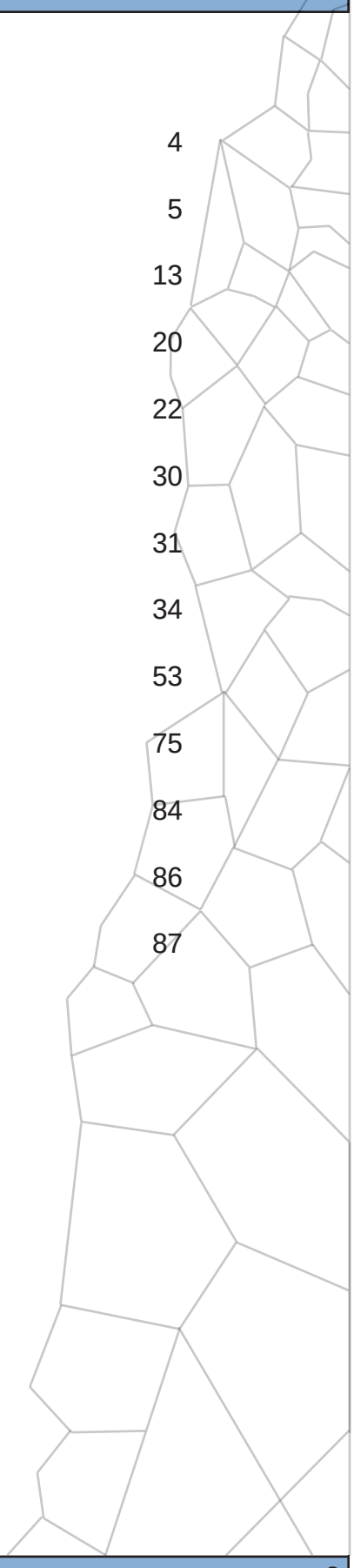
Finding the Identity of a City

Lee Nijakowski
Masters of Architecture
The University of Detroit Mercy
School of Architecture

AR 510 & AR 520
Tom Roberts, Adjunct Professor
28 April 2008

Table of Contents



Abstract

As people continue to leave cities, the American metropolis has seen a decline in population and, with this loss, a loss of confidence in the city by current and former citizens. The attitude about the metropolis has turned from a prosperous beacon of American economy to a pessimistic view of the city. This change in attitude has created a bleak future for the metropolis. There are still many benefits to living in a city that people may have forgotten about or feel are no longer relevant to our society. The density of the city also brings together people from many cultures and religions in close proximity, providing a vibrant and varied environment. So if the city can offer much more in the way of opportunities to be enriched versus a suburban town for instance, why do people continue to leave the cities across our country?

By seeking out the identity of a particular city, architecture could embody this identity and lead to a renewed interest in the city. Drawing in businesses or public uses to vacant buildings can provide the needed jumpstart for cities. Once citizens and people from surrounding areas can see the city in a new light they may reconsider their past attitudes about this place. This analysis would lead to new buildings, restorations, and/or public spaces that would somehow create, enhance or make aware the history and opportunities available in a city. Through the transformation of existing, iconic buildings and structures, revitalization and growth would occur.

The architecture will identify the city in which it is built. The site selected will have some historical importance to the city it is in. The program will strive to convey the identity of the city by showcasing the city's history along with local artists' work and local retailers. Also a recreational area will be important because it will help draw more people to the project.

Thesis Paper

As cities lose population, a need has grown for the revitalization of cities across the country and especially in the Midwest. As the people leave so do the businesses that allow the city to function. The city can offer much more culture and interaction than the suburbs so why do people continue to leave? By establishing the identity of a city through architecture, revitalization can occur that will bring businesses into the city and encourage suburban citizens to move into the city. The city selected is Toledo and the site is at a Pilkington glass manufacturing facility near the Maumee River. By understanding the impact glass has had on Toledo and expressing this through architecture, citizens will understand their city and businesses will be fostered by the renewed interest of the citizens in Toledo.

There is a need to define what identity and revitalization mean. Identity can be defined in terms of what makes something distinct from everything else. A definition is “the distinguishing character or personality of an individual.”[1] In an architectural sense, a roof has an identity that makes it different than a floor. It can be characterized by being above the floor and providing shelter from the sun and rain for its inhabitants. Revitalize means “to give new life or vigor to.”[2] So the hope is that through understanding unique aspects of a particular city new growth can occur.

The expression of identity through architecture should encompass the materials used, the form of the building, and the program. The materials used in the building should convey some meaning relative to the city’s history and even be able to teach a visitor something about the city. When the Gothic cathedrals were being constructed there was attention paid to the stain glass windows that would serve as didactic tools for the laity to

understand Christianity. By looking at the images, a visitor could quickly understand what the Christian faith was about. The materials of the building should be able to quickly convey ideas about the city in a similar way.

The form of the building must also be considered to fully express the identity of the city. This does not mean that one specific form can be representative of a city's identity. Rather if an important aspect of the city is specified, like something the city produces and is known for, how does the form of the building relate to this aspect?

Along with materials and form, the program is essential to expressing identity. The program would probably change the least from city to city out of the three aspects of the city listed here. The program should reference the city's history, possibly in the form of a museum, push for the economic growth of the city through business creation and incubation, allow for artistic expression and provide outdoor space for visitors and citizens.

In "Towards a Critical Regionalism: Six Points for an Architecture of Resistance," Kenneth Frampton asserts that architecture must take a look around at its context to find identity: "Architecture can only be sustained today as a critical practice if it assumes an arriere-garde position, that is to say, one which distances itself equally from the Enlightenment myth of progress and from a reactionary, unrealistic impulse to return to the architectonic forms of the pre-industrial past."[3] Instead of seeking to continually moving forward with design why not look at the context of the building and use the context to help design the building from overall form down to how joints are constructed. This does not necessarily mean using the physical landscape but also means considering what is and has been im-

portant to the city. Frampton is saying that there should be consideration for how a region, or city, dictates how buildings are designed. Frampton also writes, “It is my contention that only an arriere-garde has the capacity to cultivate a resistant, identity-giving culture while at the same time having discreet recourse to universal technique.”[4] This “arriere-garde” is what will encourage citizens and help them to realize that their city can grow in terms of population, economy and overall appearance to visitors.

With an increase in confidence in the city, businesses would be created and nurtured so that eventually people may want to move back into the city. With new businesses and new revenues for the city, the hope is that the city will be able to keep crime down, maintain roads better and beautify the city to entice people to move there.

An example of how this idea could work is Mitchell Park in Greenport, New York. James Russell says this about Mitchell Park: “It is hard to find a more clear-cut case of a work of civic architecture catalyzing urban regeneration than Mitchell Park. Yes it removed a blighting presence at the village’s core, but its design—assertive and magnetic, yet sensitive to Greenport’s history and personality—could not have happened without leadership and teamwork that overcame 12 years’ worth of obstacles.”[5] Greenport had suffered before this park was built. The mayor of Greenport, David E. Kapell, said, “In a profoundly depressed place like Greenport, people are preoccupied by what you can’t do rather than what’s possible. We had to break out of that insular thinking.”[6] This same statement could probably apply to numerous cities. As people leave cities, the ones that stay in the city often suffer because of the lack of funds the city receives. Greenport suffered because there was no interest in the town

and it was slowly decaying.

The design of Mitchell Park focuses on taking advantage of the views of the ocean and to create a place that attracts visitors and citizens. It was built in three phases and began attracting visitors after the first phase. It includes a marina, a carousel, an ice rink/mister field, an amphitheater, a boardwalk, a beach and a camera obscura. The dilapidated condition of Greenport is non-existent now and Mayor Kapell has new problems. Russell says, "The new jobs the town now offers go begging because rising real estate values are making the town unaffordable."[7] Once the town started gaining attention from visitors, investors began looking at the old houses of Greenport to renovate. Also with the increase in visitors, businesses were able to stay open for longer hours and on the weekends.

The ideas presented by Mitchell Park could be applied to any town or city. The park has activities for every season which increased its success. Russell writes, "A provisional ice rink proved so successful that the mayor asked SHoP to add a permanent version. It sits atop a stone-paved plaza festooned with a field of masts that in summer emit wraithlike streamers of mist."[8] Mitchell Park took an unwanted piece of land and turned it into a desirable recreational site. It managed to unite a town that had nothing to be proud of and it provided a source of identity for this seaport.

The proposed city for this thesis is Toledo, Ohio. Toledo, along with many other Midwest cities, has suffered a great deal in the last fifty years. It still maintains a strong glass and automotive industry that supplements Detroit. Toledo was founded in 1837 and quickly began annexing smaller

towns around it. As the city grew, so did the businesses within it. With some luck and some local natural resources, Toledo lured Edward Drummond Libbey and his New England Glass Company to the city. Around the same time the Edward Ford Plate Glass Company came to Toledo. This was the beginning of the glass industry in Toledo.[9]

Ford built his first plant in 1890 along the Maumee River. This was one of the first glass manufacturing facilities built in Toledo. Along with a facility at Buckeye Street in Toledo, it is one of the oldest facilities that is still being used. In 1916, the Ford Plate Glass Company merged with the Libbey-Owens Sheet Glass Company to become Libbey-Owens-Ford. Sometime during the 1980s, Pilkington, a British glass manufacturer, bought out LOF and the plant in Rossford and now produces automotive glass there.[10]

The proposed site is at the first Ford Plate Glass plant built. To the west of the facility is an open field that borders the Maumee River and a series of buildings that are being used for storage. The project includes two additions to an existing building. Also an outdoor area is included similar to Mitchell Park. Through the combination of existing and new spaces, the project will allow for growth and reflection by citizens and visitors of the city. Also, since the facility is still in use, there must be some sensitivity involved in the design to the facility's needs.

The existing building will be converted into a historical museum for Toledo. It will include an emphasis on Toledo's glass history but also include facts about the automotive industry in Toledo and how the city has grown over the last 170 years. It is intended to be flexible space that could allow for changing exhibitions about the city's past. MassMoCA, a

contemporary art museum in Massachusetts, is a precedent study that has influenced this aspect of the project. Elizabeth Padjen says, “MassMoCA opened last May on 13 acres originally occupied by a 19th-century textile mill, and later by Sprague Electric Company.”[11] MassMoCA is a series of buildings that were minimally renovated to serve as simple shelters for large contemporary art pieces. Similarly, large exhibits about Toledo’s history can be located in the building on the Pilkington site.

Initially, a new building was organized based on a grid derived from the existing site. The edges of the buildings generated the grid and the new building was two extrusions along these lines. This idea was based on how glass is manufactured over a distance and the linearity of the process is very important. So the new building was a reflection of the glass production that has occurred and is occurring on site. If continued to be used, this grid may have helped to organize the interiors of the new building, in both plan and section. Using this grid exclusively led to too many arbitrary decisions though.

The final design incorporates two smaller additions that are attached to the existing building. One addition is a dining area with a gift shop and the other addition is an exhibition space for local artists and businesses. The historic museum is located inside the existing building along with a business incubator on a mezzanine level and a glass blowing exhibit.

The dining area is rectangular in section and is extruded to make reference to the linearity involved in the glass making process. The angle it is positioned at also makes reference to the surrounding buildings of the facility. The exhibition space is formed similar to how molten glass comes

out of a furnace. Where the chimney for the furnace penetrates through the roof, a skylight is added around the chimney to let indirect light into the space.

Glass as a material plays a large role in the project. It is treated as a didactic tool that can show a visitor something about how the glass is made and different types of glass. Hisham Elkadi writes, “Away from iconic buildings, glass facades also contribute to the assembly and the arrangement of visual patterns in urban settings through precision, transparency and reflective qualities, as well as highlighting the differences and unique qualities in a surrounding opaque context.”[12] Although he references an urban condition, glass can have the same effect Elkadi writes about in other situations that are not quite as urban. Glass can be a means to highlight certain areas within the building and to control views from inside out.

Originally, the site was also organized based on the grid established by the existing buildings. Each line that crosses over the field became a path and in between these paths were planes. The planes shifted relative to the paths and created hills and valleys where activities could occur. The amphitheater was situated on one of the slopes facing the river. Where the amphitheater ended, the ice rink/mister field began. This ice rink was between the amphitheater and the river and served as the stage area for the amphitheater. The areas that did not have a specific program were grassy areas with trees and possibly areas for displaying sculptures or other outdoor artwork.

The site elements are the same, with the addition of a reflecting pool, in the final design but are not organized by the grid. Instead the site elements are organized along a more gestural line that flows out of the

existing building and wraps around to the dining area. The reflecting pool is located at the north end of the existing building with the ice rink/mister field to the west and then the amphitheater to the west of the ice rink/mister field.

Hopefully with these various elements, this project would successfully provide for a fresh look at Toledo by citizens and visitors. Revitalization can occur when the identity of a city is understood and expressed. The glass industry is important to Toledo and so the manufacture of glass is an identifying aspect of Toledo. Finding a site that is important to the city is important for this project. The Pilkington plant represents the history of glass in Toledo as well as any building in the city. By using this site and glass as foundations, this thesis aims to capture the identity of Toledo through architecture.

Precedent Analyses

The Crystal Palace

Toledo Museum of Art
Glass Pavilion

Mitchell Park

Underground Atlanta

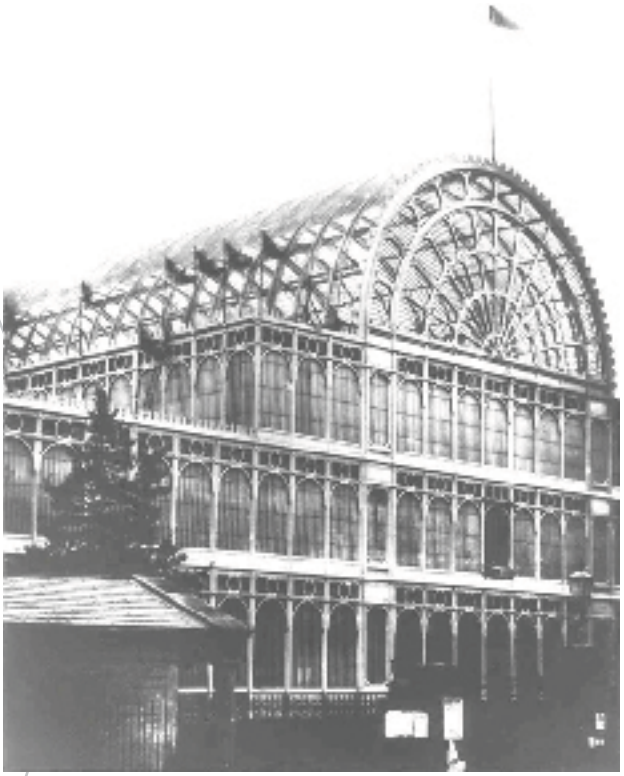
The Crystal Palace

Built in 1851
London, England
Joseph Paxton

- One of the most innovative and technologically advanced structures using glass at the time

- Technology of glass at the time was not automated or even semi-automated. Each of the 300,000 panes was hand blown.

- Presented glass's usefulness in whole new way



Toledo Museum of Art Glass Pavilion

Built in 2006
Toledo, Ohio
SANAA

- Expresses technological advances of glass, along with a fluidity and consistency that could never have been achieved 100 years ago

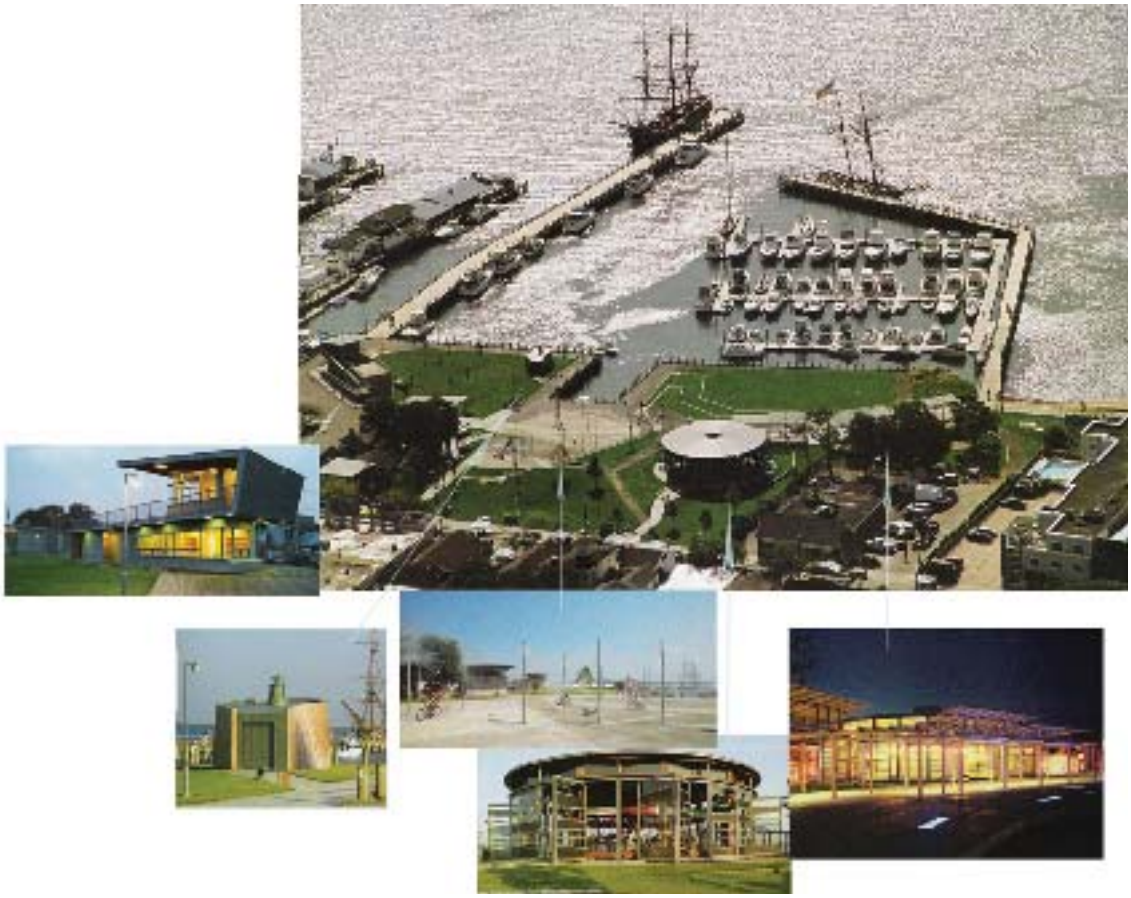
- Effectively eliminates almost all opaque walls to create a transparent evironment that effectively showcases the 5,000+ pieces of glass art

