

BIOPHILIA

A HEALING CONNECTION



Why	biophilia matters: Biophilic elements have multiple benefits in: human performance and productivity emotional well-being stress reduction learning healing
What	biophilia can accomplish: Help human beings Help nature Help the “bottom line”
How	biophilia can become more utilized” Research Education

BIOPHILIA [bahy-oh-fil-ee-uh, ɒfeel-yuh]

HUMAN BEINGS INNATE CONNECTION WITH NATURE



PROBLEM STATEMENT.

In what manner can the built environment respond to **biophilia** and the link to neuroscience research in architecture?

TYOLOGY.



Recovery and Research Center is a small health care campus dedicated to helping non-critical patients from surrounding health care facilities recover from different surgeries while studying the effects biophilia has on recovery patients and their well-being. The Center hosts up to 12 patients and up to 8 doctors, researchers, and nurses for an extended stay. The general public is also welcome to come to the center and learn about what is being discovered and how biophilia can be incorporated more into their own lives.



ESTHER M. STERNBERG

HEALING SPACE

DAYLIGHT/NATURAL LIGHT

NAVIGATION

NOISE

REDUCE STRESS

PHYSICAL ACTIVITY

BEAUTIFUL SURROUNDINGS

GARDENS

FOUNTAINS

BIKE RACE

FOCUS ON COMMUNITY

RATHER THAN SEGREGATION

ENHANCE COMFORT

LAYERING OF PRIVACY

FOR PATIENTS
AND FAMILIES :

ECOLOGICAL HEALTH

GARDENS

VIEWS TO NATURE

SOOTHING MUSIC

NATURE SOUNDS

SOOTHING COLORS

NATURE TRAILS

ESTHER M. STERNBERG, MD

SCIENTIST AND AUTHOR



AIAS FOURM 2009

Author of *Healing Spaces* and *The Balance Within*
Host of the PBS series *The Science of Healing*

How space can help healing and well-being?

Optimal healing environments are created through a variety
of spaces - enhance healing through space



ACADEMY OF NEUROSCIENCE FOR ARCHITECTURE (ANFA)

The mission of the Academy of Neuroscience for Architecture is to promote and advance knowledge that links neuroscience research to a growing understanding of human responses to the built environment.

EDWARD O. WILSON.
PROFESSOR AT HARVARD UNIVERSITY, AUTHOR



Coined the term, Biophilia

Author *Biophilia*

Harvard Biologist

BIOPHILIA [bahy-oh-fil-ee-uh, ɪfeel-yuh]

HUMAN BEINGS INNATE CONNECTION WITH NATURE

ROGER ULRICH, PH. D.
PROFESSOR OF ARCHITECTURE AT TEXAS A&M UNIVERSITY



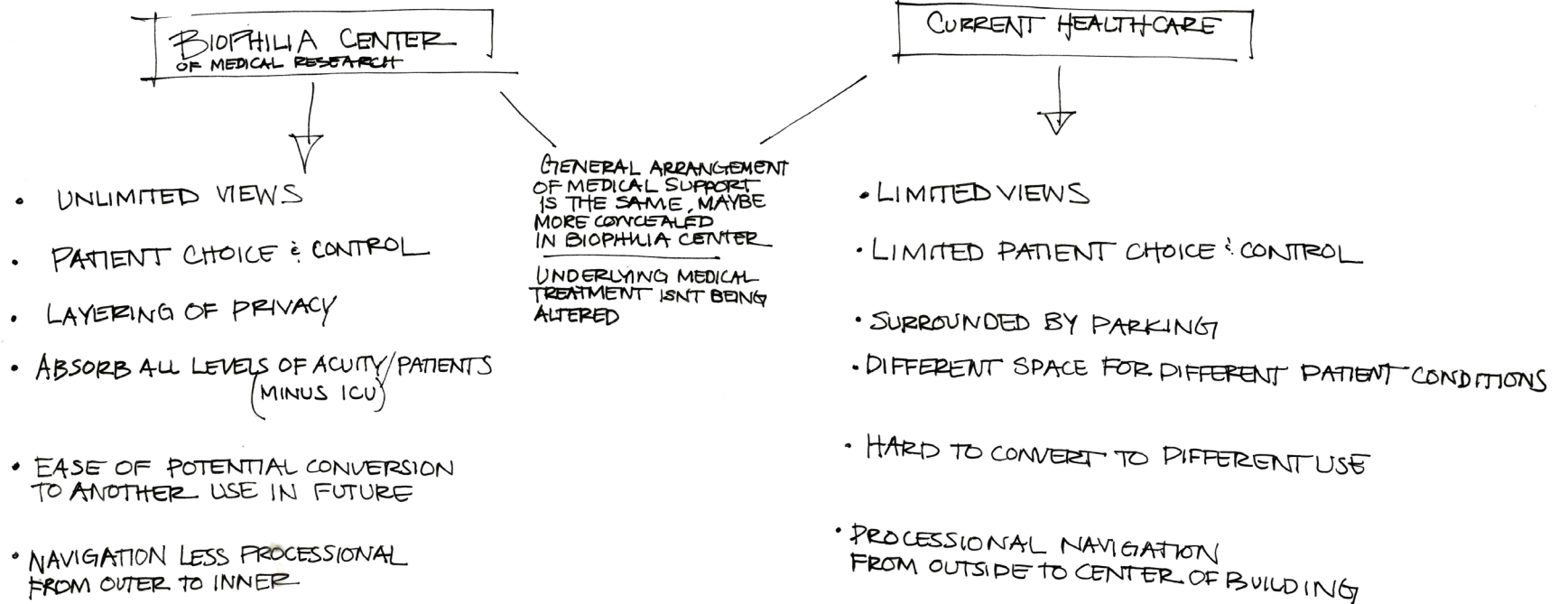
1984: Quantified the medical benefits of views out in to nature

Study of patients recovering from gallbladder surgery

Found patients recover more quickly and required less medication when they have a view of trees outside their window rather than a brick wall.

“There are still only about 30 pertinent studies on the relationship between views of nature and healing—despite the potential billions of dollars in healthcare cost savings that such features could achieve.”

-Roger Ulrich



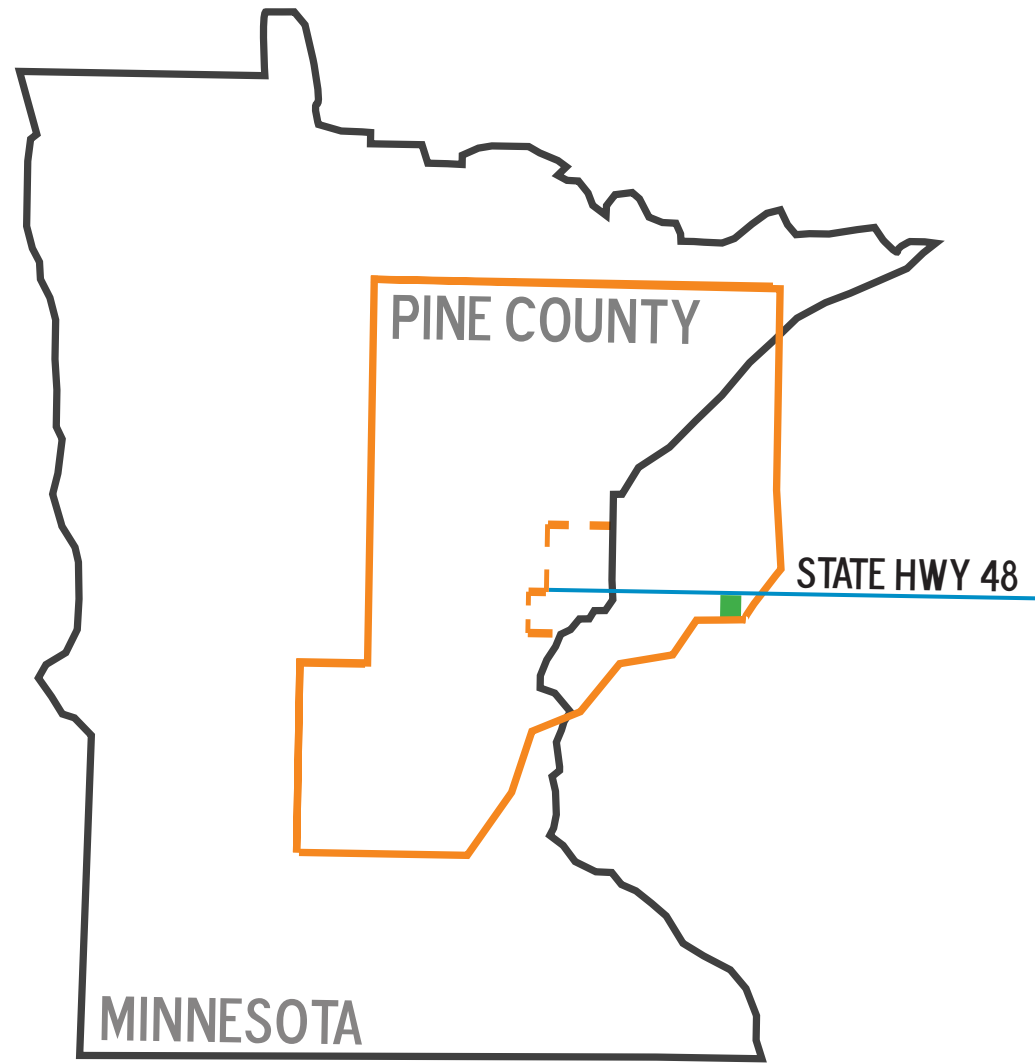
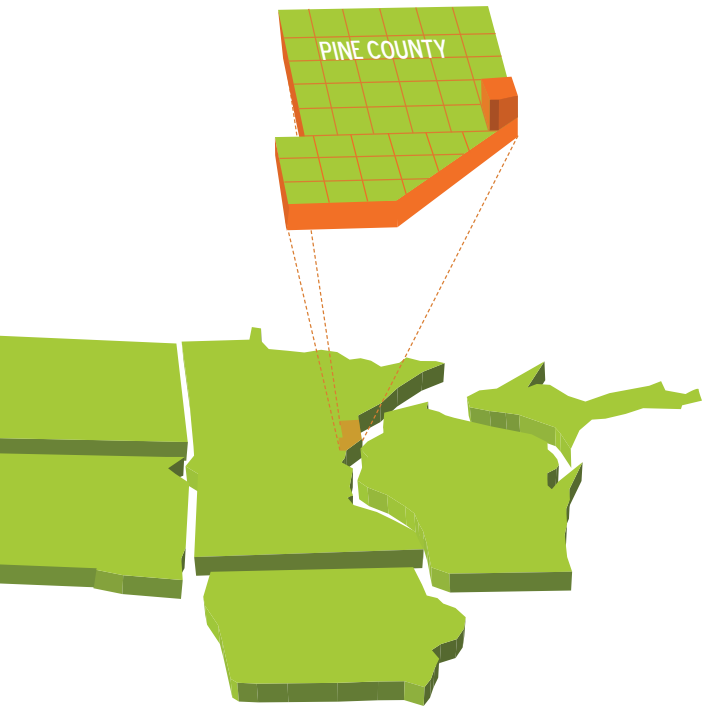
ROBIN GUENTHER FAIA, LEED AP
 PRINCIPAL AT PERKINS & WILL, NY



