

2021

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LUCE SACRA



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a s

a c k n o w l e d g e m e n t s

SOLI DEO GLORIA

TO MY PARENTS

I love you. Thank you for your sacrifice and your relentless support and encouragement throughout this journey. Thank you for reminding me of the Lord's truth in times where all seemed impossible and unattainable. Thank you for laying and instilling in me the foundation of my faith, which is truly the backbone of this project, and everything that I do. Thank you for pushing me to work in everything as if I were working for the Lord. May He be honored and glorified.

TO MY COMMITTEE + PROFESSOR

Thank you for your commitment and time to this project. I am grateful to you all for seeing this project in new lights that pushed me to explore new ideas and concepts. Your input and advice were conducive to the completion of this study and I am thankful for each meeting and conversation we had in relation to it. Thank you for your patience and encouragement through this process as I delved into the themes of light and sacredness, discovering what they meant to me.

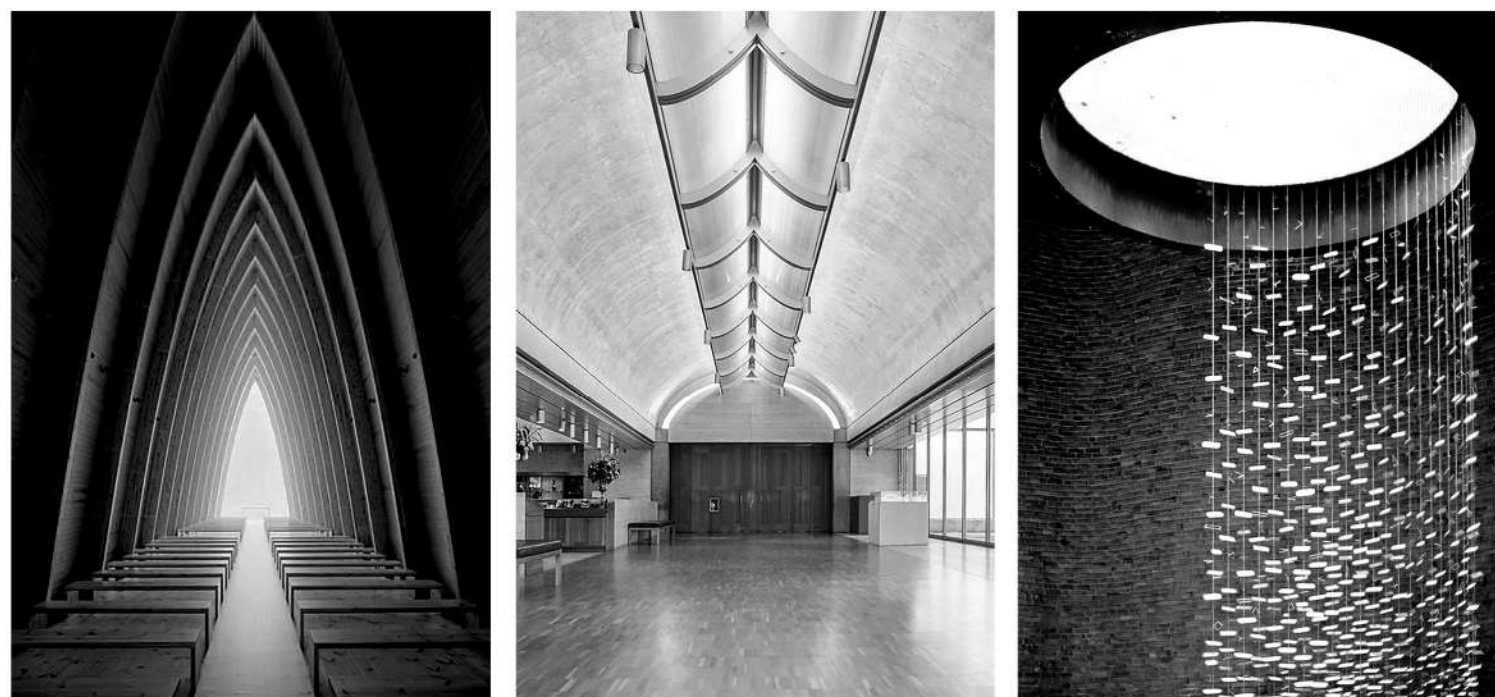
ROMANS 11:36

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light +

sacred



Light can be controlled through six properties: intensity, color, angle, distribution, quality, and movement. These properties can be combined to achieve three, distinct characters of light: focal glow, ambient luminescence, and play of brilliants. Focal glow is the celebrated limelight that draws attention and separates the important from the unimportant. As an intense, focused light, the effect gives a significant composition of attention on the targeted space. Described as an uninterrupted light, ambient luminescence is equal to indirect

lighting. The resulting effect is a shadowless illumination that blurs edges and minimizes the importance of all objects-giving everything a neutral light. This can be achieved through translucent ceilings or carefully positioned openings. Crystal chandeliers, sunlight on rippling brook, light breaking through trees, city night life - each a play of brilliants. This character excites optic nerves and awakens an inner curiosity. Whether the act is distracting or entertaining, it certainly has the ability to attract the eye.



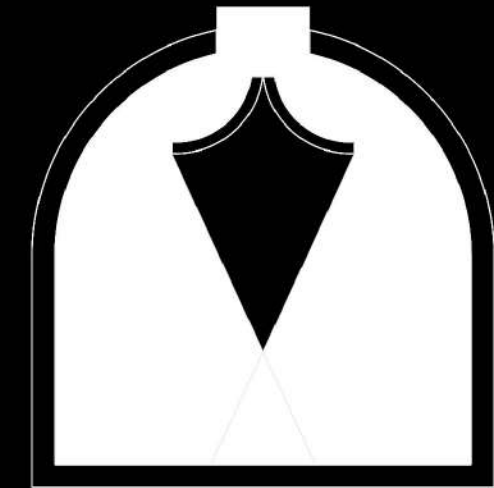
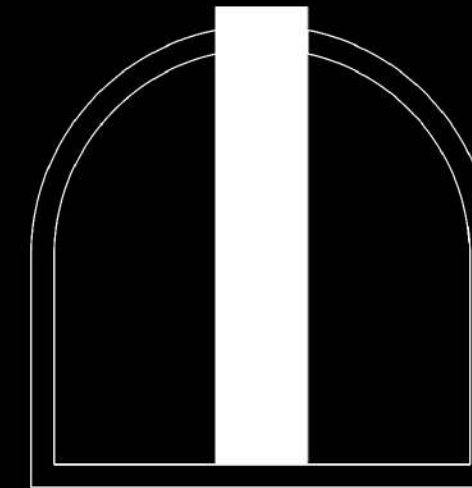
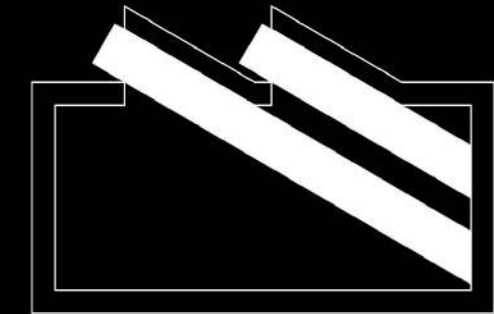
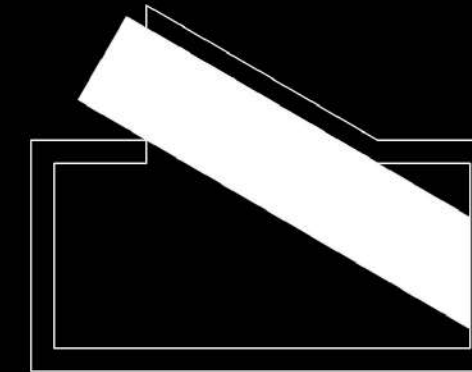
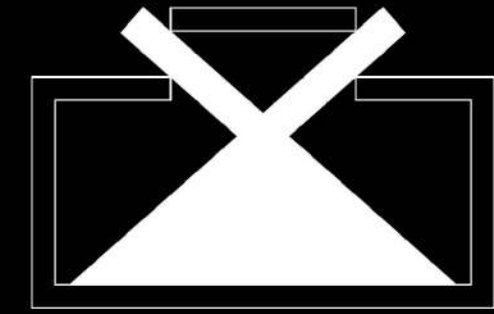
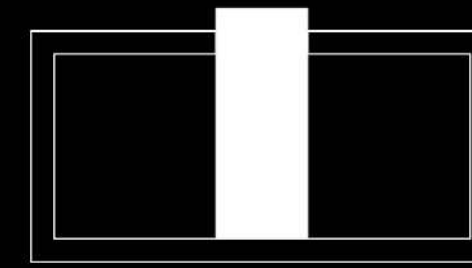
The word sacred can often be described as "holy and deserving respect" and has traditionally always been associated with religious places. Today, it can be used to describe a state of mind and as a word to describe the world around us. In the journal review, Sacred Landscapes and the Phenomenon of Light by Barbara Weightman, sacred is described as a notion that "consecrates places and turns them from ordinary to blessed,

regardless of if they are man-made or organically exist in nature." Weightman also implies that sacred places cannot exist without the attribute of light. She notes that "the interplay of light and darkness within religious structures is intrinsic to an evocation of the holy. The phenomenon of light clarifies sacred space and is vital to the experience of the holy." In looking to modern-day architectural examples, many of these concepts have been used to instill sacredness.



Visual perception of space is informed, in part, by the light that interacts with our environment, forming our visible surroundings. Light, as we know it today, is an electromagnetic wave that travels at a speed incomprehensible to the human eye. While light can be attained through many sources, perhaps its most important source is the sun. Human's first attempt to create light was through fire around 70,000 years ago. Through the advancement of technology, we had the introduction of wick, as early as the 4th century, that helped improve the effectiveness of using fire for light. In the 18th century, gas lamps were invented and almost a century later, electric lamps.

Shortly after, Thomas Edison further developed the electric bulb which harnessed electricity to make light, a revolutionary advancement. From this achievement, the incandescent bulb would go on to dominate the world until the fluorescent light was invented in the early 1900s, characterizing much of the 20th century. LED lighting was first invented in the 1960s, yet it has just started to transform the way we live today, predicted to be the light of the 21st century. Human's advancement in the technology of light has certainly had its benefits, but the strive in creating a better light has almost abandoned the most valuable source of light—the sun.



With an energy code that essentially gives a budget for light, how can we make the most of light within a space restricted by codes? The answer is not in the artificial light, but in the natural light that is free to use to make a space functional.

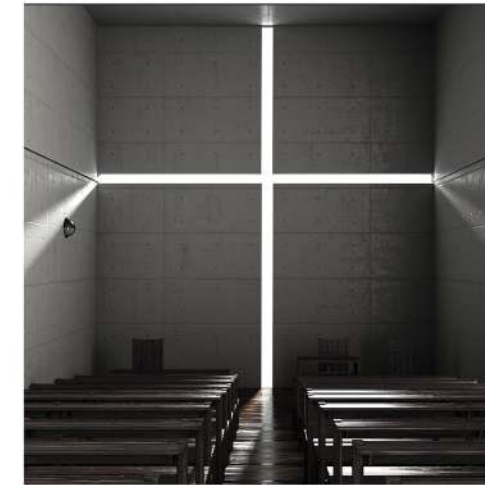
Natural light has the potential to be both functional and symbolic as it makes a workable space and connects a human to the outdoors. Today, we have the resources to design spaces that manipulate light through carefully crafted openings.

**mastery
of light**

INTENSITY
COLOR
ANGLE
DISTRIBUTION
QUALITY
MOVEMENT

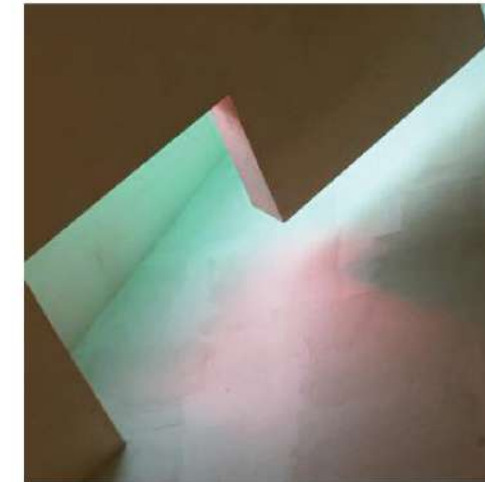
Light can be controlled through six properties. Intensity refers to how much light is entering a space and is measured through candelas, which dictates the level of brightness. The second controllable property, color, is the appearance of objects, or light sources, described in terms of the individual's perception to them. The hue, saturation, and brightness level attribute to the appearance of an object illuminated by light. Angle and distribution of light reference the angle at which light

hits its target and the span of the light on the target. The intensity and distribution of light can then affect the quality of the light produced. Quality of light is related to the opaqueness or translucency of the shadow created. Lastly, the movement of light can be controlled if any of the previous mentioned properties are changed. These properties can be combined to achieve three, distinct characters of light: focal glow, ambient luminescence, and play of brilliants.



focal glow

Focal glow is the celebrated limelight that draws attention and separates the important from the unimportant. As an intense, focused light, the effect gives a significant composition of attention on the targeted space.



ambient luminescence

Described as an uninterrupted light, ambient luminescence can be equated to indirect lighting. The effect is a shadowless illumination that blurs edges and minimizes the importance of all objects-giving everything a neutral light.



play of brilliants

Crystal chandeliers, sunlight on rippling brook, light reflected off diamonds, light breaking through trees- each a play of brilliants. This character excites optic nerves and awakens an inner curiosity. Whether the act is distracting or entertaining, it certainly has the ability to attract the eye.

