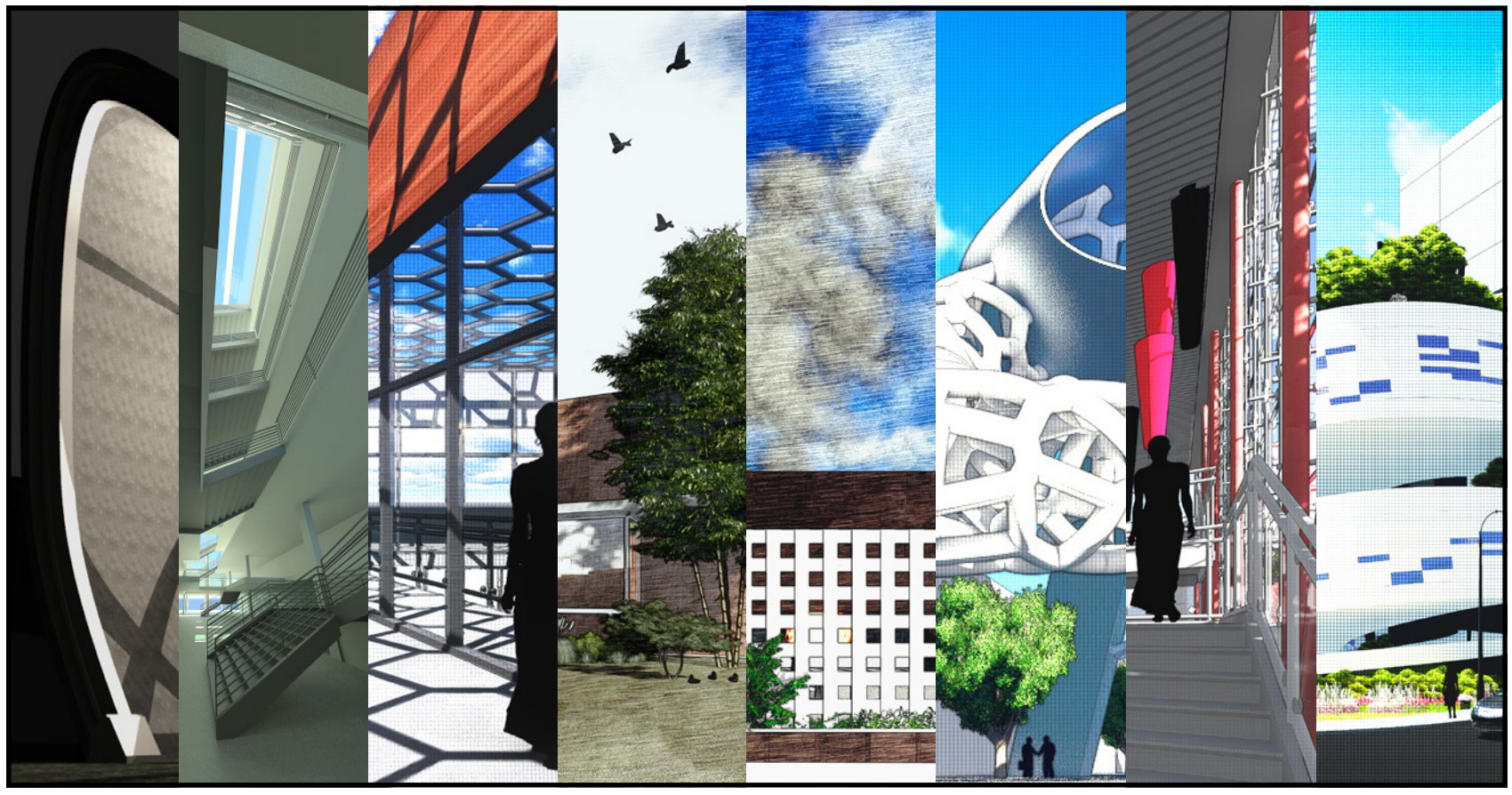


BRIAN D. NICKEL

Montana State University School of Architecture • 2015

brian.nickel1@msu.montana.edu

bd5cents@gmail.com

therevitsaver.blogspot.com

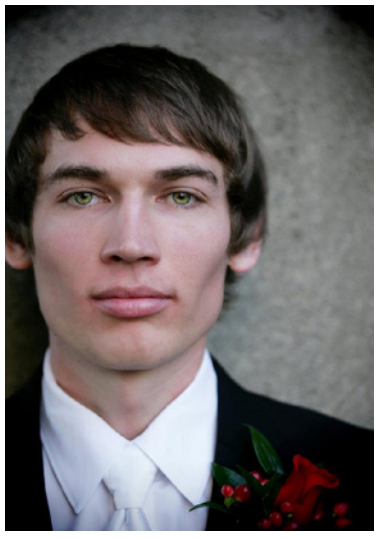
406.595.1669

DESIGN STATEMENT

“Throughout my undergraduate career I have pushed myself to the limits on each project with design technology and integration. I believe that by implementing and integrating design technology, into my design process, that it can open up tools that can effectively and clearly illustrate my design intent. From my second year of undergraduate studies through to my senior year I have learned, through my studios, to not let the software guide my process, but to be in control of the software. I’ve learned to complement my hand sketches with design technology, but to not let the software guide the design. I learned that by bridging the design in a sketchbook to an effective communication of the design, through the tools, that I could truly illustrate and analyze my design in a manner that was understandable to my peers and professors. Throughout all of my undergraduate studios, I challenged myself to learn beyond the course objectives, and to evolve my software knowledge, to align to my design process, by integrating this technology in a productive and legible way. By aligning these processes I am able to more clearly illustrate my design intent, and to stay on top of industry technology that can be leveraged in a professional work environment. I would like to further this understanding in graduate studies at Montana State University because during my undergraduate studies I began to understand this and make it work for me, but through graduate coursework I know I can master. I would like the opportunity to leverage all of this knowledge gained in my undergraduate coursework, to further my understanding on how to effectively integrate these processes, to create my own design process that is unique to myself, and to be beneficial to the future of architecture.” Brian D. Nickel

CURRICULUM VITAE

Brian Douglas Nickel



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AUTODESK® REVIT® ARCHITECTURE 2015
CERTIFIED PROFESSIONAL

AUTODESK® REVIT® MEP 2015
CERTIFIED PROFESSIONAL

AUTODESK
Student Expert

EDUCATION

08/2012-12/2015 **Montana State University | School of Architecture**
B.A. in Environmental Design
Graduated with Honors
3.54 GPA

09/2008-12/2011 **Norco Community College**
A.S. in Architecture

EXPERIENCE

10/2014-Present **Harvey's Plumbing and Heating**
Mechanical Designer
HVAC, Plumbing, and Fabrication system coordination. HVAC and Plumbing system design. Heat loss calculations for ACCA Manual J Standards. High-end residential construction coordination. Launched 20 ipads for office to field coordination. A360 Cloud Collaboration.
http://harveysph.com/About/Roster

07/2015-Present **The Revit Saver!**
A blog dedicated for posting challenging solutions and ideas for promoting the future evolution of the AEC community! Coordination and collaboration with the AEC community.
therevitsaver.blogspot.com

05/2014-10/2014 **Intern Architect - David C. Fowler Architecture**
Conceptual, Schematic, Design Development. Detail drawings under the supervision of David C. Fowler. High end residential construction drawings for homes in Atlanta, Georgia. Revit design drafting and coordination.

2006-2007 **Alcala Architecture**
Conceptual, Schematic, Design Development. Revit drafting high end residential custom homes in Southern California. Supervised under the direction of Gilbert Mark Alcala.

2006 **Stuart Architecture**
Conceptual, Schematic, Design Development. Detail drawings under the supervision of Ernest Stuart. AutoCAD training and shortcuts supervised by Kimberly Stuart. High end residential construction on the coast of Laguna Beach, California.

AWARDS + RECOGNITION

01/2015 **Rendering Pro of the Week - Autodesk 360 Rendering January Publication**
http://autodesk360rendering.typepad.com/blog/2015/01/rendering-pro-of-the-week-brian-nickel.html

09/2015 **AIAS Cat Card Scholarship**
$500.00 Printing Credit

09/2015 **Autodesk User Group International Magazine Publication**
September 2015 Article Pages 30-33
http://issuu.com/augi/docs/aw201509hr

10/2015 **Shirlee White Memorial Scholarship**
$1,000.00 Scholarship

11/2015 **DynamoBIM.com Process Evolution Article Recognition**
http://dynamobim.com/ Front Page Image that references AUGI Publication

PROFESSIONAL SKILLS

CAD (Revit, AutoCAD, Rhino, Inventor, SysQue, Wrightsoft, HVAC Solutions)
Visualization (Rhino, SketchUp, 3DS Max, Lumion, ReCap, Memento)
Visual Programming (Dynamo, Grasshopper)
Adobe (InDesign, Photoshop, Illustrator, Acrobat)
Microsoft Office (Word, Excel, PowerPoint, Access, Outlook)
Google (Docs, Sheets, Forms, and Blogger)
Fabrication (CAMDuct, ESTMep, CADmep)
Geographic Information Systems (ArcMap, ArcGIS)
BIM Content Management (Unifi, A360 Collaboration, A360 Team, A360)
Presentation (Prezi)

REFERENCES

Academic Ralph Johnson - Second Year Professor
Academic Jack Smith - Third Year Professor
Academic Bradford Watson - Third Year Professor
Professional Bob Harvey - Owner - Master Plumber

ONLINE PORTFOLIO:
http://archinect.com/people/cover/24408156/brian-nickel

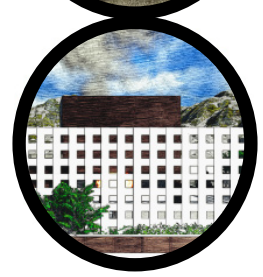
8-9 MONTANA STATE UNIVERSITY VISTOR'S CENTER
MSU SOA Second Year Studio • Spring 2014
Professor Ralph Johnson

10-11 BUTTE INFILL
MSU SOA Second Year Studio • Spring 2014
Professor Ralph Johnson

12-15 SEATTLE HYDROLOGY INSTITUTE
MSU SOA Third Year Studio • Fall 2014
Professor Bradford Watson

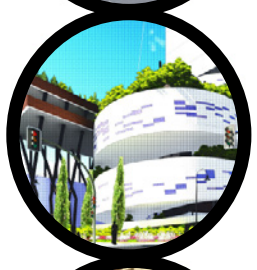
16-17 BOZEMAN BIRD WATCHING OBSERVATORY
MSU SOA Third Year Studio Pt. 2 • Spring 2015
Professor Jack Smith

18-19 THE COMMUNITY CAFE + WARMING CENTER
MSU SOA Third Year Studio Pt 2. • Spring 2015
Professor Jack Smith



20-23 PARASITIC ARCHITECTURE: EVIL KNIEVEL MUSEUM
MSU SOA Third Year Studio Pt 2. • Spring 2015
Professor Jack Smith

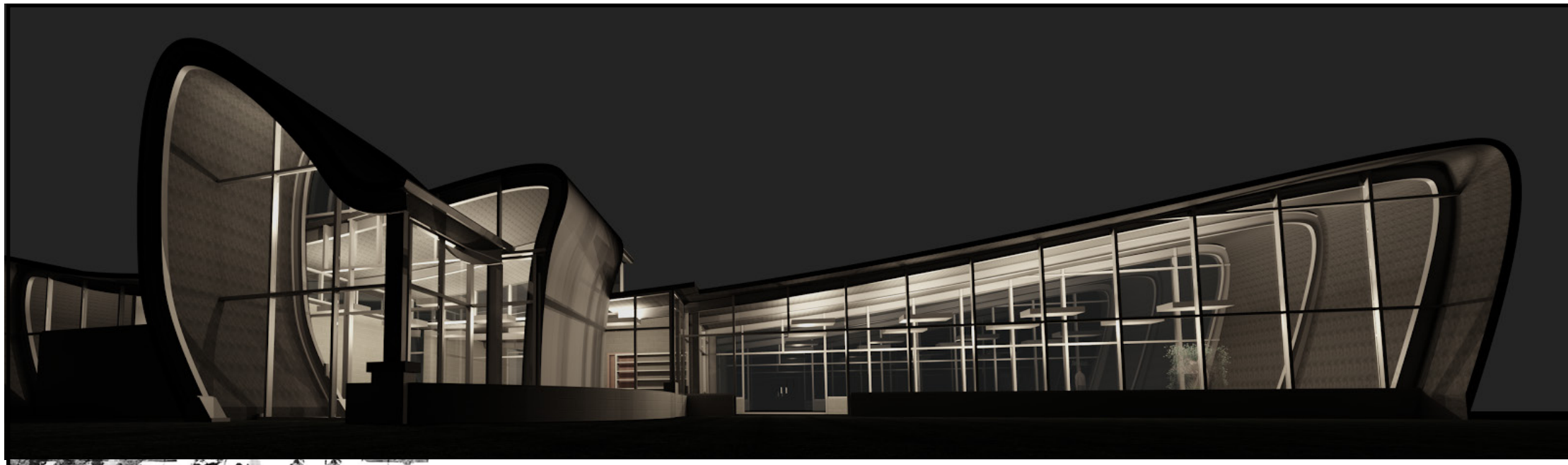
24-25 DAWSON COMMUNITY COLLEGE STUDENT CENTER
MSU SOA Fourth Year Summer Studio • Summer 2015
Professor Tom McNab

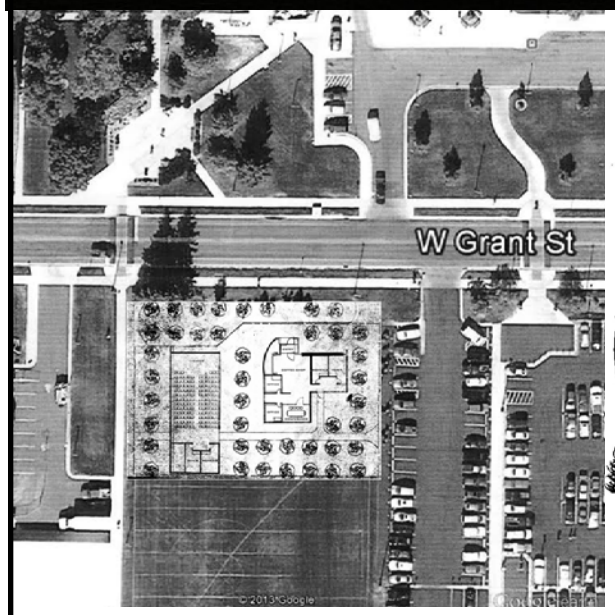


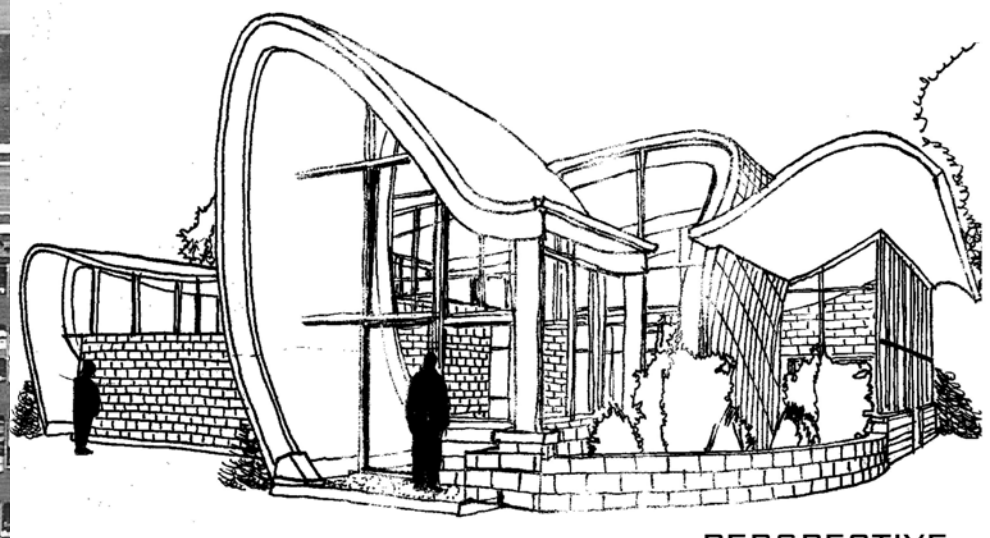
26-35 OPERATION HYBRID: DOWNTOWN BOZEMAN
MSU SOA Fourth Year Studio • Fall 2015
Professor Christoper Livingston

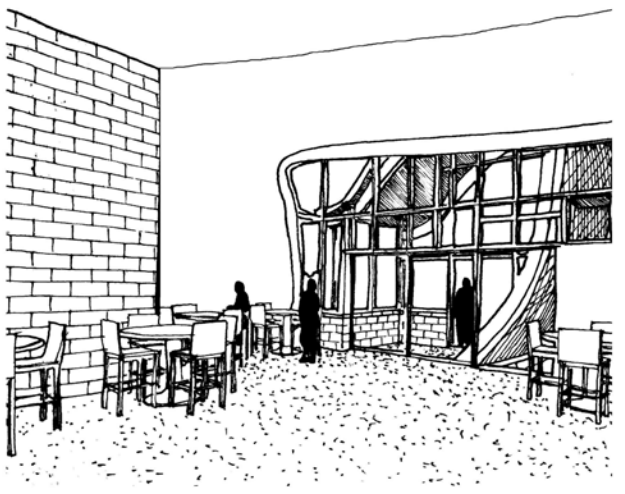
36 MODEL COMPILATION
MSU SOA • Studio Models
Brian D. Nickel

37 THE REVIT SAVER!
PERSONAL BLOG • EST. JULY 2015
The Revit Saver Blog Promoting Ideas in the A.E.C. Community





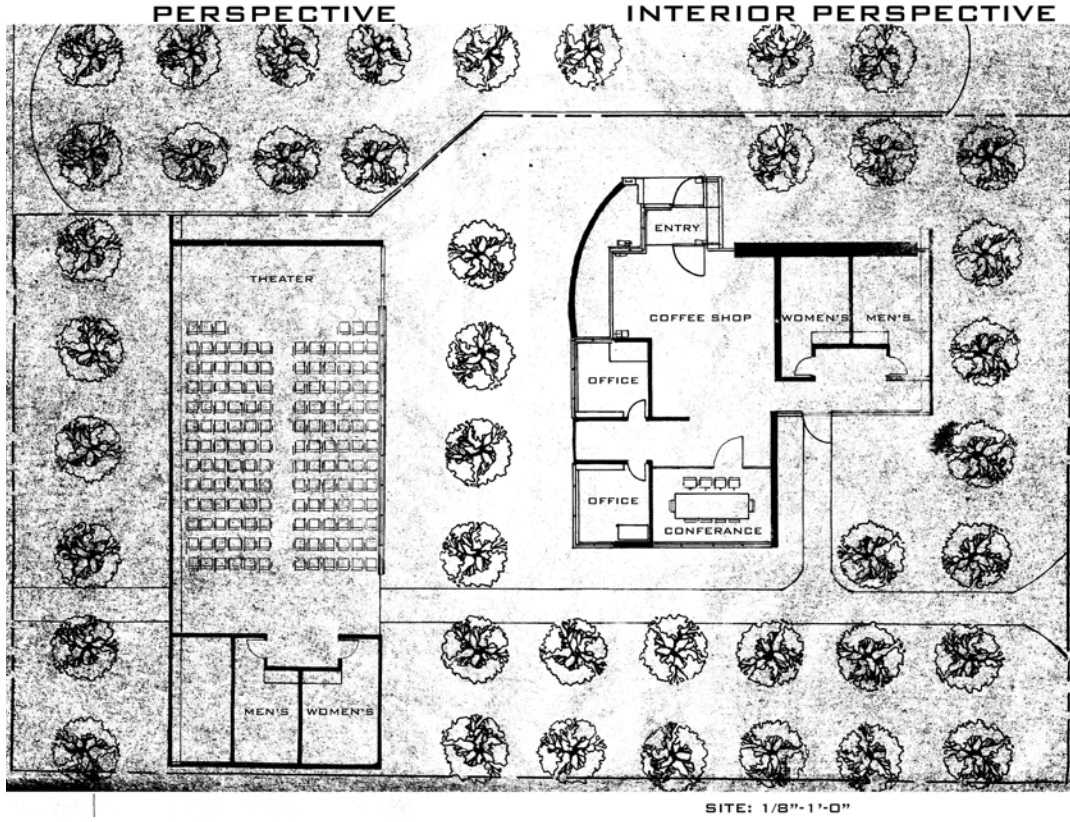




PERSPECTIVE

INTERIOR PERSPECTIVE

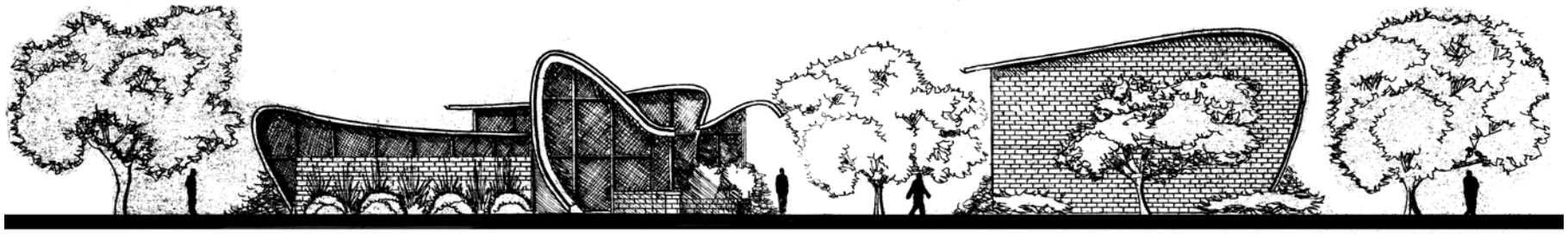
The Montana State University Visitor's Center is intended to be a place for future students visiting the campus. The visitor's center is located on the existing soccer fields south of campus near the Strand Union Building. The building is intended to be a starting point for future students to be comfortable transitioning into the college life. The buildings form is meant to be designed to give back to the earth in a way that water can be recycled and fed to the new apple orchards. The site recycles the water back to the center corridor. This water is then used to be stored in underground cisterns that can irrigate the trees. This space is intended to be tranquil and pleasant for students to study in the summer time, and for students to pass through on their way to classes. The building is intended to ease the initial overwhelming nature that a new college student may feel through its natural form, accessibility and site characteristics.



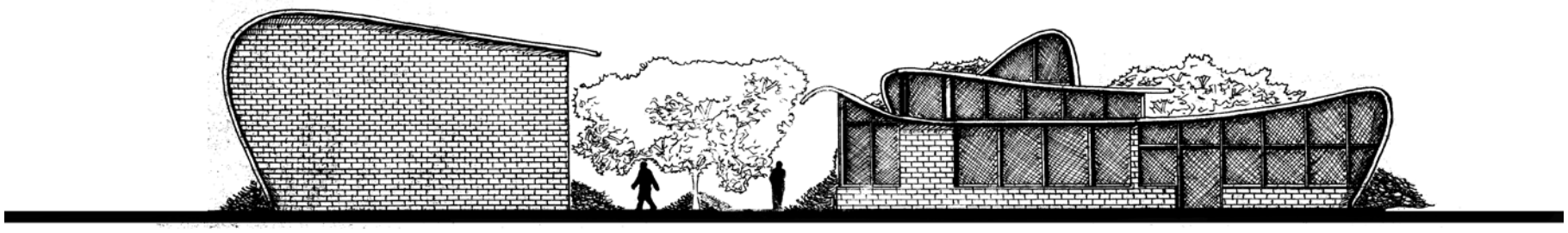
SITE: 1/8"-1'-0"

MONTANA STATE UNIVERSITY VISITOR'S CENTER

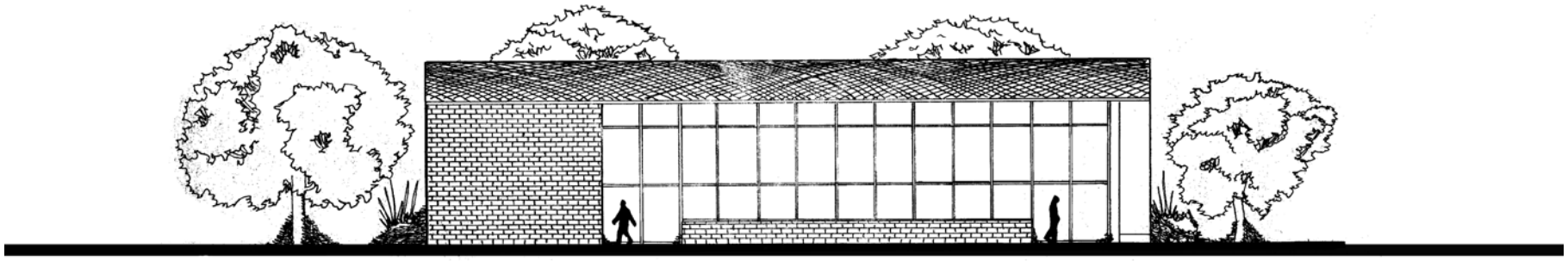
MSU SOA Second Year Studio • Spring 2014 • Ralph Johnson



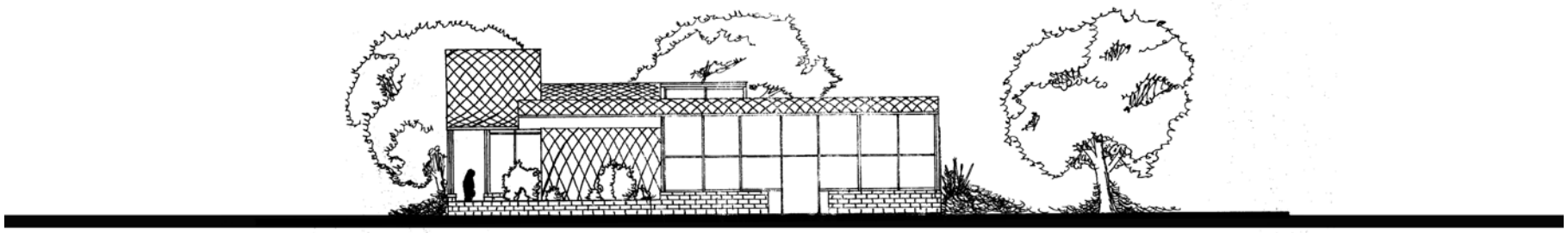
NORTH ELEVATION: 1/8" - 1'-0"



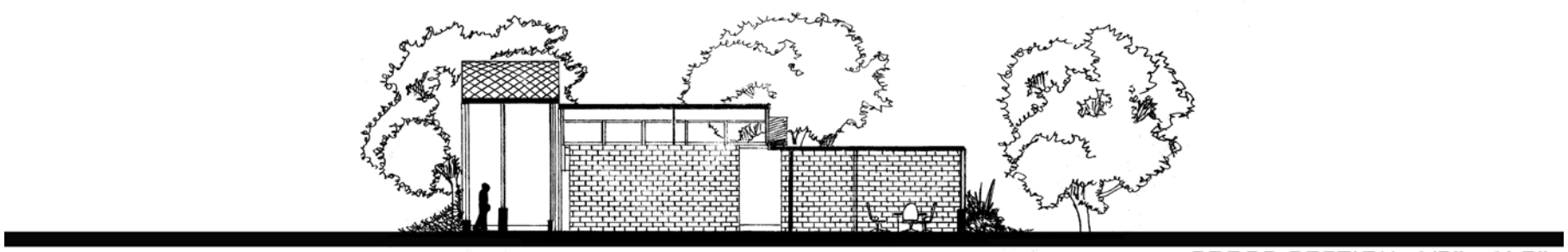
SOUTH ELEVATION: 1/8" - 1'-0"



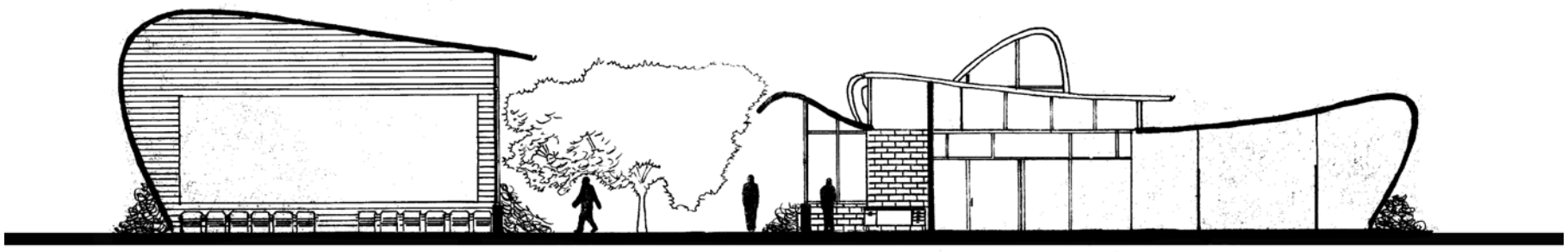
INTERIOR WEST ELEVATION: 1/8" - 1'-0"



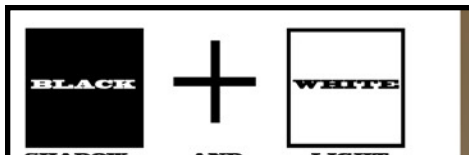
INTERIOR WEST ELEVATION: 1/8" - 1'-0"

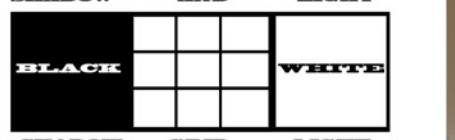


CROSS SECTION: 1/8" - 1'-0"

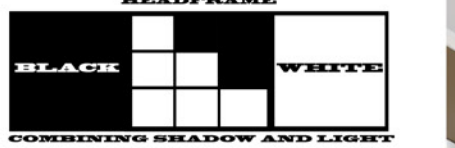


LONGITUDINAL SECTION: 1/8" - 1'-0"