Voted #2 of the top 25 most influential people in healthcare design in 2010

Principal author of the *Green Guide for Health Care*
 Author of *Sustainable Healthcare Architecture*

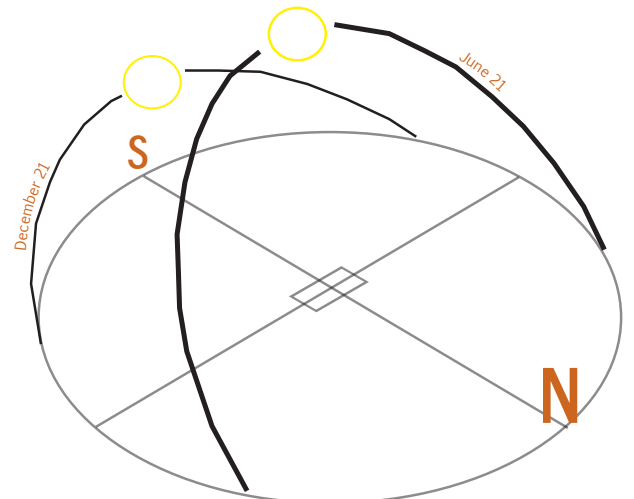
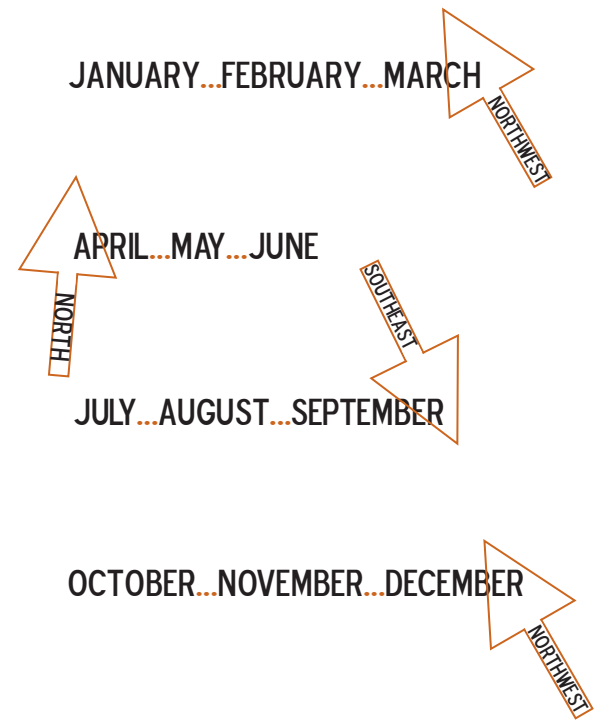
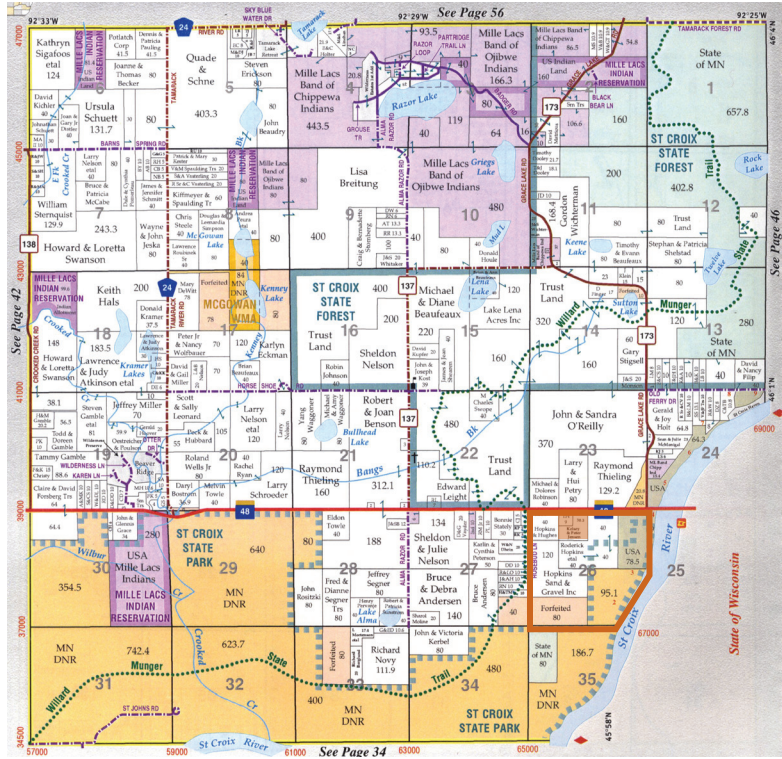
Innovator for material selection in healthcare design



SITE.



AVERAGE SITE ELEVATION: 1,000'
SITE AREA: 40 Acres or 742,400 sq. ft
TOWNSHIP: Ogema
LATITUDE: N46°
LONGITUDE: W92° 27'



The site was chosen for 2 main reasons:

the project needed a site with all four seasons and be placed in a rural natural setting and...

