

ABSTRACT

Title of Document: THE MIDDLE BRANCH BOATHOUSE:
[RE]BRIDGING WATER, COMMUNITY & SPORT

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Of all sports, rowing is one of the most dynamic, yet elegant, while simultaneously highly skilled and technical. Dependent upon a rare form of calculated synchronization, the ideas of collaboration and dedication are indispensable. This thesis is interested in the process of creating architecture as an expression of the sport, investigating collaboration, reacting to the movement of the body and developing a method of expressing of the experience of rowing. It addresses the issues of connecting the boathouse to the surrounding area, particularly its waterfront condition, while making the building a community destination. Similarly, the boathouse must address the relationship of the body to the waterfront, both through the movements of the sport, and thought the relationship between the spectator and participant. It has the power to help in the revitalization of Middle Branch Park, reigniting the city's interest in this potential recreational oasis. This thesis strives to carry aspects of the sport: movement, ritual, sequence, rhythm, cadence and balance and manifest them into built form, to create a spirited, active and moving experience for *all* users.

THE MIDDLE BRANCH BOATHOUSE: [RE]BRIDGING WATER, COMMUNITY & SPORT

By

Katlin Meredith Pless

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01. Introduction

Much like architecture, success in rowing is defined by how well each component comes together to support a greater entity. Inherent in the concept of rowing is the emphasis placed on partnership and unity. Each rower is dependent upon the accountability of the other members of the crew, therefore synchronization and integration are key components to success. Naturally, this lends to a strong sense of community. This experience and sense of community within a crew is enhanced by the isolated nature of a boat on water – away from land, connected only by visual sightlines.

Through an investigation of the history of the sport, it becomes evident rowing and its architectural companion, the boathouse, have been historically connected with an idea of social elitism, denying many the opportunity to participate in the unique sport of rowing. The Middle Branch Community boathouse will work to inspire change, encouraging the boathouse, the sport, and the location of its site at the water's edge, to be accessible to all.

fig 1_rowing crew from
above.
source:http://iml.jou.ufl.edu/projects/fall09/brubaker_s/water.html

In today's technology-driven world, many lack both a connection with the outdoors and participation within group recreational activities. The act of rowing allows for an escape of the busyness of the city, and a reconnection with nature. Similarly, it provides a connection between different communities, attracting all types of people brought together by their love of the sport. The boathouse, the home of rowing, has the potential to be the channel that can reconnect people with the outdoors, particularly with the natural amenity that exists within a body of water. It has the power to do so for it is a building built to encourage participation through recreation. A gateway to the water, it draws people in to experience the natural landscape, to isolate oneself on the water, away from the built environment. All the while, the boathouse continues to exist as *home*, ready to receive all rowers back to solid ground.

Acting as such an important component of the sport of rowing, one can begin to question how the power and symbol of the boathouse could simultaneously create an architecture to inspire, while also acting as an

*All the world's a
stage, And all the men
and women merely
players; They have their
exits and their
entrances, And one
man in his time plays
many parts, His acts
being seven ages.*
[William Shakespeare,
As You Like It, Act 2,
Scene 7]

integrated place of community. This thesis proposes an investigation into the sport of architecture to help inform architectural decisions through an understanding of the technicalities and calisthenics of the sport, as the dynamism and ritual associated with it and its users.

The nature of rowing increases the awareness of the movements of the body, both through the technique of the stroke and the maneuvering of the equipment.

Engaging in the way the body shifts, even subtle changes in position, is something we have a tendency to neglect, instead, simply taking advantage of what comes naturally to us. How we engage our body physically is a critical representation of how we express ourselves, and represents a joining of the body and the mind.

By rethinking its architectural expression, the boathouse will transition from closed-off and “member’s only” to open and inviting to all. This thesis imagines the boathouse acting as a public center that reintroduces a connection between the land and the water, individuals and the waterfront. Representing the collaboration of individuals working together towards a common goal.

_at the water's edge: a thesis position

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

"Land at the water's edge is different, it's where two words meet, where weather systems collide, where views are longer"
[Knight, pg 2]

The role of an architectural thesis is to reveal how architecture can successfully fulfill its obligation to the proposed site, program and theory. This thesis proposes to answer the question of the ability of one building, in connection with its site, to host a number of related, yet distinct programmatic elements, all the while mediating the relationship between land and the water's edge. This question demands an exploration of the relationships existing within the merged program by use of an architectural language to clearly define such concepts as private and public, ownership and community of the boathouse and site.

The weaving of the program of the boathouse with the needs of the community generates a specific formulation of spaces in which the ideas of mentorship, collaboration, and exhibition can thrive. The potential

for an architecture to promote open learning and interaction calls for a study of the way in which the built form, organization and distribution of space, materiality and tectonics can generate such relationships. This thesis asks how, through a close study and dissection of the sport of rowing, particularly the act of racing, can an architecture emerge creating an integrated community and recreational center, promoting the constant exchange of changing roles, such as participator and spectator – engaging the unengaged.

Inherent in this exploration is the question of how to approach designing at the waters edge. With this, comes unique conditions and opportunities. The most critical of these is the relationship, and possible interaction, between the building and site. The edge condition allows for three main architectural solutions: stepping away from the edge, engaging the edge, and, moving across the threshold, past the edge. Similarly, the horizontality or verticality of the architecture plays a strong role in the presence of the boathouse at this edge.

This results in the *experience of the approach* being quite different than buildings located inland. At the water's edge, there is not one, not two, but three approaches: 1, the approach from the road to the boathouse, 2, from the boathouse to the water and 3, from the water back to the boathouse. A question of how to define the role of the space between the water and the boathouse becomes apparent when investigating these multiple approaches. Treatment of this space is critical – ensuring the formation of an outside room rather than rendering it residual space. This space is especially important to the design of a boathouse for it becomes the staging plaza for which to prepare and receive boats; a space of interaction, a space belonging to *both* the boathouse and the water, and thus the rowers and the spectators. The formation of the stage can take on various characteristics, relating back to the overall architectural solution of the boathouse plan.

By offering a recreational option unique to the presence of the water, the architecture of the boathouse

generates an interest in the waterfront, as well as the ability to move from land to water. It engages the natural amenity and brings to question the traditional role of the boathouse.

In the case of rowing, the festival of the race is extremely important to the practice of the sport. It is the reason for its competitive being. Yet, because of the procedural nature of preparing a boat for the race, the stage of activity is enlarged to occupy both water and land. Focusing on the reciprocal nature of the performance of the race, the boathouse no longer exists as simply a storage facility from which to view the water, but transforms the historical typology of the boathouse to incorporate both a place for viewing, as well as a place of being viewed.

_collaboration [a public agenda]

Because of the boathouse's location within the zone between highly urban life and open water, it is a distinct zone of transition, a threshold from which to move from

one to the other. In this case, it also exists as an edge between different types of neighborhoods, acting as a place of merging. The accessibility of the site allows for a range of potential visitors to the site, including but not limited to experienced individual rowers, university and private school teams, community team members, team supporters and passers-by. Thus, the place of merging becomes a place of mentoring, a joining of the two communities. It takes advantage of the existence of a public area of land, accessible and available to all. The site then allows for the introduction of a community based, education-recreation partnership within the downtown area of Baltimore. Pulling from the cyclical nature of rowing (seen in the stroke, the race pattern, etc), a community program associated with the sport would produce a program engrained with the ideas of mentoring students, and creating a pattern of learning, teaching and giving back.

The Middle Branch master plan states, “sustainable communities are the foundation of a healthy city.” To encourage this development, the boathouse should be

designed in such a way that it exists as a destination throughout all seasons – especially winter, when there is little chance of being able to row on the water.

Incorporation of sustainable aspects will help to further in the community development of the boathouse.

Similarly, it incorporates the notion of *protecting* the amenity through engagement of the amenity.

02. Sport of Rowing

"Rowing is more than a fast boat on race day. It's a complementary experience to a young man's intellectual development...Rowing, like success, is a journey, not a destination. I tell my oarsmen to have fun, learn and, most of all, grow as individuals. The wins, the losses will take care of themselves."

- Rick Clothier, Rowing Coach USNA

"How fared it with the wind," I said, "when stroke increased the pace? You swung it forward mightily, you heaved it greatly back. Your muscles rose in knotted lumps, I almost heard the crack. And while we roared and rattled too, you're eyes were fixed like glue. What thought went flying through your mind, how fared it, Five, with you?" But Five answered solemnly, "I heard them fire a gun. No other mortal thing I heard until the Race was done."

- R.C. Lehman

history of the sport

"once the most popular sport in the work...rowing slipped into the obscurity of a sport accessible only to the rich, privileged or very dedicated" (1)

*Origins & Organization
[act of rowing → rowing as act]*

The act of rowing was initially originated as a way of transportation, though quickly transitioned to a sport. Originally used as a way to transport goods through the various waterways of Europe and then middle east, the act of rowing began its transformation when the rowers of these boats attempted to deliver goods as fast as

possible. Competition between other watermen arose, and rowing soon emerged as a type of recreation. It quickly grew in popularity with these same professional rowers beginning to race each other in their spare time. (Churbuck)

The existence of rowing as a sport can be traced as far back to Homer's *Odyssey* where there is mention of amateur oarsmen. Similarly, this act of racing is alluded to in Virgil's *Aeneid*, in the description of the funerary games to honor Aeneas' deceased father. (Churbuck)

Though this form of rowing no doubt existed throughout the world, it was in England where the rowing was transformed from its original form of recreation for working-class men into the elite, elegant sport it is known as today.

The first recorded rowing event, the Dogget Coat and Badge, occurred in 1715, yet it was not until 1775 when the first official regatta took place. Located on the Thames, London's main thoroughfare, crews ranging from the royal fleet to local shipping companies and

professional oarsmen participated in the event. Thirty-five years later, rowing entered the world of education with students at Eton College, a college preparatory school, joining in. Rowing soon spread to Oxford and Cambridge universities, where it became an organized collegiate sport - the first race occurring between the two on the Henley, in 1829. This race, the Henley Regatta, still occurs today. (Churbuck)

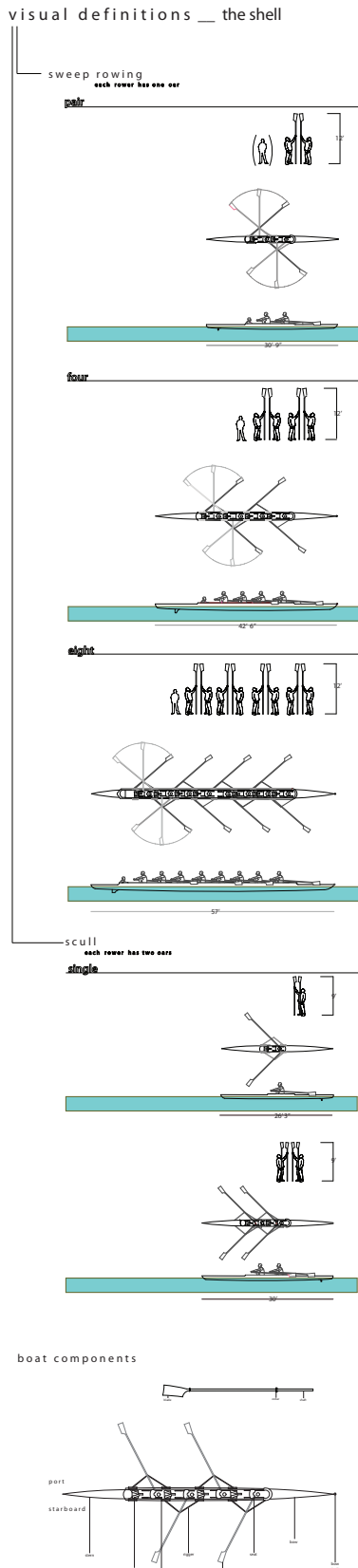
The novelty of the sport spread across the Atlantic when in 1843, Yale established a crew. The late 19th century continued to show much growth with the introduction of the sliding seat, as well as rowing's presence at the 1876 Philadelphia Centennial Exposition. (Churbuck)

