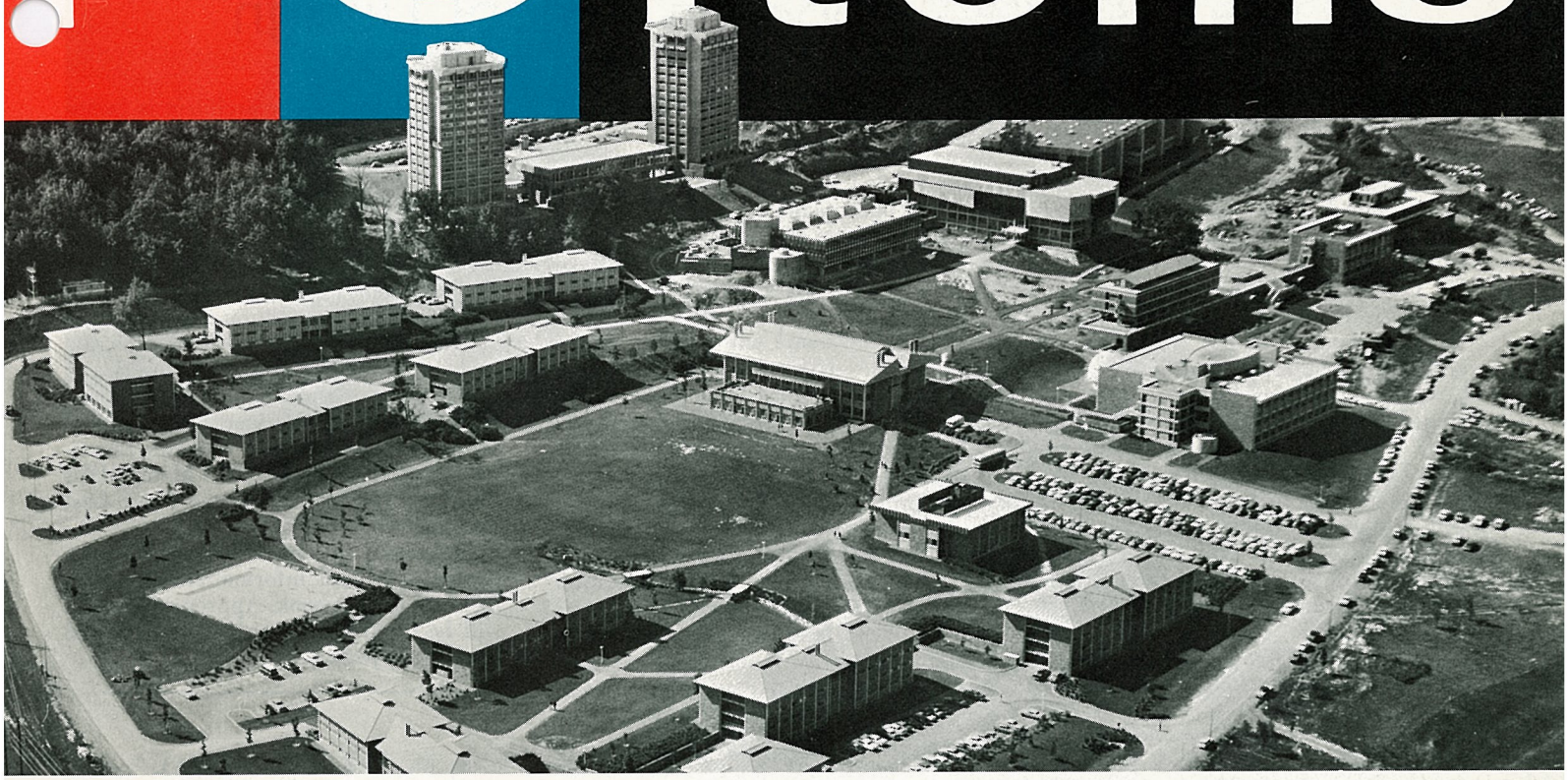
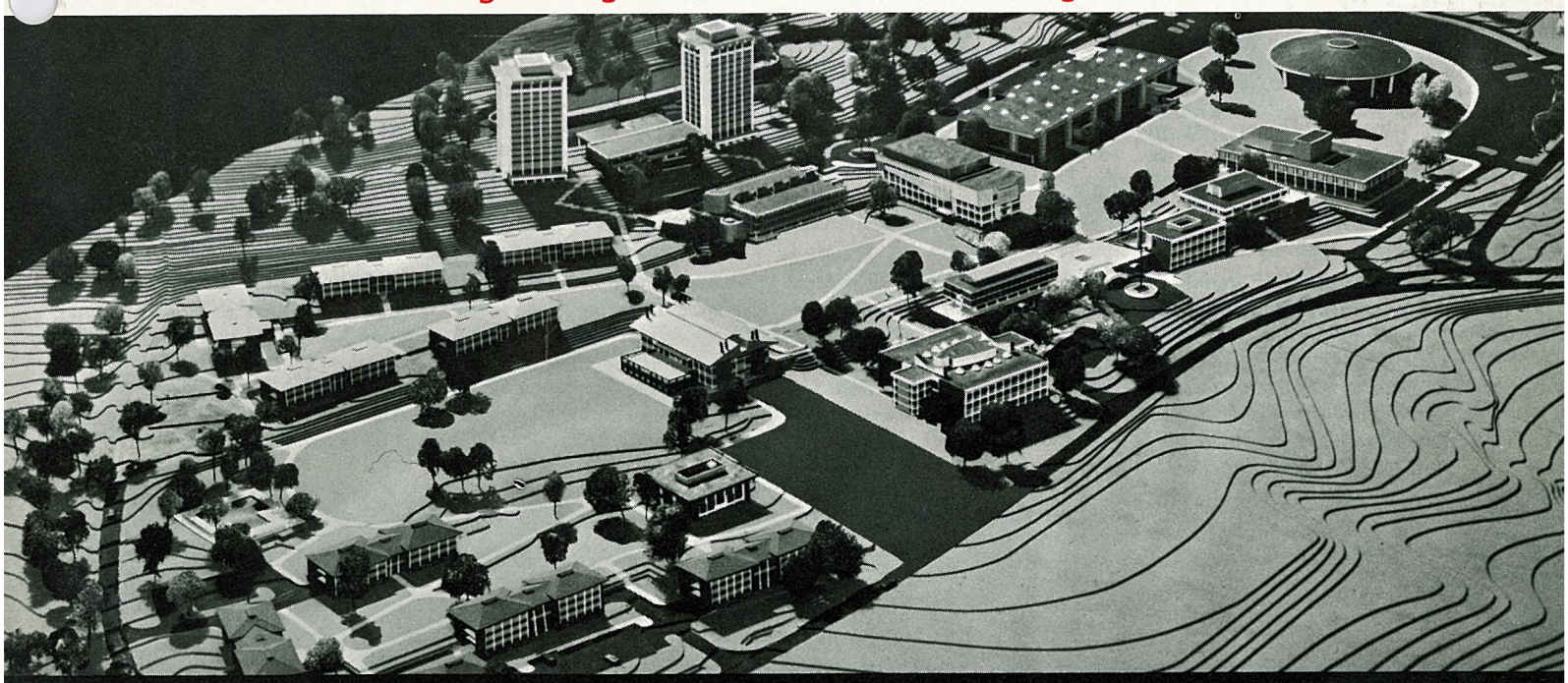
PC Items



