ABSTRACT

Title of Document: DYNAMIC INTERVENTION:

REAWAKENING THE DETROIT BOAT CLUB.

Anne Kopf, M.Arch., 2014

Directed By: Assistant Professor Powell Draper,
Architecture Program

Built in 1902 on pilings in the Detroit River, the Detroit Boat Club (DBC), a stunning Spanish Colonial building, was once a lively sport and social club. Its historic building fabric, paralleling Detroit's rise and fall, stands as a monument to the city's downfall. What remains today is the DBC Rowing Team, who, despite its success, relies on volunteers and meager donations to maintain the decrepit building. In an attempt at revitalizing the DBC, this thesis will explore the intricate connections between various elements of Detroit's social and cultural history. Such elements include Detroit's music history, specifically Motown Records, as well as the growth of the automotive industry. Through this exploration, this thesis project will address the following question: to what extent can these cultural and social connections be applied to the building revitalization process in a way that honors the building's past and prepares it for a vibrant future?

DYNAMIC INTERVENTION: REAWAKENING THE DETROIT BOAT CLUB.

By

Anne Kopf.

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i. *Site Scale: Water*

Detroit is located in southeast Michigan, surrounded by the Great Lakes (Figure 1). The city was founded on the banks of the Detroit River, a fast-flowing strait between Lake St. Clair and Lake Erie (Figure 2). Belle Isle park is an island within the Detroit River (Figure 3) that contains several interior lakes and canals for drainage and recreation purposes (Figure 4). The Detroit Boat Club site is located in the Detroit River and can be approached by a pedestrian bridge (Figure 5).

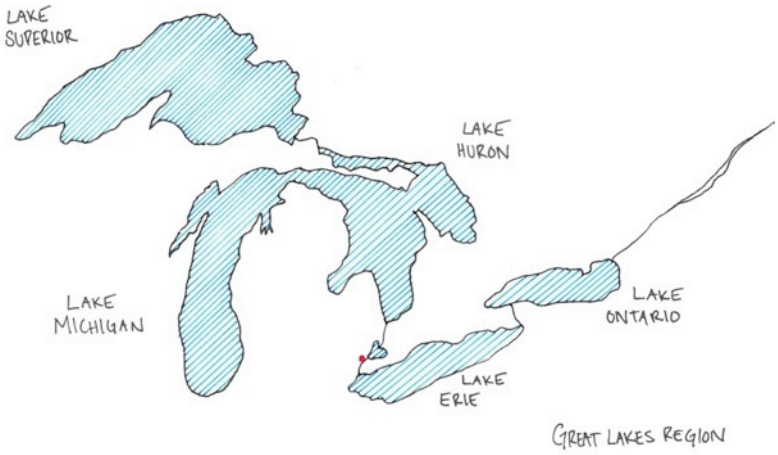

Figure 1 The Great Lakes (red dot represents Detroit) (Author)

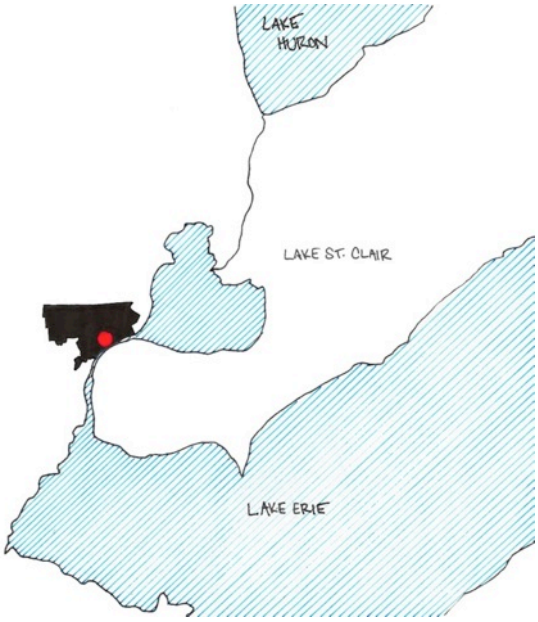

Figure 2 Lake St. Clair and Detroit City Limits (red dot represents downtown Detroit) (Author)

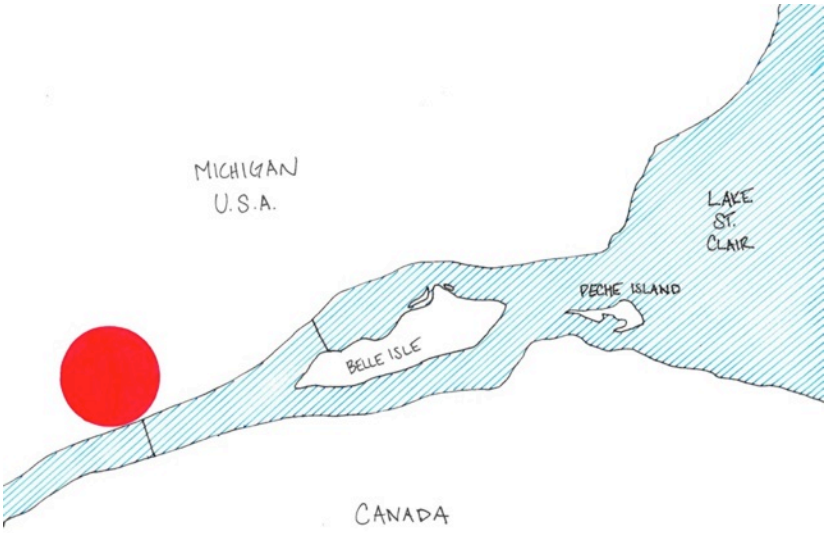

Figure 3 Detroit River and Belle Isle (red dot represents downtown Detroit) (Author)

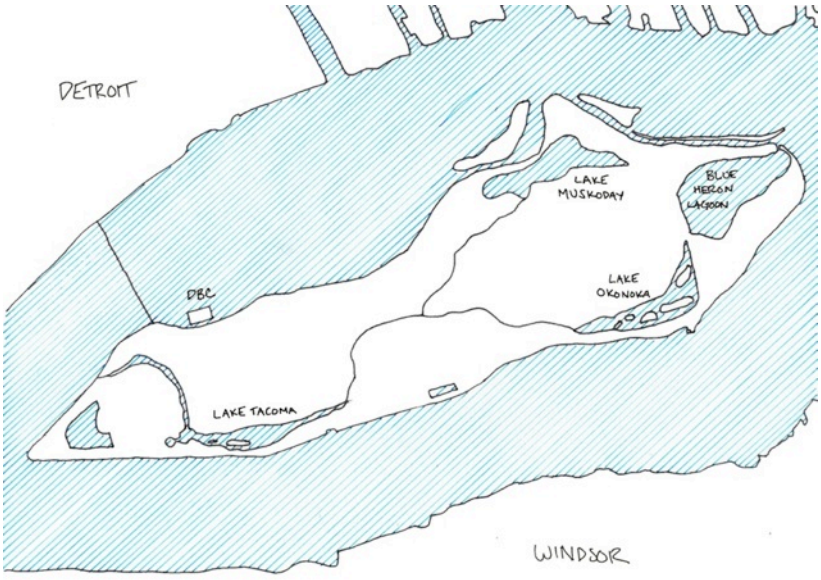

Figure 4 Belle Isle and its waterways (Author)

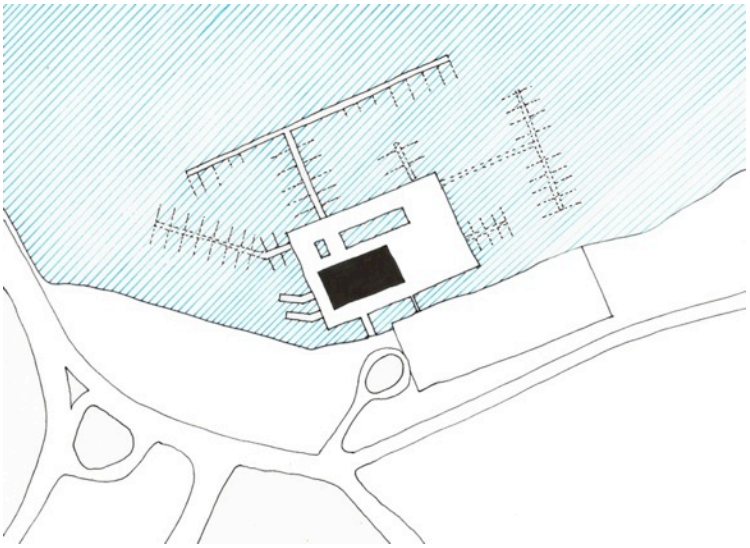

Figure 5 Site of Detroit Boat Club on Belle Isle (black rectangle represents existing building footprint) (Author)

ii. Environmental Analysis

The prevailing winds in Detroit are from the SW direction (Figure 6), generally up the Detroit River, opposite the river flow.[1] The city experiences four distinct seasons with warm, humid summers and cold, snowy winters (Figure 7).[2]

a. Climate

Figure 6 Wind rose depicting wind direction distribution for a year in Detroit. (windfinder.com)

	J	F	M	A	M	J	J	A	S	O	N	D
Primary Wind Direction	SW	SW	NW	NW	SE	SW	SW	SW	SW	SW	S	SW
Average Wind Speed (MPH)	12	11.4	11.7	11.5	10.1	9.2	8.5	8.1	8.7	9.8	11.2	11.3
Average Temperature (Farehnheit)	22.9°	25.4°	35.7°	47.3°	58.4°	67.6°	72.3°	70.5°	63.2°	51.2°	40.2°	28.3°
Maximum Temperature (Farehnheit)	30.3°	33.3°	44.4°	57.7°	69.6°	78.9°	83.3°	81.3°	73.9°	61.5°	48.1°	35.2°
Minimum Temperature (Farehnheit)	15.6°	17.6°	27.0°	36.8°	47.1°	56.3°	61.3°	59.6°	52.5°	40.9°	32.2°	21.4°
Average Relative Humidity	58.5%	78.0%	76.0%	71.0%	66.0%	65.5%	69.5%	73.0%	76.0%	75.0%	75.5%	79.0%
Average Precipitation (Inches)	1.5	1.2	2.0	2.2	2.6	3.0	2.6	3.4	3.4	2.2	2.3	1.9
Clear Days	3	4	6	6	7	7	7	8	6	5	2	2
Cloudy Days	22	17	18	17	14	12	10	12	14	18	23	23

Figure 7 Detroit Climate Chart (Data from climate-zone.com)

[1] Windfinder.com
[2] Climate-zone.com

b. Waterways[3] (Elevations are city of Detroit Datum)

On Belle Isle, three lakes, and a lagoon connected over two miles of canals:

Lake Tacoma
11 acres / Surface Elevation 95.5 / Bottom Elevation 92.7

Lake Okonoka
18 acres / Surface Elevation 95.5 / Bottom Elevation 92.5

Lake Muskoday
25 acres / Surface Elevation 95.5 / Bottom Elevation 90.8

Blue Heron Lagoon
41 acres / Surface Elevation 95.5 / Bottom Elevation 90.5

Detroit River
Normal High River Level 98.0 / Normal River Level 94.8 / Normal Low River Level 92.0
Current Direction: Southwest

iii. Site Analysis: Detroit

a. History of Detroit

Detroit: The Early Years

Figure 8 Map of Fort Pontchartrain, 1749 (Dunnigan)

[3] 2005 Belle Isle Masterplan

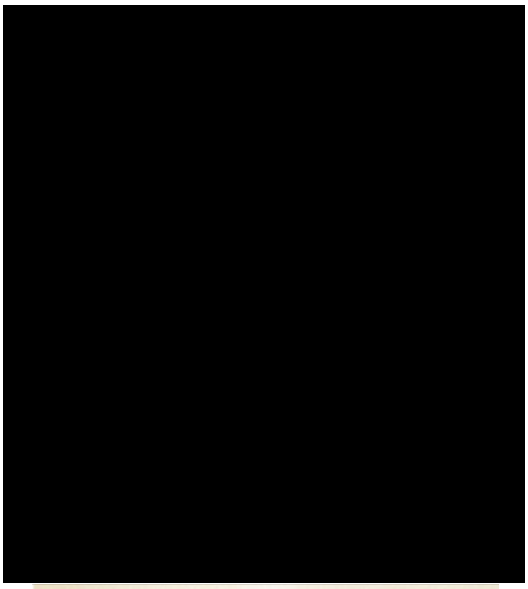

Figure 9 1805 Woodward plan for City of Detroit (Dunnigan)

In 1704, Frenchman Antoine De Le Mothe Cadillac founded Fort Pontchartrain on the site of what is now the City of Detroit (meaning "the straits") (Figure 8). The Detroit River was a prime location for the French and Native American fur trapping industry. The Great Lakes at the time were crowded with boats carrying fur and other goods around the area. Fort Pontchartrain became a significant port in the Great Lakes shipping industry. [4]

By 1750, the original 100 people who founded Fort Pontchartrain had grown into a population of 483.[5] This was the beginning of Detroit's steady growth until its peak in the mid-20th century. By the end of the Revolutionary War, Detroit's population exceeded 2,000 and was still growing.[6] In 1796, U.S. forces captured Detroit and the city became the capital of Michigan Territory in 1805. This same year, the city burned down and as a result, the Woodward Plan for Detroit emerged (Figure 9). Based off of L'Enfant's plan for Washington D.C., the design had several diagonal streets connecting public spaces. This plan was limited to the downtown area, but the layout has survived into present day Detroit.[7] By

[4] Detroit Historical Society, French Detroit (1700-1760)
[5] Detroit African American History Project
[6] Detroit Historical Society, British Detroit (1760-1787)
[7] Detroit Historical Society, Early American Detroit (1787-1820)

1827, Detroit adopted its forward-thinking city motto in commemoration for the fire of 1805: "Speramus Meliora; Resurget Cineribus" meaning, "We hope for better days; it shall rise from the ashes." This simple statement foreshadows the rise and fall of one of the greatest cities in America. Ten years later, Michigan was granted statehood, making it the 26th state in the union.[8]

Industrial Revolution: On the Upswing

By 1850, Detroit's population grew to 21,000.[9] Once the Soo Locks in Michigan's Upper Peninsula opened, Detroit's shipping industry flourished. Iron and copper were shipped to Detroit where it was processed and made into stoves and other products.[10] By 1870, shortly after the Civil War, Detroit's population had grown exponentially. This was due primarily to immigration. Irish, Italians, Polish, and Scandinavians flocked to Detroit for jobs in factories.[11]

In 1879 Detroit purchased Belle Isle (formally Hog Island), to become a much-needed 985-acre public park. The city was becoming an overcrowded, noisy, dirty industrial mecca and its residents needed a natural haven. Now that factory work was becoming more efficient, many workers now had more time for recreation and leisure.[12] By 1890, Detroit's population had doubled in size to over 200,000 people, to become the 15th largest city in America.

[8] Detroit Historical Society, Boomtown Detroit (1820-1860)
[9] Detroit Historical Society, Boomtown Detroit (1820-1860)
[10] Detroit's Belle Isle, 17
[11] Detroit Historical Society, Boomtown Detroit (1820-1860)
[12] Braden

Turn of the century: The Great Automobile Industry

In 1896, the great inventor, Henry Ford, test drove his first car.[13] He founded his first automobile company, but was not very successful. Ransom E. Olds of Oldsmobile, however, founded his first automotive manufacturing plant in 1899.[14] This began the exponential growth of Detroit, not only in population, but also in city limits.

In 1901, Henry Ford established his extremely successful second company, Henry Ford Co. Other auto companies such as Packard, General Motors and Chrysler soon followed suit. By 1904, Detroit was manufacturing 20,000 cars per year. In 1908, Henry Ford had invented the Model T car, a vehicle for the masses. Its huge success led Henry Ford to open the sprawling Highland Park Plant.[15] In 1917, the same year WWI began, Detroit had manufactured 1 million cars. The success of the auto industry drew an even greater influx of immigrants into the city. By 1920, the population had grown exponentially to 1 million.[16]

The 1920s were an incredibly prosperous time for Detroit and helped the city survive the Great Depression. Due to the continuing success of the automobile industry, a new wave of African Americans from the south flocked to Detroit and other northern, industrial cities looking for jobs. This movement was known as the "Great Migration."[17]

Racial Tensions, Corruption, and White Flight: The Downfall of Detroit

In 1935, Detroit reaped the "benefits" of the New Deal and built "the nation's first federally funded public housing development for African-Americans,"[18] the Brewster-Douglass housing projects. The African-American population of Detroit was growing significantly, yet was often living in run-down, segregated communities. Two of these

[13] Weber
[14] Detroit Historical Society, Industrial Detroit (1860-1900)
[15] Weber
[16] The Detroit Almanac, historydetroit.com
[17] Martin
[18] Nichols

neighborhoods were referred to as Paradise Valley and Black Bottom.[19] The Brewster-Douglass housing projects "would not only put Americans to work, it would contain Detroit's working poor and minorities in one place - and segregated away from the wealthy whites."[20] These terrible conditions led to Detroit's first race riot in 1943. 36 people were killed and 1,800 were arrested. The majority of these victims were African-American.[21]

Despite all the tension in Detroit, by 1950 the population had climbed to its peak of 2 million people.[22] The city had produced 8 million cars that year and the U.S. highway system was being built. Companies began moving away from the crowded, violent city into the suburbs. Massive factories could be built on large swathes of untouched land. Wealthier Detroit citizens, mostly white, began moving their families out to greener, open areas. In 1956, the last streetcar ran in Detroit, and the city officially became dependent on cars to navigate the approximately 150 square mile city.[23]

In 1967, the largest race riot in Detroit's history, the Twelfth Street Riot occurred. 43 people were killed, 467 injured and 7,200 people were arrested.[24] This event accelerated the white flight to the suburbs.[25] By 1970, the population of Detroit had dropped from 2 to 1.5 million.[26] In 1974, Coleman Young was elected as the first black mayor of Detroit. In an attempt to revitalize downtown Detroit in the 1970s, the iconic Renaissance Building and Hart Plaza were built on the riverfront.[27] Unfortunately, Detroit's population continued to drop down to 1.2 million in 1980.[28] By the time Coleman Young left office in 1994, the city was in financial turmoil due to the significant population loss and vacancy. Mayor Dennis

[19] Austin, historicdetroit.org
[20] Austin, historicdetroit.org
[21] Detroit's Belle Isle, 84
[22] The Detroit Almanac, historydetroit.com
[23] Rodriguez, 110
[24] Weber
[25] Detroit's Belle Isle, 91
[26] The Detroit Almanac, historydetroit.com
[27] Weber
[28] The Detroit Almanac, historydetroit.com

Archer was elected in 1994 and managed to increase Detroit's credit rating before leaving office. Unfortunately, the corrupt Kwame Kilpatrick replaced him.[29]

