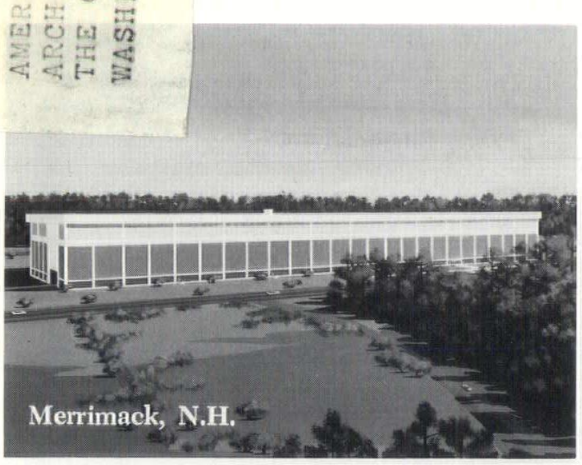
new england Architect

& NEW HAMPSHIRE ARCHITECTURAL REVIEW

February
1973



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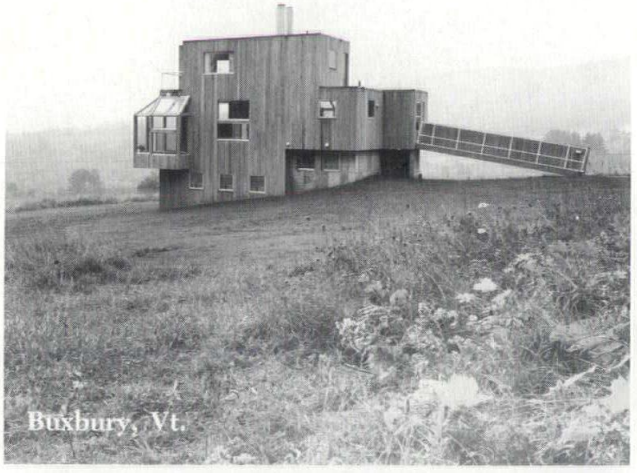
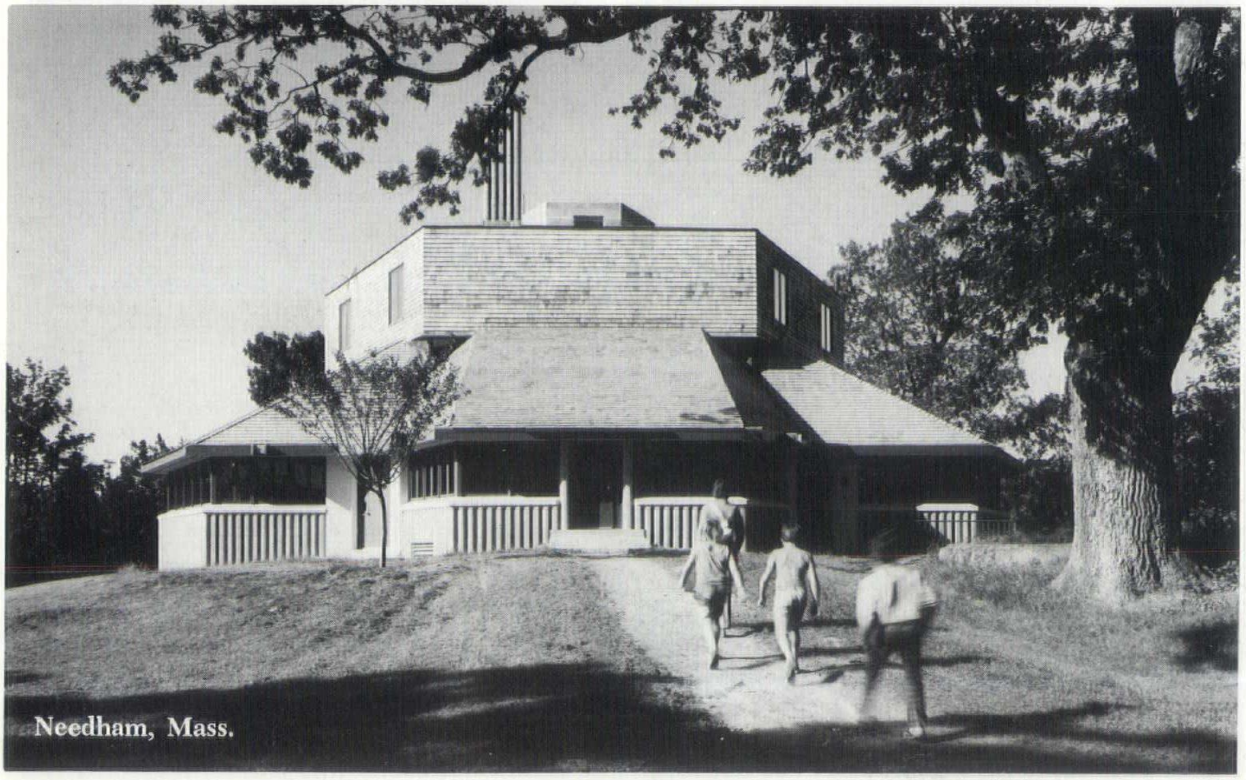


Buxbury, Vt.



Needham, Mass.

Without electricity, some American businessmen could still survive.

If you took a half hour or so, you could probably think of several businesses that don't depend very much on electricity.

But the easier job would be listing companies that do—companies whose very existence depends on a reliable source of electric power. The kind of company you probably work for.

And right now, your company and the electric utility industry face a problem. The energy crisis.

Today, the demand for electricity isn't just increasing—it's exploding.

Our best projection is we're going to need twice the power capacity we have right now in just 10 years. Twice. And by 1990, who knows?

Obviously, fulfilling this demand is going to be a difficult task. Just as obviously, fossil fuels aren't going to be able to do the job alone. Oil and gas are in short supply already. And they're irreplaceable. As for nuclear plants, there just aren't enough of them yet. And alternate power resources such as magnetohydrodynamics and solar energy are in the research stage.

What this adds up to is a problem. A problem we're trying to solve right now. By planning for new plants. By designing a balanced power supply system—that will provide the electricity we need without doing serious injury to our environment.

To do the job, we need something from you. Your support. Your understanding.

The economy of New England has a lot riding on the outcome. And so do you.

Boston Edison Company
Massachusetts Electric
Eastern Utilities Associates and Subsidiaries
New England Gas and Electric System Companies

new england Architect

& NEW HAMPSHIRE ARCHITECTURAL REVIEW

February 1973 Volume 3 Number 8

features

departments

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NOTES & COMMENTS

Fauteux Elected President Of Massachusetts State Association

Jacques Fauteux, AIA, of Holden, Massachusetts, was recently elected President of the Massachusetts State Association of Architects at the Association's annual meeting.

Jacques M. Fauteux

Mr. Fauteux is a partner in the Architectural firm Dingman-Fauteux and Partners, Worcester. He has previously served the Massachusetts State Association of Architects as Vice-President and as a Director. He has served as President of the Central Massachusetts Chapter AIA, serves on the Historical District Study Committee for Holden, the Downtown District Association as a Director and has served on the Worcester Micah Board of Directors.

Mr. Fauteux was born in Montreal, P.Q., Canada. His father was the late Dr. Mercier Fauteux, a pioneer in open heart surgery. His uncle, Gerald Fauteux, is the present Chief Justice of the Supreme Court of Canada.

Spiegel Named Honorary Associate Of Connecticut Society of Architects

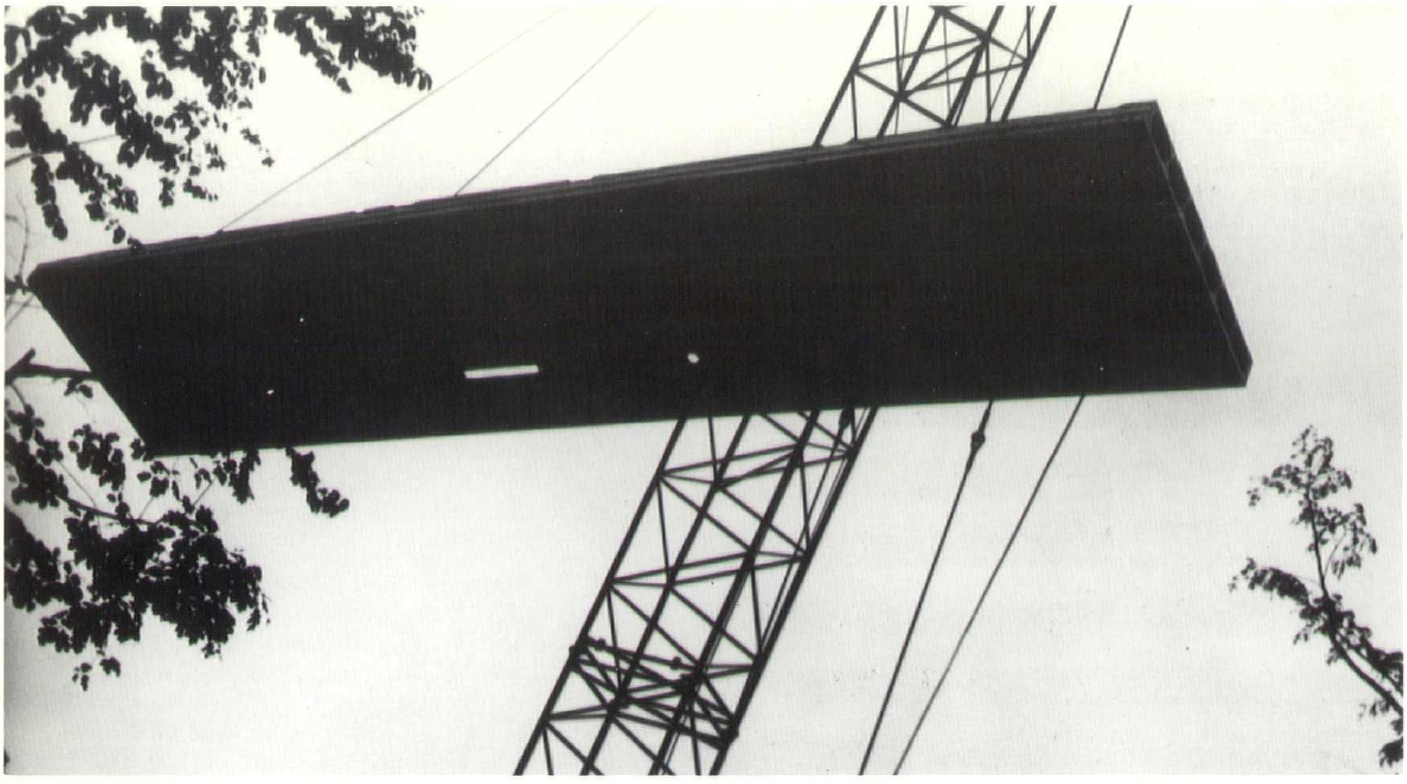
The Dean of the Yale School of Architecture, Herman D.J. Spiegel, has been named an Honorary Associate of the Connecticut Society of Architects.

