



PORTFOLIO

2024 Submission

Rebecca Sondermeyer

3D Modeling | Industry Work

Sketching & Photography | Paintings and Sculptures

Design | Heritage Documentation

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THE WONDEREST MAKER: TRACES OF TIME, PRESENCE AND ABSENCE

COURSE: Studio First

TERM: Summer 2023

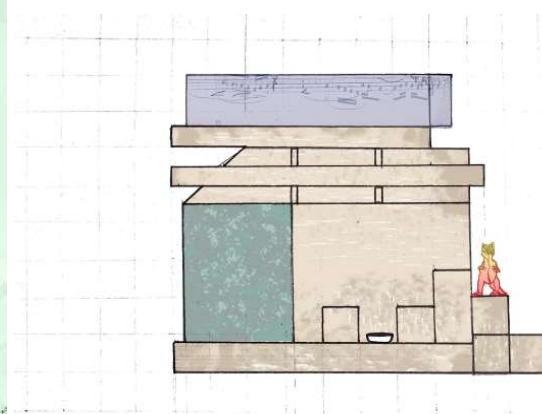
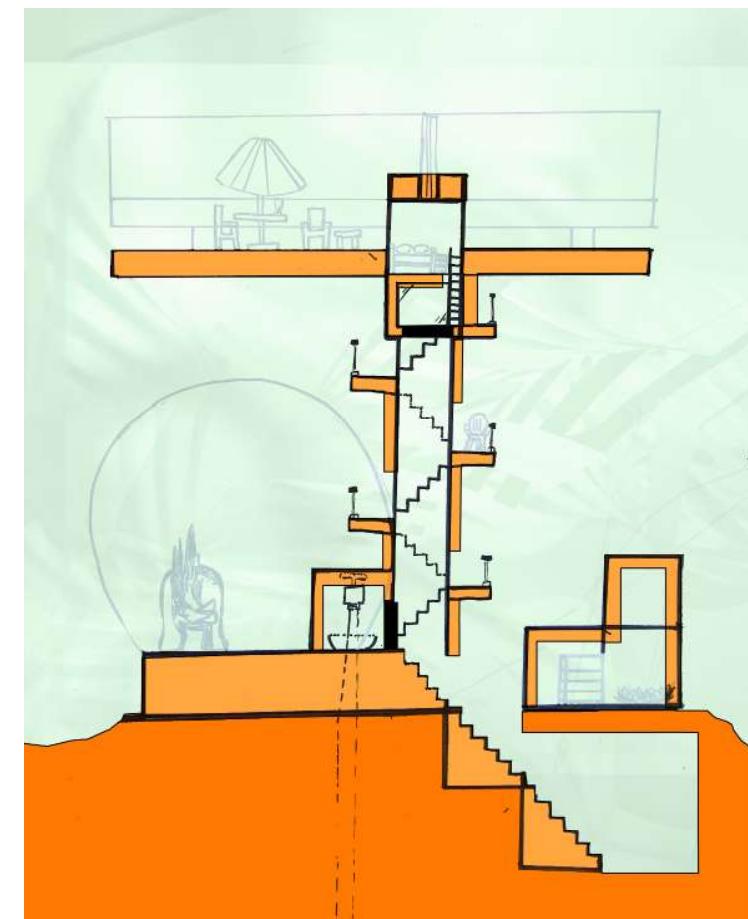
PROFESSOR: Adriana Ross

MEDIUM: Hand drawing with graphite and pen collaged and coloured in Photoshop

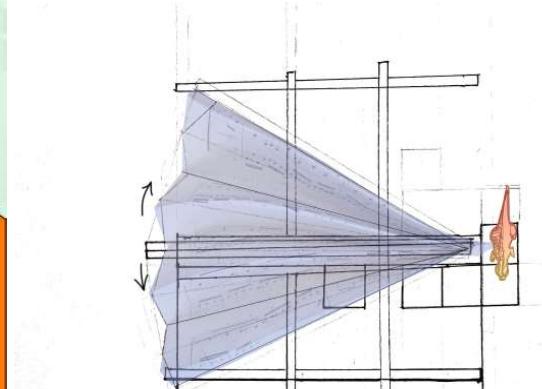
DESCRIPTION: Students were asked to create a model using different pieces from a mystery box and a piece of paper. Objectives of the exercise included:

- Conveying spatial qualities by creating negative and positive spaces
- Showing movement of the model
- Assigning new life to the piece (making it inhabitable)

Supporting exercises included cataloging all items in the mystery box, and sketching the model from multiple perspectives studying lineweights and shadows. The cover page is one part of this project called "Alternative Photograms" A collage of photos of a new paper sculpture playing with light, shadow, movement, and