When Mayor Kilpatrick entered office, the population of Detroit had shrunk to under 1 million people for the first time in 80 years. Six years later, Kilpatrick plead guilty to obstruction of justice charges and leaves office. Concurrently, two major car companies, GM and Chrysler, received bailouts from the U.S. government, and filed for bankruptcy one year later. By 2011, Detroit's population fell to approximately 700,000. With its total debt exceeding $18.5 billion in 2013, the city of Detroit became the largest city in America to file for bankruptcy. The city hired an emergency manager, Kevin Orr, to deal with the financial crisis. He is expected to depart in 2014 with a plan in place for Detroit's financial resurgence.[30] This very well may be the beginning of a new Detroit. Like the city motto coined in 1827, "We hope for better days; it shall rise from the ashes."

b. Detroit Diagrams

Figure 10 Detroit Figure Ground, downtown and Belle Isle, 2014 (Author)

[29] Weber
[30] Weber

Figure 11 Detroit, major roads. Red: highways, Green: primary roads, Purple: secondary roads

Figure 12 Distances between Detroit Boat Club site, music venues (orange) and boathouses (blue)

iv. Site Analysis: Belle Isle

a. History of Belle Isle

Belle Isle: Changing Hands

When Fort Pontchartrain was founded in 1704, Belle Isle was named Wahnabezee (Swan) Island by the Ottawa and Chippewa natives and Isle aux Cochons (Hog Island) by the French. When the British took over Detroit, Chief Pontiac's men rebelled, killing all three British families residing on Wahnabezee Island. The soul survivor of the attack, George McDougall, purchased the island in 1768 for British military training purposes. In 1793, William Macomb purchased Hog Island.[31] It then switched hands again in 1817 when Barnabas Campau purchased the Island for $5,000. In 1845, the governor of Michigan, Lewis Cass, officially renamed the island "Belle Isle" after his daughter Isabelle.[32]

The Genius of the Place

Figure 13 View from Belle Isle, early 1900s (Wayne State)

[31] Detroit's Belle Isle, 12-13
[32] 2005 Belle Isle Masterplan, 8

Figure 14 Frederick Law Olmstead's Belle Isle Park plan (Wayne State)

In 1857, New York City's Central Park was completed.[33] At this time, cities were becoming heavily industrialized, crowded, noisy and dirty (Figure 13). People needed a natural oasis to breathe cleaner air and relax. At the time, many wealthier citizens of Detroit would escape to Grosse Pointe, an area just northeast of the city. It was a green, uncrowded vacation town at the time. However, the poorer working-class families could not afford this luxury.[34] Detroit wanted to create a place where people from all classes, backgrounds, ages and races could escape. In 1879, the city of Detroit purchased Belle Isle from Barnabas Campau for $200,000 for use as a public park for all.[35]

Two years later, the city commissioned the well-known landscape architect, Frederick Law Olmstead, whose resume included New York's Central Park and Boston's Emerald Necklace park system.[36] Olmstead approached his design (Figure 14) by allowing the "genius of the place" to determine the plan of the park.[37] He created a single Central Avenue that began on the island's southwest point at the site of the ferry dock. The street ran across the length of the island and ended at the natural-growth forest located on the northeastern end of the island. He felt that people would flock to the island to be surrounded

[33] Detroit's Belle Isle, 23
[34] Detroit's Belle Isle, 21
[35] Detroit's Belle Isle, 22
[36] fredericklawolmstead.com
[37] Detroit's Belle Isle, 25

by a natural landscape. He also proposed parade grounds on the southern side of the park. Not only did Olmstead design a plan for the park, he also suggested economic feasibility measures such as logging and ice-gathering to fund the park. Lastly, the island was extremely marshy. Olmstead suggested filling in all of the small lakes that had formed on the island to prevent disease. While Olmstead's design was more or less executed, the city was adamant about adding certain developments to the plan. Out of frustration, he quit the project. In 1882, the 985-acre Belle Isle Park opened to become the largest island park in the nation.[38]

The Park

After the park opened, Detroit moved quickly to make changes and additions to the island. In the late 1880s the Deer Park, later the Belle Isle Zoo, opened and the first casino restaurant was built. In 1889, a major addition to the park arrived: the first bridge connecting the city mainland to the island. This allowed easier access to the park and caused visitors to arrive in droves. It also spurred a series of developments on the island. In 1891, the Detroit Boat Club moved its location from the shores of the city to the shores of Belle Isle.[39] In the 1890s, the island proved too marshy to not have a significant drainage system. Lakes Takoma, Okonoka and Muskoday were dug out by hand and the canal system was created to provide drainage to the naturally marshy island.[40]

Around the same time, the Detroit Yacht Clubhouse was built as well as the first park police station, bathhouse and harbormaster station. At the turn of the century, the need for recreation and leisure, required by the demands of industry, was apparent. Within the span of five years, several new buildings were rapidly constructed on the island: the Belle Isle Horticulture Building, the Albert Kahn-designed Belle Isle Aquarium (Figure 15), the Athletic Pavilion along with baseball fields, tennis courts and a running track. Other

[38] Detroit's Belle Isle, 25
[39] 2005 Belle Isle Masterplan, 8
[40] Detroit's Belle Isle, 32

recreational additions to the area included Electric Park amusement park at the foot of the mainland side of the Belle Isle Bridge, another Albert Kahn building, the Belle Isle Casino (Figure 16), the Detroit Zoo and a new bathhouse.[41] A brand new annual speedboat racing event, the APBA Gold Cup races, was founded. The races today have transitioned into the very popular hydroplane race.[42]

Figure 15 Albert Kahn's Belle Isle Aquarium, 2014 (Author)

Figure 16 Albert Kahn's Belle Isle Casino, 2014 (Author)

In 1915, the first Belle Isle Bridge was destroyed by fire when a coal ship crashed into it. A temporary bridge was quickly built until the current bridge was constructed in 1923.

[41] 2005 Belle Isle Masterplan, 9-10
[42] Detroit's Belle Isle, 119

Originally named the George Washington Bridge, it later changed to the Douglas MacArthur Bridge in 1953. The bridge was 15 feet wider than the original and cost $3 million to build. This bridge widening allowed significantly more bus traffic into the park where, in the early 1900s, the first bus station was built. With the new bridge only having a 60-foot clearance, the shipping channel was shifted exclusively to the southern side of the island.[43]

In the 1920s, several new developments to the island were implemented. The current Detroit Yacht Club clubhouse was built on the northern tip of the island. The Detroit News Trail opened in 1924 through the naturally forested area on the eastern half of the island. The trail allowed Detroiters and their families to explore Michigan's natural landscape just minutes from the crowded city.[44] Belle Isle became a necessity for the health and well-being of the residents of Detroit. In 1936, a heat wave hit the city that killed many and sent thousands of Detroiters to sleep in the open air of Belle Isle. However, after the park was closed for military training purposes during WWII, Belle Isle slowly began its decent into decay.[45]

Towards Neglect

Once Belle Isle reopened after WWII, few additions to the island were made. Situated on a schooner, the Maritime Museum (later the Dossin Great Lakes Museum) was founded in 1949. The same year, the old skating pavilion on Lake Tacoma was replaced by a modernist Eero Saarinen structure, the Flynn Pavilion (Figure 17). In 1950, the Remick Band Shell (Figure 18), a state of the art outdoor music pavilion, was erected.[46]

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[43] Detroit's Belle Isle, 72-73
[44] Detroit's Belle Isle, 74
[45] Detroit's Belle Isle, 85
[46] Detroit's Belle Isle, 86-87

Figure 17 Flynn Pavilion, 2014 (Author)

Figure 18 Remick Band Shell, 2014 (Author)

Anna Scripps Whitcomb funded the restoration of the Belle Isle Horticulture Building and gave it her namesake.[47] However, all these additions and repairs were no match for the decaying city.

The troubles of Detroit were reflected in the park. In 1967, during the riots, the bathhouse was used as a makeshift detention center for the thousands of arrests made. The

[47] Detroit's Belle Isle, 88

structure was never used as a bathhouse again and was razed in 1970.[48] In the 1970s, when the American environmental movement was occurring, attempts to save Belle Isle Park were made. In 1972, the Huron Clinton Park Authority designed a plan to reinvigorate Belle Isle (Figure 20).

Figure 19 1972 Huron Cinton Park Belle Isle Masterplan, Detroit Boat Club circled in orange (2005 Belle Isle Masterplan)

This plan proposed an entry fee into the park to raise funds for its decaying infrastructure. Unfortunately, Detroiters opposed the plan because they felt the park was being taken away from the city. The victim mentality, the "us versus them" mentality ("us" meaning the Detroit city council and "them" meaning the state government and surrounding wealthier suburbs) of Detroiters perpetuated the city's decay. When the plan to reinvigorate the park failed, a non-profit, Friends of Belle Isle, was formed out of concern for the well being of the park. In 1975, Belle Isle saw the addition of a nature center on the eastern, more natural side of the island. In tandem with Olmstead's original plan for the park, this addition to Belle Isle was a clear attempt to draw Detroiters back to nature. Soon after the nature center was built, the first Belle Isle Masterplan, designed by Dan Kiley, was created (Figure 20). One of his major ideas was to completely pedestrianize the park. There was also a plan for water

[48] Detroit's Belle Isle, 91

transport around the island and to the mainland. In this plan, the Detroit Boat Club would have been a water taxi stop. Unfortunately, very few of his ideas were implemented, including the removal of cars.[49]

Figure 20 1976 Dan Kiley Belle Isle Masterplan, Detroit Boat Club circled in orange (2005 Belle Isle Masterplan)

During the more prosperous 1990s, several park renovations occurred. Scott Fountain on the western tip of the island, the Belle Isle Casino, and the water slide attraction were all renovated. Events such as hydroplane racing and the Grand Prix were moved to Belle Isle. All of these improvements were attempts to fix a park that had fallen into disrepair. Unfortunately, at the turn of the century, significant budget cuts closed Belle Isle's zoo, along with several "comfort stations," also known as restrooms. In 2005, a new, comprehensive Belle Isle Masterplan was created (Figure 21). The only idea for the Detroit Boat Club building was vague: the building will be adaptively reused (Figure 22). This plan was put in place until the city underwent significant budget improvements.[50] Several attempts were made in the past few years to turn Belle Isle into a Michigan State Park. Yet once again, city officials felt a gem of the city was being taken from them. It did not matter that portable

[49] 2005 Belle Isle Masterplan, 7
[50] 2005 Belle Isle Masterplan, 11

bathrooms had replaced comfort stations, or picnic tables were broken, or people could not

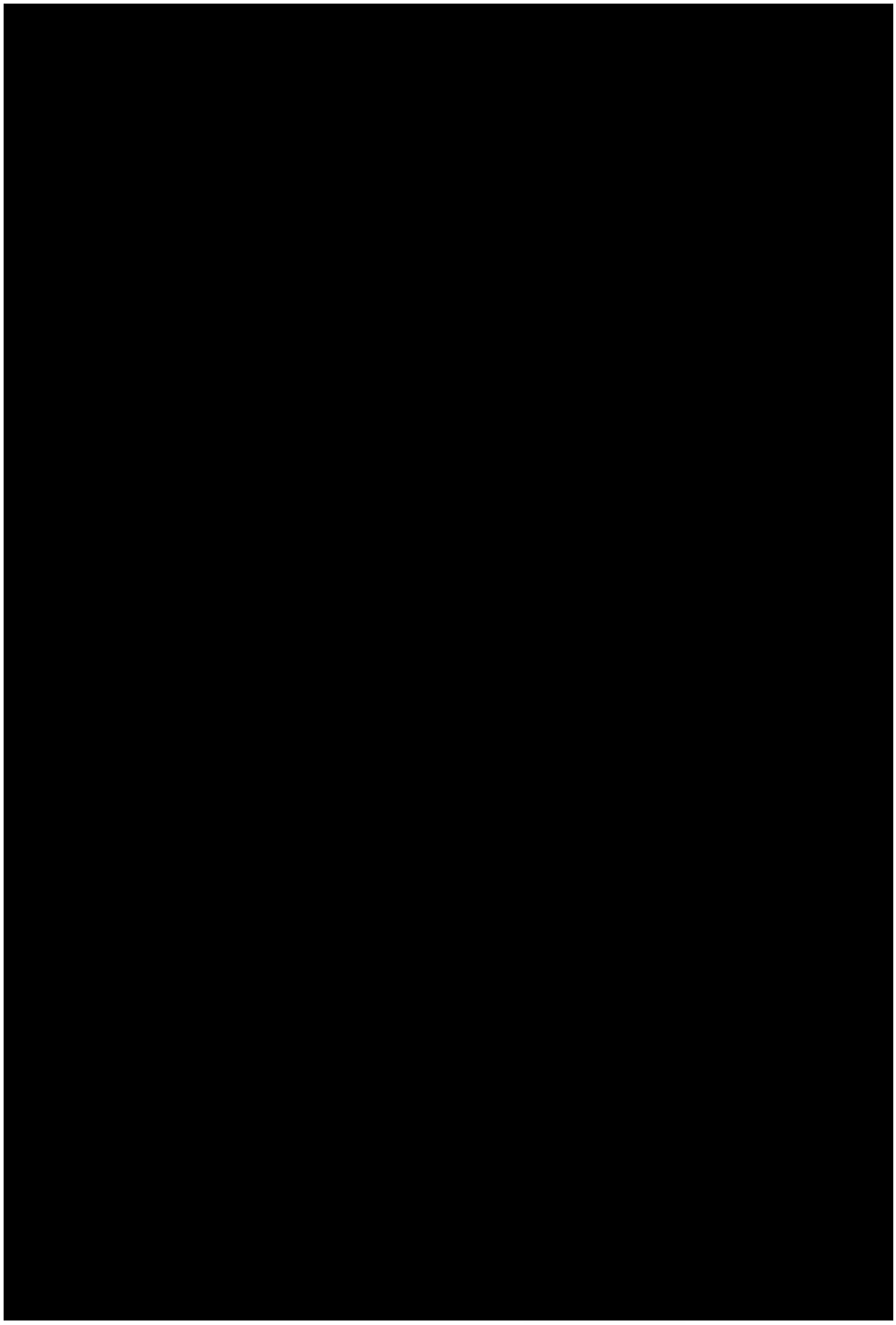

Figure 21 2005 Belle Isle Masterplan illustration (2005 Belle Isle Masterplan)

Figure 22 2005 Belle Isle Masterplan, detail; Detroit Boat Club is marked "F" (2005 Belle Isle Masterplan)

walk on the nature trails or canoe the canals because of fallen trees. The small city budget allotted for Belle Isle paid for building renovations and nothing more.

When Detroit filed for bankruptcy in 2013, Detroit had no choice but to lease Belle Isle to the state. In February 2014, Belle Isle Park became a Michigan State Park. Currently, improvements such as clearing trails, picking up trash and re-opening comfort stations are quickly happening. The Belle Isle Masterplan is finally being implemented by the Michigan Department of Natural Resources.[51]

[51] Michigan Department of Natural Resources

v. Site Analysis: Detroit Boat Club

a. History of the Detroit Boat Club

A Fiery Past

Figure 23 Puike, Davis and Co., 1800s. First Detroit Boat Club boathouse at end of pier on right side of image. (Wayne State)

Figure 24 Second Detroit Boat Club boathousem 1800s (Friends of Detroit Rowing)

Figure 25 Third Detroit Boat Club boathouse, mid-1800s (Friends of Detroit Rowing)

The Detroit Boat Club was founded prior to any other boat club in America in 1839. The first boathouse was built on the Detroit River at the foot of Randolph Street (Figure 23). Eighteen years later, this first boathouse burned down. In 1858, a second boathouse (Figure 24) was built, this time at the foot of Joseph Campau Avenue. Unfortunately, this boathouse also caught fire and was destroyed, leaving the Detroit Boat Club to persevere and build a third structure (Figure 25) on the same site in 1873. Once the DBC's lease was up, the structure was purchased and floated 400 feet upstream.[52] By 1891, Belle Isle Park had recently opened and the Detroit Boat Club relocated to the island.

Figure 26 Fourth Detroit Boat Club boathouse, Belle Isle, late 1800s (Friends of Detroit Rowing)

[52] Clinton

Figure 27 Fifth Detroit Boat Club boathouse, Belle Isle, late 1800s (Friends of Detroit Rowing)

That same year, the Detroit Boat Club built its first Belle Isle boathouse (Figure 26) on the northwest side of the island. The large, wooden structure was situated on pilings in the Detroit River. A bridge was required to access the building. Unfortunately, this structure also burned down again in 1893, only to be replaced by a larger wooden structure (Figure 27) in 1894. This time, the boathouse had sweeping round terraces wrapping the main building. It remained on pilings in the Detroit River. Unfortunately, for the fourth time, this boathouse burned down in 1901. This led to club members to approach the sixth and final boathouse with fire safety in mind.[53]

Vibrancy

[53] Clinton

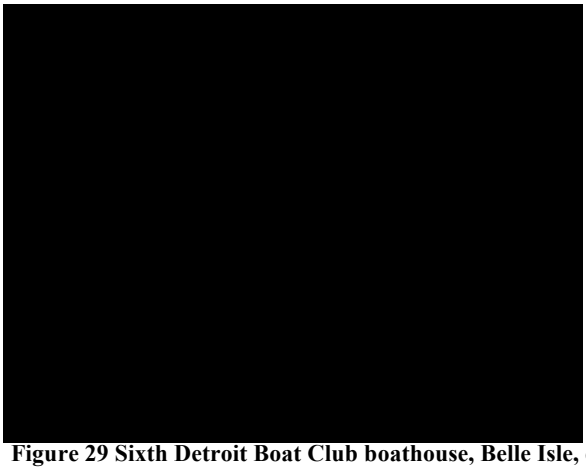

Figure 29 Sixth Detroit Boat Club boathouse, Belle Isle, early 1900s (Friends of Detroit Rowing)

During his travels abroad, designer Wirt C. Rowland (later, architect of Detroit's renowned Guardian Building) was inspired by the "gazletu" style homes of Spain's Basque country (Figure 28). He came back to Detroit with a Spanish colonial design for the new Detroit Boat Club boathouse (Figure 29). Architect Alpheus W. Chittenden finalized the design of one of the country's earliest reinforced concrete buildings. Brick and stucco were also used to ensure the permanence of the structure.[54]

This building, like the past two boathouses on Belle Isle, was situated in the Detroit River set on timber pilings. From the water, it appeared as a floating Spanish or Venetian palace. It was completely wrapped in open terraces allowing club members to enjoy the views of the city and the breezes from the river. On the ground floor, surrounding the building were boat bays. The water would come right up to the building, allowing easy access for rowers and boaters to move in and out of the boathouse.

