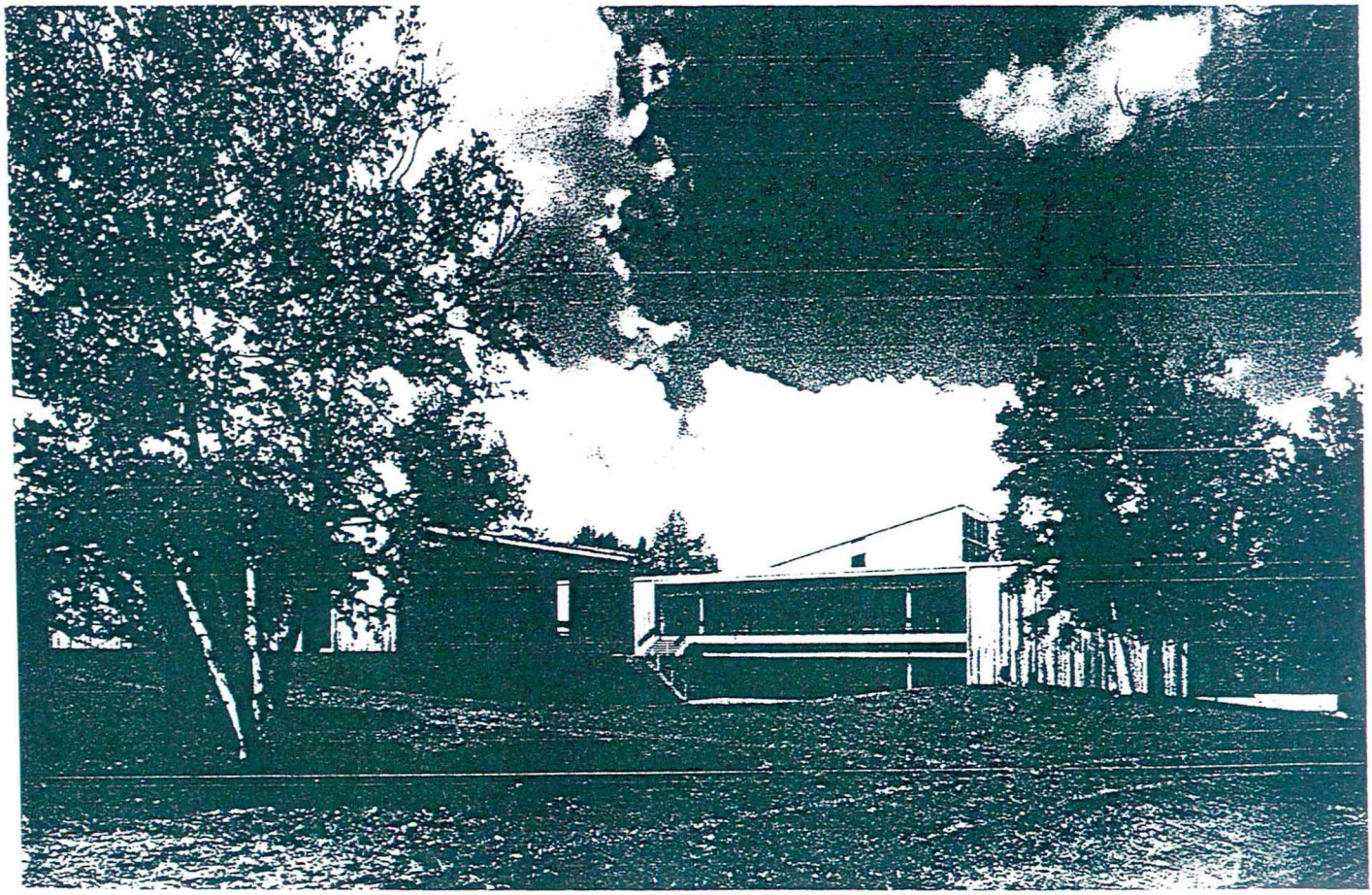
ROBERTSON WARD JR., FAIA, has been described as an architect's architect, a man whose reputation far outstrips his output but whose curiosity has contributed successful experiment after experiment to the portfolio of the professional. Below: Ward's Bennington science center harmonizes with college landscape on the outside while its thoroughly modern systems interior stands prepared for change. George Cserna photo.



Robertson Ward: Research is still part of design

By Linda Legner

■Very few architects establish a respected professional reputation without a backlog of buildings to their credit. But Robertson Ward Jr., FAIA, has done precisely that. His first fully executed project (a science building for Bennington College) wasn't completed until 1970—nearly 20 years after he entered practice. Yet many consider him the architect's architect, and have long held that opinion.

Ward's new business portfolio states that his firm offers "professional design and development resources for projects in architecture, planning, building systems design and development, and new technologies research." If you heard that claim from almost anyone else, you'd have good cause to be wary. With Ward, there's no reason to shy away, for he has proven himself in every area.

Ward took his first degree from Harvard in electronic physics, then followed up with a B.Arch from the Graduate School of Design. So he is, strictly speaking, an architect. But Ward is also a scientist, researcher, systems designer, and an inventor at heart. He is an active, competent practitioner, and a man of seemingly boundless personal energy.

After Harvard, Ward went to IIT to assist the master of prefabrication, Konrad Wachsmann. In short succession, he worked with Arnold Rosner developing the Midwest's first prestressed concrete bridge. Then he headed a systems design project for Skidmore, Owings & Merrill in Tokyo, focusing on modular prefabbed wood housing for Army use. Next, he joined Breuer and Nervi in Paris to work on their UNESCO headquarters building.

In 1954, SOM offered him the opportun. to start and direct a department of research and materials under Walter Netsch—one of the first groups of its kind, and unfortunately no longer in existence. Ward coordinated all the technical efforts for the U.S. Air Force Academy in this new position, and brought about a number of technical breakthroughs while at it.

