

# MADELYN HOLLIDAY

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INTERIOR DESIGN PORTFOLIO 2020



## Behavioral Healthcare Facility in Melbourne

Spring 2020 - Senior Year Thesis

50,000 square feet

Revit, Enscape, Photoshop

### PROBLEM STATEMENT:

This project consists of a 50,000 square foot **behavioral healthcare facility** located in East Melbourne, of Victoria, Australia. It is estimated that 45% of Australian adults will experience a mental disorder in their lifetime. According to Australians for Mental Health, "Australia's mental health services are fragmented, underfunded, hard to access, and of poor quality." An additional specialized behavioral healthcare facility will help mitigate the scarcity of psychiatric clinicians and facilities in the area, normalize behavioral health treatment, and increase patient comfort.

This facility will serve as a **transitional living center** for psychiatric patients who need additional recovery time before returning to their independent lives after being discharged from acute care. Receiving care at the Haven Psychiatric Centre is one step in the **"journey to rejoining the community."**

### CONCEPT STATEMENT:

The **Yarra River flows through the heart of Melbourne**, Federation Square. This hub is a large gathering center full of galleries and parks, making it a destination for enjoying **art, nature, and community**. At the Haven Psychiatric Centre, patients will find treatment and restoration to **regain independence and control** over their minds and bodies in order to one day rejoin their community. Within this Healthcare facility, there is a **central atrium** inspired by the flowing shape of the Yarra River. The shape of this void **draws patients, caretakers, and staff together**, naturally, to **spark socialization** so patients can **enhance their treatment** and journey back to living life independently.

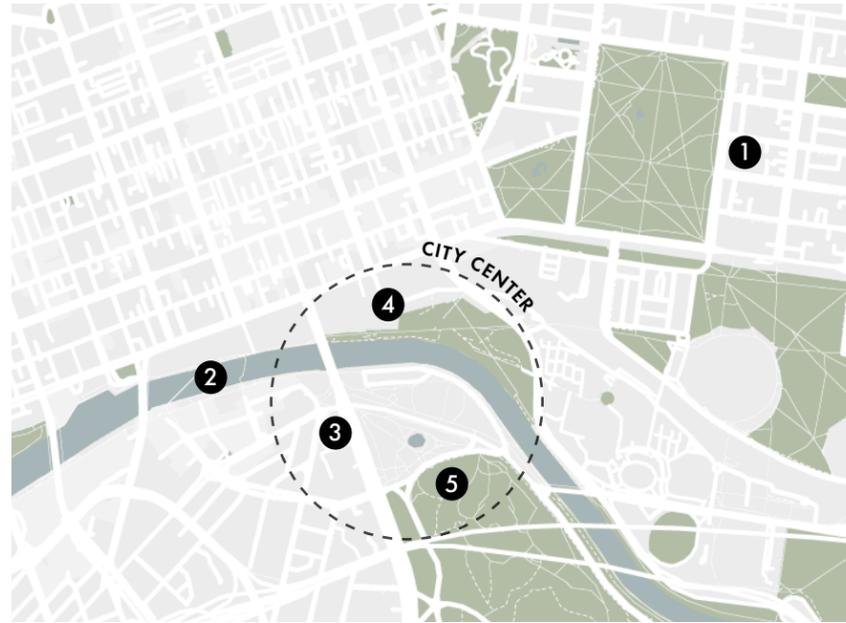


VIEW OF THE MAIN ATRIUM

**THE YARRA RIVER:**

The Yarra River flows directly through the heart of Melbourne, the city center. It guides people into and out of the city everyday, providing a journey throughout Melbourne. Within the city center, one can find three elements: art, nature, and community. These three elements can aid in the recovery of psychiatric patients.

**MELBOURNE CITY CENTER:**



**POINTS OF INTEREST:**

- 1. Building Location
- 2. Yarra River
- 3. National Gallery of Victoria
- 4. Flinders Street Station
- 5. Royal Botanic Gardens

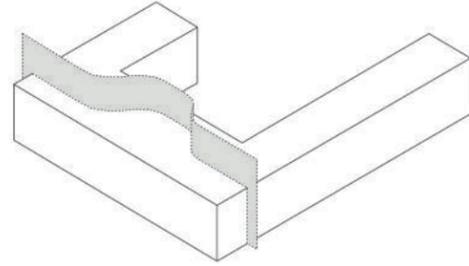


**RECEPTION:**

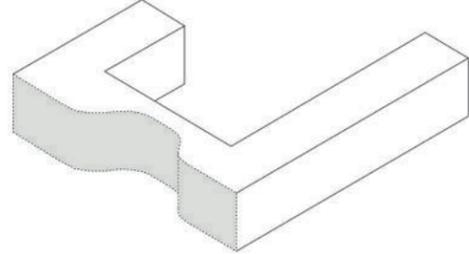
A large reception area just off the main entrance creates a centralized location for assistance and information. The reception desk design features an ADA-compliant multi-level work surface.

**PARTI DIAGRAMS:**

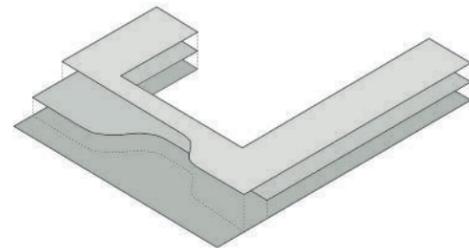
Flowing lines inspired by the Yarra River intersect the main part of the existing building.



Flowing lines create an atrium void for community gathering area.



Shape of the void determines the layering of the second and third floor plates.



**OVERALL AXON:**

Proposed form of the main atrium based off the parti diagram.



