

The  
oasis  
Conservatory

# How can architecture positively impact our mental health?

A Design Study

Fall 2021

“Researchers have demonstrated that appropriate physical environments can impact behaviors associated with good mental health, such as reduced stress, mental restoration and increased focus.”

Mardelle McCuskey Shepley, D.Arch., FAIA, FACHA

Professor, Executive Director of Cornell Institute for Healthy Futures  
Cornell University

# Table of Contents

<b>Prologue</b>	
R+D Lab.....	5
 <b>Chapter 1</b>	
Premise .....	9
 <b>Chapter 2</b>	
Evidence .....	13
 <b>Chapter 3</b>	
Pavilions.....	21
 <b>Epilogue</b>	
Team .....	63

Note: This study is intended to examine how architecture and the built environment can affect our mood.  
We are not health care professionals and those who are struggling with mental health challenges are encouraged to seek professional assistance.

# Prologue

---

R+D Lab



## ESa R+D Lab

Since our founding, research has informed our practice. As thought leaders, we explore current and future challenges in order to guide our clients, profession and community in a proactive and beneficial fashion.

Architecture is not about constructing buildings, it is about creating environments—it is also about leadership. We aim to confront challenges to improve our lives and society's interaction with one another.

## Our Culture

Three guiding principles within our culture have led us to this study.

### Wellness

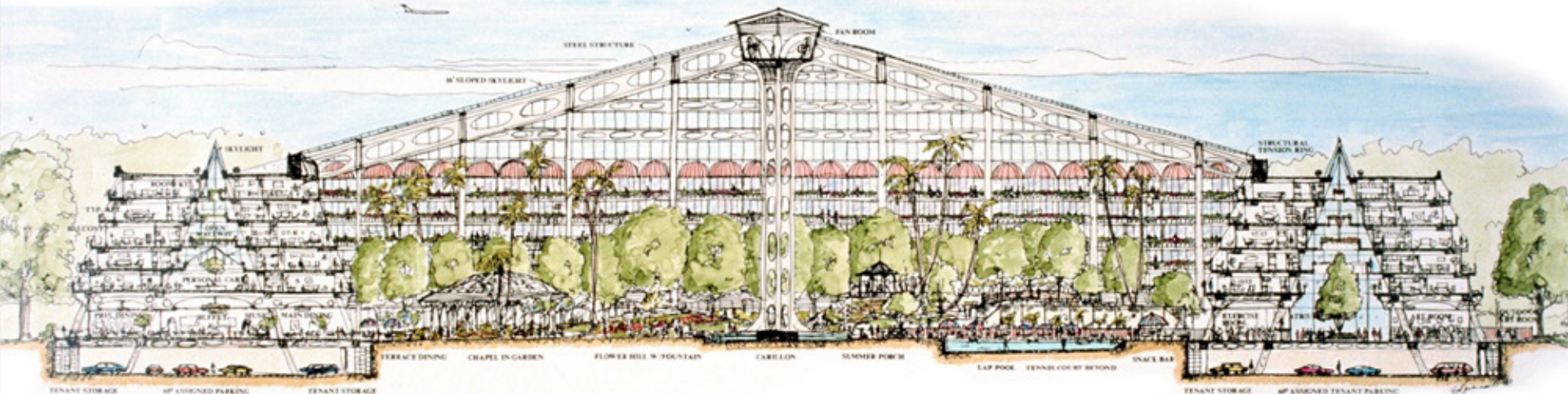
Our north star for all projects.

### Designing Unique Environments

Creating with nurturing, high performing architecture.

### Innovation

Pushing our profession with research studies, as we envision what could be.



**BUILDING SECTION THROUGH THE SYNERGENIAL CCRC/320 - 2000 COMPLEX**  
SHOWING THE MINI-CLIMATE CENTRE

EARL SWENSSON ASSOCIATES 11/7/89



## Inspiration

# Rowan University

## Conservatory Study 2019

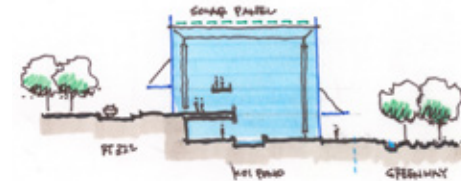
Based on our previous work at Opryland Hotel, Rowan University invited us to their campus to envision a student conservatory.

This project bolsters student life with an environment that is accessible year round, connects students with nature (part of their master plan), and physically connects the Student Union with the campus library.

This space literally and figuratively connects students' academic research with their leisure time while enhancing their entire Liberal Arts experience.



SECTION STUDY  
ROWAN UNIVERSITY - CONSERVATORY  
19 JAN - 19  
ESa

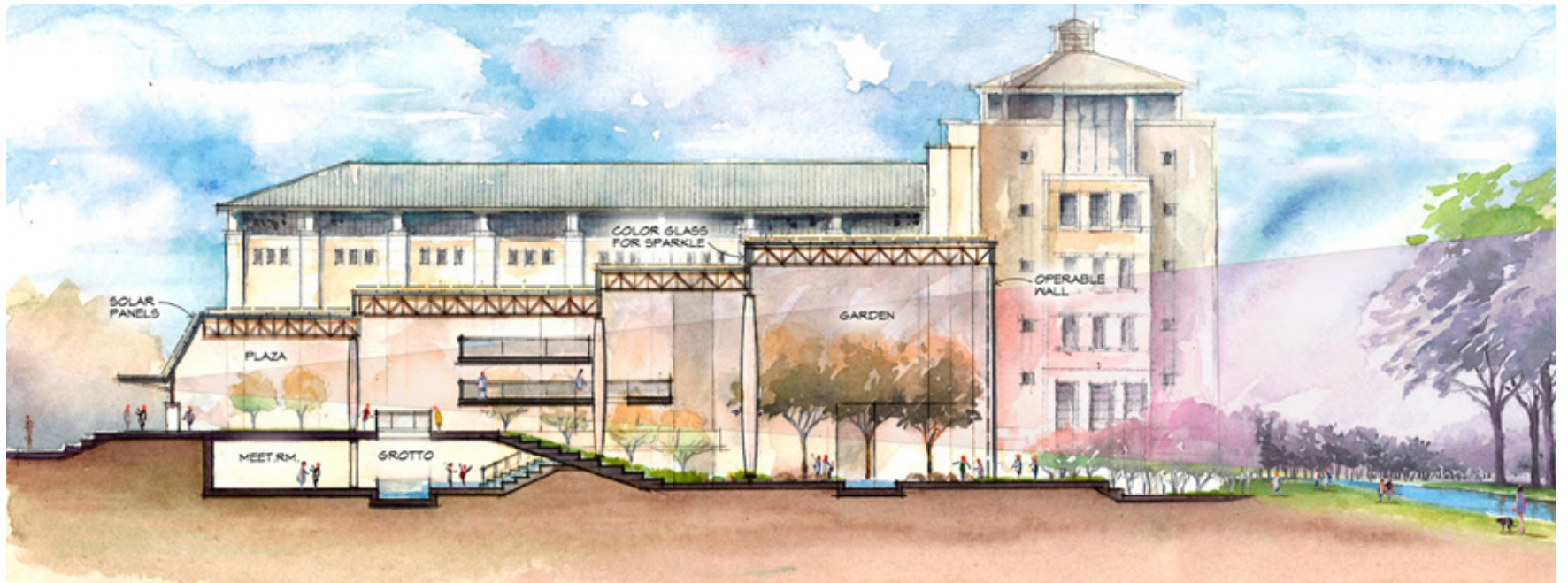


SECTION STUDY  
ROWAN UNIVERSITY - CONSERVATORY  
19 JAN - 19  
ESa



SECTION STUDY  
ROWAN UNIVERSITY - CONSERVATORY  
19 JAN - 19  
ESa

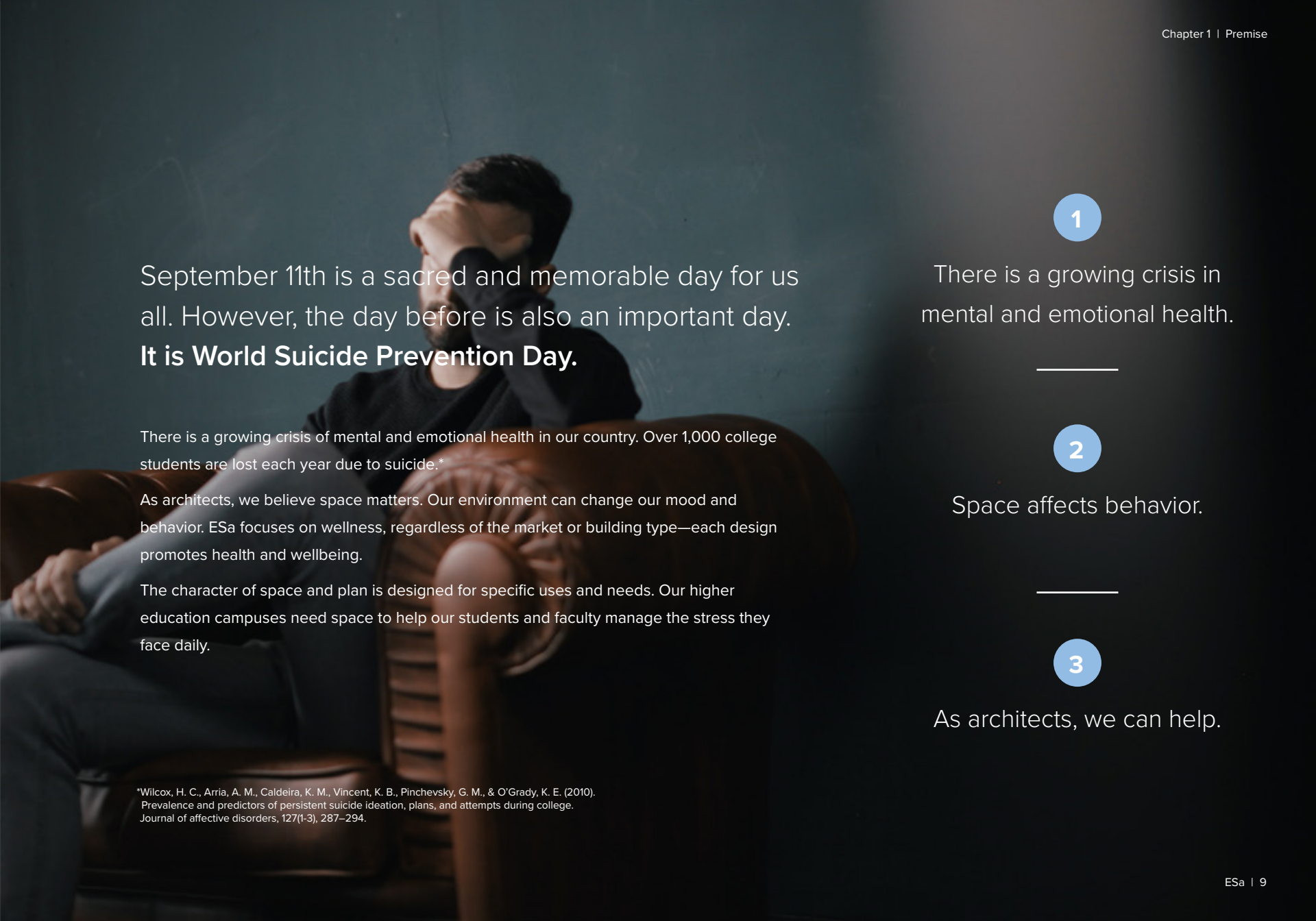




# Chapter 1

---

Premise



September 11th is a sacred and memorable day for us all. However, the day before is also an important day.  
**It is World Suicide Prevention Day.**

There is a growing crisis of mental and emotional health in our country. Over 1,000 college students are lost each year due to suicide.\*

As architects, we believe space matters. Our environment can change our mood and behavior. ESa focuses on wellness, regardless of the market or building type—each design promotes health and wellbeing.

