

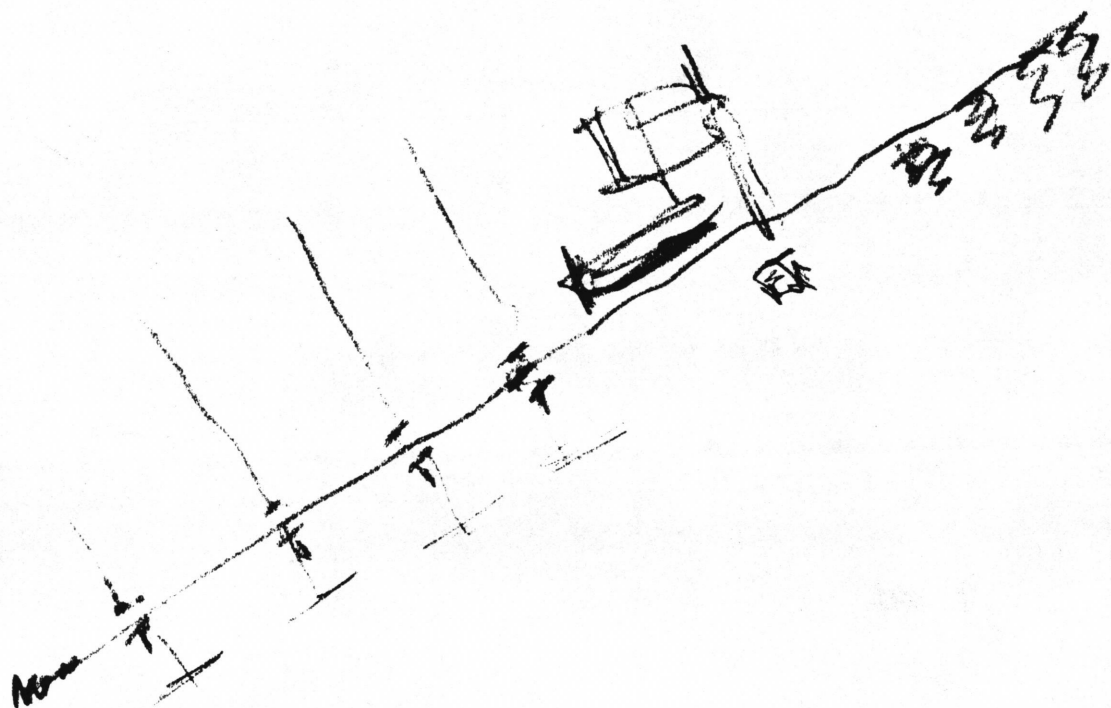
RECREATIONAL FACILITY

by

Norman Ira Schwartz

Thesis submitted to the Faculty of the Virginia Polytechnic Institute And State University in partial fulfillment of the requirements for the degree of:

Master of Architecture

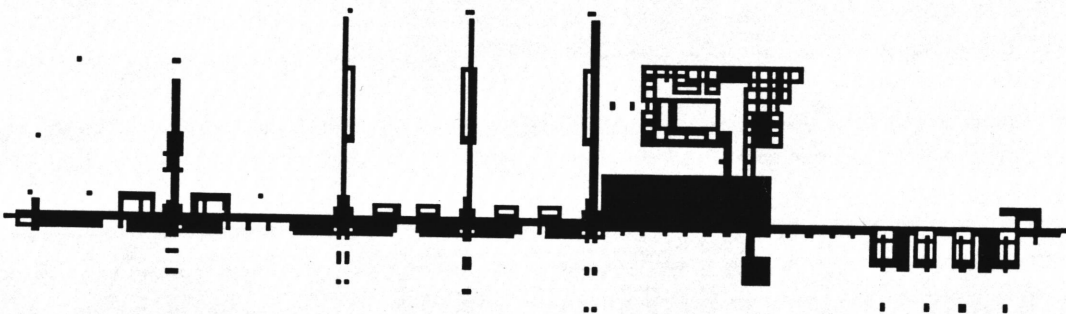


Gregory K. Hunt, Chairman

John Holt

James W. Ritter

From SAUVTE 1, SIXTH CELLO SUITE, by JOHANN SEBASTIAN BACH (1685-1750). Transcribed for classical guitar by John Snyder.



Abstract

An open and flat parcel of land sits as blank as a sheet of paper. The site has neither order nor scale to its presence.

A Datum refers to a line, plane, or volume of reference to which other elements in a composition can relate. It organizes a random pattern of elements through its regularity, continuity, and constant presence. For example, the lines of a musical staff serve as a datum in providing the visual basis for reading notes and the relative pitches of their tone. The regularity of their spacing and their continuity organizes, clarifies, and accentuates the differences between the series of notes in a musical composition.

-- Ching

The purpose of this design investigation will be the creation of a project which, using the ideas of the datum, will meet all my concerns and criteria as the composer of this thesis.

Dedication

In loving memory of Popi Grandma and Popi

To all the Service people who took part in Operation Desert
Shield/Storm 1990-1991

Acknowledgments

I would like to thank the following people for all their support during my schooling.
My Mother, Father, and the rest of my Family, , and to all the rest of the friends and
roomates who I met during school.

Professors Bill Brown, Greg Hunt, Jaan Holt, and Jim Ritter -A SPECIAL THANKS

All the people at Leo A. Daly (Dulles/Washington)

., Assistant City Planner for City of Sunrise

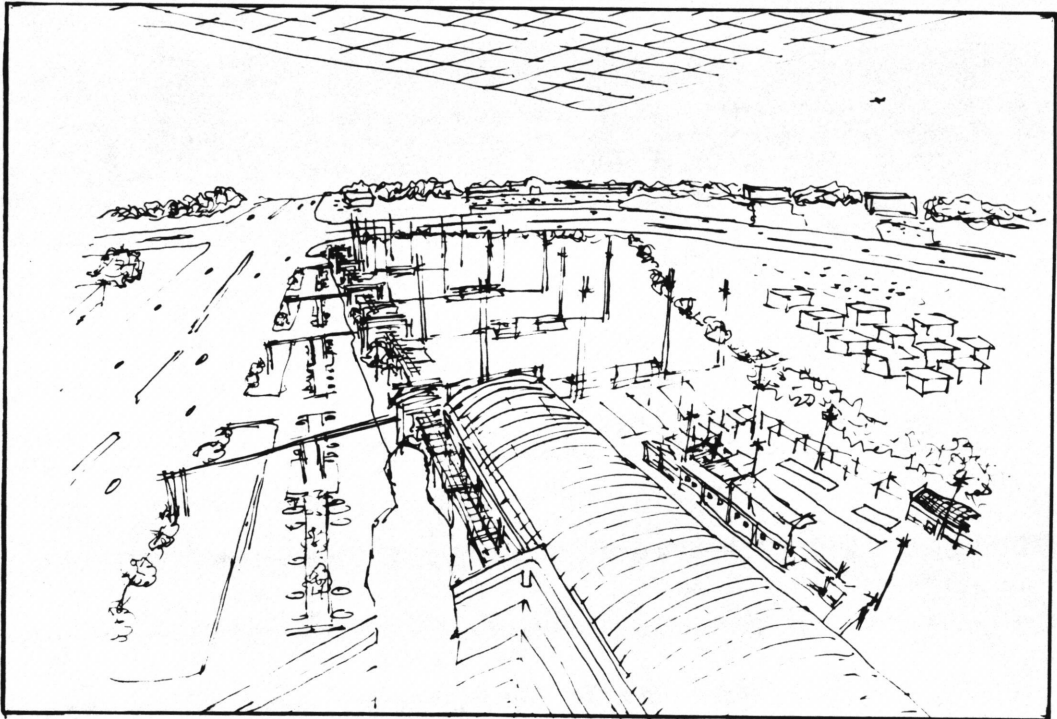
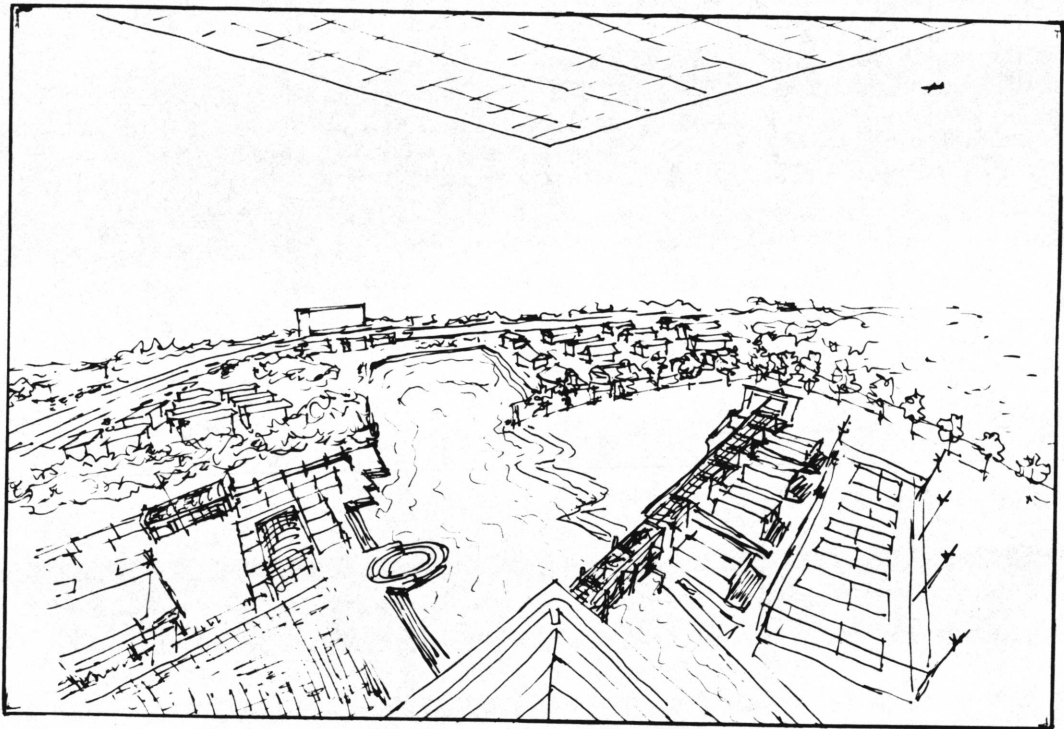


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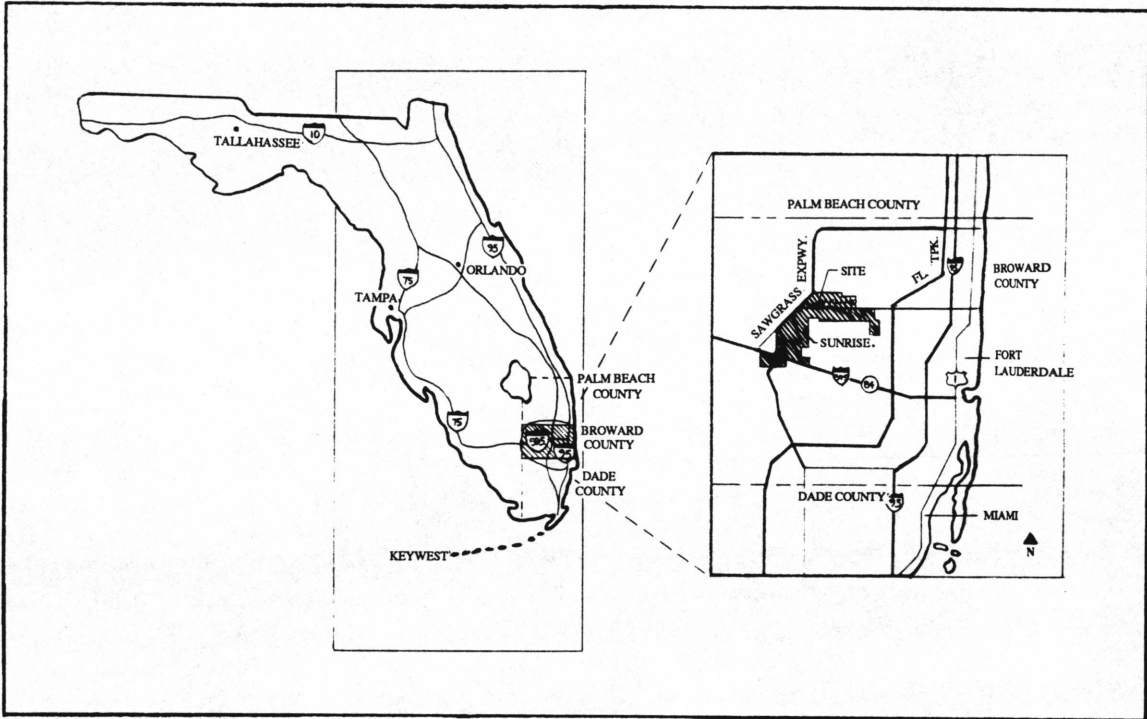


Introduction

This thesis project is the culmination of a years work. The project selected is a Recreational Facility for the City of Sunrise, Florida. It is composed of exterior and interior support facilities all aimed at the bettering of a person's physical well-being. The exterior facilities are: two baseball fields, two soccer/football fields, two basketball/volleyball courts, swimming area (competition/recreation pool, diving pool, elderly pool, children's pool and support), eight racquetball courts, six tennis courts, amphitheater, and a small park. The interior facilities are: one large gym (basketball/volleyball), weight training, aerobics studio, mens/womens lockers, lounge, classrooms, administration, and other support areas.

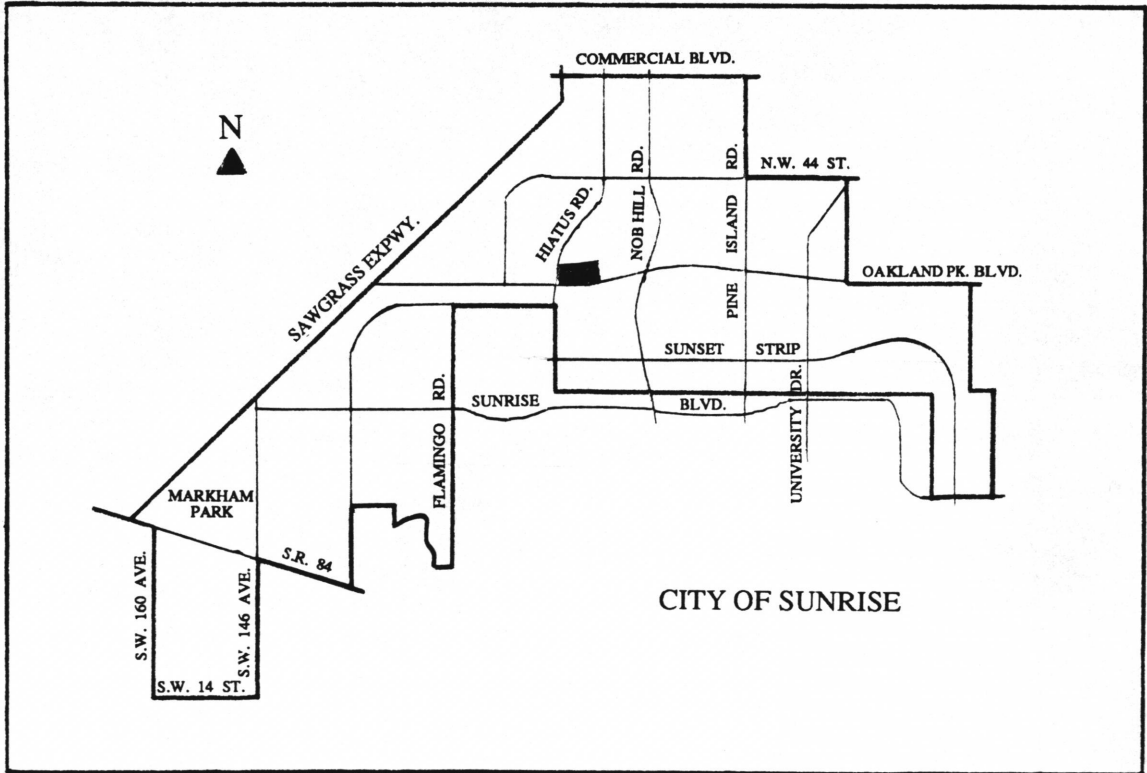
City History

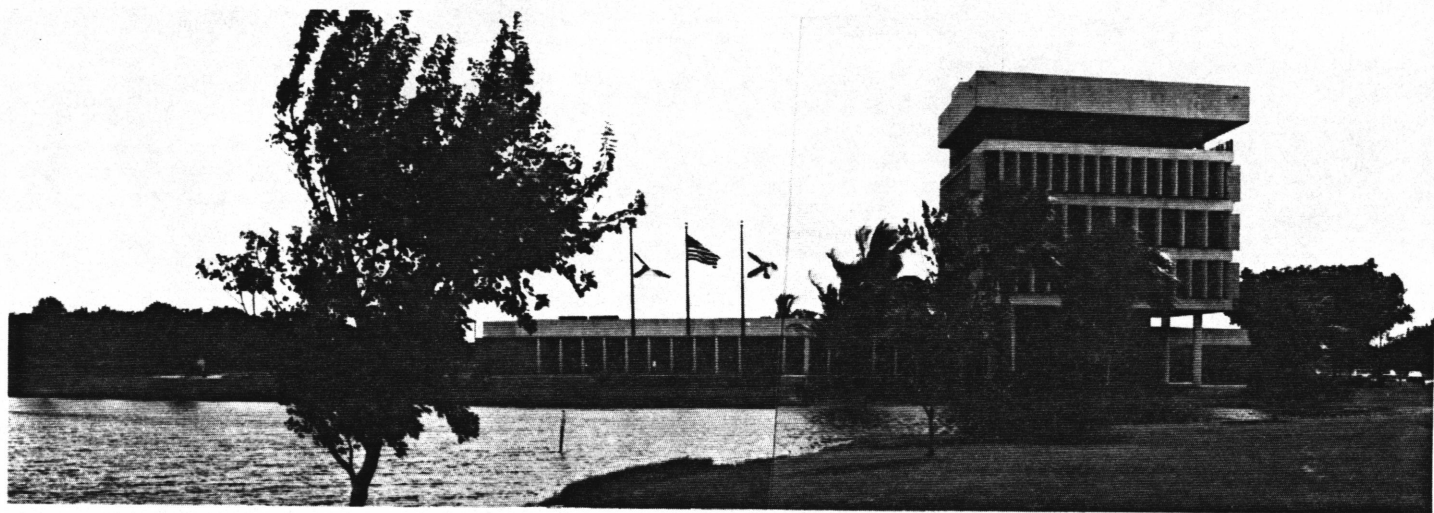
The project is located in the center of the 22 square mile area of the small (and growing) City of Sunrise, Florida. Like much of South Florida, Sunrise was created from drained swamp land. It first started out as a small community developed around a golf course. From there, it began to grow and expand into a small thriving city. Then, in 1961, it was finally incorporated officially into city status with the creation of a full city government. The city is located in Broward County, six miles west of Fort Lauderdale and twenty one miles north of Miami. It has a present population of 57,000 and is projected to approach 92,000 by the year 2000.



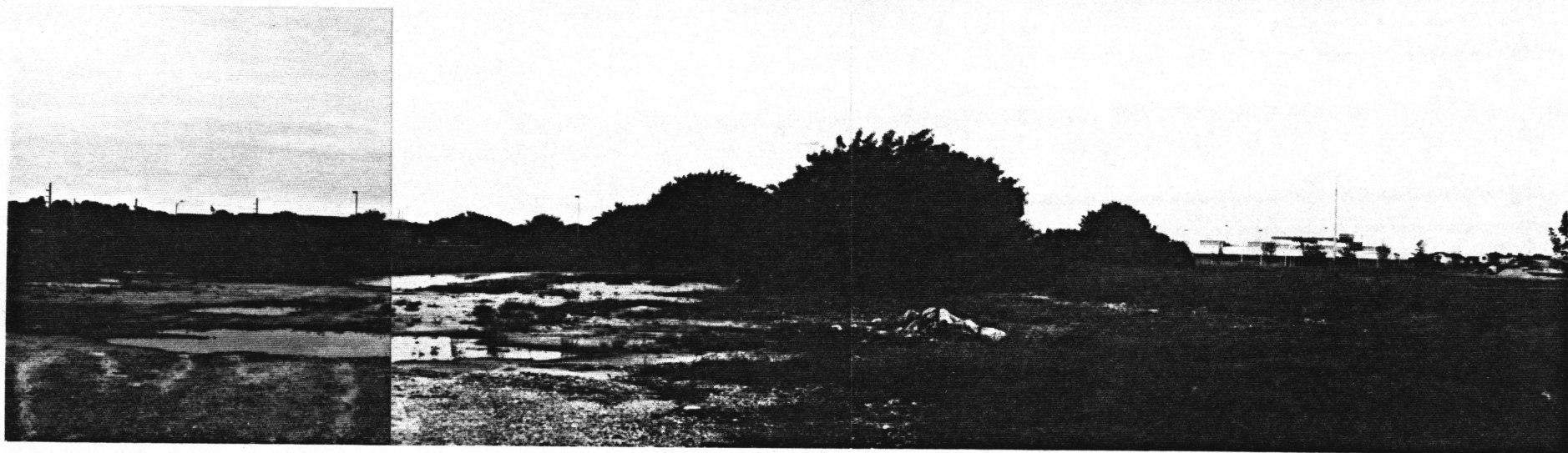
Site Description

The project sits on a flat 24 acre site which has a small body of water entering it from the northeast side dividing a small portion of it. The site has two major roads running along its south and west boundaries. To the south is an eight lane East/West road (Oakland Park Blvd.) and to its west a four lane North/South road (Hiatus Rd.). Across from Oakland Park Blvd., directly to the south, is sited he new City Hall complex and an emergency services facility. To the east of the site is open land zoned for future commercial projects. To the north is the location of residential areas and a new elementary school. To its west, across from Hiatus Rd., is a gas station and medium size shopping plaza. The overall appearance of the site is that of a suburb, with traces of urban influence.

