Douglas Sharpe

Associate AIA, LEED Green Associate

Application Documents

Seeking Employment

- Applying for position of Architect
- United States citizen with valid Danish Work & Residence Permit
- Available for immediate hire

Address
Amager Strandvej 158C, 2 th
2300 København S
Danmark

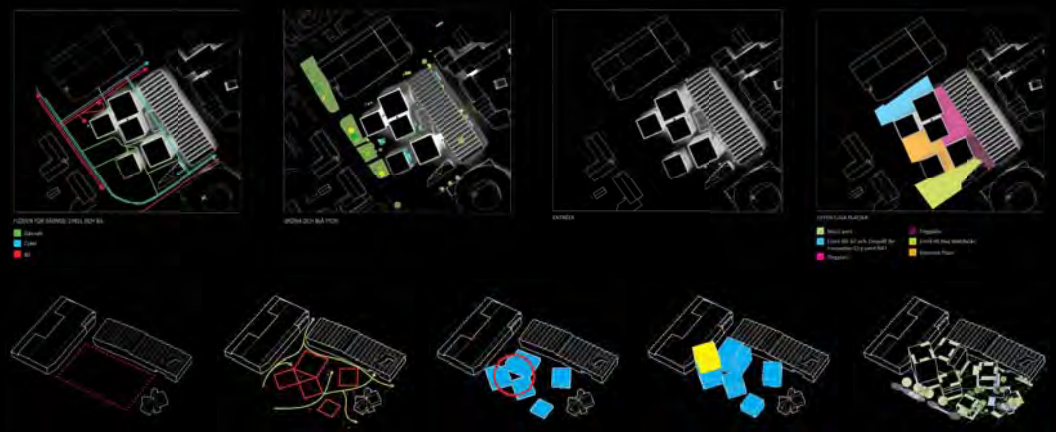
Contact Information
- Telephone: +45 2680 2969
- E-mail: dougwsharpe@gmail.com
- Website: www.dougwsharpe.com

Table of Contents

Ebbepark masterplan

Ebbepark masterplan
aerial axonometric

Linköping Innovation City
concept diagrams

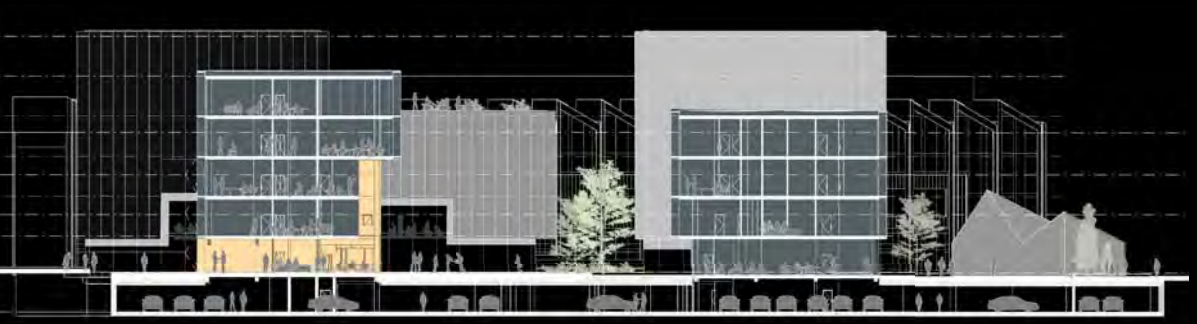


Ebbepark - Linköping Innovation City

Location: Linköping, Sweden | Design Architects: ARROW Architects | Architect of Record: Winell & Jern Arkitekter
Status: Early Construction, Design Development & Detail Design

ARROW Architects is a registered Danish architecture practice that is engaged with projects in several countries. The Ebbepark project, located in Linköping, Sweden, consists of a masterplan overhaul of a previous industrial complex, and the new proposed programme will include multi-storey office & residential buildings, commercial retail & dining, light industrial, indoor & outdoor recreational facilities and a primary school. ARROW Architects are the design architects with responsibilities of the masterplan, schematic design of all proposed buildings, and detail design of select buildings.

The buildings presented on these sheets, Linköping Innovation City, is one of the proposed zones awarded to our office to develop from schematics to construction - in collabaration with the local architects, Winell & Jern. The building programme for this specific zone includes 22,000 m² of multi-storey office and collaborative research spaces, as well as indoor recreation facilities and studio housing. My responsibilities for the project consisted of the title as BIM (Revit 2016) Manager, while also tasked with the duties of Architect for space planning the programme requirements, revising schematic drawings and developing technical/detail drawings to adhere to local building codes and client demands, while also researching and implementing sustainable building elements and materials to achieve BREEAM 'Excellent' requirements.

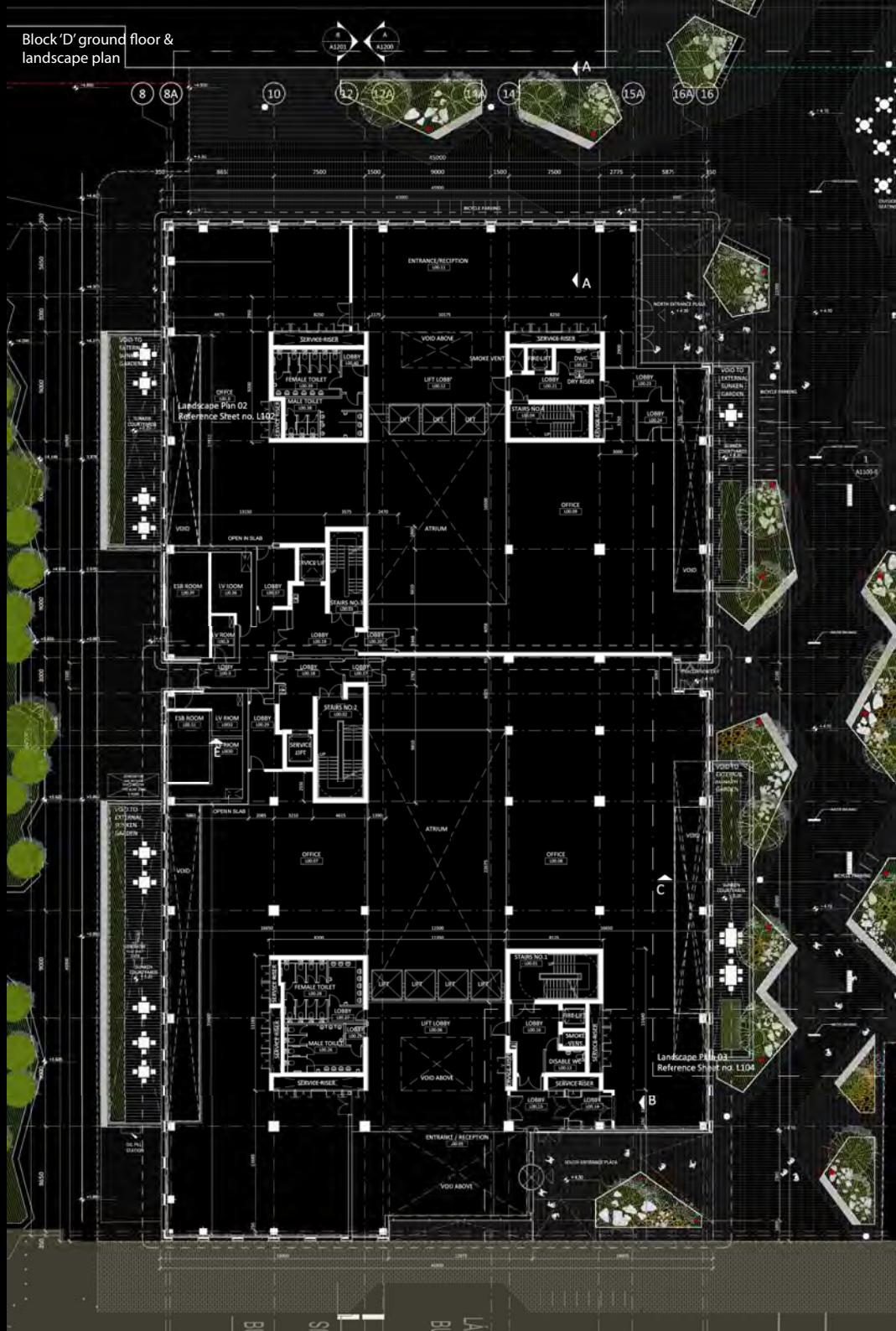


Linköping Innovation City building section

Linköping Innovation City
ground floor plan

Linköping Innovation City
eterior & interior renderings
(developed by design team)

Block 'D' building renderings
(developed by design team)



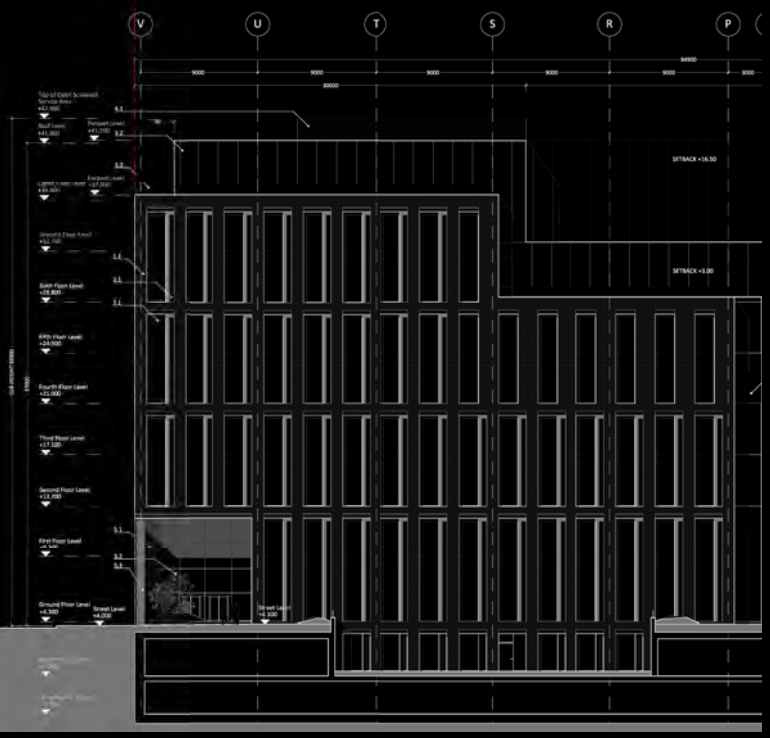
Block 'D' ground floor &
landscape plan

Dublin Landings - Block 'D'