The character of space and plan is designed for specific uses and needs. Our higher education campuses need space to help our students and faculty manage the stress they face daily.

\*Wilcox, H. C., Arria, A. M., Caldeira, K. M., Vincent, K. B., Pinchevsky, G. M., & O'Grady, K. E. (2010). Prevalence and predictors of persistent suicide ideation, plans, and attempts during college. *Journal of affective disorders*, 127(1-3), 287–294.

1

There is a growing crisis in mental and emotional health.

---

2

Space affects behavior.

---

3

As architects, we can help.



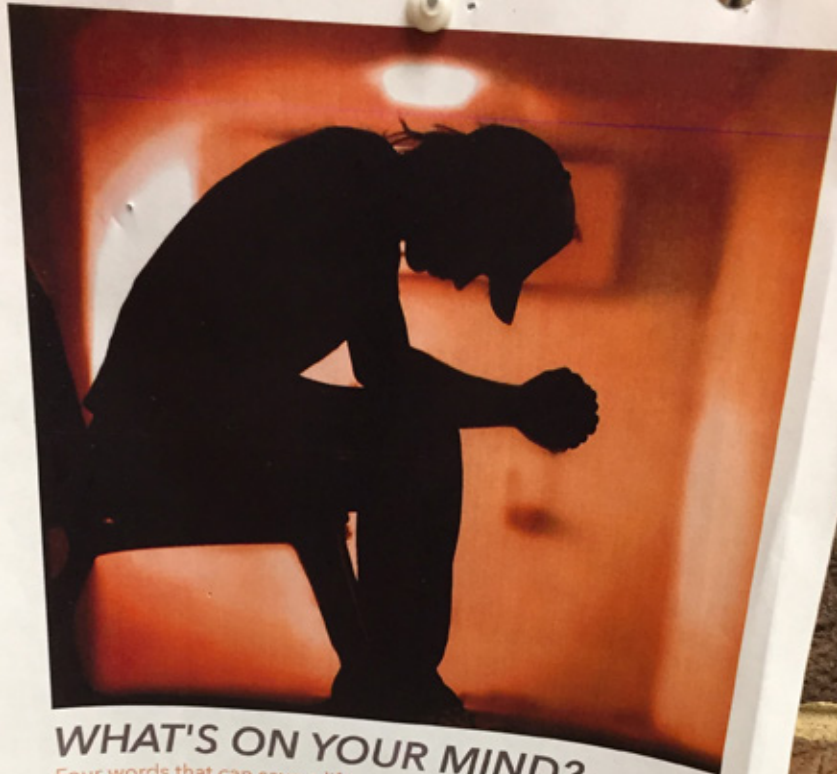
# Real Life Observations

Wendell Brown, AIA  
Principal, ESa

## 1

My colleagues and I just arrived at the annual fundraising event. We saw the college president and headed his way. As a natural greeting, I said, “Hello, how are you?” Without exchanging pleasantries, he responded, “We have a mental health issue with our student body. We have one student suicide and others that are struggling.”

At that moment, I knew this was a national crisis. His concern for his students was so much at the forefront of his mind, he could not even say hello without sharing his frustration. This issue is not contained to one campus or one city, but unfortunately is a crisis for us all.



**WHAT'S ON YOUR MIND?**  
Four words that can save a life.

Suicide Awareness and Prevention Training

Where: Room 120

When: Wednesday 27th April

88Q/Burgers (Weather Permitting)

APPROVED  
STUDENT ACTIVITIES



---

## 2

As I walked down the grand corridor of the student center on my way to a meeting, I glance over and see this flyer. It is not an announcement for sorority pledges, football tickets, a ride home over fall break, or even a class schedule change – it is a suicide prevention poster.

Our student's mental and emotional health is so fragile, that students, and faculty, are encouraged to interact with one another just to be sure we stay healthy and safe. I applaud the effort and I encourage the interaction. This was another sign to me of how prevalent this crisis is across our country.

---

## 3

While visiting our son during parents weekend, we toured his favorite hangouts. I could not help but notice a young lady, visibly upset, talking with a loved one on a cell phone. She was at the end of the hall sitting in an alcove, far removed from her roommate or peers at a student lounge. She was seeking guidance and reassurance, as she tearfully pleaded for help through the phone. We tried to give her privacy. As an architect, I knew we could give her better space to emotionally reconnect.

# Chapter 2

---

## Evidence

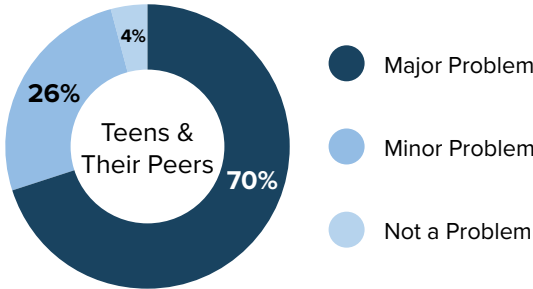


# Mental Health & Well-Being

## Mental Health



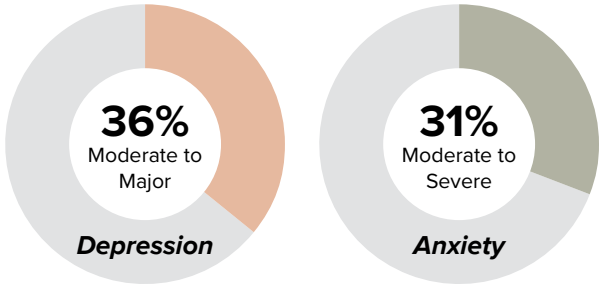
National Alliance on Mental Illness



Source: Pew Research Center "Survey of US Teens ages 13-17 conducted Sept 17-Nov 25, 2018, Most US Teens See Anxiety and Depression as a Major Problem Among Their Peers"

### Healthy Minds Study

Survey of 300,000+ Students at 300 Colleges/Universities



Source: Eisenberg D, Lipson SK, Ceglarek P, Phillips M, Zhou S, Morigney J, Talaski A, Steverson S., The Healthy Minds Study: 2018-2019 data report. Ann Arbor: University of Michigan.

## Common Mental Health Challenges of US College Students



Source: <https://www.bestcolleges.com/resources/top-5-mental-health-problems-facing-college-students/>

## Well-Being

The holistic concept of well-being encompasses all aspects of an individual, including body, mind and spirit. Addressing students' well-being requires a multi-faceted campus approach that includes creating a supportive campus culture and an environment that promotes wellness.

**By creating an environment focused on students' well-being, higher education campuses can better address the growing concern over students' rising mental health issues.**

Source: National Academies of Sciences, Engineering, and Medicine. (2021). Mental health, substance use, and wellbeing in higher education: Supporting the whole student.



# Architecture & Human Behavior

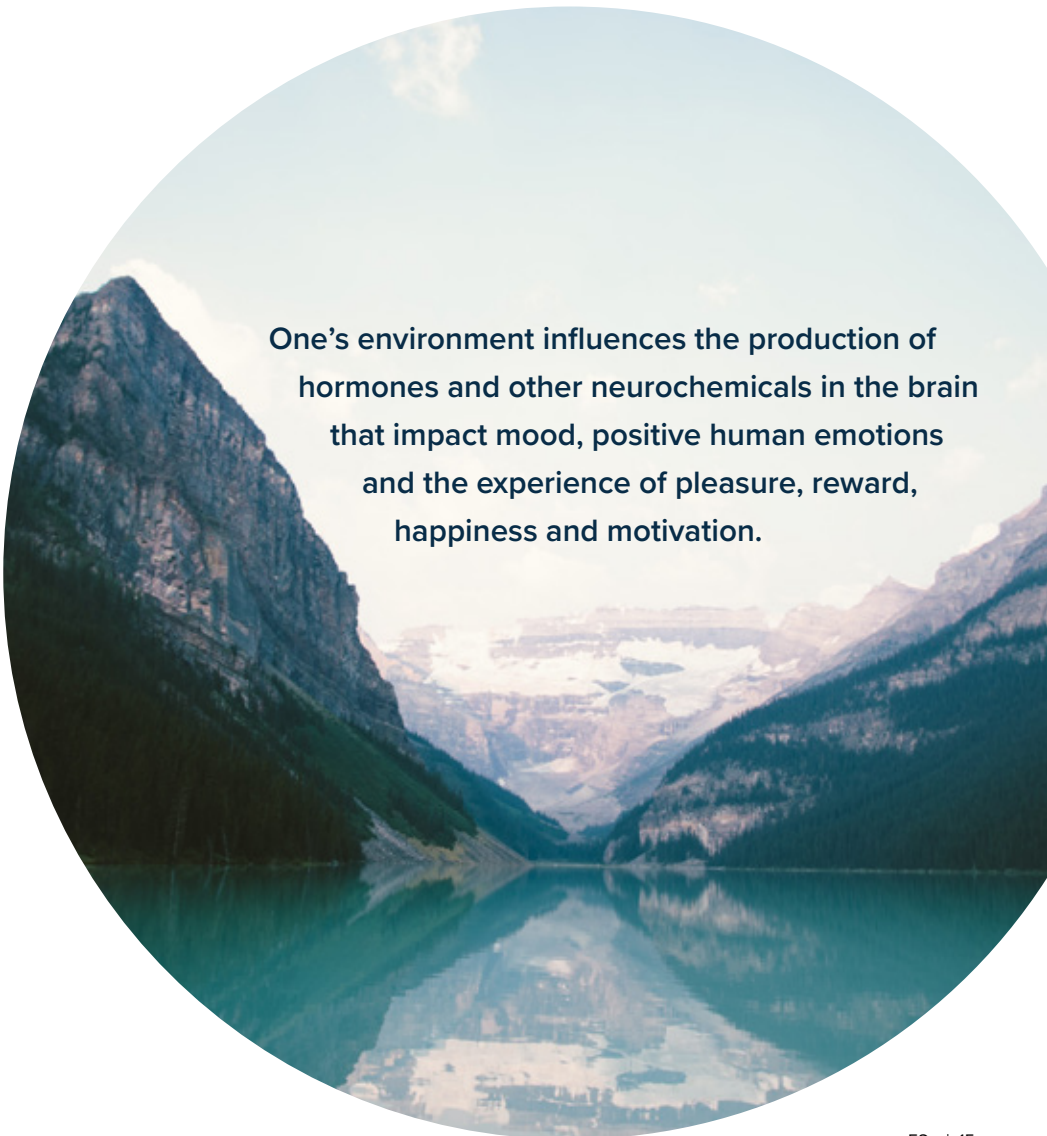
Architecture influences human behavior and stimulates emotional responses - ideally having a positive impact on mood and encouraging activity and social interaction.