**FLOOR PLANS:**



Third Level Plan



Second Level Plan



First Level Plan



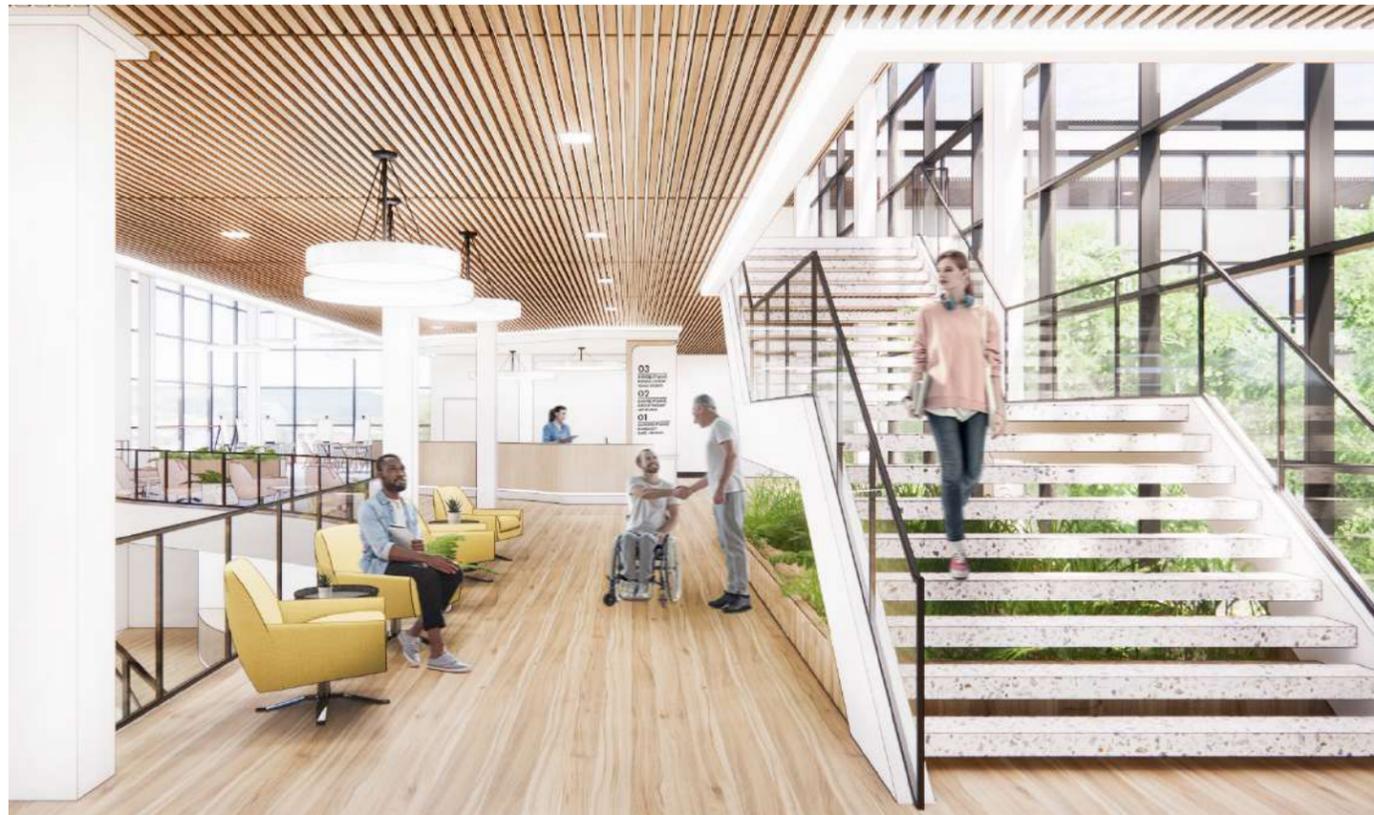
OUTPATIENT THERAPY



CAFE + DINING



ATRIUM LOUNGE



**INPATIENT LIVING:**

The second and third floors accommodate inpatient living. As a less institutional environment for patients transitioning from acute care to independent living, common areas on both levels allow for socialization among patients. Nurse's stations are positioned to monitor these areas at all times to provide a sense of safety to the patients.

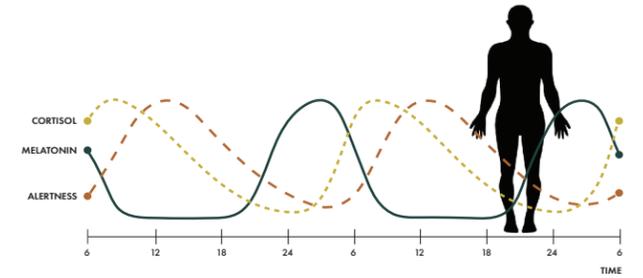


**INPATIENT ROOM:**

The inpatient rooms are designed to be less institutional, as patients in this facility are transitioning back to their independent lives. All patient rooms have large windows for generous access to natural light and views to the exterior. All lighting follows the natural circadian rhythm as a therapy tool.

**CIRCADIAN RHYTHM LIGHTING:**

**Thesis Statement:** Implementation of a circadian rhythm lighting system will decrease the length of stay and improve patient outcomes in behavioral healthcare patients. Additionally, it will improve overall wellbeing in healthcare employees who experience shiftwork by preventing circadian misalignment.



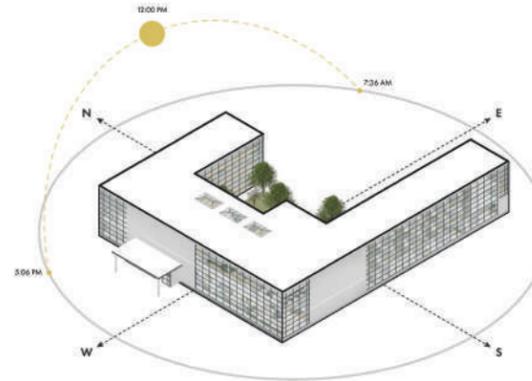
**BENEFIT TO PSYCHIATRIC PATIENTS:**

Mental disorders can disrupt the body's circadian rhythm which can intensify negative symptoms. Exposure to natural daylighting and implementing a lighting system or light therapy treatment that will support the body's circadian rhythm can put patients at ease in a healthcare environment and decrease patient agitation.

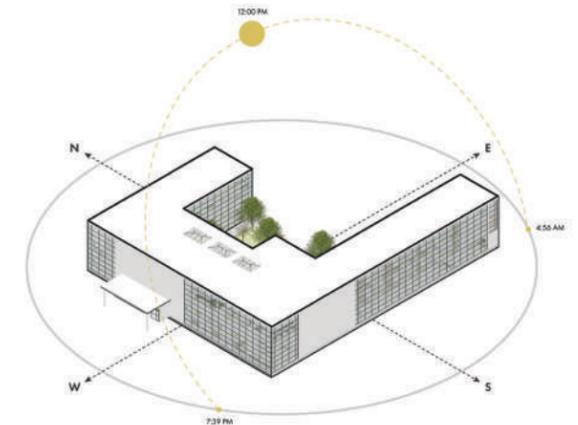
**SUN STUDIES:**

Sun studies show how the sunrise and sunset times change throughout the year in Melbourne. LED lighting throughout the building allows for adjustment of the color temperature to match the sunrise and sunset cycles as they fluctuate.

