VOLUME XIV / NUMBER 3 / THIRD QUARTER 1974

MODERN STEEL CONSTRUCTION

MODERN STEEL CONSTRUCTION

Published by

American Institute of Steel Construction

1221 Avenue of the Americas
New York, N.Y. 10020

EDITORIAL STAFF

Daniel Farb, Director of Publications
Mary Anne Stockwell, Editor

REGIONAL OFFICES

Atlanta, Georgia
Birmingham, Alabama
Boston, Massachusetts
Chicago, Illinois
Cleveland, Ohio
Columbus, Ohio
Dallas, Texas
Denver, Colorado
Detroit, Michigan
Charlotte, North Carolina
Hartford, Connecticut
Houston, Texas
Los Angeles, California
Memphis, Tennessee
Milwaukee, Wisconsin
Minneapolis, Minnesota
New York, New York
Oklahoma City, Oklahoma
Omaha, Nebraska
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
St. Louis, Missouri
San Francisco, California
Seattle, Washington
Syracuse, New York
Washington, District of Columbia

VOLUME XIV / NUMBER 3 / THIRD QUARTER 1974

CONTENTS

THE FIFTH ANNUAL T. R. HIGGINS LECTURESHIP AWARD

The T. R. Higgins Lectureship Award Program will select the principal author of the technical paper judged to have made the most significant contribution to engineering literature related to fabricated structural steel within a five year eligibility period ending January 1, 1974. The award winner will receive a $2,000 prize during a ceremony at the 1975 AISC National Engineering Conference in St. Louis, Mo., where he will present his paper.

A jury of six eminent engineers from the fields of education, design, and industry will select the award winner. They are:

Glen V. Berg *University of Michigan*

Thomas C. Kavanagh *Praeger-Kavanagh-Waterbury & Madigan-Hyland, Inc.*

John F. W. Koch *International Steel Company*

N. Jay Law *Debron Corporation, Mississippi Valley Structural Steel Division*

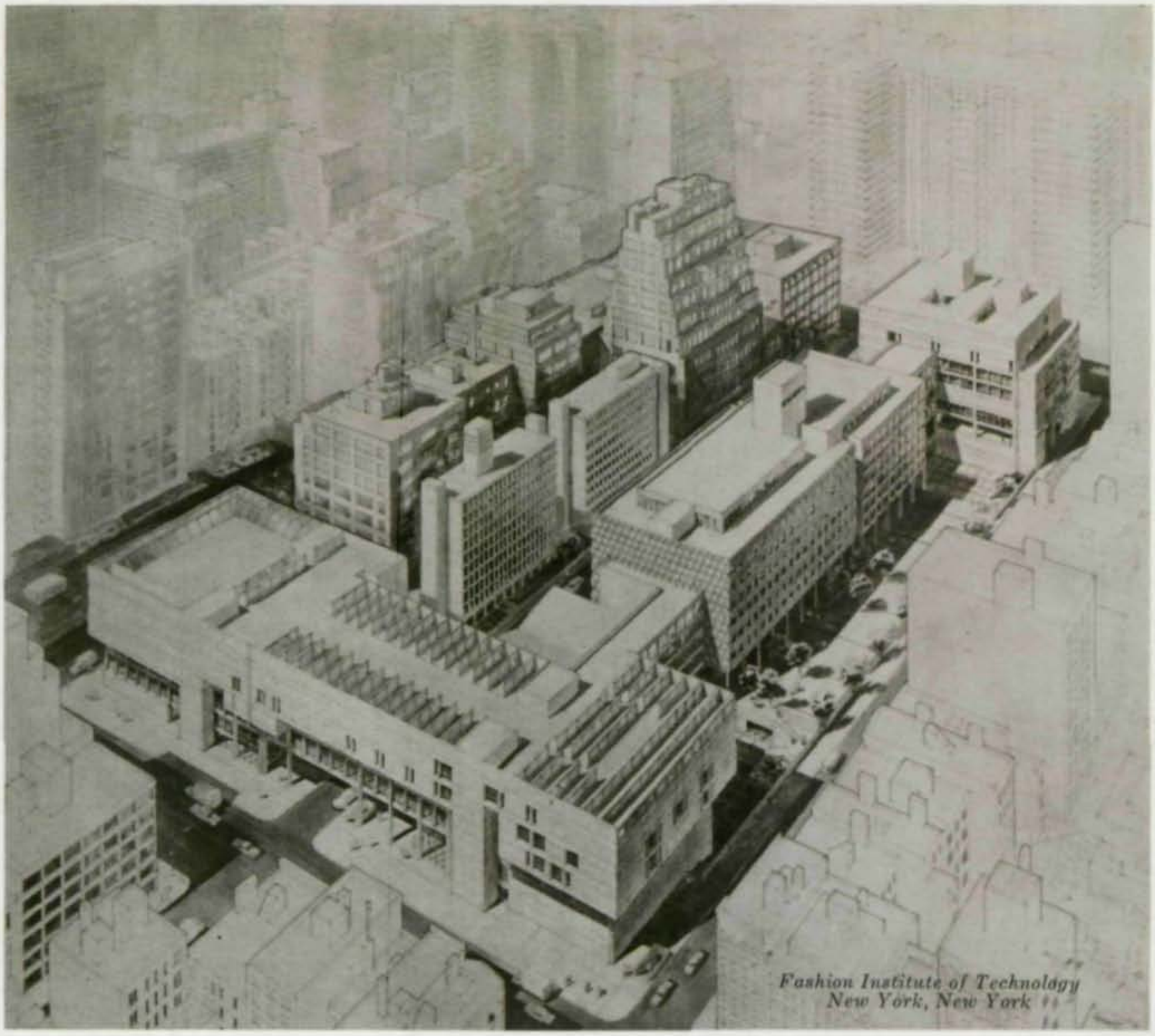
Robert D. Vanderlyn *Baker-Wibberley & Associates*

The winner will be announced on February 5, 1975.

1975 FELLOWSHIP AWARDS PROGRAM

Four $3,500 awards will be granted to Master's degree candidates pursuing a course of study related to fabricated structural steel. $3,000 is for the student's use, and $500 is for the department chairman's use in administering the grant.

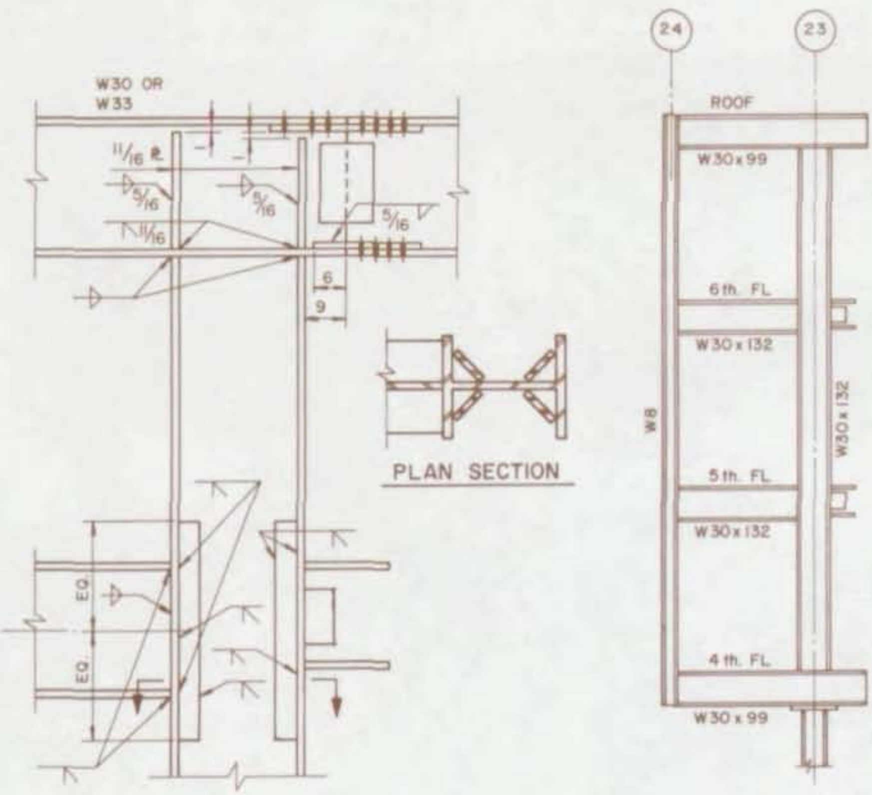
Students interested should contact their department chairmen or the Committee on Education, AISC, 1221 Avenue of the Americas, New York, New York 10020.