Soon, the Ivy League and elite preparatory schools would name rowing as one of their sports offered. The sport maintained itself as such for much of the twentieth century. Today, the sport is once again at a point of transition. More and more boathouses are launching community-oriented programs to expose those to rowing who wouldn't normally have had the chance.

fig 2_boat dimensions
source: author

_on the water: scull versus sweep

Two forms of rowing exist, sweep and sculling, which are different in that they call for different technique and equipment. Sculling, the form of rowing in which each rower is equipped with an oar in both hands, is a much more individualized version of the sport, for it only allows for a rowing as a single or a pair. Sweep, on the other hand, is defined by each rower having one oar only. In sweep, a rower is typically referred to as a port or starboard –meaning they row with the oar in either their right or left hand. Because rowing is dependent upon a balanced boat, sweep demands all crews consist of an even number of rowers: two, four or eight. In these boats, the oar must alternate with each rower, typically beginning on the port side, and followed by starboard. In most sweep crews, each boat is directed by a coxswain, a third, fifth, or ninth member of the boat who helps to steer and direct the crew through a race. The cox, typically sitting at the stern, is in a position to be aware of where a crew sits within a race, and must communicate this with his/her crew. The members of each crew are typically assigned to one



particular seat in which they row. The first seat, closest to the stern, is known as 4/8 or *the stroke*. It is the stroke's responsibility to set the pace for the rest of the crew throughout the race, from the start to the finish. The seats continue to count down, 7/6/5/4/3/2/1 and 3/2/1, respectively. Seat 1 is referred to as bow seat, for it is the seat closest to the bow of the boat.

_synergy [movement and technique]

"...the experience of architecture, perhaps especially of it, is bound up with the experience of one's body as the medium for that experience. For this reason, an adequate experiential account of architecture must include an analysis of embodied experience...the experience is embodied in that it is experience had by means of the body as the seat of perception, and it is also embodied because the architecture itself, as a complex body, impels experience in that way."
[Bodies and Architectural Space" On Architecture Fred Rush, pg 4]

The sport of rowing is unique in its various movements and techniques, which, when performed correctly, allows for an incredible synchronization of bodies. It is important in this thesis to understand these movements, and their potential as an exploration of architectural form and detail.

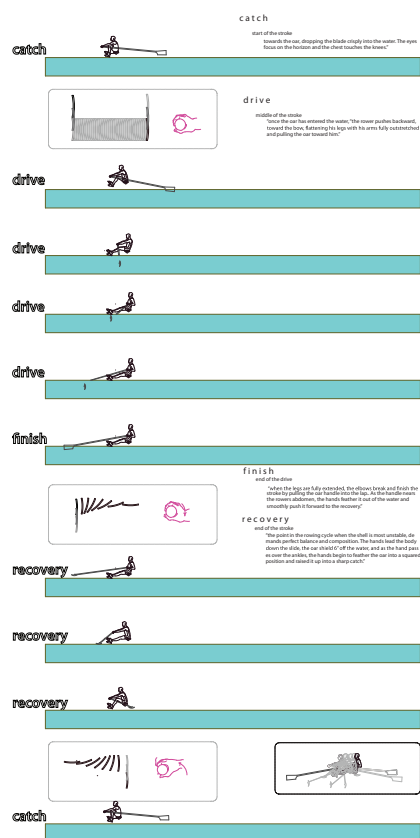
fig 3_the stroke
source: author

visual definitions __ the stroke

feathering



the stroke



Catch:

The catch is the start of the stroke. Legs bent and oar forward, the rower must gently drop the blade into the water, careful to make sure it enters at 90 degrees. All the while, the head must remain forward, eyes focused on the horizon line.

Drive:

The drive is the middle of the stroke, the moment in which the oars propel the boat forward. Once the oar has entered the water, the rower pushes backward with his legs, flattening them as he stretches his arms outward toward the stern, pulling the oar in towards his or her chest.

Finish:

The finish marks the end of the drive, when the legs have been fully extended, the elbows have moved in closer to the body, and the oar has been brought down to the rower's lap. To transition from drive to recovery, the rower must feather the oar, in which the blade is turned from perpendicular to the water to parallel.

Recovery:

The recovery is the slowest part of the stroke, as the rowers must pull themselves toward the stern from the back of their seat simultaneously pushing the oar from the abdomen to the ankles. They must be careful not to check the boat – to stop the forward movement.

Because of this, the recovery is the most unstable point in the stroke as all oars are floating six inches above the water, demanding a perfect balance from the crew so as not to tip the boat. At the end of the recovery, the rower must once again feather the oar in preparation to move through the cycle once again, as the rower continues to take strokes of the oar.

Feathering:

The turning of the wrist, and subsequently the oar, is referred to as feathering. Depending on the point of the stroke, feathering incorporates two different types of blade-work. The first, done in transition from the recovery to the catch is referred to as *squaring* the blade, turning it perpendicular to the water in preparation for the drive. The second, *flattening*, occurs by turning the wrist forward so that the oar moves

parallel to the water, allowing for a smooth recovery from finish to catch.

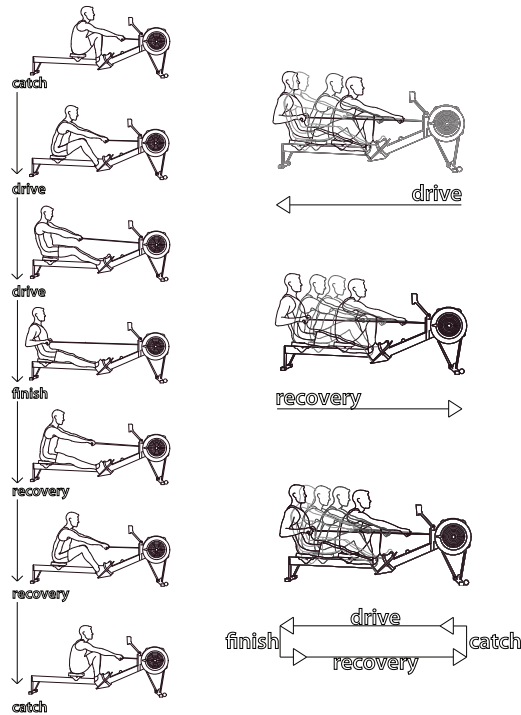
Fig _ Boat Being Carried
[source:http://www.utsports.com/facilities/tennessee_boathouse.html]

Boat: Boathouse to Water

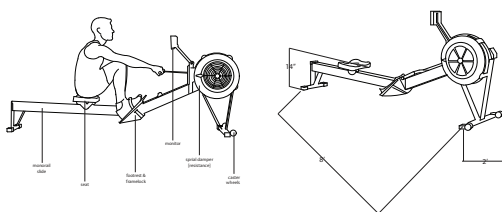
The act of carrying the boat from the boathouse to the water, is significantly important, and requires a similarly distinct routine in which to maneuver the large, yet beautiful, pieces of equipment. The boats must first be carefully moved off of the racks located within the shellhouse. To do this, the rowers lift the boat off of the rack and lift the shell onto their shoulders. This movement must be monitored carefully so as not to hit any other boats, or to damage the shell in the process, such as grabbing the shell somewhere other than the gunwale. Transitioning from inside to out, the rowers must be careful with each step. Continuing to move towards the dock, the rowers eventually reach the water. Once again, they must cautiously lift the boat above their heads and gently place it on the water. Oars are locked into the rigger, and one by one the rowers take their seat.

fig 5_the erg
source: author

visual definitions _ the ergometer
(indoor rowing machine; measures time, meters rowed, stroke, etc.)



components & dimensions



boat length vs. race length

[start] 1/2-1/2-1/4-1/4, power 10 settle

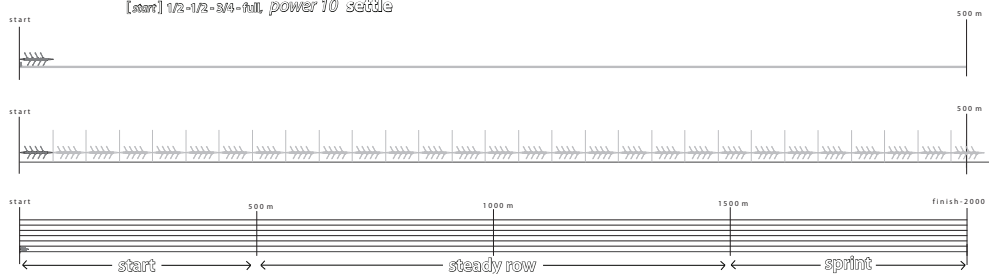


fig 6_the race
[source: author]

_on the land [*the erg*]

Though rowing is a water sport, much preparation for race day is completed on the ergometer, or rowing machine. The technique for the machine is similar to the water, careful movement up and down, quick on the drive and slow on the recovery.

_festival of the race [*the regatta*]

The regatta, the day of races, is the day in which rowing truly becomes a community sport. Unlike practices, which occur before most of the rest of the city is awake, regattas take place during the weekend, during fall and spring. Home and visiting crews gather together to race for an intense 6-8 minutes that they have been training for all season. It is truly a community experience – drawing many different types of people from rowers

and coaches, family and friends. People passing by are captivated by the activity occurring beside them. The dedication exhibited on this day is unlike any other.



Fig 7 _ Panoramic of Middle Branch [source: author]

03. Site

“the...tension between order and chaos in architecture. Water, even at its most tame, holds elements of danger; the juxtaposition of building right on the edge of water electrifies the architectural experience.” - Alain de Botton, Philosopher

_site selection [parameters]

*“and where a river bends, a community grows” –
Richard Sullivan*

When considering a site for the boathouse, there a number of inherent parameters the site must meet to allow the sport to practice successfully. When choosing the site for a boathouse, one this is clear. There must be water.

Water

Adjacency to water is of the highest necessity when determining a site for a boathouse. However, just any water won't do. There are a number of conditions that must be met to ensure the body of water is suitable for the sport, and thus suitable for a crew's home. The following questions are essential: Is the water suitable

for rowing recreationally as well as competitions? Is it deep enough to row? Is it still and calm? Rocky waves and strong tidal pulls are not conducive for a crew to be able to row. How far are you able to row? Is there a stretch of water long enough for host a 2k race? Would the type of water remain consistent throughout the race? Are there different practice courses allowing for a variety of types of practices? Are there any obstructions/impediments such as bridges, or, if existing, do they provide any enhancement to the racecourse? Is there much boat traffic? Are crews free to row, or do they constantly need to be aware of water traffic impeding their row?

Land

Because of its location adjacent to the water, it must be determined that the land is able to be built on to ensure that the land is able to support the structure of the boathouse. It must not be too steep, to allow for a smooth transition from boathouse to water.

Relationship between Land and Water

This depends heavily on the relationship between the built form, land and water. To begin thinking of this relationship, the simple relationship between the land and water must first be established. Not only does there need to be water to row, there needs to be a way to access that water from the boathouse without much maneuvering (transporting a 60' boat should be done as directly as possible). How easily can the water be accessed from the land? Is it located on a steep hill?

One must also think of the potential presence of the boathouse at the water's edge? Is it disrupting a previous view? Does it hinder or enhance the public's access to the waterfront? Does it engage the community, or stand alone as a private entity? This relationship must be defined. As discussed in the introduction, this thesis is interested in using architecture to enhance the sense of community and interaction between people through the design of the boathouse. This depends heavily on the relationship between the built form, land and water. To begin

thinking of this relationship, the simple relationship between the land and water must first be established.

