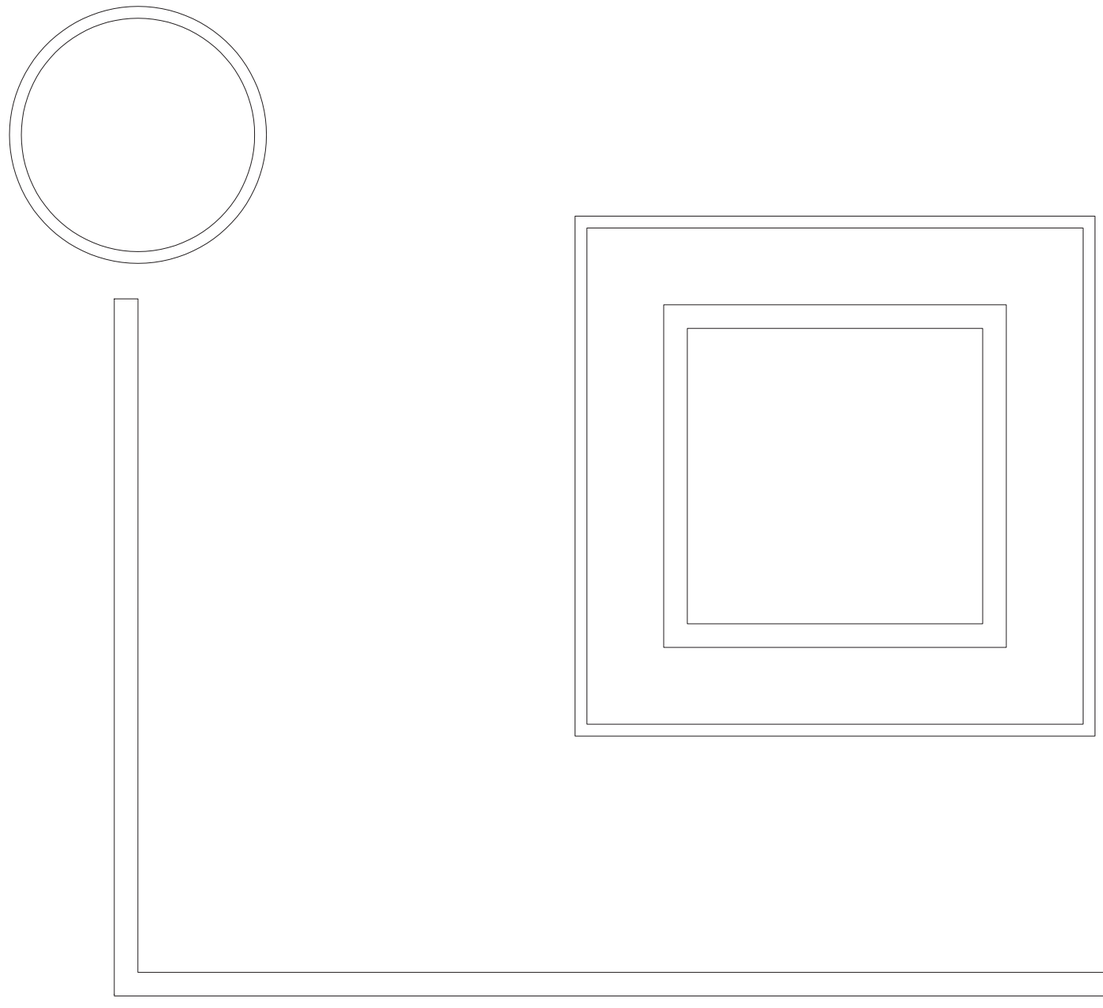
A House In Bahrain



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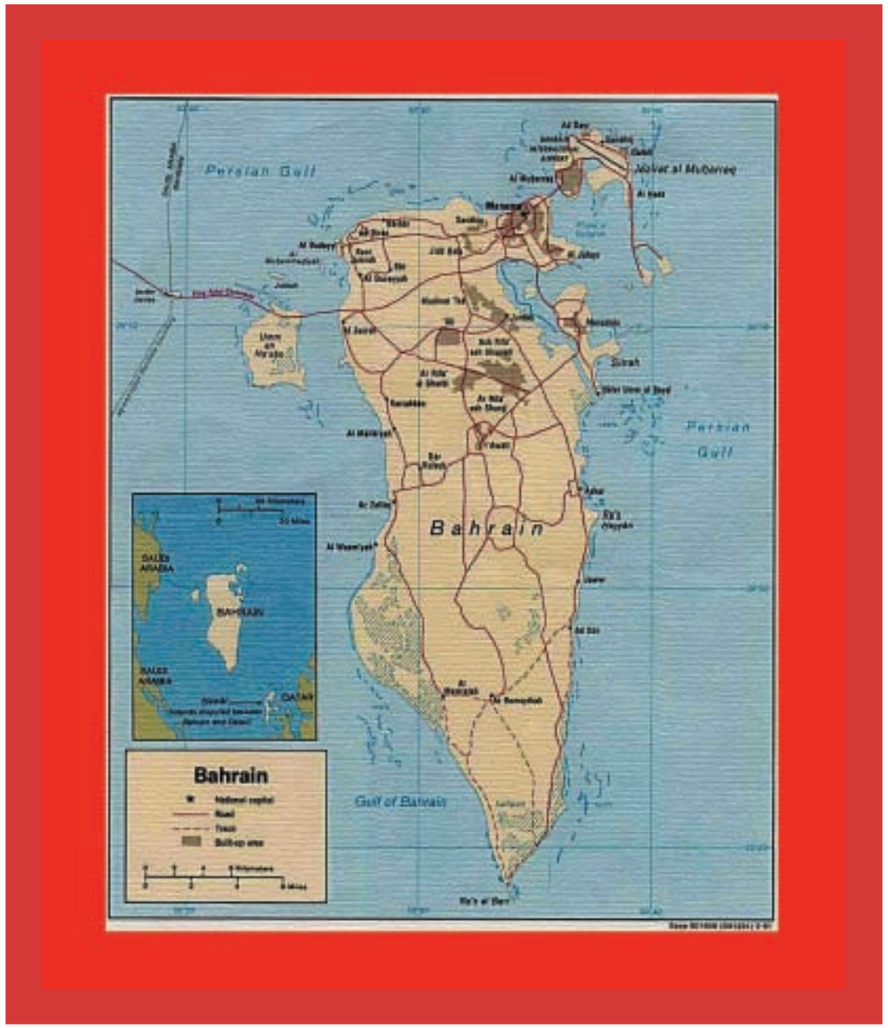
Abstract

The architecture in Bahrain is now lost between tradition and modernity. The drastic economical changes that occurred there had a large influence on the architecture of the Island. My thesis is a study of the changes that occurred to the architecture of Bahrain over the past thirty five years. It is also a design of a modern house in Bahrain that does not neglect the traditional architectural values of the country. In my work I focused on using geometry and geometrical proportions which in turn unifies the different parts of the house in harmony.

A House in Bahrain

The Kingdom of Bahrain is a small island in the Persian Gulf. The Island's area is 665km?. Bahrain was inhabited by people since prehistoric times. Assyrians, Babylonians, Greeks, Persians, and Arabs all ruled and influenced the Island. In the year 1971 the British withdrew from the Island leaving it to be an independent country. Today Muslim Arabs occupy and rule Bahrain.

In my thesis I am going to explore the architecture in Bahrain, especially the architecture of dwellings and houses in that area. I believe that the architecture in Bahrain is lost between tradition and modernity. The drastic political and economical changes that occurred over the past thirty four years had a major hand in influencing the changes that went through the architecture in Bahrain. Oil was discovered in Bahrain in the year 1932. The oil boom that followed in the seventies and eighties played a big role in the drastic changes to the architecture in Bahrain.



The oil boom caused an overflow of money in Bahrain that was never experienced in its history before. Modern industries moved to the Island, and people started to hire modern architects to build their houses. Since the native people were not educated enough to design and build in their new modern lifestyle, they had to hire foreigners who were more qualified. Modern architects from the Western world got hired to design and build in Bahrain. The result was building modern European buildings on a Middle Eastern land. After that, students traveled to the West to learn about modern architecture and then went back to their land to apply what they had learned. The students wanted to incorporate their own tradition in their designs, so they designed modern European buildings with traditional middle eastern looks.

I believe that another factor for not finding a solid fundamental foundation for theory in Bahraini architecture today is the conflict in the culture that the people are living in. People are living under contradicting values of their political system, their economical system, and their religious beliefs. These three conflicting factors create contradictions in the culture which consequently affects the architecture.

Although the Bahraini architect is not responsible for solving the cultural contradictions he must deal with them in his designs. This is why whenever contradictions occur he has to have priorities in his choices. For example, the architect has to make a decision between decorating a building, which is a symbol for a hierarchy system, or not decorating it, which is a symbol for a system where everyone is equal.

I have to point out the fact that architecture of houses is different than other kinds of buildings. Dwellings and houses are buildings that are overwhelmed with practical and functional parts. For this reason it is much easier for a person with no architectural background to design them. On the other hand, mosques and churches for examples are not so overwhelmed with these functional parts, and this is why it is much more difficult for a person with no architectural background to design them. This led to the fact that most houses were designed by the people themselves rather than by trained architects. Therefore; to understand the theory behind the architectural style of the traditional houses and neighborhoods, you must understand the people's beliefs and values.

Another thing that you have to keep in mind is that the people used to design their houses on the land with the materials. In other words, they usually designed while building. They did not design on paper with graphite or on a computer screen with some software. This means that the houses were designed by the human scale for the human scale. Modern houses are not designed by the human scale, although it tries to design for it.

The following are some of the specific problems in the architecture of houses in Bahrain:

The Islamic religion asks for the women to cover up from strange man. This fact by itself had a large influence on the design of houses in Muslim countries. The privacy factor had a large influence on the design of houses, and one of the parts that was influenced is the plan. The plan of the houses were designed in Bahrain such that there is a courtyard at the center of the house. Having the courtyard at the center of the house makes it protected having all the rooms around it, while still being open to the sky. The courtyard is usually an outside world for the women. It is where the women can work and sit down without necessarily covering up. Some of the times the courtyard will be so exclusive to the women to the extent that even the man of the house cannot enter it without permission, because there might be strange women sitting there. Another advantage in using courtyards is that it allows the rooms to be cross ventilated. This is extremely important in the hot and humid climate of Bahrain. the courtyard is usually designed as a form of an indoor oasis. Fountains, decoration, and sometimes greenery are placed in the design of the courtyard. By doing this the house will be inward focused, where the best views from the windows will be towards the courtyard and not towards the streets.

Today houses are designed to be at the center of the land, and the yard usually surrounds it. The first thing that this plan eliminates is the private outdoors space the women used to have. It also cancels out the cross ventilation through the rooms. In addition, if the women are not covered up they cannot open the windows especially at night, because people may see them. The outdoors yard now is usually strips of small pieces of land that are just waste, and the land is now surrounded by long and tall walls for privacy and protection. Contemporary neighborhoods became very lifeless because of all the walls that span along the roads. It also gave the general impression that people are over protective about their houses and property. I believe that this is part of the reason for why modern neighborhoods are lifeless compared to the traditional neighborhoods. Traditional neighborhoods do not have these large walls, instead the doors lead directly onto the street. That makes the house much more welcoming compared to having to go through the gates of the large walls and then walking through the yard to enter the house.

In traditional houses windows were designed different than today. Windows were designed mainly for light, air flow, and for the view. To allow the sun light in the rooms, the windows used to have transparent glass or stained glass on top of the opening of the window. That part of the window is never covered because it is so high in the room, therefore no one can look inside. The lower part with the large opening is for air flow and for the view. It has shutters with grooves in them to allow the flow of air inside the room without opening the shutters. If someone wants to look outside he can then open the shutters. Today windows are designed differently. You will often find houses with large glass windows. The sun in Bahrain is very bright and hot, and the large windows do not help with preventing heat from entering the rooms. Therefore, people have to cover the windows with large curtains from the inside, and since the women still have to cover up from strange men, the curtains will always be closed to prevent the view inside the room. This makes the whole idea of having the large glass windows very useless. The new window is also not designed for air to flow in the room without letting light and heat in like the old traditional windows.

The materials that were used for construction traditionally are mostly materials that were abundant in the land. Bahrain's most abundant building material is limestone, which is the geological surface of the Island. Traditional buildings were first made out of limestone masonry. Then they used to fire the limestone and to turn it into powder. After that, they would add water to the powder and plaster it over the stone in order for the walls to have smooth surfaces. Limestone in its nature absorbs water really well, and this is why it work really well in regions with humid climates. The fact that limestone is a good absorber for humidity makes the rooms cooler than rooms that uses a lot of the other construction materials. Limestone also has a beautiful quality in it and that is that it ages. When the plaster applied on the building ages it turns from a white color to a calm orange color. This adds to the beauty of the building as it ages. What adds more beauty to the building is that the materials are made from the same land that it stand on. This makes the building look much more fitting in its environment. The ceilings and roofs were usually held up by fire resistance wood that was imported from India, and then you would stack dirt and stone on top of it. Before importing wood the ceilings were either made out of stone vaults or date tree leaves and trunks.

When the modern industries came to Bahrain the materials that were used for construction were more industrialized than the traditional materials. Factories were built to mass produce concrete products. Today the most common material used for construction is concrete. Walls are usually made out of concrete blocks, and the ceilings are either poured in place concrete slab or pre-cast concrete slab. The aggregate that is used in Bahrain is usually imported, and the reason for that is that the limestone in Bahrain does not make good aggregate because it is very soft. Concrete blocks made out of the imported aggregate made a strong material, but it did not have the qualities that limestone has like being absorbent to water. That's part of the reason why traditional houses are cooler than modern houses.

Another important thing to mention about the materials is that in tradition materials were used for what it is. The limited availability of construction materials and methods of construction made it only possible to construct with the material's own capability. In other words, if you only have stone for construction, then the only way to make an opening through that wall is by using an arch. If you only have stone for construction then you can only build a stone wall. Today the market is so overwhelmed with different materials ,and a wider range of techniques for construction is developed. That gives builders the ability to combine in one building a large variety of different materials. This is how we can see today building with wood structure while it looks like a brick building. I personally do not mind using the variety of materials that the market is offering if they are used correctly. By correct I mean that materials have to be used for what they are and not for what they look like. You can build a building with wood structure and then have a masonry veneer glued to it, but that does not give you a stone wall. A stone wall is usually very thick, and it makes deep opening through itself. It is also very hard to touch and it is very reverberant to sound. Those features in the stone wall is the stone wall. It is not only the looks of stones that makes the stone wall a stone wall.

When constructing with a material one has to limit himself with the materials own abilities to achieve its character in the building.

Recently in Bahrain a new architectural style is arising. This new style is caused by a call for a traditional revival in the architecture of Bahrain. Bahraini architects sow the contemporary styles of building overtaking their land, and the traditional building disappearing. Therefore, they decide to go back to building traditional buildings. Their idea of a traditional building is a building that looks traditional. No one uses limestone for construction. Everyone uses concrete blocks and then plaster it with cement and then apply paint on the surface. The architects did not change the method of construction, but they changed the paint instead. Instead of using white paint, they used an orange color that looks like aging limestone plaster. The problem is that paint does not stick to the building all its life, but it eventually falls off. When the paint falls off the building, the cement plaster will be revealed to tell everyone that it is not really a limestone wall, but it is a concrete block wall. They also glued wood to the building at ceiling heights to give the impression that the ceiling is held up by wood like the traditional buildings. What the architects basically did is that they dressed a modern European building with traditional middle eastern cloths.

The placement of rooms in the house is very significant to the Bahraini culture. For example, the guestroom has to have an access to it from outside the house. The reason for that is to allow the guests to enter without disturbing the people in the house, and also for the privacy factor. The guestroom is usually the largest room in a traditional house. It is the room that gives the greatest impression on people about yourself and your house. Apart from that, living in Bahrain will require from you to invite a lot of guests into your house because of the large families and the rural environment. The kitchen in a traditional house is not always a room. A lot of the times the kitchen will be part of the courtyard that has water and fire or a stove fro cooking. Having the kitchen outside the house takes care of preventing the smell of the food going into the house. A lot of the other rooms are only called rooms. Sometimes they call them by the name of the person sleeping in them, or they will call them based on their orientation whether its east, west, north, or south. I think that part of the reason is that people did not always use the room for the same purpose. A lot of the people will sleep on the roof in the summer time for example. At winter they will each sleep in a separate room, or the would sleep together in one room depending on the fire available for heating. The sleeping rooms will often be small guests rooms as well for close friends and family members.

Almost all the rooms today are labeled with a certain function. They are not only labeled with a function they are also designed for that certain function. A bedroom for example can never be a guest room in a contemporary house. The new house also contains rooms that traditional houses did not have. Bathrooms and the mechanical rooms are examples of that. These rooms have functions that are very specific to them, so it is not possible to make it share the function with another room. These are rooms that have a very specific functions, and because of that Louis Kahn calls them service rooms. My take on this kind of rooms is that the architects standardized the architecture of them more than they have to.