INNOVATIVE USES OF STEEL ACHIEVE ECONOMY

by Charles H. Thornton

In building, the opportunity for innovation with economy resides in structurally interpreting both the desired planning goals and aesthetic expression of the client, combined with knowledge of the design possibilities available in the correct use of a material's properties. Lev Zetlin Associates, Inc., Consulting Engineers, have been responsible for numerous projects that exemplify intelligent use of structural steel in imaginative and economical applications. Following are brief descriptions of five projects designed by this firm. Although steel was chosen for different reasons in each case, economy of construction and aesthetic appearance were important factors in the final selection of each framing system.



Architect:
DeYoung & Moscowitz
New York, N. Y.

Structural Engineer:
Lev Zetlin Associates, Inc.
New York, N. Y.

General Contractor:
P. J. Carlin
New York, N. Y.

Steel Fabricator:
Lehigh Structural Steel Company
Lehigh, Pa.

The Fashion Institute of Technology New York, N.Y.

Located on a two block site, running west from 7th to 8th Avenue and north from West 26th to West 28th Street, amid existing FIT buildings, is *a new complex containing a student* center, academic building, library, classroom laboratories, and an arts building, that vary in height from 7 to 11 stories.

The complex has a number of economical structural features. The design program provides for more flexible planning than was allowed in the existing complex, through use of longer spans. *However, the program also required that* the new buildings, despite the increase in spans, duplicate the floor to floor heights on all levels throughout to permit a close interrelationship with the existing facilities.

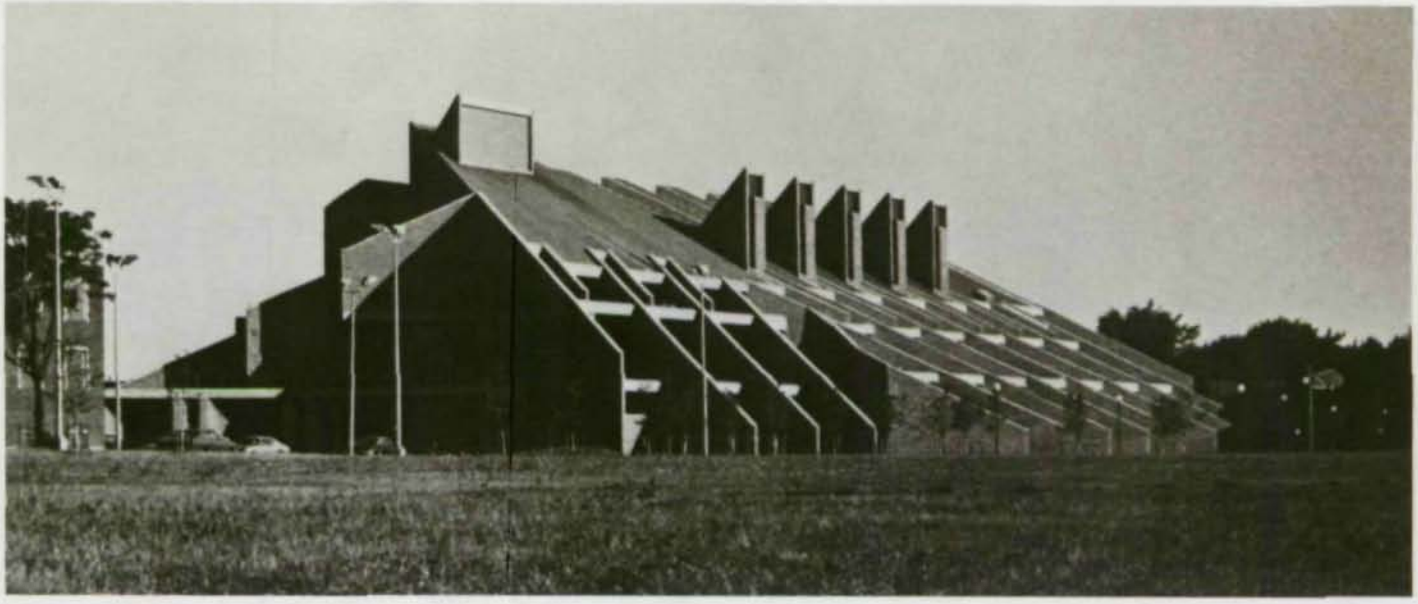
Considering the shallow depth requirement, a high strength steel framing system was selected and estimated to be the most economical means of construction. At most floors, horizontal mechanical piping and ductwork are accommodated through reinforced openings in the beam webs.

Interior column sizes were minimized through the design of specially fabricated steel box columns with maximum dimensions of 11-in. sq. The 4th through 6th floors of three of the buildings will contain 12-ft cantilevers overhanging the perimeter along West 28th Street. These cantilevers, achieved through the design of "structural welded trees," were fabricated two and three stories high.

To locate the athletic facilities adjacent to convenient areas, long span, high-strength steel box girders were used. A572 Gr. 50 steel was used in fully welded box girders spanning 100 ft over the gym to carry the 10-story classroom building above. Anticipated deflections were compensated for by cambering the girders.

A unique aspect of the project is the air rights bridge over West 27th Street that permits access between buildings located north and south of the street.

Dr. Charles H. Thornton is Senior Vice President—Engineering, Lev Zetlin Associates, New York, N.Y.



Niagara Falls Public Library
Niagara Falls, N.Y.

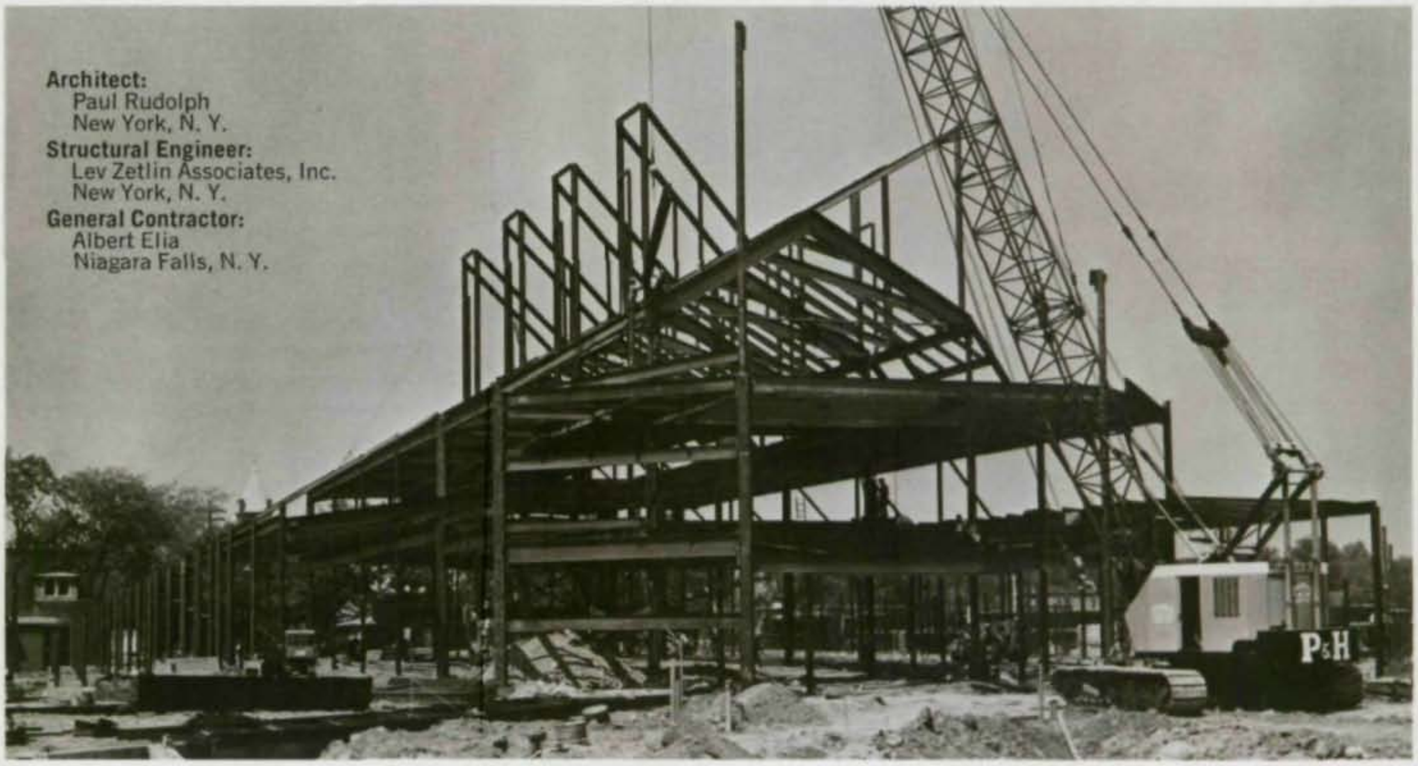
When first commissioned to undertake this library, the architect felt that reinforced concrete construction might be the best method of expressing the design concept. However, manpower shortages and lack of quality contract concrete work in the area made it more economical to go to structural steel.

