

Extending the Infinite Corridor: Building the Connection Between Academics and Athletics

by

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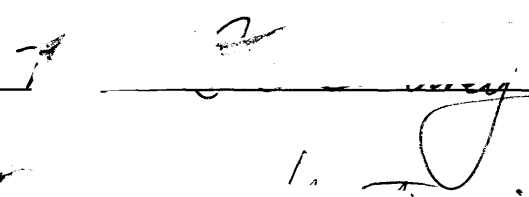
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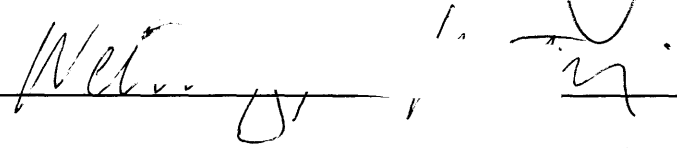
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OF TECHNOLOGY

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Building the Connection Between Academics and Athletics**

by
Michael L. Charney

Submitted to the Department of Architecture on April 15, 1994
in partial fulfillment of the requirements for the degree of
Master of Architecture

ABSTRACT

Physical fitness and athletics are far more important at MIT than the outsider might imagine. Exercising brings together the MIT community, not only the students but also the faculty and support staff. But the architecture of the existing facilities neither accurately symbolizes nor promotes the energy and significance of the athletic community to the campus as a whole.

This thesis proposes a built extension of the Infinite Corridor in the West Campus. The extension, an elevated walkway, supports campus activities, including athletics, becoming the connection between academics and athletics. The goal in building the walkway on the campus organizational axis is to reinforce athletics as part of campus life. The actual elevated experience and machine-like form of the pier and the curved roofs and exposed structure of the various design elements — all characteristics unique to the MIT campus — further highlights the importance of athletics to the campus.

Thesis Supervisor: Wellington Reiter
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I'm grateful for all the helping hands, but to the following people I extend further thanks:

To my parents (without whom I would not have been possible), and my sister, Deborah, for their love and support — times have been rough.

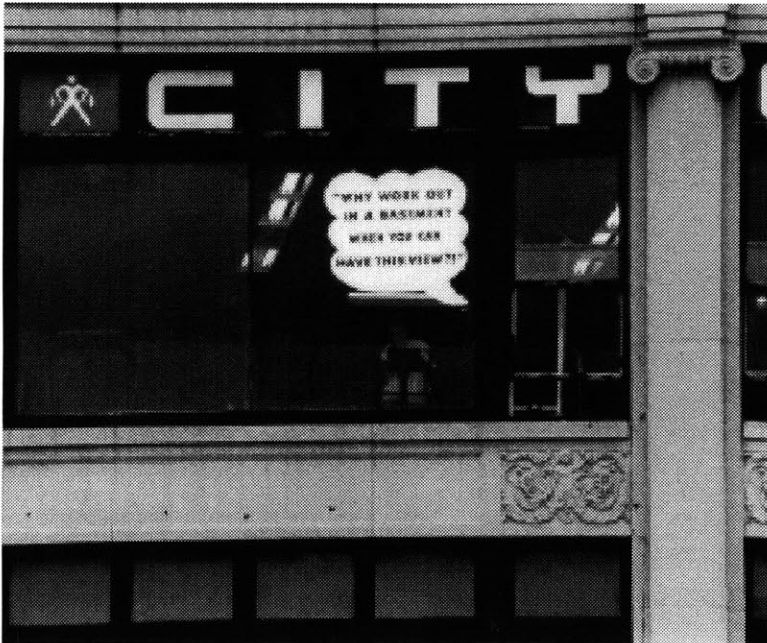
To Hanh, for her love, compassion, sympathy, unending patience, and Macintosh-nimble fingers.

To Fish, Sid, Stike, and Chris, for an escape when I needed it.

To my committee — Duke Reiter, Len Morse-Fortier, and Michael Owu — for their understanding and patience during this ordeal called “thesis”.

“Thank you...and goodnight!”

Introduction



City Gym, Boston



City Gym, overlooking Kenmore Square, Boston

Few would argue that exercise and athletics have become integral parts of society. Physical fitness is booming: whether the result of trends and fads concerning the “body beautiful” or the hope of longevity, people are exercising in all ways and all forms. Exercising has changed even over the past 10 years. In an effort to make it less painful and more efficient, medical doctors, biologists, and physicists have transformed exercising into its own science with its own set of “laws” (scientific) and a very distinct vocabulary. “Circuit-training”, “repetitions”, and “cross-training” are household words.

Consider the evolution of the “gym” into the “health club”. The gym as a boring, low-tech, sometimes dingy and always intimidating weight room has given way to the full-service health club providing everything from court sports to swimming to the standard weight room. By no means is the full-service club for the average person a recent innovation, but the attempt to make exercise fun and exciting by sporting high-tech machinery, neon lighting, and expensive acoustic systems is. The newest clubs promote social interaction as part of exercise — with hair, nail, and tanning salons, TV rooms, daycare, and restaurants and cafes as part of the full-service package, they become their own self-contained community. These cafes often afford views of the exercise spaces so that while relaxing over a drink we can watch others work out. Interestingly enough, people, far more so than 10 years ago, do not mind being watched during exercise. In fact, several health

clubs in the Boston area front large windows onto major thoroughfares providing views in for the pedestrian and interesting views out for those trying to escape the monotony of their exercise.

The health club is just one example of major change. Women's leagues now exist in sports once reserved for men and women now compete with men on the same playing field even at the professional level; one example is Manon Rheame, goaltender for the Tampa Bay Lightning of the NHL. Increased attention to fitness has resulted in new forms of exercise, some enabling people otherwise not athletic to participate. Jogging and running were beginning signs of increased fitness in the 1970's, but due to medical reasons or even a lack of coordination some could not benefit from these forms of exercise. Yet in-line-skating, a relatively recent innovation, provides some of these people with the exercise they seek: a walk on the Esplanade any spring weekend shows dozens of unsteady skaters christening their Rollerblades.

It is clear that exercise and athletics have come very far: not only have the fashions, apparatus, and places of exercise been transformed but so have attitudes toward and about exercise. Exercising, whether in a fitness center or on a playing field, has grown into its own subculture to which many seriously belong, and through competition or camaraderie, has become a venue of intense social interaction.

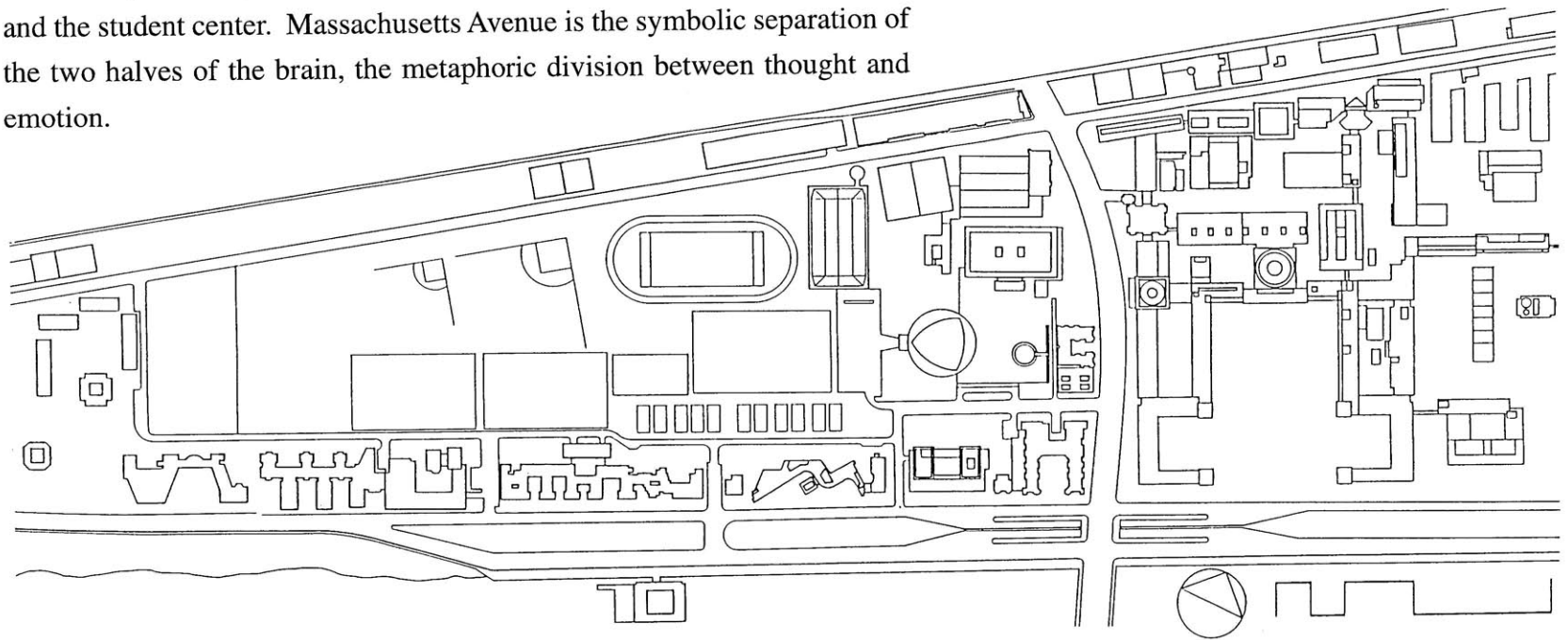
Part One



Aerial view of MIT from the West

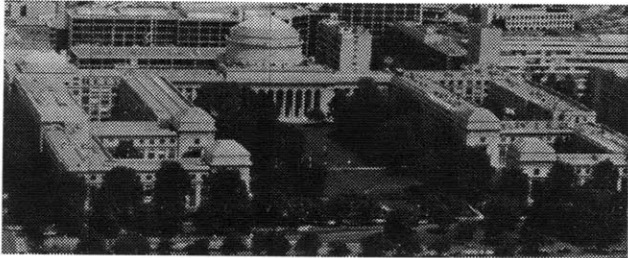
Campus Description

The MIT campus is divided by Massachusetts Avenue, a major Cambridge artery. Though separated only by the width of the street, the East and West Campuses are very distinct. Aside from a few dormitories, the East Campus is devoted entirely to academic life. The West Campus, on the other hand, consists of dormitories, athletic, religious, and cultural buildings and the student center. Massachusetts Avenue is the symbolic separation of the two halves of the brain, the metaphoric division between thought and emotion.

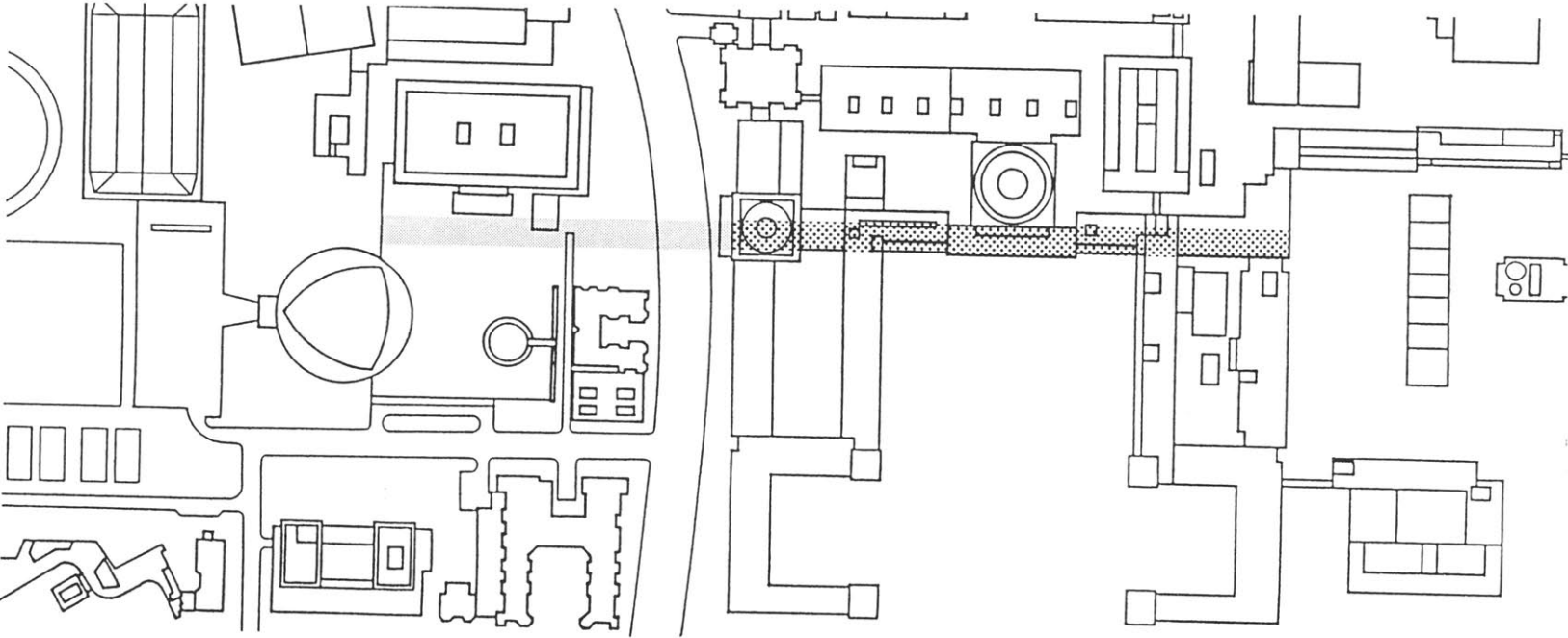


Campus Plan

The interconnected main academic buildings of East Campus are organized along a major spine affectionately known as the Infinite Corridor. This spine effectively links one end of the academic campus to the other — it is to MIT what Massachusetts Avenue is to Cambridge. The 16-foot-wide, 20-foot-high, quarter-mile-long Infinite Corridor is highlighted by several relatively “exciting” spaces.



Killian Court



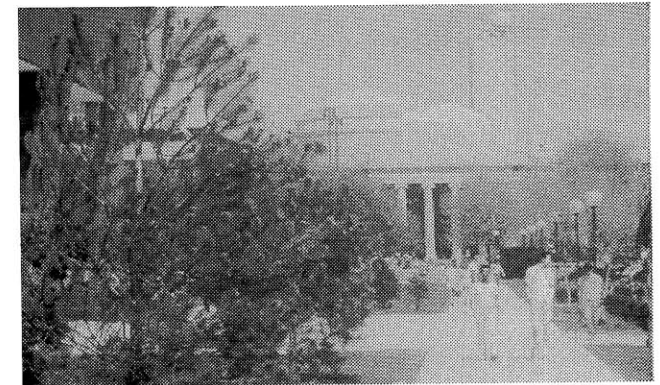
Enlarged Plan of Infinite Corridor: Built and Un-built are indicated

The dimension of the Corridor widens at Building 10 to create a two-story space, Lobby 10, dominated during the academic year by a multitude of student activity booths. Lobby 10 opens onto Killian Court, an expansive court facing the Charles River and Boston. Strikingly beautiful in spring and early fall, Killian Court is a burst of natural beauty in a sea of concrete and masonry providing respite from the bustle of the Infinite Corridor. Where the Corridor meets Massachusetts Avenue is Building 7 containing Lobby 7, an immense five-story atrium Classically styled and adorned, a dramatic beginning (end) to the spine. The exterior facade of Lobby 7 at 77 Massachusetts Avenue is similarly impressive with massive fluted Ionic columns and inscribed entablature boldly stating the main entrance to the academic campus.

But 77 Massachusetts Avenue is only the limit of the built Infinite Corridor — the spine actually extends to the West Campus. It is no coincidence that even through expansion and development an un-built corridor extending from Briggs Field to 77 Massachusetts Avenue is preserved. In fact, there is even a visual connection between the graduate dormitories at the western edge of campus and the Lobby 7 facade. This West Campus corridor is a continuation of the Infinite Corridor spine as an exterior progression. Like its East Campus counterpart, the exterior spine is highlighted by “exciting” spaces.



77 Massachusetts Avenue



Un-built extension of campus axis

Kresge Oval, a place of intense social interaction, is used by most students going from dormitories to the Infinite Corridor or to W20 (Stratton Student Center). In warm weather, the MIT community gathers on the steps on W20 for lunch or relaxes in the afternoon sun on the grass of the Oval. W20, W15 (MIT Chapel) — a place of prayer — and W16 — a place of cultural interaction — contain Kresge Oval. Designed by Eero Saarinen in the mid-1950's, the latter structures intentionally introduce forms and/or materials not found elsewhere at MIT to highlight their significance to campus life and as place-making pieces for Kresge Oval. While the masonry of the Chapel is not foreign to MIT, the cylindrical form which the material takes is. The sculptural form of Kresge Auditorium with its curved concrete structural members, glass facades, and exposed structural connections is inarguably unique to the campus.