SITE VIEWS

NORTH



EAST



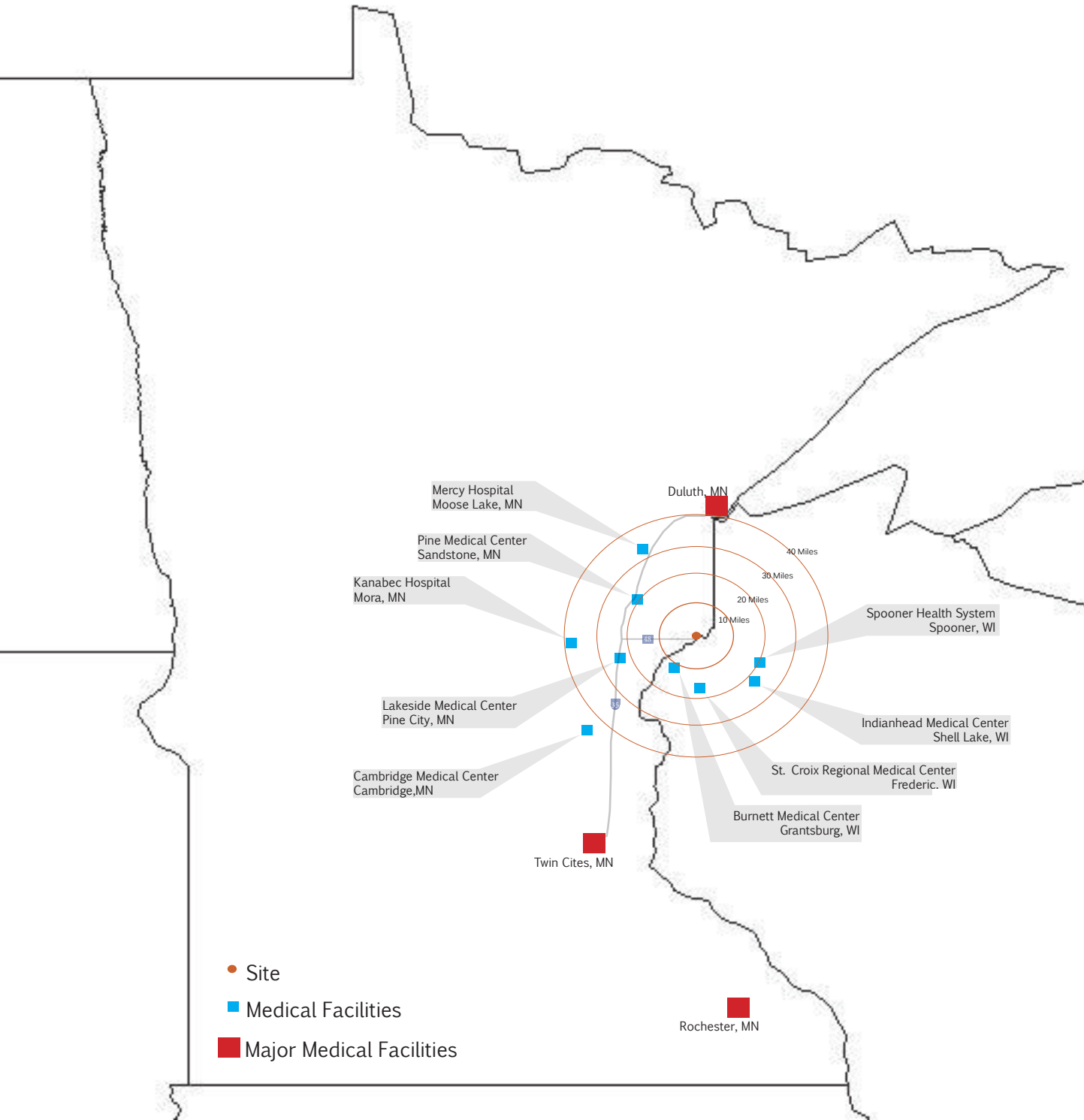
SOUTH



WEST



...the site must be easily accessible to neighboring hospitals

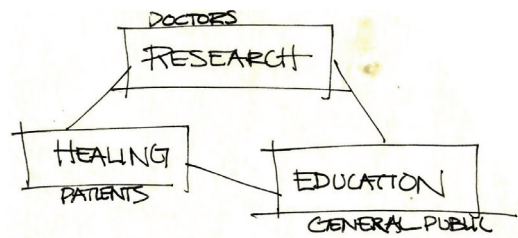
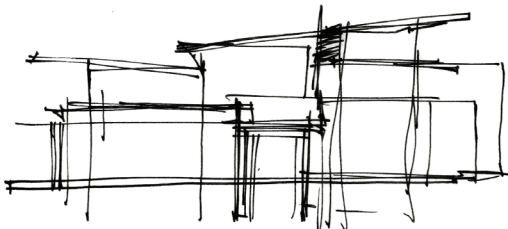
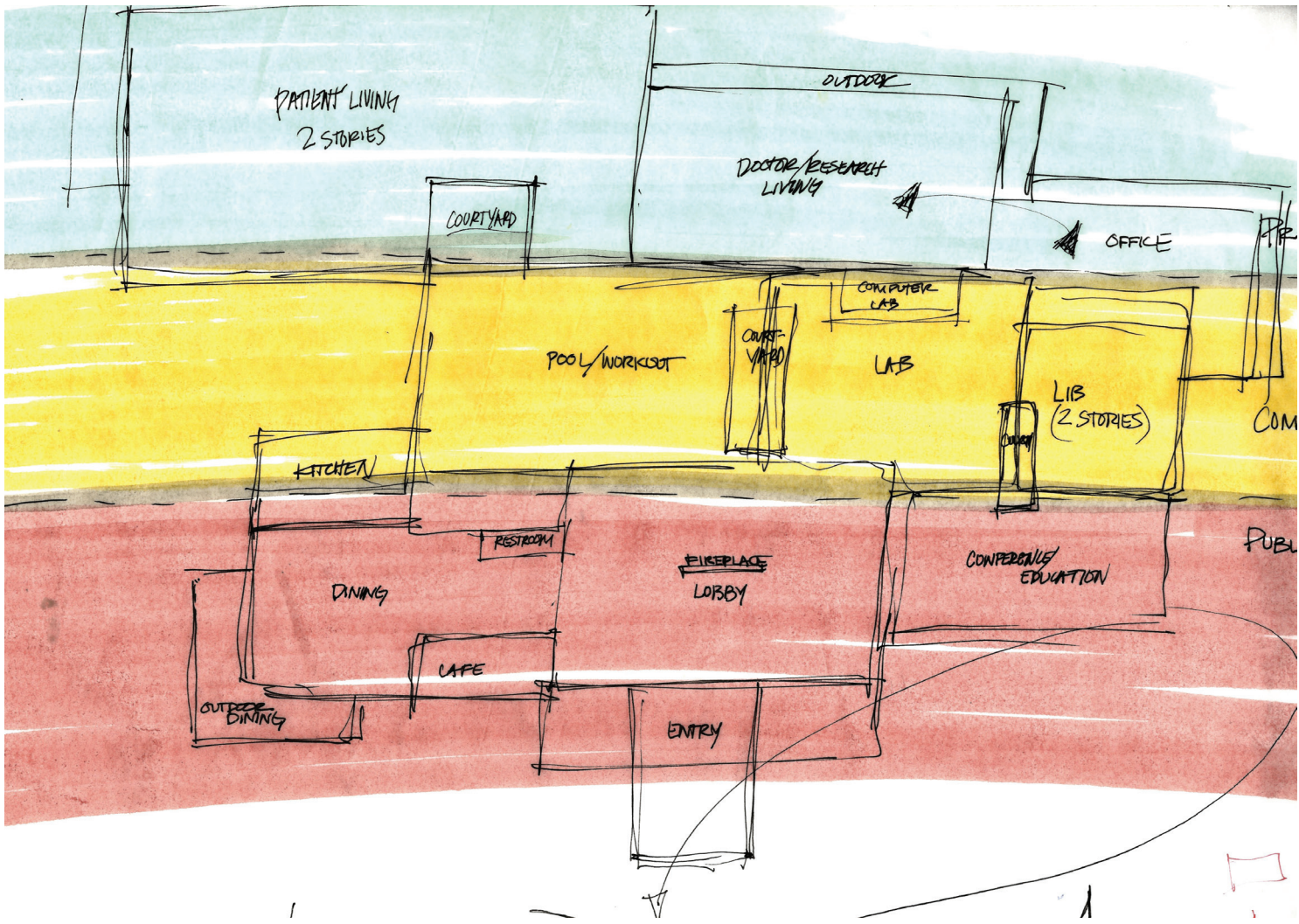