The library's dramatic geometry stems from the A-frame type structure with receding horizontal planes of glass between the frames, stepping up to the sloping upper roof, which is penetrated by large vertical skylights to afford natural light to the building's interior.

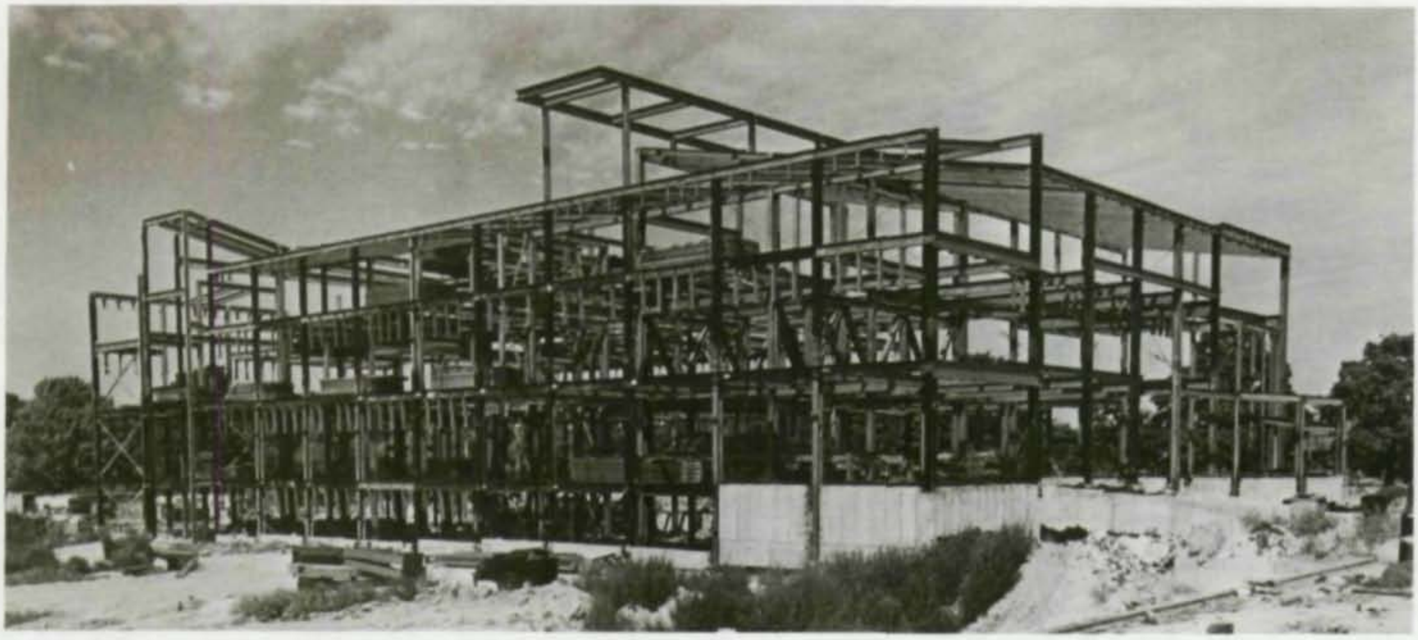
Thus, the geometry dictated the use of inclined, rafter-type, structural steel framing. Through the use of standard rolled shapes and simple bolted connections, combined with a tension tie rod across the open space, an economical framing solution was developed.

The entire structural steel frame is comprised of A36 steel. The only non-rolled sections were the several box members used for the large cantilevers on the perimeter of the building.

Since large portions of the building were cantilevered, deflection control of the frame was extremely critical. Special care was taken during construction to measure the elevation to assure that the horizontal alignment of the steel had been achieved.



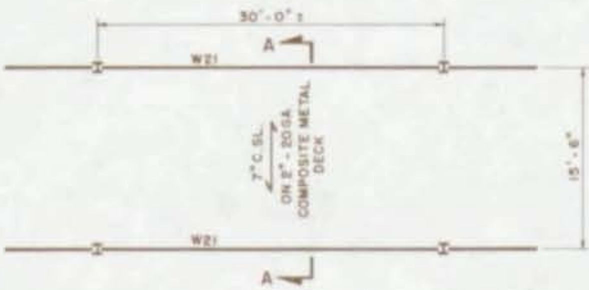
Architect:
Paul Rudolph
New York, N. Y.
Structural Engineer:
Lev Zetlin Associates, Inc.
New York, N. Y.
General Contractor:
Albert Elia
Niagara Falls, N. Y.



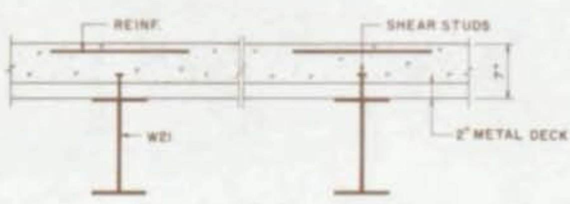
Natural Sciences Building
State University of N.Y. at Purchase

At first glance, structural steel framing for this building appears to be fairly conventional, a rectangular frame with steel columns, girders, and filler beams. However, in order to meet the architectural requirements and the mechanical-electrical systems in the building, it was necessary to eliminate all steel framing in one direction of the building. Through the use of long span metal deck with concrete topping, it was possible to allow the mechanical systems to run transversely across the building without being impeded.

With this concept in the design, close cooperation with the steel erector was necessary to insure that erection of the frame could be accomplished within AISC tolerances for plumbness, even without the transverse framing normally used to stabilize the members during construction. Special erection sequences required that the metal deck be placed immediately and be tack welded to the steel frame in order to assure this lateral stability.



TYPICAL PLAN

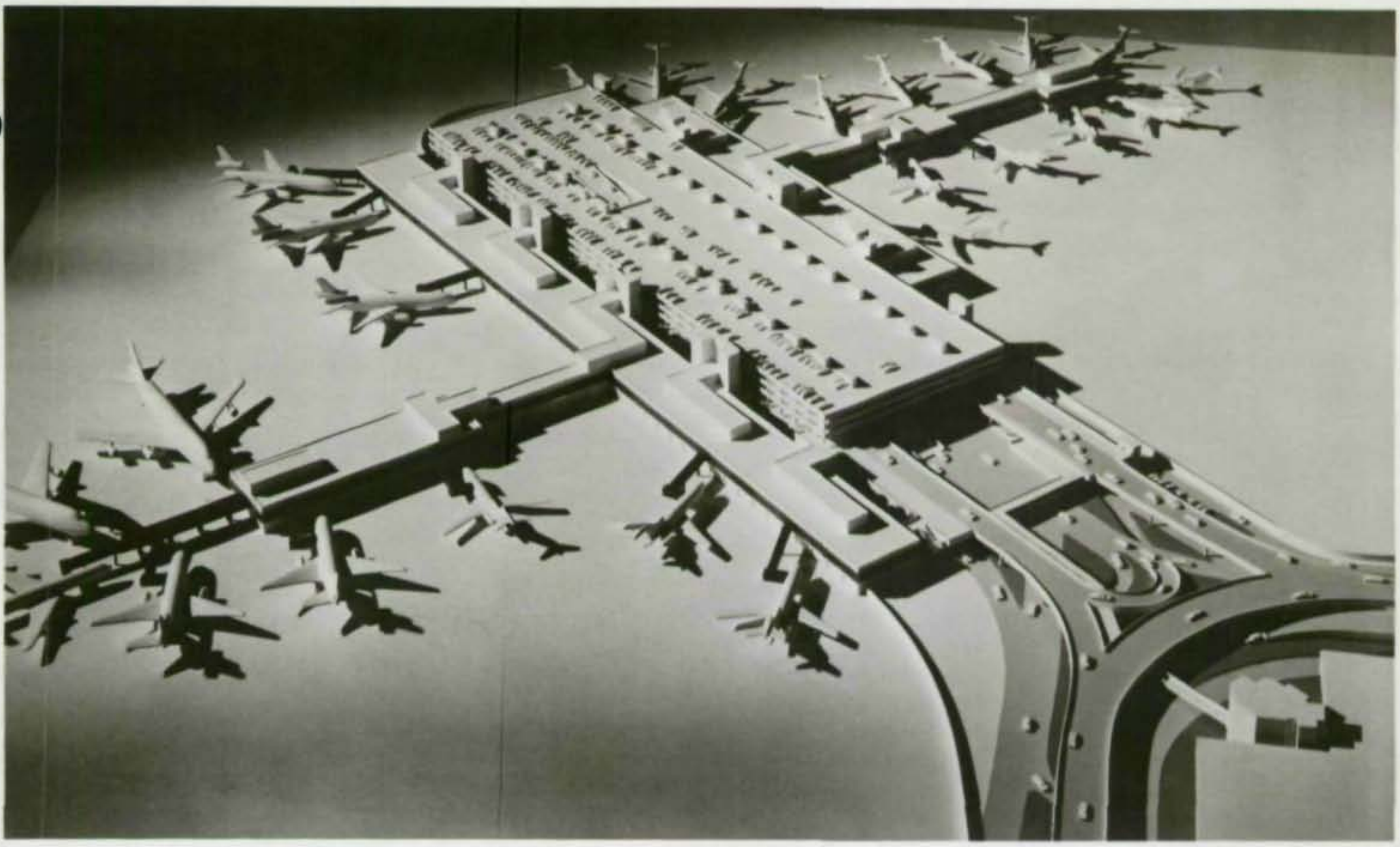


SECTION A-A

Architect:
Paul Rudolph
New York, N. Y.