**SUMMER SOLSTICE:**

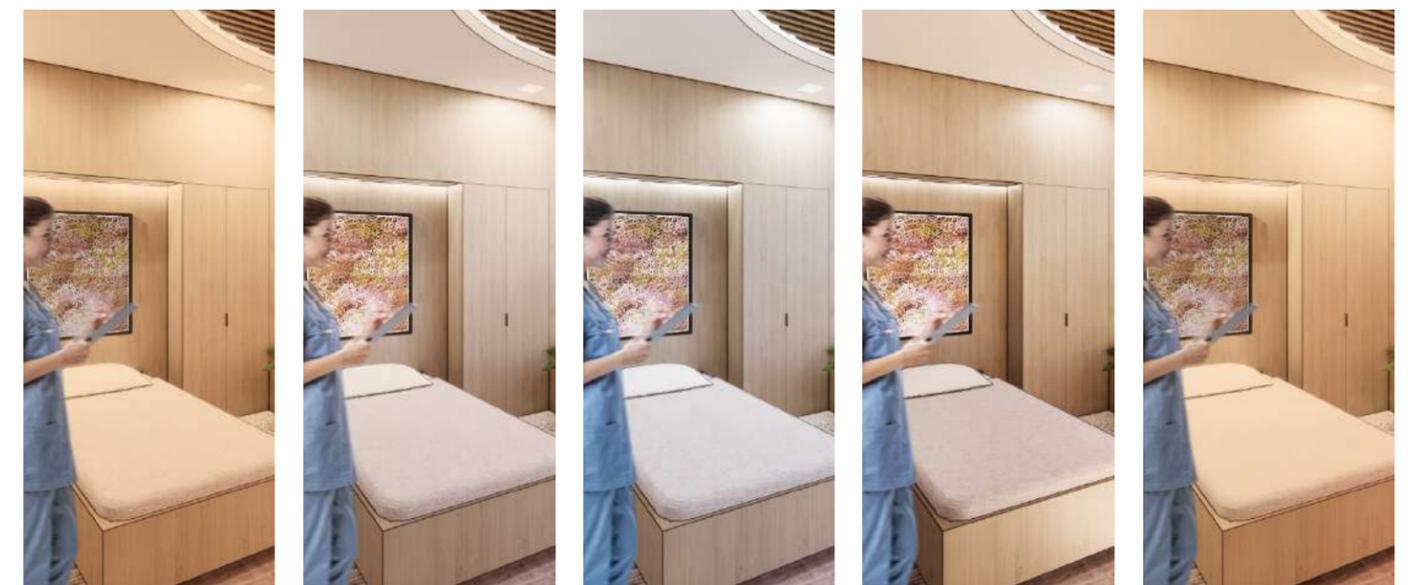


**WINTER SOLSTICE:**



**THE CIRCADIAN COLOR TEMPERATURE CYCLE:**

The following views of the patient room show how the light conditions change throughout the day according to the body's natural circadian rhythm.



**6AM: 2700K**

**9AM: 4600K**

**12PM: 6500K**

**3PM: 4600K**

**6PM: 2700K**

# THE NEXT HUB

Higher Education Facility in Washington, D.C.

Fall 2019 - 8 weeks

10,600 square feet

Revit, Enscape, Photoshop

Steelcase NEXT Competition - Honorable Mention

Opened in 1805, The **District Wharf** was once a prominent trade center with boats constantly coming and going to **exchange goods and ideas**. Located in Southwest DC, it has recently been revitalized for commercial and social activity. The wharf features a **buzzing promenade** for pedestrians that divides commercial buildings and the dock of the Washington Channel. Formal activity occurs within the commercial areas while more casual interaction occurs on the docking side.

The design of the **NEXT Hub** takes inspiration from the District Wharf by having a **main circulation path that acts as a promenade** to divide the spaces for **formal exchange** and the more open spaces for **casual exchange**. Similar to the Wharf's commercialized market area, the classrooms are enclosed spaces for formal activity. Similar to the Wharf's dock, the socialization area is an open space to encourage casual, boundary-free interaction; similar to the way boats are coming and going, **students are coming and going**. The promenade serves as a **transition space** between these two areas and **sparks conversation and exchange of ideas between users**.



SKETCH OF MAIN PROMENADE



VIEW OF THE MAIN PROMENADE



**SITE MAP:**

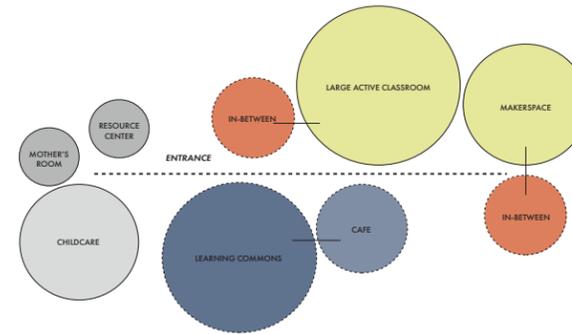
The District Wharf is located approximately 1 mile from the NEXT Hub.



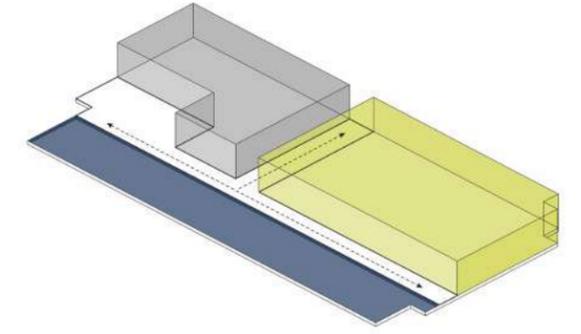
**WHARF MAP:**

The main promenade divides the built environment and the open dock.

**10TH FLOOR ADJACENCY DIAGRAM:**

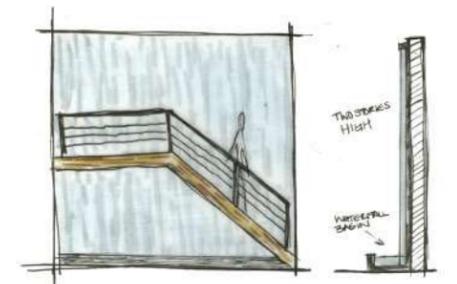


**AXONOMETRIC PARTI:**



**PROCESS:**

Waterfall Elevation + Section.