**asp
ira
tion**

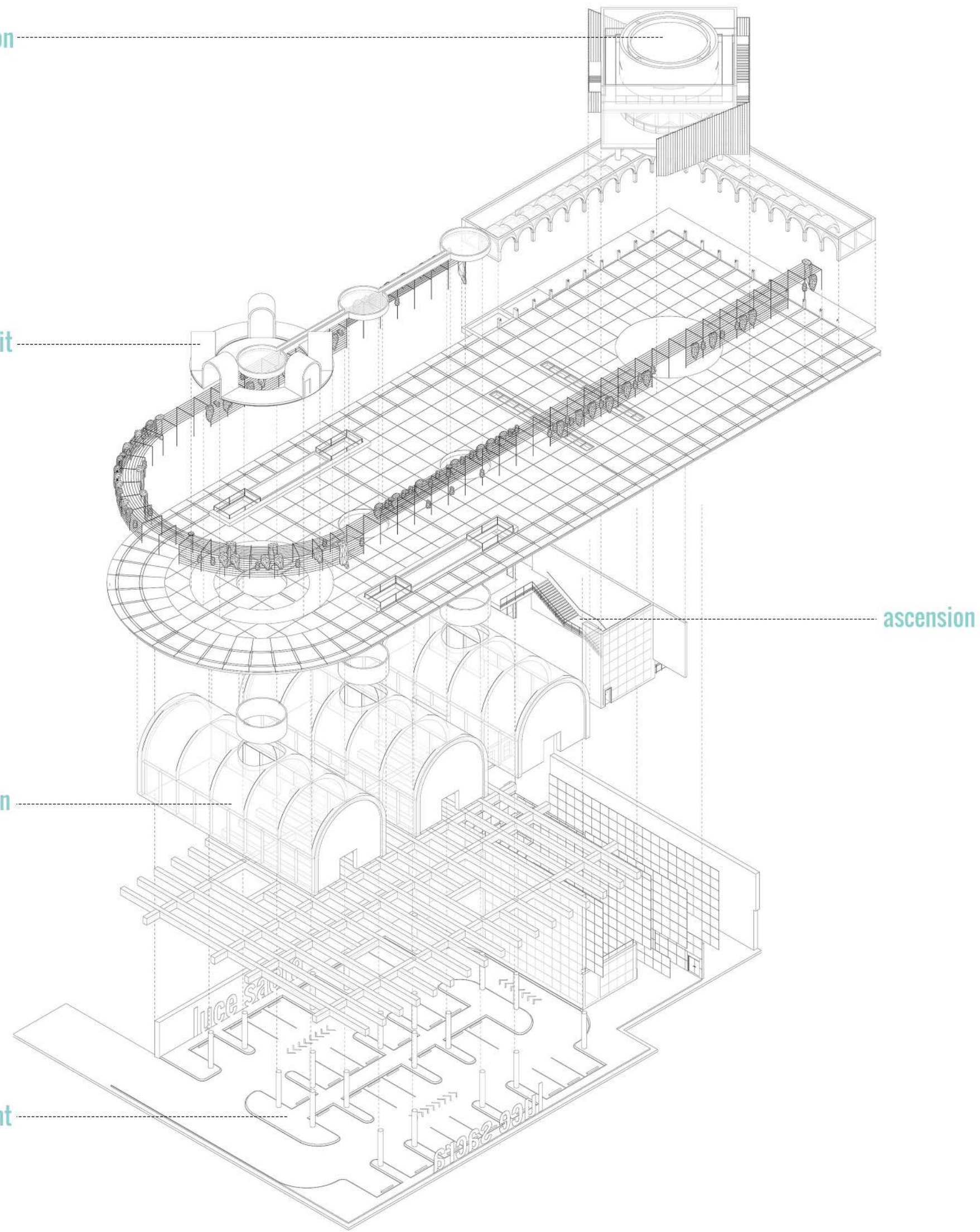
transcension

pursuit

ascension

reflection

emplacement

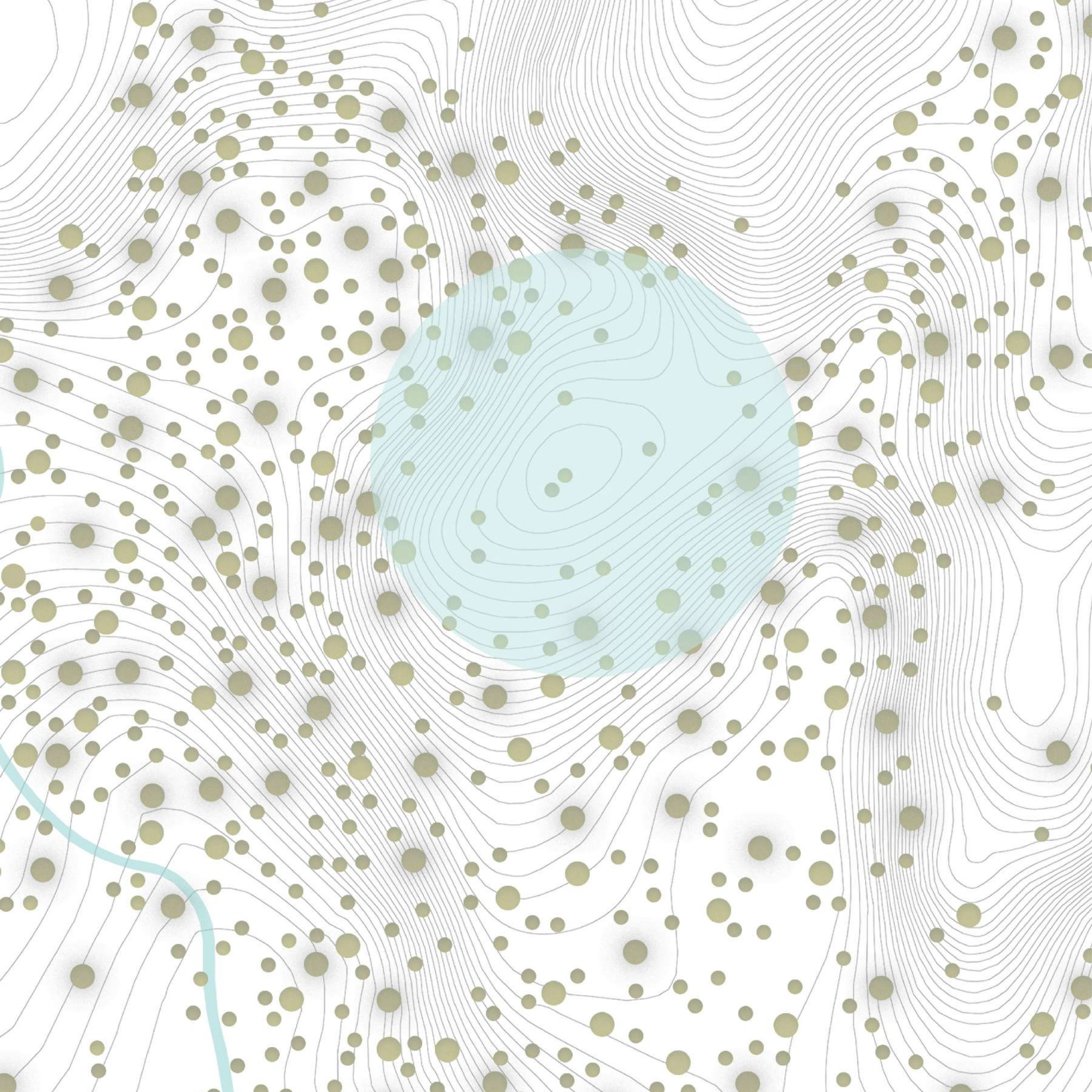


aspiration

Through the exploration of light application in the 21st century, Luce Sacra is composed of a series of intimate spaces that serve as venues for light to be the primary focus. The purpose of this project displays how sacredness can be evoked through light manipulation and attention to detail. By taking into consideration the controllable qualities of light such as intensity, color, angle, distribution, quality, and movement, the design can be harmonious with both nature and man. Designed as separate entities, Luce Sacra is experienced in pieces, encouraging the user to depart from the outside world to explore the narrative created in the interconnected spaces across a great plain of land. In response to the

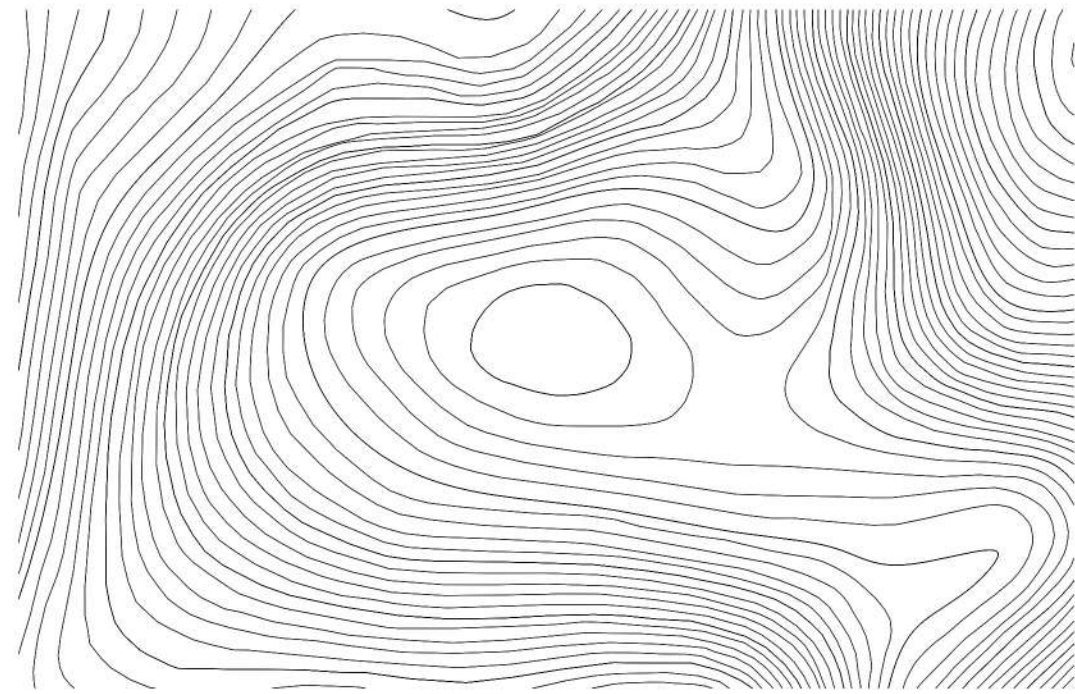
vast expanses of land broken by sharp topography, the program is divided across an area of Sedona red rock in both a vertical and horizontal orientation. A key element in creating a sacred design is the procession through the site elements, in which the visitor is slowly immersed in the reverential nature of the place. With the intention of designing intimate and light-focused spaces, part of the program, like the parking garage and galleries, is amassed beneath the surface of the ground, creating opportunities for unique light attraction. The build-up from underground to surface top gives hierarchal placement to four individual functions and organizes them from lesser to most sacred.

the **sanc tuary**

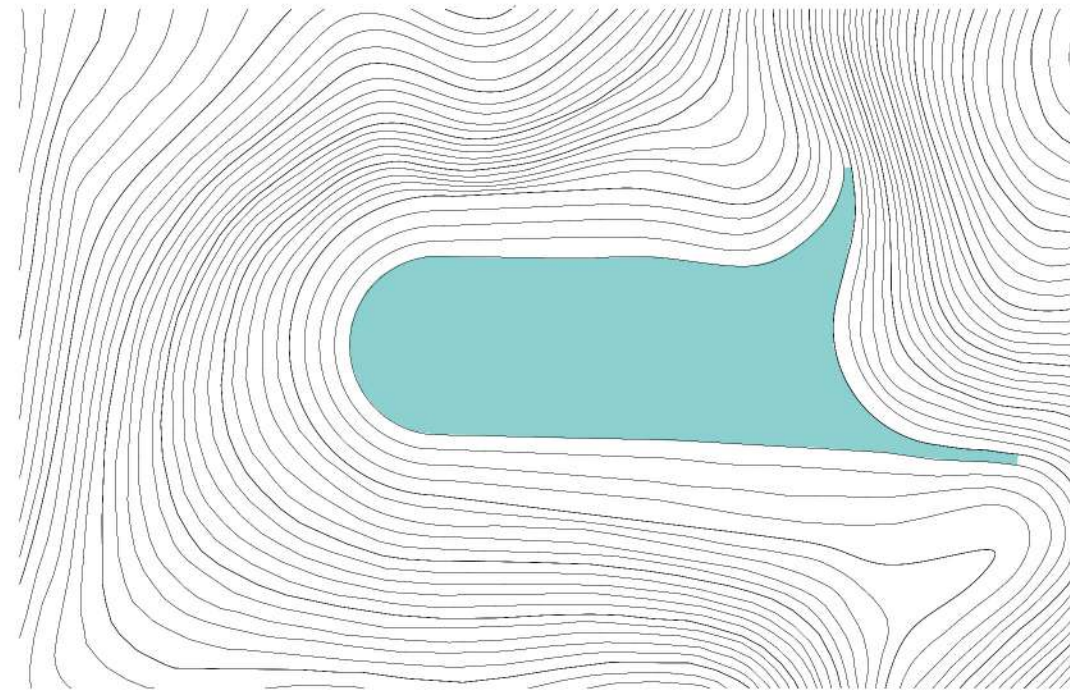
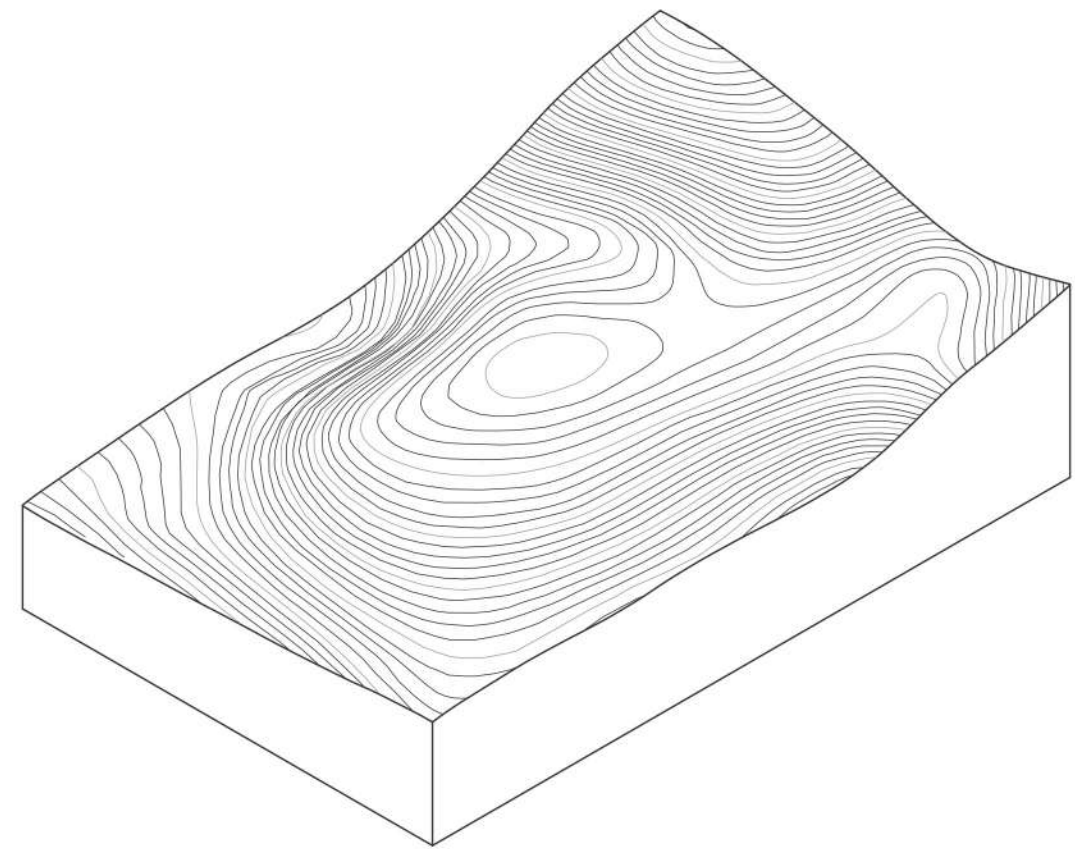


sedona, arizona

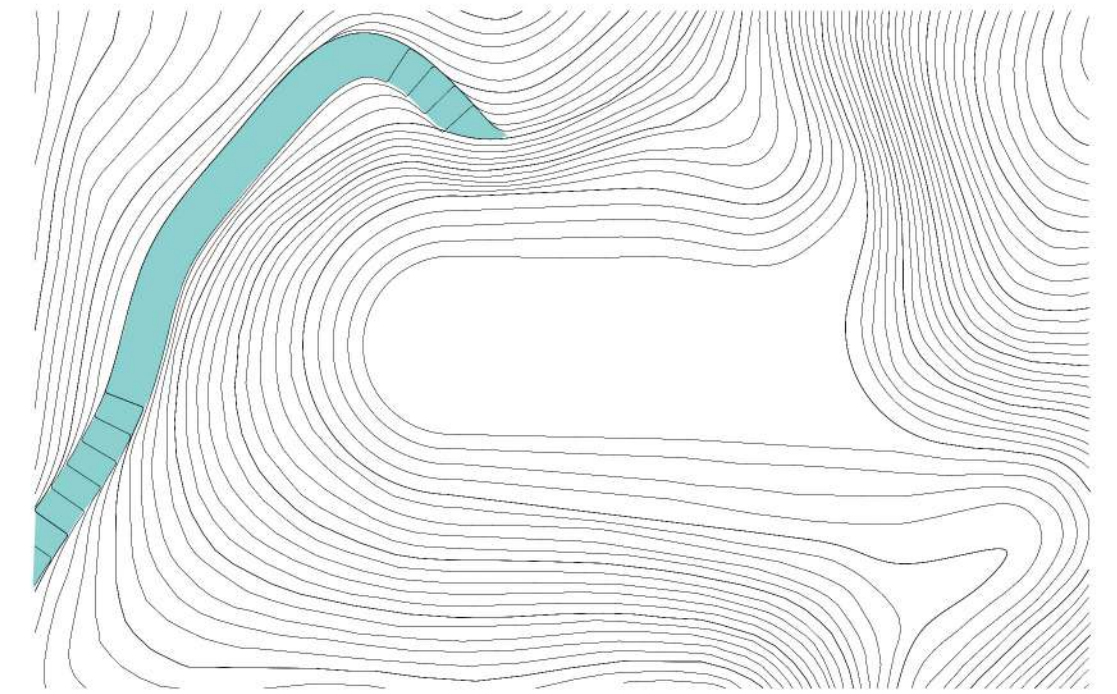
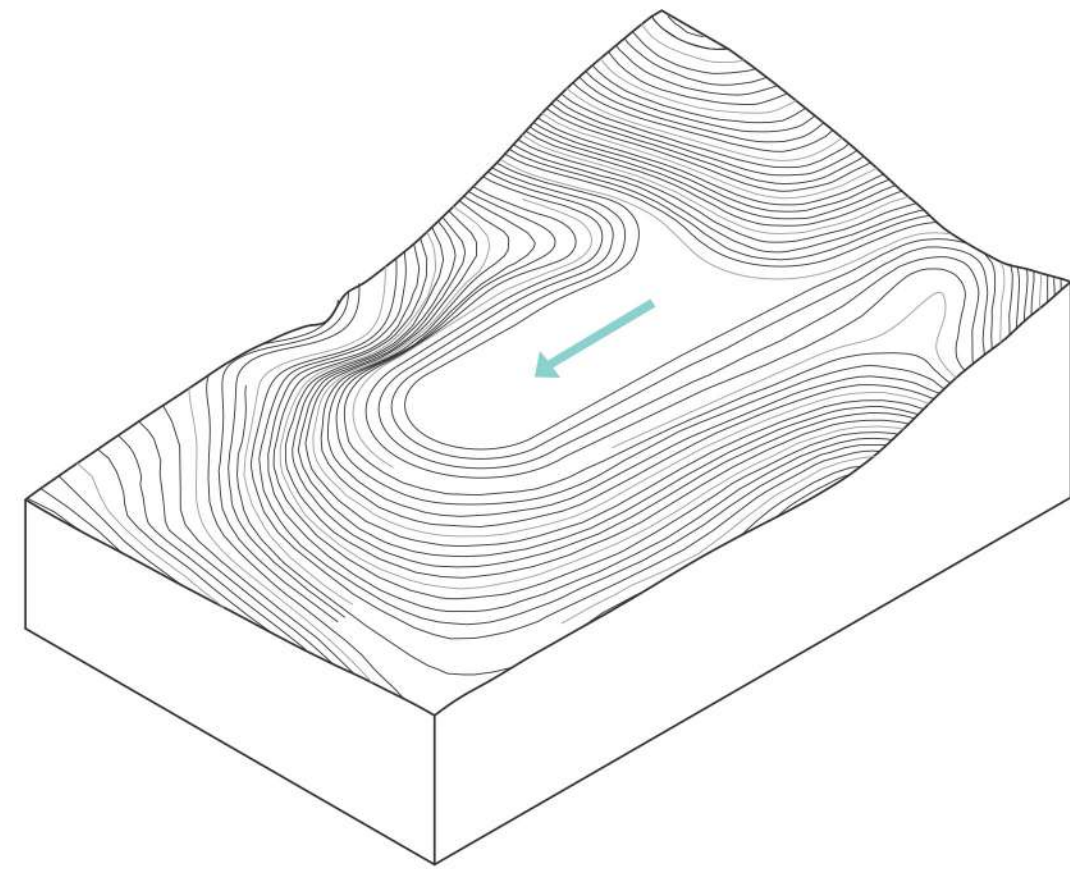
The state of Arizona is largely classified as semi-arid region, so the area typically undergoes long periods of time with little to no rain. The air found here is typically dry and clear, so there is a high percentage of sunshine and the natural light is almost crystal clear due to the dryness. Sedona, Arizona, is mainly known for its red rock formations, but it also serves as a spiritual haven. Popular for places of prayer, healing, and meditation, Sedona has been regarded as a sacred and tranquil setting for soul enrichment. In addition, the red rocks of the area develop a red glow when illuminated by the rising or setting sun. In creating a sacred space that encompassed light and provided a building for people to congregate in worship, Sedona was chosen as the project site location. Partly convened beneath the red rock formations, Luce Sacra dwells at the base of Wilson Mountain on a plateau, overlooking the city below.