"Schools—Their Planning, Design and Construction Using Prestressed Concrete"



PRESTRESSED CONCRETE INSTITUTE PCI®

ARCHITECTURAL STRUCTURAL

PCI School Book

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Editor: Edward D. Dionne

Vol. 13, No. 1
January, 1967

A Progress Report

The Institute's Book on School Design

Editorial work is under way on the Institute's book, "Schools — Their Planning, Design and Construction Using Prestressed Concrete," as announced in the November 1966 issue of PCITEMS. The book is scheduled for publication in September, with distribution at the 1967 PCI Convention, October 8-12 at the Queen Elizabeth Hotel in Montreal.

Initial response to the Institute's request for photographs and information on schools featuring precast and prestressed concrete design has been gratifying. Architects, structural engineers, prefabricators and suppliers of material have taken time to contact PCI and to send along examples of educational facilities.

Because of the interest being shown, material will continue to be accepted for the photographic portfolio sections as late as April 1. This will permit representation of many school facilities now under construction.

The book is being designed with chapters on classrooms, corridors, gymnasiums, auditoriums and multi-purpose rooms, cafeterias, libraries, stadiums, coordination of mechanical equipment with prestressed components, precast panels, and construction techniques including connections, joints and sealing.

Architects, engineers and members of the industry are again invited to contribute their projects for the book. The desired information would consist of glossy photos, preferably 8″ x 10″ although other sizes are acceptable. Especially needed are 8″ x 10″ glossy photostats of floor plans of the facilities. A short description of the job requirements and an explanation of how precast or prestressed concrete was utilized is also essential. The only other information needed is the name and address of the architect, the structural engineer and the prefabricator, so that appropriate credit might be listed in the photo captions.

Emphasis will be placed on the role that prestressed concrete plays in creating "permanent flexibility" to meet today's constantly changing educational needs. Because prestressed concrete offers wide-span areas and the elimination of many columns, such construction is being utilized in many ingenious methods, and not only in classroom design.

For instance, when an addition was required at Zion-Benton Township High School at Zion, Ill., available land was located across the highway from the present facility. To connect the old and new structures, the architect used two giant single-tees, each 4′ wide, placed side by side to create an 8′ wide bridge. This span was then enclosed, thus creating a corridor between the two buildings. Then, as a further display of ingenuity, student lockers were added along the walls to fully utilize the newfound wall space. The architect is Swanson and Ladehoff of Waukegan, Ill.; the prefabricator is J. W. Peters & Sons, Inc., of Burlington, Wis.

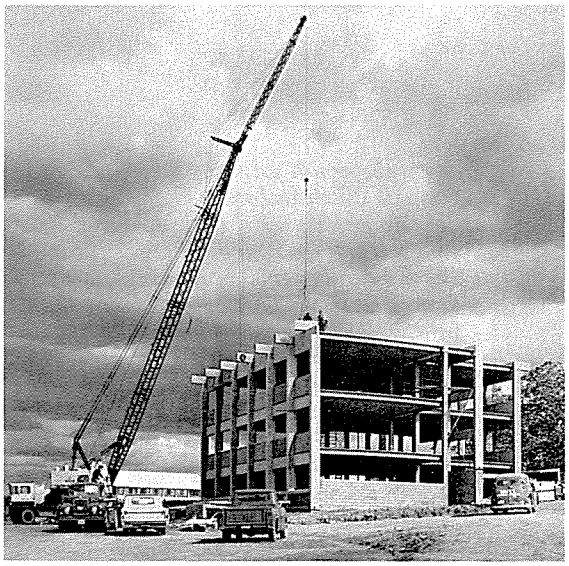
Educational organizations have been most cooperative in the Institute's many requests for information. Especially helpful has been the National Council on Schoolhouse Construction, an organization created especially to deal with the problems of school plant planning and construction. Readers of PCITEMS interested in school construction should contact Dr. Kenneth R. Widdall, Executive Secretary, N.C.S.C., 317 Manly Miles Building, 1405 S. Harrington Road, East Lansing, Mich., 48823.

Meantime, the Institute again invites photographs and information on school facilities for the book. Appropriate credit will be listed for the principals involved in such projects.

Architect for the bell-tower of St. Peter's Episcopal Church in Milwaukee, which appeared in the December, 1966 PCITEMS, is the firm of Losch and Haeuser, Architects, Milwaukee.

Campanil Crespi was listed in the same issue as being located in Santa Monica, Calif.; it is actually in Campanil Hills, Santa Barbara.

(Cover Photo and 1, below). Typical of the growth of educational facilities throughout the United States is Ithaca College, in Ithaca, N.Y., now well past the mid-point in a 10-year expansion program. An entire new campus has been created in five years, at a cost of $25 million. The cover photo shows how the dream has become a reality, with precast and prestressed concrete construction serving to accomplish this feat. The model shows, at top right, the theater-fine arts center, administration building and general studies complex, leading clockwise to the science building. The aerial photo shows the 14-story dormitories, music building and health and physical education building at top; science building at right center; College Union and dormitories surrounding open quadrangle. In Photo 1, (below) low-rise dormitory utilizes precast columns and prestressed beams, with hollow-core plank slab construction.



2

3 Arch.-Eng.: Tallman & Tallman, AIA; P/C fabricators: Winkrete Precast Co. and Turbotville Block Co.

2, 3, 4. In upstate New York, an entire new campus has been created in six years for Ithaca College, with precast and prestressed concrete construction methods contributing greatly to the need to meet both budget and time requirements. By 1970 the school plans to complete its 10-year building program. The buildings are highly attractive in design, combining economy and strength in precast and prestressed components and featuring exposed aggregate panels.