Structural Engineer:
Lev Zetlin Associates, Inc.
New York, N. Y.

General Contractor:
Joseph L. Muscarelle
Maywood, N. J.



South Terminal
Logan International Airport
Boston, Mass.

The Massachusetts Port Authority and South Terminal Corporation, an affiliation of five domestic carriers, as joint owners of the South Terminal required the designers to come up with a terminal which would be one of the most economical major airline facilities undertaken to date.

To achieve this, the designers used 25-ft x 25-ft typical bays of A572 Gr. 50 steel with composite construction. Because of the Seismic Zone 2 designation in the Boston Building Code, ductile moment connections were provided throughout the structural steel frame.

The terminal (split into two buildings designated A and B) containing 25 gates and 400,000 sq ft of space on two levels, is an example of the economical, repetitive simple framing possible with structural steel.

Because of extremely poor soil conditions, 110-ft piles were driven to rock through soft, compressible "Boston-blue clay," resulting in an additional savings in overall steel weight.

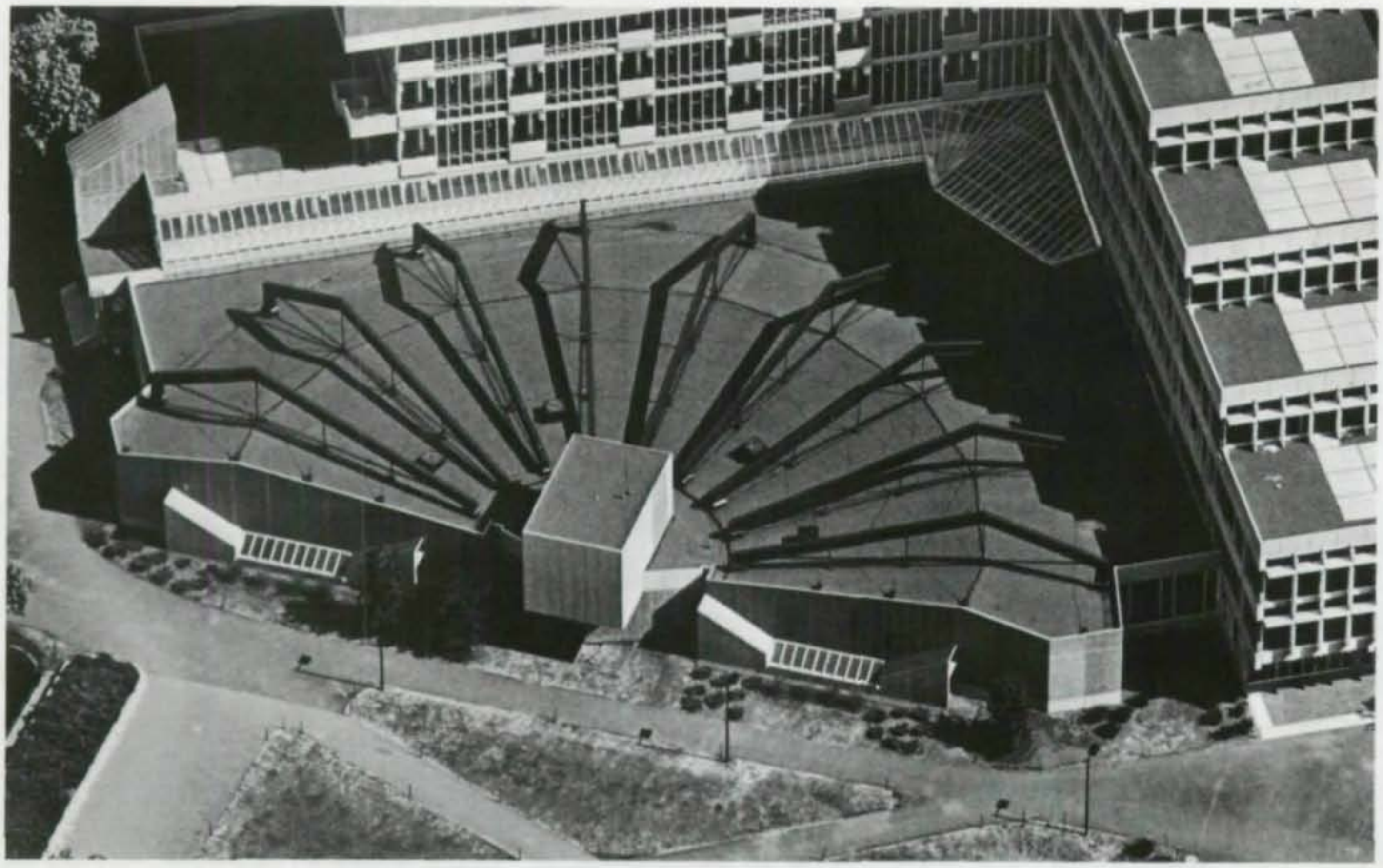
Terminal A and Terminal B flank a 1-million sq-ft, 3,000-car garage. Due to its size, fire protection was required by the Boston Building Code. In addition, the Massachusetts Port Authority wanted the garage compatible with the existing central garage; thus, prestressed concrete members were used for the floor. However, a combination of structural steel and precast was chosen for the girders and columns.

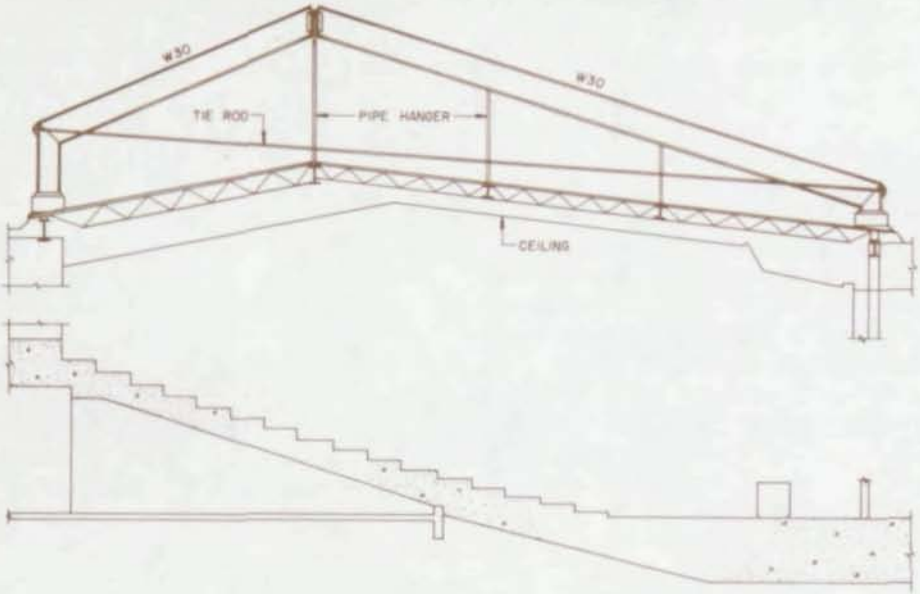
To achieve minimum column sizes and not lose parking spaces, A572 Gr. 50 steel columns were used throughout. These columns incorporated and utilized the ductility inherent in structural steel in resisting lateral forces on the heavy mass of the concrete garage.

The girder-to-column connections were simplified by having structural steel attachments cast into the ends of the precast girders. The whole garage is then tied together for lateral loads via a composite slab.

The project, now underway, was originally estimated at $46-million. Through the concerted efforts of the design team, it was finally brought in at $39.6-million with competitive bidding.

Architect: (A Joint Venture)
John Carl Warnecke
New York, N. Y.
Desmond & Lord
Boston, Mass.
Structural Engineer:
Lev Zetlin Associates, Inc.
New York, N. Y.
General Contractor:
Vappi & Co.
Boston, Mass.





