



Sensitive Significance

Exploring Human Wellness
in the Built Environment

Kerry Anderson

Problem Statement:

How does the quality of the built environment affect all aspects of well-being in its users?

Claim:

Architectural tectonics have a positive, benign, or negative influence on the perception and physical wellness of those who interact with the built environment.

A decorative graphic consisting of several overlapping circles in shades of brown and gold, creating a layered, organic effect.

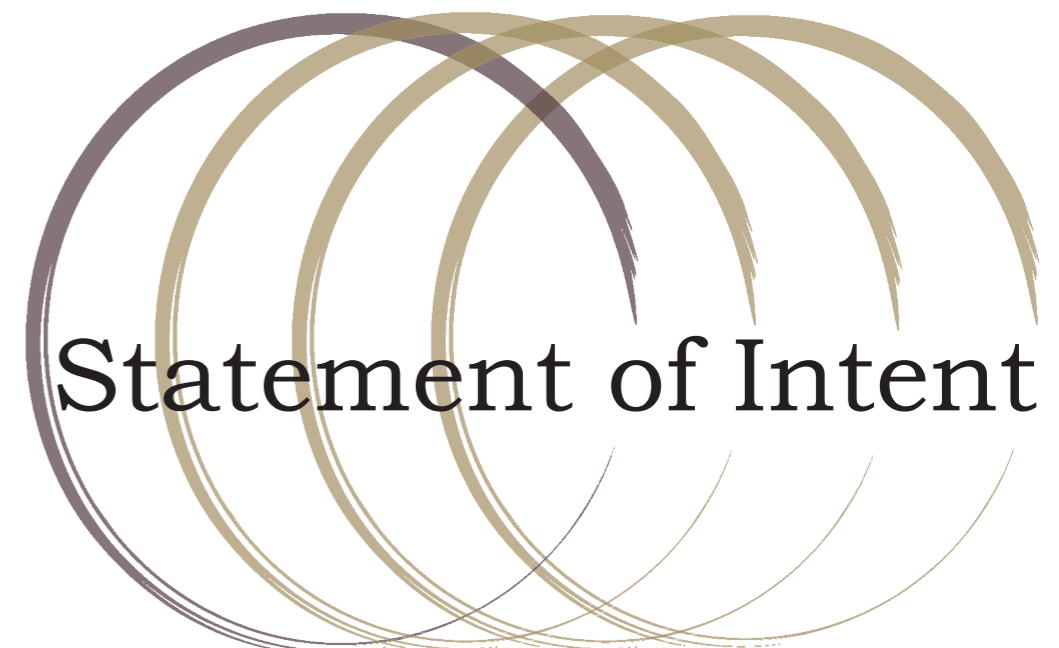
Statement of Intent

Premises:

Architectural tectonics form the backbone of quality design. They deal not only with what materials are chosen for a building, but also with how those materials and components are assembled. Each of these choices in the design process profoundly affects the quality of the resulting built environment.

The relationship between people and the built environment is a constant yet ever-changing element of life. As products of human design, buildings have potential to dramatically influence the well-being of the humans that interact with them.

A person's total wellness is dependent on many factors, including those that are environmental, specifically resulting from immediate built surroundings.



Theoretical Premise:

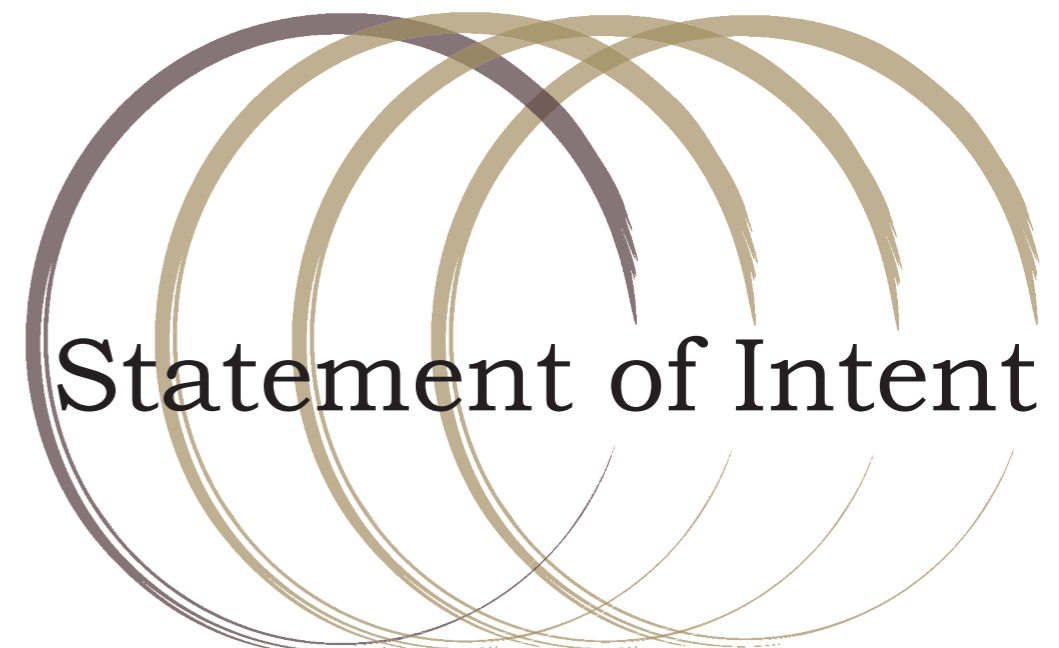
The built environment has the potential to positively influence the well-being of the people who interact with it.

Project Justification:

Human wellness is subject to many different factors, but one that has been overlooked is the interaction between people and their built surroundings. Design has the opportunity to make more positive impacts on the people who experience it, rather than simply neutralizing any negative effects of a built environment.

Typology:

Cancer Treatment Center



Influences:

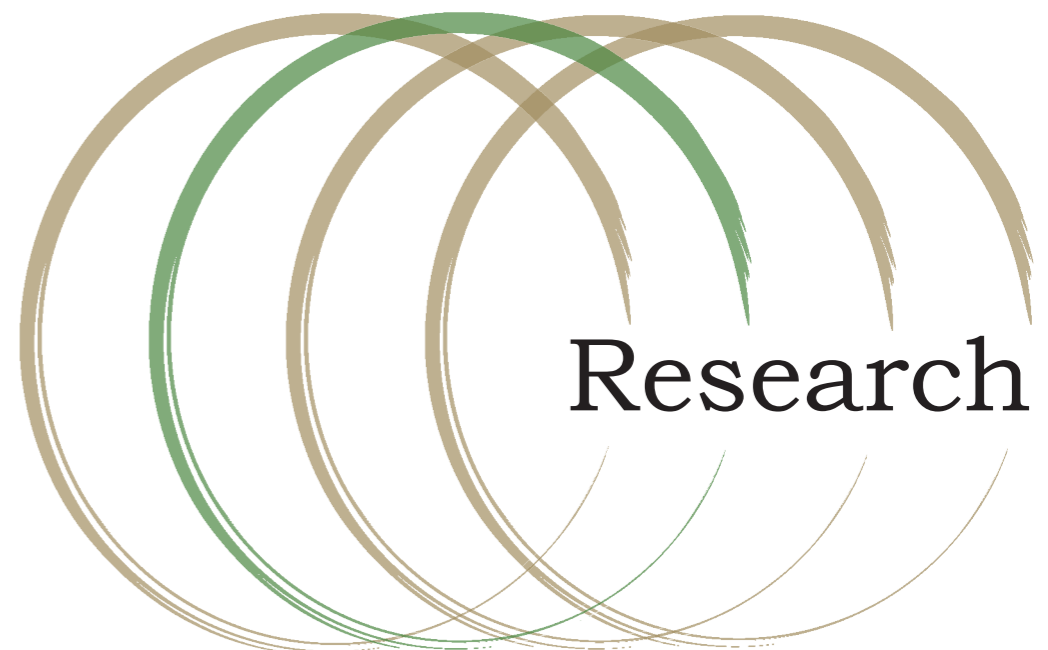
Juhani Pallasmaa

Steven Holl

Stephen Kellert and Judith Heerwagen

Roger Ulrich

Alain de Botton



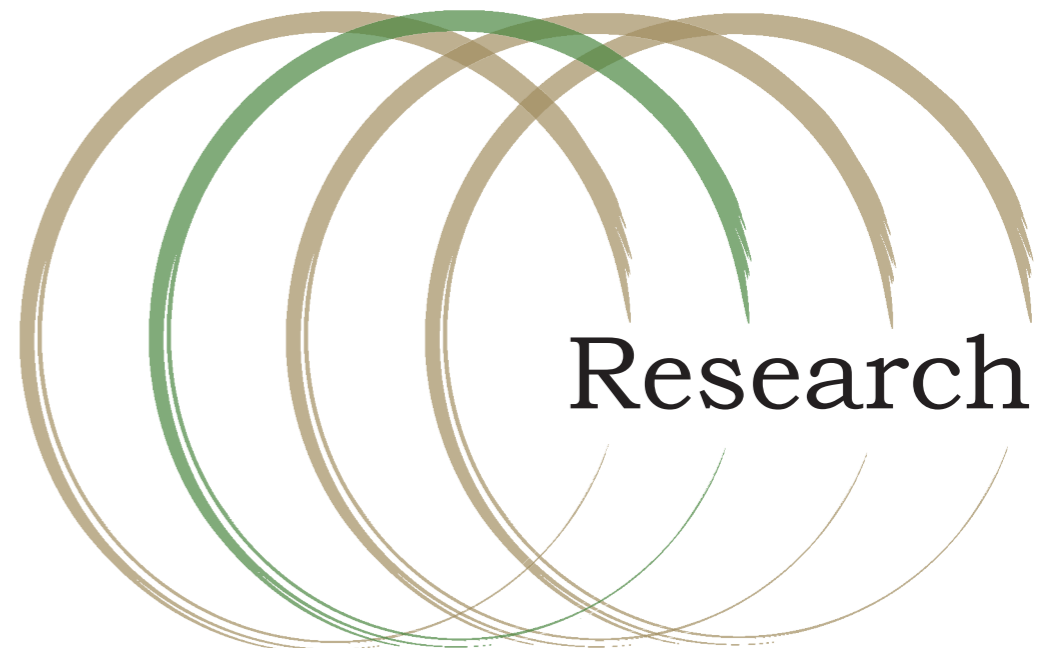
Questions of Perception: Phenomenology of Architecture

Juhani Pallasmaa and Steven Holl:

Experience through the senses

“A real architectural experience is not simply a series of retinal images; a building is encountered – it is approached, confronted, encountered, related to one’s body, moved about, utilized as a condition for other things, etc.” (Pallasmaa)

“The challenge for architecture is to stimulate both inner and outer perception; to heighten phenomenal experience while simultaneously expressing meaning; and to develop this duality in response to the particularities of site and circumstance” (Holl)



Nature and Healing: The Science, Theory, and Promise of Biophilic Design

S. Kellert & J. Heerwagen and Roger Ulrich: Nature's influence

Biophilic Design addresses “humans’ inherent inclination to affiliate with nature, most particularly with life and ecosystem features of the natural environment.” This type of design also fosters “a positive connection between people and nature in places of cultural and ecological significance.” (Kellert and Heerwagen)

Roger Ulrich began research concerning this idea in 1984 by testing the effect of certain window views on patient healing and recovery.



Nature and Healing: The Science, Theory, and Promise of Biophilic Design

Kellert & Heerwagen and Roger Ulrich: Nature's influence

1. Environmental features:

- Natural materials
- Natural colors
- Sunlight
- Water
- Natural ventilation
- Plants and animals
- Natural views and vistas
- Facade greening
- Geological and landscape forms
- Habitats and ecosystems
- Fire

2. Natural shapes and forms:

- Botanical motifs
- Animal motifs
- Shell and spiral forms
- Egg, ovular, and tubular forms
- Arches, vaults, domes
- Columns and treelike supports
- Shapes that resist right angles
- Simulation of natural features
- Biomorphism (resemblance to organic forms)
- Natural morphology (e.g., stratified surfaces and rooted relationships)
- Biomimicry (mimicry of organic structures and functions)

3. Natural patterns and processes:

- Sensory variability
- Information richness

Time, aging, and change

- Growth and efflorescence
- Central focal point
- Patterned whole
- Bounded spaces (e.g., borders, territories)
- Transitional spaces (e.g., gateways, thresholds)
- Complementary contrasts (e.g., light/dark, high/low)
- Dynamic balance and tension
- Similar forms at different scales (e.g., fractals)
- Hierarchically organized scales
- Ordered complexity
- Relation and integration of parts to whole
- Linked series and chains

4. Light and space:

- Natural light
- Filtered and diffused light
- Light and shadow
- Reflected light
- Light pools
- Warm light
- Light as shape and form
- Spatial variability
- Spaciousness
- Space as shape and form
- Spatial harmony (the integration of light, mass, and scale)

Inside/outside spaces (e.g., atria, colonnades)

5. Place-based relationships:

- Historical connection to place
- Cultural connection to place
- Geographical connection to place
- Ecological connection to place
- Use of indigenous materials
- Compatible orientation to landscape
- Landscape features that define building form
- Landscape ecology (connections, corridors, biodiversity)
- Integrating culture and ecology
- Sense or spirit of place
- Avoiding placelessness

6. Evolved human relations to nature:

- Prospect and refuge
- Exploration and discovery
- Mystery and enticement
- Order and complexity
- Change and metamorphosis
- Information and cognition
- Attraction and beauty
- Mastery and control
- Security and protection
- Affection and attachment
- Fear and awe
- Reverence and spirituality

Natural colors, Sunlight, Water, Natural views and vistas, Geological and landscape forms, Ecosystems, Arches, vaults, domes, Shapes that resist right angles, Sensory variability, Time, aging, and change, Central focal point, Complementary contrasts, Ordered complexity, Natural light, Filtered and diffused light, Warm light, Spatial variability, Inside/outside spaces, Historical connection to place, Ecological connection to place, Sense or spirit of place, Avoiding placelessness, Exploration and discovery, Order and complexity, Attraction and beauty, Reverence and spirituality



The Architecture of Happiness

Alain de Botton:

Perceptions

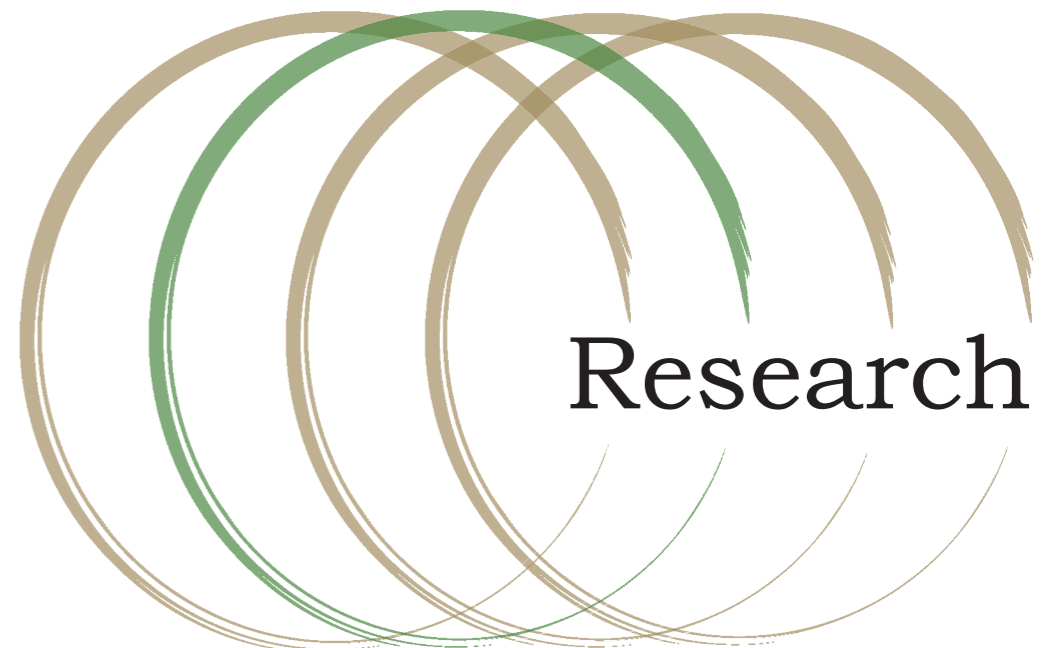
“It is perhaps when our lives are at their most problematic that we are likely to be most receptive to beautiful things. Our downhearted moments provide architecture and art with their best openings, for it is at such times that our hunger for their ideal qualities will be at its height.”

