Matthew Doll

2009-2010

Copyrighted by Matthew Doll 2010 | http://mcdportal.com | mdoll@mail.usf.edu

```
x:\>cd A:\study_abroad_japan
A:\study_abroad_japan>load -p studyabroadjapan.prj

Loading |||||||||||||||||| 100%
```

Study Abroad Japan

Class: Study Abroad Japan, Summer 2009 with Professor Stan Russell

5 Weeks in the most amazing country. We visited Kyoto, Osaka and Tokyo.

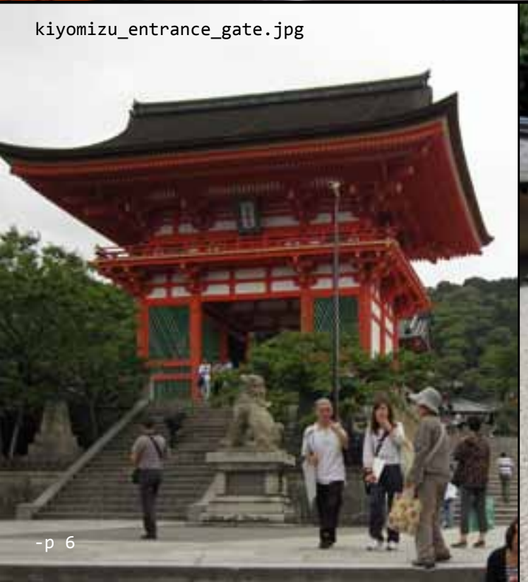
Continue

A:\>study_abroad_japan

gates_at_fushimi_inari.jpg

paper_wishes.jpg

kiyomizu_entrance_gate.jpg



ryoanji_rock_garden.jpg

A:\>study_abroad_japan

gion_tea_garden.jpg

kinkakuji.jpg

ginkaku-ji_gardens.jpg

bamboo_at_night.jpg

gion.jpg

A:\>study_abroad_japan

church_of_the_light.jpg

ashiya_public_housing.jpg

osaka_sky_building.jpg

tokyo_forum.jpg

shibyua_tokyo.jpg

Excerpt from my Japan Blog:

Japan Day 35 - Sekisui Homes

Today we went to tour Sekisui's Factory, another modular home plant. They have a very similar process to Misawa Homes.

They build steel framed modules that they assemble together at the job site.

You can read all the details over at their website . They also have another factory that produces wood framed homes. There tour was very through. They had several videos showing the manufacturing process up close. One of the coolest parts was the huge machine that automatically assembled the steel frame. It loaded all the pieces and spot wielded all of the joints.

They also had a model home. Walking in, you would think you walking into modern western home. Very nice. The house was huge by Japanese terms- about three times larger than normal larger than the They had a couple of traditional Japanese rooms too and it was amazing how you turn a corner and you leave the west and enter the east as you walked into a very traditional tea room.

Our guide said this house would be about $1million US (not including land). It was only a 2bed and 2 bath but it also had an office, living, dining w/bar, family room, tatami living room, tea room. It was huge. Unless you knew, you couldn't tell that it was a modular home- it looked spectacular. The were no hints that the home was built using 41 prefabricated blocks.

After dinner I went out to see Shibyua and this time I found the "Times Square" of Japan. I stepped out of the JR station and there it was. Very cool. There were had massive dueling big screens, huge billboards. The only things missing were the massive skyscrapers probably because of the difficulty of building in earthquake land. The shear amount of people waiting the cross the street was amazing.

Then I went to see Omotesando Dori at night but I got there too late and many of the stores had already turned off their lights. The only one still nicely lit was this one-

The bold blue caught me by surprise. The building is white and glass during the day. It wasn't at what I was expecting but I really liked it and showed how dramatically a building can change at night.

Stone Lantern, Water Color

```
A:\study_abroad_japan>cd A:\kit_charrette
A:\kit_charrette>load -p kitcharrette.prj

Loading |||||||||||||||||| 100%
```

```
 _  __  ____ ______   ____ _                      _  _
| |/ / |_  _|__  __|  / ___| |                    | | | |
| ‘ /   | |   | |    | |   | |__   __ _ _ __ _ __ ___| |_| |_ ___
|  <    | |   | |    | |   | ‘_ \ / _` | ‘__| ‘__/ _ \ __| __/ _ \
| . \ _ _| |_ _ | | _  | |___| | | | (_| | |  | | |  __/ |_| ||  __/
|_|\_(_)____(_)|_|(_)  \____|_| |_|\__,_|_|  |_|  \___|\__|\__\___|
```

Class: Design A, Summer 2009 with professor Stan Russell, 3 Days

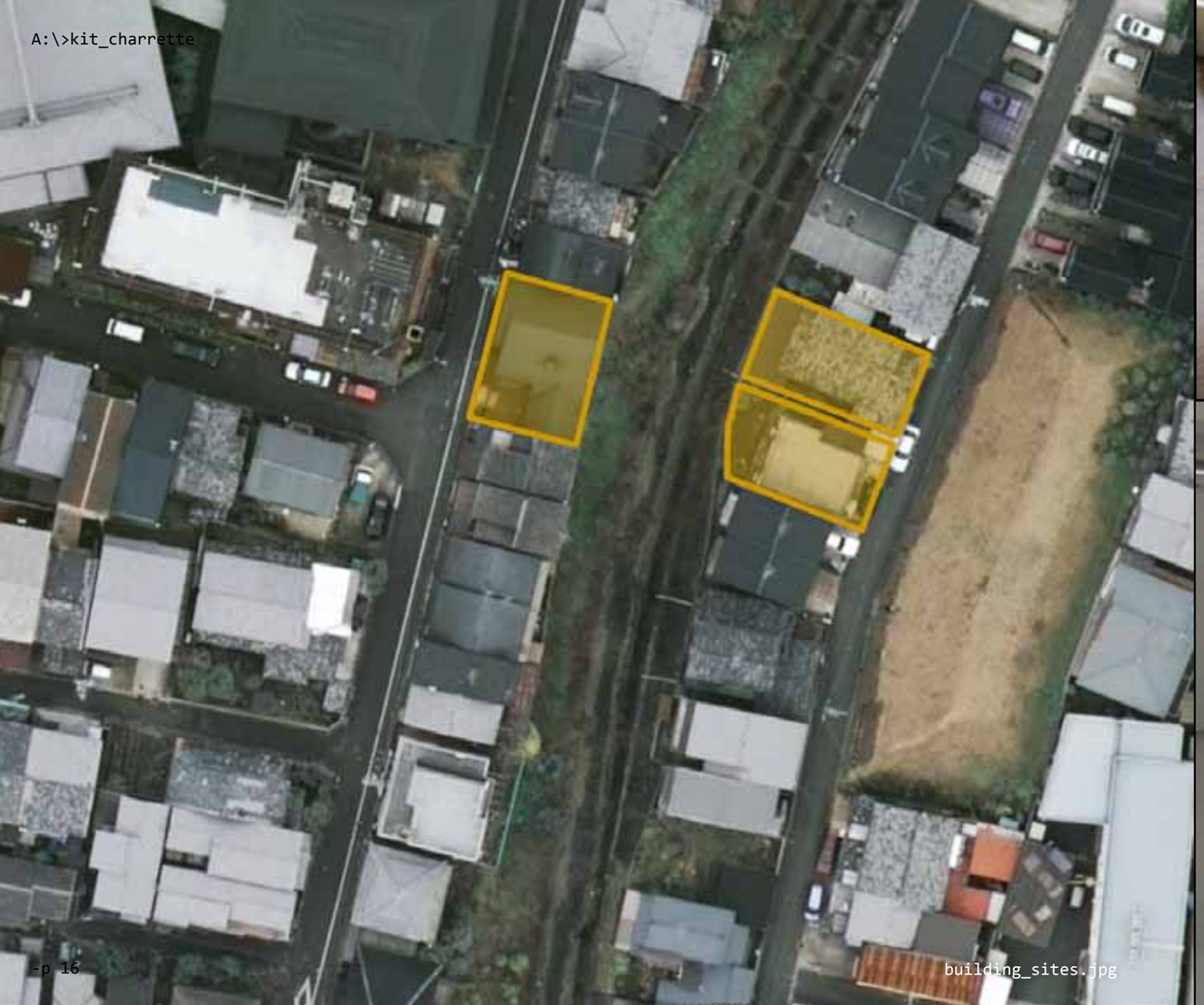
Site: Kyoto, Japan 34°58’50.52”N 135°43’55.76”E

For this charrette we teamed with architecture students from the Kyoto Institute of Technology. The project was to design three homes that were linked in some way. Our group discovered a set of parcels that were owned by different generations of the same family and we set out to design a house for each of the three generations. Our design featured two buildings intertwined symbolizing the close relationship between two of the generations and a separate house, linked by a bridge across the river for the generation who wants some distance but can’t leave their family.

Team Members: Matthew Doll, Stacy Daves and Eriko, Kyohei, and Yu

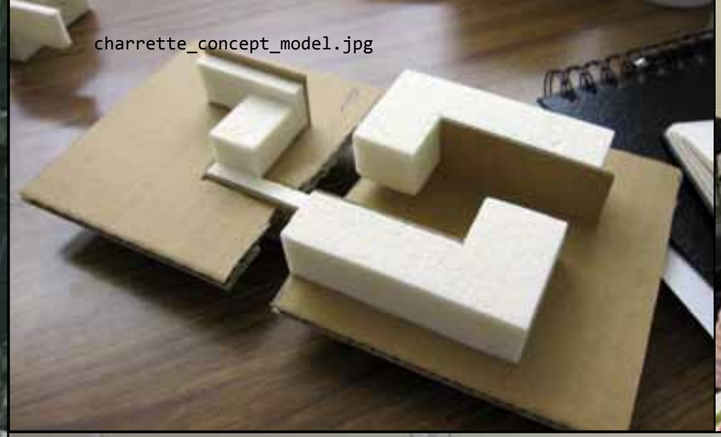
Continue

A:\>kit_charrette



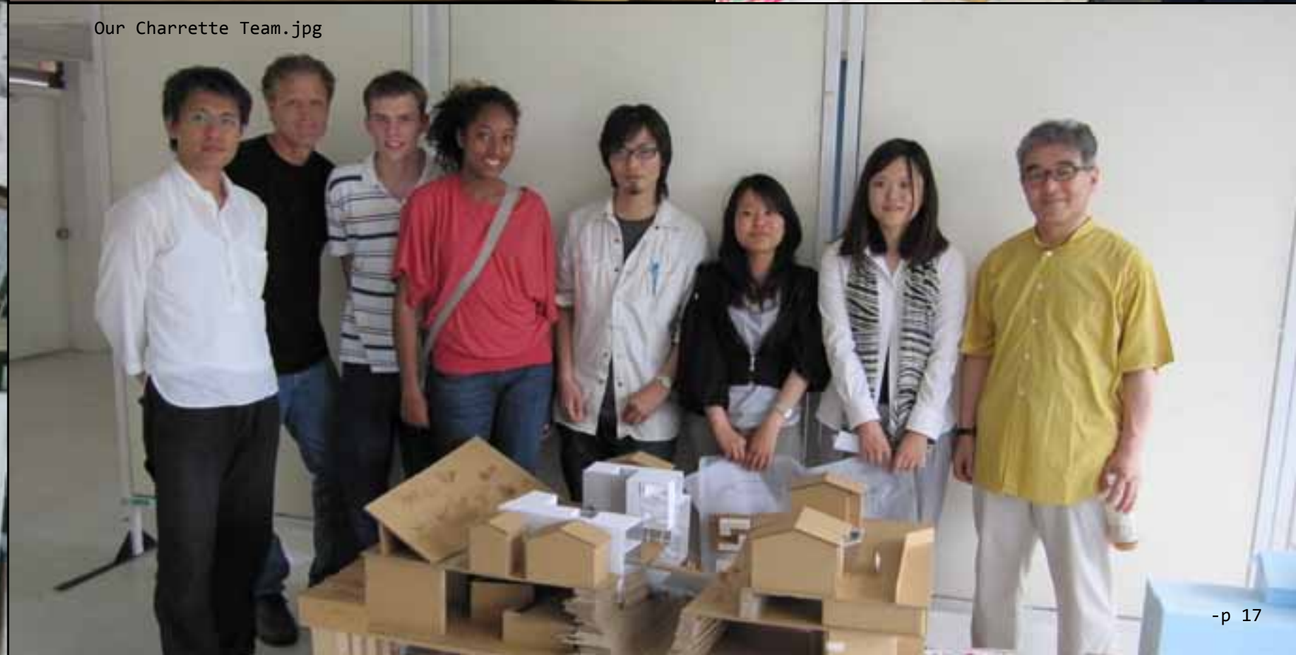
building_sites.jpg

charrette_concept_model.jpg



building_charrette_model.jpg

Our Charrette Team.jpg



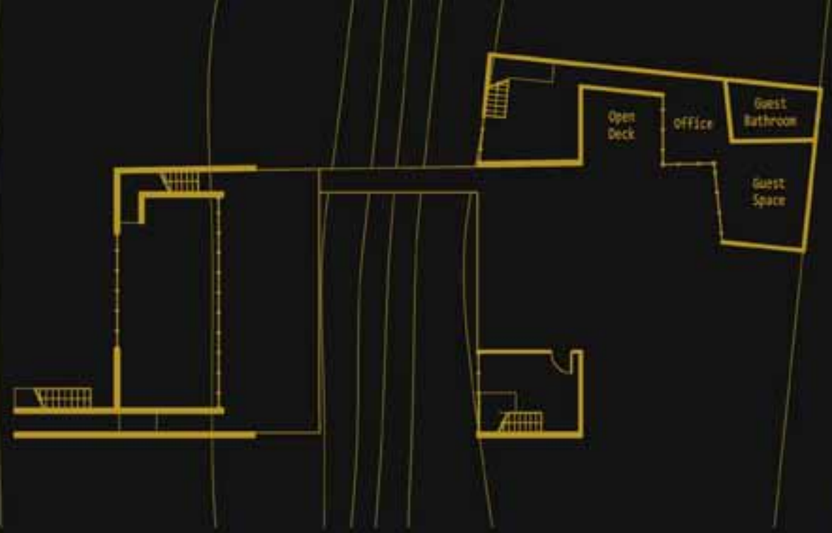
A:\>cd_charrette

charrette_site.jpg

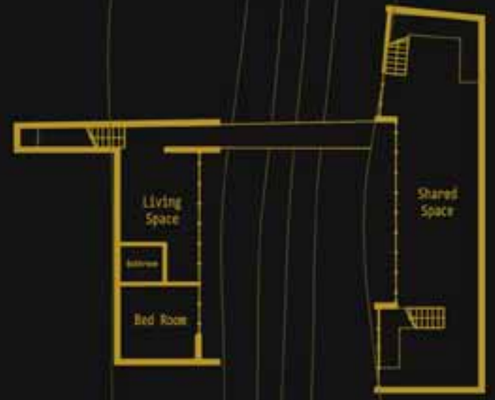
charrette_model.jpg

front_view.jpg

Ground Level



Basement Level

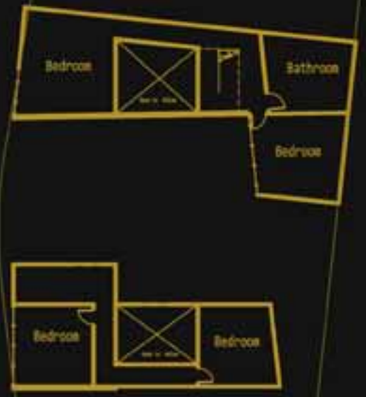


Lower_floor_plans.dwg

rear_view.jpg

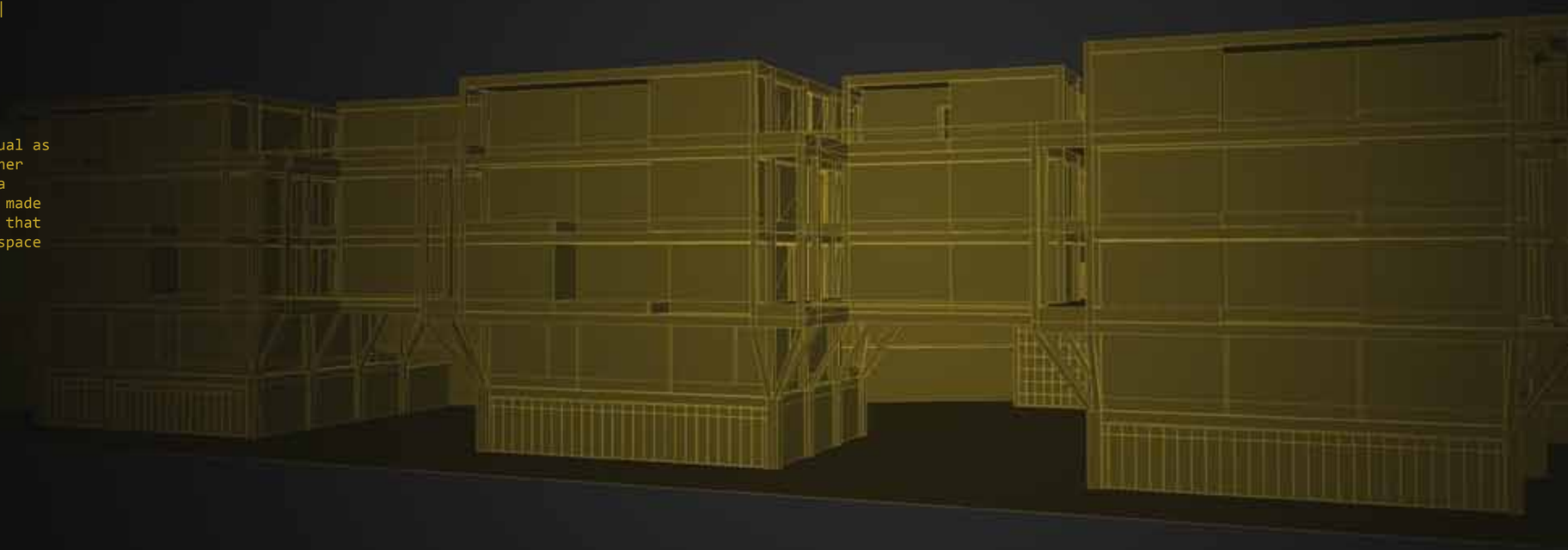
Third Level

Second Level



upper_floor_plans.dwg

```
A:\study_abroad_japan>cd A:\modular_living
A:\modular_living>load -p modular_living.prj

Loading |||||||||||||||||| 100%

 __  __          _      _             _     _      _
|  \/  |        | |    | |           | |   (_)    (_)
| \  / | ___   __| |_   _| | __ _ _ __  | |    ___   ___ _ __   __ _
| |\/| |/ _ \ / _` | | | | |/ _` | '__| | |   | \ \ / / | '_ \ / _` |
| |  | | (_) | (_| | |_| | | (_| | |    | |___| |\ V /| | | | | (_| |
|_|  |_|\___/ \__,_|\__,_|_|\__,_|_|    |_____|_| \_/ |_|_| |_|\__, |
                                                                __/ |
                                                               |___/
Class: Design A, Summer 2009 with professor Stan Russell, 2 weeks

Site: Kyoto, Japan 34°58’50.52”N 135°43’55.76”E

This project redeveloped a small JR train station into a large mixed
building.  The Project is anchor from a large wall that acts as a visual as
well a noise barrior to the train tracks behind it. The southwest corner
serves as the main entrance to the shops and train station. Above is a
steel scaffolding system to support the housing units.  The units are made
up of several 2700mm by 5400mm (about 9’ x 18’) prefabricated modules that
are slid into the scaffolding and secured. They surround a courtyard space
that serves as a hidden oasis escape for the residents.

Program:
-S Story Maximum
-80 Living Units: 1 and 2 Bedrooms
-Incorporate Community Spaces


Continue
```