Mitchell Park[13]

Built in 2006
Greenport, New York
SHoP Architects

- Brought stability and growth to a dying town that previously had no reason to believe anything better could happen

- Local businesses attracted more customers and the park became a popular destination for citizens of Greenport

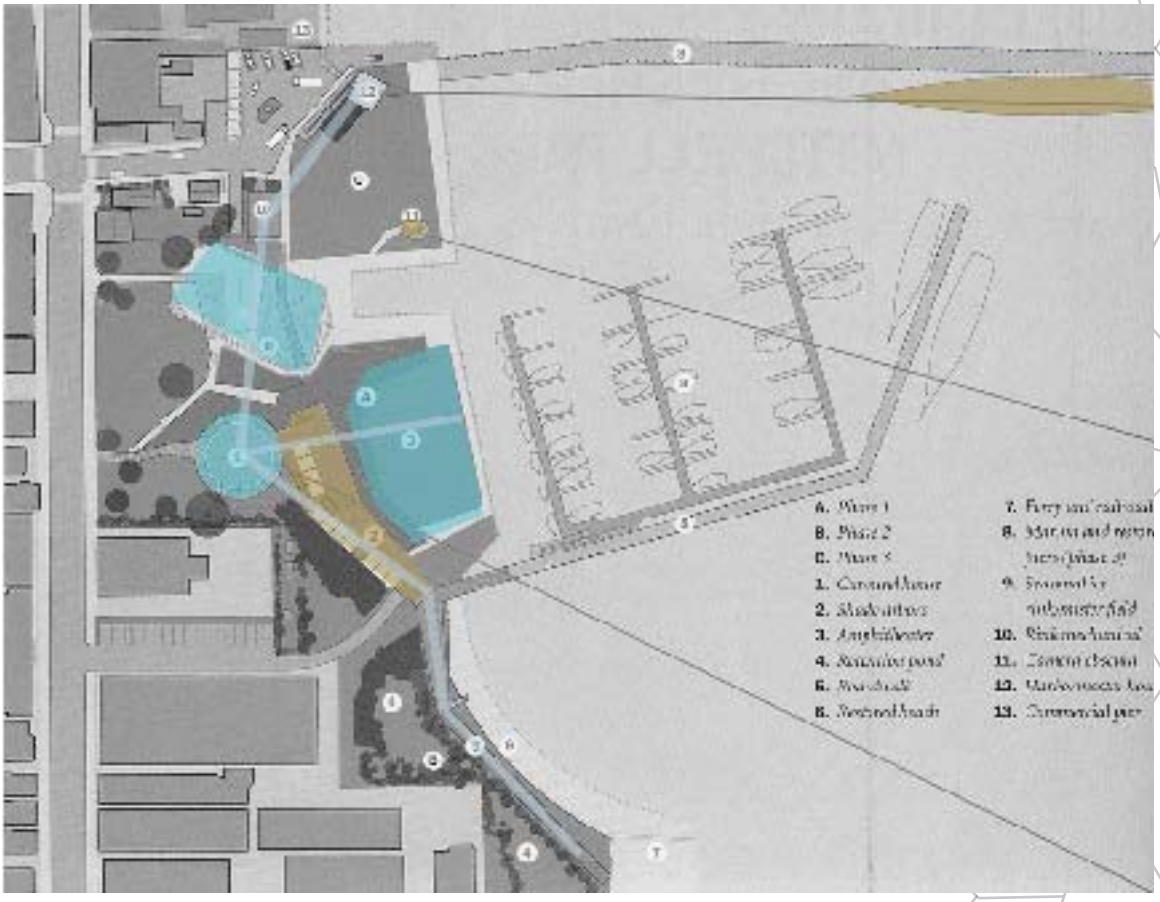


Mitchell Park

- Mitchell Park has a boardwalk, ice rink, camera obscura, carousel and a marina.

- It offers activities at all times of the year and also has an ampitheather for concerts or events.

- As a public space, Mitchell Park has been very effective at drawing people in and creating a positive atmosphere for the city's growth and prosperity.



Underground Atlanta[14]

Built in 1989
Atlanta, Georgia
Cooper Carry & Associates, Inc. Architects; Turner Associate/Architects and Planners

- Three-level public space with shopping, restaurants and historical exhibits on all three levels

- The first level is the original street level before viaducts were built around 1930

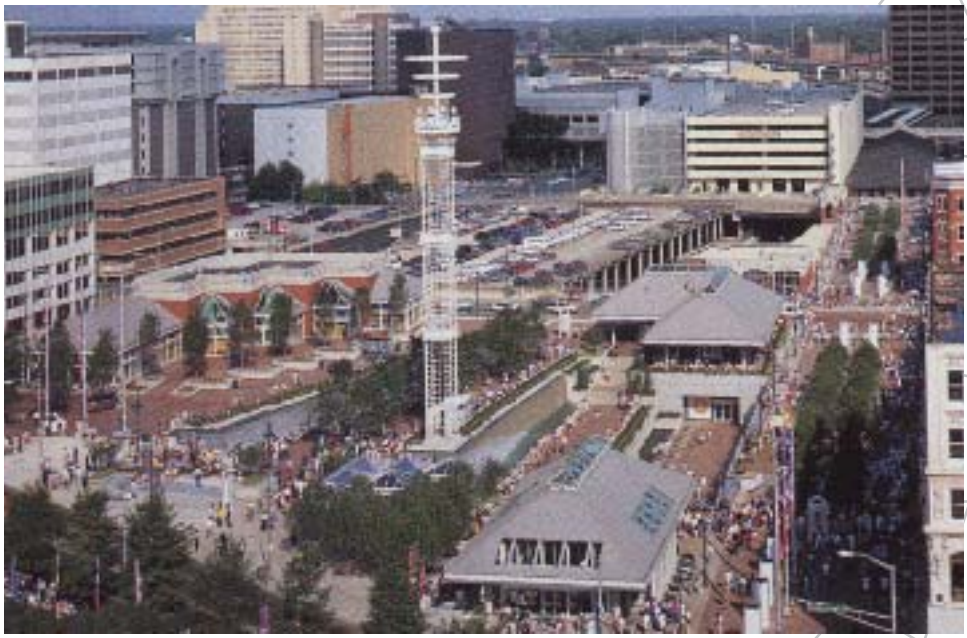
- The second level is the current street level

- It has historical significance to the city and is a place that helps express the identity of downtown Atlanta

Underground Atlanta

Strengths:
- existing area of historical significance transformed into an attractive area
- local retailers
- local artists/musicians
-open/park space

Weaknesses
- doesn't provide enough history about the city
- historical significance to the city is not strong enough



Additional Research

Toledo History

- Founded in 1837

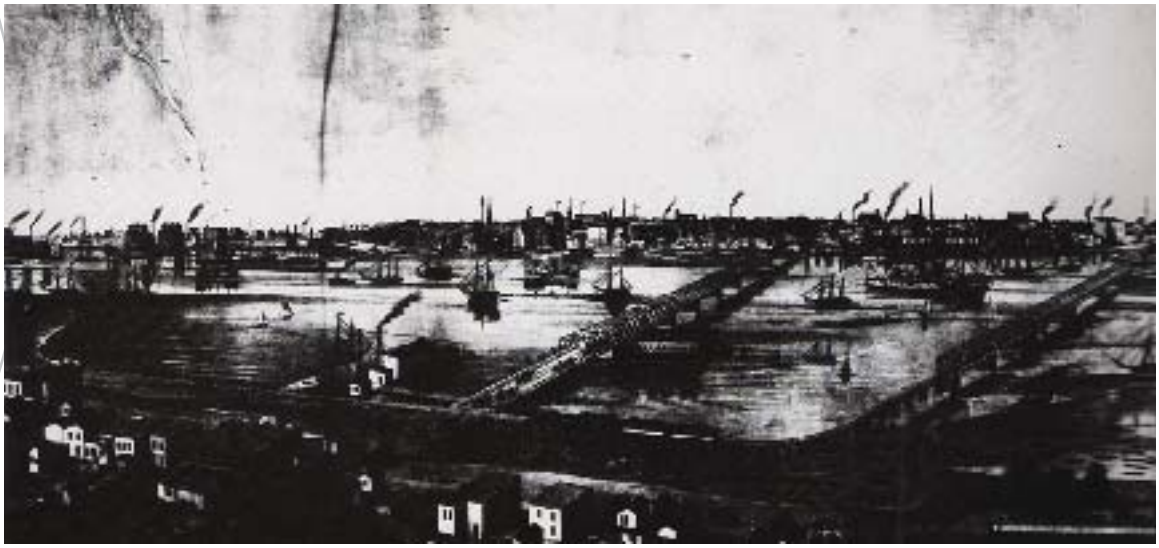
- Leaders of the city during the 1800's always believed Toledo would become a great city like New York or Chicago

- Toledo has one of the busiest ports in the country

- If the New England Glass Company (Libbey-Owens-Ford) hadn't come to Toledo, the city probably would be smaller and have a much worse art museum

- Libbey originally came because of cheap natural gas for fuel but the gas ran out shortly after he arrived and he decided to stay

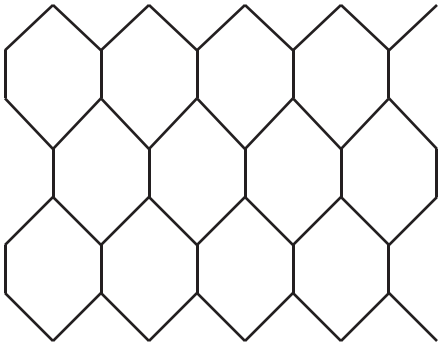
- Libbey brought Michael Owens with him to Toledo. Owens was the founder of Owens-Illinois and Owens-Corning

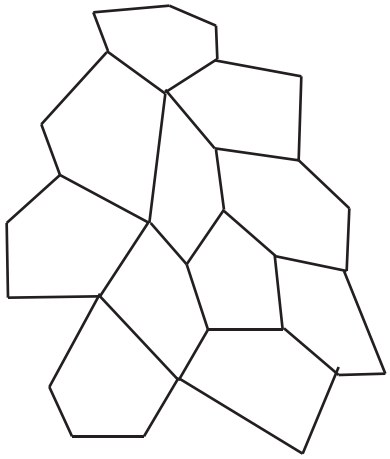


Glass Production

- Glass is an unusual solid because it is more similar to a liquid in its molecular organization

- In very old European catherdrals, the glass in the windows is sometimes thicker at the bottom than at the top, so it is understood that glass can move similar to molasses only much slower





Site Criteria

Circumstance:

The architecture will identify the city in which it is built. The site selected will have some historical importance to the city it is in. The program will strive to convey the identity of the city by showcasing the cities history along with local artists' work and local businesses. Also a recreational area will be important because it will help draw more people to the project.

Site Criteria:

- historic presence and meaning
- accessibility
- public/recreation space
- open area
- large
- previously used
- industrial
- riverfront

Site Possibilities

LOF Plant on East Broadway

In Northwood

- Most of the site has been demolished and abandoned

- One building is currently being used by Pilkington for research

- Most of the site is used for storage of palettes and truck trailers

One SeaGate

On Summit Street In Toledo

- As of 2006, One Seagate was the world headquarters of Owens-Illinois until they moved to the suburb Perrysburg

-Currently only about a fifth of the floor space is being occupied in the building.

- Built in 1982, is one of the only office buildings in the country that is worth less now than when it was built

- Tallest building in Toledo at 32 stories

- Part of CitiWalk, a series of tunnels that connect downtown buildings

Pilkington Plant in Rossford

On Miami Street

- The structures to the east are currently being used by Pilkington for flat and safety glass manufacture.

- The buildings on the western part of the property are used for storage or are unoccupied

1

2

3

4

5

6

7

8

9

10

Key

1: South face of existing building that will be used in the project
2: North face of existing building that will be used in the project
3: West face looking north towards the Maumee River
4: West face looking south
5: West face
6: Existing building located to the east, possibly used for parking
7: A possible entrance for the project
8: Existing guard house and gate
9: Second possible entrance
10: Existing towers currently used for glass manufacture

Project Program

Program Statement

Through the program, the identity of the city should be expressed. The history of the city, what the city is currently, and the future of the city will all be considered through the program. By focusing on these three aspects, this project strives to spark revitalization in the city through renewed interest in the identity of the city.

The program consists of three major parts. The first part will involve a previously used building that will be renovated and used as a museum celebrating the city's history and legacy. This will serve as a way to honor the city's past. The second part of the program will be an outdoor area, like a park or plaza. This area will seek to draw people from the city on their lunch break, local citizens to come and relax, or tourists to see what the city has to offer. The third part of the program will be two additions to the existing buliding that will serve as an exhibition area for local artists and businesses and a dining area.

Program Quantitative Summary

I. Additons

A. **Exhibition space** –

1. Exhibition space offices	600 sf
Two offices @ 300 sf	
2. Exhibition space	21000 sf
	21600 sf

B. **Dining Area** -

1. Kitchen	4100 sf
a. One @ 4000 sf	
b. One restroom @ 100 sf	
2. Seating Area	9000 sf
Maximum capacity: 500 people	
	13100 sf

C. **Support spaces** -

1. Restrooms	1200 sf
a. Men's Toilet – One @ 600 sf	
b. Women's Toilet – One @ 600 sf	
2. Mechanical	3220 sf
a. Heating and Cooling Plant –	920 sf
b. Fan Rooms –	2300 sf
	4420 sf

D. **Total** **51370 sf**

II. Existing Building

A. **Historic museum**

1. Exhibition Spaces
   - a. 1800-1890 – 25000 sf
   - b. 1890-1950 – 25000 sf
   - c. 1950-present – 25000 sf

   75000 sf

2. Museum Offices **600 sf**
   - a. Two offices @ 300 sf
3. Glass Blowing Exhibit **6000 sf**
4. Support spaces
   - a. Restrooms 1800 sf
     - Men's Toilet – Two @ 450 sf
     - Women's Toilet – Two @ 450 sf
   - b. Mechanical
     - Heating and Cooling Plant – 1200 sf
     - Fan Rooms – 3000 sf

     6000 sf

B. **Businesses Incubator** (Mezzanine)-

1. Offices- 3750 sf
   - 15 offices @ 250 sf each
2. Resource Center- 350 sf
   - One @ 350 sf
3. Training Room/Conference Rooms- 750 sf
   - One @ 750 sf
4. Common Areas 13000 sf
   - One @ 13000 sf
5. Restrooms 400 sf
   - One male, One female @ 200 sf each

   18250 sf

C. **Total** **105850 sf**

III. Outdoor Areas

A. **Amphitheater**

1. 5000 people

B. **Docks**

1. Boardwalk
2. Docks

C. **Ice skating rink / mister field**

1. Accommodates 100 people

D. **Parking**

1. Permanent Parking

600 spots in parking lot

2. Maximum Parking

2000 spots (grassy areas to the south)

Additions

Exhibition Space for local artists and businesses

Exhibition Space Offices

A. Quantities Required-

1. Space capacity- 1 occupant per office
2. Number of Spaces- 2
3. Net Square Feet/Space- 300
4. Total Net Area- 600 sf

B. Purpose/Function-

This is a support space for the exhibition spaces.

C. Activities-

Employees will be able to schedule events and organize exhibits from these spaces.

D. Spatial Relationships-

The offices should face the exhibition spaces so employees can observe what is happening and who is in the space.

E. Qualitative Considerations-

The offices should have a view of the exhibition spaces but also maintain some privacy from visitors.

F. Equipment/Furnishings-

One desk approximately 30 inches by 60 inches, one chair and other storage per office

G. Behavioral Considerations-

The offices should be quiet spaces so attention to the amount of sound coming into the offices is necessary.

H. Structural Systems-

There are no special needs for the offices.

I. Mechanical/Electrical Systems-

There should be telephone, facsimile and internet connections in each office.

J. Site/Exterior Environment Considerations

There are no special needs for the offices.

Exhibition Space

A. Quantities Required-

1. Space Capacity- Maximum occupancy around 750 people
2. Number of Spaces- 1
3. Net Square Feet/Space- 21000 sf
4. Total Net Area- 21000 sf

B. Purpose/Function-

The exhibitions spaces are for local artists and businesses to diplay their works and products.

C. Activities-

Visitors can look at the work of local artists and purchase goods or get more information from businesses.

D. Spatial Relationships-

The exhibitions spaces are a very important aspect of the program and need to be easily accessed by the business incubator, the dining area, and the historic museum.

E. Qualitative Considerations-

Lighting may be a concern if the types of art being displayed are sensitive to natural light. This space should be treated the way a space in a gallery or museum would be treated with attention to air quality also.

F. Equipment/Furnishings-

Partition walls that are flexible and can act as dividers between businesses or works of art will be important. Also some benches will be needed for visitors to sit and look at the art.

G. Behavioral Considerations-

Attention to lighting and air will be important for the viewer of the art. Also if businesses and artists are displaying their work simultaneously, they should be separated so that the businesses will not be distracted by the art or vice versa.

H. Structural Systems-

Beams designed to support the roof will be necessary. These beams are formed like arches so they will probably need to be calculated by an engineer.

I. Mechanical/Electrical Systems-

There are no special needs for the exhibition spaces.

J. Site/Exterior Environment Considerations

The exhibition spaces should have views to the outdoor areas and access also.

Dining Area

Kitchen

A. Quantities Required-

1. Space capacity- 20
2. Number of Spaces- 1
3. Net Square Feet/Space- 4000 sf
4. Total Net Area- 4000 sf

B. Purpose/Function-

The kitchen will serve the seating area and the business incubator businesses.

C. Activities-

The kitchen will prepare food for visitors to the project and the businesses in business incubator. It will also be able to prepare meals for large gatherings.

D. Spatial Relationships-

The kitchen will be adjacent to the seating area for the dining area and will be convenient for the businesses in the business incubator.

E. Qualitative Considerations-

This space should be closed to the public and kept rather private.

F. Equipment/Furnishings-

This space needs the equipment necessary to prepare many different kinds of food. Multiple stoves and ovens, deep fryers, a gas grill, a flat top grill, several sinks for washing dishes and produce, and surfaces to prepare food.

