Indiana University South Bend
Boathouse and Training Facility
for Kayaking and Rowing

Architecture as a Stage for Activity

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INTRODUCTION

"Architectural forms, textures, materials, modulation of light and shade, color, all combine to inject a quality or spirit that articulates space." - Edmund Bacon

Thesis Background Information

Similar to a stage, architectural form both defines a volume of space and provides a backdrop for activity. The exploration of architecture as a stage for activity includes the study of the relationship between form, space, time, and activity. Architectural form may be combined with color, light, shadow, and texture to create an articulated space which is perceived to possess a spirit, similar to the Atmosphere of a stage setting. This perceived spirit may enhance the enjoyment of activity within a space in the same manner that an appropriate stage setting enhances a performance.

As an architecture student at Ball State University, I have observed that the idea of a theater may be incorporated into the design of a variety of building types. A riverfront sports facility may be compared to a stage which creates a setting for interaction between spectators, participants, and the water. Circulation, flexibility, entertainment, and view are common elements to be considered in both stage and sports facility design.

The project, located on the St. Joseph River, functions as a boat storage and training facility for Indiana University South Bend. The facility includes accommodations for the university kayak and rowing clubs as well as spectators. It facility promotes both fitness and recreation.

The objective of the thesis design is to create a space in which the perceived spirit enhances activity. The articulation of a single space as well as the relationship between spaces, are important elements in design. The methodology of design for this project will focus on the relationship of each part to the whole.

The History of Boating

Boating for recreational as well as occupational purposes has existed for centuries. While the history of kayaking dates back to the Eskimos in the Arctic, which used kayaks for scouting and hunting, the Greeks were the first to row boats with affixed oars to propel their vessels of war. The Greek oarsmen rowed not for sport, but to maneuver large warships. Later, Europeans also utilized rowing, not only for warships, but also for transportation. The pastime and competitive sport of rowing began in modern times on the Thames River in England, when ferries used for transportation began to be raced. The popularity of rowing spread to the United States where boat racing began, as in England, as competition between occupational oarsmen. In the first recorded race, in 1811, the ferrymen of Whitehall in New York City defeated their rivals from Long Island and
Staten Island on the Hudson River. The oldest intercollegi-ant race in the United States, The Yale Harvard Boat Race, was rowed in 1852. By the 1890’s rowing became popular in colleges across the United States.

The roots of kayaking as a competitive sport began in the Royal Canoe Club in England, founded in 1866. Although the kayak vessels were developed in North America, to be used for transportation, kayaking became popular as a sport in England and Europe. Germany introduced kayaking into the Olympics in 1936. Its popularity spread to the United States and now includes not only flat water racing, but also white water racing and touring.

Boating has played an important role in the heritage of the United States. Kayaks and canoes historically provided transportation for explorers, trappers, fishermen, and even missionaries as they shaped the character of our nation. Today, rowing and kayaking provide an opportunity for Americans to enjoy the outdoors without harming the natural environment. Boating provides pleasure, adventure, and excitement, and contributes to the physical fitness of the participants.

Acknowledgments

I wish to acknowledge Randy Landsberg, I.U.S.B. Campus
1 Thesis Position

"from the earliest times the city has been both a stage and backdrop for the play of human life." — Dennis Sharp

Architecture as a Stage

Rousseau was one of the first writers to depict the city as a stage for human activity. He observed the theatrical quality of life in Paris in the Eighteenth Century and saw it spreading throughout Europe.1 Although the idea of city as theater dates to the Eighteenth Century, architects have incorporated the idea of theater into their designs throughout history. For example, the early church building was a basic stage with an entrance, nave, transept, and sanctuary, which functioned as the central focus area. Architects also incorporated theatrical elements such as light, color, and sound into the design of early church buildings.2

Architects today have incorporated the idea of architecture as a stage into a wide variety of building types and design. For example, Piano and Rogers’ architectural design for the Pompidou Centre in Paris creates an external space for performers and spectators.3 The design of the Pompidou Centre adopts the concept of flexibility, similar to a stage setting, as well as the idea of creating an environment for entertainment within a museum.