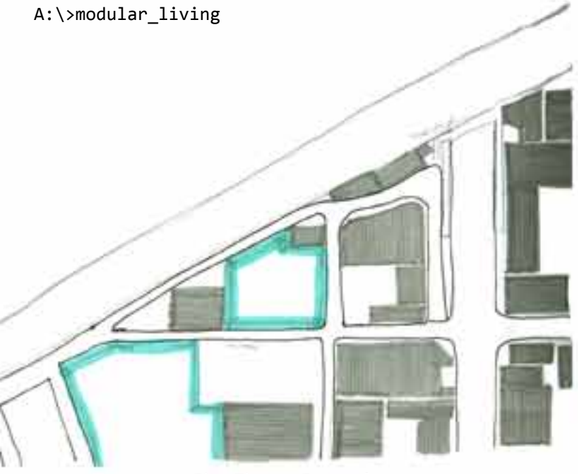
front_view.jpg

existing_train_station.jpg

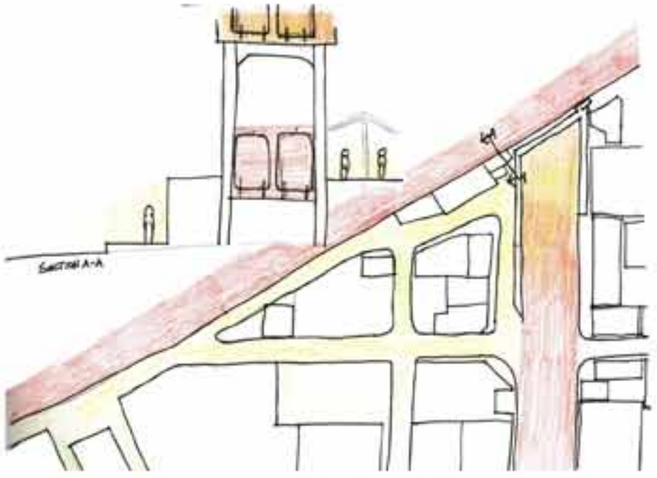
existing_urban_rice_field.jpg

view_of_site_from park.jpg

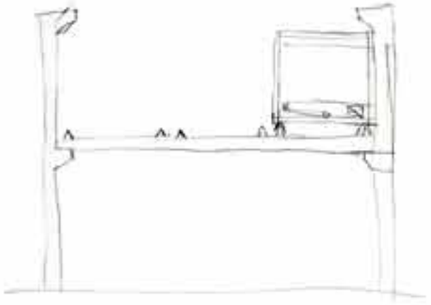
noisy_shinkansen_tracks.jpg



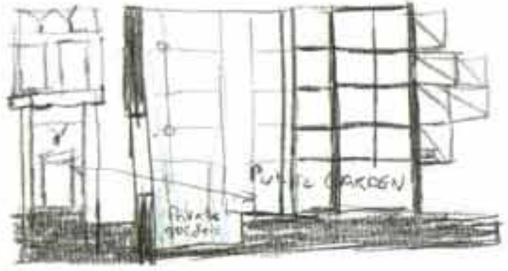
Site Figure Ground



Noise Around Site



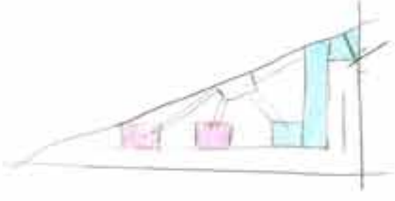
Module Rail System



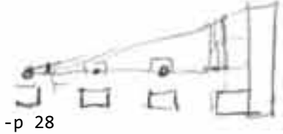
Cross Section exploring Unit Expansion

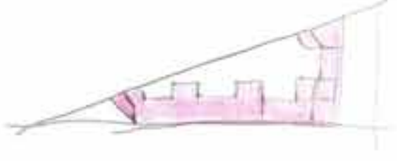
Site Forces

Site Through Traffic



Evolution of the Design

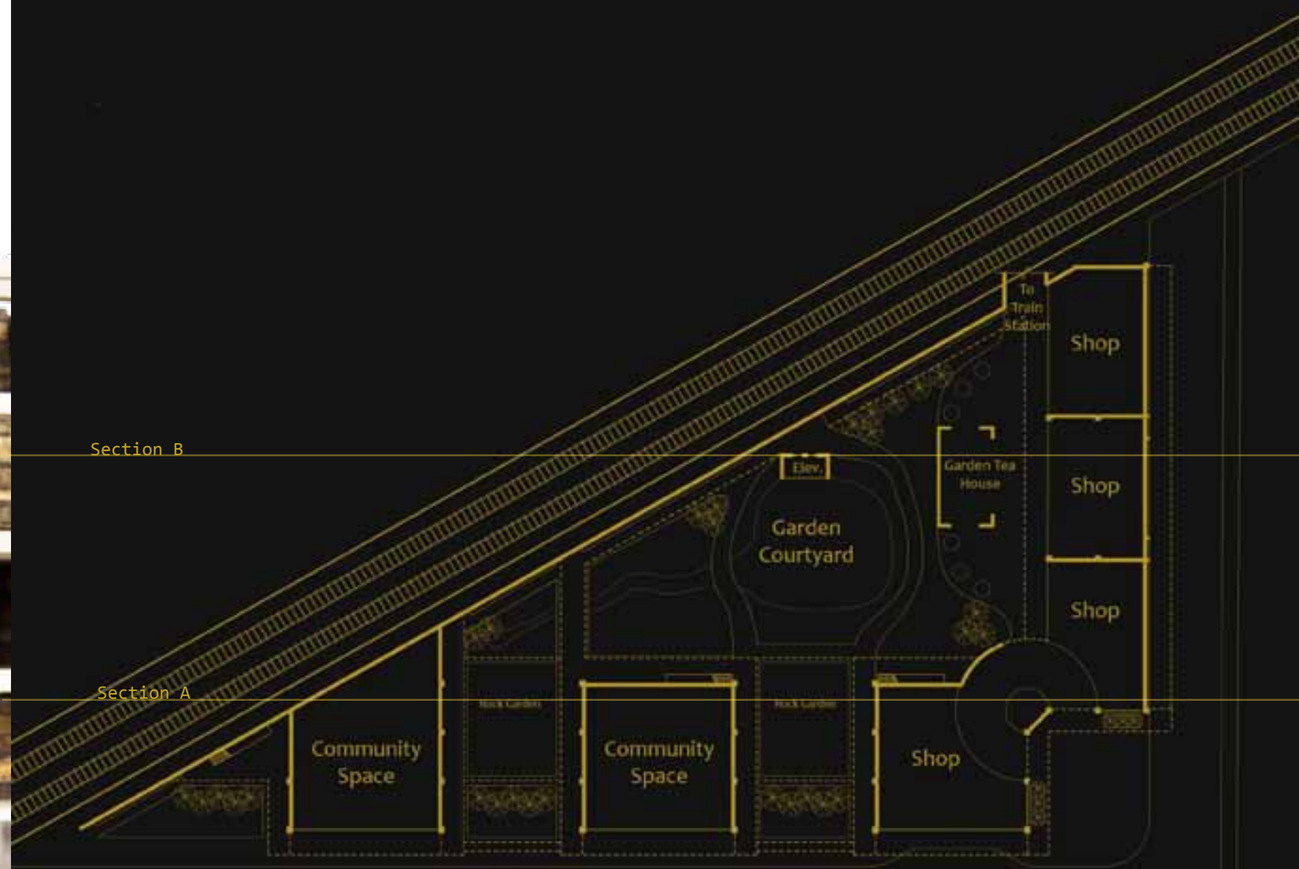




unit_floorplans.dwg

Section B

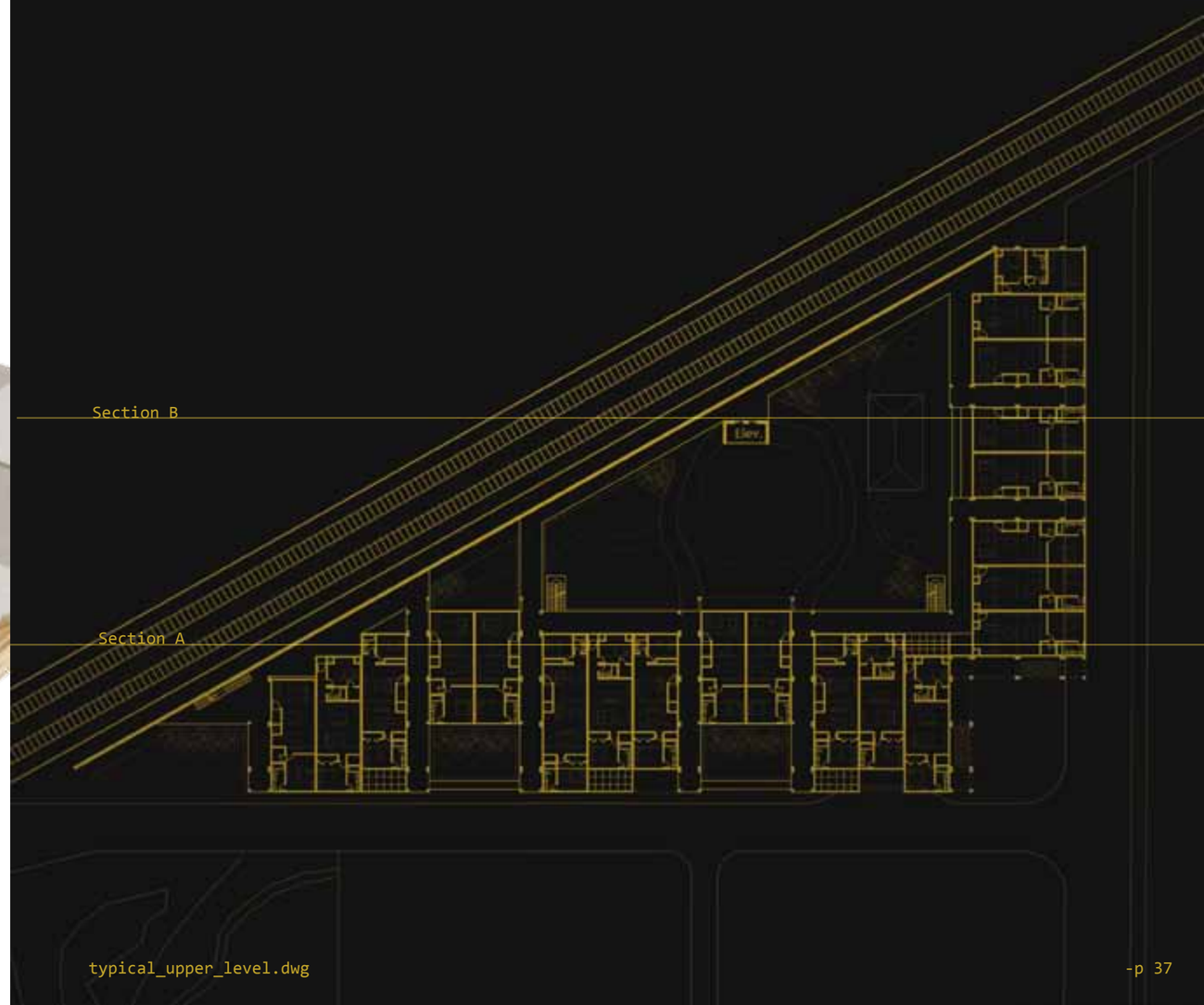
Section A



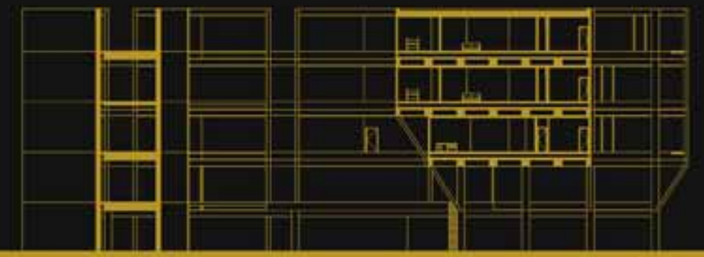
ground_level.dwg

Section B

Section A

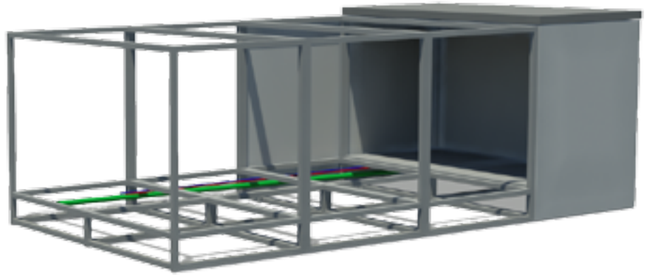


typical_upper_level.dwg



Section B

Section A



Each module has a steel, earthquake resistant frame similar to what Japanese modular housing manufacturers already use.

The base of each frame has bearing rollers so modules easy be slid into the scaffolding system.

The units use a raised floor system to make and assembling and expanding the units easy.

Modules are shipped to the site finished and ready to be connected together. They come with cabinets hung and plumbing ready to be connected.

```
A:\modular_living>cd B:\kennedy_tower
B:\kennedy_tower>load -p kennedytower.prj

Loading ||||||||||||||||| 100%
 _  __                        _        _______
| |/ /                       | |      |__   __|
| ‘ / ___ _ __  _ __   ___  __| |_   _    | | ____      ____ _ __
|  < / _ \ ‘_ \| ‘_ \ / _ \/ _` | | | |    | |/ _ \ \ /\ / / _ \ ‘__|
| . \  __/ | | | | | |  __/ (_| | |_| |    | | (_) \ V  V /  __/ |
|_|\_\___|_| |_|_| |_|\___|\__,_|\__, |    |_|\___/ \_/\_/ \___|_|
                                  __/ |
                                 |___/
Class: Design B, Fall 2009 with professor Rick Rados, 14 weeks

Location: Tampa, Fl 27°56’44.18”N 82°27’42.30”W
```

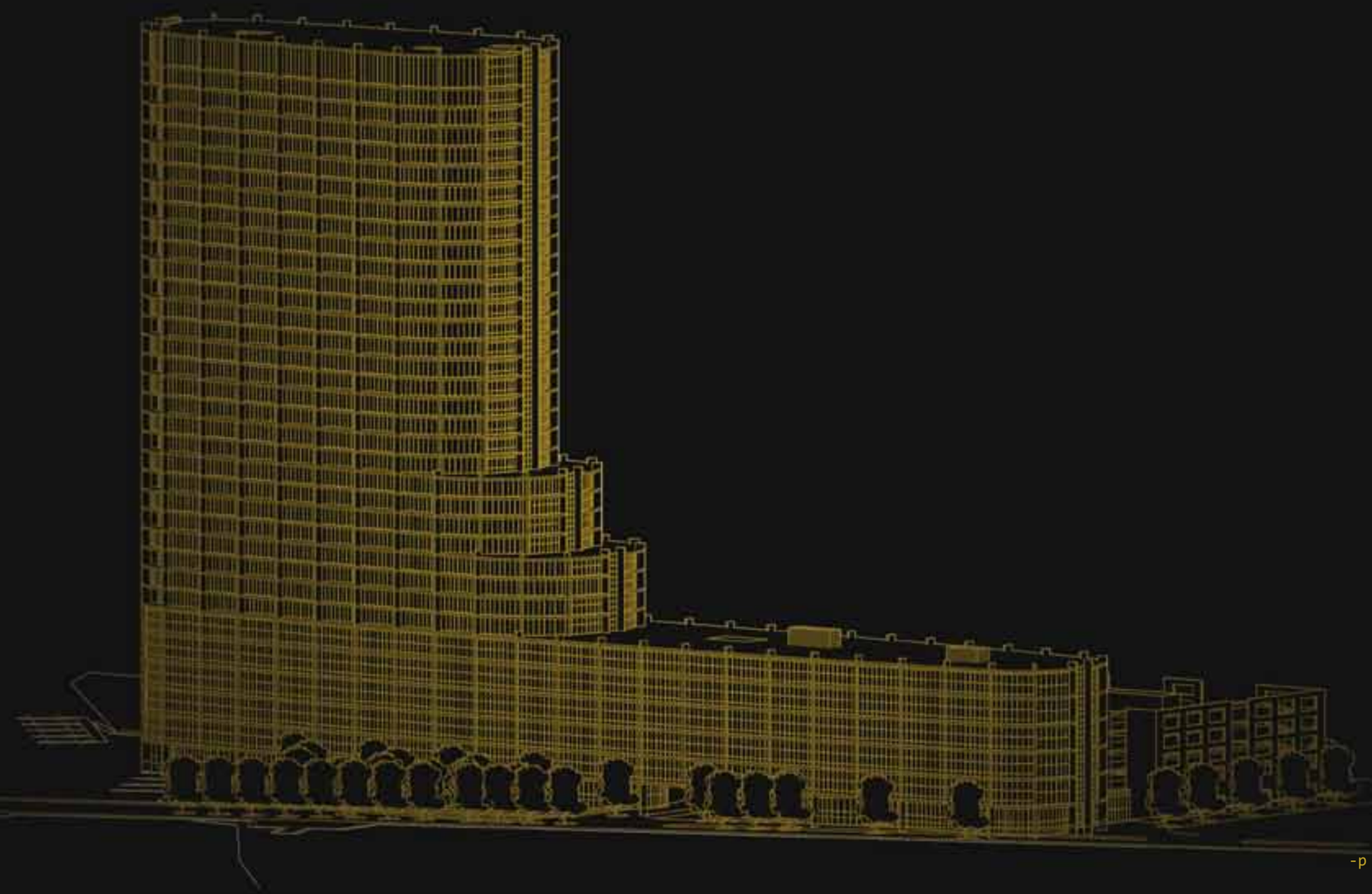
The concept for this project is bringing people to the river. The project breaks away from Kennedy Boulevard and directs pedestrians and visitors to the waterfront. This allowed the creation of a terraced plaza that slowly steps down to the water. The building invokes imagery of a sailboat docked along the waterfront and is a sleek shape that will draw people in to shop and hangout.

The building is orientated to be as efficient as possible in the Florida sun. The shape of the building minimized the harsh East/West exposure. Overhangs and louvers are used on the southern exposure to help shade the building. A large solar power array covers the parking garage to help power the building.