Architect:
Sert, Jackson & Associates
Cambridge, Mass.

Structural Engineer:
Lev Zetlin Associates, Inc.
New York, N. Y.

General Contractor:
Turner Construction Company
Boston, Mass.

Steel Fabricator:
L. Antonelli Iron Works
Quincy, Mass.

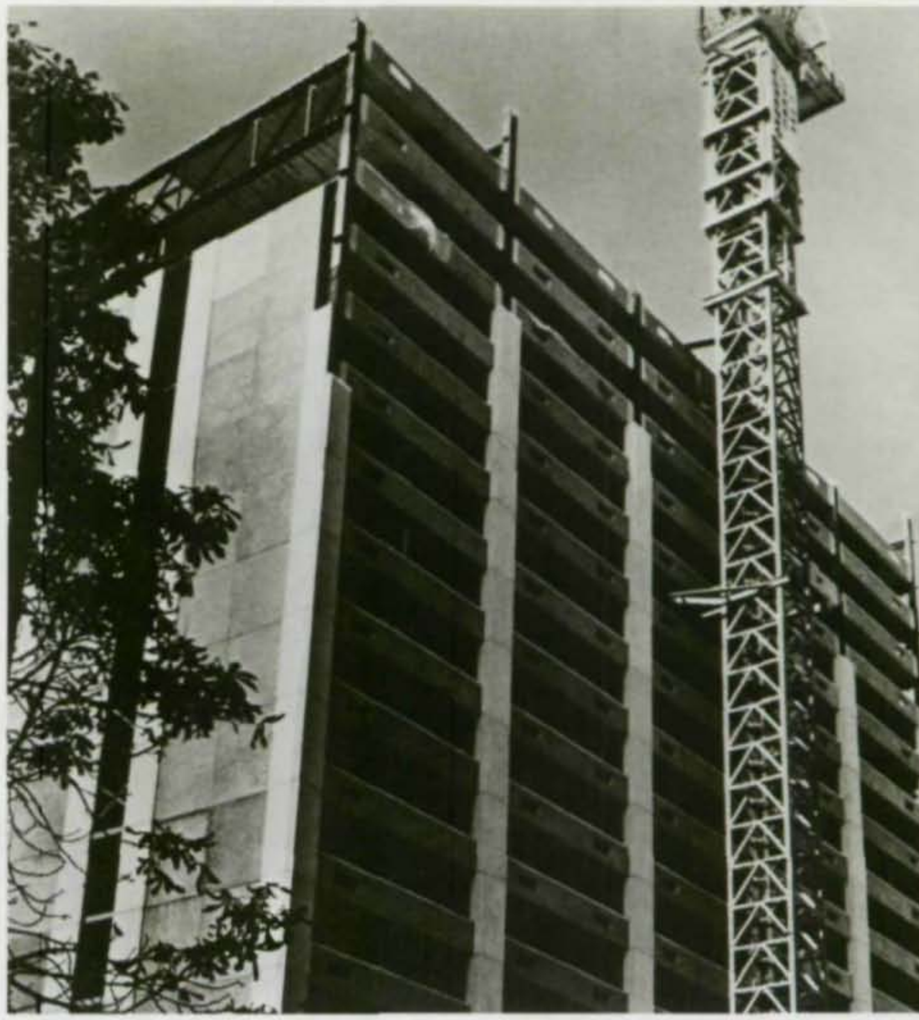
Lecture Hall
Undergraduate Science Center
Harvard University, Cambridge, Mass.

The Lecture Hall contains a unique, exposed weathering steel frame which extends above a simple hanging roof in a bold architectural expression. Semi-circular in plan, the hall has a radius of approximately 150 ft containing three lecture halls. Structural rigid frames use A588 steel. The typical frame has a galvanized tie rod at the base of the frame which contributed to reduction of steel weight.

Frames were assembled on the ground and then lifted into place, which minimized the amount of field labor and shoring required for erection. Galvanized high strength rods hang from the frames, carrying the rolled sections and open-web joists that comprise the suspended roof system for the entire lecture hall area.

In order to stabilize the rigid frames, which extend above the roof laterally, structural strand cables were utilized as X-bracing.

Methods In Steel That Speed Construction



The Skipcon system incorporates staggered steel trusses and precast lateral support beams.

by Leslie A. Barron
American Iron and Steel Institute

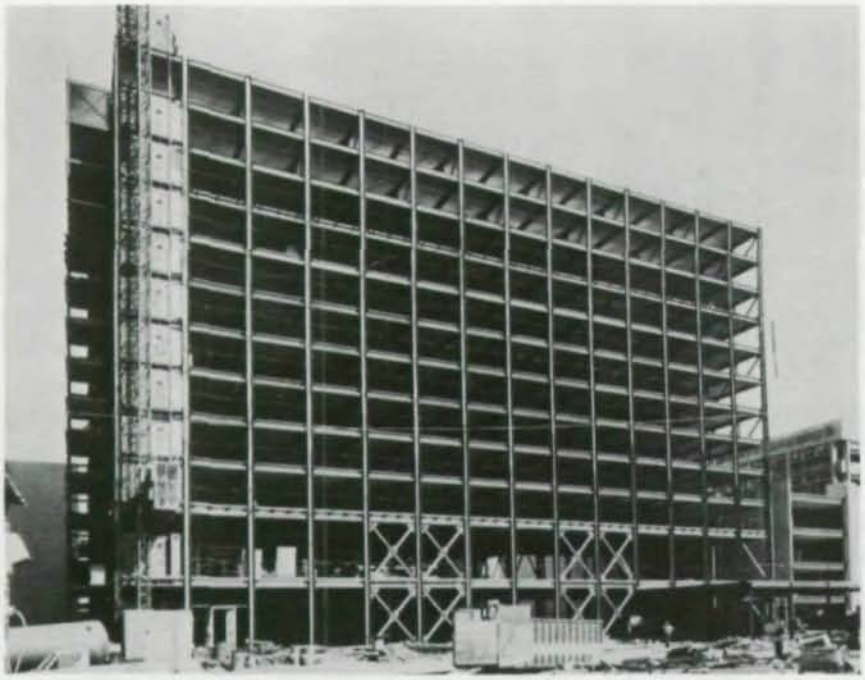
With speed more than ever at a premium, **steel construction is making constant progress in reducing building time.** Some late developments are steel frames for residential and hotel use; steel decking; insulated interior steel panels; and prefabricated plumbing "trees" serving up to 10 bathrooms each.

Since its first application in 1967, staggered truss design has now been used for some 20 apartment houses, hotels, motels, dormitories and other types of building. In its most recent use, this framing system has resulted in new reductions in construction time and costs. The system was initially conceived and developed by a research team from the Departments of Architecture and Civil Engineering at the Massachusetts Institute of Technology, headed by Professor Robert Hansen, and sponsored by the United States Steel Corporation.

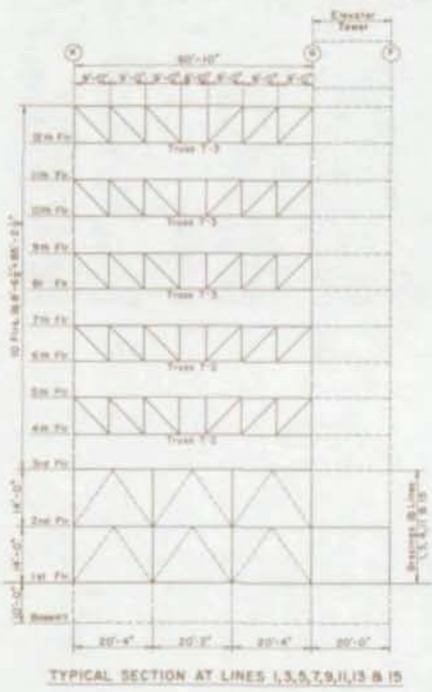
The design or architectural significance of this system, incidentally, is that the one-story-high trusses running from front to back in the building result in interior freedom from columns. The clear spaces on each floor are limited only by these trusses which alternate from floor to floor, so that all odd floors are identical, as are all even floors. These trusses have openings for corridors, doors and utilities. Each floor slab rests on top of one truss on one end and hangs from the bottom of the adjacent truss one story above. The system requires about 20 percent less steel than more conventional framing.