G. Behavioral Considerations-

The workers in the kitchen must not be distracted so views out of the kitchen will be limited.

H. Structural Systems-

There are no special needs for the kitchen.

I. Mechanical/Electrical Systems-

The kitchen will appropriate gas and electric power for the equipment.

J. Site/Exterior Environment Considerations-

There are no special needs for the kitchen.

Seating Area

A. Quantities Required-

1. Space capacity- 500
2. Number of Spaces- 1
3. Net Square Feet/Space- 10000 sf
4. Total Net Area- 10000 sf

B. Purpose/Function-

This space is for seating of visitors while eating.

C. Activities-

Visitors can buy food from the kitchen and eat it in this area. This space can also be used for banquets with the kitchen serving the meal.

D. Spatial Relationships-

The seating area should be adjacent to the kitchen and near the exhibition space.

E. Qualitative Considerations-

The seating area should have views to the outside and have plenty of natural light.

F. Equipment/Furnishings-

This space should be able to seat 500 people but normally seat about 100. Furniture in the space should be 30-50 tables with 100 seats.

G. Behavioral Considerations-

This space should be open and inviting for visitors to sit and relax.

H. Structural Systems-

There are no special needs for the seating area.

I. Mechanical/Electrical Systems-

There are no special needs for the seating area.

J. Site/Exterior Environment Considerations-

The seating area should have views to the outside.

Support Spaces

Restrooms

A. Quantities Required-

1. Space capacity- 10
2. Number of Spaces- 2
3. Net Square Feet/Space- 600 sf
4. Total Net Area- 1200 sf

B. Purpose/Function-

The restrooms should be located in a place that is easily accessed from the dining area and the northern part of the historic museum.

C. Activities-

This should be self-explanatory.

D. Spatial Relationships-

This is the same as purpose/function

E. Qualitative Considerations-

The restrooms should be properly vented and be very private.

F. Equipment/Furnishings-

This space will need lavatories, toilets, and about 3 urinals for each of the men's toilet rooms.

G. Behavioral Considerations-

There are no special needs for the restrooms.

H. Structural Systems-

There are no special needs for the restrooms.

I. Mechanical/Electrical Systems-

There are no special needs for the restrooms.

J. Site/Exterior Environment Considerations-

There are no special needs for the restrooms.

Mechanical

A. Quantities Required-

1. Space capacity- 5
2. Number of Spaces- 2
3. Net Square Feet/Space- 2100 sf
4. Total Net Area- 4200 sf

B. Purpose/Function-

This space will be located on an outside wall for air intake purposes. It is located outside of the existing building and will serve the whole project.

C. Activities-

The mechanical spaces will serve both the new and the existing buildings of the project. Also all plumbing will go through these spaces.

D. Spatial Relationships-

This is the same as the purpose/function section.

E. Qualitative Considerations-

This space has no special needs.

F. Equipment/Furnishings-

This space will need boilers and a chimney, chilled water plant and a cooling tower. The cooling tower will most likely be placed outside of the building hidden behind an existing building.

G. Behavioral Considerations-

This space should be without large windows to avoid distraction and unattractive views inside from outside.

H. Structural Systems-

There are no special needs for the mechanical space.

I. Mechanical/Electrical Systems-

This is the same as Equipment/Furnishings.

J. Site/Exterior Environment Considerations-

There are no special needs for the mechanical space.

Existing Building

Historic Museum

Exhibition Spaces

A. Quantities required

1. Space capacity- 1000
2. Number of Spaces- 3
3. Net Square Feet/Space- 25000
4. Total Net Area- 75000 sf

B. Purpose/Function-

These spaces will be the focus of the existing building's program. They will house all of the exhibits for the historical museum.

C. Activities-

Visitors will come to exhibition spaces to look at the displays about Toledo's history. They will be able to learn about Toledo and possibly interact with some of the exhibits.

D. Spatial Relationships-

These spaces will be large so other smaller spaces, like restrooms, will be located throughout the exhibitions spaces.

E. Qualitative Considerations-

Since this area will be a museum, sensitivity to light and temperature will be necessary.

F. Equipment/Furnishings-

These spaces will need some areas to sit but will mostly be composed of the exhibits.

G. Behavioral Considerations-

Since these spaces are large, there will be exits to the outdoor areas located throughout the spaces.

H. Structural Systems-

There are no special needs for these spaces.

I. Mechanical/Electrical Systems-

There are no special needs for these spaces.

J. Site/Exterior Environment Considerations-

There are no special needs for these spaces.

Museum Offices

A. Quantities Required-

1. Space capacity- 1 occupant per office
2. Number of Spaces- 2
3. Net Square Feet/Space- 300
4. Total Net Area- 600 sf

B. Purpose/Function-

This is a support space for the exhibition spaces

C. Activities-

Employees will be able to schedule events and organize exhibits from these spaces.

D. Spatial Relationships-

The offices should face the exhibition spaces so employees can observe what is happening and who is in the space.

E. Qualitative Considerations-

The offices should have a view of the exhibition spaces but also maintain some privacy from visitors.

F. Equipment/Furnishings-

One desk approximately 30 inches by 60 inches, one chair and other storage per office

G. Behavioral Considerations-

The offices should be quiet spaces so attention to the amount of sound coming into the offices is necessary.

H. Structural Systems-

There are no special needs for the offices.

I. Mechanical/Electrical Systems-

There should be telephone, facsimile and internet connections in each office.

J. Site/Exterior Environment Considerations

There are no special needs for the offices.

Glass Blowing Exhibit

A. Quantities Required-

1. Space capacity- 100
2. Number of Spaces- 1
3. Net Square Feet/Space- 6000 sf
4. Total Net Area- 6000 sf

B. Purpose/Function-

This space offers another opportunity for visitors to learn about glass and Toledo's history.

C. Activities-

This space is for artists to work and to teach visitors how to make their own glass.

D. Spatial Relationships-

This space is located at the south end of the existing building to add a point of interest along the length of the building.

E. Qualitative Considerations-

This space should not have direct light because it affects the artists' ability to work.

F. Equipment/Furnishings-

Seating for 100 people will be necessary

G. Behavioral Considerations-

There are no special needs for the glass blowing exhibit.

H. Structural Systems-

There are no special needs for the glass blowing exhibit.

I. Mechanical/Electrical Systems-

Keeping the space cool will be important.

J. Site/Exterior Environment Considerations-

There are no special needs for the glass blowing exhibit.

Support Spaces

Restrooms

A. Quantities Required-

1. Space capacity- 10
2. Number of Spaces- 4
3. Net Square Feet/Space- 450 sf
4. Total Net Area- 1800 sf

B. Purpose/Function-

The restrooms should be located in a place that is easily accessed from the three different exhibition spaces. There will be two restrooms, two female and two male, one will be near the northern exhibition spaces and one will be near the southern exhibition spaces.

C. Activities-

This should be self-explanatory.

D. Spatial Relationships-

The restrooms will be located to the north and south of the exhibition spaces.

E. Qualitative Considerations-

The restrooms should be properly vented and be very private.

F. Equipment/Furnishings-

This space will need lavatories, toilets, and about 3 urinals for each of the men's toilet rooms.

G. Behavioral Considerations-

There are no special needs for the restrooms.

H. Structural Systems-

There are no special needs for the restrooms.

I. Mechanical/Electrical Systems-

There are no special needs for the restrooms.

J. Site/Exterior Environment Considerations-

There are no special needs for the restrooms.

Mechanical

A. Quantities Required-

1. Space capacity- 5
2. Number of Spaces- 2
3. Net Square Feet/Space- 1600 sf
4. Total Net Area- 3200 sf

B. Purpose/Function-

This space will be located on an outside wall for air intake purposes. It will probably be located outside of the existing building and will serve the whole project.

C. Activities-

The mechanical spaces will serve both the new and the existing buildings of the project. Also all plumbing will go through these spaces.

D. Spatial Relationships-

This is the same as the purpose/function section.

E. Qualitative Considerations-

This space has no special needs.

F. Equipment/Furnishings-

This space will need boilers and a chimney, chilled water plant and a cooling tower. The cooling tower will most likely be placed outside of the building hidden behind an existing building.

G. Behavioral Considerations-

This space should be without large windows to avoid distraction and unattractive views inside from outside.

H. Structural Systems-

There are no special needs for the mechanical space.

I. Mechanical/Electrical Systems-

This is the same as Equipment/Furnishings.

J. Site/Exterior Environment Considerations-

There are no special needs for the mechanical space.

Business Incubator

Offices

A. Quantities Required-

1. Space capacity- 1 per office
2. Number of Spaces- 15
3. Net Square Feet/Space- 150-250 sf
4. Total Net Area- 2250-3750 sf

B. Purpose/Function-

The office is intended for each business to have its own private area.

C. Activities-

Businesses can store information, make phone calls and anything else needed in private.

D. Spatial Relationships-

The offices are intended to be scattered throughout the business incubator to encourage interaction between different businesses and to share some areas like conference rooms.

E. Qualitative Considerations-

These offices should have views to the outside and to the common areas of the business incubator.

F. Equipment/Furnishings-

Each office should have a desk, chair and some storage space like a filing cabinet.

G. Behavioral Considerations-

The offices should be quiet spaces so attention to the amount of sound coming into the offices is necessary.

H. Structural Systems-

There are no special needs for the offices.

I. Mechanical/Electrical Systems-

There should be telephone, facsimile and internet connections in each office.

J. Site/Exterior Environment Considerations-

There are no special needs for the offices.

Resource Center

A. Quantities Required-

1. Space capacity- 10
2. Number of Spaces- 1
3. Net Square Feet/Space- 350 sf
4. Total Net Area- 350 sf

B. Purpose/Function-

The resource center is a community space for the business incubator. It is intended to provide services offices cannot.

C. Activities-

Businesses can use the resource center for copying, black/white or color, and have access to computers with internet. The resource center will also have a kitchenette for personal use.

D. Spatial Relationships-

The resource center should be centrally located in the business incubator area.

E. Qualitative Considerations-

Easy access will be important and the ability to see inside the room and out to the common areas.

F. Equipment/Furnishings-

There should be at least two large copy/fax/scan machines, at least three computers with the internet, and a kitchenette. The kitchenette should include a refrigerator, stove, microwave and a sink.

G. Behavioral Considerations-

For this space to be used properly there must be enough equipment so that congestion and overuse does not become a problem.

H. Structural Systems-

There are no special needs for the resource center.

I. Mechanical/Electrical Systems-

There should be at least two telephone lines for the fax machines, internet connections for the computers and appropriate power for the kitchenette.

J. Site/Exterior Environment Considerations-

There are no special needs for the resource center.

Training Room/Conference Rooms

A. Quantities Required-

1. Space capacity- 50
2. Number of Spaces- 1/5
3. Net Square Feet/Space- 750/150 sf
4. Total Net Area- 750 sf

B. Purpose/Function-

This space is for businesses to gather and learn and for businesses to meet with clients.

C. Activities-

Businesses can be trained and the space can be divided up into smaller rooms for conferences.

D. Spatial Relationships-

This will be centrally located and close to the resource center. Access to the dining area kitchen will be important for meals during training seminars.

E. Qualitative Considerations-

To avoid distraction, this space should not have views to the outside or to the common areas of the business incubator.

F. Equipment/Furnishings-

Seating for fifty people will be necessary along with tables that can be moved around for the conference rooms.

G. Behavioral Considerations-

There are no special needs for the training room.

H. Structural Systems-

There are no special needs for the training room.

I. Mechanical/Electrical Systems-

There are no special needs for the training room.

J. Site/Exterior Environment Considerations-

This space should not have views to the outside or to the common areas of the business incubator.

Common Areas

A. Quantities Required-

1. Space capacity- 50
2. Number of Spaces- 1
3. Net Square Feet/Space- about 13000 sf
4. Total Net Area- about 13000 sf

B. Purpose/Function-

The common areas connect all of the other programmed spaces of the business incubator. Any areas that are not programmed are considered common areas in the business incubator area.

C. Activities-

This space is meant for businesses to collaborate and provides spaces with views of the outdoor areas. Wireless internet will allow businesses to sit outside of an office and work. Natural light and views to the outside will be important in this area.

D. Spatial Relationships-

The common areas will connect the other spaces of the business incubator. The hope is that the other spaces of the business incubator will help to make the common area space dynamic and create unique spaces within the common areas.

E. Qualitative Considerations-

This space should have plenty of natural light and views of the surrounding outdoor areas.

F. Equipment/Furnishings-

The common areas will need benches, chairs, tables and partitions to create some privacy.

G. Behavioral Considerations-

This space should be very open and inspire collaboration between businesses. The partition walls will provide some privacy but the intent is that people will be able to collaborate.

H. Structural Systems-

There are no special needs for the common areas.

I. Mechanical/Electrical Systems-

The common areas should have wireless internet.

J. Site/Exterior Environment Considerations-

There should be views to the outside and to the river.

Restrooms

A. Quantities Required-

1. Space capacity- 4
2. Number of Spaces- 2
3. Net Square Feet/Space- 200 sf
4. Total Net Area- 400 sf

B. Purpose/Function-

The restrooms should be located in a place that is easily accessed by all of the businesses. They will be near the resource center and the training room.

C. Activities-

This should be self-explanatory.

D. Spatial Relationships-

The restrooms will be centrally located and convenient for the training room in particular.

E. Qualitative Considerations-

The restrooms should be properly vented and be very private.

F. Equipment/Furnishings-

This space will need lavatories, toilets, and a urinal for the men's toilet room.

G. Behavioral Considerations-

There are no special needs for the restrooms.

H. Structural Systems-

There are no special needs for the restrooms.

I. Mechanical/Electrical Systems-

There are no special needs for the restrooms.

J. Site/Exterior Environment Considerations-

There are no special needs for the restrooms.

Outdoor Areas

Amphitheater

A. Quantities Required-

1. Space capacity- 5000
2. Number of Spaces- 1
3. Net Square Feet/Space- n/a
4. Total Net Area- n/a

B. Purpose/Function-

This space will serve as a gathering point during large events.

C. Activities-

Concerts or speeches could be held here. When this space is not being used for an event, visitors can sit here.

D. Spatial Relationships-

The amphitheater should face the river and connect the new building to the water.

E. Qualitative Considerations-

This space should have views of the river and easily accessed by visitors.

F. Equipment/Furnishings-

This amphitheater will not have typical seats but will have a series of terraces that serve as benches.

G. Behavioral Considerations-

There are no special needs for the amphitheater.

H. Structural Systems-

There are no special needs for the amphitheater.

I. Mechanical/Electrical Systems-

There are no special needs for the amphitheater.

J. Site/Exterior Environment Considerations-

The amphitheater should serve to unite the buildings with the river.

Ice Skating Rink/Mister Field

A. Quantities Required-

1. Space capacity- 100
2. Number of Spaces- 1
3. Net Square Feet/Space- n/a
4. Total Net Area- n/a

B. Purpose/Function-

This area will serve multiple functions from season to season.

C. Activities-

Visitors can ice skate here in the winter and can cool off in the summer with the misters.

D. Spatial Relationships-

This space will connect the amphitheater to the reflecting pool.

E. Qualitative Considerations-

There are no special needs for this area.

F. Equipment/Furnishings-

There are no special needs for this area.

G. Behavioral Considerations-

There are no special needs for this area.

H. Structural Systems-

There are no special needs for this area.

I. Mechanical/Electrical Systems-

The mister fields will require special attention in terms of the plumbing. There will be a room/building dedicated to this area.

J. Site/Exterior Environment Considerations-

There are no special needs for this space.

Parking

A. Quantities Required-

1. Space capacity- 2000
2. Number of Spaces- 1
3. Net Square Feet/Space- n/a
4. Total Net Area- n/a

B. Purpose/Function-

A parking lot has been included above. This parking is for the maximum amount of people. The grassy areas around the buildings will serve as this parking.

C. Activities-

Visitors will be able to park during large events in the land surrounding the buildings.

D. Spatial Relationships-

This parking includes most of the open land to the south.

E. Qualitative Considerations-

There are no special needs for the parking.

F. Equipment/Furnishings-

There are no special needs for the parking.

G. Behavioral Considerations-

There are no special needs for the parking.

H. Structural Systems-

There are no special needs for the parking.

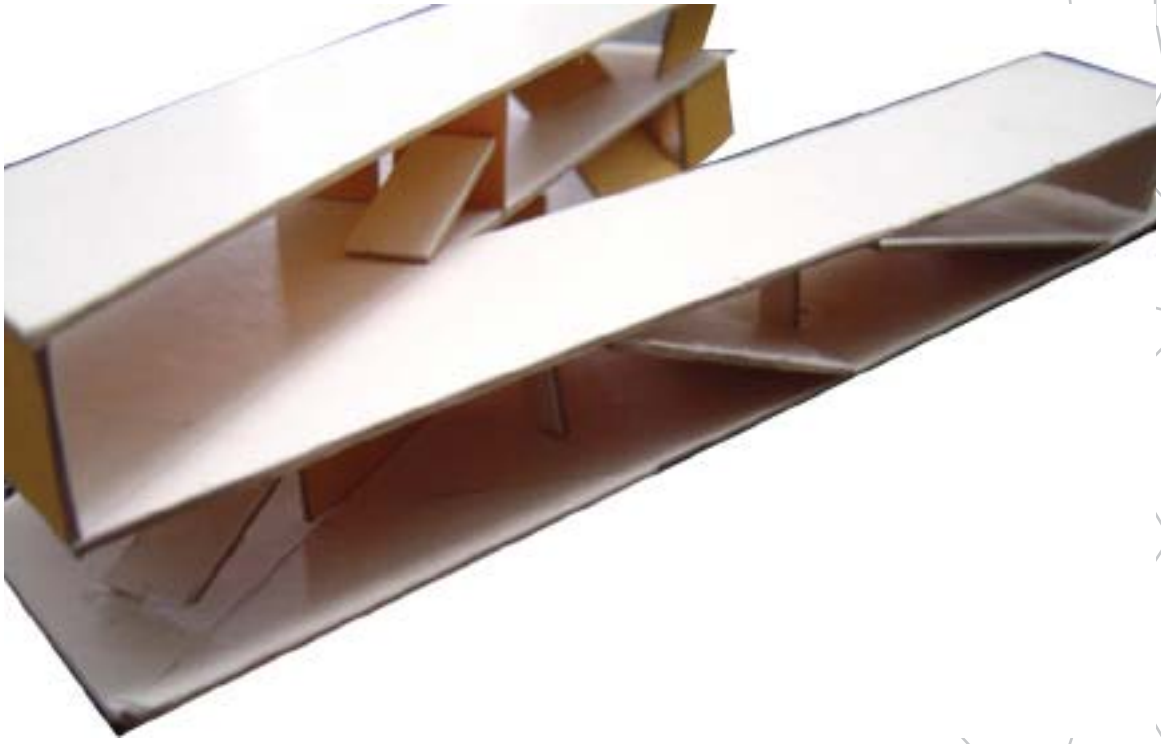
I. Mechanical/Electrical Systems-

There are no special needs for the parking.

