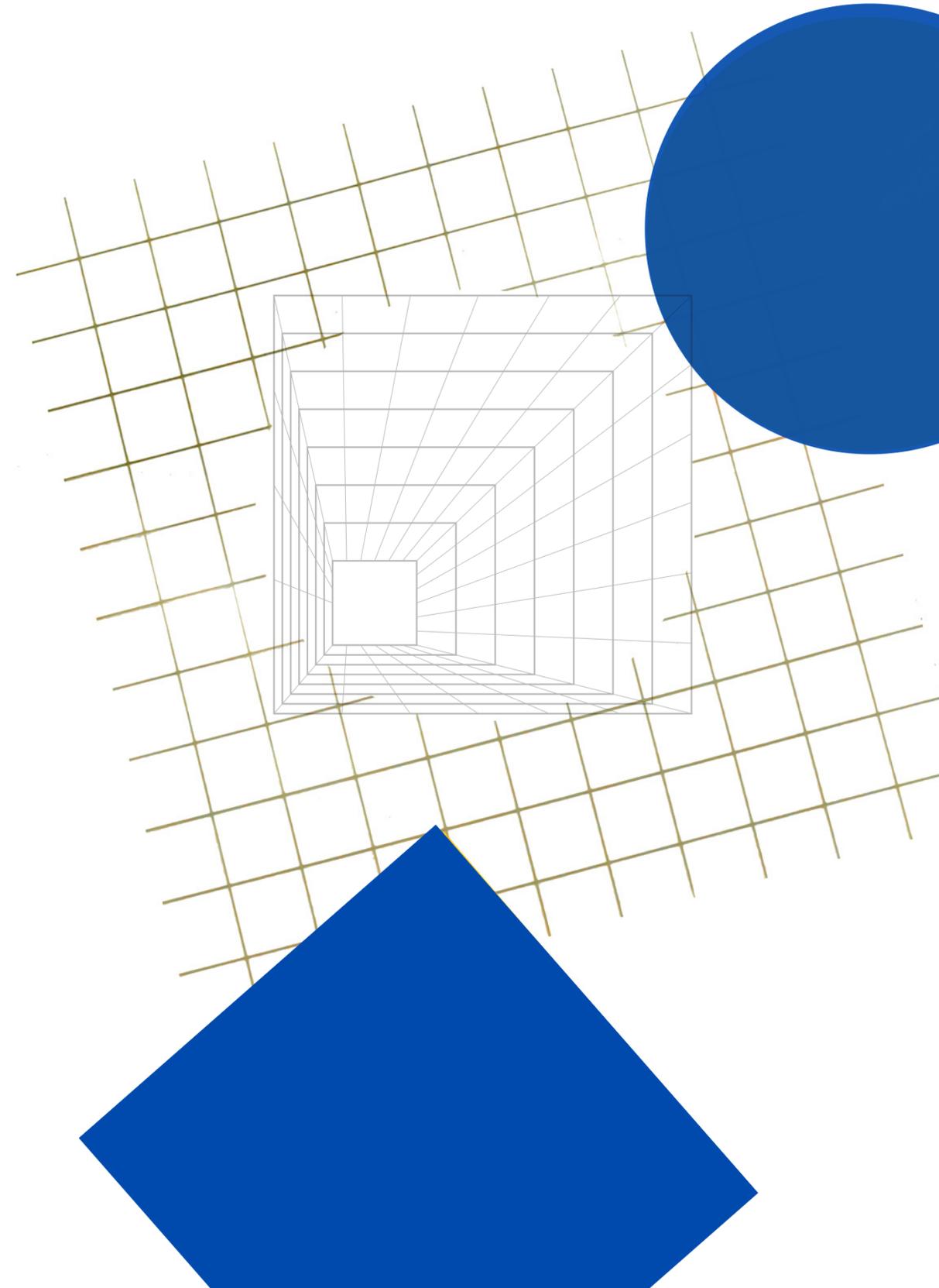


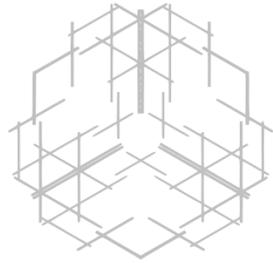
FLOATING MOSQUE

THESIS

SHIMAA MUFTI

2023





FLOATING MOSQUE

MAY 5, 2023

KEYWORDS:

RELIGIOUS, MOSQUE, NATURE, LIGHT

An exploration into the effect of light and geometry
in a religions building

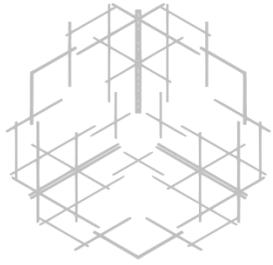
SHIMAA MUFTI

Thesis submitted to the faculty of the Virginia
Polytechnic Institute and State University in partial
fulfillment of the requirements for the degree of
Master of Architecture

JAMES JONES

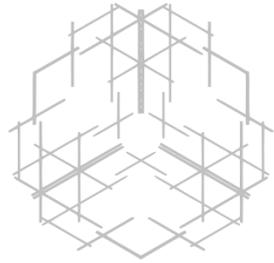
WILLIAM GALLOWAY

SCOTT GARTNER



ABSTRACT:

This thesis aims to apply an abstract method of design concerned with the integration of Islamic texts and building. This method was applied to a mosque floating on the water in the city of Jeddah, where the spaces were formed in a manner that was inspired by Islamic religious texts. The result is a sacred experience that can be felt through the evocation of texts within the architectural space.



INTRODUCTION

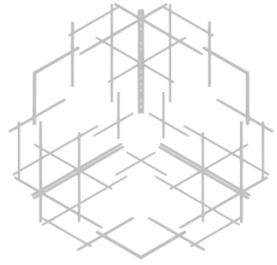
THE BEGINNING

Geometric Patterns are the key to constructing our universe. In Johannes Kepler's *Mysterium Cosmographicum*, in 1596, we see a proposal for the distance relationships between the six planets known at that time that could be understood in terms of the Five Platonic Solids, enclosed within a sphere. These patterns can be found all around us especially in [nature](#). For many cultures, geometric patterns have a wide variety of meanings. Geometry speaks a universal language.

In addition, for thousands of years, long before becoming part of scientific endeavors and construction projects by the Egyptians and Greeks, squares, circles, and triangles have been given religious symbolism.

This thesis was inspired by [AL KAABA](#), which is the most well known Islamic figure and pilgrimage destination for Muslims from around the world.



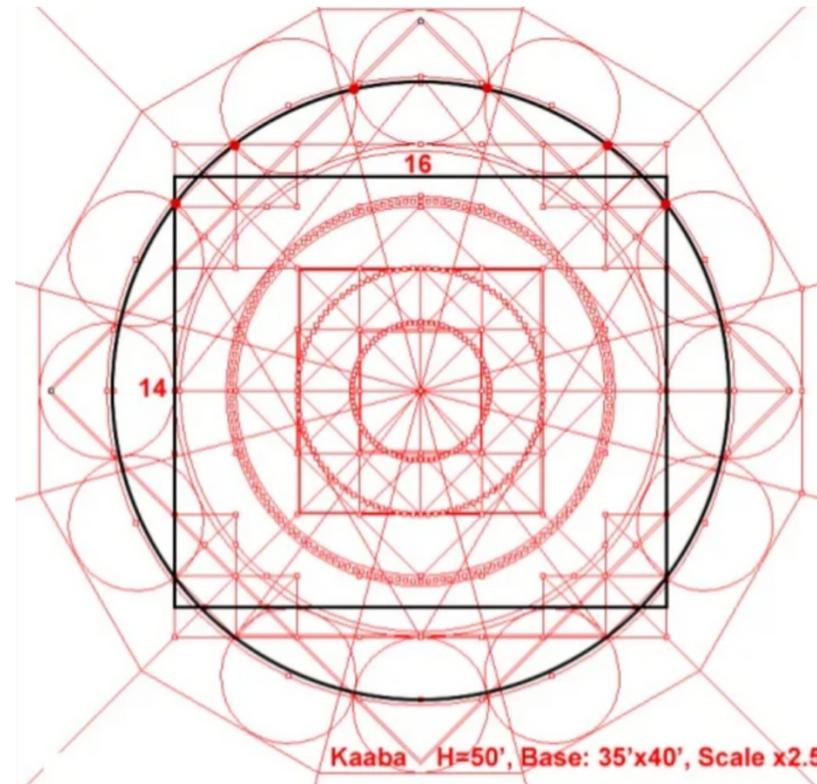


{ إِنَّا كُلُّ شَيْءٍ خَلَقْنَاهُ بِقَدَرٍ }

EVERYTHING WE CREATED IS IN PRECISE MEASURE.

GEOMETRIC

ANALYSIS OF ALKAABA

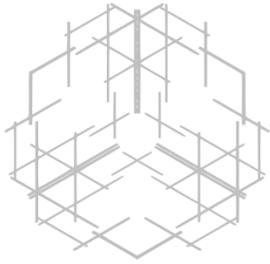


Square:

A well-organized, calming and pleasing shape that evokes a sense of conformity, honesty, and rationality. The square represents strength, efficiency, practicality and stability.

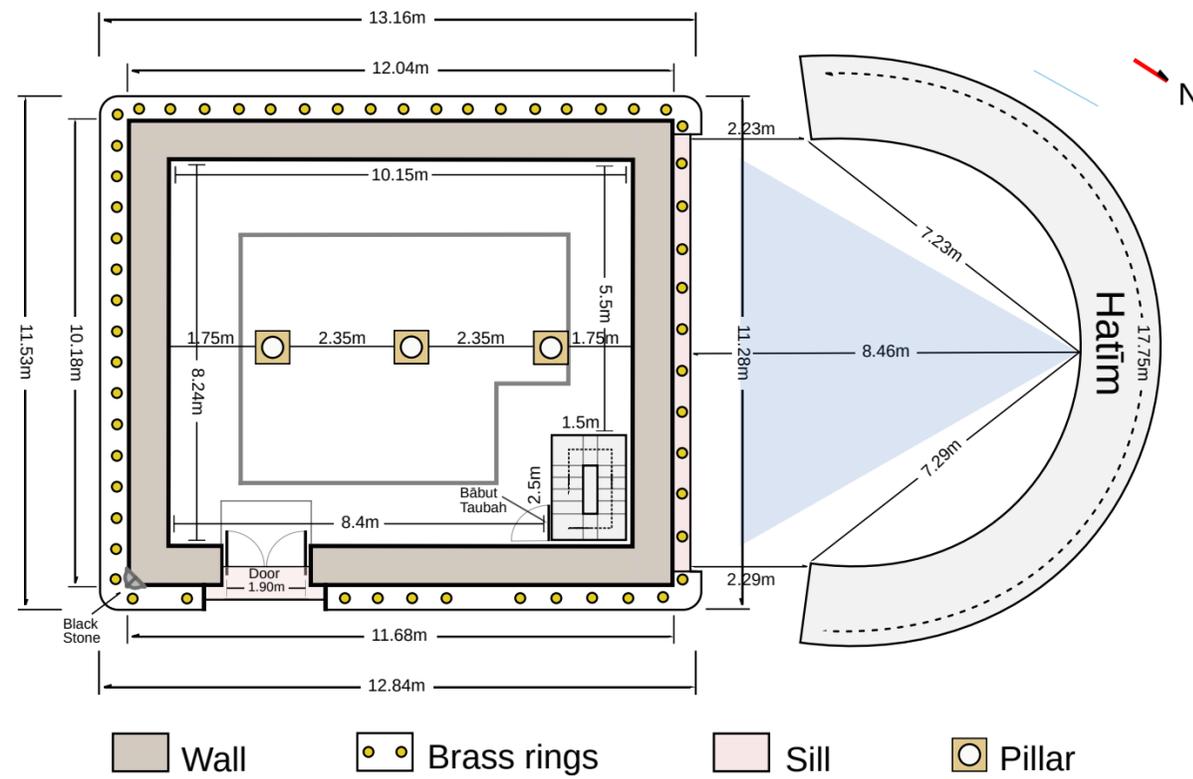
Circle:

Unity, wholeness and infinity. The circle represents community, friendship, stability, dynamic, and femininity.



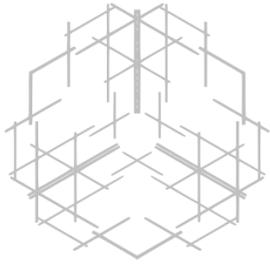
GEOMETRIC

ANALYSIS OF ALKAABA



Triangle:

Symbolizes the relationship between God and worshippers, power, law, science, and masculinity.



SACRED PLACE

MEANING

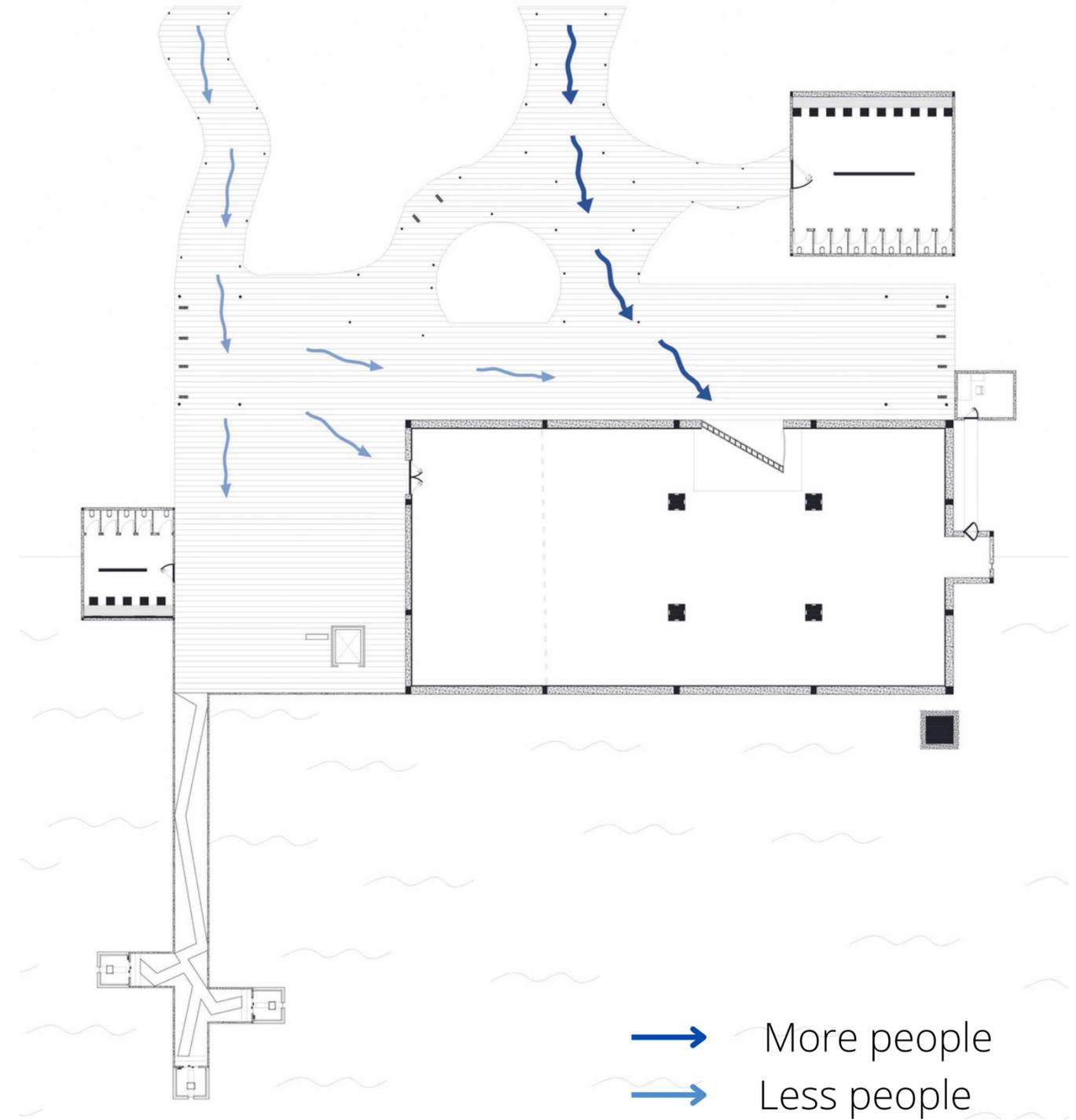
“The first gesture of an architect is to draw a perimeter, in other words to separate the microclimate from the macro space outside. This in itself is a **sacred act**. Architecture in itself conveys this idea at limiting space. It's a limit between the finite and the infinite. From this point of view, all architecture is sacred.”