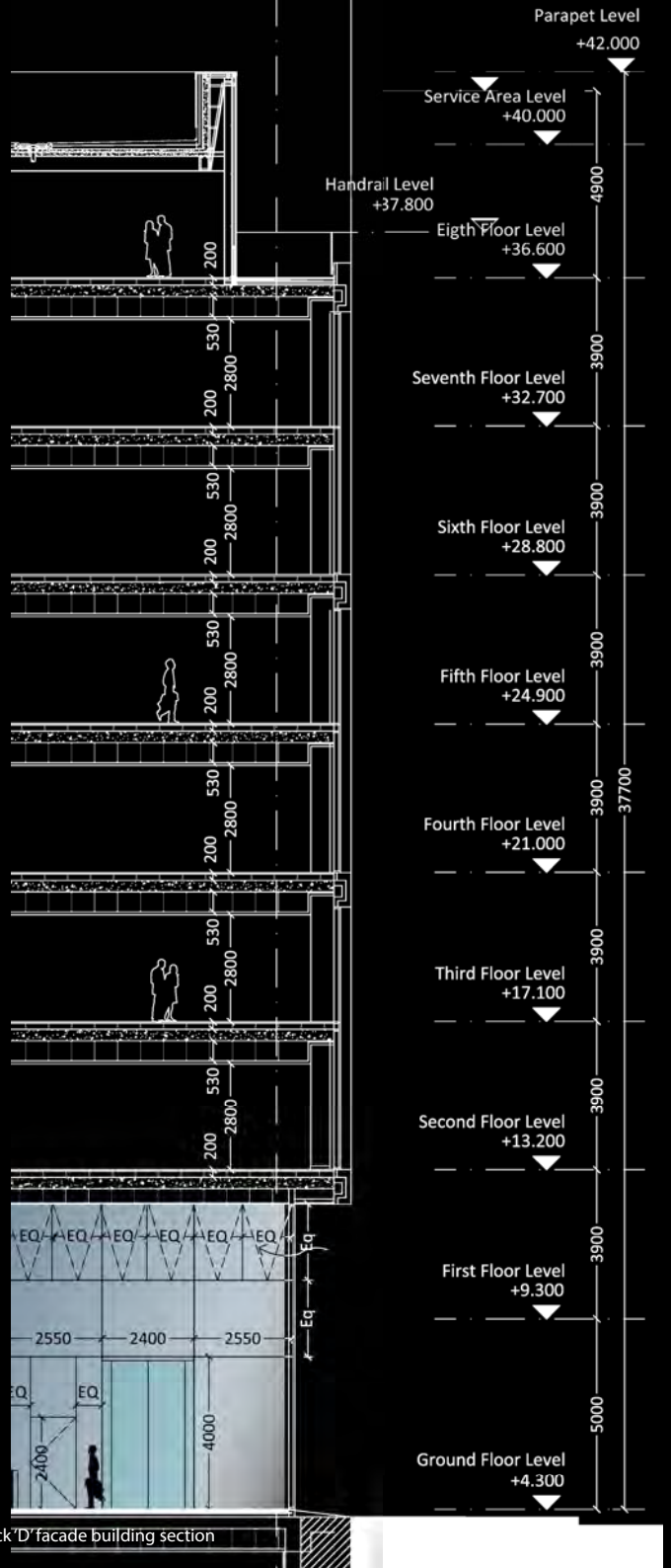
Location: Dublin, Ireland | Design Architects: ARROW Architects | Architect of Record: RKD Architects
Status: Early Construction, Design Development & Detail Design

ARROW Architects is a registered Danish architecture practice that is engaged with projects in several countries. The Dublin landings project, located in Dublin, Ireland consists of a 22,000 m^2 masterplan proposal of a previous industrial harbor shipyard and warehouses. The new proposed programme will include multi-storey office & residential buildings, with commercial retail & dining and outdoor leisure spaces. ARROW Architects are the design architects with responsibilities of the masterplan, schematic design and detail design of all proposed buildings.

The building presented on this sheet, Block 'D', is one of four major buildings that our office will develop from schematics to construction - in collabaration with the local architects, RKD Architects. The programme for this specific building includes 30,000 m^2 of multi-storey office space for several high-profile tenants. My responsibilities for the project consisted of the title as Architect, working primarily with Revit and AutoCAD for space planning the programme requirements, revising schematic drawings and developing technical/detail drawings to adhere to local building codes and client demands. I have also assisted with modeling design proposals using Rhino, and specifically Grasshopper for the development of a perforated metal panel system featured at the building's main entrances.



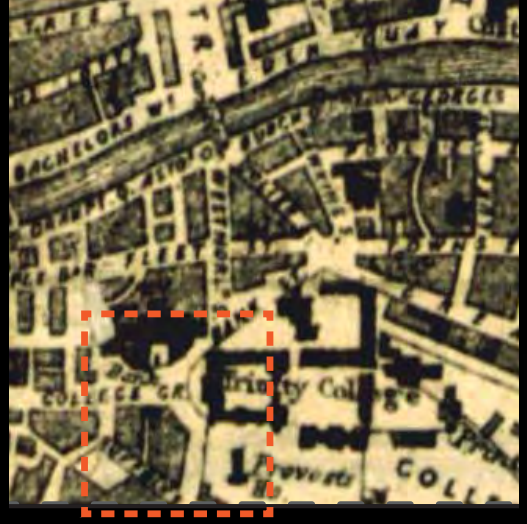
Block 'D' building elevation & section



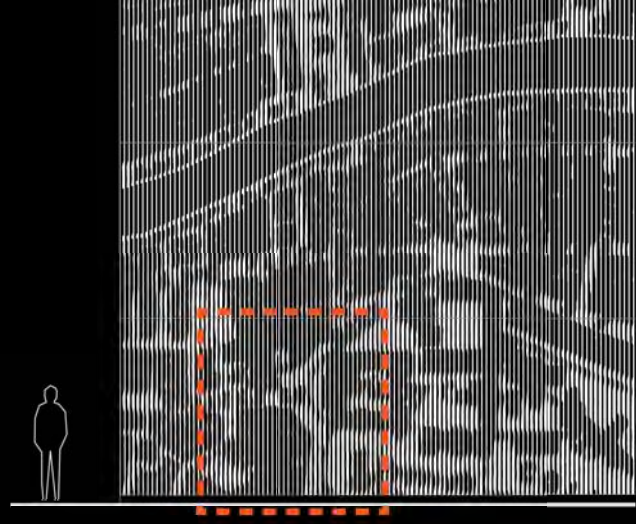
Block 'D' facade building section

Block 'D' exterior & interior renderings
(developed by design team)

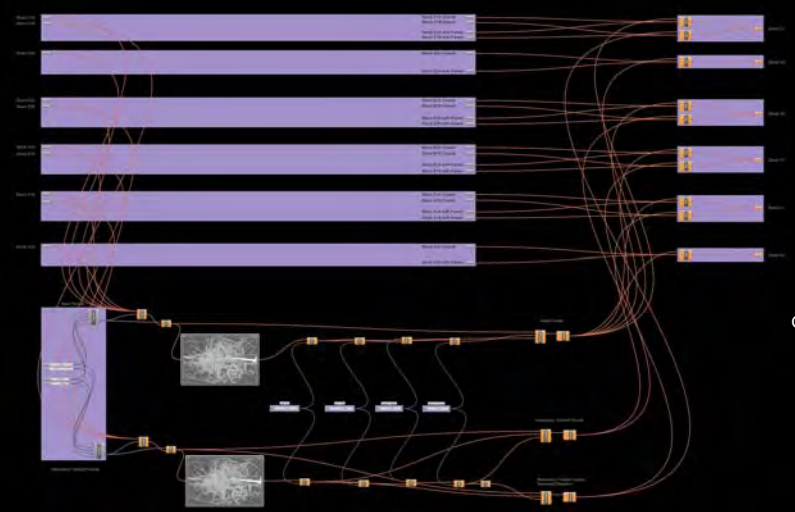
Dublin historic map with block panel overlays



Partial Block 'D2' map image

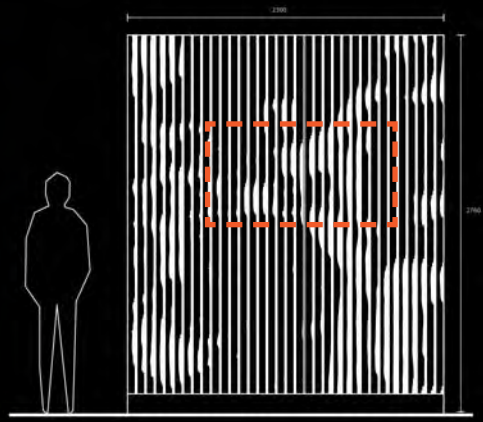


Partial Block 'D2' computer generated panels



Grasshopper definition

Block 'D2' map image detail



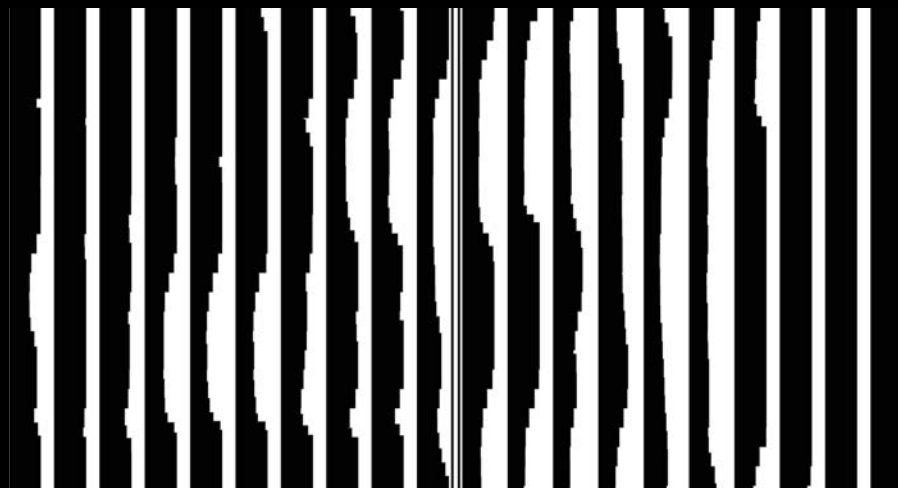
Block 'D2' computer generated panels detail