As the Detroit Boat Club gained popularity and membership grew, several changes were made to the building. First, a significant addition was added between 1910 and 1915 to the eastern side of the building, destroying the wraparound porches. As time went on, land around the boathouse was filled in to make room for an Olympic-sized pool in 1926 where

[54] Searcy

Olympic swim trials were held just two years later. The total expansion of the property was 16 acres.[55]

Figure 30 Detroit Boat Club poolside with early 1900s addition on left, 1960s (Friends of Detroit Rowing)

Between the social aspects of the club and the recreational activities such as rowing, sailing, and swimming, the Detroit Boat Club was extremely vibrant (Figure 30). By the 1950s, the rowing team was as successful as ever. In 1956, seven DBC rowers competed in the Olympics, bringing home two silver medals. Unfortunately, echoing the fall of Detroit, the Detroit Boat Club's membership dwindled and rent was difficult to pay. In 1996, the social club left the boathouse. What remained was the determined rowing team.[56]

Vacancy

Figure 31 Detroit Boat Club South facade, 2014 (Author)

[55] Clinton
[56] Clinton

Figure 32 Detroit Boat Club North facade, frozen pool in foreground, 2014 (Author)

Currently, the Detroit Boat Club rowing team occupies a building that is decaying around them (Figure 31, Figure 32). The non-profit, Friends of Detroit Rowing was formed to spread the sport of rowing around the region, but most of their efforts and funds are poured into the upkeep and preservation of the historic structure.[57] While a few areas on the exterior are on the verge of collapse, the interior remains structurally sound.[58] The rowing team has slowly occupied many of the spaces previously limited to the social club. The indoor rowing machines, ergometers, are lined up like soldiers on the grand ballroom floor (Figure 33, Figure 34). The kitchen is now storing rowing and exercise equipment. The trophy room is now an area for yoga. Rowers strap on weight sleds and run around the second floor, the sleds sliding on the faded carpet. The terrace, once used for social events and gatherings (Figure 35, Figure 37), now sits unused and decaying. Unfortunately, the DBC and Friends of Detroit Rowing need a major intervention to keep the building alive. This thesis proposes a new, seventh version of the Detroit Boat Club.

[57] Platt
[58] Structural Study

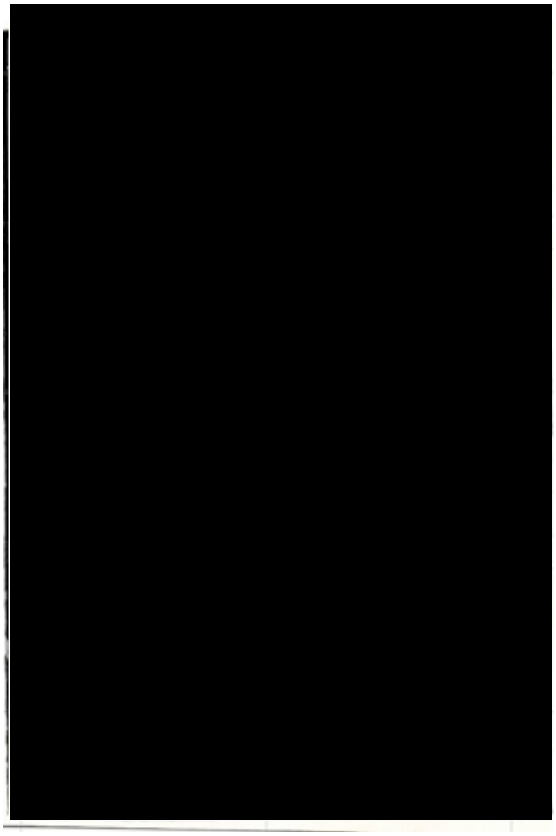

Figure 33 Detroit Boat Club ballroom, 1970s (Friends of Detroit Rowing)

Figure 34 Detroit Boat Club ballroom, 2014 (Author)

Figure 35 Detroit Boat Club northern ballroom terrace, 1905 (Friends of Detroit Rowing)

Figure 36 Detroit Boat Club northern ballroom terrace, 2014 (Author)

b. Orthographic Drawings

Figure 37 Alata Title Survey, Site Plan, 2012 (SmithGroup)

Figure 38 Detroit Boat Club, First Floor Plan, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 39 Detroit Boat Club, Second Floor Plan, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 40 Detroit Boat Club, Third Floor Plan, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 41 Detroit Boat Club, Roof Plan, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 42 Detroit Boat Club, Building Section A, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 43 Detroit Boat Club, Section B, Existing, 1997 (Hamilton Anderson Associates, Inc.)

Figure 44 Detroit Boat Club, Building Section C, Existing, 1997 (Hamilton Anderson Associates, Inc.)

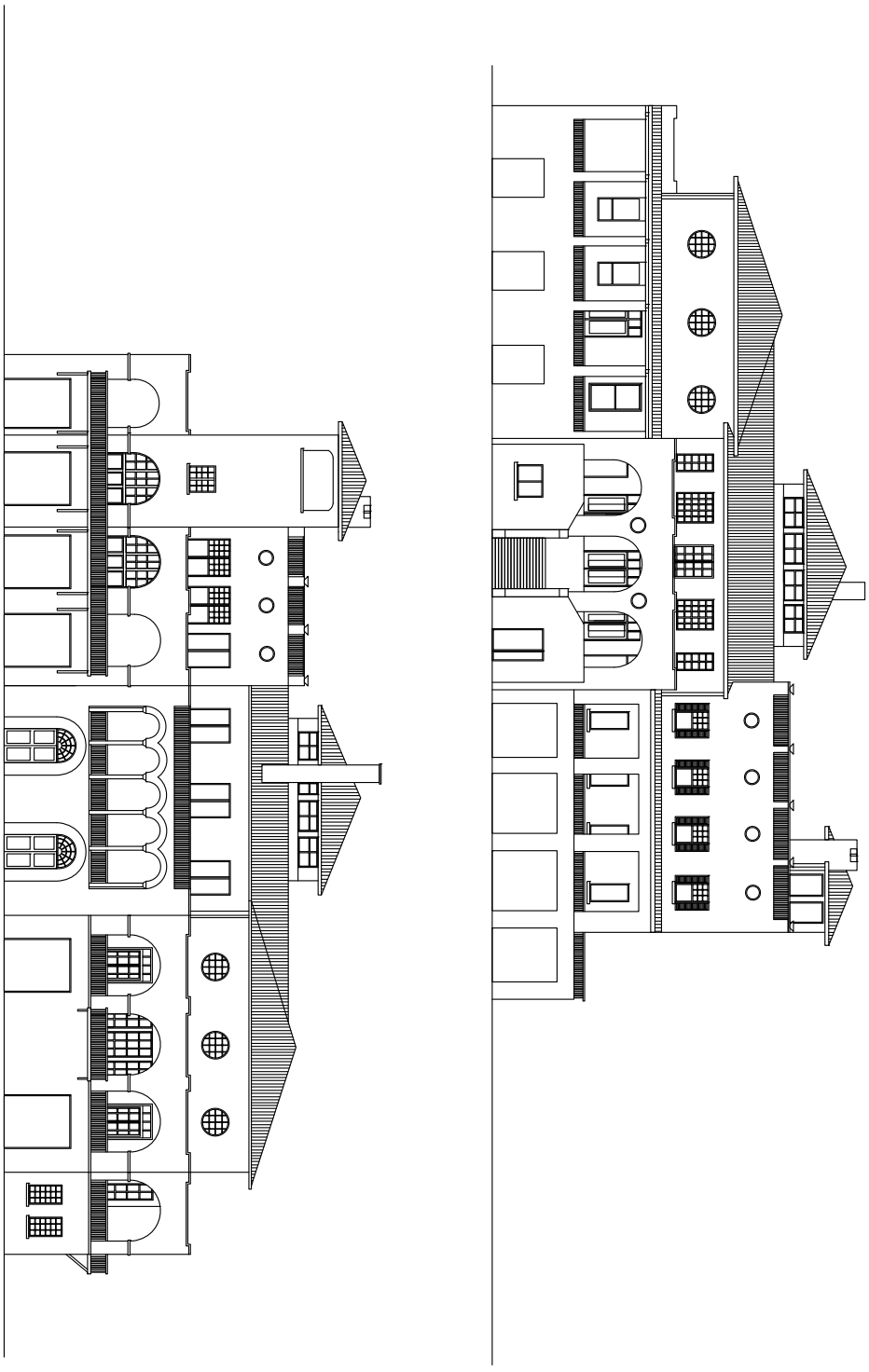

Figure 45 Detroit Boat Club, North and South Elevations, Original 1902 building, 2014 (Author)

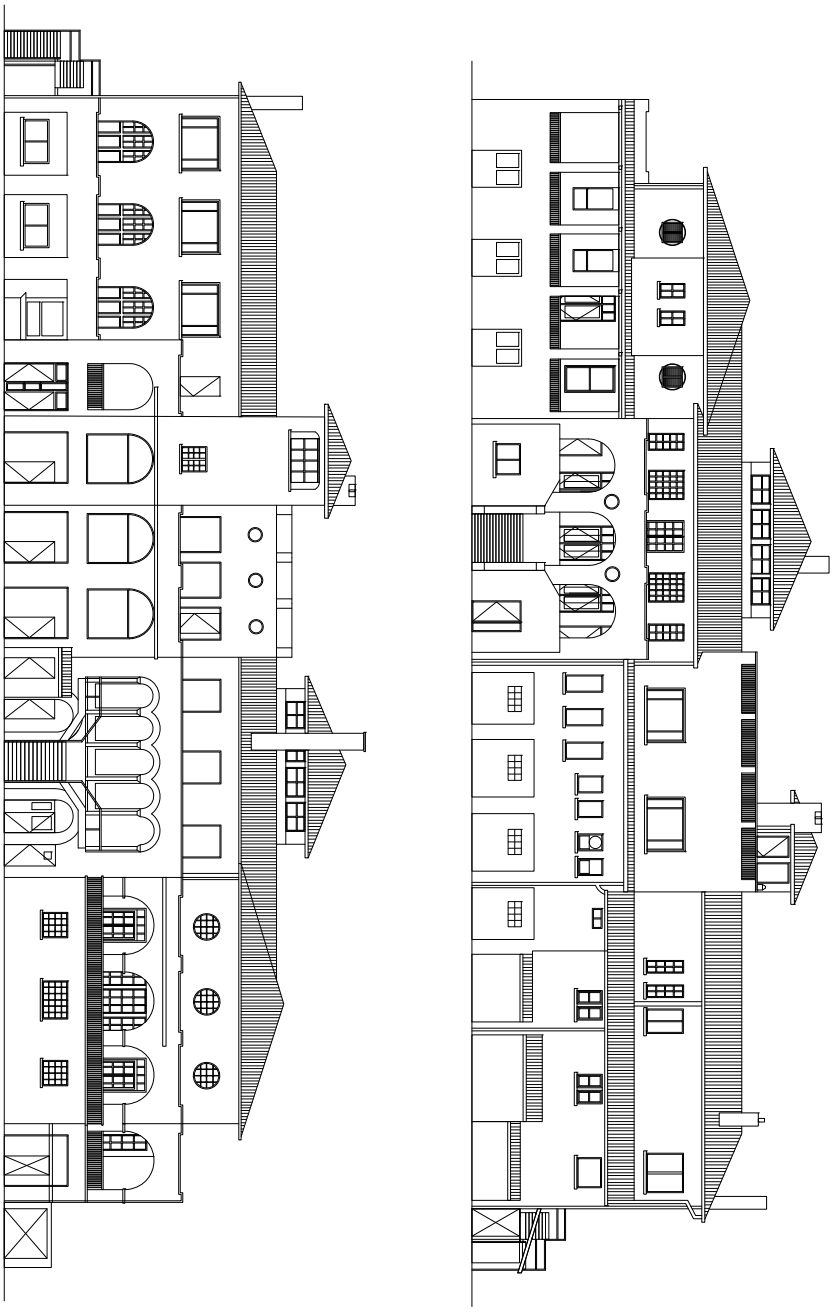

Figure 46 Detroit Boat Club, North and South Elevations, Existing, 2014 (Based on Hamilton Anderson Associates' 1997 drawings) (Author)

Figure 47 Detroit Boat Club, East and West Elevations, Existing, 1997 (Hamilton Anderson Associates, Inc.)

c. Diagrams: The Life of the Building

The following diagrams and images explain the changes in fabric to the original 1902 Detroit Boat Club building.

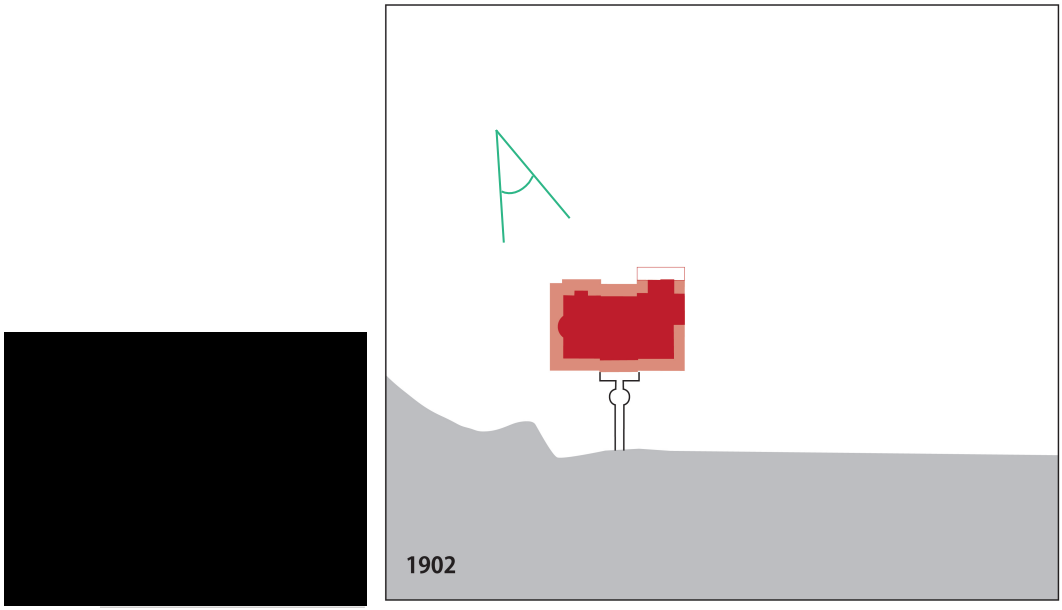

Figure 48 Indoor/Outdoor spaces in original 1902 building (Photo: Friends of Detroit Rowing, Diagram: Author)

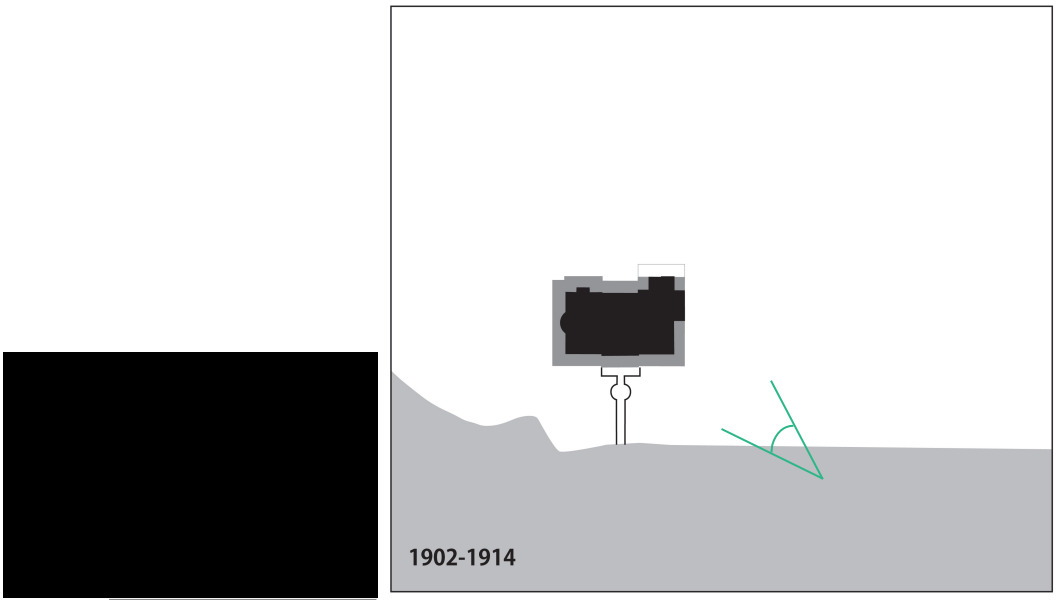

Figure 49 Indoor/Outdoor spaces 1902-1924; no major building changes occured during this period (Photo: Friends of Detroit Rowing, Diagram: Author)

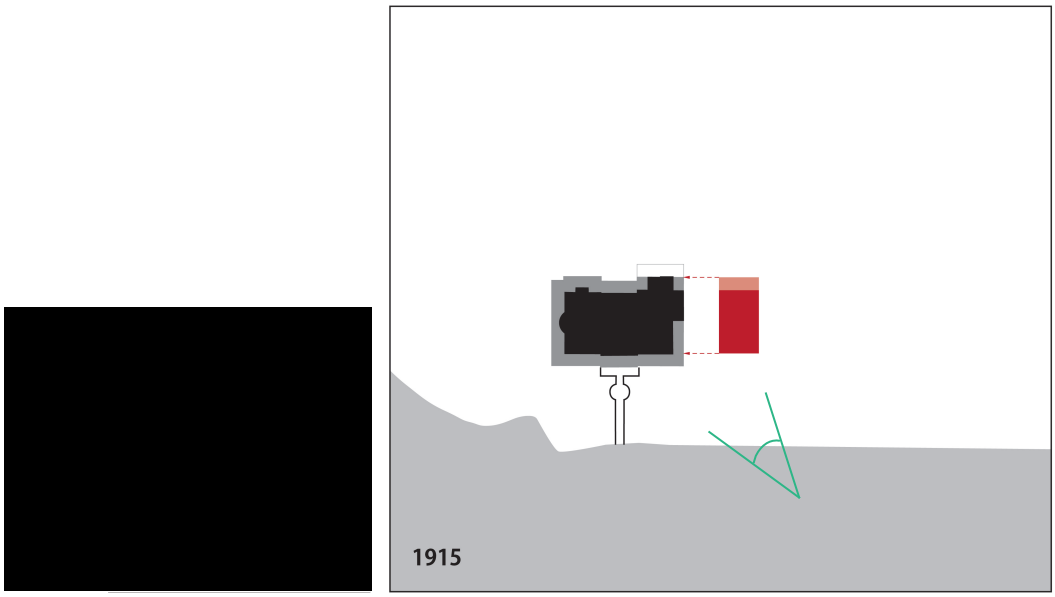

Figure 50 Indoor/Outdoor spaces 1915; addition added to east side of building (Photo: Friends of Detroit Rowing, Diagram: Author)