Kresge Oval loosely ends (begins) the Infinite Corridor progression. Though the organizational power of the axis continues beyond its western edge, the five-foot descent from the Kresge Oval plateau to ground level represents a dissipation of the powerful progression. This unceremonious end point to the campus organizational element offers enormous potential for an extension of the axis, perhaps as a built form.



Kresge Oval



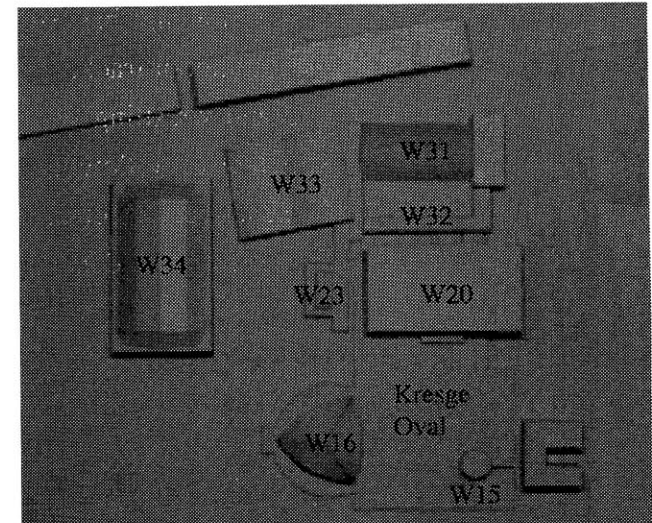
W16, Kresge Auditorium

Existing Athletic Facilities

To the outsider, MIT is true only to its name, an institute where technology is pushed to its limits, a place where intelligence and the mind are shaped. When I arrived here as a freshman in August 1986, I was pleasantly surprised to learn that students here value a sound body, as well as a sound mind. MIT fields a very extensive varsity athletic program, and apart from intercollegiate sports, the majority of students participate in a large intramural athletic program. But the MIT Athletic Association (MITAA) does not practice exclusivity — that is to say students are not the sole patrons of the athletic facilities. On the contrary, the participation of MIT faculty and support staff is encouraged.

Those who utilize the facilities (Users) comprise a dynamic population, one which with respect to the campus is unique to the athletic complex. While working out, playing an intramural sport, or even spectating a varsity sport, students, faculty, and staff form relationships that might not develop elsewhere. Recall the health club scenario. This type of social contact while sometimes lasting only as long as a set of repetitions or a 21-point basketball game is uniquely characteristic of the athletic facilities.

Surprisingly for an urban campus, MIT offers a full complement of athletic facilities all serviced by locker and team rooms, an extensive sports medicine clinic, and administrative, storage, mechanical, and laundry areas.



Existing athletic facilities and campus activities buildings



Existing athletic courtyard

Indoor facilities include the following: basketball, volleyball, tennis, and squash courts; hockey rink and indoor track, competition-size pool, weight room, pistol range, fencing and wrestling rooms; and dance and aerobic studios. Outdoor facilities include the following: baseball and softball fields, tennis courts, football, soccer, and rugby fields, and a lighted Omniturf field. With the number of Users at over 9000 and increasing annually, the facilities are always busy, year round.

The Need for New Facilities

Unfortunately existing facilities are inadequate to meet the present and expected levels of use. This fact has prompted MIT to seriously consider design scenarios to upgrade facilities. The MIT Planning Office has compiled a prospectus evaluating present facilities and levels of use with the intent to provide demolition, renovation, and new construction to meet projected needs. Some of the practical considerations are 1) centralization of all athletic buildings meaning construction of a new pool moving it from its East Campus satellite location to the present West Campus complex, 2) elimination of excessive maintenance and repair of aged and obsolete athletic buildings several of which predate 1950, 3) need for larger, more flexible gymnasiums providing potential locations for graduation ceremonies and other large gatherings, and 4) need for significantly more locker room space.

As merely a brief synopsis of the major issues, this discussion is included to simply show a practical need for facilities, not to describe in depth and detail existing buildings or program elements. The need for an upgrade of facilities is why and where this thesis begins. But addressing the need for new facilities goes beyond programmatic considerations. Recall again the health club scenario. Though not to overwhelmingly condone party-like athletic clubs, there does exist a need to consciously create a stimulating atmosphere for exercise. Additionally, the notion of athletic venues as places for socializing is a powerful idea especially positive for a college campus: many students here already attend athletic events for social status. Consider an environment built in and around these athletic events, a social place where the MIT community can gather to study, eat, and relax while watching people exercise. Both Users and spectators benefit from such an environment.

Unfortunately, this is not the environment of the existing facilities. There is no pervasive sense of community. What is called the lobby of the West Campus complex in W32 (Dupont Athletic Center) simply provides a link between the various facilities. Users and spectators move through this space but rarely stop to socialize there, and although the lobby is in the heart of the complex, it is disconnected from all athletic events. The shortcomings of its design and configuration make the lobby merely a point of access rather than a social nucleus for the whole complex.

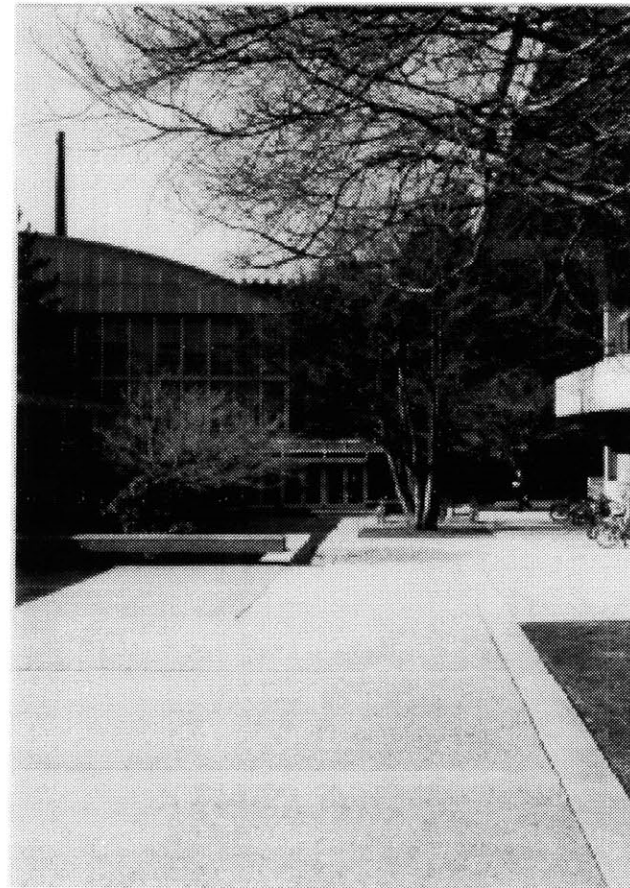


Students relax in ice cream cafe at Stratton Student Center.

There is a real separation between the athletic facilities and the campus. At a most basic level, the opacity of the building facades (with curtains blocking what few windows there are) disconnects interior activities with those of the campus. Consider the health club with large windows facing a busy street, a stimulating environment for both pedestrian outside and athlete inside. At a more profound level, the athletic complex is a world segregated from the campus.

An examination of the campus plan shows at a more profound level, the athletic sector a world segregated from the campus. Yes, the athletic complex is situated along the Infinite Corridor axis, but it is at the point where the nature of the axial progression changes. The complex is not part of Kresge Oval, and as an autonomous element, the architecture of the athletic sector is neither powerful enough to reinforce its own presence nor powerful enough to be a starting or ending point to the Infinite Corridor progression. These factors effectively separate athletics from campus life.

The configurations of the academic buildings of East Campus, of the dormitories of West Campus along Memorial Drive, and of Kresge Oval show careful attention to planning. The same is clearly not true of the athletic sector where planning is seemingly irrational. True, some the facilities are housed in two buildings, W31 (Dupont Gymnasium) and W33 (Rockwell Cage), built before much of West Campus and originally constructed as military installations. But the potential for a new building to organize and

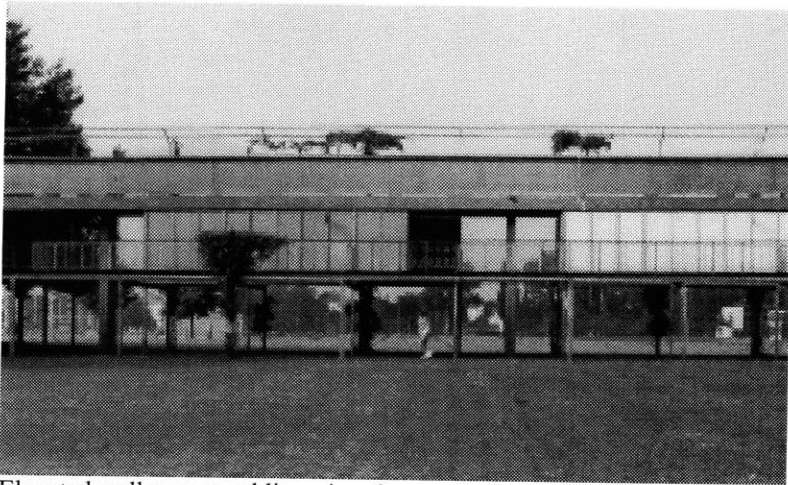


Semi-obscured entrance to athletic facility lobby

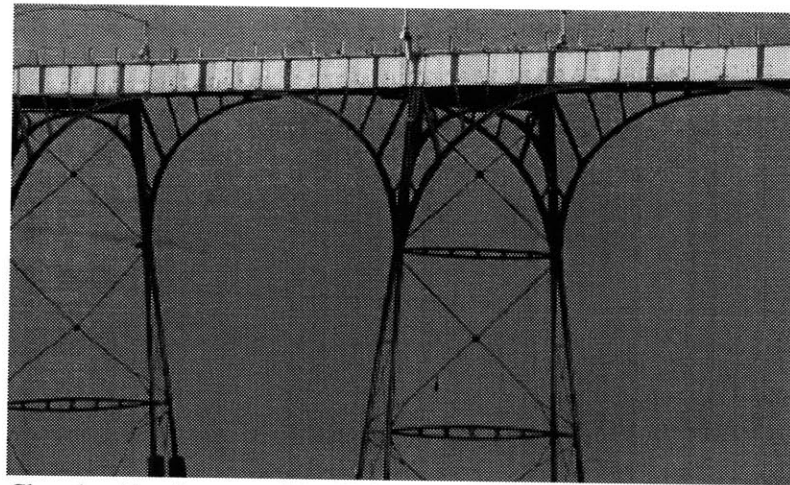
energize the athletic center is not realized in W34 (Johnson Athletic Center). The newest of athletic buildings effectively severs direct physical and visual connections between the complex and the fields it services.

For the over 9000 Users who represent a significant portion of the MIT community, exercising is an integral part of campus life. Imagine a facility within the scale and organization of MIT having a location, configuration, and environment commensurate with the positive attitude toward athletics on this campus — a place to exercise and simply a place to be which is truly a part of the campus.

Part Two



Elevated walkway at public swimming pools, Bellinzona, Switzerland
Aurelio Galfetti, 1967-70



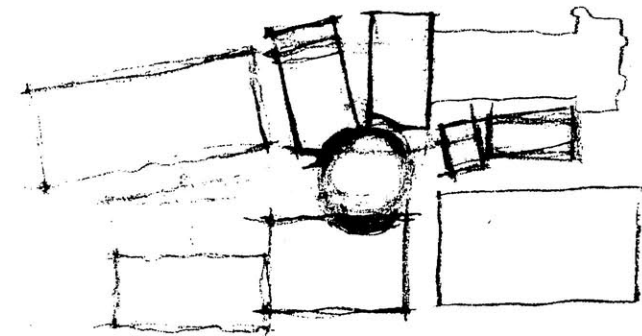
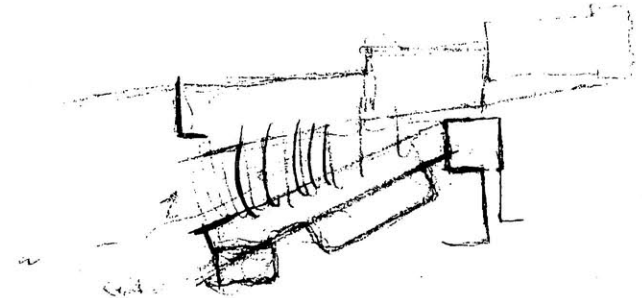
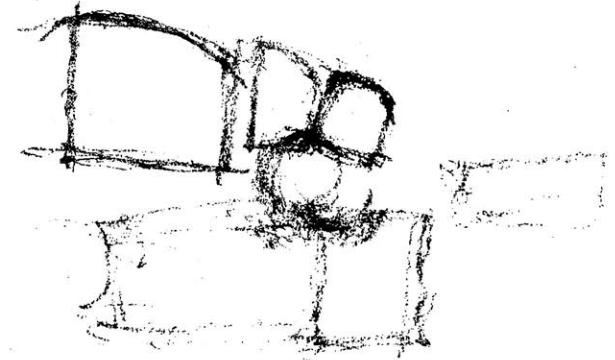
Clevedon Pier, Somersetshire, United Kingdom, opened 1868

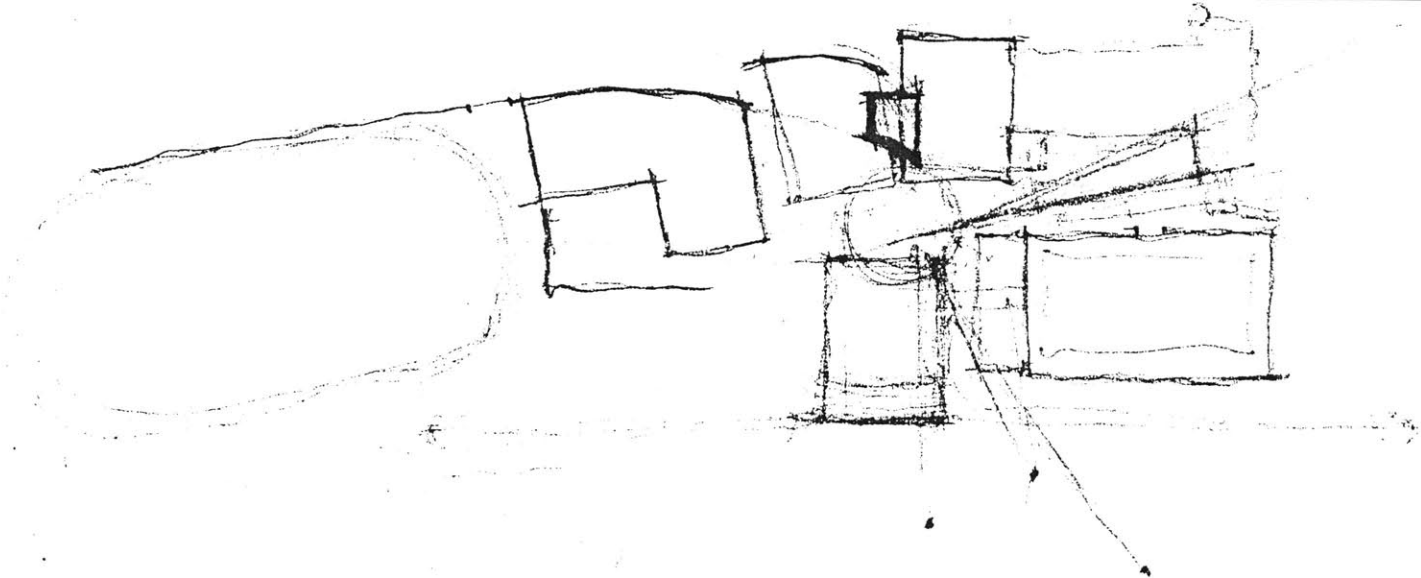
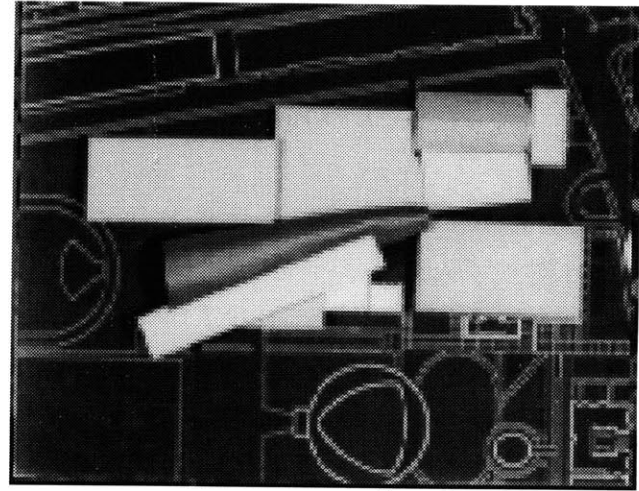
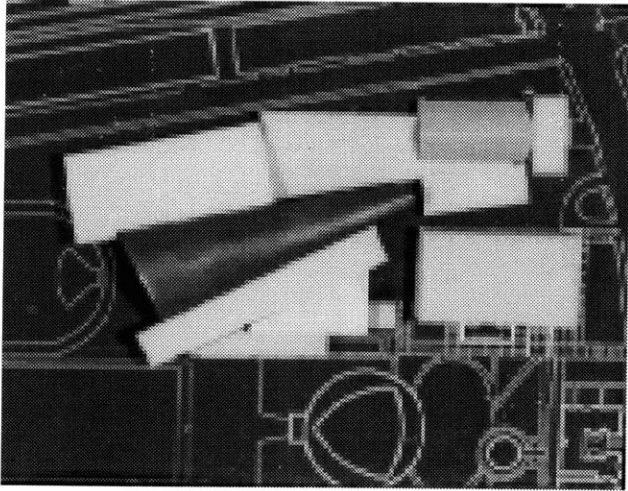
Initial Thoughts

The first few design passes are attempts to fit the program elements on the existing athletic complex footprint. These design unrealistically circumvent the dilemma of adapting existing facilities by proposing extensive demolition and new construction.