The project pushed industry into producing tinted and reflective architectural glass, large extrusions, permanent dark anodizing, hard anodizing. Ward's efforts brought about the development of definitive marble performance specifications, the revival of an old but now standard flame-cut technique for finishing granite, and the successful marketing and manufacture of large thin slab granite units (maximum industry size had been 3 feet x 7 feet x 4 inches when the p iect began, later specs were 10 feet x 14 feet x 2 inches).

When Ward set up his own private practice around 1960, he continued to press for technological innovation. As a consultant to SOM, his experiments for the walkways at the University of Illinois Chicago Circle evolved a definitive test reference for structural design of Cold Spring Granite.

On the First National Bank of Chicago, (a C.F. Murphy-Perkins & Will project), he replaced conventional granite shelf angle detailing with a totally factory-assembled steel suspension strap system which allowed erection of granite spandrels as a single assembly hung from floor construction. This technique, too, is now a standard Cold Spring Granite procedure.

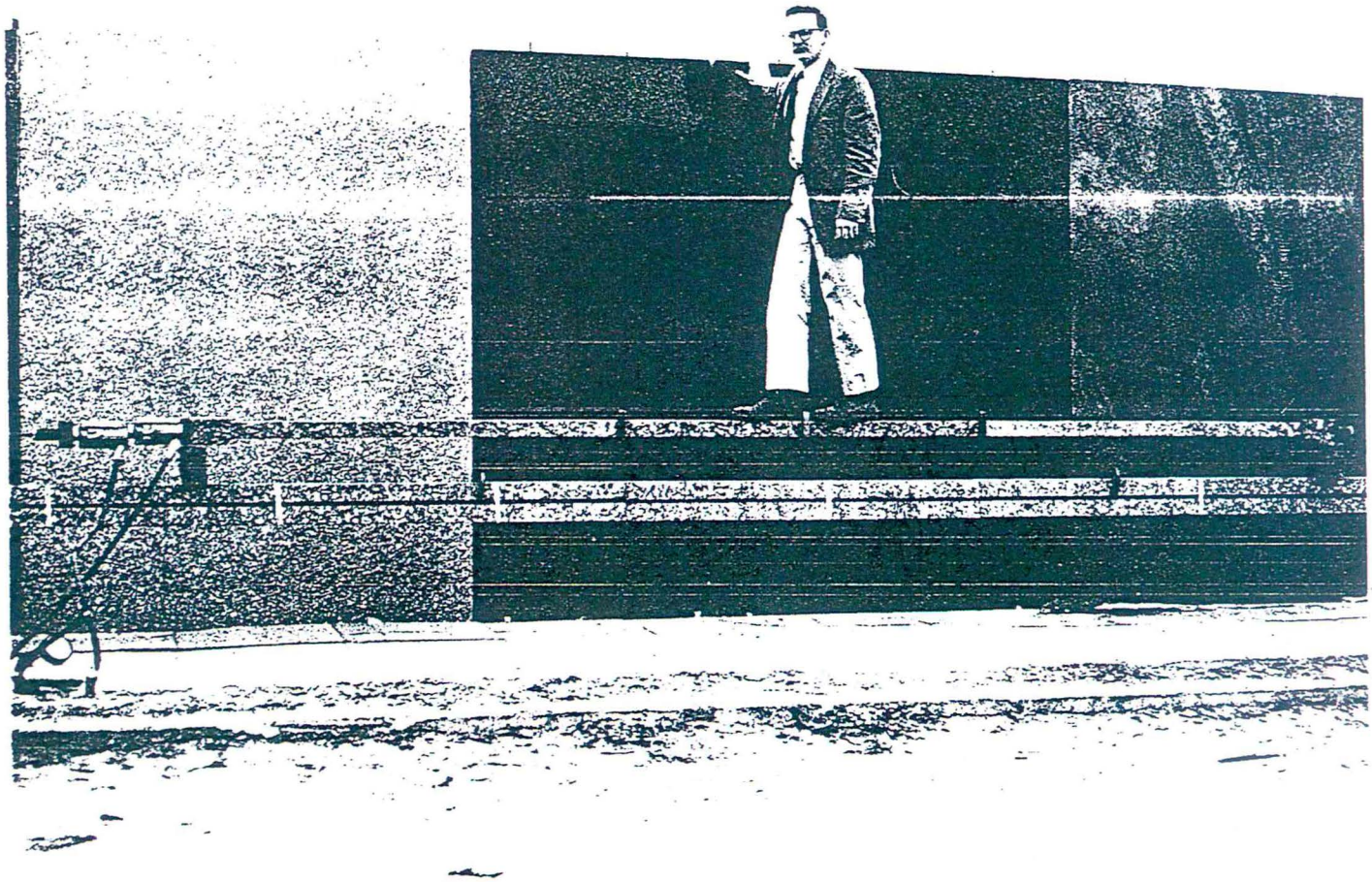
His interest in prefabrication brought a commission to investigate integrated structural/mechanical systems for the General Dynamics Corp. From this came a Dynacore-prestressed hollow box beams integrated system with various standardized mechanical-electrical components.

Ward has categorically refused to accept building material limitations. If industry can't supply what he wants, he'll probe and prod until it can. Quick to use outside testing facilities, he also doesn't hesitate to concoct elaborate mock-ups and all manner of experimental devices right in the middle of his own rather small office space. Ward is truly a one-man Underwriters Lab, eager to build the better mousetrap.

Major building material suppliers have constantly sought Ward's advice, and he has worked on projects by and collaborated with architects Stanley Tigerman, Vincent Kling, Edward Larrabee Barnes, Marcel Breuer and Cedric Price, in addition to larger firms like SOM, Murphy and P&W. Ward has been guest critic, lecturer and advisor at universities across the country, as well as lecturing and publishing extensively. He's a member of numerous national and international research and building science organizations, and has contributed widely to their committees on systems design, housing and education.