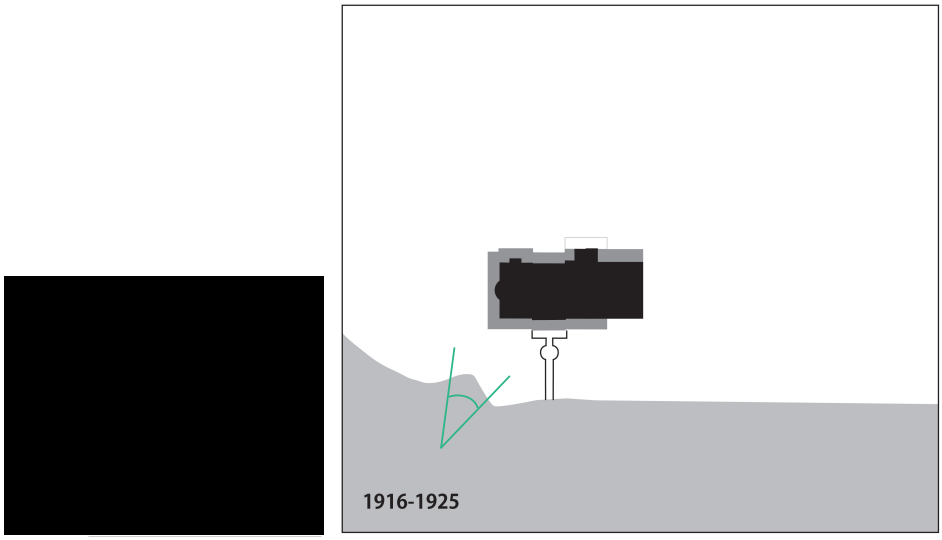

Figure 51 Indoor/Outdoor spaces 1916-1925; no major building changes happened during this period (Photo: Friends of Detroit Rowing, Diagram: Author)

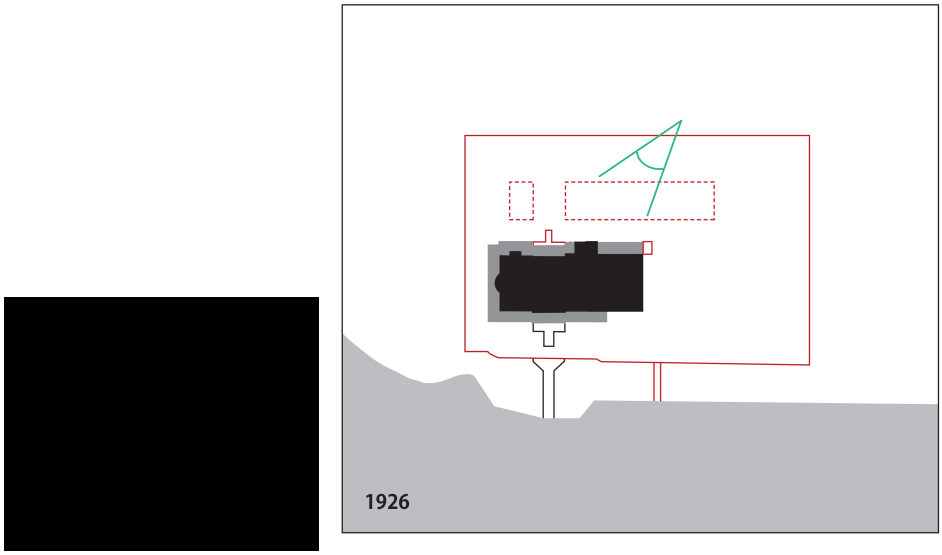

Figure 52 Indoor/Outdoor spaces 1926; deck surround and Olympic-sized pool added (Photo: Friends of Detroit Rowing, Diagram: Author)

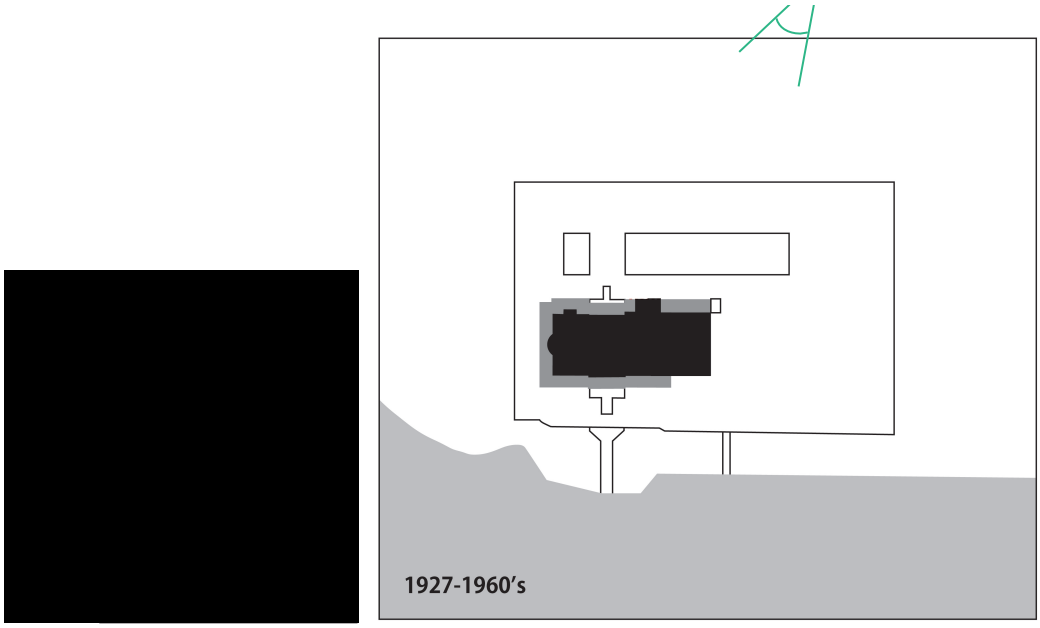

Figure 53 Indoor/Outdoor spaces 1927-1960s; no major building changes occured during this period (Photo: Friends of Detroit Rowing, Diagram: Author)

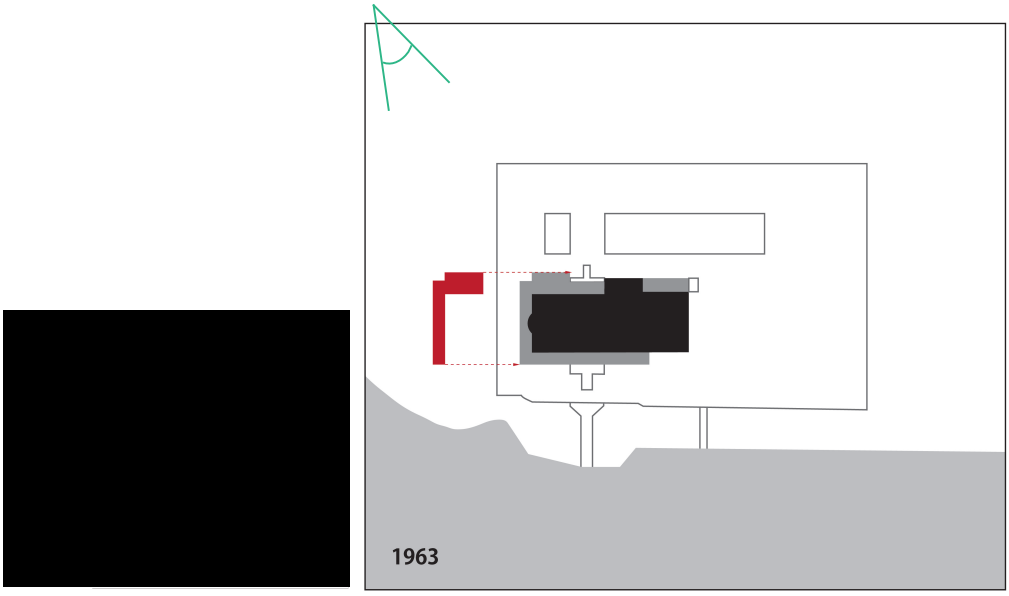

Figure 54 Indoor/Outdoor spaces 1963; portions of terrace enclosed for storage purposes (Photo: Friends of Detroit Rowing, Diagram: Author)

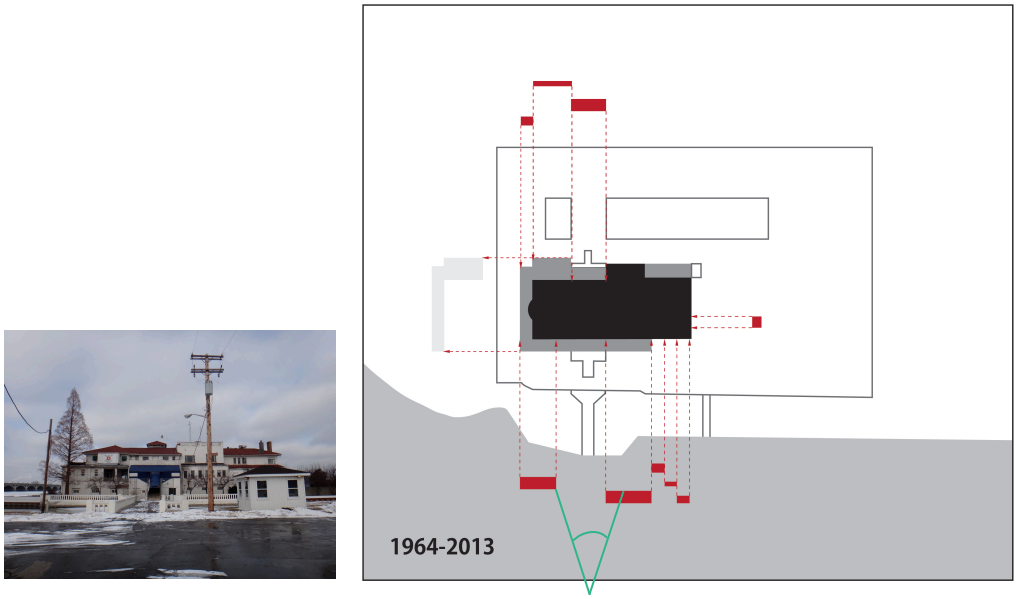

Figure 55 Inddor/Outdoor spaces 1964-2013; various portions of terrace enclosed and several new storage sheds added to exterior (Photo, Diagram: Author)

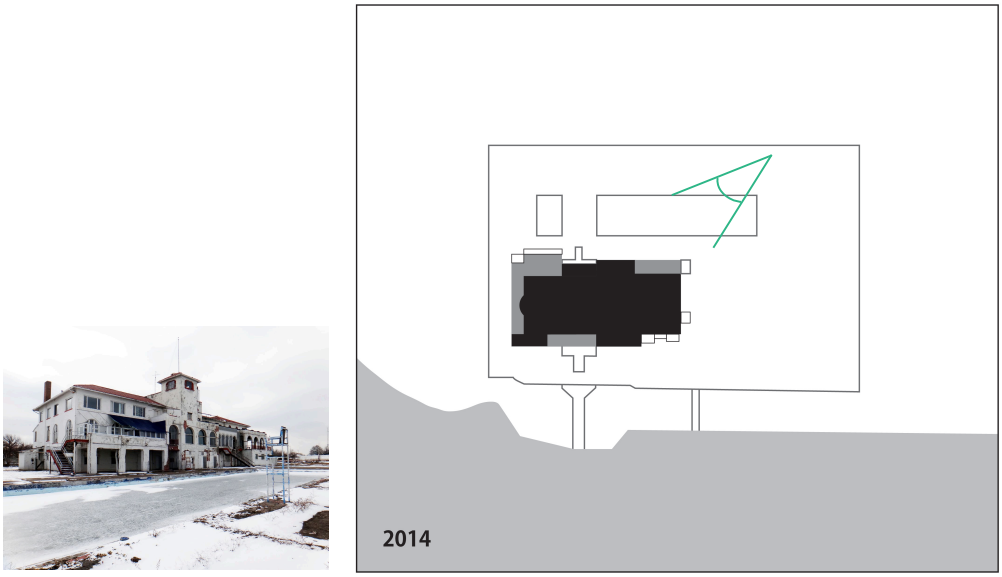

Figure 56 Indoor/Outdoor spaces 2014; current state of DBC (Photo, Diagram: Author)

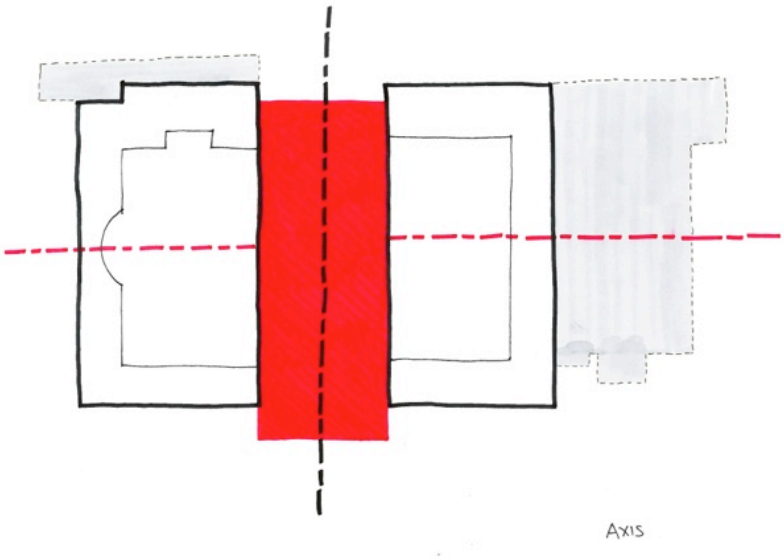

Figure 57 Axial relationships in original 1902 building (Author)

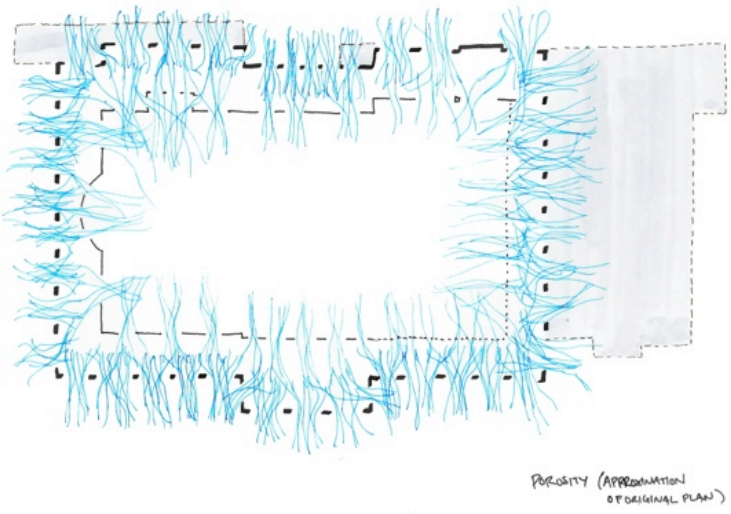

Figure 58 Porosity/flows in original 1902 building (Author)

II. A City of Innovation and Determination

i. Innovators of Detroit

Detroit continuously produces creative, motivated individuals who are determined to succeed. For example, the great auto industry would not have flourished without Henry Ford's implementation of the automobile assembly line into his Highland Park Plant. In architecture, many forward-thinking designs came out of Detroit. Alpheus Chittendon's Detroit Boat Club in 1902 was one of the first buildings to use a reinforced concrete system.[59] Modernist architects like Eero Saarinen and Minoru Yamasaki laid roots in Detroit.[60] Detroit's music history also boasts some very determined individuals such as Berry Gordy, (Figure 59) who founded Motown Records in 1959,[61] and Kevin Saunderson, founder of KMS Records in 1987, one of the top three most important electronic music labels today.[62] Currently in Detroit, there is an influx of small business incubators that guide entrepreneurs through the skills needed to start their businesses. These incubators also provide small office spaces for low rent. Such incubators include Techtown, founded in 2004 and Green Garage, an eco-

[59] Clinton
[60] Michigan Modern
[61] Posner
[62] KMS Records

centric small business incubator founded in 2011.[63] Detroit is known for producing hard-working, motivated individuals who are fearless when it comes to creating and making.

Figure 59 Berry Gordy in front of Motown's Hitsville U.S.A. offices and studios (Wayne State University)

ii. The Assembly Line and Taylorism

"Prototypes of the assembly line can be traced back to ancient times, but the immediate precursor of Ford's industrial technique was 19th-century meat-packing plants in Chicago and Cincinnati, where cows and hogs were slaughtered, dressed, and packed using overhead trolleys that took the meat from worker to worker.[64]" Henry Ford's adaptation of the assembly line into the automotive realm remains an icon of 21st century capitalism. Rather than the factory workers moving to each vehicle, the cars were brought to the workers (Figure 60).[65]

[63] Green Garage
[64] history.com
[65] River Rouge Plant Tour

Figure 60 Early 20th century automotive assembly plant (The Henry Ford)

The assembly line allowed for significant improvements in efficiency. Prior to retooling Ford's factories, it took 12.5 man-hours to assemble one Model T. The price of the car was $850,[66] equivalent to approximately $20,000 in today's dollars. Once the assembly line was in place, it cut assembly time in half to only 6 man-hours per car. This also allowed Ford to reduce the price to $360,[67] equivalent to approximately $8,600 in today's dollars. This time was cut down to 93 minutes per car assembly within a year after the plant opened, and later, down to 24 seconds per car. The Model T's affordable price gave it the nickname "car for the people."[68]

Another significant influence on Henry Ford was Frederick Taylor's studies in improved efficiency and management in the industrial workplace. Coined "Taylorism," Frederick Taylor performed well-documented time-motion studies in order to eliminate all unnecessary movements of workers in an assembly line and other laborious acts such as shoveling (Figure 61).

[66] Kostof, 104
[67] Kostof, 104
[68] Kostof, 104

Figure 61 "The Art and Science of Shovelling," part of Frederick Taylor's demonstration of the optimal shovel load of 21.5 pounds (America by Design)

"He broke each job down into its individual motions, analyzed these to determine which were essential, and timed the workers with a stopwatch. With unnecessary motion eliminated, the worker, following a machinelike routine, became far more productive."[69] However, humans are not meant to function as machines. These monotonous, repetitive factory jobs led to high numbers of turnover in factories. To reduce worker attrition and increase efficiency in the factories and increase the number of worker shifts from 2 to 3 shifts per day Henry Ford increased worker's pay to an unprecedented $5 per day and created the 8 hour per day work week. These changes are often seen to many as merely a gesture of goodwill, but were actually driven by the idea that if workers are treated well and are happy, the company will thrive financially.[70] These theories in mutualism were also driven by Frederick Taylor's studies. He created the idea of a "Scientific Management System" where it was imperative for management to instill in workers the idea that everyone is working together towards a greater goal of the company as a whole. Workers were motivated by higher pay and the potential to move up to management positions.[71] These changes in management, working conditions, and

[69] Taylorism, Encyclopedia Brittanica
[70] corporate.ford.com
[71] Kostof, 104

pay subsequently created the Middle Class.[72] Workers now had enough money to support their families, by homes and cars and essentially achieved "The American Dream." This also meant that many Americans had more time and money to enjoy leisurely activities such as sports and music.

iii. Motown, the Hit Factory

The "Great Migration," mentioned previously, brought many African Americans and their musical influences to Detroit. Many of them were seeking factory work, especially after hearing about Henry Ford's $5 per day wages.[73] Two prominent African American musicians who moved from the South to Detroit were inspired by the efficiency and monotony of assembly line work. The first was Hank Ballard, a member of an early Detroit music group The Royals. "At the Ford plant where he worked, Hank would sing the harmonies of popular songs to the rhythm of the assembly line."[74] The other musician was young Berry Gordy, who would later establish Motown Records. He also found assembly line work to be so monotonous, he would write songs in his head to the rhythms of the machinery.[75] It provided a beat for his melodies. This experience on the line confirmed Gordy's desire to be a songwriter.[76]

Gordy was not only inspired by the assembly line's rhythm, but also by the efficient business model it provided. "The popular appeal, the variety of products, the rapid output of quality cars, the constant planning and adjustments for changing trends and popular taste, the efficiency of assembly lines, and the benefit of a quality-control board were all valuable

[72] corporate.ford.com
[73] Carson,1
[74] Carson, 8
[75] Motown Museum Tour
[76] Brand New Beat, 66

lessons to Gordy."[77] He ran Motown like an American car company. Gordy established a vertical integration system where everything was done in-house. Motown wrote, recorded, produced and distributed the records out of their small office in Detroit. Gordy set up an Artist Development sector where singers would learn how to dress and act like stars. Talented, young, naïve hopefuls would come into Motown's doors and come out superstars. For example, the glamorous, successful Supremes (Figure) were merely four young girls who sang in a group called the Primettes (Figure 62), before entering the doors of Hitsville USA.

