Community Connections: Relief through Athletics

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GRADUATE THESIS PROJECT SUBMITTED TO:
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IN FULFILLMENT OF THE REQUIREMENTS OF THE M. ARCH DEGREE IN ARCHITECTURE
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ROGER WILLIAMS UNIVERSITY
SCHOOL OF ARCHITECTURE, ART & HISTORIC PRESERVATION

SUBMITTED BY:

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# Table of Contents

1. Introduction ........................................ 6  
2. Architectural Program ............................... 9  
3. Site Analysis ........................................ 14  
4. Precedent Case Study Analysis ..................... 43  
5. Design Stages ....................................... 52  
6. Bibliography ......................................... 111
1. INTRODUCTION
Architecture is the highest form of art and knowledge. It encompasses many fields of work from the sciences to cultures to math to history. Architecture has the ability to partially define a country. For centuries architects have designed buildings using the same materials and concepts and within the context of the city making those cities what they are today. Architecture takes from the past to create a better future.

Architecture is an art for the people. Architects must design for the good of the communities. Buildings must be able to serve its function for its users efficiently and effectively. Architecture can evoke feelings in people the same way paintings can, and even better than paintings if executed properly.

Architecture should make us ask questions and should be ever changing. If we just accepted it for what it was, then we would never learn anything and would never create anything new. After time people would just walk by and pay no attention to the architecture. New ideas are what drives the business and attracts the eyes of people.

Architecture should be sustainable. We have an obligation as professionals to create buildings that will last generations and improve the quality of life in appropriate settings. It should promote the health and well-being of individuals, enriching their lives.

Finally, architecture is beautiful. Every building we have seen started as an idea. Through meticulous care and extreme effort it transforms from that basic concept into what we see today. It is a beautiful and rewarding process that provides satisfaction in completing a good project.
A sports based recreation facility can significantly enhance the quality of life in a community. Activities held within these facilities can encourage participation, promote health and well-being, and foster a sense of community and togetherness. Today with crime and obesity being increasingly troublesome in the US a space focused on athletics, health, and wellness would allow for kids to have a plethora of activities to do after school and on weekends. There they can make friends, learn about health, and stay off of the streets. Sports and recreation can demonstrate and contribute to the sustainable use of natural resources. They can help to directly reduce social exclusion and disaffection. Sports contribute to local and national economic vibrancy. Physical activity contributes to peoples’ perceptions and experience of well-being and sense of attachment to their surroundings. The foundations of life-long health and sporting excellence lie in early opportunities for taking part in sport and active recreation. The goal of this project will be to incorporate the community and the environment into a sustainable sports-related facility. Keeping mechanical costs low is vital to its success. A center that will engage the people of Norwalk would be extremely helpful, especially for kids, teens, and young adults.

Issues with Recreational centers:

- Sports and Recreation facilities remain a challenge for proponents of sustainable design
- High costs to build and maintain
- Large amounts of water usage (pools, restrooms, showers, outdoor fields, etc.)
- Air handling requirements (ice rinks, large gyms/atriums)
- Most utilize large expanses of glass adding to heating loads
- Costs of equipment
2. PROGRAM
## Initial Program vs Final Program

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<td><strong>Parking</strong></td>
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<tr>
<td><strong>TOTAL GSF</strong></td>
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|                | PRIVATE:                                |          |
|                | ADMINISTRATION                          | 4800     |
|                | STORAGE                                 | 10000    |
|                | MECHANICAL                              | 8500     |
|                | LOCKER ROOMS                            | 9200     |
|                | BATHROOMS                               | 4400     |
| **Interior Total** |                                         | 300,810  |
| **Grossing Factor** |                                         | 1.4      |
| **GSF**         |                                         | 439,185  |
| **Parking**     |                                         | 140,600  |
| **TOTAL GSF**   |                                         | 579,785  |
For this program the main athletic spaces are the gym with a walking track above, the sports bubble with turf fields, the pool, and the library branch which will have a strong focus on health, fitness, and wellness. Workout rooms, fitness centers, and the cafe will be great spaces for parents to be while their kids are at school, or at the rec center doing other activities.
Sample Spaces

Example of a sports bubble. Usually they house turf fields used for indoor soccer, lacrosse, and flag football. Some have indoor tennis courts. Therefore, this space can serve many purposes.