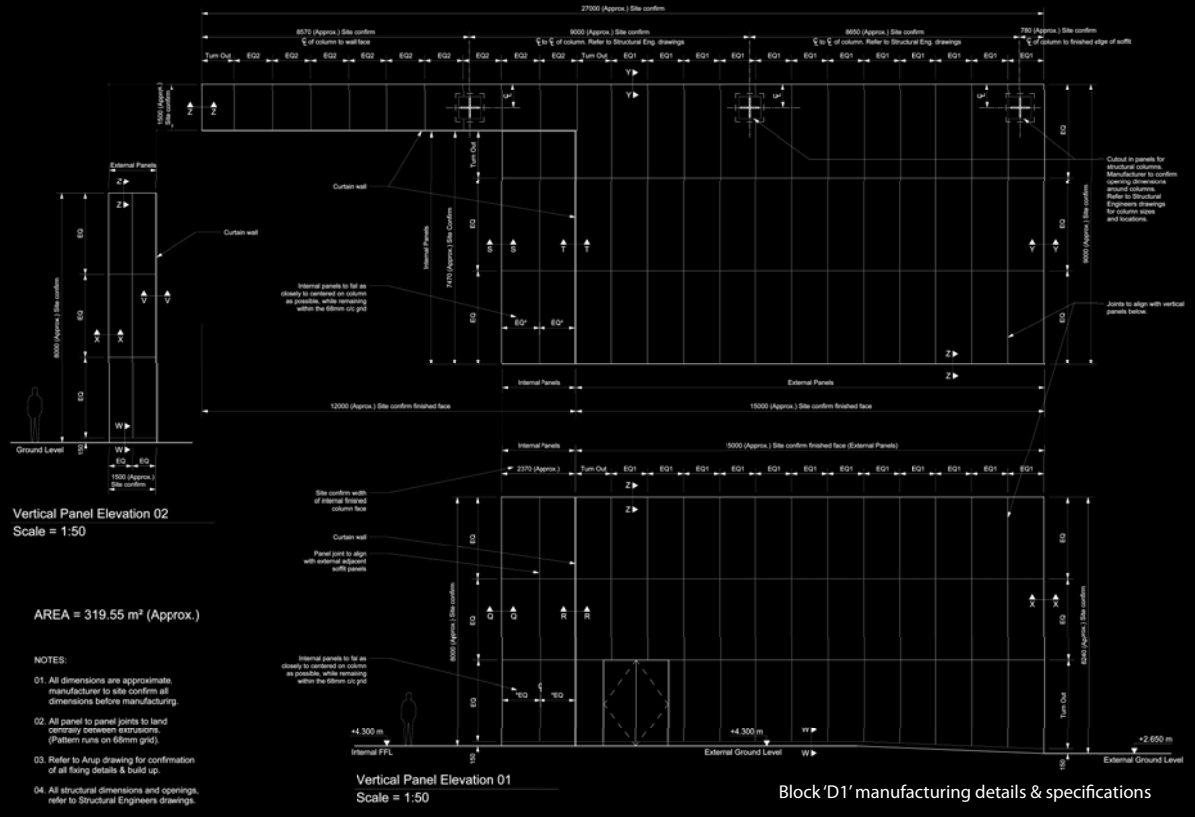
Dublin Landings - Indent Panels

Location: Dublin, Ireland | Design Architects: ARROW Architects | Architect of Record: RKD Architects | Facade Consultants: Arup
Status: Test Cutting Components and Producing Details and Specification Drawings

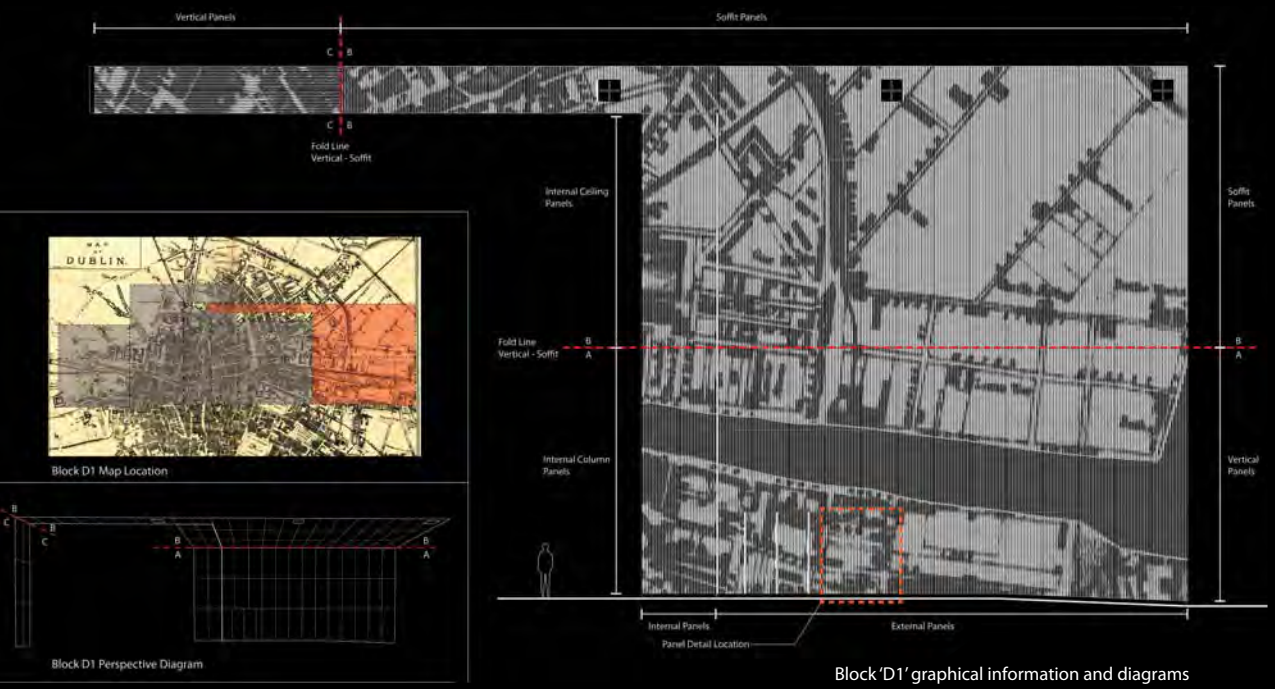
The Dublin Landings project was proposed with facade panels that are featured at the main entrances of each of the buildings on site - six entrances in total. The thematic concept was decided to overlay portions of a historic map onto the facade and soffit surfaces of each individual entrance, and we utilized the parametric modeling software, Grasshopper, to develop different pattern iterations of the map. The Grasshopper definition allowed for the exploration of various panel assemblies that included laser cut perforations, machining punch outs, and CNC routed strips. The final decision was to develop CNC routed aluminum strips that are affixed to large metal sheets approximately the size of 1200 mm x 2800 mm. We used a technique in Grasshopper that interprets cutting depths of the strips which are based on color gradients of the historic map. In simplistic terms, the portions of the map with a lighter color will instruct the CNC router to cut more material out of the metal strip.

With my background in generative design software and digital fabrication, I was eager to accept the task as the lead designer of this component of the project. My tasks included development of the Grasshopper definition, testing and producing many different variations, exporting digital ideas into presentation documents, and collaborating with the project design team, facade consultants and manufacturers. The entrance panels task allowed me to showcase my diverse set of skills and knowledge, not only with generative design and digital fabrication, but also for developing graphics and diagrams, providing files for test cuts and mockups, working with consultants to discuss limitations and tolerances of materials and machinery, and producing detailed CAD drawings for pricing, feasibility and constructability.





Block 'D1' manufacturing details & specifications

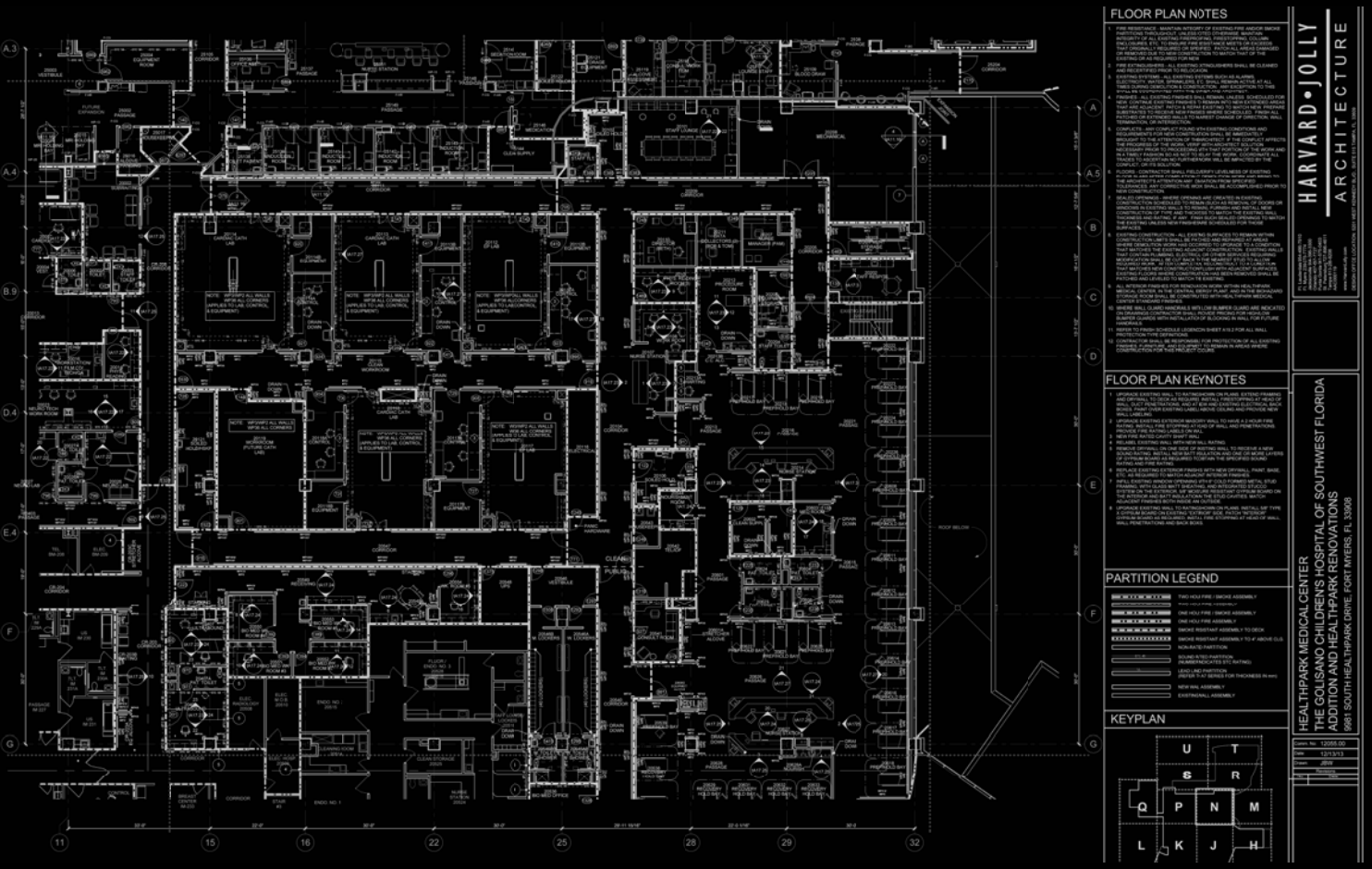


Block 'D1' graphical information and diagrams

Panel test cut photographs

Block 'D1' exterior renderings (developed by design team)

partial second floor plan of
Construction Document set



existing
project site

exterior renderings
(developed by
FKP Architects)