**WELL BUILDING STANDARD:**

- 

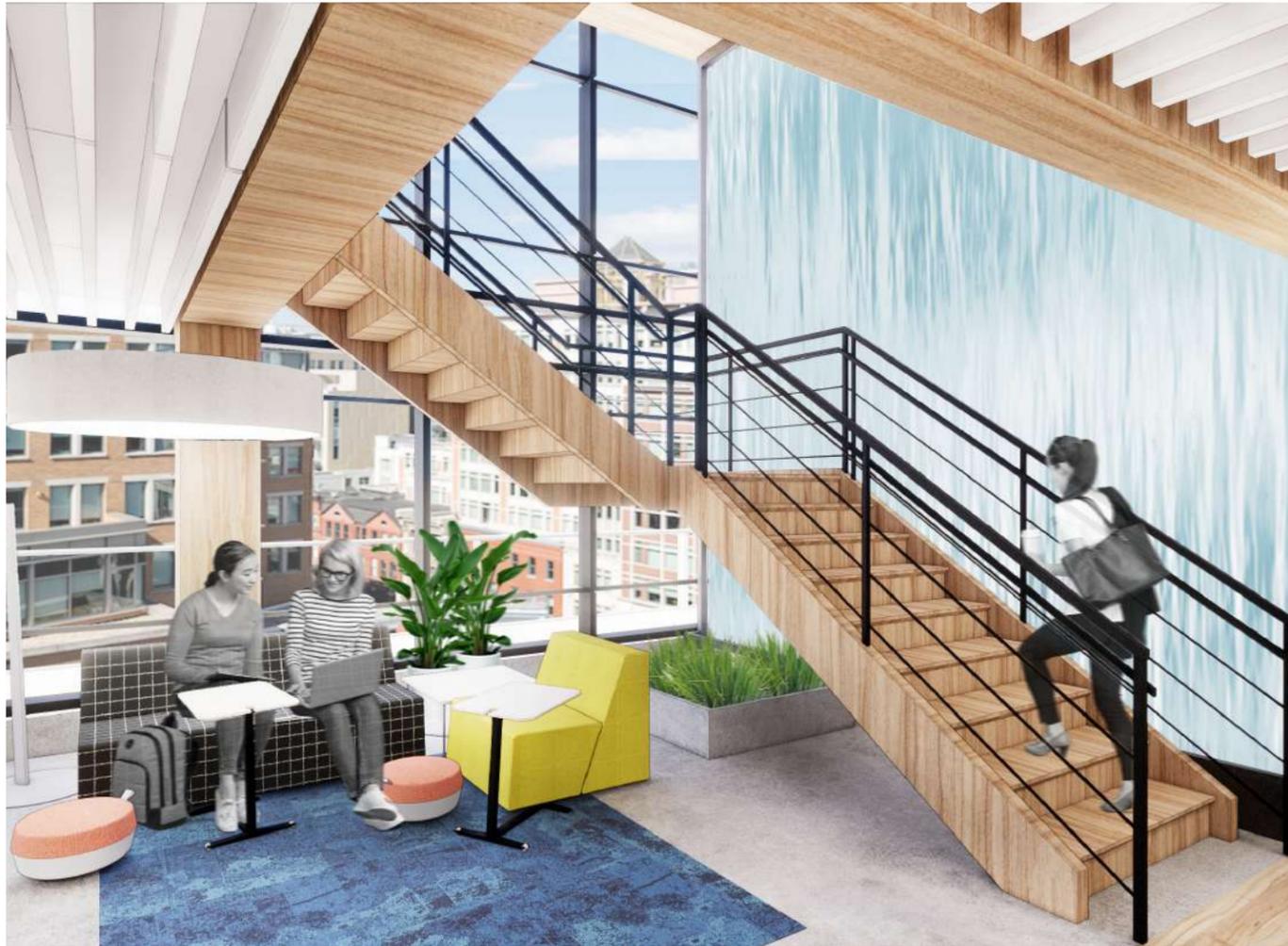
**WATER**  
A two-story enclosed **water feature** implemented for **biophilic design** and **acoustic support** through white noise.
- 

**MOVEMENT**  
An active and enticing **monumental stair** is present to **encourage users to take the stairs** over the elevator.
- 

**AIR QUALITY**  
An **enclosed copy room** and **materials with low-VOCs** prevent harmful off-gassing into the interior environment.
- 

**COMMUNITY**  
**Information Hub** features 6 monitors displaying university happenings and current events so users can **stay in the know**.
- 

**NOURISHMENT**  
Cafe features a **water dispenser** and **healthy snacks** vending machine.



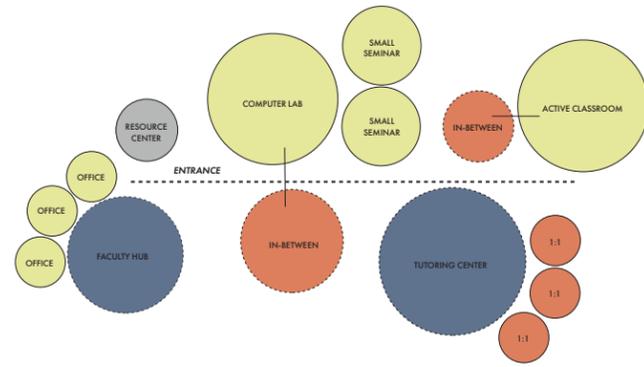
**MONUMENTAL STAIR:**

An enclosed two-story waterfall provides a connection to nature within the space. Not only does this waterfall pose as a biophilic element, it also provides acoustical comfort within the open area through white noise.

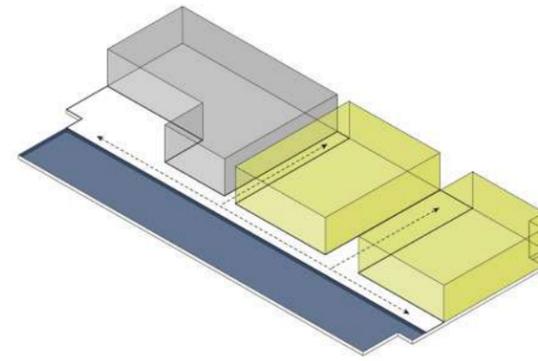


**10TH FLOOR PLAN NTS.** 

11TH FLOOR ADJACENCY DIAGRAM:

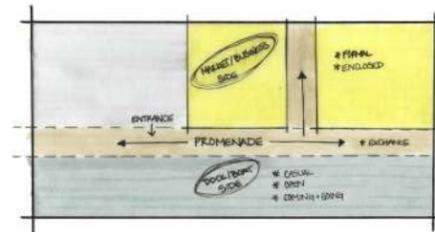


AXONOMETRIC PARTI:



PROCESS:

11th Floor Plan Parti.



WELL BUILDING STANDARD:

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**SOUND**  
Ceiling design features **acoustical baffles** and **acoustical perforated wood panels** for optimum sound control in the open space.
- 

**THERMAL COMFORT**  
In each faculty office, there are **adjustable temperature controls** present to **maximize personal comfort**.
- 

**MIND**  
**Personal study rooms** and a **mother's room** allow for users to **escape from the public environment** when needed.
- 

**LIGHT**  
Curtain walls with clear glazing allow for **views to the exterior** and **natural light exposure** from anywhere in the space.
- 

**MATERIALS**  
Sustainable materials are implemented in the space, including **FSC-Certified** wood product, carpet with **recycled content**, and **low-VOC** paint.

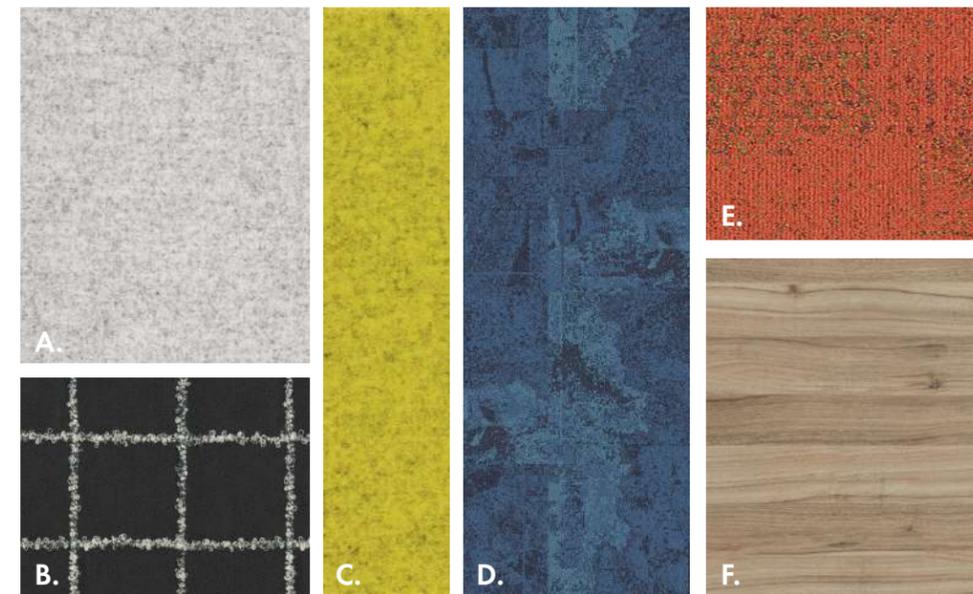


11TH FLOOR PLAN NTS. 