Included in the complex are a science center for an eventual enrollment of 1,800 students; a music building to accommodate 400 students, plus a 746-seat concert hall; and a health and physical education center designed for an enrollment of 500, with a flexible seating capacity of 2,500 to 4,000 for sports spectators. A 30-bed infirmary and clinic is included, plus a 400,000-volume library to provide reading areas for 1,000 students. The library was designed for construction in two phases, the first a 250,-000-volume section completed in the fall of 1965.

The typical classroom building (Photo 2) utilizes precast concrete columns, beams, fascias and panels and prestressed hollow-core plank slabs. The high-rise dormitories (Photo 3) display precast, exposed aggregate panels. The impressive Science Building (Photo 4) demonstrates excellent use of prestressed construction. Three floors and the roof are of single-tee construction, bearing on precast columns. Sun shades, exposed quartz aggregate spandrels and sills are all of precast concrete.

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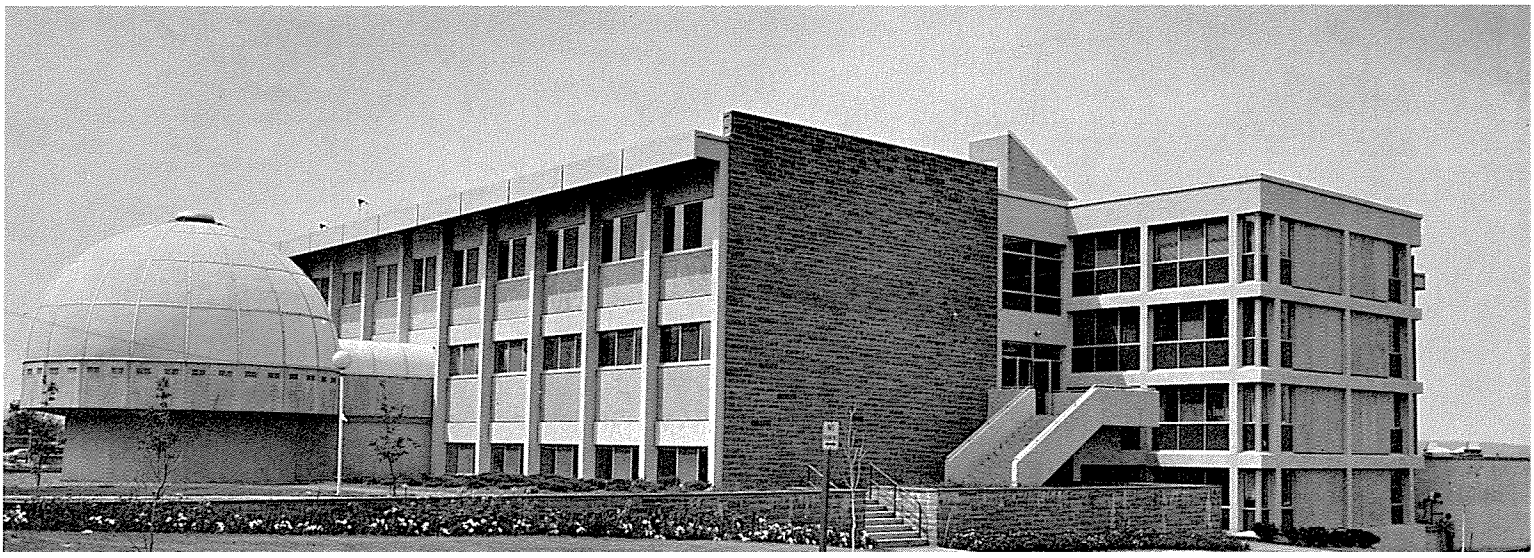
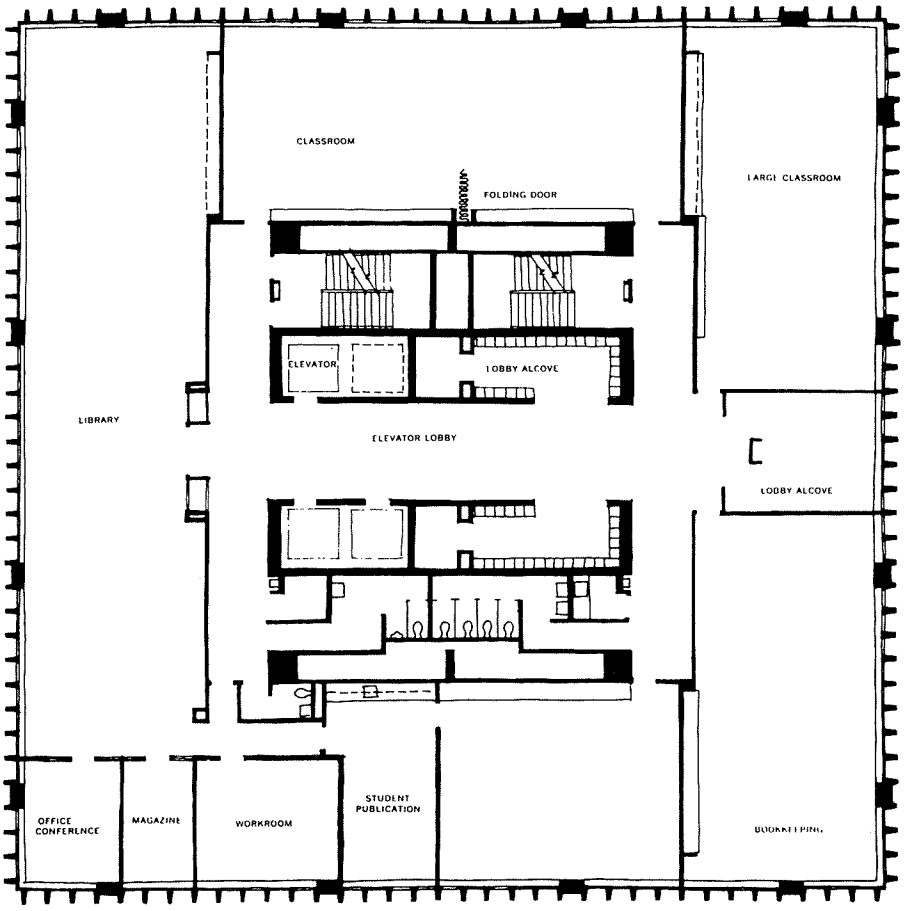
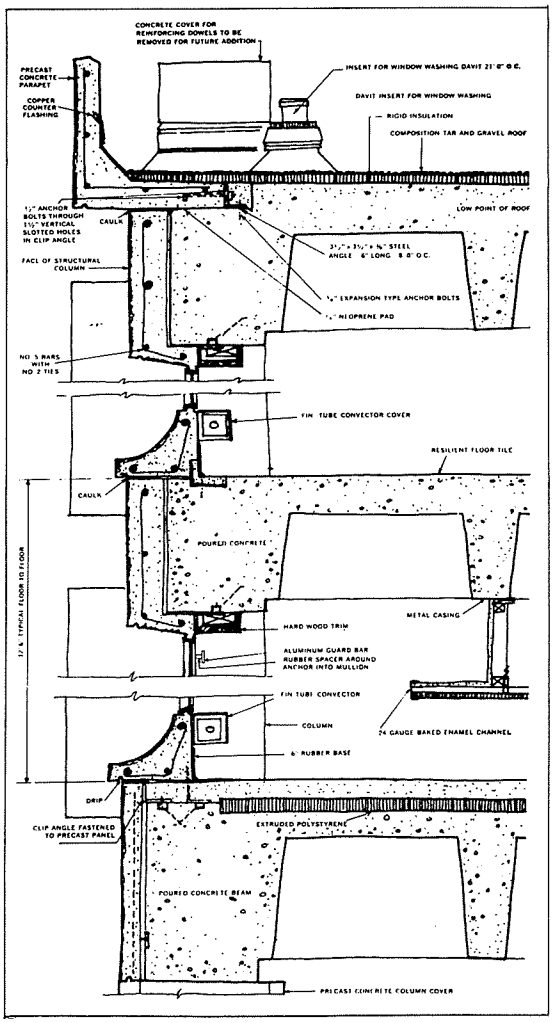




