Project #1–Ecological Forest Architecture

Architecture Practicum II

January 20, 2020 (Start Date)

One of the key parts of building a new form of architecture is clearing the site—this is a problem as clearing the site usually involves cutting down trees that are contributing to beauty and air quality; we know this, yet we do it anyway. The problem is only getting worse as populations grow and new buildings are made to accommodate the population growth. Additionally, the pollution involved with making these buildings along with the decrease of trees filtering the air not only hurts the health of the planet, but also human health. The goal of this project is to discover methods of building in forests without clear cutting trees and the possibility of forest with an ecological urban community.

Driving Question

How can architecture be done sustainably in a forest? This project will focus on a specific forest in the U.S., but my design solutions should be able to be modified to fit different types of forests across the United States.

The Site

General Location: Forest on the Southern Edge of Missouri
Climate: The climate is a continental climate, but with considerable local and regional variation. The average annual temperature is 50°F (10°C) in the northwest, but about 60°F (16°C) in the southeast. The temperature ranges from above 100°F in the summer to below freezing in the winter. There is usually much rainfall--especially in the spring--but droughts are not uncommon, and neither are tornados. Additionally, snow is to be expected in the winter months.

Depending on the year, people in this area can be concerned about droughts or flooding, but it's not too big of an issue. With the temperature fluctuation, accommodations will need to be made for the summer and winter months to provide physical comfort. Since I am designing in a forest without city plumbing and electricity, I will also have to consider what alternatives I might have to provide. Overall, my building will also have to be sustainable and not damaging to the forest.

The Client

My client for this project is a person that is upset with the fact that the first step to build a building is to clear all the trees off the site. They understand the effect this is having on the world and want it to stop. Thus, they have asked me to design an ecological high school for gifted and talented students in a forest without first cutting down all the trees. This is in the hopes of leading to more sustainable forest design practices, providing a community for G/T

students who are often unrecognized once in high school, and educating these students in how to work with our world instead of against it.

Site Analysis

To begin the design process, I will need to evaluate the chosen land to develop a placement map for the trees already on the site. Using this, I will also need to develop a project plan (my design approach and ideas to address the problem).

Forest Architecture

After completing my assessment and plan, I will pursue a project that showcases how building in forests can be done in an ecological manner. My project should explore many methods to do this and that address the following:

- **Little to no negative impact on the environment**
- **How to get electricity, plumbing, etc. in a rural forest**
- **How to deal with the temperature changes throughout the year**
- **Building that fits into site (fits needs of people, but isn't an eyesore for a forest)**
- **How to cater to the needs of G/T students**

I will have to determine a design approach to build ecologically within the forest. Some roads for me to follow are:

- Architecture that is sustainable
- Architecture that utilizes space and can adapt
- Architecture that may seem futuristic but actually works
- Materials for ecological forest architecture

Presentation Requirements–Concept Design and Drawings

Due Date: March 5th/6th for project reviews (subject to change)

Final concept drawings and models are due at the end of class March 4th/5th

My work will be presented informally in class to a jury of professionals. I will develop a conceptual design for my buildings using principles of architectural form and space, precedent studies, and the information gained through my research. My work for the concept presentation should include the following:

- **A body of research that can be used to justify design decisions–Answer the question "WHY"**
- Sketches and/or study models used to develop my ideas. My building must have a MINIMUM of THREE (3) options explored for the building design.
- Sketches of my final design concepts that include the following:
    - Basic/General Floor Plan(s)

    - Elevations and/or Sections (2 minimum)
    - Additional drawings are optional and may be used to enhance the communication of my design.
- Site Map showing the location of trees, my building, and other important landmarks
- Parti model of building design(s).

Presentation of my project will be made and I will discuss my vision for ecological forest architecture and how it might be replicated.

Presentation Requirements –Schematic Design and Final Drawings

March 16, 2020 (Start Date)

Due Date: May 7th for final presentation

Final drawings and models should be prepared at the end of class May 6th

The work done to complete this project and illustrate my design concept will be presented formally to a jury of professionals and/or former students. I should develop my best conceptual design ideas for my project using the information and feedback gained from the concept design process. I will use a combination of digital and hand tools to produce this final work.

My work for the schematic design presentation will include the following:

- Sketches and study models illustrating my ideas. (These items may be taken from my concept design w
  NOTE: Make sure that all of my preliminary work is formatted for presentation (no wildly torn sheets) and i copied or recreated to present. It is awkward to try and use my sketchbook during my presentation.
- Final Schematic Design
- Presentation Drawings –Plotted on ARCH D size sheets
    - Floor Plan at each level (1/4”or 1/8” Scale for residential projects, 1/16” scale may be used for larger projects)
    - Relevant elevations based on site and context (Same scale as plans)
    - Building section (Same scale as plans) –1 MINIMUM
    - Conceptual Site Plan (1”=10’-0”or 1”=20’-0” Scale for residential projects, smaller scale as needed for larger projects)
- Final Presentation Model (Same scale as plans)
- Topography Model to scale

Drawings will be completed in Revit or Rhino using the standards and practices I will develop during this project. My final drawings will need to be developed with precision and craft. The professionals/former students need to be able to visually understand what I am thinking and

measure my design to scale. My final model should be completed with presentation quality materials, with attention to detail, precision, and craft.

Experimentation with the design process and final products is acceptable and always encouraged. Have fun with this!

The due date for my completed project will be April 30th. I will be required to present my project to a jury of professionals. Be prepared!