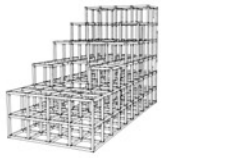


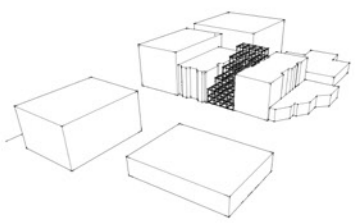


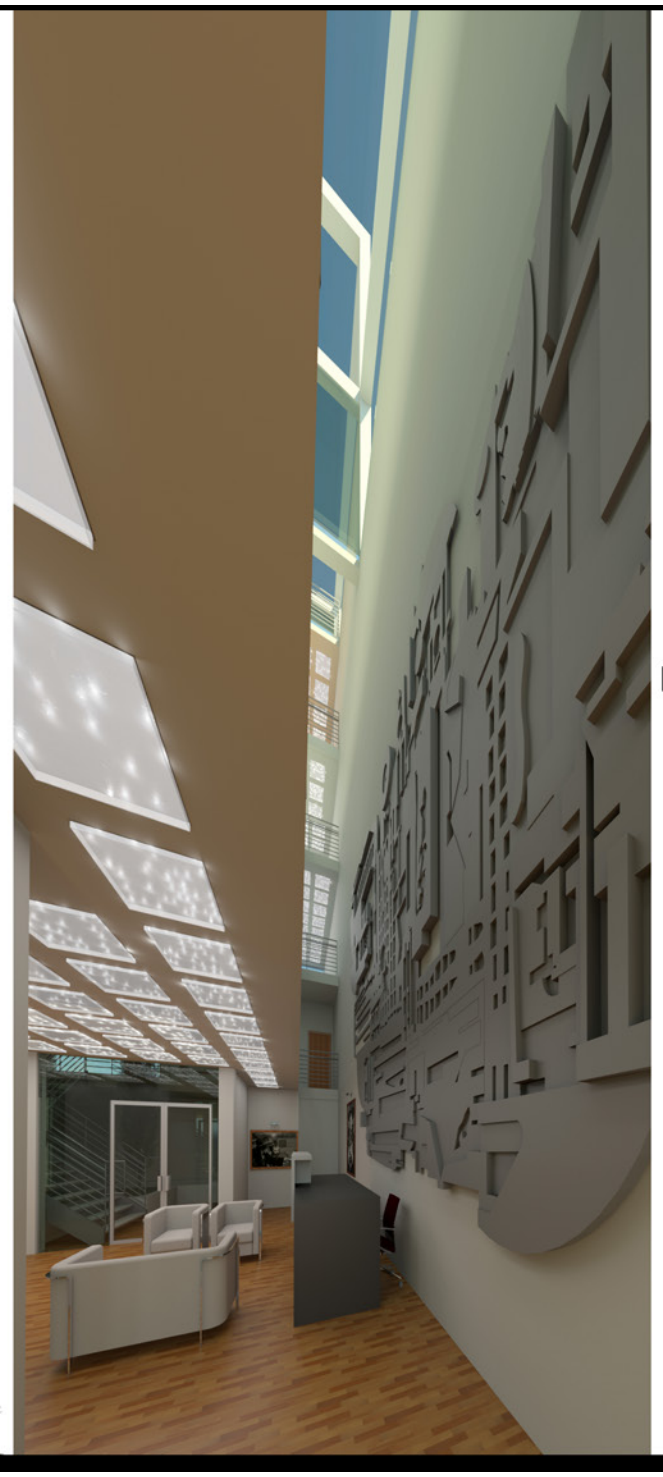
HEADFRAME

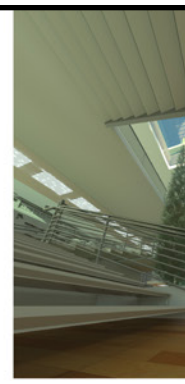


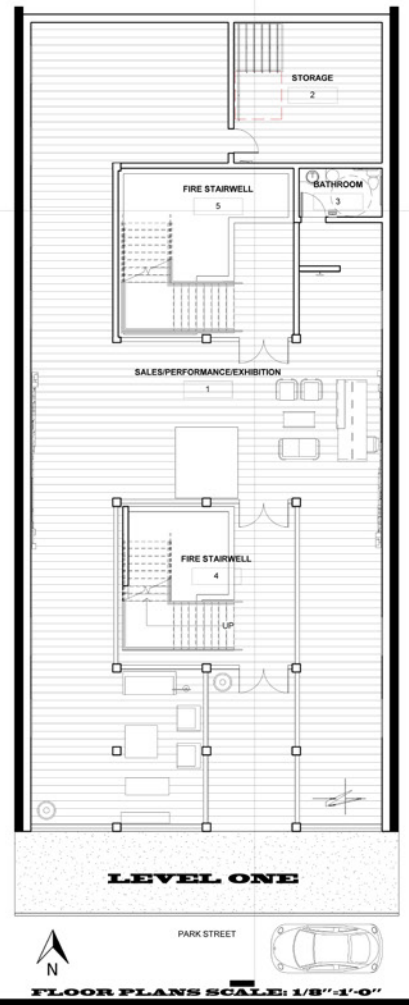
SHADOW AND LIGHT FORMING STRUCTURE



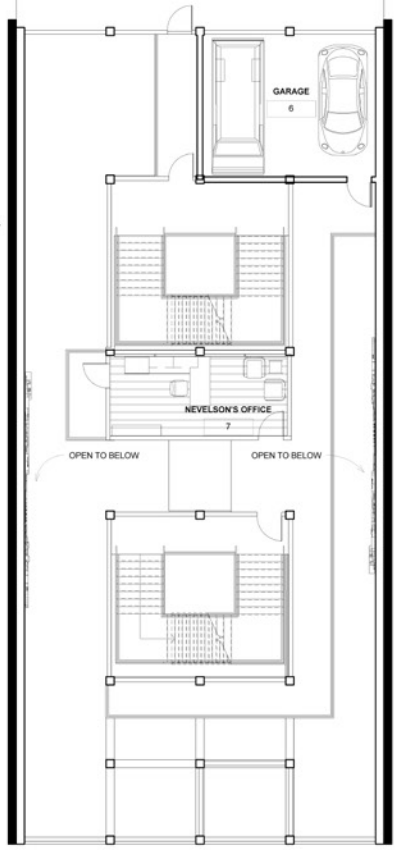

SITE ANALYSIS



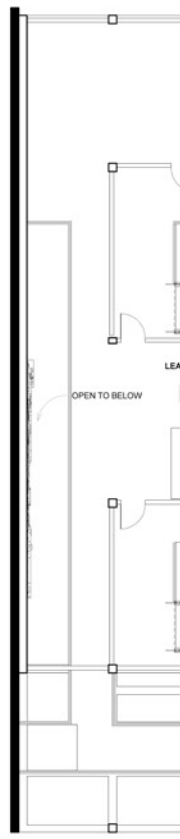




LEVEL ONE



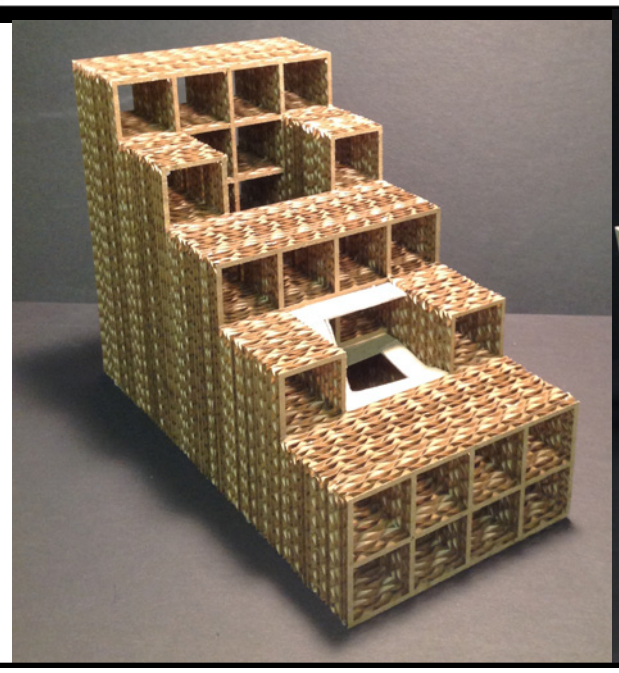
NEVELSON'S OFFICE

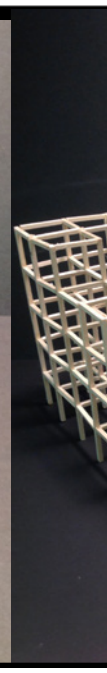


LEASAB

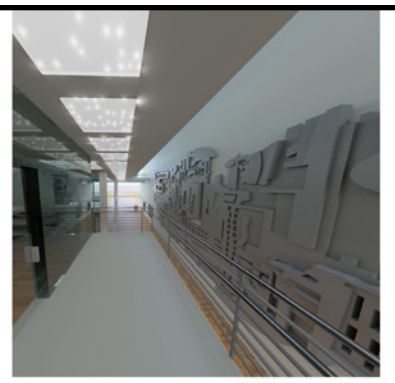
FLOOR PLANS SCALE: 1/8"=1'-0"

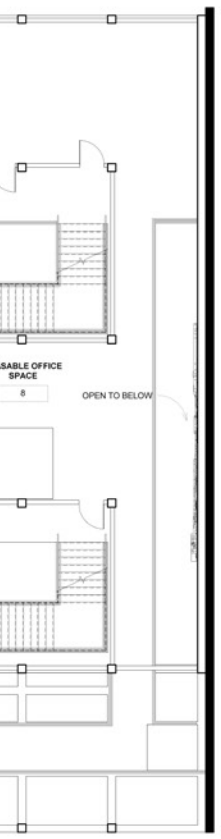
The Butte Infill project is located in Butte, Montana for Louise Nevelson. Louise was a collector of trash, who turned this into forms of art. Louise was raised in New York. The program consisted of a museum and multi family units above. I responded to this design by utilizing as much of the infill space on the main and second floor as possible. Some obstacles were lighting and arranging these types of spaces in a very narrow corridor. I created light wells on the side walls that allowed for maximum light down to the ground level. This natural light allowed for the occubiable space to be well lit even though it was nestled between two adjacent buildings. I was able to fulfill the clients needs by accomodating a space that allowed for her to display her art made of trash, leasible office space, and a residence for Louise Nevelson.

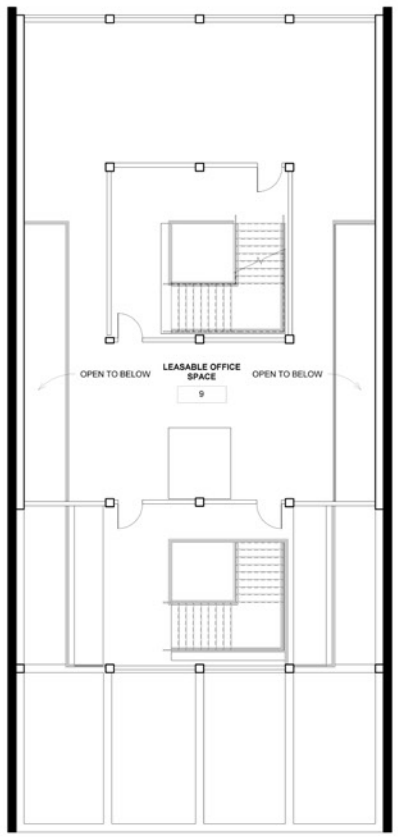


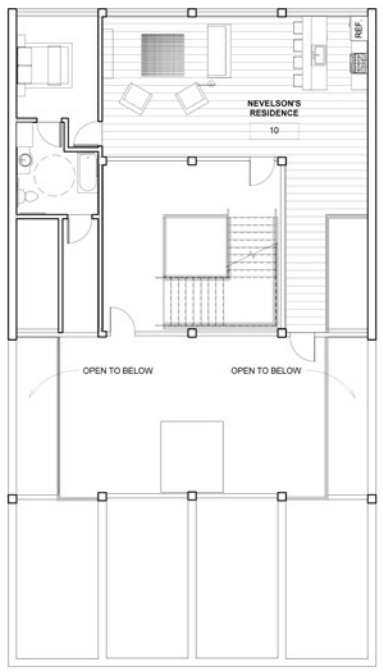


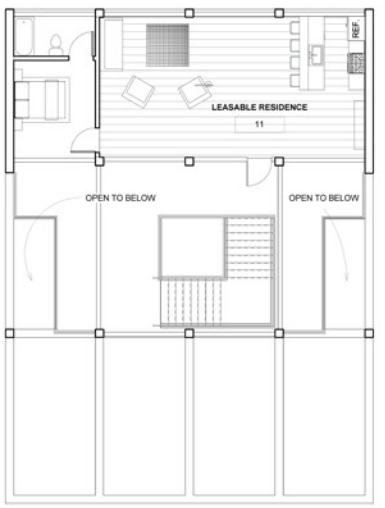
BUTTE INFILL

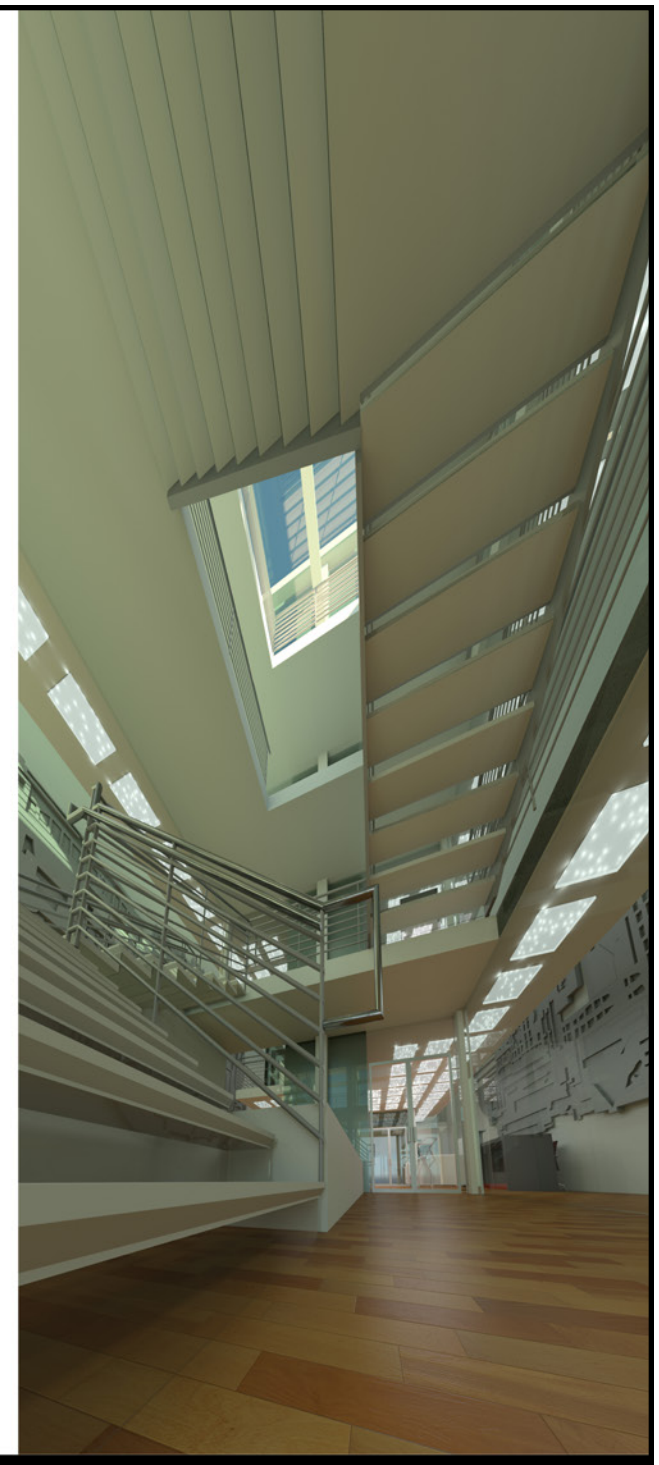










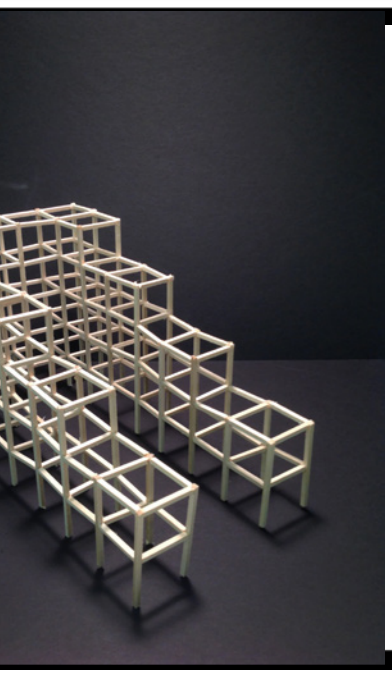


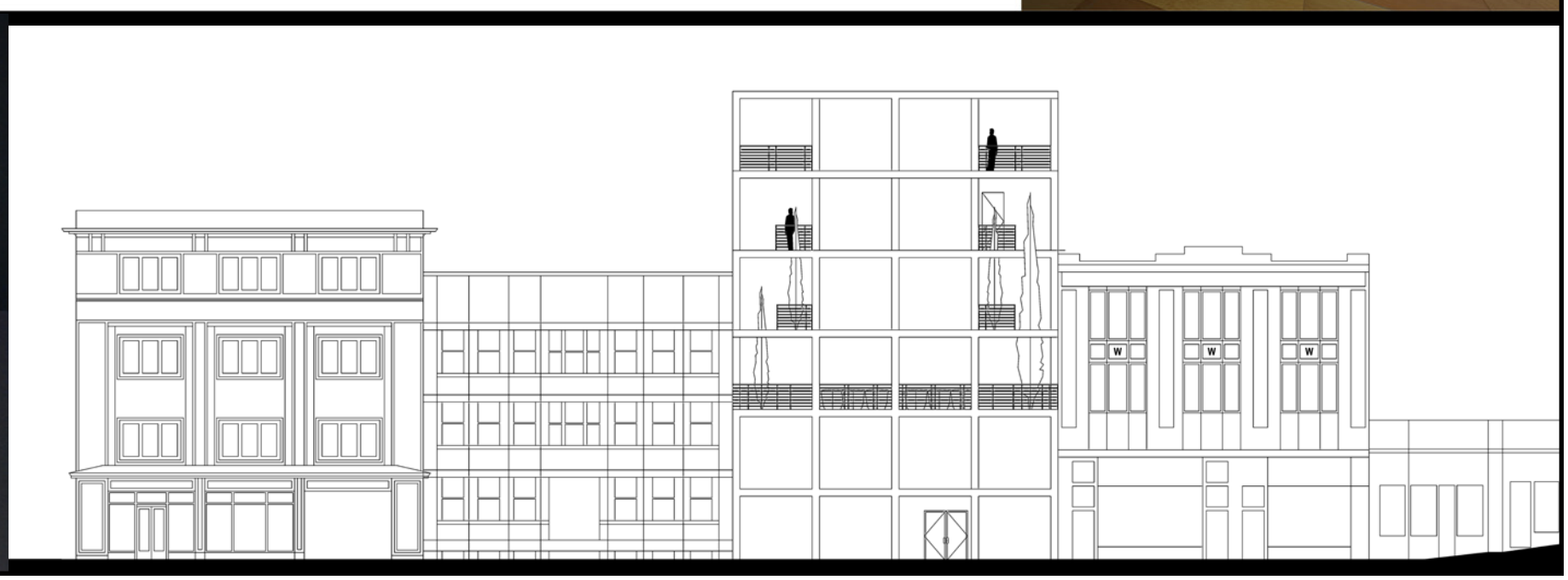
LE OFFICE

LEASABLE OFFICE

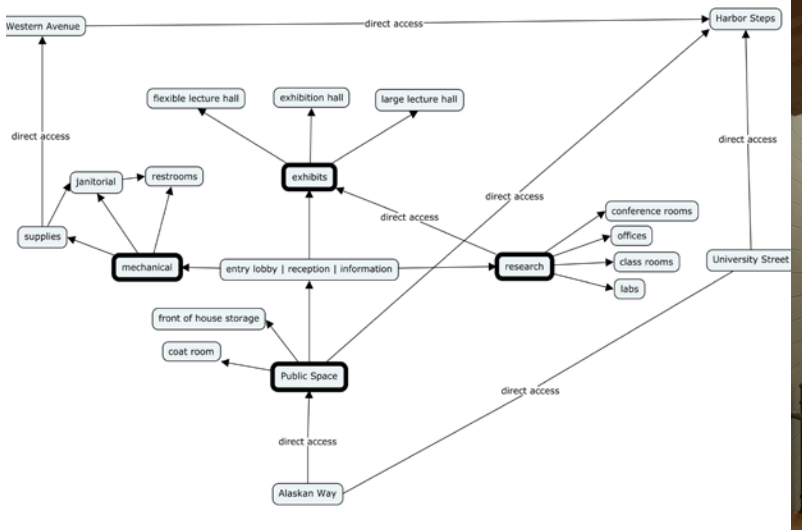
NEVELSON'S RESIDENCE

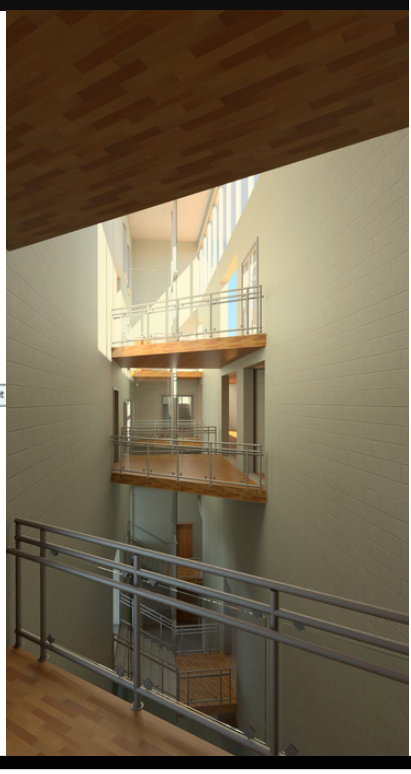
LEASABLE RESIDENCE





Throughout my analysis of the site, in the field, through diagrams, and precedent research, I feel compelled to follow an approach and view of the site as a connection to the waterfront, as well as the city, that is ultimately following the hydrologic process. Basically the site is a component of an overall system that does not exist without leveraging the existing. After looking at the flows of the hydrologic cycle it is simple to view that water precipitates, integrates, condenses and evaporates and by taking these approaches of the hydrologic cycle and overlaying these principles to the idea that the site is the integral part in the system one can see how the site can function systemically as the intermediate space between the city's downtown and the waterfront. With this being said the downtown core precipitates its occupants down through the site integrating them into and condensing them into the waterfront where they can experience the waterfront and then evaporate back to the city. This evaporation back to the city is still influenced to continue the hydrologic cycle because the experience throughout the whole system leads back to stimulating the occupants to precipitate back down through the site and into the waterfront. This stimulation by "experience" described is influenced by the visual, physical, and mental experiences. These experiences exist and are to each their own independently dependent on the passerby. This unique experience leads to a want for more and is what ultimately drives the whole system.





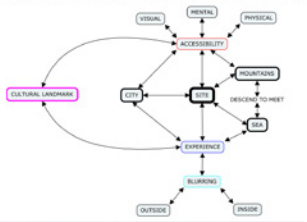
SEATTLE HYDROLOGY INSTITUTE

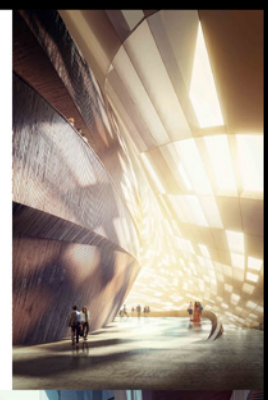
 MSU SOA Third Year Studio • Fall 2014 • Bradford Watson

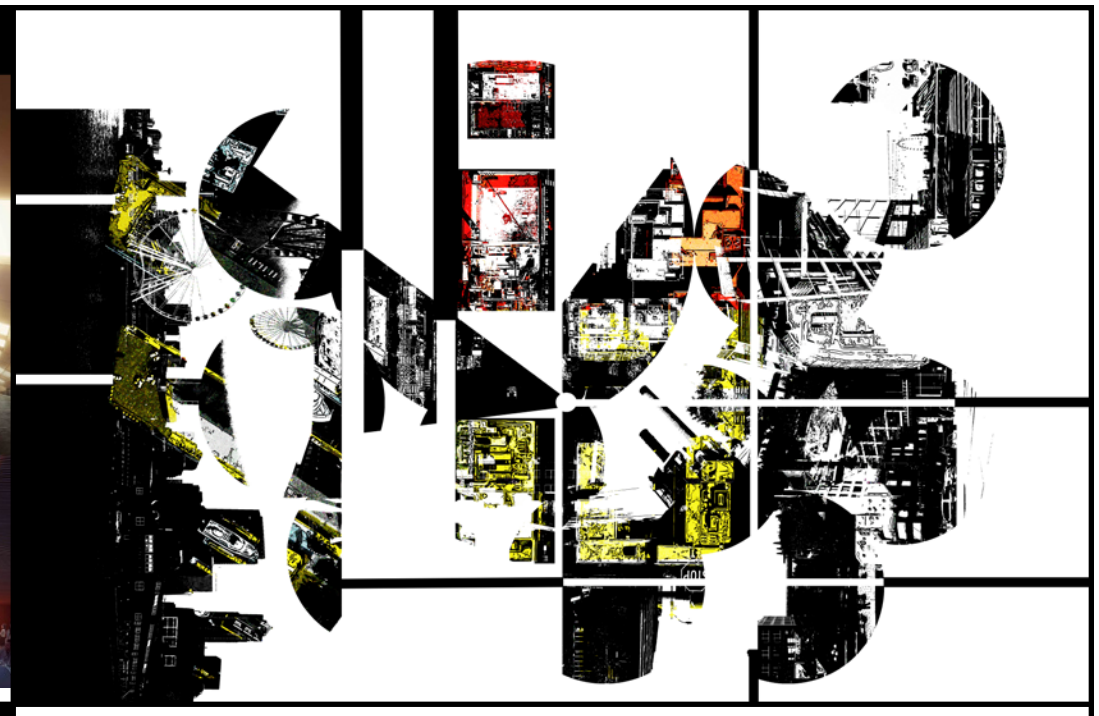
Busan Opera House

Snøhetta

Snøhetta WON THE COMPETITION FOR THE BUSAN OPERA HOUSE IN NORTH KOREA AND THERE IS NO REASON ONE CAN SEE WHY NOT. THE BUILDING CREATES A PLACE THATS NOT JUST FOR SIGHT BUT FOR ONE TO BE SEEN AND A PLACE FOR PEOPLE TO MEET. THE BUILDING CONNECTS THE WATER TO THE CITY AND THE CITY TO THE WATER. THE BOX CREATES A PLACE OF SPACE THAT ALLOWS THE BLUR BETWEEN THE EXISTING AND THE UNKNOWN. THE SPACE OF PLACE ALLOWS FOR THE BUILDING TO BE NOT JUST PHYSICALLY ACCESSIBLE, BUT ACCESSIBLE VISUALLY AND OVERALL MENTALLY. THE SPACE DOES NOT CLOSE AND IS AVAILABLE TO EVERYONE. THE CONNECTIONS OF THE BUILDING ALLOW FOR THE CONNECTION NOT ONLY TO THE CITY BUT TO THE WATER AS WELL. AN ENTRANCE ON BOTH ENDS ALLOWING EVERYONE AND NOT JUST SOME-ONE. THE PLANES OF THE BUILDING EXTEND TO NOT ONLY GREET THE CITY, BUT TO GREET THE SEA AND SKY AS WELL. THIS BUILDING RELATES TO MY DESIGN IDEA IN THE ASPECT THAT ALL SURROUNDINGS ARE TAKEN INTO CONSIDERATION AND CONNECTED TO A POINT THAT ALLOWS THE OCCUPANTS TO EXPERIENCE THE BLUR IN TO A NEW SPACE THAT IS REAL WHILE REMAINING CONNECTED TO THE EXISTING ENVIRONMENT AND ONES NOT NECESSARILY SEEN BY ALL.

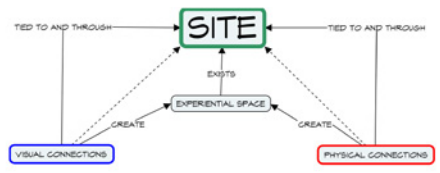


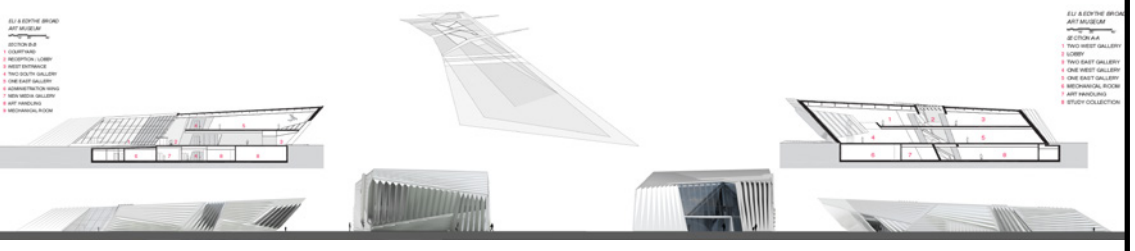




Zaha Hadid Architects

THE ELI & EDYTHE BROAD ART MUSEUM TAKES AN APPROACH AT FOCUSING ON A NETWORK OF PATHS AND VISUAL CONNECTIONS. THIS PARTICULARFOCUS RELATES TOWARDS MY DESIGN IN THE ASPECT OF CONNECTING THE DOWNTOWN WITH THE WATERFRONT AND THE WATERFRONT BACK TO THE DOWNTOWN AREA THROUGH THE UTILIZATION OF THESE PATHS AND VISUAL CONNECTIONS, BUT IN A MANNER THAT'S ABLE TO ILLUSTRATE THE PRECISE GRADIENT WITHIN THE DISTINCT OPPOSITES. THIS CAN ALSO INFLUENCE THE DESIGN THROUGH THE IDEA THAT THE POLAR OPPOSITES ATTRACT IN A MANNER OF GRADUAL CHANGE AN DNOT A PRECISE POINT. INTRINGINGLY ENOUGH THE PATHS CREATE A FOCUS ON SHORTCUTS THROUGHOUT A SPACE. THE IDEA BEHIND THIS CONCEPT TAKE THE HORIZONTAL AND VERTICAL CONNECTIONS AND INTERTWINE THEM INTO A SPACE THAT IS CREATE IN THE INTEMEDIATE SPACE. THIS CREATES DIFFERENT PERSPECTIVES AND RELATIONSHIPS THROUGHOUT. THESE VISUAL CONNECTIONS AND PHYSICAL CONNECTIONS EMBED THE DESIGN INTO THE SITE AND CREATE IT'S PLACE ON THE SITE.