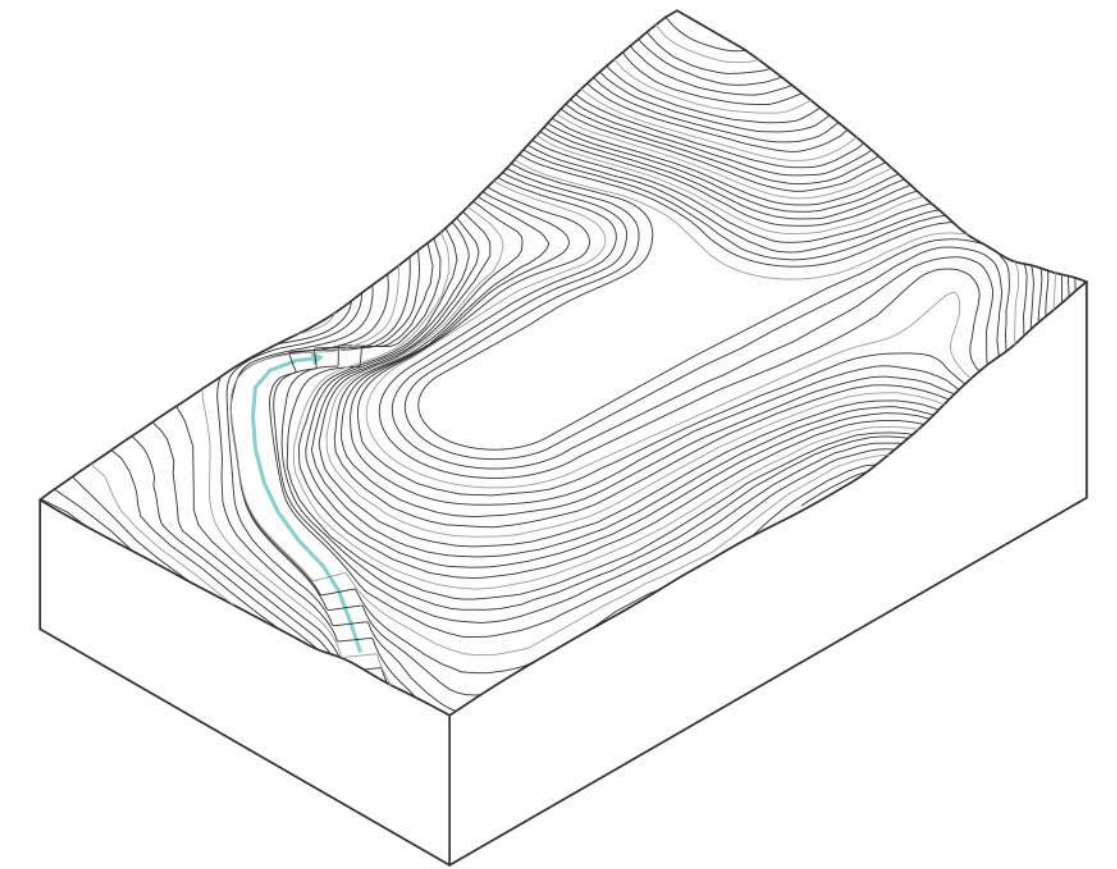
original



the cut



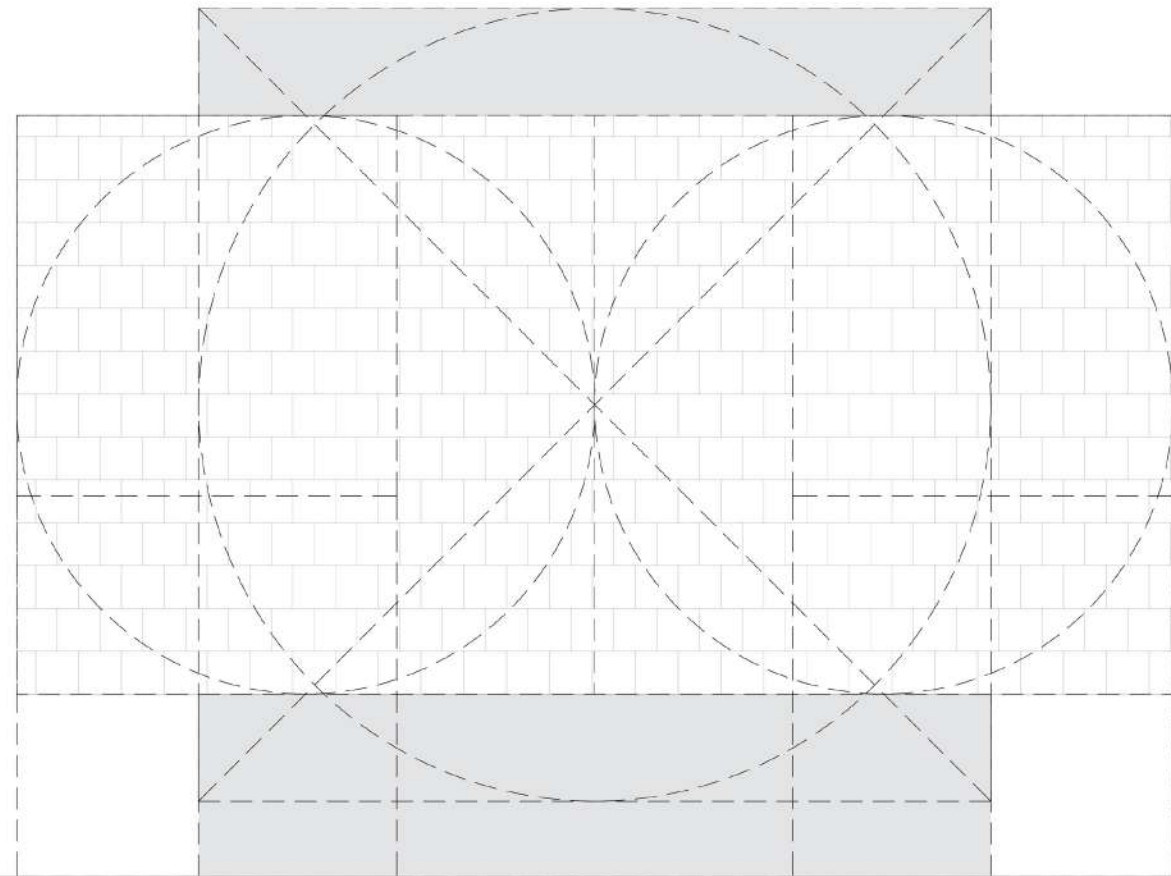
fill + slope



purity

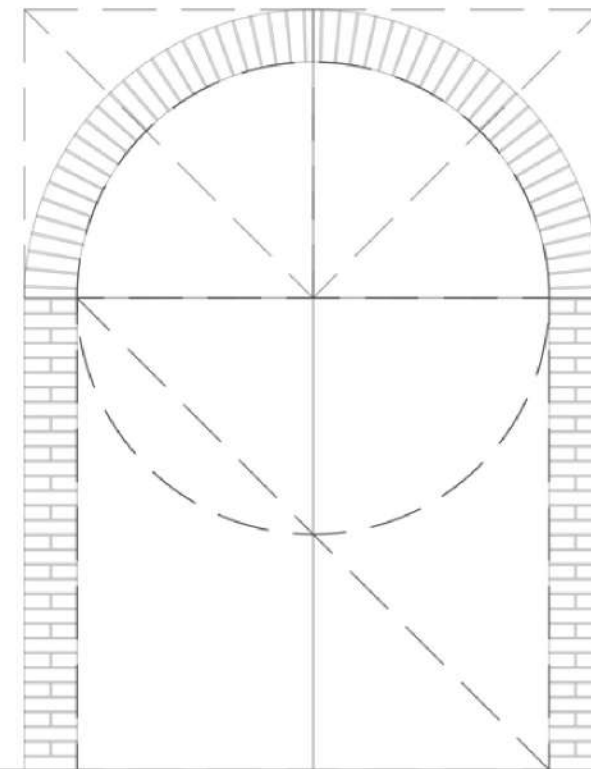
pure geometry

The 9 x 9 foot grid, evident in all aspects of the project, serves as the ordering system for the proportions found throughout Luce Sacra. These proportions exist to service the light entering these spaces. The chapel, in particular, is composed of four interlocking cubes that intersect a cylindrical volume. The intersection of these two forms is constrained by equal sides of a square. The square, from a theoretical standpoint, serves to distinguish the sacred from the unholy. Pictured in the image below, the square hovers above the heads of those seated below.



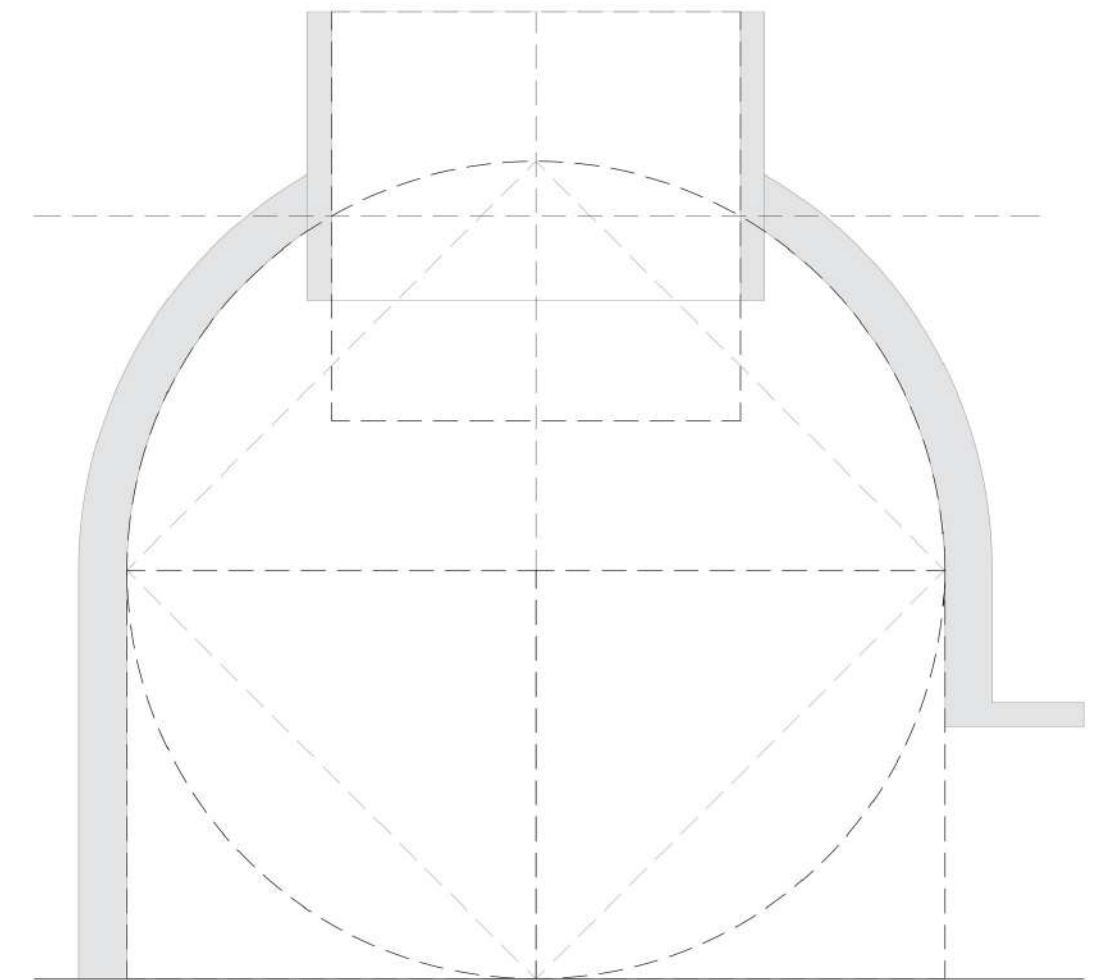
the arch

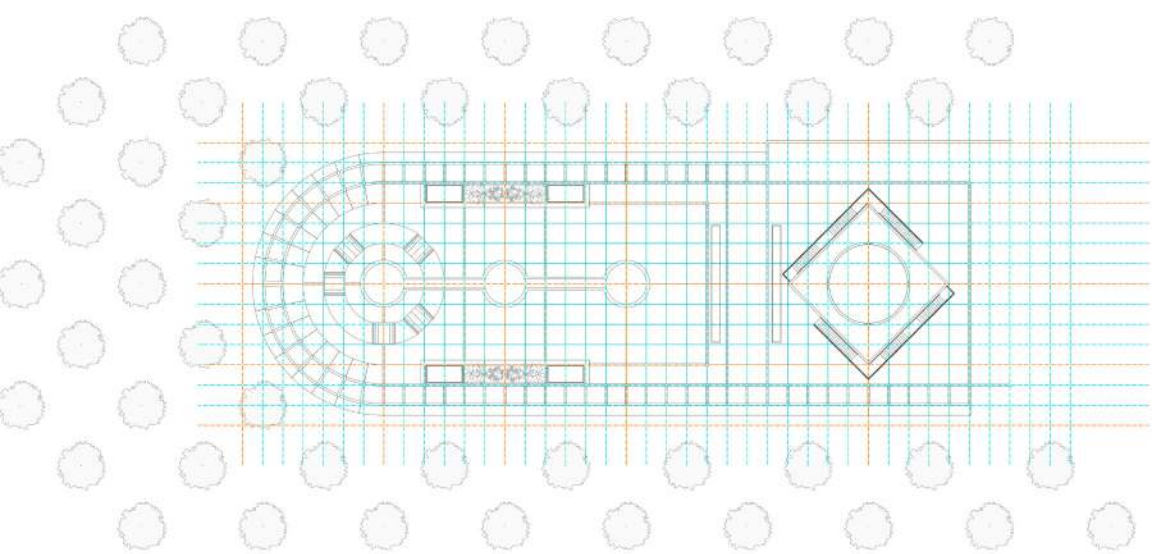
Found on the ground surface level of the site, sit four prayer halls composed of brick vaults. Ordered by the 9 x 9 grid, the width of the prayer halls is pre-established. This entailed that the height of the vaults also be governed by the grid, in correspondence to the proportion of the arch. The height of the arch is half the width of the space. In its pure form, the space can be seen as a composition of a square and half circle.



the gallery

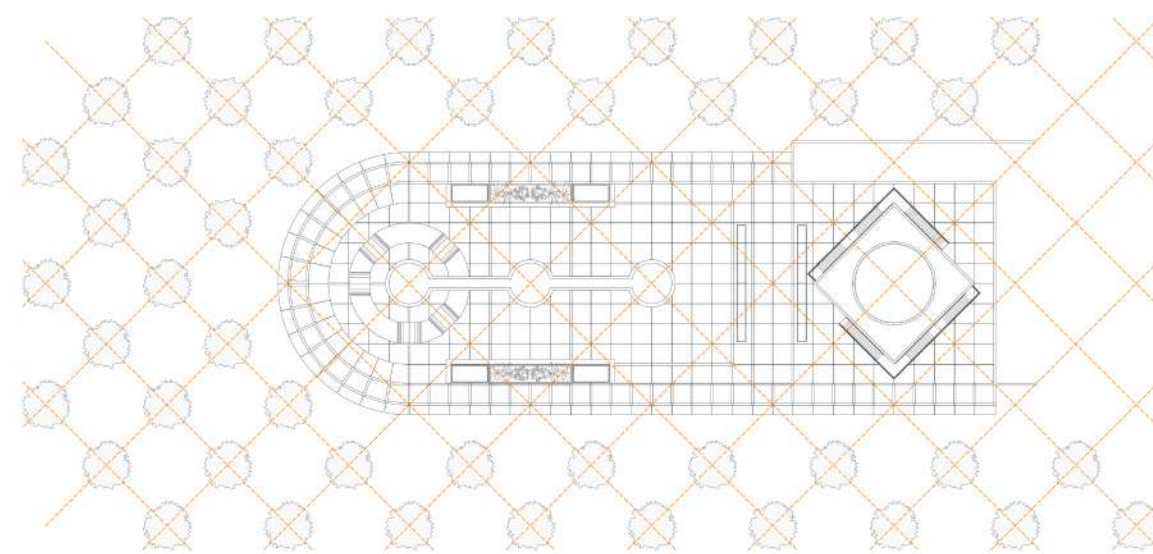
One floor below the ground surface are three, identical galleries that lay adjacent to one another. Like most areas, the galleries were laid, in both plan and section, to connect to the 9 x 9 grid. Similar to the structure of the prayer halls, the gallery's height is also measured in conjunction to the width of the space. Here, the height of the arch is equal to the height of the planar surface below. The final composition is two squares and a half circle.





