



{sarah miller}
portfolio 2013

{skills}

photoshop	
autoCAD	
AGi32	
revit	
sketchup	
3ds max	
hand drawing	

contents

timeline

HOWARD BRANDSTON PROJECT

04

USB 2 at PENN STATE

06

LIGHTING with PHOTOSHOP

08

254 EAST BEAVER AVE

10

2013

FAST FROG MARKETING

12

2012

LIGHT STRUCTURE

14

LIGHTING & IMAGE JOURNAL

16

2011

CARNEGIE LIBRARY of PITTSBURGH

17

TATTOO SHOP & APARTMENT

18

2010

DREAM HOUSE

19

2010

POST-COLONIAL STUDY

20

2010

MOUNTAIN RETREAT

21

2009

PHOTOGRAPHY & HAND DRAWINGS

22

all

HOWARD BRANDSTON PROJECT

**Howard Brandston Student
Lighting Design Education Grant
&
AE 466
[Computer Aided Lighting Design]**

spring 2013: final project

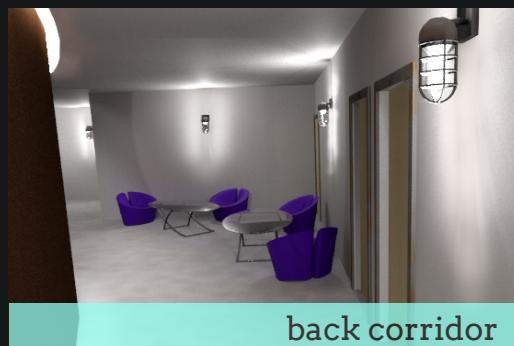
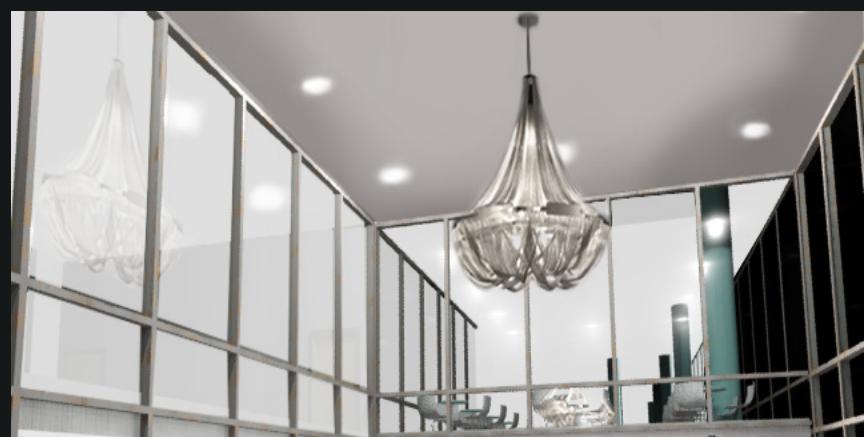
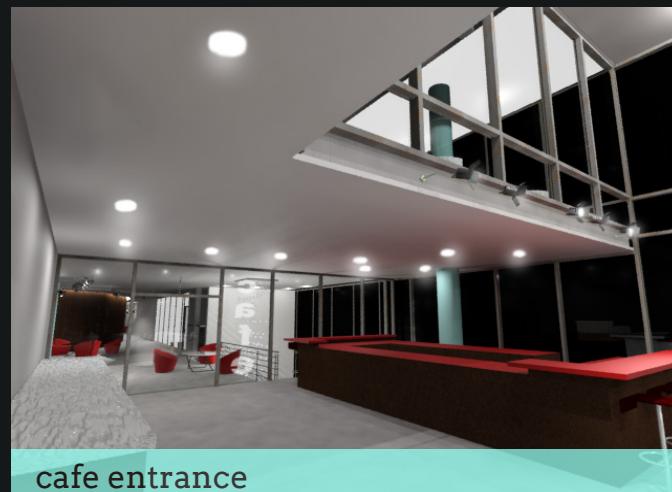
"The Howard Brandston Student Lighting Design Education Grant was established to encourage and recognize students who have demonstrated exceptional professional promise through the presentation of an original and ingenious solution to a supplied design problem."