The guestroom in contemporary Bahraini houses changed from the traditional guestroom. Most guestrooms today do not have a private access, which means that you have to take your guests into the house before going into the guestroom. And for some strange reason the guestroom started to loose space to the living room. I remember that I often go to new houses with guestrooms that does not accommodate their guests, although I do not recall going to a traditional house that has that problem, even if the rooms are smaller. My own grandfather's house is a lot smaller than most new houses, but I would gather with my whole family there and there would be more than enough space for all of us. I think that the main reason for the changes that happened to the guestrooms are the labels that we give to rooms. For example, we have to have a living room in the house, and sometimes this living room will not be used but it just have to be there. Living rooms cannot be used for guests because a lot of the times it will be in the center of the house, and the women of the house will not be comfortable with guests sitting there. Guestrooms however can be used as living rooms when guest are not there.

Contemporary kitchens also changed a lot. The kitchens built in houses today are built with western standards. Compared to European food, Middle Eastern food has a lot of spices, and since Bahrain is an island, people eat big amounts of seafood. If you build kitchens inside the houses, you will have a big problem with the smell of cooking. For that reason people started to build kitchens that are outside the house. Most people still kept an indoor kitchen which is sually useless.

Another thing about rooms is that the designer of the traditional house is usually the builder, and for that reason each room will have its own architectural qualities. The builder will usually be much more aware of the surrounding when he builds compared to an architect who designs in an office. This makes him much more aware of the details and qualities of what he builds.

I remember once sitting with some old men from Bahrain while they were talking about their past. One of them was criticizing the fact that people are not as helpful to each other as the old days. Then he said that part of the reason for that is that the house of the rich were next door to the house of the poor. He even said that the only thing that differentiated between the two houses is the decoration on the house and the nice fountain that the rich person might have in his courtyard. He said that the fact that the rich and the poor were neighbors made life easier on both, because whenever someone needed anything from the other he would be easier to find. The old man's word made me think about two things: decoration in architecture and the urban planning of neighborhoods.

Decoration in architecture is a debatable issue in modern architecture. Since decoration is originally a sign for a hierarchy system, modern architects in democratic countries were not in favor of using it in their designs. I mentioned above how the rich used decoration to show that they are superior to the poor in money matters at least. In democracy it is supposed that no one is superior to the other. That is why a lot of the modern architects did not decorate their buildings. They still say the ornamenting the building is fine. Ornaments are not signs of hierarchy, they are harmonic details that are found in nature.

In the tradition of Islamic architecture, ornaments played a great role in giving the features of the architecture. Harmonic geometry was an art that the Muslims were very concerned with adopting and developing. Part of the reason for that is that the Islamic religion forbids the make and use of idols and statues, even if it is for decoration purposes. This rule distinguished the Islamic architecture from most different architecture styles. It made Muslim architects try to construct architecture with pure geometrical forms in order to avoid idolism in architecture. The Muslim architects also constructed the building to be a manifestation and a reflection of the greatness of God, and not a representation of God himself. The harmonic geometrical ornaments on the buildings are reminders and gestures to the harmonic creation of God. Along with ornaments, decorations were also used in the tradition of Islamic architecture. The Koran says, "O mankind! We have created you from a male and a female, and made you into nations and tribes, that you may know one another. Verily, the most honourable of you with Allah is that (believer) who has At-Taqwa [i.e. one of the Muttaqun (pious - see V.2:2)]. Verily, Allah is All-Knowing, All-Aware" (13; Hujuraat). There are superiorities between people in the Islamic belief even in the way that God looks to people, which is by piousness. There is also the superiority of prophets over other people, since they have to follow the prophets. This is why even in the ornaments that are used on buildings, the architects have decided that some shapes are superior to others. The circle for example is the most superior shape, because all other shapes come from it as they believe. This sometimes makes the geometrical shapes decorative, along with being ornamental. Although decorations can be used in Islamic architecture, there is still restrictions on how to use it. The restrictions are basically to not cross God's boundaries.

The other topic that the old man mentioned, was the urban planning of neighborhoods. Traditionally, the people of Bahrain used to build their houses next to water springs. In fact, all the old villages were originally areas that had those natural springs, and families would settle there because of the availability of water. The land would be more expensive if it contained a well. Houses were built next to each other because the people depend on each other to live. The rich depends on the poor to help them with their work, and the poor depends on the rich to help them financially. This made it fine for them to live next to each other.

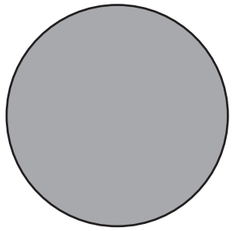
Contemporary neighborhoods changed drastically from the traditional neighborhoods. One of the first things that the urban planners did in Bahrain, is that they designed neighborhoods for the rich and other neighborhoods for the poor. One which has larger pieces of lands for villas, and another which have smaller pieces of lands. This limited the interaction between the two different classes of people. Another thing that changed in the neighborhoods is that they are designed for cars and not for pedestrians. For that reason they would isolate larger pieces of land for each different purpose. For example instead of having a small area for a shop, they have a strip mall for a lot of shops. Shops and bakeries for example are not integrated with houses, but they have their own segregated areas. The idea is that everyone has a car, so they can just drive to the bakery. Contemporary neighborhoods became lifeless compared to the traditional ones partly because of that. Even the mosques which are essential parts of the Islamic neighborhood got isolated for the houses and places in the service areas. In the first Muslim neighborhood that was constructed in Medina by they Prophet Mohamed, the first building that he built was the mosque. Then around the mosque all the houses were built. This gave a center for the gathering of all the people living there. Muslims also have to pray five times a day. For that reason, it makes a lot of sense to have the mosques only walking distance away from the people.

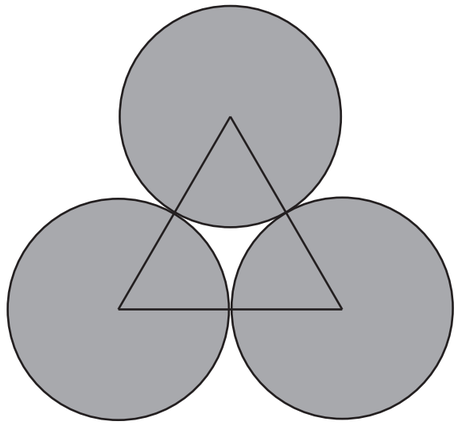
Another point that is worth mentioning about houses in traditional neighborhoods, is that they usually share walls with each other. Most modern houses in Bahrain do not share walls because the yard usually surrounds the house. Having the houses compacted with each other is very beneficial in sustaining energy. Because the houses are all connected, they will act together to stay as cool as possible at the summer and as warm as possible at winter. Therefore, it will be easier to stabilize the temperature in the house.

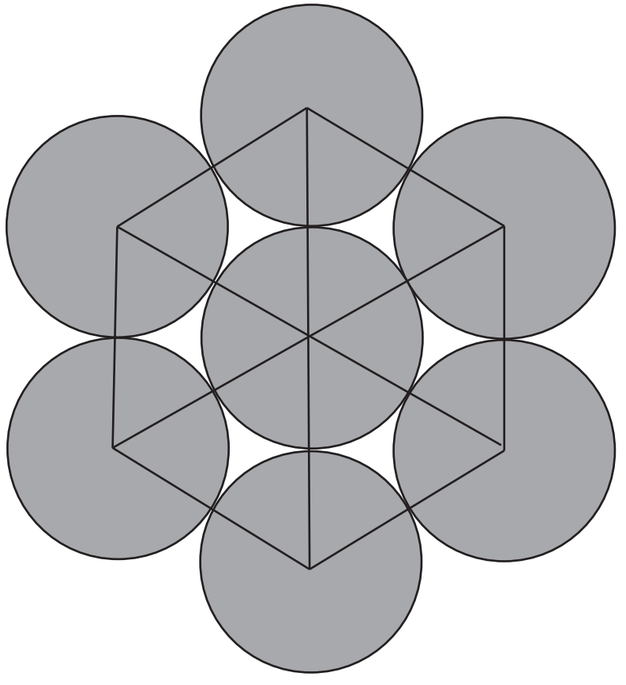
I mentioned before how significant geometry is to Islamic architecture. I will try to elaborate more on the topic of geometry.

Geometry is one of the primary tools in the making of architecture. The Islamic culture like most other cultures philosophized geometry. Muslim philosophers speculated that the mother of all shapes is the circle. Second comes the triangle, which is derived from the circle. To get a triangle you have to draw three adjacent circles. The equilateral triangle appears as the result of the three circles connected to each other at their centers. The third shape is the hexagon. The hexagon is the result of seven circles; one at the center and six surrounding it. This shape is a metaphor of the seven heavens and the seven earths that God created. What is unique about the hexagon is that it gives a two dimensional abstraction of a three dimensional cube. After that all the other polygons are derived. The square and the pentagon are also very significant polygons. Both shapes were used frequently in the architecture of the Islamic world.

Some of the most important proportions that the were considered in the Islamic architecture are: 1:/3, 1:/2, and 1:1.618 which is the golden ratio. The first ratio can be derived easily from equilateral triangles. The second ration can be derived from squares, and the third can be derived from pentagons. These ratios are harmonic ratios that are found in nature and in the pure geometrical forms. Architects thought that these ratios must have great architectural importance, because of its frequent appearance in nature. Along with that, when designing using these ratios, you usually get great results. The human body also contains these proportions, and that tells you that he must need an environment that fits his proportions.







Architecture must have a strong affiliation with the human body, especially that humans inhabit it. To achieve that architects must use the human proportion in their design. It was easier in the past to construct buildings that are to the human scale because the builder is usually the designer. Today it more difficult to do that. I believe that geometry and proportions are probably the best tools available for architects to design a building that is to the human scale. It is possible to design with numbers instead of geometry, but since architecture is geometrical it makes more sense to design it with geometry. It is true that number are strongly associated with geometry, but still each has different rules and regulations.

Geometry also gives you the ideal architecture. From the ideal you go to the reality of architecture which is the site, the materials, the services, and all the other parts of the building. Then, you will achieve a reality that has an ideal incurved in it.

I believe that great architecture is a unity. It is a unity in the sense that all parts has to make one. The more the parts are unified with each other, the more successful the building is. Geometry can achieve harmony and unity to the different building parts. If you use geometry and proportions when designing, you will find out at the end that all parts are related to each other geometrically. You will also find that each part needs all the other parts to exist.

Architecture is made up from three different parts; the environment, the mind, and the soul. The environment is what you feel with your five senses. Sites, materials, climates, colors, and even the human body are all parts of the environment. Architects have to greatly consider the environment in their buildings. The mind is another important factor in architecture. The mind is the philosophical reasoning behind the architecture. Each religion has a philosophical base to their architecture. The last part is the soul, and that is to design with the intent of capturing the peoples emotions and feelings. This is the deciding factor between artists and non artists. Artists work to create feelings in other peoples hearts. The more inspiring that feeling is to the people, the more successful the art work is. What makes the architects job difficult is that his art is strongly associated with functionality and reality. If you are a poet for example, your poetry does not have to be functional, except that it has to be readable and comprehendible. In fact, a famous Arab proverb states that the most deceiving of poetry is the most pleasurable. An architect on the other hand does not have the freedom that the poet has in his work.

At the end, unity has to be achieved with all the parts that are used in the making of a building.

I believe that architecture is a discipline. The more an architect is free to design what ever he or she desires, the less disciplined the architecture will be. Therefore, an architect can design freely only under the restrictions that he puts on himself. Some of the restriction are put by the environment itself. For example, you have to design under the acknowledgement that the laws of gravity are active. There are other restrictions that you put yourself. An example of that is the honesty in architecture. You as an architect have the choice to design a wood structure that looks like a brick structure, or a true brick structure that carries itself by its own. Along with the mind and the environment, the feelings that can be created in a building also has to be disciplined. Mosques as an example have a different feeling than Hindu temples. A mosque will reflect the feelings that Muslims have towards what is God to them, while a Hindu temple will reflect the Hindu's feelings towards what is God to them. The result will be two different kinds of architecture.

The western world developed ideals that were natural progression to their cultures.
A lot of the new ideals that the western world developed is not a natural progression to the beliefs and values of the muslim world. In fact, it is more of a regression factor to them. A lot of the modern values were forced into Bahrain without the acceptance of the people. The reason for the resistance of people to a lot of the modern values is that their religion and culture is often in contradictions with the modern western beliefs and values. For example, to the western world freedom means that you can do anything you wish unless it conflicts with the freedom of others. On the other hands, freedom to the Muslims is restricted to God's orders. In other words, you can have the freedom to choose of God allows you to, but if not, you have to follow God's orders even if you wish to do something else. These ideas have great affects on the architecture. To some people architecture is what they themselves believe it has to be, while to others it is what God tells them it has to be. The Bahraini architect has to greatly consider these values and beliefs when designing.

Another important thing to mention about Bahrain is that the people living there are mostly Arabs. Architecture to Arabs is considerably different than it is to Europeans. The average European can understand his history by looking at the architecture that his ancestors left him. An average Arab does not understand history by architecture, instead he understands it by poetry. Poetry and the art of words is the noblest and the most appreciated art to Arabs. History in the Arab world did not record the accomplishments of the great rulers by the architecture they have built, rather by the great poetry that was written about them. In that sense, architecture cannot be understood and appreciated by Arabs unless it is poetical. If your architecture turns stone into gold in a building, and turns water into silver, then it will be appreciated by Arabs. If you can create more from the materials and spaces than what they really are, then you will grasp the Arabs applaud and appreciation.

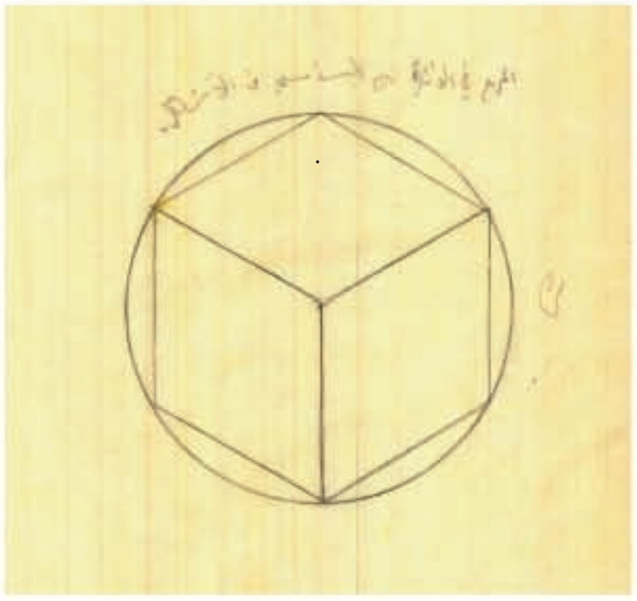
I will design a house in Bahrain. The house will be in my home village, Aali. Aali is one of the oldest villages in the Island. There were records of people occupying the village since almost four thousand years ago. The village is famous for one of the largest historical graveyards in the world. The graves are in the shape of small hills surrounding the village. In the old days, each village in Bahrain had its own craft. Aali had the craft of pottery. Aali was also famous for producing what is known as “noora”; which is burned limestone that was used for plastering walls.

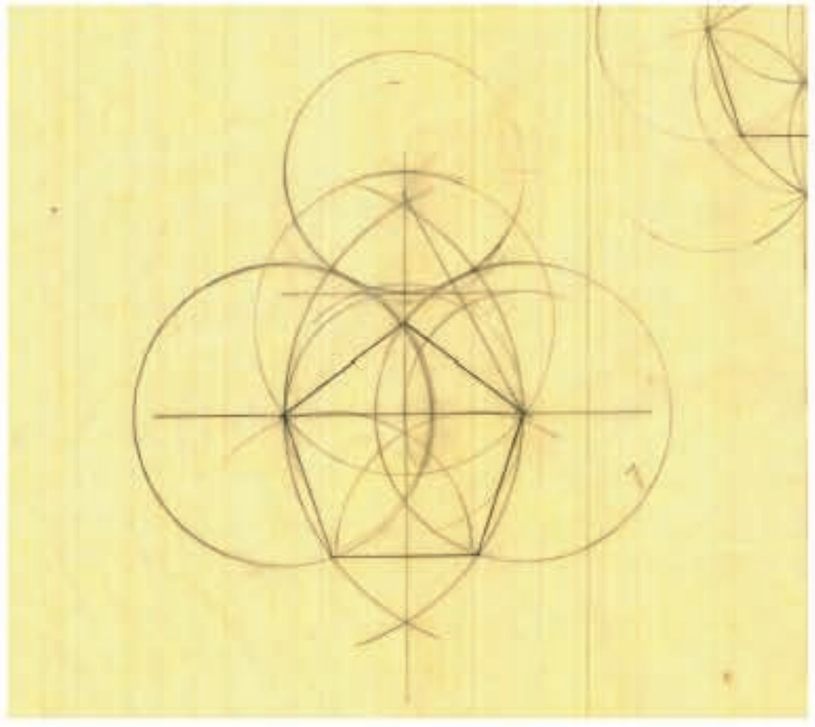
The village is divided into three main parts. The first part is “al-deera”; which is the old village. The second part is “al-bar”; which means the dessert, and that is the older expansion of the old village. The Third part is called “al-iskaan”, which is the newer expansion of the old village. Al-iskaan is the part of Aali that has the modern neighborhoods with the large villas, and most of it is built on top of the historical graveyard. I will build my house in the Iskaan area.