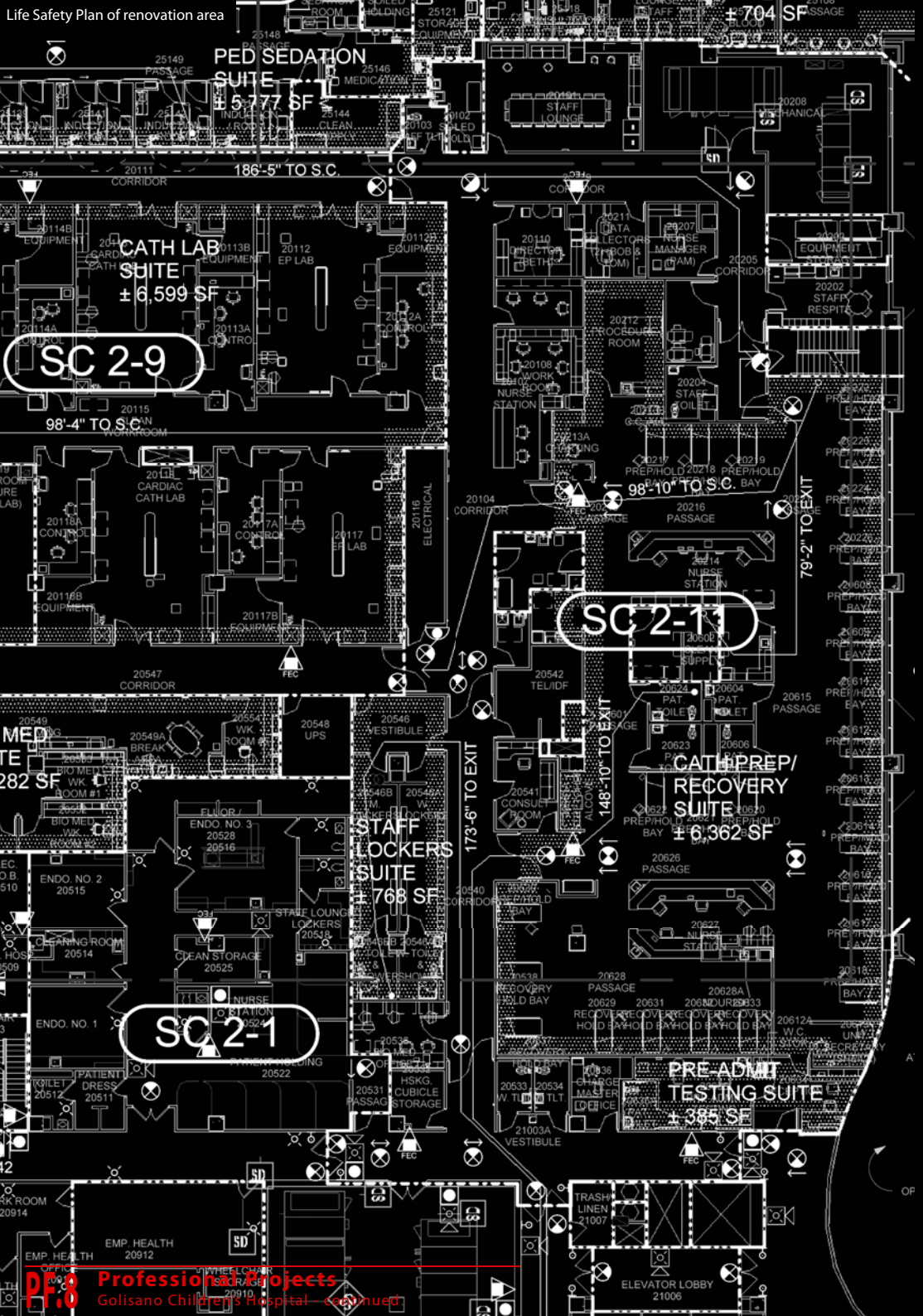
Golisano Children's Hospital of Southwest Florida

Location: Fort Myers, Florida, United States | Design Architects: FKP Architects | Architect of Record: Harvard Jolly Architecture |
Status: Under Construction

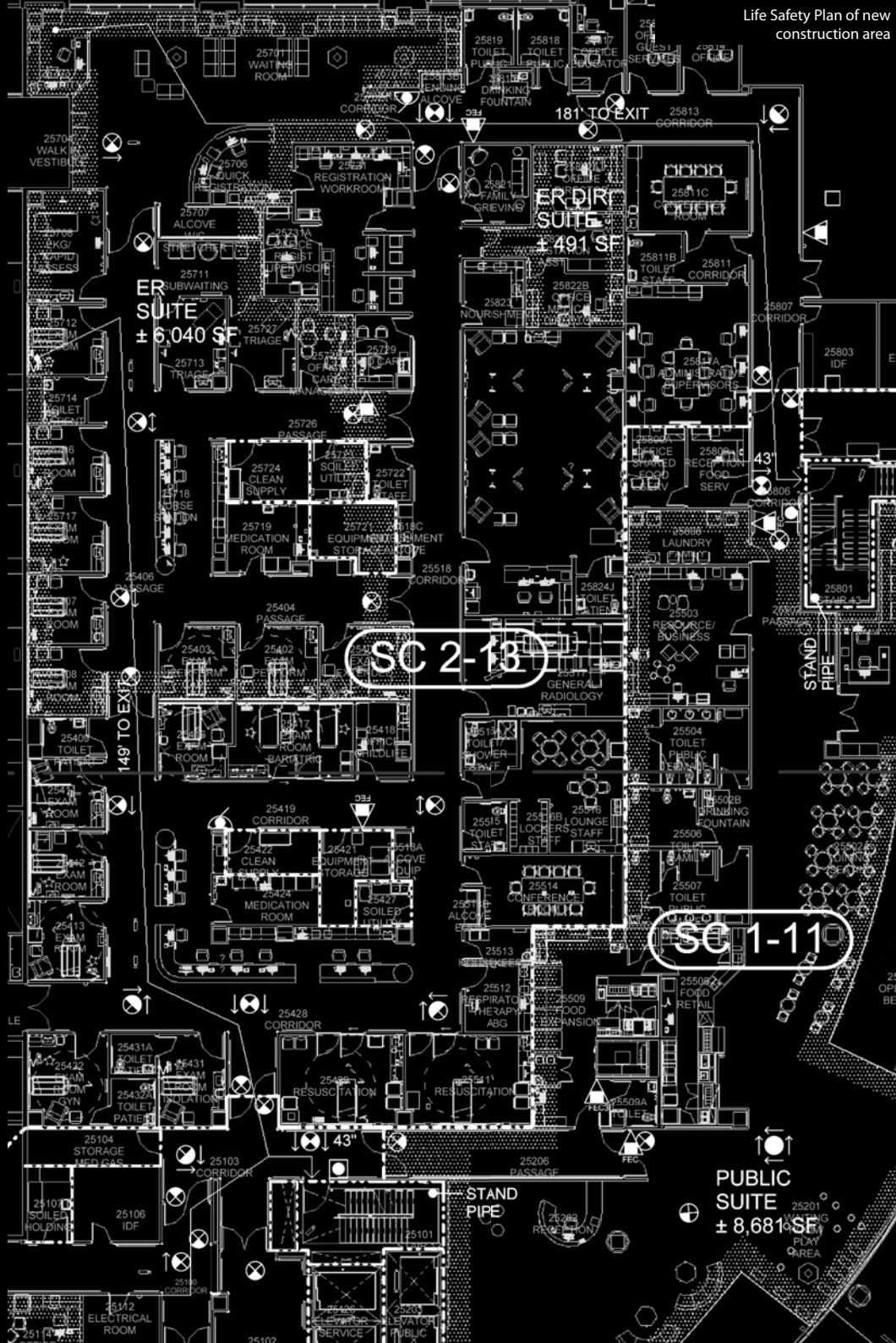
Harvard Jolly Architecture is a fully licensed organization that offers complete architectural services throughout the state of Florida. The Tampa office specializes in Education and Healthcare, and during my previous tenure - October 2012 through January 2014 - I worked nearly exclusively on the Golisano Children's Hospital project as a Junior/Graduate Architect. The proposed healthcare facility is located in Fort Myers, Florida, and is operated by the Lee Memorial Healthcare System (LMHS). The scope of the work included more than 8,300 m^2 of renovations on three floors of the existing building, as well as more than 27,800 m^2 of a newly constructed 8 storey medical/hospital tower located adjacent to the existing building. Multiple architecture firms are associated with the project - FKP Architects, the Design Architects and Harvard Jolly Architecture, the Architect of Record.

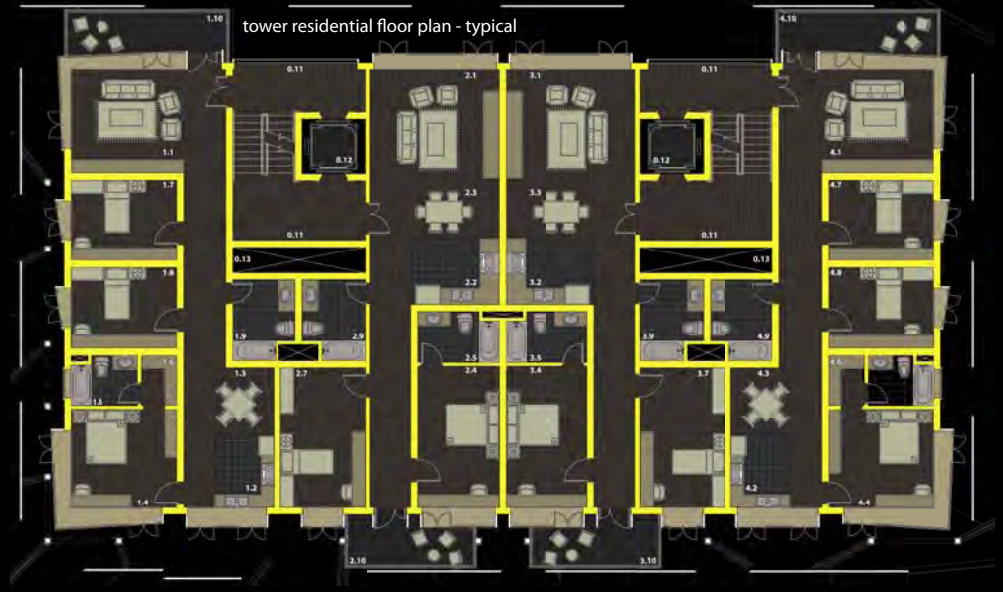
For The Golisano Children's Hospital project, I worked closely with the project architects to develop the construction document set of more than 450 Architectural sheets, alone, primarily using Revit Architecture 2013 for design, modeling and production. Additional tasks during the project included coordinating building components with engineers, clients and consultats, and verifying compliance of the Florida Building Code (FBC), National Fire Protection Agency (NFPA), Americans with Disabilities Act (ADA) and regional Healthcare codes and regulations.