(de Botton)

“It is in dialogue with pain that many beautiful things acquire their value.”

(de Botton)

Of course, the juxtaposition of this concept is that the ideal is rarely, if ever, obtained, and so in these “downhearted moments,” being surrounded by beauty can be at the same time profoundly soothing and a painfully striking reminder of what cannot be.



Client:

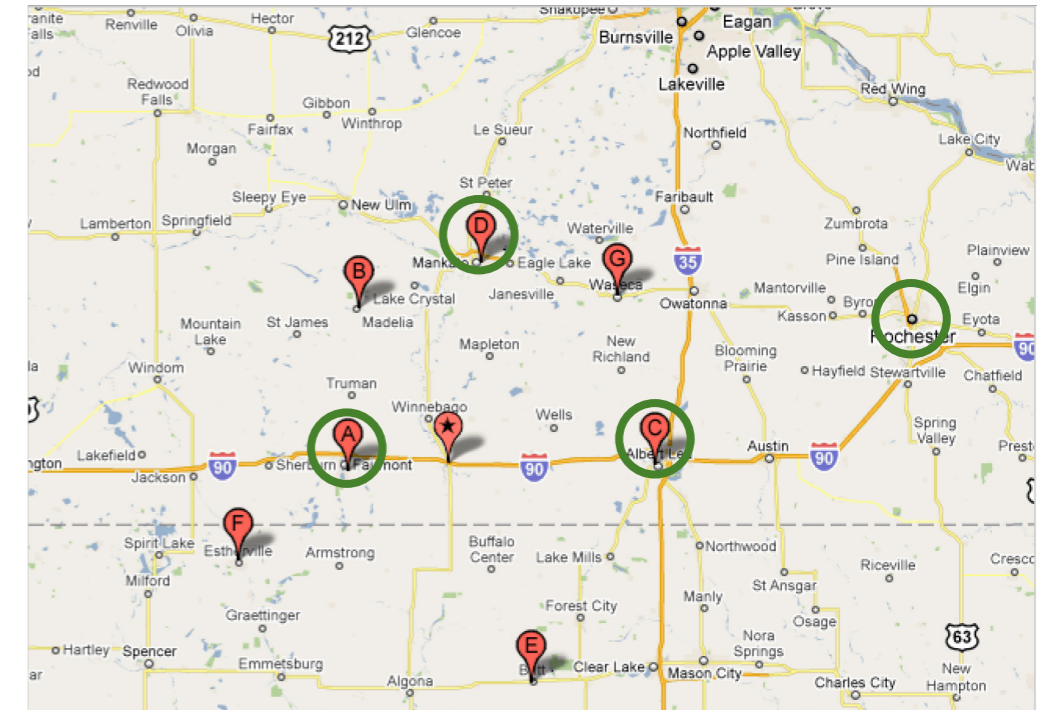
United Hospital District and Clinics

The UHD is a system of healthcare facilities in the towns of Blue Earth, Wells, and Winnebago. The primary services offered are family medicine and Obstetrics/Gynecology. Specialty services include cardiology, diagnostic imaging, diagnostic laboratory, diabetes education, ear, nose, and throat, emergency care, home health and hospice, Nutrition counseling, Occupational therapy, Ophthalmology, Orthopedics, Pathology, Physical therapy, Surgery, Urology

The closest medical facility with oncology service is the Fairmont Medical Center, which is an extension of the Mayo Health System. At this site, there is one oncologist on staff. Fairmont is approximately 30 minutes away from Blue Earth.

The next closest cancer center is at the Albert Lea Medical Center. This facility has 3 oncologists on staff. The ALMC is also part of the Mayo Health System. Albert Lea is approximately 45 minutes away from Blue Earth.

The largest oncology department in the area is the Andreas Cancer Center at Immanuel St. Joseph's in Mankato. There are five oncologists on staff at this center, which is again affiliated with the Mayo Health System. Mankato is approximately one hour away from Blue Earth.



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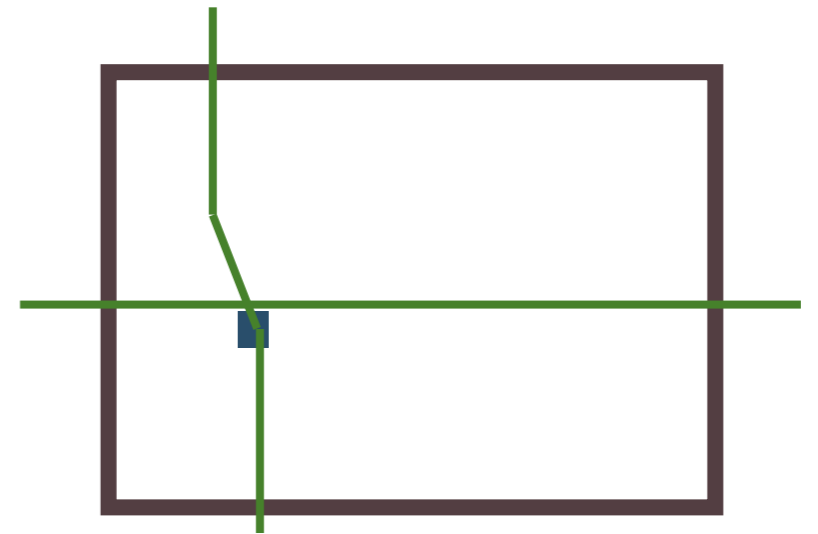
United Hospital District and Clinics

What makes a cancer center important to this area?

In Faribault County, the average annual rate of cancer between 1998 and 2002 was 531.9 cases in males and 347.4 cases in females per 100,000 people.

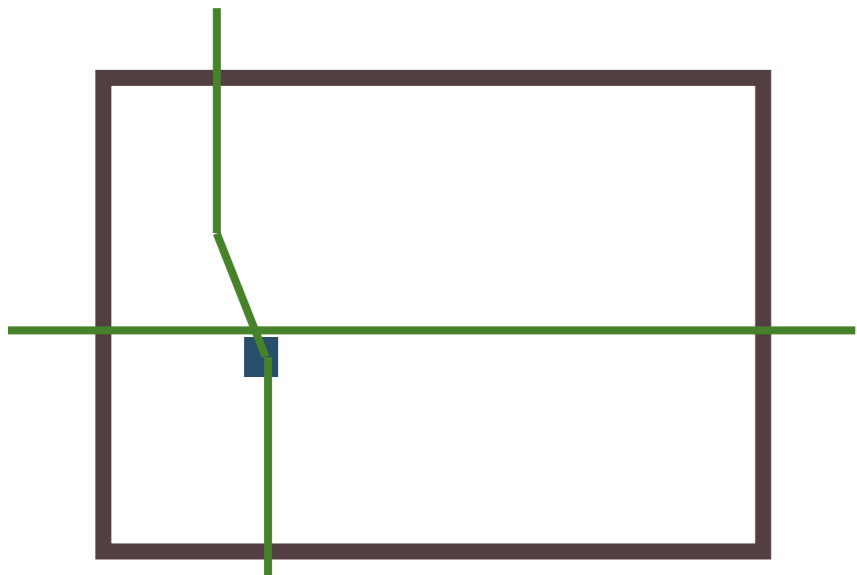
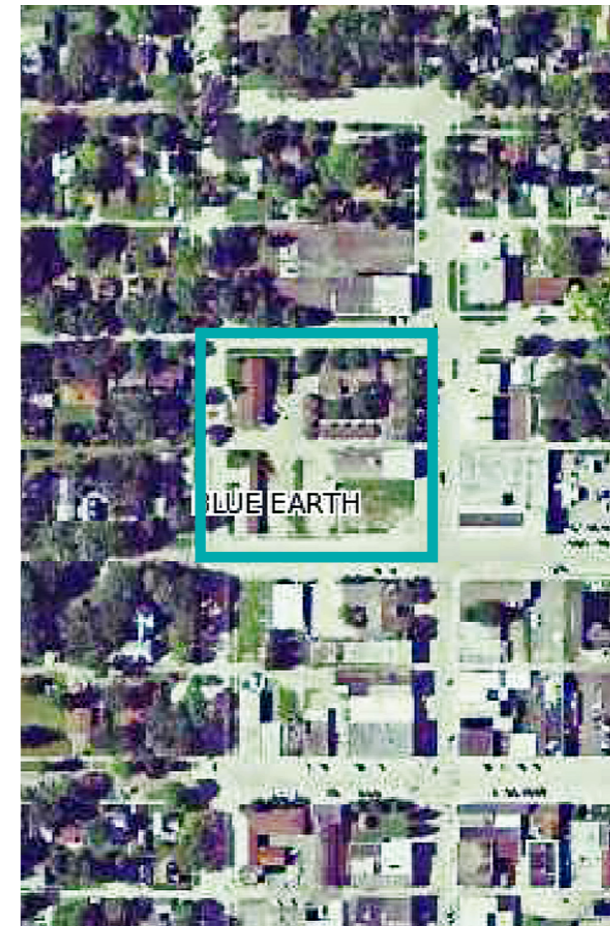
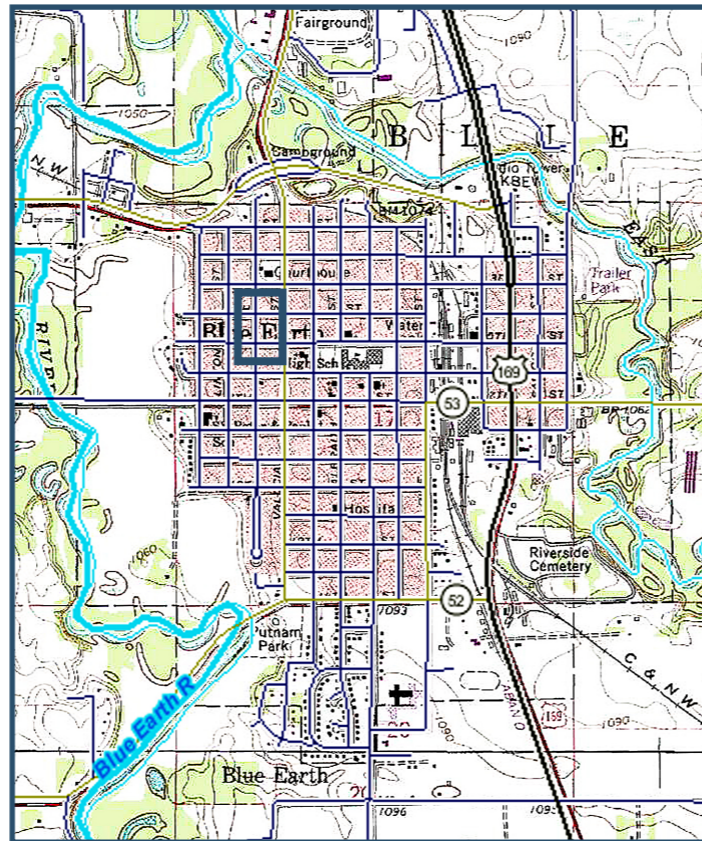
Adjusted for actual population (14,624 county residents), the occurrences are 78.2 cases in males and 51 cases in females on average each year. This means that on average, there are about 130 cases of cancer just in Faribault county every year. Surrounding counties (Martin, Freeborn, Steele, Waseca, Blue Earth) have very similar statistics, meaning that there are potentially upward of 650 cancer patients to treat every year in the south central Minnesota area.

With the current number of oncologists in the area, it averages to each oncologist treating 72 patients per year. Adding just five more oncologists would bring that average down to about 46 patients per doctor per year, creating more opportunities for individualized care.



Site:

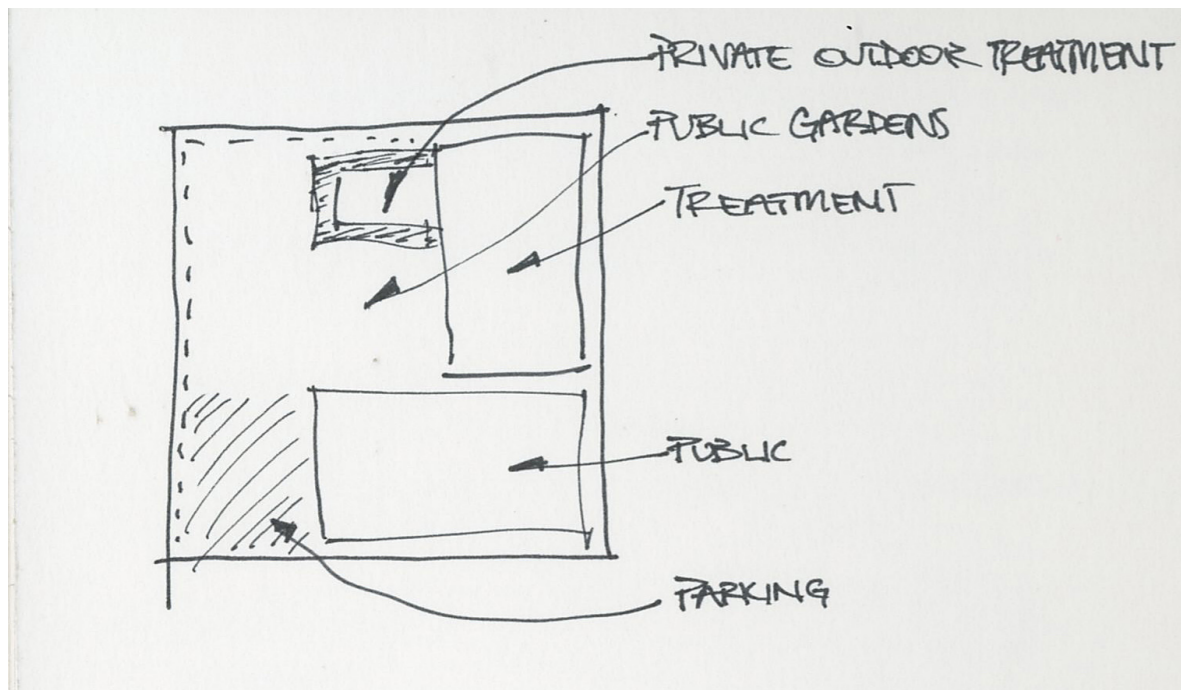
Blue Earth, Faribault County, Minnesota



Client and Site

Site:

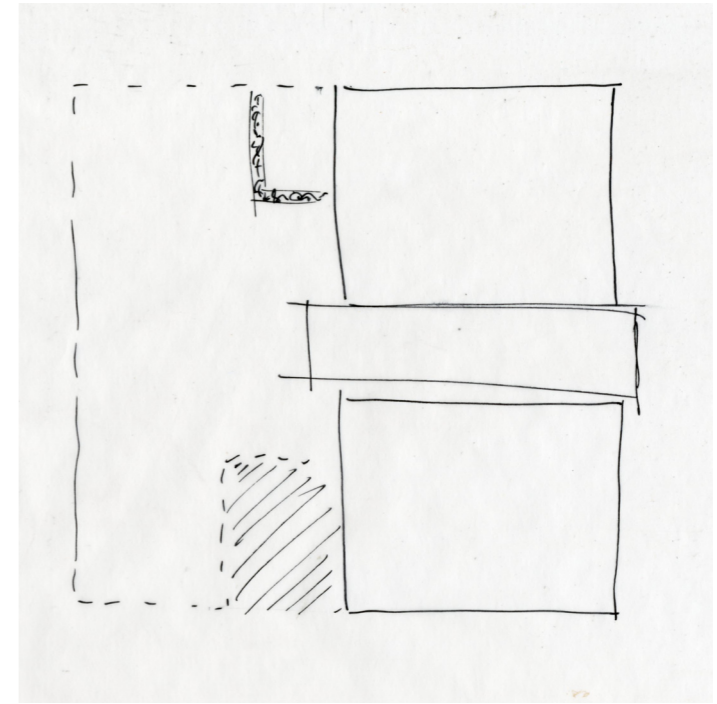
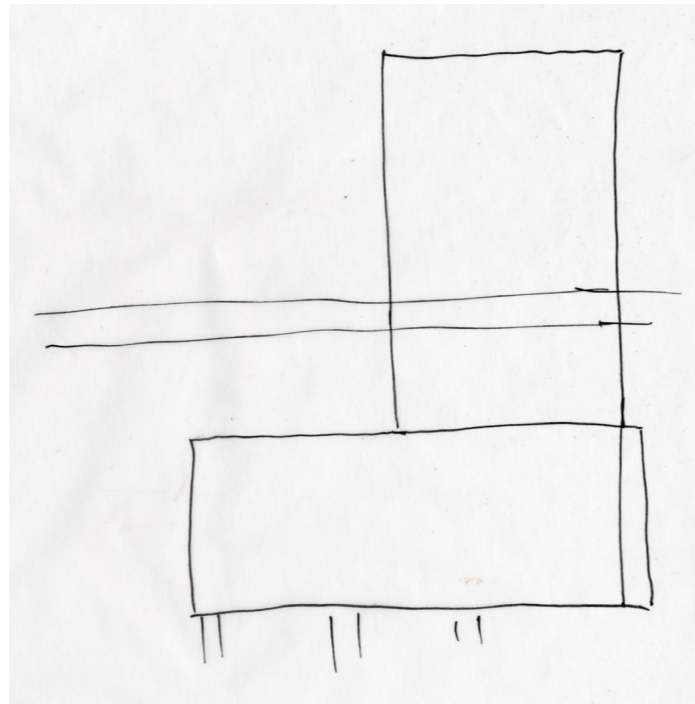
Block Master Planning



Client and Site

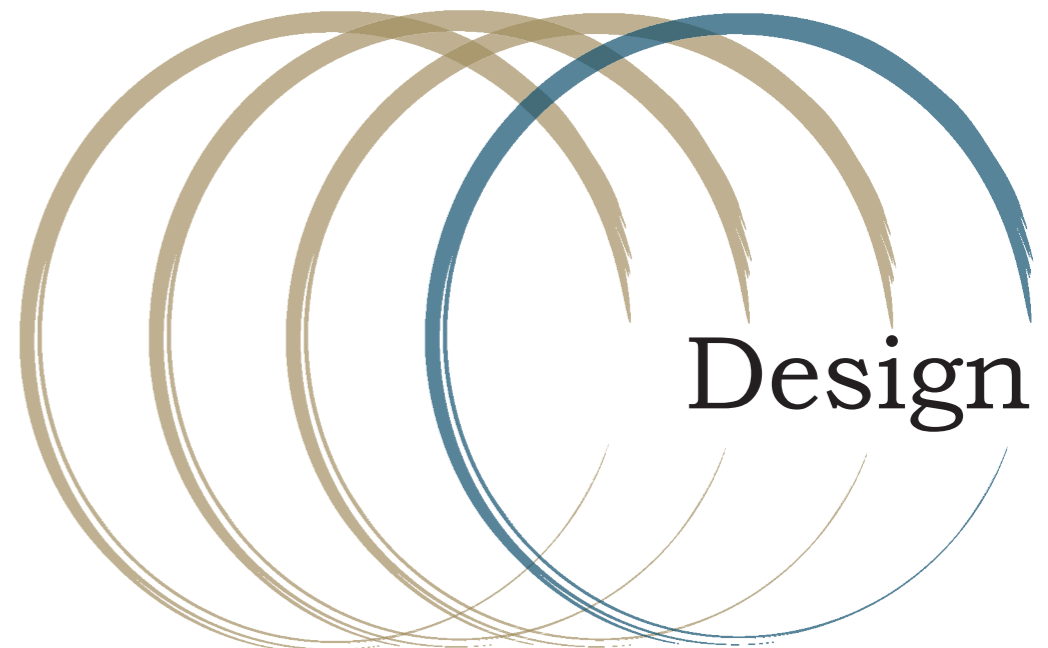
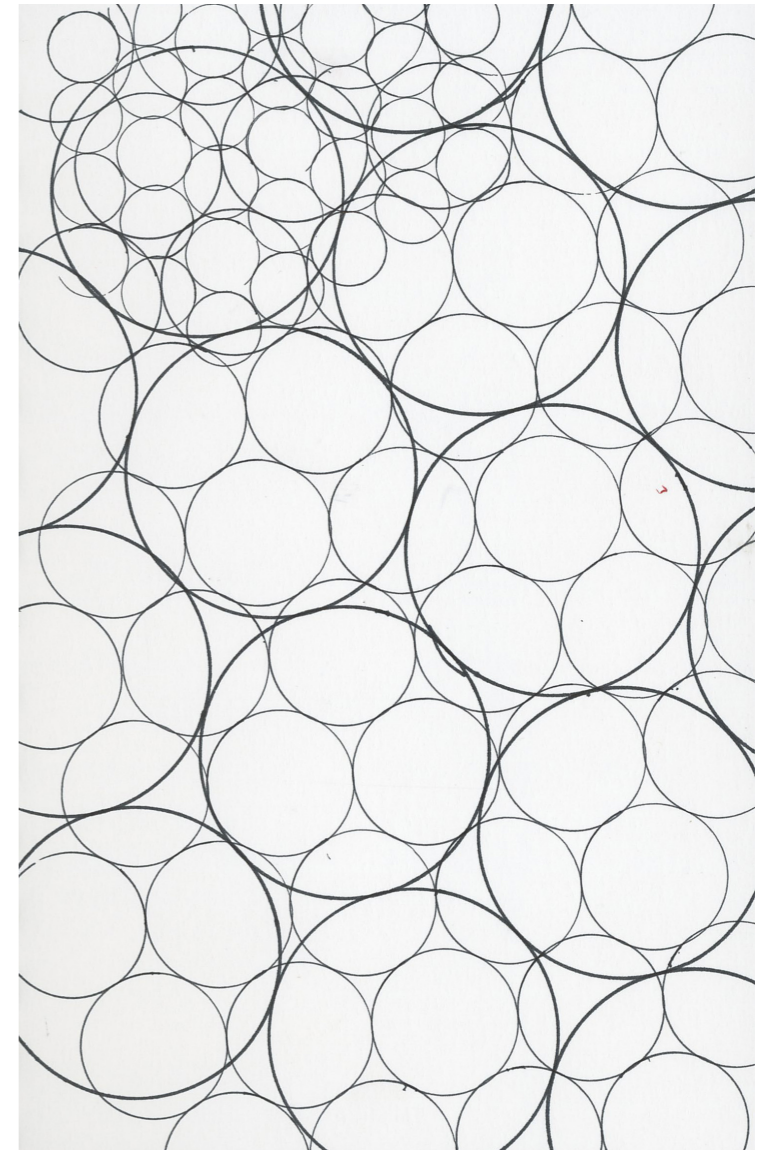
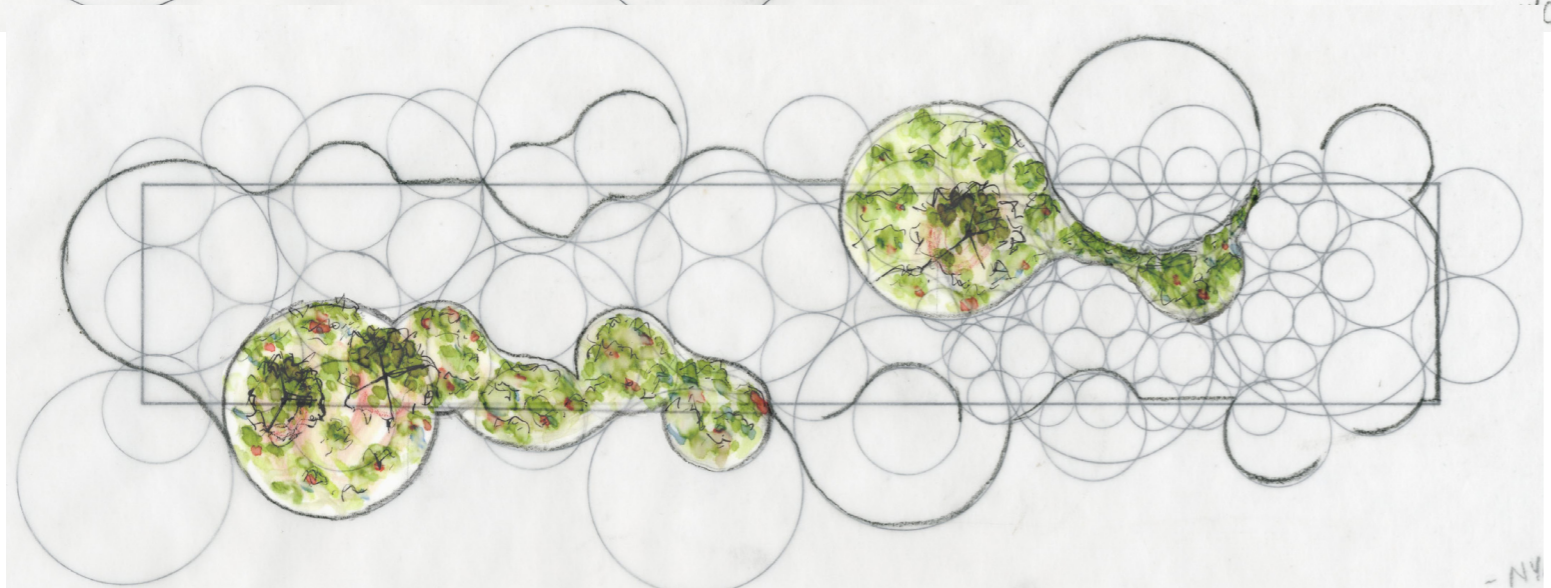
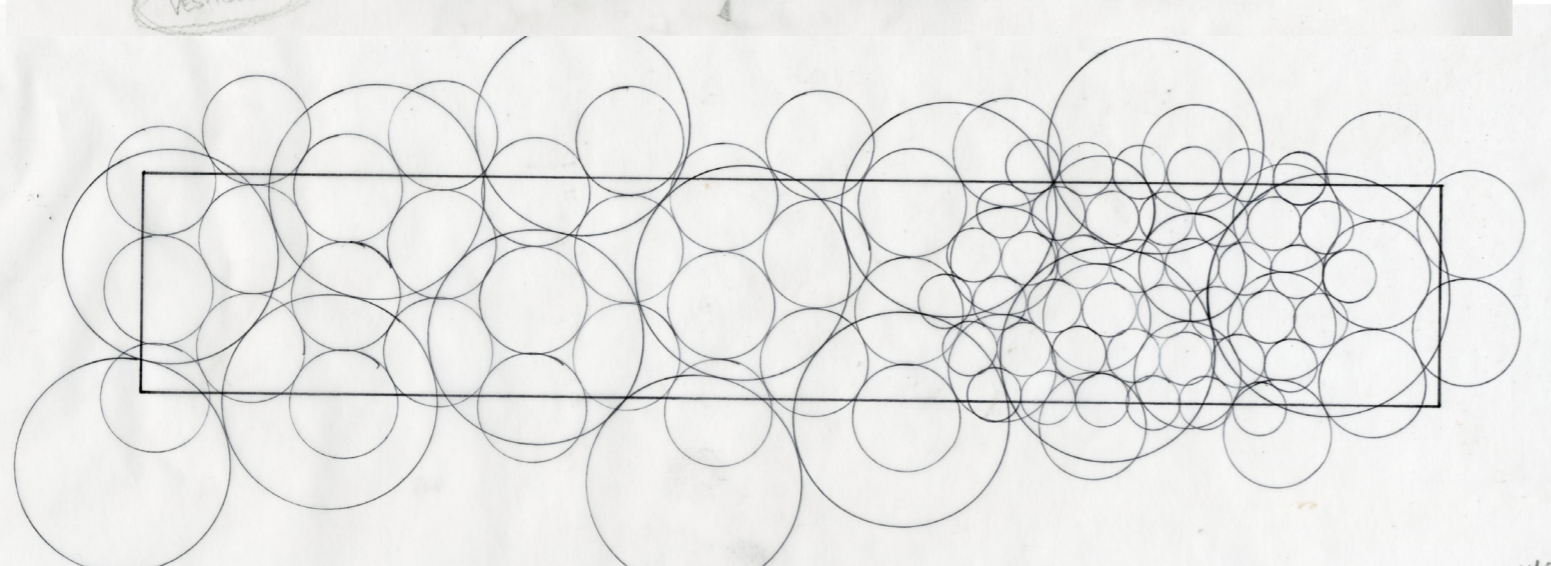
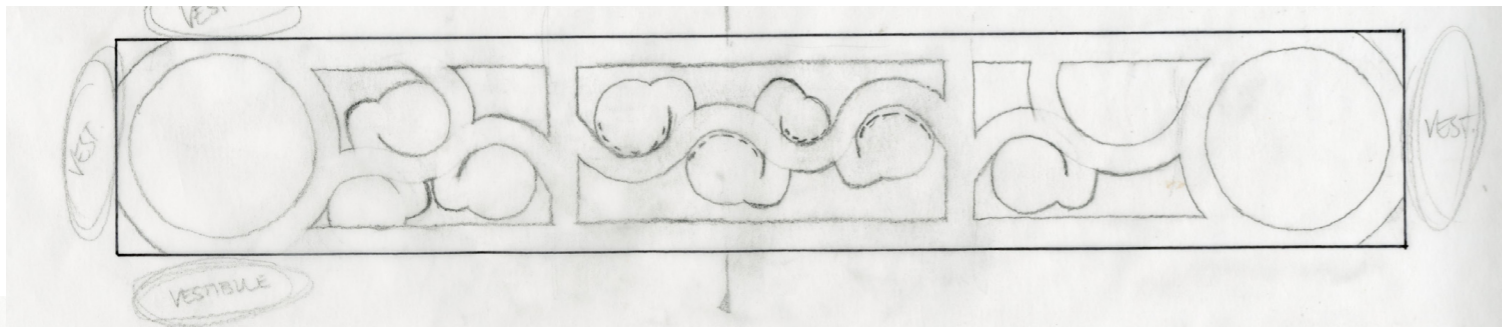
Site:

Context Relation



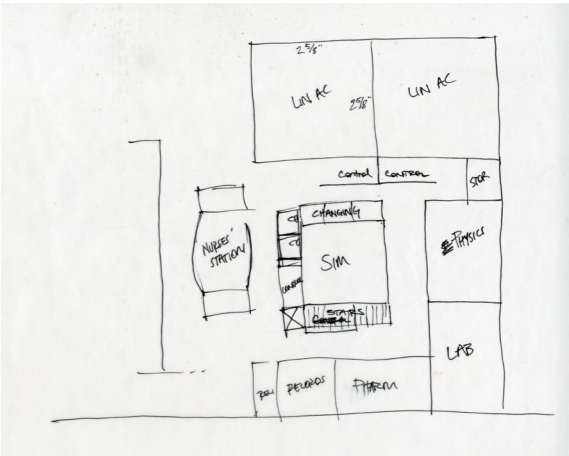
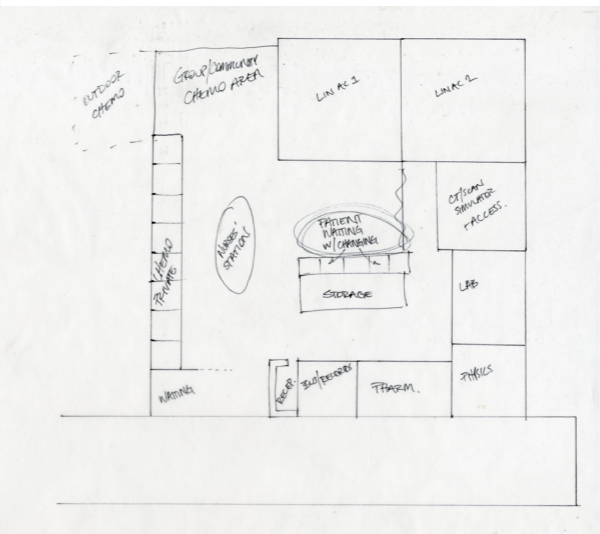
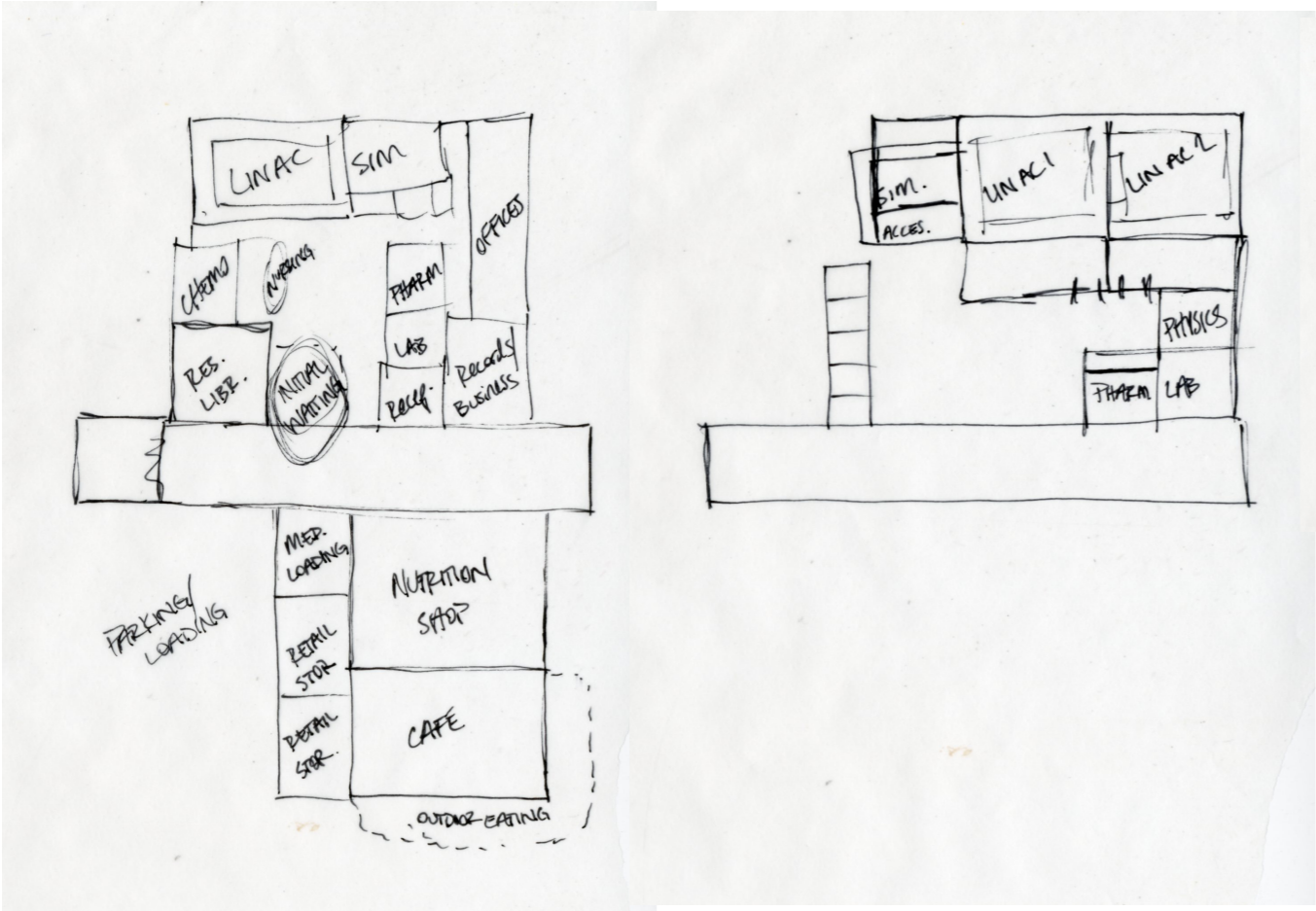
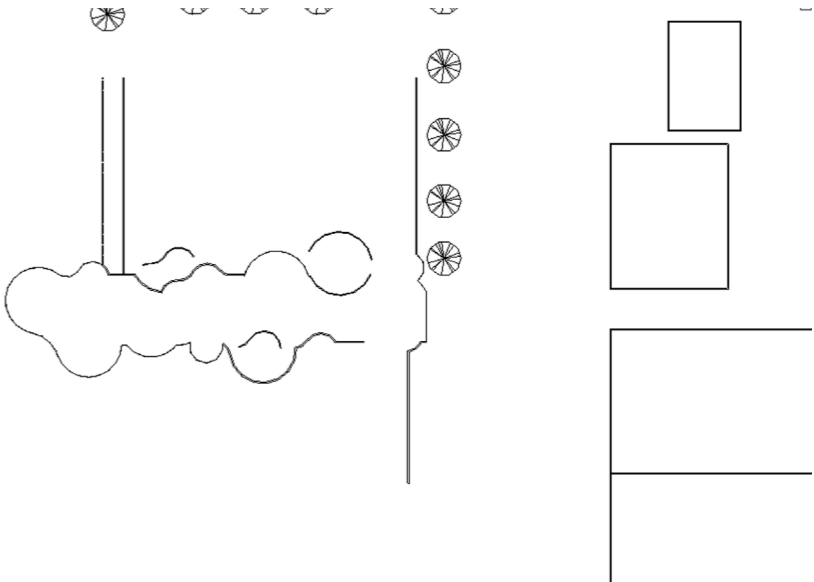
Initial Concept:

Relation to Cancer



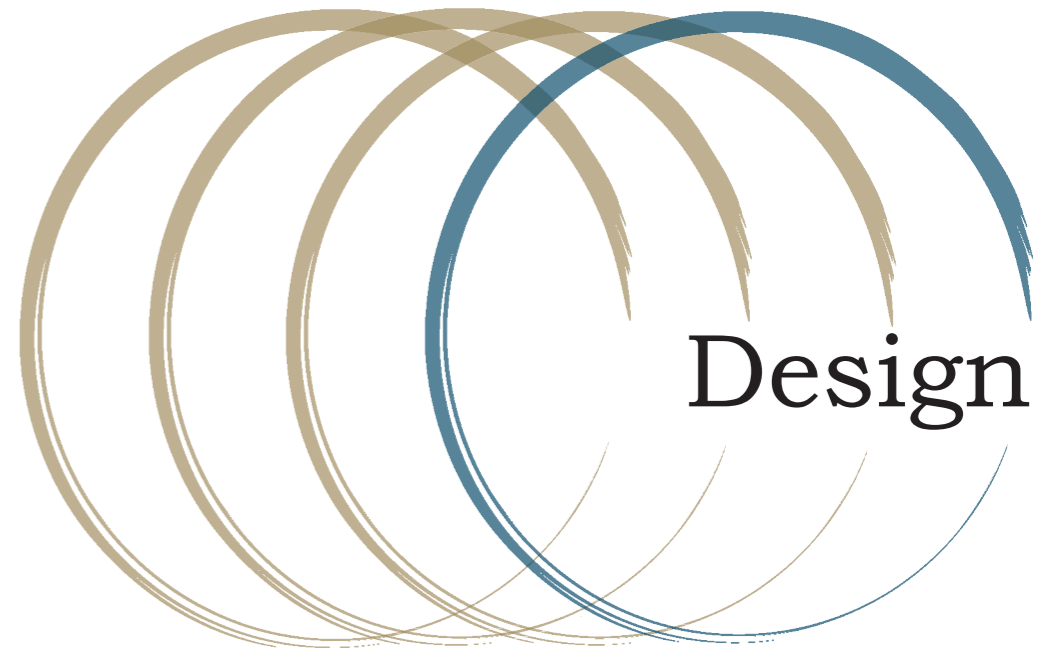
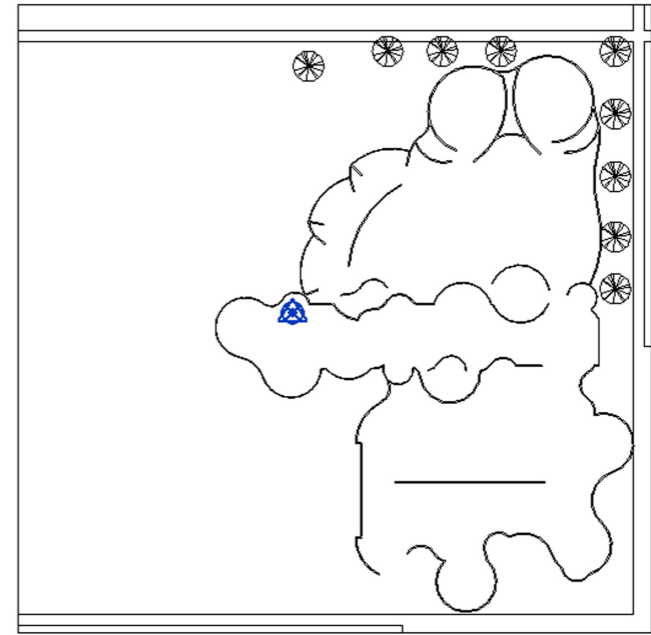
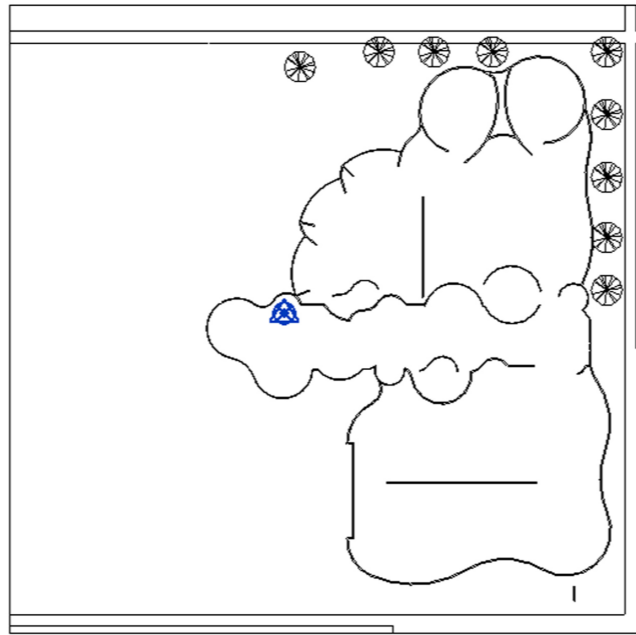
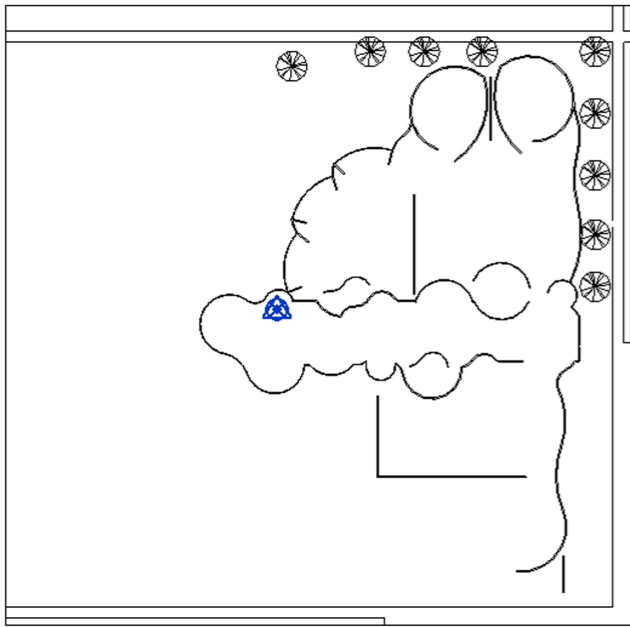
Space Planning:

First Attempts

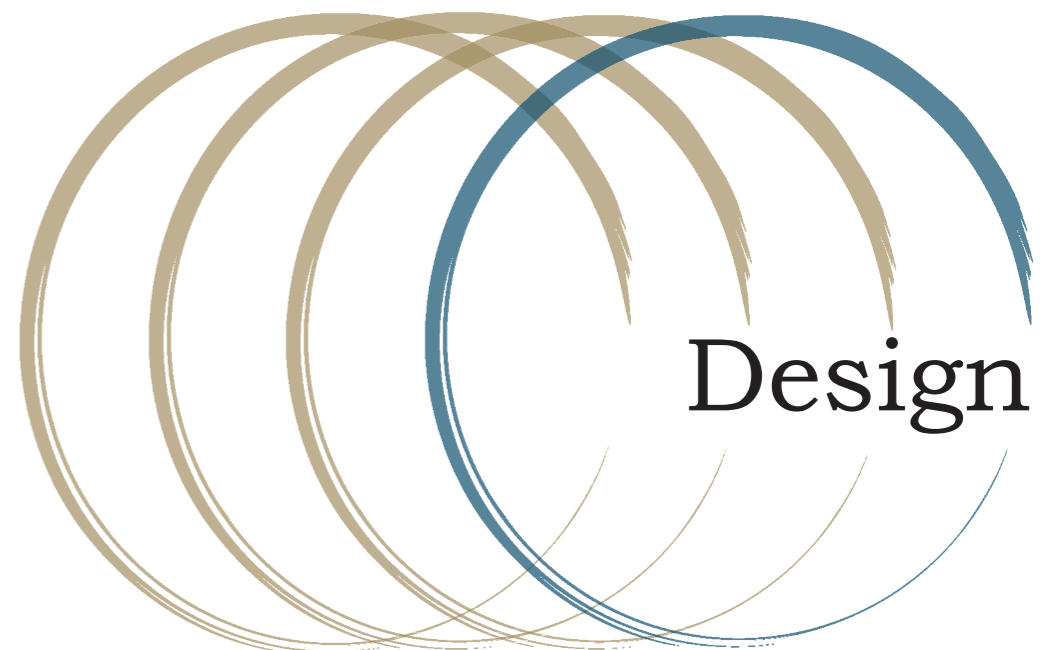
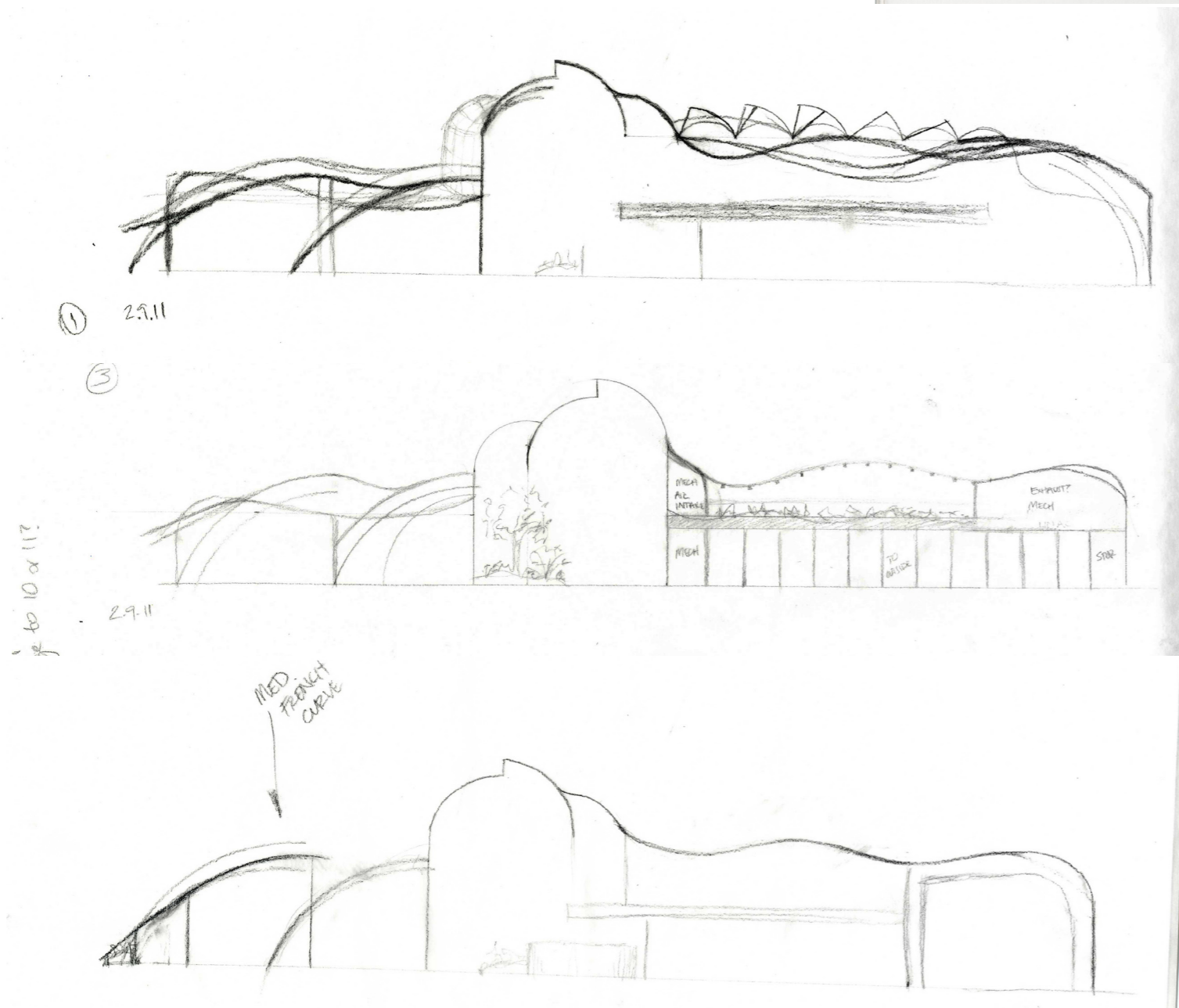
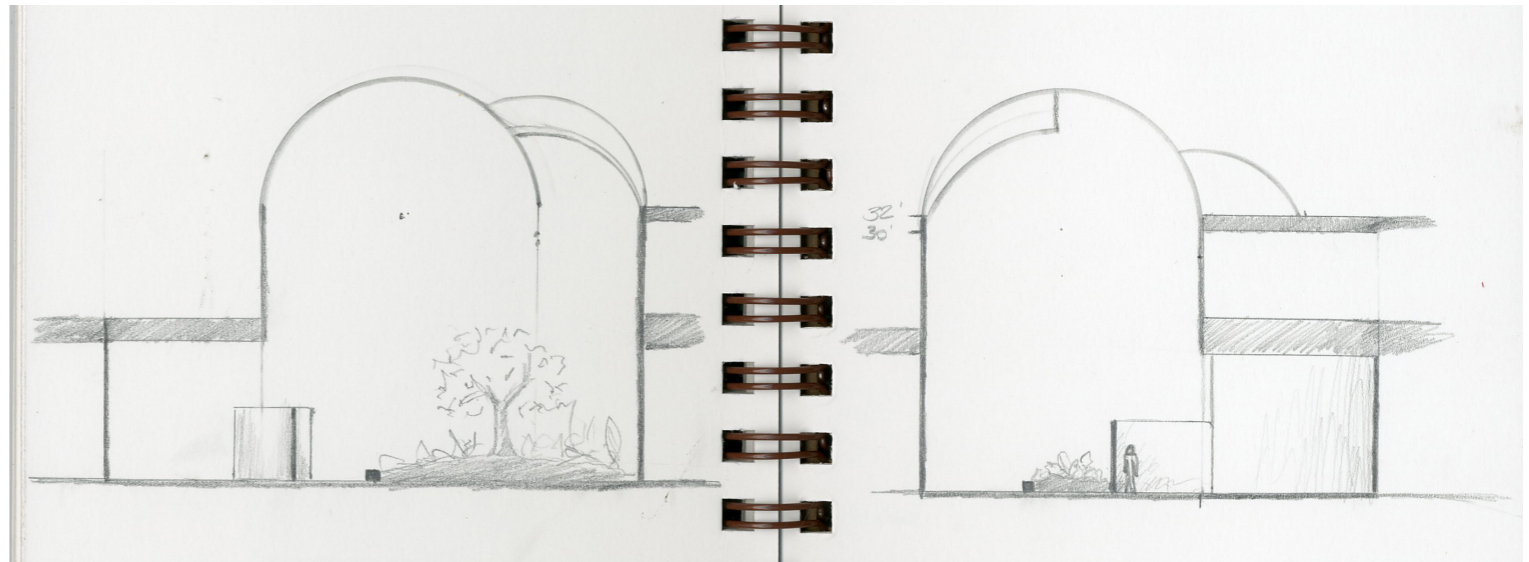


Space Planning:

Development



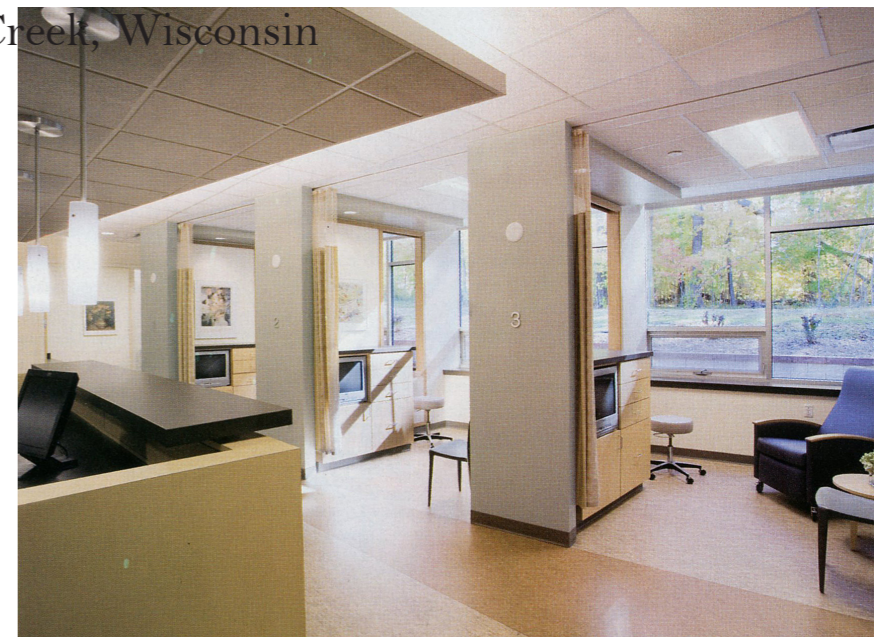
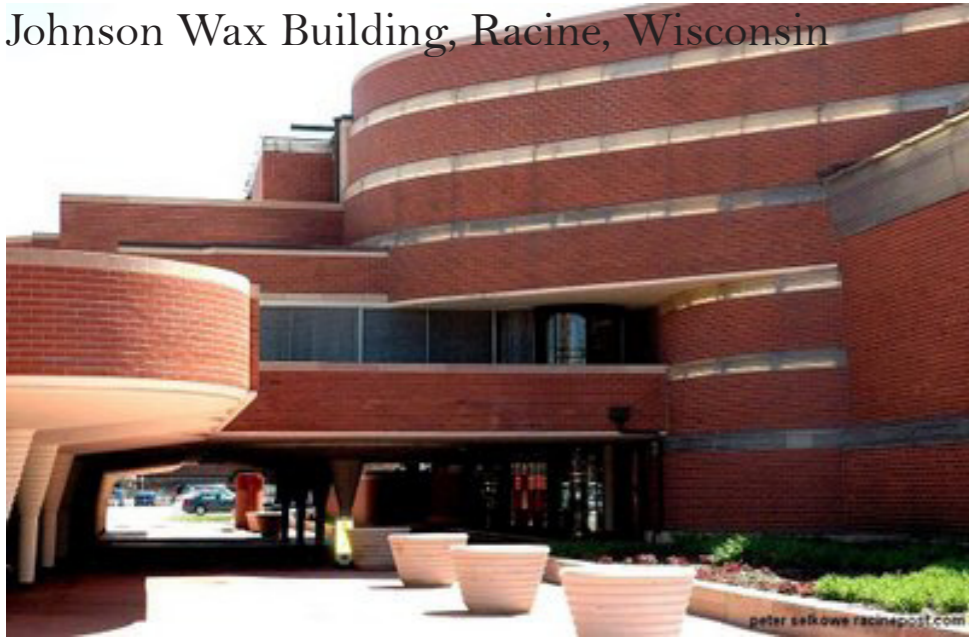
Space Planning: Section



Design:

Case Study Influences

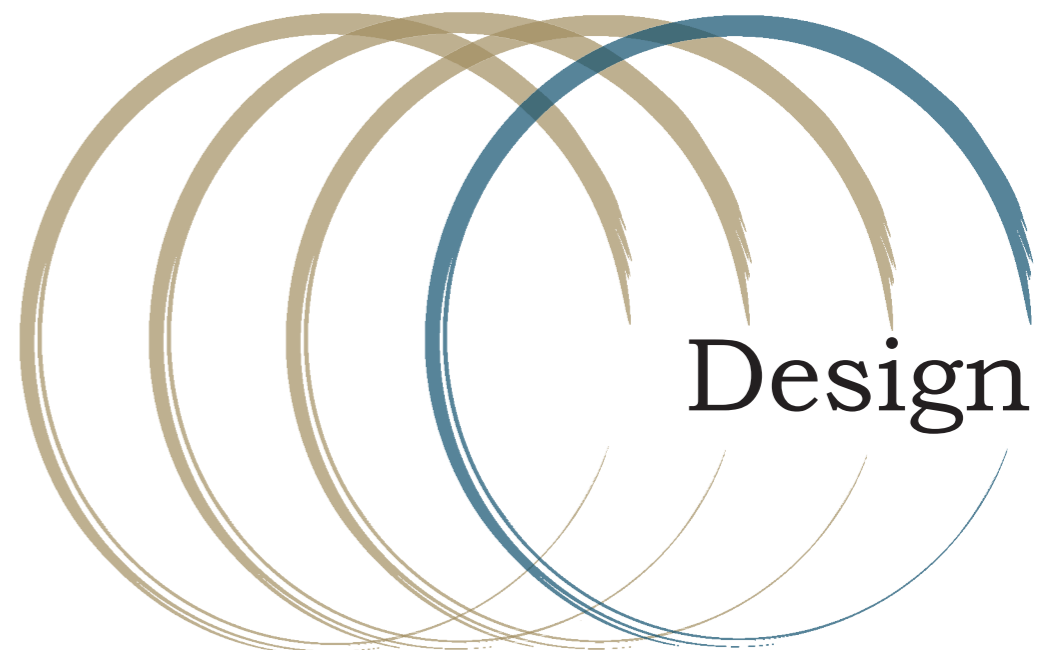
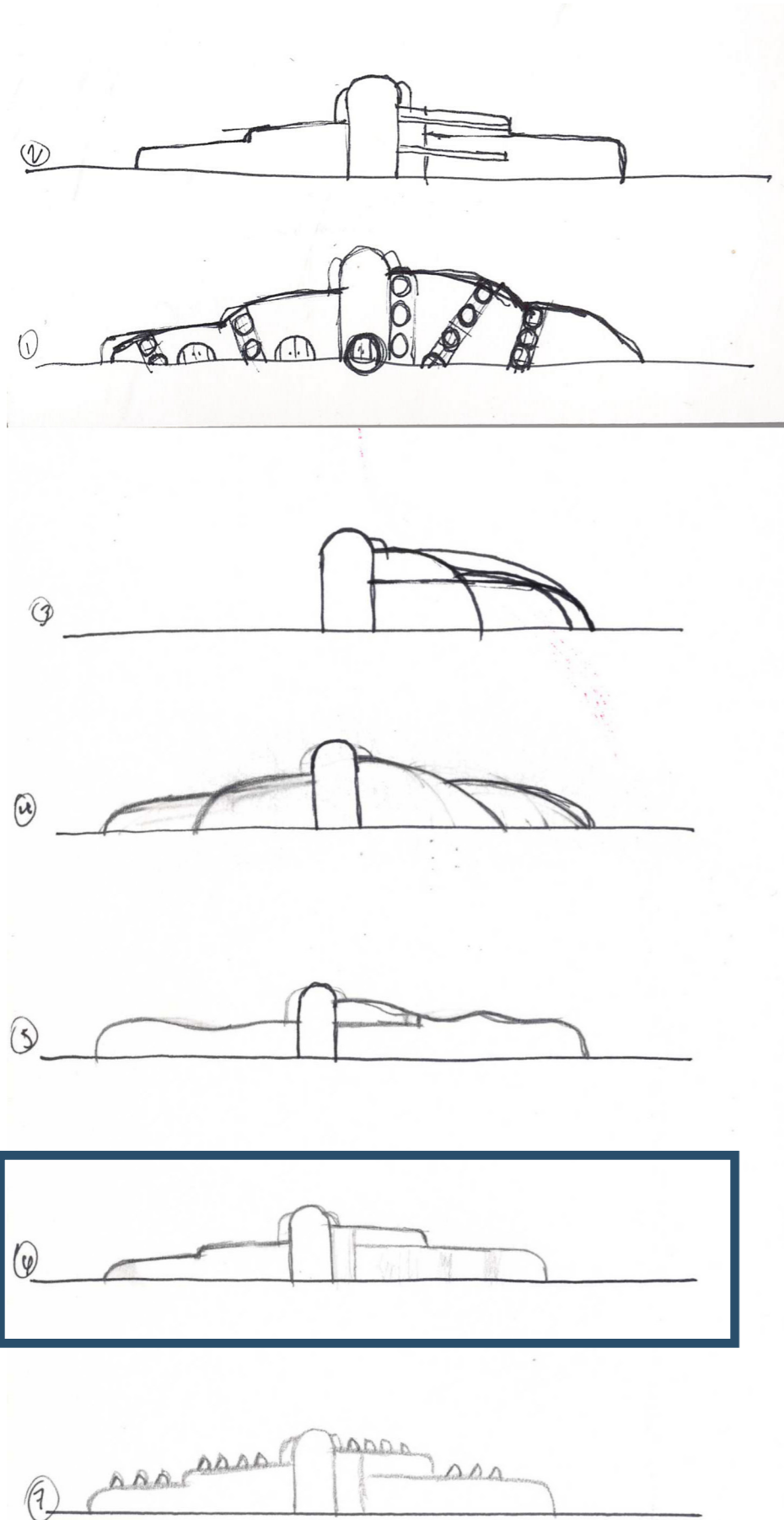
Johnson Wax Building, Racine, Wisconsin