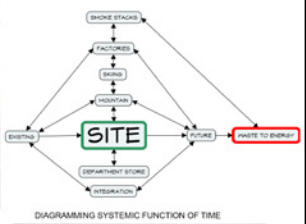


BIG - BJARKE INGELS GROUP

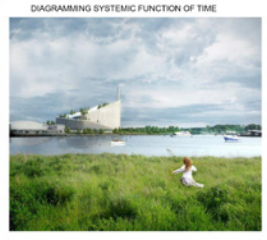
AMAGER BAKKE BY BJARKE INGELS GROUP SETS THE BAR HIGH FOR BUILDING THAT EXHIBITS SYSTEMIC ENGAGEMENT THROUGH IT'S SIMPLE FORM, UNIQUE CONNECTION WITH THE URBAN FABRIC, AND PUBLIC ENGAGEMENT THROUGH THE USE OF ITS ROOF TOP SKI-SLOPE. THE BUILDING HAS A DIRECT RELATIONSHIP TO MY BIG IDEA THROUGH MY STUDIO APPROACH IN ITS DESIGN INTEGRATION AND CONNECTION TO BOTH THE URBAN FABRIC AND PEOPLE. THIS PRECEDENT HELPS GUIDE ME IN A WAY OF THINKING ABOUT THE DESIGN INTEGRATUION NOT THROUGH JUST THE SITE ITSELF, BUT THROUGH THE DESIGN OF THE BUILDING AND HOW THAT BUILDING CAN INTEGRATE WITH THE NEARBY EXISTING BUILDINGS FROM PAST TO PRESENT TO FUTURE CONDITIONS. IT'S IMPORTANT TO NOTE THAT BIG WAS GIVEN A PROBLEM AND SOLVED IT SIMPLISTICALLY, YET STYLISTICALLY THROUGH NOT ONLY ACHEIVING A CONNECTION TO THE EXISTING, BUT THROUGH CREATING AN ICON THAT CREATES THE FUTURE. CONNECTING THE SMOKE STACK TO THE EXISTING SMOKE STACKS AND THEN CREATING AN ACTION OF THE SMOKE STACK TO BLOW A SMOKE RING AMBELISHES THIS CONNECTION TO THE URBAN FABRIC THROUGH IT'S DESIGN BY ALLOWING A NEW MEANS OF ENERGY USE. I WAS ABLE TO LEARN THROUGH THIS STUDY THAT NOT ONLY THE CONNECTIONS THROUGH THE SITE MATTER, BUT THE ACTIVE CONDITIONS OF WHAT EXIST ALSO NEED TO BE THOUGHT ABOUT IN A MANNER THAT CAN CREATE ACKNOWLEDGEMENT OF PLACE FOR THE FUTURE CONDITIONS.

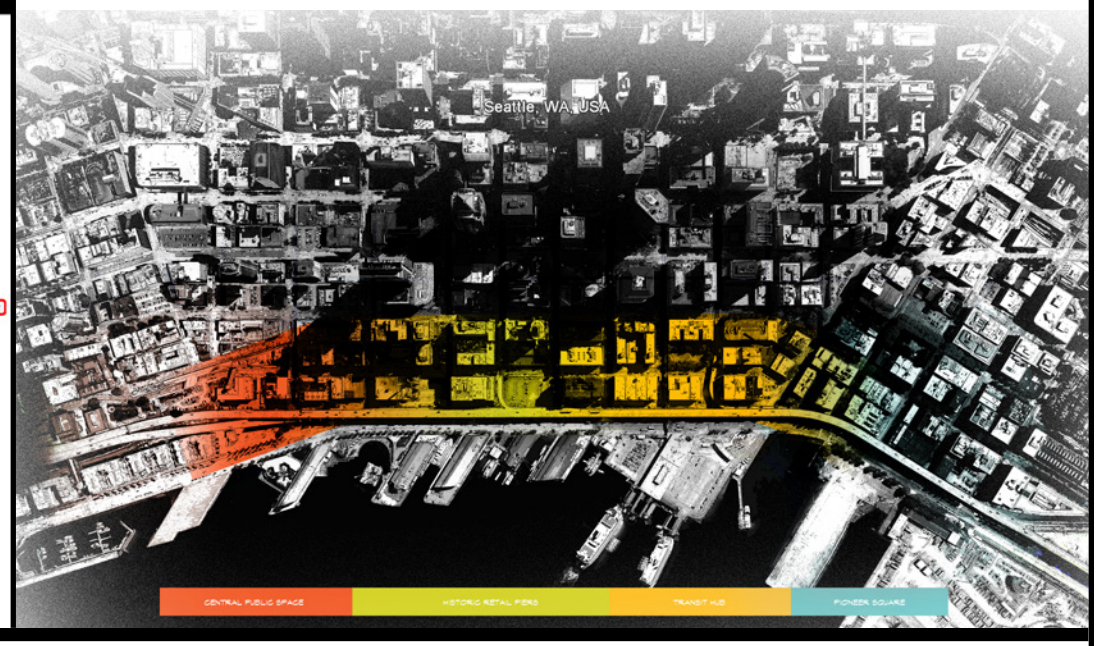
AN URBAN DESTINATION IN ITSELF

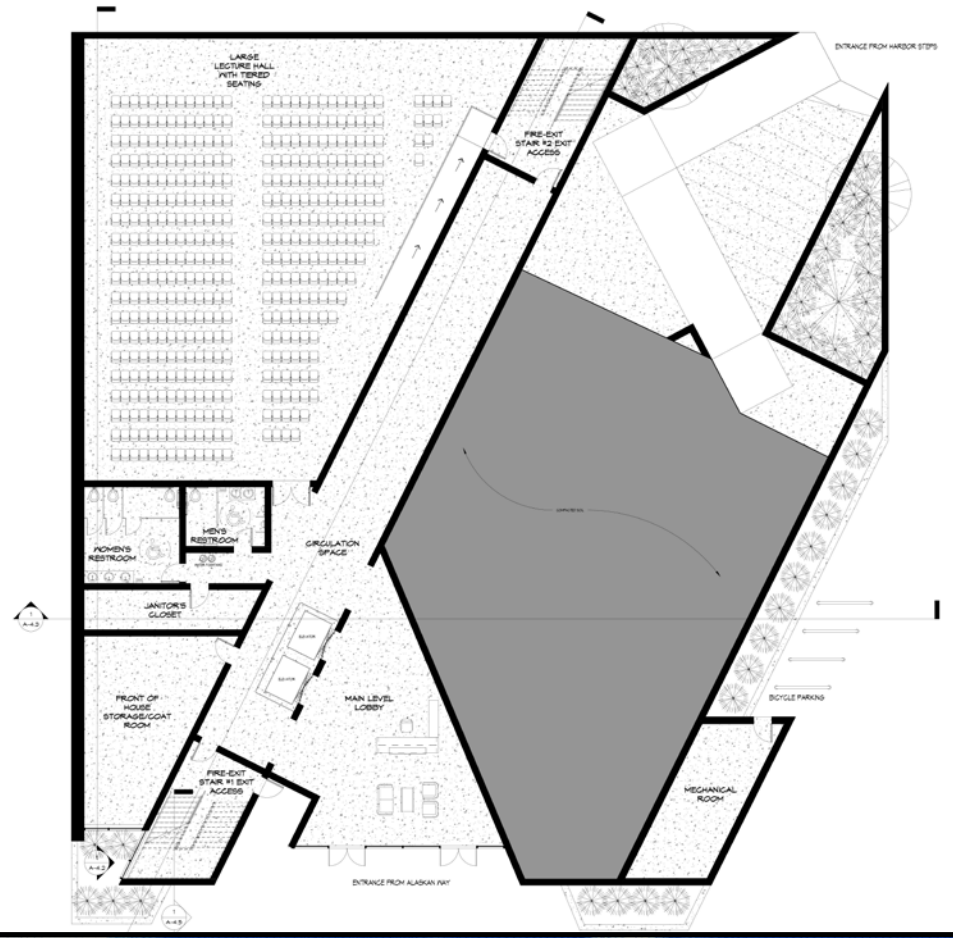
CREATING A DESTINATION FOR THE PEOPLE



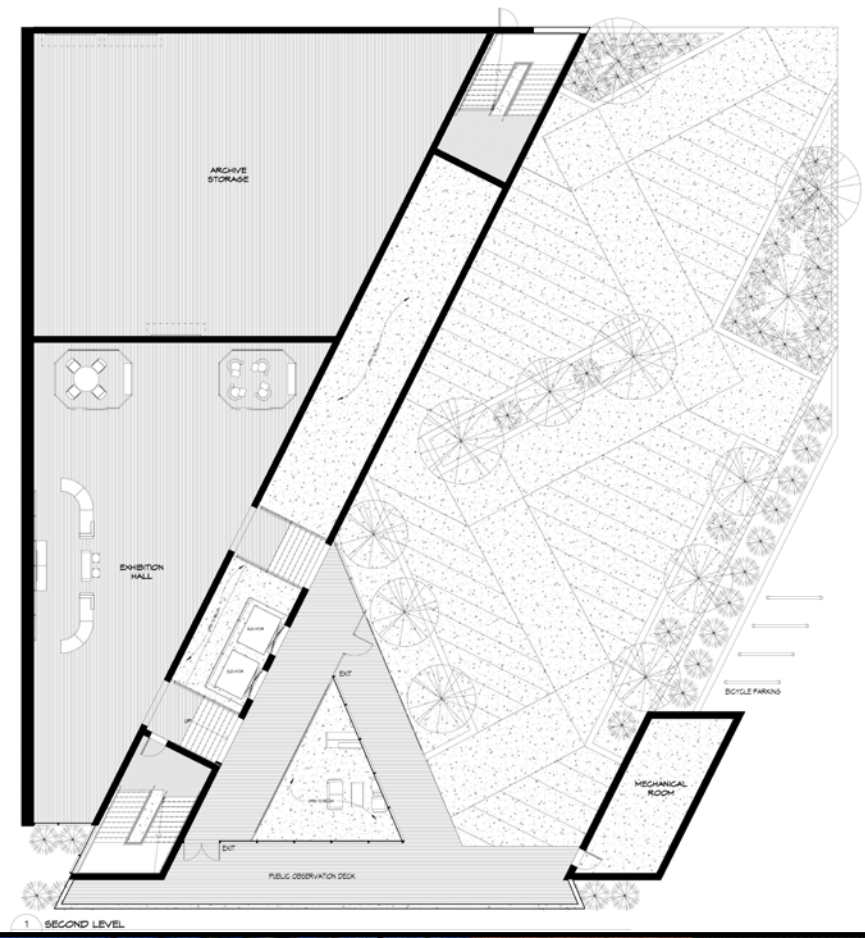
DIAGRAMMING SYSTEMIC FUNCTION OF TIME



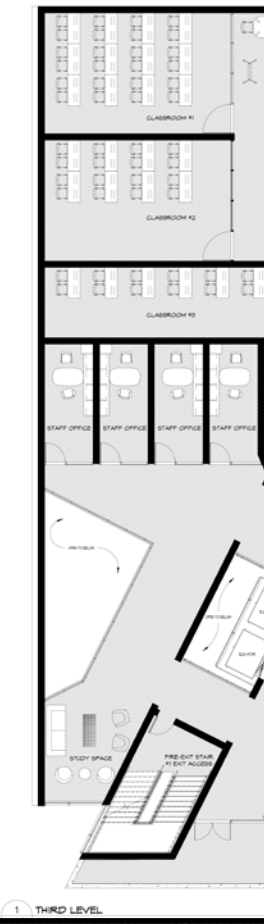




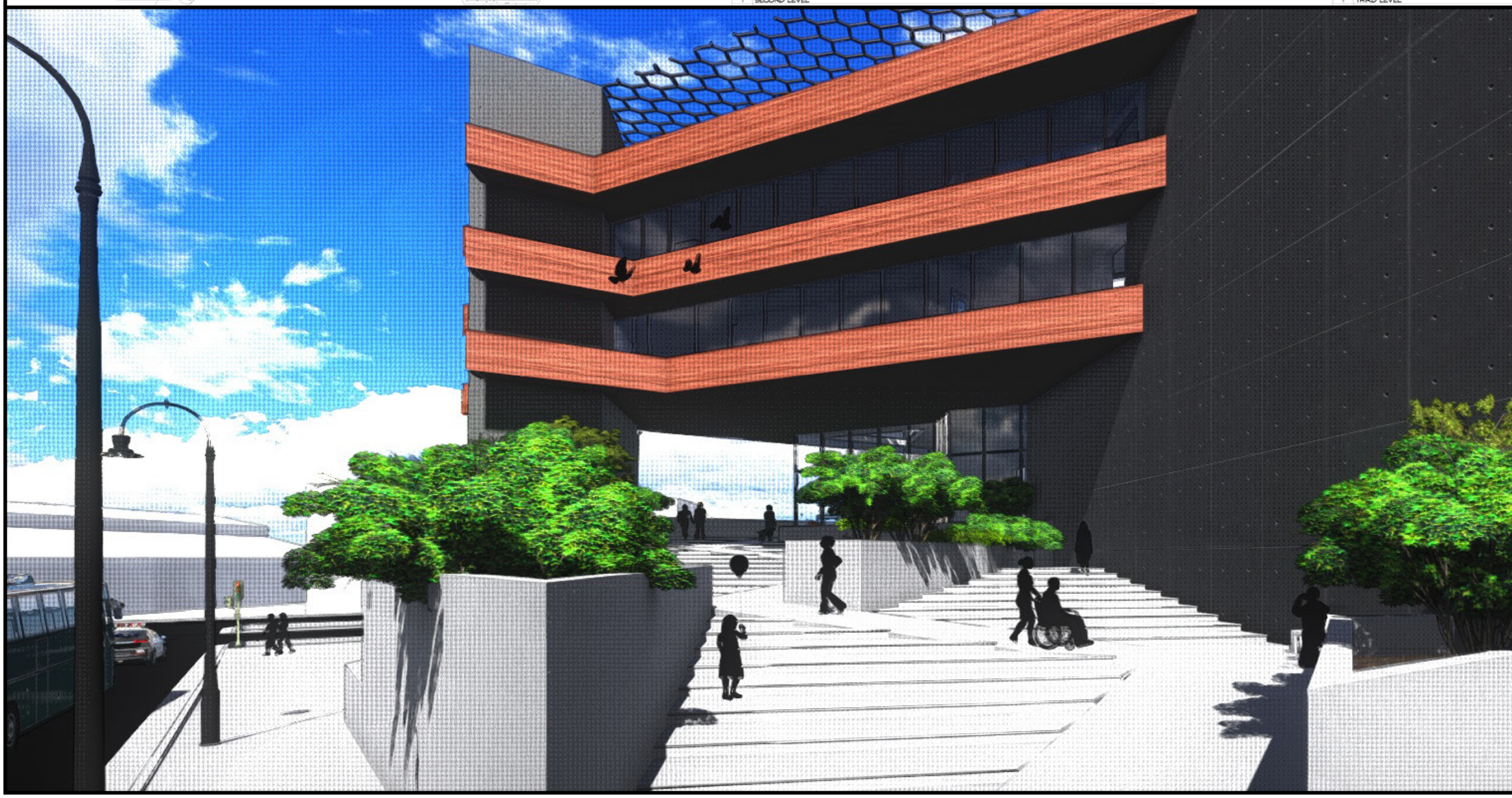
1 FIRST LEVEL



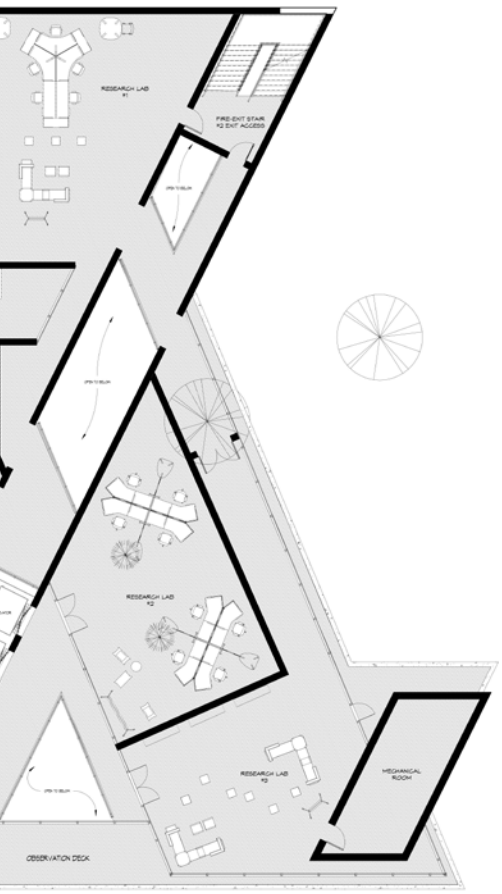
1 SECOND LEVEL



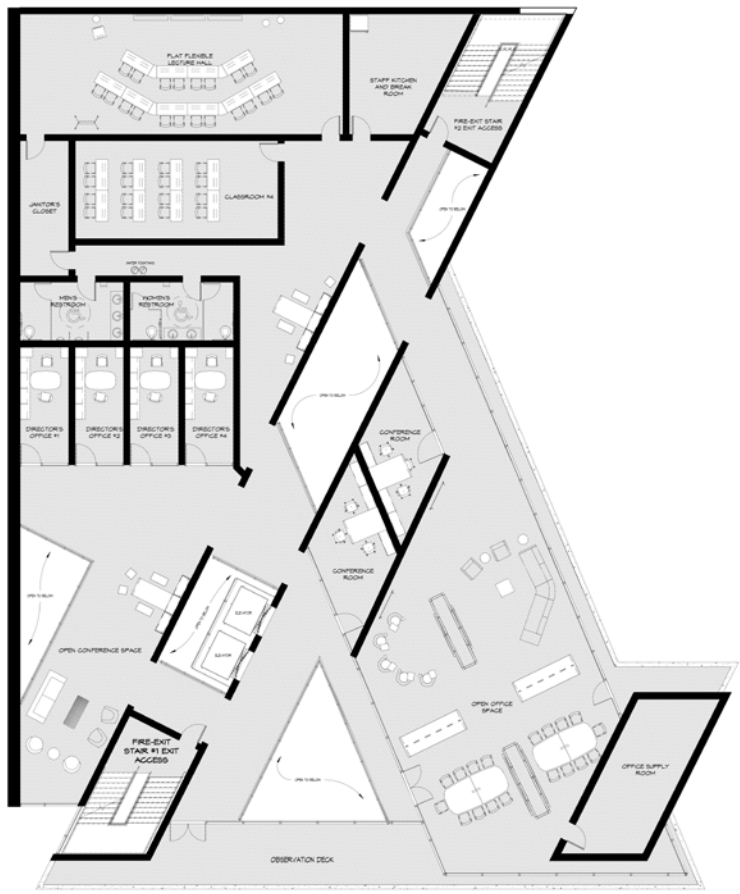
1 THIRD LEVEL

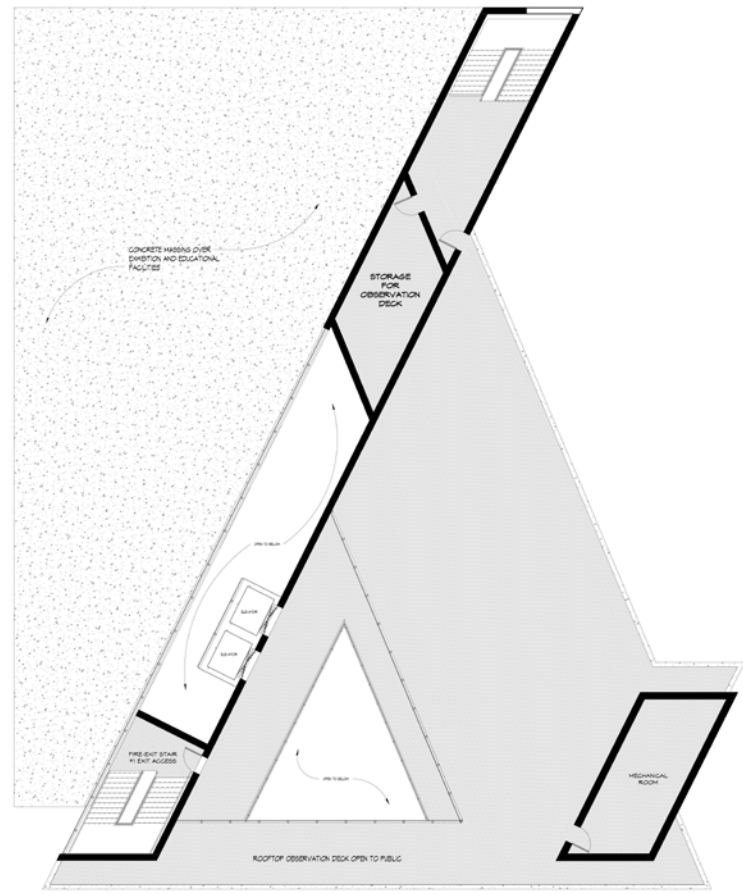


14. **MSU SOA Third Year Studio • Fall 2014 • Bradford Watson**

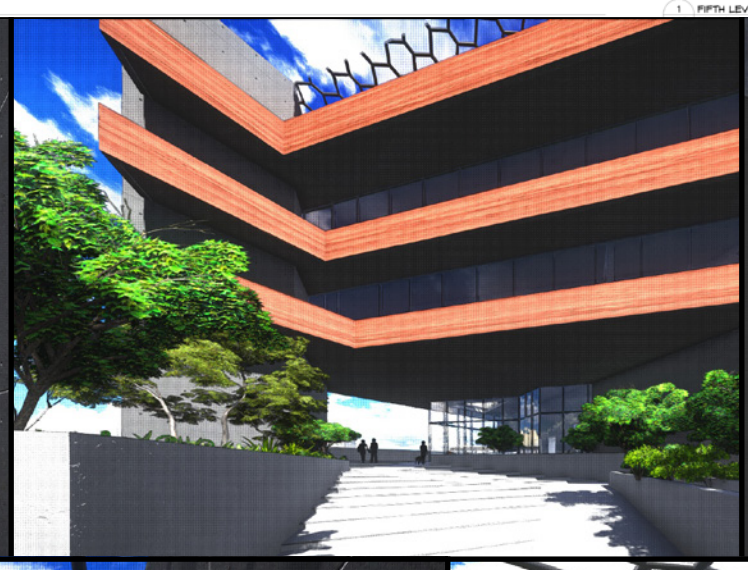


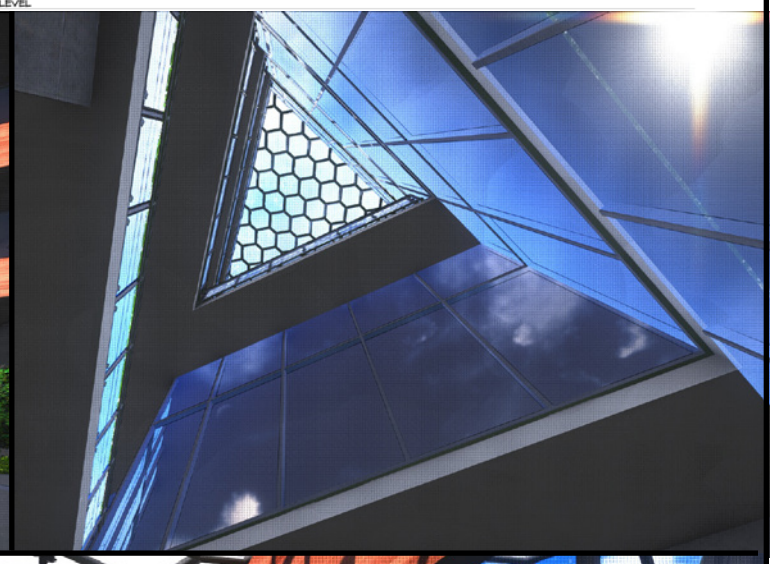
1 FOURTH LEVEL

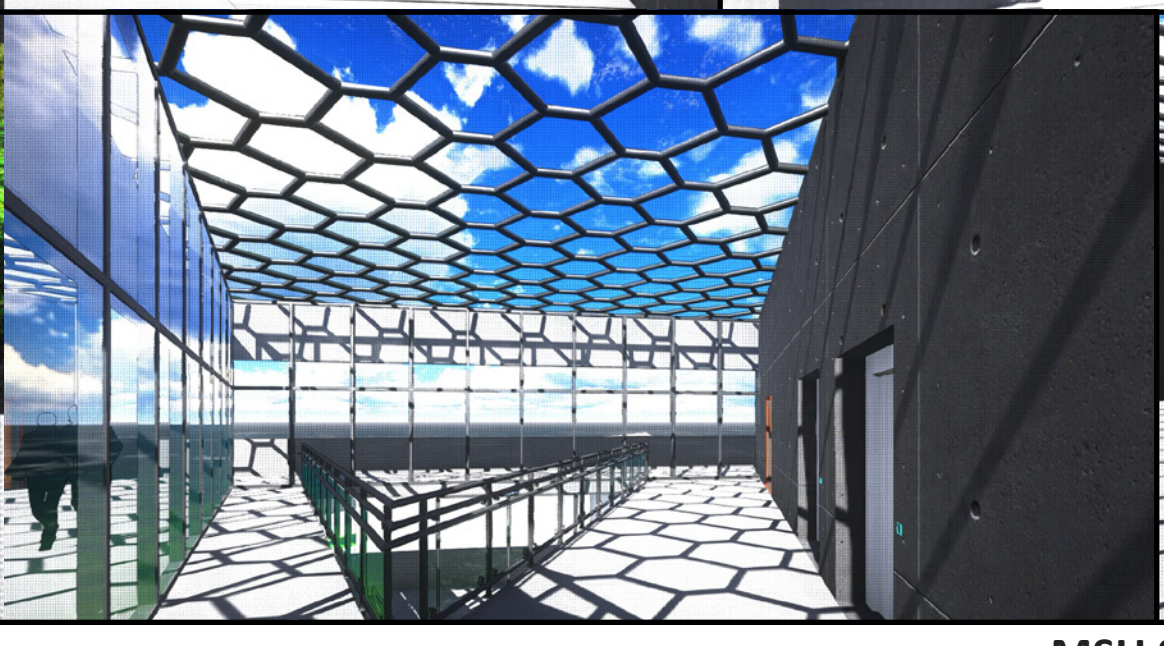


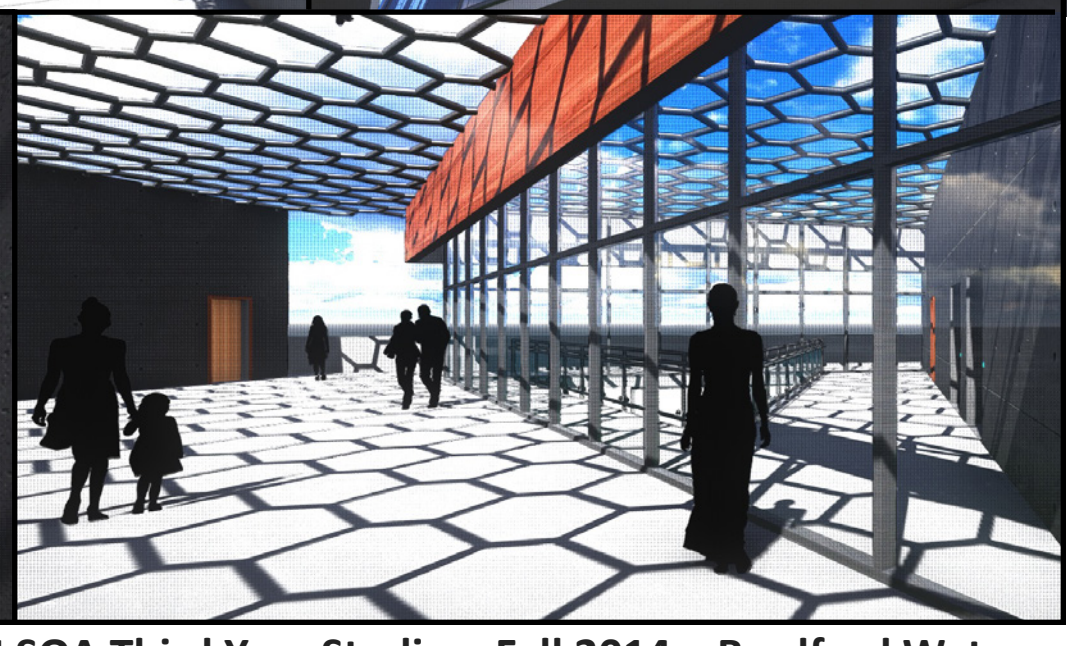


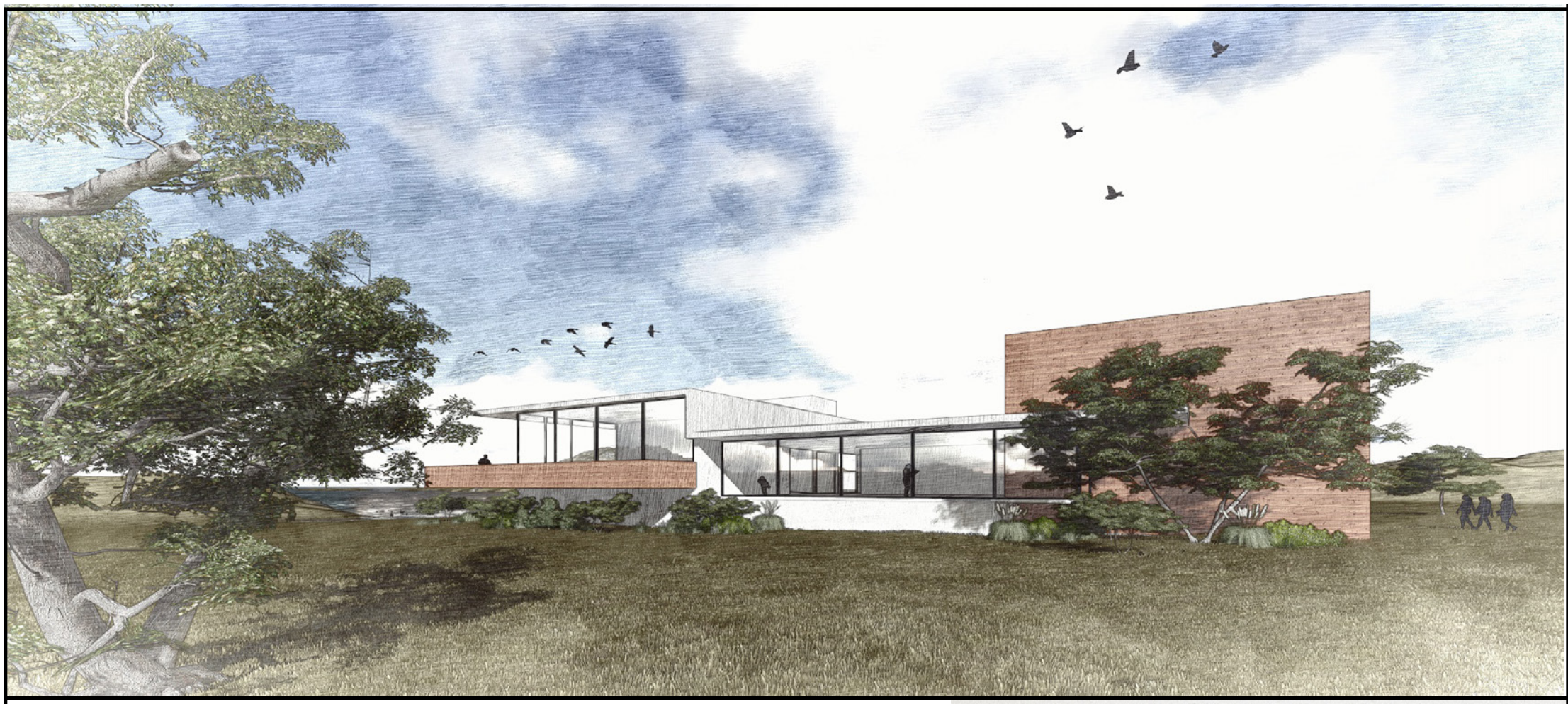
1 FIFTH LEVEL



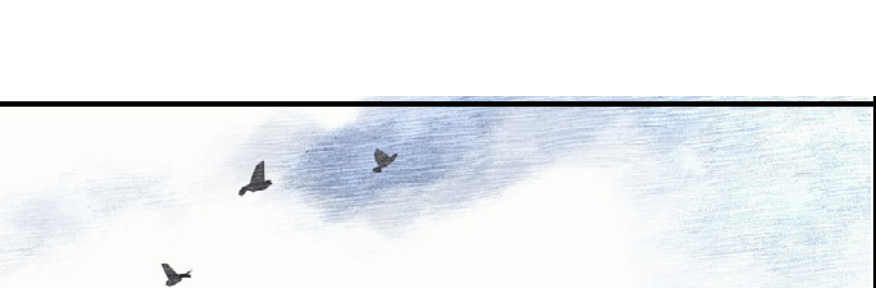








The Bozeman Bird Watching Facility is located in Bozeman, Montana near the Cherry River Fishing Access site. The building plays a crucial role in preserving the habitat for birds and maintaing a peaceful environment for individuals to learn about birds and to bird watch. The main goal and aspiration for this project was influenced by the motion of a birds wing which leads to a moire pattern. I referenced this moire pattern to a pattern that existed on the site based on site migration. This site influenced the design and placement of the building. The materials intended for construction are wood siding and concrete. The building is intended to be with the nature. In order for it to be in nature I intended it to fully integrate with the site. Allowing the building flow of people to exit and continue through the existing site locations.