Individuals continuously interact with the built environment. Responses to architecture can be realized immediately through the senses, or they may occur over longer periods of time through experience and interactions with spaces.

As designers of educational environments, we strive to create spaces that nurture students, stimulate positive emotional responses and encourage pleasurable experiences, interactions and activities within those spaces.

Source: de Paiva, Andrea & Jedon, Richard. (2019). Short- and long-term effects of architecture on the brain: Toward theoretical formalization. *Frontiers of Architectural Research*.

Source: Alexander, R., Aragón, O. R., Bookwala, J., Cherbuin, N., Gatt, J. M., Kahrilas, I. J., & Styliadis, C. (2020). The neuroscience of positive emotions and affect: Implications for cultivating happiness and wellbeing. *Neuroscience & Biobehavioral Reviews*.

A circular image showing a majestic mountain range with a calm lake in the foreground. The mountains are reflected in the water. The sky is a soft blue with some clouds. Overlaid on the right side of the image is a block of text in a dark blue font.

**One's environment influences the production of hormones and other neurochemicals in the brain that impact mood, positive human emotions and the experience of pleasure, reward, happiness and motivation.**

# Hormones

“Hormones are chemicals that coordinate different functions in your body....  
These signals tell your body what to do and when to do it.”

Cleveland Clinic Health Library: <https://my.clevelandclinic.org/health/articles/21201-endocrine-system>

## Dopamine

Also known as the “feel-good” hormone, dopamine is a hormone and neurotransmitter that’s an important part of your brain’s reward system. Dopamine is associated with pleasurable sensations, along with learning, memory, motor system function and more.

## Serotonin

This hormone (and neurotransmitter) helps regulate your mood as well as your sleep, appetite, digestion, learning ability and memory.

## Endorphins

Endorphins are your body’s natural pain reliever, which your body produces in response to stress or discomfort. Endorphin levels also tend to increase when you engage in reward-producing activities, such as eating, working out, etc.

## Make Time for Exercise

Regular physical activity can also increase your dopamine and serotonin levels, making it a great option to boost your happy hormones.

## Laugh with a Friend

According to a small 2017 study looking at 12 young men, social laughter triggered endorphin release.

## Cook and Enjoy a Favorite Meal with a Loved One

The enjoyment you get from eating something delicious can trigger the release of dopamine along with endorphins. Sharing the meal with someone you love, and bonding over meal preparation, can boost oxytocin levels.

Above passages quoted from: Raypole, Crystal. (September 30, 2019). How to Hack Your Hormones for a Better Mood. Healthline. <https://www.healthline.com/health/happy-hormone>.





# COVID-19

1,000% increase in emergency hotline for people in emotional distress.

Washington Post

45% of US adults state their mental health has negatively been impacted with worry and stress over the virus.

Kaiser Family Foundation

Modeling from the Great Recession:  
1% increase in unemployment = 1.6% increase in suicide rates.

Meadows Mental Health Policy

# Biophilic Design

Biophilic design creates opportunities for individuals to interact with nature and natural elements within the built environment. These interactions with nature positively impact an individual's physical and mental health and well-being.

Experiencing nature through biophilic design can be accomplished within the built environment

- **Directly–**  
Through access to natural light, water, plants and landscaping
- **Indirectly–**  
Via use of natural building materials, artwork, natural forms, colors and shapes
- **Through spatial connections–**  
In wayfinding and connecting interior spaces to adjacent interior spaces or outdoor views

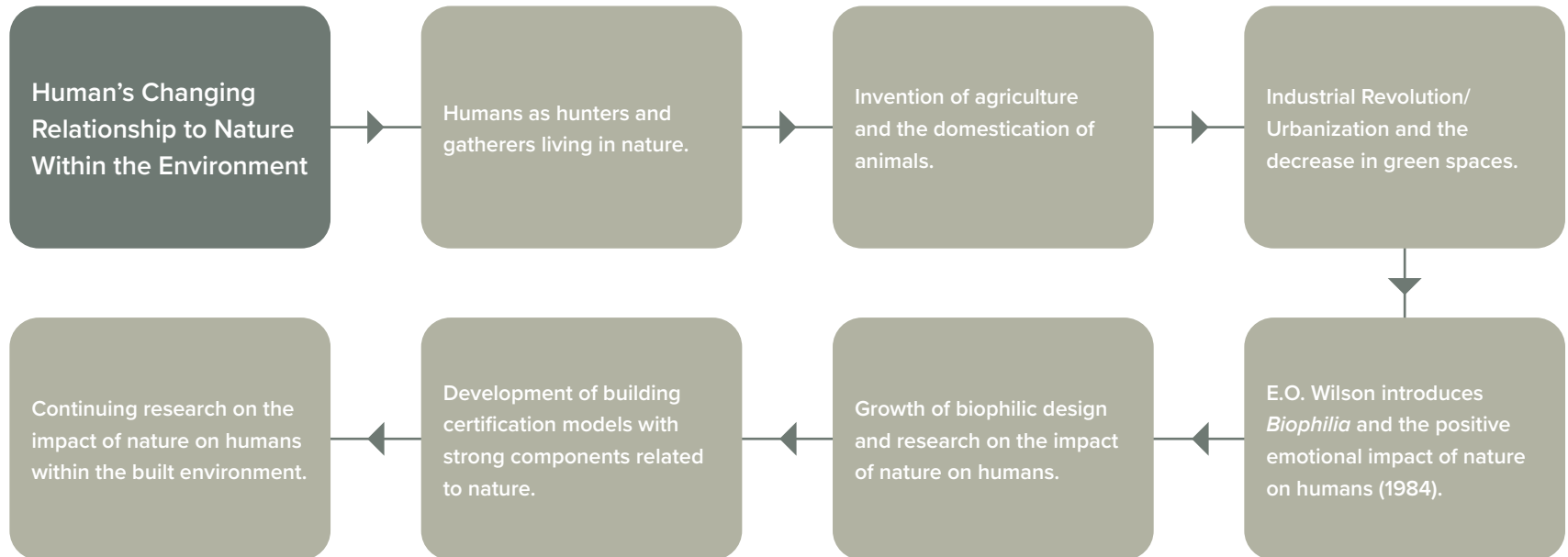
In more recent years, evidence-based design research has brought into greater focus the positive impact of nature and experiences with ties to nature.

Studies conducted in a variety of settings, including education, workplace and healthcare environments, have identified positive benefits of exposure to nature, natural light and natural elements. These benefits include improved health outcomes (lowered blood pressure, decreased stress and pain), morale, motivation, performance and satisfaction.

Source: Barbiero, G., & Berto, R. (2021). Biophilia as Evolutionary Adaptation: An Onto- and Phylogenetic Framework for Biophilic Design. *Frontiers in psychology*, 12, 700709. <https://doi.org/10.3389/fpsyg.2021.700709>

Source: Kellert, Stephen R. (2018). *Nature by Design: The Practice of Biophilic Design*. Yale University Press.

Throughout time, humans have had a strong relationship with nature.



# Chapter 3

---

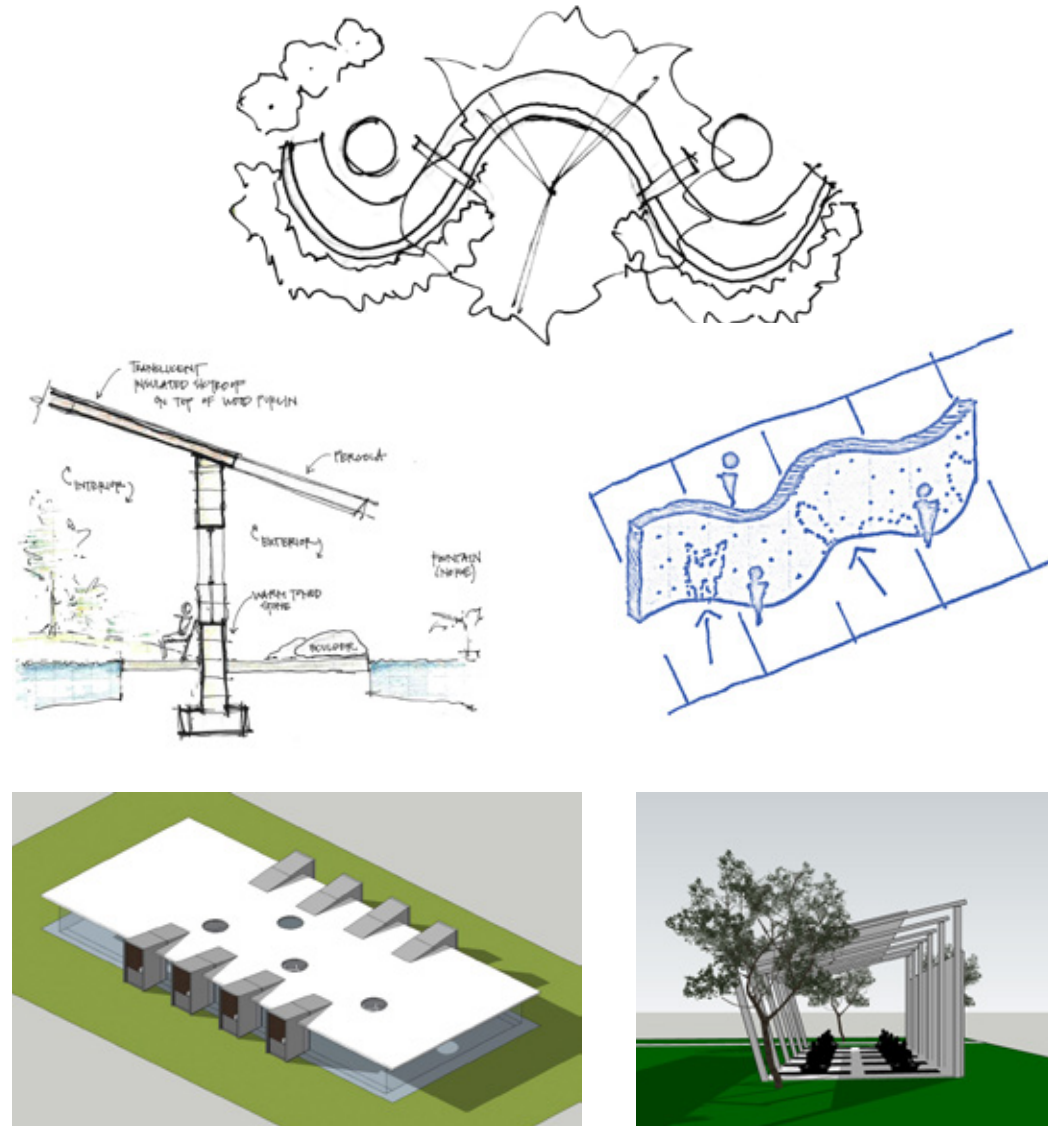
## Pavilions



As our team began this study, we envisioned a single “wellness center” with a variety of amenities and services within a large facility.