Figure 62 The Supremes, 1964 (Michael Ochs Archives)

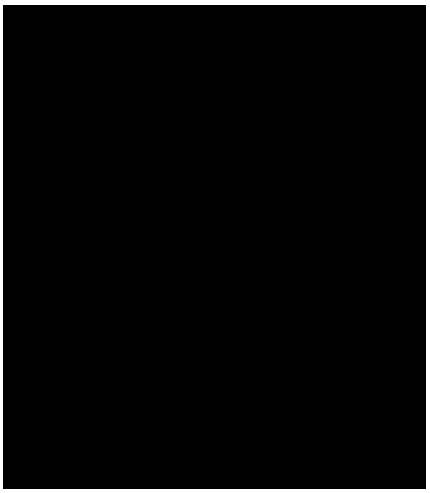

Figure 63 The Primettes, 1958 (The Motown Museum, Detroit)

[77] Brand New Beat, 66

Berry Gordy even took an assembly line approach to producing hit after hit song. "When a song proved successful, the songwriters often cannibalized it, taking sections and reshuffling them for a follow-up hit with similar sound."[78] There was was a somewhat formulaic approach to writing Motown's hit songs. "There were also elements that Gordy later set as rules for many Motown songs – putting the lyrics in the present tense and having an easy-to-remember melody that created a sense of déjà vu when people heard it. He also utilized a new format for groups, with the lead singer working against the background singers rather than with the ensemble. There was a constant shifting between sections of the song, sometimes with the background singers coming in behind the verse and other times the lead singer and group combining on the chorus. And the chorus usually had an exaggerated importance. Hand claps, heavy drums, and often-repeated choruses helped make the songs memorable. Most had several hooks, either in the lyrics, chorus, melody, rhythm sections, or background vocals. It was the similarity between the songs that gave the label a unique sound. [It was later dubbed] the Motown Sound."[79]

[78] Posner, 122
[79] Posner, 52

III. Programmatic Exploration

i. The Detroit Boat Club: A Music Venue?

Ever since the social club vacated the Detroit Boat Club boathouse, several possibilities have been proposed to alter its program:

- Conference Center and Restaurant (2005 Belle Isle Master Plan)[80]
- Wedding/Special Event Venue (Friends of Detroit Rowing)[81]
- Boutique Hotel (Chinese investor)[82]
- State Park Welcome Center (Community members)

The first suggestion, a conference center and restaurant, is rather safe. There are plenty of conference centers on the mainland with plenty of hotel accommodations nearby. What would make this this particular conference center unique besides its beautiful location? There is also a restaurant included in this proposal. In the past, the Belle Isle Casino served as a restaurant; however, it was unsuccessful due to a lack of patrons and the idea was eventually abandoned.[83] The Belle Isle Casino today serves as event rental space. When there is a city full of award-winning restaurants, there is little draw to journey to Belle Isle to eat. The

[80] 2005 Belle Isle Masterplan, 60
[81] FODR Five-Year Business Plan
[82] Welch
[83] Detroit's Belle Isle

preferred dining experience on the island is either picnicking, or eating takeout in a parked car while viewing the city from afar.[84]

The next suggestion is a Wedding/Special Event venue. There is a kitchen located in the boat club that could be used for catering, and the location on the water is stunning. However, there are already three beautiful venues for weddings on the island: the Detroit Yacht Club, the Belle Isle Casino, and the Anna Scripps Whitcomb Conservatory.[85] The Detroit Boat Club needs a more unique program to become economically viable.

Plans for a boutique hotel have been suggested and advertised by a Chinese developer.[86] While there is a lack of overnight accommodations on the island, an expensive boutique hotel negates the idea that Belle Isle Park is a place for everyone, regardless of race, financial status or age.

The next programmatic suggestion is a welcome center for the newly formed Michigan State Park: Belle Isle Park. The location at the foot of the Belle Isle Bridge would be ideal for visitors coming into the park. However, it has recently been announced that the historic police station[87] on the island will be transformed into a welcome center. Therefore, this idea is no longer relevant.

Music Venue

In 2009, Brooklyn hosted a concert on the Williamsburg Waterfront where the backdrop of the stage was the Manhattan skyline (Figure 63).

[84] Susan Kopf, interview 2014
[85] Belle Isle Conservancy
[86] Welch
[87] Beshouri

Figure 63 McCarren Park Pool Party, Brooklyn, 2009 (Author)


Figure 64 DBC view from northern terrace, 2014 (Author)


Figure 65 View toward downtown Detroit from DBC roof, 2014 (Author)

This was a part of the McCarren Park Pool Party concert series. While Detroit's skyline is not as vibrant as Manhattan's, the position of the Detroit Boat Club on the Detroit River and its proximity to downtown would offer concert-goers an escape from the city (Figure 64, Figure 65).

Belle Isle's Music History

The historical as well as present significance of music in Detroit is phenomenal. Jazz, Motown, Rock and Roll, Hip Hop, Rap, Electronic music: these are all major genres that either were born in or developed in Detroit. There is no doubt Detroit musicians had a profound effect on the global music industry.[88] Another recent musical addition to the city is the Detroit Institute of Music Education (DIME) opening in 2014. This school provides opportunities for musicians to earn degrees in music as well as provides performance spaces throughout the city for their students and other acts.[89]

There has also been a significant history of music on Belle Isle. Since the opening of the park in 1883, there has been several outdoor music events including Detroit Symphony Orchestra concerts (Figure 66), band concerts (Figure 67), concerts at the mid-century Remick bandshell (Figure 68),[90] and, more recently, the Orion Music Festival (Figure 69).

[88] Motown Museum Tour
[89] Walsh
[90] Detroit's Belle Isle

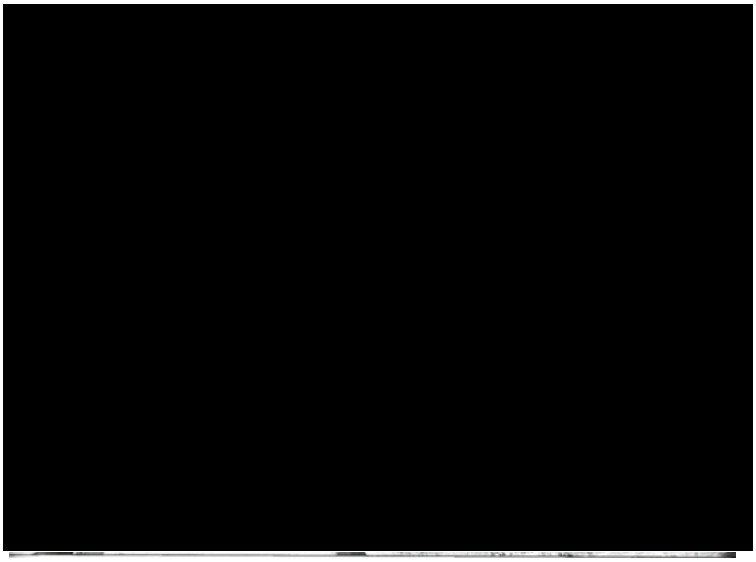

Figure 66 Detroit Symphony Orchestra concert, Belle Isle, late 1800s (Wayne State)

Figure 67 Band Concert, Belle Isle, 1936 (Wayne State)

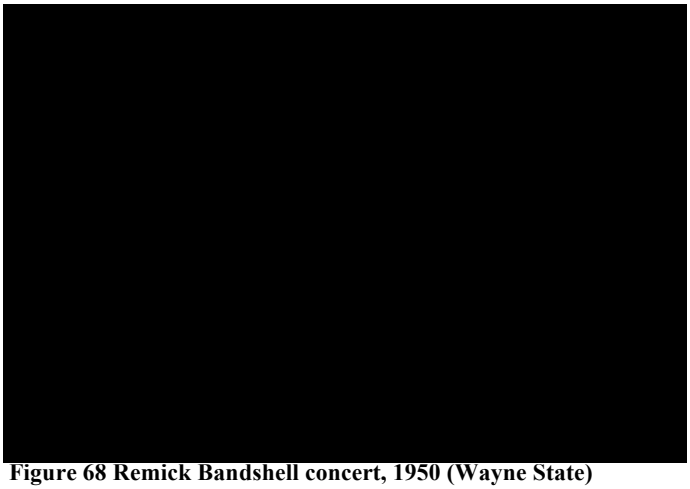

Figure 68 Remick Bandshell concert, 1950 (Wayne State)

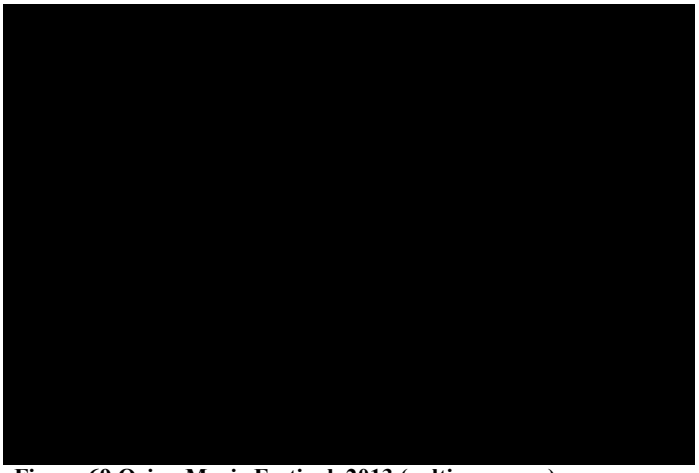

Figure 69 Orion Music Festival, 2013 (cultivora.com)

An indoor/outdoor music venue, combined with a related but separate rowing facility would be a fantastic addition to Belle Isle Park. Benefits would include year-round concerts and a destination that would bring more people into the park. People may not venture to Belle Isle for a restaurant, but if a favorite band is playing, there is no doubt that fans will flock to the island to watch.

ii. Dynamism

Visual Comparison

Music and rowing are two seemingly different program activities have a few things in common: rhythm, composition and time. Figure 70 shows the rowing stroke broken down into its singular elements: movement of the torso, arms, hands, legs, oar and blade. Together, these six different movements are composed as a single rowing stroke.[91]

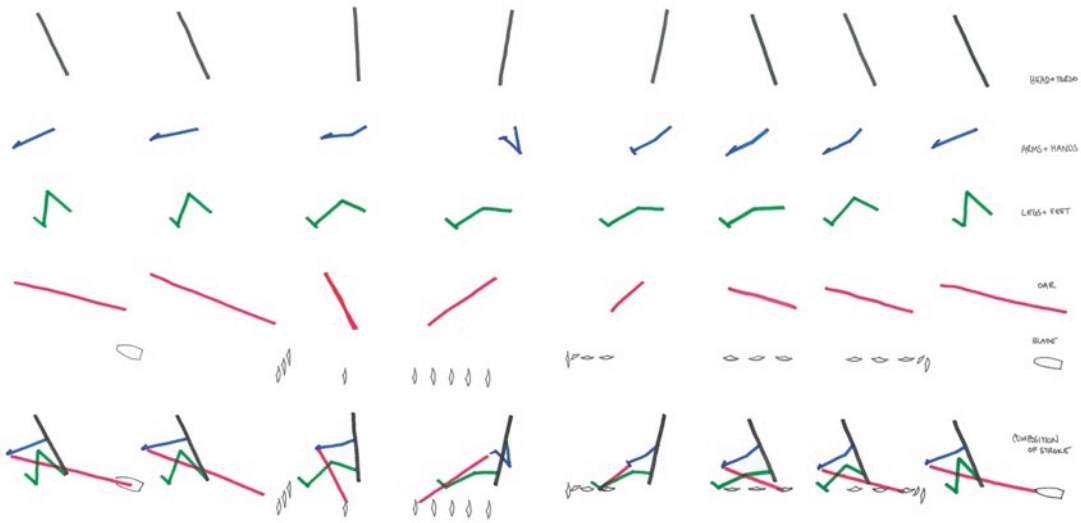

Figure 70 Rowing stroke broken down into singular elements; full stroke compostion at bottom (Author)

Another method of analyzing rowing is through the waves made by the ebb and flow of the rhythmic rowing stroke. The following uses a computer program called ROWING that measures all different variables within the rowing stroke.[92] In the following diagram (Figure 71), the orange wave on top is the shell (rowing boat) speed and the bottom blue line is the speed of the rower. During a rowing stroke, a rower sits on a sliding seat and quickly accelerates through the stroke but comes back up the slide much more slowly on the recovery. The rowing shell lags behind the rower in speed due to the momentum of the rowers moving up the slide in the opposite direction of the forward motion of the boat.

[91] mcshane.org
[92] atkinsopht.com

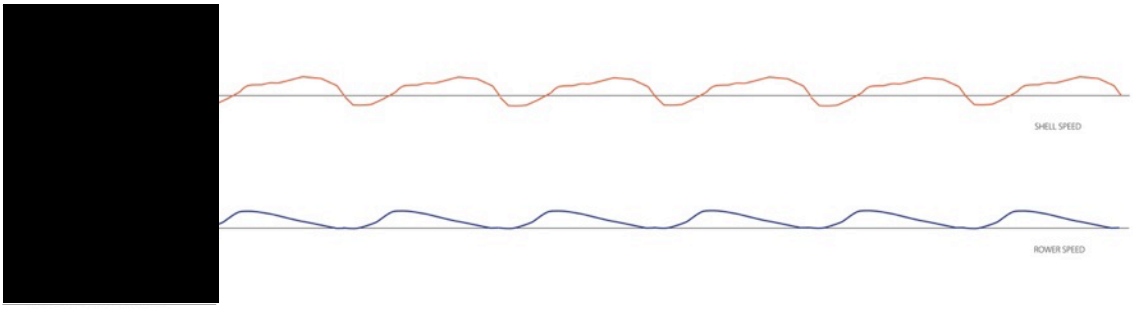

Figure 71 Rowing shell speed (top), rower speed (bottom), the straight lines represent the average speed, not the zero mark. (Graphs: Atkinsopht, Graphic: Author)

Music can also be studied in a similar manner since a music composition is composed of several parts. An orchestra has many different instruments, whereas a band may have a bass, drums, guitar and vocals. Several songs by Detroit artists of different genres were studied, including, "Motor City is Burning by MC5," "Seven Nation Army" by The White Stripes, "You Really Got a Hold on Me" by Smokey Robinson and the Miracles, "My Girl" by The Temptations, and "Afternoon in Paris," a jazz piece by Tommy Flanagan. Each song was listened to and each part, whether it was drums, vocals or guitar, was pulled apart and represented rhythmically/diagramatically. The following is a study of My Girl (Figure 72).

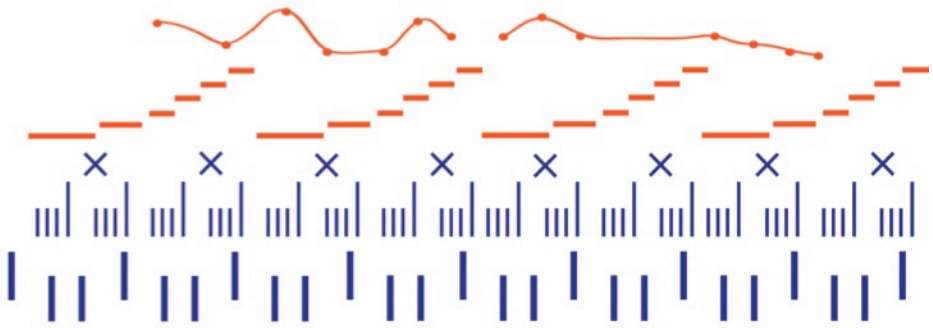

Figure 72 Rhythmic representation of My Girl, by the Temptations (Author)

Another way to break down a song visually is through digital sound visualization software such as Sonic Visualizer[93] The following is a screenshot using the Sonic Visualizer program to create a digital representation of Martha and the Vandellas' "Dancing in the Streets" (Figure 73).

Figure 73 Dancing in the Streets by Martha and the Vandellas, Sonic Visualizer (Author)

Architecture can be viewed in a similar way. A building requires essential elements to provide functionality, safety and space for program.

iv. Programmatic Relationship

A diagram of a performance space in the Time Saver Standards[94] book (Figure 74) included the front of house, the performance space (the house) and back of house with actor's prep. This same arrangement can be likened to a sporting event/rowing regatta. The performance in rowing is the race. Typically this is the boat launch area where the finish line is located and spectators are stationed. The front of the house is where the visitors enter, and where the offices and the concessions are held. The back of the house is the "athlete's prep:" the training area and locker rooms.