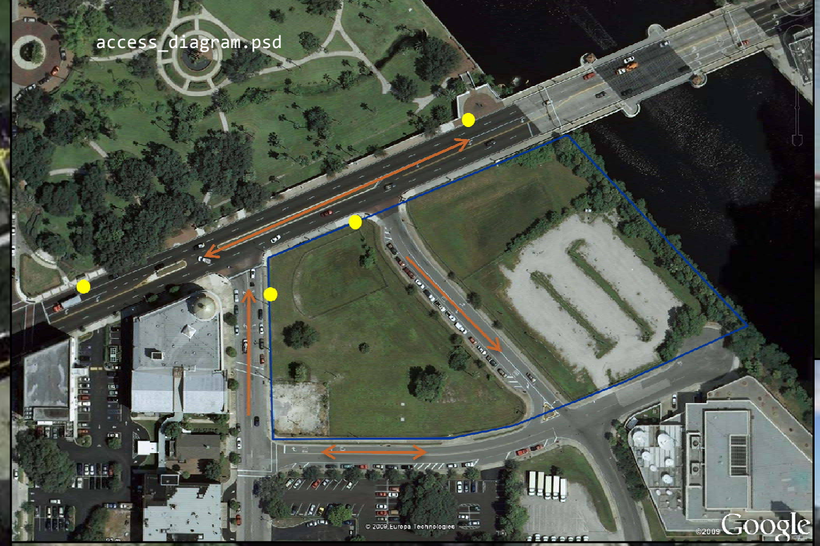
The interior of the tower has the feel of an urban street. Each condo unit is two stories tall to increase the density of people on each floor and a wide hallway connects the units. Each unit has space in the hallway to create a personalized display, a sort of front yard for each unit.

Program:
75,000 SF of Retail
150,000 SF of Office
400,000 SF of Residential Condos
- 30 Two Bedroom Units
-140 Three Bedroom Units
- 30 Four Bedroom Units
1,225 Parking Spaces

Continue



B:\>kennedy_tower
project_site_downtown_tampa.psd
Downtown Tampa
University of Tampa
Baptist Church
Tampa Tribune
Elderly Housing