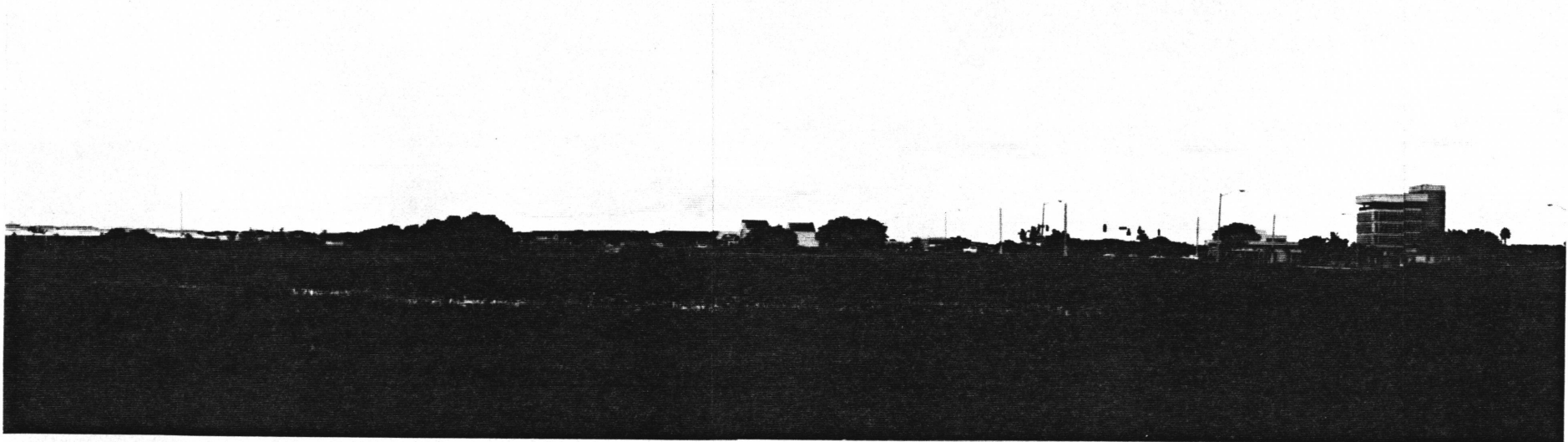




view looking south from site



view looking north into the site



view looking east into the site

Organization/ Elements

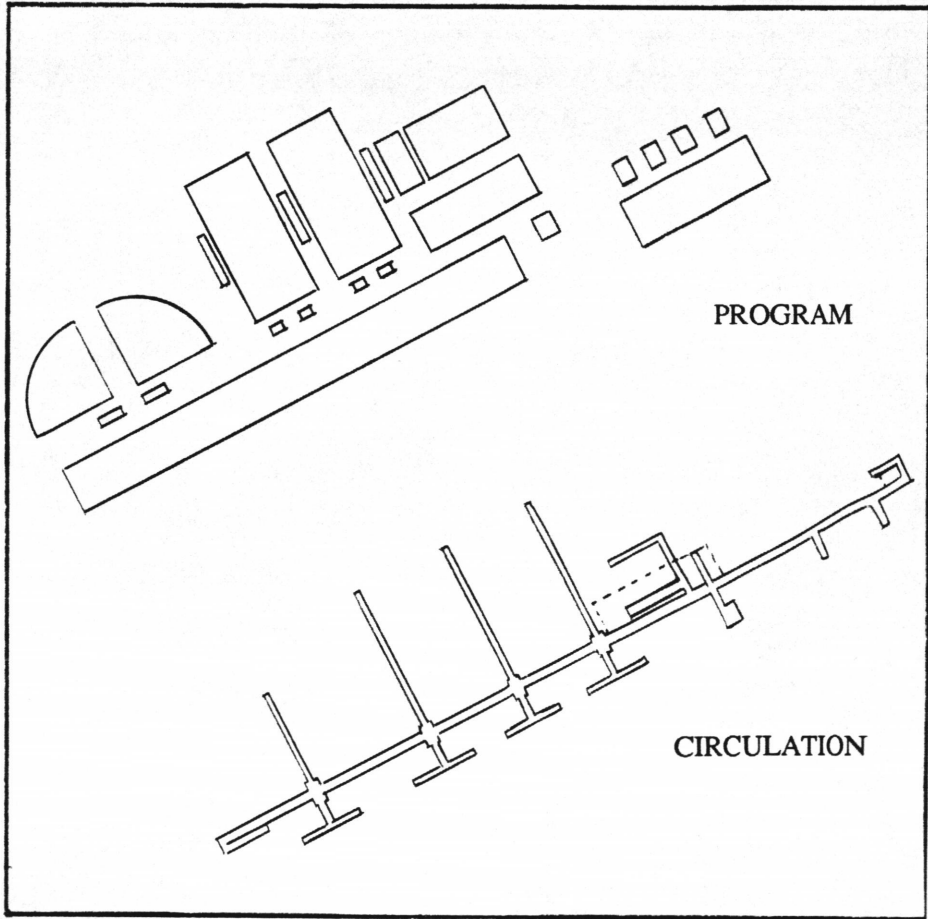
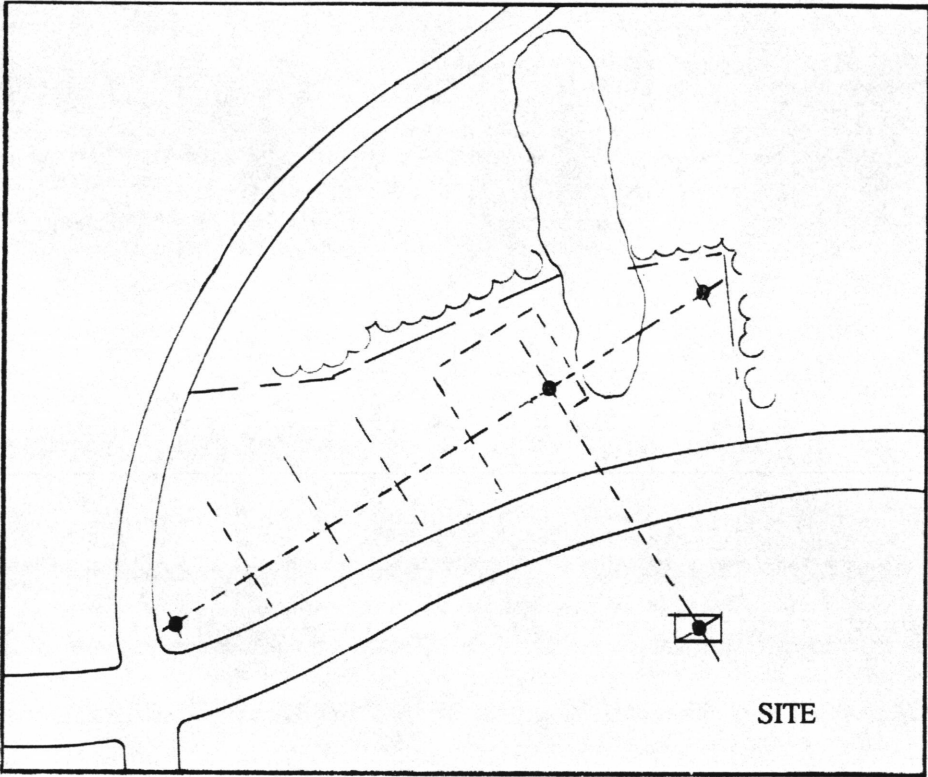
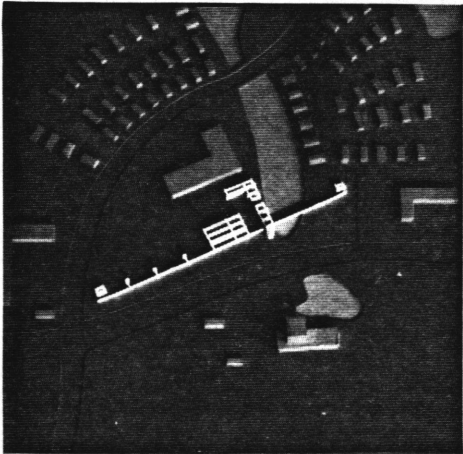
The organization as stated in the abstract begins with the idea of a Datum. This datum will serve and define the project's main ordering axis. I began by setting out to create an axis which will connect the entire site with its two furthest points. The points selected are located at the Southwest and Northeast corners of the site. The line which is created between them will set up the main spine of the project. A secondary axis generated from the City Hall will extend across the main axis perpendicular to it and define the main entrance into the Recreational Facility. This is the basis for the organization of the project.

The architectural form and element which makes up this axis is a colonnade. The columns of the colonnade, heavy up close, individually are both a response to structural needs and the scale of the site. They are a small part that grows and develops into a bigger system which supports the project throughout. Through its use of rhythm and repetition, a strong sense of continuity and direction is given to the project's ordering. The colonnade not only supports the spine (axis), but becomes the building block of the project's actual construction.

Another element which runs along and in conjunction with the colonnade is the secondary walkway system which is carried fifteen feet above the lower walk corridor. This gives access to various views along the axis and also plays an important role in the interconnection of the seating areas. In addition, the walkway system serves as an outside jogging track.

The ends of the colonnade are designed to act as the mediator between the ground and the columns of the colonnade. These pieces are designed to slope from the top of the colonnade down to the surface of the ground. This is done to further the visual and physical anchoring of the project to its site. The upper walkway in addition ends at these points. The way they are terminated is by ramping the circulation back down to the ground level. At the baseball field end it is turned back into the main walk corridor while at the other end it ramps down onto the park side of the colonnade.

The primary material used in the construction of the colonnade and upper walk is that of reinforced concrete, either precast or site cast. The light-weight loggia that extends the length of the complex is constructed of steel columns with cantilevered beams which, in turn, are tied together by trusses that support the loggia covering from above. In addition to expressing the differences between their form and function, the materials and the ways in which they are used bring a sense of importance to their independent parts. The following descriptions will give a better explanation on the different elements that occur along the colonnade (datum/axis). These elements either cross or become part of and add to the colonnade itself.



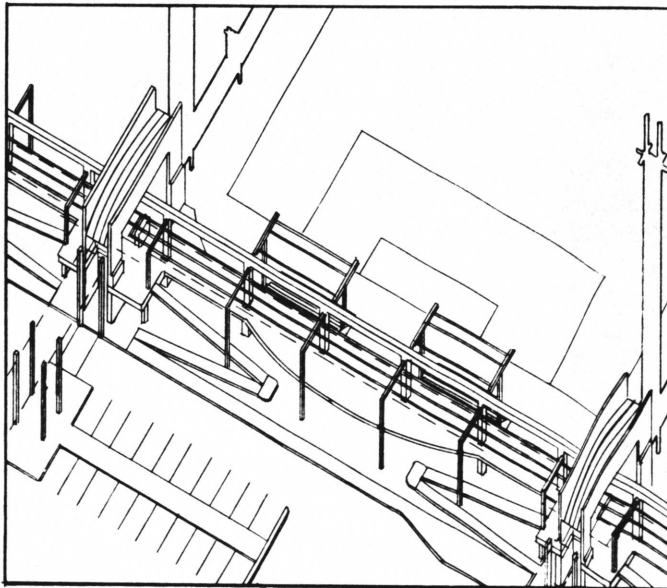
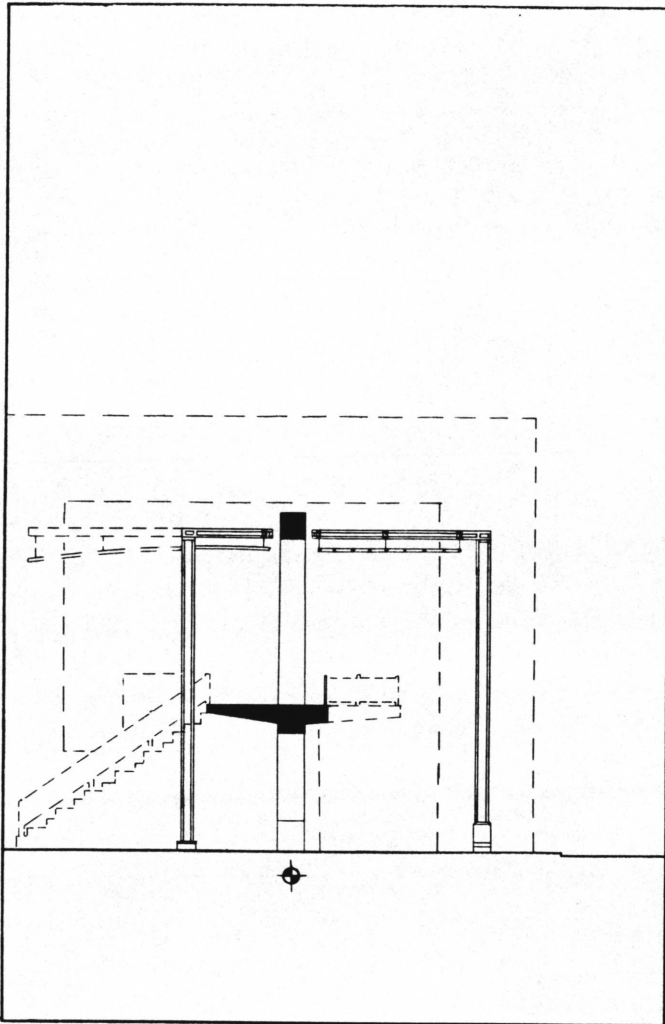
The field towers, which occur at intervals along two thirds of the project, represent an addition, at that location, for the crossing (intersection) of the main axis. This point of contact with the colonnade is where the linking of the parking area is presented and the separation between playing fields occur. One of the major functions that the towers accomodate is where the exchange and transition, by either stairs or ramps, between the upper and lower walkways. These secondary axis extending from the towers are the means of getting to and from the stands which are out on the playing fields side. Incorporated into the structure of these secondary walks are the lightpoles, which are needed for nighttime play.

The towers' only physical contact with the colonnade occurs on the upper walkway level, as the actual tower itself spans up and over the colonnade. This separation is done to acknowledge the importance of the colonnade's axis. The materials used in the construction of the towers begin with a three foot high reinforced concrete base with reinforced concrete masonry placed on top of it. Then, from three foot above the upper walkway level and up poured in place reinforced concrete is used to span the colonnade. The towers are capped by raised metal roofs over a corrugated steel deck, supported by steel beams that are set and locked into place by precast concrete pieces.

The seating areas along the colonnade preform two types of functions. The first is seating for the people watching the sporting event. The second is for concession stands and restrooms. The reason why I doubled the uses is because there is always dead space created underneath seating stands. In order to correct this waste of space I decided to utilize the spaces underneath. In addition, they faced out towards the main corridor. In the baseball area the stands are not only used for concession and restroom use, but they also serve as the dugout for the home teams.

In the soccer/football area their use is for concession and restroom use. Contact between the seating stands and the colonnade is made at the upper walkway level, and below, in conjunction with some of the columns of the colonnade. The stands are created as an extension of the upper walk. They begin by stepping down towards the the playing fields, continuing until they reach the ground. The useable spaces underneath are created by building walls and infilling the areas needed. The materials used to generate the stands are the same as those of the walkway and colonnade. The spaces underneath were constructed by building ontop of a short three foot base wall with reinforced concrete masonry infilled to the top of the walkway. The columns from the colonnade will make the corners for the walls of the underneath spaces where they occur.

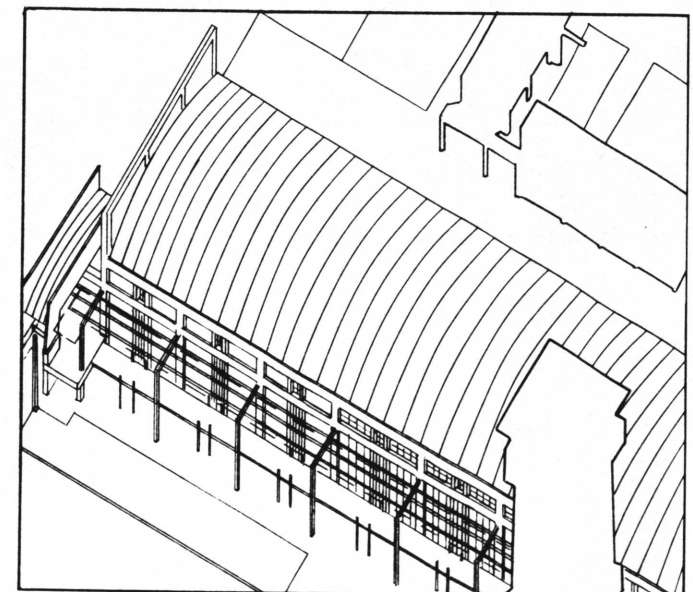
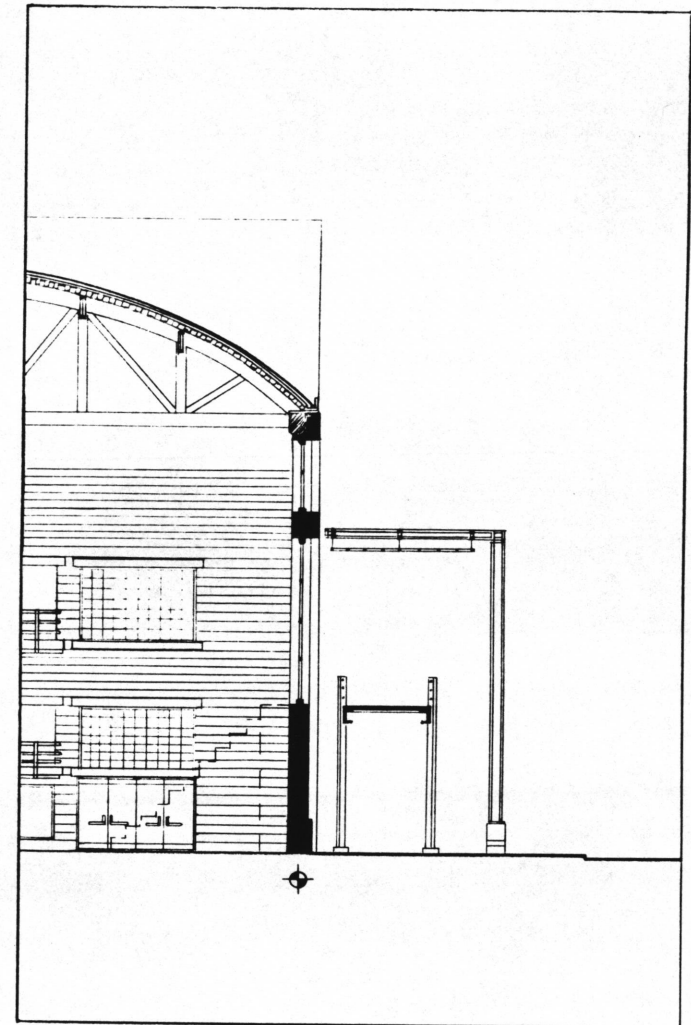
The covering of the seating and upper walkway areas is based on the same idea as the loggia that runs the length of the complex. It is also seperated from the colonnade for the same reasons. The only difference is the use of a canvas covering, not steel, and its use as broken segments instead of as a long continuous element. This same covering is used for the seating areas out on the fields, swimming seating, and the racquetball areas.



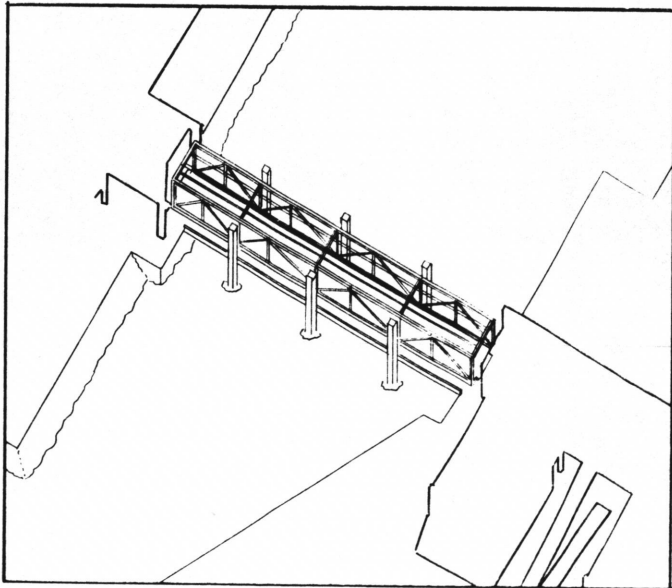
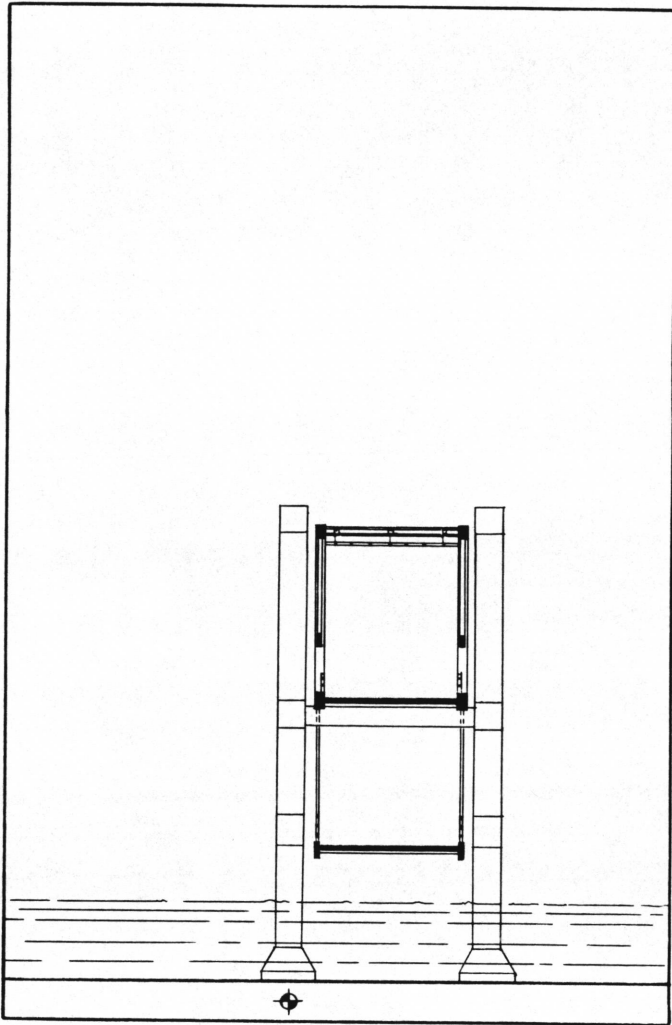
The building itself is incorporated into, and part of the colonnade's structure. The colonnade actually accommodates and composes the building's southern elevation. This is done by the extending and addition of the height to the columns above the colonnade to the desired level of the building. The spaces between the columns are infilled and set for openings to complete the wall itself. The same architectural language and elements are used to create the other walls required for the building. The top of the columns are designed to accept the trusses that span and cover the spaces below. The only break in the colonnade's rhythm occurs at the main entrance into the building complex. The materials used in this construction are again the same as stated before.

The main tower, that is in front of the building complex, is used both as a vertical element to mark the main entry, and also serves as a water reservoir and observation deck. It uses the columns from the colonnade to establish the basis of its construction.

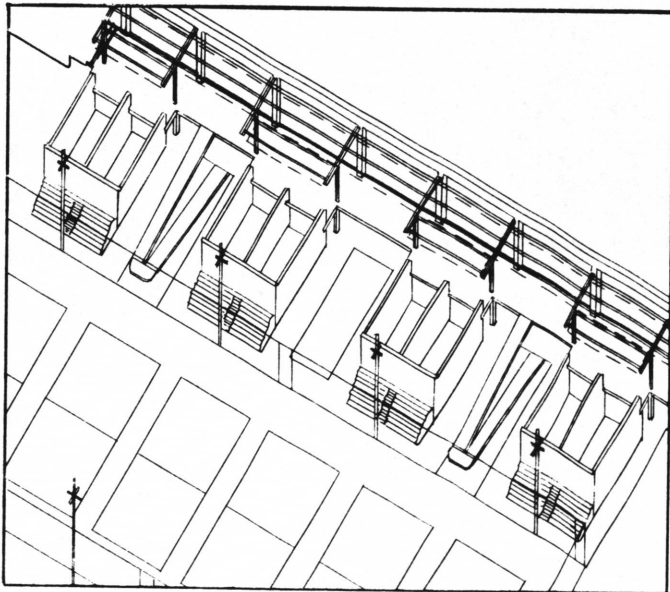
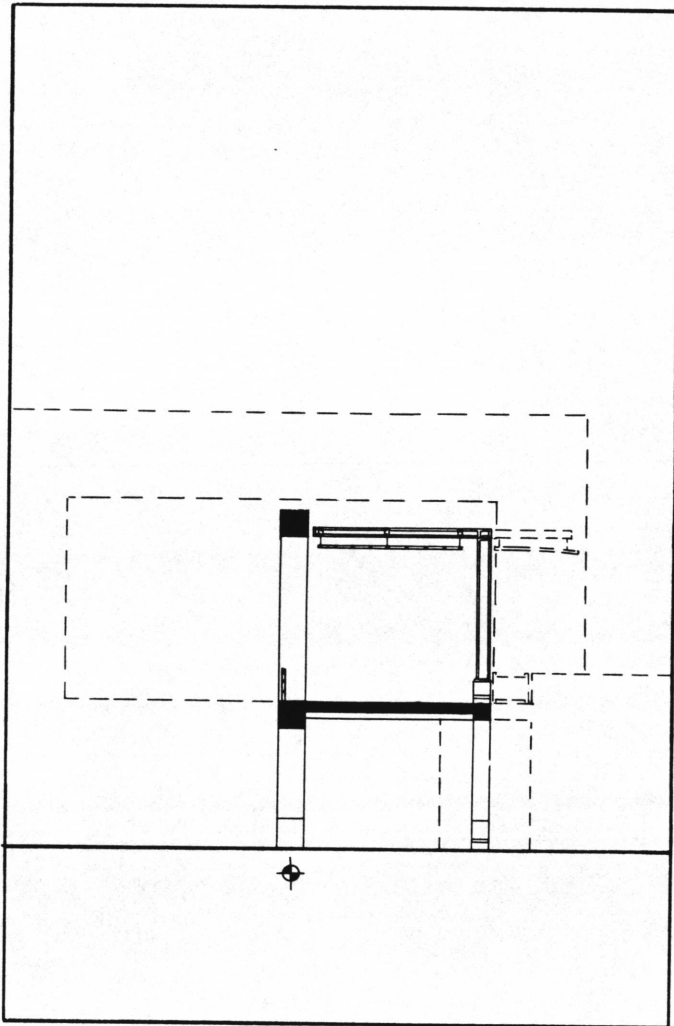
The one big change at this point in the project presents itself between the colonnade and the upper walkway. At the last field tower before the building, the walkway system shifts from the field side of the colonnade to that of the main corridor. This is done in order to make the necessary corrections for the introduction of walls into the colonnade that are required for the building. The shift in the upper walk also makes changes in its material character. This change is from a reinforced concrete system that is part of the colonnade to a separate new steel mesh, beam, and column supported system, only along the corridor side.