[93] sonicvisualizer.org
[94] Time Saver Standards, Performance space

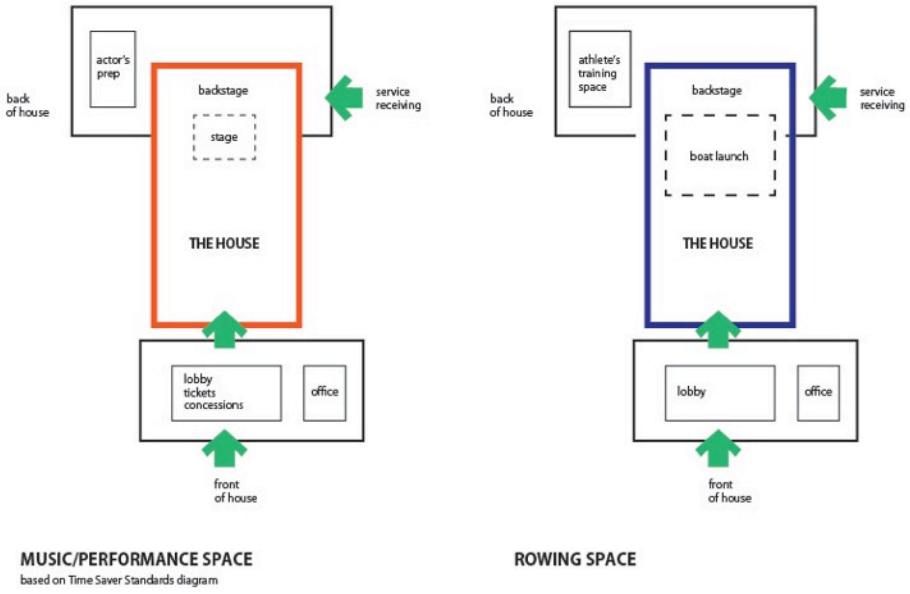

Figure 74 Redrawn Time Saver Standards diagram of performance space in orange and an adapted rowing space in blue (Author)

v. Music and Rowing

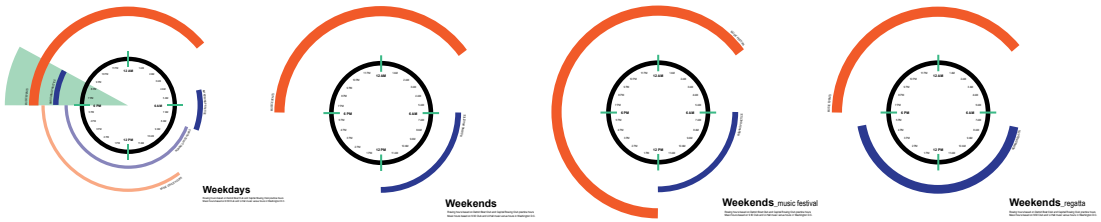

Figure 75 24-hour schedule of music activities (orange) and rowing activities (blue) (Author)

The rowing practice schedules of the Detroit Boat Club[95] and Capital Rowing Club[96] in Washington D.C., as well as event schedules for D.C.'s 9:30 Club[97] and U Street Music

[95] Detroit Boat Club
[96] Capital Rowing Club
[97] 9:30 Club

Hall[98], are represented in 24-hour clocks representing possible scheduling options (Figure 75). During the weekdays, evening rowing practices would occur at the same time as some music performances, but during morning practice, rowers would have the space to themselves. Rowing office hours include any sort of recruiting, outreach and fundraising for the DBC and Friends of Detroit Rowing. Music office hours include event planning, scheduling, studio recording and any other daytime musical activities. However, during the weekends, rowing activity remains in the earlier part of the day while music events are in the early to late evening. This would allow ample opportunity for the two programs to share the space. For example, if there was an all-day rowing regatta, music events would be scheduled for the evening only. If there was a music festival, rowing events would be limited to the early hours.

Ultimately, like many activities in the summer, rowing and music events occur outside on the site, while in the winter, activities are pulled indoors. In winter, rowers would head indoors to train on ergometers and indoor rowing tanks, while music concerts would be held in an indoor venue. There is a push and pull, in and out, breathing that this indoor/outdoor cycle creates. It allows for some potentially dynamic programmatic overlap between the two programs. (However, winter does propose an issue for space when rowing and music is occurring in the same place. At some point, it will be necessary to add square-footage to the site for outdoor stages, rowing tanks, and shell storage.)

vi. Program Elements

Rowing Program

- **Rowing Tank Room**, 2730 sq. ft. (based on WMS Boathouse, Chicago)
- **Shell Storage**, 6950 sq. ft. (based on WMS Boathouse, Chicago)

[98] U Street Music Hall

- **Weight Room**, 2160 sq. ft.
- **Rowing Offices,** 2 x 48 sq. ft.
- **Rowing Offices,** 2 x 60 sq. ft.

Music Program

- **Music Equipment Storage**, 1500 sq. ft.
- **Music Offices**, 3 x 48 sq. ft.
- **Music Offices**, 3 x 60 sq. ft.
- **Recording Studio**, 300 sq. ft.
- **Control Room**, 100 sq. ft.

Shared Spaces

- **Erg Room/Multipurpose Room**, 2416 sq. ft. (based on WMS Boathouse, Chicago)
- **Men's Locker/Dressing Room**, 850 sq. ft. (based on 25 people)
- **Women's Locker/Dressing Room**, 850 sq. ft. (based on 25 people)
- **Conference Room**, 200 sq. ft.
- **IT Room**, 300 sq. ft.
- **Multipurpose Room**, 2 x 600 sq. ft.

The program also includes the existing ballroom (2300 sq. ft.) as indoor event space, and the river as outdoor event space. The latter is very fluid in terms of required square footage. The loggia surrounding the building and the upper terraces double as circulation and areas for outdoor event audiences.

vii. Program Options

The following diagrams are an exploration of relationships between the rowing and music programs.

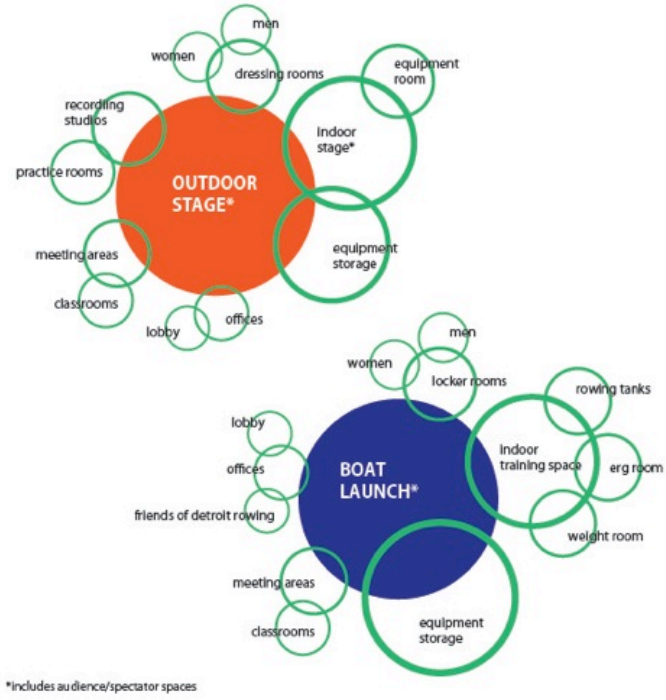

Figure 76 Program Option 1, Separation (Author)

Figure 77 Program Option 1, Separation applied to site (Author)

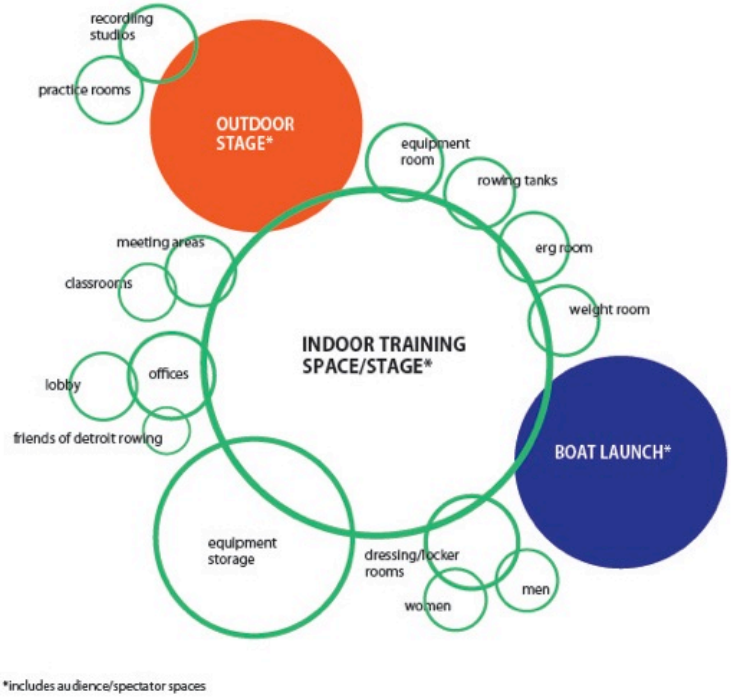

Figure 78 Program Option 2, Shared interior spaces (Author)

Figure 79 Program Option 2, Shared interior spaces applied to site (Author)

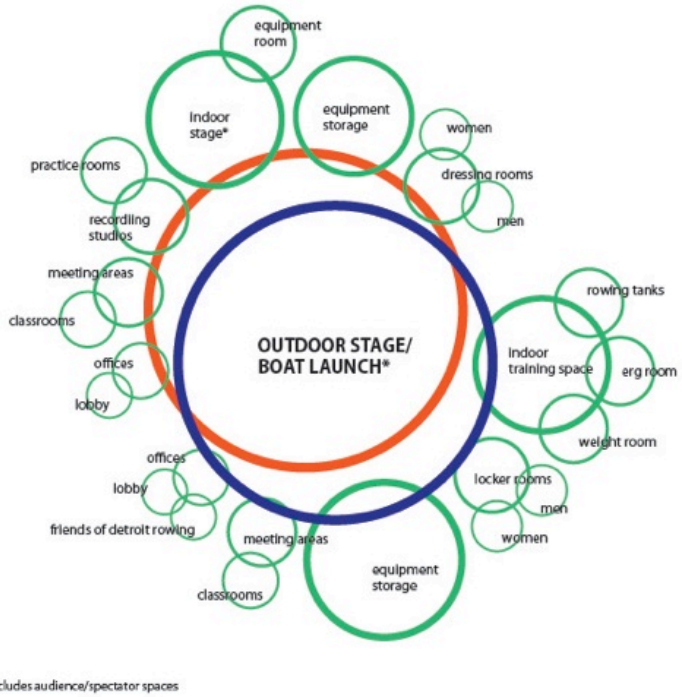

Figure 80 Program Option 3, Sahred exterior performance space (Author)

Figure 81 Program Option 3, Shared exterior performance space applied to site (Author)

IV. Precedent Analysis

i. Peter J. Sharp Boathouse

Figure 82 Peter Jay Sharp Boathouse (Robert A. M. Stern Architects)

Robert A.M. Stern Architects
New York Restoration Project
Swindler Cove Park, New York, New York, 2004
Harlem River

This boathouse was part of the New York Restoration Project, a non-profit that works to restore inactive landscapes in the area. The Peter Jay Sharp Boathouse introduces disadvantaged youth to the sport of rowing by way of the partnering non-profit, Row New York. Additional programs are also offered to local residents. This is the first community boathouse of its kind on the Harlem River in over 100 years.[99]

The building is situated on a floating barge so as not to disturb the intertidal environment of the Harlem River. Many of the historic boathouses that once occupied this

[99] nyrp.org

area were also floating buildings. The boathouse is approached through a gate and onto a series of piers that lead to a floating dock. The storage and launch area are located on the first floor, while the offices, exercise space and meeting rooms are on the second floor. Rowing events are watched from the second floor deck.

The boathouse is a simple form, protected by a bracketed metal roof. "The structure's painted wood board-and-batten exterior walls and its decorative details recall time-honored maritime building traditions."[100]

ii. WMS Boathouse at Clark Park

Figure 83 WMS Boathouse boat launch (Steve Hall Hedrich Blessing)

Architects: Studio Gang Architects
Location: North Branch Chicago River, Chicago, IL
Area: 22,620 square feet
Year completed: 2013
Program: Rowing Boathouse

This boathouse by Studio Gang Architects in Chicago analyses the inherent rhythm of the rowing stroke and applies it to the structure and form of the building.

[100] ramsa.com

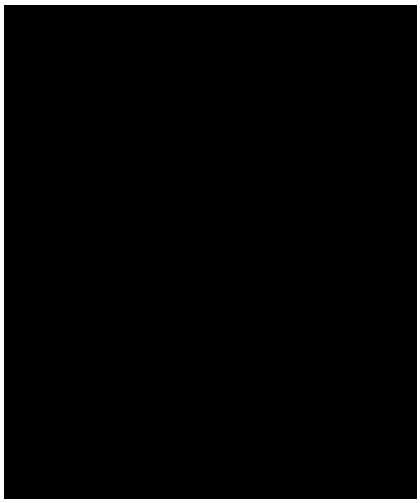

Figure 84 Diagram of undulating roof of WMS Boathouse based on rowing stroke (designboom.com)

Figure 85 WMS Boathouse interior erg room (Steve Hall Hedrich Blessing)

iii. Minneapolis Rowing Club Boathouse

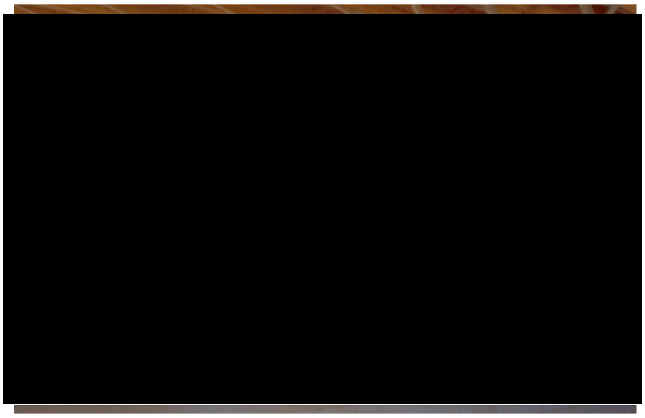

Figure 86 Minneapolis Rowing Club Boathouse, second floor interior (VJAA)

Architects: VJAA
Location: Mississippi River, Minneapolis, MN
Area: 10,000 square feet
Year completed: 2001
Program: Rowing Boathouse

The boathouse is located at the foot of Lake Bridge on the Mississippi River. The program called for storage, meeting and training space. The structural framing of the building is reminiscent of the rhythmic qualities of the sport of rowing, while the hyperbolic parabola of the roof curve mimics the movement of a rower during a full stroke (Figure 87). Low budget.[101]

Figure 87 Rowing stroke diagram; inspiration for VJAA boathouse structure (G.C. Bourne)

[101] VJAA

iv. Gilder Boathouse

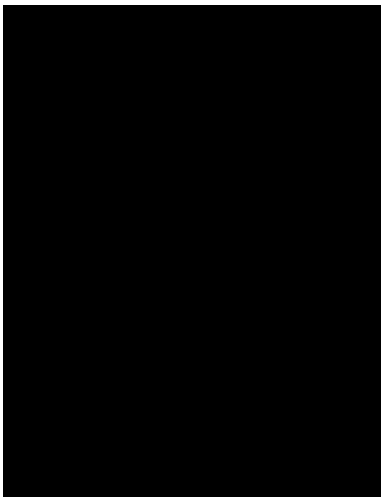

Figure 71: Gilder Boathouse looking out onto river (kbebuilding.com)

Architects: Turner Brooks Architects
Location: Yale University, Derby, CT
Area: 22,000 square feet
Year completed: 1998
Program: Rowing Boathouse

Originally, Yale planned to replace its old 1920's boathouse with a new, boxy, Victorian-style boathouse down the river. However, the site fell through, and the University was forced to raze the original boathouse and build on the slim, triangular-shaped existing lot. Yale held a competition for the boathouse design and Turner Brooks Architects won the bid.

The winning design was a slim, sloping cedar-clad boathouse that clung to the river's edge. It had the streamlined look of a rowing shell. The architect's main goal was to integrate the building into the landscape. Also, the turning radius of the rowing shells was a major determinant of the final design. Rowers needed to somehow bring the boats up from the river and into storage. The program called for shell storage, offices, meeting rooms, locker rooms and a trophy/viewing room. The combination of a large, outdoor staircase and porches accommodate race day spectators. The exterior

and interior are both lined in cedar planking. The architects utilized exposed structure and timber framing to lend a nod to traditional boathouse architecture. "Bowstring trusses recall the 'great old boathouses' while expressing 'tension and compression' – appropriate for a building associated with athletic activity." "At every turn, the building not only accounts for but suggests movement: of the cheering crowds, of the crew shells surging towards the finish line, and even of the university itself, as it glides gracefully into a new century."[102]

v. Conclusions

Common design themes between these boathouses:

1) Integration of boathouse to river and landscape
2) Alluding to the "traditional" boathouse style of exposed wood framing and intricate design details
3) Movement and flows-reminiscent of the sport of rowing itself

The Detroit Boat Club is not a "traditional" wooden boathouse. All five "traditional" wooden DBC boathouses burned down. The DBC design was extremely forward thinking and technologically advanced when it was built out of reinforced concrete and other fire resistant materials in 1902. It was ahead of its time and this deserves to be recognized. The new DBC design should lend a nod to the advanced building technology used in the original building.

vi. Tate Modern

[102] Making Waves

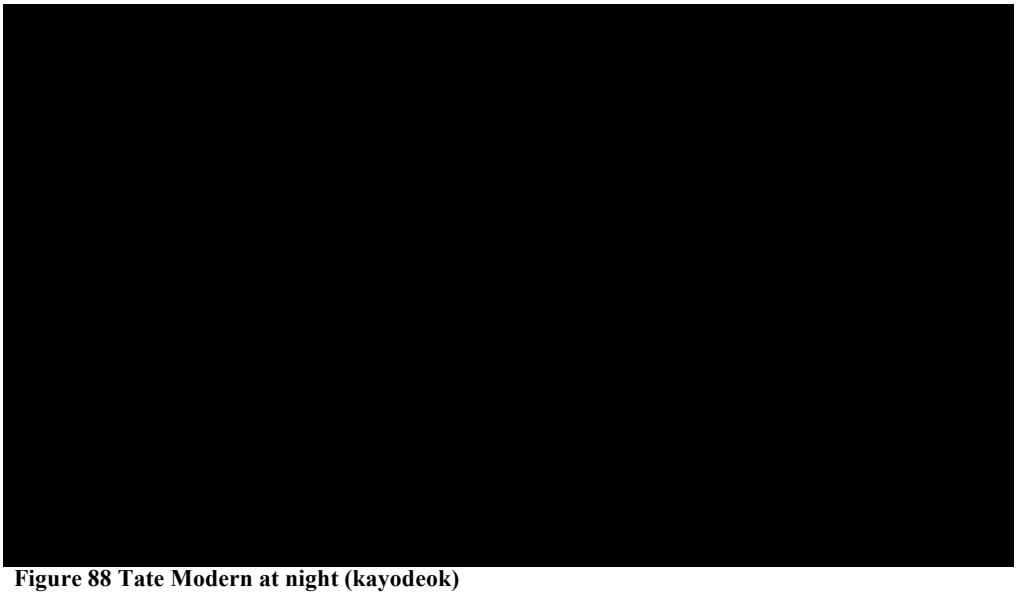

Figure 88 Tate Modern at night (kayodeok)

Architects: Herzog & de Meuron
Location: London, England, on the Thames River
Area: 34,000 square meters
Year completed: 2000
Program: Adaptive Reuse/Modern art museum

This adaptive reuse project by Herzog & de Meuron sits across the River Thames in London, serving as a cultural beacon in the city. A similar idea will be used in the design of the Detroit Boat Club. The tower will be lit up during events and serve as a beacon of revitalization for the city.

vii. Music House

Figure 72: Foyer of Music House (Martin Schubert)

Architects: Coop Himmelb(l)au
Location: Musikkens Plads, 9000 Aalborg, Denmark
Design Principal/ Ceo: Wolf D. Prix
Area: 20257.0 sqm
Year completed: 2014
Photographs: Martin Schubert, Courtesy of Coop Himmelb(l)au, Rene Jeppesen, Aleksandra Pawloff
Program: Cultural Center with combined school and concert hall

The "open structure promotes the exchange between the audience and artists, and the students and teachers." Essentially, the school surrounds and embraces the concert hall in the center. This provided the basic organization of the project. There are several viewing windows where students and visitors can watch concerts and practice rooms. This helps connect the different program elements of the project.

