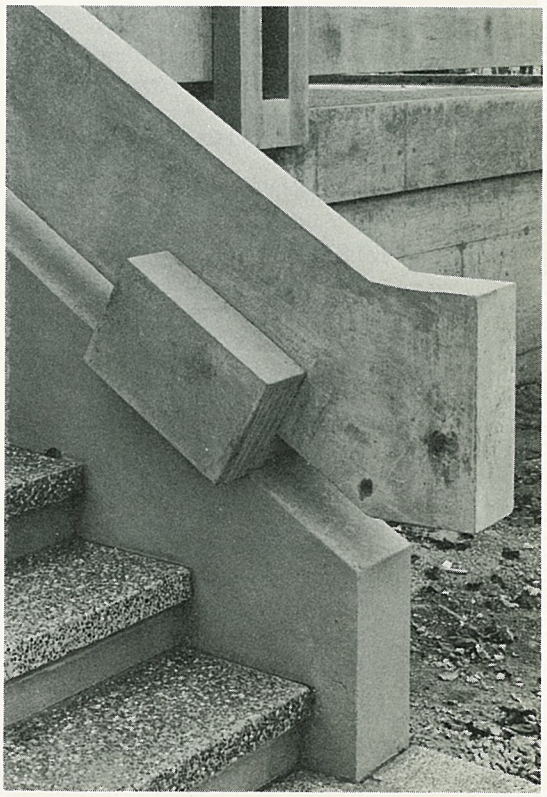
The Toronto cultural center by Raymond Moriyama is carefully and beautifully detailed and every detail reflects a synthesis of Japanese-Canadian culture and background.











SHOPPING CENTERS

Prestressed concrete satisfies multi-function requirements

Long span ability, one of the most outstanding characteristics of prestressed concrete, makes the material most desirable as a structural system for shopping center buildings. The resulting clear spans free the designer and store planner from column modules during the initial design, as well as later when the need arises to remodel for a new tenant. Prestressed concrete thus provides a broad base from which to solve any kind of merchandising problem or need, to better satisfy the demands of a great variety of services within the shopping center complex.

Important, too, to shopping center management is the matter of maintenance. Prestressed concrete, when left exposed, requires no finishing yet presents an attractive appearance which can enhance any space. The repetitive pattern of beam webs can become a pleasant design motif.

Used imaginatively, prestressed concrete can present the exciting contemporary expression so necessary in modern shopping centers. Esthetic satisfaction is now recognized as a prime prerequisite for successful center operation. The good design inherent in an esthetically satisfying building not only retards depreciation and obsolescence but, in the case of the shopping center, creates a pleasurable environment for consumer buying.

The Thomas Mall shopping center in Phoenix, Arizona is an excellent illustration of the ease with which prestressed concrete lends itself to fine contemporary expression. The architects, Copeland, Novac & Israel and associate architect John Schotanus, Jr., artfully expressed the structural system throughout the buildings.

Prestressed beams, spandrels and double tees are shown in Figure 1 and 2. The uncapped ends of the double tee roof structure cantilever, Figure 2, create an everchanging shadow which gives added interest to the wall of the entry court. The exposed double tees, with their triangular supports, Figure 3, contribute a textural pattern of regularity which contrasts well with the free form sculpture, pools and planting areas of the interior mall.

The center utilized 434,000 sq. ft. of prestressed double tees and flat cored slabs and 15,000 lineal feet of prestressed concrete beams; United Materials, Inc. of Phoenix supplied the prestressed members.

Prestressing: United Materials, Inc.

Figure 1 Main entrance of the Thomas Mall shopping center.

Prestressed concrete double tees provide the roof structure for the Best & Company store in the Northland Shopping Center in Detroit, Michigan, shown in Figure 4.

A shopping center for a more specific kind of consumer is the Medical Merchandise Mart in Lincolnwood, Illinois (see cover). Designed by the architectural and engineering firm of Fridstein & Fitch, the building displays all types of medical equipment for hospitals, nursing homes, doctors, and other medical practitioners. Prestressed concrete beams, roof, and floor sections are used throughout the building (see Figure 5); window mullions are precast concrete. Marvin Fitch, the architect, commented that a special effort was made to keep the structural connection details simple; past experience has shown, he said, that the simpler the details, the better the prestressed concrete job.

The three E. J. Korvette centers shown in Figures 6, 7 and 8 employ a precast concrete structural system, and all the structural members, except for the columns, are prestressed. Standard prestressed sections include F sections and tee beams; floor slabs span 56 ft., a record span for the midwest. A total of 500,000 sq. ft. of prestressed concrete was used in all three centers, and was supplied by Crest/Schokbeton Concrete Systems, Inc., of Lemont, Illinois.