Herman D. J. Spiegel

Dean Spiegel is the fifth person to be named to the position in the society's 69-year history, according to Peter Borgemeister, the Society's Executive Director, and was given the position as "a man of esteemed character who has rendered the profession of architecture signal and valuable service . . . and has conspicuously upheld its aims." The award was made at the annual meeting of the architects' society at the Choate School in Wallingford.

Dean Spiegel assumed leadership of the University's architectural program in 1971, and has been a member of the Yale faculty since 1955. He is also well-known for his structural engineering work with the firm of Spiegel and Zamecnik, where his often ingenious solutions to architectural problems have won him numerous awards for individual projects.

Born December 31, 1924 in Boston, Dean Spiegel received his B.S. degree from the Rhode Island School of Design, and his Master of Engineering degree from Yale. He became a full Professor at Yale in 1969, and



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SPAN-DECK COMBINATION CEILING AND FLOOR PANELS

Span-Deck is a hollow core, pre-stressed, reinforced concrete building panel. Because the reinforcing is pre-stressed, Span-Deck has a very high load-bearing to weight ratio. It can be used in concrete bearing wall systems.

For combination ceilings and floors Span-Deck is two-sided; strong stone concrete on the floor side and in the core walls, and light weight textured concrete, which has excellent acoustical properties, for the ceiling side.

For walls, the stone concrete is used for both sides. However you use them, Bancroft and Martin delivers Span-Deck panels in the right order, ready for erection, with weld plates, special reinforcing, cutouts and pipe chases.

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Notes: *(Continued from page 2)*

served from 1970 to 1971 as Acting Dean of the Faculties of Design and Planning in the School.

Previous recipients of the Honorary Associate post are: Charles Cunningham of the Art Institute of Chicago; former Yale Architecture Dean Gibson Danes; attorney Carmine Lavieri; and former New Haven Mayor Richard C. Lee.

Rotch Traveling Scholarship Exercise To Be Held In April

The preliminary exercise of the two-stage competition to select the eighty-fourth Rotch Travelling Scholar will be held early in April, 1973. Eligibility rules require that applicants must be American Citizens under thirty-one years of age on March 10, 1973, whose architectural record includes study or experience of required times and degree in Massachusetts.

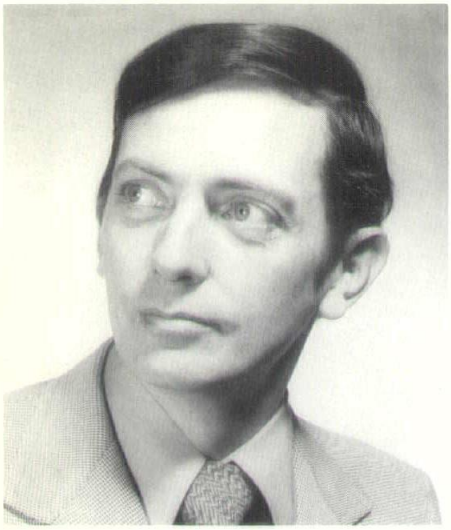
A detailed statement of eligibility requirements and application forms may be obtained in writing to: Hugh Stubbins, Secretary, Rotch Travelling Scholarship Committee, 1033 Massachusetts Avenue, Cambridge, Massachusetts 02138, before Thursday, March 8, 1973.

All applications are due in the Secretary's office Thursday, March 22, 1973. The scholarship stipend for the year 1973 will be $8,500.

T. W. Murphy Named Project Co-Ordinator For Russell Gibson vonDohlen

Thomas W. Murphy has been named project co-ordinator for the Pittsfield, Massachusetts office of Russell Gibson vonDohlen, Inc., West Hartford based architectural firm. According to the announcement by Murray O. Gibson, President of Russell Gibson vonDohlen, Inc., in Pittsfield, Mr. Murphy's primary responsibilities will include project administration and co-ordination between the firm's Pittsfield and West Hartford offices.

"The appointment of Mr. Murphy to the newly created position of project co-ordinator," explained Terry R. Hallock, partner-in-charge of the Pittsfield office, "is a direct reflection of the extensive growth and development of the firm during the past year. The addition of Mr. Murphy to the Pittsfield staff will facilitate an inter-office exchange of talent and capabilities which should prove beneficial to each office in providing a full range of complete architectural services."



Thomas W. Murphy

Mr. Murphy joined Russell Gibson vonDohlen in 1965, serving first as a job captain and moving up to the position of project architect. Earlier he was with the firm of Eero Saarinen as an assistant job captain.

Asphalt Conference Set for April 18th

The Lowell Technological Institute, Lowell, Mass., in cooperation with the Asphalt Institute and several New England Highway and Public Works organizations is hosting the Third Annual New England Asphalt Paving Conference this Spring.

The Conference will be held at Lowell Technological Institute, Lowell, Mass., on Wednesday, April 18, 1973.

Parker Street 470

The Parker Street 470 Gallery in Boston, which has been expanding its services to architects, particularly with regard to installations in public buildings, was recently awarded two contracts to act as major consultants for assembly and installation of art works for new buildings.

The contract with the Essex County Bank is for their new office in Peabody, Mass. The Madison Square Garden Hotel Corporation has contracted for the art in their new **O'Hare International Tower** at Chicago's O'Hare Airport.

The Parker Street 470 Gallery is at 470 Parker St., Boston, Mass.

Trees Joins Community Design Services

Douglas F. Trees has joined Community Design Services as an Architect. Community Design Services is a subsidiary of Kuras & Co., Inc., a diversified firm that provides planning, financing and development services for all segments of the real estate industry.

Prior to joining Community Design Services, Mr. Trees was an Associate with Earl R. Flansburgh and Associates in Cambridge, Mass. He has also been a partner in Acock, Trees & White in Columbus, Ohio. Mr. Trees has taught architecture in the Royal Academy of Fine Arts in Copenhagen and worked with two Danish architectural firms.

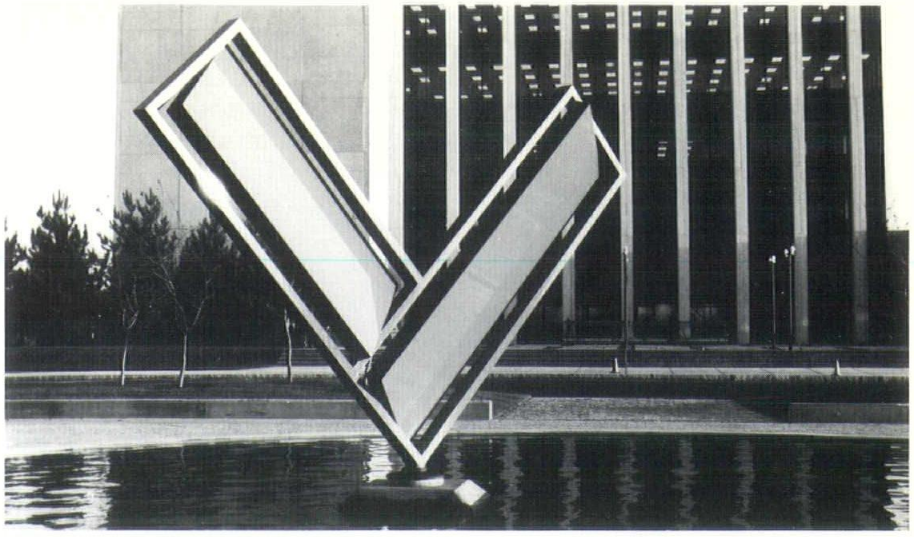
Mr. Trees was awarded a Bachelor of Architecture degree by Ohio State University.

AISC Announces Parking Deck Booklet

"Steel Parking Decks" is the title of a new publication announced by the American Institute of Steel Construction.

This new booklet describes 13 parking structures recently constructed in various regions of the United States and provides a summary of construction costs for each structure. The physical characteristics of each parking structure are given in terms of parking capacity, floor area, building dimensions, ramp system, stall size and angle, number of parking levels, and framing system used. The

(Continued on page 6)



"Windhover" is the name of the bright red, aluminum wind sculpture designed by Robert Amory III of Belmont, Massachusetts, which completes the New England Executive Park Mall in Burlington, Massachusetts developed by Spaulding & Slye. Standing 12 feet high by 18 feet wide, the work (aluminum finished with polyurethane enamel) lends scale to the new Middlesex Bank designed by Welton Becket & Associates of New York. The sculptor participated with Landscape Architect Scott Teas, of Cambridge, who was retained by the developers to do the Mall, in the site planning and design for the total mall environment.

Notes: *(Continued from page 5)*
booklet is a useful guide for architects, engineers, owners, and financial institutions in their planning of parking structures. Copies are available on request from AISC regional offices or from their headquarters at 101 Park Avenue, New York, N.Y.

BAC Announces Spring Courses

A series of courses for architects and other buildings professionals will begin on March 12 at the Boston Architectural Center. Course topics will include:

- **"What To Do Until The Lawyer Gets There,"** Carl Sapers, esq. of Hill & Barlow.
- **"Computer Applications in Architecture,"** Timothy Johnson of MIT.
- **"Lighting And Architecture,"** John Birdsey & William Lam.
- **"Mechanical System Noise & Vibration Control,"** Eugene Bard of Hankins & Anderson.
- **"HUD Environmental Procedures: Housing,"** Sheldon Gilbert of HUD.
- **"Transportation Facilities Location & Environmental Planning,"** Richard Simonian of C. E. Maguire.
- **"Contract Documents,"** Paul Donovan of Conmatan Inc.
- **"Air Pollution,"** Dave Gordon of Resource Planning Associates.

"Computer Applications in Architecture" will explore both current and emerging applications of computers in architectural design and project management through lectures, field trips, and demonstrations. Topics will include information retrieval, simulation, synthesis, analysis, testing and perception aids.