The horn-shaped structures in both models represent communal spaces alive with the sights and sounds of athletics and exercise. In retrospect, these proposals are merely glorified versions of the existing complex. The architecture, forms, and configurations may be different, but the two scenarios suffer the same disconnection from campus life as the existing complex does.

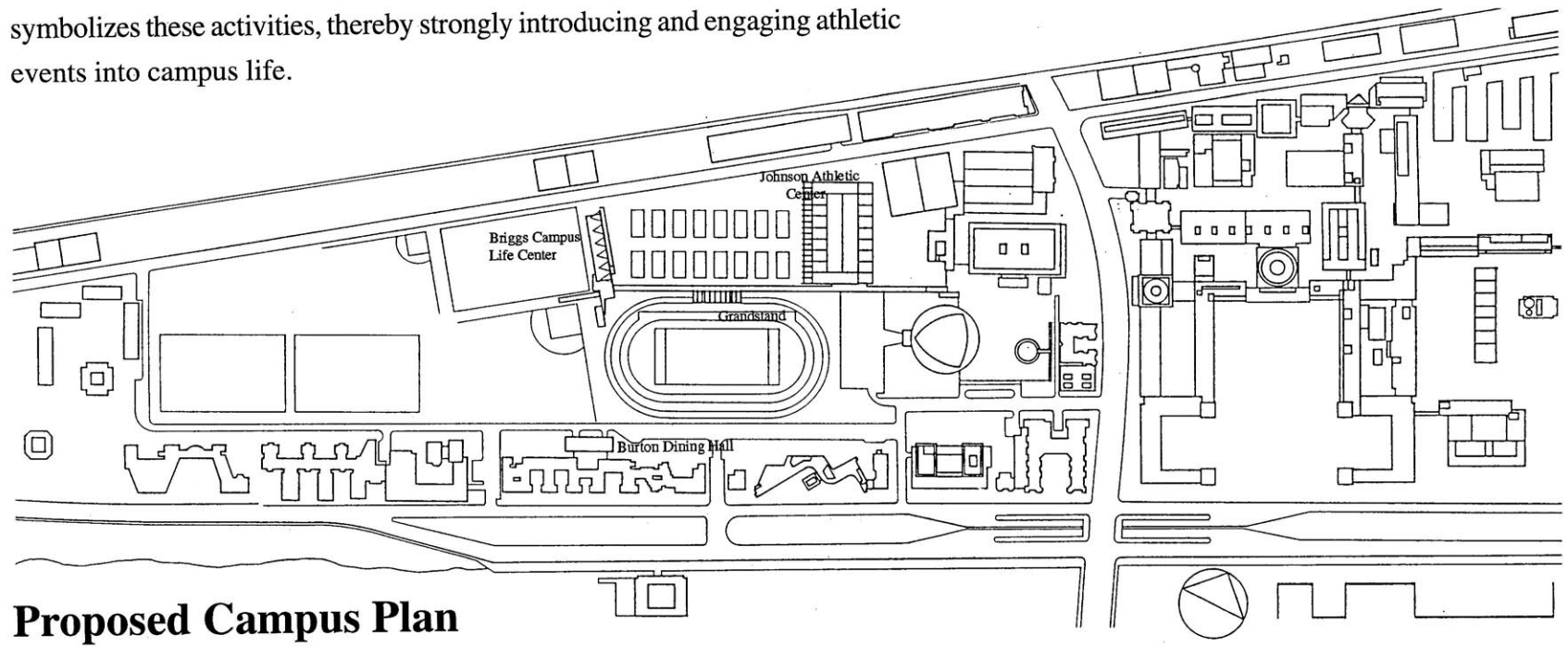
Despite this criticism, one positive idea does develop from these sketch models — the notion of addressing the athletic fields as part of the athletic experience. The “horns” open to the West, a distribution point to the fields and conversely a welcoming point from the fields. Imagine finishing a varsity practice after dark and seeing the inviting lights of the warm lobby, a place to shower, eat, and relax.





Extending the Infinite Corridor

The proposal is a built extension of the Infinite Corridor axis, an elevated walkway extending from the western edge of Kresge Oval into Briggs Field. The walkway is a West-Campus-reference to the Infinite Corridor itself, and like the Infinite Corridor, the walkway supports “exciting” places of campus activities. It is these activities, some of which are athletic, that attract the MIT community to the walkway. In turn the walkway symbolizes these activities, thereby strongly introducing and engaging athletic events into campus life.



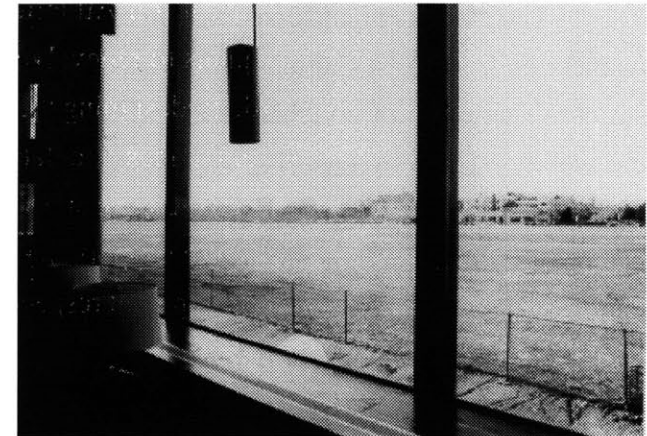
Proposed Campus Plan

The placement and construction of the walkway preserves the visual connection from West Campus to 77 Massachusetts Avenue. As a rule, built structures adjacent or attached to the walkway respect a zone the width of the walkway, thereby ensuring the preservation of this visual connection. At 10 feet high, the walkway provides covered access beneath and enables a person of six feet standing on the Kresge Oval plateau, to realize its complete length at the walking surface level. Panoramic views of campus from the walkway combined with the scarcity of exterior terraces and balconies on campus make the walkway a powerful statement. Because of its unique experience, its role as an organizational piece is further highlighted — a positive symbol of athletics at MIT. Similar to the health club window facing the street, the walkway puts athletics on display, in a sense advertising their existence and importance to the MIT community (and the world), potentially encouraging participation. The walkway also provides an easy, convenient way for Users to locate a varsity or intramural team or a pickup game on Briggs Field.

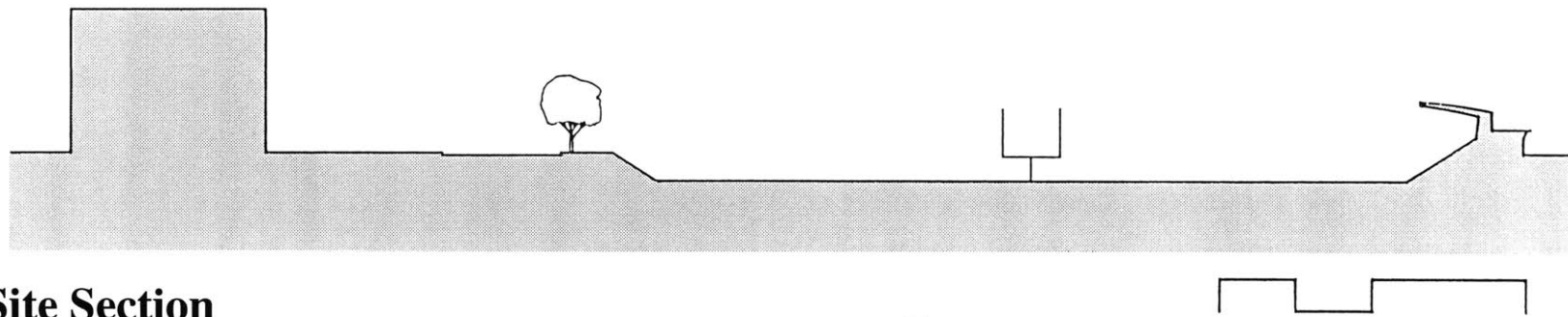
Introducing the walkway prompts a rethinking and re-configuring of the athletic fields. In an attempt to further engage varsity athletics with the student body, Steinbrenner Stadium is relocated from its somewhat removed existing location to a site along Amherst Alley, directly across from dormitory row. The football field and track are approximately 12 feet below existing grade, sunken in a natural stadium. This natural bowl is an ideal venue for

varsity sports, signaling an appropriate height of importance considering the scale of MIT — it is neither an 80,000-seat stadium nor is it a typically unexciting field at grade. Because the field can be seen clearly from the sloping edge of the bowl and the Alley sidewalk as well as from the walkway, the casual passer-by can become a spectator.

The varsity baseball field is also relocated with part of the outfield fence along Amherst Alley. The field is positioned so that Burton House Dormitory and its dining hall overlook it. Though not currently used for food service, the recently renovated dining hall offers a panoramic view of Briggs Field, and may become a snack bar or other student activity locale in the near future. The lighted Omniturf is also relocated so that it is overlooked by the Briggs Campus Life Building. The tennis facility is bordered by the Briggs Building, the walkway, Johnson Athletic Center, and trees and shrubbery along Vassar Street in an attempt to limit wind currents on the courts. This greenery on Vassar Street forms part of a landscaped running path around Briggs Field.



View of Briggs Field from Burton Dining Hall



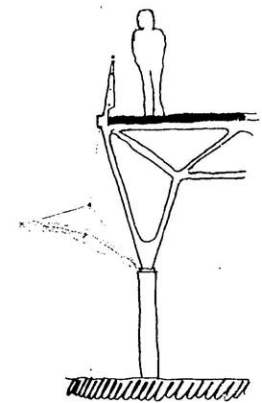
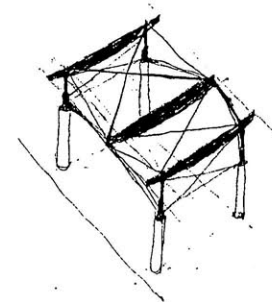
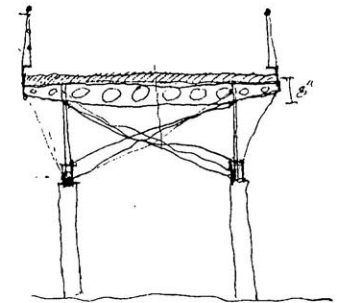
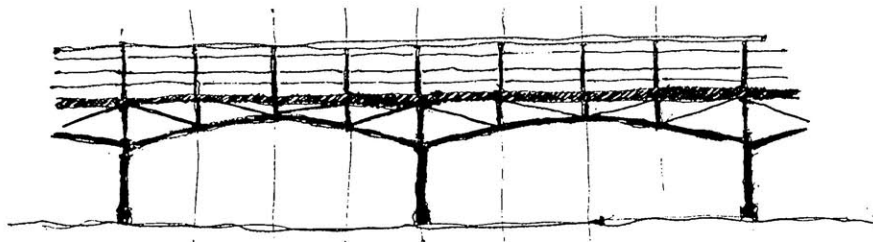
Site Section

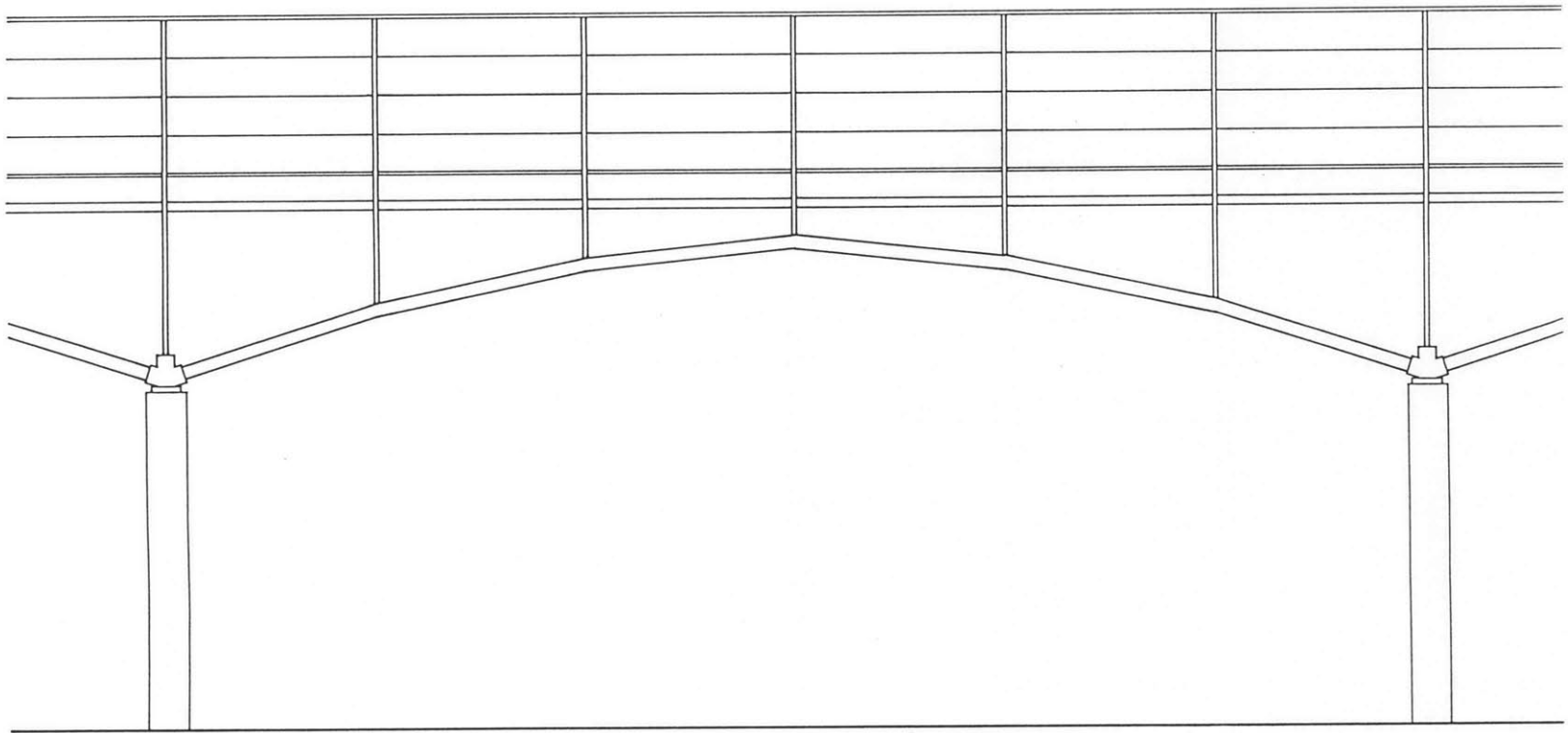
With the exception of Johnson Athletic Center, the final design proposal does not include any plans to redevelop and renovate the existing athletic buildings and courtyard. Redesigning the athletic sector is in itself a thesis involving deeper issues of campus circulation and the redevelopment of the intersection of Massachusetts Avenue and Vassar Street. The proposed walkway is designed and situated to support any future development of the athletic sector, so long as that development respects the zone of the walkway.