Architecture, which mediates between man and his environment, may be compared to a stage setting which relates actors in a performance to a distinctive time or place. Similar to a stage, architectural form both defines a volume of space and provides a backdrop for activity. The exploration of architecture as a stage for activity includes the study of the relationship between form, space, time, and activity.4

Form

Architectural form defines spaces for activities. Often, the form of a space evokes a historic association or perception of imagery in the mind of the user. This perceived spirit may enhance the enjoyment of activity within a space in the same manner that an appropriate stage setting enhances a performance. Architectural form may be combined with color, light, shadow, and texture to create an articulated space which is perceived to possess a spirit, similar to the atmosphere of a stage setting.5

Space

Architectural space may be articulated by its detailing, massing, and scale. Architecture may be compared to a stage which provides a variety of spaces for different activities. Architecture may consist of a combination of onstage performance areas and offstage support areas.6 Critical spaces include the transition zones between frontstage
and backstage areas, such as entrances and exits. Transition zones and thresholds may be architecturally defined as well as created by elements such as light, darkness, and sound.7

Time

Both the form of space as well as the relationship between spaces which are experienced though time have an impact on human activity. Circulation, views, and the interaction between spectator and participant, are all affected by the configuration of space.

Activity

The idea of a theater may be incorporated into a variety of building types and designs. A riverfront sports facility may be compared to a stage which creates a setting for interaction between spectators, participants and the water. A recreational facility promotes social interaction as well as physical activity for a diverse range of participants.
Notes


3 Sharp, p. 64.

4 Sharp, p. 63.


6 Williams, p. 12.

7 Williams, p. 18.
2 PROGRAMME

"Americans and the rest of the world... have rediscovered the positive effects of leisure activity, competitive sports, and physical fitness both as spectators and participants."

-Paul M. Schener

The project, a boat storage and training facility for the Indiana University South Bend kayak and rowing clubs, provides an opportunity for the university to utilize its access to the St. Joseph River and East Race white water park. It exhibits the pride of the kayak and rowing clubs and promotes the identity of I.U.S.B. as a riverfront campus. The facility promotes boating for both fitness and recreation, and accommodates the traditional ceremony and pageantry associated with competitive boating. Most importantly, it provides a stage for interaction between spectators and participants.

Similar to a theater, the facility may be experienced as a stage setting by both the spectators and the participants. Both stage settings and sports facilities provide spaces for passive and active participation. Circulation, flexibility, communication, entertainment, and view are common elements to be considered in both stage and sports facility design.
The design of the I.U.S.B. boathouse and training facility responds to the needs of the organizations occupying the facility, which include the I.U.S.B. Kayak club and the I.U.S.B. Rowing Club.

Figure 1.2, illustrates the structure of the I.U.S.B. kayak club’s organization, while Figure 2.2 illustrates the structure of the I.U.S.B. Rowing Club’s organization.
The I.U.S.B. kayak and rowing clubs require separate but adjacent spaces within the facility. These spaces need to respond to their unique needs. The individual identity of each club's space is enhanced by the display of their unique team colors and emblems.

In addition to the needs of the occupants, the influence of traditional boathouse design is an important factor in the design of the facility. The traditional Ivy League organization of a boathouse includes boat storage areas on the lower level with locker and exercise located on the upper level. These picturesque boathouses have a "romantic riverside image." Asymmetry, brightly painted exteriors and casual comfort in the common spaces are characteristics seen in the boathouses located on the Schuylkill River in Philadelphia. Figure 3.2. illustrates an example of a boathouse located in Philadelphia.

Many traditional Boathouses, particularly the ones along the Charles River between Boston and Cambridge, display the late Nineteenth Century precedents of distinctive rooflines, symmetrical plans, multipaned windows, and squat towers with horizontal lines which anchor the boathouses to the landscape. In addition, utilitarian structure and the use of wood is often incorporated in boathouse construction to allude to the structure of racing shells. In many facilities the river side of the building becomes more informal in appearance, and is punctuated with many windows to allow views of the river.

Additional characteristics often seen in boathouse design include arched openings, multi-material construction, industrial motifs, and the incorporation of the imagery of ships and cranes. Figure 4.2 illustrates an example of traditional boathouse design.
The basic organization of traditional boathouses which includes storage areas located on the lower level and the training and social areas located on the upper level is appropriate for this project. This organization will provide easy access to the river for the boaters, and an excellent view of the river from the upper level for both athletes and spectators. The incorporation of the imagery of boats and nautical themes will announce the function of the facility, while a distinctive rooftop may enhance the unique image of the boathouse which is a node of focus along the river.

The boathouse facility program includes four types of spaces. Training spaces, which may be compared to performance areas in a theater, accommodate athletic activities for the kayak and rowing clubs. Social and support spaces, similar to those necessary in a theater, include areas for non-athletic activities such as offices, and the club social hall. Storage spaces, equivalent to the backstage area of a theater, may accommodate equipment and its maintenance, while exterior spaces allow for interaction, similar to that of a theater, between the spectators, participants, and the water.

