New England Pathway to Recovery: Drug and Alcohol Addiction Treatment Center around Nature in Rocky Hill, Connecticut

Michael P. Lombardi Jr.
Roger Williams University, mlombardi277@g.rwu.edu

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NEW ENGLAND PATHWAY TO RECOVERY

Drug and Alcohol Addiction Treatment Center Around Nature In Rocky Hill, CT

MICHAEL P. LOMBARDI JR.
MASTER OF ARCHITECTURE
ARCH 613 | GRADUATE THESIS STUDIO
FALL 2017
Submitted in fulfillment of the requirements of the Master of Architecture Degree:

Michael P. Lombardi Jr. 
Master of Architecture

Hasan-Uddin Khan
Thesis Advisor | Roger Williams University
School of Architecture, Art and Historic Preservation

Shephen White
Dean | Roger Williams University
School of Architecture, Art and Historic Preservation
NEW ENGLAND PATHWAY TO RECOVERY | ROCKY HILL, CONNECTICUT
MICHAEL P. LOMBARDI JR. | ARCH 613 | GRADUATE THESIS STUDIO
MASTER OF ARCHITECTURE
ROGER WILLIAMS UNIVERSITY
SCHOOL OF ARCHITECTURE, ART, & HISTORIC PRESERVATION
PROFESSOR HASAN-UDDIN KHAN
FALL 2017
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Friends and Family
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INTRODUCTION & ABSTRACT

In the United States, particularly in New England region, there has been an increase in drug overdoses. This drug epidemic includes an escalation in heroin use and rise in the number of opioid deaths each year. In order to improve the situation there needs to be a change in the way individuals with drug and addiction problems receive treatment through counseling and therapy, as well as other programs and activities. This change would create a positive influence and make the world a better place and allow everyone to enjoy life everyday.

The purpose of this project is to create drug and alcohol rehabilitation facility for some hundred patients who will stay between 30 and 90 days to reach a full recovery in a retreat-like atmosphere. Drug and alcohol rehabilitation programs and counseling will educate patients about new methods of interacting with the world around them in a drug-free environment.

Architecture, landscape and site location can play a significant role in an individuals’ healing process. Patients are more likely to successfully recover when they are in a comforting and therapeutic environment. The facility provides a place with a strong visual connection to the surrounding environment and nature – a key element in the recovery process. Natural materials such as stone and wood are used in the design to create a symbiosis with nature.

The quotes on the right can explain how a change needs to be made when dealing with the terrible drug epidemic which can be through architecture. The quote by Jean Nouvel can relate that we need to change the way drug rehabilitation centers are structured with this increase in individuals with drug and addiction problem over the last few years. We need a “new” architecture for these facilities. The second quote by Norman foster shows that architecture has the ability to motivate and inspire. The last quote by Cynthia Leibrock explains that that details in architecture can make a long way in improving a person health.
“Each new situation requires a new architecture.”

–Jean Nouvel

“Architecture is an expression of values.”

–Norman Foster

“The power of a healing environment comes from the little things, the design details that empower patients to take responsibility for their own health.”

–Cynthia Leibrock

(Book: Design Details for Health: Making the Most of Interior Design’s Healing Potential)
MANIFESTO

Architecture can create a healing environment and space for individuals and community members who are struggling with a drug or alcohol addiction problem.

There are many questions that came to mind for this type of architectural project: How will the place exist in a neighborhood where people might not want a rehabilitation center for drugs and alcohol close by? How can architecture impact a community? Can architecture relate to a holistic environment in ways of having views of nature and creating a relationship between the landscape and the building? What type of functions can the building offer to the community? When thinking of these questions, I think it can be possible to achieve these goals and create a welcoming place for people might have an addiction problem and create a place that can be based around a natural environment.
A ROAD TO RECOVERY
Drug overdoses and alcohol addiction have been rapidly increasing over the years in America, especially in New England. The increase in drug overdose and addiction has led towards serious problems and concerns for communities. Many individuals who often need help do not want to receive medical care at a medical facility since it can appear depressing and intimidating. Can architecture elements allow patients who have been affected from these drug and alcohol addictions heal faster and return to a better healthier lifestyle? Can designing a drug and alcohol habitation center provide a better place for comfort with a luxury type of atmosphere and a place that provides an easier way for the healing process?

The intention for this project is a long-term drug and alcohol rehabilitation facility with a retreat type of atmosphere. Drug and alcohol rehabilitation programs and counseling help teach patients new methods of interacting in a drug-free environment when going through different programs and types of activities. This place will focus on creating a place that can be for the community and the surrounding area to receive a full recovery while being incorporated into the landscape and having a strong visual connection to the surrounding environment. This place would be for people with a addiction of drugs and alcohol.
“Worst Drug Crisis in American History”

“64,000 Americans died from overdoses last year — 175 every day, seven every hour”

“This epidemic is a national health emergency. Nobody has seen anything like what is going on now. As Americans, we cannot allow this to continue. It is time to liberate our communities from this scourge of drug addiction. Never been this way. We can be the generation that ends the opioid epidemic. We can do it.”

- President Donald Trump
The objective of the building and functions will incorporate a holistic treatment type of atmosphere with a connection to nature and the landscape. A holistic treatment can relate to the disease of drug and alcohol instead of the symptoms that can cause the addiction. The cause of these addictions can be through stress, childhood trauma, or other issues like the environment the person is living in. A holistic treatment approach can help provide a person with physical and emotional sobriety that can be calming and soothing while being in a clean and positive living environment. Some of the programs can include nature hikes, art, music, equine therapy and yoga or meditation classes. The treatments can be personalized to a person’s needs when receiving treatment. Also, holistic treatments help heal physically, mentally, and spiritually individuals when being a part of these treatments. The environment is a big part of holistic treatment with how it can interact and create connections with the different functions and programs that can be offered to the person that is in this healing process. Can architecture relate to a holistic environment in ways of creating views of nature and forming a relationship between the landscape and the building? The shape or spaces within the building form can be incorporated within the landscape by creating this relationship atmosphere between nature and the natural environment when receiving this holistic type of treatment.
Another feature about the project is to create an inpatient type of treatment since this treatment is more successful and most recommended method of treating drug abuse and addiction than outpatient treatment. Inpatient treatment allows people to receive treatment a longer period of time and is able to have 24-hour care while having residential treatment programs. Outpatient care is mostly a day treatment which allows users during the day or a few days a week. Inpatient treatment also allows the person to be removed from any environment that might have caused their addiction.
Why do People Start Using Drugs and/ or Drinking?

Some of the main reasons people start taking drugs is because they might feel peer pressured if other people like their friends or relatives are drinking or doing a drug substance. This is especially with young people since they feel more comfortable and feel like they have better social skills when trying new things. Getting addicted to a drug substance or drinking can start slow. However, it can easily happen and might not even be noticeable. Also, many people use drugs or drinking to temporary relieve pressure or emotions, which are caused by problems that might be going through in their life. This can lead to addiction when doing these types of actions since the drugs make them feel good and forget the problems. Eventually, the user cannot live without the drugs or drinking.

The chart to the right shows that the user usually receives the drug or prescription and most common way is through a friend or relative. Also, many doctors prescribe drugs to patients. However, some people take advantage of the system and give prescription away or take more than they need.
The drug overdose epidemic has been rapidly increasing in New England and especially in the State of Connecticut. Between 2013 through 2015, there have been around 2,000 drug overdose deaths just in Connecticut. More people have died from taking drugs compared to motor vehicle accidents and firearms. The map of New England shows that many of the states have seen a significant drug overdose increase from 2013 to 2015.

The State of Connecticut and Governor Malloy have been creating solutions in reducing drug use and overdose problems throughout the state. In creating a rehabilitation center for drugs and alcohol, communities can help decrease this large problem in the state and throughout New England. Governor Malloy mentioned that he wants to become a leader in stopping this terrible drug overdose epidemic and implement a plan to prevent drug addiction. The map of Connecticut on the right shows the overdose deaths in 2015, which is spread throughout the entire state. The biggest problem the state is having a rise with heroin use, which involved many of the deaths in Connecticut and throughout New England. In Hartford, there is the highest amount of drug problem and overdose cases. From an article called CT Heroin Epidemic: Interactive Map of Deaths by Town, it mentions that “the youngest Connecticut heroin overdose victim in 2015 was a 17-year-old and the oldest was 71-years old.” This shows there is a wide range in age of people taking harmful drugs.
“We have to treat addiction like a public health issue not a crime. Connecticut is taking a stand against a nationwide prescription opioid and heroin overdose epidemic to become a leader in combating opioid and heroin use, preventing drug addiction and overdoses.”

