

# RESTORING THE WHOLE

## THE INNER SANCTUM

Restoration spaces that reduce stress in the urban  
environment

GISHA CHERIAN  
THESIS ADVISOR : ERIC B RYMSHAW  
THESIS 2019

DREXEL UNIVERSITY  
INTERIOR DESIGN, ARCHITECTURE AND URBANISM  
MS INTERIOR ARCHITECTURE

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# INTRODUCTION

Stress has become one of those invisible forces in one's everyday life that slowly makes its way to the body and mind and makes its presence and consequences known in the end. According to the American Psychological Association findings of 2017, 77% of Americans are constantly stressed about something or the other.

My thesis began with an idea based on an introspection on my own stress levels and how I went around dealing with it. As a student I realized there aren't spaces in the city that I lived in to destress or an environment that I'm comfortable relaxing in which would give me the privacy I require along with it. I tried to think about possible spaces that would help me destress and thus researched on stress in general and how much we required destressing spaces. I also realized that a new concept of wellness in the urban city life could be created and also that there was a potential to develop similar spaces in other cities that require destress spaces. With my thesis, I intend to create curated restorative experiences within a built environment in the urban setting that can help the end user to destress for shorter or longer periods of time depending on the experience they walk into.

My research investigated sacred buildings of the past and present along with natural/ biophilic restoration studies and found commonalities between them so that they could be used to recreate spaces where the body and mind could relax and destress. Features such as human nature connection, material connection with nature, visual connection with nature, non-visual connection with nature, dynamic & diffuse light, light and shadow play, presence of water, sequencing of space etc. were considered to create experiences that could help to re-balance the body from a previously existing stressful state.

The need for a building type that worked seamlessly to fulfill the needs of restoration brought about the programming of the spaces in the design like exhibition spaces where people can contemplate and have their solitude, yoga and meditation spaces where one can enhance their body and mind to a fitter and healthier space, holistic natural therapies that cater to the body and the mind via massages rooms and counseling rooms, gardens and water bodies that bring nature into the space and act as transition zones throughout the space, and other community spaces that people can gather as a community, converse with each other and release their troubles. The wellness therapies and spatial experiences borrow from both contemporary Western and Eastern ideas for restoration and relaxation.

The existing site and building was considered after looking into its potential to include the program space needs while having a visual connection with both nature and the city. The fact that it could be easily accessible for the users and the Philadelphian community in a short amount of time by public or private transport during any day of the week was an added advantage and consideration.



# LITERATURE REVIEW

A literary review surrounding sacred spaces , restorative environments and its effects on human well being

## Introduction

Sacred spaces both in history and at present are designated as spaces to seek solace and shelter in troubled times. This review seeks to understand the creation of sacred spaces/architecture and restorative environments and its affects on the human psyche. Why do such spaces seem calming and how does one achieve that state of calm? What features or characteristics promote the healing of the body and mind and how can we incorporate similar features into our urban environment so as to aid in reducing stress.

## Understanding Sacred Space

### Set Apart

Sacred space has always been manifested and understood as limited and defined areas. They were set apart from the rest of the world both physically in location (example hilltops and mountains or on ground that is higher)<sup>1</sup>. The term "sacred space" may mean a space that is separated consciously and appropriately designed with the belief of getting closer to the divine. The term "sacred architecture" would then cover this belief with the creation of areas and objects that can mediate in contact with the said divine. Such objects are dedicated to divinity not only by the power of the special rite, but also by treating the whole process of their formation as a religious ritual.<sup>2</sup>

### Sequence of Space

Sacred architecture has always been able to create a space both separated and connected to its surrounding environment.<sup>3</sup> The experience of transcendence is often evoked through a sequencing and progression into spaces considered sacred or contemplative. Thomas Barrie specifies certain aspects that are seen in sequencing: a clear delimitation of place, an articulate approach, entry and path sequence, the ordering of the place through geometry and proportion and, the use of diverse representational and symbolic media. The sacred was often distinguished from the profane by boundaries.<sup>4</sup> Creation of paths and thresholds, spatial sequencing is seen in spaces that are considered sacred from temples to monasteries, landscaped gardens, tombs, churches and in the contemporary times in museums and other contemplative spaces.<sup>5</sup>

### Spatial Atmosphere

Another aspect of sacred space is the atmosphere and ambiance of the space itself. Barrie says that understanding the ephemeral, mysterious, poetic, and immaterial aspects of architecture are essential to deciphering its sacred content.<sup>6</sup> People view monasteries as sacred spaces with reference to the ambience created by those spaces, but in reality, monasteries become sacred by the sheer will of the people inhabiting them and by the ritualistic process they go through on a daily basis to achieve their goals for existence.<sup>7</sup> The spaces they create with respect to place or materiality and the features used to achieve their sense of tranquility is what makes a monastery come under the term sacred.<sup>8</sup>

1 Paulo M. Barroso, The semiosis of sacred space, in "Versus, Quaderni di studi semiotici" (2017), pp. 343-360

2 Was, Cezary. (2017). Holy Place – Sacred Space –Area of Transcendence. Transformations of the concept of cult sites in the 20th century. P- 44-69

3 Barrie, Thomas. 2012. "Sacred Space and the Mediating Roles of Architecture". *European Review* 20 (1): 79–94

4 Barrie, Thomas. 2012. "Sacred Space and the Mediating Roles of Architecture". *European Review* 20 (1): 79–94

5 Alt, Paul L. 2017, "Sacred space and the healing journey." *Annals of Palliative Medicine* [Online], 6.3 (2017): 284-296

6 Barrie, Thomas. 2010. *The sacred in-between: the mediating roles of architecture*. Milton Park, Abingdon, Oxon: Routledge. P-11

7 Veilleux, Armand. 2012. "What Makes A Monastery A Sacred Place?" in "Loci Sacri: Understanding Sacred Places", Leuven University Press, 29-34.

8 Veilleux, Armand. "What Makes A Monastery A Sacred Place?" In *Loci Sacri: Understanding Sacred Places*, edited by Coomans T., De Dijn H., De Maeyer J., Heynickx R., and Verschaffel B., 29-34. Leuven University Press, 2012.



## Sensory Engagement

Humans are sentient beings. We engage the natural and build environment through sight, touch, hearing, smell, and taste to make sense of them. The senses serve as an interface between us and our surroundings. Sacred architecture engages the senses by providing not just dynamic visual experience but also the channeling of all the other senses.<sup>9</sup> The approach to spaces, shifting views by the modulations of light and shadows etc. engage and entice our senses. The experience of sacred architecture takes us out of the everyday. One experiences a different environment where our senses encounter the complexity and profusion of images and surface decorations that are typical of many sacred places through a choreography of space and sequence, light and shadow- in consort with smells, sounds, touch, and in some cases taste.<sup>10</sup> It engages our body and mind. The intensity of one's experience is heightened through the mediation of the senses.<sup>11</sup>

## Sacred Space for Healing

"Healing can be understood as a quest for 'wholeness', which in turn can imply a fragmented self/body that can be 'put together again', with disparate elements somehow reformed to constitute a representation of an entity that had a previous existence. 'Wholeness' is defined as an integration of body, mind and spirit rather than a reconstitution of a former entity (Wight 2012)."<sup>12</sup>

## Healing city

The healing city Epidaurus in Greece was created by the Greeks as a city to incorporate both spiritual and scientific healing.<sup>13</sup> The location of the city was specifically chosen for its mild climate, tranquil greenery and flowing spring waters that would help sick pilgrims to relax in its serenity.<sup>14</sup> The city was sequenced in its layout with boundary stones as gates which was also a threshold between the profane and the sacred.<sup>15</sup> People followed rituals of washing and purification, which acted to release the stress brought into the sacred city from the outside world by the pilgrims. This activity would be followed by a series of sacred environments that were integral to the healing aesthetic of the place.<sup>16</sup> Towards the end the pilgrims would be led to a resting space in the Enkoimeterion which had hallowed halls with subdued lighting that pushes their exhausted bodies into a deep sleep where they would be blessed and cured by the gods in a dream and wake up the next day cured of their ailments.<sup>17</sup>

## Labyrinths

Labyrinths are another metaphor for healing spaces. Known as the ancient gateways to the sacred, they have appeared throughout time and in many ancient religious and cultural sites in the world. They represent the symbolic path of a spiritual journey towards transcendence.<sup>18</sup> They are used to quiet and focus the mind, help find balance, encourage, meditate, enlighten, celebrate and provide spiritual growth and healing.<sup>19</sup> Walking a labyrinth sounds very simple on the surface; the walker follows a single continuous winding path to the center, turns around 180 degrees, and walks out. There are three stages to the walk: 'releasing' on the way in, 'receiving' when the walker arrives at the center and 'returning' when the walker follows the return path back out of the labyrinth.<sup>20</sup> Labyrinths can be seen in sacred settings like churches and synagogues as well as secular settings such as hospitals, hospices, schools, prisons, and parks in the United States.

9 Barrie, Thomas. 2010. *The sacred in-between: the mediating roles of architecture*. Milton Park, Abingdon, Oxon: Routledge. p-17

10 Barrie, Thomas. 2010. *The sacred in-between: the mediating roles of architecture*. Milton Park, Abingdon, Oxon: Routledge. p-19

11 Barrie, Thomas. 2010. *The sacred in-between: the mediating roles of architecture*. Milton Park, Abingdon, Oxon: Routledge. p-20

12 Perriam G. (2014). Sacred spaces, healing places: therapeutic landscapes of spiritual significance. *The Journal of medical humanities*, 36(1), 19-33.

13,14 Alt, Paul L. 2017, "Sacred space and the healing journey." *Annals of Palliative Medicine* [Online], 6.3 (2017): 284-287

15,16 Alt, Paul L. 2017, "Sacred space and the healing journey." *Annals of Palliative Medicine* [Online], 6.3 (2017): 284-287

17,18 Alt, Paul L. 2017, "Sacred space and the healing journey." *Annals of Palliative Medicine* [Online], 6.3 (2017): 284-287

19 Bigard, M (2005). *Walking the labyrinth: Enhancing spiritually sensitive clinical practice*. Reflections: Narratives of Professional Helping. Special issue: Spiritual Diversity in Social Work, 113, 84-95.

20 Bigard, M (2005). *Walking the labyrinth: Enhancing spiritually sensitive clinical practice*. Reflections: Narratives of Professional Helping. Special issue: Spiritual Diversity in Social Work, 113, 84-95.

## Water and restoration

Water and its restorative powers have been recognized throughout history. The earliest known permanent settlement which can be classified as urban is Jericho from 8000–7000 BC, located near springs and other bodies of water. In Egypt there are traces of wells, and in Mesopotamia of stone rainwater channels, from 3000 BC.<sup>21</sup> Hydrotherapy is among the earliest of healing practices. Drinking or bathing in springs, streams, or pools for therapeutic purposes predates recorded history. Ancient Greeks and Roman cities had healing baths that soon became popular for its restorative properties. Roman scholar Pliny the Elder wrote about healing spas. Geothermal springs along with other natural springs rich in minerals have been found in Japan, Iceland, Israel and other countries and have been valued for their medicinal and healing properties.<sup>22</sup>

## Psychological Aspects of Sacred Experience

Architecture can curate experiences. It can create environments that are inspirational, transcendent, or uplifting—and sobering, contemplative, or peaceful spaces. Sacred architecture was believed to have the ability to connect a person with a deeper understanding of themselves; to connect them with others and their community, and to their place in the universe.<sup>23</sup> Meaning was derived from spaces that stimulated a person spiritually, sensually, intellectually and spatially.<sup>24</sup> Sacred architecture drew its prominence from being viewed as spaces that are believed to create positivity and personal improvement through the experiences that happen when one is within them.<sup>25</sup> This positive enforcement of the mind is what keeps sacred architecture relevant to this day.

“Any space that heightens or deprives the senses can produce feelings of discomfort or ease, anxiety or peace. A cadence of light and dark as one ambulates through a series of spaces can serve to underline the experience of passage and progress towards the goal. Modulating the quality of light can also produce feelings of comfort or discomfort, depending on the intensity and whether one gradually approaches the luminous or is abruptly plunged into darkness.” - Thomas Barrie<sup>26</sup>

Form and scale of architectural spaces can produce empathetic responses from grandeur to permanence, from significance to insignificance, simplicity to complexity.<sup>27</sup> The spiritual transformation that occurs in such spaces are what can convert an ordinary space into a space that is defined as sacred. Time-honored ingredients such as scale, proportion, materiality, color, light, acoustics, and location – when used harmoniously helps to make a space that is suitable to experience the sacred.<sup>28</sup>

With respect to materiality Steven Holl argues that, “Architecture, more fully than any other art forms, engages the immediacy of our sensory perceptions. The passage of time: light, shadow and transparency: color phenomena, texture, material, detail all participates in the complete experience of architecture..... Only architecture can simultaneously awaken all the senses- all the complexities of perception.”<sup>29</sup>

21 Vuorinen, Heikki & Juuti, Petri & Katko, Tapio. (2007). History of water and health from ancient civilizations to modern times. Water Science & Technology: Water Supply.

22 Mador, Martin. (2008). Water, Biophilic Design and the built environment. Biophilic Design. 43-57.

23 Barrie, Thomas. 2012. “Sacred Space and the Mediating Roles of Architecture”. European Review 20 (1): p-81.

24 Barrie, Thomas. 2012. “Sacred Space and the Mediating Roles of Architecture”. European Review 20 (1): p-82.

25 Barrie, Thomas. 2012. “Sacred Space and the Mediating Roles of Architecture”. European Review 20 (1): p-84.

26 Barrie, Thomas. 2012. “Sacred Space and the Mediating Roles of Architecture”. European Review 20 (1): p-84.

27 Barrie, Thomas. 2010. The sacred in-between: the mediating roles of architecture. Milton Park, Abingdon, Oxon: Routledge. p-45

28 Richard S. Vosko. “Architecture for Worship: Re-Thinking Sacred Space in the Contemporary United States of America”, <https://ism.yale.edu/sites/default/files/files/Architecture%20for%20Worship.pdf>

29 S. Holl, J. Pallasma, A. Perez-Gomez, (1994) “Questions Of Perception – Phenomenology Of Architecture”, (Tokyo:A+U architecture and urbanism), p.45

## Maslow and his theories of transcendence

Maslow amended his hierarchy of need model near the end of his life. He suggests that there is a higher level of development, what he called "self-transcendence".<sup>30</sup> One achieves this level by focusing on things beyond the self like altruism, spiritual awakening, liberation from egocentricity, and the unity of being. He refers to transcendence as the highest and most inclusive or holistic levels of human consciousness, behaving and relating, as ends rather than means, to oneself, to significant others, to human beings in general, to other species, to nature, and to the cosmos.<sup>31</sup> Self-transcendence is placed above self-actualization to result in a fundamentally different model. While self-actualization refers to fulfilling your own potential, self-transcendence refers literally to transcending the self.<sup>32</sup> Peak experiences are achieved during self-transcendence, whereby people transcend the individual ego. One feels intense joy, peace, well-being, in such mystical and emotional state of mind.<sup>33</sup> Maslow also argues that such states aren't always transitory. This led to defining a new term called "plateau experience."<sup>34</sup> Plateau experiences are serene and long-lasting cognitive states, as opposed to peak experiences which tend to be mostly emotional and temporal.<sup>35</sup>

## Contemporary Sacred Space

In the article Sacred space and the mediating role of architecture, Barrie suggests that in today's world with our secular societies, we still require that articulate the human condition and make it possible for personal connection or transformation to occur while not necessarily being defined in the same way as sacred spaces were defined in historic times. Sacred space needn't be religiously associated to exist, nor does it need to be a place consistent connection abiding with the mediating roles of sacred architecture. What it can be is to serve as a sanctuary while catering to the contemporary culture and environment in such a way that it retains the nuances of sacred architecture while being diverse and heterogeneous in its purpose of existence. Contemporary sacred space should be capable of being an evocative, engaging and meaningful setting in the urban fabric all the while accommodating and fulfilling individual or communal purposes.<sup>36</sup>

## Understanding stress and restoration

Research in environmental psychology suggests that contact with nature has an important implication: psychological restoration. Contact with nature offers restoration from stress and mental fatigue when compared to everyday urban environments.

Stress is defined as a process of responding to events, environmental features or situations that are challenging, exceed coping resources, or threaten wellbeing. Ulrich (1991) proposed the "stress recovery theory" (SRT) by focusing on stress reduction from an active and emotionally aesthetic response to the environment. People's preferences for natural landscapes, shown by their choices about where they live and how they recover, constitute the scientific evidence for this theory.<sup>37</sup> SRT considers that restoration from stress only occur when it positively impacts people's well-being (Joye & van den Berg, 2013)<sup>38</sup>. Restorative or stress reducing effects of looking at nature are manifested as a group of beneficial changes. It includes reduced levels of negatively toned emotions like fear and anger, elevated positive emotions, and changes in physiological systems indicative of diminished stress mobilization.<sup>39</sup>

30 Maslow.1971. *The Farther Reaches of Human Nature*, New York Viking Press

31 Maslow.1971. *The Farther Reaches of Human Nature*, New York Viking Press

32 Maslow.1971. *The Farther Reaches of Human Nature*, New York Viking Press

33 Maslow.1971. *The Farther Reaches of Human Nature*, New York Viking Press

34 Maslow.1971. *The Farther Reaches of Human Nature*, New York Viking Press

35 Kelland, M. (2015). *Personality theory in a cultural context*. Kelland Hunt Publications.

36 Barrie, Thomas. 2012. "Sacred Space and the Mediating Roles of Architecture". *European Review* 20 (1): p-93.

37 Ulrich, R.S., Simons, R.F., Losito, B. D., Fiorito, E., Miles, M. A. and Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology* 11: 201-230

38 Joye, Y., and van den Berg, A. (2013) 'Restorative environments', in Steg, L., van den Berg, A., and De Groot, J. (eds. *Environmental Psychology. An Introduction*. UK: BPS Blackwell

39 Ulrich, S. *Biophilic Theory and Research for Healthcare Design*, *Biophilic Design*, Chapter 6, p-88-103

Rachel and Steven Kaplan's (1989) "attention restoration theory" (ART) proposes that people can concentrate better after spending time in nature, or even looking at scenes of nature.<sup>40</sup> Nature can help replenish ones mental and attention capacities. They suggest a series of components are required for a restorative environment to be effective, including fascination, being away, extent/scope and compatibility.<sup>41</sup> Fascinations afforded by natural settings are termed as soft fascinations (effortless attention) which are quiet and almost involuntary include watching clouds, sunsets, patterns of snow fall, motions of leaves in a breeze etc.<sup>42</sup> Being away suggests a change in direction of a person's gaze or even an old environment that is viewed in a new way so as to provide the necessary conceptual shift.<sup>43</sup> Extent refers to the fact that an environment for restoration must be rich and coherent enough to constitute as a whole other world while in it. Endless streams of stimuli do not work because the mind must be provided with enough scope to see, experience and think about what it is experiencing.<sup>44</sup>

Olmstead (1865) speaks about natural scenery in restoration as that which employs the mind without fatigue, yet exercises, tranquilizes and enlivens it. Thus, through the influence of the mind over the body, it gives the effect of refreshing rest and reinvigorates the whole system.<sup>45</sup> Similarly, W. Gesler defined therapeutic landscape as encompassing natural and built environments, social conditions and human experience.<sup>46</sup> Therapeutic landscapes produce an atmosphere which is conducive to healing. In studying the temple of Aesculapius in Epidaurus (Greece) Gesler argued, that its therapeutic/healing qualities appeared closely interrelated with the surrounding natural landscape, aesthetics and complex symbolologies.<sup>47</sup>

Edward O. Wilson coined the term biophilia in his book *Biophilia* (1984). Biophilia is described as the innate urge of humans to affiliate with nature and other forms of life and life-like processes. Biophilic environments within urban spaces can provide people with restorative experiences by releasing mental fatigue and decreasing stress levels. This restoration process in turn improves people's well-being. Psychological stress occurs when a person's perception of the environment is above or below their capacity of adaptation, which challenges or threatens their well-being (Ulrich, 1986; Cohen et al., 2007).<sup>48</sup> Psychological restoration is, in general, the ability of a person to overcome stress and mental fatigue, and experience mental rejuvenation.<sup>49</sup>

In the book 'Biophilic Design', Kellert talks about six biophilic design elements which are revealed in more than 70 design attributes. These elements include environmental features, natural shapes and forms, natural patterns and processes, light and space, place-based relationships, and evolved human-nature relationships.<sup>50</sup> His proposal studies the context of the space which includes historical, geographical, and cultural components that affect a person's perceptions of a space and the relationship of people with their affiliation to nature. While all these elements do not constitute restorative components completely, they are still capable of affecting some mental restoration because they are part of the urban space.