Both the organization of the spaces in relation to each other and the design criteria of the spaces are important. Listed below is a description of the design criteria and space relationships of the major areas within the facility.

Training Spaces

The training room is a space for athletic performance. Concentration on individual activity is emphasized. Natural lighting, a view of the river, and an elegant utilitarian structure, symbolic of the structure of sculls provide inspiration. The training room, locker rooms, and coaches’ and officials’ offices should be adjacent spaces.

The locker room design should have a comfortable athletic club atmosphere, and incorporate a central meeting space. Team colors and emblems display team pride, while natural lighting contributes to a pleasant environment. Separate men’s and women’s locker rooms are needed for each club.

The trainers’ and coaches’ offices should be both functional and comfortable. The pleasant environment may be enhanced by natural lighting and view of the river.

Social and Support Spaces

The trophy room exhibits team pride, while providing a dramatic entryway into the facility.

The club social hall design should incorporate wood flooring, which is traditional in boathouse design and symbolic of the structure of boat shells. Natural lighting and views of the river should be maximized. The club social hall, entry, trophy room, club offices, and exterior terrace should be adjacent spaces.
The club office design incorporates wood flooring. The pleasant environment may be enhanced by natural lighting, and plants. Club pride is exhibited by an impressive club office, and the display of club colors and emblems.

The ceremony of taking the boats to the water begins in the boat storage space. Natural lighting and a visual connection with the river are traditional. During storage, spot lights may be used to illuminate the shell storage racks for display. The display of shells emphasizes club pride. The boat storage space needs access to the riverfront docks and trailer parking area. The boat storage and boat repair areas should be adjacent spaces.

Exterior Spaces

The docks provide a vital link between the facility and the river, creating a stage for interaction between the spectators, boaters, and the river. The docks provide a stage for the ceremonies of boat racing. The docks, exterior terrace, and amphitheater should be adjacent spaces.

The main exterior terrace is an extension of the club social hall. The terrace provides an elevated viewpoint of the river and docks for spectators.

The tower provides a spectacular view of the river and docks for coaches, officials, and spectators. Towers are traditional elements in boathouse design.
The amphitheater creates an outdoor area, in addition to the terraces, with a view of the river for spectators. It should provide a stage for outdoor activities such as picnicking, and small performances.

The space relationships within the facility need to respond to the needs of the organizations as well as site, and functional requirements. Figure 5.2 diagrams the space relationships of the facility.

Figure 5.2 Space Relationships
Notes

1 Allen Freeman, "Romantic Riverside Image For Egalitarian Boathouse," Architecture, February 1989, p. 73.


3 Crosbie, p. 75.

4 Crosbie, p. 75.

3 CONTEXT: PHYSICAL AND CULTURAL

"and where the river bends,
    a community grows."
-Richard Sullivan

South Bend, Indiana, is named for its location at the southernmost point of the Indiana bend in the St. Joseph River. The St. Joseph River, which originates in Hillsdale County, Michigan, flows southward to South Bend, and then northward to Lake Michigan.

An important portage for American Indians between Lake Michigan and the South was by the way of the St. Joseph and Kankakee rivers, which remain navigable throughout the year. The first pioneer settlers in the area were fur traders who shared the river banks with the Miami Indians. The city of South Bend was founded in 1831 by Alexis Coquillard, an agent of the American fur company, and Lathrop Taylor, also a fur trader. The industrial growth of the city was started by Coquillard who attempted to use water power from the St. Joseph River for his mill. Water power was not practical, however, until a dam was constructed across the St. Joseph River and races were built in 1843. The races, or canals, which channeled the flowing river water through downtown were built to utilize the river water for industrial purposes. In 1984, the industrial races were converted into a multi-use waterfront facility. The East Race, one of three man-made white water facilities in the world, hosts kayak and canoe competitions as well as public recreation. Figure 1.3 illustrates the East Race white water facilities.

The river, originally used for transportation, and then industry, has now become a recreational haven for the city. In Figure 2.3, a map of the city of South Bend is shown.
South Bend is located in St. Joseph County, the fourth largest county in the state, which has a population of 247,052. The population of South Bend includes many second and third generation Eastern Europeans. South Bend hosts a variety of festivals and events throughout the year relating to its diverse cultural background. Five colleges and universities in the area, including The University of Notre Dame, St. Mary’s College, Indiana University South Bend, Bethel College, and Holy Cross Junior College, stimulate a broad interest in cultural affairs. South Bend, which is 90 miles east and slightly south of Chicago, also displays a strong sports tradition. Athletic events include, autumn football games at the University of Notre Dame, South Bend White Sox games at the Stanley Coveleski Regional Baseball Stadium, white water championships, road races, and Hoosier basketball.