A system that incorporates the staggered truss technology and precast lateral support beams is Skipcon, which was developed by Skipcon Building Systems, Inc., a subsidiary of Shrenko Steel Corporation. It has the capacity

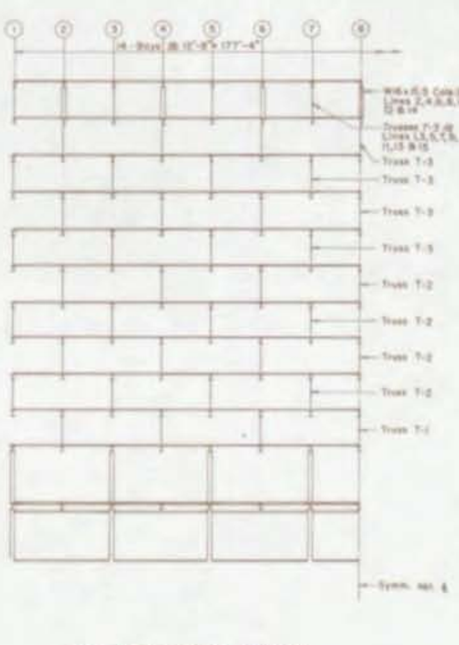
Reprinted with permission from the January 1974 issue of AIA Journal—official monthly magazine of The American Institute of Architects.



The staggered truss framing of the 12-story Ramada Inn, Los Angeles, was completed in six weeks.



TYPICAL SECTION AT LINES 1,3,5,7,9,11,13 & 15



HALF LONGITUDINAL SECTION
(Basement not shown)

to function immediately upon installation as both spandrel and exterior wall. Four apartment houses recently completed or now in the design stages in New Jersey have made use of this system, and each successive building has improved upon it.

Further, Skipcon uses advanced erection techniques which include a single, special tower crane erected just outside the center front of the building. This has a boom operator, a telephone man in a control room at the top level of construction and one at ground level. An Australian development sometimes referred to as the kangaroo, this tower grows with the construction and takes up less space on the ground than regular cranes, helping to ease traffic congestion at the jobsite.

The Skipcon technique was first used in a 24-story apartment building in Hackensack, New Jersey, where the design resulted in substantial direct savings and also significant time savings. The 207,000-sq ft building, by Eugene A. DeMartin, AIA, has 197 apartments and cost $3.5 million, including appliances and carpeting throughout, but not including the land.

After completion of this building in early 1973, the system was used for a much larger project, the 29-story Briarcliff Manor apartment house in Cliffside Park, New Jersey, also by DeMartin. Each floor has nine 28-ft bays for a total area of 17,700 sq ft; each floor was erected in only four days. A total of 100 working days will be required to top out the building.

Now in the design stage by the same design firm are two additional apartment houses in New Jersey, one in Passaic and one in Newark. Construction time of these will be cut about 20 percent by eliminating end trusses and making compensating adjustments.

In brief, the Skipcon assembly technique starts with the tower crane placing exterior columns on the foundation. This is a relatively light foundation, easier and faster to lay since the entire structure is lighter in weight. Then come two floors of steel trusses in the staggered pattern. The outermost cast floor planks are then installed for lateral strength, and a few are arranged in the inner area as well. High strength steels are used since the truss system resists major gravity and lateral loads directly; no additional support material is needed for drift control.

Precast spandrel walls are inserted between columns for lateral support. In the early assembly phase of each level, the spandrel wall and plank serve as a perimeter platform. The wall forms an immediate balcony rail that provides a safe working area and eliminates expensive temporary rail required by law.

Pratt trusses with Vierendeel panels are placed in the central corridor; the remaining planks are installed to complete the floor. They are grounded top and bottom (since no concrete topping is necessary) and smoothed for later carpeting on the upper surface and painting on the under surface (or ceiling) below.

At this point, the level below is ready for the interior trades to begin work. This occurs when the structural frame is in place three levels above. Finally, precast column covers and any precast exterior wall panels, other than the spandrel walls, are applied to complete the basic frame. This assembly procedure is repeated floor by floor until the building is topped out.

The top surface does not require a concrete topping and is acceptable for installation of carpet and/or an underlayment for tile or wood parquet flooring. The bottom surface is smooth and acceptable for sprayed acoustical paint.

Arthur Hassler, president of Skipcon, believes that his system has taken approximately one-third less time than former construction methods. In the future, he expects that time will be cut to one half.

Framing was completed in six weeks in the 12-story, 266-unit Ramada Inn in Beverly Hills, California. The architect, J. Stewart Stein, AIA, enjoyed almost complete design and layout flexibility. There are no interior columns on the truss-supported floors.

Columns were erected on opposite sides of the structure and connected across the building by one-story-high (8 ft-6¼ in.) shop-fabricated trusses, 60 ft-10 in. long. Steel decking was then installed to span and brace the trusses and to provide an immediate working platform for other trades. The deck served as a form and reinforcement for the concrete floor when it was poured. The 6¼-in. deep floor/ceiling sandwich helped minimize floor-to-floor height. As usual in staggered truss design, the floor system is supported alternately by the top chord of one truss and the bottom chord of the adjacent truss one level higher.

A central corridor was provided in the story-deep trusses by omitting a diagonal member from the central panel and reinforcing its horizontal chord members.

Net benefits to Ramada Inn Development Corporation because of this design: greater architectural flexibility, faster erection on a cramped jobsite, lower field labor costs, tighter budget controls and efficient fulfillment of Zone 3 seismic design requirements. Structural engineers were Kelly, Pittelko, Fritz & Forssen; the fabricator, Techni-Builders, Inc.

At Treasure Island, Florida, an eight-story staggered truss frame was put up in 12 days. The architect was Edward W. Hanson, AIA. And the 14-story, 230-room Howard Johnson Motor Lodge in Clearwater, Florida, with parking decks on the second, third and fourth levels, was started last June and topped out in early October. The structure, by Gordon Johnson, AIA, will be ready this spring.

Prefabricated insulated steel panels are essentially three-in-one combinations of exterior wall, insulation and interior wall.

The architectural manager of the building products firm, H. H. Robertson Company, James W. Boyd, recently said: "Today, about 30 percent of the metal walls put up in this country are made of these prefabricated, three-part structures. Seventy percent are assembled at the jobsite from separate walls and insulation. Within a three-year period, we anticipate a reverse situation with up to 70 percent of all metal walls constructed from the steel prefabs."

Many types of structures are excellent prospects for these panels: light industry plants, warehousing and distribution centers, schools and colleges, hospitals and suburban office buildings, airport terminals and hangars.

The panel components vary greatly. The outer ply, or exterior surface, is usually galvanized steel in thicknesses from 0.0276 to 0.0516 in. Maintenance-free weathering steel and a porcelain-enameled finish on galvanized or aluminized steel are also available.

Surface profiles can either be flat or ribbed. Architects seem to prefer the flat surface where they have cubes to work with and can incorporate such design effects as bevels and chamfers. Conversely, deep-ribbed exteriors can produce an interesting variety of shadow highlights.

Three coating systems are possible to top the galvanized surface: fluor-carbon paint finish, a silicone-modified polyester paint, or a multilayered protected metal system (asbestos felt impregnated with a waterproof sealant and a modified polyester coating on the surface).

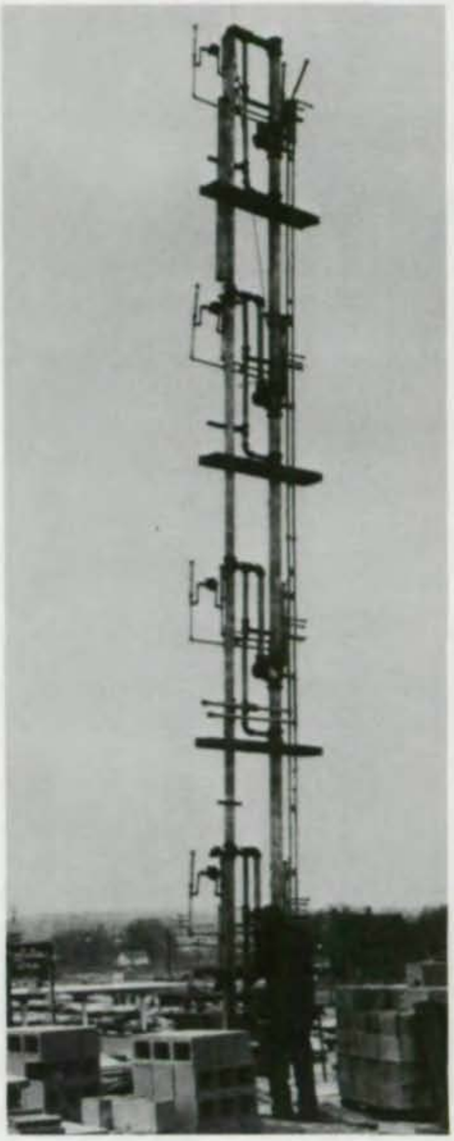
All of these prefabricated panels help speed construction because of their structural strength (two thicknesses of steel), which may eliminate or reduce the need for horizontal support. And the cost is less. These building units offer a per-sq-ft construction price of $3 to $6 completely installed. Fastening is done with self-tapping stainless steel screws to structural supports, with fasteners completely concealed within the tongue-and-groove side joints.