- Governor Malloy

“In 2015 more than 52,000 people died from a drug overdose; of those, 33,091 (63.1 percent) involved a prescription or illicit opioid. Since 2000, more than 300,000 Americans have lost their lives to an opioid overdose.”

- Centers for Disease Control and Prevention

16 states had increases in synthetic opioid death rates from 2014-2015. The greatest percent increases in death rates were in New York (135.7 percent), Connecticut (125.9 percent) and Illinois (120 percent).

- Centers for Disease Control and Prevention

**Number of Deaths in Connecticut:**  
2013: 582  
2014: 623  
2015: 800  
2016: 917

**CT Heroin Epidemic Map of deaths**

**Accidental deaths since 1999 in CT**
2016 OPIOID OVERDOSE DEATH RATES AND OPIOID OVERDOSE DEATH RATES AND ALL DRUG OVERDOSE DEATH RATES PER 100,000 POPULATION

SOURCE: Kaiser Family Foundation’s State Health Facts.
DRUGS INVOLVED IN U.S. OVERDOSE DEATHS, 2000 TO 2016

SOURCE: Kaiser Family Foundation’s State Health Facts.
2016 drug overdoses
Between 59,000 and 65,000 deaths

Peak car crash
deaths (1972)

Peak H.I.V.
deaths (1995)

Peak gun
deaths (1993)

Drug overdose deaths,
1980 to 2016

10,000 deaths
per year

SOURCE: Kaiser Family Foundation’s State Health Facts.
In Connecticut, drug possession and distribution is being taken very seriously. The punishments can be strict leading an individual into jail time or having to pay a large fine. The charts on the right show the different charges that can be given to a person that has drugs in their possession or gets caught for distribution of drugs.

The use of drugs and alcohol can have a negative effect on a person’s life and can impact friends, family and other people in the community, which can lead a person to have a criminal record. There are a few types of crime related to drugs and/or drinking alcohol. The first type is “use-related crimes,” which is an individual committing a crime while being on a type of drug. For example, the crime relating incident might include domestic violence, driving while intoxicated, property offenses or public offenses. The second type is “economic-related crime,” which is when an individual commits a crime in order to buy additional drugs. Some of these crime-relating incidents might be theft and prostitution. The third type is “system-relating crime,” which is a crime relating to drugs. This includes production, manufacture, transportation, and sale of drugs. According to the National Council of Alcoholism and Drug Dependence, “approximately 60% of individuals arrested for most types of crimes test positive for illegal drugs at arrest” and many jails are getting overpopulated with inmates in prison who have a substance abuse.

Today, in state and federal prison, it is estimated that half of prisoners should receive treatment for drug abuse. However, many of the prisoners who need the treatment never receive it and after the individual is released from prison they are likely to return to alcohol and drug use. Research and studies have shown that people who have received drug treatment have minimized their criminal behavior. Also, according to National Council of Alcoholism and Drug Dependence, if prisoners received treatment or have a drug prevention program they could be less expensive in the long term. In many ways there will be fewer arrests, incarcerations, child welfare and medical cost and less tax dollars.
## Connecticut Drug Possession and Distribution Laws and Penalties

### Drug Possession Penalties in Connecticut

<table>
<thead>
<tr>
<th>Drug Possession</th>
<th>First Offense</th>
<th>Second or Subsequent Offense</th>
<th>Third or Subsequent Offense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>$150 fine</td>
<td>up to a $500 fine</td>
<td></td>
</tr>
<tr>
<td>under 1/2 oz</td>
<td>up to 1 year in jail</td>
<td>up to 5 years in jail</td>
<td></td>
</tr>
<tr>
<td>1/2 oz to 4 oz</td>
<td>up to a $1000 fine</td>
<td>up to a $3000 fine</td>
<td></td>
</tr>
<tr>
<td>4 oz or more</td>
<td>up to 5 years in jail</td>
<td>up to 10 years in jail</td>
<td>up to a $5000 fine</td>
</tr>
<tr>
<td></td>
<td>up to a $2000 fine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallucinogen Drugs</td>
<td>up to 5 years in jail</td>
<td>up to 10 years in jail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>up to a $2000 fine</td>
<td>up to a $5000 fine</td>
<td></td>
</tr>
<tr>
<td>Narcotics</td>
<td>up to 7 years in jail</td>
<td>up to 15 years in jail</td>
<td>up to 25 years in jail</td>
</tr>
<tr>
<td></td>
<td>up to a $50,000 fine</td>
<td>up to a $100,000 fine</td>
<td></td>
</tr>
<tr>
<td>Other Drugs/ Controlled Substances</td>
<td>up to 1 year in jail</td>
<td>up to 5 years in jail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>up to a $1000 fine</td>
<td>up to a $3000 fine</td>
<td></td>
</tr>
<tr>
<td>Possession of Drugs in a School Zone</td>
<td>mandatory 2 year jail sentence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possession of Drugs Paraphernalia</td>
<td>maximum sentence of 3 months in jail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Possession</td>
<td>First Offense</td>
<td>Second Offense</td>
<td>Subsequent Offense</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Marijuana</td>
<td>up to 7 years imprisonment, a $25,000 fine, or both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sale of 1 kg of Marijuana</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sale of over 1 kg of marijuana</td>
<td>minimum of 5 to 20 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallucinogen Drugs &amp; Narcotics</td>
<td>up to 15 years imprisonment, a $50,000 fine, or both</td>
<td>up to 30 years imprisonment, a $100,000 fine, or both</td>
<td>up to 3 years indeterminate sentence with conditional release</td>
</tr>
<tr>
<td>Other Drugs/Controlled Substances</td>
<td>up to 7 year in imprisonment, a $25,000 fine, or both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sale of at least 1 Ounce of Heroin, Cocaine, or Methadone</td>
<td>mandatory minimum 5 to 20 years imprisonment with a possible term of life imprisonment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sale of at least 1 kilogram of Marijuana or any amount of Narcotics</td>
<td>minimum 5 year jail term with a possible maximum term of up to 20 years</td>
<td></td>
<td>mandatory minimum 10 year jail term up to a 25 year</td>
</tr>
<tr>
<td>Selling of Drugs within a School Zone</td>
<td>mandatory 3-year jail term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling Drugs to a Minor</td>
<td>mandatory 2 year jail term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiring a Minor to Sell Drugs</td>
<td>mandatory 3 year jail term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causing the death of a user by selling heroin, cocaine, or methadone</td>
<td>Life imprisonment without possibility of early release or a death sentence if the jury finds that aggravating factors outweigh mitigating factors</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The capital of Connecticut, Hartford, is located in the center of the state. The city is the third largest community in Connecticut with a population of 124,006 people who live within the area of Hartford. Hartford contains a range of wealthy and poor people while being an extremely ethnically diverse city. The most prevalent group of people in Hartford is Hispanic and Latino. The largest age group who live in Hartford are between the ages of 35 to 54. The overall per capita income in Hartford in 2010 was $17,311, which is very low compared to Connecticut and the income nationwide.

**Race & Ethic Diversity**

- White: 15.4%
- Black Or African American: 35.2%
- American Indian And Alaska Native: 0.1%
- Asian: 2.6%
- Native Hawaiian And Other Pacific Islanders: 0.0%
- Some Other Race Alone: 2.4%
- Two Or More Races: 0.0%
- Hispanic Or Latino (Of Any Race): 44.2%

**Age**

- 65 Years And Over: 9.6%
- Under 5 Years: 7.0%
- 55 To 64: 9.5%
- 5 To 17: 17.9%
- 35 To 54: 23.9%
- 18 To 24: 16.2%
- 25 To 34: 15.9%

**Per Capita Income**

- Hartford: $17,311
- USA: $28,930

**Median Household Income**

- Hartford: $30,630
- USA: $53,889
Rocky Hill is a medium-sized town located close to Hartford and has a population of 20,021 people. Rocky Hill has professional, managers, sales, and office workers who live and work throughout the town and area of Hartford. The per capita income in Rocky Hill is $42,252, which is higher than Hartford, however it is in the middle relating to Connecticut and the overall nation income. Also, compared to Hartford, Rocky Hill is a very ethnically diverse town and the largest age group in the town is between 35 to 54 years old.
In Connecticut, the Hartford Metropolitan region has one of the higher percentages of people that live under the poverty level, which is about 12.6%. The center portion of the city has the greatest population of people under the poverty level and for the most part, those who are wealthier reside the outskirts of the city of Hartford. In 2015, 37.3% of residents had an income below the poverty level. When comparing this percentage to the entire state, it is approximately 13.7%. In the Hartford area, there are more men compared to women that are under the poverty level, especially people who are younger.