Indiana University South Bend, which was founded in 1967, is located on the banks of the St. Joseph River. The university which began a campus expansion plan in 1990 expects the student enrollment to reach 12,000 by the end of the decade. The campus plan includes the expansion of the physical campus as well as its academic programs. Several new facilities are proposed to be built, including a convention center, new academic buildings, a student center, and student housing for 1000 students. A new sports facility, recreation fields, and parking structures will also be built in addition to the current facilities, which include an administration building, two academic buildings and a library. Figures 3.3, 4.3, and 5.3 illustrate these three buildings.
In Figure 6.3, a map of the I.U.S.B. campus as it appeared before the expansion plan began is shown. The existing buildings scheduled to remain in use are illustrated in black.

The Indiana University boathouse and training facility for kayaking and rowing is located on the university campus on the north bank of the St. Joseph River. This steeply sloping bank is in contrast to the opposite bank, which has a gradual incline at the location of Playland Park, a 23 acre golf course. Figures 7.3 and 8.3 illustrate the river and the golfcourse.
Existing recreational facilities along the St. Joseph River between the East Race and Indiana University South Bend include playgrounds, an ice skating rink, the Notre Dame University Rowing Club, a recreation center and the South Bend Y.M.C.A. Figure 9.3 illustrates an existing walkway on the north bank of the river, while Figure 10.3 illustrates the Notre Dame Rowing Club.

The riverfront boating facility will provide a hub of activity along the proposed continuous park and recreation path on the north bank of the river between the East Race white water facility and the university. Plate 1 diagrams the location of the existing athletic facilities along the St. Joseph River near campus.
Notes


3 "and where the river bends, a community grows." ed. John P. Turin, p. 92.
4 DESIGN OBJECTIVES AND METHODOLOGY

"One of the prime purposes of architecture is to heighten the drama of living." -Edmund Bacon

The spirit of a space may be perceived as a result of the combination of materials, color, lighting, textures, forms, and scale. The skillful articulation of space stirs the emotions of the users, creating an experience for both spectators and participants. The objective of the thesis design is to create a recreational facility in which the perceived spirit enhances activity.

The design of the facility should accommodate and enhance the drama of the traditional ceremonies and pageantry of competitive boating, as well as allow spectators to experience these ceremonies, such as taking the boats to the water, racing and docking. It needs to promote social relaxation as much as physical exertion. The boating facility design should exhibit the pride of the kayak and rowing clubs.

Because we experience architecture as we move through space, the components of the projects circulation system are very important. The design of the circulation system of the project should emphasize ceremony and create interaction between the spectator, the participants and the water. The design of the project needs to include the approach to the facility and its entrance, as well as its spatial relationships.

The sequence and relationships between spaces is very important because as we move through a sequence of spaces in time, the light, shade, mass, and scale of the spaces form the core of architectural experience. The design of the facility should incorporate the concepts of movement and rhythm which relate to the movement of the flowing river, as well as the boats upon the river.

The perceived spirit of the boathouse may enhance enjoyment for both spectators and participants. Characteristics of traditional boathouses which may enhance the unique identity of the facility, as well as the users’ enjoyment of the facility, include a distinctive form and roofline, sunlit interiors, excellent views of the riverfront and utilitarian elements in the design which mimic the streamlined appearance of the boat shells.

The organization of the spaces of the facility should maximize physical and visual contact with the river for both spectators and participants. The design of the facility should create a stage for interaction between the spectators, the participants and the water. It is important that the design of the project link interior and exterior spaces, relating the facility to the campus and the river. The facility should create a gateway to the river for the campus.

Architecture not only provides a variety of spaces for different activities, but also organizes these spaces in relation to each other. The articulation of a single space as well as
the relationship between space, both interior and exterior, are important elements in design. The methodology of design for this project focuses on the relationship of each part to the whole. Individual parts are considered as integral components in relation to the total design. This methodology of relating each part to the whole requires the designer to design at many scales. For example, each space in the kayak and rowing facility relates to the total design of the facility, while the design of the kayak and rowing facility relates to the comprehensive design of the campus.