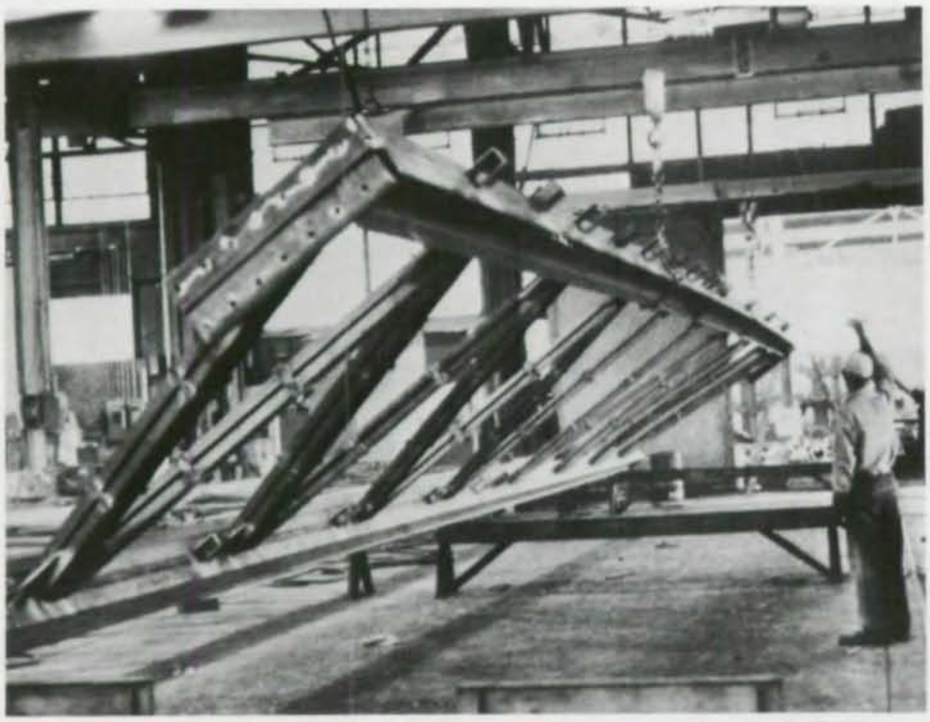
A prefabricated steel pipe plumbing system, including water, waste and vent lines, has been developed and patented by the Zien Plumbing & Heating Company. It is a single plumbing tree that can serve as many as 10 bathrooms at a time, two each on five floors. So far this system is available only in the Midwest and West.

The plumbing trees are cut, threaded, assembled and strapped, and tested in a shop. They are stored until needed, then trucked to the jobsite and lowered into place by a crane. Size of the tree is restricted only by transportation limitations.

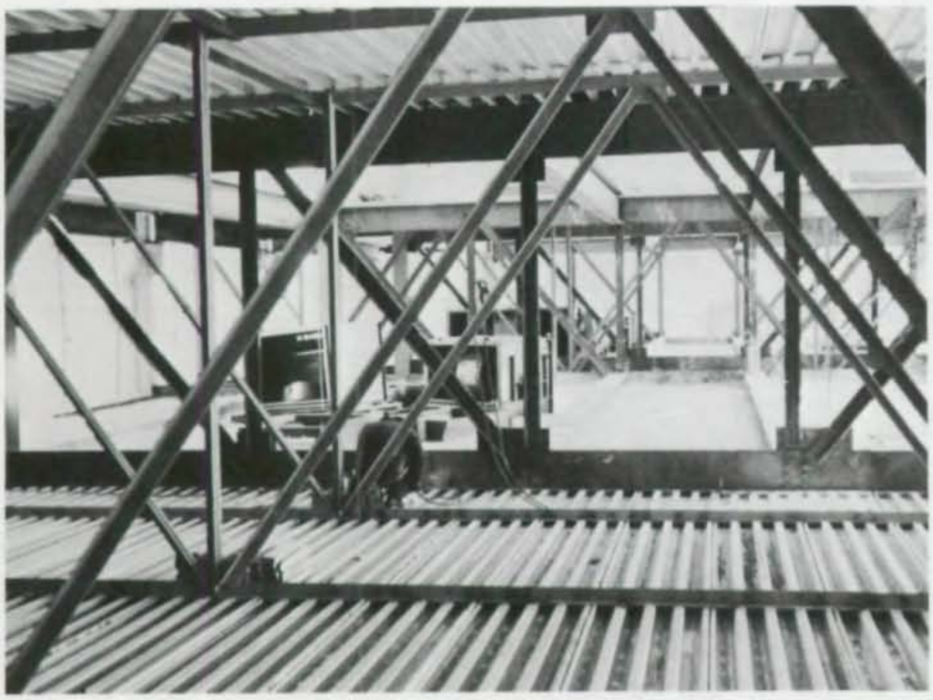
In the first year after development, which was in 1970, more than 3,000 installations were made in townhouses, condominiums, lowrise and apartment houses. The crowning achievement for this system was its use in a Milwaukee Ramada Inn by Sheppard, Legen, Aldrine, Ltd., a 200-room motor lodge completed in late 1973, six months ahead of schedule. Total construction time is reduced since no other work waits for the plumbing; the trees are prefabricated and possible on-site delays due to weather are eliminated.

The Dietz prefabricated plumbing system includes water, waste, and vent lines.





Shop fabrication of the staggered trusses for the 24-story apartment building in Hackensack, N. J.



Construction time can be significantly reduced in hospitals designed with interstitial space.

The use of interstitial space for hospital construction can mean significant time savings. One of the nation's most modern children's hospitals and one that has incorporated all major construction innovations in its field is the $50-million addition to the National Medical Center in Washington, D.C. This, by the Leo A. Daly Company, is scheduled to be in operation in mid-1974. It incorporates the following: an all-structural steel frame; true interstitial construction, where hospital care levels are alternated with mechanical/utility levels; galvanized steel decking on all floors, with a cellular system on the mechanical/utility levels for electrical supply and air conditioning.

The addition incorporates more than 500,000 sq ft of usable space on the four above-ground levels. The same area is provided in the service level plus three levels below ground for vehicular traffic and parking.

The advantage of interstitial hospital construction, as far as speed is concerned, is that all mechanical and utility work can be done on separate floors at a separate time concurrent with work on the patient floors.

Another hospital points up these time savings in broader perspective: Greenpoint Medical and Mental Health Center in Brooklyn, New York, by Kallman & McKinnell. Here, interstitial design was employed partly because this enabled the architect to use phase bidding. Working drawings for each trade were completed in the same order as the construction sequence.

Mechanical and electrical bids did not go out until many months after the structural steel bids. Half of the mechanical and electrical work went out in a lump sum contract, and this was for the fixed major pieces of equipment and the primary distribution systems such as cooling towers, boilers, air handling units, primary piping runs, etc. The other half of the mechanical and electrical bids went out on the basis of estimated quantities with the contractors supplying unit prices.

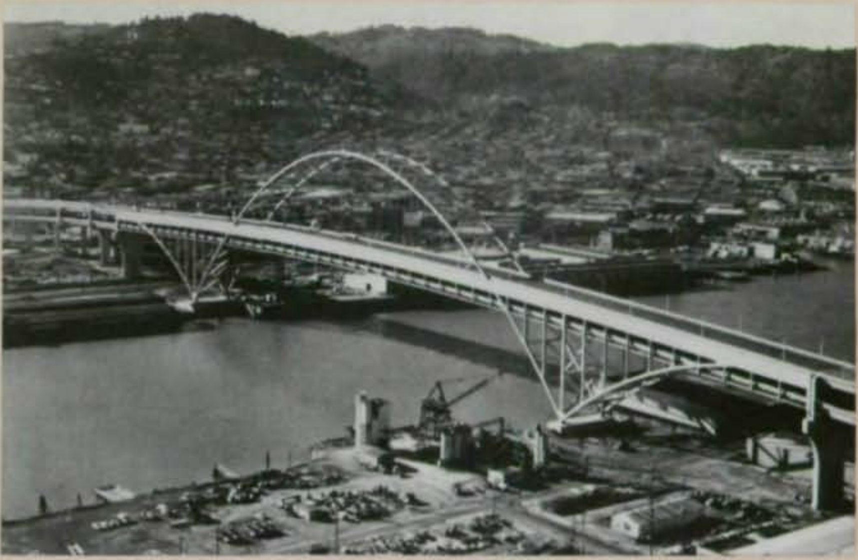
At one point two years ago, the structural steel would have been approximately 50 percent erected, but no final architectural plans or mechanical layouts would yet have been issued to the subcontractors.