Integration with The Public

Discussed somewhat in the relationship between the land and the water, in order for the boathouse to exist as a part and destination of its community, it should be incorporated into public land/park that can be used for a variety of recreational uses. Is the site a placement that would be used by the community groups and organization of the area? Is it convenient to get to? A community boathouse should ideally be *within* a community. It cannot be located in an isolated, discrete location along the water. Its presence needs to be known.

Size and Configuration

Looking to the size and navigation of the shells and oars is especially important when determining site. Again, the path from the boathouse to the dock, must be clear and easily accessible. There needs to be enough room to

allow for a 75' clearing between the storage bays and water for the staging of the boats, rigging, de-rigging, and washing down of the boats in preparation for use, or storage.

Race Course

Similar to the size requirements of the equipment, the space needed for a race is equally as prescriptive. As discussed earlier, a typical race is 2000 meters long, approximately 6000 feet, or 1.25 miles. The course, however, needs at least 8000 feet to account for room at the start and finish line. Typically, there are 6 lanes in each race.

Figure 8 – Middle Branch Existing Habitat [source : The Middle Branch Master Plan]

**_description of site: Baltimore
[middle branch: a blank slate]**

A Connection to Downtown + City as a Melting Pot

Middle Branch was chosen as the site of this thesis, in part because it has already proven a successful and adequate location for rowing. This, combined with the malleability of the site due to its current state makes for

an excellent thesis location to test the potential of architecture to engage a city with its natural amenity.

Compared, to the inner harbor which is much more well known, the Middle Branch is a noticeably more expansive and shallow, meaning more room for activities, and less boat traffic. While the inner harbor “consists of a bulkheaded shoreline, with an extensive brick promenade...[physically separating] the people from the water,” middle branch lacks these bulkheads, and instead boasts a perimeter of green with open access to the waters edge. (The Middle Branch Master Plan). Along the edge designated and protected habitat areas enhance the rustic feel of the site. Unfortunately, one of its similarities with the inner harbor is the contamination of the water through trash and leftover industrial pollutants, through efforts are being made to clean up the water. Once home to a number of industrial factories, the shores of middle branch are now bare and ripe in preparation of a new, vibrant community. Immediately surrounding the estuary, challenging neighborhoods exist, Westport and Cherry

Figures 9 – Middle Branch Existing Conditions: Barriers & 10 – Issues & Opportunities

[source : The Middle Branch Master Plan]

Hill, while more affluent neighborhoods such as Federal Hill are also within walking distance.

_history of site – [recreation node]

“since the early 18th century, the Middle Branch has evolved according to the changing needs of the Baltimoreans.”

(The Middle Branch Master Plan, pg 70).

Today Baltimoreans are in need of more opportunities for recreation and opportunities to reconnect with the outdoors. The live, learn, play and earn philosophy embodies a belief that one community can provide everything one needs to live a fulfilled life. Creating communities with these types of opportunities enriches the community experience, particularly in making time for recreational and leisurely activities. Middle Branch has been a city destination since the beginning.

The land adjacent to the water has a strong history of farm land and resorts before its most recent life as a

home to heavy industry. Endowed with rich marshes, a wooded shoreline and a complex marine community – it was an “isolated location located south of the harbor [which] allowed it to become an important recreation area for the growing city” (The Middle Branch Master Plan). In the 17th century, the land was used as hunting grounds till its rich deposits of iron drew landowners to the area in the 1720s. One hundred years later, the location had transformed to a resort destination. The Spring Garden Resort was established, housing a fish house in the marina, a restaurant and additional recreational activities, including a rowing club – the Patapsco navy. In 1833, the site was described as “ a spacious sheet of water, which I shall call a basin, of about 1.5 miles in breadth and 2 in length, perfectly sheltered by the winds by reason of the high grounds surrounding it.” (Charles Varle, A Complete View of Baltimore).

Another hundred years later, Middle Branch would shift again, moving away from a recreational destination, which the land increasing in industrial activities hosting various plants, factories, warehouses and junkyards

from 1920 to the mid 1970s. During the 1970's, the city attempted, but failed to initial the "clean water act."

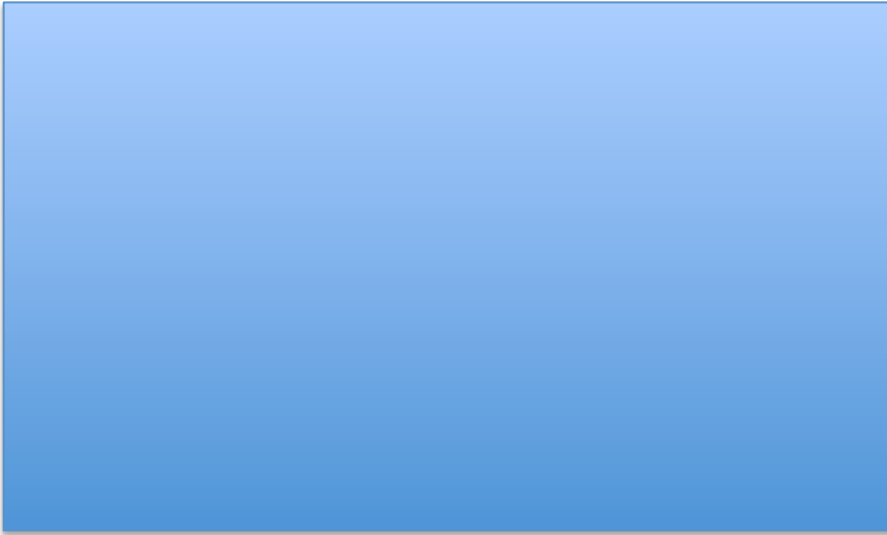


Figure 11 – Historic Middle Branch Yacht Club located in Middle Branch
[source] The Middle Branch Master Plan

Striving to redefine the area, the Middle Branch Master Plan was initiated in 1978. In the 1980s, the Baltimore Rowing Club and Water Resources Center was established in attempt to reintroduce recreational activity to the area. This movement away from industry continues in the 1990's with the closing of the BGE Westport Power Plant, and in the 2000's with the closure and demolition of the Carr Lowry Glass Company.

Now that the industry has been removed, the Middle Branch is now poised to be redeveloped as it originally was, a recreational haven for the city of Baltimore. Already complete with The Middle Branch Park, 101 acres of predominantly open lawn accessible to the water and the Gwynn Falls Trail, as well as the existing recreational fields of Swann Park, and neighborhood parks, Cherry Hill and Reedbird (The Middle Branch Master Plan), the area is a prime location to rebuild with an emphasis on recreational activity.

_adjacent neighborhoods

The neighborhoods surrounding the Middle Branch, have a rich history as well, important to understanding the character and make-up of the area. Westport, to the west of the water, and Cherry Hill to the South, though set back from the waters edge, have the closest connection with the estuary. The park site maintains a unique sense of place within these two neighborhoods.

Figure 22 – Middle Branch Communities [source] The Middle Branch Master Plan

Cherry Hill

A small suburban development, made up of landfill and several industries, Cherry Hill went through major change up to and following the second World War. As Baltimore began to undergo a housing shortage, Cherry Hill was picked by the Housing Authority of Baltimore City (HABC), along with the United States Housing Administration as a site to develop six-hundred housing units for the African-American Community. Opening in 1945, the development was soon converted to low-income housing. Development continued with HABC erecting 632 units in 1952, and another 360 units in 1956. With 121 units added 25 years later in 1980, Cherry Hill became one of the largest housing projects developed East of Chicago. The 1990s brought change, demolishing the 1952 and 1956 housing, and attempts at renovating others. Cherry Hill, however, remains a troubled neighborhood. (The Middle Branch Master Plan).

Westport

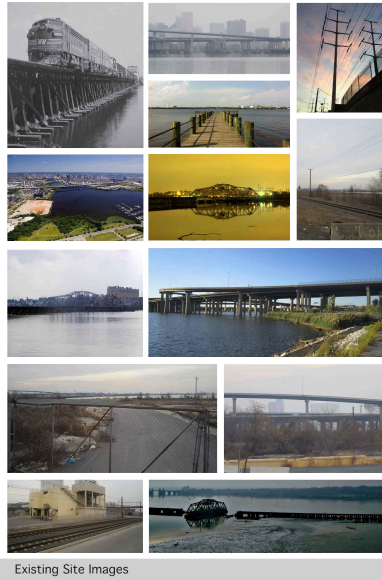
Westport developed early, as a “small village catering to local farms and resorts.” (Middle Branch Master Plan).

From 1898 – 1915, its first rowhomes were built, followed by the construction of porch-front rowhomes from 1915-1924. Most of these home still stand today.

Like Cherry Hill, Westport experienced major change. This, however, was due to the construction of I-295, which was placed directly through the neighborhood, splitting and destroying much of what was there. (The Middle Branch Master Plan). A history of commerce and recreation, Westport hosted the major resorts of the 19th century. It became *the* getaway spot for Baltimoreans in the late 1800’s, sometimes referred to as the Monte Carlo of Maryland. Today, it is the site of a redevelopment project calling for residential, retail, office space, as well as a hotel.

(www.westportwaterfront.com)

site today: redevelopment node



Figures 13 & 14 – Existing and Proposed Site Images
[source: author]

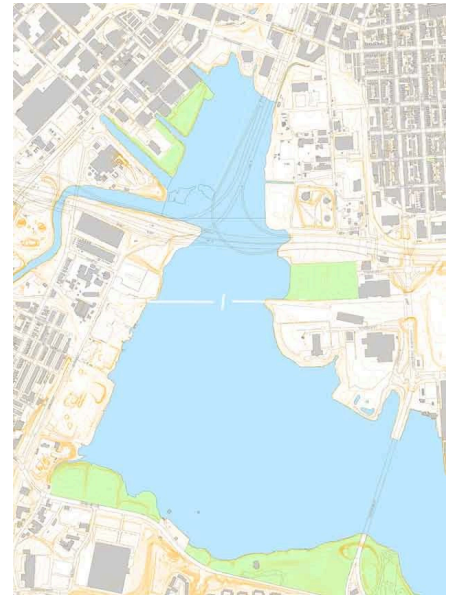


Today, middle branch still exists somewhat removed from the busyness of downtown because of its green edges. Yet, the area is currently slated for a large redevelopment of the previous industrial site: Westport waterfront, which will completely change the character of the estuary as it stands today. On the north shore, the Baltimore Aquarium has purchased the land in an effort to conserve the waterfront by bringing it back to its natural state, to the pre-industrial era. Additionally, there are plans to turn what is not the Schuster Concrete Factory into a livable community. The Dickman Street townhomes will further help revitalize the area – bringing people to live at water’s edge. This thesis views the boathouse as being an integral part in the recreation of the middle branch community, and the revitalization of the area, in which architecture has the ability to play a major role. The development along the west bank provides connectivity between what is now a broken-up Gwynne Falls trail around the water, using

the pathways of the Dickman Street Townhome plan and the existing Hanover Street Bridge to create a loop around the estuary, thus, making it a more pedestrian-friendly infrastructure. The goal of the Middle Branch redevelopment scheme is to “develop a comprehensive open space and recreation system that protects and promotes the natural shoreline, water-based activities and resources,” (Middle Branch Master Plan) focusing on creating a recreational facility aimed towards youth. Similarly, the success of this development encourage “sustainable open space and recreation systems [to] protect and enhance the social, ecological, and economic viability of community with open spaces...treated as...inter-connected elements, with each serving as integral pieces of a larger system.” In essence, elevating the quality of life along the water, and making it available to all.