Pier

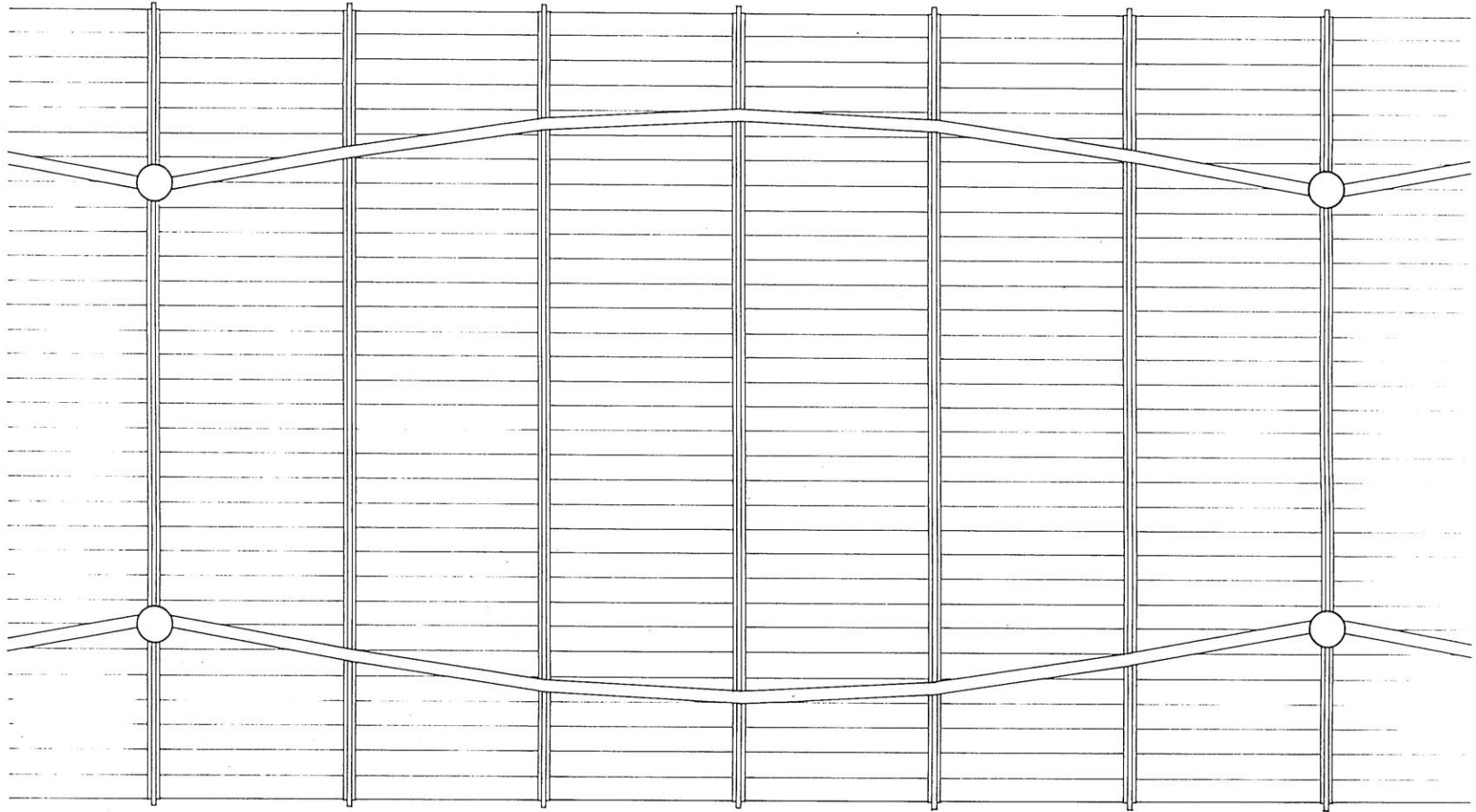
The walkway is a pier with a structural system supported by regularly spaced columns. The structure is light, an unobtrusive installation to maximize transparency, preserving the visual and physical continuity of the athletic fields. The structure is a series of perforated, pressed-metal joists sitting on bowed, tubular steel members which connect in exposed junctions at the columns. The actual walking surface is 2x6 tongue-in-groove wood planks over which the metal joists wrap as railing supports. The form and dimension of the handrails make them ideal for leaning.

Similar to the work of Santiago Calatrava, the structure of the walkway is also its architecture. The form of the structural system results from the need for maximum transparency, and the forms of the individual structural elements result from the need for structural integrity and soundness. Like the materials and architecture of Kresge Auditorium, the unique machine-like form of steel and wood undulating across Briggs Field highlights its importance as a campus installation.

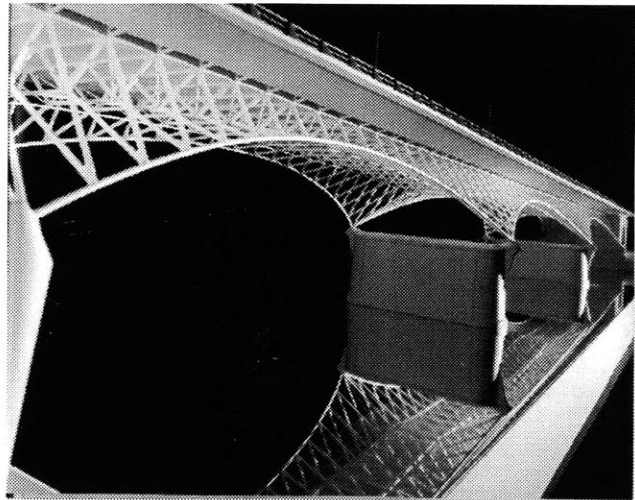
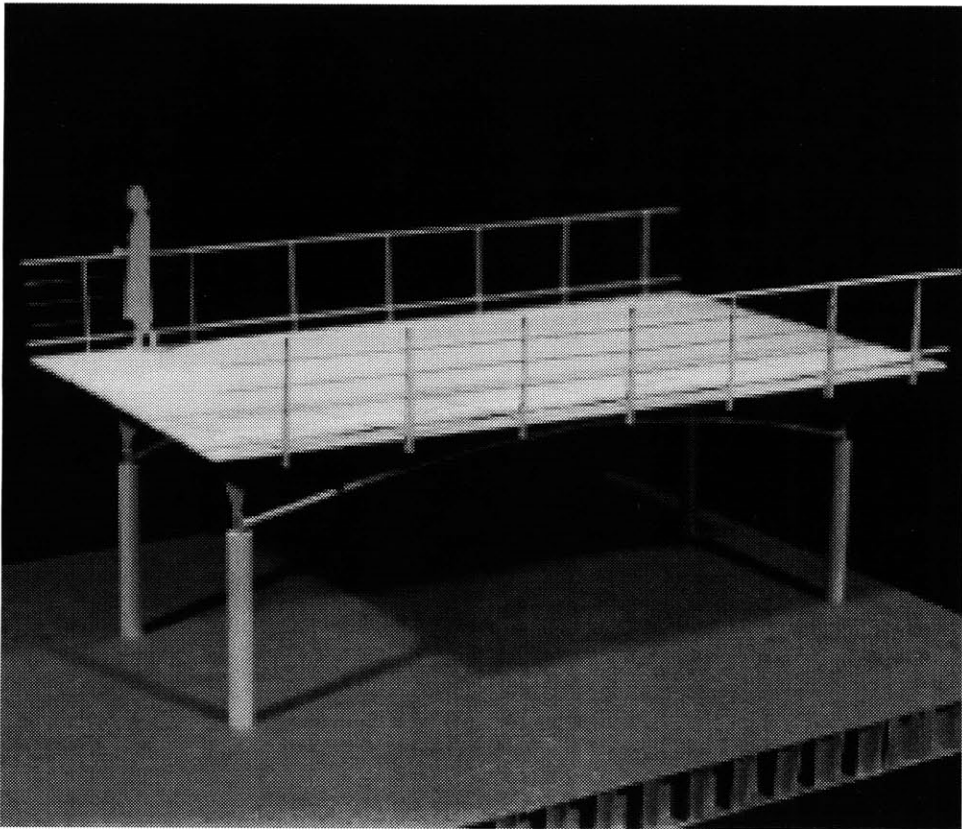




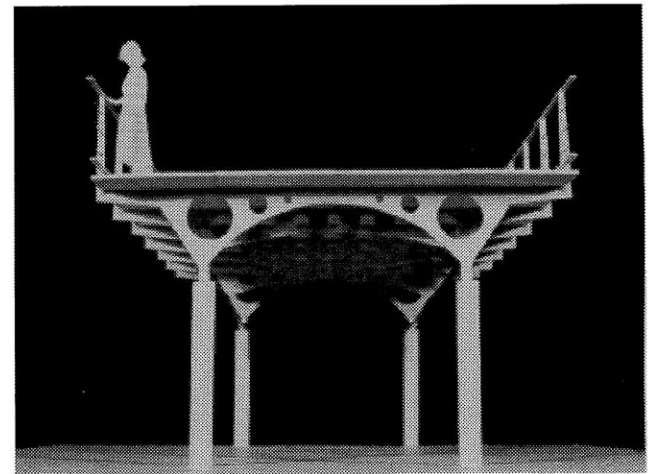
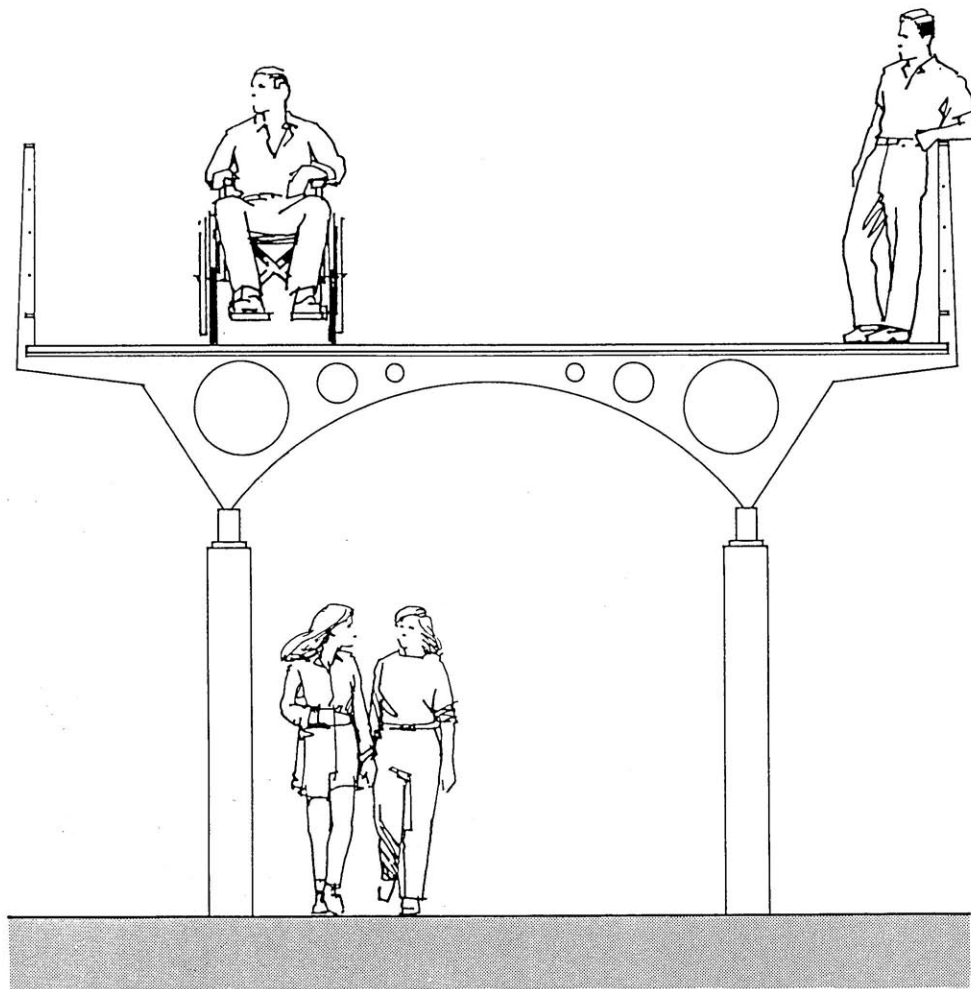
Elevation



Reflected Plan

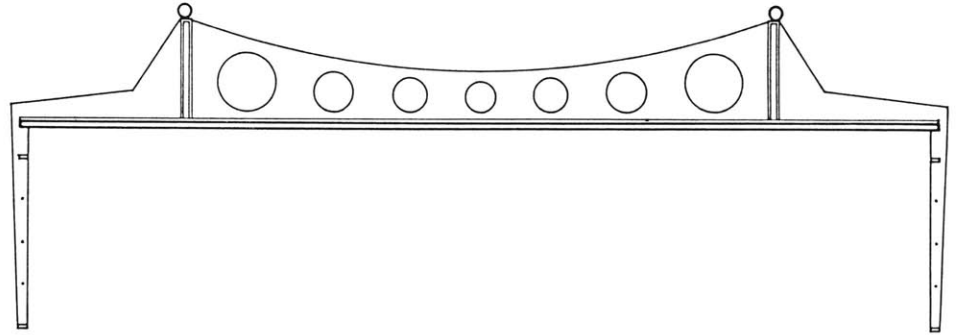
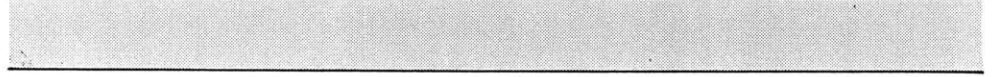
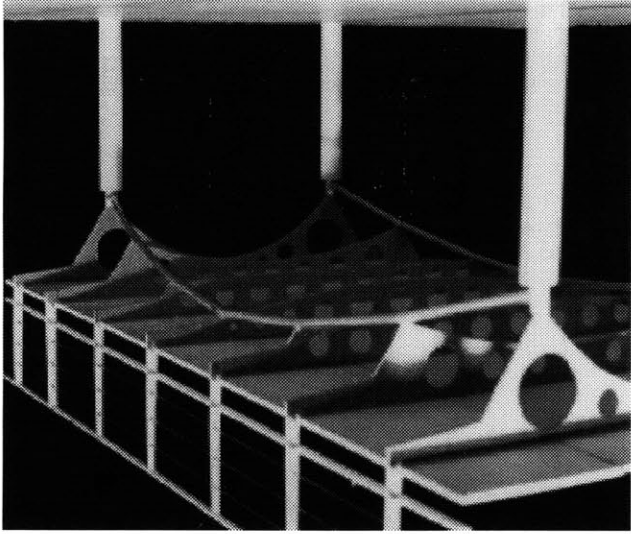


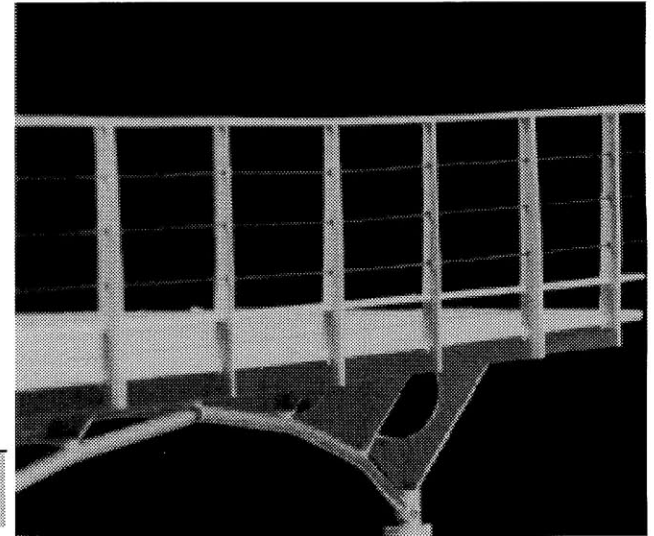
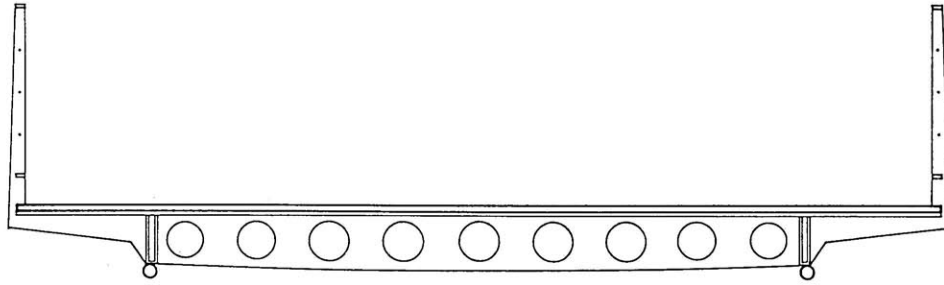
Wettstein Bridge, Basel: Santiago Calatrava



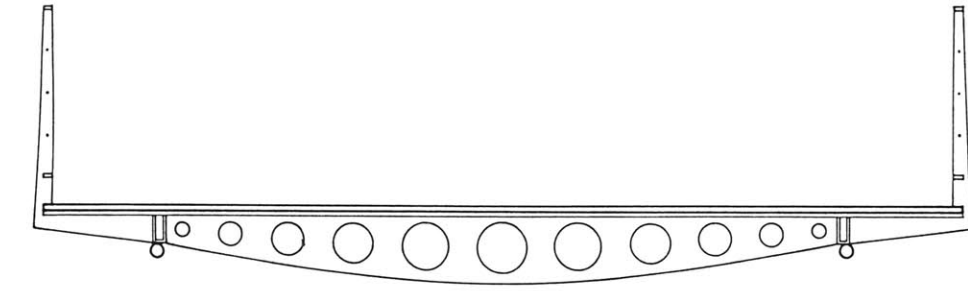
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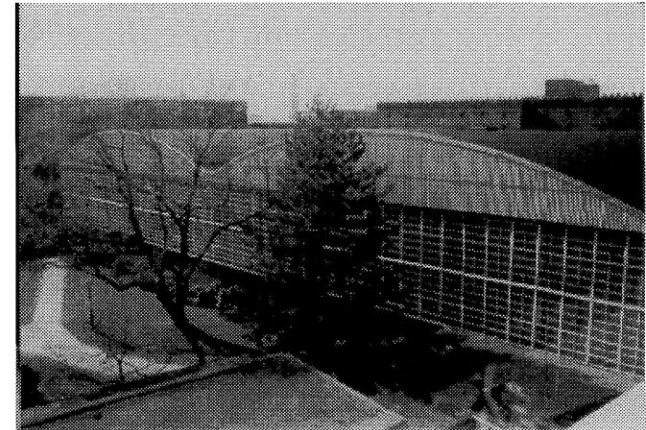


Section

Johnson Athletic Center

Here the walkway expands into the Athletic Center becoming a cafe overlooking the existing ice rink. The cafe connects to the existing hockey grandstand and creates a mezzanine in the existing lobby which is open to the indoor track on the second level creating a connection between floors. The architecture of the existing building is transformed to represent the dimensions of activities within. The shape of the southern facade follows the curve of the indoor track. The curved roof form derived from the architecture of W33 (Rockwell Cage) reflects the actual dimension of the running surface and becomes part of an athletic architecture vocabulary. In changing the form of the building the existing roof trusses are exposed, and like the exposed structural connection at Kresge Auditorium, these trusses symbolize the special nature of Johnson Athletic Center and the activities within.