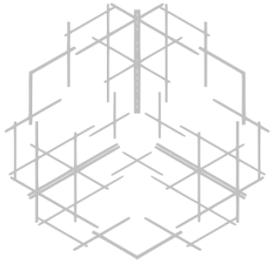
MARIO BOTTA

SITE ANALYSIS



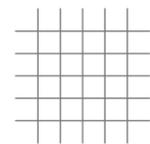
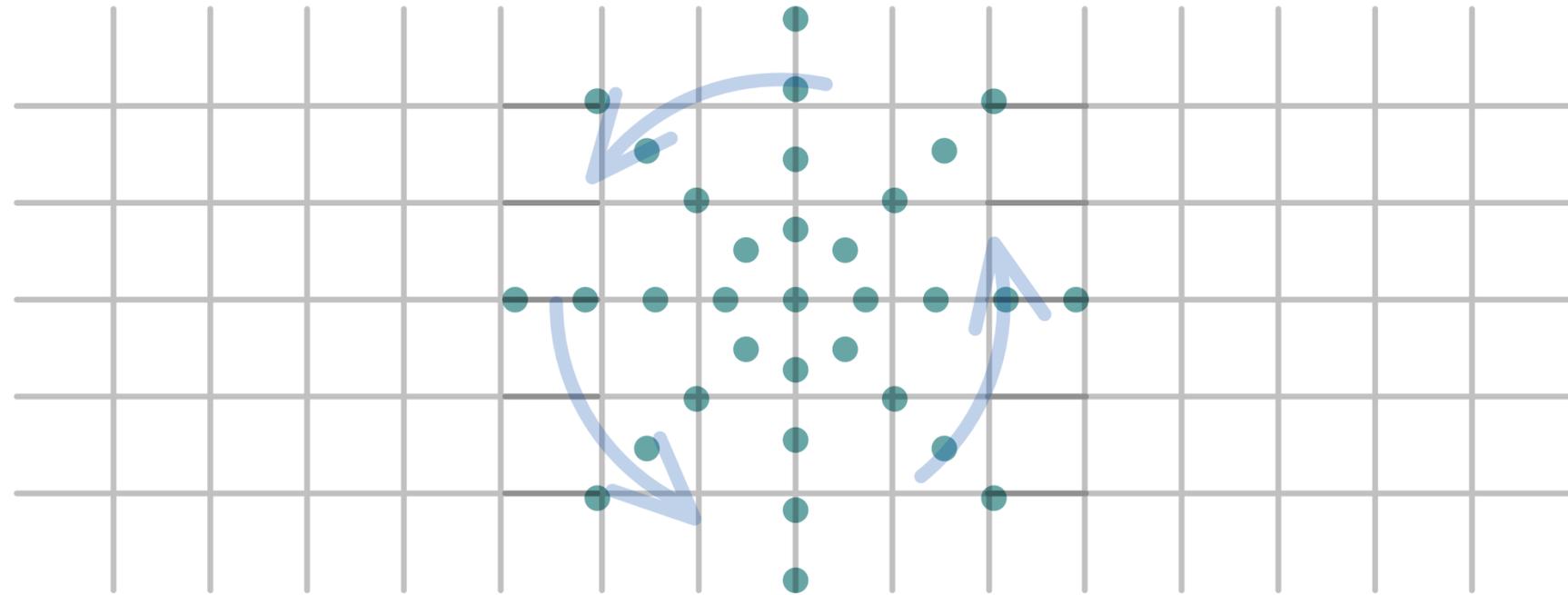
 PEOPLE MOVEMENT



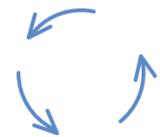


MOSQUE ANALYSIS

INSPIRED FROM KAABA



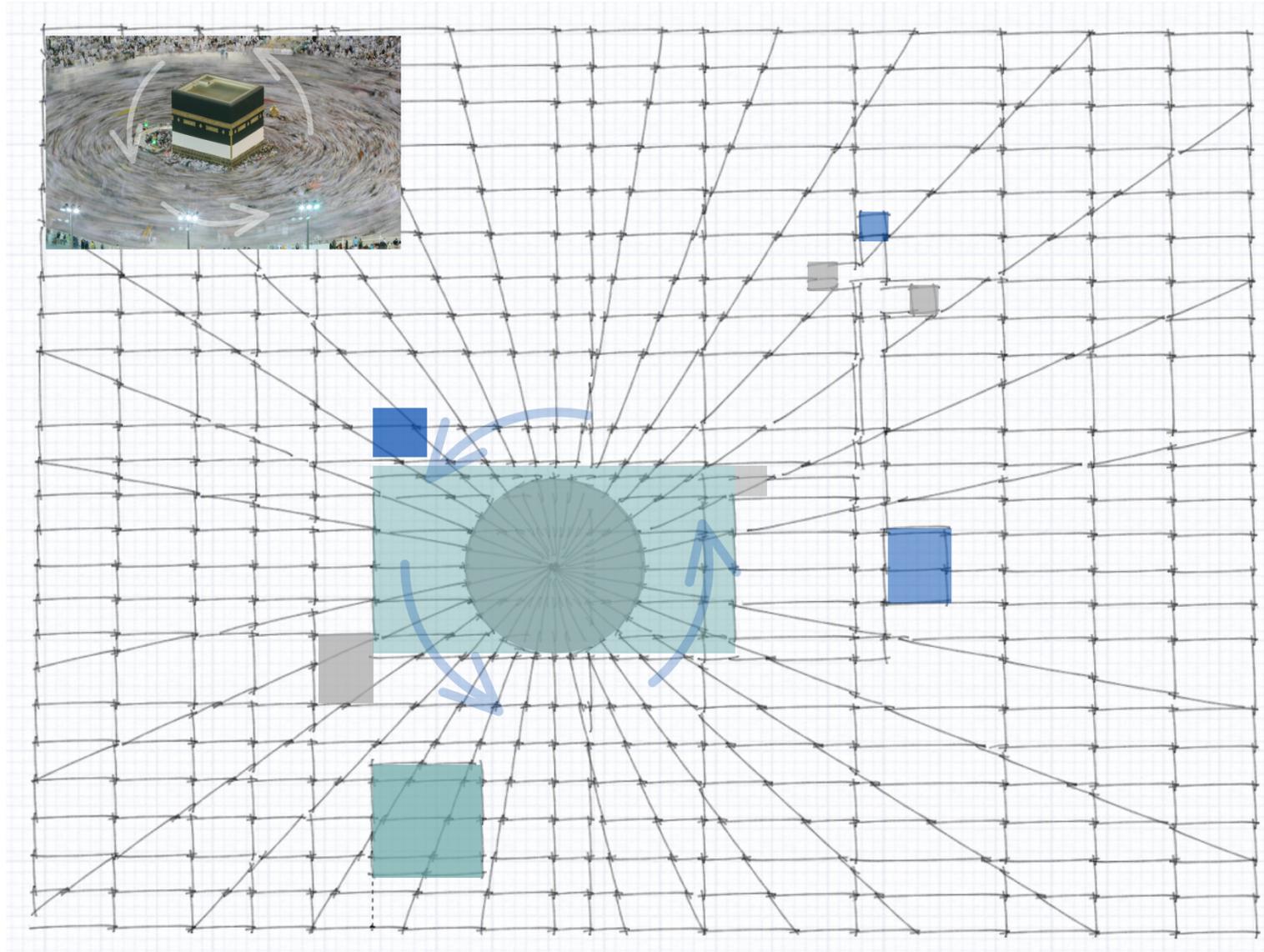
grid



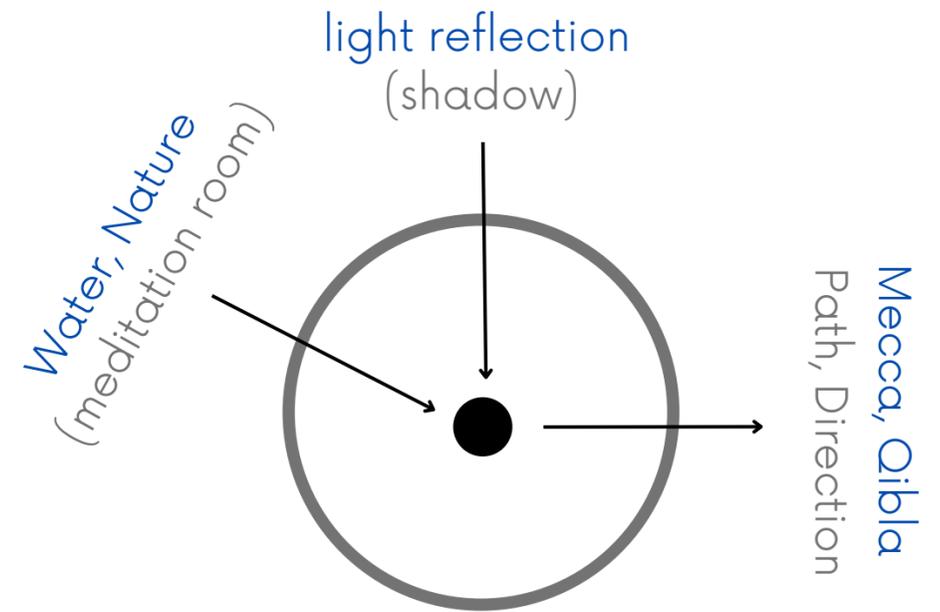
direction of movement

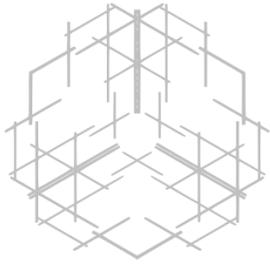


expanding movement



Muslims consider the Kaaba (cubic shape) a sacred place, since it was the first religious building. Therefore, muslims circumambulate around it in a circular motion. Reflecting on this case, I found that muslims have a preference for pure geometric shapes, such as the square and the circle.





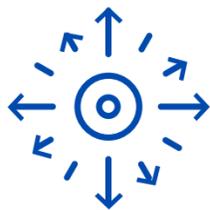
ESCAPE

CENTRIPETAL + CENTRIFUGAL



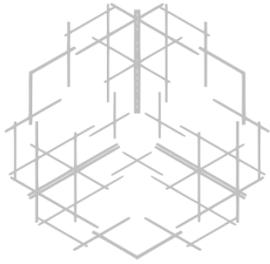
CENTRIPETAL

Move toward a center.
(relation to one's self)



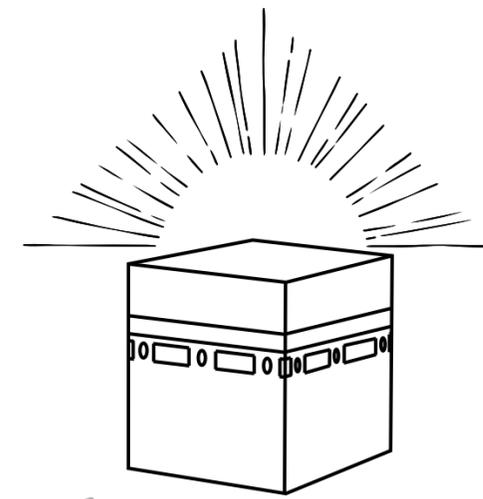
CENTRIFUGAL

Move away from a center
(relation to something beyond one's self)



SITE LOCATION

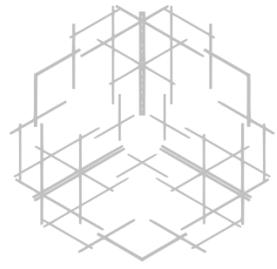
WHY HERE?



QIBLA ORIENTATION

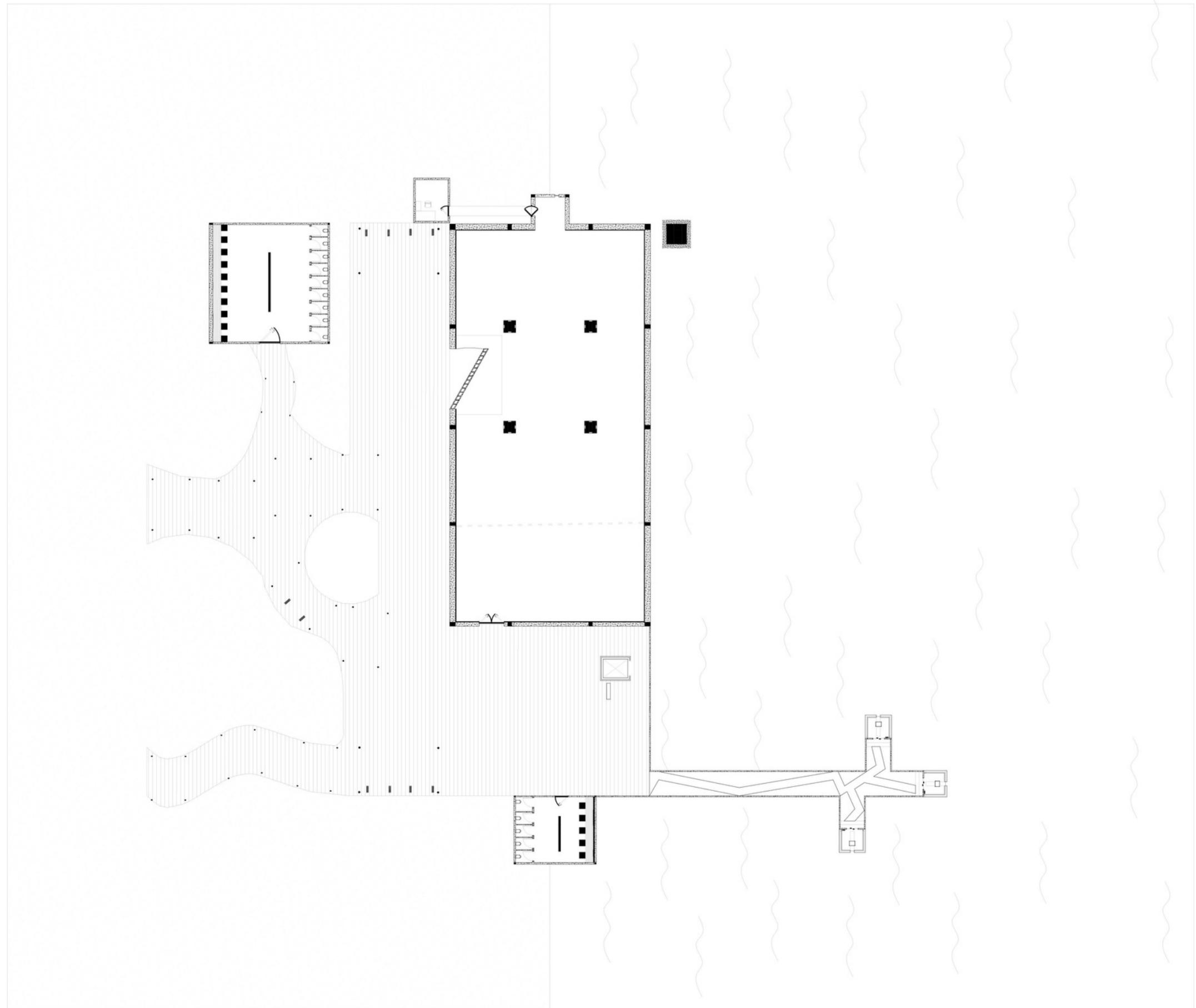
This direction, known as the **Qibla**, orients towards the Kaaba, and is a symbol of the unity and oneness of the Islamic faith.

This location helps connect people to nature and promotes unity through faith, and the feeling of awe one gets from the sea. While keeping one's prayers focused on spirituality and God.

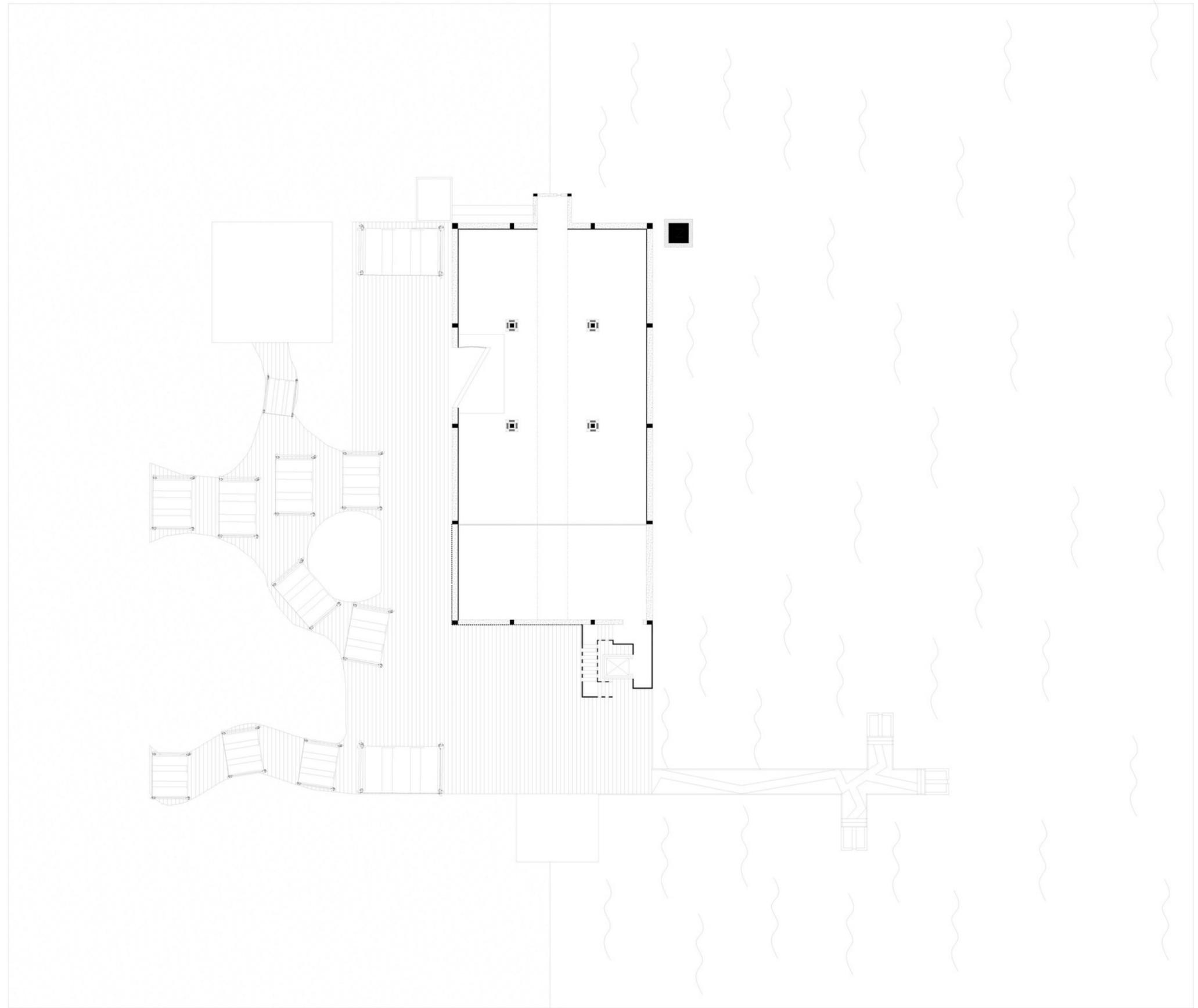


FLOOR PLAN

GROUND

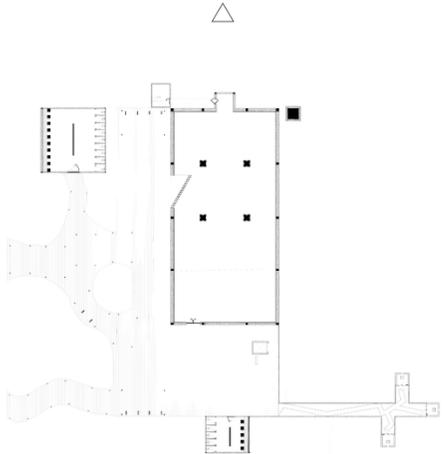
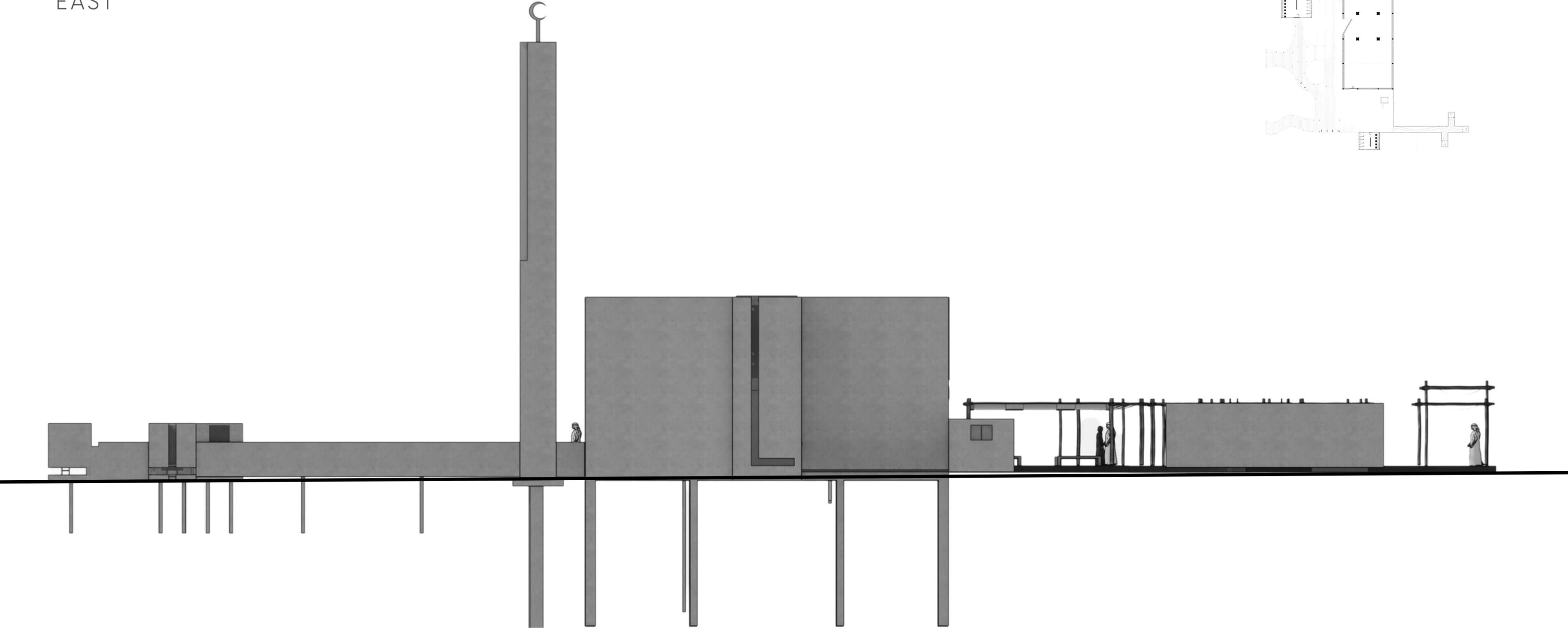