40 Kaplan, R.; Kaplan, S. (1989). *The Experience of Nature: A Psychological Perspective*. Cambridge University Press. ISBN 0-521-34139-6.

41,42 Kaplan, S. (1995). The restorative benefits of nature: Toward an integrated framework. *Journal of Environmental Psychology*, 15, 169-182.

43,44 Kaplan, S. (1995). The restorative benefits of nature: Toward an integrated framework. *Journal of Environmental Psychology*, 15, 169-182.

45 Ulrich, R.S., Simons, R.F., Losito, B. D., Fiorito, E., Miles, M. A. and Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology* 11: 201-230

46 Gesler, W M. "Therapeutic Landscapes: Theory and a Case Study of Epidaurus, Greece." *Environment and Planning D: Society and Space* 11, no. 2 (April 1993): 171-89.

47 Gesler, W M. "Therapeutic Landscapes: Theory and a Case Study of Epidaurus, Greece." *Environment and Planning D: Society and Space* 11, no. 2 (April 1993): 171-89.

48 Ulrich, Roger. (1986). Human Responses to Vegetation and Landscapes, *Landscape and Urban Planning*, 13, 29-44, Cohen, S., Janicki-Deverts, D., and Miller, G. E. (2007) 'Psychological Stress and Disease', *The Journal of the American Medical Association*, 298, (14), pp.1685-1687

49 Cohen, S., Janicki-Deverts, D., and Miller, G. E. (2007) 'Psychological Stress and Disease', *The Journal of the American Medical Association*, 298, (14), pp.1685-1687

50 Kellert, Stephen. (2008). Dimensions, elements, and attributes of biophilic design. *Biophilic Design*. 3-20.

## Elements and Attributes of Biophilic Design

Environmental Features	Natural shapes and Forms	Natural patterns and processes
Color Water Air Sunlight Plants and Animals Natural Materials Views and Vistas Facade Greening Geology and Landscape Habitats and Ecosystems Fire	Botanical Motifs Tree and Columnar Supports Animal Motifs Shells and Spirals Egg, Oval and Tubular Forms Arches, Vaults and Domes Shapes Resisting Straight Lines and Right Angles Simulation of Natural Features Biomorphy Geomorphology Biomimicry	Sensory variability Information richness Age, Change and the patina of time Growth and efflorescence Central focal point Patterned wholes Bounded spaces Transitional spaces Linked series and chains Integration of parts to wholes Complementary contrasts Dynamic Balance and tension Fractals Hierarchical organization of ratios and scales
Light and space	Place based relationships	Evolved human-nature relationships
Natural Light Filtered and Diffused light Light and shadow Reflected light Light pools Warm light Light as shape and form Spaciousness Spatial variability Space as shape and form Spatial harmony Inside outside spaces	Geographic connection Historic connection Ecological connection Cultural connection Indigenous materials Landscape orientation Landscape features that define building form Landscape ecology Integration of culture and ecology Spirit of place Avoiding placelessness	Prospect and refuge Order and complexity Curiosity and enticement Change and metamorphosis Security and protection Mastery and control Affection and attachment Attraction and beauty Exploration and discovery Information and cognition Fear and awe Reverence Spirituality

## Concluding Thoughts and Future Direction

Despite years of research into ways to reduce stress, stress is still very prominent in our societies. Our urban environments seem to be powerhouses of stress generation. The city's general societal living, noise levels and lack of breathing spaces does not seem to aid with the battle the human mind and body wages with itself during stress. Analyzing the features of sacred spaces like transforming spaces with light, sound, material and textures; understanding how sequencing and segregation of spaces work; incorporating the various elements of biophilia into our urban environments may to some level help to combat against one's day to day stress. Designers and planners should start rethinking about how buildings and cities are shaped from the base levels of designing. It can start from something as small as a street redesign to incorporate nature or nature elements within its stretch to momentarily distract the mind when one passes through it to changing the way urban planners design the city to incorporate designated areas within a predefined interval in the city. Change in design thinking both at a micro and at a macro level in our urban environment is much needed to balance the scales of man, mind and surround.

Table 1- Elements and attributes of biophilic design (Kellert, Heerwagen, Mador- 2008)

## Literature Review Bibliography:

- Alt, Paul L. 2017, "Sacred space and the healing journey." *Annals of Palliative Medicine* [Online], 6.3 (2017): 284-296
- Barrie, Thomas. 2010. *The sacred in-between: the mediating roles of architecture*. Milton Park, Abingdon, Oxon: Routledge.
- Baum, Maxwell K. (2017). "What Is Sacred" *Architecture Senior Theses*. 391., Syracuse University
- Barroso, Paul. (2017) *The semiosis of sacred space*, in "Versus, Quaderni di studi semiotici" (2017), pp. 343-360
- Bigard, M (2005). *Walking the labyrinth: Enhancing spiritually sensitive clinical practice*. *Reflections: Narratives of Professional Helping*. Special issue: *Spiritual Diversity in Social Work*, 113, 84-95.
- Cohen, S., Janicki-Deverts, D., and Miller, G. E. (2007) 'Psychological Stress and Disease', *The Journal of the American Medical Association*, 298, (14), pp.1685–1687
- Gesler, W M. "Therapeutic Landscapes: Theory and a Case Study of Epidaurous, Greece." *Environment and Planning D: Society and Space* 11, no. 2 (April 1993): 171–89
- Hidalgo, Ana. (2014). *Biophilic Design, Restorative Environments and Well-Being*. 9th International Conference on Design and Emotion 2014: *The Colors of Care*
- Joye, Y., and van den Berg, A. (2013) 'Restorative environments', in Steg, L., van den Berg, A., and De Groot, J. (eds. *Environmental Psychology. An Introduction*. UK: BPS Blackwell
- Kaplan, S. (1995). *The restorative benefits of nature: Toward an integrated framework*. *Journal of Environmental Psychology*, 15, 169-182.
- Kaplan, R.; Kaplan, S. (1989). *The Experience of Nature: A Psychological Perspective*. Cambridge University Press.
- Kelland, M. (2015). *Personality theory in a cultural context*. Kelland Hunt Publications.
- Kellert, S. (2008) 'The Biological Basis for Human Values of Nature', in Kellert, S., and Wilson, E.O. (eds.), *The Biophilia Hypothesis*. Washington DC: Island Press
- Kellert, Stephen. (2008). *Dimensions, elements, and attributes of biophilic design*. *Biophilic Design*. 3-20.
- Mador, Martin. (2008). *Water, Biophilic Design and the built environment*. *Biophilic Design*. 43-57.
- Maslow. (1971). *The Farther Reaches of Human Nature*, New York Viking Press, p-246
- Perriam G. (2014). *Sacred spaces, healing places: therapeutic landscapes of spiritual significance*. *The Journal of medical humanities*, 36(1), 19-33.
- Ramzy, Nelly Shafik. (2016). "Biophilic qualities of historical architecture: In quest of the timeless terminologies of 'life' in architectural expression."

Sandor, M. Kay. "The Labyrinth: A Walking Meditation for Healing and Self-Care." *Explore: The Journal of Science and Healing* 1, no. 6 (2005): 480-483.

Ulrich, Roger. (1986). *Human Responses to Vegetation and Landscapes*, *Landscape and Urban Planning*, 13, 29-44

Ulrich, S. *Biophilic Theory and Research for Healthcare Design*. *Biophilic Design* (2008), p-88-103

Ulrich, R.S., Simons, R.F., Losito, B.D., Fiorito, E., Miles, M.A. & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*, 11:201-230.

Vuorinen, Heikki & Juuti, Petri & Katko, Tapio. (2007). History of water and health from ancient civilizations to modern times. *Water Science & Technology: Water Supply*.

Was, Cezary. (2017). Holy Place – Sacred Space –Area of Transcendence. Transformations of the concept of cult sites in the 20th century. 46. 44-69.

Ziabakhsh, N., & Ghavami, M. (2016). The Stress-Reducing Effect of Fractal Architecture. *Journal of Nature Science and Sustainable Technology*, 10(1), 47-53.

Table 1 - Elements and attributes of biophilic design – *Biophilic Design* (Kellert, Heerwagen, Mador- 2008)

# PRECEDENT

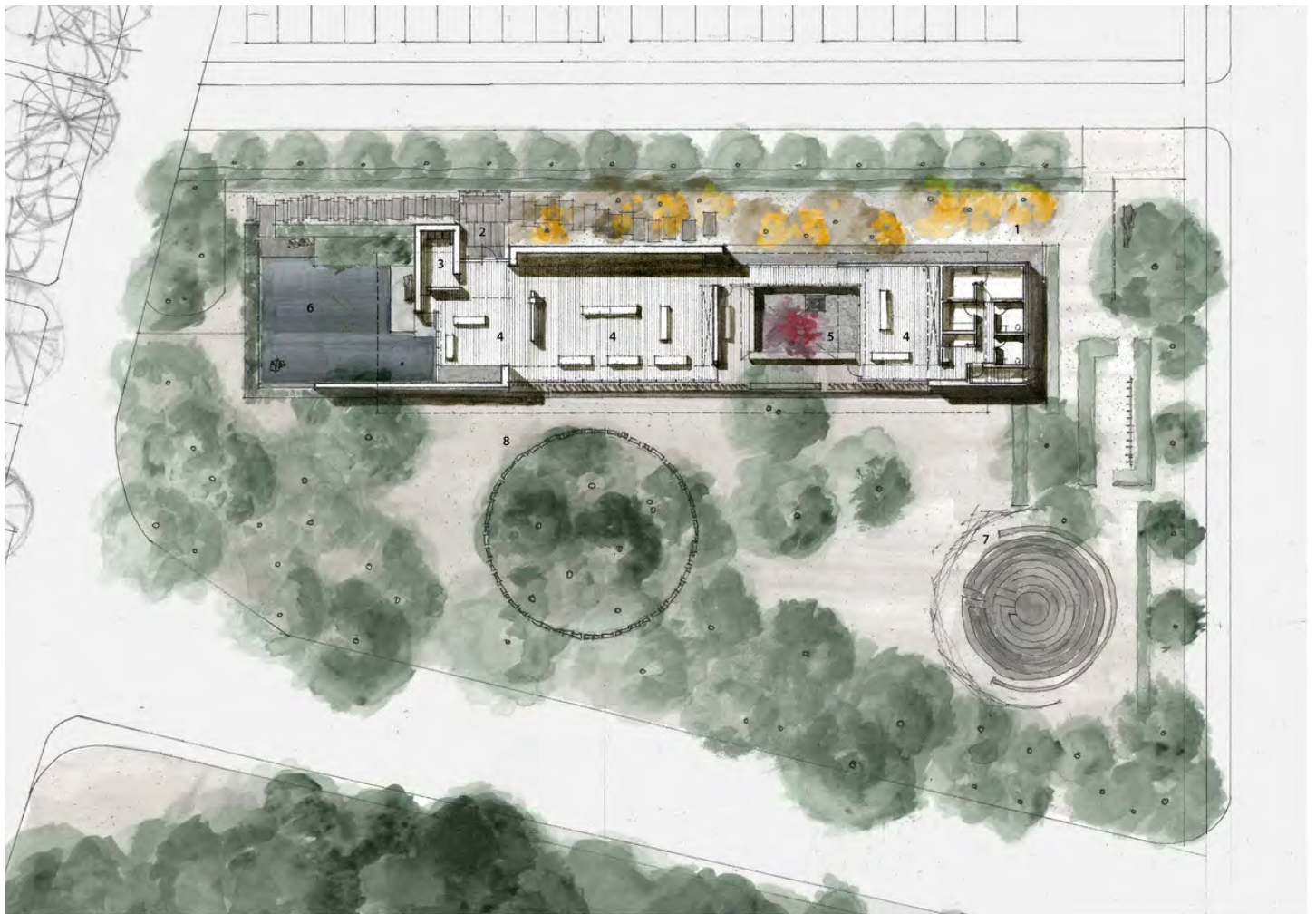
WINDHOVER CONTEMPLATION CENTER

ROTHKO CHAPEL

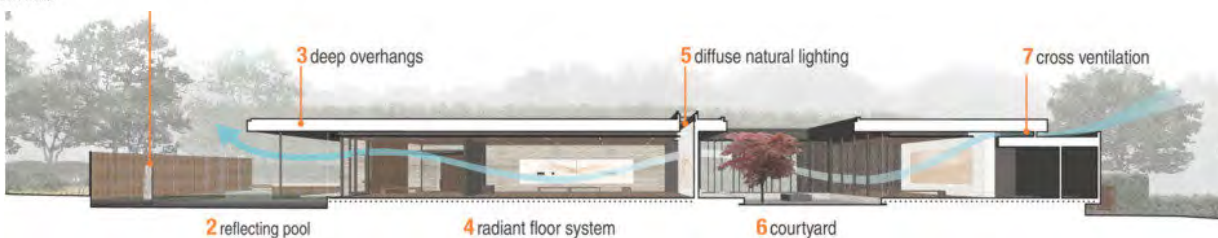
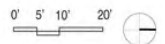


# WINDHOVER CONTEMPLATION CENTER

The Windhover Contemplative Center by Aidlin Darling Architects is a spiritual retreat on the Stanford University campus to promote and inspire personal renewal. Using Nathan Oliveira's Windhover paintings as a vehicle, the serene center provides a refuge from the intensity of daily life and a space for quiet reflection. The sequencing of spaces that lead into the center allows visitors to shed the outside world before entering. Within, the space opens to the oak glade beyond while louvered skylights wash the paintings with natural light, unifying art, architecture and landscape. Rammed earth walls, wood surfaces, and water connect the building to the nature outside and heighten the human senses while experiencing the space.



- 1 ENTRY GARDEN
- 2 ENTRY
- 3 INFORMATION VESTIBULE
- 4 GALLERY
- 5 EXTERIOR COURTYARD
- 6 REFLECTING POOL
- 7 MEDITATION LABYRINTH
- 8 CONTEMPLATIVE GROVE







## ROTHKO CHAPEL

The Rothko Chapel has been providing a space for people in need of spiritual guidance and meditation since it was established back in 1971. The Rothko Chapel is an intimate sanctuary that is open for anyone of any religious or spiritual belief by Houston philanthropists Dominique and John De Menil. It was designed by architects Philip Johnson, Howard Barnston and Eugene Aubry. Visitors on entry to the site first see a steel sculpture called Broken Obelisk by Barnett Newman in the middle of a pool. The chapel itself is a windowless, octagonal brick building. The main room is a quiet space with gray stucco walls, each filled by massive paintings by the artist Rothko. A baffled skylight suppresses the bright incoming sunlight, and the surfaces of the paintings change dramatically as clouds pass the sky above.

The plan was created from the superimposition of two squares, one larger than the other, sharing a mutual centre and rotated with the angle of 45 degrees. From the centre of the space the spectator can view each painting almost a square backdrop, from equal distance. The experience of walking from the exterior to the interior from bright light into almost darkness with diffused lighting through the skylight is what creates a atmosphere of solitude and reflection in the space.





# CASE STUDY

PERELMAN CENTER FOR JEWISH LIFE

RODIN MUSEUM

# PERELMAN CENTER FOR JEWISH LIFE

Facility name : Center For Jewish Life

Location : 118 N 34th St, Philadelphia, PA 19104

Year of construction : 2016

Area : 13900 sq. ft

Designer : Architects Stanley Saitowitz | Natoma Architects

Owner : drexel university

Users : drexel students and staff, jewish community, interfaith campus communities , Drexel sororities and fraternities

Accommodates : around 400 people



## LAYOUT AND OBSERVATIONS:

4 levels - 3 floors and a basement - each floor is based of the culture of the building

Basement : support : kitchens, mech. and elect. rooms + storage

Ground floor : community: lounge + service dining + cafe + reception + stair

Second floor : learning :offices, quiet study and discussion, groups and gathering, copy rooms, pantry, data room

Third floor : worship : 3 chapels , multipurpose library space, courtyard

Materials : engineered wood, concrete, metal , carpets (in offices)

Colors : reds and purples - cooler colors

Furniture : mostly commercial furniture , industrial style  
some custom design furniture

Space observations based on spirituality and community as focus :

Geometric Shapes - Squares and Rectangles

Material : Metal, Concrete, Wood , Glass , Brick

Daylighting – Windows and Skylights

Colors Combinations – Tones of the Earth + Cool color tones of purple and red + Neutral greys

Activities : Spiritual, Yoga, Contemplation. Quiet Study, Communal Dinners and Gatherings

Stair, Courtyard and Fireplace - Gathering space / Community Space

## KEY INFORMANT INTERVIEW OBSERVATIONS :

### Interview with Rabbi Isabel de Koninck, Program Director at The Center for Jewish Life

Culture : Collaborative work culture that is community based.