BOZEMAN BIRD WATCHING FACILITY

CHERRY CREEK BIRD OBSERVATORY

LOCATION:

BOZEMAN, MONTANA
45.6710° N, 111.0412° W

DESCRIPTION:

CHERRY RIVER FISHING ACCESS:

THIS STRETCH OF LAND IS LOCATED JUST AFTER SEVENTH, AND BETWEEN NINETEENTH, ON FRONTAGE ROAD. GREAT FOR A QUICK GETAWAY.

BIRDS:

BELTED KINGFISHER
GRAY CATBIRD
SONG SPARROW

AND A FE OTHER BIRDS COMMON TO RIPARIAN AREAS CAN BE FOUND HERE.

TWO PONDS SURROUNDED BY CATTAIL MARSHES.

DUCKS, MARSH WREN, AND YELLOW-HEADED BLACKBIRD CAN ALSO BE SPOTTED HERE.

DUE TO THE NATURE OF THE MARSHES, THROUGHOUT THE FREQUENT CHANGING OF SEASONS AND ACCESSIBILITY, A BOARDWALK SYSTEM WILL BE PROPOSED AMONGST OTHER AMMENITIES FOR ADA ACCESSIBILITY.

BUILDING TYPE:

TIMBER FRAMED CONSTRUCTION

TYPE V - B UN-SPRINKLERED NO GREATER THAN 60'

OCCUPANCY OVER 50 PEOPLE

ASSEMBLY SPACE

TWO RESTROOMS

RAMPS FOR ADA ACCESSIBILITY TIED INTO BOARDWALK SYSTEM

GEOTHERMAL SYSTEM WITH RADIANT HEAT

PASSIVELY HEATED

COOLED WITH STACKED VENTILATION

SQUARE FOOTAGE: T.B.D. NO GREATER THAN 3,000 SQ. FT

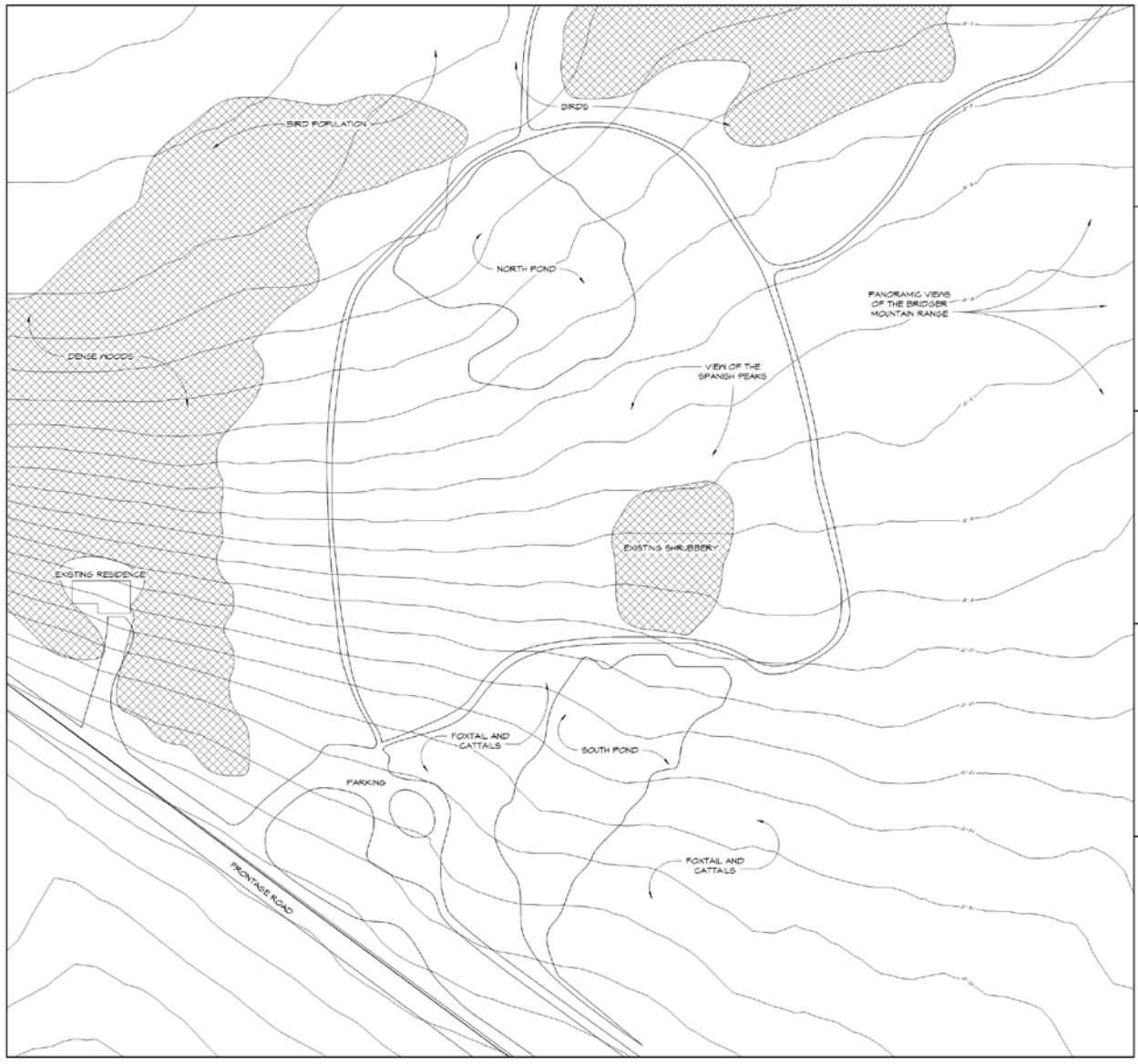
VICINITY MAP

BOZEMAN, MONTANA ADOPTED CITY CODES

2012 INTERNATIONAL BUILDING CODE
2012 INTERNATIONAL RESIDENTIAL BUILDING CODE
2012 INTERNATIONAL EXISTING BUILDING CODE
2012 INTERNATIONAL MECHANICAL CODE
2012 INTERNATIONAL FUEL GAS CODE
2012 ENERGY CONSERVATION CODE
2012 UNIFORM PLUMBING CODE
2014 NATIONAL ELECTRIC CODE

0' 32' 64' 128' 512'

1 SITE NEW CONSTRUCTION
SP-1.0 1/64" = 1'-0"



APPROACH

PLENTIFUL

EVOLUTION

SOLITUDE

© 2014 BRIAN D. NICKEL
PROFESSOR JACK SMITH
SPRING 2015 ARCHITECTURE 355

1/3/2016 6:22:17 PM

BOZEMAN COMMUNITY CAFE

LOCATION:
302 N. 7TH AVENUE
BOZEMAN, MONTANA
45°40'55.79"N, 111° 2'45.58"W

DESCRIPTION:

THE BOZEMAN CAFE IS SEEKING A NEW KITCHEN AND ROOM TO SERVE THE COMMUNITY. THE SITE IS LOCATED NEAR THE MUCH DESIRED DOWNTOWN CORE OF BOZEMAN, MONTANA.

ADJACENCIES

TACO JOHN'S

BAR 3

ROYAL 7 MOTEL

HAIR TO PLEASE

VIEWS TO THE SOUTH AND WEST

POTENTIAL FOR VIEWS TO THE BRIDGERS FROM SECOND LEVEL OVERLOOKING THE EXISTING HOTEL.

BUILDING TYPE:

STEEL FRAMED CONSTRUCTION

TYPE 1 CONSTRUCTION UN-SPRINKLERED NO GREATER THAN 55'

OCCUPANCY OVER 50 PEOPLE

RESTAURANT

TWO RESTROOMS

RAMPS FOR ADA ACCESSIBILITY

GEOTHERMAL SYSTEM WITH RADIANT HEAT

PASSIVELY HEATED

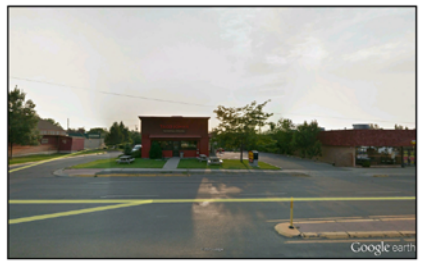
COOLED WITH STACKED VENTILATION

SQUARE FOOTAGE: T.B.D. NO GREATER THAN 9,000 SQ. FT

VIEW TO THE NORTH

VIEW TO THE EAST

VIEW TO THE SOUTH



VIEW TO THE WEST

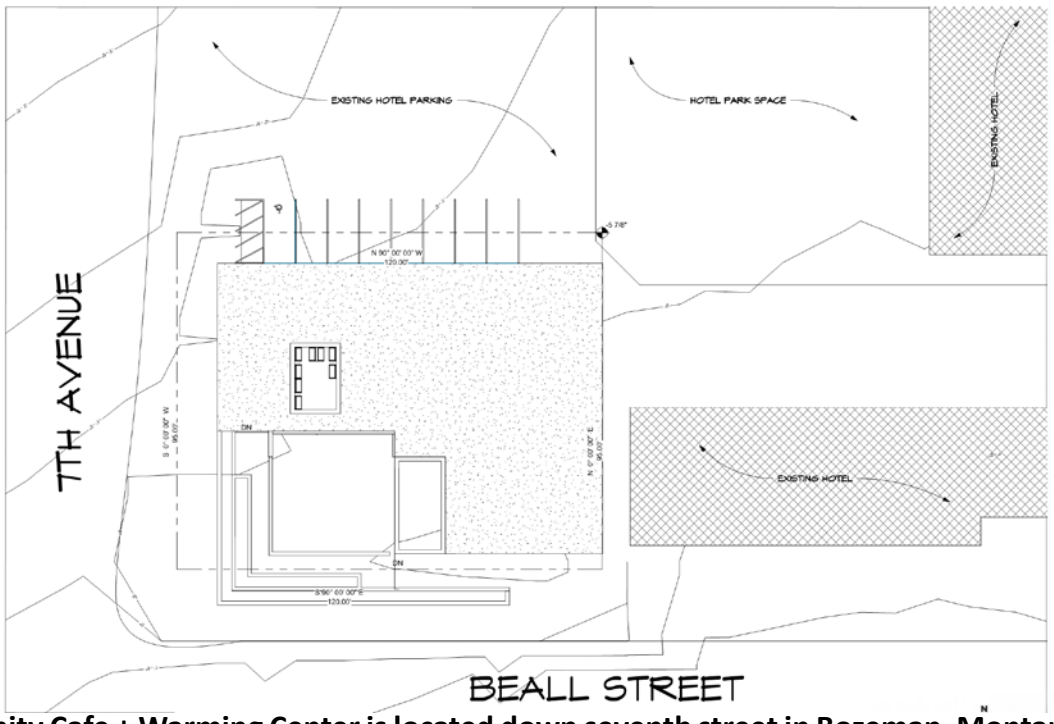
VICINITY MAP

B-3 (Central Business District)

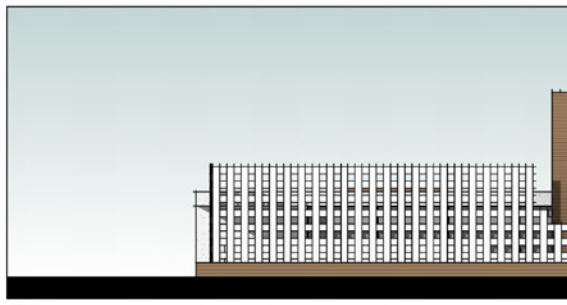
Ambulance service; apartments1; arts and entertainment centers; automobile parking lot or garage; banks and other financial institutions; business, technical or vocation schools1; community centers; convenience use restaurant; daycare centers; health and exercise establishments; hotel or motel; laboratories1; medial and dental clinics1; meeting hall; offices1, parking facilities1; personal and convenience uses; pet grooming; private club, fraternity, sorority or lodge; public buildings; restaurants; retail uses (excluding adult businesses1); upholstery shops1; wholesale establishments (with samples, no stock on premises)	Automobile fuel sales or repair; automobile washing; bus terminals; convenience uses; hospital; laundry and dry-cleaning; lodging houses1; mortuary; museum; offices (on the ground floor in core area); printing offices and publishing establishments; sales of alcohol for on-premise consumption; sign paint shop; PUDs	Refuse and recycling containers	Entire lot, exclusive of required yards and parking, may be occupied by the principal and accessory buildings	No minimum yards, except a 7-foot front yard setback on Babcock and Mendenhall Streets Where at least 50 percent of a block (from cross-street to cross-street) in the B-3 district is used for residential purposes, a minimum 15-foot front or corner side yard shall be required from the street(s) on which the residential use fronts	55 feet in the core area; 70 feet outside of the core area

BOZEMAN, MONTANA ADOPTED CITY CODES

2012 NTERNATIONAL BUILDING CODE
2012 NTERNATIONAL RESIDENTIAL BUILDING CODE
2012 NTERNATIONAL EXISTING BUILDING CODE
2012 NTERNATIONAL MECHANICAL CODE
2012 NTERNATIONAL FUEL GAS CODE
2012 ENERGY CONSERVATION CODE
2012 UNIFORM PLUMBING CODE
2014 NATIONAL ELECTRIC CODE



1 WEST ELEVATION 7TH AVENUE ACCESS
SP-1.1 1/8" = 1'-0"



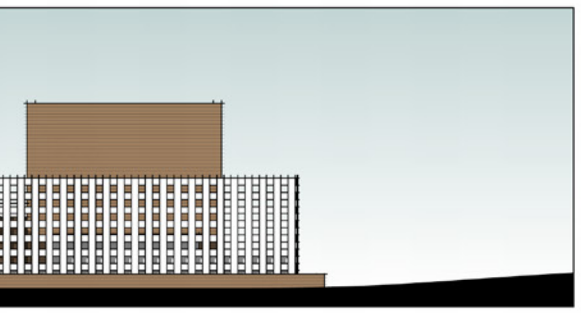
2 SOUTH ELEVATION BEALL STREET ACCESS
SP-1.1 1/8" = 1'-0"

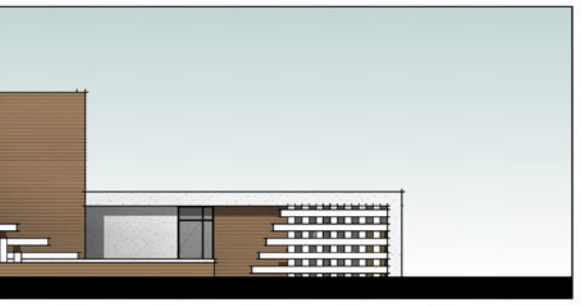
The Community Cafe + Warming Center is located down seventh street in Bozeman, Montana. This project was focused on providing a solution to the existing community cafe that could enhance the building by providing spaces that were more usable by staff and comfortable to the customers of the cafe. I focused on privacy issues and lighting for enhancing these spaces, and by providing an outdoor warming center that could be operable during the hours the cafe was cold. This allowed me to enhance the cafe experience by providing a community space that was operable past hours and for the homeless.

brian d. nickel

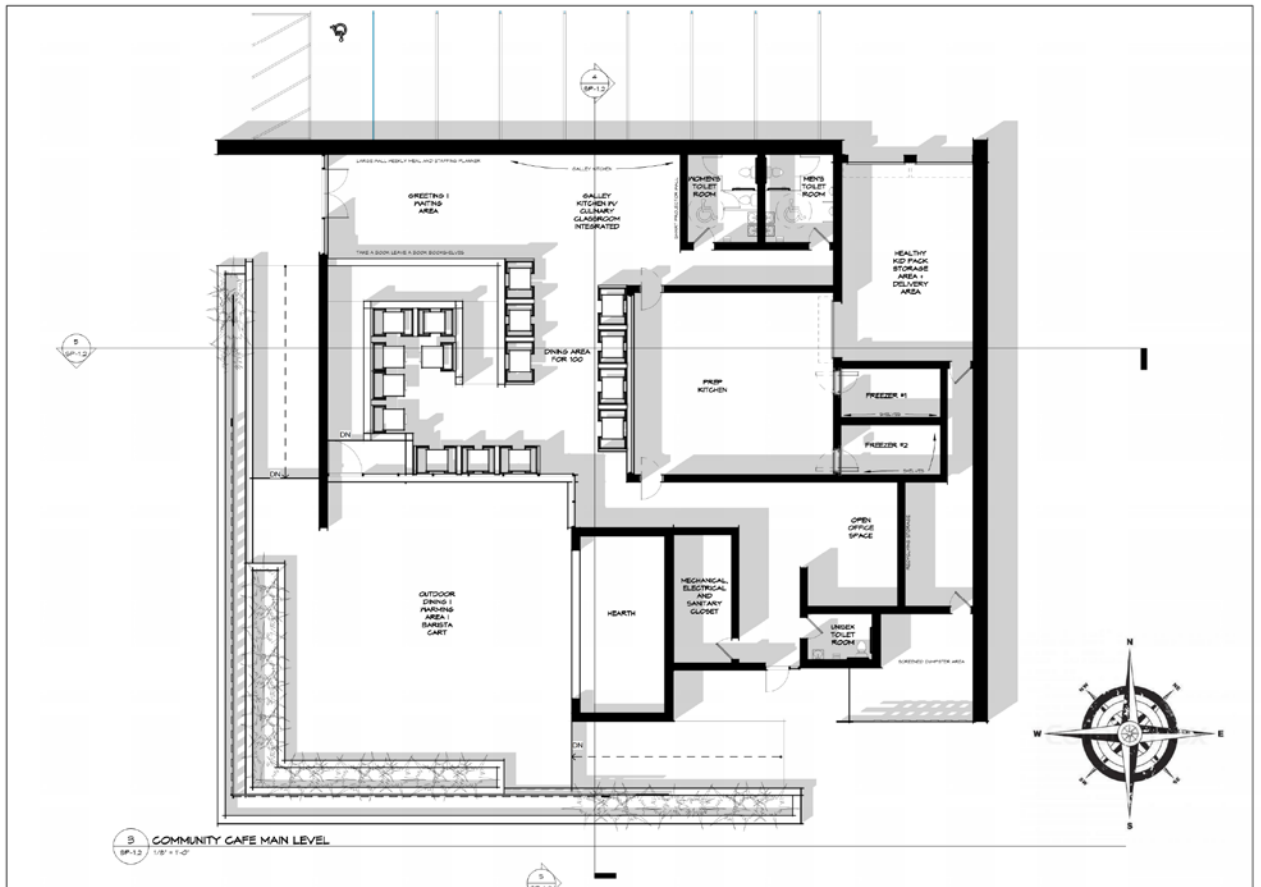
the new commu

THE COMMUNITY CAFE + WARMING CENTER

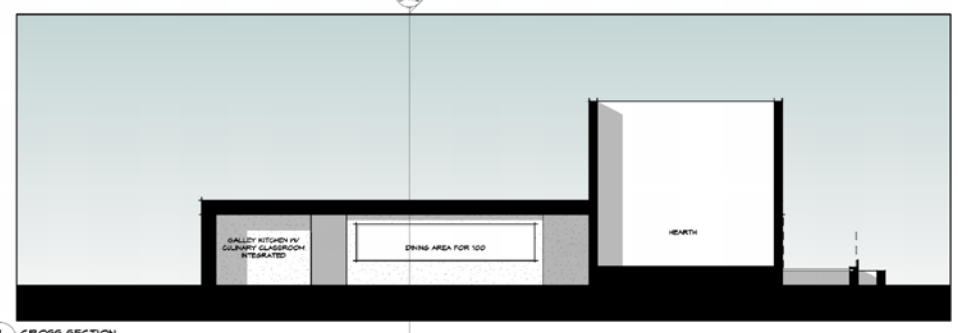




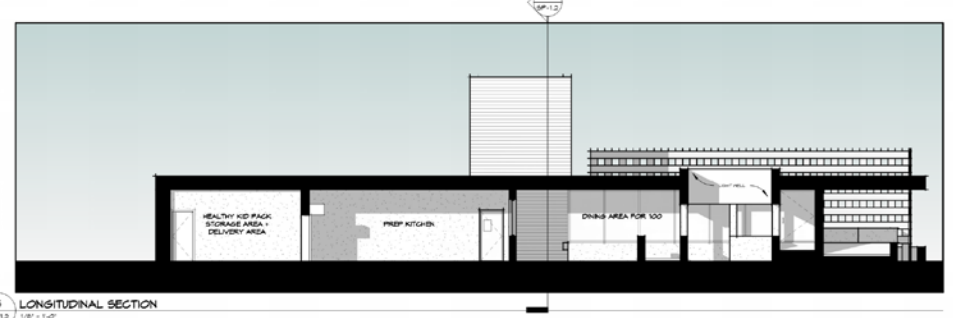
MONTANA STATE UNIVERSITY



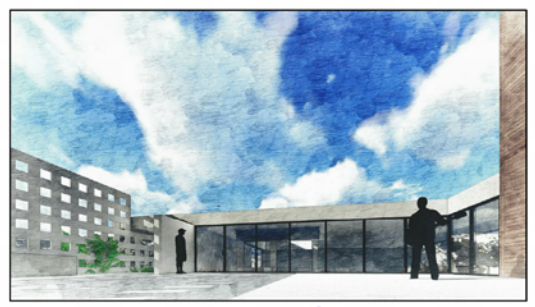
3 SP-12 COMMUNITY CAFE MAIN LEVEL 1/8" = 1'-0"



4 SP-12 CROSS SECTION 1/8" = 1'-0"



5 SP-12 LONGITUDINAL SECTION 1/8" = 1'-0"



brian d. nickel

the new community café

MONTANA STATE UNIVERSITY

EVEL KNIEVEL'S BOZEMAN MUSEUM AND PERFORMANCE CENTER

LOCATION:
24, 26, 28 MAIN STREET
BOZEMAN, MONTANA 59715
LATITUDE: 45°40'45.14"N LONGITUDE: 111° 2'17.09"W

DESCRIPTION:

EVEL KNIEVEL'S EXTENSION MUSEUM OF BUTTE, MONTANA

ADJACENCIES

THE ELLEN THEATRE

REVOLVER

COUNTRY BOOKSHELF

TONSORIAL PARLOR

ANTIQUE SHOP

MULTI-FAMILY HOUSING ABOVE SHOPS

VIEWS TO THE EAST AND WEST AND FROM THE ROOF.

POTENTIAL FOR VIEWS TO THE BRIDGERS FROM SECOND LEVEL OVERLOOKING DOWNTOWN.

BUILDING TYPE:

PERFORMANCE ARCHITECTURE

STEEL SUPPORT STRUCTURE

WOOD SHELL STRUCTURE

RAMPS FOR ADA ACCESSIBILITY FROM ELEVATOR - ACCESS POINTS.

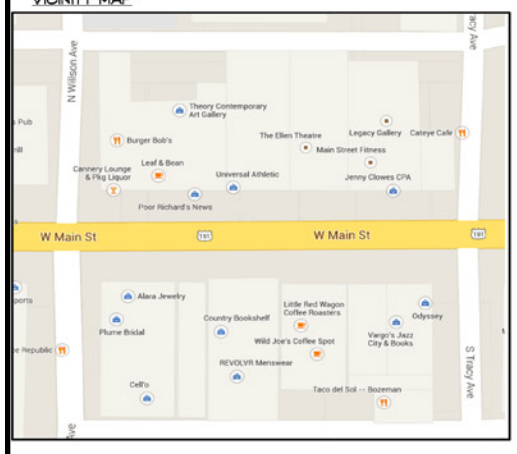
GEOTHERMAL SYSTEM WITH RADIANT HEAT

PASSIVELY HEATED

COOLED WITH STACKED VENTILATION

SQUARE FOOTAGE: N.A.

VICINITY MAP



EAST ELEVATION

WEST ELEVATION

W

FACADE ELEVATION

BOZEMAN, MONTANA ADOPTED CITY CODES

2012 INTERNATIONAL BUILDING CODE
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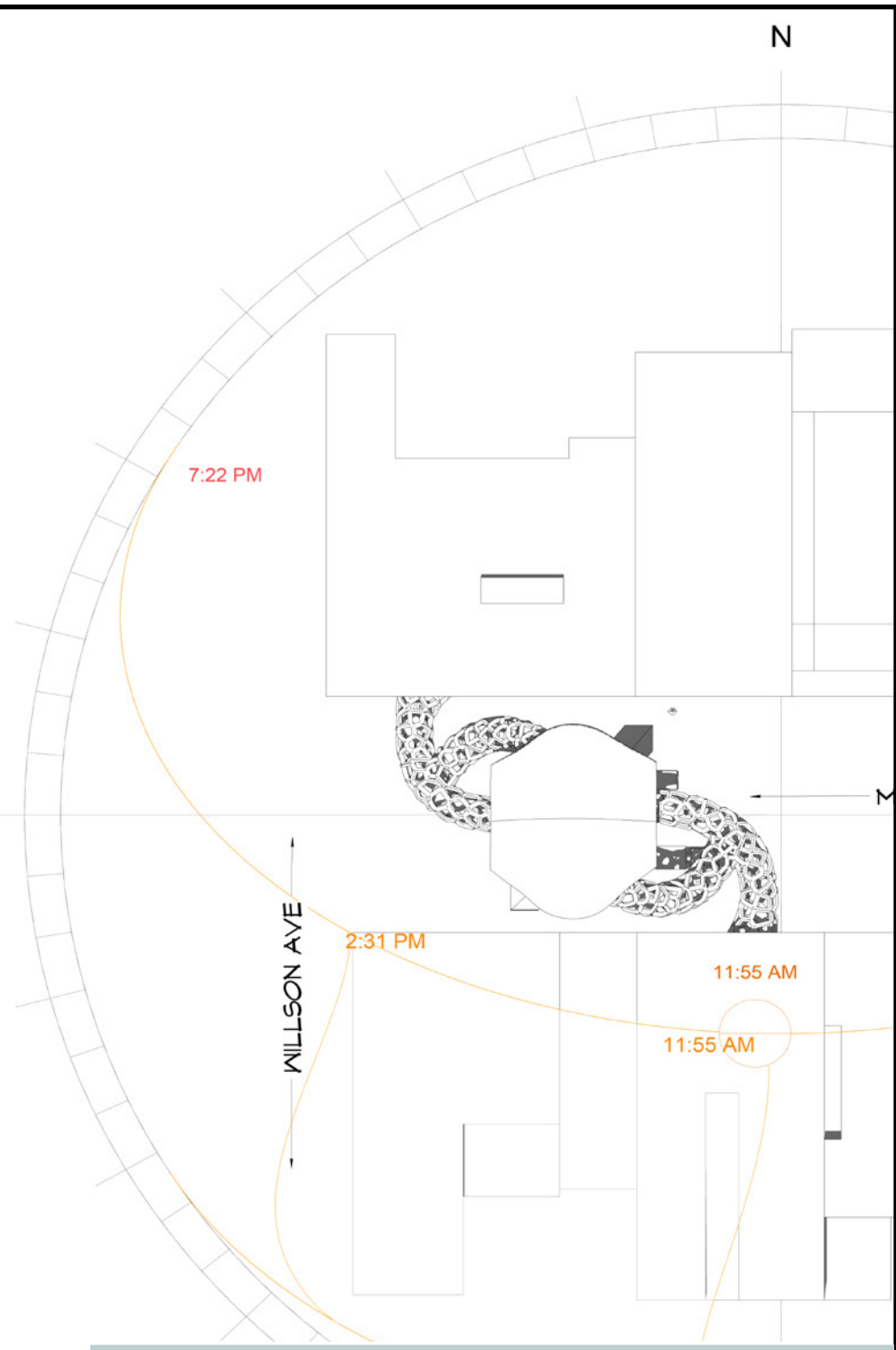
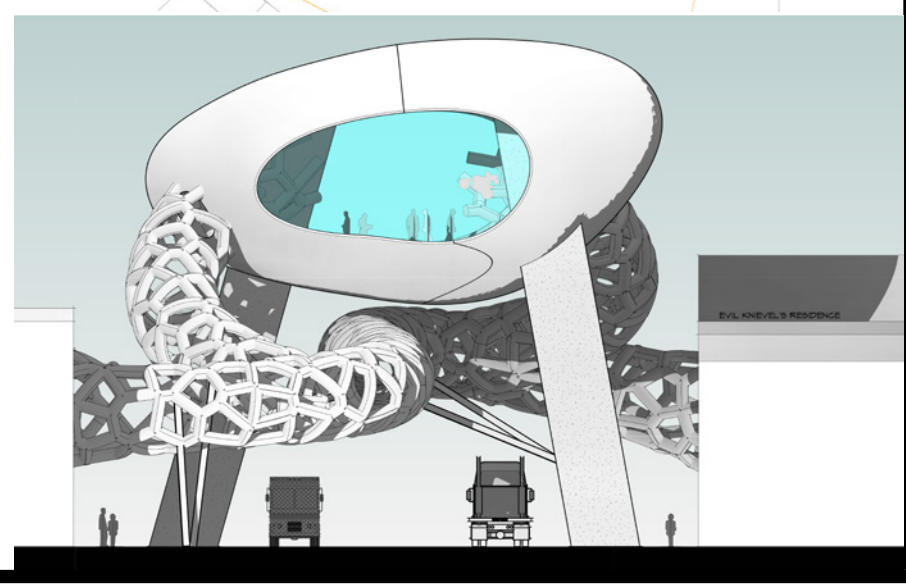
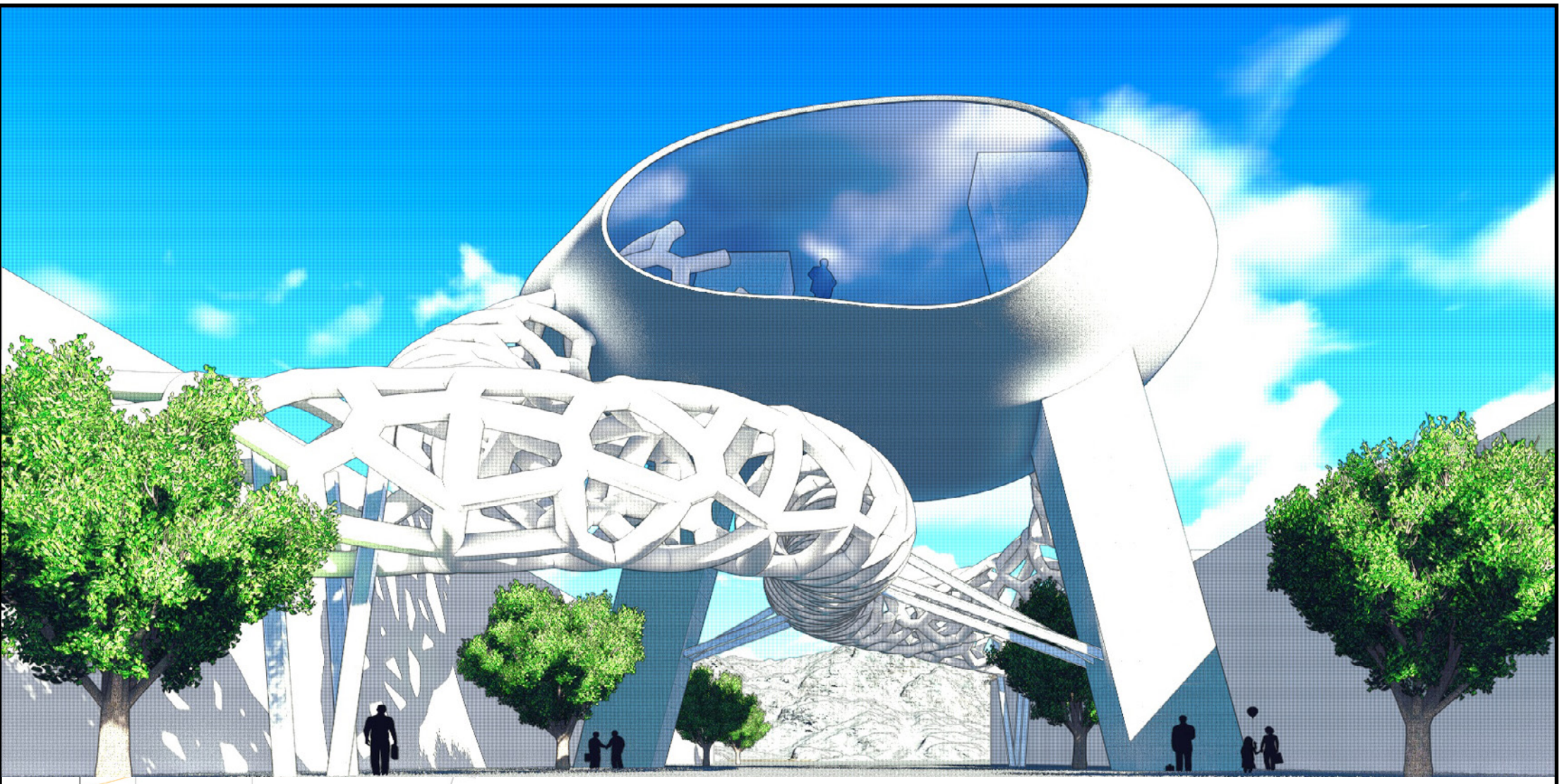
2012 INTERNATIONAL FUEL GAS CODE
2012 ENERGY CONSERVATION CODE
2012 UNIFORM PLUMBING CODE
2014 NATIONAL ELECTRIC CODE