FIRST

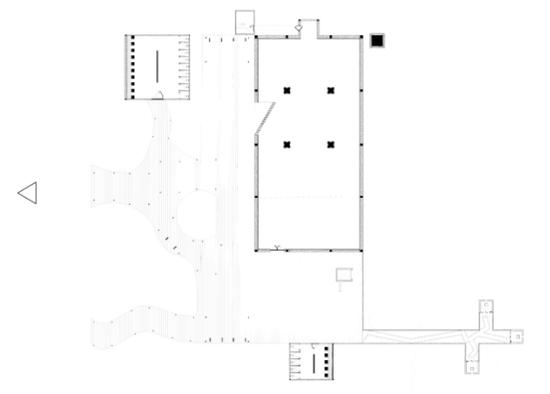
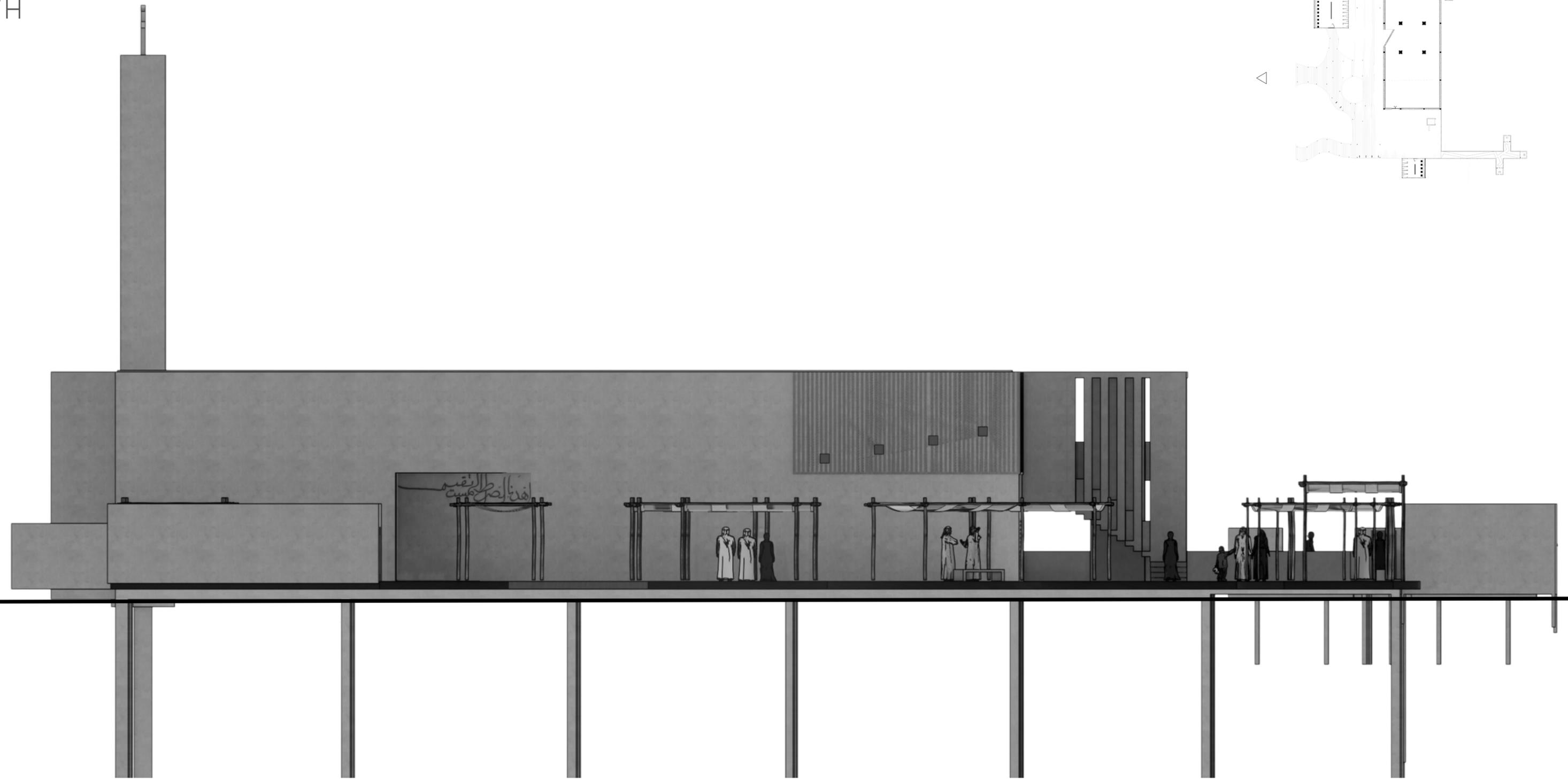


ELEVATION

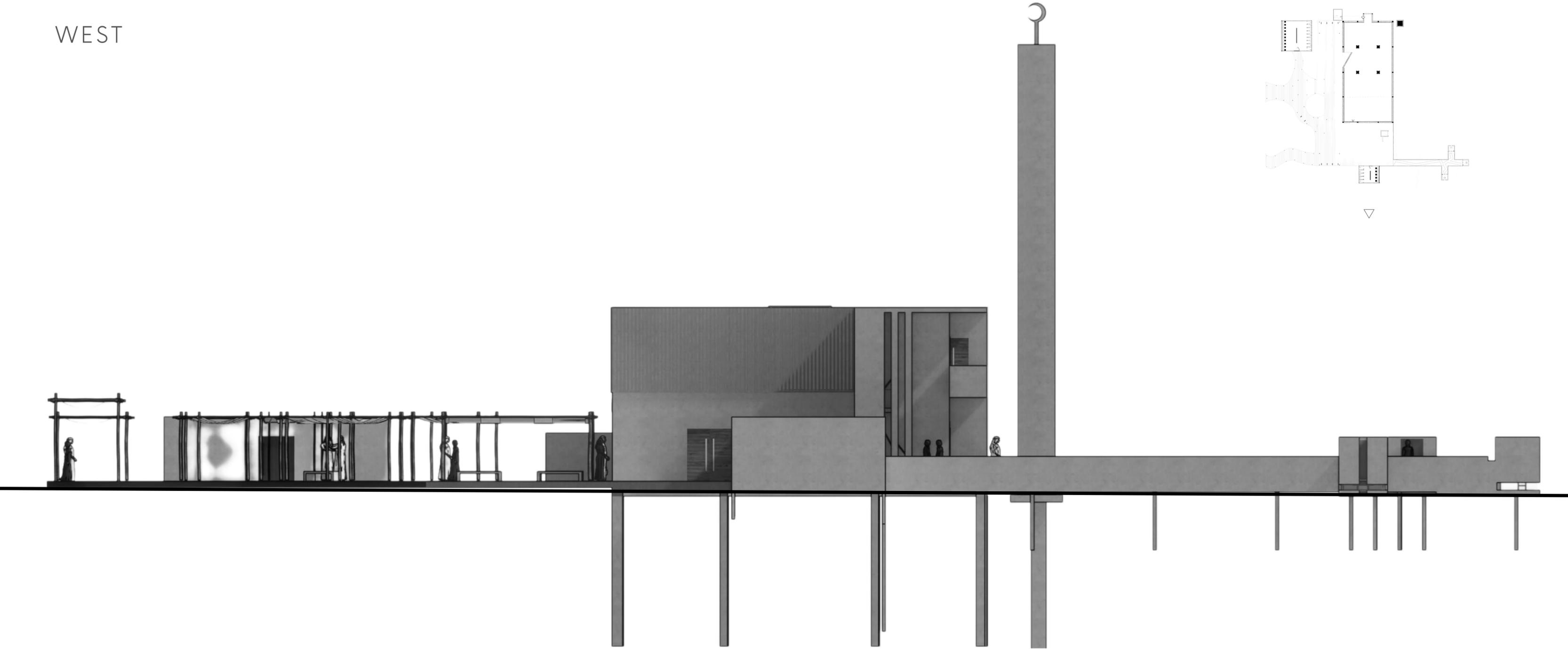
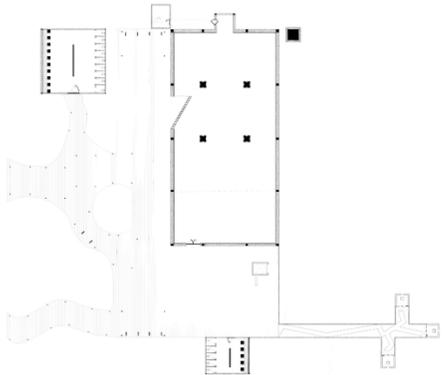
EAST



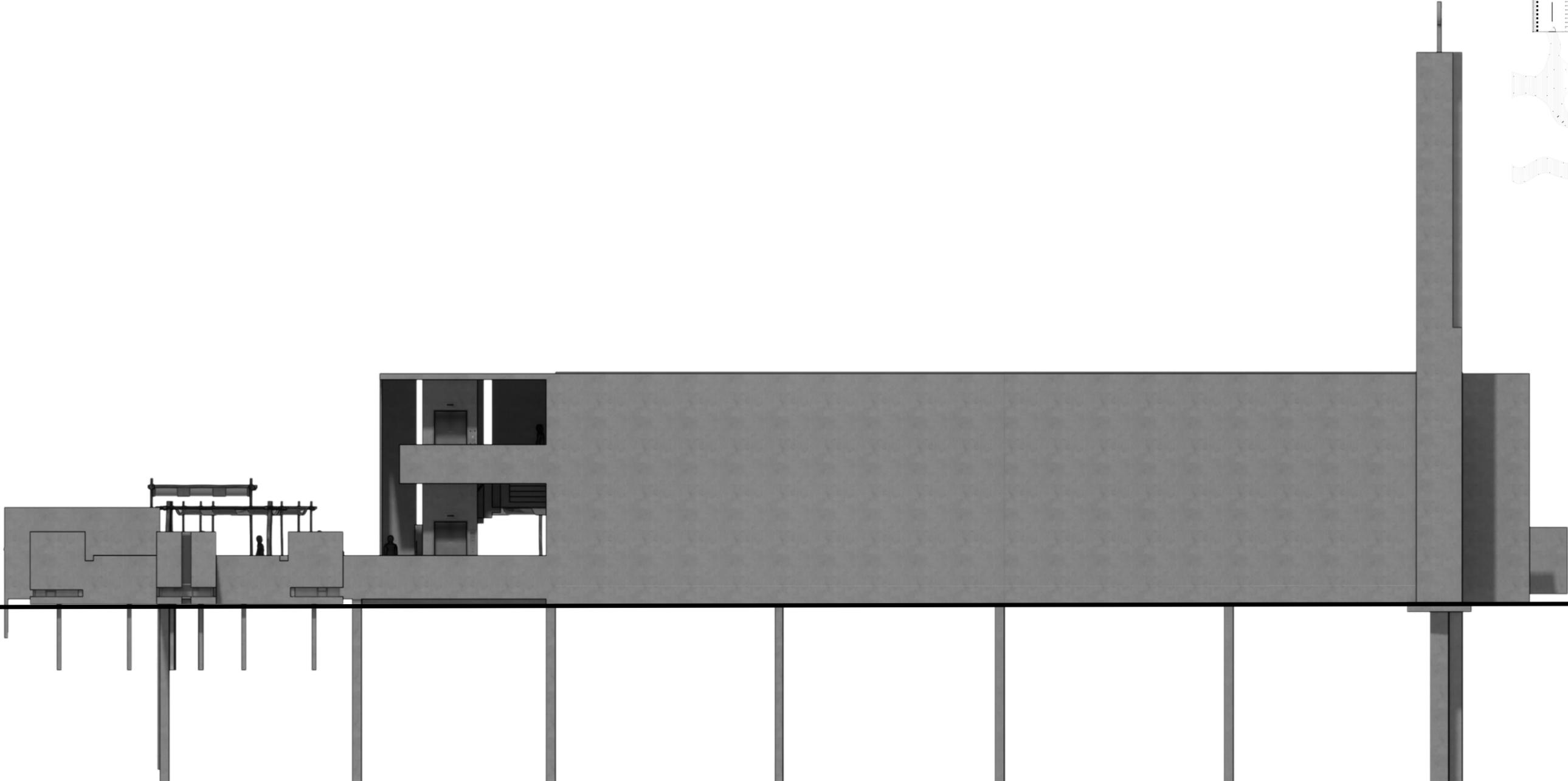
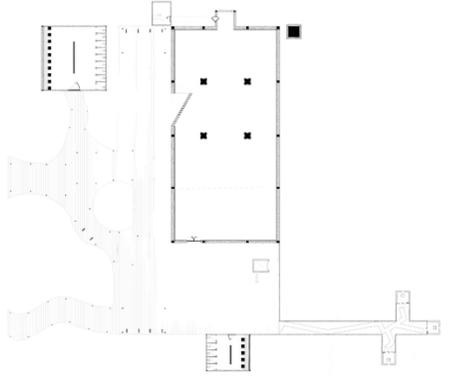
NORTH

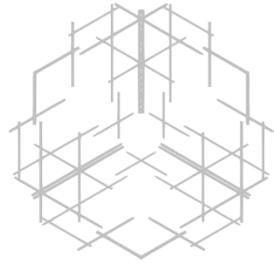


WEST



SOUTH



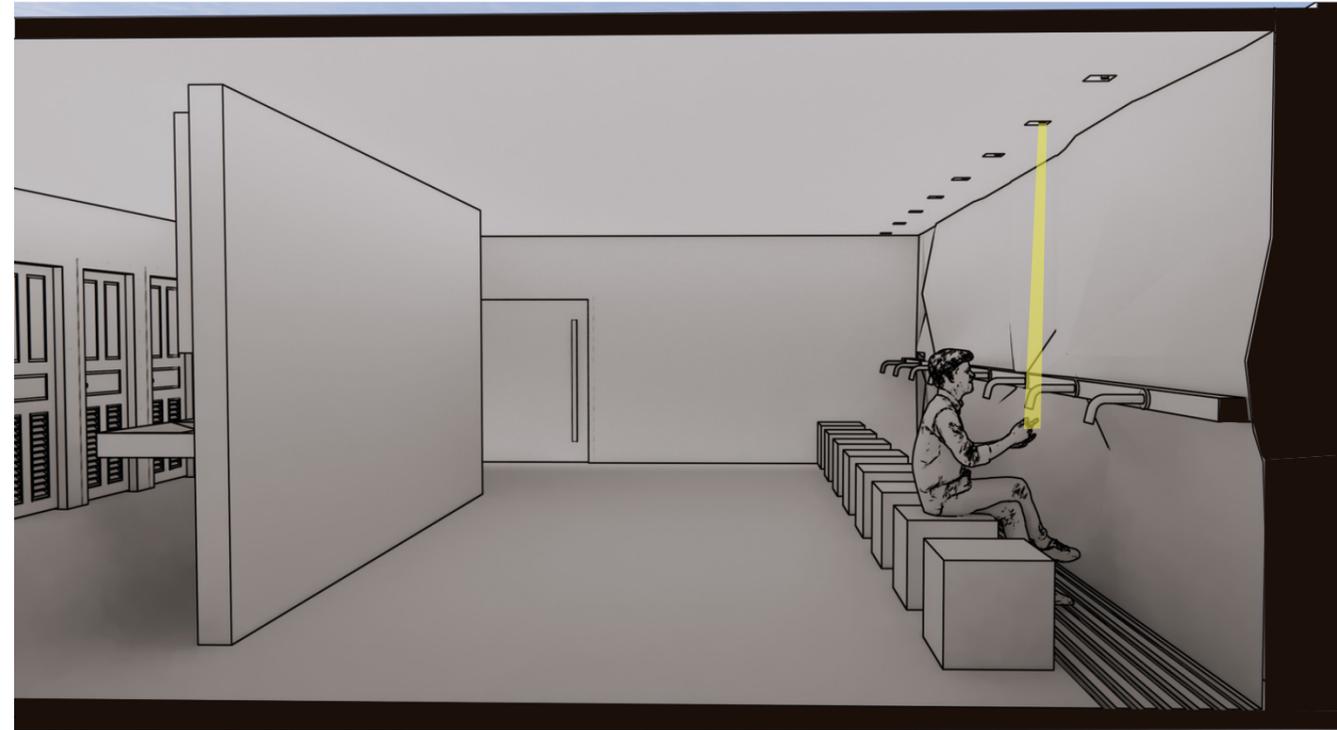
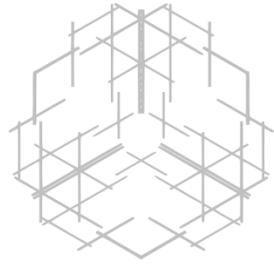


GOD'S CALL

The mosque experience is characterized by a rush of activity during prayers, followed by a peaceful sense of calm. Therefore, the floor of the path leading to the mosque is made of wood, so that the worshippers can feel their footsteps when they are hurrying to the mosque to attend prayers before it starts, and which can be heard through the sound of fast-moving footsteps. After prayers are done, the sounds of footsteps are reduced because the worshippers feel a sense of tranquility and comfort after they finish the pray.