The concert hall itself is cubic in form with an amorphous interior. The form of the interior was carefully calculated for optimal views acoustics. It is considered one of the quietest spaces for symphonic spaces in all of Europe with a noise-level reduction of NR10 (GK10).

The twists and turns of the foyer provides a dynamic, lively space for students, musicians and visitors to interact.

"For Wolf D. Prix, [project design principal] the "House of Music" is a symbol of the unity between music and architecture: 'Music is the art of striking a chord in people directly. Like the body of musical instruments this architecture serves as a resonance body for the creativity in the House of Music.'"[103]

viii. Conclusions

The DBC in its current condition is extremely static and heavy. There is no movement, no vibrancy associated with the building. In its earliest form, when it was completely surrounded by water, people were quickly moving in and out of the several boat bays around the building. Others were moving about the terraces and porches, getting glimpses of rowers and boaters and catching fresh breezes.

This thesis project is committed to restoring vibrancy to the Detroit Boat Club. The integration of two seemingly different activities: music and rowing, will provide the basis of this restored vibrancy. Both music and rowing have underlying rhythmic patterns that will inform the design.

[103] House of Music, Archdaily.com

V. Reawakening the Detroit Boat Club

i. Application to Architecture: Design Concept

These seemingly disparate parts fit together in a complex manner. The life of the Detroit Boat Club has been tumultuous, and therefore can be compared to the city of Detroit's equally tumultuous past. As mentioned previously, the DBC began as a small rowing club on the mainland of the burgeoning city of Detroit. Several of the boathouses burned down due to their wooden structures, a traditional boathouse building material.[104] Finally, in 1902, Alpheus Chittendon designed a reinforced concrete building built on top of the Detroit River.[105] Paralleling Detroit's turn of the century population growth, the DBC's club membership grew. As the city boomed, the Detroit Boat Club boomed. Yet, as the city began to fall in the 1960s, the fabric of the DBC began to express its desperation. As membership fell, parts of the building were haphazardly closed up and added on to for storage purposes. Columns began crumbling and roofs began collapsing. Today, the building stands proudly at the entrance to Belle Isle Park as a monument to Detroit's downfall.

To approach the task of revitalizing the Detroit Boat Club, it was imperative to consider what caused the city's exponential growth in the 20th century: the

[104] Clinton
[105] Searcy

automobile industry. A more in-depth look at the auto industry reveals that efficiency studies, such as those done by Frederick Taylor, were what drove the industry to success. The concept of Taylor's time motion studies was to eliminate all wasted movements within an individual factory worker's task. He paired each motion down into the most essential parts, ultimately optimizing the tasks.[106] Applying similar studies to the assembly line, along with other stringent management practices, contributed to the exponential growth and success of Detroit's auto industry.

Unfortunately, the result of this monotonous work was dehumanizing. Factory workers were turned into machines, participating in mindless, repetitive work that led to high worker turnover rates.[107] The city became crowded, filthy and noisy and as a result, many people sought refuge in nature. Besides the economic growth indirectly spurred by Taylorism, these efficient policies including increased pay and a limited work week allowed more time for leisure activities.[108] Belle Isle Park was created as an outlet for the exhausted workers' free time. Music events, outdoor sporting events and social activities were daily sights on Belle Isle.[109] The Detroit Boat Club blossomed into a major social club that, besides rowing, included activities such as sailing, swimming and various social and music events.[110]

Music was always a major part of Detroit's history. Blues, jazz, rock, R&B and electronic musical were very popular in the city throughout the years. These specific genres were significantly influenced by the influx of southern African

[106] Kostof, 104
[107] corporate.ford.com
[108] Braden
[109] Rodriguez
[110] Clinton

Americans looking for factory work.[111] However, most notable of all was Motown, a music genre unto itself. Berry Gordy founded Motown Records in 1959 shortly after his experience working on the Ford Motor Company assembly line. He found the work so monotonous that he began writing songs in his head to the beat of the assembly line.[112] This was the basis for his "Motown formula." All Motown songs relied on a strong and memorable beat and rhythm. Layered on top was the melody, the hook of the song that drew people in and made it impossible for people to not sing and dance along to the music.[113]

This idea of a musical composition being made up of a bass line, a melody, and other rhythmic parts in between, can also be applied to architecture. This thesis explores an approach to adaptive reuse which first "Taylorizes" the building down to its essential parts. It removes excess space and digs down to the true DNA of the building. However, this stripped down historic fabric does not make a whole building. Slowly, layers of poetry and melody need to be applied to the existing DNA to complement the existing historic elements. Ultimately, like a song, a building has a bass line, a foundation from which the rest of the building is built upon. It is not until then, that the composition of elements in a building sings. Once brought through this process, the Detroit Boat Club will exude energy and vibrancy. The combined rhythmic and melodic elements of rowing and music will produce a building which, when viewed from the Belle Isle Bridge on the approach to the island, represents a reawaked Detroit. The Detroit Boat Club becomes a monument to the city's imminent revitalization.

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[111] Carson
[112] Motown Museum Tour
[113] Posner, 52

ii. The "Taylorization" Process

The design process began with "Taylorizing" the Detroit Boat Club. The purpose of this exercise was to strip the Detroit Boat Club down to its essential DNA. The following diagrams explore the current use of the building's spaces during three different events: a winter practice day, a winter rowing regatta, a summer practice day, and a summer rowing regatta.

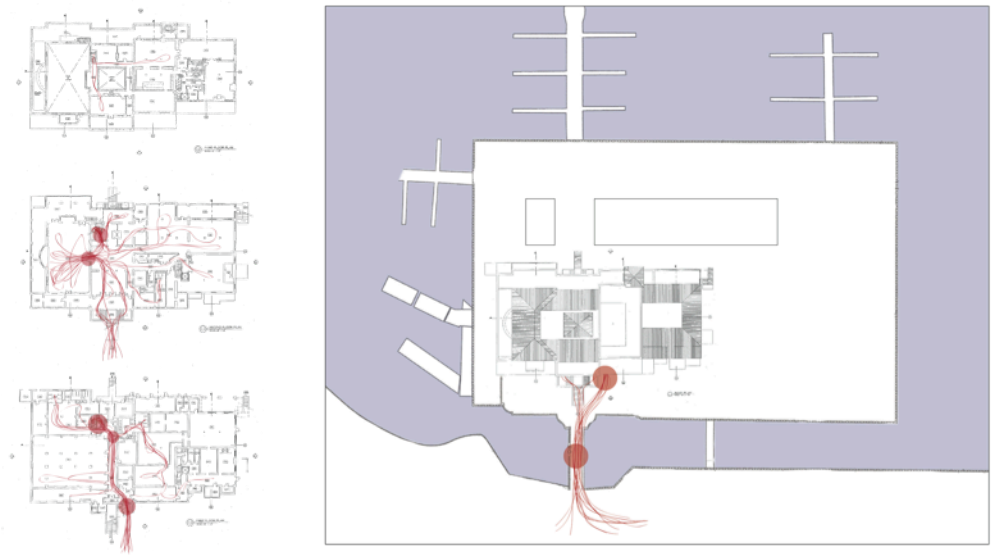

Figure 89 Building use and circulation on a winter practice day (Author)

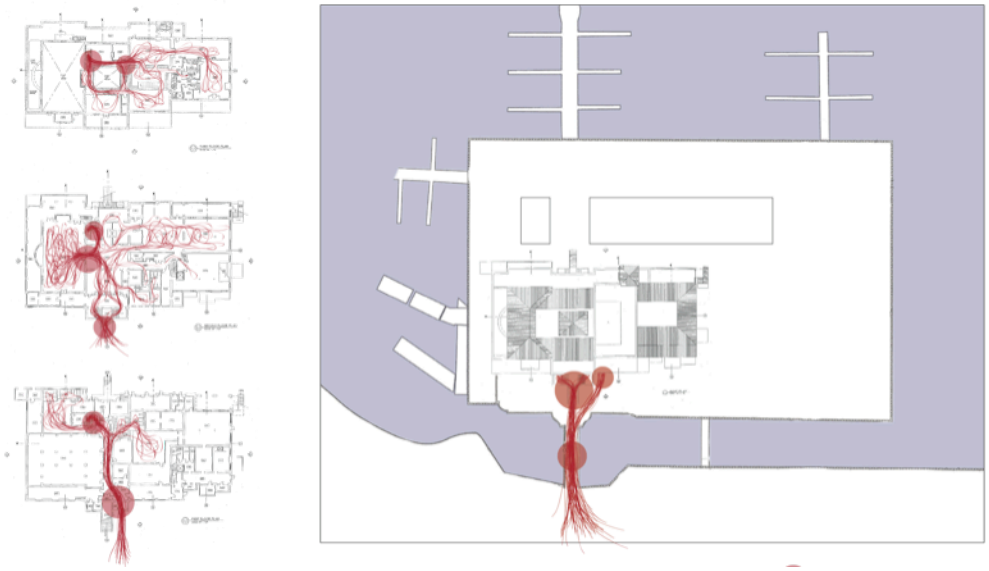

Figure 90 Building use and circulation during a winter regatta (Author)

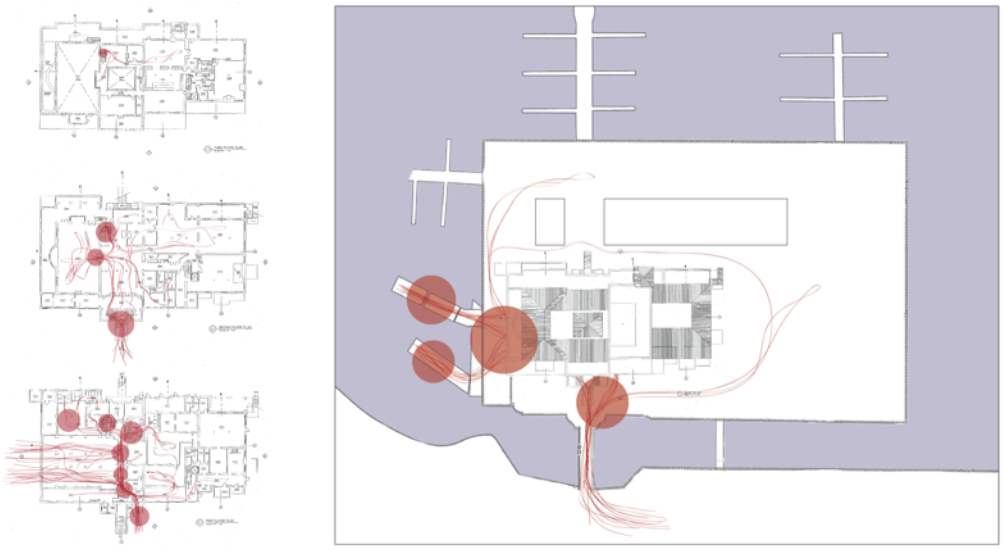

Figure 91 Building use and circulation on a summer practice day (Author)

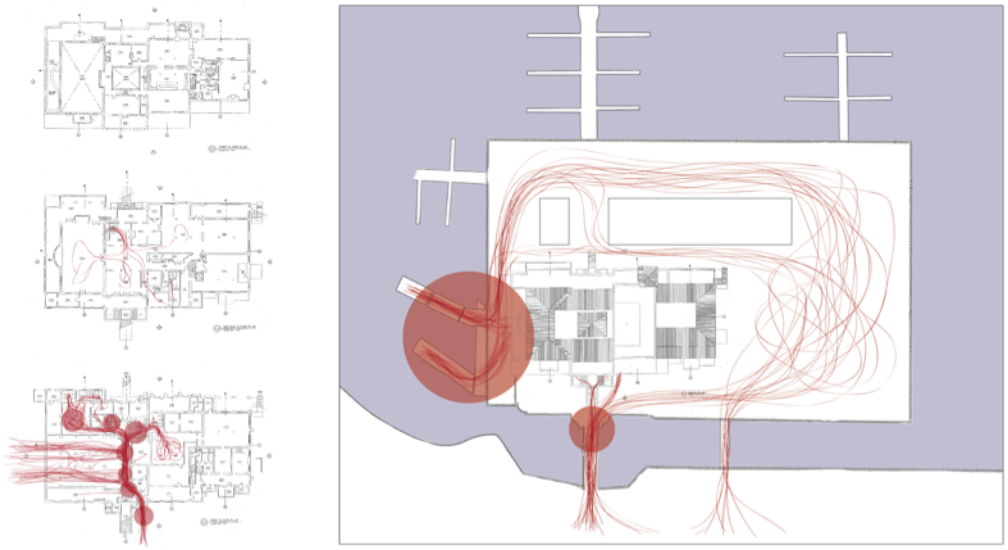

Figure 92 Building use and circulation during a summer regatta (Author)

These diagrams led to the conclusion that significant portions of the building are not being used. There is a substantial seasonal change in the use of the building. This discovery played a significant role in the amount of dynamic, shared spaces created within the redesigned boat club.

The following diagrams illustrate this distillation process that strips the DBC down to its DNA:

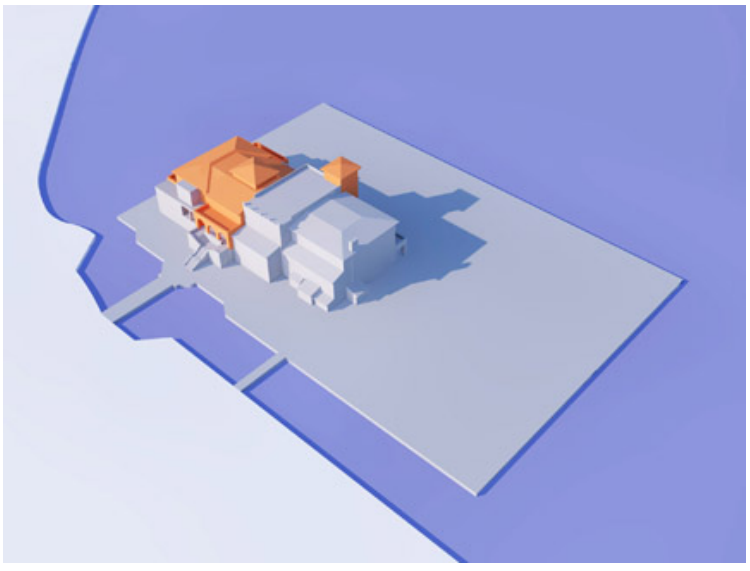

Figure 93 Massing of existing building. (Author)

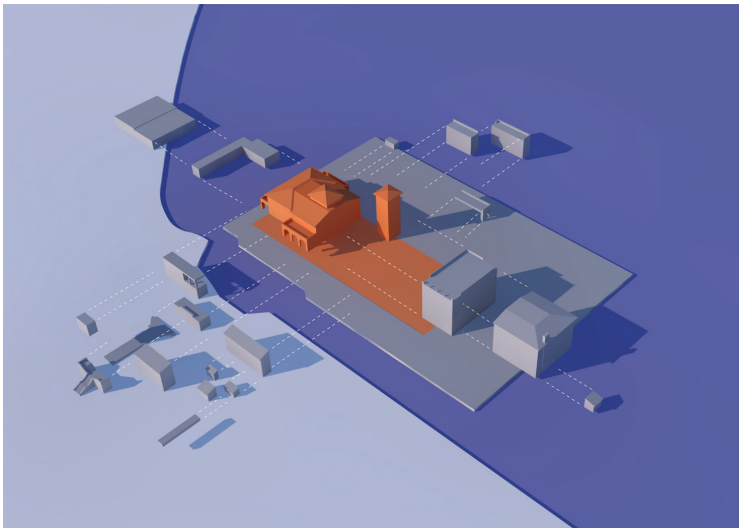

Figure 94 Distillation of unused parts (Author)

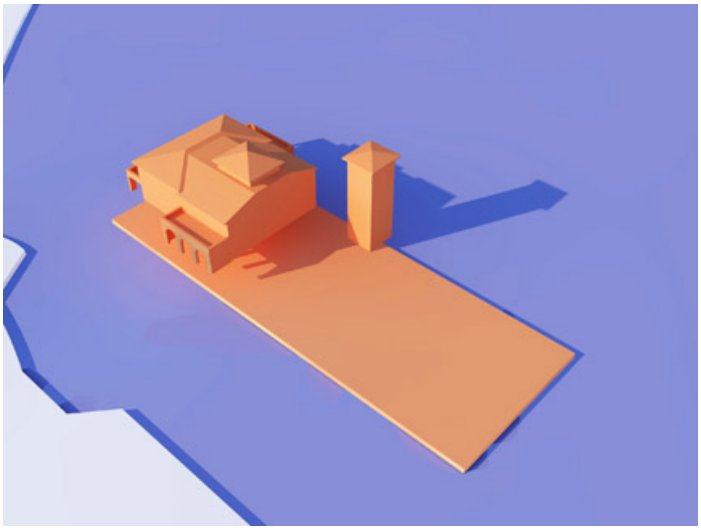

Figure 95 "Essence" of building (Author)

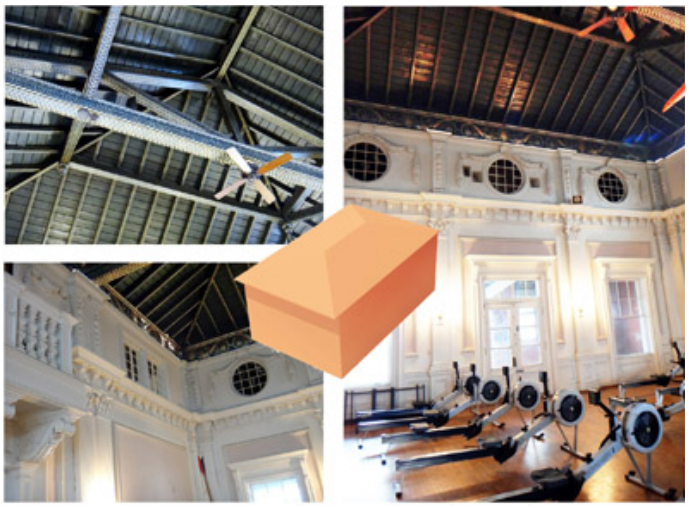

Figure 96 Ballroom (Author)

Figure 97 Entry Hall (Author)

Figure 98 Terrace (Author)

Figure 99 Tower (Author)

These decisions were based on a number of objective as well as subjective factors including grandness, preservation, identity, and functionality. Ultimately, the main features of the Detroit Boat Club that were deemed as ”contributors to the essence” of the building were the ballroom (Figure 96), entry hall (Figure 97), terrace (Figure 98) and tower (Figure 99).

iii. Reading the Existing Building

Once the essence of the Detroit Boat club was determined, in order to inform the new design, the building was read similarly to a piece of music. The rhythm of the existing structural grid was read and repeated to form the new grid structure in the building’s addition (Figure 100). Then, the melody of the existing building was read (Figure 101). This included looking at the circular theme throughout the existing building (the arched terraces and circular windows) as well as the peaks of the roofline. It was also noted that there is a significant amount of expansion and contraction that was carried into the final design (Figure 102) of the new Detroit Boat Club, renamed Detroit Rhythm: Center for Rowing and Music.