Throughout his career, Ward has doggedly studied and expanded the capabilities of the construction industry. Yet he is by no means

A younger Robertson Ward Jr. demonstrates his research into the structural properties of granite (below). Opposite page: Today's Ward discussing his multi-dimensional career.



a techno-freak. "Research is merely the tool, and technology the resource," he says, adding with quiet enthusiasm, "but the truly viable activity of architecture is design."

And for Ward, design begins with a thorough examination of program and an honest sensitivity to user needs. He'll spend months if necessary—as it was at Bennington College and Deerfield Academy—working to clarify a client's perception of what's essential to a building. He seems unconcerned with making a "statement" or creating "his" monument. If, in the end, a building is appropriate, Ward is satisfied.

"My particular long-term interest," Ward explains, "has been with the increasingly complex problems of growth and change, and the need for providing freedom and flexibility through responsive physical environments."

He believes that the architect's primary function is as the "distributor of energy"—of technical and human resources.

"I think you can assist in creating the stage for interchange. But you must be careful in stating the degree to which the role of the physical environment is important; it is only the vehicle for social environment.

"I think the architect's role can only be that of forming an envelope, a fabric of facilities, which invites the user to participate. This vacuum is created and completed only when activity takes place within. If the architect creates something complete in itself, the user will continue to be a guest within its space, not a participant."

Adaptability has indeed been the theme of Ward's buildings. Into every one he has designed a flexibility which answers present requirements while providing the potential to respond to future and as yet undefined needs.

Some of his buildings appear so casually relaxed as to seem at times homespun. But they are deceptively simple. Underpinning each is a combination of incisive planning and many, many carefully conceived functional details.

Robertson Ward has fashioned an architecture of versatility. And what could be more in character. ▷

The modular, malleable barns at Bennington

Bennington College Projects, Bennington, Vt. 1967 to the present

Ward's work for this small, progressive liberal arts school in Vermont includes the science building and lecture hall, visual and performing arts building, remodeling of the student union, site and masterplanning plus miscellaneous assignments and preliminary design for three dormitories.

Discussions go back as far as 1964. Funding difficulties also delayed construction. Ward joined in a rigorous evaluation of the science and art programs before any design was undertaken. The faculty program statements which emerged are, in his opinion, the best he has ever encountered.

With so many good professionals available, why did the college select Ward, an architect without a building portfolio at the time? "They've always had a predilection for mavericks," Ward says wryly. Bennington, however, was aware of and impressed with his contributions to SCSD. When they chose him, they chose well.

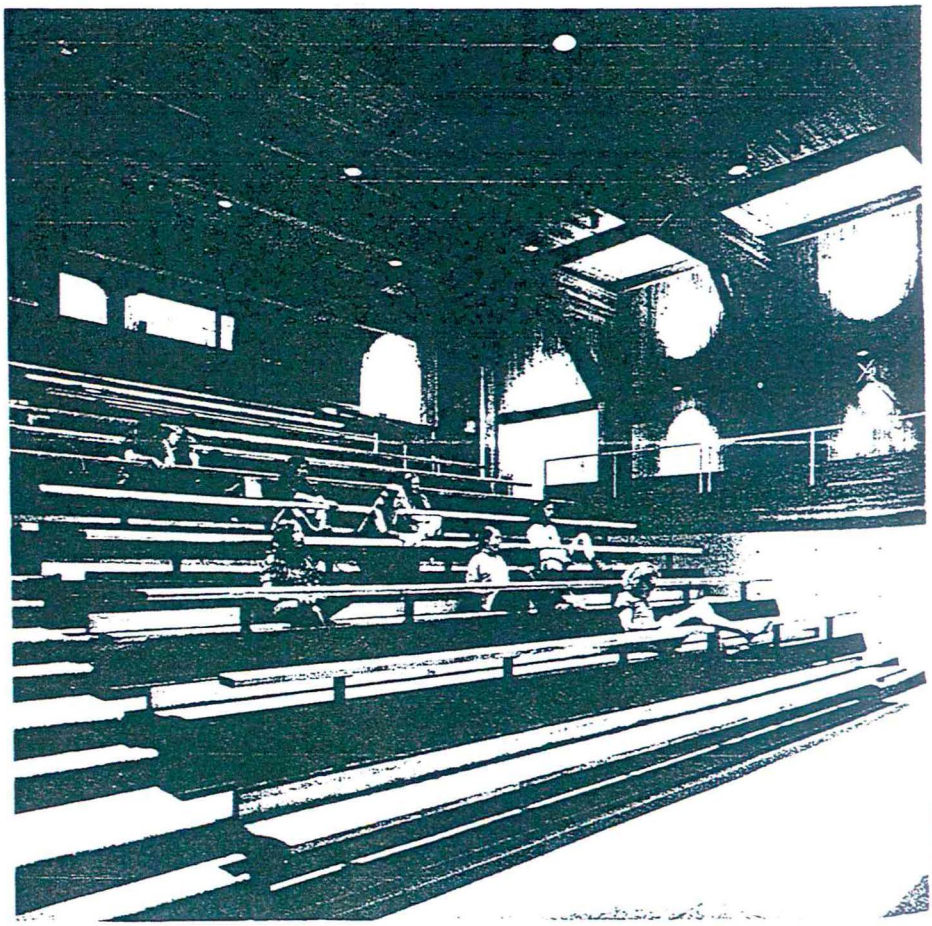
Science Building and Lecture Hall

Ward tried here, as he did with the arts building, to emulate the simplicity of the old Bennington Barn—an informal shed-like structure that has been repeatedly adapted over the years. The complex consists of two rectangles linked via gallery, and sprouting a greenhouse appendage.