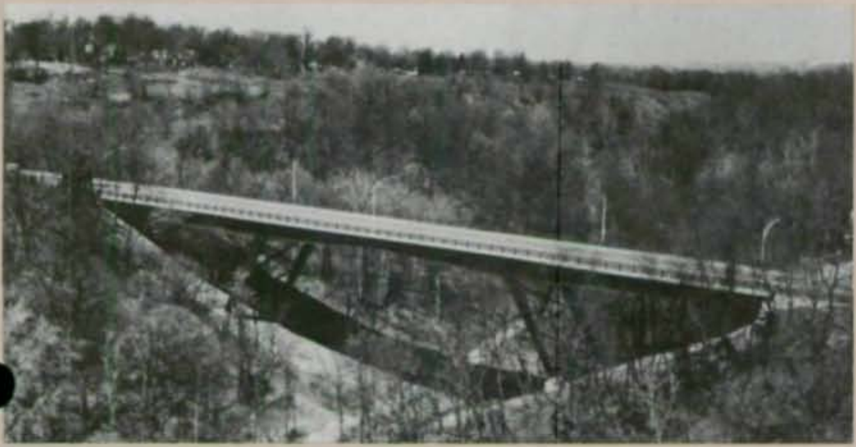
Such a scheduling method as used for Greenpoint is particularly useful for hospitals, which are notorious for the length of the planning-to-construction phase. By allowing construction to begin before the final layout, the architect estimates that he gained more than a year during which planning of Greenpoint continued as the structure was being erected.

Other developments underway that will help speed steel construction range from research work to optimize fillet welds all the way to major computer programs for planning and designing skyscrapers.

The steel industry, steel fabricators, contractors, construction companies and the architectural profession are all moving forward to reduce construction time and cost even further, while still achieving aesthetic buildings.

1974 PRIZE BRIDGES





PRIZE BRIDGE 1974 — LONG SPAN

Fremont Bridge
Portland, Ore.

Designer: Parsons, Brinckerhoff, Quade & Douglas, Inc.
Owner: Oregon Department of Transportation
Architectural Consultant: Harrison & Abramovitz
General Contractor: Murphy Pacific Corporation
Fabricators: American Bridge Division, United States Steel
Murphy Pacific Corporation
Erector: Murphy Pacific Corporation

PRIZE BRIDGE 1974 — MEDIUM SPAN, HIGH CLEARANCE

Forbes Avenue Bridge Over Fern Hollow
Pittsburgh, Pa.

Designer: Richardson, Gordon and Associates
Owner: City of Pittsburgh
General Contractor: Conn Construction Co.
Steel Fabricator: Conn Fabricating & Engineering Co.
Steel Erector: Conn Construction Co.

PRIZE BRIDGE 1974 — MEDIUM SPAN, LOW CLEARANCE

Chattahoochee River Bridge
SR 219, Troup County, Ga.

Designer: John J. Harte Associates, Inc.
Owner: Georgia Department of Transportation
Architectural Consultant: Dept. of the Army,
Savannah Corps of Engineers
General Contractor: Tidwell Construction Company
Steel Fabricator: Bibb Steel & Supply Company, Inc.
Steel Erector: Tidwell Construction Company

PRIZE BRIDGE 1974 — SHORT SPAN

Service Road Bridge Over Railroad
Trinidad Lake, Colo.

Designer: William H. Benton
Owner: Dept. of the Army,
Albuquerque Corps of Engineers
General Contractor: Clement Brothers Company
Steel Fabricator: Western Steel Company
Steel Erector: Clement Brothers Company

PRIZE BRIDGE 1974 — HIGHWAY GRADE SEPARATION

Rabbit Valley Interchange
Mesa County, Colo.

Designer: Colorado Dept. of Highways
Owner: Colorado Dept. of Highways
General Contractor: Engineered Structures, Inc.
Steel Fabricator: Burkhardt Steel Company
Steel Erector: Engineered Structures, Inc.

PRIZE BRIDGE 1974 — ELEVATED HIGHWAYS OR VIADUCTS

Ramp "Q" Structure
Chicago, Ill.

Designer: Cook County Highway Department
Owner: Cook County Highway Department
Architectural Consultant: Knoerle, Bender, Stone and Associates
General Contractor: J. M. Corbett Company
Steel Fabricator: Pittsburgh-Des Moines Steel Company
Steel Erector: J. M. Corbett Company

PRIZE BRIDGE 1974 — MOVABLE SPAN

Miller-Sweeney Highway Bridge
Between Oakland & Alameda Counties, Calif.

Designer: McCreary-Koretsky International, Inc.
Owner: U.S. Army Engineer District
General Contractor: Hensel Phelps Construction Co.
Steel Fabricator: Kaiser Steel Corporation
Steel Erector: Kaiser Steel Corporation

PRIZE BRIDGE 1974 — SPECIAL PURPOSE

Pedestrian Overpass Over Galvin Road
Bellevue, Nebr.

Designer: Nebraska Department of Roads
Owner: City of Bellevue
General Contractor: Peter Kiewit Sons' Co.
Steel Fabricator: Paxton & Vierling Steel Co.
Steel Erector: Peter Kiewit Sons' Co.

AWARD OF MERIT 1974 — LONG SPAN

Interstate 10 Over Whiskey Bay Pilot Channel
Iberville Parish, La.

Designers: (Joint Venture)
Barnard and Burk
Howard, Needles, Tammen & Bergendoff
Owner: Louisiana Department of Highways
General Contractor: Dravo Corporation
Steel Fabricator: Bethlehem Steel Corporation
Steel Erector: Bethlehem Steel Corporation

AWARD OF MERIT 1974 — MEDIUM SPAN, HIGH CLEARANCE

Lake Creek Bridge
Park County, Wyo.

Designer: U.S. Dept. of Transportation, Federal Highway Administration
Owner: U.S. Dept. of Transportation, Federal Highway Administration
General Contractor: Weyher Construction Company
Steel Fabricator: Western Steel Company
Steel Erector: Weyher Construction Company

AWARD OF MERIT 1974 — HIGHWAY GRADE SEPARATION

Durbin Interchange
South of Fargo, N. Dak.

Designer: North Dakota Highway Department
Owner: North Dakota Highway Department
General Contractor: James J. Igoe & Sons
Steel Fabricator: Hassenstein Steel Company
Steel Erector: James J. Igoe & Sons

AWARD OF MERIT 1974 —

I 91 Over S.A. #9 (NB & SB Twin Bridges)
Lyndon, Vt.

Designers: Blauvelt Engineering Co., Vermont Highway Department
Owner: Vermont Highway Department
General Contractor: Caledonia, Inc.
Steel Fabricator: Bancroft & Martin, Inc.
Steel Erector: W. W. Wyman, Inc.

AWARD OF MERIT 1974 — ELEVATED HIGHWAYS OR VIADUCTS

Bruckner-Cross Bronx Expressway Interchange
New York, N.Y.

Designer: Howard, Needles, Tammen & Bergendoff
Owner: New York State Department of Transportation
Architectural Consultant: A. Gordon Lorimer
General Contractor: Slattery Associates Inc.
Steel Fabricators: Chicago Heights Steel, Division of Allied Products Corporation; Pittsburgh-Des Moines Steel Company; Vincennes Steel Division, Novo Corporation
Steel Erector: Karl Koch Erecting Co., Inc.

AWARD OF MERIT 1974 — SPECIAL PURPOSE

Bankers Life Pedestrian Skyway
Des Moines, Ia.

Designer: Tinsley Higgins Lighter & Lyon
Owner: Bankers Life
General Contractor: Wm. Knudson & Son, Inc.
Steel Fabricator: Pittsburgh-Des Moines Steel Company
Steel Erector: Pittsburgh-Des Moines Steel Company

AWARD OF MERIT 1974 — SPECIAL PURPOSE

Pedestrian Bridges No. 1, 2, and 3
Spokane, Wash.

Designer: John Graham and Company
General Contractor: Robert B. Goebel
Steel Fabricator: The Coeur d'Alene Company
Steel Erector: Crane Service Inc.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION
1221 Ave. of the Americas • New York, N.Y. 10020

Address Correction Requested

1974 Special Award of Recognition

The James B. Eads Bridge, which spans the Mississippi River at St. Louis, has been named by AISC for a Special Award of Recognition. The Bridge was cited for its "outstanding historical significance." Often called the "grandfather of modern bridges with steel arches," it was the first of its kind in many ways. It was the world's first alloy steel bridge and, in fact, the first important construction in steel. It was the largest bridge of any type built up to that time. It was the first to use tubular chord members and the first to use the principle of the cantilever with no falsework for the building of the superstructure. The Eads Bridge is still in good condition and is serving railroads and vehicular traffic more than 100 years after its dedication on July 4, 1874.