By incorporating these development plans into the thesis, the boathouse can begin to exist as *part* of the community. Though sitting on the water, the boathouse continues to exist within the community by being

accessible *and* visible
from both communities.
The strong presence
created suggests the
boathouse should give
something back to the
community in which it
resides.



Figures 15 & 16 existing & proposed site plan
[source: author]

this plan illustrates the transformation of the site through the incorporation of the westport and dickman street townhome developments. anchored by the boathouse, the csx bridge is activated and connects the two communities. additionally, from this illustration, one can see how the race will be viewed along the north shore. with the end of the race coinciding with the swing portion of the bridge, it becomes a popular spectating point to watch the finish line.



04. Program - Designing the Experience

"a boathouse is a utilitarian building, rather like a garage; its purpose is to house and shelter boats."

Clare Sherriff

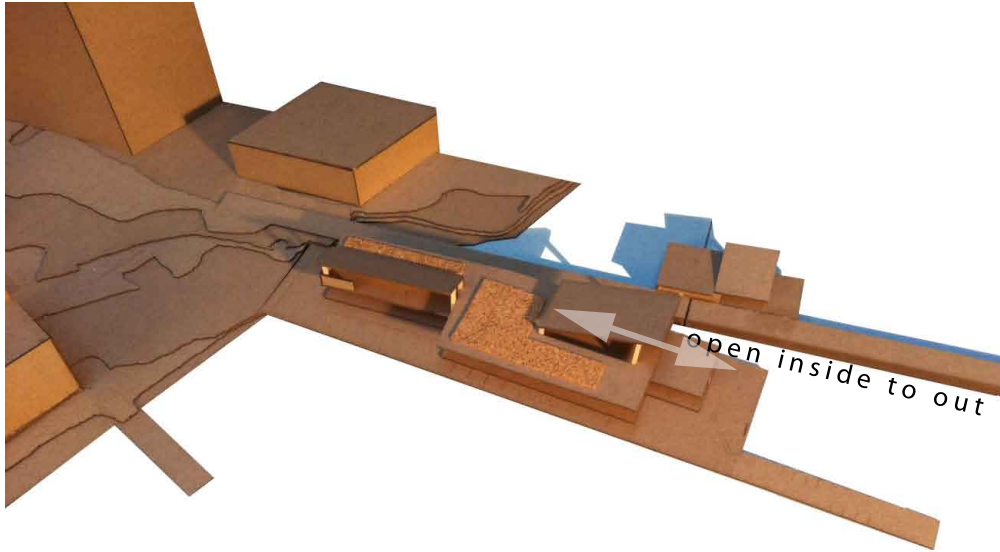


Figure 17_site
model
[source:author]

The program of this thesis seeks to merge those of a boathouse with those that provide for the needs of community-based programs and orientations. By creating flexible spaces that can be directed towards both recreation and non-recreational uses, the building ensures its use throughout all times of the day, and year.

**_creating community
[an architecture of engagement and experience]**

G-Row, Boston

Located along the Charles River, Community Rowing, Inc. is a nonprofit organization “dedicated to the belief that the sport of rowing provides unique abilities to promote personal and community growth through teamwork, discipline, and physical fitness.”

(www.communityrowing.org) Their slogan, “Rowing For All” embodies the idea that the sport should be readily available to all those who are interested. Not only is it open to all, but it encourages city youth to become involved as well. G-Row, Girls Row, is a program targeted to female students of the Boston City Public School system. It aims to build “girl’s strength and confidence, and also aims to diversify the traditionally exclusive sport of rowing.” (www.growboston.org)

Through the teaching of on-water rowing, racing, weight and erg training, as well as boat maintenance, these students begin to develop leadership and collaborative skills.” Additionally, the program provides the students with mentors and an academic support program The

Community Rowing Boathouse serves this program with their 30,000 sf boathouse. Broken into two buildings, one glass structure housing sculling shells, and one larger building houses sweep shells, as well as community and administrative spaces. Between the two, a large open spaces allows for interaction between the rowers to take place. The architecture of the building begins to aid the program, strengthening its ideals. a discussion of this program is important The boathouses of The Community Rowing Program highlight the community and programmatic aspect the design of the middle branch boathouse should strive to incorporate.

Living Classrooms

In Baltimore, the Living Classrooms Foundations also helps to engage city youth, encouraging their participation in maritime activities to. The program is comprised of a small campus of buildings dedicated to different tasks. These buildings include. Here, the architecture provides, a place, a *home*, for these kids. Many come for breakfast and stay through dinner.

Merging a program such as g-row with living classrooms, allows for a dynamic place of learning and engaging to take place. It is up to the architecture to create a home for these rowers, one in which they feel they are an integral part. The architecture must be used to aid in the inspiration and learning of the sport and the values associated with it. Similarly, the merging of such programs and locating them in a site like middle branch will make for an interactive and stimulating architecture, simultaneously engages students, of all ages, in the sport and the city.

_financially viable [partnerships]

Boats are expensive, so is the construction of a boathouse. To run community boathouse, partnerships are critical. Possible partnerships could exist with local universities and high schools.

Like its neighbor, the Baltimore Rowing Club, the Middle Branch Community Rowing Club will be supported by an

outside organization in the boathouse. This would not only help to support funding of the boathouse, but encourage the link between the sport and the community.

Additional ways of funding the boathouse would be through rental fees of the different spaces – ranging from the storage and renting to shells, to the renting of the classroom, conference room, exhibit and multipurpose event space.

space allocations

storage

shellhouse (sweep and scull boat bays – 50-75 boats)_1250sf/Bay
boat repair bay _1250sf
launch storage/garage_400sf
equipment storage (ergometers, coxswain equipment, etc)_400sf
multipurpose room storage_200sf
administrative and support storage_200sf

training

Locker rooms – adult (men and women) and youth (boys and girls)_1800sf/ea
Erg/multipurpose room_4000sf
Multipurpose mezzanine
Weight room_750sf

admin and support/community

lobby
exhibit gallery_200sf
administrative suite
Kitchen_500sf
Community/conference room_500sf
Environmental/rowing program classroom_750sf
Team lounge

exterior

deck / plaza– training/spectating_1000sf
floating dock_1200sf
roof terrace

**_integration of spaces
[description of spaces and their relationship]**

The programming of the boathouse calls for an integration of multiple types of spaces. This thesis is interested in the integration of these different spaces, which can be broken down into four main types: storage, training, administrative/support, and exterior spaces.

_approach [land as stage vs. water as stage]

In order to gain an understanding of how to place the building within the site, an investigation into the relationship between the boathouse with water in a number of various type of boathouses and how they meet the water, both in plan in section. Historically, the boathouses have taken away access to the water, claiming the interstitial space and holding it as their own. More recently, as boathouses are linked more and more with the community in which they exist, allow that same space to remain open to the public.

_parti studies [an initial thought]

design alternative 1_integration with bridge

The first parti diagram of the boathouse placed the boathouse off the proposed csx trail, incorporating the bridge into the active circulation of the boathouse.

The program is broken up into two pieces, placing the shellhouse and multipurpose space at the south side of the bridge, with administration and community to the

north. This creates an open area/plaza in between that engages both the users of the boathouse as well as people passing by. Located on the water, the boathouse provides great views of the race, particularly the finish line.

design alternative 2_ creating a linear boathouse community

The second parti located the site of the boathouse within Middle Branch park, adjacent to the current boathouse, the Baltimore Rowing Club. By placing the boathouse close to the existing club, a closeknit community would begin to emerge. The boathouse is placed alongside the water where the existing trail already moves inward, following the ridge. This makes for an immediately strong physical connection between the boathouse and water, allowing it to move closely toward the edge, but maintaining an area for a plaza to mediate between the two. Shifting the position of the deck to align with the race course, allows for extensive views of the race itself, while also energizing the front staging plaza.

design alternative 3_ object on the water

The third parti is located to the right of the csx bridge, along what will be a renovated green waterfront.

Reaching out to the water, the boathouse maintains the pedestrian trail around the water, as well as allowing for people to walk up to and engage with the water. By placing the building on the water, there is an opportunity to engage with the estuary on a unique level. Because of its location, the boathouse affords great views of the races, from the bridge to the finish.



Figure 18 _process model
[source: author]

06. architectural response

The architectural response to the thesis evolved from this investigation of the sport and the site – the incorporation of the Westport Planned Development, the Dickman Street Townhome Development, and the repurposing of the CSX Spring Garden Bridge - as well as the determination to rethink the traditional boathouse and represent it as a community based organization.

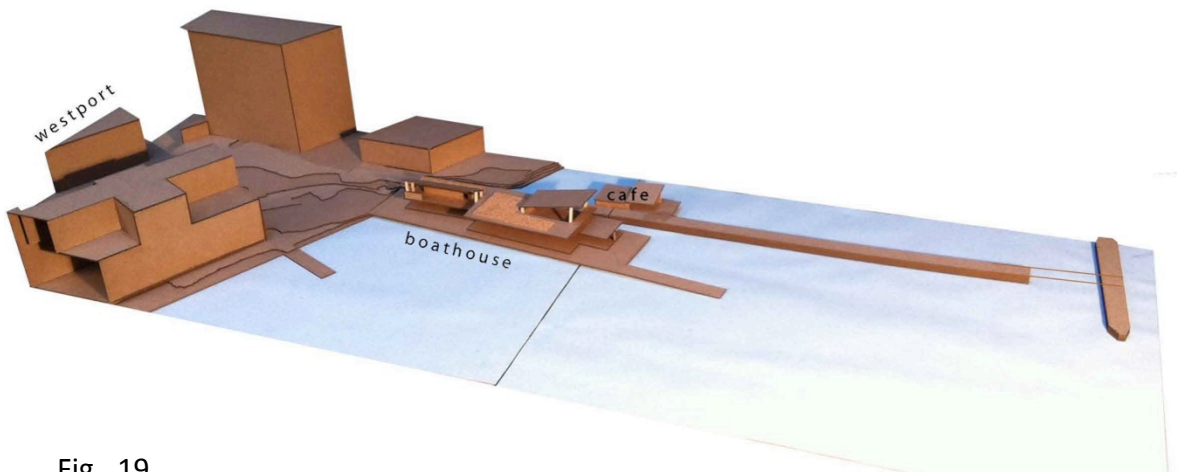


Fig _19
site model of the
north portion of
the Westport
development
including the
triangular open
space, the
boathouse and
café.

The arrival of the decision to place the building on the water came after an extensive tour of potential building site locations around the estuary, evident in the discussion of the initial partis. By sighting the

“one unchanging element
- the roof – protective,
emphatic and all
important – governing the
aesthetic whatever the
period, whatever the
place, often a building is
only a roof, columns and
floors – the roof
dominant, shielding, giving
the contentment of
shelter, ubiquitous,
pervasively present, the
scale of pattern shaped by
the building underneath.
The roof, its shape,
texture and proportion is
the strongest visual
factor” –geoffrey bawa

boathouse and corresponding cafe across the water
from the existing boathouse and Middle Branch park,
the added programs encourage participation around the
water’s edge, as well as increased dynamism and
movement of both building and site. Determining the
best location to be situated within the Westport
Development, at the point of intersection between land,
water, and bridge, the building was positioned on
water, rather than land, to preserve the planned open
area of the greater development plan. Once it was
determined the boathouse would be best placed on the
water, the massing began to evolve. This suggested the
building be designed as thin as possible, along the edge
of the bridge, to maintain the views from the just
preserved open space. The east end of the building is
cranked towards the water, directing one’s attention to
the end of the race. This move kept the community and
administrative programs “attached” to the bridge, while
pushing the recreational program further onto the
water. The roof over the administrative spaces,
community classroom and conference room was then
lifted and oriented towards the development, signifying

the relationship between the interior community spaces with the community they serve. The roof over the multipurpose room was also raised, but oriented towards the greater basin, and race course. Both roofs were lifted as such to increase light into the building from all orientations – north, south, east and west.