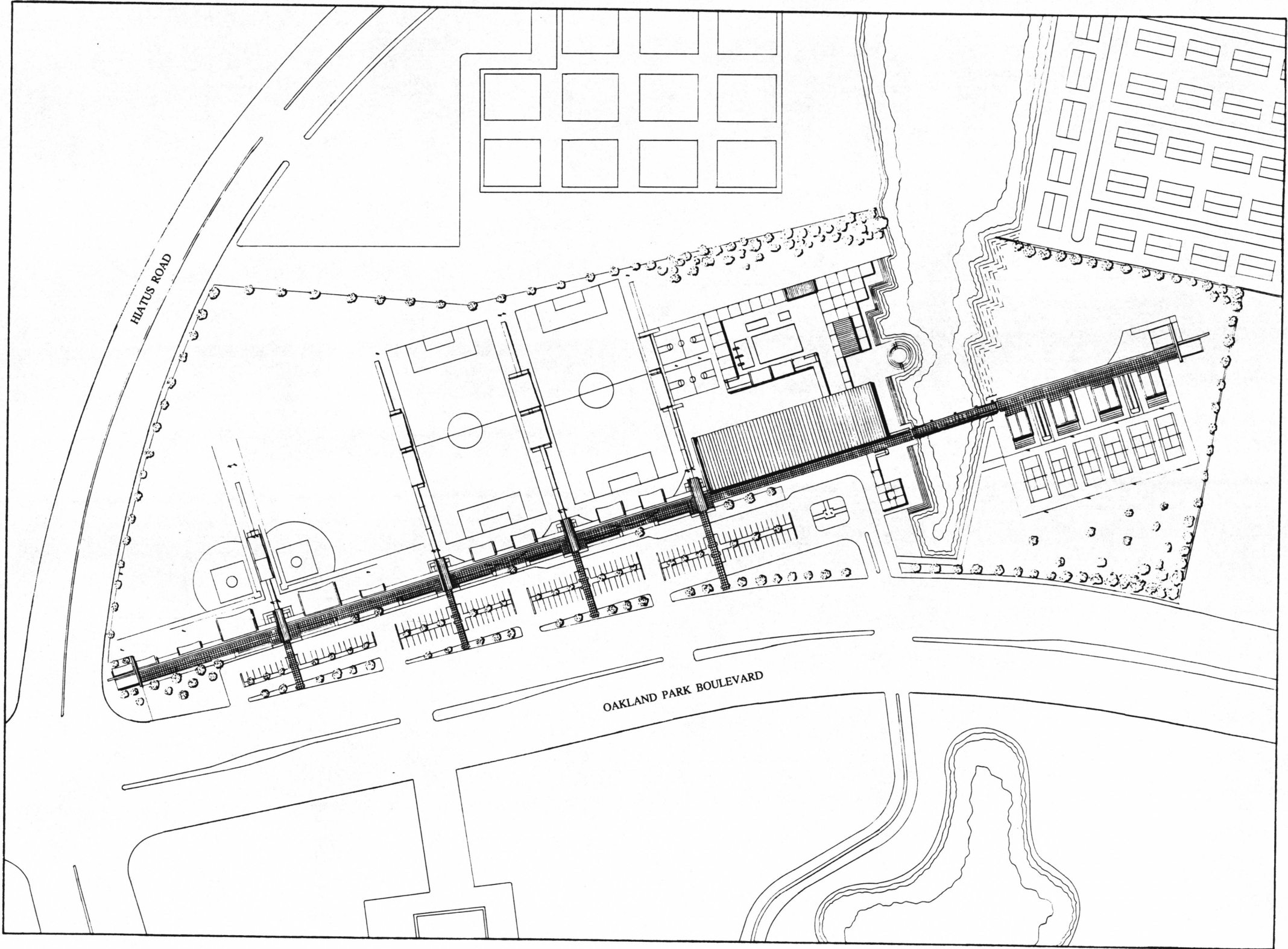


The bridge segment is the only place where the upper spans are not used in the colonnade. The introduction of water into the colonnade's path presented the opportunity for this change. The same rhythm of the columns in the colonnade are continued. The columns are part of the same structural system that carries the box truss bridge across the water. This box truss bridge in turn supports the suspended lower bridge below. The columns change their size a few feet before the waterline to get larger before entering the water. This is to give it a greater footing for its foundation. The materials used are reinforced concrete for the columns, steel for all the sub-supports and bridges.

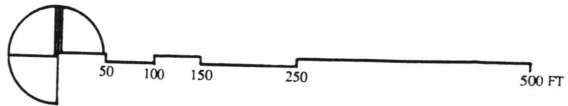


The colonnade goes back to the cross spans once it is past the water area. At this location the colonnade is again carrying the upper walkway. The upper walkway east of the water changes too. It goes back to a reinforced concrete system. The colonnade has the park running on its north side while the racquetball and tennis courts are to its south. The racquetball courts make the only physical contact with the colonnade here. They are connected to the upper walkway system only by the ends of their side walls, they do not even touch the colonnade directly, but the implications are there by their alignment. In between the racquetball courts are two ramp systems that take you from the upper walkway down onto the main corridor way. The materials used in this area are the same in character as those used on the playing field side.

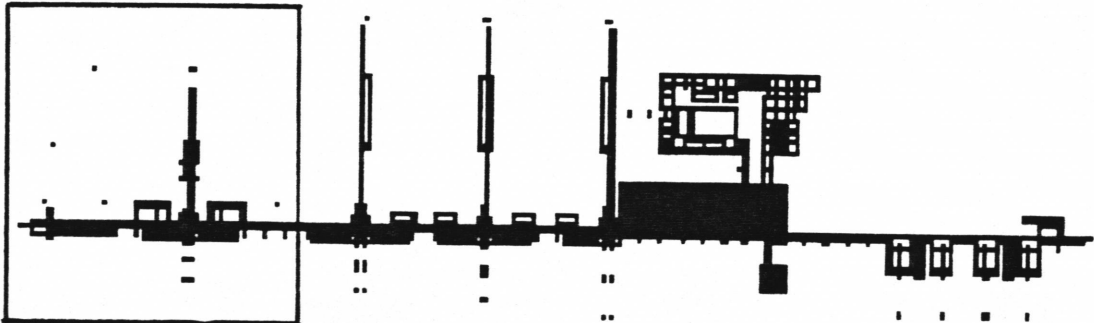
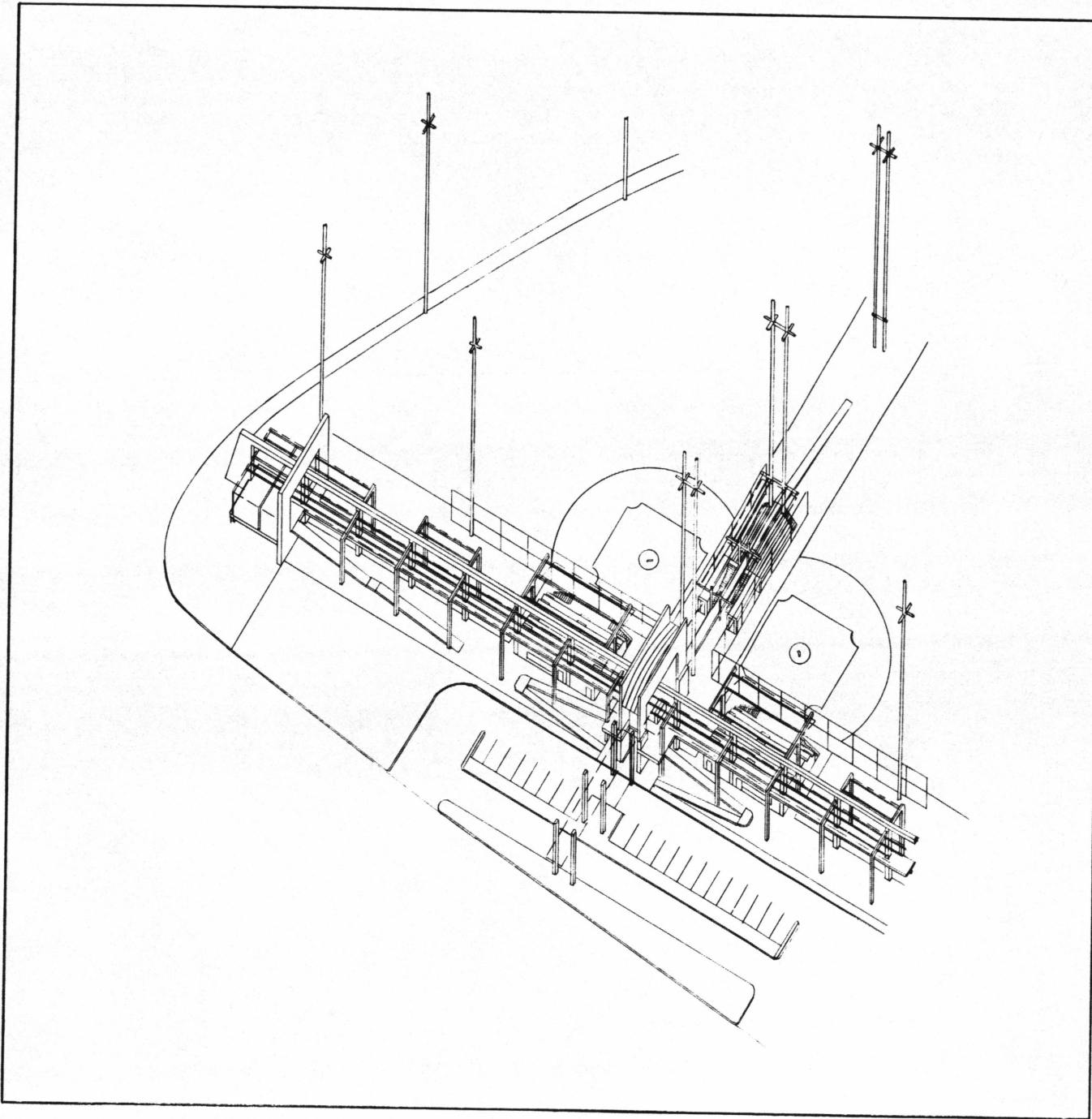


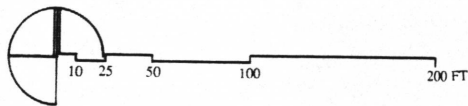
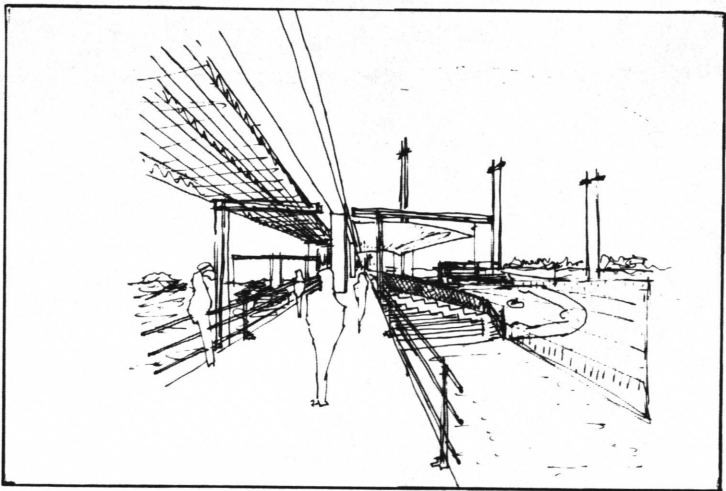
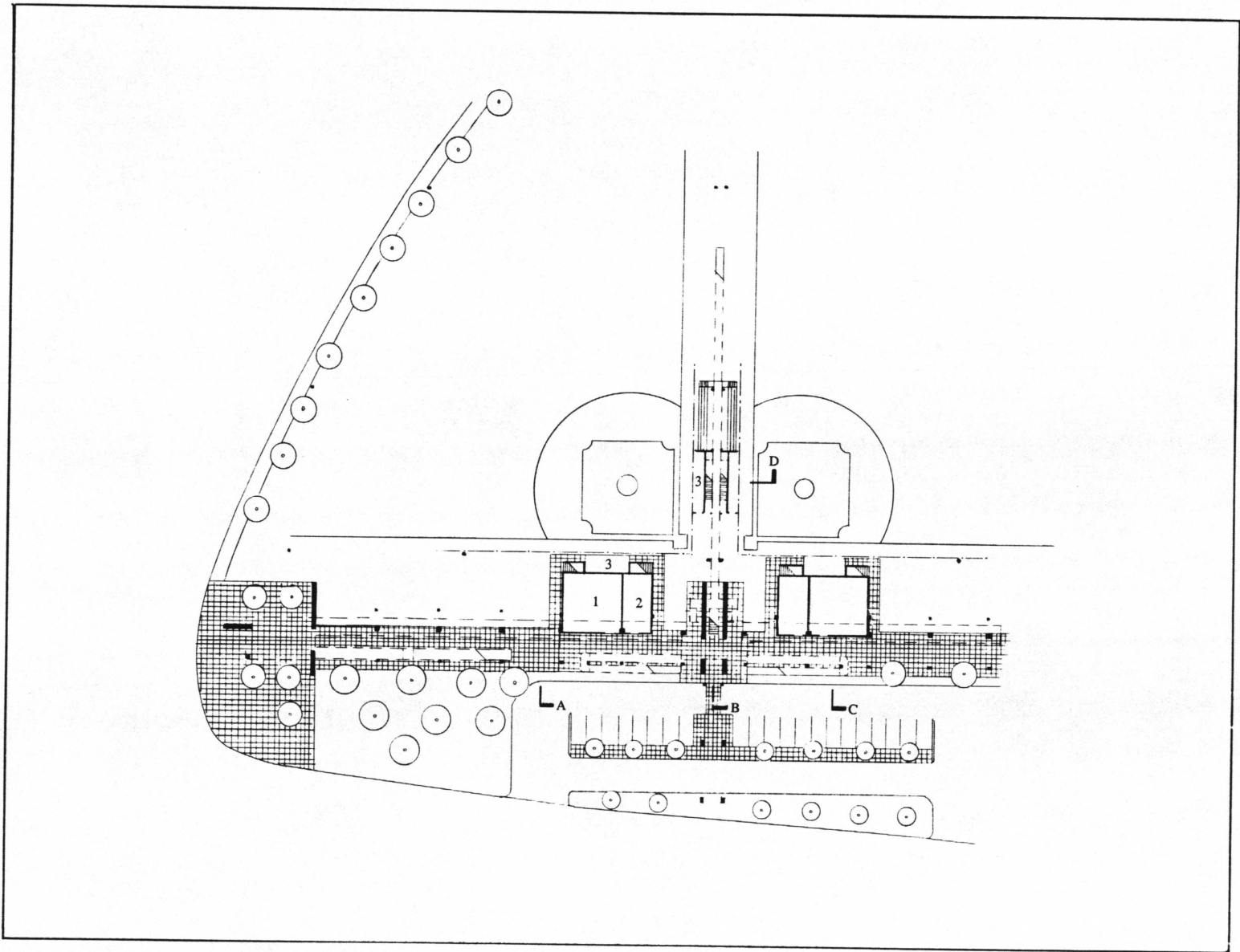
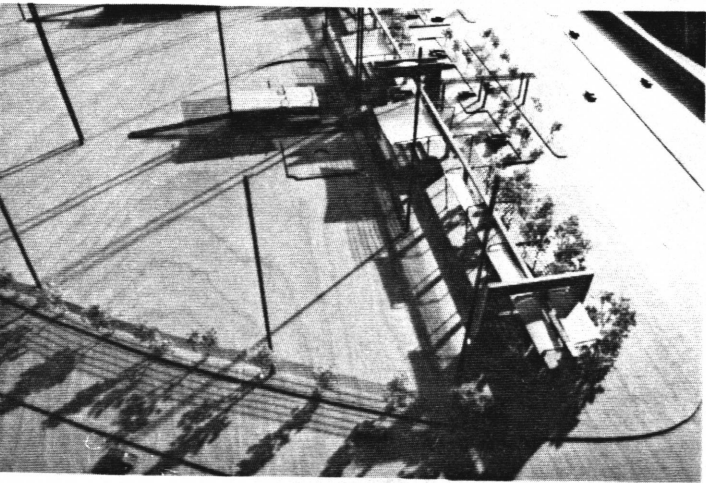
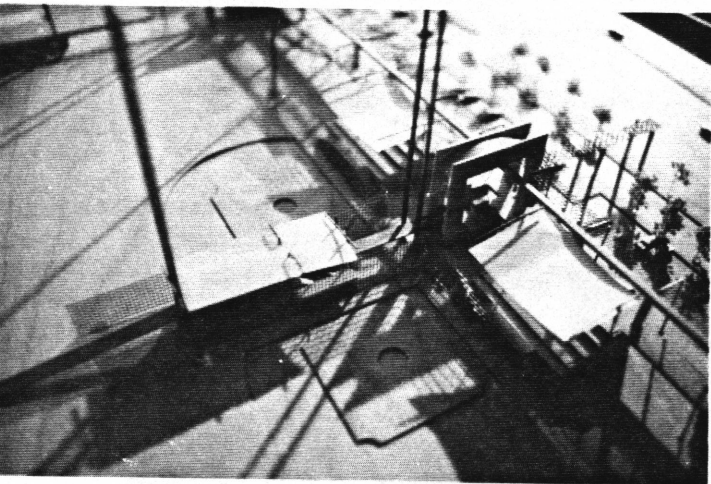
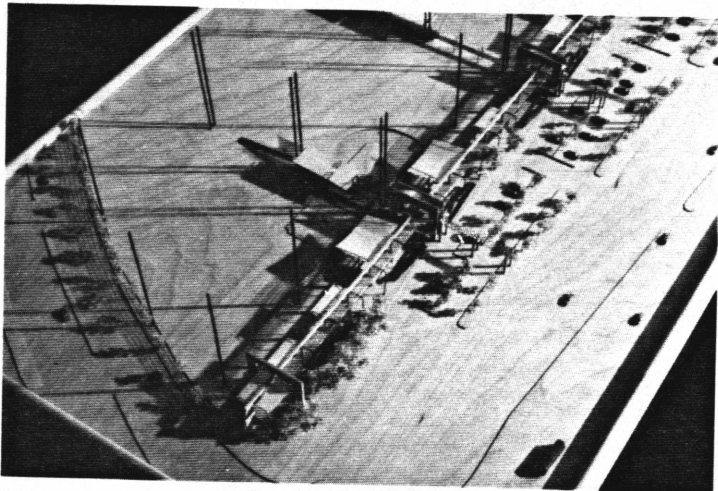


Proposed Site Plan

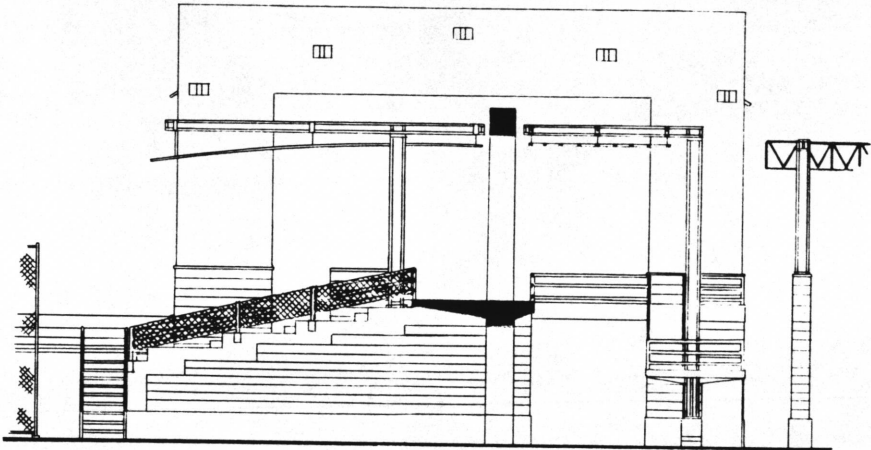


The baseball area has two playing fields that provide seating along the colonnade with concession stands and restrooms underneath. In addition it has one field tower that connects to the visiting team's seating and dugout area.

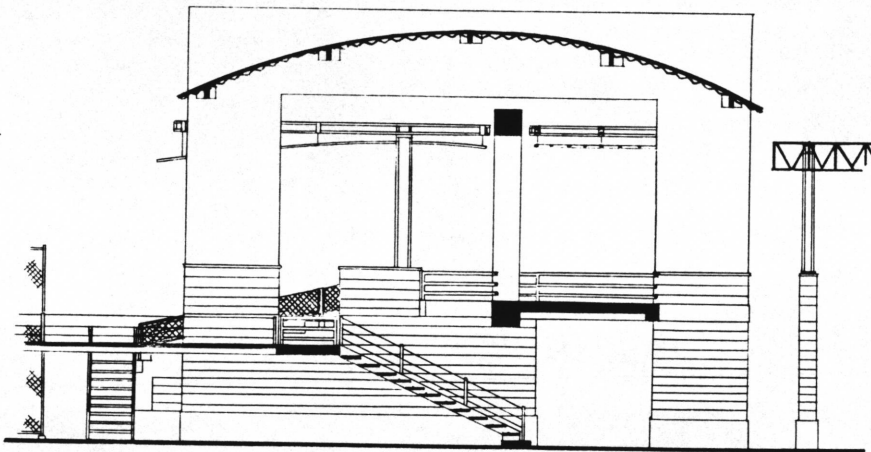




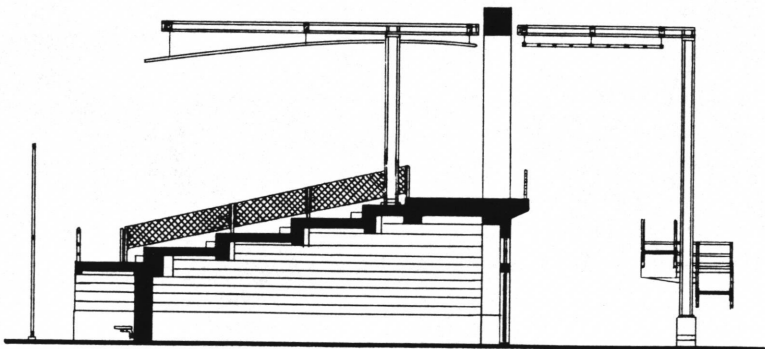
- 1 Concession stand
- 2 Restroom
- 3 Dugout