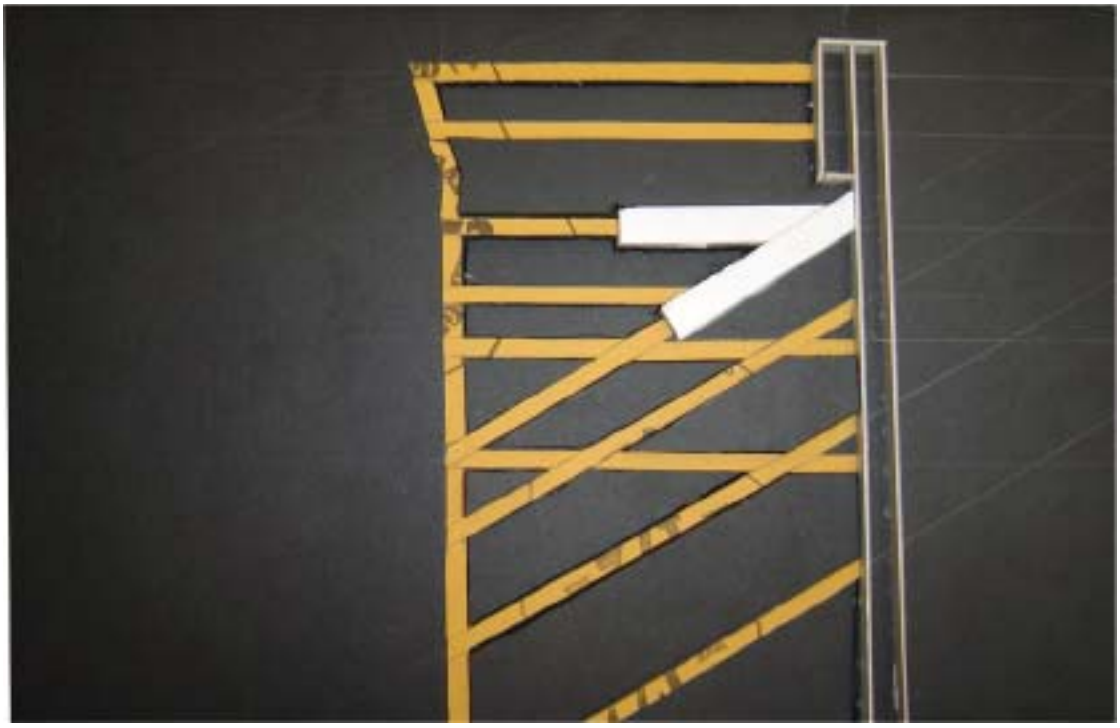
J. Site/Exterior Environment Considerations-

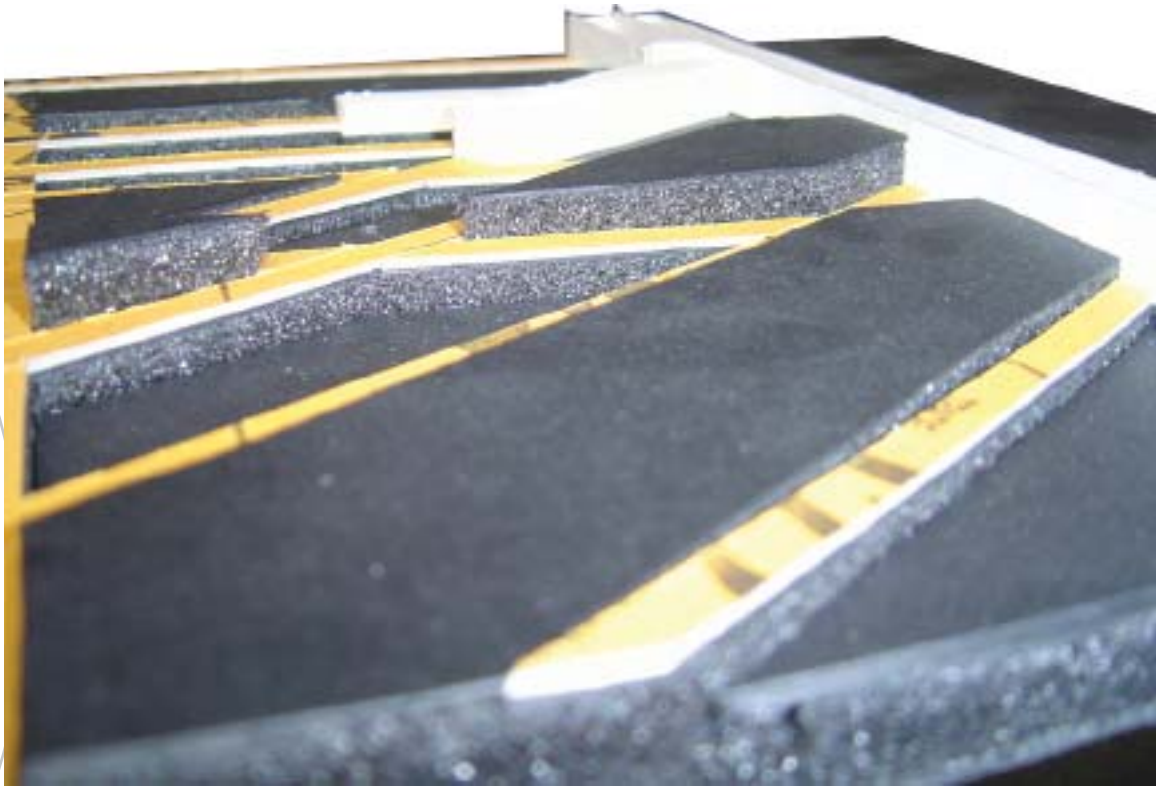
There are no special needs for the parking.

Design Process

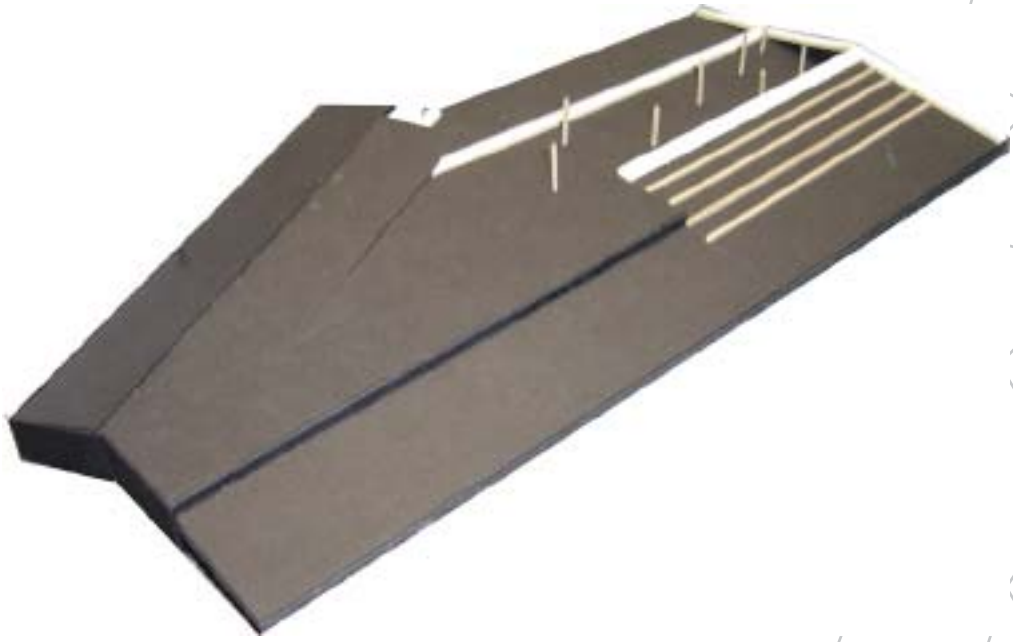


This model was an interpretation of how lines generated from the existing buildings could create the plan and section of the new building.



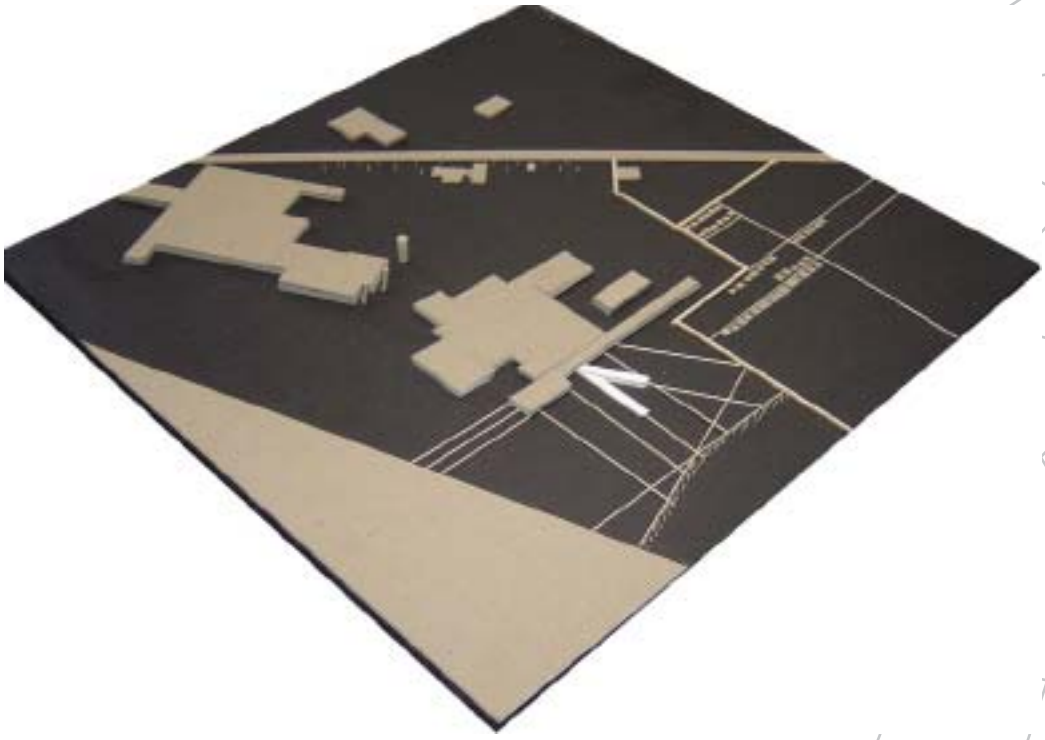


The grid is placed on the field and the lines are treated as paths. In between the paths the land is shifted up and down.

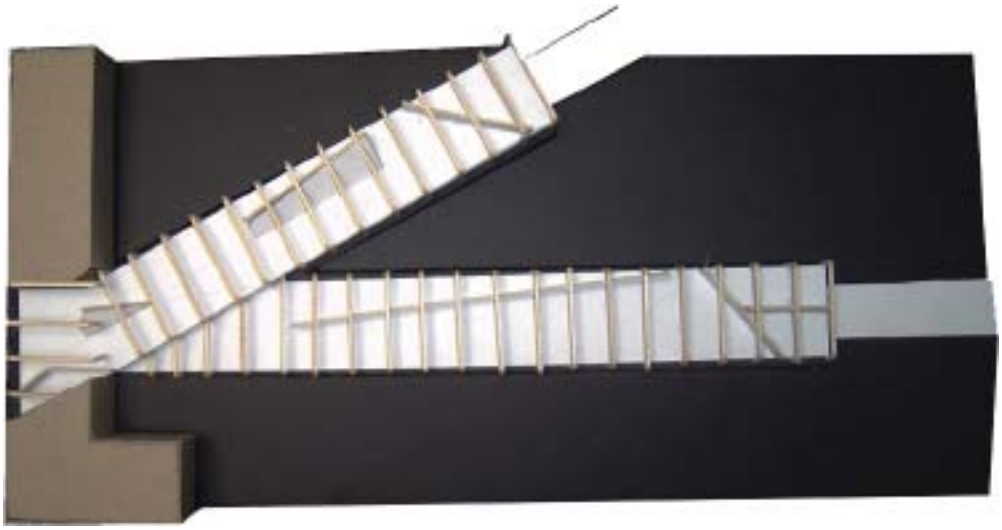


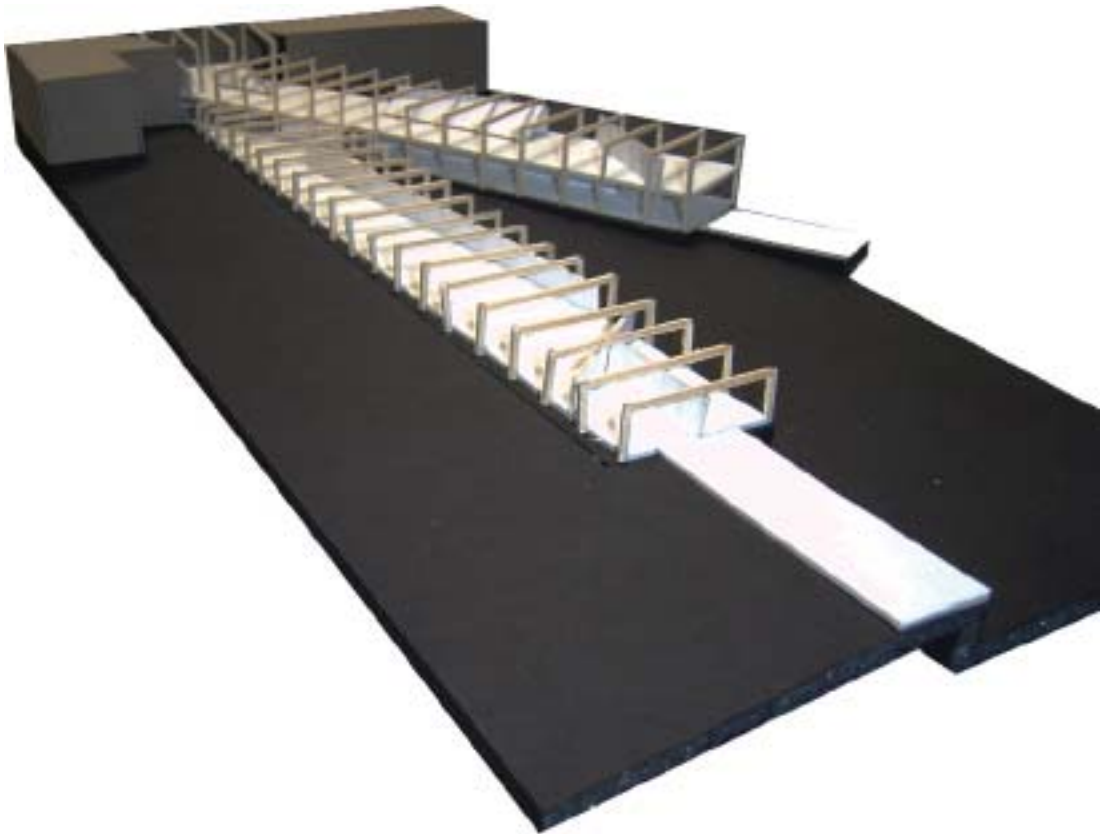
This model shows the context of the new building and how the land slopes away from the building. The amphitheater is shown here with the strips of basswood.

This is a model from a charette. This was an interpretation of what a 20 feet section might look like from the new building.



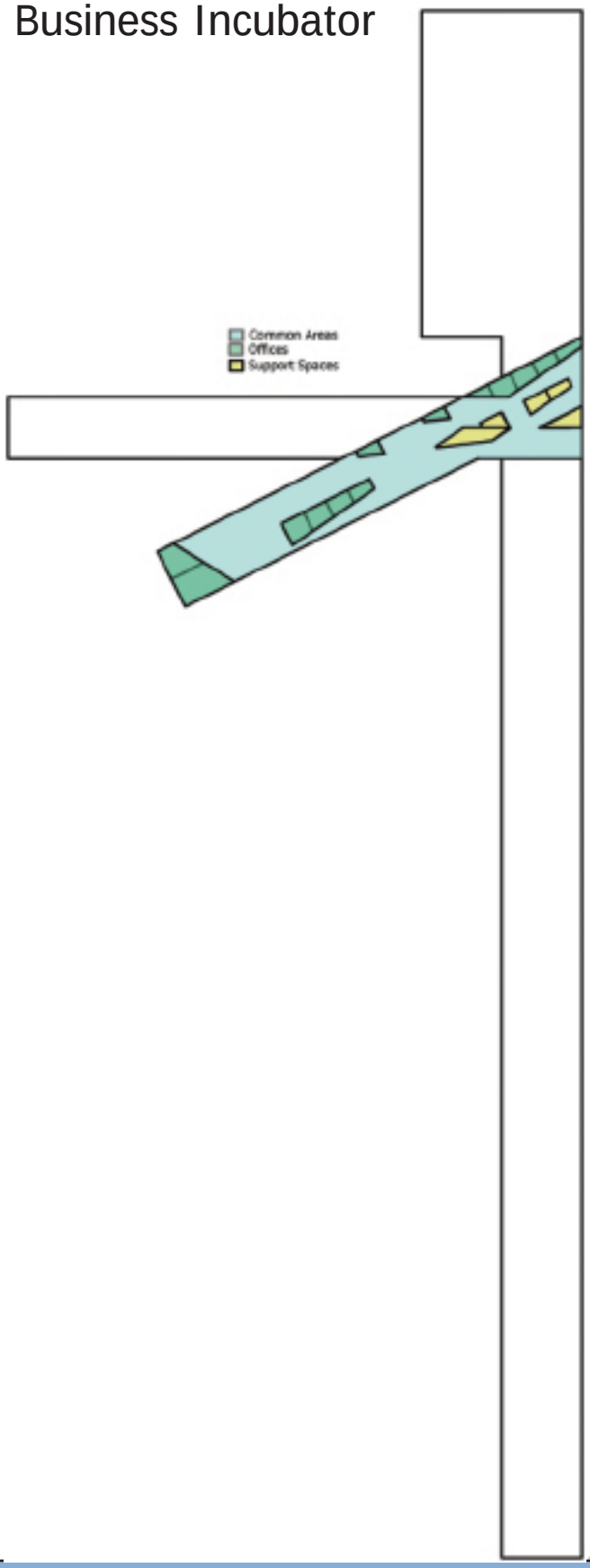
This is the site model for the project at the end of the first semester. It includes the existing facility and some of the surrounding neighborhoods.