The Evil Knievel Museum is located suspended above and attached to the downtown core of Bozeman, Montana. This project was focused around my client, Evil Knievel, a Butte, Montana native and daredevil stuntman. Our task was to design a building that was parasitic in nature, so I began by focusing on concepts around Evil Knievel's broken bones. I studied precedence amongst Constant Nieuwenhuys, Lebbeus Woods, and Coop Himmelblau. Through these performance based, utilitarian society based ideals, I was able to develop an idea that Evil Knievel wanted to extend a branch of his Butte, Museum to Bozeman, Montana, but also a place where he could perform and suspend himself above the town of Bozeman, Montana. This attaches to a penthouse that is renovated into one of the existing apartment complexes and branches out over to the pub across the street. This performance based structure is intended to reflect broken bones. The broken bone structure is to be a way of suspending oneselve above main street allowing the occupant to view space in a daredevil way.

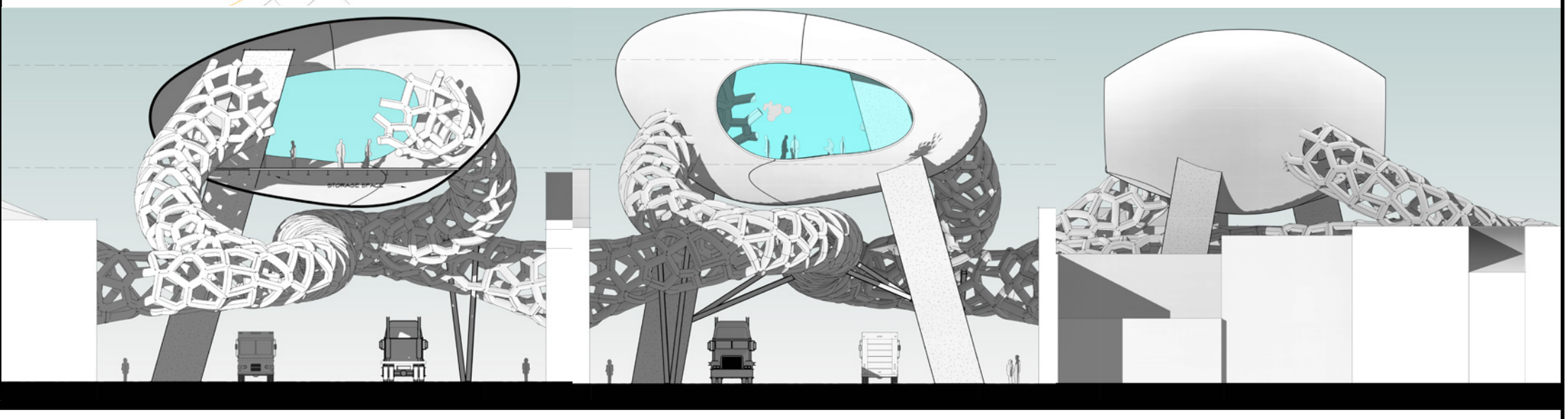


PARASITIC ARCHITECTURE: EVIL KNIEVEL MUSEUM



B-3 (Central Business District)

Ambulance service; apartments1; arts and entertainment centers; automobile parking lot or garage; banks and other financial institutions; business, technical or vocation schools1; community centers; convenience use restaurant; daycare centers; health and exercise establishments; hotel or motel; laboratories1; medial and dental clinics1; meeting hall; offices1; parking facilities1; personal and convenience uses; pet grooming; private club, fraternity, sorority or lodge; public buildings; restaurants; retail uses (excluding adult businesses); upholstery shops1; wholesale establishments (with samples, no stock on premises)	Automobile fuel sales or repair; automobile washing; bus terminals; convenience uses; hospital; laundry and dry-cleaning; lodging houses1; mortuary; museum; offices (on the ground floor in core area); printing offices and publishing establishments; sales of alcohol for on-premise consumption; sign paint shop; PUDs	Refuse and recycling containers	Entire lot, exclusive of required yards and parking, may be occupied by the principal and accessory buildings	No minimum yards, except a 7-foot front yard setback on Babcock and Mendenhall Streets Where at least 50 percent of a block (from cross-street to cross-street) in the B-3 district is used for residential purposes, a minimum 15-foot front or corner side yard shall be required from the street(s) on which the residential use fronts	55 feet in the core area; 70 feet outside of the core area



COOP HIMMELB(L)AU

THE BLAZING WING

YEAR: 1980

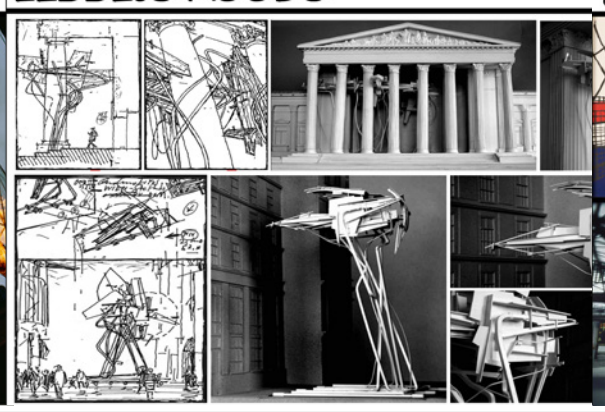
LOCATION: GRAZ, AUSTRIA

The distorted steel construction, 15 m high and weighing 13 tons, was developed to be fueled by liquid gas burners.
The wing was suspended in the courtyard of the Technical University in Graz on December 12, 1980 and was ignited at 3:38 P.M.
Peter curtains protected the facades. During the action the crackling of the flames was heard over amplifiers.

The steel construction was produced by the firm Metallbau Treiber in Graz according to a model scaled at 1:50.

CITATION: http://www.coop-himmelblau.at/architecture/projects/the-blazing-wing/

LEBBEUS WOODS



CONSTANT NIEUWENHUYS

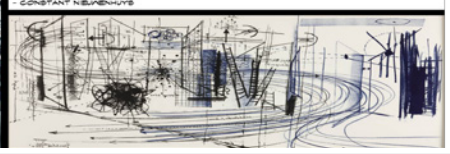
NEW BABYLON (CONSTANT NIEUWENHUYS)

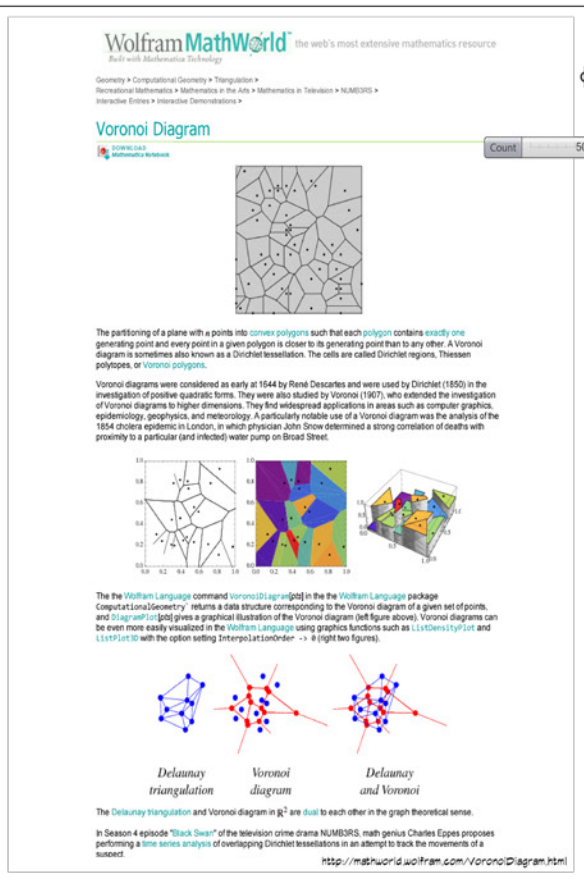
THE GOAL WAS TO CREATE LIFE ALTERNATION EXPERIENCES, CALLED 'SITUATIONS'.

CONSTANT NIEUWENHUYS HAD FOR SEVERAL YEARS BEEN WORKING ON PAINTINGS, SKETCHES, TEXTS, AND MODELS FOR ARCHITECTURE DESCRIBING THE SHAPE OF THE POST-REVOLUTIONARY SOCIETY. CONSTANT'S IDEA WAS TO CREATE STRUCTURES THAT WERE TRANSFORMABLE. THE IDEA OF THIS NEW BABYLON SOCIETY WAS TO CREATE A SOCIETY WHERE THE SHACKLES OF WORK, FAMILY LIFE, AND CIVIC RESPONSIBILITY WOULD BE DISMEMBERED. THE IDEA OF WALKING FROM ONE LEISURE ENVIRONMENT TO ANOTHER, IN SEARCH OF NEW SENSATIONS HAS CONSTANT'S PLAN FOR THE POST-REVOLUTION SOCIETY. HIS IDEA WAS THAT IN HIS CITY OF THE FUTURE, HE COULD EAT, SLEEP, RECREATE, AND PROCREATE WHERE HE WANTED, WHEN HE WANTED. SOCIAL GOALS OF CONSTANT'S CONSISTED OF SELF-FULFILLMENT AND SELF-SATISFACTION. CONSTANT'S IDEAS OF DEDUCTIVE REASONING, GOAL ORIENTED PRODUCTION AND BETTERMENT OF A POLITICAL COMMUNITY WERE ALL NON IMPORTANT TO THE BETTERMENT OF THIS SOCIETY.

"It is obvious that a person free to use his time for the whole of his life, free to go where he wants, when he wants, cannot make the greatest use of his freedom in a world ruled by the clock and the imperative of a fixed abode. As a way of life homo ludens will demand, firstly, that he responds to his need for playing, for adventure, for mobility, as well as all the conditions that facilitate the free creation of his own life, until then, the principal activity of man had been the exploration of his natural surroundings. Homo ludens himself will seek to transform, to recreate, those surroundings, that world, according to his new needs. The exploration and creation of the environments will them happen to coincide because, in creating his domain to explore, homo ludens will apply himself to exploring his own creation. Thus we will be present at an uninterrupted process of creation and re-creation, sustained by a generalized creativity that is manifested in all domains of activity."

- CONSTANT NIEUWENHUYS





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Recreational Mathematics > Mathematics in the Arts > Mathematics in Television > NUMB3RS >
Interactive Entries > Interactive Demonstrations >

Voronoi Diagram

DOWNLOAD Mathematica Notebook

The partitioning of a plane with n points into convex polygons such that each polygon contains exactly one generating point and every point in a given polygon is closer to its generating point than to any other. A Voronoi diagram is sometimes also known as a Dirichlet tessellation. The cells are called Dirichlet regions, Thiessen polytopes, or Voronoi polygons.

Voronoi diagrams were considered as early at 1644 by René Descartes and were used by Dirichlet (1850) in the investigation of positive quadratic forms. They were also studied by Voronoi (1907), who extended the investigation of Voronoi diagrams to higher dimensions. They find widespread applications in areas such as computer graphics, epidemiology, geophysics, and meteorology. A particularly notable use of a Voronoi diagram was the analysis of the 1854 cholera epidemic in London, in which physician John Snow determined a strong correlation of deaths with proximity to a particular (and infected) water pump on Broad Street.

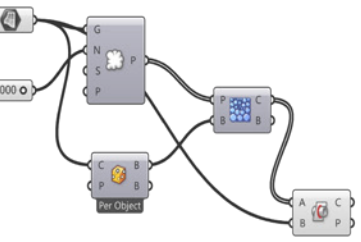
The the Wolfram Language command `VoronoiDiagram[pts]` in the the Wolfram Language package `ComputationalGeometry` returns a data structure corresponding to the Voronoi diagram of a given set of points, and `DiagramPlot[pts]` gives a graphical illustration of the Voronoi diagram (left figure above). Voronoi diagrams can be even more easily visualized in the Wolfram Language using graphics functions such as `ListDensityPlot` and `ListPlot3D` with the option setting `InterpolationOrder -> 0` (right two figures).

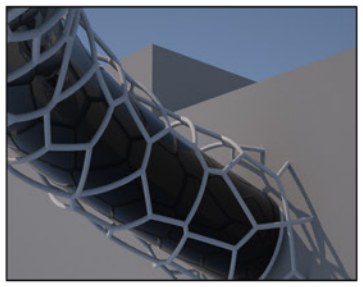
Delaunay triangulation *Voronoi diagram* *Delaunay and Voronoi*

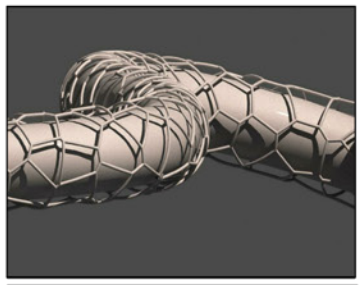
The Delaunay triangulation and Voronoi diagram in $\mathbb{R}^2$ are dual to each other in the graph theoretical sense.

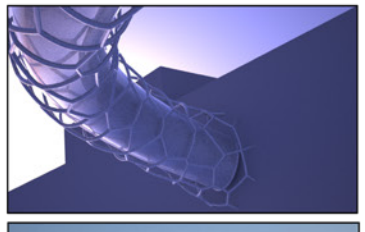
In Season 4 episode "Black Swan" of the television crime drama NUMB3RS, math genius Charles Eppes proposes performing a time series analysis of overlapping Dirichlet tessellations in an attempt to track the movements of a suspect.

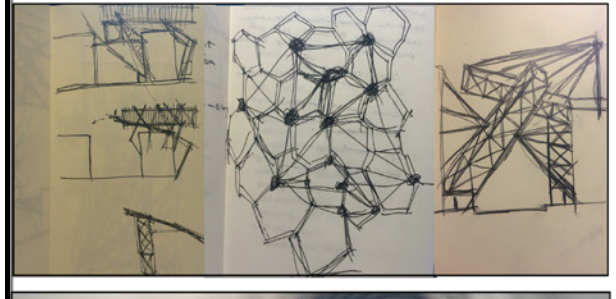
http://mathworld.wolfram.com/VoronoiDiagram.html



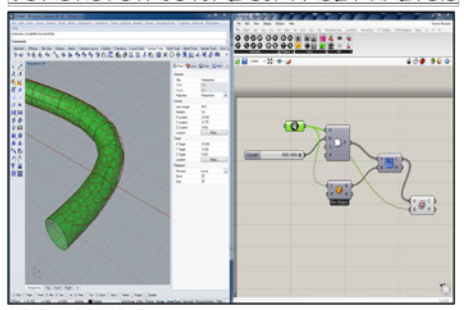




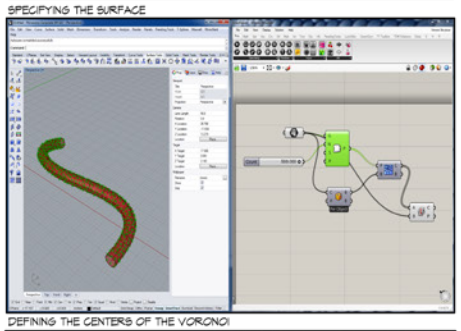




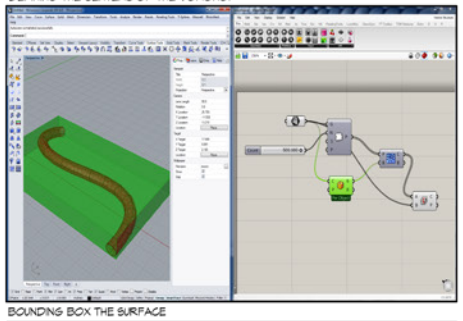
VORONOI STRUCTURE SURFACE ANALYSIS



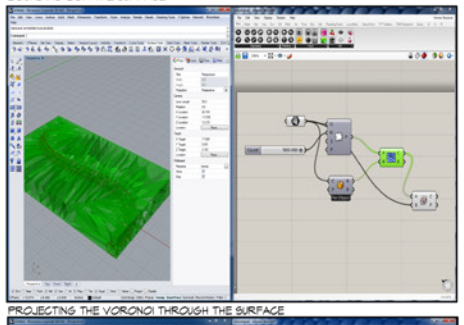
SPECIFYING THE SURFACE



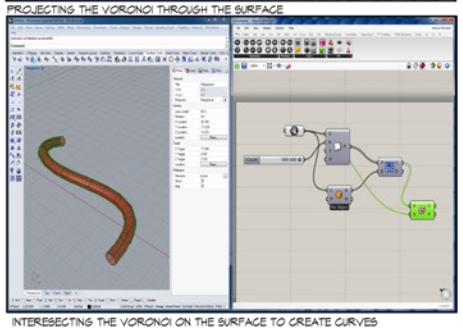
DEFINING THE CENTERS OF THE VORONOI



BOUNDING BOX THE SURFACE

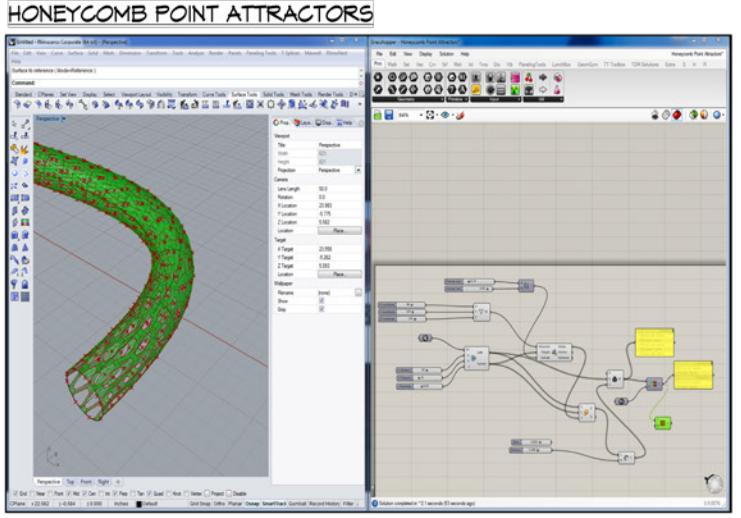


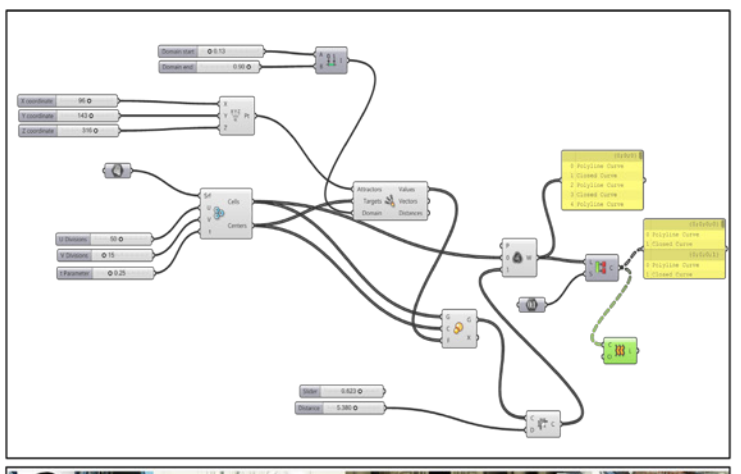
PROJECTING THE VORONOI THROUGH THE SURFACE

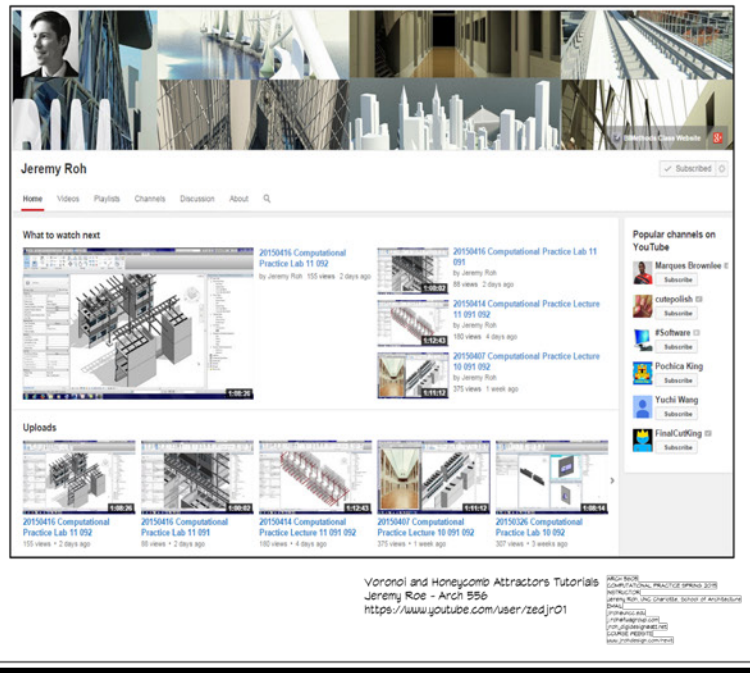


INTERESECTING THE VORONOI ON THE SURFACE TO CREATE CURVES

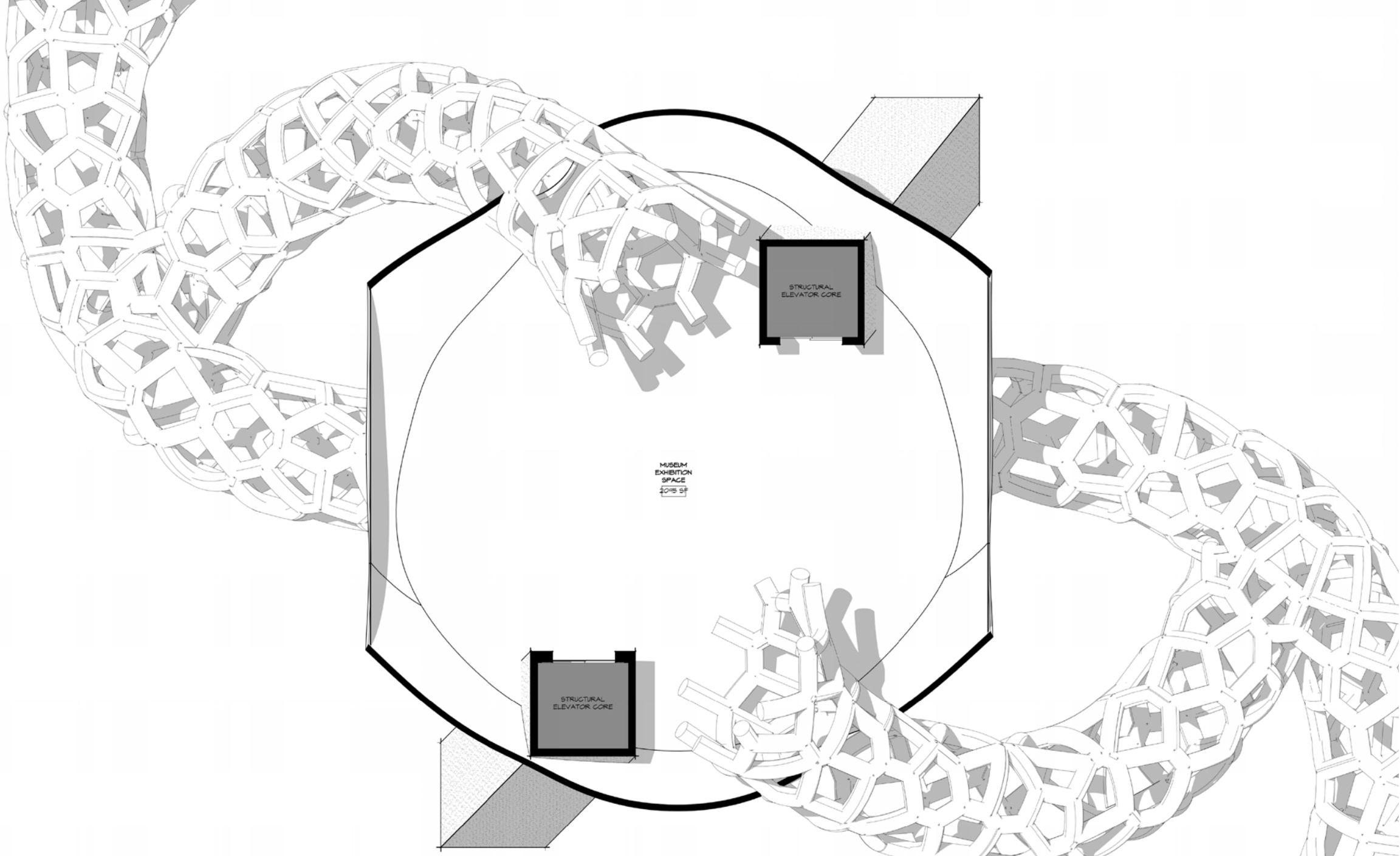
HONEYCOMB POINT ATTRACTORS



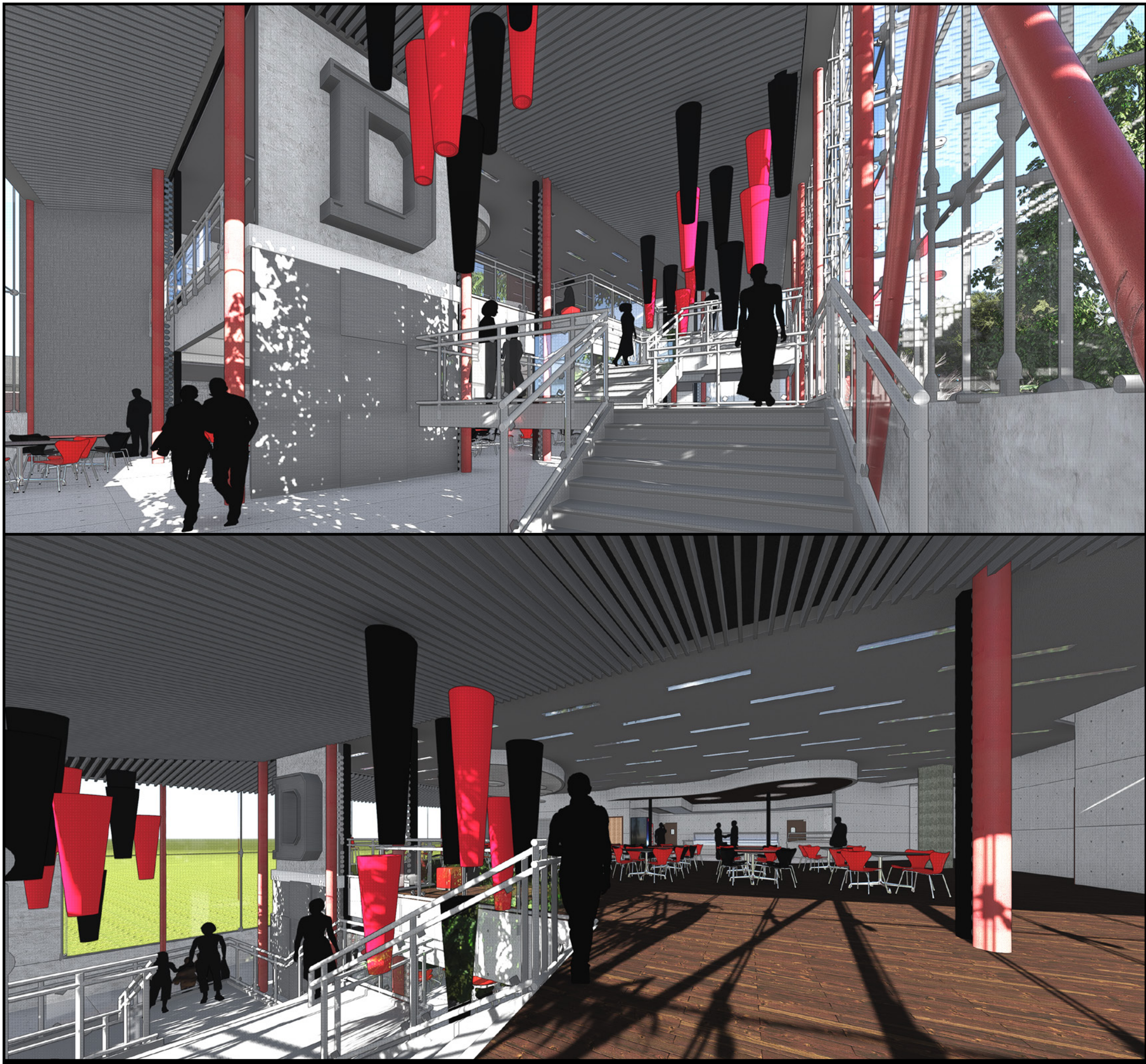




Voronoi and Honeycomb Attractors Tutorials
Jeremy Roe - Arch 556
https://www.youtube.com/user/zedjr01