Talking through the challenges, we began to realize a one stop shop had limitations. First and foremost, it would need to be a destination facility. Students would have to plan to be there. This goes against the very nature of the problem of being overstressed. We soon realized the advantages of multiple, smaller pavilions spread across campus.

- Single destinations could be organically placed around campus.
- If you needed a refresher, one of the pavilions would be close by. You could stop in on your way back to your room or headed to class.
- The smaller footprints allow development between buildings rather than a strategic master plan.
- Implementation can be piecemeal and phased across several years.
- Funding is easier to secure and each would provide a naming opportunity.



# The Harvest Pavilion

In the pursuit to create architecture that promotes student wellness, there are many different strategies we can take.

For this study, there is a desire to create a pavilion that can touch many aspects of wellness. The reimagined “Wellness Wheel,” developed by Clarion University, establishes seven domains for wellness: physical, social, environmental, financial, spiritual, emotional and intellectual. How can a single campus building enhance all of these aspects of the wheel?

Two of the most essential destinations for the student community are the traditional campus quad and the main dining hall:

## 1. The Quad

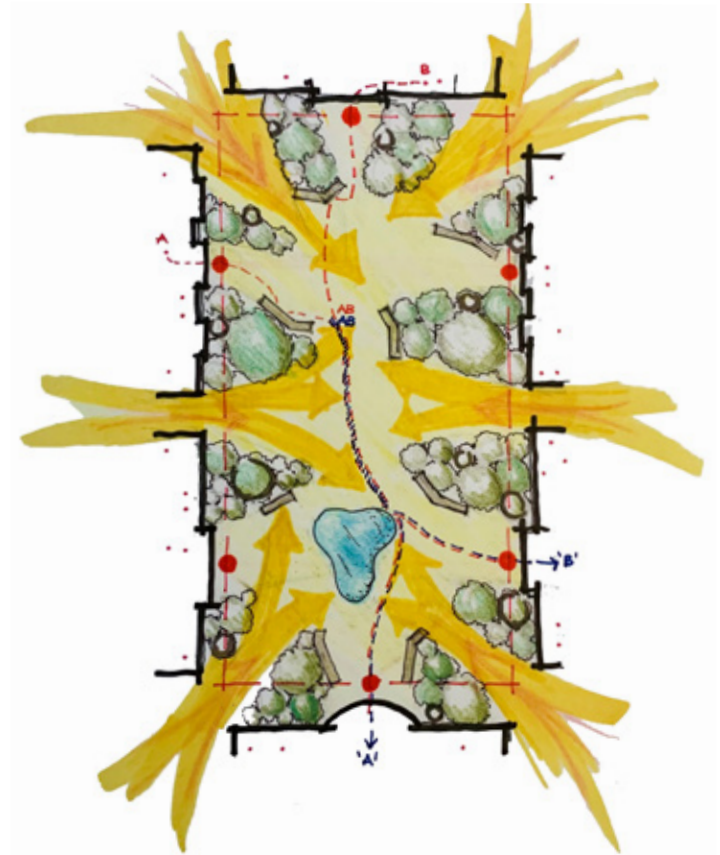
Because of its natural open space, which improves our physical well being, and as the center of campus activity, it encourages informal social interaction amongst the student body.

## 2. The Dining Hall

For its communal aspect of simply sharing a meal with others.

However, these two campus essentials can become more—the Quad, as natural open space, can become active gardens, rich soil beds and arable farmland. The dining hall, as the social center of campus, can become a food hall focused in healthy eating as well as an education space for the sciences and culinary arts. Just as a traditional greenhouse works for the natural environment, this Pavilion creates the optimal environment for student health through the cross-pollination of these additional programs.

**This is the Harvest Pavilion.**



“A campus quadrangle is essential to the college campus experience. It is often considered the university’s face—the part of campus that defines the institution’s aesthetic and charm.”

“The 50 Most Beautiful Campus Quads”  
<https://www.collegerank.net/beautiful-campus-quads/>



The original "Wellness Wheel" ©1976, developed by Bill Hettler, MD, Co-Founder of the National Wellness Institute.



The reimagined "Wellness Wheel," developed by Clarion University, which is used for this concept design.

## Wellness Wheel Concepts and The Pavilions



### Physical

The pavilion provides healthy foods encouraging students' physical wellbeing through clean eating and consumption. Through the active farming and harvesting process, the pavilion's programs encourage physical exercise and activity.

### Environmental

The pavilion uses renewable resources and operates through sustainable methods; using solar energy, water collection, gardening, hydroponics and other efficient strategies to encourage global health and agriculture. Through the pavilion's landscape and farmland, students have a direct connection to nature and the environmental process.

### Intellectual

The pavilion provides education space for an intentional curriculum. This curriculum would be focused towards sustainability methods, agricultural sciences and the culinary arts. Programs may include hydroponics, aquaponics, life sciences, food production and processing, urban farming, and culinary instruction and entrepreneurship.

### Social

The pavilion is also the new dining hall. The dining hall serves as the center of community building for campus. The pavilion is the nucleus of social interaction and encourages students to interact with their peers through the sharing of meals.

### Financial

The pavilion will complement the institution's dining plans, working with each student's financial burdens. The pavilion is to also provide opportunities for student workers to run the kitchen, the gardens and the farmland.

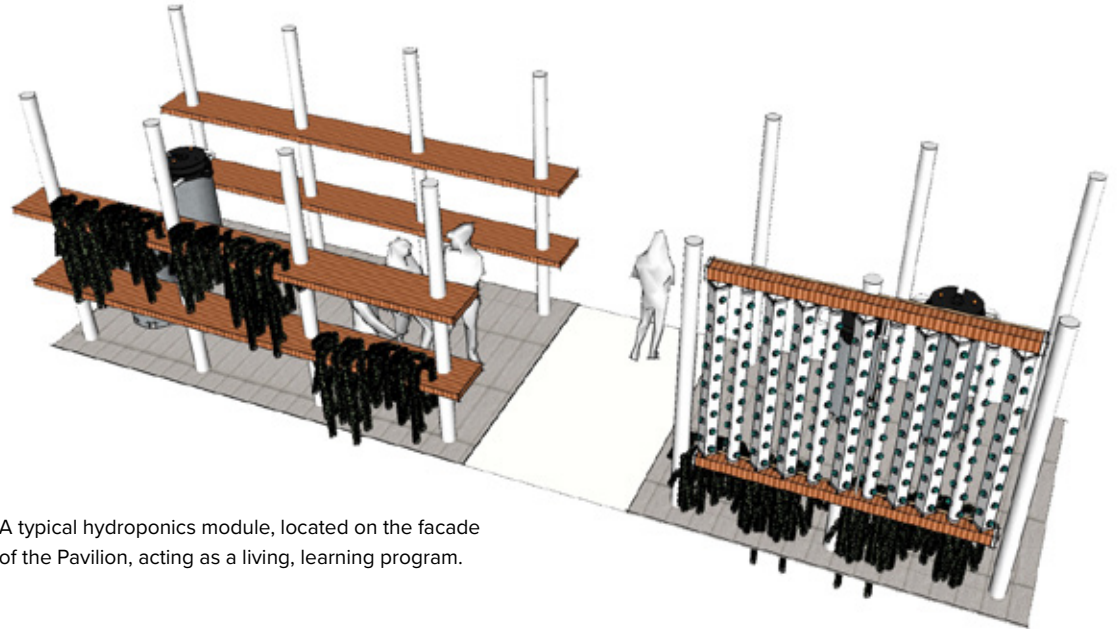




“Social eating clearly plays a key role in the development of community life and the happiness of individuals within that community... sharing food can help strengthen community bonds”

“...people who eat socially are more likely to feel better about themselves and to have a wider social network capable of providing social and emotional support...”

“Breaking Bread: the Functions of Social Eating”  
Peter Stewart, Executive Director of the Eden Project;  
Prof. R.I.M. Dunbar, Department of Experimental Psychology, University of Oxford



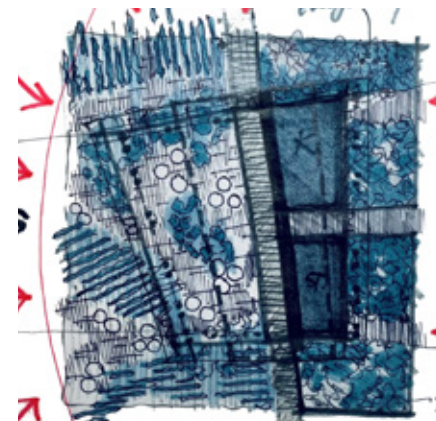
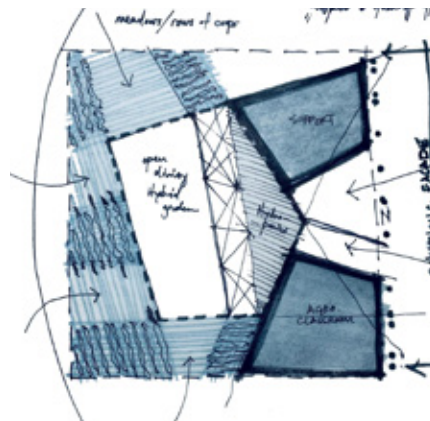
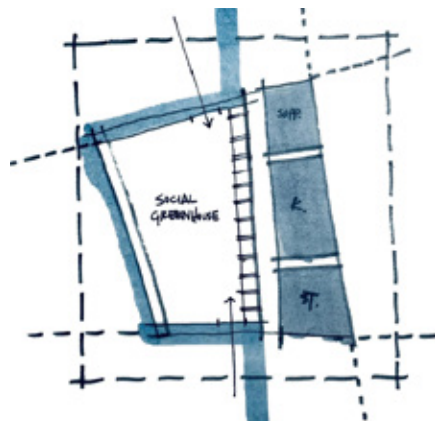
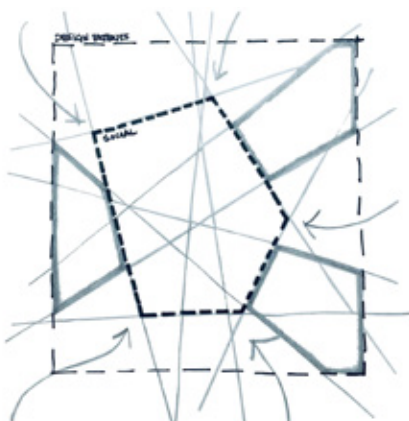
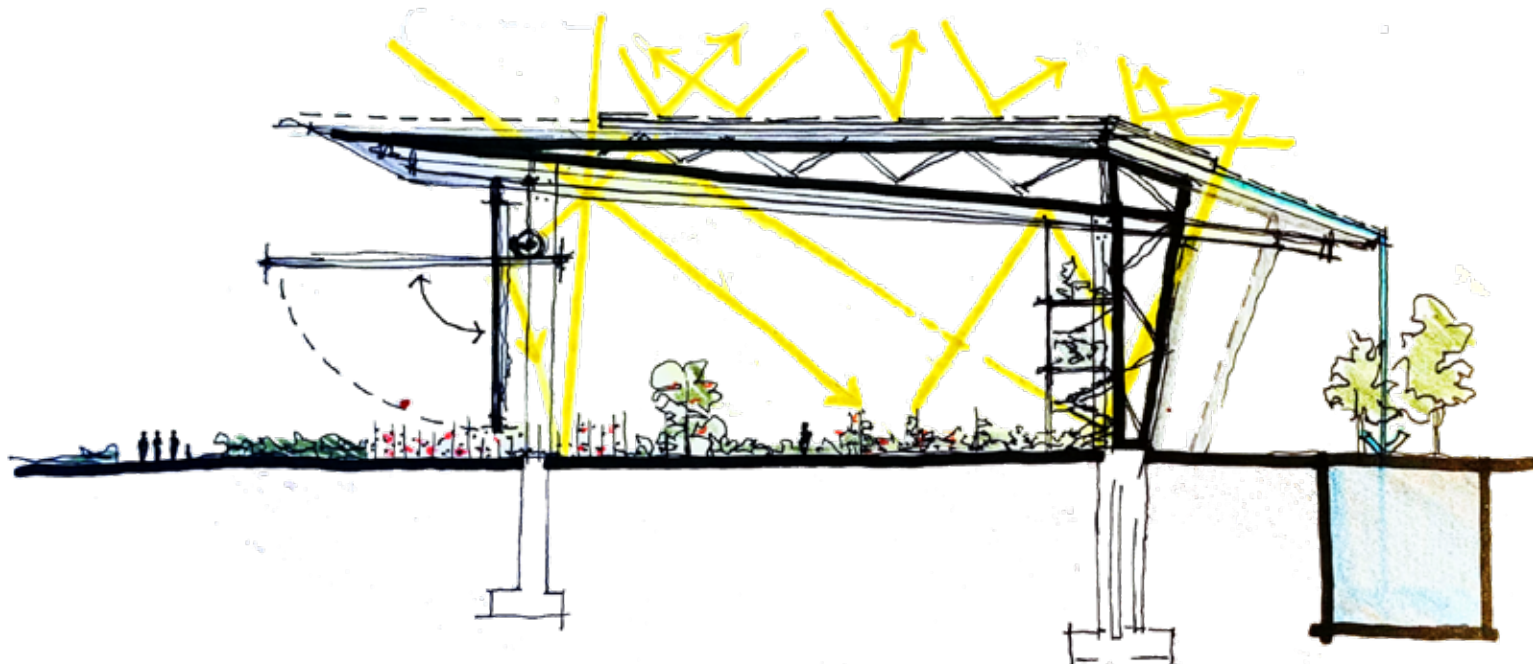
A typical hydroponics module, located on the facade of the Pavilion, acting as a living, learning program.