TUTORING CENTER:

This area supports student-teacher tutoring. Private rooms allow for one-on-one tutoring while high top tables in the open areas allow for larger group tutoring. Face-to-face seating in this area encourages student engagement and team collaboration.



MATERIAL PALETTE:

- A. Kvadrat Divina Melange 220
- B. Knoll Catwalk in Black Tie
- C. Kvadrat Divina Melange 421
- D. Interface Net Effect Carpet Tile in Pacific
- E. Interface Cubic Colours Carpet Tile in Orange
- F. Wood Flooring (FSC-Certified)



**LEARNING COMMONS:**

Supporting a range of thinking modes and work styles through various furniture types in the learning commons makes students comfortable for more meaningful interactions. A work cafe setting attracts both students and faculty via nourishment and in turn helps build social networks.

**WORK CAFE ELEVATION:**

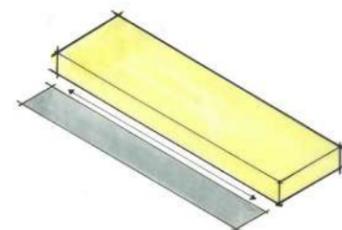


**STEELCASE POST + BEAM:**

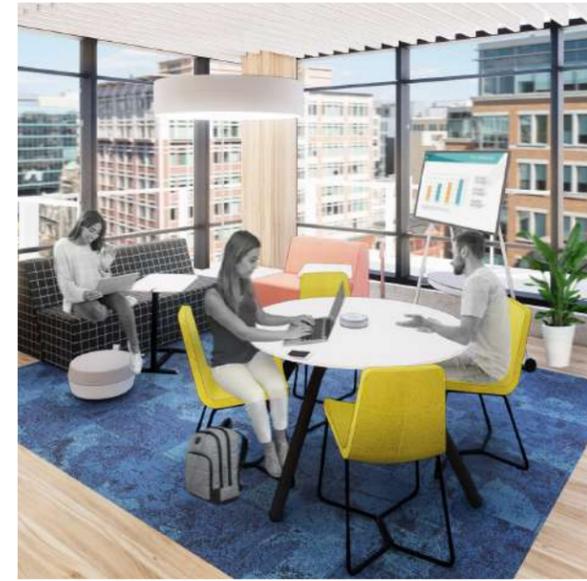
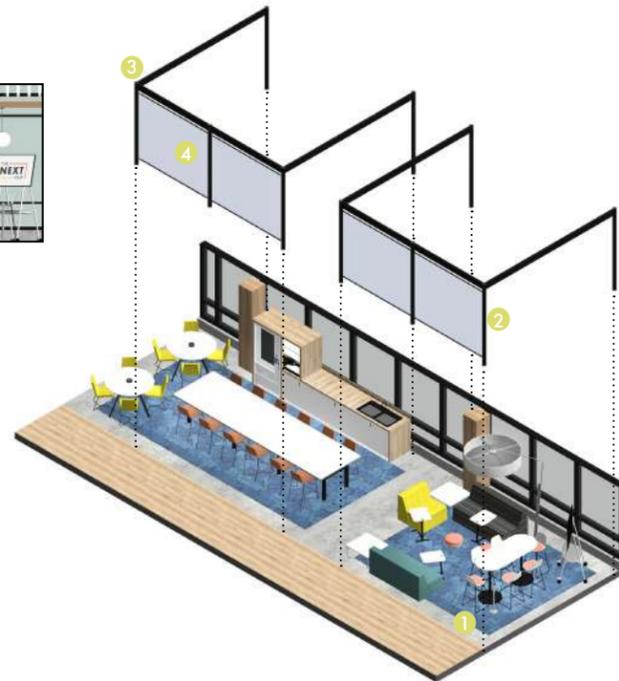
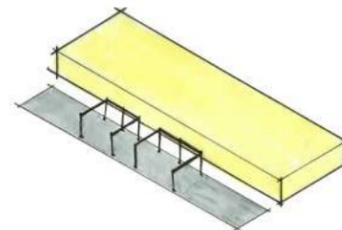
- 1 The fencing system defines the open area for collaboration and teaming.
- 2 Fencing brings technology support to an open area as power, data, and cable components can be added or subtracted creating access points only where they're needed.
- 3 Wireless access points can be added to the top of posts for maximum signal coverage in a large open facility like the NEXT Hub.
- 4 Custom translucent resin panels separate this open area from the main promenade while still allowing users to see movement behind.

**PROCESS AXONOMETRICS:**

Promenade divides solid and void.



Post + Beam defines the void.



**IN-BETWEEN SPACE:**

Research shows that majority of learning happens outside of the classroom. In-between spaces are provided for impromptu collaboration before and after class.



**LARGE MULTI-PURPOSE ACTIVE CLASSROOM:**

This classroom supports one large group of 50 students, or two smaller groups of 25 students when the movable wall divides the room. Furniture can be rearranged to support both lecture and group style learning.



**MAKERSPACE:**

This space supports creative learning. Studio tables provide workspace for physical building while technology stations support virtual reality for immersive learning.

**ACTIVE CLASSROOM LAYOUTS:**

Small Group Collaboration.



Lecture.





## Universally Designed Camp in the Poconos, PA

Fall 2019 - 5 weeks

3,600 square feet

Revit, Enscape, Photoshop

Bienenstock Competition - Studio Finalist

When spending time outdoors, a common activity is **stargazing** in the night sky, especially in the Pocono Mountains, which is an area of minimal light pollution. Constellations were once used for **navigation**, as one can look up and see Ursa Minor, the constellation that includes "Polaris," the North Star, from any location in the world. Ursa Minor is prominently visible when looking directly north from the summit of Big Pocono State Park during the Summer Solstice at midnight. Constellations will provide the campers with a **sense of place**, as they can view Ursa Minor from any location back home.

The design of this youth camp facility pulls geometries from Ursa Minor, and ultimately creates a **connective journey** between each star point that makes up the constellation when walking through the space. This journey begins at the Polaris star and ends at the **connection to the outdoors**, where campers would be viewing Ursa Minor in reality.

The design of the residential level of this space pulls geometries from Ursa Minor's "dipper" portion, the grouping of four stars that connect to **form a cluster**. The open living and kitchen areas in the apartment **encourage gathering** among residents of the space.