Breakdown by races of poor residents in Hartford

Residents with income below the poverty level in 2015

- Hartford: 37.3%
- Whole State: 13.7%
Breakdown by age of poor male residents in Hartford below poverty level

Breakdown by age of poor female residents in Hartford below poverty level
Crime in Hartford:
Hartford has one of the highest crime rates with crimes relating to violent and property in America. The chance of becoming a victim of either violent or a properly crime is 1 in 18. For violent relating incidents, it is one of the highest in the nation and violent offenses include rape, murder, armed robbery, assault and many more. Also, property crime is very high in the area of Hartford according to neighborhood scout source.

Crime in Rocky Hill:
According from the data, it shows that Rocky Hill is around average for crime rate compared to other cities and town in American. The chance of being a victim of violent or a properly crime is 1 in 57, which is significantly higher than Hartford. The property and violent are similar to Hartford; however, they are much lower in percentages. When comparing data, Rocky Hill seems to be a much safer town to live in compared to Hartford and some of the other surrounding towns.
CRIME INDEX
4
(100 is safest)
(Safer than 42% of U.S. Cities)

Hartford Annual Crime

<table>
<thead>
<tr>
<th></th>
<th>Voilent</th>
<th>Property</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Crimes</td>
<td>1,421</td>
<td>5,471</td>
<td>6,892</td>
</tr>
<tr>
<td>Crime Rate</td>
<td>11.46</td>
<td>44.12</td>
<td>55.58</td>
</tr>
</tbody>
</table>

CRIME INDEX
42
(100 is safest)
(Safer than 42% of U.S. Cities)

Rocky Hill Annual Crime

<table>
<thead>
<tr>
<th></th>
<th>Voilent</th>
<th>Property</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Crimes</td>
<td>3</td>
<td>349</td>
<td>352</td>
</tr>
<tr>
<td>Crime Rate</td>
<td>0.15</td>
<td>17.43</td>
<td>17.58</td>
</tr>
</tbody>
</table>
Design Strategies:
The Psychrometric charts show several different pieces of information regarding the temperature and humidity that affect how environment feels to a person. The table shows data in different points that correspond to single hours throughout the year. The blue comfort zone represents the area of temperature and humidity and combined together in the chart to produce a comfortable environment. Looking at the chart, it shows that making a building to have a comfortable condition, it will need to include heating and humidification and have an internal heat gain to achieve active design strategies. For passive design strategies, sun shading and passive solar direct gain will significantly improve making an environment comfortable.

Also solar energy can be an important aspect in the design. Shown in the solar energy chart, it shows shortwave radiation, which includes visible light and ultraviolet radiation. The brightest period of the year is from May to the end of August and the darkest period of the year is between November and February.
### DESIGN STRATEGIES: JANUARY through DECEMBER

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Strategy</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2%</td>
<td>Comfort</td>
<td>543</td>
</tr>
<tr>
<td>9.3%</td>
<td>Sun Shading of Windows</td>
<td>811</td>
</tr>
<tr>
<td></td>
<td>High Thermal Mass</td>
<td>0</td>
</tr>
<tr>
<td>6.1%</td>
<td>High Thermal Mass Night Flushed</td>
<td>532</td>
</tr>
<tr>
<td>5%</td>
<td>Direct Evaporative Cooling</td>
<td>0</td>
</tr>
<tr>
<td>6%</td>
<td>Two-Stage Evaporative Cooling</td>
<td>0</td>
</tr>
<tr>
<td>9.6%</td>
<td>Natural Ventilation Cooling</td>
<td>840</td>
</tr>
<tr>
<td>8%</td>
<td>Fan-Forced Ventilation Cooling</td>
<td>0</td>
</tr>
<tr>
<td>20.5%</td>
<td>Internal Heat Gain</td>
<td>1798</td>
</tr>
<tr>
<td>6.4%</td>
<td>Passive Solar Direct Gain Low Mass</td>
<td>560</td>
</tr>
<tr>
<td>11%</td>
<td>Passive Solar Direct Gain High Mass</td>
<td>0</td>
</tr>
<tr>
<td>1.8%</td>
<td>Wind Protection of Outdoor Spaces</td>
<td>156</td>
</tr>
<tr>
<td>4.6%</td>
<td>Humidification Only</td>
<td>0</td>
</tr>
<tr>
<td>4.6%</td>
<td>Dehumidification Only</td>
<td>405</td>
</tr>
<tr>
<td>2.8%</td>
<td>Cooling, add Dehumidification if needed</td>
<td>247</td>
</tr>
<tr>
<td>54.8%</td>
<td>Heating, add Humidification if needed</td>
<td>4801</td>
</tr>
</tbody>
</table>

#### 99.9% Comfortable Hours using Selected Strategies

(8754 out of 8760 hrs)
**CONTEXT | environmental conditions**

**Temperature, humidity, wind:**
The charts toward the right show the average climate conditions for each month of the year. From the data, it shows that during the summer it is warm and the winters are fairly chilly. The warmer season lasts for about three and half months which is around the end of May to the middle of September. The colder season is about the same, which is from the beginning of December to the middle of March. For the water temperature chart, it indicates that average water temperature is the warmest between the end of June to the beginning of October.

Another environment condition to consider is the humidity. The Humidity chart shows the comfort level, which indicates the dew points. The lower dew points feel dryer and the higher dew points feel more humid. The chart shows that the muggiest period of the year is from June to the end of September and least amount of muggiest is during the cooler months. The wind chart shows that the windiest part of the year is from the beginning of November to the end of April, which is around 2.8 miles per hour. The calmer part of year is from the end of April to the beginning of November. The wind direction is often coming from the south throughout the year.
Average Water Temperature

Humidity Comfort Level
context | environmental conditions

Temperature, humidity, wind cont.:

Average Water Temperature
Wind Direction
Precipitation, Rainfall, Snowfall, Cloud Cover, Daylight Conditions:

The precipitation in this area shows that the wetter season is from April to August and the drier season is from August to April. Most of the precipitation is in the form of rain throughout the year. The rainfall chart shows that the wettest part of the year is around October. However, the snowfall chart shows that the snowiest time of the year is from November to April.

The hours of daylight changes significantly throughout the year ranging from the longest day in the middle of June, which is around 15 hours of daylight while the shortest day is in December that has around 9 hours of daylight. The cloud coverage is the clearest at the end of June, which lasts until around November. After November to the end of June the sky is overcast or mostly cloudy for most of the year.
Daily Chance of Precipitation

Cloud Cover
Precipitation, Rainfall, Snowfall, Cloud Cover, Daylight Conditions cont.:

Sun Hours of Daylight and Twilight
Sun Sunrise & Sunset with Twilight and Daylight Saving Time
ARCHITECTURAL INTENTIONS
ARCHITECTURAL INTENTIONS

The architectural intention for the project is to incorporate natural material within the design by using a variety of materials. This could include natural stone, different types of wood, glass, and metal. Also, since the terrain has many different height changes, the building would be placed within the landscape in certain areas of the site. The building form allows for programmatic functions to interact with the natural environment on the exterior, which creates the interior spaces to have a relationship with each other. The spaces and programs will have a relationship to nature in creating an environment, which will act as a healing strategy for individuals who have a substance abuse. Also, in making a friendly building environment space, incorporating sustainability features will be a key aspect into the design when connecting the building to the natural environment. The building might have interior courtyards with gardens within the design, so natural lighting can be brought into the spaces and create an important connection to the outdoor environment and nature.