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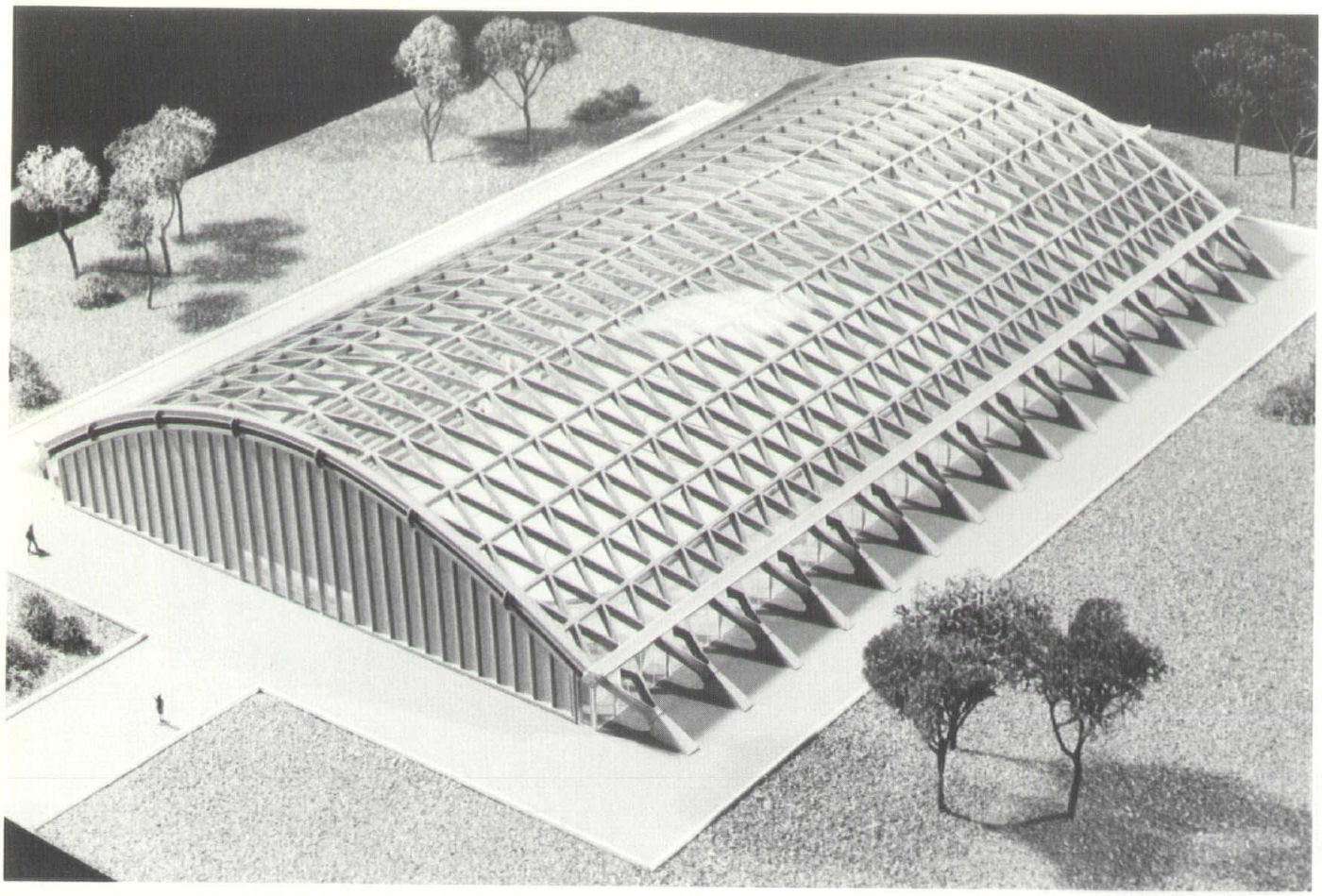


Dartmouth College Ice Arena and Auditorium designed by Pier Luigi Nervi

ON THE DRAWING BOARD

CONSTRUCTION of a new $3,750,000 multi-purpose ice arena and auditorium starting in the spring has been announced by Dartmouth College President John G. Kemeny.

The building, designed by Pier Luigi Nervi, Italian architect-engineer who has been called a "poet in concrete" and who also designed the huge Leverone Field House built at Dartmouth 10 years ago, will seat 3,700 to 3,800 persons at hockey or basketball games and, with the addition of seats on the floor, has a capacity of more than 5,000 for convocations or special events.

Although somewhat smaller in its dimensions, the new ice arena and auditorium will be in effect a companion to the Leverone Field House, utilizing the same arching roof of precast reinforced concrete in a web design employed by Nervi to cover the field house's more than two acres of indoor practice fields.

The arena-auditorium will contain three levels, with a standard-sized hockey rink surface, 200 by 85 feet, situated 18 feet below grade like the pit of an amphitheater, surrounded by 3,800 seats in oval tiers. The rink surface is designed to accommodate a portable basketball floor, providing an alternate site to Alumni Gymnasium where Dartmouth now plays its basketball games.

Acoustics will permit the building to serve also as a site for convocations or other such events, for pop and rock concerts, and, in inclement weather, as an alternate site for commencements, usually held on the lawn in front of Baker Library.

A second, or intermediate, level will include separate varsity and freshman dressing rooms and a visiting team dressing room, plus two more dressing rooms oriented toward the outside so that for the first time teams customarily using Chase Field for practice and games will have shower and other facilities there.

The structure also will include training rooms, offices for coaches, skate sharpening facilities, a lounge, a public dressing area for youth and other community ice activities, storage and work areas and provisions for concessions and rest rooms at both ends of the building.

A parking area for 350 cars will be adjacent to the arena in conformance with Hanover town ordinances.

THE WALKER HOME AND SCHOOL

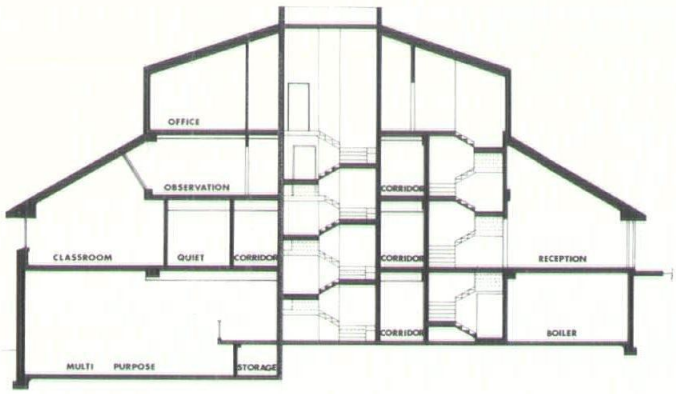
Needham, Mass

Henry Hardinge Menzies
Boston

WHEN architect Henry H. Menzies was commissioned to design a new school for the Walker Home for emotionally disturbed children, the problems were relatively complex: To plan a School and Treatment Center for youngsters who do not like school or treatment; to create a teacher training facility where at times the teacher must be out of sight; to build flexible classrooms with a sense of order; to add a warm, domestic atmosphere at a scale congenial to children while meeting mandatory institutional requirements — in short, to build a school that isn't a school, but something much more.

(For comparison with the original design prepared by architect Menzies see BAY STATE ARCHITECT February, 1970.)

The Walker Home and School has grown rapidly during its first decade in response to the needs of troubled, angry children and in response to the questions of those who struggle to help them. When Walker opened its doors in 1961,



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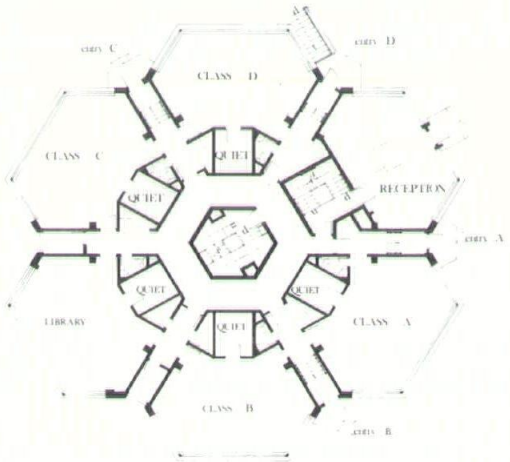
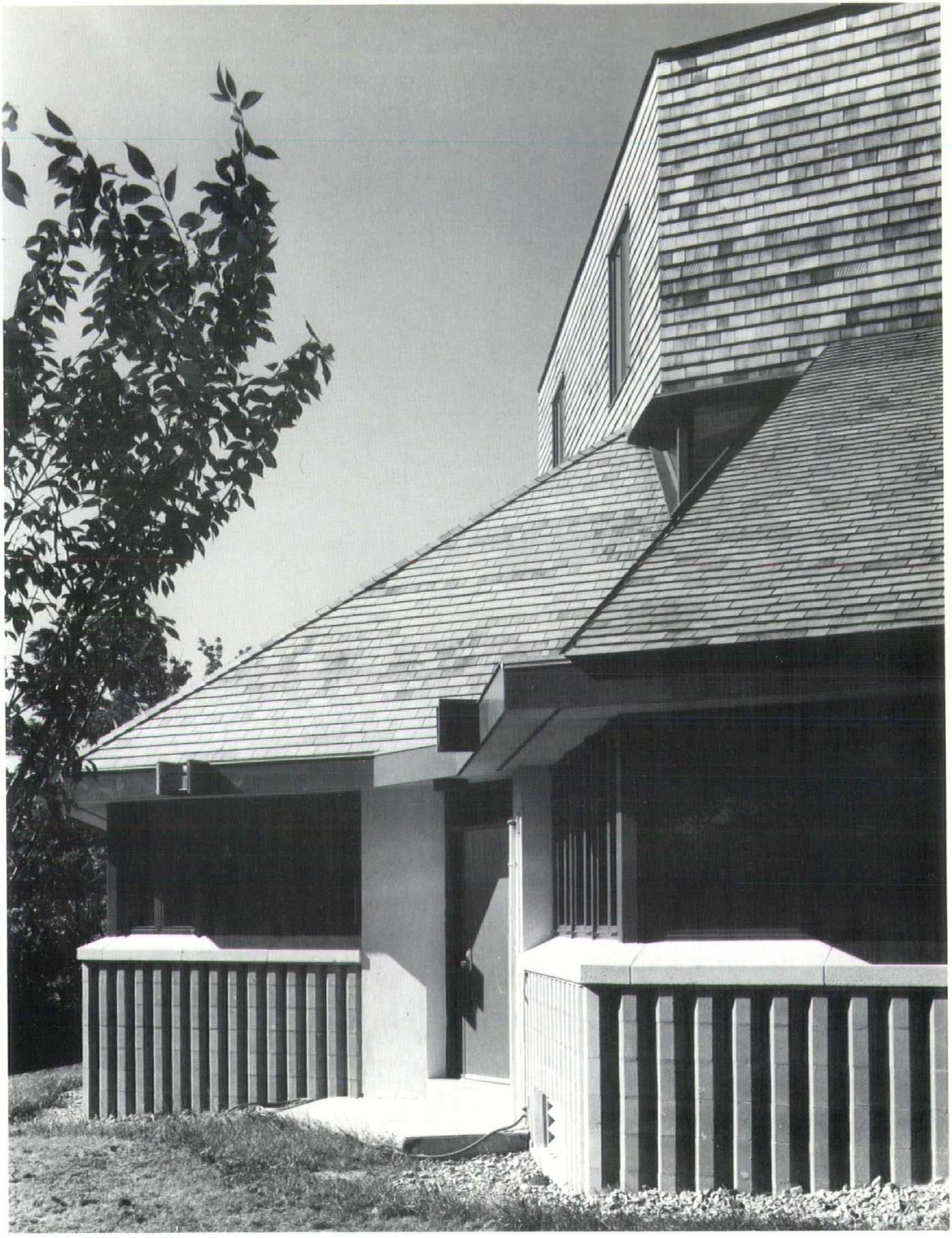


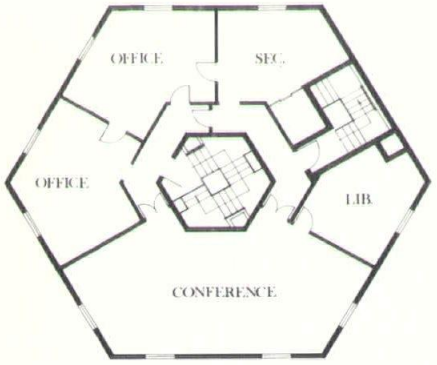
Second Level

there was a staff of three child care workers, one teacher, a cook, and maintenance man, with Dr. A. E. Trieschman to care for eight children. Now the dedicated staff of 25 serves 45 children and another 55 in community programs.