Palazzo dell'Angelo, Venice, Italy

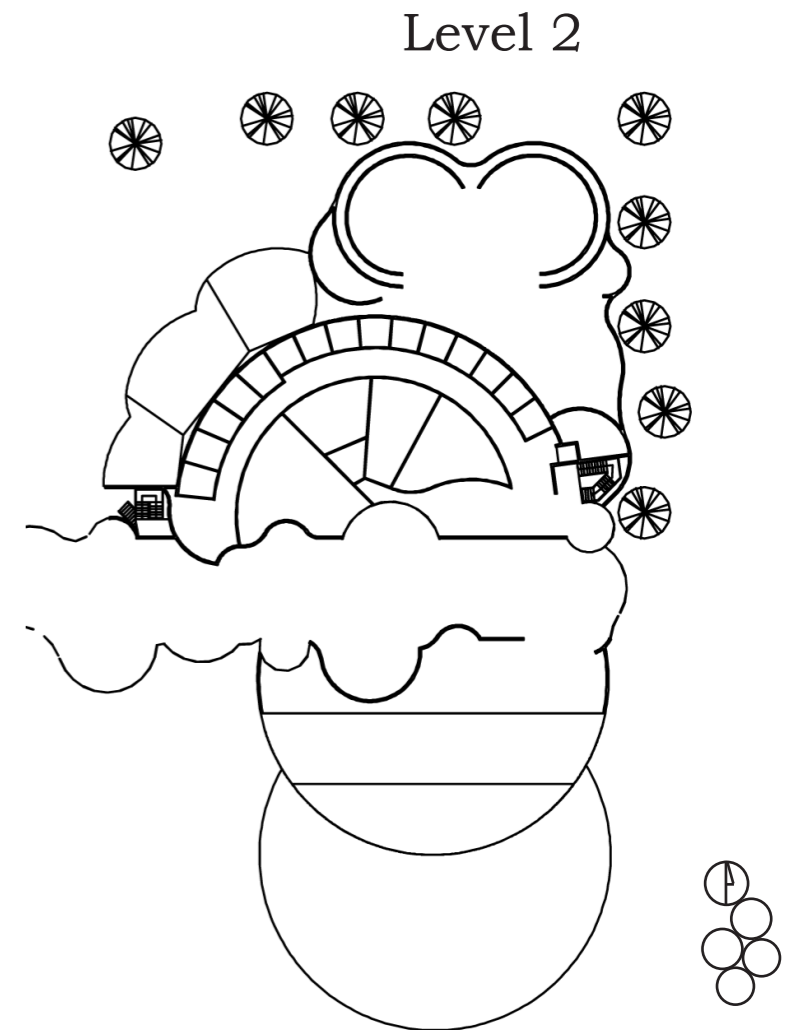
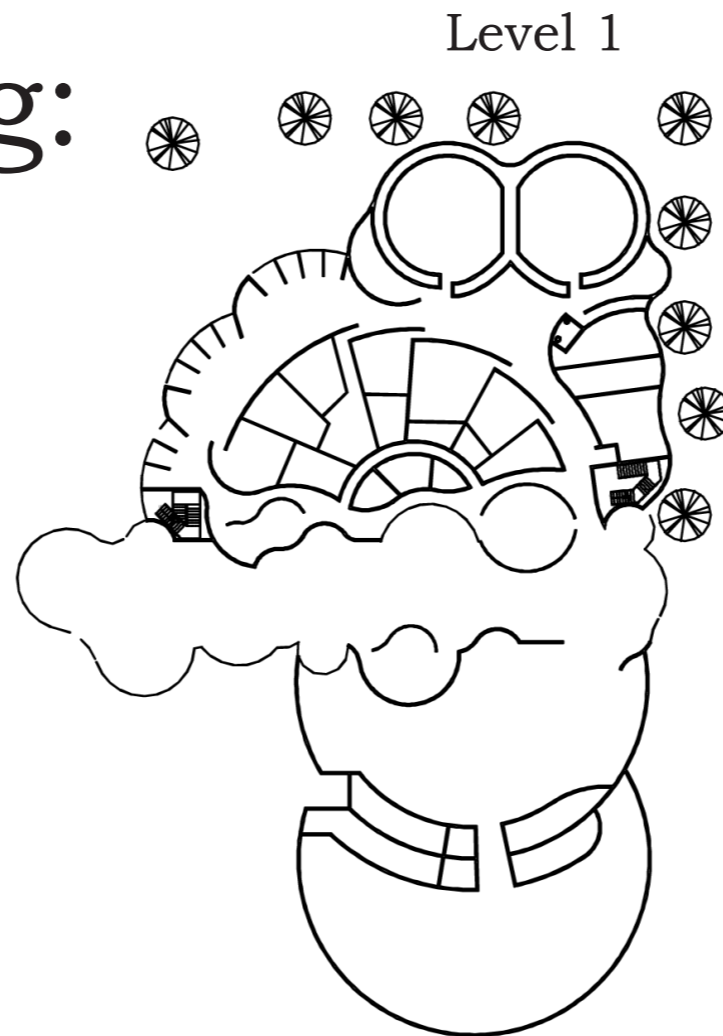
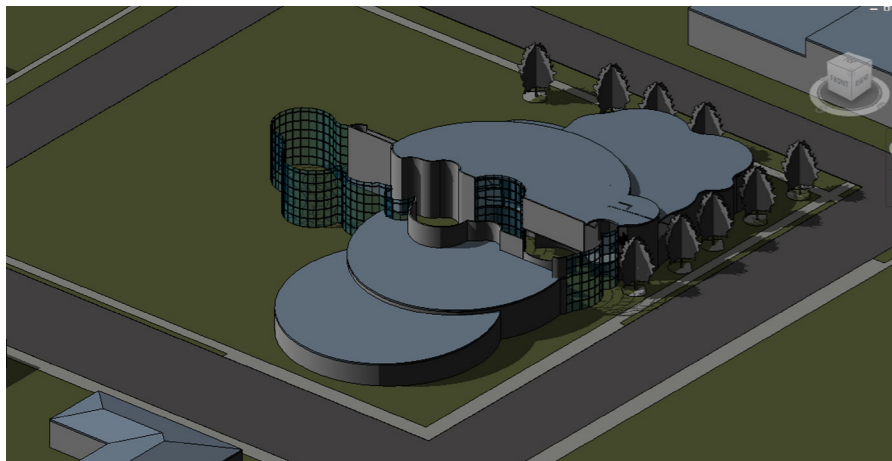
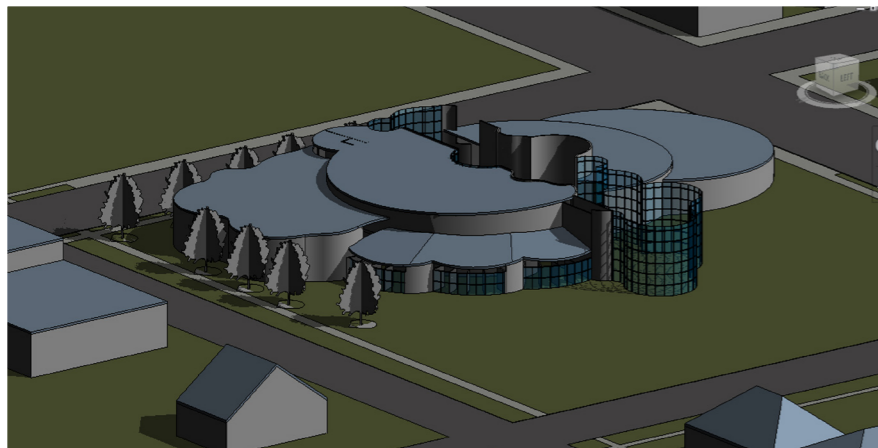


Space Planning: Cohesion



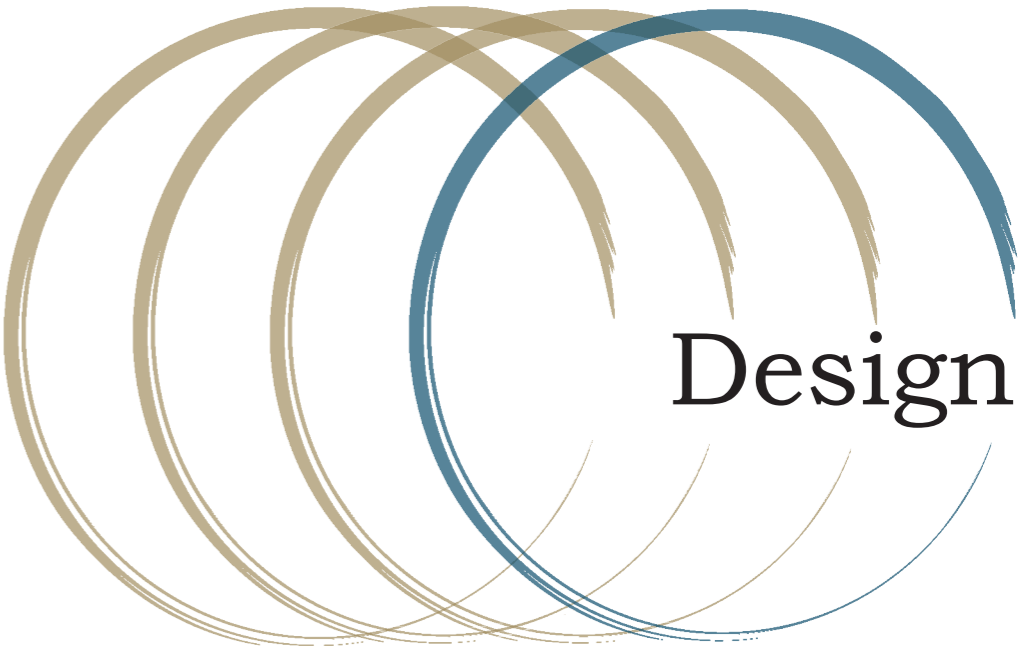
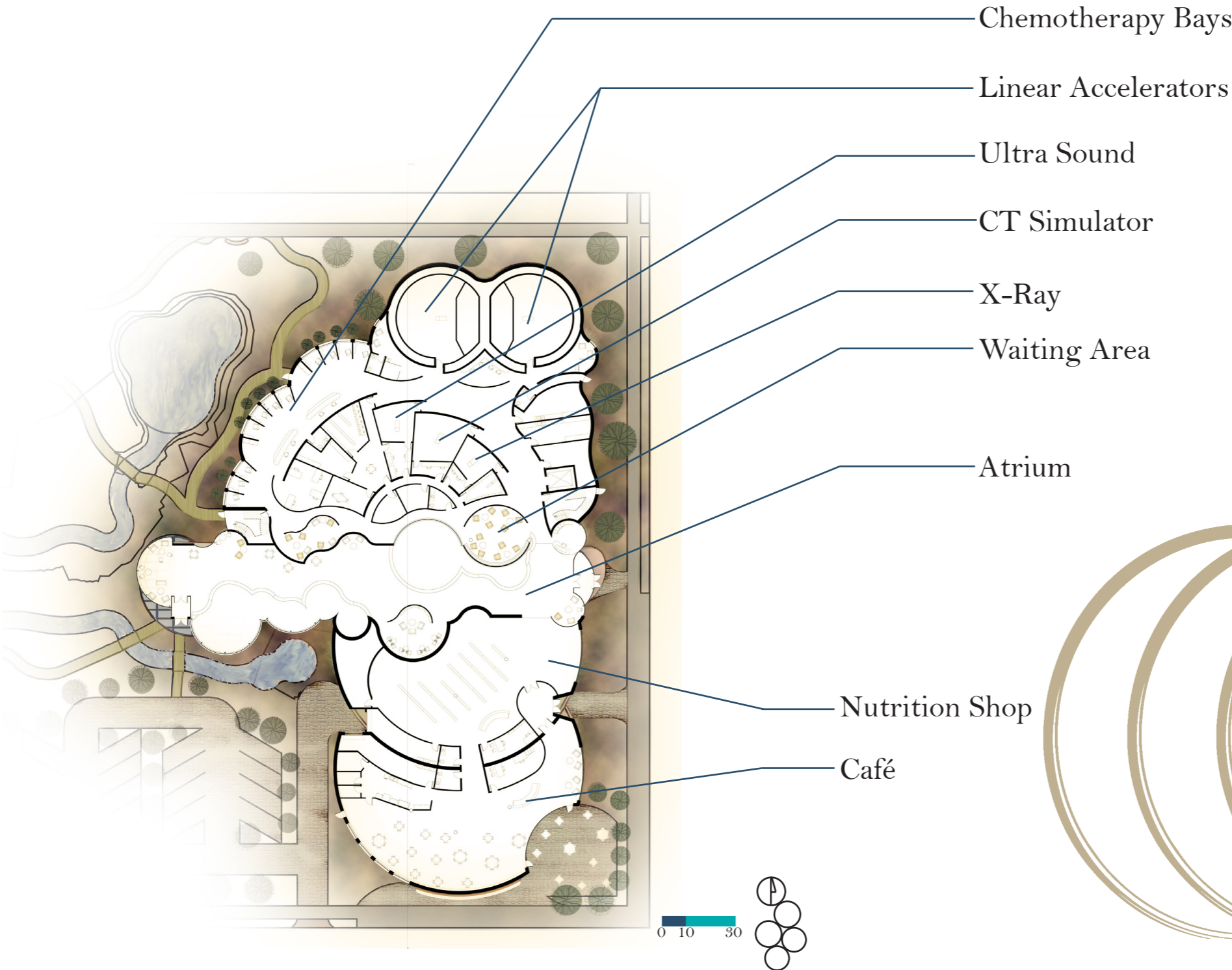
Space Planning:

Cohesion



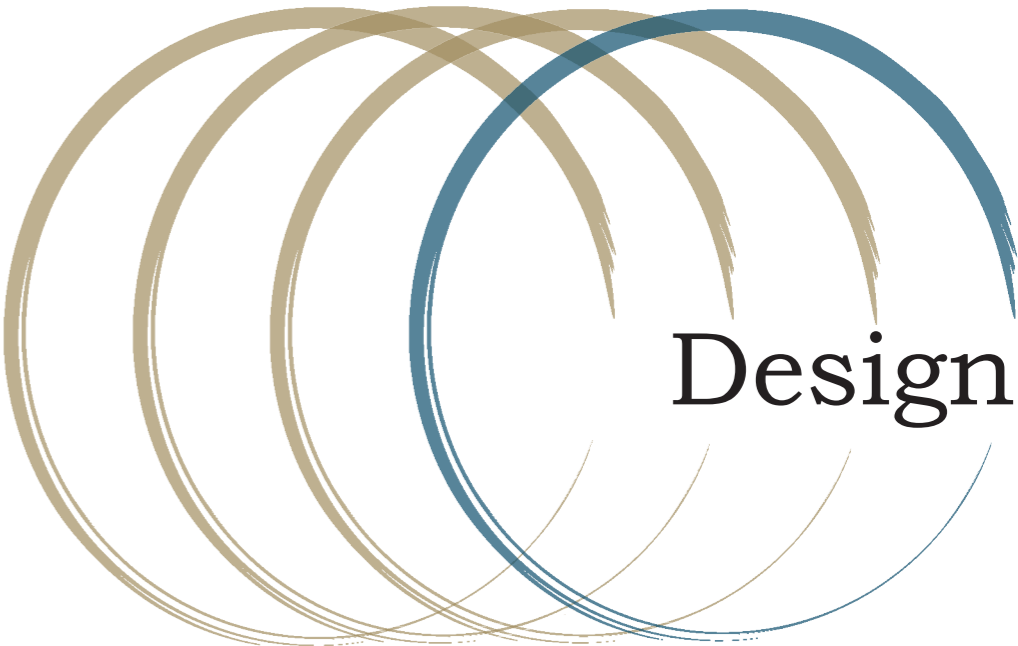
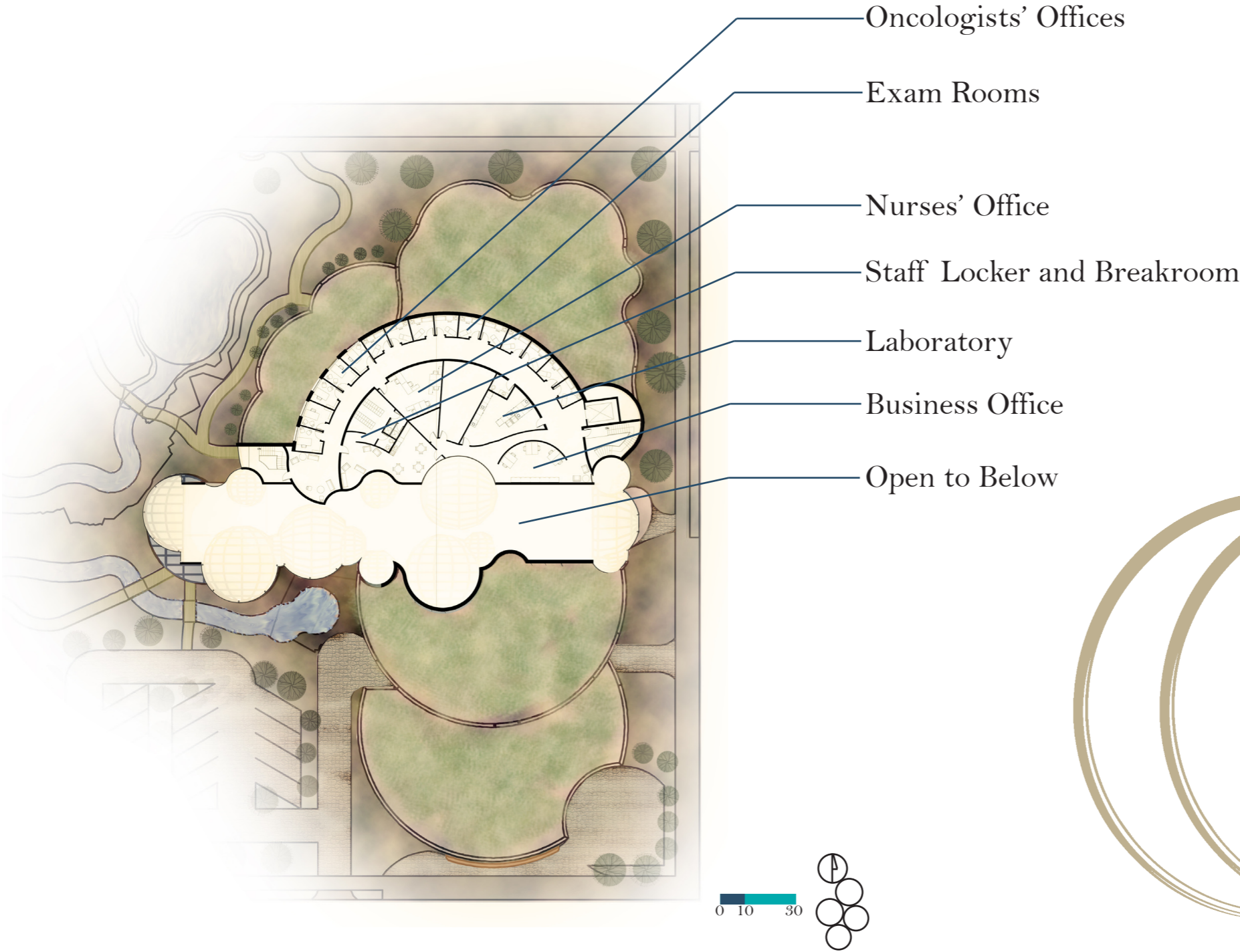
Final Design:

Level 1 Plan



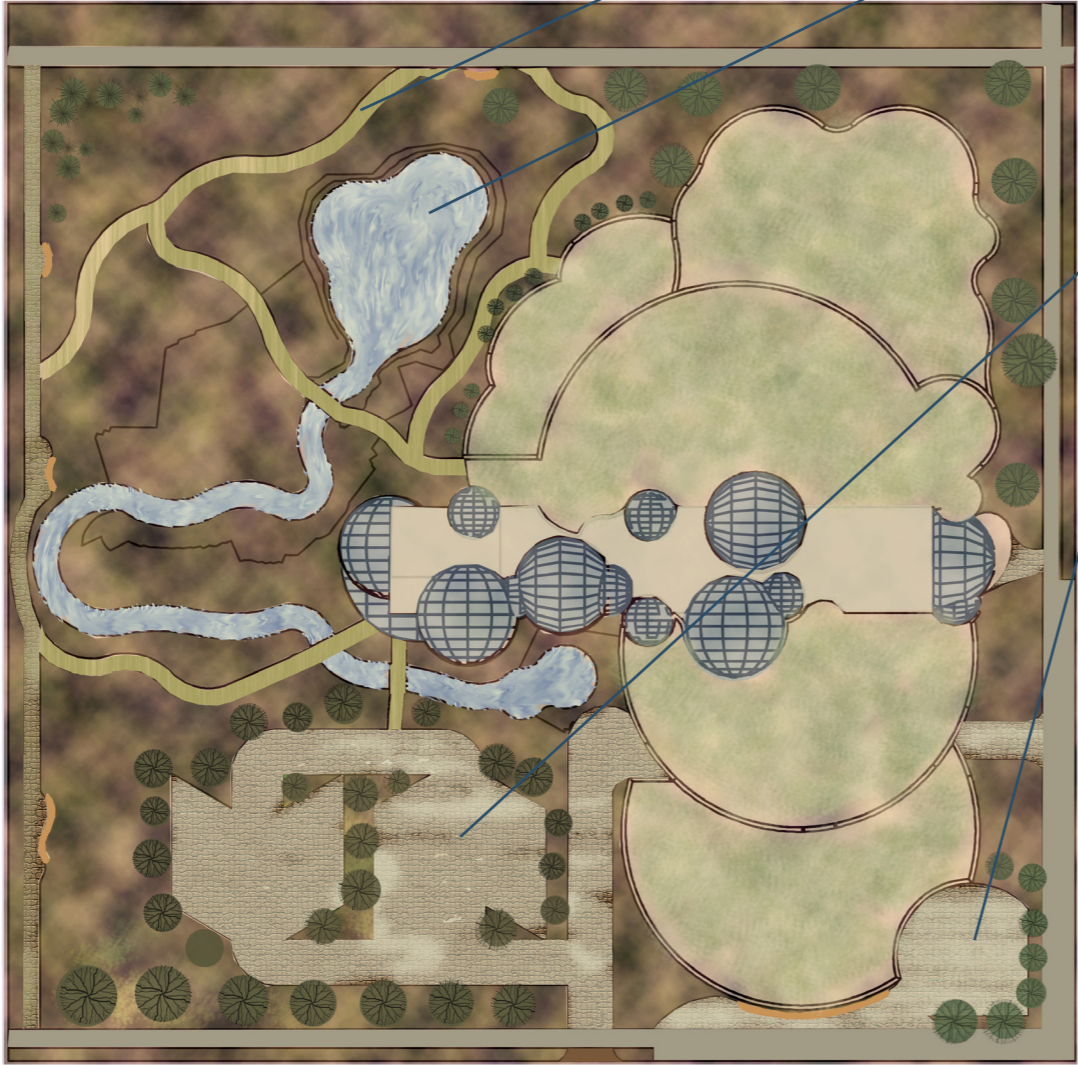
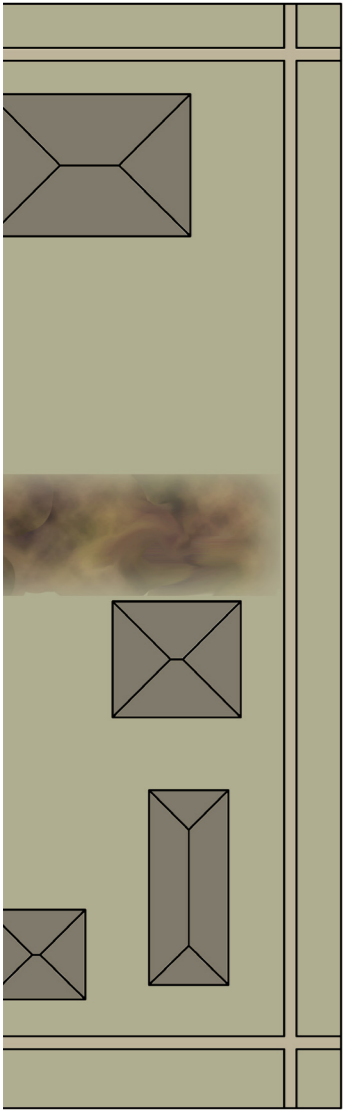
Final Design:

Level 2 Plan



Final Design:

Site Plan

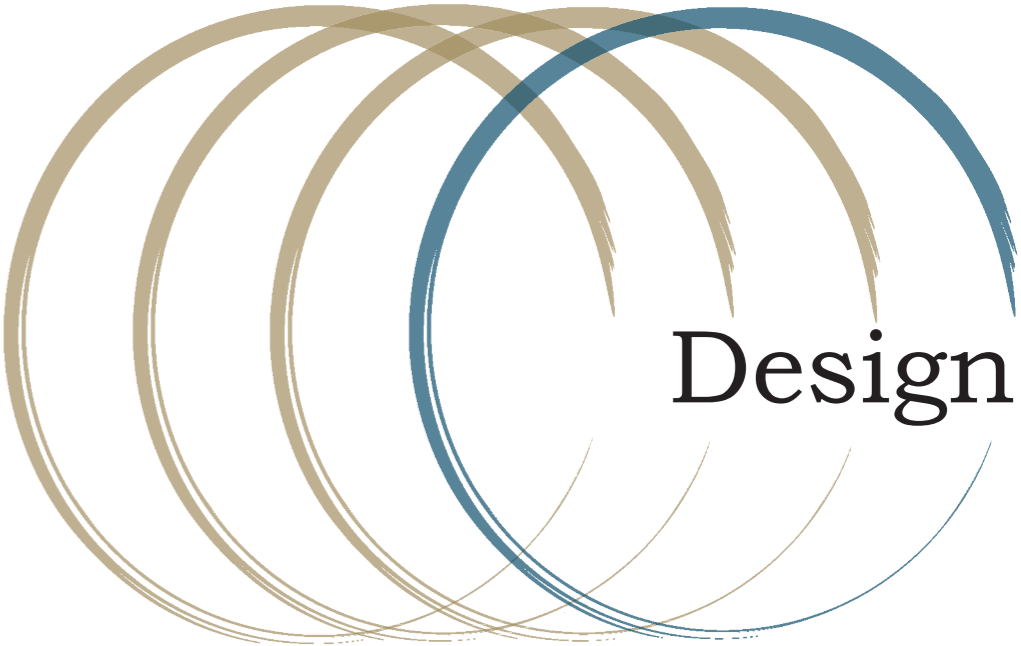
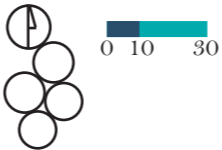


Wooden Walking Paths

Water Feature

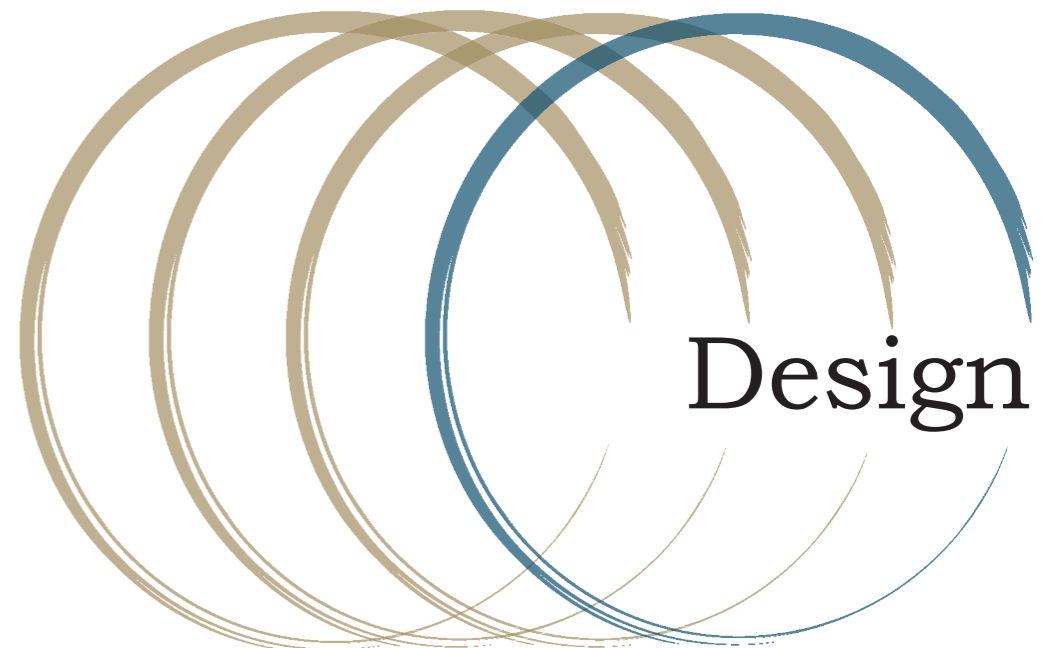
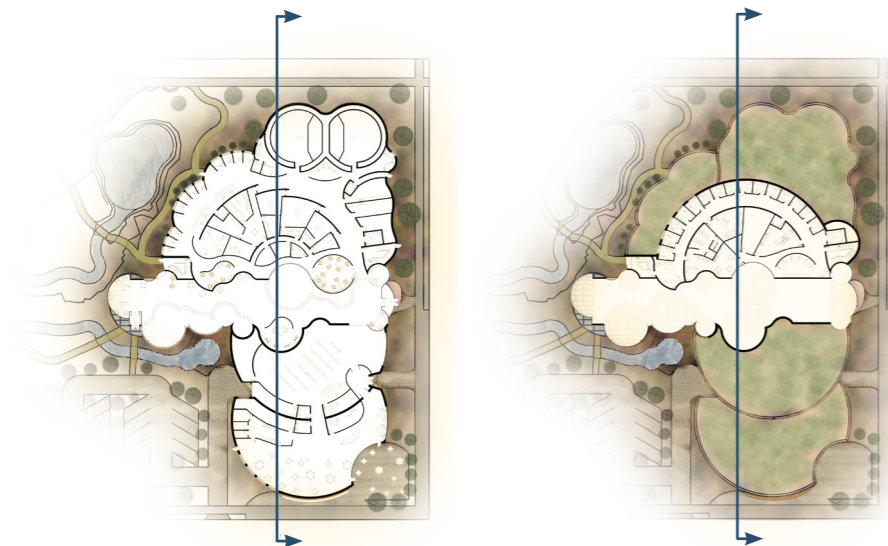
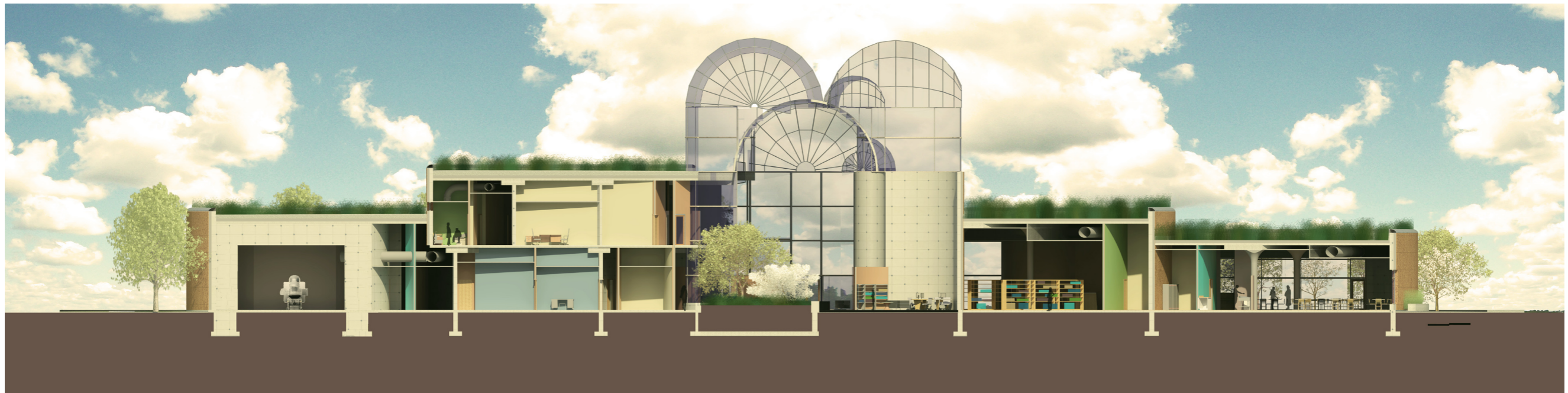
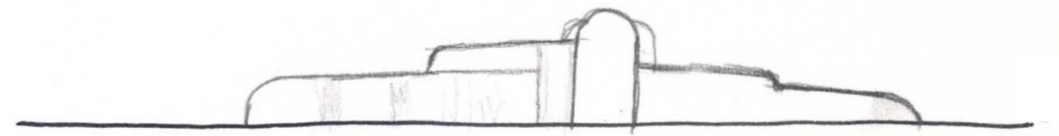
Porous Pavement Parking Surface