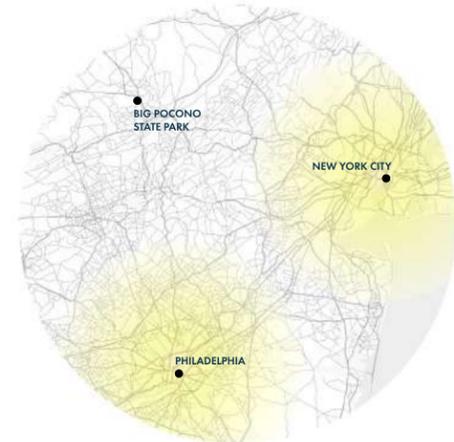


VIEW OF THE MAIN ACTIVITY AREA



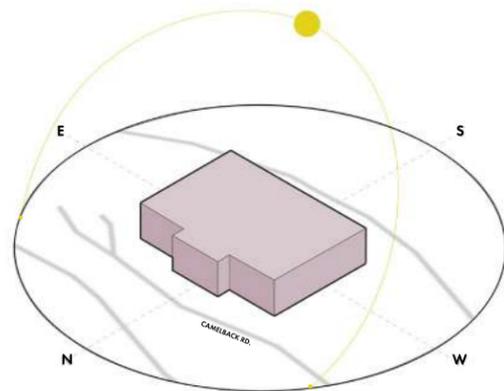
**VIEW OF ENTRANCE:**

Entry wall features camp branding as well as bench seating. This is directly adjacent to the nurse's office to act as a "waiting room" for campers to rest while waiting for medical care. Back-lit metal panel ceiling guides the user down the main circulation path.



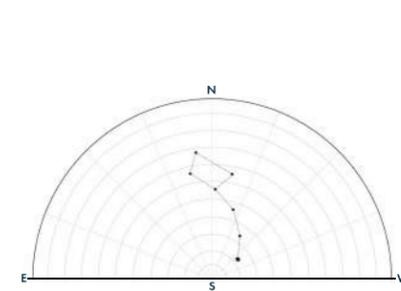
**PROXIMITY MAP:**

Pocono Mountains are located in an area of lower light pollution compared to the adjacent cities. The site can act as an escape from urban environments and be an optimal place for viewing the night sky.

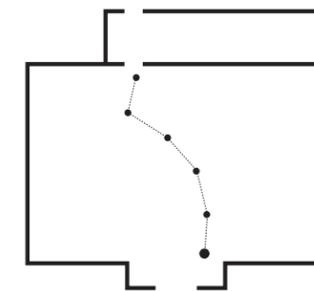


**SITE PLAN:**

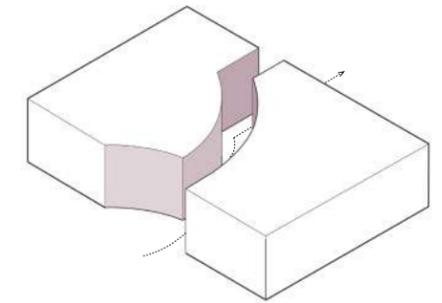
Building is located at the summit of Big Pocono State Park. Summer Solstice sun study is shown.



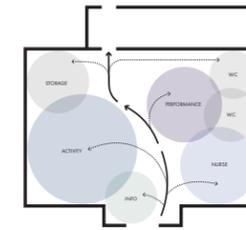
Ursa Minor's **orientation at Noon.**



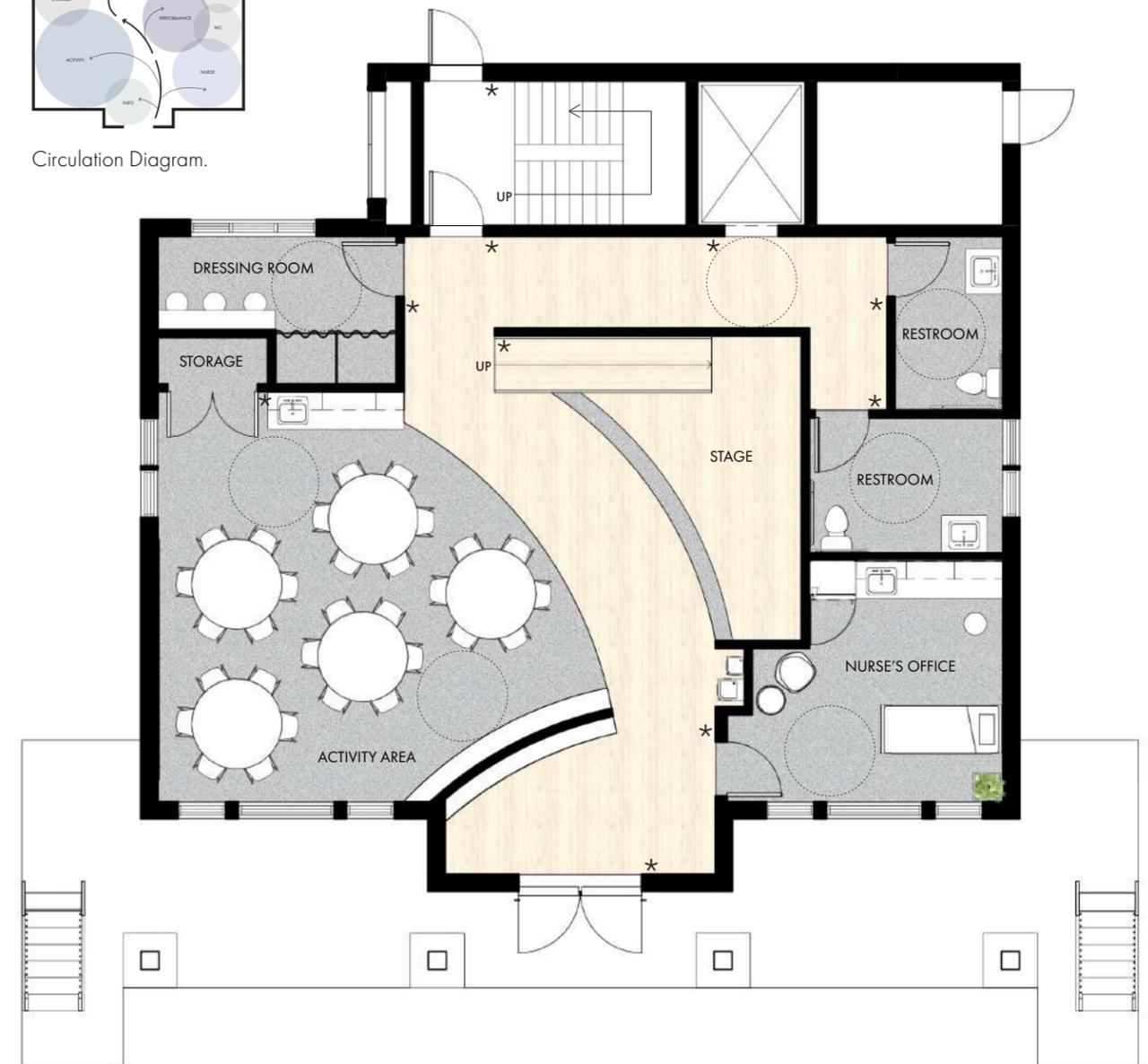
Geometries of path of stars placed on plan to indicate **pathway of circulation.**



Void to indicate **journey to the outdoors.**

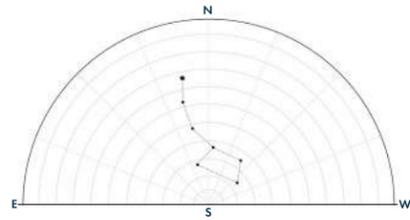


Circulation Diagram.

