

# Dusty Austin

The Architectural Portfolio



# My Portfolio



As a designer I firmly believe that it is important to always be seeking out new technologies, to always be willing and eager to learn. I enjoy teaching my revelations to others as I am a strong leader. No designs are too big or too small for me to handle, I am a designer with all of the tools necessary to complete any and all projects.

Sincerely,

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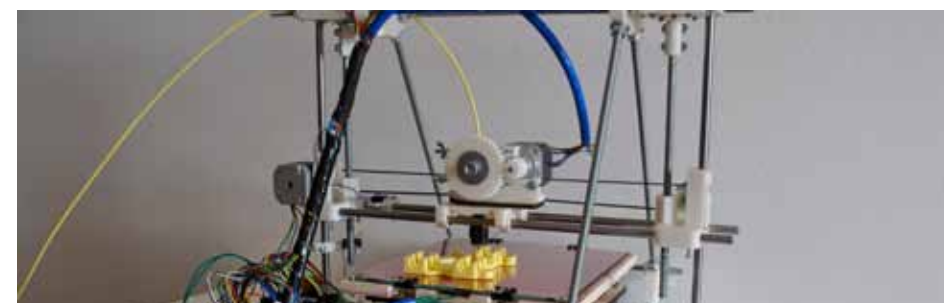
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# Design Build

Passive House



The passive house project was a yearlong team design build project intended as a research cabin for Itasca state park in northern Minnesota. The challenge was to design a 600 square foot cabin applying the strict regulations of Passive House standards. The end resulted in a pre-certification of Passive House and the actual construction, as well as presentation by the participating students at the Minnesota State Fair. The cabin itself was

bought by a third party and will be erected in Wisconsin in the spring of 2012.

The first half of the year was designing and compiling construction documents for both the original site and for the Minnesota State Fair. I was the lead on the Passive House certification process and support for the design and drawings. For the build portion I gained construction experience while working as a team with my fellow classmates. I utilized my communication skills as I

presented the Passive House concepts, ideas and explained the benefits of Passive House at the Minnesota State Fair.



## What is Passive House?

Passive House has strict standards all of which is compiled in PHPP. PHPP is an abbreviation for Passive House Planning Package, energy-analysis software which runs on the Microsoft Excel platform. There are three basic requirements to achieve Passive House certification.

### 1. Specific Space Heat Demand: 4.75 kBtu/(ft<sup>2</sup>yr)

Annual energy use for heating or cooling cannot exceed this threshold, an approximate reduction of 75%-90% of the energy used for heating or cooling in an average code-compliant home.