These types of gardens can be considered as healing gardens that can relate to the program and creating a method that indicates a better quality in life. The idea of a healing garden can be a place for a person to relax and escape from the everyday stress that they might have before coming into the recovery center. While reading a book called Healing Gardens written by David Kamp mentions that there many different types of gardens that can be incorporated into the design which includes water that can be running from a fountain or pond or artwork can be displayed to create different focal points roof terraces or roof gardens. Also, David mentions that “studies have proven that natural environments outside- 164-foot (50 meter) radius from residential areas would result in a decrease in the number of visits to the gardens, and an increase in stress level”. (Kamp, pg 6). Also, since the building is relating around nature, green houses and gardens can be design in the interior of the building so people that are at the habitation center can have access to nature during the colder months. These interior spaces can include green living wall that can be a centerpiece in a space where people can have a stronger connection the natural environment on the outside while being still inside. This will make an interior space feel like it has brought an exterior environment inside to the building.
Variety of materials

Henry Ford Downtown Hospital Living Wall Enhances the Quality of Life of its Patients

Linnean House Historic Renovation in St. Louis Missouri
SITE ANALYSIS

history | transportation | immediate context | vegetation | topography | access
SITE ANALYSIS
SITE ANALYSIS

Rocky Hill, Connecticut is in Hartford Country along the banks of the Connecticut River. It is only 8 miles from the capital city of Hartford and has a population of 20,021. The town offers futures include preservation of historic buildings, parks, business environment, commercial and residential within the Hartford Metropolitan region.
SITE ANALYSIS | history of rocky hill

The town was first part of Wethersfield, which is the neighboring town to the north. It became Rocky Hill in 1843. Rocky Hill is known for its geologic history because in 1966 dinosaur bones were discovered during an excavation of a state building, which later state officials decided to preserve the site as a state park. After these discoveries of 2,000 dinosaur tracks, a dinosaur park was open in 1968 to show the history of time of dinosaurs. This dinosaur park is the largest in North America. Within the park, there are many nature trials and different types of plant life throughout the property.

Also, in the area of Rocky Hill, it believes that Native Americans were living in the area for the last 10,000 years. One of the most important archaeological sites in Connecticut history called Morgan site is considered to have many artifacts and dietary remains of the Wangunk community life from AD 1065 to AD1365. Some of the artifacts that were discovered looked like to be some men’s wood working materials like triangular stones with an arrow tip, which indicated hunting. Also, shallow mortar and pestles were discovered and signified what women would use for food preparation. The site of Morgan is located along the Connecticut River, which still has aspects of how the Wangunk survived using certain plants in the area like black walnut, chestnut, and mints and club moss for medical plants. Since being along the Connecticut River, the Wangunk were able to use the river for fishing. In 1614, Wethersfield and Rocky Hill part of New England, Europeans “discovered” when an Dutch explorer Adriaen Block sailed up the Connecticut River where the Dutch and British traded with Native Americans that created the settle of Wethersfield after 1634. However, in 1650, the population grew, which led setters to move southward from Wethersfield into the part where it is called Rocky Hill today.

In the early 1700, the Connecticut River re-oriented its main channel due to flooding several sandbars developed and resulting into making Rocky Hill a new place for becoming a major maritime commercial area where goods able to be transferred from land to small boats that went upstream the Connecticut River. In 1803, in the center of the town a brick building called Academy Hall was made, which was used as an early educational center to teach maritime and navigational skills. In the mid-1800s, the introduction of the railroad system was created for transportation of goods and supplies that went from Cromwell to Hartford. This railroad system went along the Connecticut River through Rocky Hill. The trolley service was developed in the town in 1910, which led to expanding the highway system. After World-War II, interstate 91 was created and the population of the town doubled from 1960 to 1980.
SITE ANALYSIS | history of rocky hill
Colonial Lifestyle

Dinosaur Tracks Found In Rocky Hill

Interstate Highway Construction

"Discovery Of Connecticut"
The area of rocky Hill is located around some major highways and interstates that go through the state of Connecticut. The site is located right off interstate 91 and off one of major roadways in Rocky Hill, which is Main Street.

Public transportation can access in many areas of Rocky Hill; however, the closer bus route is on Main Street, which goes from Middletown to Hartford. The bus route has scheduled stops that the buses are required to stop at. However, these buses can stop at any point along the route allowing for flexibility.
The site is located at the center of New England, in Rocky Hill, just outside of Hartford which makes it a quick distance from the Hartford and other surround communities. The local area is important to be fairly close to help since patients might have to be transported if there is an issue. Getting to the downtown of Hartford and to the hospital it takes around 16-20 mins while Middlesex hospital has less than a 10 minute travel time.
1. Middlesex Hospital Primary Care
2. Hartford Healthcare Medical Group
3. Hartford Hospital
4. Hartford Healthcare
5. UCONN Health
SITE ANALYSIS | immediate context

Rocky Hill is made up of variety types of programs from schools, religious buildings, parks, historical buildings, libraries and many other significant buildings and places. Rocky Hill is a prime location with easy access to any place within the town. Surrounding the programs is mostly residential which make up most the Rocky Hill while also having some larger business and industrial uses spread within this areas.

- Police, Fire, and EMT Departments
- Religious Institutions
- Schools
- Libraries
- TPC River Highland Golf Club
- Veterans Home and Hospital
- Glasonbury/ Rocky Hill Ferry
- Dividend Park
- Dinosaur State Park
- Site
SITE ANALYSIS | **significant businesses & buildings in rocky hill**

Throughout Rocky Hill, there are many larger business and corporations that provide a large amount employment to the area. Also, interstate 95 provides a strong access to the areas within the town. The chart to the right shows that since 1980 up to 2010 there...
were more jobs in the community than housing units. However, the town has been increasing over the past few years with residential.
Throughout Connecticut there are a few drug & alcohol rehabilitation facilities that offer inpatient and outpatients care. However, each offers different types of treatment and programs in ways in dealing with an addiction. The inpatients offer day treatment that can be a few days a week while outpatients offer a 24-hour care for a longer period of time.

In addition, the type of treatment that has positive outcomes with the recovery process of drug addiction is holistic treatment. In the map on the left shows that this type of treatment has only a few in the state and is more on the outskirts of Connecticut away from Hartford that has the highest percentage of drug problems. Shown in the map there is only one outpatient facility close to the site, however it is on the other side of the Connecticut River and has offer programs to a maximum of 15 men and 15 women during a time. The holistic treatments on the borders of the state offer many programs that relate to the landscape and nature without many distractions from places that have drug and alcohol addiction problems. These places on the outskirt are located in more rural areas away from large population that have a higher percentage of drug and alcohol addiction.

The location of the site has similar aspects to the other holistic treatment in Connecticut which in ways it’s relating to nature and the natural landscape through the architecture, functions and programs of the spaces. Also, being close to Hartford is a key aspect in the design which creates easy access to the site but still able to make connections to nature in creating minimum outside distractions.

- Outpatient - Day Treatment
- Inpatient- Long Term Treatment
- Inpatient- Long Term Treatment with Holistic Treatment
- Outpatient- Day Treatment with Holistic Treatment
- Site

1. Connecticut Addiction Medicine in Rocky Hill
2. Connecticut Addiction Medicine in Hartford
3. InterCommunity Clayton House
4. Wheeler Clinic Health & Wellness center
5. Community Mental Health Affiliates (CMHA)
6. Stonington Institute Rediscovering Life
7. New Directions
8. Mountainside Treatment Center
9. High Watch Recovery
10. MCCA
SITE ANALYSIS
immediate context
CT drug & alcohol rehabilitation facilities
SITE ANALYSIS | green + recreational spaces

Rocky Hill is has many parks and recreational areas which people in the town and surround communities are able to enjoy the natural environment. The overall characteristics of these areas help contribute in the community in making a better quality of life of the residents. Throughout the area there are many hiking trails and parks with playgrounds and other outdoor activities. In many of the parks, there are many different types of wildlife and vegetation. The closest park to the site is Dividend Park which has a waterfall and many different nature trails that loop around two ponds and Dividend River.
SITE ANALYSIS | vegetation

Rocky Hill has a variety group of vegetation. From trees to shrubs, fern and grasses there are diverse types of planting from the shore line of the Connecticut River to the interior spaces. Also, there many different types of planting in the marsh and park areas where there are more ferns and grasses that aside the wetter areas. During the different seasons, the trees and planting change overtime by their color which is known as the fall foliage. During the winter, most of planting loses it leaves in the area of the site.