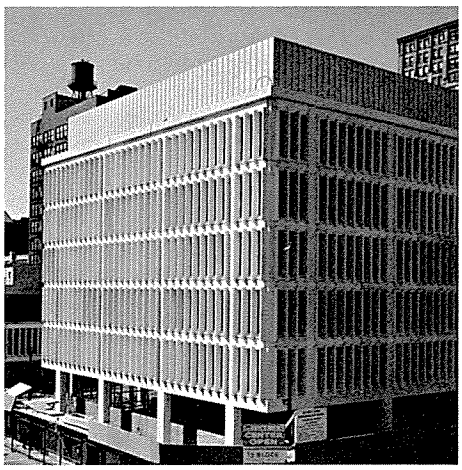
5. Floor plan for Academic Tower shows temporary locker alcoves to be used until 16-story addition requires use of space for elevators and mechanical equipment. Exterior mullions are on a 3′ module.

At the south edge of Chicago's busy Loop, William C. Jones Commercial High School serves as a unique school designed to provide a business education. Paradoxically, this modern educational system is located in a schoolhouse built in 1873, two years after the great Chicago fire. The 94-year-old structure first served as an elementary school for some of Chicago's early leaders, then as a continuing school. Later, it was used only for storage. In 1938, Jones Commercial School was formed and took occupancy. Today's students combine classroom study in stenography, bookkeeping, business machine operation and general clerical work with actual on-the-job training. To qualify for a diploma, each senior student also must obtain a passing grade on the job.

Soon the students will move into new quarters adjacent to the old structure, which will be demolished to provide room for a gymnasium. The new com-