A student's daily journey begins with interaction of the natural environment once they leave home; then through either class or possibly eating a meal, they are immersed in the social experience on campus.

The Harvest Pavilion exists between these thresholds.



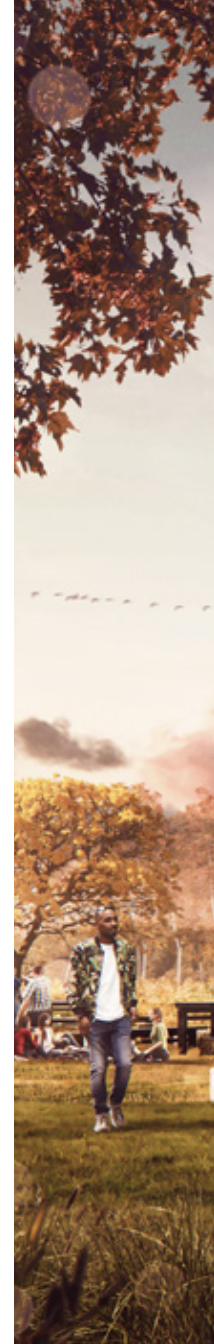




Below: A view into the dining space, as one is immersed within the gardens and farmland.



Right: A view of the main elevation.















Left: A view inside the hydroponics module.

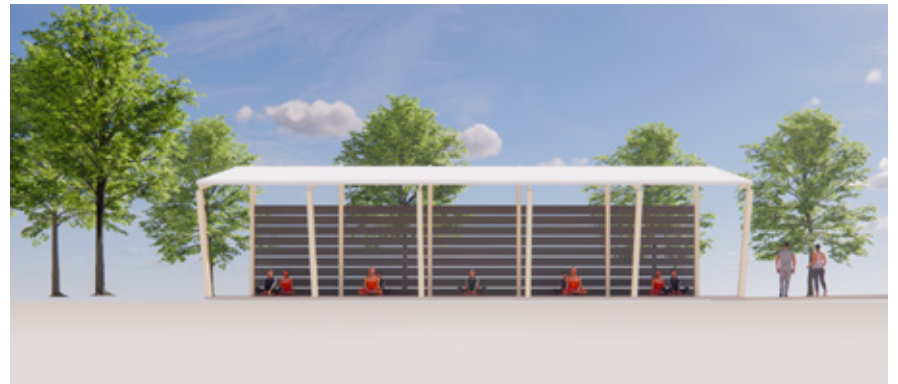
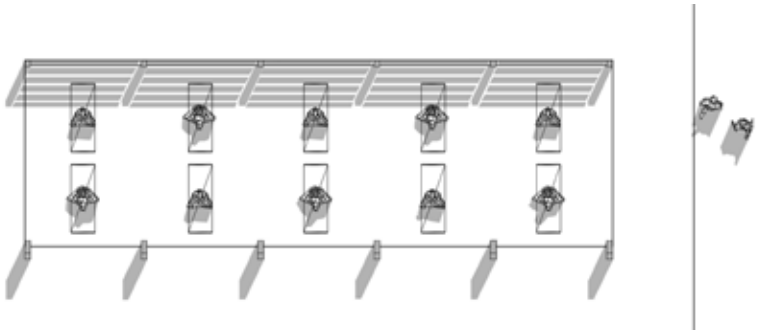
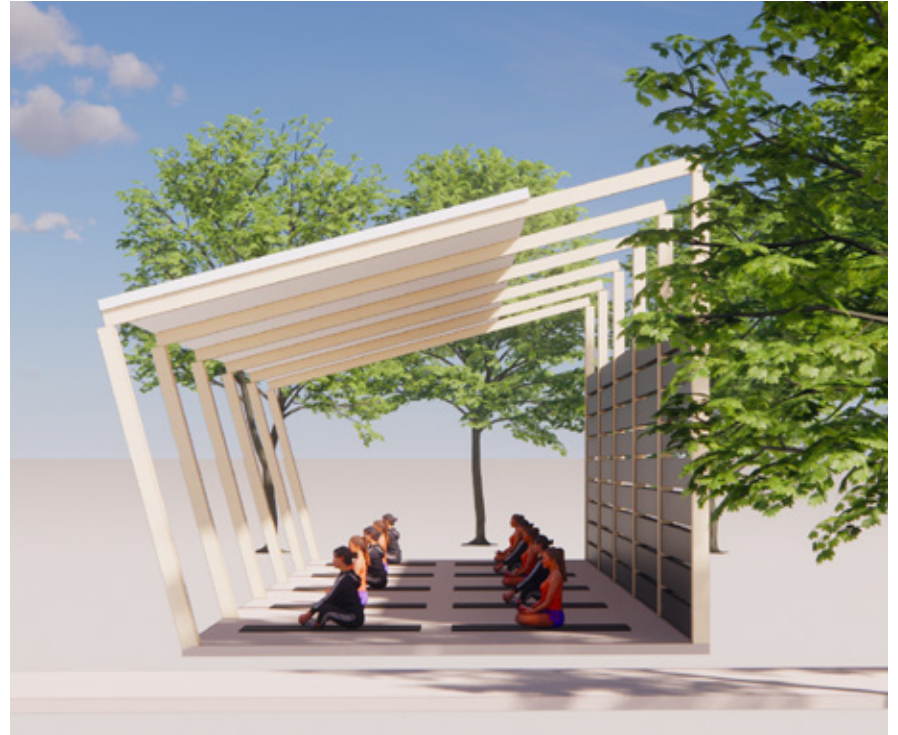
Above: A view from the gardens, crop fields and farmland.

## Pavilion 2

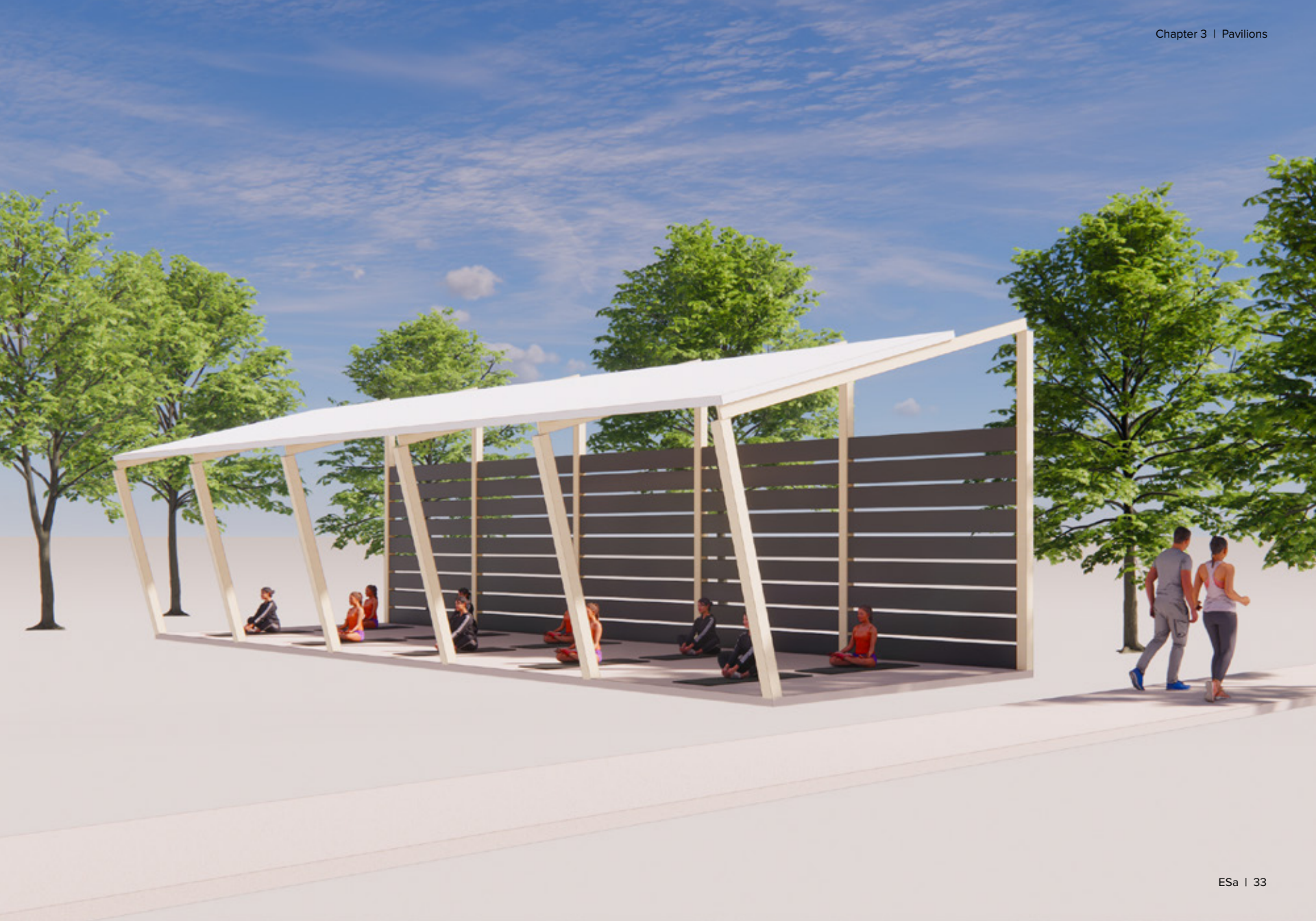
# The Exercise Pavilions

Architecture and exercise can encourage coping in a healthy way.