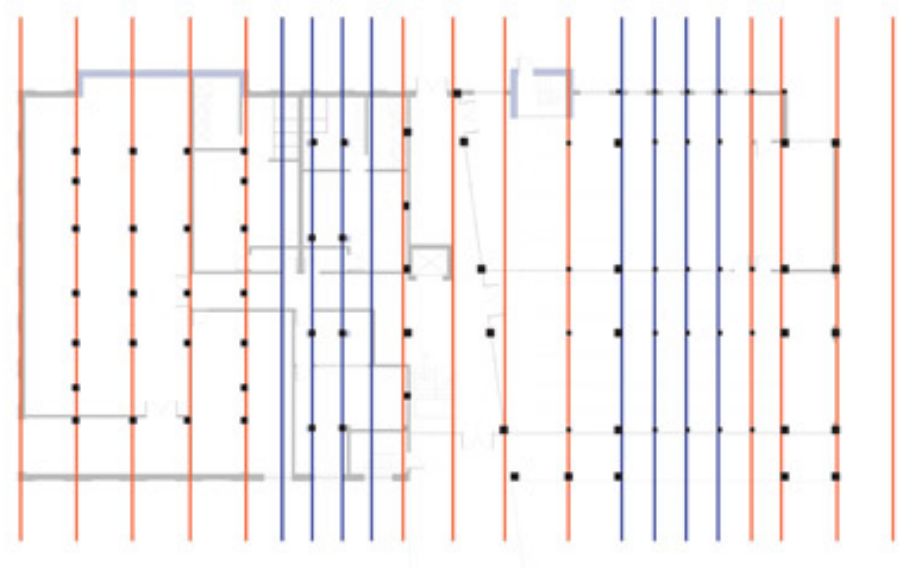

Figure 100 Repeated structural grid throughout new design (Author)

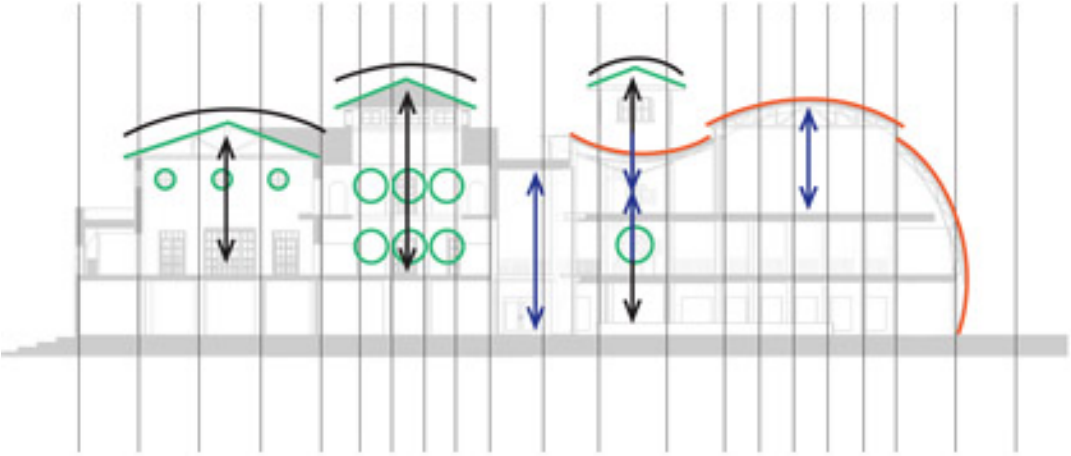

Figure 101 Melody of building influencing new design (Author)

Figure 102 Section perspective looking north of new design (Author)

iv. Structure and Materiality

Much of the structure and materiality of the new design evokes the existing building conditions. Slender reinforced concrete columns emphasize the rhythm of the building (Figure 103). The columns are clad in wood paneling to echo the wood details in the original building. Glass curtain walls and standing seam steel roof panels evoke the materials of Detroit's auto industry. Recycled concrete panels cladding the exterior of the building use material from the portions of the building that were distilled (Figure 104). This exterior cladding emphasizes the importance of concrete as a fireproof material used in the existing building. Glue-lam trusses supporting the curved roofs of the new building addition reflect the wood trusses in the existing ballroom. The truss designs emphasize the actions of the roof curve: sliding, lifting and collecting (Figure 105).

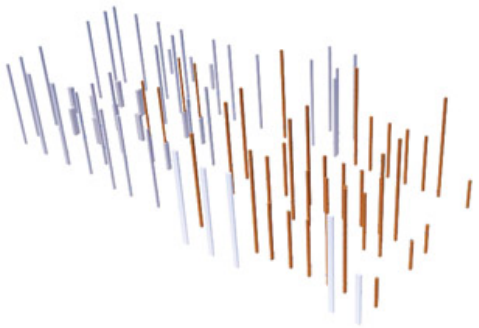

Figure 103 Reinforced concrete column grid (Author)

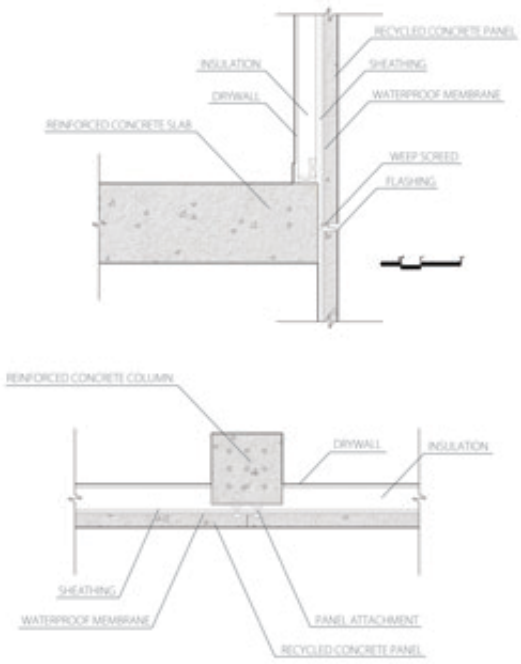

Figure 104 Details of recycled concrete cladding (Author)

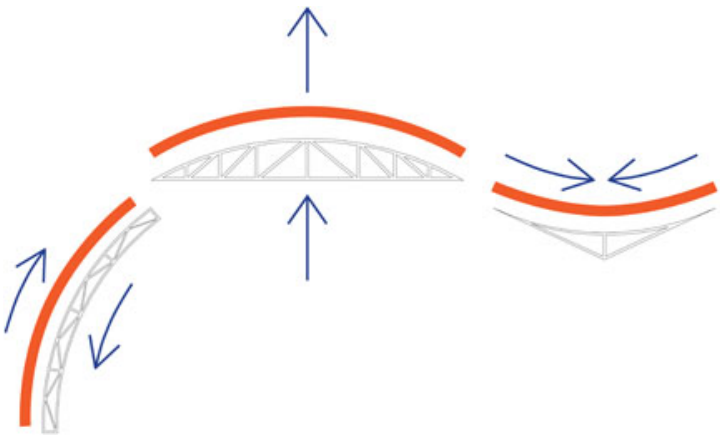

Figure 105 Truss design: sliding, lifting and collecting (Author)

v. Relationship to Water

The collecting, concave roof is part of a water filtration system. Rainwater and melting snow is gathered on the roof and flows into the existing tower. From there, the water is filtered down through the tower through a system of clear pipes so that people climbing the stairs of the tower can experience and appreciate water filtration. This filtered water is then pumped into the indoor rowing tank. Being on a river and being part of the Great Lakes system is an extremely important part of the culture and well being of Detroiters and Michiganders. This water filtration is a reminder that fresh, clean water is not to be taken for granted.

Figure 106 Section through water filtration system looking west (Author)

Both music and rowing have performance aspects to them. This project creates a relationship to water by activating the river (Figure 107) and turning it into a stage to host music performances and rowing races. For example, a floating concert could take place on an anchored barge (Figure 108). The amphitheater around the building fades into the Detroit River and allows crowds to interact with the water during performances. The terraces surrounding the building act as the seating of a theater, allowing audiences and spectators a chance to simultaneously interact with the building and the river.

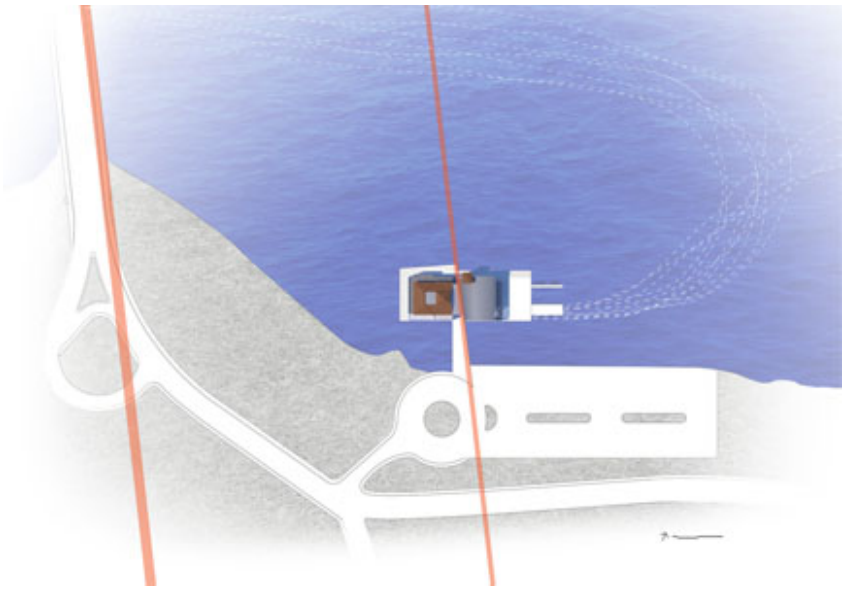

Figure 107 Detroit Boat Club site plan (Author)

Figure 108 View from underneath MacArthur Bridge during summer evening river concert (Author)

vi. A Reawakened Detroit Boat Club

As one approaches Belle Isle from the MacArthur Bridge, the Detroit Boat Club is no longer an eyesore to visitors entering the park. The glowing tower and building allows for a vibrant welcoming to the Belle Isle. The Detroit Boat Club was a reflection of Detroit's rise and fall. Now, Detroit Rhythm: Center for Rowing and Music is a reflection of Detroit's

urban revitalization. Like the motto coined in 1827, “We hope for better things; it shall rise from the ashes.”

vii. Additional Drawings

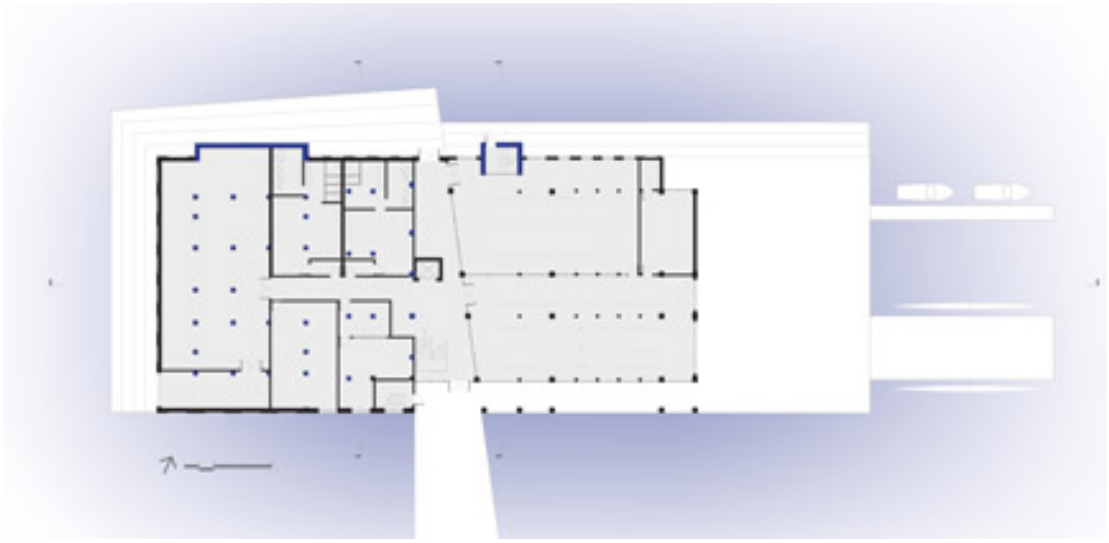

Figure 109 Floor 1 Plan (Author)

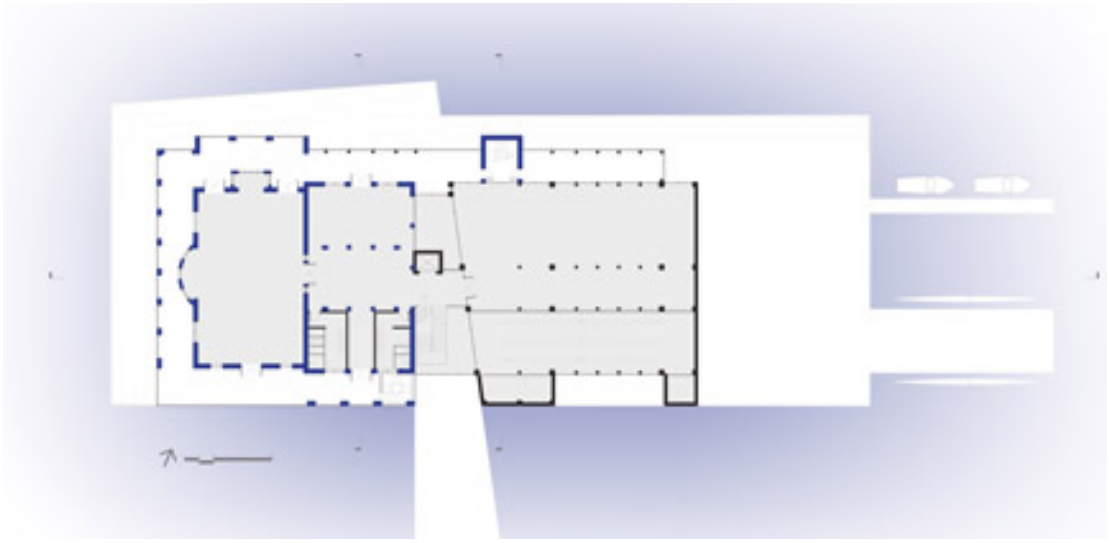

Figure 110 Floor 2 Plan (Author)

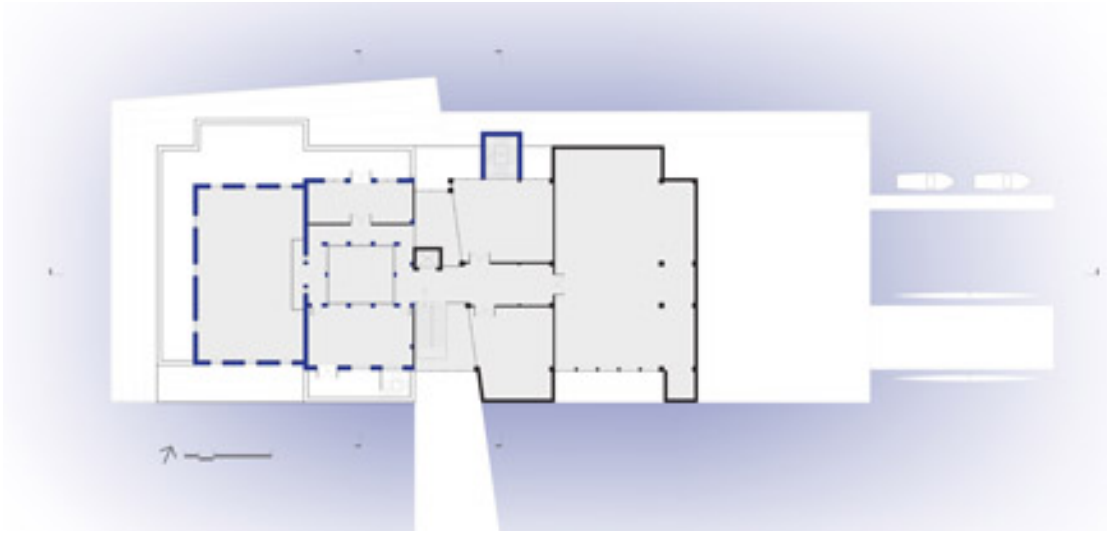

Figure 111 Floor 3 Plan (Author)

Figure 112 South Elevation (Author)

Figure 113 West Elevation (Author)

Figure 114 North Elevation (Author)

Figure 115 East Elevation (Author)

Figure 116 Front Entry (Author)

Figure 117 View from terrace towards Downtown Detroit (Author)

Figure 118 Interior atrium space (Author)

Figure 119 Rowing shell storage space (Author)

Figure 120 View from third floor existing building towards new addition (Author)

Figure 121 Third floor expanded space in new addition (Author)

VI. Conclusions

Built in 1902 on pilings in the Detroit River, the Detroit Boat Club (DBC), a stunning Spanish Colonial building, was once a lively sport and social club. Its historic building fabric, paralleling Detroit's rise and fall, stands as a monument to the city's downfall. What remains today is the DBC Rowing Team, who, despite its success, relies on volunteers and meager donations to maintain the decrepit building. In an attempt at revitalizing the DBC, this thesis explored the intricate connections between various elements of Detroit's social and cultural history. Such elements include Detroit's music history, specifically Motown Records, as well as the growth of the automotive industry. The auto industry and its assembly line were influenced by Frederick Taylor's time-motion studies. This thesis applied the "Taylorization," or distillation process of removing excess space to the existing building. The materials used to make cars, like steel and glass, influenced the materiality of the new design. Using Detroit's history of music as a reference, this design took the metaphor of a musical composition and applied it to what was left of the existing building after the distillation process. The new portion of the building inherits the rhythm and melody of the existing building. Though there is room for further exploration of the design, this thesis project does well in revitalizing the Detroit Boat Club in a way that honors the building's past and prepares it for a vibrant future.

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