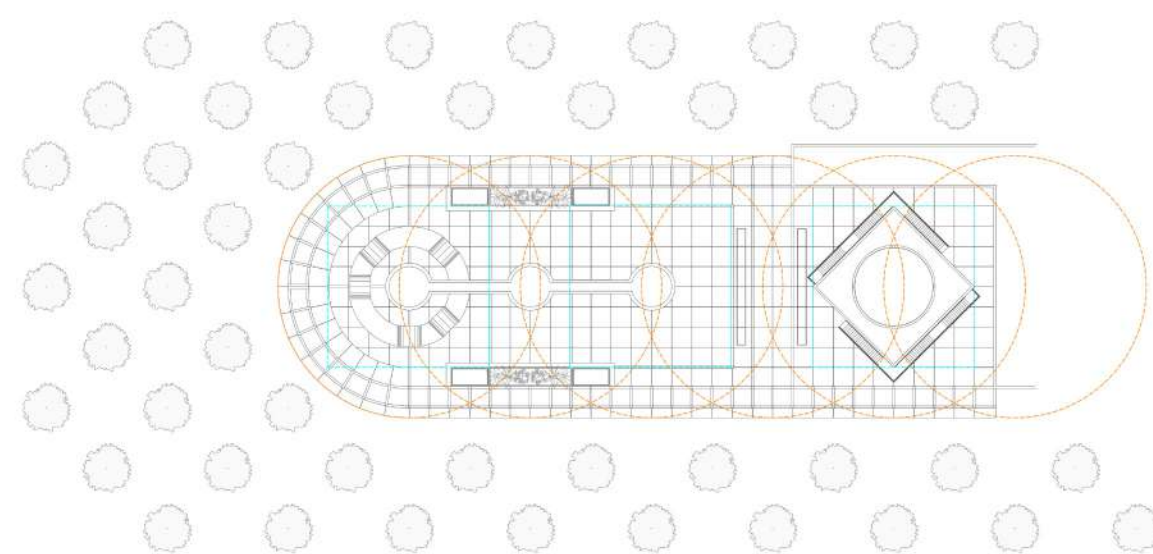
the grid

The 9 x 9-foot grid was generated by the topography and the modifications made to create a flat, planar surface. This grid became the ordering system for all spaces in both plan and elevation. Most clearly seen on the surface level of the project, the grid governs the design layout of the surface pavement. This treatment can also be seen on the concrete and copper cladding found on the interior walls of the ascension room and arrival space. Not as visibly seen, the grid also dictated the layout of reflecting pools on the ground surface, which then organized the arrangement of the galleries below.



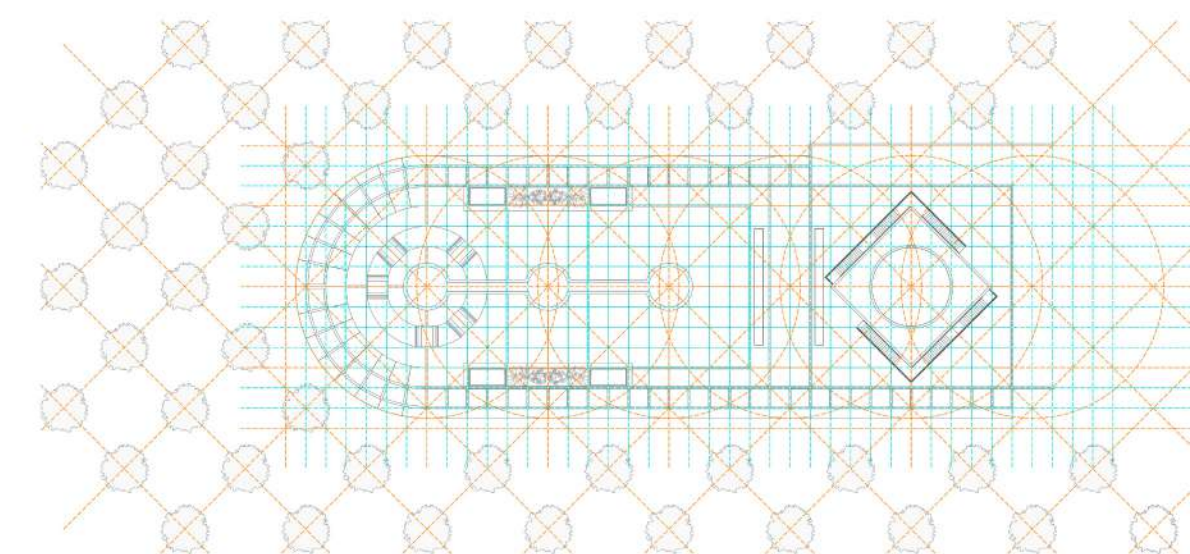
intersections

Stemming from the intersection of the grid and series of circles and squares, forty-five-degree lines extend out from the main axis line to plan the points for landscaping and vegetation. Trees adorn the border of the surface paving and coincide with the geometric principles found in other places of the project. The trees serve as a boundary ring, marking the entrance to that which is sacred. When standing on a forty-five-degree line, one would be able to see the alignment of the landscaping with the pure geometry found on-site. As a whole, the crisscrossing of lines gives framework to the intersection of principles and understanding of natural elements.



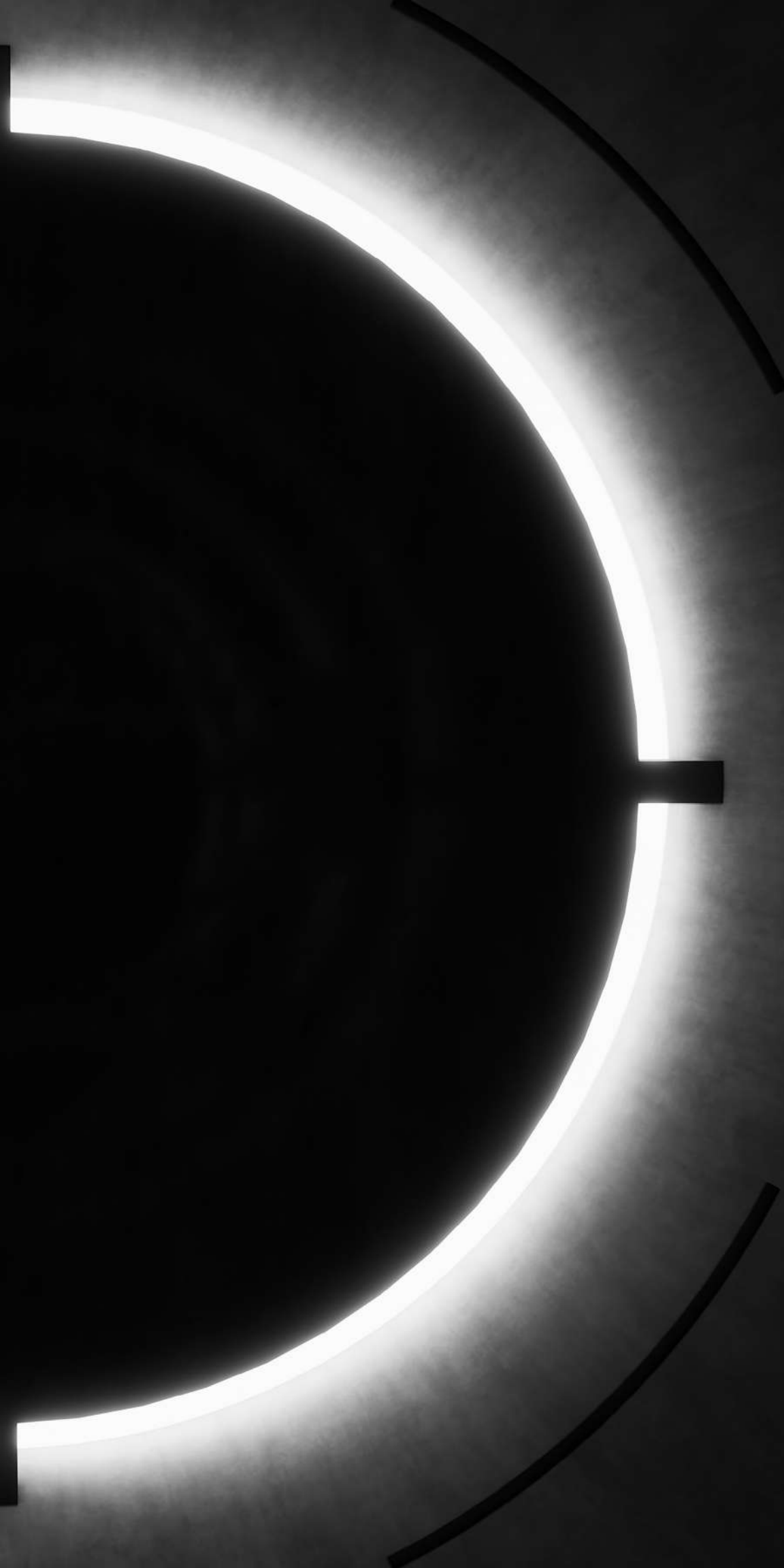
circles + squares

Derived from the curvature of the contour lines found on the site, a series of circles interlock with one another along the length of the plateau. Centered in the middle of three of the circles are the location of the reflecting pools. On the west end, the surface treatment of the pavement radiates from the center of the circle. On the east end, the chapel is perfectly centered and geometrically connected to the location of the pools. Because the circles intersect the orthogonal grid, part of the pavement pertains to the geometry of a square and is characterized by a different material.

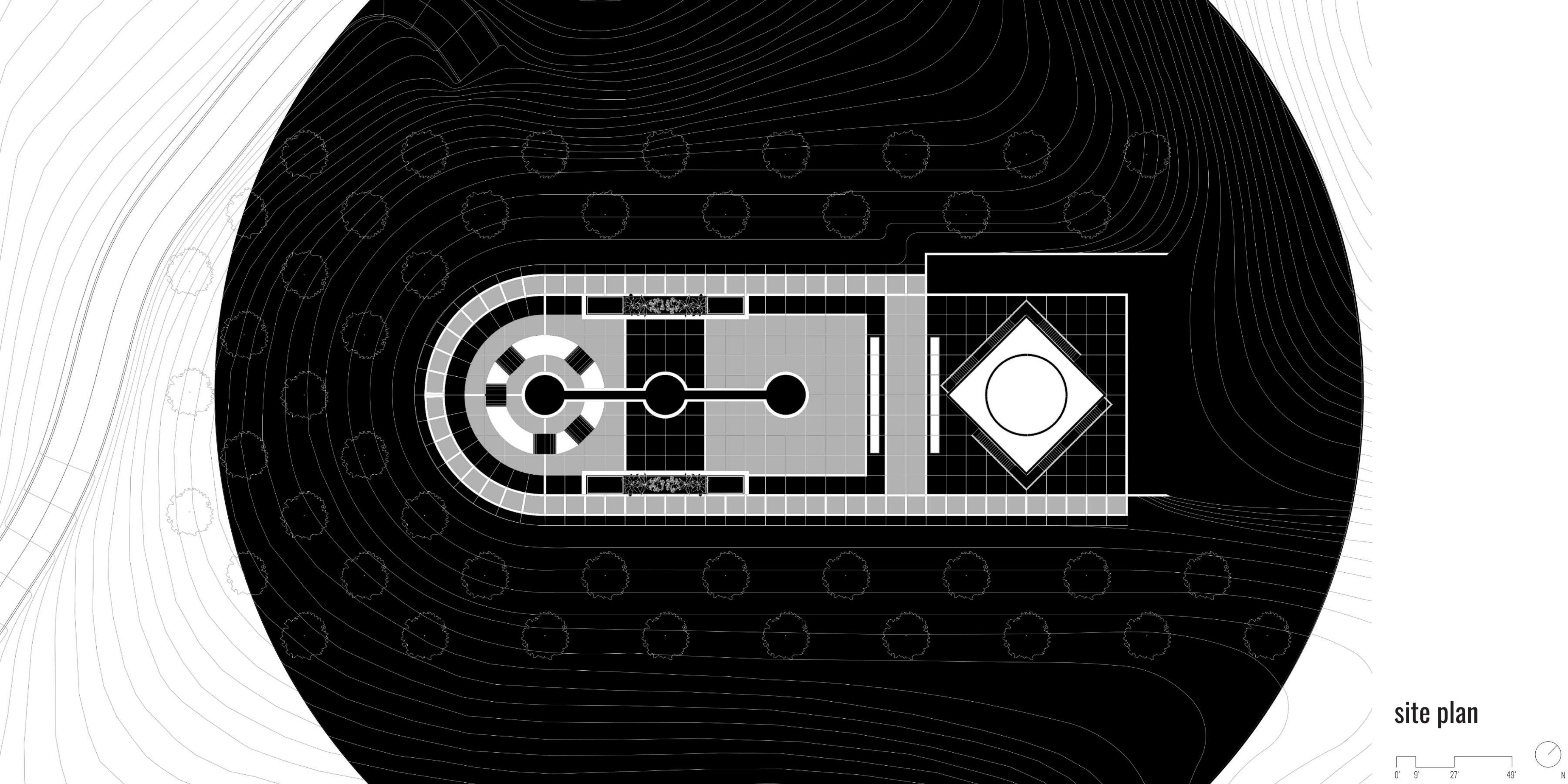


pure geometry

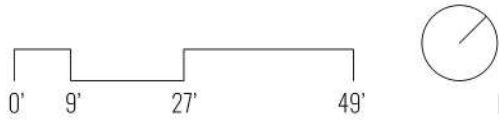
The layering of these geometric principles serve as the guidelines and limitations of the building's form, surface design, and landscaping elements. The meeting points of the three grids show their relationship to one another and begin to form the components and features of Luce Sacra. These grids span the distance from a topographic scale to a human scale, granting the connection of the observer, or passerby, to the site and overall location. The bridging of this gap offers the visitor a more unique experience as the alignment of elements is visually pleasing and the significance is understood as sacred.