Goals : fellowship & Jewish life, community , learning, leadership, spirituality

Design : Design based on an abstract of a menorah , brickwork recessed design based off of the design of the Jewish prayer shawl (tallit).

Workforce : 7 permanent workforce : 4 - fulltime, 3 - parttime + 2 security personal at all times.

Most loved space : third floor courtyard space is the most loved space - multiple uses both for rituals and by students.

Safety : Seating on the stairs delineated by pillars and the main steps by flower planters for safety, ample amount of safety measures in place like emergency alarms, cameras etc. due to the religious aspect of the space.

Issues of the space or design : Flooring has to be changed - non commercial flooring initially .

Noise levels are overwhelming esp. in the third floor.

Lighting in general seems bad, more task lighting required.

Want to add some background noise.

Enhance and add to garden space in the backyard .

Prefer movable walls for space partition





# RODIN MUSEUM

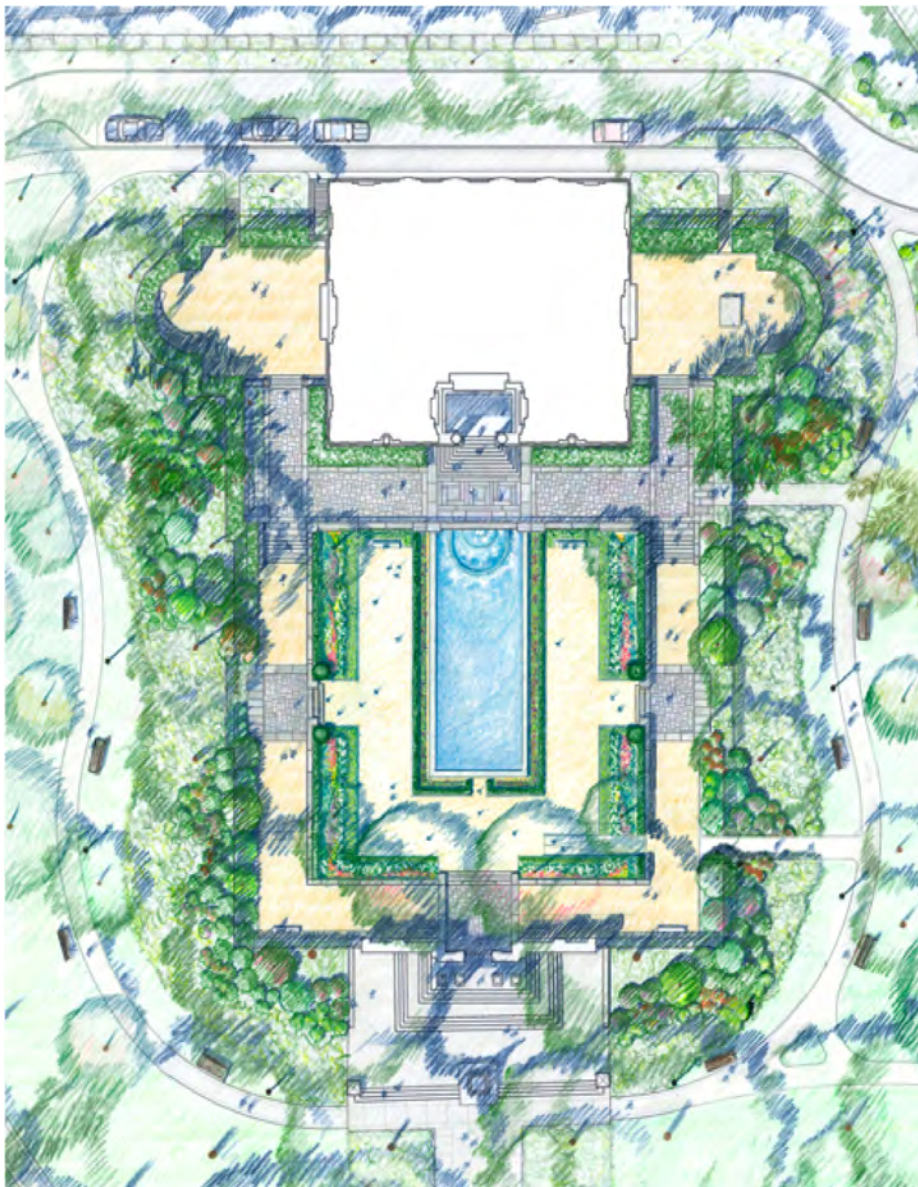
Facility name : Rodin Museum

Location : 2151 Benjamin Franklin Pkwy, Philadelphia, PA 19130

Year of construction : 1929

Designer : French architect Paul Cret (1876–1945) and French landscape designer Jacques Gréber

Users : tourists, staff, students, philadelphian community



## Contemplative aspects observed and considered for focus:

Double Height Space

Diffused Lighting/ Daylighting

Change in thresholds from one room to another

Floor delineation according to rooms as well as statue locations

Materials : Marble , Wood , Silk Cloth , Relief work on Walls and ceilings

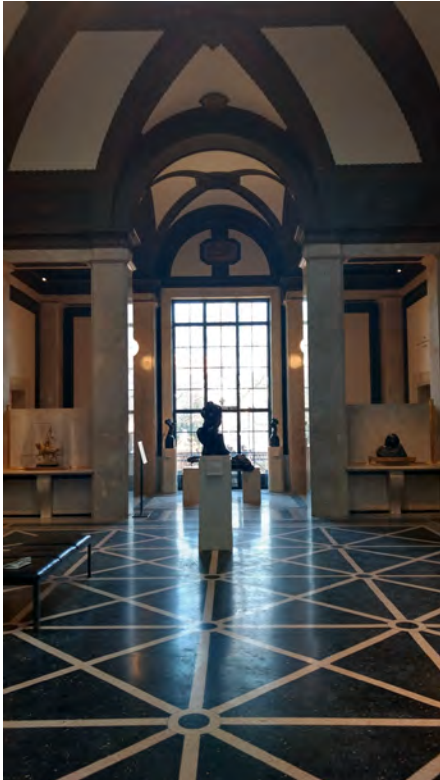
Sequencing of the space from entry to exit

Outdoor Elements – Seating nooks , Gardens , Fountains

Defining sight lines and axis lines

Connection to outside nature from every room

Activities : Contemplation , Exhibition , Reflection , Relaxation



# PROGRAM

SPACES, PERCEPTION AND APPROACH

MASTER LIST OF SPACES

CODE ANALYSIS AND EGRESS

DIAGRAMMING & PARTI

INSPIRATION IMAGES & SKETCHES

## THE INNER SANCTUM - WELLNESS CENTER

The Inner Sanctum is a wellness center that will provide a safe refuge for the Philadelphian community while it targets all the human senses to support the process of relaxing and calming down from the every day influences of our high stressful contemporary life-style. The center will function as a non profit organization that serves and sustains the well being of Philadelphians citizens as well as anyone and everyone who seeks to destress.

The “wellness therapies” and “spatial experiences” borrow from both contemporary Western and Eastern ideas for restoration and relaxation. The emphasis is on maintaining a balance between mind, body and soul for all. All activities in the space will cater to specific needs of the user. There will be exhibition/contemplation spaces for users who need moments of solitude, therapy spaces for both the body and the mind, health and fitness spaces like yoga and meditation rooms and a cafe that functions for relaxation and community integration.

The philosophy is to achieve relief from physical, mental, emotional and spiritual everyday burdens of the visitor which is achieved by spending time withing the various spaces in the center. The experience may be self tailored to the visitors needs and timeframe. The user can tailor the kind of experiences they want in the space.

## SPACES , PERCEPTIONS AND APPROACH

DESIGN SPACES	PERCEPTION AND FEELINGS	DESIGN APPROACH
ENTRY	SHEDDING THE OUTSIDE	SEQUENCED SPACES INTERSPERCED BY NATURAL ELEMENTS
CONTEMPLATION	SOLITUDE	EXHIBITION SPACES GARDENS
COMMUNITY	GATHERING	CAFE AND LOUNGE
MEDITATION	RELAXING , FITNESS	YOGA , SHOWERS
THERAPY	HEALING	SENSORY VAUES
OFFICE	PURPOSE	SEPERATED FROM CORE SPACES
INDOOR – OUTDOOR	RELAXATION, CALMING, ONE WITH NATURE	LABRINTH , GARDENS, WATER BODY, NATURE CONNECTION

# MASTER LIST OF SPACES

Description	Quantity	Sq. footage	Total Square footage
<b>ENTRY SPACES</b>			
Reception / Lobby	1	500	500
Locker Room	1	100	100
<b>CONTEMPLATION SPACES</b>			
Exhibition Space/ Art Gallery Sculpture Gallery	1	6000	6000
Quiet space	8	100	800
Spiritual Center	1	1000	1000
<b>COMMUNITY SPACES</b>			
Café (30 – 40 seats)		1200	2000
Kitchen		600	
Store		200	
Community Space	1	400	400
<b>MEDITATION SPACES</b>			
Yoga room	2	580	1160
Meditation area	2	580	1160
Restrooms	4	100	400
<b>THERAPY/SPA SPACES</b>			
Check in Desk / Reception + Lounge	1	500	500
Massage rooms	6	180	1080
Salt cave	1	400	400
Sauna	1	400	400
Restrooms and Shower	6	100	600
Store room	2	100	200
Counselling Rooms	2	180	360
Boutique Kiosk	1	200	200
<b>OFFICE SPACES</b>			
Coat Check	1	60	60
Offices	5	180	900
Curators Room	1	180	180
Conference room	1	600	600
Meeting rooms	2	250	500
Restrooms	2	100	200
Store room	1	500	500
Break lounge + Pantry	1	1200	1200
<b>ADDITIONAL SPACES</b>			
Garden / courtyards	(Indoor /outdoor)		<b>8000 -10,000 sq. ft</b>
Water element			
Outdoor Lounge			
<b>TOTAL AREA</b>			<b>31,400</b>
<b>CIRCULATION</b>	<b>35%</b>		<b>10,990</b>
<b>Total Sq. Footage of Program (approx.)</b>			<b>42,390 sq. ft</b>

# CODE ANALYSIS AND EGRESS

## CODE ANALYSIS

CODE : IBC 2018  
 CONSTRUCTION : TYPE II  
 OCCUPANCY : MIXED USE OCCUPANCY  
 A2 , A3 , B

EXISTING AREA : 53,500 sq.ft  
 OCCUPANCY LOAD : 540  
 BUILDING FULLY SPRINKLERED : YES  
 REQUIRED MEANS OF EGRESS : 3

EXIT ACCESS TRAVEL DISTANCE: A2,A3 - 250'  
 B - 300'

### MINIMUM EXIT TRAVEL DISTANCE

A - 70'  
 B - 87'  
 C - 13'

### COMMON EXIT TRAVEL DISTANCE

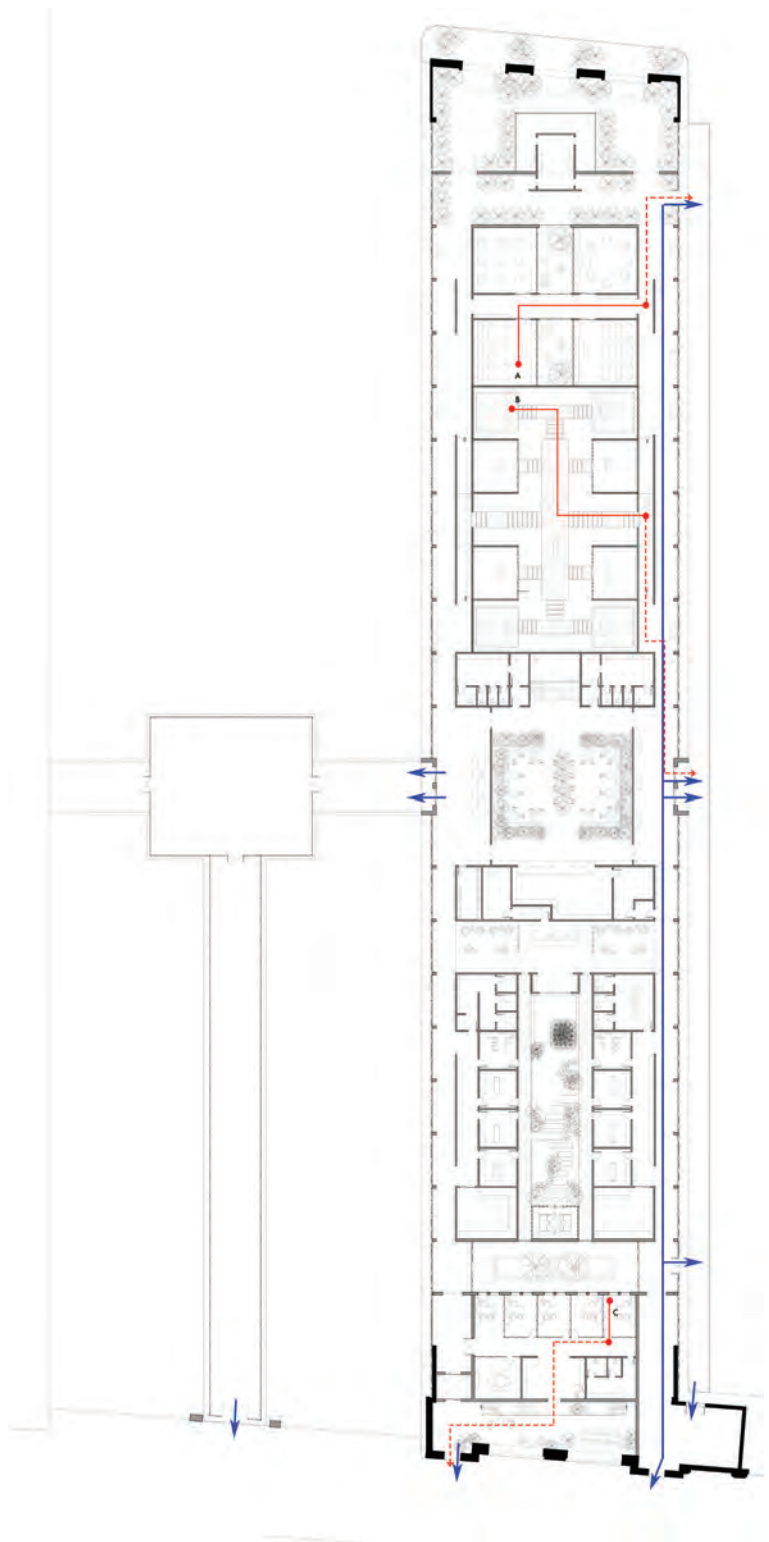
A - 56'  
 B - 109'  
 C - 100'

### PLUMBING FIXTURES

Occupancy	M	F	Lavatories	Drinking Fountain
A2	1/75	1/75	1/200	1/500
A3	1/125	1/65	1/200	1/500
B	1/25- 1st 50 1/50		1/40- 1st 80 1/80	1/100

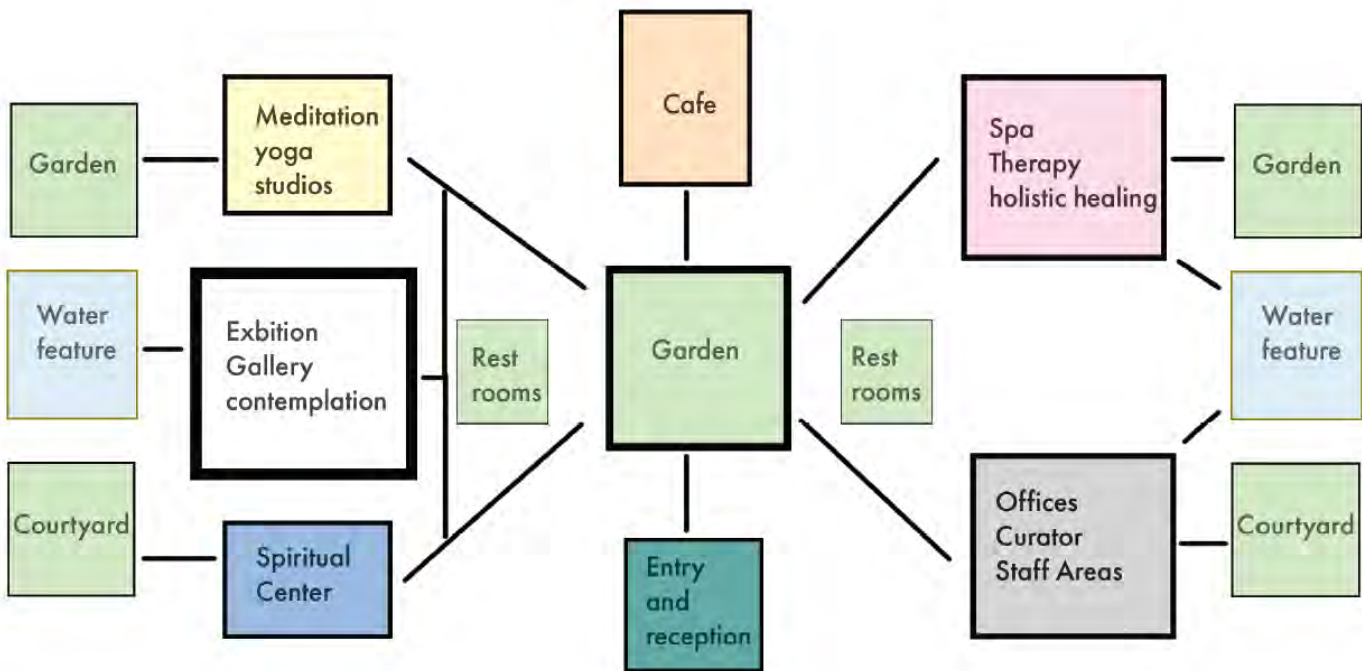
### EXIT DIAGRAM LEGEND

- MINIMUM EXIT TRAVEL DIST.
- - - - - COMMON EXIT TRAVEL DIST.
- EXITS AND ENTRANCES





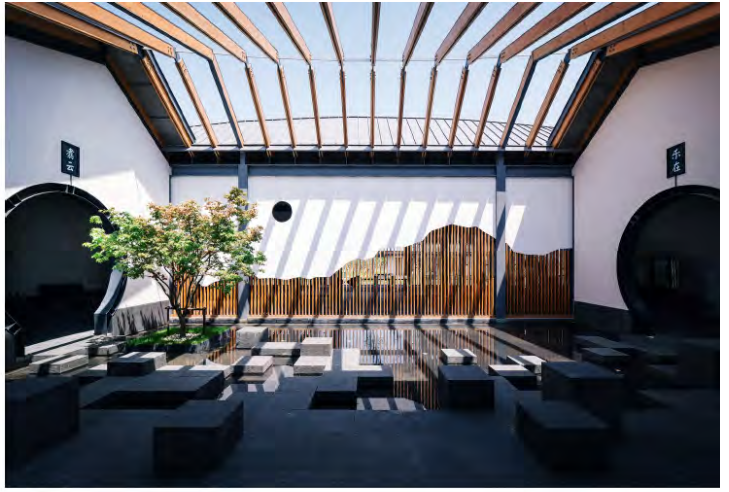
# DIAGRAMMING

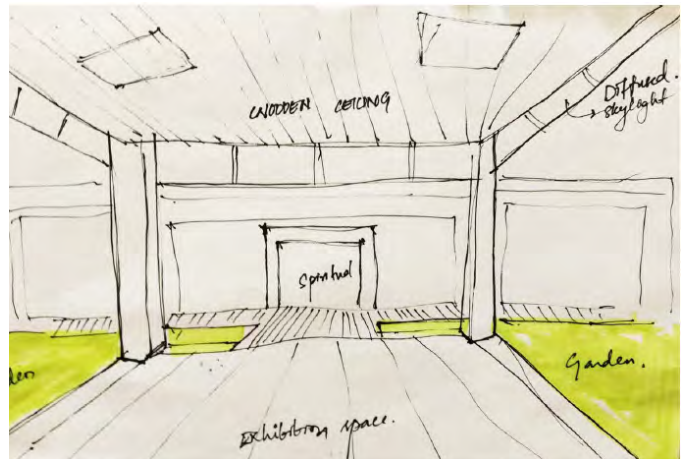


## PART I



# INSPIRATION IMAGES & SKETCHES





# SITE RESEARCH

SITE

HISTORY & VIEWS

SITE ANALYSIS

# SITE : MUNICIPAL PIER NO 9 / CHERRY STREET PIER

Site Location : 121 North Columbus Blvd.