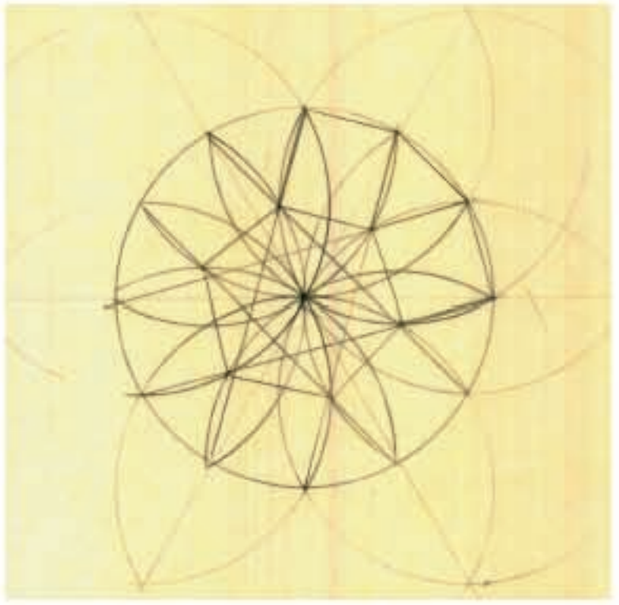
The Process

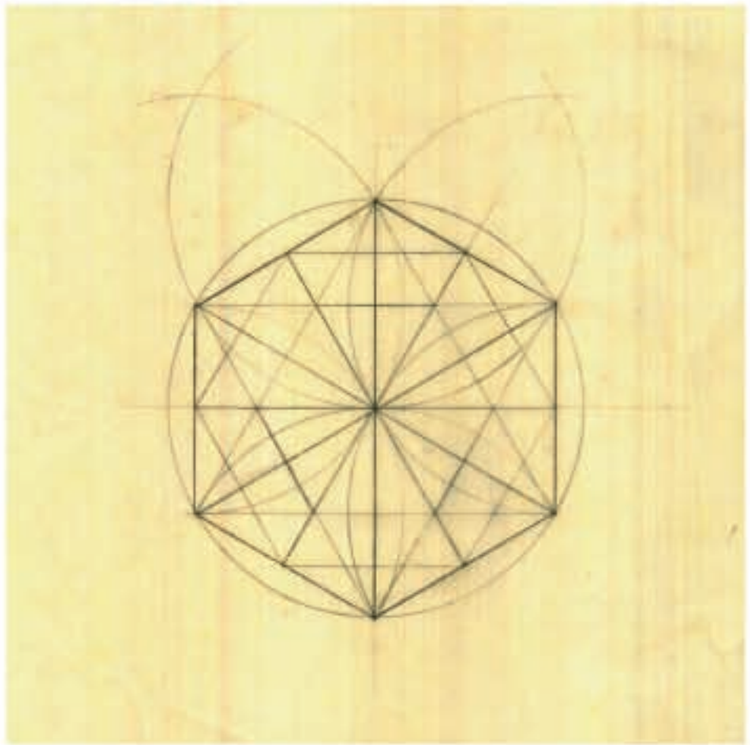
First I made a study of the different geometric forms, to have a better understanding of these geometries and their proportions.

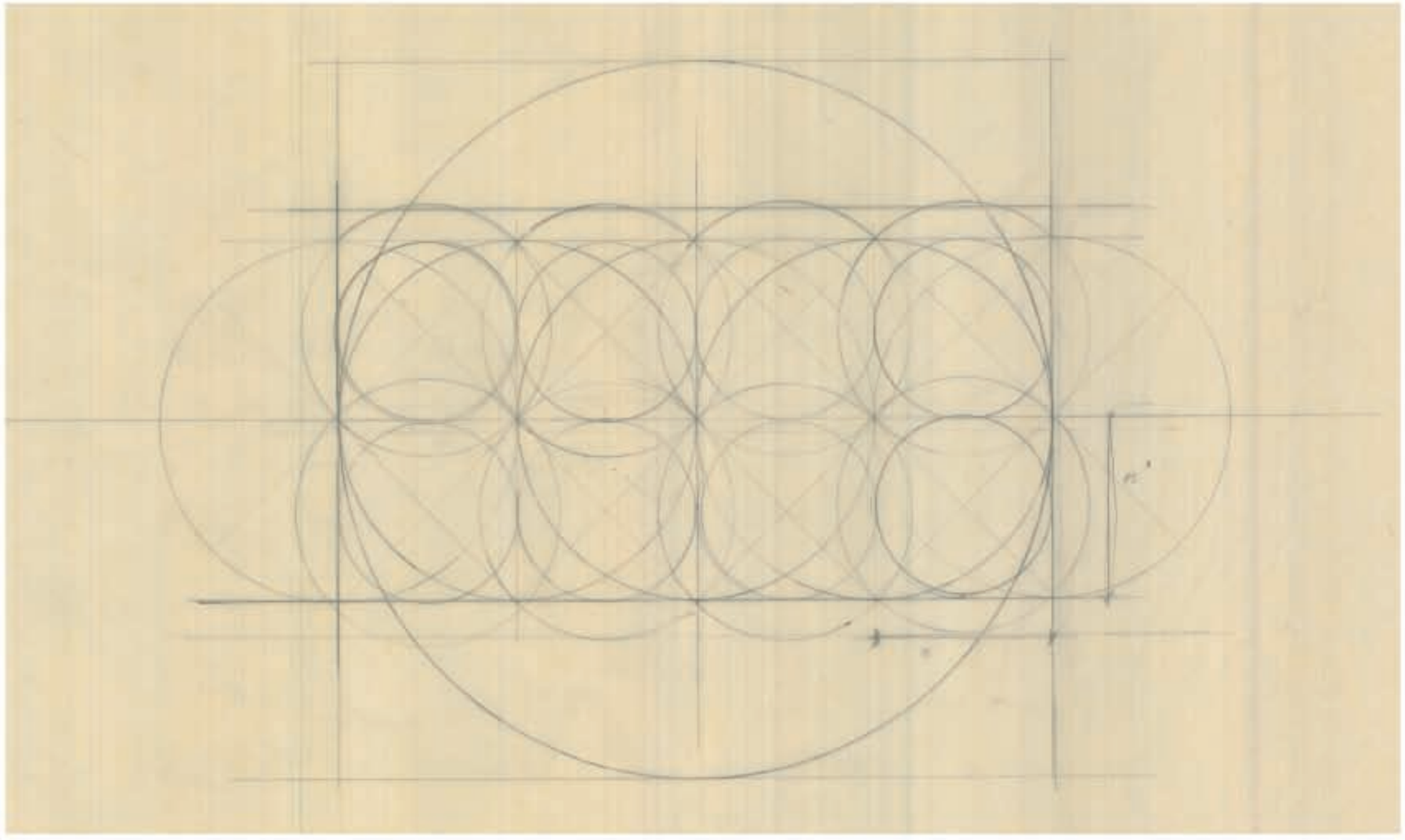
I then divided the land geometrically to have a better understanding of the geometry of the site. The division led me to scale down the geometry from the scale of the land to the scale of the person. This gave me a direct geometrical relationship between the human body and the land. Then, I expanded the geometry of the human scale to get the geometry of the building. I did this to achieve geometrical harmony between the site, the human, and the building.

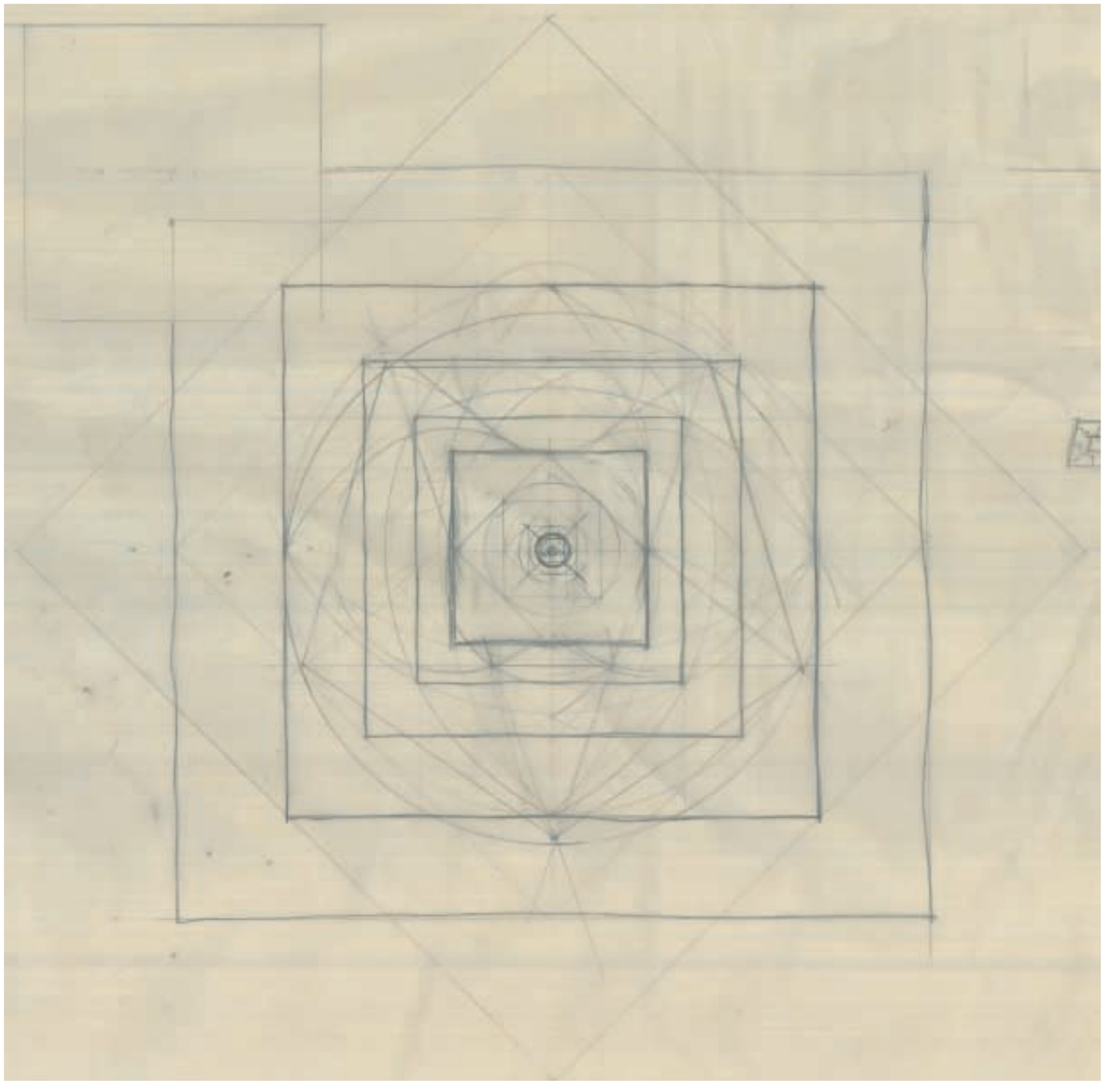










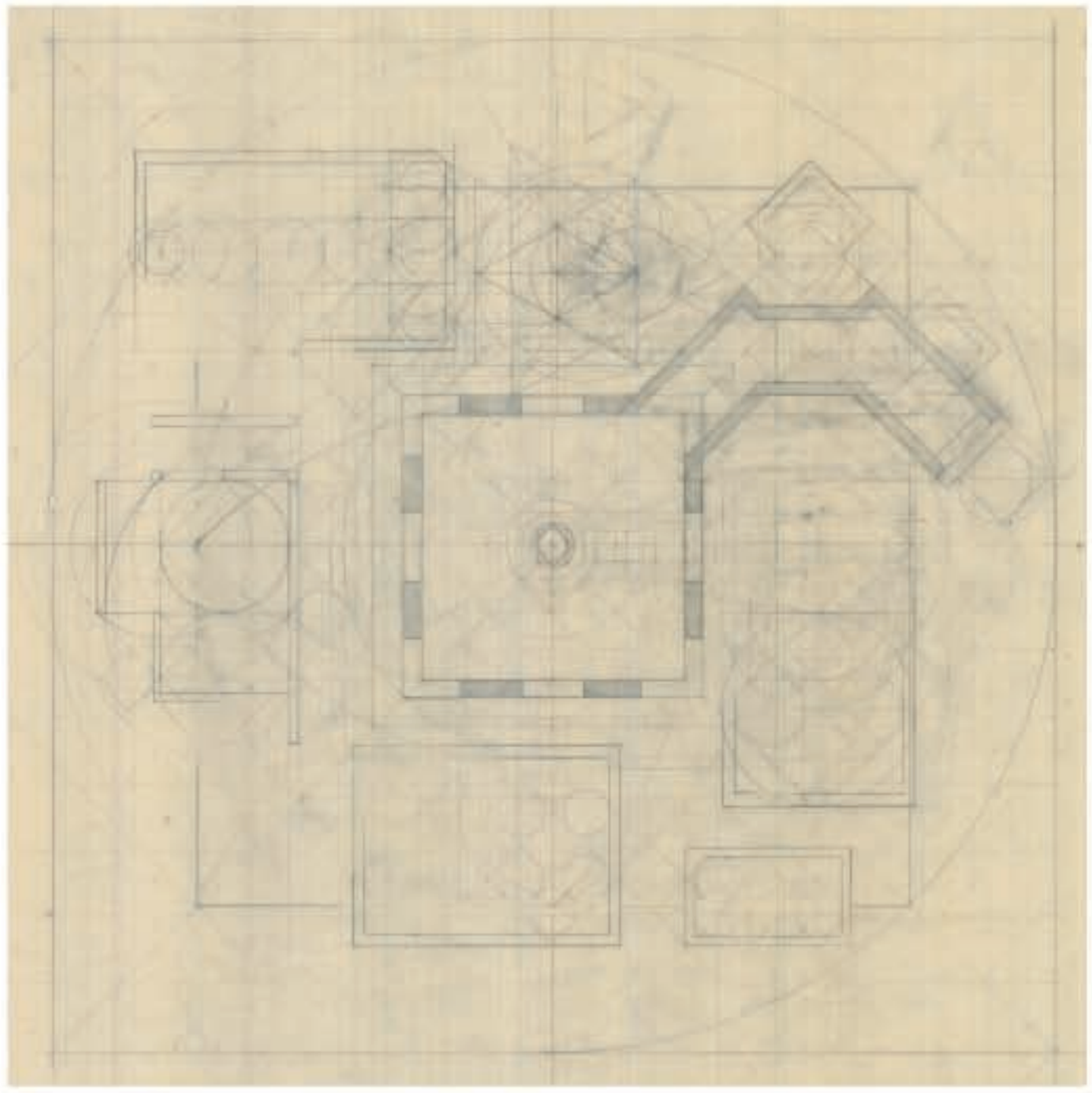


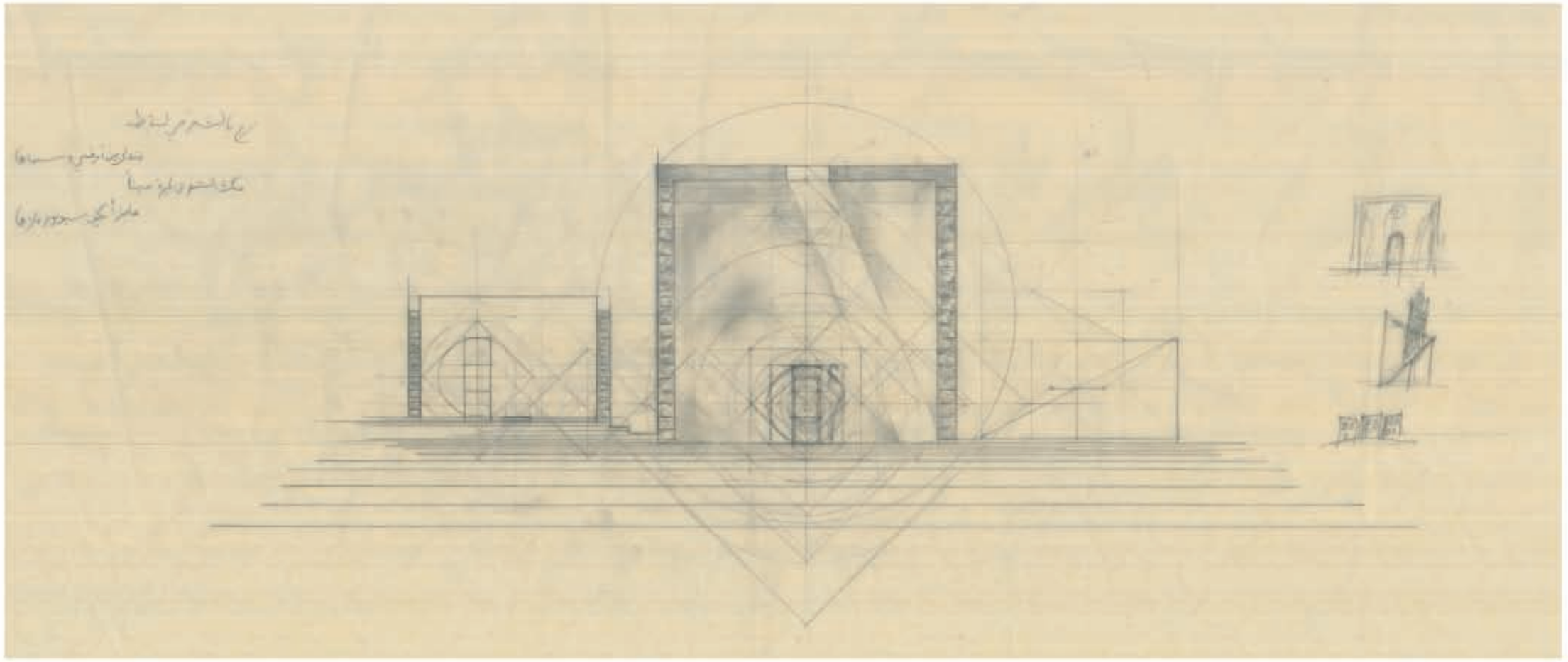
Addition in Architecture

When I first started designing the house, I started working with the idea of addition. It is the idea of building in an empty space, and then I add rooms whenever needed.