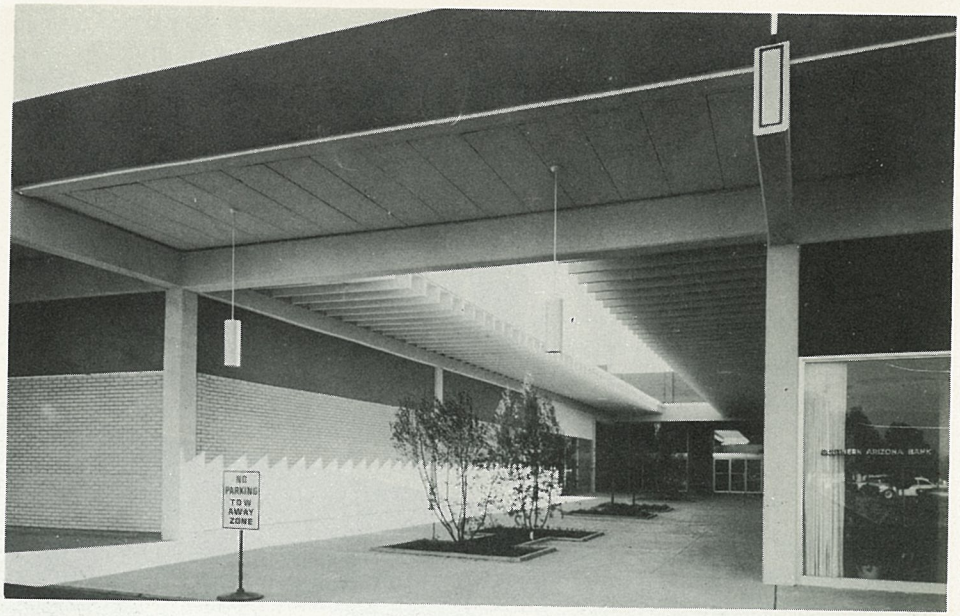


Figure 2 Thomas Mall entrance court.

Architect: Fridstein & Fitch

Figure 5 Entrance lobby, Medical Merchandise Mart, Lincolnwood, Illinois.

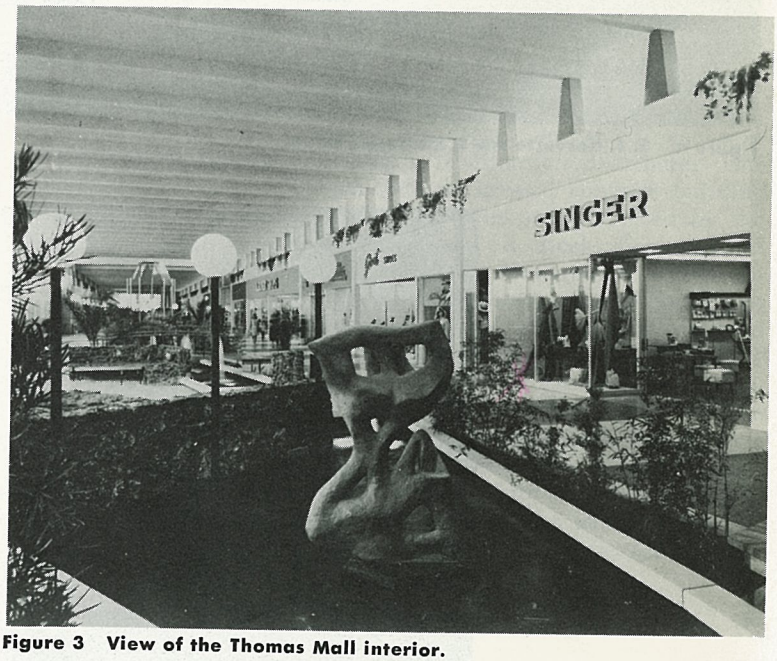


Figure 3 View of the Thomas Mall interior.

Prestressing: American Prestressed Concrete, Inc.

Figure 4 Best & Company store, Northland Shopping Center, Detroit, Michigan.

Figure 6 E. J. Korvette store, Matteson, Illinois

Mr. and Mrs. Perry Neuschatz are greeted by, left to right, Elmer D. Clark, outgoing PCI president, William C. Givens, incoming president, and Robert J. Lyman, executive director.

Figure 7 E. J. Korvette shopping center, Oak Lawn, Illinois.

Figure 8 E. J. Korvette center, Elmhurst, Illinois.

PCI CONVENTION

The Tenth Annual PCI Convention, held September 20-25 at the Mayflower Hotel in Washington, D.C., was attended by more than 800 engineers, architects, contractors, manufacturers and suppliers who heard 40 speakers tell of progress in various phases of the prestressed concrete industry.