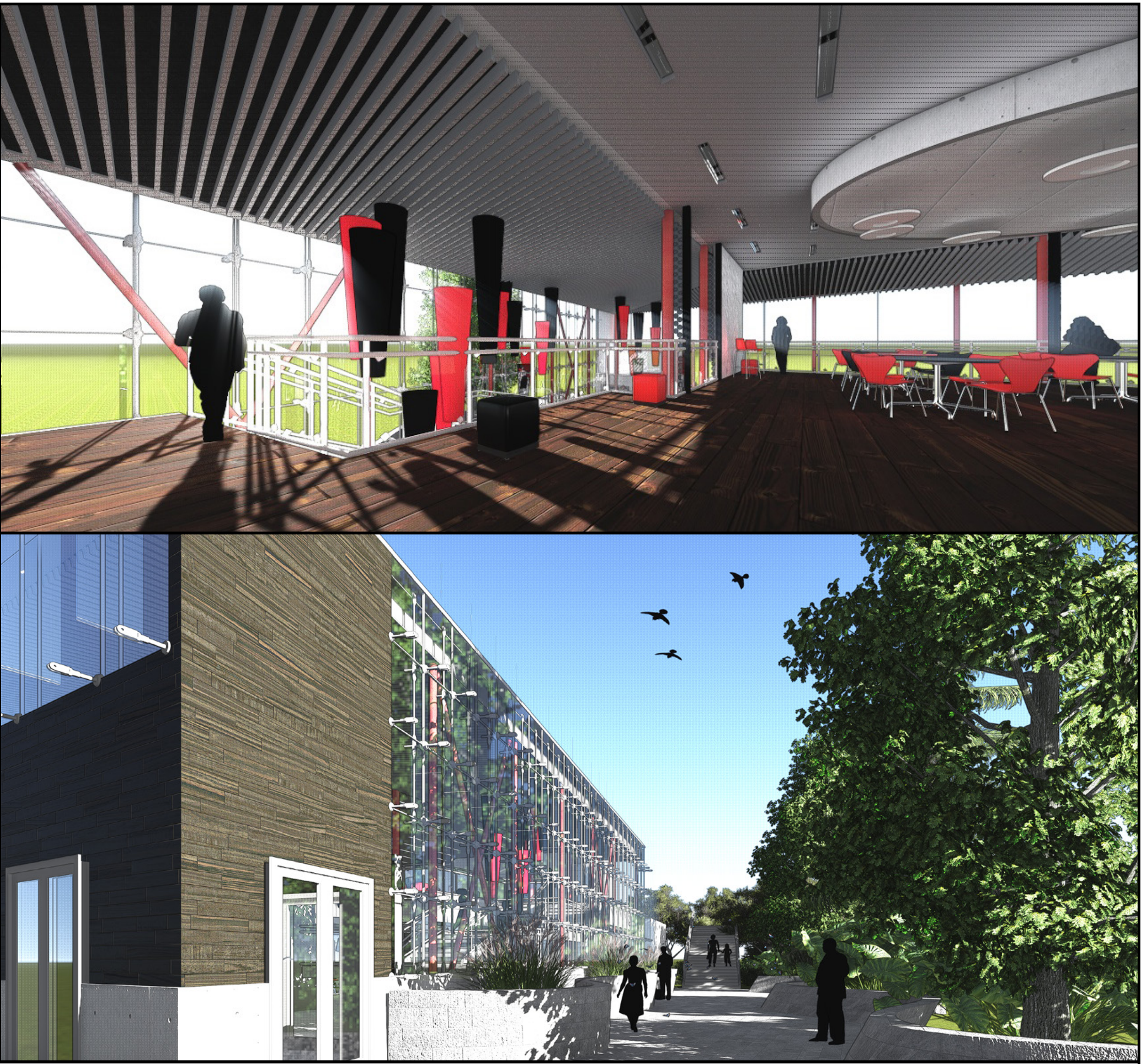


1 SECOND LEVEL NEW CONSTRUCTION
A-2.1 1/4" = 1'-0"



DAWSON COMMUNITY COLLEGE DINING HALL RENOVATION

 MSU Community Design Center • Summer 2015 • Tom McNab



THE BOZEMAN DATA CORE

LOCATION:
2-90 N Mendenhall St
Bozeman, Mt 59715
45.680158, -111.038009

DESCRIPTION:

THE BOZEMAN ARMORY SITE

THE SITE IS IN RUGGED CONDITION. THE PARKING LOT TO THE WEST IS HEAVILY USED AND THE BUSINESSES TO THE EAST ARE IN NEED OF RENOVATIONS.

SITE CHARACTERISTICS:

THE ARMORY IS MADE OF STACKED CONCRETE FORMS THAT MAKE THE BUILDING INCREDIBLY DURABLE. THE BUILDING HAS BEEN INFILTRATED WITH BIRDS, HOMELESS, AND EXTREME WEATHER CONDITIONS.

THE SITE IS CURRENTLY UNDER UTILIZED
TWO PONDS SURROUNDED BY CATTAIL MARSHES.

DUCKS, MARSH WREN, AND YELLOW-HEADED BLACKBIRD CAN ALSO BE SPOTTED HERE.

DUE TO THE NATURE OF THE MARSHES, THROUGHOUT THE FREQUENT CHANGING OF SEASONS AND ACCESSIBILITY, A BOARDWALK SYSTEM WILL BE PROPOSED AMONGST OTHER AMMENITIES FOR ADA ACCESSIBILITY.

BUILDING TYPE:
BUSINESS GROUP B OCCUPANCY

TYPE II-A--Protected Combustible (Also known as "ordinary" construction with brick or block walls and a wooden roof or floor assembly which is 1 hour fire protected).
2 Hr. Exterior Walls*
1 Hr. Structural Frame
1 Hr. Floor/Ceiling/Roof Protection

Animal Shelter
Data Center
Ski Hill
Party Headquarters
Public Art
Multi-Family Housing

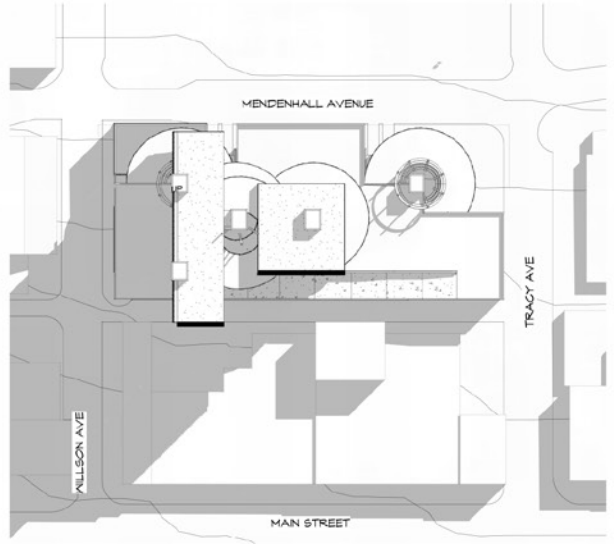
GEOTHERMAL SYSTEM WITH RADIANT HEAT
PASSIVELY HEATED
COOLED WITH STACK VENTILATION.
DATA CENTER WILL BE COOLED WITH COOLING TOWERS THAT HOUSE ELEVATOR SHAFTS.
WESTERN FINS THAT CREATE A THERMAL BLANKET. OPERABLE FINS THAT CAN BE ADJUSTED INTERNALLY THROUGH CONTROLS.

SQUARE FOOTAGE: 226,613 SQ. FT.

VICINITY MAP

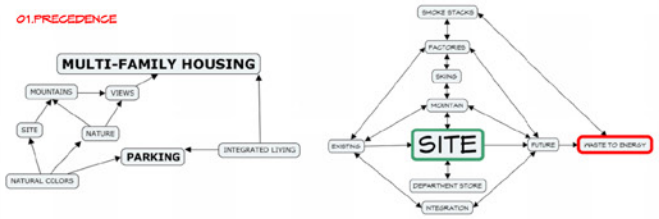
BOZEMAN, MONTANA ADOPTED CITY CODES

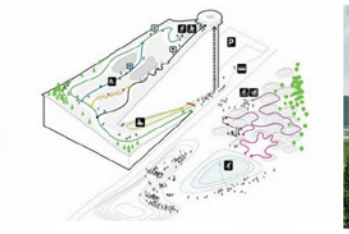
2012 INTERNATIONAL BUILDING CODE
2012 INTERNATIONAL RESIDENTIAL BUILDING CODE
2012 INTERNATIONAL EXISTING BUILDING CODE
2012 INTERNATIONAL MECHANICAL CODE
2012 INTERNATIONAL FUEL GAS CODE
2012 ENERGY CONSERVATION CODE
2012 UNIFORM PLUMBING CODE
2014 NATIONAL ELECTRIC CODE



THE MOUNTAIN B.I.G. COPENHAGEN, DK

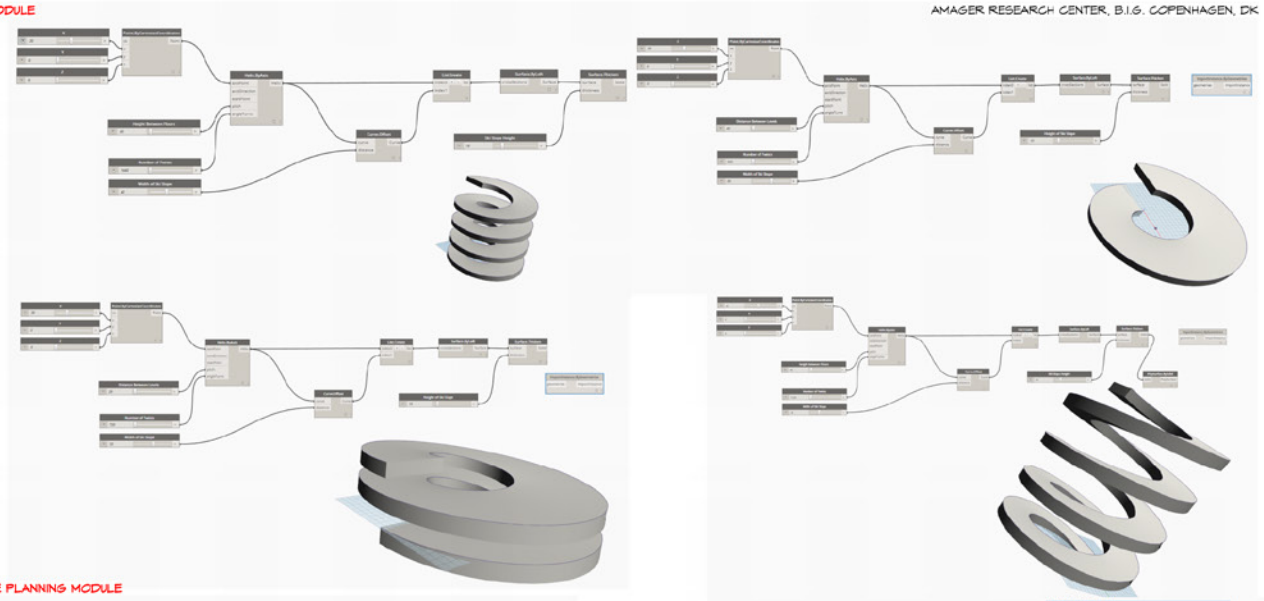
01.PRECEDENCE



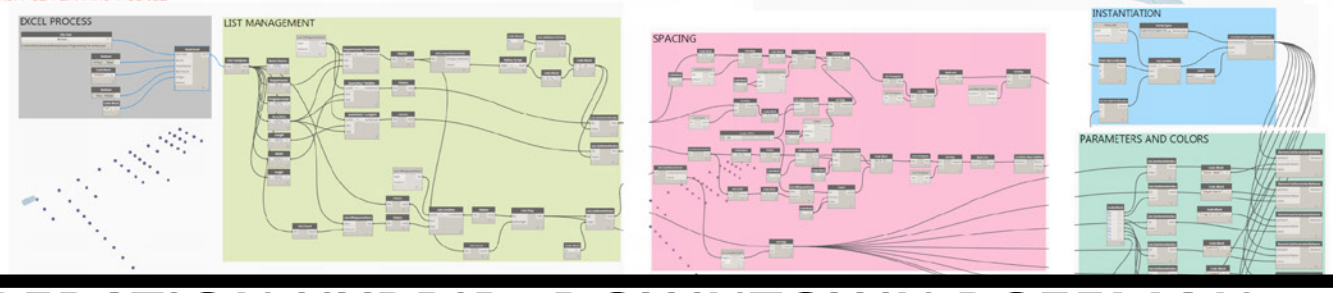


AMAGER RESEARCH CENTER, B.I.G. COPENHAGEN, DK

02.SKI MODULE



03.SPACE PLANNING MODULE



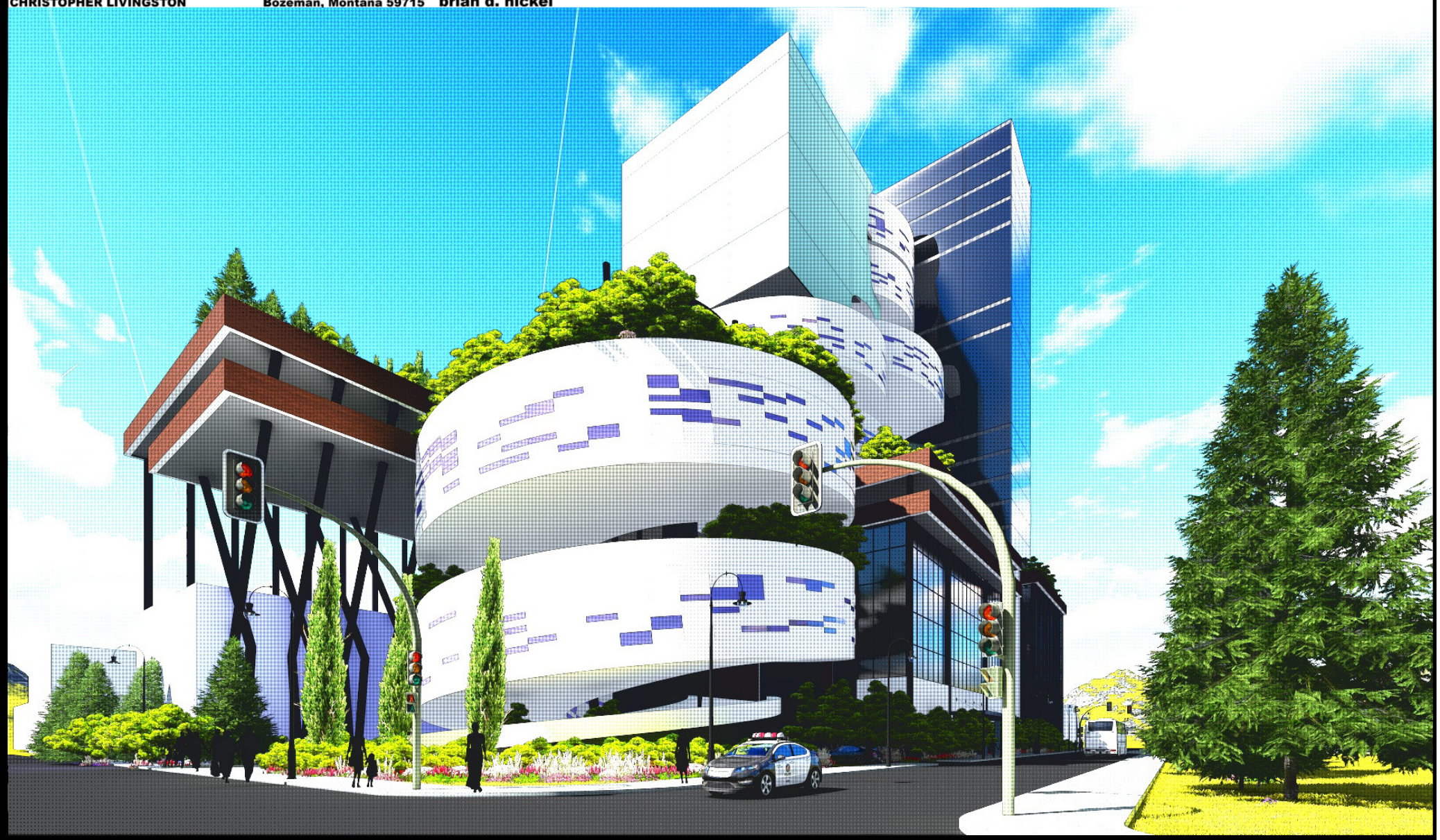
OPERATION HYBRID: DOWNTOWN BOZEMAN

MSU SOA Fourth Year Studio • Fall 2015• Christopher Livingston

The Bozeman Hybrid building is located in downtown Bozeman, Montana. This building is fundamentally evolved from ideals laid out by manifestos written by Constant Neiuwenhuys's "New Babylon" and Michel Foucalt's "Of Other Spaces". The ideas of a utopian society that exists in the space between this allows for the occupants of society to take advantage of all space that remains. Taking a program structure that is thought to be broken and piecing it together in a way that works symbiotically. The challenges of this project evolved around the program and "big" nature of the building. This building consists of an animal shelter, multi family housing, a central data core, an art museum, party headquarters (bar and restaurant), and a ski hill/hiking hill.

The Bozeman Hybrid

OPERATION HYBRID: ARCHITECTURE 456
CHRISTOPHER LIVINGSTON Bozeman, Montana 59715 brian d. nickel



Client: Christopher Livingston

Site: 2-98 W Mendenhall St
Bozeman, Mt 59715
45.680158, -111.038009

Program: Animal Shelter
Data Center
Ski Hill
Party Headquarters
Public Art
Multi-Family Housing

Size: 256,573 SQ. FT.

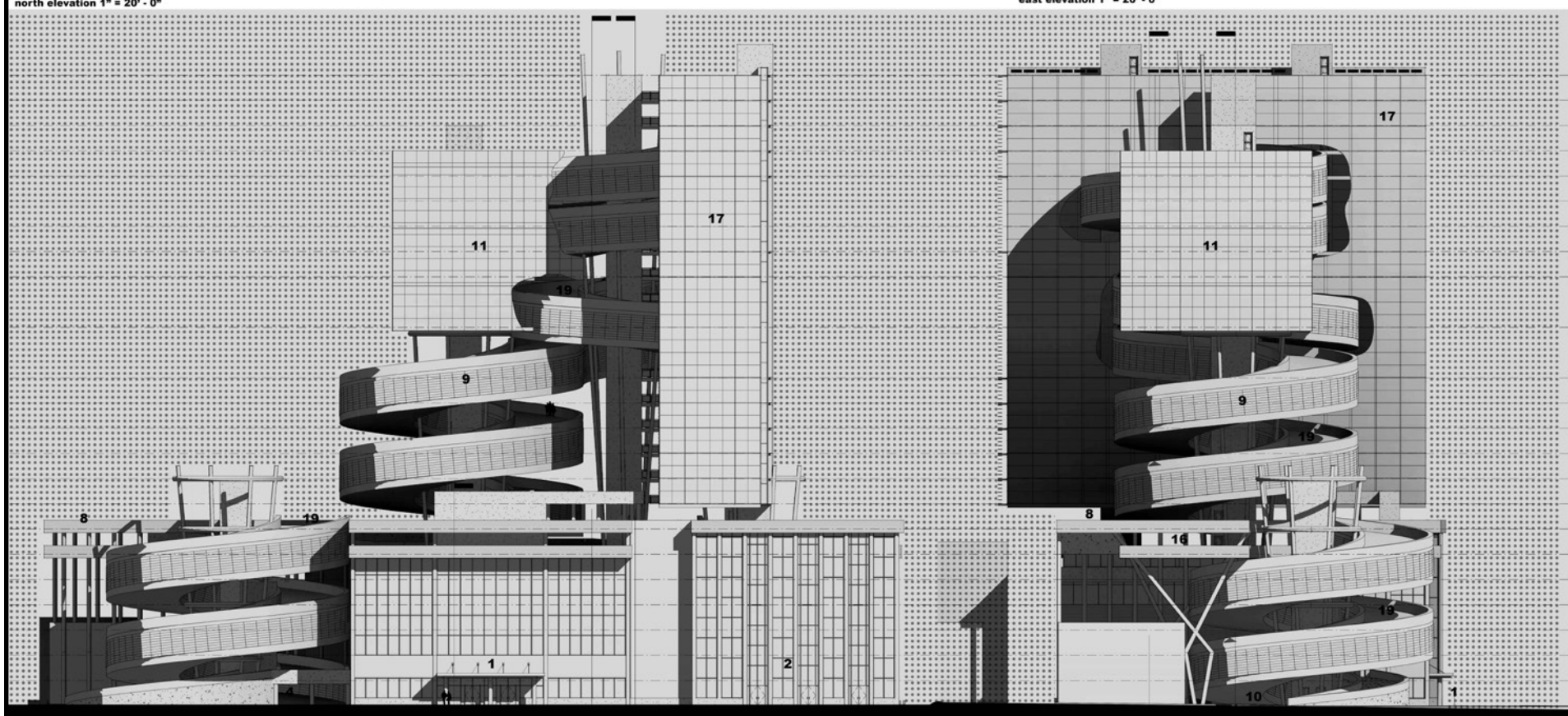
Notes: BUSINESS GROUP B OCCUPANCY

TYPE III-A--Protected Combustible (Also known as "ordinary" construction with brick or block walls and a wooden roof or floor assembly which is 1 hour fire protected).
2 Hr. Exterior Walls*
1 Hr. Structural Frame
1 Hr. Floor/Ceiling/Roof Protection

GEOTHERMAL SYSTEM WITH RADIANT HEAT
PASSIVELY HEATED
COOLED WITH STACK VENTILATION.
DATA CENTER WILL BE COOLED WITH COOLING TOWERS THAT HOUSE ELEVATOR SHAFTS.
WESTERN FINS THAT CREATE A THERMAL BLANKET. OPERABLE FINS THAT CAN BE ADJUSTED INTERNALLY THROUGH CONTROLS.

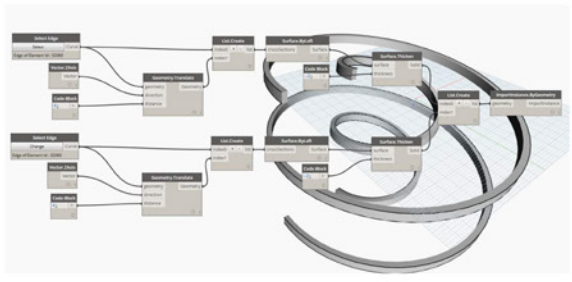
1. data center entrance
2. retail shopping
3. north eastern entrance
4. parking garage entrance
5. parking garage exit
6. animal shelter
7. data core parking
8. bozeman dog park
9. ski slopes
10. public art space
11. museum
12. central data core
13. thermal blanket/western fin system
14. concert venue
15. ski hill drop off
16. central parking core
17. multi-family housing
18. restauraunt/bar/club
19. hiking hill
20. residential lobby space

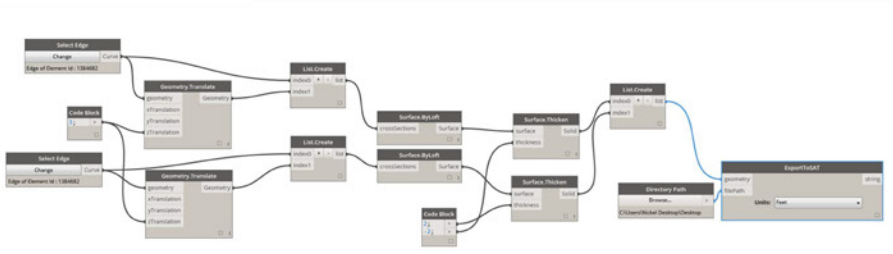
north elevation 1" = 20' - 0"

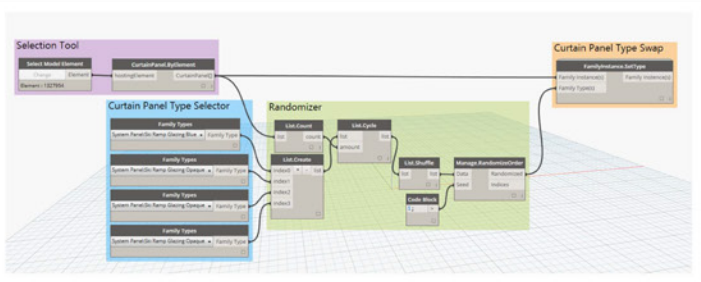


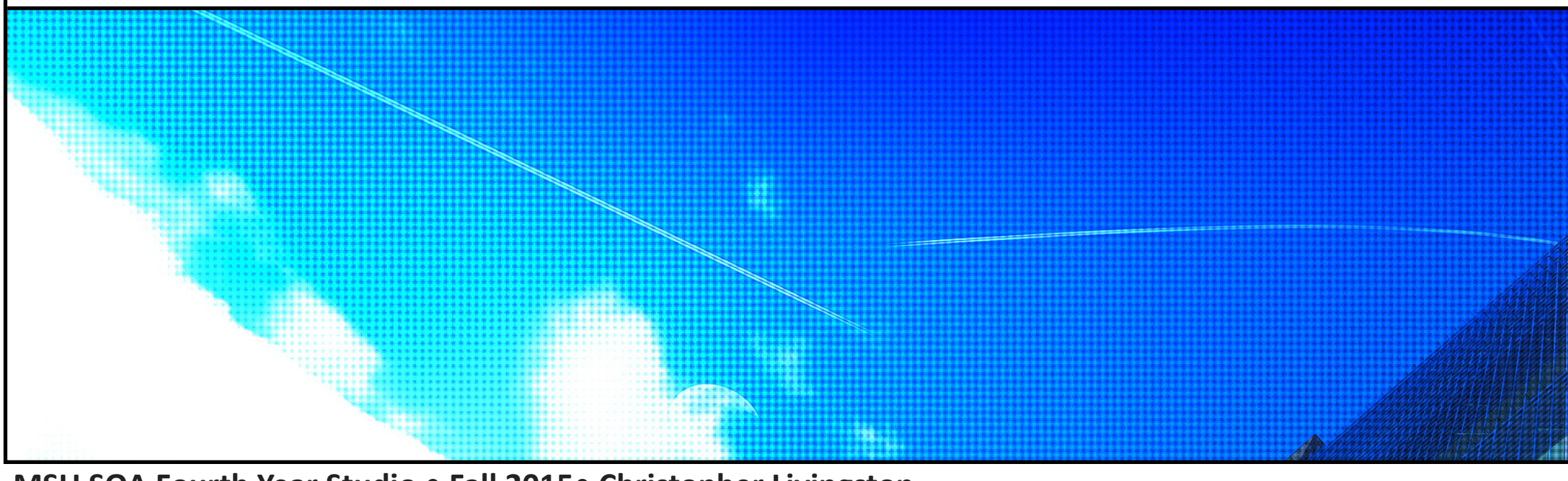
east elevation 1" = 20' - 0"

Level 24 - Roof Level Access 250' - 0"
Level 23 - Multi-Family Residential Nineth Floor 240' - 0"
Level 22 - Multi-Family Residential Eighth Floor 230' - 0"
Level 21 - Multi-Family Residential Seventh Floor 220' - 0"
Level 20 - Multi-Family Residential Sixth Floor 210' - 0"
Level 19 - Museum Fifth Level 200' - 0"
Level 18 - Museum Fourth Level 190' - 0"
Level 17 - Museum Third Level/Nightclub/Restaurant 180' - 0"
Level 16 - Museum Second Level 170' - 0"
Level 15 - Museum Main Level 150' - 0"
Level 14 - Restaurant Level 130' - 0"
Level 13 - Multi-Family Residential Fifth Floor 120' - 0"
Level 12 - Multi-Family Residential Fourth Floor 110' - 0"
Level 11 - Multi-Family Residential Third Floor 100' - 0"
Level 10 - Multi-Family Residential Second Floor 90' - 0"
Level 9 - Multi-Family Residential First Floor 80' - 0"
Level 8 - Concert Venue and Roof Top Vantage Point 70' - 0"
Level 7 - Parking Garage 60' - 0"
Level 6 - Sixth Level Data Core Administration 50' - 0"
Level 5 - Fifth Level Data Core 40' - 0"
Level 4 - Fourth Level Data Core 30' - 0"
Level 3 - Third Level Data Core 20' - 0"
Level 2 - Second Level Data Core 10' - 0"
Level 1 - Main Level Data Core Lobby 0' - 0"