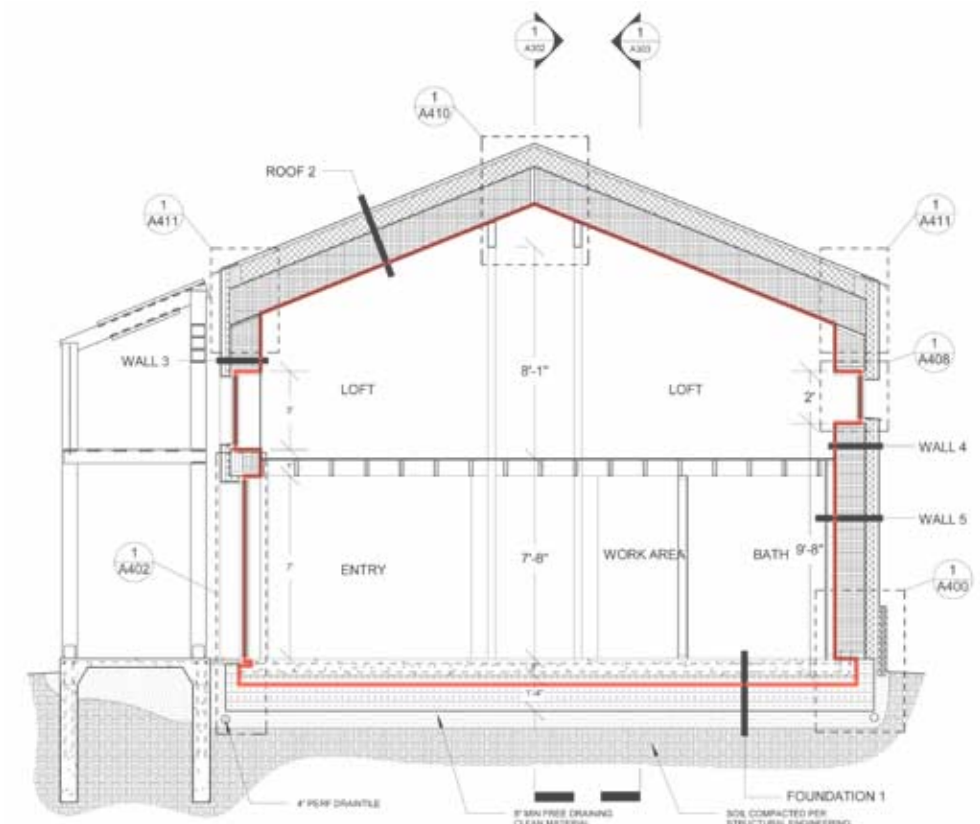
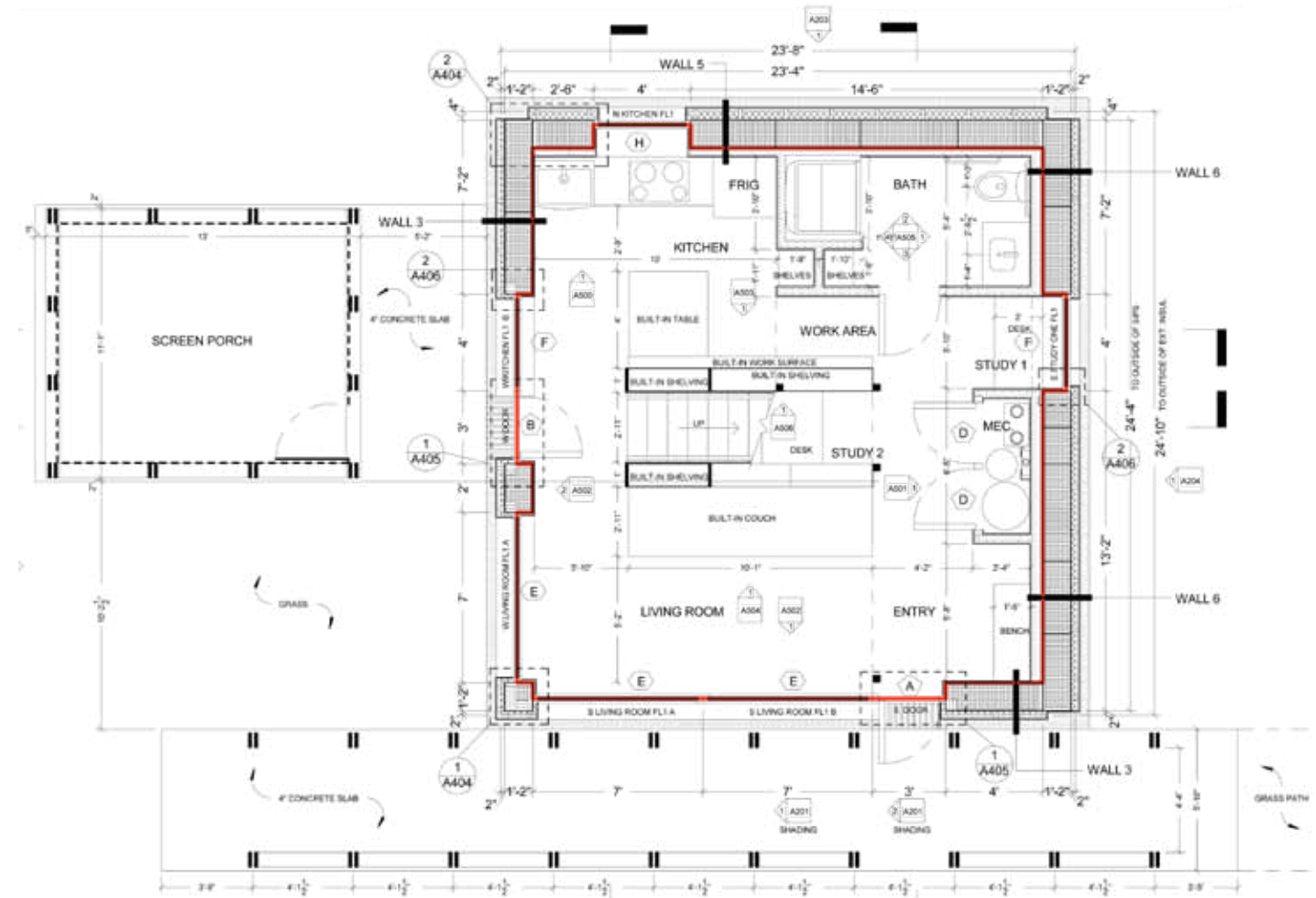