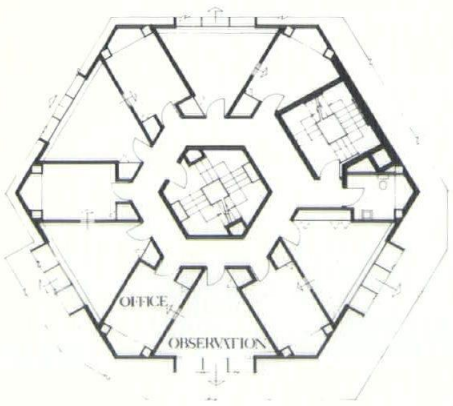
"The new educational facility greatly enhances our ability to spread the benefits of Walker's experience in helping troubled youngsters to cope with daily living," says Harry W. Baughman, president.

The site contained six acres of beautifully wooded land on a gradually inclined knoll with a commanding view of the Charles River. Existing buildings included the old Walker homestead, which was first used as a convalescent facility for children in the late 1940's, a fine garage and a small school house. "We put the School and Training Facility into one building at the crest of the knoll and the Treatment Center (Living Unit) at some distance in a position at the end of the entry road," Menzies said. "We decided on two buildings to





Fourth Level



Third Level

avoid a forbidding institutional appearance and to give the residential children 'a home of their own' distinct from the school."

To meet the unusual requirements, the architect chose an unusual shape — the hexagon. The four-story school building has a central hexagon around which radiate six modular hexes. By building up rather than out, space was left for more playground and yard. The central hex contains stairs, and is lit by a large skylight at the roof allowing light to flow down to all levels. This arrangement eliminates long corridors, allows easy circulation horizontally and vertically, and provides display areas for exhibits around its blank walls.

The form of the polygon building avoids the ordinary boxy "brutalism" of many ordinary schools, and expresses the kind of domestic scale Menzies sought.

On the first floor are the common and service spaces: Multi-Purpose, Arts-Crafts, Dining, Kitchen, Utility and Storage. The second level contains four classrooms, a Library and the General Office. The unusual shape permits each classroom to have

The problem of unseen teacher and trainee observation into all classrooms was solved by placing a "balcony" on a third level with views down into all classrooms through one-way mirrors.

its own vestibule entrance and playyard. The vestibules also provide a kind of "decompression" area between the outer and inner school world. Each classroom unit also contains one large room with adjacent Quiet Room and toilet. Flexibility is also assured by means of a movable 30-inch storage blackboard which can be arranged by the teacher to create either one large instructional area or two areas — classroom and work room. No long corridors separate the classrooms from each other.

The problem of unseen teacher and trainee observation into all classrooms was solved by placing a "balcony" on a third level with views down into all classrooms through one-way mirrors. These observation areas can also be used for the projection of movies, slides, and other graphic presentations. The third and fourth levels contain the Staff Areas. On the third level are small offices for case workers, social workers, and counselors. The fourth level contains offices for the Director, the Associate Director, plus a Staff Conference Room and a small professional library.

The Living Unit will include nine single bedrooms, an office, visitors space, arts-crafts, living area, dining, kitchen, and recreation.

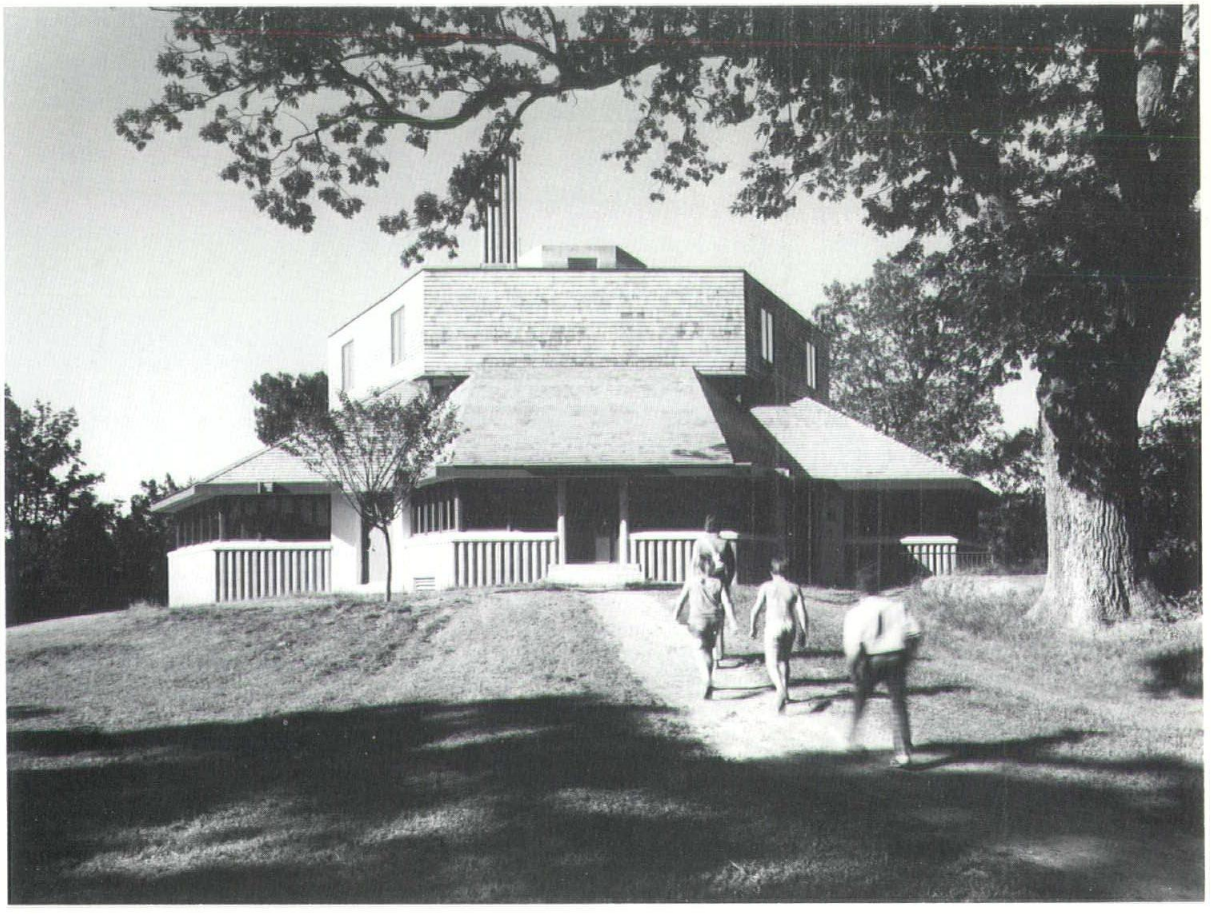
General Contractor: J. M. Construction Co., Needham, Mass.

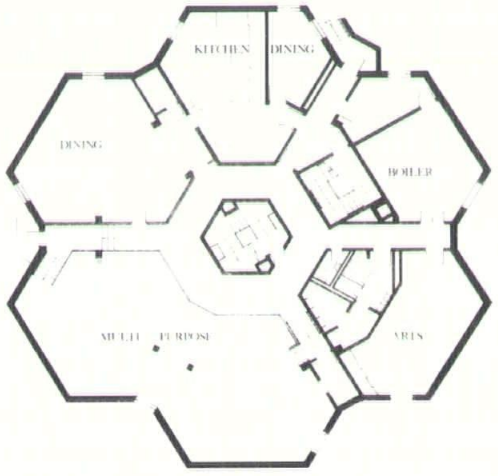
Structural Engineer: Weidemann, Brown, Inc., Cambridge, Mass.

Mechanical Engineer: Barstow Engineering, Inc., Boston, Mass.

Electrical Engineer: Charle L. DeVoe Co., Lexington, Mass.

Kitchen Consultant: William Sullivan, Littleton, Mass.





First Level

The brightly colored Multi-Purpose Area was designed primarily for fun, games and plays performed by children who often have to be taught how to relax while learning "how to cope."