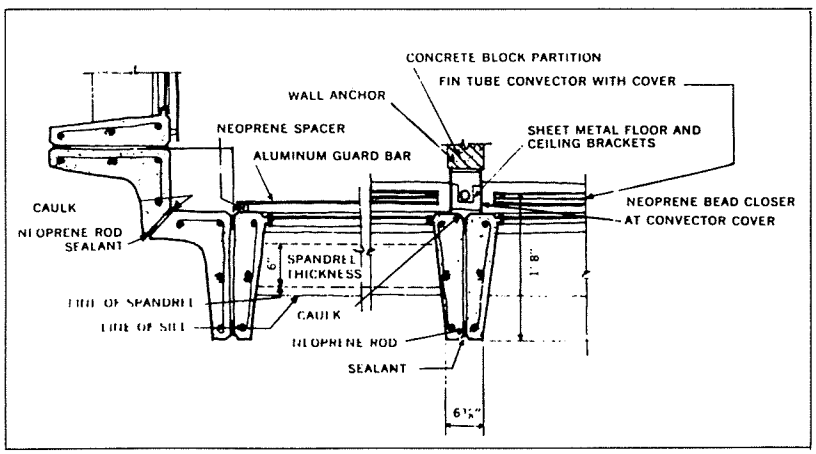


6. Exterior Tower wall section shows roof line with arrangements for addition.



7. Placing of first precast sections.

8. Plan section shows precast units, including corner and typical unit.



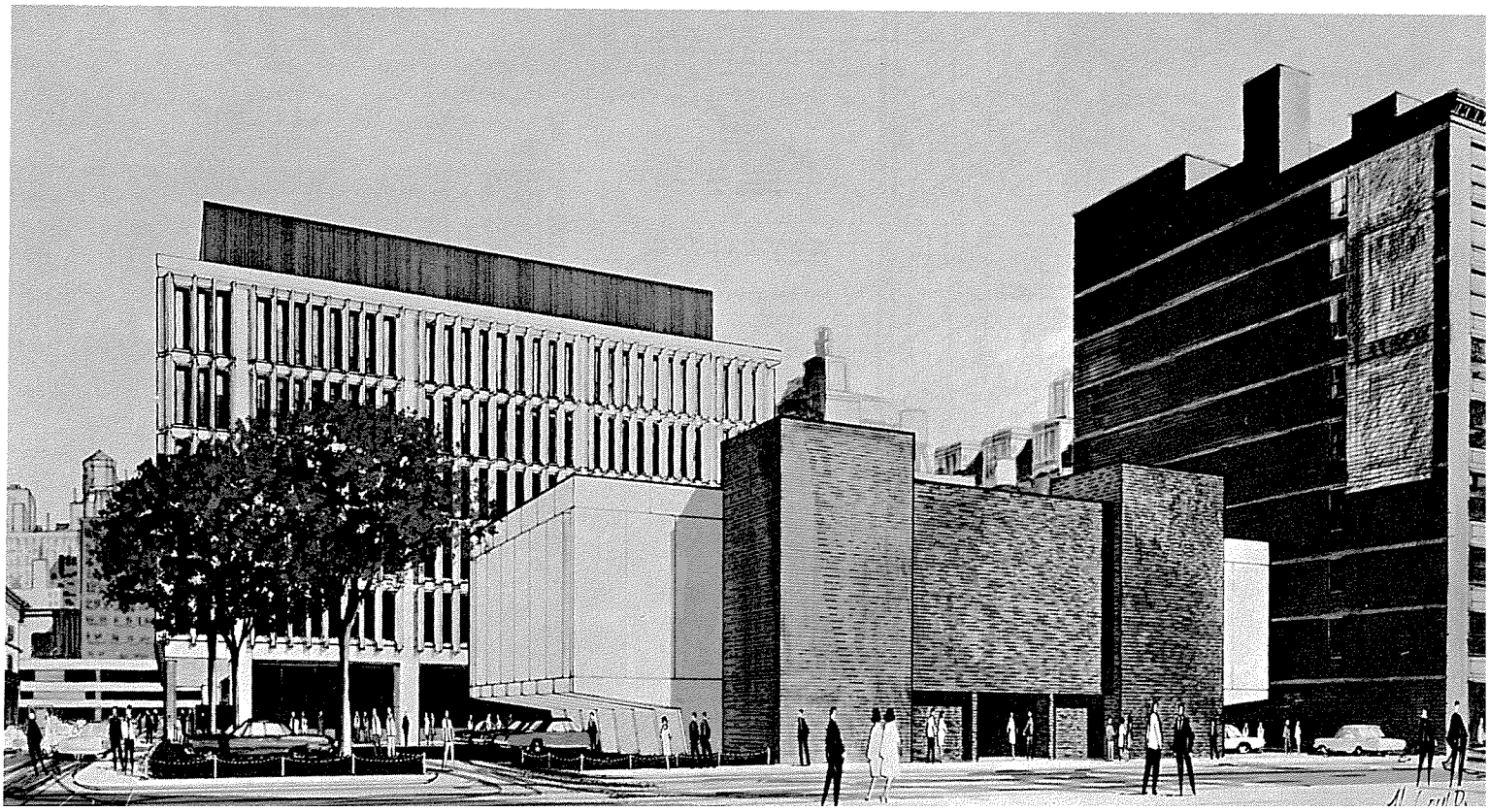
plex is being created in three construction phases. Precast concrete window units and wall panels have been utilized in creating this attractive complex serving the heart of Chicago.

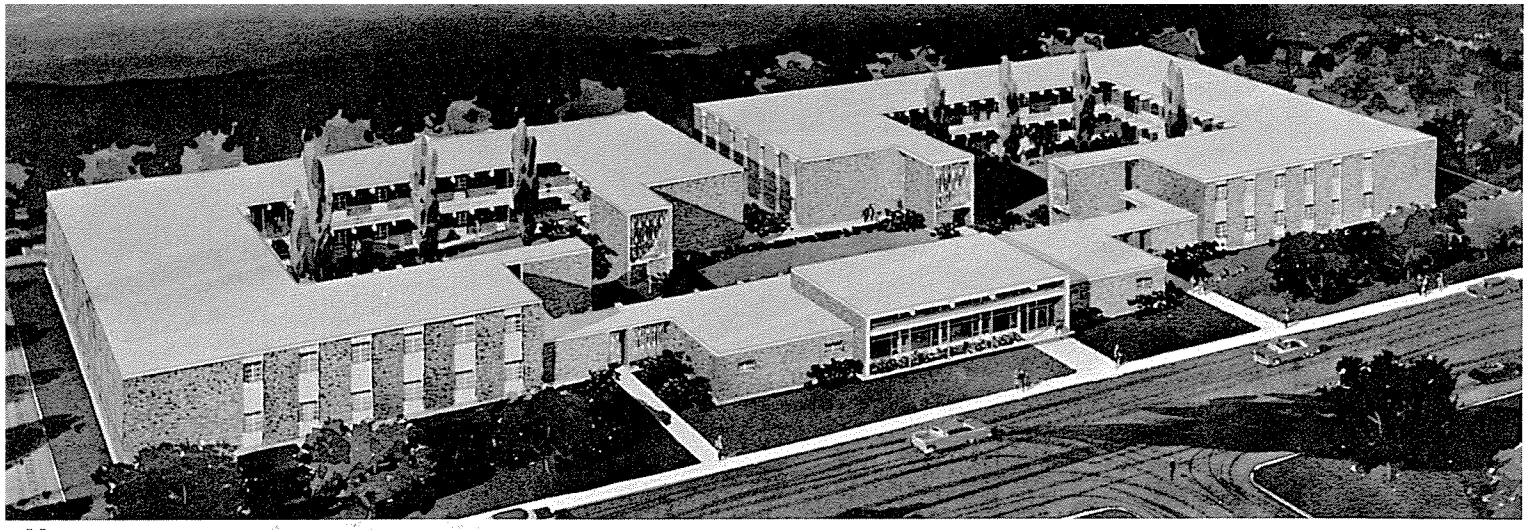
Phase I includes a 110-ft.-square, seven-story Academic Tower; a two-story, 500-seat Lecture Hall and Cafeteria unit, and a one-story connecting corridor. Phase II will be the gymnasium wing. Phase III will be a 16-story office building addition above the seven-story structure. The Academic Tower has been designed to support this addition, with space allocated for future elevators and mechanical and electrical systems. The Tower will contain 35 classrooms and laboratories, with three of them divisible by folding partitions.

The complex is designed to serve 1,200 students, including 1,050 in the building and 300 working half-days in business offices.

Arch.-Eng.: The Perkins & Will Partnership; P/C fabricator: Crest/Schokbeton Concrete, Inc.

9. Rendering of project, with two-story Lecture Hall and Cafeteria unit at left, and seven-story Academic Tower topped by 16-story office building. View below (10) is of gymnasium wing, with Academic Tower in rear. Present school building is located on site of gymnasium.