Size : 100' x 535'

Height : 46 feet .

Square footage : 53,500 sq. ft

Located on the Delaware River

Access / Transportation : Bus, Metro, Car, Walking



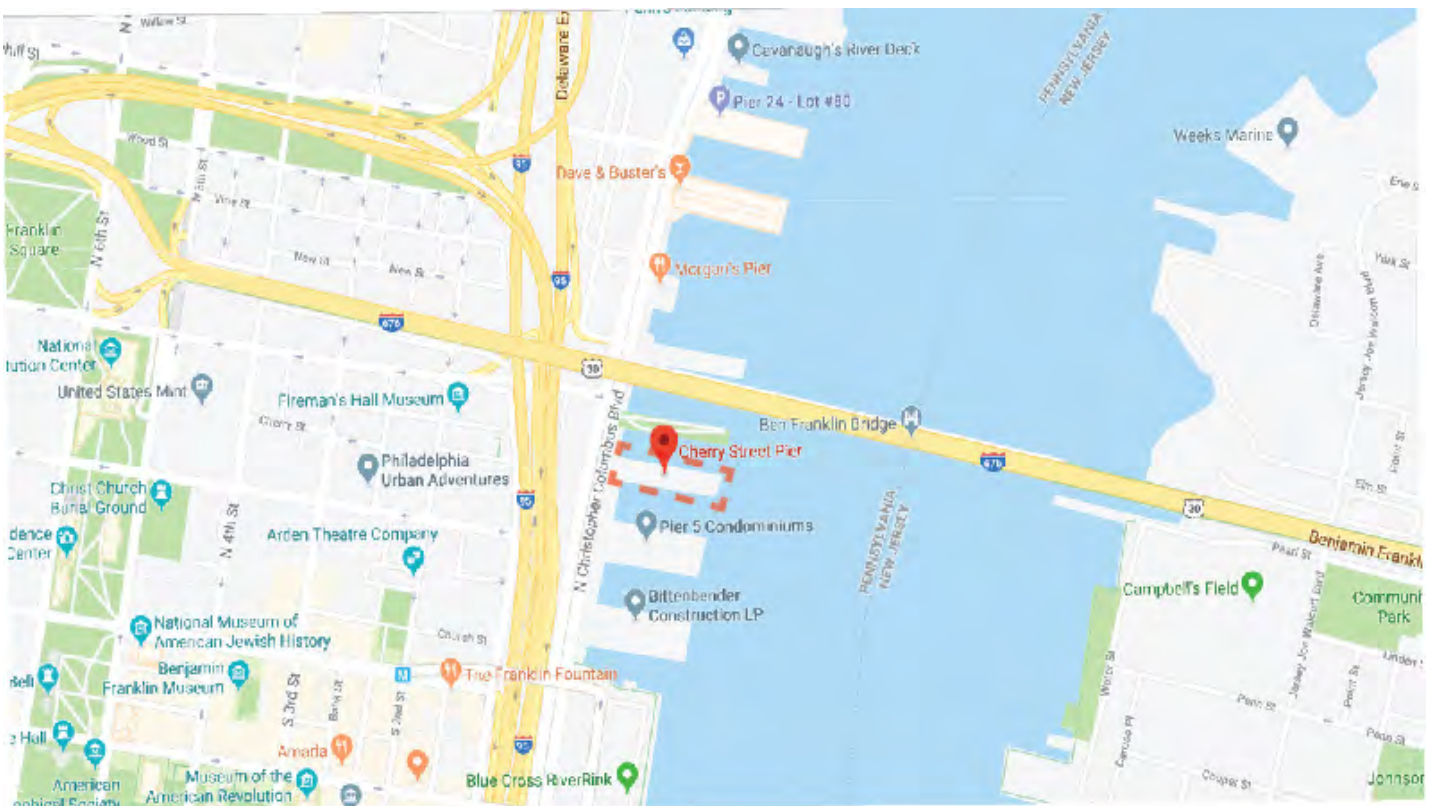
Neighbourhood Description : Located surrounded by a wide-open sky, the watery expanse of the Delaware, Race Street Pier and the Benjamin Franklin Bridge.

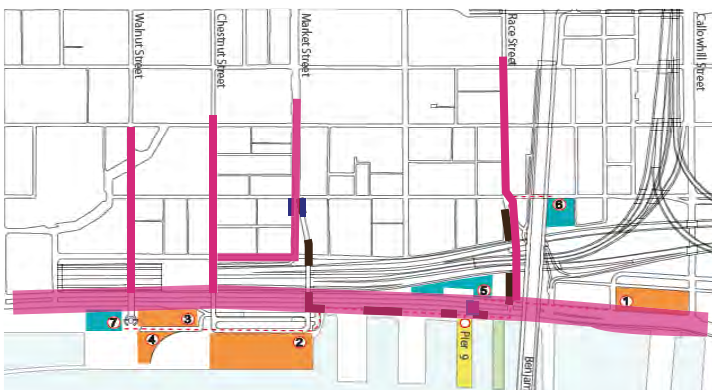
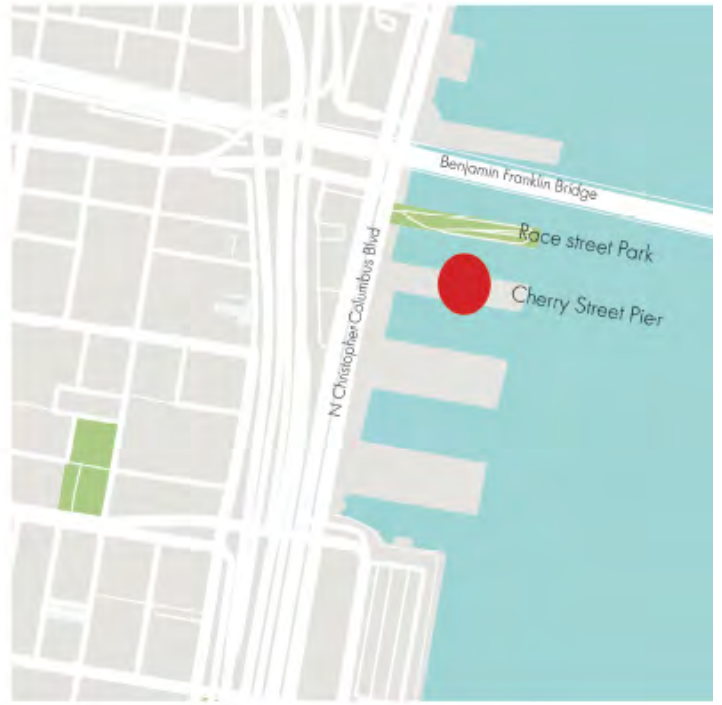
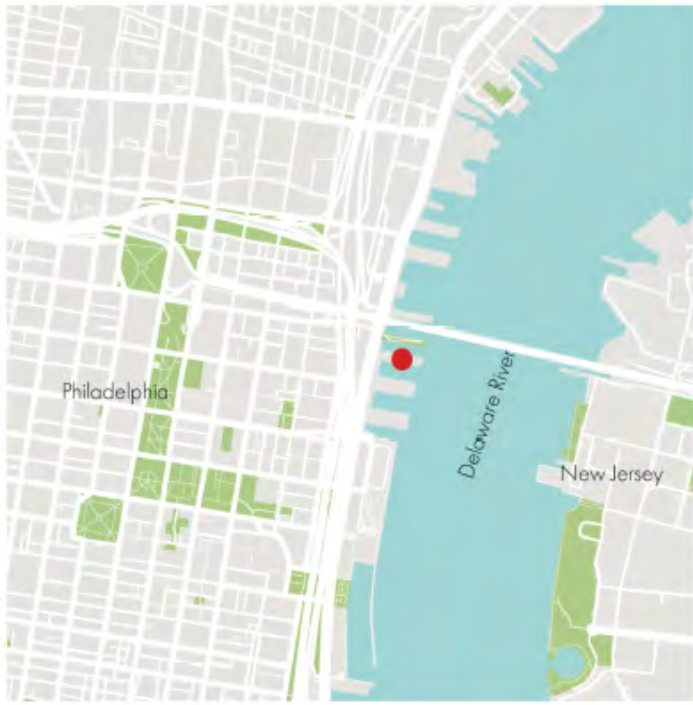
Holiday Inn Express hotel across the street provides residence for tourists and The Fringe Arts Theater acts as the cultural and community catalyst in the area.

Landscaping : Boulevard of trees along the streetscape

Street Views : public space used for festivals and community gatherings

Window Views : The Delaware, Condominiums on the pier 3, and buildings and waterfront developments of Camden





### Access and Parking

- Public Parking
- Private Parking
- Circulation from parking
- Bike parking
- Pedestrian paths
- Bus stop
- Metro Station
- Vehicular Access Road

# HISTORY OF THE SITE AND BUILDING

Age : 100 year old building as of 2019

Golden age of Philadelphia's industrial past  
vibrant neighborhoods and commercial corridor

20th century - the Philadelphia Department of Wharves, Docks and Ferries began constructing municipal piers on the waterfront as a part of a progressive-era project to upgrade Philadelphia's neglected port infrastructure.

Municipal Pier 9 - served as marine-railroad terminals.

meant to serve as a grand gateway to the city

Each of these piers could accommodate ships up to 500 feet long

## Construction

Metal sheds topped with monitor roofs and catwalks.

The head houses facing Delaware Avenue were made of poured concrete and decorated with arched entrances, baroque pediments, and rusticated bases.



## Site Layout Advantage

Large open space

Devoid of Columns

Within Center City limits so suits the program

Urban Location

Accessibility

Views of Nature

Works with the Program site footage requirements.

Natural Light from all sides

## Building Features:

Concrete Substructure

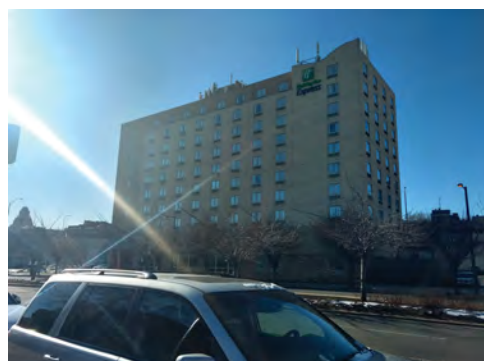
Steel Super Structure

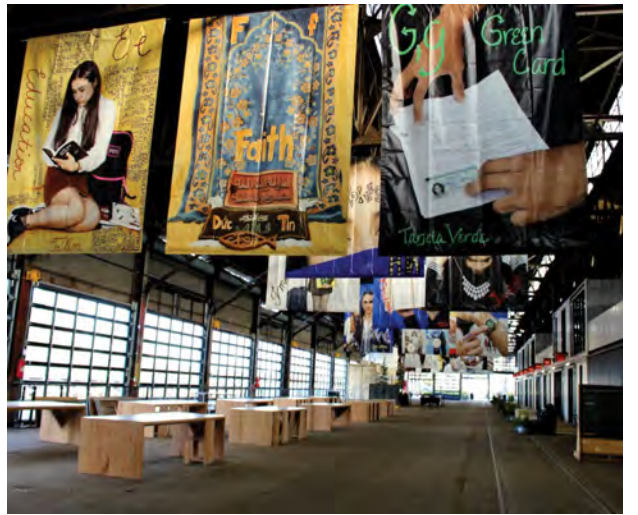
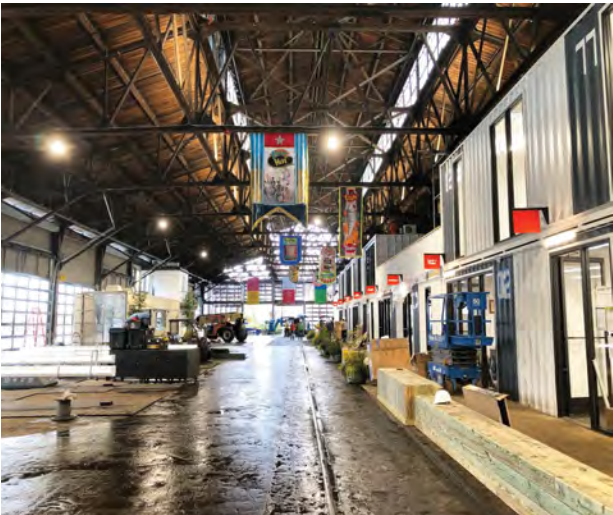
Clerestory Windows

Rolling Shutter overhead doors

Clerestory in Roof Monitor

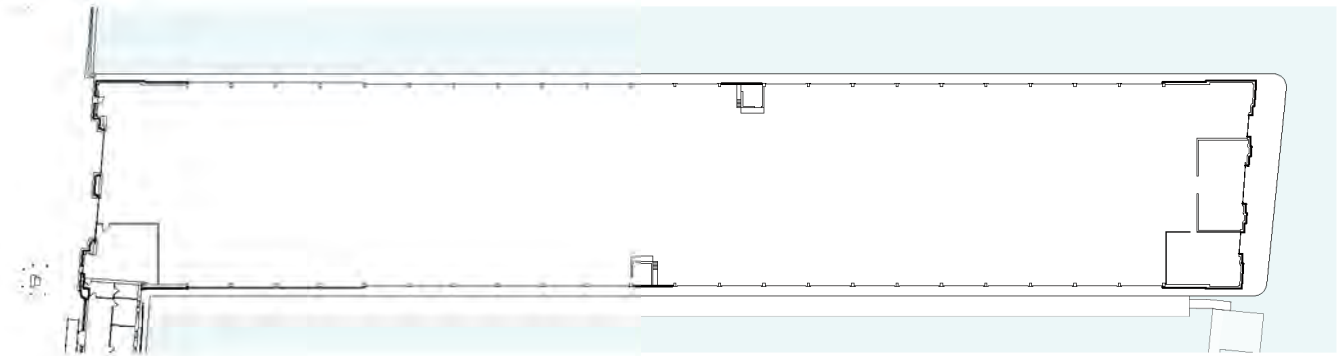
## EXTERIOR AND INTERIOR VIEWS



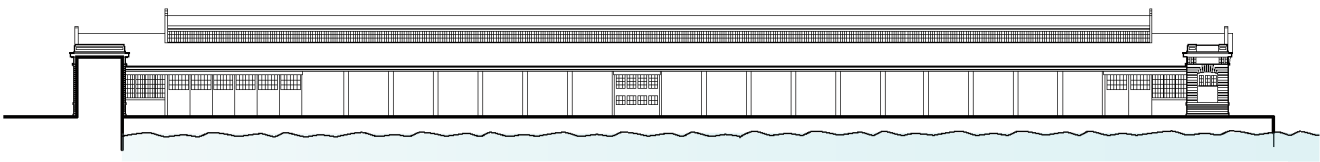




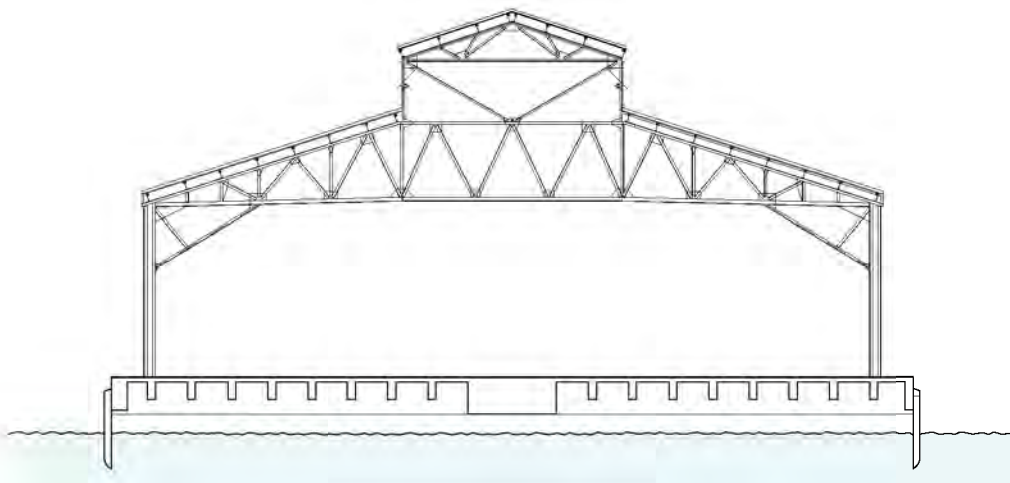
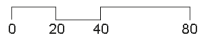
# SITE DOCUMENTATION