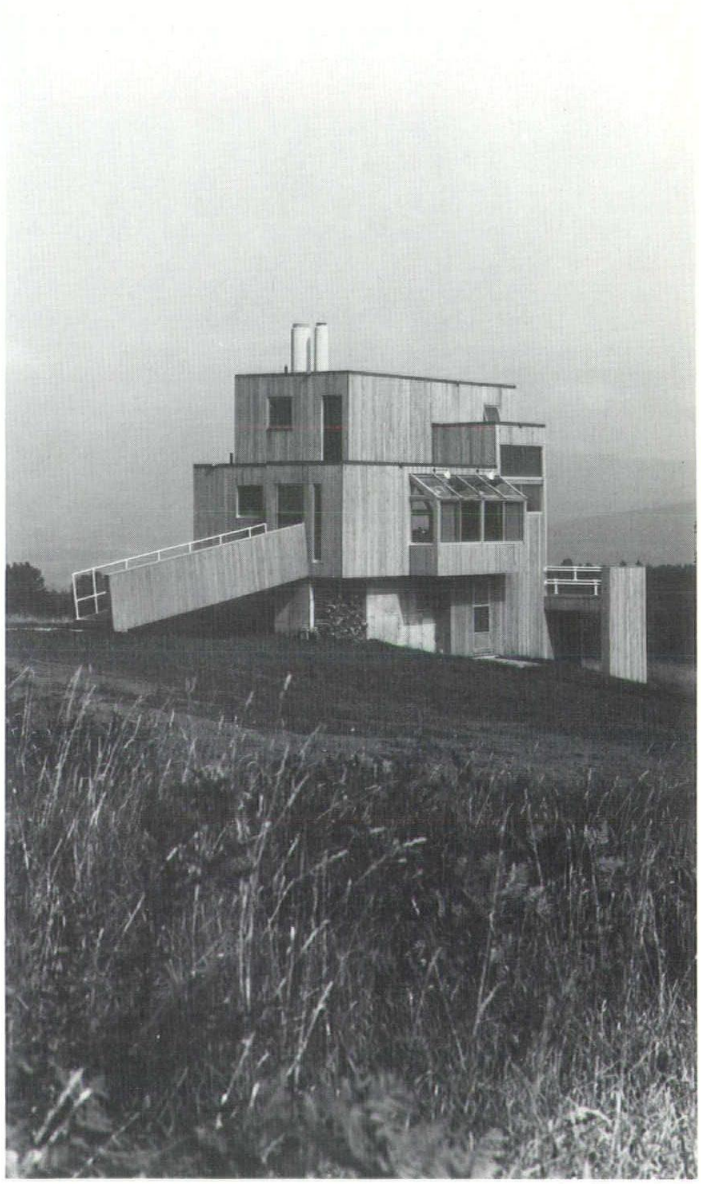
BENJAMIN TAYLOR

THE Benjamin Taylor house is located in Duxbury, Vermont, on the west slope of a valley with a long view across the valley to a distant range of mountains to the east and north. It is sited in a large 50-acre open field, about 150′ from the edge of a dense forest growth.

Conceptually the house was designed on three levels, with living spaces on the mid-level, master bedroom on the top level and guest bedrooms on the lower level. As the design developed, the levels shifted, lowering the living room by one-half level to make it a story and one-half high space and the lower level split half levels to fit into the hillside better.

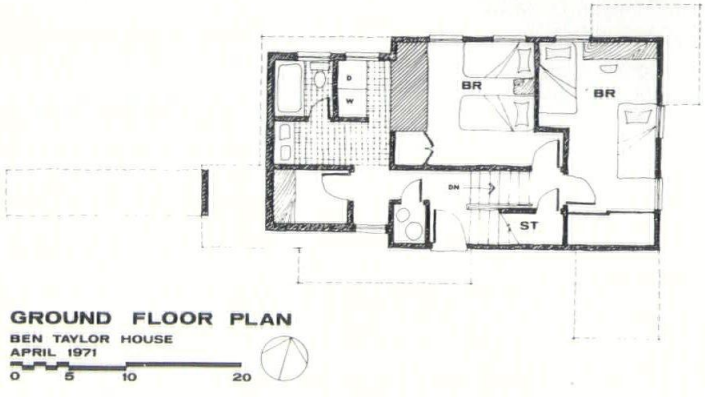
Entry is at the uphill side of the house, via a bridge to the mudroom, kitchen and dining areas. From the entry area one goes down half a level to the living room. All these spaces are open to one another visually, yet because of the change in heights and their arrangement in the plan, each has its own character. Both the dining room and the living room have large, glass roofed, bay windows, cantilevered outside the shell of the house.

All walls – inside and out – are cedar boards. Outside they are finished with a bleaching oil to weather silvery gray. Inside they are finished with a clear sealer. Floors on the ground floor are a glazed red-orange quarry tile, uniting the entry, kit-



HOUSE

BUXBURY, VT.



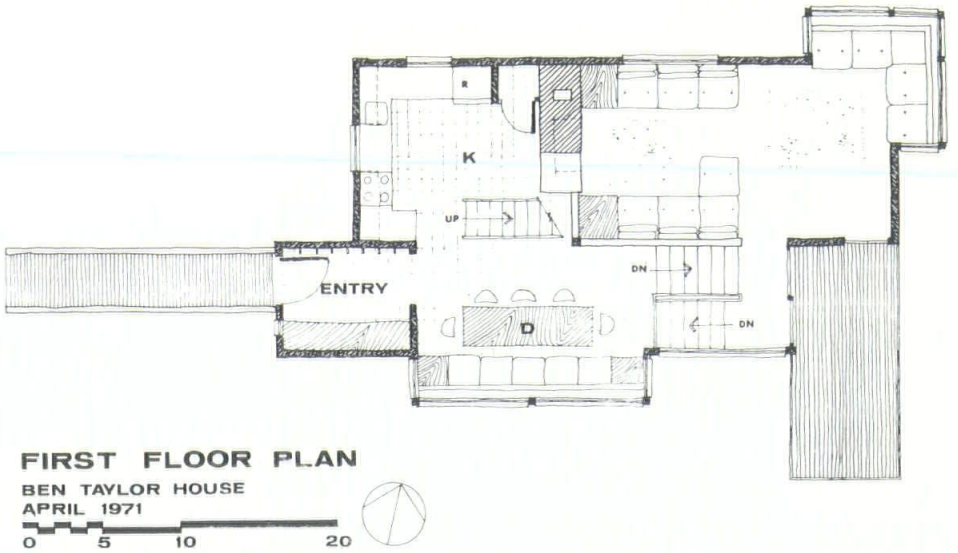
chen and dining areas. The stairs and the living room floor are oak. The bedrooms are carpeted. All materials are natural earth tones, with all the colors on built-in wood furniture, cabinets and fabrics. Framing and structure is all standard stud and joist construction.

All interior furnishings and materials were selected or designed by the architect. Cabinets and casework, in deliberate contrast to the siding materials, are painted in very glossy, bright colors. The dining table and chairs are natural wood and rush in an attempt to play down an area which is also a transitional space. The living room has a built-in sofa with side tables on two walls that is painted a glossy deep red, filled with cushions covered in a highly patterned small scale, red, orange, purple and brown fabric. A shag rug in the same colors is on the floor. Built-in cushions in the bay window and a leather covered lounge chair and ottoman, used for conversational flexibility, complete the living room. The kitchen cabinets are painted a bright glossy pur-

Brett Donham

Boston

The living room has a built-in sofa with side tables on two walls that is painted a glossy deep red, filled with cushions covered in a highly patterned small scale, red, orange, purple and brown fabric.



FIRST FLOOR PLAN
BEN TAYLOR HOUSE
APRIL 1971
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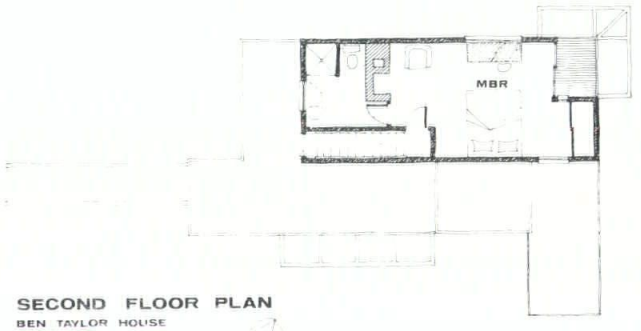


SECOND FLOOR PLAN
BEN TAYLOR HOUSE
APRIL 1971
0 5 10 20

ple. Little drapery is used; rather the outdoor areas are fully lit with concealed flood lights and down lights are positioned above the bay window roof glass, so that the black glass normally associated with night does not exist. The bedroom floors carry out the same idea, with basic natural materials and colors for the architectural shell and bright glossy colors for the doors and the cabinet work. The beds are a combination of natural wood and bright colored panels. Windows are shielded with roll-up wood slat shades, left natural.

Several factors shaped the design, aside from the usual considerations of the orientation to the view and access. One was to raise the house so as to improve the view across the valley. The zoning by means of the building section was to a great extent determined by the program.

Another design factor was a very limiting budget (in relation to the program) so that the main living spaces were all opened up visually one to another. A great many people can be accommodated in the house in the various parts of the living zone, yet they are all part of the same space.

With the main view (and therefore, the living room location to the north and east, getting direct sun light into the living room was a design goal. This was done by means of the stepped section and the high windows above the open stair well.

Another set of factors, less physical in nature, also shaped the design. Set in the midst of a vast hillside of field grass, the house was to be a distinctly man-made object, contrasted with nature, yet growing out of it; a quality of confrontation, yet relating to the land seemed important. Some of the abandoned barns and rural out-buildings of Vermont have that same quality and it is that, more than specific forms, that make a structure belong in a place. A wooden ship afloat on a sea of grass.

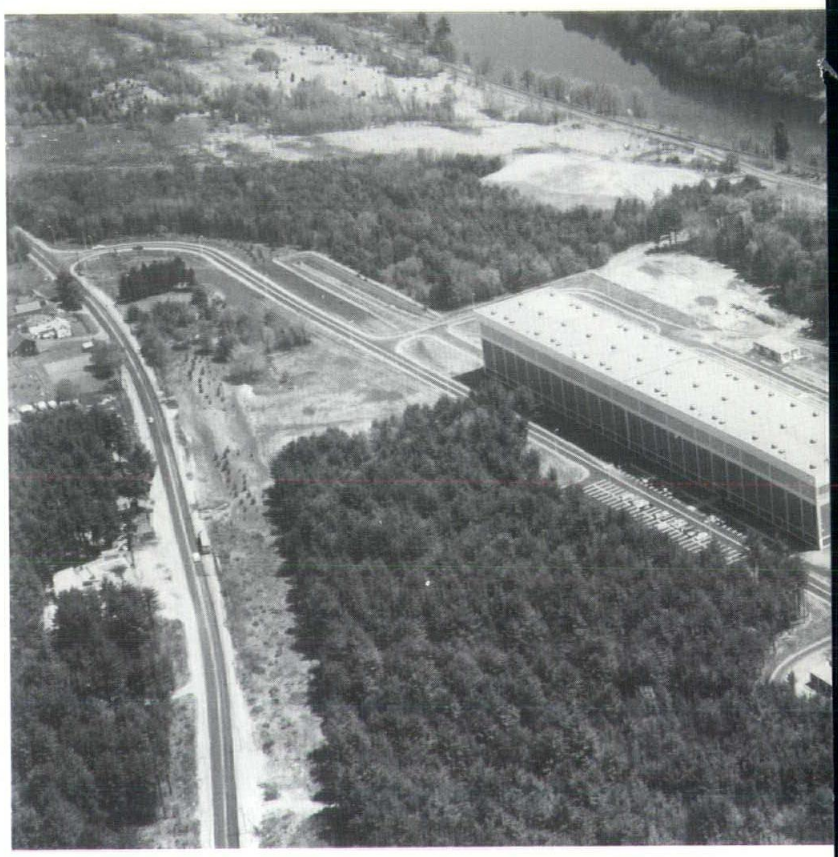
GENERAL ELECTRIC

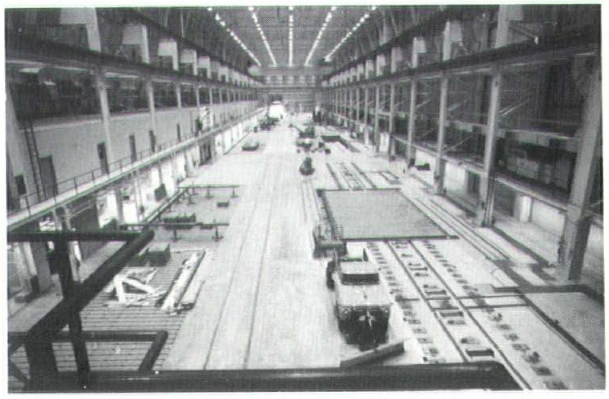
MAINTAINING an unspoiled environment poses increasing problems for manufacturing operations. The challenge is especially severe for existing facilities built prior to today's era of ecological concern. So, when a company sets out to construct a plant literally from the ground up on a new site, it has an excellent opportunity to safeguard its surroundings. The environmental problems remain great, of course, and too often the chance to solve them has not been seized to the fullest extent possible.