In tradition the rooms usually makes the courtyard. People used to design rooms around the parameter of the house and the courtyard will usually be a resultant of the design of the rooms.

I decided instead to design a courtyard that will make the rooms. The courtyard was the first addition to that empty space. After the courtyard, I added on rooms wherever I need them.



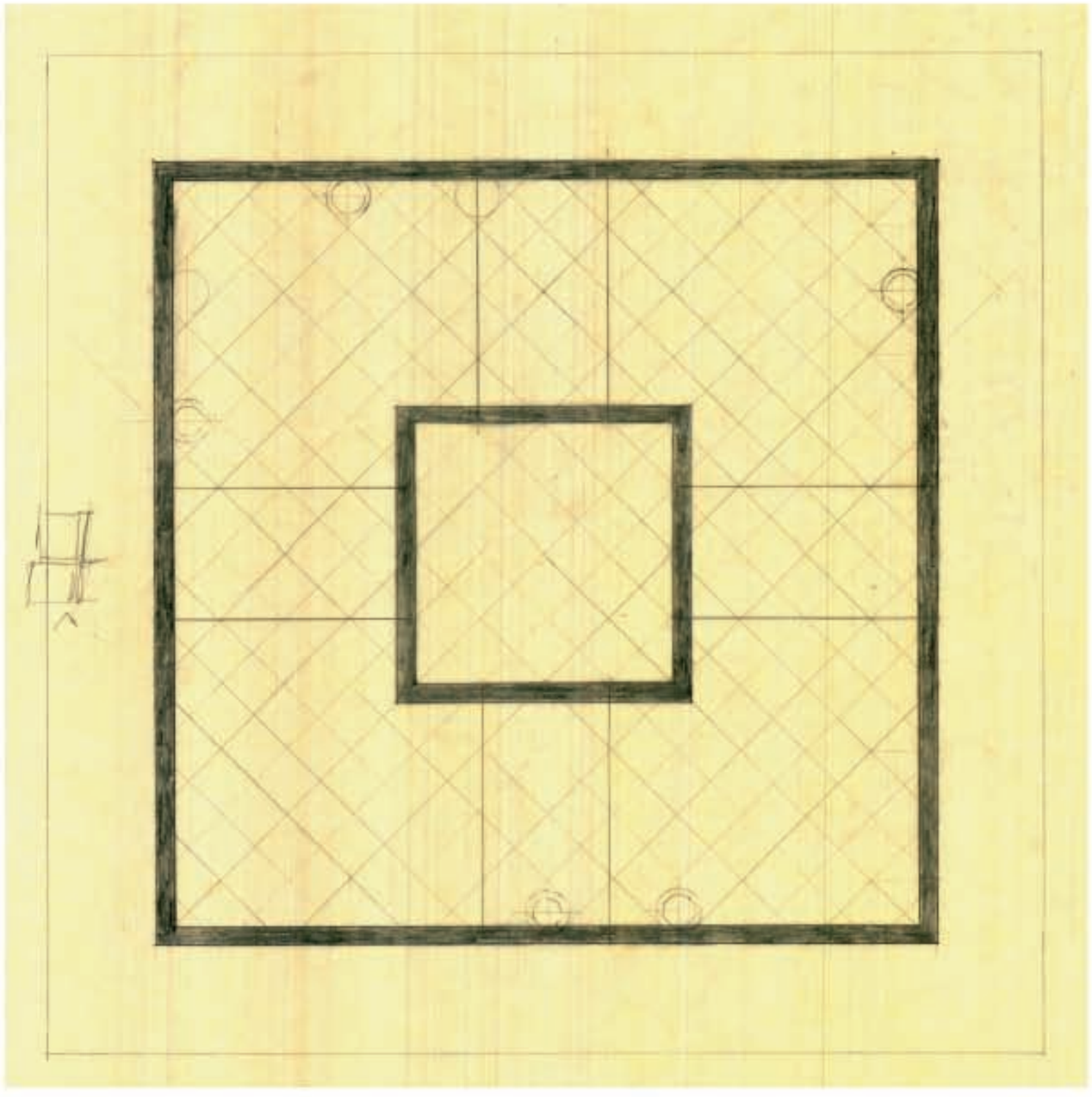


Subtraction in Architecture

I had to rethink the idea of addition, since traditionally people used to build with the idea of subtraction. The idea of the courtyard also works better with the subtraction method.

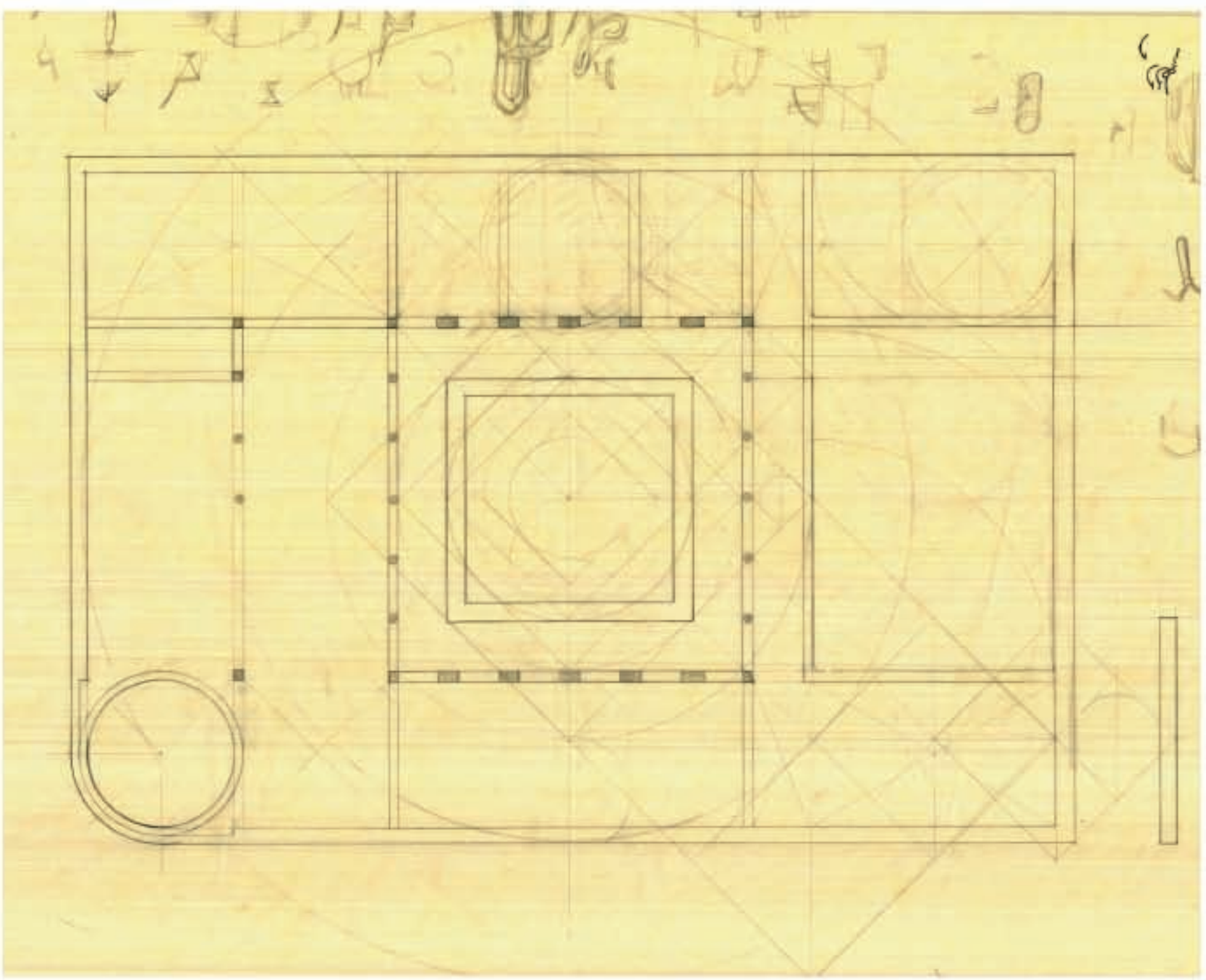
Subtraction in design is to divide from a building the spaces you need and leave the rest. The idea of subtraction seemed to be more suitable for the design of my building, because then the courtyard and the rooms become parts of a building that is divided geometrically, and not separate rooms that are added to space to make a building. Addition makes a different building whenever you add or remove a room from it. Subtraction will keep the same building even if you changed the division of rooms.

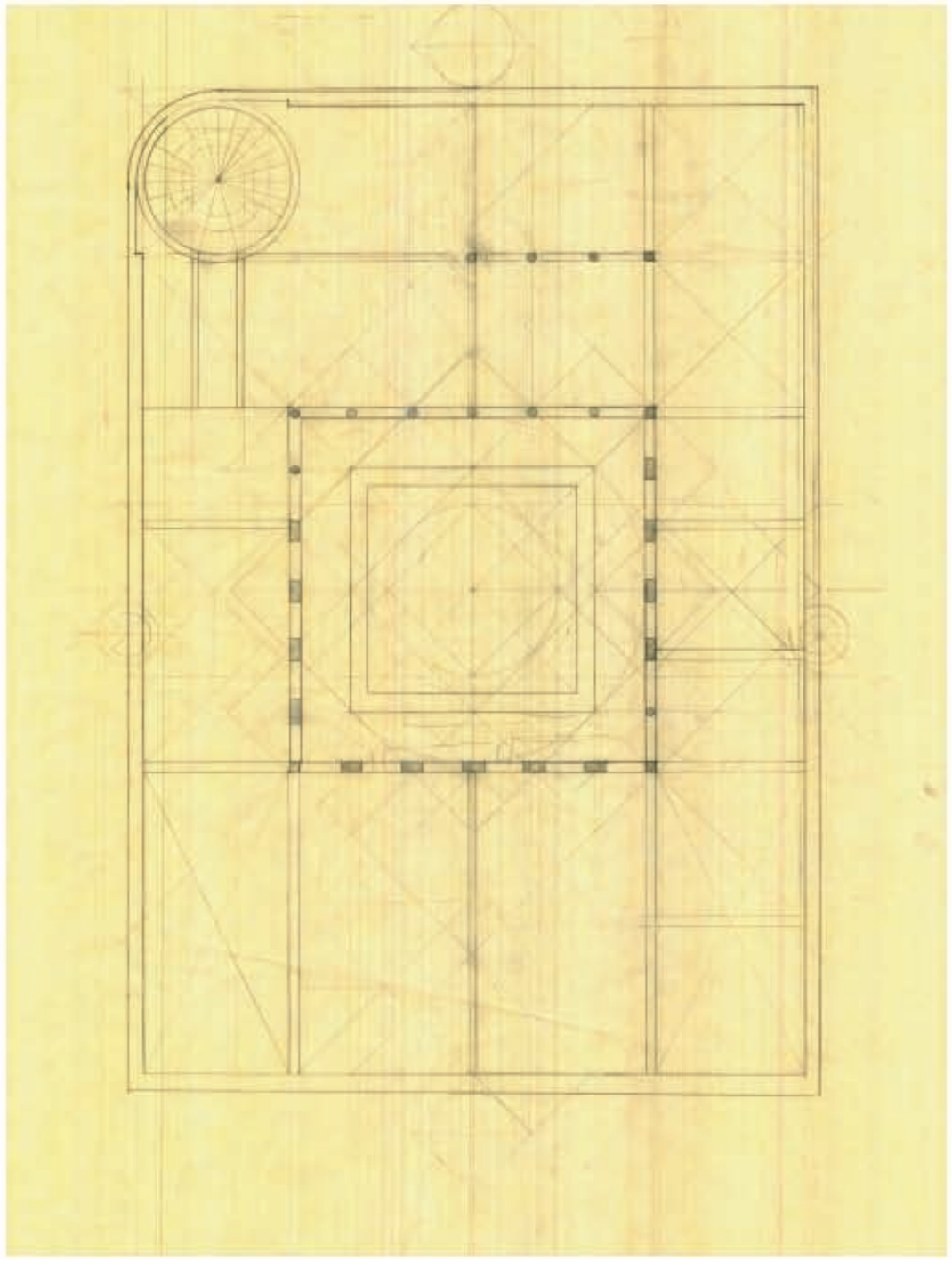
I started working with the idea of subtraction by marking the borders of the building, and then I divided the spaces within the borders.