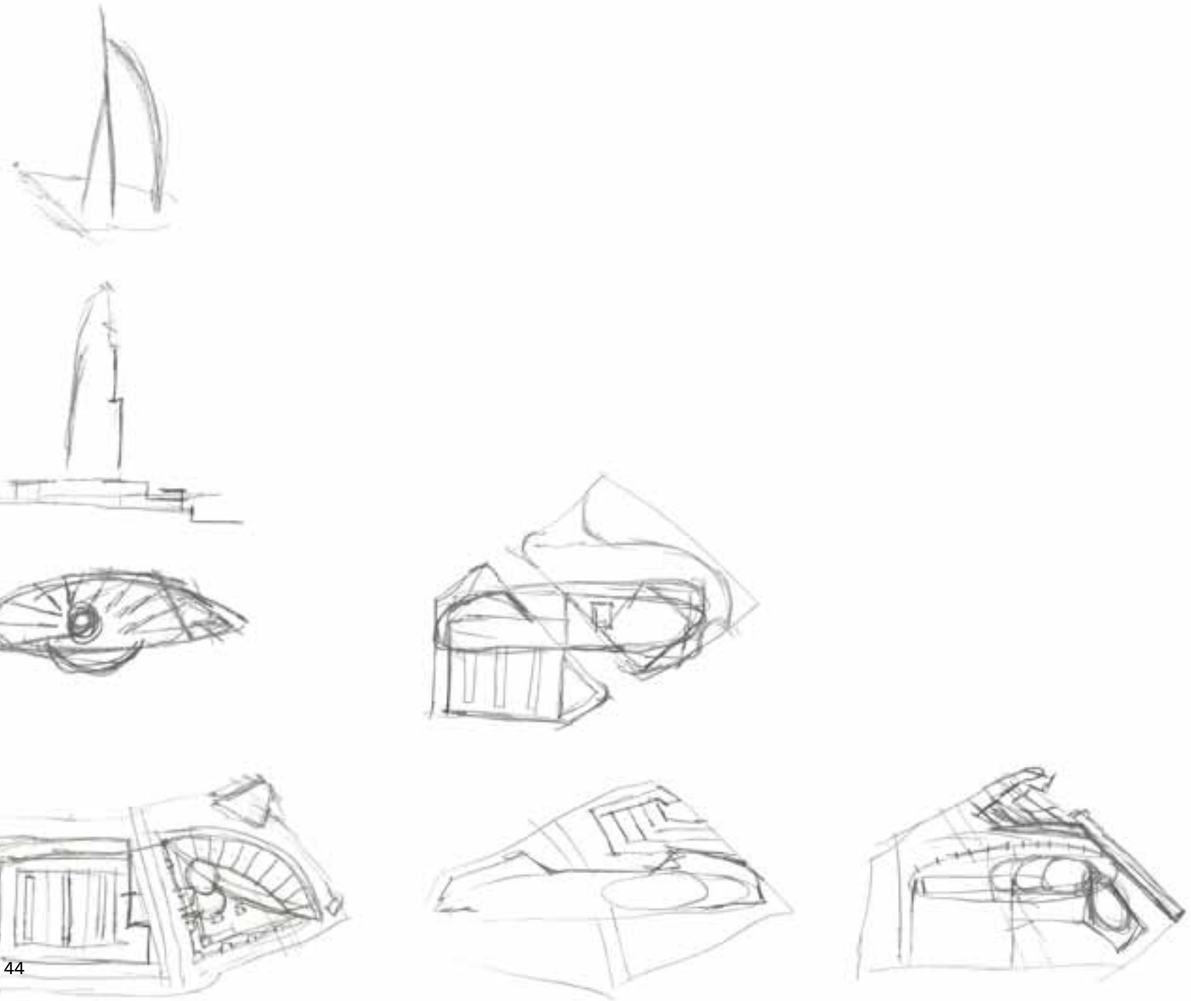

access_diagram.psd
Google

noise_diagram.psd
Google

view_east.jpg

view_south.jpg

view_along_kennedy.jpg

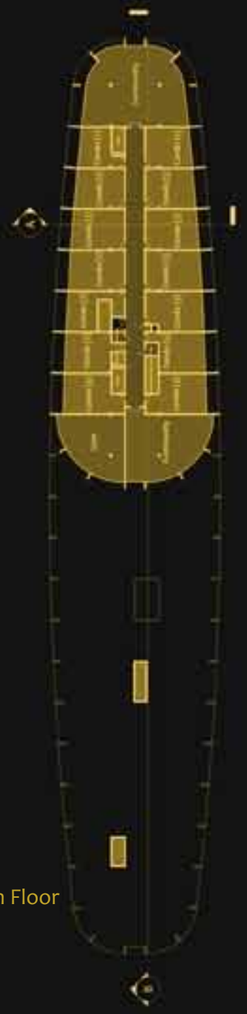


context_model.jpg

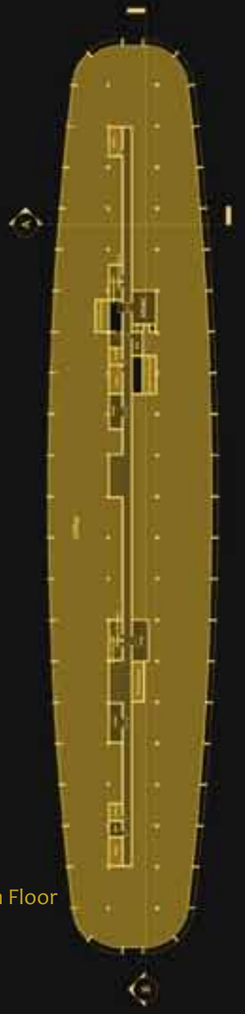
view_to_water.jpg

31st Floor

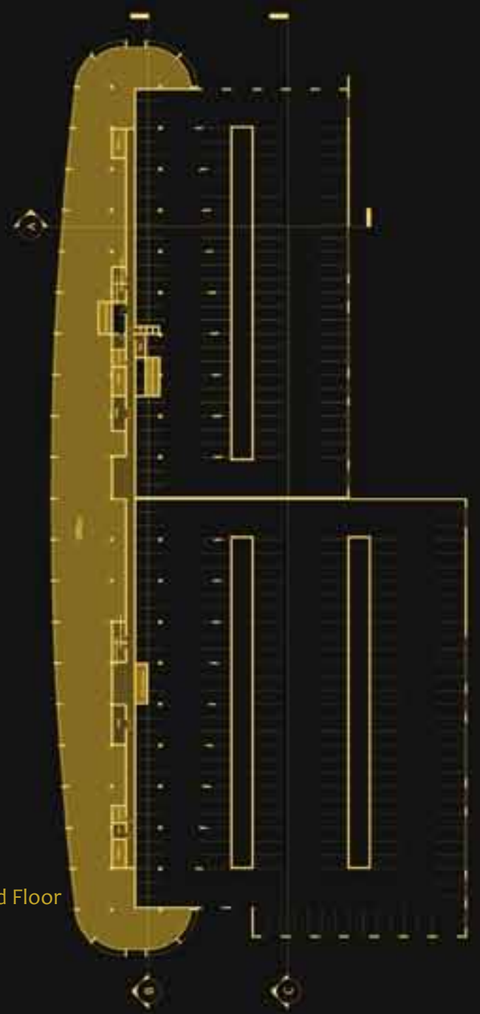
17th Floor



7th Floor

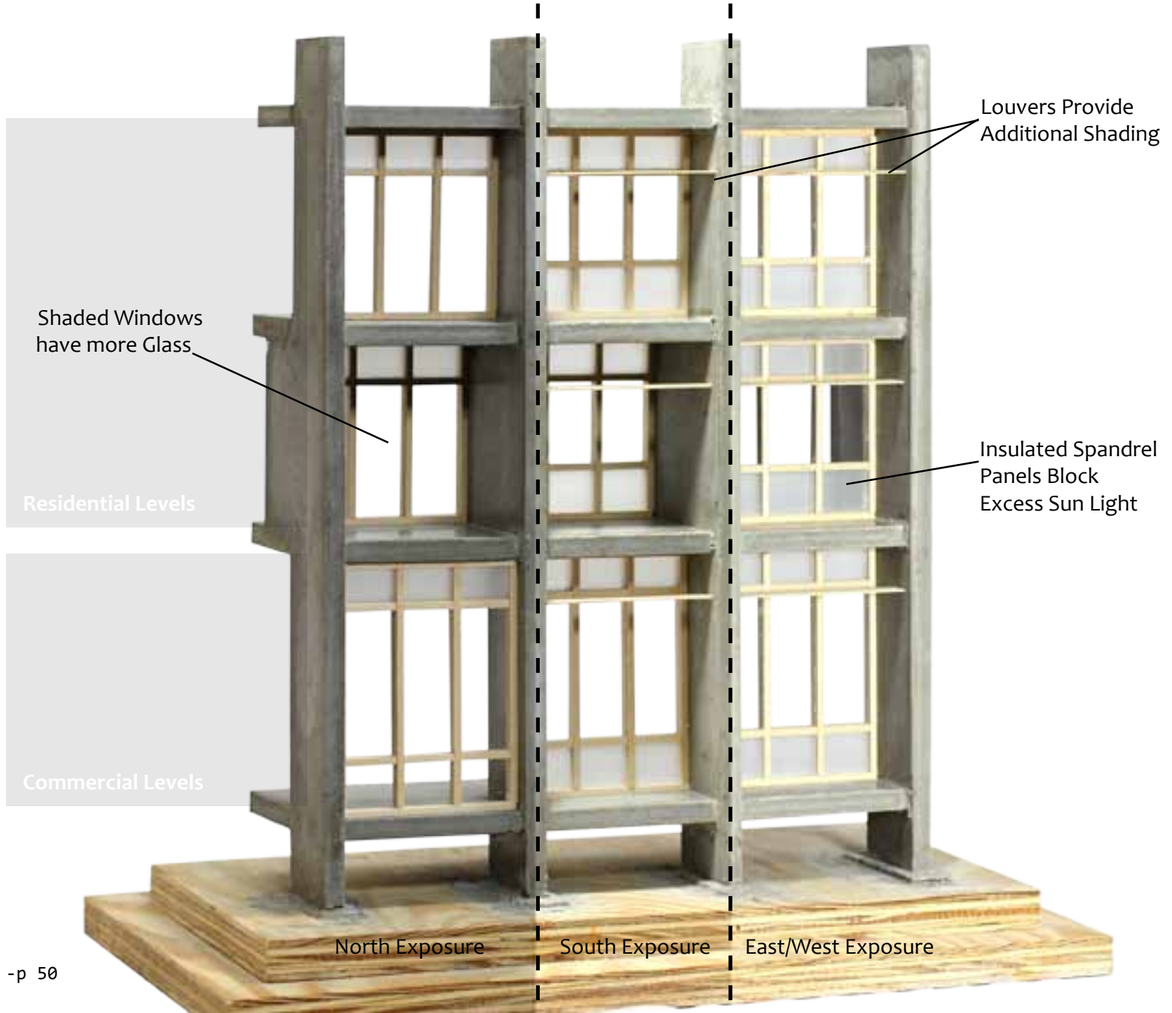


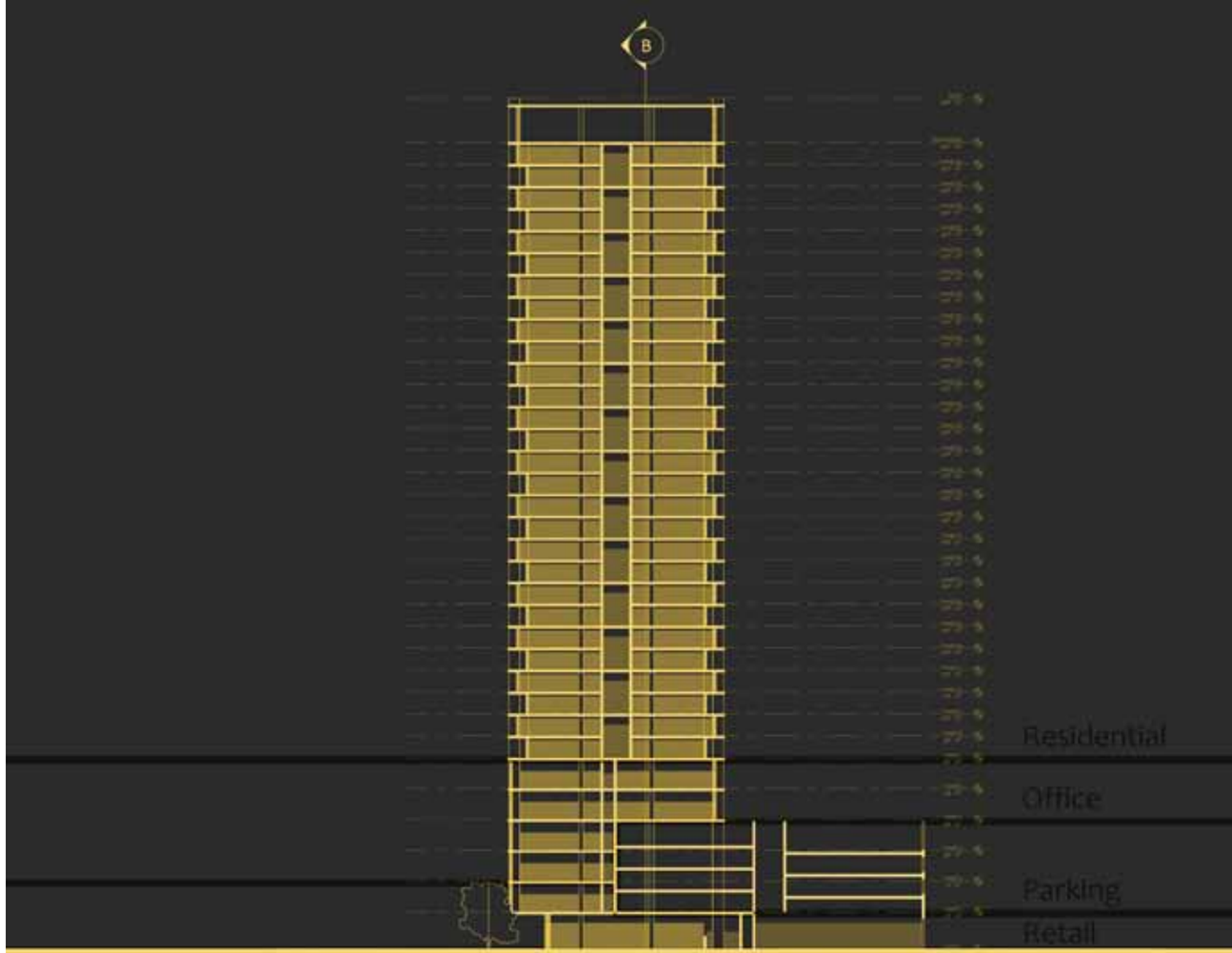
6th Floor



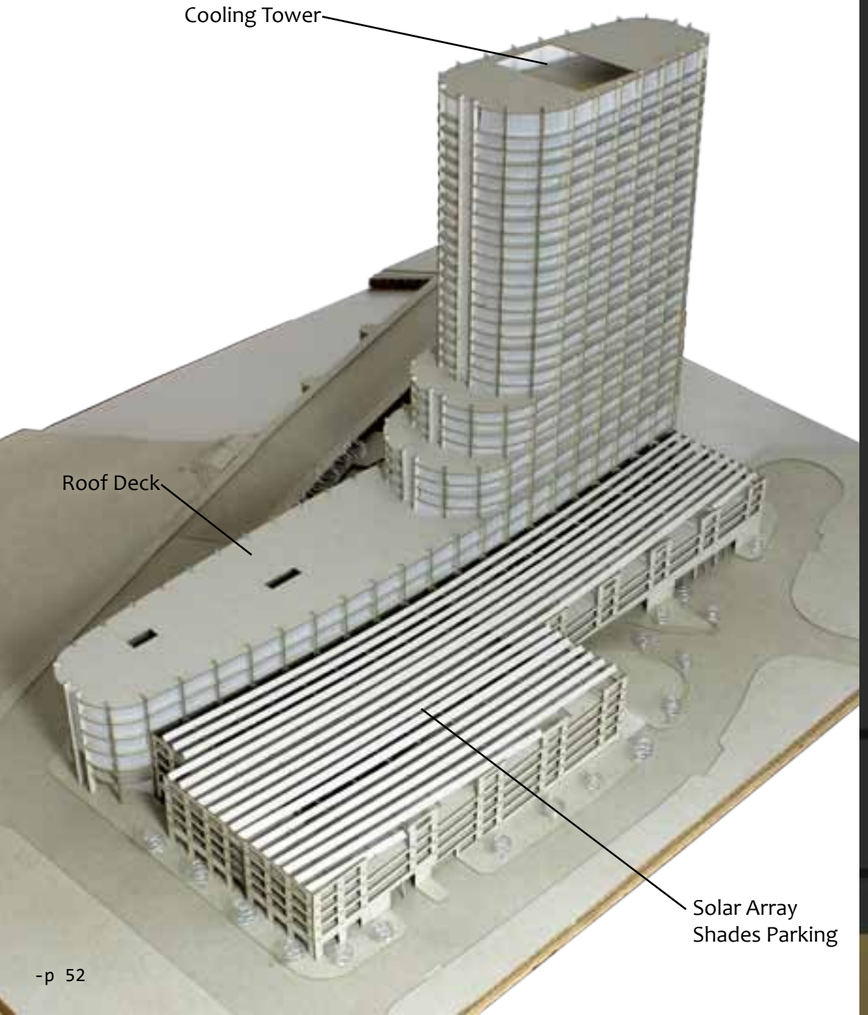
3rd Floor

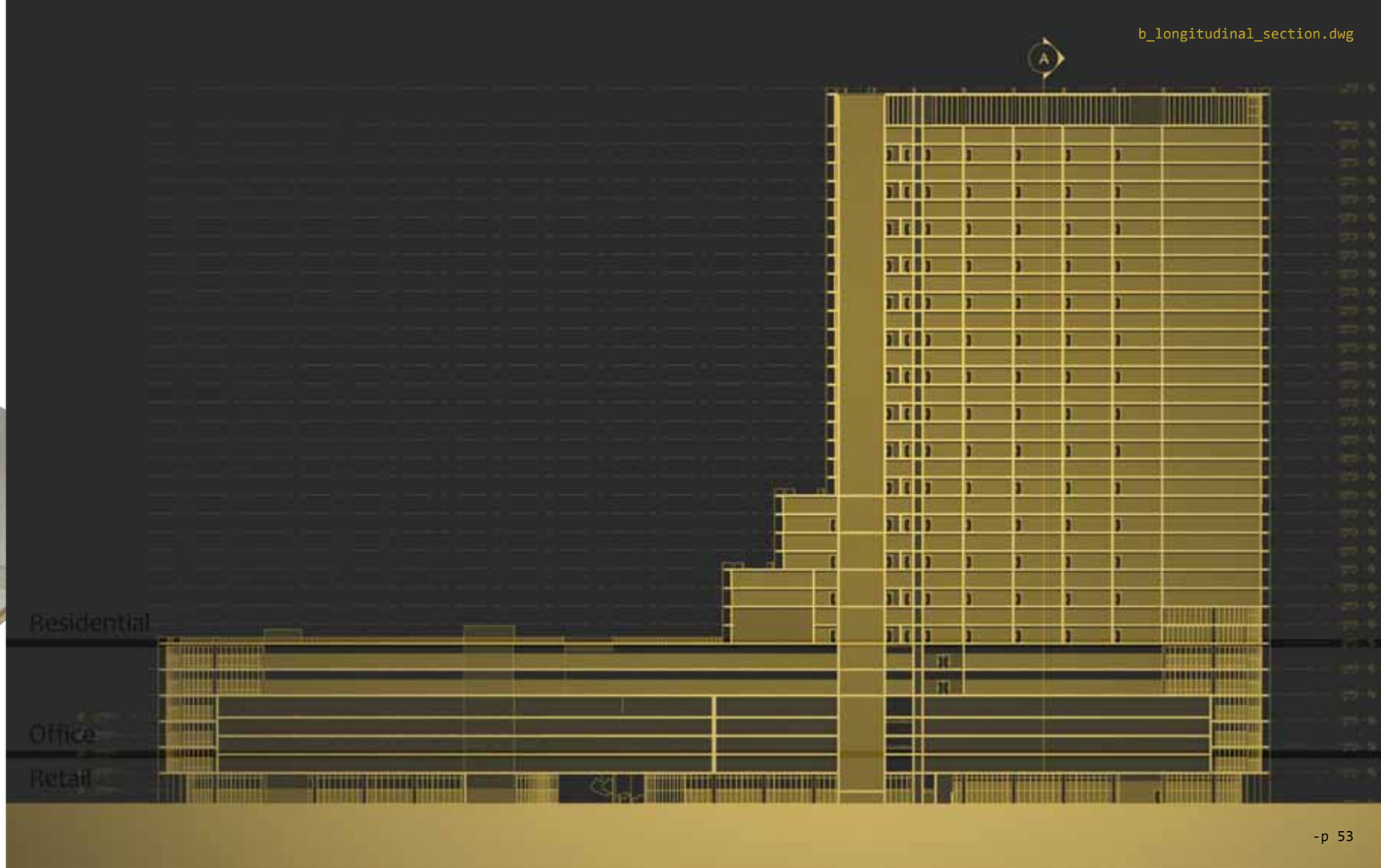
1st Floor





a_cross_section.dwg

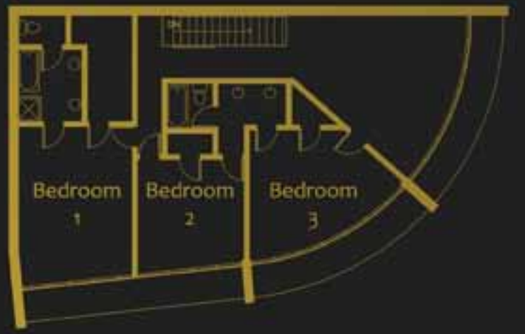

Cooling Tower
Roof Deck
Solar Array
Shades Parking


A
Residential
Office
Retail

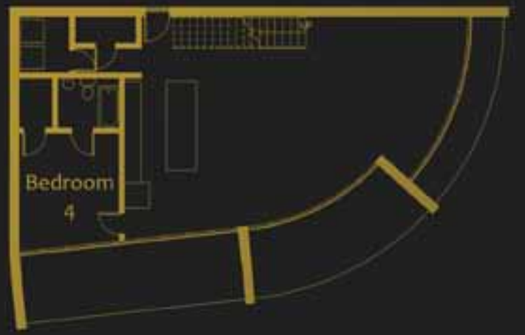
balcony_detail.jpg

Upper Level

unit_detail_floorplans.dwg



Lower Level



Typical 2 Bedroom

Typical 3 Bedroom

Typical 4 Bedroom

```
B:\kennedy_tower>cd C:\ybor_station
C:\ybor_station> load -p yborstation.prj

Loading ||||||||||||||||||| 100%
```

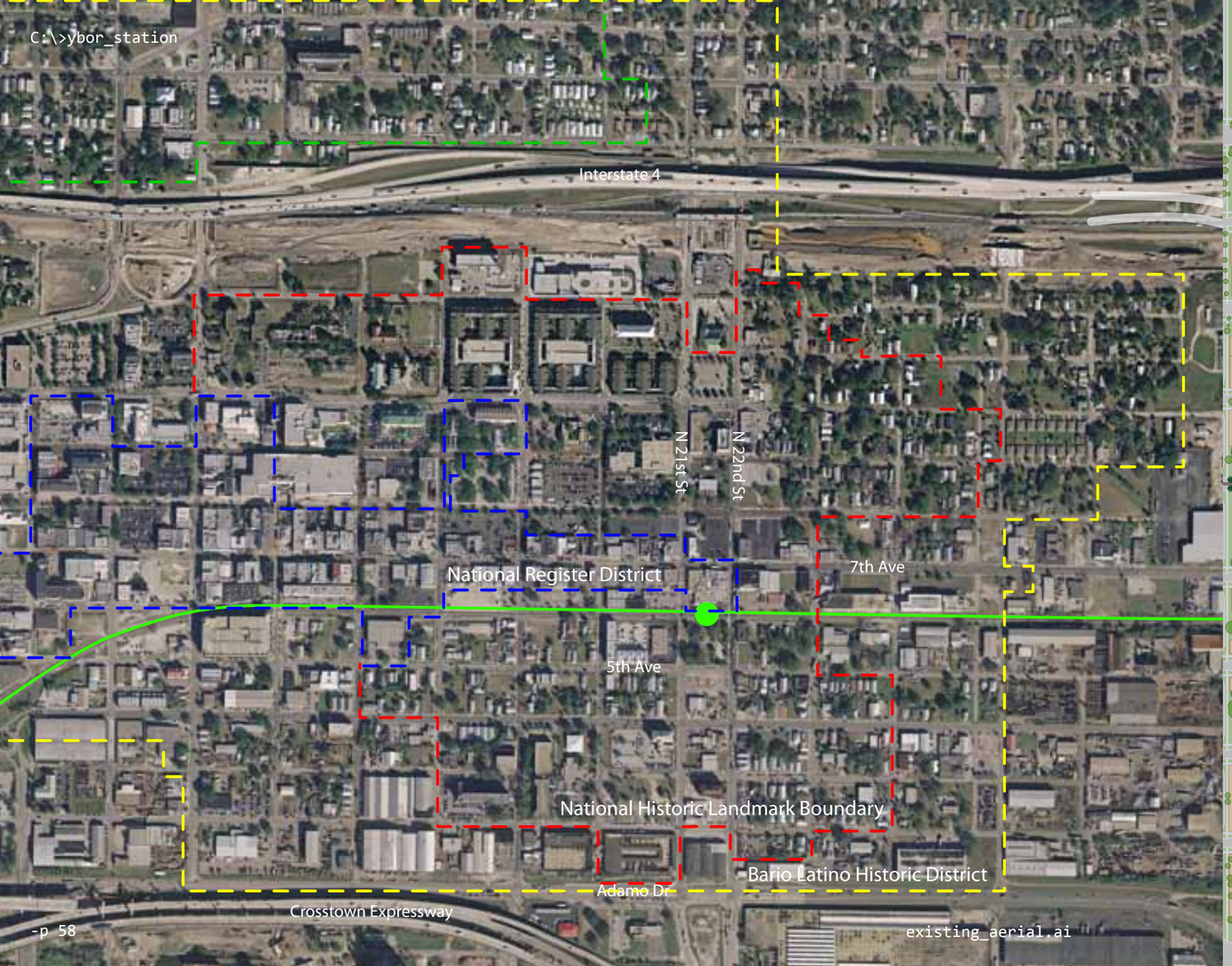
Class: Design C, Spring 2010 with Professor Trent Greene, 8 weeks

Site: Ybor City, FL 27°57’34.23”N 82°26’6.34”W

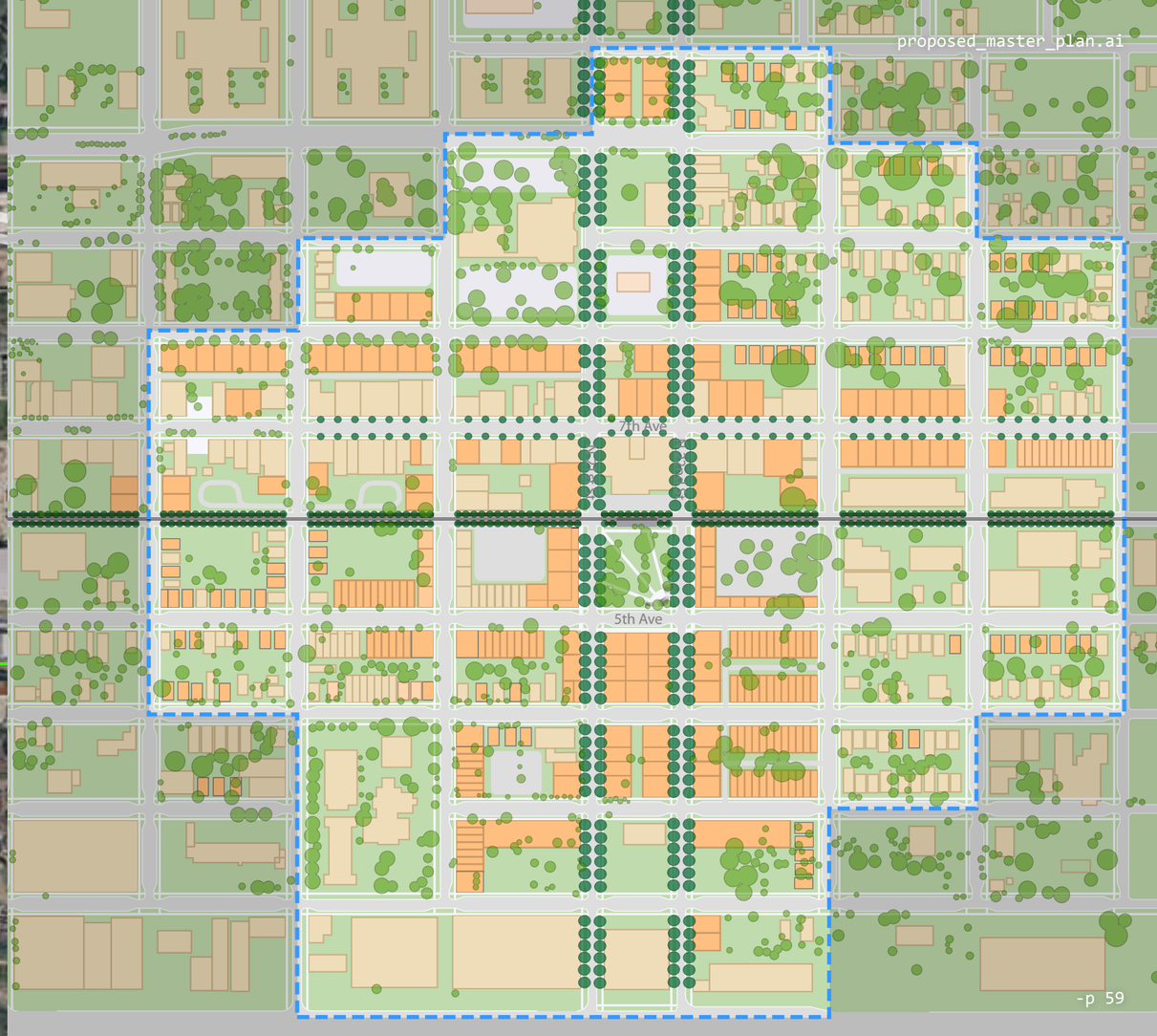
Our goal with this Transit Oriented Development was to revitalize East Ybor and create a thriving urban community with a strong residential focus. We wanted to center development around a new community plaza adjacent to the proposed station. 6th Ave remains a rail only corridor, but has been enhanced with bicycle and pedestrian paths. We created a new dense residential and mixed-use corridor that connects to the active part of 7th Ave, but is geared for the needs of a residential neighborhood, with markets, retail, restaurants, and other neighborhood amenities.

Team Members: Matthew Doll, Ingrid Abreu

Continue

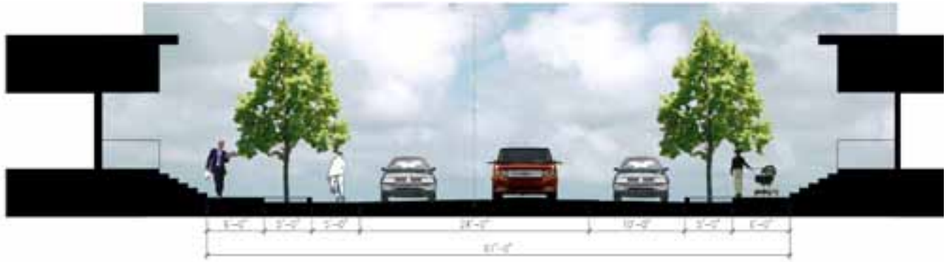


existing_aerial.ai



21st / 22nd Ave

6th Ave



Typical Residential Street

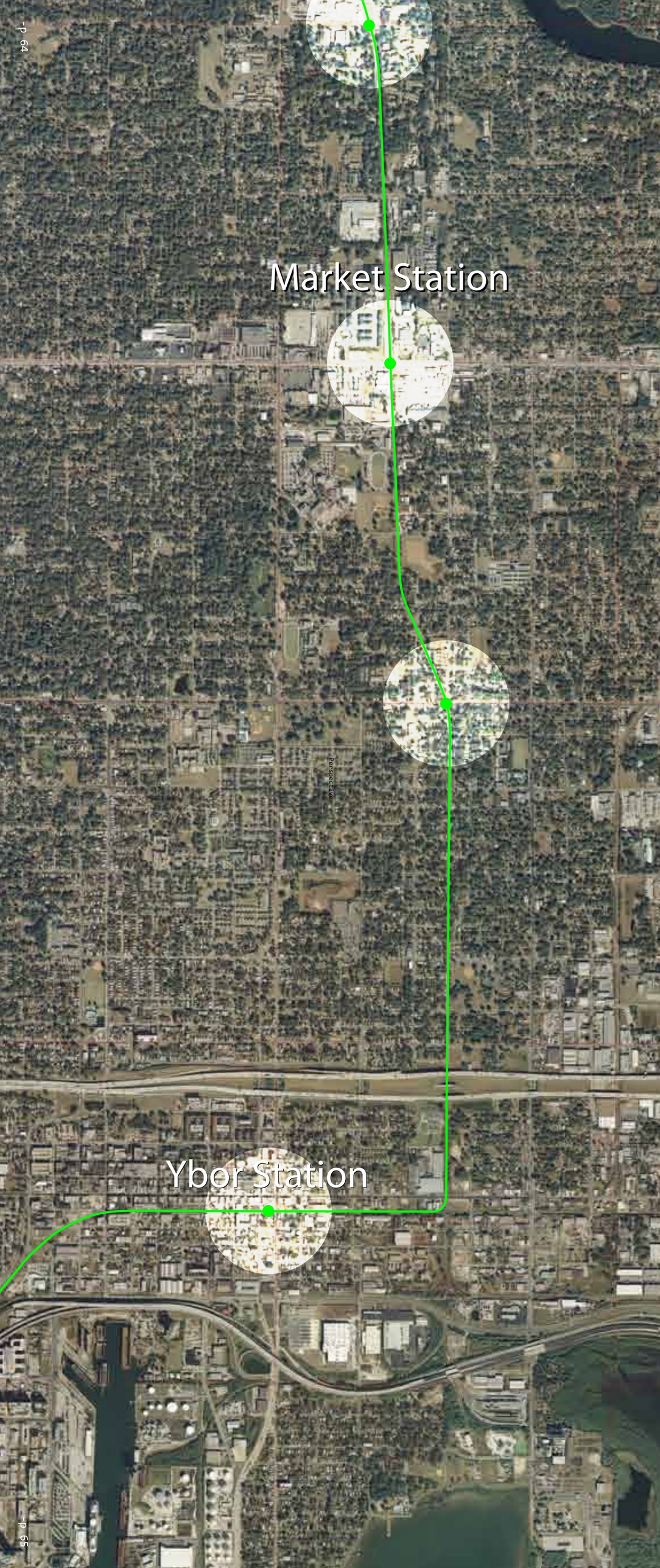
proposed_street_elevations.jpg

C:\>ybor_station

view_of_proposed_residential_st.jpg

view_of_proposed_station.jpg

view_of_proposed_park.jpg


Market Station
Perspective
Ybor Station

```
C:\ybor_station>cd C:\market_station
C:\market_station>load -p marketstation.prj

Loading |||||||||||||||||| 100%
```