An outstanding exception to such missed opportunities is the new General Electric plant in Merrimack, New Hampshire. There, G.E.'s Steam Turbine Generator Products Division, headquartered in Schenectady, New York, produces stator frames for the giant generators used by the electric power industry. G. E.'s Real Estate and Construction Operation and its consultant engineering firm, Chas. T. Main, Inc. of Boston, Massachusetts, have given prime consideration to environmental concerns in design of the facility and planning for its future operation.

The facility consists of a one-story, high-bay building covering some 90,000 feet. This accommodates machining and assembly operations on the steel stator frames. The work going into each unit is time-consuming and extremely precise in relation to size. Some frames are more than 15 feet in diameter and 35 feet long.

Appearance is the most obvious aspect of the new plant's compatibility with its environment. The rectangular building has an exterior made up of metal panels in white

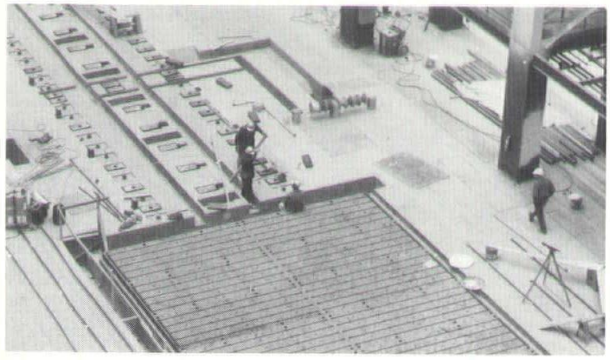




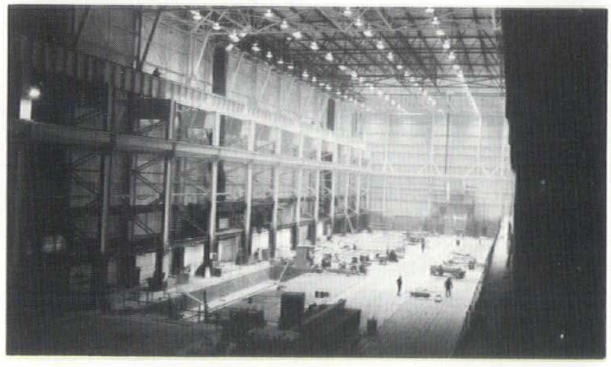
In addition to the rail line, a complete, on-site roadway system provides truck and automotive access from the main highway. Plans call for a television-monitored, remote-controlled gate to allow free flow of traffic in and out of the property.

PLANT MERRIMACK, N.H.

The new G.E. plant has a coloration that blends into the surrounding evergreen forest. Metal panels in white and brown delineate column lines within the building, while a dark brown masonry dado below the panels complements the shades of brown above.



Extensive subsurface exploration was followed by further testing and analysis for a proper foundation. The comprehensive analysis confirmed the use of spread footings as opposed to pile foundations.



The facility consists of a one-story, high-bay building covering some 90,000 feet.

and two shades of brown. These panels delineate column lines within the building. A masonry dado takes up the bottom 12 feet below the panels and is painted dark brown to complement the shades of brown in the paneling. The coloration was designed to blend with the surrounding evergreen forest.

In addition, siting of the building was designed to further enhance the visual effect. Set well back from property boundary lines and residential areas, the building still retains easy access to the state highway that serves as the main access road for employees and suppliers. The location of the building also retains as much of the existing evergreen forest as possible. Even large amounts of open space are being preserved.

Chas. T. Main, Inc.

Boston

The availability as well as the conservation of water resources concerned project planners of both Chas. T. Main and General Electric. Requirements for water initially were expected to total less than 20,000 gallons per day for both sanitary and process purposes. A flow capacity of 1,500 gallons per minute for four hours is necessary for fire protection. A 450,000-gallon ground storage tank with its own pumping system was designed to supply these needs.

Aside from minimizing the new facility's impact on the local water system, efforts were also aimed at preventing pollution. Combined with waste water from sanitary uses, used process water is discharged through an on-site sewer system to an interceptor sewer and conducted to the municipal system for secondary sewage treatment.

Similarly, drainage has been taken into consideration. Runoff from adjacent watershed areas as well as surface drainage from the site is discharged through a new drainage system to the nearby Merrimack River.

Although the manufacturing process at G.E.'s Merrimack facility does not produce large amounts of solid waste, provisions have been made for solid as well as liquid waste removal. Trash such as office waste paper is collected and disposed of through local trash collection in accordance with local regulations. Waste scrap material, primarily metal chips, is collected and sold to scrap dealers. Waste cutting fluids are held in a large, on-site holding tank for removal by a scavenging operation. Emissions to the air are not process-associated. They consist of only normal exhaust from building heating furnaces.

In short, pollution control methods and facilities conform to all local, State and Federal regulations. This provision extends to noise control as well. Although the manufacturing activities planned for G.E.'s Merrimack facility are not substantial noise producers, all equipment within the plant was selected, designed and managed to reduce noise to acceptable levels. In addition, the buildings have been constructed and acoustically insulated to eliminate noise emissions to the outside.

Obviously a company does not build a new plant solely with environmental considerations in mind. Hard technical and economic factors must figure prominently in the planning. General Electric faced a variety of these at its Merrimack facility.

Adequate utilities were one of the major operating requirements. Water needs have already been discussed, but equally urgent power requirements had to be satisfied. Preliminary electrical load analyses indicated that the facility would have an initial demand of 2,000 KVA for building utilities and power. Arrangements were made to obtain this from existing 34.5-KV transmission lines running parallel to the nearby Boston & Maine Railroad tracks.

The rail line provides access to and from the plant for extremely heavy loads. A site problem was recognized due to these heavy anticipated loads. There is a 50-foot difference in elevation between the railbed and the finished floor of the new plant. Great precautions had to be taken to compensate for this difference with long, gradual grades to prevent any possibility of load shifting on freight cars.

In addition to the rail line, a complete, on-site roadway system provides truck and automotive access from the main highway. Plans call for a television-monitored, remote-controlled gate to allow free flow of traffic in and out of the property.

The bearing capacity of the ground at the Merrimack site came into question for the building itself. It was feared that a compressible silt layer might cause difficulties. Extensive subsurface exploration was followed by further testing and analysis for a proper foundation. The comprehensive analysis confirmed the use of spread footings as opposed to pile foundations.

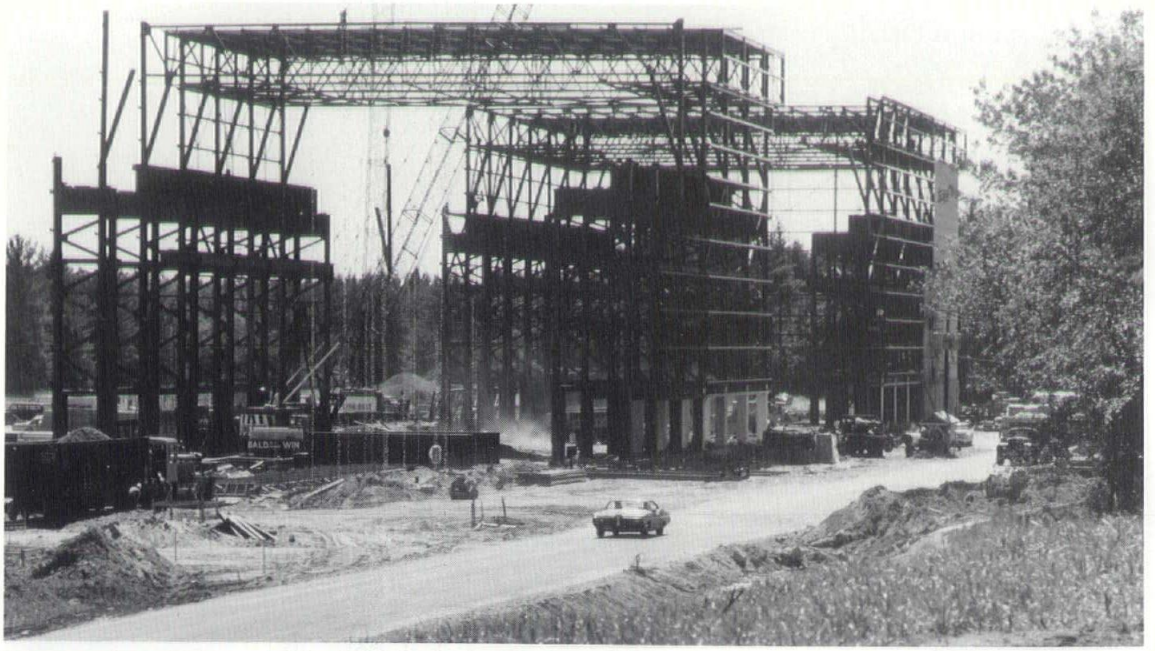
The steel framework erected on the spread footings is supported by double-legged steel columns on both sides of the 99-foot-wide span of the building. Within one of these double-legged columns is a 15-foot-wide bay, which will be a second-floor office area. A mezzanine walk outside connects the offices.