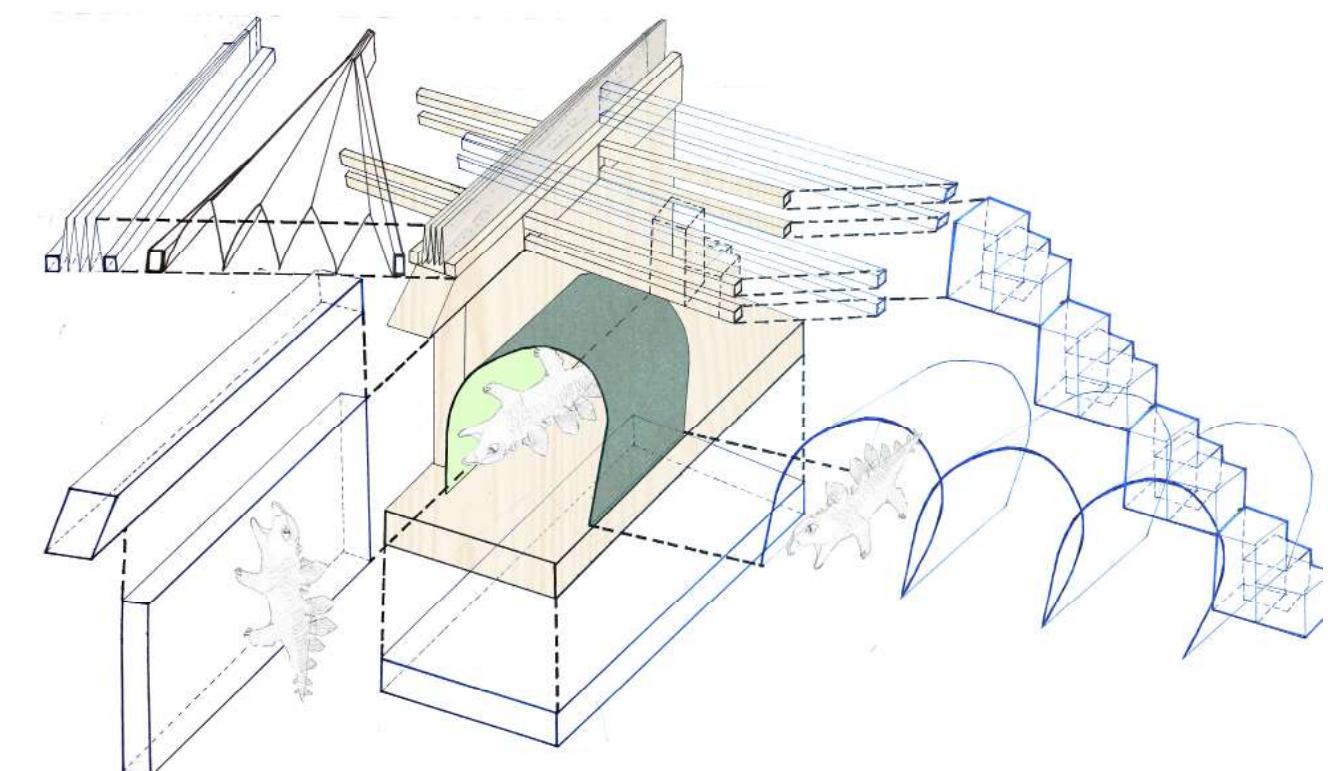


East Elevation

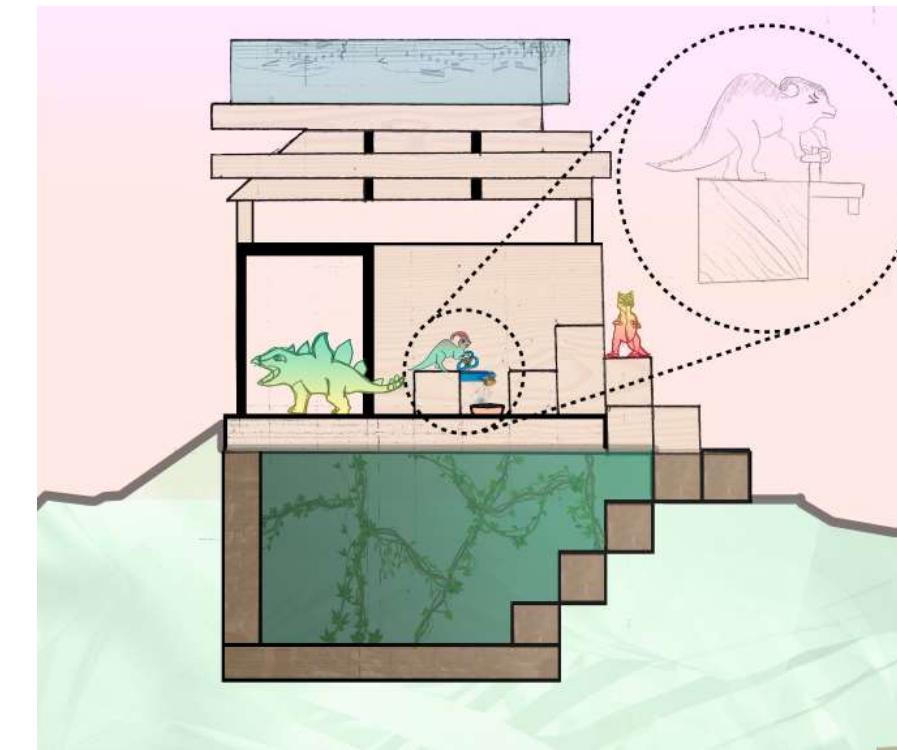


Section South Elevation

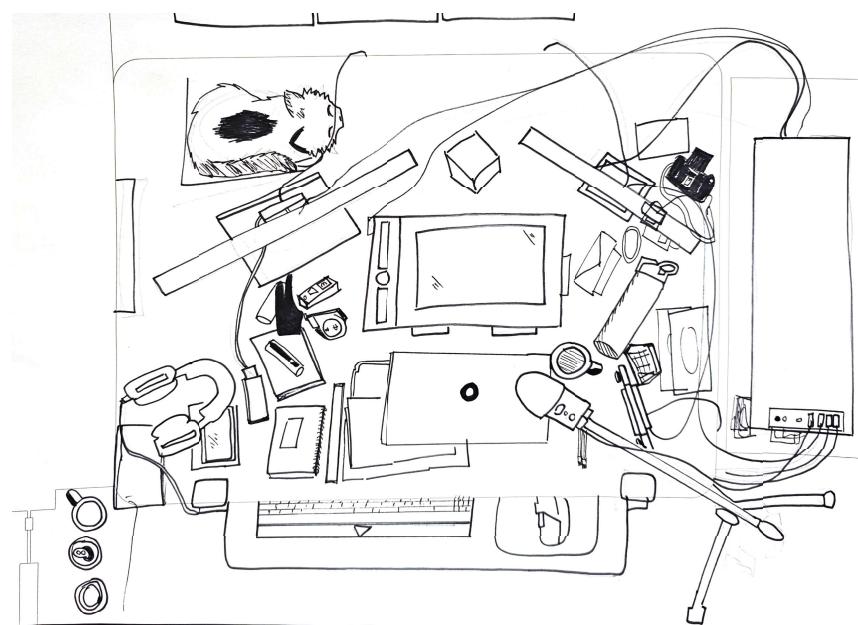
Plan



Exploded Axonometric



Section East Elevation



■ Leisure
■ Work
■ Both

STUDY OF THE MUNDANE

COURSE: Studio First

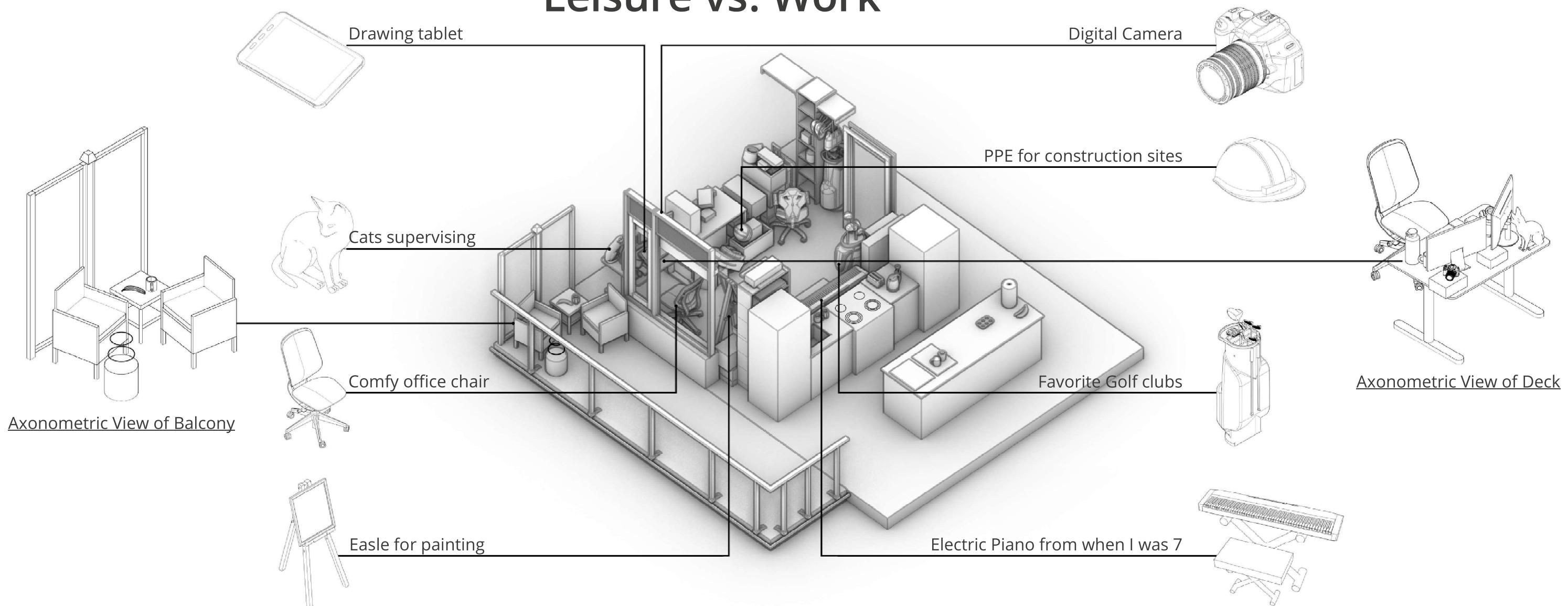
TERM: Summer 2023

PROFESSOR: Piper Bernbaum

MEDIUM: Rhino and Photoshop

DESCRIPTION: The project was called "From Home, with Love", the task was to depict daily life or the mundane. For this project, I created a 3D model to depict the stark difference between work and leisure. The 3D model was made in Rhino. The clutter of many items in the office and the minimal items on the balcony show the contrast between work and leisure. I created a plan view of my desk when busy. The desk is littered with pens, pencils, paper, tools, boxes, rulers, electronics, cups, and water bottles. The supervisor (my cat) likes to find a clear spot to sit and sleep whether I am working or relaxing.

Leisure vs. Work



Resource for objects: <https://grabcad.com/library/>

THE CITY AS TRACES WE INHABIT

COURSE: Studio First

TERM: Summer 2023

PROFESSOR: Rana Abughannam

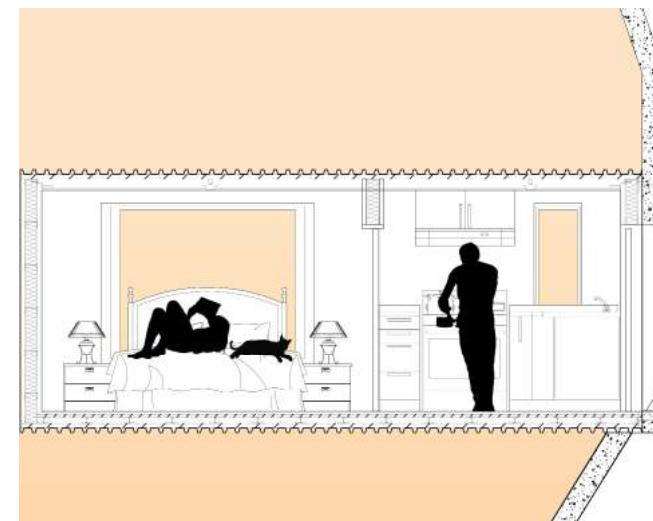
MEDIUM: Rhino, Illustrator and Photoshop

DESCRIPTION: Students were asked to read the book "Invisible Cities and the Urban Imagination" by Italo Calvino. The goal was to develop a spatial narrative for your city going back and forth between writing and drawing techniques. Taking inspiration from multiple elements letting the narrative evolve alongside the drawings. We were encouraged to use charcoal rubbing of materials and incorporate it into our work. I chose to include these textures in the large-scale elevation drawing for the water and the earth. Deliverables included:

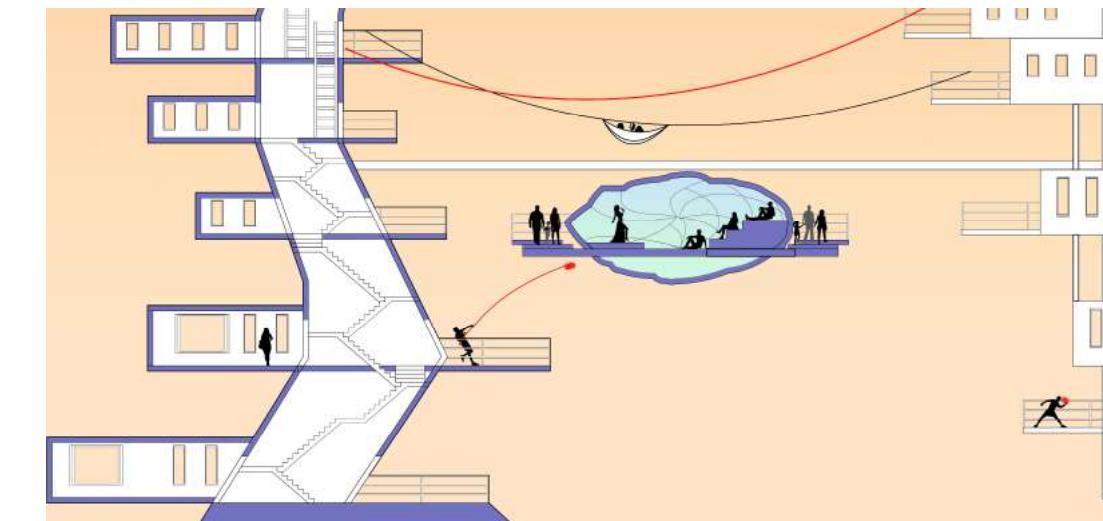
- Two architectural drawings at two different scales.
- One relevant process work in producing your final drawing
- One written spatial narrative of 500-700 words.

Sample text from the spatial narrative:

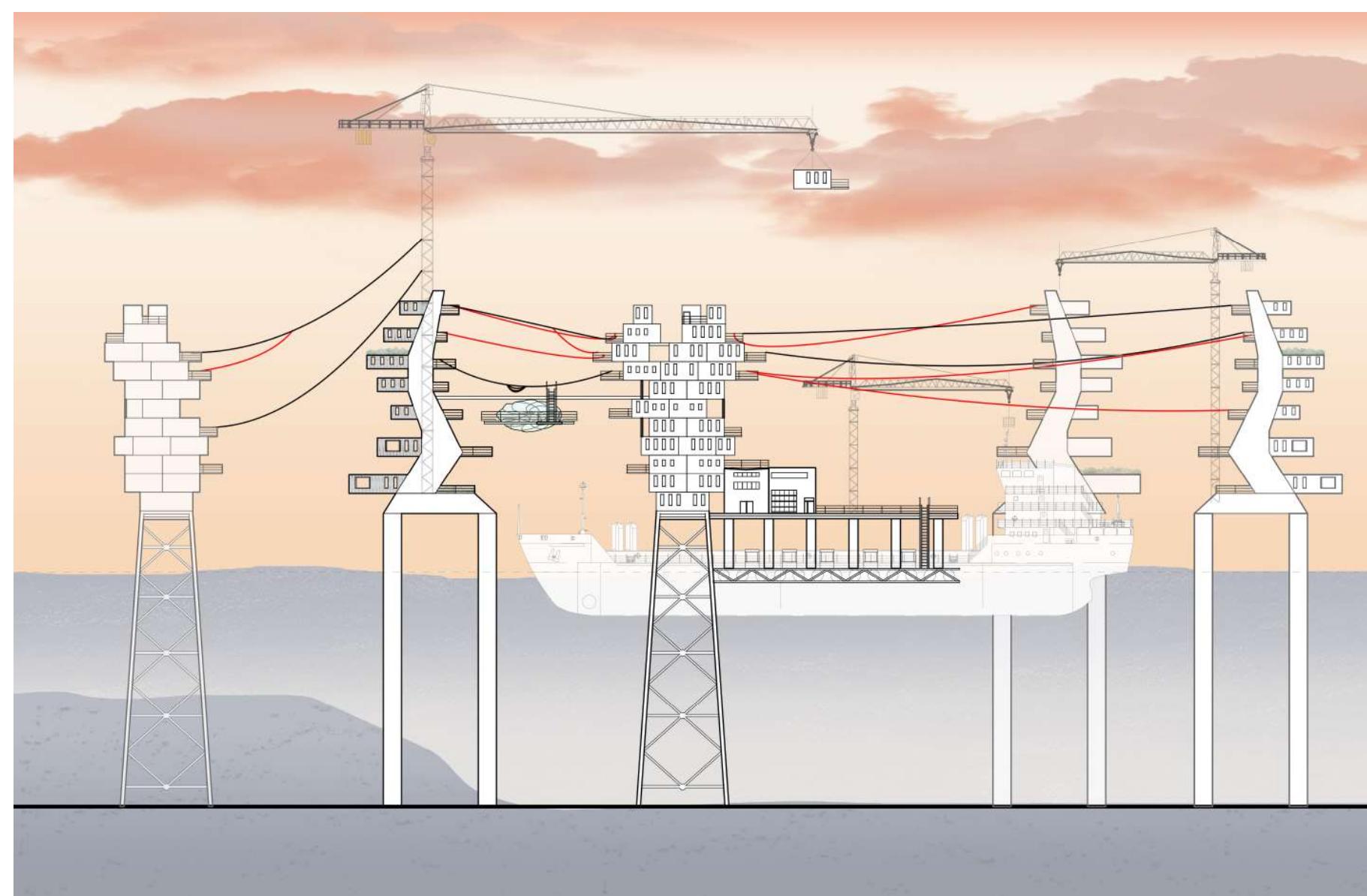
In a city that evolves and changes at night some sleep soundly. The residents of Ceand are used to the shifting and changing. Adaptable to the world around them, finding it eerie when it's been still for too long. Those who are friends tie strings between their dwellings in hopes that the city planners will take note. Children can be seen throwing red yarn between their balconies with slack in case one moves farther. Outside the city, it stretches to an empty horizon of open skies with speeding clouds... They remember how this used to be without the overhangs covering the night sky. The city begins to move around them. All are forced to remain motionless, as motionless as one can be with the ground moving around them. The chimneys begin to smoke, reminding the residents of the reminiscent of the oil rig that was once its sole purpose. Now, the city is bustling with ships coming and going. Growing ever taller towards the clouds. For the tenants at the top, the tremors are more pronounced, ironically making those penthouse sweets with a view less desirable in this moving city. The long path down, the unsteadiness, it's a delicate balance... When the sun rises, the children check their strings and wave to their friends, looking forward to hearing new stories from the traders who will arrive later in the day.