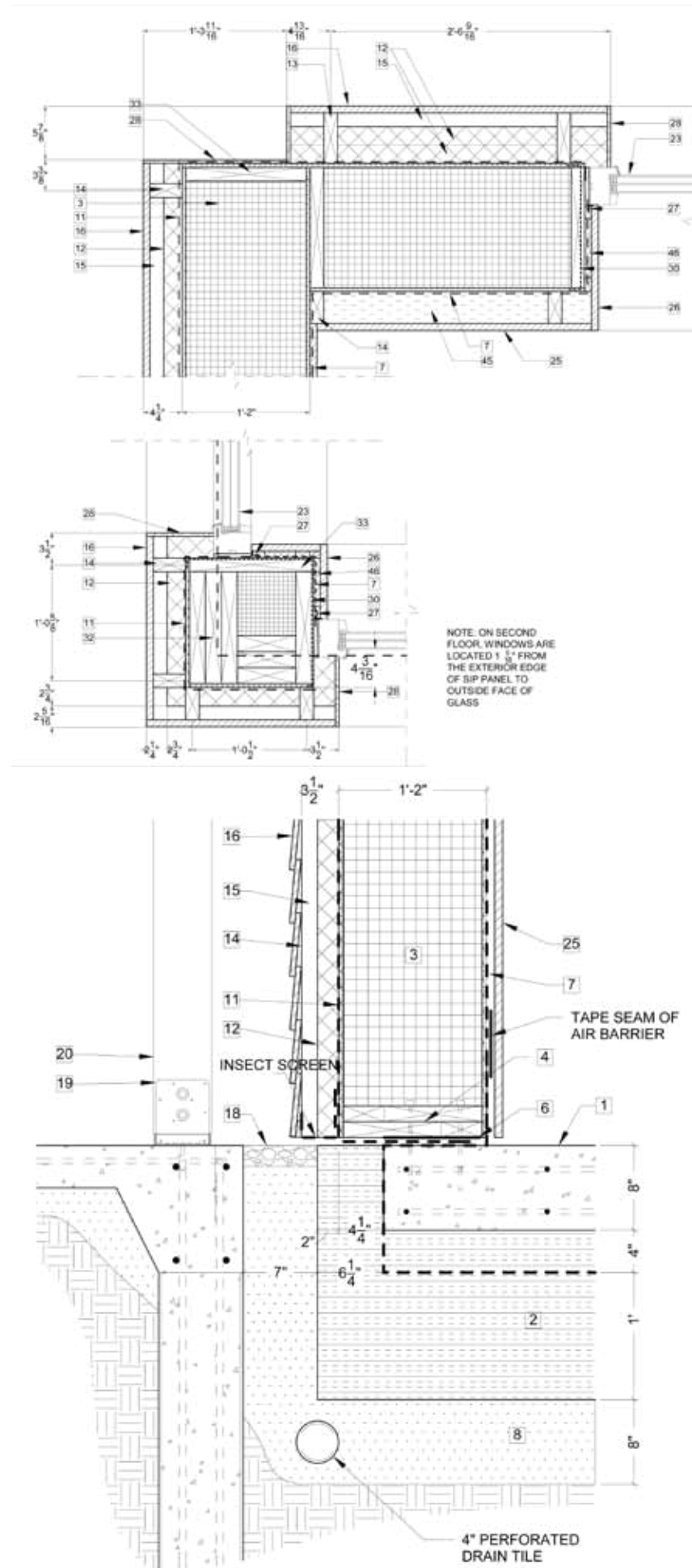
### 2. Pressurization Test Result: ≤ 0.6 ACH @ 50 pascal