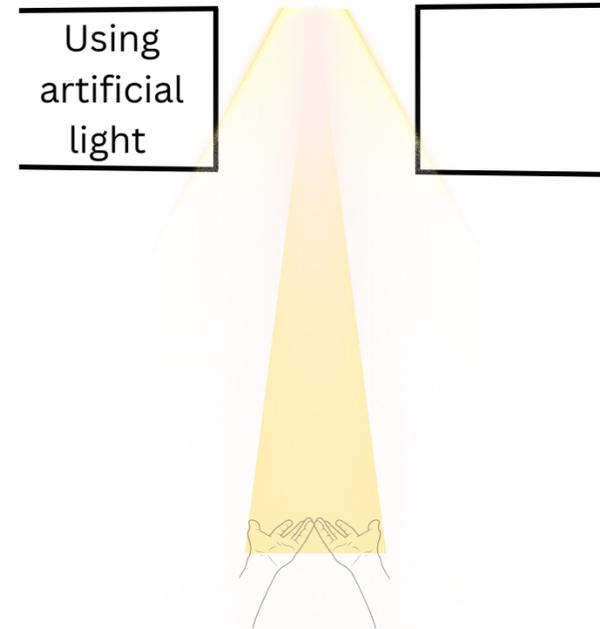
ABULOTION

PURIFICATION

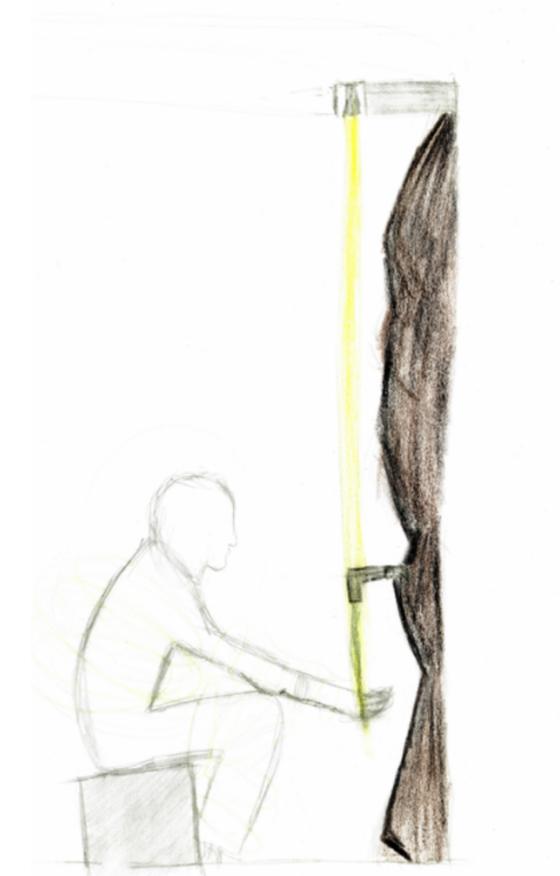


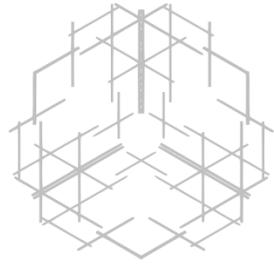
{ يَوْمَ تَرَى الْمُؤْمِنِينَ وَالْمُؤْمِنَاتِ يَسْعَى نُورُهُمْ بَيْنَ أَيْدِيهِمْ وَبِأَيْمَانِهِمْ }

THE DAY WHEN YOU SHALL SEE BELIEVING MEN AND WOMEN
WITH THEIR LIGHT RUNNING BEFORE THEM ON THEIR RIGHT HANDS.



The ablution washroom is designed to reflect the verses of the Quran to convey a feeling that the holy of God surrounds them. This is achieved by putting an electric light in the ceiling directed down toward their hands.





{ اهْدِنَا الصِّرَاطَ الْمُسْتَقِيمَ }

SHOW US THE STRAIGHT PATH

ENTRANCE

& THE VERSE

One reads the verse and enters the mosque and sees the skylight on the Imam. He feels the RIGHTEOUSNESS and gets ready to pray. Moreover, the Skylight is designed in a vertical way going downward toward the Imam to express integrity, to represent the straight path that in Islamic faith is very important.

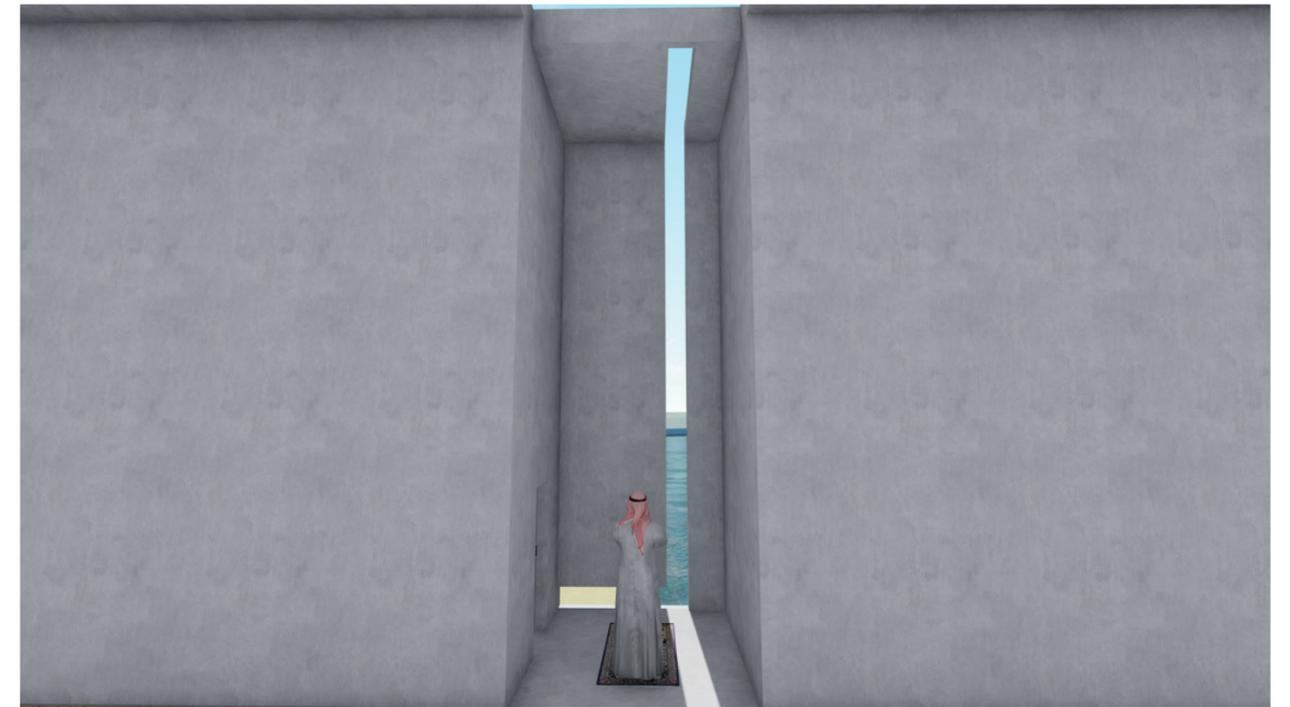


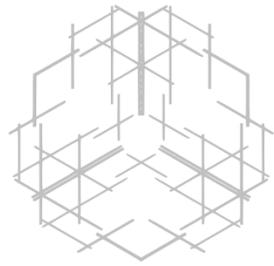




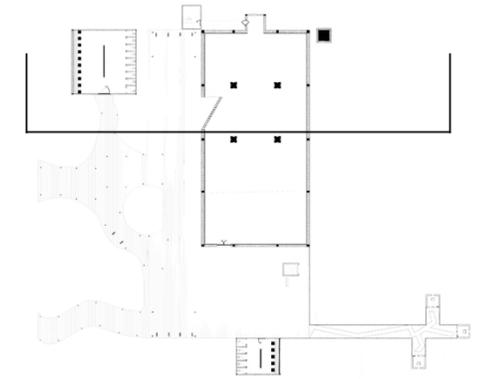
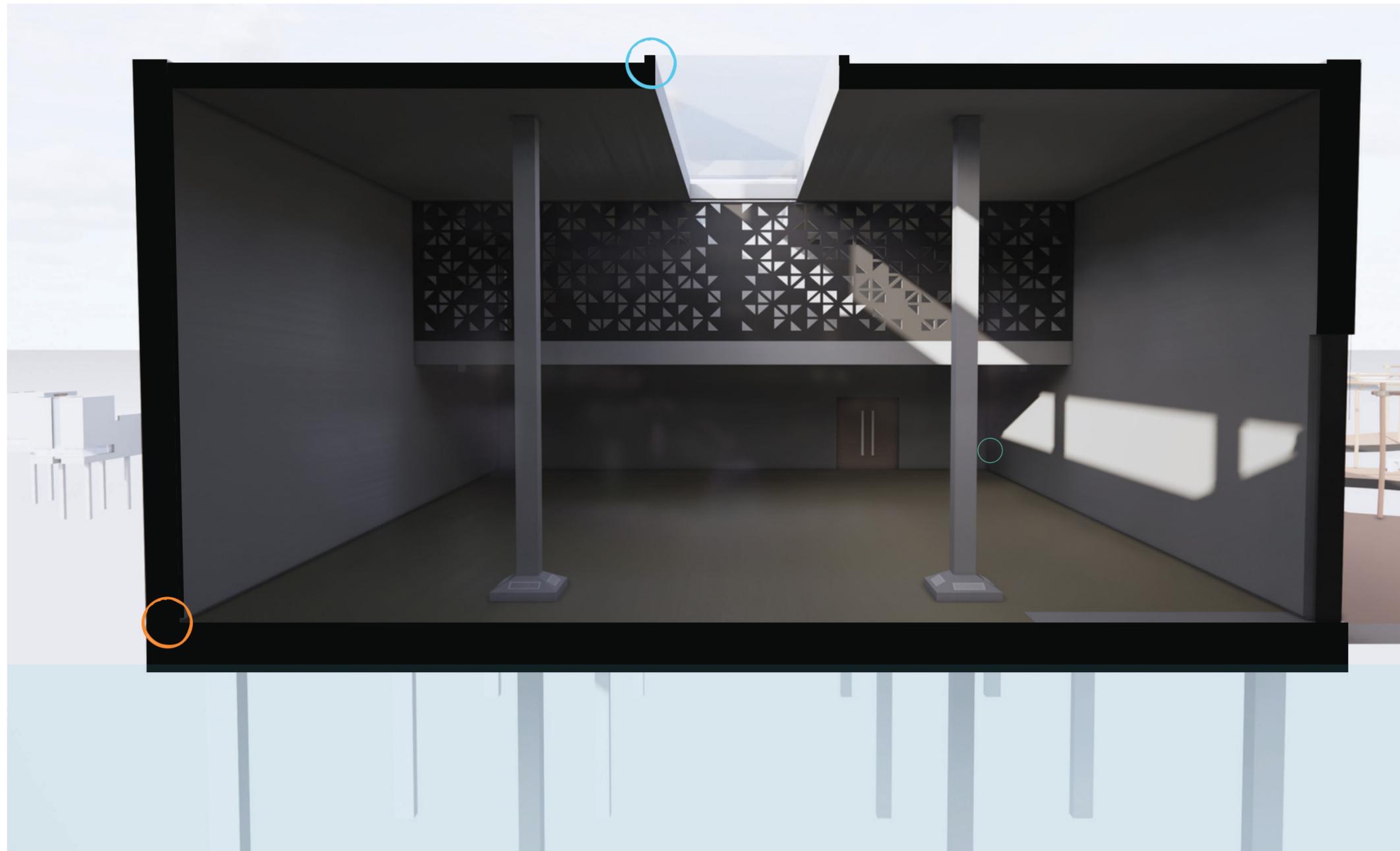


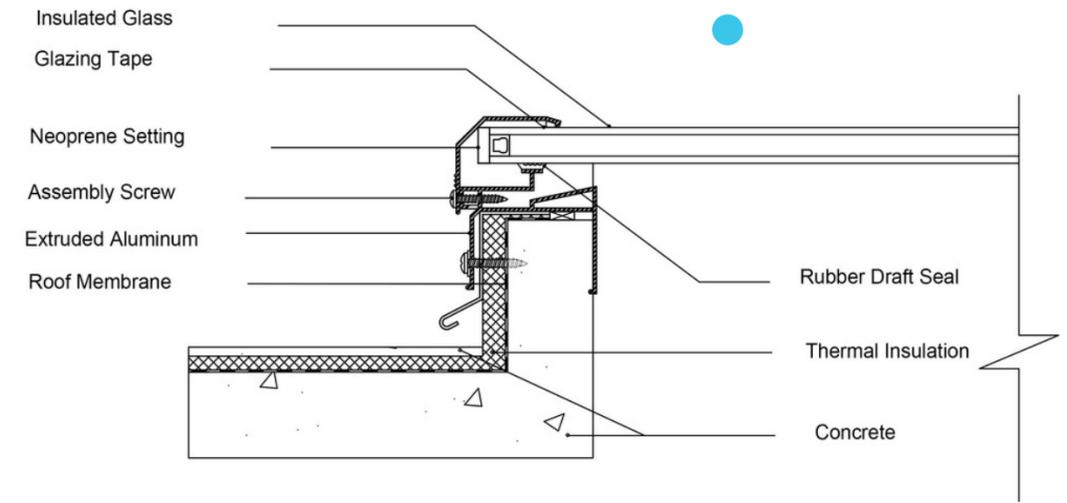
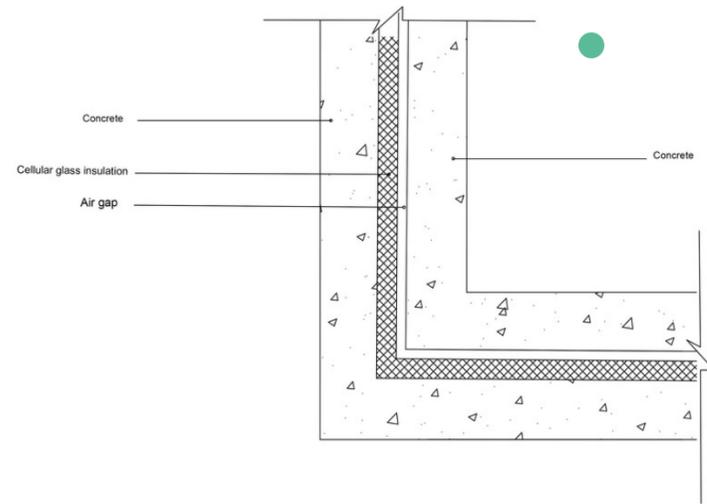
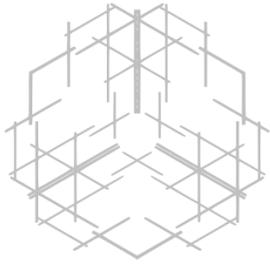
Skylight is designed in a vertical way going downward toward the Imam to express integrity. In Islam, following righteous people or scholars is a recommended practice based on their ability to serve by guiding Muslims. However, personal responsibility and accountability are emphasized, and each individual is encouraged to seek knowledge and understanding for themselves. The ultimate goal is to follow the principals of Islam and strive towards righteousness and the love of God