Example of a track with the gymnasium located below. By raising the track up to the second level it allows for more freedom with the design of the gymnasium. The track will be a 200m track to be able to use for high school level competition.
Example of a Multipurpose room in which there is seating, games, a cafe, as well as meeting rooms behind.

Example of a pool space with a regulation sized competition pool as well as a public swim space. Seating for any competitions or for parents watching their kids is provided.
3. SITE ANALYSIS
Site Option 1: Bristol, CT

Population: 60,570
Currently don't have their own rec center.
They have to share Plainville's center along with 5 other surrounding towns
Located in the center of town right off of route 6
Mostly a residential area, and adjacent to a school.
Site Option 2: Weymouth, MA

Population: 53,743
Currently does not have a rec center/athletic facility
Closest is in Quincy
Right next to existing ice hockey rinks, baseball fields, and soccer fields
Mostly a residential area
Site Option #3: Norwalk, CT

Population: 88,485
Current YMCA just closed
The town is looking for a new site and building to keep the community connected
Site is located in the center of town off of I-95
The site is located on Reed St. It is right off of I-95 and Route 7. The Norwalk River is to the east and southeast. Also adjacent to the site on the east is the train system and Oyster Shell Park. The YMCA that was recently closed is just a few blocks down the road. The site is approximately 300,000 sqft.
Site Topography

For the most part, the site is relatively flat. The perimeter slopes downward to meet the sidewalks and street, and the street slopes down as it heads towards the river to be underneath the train tracks.
Norwalk is home to about 88,500 people and was chosen as the city for the site due to its size and need. Their YMCA building was 90 years old and recently shut down. The activities held there are now a burden on the local schools. The city board is already looking for a new site and new building. With over 21,000 families, there are plenty of those who need the services of a recreational center.

Crime in Norwalk is an issue. There are more violent crimes, property crimes, and general crimes than the Connecticut average. It has also been given a crime index rating of 34 which means it is only safer than 34% of US cities. With this kind of project it allows kids and teens to have after school activities and has proven to help lower the crime rates particularly among the youth.

Also in 2012-2013 40% of Norwalk students from Kindergarten through the 9th grade were considered overweight or obese, higher than national and state averages. A center that has a library focused on health and wellness, along with a kids center and sports facilities would allow kids to stay active and learn about what it takes to be healthy, as well as informing their parents and what they can do for their children.
On the surface, it seems like the solution to the obesity epidemic is simple: eat more nutritious foods and be more physically active. The Norwalk Health Department, Norwalk Public Schools, and several other Norwalk organizations are helping children and their families learn ways to eat right and stay active. However, in order to get healthy and stay that way, Norwalk families need help from neighbors, schools, daycare providers, health care professionals, businesses, and community leaders so that when faced with choices about food and physical activity, the healthy choice is the easiest choice. To this end, the Greater Norwalk Healthy Living Workgroup, a group of organizations led by the Health Department, works to promote healthy policies and programs in Norwalk and to educate and empower children, their families, and caregivers to make healthy choices. Among its many initiatives, the Workgroup helps to promote Walk to School Day events and Story Walk trails and is working to update the Health Department’s NorWalker routes. To learn more, check our website: www.norwalkhealth.com
Climate

Norwalk, CT is in a Cool-Humid climate zone. Temperatures can vary from below freezing in the winter to above 90 degrees in the summer. Being in a coastal area, the breeze from the ocean cools off the area, but the humidity is ever-present. In order to keep people comfortable in the winter and summer, both heating and cooling will need to be efficiently utilized in the project.
Climate

The psychometric chart shows the basic level of comfort in the building if there were no added strategies to create comfort for the building’s users. So if nothing was put into the building people would only be comfortable 7% of the time. Ways to improve this number would obviously be just heating and air conditioning but there are more sustainable ways that won’t jack up the mechanical costs.
This psychometric chart shows the design strategies I have decided to utilize in the building. Natural ventilation and fan forced ventilation are two types of air circulation that are needed for the expansive spaces in the project. Having some curtain walls will allow the building to be partially naturally heated by sunlight in the winter but not too much where it gets overheated in the summer.
Site Measurements