Life Safety Plan of renovation area

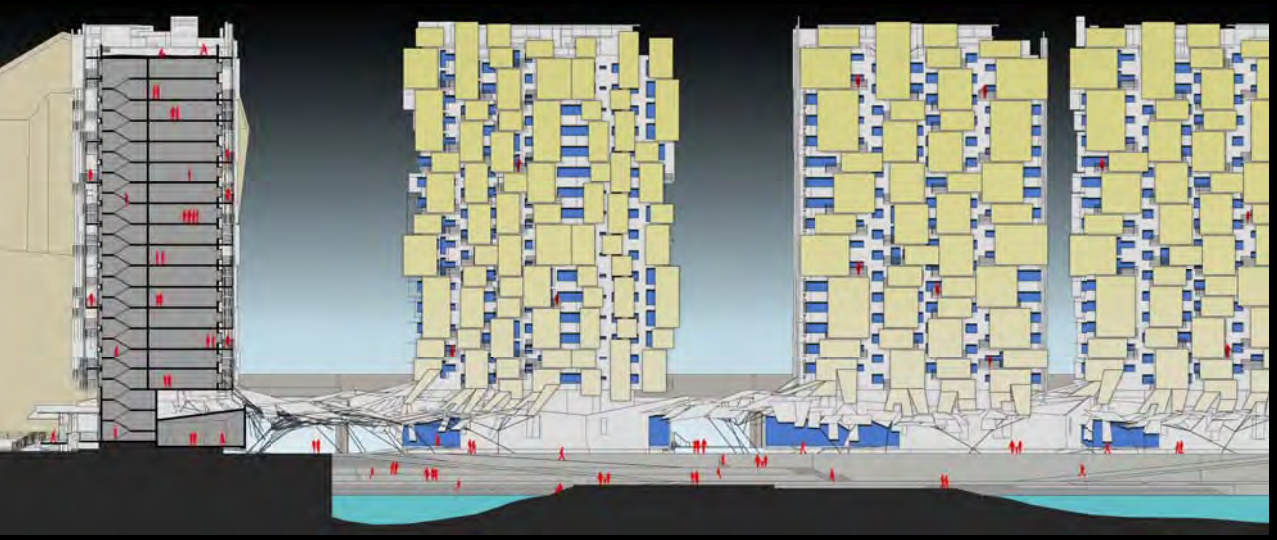


Life Safety Plan of new construction area





site plan



site & building sections

site planning diagrams

Nansha Coastal Residential Towers

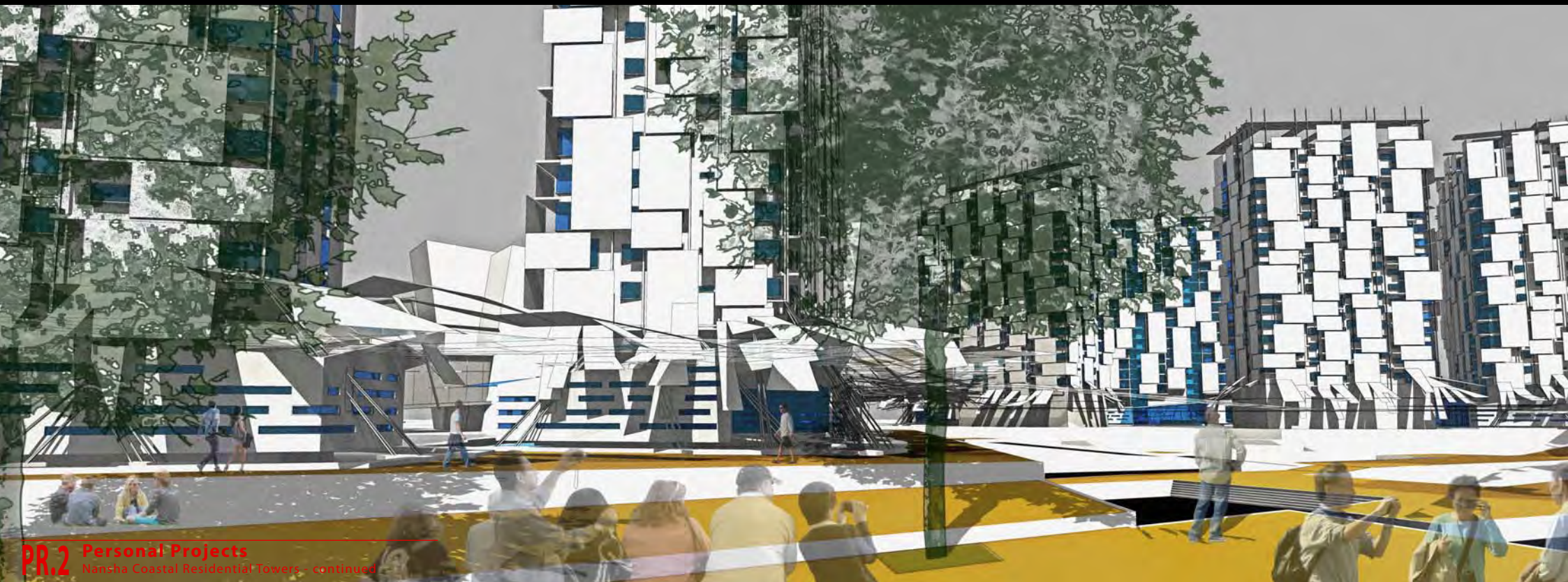
Location: Guangzhou, China

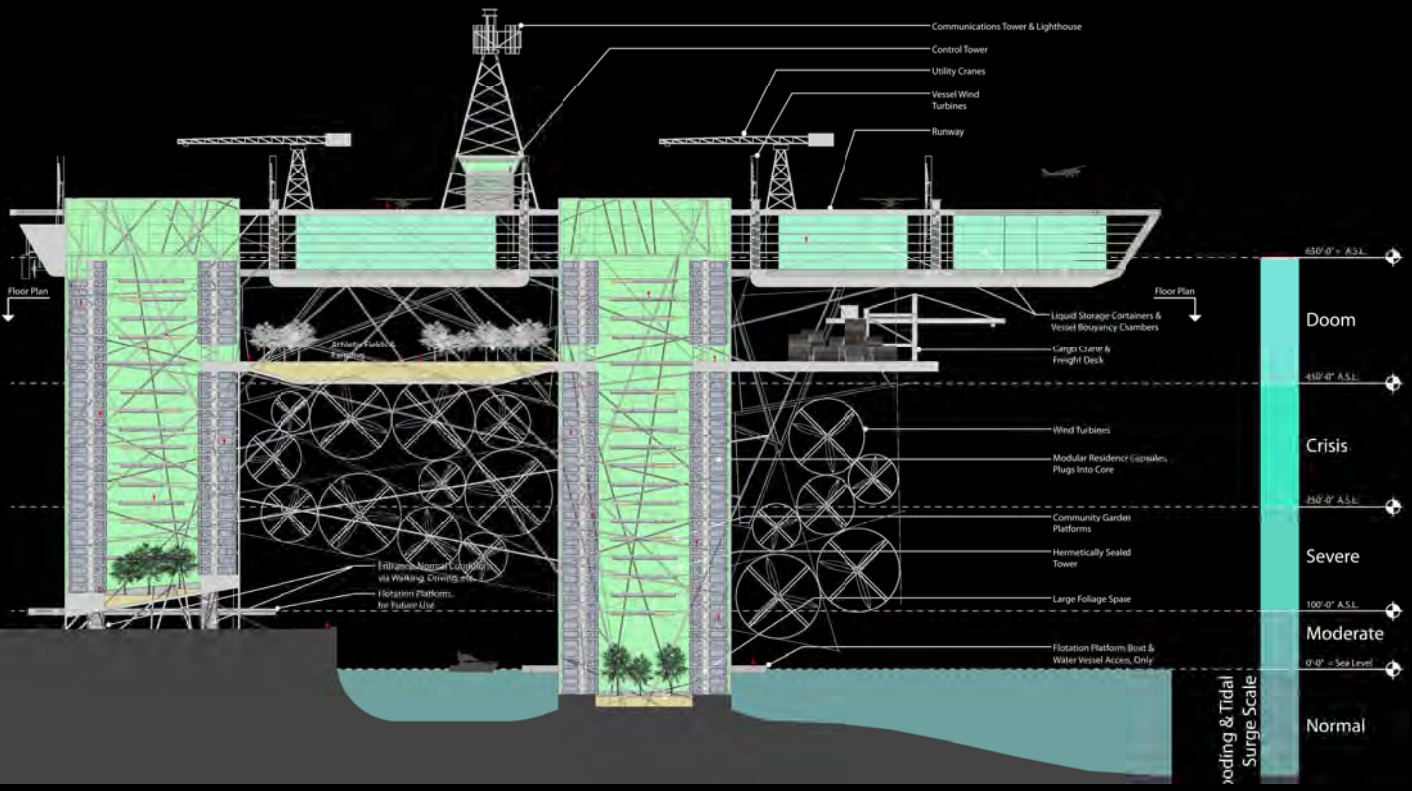
*Note: This project began as an undeveloped component of a multi-phase graduate studio project. Over the years I have been working to bring the project to its intended concept, while also allowing me to maintain my software skills when I was afforded spare time.

This specific phase of a graduate studio project required our team to develop mixed-use commercial and residential towers. There was not a requirement for total living units; however, we were not to exceed 128,000 m^2 while also meeting all relevant Chinese building codes - most notably, fire and daylighting requirements. The studio project was mainly concerned with the development of the site's 4-star hotel, and in the consideration of studio time and interest by my fellow team members, the residential phase was severely incomplete and lacked in overall quality.

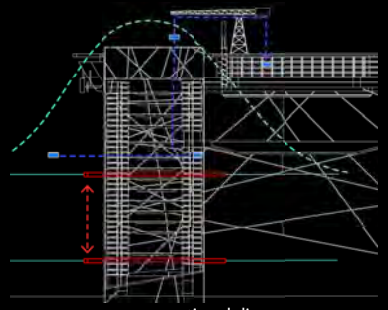
I have taken it upon myself to finish this project to my own personal level of satisfaction, and instead of the very bland towers that were originally proposed, I have made the project much more interesting in terms of architectural expression, sustainability and quality planning for the residents and patrons of the new development. The most iconic elements of the towers are the dynamic facade panels that drape down from the towers and spread into the canopy below. The panels that receive the most sunlight are recommended to also have solar cells built into them for onsite renewable energy, while all facade panels help to diffuse direct sunlight. The canopy that transitions from the tower facade is proposed to connect from the farthest reaching site entrances and provide shade and shelter along the site's main commercial corridor. The arrangement of the facade panels varies by tower - each arranged to the discretion of the architect - allowing for a repetitive floor plan and identical tower shell to be visually enhanced with a dynamic building component.

site - production renderings (final renderings are in progress)