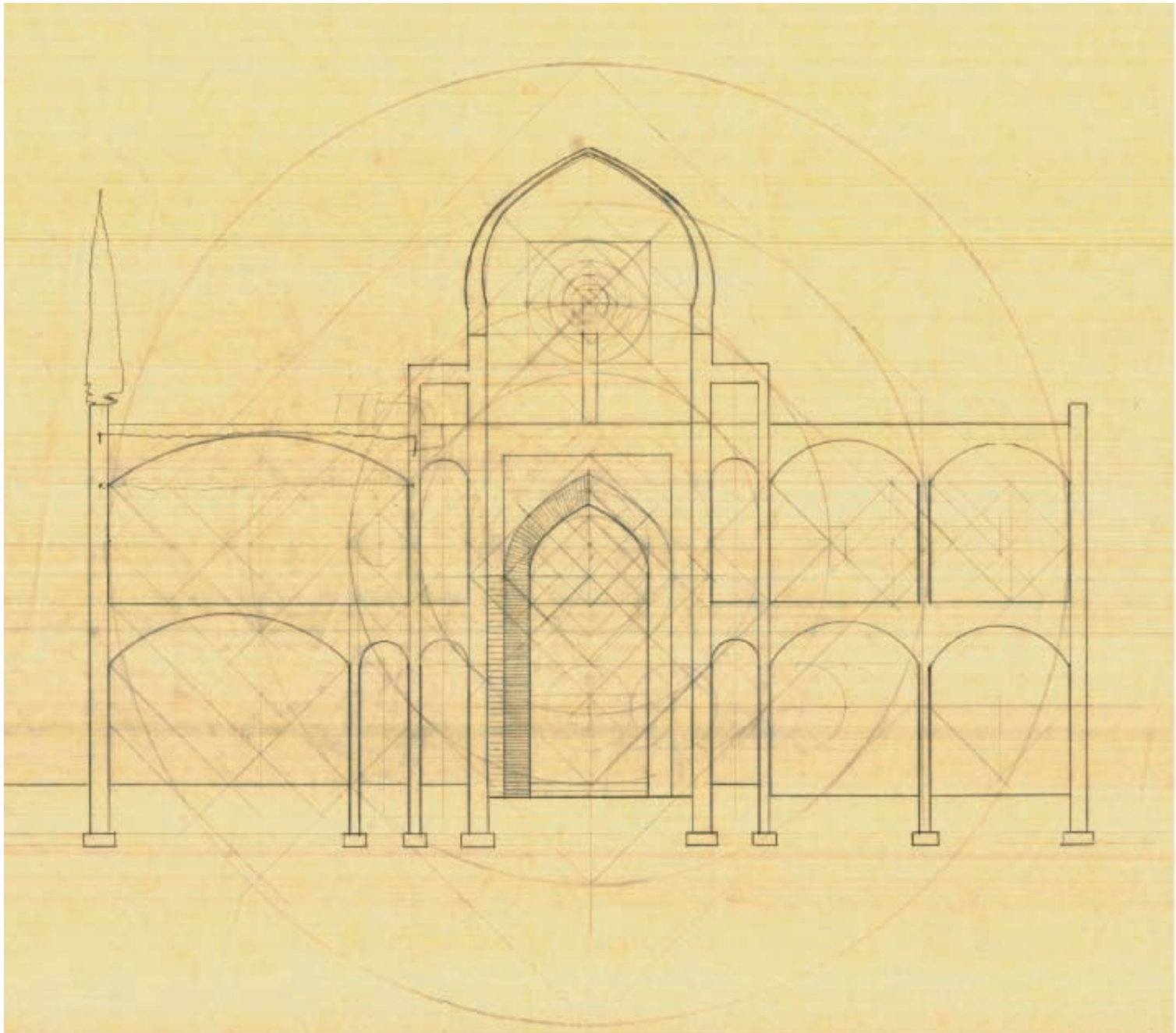


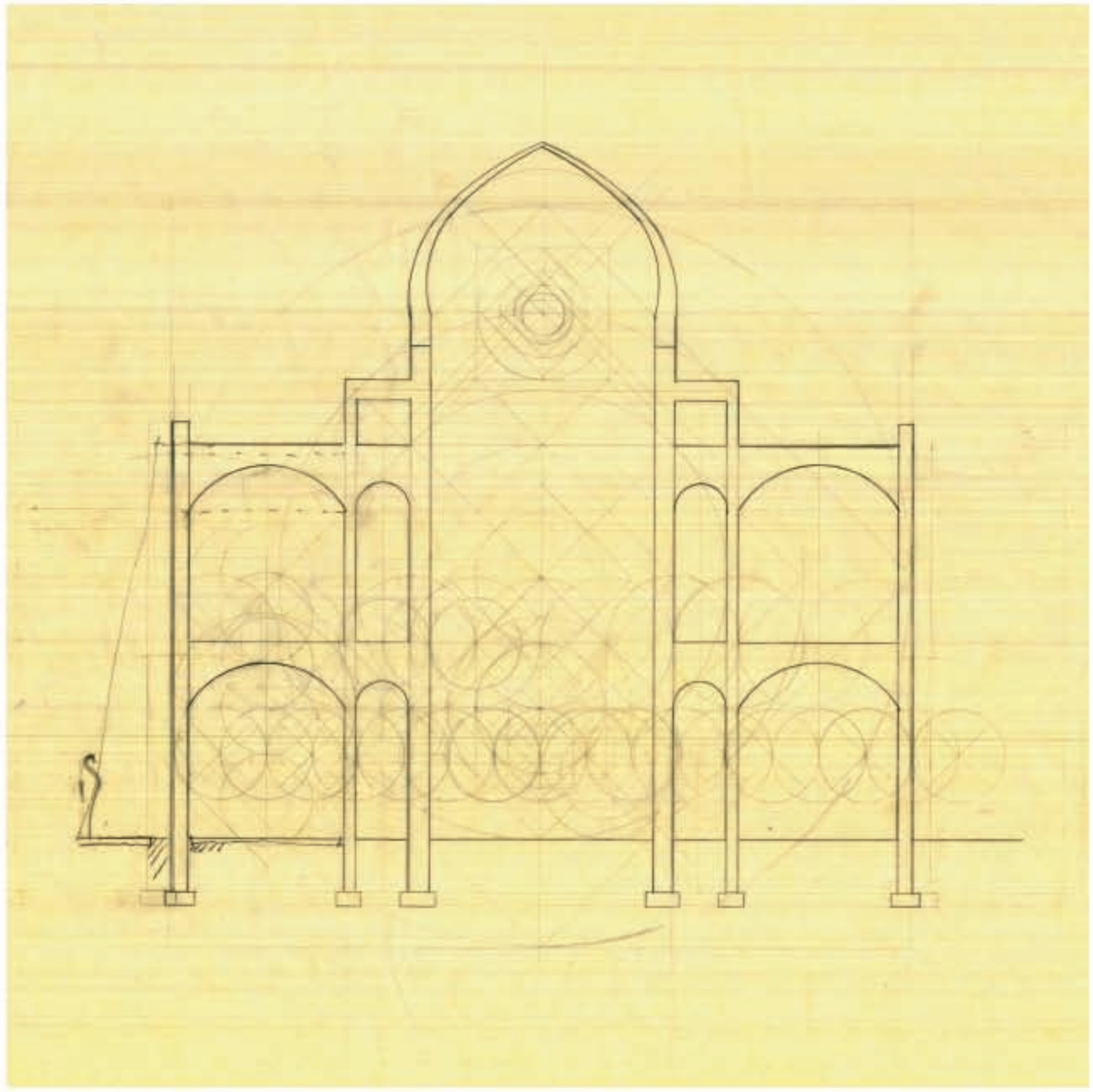
Tradition in Architecture

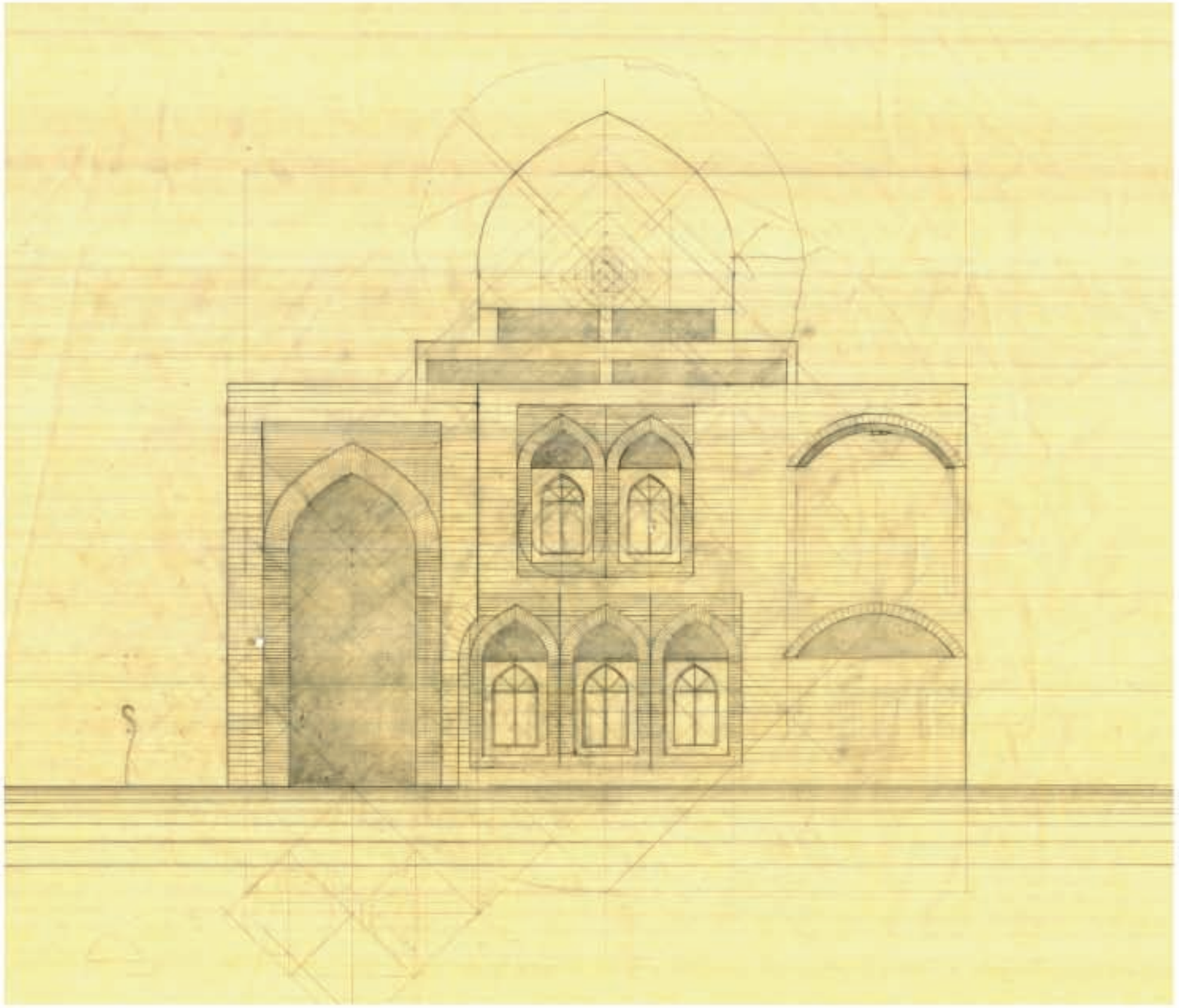
The loss of the traditional values in the architecture of modern Bahrain encouraged me to investigate these values and revive them in my architecture. The desire to do that pulled me toward designing a traditional house, and pushed me away from designing a modern house. The result was a traditional building that was designed for modern time. I used traditional architectural symbols in the house exactly as they were used in the past. Symbols and structures like the dome and the volt were used in my design. The building also looked more like a mosque than a house. The readings that I did about the architecture in the Muslim world were much more related to spiritual places and mosques than to residential buildings. If I use the ideas and thoughts of design exactly as they were intended for mosques, then I will get a building that is closer to a mosque than a house. And this is what happened











Rethinking Tradition in Architecture

I had to rethink the idea of tradition in architecture and I came up with three main points to describe how it should be used.

First, you have to take from traditional architecture the parts that still can be used today.

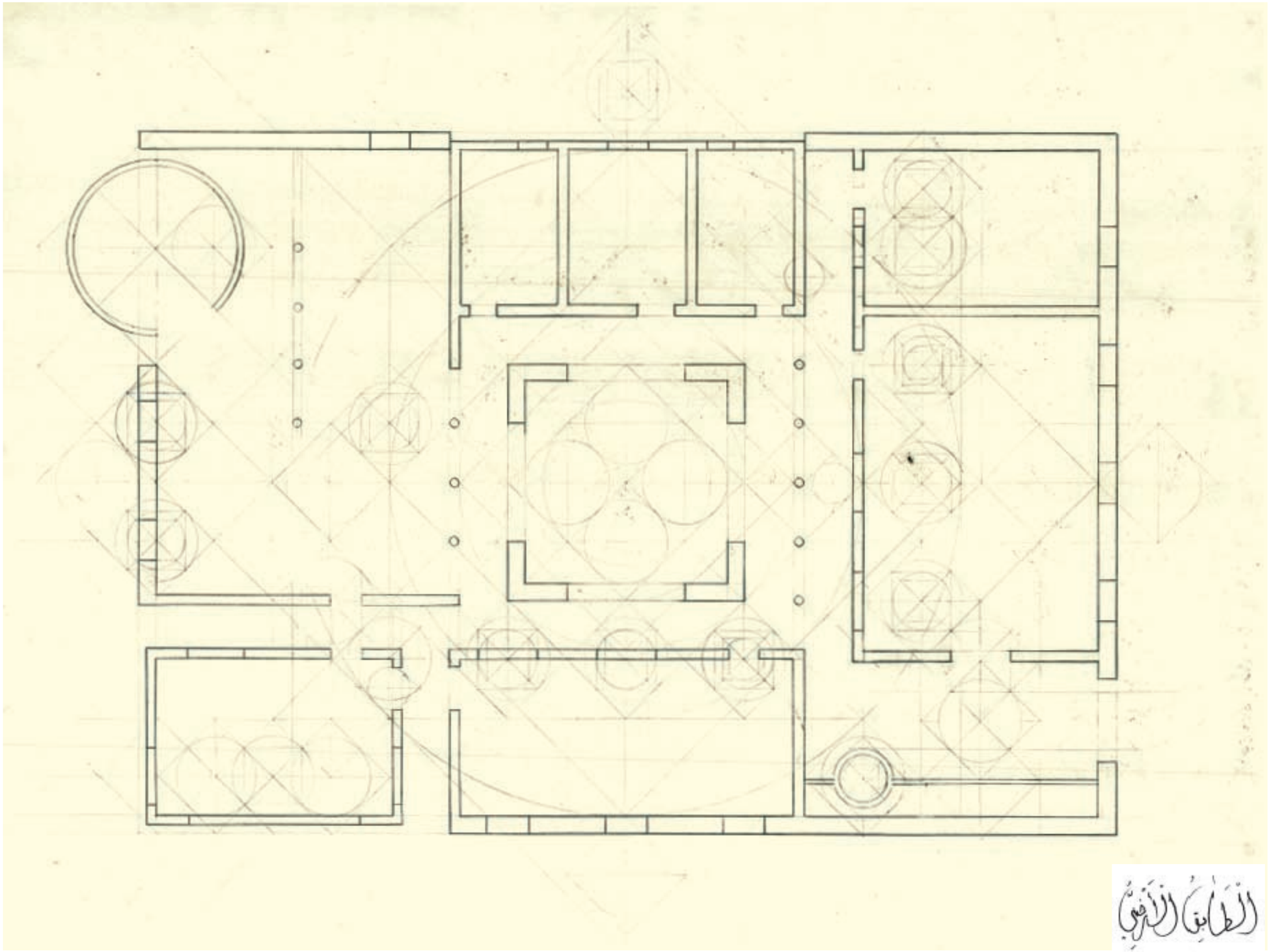
Second, you have to remove the unneeded parts that are not adoptable to our modern time.

And third, you have to add the modern day requirements to the building.

Geometry

In my work I used geometry as the primary tool for design. I believe that designing with geometry is more appropriate than designing with numbers. Numbers will always follow geometry in harmony, but the opposite is not necessarily true. Geometry also allows you to design a building that is unified harmonically. This harmonic unification makes every part of the building related to the other parts geometrically. It makes the parts dependant on each other to exist and to become one building.

Geometry also gives you incommensurable proportions that you can never achieve with numbers.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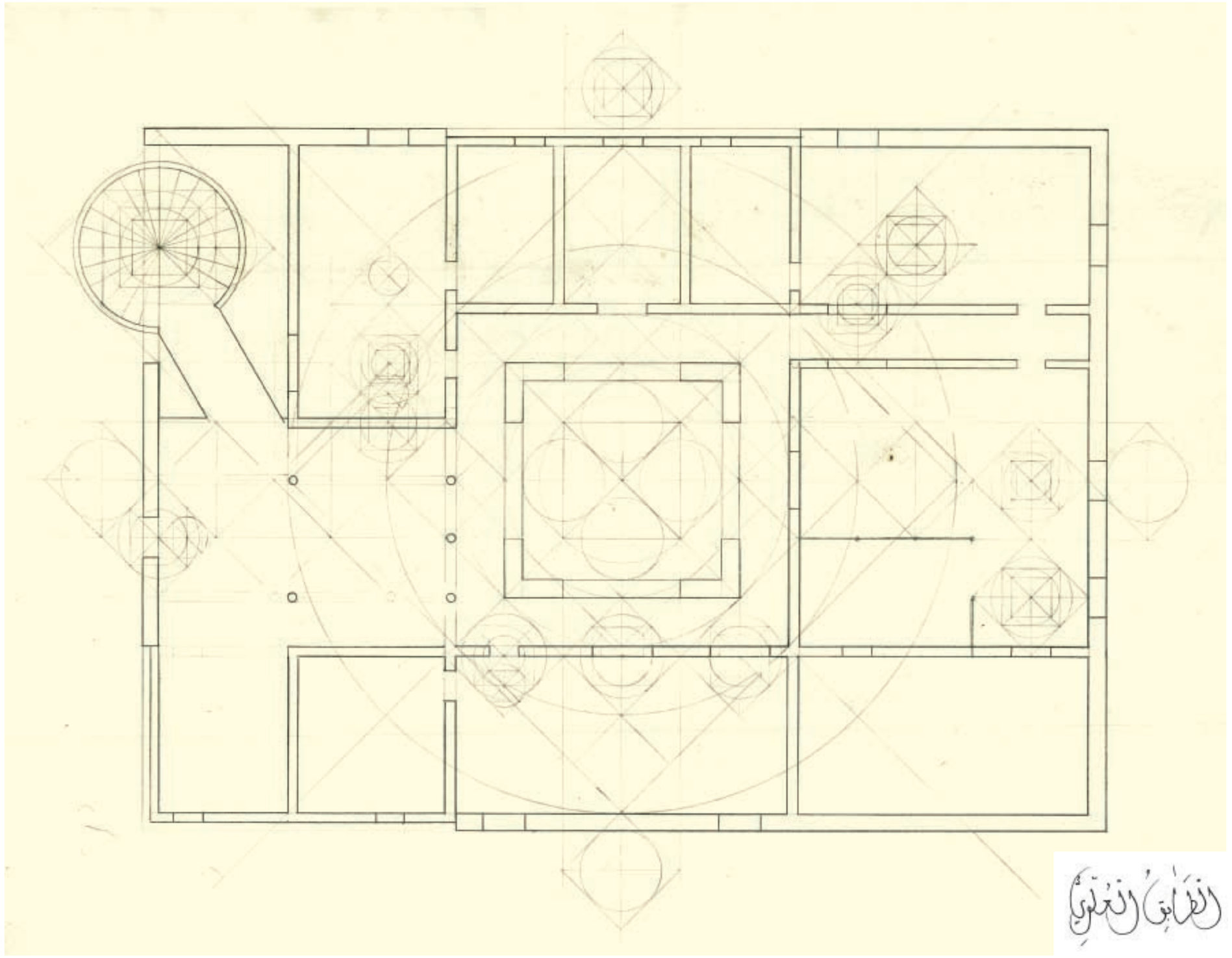