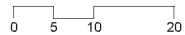
Existing Plan

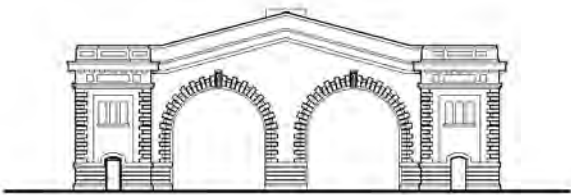


South Elevation

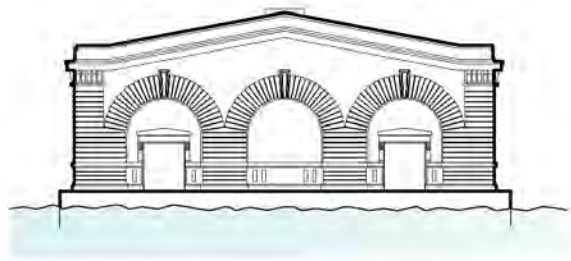
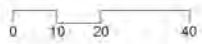


Typical Section

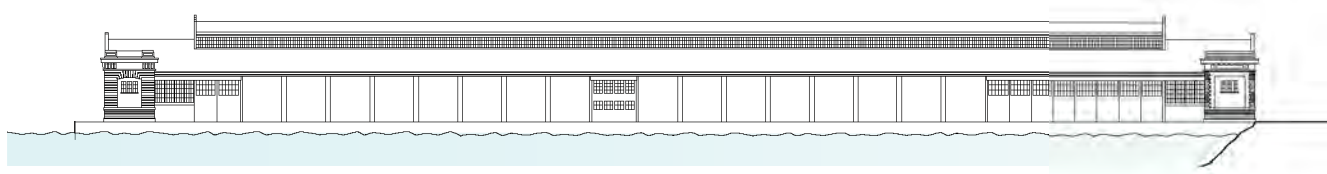
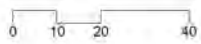




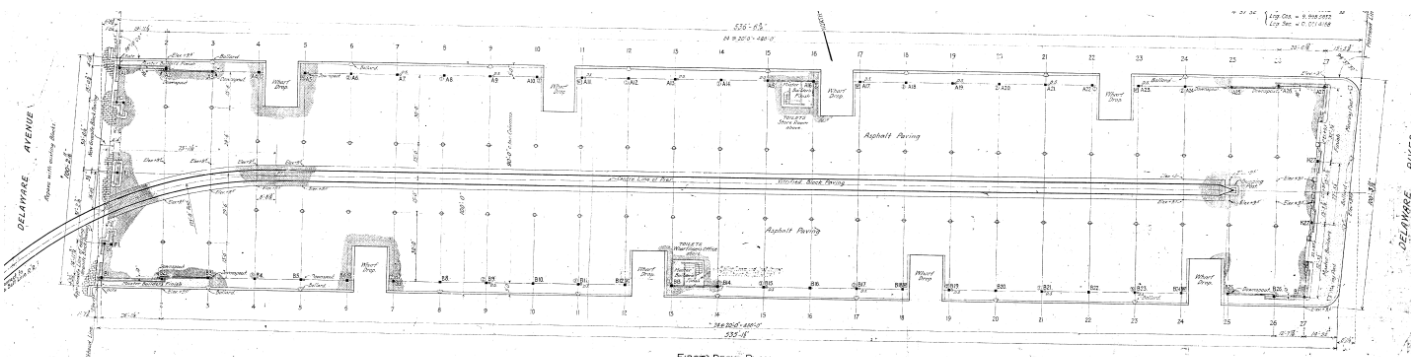
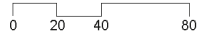
West Elevation



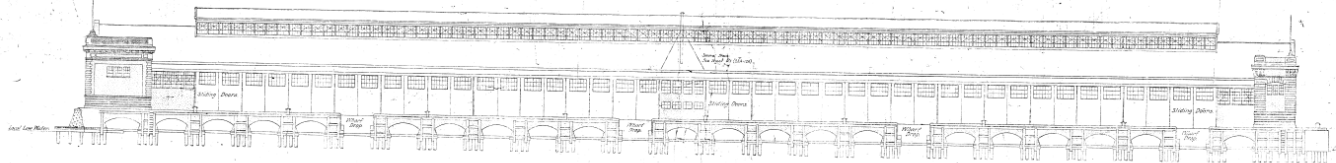
East Elevation



North Elevation



FIRST DECK PLAN



SOUTH SIDE ELEVATION

NOTE - All dimensions refer to Level Line Piles, which control and determine the "Low Water" as indicated by the U.S. Coast and Geodetic Survey and the Department and of the State of New York.

# SITE SWOT & ANALYSIS

## STRENGTHS

Large open space  
Devoid of Columns  
Within Center City limits so suits the program  
Urban Location  
Accessibility  
Views of Water / Nature  
Works with the programs site footage requirements.  
Natural Light from all sides

## WEAKNESS

Site – Architecture may be limiting  
Unidirectional Site

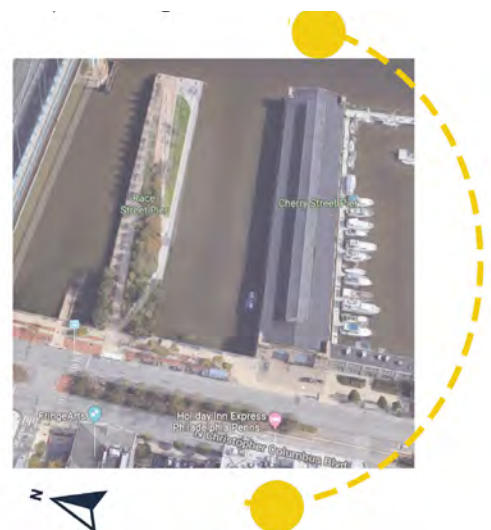
## OPPORTUNITIES

New building type  
Can be recreated in set up in other locations with or without nature views or be one of a kind.  
Bring Community together in peaceful settings  
Extra space for future expansion and adding spaces for quick power naps

## THREATS

May get noisy during peak waterfront activity times  
Building age / Stability/ Foundation Strength

## SUN PATH DIAGRAM



# DESIGN DEVELOPMENT

# DESIGN STRATEGY

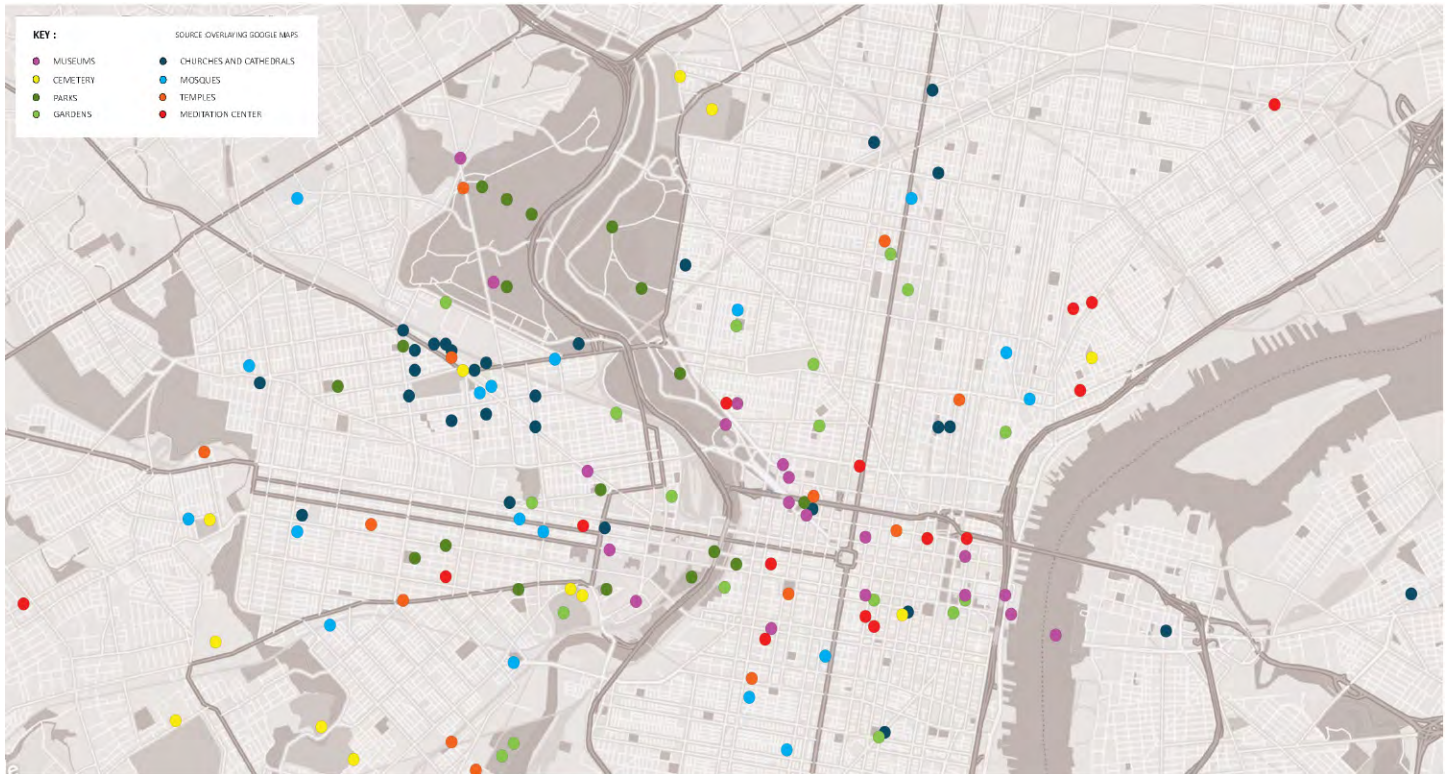
DESIGN PROBE 1 : SCALE

DESIGN PROBE 2 : EXPERIENCE

DESIGN PROBE 3 : MATERIALITY

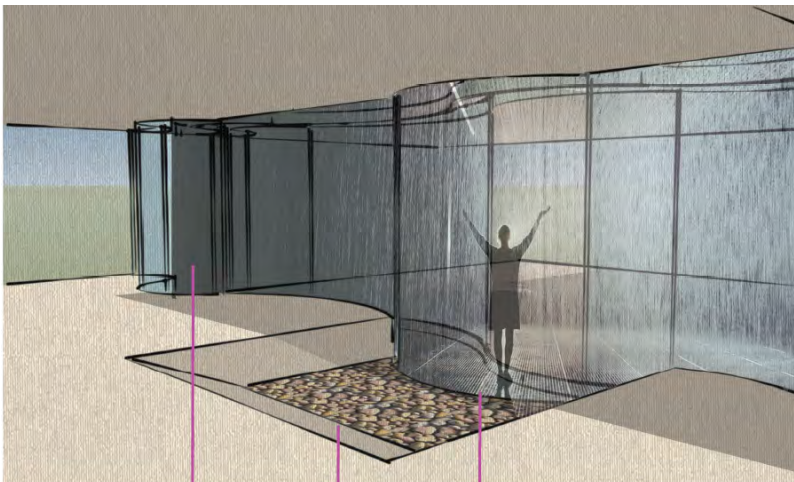
# DESIGN PROBE 1

## SCALE : MAPPING RESTORATIVE AND SACRED SPACE IN PHILADELPHIA

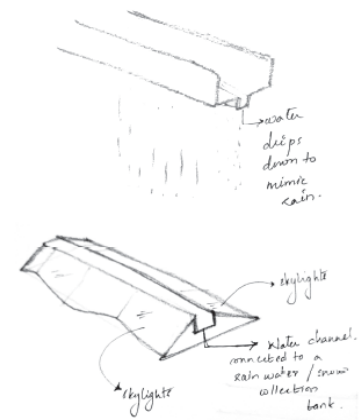


### PARTITION WALL

Spatial Quality : bringing the exteriors inside



TEMPERED GLASS WALLS  
SLOPED SEATING TO SIT AND DIP THE FOOT  
TEMPERED AND PERFORATED GLASS FLOORING WITH PEBBLE BED UNDERNEATH



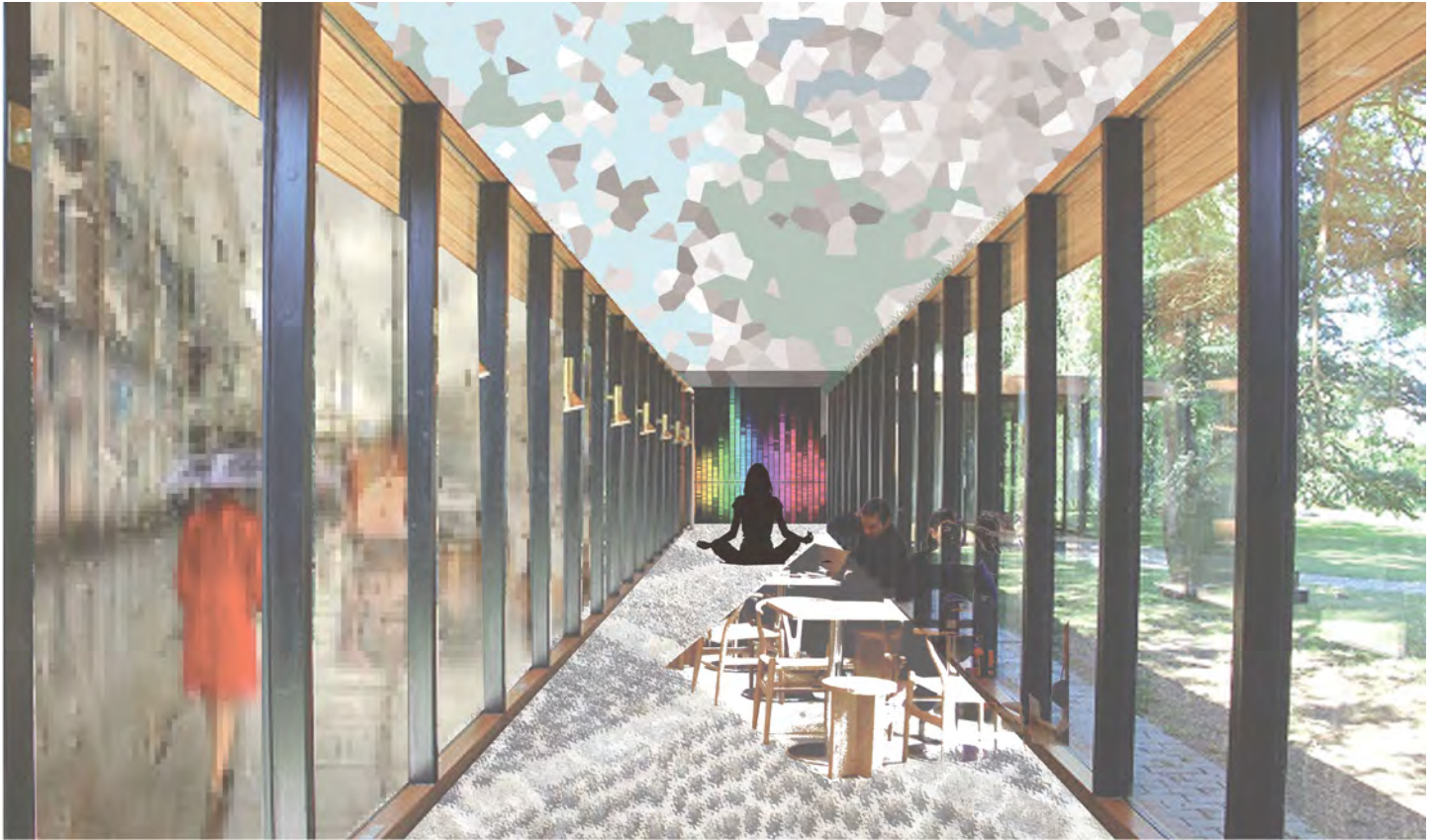
Spatial Quality  
Bringing the exterior inside  
Mimicking nature  
Natural Daylighting through glass ceiling

### DESIGN NOTES:

Glass Partition walls with intermittent opening into the rooms. Water flowing within a river bed floor feature. Rain water flowing from the ceiling in between the glass walls. During rains or snow when one cant be outdoors, one can step in and out from room to room/ walk in between the partitions/ sit sand dip their legs into the cool water and feel refreshed.

## DESIGN PROBE 2

### EXPERIENCE



### COLLAGE OF A CORRIDOR EXPERIENCE

A corridor is turned into an experiential zone with nature views on one side and the busy street on the other side. The street side can only be seen from inside out and not from outside in. The window panes are specially designed to mirror the surroundings from the outside. No one from the outside sees the people in the corridor while the people in the corridor can experience everything in their privacy. This space can be multi-functional based on day to day needs from being a place to meditate or take a coffee break or just to walk for a while in privacy. The ceiling skylights are made of tinted crystals that pull in the colors of the outside but the view is distorted. The colors in the space vary with the light passing through the crystal ceiling from day to night. The corridor flooring is a mix of soft and hard textures equal to someone walking barefoot on smooth pebbles and grass. Soft rain sounds wash through the speakers in the corridors becoming white noise.