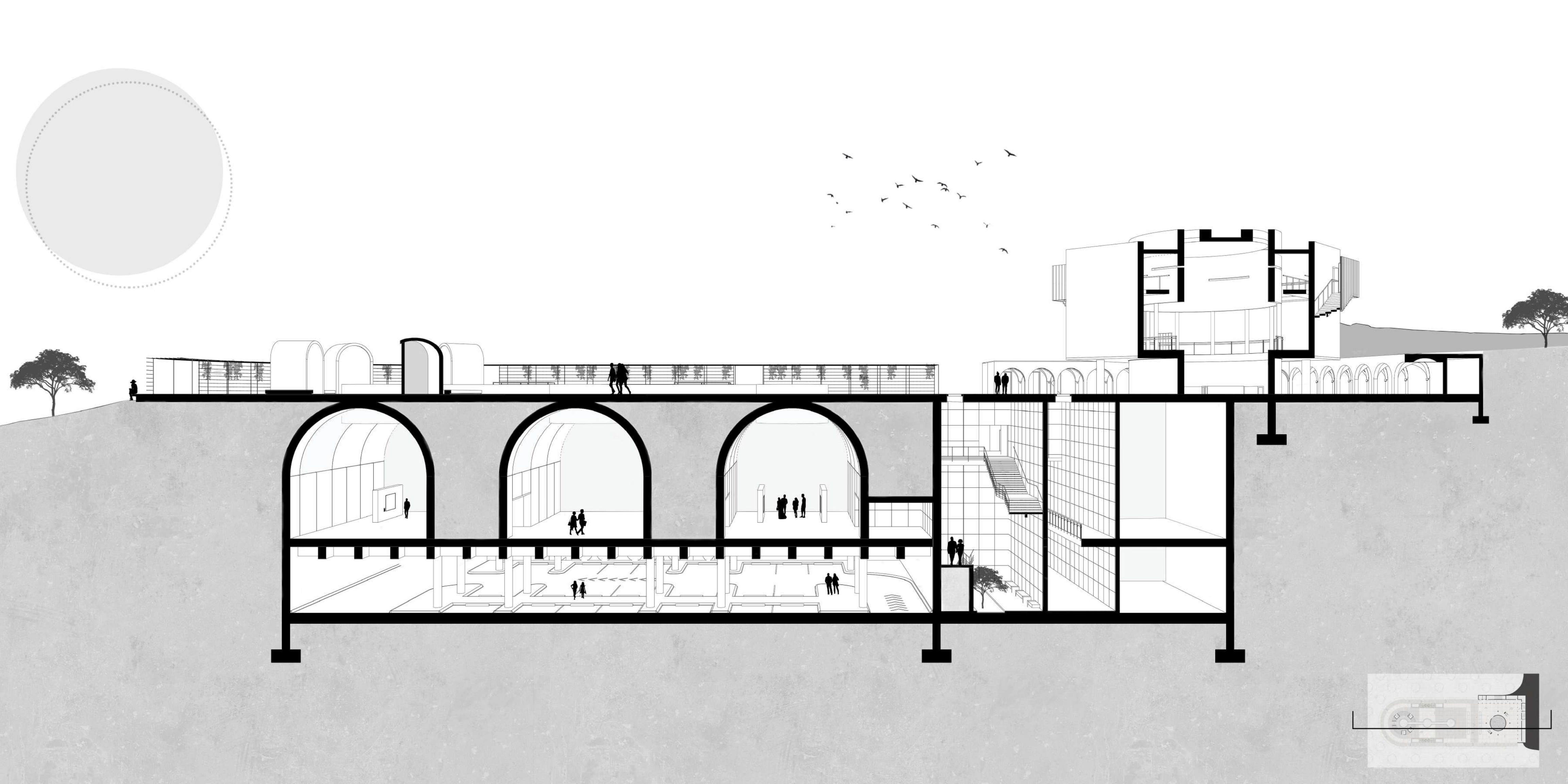


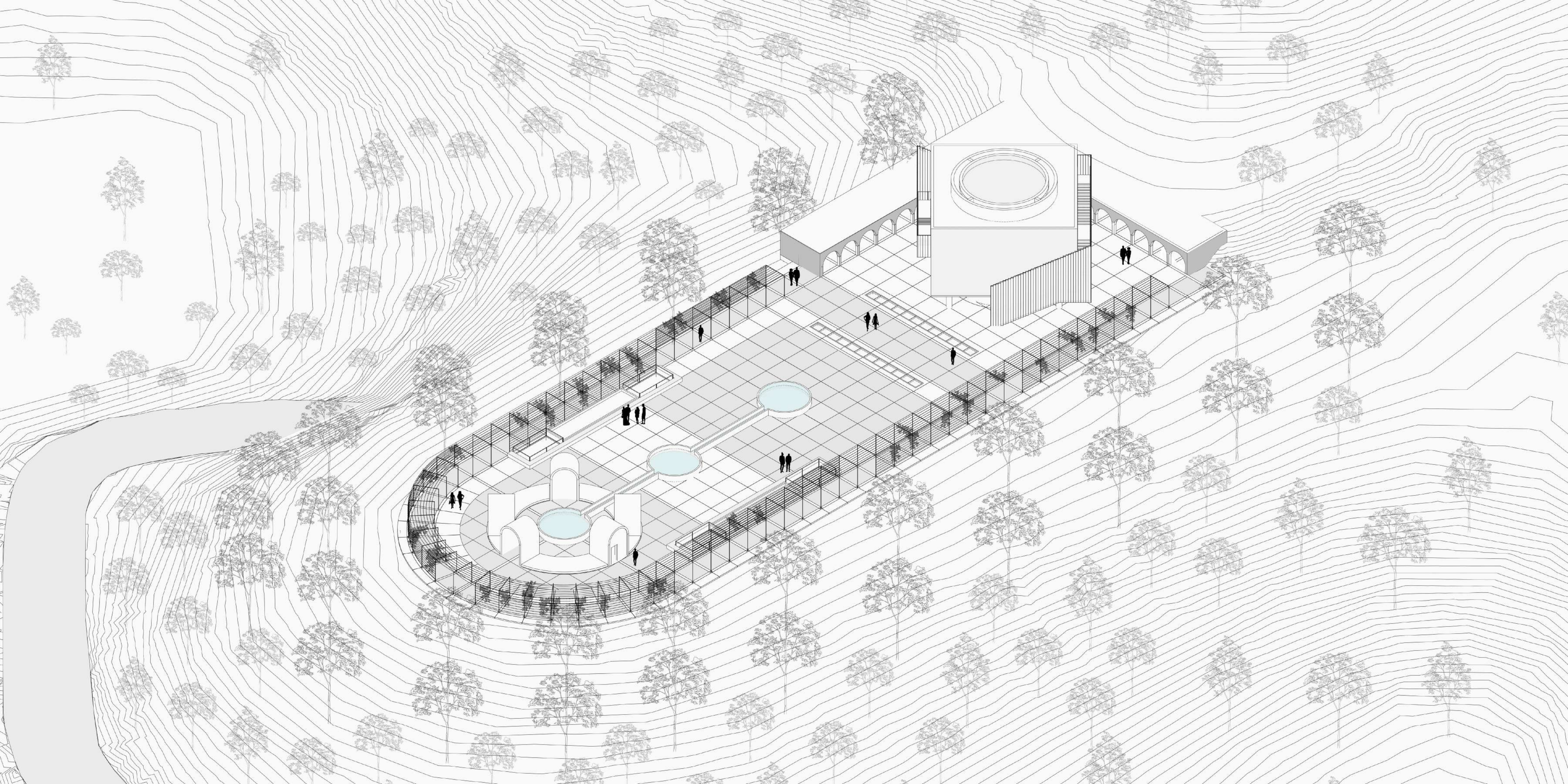
a unified experience

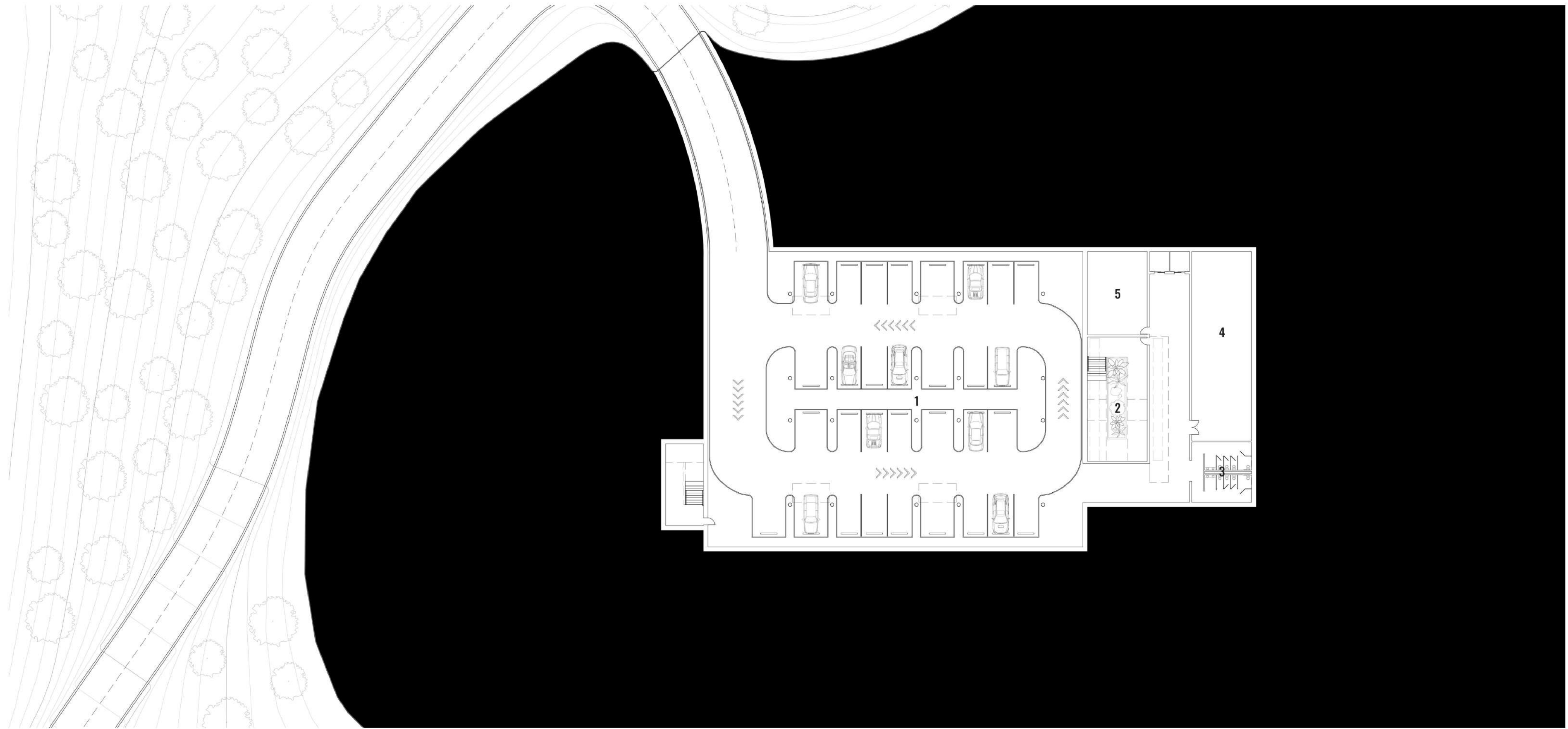


site plan









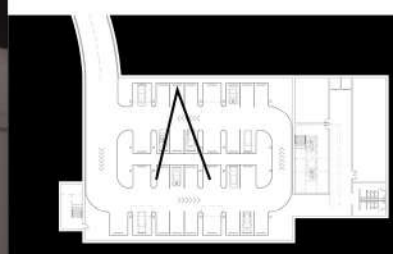
emplacement

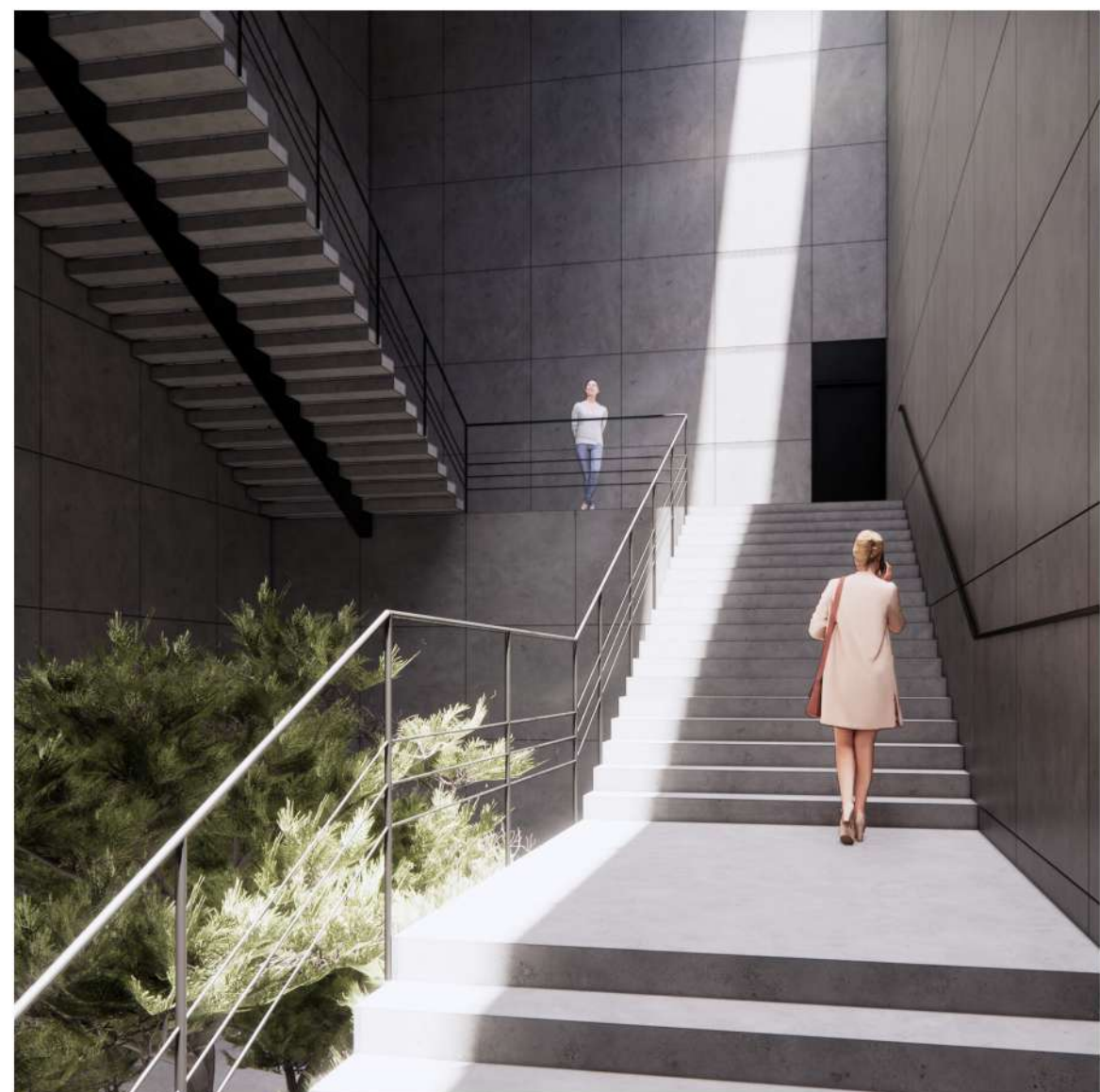
1 parking
2 ascension stairwell

3 restrooms
4 mechanical

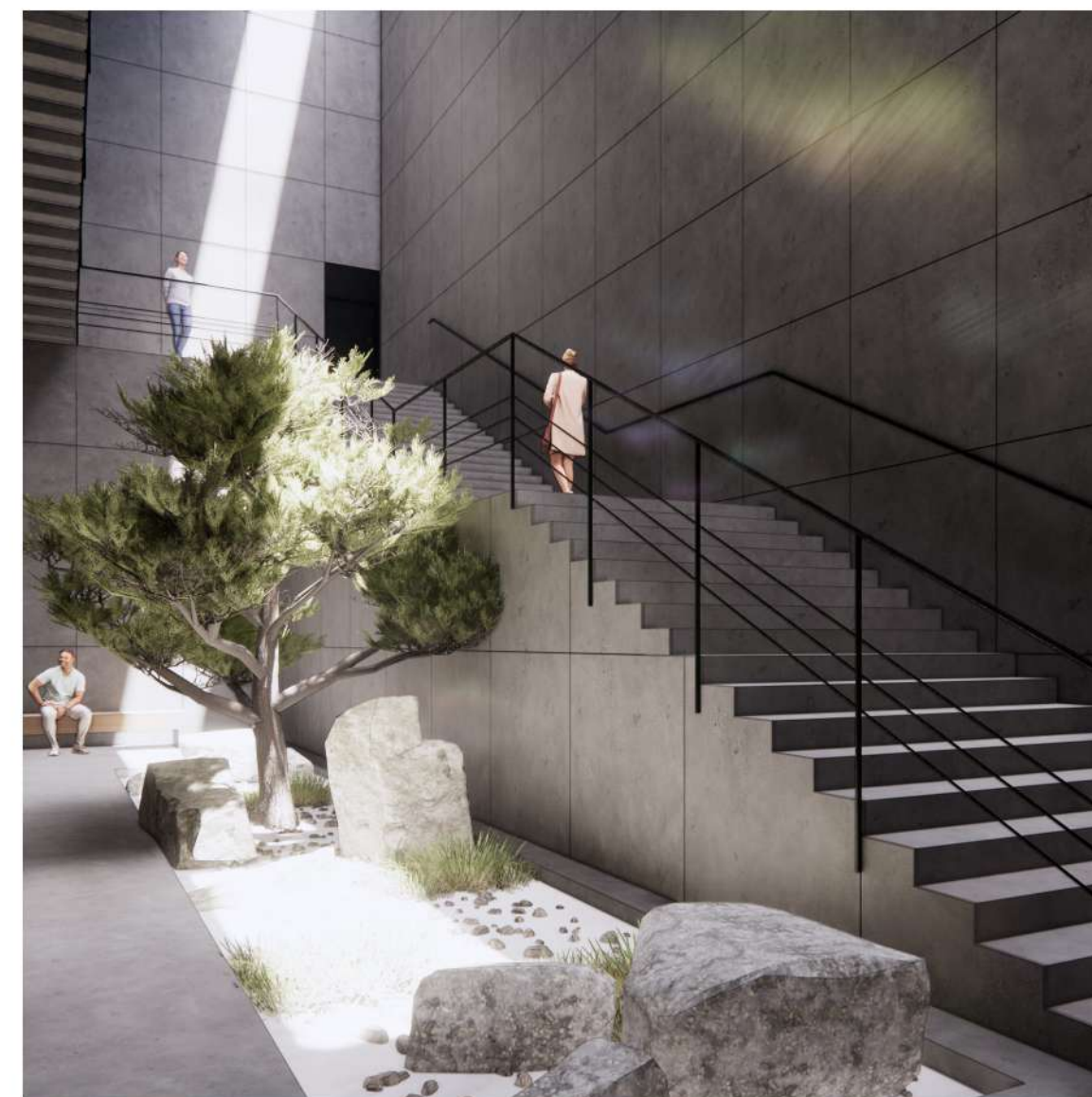
5 elevator shaft



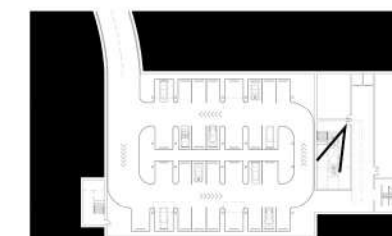




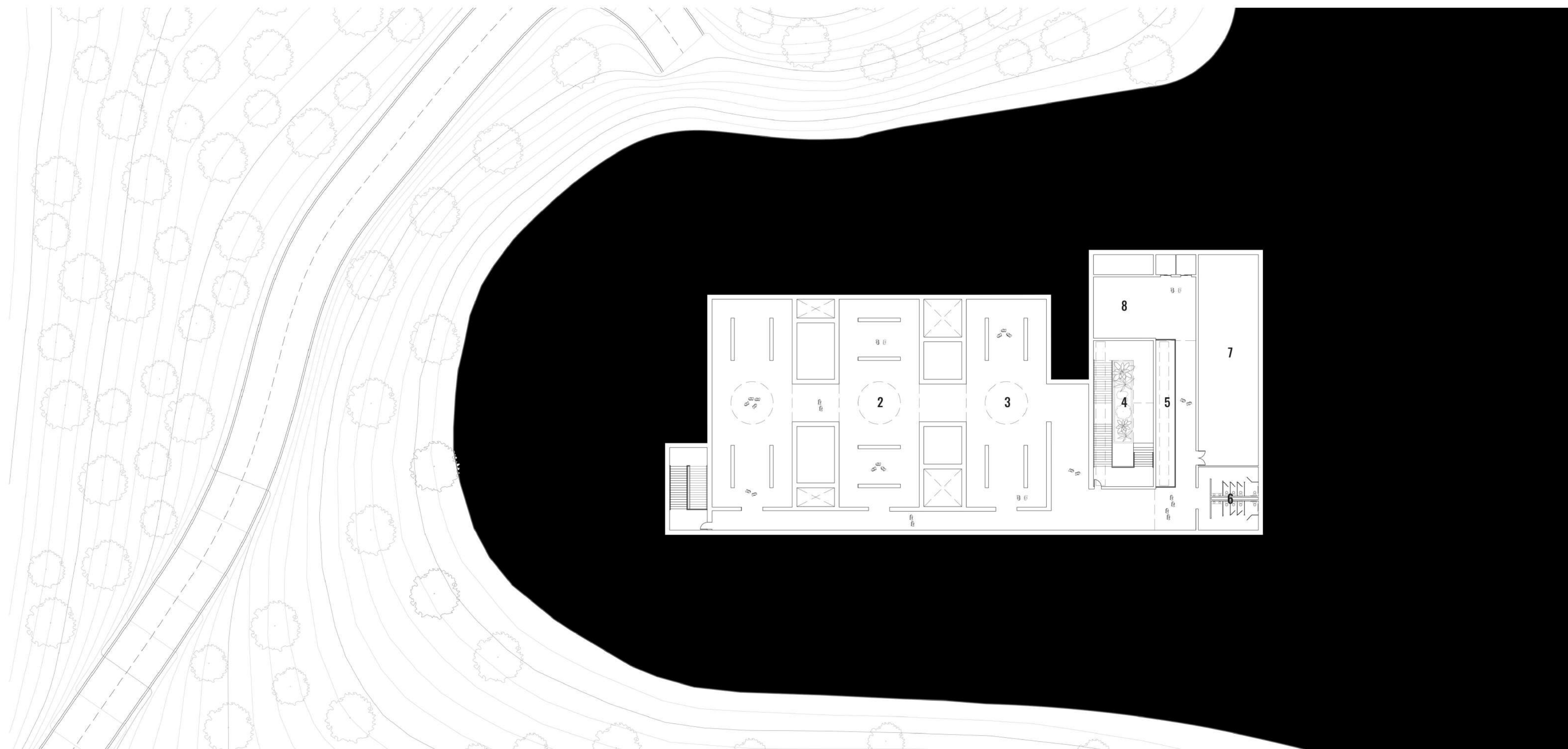
To ascend on a spiritual level means to rise or align to a higher source for betterment in search of something more. Within the ascension room, one is taken to a higher level, in search of something better. Enclosed here are the stairs that connect a journey's beginning to areas of reflection, meditation and transcension. The light that encounters the space is revealed through a slit that highlights the path, leading one higher.