"This project is a new construction educational facility for an existing college campus. The new 110,000 square-foot, six-storey, mixed use arts building is located in urban area and surrounded by campus setting on three sides and along a heavy traffic local street."

The inspiration for this lighting design solution is a black box theatre, like the one located in the lower level of this building. In that intimate setting, the audience and performers are brought close together and therefore have a different connection than in a larger hall. This idea drove the following solution for the lighting of this Entry, Lobby, Corridor and Café.



04 Ps R A



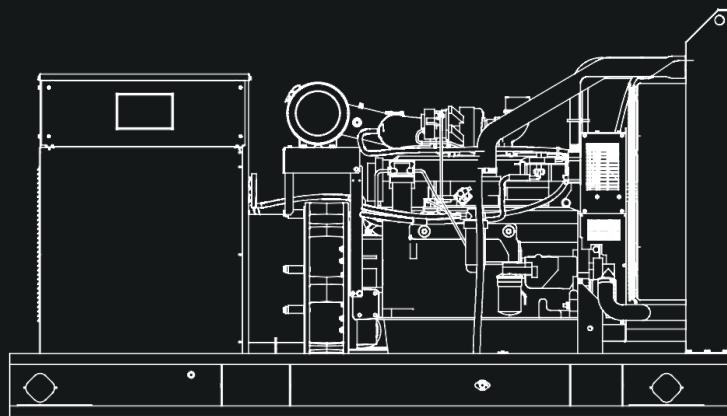
AE 467
[Adv Bldg Electrical System Design]