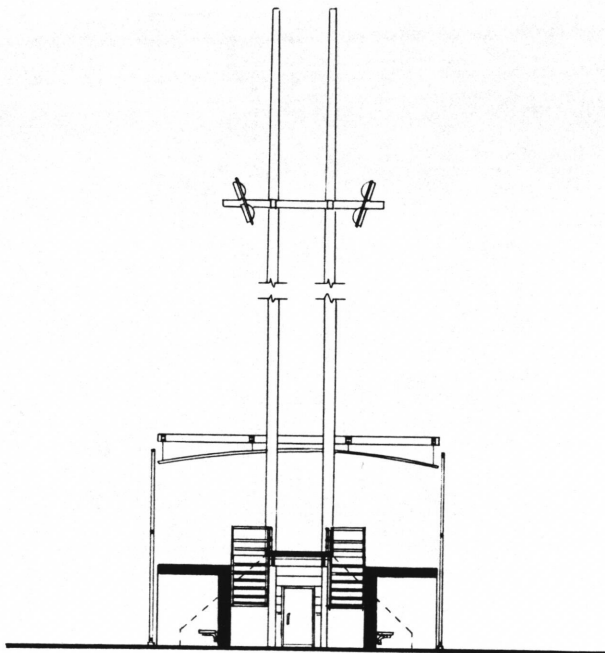
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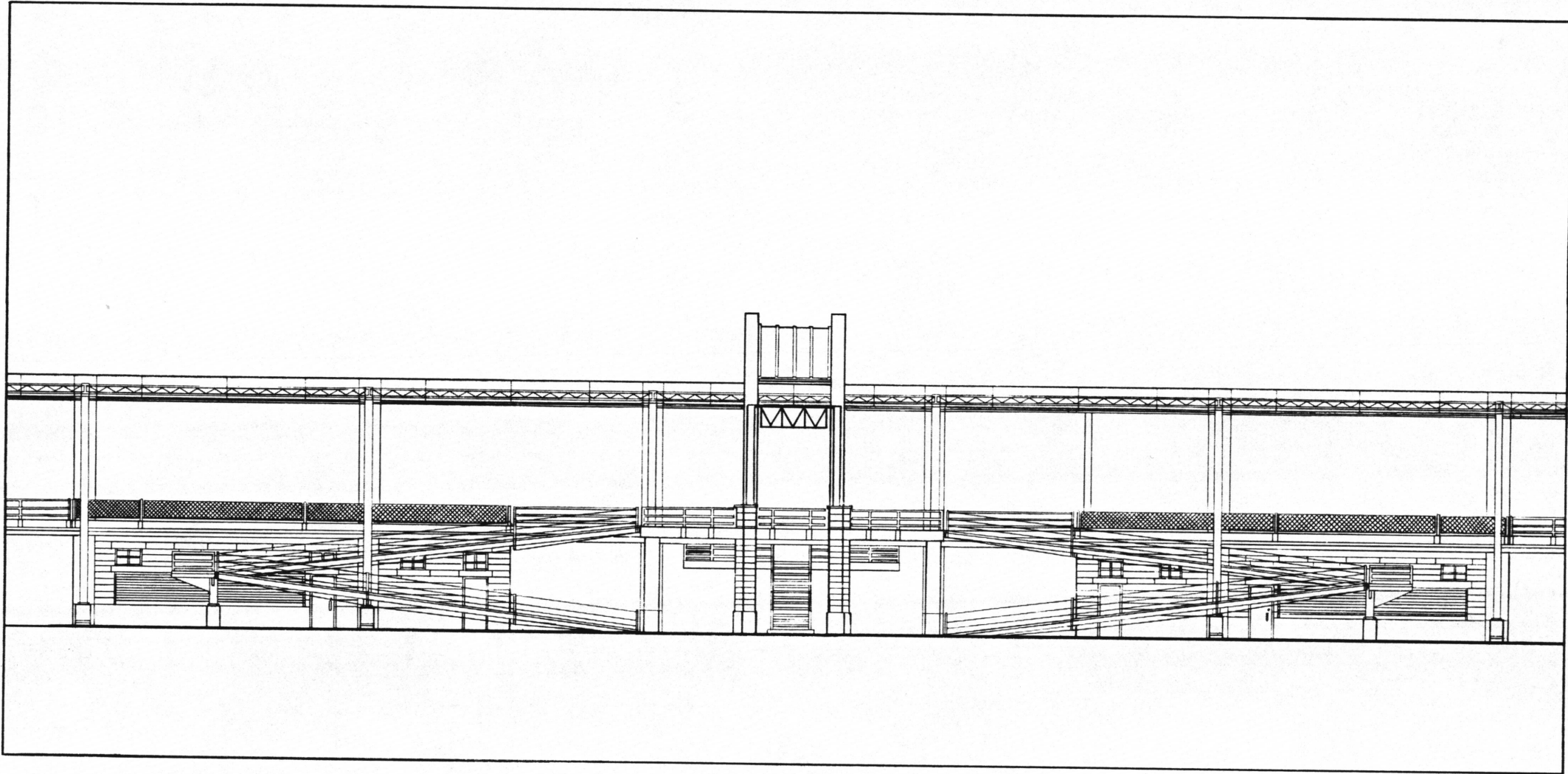
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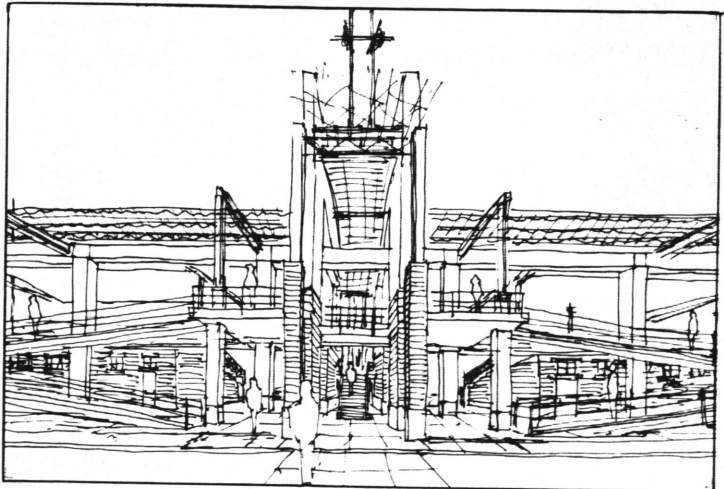
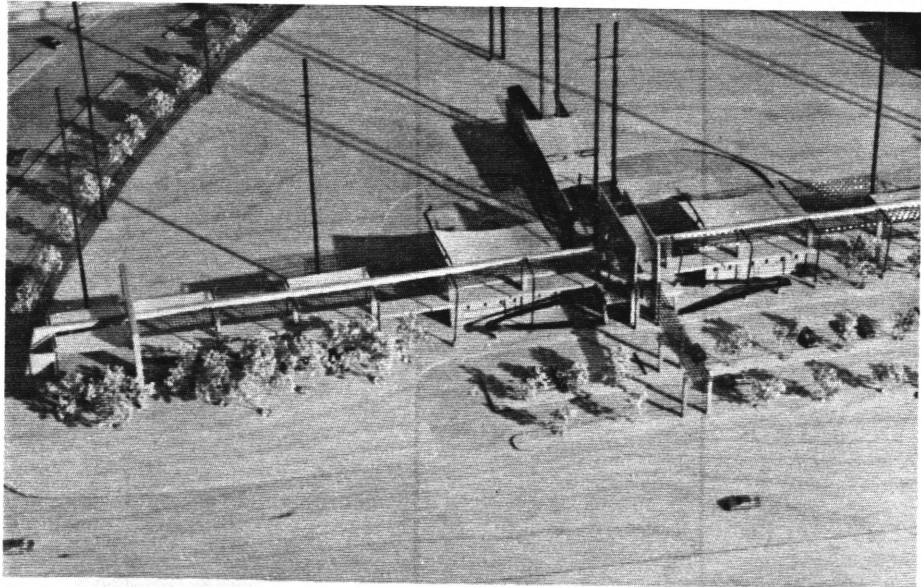
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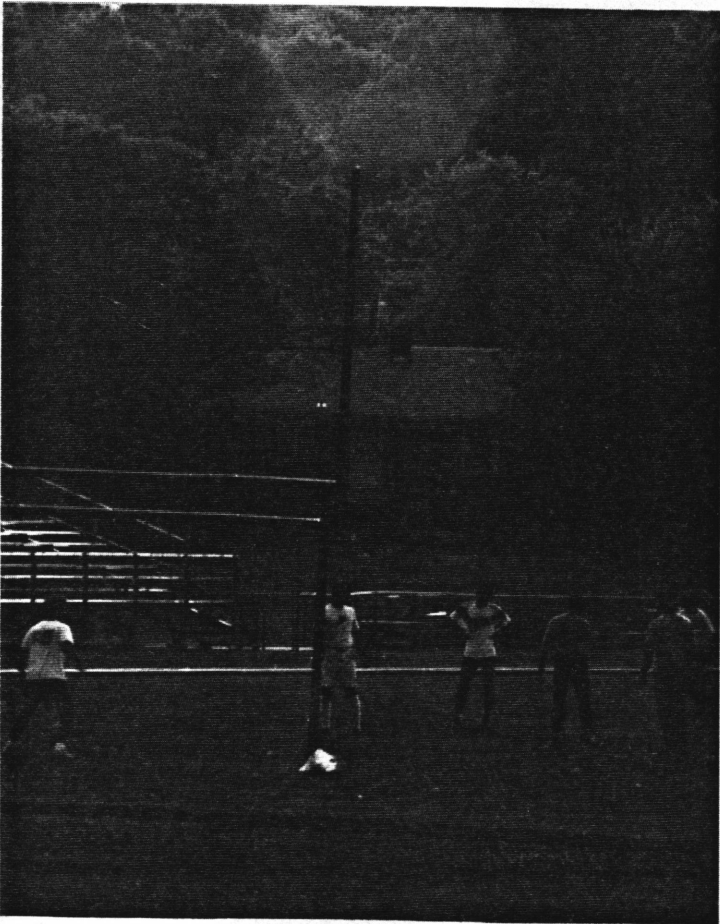
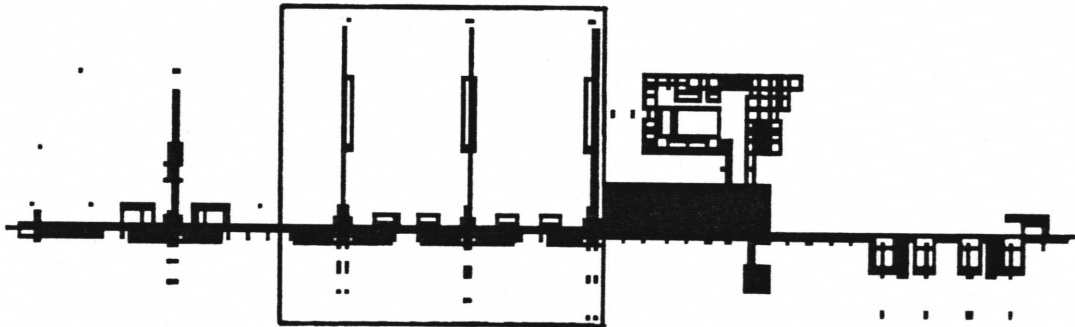
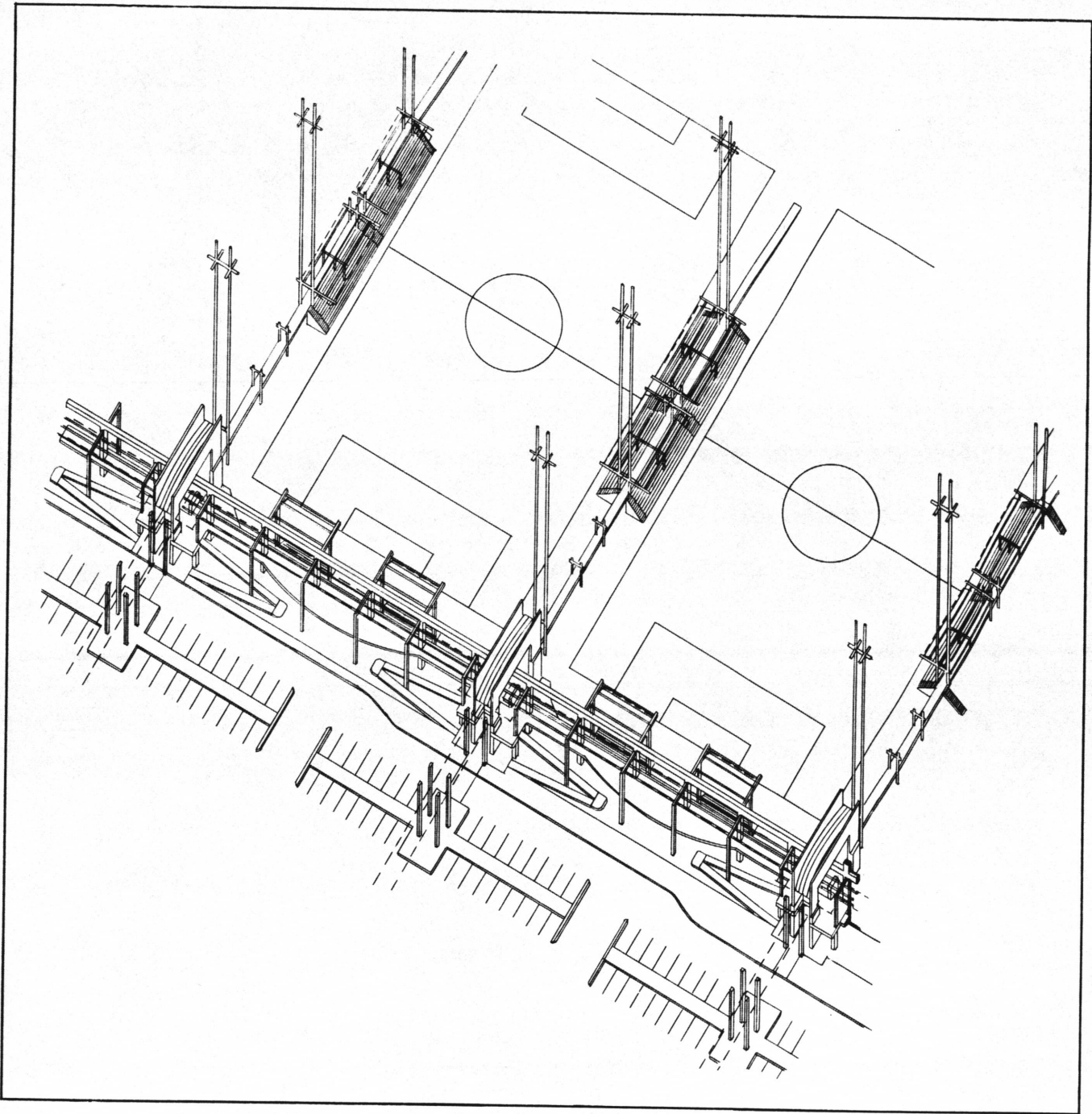
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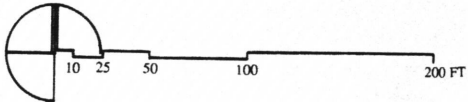
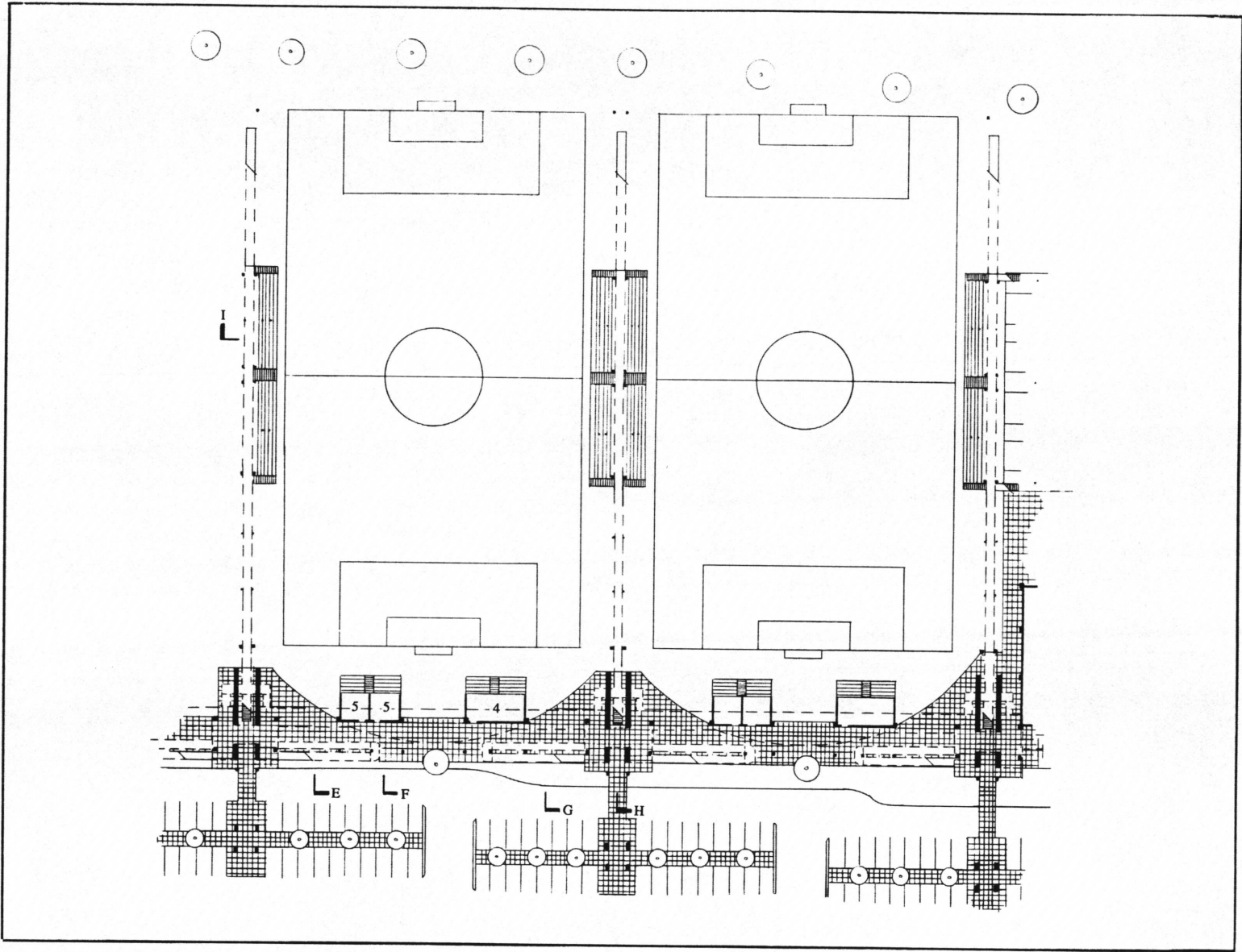
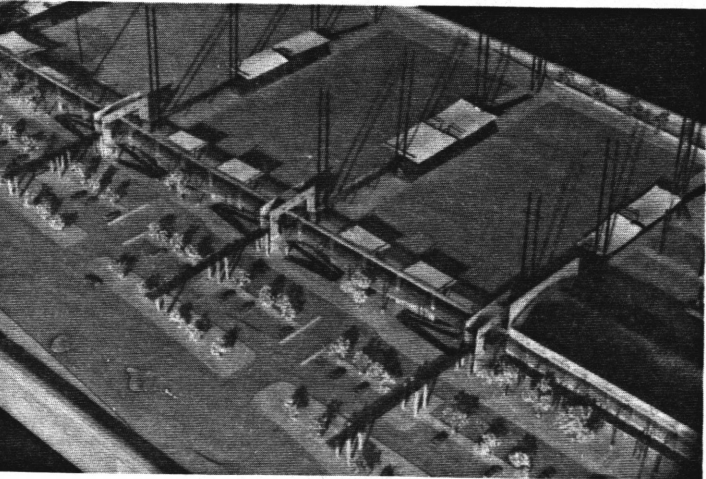
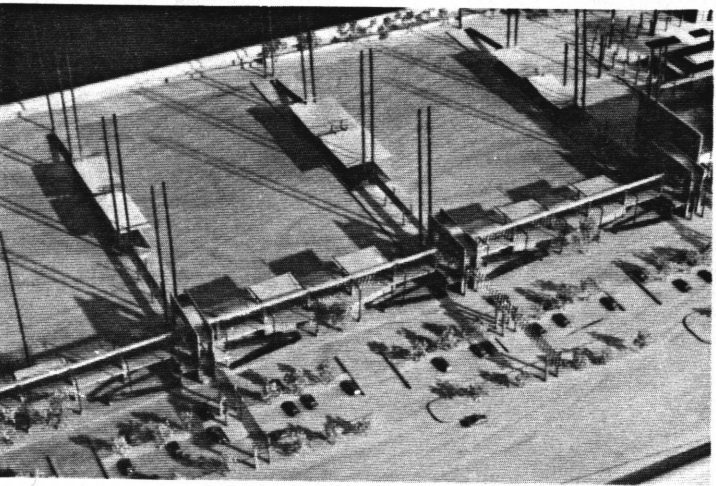
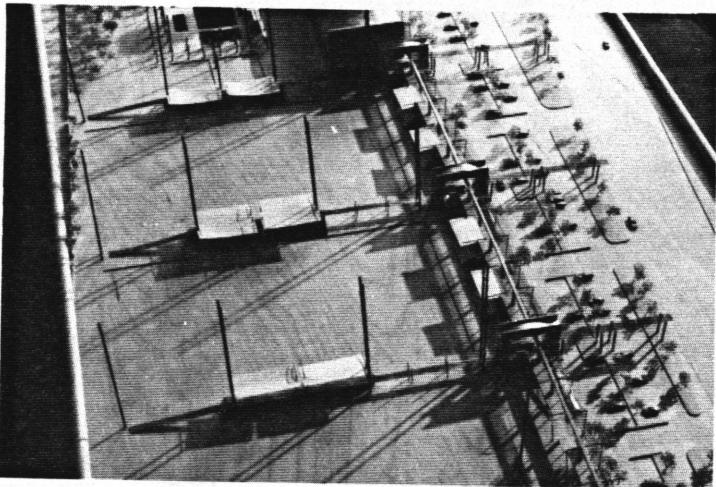


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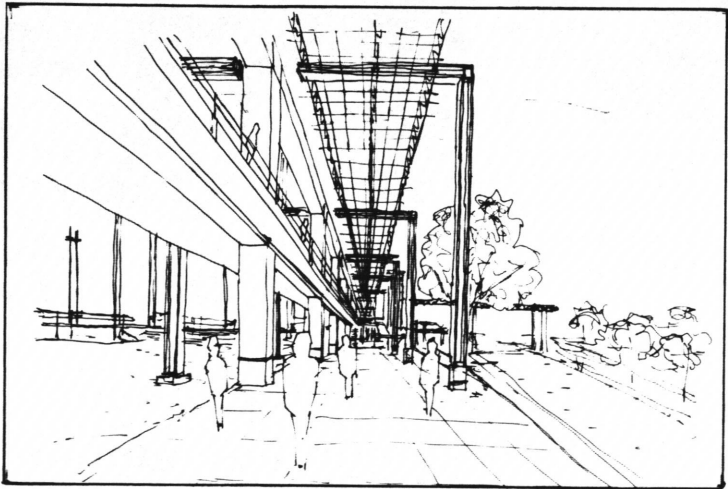


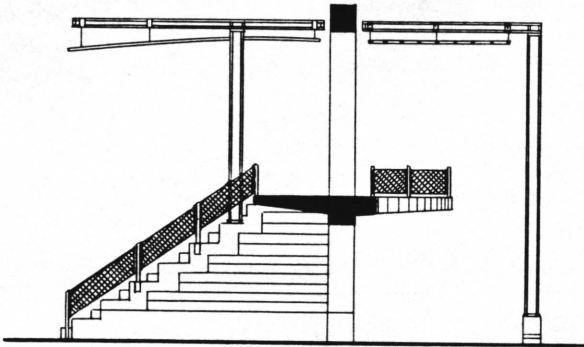
The soccer/football area has two playing fields that provide seating along the colonnade with concession stands and restrooms underneath. It is supported by two field towers which connect with the seating stands out along the playing fields.