UNIQUE FEATURES



PUBLIC COMMUNITY PRIVATE



GATHER/CONFERENCE

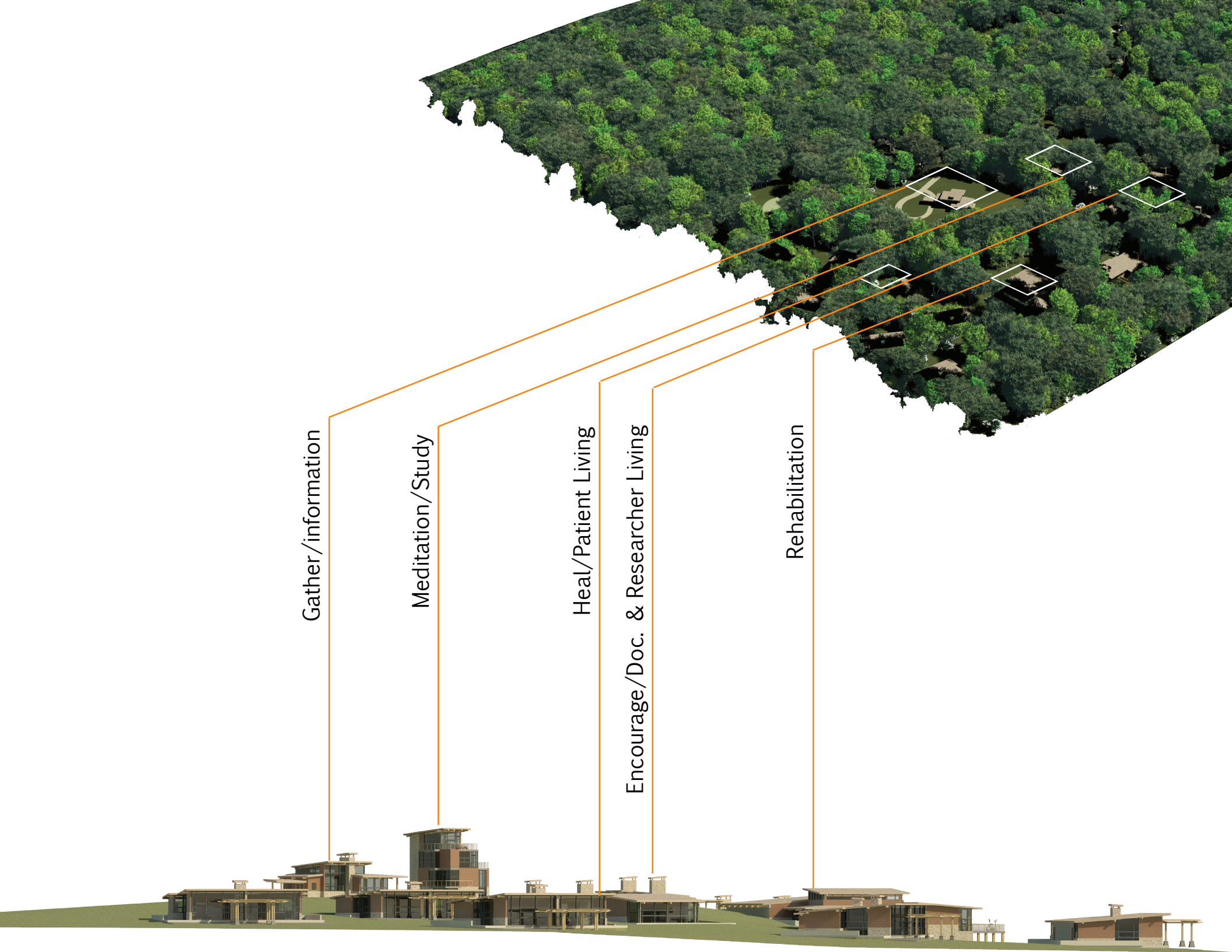
**PATIENT LIVING
DINING**

POOL/WORKOUT

DOC./RESEARCH LIVING

STUDY/MEDITATION





Gather/information

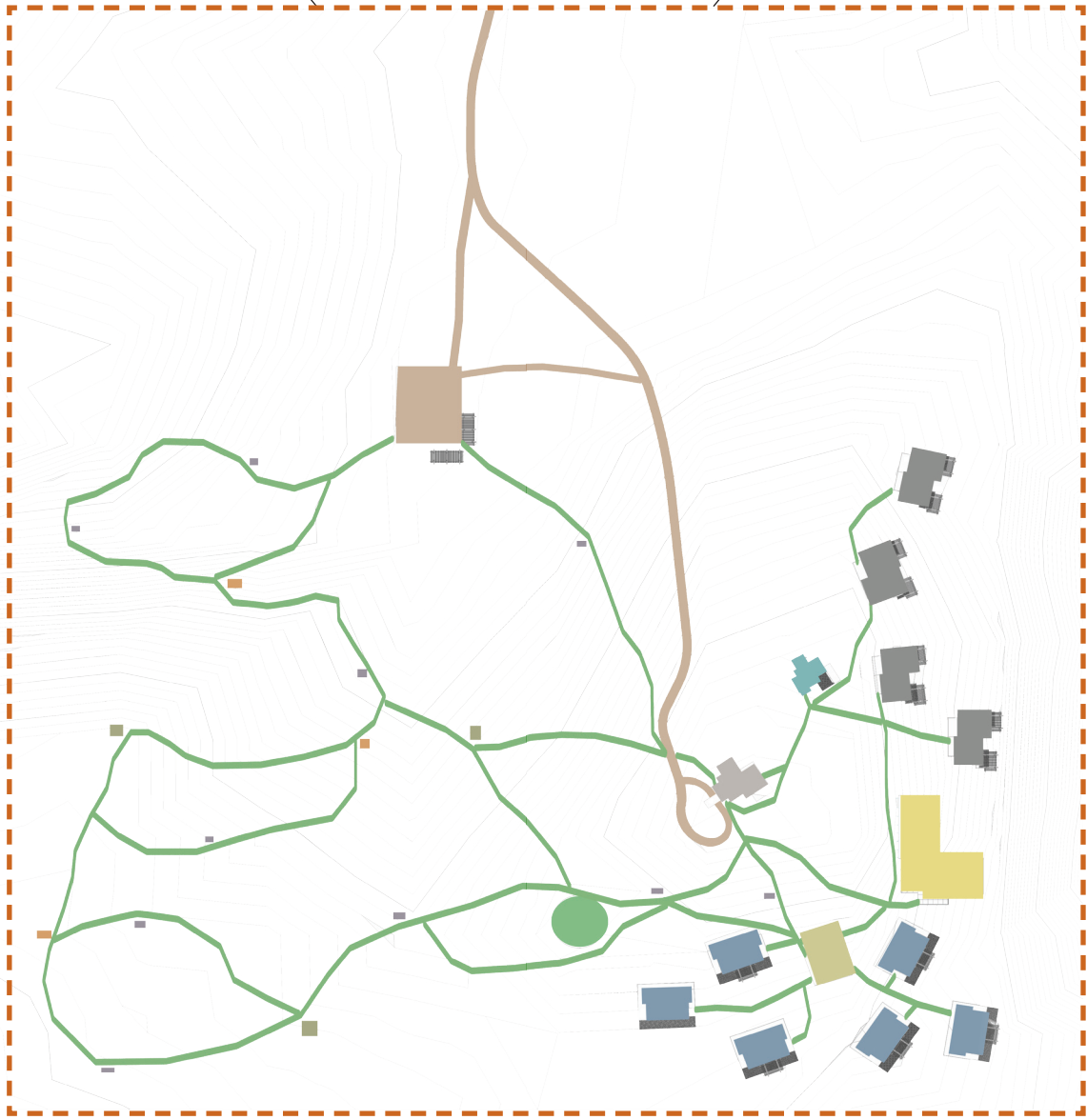
Meditation/Study

Heal/Patient Living

Encourage/Doc. & Researcher Living

Rehabilitation

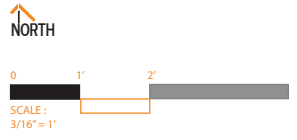
← STATE HIGHWAY 48 →



-  GATHER (INFORMATION)
-  HEAL (PATIENT LIVING) 12 UNITS
-  DINING/NURSE'S STATION
-  ENCOURAGE (DOCTOR/RESEARCHER LIVING) 8 UNITS
-  REHABILITATION (WORKOUT FACILITY)
-  MEDIATE (STUDY/RESEARCH STUDIO)
-  WALKING PATHS
-  GRAVEL ROAD
-  LABYRINTH

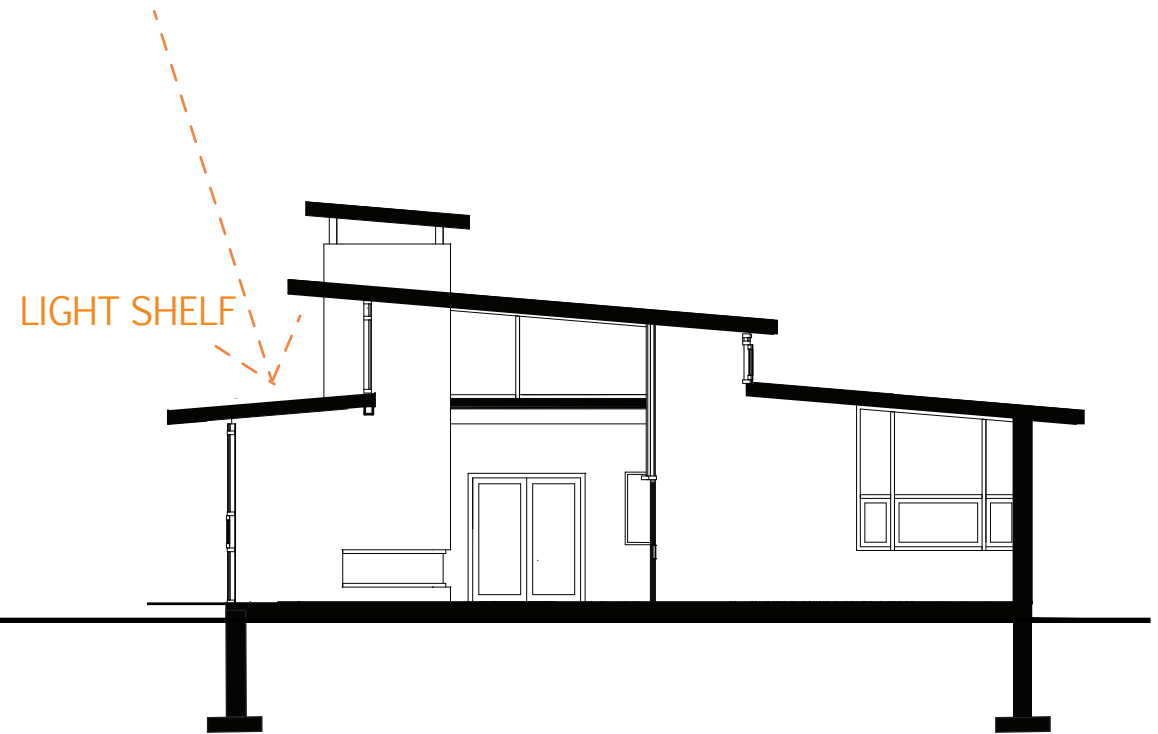
GATHER/INFORMATION

The first structure that greets people is the gather/information building. This space is utilized for patient registration and teaching the general public about biophilia and the current research that has been collected.





Daylighting is an important aspect to the design of the buildings around the campus. By creating a light shelf, light can penetrate farther into a building.