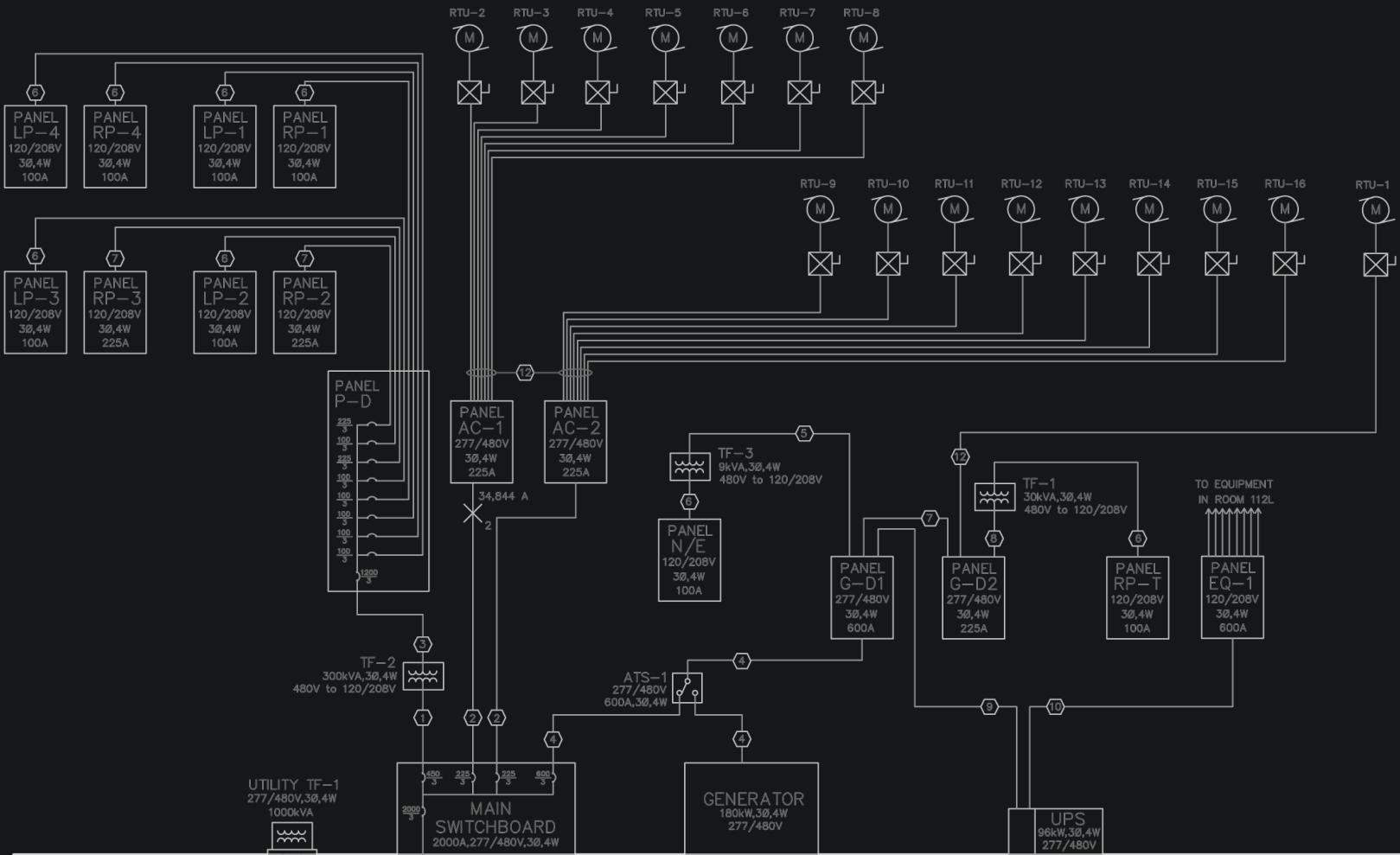
spring 2013: final project

This electrical design project presents an overview of the knowledge I acquired over the course of AE 311 and AE 467.

The University Support Building II is a 38,000 SF office building, whose primary function is the key data system hub for Penn State University. Redundant data and networking, as well as internet services are provided by this building. Services from this building include: redundant voice and networking, internet services, CATV for the University, security servers, billing systems and data records for all telecommunications services, satellite uplink services, and cell towers from four different providers.

The deliverables produced consisted of: electrical floor plans, single-line diagrams, panel schedules, load calculations, and equipment cut sheets.





LIGHTING with PHOTOSHOP

AE 466

[Computer Aided Lighting Design]

spring 2013

I selected this image of the Basilica of Sant'Apollinare in Classe located in Ravenna, Italy to demonstrate how the schematic design of lighting can be accomplished using only Photoshop. This image worked well because there was almost no artificial light in the space. Shown to the right are the three required phases for the project: original image, neutralized lighting, and schematic design.

The final lighting scheme I developed is based on a hierarchy I established for the space. First and foremost, the apse is brightly illuminated. Because the ceiling is so dark, illumination of the upper walls is used to draw the eye upward as opposed to lighting the ceiling. Finally the underside of the arches are also lit to highlight this grand architectural feature.

08 Ps

original image





lighting neutral



schematic design



lighting shown
here highlighted
in green

254 EAST BEAVER AVE

Arch 441

[Architectural Design Analysis]

fall 2012: final project

AWARD WINNING DESIGN

This project represents the culmination of my work over sixteen weeks of a semester. At the end of the semester four of the nineteen projects, completed by almost 80 of my peers, were selected to present their designs to the State College Zoning Board. Of the **FINAL FOUR**, this project was selected as the **FIRST PLACE** design.

As leader of this project, I coordinated the building massing, topographic layout and interior spaces of this building. The end result was a building so efficient in space that it was not only smaller than every other group's design, it also had the most apartment units.

This building is designed for a site in downtown State College. It has eight floors. The first level, on Beaver Avenue, is primarily for retail space. The second level, on Highland Avenue, is mostly for offices, but there is also a lobby for the apartments and a gym. The third through sixth floors are all apartments. The apartments consist of two-bedroom units and four-bedroom units, with an approximately even distribution of the two. This building also features two levels of underground parking that can be accessed from Beaver Avenue.