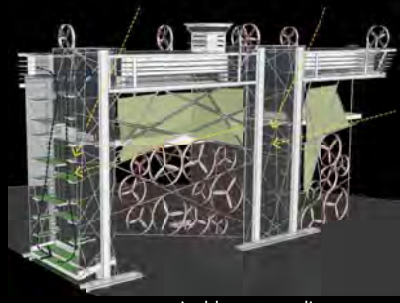




building section



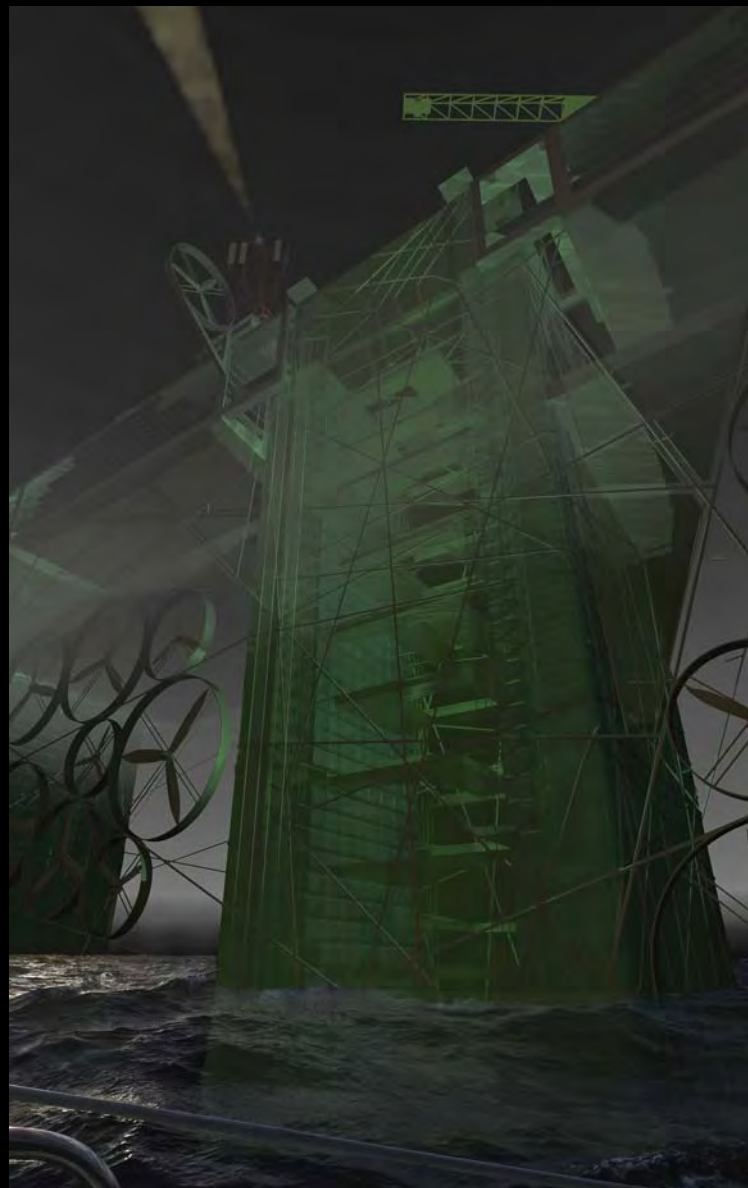
operational diagram



sustainable systems diagram

floor plan

exterior renderings

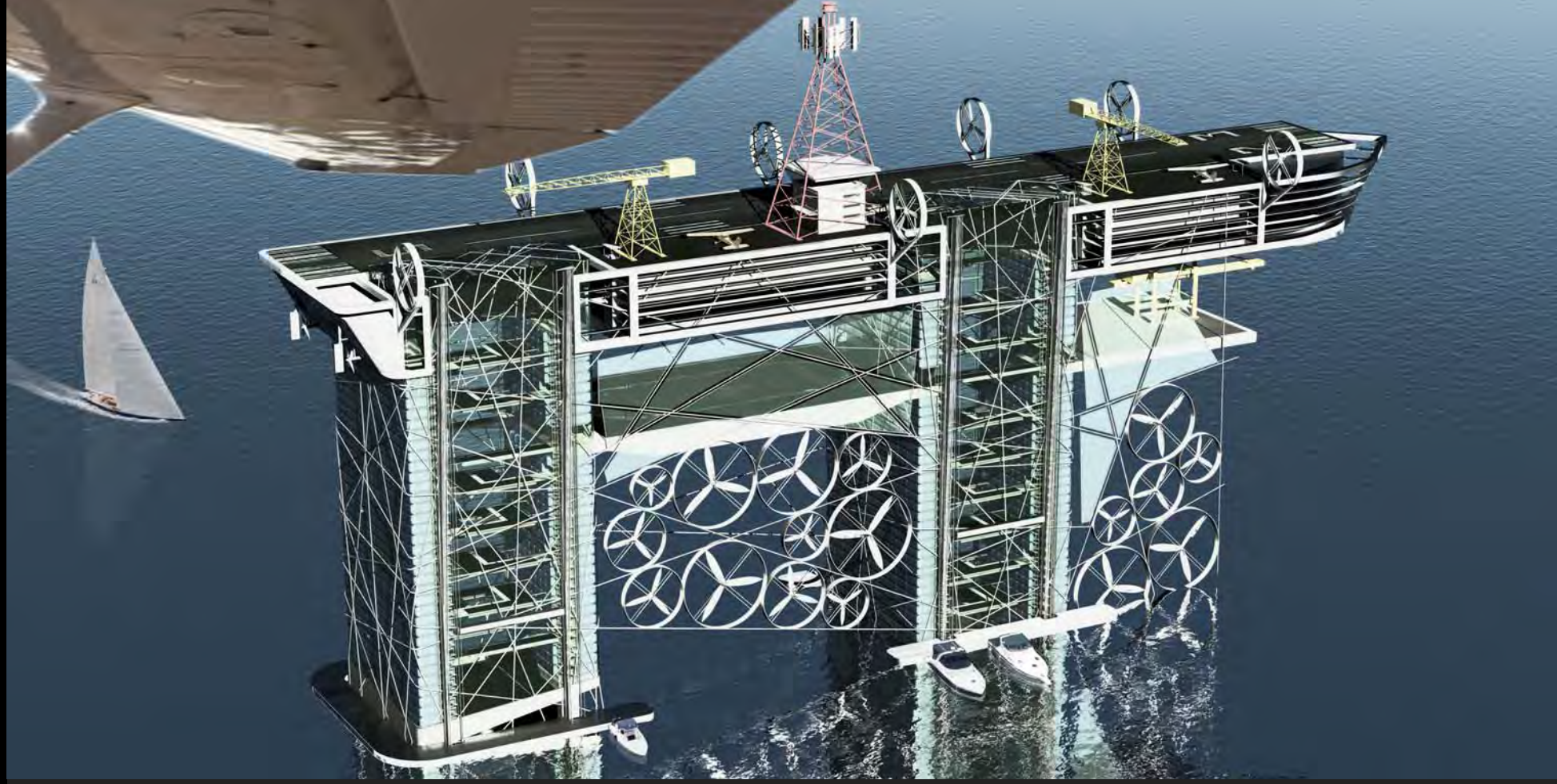


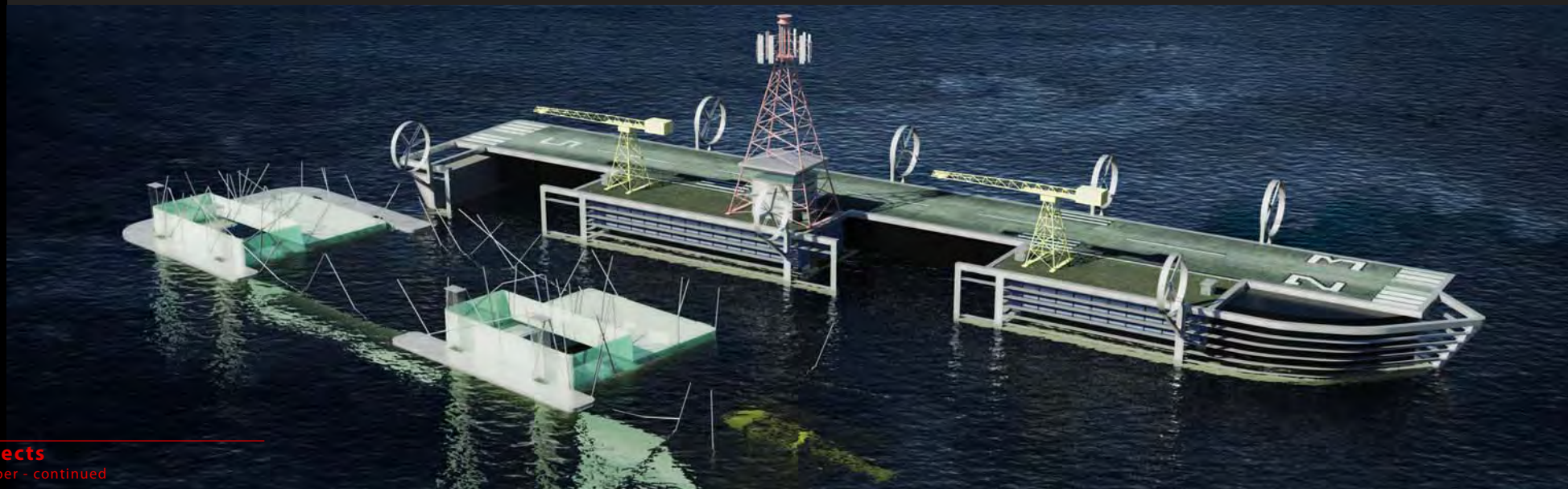
Adaptation Skyscraper

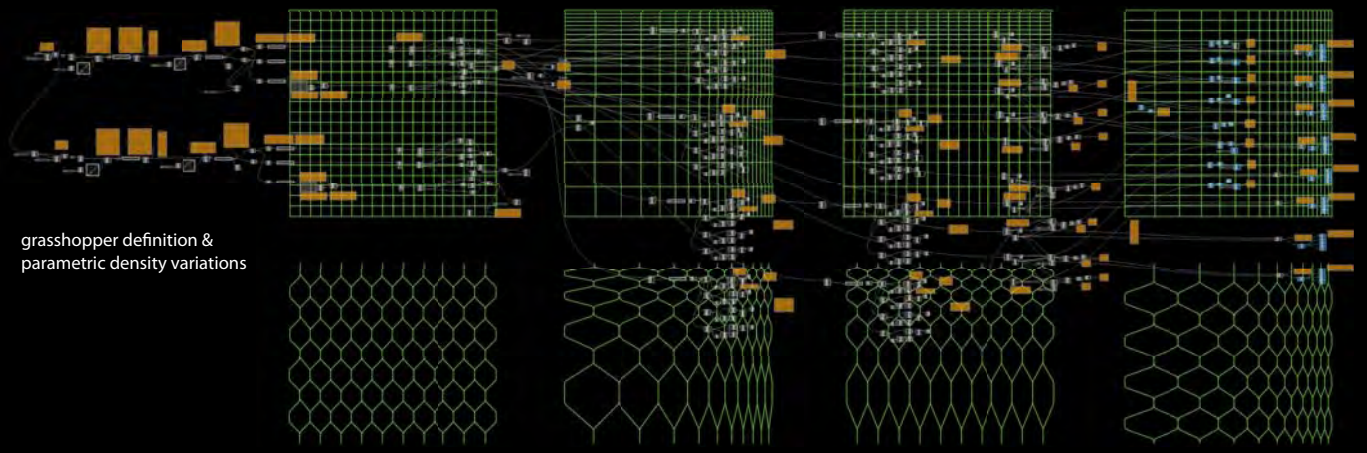
eVolo Skyscraper Competition 2014 | www.evolo.us

Is climate change real? Whether if you subscribe to the climate-change-is-a-hoax belief or if you are at the other end of the spectrum where climate-change-will-doom-mankind, there is plenty of evidence that climate change is very real and it is happening now. But at what rate is climate change occurring? Are sea levels rising at a rate that is not even quantifiable or noticeable, or are we calculating the strength and devastation of hurricanes and tsunamis seen around the globe and rightfully/wrongfully crediting climate change for such natural weather phenomena? Let us consider the extreme ends of the debate – believing climate change is not real and we need not worry versus those who believe the polar ice caps will melt and completely flood the planet. Whether one side is right or wrong, we can at least begin to think of ways to plan accordingly – for nothing or for the worst. The architect's answer… a flexible building that operates as any normal functioning building, but is also designed for the worst case scenario of a 600 foot permanent global flooding – quite the contrast.