The site is approximately 300,000 sqft. With the maximum build-able area being 85% of the lot size. This allows for a maximum of 255,000 sqft floor plan.
Located in the center of Norwalk, this site allows for easy access for everyone in the community. It is very close to 5 different schools including the Norwalk Community College. It is halfway in between the main town library and the South branch allowing for easy collaboration with the branch in the proposed project.
This site is within the regional center and a part of the development area. Norwalk is mostly residential as there are nearly 90 thousand people, however the main commercial areas are bustling and can attract many visitors. Being in the center of the town as well as adjacent to commercial area makes it an ideal location.
The site is located directly next to Oyster Shell Park and the Harbor Bike Path, which will allow for integration with the project. There aren’t many public facilities in the town and none of them contain what this project entails.
Transportation around the town will be vital to the success of this project. The train tracks run right next to the site and a proposed train station will be just a few steps away. Bus routes also pass nearby the site. This will allow those without a car of their own including those from other towns to travel to the facility. Being right off of I-95 hundreds of passersby will see the building and will have easy access to parking in the area from the highway.
Being along the coast there are many spots in the town with wet soil conditions and flagged wetlands. There is a steep incline from the river leading up to the site, therefore the water will not rise up to that level and the soil beneath is solid enough to not be considered wet soil. It is however, within the coastal area management boundary.
Being in the geographical center of town, this project will be located next to the historical district of Norwalk. It is also next to Matthews Park which is considered to be a historic feature of the town.
The location of the site is in subarea A
Architecture of Norwalk

A wide majority of the architecture in Norwalk is brick. The historical district includes the church (pictured below) and the Maritime Aquarium (pictured top right). The church is directly to the south of the site. However, in recent years the architecture of Norwalk is becoming more modern, mostly in the business areas where buildings such as The Towers are located (pictured bottom right).
More brick buildings in Norwalk including the Brien McMahon High School (near right), Norwalk City Hall (far right), and the Lock Building (below).
Materials Considerations

This facility has many different programmatic spaces that will need different materials for its structure. For spaces like the gym, pool, and library, more glass and steel will be used. Most of the exterior will be brick to match the surrounding areas, however, the glass and steel used throughout will give it a more modern feel and make it more attractive to those passing by on the highway. The sports bubble will be a pneumatic structure like the one pictured to the right. Snow loads, wind loads and air locks will be taken into consideration due to the coastal New England location.
Site Access

Route 7 South highlighted in green. The access to the underground parking level is from the south side on Reed St.

I-95 North highlighted in blue. The offramp continues straight into Reed St for easy access.
I-95-South highlighted in red. From there, one turns onto West Ave and then Reed St. to access the underground parking.

West Ave. is highlighted in Orange and Butler St. is highlighted in purple. Butler St originally cut through the site in the 1960s and since then it has slowly turned into just a dead end. I decided to reintroduce the street to a purpose and lead it into the pickup and drop-off area for the train station.
Site Images

Far Right: view from under the train track bridge with the site on the right side of the image

Near right: view from across West Ave.

Image from the start of the I-95 on ramp
View of the train tracks crossing the street above

Images of crosswalks on Reed St.

Intersection of West Ave. and Reed St.
View overlooking the Norwalk River

Birdseye of Oyster Shell Park. The Norwalk River is pictured on the left and the site is in the upper right

View of the train tracks from the I-95 on-ramp
4. PRECEDENT ANALYSIS
Precedent 1: The Meadows Community Rec Centre
Edmonton, Alberta, Canada
Site Plan