Section Detail Drawing of dwelling



Section Drawing to characterize the community



Final Drawing of city of Ceand

PHOTOGRAMMETRIC HERITAGE DOCUMENTATION

COURSE: Advance Building Assessment

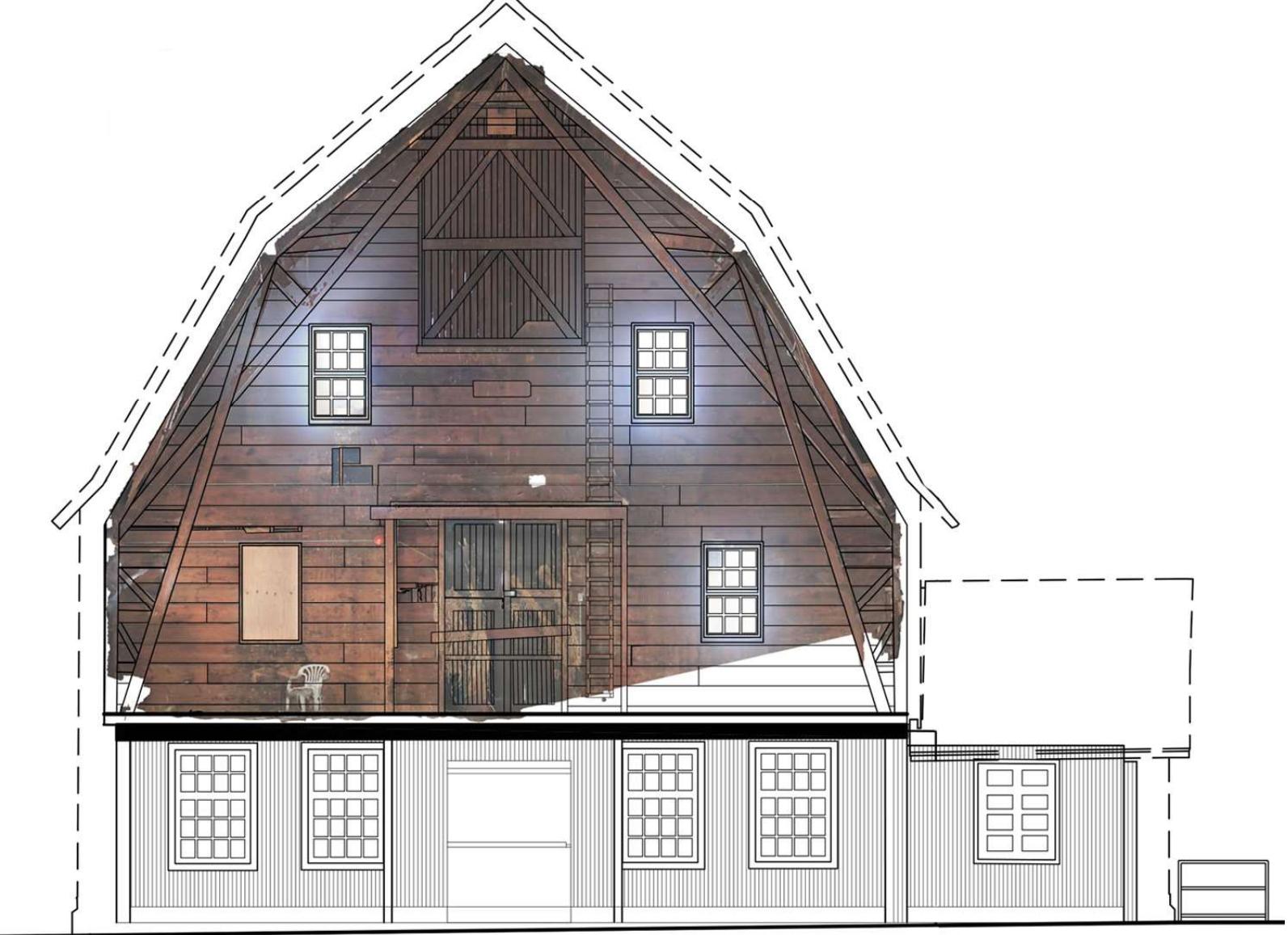
TERM: Winter 2019

PROFESSOR: Darby Ace

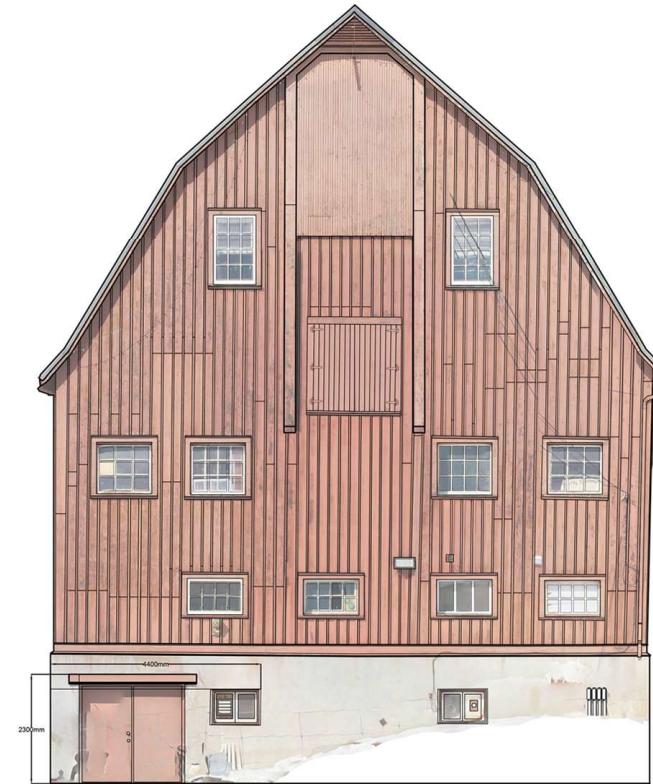
LOCATION: Central Experimental Farms, Ottawa, ON

MEDIUM: Photoscan and AutoCAD

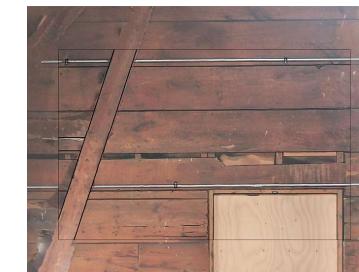
DESCRIPTION: The small dairy barn was a group project designed to teach students the value of historical research and new technology for recording heritage structures. In groups of 3, we divided the buildings that were a part of central experimental farms to provide a detailed report and presentation to the current owners. We determined the character-defining elements and heritage value of the building and developed orthomosaics to document the current condition of the building. For this project, we used Agisoft PhotoScan, an advanced image-based 3D modeling solution. Photoscan is a program used to create professional-quality 3D content from still images. This project helped to teach me the value of using technology to document a structure.



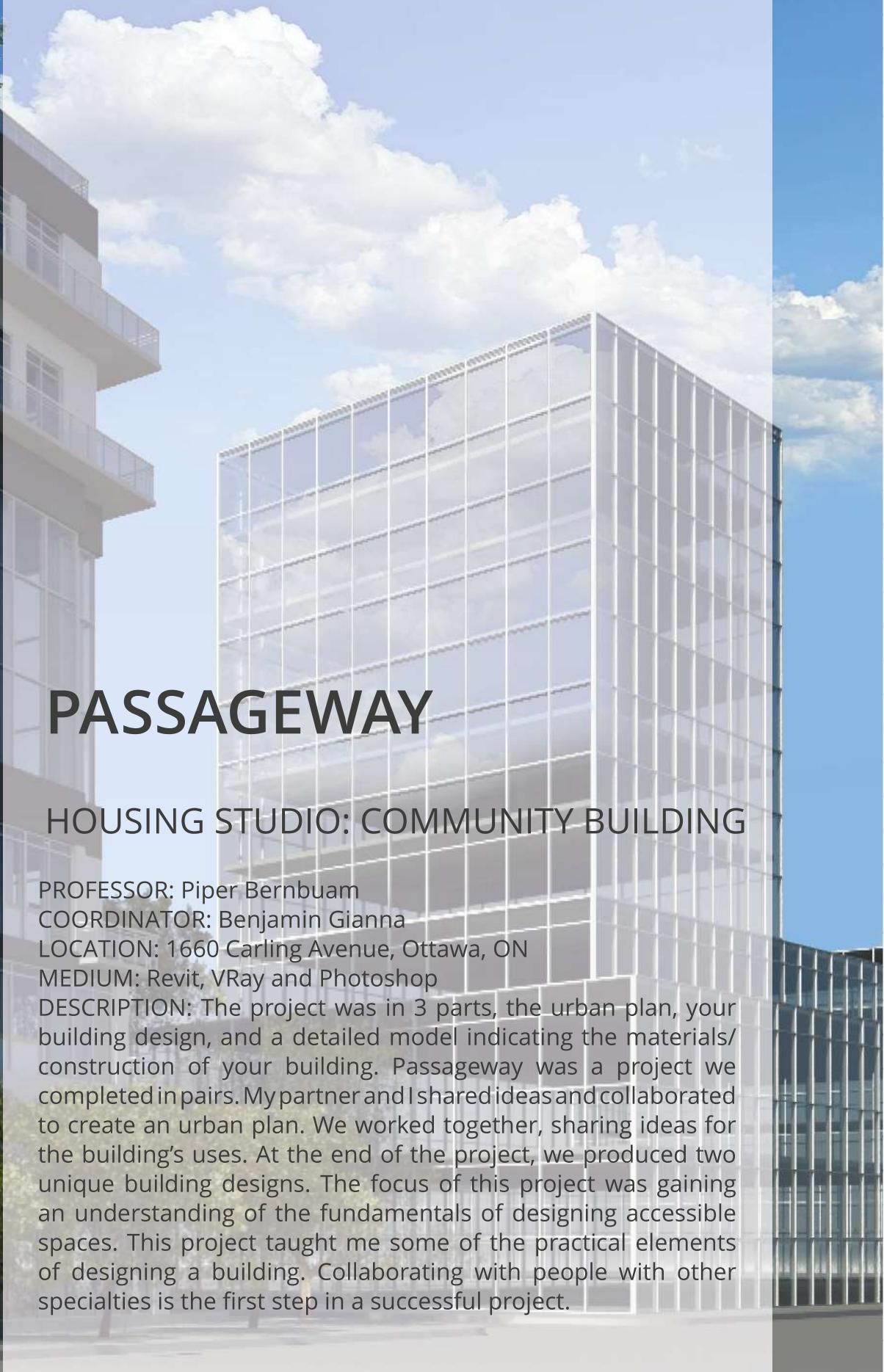
Interior North Elevation overlaying photogrammetric model