Class: Design C, Spring 2010 with Professor Trent Greene, 6 weeks

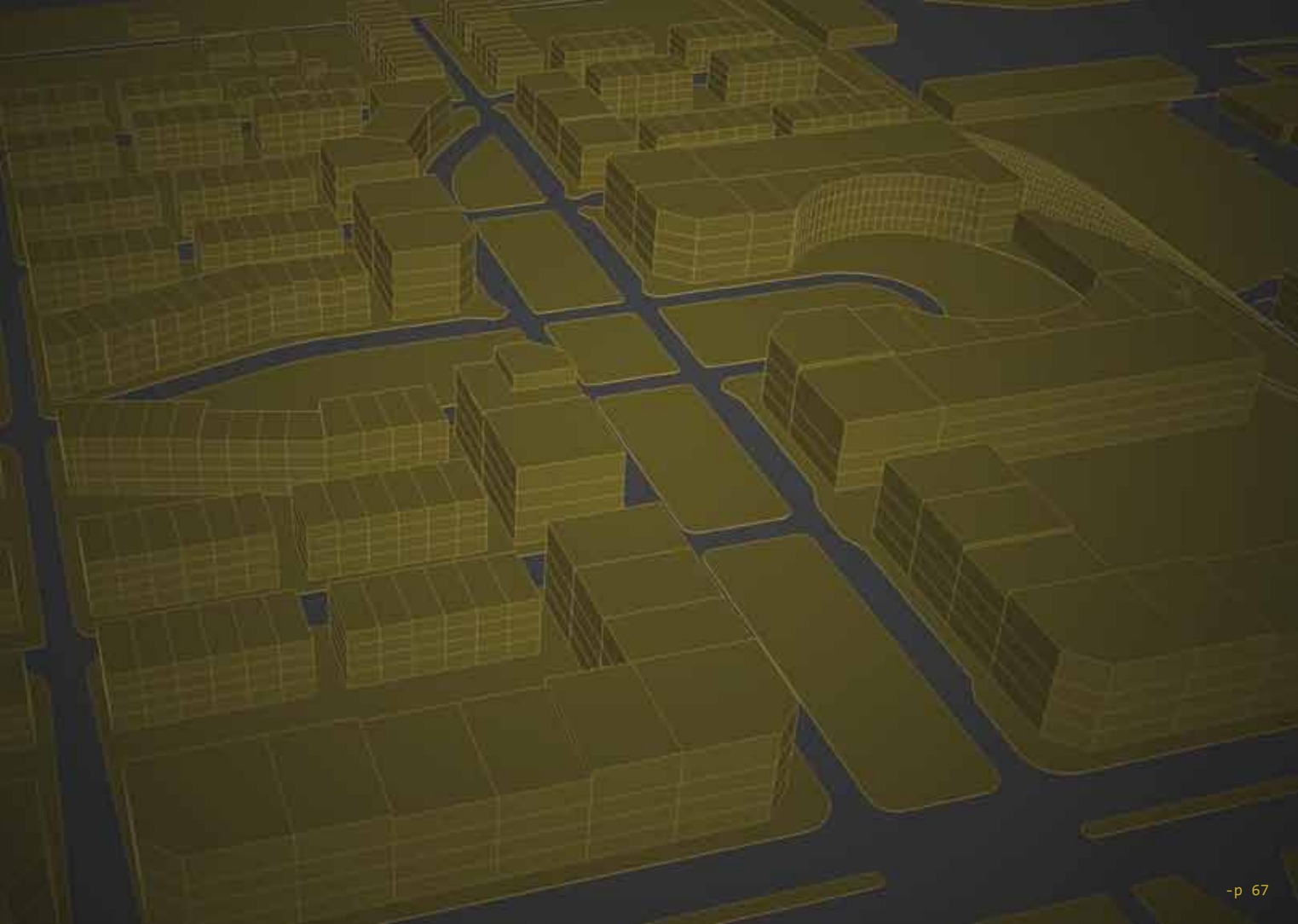
Site: Tampa, FL 27°59’45.77”N 82°25’45.73”W

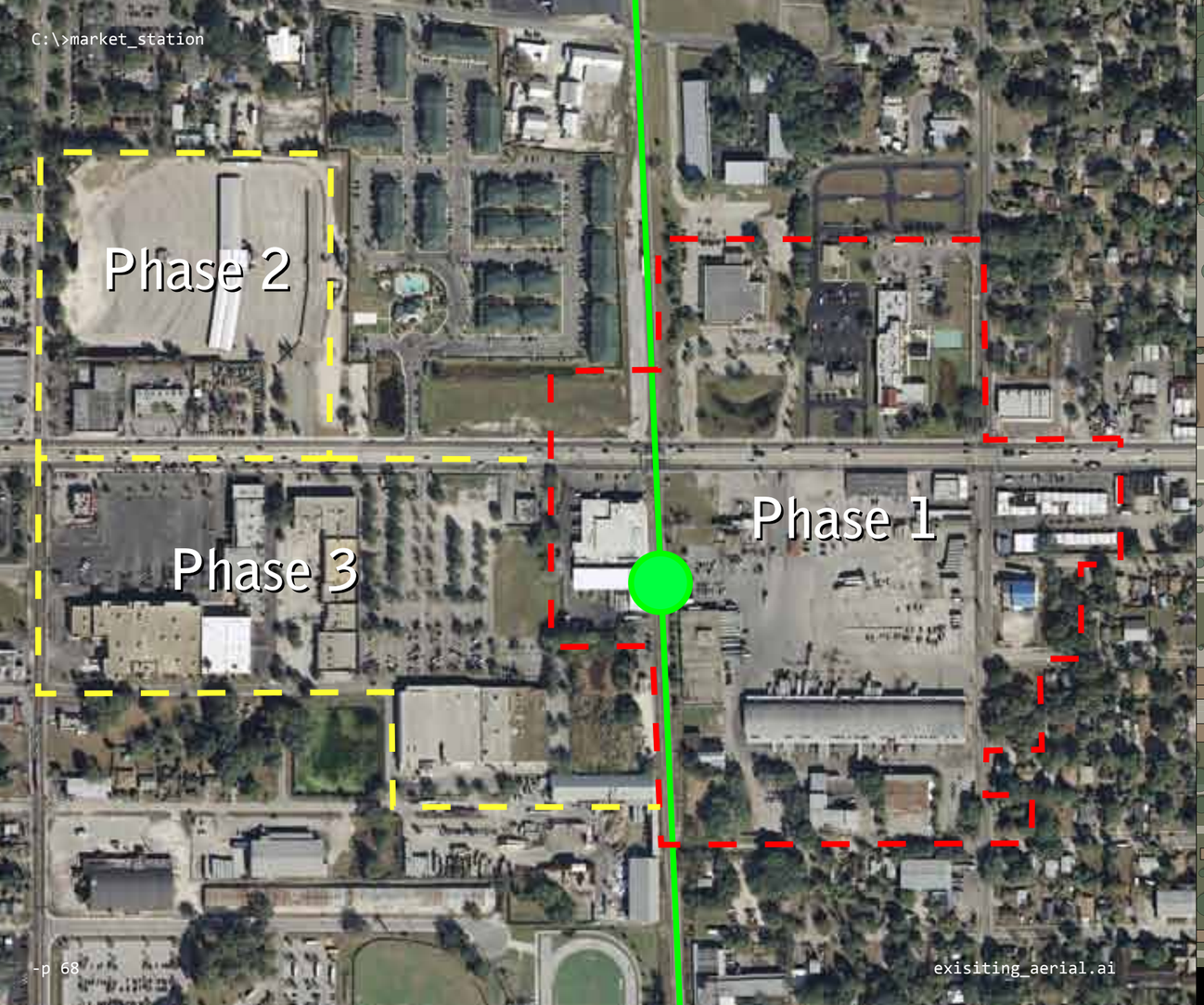
This part of Hillsborough has a heritage based in its produce exchange, which is a traditional place of gathering for the community. However, this location is no longer functioning in that way and thus lacks a focal point that is needed to create a sense of place and community.

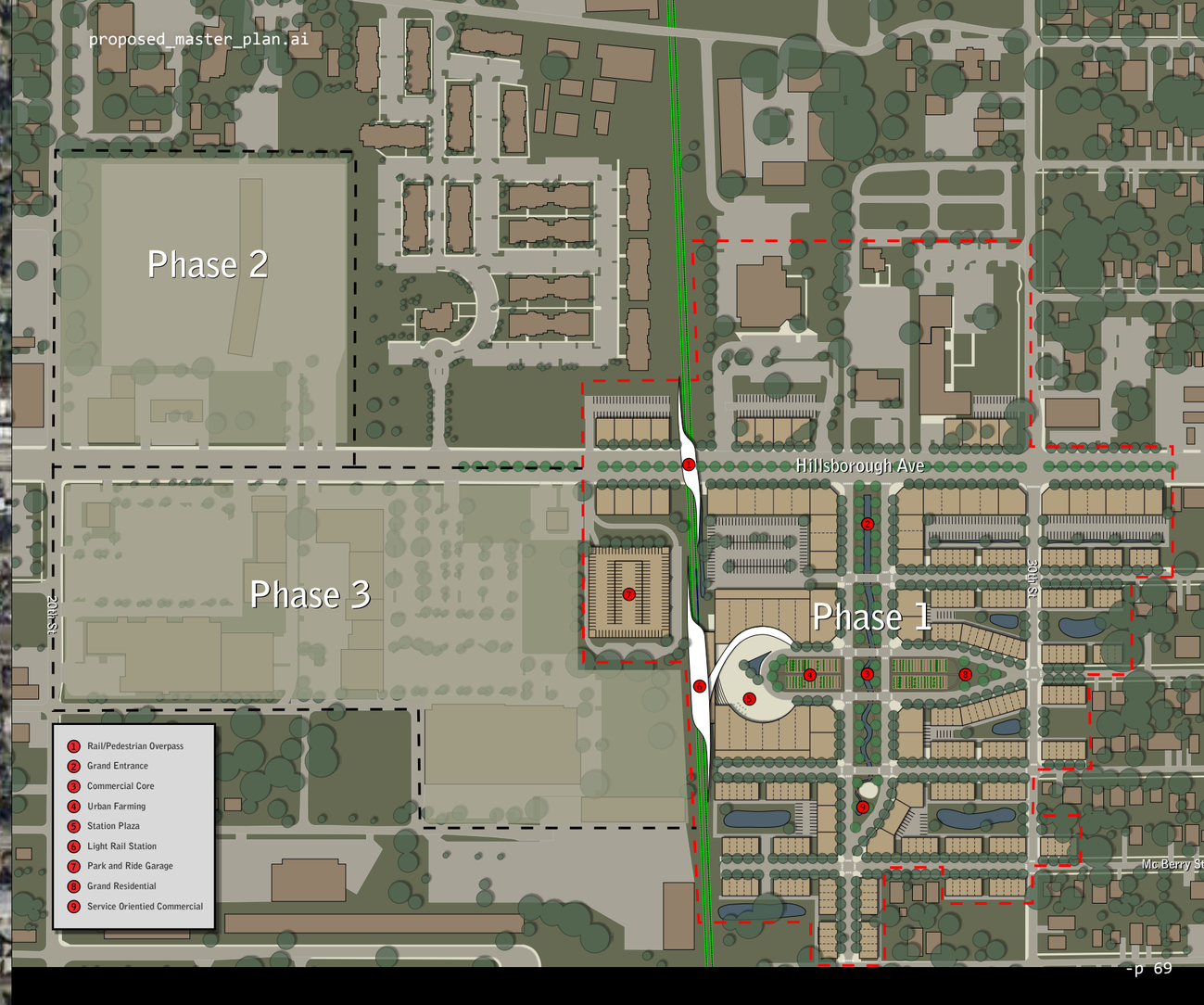
We proposed a new transit oriented development that reflects on the site’s heritage by creating a focus on urban farming and a community market. We felt that would not only bring locals together, but would also attract visitors who arrive at this location by rail. In this way we were able to create a new centerpiece for the community and spur further redevelopment in the area.

Team Members: Matthew Doll, Ingrid Abreu

Continue




C:\>market_station
Phase 2
Phase 3
Phase 1
exisiting_aerial.ai


proposed_master_plan.ai
Phase 2
Phase 3
Phase 1
Hillsborough Ave
South St
Mc Berry St
1 Rail/Pedestrian Overpass
2 Grand Entrance
3 Commercial Core
4 Urban Farming
5 Station Plaza
6 Light Rail Station
7 Park and Ride Garage
8 Grand Residential
9 Service Orientied Commercial

C:\>market_station

train_leaving_station.jpg

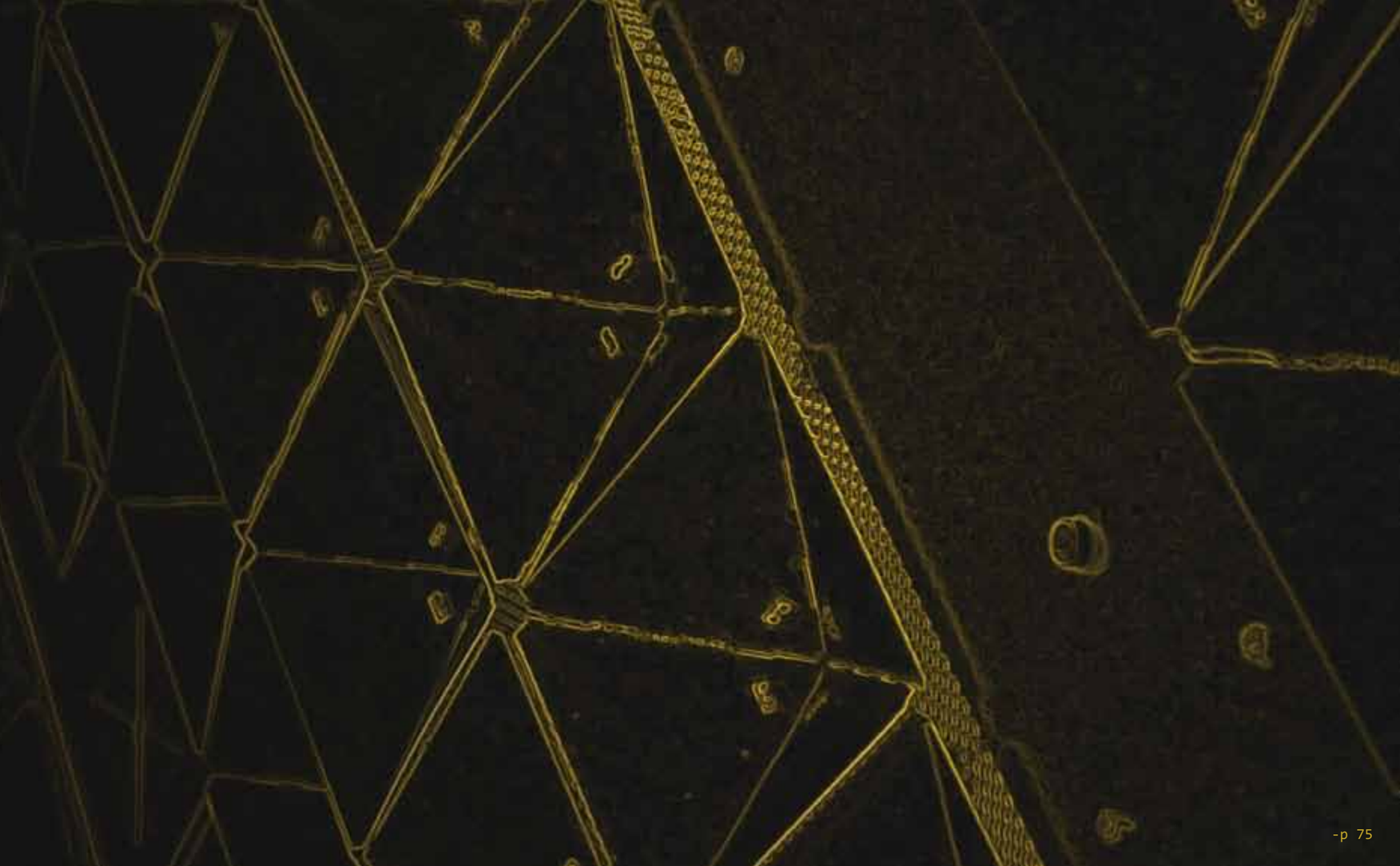
proposed_northeast_isometric.ai

residential_street.psd

public_space.psd

mixed_use_buildings.psd

```
C:\market_station>cd C:\digital_fabrication
C:\digital_fabrication>load -p flex.prj

Loading |||||||||||||||||| 100%


  __ _
 / _| |
| |_| | _____  __
|  _| |/ _ \ \/ /
| | | |  __/>  <
|_| |_|\___/_/\_\

Class: Digital Fabrication Elective, Spring 2010
       with Professor Mark Weston, 8 weeks

Flex is a full-scale prototype of an interactive wall. The wall reacts
with light and motion as people walk by it creating a unique experience.
5 Maxbotix LV-EZ3 proximity sensors detect where people are in front of
the wall.  They send data to an Arduino development board which in turn
controls the position of 12 servo motors that “flex” the wall outwards as
well as controlling 64 3 watt Red/Green/Blue/White LEDs that can create
any color of light.  A secondary control box creates animated background
patterns for these LED’s, creating an interesting display even when no one
is within range of the sensors.

Team Members: Matthew Doll, Derek Pirozzi, and Alex Rios

Blog: http://digitalwall.blogspot.com

Video: http://youtu.be/wWIrCron-N0

Published: http://blog.makezine.com/archive/2010/05/flex_an_interactive_
           wall.html

Continue
```

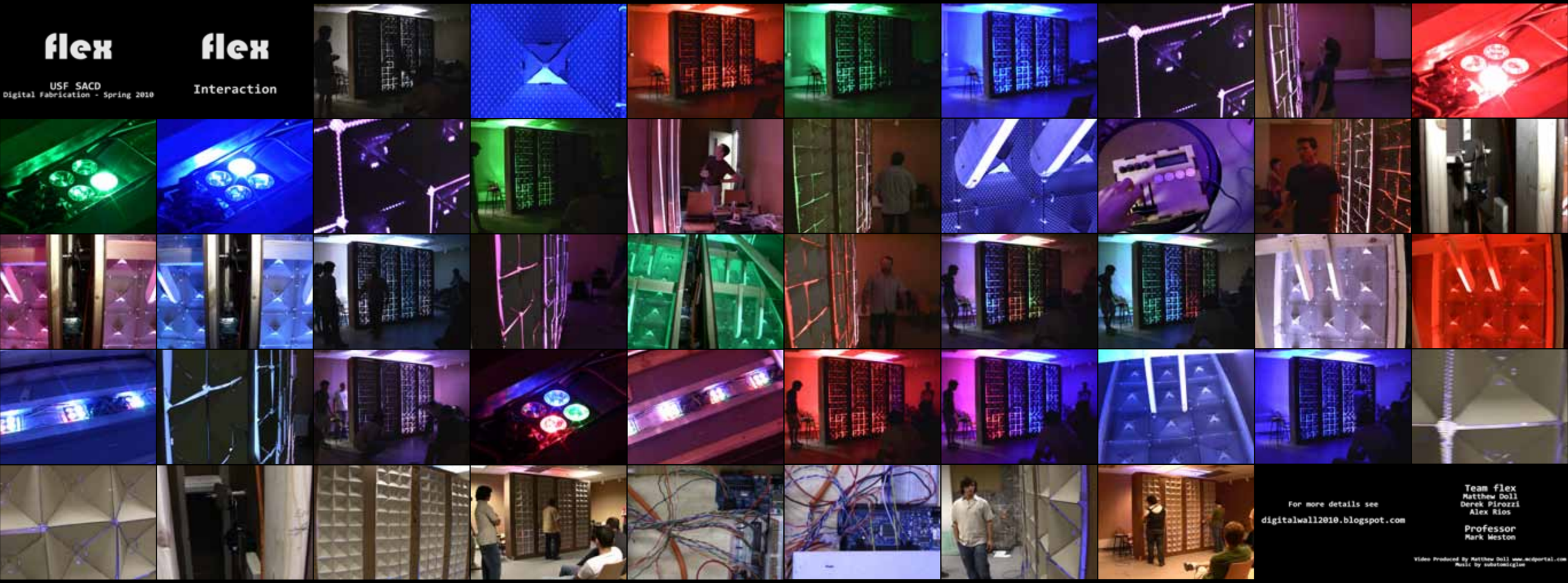


wall_with_remote.jpg

flex.jpg

servo_motor_mount.jpg

led_custer_closeup.jpg


flex
USF SACD
Digital Fabrication - Spring 2010
flex
Interaction
For more details see
digitalwall2010.blogspot.com
Team flex
Matthew Doll
Derek Pirozzi
Alex Rios
Professor
Mark Weston
Video Produced By Matthew Doll www.mcdportal.com
Music by subatomicglue