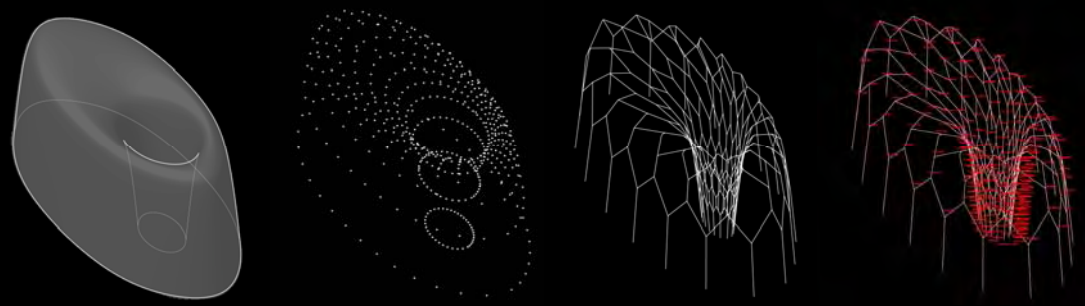
exterior
renderings







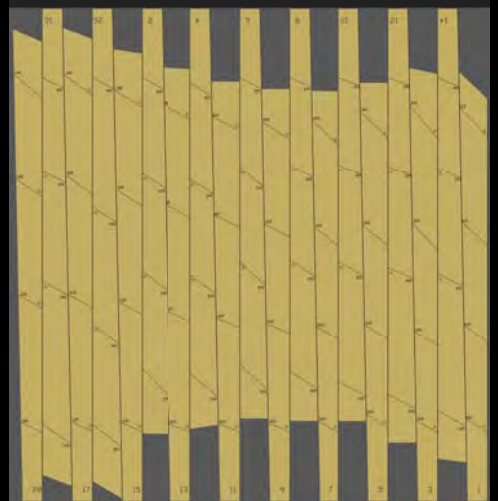
grasshopper definition &
parametric density variations



digital model development

final installation
detail photographs

final installation
cut-sheets



Composite

University of Michigan | Graduate Thesis Studio - Winter 2012 |
Professors: Glenn Wilcox & Wes McGee | Partners: Justin Garrison & John Simenic

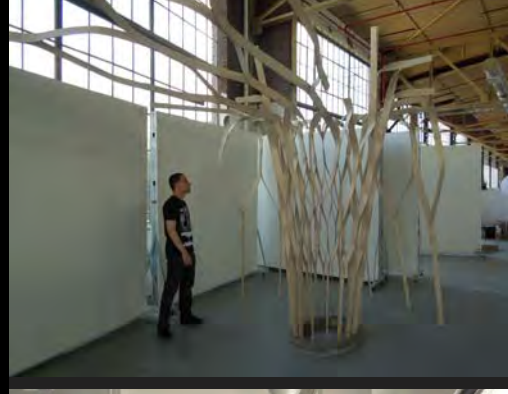
-My Tasks: Assist with Grasshopper definition development - Consultant for fabrication process - CNC rout wood bending jigs, water jet metal brackets - Assist with installation

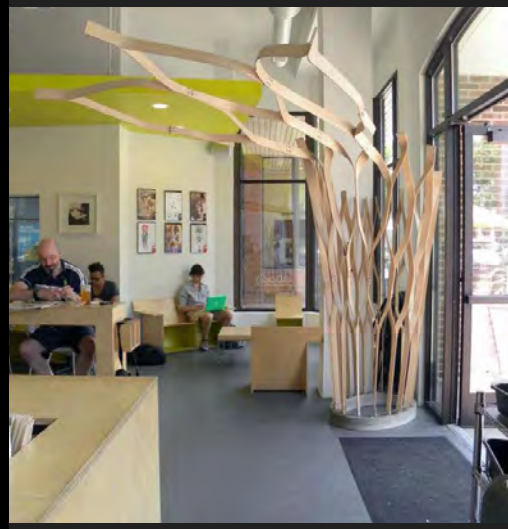
*Note: All images edited/formatted by D. Sharpe for use in work samples, portfolio & website.

Our thesis project is a design/build exercise that requires the production of a fully realized, one-to-one scaled installation. The required means of production for our thesis section would be through methods of digital fabrication, and our group has chosen to focus on the techniques of lamination wood bending for our installation.

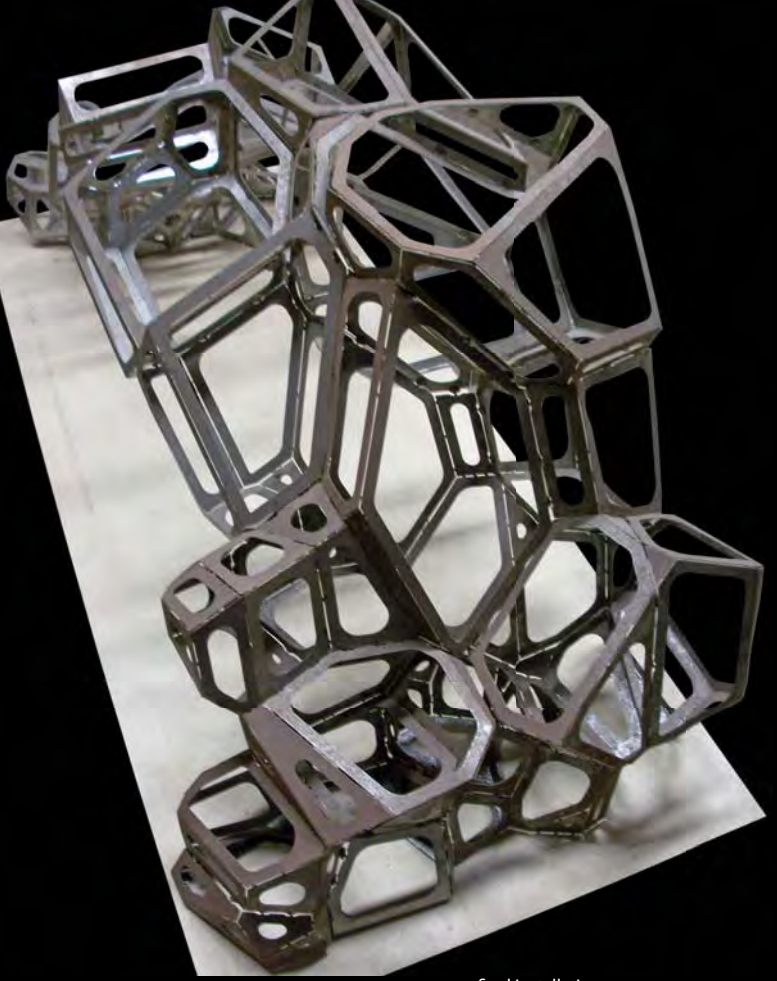
The use of computer software is absolutely mandatory for our project; however, we are interested in using the software to maximize its full potential by increasing the data output. We have created a digital model that is flexible and can offer beneficial data that will determine which design iteration will be the best choice. Rhinoceros is our primary software of choice, and we developed a complex Grasshopper definition that allows for parametric variations. Each iteration has an inherent set of data and our definition is able to calculate linear feet of material, the amount of time each member will require to be constructed, and also determine a rough estimate of the time required for the construction of the entire installation. Our Grasshopper definition also exports an etch layer that numbers each individual strip, while also providing a set of etched lines which indicates where the strips will bend, and denoting each of the bending angle degree numbers. A related film that documents the process of our project is available at my personal website.

final installation
photograph



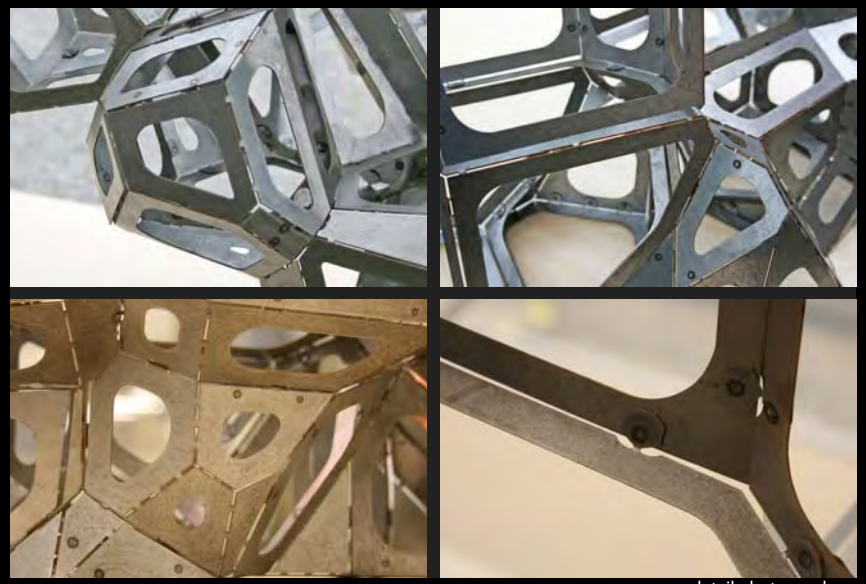


local coffee shop requested installation
as "funky" entrance feature

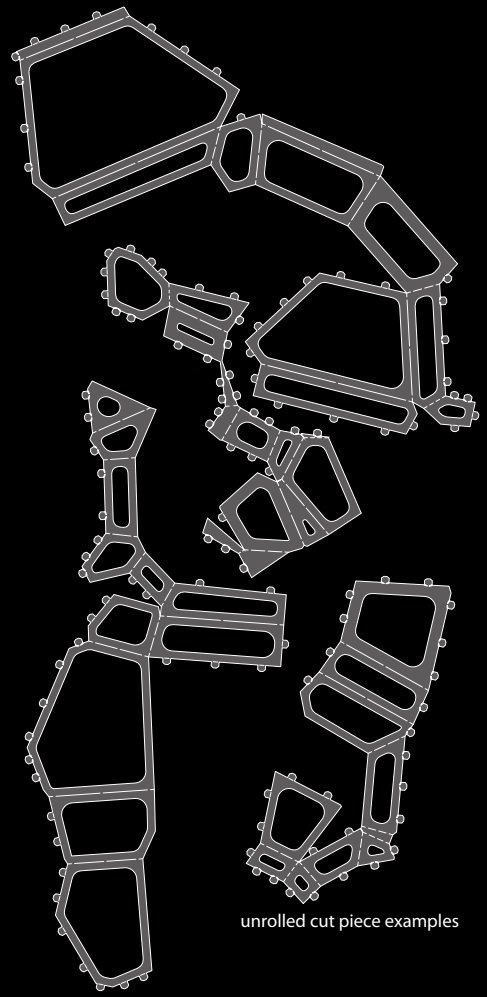


final installation

final installation



detail photographs



unrolled cut piece examples

voroGAMI

University of Michigan | Digital Fabrication - Winter 2011 | Professor: Maciej Kaczynski |
Partners: Anastasia Kostrominova & John Walter