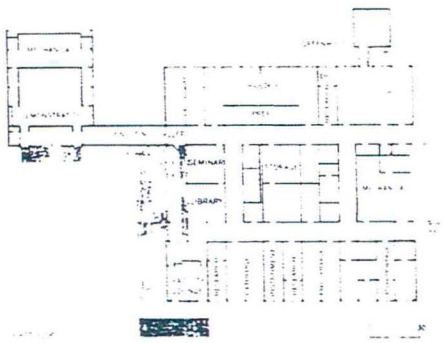
The science building is a 2-story loft built on a 10'8" module, with about 20,000 square feet per floor. It can easily accommodate up to 40% future expansion, 200% for the attached greenhouse. The interior is formed of open, flexibly serviced laboratory blocks with central support cores. Thanks to modular movable partitions and floors which are preplugged for future penetration, the space can hold labs or classrooms or offices equally well.

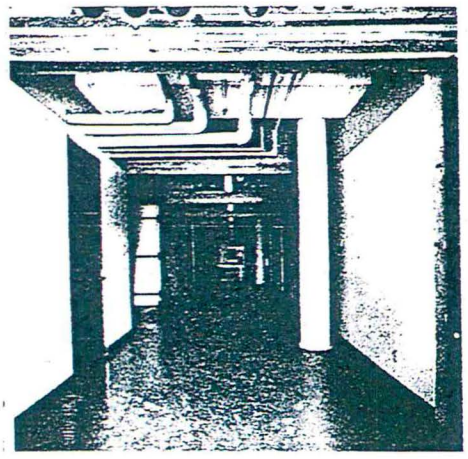
The multi-use lecture hall is just as flexible. Bench seats can hold 140-160 students, while side balconies boost total capacity to 250 for community events. Standard audio-visual equipment is provided.

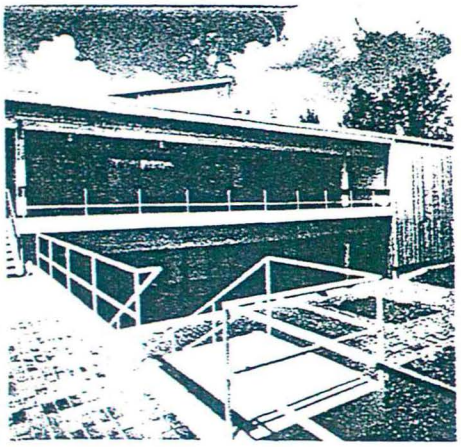
Ward used primarily natural materials to harmonize with the rolling Vermont landscape. Exterior surface is factory-assembled laminated red cedar. Inside, laminated wood columns and beams as well as all mechanical systems are exposed and painted to serve as additional teaching tools. There are porches outside the science buildings and an overlook behind the lecture hall which faces a big pond. The tone is quietly residential, in keeping with existing facilities. ▷