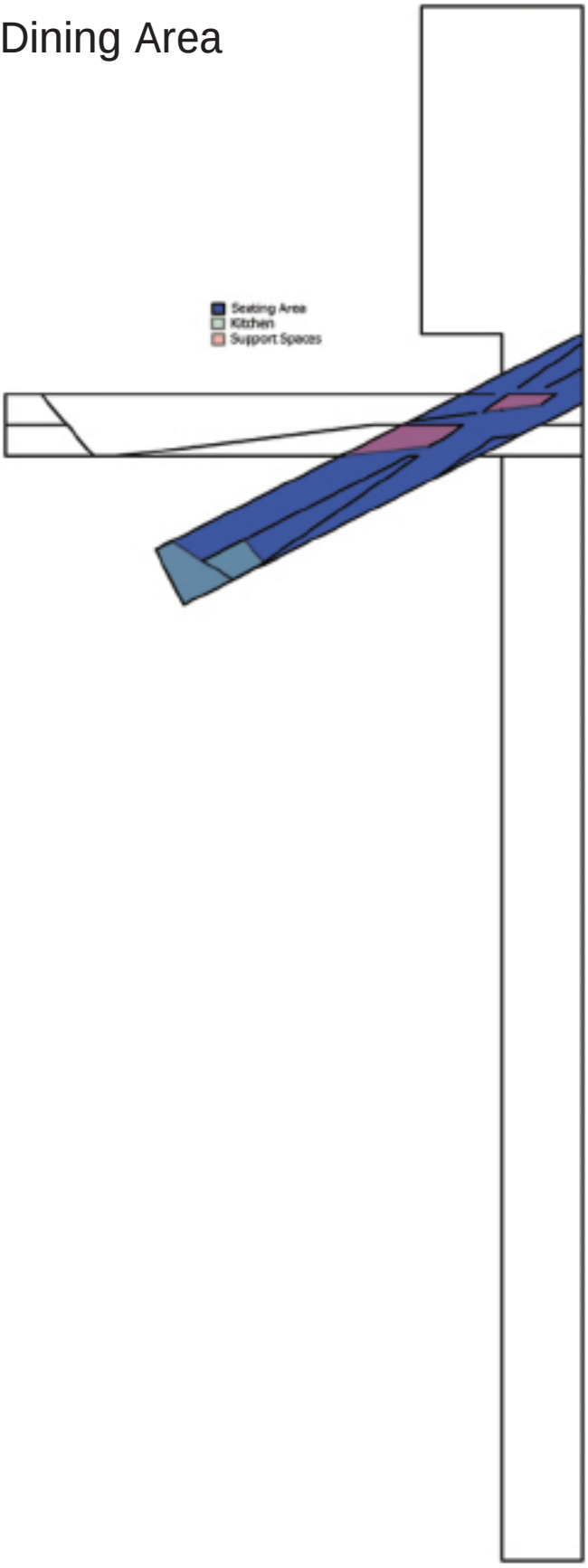


This the final model of the first semester portraying the new building. The walls follow the grid generated from the site and the building form follows the grid.