**Trees**
1. Acer rubrum
2. American Sycamore
3. Betula Lenta
4. Carya ovata
5. Fraxinus Americana
6. Quercus alba
7. Quercus rubra
8. Tilia americana

**Shrubs**
9. Alnus incana
10. Azalea
11. Rhododendron
12. Mountain Laurel
13. Viburnum acerifolium

**Ferns**
14. Athyrium filix-femina
15. Thelypteris palustris

**Grasses/Grasses-like plants**
16. Andropogon gerardii
17. Elymus canadensis
18. Spartina pectinata
SITE ANALYSIS | dividend park

The site is located next to park called Dividend Park Trails, which most of the site is surrounded by this park. Dividend Park during 1667 to the 1900s was owned by Bigelow-Sanford Company, which the location was known as the water-powered industrial and mills on the property grinded grains, trees were sawed in lumber, and the factories producing horseshoes, shears, chisels and more. In 1975, the town took ownership of the land, which included dams and 235 acres. Sixty-eight acres of the property became Dividend Park Trails and Archaeological District and the other acres became Rocky Hill’s Industrial Park. Many Archaeological digs were conducted, which many discovers were found of the existing factory that used to run on the park property. Dividend Park is listed on the State Historic register in 2004. Throughout the park, there are nature trails that wrap around the two ponds, dams and seating areas of the beautiful scenic landscape. On the paths, there is signage, which explains certain elements of the mill that are still visible on the site.
SITE ANALYSIS | dividend park
SITE ANALYSIS | dividend park
The TPC Highland golf course is located next to the site along the Connecticut River. The golf course first was known as the Middletown Golf Club in 1928, however over time it has changed names and has been renovated a few times. The private golf club is on the border of Rocky Hill; however it is located in Cromwell, CT. This golf course is well-known in the area and around the country since it is part of the PGA Tour (Professional Golf Tours) that happens every year at the end of June which stated in 1991. This golf tournament is broadcast across the country and world on the radio and television since this tournament brings many professional golf players to the area. The tournament usually brings in thousands of people to watch this event which the money raise at the tournament goes to many charity’s around the state. One of the largest participates for the tournament is The Travelers which help run the event.
SITE ANALYSIS

The location choice is in Rocky Hill, CT which allows for patients to focus on getting better without having any outside distractions when being surrounded by the natural environment using sustainably features within the architectural design. The site stretches along the Connecticut River, which allows for patients to have an ideal rehabilitation experience and connect to nature since the size of the property is very large. This property was chosen for the site since it is close to Hartford, which has the most drug and alcohol addiction and overdoses in the state. However, Rocky Hill is a short distance away from the city of Hartford, which is better for the user since it is better to have treatment facilities in places that are not associated with drugs. It forces the people struggling to get out of their area for treatment and heightens their ability to succeed. The site has a good relationship to a holistic type of treatment since a holistic treatment program connects very well to nature and water when being surrounded by a peaceful environment. For many of the programs offered it is ideal to be surrounded with nature such as horseback riding or nature hikes. These activities need a large amount of land. Also, choosing the site in natural environment with not too many amenities in the area helps the user with the healing process which relates body, mind, and spirit aspects of the holistic treatment. Also, another reason I choose this site because the land is currently for sale which I thought it would be a great opportunity to design a building on a property that can be buildable.
The topography greatly varies throughout the site. Towards the waterfront it is at the lowest grade while when getting near the railroad track the grade increases. Also, the grade significantly increases on the south side of the site which is along the golf course. Another area the grade increase is along Dividend Park which the topography varies in certain sections while in middle of the site is mostly flat. The topography change can be seen in the map and section where the grade increase or decrease throughout the site.
SITE ANALYSIS | site views
SITE ANALYSIS | site views
The approach into the site is off the main road into the Rocky Hill Industrial Park entrance. At the corner of the street there an EMT/FIRE department which creates easy access to the site. While first going down the road, there are large businesses that are on either sides of the road, however, the road leads to an entrance that goes directed into the site. This entrance captures views of the lower area of the site while the viewers able look back up to the other access point. While going into either approach into the site, the individual able to feel like they are in the middle of nature and the landscape but still being close to many busy areas in the surrounding context.
ARCHITECTURAL PROGRAM
**Client:**
The client would likely be an organization providing rehabilitation services, which are operated by administrative staff. Many insurance companies would pay for the user to receive treatment or the user would have money on the side that he or she would be able to pay for rehabilitation on their own. The staff members and doctors would be highly specialized in drug treatments while providing these services for the users that need the treatment.

**Users**
The individuals using the drug and alcohol rehabilitation building have a drug or alcohol addiction between the age group from 18 to 50. This age group allows for a wide range of users that would able to receive treatment at this center. Male and female users can receive treatment at this retreat center. The treatment center offers 30, 60, 90, and 120 days or up to the maximum of 6 months of inpatient treatment programs since patients are recommended to stay longer to receive a full and healthy recovery. The length of stay was decided after having an interview with Dr. Heather Paluso who is the Director of Outcomes and Compliance at Community Mental Health Affiliates mention the longer the patients able to stay, the better results however having it more than 6 months will be hard for a patient or insurance to pay for treatment. For the first few weeks, patients might feel withdrawals so the benefits of staying longer can also help with a recovery process.
ARCHITECTURAL PROGRAM

The programs for the rehabilitation center for drug and alcohol is to relate to the users needs in different ways to go through a comfortable healing process and make to a good recovery. The different types of programs relates to a retreat atmosphere to make the user to feel like their home. The building environment relates to nature, which many people find that being in or surround with nature creates a more relaxing atmosphere. This atmosphere relates to a holistic type of treatment and also relates to the body, mind and spiritual environment. Having a rehabilitation center in the natural environment can create positive physical and mental health. The programs are based around people who are suffering from addition to drugs and alcohol. It’s a place for people that have has an addition to heroin, opioid, marijuana, cocaine, crystal meth, prescription drugs, and alcohol.

“Imagining a day in the life of the building”
First thing in the morning, you have a choice of a healthy breakfast. After breakfast, you would go to a relaxing class. For example, yoga or meditation would be the first activity to start the day. A healthy nutrition can be a positive attribute. There would be daily therapy, individual therapy, and group therapy services later in the morning and early afternoon. The group session would have around 8 to 15 people per group and the space would have an open layout to have an easier and open conversation with other people in the room. The spaces would have natural lighting with artificial lighting and would have views to the outdoors environment. Also, parts of the building would incorporate outdoor spaces for different therapy sessions and activities. Nature is a large aspect in the healing process when doing certain programs and having architecture being incorporated into the design of the healing process. Just to name a few therapy programs that would be offered are art therapy, music therapy and dance, which can help express creativity and ideas and allows the client to heal instead of thinking about years bad choices involving different harmful substances. During the evenings, the patients would do additional sessions and during free time patients are able to do recreation activities. For example, this could be swimming, basketball, soccer, and racquetball. Additional activities for patients include going to quiet areas for reading, going on nature walks, relaxing in a therapy garden or even horseback riding. Throughout the day, patients are able to interact with other people that might be going through the same process in healing from substance abuse while being surrounded by nature.
<table>
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<th>Program Type</th>
<th>Quantity</th>
<th>Spaces</th>
<th>Square Feet</th>
<th>Total Square Feet</th>
<th>Notes</th>
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<tr>
<td>Outdoor Spaces/Greenhouse</td>
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<td>Delivery Area</td>
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Total: 69,240
Total Net: 90,012
**Entrance Area:** The entrance will be a welcoming area for patient’s first coming into the facility, which will include a reception area and vestibule before leading the other surrounding spaces.

**General & Administrative:** The administrative area would likely be the first place for patients to contact before coming to the facility. They might go in this area when first arriving at the rehabilitation center. The Director office of the Rehabilitation center would be here and other offices for Billing, Marketing, and any other general office positions.

**Medical Center:** A medical center would be incorporated into the design so patients can receive medical care as patients might have withdrawal symptoms, which is called the detox period. When a patient first arrives at the treatment center they would be housed in the detox room or space for a few days or a week since withdrawal symptoms can be difficult at times. This place will have doctor offices too.
**Rehabilitation and Support Programs:** The Rehabilitation & support programs are based around therapy sessions and different activities for the patients. These programs can be individual and group oriented, which patients are able to bond with peers around their age to have a better recovery. Some of the programs that can be offered are art or music therapy and nutrition classes. For individual counseling, it can help a patient discuss their thoughts or feelings and help gain a clearer understanding in creating positive thoughts about themselves. In group therapy, patients can express thoughts or feelings to other people who are going through the same process. Another group can be a gender group where all male or all female can gather and discuss gender relating topics and issues, which can include family roles and responsibilities, communications skills, and/or relationships issues.