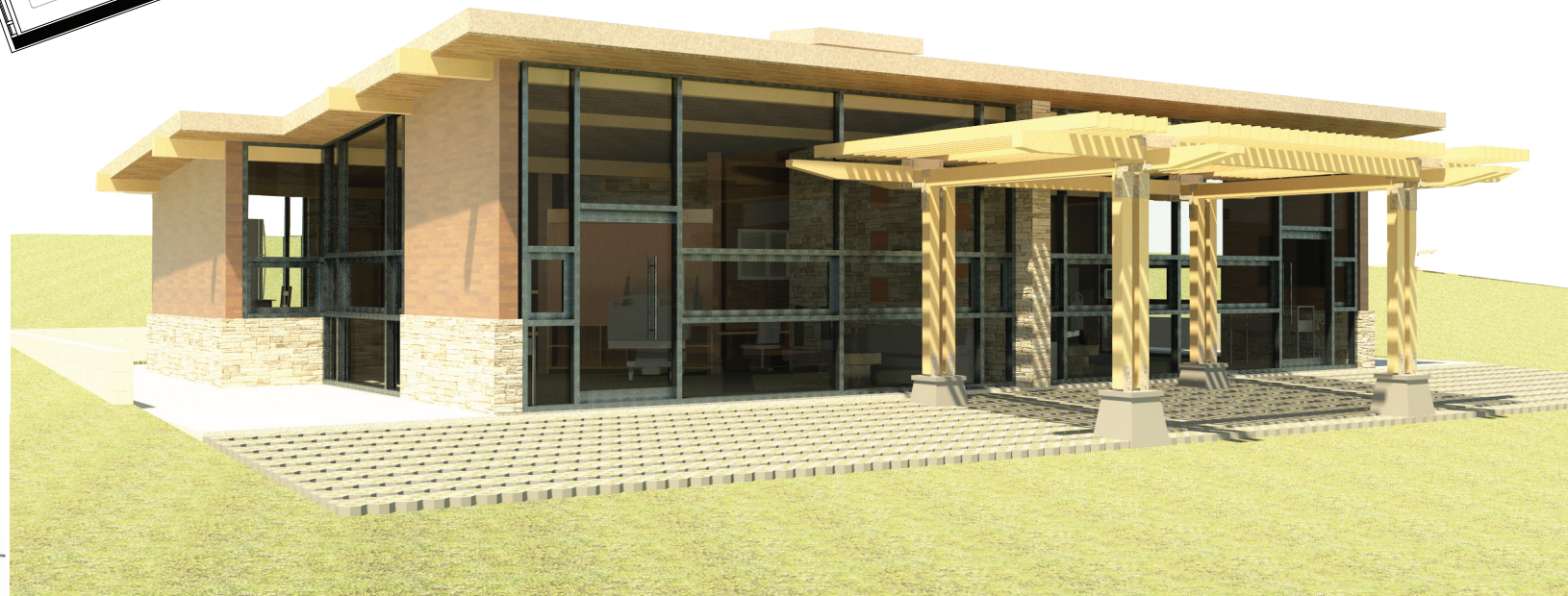
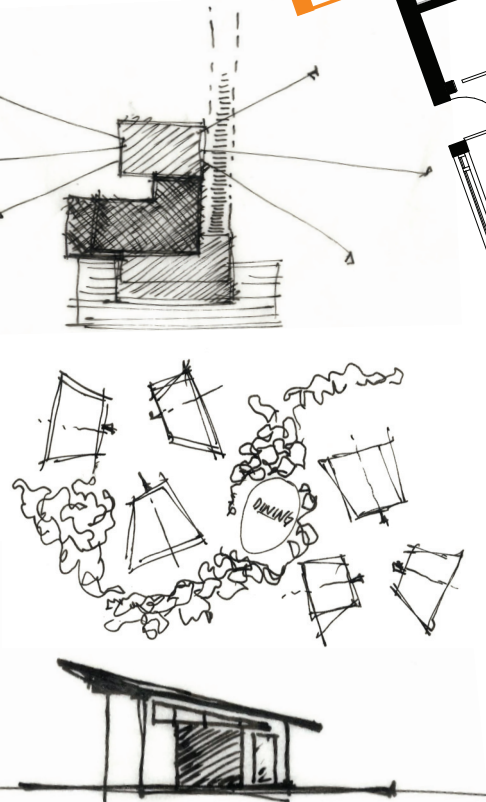
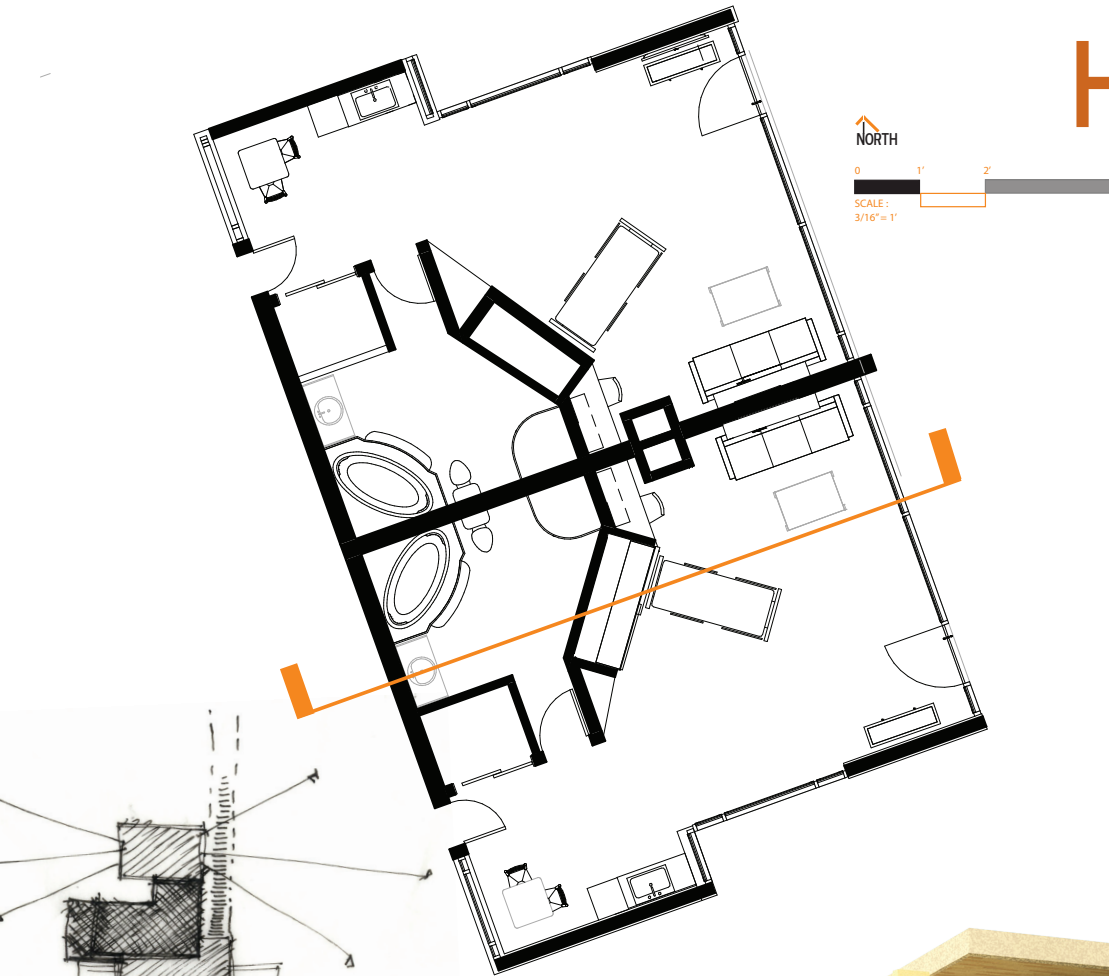
LIGHT SHELF

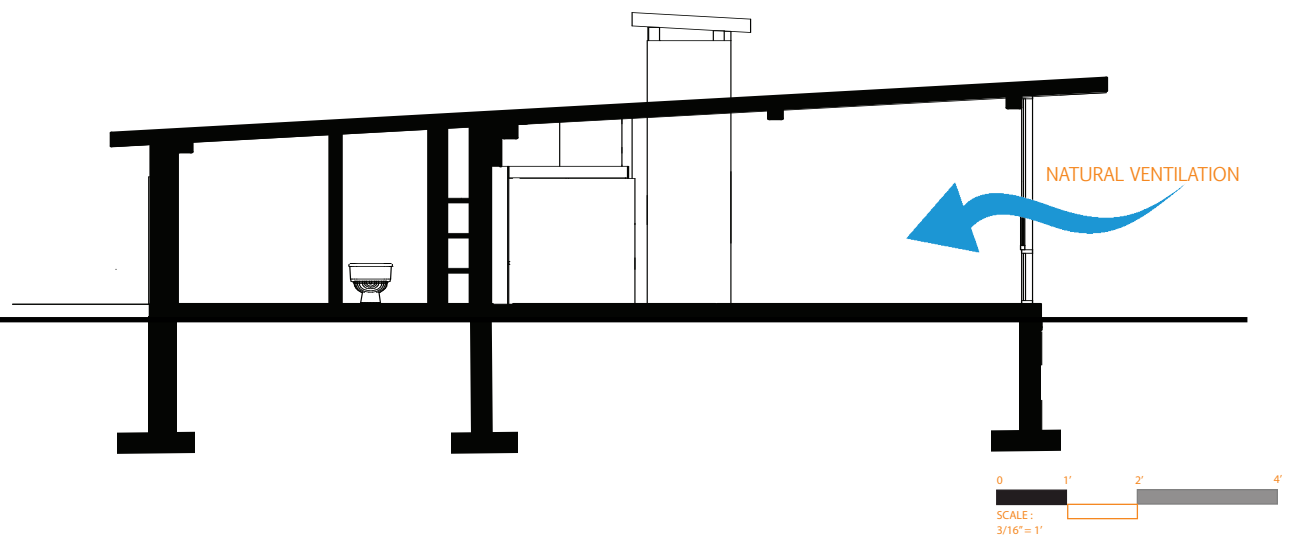
0 1' 2'
SCALE:
3/16" = 1'

HEAL/PATIENT LIVING

The patient units are designed to relate closely to current medical facility standards with subtle enhancements. Increased views and more of a focus on hospitality for patients and their guests allows healing to occur. Placing the units in two smaller clusters creates layers of privacy as units do not directly face one another allowing for more patient control.