This is to ensure that the building is not losing energy to the outside due to leaks. The pressurization test is conducted with a blower door to detect and repair any leaks before any finishes are applied in the construction process. Final blower door test is conducted after completion.

### 3. Primary Energy: 38.1 kBtu/(ft<sup>2</sup>yr)

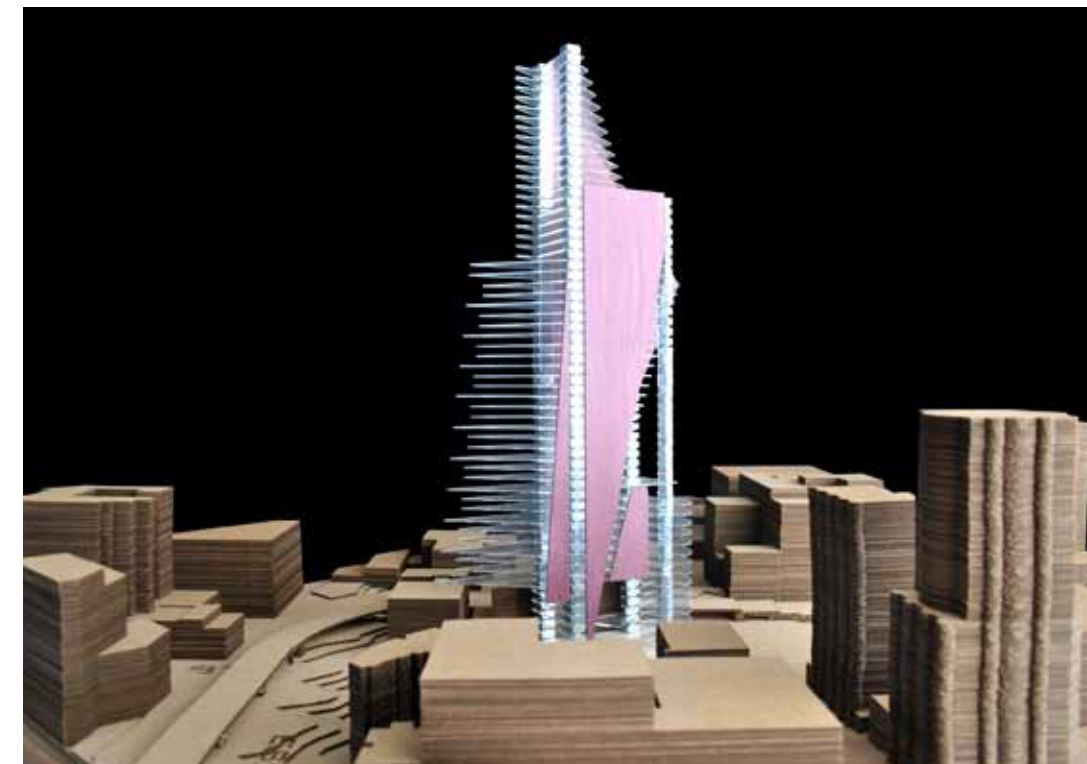
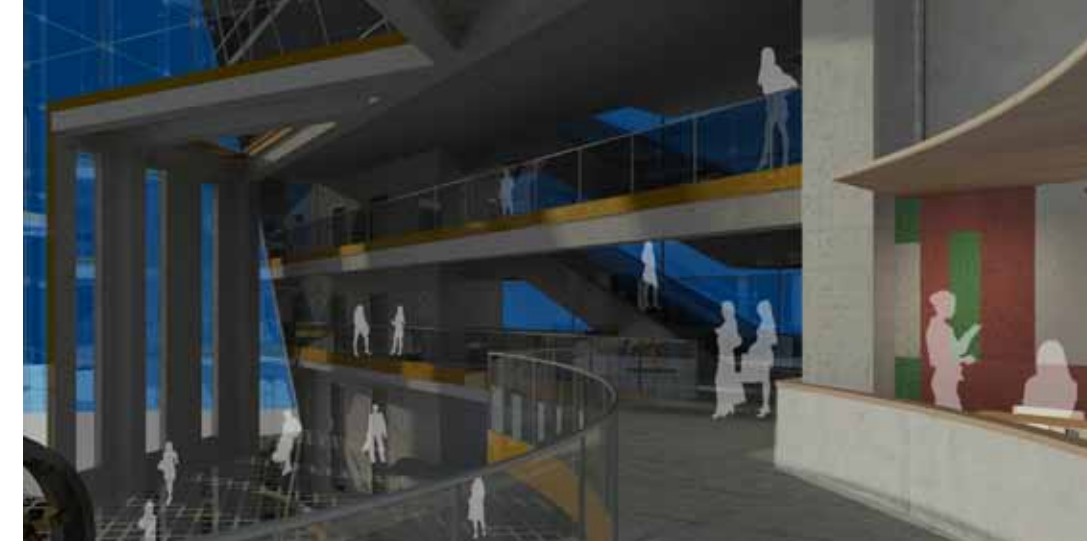
The building's total energy use cannot exceed this amount. Appliances, lighting, and anything else that uses electricity is counted as part of the energy use. This also includes energy for heating and cooling.

As we designed the cabin the impact of every wall type, ground condition, roof design, window placement, building orientation, shading structure details were tested in the Passive House Planning Package. Using this as a feedback loop in the design process allowed us to test the design for energy efficiency among our many other concerns.