Second Floor Plan



Details of damage



PASSAGEWAY

HOUSING STUDIO: COMMUNITY BUILDING

PROFESSOR: Piper Bernbaum

COORDINATOR: Benjamin Gianna

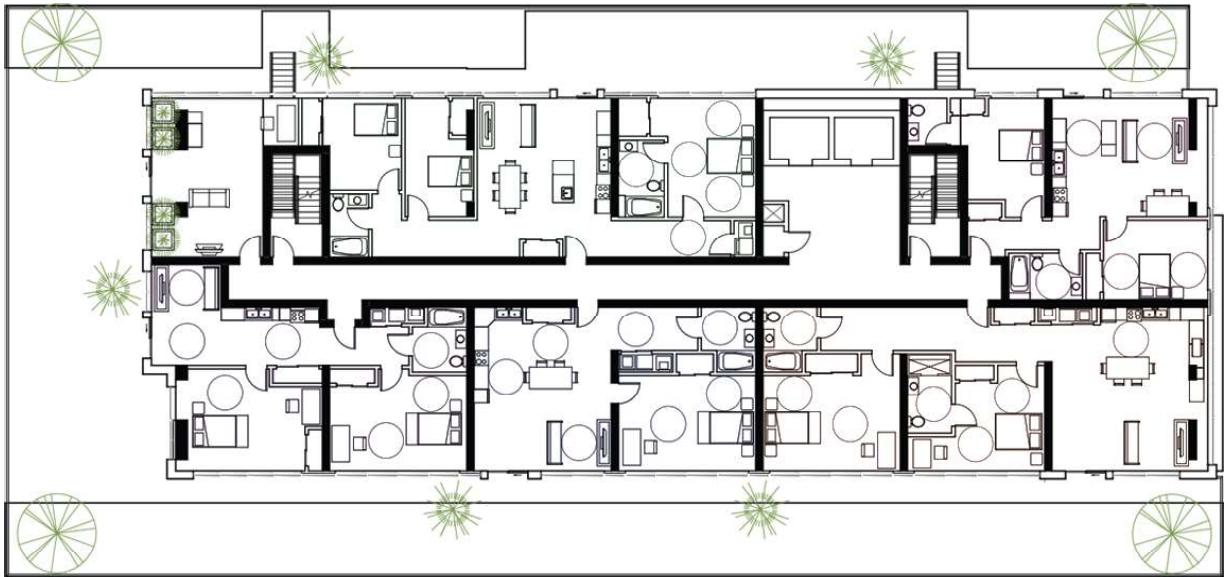
LOCATION: 1660 Carling Avenue, Ottawa, ON

MEDIUM: Revit, VRay and Photoshop

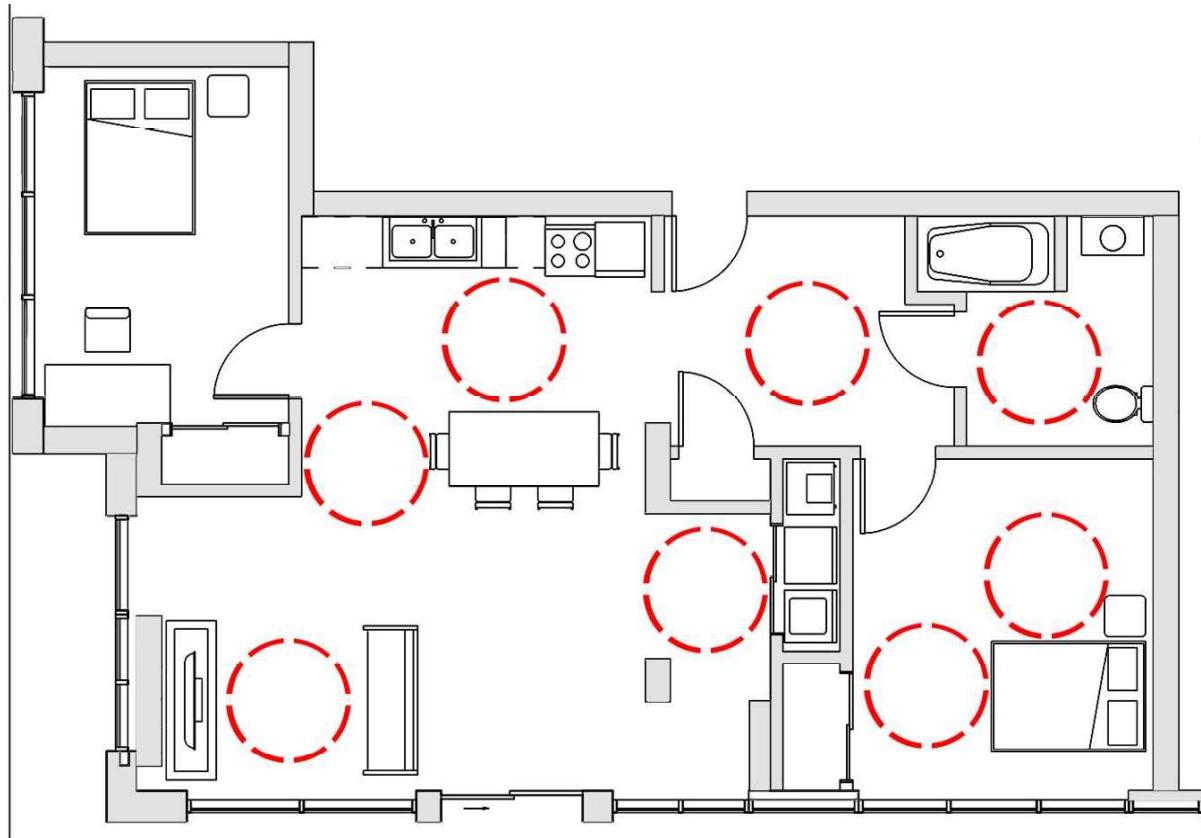
DESCRIPTION: The project was in 3 parts, the urban plan, your building design, and a detailed model indicating the materials/construction of your building. Passageway was a project we completed in pairs. My partner and I shared ideas and collaborated to create an urban plan. We worked together, sharing ideas for the building's uses. At the end of the project, we produced two unique building designs. The focus of this project was gaining an understanding of the fundamentals of designing accessible spaces. This project taught me some of the practical elements of designing a building. Collaborating with people with other specialties is the first step in a successful project.

PASSAGEWAY

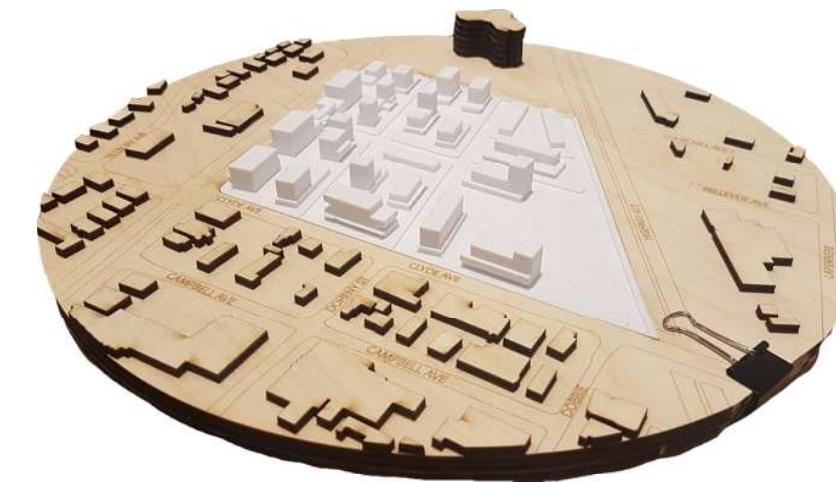
HOUSING STUDIO: COMMUNITY BUILDING



Level 2-3



Accessible Apartment: Circles represent the amount of space required in the building code for a wheelchair to turn around.