The designers wanted to create an architectural strategy to support the program and operation over many decades as the population of the area is to grow by 60% in the next 20 years. They also wanted the creation of a strong sense of place that will build the community within a vibrant public realm and the integration of architecture and landscape into a highly sustainable built environment.
Most of the program is located on the first floor. Only the spectating area for the hockey rink, the walking track, and some exercise rooms are on the second floor. On the first floor there are 4 entrances, one on each side of the building. The 4 main spaces (hockey rinks, library, gym, and pool) are all separated by either hallways or locker rooms. There are also exterior basketball courts and a skate park that are in use during the summer months.
The form draws upon the rolling terrain and echoes the natural inflections of the landscape, giving rise to an architectural exploration of the building as topography. Ample light is brought into these spaces as seen in the Gym to the right. This allows for efficient heating from the sun in the cold winter months.
Precedent 2:
Fala Park, Poland
The site takes advantage of the breeze off the ocean. The elongated parcel allows for the wind to be the main cooling component. Those spaces that need natural light are located along the lake side for the view. This facility was added on to the existing building, which shelters the park.
Tennis Courts on the roof

Workout room

Mesh facades for wind

Rock climbing wall near lobby

Bowling alley
5. DESIGN CHANGES

I. MID REVIEW 53

II. GATE REVIEW 67

III. FINAL REVIEW 83
I. MID REVIEW
For the mid review the project encompassed everything programatically I had wanted to incorporate. The main focus here was to look at how people would approach the site, enter the building and circulate throughout it. The placing of the program was the difficult part. The Gym, tennis courts, and soccer field all had to go together with the track placed up above. That really was the only part that stayed the same throughout the process. In this iteration I decided to place the library on the third and fourth floors in the northwest corner to keep it away from the hustle and bustle of the ground floor circulation and noise. The materials chosen were mainly brick and glass as those are the two most common materials used in Norwalk. I wanted to create a building that communicated with the rest of Norwalk and one that could easily be identified from the highway as a sense of marketing the building and the program within.
3D AXON OF SITE
UNDERGROUND PARKING
372 SPACES
SECOND FLOOR

OPEN TO BELOW

LASER TAG

ARCADE

STORAGE

OPEN TO BELOW

N

58
The underground parking level was designed to have 2 entrances and exits with 372 spaces available for the users of both the train station and the building itself. There is ample space and height for delivery trucks to maneuver around. The two entry ways are located based off of the road that used to cut through the site. All of the athletic spaces minus the track are located on the first floor as those are the main spaces of the building and simplest to have on the ground floor like the pool. The second floor, as an “in between” floor of the large athletic spaces, has the administration, storage, and an arcade and laser tag section. This allows for the library, track, and walking path to be located on the third floor. The connections between the walkway and track area serve as bridges that can be seen from the main circulation axis on the first floor creating that visual connection to show people what else there is in the building.
View from the track on third floor looking down at the soccer field and tennis courts.

View from bleachers in the gymnasium with the track seen above

View from a stationary bike in the exercise room.
The idea for this was to have an expanse of glass that would give off the feeling of openness and welcome. I wanted to give people a sizable plaza leading to the entrance and they would walk under the bridge from the walkway in the pool area to the track.
This walkway serves as a connection to the track for those who want to have the ability to maneuver through different spaces of the building. It also allows for a view out to the city as well as the pool below.
II. GATE REVIEW
For the gate review a lot of the program arrangement changed. The major one was the walkway that was originally in the pool area being moved above it and turning it into a roof garden. The bridging connections from that walkway to the track are still in place and I added another connection to the exercise room. The massing of the building changed as well. The overall square footage shrunk by more than 100,000sqft as I really dialed back on the excess program. I also wanted to give the library a little better presence so I moved it to the first floor next to the department store and branched off of the main circulation axis that way more people would be apt to visit it and was in an easier location on the first floor for accessibility.
3D AXON OF SITE
UNDERGROUND PARKING LEVEL
347 SPACES
The floor plans for the gate review are much more condensed and efficient than the mid review. Most of the spaces shrunk in size and became much more appropriate in scale. Having the main circulation cut through the building from east to west allows for people to easily travel from the street to the train station as well as branch off to any space in the building. Creating the locker room and bathroom cores helped to further delineate the spaces and create 3 distinct masses. Because of the height needed for the gymnasium, diving pool, tennis courts, and indoor soccer field, the only place to really put a “second floor” was above the library. The third floor is where the 3 masses become the most distinct yet they are all connected by the bridges of the walking path allowing visitors to easily go from one place to the next.
SECTION THROUGH ENTRIES TO PARKING LEVEL

SECTION THROUGH ATHLETIC SPACE AND POOL
SECTION THROUGH LOBBY

SECTION THROUGH LIBRARY AND FITNESS CENTER
VIEW FROM I-95

I wanted the building to have a presence from the highway and placing the roof garden closest to it with the arch from the track looming behind it allows for that presence to come through.