12 units total



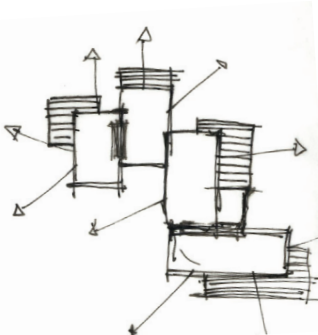
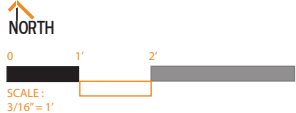
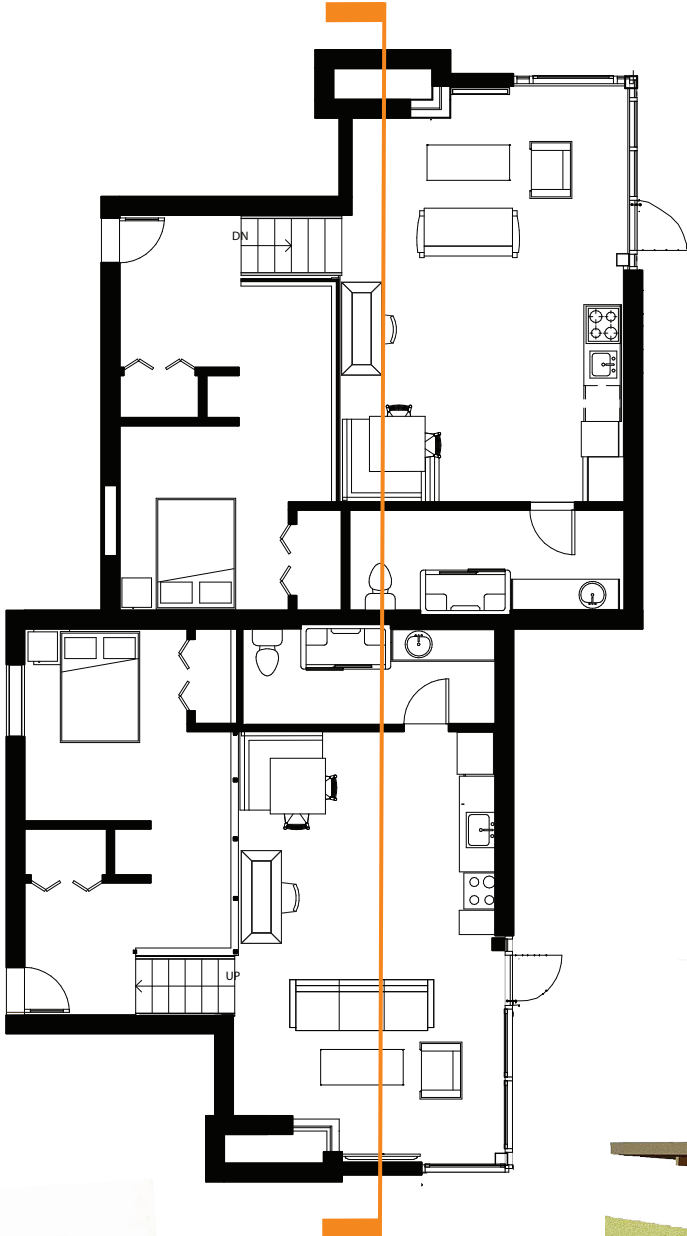


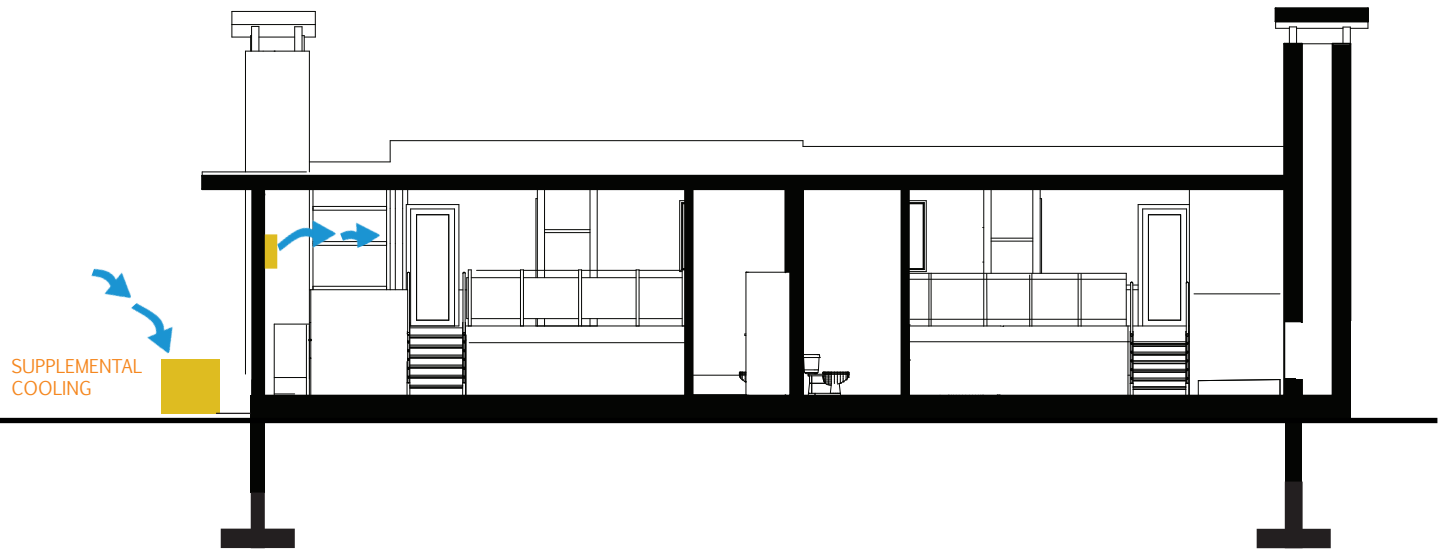
Throughout the research center different systems are taken advantage of. The buildings are placed with the natural landscape in mind. Most buildings are located below the highest point on the site to protect from the north prevailing wind in the winter months and capture the natural airflow from the south in the warmer months.

ENCOURAGE/DOCTOR & RESEARCHER LIVING

Living units are an essential component to the campus as doctors and researchers will be staying on site for an extended period of time ranging from a week to a month. Amenities for these units allow for comfort and privacy. The topography slopes at a greater rate around these living units and the design relates from that in the interior where the sleeping area is four feet above the kitchen and living spaces.