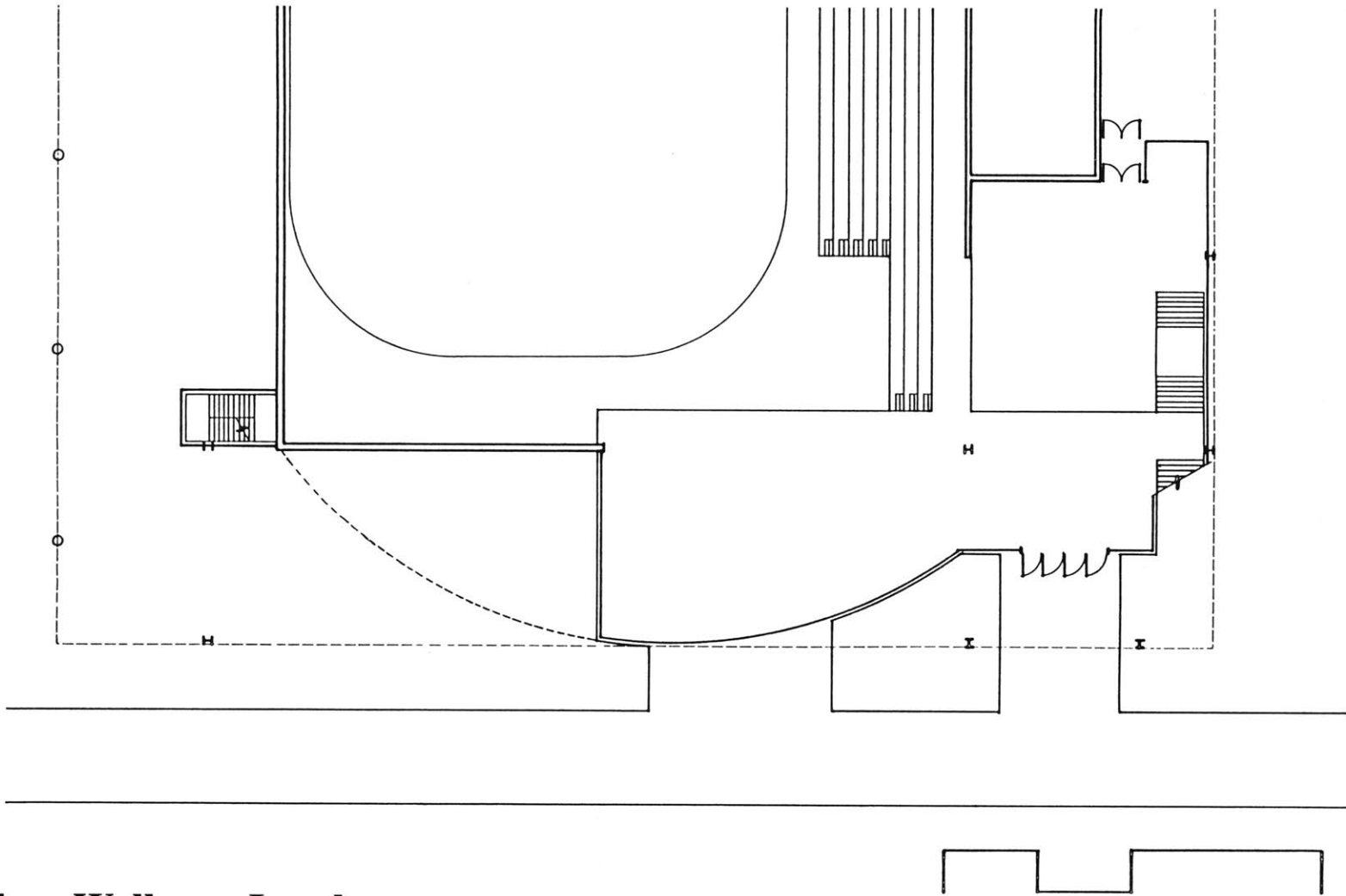
The change in building form also allows the introduction of natural light into the otherwise vault-like atmosphere of the indoor track. Translucent but not transparent materials are used in the facades and roof to allow diffuse but not direct sunlight to illuminate the track. The curved roof extends well beyond the western face of the building to block direct sunlight from blinding athletes. This roof extension also lessens the scale of the building and provides covered access from Vassar Street to the walkway.