## DESIGN PROBE 3

### MATERIALITY

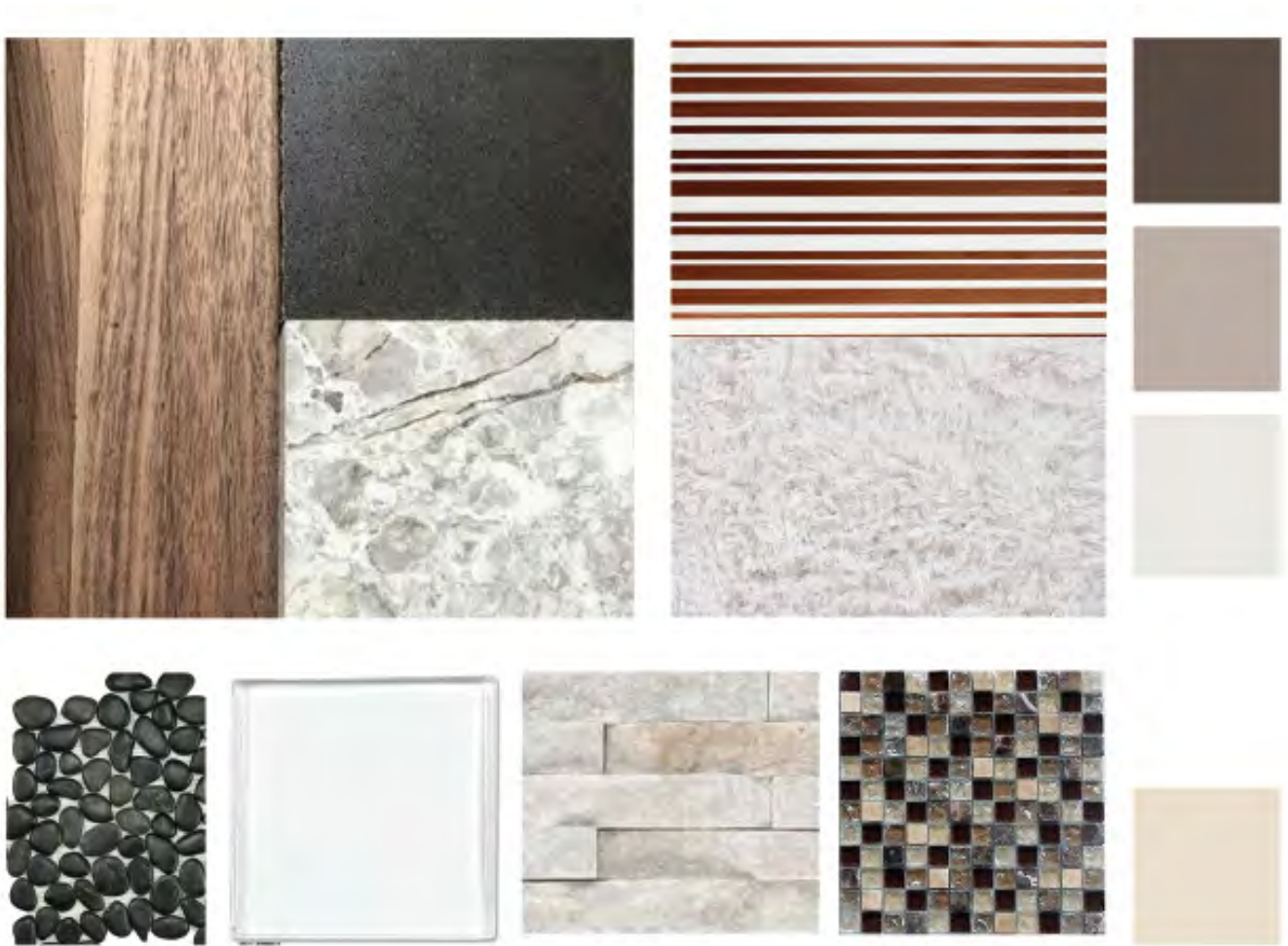


### PRECEDENT - WINDHOVER CONTEMPLATION CENTER MATERIAL STUDY

Almost all surfaces of the contemplation center are composed of materials and elements from nature that reflect the local ecology and geology to create a distinct sense of place. Various shades of earth-toned materials were chosen to play off the natural colors of the surrounding landscape.

The space is composed primarily of three materials: stained oak, rammed earth, and glass. The stained oak brings the interior light down to create a grotto condition. The dark interior accentuates the presence of the bright natural light and the colored oil paintings. Rammed earth walls use a mix of various materials to create elegant striations, rooting the structure both physically and symbolically to the site. Glass is used to connect the spaces visually but separate them processionaly. The floor and benches are made of the same hand-planed stained oak, and individual cushions are provided at the entry. The material selection communicates to visitors that it is okay to sit on the wood. From the gravel at the entry to the trees in the courtyard, each object is carefully chosen to create a continuous color palette to reinforce a calming atmosphere, enhancing the main refuge pattern.





## PROPOSED MATERIAL PALETTE

The proposed material palette is organic with neutral pastels.

It is similar to interiors seen during the precedent studies in the Windhover center or the Bahai Temple.

Materials are chosen for its similarities to textures and patterns seen in nature. Pebbles, Stone, Carpet, Wood etc may be used to transform the space in a transitional manner from hardscapes to softscapes or to delineate public and private spaces just like one experiences transformations both material and texturally when one walks from a city into a forest or seaside. Calming elements are pulled together to evoke both homely as well as a restful environment.

Other elements for materiality include the additional green elements that may be incorporated to create garden spaces and also with water elements intended to refresh the eyes.

# FINAL DESIGN

RESEARCH TO DESIGN

DRAWINGS

RENDERINGS

WAYFINDING & SUSTAINABILITY

FURNITURE & MATERIAL DOCUMENTATION

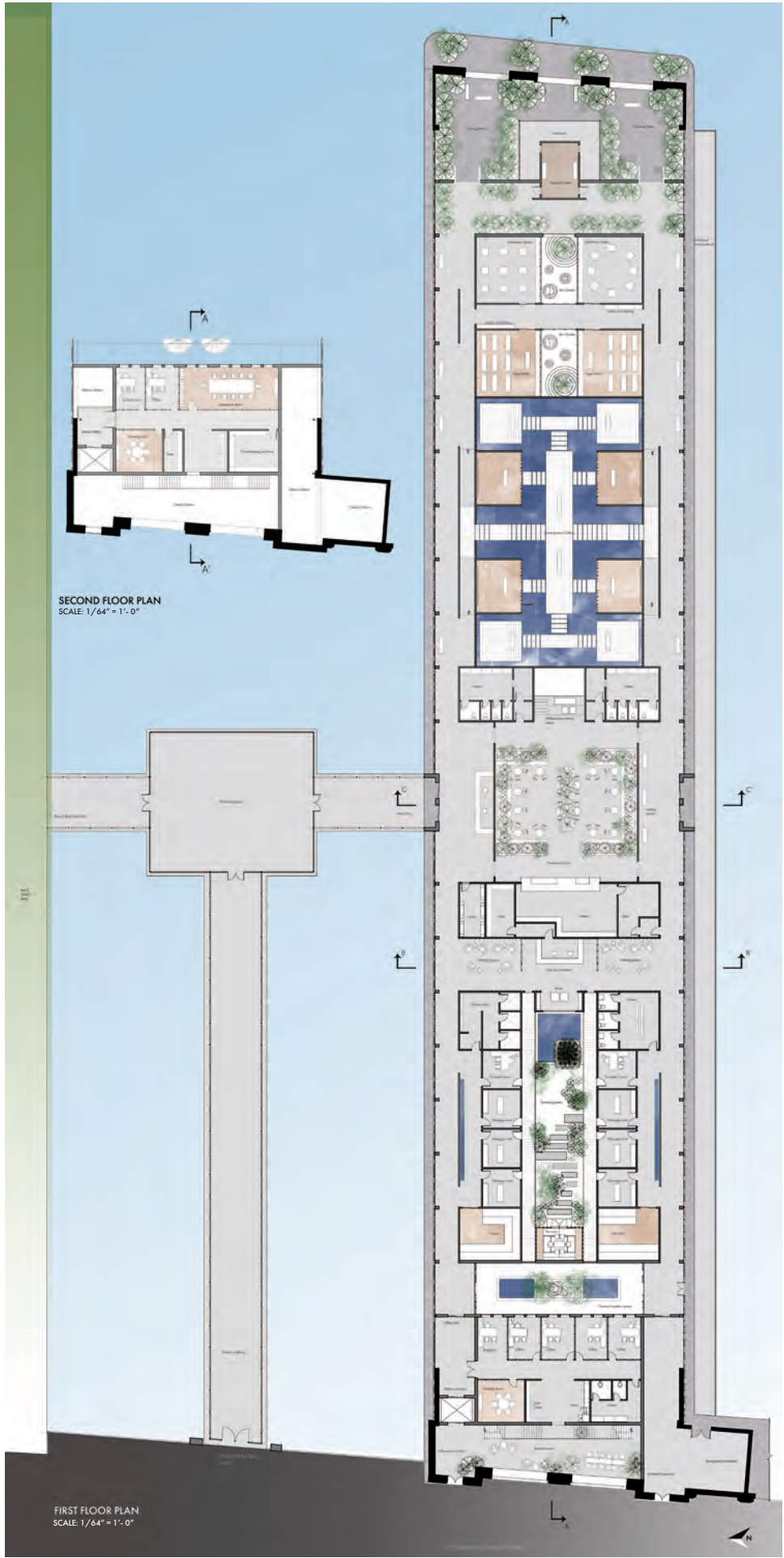
## RESEARCH TO DESIGN

Researching sacred spaces and restorative environments along with studying precedents and doing case-studies lead to the narrowing down of a few commonalities that restorative spaces that help our mind relax have. The program development and site analysis along with the design probes further helped in redefining the intensional spaces in the design. The project was then further developed by the arrangement of spaces that destress by creating contemplative, spiritual and holistic healing areas by incorporating aspects such as dynamic and diffuse lighting, sequencing, material connection with nature, biophilic components like water, light courts and gardens etc. which help heighten and play with the senses which in turn activates the body and mind. Equal importance was given to users who liked to destress in public or private spaces. Paths of travel were designed such that the user felt in one with nature even though they were in a built environment. Filtration of light through the exterior facade was accentuated to invoke a feeling of walking in nature. The exterior facade was developed as a second skin to the existing structure and designed to portray trunks and branches of trees. Every space in the program was curated to have aspects of nature within in whether it was including water features or gardens. Zen gardens, scented gardens, tree groves, reflection pools were incorporated specifically to function as one with the areas they were designed for. An entry portal was created from the main road as a bridge into the building so as to serve as a pathway through which the user could travel and shed the stress they bring from their everyday lives. The bridge temporarily terminates at a rainbow panorama square from where 360 degree views of the city in VIBGYOR colors could be viewed. This square served as a space of rest as well as a zone to clear the mind for new experiences. The spiritual center was placed as the end of the pier so as to maximise the views from the pier and minimise the noise from the main roads. The office and service entry was placed along the main road for easy access into the building. A community cafe was designed to cater to the health and nourishment of the users. The cafe also has multipurpose spaces to conduct stress awareness camps and other events or even to serve as separated quiet zones. The yoga and meditation studios were designed with minimal disruptive features so as to minimise distractions and improve concentration and health. The galleries were designed so as to have both an indoor and an outdoor experience at the same time. Public and private moments were created so that the user interaction with the art and sculptures could be effective. Minimal furniture, green walls separating spaces and a material connection to nature through the use of natural elements like dark and light woods, stones like granite, marbles and pebbles helped in creating a modern and contemporary space fit for contemplation and relaxation.

# DRAWINGS

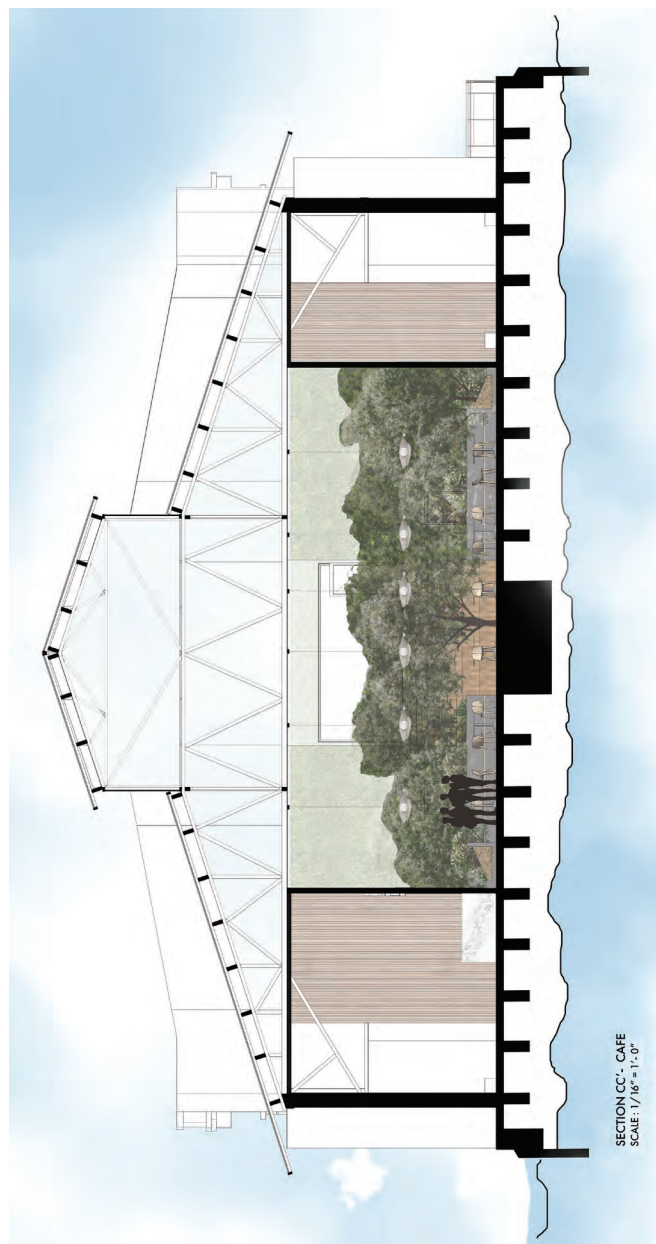
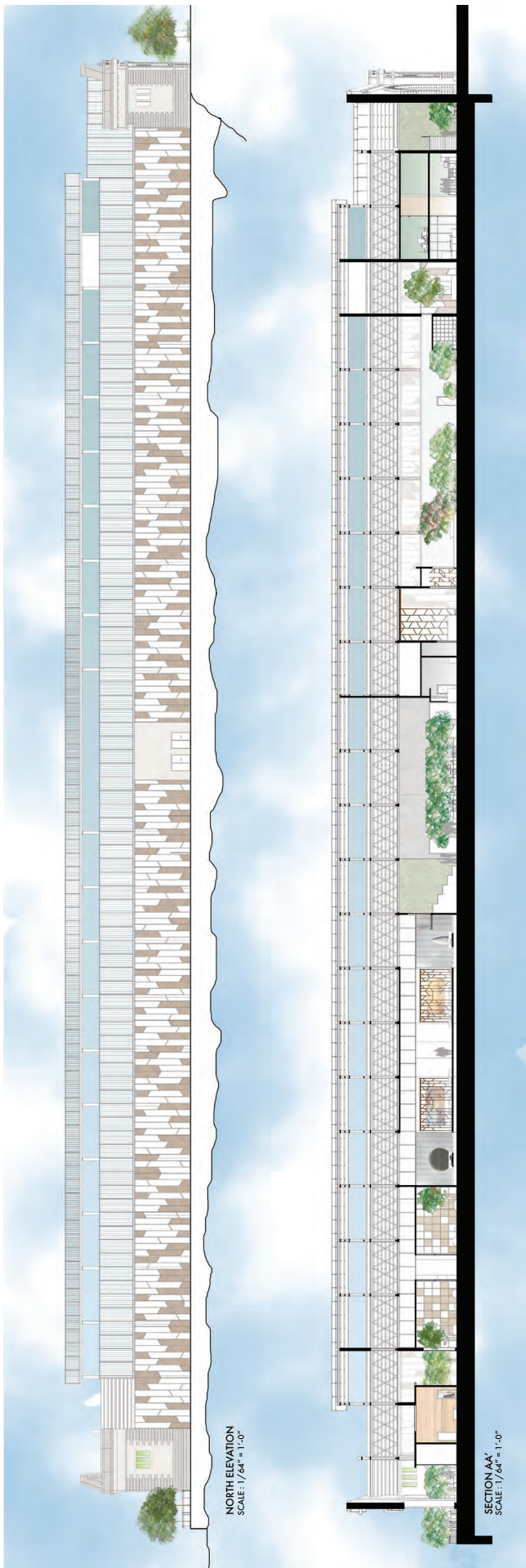
PLAN

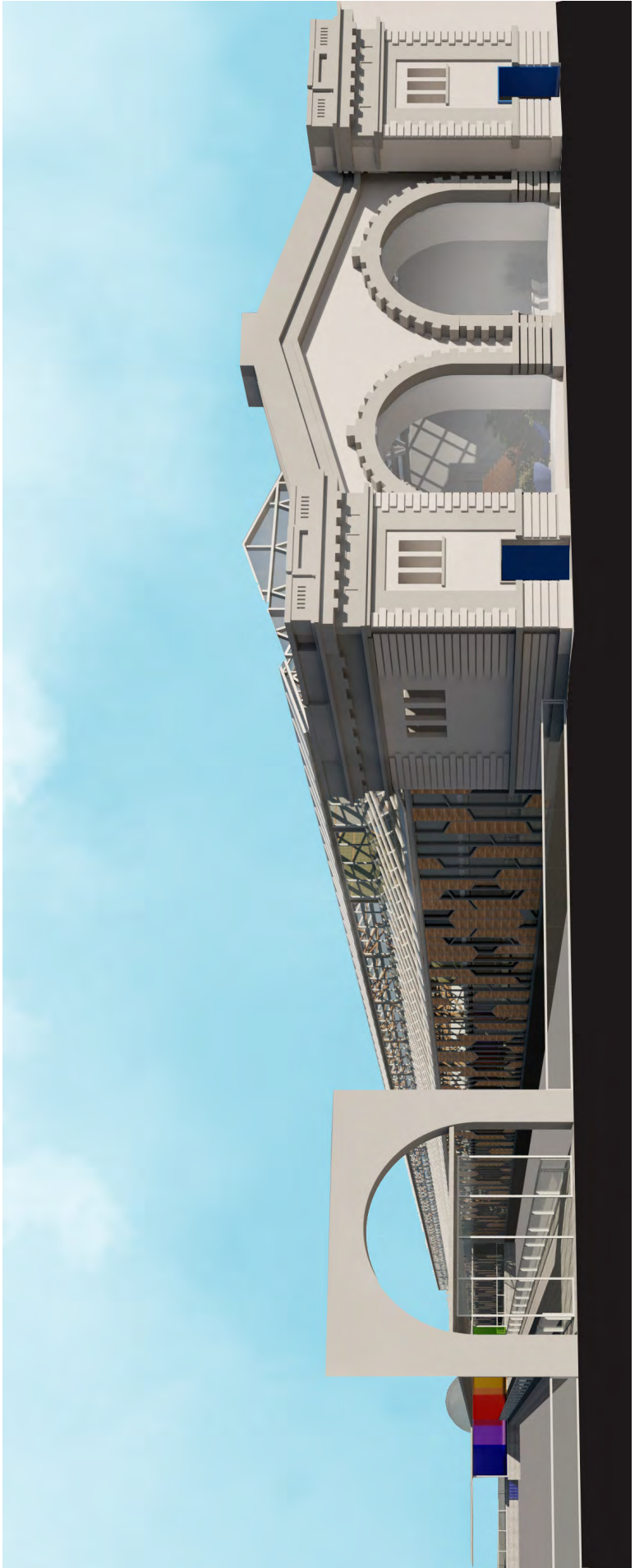
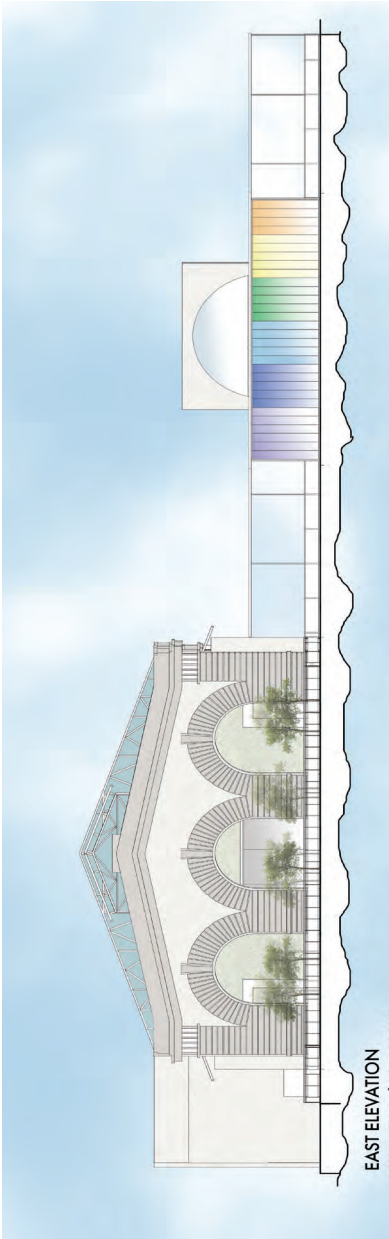
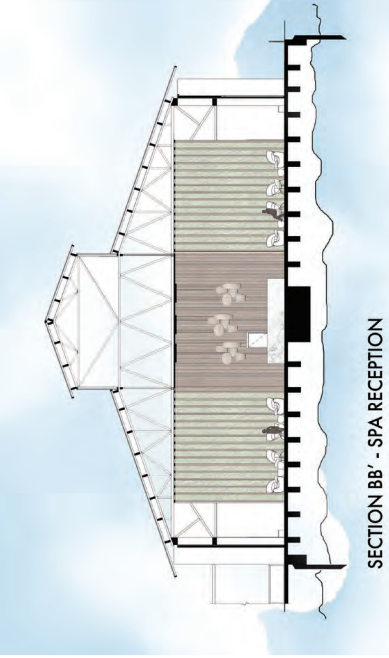
SECTIONS AND ELEVATIONS