Physical Model: Laser Cut and 3D Print



Interior Vignette Rendering

INDIGENOUS CULTURAL CENTER

THIRD YEAR: CONSERVATION IN PRACTICE

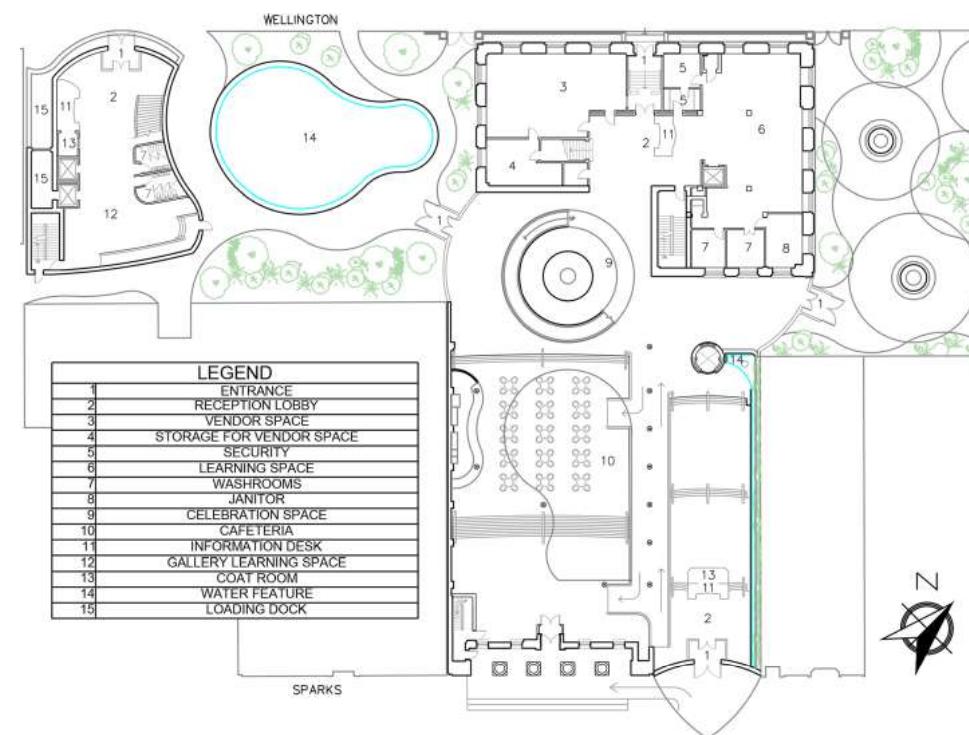
PROFESSOR: Lyette Fortin

LOCATION: 100 Wellington Street

MEDIUM: AutoCAD and Photoshop

DESCRIPTION: The goal of this project was to create a design for the new indigenous center at 100 Wellington Street. The design must be inclusive, representing both indigenous and non-indigenous; culture, history, and values. This project was in teams of 3. Our focus was on respecting nature. We proposed implementing sustainable strategies to reuse existing materials and locally sourced materials. We implemented green spaces throughout our design in a non-obstructive way, using them strategically to highlight our design. We proposed to have a minimal intervention for the proposed design of the new indigenous center. We preserved the character-defining elements of the buildings while suggesting a more inclusive design on the interior.

Key elements include the glass rain catchers, funnels which capture rain water for use as grey water and the spiral ramp inspired by the indigenous sharing circle.



Ground Floor Plan



Wellington Street North Elevation



Sparks Street South Elevation

NORTHERN HOUSING GUIDE

MORRISON HERSFIELD

COMPANY: Morrison Hershfield

TIME: September 2020 to February 2021

MANAGER: David Kayll

MEDIUM: SketchUp and Chaos

DESCRIPTION: The Technical Guide for Northern Housing is a series of booklets developed to establish a national occupational standard to ensure minimum core competencies. The guide will advocate housing policies that will lead to better building and renovation practices for remote northern Ontario communities.

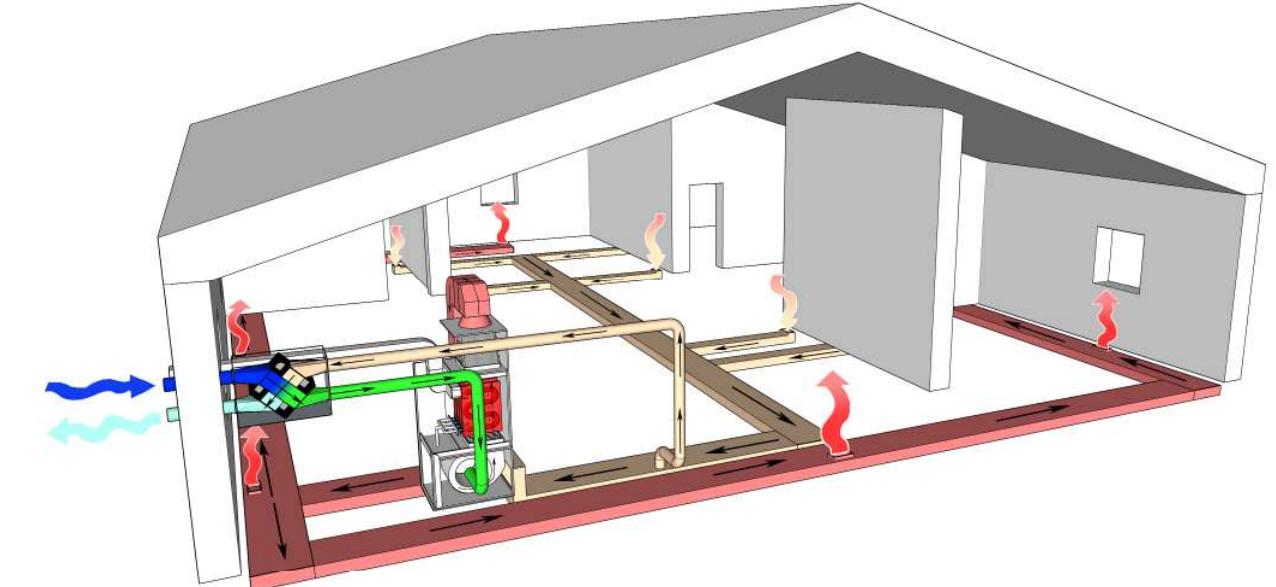
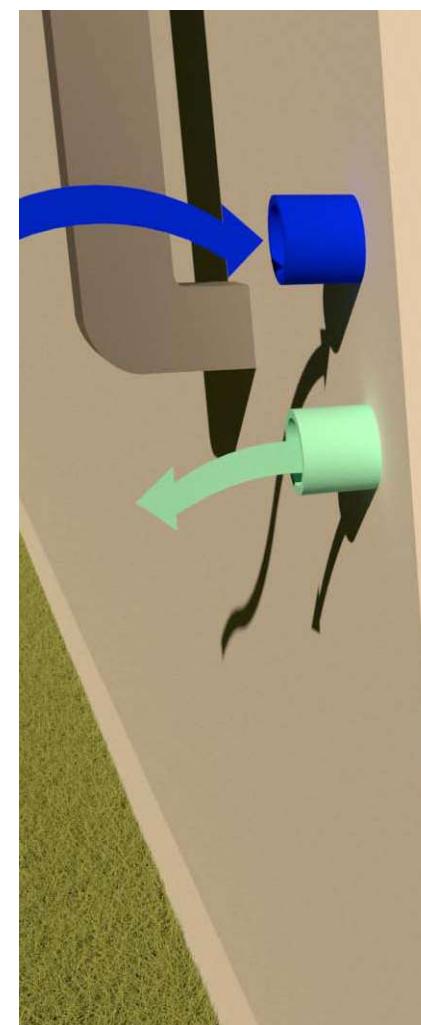
This guide's purpose is to improve housing conditions in First Nations Communities. The booklets inform workers in the north of energy-efficient and cost-effective housing options.

I worked with industry professionals to ensure the graphics were realistic, following the recommendations and ideas of:

- Building Science Consultants
- Structural Engineers
- Mechanical Engineers

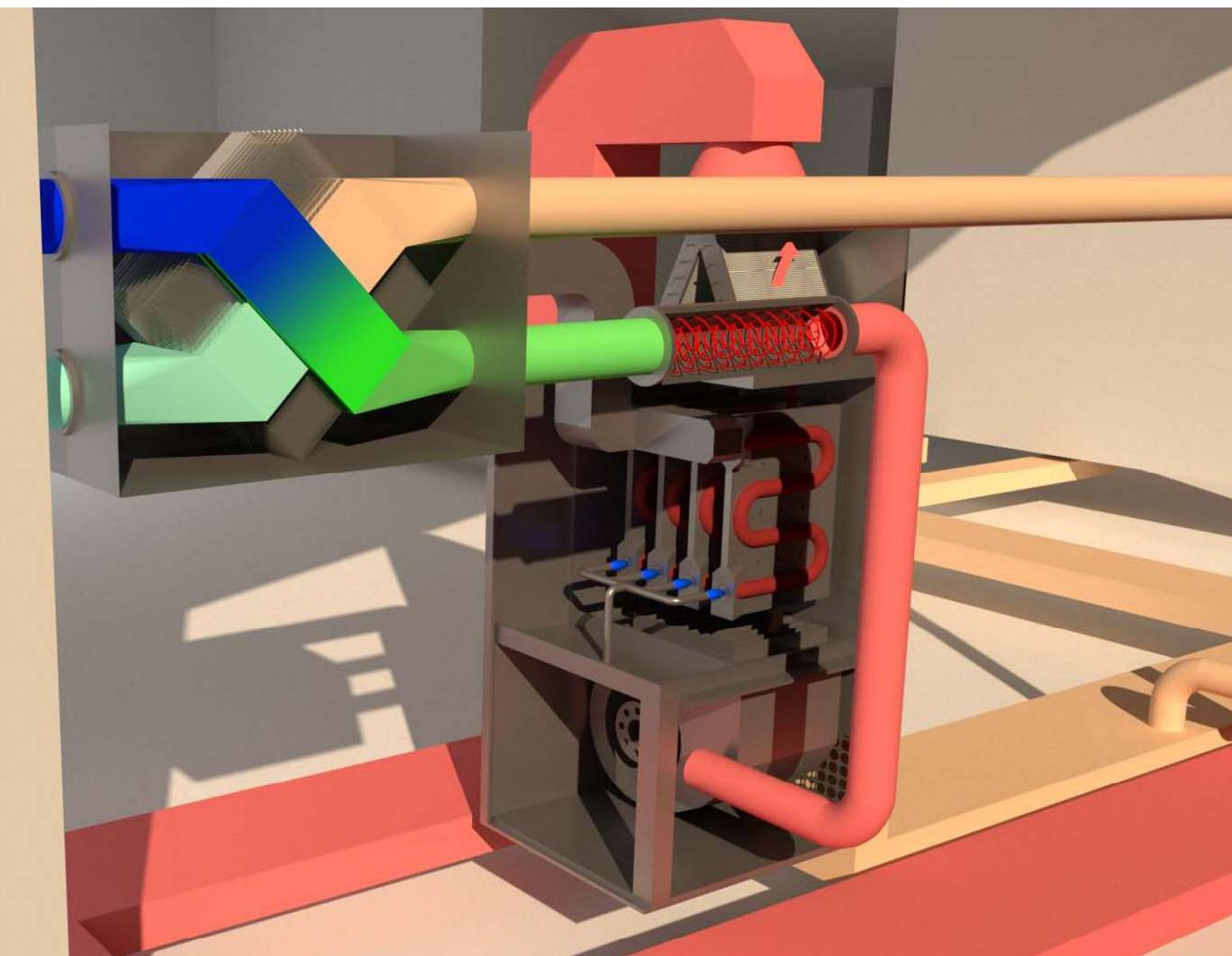
I was responsible for:

- Developing 3D models in SketchUp to provide visual representations of better building practices.
- Co-editing and formatting the booklets.



Booklet 2: Ventilation Technical Guide to Northern Housing

Air is heated in a forced air furnace before being distributed to the rest of the house



Booklet 2: Ventilation Technical Guide to Northern Housing

Heat Recovery Ventilators and Energy Recovery Ventilators (HRVs and ERVs)

NORTHERN HOUSING GUIDE

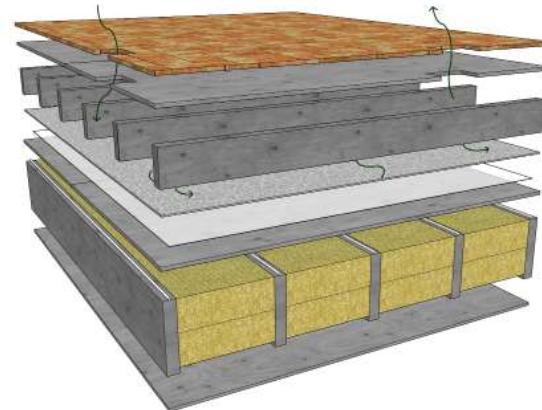
MORRISON HERSHFIELD

These pages in my Portfolio include a sampling of the 3D models I developed in Sketch-Up, with guidance from the Professional Engineers at Morrison Hershfield Limited. The full Technical Guide for Northern Housing can be found on FNNBOA website developed by Professional Engineers at Morrison Herhsfield Limited in collaboration with FNNBOA, NWT and NRC: <https://www.fnnboa.ca/technical-guide-for-northern-housing>

Booklets 1-11 include more examples of the 3D models I developed in Sketch-Up, with guidance from the Professional Engineers at Morrison Hershfield Limited.

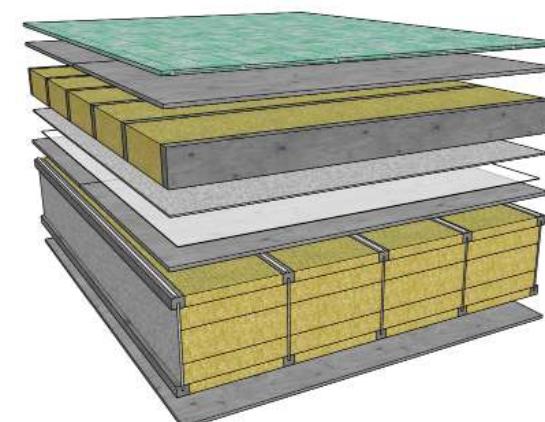
Booklet 7: Roof, walls and floor (assemblies)

Developed in collaboration with Senior Building Science Consultants



Warm Floor

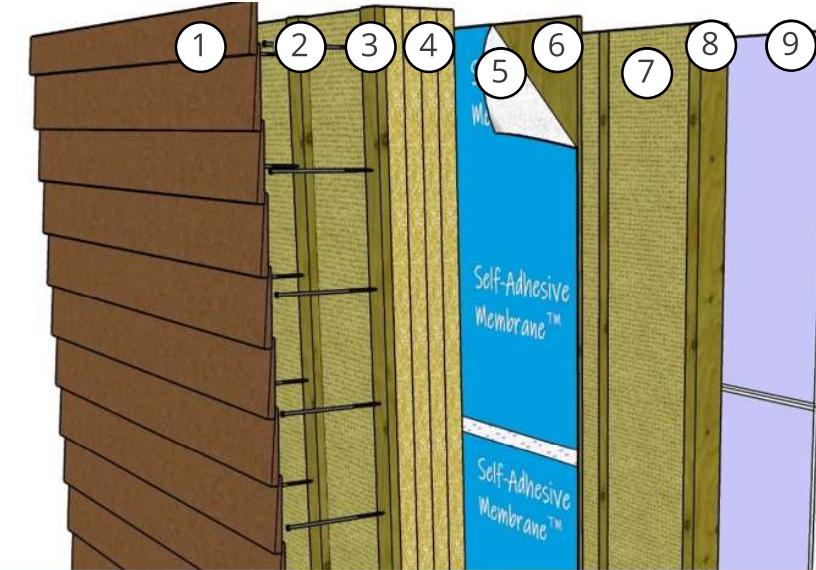
Basic 2x12 with 2x6 service cavity
Results in warm floor surface



Cold Floor

I-beam without service cavity
Results in cold floor surface

Part of my responsibilities included researching thermal bridging to understand how heat travels through building materials. Through my research, I learnt, that I-beams generally result in warmer interiors (more energy efficient) as there is less thermal bridging through the floor structure. However, the warm floor composition excludes the top layer of insulation directly below the floor finish. Ventilating the area directly below the floor with warm air, creates a more comfortable temperature of the floor surface, for the occupants. This research ties back to my goal of creating comfortable and affordable housing.



1. Wood Siding (1st weather seal)

2. 1/4" Rainscreen Cavity

3. 1x3 Strapping

4. 8" Mineral wool board; 4@ 2" (insulation; R-32 nominal)

5. Self-Adhesive Membrane (2nd weather seal + air seal)

6. 1/2 Plywood

7. 3 1/2 mineral wool batt (insulation, R-14 nominal)

8. 2x4 Wood Stud @ 16"

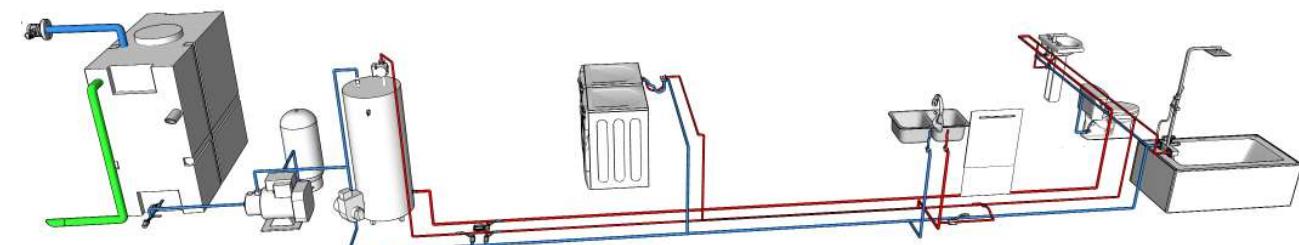
9. 1/2 drywall

(mold and impact resistance)



Booklet 9: Structure (framing and connections): Structural Framing - Screw Jack Foundation

Developed in collaboration with Professional Structural Engineers



Booklet 5: Fresh water plumbing (healthy water)

Developed in collaboration with Professional Mechanical Engineers

ACOUSTICS

STATE OF THE ART ACOUSTIK INC.