10 R Ps S F A



retail entrances



office entrance



apartment & gym entrances



east beaver ave facade

highland ave facade

BUILDING EXTERIORS

FAST FROG MARKETING

AE 461

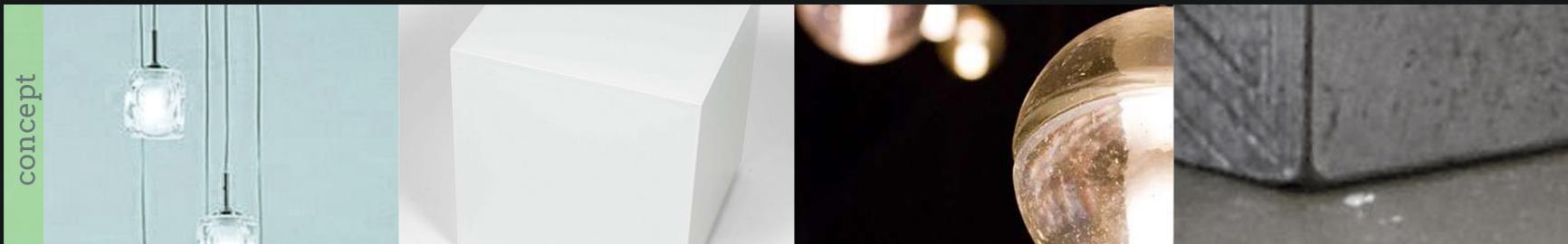
[Arch Illumination Systems & Design]

fall 2012: final project

The purpose of this project was to design five different spaces within a given office plan. My portion of the project was to design the lighting for two of the five rooms: the break room and the videoconference room. I also created the 3D models and renderings for the spaces designed by my other group members.

To begin this project, a concept was first developed. The clients for the space were described as a young, energetic and talented group of advertising specialists. We wanted a concept that wouldn't add distraction but would still match the style of the clients. The final concept we settled upon was 'light versus geometry.' This was a concept that would play off the geometry of the spaces with light. Luminaires with simple, geometric shapes are used throughout the design. The result is clean and free from distraction; most importantly, it leaves the users free to express their own creativity.





fall 2012

The goal of this project was to compare lighting in a physical model to the lighting generated by AGi32. A secondary goal was to compare two different lighting modes in each using each of these mediums.

Due to the small room size constraints set by the project, I chose to use a yoga studio as the setting for my design. Early sketches indicated that my two lighting schemes should consist of uniform and non-uniform lighting.

Both modes have useful implementation for a yoga studio. One scheme creates a spacious feeling in the room. It makes the room feel large enough for personal growth and even encourages it. The other mode is closure. With this scheme, the room feels comforting and intimate, with a soft glow from above. Overall, this project was very successful in achieving the goals set by the beginning programming and criteria.