SECOND FLOOR PLAN  
SCALE: 1/64" = 1'-0"

FIRST FLOOR PLAN  
SCALE: 1/64" = 1'-0"





# RENDERINGS





VIEW OF THE RECEPTION AND CAFE ENTRY

VIEW OF THE CORRIDOR CONNECTING THE RECEPTION

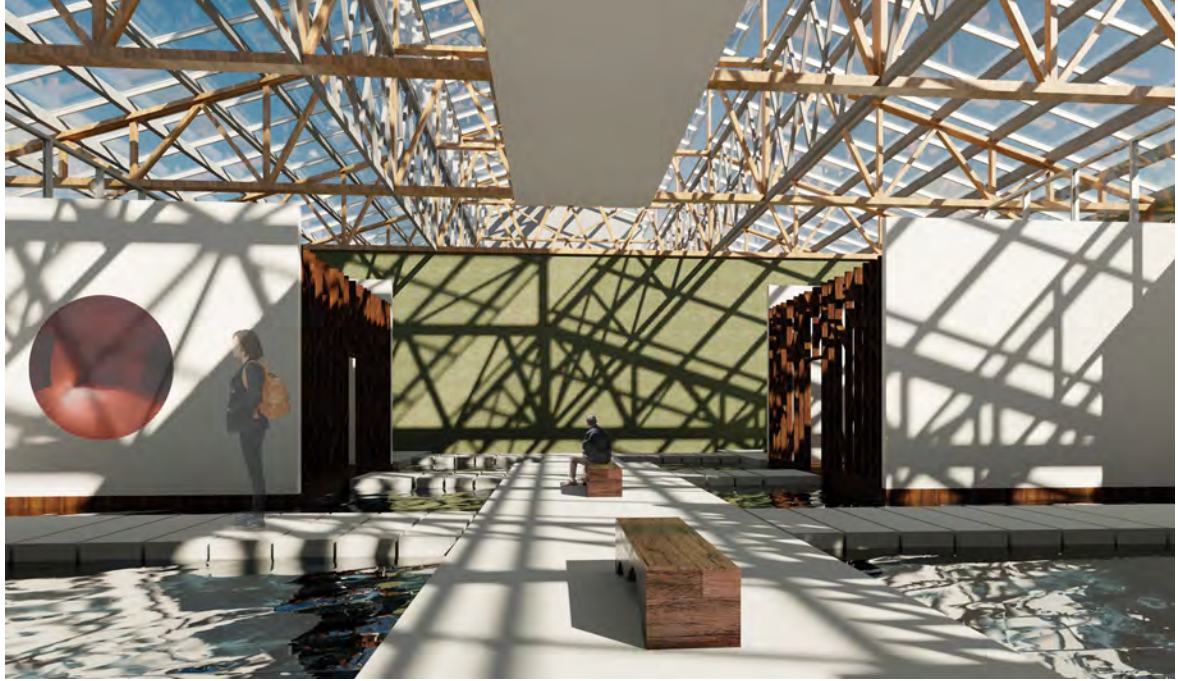




COMMUNITY CAFE

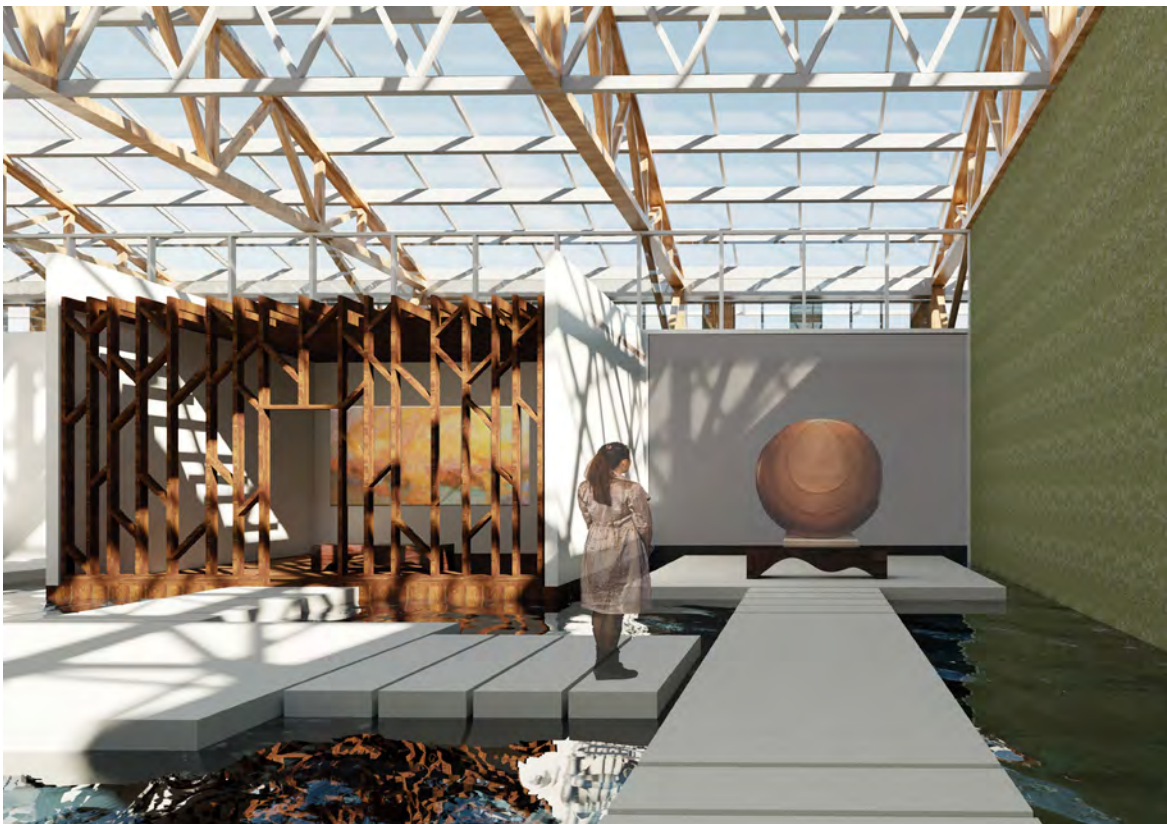
WALKWAY





CONTEMPLATION GALLERY

SCULPTURE GALLERY





MEDITATION STUDIO

SPIRITUAL CENTER AND GARDEN















SPA RECEPTION AND WAITING LOUNGE

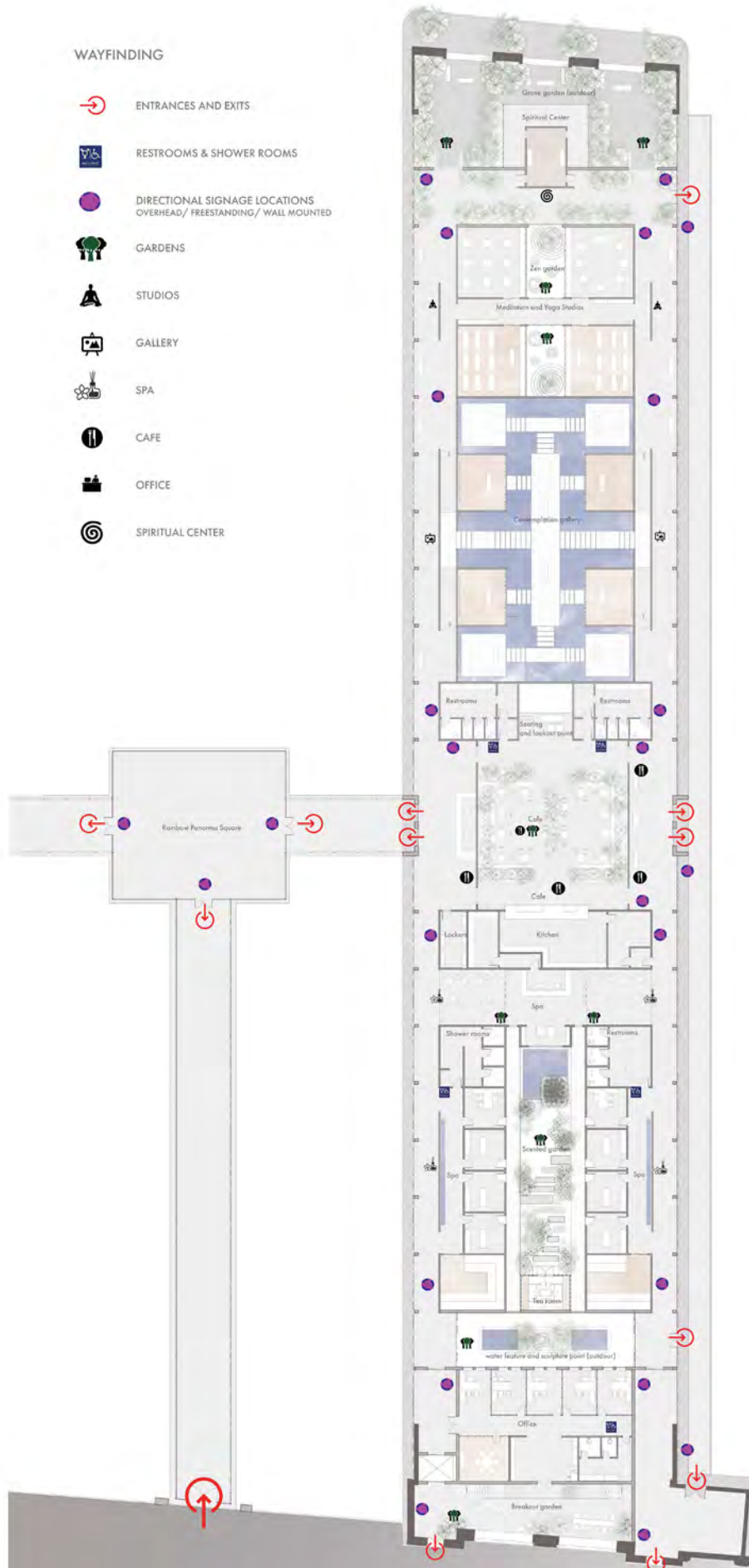
TEA ROOM IN SCENTED GARDEN



# WAYFINDING

WAYFINDING

-  ENTRANCES AND EXITS
-  RESTROOMS & SHOWER ROOMS
-  DIRECTIONAL SIGNAGE LOCATIONS OVERHEAD/ FREESTANDING/ WALL MOUNTED
-  GARDENS
-  STUDIOS
-  GALLERY
-  SPA
-  CAFE
-  OFFICE
-  SPIRITUAL CENTER



# SUSTAINABILITY



# SUSTAINABILITY FEATURES IN THE DESIGN

## 1. Improved daylighting:

- Clere storey lighting
- Occupancy Sensors
- Skylights
- Minimizing Artificial Lighting

Designing with as much as natural daylight while giving consideration to solar gain and to reduce the reliance on electric lighting and to improve the well-being of the occupants.

## 2. Use of sustainable and recyclable materials:

Materials chosen should be quickly renewable and sourced sustainably. FSC labels on wood products.  
Eg: Bamboo Flooring in the Yoga and Meditation Studios.

## 3. Designing Flexible spaces:

Flexible spaces are important for longevity of the building and for easy reconfigurability.

## 4. Improving Indoor Air quality:

- Indoor plants
- Courtyards
- Green Walls
- No Carpet Usage

## 5. Natural Ventilation

Stack Effect via operable skylights.

## 6. Biomimicry / Biophilia

- Exterior Facade mimicking woods, trees and branches
- Aids with well being standards - Nature mimicry
- Visual Connection with Nature -Gardens, courts, water features
- Dynamic and Diffuse Light - Filtering Light and Skylights
- Material Connection with Nature - Woods, stone and greenery.

# FURNITURE



Maui Armchair  
Riva 1920



Mountains  
Riva 1920



Tulip table  
Knoll



Mytilus  
Arturo Alvarez



Pam Armchair  
Design Lush



Osso Chair  
Herman Miller



Bong table  
Cappellini



Bola Pendant  
Pablo



Elysia Lounge Chair  
Hive



Bridge  
Riva 1920



Womb Chair  
Knoll



Coral  
Arturo Alvarez

# MATERIAL DOCUMENTATION





## SELECTED MATERIAL PROFILES:

### 1. MOSO BAMBOO SUPREME - Bamboo Flooring

Color-Caramel

Shrink/Swell bamboo: 0.14% per 1% change in Moisture Content (SP/PP)

Reaction to fire: Class Cfl-s1 (EN 13501-1)

Formaldehyde emission: Class E1 (< 0.124 mg/m<sup>3</sup>, EN 717-1),

Class E0 (< 0.025 mg/m<sup>3</sup>) 1) (HD)

Critical radiant flux: Class 1 (SP/PP), Class 1 (HD) (ASTM E 648)

CO<sub>2</sub> neutral: LCA report TU Delft (ISO 14040/44)

Environmental Product Declaration - EPD (EN 15804)

FSC®: Products available with FSC® certification on request.

Contribution LEED BD+C - v4: MR 1, MR 2, MR 3 (FSC®), EQ2 v2009: MR 6, MR 7 (FSC®), IEQ 4.3

Contribution BREEAM: HEA 2, MAT 1, MAT 3 (FSC®), MAT 5 (HD)

### 2. 1983 TOTALLY TATAMI - SOFT RUSH GREEN - Phillip Jeffries Wallpaper

Color- Soft Rush Green

Fire Rating: ASTM E84 CLASS A

LEED Certification - MR 5, MR 6

### 3. Coldsprings MESABI BLACK- Granite

3rd party Certification: ANSI/NSC 373 Sustainable Production of Natural Dimension Stone

American Legacy Stone

CSG-4009

VOC Emission - CDPH Compliant

Quarry - Babbitt, Minnesota

End of Life Options : Take Back Program (Cold spring, MN), Salvageable/Reusable in its entirety

### 4. Walnut Wood Vener Laminated Architectural Glass - Bendheim

Low-iron glass; wood veneer produced from renewable, plantation-harvested trees

Bendheim laminated safety glass meets the requirements for ANSI Z97.1 & the Consumer Product Safety Commission CPSC 16FR,Part 1201 – Safety Standard for Architectural Glazing Materials.