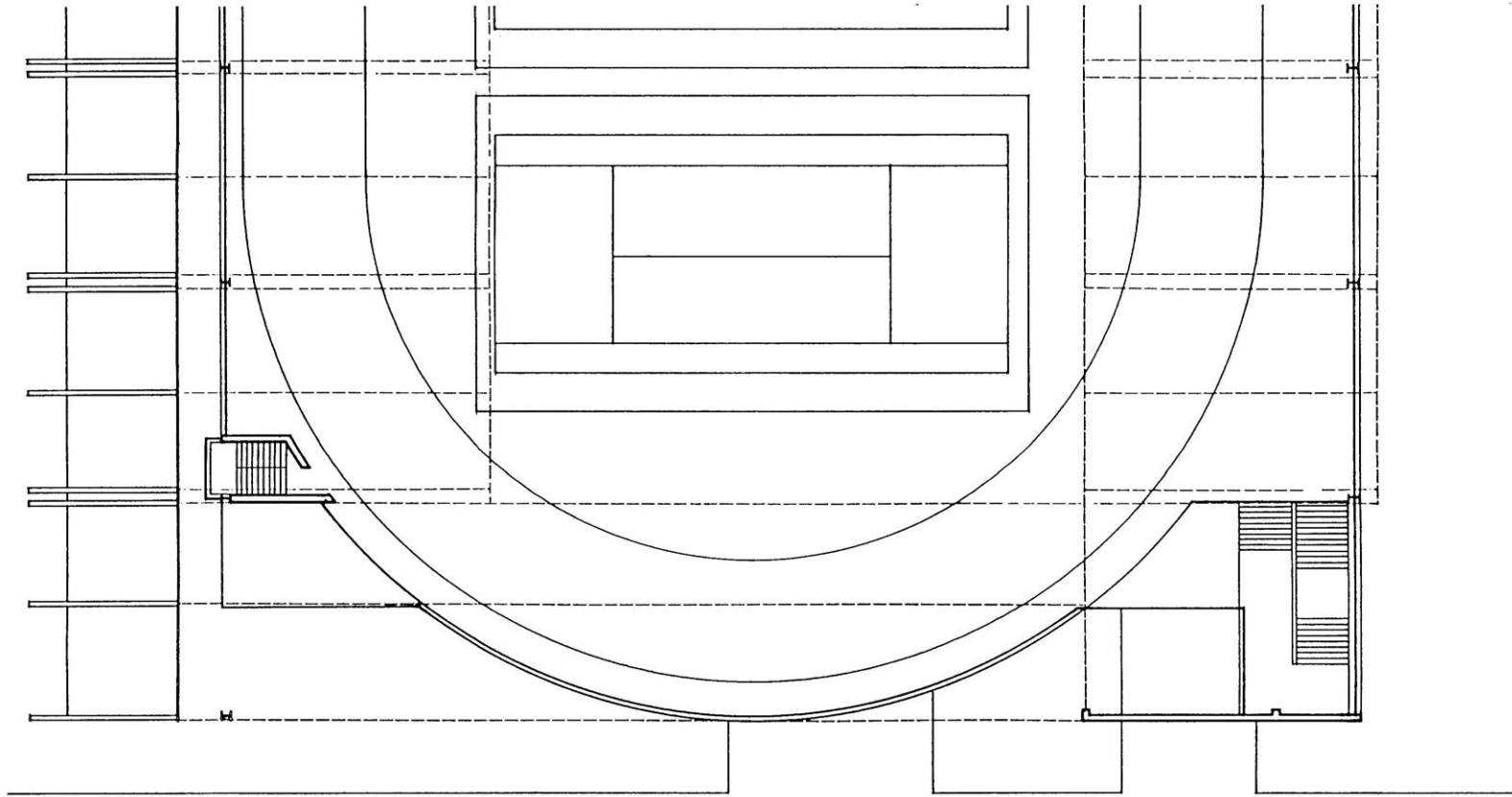
W33, Rockwell Cage



Roof trusses, W34, Johnson Athletic Center



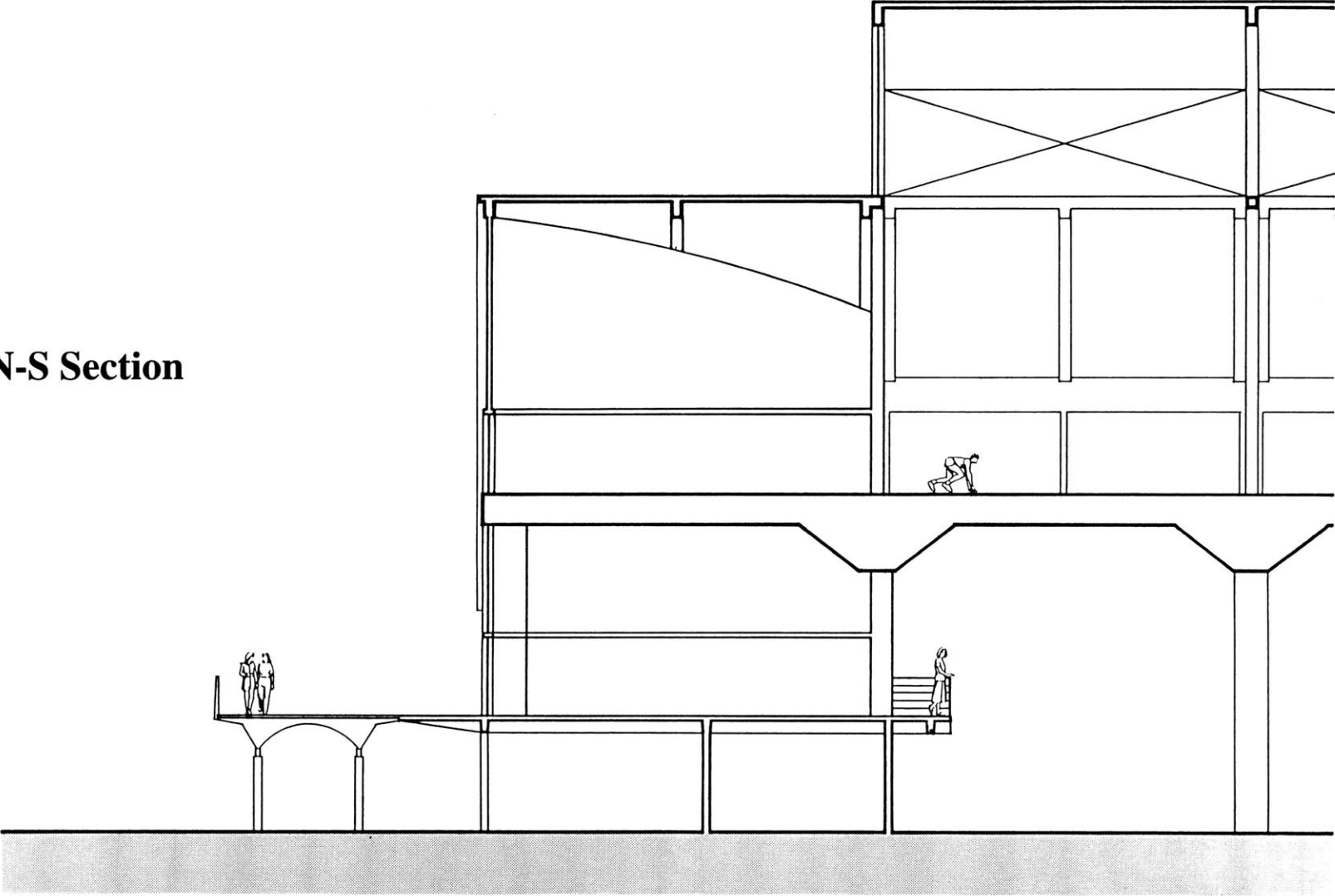
Plan: Walkway Level



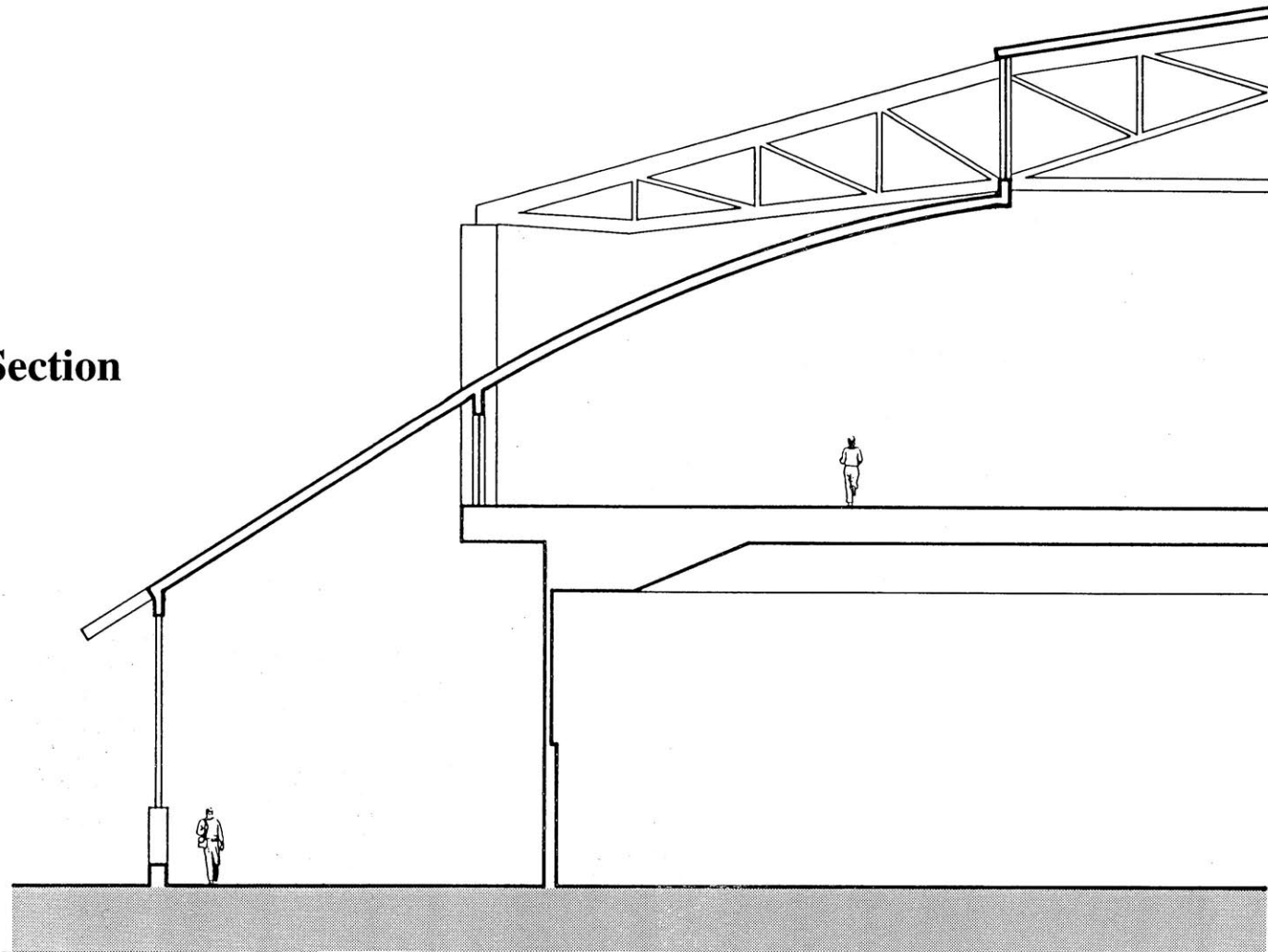
Plan: Track Level

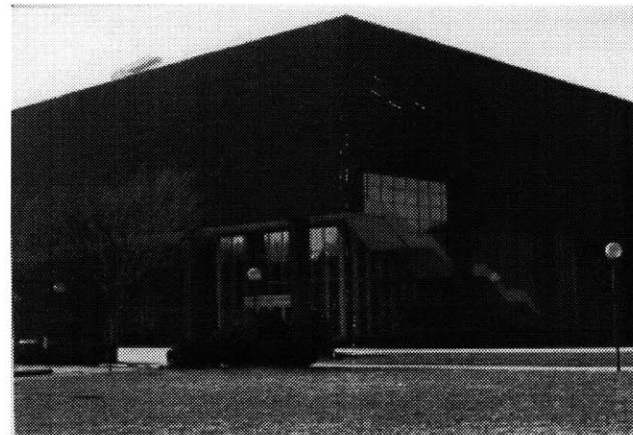
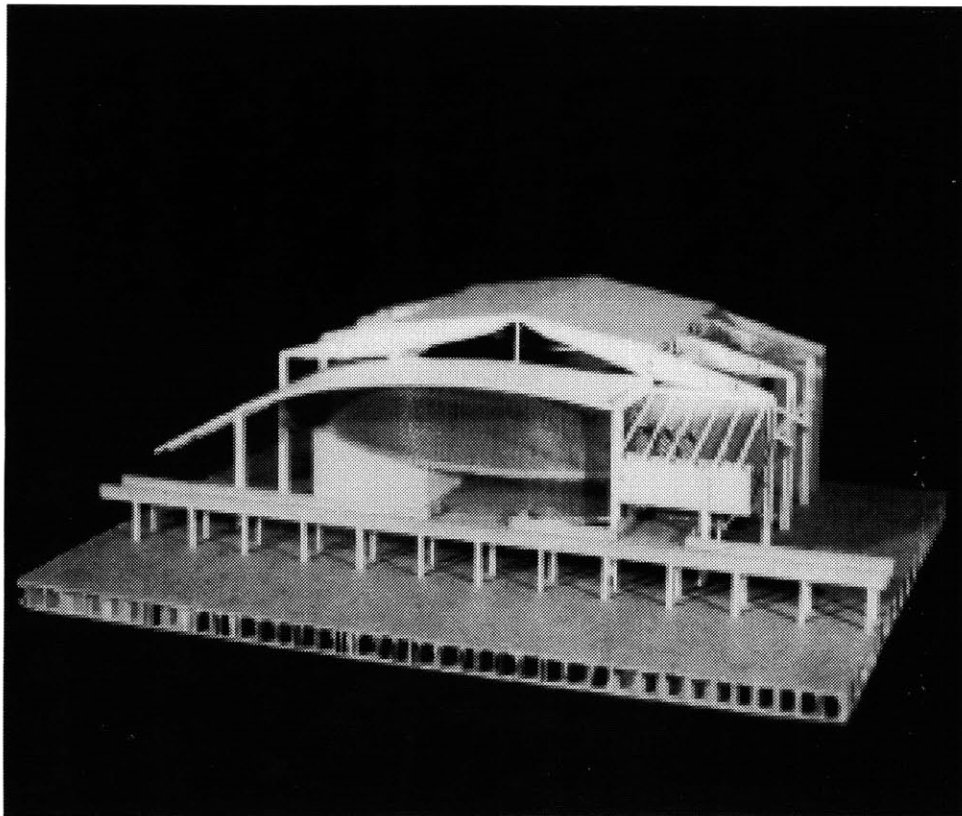


N-S Section

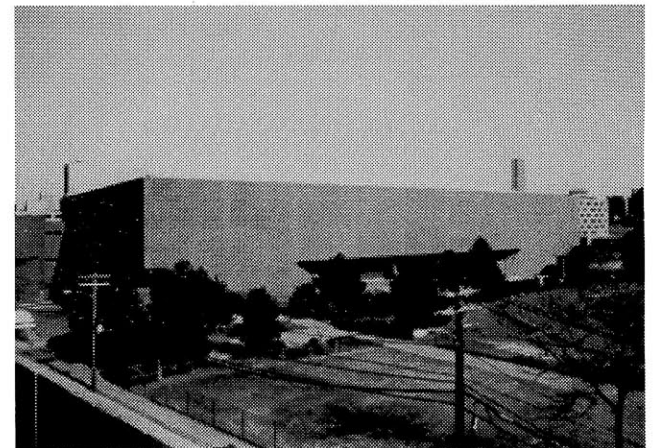
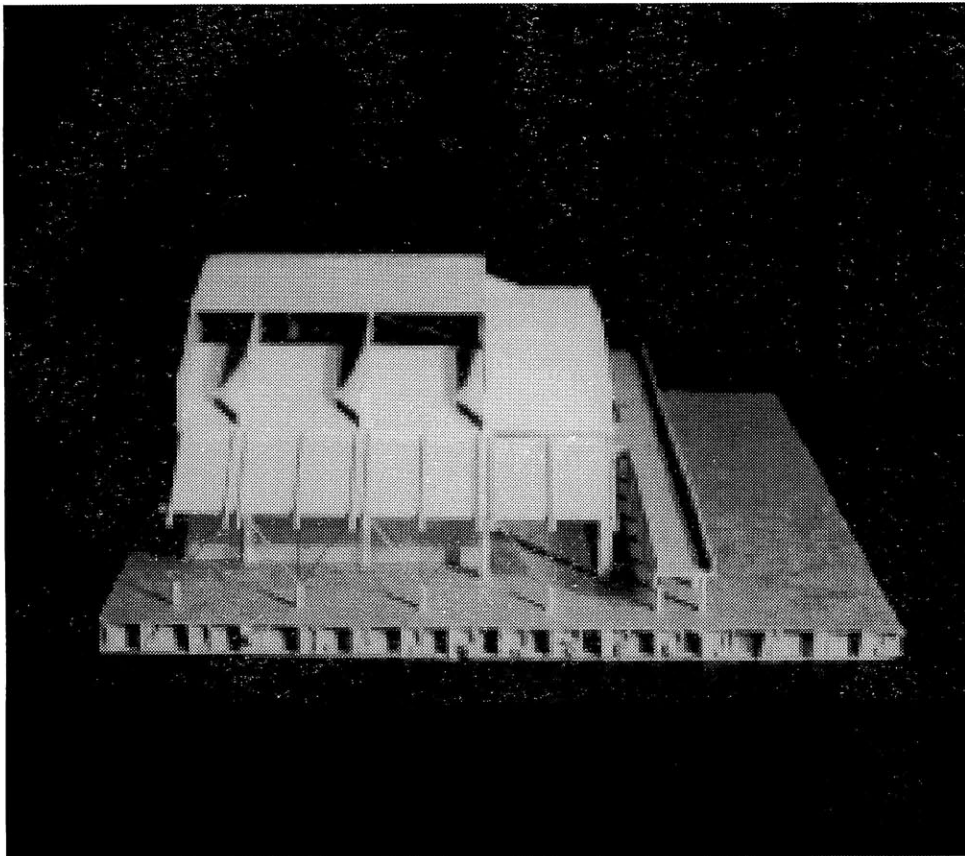


E-W Section

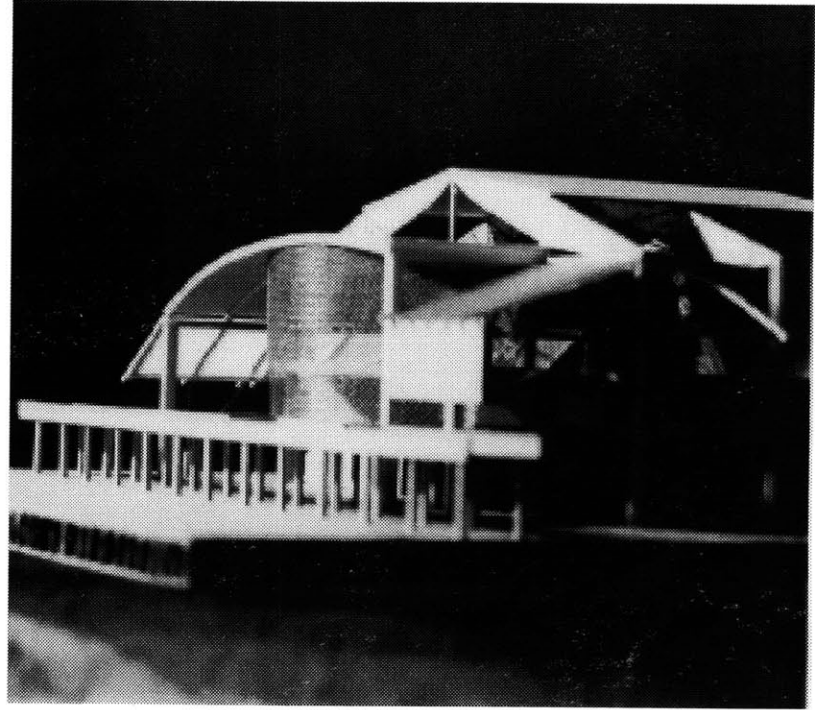
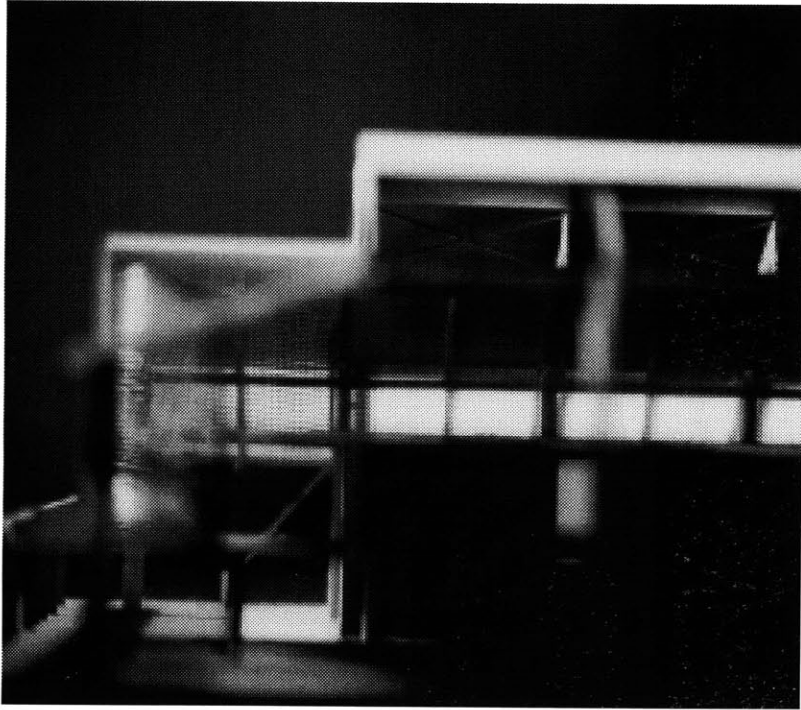




Existing lobby, Johnson Athletic Center

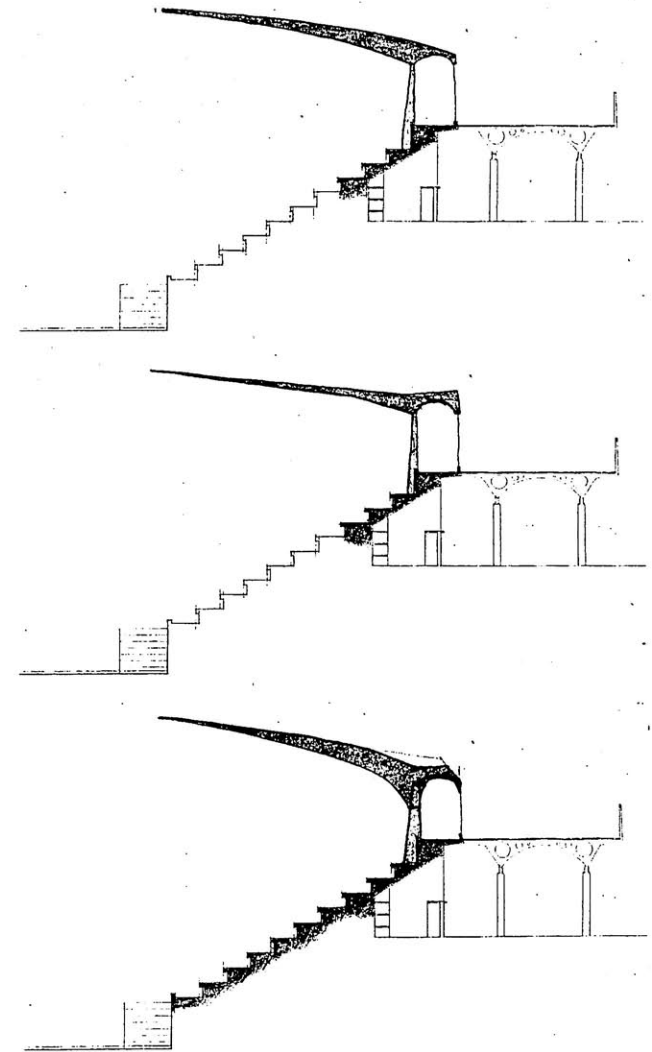
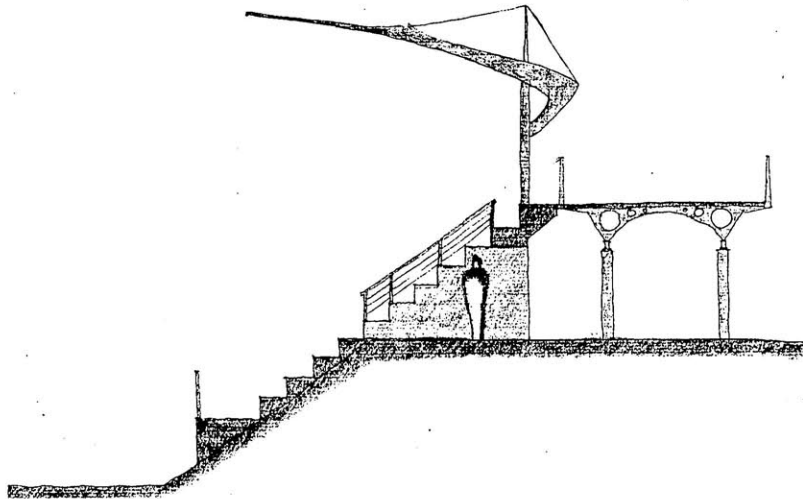


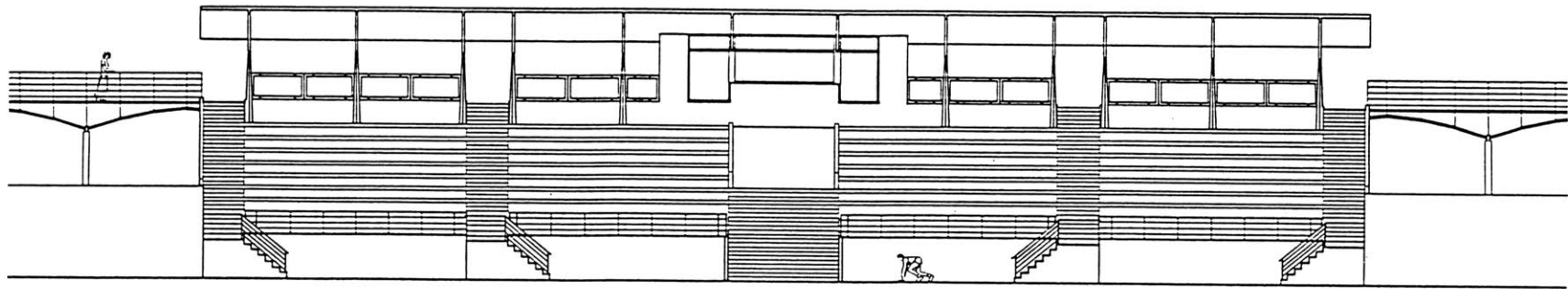
Existing west elevation, Johnson Athletic Center



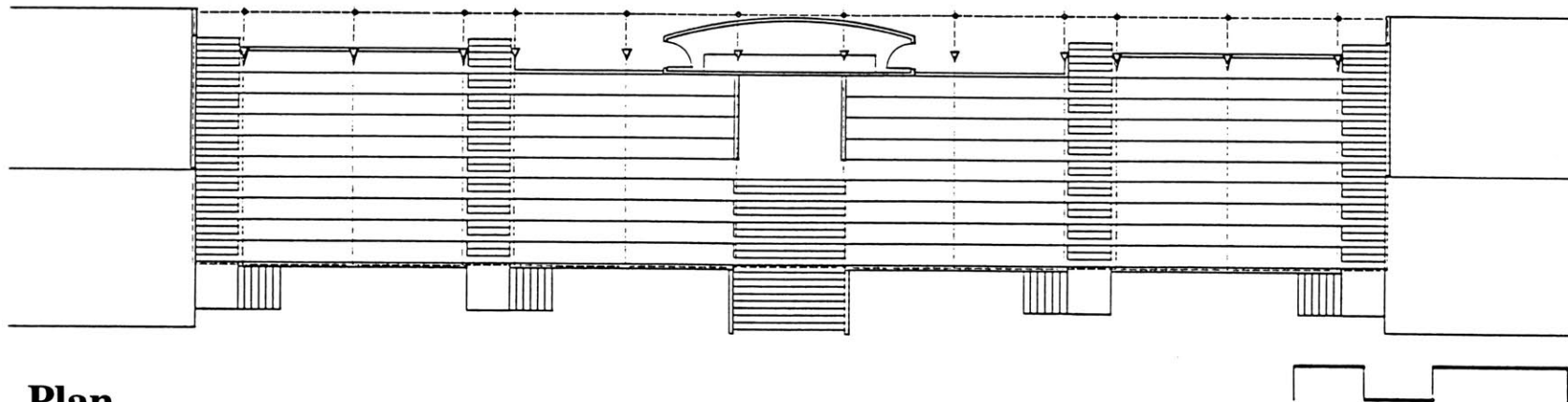
Grandstand

The grandstand is a lateral extension of the walkway, but is more so a vertical extension of the ground because of its heavy concrete construction. It provides a connection between the walkway and the sunken Steinbrenner Stadium. The exposed, articulated structure of the canopy, influenced by the architecture of Burton Dining Hall, is part of the athletic architecture vocabulary and highlights the importance of the grandstand. The cable connections of the canopy structural members demarcate the edge of the walkway and create a transition zone between the movement of the walkway and the stationary characteristic of the spectator.