An indication of the diversity of the convention sessions is given by topics such as tainter gates, subaqueous tunnels, nuclear reactor pressure vessels, and long-span cantilever bridges. Examples of some of the down-to-earth, practical sessions are those which dealt with subjects such as prestressed concrete columns, shortcuts for shear analysis, connection details, and differential camber problems, among others. Many of the papers presented will be published throughout the coming year in the JOURNAL OF THE PRESTRESSED CONCRETE INSTITUTE.

A highlight of the convention was the annual awards luncheon during which recognition was given for outstanding prestressed concrete structures erected during the year. The 1964 top award went to Perry Neuschatz, A. I. A., of Los Angeles, Calif., for his design for a convention center for the Highway House Hotels in Phoenix, Arizona. In addition, nine Awards of Merit and a Special Bridge Award were presented at the luncheon.

Another convention feature was an exhibit of machinery and materials used in the production of prestressed concrete. Nearly thirty firms presented displays of concrete, steel strand, post-tensioning tendons and equipment, material handling equipment, forms and vibrators.

New PCI officers are: president, William C. Givens, Capitol Prestress Company, Jacksonville, Florida; vice president, James H. Gilbert, C. W. Blakeslee & Sons, New Haven, Conn.; secretary-treasurer, Jack Streblow, Basalt Rock Company, Inc., Napa, Calif. New members of the PCI board of directors are: Guy Braselton, Prescon Corporation, Corpus Christi, Texas; Louis F. Owen, Piedmont Construction Company, Winston Salem, N. C.; George W. Vaught, Concrete Masonry Corporation, Elyria, Ohio (see photographs).

New PCI officers and board members are, left to right: Guy Braselton, Prescon Corporation, Corpus Christi, Texas; Louis F. Owen, Piedmont Construction Company, Winston Salem, N. C.; president William C. Givens, Capitol Prestress Company, Jacksonville, Florida; George W. Vaught, Concrete Masonry Corporation, Elyria, Ohio; and vice president James H. Gilbert, C. W. Blakeslee & Sons, New Haven, Connecticut.

NEW ASCE HEAD

The American Society of Civil Engineers announced that Wallace L. Chadwick, their 96th president, took office on October 21st at the annual meeting of the society in New York, N. Y. PCI was one of several cooperating organizations in planning the annual meeting which was in session from October 19-23. A symposium on the latest developments in construction in prestressed and precast concrete was held on Tuesday afternoon, October 20. Two of the several speakers at this session were Arthur R. Anderson, ACI vice president and principal partner of Concrete Technology Corporation, Tacoma, Wash., and James H. Gilbert, PCI vice president and vice president, C. W. Blakeslee & Sons, New Haven, Conn.

NEW SPANCRETE DISTRIBUTOR

San Diego Prestressed Concrete Company has been appointed exclusive Southern California distributor for Spancrete prestressed concrete building panels which are manufactured by the Arizona Sand & Rock Company of Phoenix. M. R. Montgomery, vice president and general manager of San Diego Prestressed, says that if the Spancrete method proves popular with California developers, the firm will develop a manufacturing facility in San Diego for the product. Montgomery adds that his firm is presently installing an automatic plant for the manufacture of power and light poles and piling by a spinning process which will greatly reduce the cost of manufacturing such items.

MEETINGS ANNOUNCED

The American Society for Testing Materials announces the following meetings; ASTM Committee C-9 on Concrete and Concrete Aggregates, December 7-9, 1964; ASTM Committee C-1 on Cement, December 9-11, 1964. Both meetings will be held at ASTM headquarters in Philadelphia, Pa.

NEW PRECAST DIVISION

Nebraska Prestressed Concrete Company has announced that it has been granted exclusive franchise to produce Schokbeton precast concrete in Minnesota, North and South Dakota, Nebraska, Kansas, Iowa and Western Missouri. The company has formed a division, Inland Schokbeton, to manufacture and sell the precast products.

EDITOR'S NOTE

This issue of PCItems is presented in double size as a combined October/November issue. Because of time expended on the recent PCI convention, we are producing a double issue in order that we may return to our normal publishing and mailing schedules without reduction of editorial content.

MARTIN P. KORN AWARD

George J. Ziverts received the 1964 Martin P. Korn Award for his two-part article, "A Study of Cardboard Voids for Prestressed Concrete Box Slabs" in the June and August, 1964 JOURNAL OF THE PRESTRESSED CONCRETE INSTITUTE.

Ziverts, a professional engineer presently with the Concrete Products Division of Martin Marietta Corporation, has been active in the precast and prestressed industry for fifteen years and has had broad experience with architectural and structural concrete products.

After investigating conditions in more than forty precast plants, he recently completed a comprehensive study from which he has established a cost-finding and estimating system for precast concrete products supplemented with an estimator's handbook.

Ziverts has published extensively and is currently working on the manuscript for his book, "Forms for Precast Concrete Products." A short version of the book is being published in a three-part article for CONCRETE PRODUCTS magazine, in the October, November and December, 1964 issues.

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