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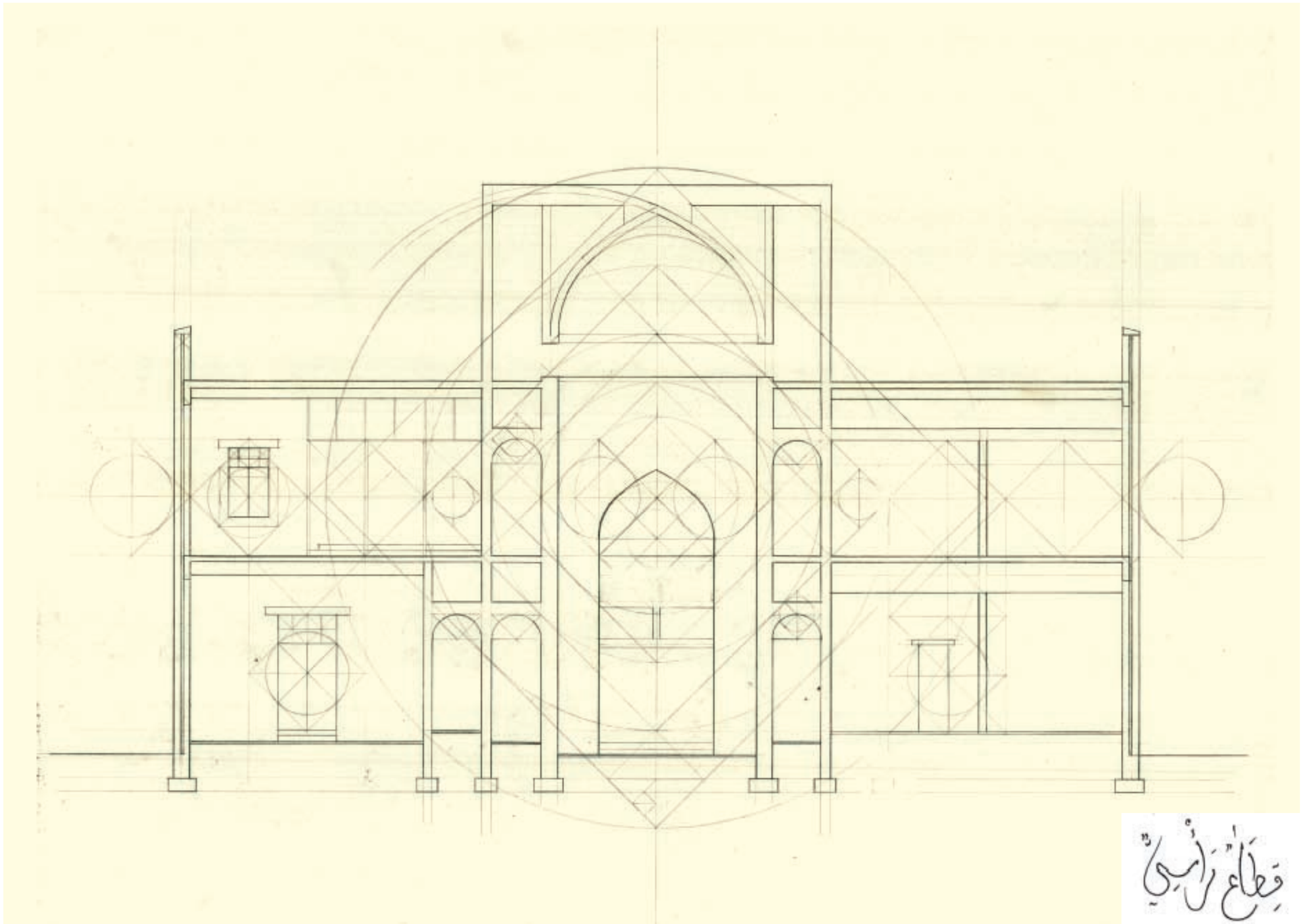
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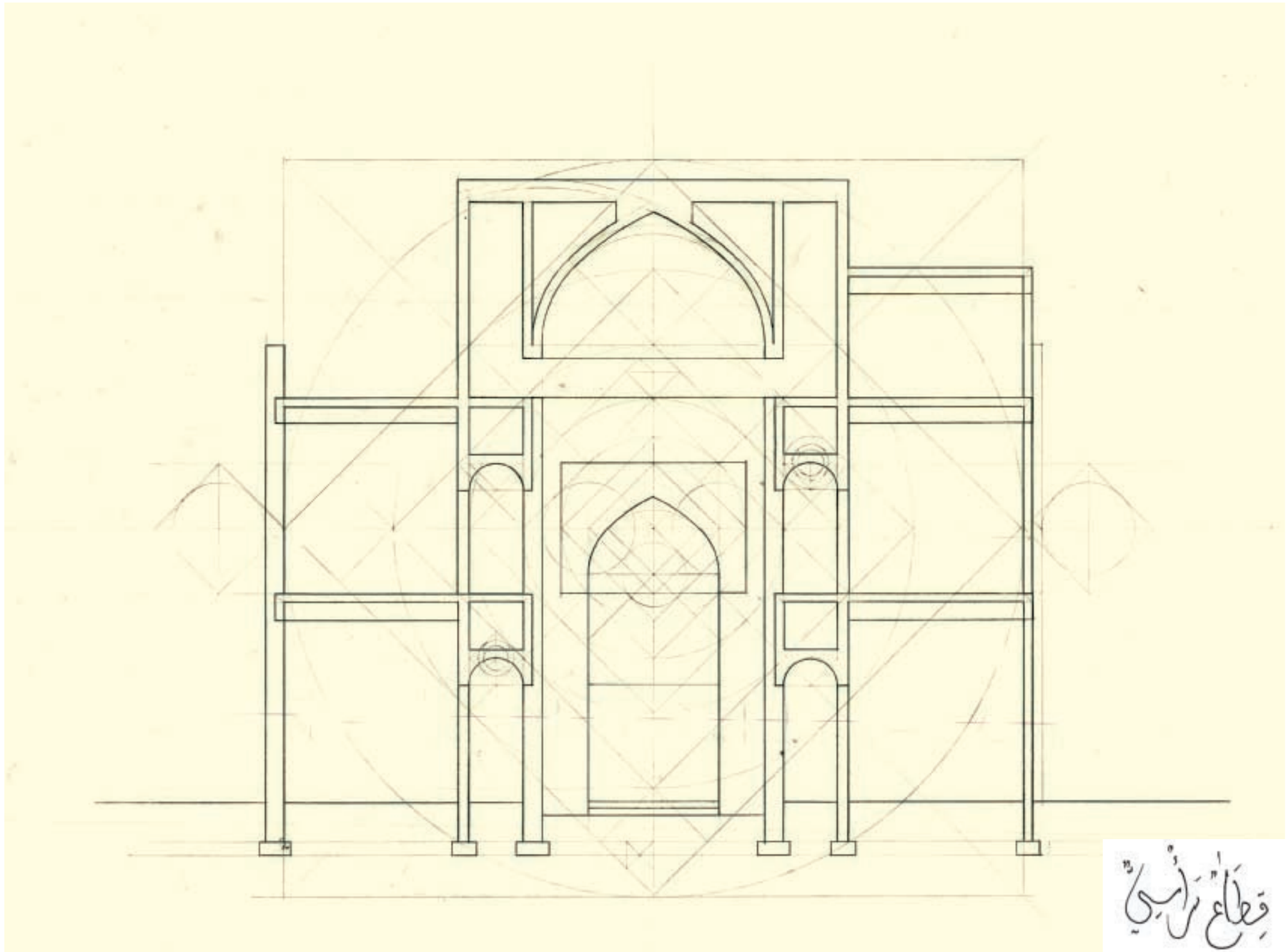
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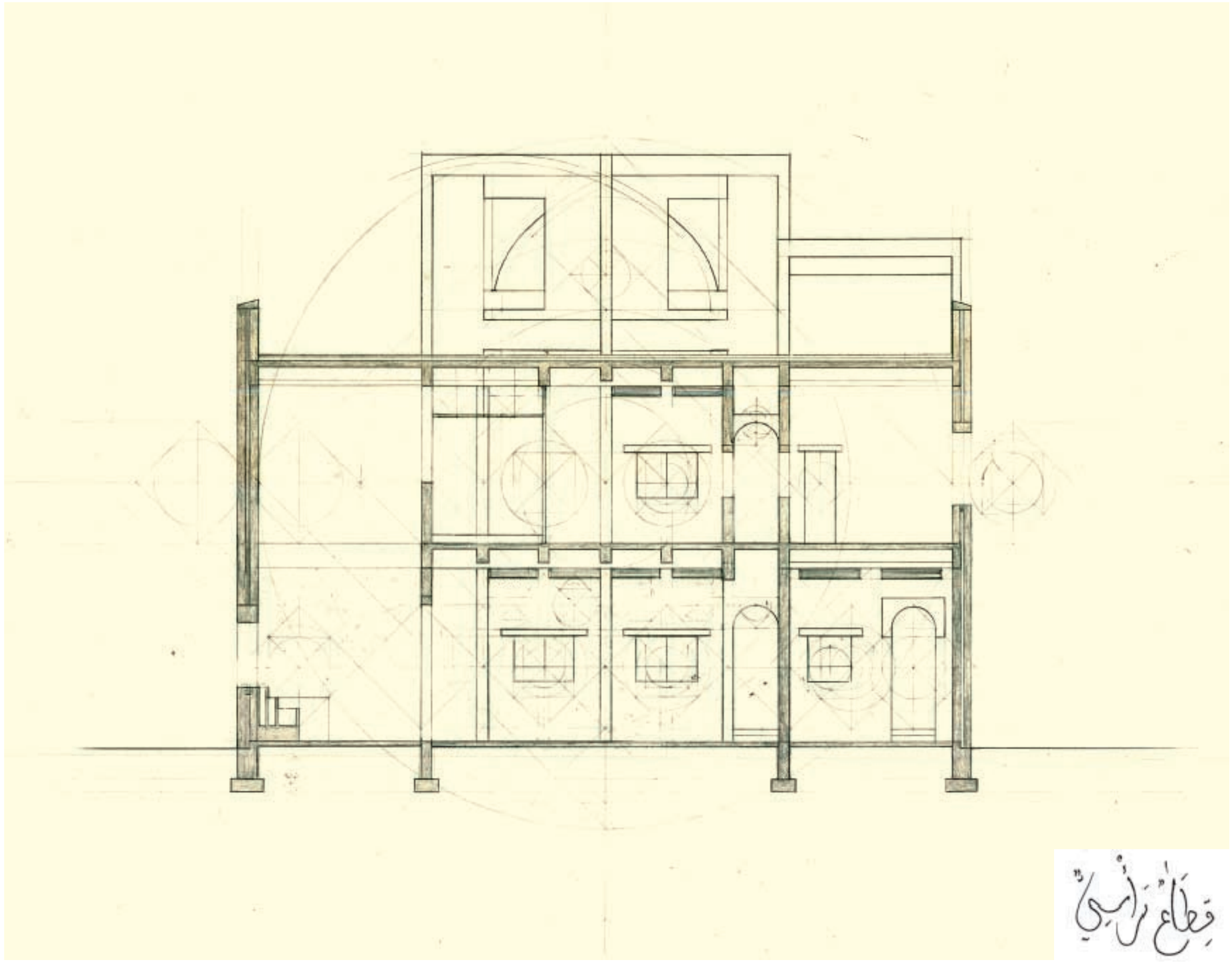

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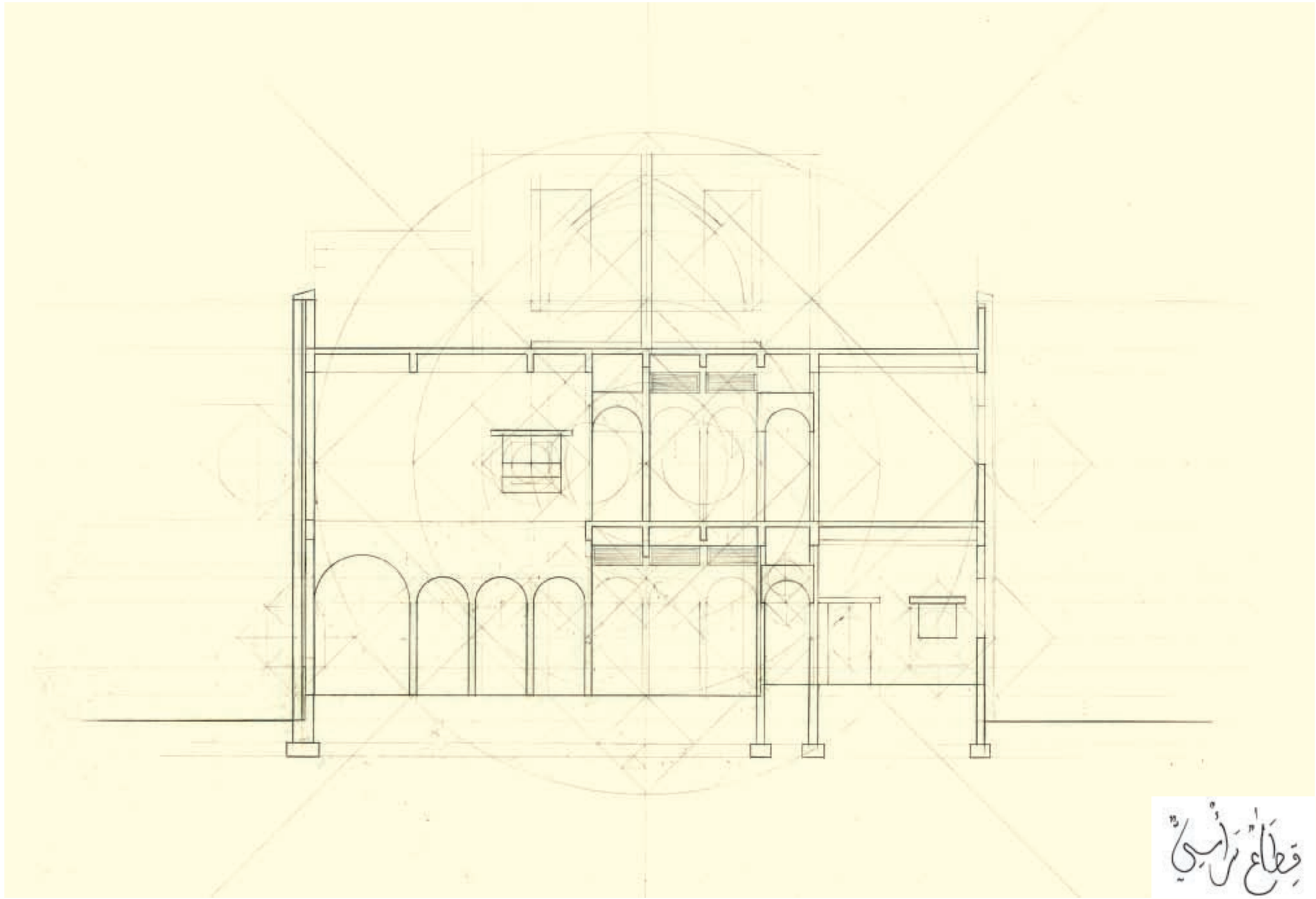
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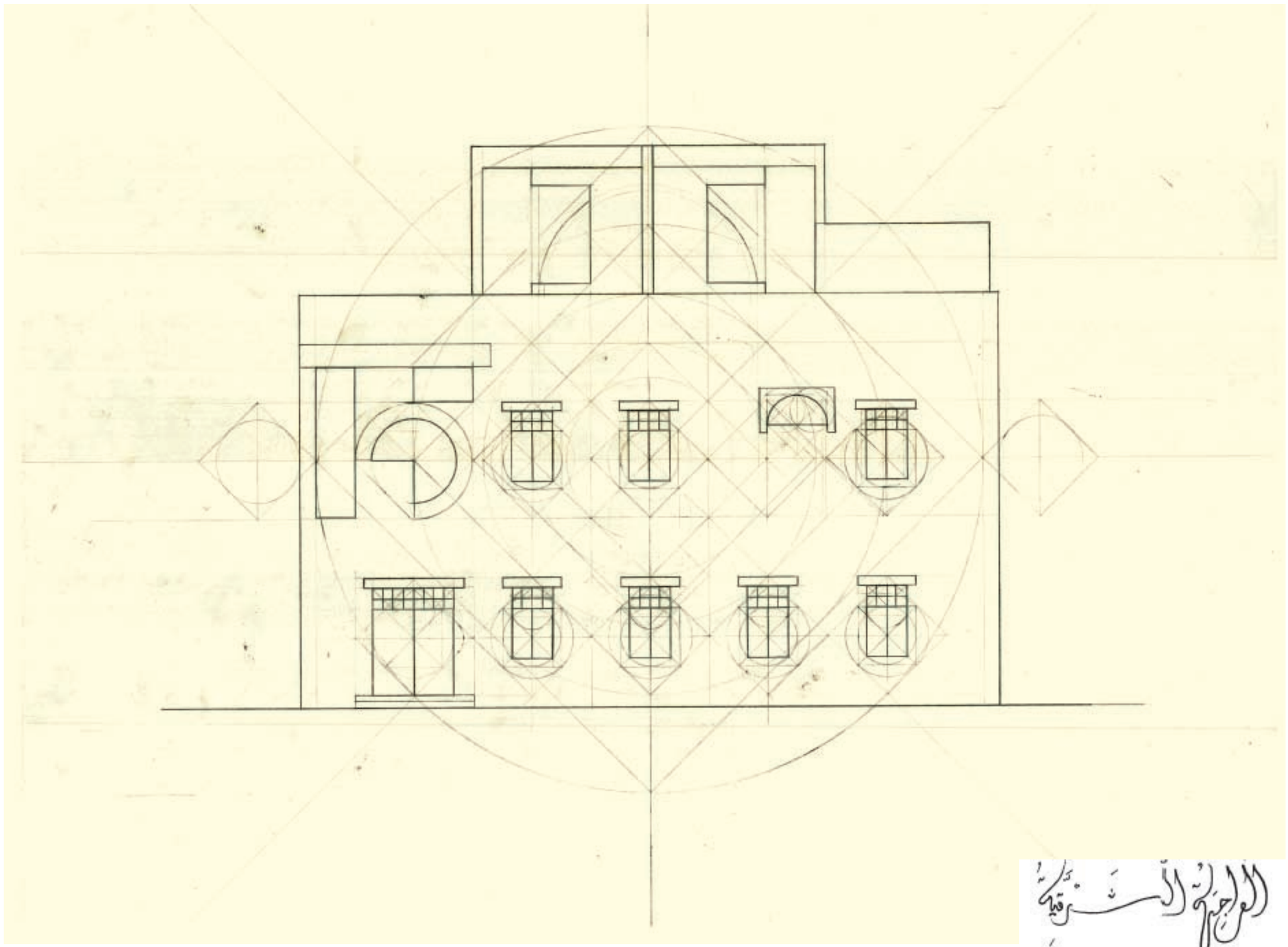