# Highrise

San Francisco

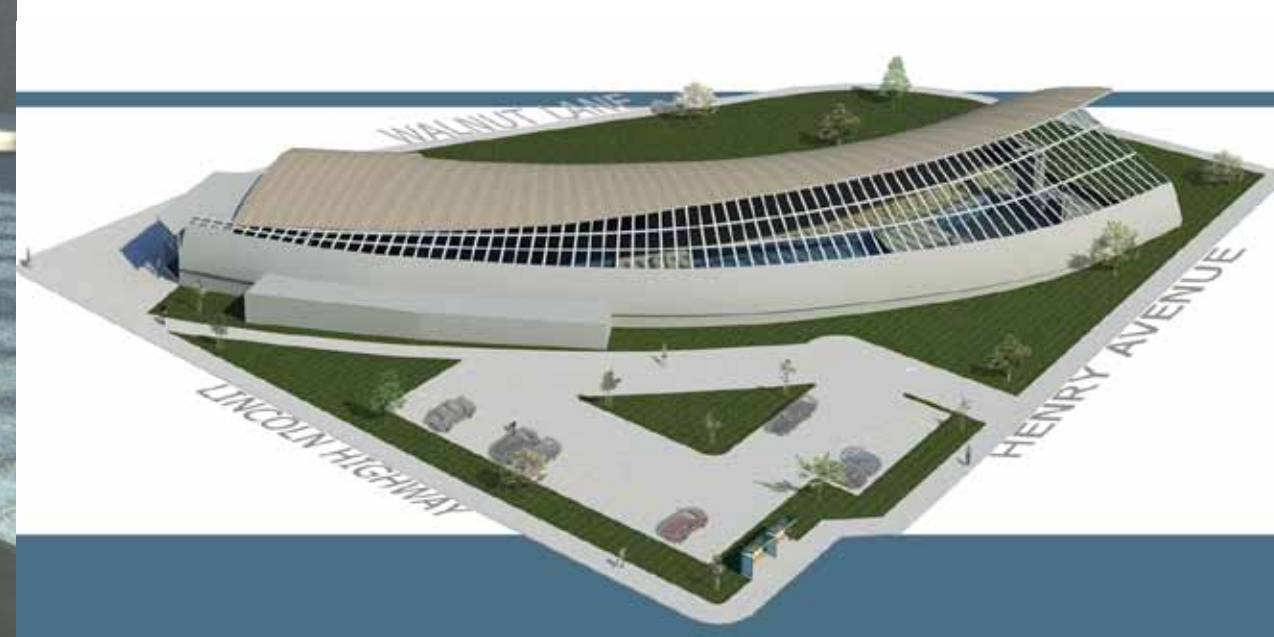
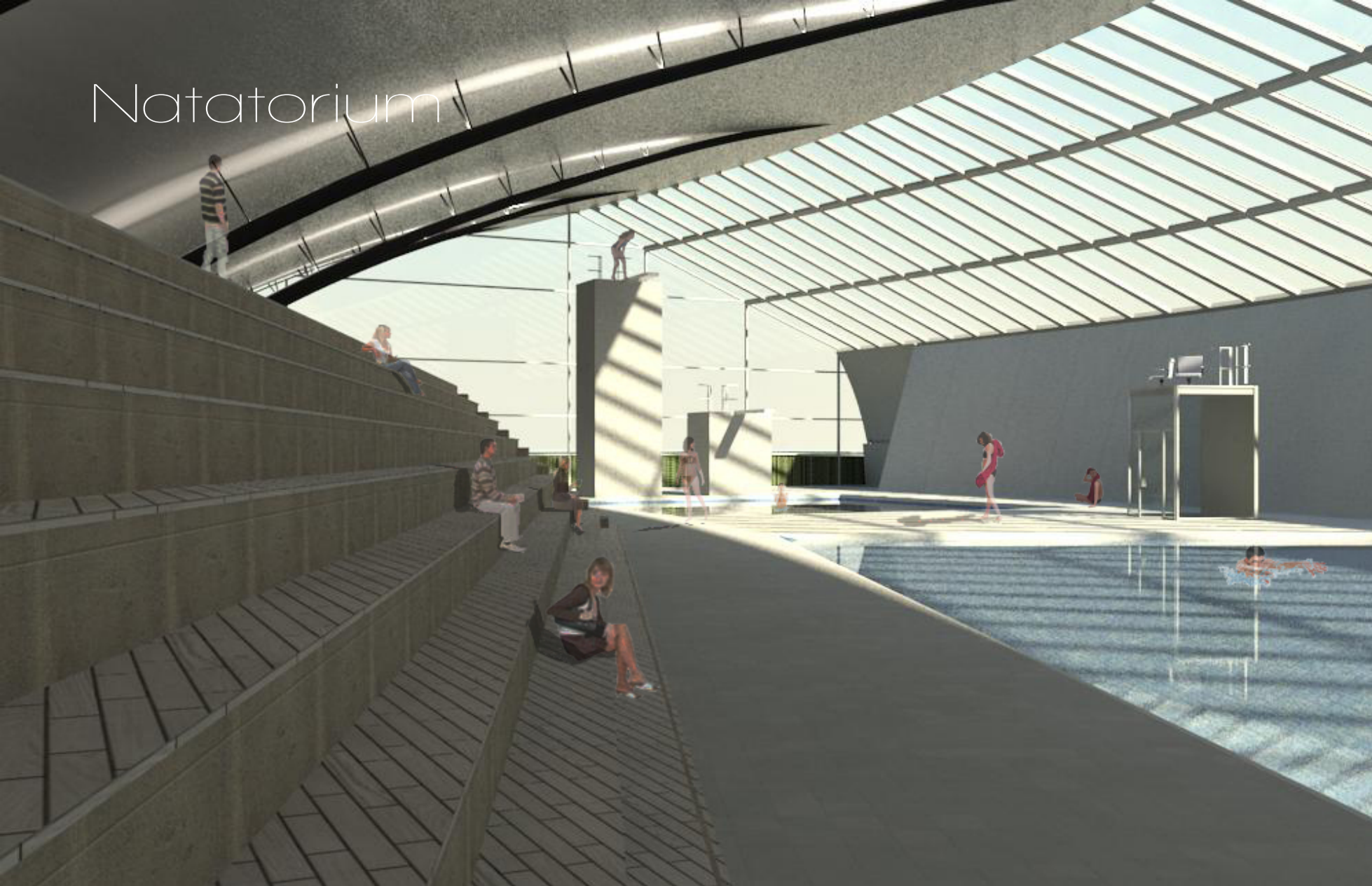


This team project was to develop a mix use high-rise building for the South of Market Area (SOMA) of San Francisco. The site is on an interesting triangular plot of land and very close to the Transbay Terminal. It was developed as a mixed use building so the building would always serve a purpose and never be vacant. The client would always be making money because the building was designed for multiple purposes. The uses of the building were as follows: shopping and retail spaces, housing, office

spaces, and hotel space that overlooks the San Francisco Bay. The building also provides above ground parking which is designed in an unique spiral shape.