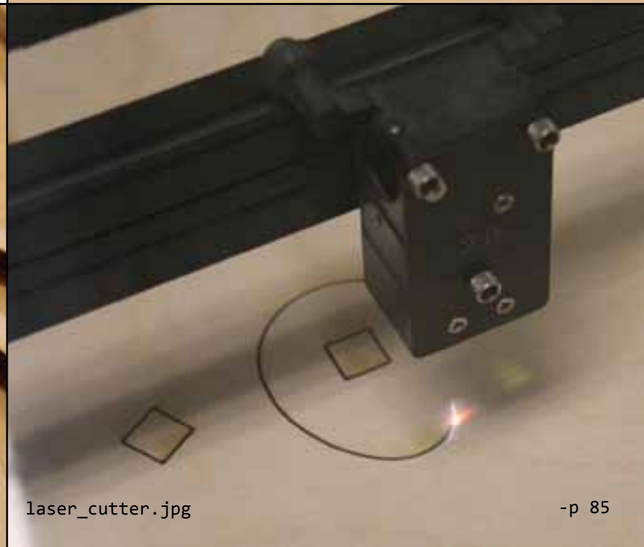
```
C:\digital_fabrication>cd C:\digital_seminar
C:\digital_seminar>load -p coriolis.prj

Loading ||||||||||||||||| 100%

  _____          _      _ _
 / ____|        (_)    | (_)
| |    ___  _ __ _  ___ | |_ ___
| |   / _ \| '__| |/ _ \| | / __|
| |___| (_) | |  | | (_) | | \__ \
 \_____\___/|_|  |_|\___/|_|_|___/

Class: Digital Seminar Elective, Summer 2010
       with Professor Mark Weston, 6 weeks

This project was an experiment in hardware design using an Arduino
development board as well as mechanical engineering and digital
fabrication.

Coriolis is made up of two parts, an iris like device on the front and an
entertaining wave machine behind. An infrared proximity sensor mounted
underneath the frame detects when someone approaches to see the wave motion
and closes up. Once the person steps away, it opens again.

Team Members: Matthew Doll, Francarlos Rivera, Richard Meacham

Blog: http://interactivesquared.blogspot.com/

Continue
```

front.jpg

desk_crit.jpg

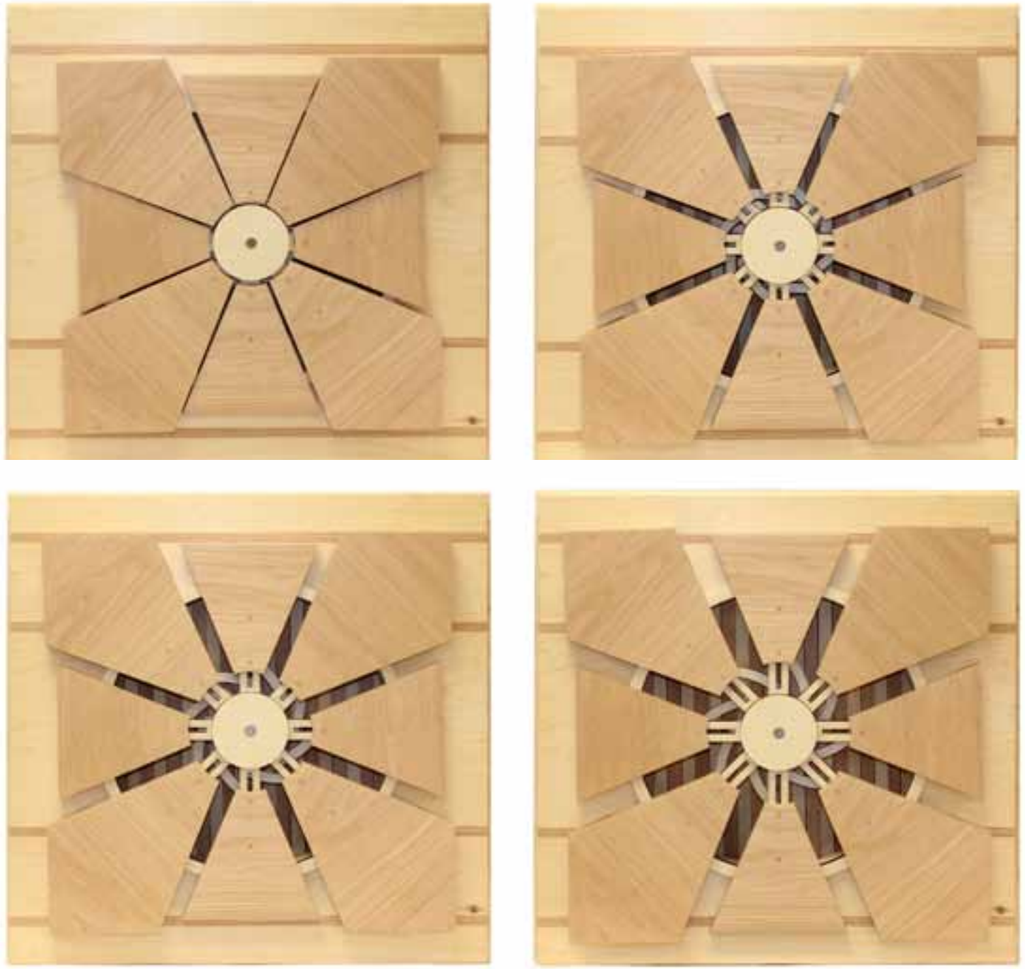
sketching.jpg

spoke_assembly.jpg

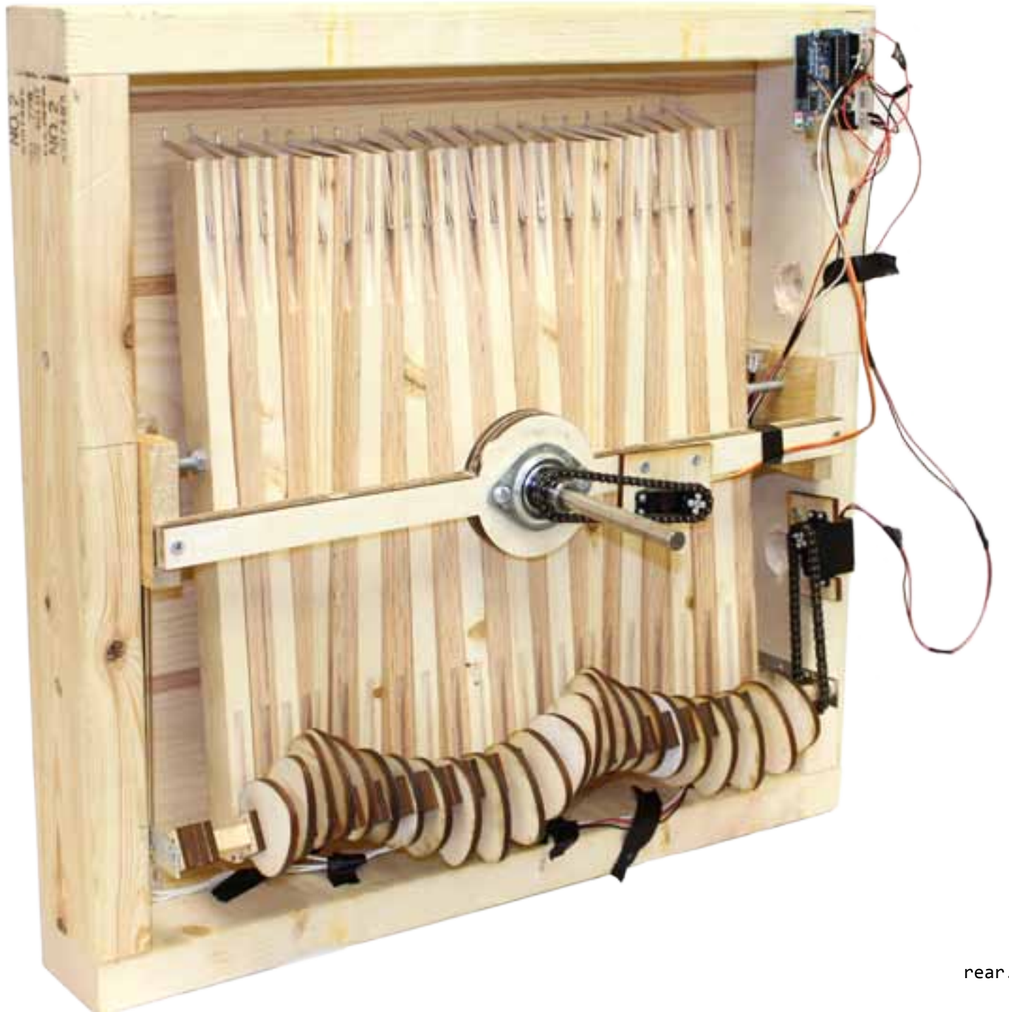


laser_cutter.jpg

closed_to_open.psd



chain_drive.jpg



rear.jpg

shaft_installed.jpg

```
C:\digital_fabrication>cd B:\design_development
B:\design_development>load -p dd.prj

Starting Portfolio Project 2.0
Loading |||||||||||||||||| 100%
```

```
 ____          _
|  __ \        (_)
| |  | | ___  ___ _  __ _ _ __
| |  | |/ _ \/ __| |/ _` | '_ \
| |__| |  __/\__ \ | (_| | | | |
|____/ \___||___/_|\__, |_| |_|
                    __/ |
                   |___/
 ____                                  _
|  __ \                 | |           | |
| |  | | ____  ____| |__  _ __  _ __  ___  ___ _ __ | |_
| |  | |/ _ \ \ / _ \ |/ _ \| '_ \| '_ \ / _ \ '_ \| __|
| |__| |  __/\ V /  __/ | (_) | |_) | | | | | |  __/ | | | |_
|____/ \___| \_/ \___|_|\___/| .__/|_| |_| |_|\___|_| |_|\__|
                             | |
                             |_|
```

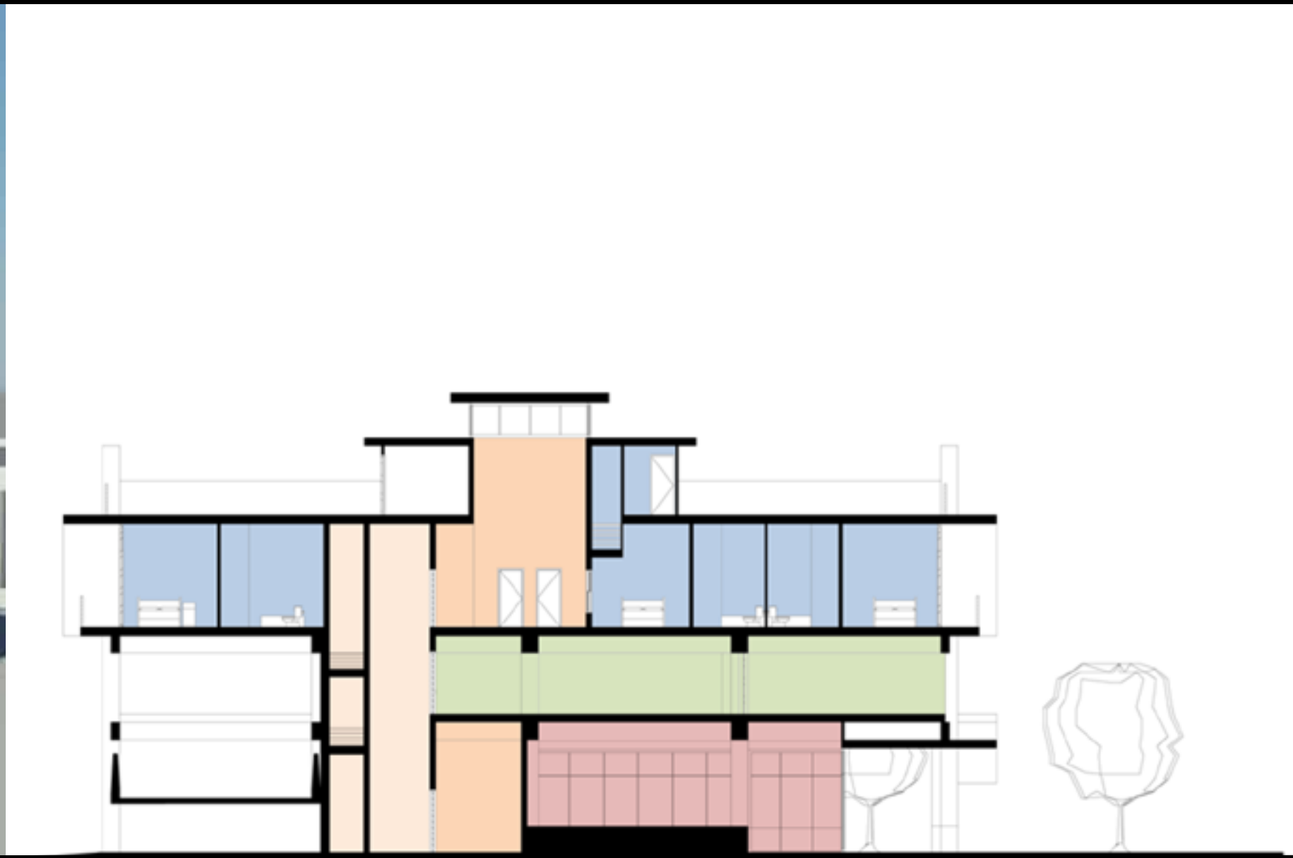
Class: Design Development, Fall 2009 with John McKenna

This project was an expansion of my Design III Project “Vertical Urbanism” whose goal was to shift the horizontal fabric of Davis Islands Vertical.