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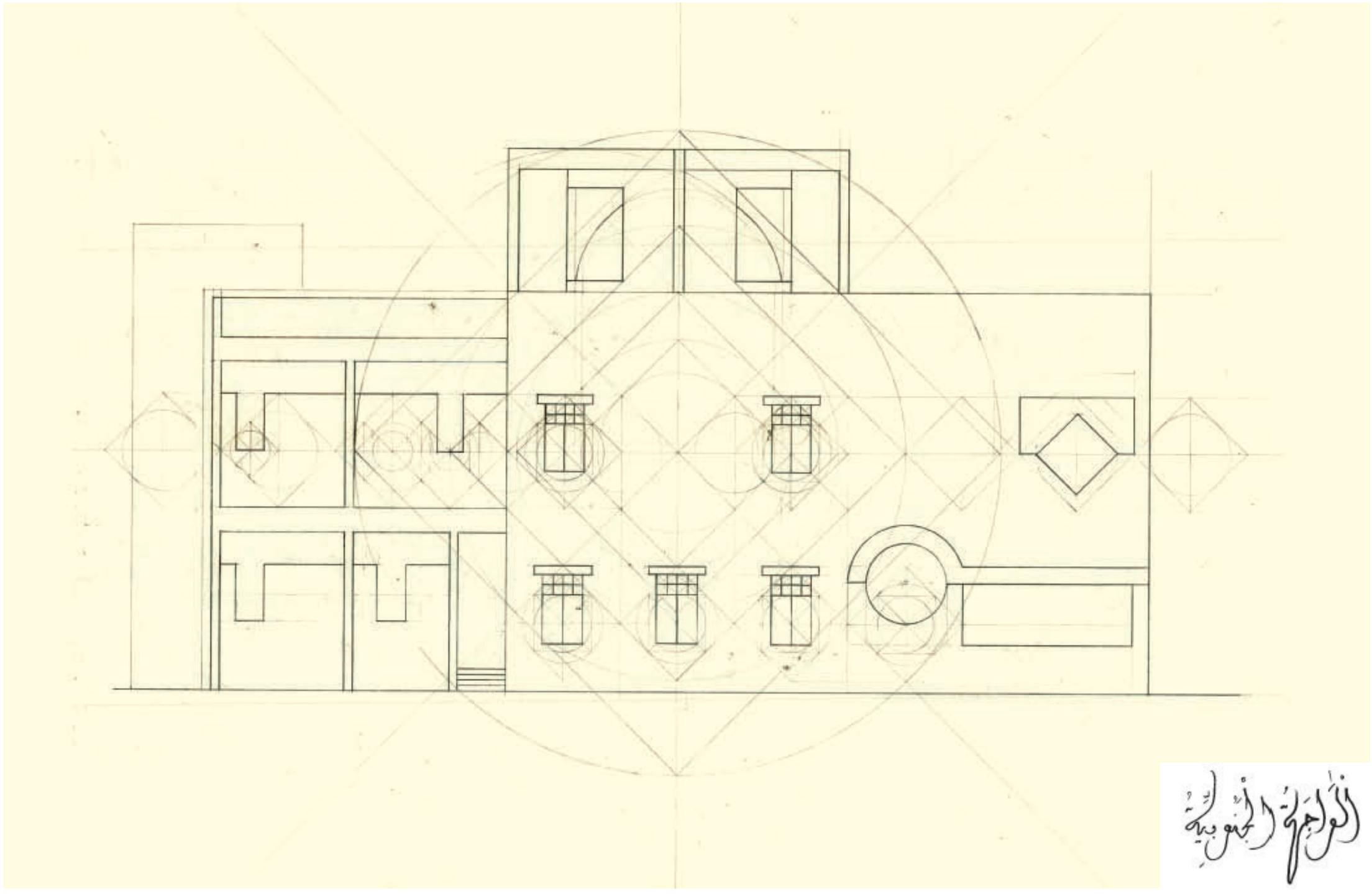

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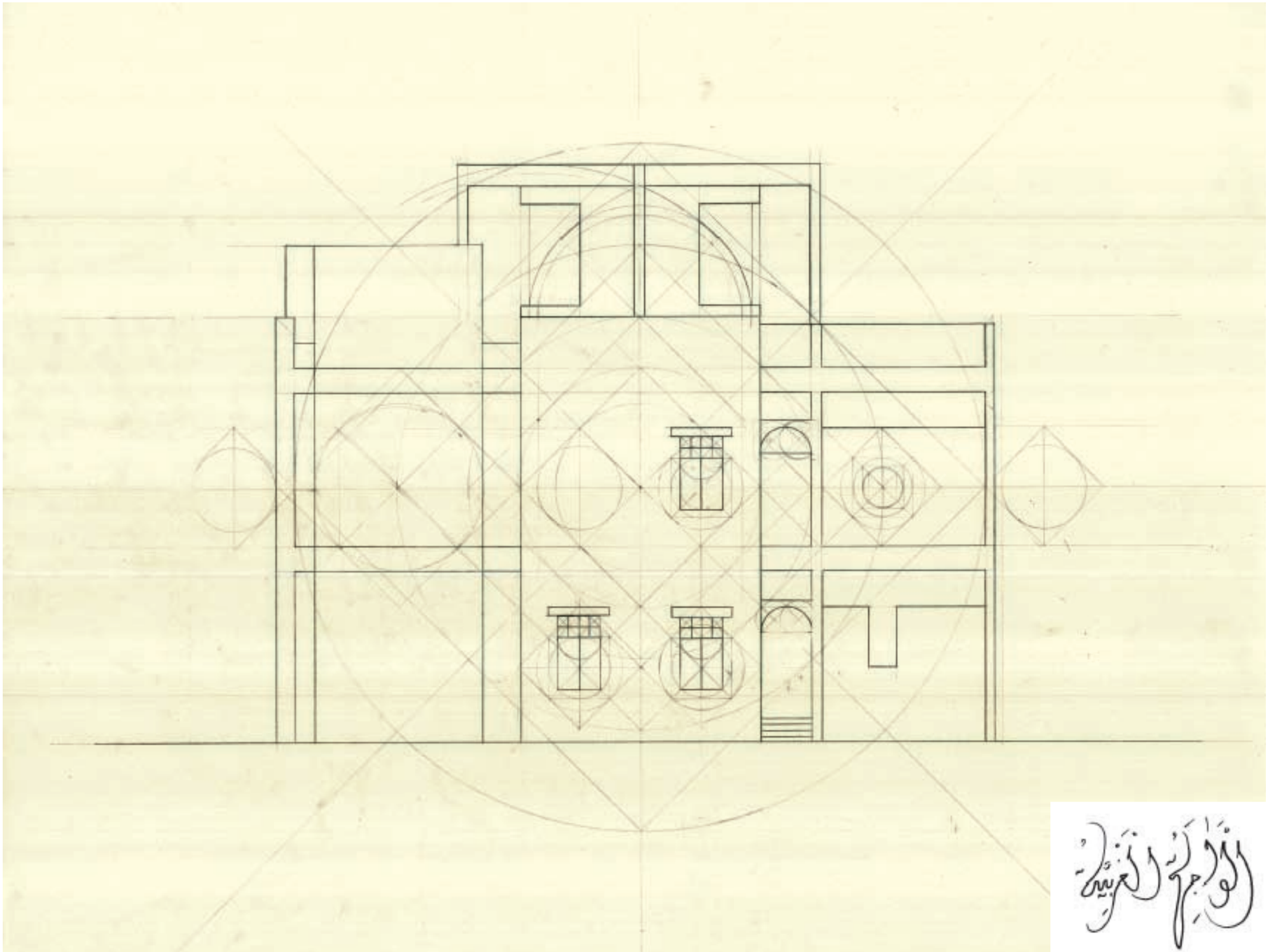
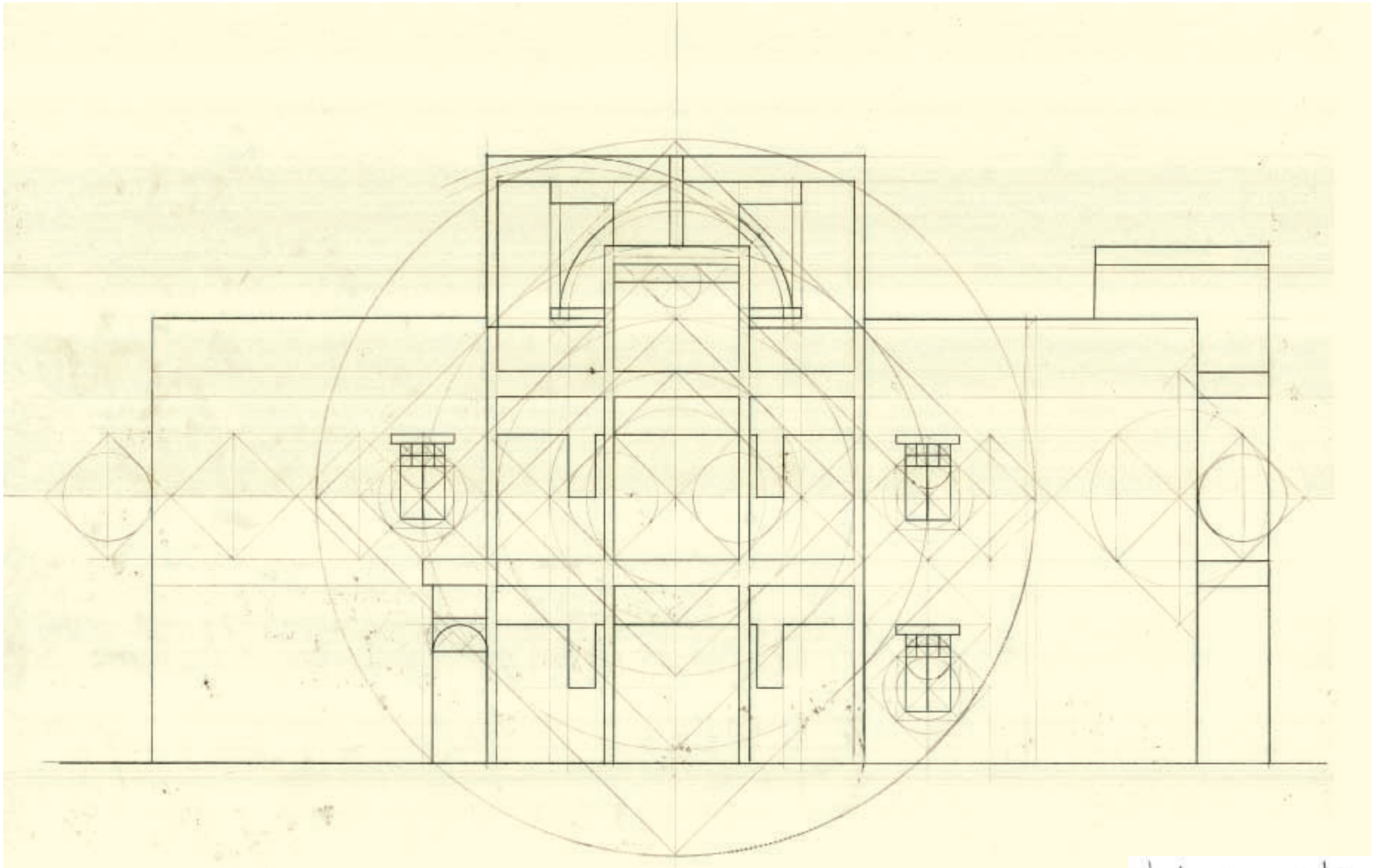




الواجهة الشمالية

The Courtyard

As I said before, the courtyard made all the other rooms in the house. This makes the courtyard the most important part of the house.

The reason that I gave for the courtyard to exist is to be an entry for natural light into the house. It also acts as a wind tower.

I believe that buildings should not be entirely dependent on mechanical systems. When designing a building the designer has to keep in mind that there is always a chance of malfunction in the mechanical systems. Therefore, he has to design the building to be self supported. The building has to be able to breath and light up independent from any mechanical or electrical system.

The Dome

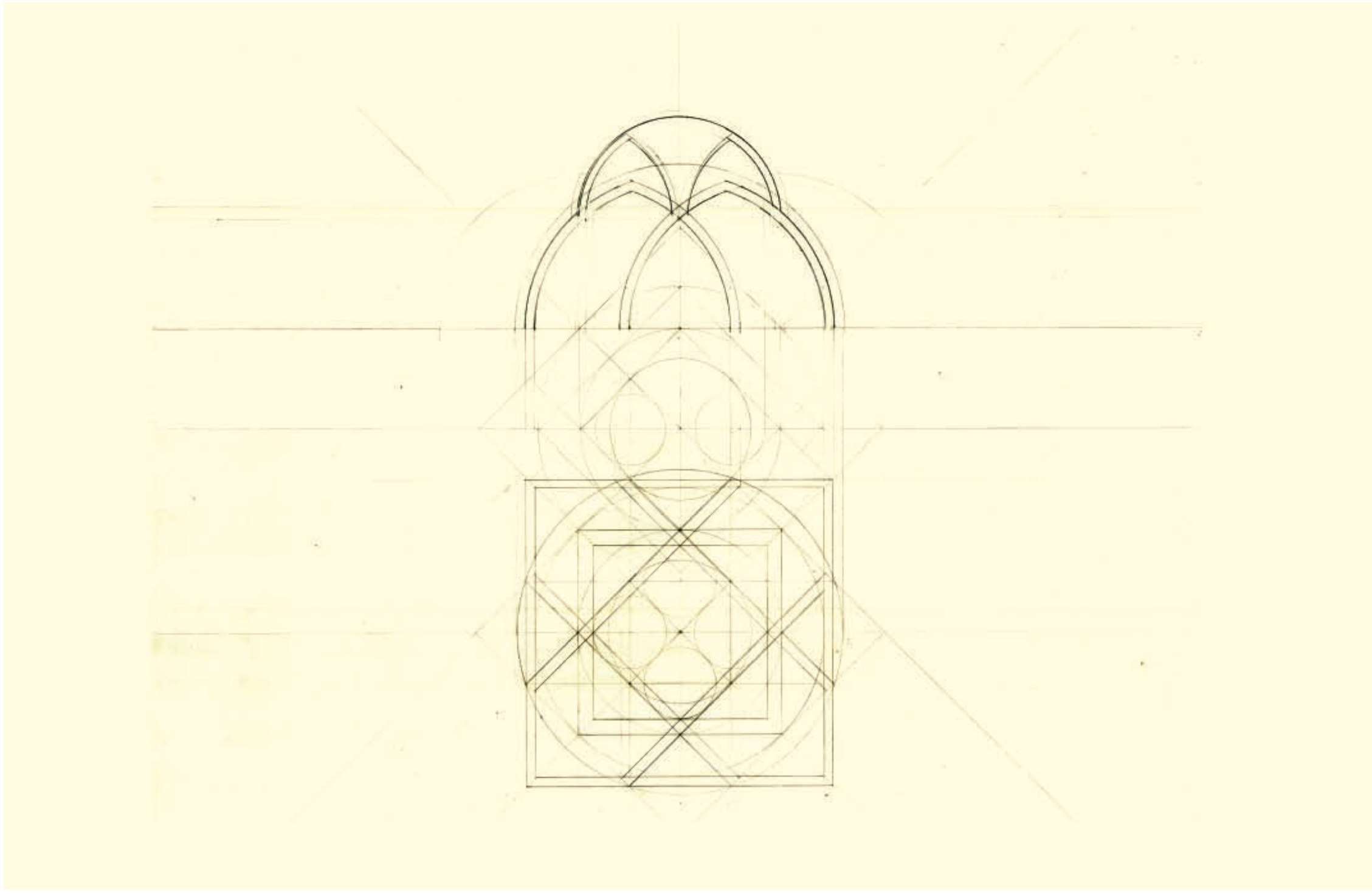
The courtyards in traditional houses are always open to the sky. There was no reason for them to be closed. Today it is very difficult to keep the courtyard open. One reason for that is that the women no longer work only in their homes, so they cannot keep cleaning the dirt that piles up. Another reason is the addition of the air conditioning systems to the buildings, which makes it necessary to be able to tightly close all openings in a building.