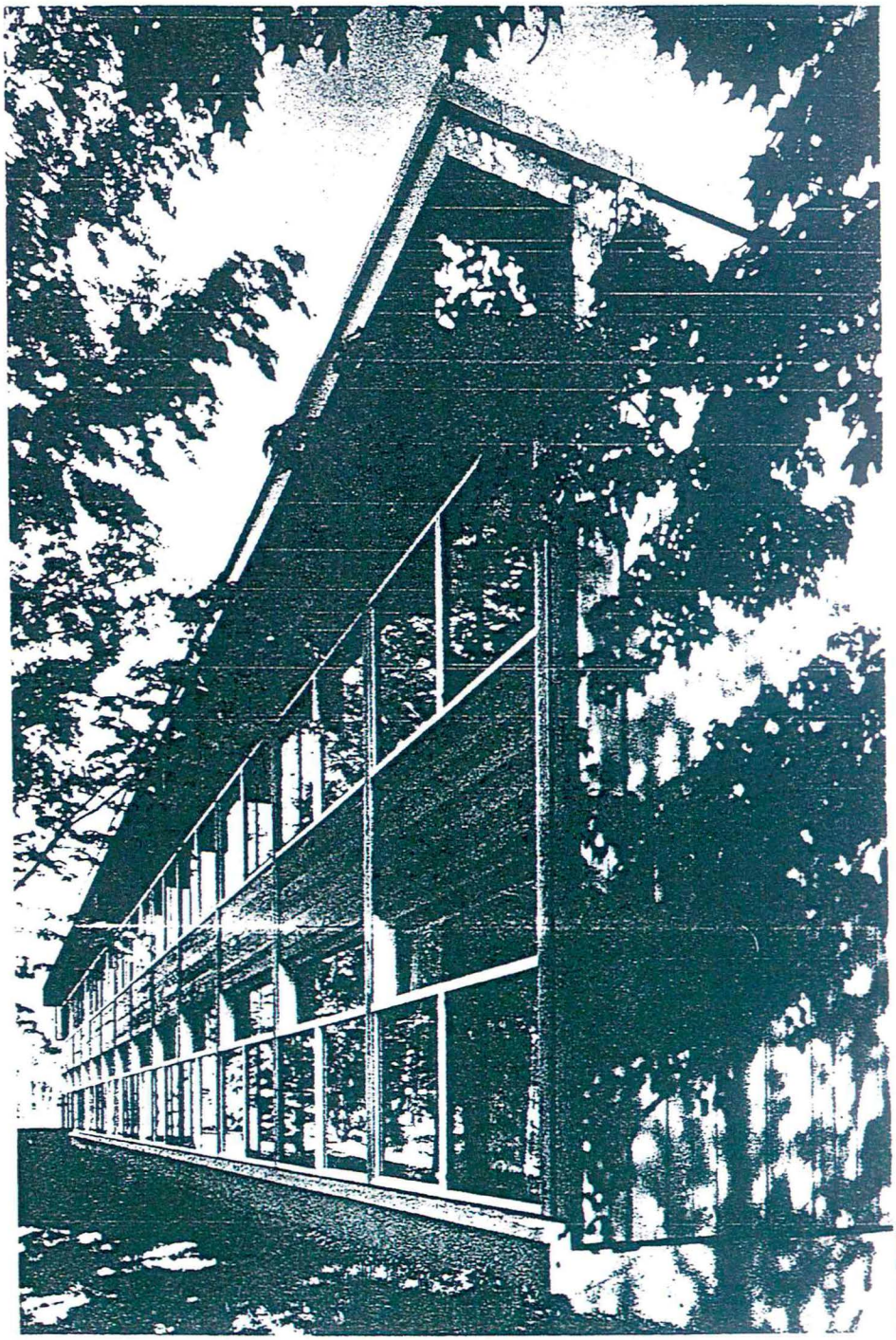


George Cserna









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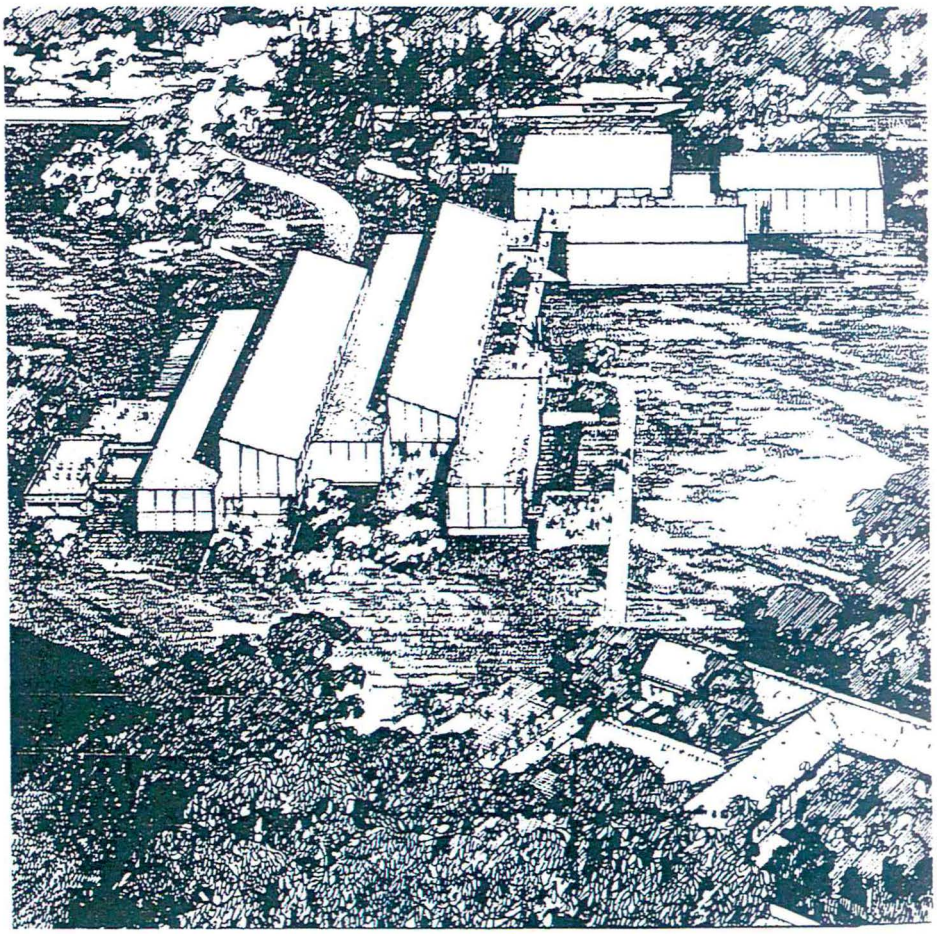


Visual and Performing Arts Center

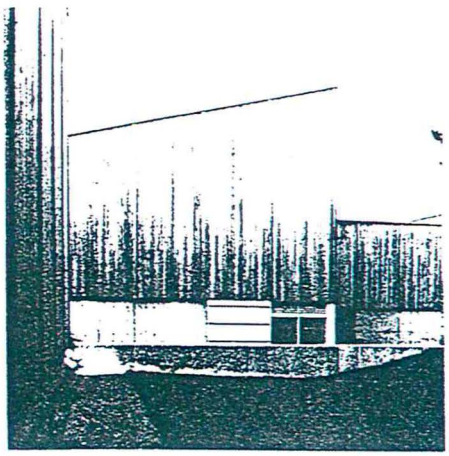
A series of distinct but interconnected forms, the art center campus silhouette is low. Roof lines are even with the eaves of the neighboring Barn; natural grade slopes allow for three levels. The simple heavy timber frame elements are surfaced with rough-cut cedar planking which weathers quickly.

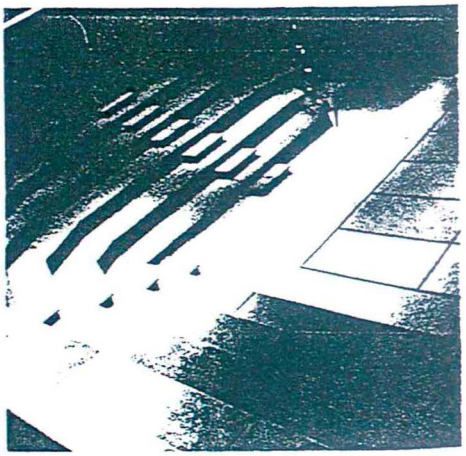
The visual arts component resembles factory shed space with large high bays. Studios and shops can be organized and reformed in any sequence, and the space can easily be partitioned into individual or community study areas. The lighting system allows choice of natural, artificial or combination illumination. Rotating gallery space is a prime part of the program.