Design that is integrated into the natural landscape provides a chance for fresh air, sunshine and retreat. A multi-use pavilion creates a space for students to meditate, group exercise, or gather outside of the confines of formal campus design. This pavilion is a blank slate, intended to be activated by its users, in whatever manner is most essential.





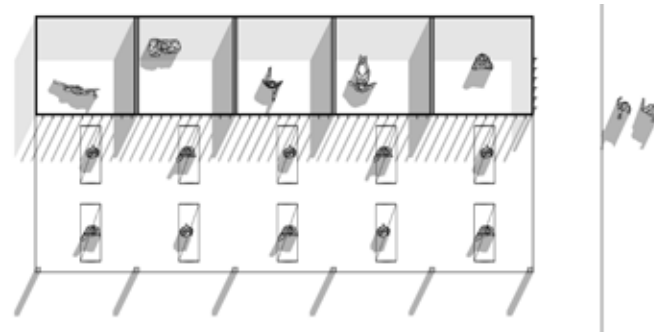








Architecture and exercise each yield varying levels of **public and private use or interaction**. Well-designed spaces can create opportunities for both of these purposes. Open, flexible group space encourages social interaction to enhance one's mood. Individual, elevated spaces provide respite without isolation or disengagement from others. The two can blend harmoniously, promoting enhanced mood and energy.

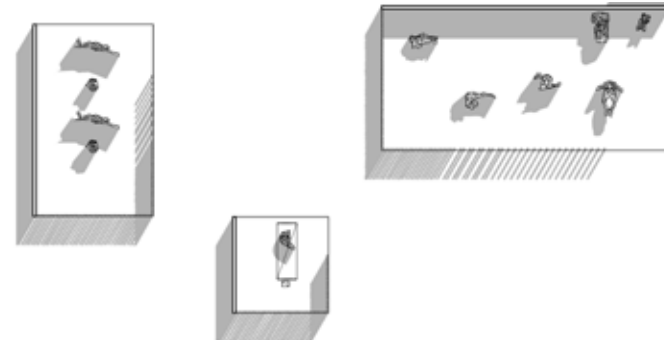








Architecture and exercise are each adaptable. Individual preference and comfort are encouraged and celebrated by a community of designed pods. Scalable and light, these spaces offer both choice and varying degrees of privacy. Imagine these communities sprinkled about campus, allowing convenient access and spontaneous student assembly.



# The Arts + Music Pavilion

Creating art to energize the spirit.

Art therapy has been defined as “an integrative mental health and human services profession that enriches the lives of individuals, families and communities through active art-making, creative process, applied psychological theory, and human experience within a psychotherapeutic relationship.”<sup>1</sup>

The Arts + Music pavilion is designed to facilitate art therapy through a variety of scales and activities. It is connected to a major pedestrian artery to encourage interaction with the campus. The pavilion is simultaneously creation and exhibition through spaces on two levels that allow for self-discovery in artistic production. The first level is a series of smaller pods that can be for an individual, an individual + therapist, or a small group.

These intimate spaces are quiet and meditative. One can experiment and create art in a safe, private environment.

The second level presents itself to campus by cantilevering over the pedestrian path and incorporating a large monumental stair. The second level is mostly open, a framework for larger artistic productions, with different zones that could facilitate sculpture, dance, music mand group art therapy sessions. The architecture invites the public to enter and experience the artistic energy as an observer or alternatively, to slow down and participate in this process.

<sup>1</sup> <https://arttherapy.org/about-art-therapy/>

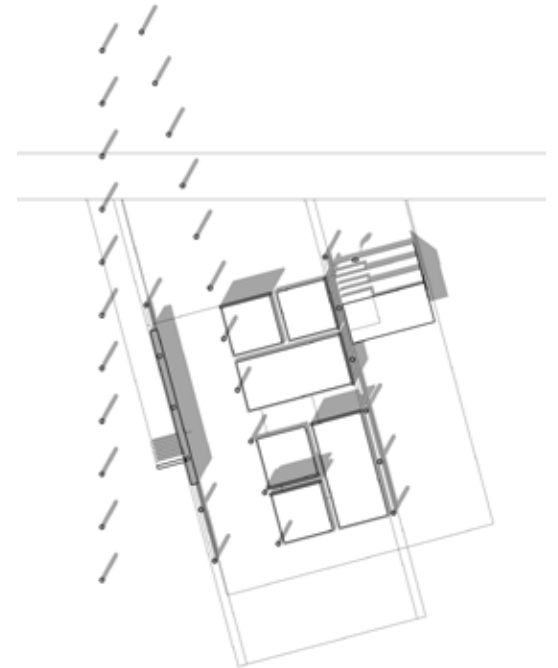






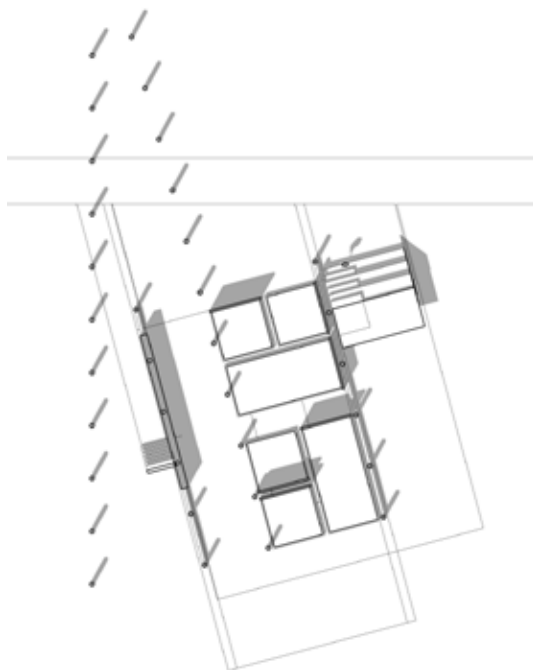


Connection to campus



First Level





Second Level



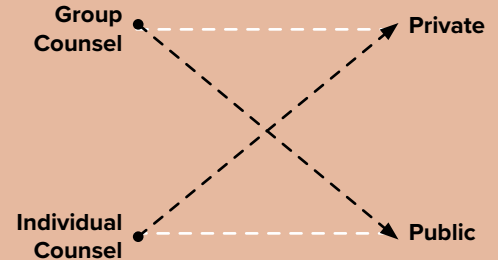
Studios

# The Counsel Pavilion

Placing mental health in the foreground and celebrating the benefits of counseling.

The origins of counsel and mental health date back to Ancient Greece. Ancient Greek culture is credited as one of the first to recognize and consider mental illness as a medical condition. One of the first built settings for counsel was the Greek bouleuterion. It took the shape of either a circular or square seating gallery with multiple tiers. Here, public matters were discussed and conferred. Medieval culture demonstrates value placed on congregation and counsel as well as evidenced through Arthurian legend's round table. The round table hosted King Arthur's knights; a setting implicating equal status as the circular form has no head.

As mental health and wellness continues to be a priority in modern culture, this investigation proposes a physical space for the facilitation of both private and public counsel within the context of higher education. The primary space of the pavilion houses multiple circular chambers, both public and semipublic, for discourse. The primary zone for public counsel is flanked by a porous corridor that separates public counsel from private counsel. Private counsel rooms provide a space for a narrowed focus on student wellness. These rooms are intended to relieve and heal a disorder or simply provide a space for catharsis. Although private, these rooms play a critical role in the form of the pavilion as they are legible from the exterior. Both the formal expression of these rooms and the adjacency to the public counsel areas are intended to demystify private counsel.













Arthurian round table



Ancient Grecian counsel



## Public Counsel

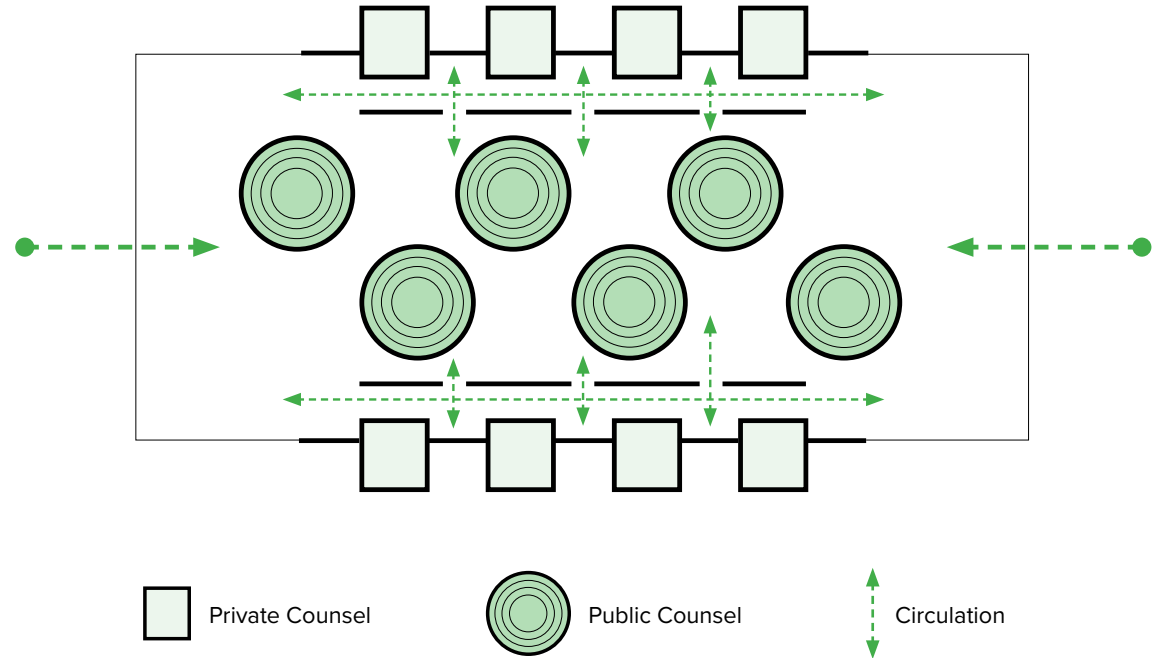
Definition of public counsel space is articulated through a change in the ground plane. By sinking these zones, semi privacy is achieved. Multiple spaces are organized in an organic pattern to facilitate interaction and conversation. Wood louvers are offered on select spaces for an added layer of semi privacy.