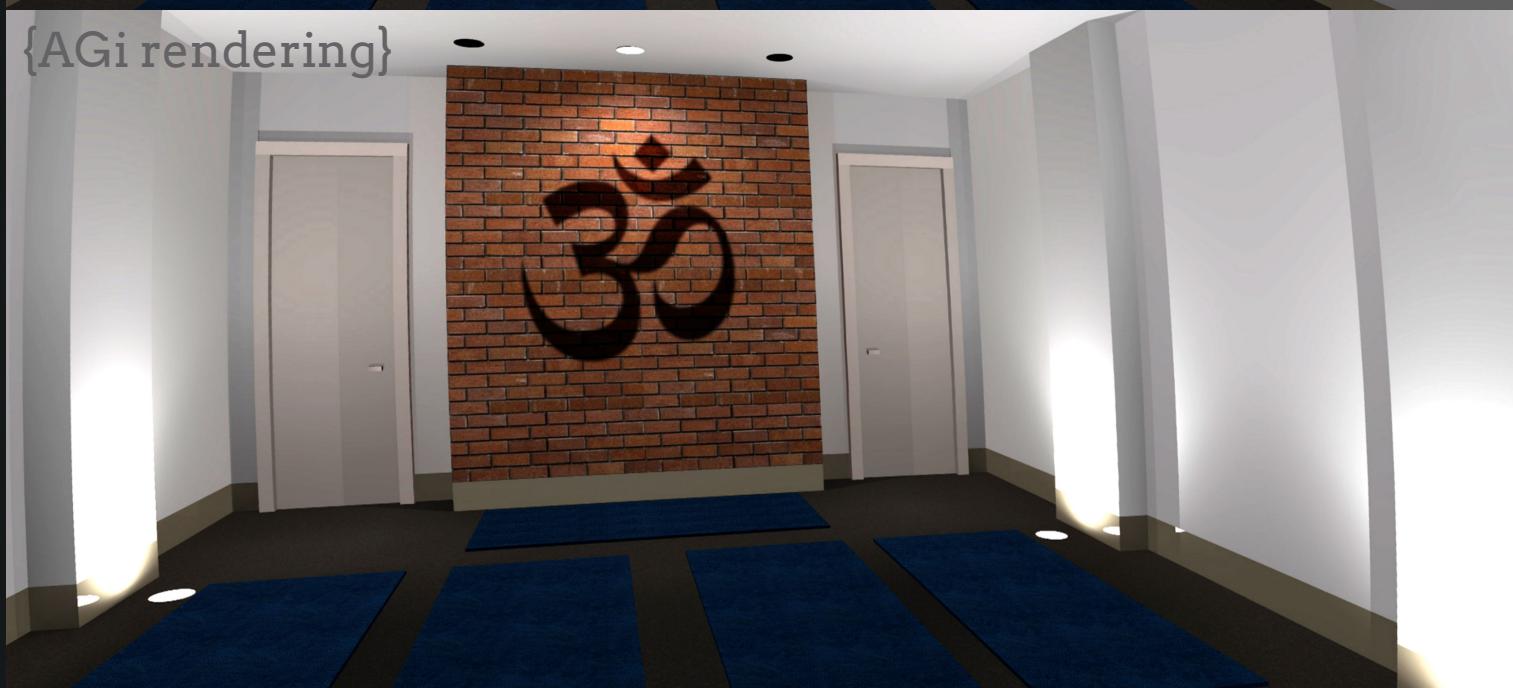


{model}

CLOSURE | SPACIOUS



{AGi rendering}



LIGHTING & IMAGE JOURNAL

AE 461

[Arch Illumination Systems & Design]

fall 2012

Throughout the duration of this course, I was asked to compile an image journal showcasing light. I used this as an opportunity to show how light exists in the world. Light isn't really about metrics and fractions of footcandles, but about contrast and visual interest.

In both the **UNIQUE** and **REPETITION** images, the theme is only apparent because of the dramatic contrast between the sky and the subjects.

Another one of my studies was to show how **SHADOWS & PATTERNS** can create visual interest. These images show how daylight can interact with architecture.

The last image selection shown here is a study of **CLOSED** spaces. My goal was to show that closed is not necessarily bad, and in this case it can be warm and inviting.



{UNIQUE}
BADLANDS NATIONAL PARK, SD 2012



{SHADOWS & PATTERNS}
THE PENNSYLVANIA STATE UNIVERSITY, 2010



{REPETITION}
I-90, INDIANA 2012



{CLOSED SPACE}
PITTSBURGH, PA 2009



{SHADOWS & PATTERNS}
BEAU RIVAGE, ST. LUCIA 2011

2012

**Summer Internship
with CJL Engineering**

Shown here is a selection of renderings I developed during the summer of 2012. Typically I prefer to build models for rendering in AutoCAD or Revit, but these were made entirely using AGi32 software. These renderings were used to demonstrate different lighting levels and configurations to the client. Room reflectance values were approximated by color. The luminaires, and the photometric data associated with them, were modeled after Beta-Calco's Windsor Bowl fixture.



TATTOO SHOP & APARTMENT

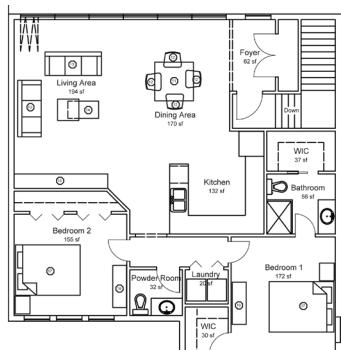
Arch 130a [Basic Design and Research]

spring 2011: final project

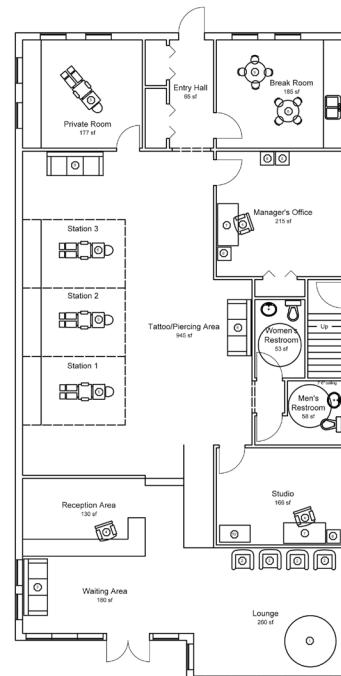
This project was completed for my 2nd year architecture studio. I worked with a group of four classmates to design a tattoo parlor with a separate apartment space above.