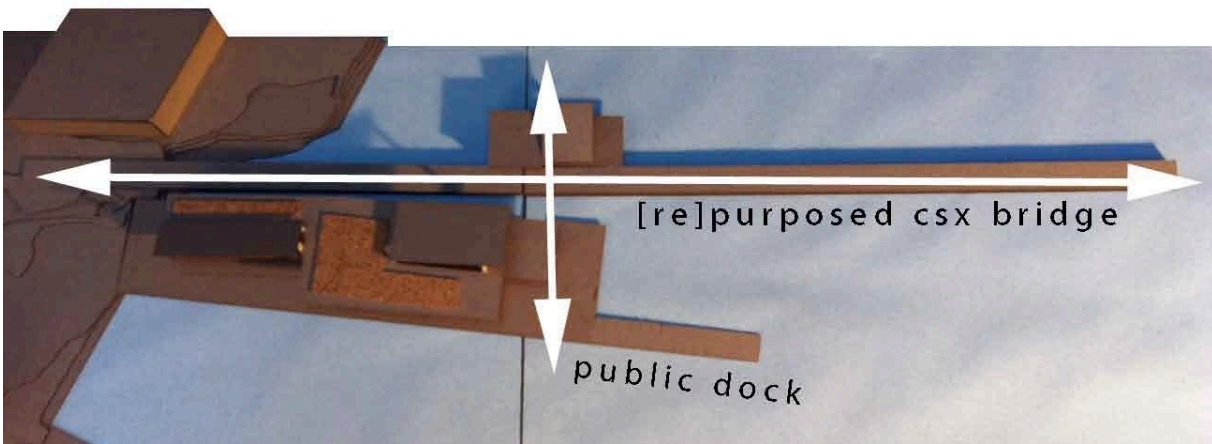


Figure 20_ site model showing movement along & across the bridge.

Once the massing of the boathouse was established, additional program in the form of a supporting café was introduced across the bridge. The addition of the café activates the space on the bridge, in between itself and the boathouse. This program serves as an additional public program to draw people onto the bridge, and increase potential visitors of the boathouse. Its interior is oriented away from the basin, toward the background

of the city – highlighting Middle Branch’s adjacency to downtown Baltimore. Not only does the program allow for a connection between one development to the other, east and west of the bridge, but also heightened the connection to the north and south of the bridge, the greater city and the site.

The boathouse fulfills its commitment to both its rowing community, and the community at large, in various ways due to the malleability of the programs and spaces it houses. With two main entrances, one directly off land on the dock, and the other from the bridge, welcomes people coming from both sides of the water.

The main floor, referred to as the water level plan, is primarily dedicated to sell storage. Comprised of two bays, boat racks march down each side of each bay enhancing the linear movement of the boats from inside to out, as well as the boathouse’s orientation parallel to the repurposed bridge. Opened at each end by glass garage doors, typically left open, the shellhouse component acts as a unifying component of the entire building, as well as a viewing portal from land to water.

Also on the first floor, a boat repair bay and weight

room supports the rowing program. A double-story team lounge, running half the length of the boathouse, serves as the largest gathering space for the boathouse participants. A highly flexible space, it is designed to house multiple individual and team oriented activities such as team meetings, warm up areas, places to eat and/or study to name a few. Enclosed in glass, there is a strong visual connection between the participants and the water. The tall nature of the space reads a uniting element from the exterior, connecting the shell storage below and the community/multipurpose areas above. Additionally, as teams row on the Middle Branch, typically before dawn, the lounge doubles as a lantern signifying the crew's home.

Moving upstairs, either through the grand stair adjacent to the dock entrance and team lounge, or the elevator, located at the center of the shell storage, one enters a lobby space inviting people to move into the gallery, the conference room, the locker room, or along the lounge towards the multipurpose room. Adjacent to the bridge, a linear gallery exhibiting a history of the sport

and site acts as both a way to invite passers by into the boathouse, as well as a form of education. Following the gallery to its end, one is lead to the community classroom – a smaller multipurpose room. Here, community crews can watch videos of races, have team meetings, tutoring sessions or be rented out to organizations within the community. In between the classroom and administrative suite, an open, flexible work space as opposed to individual offices, is a catering kitchen. The kitchen serves multiple groups – acting as the staff lounge throughout the day, it is also used to prepare meals for community outreach programs, as well as provide an area to prepare food for events taking place in the various flexible areas of the boathouse. At the either end of the administrative suite lies the team and community conference room, also to be used for both recreational based meetings, as well as by the public outside.

The east portion of the boathouse is dominated by the large multipurpose room and connecting deck. Cranked away from the bridge, walkers, bikers and runners along

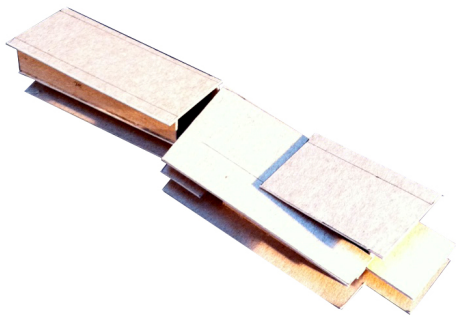


Figure 20_Process Model

the bridge have views into both the shell storage below, exhibiting the array of colorful boats, and into the multipurpose room above. Typically set up as the indoor training and erg room, the proportions of the multipurpose room make it conducive to a number of set ups. The doors open up to an expansive deck – used for outside activities as well as for a prime viewing spot of the races. Stairs take one up to a small mezzanine which opens to a rooftop terrace aside the green roof. Once again, this space lends itself to a number of different potential uses and users – classes about the environment, team supporters gathering to view the race from up above, or as an outside lounge connected to a party taking place in the main room. The ebb and flow of these spaces allows the building to move and adapt, quietly referring to the way a rower must act on the water. Successfully creating a place for rowers and non-rowers to engage and interact, melding what was two distinct groups of people into one larger community.

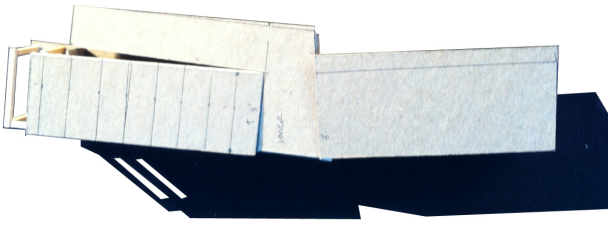


Figure 21_Process Model

[source: author]

Materiality & Tectonics

The expression of materiality and structure became a large portion of this thesis investigation. Transitioning the boathouse from an architecture associated with elitism to an architecture of open incitation called for a complete re-envisioning of the traditional building materials.

Glass

As this thesis seeks to expose and promote the sport of rowing through the architecture of the boathouse that incorporation of glass into the façade was a necessary move. Turning the traditional boathouse typology inside out, the middle branch boathouse puts the interior on display – particularly the storage of the boats and the activity of the erg. Secondly, because the middle branch boathouse exists on the water, located towards the finish line of the regatta, the glass allows for extensive views not only into the building, but out of

the building. The structure and window detailing helps to frame these exterior views.

Wood

A wood rainscreen and louvers on the façade and glulam beams on the interior recall the traditional construction method of wood, yet updated and reimagined. The louvers serve as a way to protect the interiors from the sun, while also revealing and concealing different portions of the program inside.

Concrete & Steel

The boathouse is placed on a concrete pier. Each steel column sits on a 4' concrete base— this dimension represents the one hundred year flood plain. The concrete also relates the site – recalling the concrete factory to the right, and the expansive highway system behind, as does the steel, which speaks to the large steel truss of the swing portion of the CSX bridge.

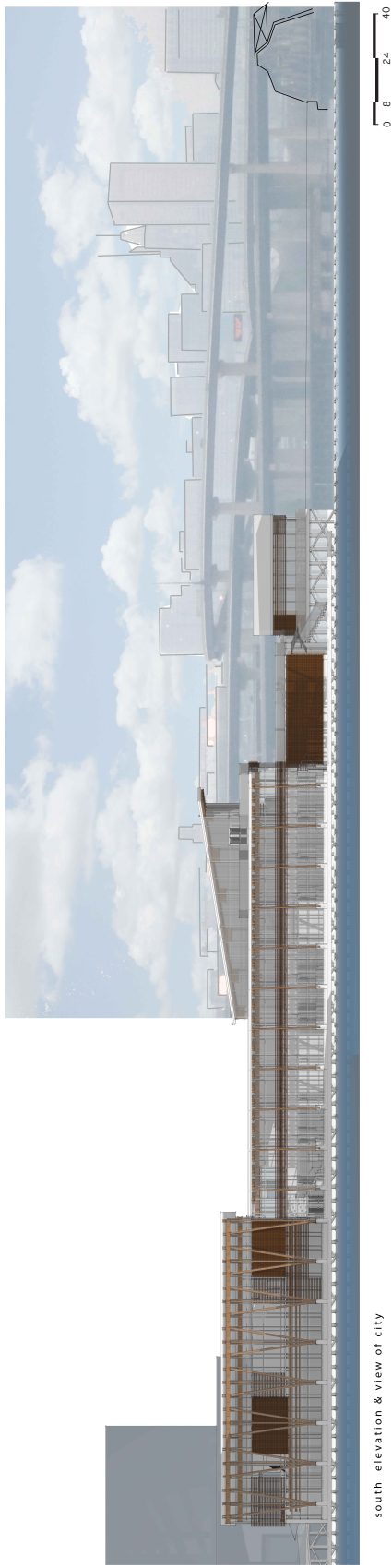


Figure 22_South Elevation of Boathouse & Café
[source: author]

the south elevation of the boathouse and café, exhibits the boathouse's relationship to the downtown area of Baltimore.

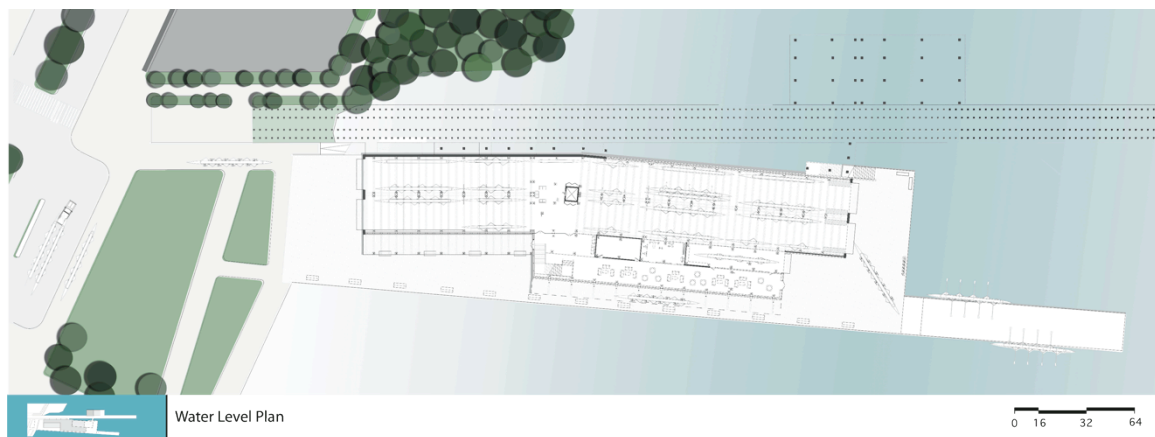


Figure 23, 24 & 25 [source: author]