# Natatorium



The natatorium is a gestural piece, it is like a surfer getting sucked into a wave. Once the swimmer is dressed they take a journey through a long, dark corridor, a sliver of light greets them around this confined, curved path. Once they are in the main natatorium it is as if they are met by a wave which overpowers the whole building. This overbearing concrete roof is a constant reminder of the thin line of danger and thrill that water can give to us.



# Boathouse

Scar



This is a fictional story but it was what inspired me to create this building.

A young, very rich and powerful business owner was driving erratically south bound on West River Parkway, Minneapolis. He lost control of his vehicle and ran into a car heading the opposite direction. The crash was so severe that he was ejected out his car. The glass and pave-

ment ripped through his body leaving him in dire need of medical care. He did survive but was so badly injured that there was no hope of him walking again. After months of rehabilitation he returned back to the site of the accident and gazed out to the Mississippi river. He saw something so majestic and mesmerizing that he wanted to be a part of it. It was a rowing competition with all the mem-

bers forming a team working together in a synchronizing manner. He was so compelled and moved, and he felt that he finally had a purpose again. Following this discovery it was then that he formed the Minneapolis Rowing Club at the spot where his crippling accident happened.

The building reflects his new state and his limitations. There is this "scar" that brings you down

the hill from West River Parkway road and this scar cuts through the landscape down to the river. The scar slices through the building to the river. The act of pulling a row boat out of the building and maneuvering it through the building and out to the river is like the act of stitching the man back together. The membrane that holds up the boats is like a skin that flexes, which is like skin

around a needle that is being stitched up. The south side of the building is the space where our disabled owner dwells, unable to actually reach the river, yet he comes so close. He is able to repair the boats, but unable to use them.





This was a cross discipline competition, two architecture students and a landscape architecture student, for a snow sculpture to be built by the team at Winnipeg's annual Festival du Voyageur. This team effort inspiration came from the natural ability of the hand to warm and the organic ability of the snow to form.