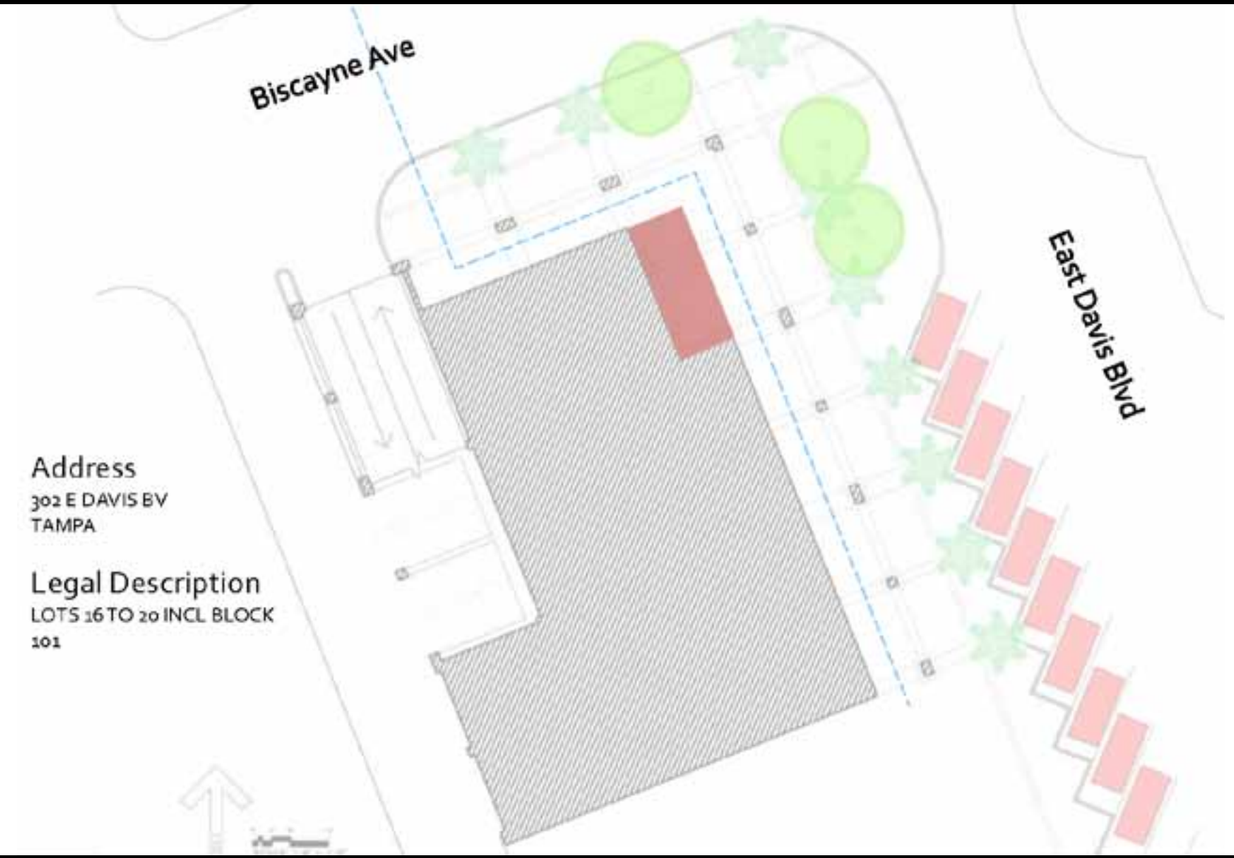
Originally Printed on 11”x17” Paper

Continue

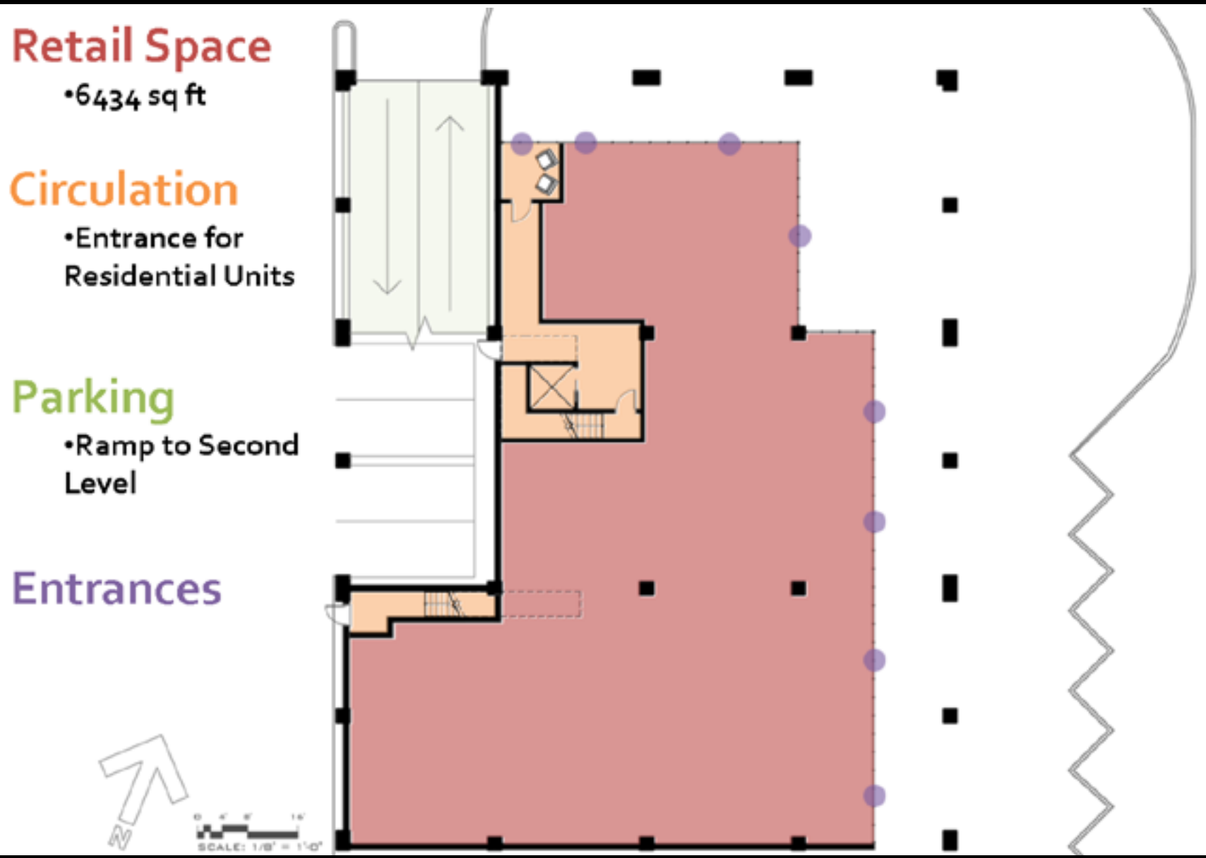
building_layers.jpg



cross_section.jpg



site_plan.jpg



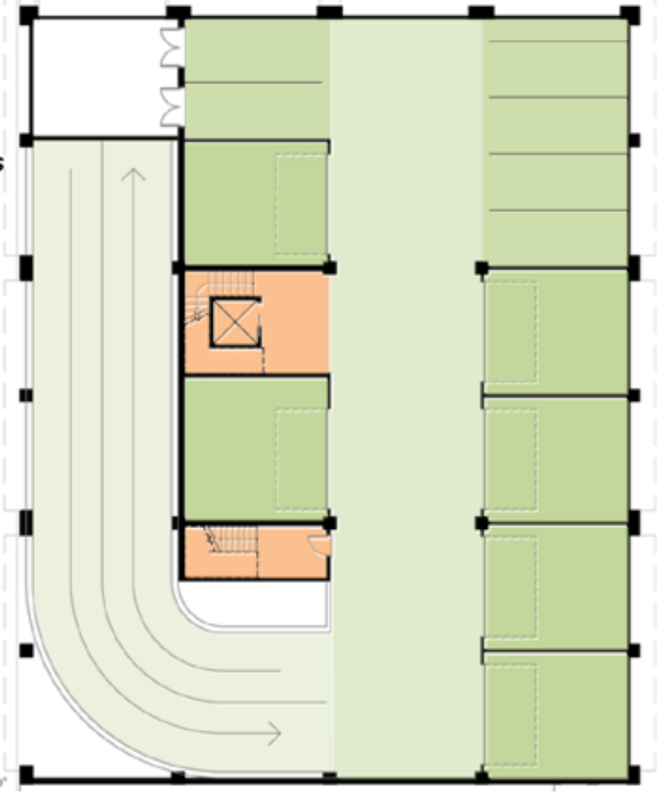
first_floor.jpg

Parking

- Ramp to Second Level
- 6 Private Garages
- 5 Spots for Guests or Staff

Circulation

- Elevator Up to Residential Units or Down to Ground Level



second_floor.jpg

Residences

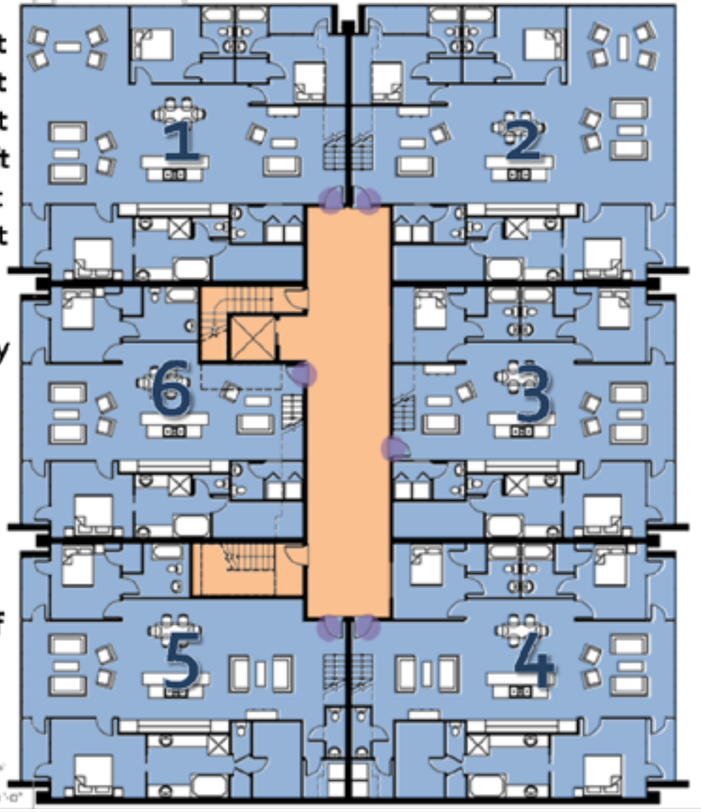
1. 3bd, 2132 sq ft
2. 3bd, 2132 sq ft
3. 3bd, 1762 sq ft
4. 3bd, 1965 sq ft
5. 2bd,1708 sq ft
6. 2bd, 1555 sq ft

Circulation

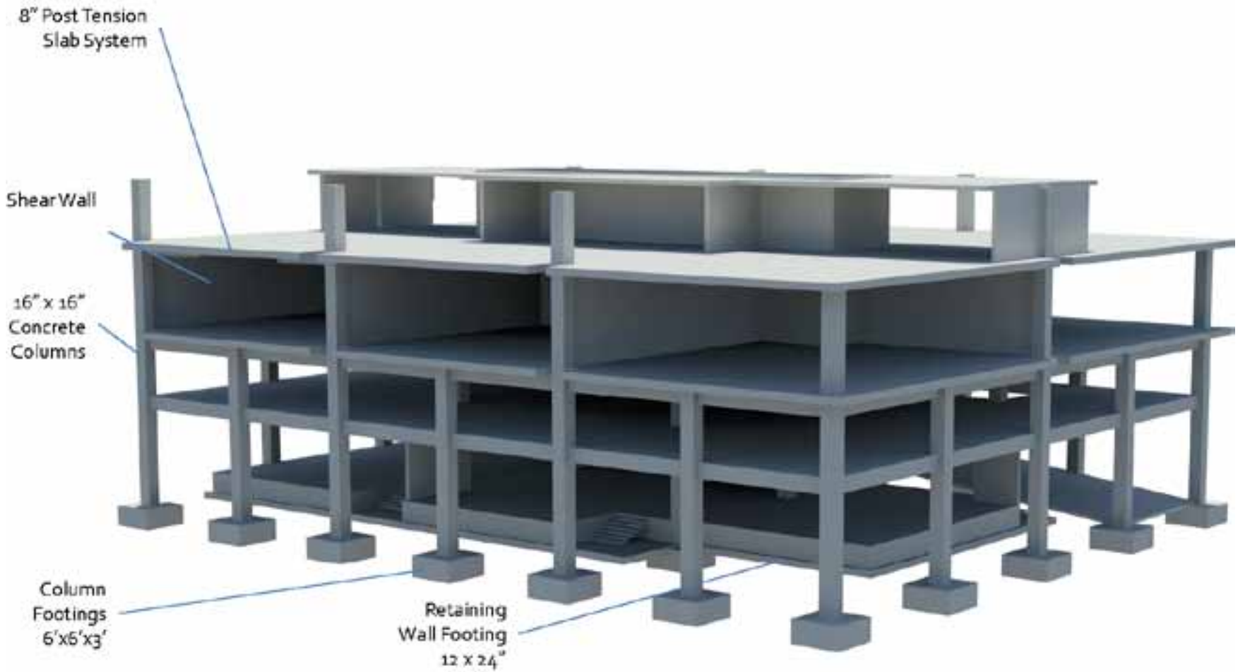
- Shared two story courtyard space with clearstory windows

Entrances

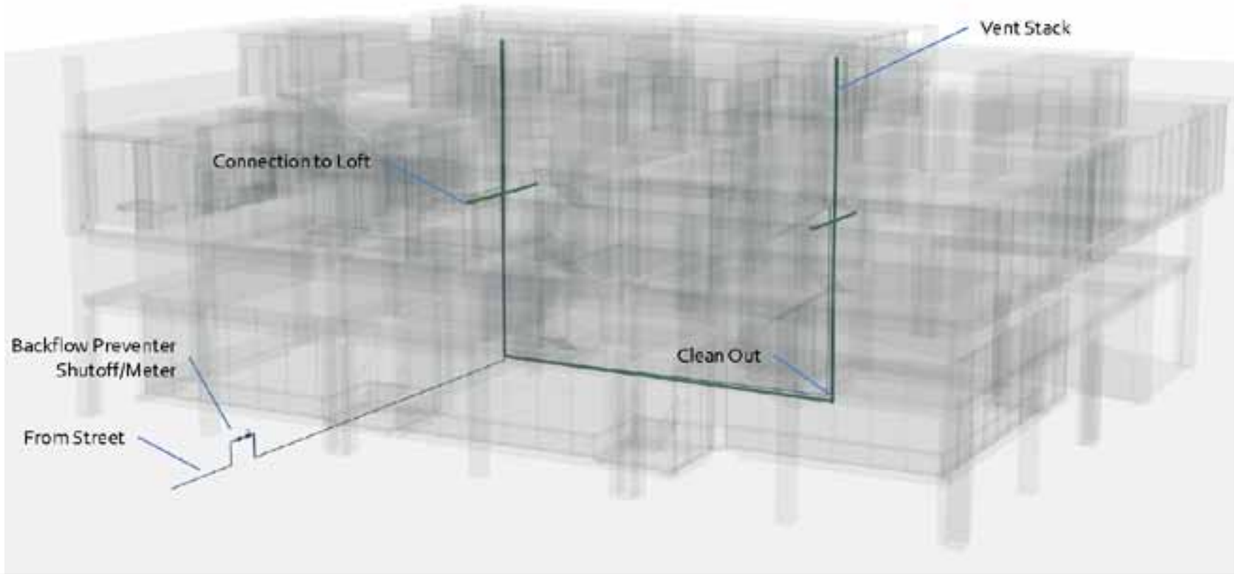
- Each units' entrance is off of the courtyard