The interior cladding of this space is a modular system of concrete panels that reflect the light entering in from above. The material gives the room a simple and modern appearance and allows the light to shine and be center spotlight. The cool and grey color of the concrete construes a homogenous and smooth backdrop for light to wash over and for darkness to hide within the cracks.



reflection

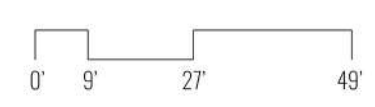


1 reflection gallery
2 reflection gallery

3 reflection gallery
4 ascension stairwell

5 arrival
6 restrooms

7 mechanical
8 waiting area

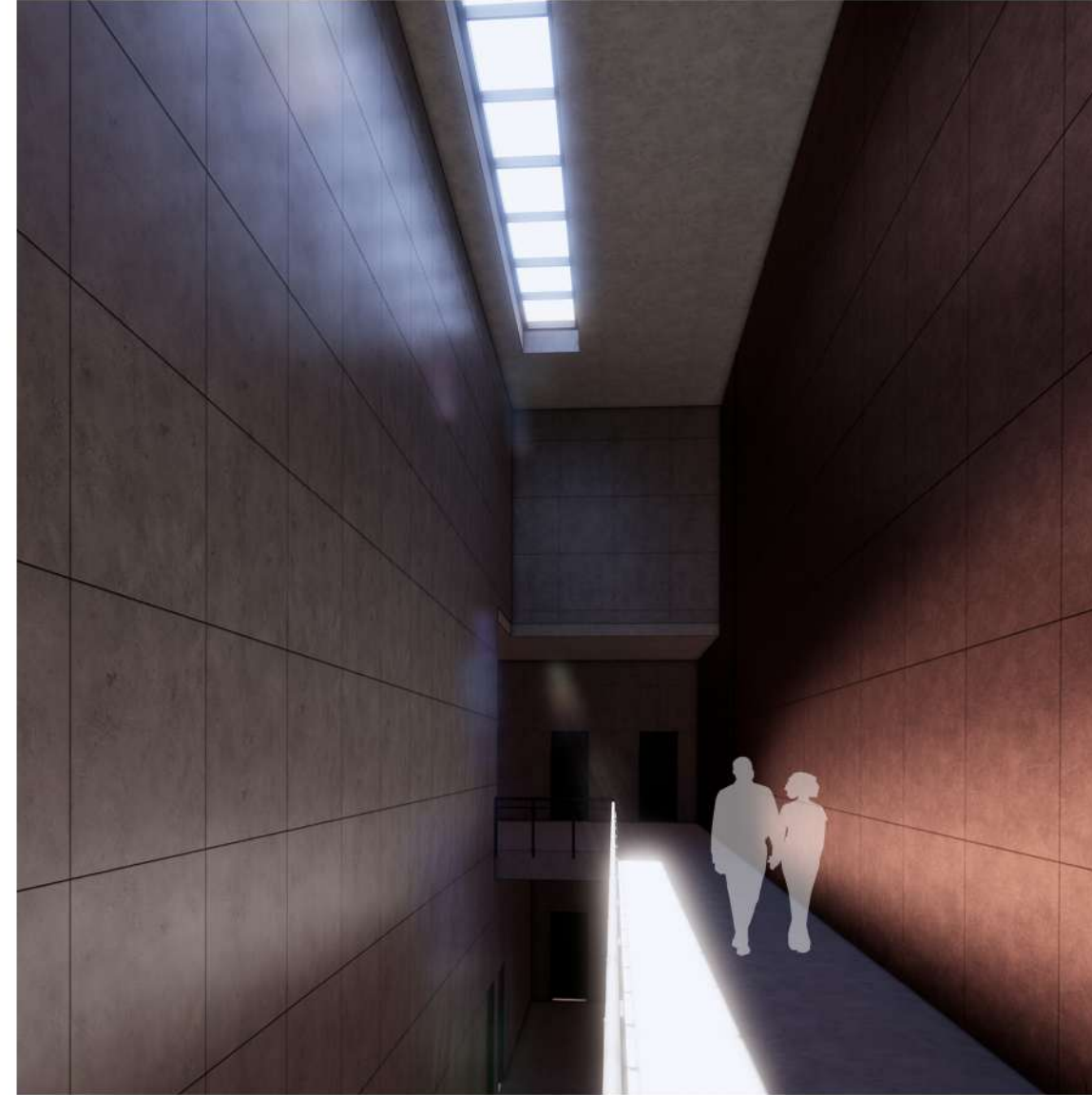


places of reflection

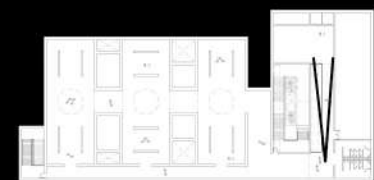
The first opportunity for departure from the ascension room are the places of reflection. These spaces house galleries that are hosts to works of art that can be reflected and pondered upon. Due to the open floor plan, this space has the flexibility to serve different functions that can serve as places of reflection and meditation. The light that floods this space is sourced from a central oculus that pierces the brick vault allowing light to descend into the space in a dominant gesture, bringing with it reflectance of water that the light enters through, producing a play of brilliants.



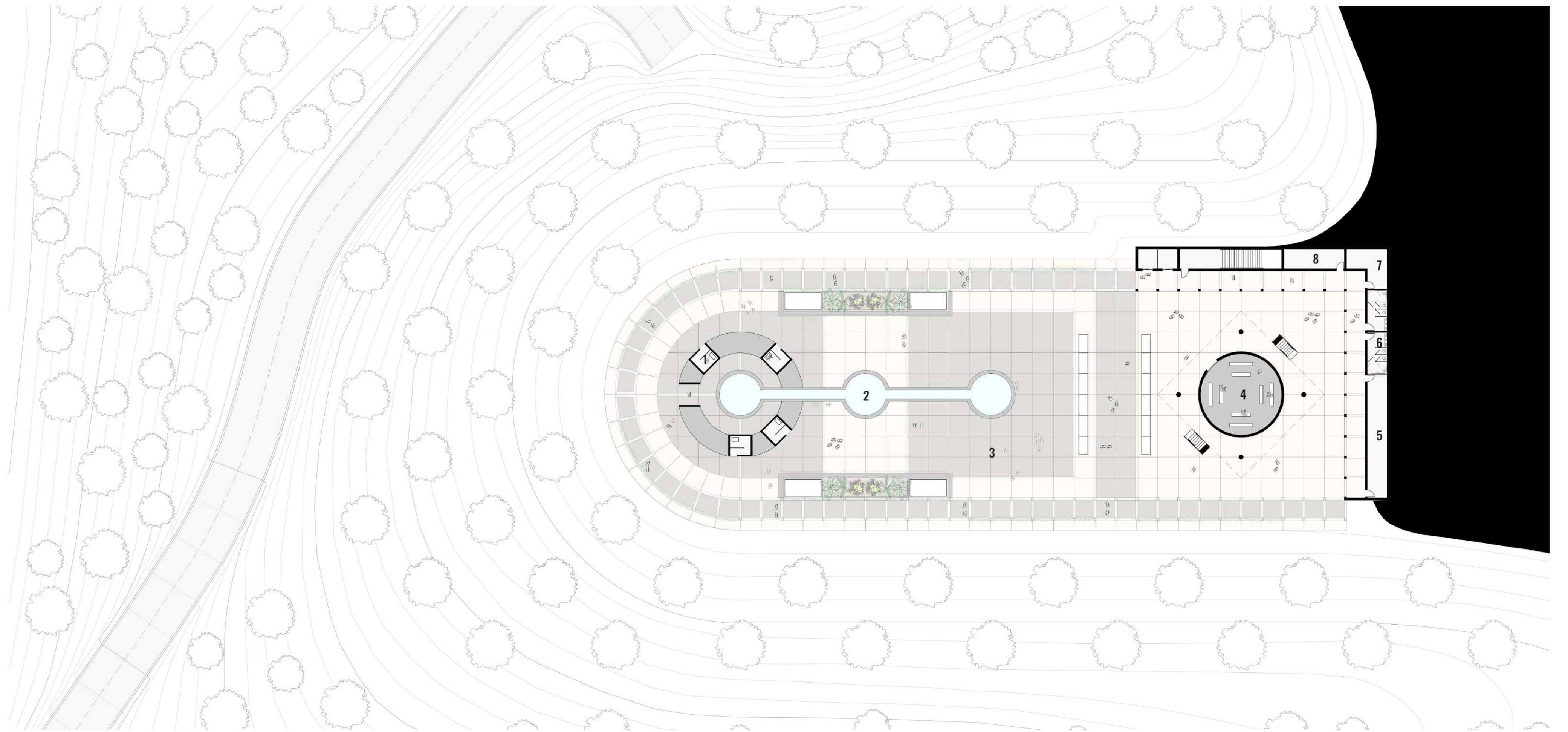
the arrival



The underground spaces come together at an arrival point that serves as an intermediary space between the concealed spaces and the ground surface. Light filters into the arrival through a sky slit and waterfalls down the length of the wall producing a pattern of shadows. When the light reflects off the copper paneling on the east wall, the room creates a red glow that mimics the natural glow of the red rock found on the exterior.