VIEW FROM WEST AVE LOOKING AT THE ENTRY

With the entry I still wanted a small plaza feel to it where people would have to walk into the site and past parts of the building before they could enter. Having the store and library right next to the entrance allows for them to be seen by all visitors.
I wanted to have views from every floor to look back at the lobby. It is located right on the main circulation access this way it can be visible to everyone for anything they may need.

The soccer field is enclosed with Plexiglas that is used for hockey arenas. The track area can be seen above and bleachers run the length of the field.
VIEW OF ROOF GARDEN FROM TREADMILL

For the exercise area I wanted most of the equipment to face in this direction where they would be facing the roof garden and would be able to see the river out on the horizon as well.

VIEW OF GYM FROM BLEACHERS WITH TRACK ABOVE

For the gym I have stands on both sides with a curtain wall on the south side allowing light to enter the space.
The goal here was to have the athletic spaces be intertwined to a degree where they have a relationship to one another.

The garden allows for visitors to have a view of the surrounding area as well as an outdoor space for enjoyment.
III. FINAL REVIEW
For the final review the building became flipped as the main athletic space moved from the south side of the site to the north near the highway. The library moved to the southeast on the corner of West Ave and Reed St in order to give that educational piece a larger presence to the public. The main axis from the street to the train station as well as the vehicular entrance to the underground parking remains the same. Adjacent to the train station is now a drop off and pick-up area. The entrance is now delineated with a reflecting pool and a row of trees.
CIRCULATION AND EXIT POINTS
PROGRAM

TRACK
 TENNIS COURTS
 SOCCER FIELD
 FITNESS
 CENTER
 STORE
 LIBRARY
 POOL
 ADMIN
 PARKING
NATURAL ELEMENTS

Green- grass for rooftop garden and entryway

Blue- reflecting pool

PUBLIC/PRIVATE

Yellow- Private
Black&White- Public
UNDERGROUND PARKING LEVEL
366 SPACES
The floor plans for the final review are fairly similar to the gate review. Everything on the north side flipped to the south and vice versa, that way the entry could become more defined as well as the library and store being the most prominent features to West Ave. Due to the flip the bridges on the 3rd floor had to be rearranged as well as the envelope design. The louver system in place was no longer necessary as the curtain walls all flipped to become north facing.
SECTION THROUGH LOBBY

SECTION THROUGH LIBRARY, FITNESS CENTER AND DEPARTMENT STORE
SECTION THROUGH ATHLETIC SPACE AND POOL

SECTION THROUGH RAMP TO PARKING
From here the pick-up drop-off area for the train station can be clearly seen as well as the main athletic space drawing people's eyes.
I wanted the entry way to be clearly delineated and have a barrier between it and the vehicular entrance with the reflective pool. Having the library adjacent to the entrance allows for easy access for all visitors.
The lobby is the first main space one sees when entering and is the focal point of the layout. Two main corridors meet here where the vertical circulation is located allowing for easy way-finding.
The soccer field is enclosed in Plexiglas used in hockey rinks and is in the open athletic space beneath the track. It can be used for both leagues and training camps for kids and adults.
Two regulation sized courts are located with a north facing curtain wall. The lockers are located behind the bleachers and this space is a part of the open athletic space with the track above.
This walkway from the train station is in between the gymnasium and the pool. It is utilized as a secondary entrance and a bridge to the roof garden can be seen above.
For the fitness center the views are either of West Ave. or of the roof garden. The bridge from the fitness center to the roof garden can be seen on the right.
The rooftop garden has 2 entries as well as a gazebo in the middle and benches along the pathway for relaxation. From here the Norwalk River is visible as well as South Norwalk.
This is the first floor of the library where the help desk is as well as a majority of the book cases. The second floor is for quieter study and has the classroom.
BIBLIOGRAPHY


Norwalk, CT - Official Website. https://norwalkct.org/documentcenter.