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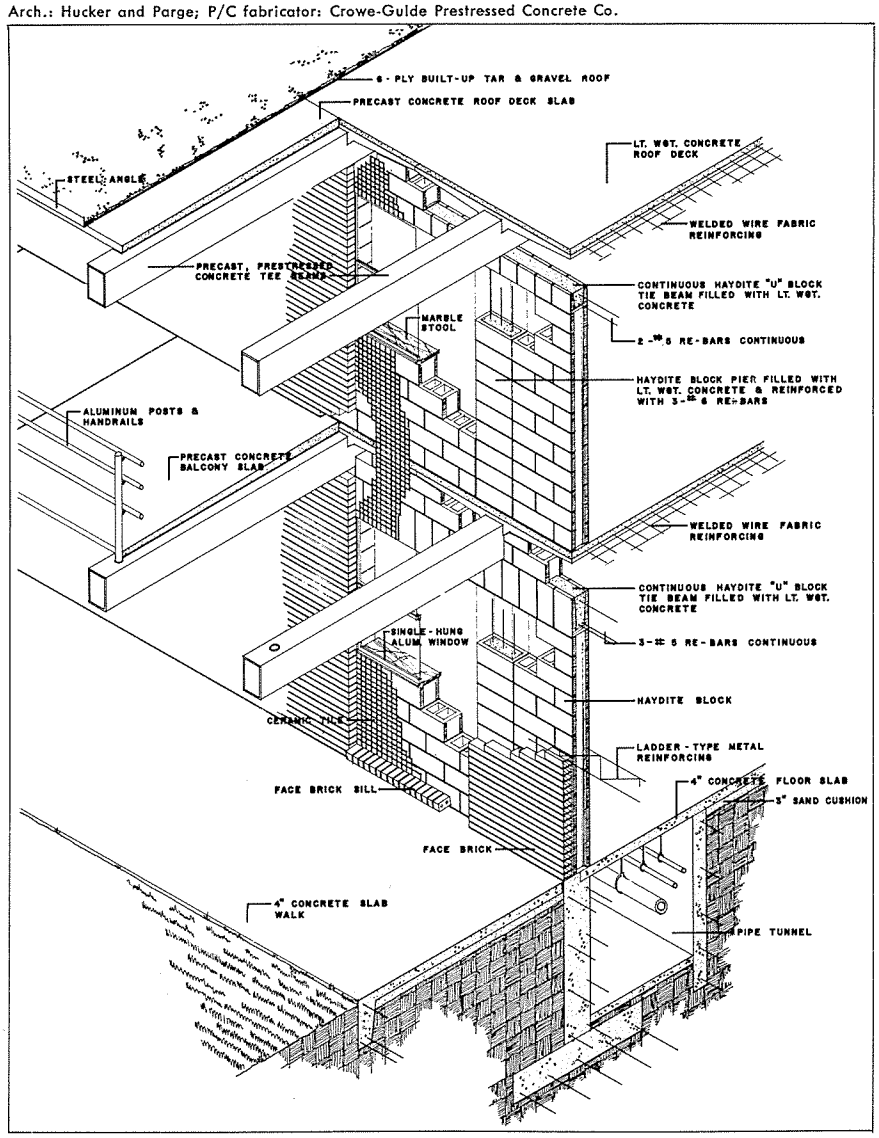
11, 12, 13. Jarrett Hall, a dormitory for 384 men students at West Texas State University in Canyon, well demonstrates how standard 6′ single-tees can economically create a structure based on a 12′ module. The structure groups bedrooms into units of eight, for 16 men, with each unit containing a bathroom, living room, luggage room and utility closet. Bedroom furniture is built-in. A separate administrative unit houses the dormitory office, lounge, laundry room and other facilities.

The standard tees are 6′ wide, 16″ deep, and span 36′ with a 9′ cantilever. They are modified only as to the bare stem cantilever. The tees cantilever beyond the bearing walls on the court side, to provide balcony access passage. The stems are covered with prestressed concrete slabs for balcony floor and roof deck, thus eliminating thin topping for exposed wearing surface. Where cantilever cannot occur, as across the rear of the administrative unit, precast slabs are supported on prestressed inverted "L" rigid frames, spaced 12′ on center, matching the spacing of the 8′ wide tees at the main guest lounge. These tees span 36′ with 7′ cantilever at the front entrance, and are connected with a lightweight concrete roof deck.

The architect lists these advantages in using prestressed concrete: "Clear spans were easily and economically obtained; local manufacture meant no delay in fabrication or erection; fire-resistance is inherent, rather than applied; the mass of the system provides excellent sound transfer resistance; the rigidity of the units gives vibration-free floors; excellent finish of the units allows their exposed use without plaster or paint; exposed use gives a highly satisfactory esthetic expression to the modular nature of the design; and the use of standard units in a relatively standard way provided economy."

Arch.: Hucker and Parge; P/C fabricator: Crowe-Gulde Prestressed Concrete Co.



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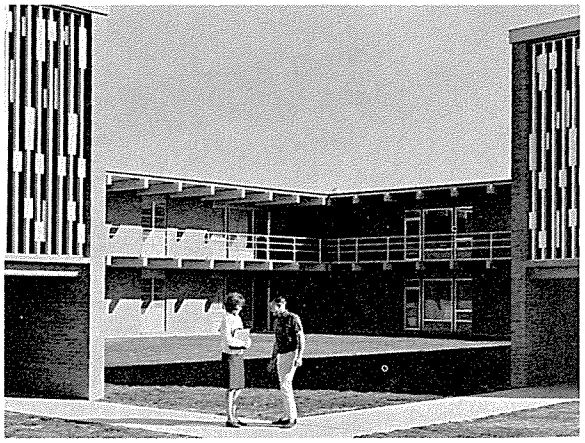