Porous Pavement Seating Area

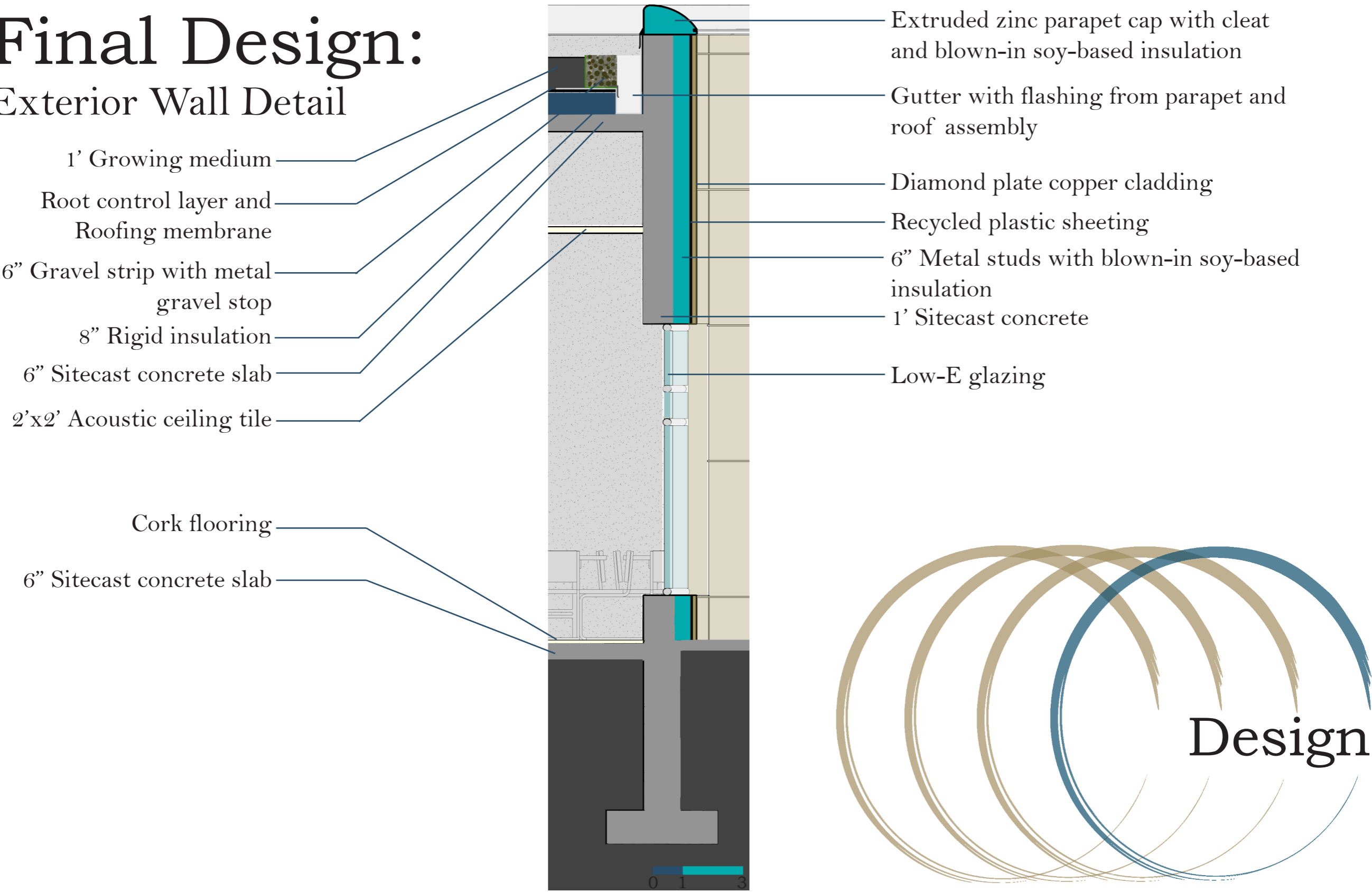


Final Design:

Sectional Perspective



Final Design: Exterior Wall Detail



Design

Final Design:

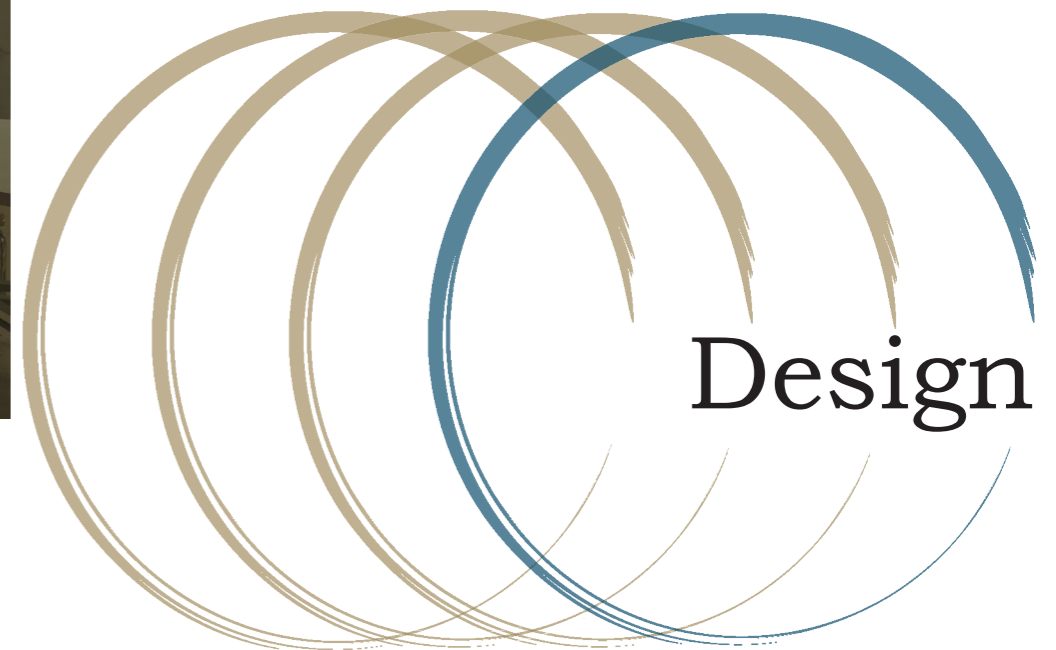
View looking North on Main Street



Design

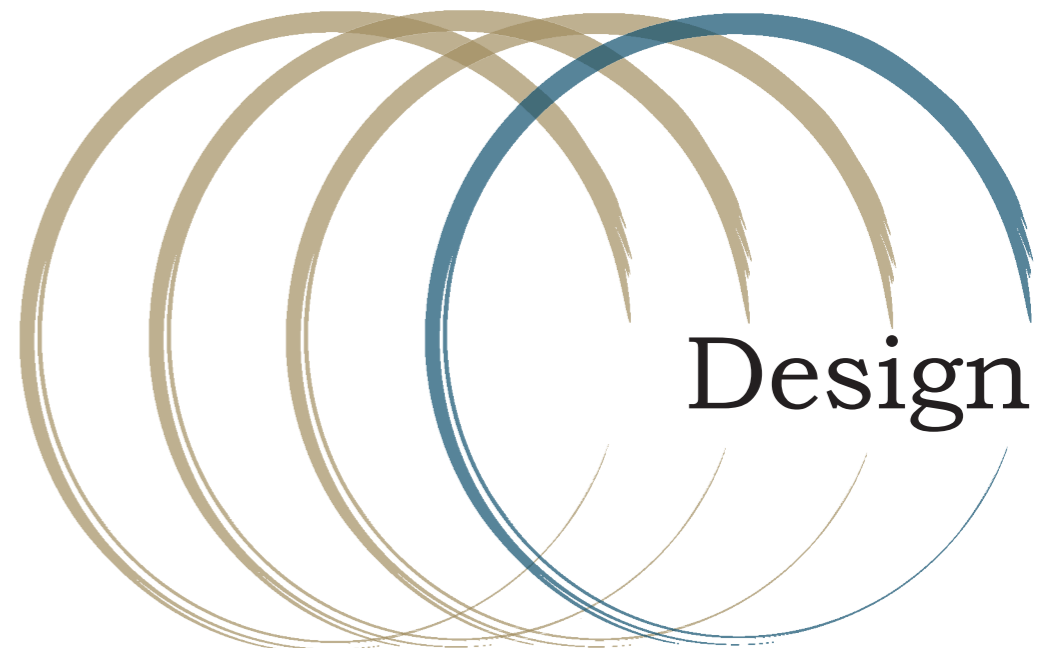
Final Design:

Café Interior



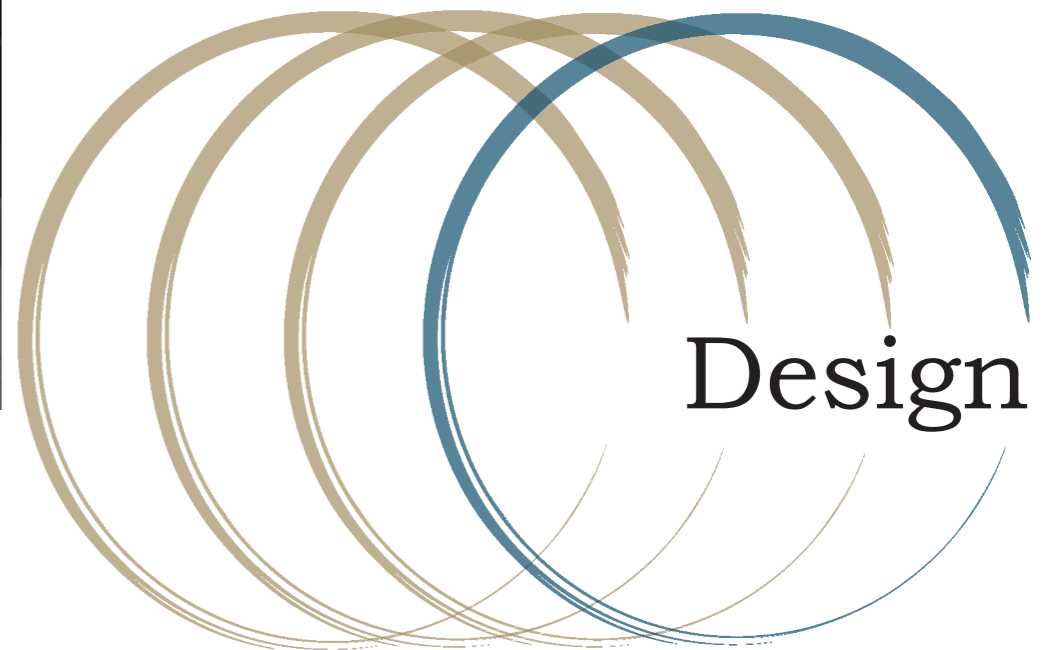
Final Design:

Atrium Interior



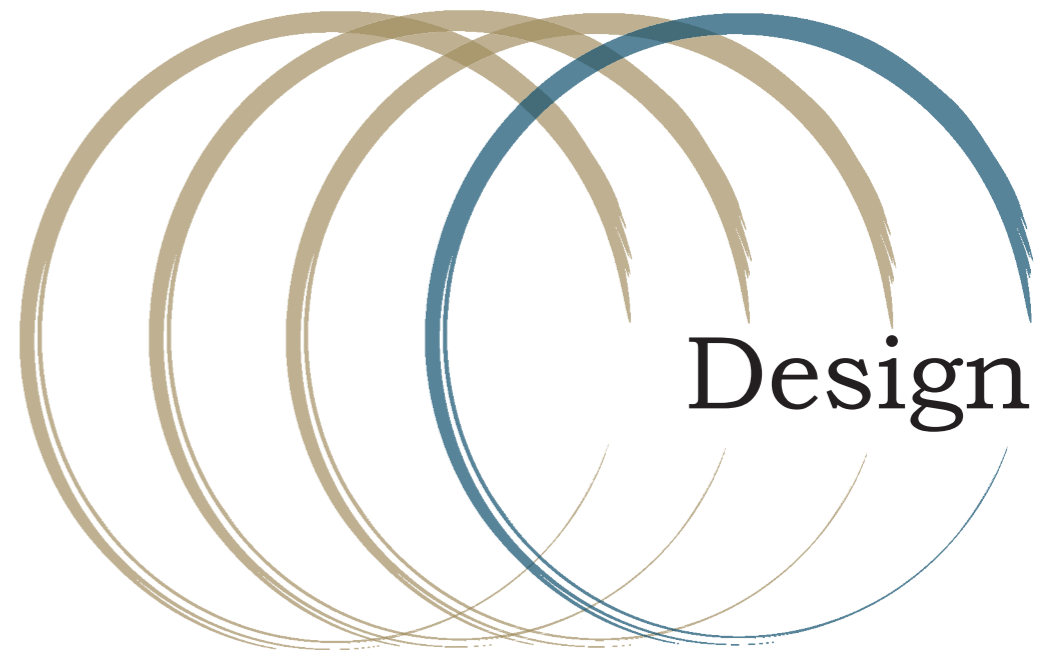
Final Design:

Waiting Area



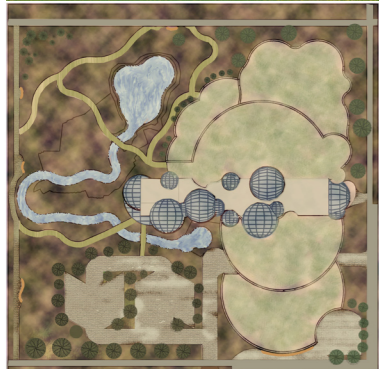
Final Design:

Chemotherapy Bay



Final Design:

View from northwest prairie restoration



Design

Thank You.



Questions?