South Bend, Indiana, was named for its location on the south bend of the St. Joseph River. The function of the river has evolved from transportation for the American Indians and settlers, to industrial use, into a haven for recreation. The design needs to make the water's edge a place which will directly benefit the people. The project design should promote the identity of Indiana University South Bend as a riverfront campus. The objective of the riverfront design is to create a continuous riverfront park extending from the East Race to Indiana University South Bend, with the boating facility acting as the eastern node of the park.
Notes

1 Edmund N. Bacon, *Design of Cities*, p. 18.


5 PROJECT DESIGN SOLUTION

"By the mysteries of architecture, the boathouse has come to be much more than a house for boats."
-Benjamin Ivry

The Regattas

The design solution began with the planning of regatta, or race, routes for both kayaking and rowing along the St. Joseph River near I.U.S.B. Rowing regattas include 5000 meter (3.1 mile) and 2000 meter (1.24 mile) races. Flat water kayaking races, include 5000 meter (3.1 mile), 1000 meter (.6 miles), and 500 meter (.3 miles) routes, which may be held on the St. Joseph River on courses similar to the rowing regattas.

White water kayak races would be held at the East Race white water facilities. The regattas would begin near Kamm Island Park, and 100 Center retail complex in Mishawaka, Indiana. Lincoln Park, as well as Kamm Island Park, would serve as excellent areas for spectators to view the start of the regattas. A 2000 meter regatta would end near the Eddy Street bridge, while a 5000 meter regatta would end near downtown South Bend close to the East Race white water facility. The Eddy St. bridge and the adjacent riverbanks could be utilized for viewing the finish of the 5000 meter regatta, while Howard Park and the Jefferson St. bridge could be utilized for spectator use at the finish line of the 2000 meter regattas. The I.U.S.B. campus and boating facility is located near the mid-point of the regatta routes. Figure 1.5 illustrates the start and finish lines for the regattas.
The Continuous Parkway

The design solution includes a proposal for a continuous park and recreation path to be completed along the north bank of the St. Joseph River between the East Race white water facility and the I.U.S.B. campus. The goal of the park design is to maximize physical and visual access to the river, as well as create a link between the East Race and I.U.S.B. In addition to this park, a bike lane is also proposed to be constructed from the existing East Race walkways, in downtown South Bend, past I.U.S.B. to Battel Park, near 100 Center retail complex in Mishawaka, Indiana. Figure 2.5 illustrates the proposed continuous parkway, existing parks, and bicycle path.

Figure 2.5 Proposed Continuous Parkway
The Campus Expansion Plan

The I.U.S.B. campus expansion plan is also an important factor in the design of this project. Figure 3.5 illustrates my proposal for the campus expansion plan.

![Diagram of Proposed Campus Expansion Plan]

My proposal includes maintaining the use of the existing administration building, Northside Hall, an academic building, and the newly constructed Schurz library. These three existing facilities are oriented on the north-south and east-west grid of the surrounding streets. It is proposed that new construction be oriented on an alternative grid which relates to the river, rather than to the grid of the city. This new construction, which is oriented towards the river, will create a stronger tie between the campus and the river, enhancing the identity of the I.U.S.B. as a riverfront campus. It is proposed that a pedestrian bridge be built perpendicular to the river to unite the current campus with the future facilities to be built across the river. The pedestrian bridge creates an axis for circulation between the campus facilities which are located on both sides of the river. This axis will terminate at the current administration building and proposed student center to the north, and at the proposed community center and golf course to the south.

Playland golf course, located on the south bank of the river directly across from campus, will be maintained for both university and public use. The university will utilize Veteran’s Memorial Park, located adjacent to the campus for baseball, softball, soccer, and tennis. The new campus sports and recreation facility will be located adjacent to Veteran’s Memorial Park. The boating facility will be located on the river, on axis with the main sports facility. East of the boating facility, also along the riverbank, will be the new fine arts facility.

New facilities, which include a convention center, which will include parking facilities located on the lower levels, campus housing, additional parking structures, and the new academic buildings are also a part of my proposal for the campus expansion plan.
The Site and Facility Organization

The site of the boating facility will be an open space of land along the riverfront. A colonnade of trees to the north of Northside boulevard will emphasize the entry to the campus and create a backdrop for the facility. The colonnade of trees creates a rhythm which relates to the motion of the water and the rowers upon the river.

The organization of the facility reflects the grid of the city and the influence of the river, both of which are incorporated into the campus design. The organization is based on the traditional boathouse organization which includes a central boat storage area on the lower level, with the club social hall and training spaces located on the upper level. A cross axis, traditional in boathouse design, is created by the elevated training wing to the west, and the spectator boardwalk to the east. Figure 4.5 illustrates the grid of the city, and the influence of the river on the facility design.