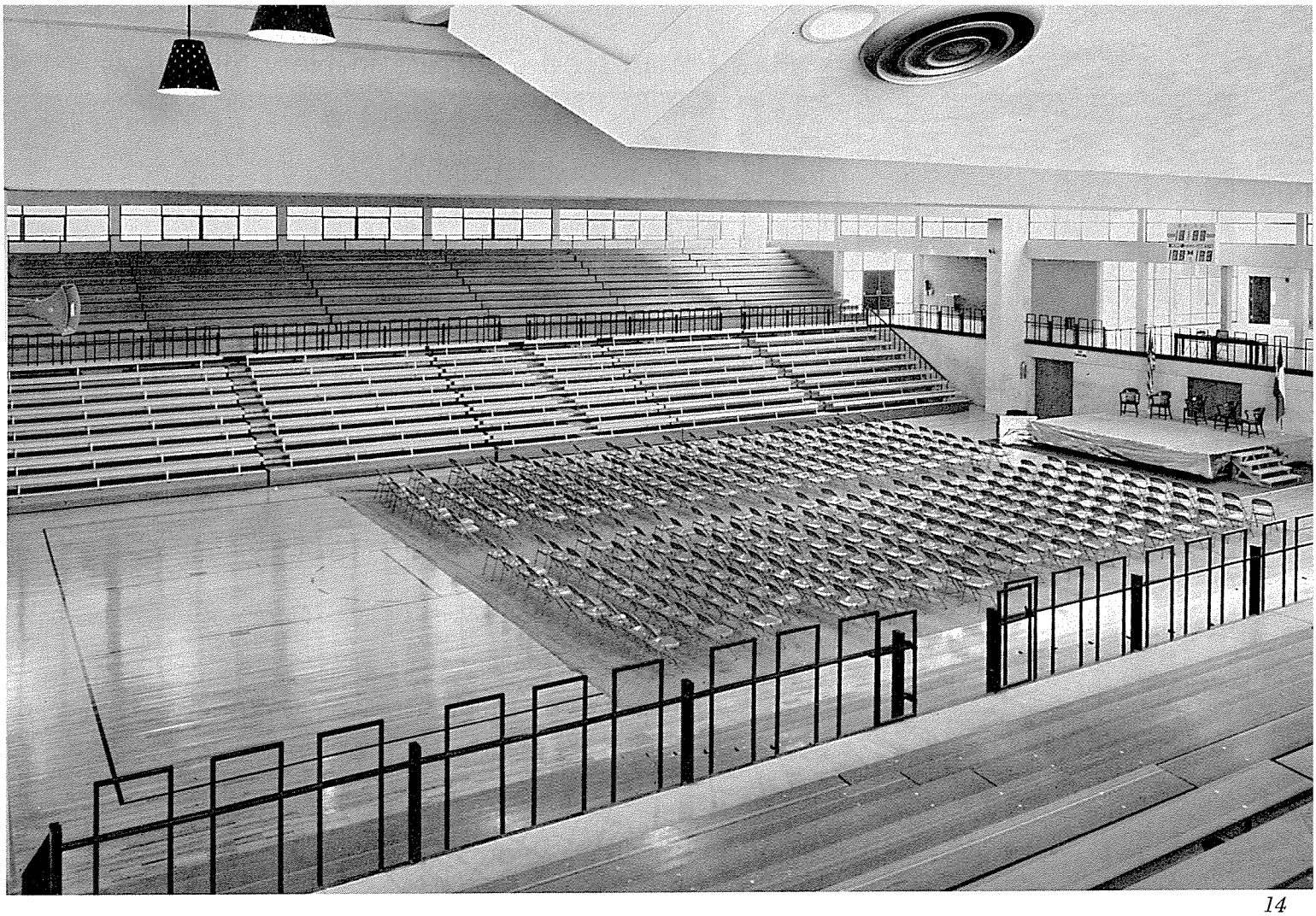

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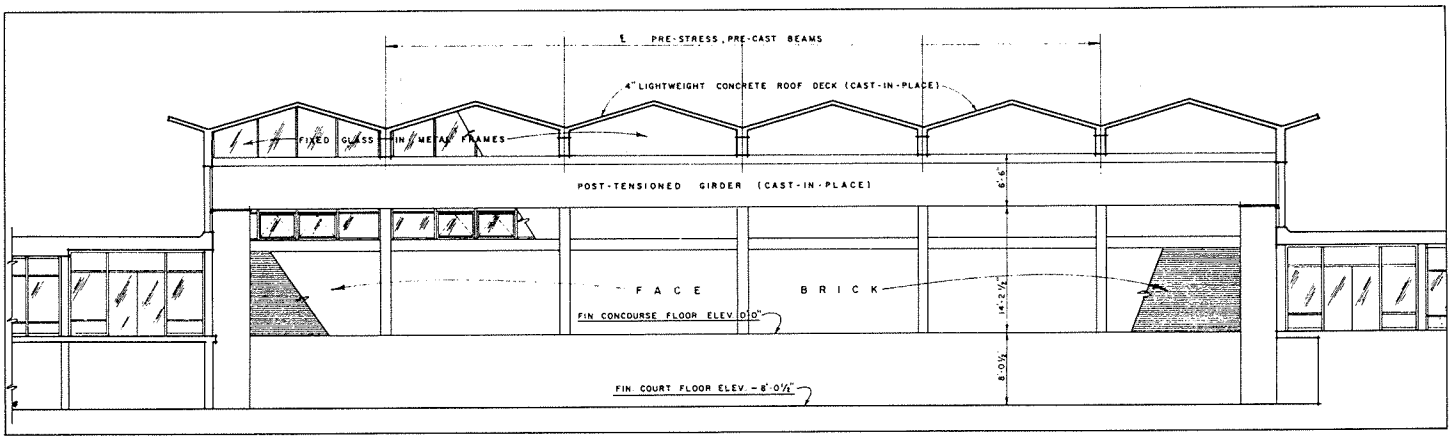
14, 15, 16. Tyler, Texas, Junior College gymnasium serves as a multi-purpose building for varied college and community activities. It features seating for 3,000 spectators and a clear area of 104′ x 156′. The folded plate roof is supported by prestressed beams on two post-tensioned girders. The 1′ x 2′ beams span 52′ in the exterior bays and 54′ in the interior bay. The post-tensioned girders are 6′-6″ deep and span 104′. They are designed as a hollow-T, in section, with the voids formed by cardboard boxes to reduce the dead load.