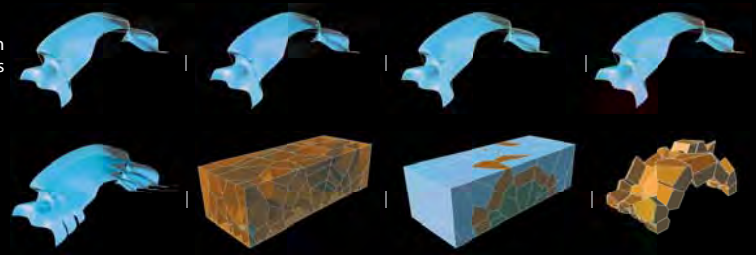
-My Tasks: Assist with Grasshopper definition development - Consultant for fabrication process - Water jet metal pieces - Assist with spot welding & assembly

*Note: All images edited/formatted by D. Sharpe for use in work samples, portfolio & website.

Michigan's architecture school boasts a world-class fabrication laboratory, and the Digital Fabrication graduate elective course offers an extensive hands-on experience for students to learn of the emerging trends in this expanding field. Our final project is an exercise in developing a form using parametric tools and to fabricate a model that would fit within a 6' x 3' base.

Our team has decided to pursue a project that is created parametrically using Rhino, Grasshopper and it will be made from 24 gauge steel. Our project's name is voroGAMI because the technique to develop the cellular volumes is based on the geometric principals of the Voronoi, and folding flat stock into 3d volumes is similar to oragami - hence "voroGAMI". Each cell is created by 3d points, and apparent in the final model is that the cells at the base are smaller and more dense while the cells that span the top are larger and less dense. The variation is intentionally written into the Grasshopper definition because the cells at the base are required to carry a heavier load, while the span at the top will have less material and reduced weight. After the development of the cells, we then apply our scripts that unroll the cells into flat stock, add tabs to the perimeter, and add fold lines that allow the flat stock to fold into the volumetric cells. The use of the school's water jet then cuts out the metal pieces, and lastly we use a spot welder to stiffen and secure the cells.

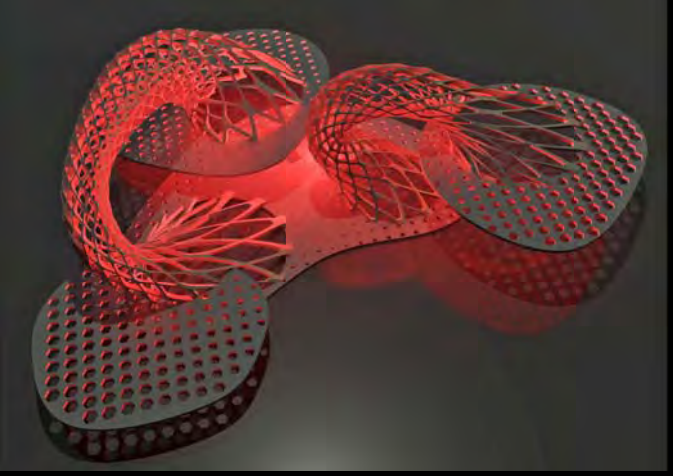
design process

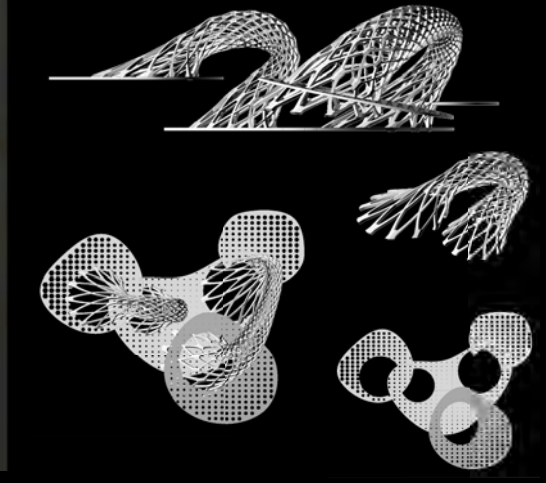


water jet cutting sheet metal

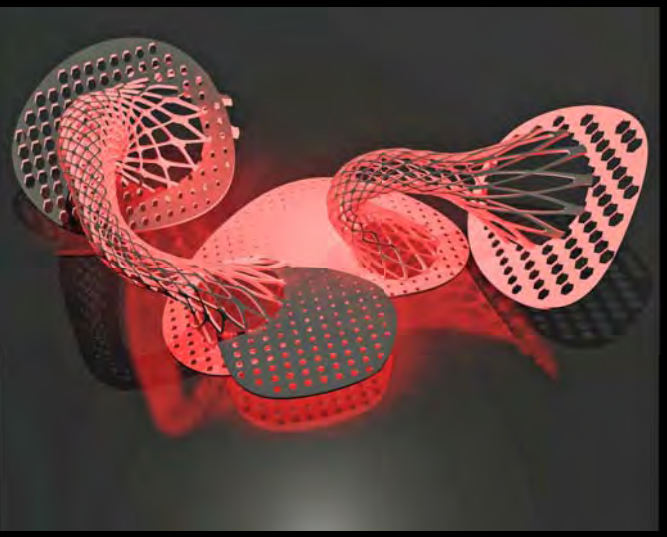
clean and organize pieces

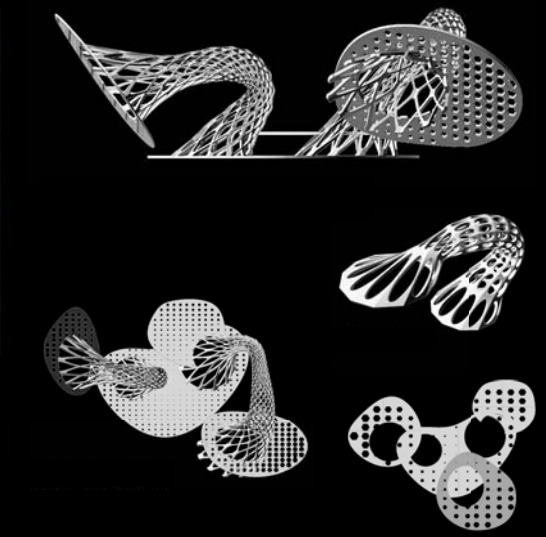
fold cells and spot weld tabs





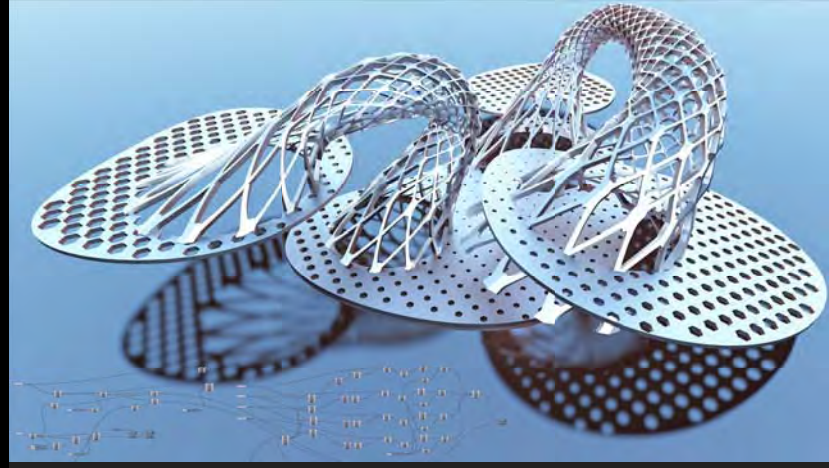
standard pavilion

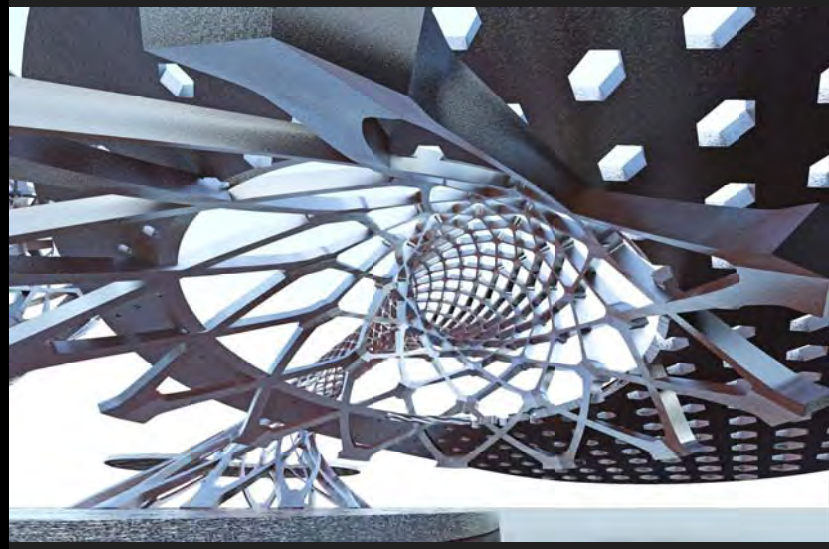




modified pavilion

renderings





3d printed model photographs

Close Encounters Pavilion

University of Michigan | Generative Design Computing - Fall 2010 | Professor: Glenn Wilcox

This graduate elective course is an introduction and exploration of parametric modeling with the use of Rhinoceros, Paneling Tools, Grasshopper and Scripting. We are also taught the methodology of rapid prototyping to produce models by way of laser cutting and 3d printing. The final project is to digitally design a pavilion, while being able to produce multiple variations with the use of parametric tools.

The final Grasshopper definition allows for an array of parametric control of the pavilion. The form is developed using two separate techniques known as 'Morphing Tool' and 'Grid with Attractor Point'. The towers have the capability of moving/bending while maintaining the lattice pattern, while also being able to choose an infinite number of variations for the lattice. The holes of the platforms have the ability to change in grid density and size, along with many other potential variations. The images provide examples of how individual components of the standard pavilion can be modified with the use of parametric controls.