**Long-term Housing:** After leaving the detox area of the building the patient would be able to move to a long term housing bedroom. A large component of the program is long-term housing, which would have single and double bedrooms. Long-term housing is offered to patients who are able to stay between 30, 60, 90, 120 days or up to months to receive a full recovery from their addiction and live in a drug and crime free environment. Long-term housing can help patients stay on a positive pathway and start a new journey toward a happy and healthier life.
Activates Therapies: Including fitness and other physical activities daily can help create a healthier lifestyle. It can help make the body and mind feel better and can boost self-esteem. Some of the activities could include swimming, basketball, volleyball, tennis, and exercise at a fitness center.

Education: An education aspect would be integrated into the program so patients can continue to pursue their academic goals or be in an area to help develop a plan for the future. This part of the building can be a place for resources and guidance while still having a social interaction with other patients in the building.

Patients Social/Activity Spaces: These spaces can be in an area where patients can gather during the day during their free time. It can include an area for eating, reading, or a place for patients to have conversations with other patients.
**Outdoor Spaces:** Including outdoor activity in the daily program with horseback riding, wilderness walks along the water and in the natural environment, or even kayaking can create a positive aspect in the healing process. Having outdoor activity can help relieve stress and pain and many studies have shown that animals have been known for being beneficial with therapy. Also, including an outdoor activities field can be used for additional physical activities. Therapy gardens and outdoor seating areas around nature can create a positive aspect in the healing process and can be used as a tool for creating a peaceful environment.

**Maintenance:** This area is used for maintenance and outdoor and indoor equipment. Also, it will be a delivery area for supplies and food for the facility.

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**Program Schemes**

![Diagram of program schemes]
GENERAL ZONING
While looking at the Connecticut State Building Codes, Rocky Hill Zoning Regulations and Maps show that the project site is located in business park zone (BP-2). Also, part of the site is in a floodplain district which is an area where the section of the site is delineated as a 100-year floodplain.

Zoning & Building Codes are determined from Connecticut State Building Codes and Rocky Hill Zoning Regulations.*

Rocky Hill Zoning Regulations

DESIGN RESTRICTIONS
Lot Area: Around 80 Acres
Lot Width: +/- 900 Feet
Lot Depth: 3,900 Feet

LOT REQUIREMENTS
Minimum Lot Area: 60,000 SF
Minimum Lot Frontage
State or arterial road: 200 Feet
Town or internal road: 175 Feet

SETBACK REQUIREMENTS
Minimum Front Yard: 50 Feet
Minimum Side Yard: 45 Feet
Minimum Rear Yard: 55 Feet

COVERAGE LIMITATIONS
Maximum Building Coverage: 30%

MAXIMUM IMPERVIOUS COVERAGE:
Multistory: 55%
Single story: 65%

MINIMUM LANDSCAPED AREA
Multi-story: 45%
Single story: 35%

HEIGHT LIMITATIONS:
Maximum Building Height: 55 FEET (4 Stories)
ZONING & BUILDING CODES

Roof Mounted Equipment should be screened from the public view. The screening should be integrated into the architectural design of the building which would conceal the equipment on the roof. Also, the screening should not exceed 10 feet above the roofline unless specifically approved by Rocky Hill Commission.

Floodplain District:
In the floodplain district, the land cannot be filled in and the soil cannot be excavation from the site. Also, the earth or other materials from this area should not remove since it can create possible permanent ponding, diversion, or backing-up of flood waters.

SOLAR PANELS AND WIND TURBINE RESTRICTION

If wanted to add sustainability features to the site, solar Panels should be mounted on the ground or to the building. For wind turbine should not exceed 80 feet in height to the turbine rotor and not located in the front yard unless specifically approved by the Commission. Also, the windmill should be located 80 feet from the property line.

2016 CT State Building Code

308.4 Group I-2. This occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than three persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:
- Foster care facilities
- Detoxification facilities
- Hospitals
- Nursing homes
- Psychiatric hospitals

404.3 Automatic sprinkler protection. An approved automatic sprinkler system shall be installed throughout the entire building. Exception: That area of the building adjacent to or above the atrium need not be sprinklered provided that portion of the building is separated from the atrium portion by not less than 2-hour fire barriers constructed in accordance with section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

407.13.2 Size of doors. The minimum width of all door openings shall provide a clear width of 34 inches (914 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad).
40713.2 Size of doors. The minimum width of all door openings shall provide a clear width of 34 inches (914 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad).

40713.5 Sleeping room walls. All client sleeping room walls separating the sleeping rooms from the hallways and other habitable or occupiable spaces of the building shall be constructed as smoke partitions in accordance with Section 710.

40713.7 Automatic fire sprinkler system. Buildings shall be equipped with a NFPA 13R sprinkler system or a NFPA 13D sprinkler system with a 30-minute water supply. All storage, habitable and occupiable rooms as well as kitchens and closets shall be sprinkled. Sprinkler valves shall be electrically supervised and connected to the building fire alarm system.

Exception: Attached unheated garages used only storage provided it is separated from the remainder of the structure by 1-hour fire resistive construction with any openings protected by 45-minute opening protectives. The garage shall also be provided with heat detection connected to the building fire alarm system.

40713.8 Fire alarm and detection systems. Fire alarm and detection systems shall be installed in accordance with Section 907.2.6.

40713.8.1 Detection. Smoke detection shall be provided in all sleeping rooms and common spaces except kitchens and bathrooms. Heat detection shall be provided as specified in Section 40713.

40713.8.2 Carbon monoxide detectors. Carbon monoxide detectors shall be provided in accordance with Section 915.

915.1 General. Carbon monoxide detectors shall be installed in new buildings and occupancies in accordance with Section 915.1 to 915.6, inclusive. When alterations or additions requiring a permit occur in existing buildings, carbon monoxide detection shall be provided in accordance with Section 915.7.

1009.7.2 Riser height and depth. Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread
depth shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at right angle to the tread’s nosing. Winder treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clearwidth of the stair.

1013.9 Retaining walls. Retaining walls with a difference in finished grade from the top of the wall to the bottom of the wall that is greater than 4 feet (1219 mm) shall be provided with guards complying with Sections 1013.3, 1013.4 and 16078 when there is a walking surface, parking lot or driveway on the high side located closer than 2 feet (610 mm) to the retaining wall. For the purpose of this section, grass, planting beds or landscaped areas shall not be considered a walking surface.

3103.5 Exit signs. Exit signs shall be clearly marked. Exit signs shall be installed at required exit doorways and where otherwise necessary to indicate clearly the direction of egress when the exit serves an occupant load of 50 or more.
PRECEDENT ANALYSIS

grace farms | spaulding hospital | st. john’s rehab hospital | bridgepoint active healthcare | mountainside alcohol & drug addiction treatment center | beachway therapy center | holistic recovery centers
When looking at precedents, Grace Farms in New Canaan, CT is a great example of a community project that brings the community together in a peaceful environment surrounded by woods and wildlife. This project was designed by architects from SANAA and built in 2015. The building known as the River which integrates into the natural terrain. The Building twists and turns in the landscape and creates pond like spaces with the form of the building with a single long roof which has a grade change of 43feet. The design of the project is to draw people into the building and site though the beautiful landscape which it sits on.