the pursuit

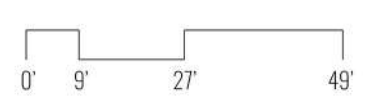


1 prayer halls
2 reflecting pools

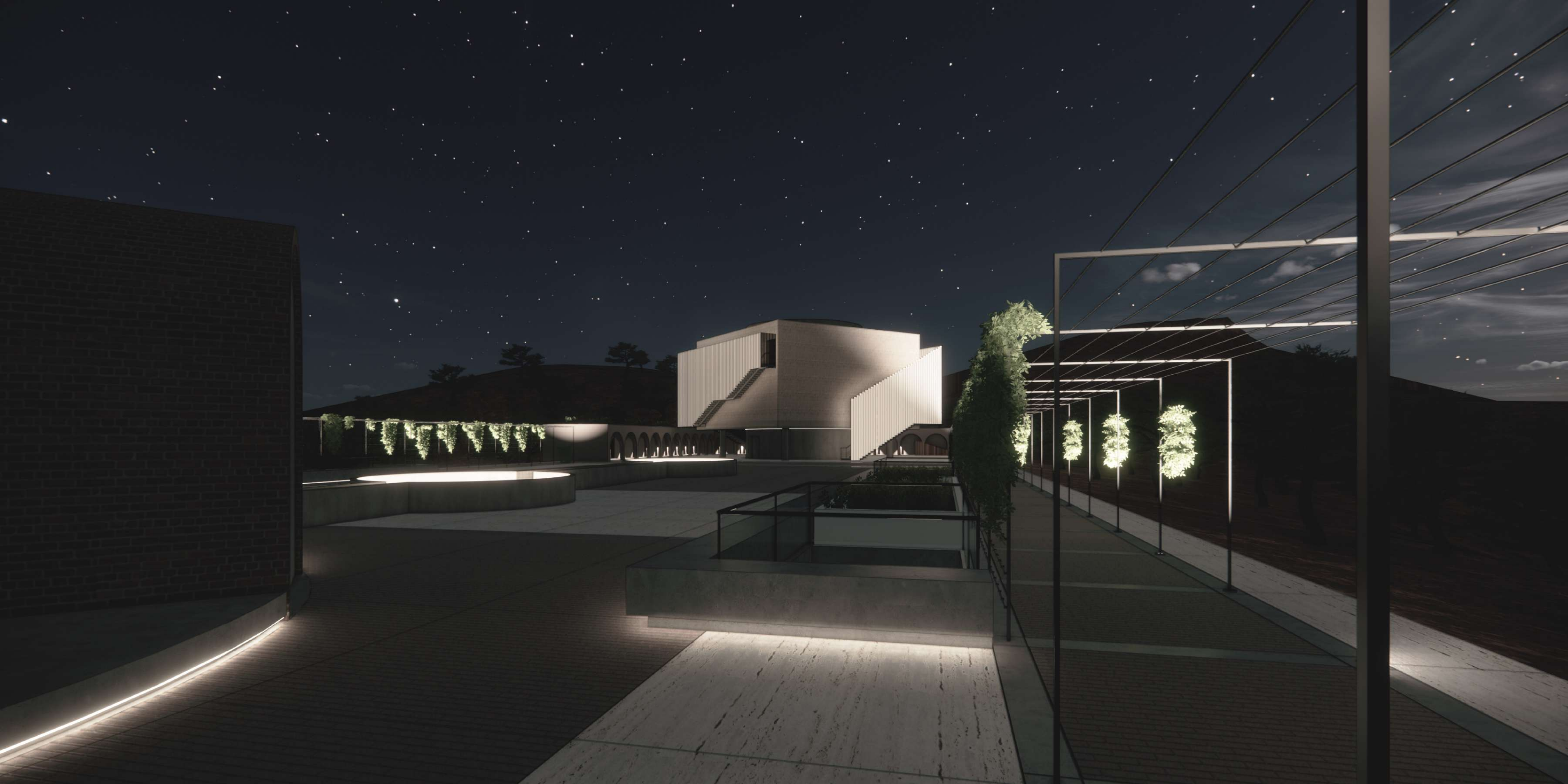
3 plaza
4 chapel

5 mechanical
6 restrooms

7 janitorial
8 storage

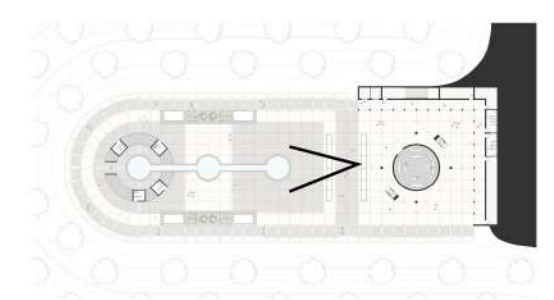


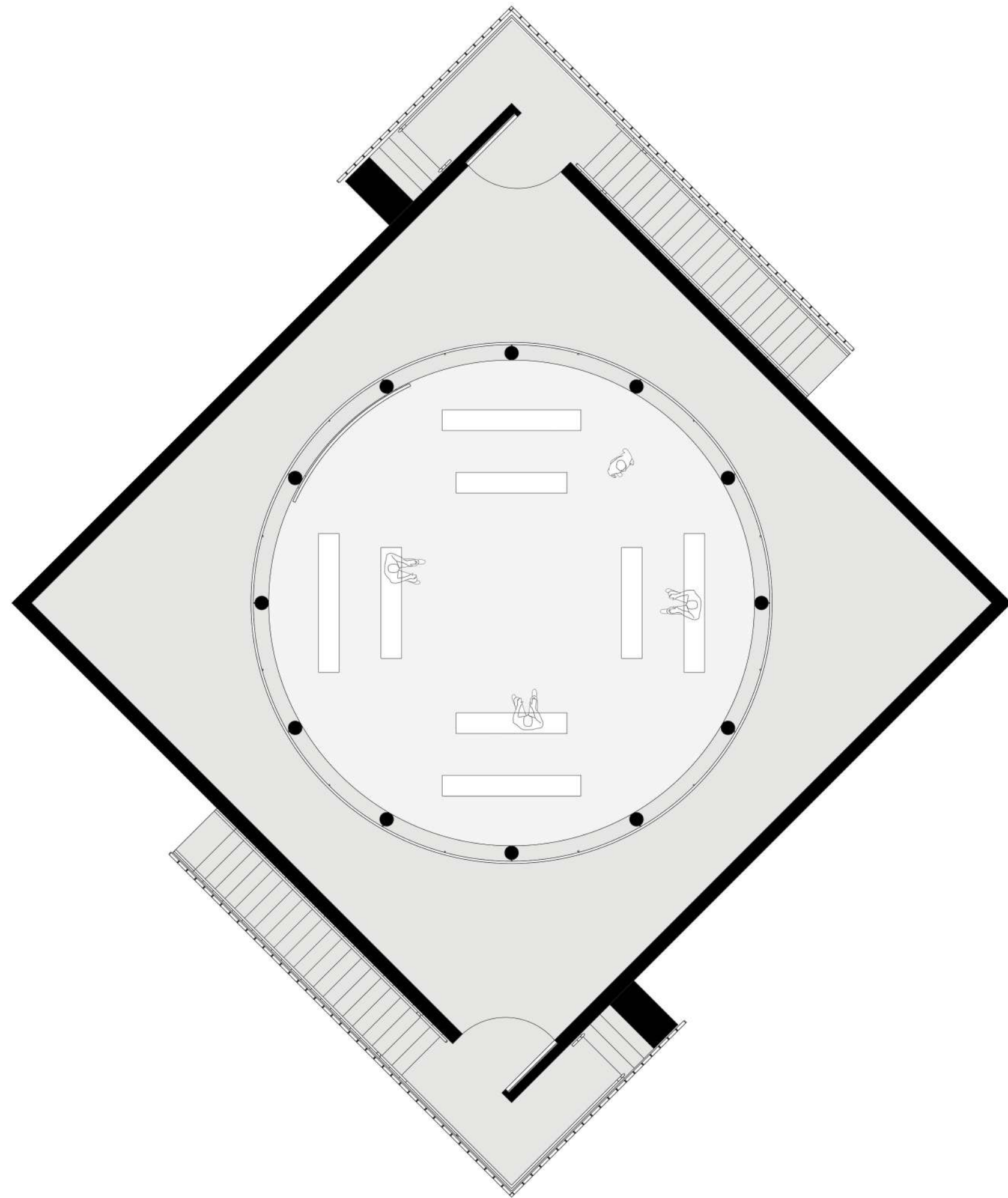




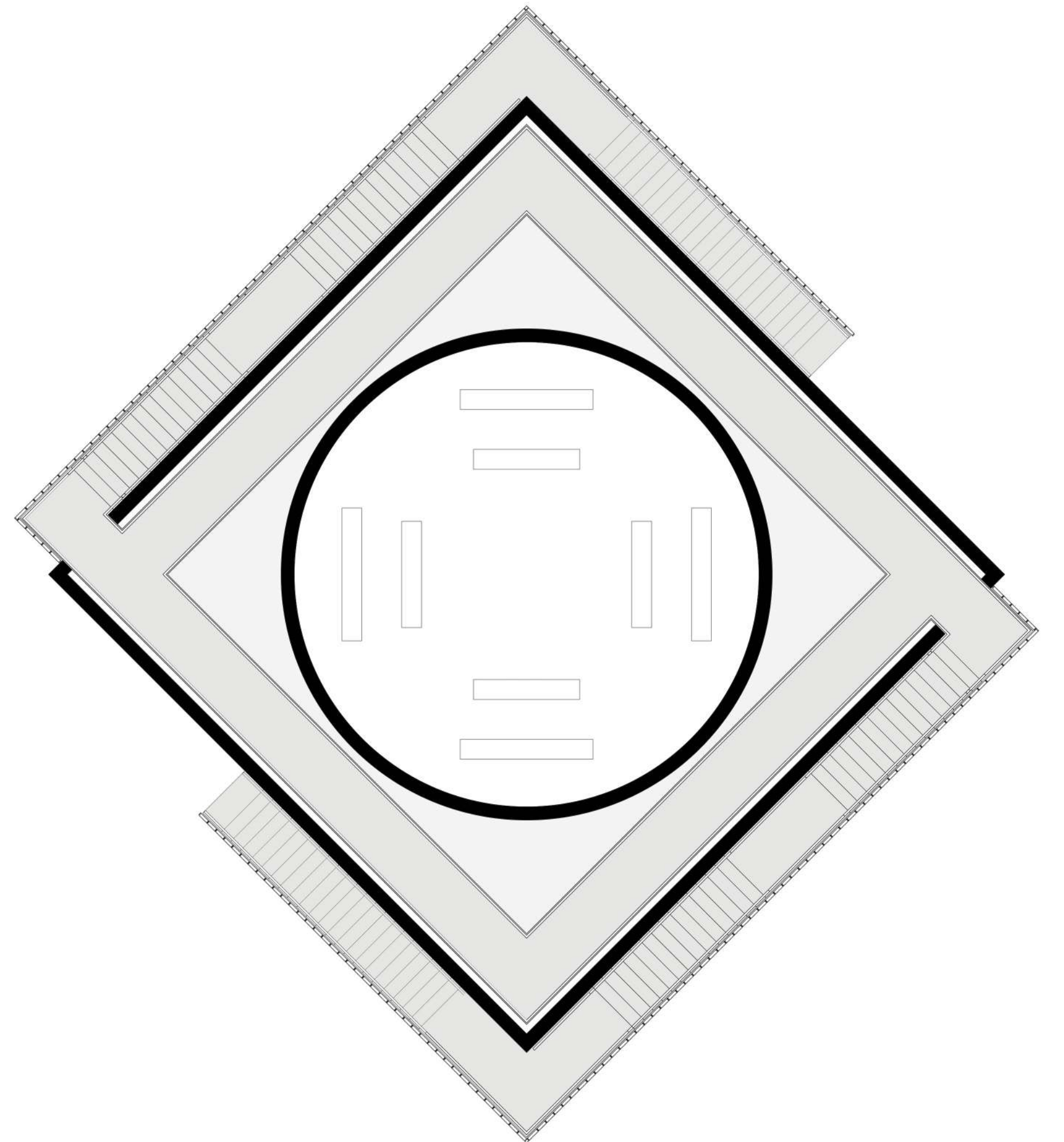


Dividing the ground floor of the plaza in two, a long, central axis organizes the structure of the buildings found outside. The reflecting pools align to this axis, forming a line of sight that visually connects the individual prayer rooms on the west end of the axis to the chapel on the east. The individual prayer rooms encircle a pool of water on the west end of the axis, each separated for means of privacy. In each prayer space, light enters through door openings, producing a faint glow inside. The dim lighting addresses the room in an intimate gesture, creating stillness and imparting a sense of calm.



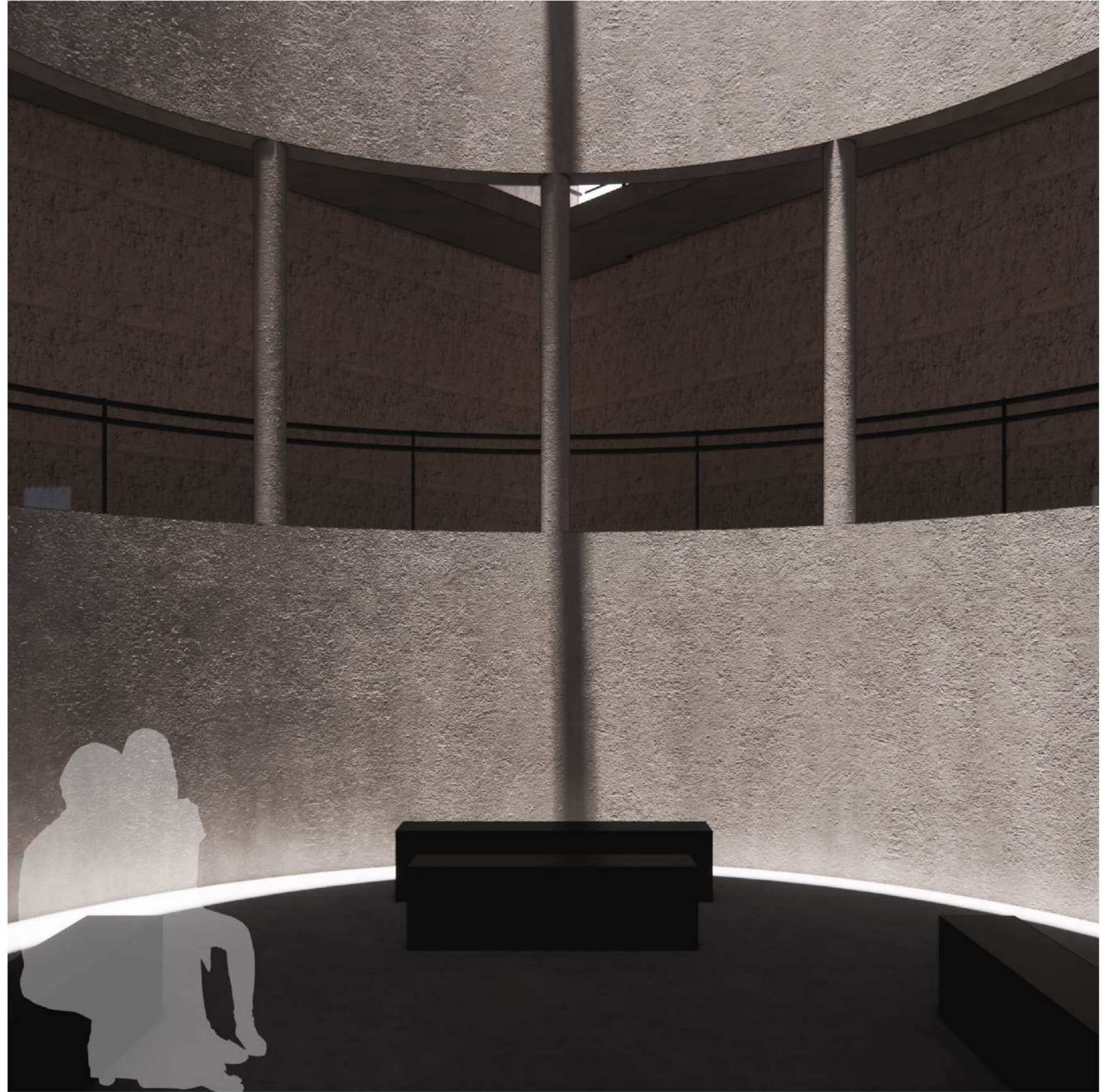
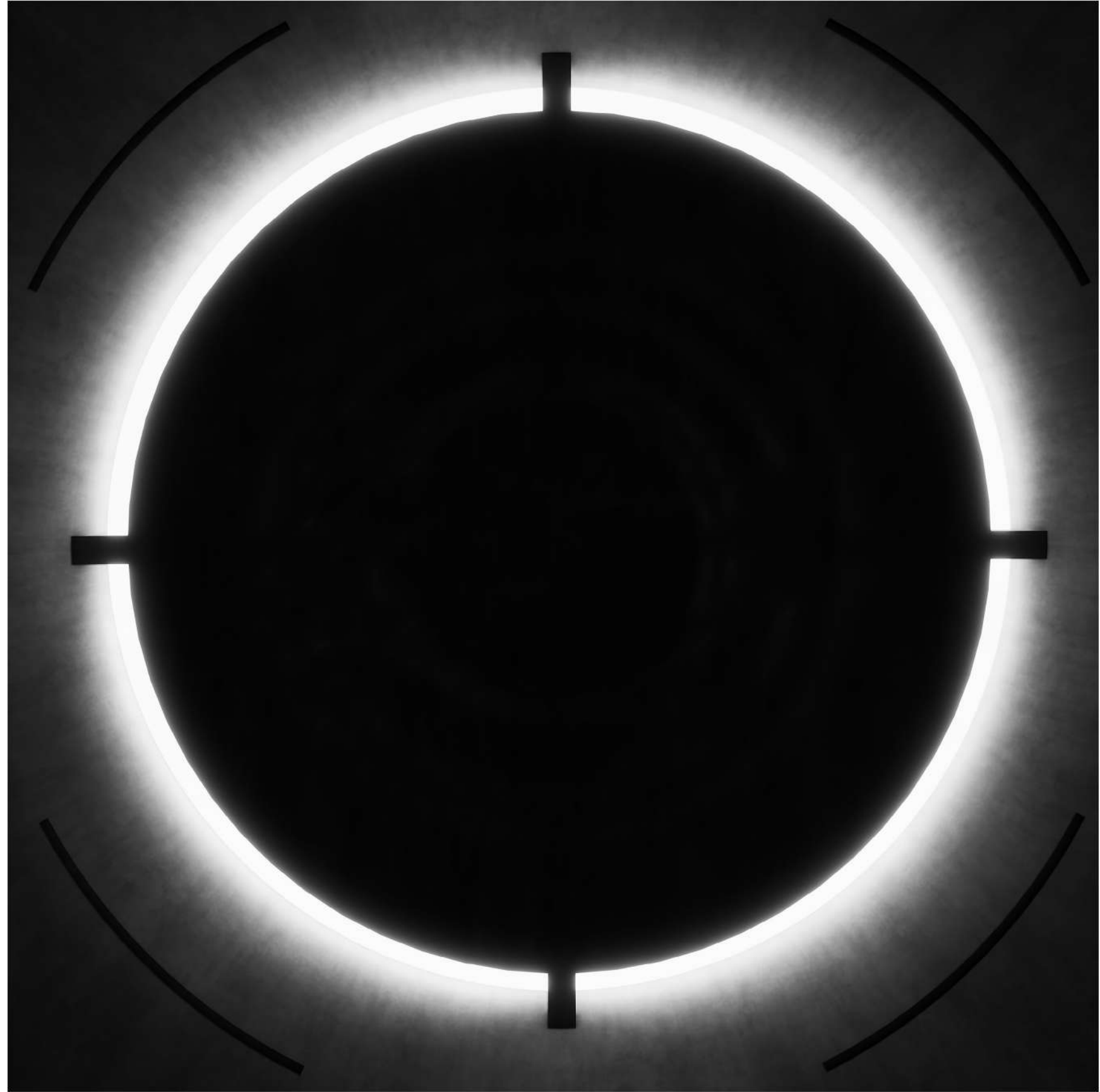