Figure 4.5 The Grid of the City
This method of design relates each part to the whole. The organization of the facility relates to the plan of the campus, while the plan of the campus relates to the river and the city.

The training and social spaces in the facility will be elevated to maximize the opportunity for views of the river. Both visual, and physical access to the river will be available under the elevated training wing.

Three major stage areas will be created by the organization of the facility. Figure 5.5 illustrates the three major stages of interaction which include the entry area, the amphitheater area, and the dock area of the facility. These areas are also shown on Plates 10, 11, and 12 in the back of this section.

The Facility Entry

The two main entries to the building include entry through the boat storage areas, and entry by the ramp. The ramp is the main entry to the facility. The ramp begins at the recreation path on the campus side of the facility, and ascends to the tower on the river side of the facility. The middle portion of the ramp provides entries to the club social hall and the training wing. Spectators, athletes, and coaches use the ramp to enter the facility. The ramp is a symbolic bridge between the 2 wings of the facility and the tower. The ramp emphasizes the ceremony which is traditional in competitive boating. It is symbolic of the ramps or sloped docks used for launching the boats. The ramp provides a view of the water to each side, and through the large opening in the tower. The ramp is open to the sky for its entire length. The walkway on the lower and upper portions of the ramp is sloped, while the walkway on middle portion of the ramp is not, to allow a level connection to the club social hall to the east, and the training area to the west. The middle portion of the ramp is the central circulation node of the building. Plate 9 illustrates a view of the ramp in section. The ramp emphasizes the importance of ceremony, circulation, transition, and view in the design of the facility.

Along the side of the ramp, incorporated into the railing of the ramp is a series of flag poles. This display of flags is for the clubs which participate in the regattas. Plate 7 illustrates the entry area.
The Bridges

Circulation between the different areas of the facility is made possible by the three bridges. These bridges, which are symbolic of the gangplanks which typically connect boats to the docks at many waterfronts, create a unique experience during the transition between the main facility spaces. The bridges connect the training wing and the club social hall with the ramp, and the docks with the boardwalk. Plate 2 illustrates the location of the bridges, while Figure 6.5 illustrates a view of a typical bridge.

The Tower

The tower is both a symbolic and physical gateway to the river. The tower consists of the three parts, the platform at the base, the spectator and coaches' viewing area at the intersection of the ramp in the middle, and the viewing area at the top. It provides a view of activities on the docks and river from the ramp area, and the top, as well as visual and physical access to the river at the platform at the base. The ramp cantilevers through the tower's opening and on the river side of the facility is symbolically suspended from cables connected to the top of the tower. These cables allude the those seen on masts of sailing ships. Plate 6 illustrates the tower.

The Training Area

To the west of the ramp, is the training wing of the facility. The training wing is connected to the ramp by a bridge, which is symbolic of the gangplanks which typically connect ships to the docks. Within this wing are the athletes' and officials' locker rooms, the coaches' and trainers' offices and locker rooms, and the training room.

The locker room design creates a traditional club atmosphere and incorporates team meeting spaces. The locker rooms, coaches' offices, and training spaces each have access to exterior balconies with views of the activities on river, or on
campus. The coaches offices, and training space, have views of the river for inspiration.

Throughout the training wing the structure is symbolic of the structure of boats. The interior partitions, which are placed on a grid system based on the spacing of the eight large piers, wrap around the piers emphasizing their presence. The roof and floor structure of this wing are suspended from cables which are connected to the top of the piers. These tensile members, which are exposed throughout the wing, are symbolic of the cables which are suspended from the masts of ships.

A band of glass located between the top of the exterior walls and the elevated roof creates a clerestory around the perimeter of the training wing. In the locker room areas, the clerestory is located directly above the lockers, allowing the area to have natural illumination. The clerestory allows natural light to flow into the each of the interior spaces in the training wing.

A staircase allows circulation from the training area down to path at ground level below, which leads to the amphitheater area. Plates 4 and 6 illustrate the training wing.

The Amphitheater

The amphitheater area, creates a ground level space for outdoor activities with an excellent view of the activities on the river. The amphitheater provides a stage for outdoor activities such as picnicking and small performances. Plates 2 and 9 illustrate the amphitheater.