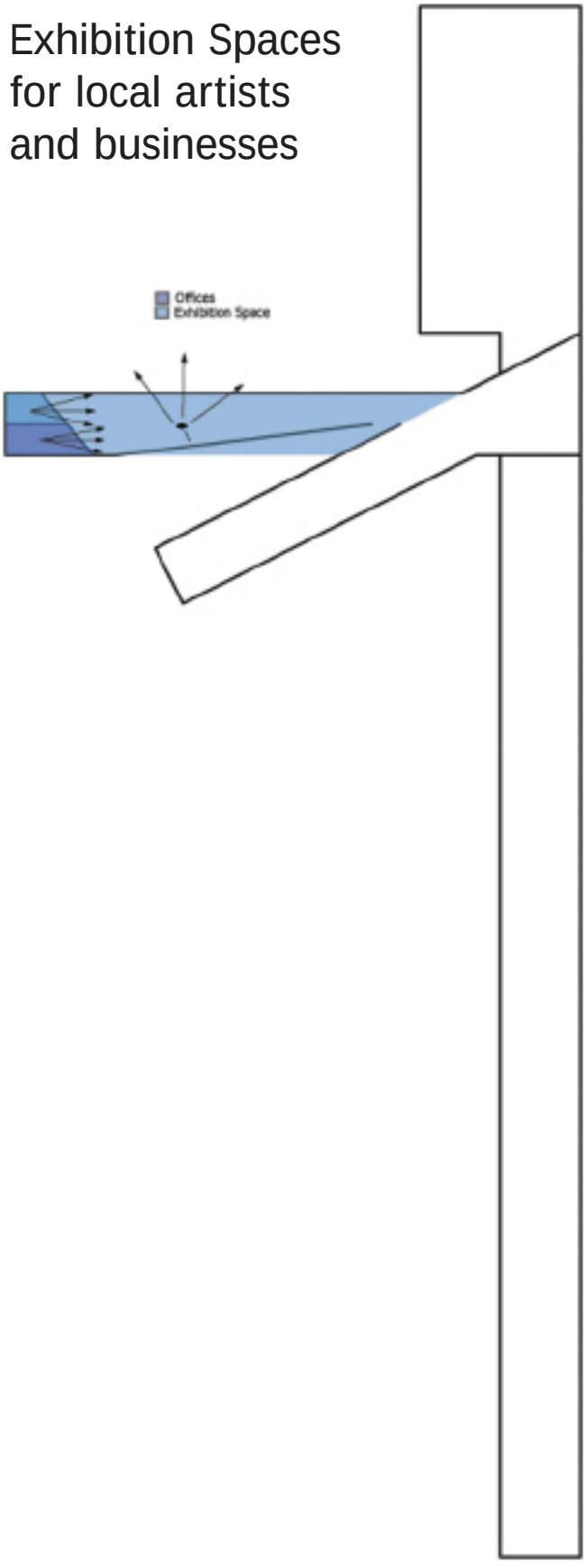
Business Incubator



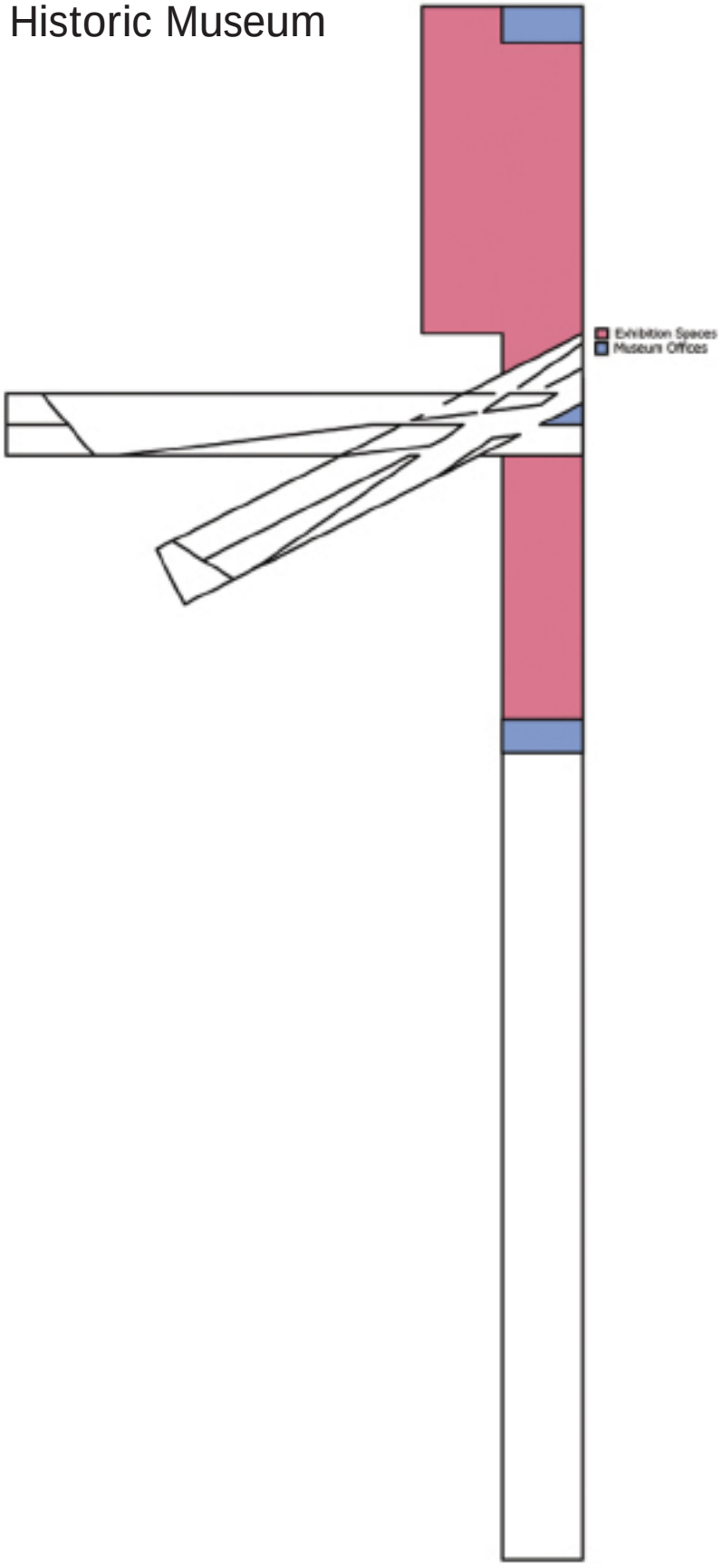
Dining Area



Exhibition Spaces
for local artists
and businesses



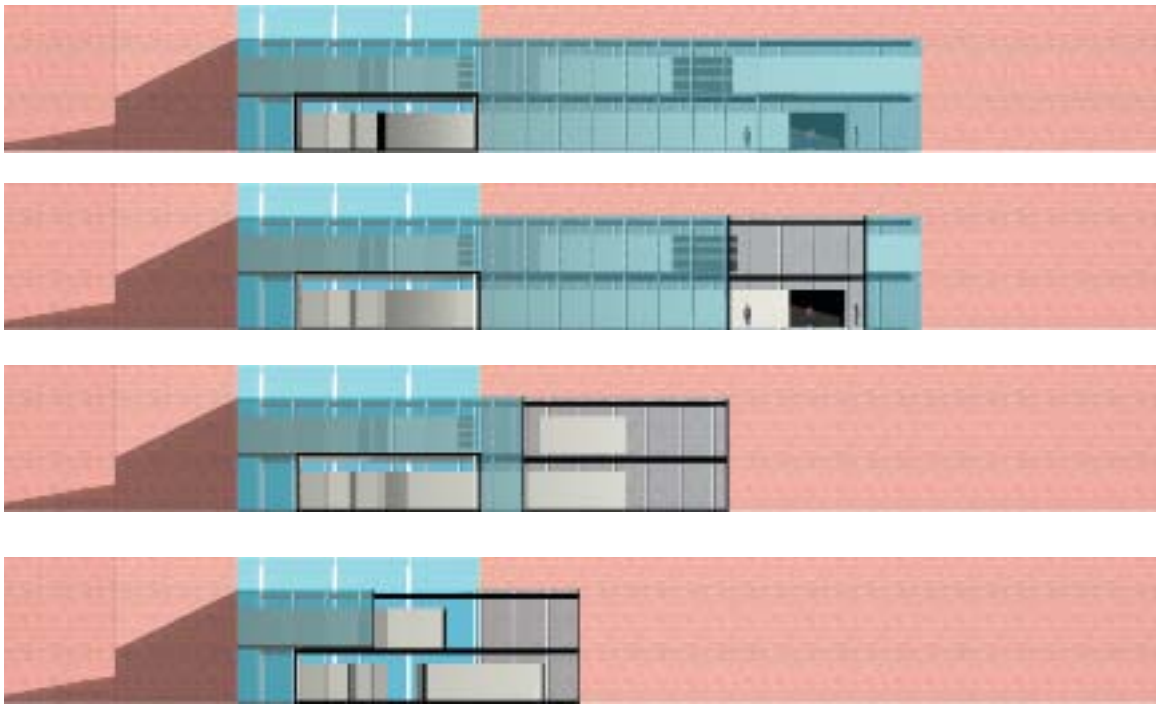
Historic Museum

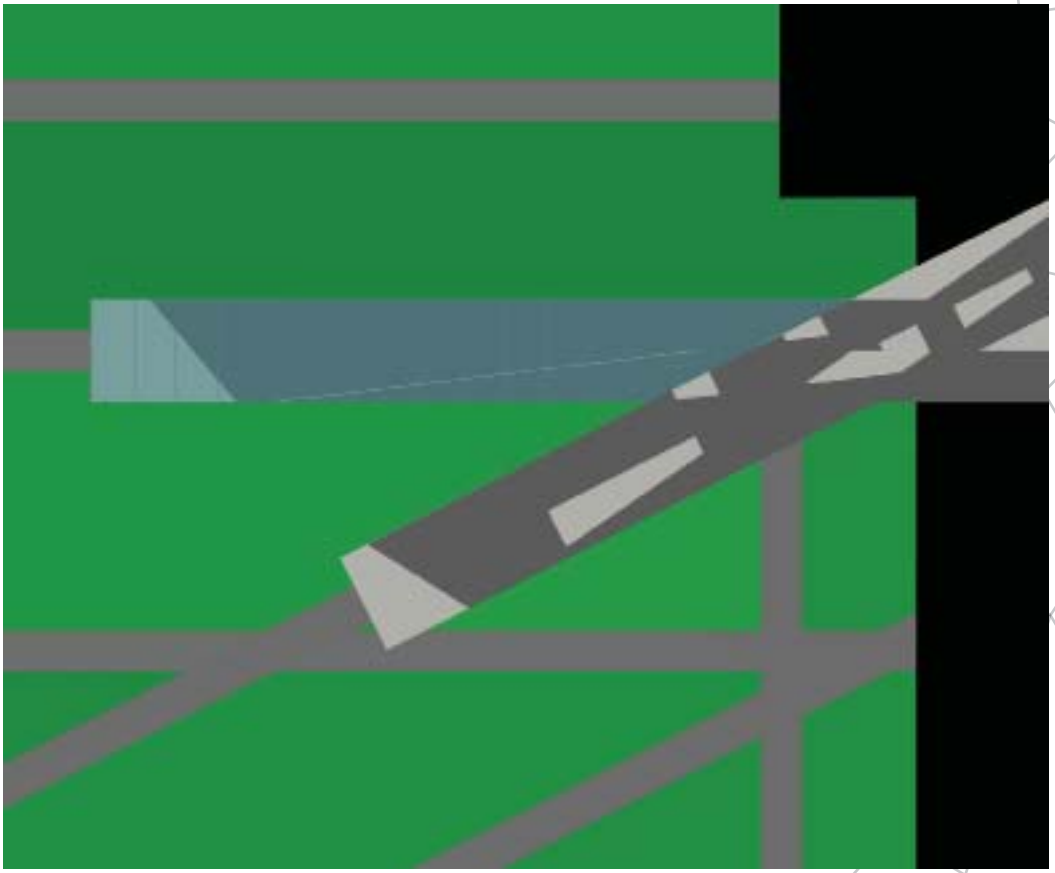


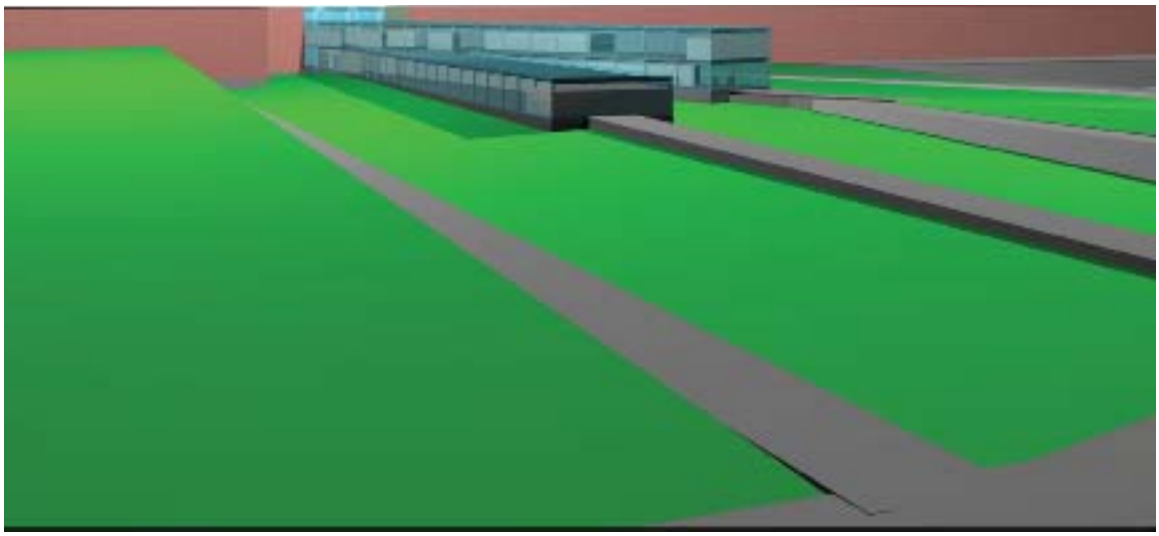
Elevations

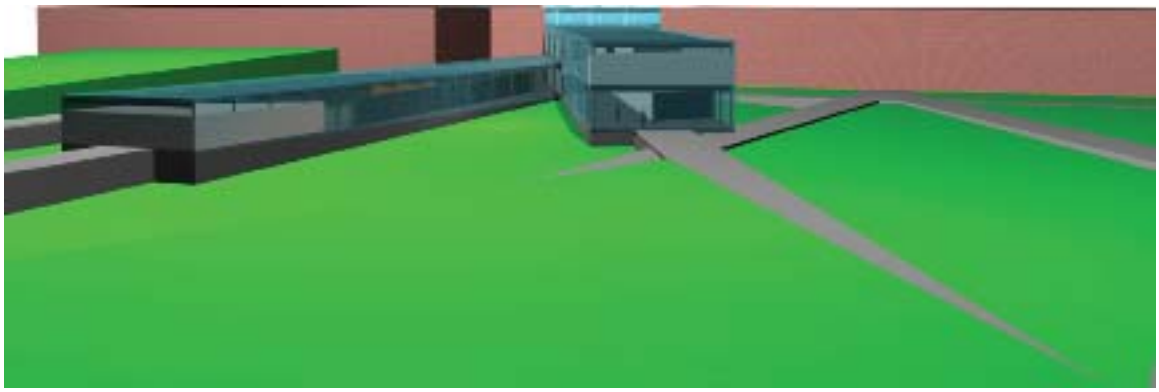
Site Sections

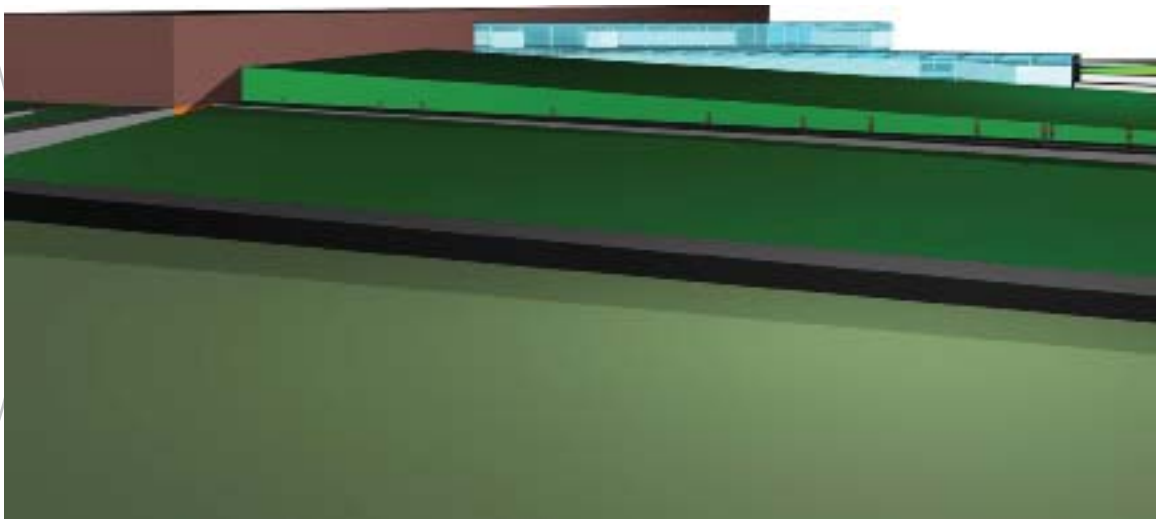
Sections



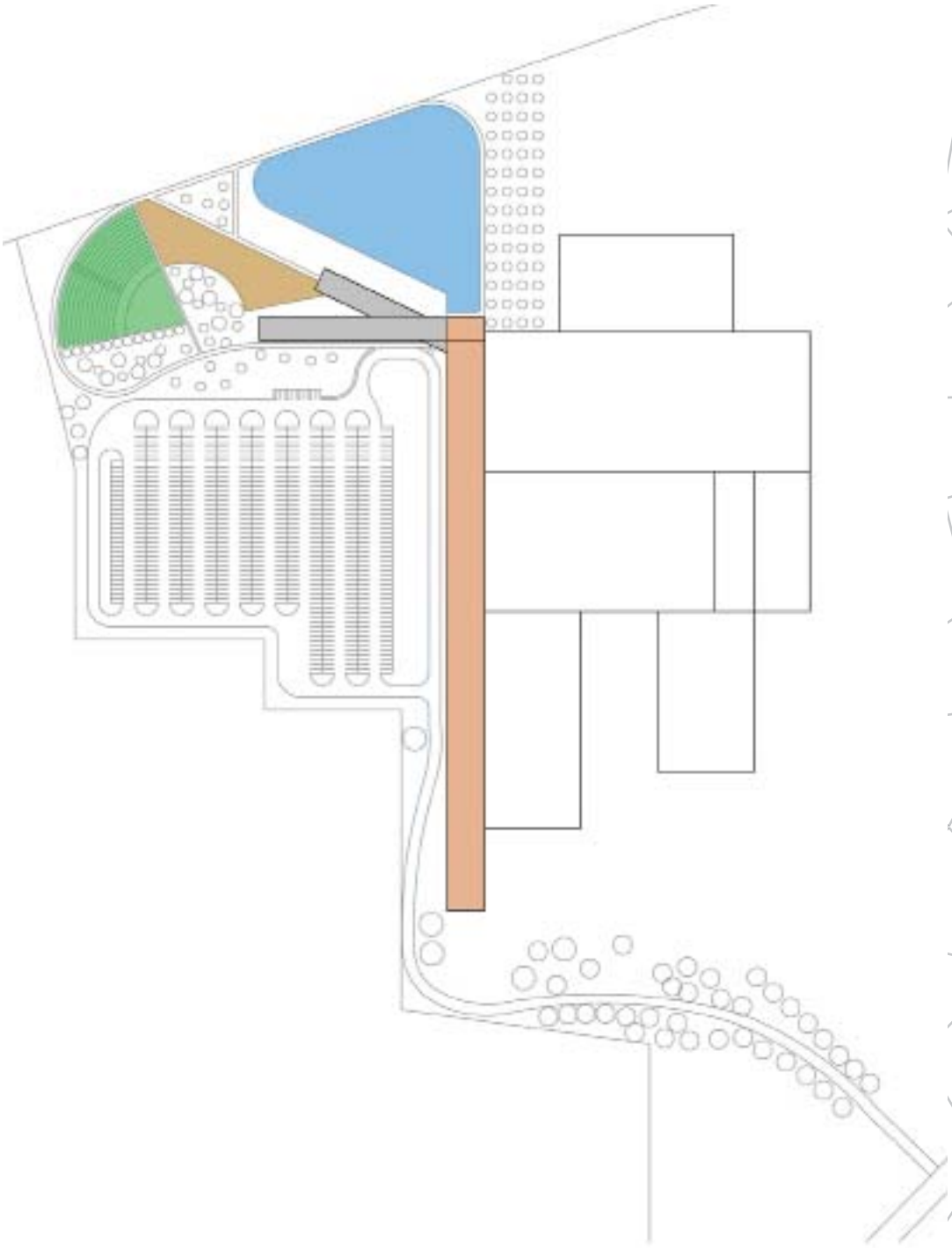




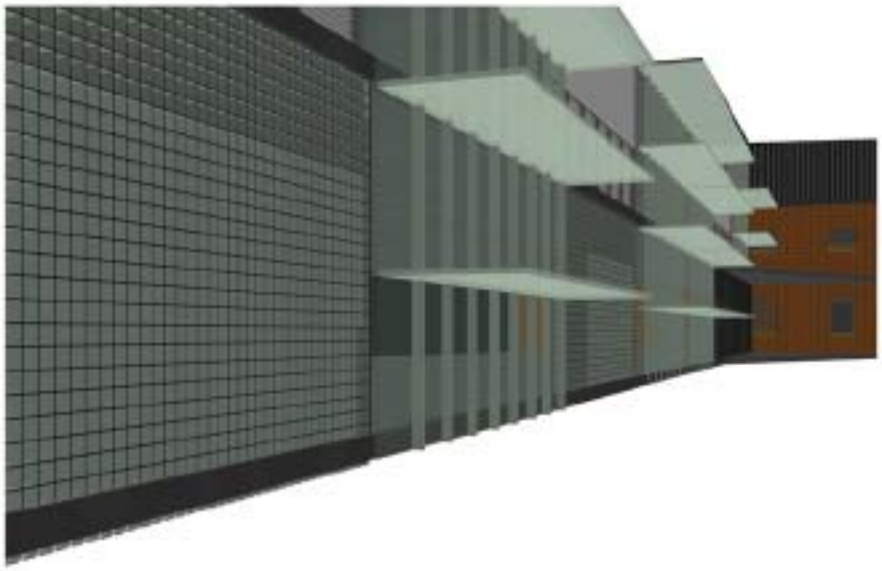




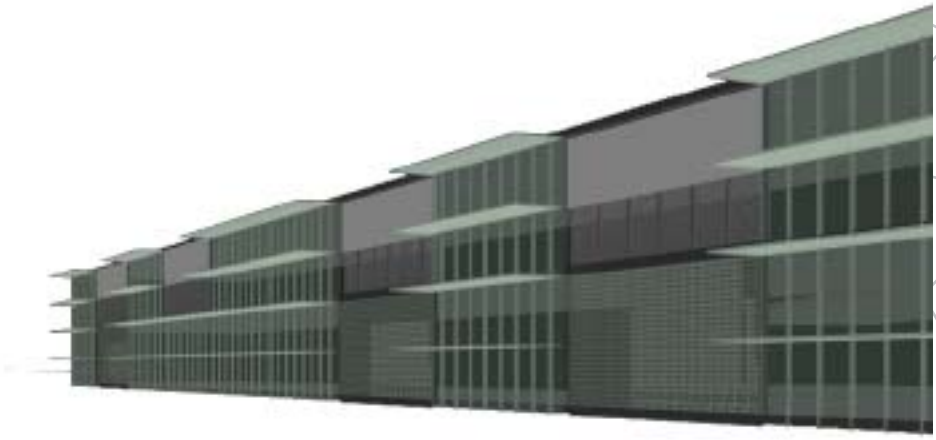
Benchmark 4



This is the site plan from Benchmark 4 at the beginning of February. The new building attempts to address the site better than the last version. The site stays about the same throughout the rest of the project.



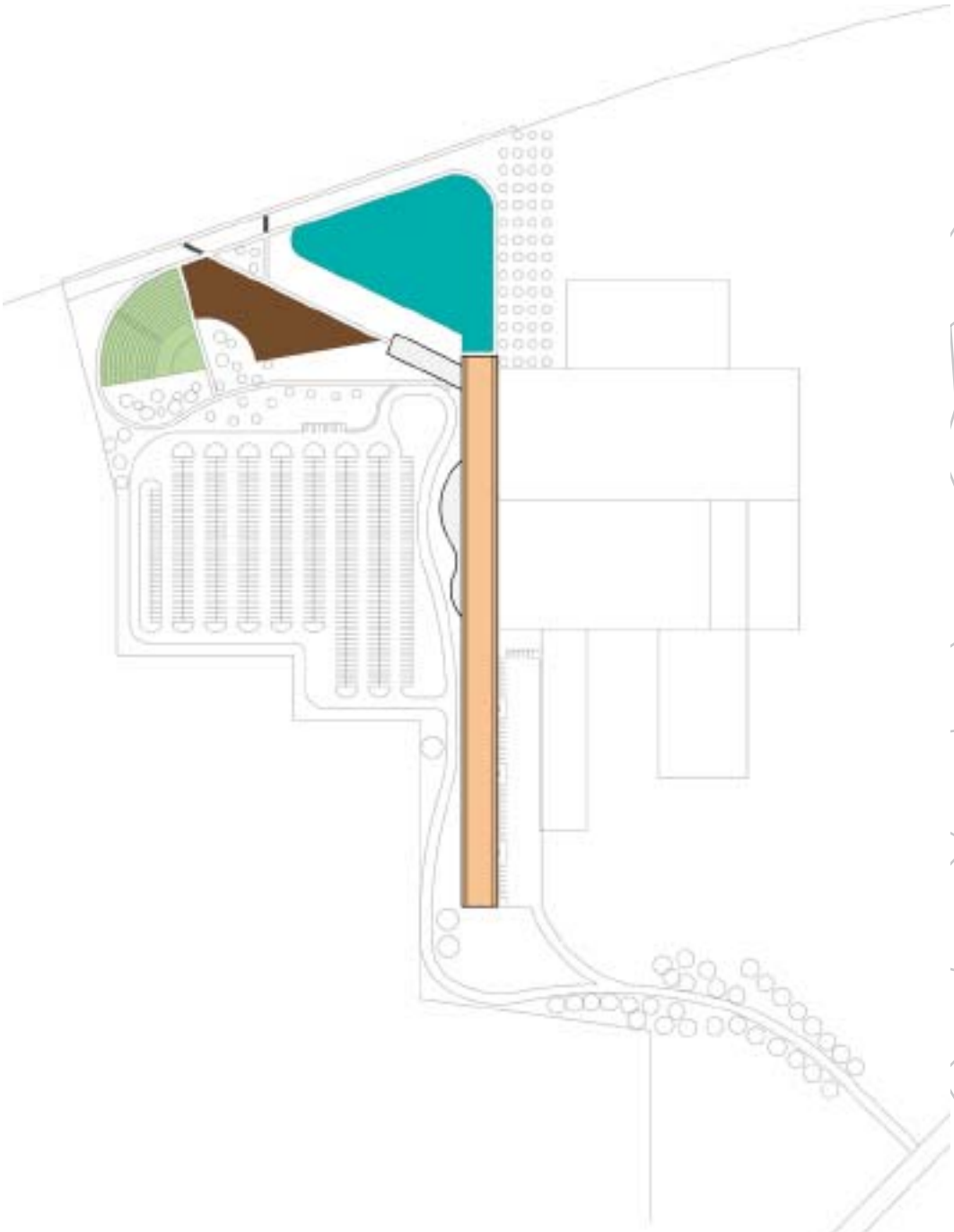
The new building incorporated different glass facades including glass block and glass shading devices pictured here. The stairs were also made almost completely of glass.



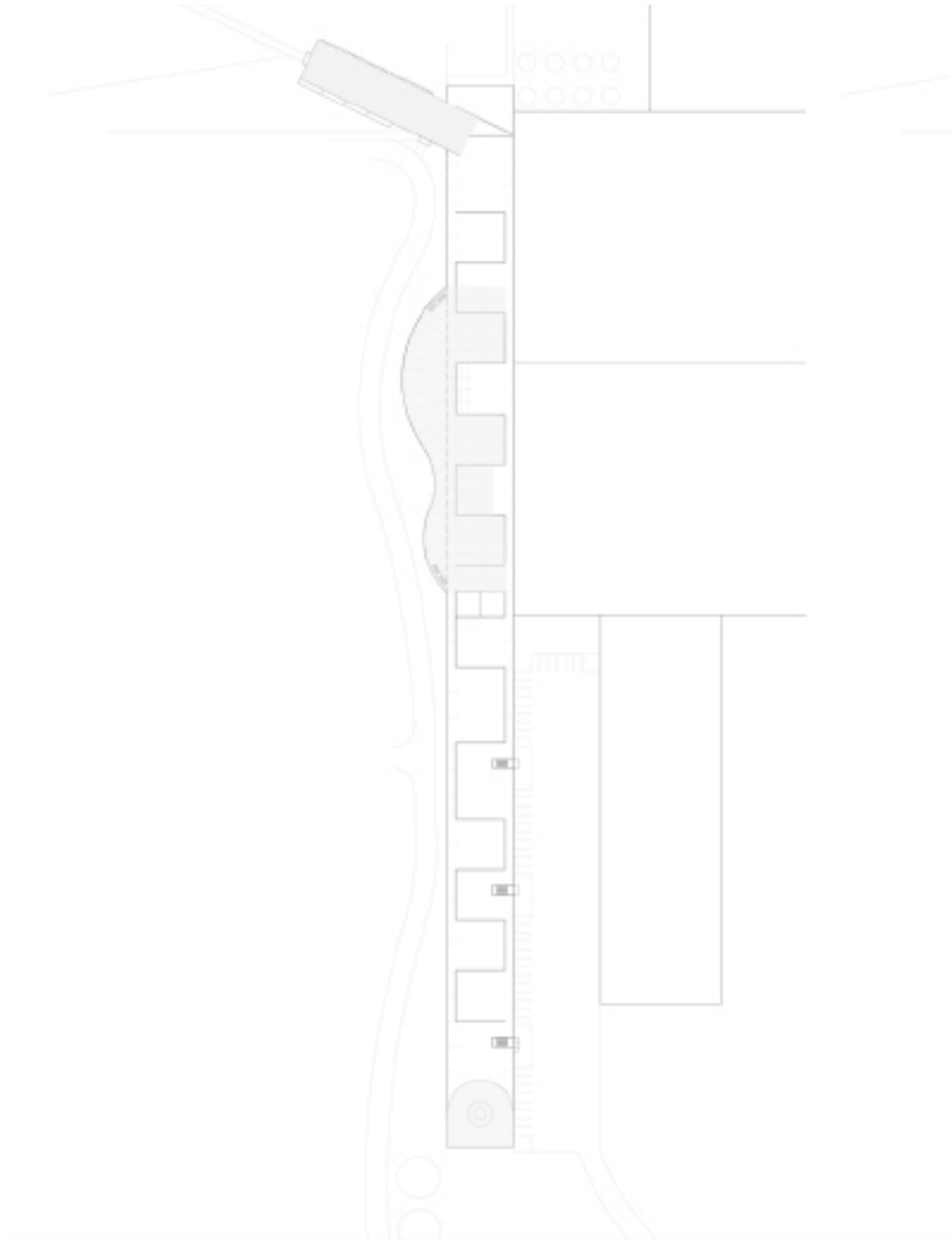
The image at the top shows operable glass louvers that move similar to horizontal blinds.

This model was an attempt to understand how the structure of the exhibition space woul intersect with the existing building. The connection between the curved and orthagonal structure proved to be difficult and was probably never resolved.

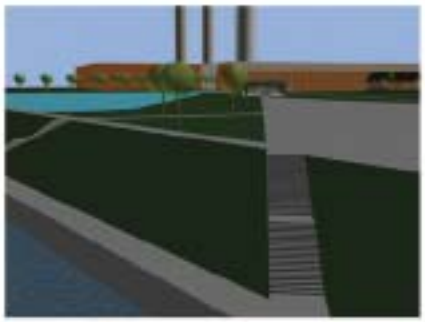
Benchmark 5



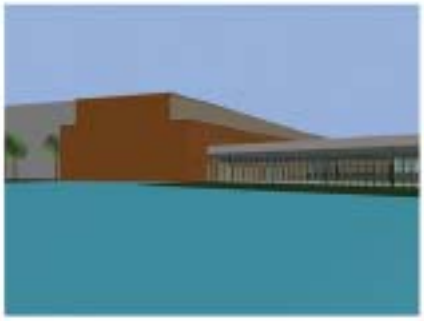
The site plan stays the same except for the building form from Benchmark 4 to Benchmark 5. Rather than having a large new building, two smaller additions to the existing building are incorporated.