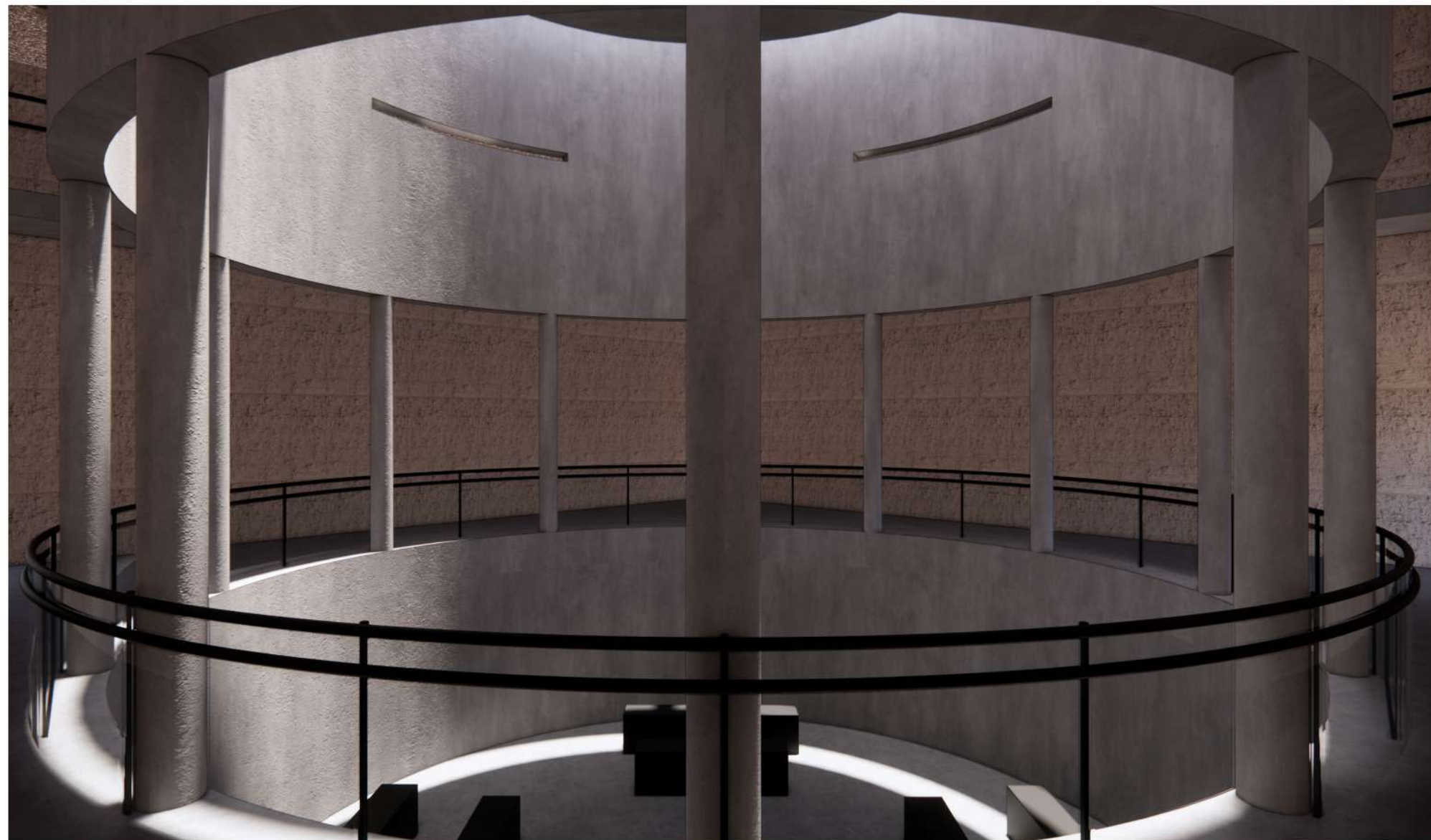
chapel first floor



chapel second floor

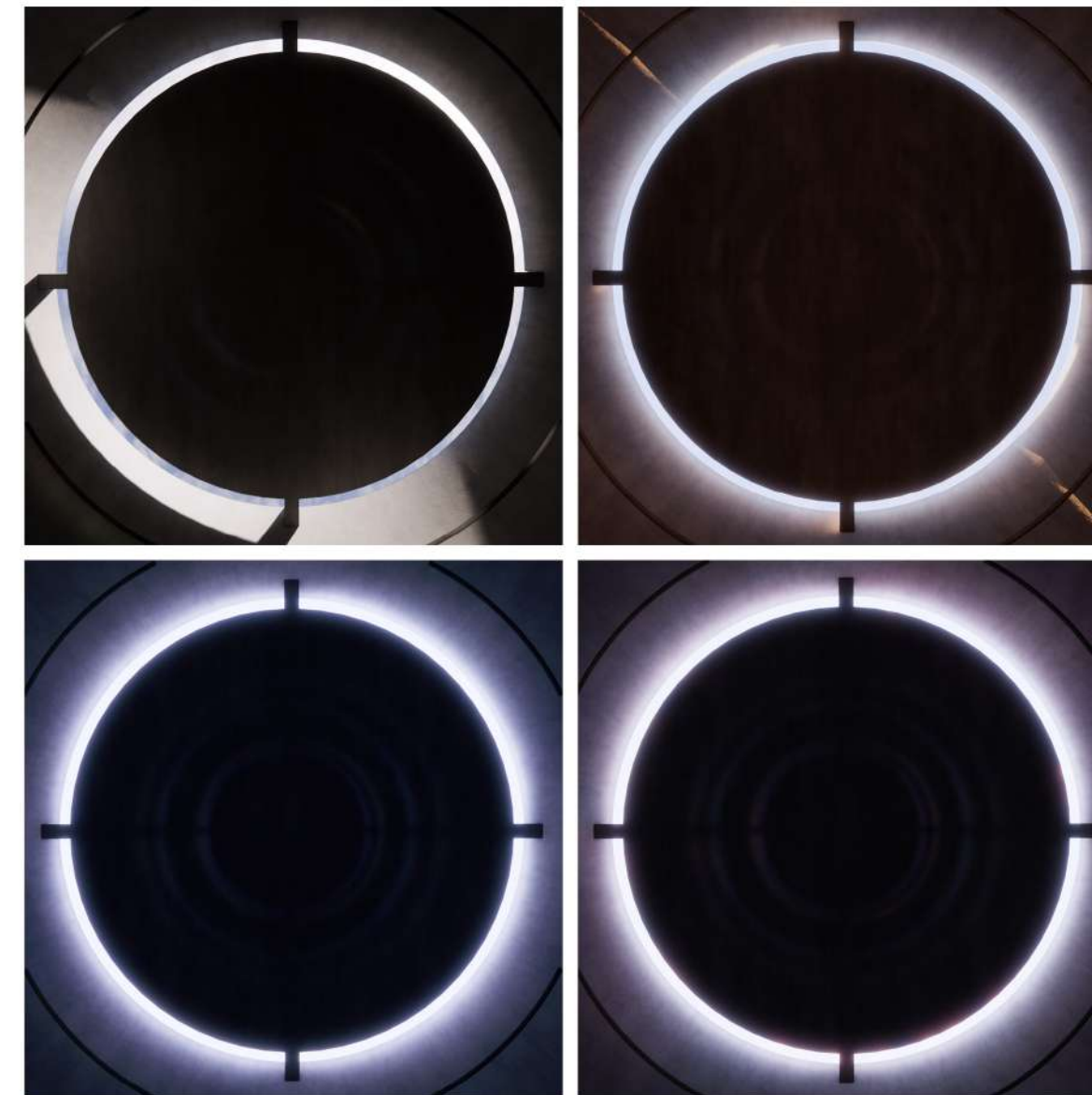






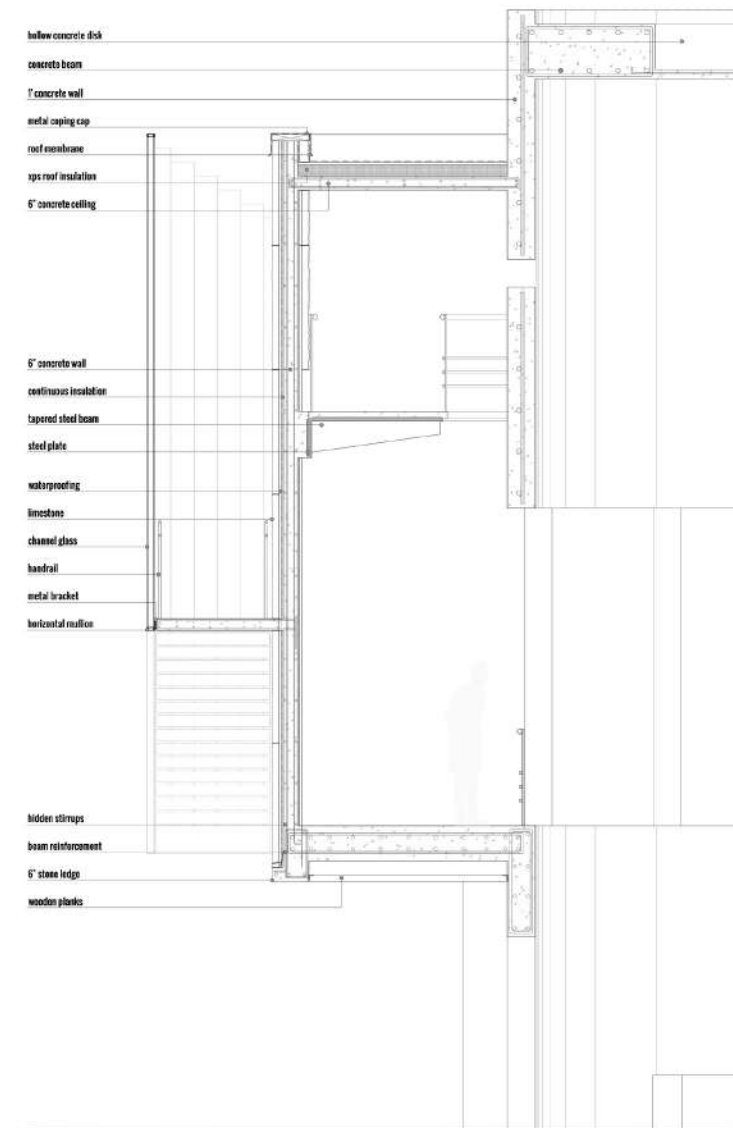
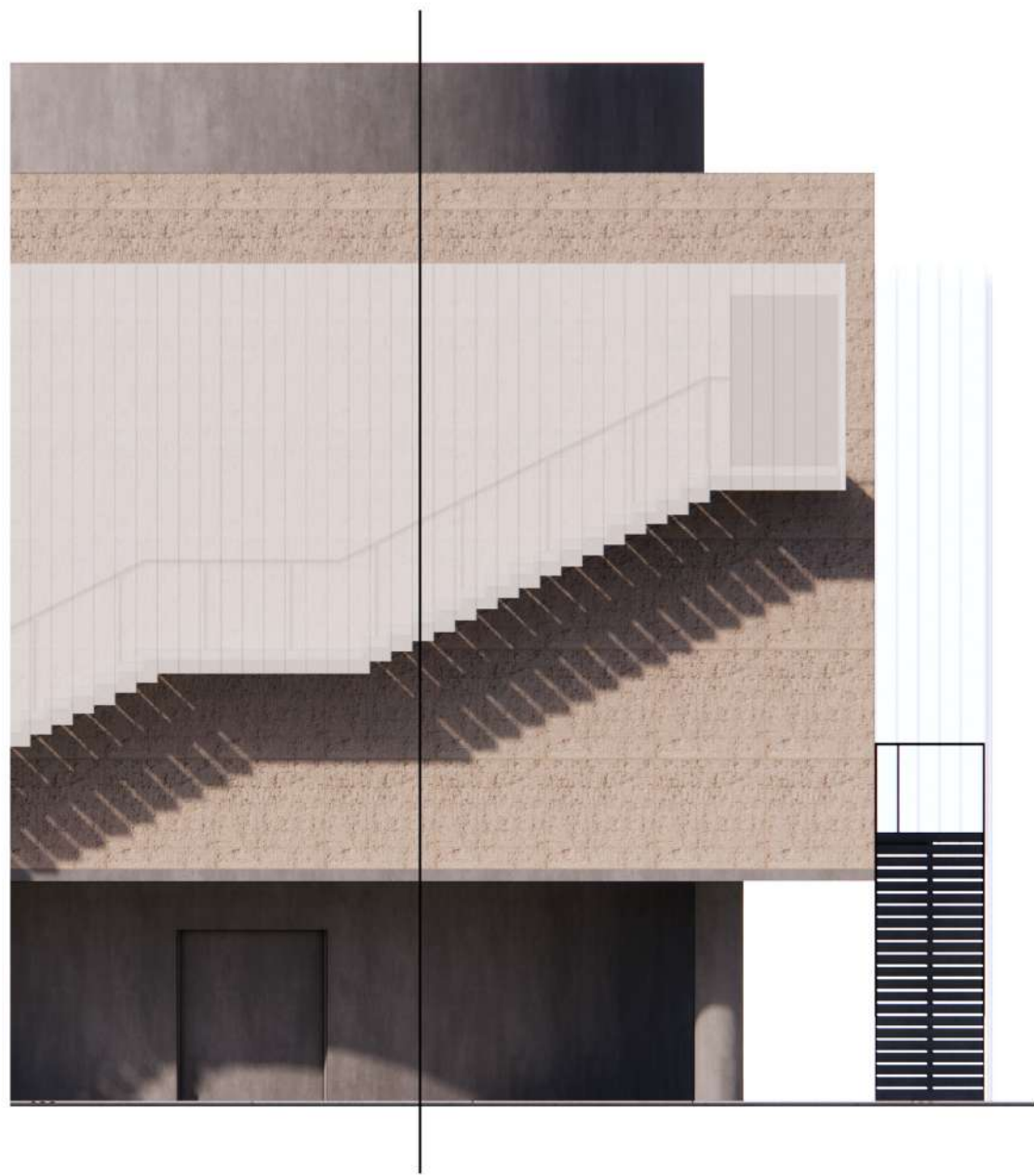
The last step of the journey is the transcension and is experienced in the chapel. Transcendence is defined as the surpassing of a normal limit to something beyond human comprehension. At ground floor, the user is given two opportunities to enter into the chapel, through surface level or through exit points at landings on the cascading stairways. Upon entrance into the ground floor, one is faced with a

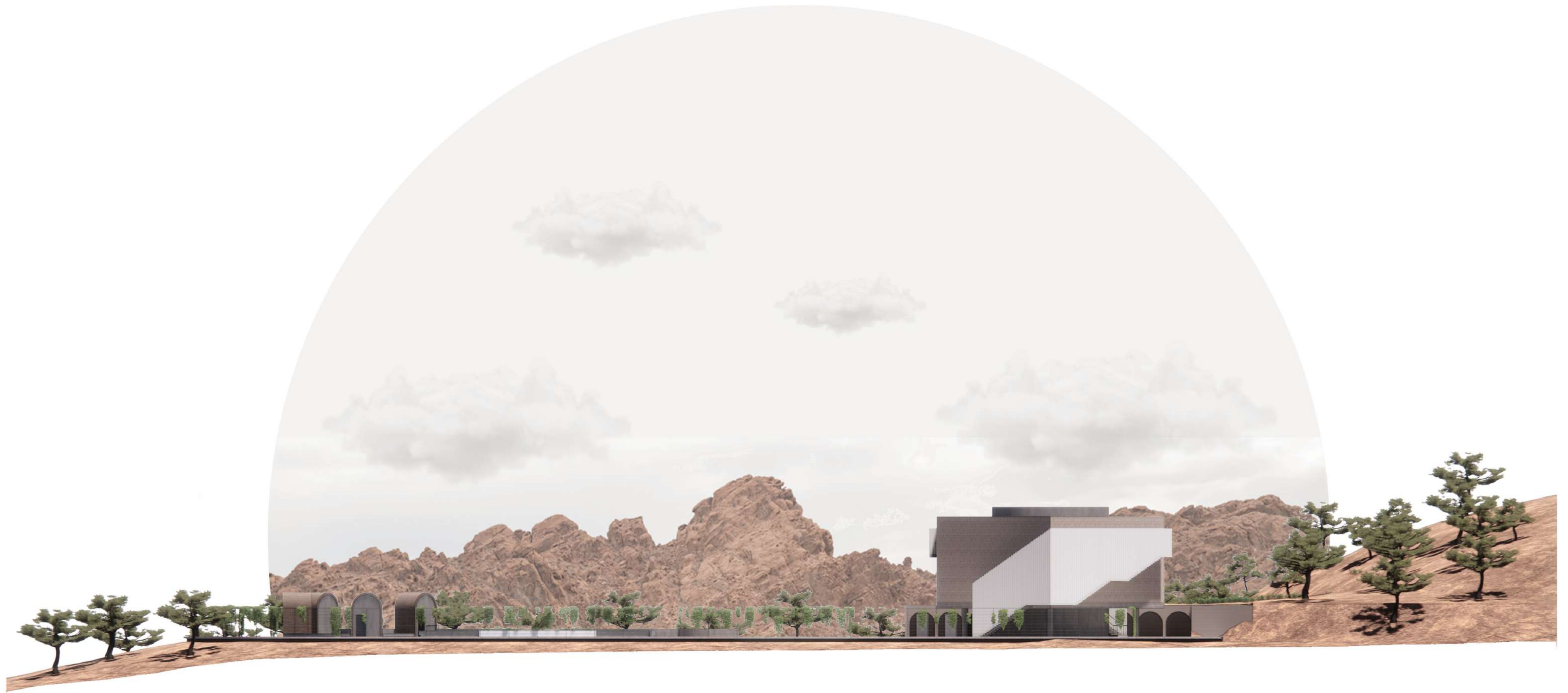
powerful effect of light that reveals its sanctity in the way it descends into the space. The floor above ground level gives the user a space to quietly observe the scene below or to dwell on the occurrence above. At the highest level of the chapel, the catwalk creates a unique experience where a user is allowed to have a small, narrow view into the cylindrical form, getting a glance of the light performance within.



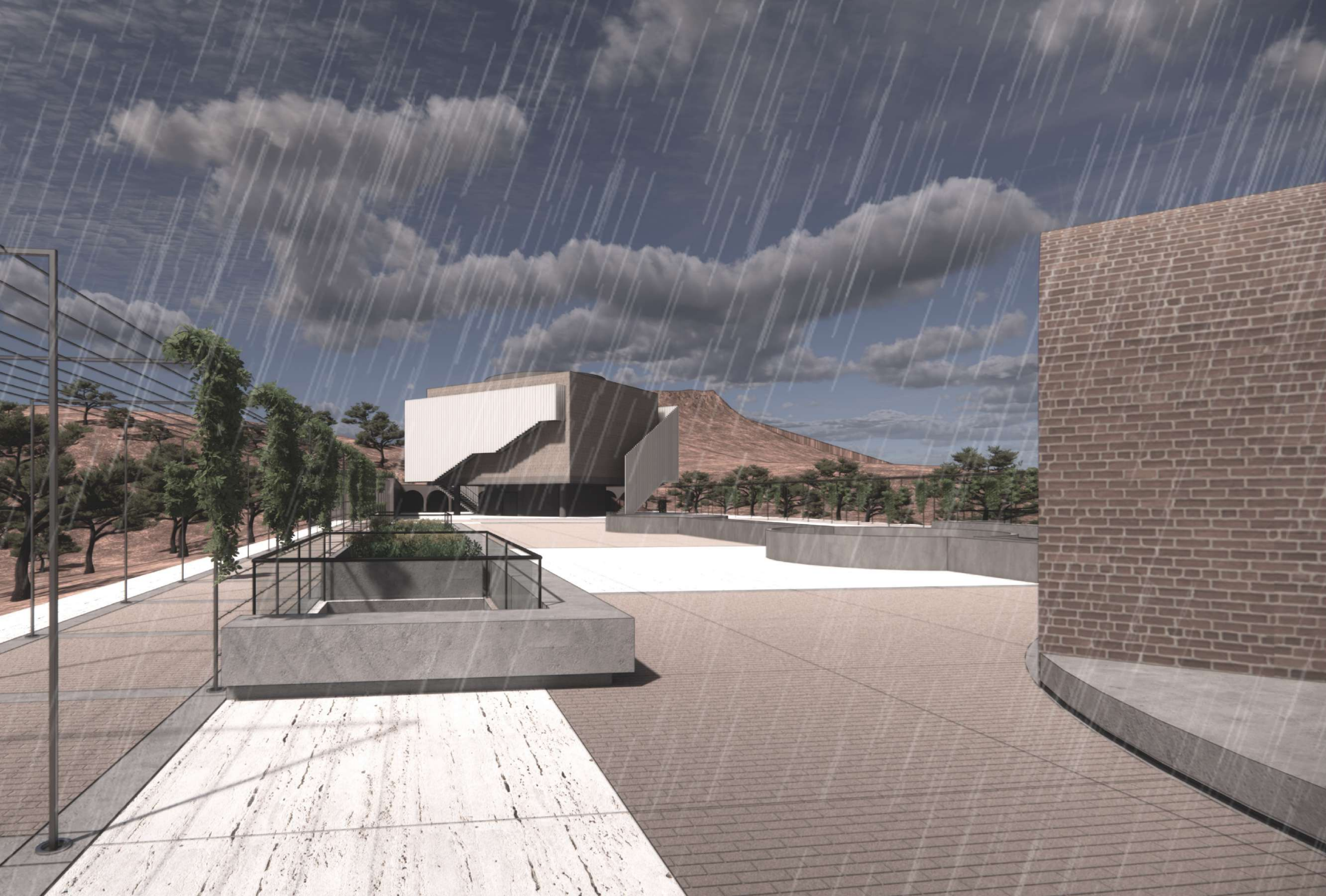
The circular disk that hovers above the heads of the viewer permits a radial ring of light to penetrate into the chapel and speaks to that which transcends all understanding as the light source is hidden from view.

At different times of the day the chapel experiences unique hues of light that have an effect and glow on the interior space. The ring of light also serves as a sundial for the space and the shadows take performance.









conclusion

Light carries a vital role in the intimate aesthetic that can be created through architecture, but it cannot exist without the presence of shadows. The darkness can give space a sense of depth and ambiguity through layers of shadows. The force that the darkness holds carries a powerful silence and it is through its many layers and depth, that darkness is made beautiful. I believe through this we can experience sacredness. If light is limited, it is intensified and very effective as it appears greatly contrasted against the dark shadows. Whether it is the sacred experience that makes a place sacred or a sacred building that allows for a sacred experience, there is no doubt that the involvement of light is vital to the journey. Luce Sacra serves as a sacred space for sacred experiences to be made. Each room is designed to house the light that enters it, creating a special and unique atmosphere. When the light aligns to a specific area in each space, a special moment can be witnessed, such as a rainy day in sunny Arizona.



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