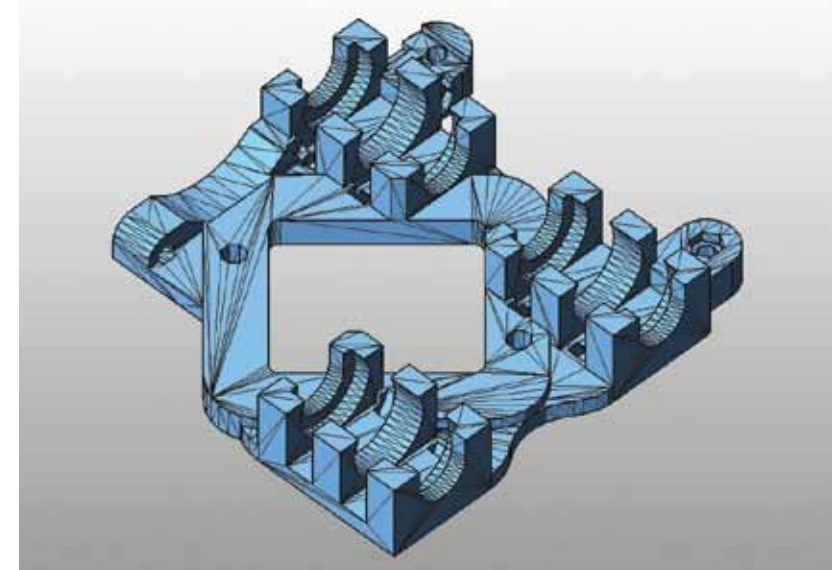
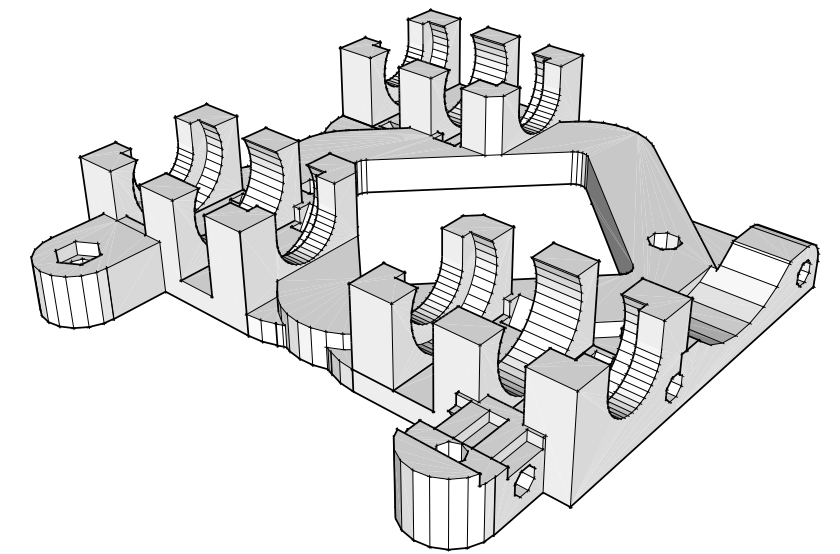
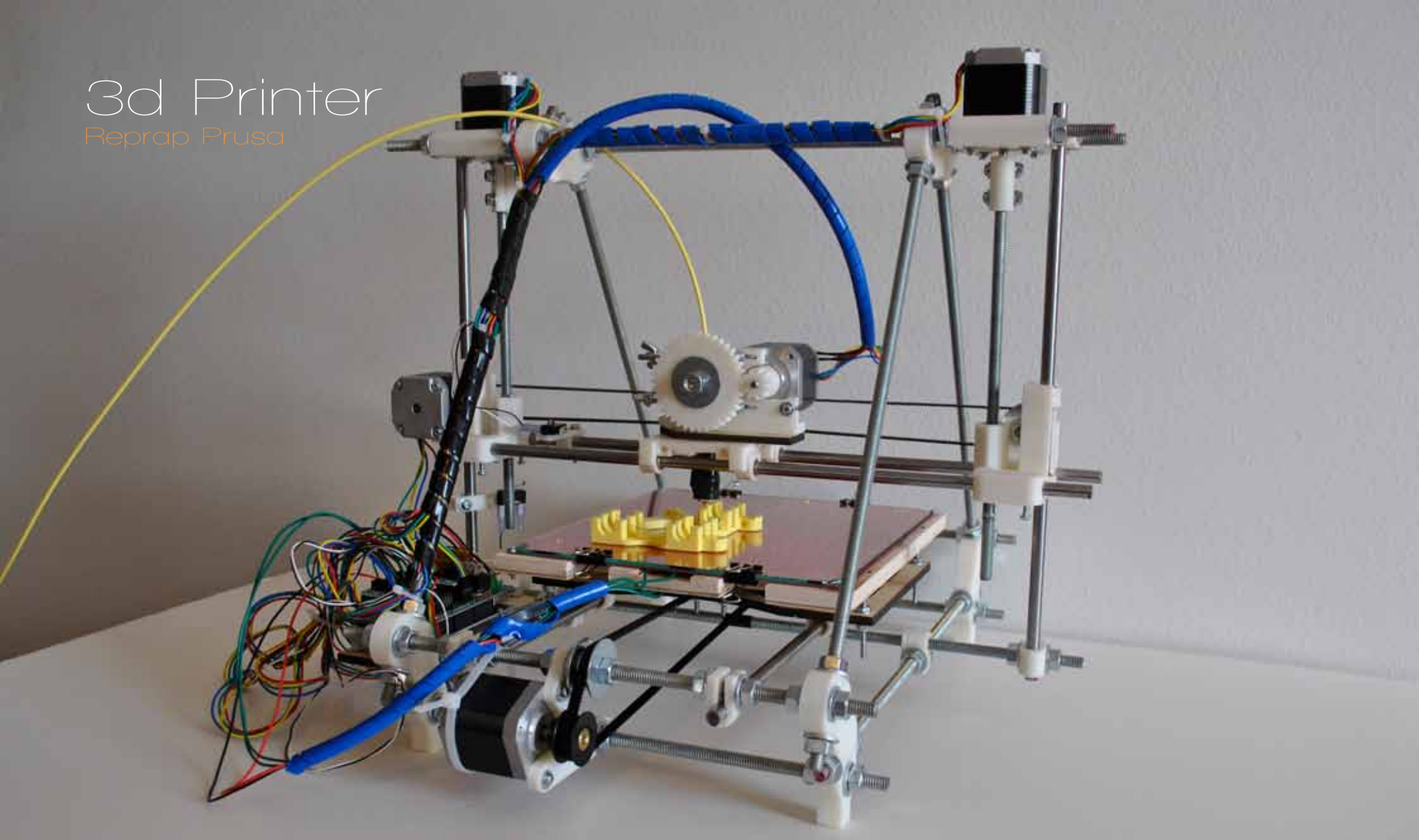
warmth of the hand  
form of the land