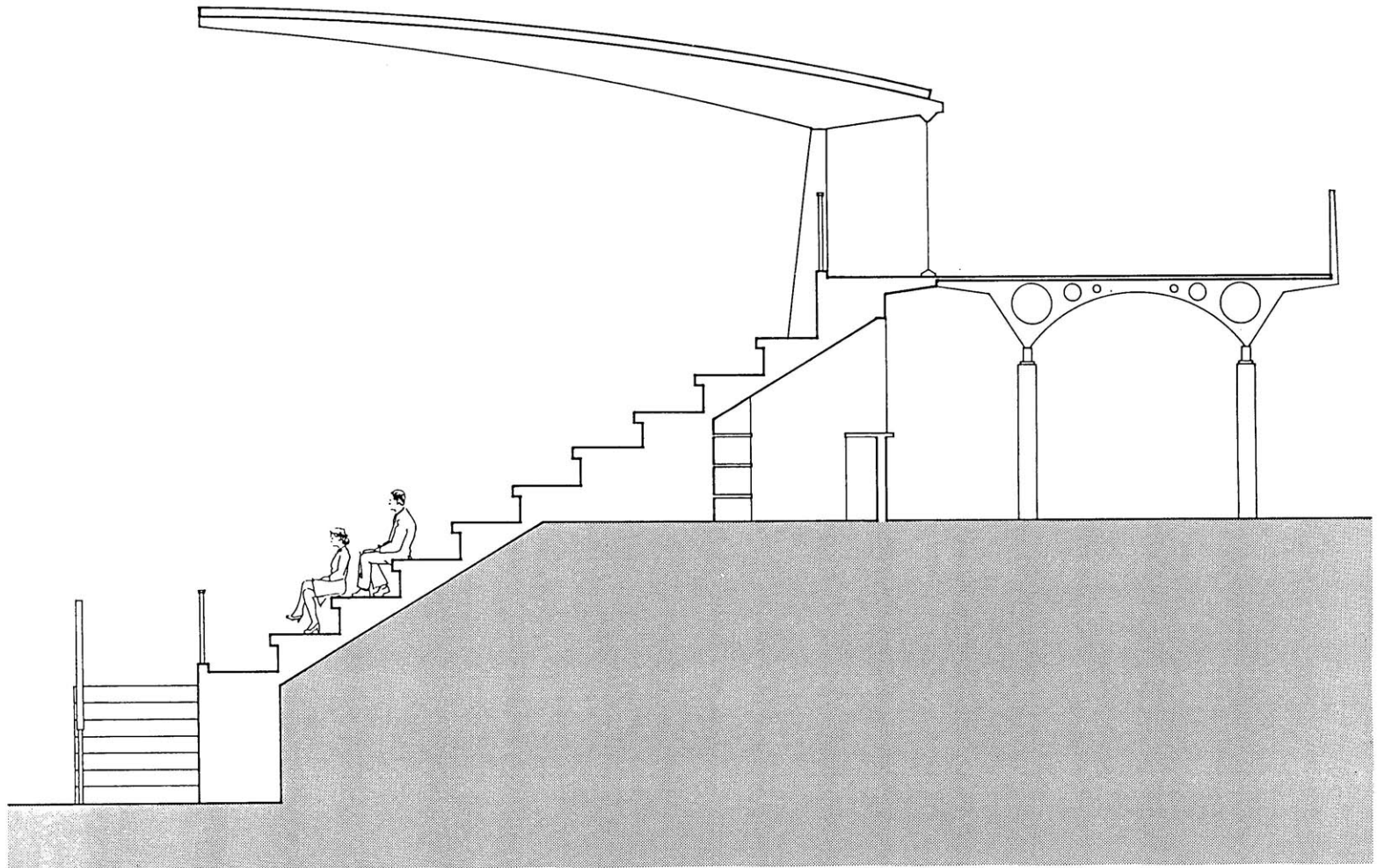




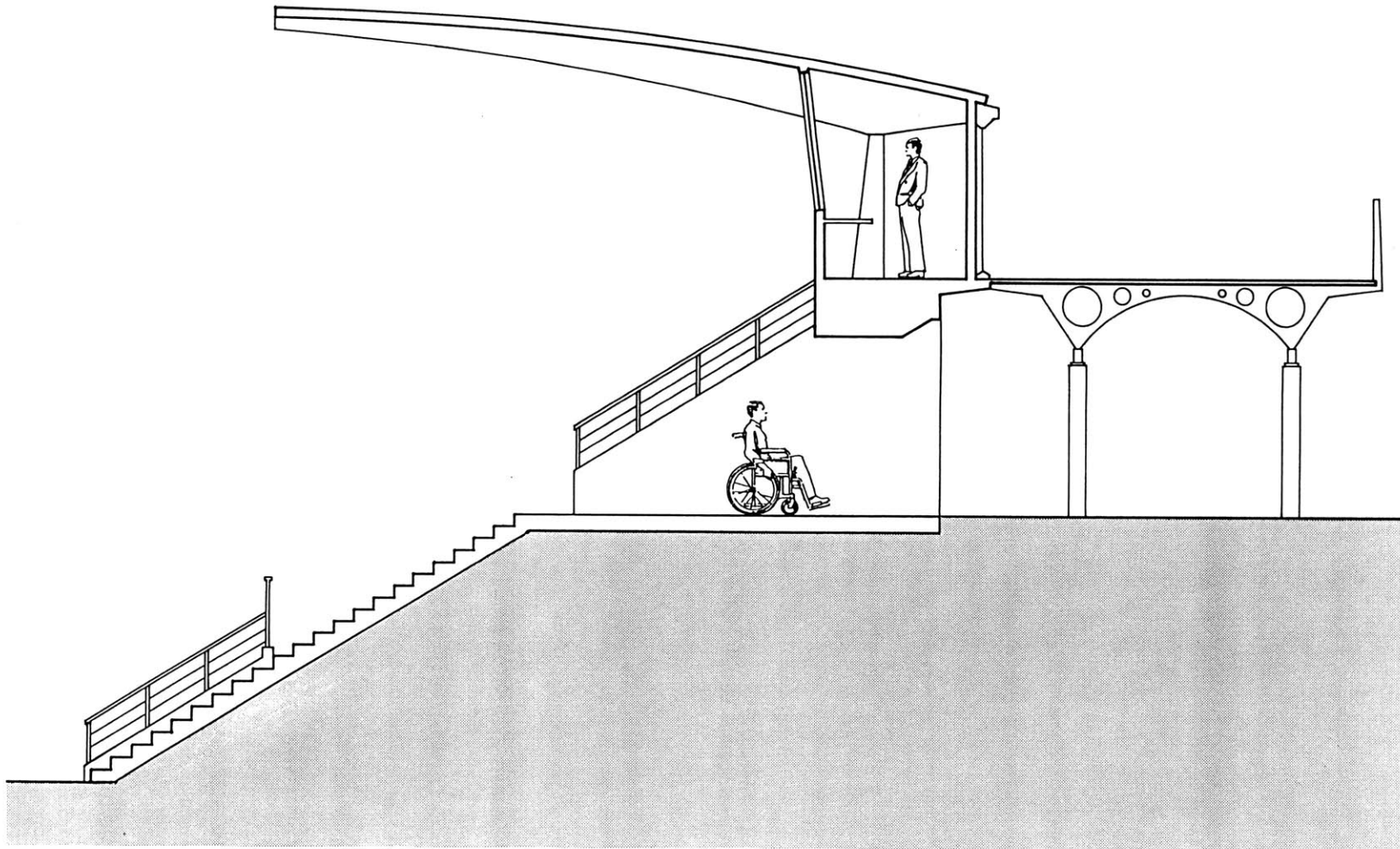
Elevation



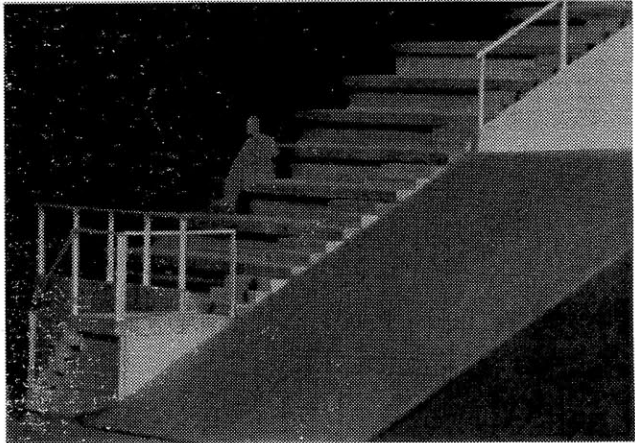
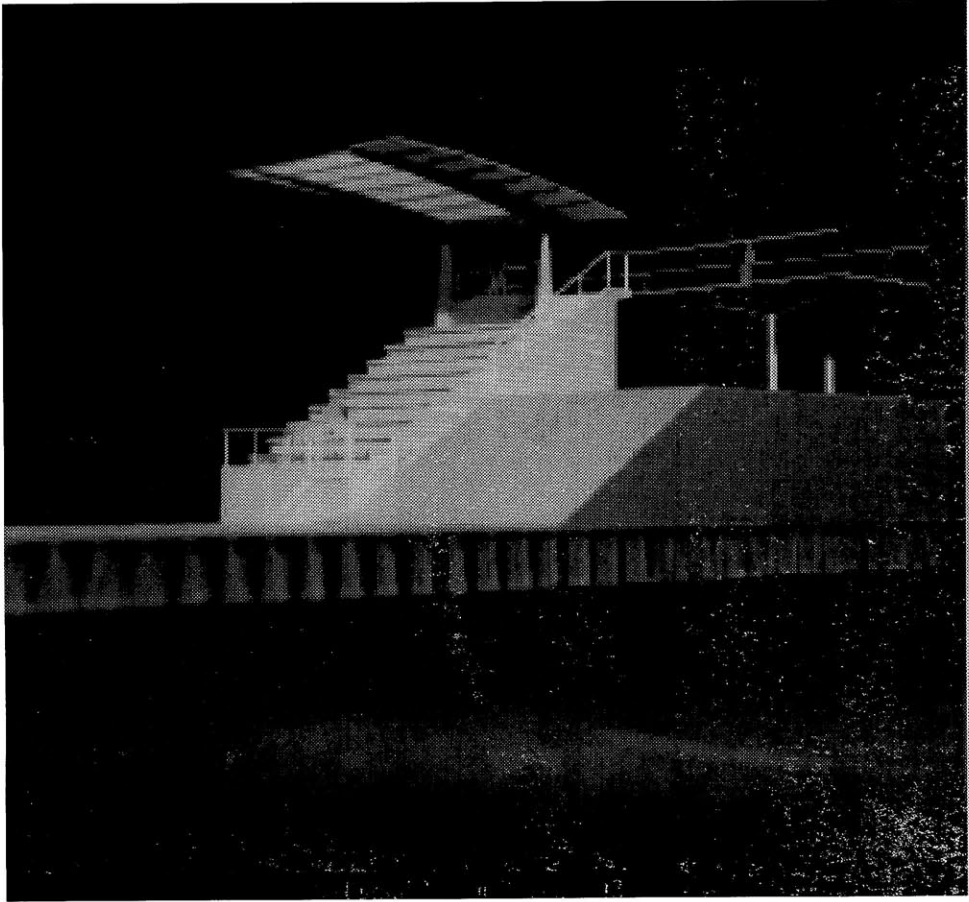
Plan

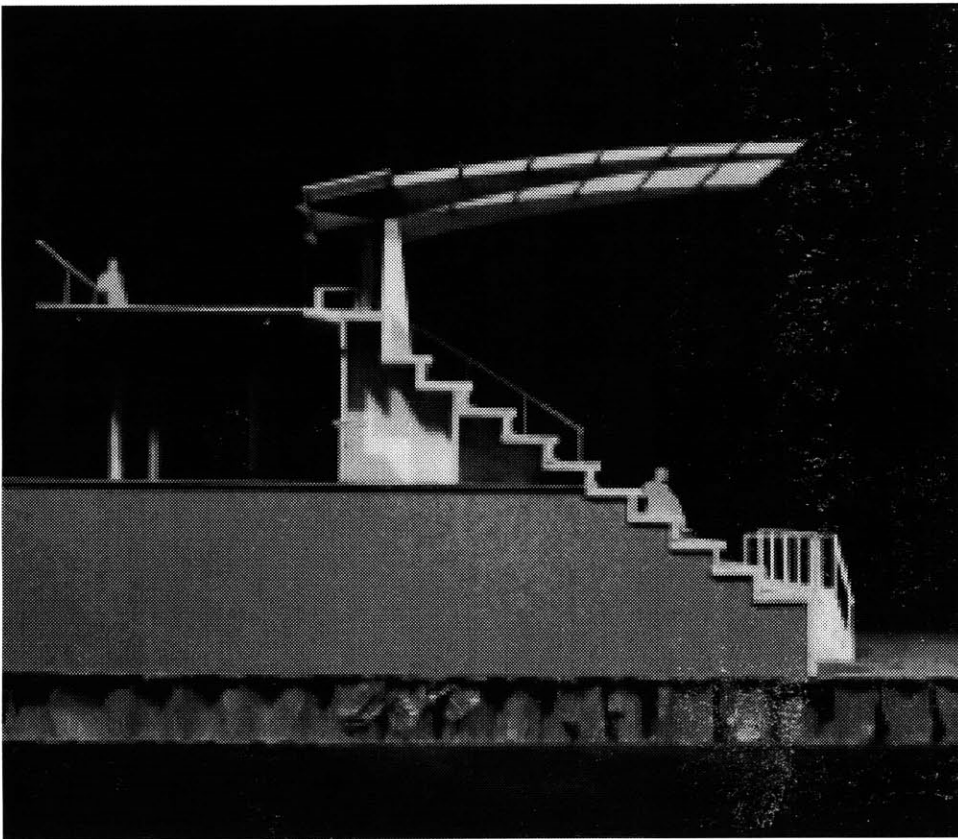


Section

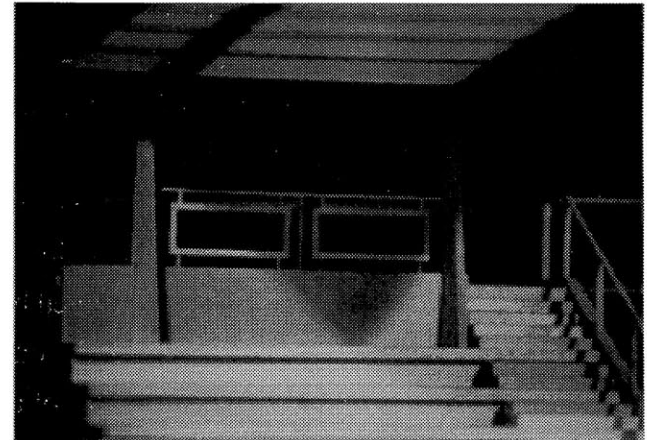
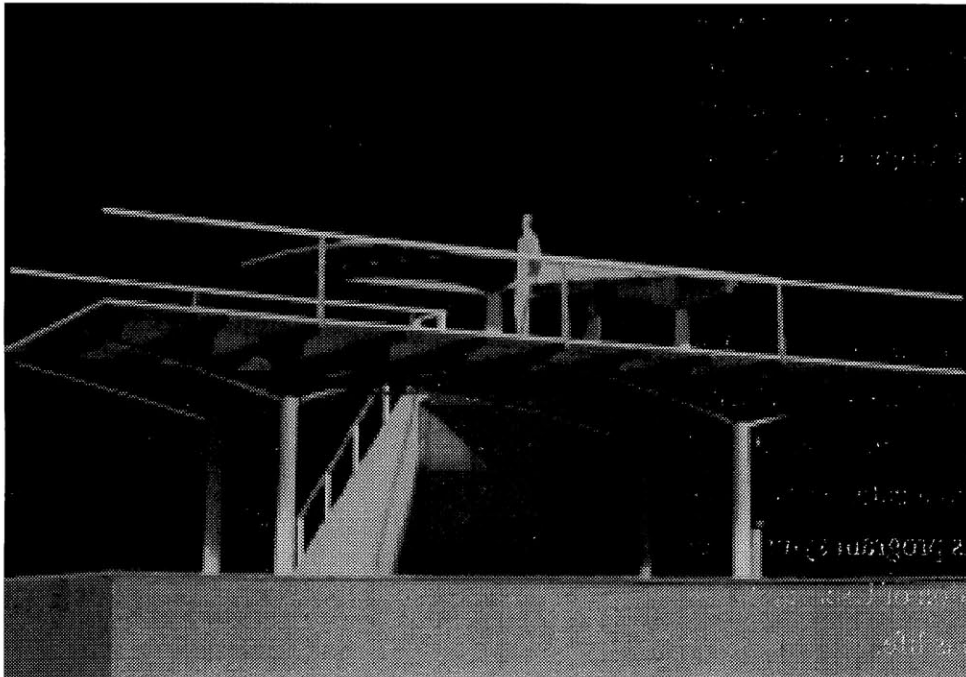