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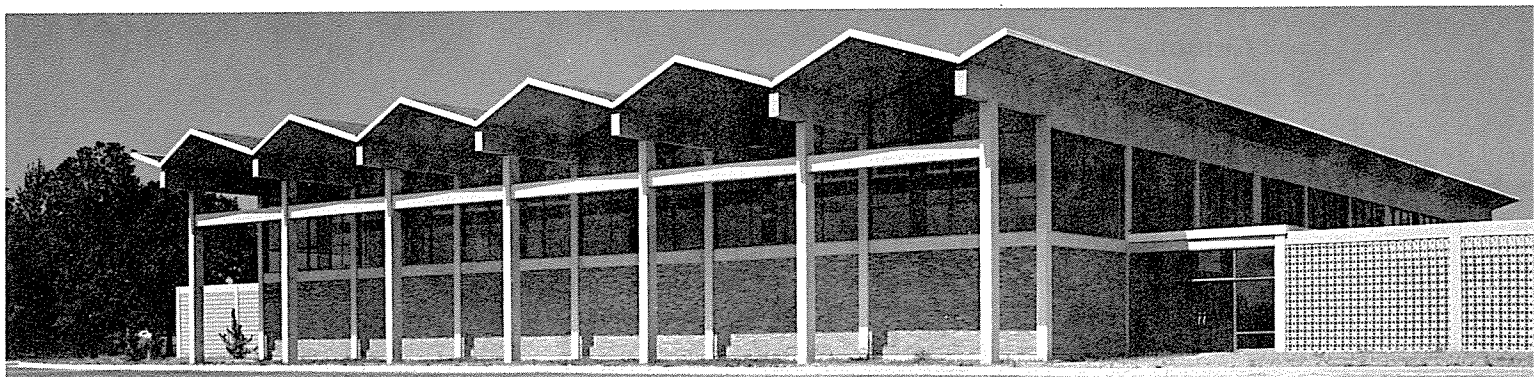
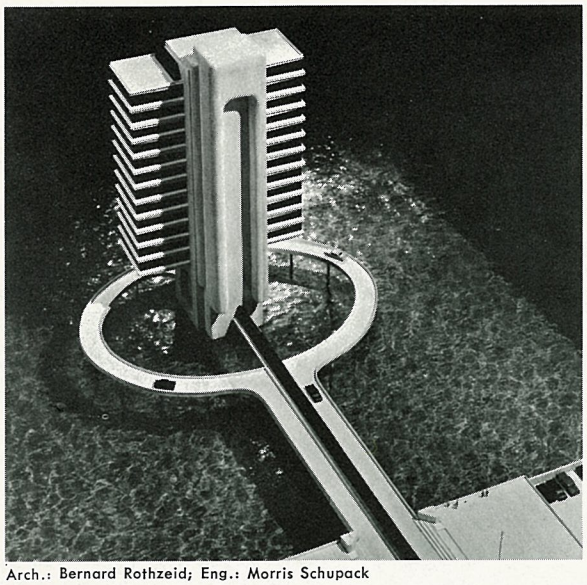
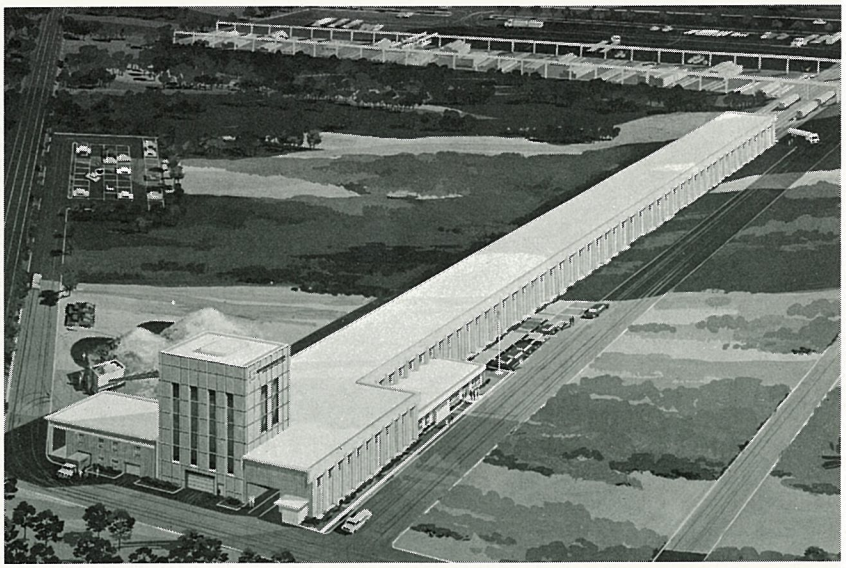
Arch.: E. Davis Wilcox & Associates; Eng. Demopulos & Ferguson; P/C fabricator: Gifford-Hill & Co., Inc.; Post-tensioning by Prescon Corp.

16



Industry Members Feature Prestressed Concrete in New Structures





Arch.: Bernard Rothzeid; Eng.: Morris Schupack

The Kurt Orban Co., Inc., has announced plans to construct the nation's first offshore office building, located in the Hudson River 200 ft. off Jersey City, N.J. The 12-story building (above, left), to cost $3.4 million, will have a surrounding elevated roadway which will serve as a bumper to fend off barges. The first floor will be 50 ft. above the water line, with a marina at the base of the building. A restaurant will top the 230-ft. tall structure. The floors will utilize giant Tee-beams 122 ft. long cantilevering from the concrete core.

Strescon Industries, Inc., has begun production of Span/Deck, its precast, prestressed structural hollow-core concrete slab system, at its new plant near Philadelphia. About 50,000 sq. ft. of this sixth Strescon plant will be under roof, with a 1,200-ft. craneway. The building is constructed of architectural wall panels and tee-columns, using white cement with a sandblasted finish. The roof is constructed of single-tees on a 70-ft. span. The outside storage crane runway utilizes prestressed concrete columns and beams.

Reprints Available on Underwriters' Lab Report

Reprints of several reports of interest to architects and engineers are now available from the Institute.

They include Underwriters' Laboratories, Inc., report R4123-13, "Roof and Ceiling Construction Consisting of Prestressed Pretensioned Concrete Double-Stemmed Units and Various Insulation Materials." The report, based on tests sponsored by PCI, establishes a 2-hour fire rating on double and single-tee prestressed concrete units without a secondary pour. A variety of insulation materials was used, both rigid board and cast insulations. Copies are available at $1 to PCI Members; $2 to non-Members.

Also available is a limited number of complimentary copies of a report by Ben C. Gerwick, Jr., entitled "International Congress on Prestressed Concrete Presents Challenges to American Engineers." Mr. Gerwick, PCI's official representative to the Federation Internationale de la Precontrainte, presented the paper at the Fifth Congress of F.I.P. June 10-18, 1966, in Paris.

1966 CONCRETE INDUSTRIES YEARBOOK OFF THE PRESS

The 1966 CONCRETE INDUSTRIES YEARBOOK, an annual technical engineering reference book, may now be obtained from the Circulation Department, Pit and Quarry Publications, Inc., 431 S. Dearborn St., Chicago, Ill., 60605. The price is $7.50 per copy.

The manual provides detailed information on processes, equipment, performance and planning for five segments of the concrete industry: precast, prestressed, ready-mixed, block and pipe.

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