# 3d Printer

Reprap Prusa



design

slice

print

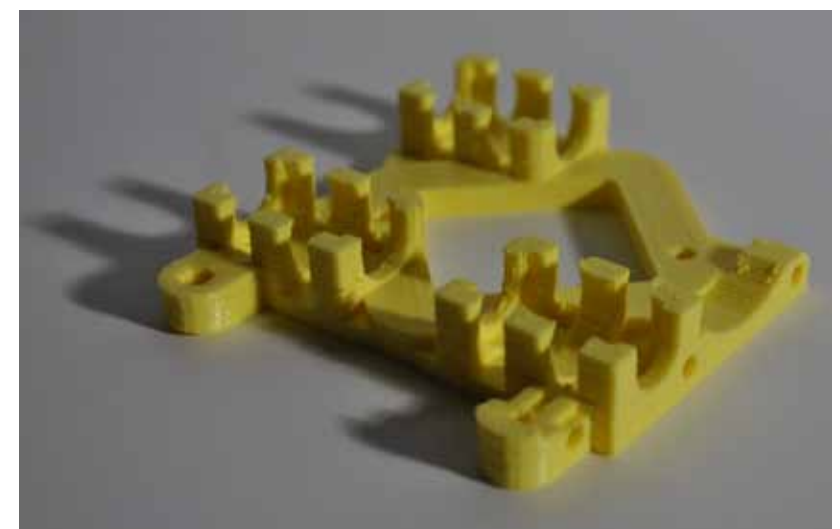
As a designer I am always seeking out new technologies. This project intrigued me as NDSU's architecture department does not own a 3d printer. Being ambitious I decided to take on the task of building my own 3d printer. I used my own resources, time and money to create this machine.

My 3d printer is a Prusa Reprap, a replicating rapid prototyper. The white parts of the machine were made by another homemade 3d printer and the yellow piece I have printed to upgrade my current printer. The whole printer was built from

scratch and I have documented the entire experience on video for others to use as a construction reference.

The printer moves on the X, Y, and Z axis and lays a layer of plastic on top of the previous layer to make a 3d object. There are two main types of material that it can print with, Acrylonitrile Butadiene Styrene (ABS) and Polylactic acid (PLA). ABS is the most commonly used plastic material. It is more pliable than PLA but it produces mild, tolerable fumes while being extruded. It could be harmful to people who have breathing difficulties if there is not proper

ventilation. PLA is a bio-degradable polymer that is produced from lactic acid, which can be fermented from crops such as maize. It is harder than ABS but also more brittle. Each have their own advantages, disadvantages, and unique looks and feels to them.



# About

Dusty Lee Austin



651.329.2530  
dusty.austin@my.ndsu.edu  
<http://www.linkedin.com/pub/dusty-austin/48/72b/1a1>

## Dusty Lee Austin

### Education:

#### Masters of Architecture

North Dakota State University, College of Architecture

Fargo, North Dakota Expected: May 2012

Design Build Passive House, Built Passive House at Minnesota State Fair, Pre-certified Passive House, Invited to present at Passive House Conference in DC, AIAS Member

#### Bachelor of Science, Environmental Design

North Dakota State University, College of Architecture

Fargo, North Dakota Aug. 2006 - May 2011

Korsunsky Krank Erickson Architects Competition Finalist, Dean's List

### Experience:

#### Laboratory Technical Assistant

North Dakota State University

Fargo, North Dakota Nov. 2009 - Present

Support Architecture Department Computer Lab Software & Hardware, Supervise Laser Cutter, Maintain Lab Equipment, Software Troubleshoot, Provide Basic Instruction in Software Use

#### Eco-Experience Host

Minnesota State Fair

St. Paul, Minnesota July 2011 - Aug. 2011

Member of NDSU's Design Build team which constructed and staffed a full-scale demonstration cabin based upon Passive House principles

### Built Project:

#### Passive House

North Dakota State University, College of Architecture

Fargo, North Dakota Jan. 2011 - May 2011

Minnesota State Fair

St. Paul, Minnesota July 2011 - Aug. 2011

Kjell Hatlehol [client]

Iron River, Wisconsin Aug. 2011 - Present

A cabin designed, built, and exhibited by NDSU architecture students. The cabin was designed to meet the ultra-efficient Passive House energy standards as well as showcase numerous materials and do-it-yourself solutions. The building's footprint was approximately 800sf.

### Qualifications:

**Communication** - Whether it is written down, drawn or fabricated, my designs are clean and precise.

**Professionalism** - I hold myself to the highest standards regardless of the environment.

**Craft** - I am dedicated to my work and am detail oriented

**Team Building** - Have regard for others and their ideas and work to incorporate, include, and involve them in group projects

### Software Skills:

#### Proficient or experienced with the following programs:

- Adobe Creative Suite 4 [InDesign, Photoshop, Illustrator]
- AutoCad
- Autodesk 3DS Max Design
- Autodesk Revit
- Google SketchUp Pro
- Maxwell Rendering
- Microsoft Office 2010 [Word, Excel, PowerPoint]
- Passive House Planning Package [PHPP]
- Unreal Development Kit

**Accomplishments:** Korsunsky Krank Erickson Architects Competition Finalist | Project "Bond" North Dakota State Grant | scholarship awarded by ND Legislature Dean's List | 2007, 2010, 2011





Dusty Lee Austin  
651.329.2530