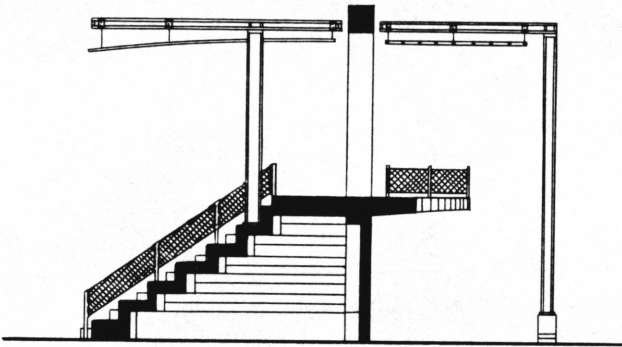


4 Concession stand
5 Restroom

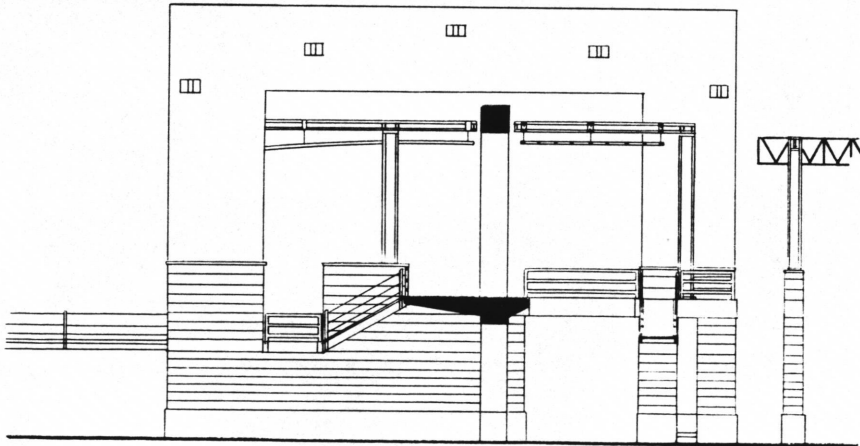




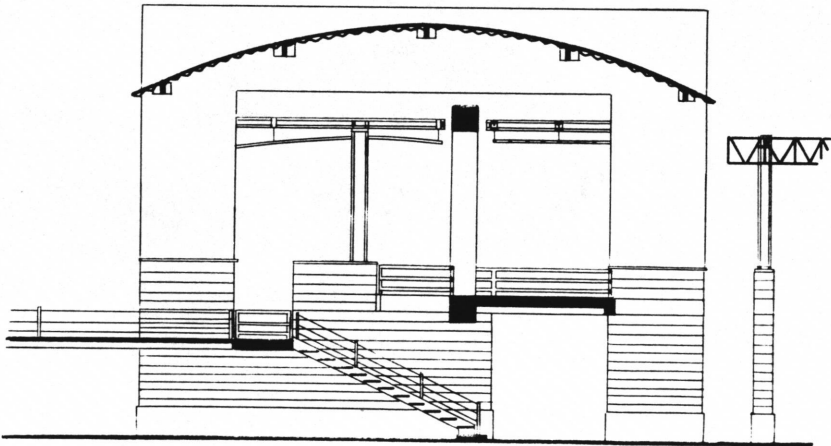
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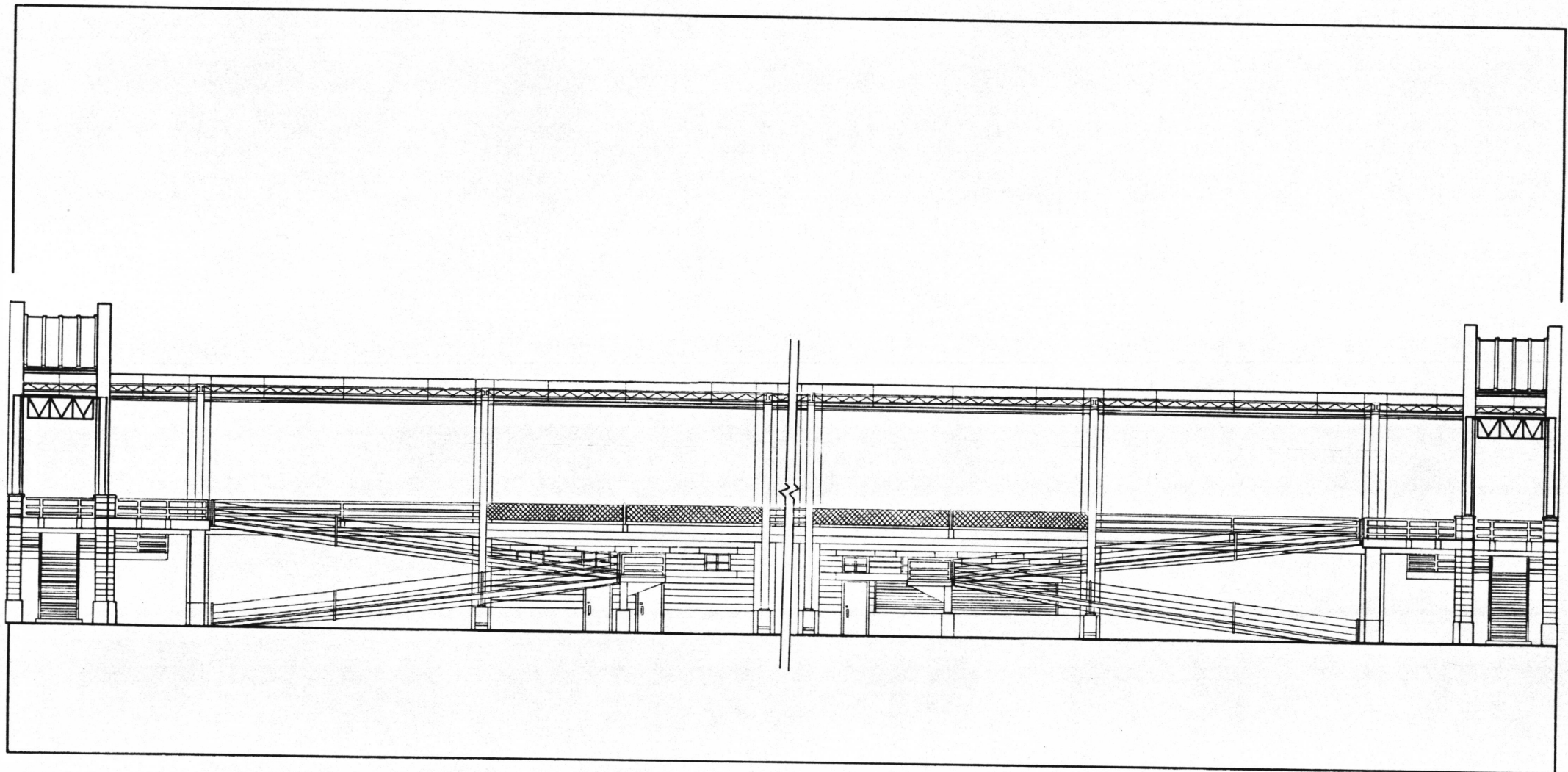
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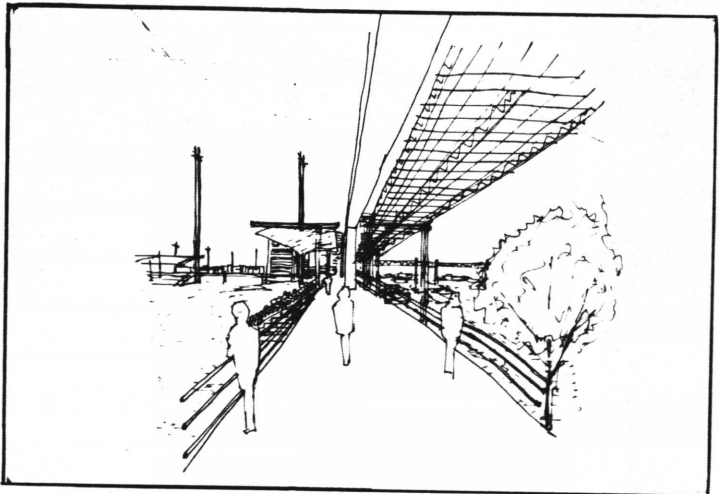
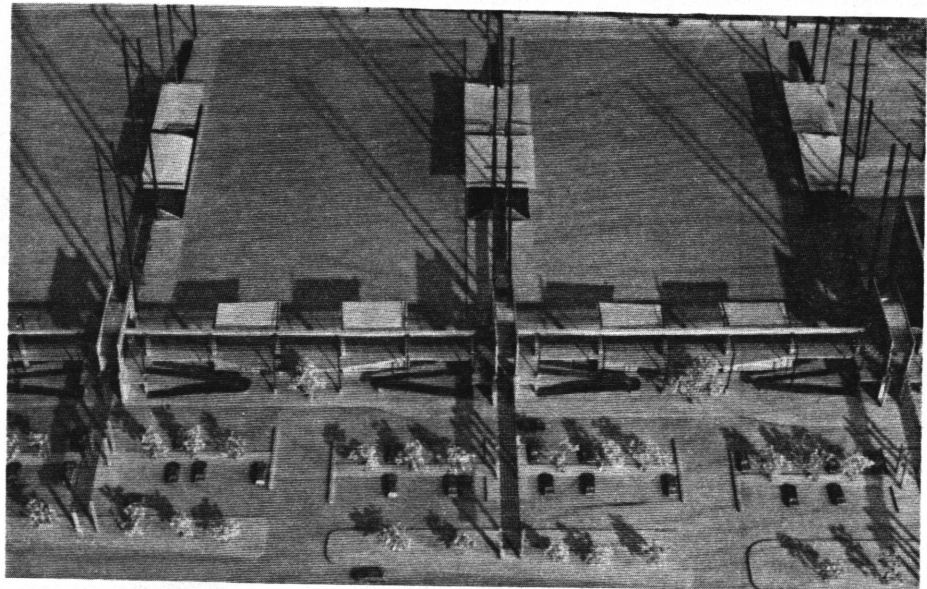
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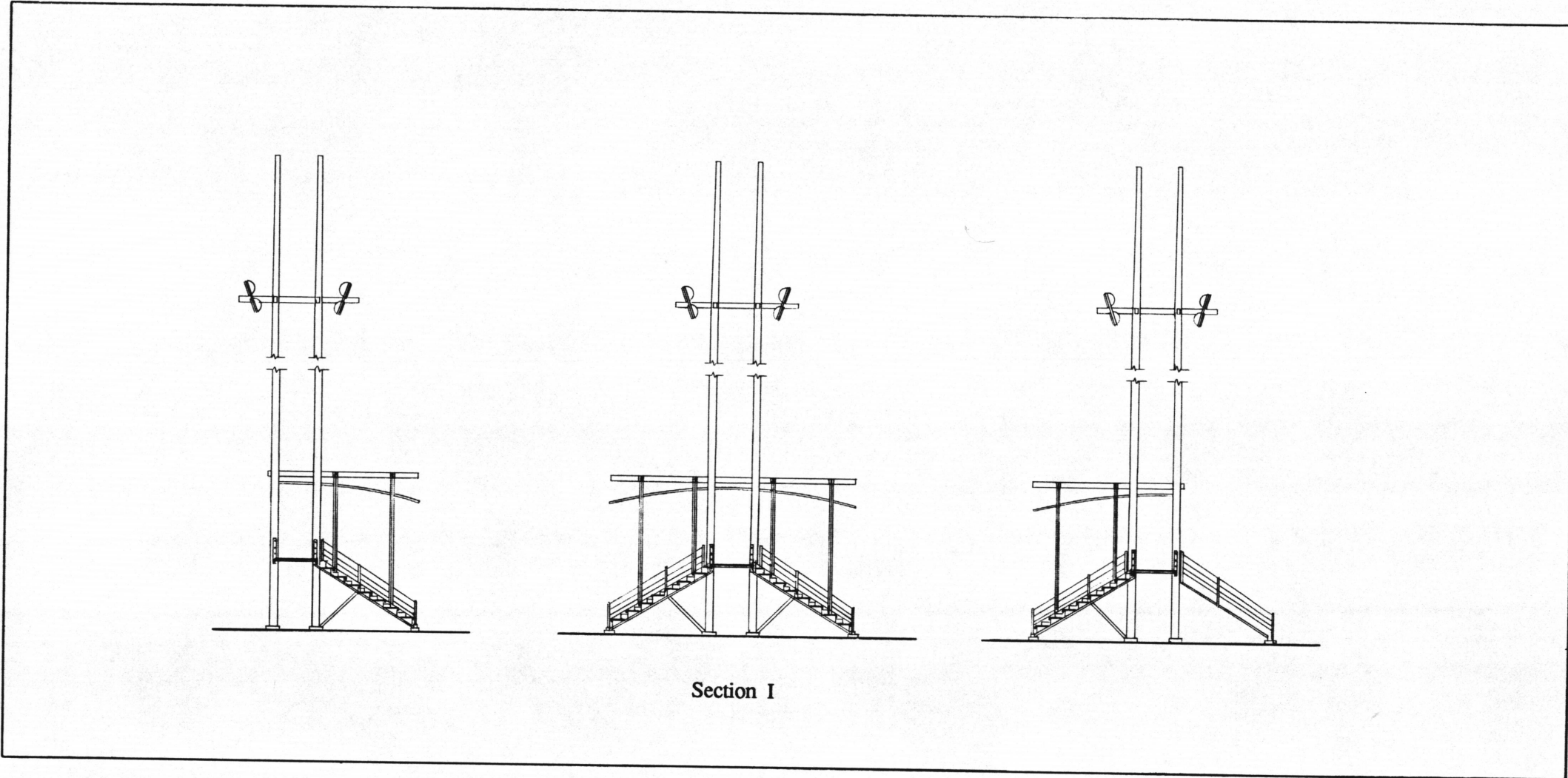


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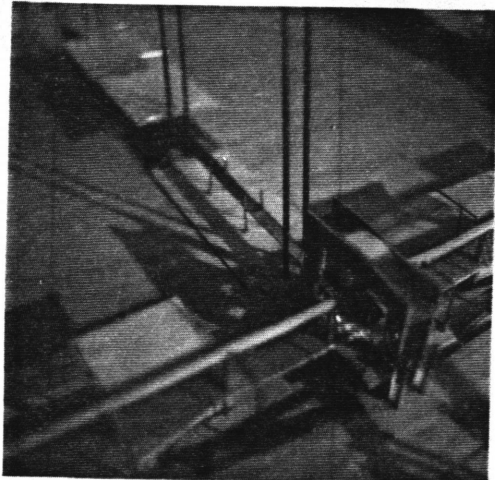
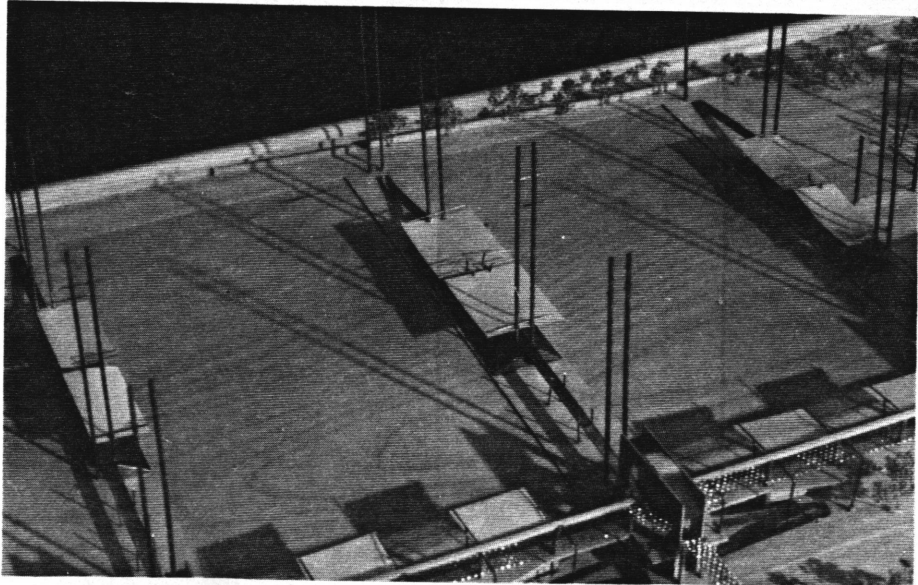


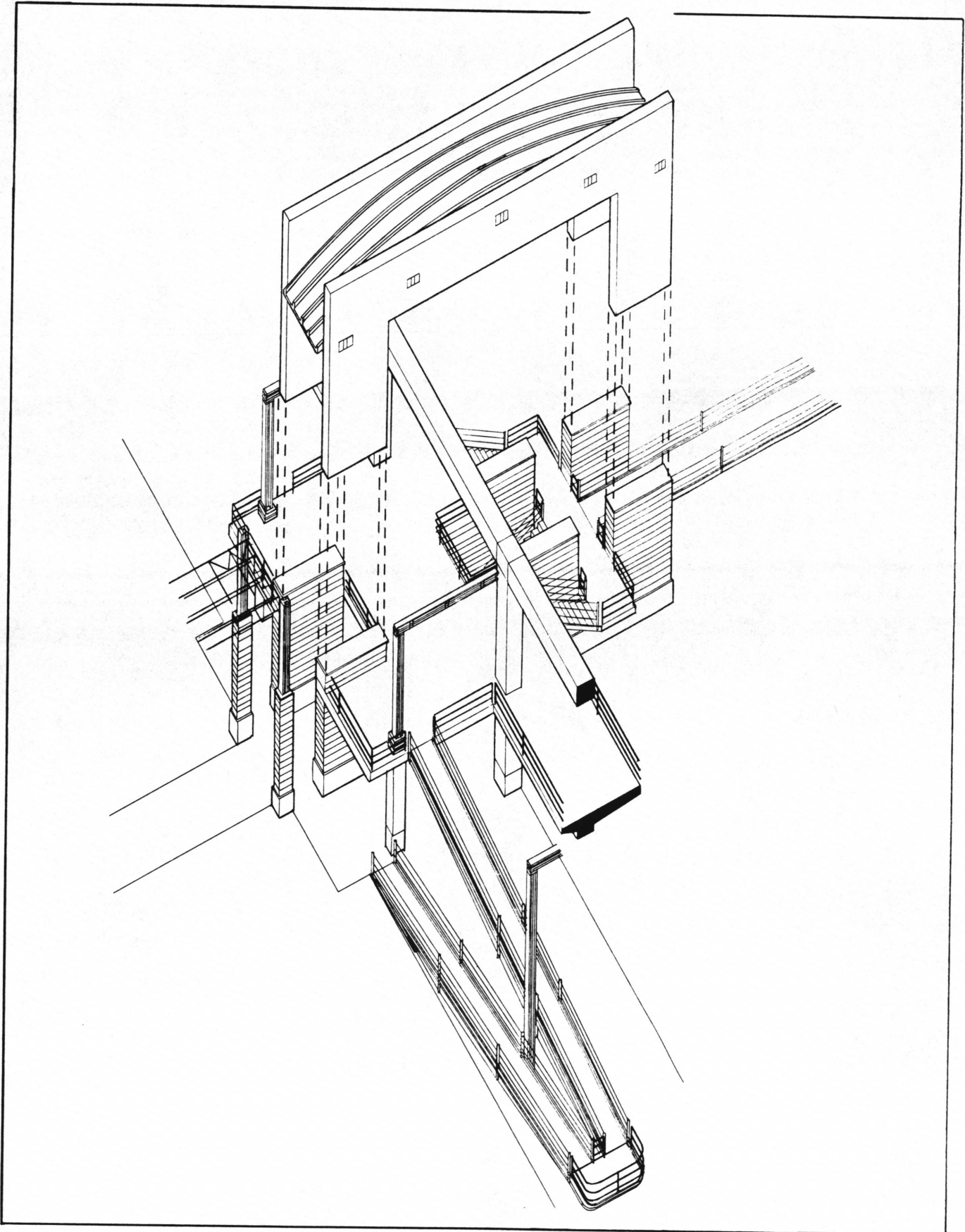
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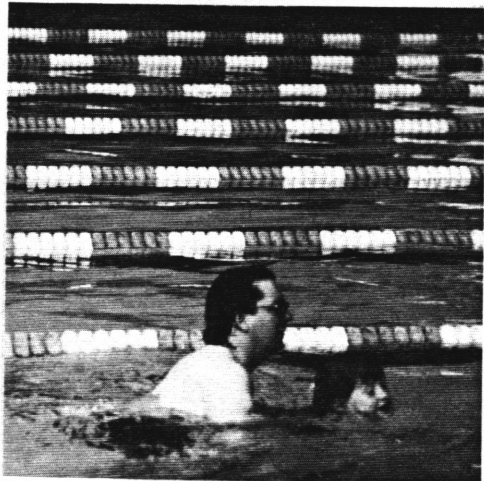
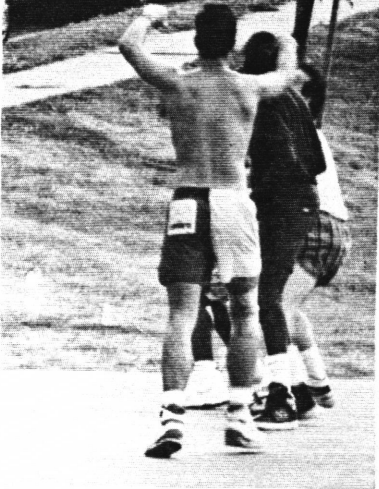
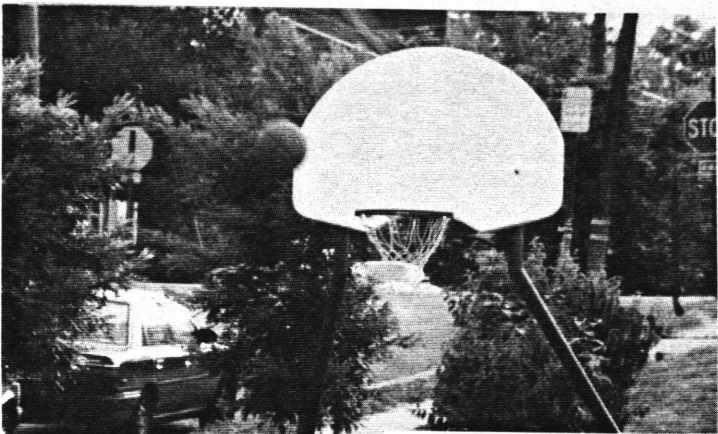
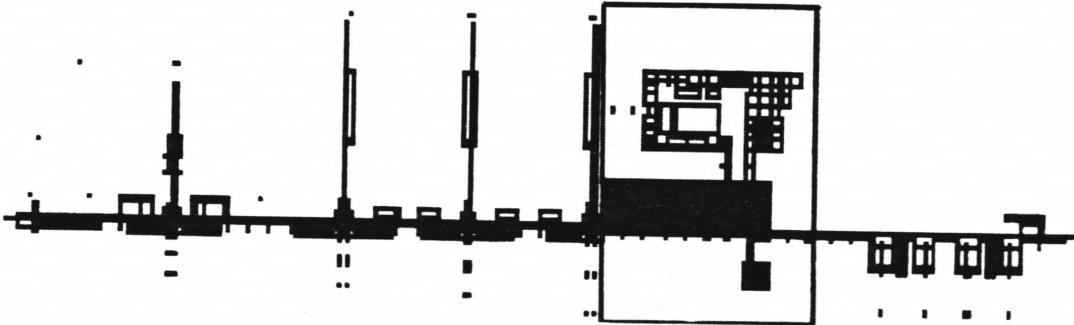
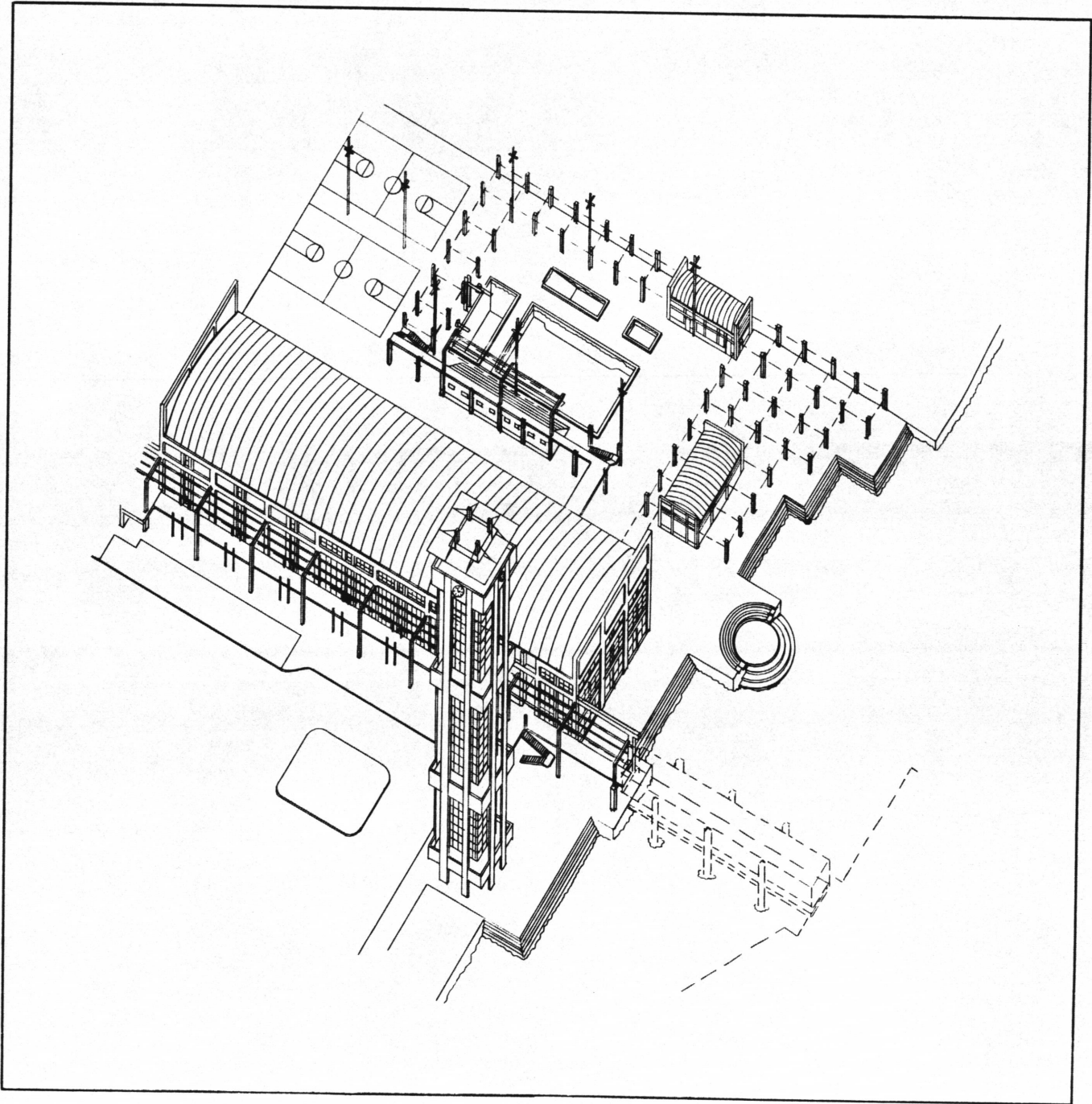