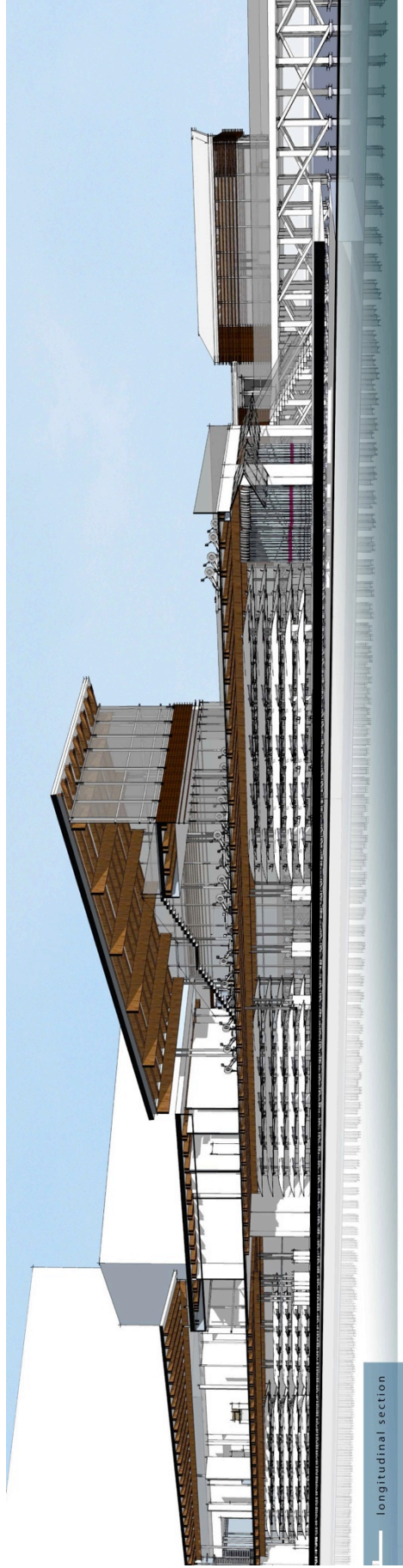


Figure 26__ Longitudinal Section Perspective [source:author]

section perspective illustrates the shell storage extending the length of the boathouse. Above, multipurpose room, which primarily acts as the indoor erg training room, exhibits itself as the dominant space existing within the boathouse. It has a ceremonial nature to it, opening up to the Middle Branch basin. The room doubles in size, when combined with the large deck sitting in front of the dock below. An additional viewing mezzanine is located a top a stair located on the edge of the multipurpose room. Views of the race and city beyond can be witnessed from this mezzanine, which connects to an outdoor roof terrace. Across the bridge, the café, whose terrace spill out onto the bridge, is focused away from the boathouse towards downtown.

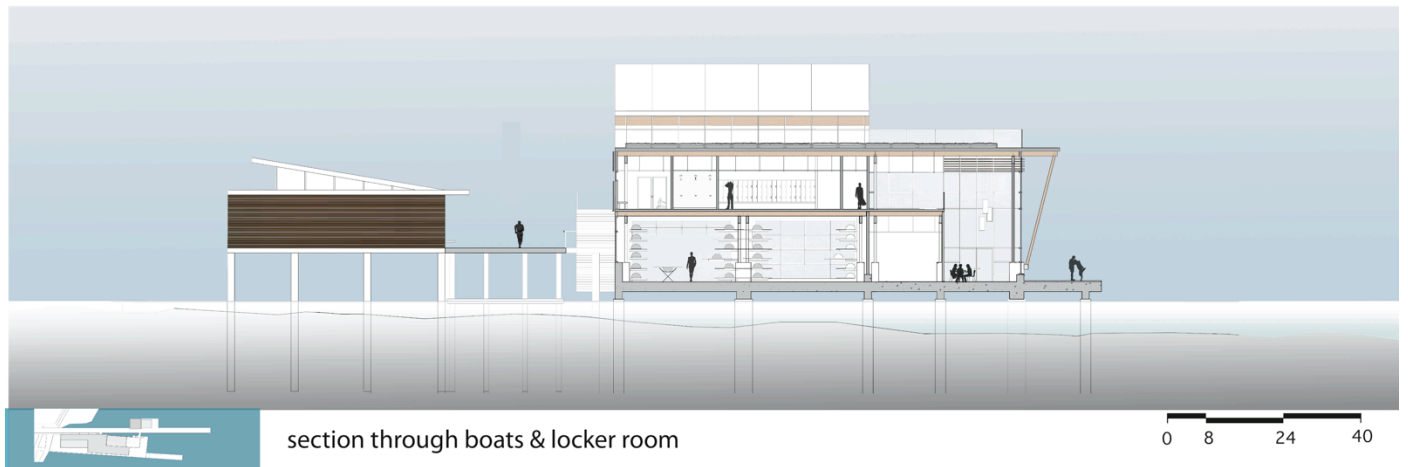
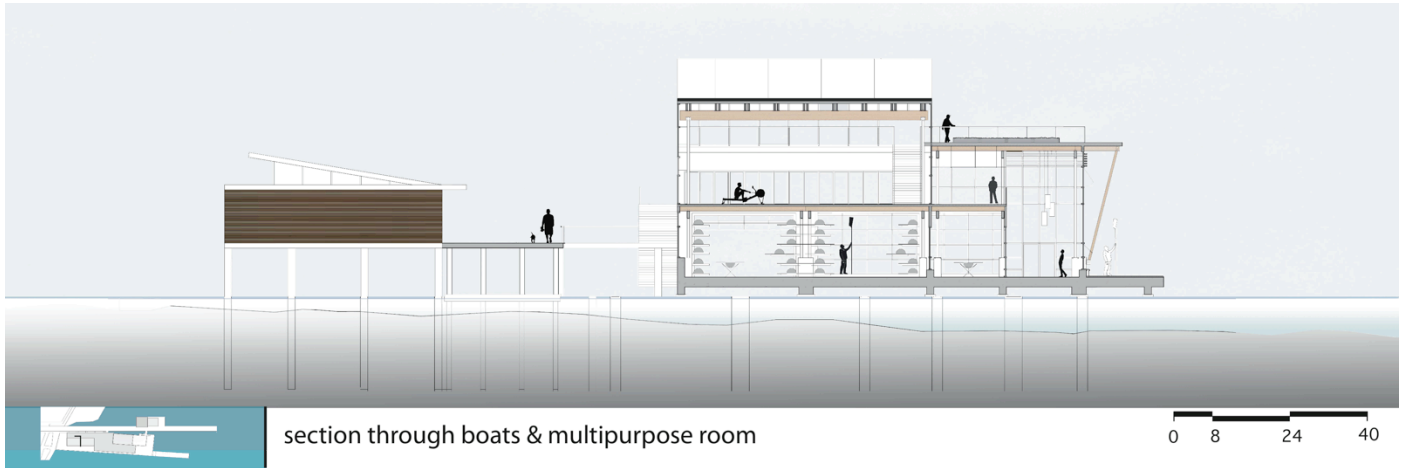
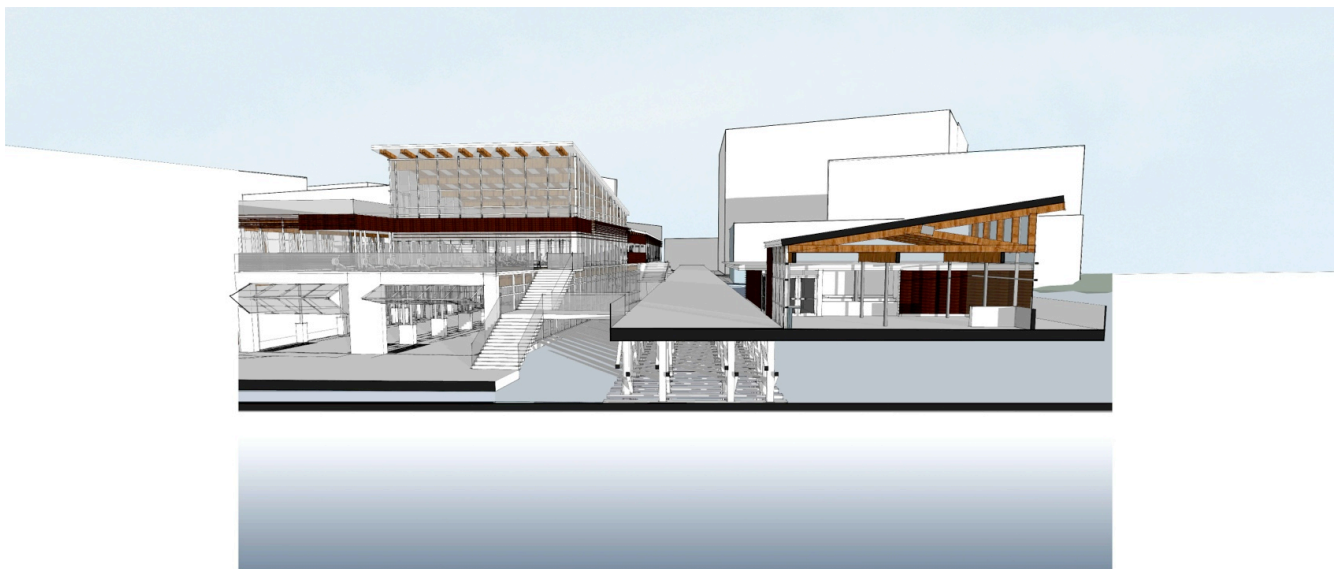
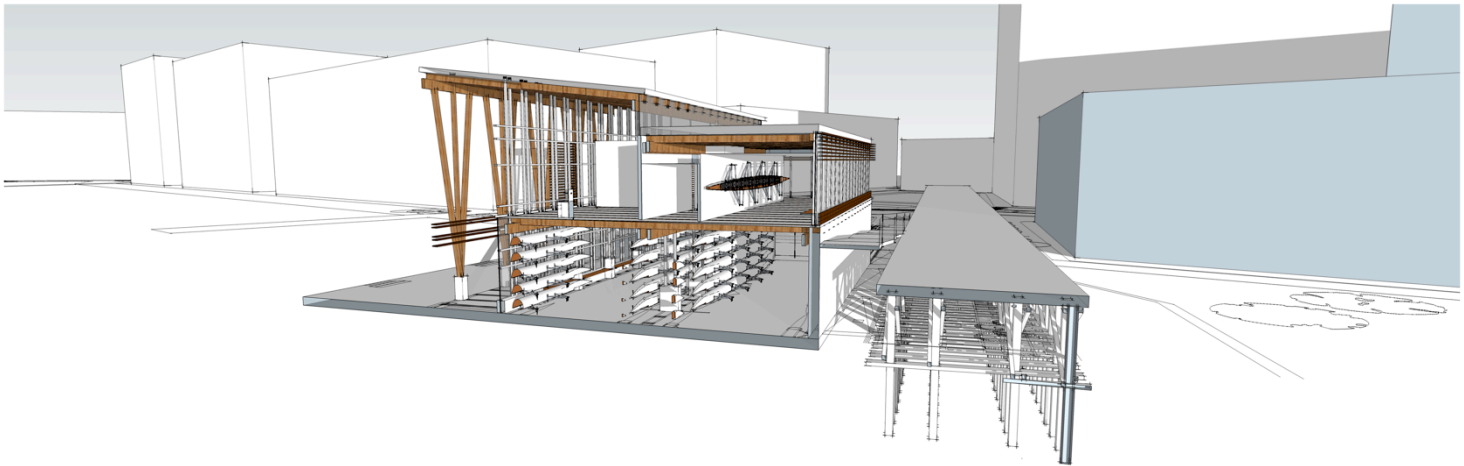