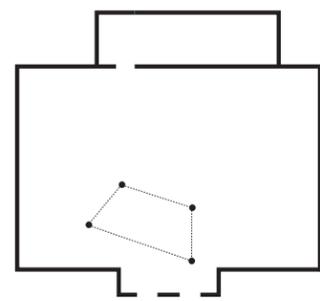


**FIRST FLOOR PLAN NTS.**

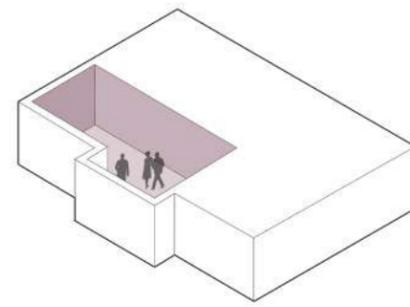
**\*** Indicates location of Braille signage.  
To be mounted 48" AFF.



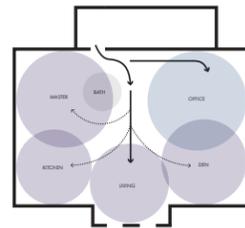
Ursa Minor's orientation at Midnight.



Geometries of the cluster of stars placed on plan to indicate location of gathering area.



Void to indicate volume of gathering area.



Circulation Diagram.



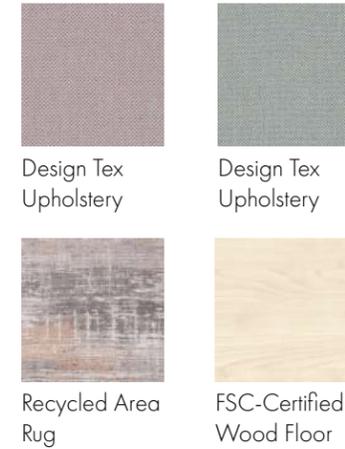
SECOND FLOOR PLAN NTS. (V)

★ Indicates location of Braille signage.  
To be mounted 48" AFF.

**RESIDENCE LIVING AREA:**

Open area that includes direct access to kitchen to allow for gathering. A vaulted ceiling encourages the resident to look up as they would look up to stargaze in a nighttime sky.

**MATERIALS:**



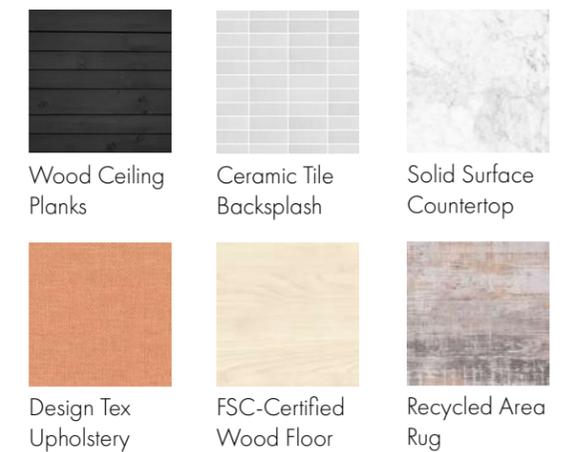
**RESIDENCE KITCHEN:**

**Axon Annotations:**

- A. Adjustable Height Double Sink 30"-34"
- B. Adjustable Height Gas Stove 30"-34"
- C. Dishwasher Drawers
- D. Side-by-Side Refrigerator Freezer
- E. Wall-Mounted Microwave
- F. Wall Oven
- G. Dining Table Seats 6.
- H. Herman Miller Leeway Chair 6 ct.



**MATERIALS:**



# BLACKSBURG COLLECTIVE

Public Library located in Blacksburg, VA

Spring 2019 - 4 weeks

14,600 square feet

Revit, Enscape, Photoshop

Partner Collaboration

Located in downtown Blacksburg, the Montgomery Floyd Regional Library is on a trajectory to become one of the most important **civic gathering** places over the course of the next few years. The design of the library was inspired by the nearby **farmers market**, which is already a **prominent destination** for the local community.

An enclosure provided by a **dynamic pavilion** indicates the central gathering area in the library, providing lounge seating and the main circulation desk. The **experience of browsing**, the main action done in a market, is kept pure within the library by keeping traditionally designed shelving prominent in the space.

## SITE MAP:

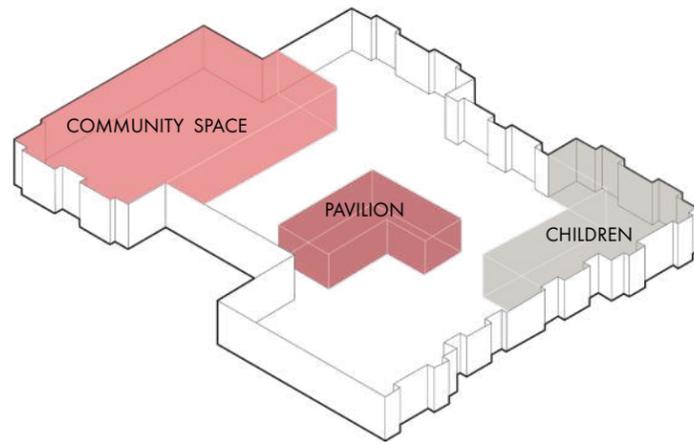
The Blacksburg Farmers Market is a quick 5 minute walk from the Blacksburg Collective library.



FICTION



VIEW OF THE MAIN PAVILION

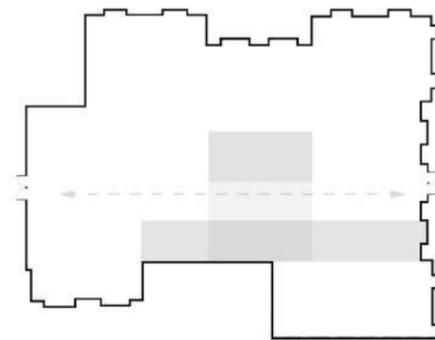


**PROGRAM DIVISION:**

Private areas are provided for focus work, but the emphasis of the space is put on **community gathering** with many grouped seating arrangements, so the presence of neighbors is incorporated into the space. To **engage multiple age groups**, a makerspace, a teen designated area, and a children's learning area are provided.

The cafe and community rooms are arranged in a group so the main library can be locked in the evening, but these public spaces can stay open to **accommodate community events held after hours** or university students doing late-night studying.