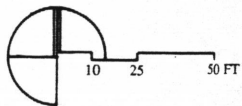
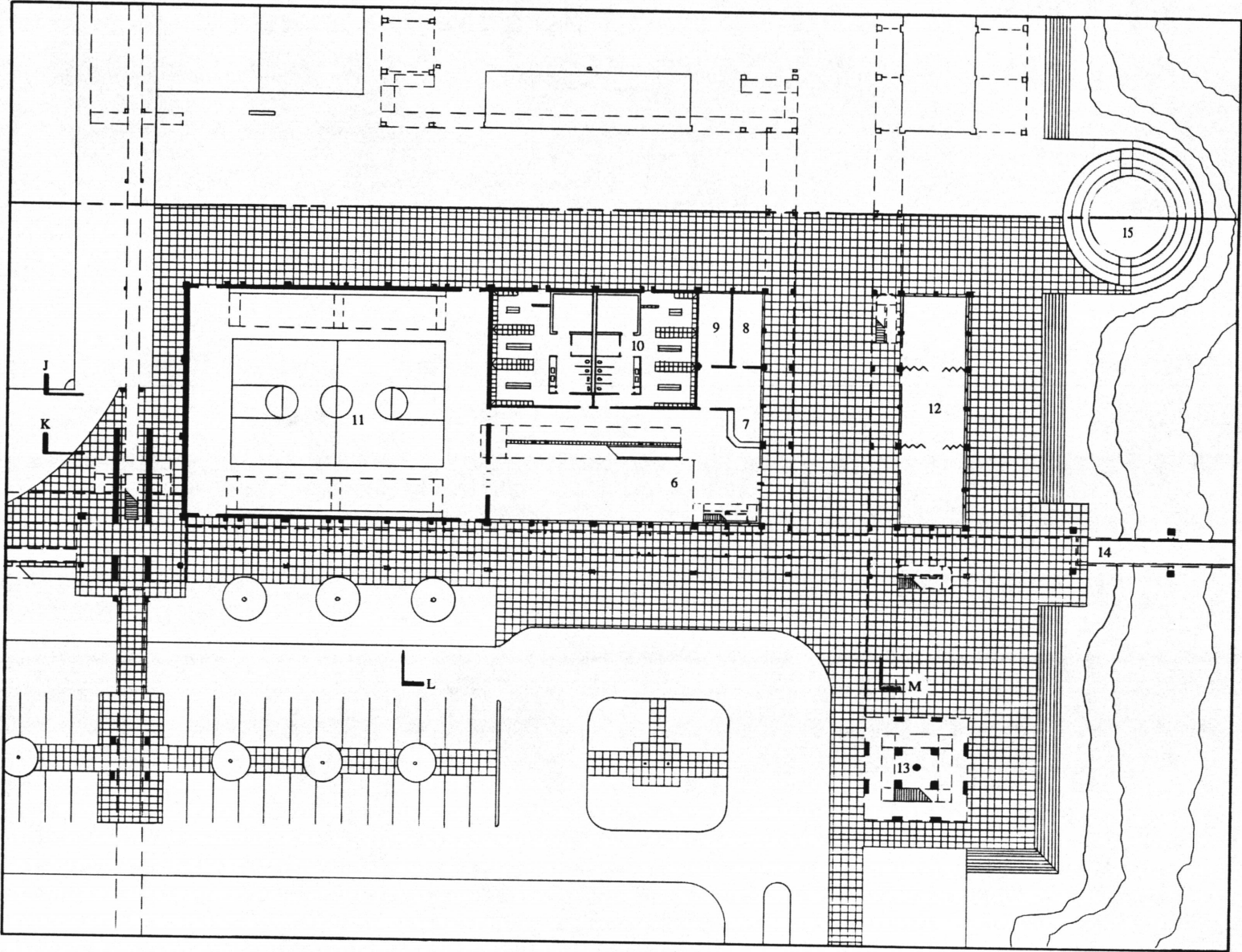
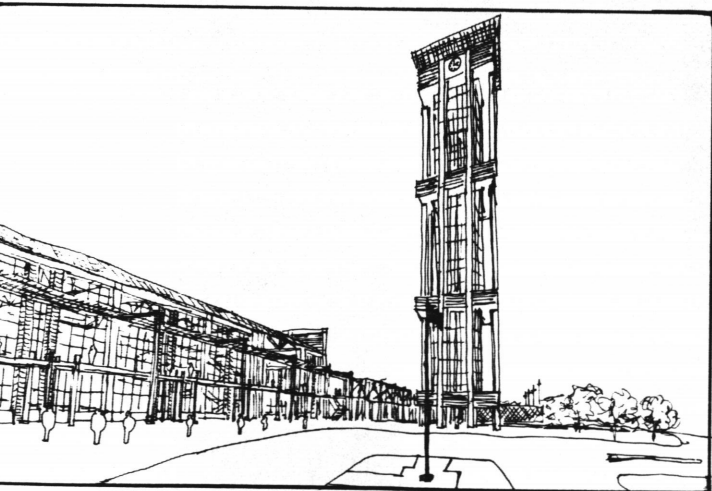
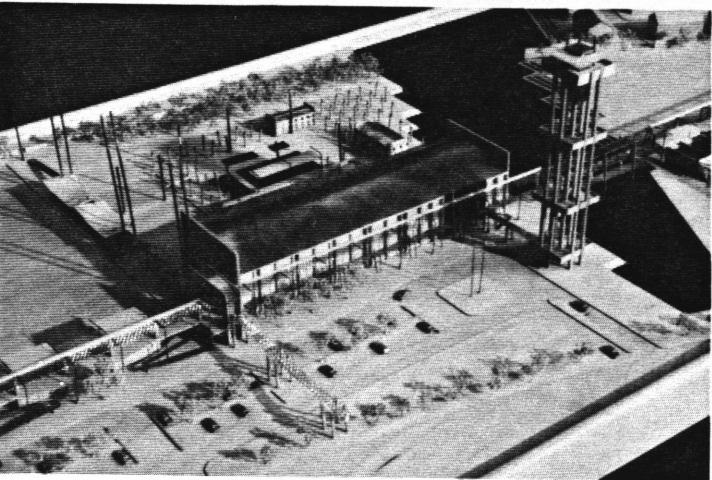
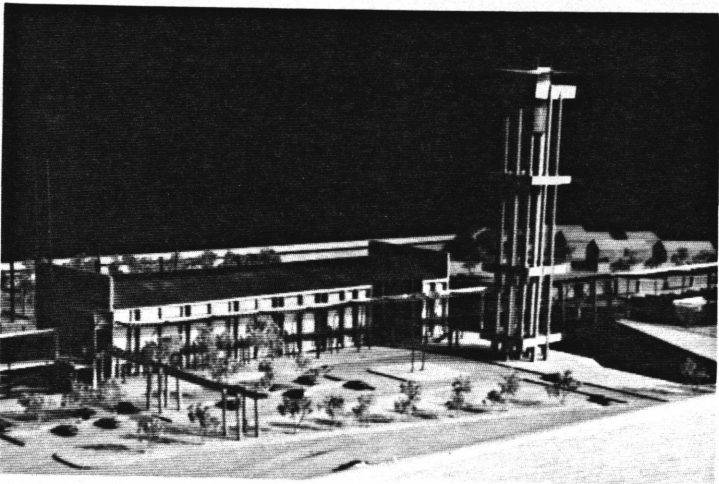


The recreation center building supports many functions and activities. They are arranged and organized under a long valted truss supported roof. The building uses a ramp to get up and down to its different levels.

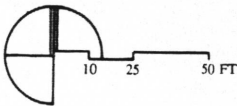
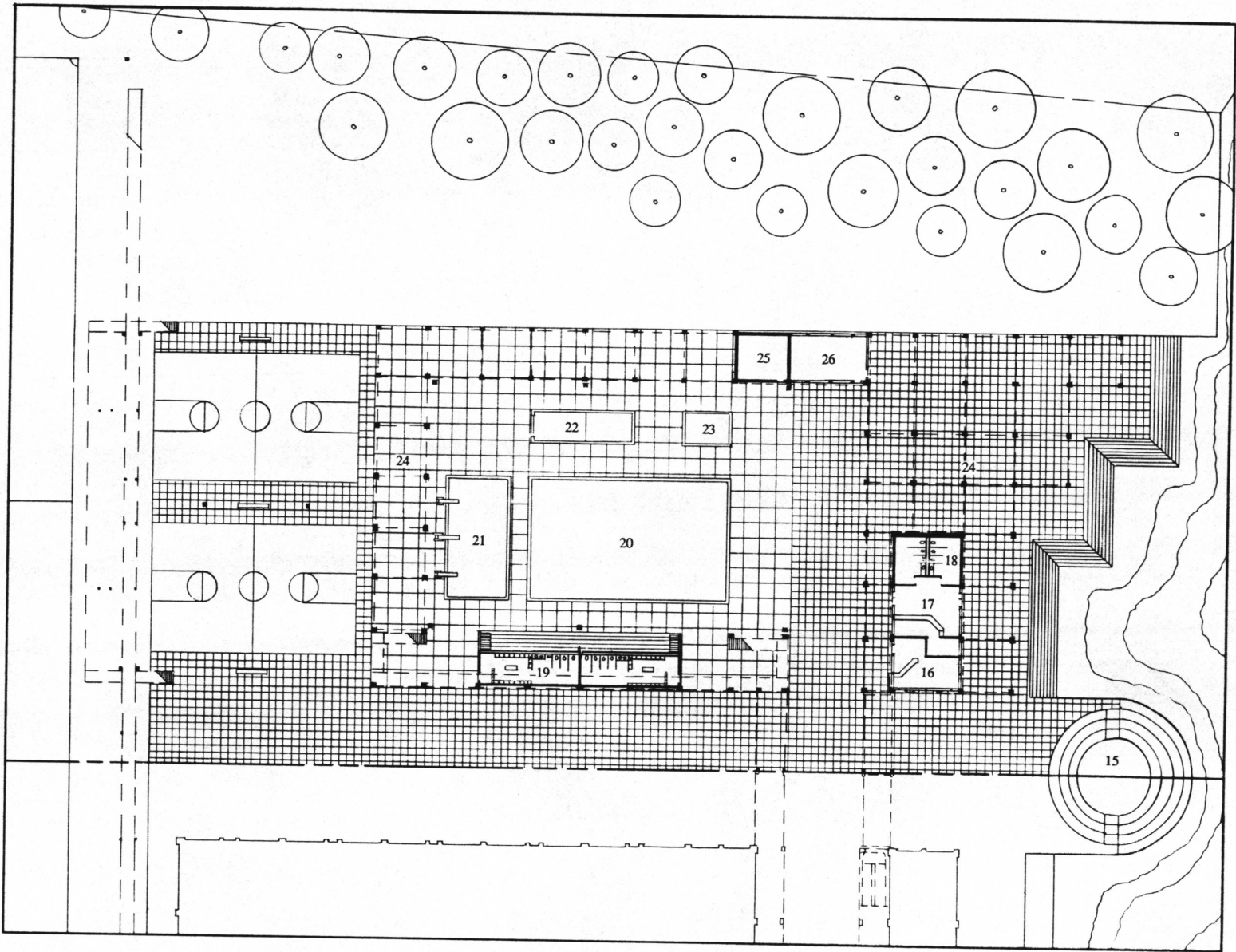
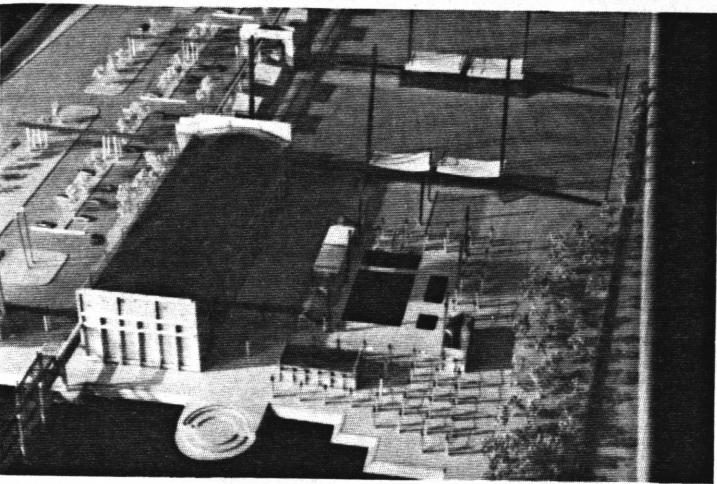
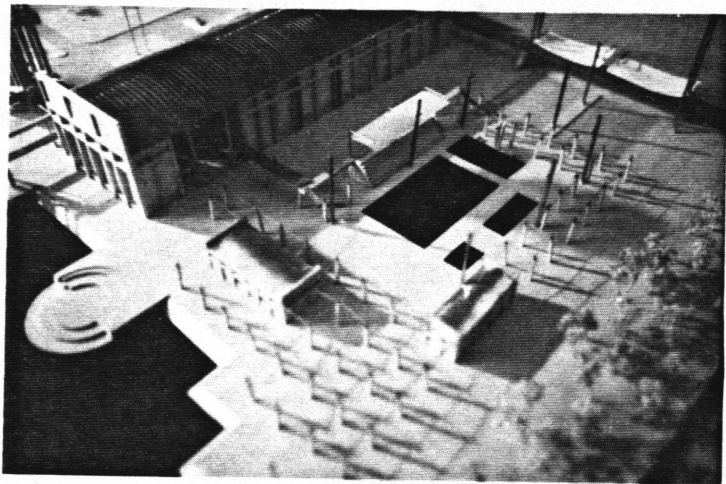
On the other side of the building is an amphitheater for outdoor entertainment use. This area works in conjunction with the park area which is across from the water.

The swimming area functions with the purpose of both a place for recreation and competition. Its large pool is equipped with floating lines that can be set up for racing. Their is also a pool provided exclusivly for diving. An elderly and children's pool rounds out the other pools which have been considered so everybody can participate water activities.

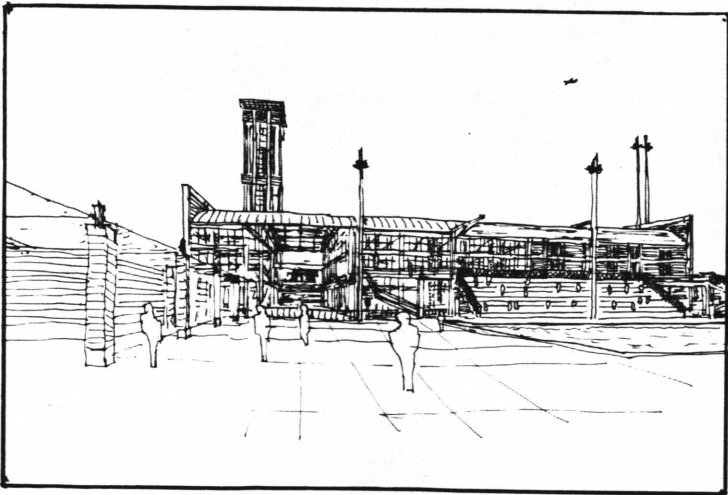


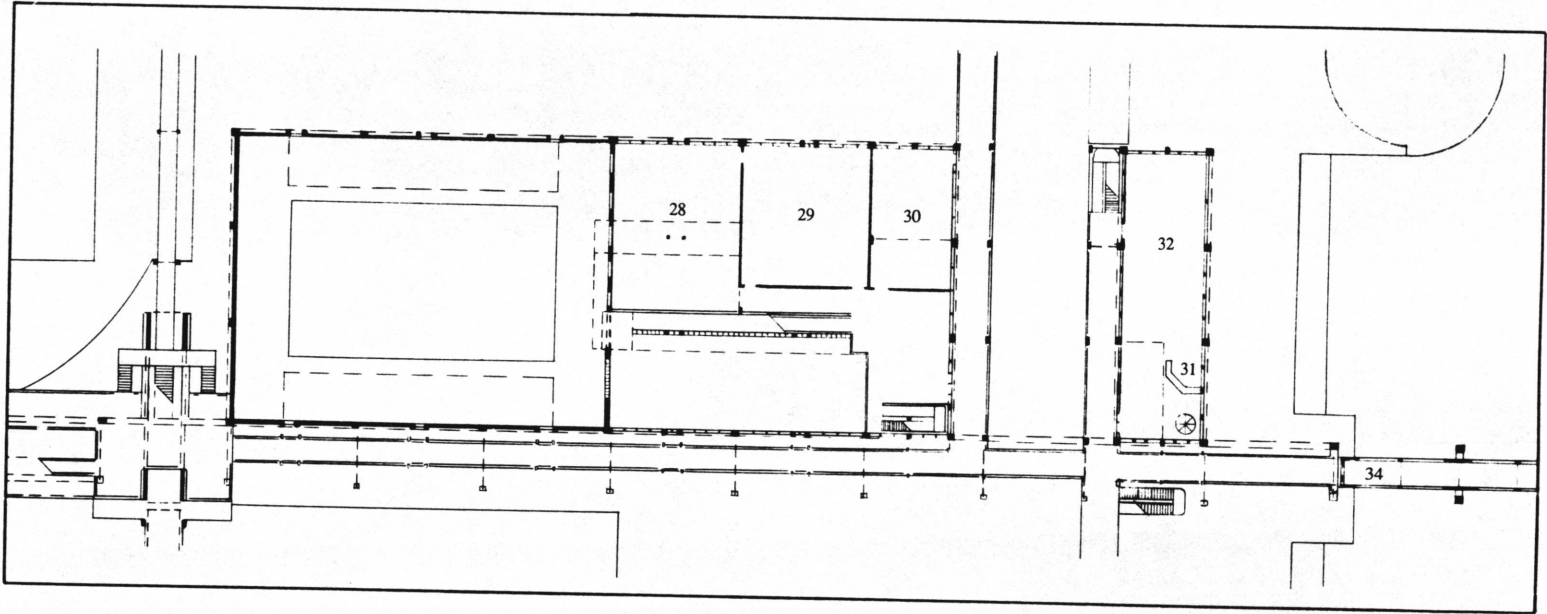
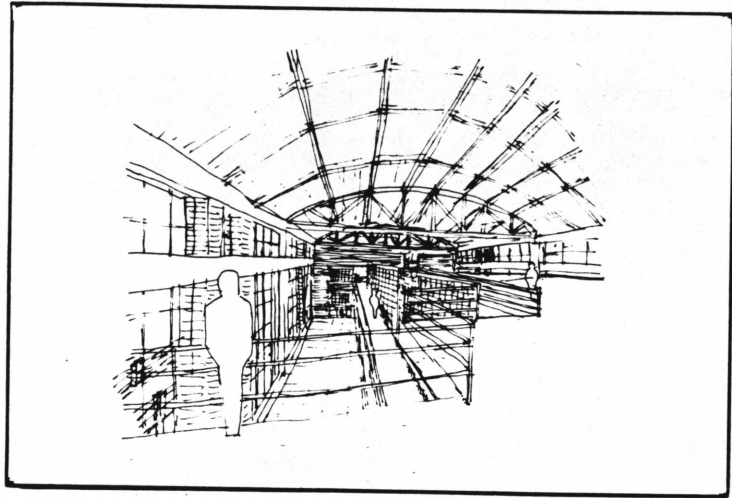


- 6 Lobby
- 7 Reception
- 8 Office
- 9 Storage
- 10 Lockers
- 11 Gym
- 12 Classrooms
- 13 Water/Observation tower
- 14 suspended bridge
- 15 Amphitheater



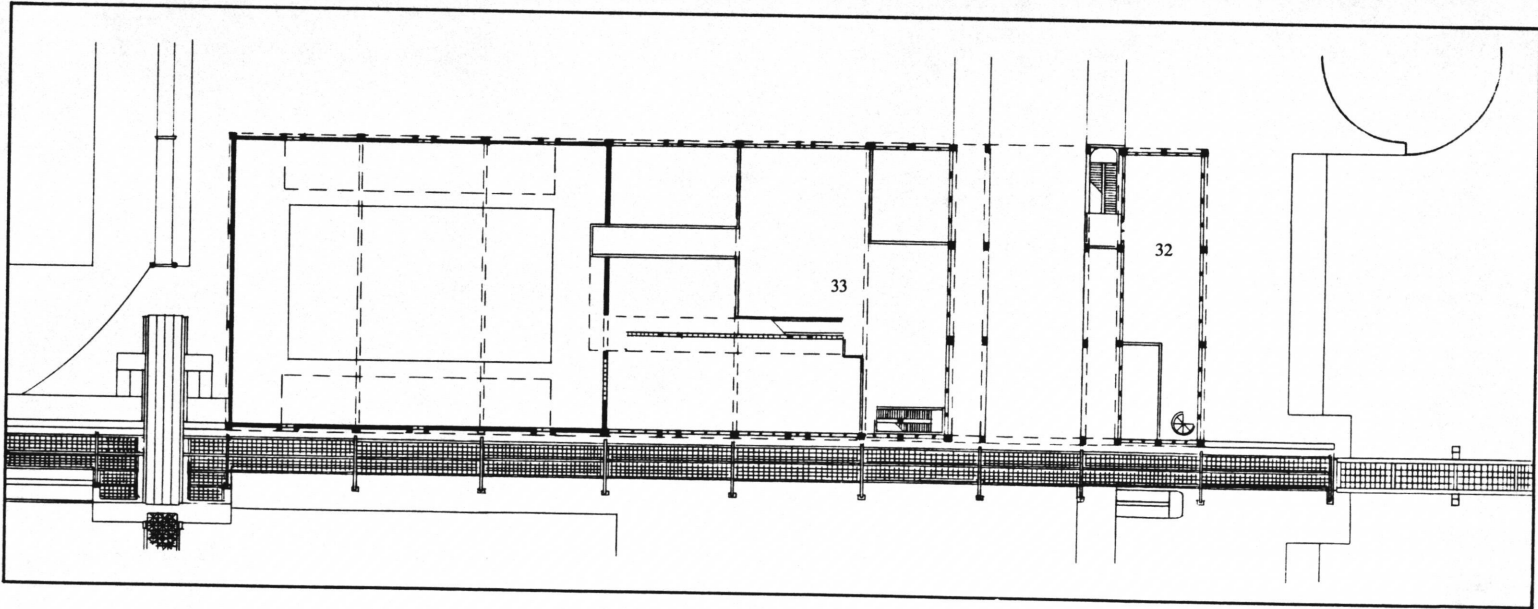
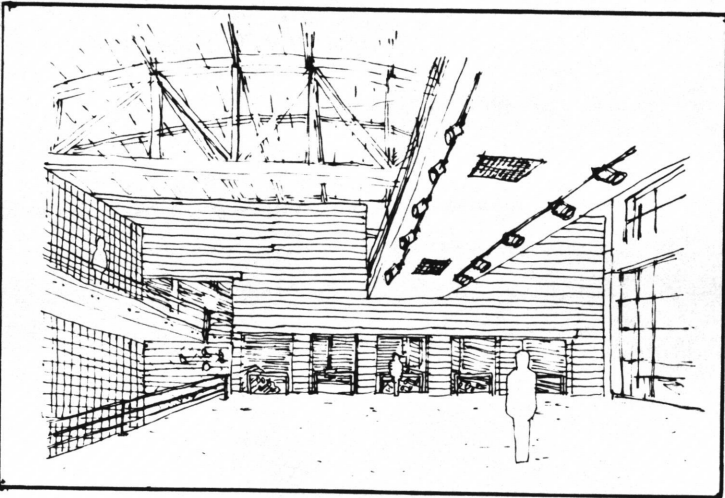
- 15 Amphitheater
- 16 Reception/Office
- 17 Concession stand
- 18 Restroom
- 19 Lockers
- 20 Competition/Rec. pool
- 21 Diving pool
- 22 Elderly pool
- 23 Childrens pool
- 24 Covered area
- 25 Storage/Mechanical.
- 26 Multipurpose room



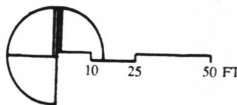


Second Level Plan

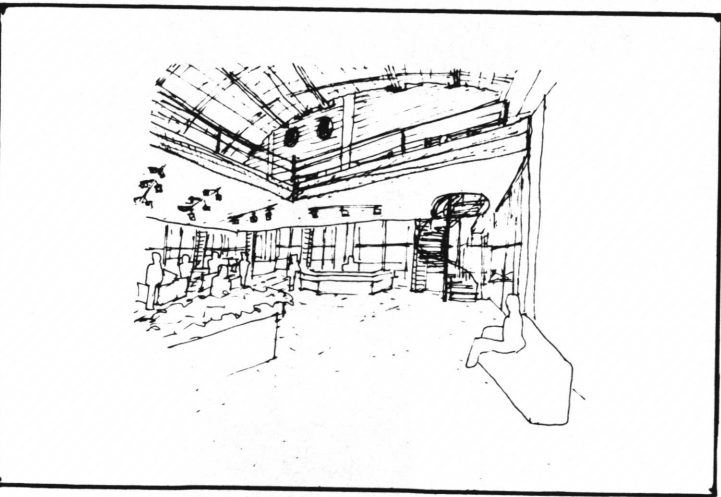
- (27) not included
- 28 Weight training room
- 29 Aerobics studio
- 30 Multipurpose room
- 31 Reception
- 32 Administration
- 34 Box truss bridge