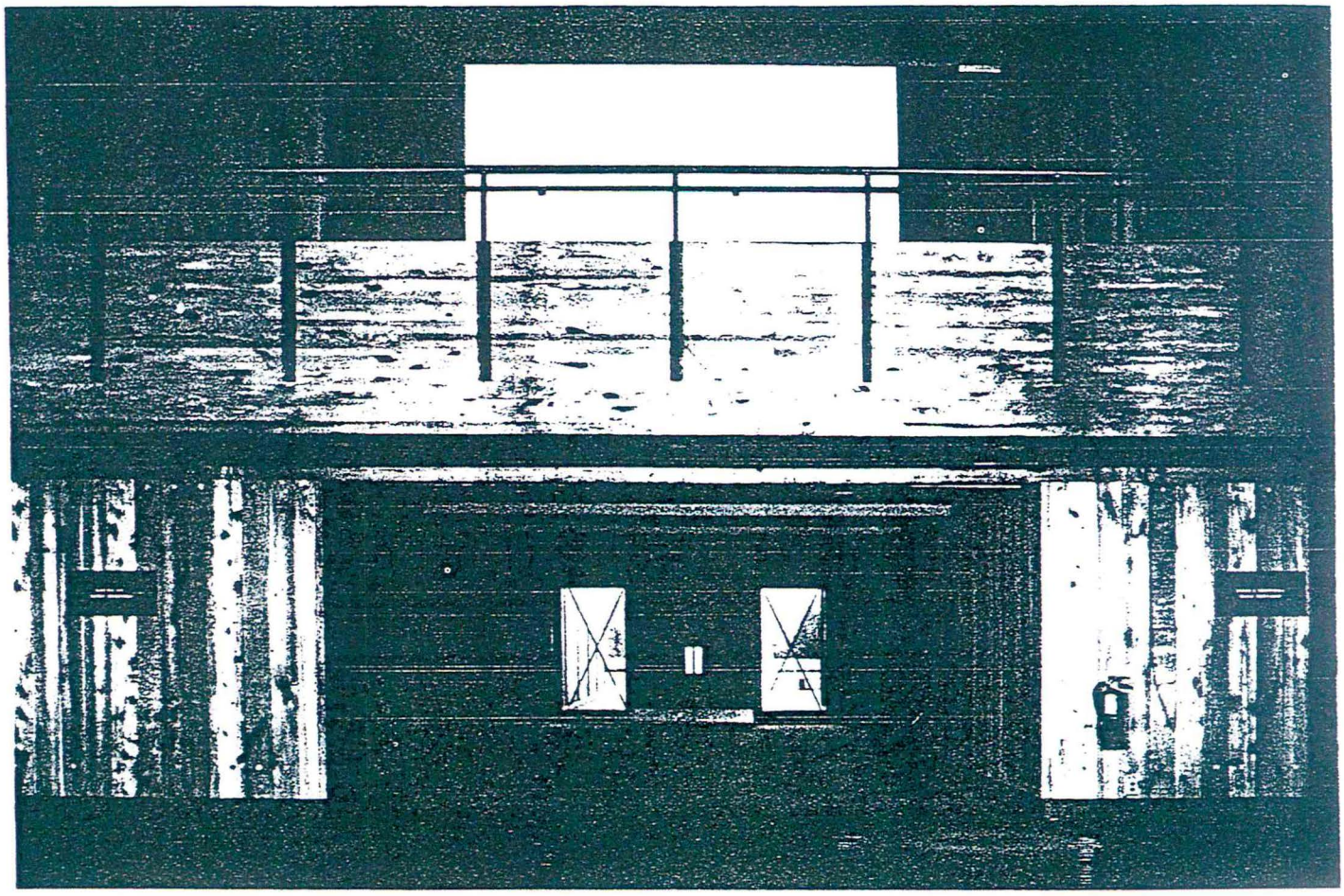
The performing arts component includes three separate and highly flexible theaters for music, drama and dance. The faculty felt that experimental spaces which offered characteristics critical to each medium were extremely important. Consequently, a single multi-purpose performing hall was ruled out.

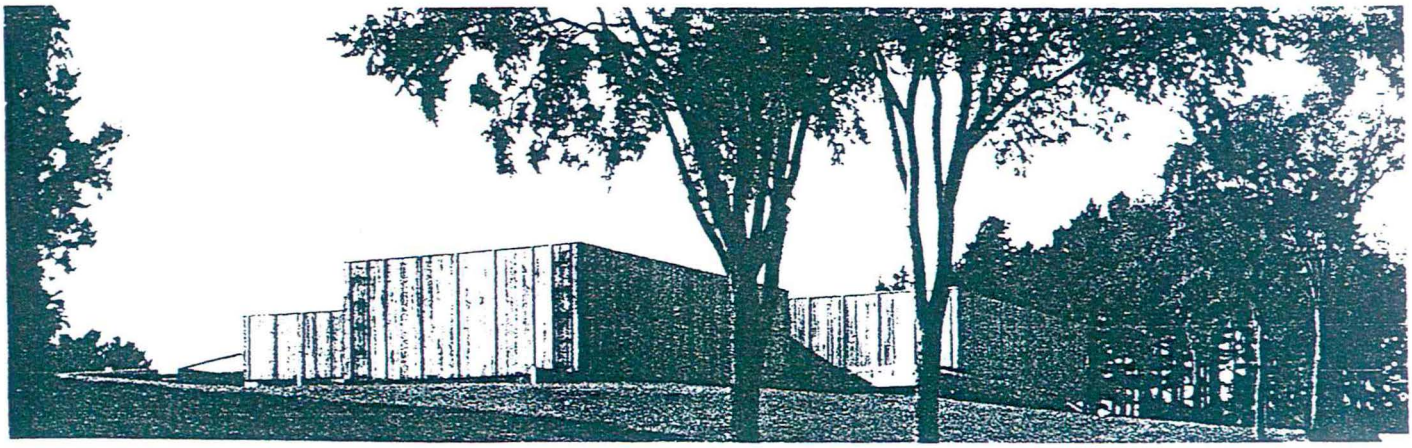
Each workshop incorporates special design features. The drama floor has multiple modular traps. The dance floor has a specially developed resilient fiberglass support system under a continuously floating hardwood surface. The same system in the music workshop will encourage collaboration between disciplines, it is hoped.