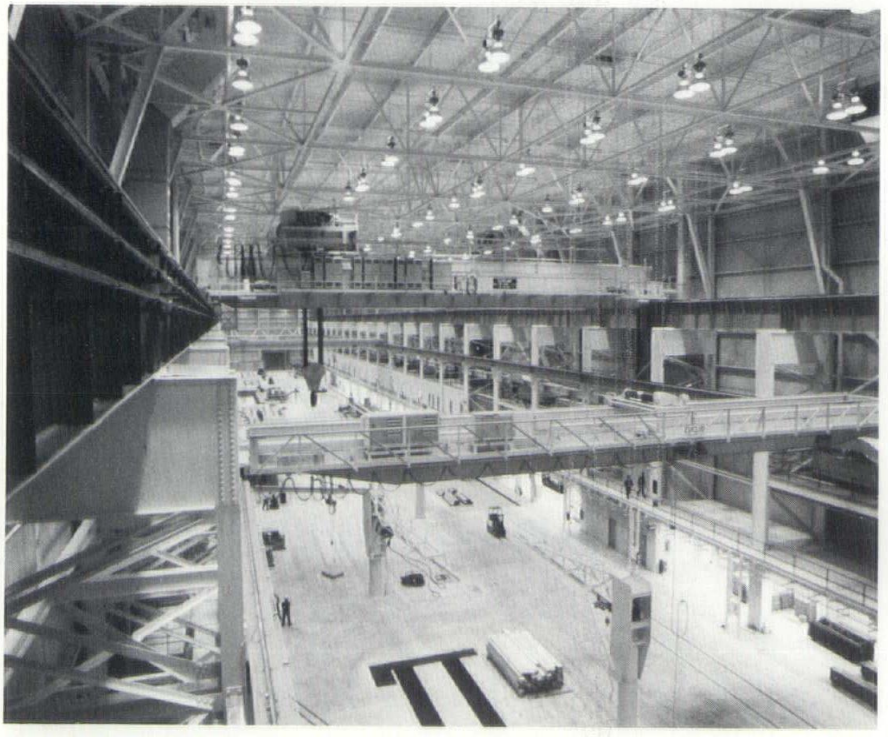
The concentrated weight of stator frames and other large workpieces adds to the load of the building on its foundations. A giant bridge crane having 60-foot clearance under its hook and 300-ton capacity plus two lower-level cranes of 15-ton capacity each move these workpieces within the plant.

In addition to such load-bearing considerations, two mammoth machine tools housed within the new facility presented special problems. The machines perform operations that give the facility its basic reason for existence.

One, the first of its kind in this country, is a double-headed boring machine that bores the inside of stator frames to final size within a tolerance of 0.005". A laser aligns these two heads and controls them as they bore simultaneously from opposite ends of the workpiece, so that they meet precisely within the specified tolerance. The other machine is a horizontal machining

The steel framework of G.E.'s new Merrimack plant is erected on spread footings and supported by double-legged steel columns on both sides of the building's 99-foot-wide span to take the concentrated weight of stator frames and other large workpieces that will add to the building's load on its foundations.





The concentrated weight of stator frames and other large workpieces adds to the load of the building on its foundations. A giant bridge crane having 60-foot clearance under its hook and 300-ton capacity plus two lower-level cranes of 15-ton capacity each move these workpieces within the plant.

center for milling the outside of the stator frames. Comparable tolerances are possible with the external as with the internal machines.

The combination of extraordinary machine weight, machine length and extreme working precision obviously demanded special precautions in supporting the machine tools. For this purpose, General Electric and Main called on the services of a specialist in the field, Gerald Derkzen from Rotterdam in The Netherlands. This consultant made extensive studies of the situation and designed foundations specifically for the machine tools and their projected operations.

The new facility promises to provide expanded employment and a general economic stimulus for the entire surrounding area. Equally important, these benefits will apparently be achieved without ecological damage.

DARTMOUTH COLLEGE PARKING GARAGE

HANOVER, N.H.

DARTMOUTH College's new parking garage, which was formally dedicated last October, was constructed in accordance with the K Composite Construction System.

The facility, which has spaces for 492 cars on five levels, was built by the R. E. Bean Construction Company of Keene, N.H., who is franchised to build indoor parking garages in Northern New England under license from Volume Indoor Parking.

The architect was Francis J. Goldberg of Glen Rock, N.J.

Steel Fabricator was Bennington Iron Works of Bennington, Vt.

Structural Engineer was Seelye, Stevenson, Value and Knecht of New York City.

"Because of its unique construction design, these parking garages offer communities and institutions a way of gaining increased parking facilities in a minimum of space," according to David Bean, president of the Granite State-based construction firm. "They are available in a wide variety of designs and sizes."

"Some of the layouts include one or more passenger elevators, office space, public stairways, waiting

Architect: Francis J. Goldberg
Glen Rock, N.J.

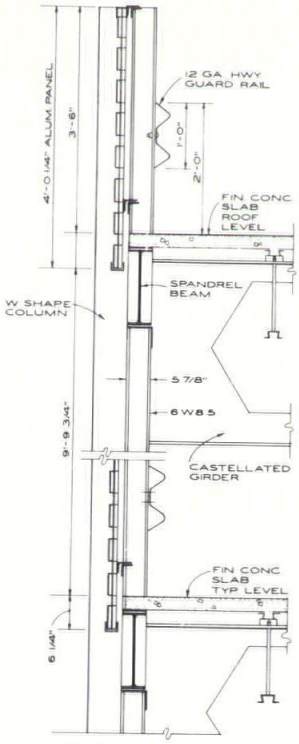
Contractor: R. E. Bean Construction Co.
Keene, N.H.

rooms, lavatories, safety auto bumpers, wide driving aisles, terrazzo stair treads, aluminum hand rails, attractive front facade, one way ramps for single direction traffic and employee rest-rooms. The architectural flexibility of the system allows variable designs to accommodate high-rise retail, office or motel units."

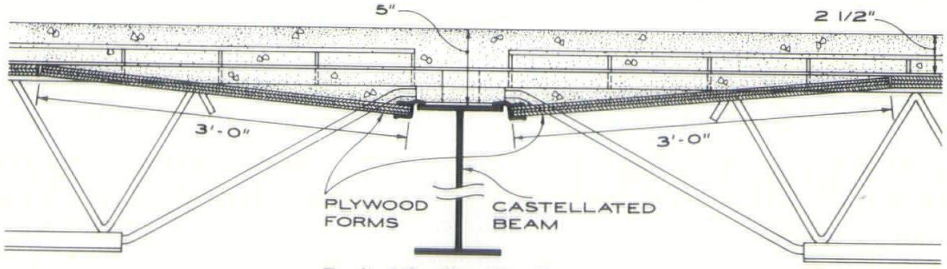
Bean believes the V.I.P. System will be in great demand, particularly in high density populated areas, because of the unique construction design and the adaptability of the structures to uses other than parking garages.

The K Composite Construction System is a design in which the concrete slab is bonded to the steel supporting members. The conventionally unused strength of the concrete is utilized to increase the load carrying capacity of these members at practically no cost.

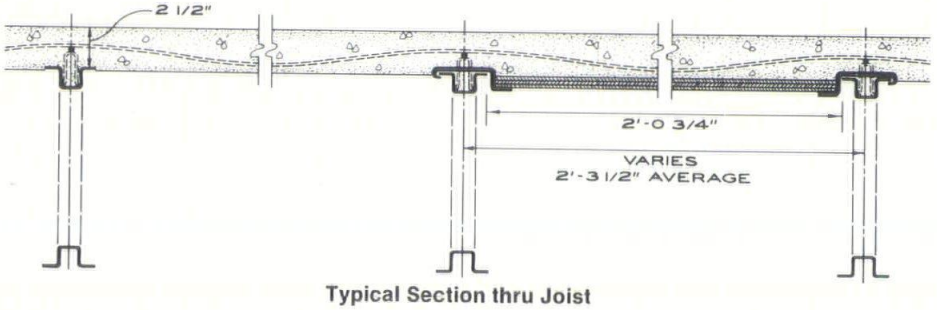
Composite action, the firm claims,



Typical Wall Section

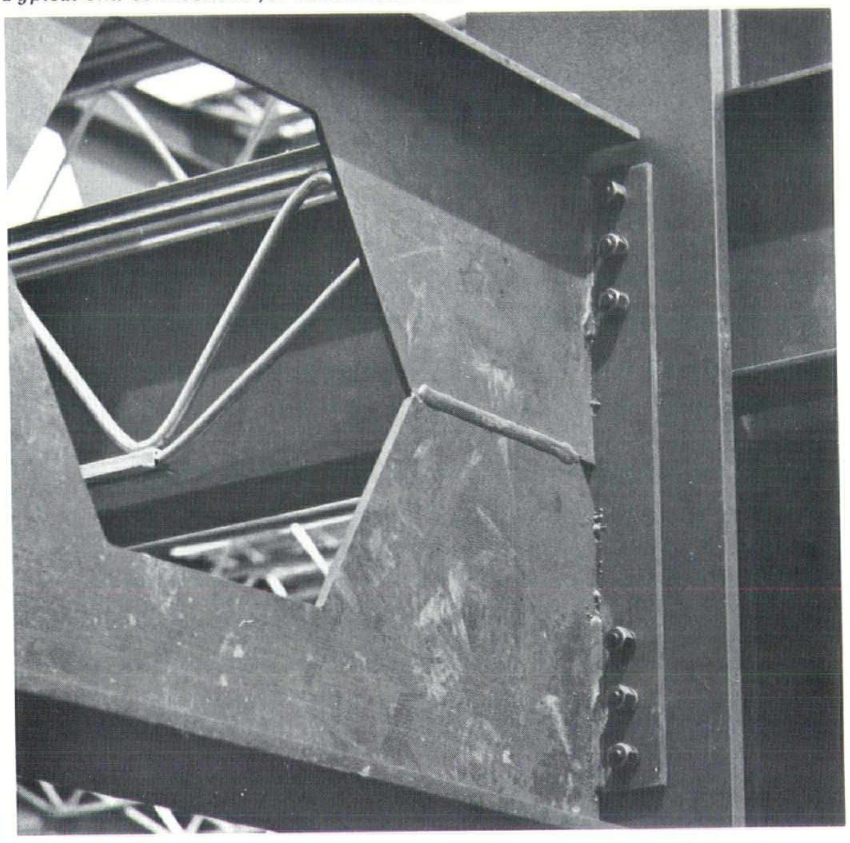


Typical Section thru Beam



Typical Section thru Joist

Typical end connections for castellated beam.



furnishes rigid construction that can greatly reduce deflections and vibrations. Because of reduced deflections, composite action allegedly facilitates the use of high strength steel for beams.

"Composite construction allows increased spans of supporting members with fewer columns," Bean says. "This results in greater architectural design flexibility for both immediate occupancy and for future layout changes. The reduced structural dead loads are advantageous in foundation designs for soils with low bearing capacities.

"The K Composite System has been satisfactorily tested at the Polytechnic Institute of Brooklyn and by the Republic Steel Corporation. A complete report has appeared in the Engineering Journal of the American Institute of Steel Construction."