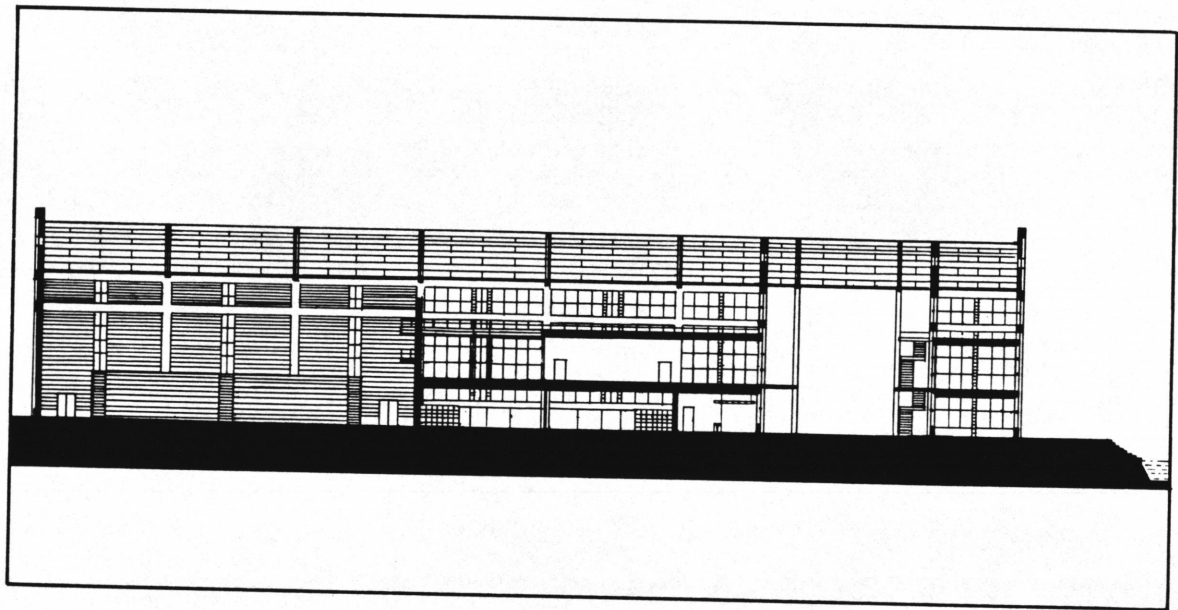


Third Level Plan

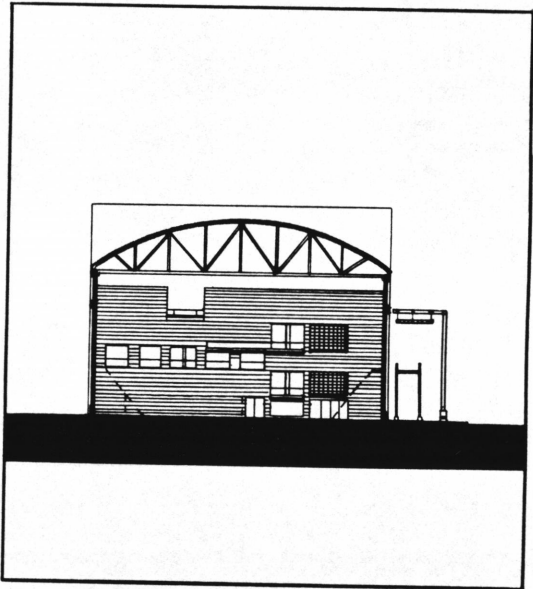


- 32 Administration
- 33 Lounge

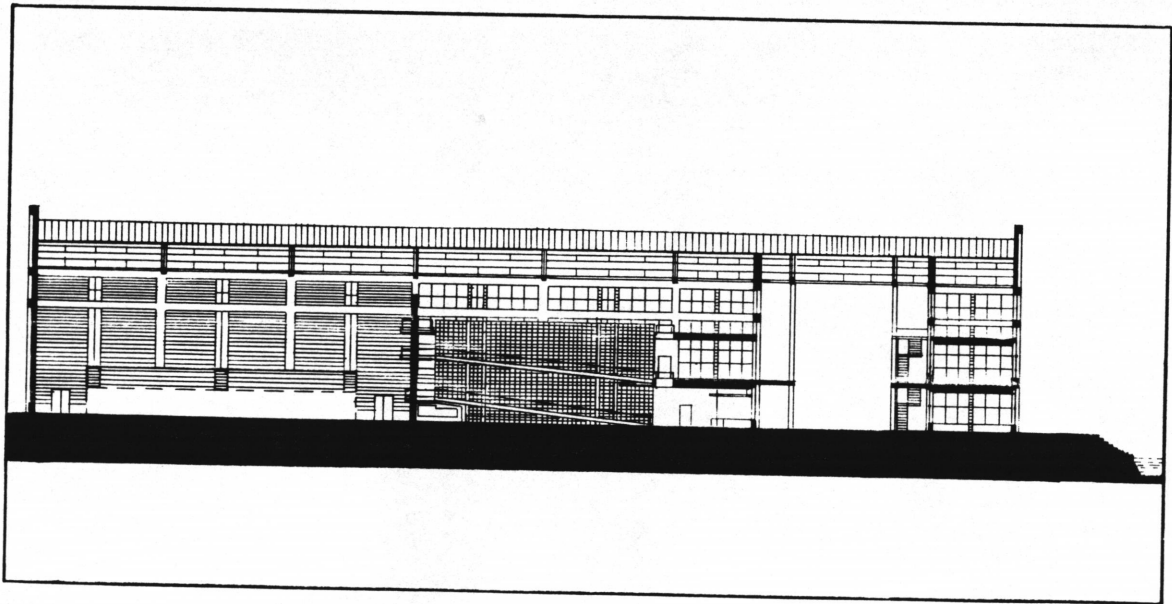




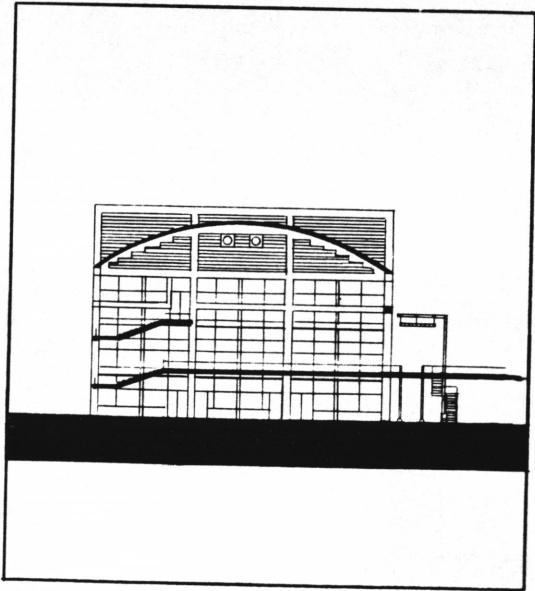
Section J
through gym, lockers, activity rooms, and administration



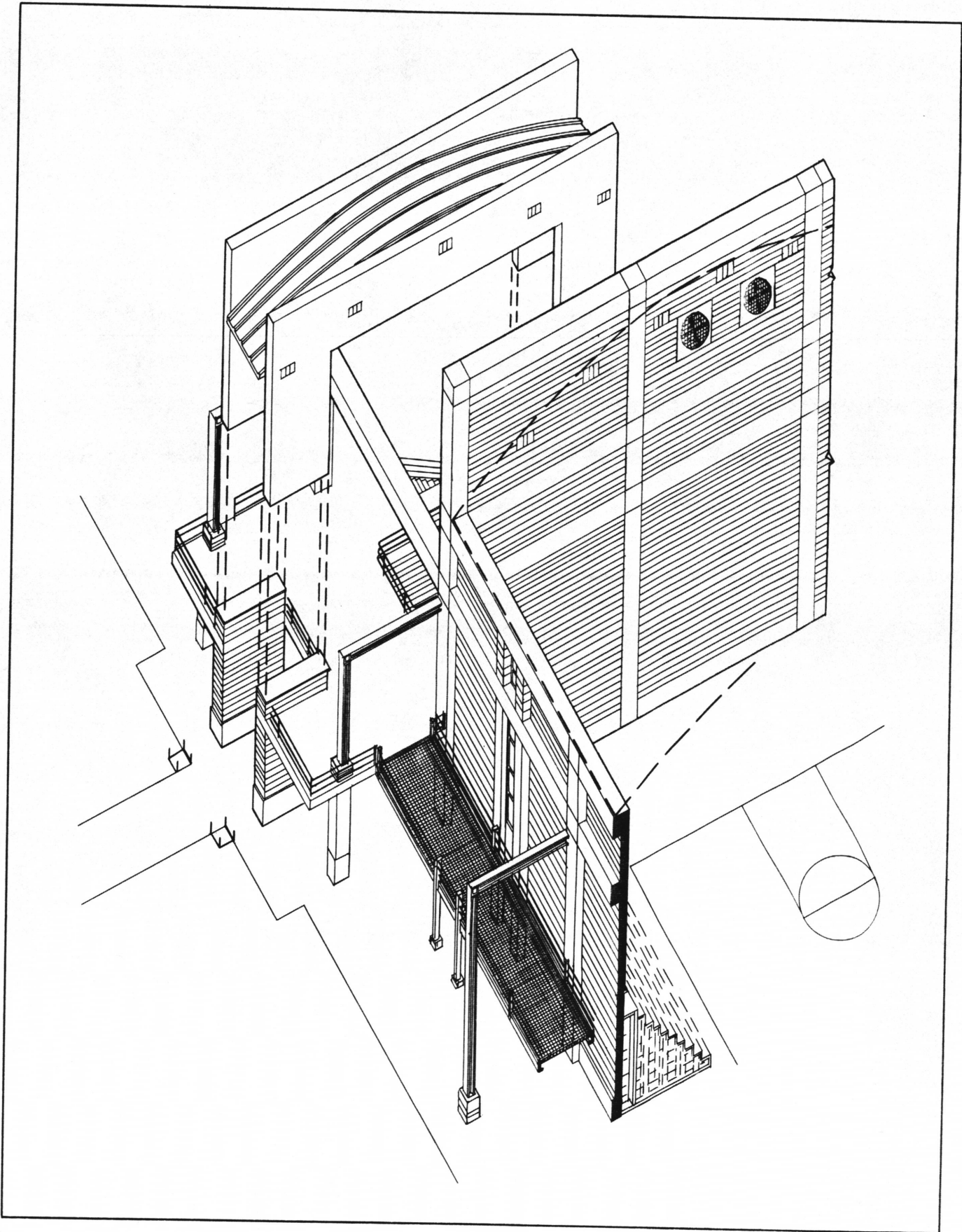
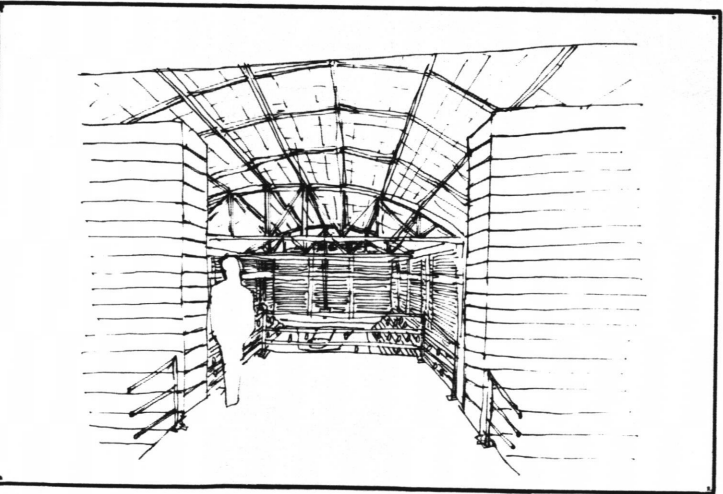
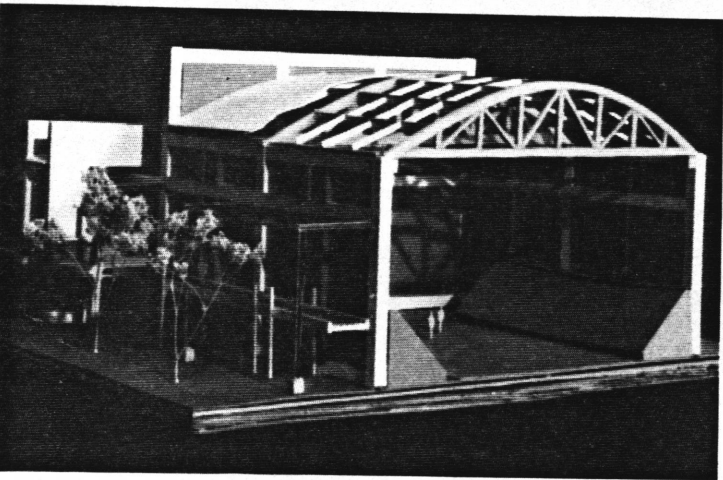
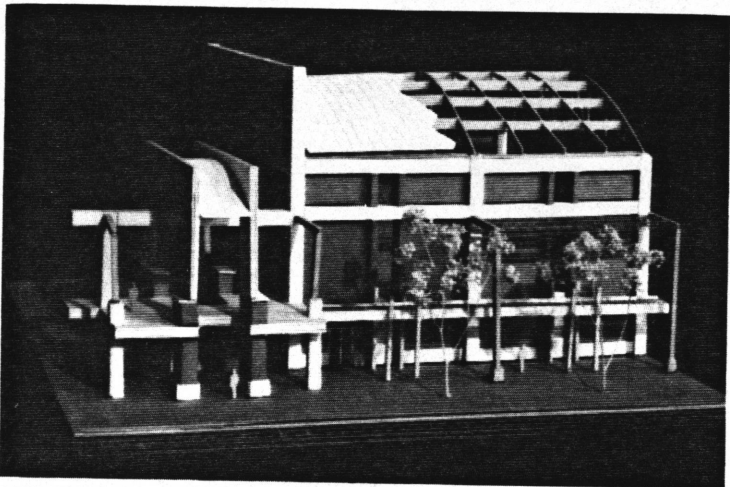
Section L
veiwng gym east wall

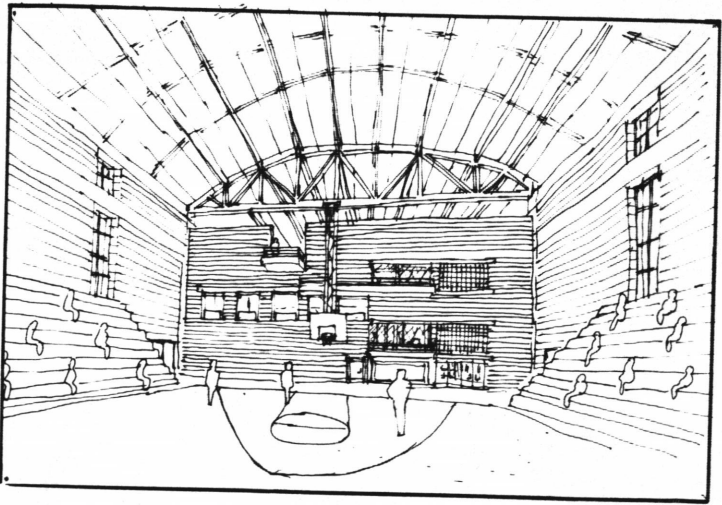
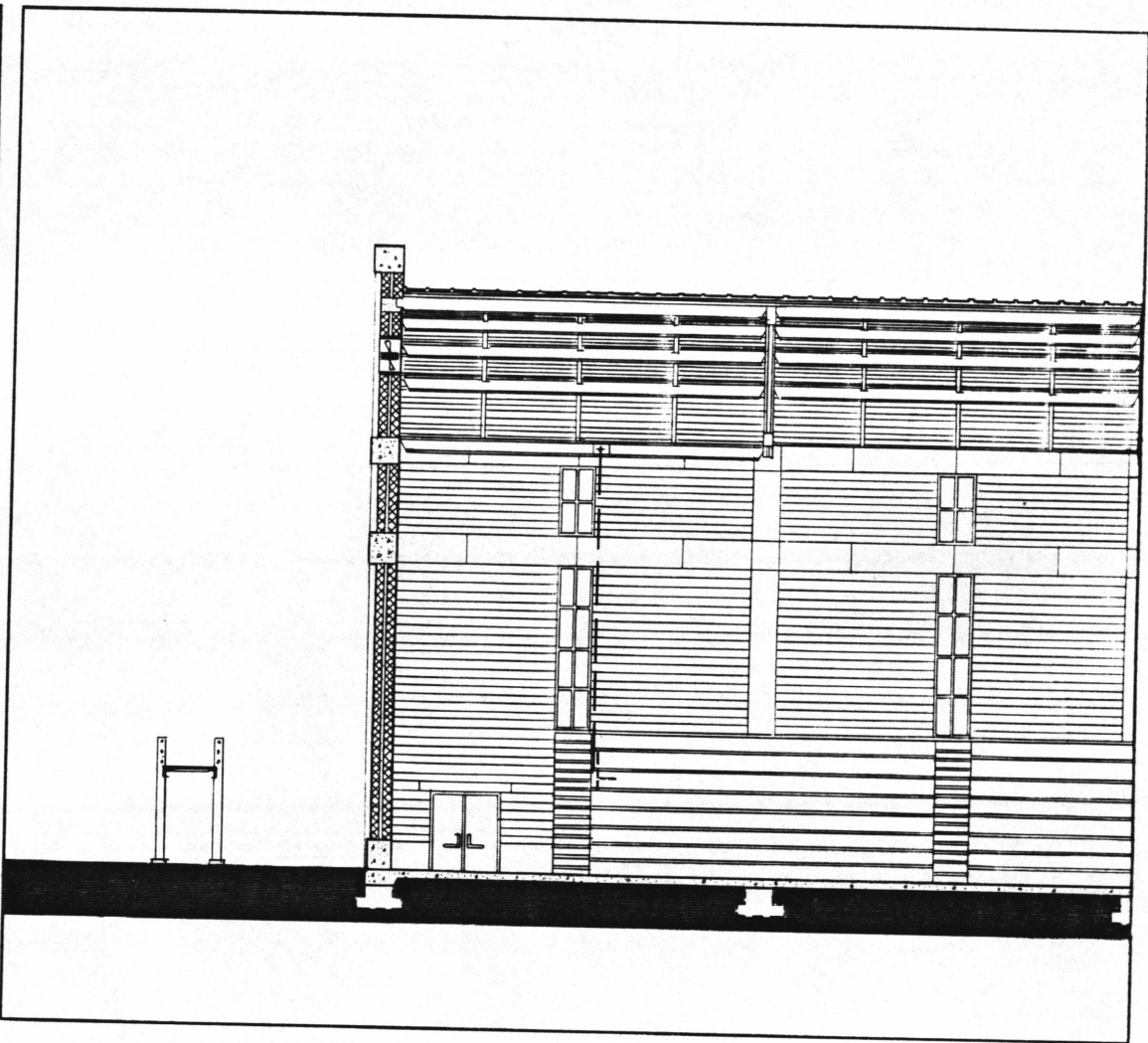
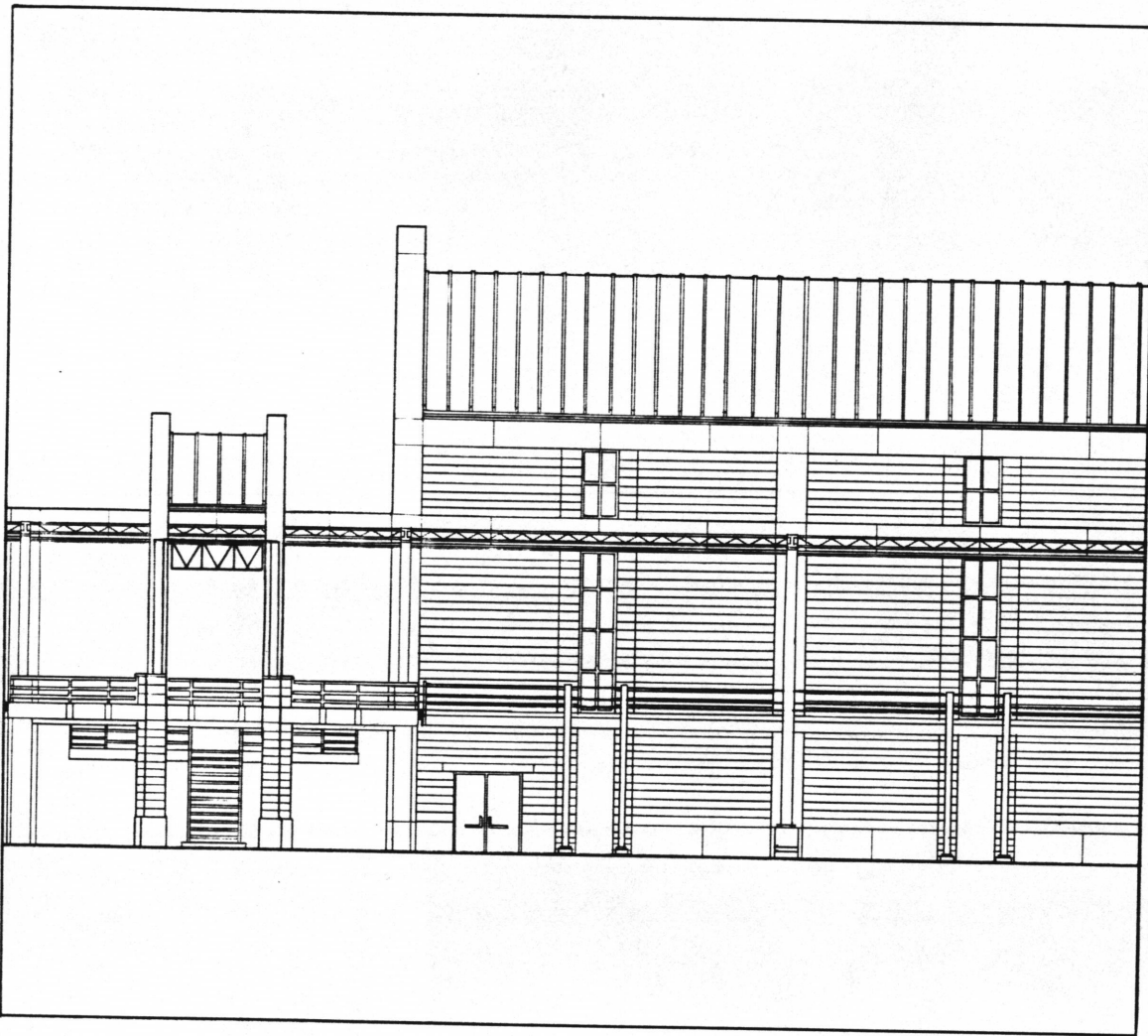