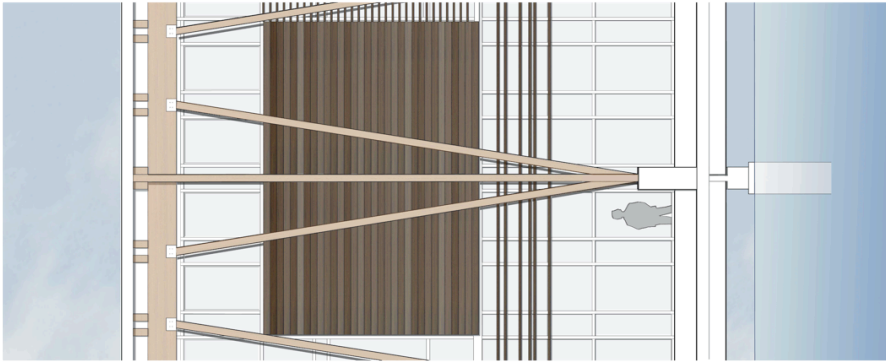
Figure 27 & 28 – Illustrating the sectional relationship between the team room, shell storage and additional program as well as the relationship between the boathouse and the cafe



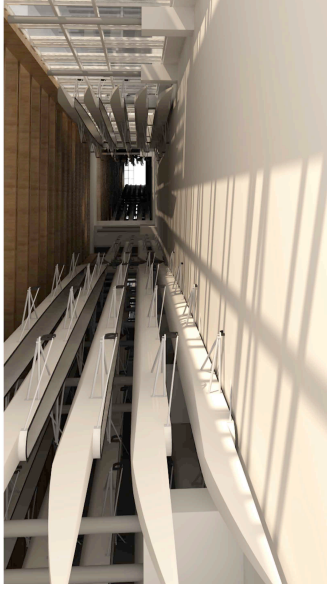
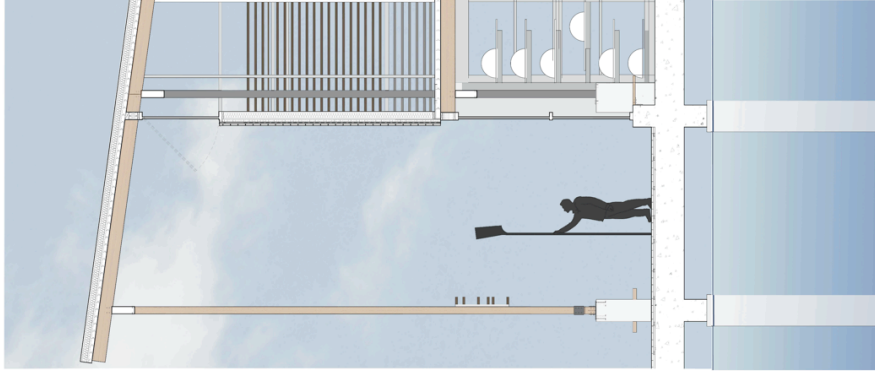
section perspective through cafe



Figures 29 & 30 – [source: author]
Sectional Perspectives showing the relationship between the buildings and the bridge



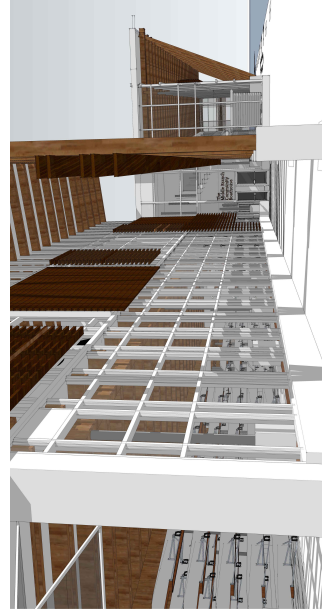
Wall Section - Wooden Rainscreen



interior shell storage

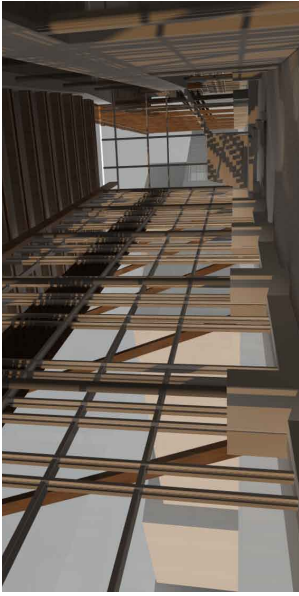


interior community space



exterior entry walkway

31 & 32 [source: author]
 it of the wooden rainscreen, a nod to the wooden construction materials of boathouses of
 it, a glulam member subtly incorporates the movement of the oar while acting as support
 covered entryway leading to the dock entrance.
 the layering of these different materials is evident.



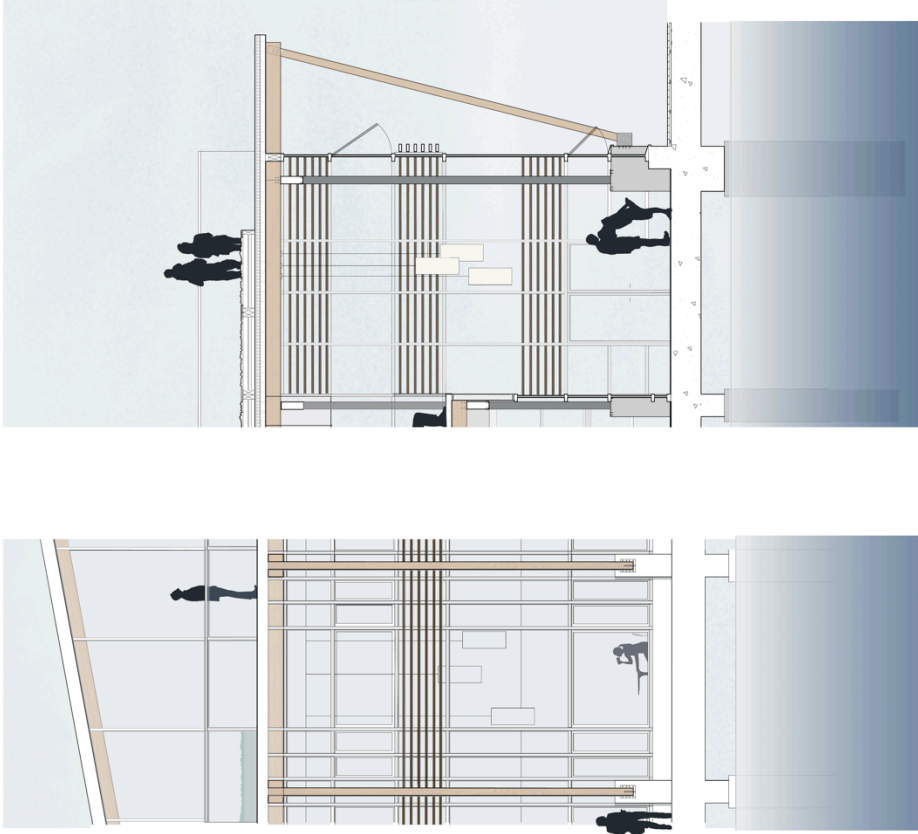
interior team lounge



interior upper circulation



exterior canopy



0 2 6 12

Wall Section - Wooden Rainscreen

Figures 33 & 34

Detailing a section through the team room, these images illustrate the extensive use of glass in the building to both allow for views into the building, as well as out of the building to the water

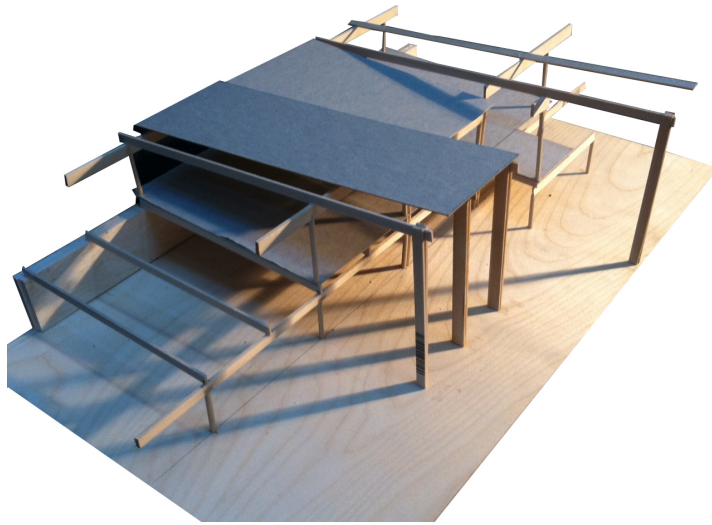
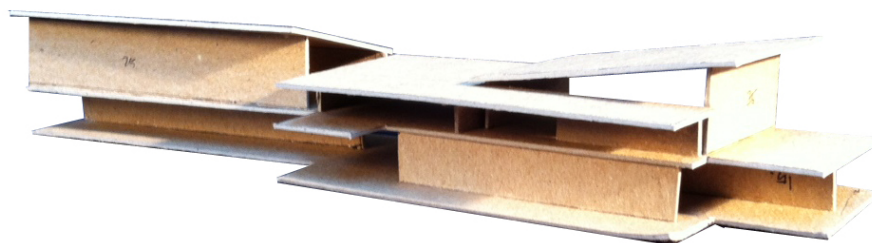
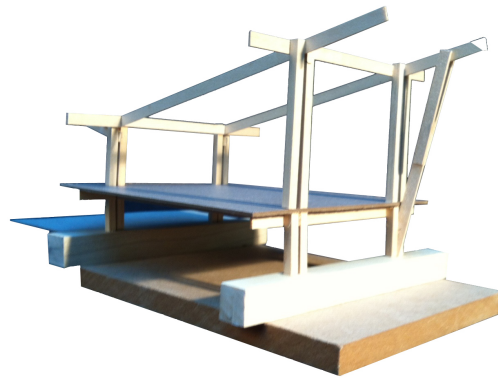


Figure 35

structural investigations & process models





approach from east on bridge



west approach on bridge
view of gallery

Figures 36 & 37 [source:author]

In these perspectives, capturing the approach to the boathouse from the east and west, the concept of repurposing the bridge is on display. Following the recent trend of rehabilitating old railways, the existing CSX bridge would be transformed from an abandoned railway to a populated walkway across the water. Retaining the rail tracks in some areas, while incorporating new decking for walkways, as well as natural landscaping, the bridge will embody its past, present and future – a popular destination for users of the boathouse and the café.



west entrance to boats



dock entrance to boathouse

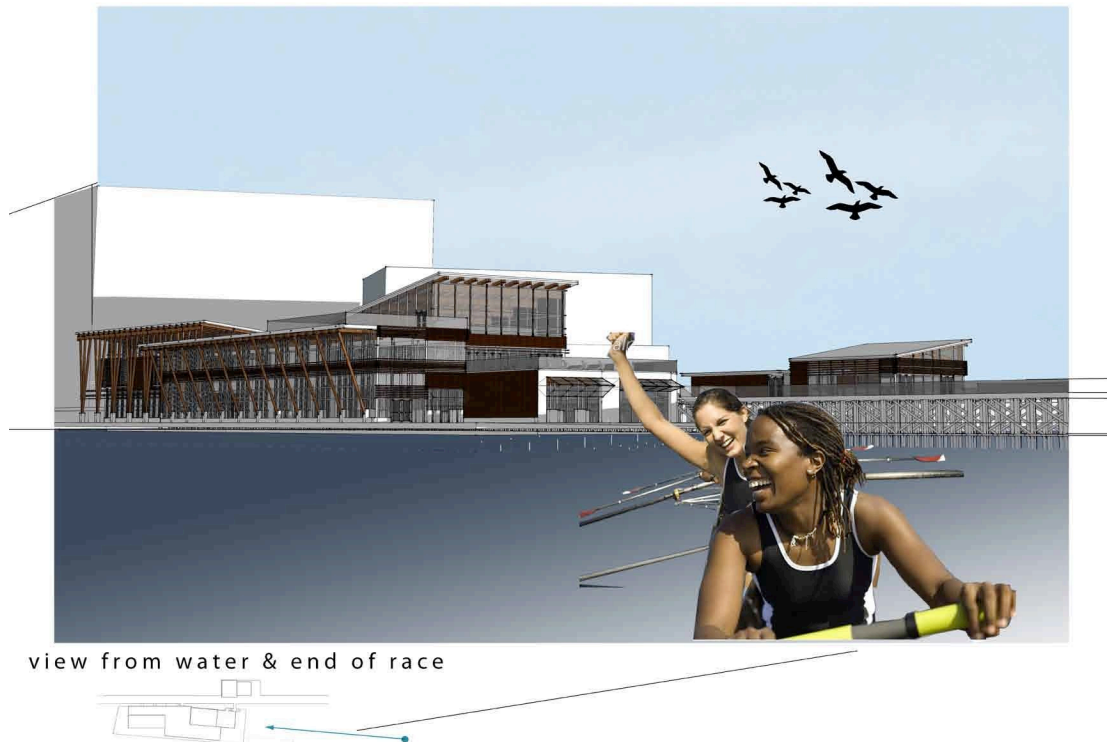
Figures 38 & 39 [source:author]

The linear nature of the building, combined with garage doors at either ends allows for a view through the building to the water when approaching the boathouse from the dock. Louvers connected to the exterior roof support provide additional shading into the building while clearly marking the entrance.