According to officials of the Bean Construction Company, the V.I.P. plan offers several financing possibilities. The company will (A.) Sell a turn-key project directly to the developer; (B.) Build and lease a structure to responsible developers; (C.) Function as developers and construct and operate the facility.

B.A.C. *(Continued from page 6)*

Timothy Johnson is a professor of architecture at MIT. The inventor of computer graphics via sketch pad 3, he is currently researching Image, a space synthesis program. At MIT he teaches computer design and methods.

"Lighting and Architecture" will acquaint the designer with all aspects of architectural lighting with the intent of providing a basis for a more active role by the architect in lighting design. The emphasis will be on integration of lighting and architecture. Specific topics feature:

- The current state of lighting design
- the physiological and psychological criteria of the visual environment
- programming the visual environment
- the lighting design process
- characteristics of various lighting techniques
- methods of calculation
- creative use of models and mock-ups.

John Birdsey of William Lam Associates will teach the course. Mr. Lam will give the first lecture. Mr. Birdsey is currently a lighting consultant with William Lam Associates. A graduate of MIT, he has worked on research projects in criteria for the luminous environment, perform criteria for outdoor lighting, and a project for the National Bureau of Standards.

Mr. Gilbert's course, "HUD Environmental Procedures: Housing," is geared toward assisting engineers, architects, planners, developers, and local officials in becoming familiar with the National Environmental Policy Act (NEPA) and HUD Regulations pursuant to the Act. Participants will discuss:

- HUD project selection criteria insofar as they relate to environmental matters and environmental clearance procedures and policies as they relate to HUD grant programs, particularly housing programs. Information will be provided to assist individuals to prepare adequate responses to HUD requests for environmental information.
- HUD's noise assessment guidelines, how they are evaluated

(Continued on page 26)

Katherine Kane Honored by B.A.C.

Katherine D. Kane, Director of the Mayor's Office of Cultural Affairs, has been elected an Honorary Member of the Boston Society of Architects. She received a Certificate of Honorary Membership from Robert S. Sturgis FAIA (right), past president of the Society, and John C. Harkness FAIA, the newly elected president.

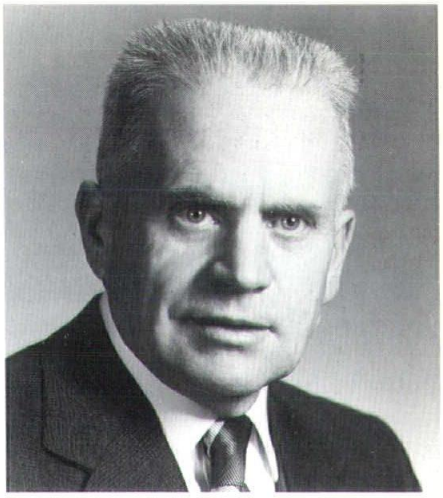
B.A.C. *(Continued from page 25)*

by HUD area and Insuring Offices and how they may be used to improve the environment of housing developments.

- Case studies involving the application of environmental procedures and requirements and how they are applied to housing proposals.
- How HUD utilizes its procedures and other programs to improve environmental planning.
- Court cases and decisions, proposed legislation, and the potential effect of such legislation on current procedures.

The courses will be held in the early evenings at the BAC. Cost will be $60 for each 5-week course, but there will be reductions for firms or groups purchasing "packages" of a group of courses. Courses will begin March 12. For further information, contact Bill Ronco at the BAC (536-3170).

Brown Elected President of BASE



Floyd E. Brown

Floyd E. Brown has been elected president of the Boston Association of Structural Engineers. Mr. Brown is a partner of Cleverdon, Varney and Pike, consulting engineers, Boston, Mass.

The Association is composed of registered professional engineers in the Boston area engaged in the structural design of buildings. Its objectives are to safeguard good engineering practice and maintain high professional standards.

Mr. Brown and his family reside at 63 Sunnyside Ave., Reading, Mass.

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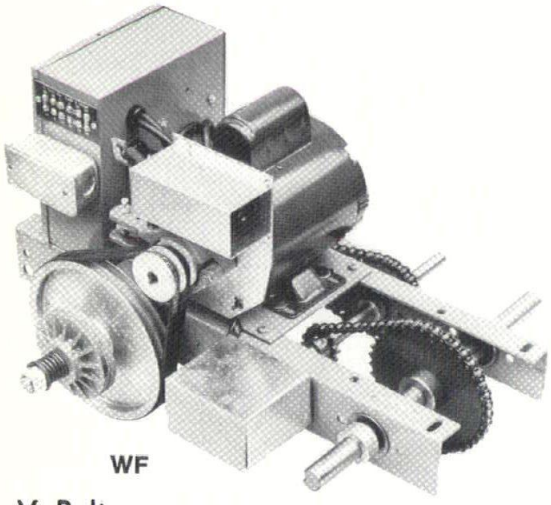

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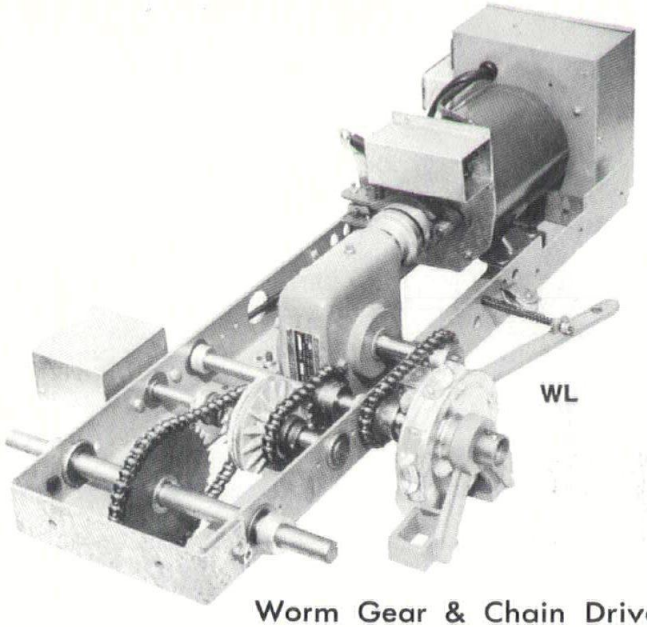
V Belt Drive



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B.S.A. Announces Housing Award

The Boston Society of Architects announces an award for excellence in housing. Awards will be granted in two categories called HOUSING and NEIGHOORHOOD DESIGN, respectively. Housing must be either new or rehabilitated. Neighborhood design refers to buildings other than housing which have been rehabilitated or converted to other uses. The projects must have been completed one year to ten years prior to the closing date for submisson and must be located within the Boston Society of Architects area including the counties of Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth and Suffolk. Entries must be post marked no later than March 19, 1973. B.S.A., 320 Newbury St., Boston, Mass.

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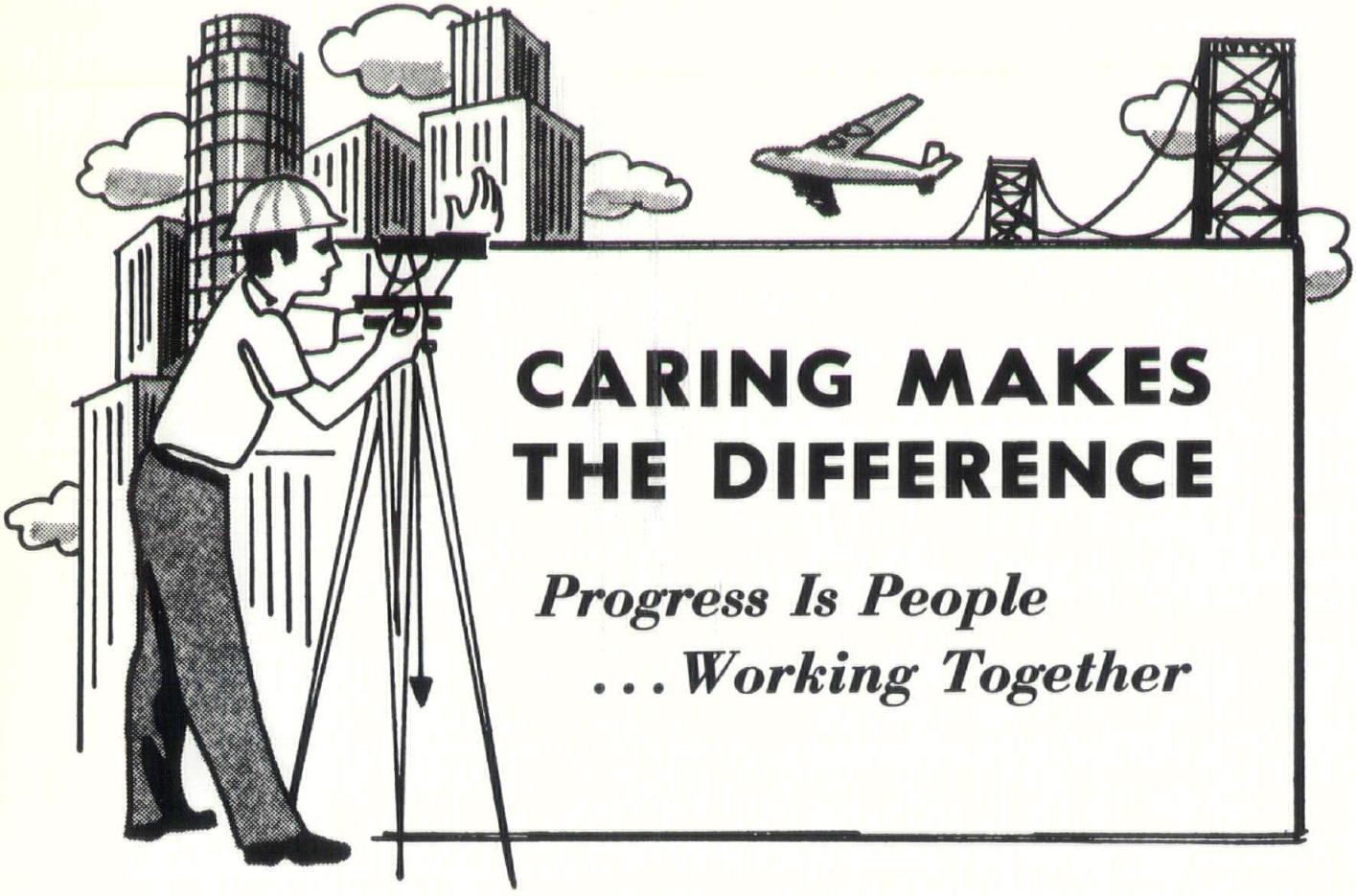

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