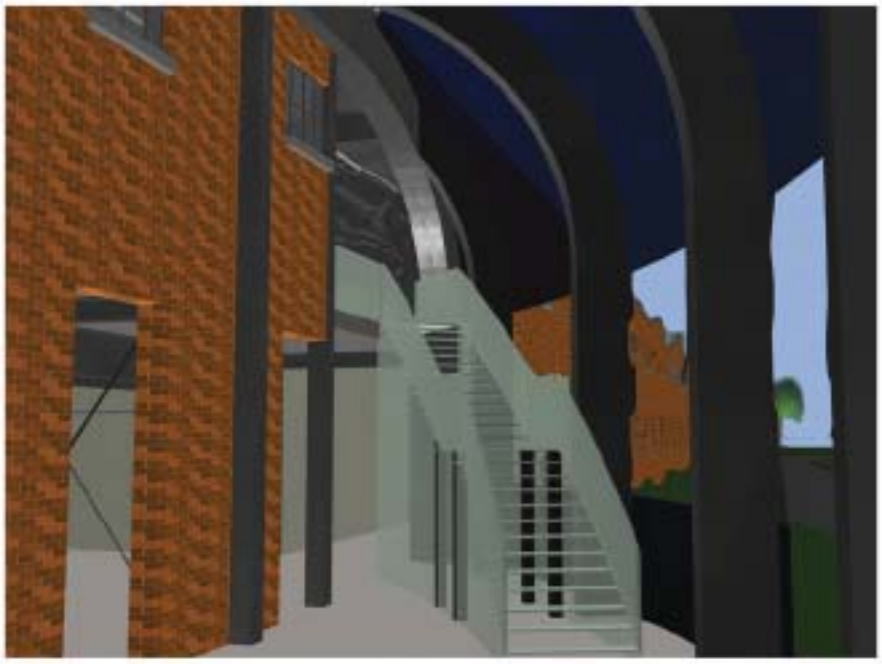


The north addition is the dining area, the middle addition is the exhibition space and at the south end is a glass blowing exhibit.



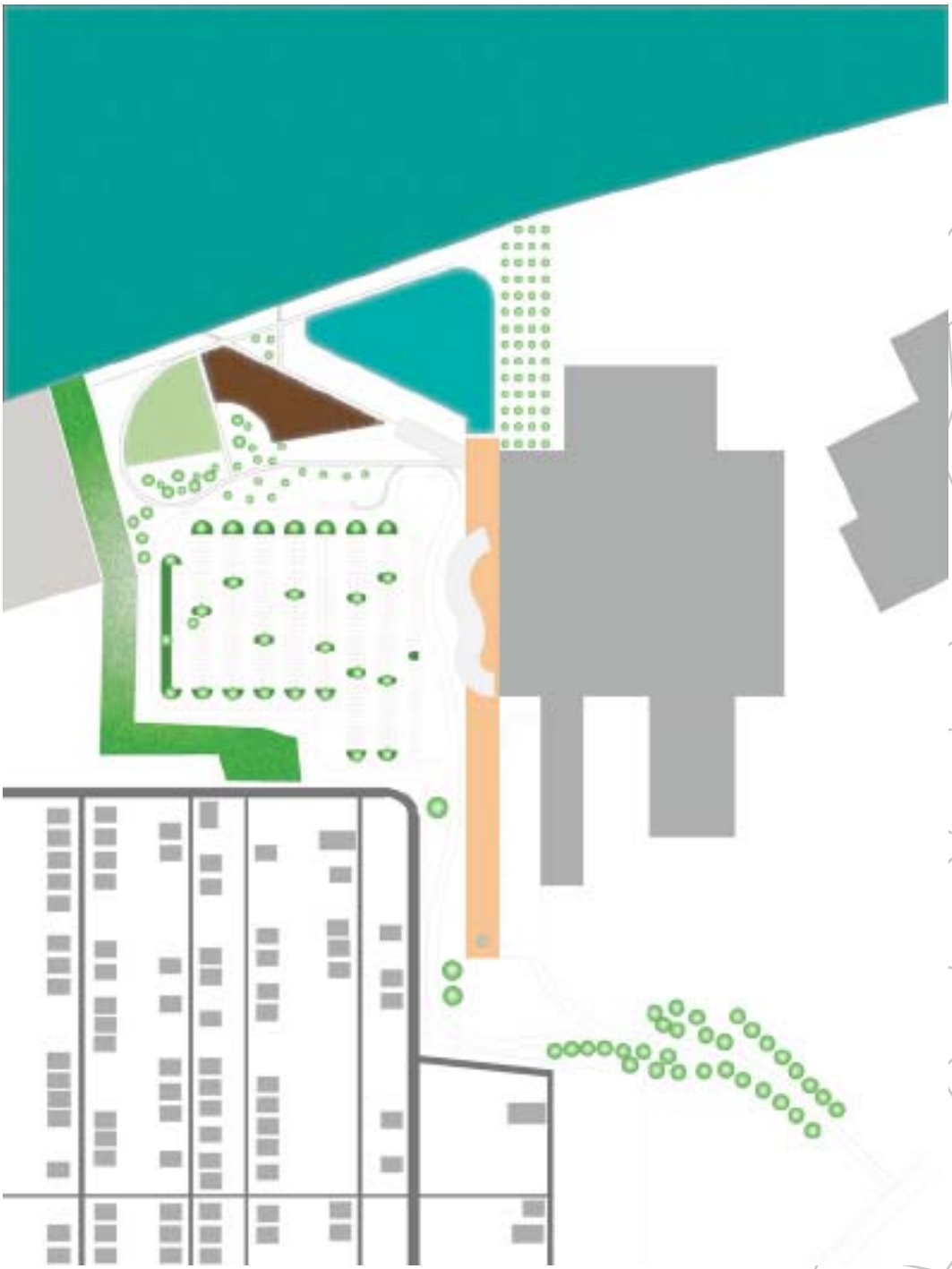




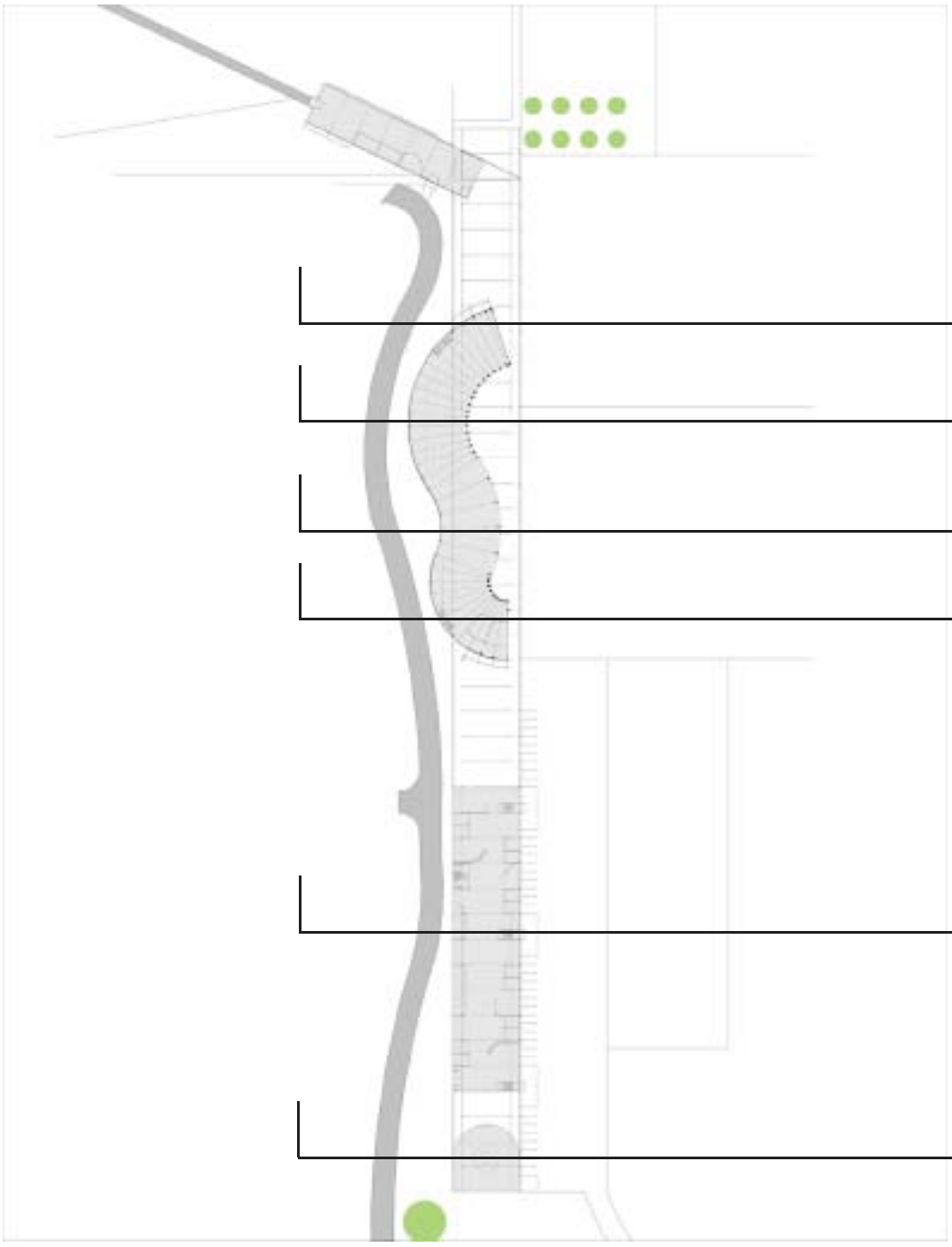



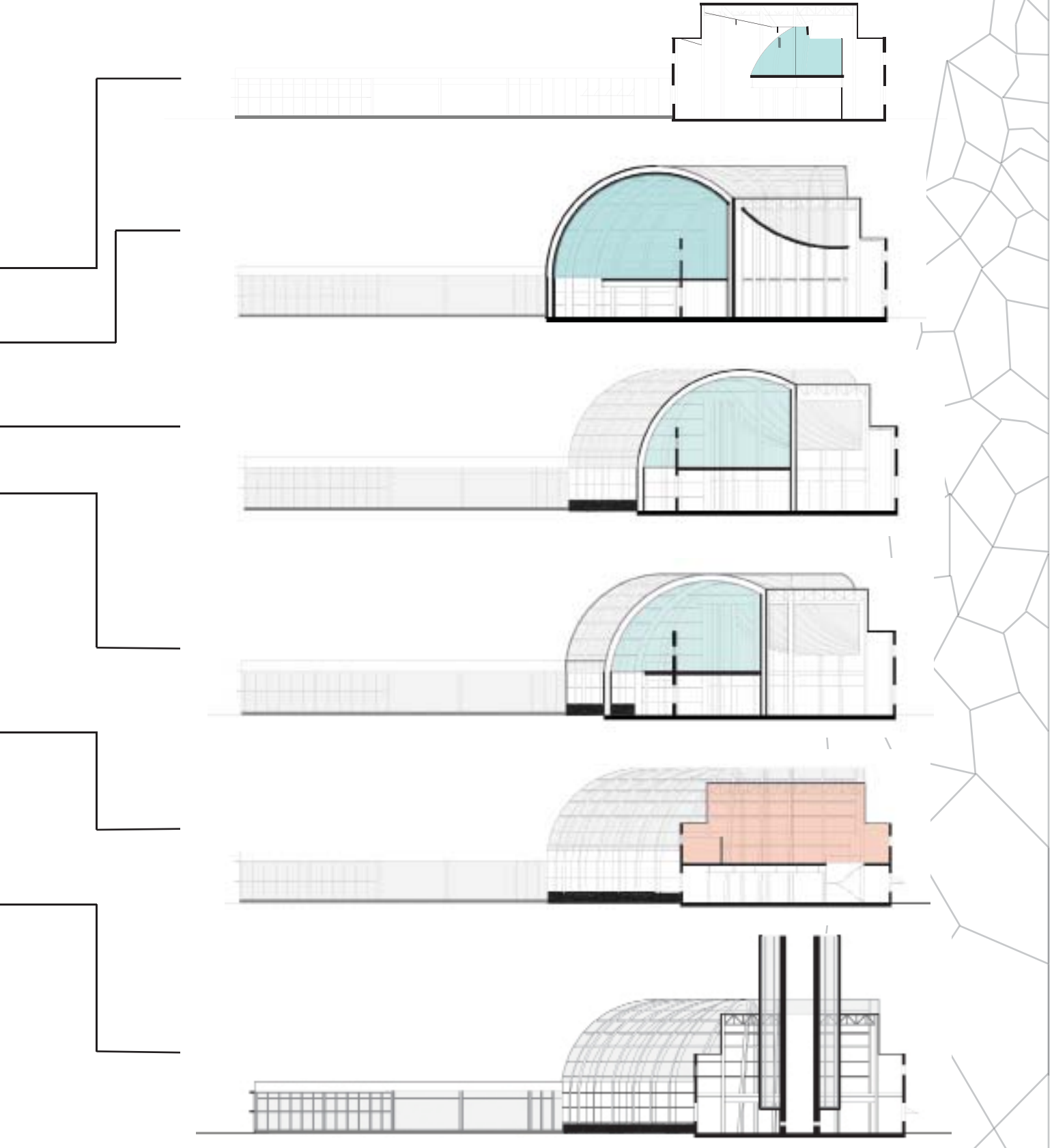
The structure for the exhibition space was a series of bent beams. Where the structure intersected with the existing building two bent beams were used with one supporting the brick wall. The interior of the upper level of the exhibition space used different kinds of glass in the walls.

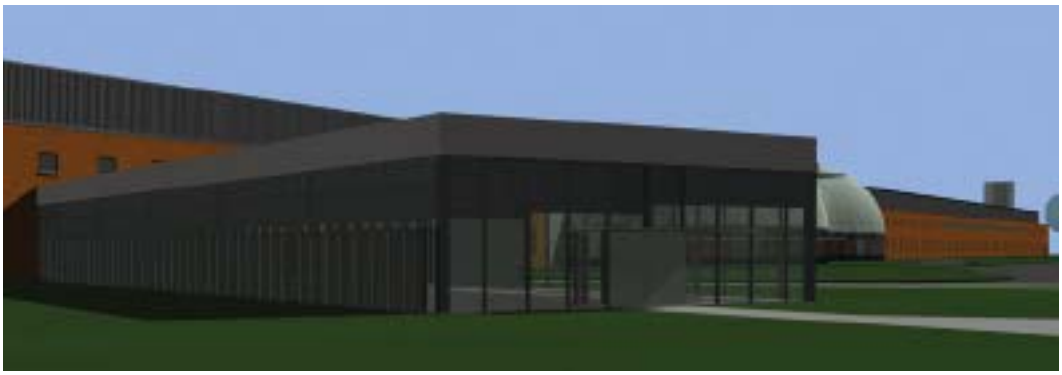
Final Project

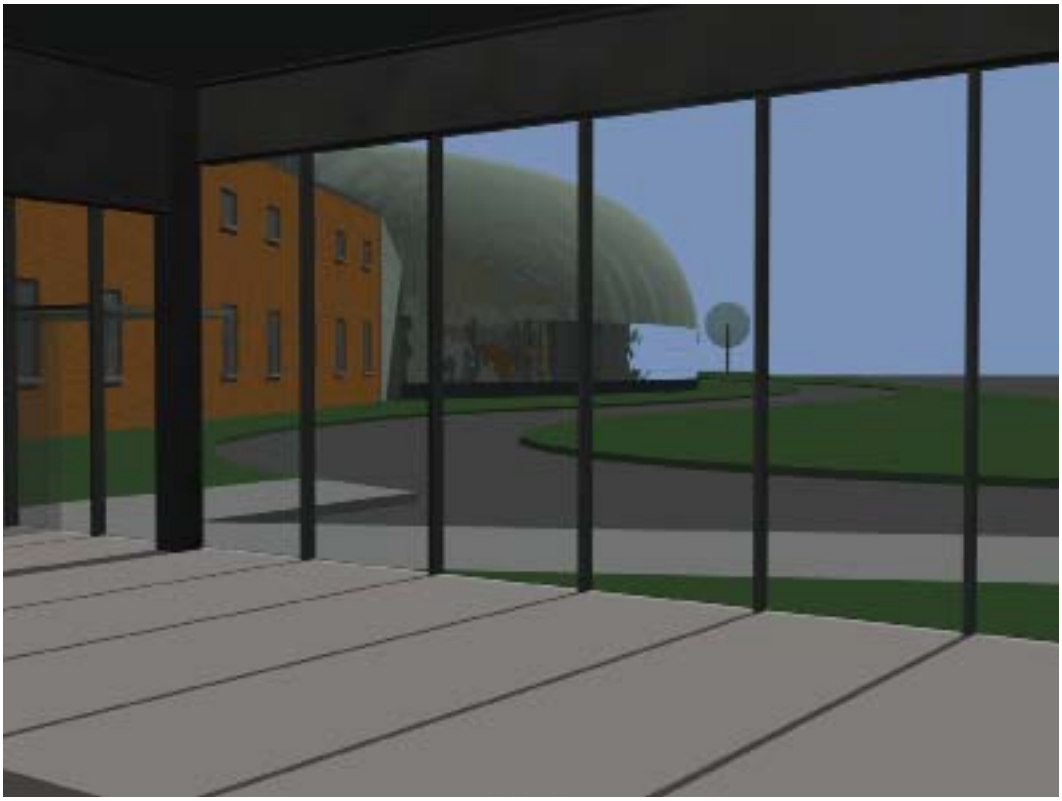


The Final Project expands on Benchmark 5 by focusing on the exhibition space and creating a form that embodies molten glass.