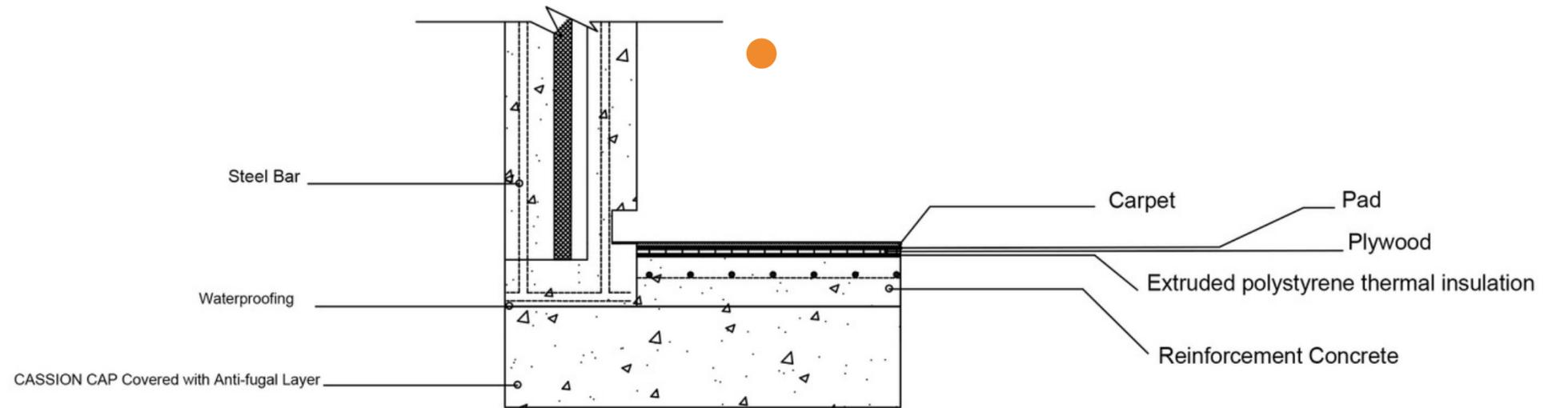
SECTION

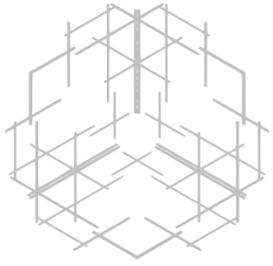




SECTION

DETAILS





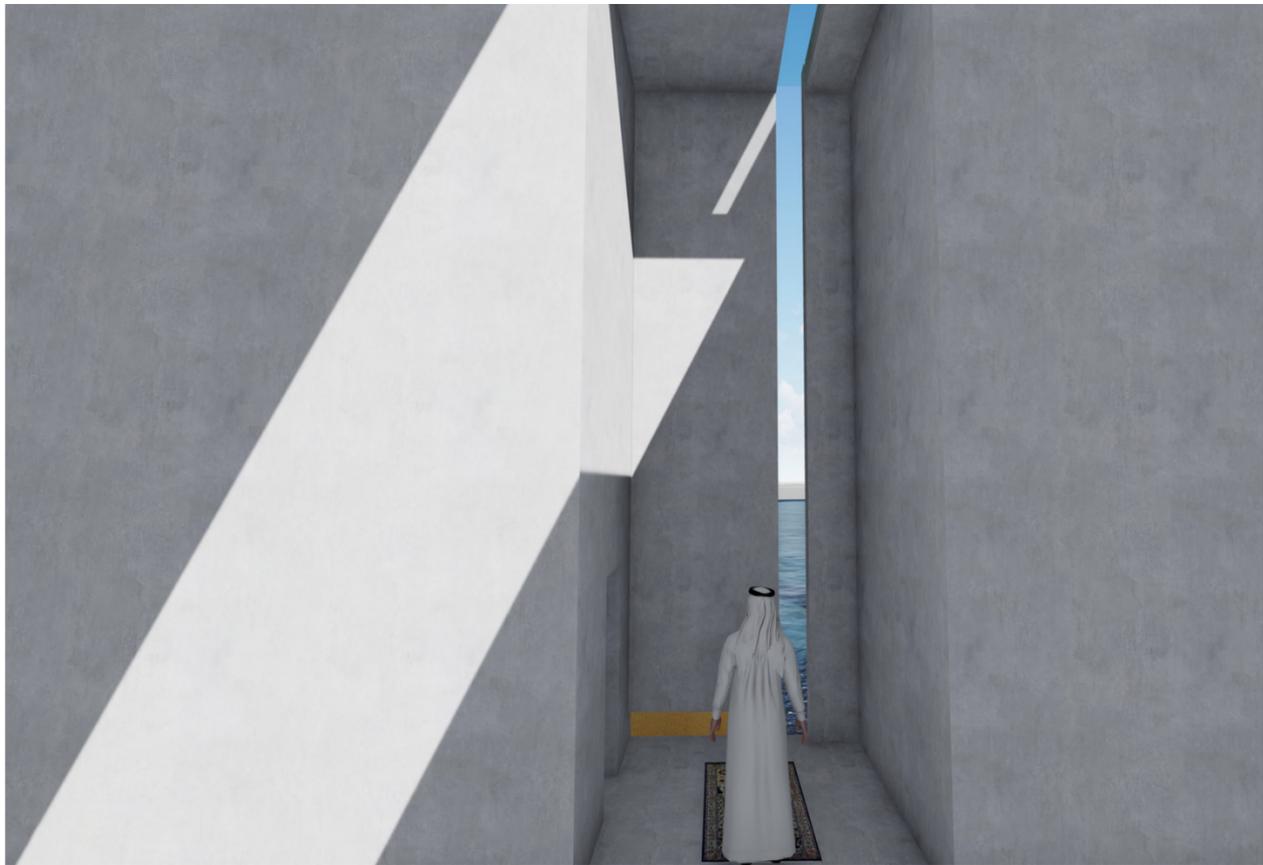
LIGHT & SHADOW

SHADOW MOVEMENT

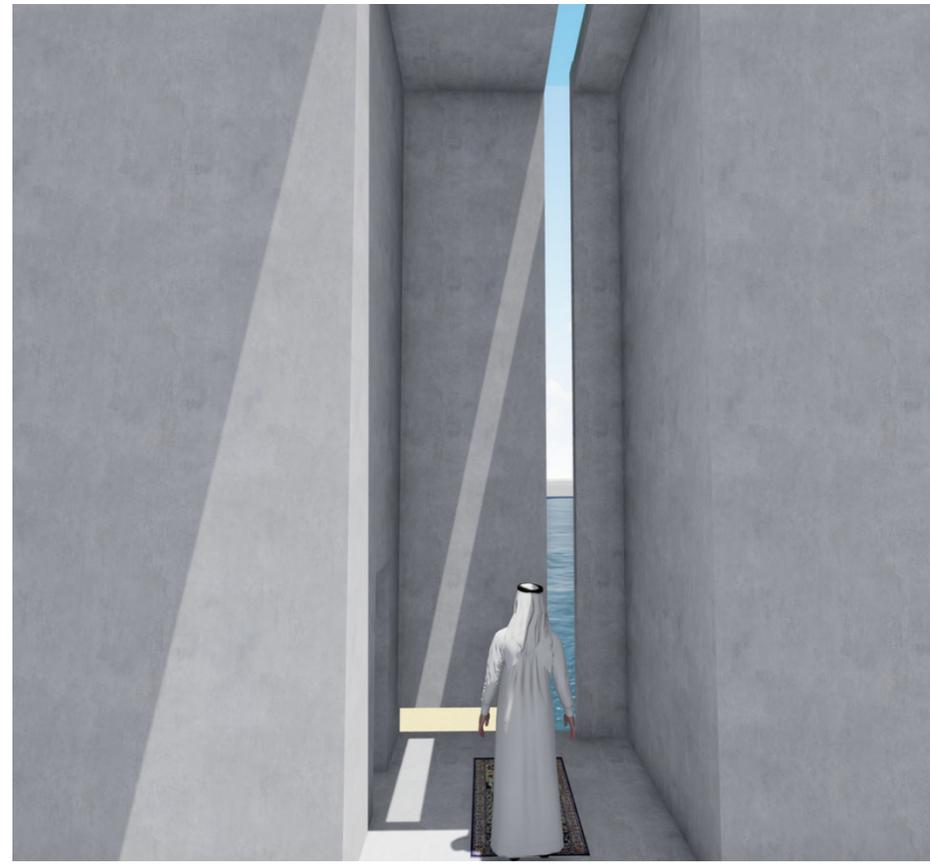


SUMMER

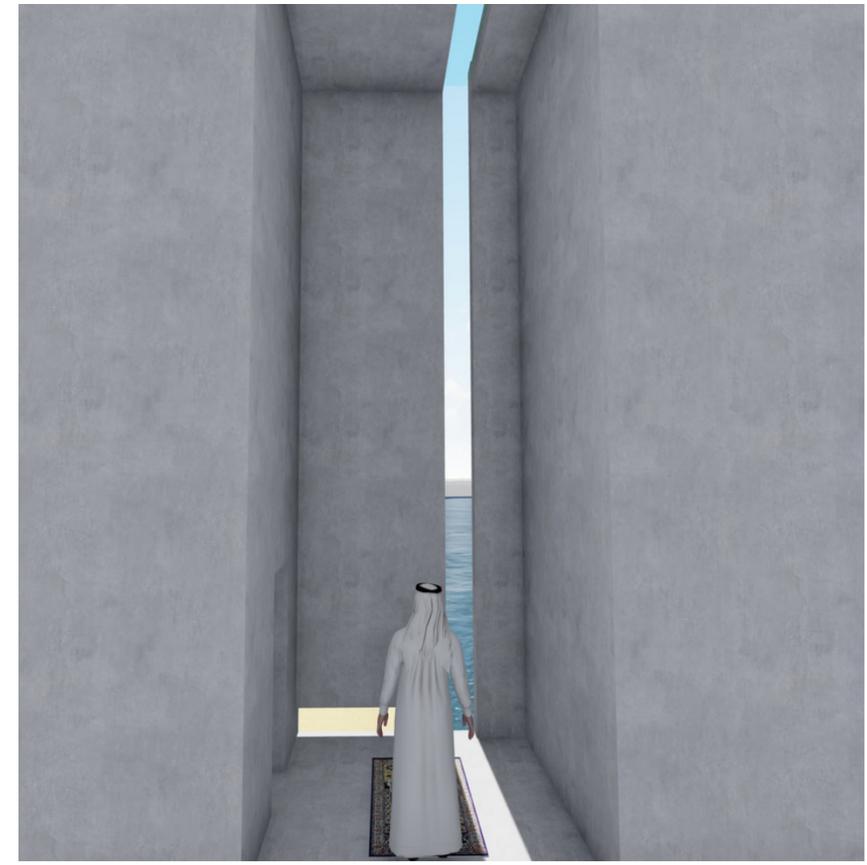
06:00



03:00



12:00

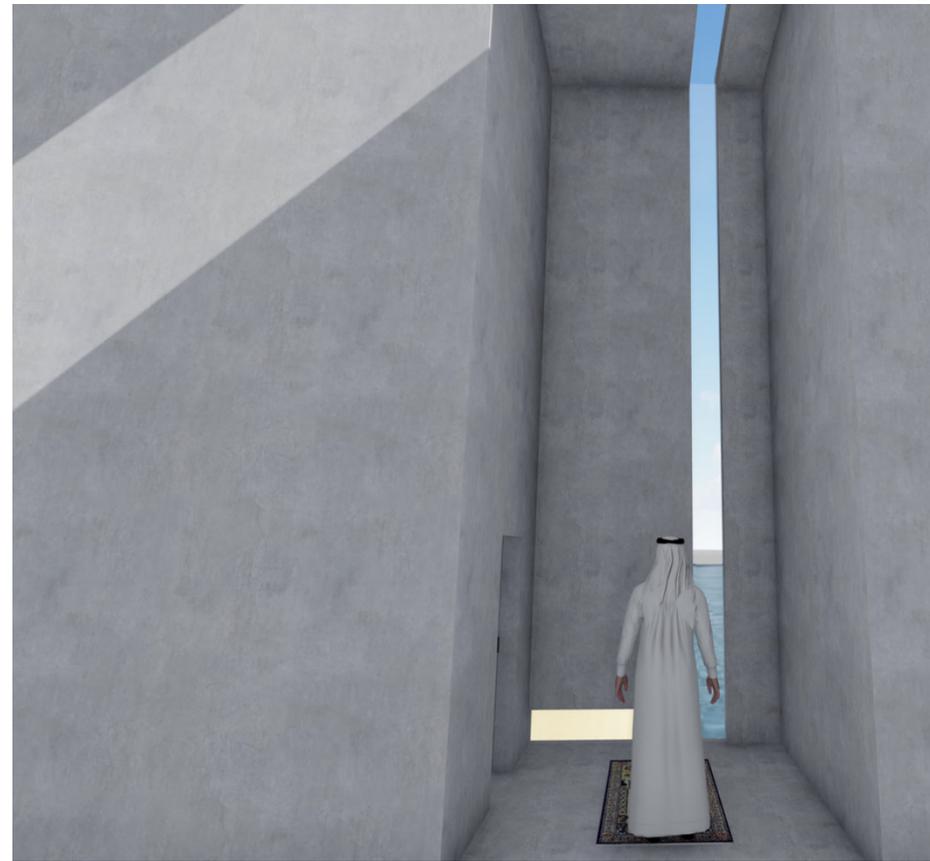


WINTER

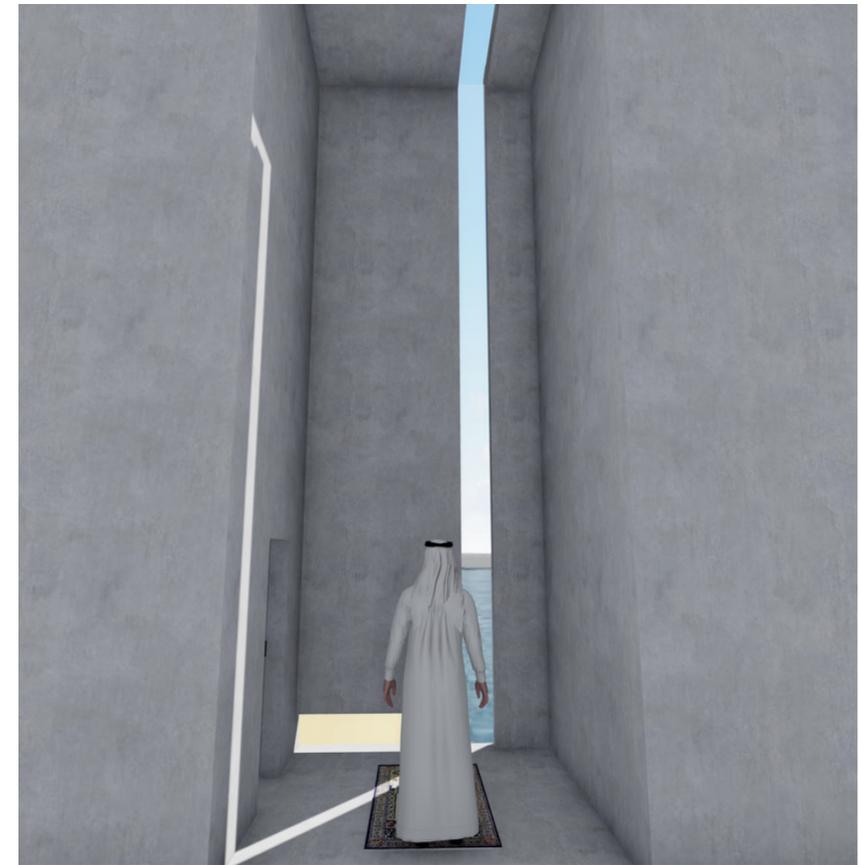
06:00

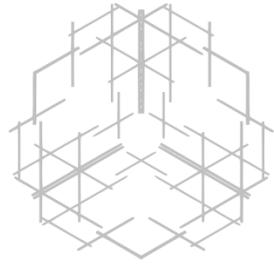


03:00



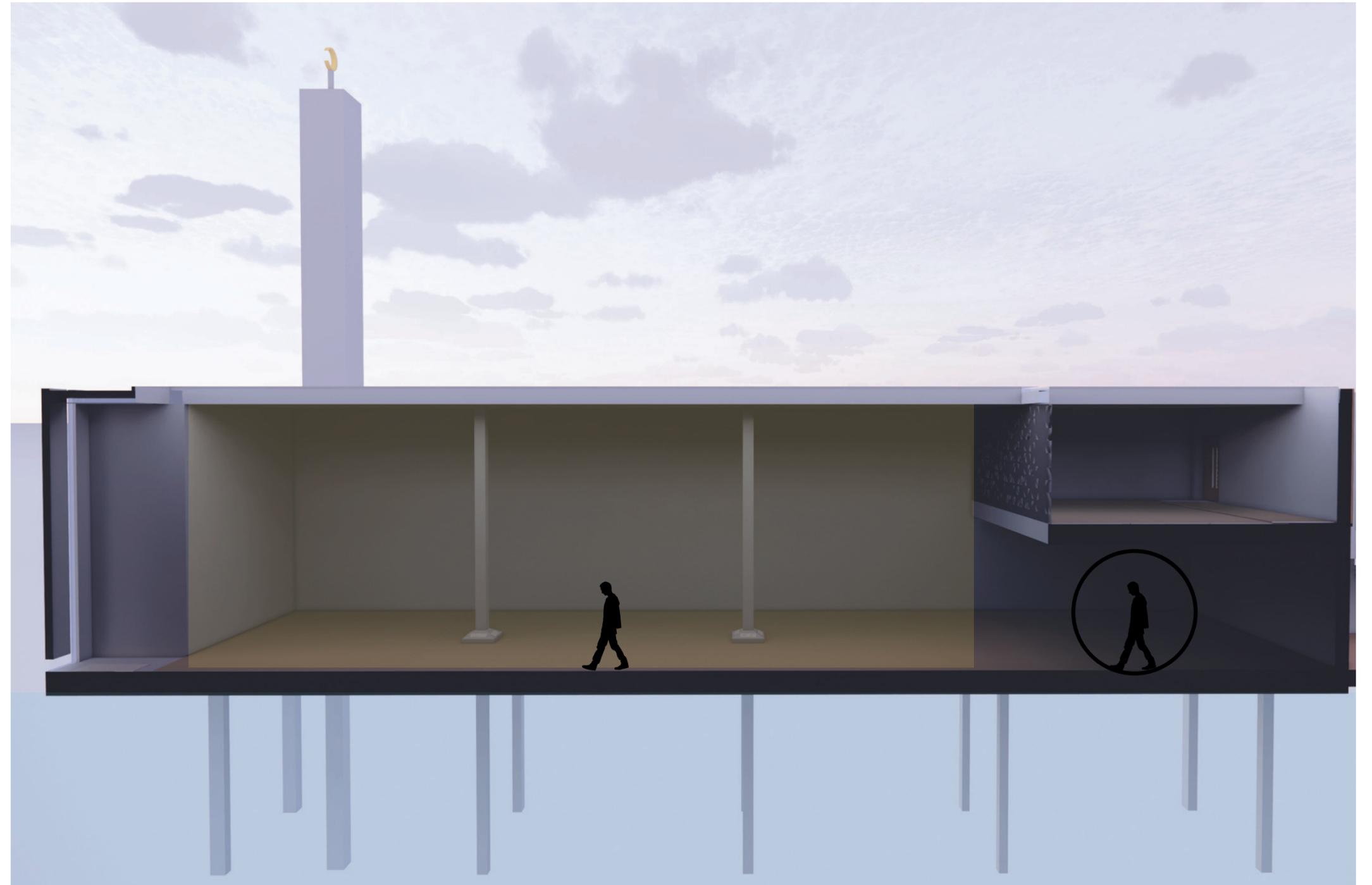
12:00



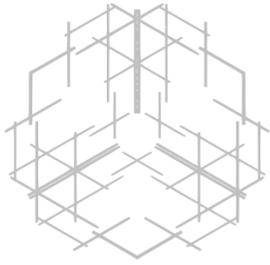


{ يُخْرِجُهُمْ مِّنَ
الظُّلُمَاتِ إِلَى النُّورِ }
صلى

HE BRINGS THEM OUT FROM
DARKNESSES INTO THE
LIGHT

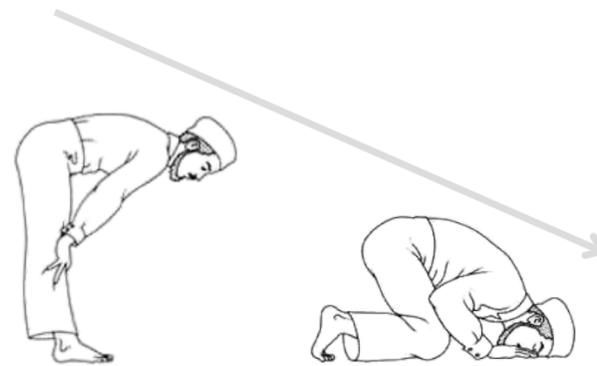


The entry from the West side was designed with a low ceiling that expands to a double height ceiling creating the experience for the worshippers that God always guides us from dark to light and from narrow to expansion.



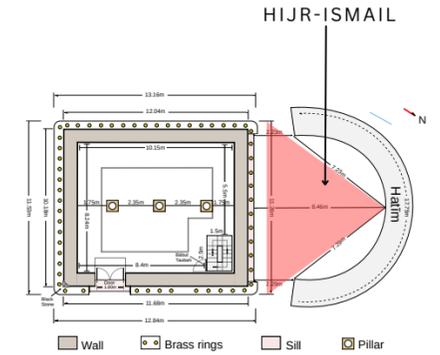
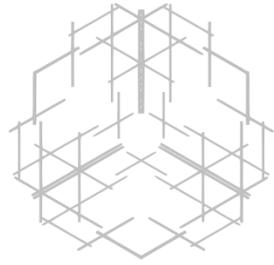
FEMALE PRAYER ROOM

The windows emphasizes the the movement of the prayer performer.