Plan Diagram



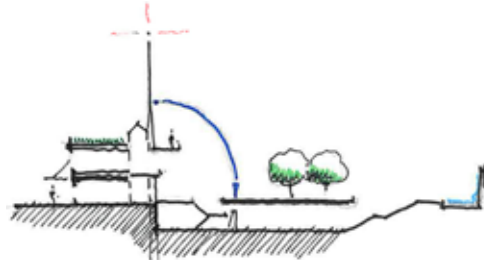
## Private Counsel

Proportion and materiality in private counsel spaces are intended to provide comfort, leveraging warmth and comfortability as demonstrated through popular culture. These spaces offer natural light and volume while maintaining visual privacy.

## Pavilion 5

# The Respite Pavilion

Creating a place to decompress and re-energize.



Do you need a place to get away? Do you need privacy to call home or a best friend? Do you need to relax, decompress and take a moment for yourself? This Pavilion is designed to provide a safe place, and place for mental and emotional healing. A place to meditate and re-energize.

College, and life in general, can take its toll. Campus can be a bucolic setting, but the stress of living on your own – with extreme pressure to succeed – can burden the strongest of us all.









## Lower Floor

### **Semi-Public**

Meditation Rooms

Private Courtyard

Floater Therapy Rooms

## Main Floor

### **Public**

Concierge

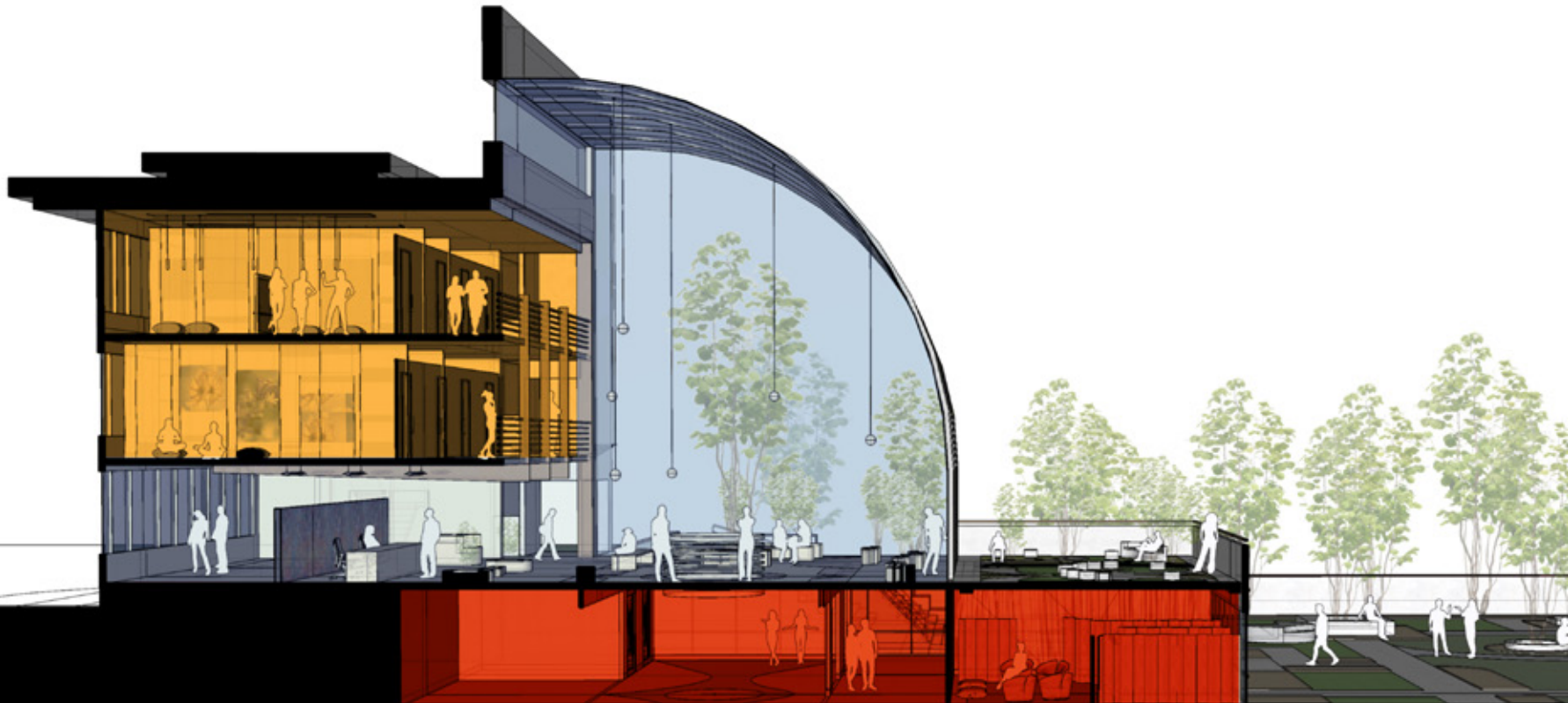
Conservatory

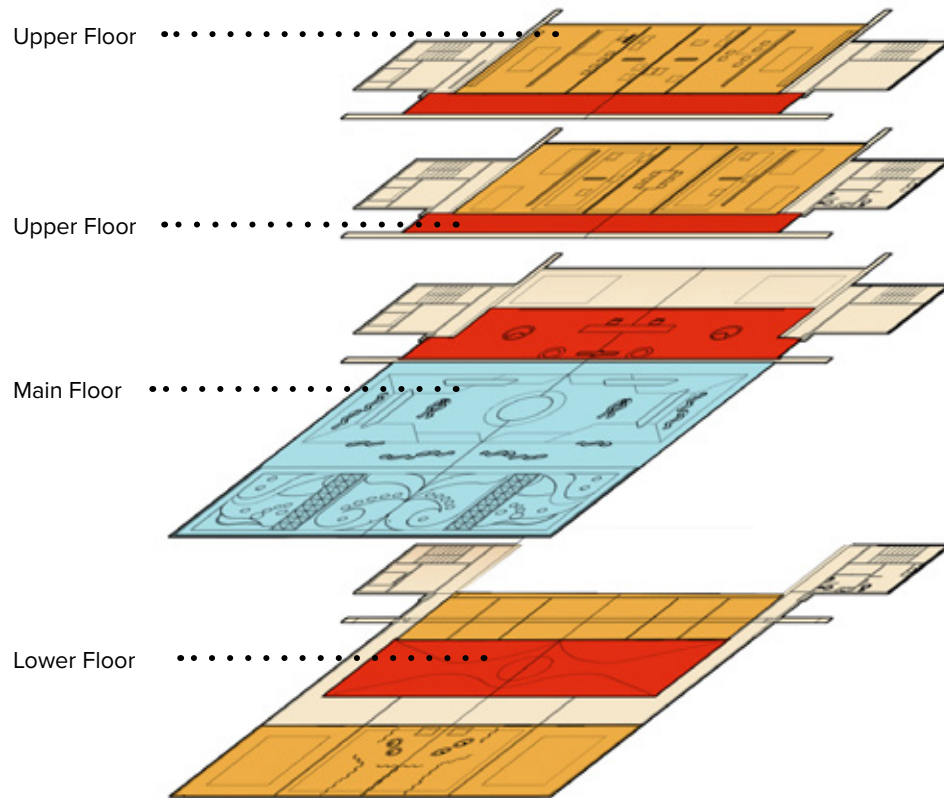
## Upper Floor

### **Private**

Privacy Rooms

Music and Aromatherapy









Depending on your mood, the pavilion provides zones ranging from private to semi-private to public.



Getting back to nature; a place to relax and rejuvenate; a shelter for solace.



A place to reflect, decompress, refocus and nourish yourself.







# The Social Intersections Pavilion

Relationships encourage, nurture and buoy us through challenging times.

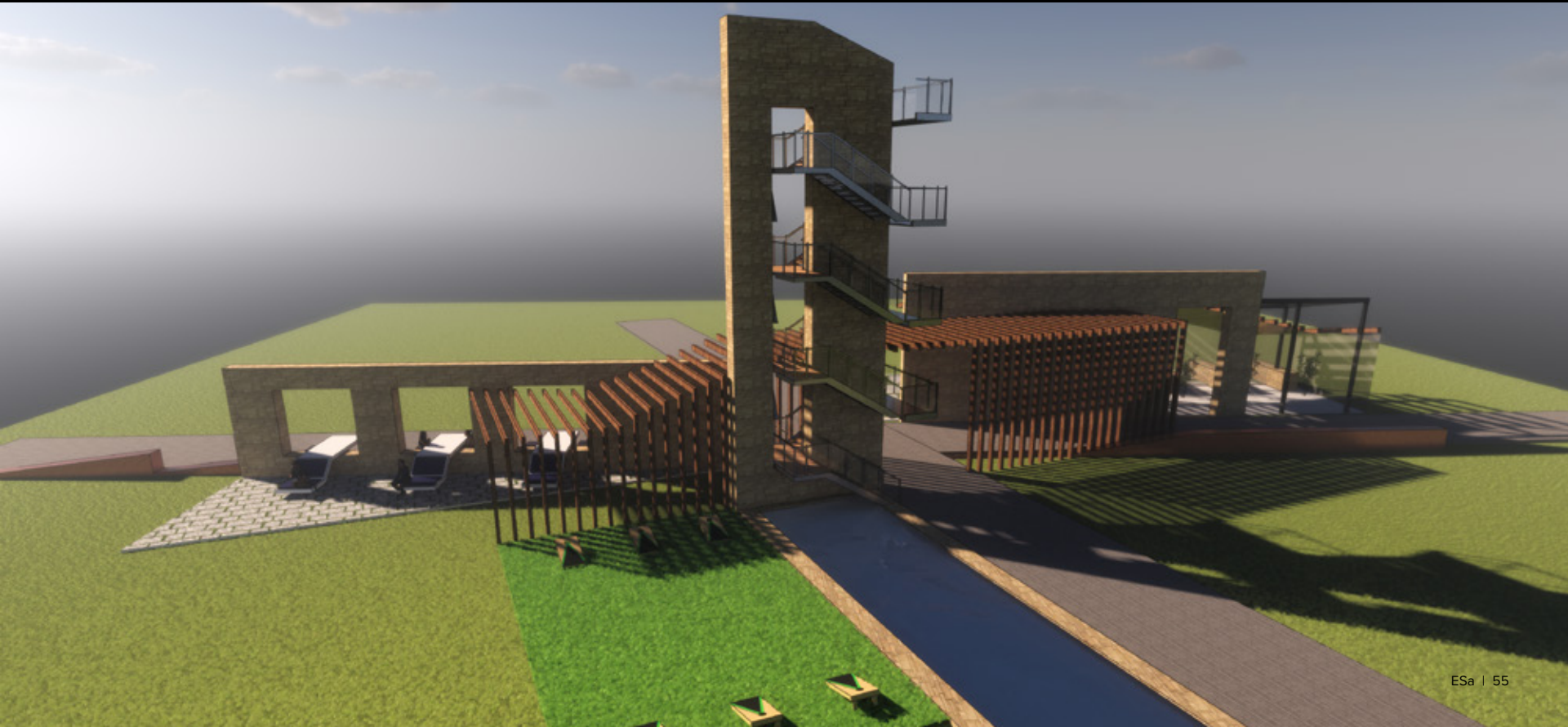
People are drawn to intersections. Whether it is establishing a country store at the intersection of two roads, or a settlement naturally forming at the confluence of two rivers, history shows us the importance of intersections to our social wellbeing.