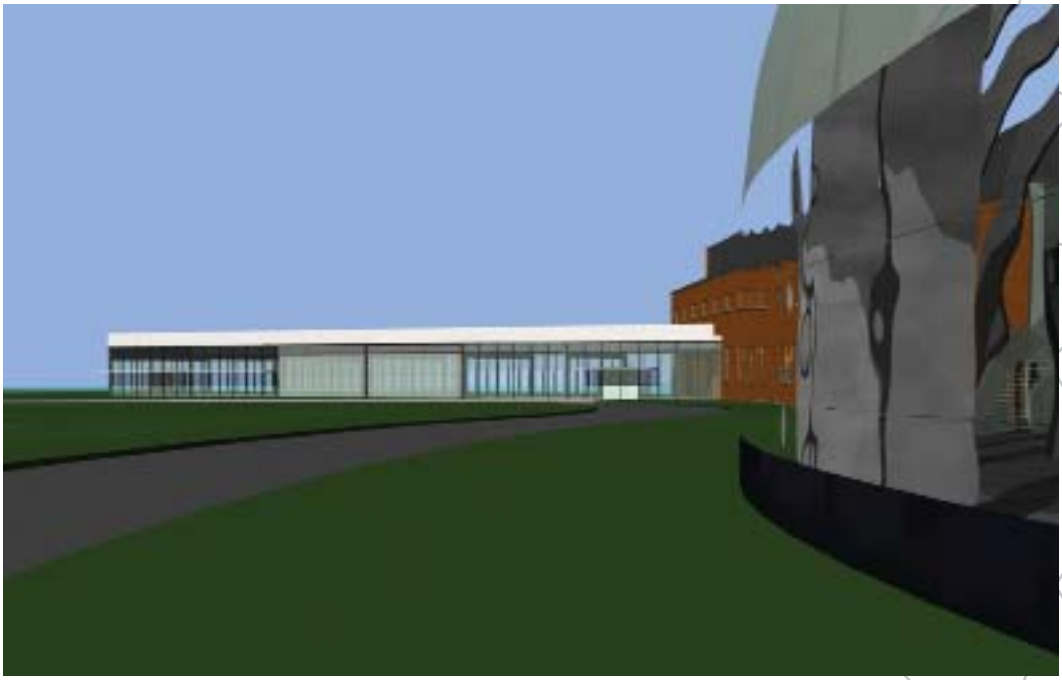


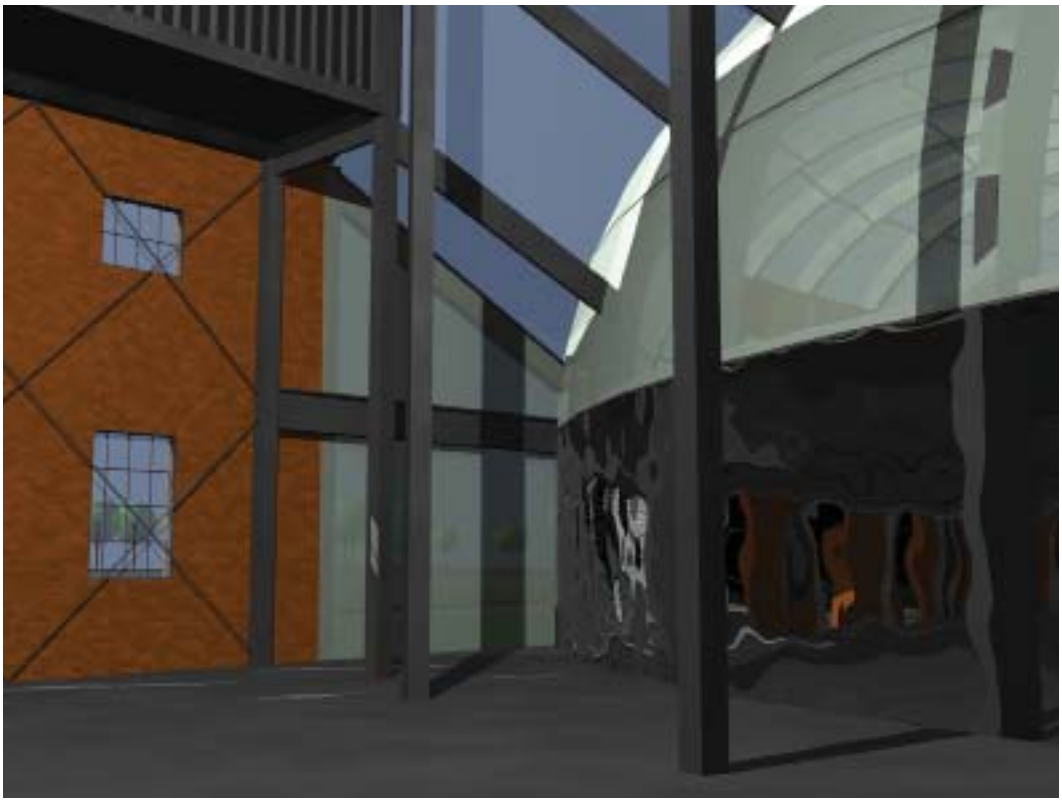


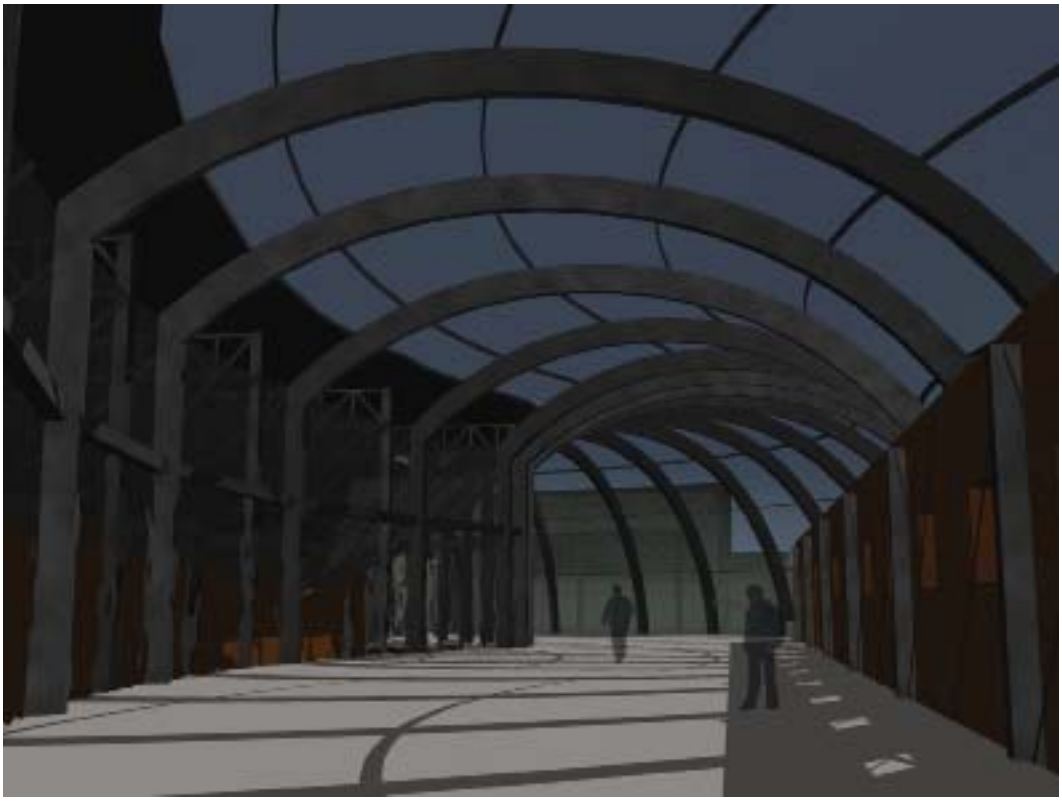


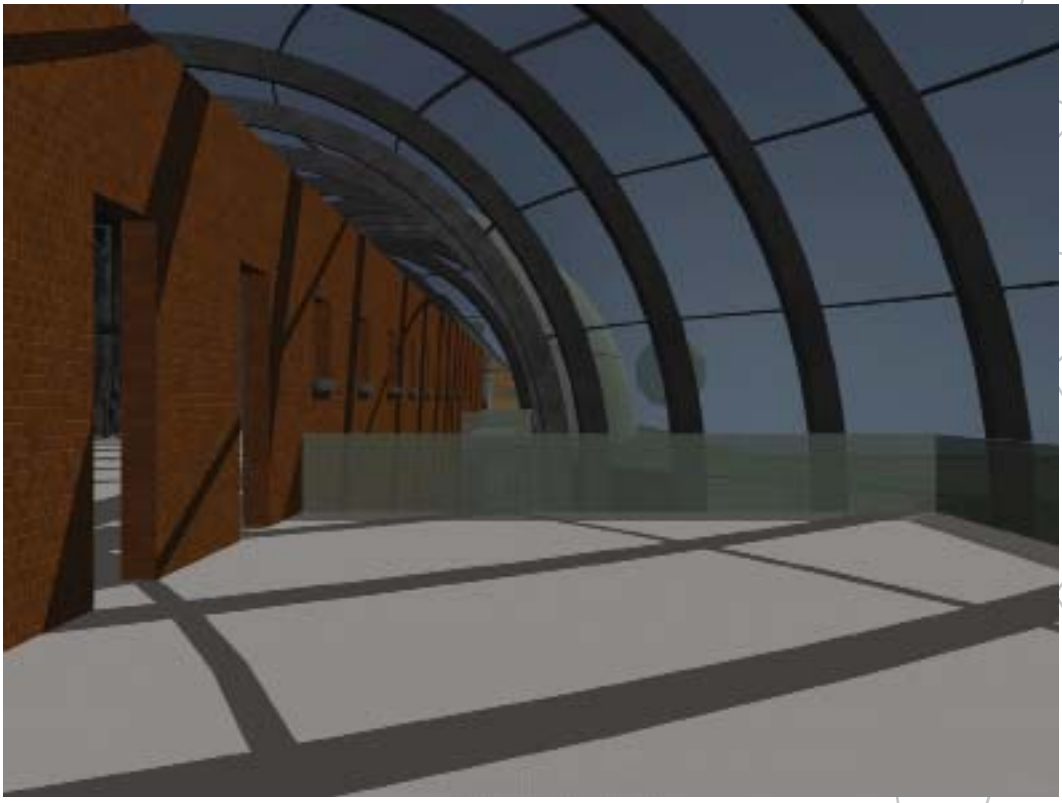


This images show views of and from the dining area. The top image is looking towards the dining area from the northwest and the bottom image is looking from inside the dining area to the exhibition space.

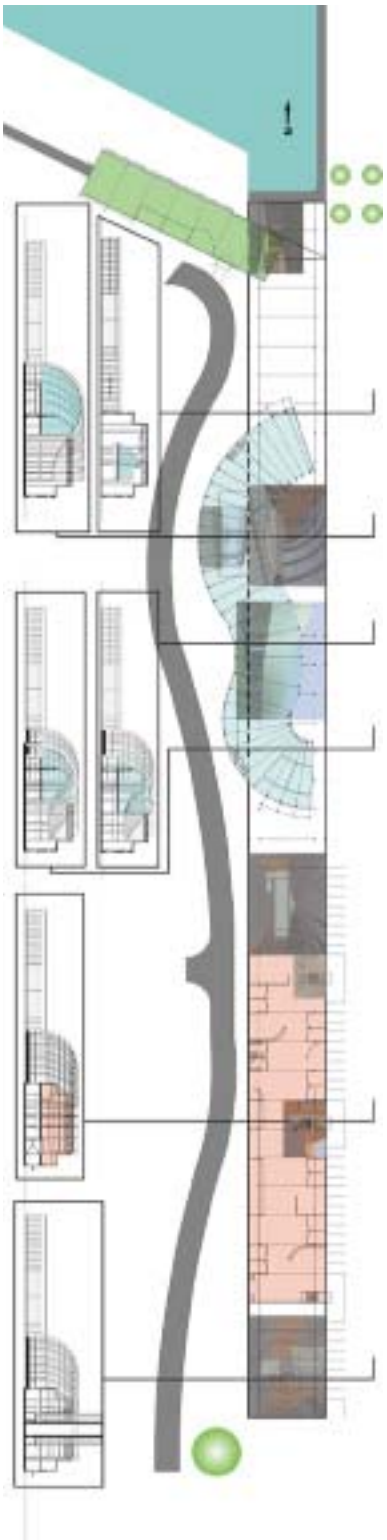


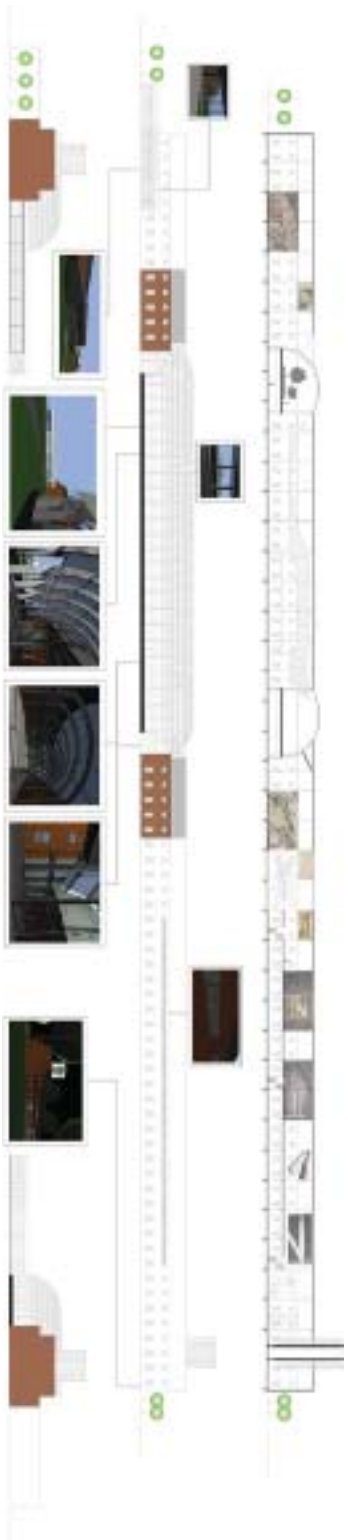






Final Presentation





Final Model

Conclusion

The whole process of developing a thesis and attempting to express it in an architectural form has been very rewarding. I have learned a great process about how to develop a design. I feel that I can take this process into areas outside of design. I feel that the tools I learned during this year will serve me well as I begin my career.

In the end, my design began to approach true architecture although I could spend at least another eight months on it and not be finished. I do regret addressing the existing building so late in the project, but the last few months that I did I learned a lot about the building and how important it was to the site. I began to investigate glass more in the second semester as a material, but I wish I had begun this investigation in the first semester.

The next step in the design would probably be to fully investigate the tectonics of glass and how glass could be used in the details of the building. To truly study glass is what I should have done from the beginning of the first semester until the end of the year. Coming into the thesis year, I was focused so much on design that I put research too far to the side and lost some opportunities to understand glass along the way.

If I had the chance to start the project over, I would build many more physical models. I mostly worked in VIZ on 3D models. With physical models, something about cutting the walls out of chip board and putting them together was incredibly valuable and I hardly ever made these models. Physical glass studies would have been helpful too even if they were not truly representative of the conditions of the building. If any students read this before the second semester, I would highly recommend building as many physical models as you can before working on the computer. I

wish I would have and the physical models may have made more of a difference in my final project. I think this is true for drawings also. Overall, I gained valuable experience in how to approach design and learned how important the process really is to get to the final design.

Endnotes

1. Fredrick C. Mish, Merriam-Webster's Collegiate Dictionary, 11th ed. (Springfield: Encyclopedia Britannica, 2003) 616.
2. Mish. Merriam-Webster's Collegiate Dictionary. 1068
3. Kenneth Frampton. "Towards a Critical Regionalism: Six Points for an Architecture of Resistance." Labor, Work and Architecture: Collected Essays on Architecture and Design (London: Phaidon Press Limited, 2002) 81.
4. Frampton. "Towards a Critical Regionalism: Six Points for an Architec ture of Resistance." 81
5. Russell, James S. "Mitchell Park and Marina, New York." Architectural Record July 2006: 95
6. Russell. "Mitchell Park and Marina, New York." 95
7. Russell. "Mitchell Park and Marina, New York." 99
8. Russell. "Mitchell Park and Marina, New York." 99
9. Barclay, Morgan, and Charles N. Glaab. Toledo: Gateway to the Great Lakes. (Tulsa: Continental Heritage Press, Inc., 1982) 54.
10. Barclay. Toledo: Gateway to the Great Lakes. 57.
11. Padjen, Elizabeth. "The Big Gamble." Architecture July 1999: 123
12. Elkadi, Hisham. Cultures of Glass Architecture. (Burlington: Ashgate Publishing Company, 2006) 41.
13. Russell. "Mitchell Park and Marina, New York." 95
14. Umlauf, Elyse, and Phil Schreiner. Building Design: Improving Commercial Spaces. Chicago: Cahners Publishing, 1990.

Annotated Bibliography

Barclay, Morgan, and Charles N. Glaab. Toledo: Gateway to the Great Lakes. (Tulsa: Continental Heritage Press, Inc., 1982) 54.

Before becoming too engaged in the project I had to learn more about Toledo. This book provided the information I needed about Toledo's history.

Elkadi, Hisham. Cultures of Glass Architecture. Burlington: Ashgate Publishing Company, 2006.

This book was helpful in understanding some different ways glass has been viewed in the past. Looking back, I wish I had read more of it because the information I did find was fairly useful.

Frampton, Kenneth. Labor, Work and Architecture: Collected Essays on Architecture and Design. London: Phaidon Press Limited, 2002.

After reading Frampton's "Towards a Critical Regionalism" article during History and Theory 3, I knew my thesis would relate somehow to his ideas. This article was the beginnings of my thoughts for the thesis and still serves as a major component.

Russell, James S.. "Mitchell Park and Marina, New York." Architectural Record July 2006: 94-99.

Mitchell Park was the basis for my site design. The combination of outdoor elements that the project offered at its success were the main reasons it was so important for my project.

Umlauf, Elyse, and Phil Schreiner. Building Design: Improving Commercial Spaces. Chicago: Cahners Publishing, 1990.

The authors talk about Underground Atlanta in this book among other successful restored or revitalized buildings. Underground Atlanta was one of the first precedent studies I looked at.

Weathersby, William, Jr.. "Grand Bibliotheque." Architectural Record Oct 2006: 116-119.

The Grand Bibliotheque was one of the inspirations for the glass louvered wall.