Modular seating is demountable and easily rearranged in tiers so that an infinite variety of audience/performer configurations can be explored. The catwalk has access at two levels and a continuous safety net 30 feet above the floor. Rigging, lighting and sound systems each have specially developed flexibilities. ▷

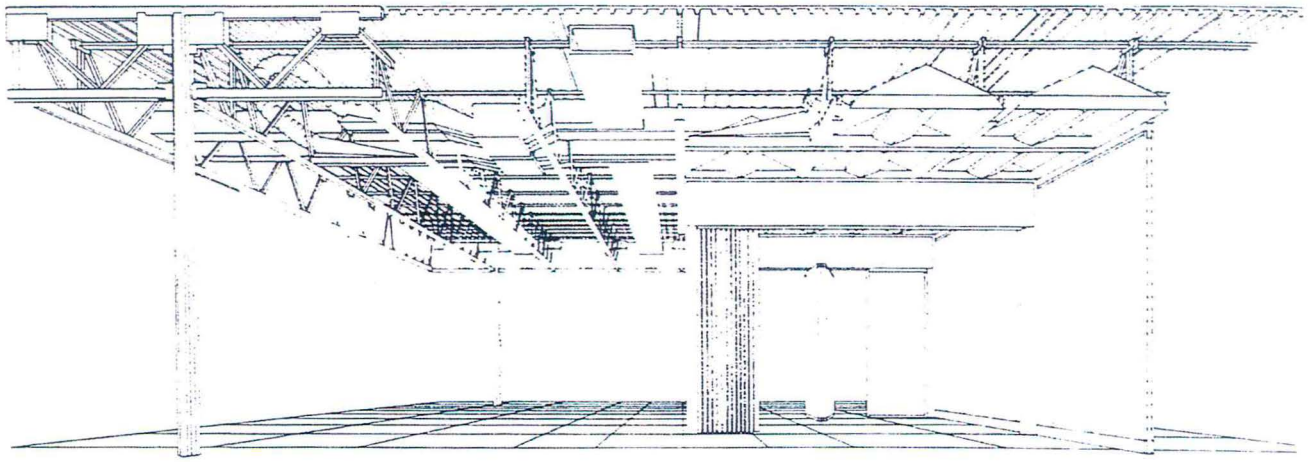








systems design for Inland Steel



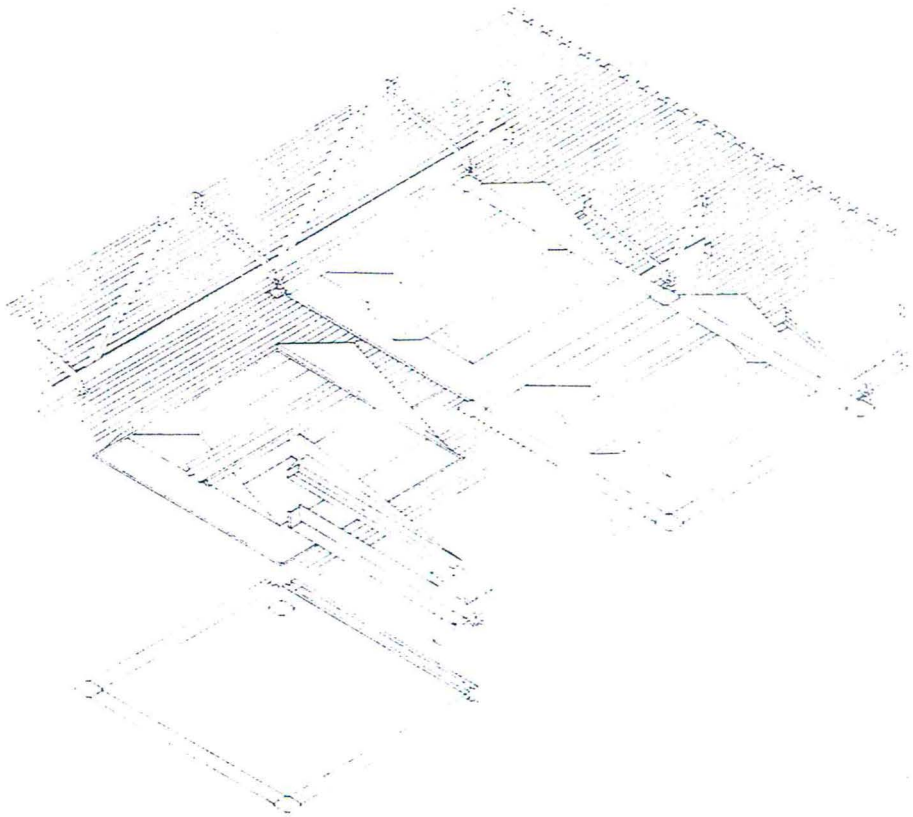
SCSD: The School Construction Systems Development Project 1963-66

The Ford Foundation sponsored SCSD ostensibly to examine educational building systems within the contexts of future growth and change. The project also sought the stimulation of new technology.

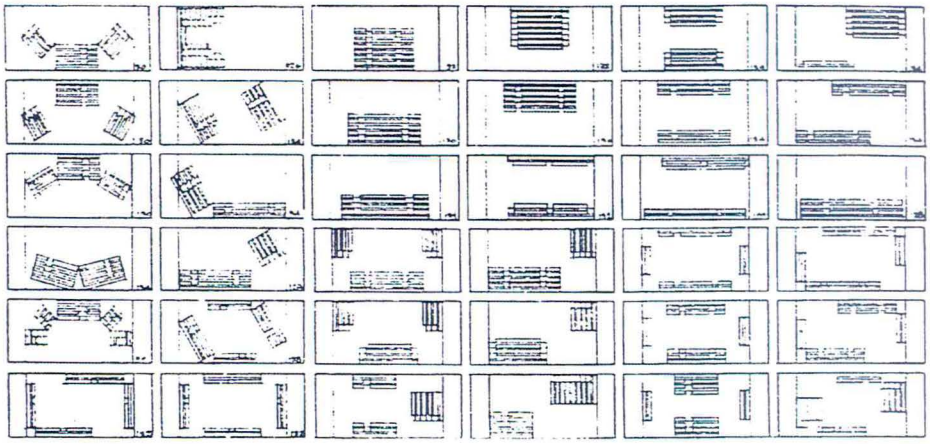
Specifically, SCSD studied the development of component systems, performance-based requirements, and the value of aggregating markets for economy and increased industry participation. The project demonstrated that a mass-produced end product could meet the needs of a changing society while maintaining quality standards and retaining the peculiar individuality of any given geographic area.