**PAVILION THRESHOLD:**

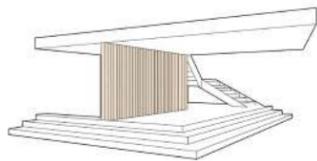


**PAVILION IDEATION:**

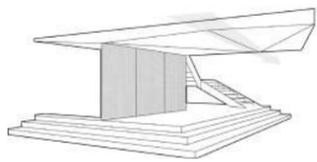
The Pavilion was a point of study in terms of massing and design language in relation to the space. Different materiality and lighting patterns were explored as a way to form a threshold.

Approaches from different parts of the library were analyzed in the development of the Pavilion design. The natural light from the clerestory windows above the space was also considered in lighting design.

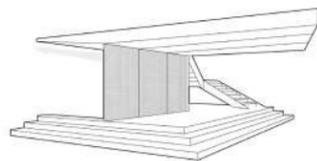
**1. Wood Slats + Risers + Flat Canopy**



**2. Mesh Panels + Risers + Angled Canopy**

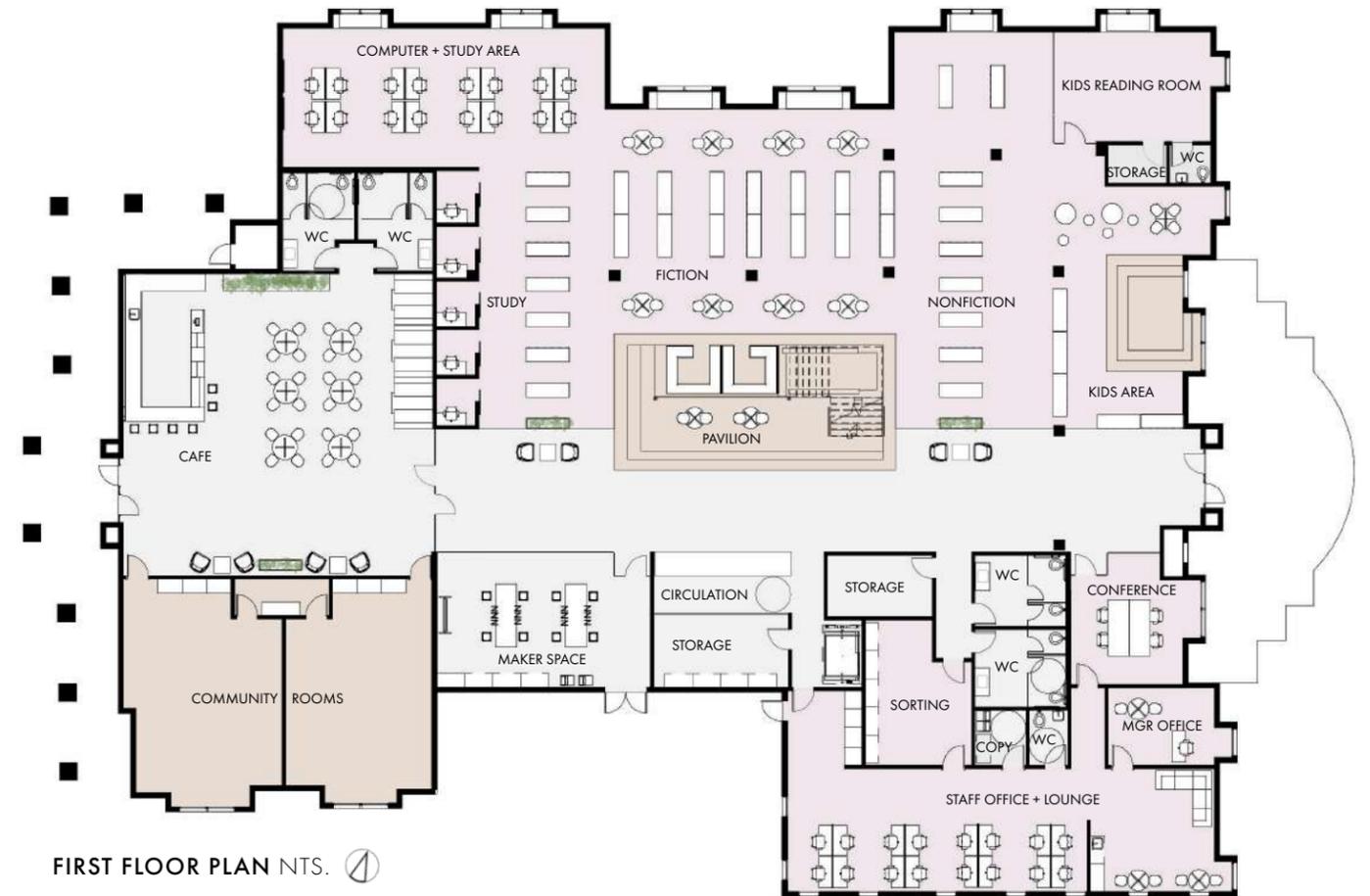


**3. Mesh Panels + Risers + Linear Lighting**



**PAVILION APPROACH FROM CHILDREN'S AREA:**

This view showcases the pavilion approach from the children's area. The stair shown takes the user up to the mezzanine that holds the teen area.

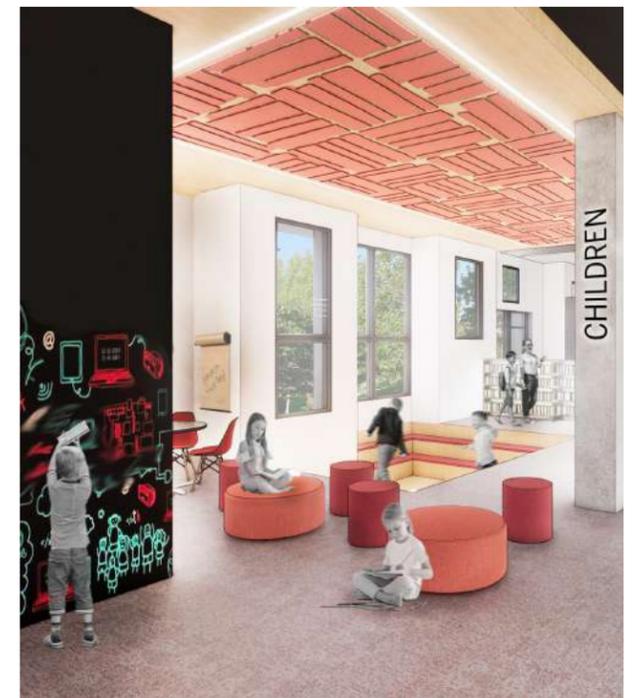


FIRST FLOOR PLAN NTS. (North arrow symbol)



**COMMUNITY CAFE:**

This space is part of the community center that stays open past library hours to accommodate late-night events and studying. Cafe provides group collaboration seating areas and serves nourishing snacks.



**CHILDREN'S AREA:**

This area provides a specialized section for children's books and learning tools. A recessed pit serves as a group reading area and helps contain children's toys.