1. Sanctuary: (700 people- 20,900sf)
2. Library (4,550 sf)
3. Office
4. Commons (capacity for 300, 14,400sf)
5. Pavilion (950 sf)
6. Court (16,900)
7. Hall/ Rehearsal Space
8. Meeting Rooms
9. Art Studio
10. Plaza
11. Office
12. Lounge
13. Athletic field
Mention by Sharon Prince, Grace Farms Foundation President states Grace farms project goal is “Our goal with the River is to make the architecture become part of the landscape. We hope that those who are on the property will have a greater enjoyment of the beautiful environment and changing seasons through the spaces and experience created by the River.” Grace Farms provides a warm welcoming space that can function to all ages and social backgrounds. Also, it offers spaces for social activates, recreational, and areas for the community to collaborate around the beautiful landscape.
The Spaulding Rehabilitation Hospital replaces an outdated facility at a different location which relocates along the Charles River. The building is a design for the community to gather while being able to receive treatment. First floor has dedicated 75% to public use which integrates into the Boston Harborwalk. Therapy gardens and trail along the waterfront has spaces for patients to be integrated to the public outdoors spaces to help with the healing process. Also, there are variety types of textures surfaces along the walk to create a unique healing environment for the patients. The design of the project includes a two level of underground parking, therapy outdoor spaces and the ground floor includes therapeutic gymnasiums, pools and a conference center which is open to the community. Patient’s main dining room has indoor and outdoor dining which is open to the public. Spaces from the interior include views of the harbor and exterior spaces. This also includes amazing views and high quality equipment in the patient’s room.
PRECEDENTS | spaulding hospital
Another key aspect about this design is making it sustainable in ways of interact to climate change and rising sea level during natural disasters. Some features include planting and retaining walls help against from a storm surge, ground floor above high flood level by incorporating a two levels of underground parking and patients programs are located above ground floor with operable windows which can be opened in the event of ventilation system failure. Also mechanical and electrical equipment are located on the roof above the penthouse level to avoid from flood damage and vegetated roofs are used to collect storm water runoff and reduce cooling and keep the heat in during the cooling seasons.
The St. John’s Rehab Hospital is designed to make a new inviting space to contribute to the patient’s rehabilitation and recovery. This is through the reconnection to the major public spaces in the area and the surrounding landscape which is part of the Toronto ravine system. The connection the ravine system and the surround landscape allows the building to have a holistic aspect to the design of the project. The building includes two rehabilitation gym, clinical offices and a new therapy pool. Some of the spaces offer views into the therapy gardens and the surround landscape to create an ideal setting for patients regain full confidence in themselves and a full recovery.
This precedent is a treatment center is designed for chronic disease and rehabilitation by incorporating a new way of healthcare with integrating a civic building into a urban context. This creates a connection by bringing together healthcare and the community into one environment. The public access allows to assists the patients that are in the recovery process through the outdoor spaces. The design of the projects integrates the landscape, nature and the community into one space which allows for natural lighting, access to nature, views of the surround landscape and context to ensure that the patients and staff feel constantly connecting to the community and environment. Another large aspect about this project is socialization is an important part of the therapy in how the building offers gathering spaces for patients, staff and the public to integrate with each other. This includes a therapy pool with views of the
park, expansive green roof terrace and a meditative labyrinth to connect to the park to the main floor. The labyrinth can represent a path to healing and increase the levels of relaxation, peace, and reduce anxiety and stress. It can support on a new recovery and leads a new positive life.
Mountainside is a treatment center dedicated to people dealing with alcohol and drug addiction and helps an individual heal through the mind, body, and spirit. The place offers picturesque scenic views of the beautiful environment during the support healing process in a modern facility. The detox process allows for compassionate, medical monitored detoxification, and 24-hour care. In residential, the patients develop a strong foundation of knowledge and an inner strength for recovery. Also, for the outpatient program, patients are able to learn about everyday skill life and able to maintain sobriety. Mountainside provides a healthy, sober, and productive life through the successful recovery programs and environment. Some of the programs offered at Mountainside are individual and group counseling, massage therapy, acupuncture, yoga, Qi Gong, sitting meditation, spiritual enhancement, sweat lodge, Labyrinth, nutrition education, and agricultural therapy. Additional programs offered are based around adventure-based counseling which includes rock climbing, hikes, and nature walks, and a couple ropes courses.
PRECEDENTS | mountainside alcohol and drug addiction treatment center
In creating a successful treatment center, the mind, body and spirit allowed to be maintaining long-term sobriety. Shown at Mountainside the success rate is 92 percent for patients being sober for 6 months post treatment and 88 percent sober for 1 year post treatment. "As part of Mountainside’s alumni program, clients were contacted and asked about their sobriety at one month, three months, six months, nine months, and one year after completing the Residential program. Data for 293 clients (19% of total) at six months and 247 clients (19% of total) at one year post Residential stay are shown."
Beachway Therapy Center in Miami, Florida is a holistic type of treatment centers with long-term care. Beachway focuses on the mind, body, and spirit when overcoming a powerful addiction and live a healthier, and happier life. “Beachway is ranked as one of the country’s top 1% of addiction treatment centers in the United States because of our dedicated, progressive clinical staff and focus on raising the standards in rehabilitation.” This is through the type of programs offered in making a true retreat environment by providing people to make a new start. The different programs guides the user to a positive recovery which includes yoga, walks along the beach, and spa services. Also, included is nutritional counseling and with holistic treatment it is broken down into groups that are equine, art, music and recreational therapy. Equine therapy is widely used to provide a recovering addict with something positive to focus and allow to learn to be responsible. This leads to a greater sense of self-confidence since many people struggling with addiction lack self-confidence.
Holistic Recovery Center offers a variety of therapies to people that are having an addiction program by creating a comfortable healing environment. The unique approach in using a holistic treatment center is to relate to the body, mind and spirit through different therapy programs. The outpatient treatment program offers skill-building sessions, yoga, massage therapy, physical education, and nutritional education.
CONCEPTUALIZATION

Early sketches focused on designing the general layout of the site plan of the entire program. During the process, a couple different schemes were more spread out while some had the layout of the buildings more dense. This allowed buildings and different programs to interact differently and in how the buildings interact with the landscape and site. Designing a scheme that has the buildings that are close together allows for the buildings to connect easier; however, the spread out scheme allows use of the entire site. Moving forward, a combination of the site schemes will allow the buildings to have a better relationship between each other and interact with the landscape. After several master plan layouts, focusing on a dense program allows for a better connection between buildings. One of the comments brought to attention was the distance between the buildings and how individuals will walk during the winter. If the buildings are closer together, then it creates an easier connection when walking from one place to another. During the mid-review, the master plan shows that athletic fields are located along the Connecticut River which is in the flood zone but it is still able to function as a space. In this scheme the buildings are closer together and incorporating a man-made pond feature in the middle of the site allows for additional water views and connection. The pond can function as a place for fishing, viewing or during the winter, it can be used for ice skating. Housing is located on the north side of the site to allow for southern sun light to be filtered on the different housing buildings.
Collages were used to explore the relationship between the architecture form and nature. The idea of having a relationship between landscapes to the architecture was incorporated around the building form. The vision was to have views of the Connecticut River from seating platforms overlooking the beautiful picturesque gardens. The building form will have gardens that are incorporated within the form of the building by allowing views onto the gardens and landscape. Within these gardens, seating elements are arranged around the different types of plants. The mixtures of stone and wood textures are used within the collage to show the type of material for the ground and building to represent natural materials.
FINAL DESIGN
The final master plan for the site has the buildings in close relation to each other. However, it still has its own character in its location. Throughout the master plan, the major proposed building contains a medical center, administration area, general staff area, men & women rehabilitation and support programs center, main dining services and a greenhouse. Also, the site contains, long-term residential (men, women, family housing) buildings, additional residential for post recovery, multi-purpose recreation center, education, nature center, stable with indoor arena, chapel, yoga studio, welcome gateway used for security, and a maintenance building.

When entering the site, you will first go through the business park. The site circulation has a primary road and secondary road where the primary road leads to the main entrance of the rehabilitation center and parking, while the secondary road leads to the additional residential, stable, nature center and maintenance building. The housing was located on the north side of the site to allow for southern sun. The arrangement of the buildings allow for a private and public relationship on the site where the rehabilitation and long term housing are for the patients receiving while the public side of the site is shared with the visitors and additional housing. For each of the buildings are arranged in a way by interacting with the site and the landscape. Each has a different view of the landscape from different gardens, the man-made pond or the views overlooking the Connecticut River.
SITE CIRCULATION
- PRIMARY ROAD
- SECONDARY ROAD
- SERVICE ENTRANCE
- GARBAGE AREA

PUBLIC VS. PRIVATE
- PRIVATE (PATIENTS ONLY)
- PUBLIC (SHARED AREA WITH VISITORS & ADDITIONAL HOUSING)

WATER AND NATURE CONNECTION

SUN STUDY
DESIGN | master plan

VIEWS KEY
1. MAIN RECEPTION DESK/ LOBBY
2. MEDICAL CENTER
3. ADMINISTRATION
4. MEN & WOMEN REHABILITATION & SUPPORT PROGRAMS
5. ADDITIONAL RESIDENTIAL AFTER RECOVERING
6. LONG-TERM RESIDENTIAL (MEN, WOMEN, FAMILY HOUSING)
7. GENERAL STAFF AREA
8. MULTI-PURPOSE RECREATION CENTER
9. EDUCATION
10. GREENHOUSE
11. NATURE CENTER
12. STABLE WITH INDOOR ARENA
13. CHAPEL
14. YOGA STUDIO
15. MAIN DINING SERVICES
16. WELCOME GATEWAY
17. MAINTENANCE BUILDING
18. VIEWING POND
19. FISHING POND
20. BAMBOO GARDENS
21. VEGETABLE GARDENS
22. LABYRINTH GARDENS
23. WILD FLOWER GRASS AND FLOWERS GARDENS
24. ATHLETIC FIELD AND TENNIS COURTS
25. VIEWING PLATFORM
26. FISHING PLATFORM
27. HELICOPTER PAD
28. EXISTING SOLAR PANELS FIELD
29. DIVIDEND PARK EXTENDED
SITE PROGRAM