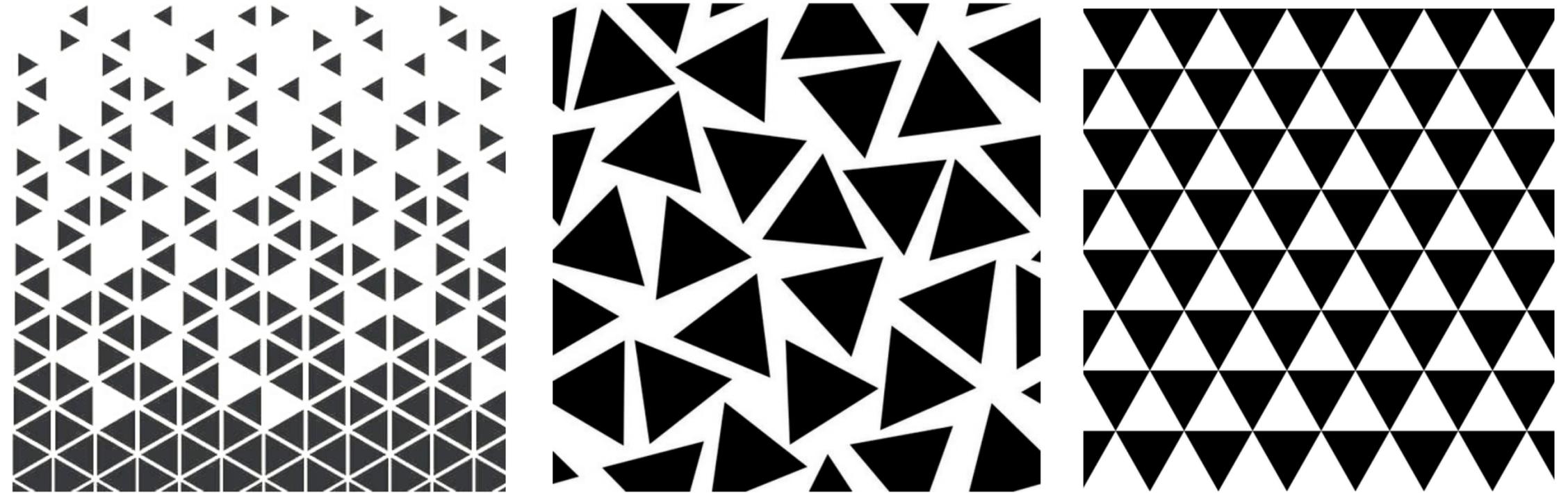




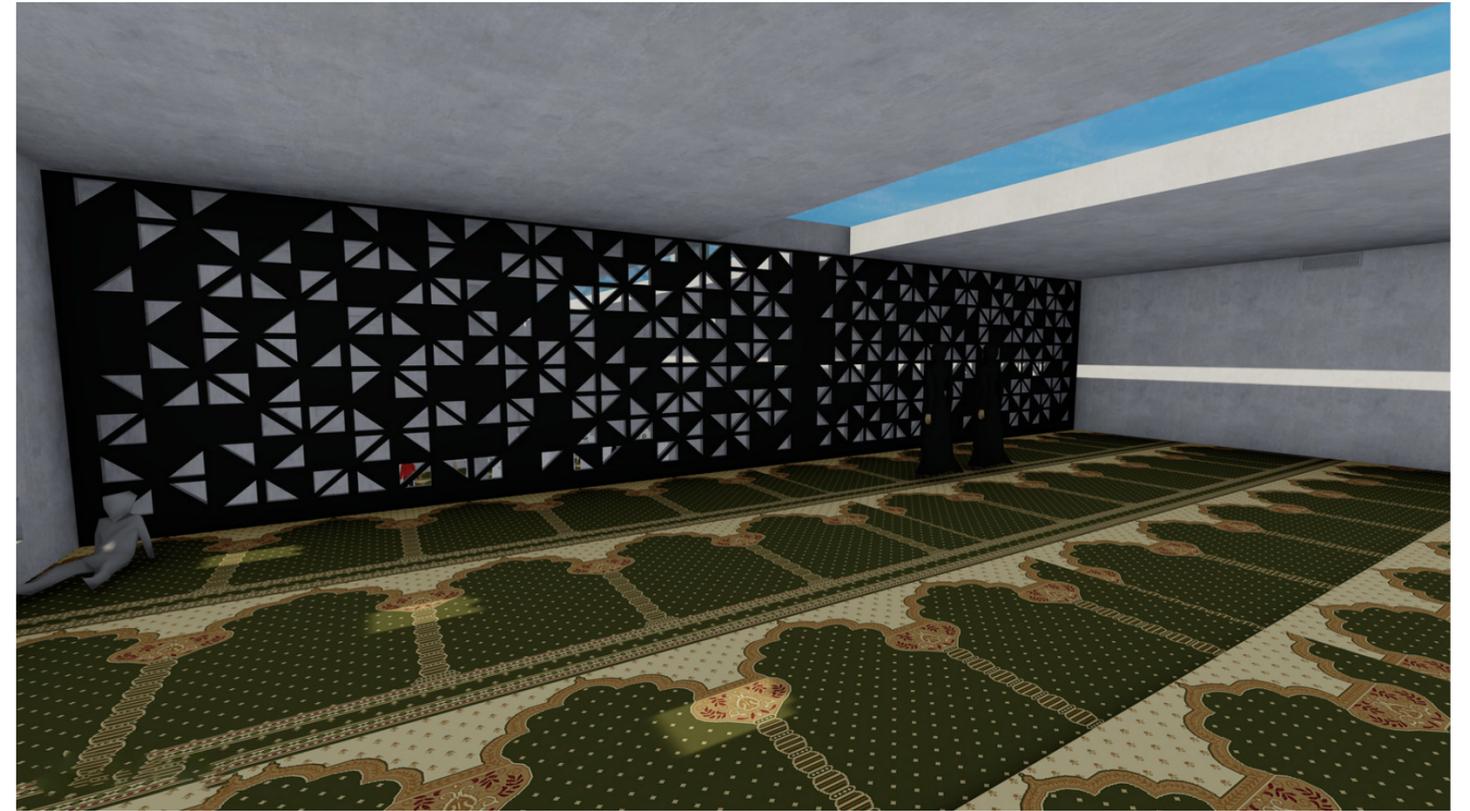
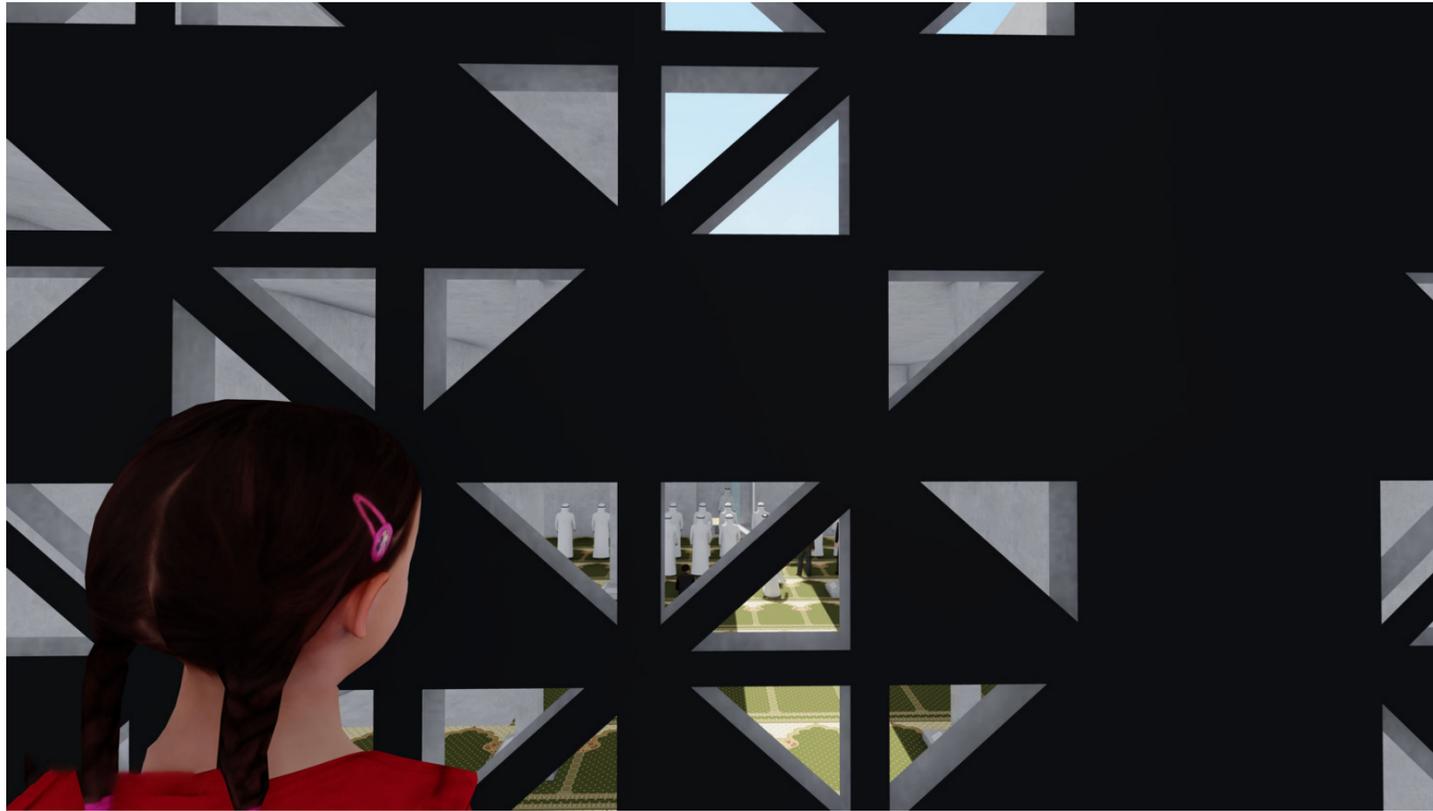


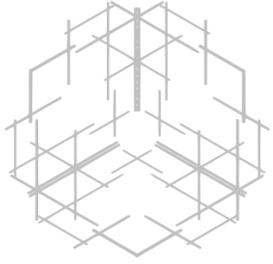
WALL PARTITION

PROCESS...



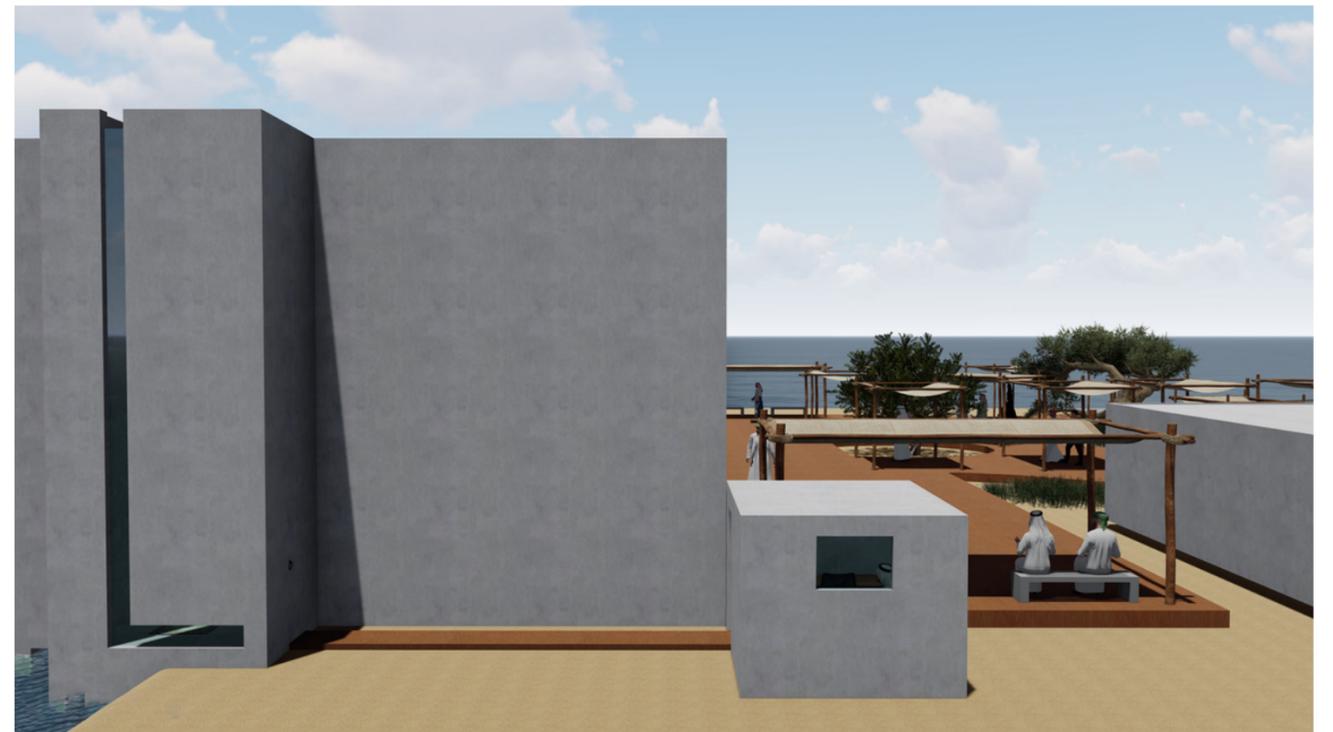
The Hajar-Ismael area in Al Kaaba as mentioned in the plan is a sacred place and has importance for Muslims. The triangle that symbolizes this sacred space was presented as a wall partition in the women's prayer hall.

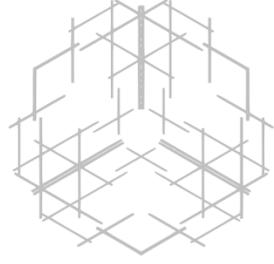




EMAM'S ROOM

Having a dedicated room allows the Imam to prepare for the prayer on time, and is a personal space for reflection and meditation.





{ الَّذِينَ يَذْكُرُونَ اللَّهَ قِيَامًا وَقُعُودًا وَعَلَىٰ جُنُوبِهِمْ وَيَتَفَكَّرُونَ فِي
خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ }

THOSE WHO REMEMBER ALLAH WHILE STANDING, SITTING, AND ON THEIR SIDES;
AND THEY REFLECT UPON THE CREATION OF THE HEAVENS AND THE EARTH

THE VERSE



Focus & Concentration



Balanced Mental/Emotional Health

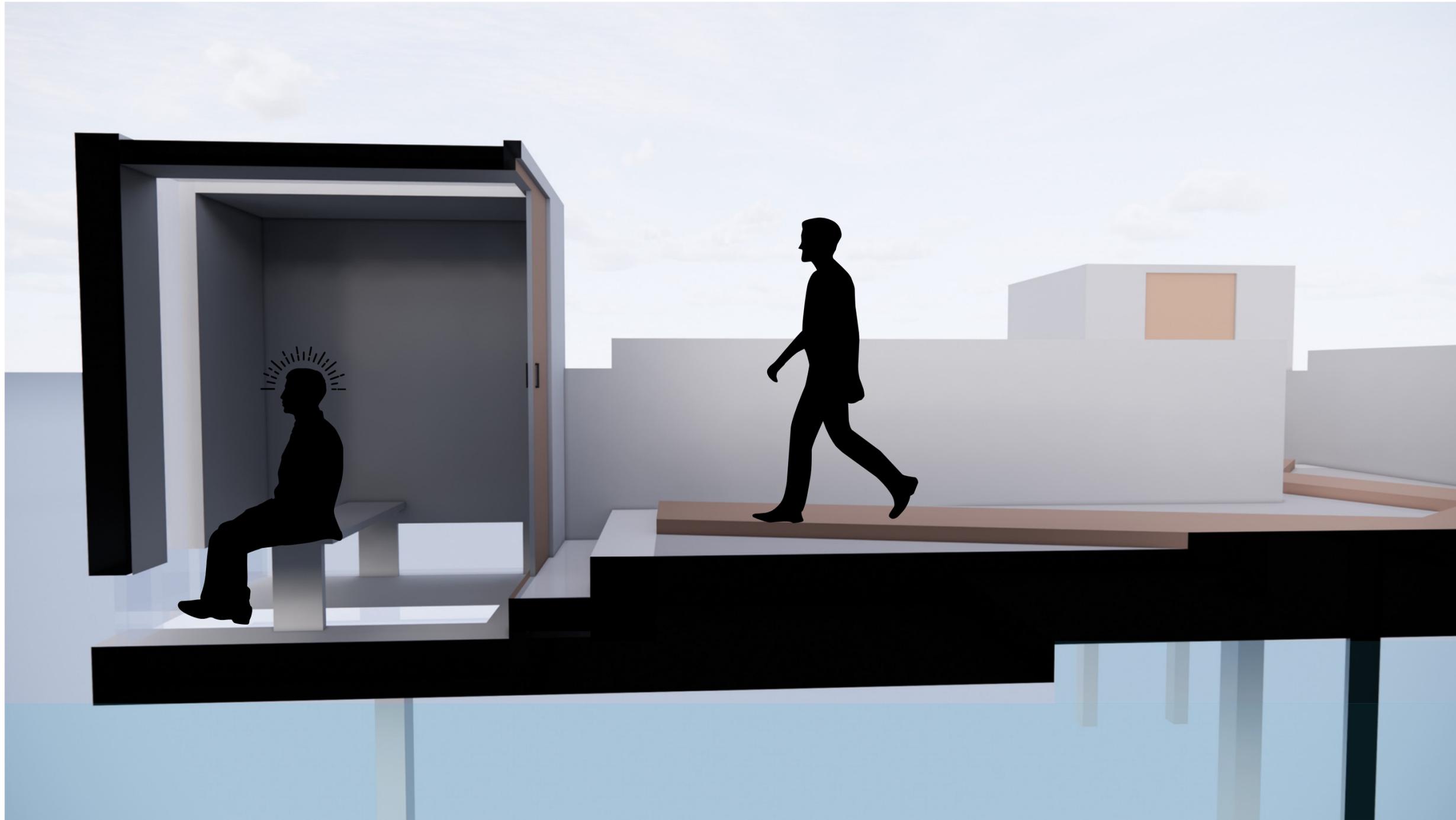


Getting close to God

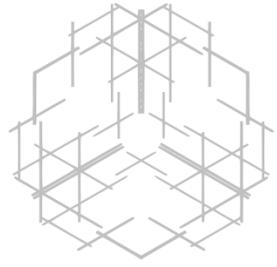


Brain Power:

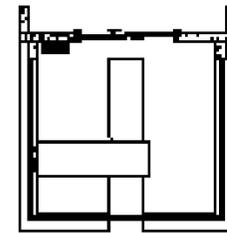
(Mental capacity can be enhanced through meditation, which has been found to enhance communication between different regions of the brain)



It is generally recognized that, the right side of the brain is responsible for creativity, emotions, and visual-spatial skills; as the Prophet Muhammad mentioned you start your act with your right hand and foot. Therefore, the chair was designed in a way to be attached to the right wall.