COMPANY: State of the Art Acoustik Inc.

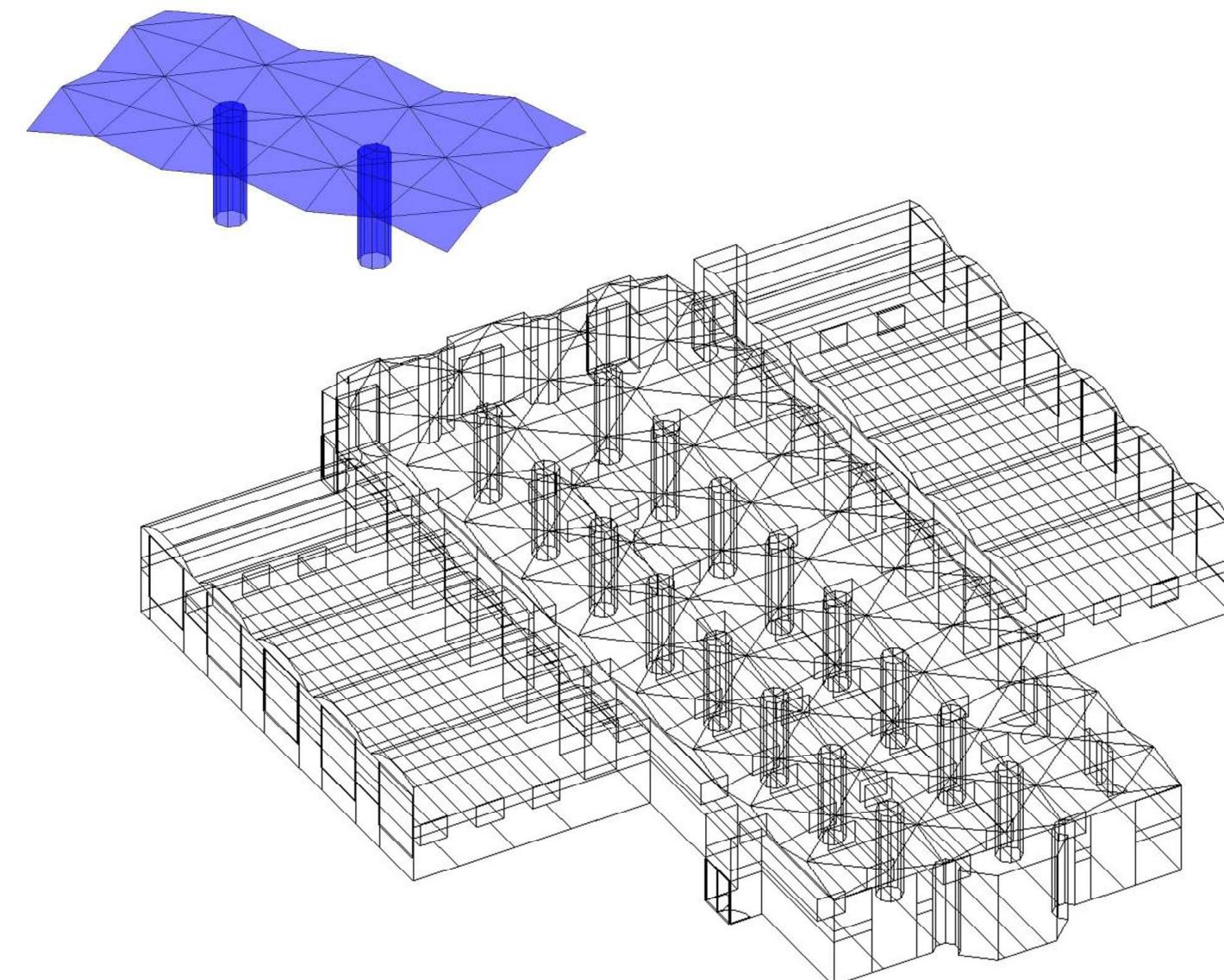
TIME: Summer 2018 & 2019

MANAGER: Alexander Fortier

LOCATION: 22 Amiens Ave, Kingston, ON

MEDIUM: BOSE (Acoustic 3D Modeling Software)

DESCRIPTION: This project was another BOSE Model I created while working at State of the Art Acoustik. The challenge with this model was the rounded surfaces. The program only works with straight lines. Therefore, I needed to choose the ceiling angle carefully to replicate the echoes that may occur in this space. I started with a complicated model of 32 pieces that I reduced to 8 simple geometrical representations to cut the rendering time down to a quarter of the rendering time.



MID-RISE WOOD CONSTRUCTION IN THE ONTARIO BUILDING CODE

MORRISON HERSFIELD

COMPANY: Morrison Hershfield

TIME Fall 2021 and Winter 2022

MANAGER: David Noel

MEDIUM: SketchUp

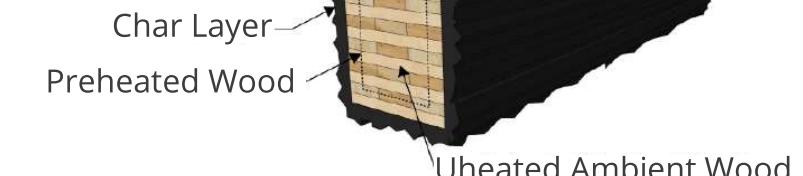
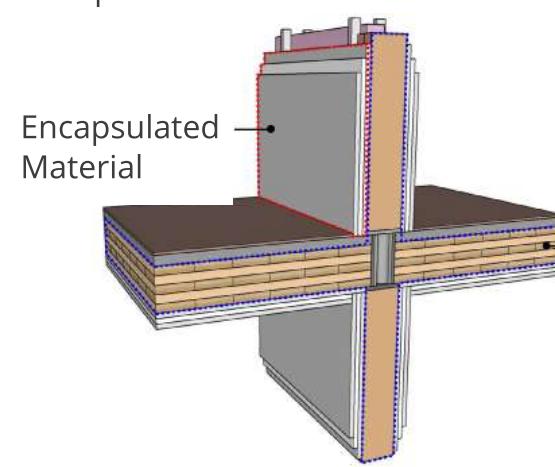
DESCRIPTION: Creating 3D visuals for the Mid-Rise Wood Construction in the Ontario Building Code.

- Working closely with the fire life code and safety team.
- Developed 3D models to represent quantities, orientation and spacing of wood for fire safety in mid-rise buildings.



Wood siding configurations on mid-rise construction
3 examples of how wood cladding can be arranged on a facade per the fire safety guidelines

Arrangement of gypsum to encapsulate mass timber floor



A char layer protects the wood beam, resulting in improved fire retardance.

INDEPENDANT ARTWORKS



Spirit Island, Maligne Lake, Jasper National Park

Acrylic, 24x20, 2012

While working on this painting I met my best friend.
I strive to be kind to others and when I found out it was this
stranger's birthday I got her flowers and the next book of the series
she was reading.



Building Study

Graphite 8.5x11

COURSE: History of Canadian
Architecture

TERM: Winter 2019

PROFESSOR: Andrew Waldron

DESCRIPTION:

13 Clarence St.

Second empire design,
elaborate brickwork and
domed windows fitting
into the urban commercial
streetscape of 1898, originally
a storefront for carriagemaker
Beloni Thibert.



Imaginary Landscapes

Watercolour, 20x15, 2023

Inspired by my view of the sky from my apartment balcony.
I find serenity while sitting and looking at the sky.
it never looks the same; the number of clouds, a layer of fog,
the angle of the sun changes ever so slightly every day.



Sweet Sorrows

Graphite, 8.5x11, 2014

Inspired by my brothers'
friend Rodrigo. I was touched
by his moving speech, about
the heartbreak of leaving the
friends' he made behind; as
he had to return to Mexico.

PAPER CLIP SCULPTURE

FIRST YEAR : DRAWING

COURSE: Drawing

TERM: Fall 2015

PROFESSOR: Federica Goffi

MEDIUM: Sculpture , Pen and Marker

DESCRIPTION: Our challenge for the labyrinth assignment was to use limited items to make a 3D-like maze, using either curved or straight lines. The model needed to have a central gathering space. I used paper clips and metal wire to create a tower. The way my model reached toward the sky was a critical aspect of my design.

Part 2 of the assignment was to cast a shadow from the model to a sheet of paper. Next, we would draw our labyrinth. I carefully chose an angle for the shadow cast on the model onto emphasize the essential qualities of the space I created.