The overall theme of the design is simple and modern. The parlor area of the building incorporates materials such as slate, brick and exposed metal junior beams. Above the parlor, the main feature of the apartment is the green roof patio, shown here in a rendering.

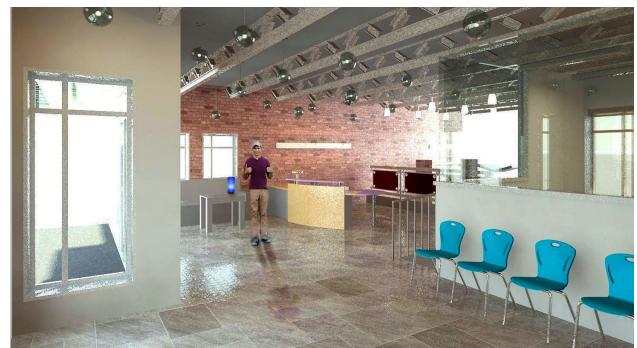
At the beginning of the project, we used Google SketchUp for schematic design. Revit was used for the majority of the renderings and floor plans. We also used Photoshop to incorporate the facade design and produce a visualization of the building in its urban context.



Second Floor
1320sf



First Floor
2690sf



fall 2010



This project was completed in the early weeks of my second year. I was assigned to design and model a residence using Revit.

Since the main purpose of this exercise was to learn Revit, I spent most of my efforts playing with different materials. I tried assigning interesting stone and wood textures to interior surfaces. I also experimented with Revit's window placement tools, and decided to feature the clerestory windows I added early on in the project. The end product turned out to be an appealing combination of rustic and modern design.

POST-COLONIAL STUDY

Art History 202 [Renaissance to Modern Architecture]

spring 2010: final project

The final project for my art history class was to design a period building. I was given very little constraints, so I decided to study something with local origins. The period I chose to study was American Post-Colonial architecture.

Through my studies, I found this style to be very attractive. In accordance with John Ruskin's Lamp of Truth, the beauty of this period's architecture came from the honesty derived from the organic necessity by which they were designed. Furthermore I wanted to study the many diverse cultural influences that left interesting traces on American architecture. With this project, I tried to track down some of those influences while remaining true to the pure and simple beauty of post-colonial architecture.

I used AutoCAD for part of the design of this project, but most of it was done using hand drawings. My final design was derived from several books describing the early architecture of America and Pennsylvania.