8 units total



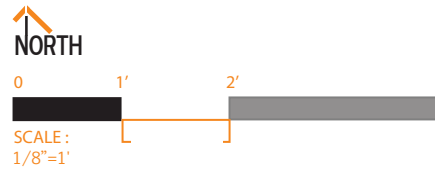
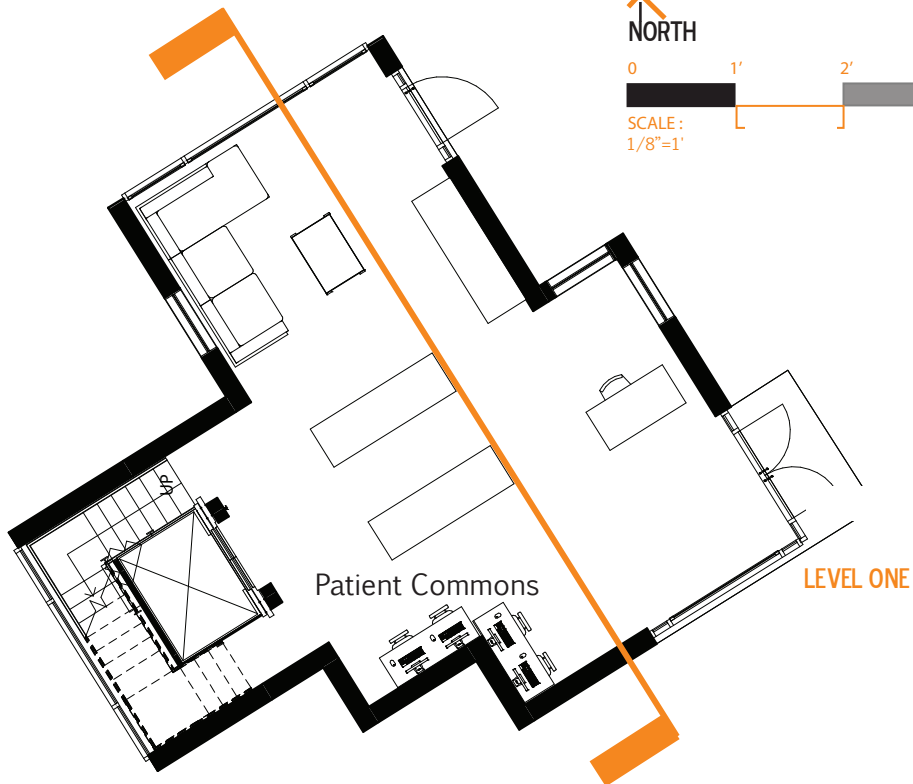
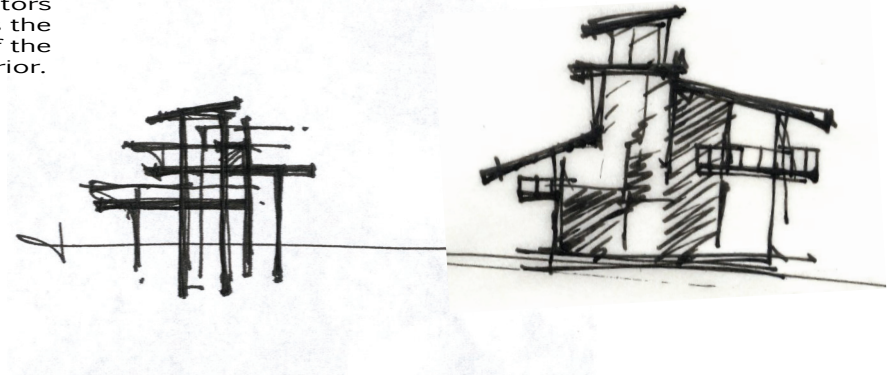
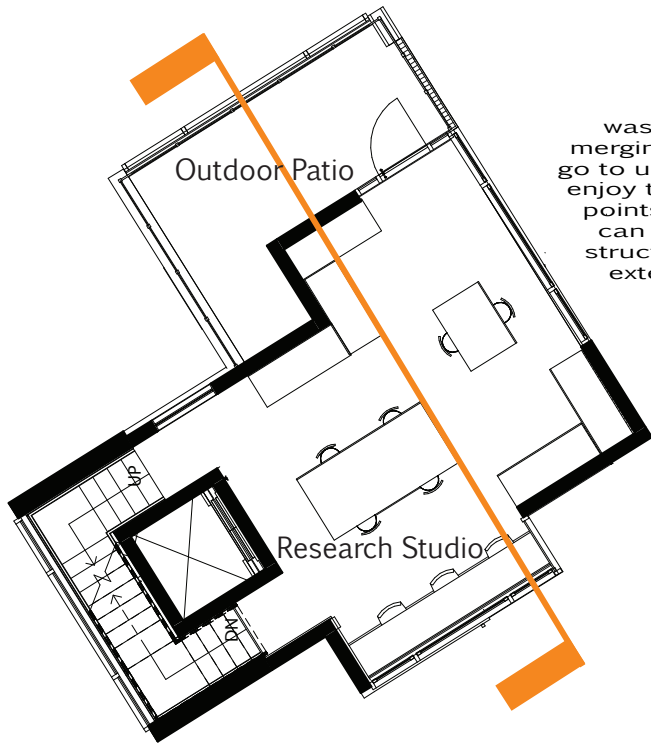


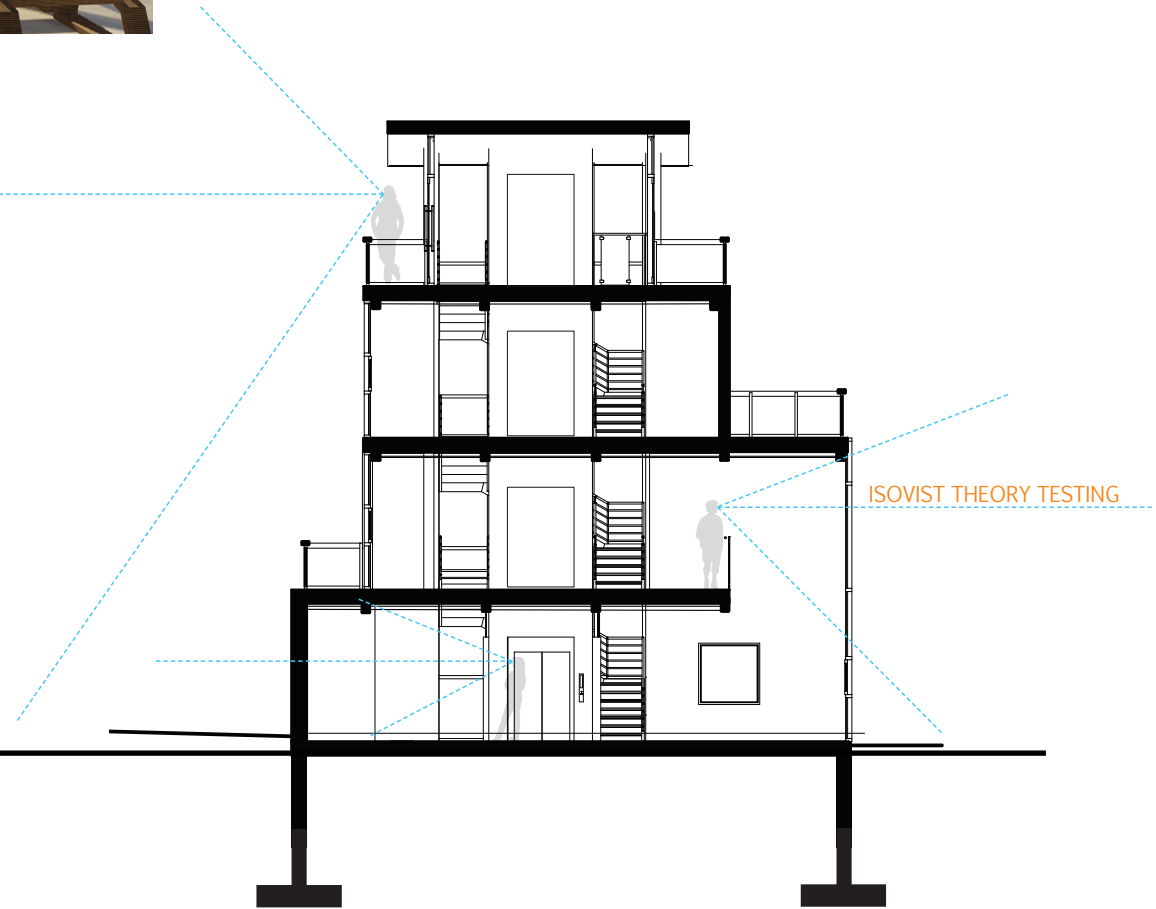
Although natural ventilation will be a main source of cooling another source of cooling will come from an air conditioning system.

0 1' 2'
SCALE: 3/16" = 1'

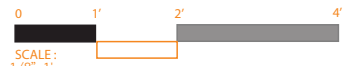
MEDITATION/STUDY

The meditation/study building was developed with the concept of merging a place where patients could go to use the internet, read a book, or enjoy the views from multiple vantage points, and researchers and doctors can study and collaborate. As the structure climbs upward more of the exterior is revealed to the interior.