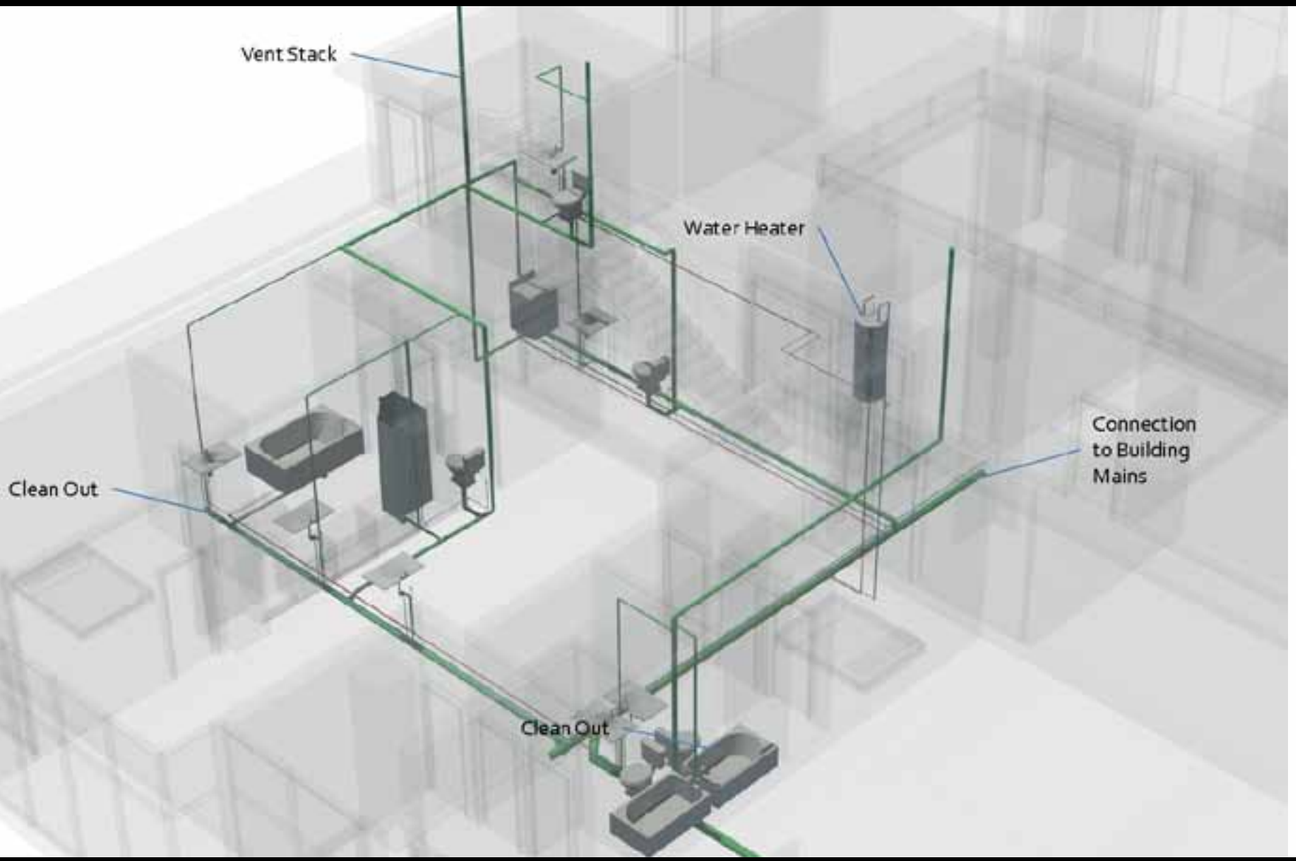
third_floor.jpg



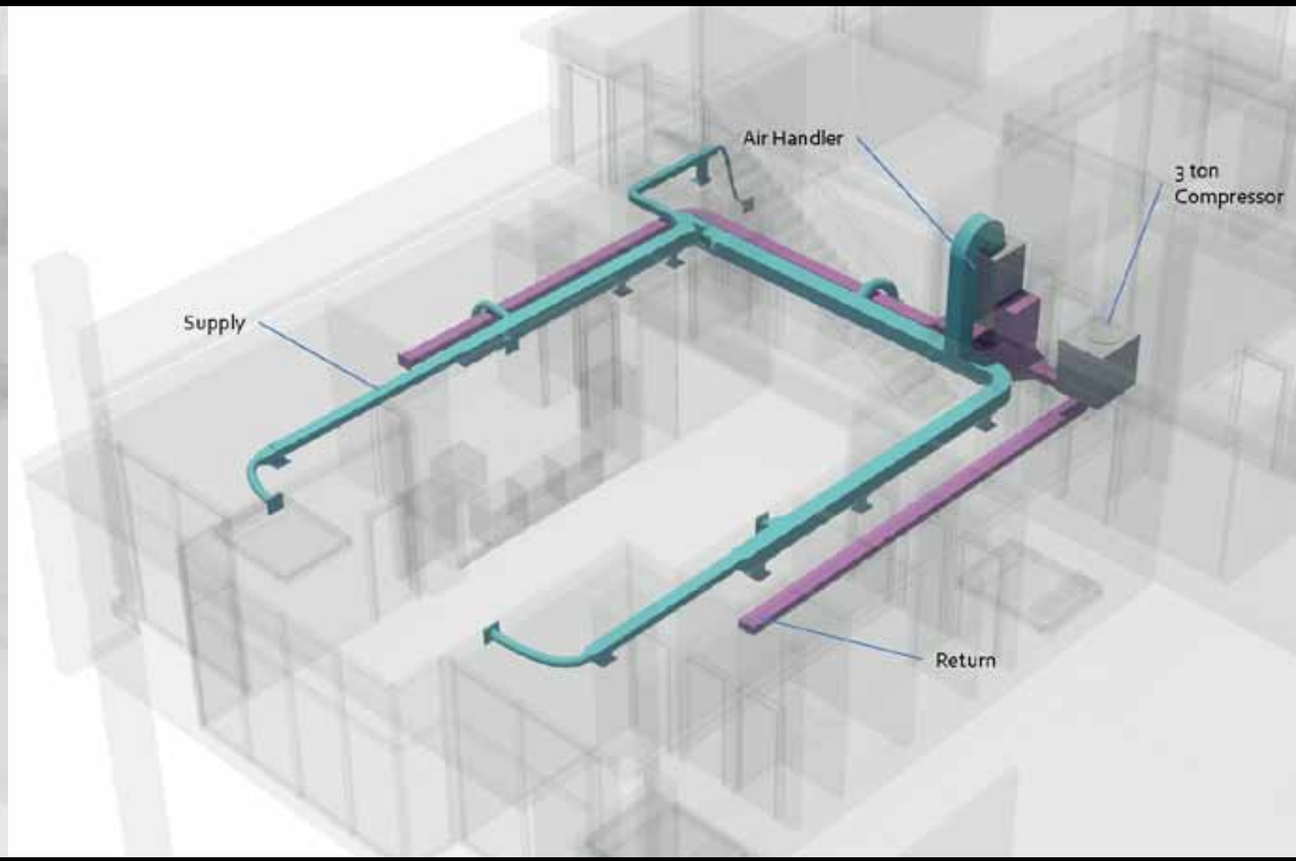
building_structure.jpg



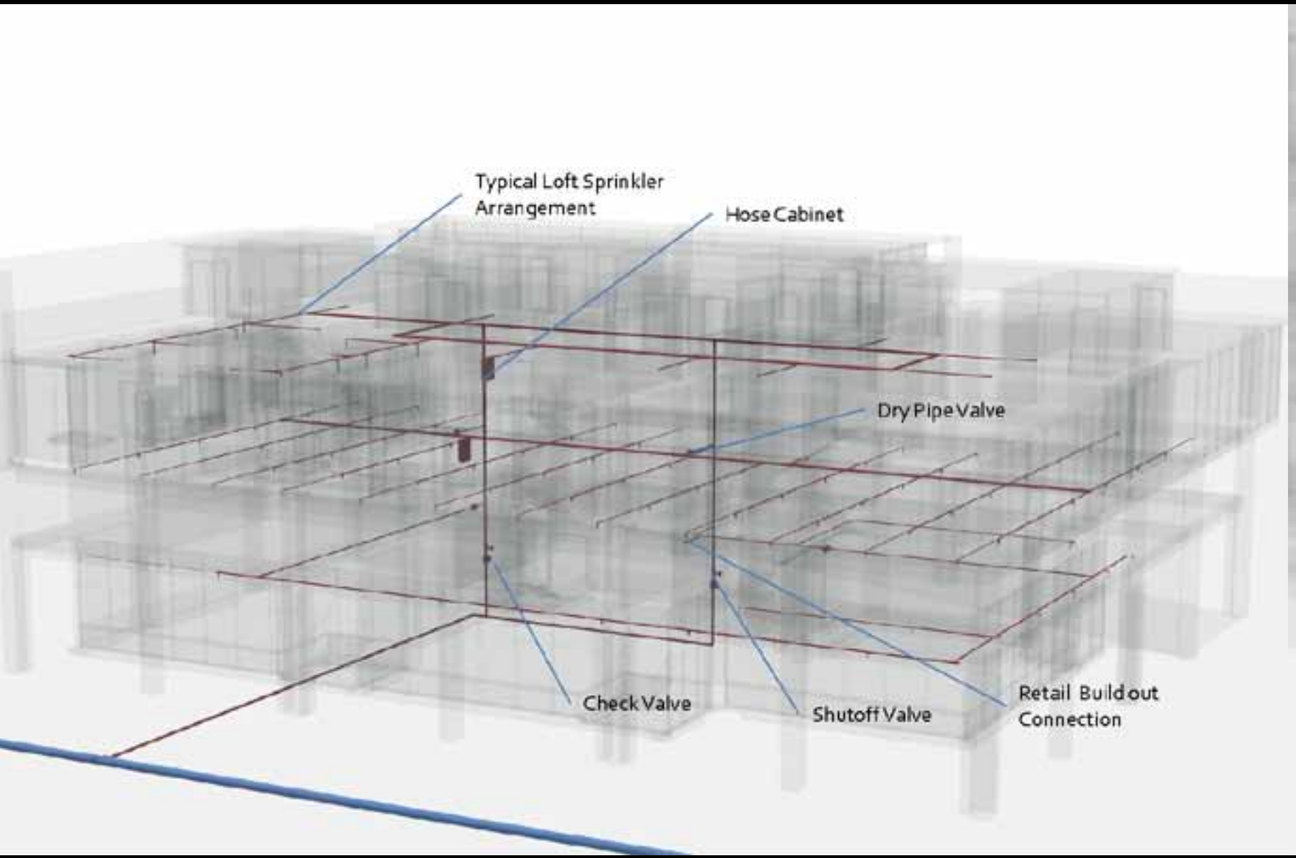
plumbing_trunklines.jpg



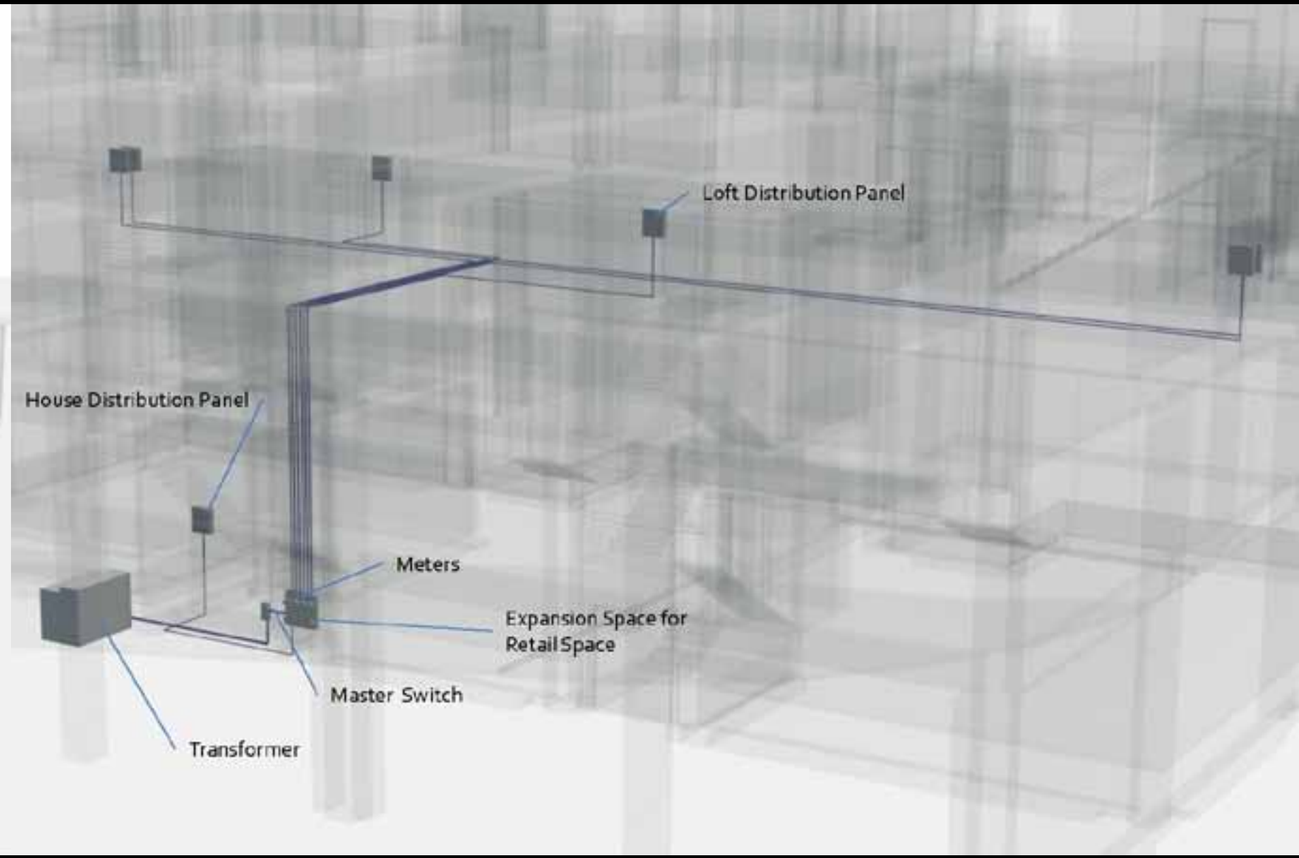
unit4_plumbing_detail.jpg



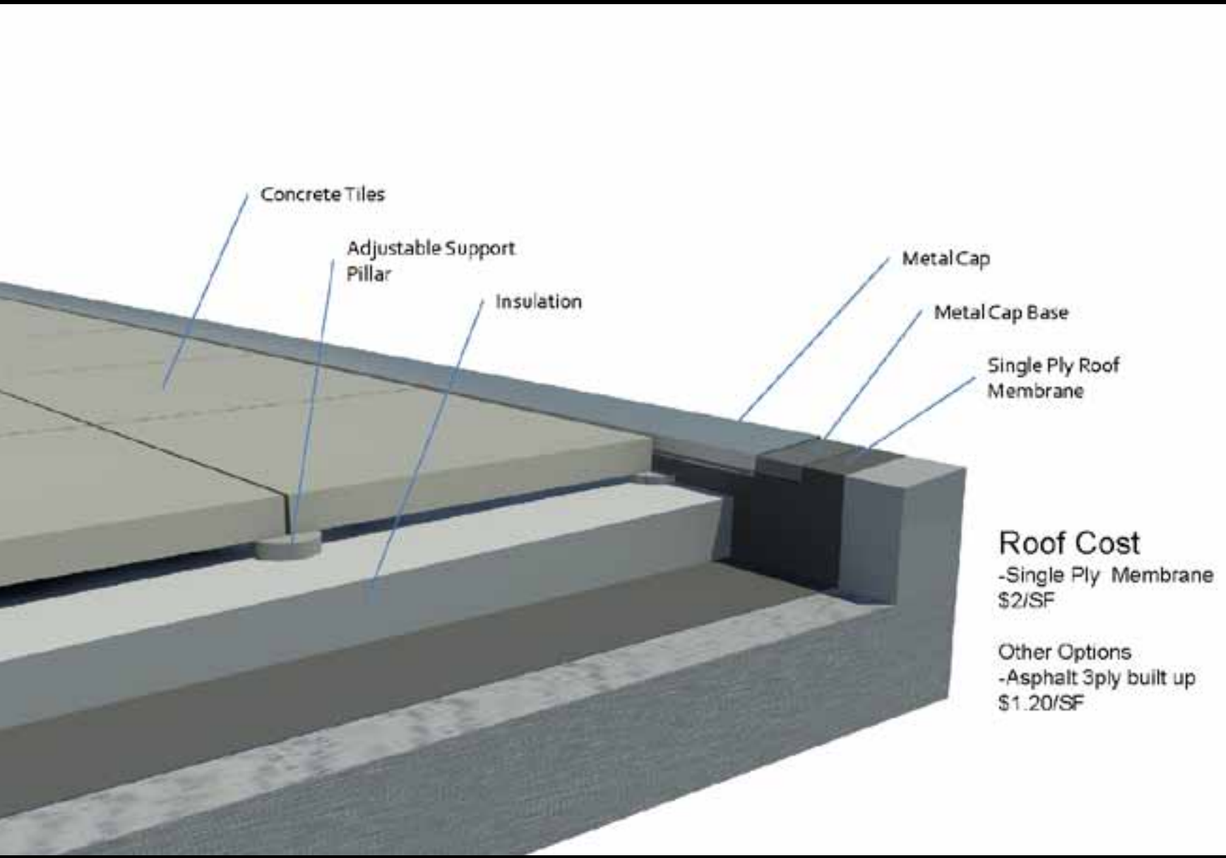
unit4_hvac_detail.jpg



fire_sprinker_system.jpg



electrical_distribution.jpg

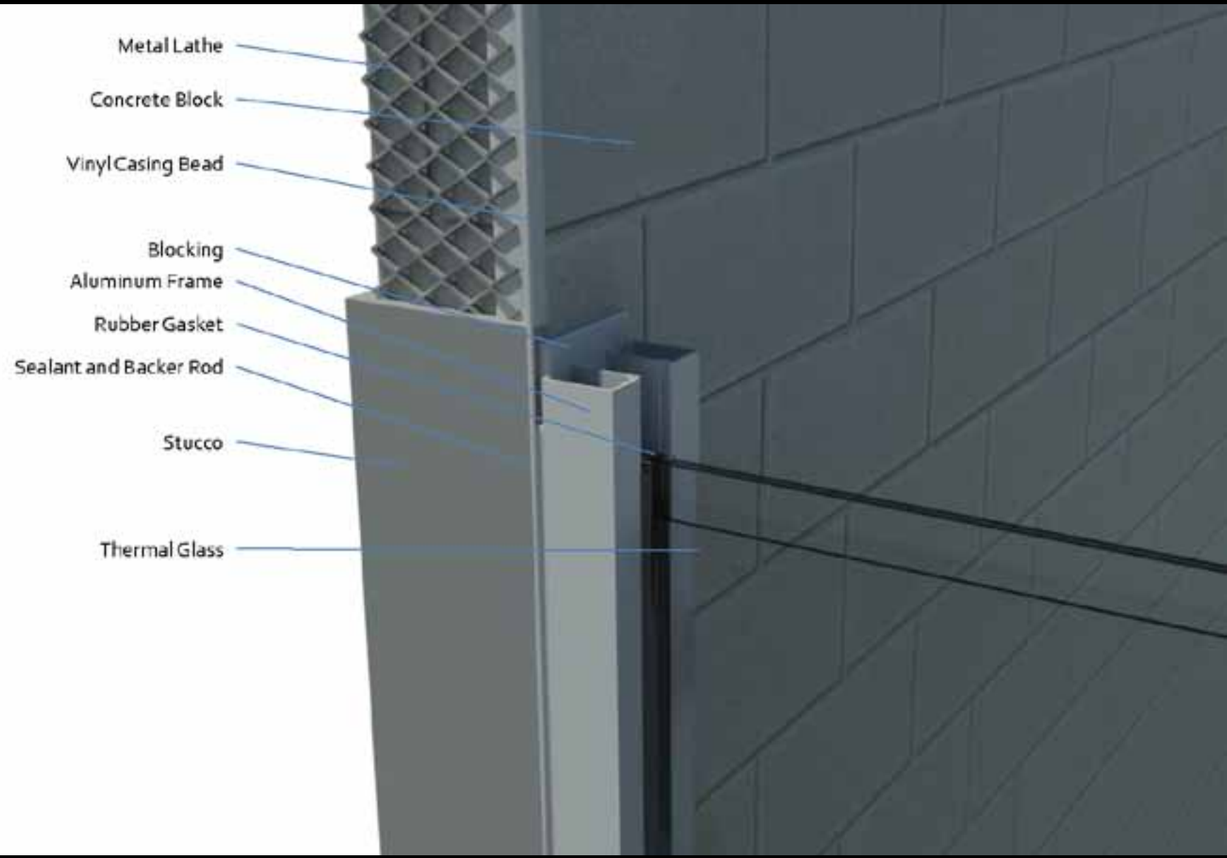


Roof Cost

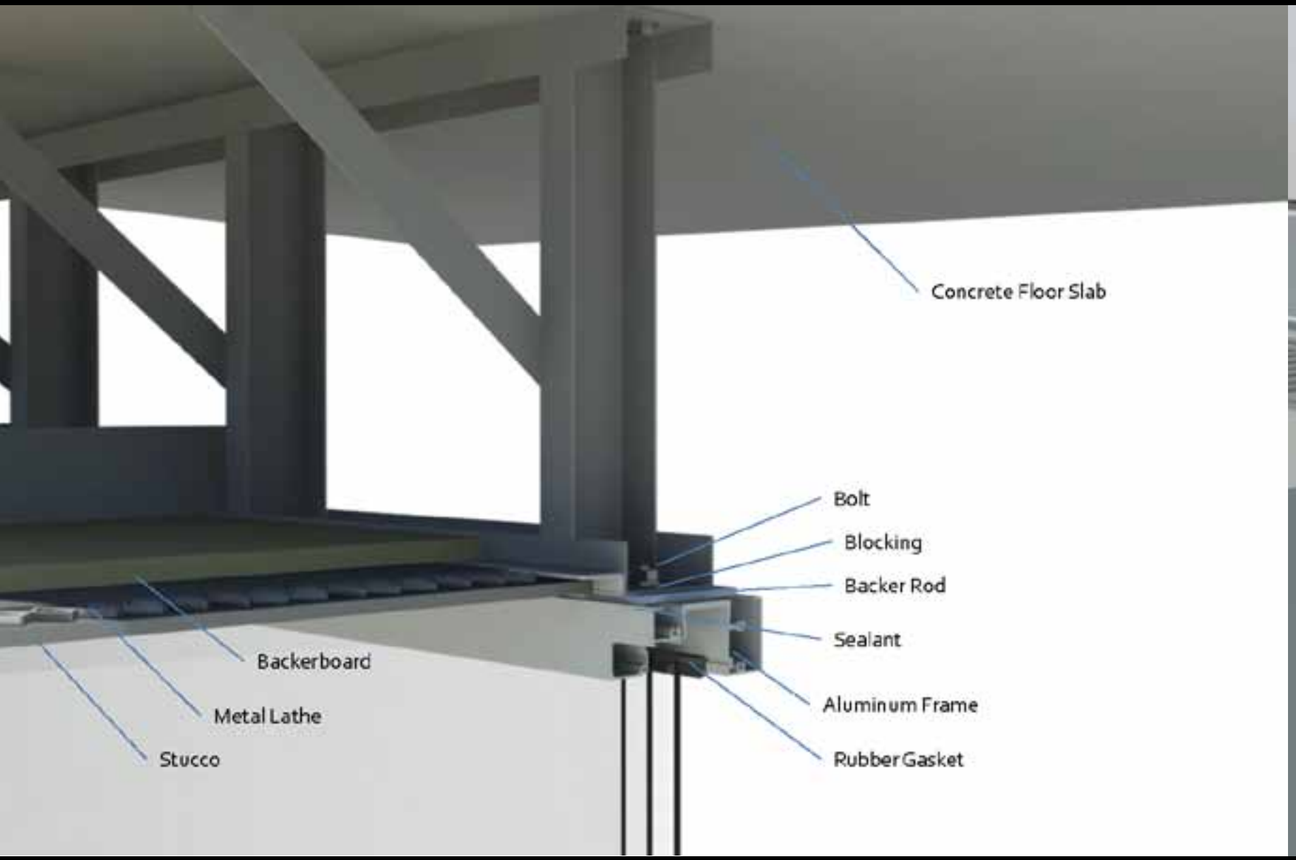
-Single Ply Membrane
$2/SF

Other Options
-Asphalt 3ply built up
$1.20/SF

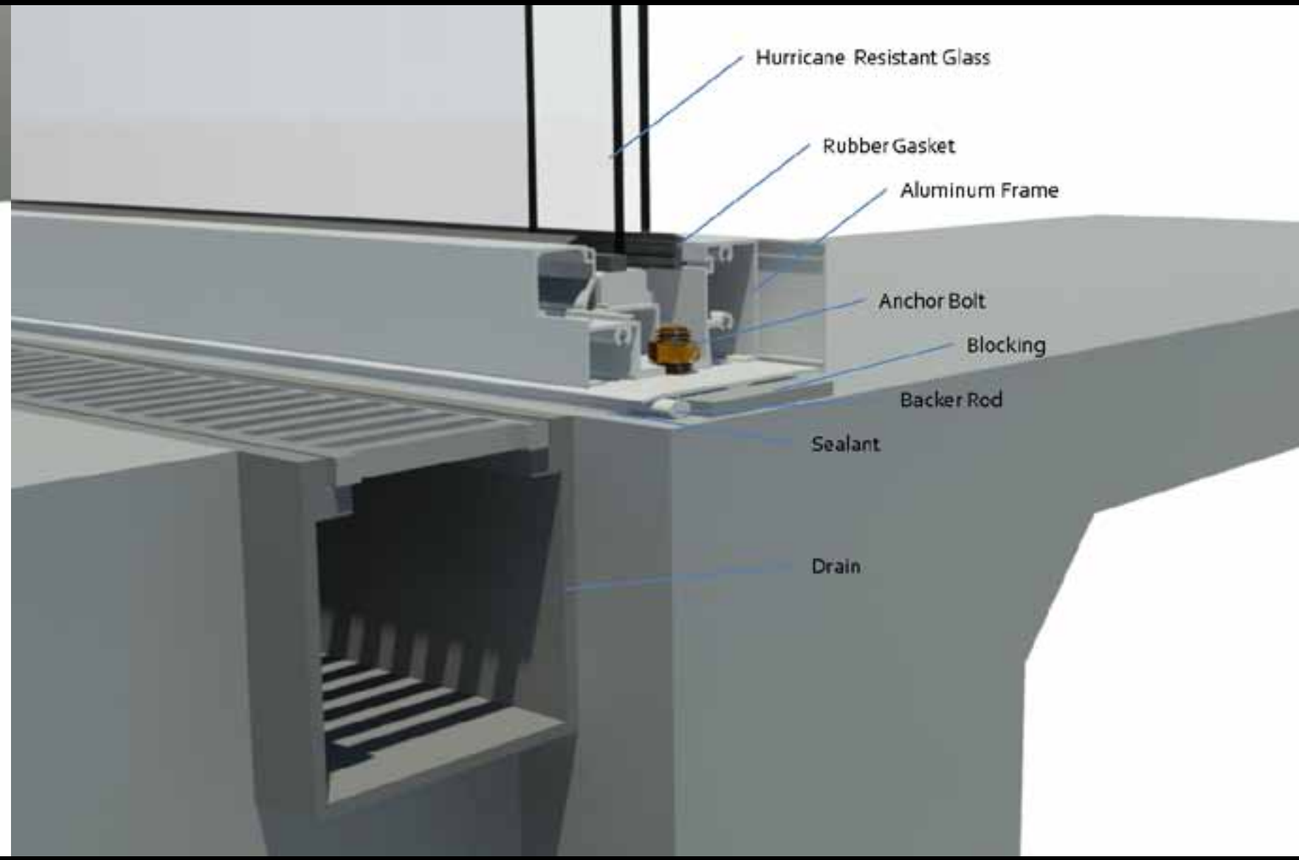
roof_deck_detail.jpg



curtain_wall_edge_detail.jpg



curtain_wall_to_ceiling_detail.jpg



curtain_wall_to_ground_detail.jpg