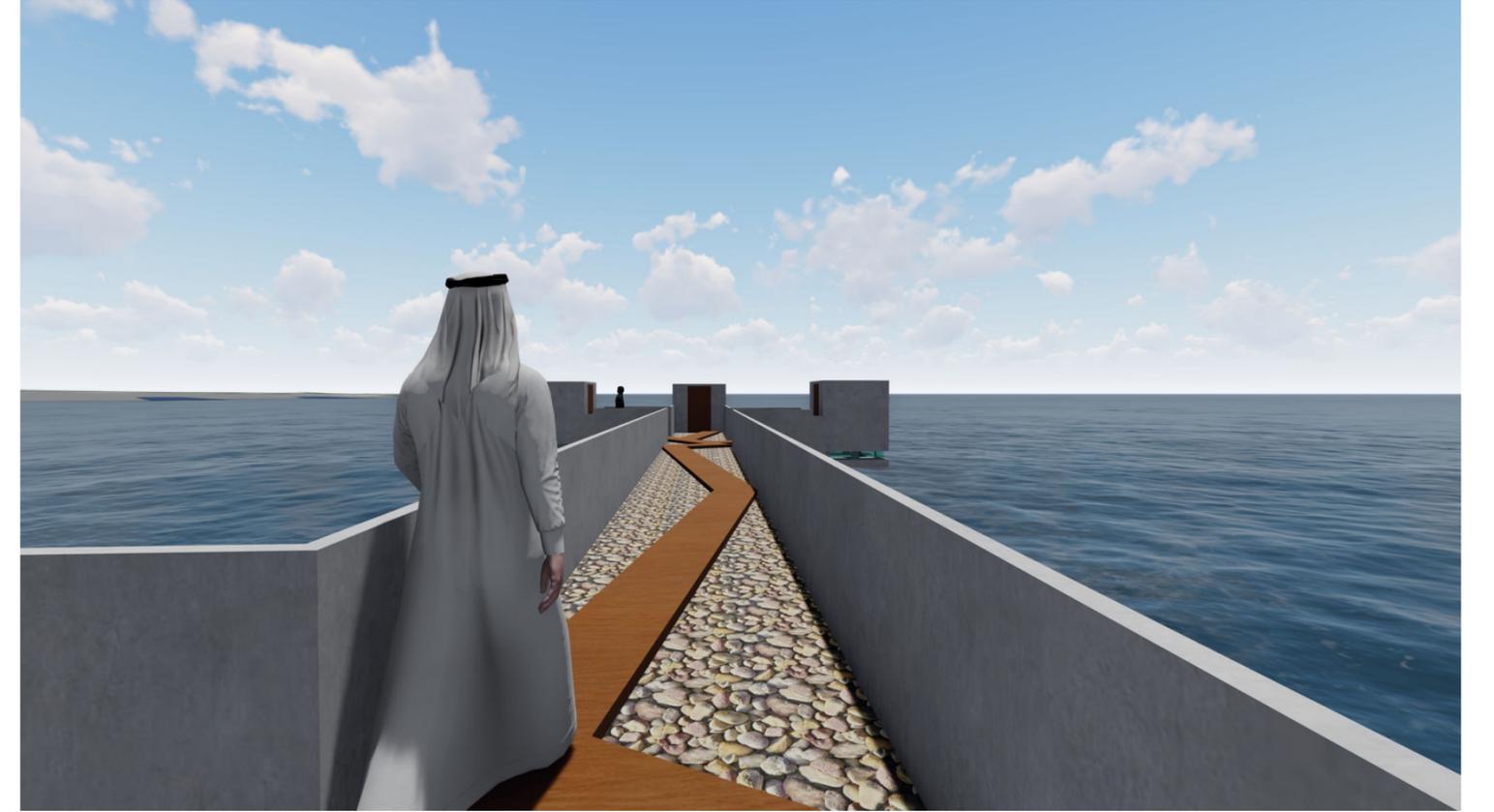
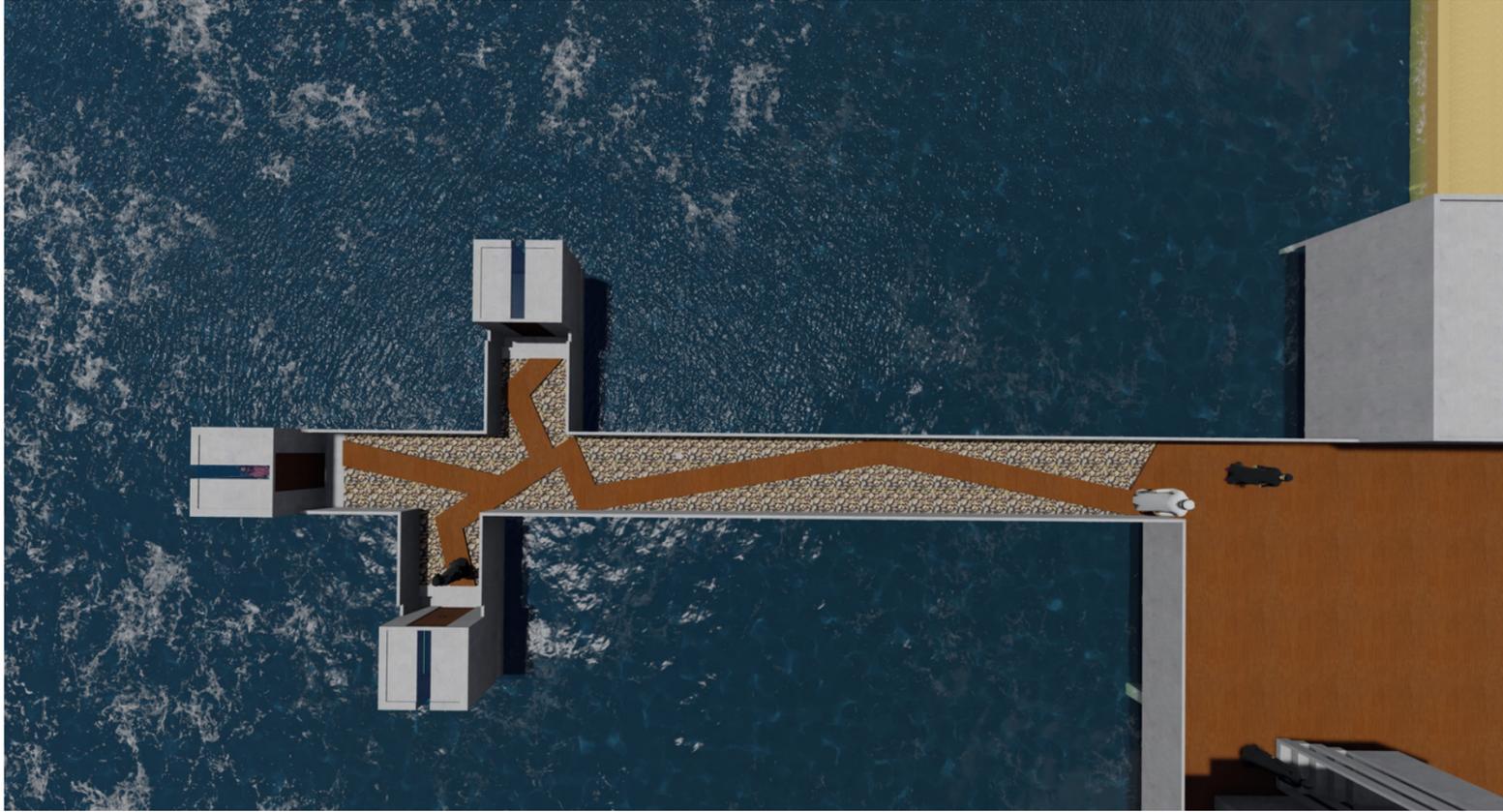


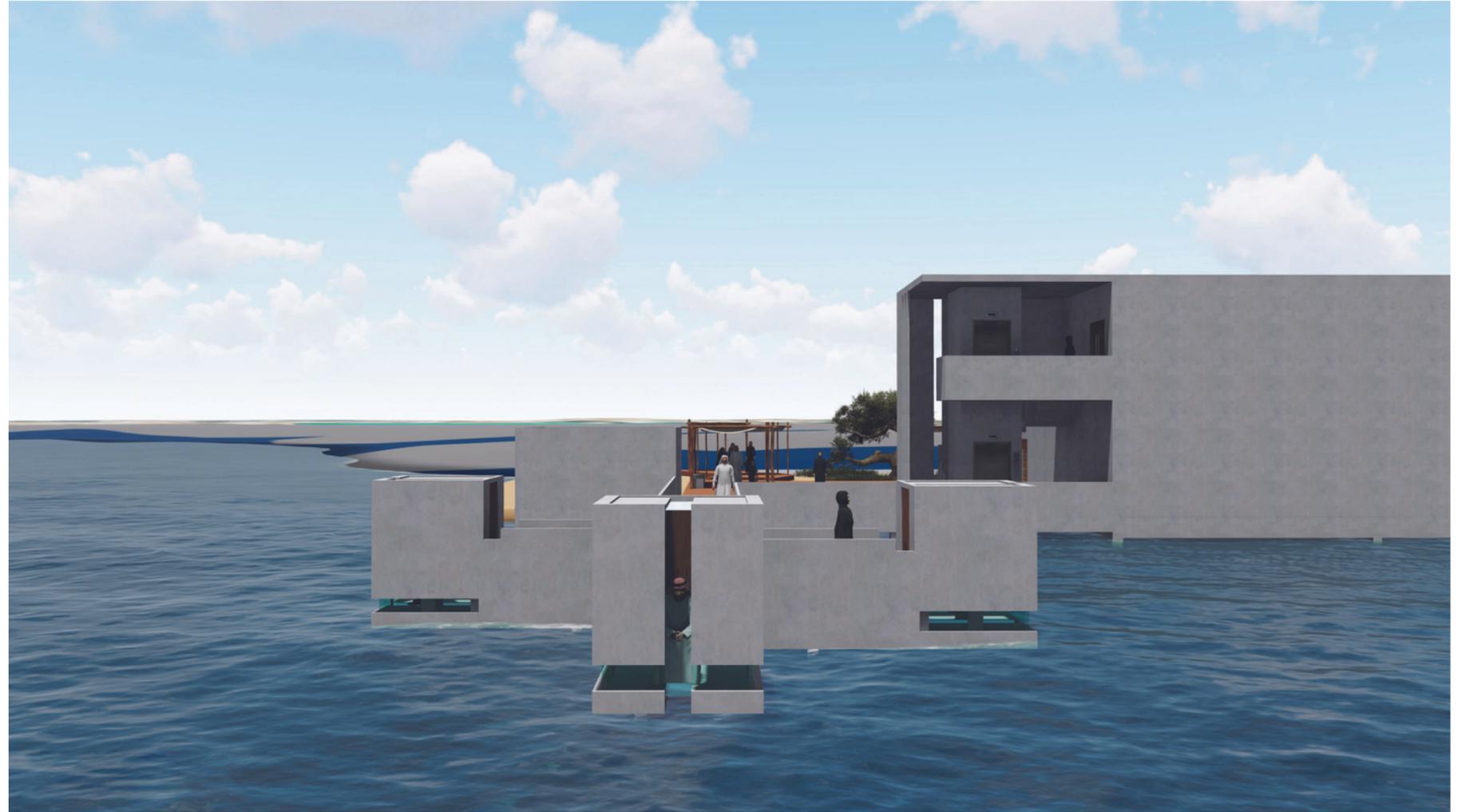
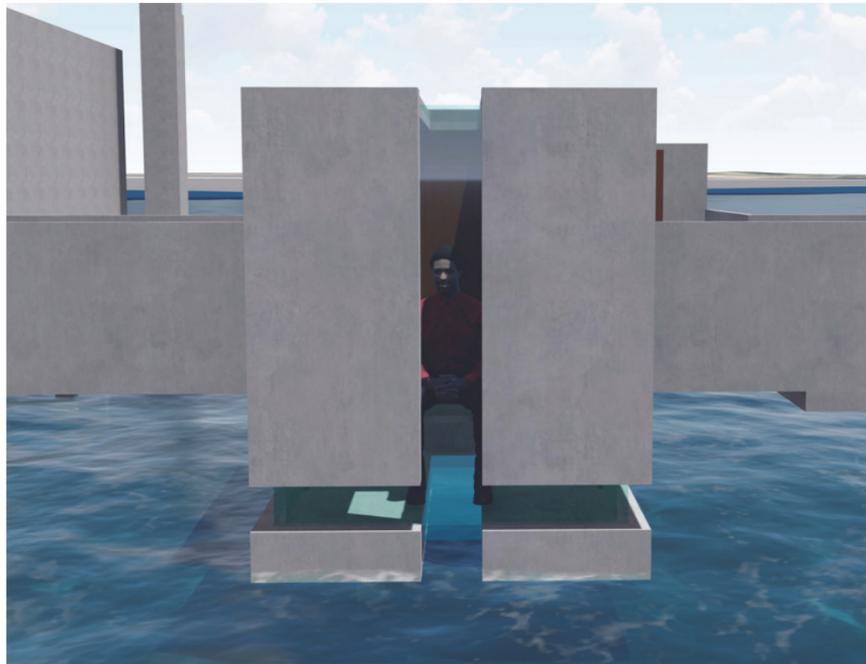
MEDITATION ROOM

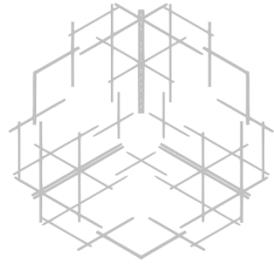


{ أَفَمَنْ يَمْشِي مُكَبِّاً عَلَىٰ وَجْهِهِ أَهْدَىٰ أَمَّنْ يَمْشِي سَوِيًّا
عَلَىٰ صِرَاطٍ مُسْتَقِيمٍ }

BUT THEN, IS HE THAT GOES ALONG WITH HIS FACE CLOSE TO THE GROUND
BETTER GUIDED THAN HE THAT WALKS UPRIGHT ON A STRAIGHT PATH?

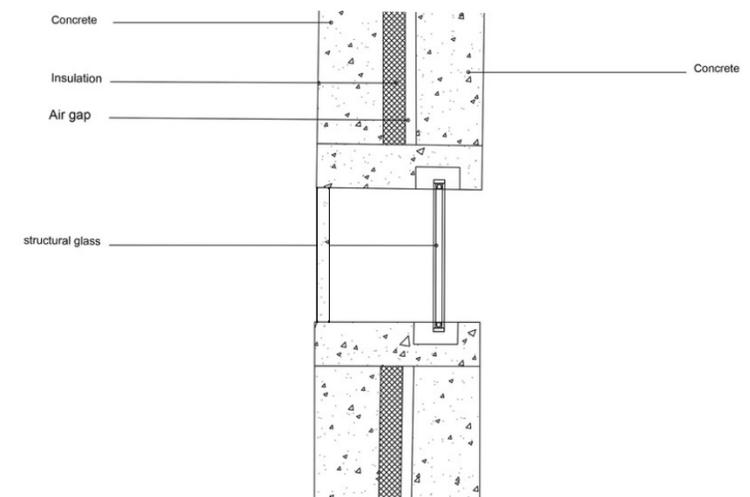
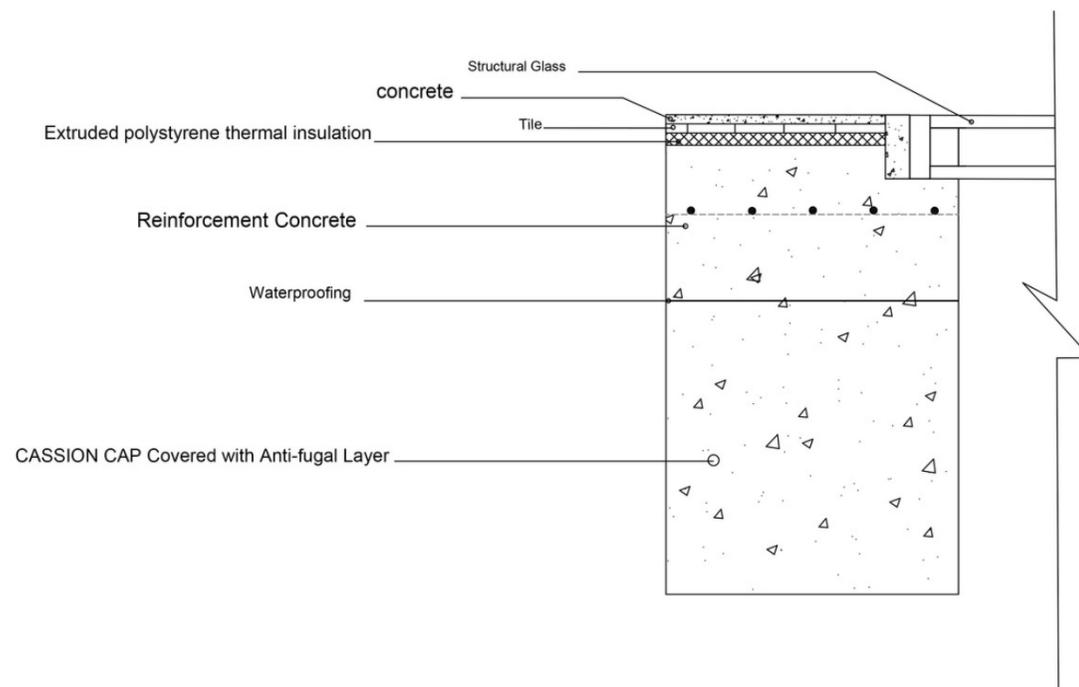
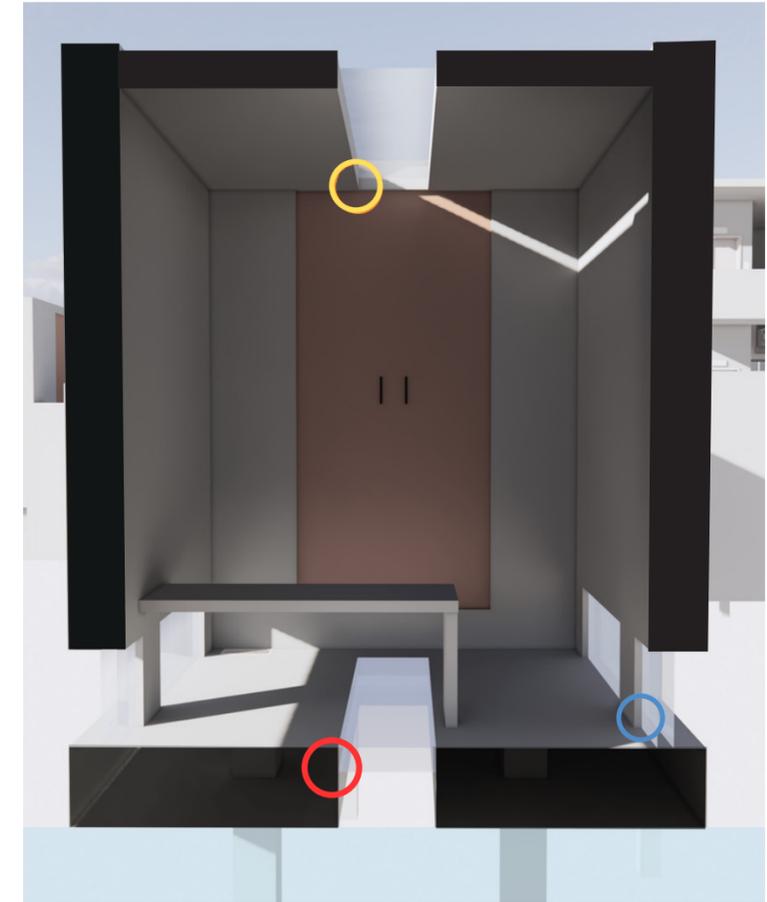
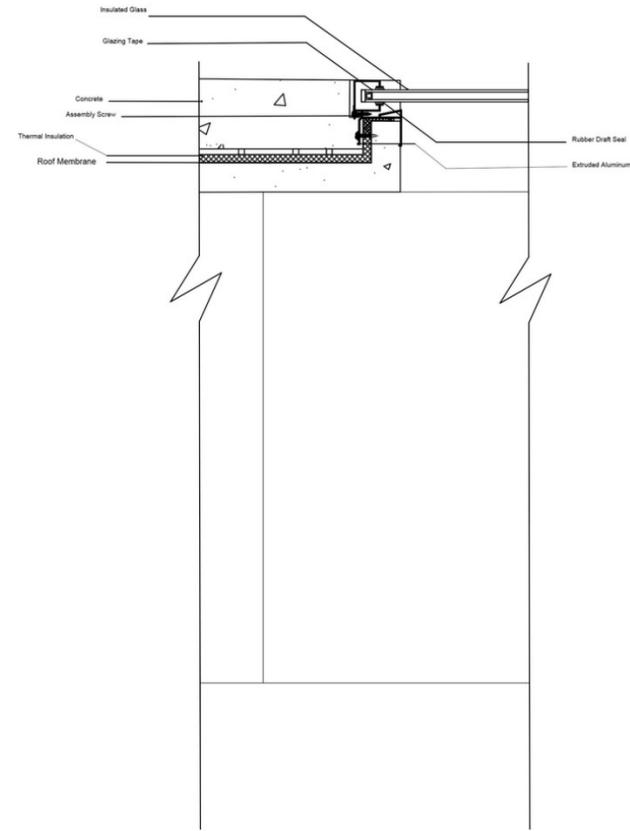