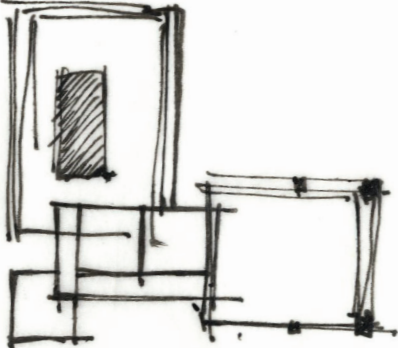
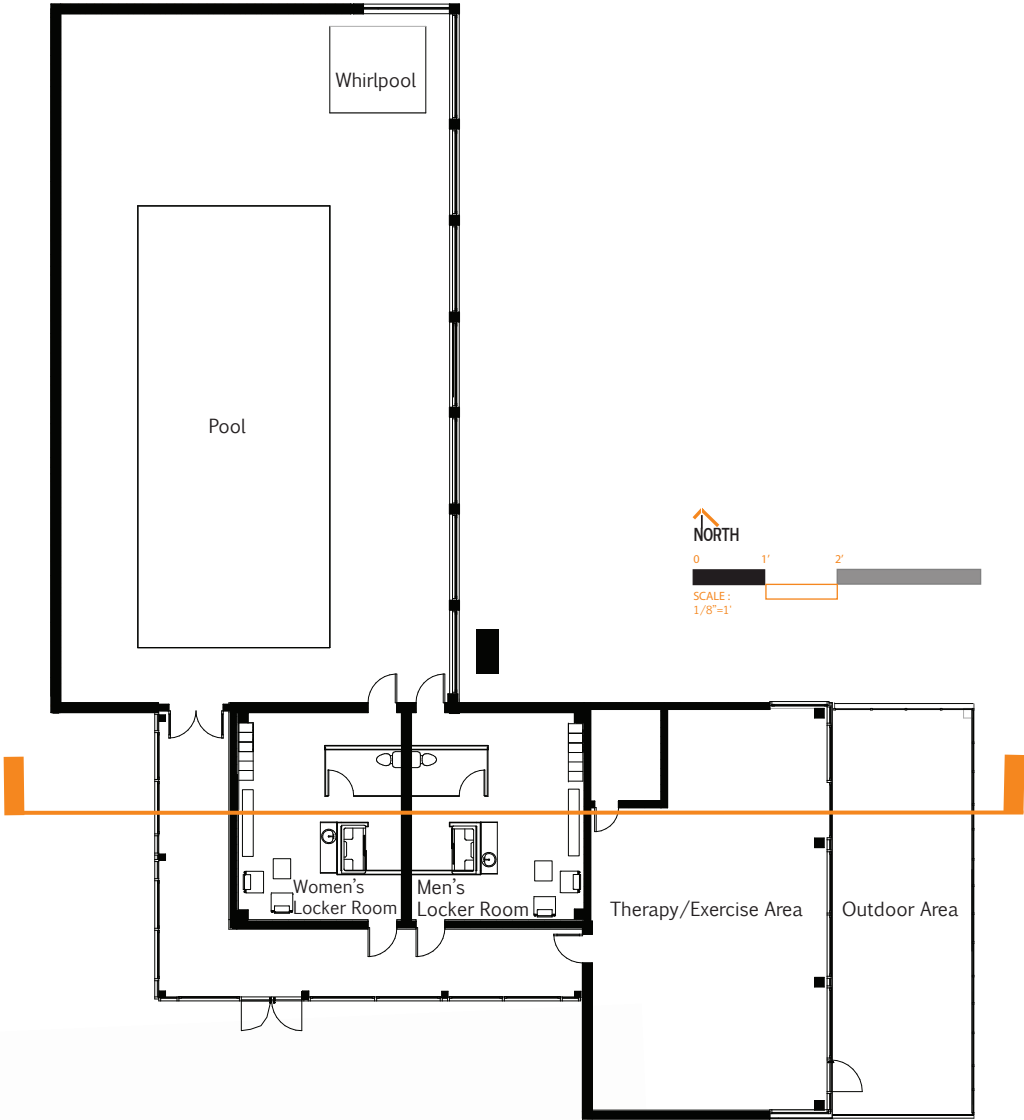
ISOVIST THEORY TESTING

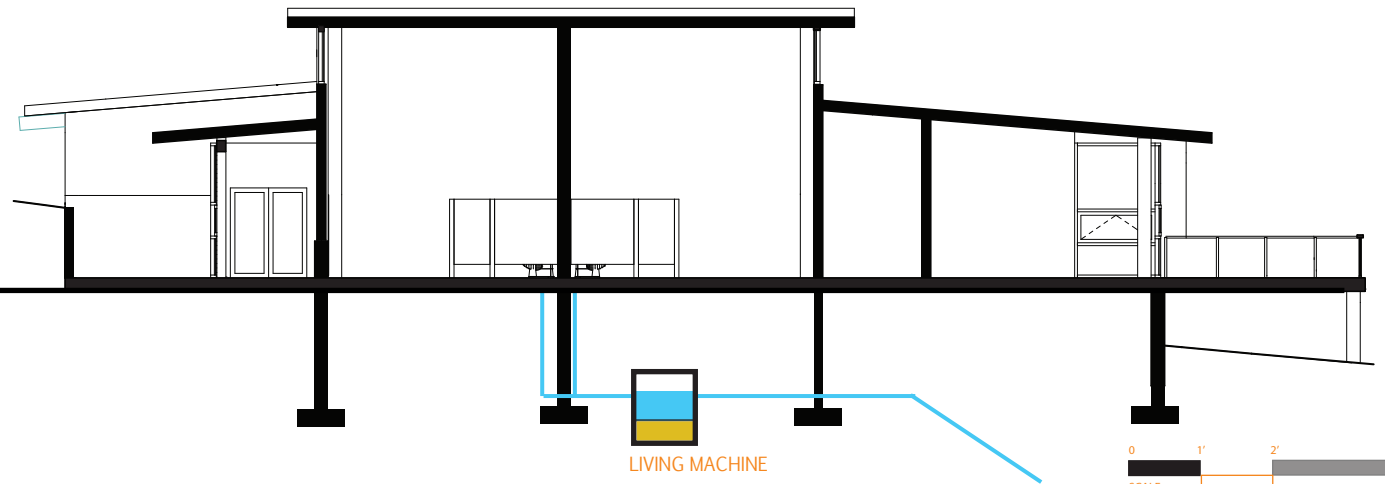


The building also stemmed from the Isovist Theory on creating spaces where different amounts of area are visible to the eye.

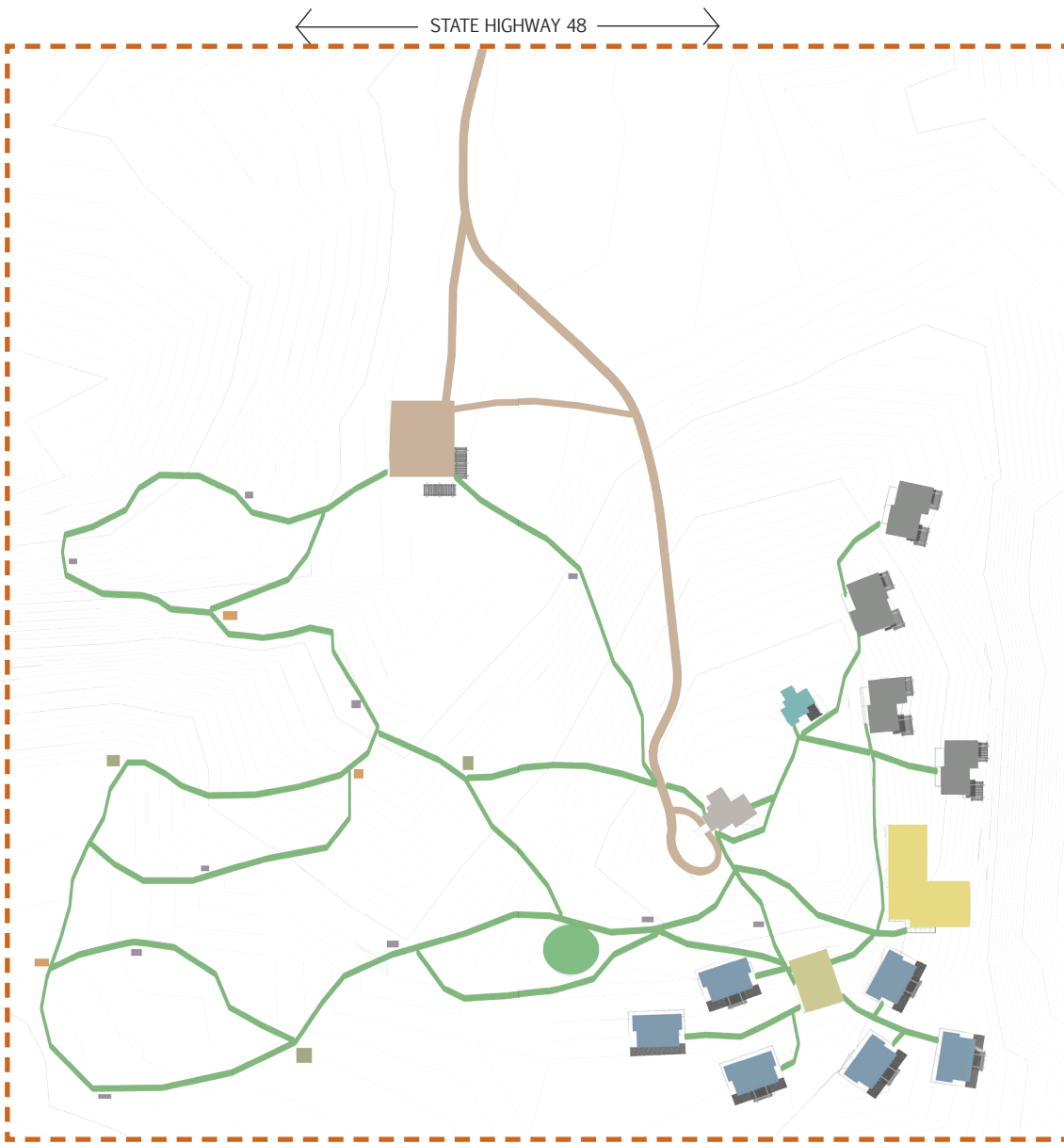
REHABILITATION

Exercise is an important part to rehabilitation after surgery. This building allows for multiple types of exercise to occur from low to high impact. The pool allows for less strenuous activities while the exercise room can be used for a more intense workout.





The campus uses a living machine approach to dispose of wastewater. The system carries through the campus passing through treatment containers that lead to a garden area on site.



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- WALKING PATHS
- GRAVEL ROAD
- LABYRINTH

Geothermal energy plays a key role to the campus as it distributes heat. The pipeline lies under the walking paths and travels counter-clockwise around the site finally ending back at the parking area.

GEO THERMAL ENERGY IS RUNNING THROUGHOUT THE SITE LOCATED UNDER DEVELOPED WALKING PATHS



THANK YOU.