The Club Social Hall

To the east of the ramp, is the club social hall. The club social hall is connected to the ramp by a bridge, which is symbolic of the gangplanks which typically connect ships to the dock. The location of the display of the clubs' trophies, which is near the entry, create an impressive club image. The comfortable atmosphere of the club social hall is enhanced by the exposed wood beams in the roof structure, and wood flooring, which are traditional in boathouse design. These elements allude to the materials and structure of the boat shells. The high ceiling of the space allows for banners or exhibits of boating paraphernalia to be suspended above the space, creating a nautical theme for the space.

Comfortable Spaces for dining and lounging, as well as a built-in bar are included in the club social hall. A service elevator and stairway connect the club social hall with the boat storage area below. The club social hall provides a space for interaction between athletes and their guests. Plates 5 and 6 illustrate the club social hall.

The club offices, and public rest rooms are located adjacent to the club social hall. The design of the club offices also include wood flooring. Natural lighting and the
incorporation of plants into the design of the offices enhance the pleasant work environment. Plate 5 illustrates the club offices.

The club social hall opens onto a balcony on the campus side of the facility. This upper level balcony provides a view of the campus, the recreation trail, and lower portion of the ramp, allowing for socialization with those passing by or entering the facility. Incorporated into the railing on this balcony are team emblems and colors.

The curved glass facade of the club social hall maximizes the view of the activities on the river. Sliding screens are incorporated into the structure of this glass facade on the south side of the facility to provide adjustable shading and or privacy for the interior space.

The curved glass facade provides access to the main terrace on the river side of the facility. This terrace provides exterior space for social activities, and for spectators to view the activities on the docks and the river such as taking the boats to the river, and launching and docking the boats. The terrace area is able to be illuminated for night time use. Stairs allow circulation from the terrace to the docks below. Plates 5 and 6 illustrate the exterior terrace.

The Boat Storage Area

The boat storage area is located on the lower level of the facility, beneath the club social hall. The storage areas consist of 5 long narrow spaces enclosed by tube like structures. The kayak and rowing teams’ boats occupy two tubes each, with the fifth tube used for circulation and additional repair space. Each tube, or storage space has boat racks incorporated into the structure on the sides, with room for circulation through the middle. A view of the river is possible through each tube from campus side of the facility through the tube to the riverfront docks. Sliding doors and panels allow access to the outdoors and between tubes.

Transparent or translucent panels are also incorporated into the sides of the tubes in locations will allow natural light into the interior. During storage, spot lights may be used to illuminate the racks for display. The display of the colorful shells exhibits team pride. Plates 6, 7, and 8 illustrate the boat storage area.

The Docks

The ceremony of taking the boats to the water begins in the boat storage space. Boat shells are taken from this area out to the docks and placed in the water. The docks provide areas for the launching of rowing shells, kayaks, and for the docking of coaches and officials motor boats. The docks and boardwalk area provide a space for interaction between the athletes, the spectators, and the water. Plates 5 and 8 illustrate the dock area.
The Boardwalk

To the east of the boat launching docks is the spectator boardwalk. This dock is parallel to the river. It provides an excellent view of the river and the boat launch docks. It allows circulation between the facility and the spectator bridge, as well as a connection to the path leading to the fine arts facilities. Plate 2 illustrates the boardwalk.

The Structure and Materials

The structure of the facility reflects the structure of boats and is nautical in theme. Wood roof beams above the club social space mimic the curvature of boat bottoms, and form a curved roof which alludes to shape of a boat. The club social hall roof structure consists of two parallel glue laminated beams spanning between steel columns. The structure of the training wing consists of eight wood piers, from which the roof and floor deck are suspended by steel tensile cables. The steel tensile structure of the training wing alludes to masts of sailing ships or even cranes, which are often seen along waterfronts. The facility design displays team colors and emblems which is a tradition in boathouse design. Plate 3 illustrates the structure of the facility.

The Mechanical Systems

The mechanical systems of the facility are integrated into the structure. The mechanical systems run vertically through the piers in both the training wing and the boat storage, and club social hall area. These systems then run horizontally through the facility in the ceiling and floor decks. Larger mechanical equipment may be located in the central hub of the ramp, or in the mechanical space between the boat storage tubes. A forced air system provides heating and cooling for the facility spaces.

The Lighting

The lighting of the facility is important to create a stage for its many activities. The interior lighting of the facility, including both natural and artificial lighting, in addition to the lighting provided by its glass facades, will be incorporated into the structure of the ceilings of the interior spaces. The structure of the club social hall roof consists of a series of two parallel, glue laminated beams spanning between steel piers. A narrow space between each set of beams allows for natural light to filter into the room, and also creates a space to house light fixtures. Two of the structural bays of the roof are glazed while three have opaque coverings. Plate 2 illustrates a roof plan of the facility.