Figures 40 & 41 [source:author]

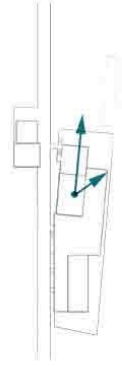
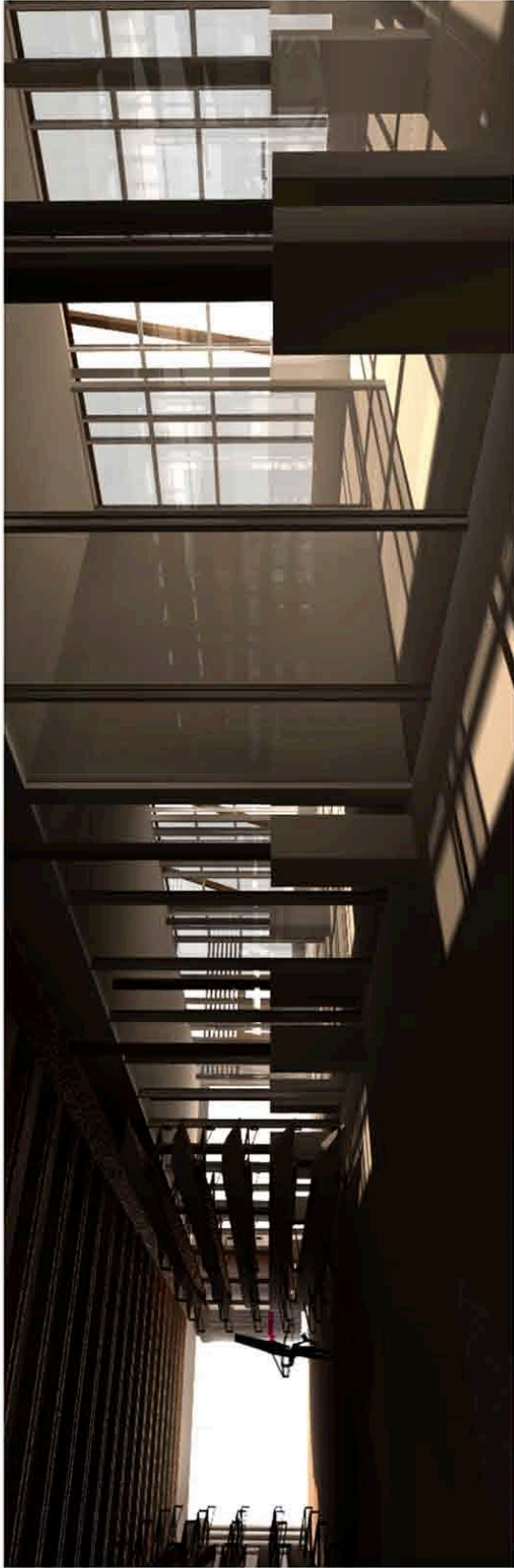
Much of the architecture will be experienced at a vantage point from the water, where the lifting of the roof of the multipurpose room is clearly visible.





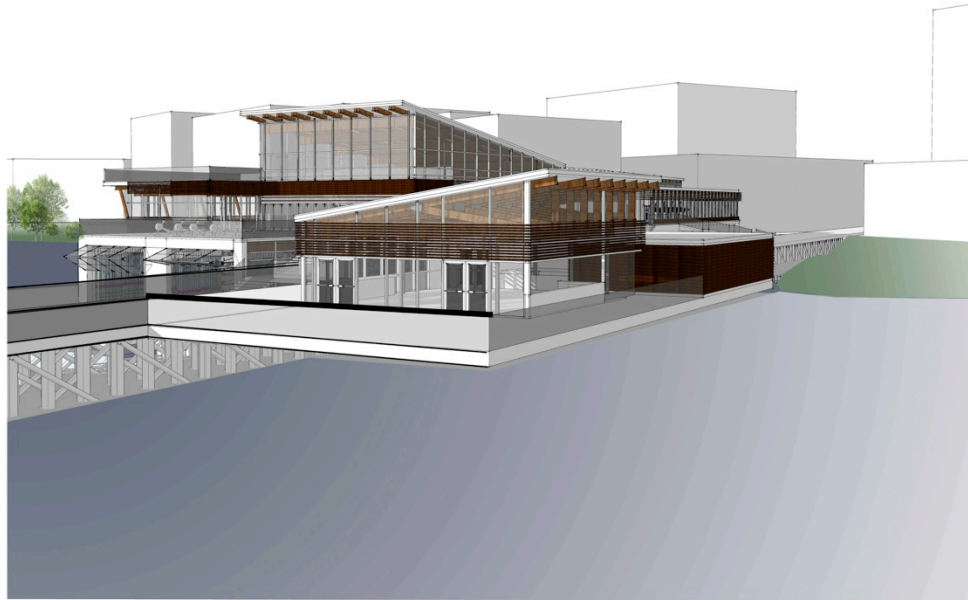
view of multipurpose / erg room

Figure 42_ Multipurpose & Erg Room [source: author]

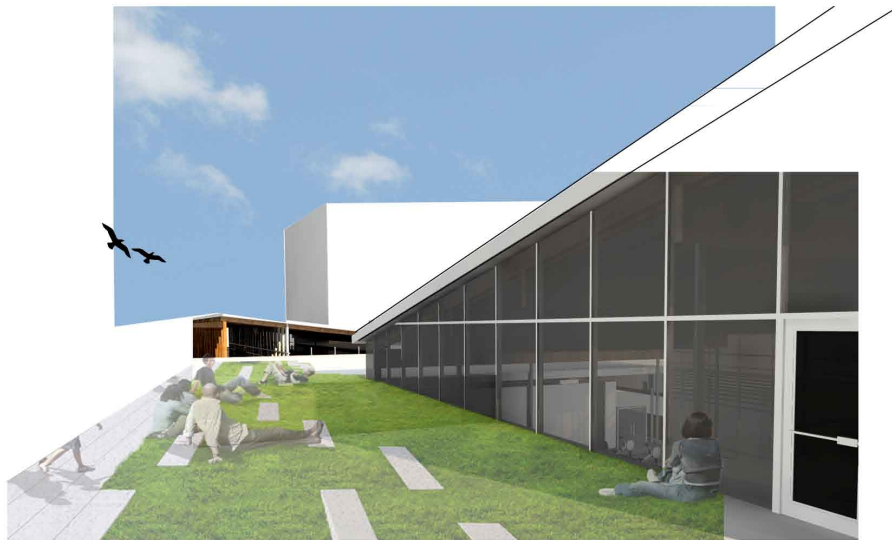


view from shell storage to water & team lounge

Figure 43 [source: author]



view from north side of bridge



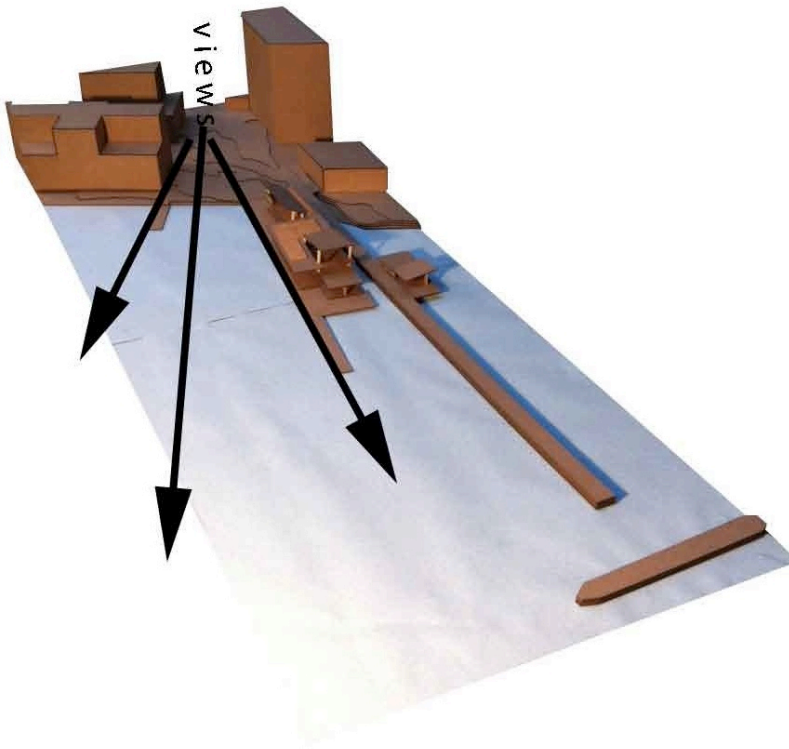
view of green roof & viewing terrace

Figures 44 & 45 [source:author]

Decks and terraces act as important viewing and interaction spaces, critically important to the underlying ideas of the thesis.

06. Conclusion

*It is impossible to explain architecture in words
...architecture cannot be totally explained
but must be experienced.
– Geoffrey Bawa*



Figures 46 [source:author]
Site model

This thesis sought to engage the boundary between water and land. Seeking to populate the space through architecture, a new type of boathouse was proposed – one that questions / alters the way in which the boathouse has been viewed for hundreds of years. The

current changes in the sport of call for a necessary change to its architecture as well. As rowing continues to shift to more community oriented programs, the boathouse must be designed to accommodate these new programmatic activities.

Three main premise's evolved over the course of the thesis .

[re]invent and [re]veal

In questioning the aesthetics of the traditional boathouse, the lack of views to the interior of the architecture was extremely noticeable. Therefore, the middle branch boathouse puts the interior on display through the use of extensive glass on the façade. Exposing the equipment, the material, and the activity of the sport attracts peoples attention and draws in *new* people.

It makes a statement that the boathouse is open and inviting - that it is a *public* center. People may enter, or simply admire the building from all side along the bridge, or public pier the on which the building sits.

Collaboration, teamwork and unity were all characteristics of the sport that were incorporated into the design of the building – to further link program, site and user.

[re]connect & [re]purpose

Both the boathouse and café activate people in between two developments and on either side of the bridge. The thesis originated as an idea of reconnecting people with the waters edge, but developed into a much larger idea about the site of middle branch itself through the repurposing of the abandoned csx bridge. The planned reused of the bridge is the first step in allowing the boathouse to give back to its community, because it allows for a connection between all shores of the Middle Branch and the building, and the making of a community boathouse for all.

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