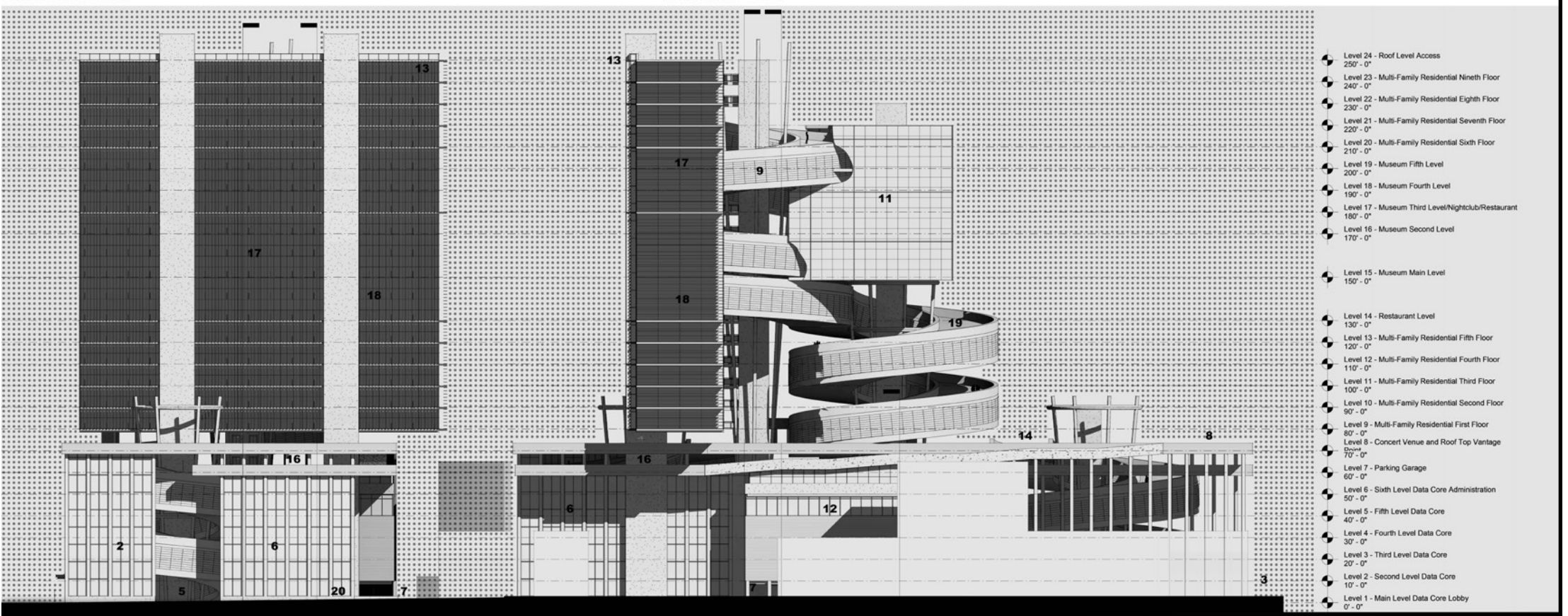




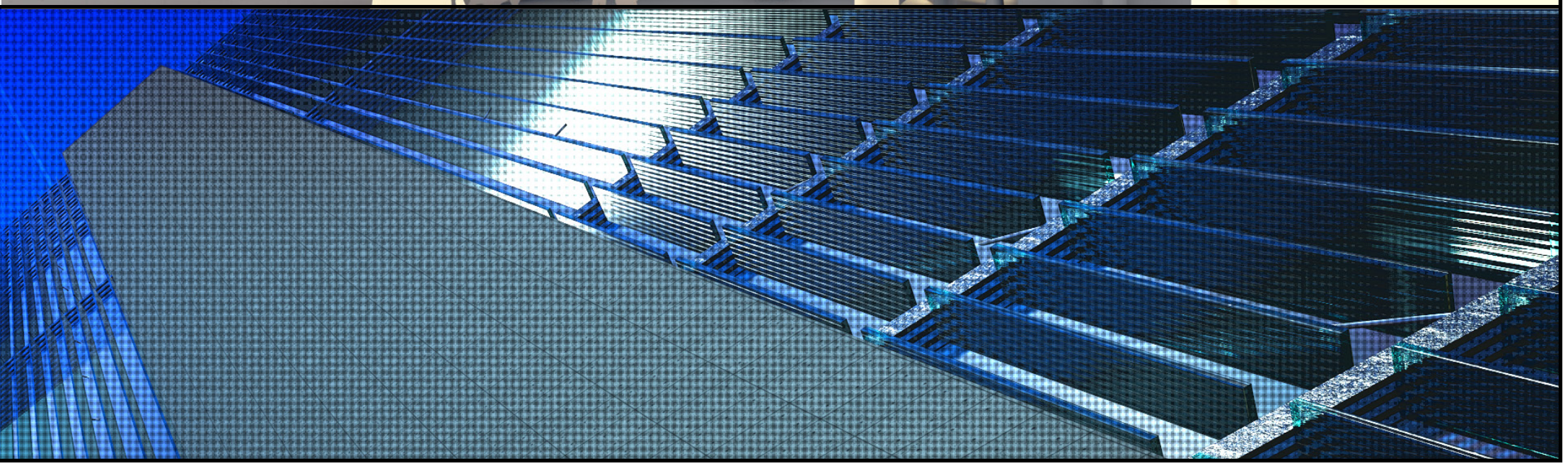
1. data center entrance
2. retail shopping
3. north eastern entrance
4. parking garage entrance
5. parking garage exit
6. animal shelter
7. data core parking
8. bozeman dog park
9. ski slopes
10. public art space
11. museum
12. central data core
13. thermal blanket/western fin system
14. concert venue
15. ski hill drop off
16. central parking core
17. multi-family housing
18. restauraunt/bar/club
19. hiking hill
20. residential lobby space

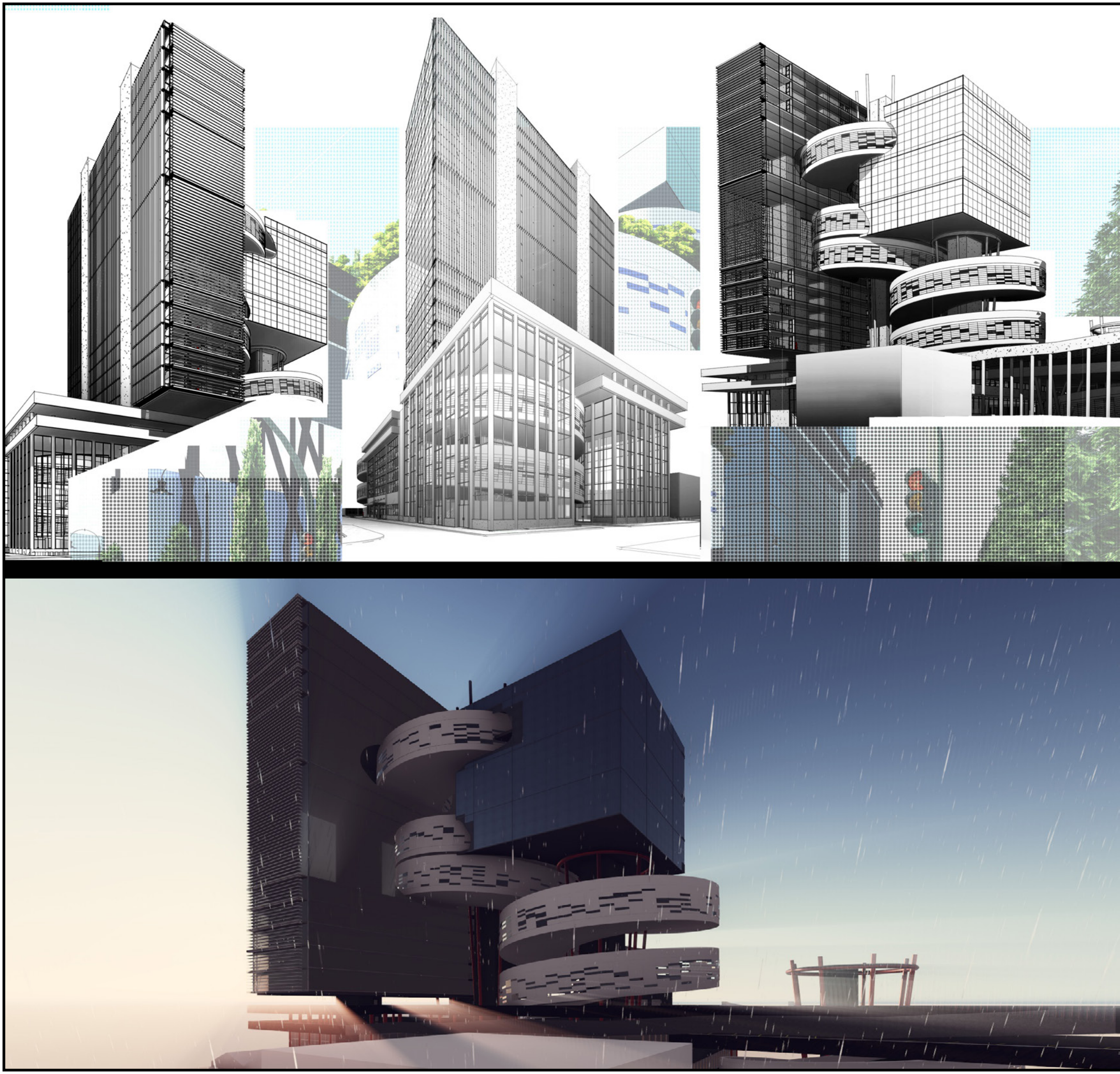
west elevation 1" = 20' - 0"

south elevation 1" = 20' - 0"



Level 24 - Roof Level Access
250' - 0"
Level 23 - Multi-Family Residential Nineth Floor
240' - 0"
Level 22 - Multi-Family Residential Eighth Floor
230' - 0"
Level 21 - Multi-Family Residential Seventh Floor
220' - 0"
Level 20 - Multi-Family Residential Sixth Floor
210' - 0"
Level 19 - Museum Fifth Level
200' - 0"
Level 18 - Museum Fourth Level
190' - 0"
Level 17 - Museum Third Level/Nightclub/Restaurant
180' - 0"
Level 16 - Museum Second Level
170' - 0"
Level 15 - Museum Main Level
150' - 0"
Level 14 - Restaurant Level
130' - 0"
Level 13 - Multi-Family Residential Fifth Floor
120' - 0"
Level 12 - Multi-Family Residential Fourth Floor
110' - 0"
Level 11 - Multi-Family Residential Third Floor
100' - 0"
Level 10 - Multi-Family Residential Second Floor
90' - 0"
Level 9 - Multi-Family Residential First Floor
80' - 0"
Level 8 - Concert Venue and Roof Top Vantage Point
70' - 0"
Level 7 - Parking Garage
60' - 0"
Level 6 - Sixth Level Data Core Administration
50' - 0"
Level 5 - Fifth Level Data Core
40' - 0"
Level 4 - Fourth Level Data Core
30' - 0"
Level 3 - Third Level Data Core
20' - 0"
Level 2 - Second Level Data Core
10' - 0"
Level 1 - Main Level Data Core Lobby
0' - 0"





30. **MSU SOA Fourth Year Studio • Fall 2015• Christopher Livingston**

1. data center entrance
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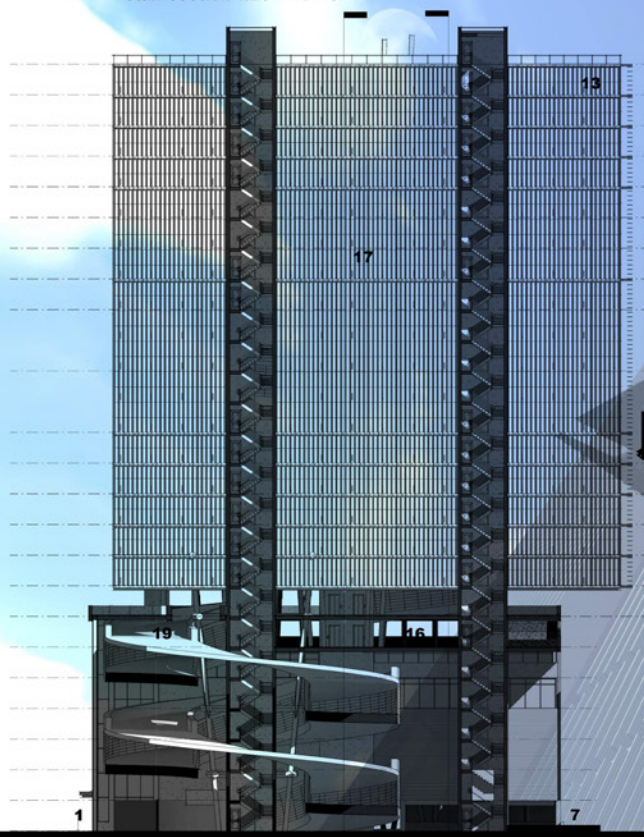
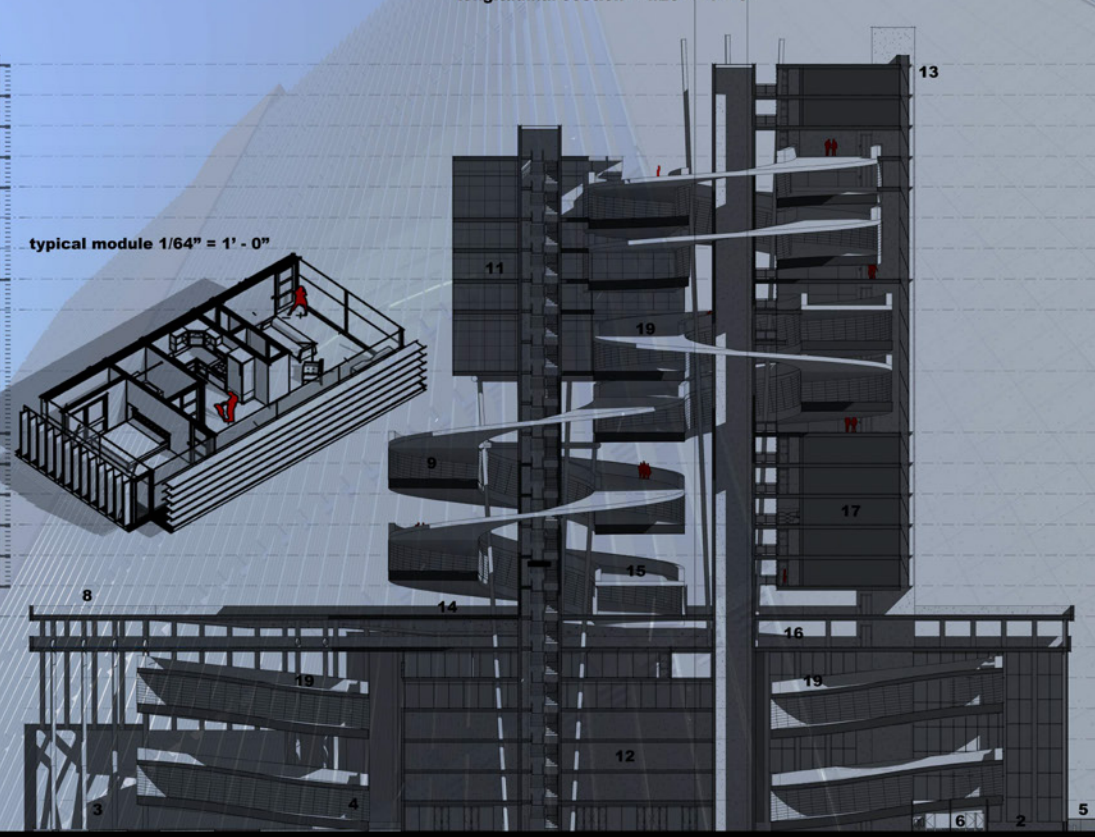
17. multi-family housing
18. restauraunt/bar/club
19. hiking hill
20. residential lobby space

stair section 1/20" = 1' - 0"

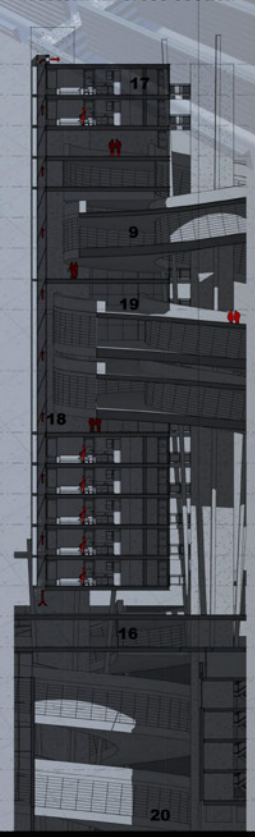


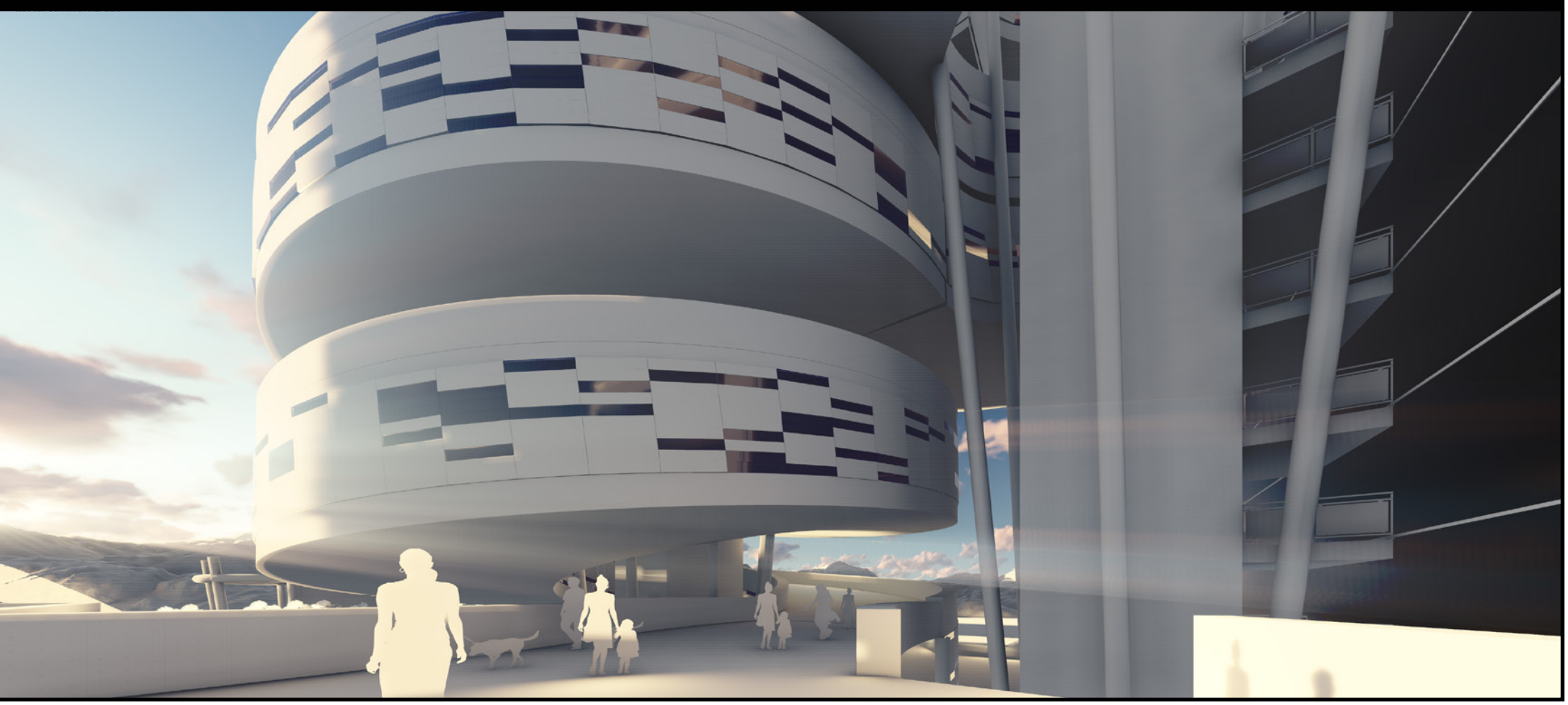
typical module 1/64" = 1' - 0"

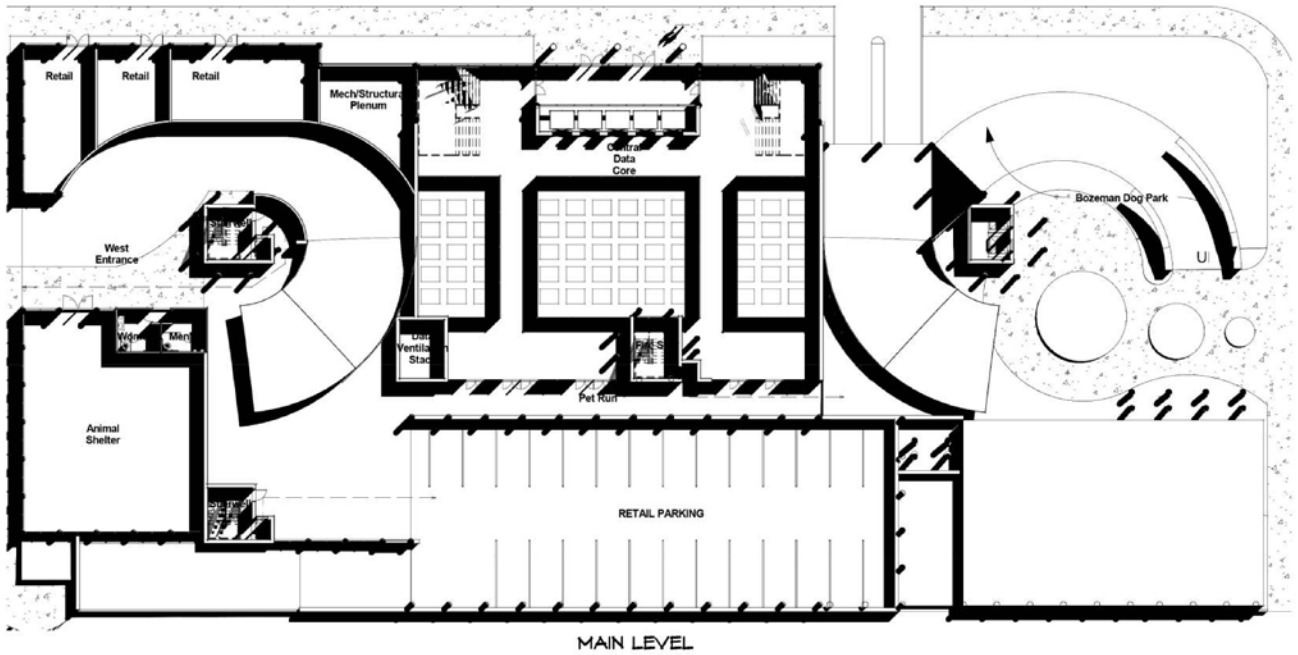
longitudinal section = 1/20" = 1' - 0"



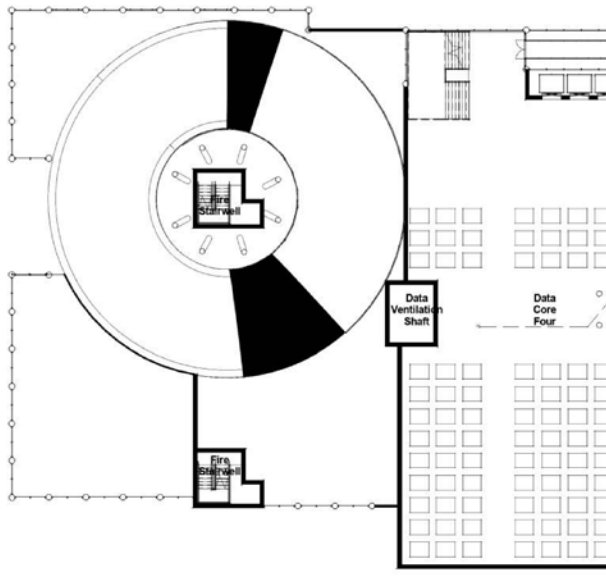
western fin cross section = 1/20" - 1' - 0 "



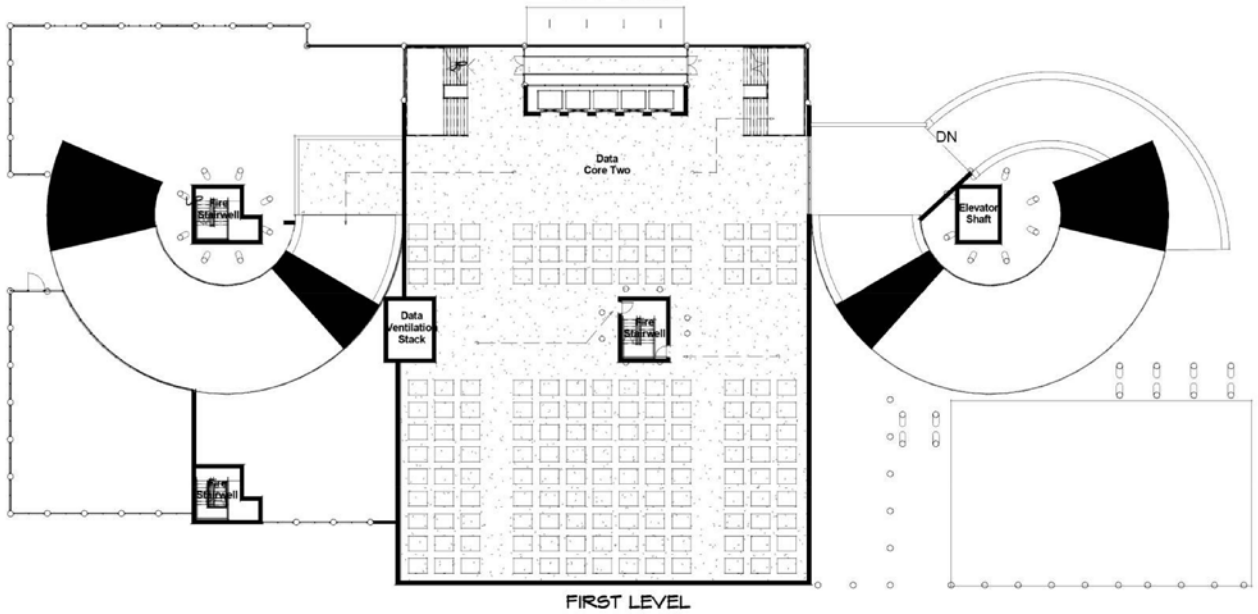




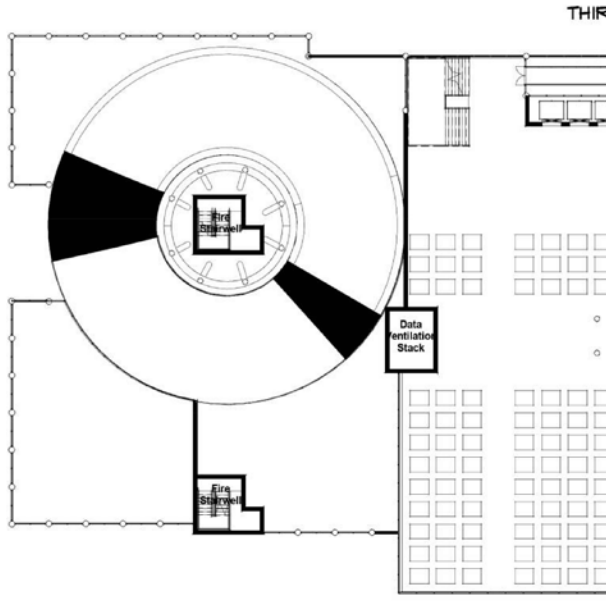
MAIN LEVEL



THIR



FIRST LEVEL



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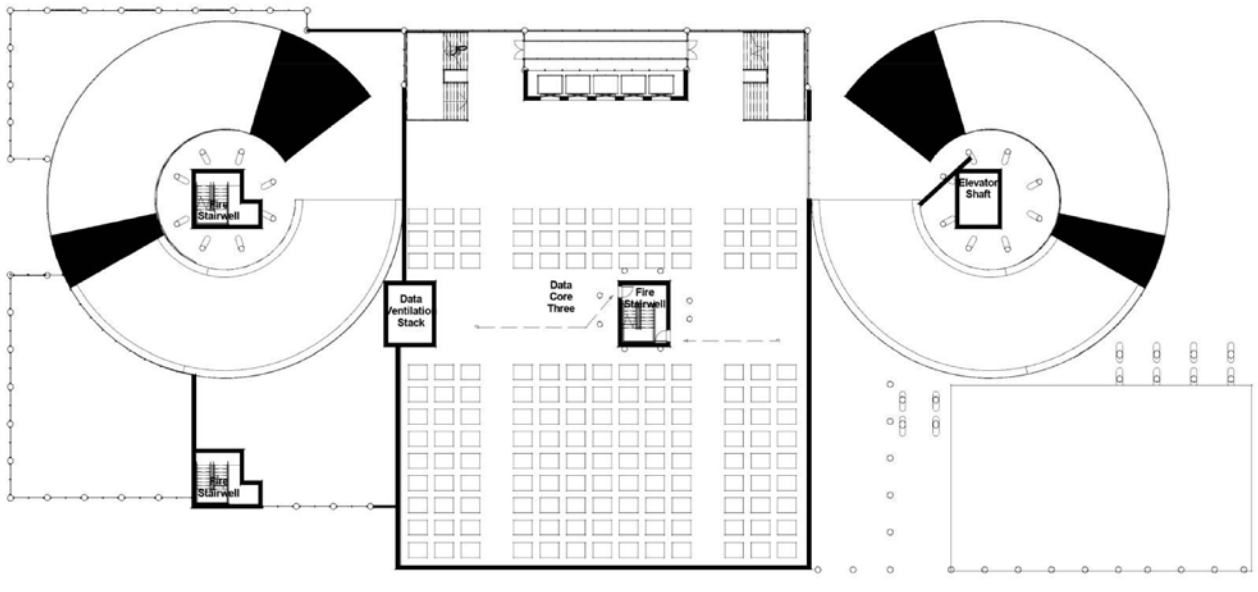
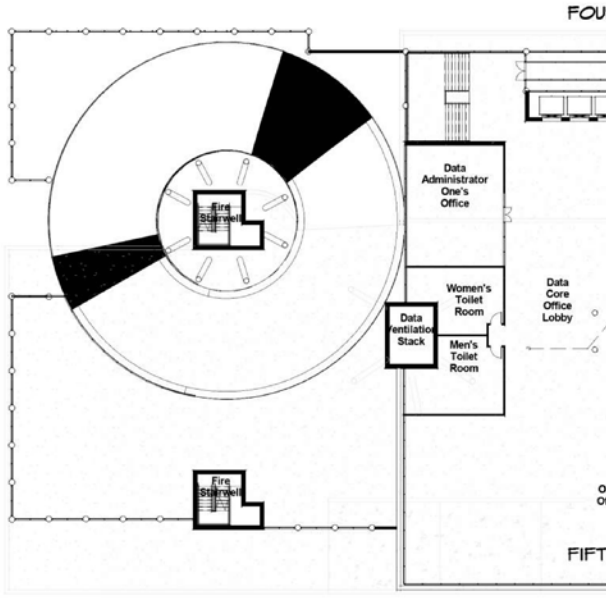