### 5. 3 form Varia Ecoresin - Hush Cinder

Conforms to SCS Recycled Content Standard V7-0 for a Minimum 40% Pre-Consumer Recycled PETG

GREENGUARD® Indoor Air Quality Certified

LEED Certification - MR 4, MR 5

# PROCESS WORK

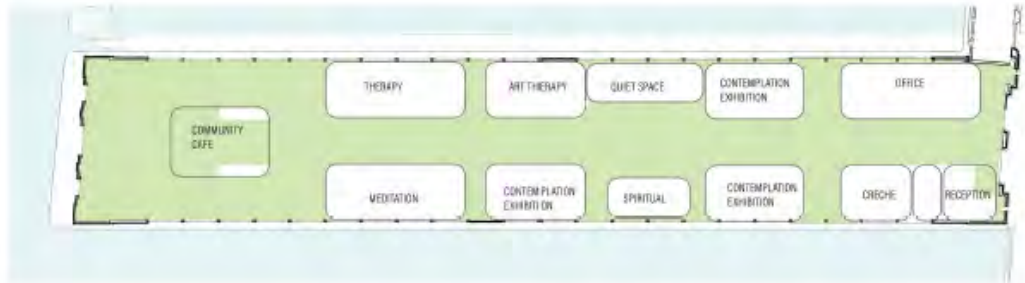
BLOCKING AND IN- SITE DIAGRAMING ITERATIONS

SCHEMATIC DESIGN PRESENTATION

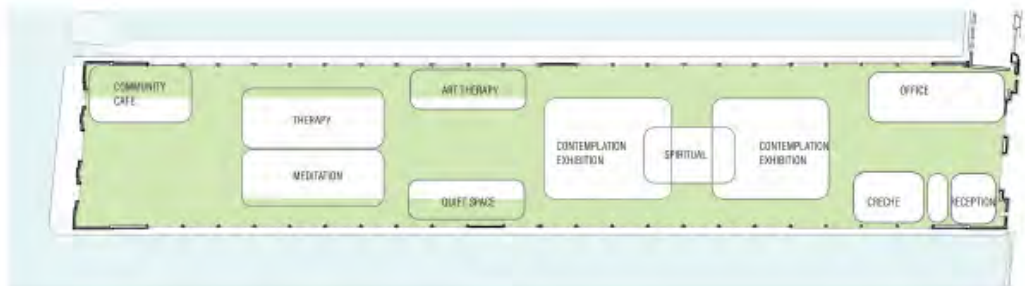


# BLOCKING AND IN- SITE DIAGRAMING ITERATIONS

OPTION 1 – INWARD FACING



OPTION 1 – OUTWARD FACING



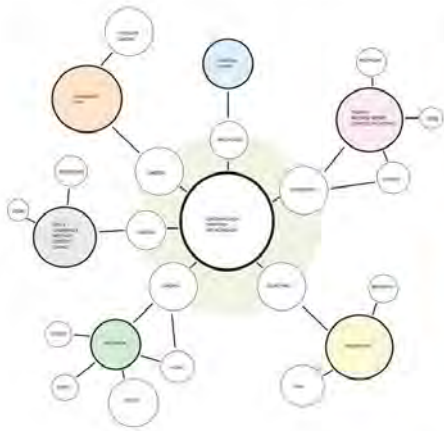
## BLOCKING DIAGRAM



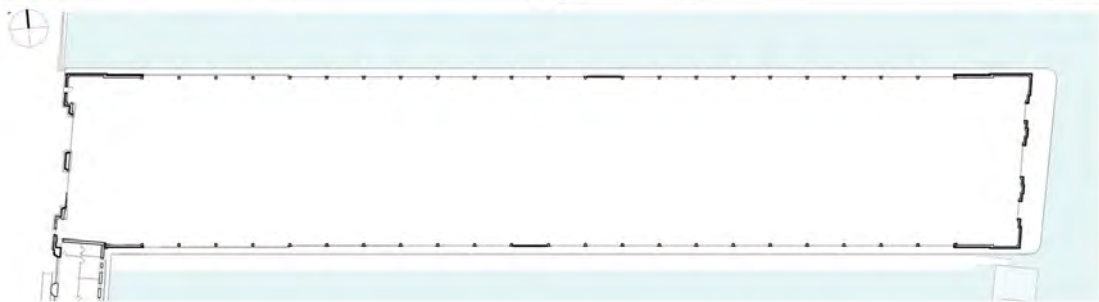
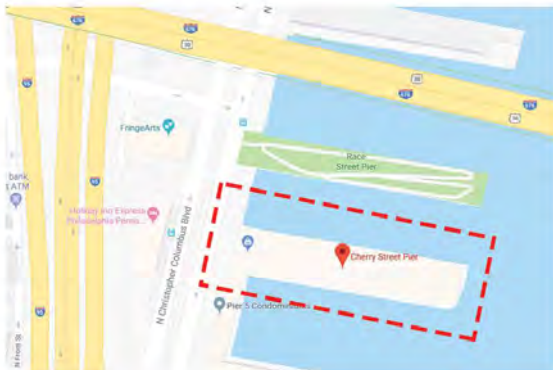
- |           |         |           |         |       |
|-----------|---------|-----------|---------|-------|
| SPIRITUAL | FITNESS | ART       | OFFICE  | WATER |
| GREEN     | SERVICE | COMMUNITY | THERAPY |       |



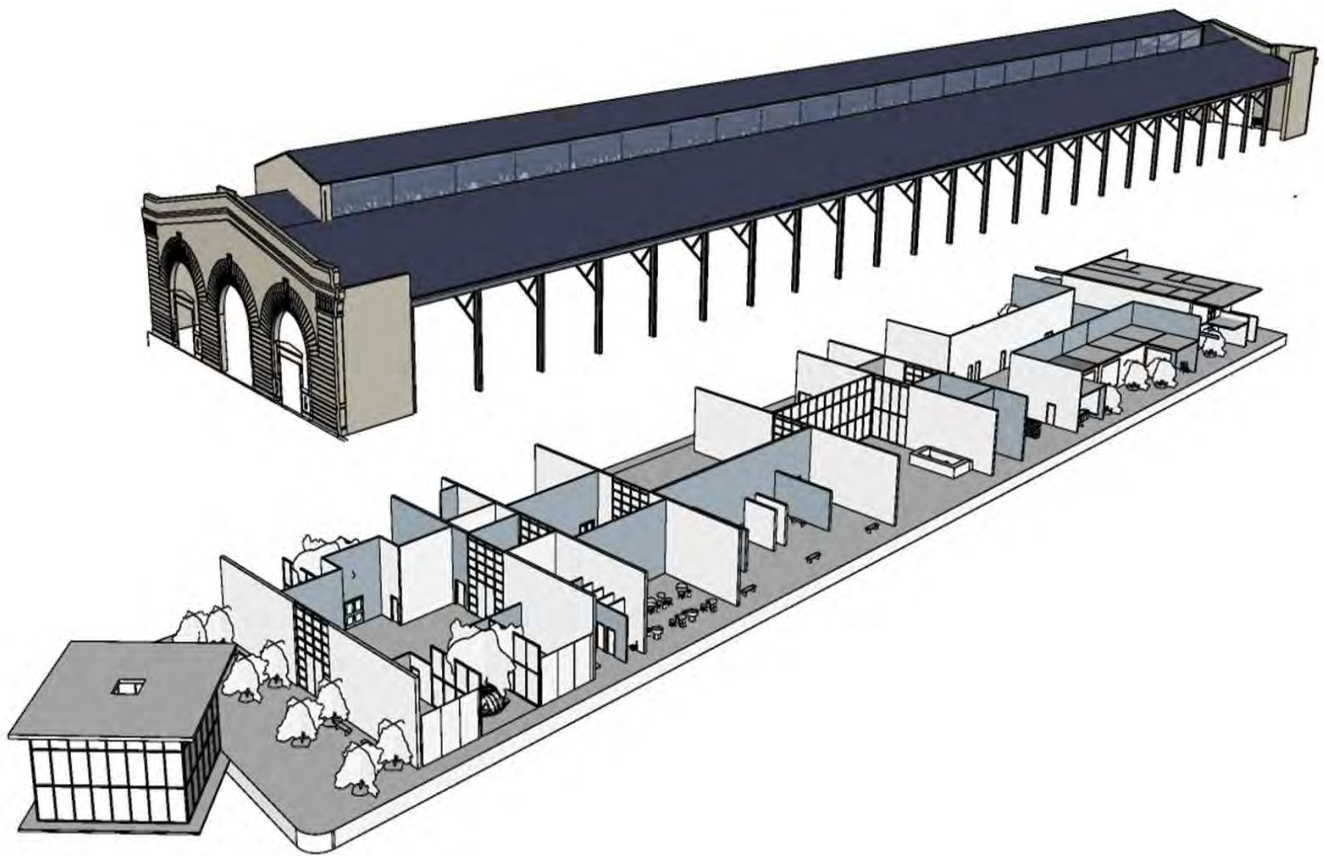
# SCHEMATIC DESIGN PRESENTATION

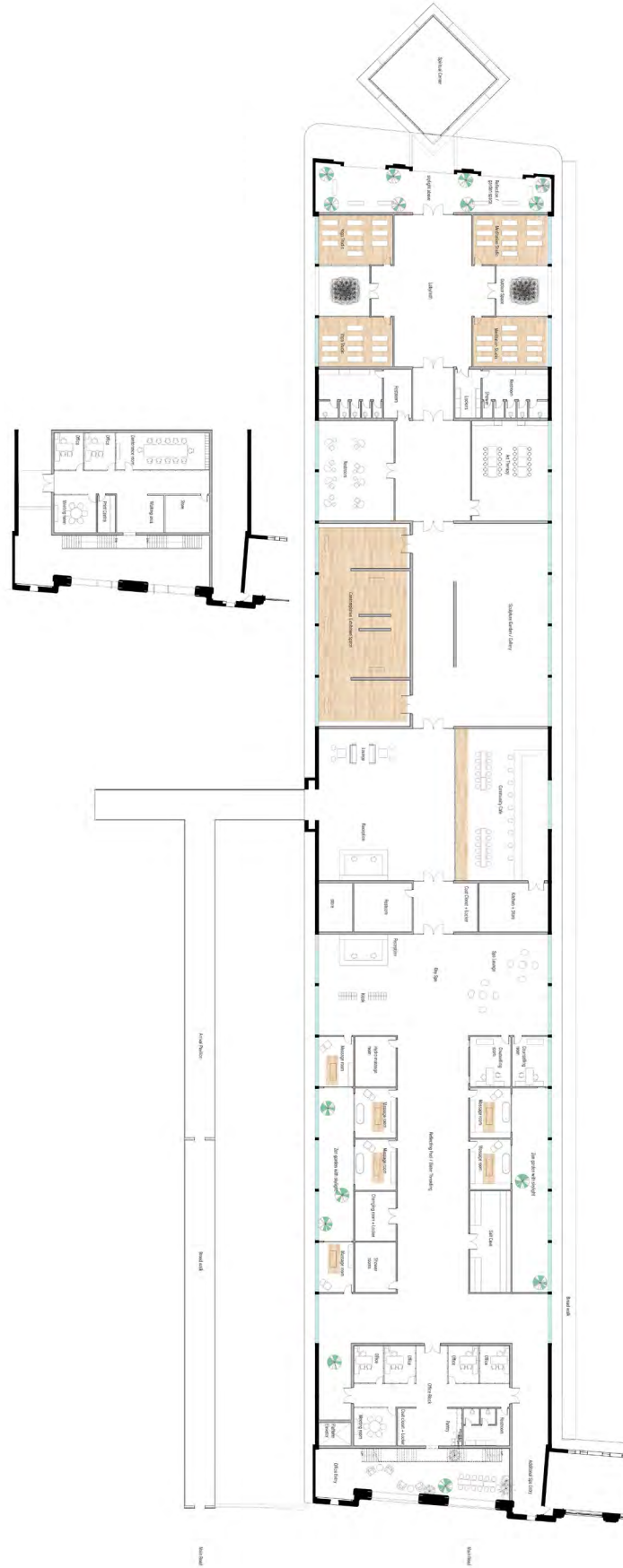


## SITE

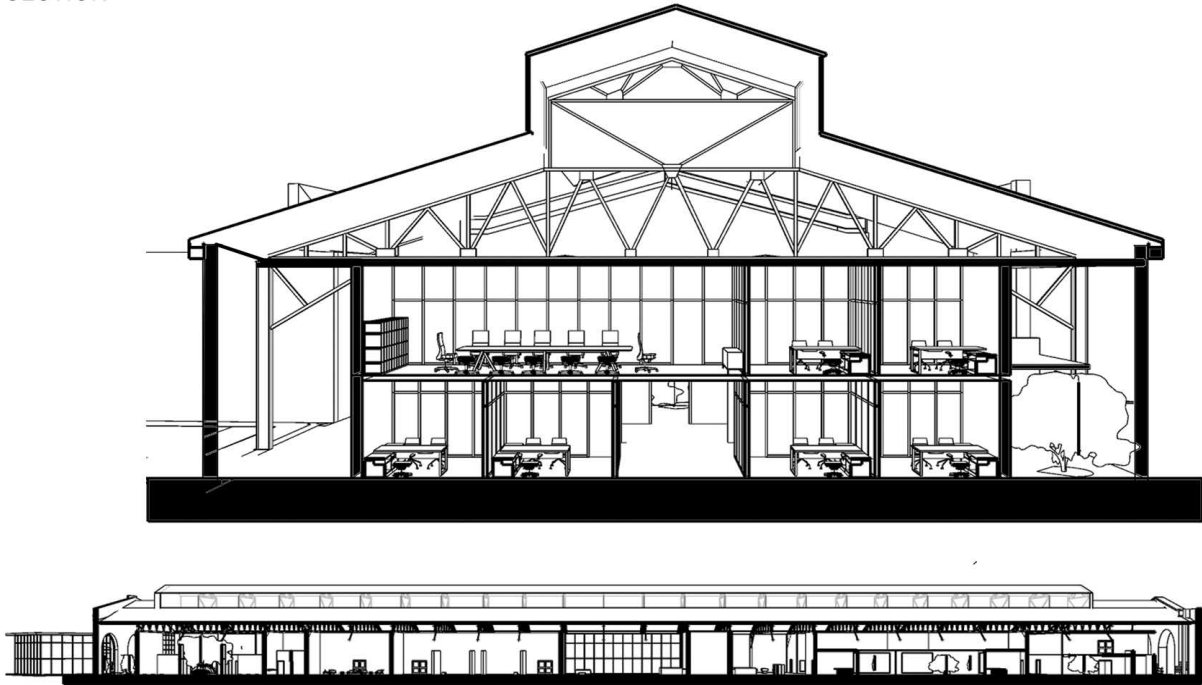


AXONOMETRIC

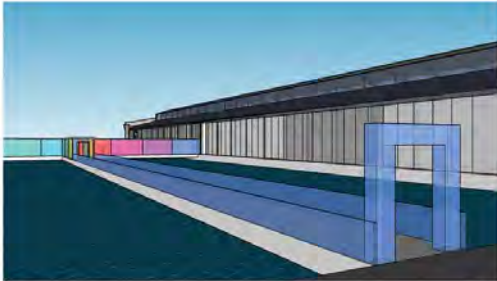




SECTION



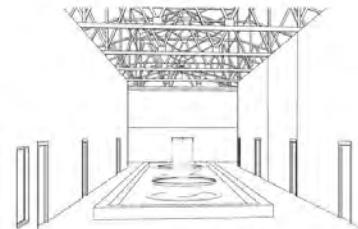
VIEWS



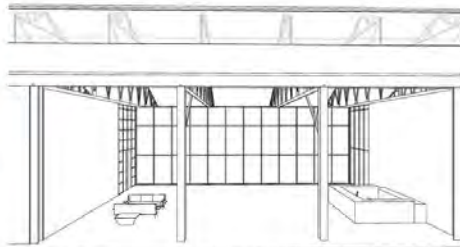
Arrival Pavilion - Inspiration Olafur Eliasson's Rainbow Panorama



Breakout space - Office



Breakout space - Office



Lobby

## MATERIALS



Horizontal Bar - Fitz Felt



Light Oak Flooring



Light grey polished concrete flooring



Green walls



Pebble - Fitz Felt



Geo panel grille wood ceiling - Geometrik



Titanium black granite granite



Solar Channel Glass



Black polished pebbles



White sand



Flow - Spinneybeck Flexible wood wall panel

## FURNITURE

### SCULPTURE GARDEN



### QUIET LOUNGE



### GALLERY



### OFFICE

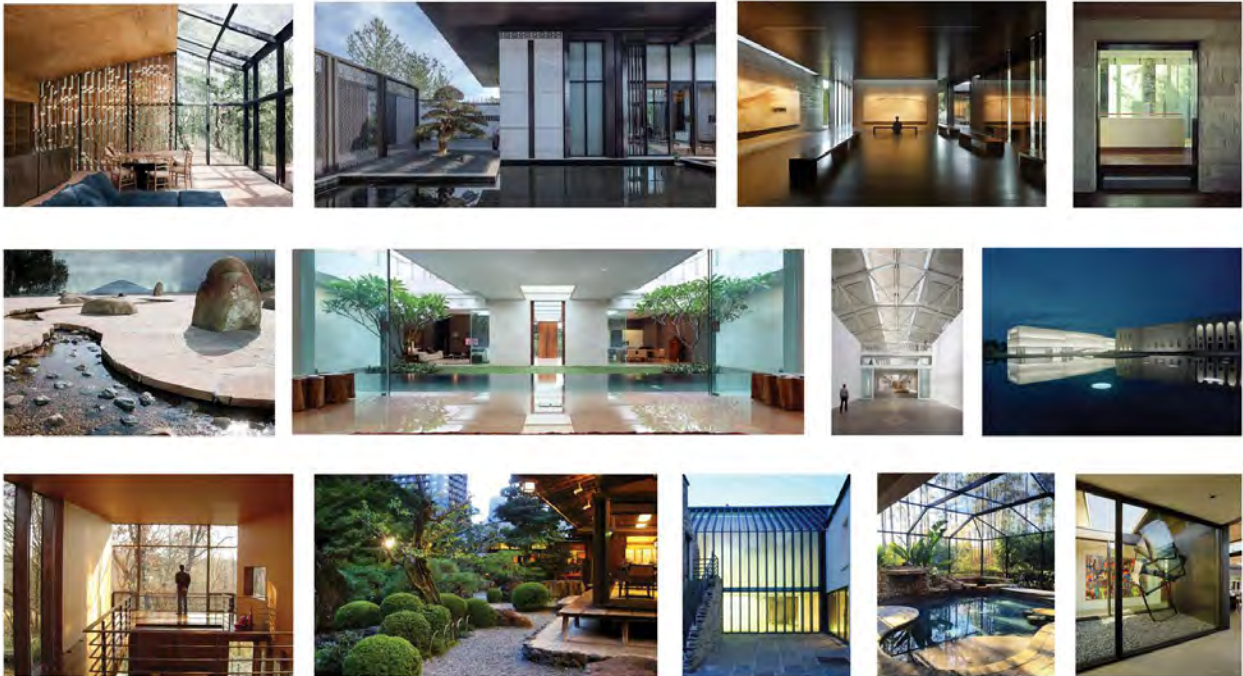


### SPA

### CAFE



INSPIRATION IMAGES







## ACKNOWLEDGEMENT

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## BIBLIOGRAPHY

Images and data for casestudies, precedent and site:

Oscar Lopez. "AD Classics: Rothko Chapel / Philip Johnson, Howard Barnstone, Eugene Aubry" 14 Sep 2011. ArchDaily. <<https://www.archdaily.com/160388/ad-classics-rothko-chael-philip-johnson-howard-barnstone-eugene-aubry-and-mark-rothko/>> ISSN 0719-8884

"Windhover Contemplative Center / Aidlin Darling Design" 18 Mar 2015. ArchDaily. <<https://www.archdaily.com/608268/windhover-contemplative-center-aidlin-darlin-design/>> ISSN 0719-8884

"Center for Jewish Life at Drexel University / Stanley Saitowitz | Natoma Architects" 19 May 2017. ArchDaily. Accessed 12 Dec 2018. <<https://www.archdaily.com/871609/center-for-jewish-life-at-drexel-university-stanley-saitowitz-natoma-architects/>> ISSN 0719-8884

Other Image Sources :

<https://www.delawareriverwaterfront.com/>

<https://www.cherrystreetpier.com/>

<https://www.uwishunu.com/2011/07/the-rodin-museum-set-to-unveil-its-restored-gardens-on-bastille-day-tomorrow-july-14/>