MOUNTAIN RETREAT

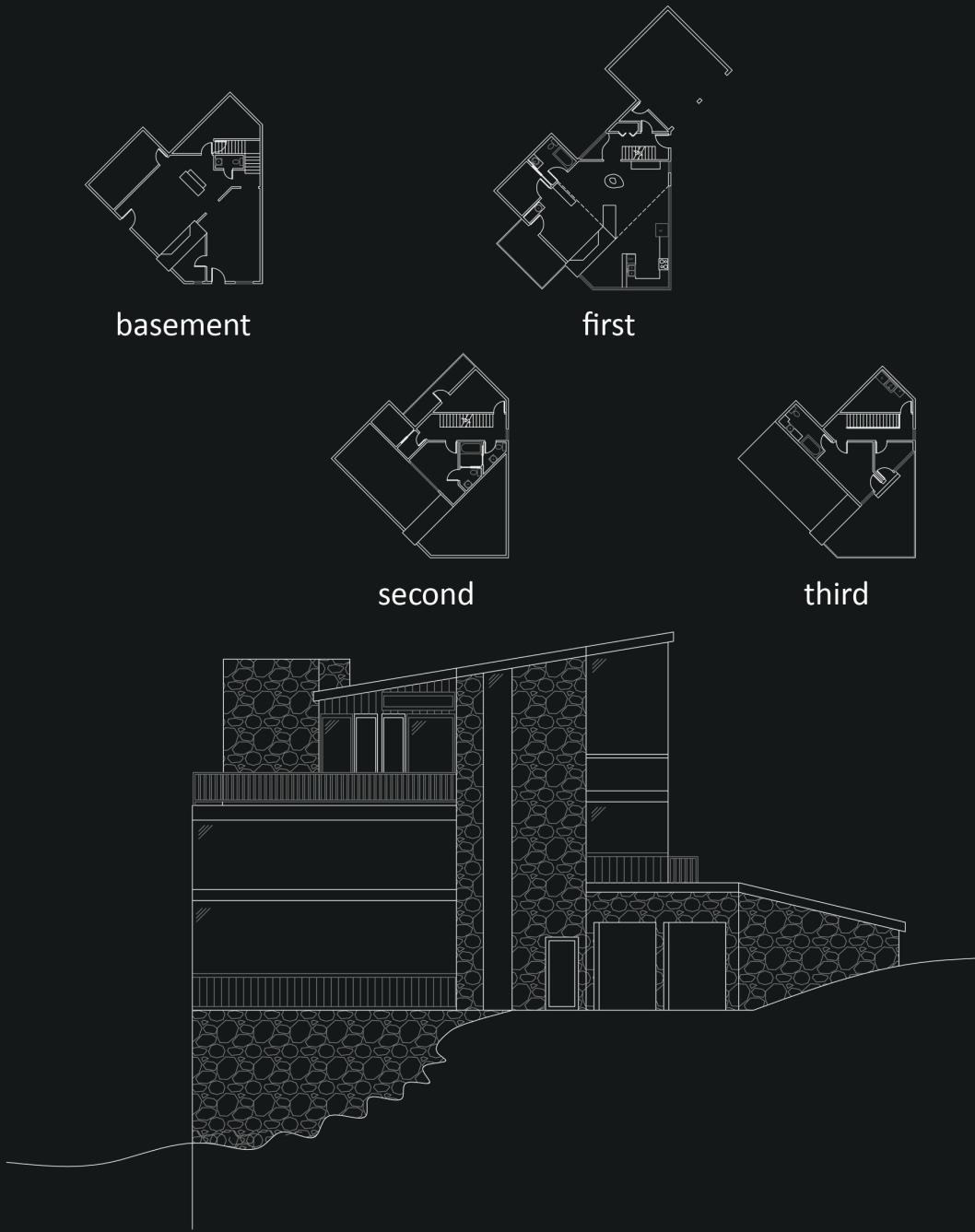
Engineering Design 130 [Architectural Graphics and CAD]

fall 2009: final project

This was the first project I completed while studying at Penn State. It was a group assignment for my freshman engineering design class. This project offered an introduction to the design process, CAD operation, and model building.

The assignment was to design a house for given topographic map. The site this house was designed for a steep Pennsylvania hillside. The multiple floors allow for many lookouts across the valley below. Large windows in the living and kitchen area let light in throughout the lower floor. My group and I put together full architectural plans, a scale model, and artistic rendering of the final design.

My group worked strongly together to develop a final design based on the given parameters. My main contribution to the end product was design influence and the CAD documents shown here in part.



PHOTOGRAPHY & HAND DRAWINGS

Personal Hobby

2007-present

I've always enjoyed photography and drawing as a form of expression. I love to use both techniques to capture the essence of particular moments of life, especially while traveling.

A selection from my sketchbooks from the last few years is shown on the next page. All coloring has been done using Photoshop.



YELLOWSTONE NATIONAL PARK **WY** 2013



WHIDDENS MARINA **FLORIDA** 2013



316 S. ALLEN ST **PENNSYLVANIA** 2013



ATLANTIC OCEAN **ST LUCIA** 2011



GRAND TETON NATIONAL PARK **WYOMING** 2013

"A taste for the beautiful is most cultivated out of doors."

HENRY DAVID THOREAU