Section





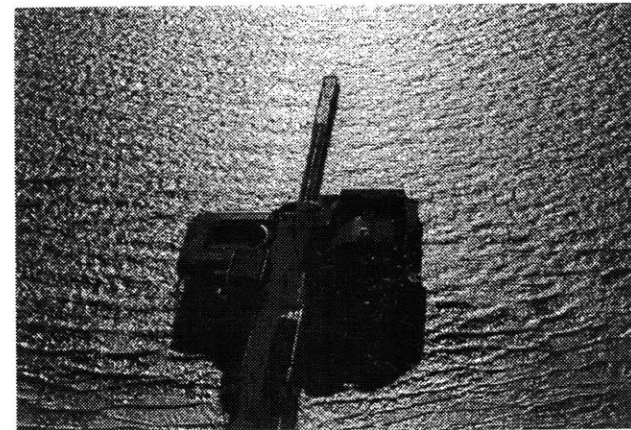
Structure, Burton Dining Hall



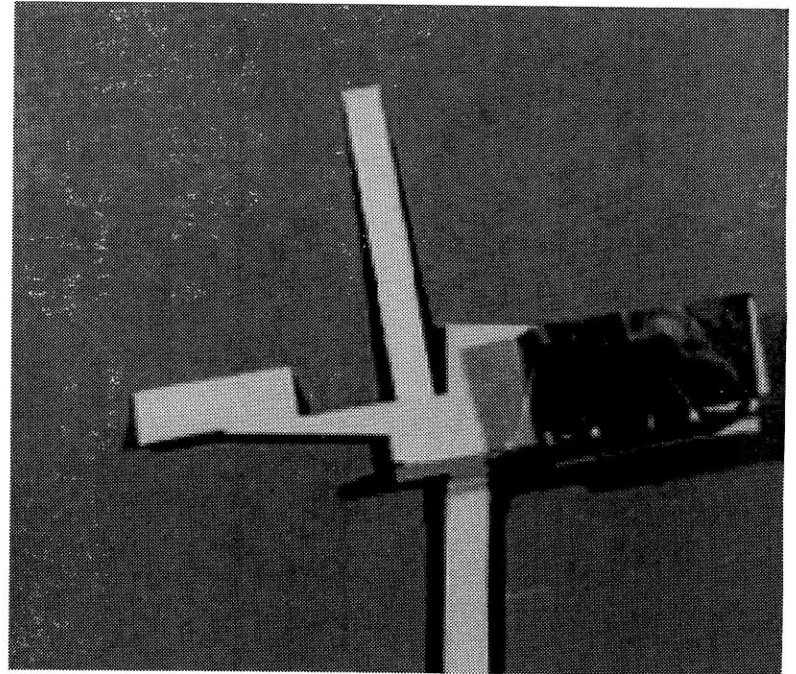
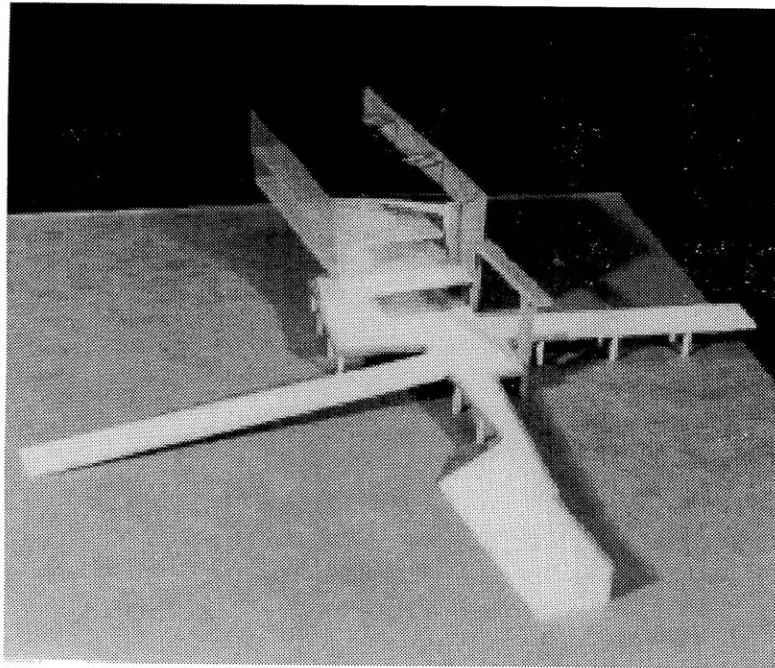
Briggs Campus Life Center

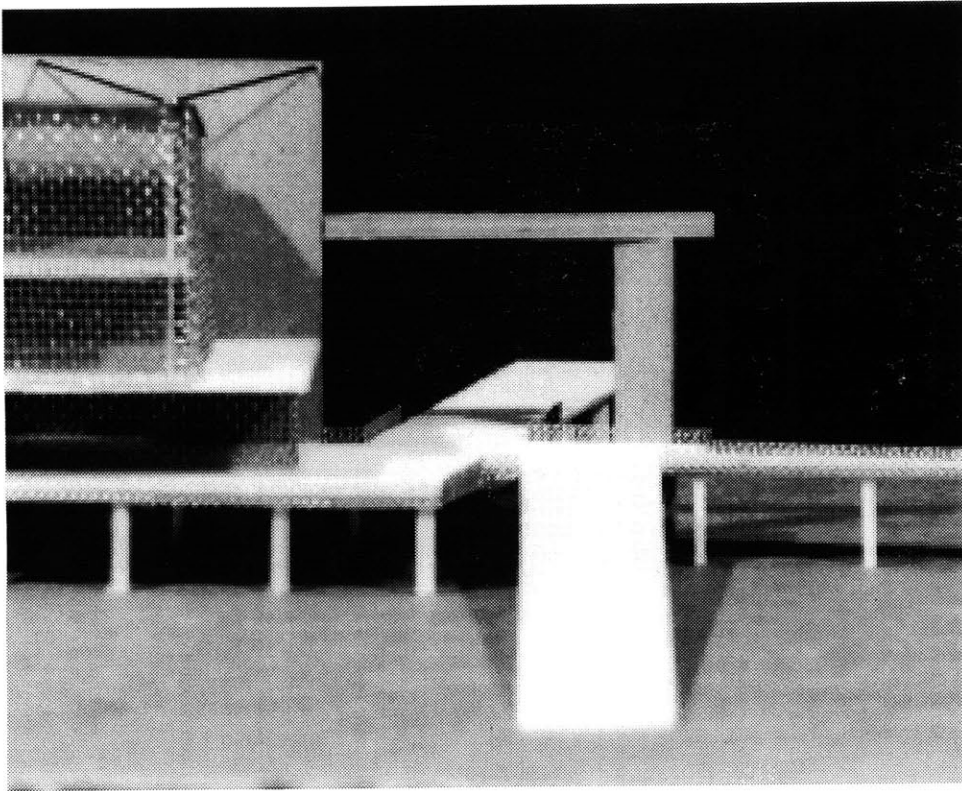
The center, which is the only installation interrupting the continuity of the walkway zone, crosses the pier as a built gate, similar to an East Campus gateway by I.M. Pei. Both gateways are aligned with the Infinite Corridor thus establishing real eastern and western boundaries to the organizational axis. At the Briggs Center, where walkways connect the pier to the ground, the gateway signals the movement from the pier height to field level. The massive gateway forms one end of a concrete wall fifty feet in height, intentionally massive and solid to mirror the facade at 77 Massachusetts Avenue. The two facades are backdrops to the lighter structure of the pier and its installations. The actual inhabited space of the Briggs Center faces West overlooking Briggs Field. The relative lightness of arched steel members, derived from the established vocabulary of athletic architecture, softens the brutal nature of the concrete wall.

Apart from being a symbol of transition, the Briggs Center is a key element in the scheme because of its diverse program, which includes locker and team rooms, a library extension, an Athena (campus computer network) cluster, meeting and activity rooms, and an indoor/outdoor cafe. The coming together of academics and athletics represented by this program symbolizes the primary goal of the project — promote the interaction of Users and non-Users as a means to make athletics truly part of campus life.

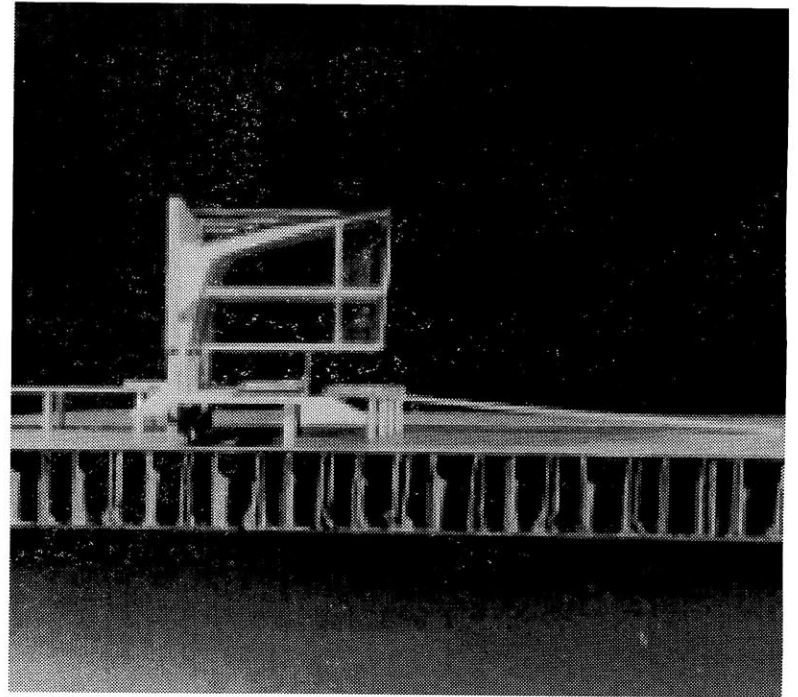
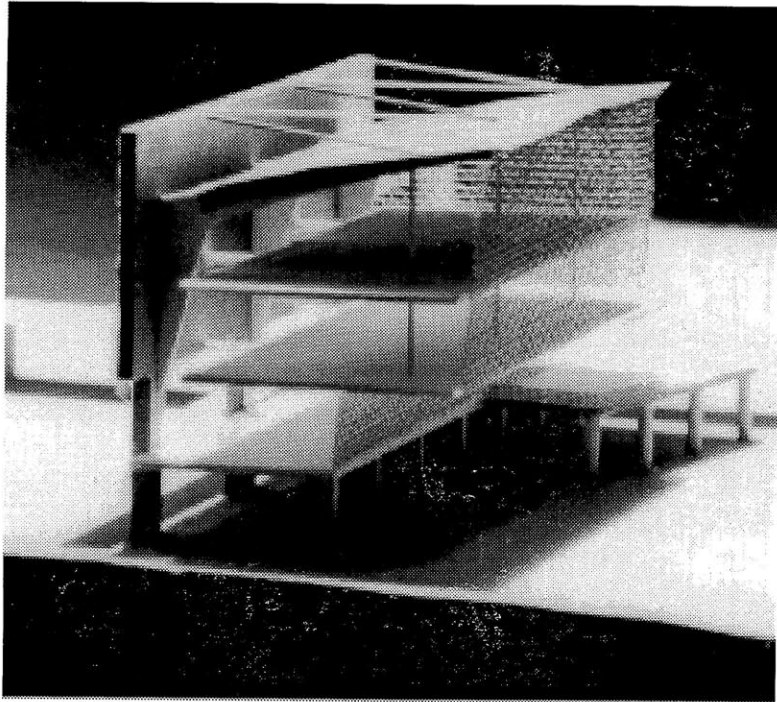


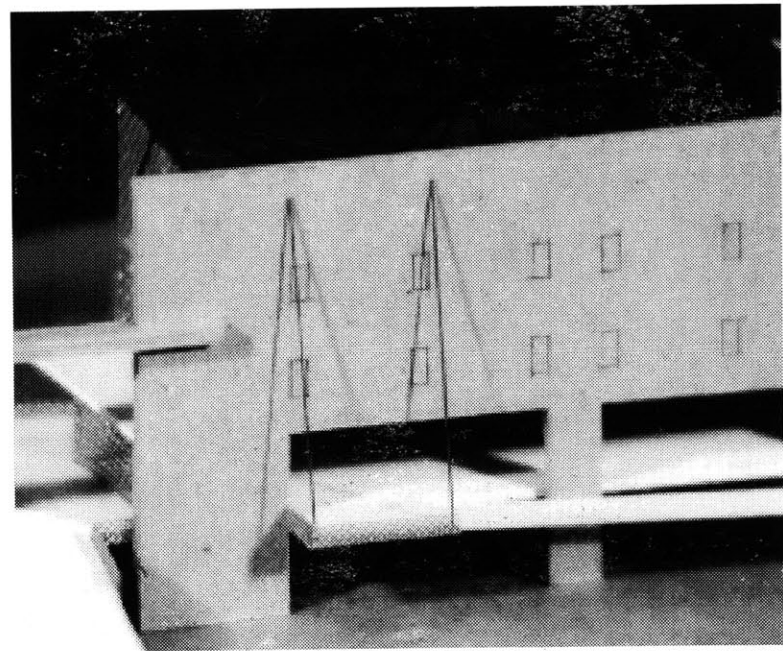
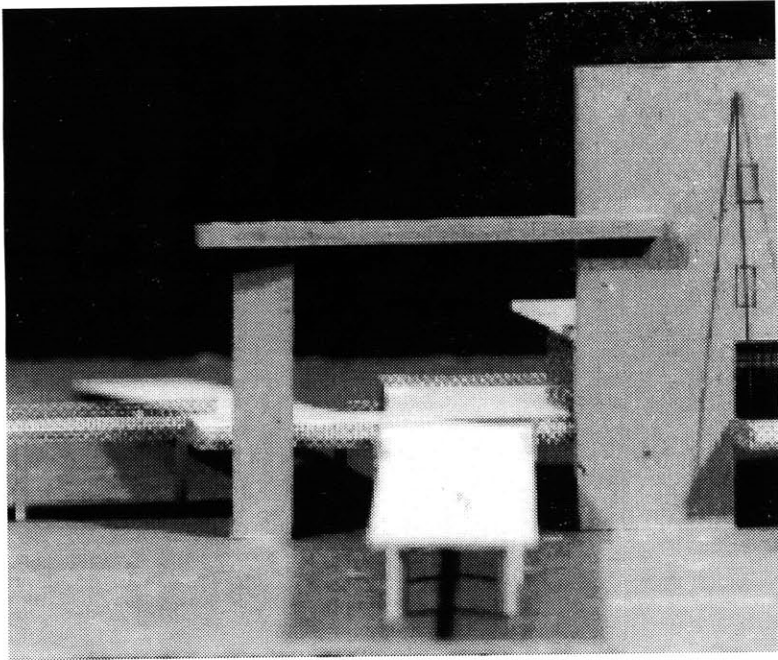
North Pier meets the sea, Blackpool, United Kingdom.





Existing gateway to East Campus and the Infinite Corridor





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