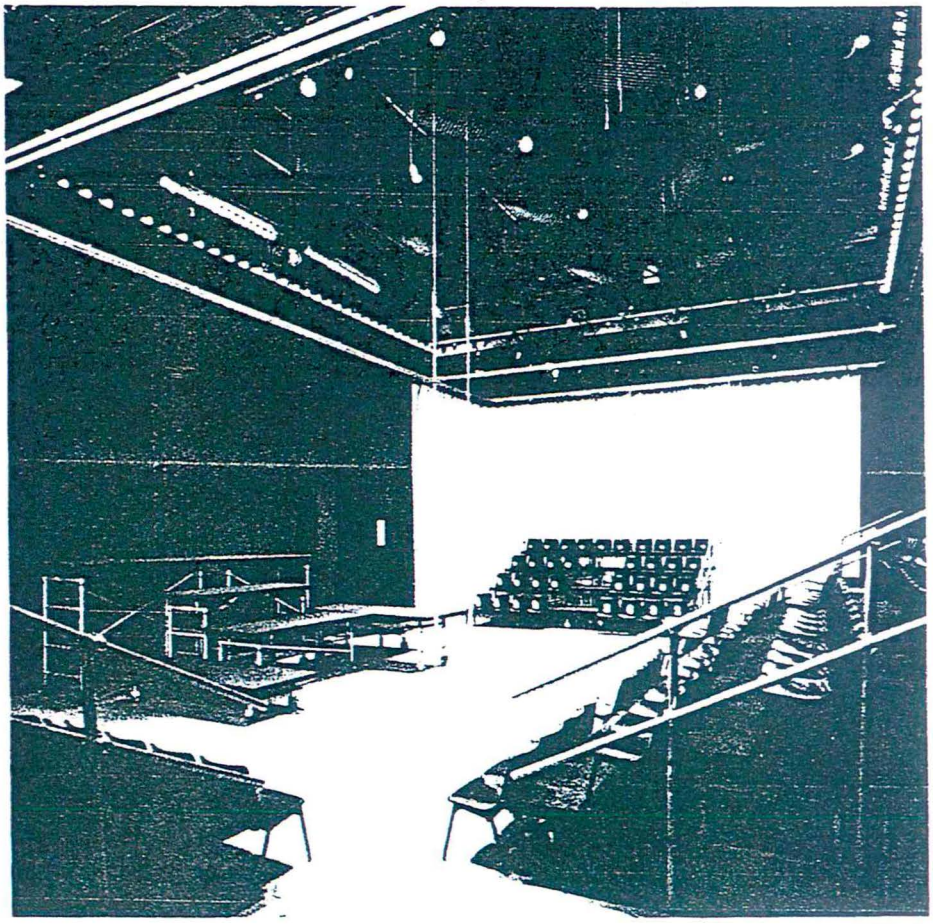
The feasibility of this systems project generated widespread interest in both architectural and educational communities. SCSD has since been the model for system projects in a number of state, private and federal programs.

Ward acted as consultant to Inland Steel on structure, lighting-ceiling, HVAC and partition systems. His system design won the SCSD competition, and he was honored with the Governor of California's certificate of excellence for individual design. Ward continued in personal charge of refinement, development, fabrication and testing for the Inland Steel components as well as making major design contributions to other interrelated systems.



One room that's worth 1,000 theaters





The Hallie Flanagan Davis Theater, Vassar College, Poughkeepsie, N.Y. 1973

When the drama faculty found it couldn't have a new performing arts center, it suggested than an old powerhouse be turned into a small experimental theater. The college hired Ward to make the conversion of that found space.

Reworking the power plant cost only about $250,000, with the remainder of the total $800,000 outlay going for sophisticated technical equipment. Old machinery pits became central trap areas; existing crane rails were used as overhead light bridges.

A new addition in front of the powerhouse provides lobby, rehearsal and workshop facilities. A parking lot adjoining the old building was paved and landscaped to form an entry patio and performance court.

In addition to standard theater details, Ward devised several special arrangements. Wall surfaces are supplied with a network of conduits and outlets so that modular support channels for light and sound systems can be attached at any point. A safety net of ordinary chain link fence offers inexpensive and totally flexible access to uppermost equipment spaces for movable spot-line rigging and lighting.

Modular seating was developed out of standard scaffolding frames in multiple heights of 16 inches. Specially designed platforms 3'6" deep and 8' long are covered with removable carpeting and can take single, double or 4-unit chair groupings. With carpet removed, platforms pinch-hit as additional tiered stage surface. This flexible scaffolding technique assures that audience-stage configurations can be readily altered from performance to performance or even during performances. ▷

College science on the open plan system

eerfield Academy Science Center, Deer-
eld, Mass. 1972-1974

After spending six months reassessing the
urricula and spatial needs of Deerfield's
:ience studies, Ward helped shift the pro-
am from the traditional concept of com-
artmentalized instruction to an energetic
ommitment to unified teaching.

The building is a 2-level volume 150 feet
quare. On the first floor, a free-flowing
boratory space is overlooked by the resource
enter and faculty offices tucked away in the
ezzanine. Because the flexible lab is the
eystone, all access paths within the building
e designed to allow a view of what's taking
ace on the science floor.

The upper level combines a lecture area
nd planetarium into a domed Omni-theater.
ll elements upstairs are movable—dome
alls, seating sections, the projection system,
ven the planetarium instrument itself. Both
ie space and the hardware within are
esigned so that any student can manipulate
iem. □