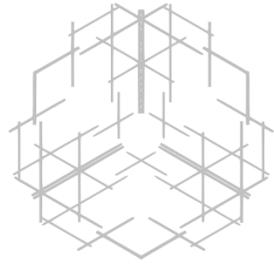




SECTION

DETAILS

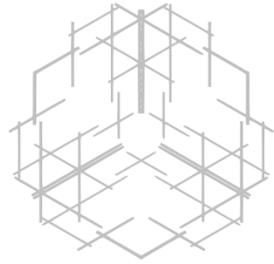




SUNSHADE

One walks along the path to the mosque beneath a traditional sunshade made of Natural Rattan.

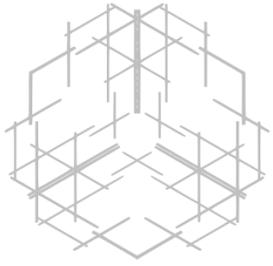




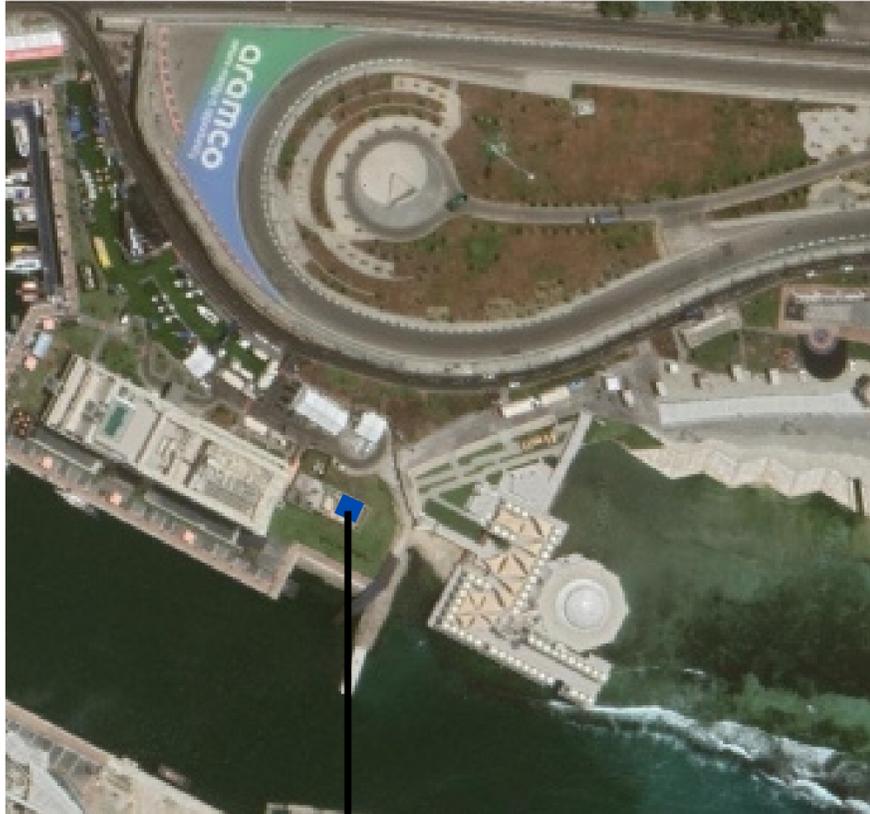
MINARET

Symbolizes that there is a mosque nearby.

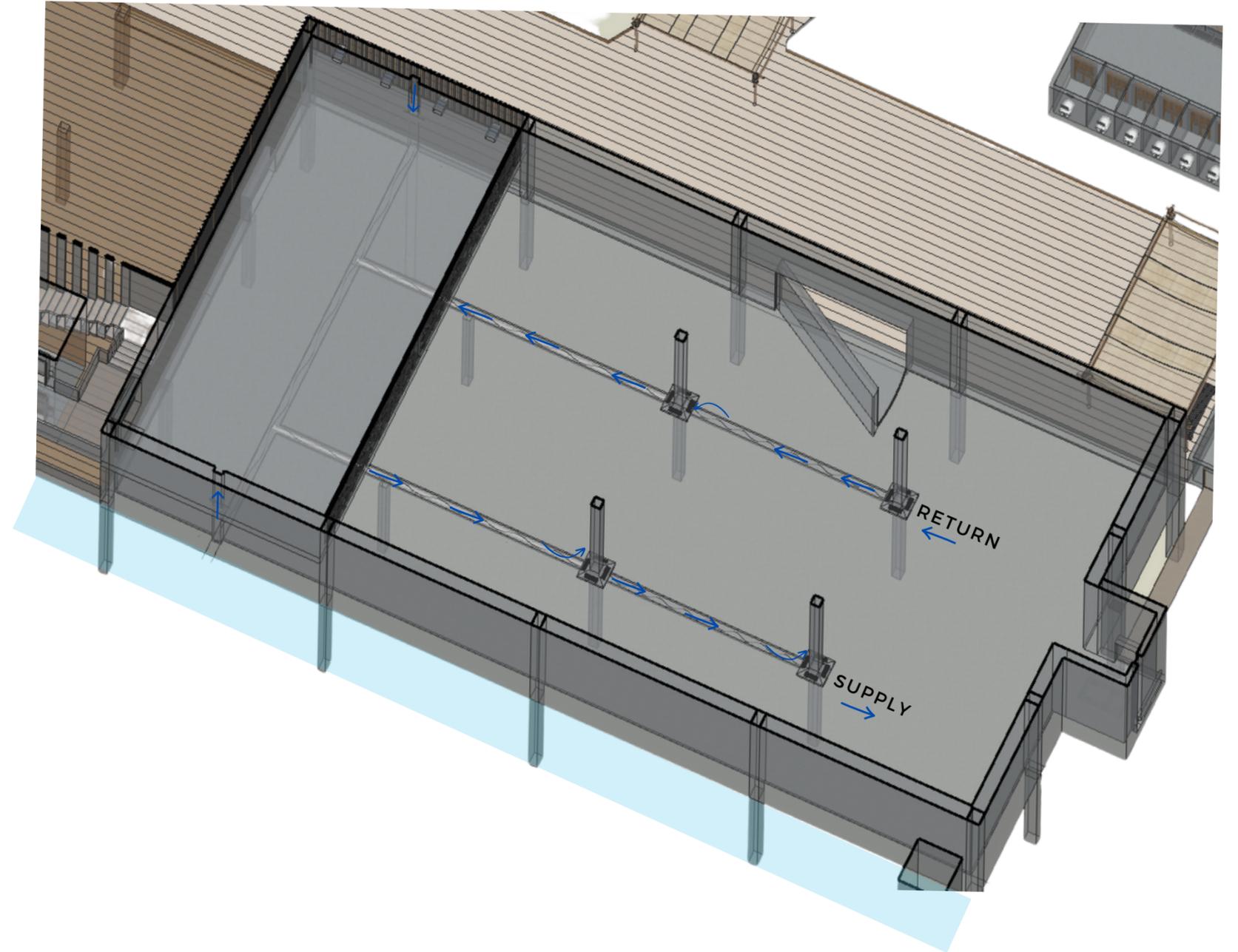


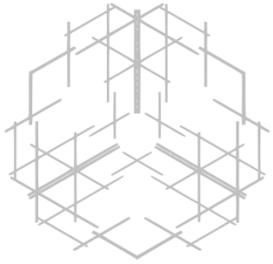


COOLING SYSTEM



THE SITE IS SERVICED BY A CHILLER PLANT SYSTEM

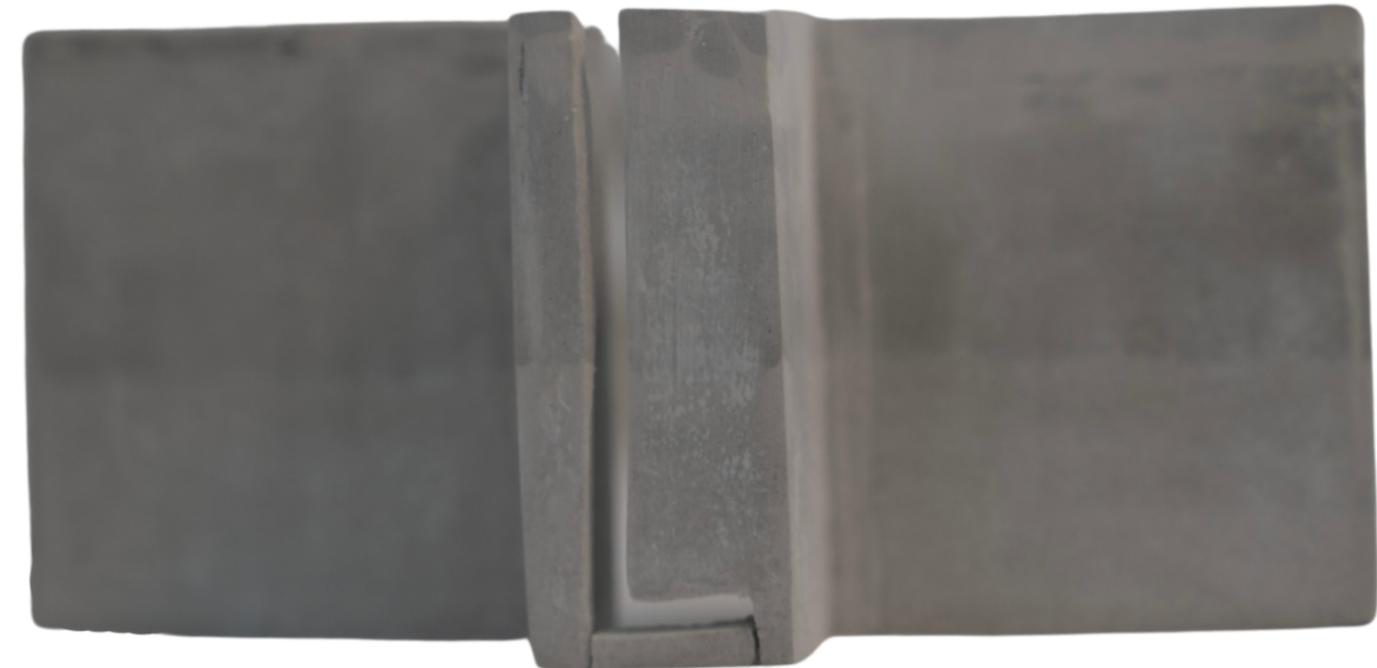


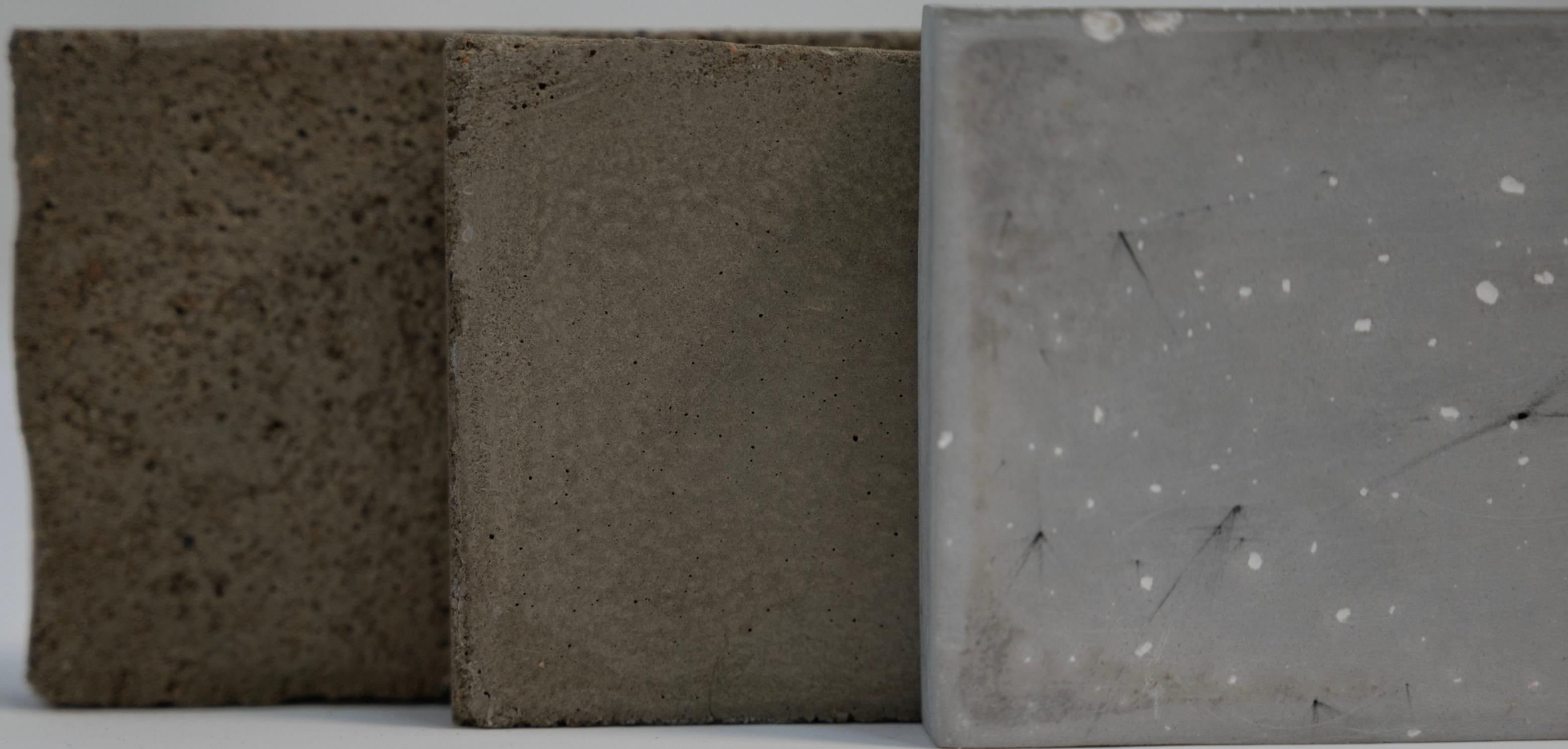


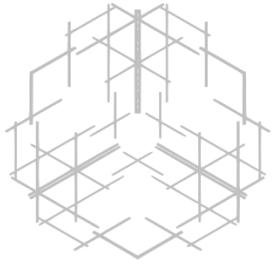
MATERIALS

CONCRETE

I chose to use concrete as my primary material because it symbolizes purity and strength. Despite encountering challenges with the rough surface finish, I conducted multiple experiments to find the optimal water-to-concrete ratio and mixing time to achieve a smooth surface. Through these efforts, I was able to successfully achieve my desired outcome and create a durable and visually appealing final product.







CONCLUSION

In conclusion, the profound significance of geometric patterns in our universe and their presence in various aspects of human culture cannot be overlooked. From Kepler's exploration of planetary distances to the religious symbolism found in squares, circles, and triangles, geometry speaks a universal language that resonates across time and civilizations. The Islamic faith exemplifies this connection through the veneration of the Kaaba, a sacred structure embodying a perfect cubic shape. The circular motion of Muslims around the Kaaba unifies them in their devotion and harmonizes with the natural order. The mosque, designed with meticulous attention to detail, amplifies the spiritual experience of worshippers. The sound of hurried footsteps on the wooden path signifies Their enthusiasm to meet God, , while the carefully positioned skylight symbolizes the pursuit of righteousness. Additionally, the thoughtful arrangement of the entryway from darkness to light and the strategic placement of the chair to stimulate the right side of the brain contribute to an environment that nurtures creativity and emotional connection. Ultimately, the interplay between geometric patterns, spirituality, and architecture showcases the deep-rooted human yearning for unity, transcendence, and the divine.

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