Natural lighting in the training wing, in addition to that provided by windows, will occur through the clerestory, which surrounds the wing. The suspended roof grid creates a structure to house the light fixtures.
The Boat Trailer Area

Access to the facility for the boat trailers is achieved by a pull off area in front of the facility, parallel to Northside Boulevard. The boat shells may then be carried on the path to the boat storage tubes. Plate 2 illustrates the boat trailer pull off area.

The Recreation Path

Access along the recreation path to the river will be maintained by a split trail around the facility. This trail allows movement around the facility as well as creates the opportunity for interaction between the athletes and the spectators. Figure 7.5 illustrates the route of the recreation path around the facility.

Figure 7.5 The Recreation Path
Kayaking and Rowing Facility for Indiana University South Bend
Upper Level Plan — Club Social Hall
Lower Level Plan — Boat Storage Area
CONCLUSION

"As waterfronts, which had once been the center of urban life, lost their predominance so there appeared in many well known places around the world a definite direction, in which it was hoped that the new role of waterfront would move...it was a plan to take them away from industry and give them back to the people."
-Yoshio Tsukio

The Parkway

The goal of this project is to develop the north bank of the St. Joseph River between the East Race white water facilities and 100 Center retail complex as a recreational parkway. The purpose of the parkway is to give the riverfront "back to the people." This parkway and the recreational opportunities it provides will not only benefit the nearby neighborhoods, but also the entire community.

The parkway, which is anchored on the east end by the East Race white water facilities, and on the west end by Battel Park, and 100 Center retail complex, will create a strong link between downtown South Bend, and downtown Mishawaka, Indiana. The I.U.S.B. campus and the boathouse facility creates the central node of activity in the parkway. These strong anchors of activity will promote movement along the length of the parkway and increase activity within the park.

The Facility

Because of its central location in the parkway, the boathouse facility is a key element in the design of the parkway. The facility is also important because it provides a gateway to the river for the campus. The most significant aspect of the facility is that it allows both visual and physical access to the water. The facility becomes a stage for interaction between spectators, which require visual access, and participants, which require physical access, to the river.

Based on this assessment, a few primary aspects of boathouse design, seen in both contemporary, and traditional boathouses, must be incorporated into the boathouse design. The most important aspect of boathouse design is the organization of the boathouse. The traditional organization which includes boat storage areas on the lower level and social and training areas on the upper level is appropriate to this project. This organization allows direct access to the river for boaters from the lower level boat storage area, and excellent views of the river for the athletes and spectators from the social and training areas on the upper level.
The five primary elements in boathouse design which allow for physical and visual access to the water include:

1. Views
2. Terraces
3. Docks
4. Open Outdoor Spaces

Views and access to the river from the campus side of the facility are important in order to draw people to the water. Physical and visual access to the river is created by the elevating the training wing of the facility one story above ground level, and by providing direct views of the river through the central aisle of each boat storage tube.

By providing many areas of glass in the facade on the river side of the facility, excellent views of the river and the activities taking place on the river are possible from the interior. The use of glass also enhances the interior environment both by allowing natural light to filter into the interior spaces.

Extending the interior space outdoors onto balconies and terraces provides the best opportunities for elevated views of the docks and river. Views of the dock are important to allow spectators to experience the ceremony of taking the boats to water. These outdoor areas allow spectators to experience the outdoor climate, as well as sights and sounds of the recreational activities on the docks, and the river.

Terrace areas are created by the tower at its top, and where it the ramp intersects with it near the middle of the tower. The platform at the base of the tower provides both physical and visual access to the water.

The docks, which are designed for use by both spectators and athletes, allow physical as well as visual access to the river. The docks are designed to provide convenient access to the river for boaters. The docks are located so that the ceremonies of taking the boats to the water can be seen by spectators on the terrace, ramp, and tower, and by the spectators on the boardwalk. The docks in the boat launch area may also be used by spectators when boats are not being launched. The boardwalk allows spectators to get a close view of the river. It provides a connection for the facility to the pedestrian bridge and the path connecting to the fine arts facilities to the east.

The most important type of spectator area, an open outdoor space, is often forgotten in contemporary boathouse facility designs. These grassy areas, such as the amphitheater area in this project, allow for spectator seating, picnicking, and even small performances. These areas should be located on the riverbanks and have unobstructed views of the river. Recreation paths, such as the one in this project should pass near the outdoor open space and form a split trail system around the entire facility if possible. These paths allow for movement and most importantly, interaction between the spectators and the athletes.
Bibliography