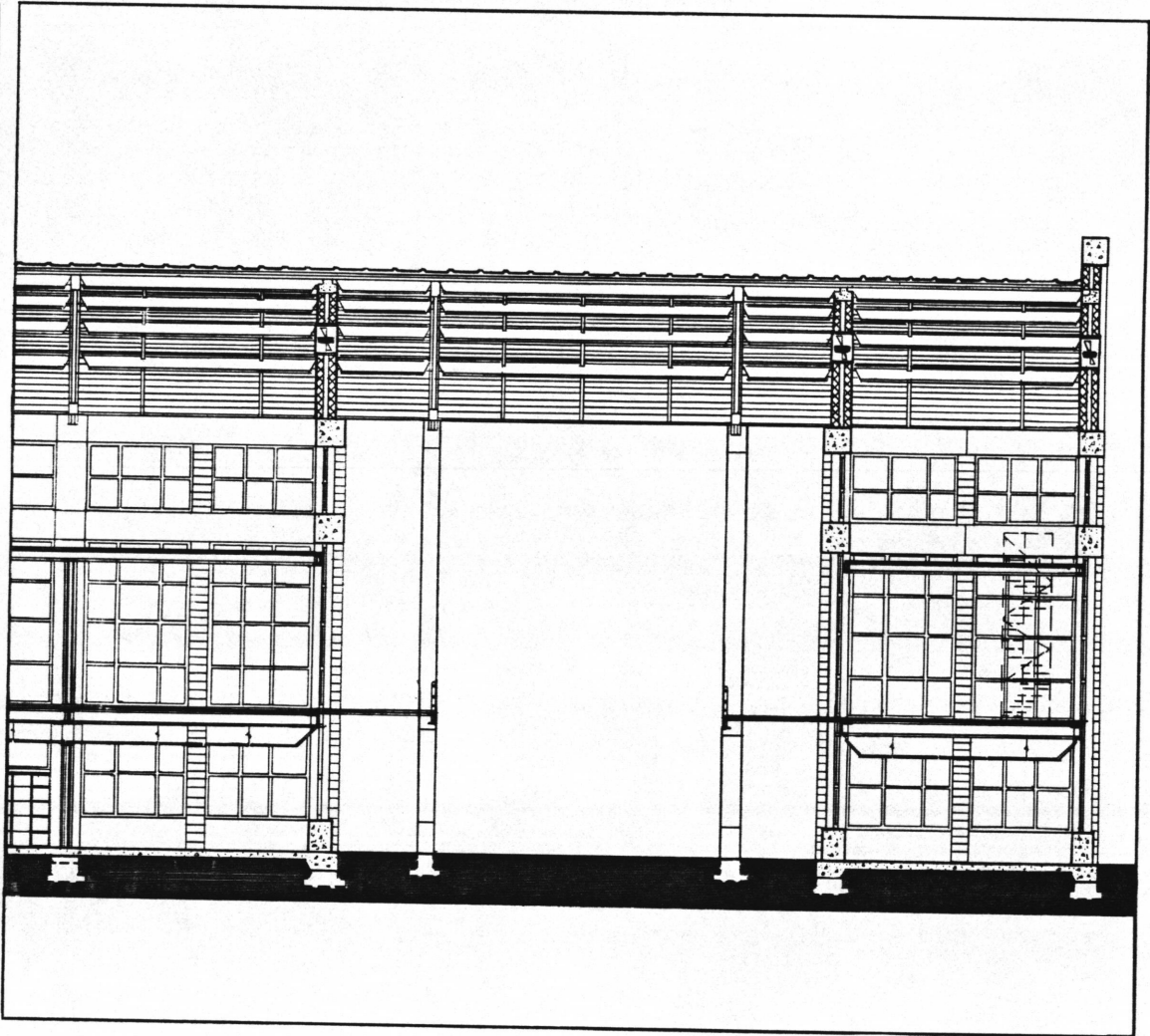
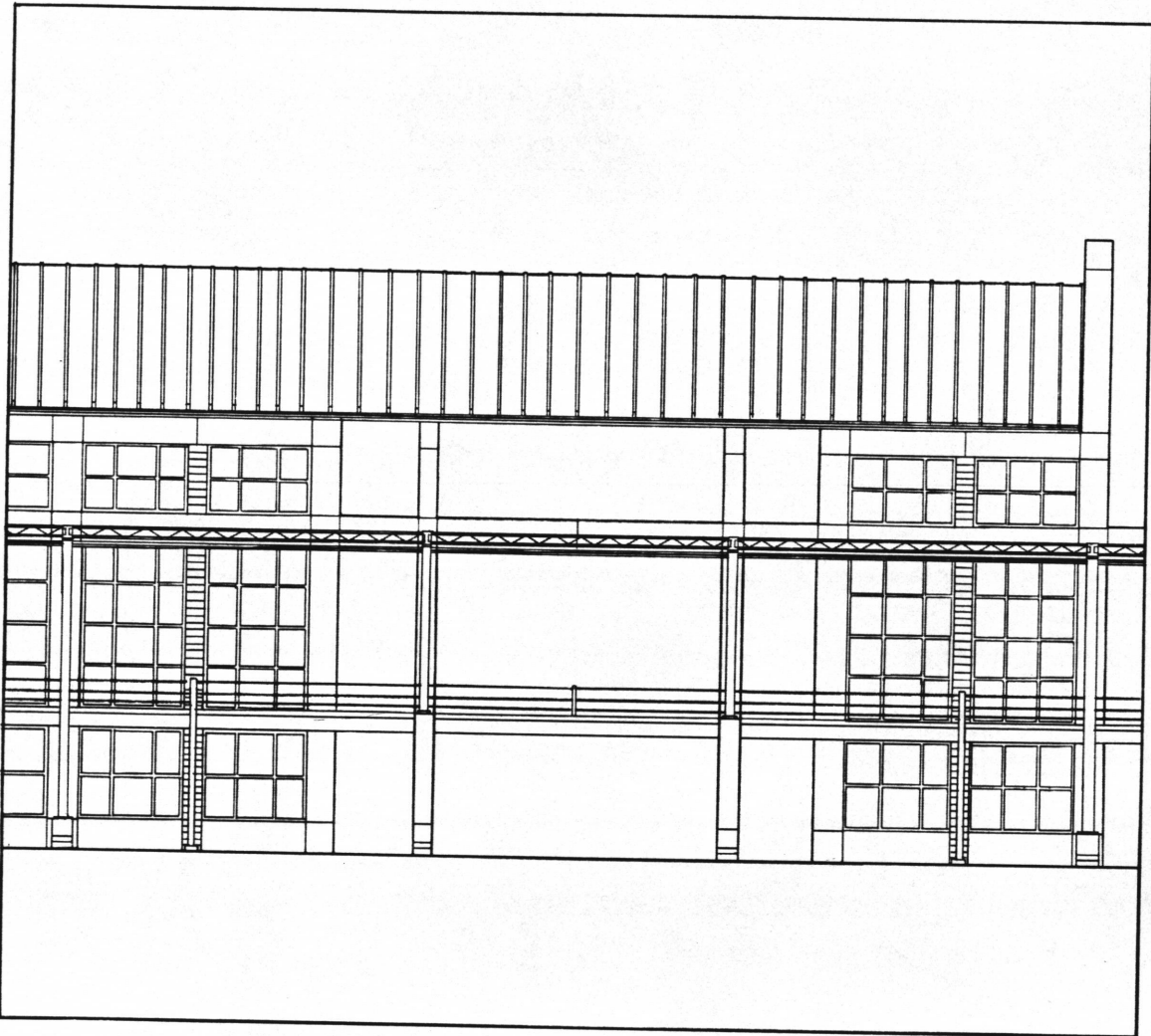
Section K
through gym, entrance hall, and administration



Section M
entrance way into complex



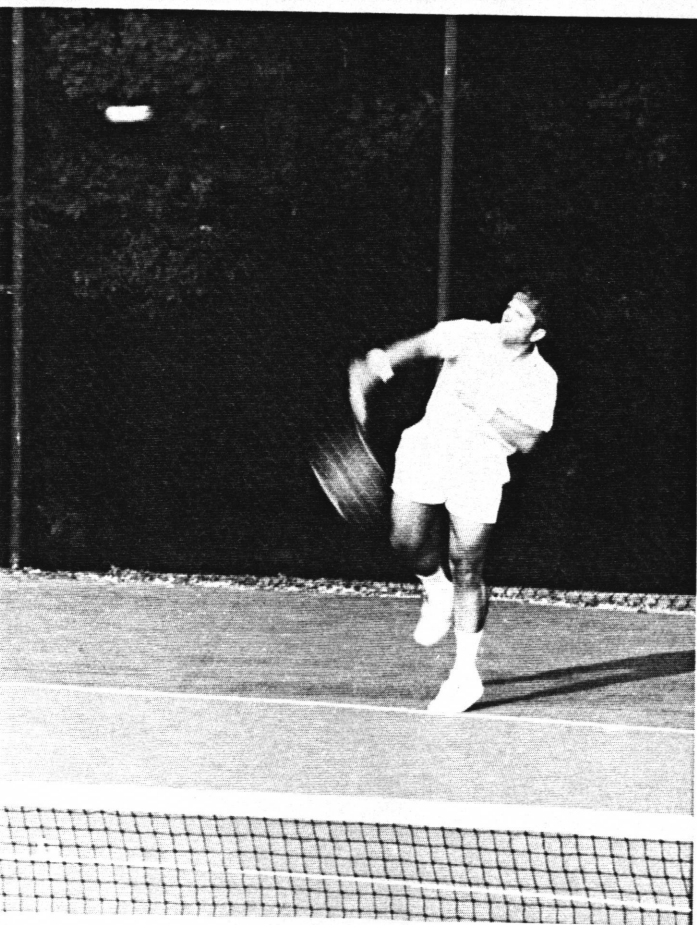
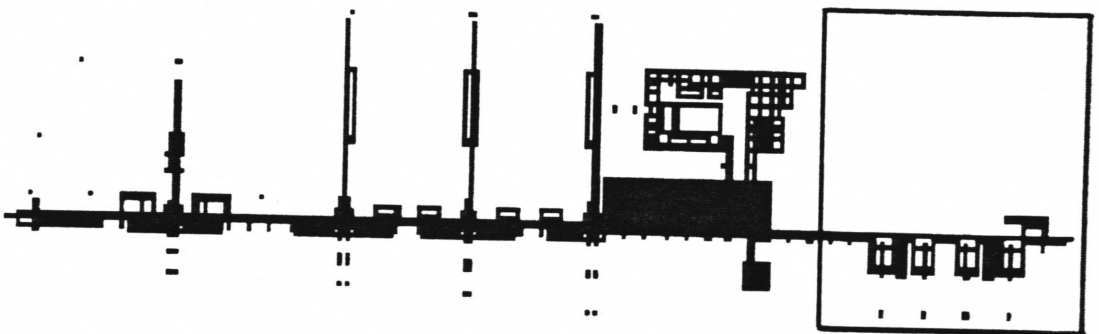
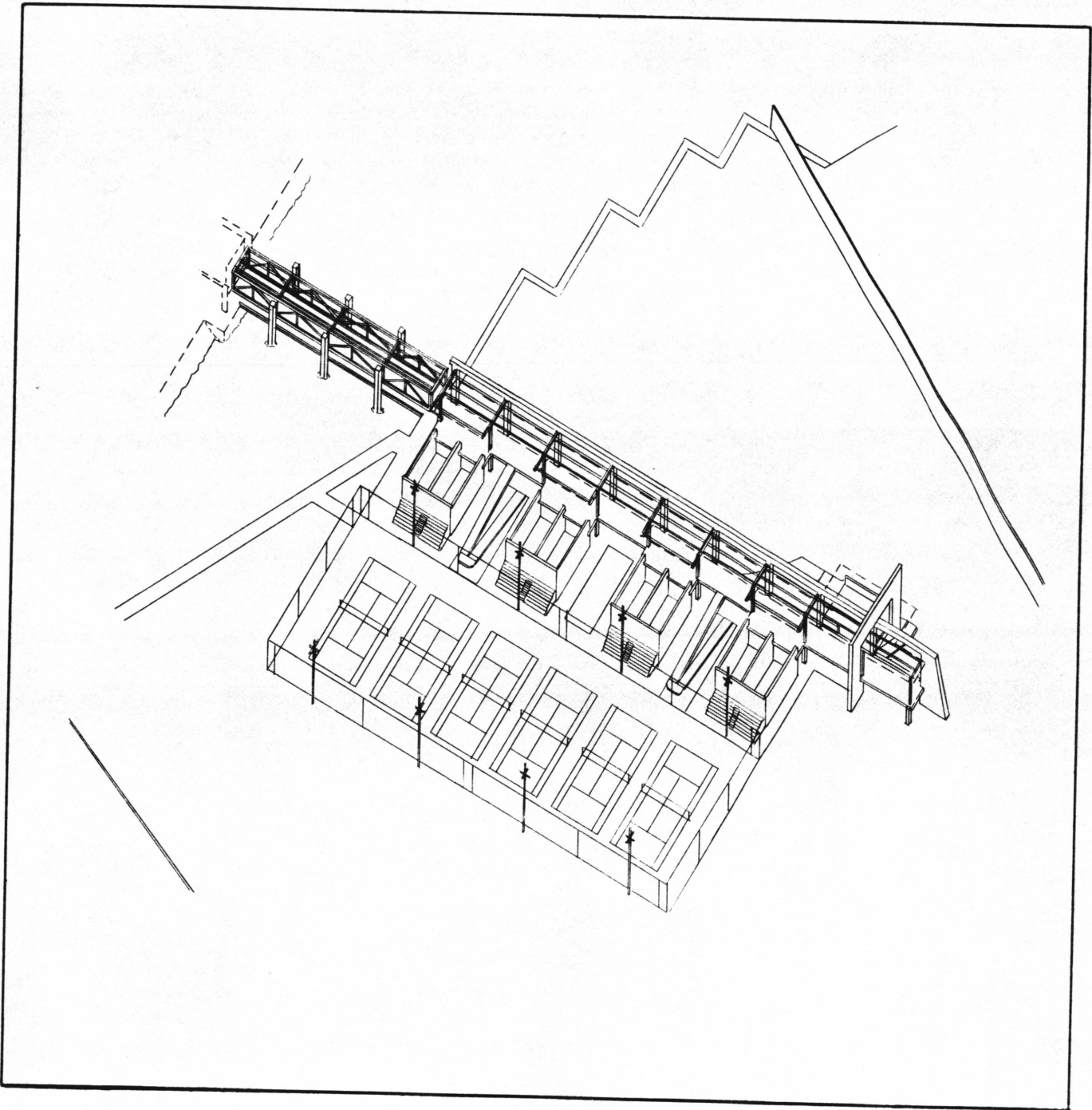


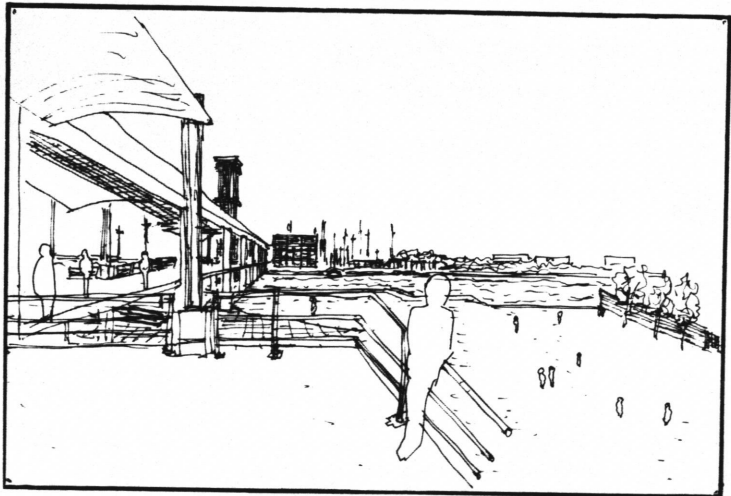
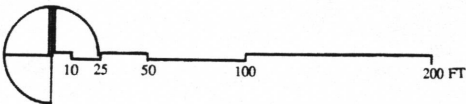
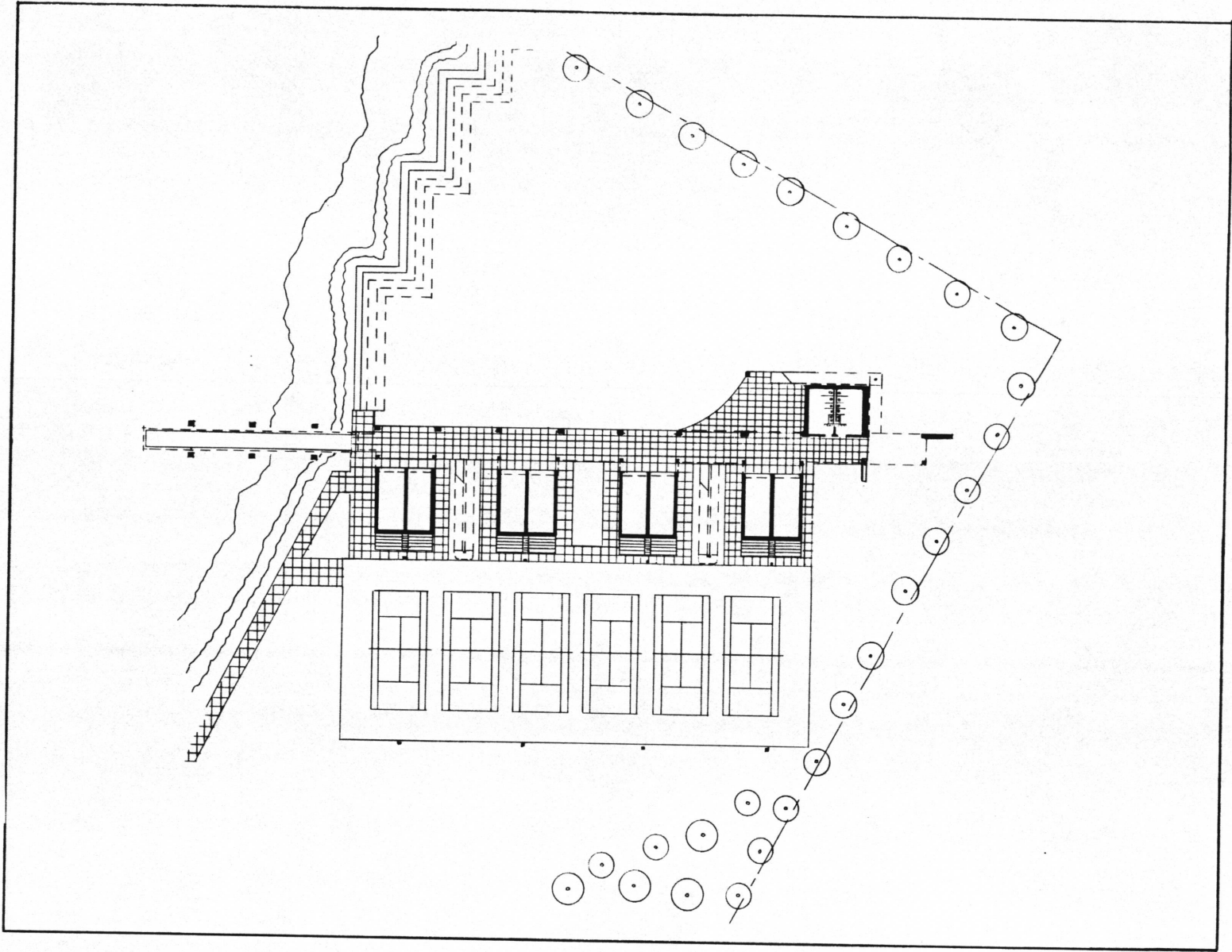
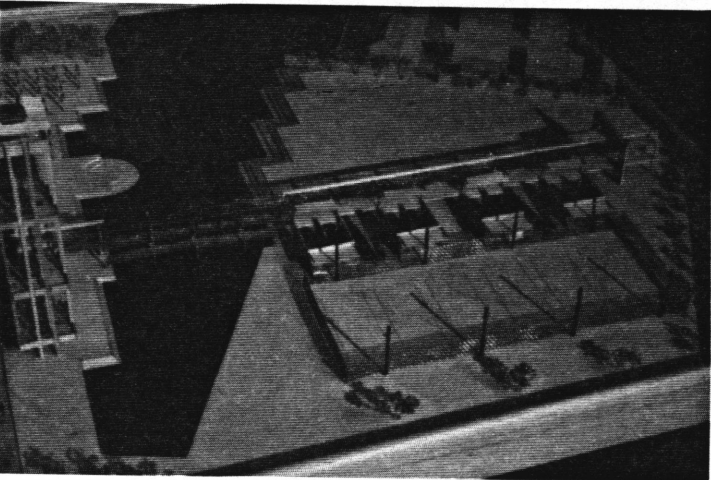
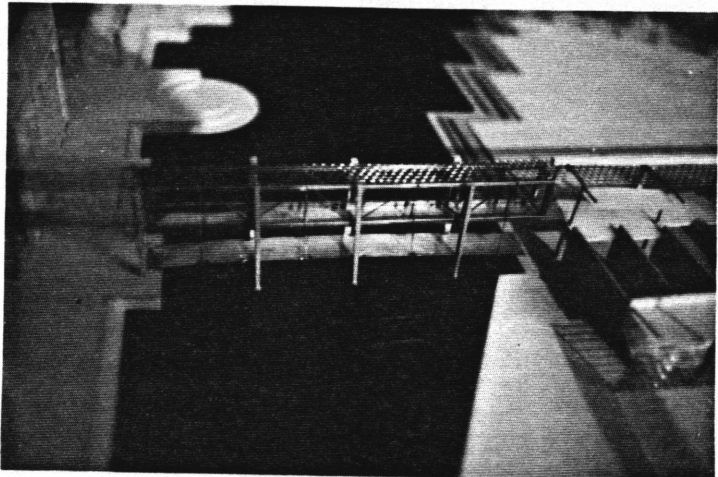


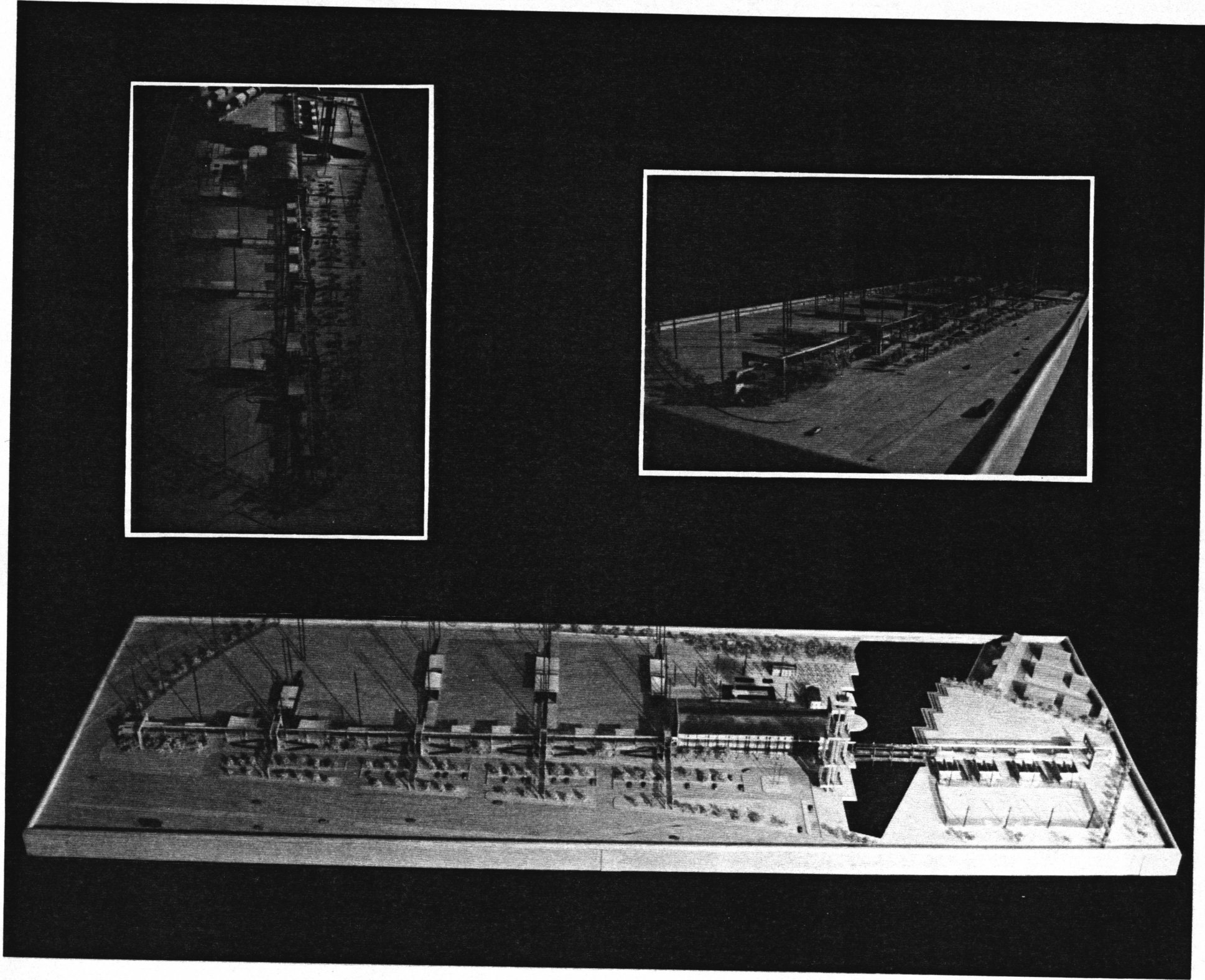
The bridge segment links the two sides of the site together. It provides a transition between the field and racquet played sports.

There are eight racquetball and six tennis courts provided for the people to use. The courts are provided with restrooms and drinking fountain.

To the north of them is the park area overlooking the water. This park presents itself for picnic and other outdoor functions. In addition it serves as seating for large groups of people for functions from the amphitheater.







Conclusion - " If we were to train ourselves to draw as we build, from the bottom up...stopping our pencil to make a mark at the joints of pouring or erecting, ornament would grow out of our love for the expression of the method."

--Kahn

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