- MAIN RECEPTION DESK/ LOBBY - 600 GSF
- MEDICAL CENTER - 4,800 GSF
- ADMINISTRATION - 3,600 GSF
- MEN & WOMEN REHABILITATION & SUPPORT PROGRAMS - 13,100 GSF
- ADDITIONAL RESIDENTIAL AFTER RECOVERING - 24,000 GSF
- LONG-TERM RESIDENTIAL (MEN, WOMEN, FAMILY HOUSING) - 26,800 GSF
- GENERAL STAFF AREA - 2,800 GSF
- MULTI-PURPOSE RECREATION CENTER - 19,500 GSF
- EDUCATION - 12,375 GSF
- GREENHOUSE - 1,600 GSF
- NATURE CENTER - 2,200 GSF
- STABLE WITH INDOOR ARENA - 11,800 GSF
- CHAPEL - 968 GSF
- YOGA STUDIO - 1,200 GSF
- MAIN DINING SERVICES - 7,200 GSF
- WELCOME GATEWAY/ SECURITY - 120 GSF
- MAINTENANCE BUILDING - 4,250 GSF
DESIGN | building + program strategy

For the first floor, the building is arranged mostly on a single story level to allow easier connection between buildings. Each building functions as a different program and some are more private than others. The medical center is located towards the front of the main rehabilitation building for easy access for emergencies and this is the place where patients would first visit when arriving for treatment. The program and each space allows for comforting and therapeutic environments while receiving a successful recovery. The facility provides a place with a strong visual connection to the surrounding environment and nature which is a key element to the recovery process. The public able to go into the education center where there can be a connection to individuals receiving treatment since there is more public functions in this area. Providing the main dining services near the long-term housing and the main parking area for service allows for an easy connection for patients and an easy connection for service.
The second level contains the detox area where patients would first go to release their toxin and might be in rough shape. It allows to be contained in an area where other patients would not be allowed. Also, in this is an interior courtyard that the detox spaces overlook to provide a private type of atmosphere. For the second level of the education building allows for additional standing for the auditorium and an area where the second overlook the ground level which has a gallery space and café.
The third and fourth floors are in the education part of the program. These floors contain a couple of classrooms and a library that is on the top level. The library overlooks the entire footprint of the site from the Connecticut River to the man-made pond. During the different seasons, this space is able to see the beautiful leaves that change during the fall or the blanket of snow on the ground during the winter. These spaces are design to be quiet and away from other busy areas while still having a therapeutic environment overlooking the picturesque landscapes.
SEATING AREA ON THIRD FLOOR OVERLOOKING THE LANDSCAPE & CONNECTICUT RIVER (4)
MAIN RECEPTION AND ADMINISTRATION LOBBY (5)
THERAPEUTIC POOL & SPA (9)
DESIGN | site sections and elevations

The sections show how the building can be represented throughout the different season in the year. During the fall, the foliage is able to seen throughout the landscape with the different types of planting changing color in its leaves. In the winter, a blanket of snow covers the ground and gives a coating of white snow on the tree tops that surround the property. The spring and summer has beautiful flowers blossoming around the buildings creating therapeutic environment. The landscape and site provides a significant role in an individuals’ healing process by creating a strong visual connection to the surround environment and nature.

Also, the sections show that buildings form is a long single story with sloped roof and has higher roof lines to define the entrances to the certain program features. The section highlights the education part of the program where it has a library on the top floor overlooking the landscape. The section with the man-made pond shows that it has two different levels where the deeper part of the pond can be used for fishing and the higher pond can be used as a viewing pond. The winter the lower pond can freeze and be used for ice skating during the winter.
The design incorporates many different types of sustainable features. For example, the building uses Kingspan rainwater harvesting system in the way the architecture form of the roofs collect the rainwater in a water collection system called catchments that are placed around the buildings then the water leads to underground water tanks where the water is process and regenerated into the building as grey water. Another sustainable feature that the building using is solar panels which is currently located next to site and it will convert the sun’s energy into electricity. For the heating and cooling of the building it uses a geothermal system and uses water from Connecticut River. This will filter heat and cool air throughout the entire design. Within the design the water collection system provides water to the outside and interior gardens and the living green walls. The living green walls provide a boost in mood, and a stronger immune system when being exposed to natural environments.

WATER MANAGEMENT: SLOPED ROOFS LEADS WATER TO WATER FEATURES AND PLANTING BEDS
A. Pitched roofs help directs rainwater into water features and catchment basins

B. Stormwater catchment detains stormwater runoff

C. Water is collected in main water tank with internal rainwater filter underground. Water is allowed to flow freely into the soil through a filter/overflow pipe when the water reaches a certain level.

D. Water is provided for irrigation

E. The system cycles through a display and control panel to provide harvested and reused water as ‘greywater’ in the building.
HEATING & COOLING DIAGRAM

- MECHANICAL ROOMS

GEOTHERMAL SYSTEM IMPLEMENTED USING WATER FROM CONNECTICUT RIVER

- MAIN MECHANICAL ROOM
**SOLAR ENERGY**

A. Using solar panels currently located next to site will convert the sun's energy into electricity.

B. The direct current travels out of the panel through an inverter, which changes to alternating current electricity.

C. The solar system will produce a large amount of electricity than is needed during peak hours, which excess electricity is automatically sent to the utility company which would serve other parts of the town.

D. The solar energy system will produce a high quality of electricity and can be used during power outages.
The goal of the design for the structure is to use HSS tube by laying it out in a simple 20-foot x 20-foot grid system. The building is layout mostly out has a single story structure to allow for light structure loads and it is easier for patients to move from one building to another. In some areas it a changes a little where the space is more open or has sky lights. Most of the structure is hidden between the floors and has most of the columns located close to the perimeter of the building or in the walls. Also, the gutter is built within the wall to allow a simple sleek design look on the exterior. The water is drains down drainpipes into water collection beds where it is used for water harvesting system and used for a water feature throughout the site.
Throughout the design, there are different types of seating arrangements that are used for individual or group conversations. Each seating form incorporates different types of plants which creates a stronger connection to nature and the outdoor environments. Seating is located within the building where people would be gathering and could have a conversation or in the exterior courtyards overlooking the landscape and water features.
APPENDIX | review #1- schematic design phase: site/ space/ detail
NEW ENGLAND PATHWAY TO RECOVERY
DRUG AND ALCOHOL ADDICTION TREATMENT CENTER AROUND NATURE IN ROCKY HILL, CT
MICHAEL LOMBARDO | ARCH 513 | GRADUATE STUDENTS DESIGN STUDIO | FALL 2017

APPENDIX  | mid-term review- schematic design phase: site/ space/ detail
The intention for this project is a long-term drug and alcohol rehabilitation facility with a retreat type of atmosphere. Drug and alcohol rehabilitation programs and counseling help teach patients dealing with an addiction.

These two factors can potentially become part of the healing process. The architecture, materials which include stone and wood. As for the façade of the buildings, it uses a wood screening make the world a better place. It would allow everyone to enjoy more aspects of life everyday and drug and addiction problems receive treatment. This change would be a positive influence and the number of synthetic opioid deaths continue to rise each year.

In the United States, especially in New England area, there has been an increase in drug overdoses.
APPENDIX | gate review- building order: formal structure/ construction/ services/ presence
NEW ENGLAND PATHWAY TO RECOVERY
DRUG AND ALCOHOL ADDICTION TREATMENT CENTER AMONG NATURE IN ROCKY HILL, CT
HOWARD LEINERT | ARCHITECT | UNIVERSITY OF VIRGINIA | FALL 2017

SECTION D- SPRING
Symbiosis with nature. Such as stone and wood are used in the design to create a therapeutic environment. The facility provides a place with a to successfully recover when they are in a comforting and atmosphere. Drug and alcohol rehabilitation programs and rehabilitation facility for some hundred patients who will stay. The purpose of this project is to create drug and alcohol needs to be a change in the way individuals with drug and opioid deaths each year. In order to improve the situation there we cannot allow this to continue. It is time to liberate our communities from this scourge of drug addiction.

175 every day, seven every hour" "64,000 Americans died from overdoses last year —
APPENDIX | final presentation
APPENDIX + BIBLIOGRAPHY

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