People are social by nature, and social interactions are most likely to occur where multiple paths collide. Intersections are also something that occur on every campus, and these junctures should be celebrated and utilized to benefit the people who live there. The social intersections pavilion is designed to engage people in multiple ways. A pavilion of this type can be tailored to a site or used as a kit of parts to provide missing activity opportunities in the area.

How do we socialize? Social interactions are often centered on a shared activity. Games, food and drink, crafts and creative activities are all ways that we relax and socialize together. The Central Park chessboards are a great example of a simple resource that supports and encourages people to linger. “Together alone” is sometimes preferred, where folks can be around other people but not necessarily engaging directly with them.



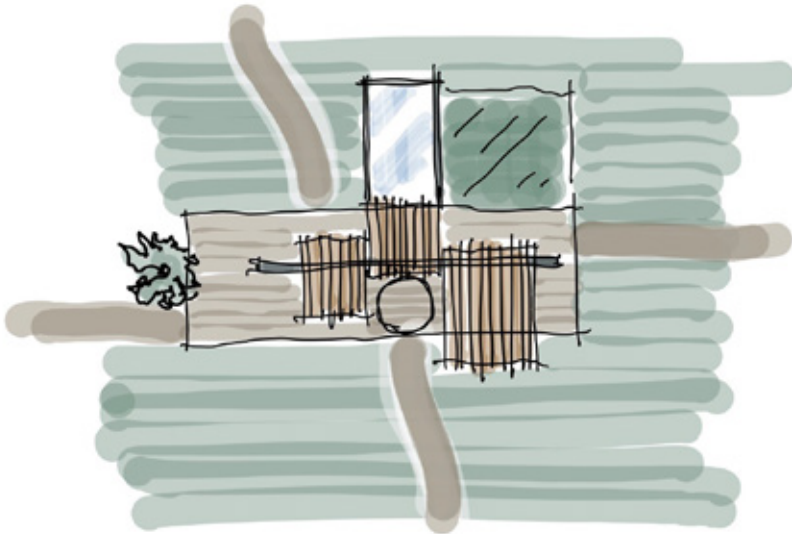




The social interactions pavilion is designed to support this variety of activities. Shade is provided at the intersection itself, giving respite from the sun to allow people to stop and talk in comfort. A reflecting pool adds a peaceful spot for introspective contemplation.

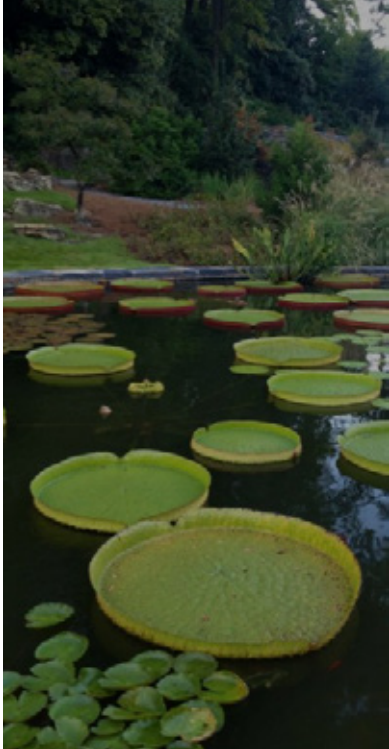
Tables to stop and have a quick lunch with a friend or play a card game are provided to one side. A game vending machine could rent games for an hour. A tapered sitewall extends outward, providing a spot for a skateboarder to practice a grind. A tower beckons you to climb and catch a view with a friend. A series of chaise lounges give a great spot to relax in the sun. A patch of turf to one side could host a cornhole tournament or a yoga session.







# Landscape Connections



## Water

Reflectivity  
Movement  
Sound Qualities  
Thermal Qualities



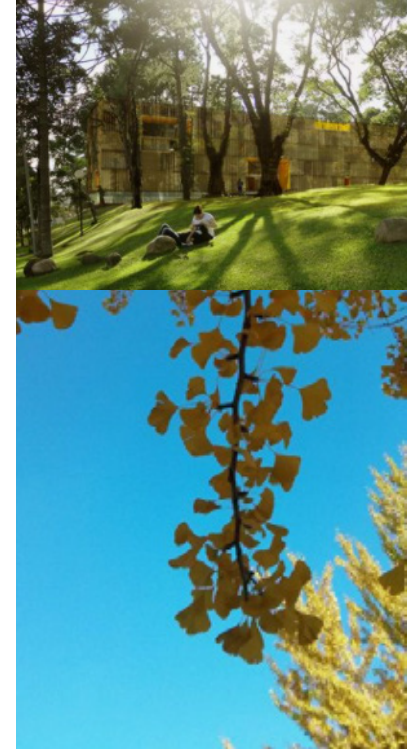
## Plantings

Native Species  
Low Maintenance Perennials  
Visual Variety



## Stone

Pathways  
Seating  
Groundcover



## Trees

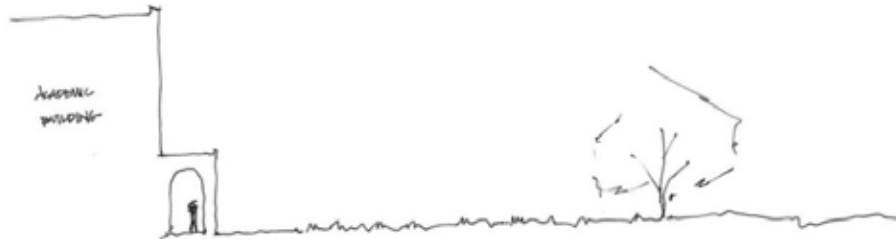
Seasonal Variety  
Shade Cover  
Wind Buffer  
Thermal Qualities



Dense campus & prominent building presence.



Architecture connecting the outdoors.

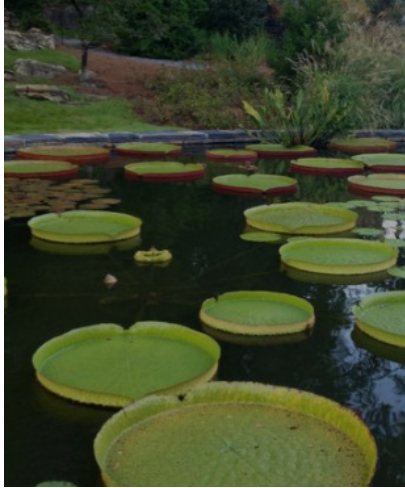


Medium density campus with lawn.



Landscaping that creates more human scale & intimacy.





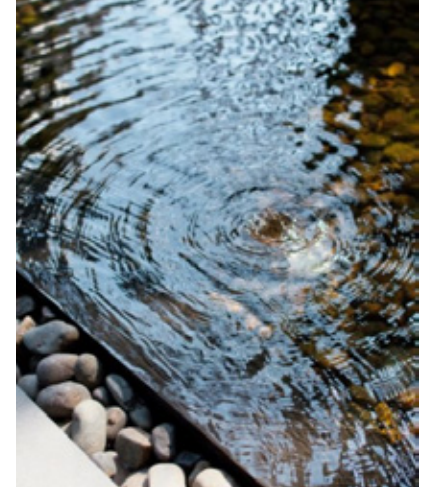
Thermal Qualities



Movement + Play



Reflection



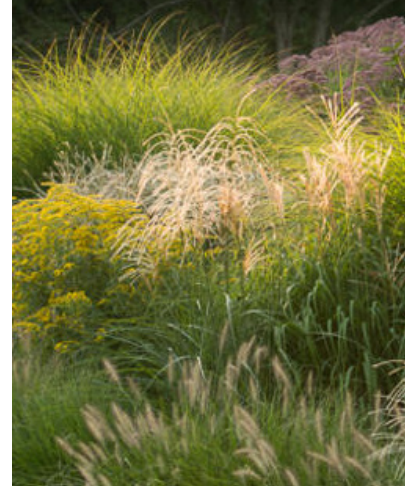
Sound Dampening



Seasonal Variety



Drought Tolerant



Native Grasses



Shade Garden

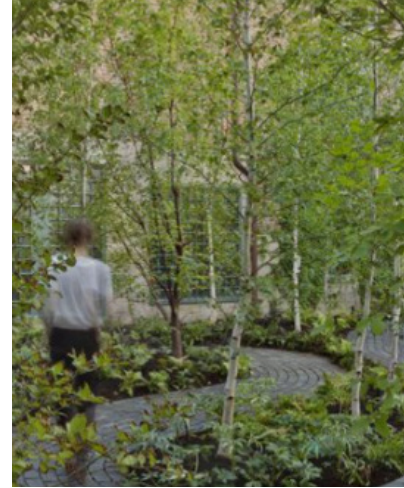




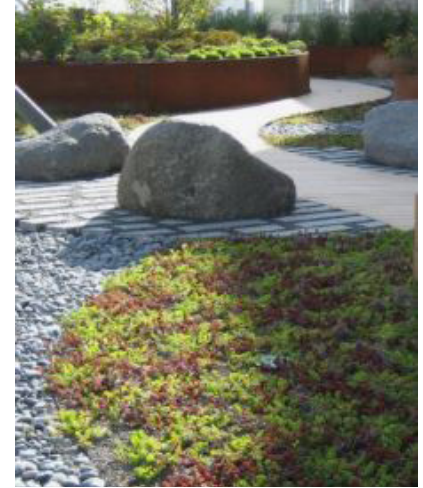
Interactive



Groundcover



Pathways



Seating



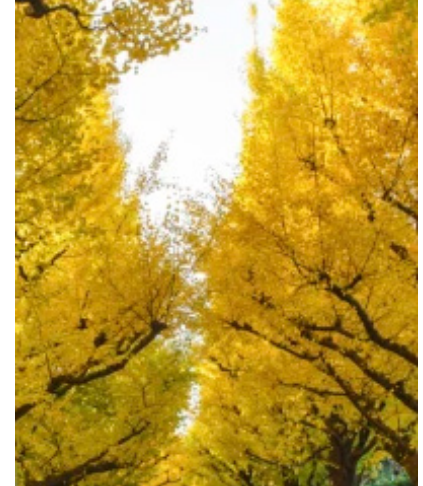
Soft Shade



Privacy



Flowering Trees



Color Variety

# Epilogue

---

Team



**Principal**  
Wendell Brown



**Research**  
Misty Chambers



**Marketing**  
Robert Grenfell

### Designers



Ben Metz



Phillip Powers



Diana Grigoryan



Ryan Terrell



David Berry



Macy Harvell



Ginny Webb

From October 2020 to October 2021, these dedicated professionals have added their time and talent to this important effort.





ESa

[esarch.com](http://esarch.com)