THIRD LEVEL



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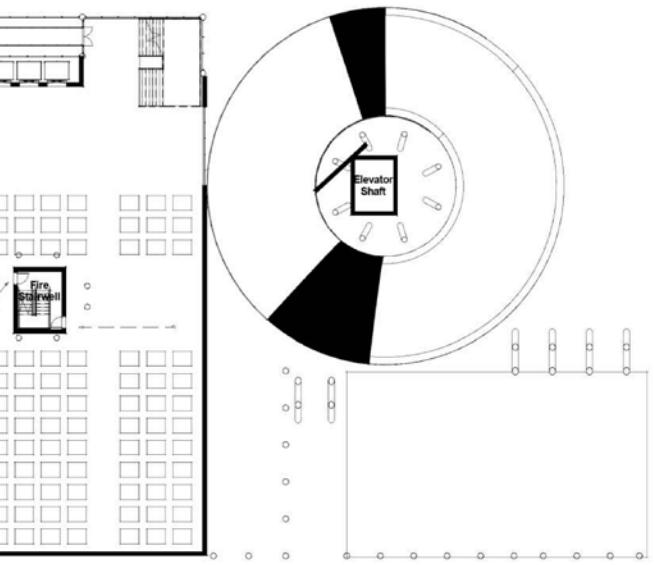
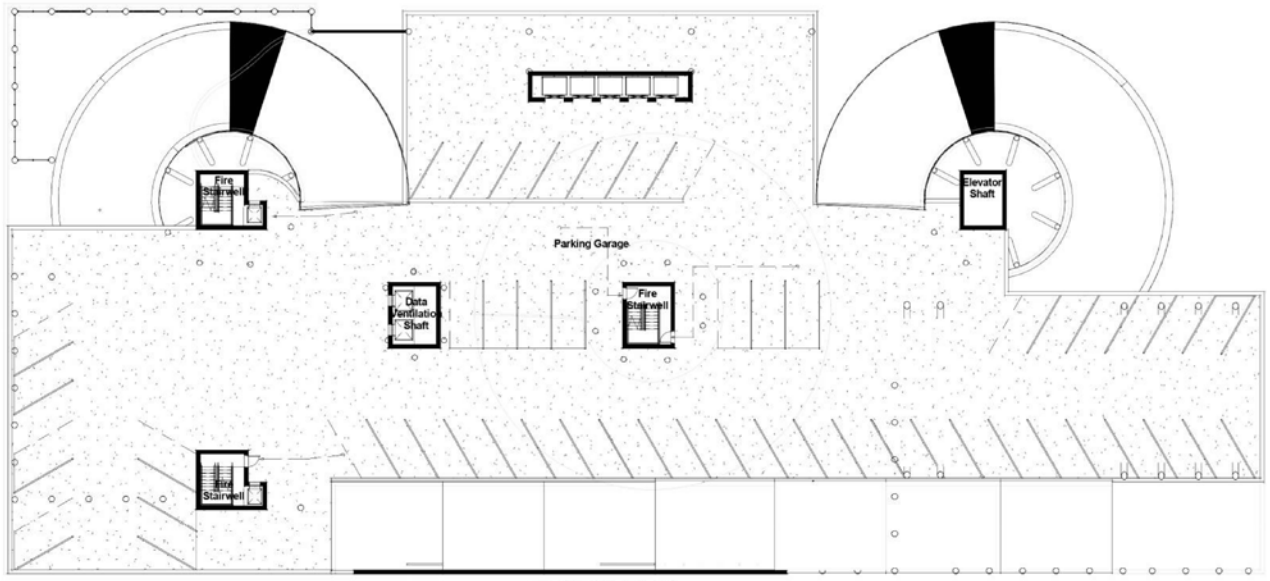
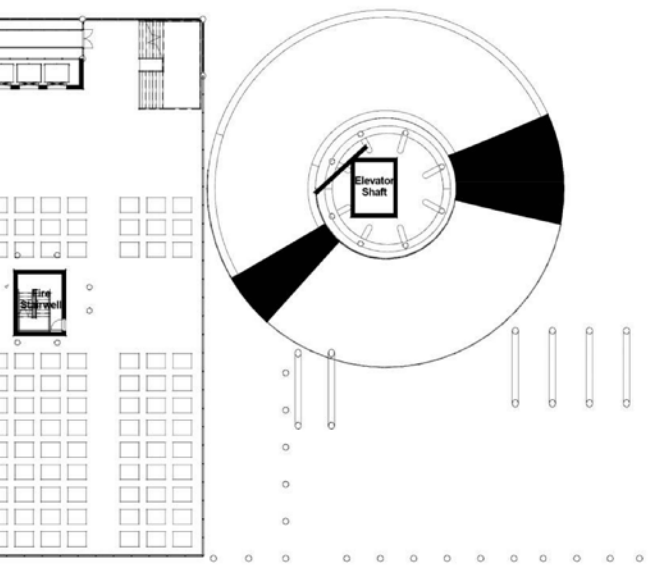
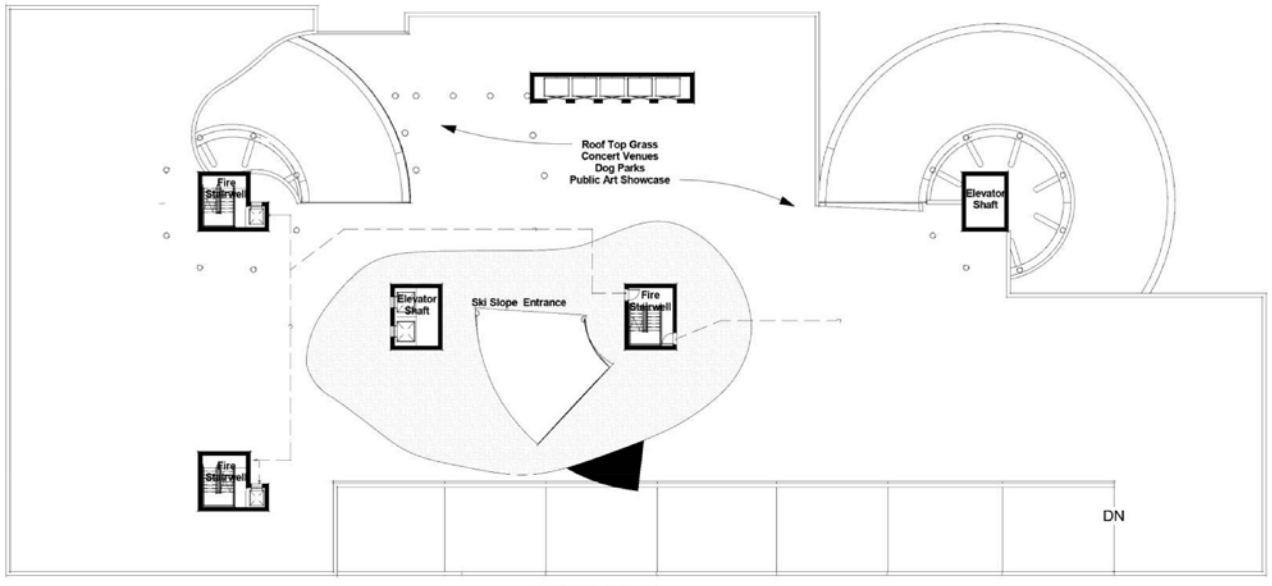




SEVENTH LEVEL

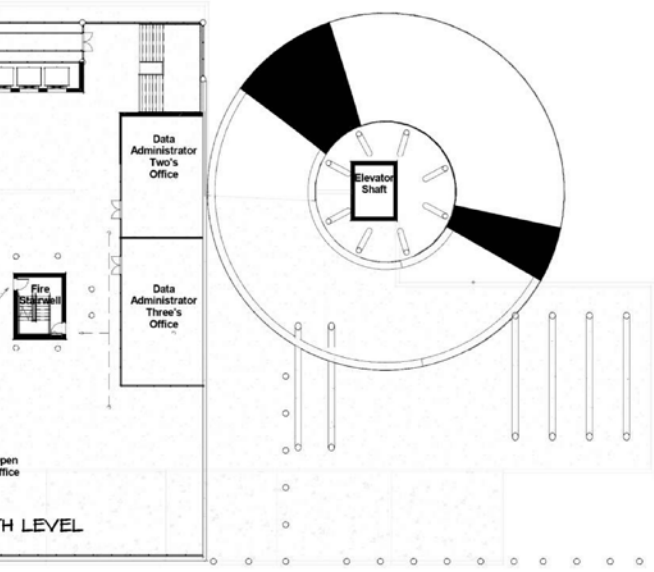
RD LEVEL



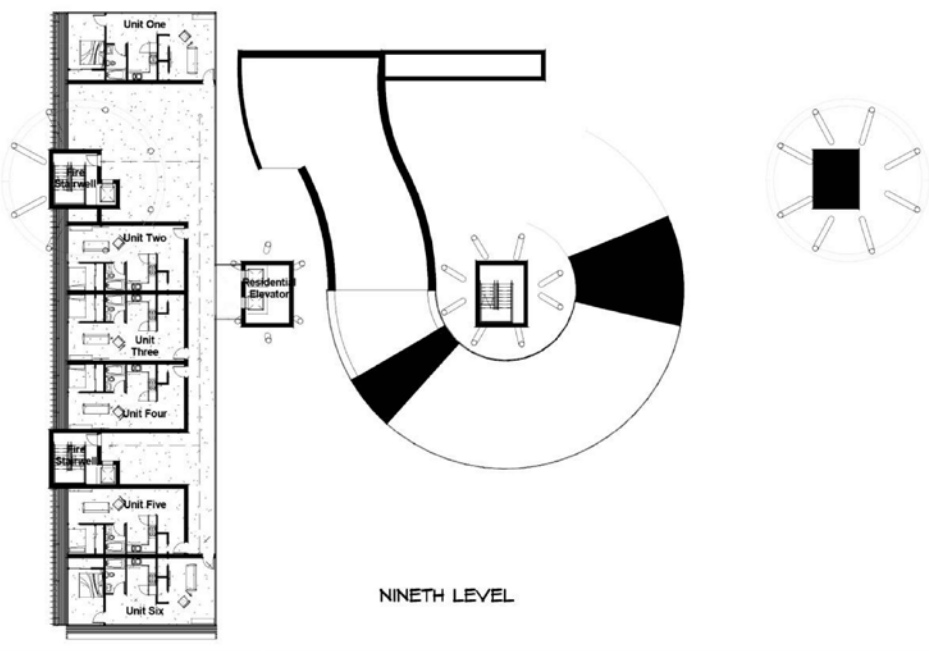


EIGHTH LEVEL

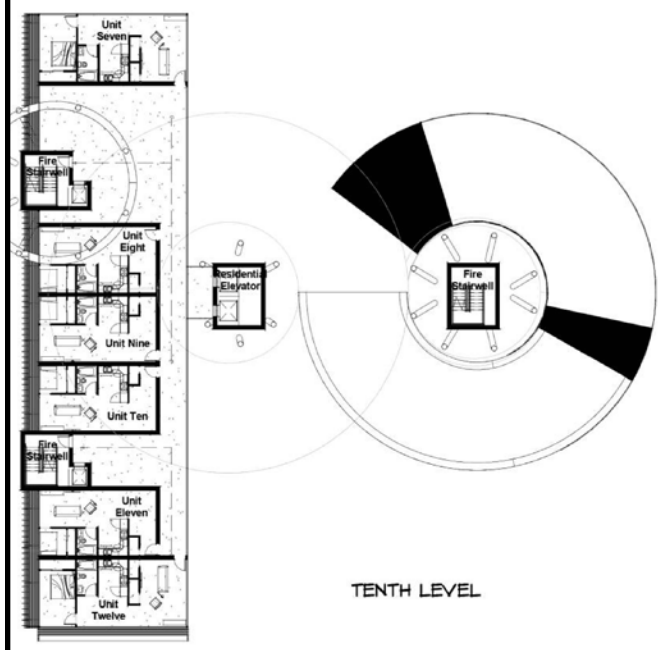
RTH LEVEL



TH LEVEL

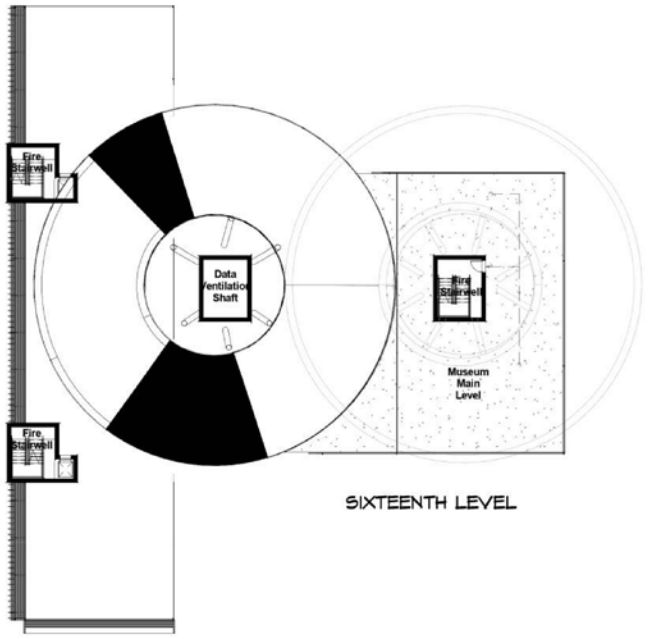


NINETH LEVEL



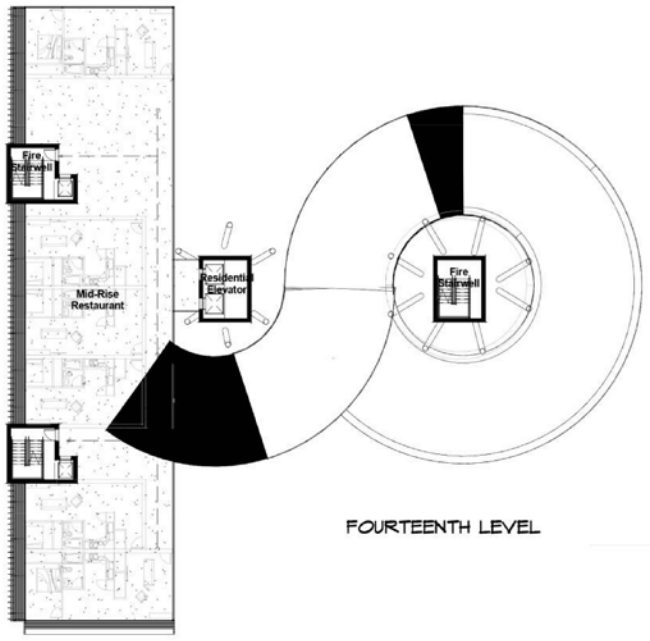
TENTH LEVEL

THIRTEENTH LEVEL

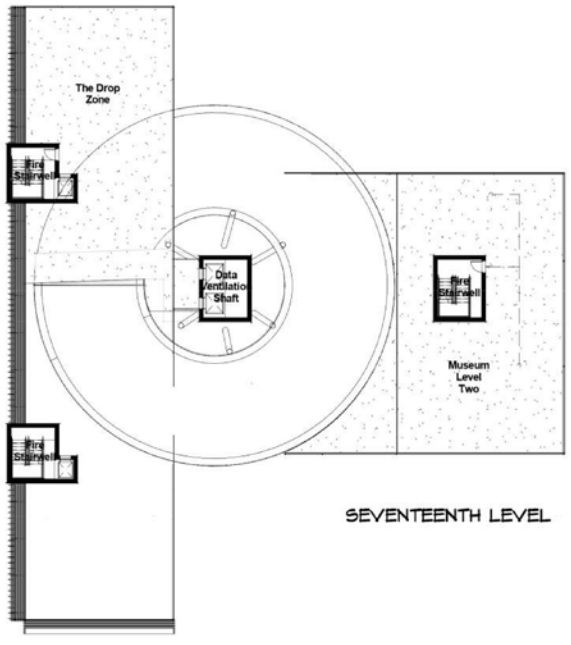


SIXTEENTH LEVEL

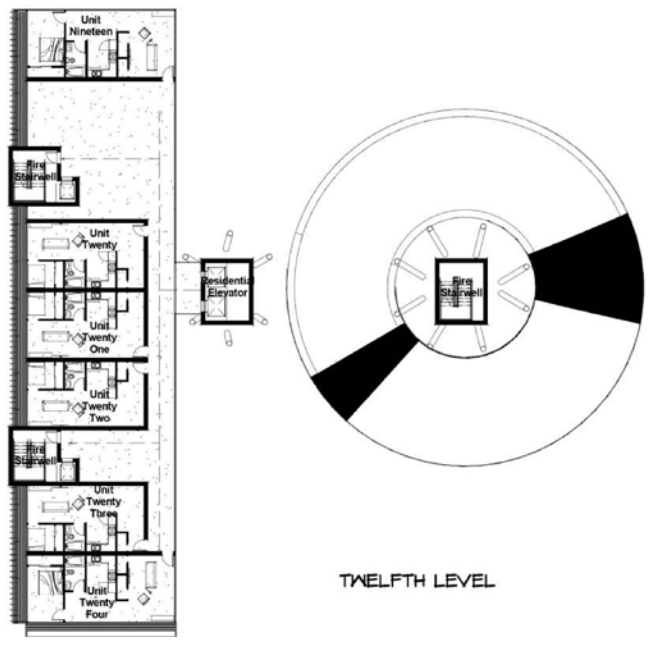
ELEVENTH LEVEL



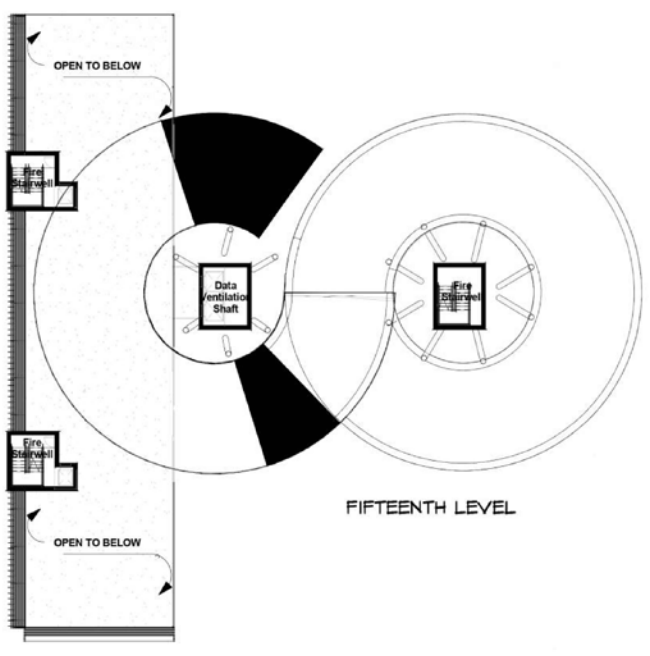
FOURTEENTH LEVEL



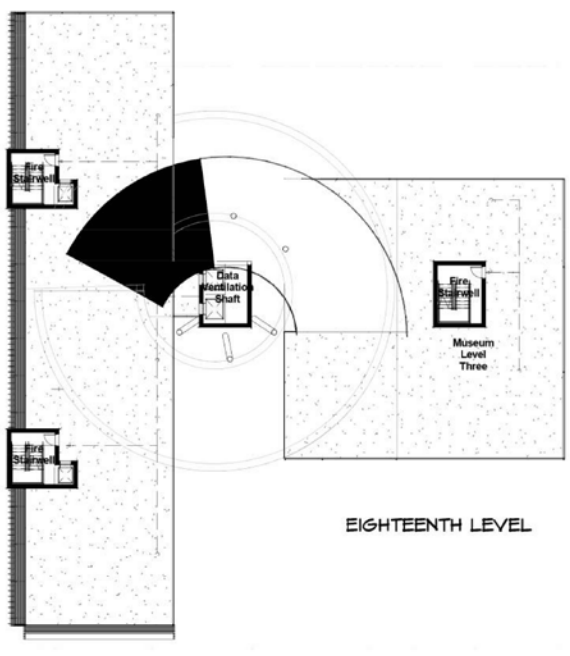
SEVENTEENTH LEVEL



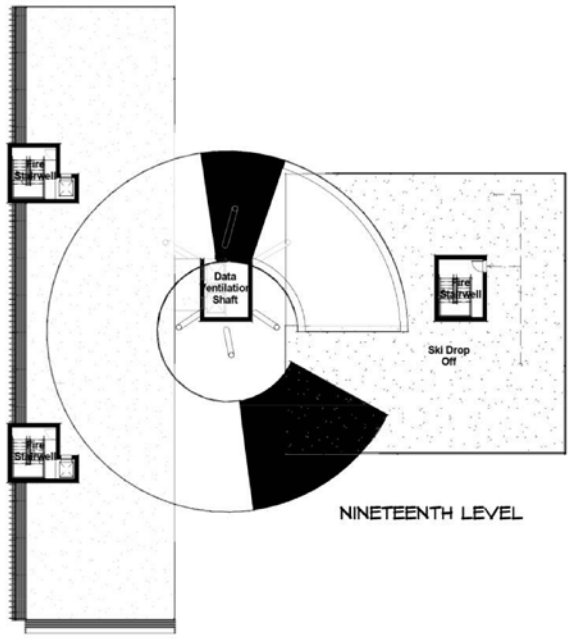
TWELFTH LEVEL



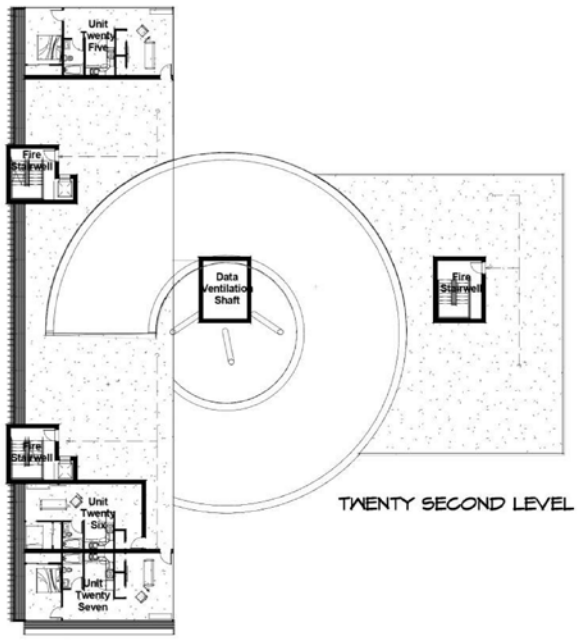
FIFTEENTH LEVEL



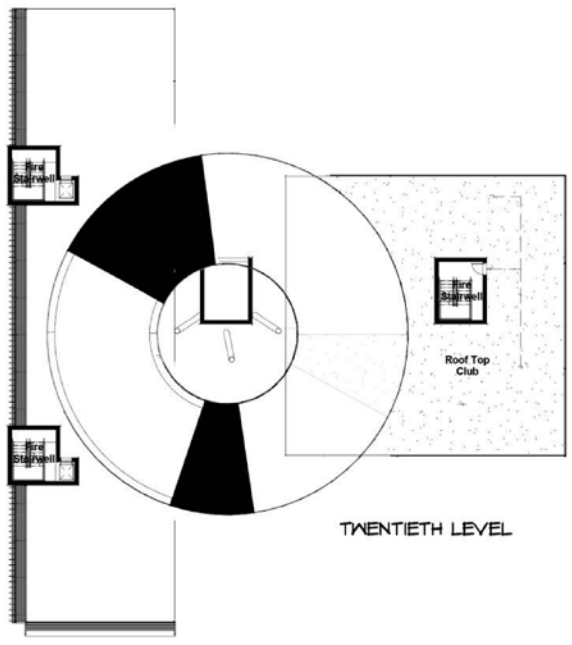
EIGHTEENTH LEVEL



NINETEENTH LEVEL

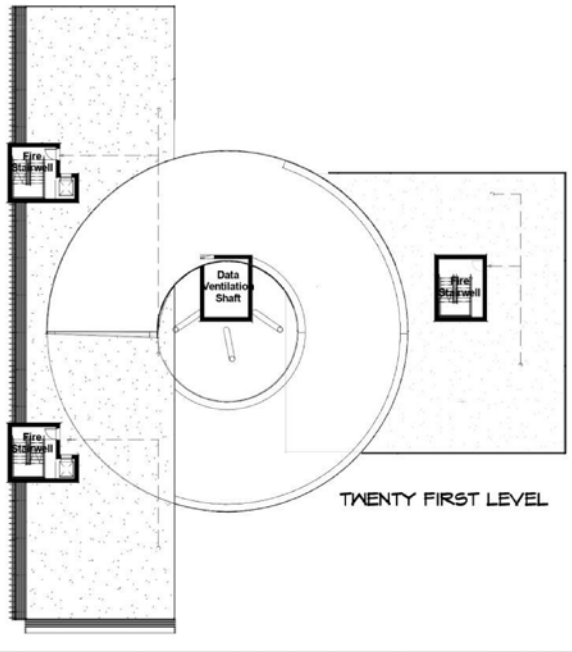


TWENTY SECOND LEVEL

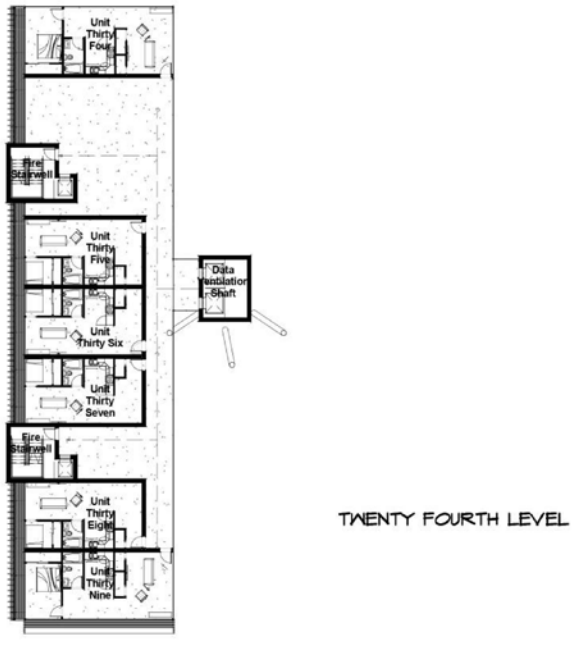


TWENTIETH LEVEL

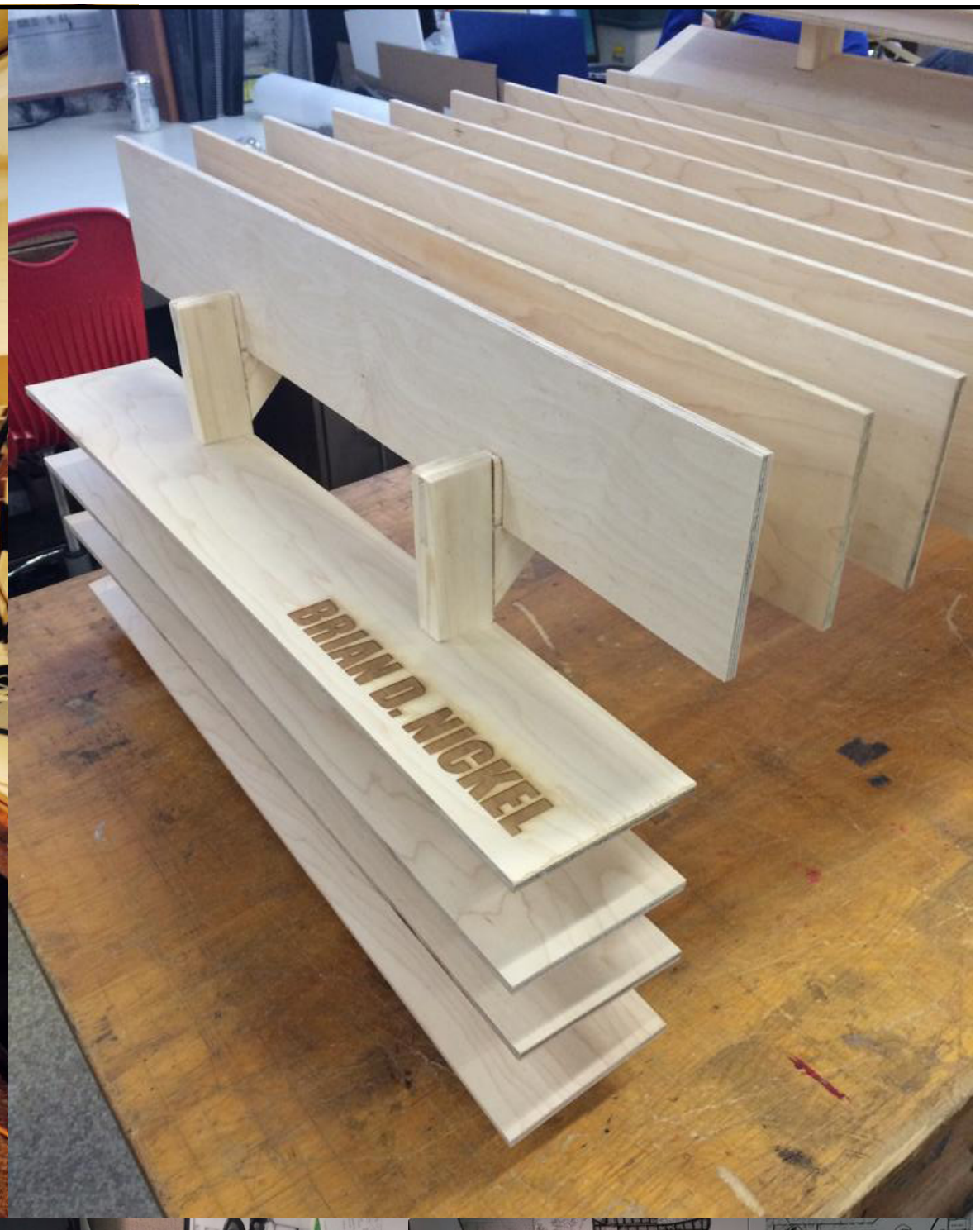
TWENTY THIRD LEVEL

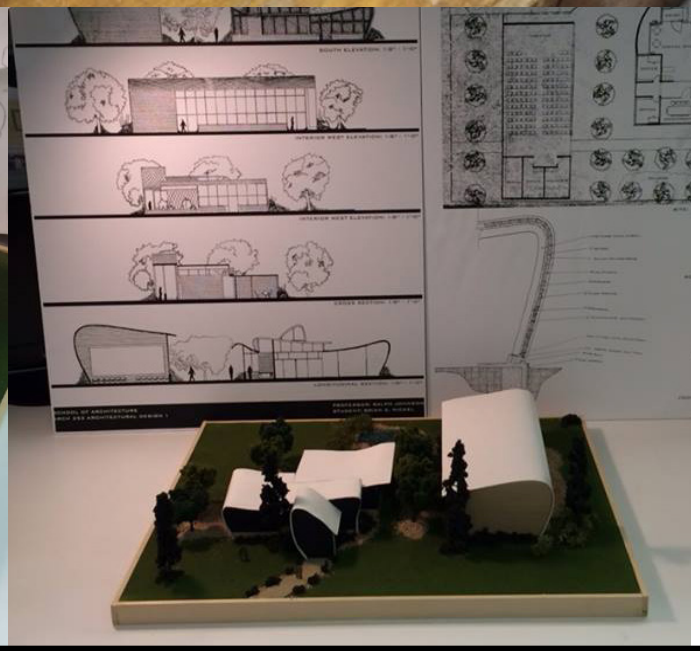


TWENTY FIRST LEVEL



TWENTY FOURTH LEVEL


BRIAN D. NICKEL



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