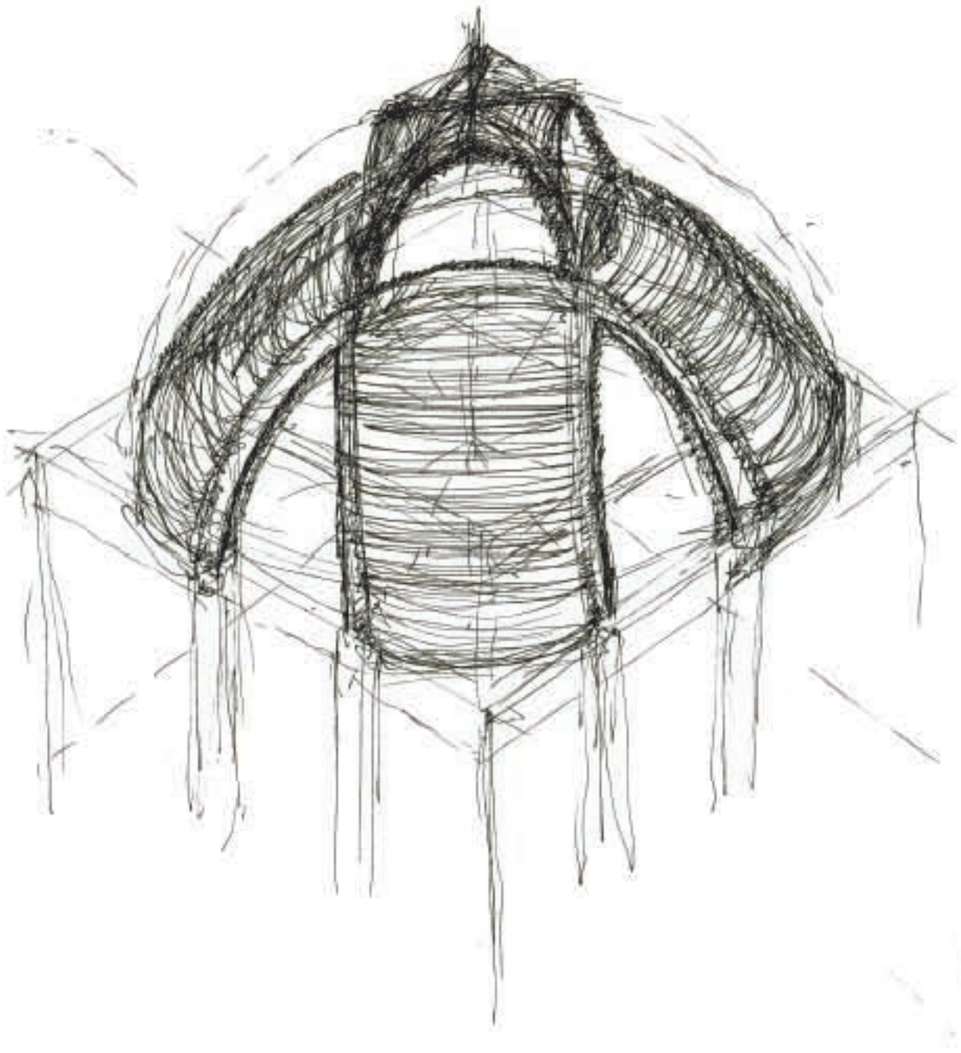
The way that I chose to close up the courtyard is to place a dome on top of it. The dome is an architectural symbol that opens up a closed space to the sky. The spherical shape of the dome symbolizes the sky that surrounds the earth. It also allows light to mystically enter the building.

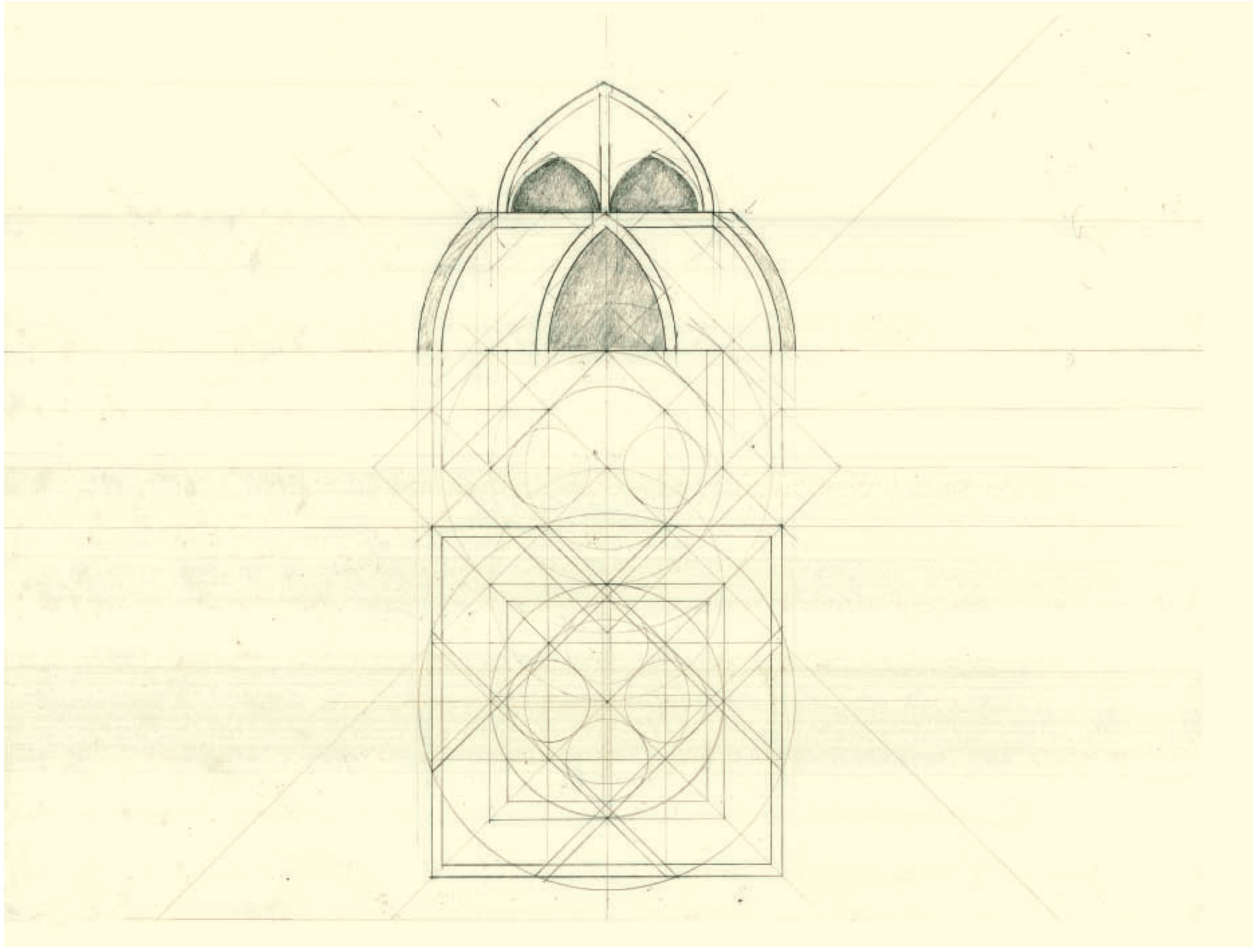
My first scheme for the dome was a half sphere inside a cube. The cube is there as a reference to the traditional wind towers that were used in Bahrain. The cube also gives access for the wind into the house. The sphere hanging from the cube was there only as a symbol.

The first scheme of the dome was not very disciplined because it was not restricted with the right reasons for it to exist. It was a scheme that mostly developed by my desire and not by my reason. Here I had to stop and rethink the dome.

The part that made sense in my first scheme is that the dome was made with rib structure. The rib structure works naturally with the beam structure that I was using in my house. I also find out that the geometry that made the courtyard gave me an octagon. The only thing that I had to do was to follow the lines of the octagon and place the ribs on top of them. I was moving naturally from the square to the octagon and finally to the circle.







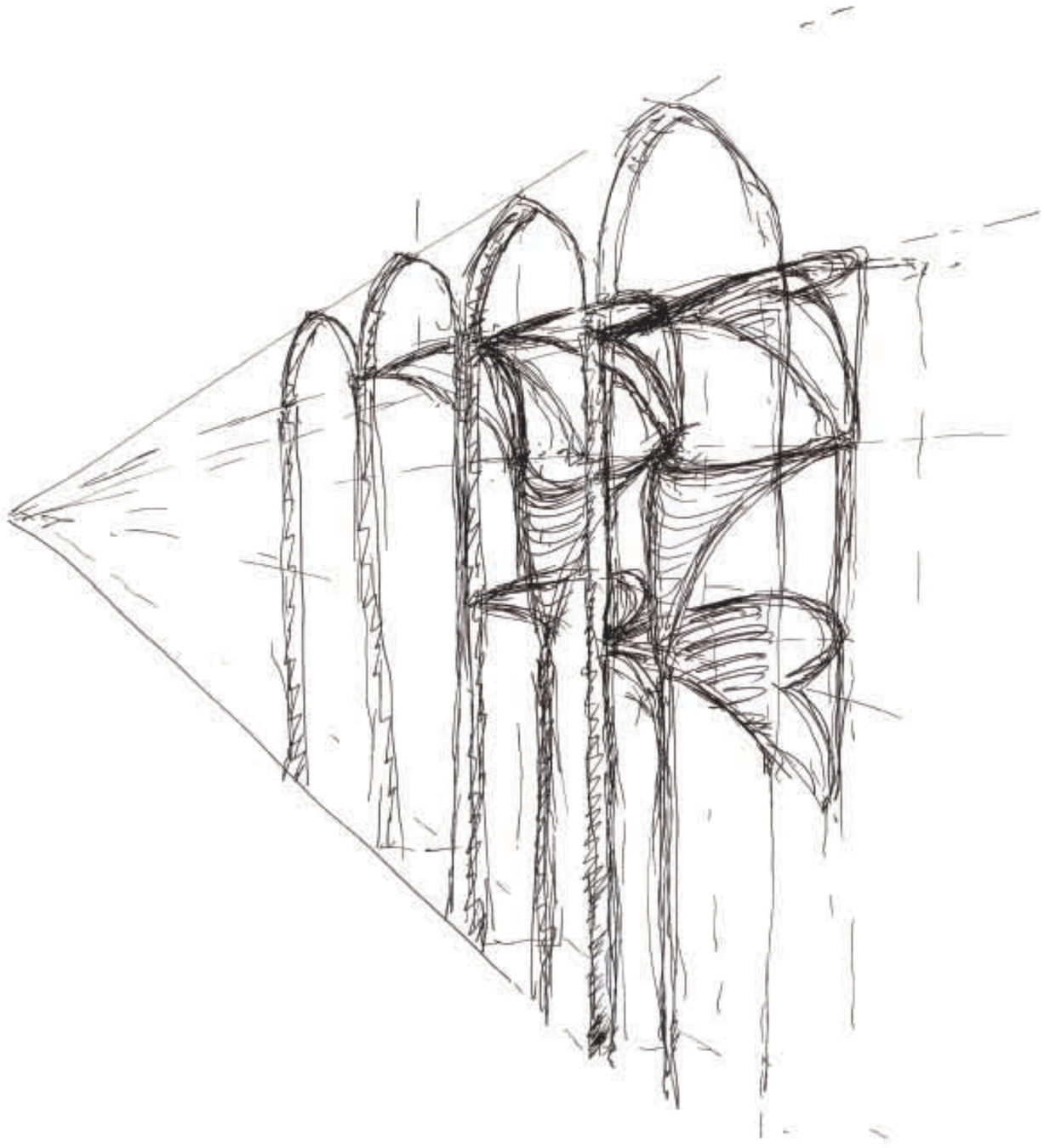
The entrance

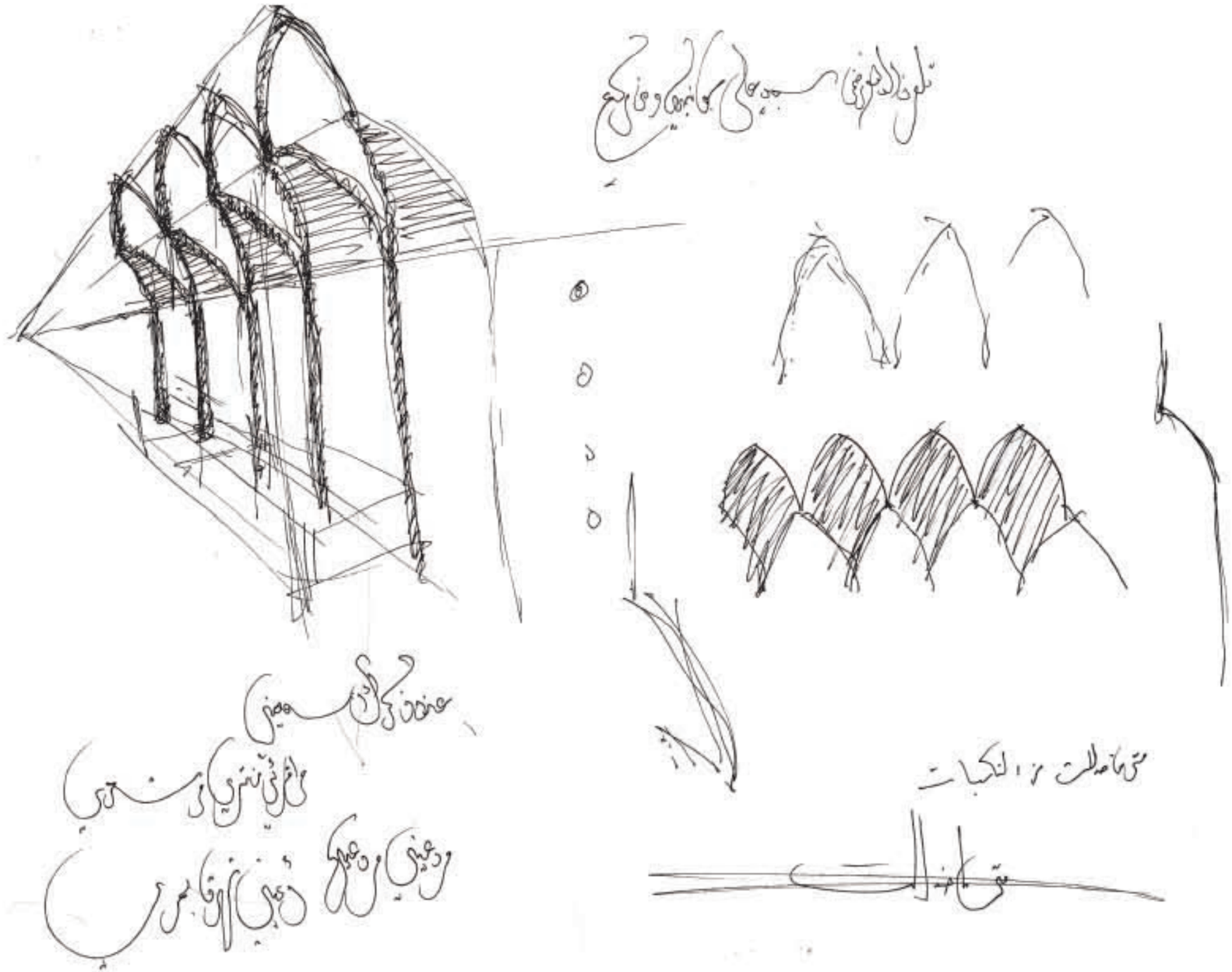
The courtyard in a traditional house in Bahrain was meant to be an indoor oasis. It is part of the entry to the house, where guests usually can get a glimpse of it. People used to plant whatever flowers that were available in the courtyard, they also used mosaics in the shape of flowers and plants for ornamentation.

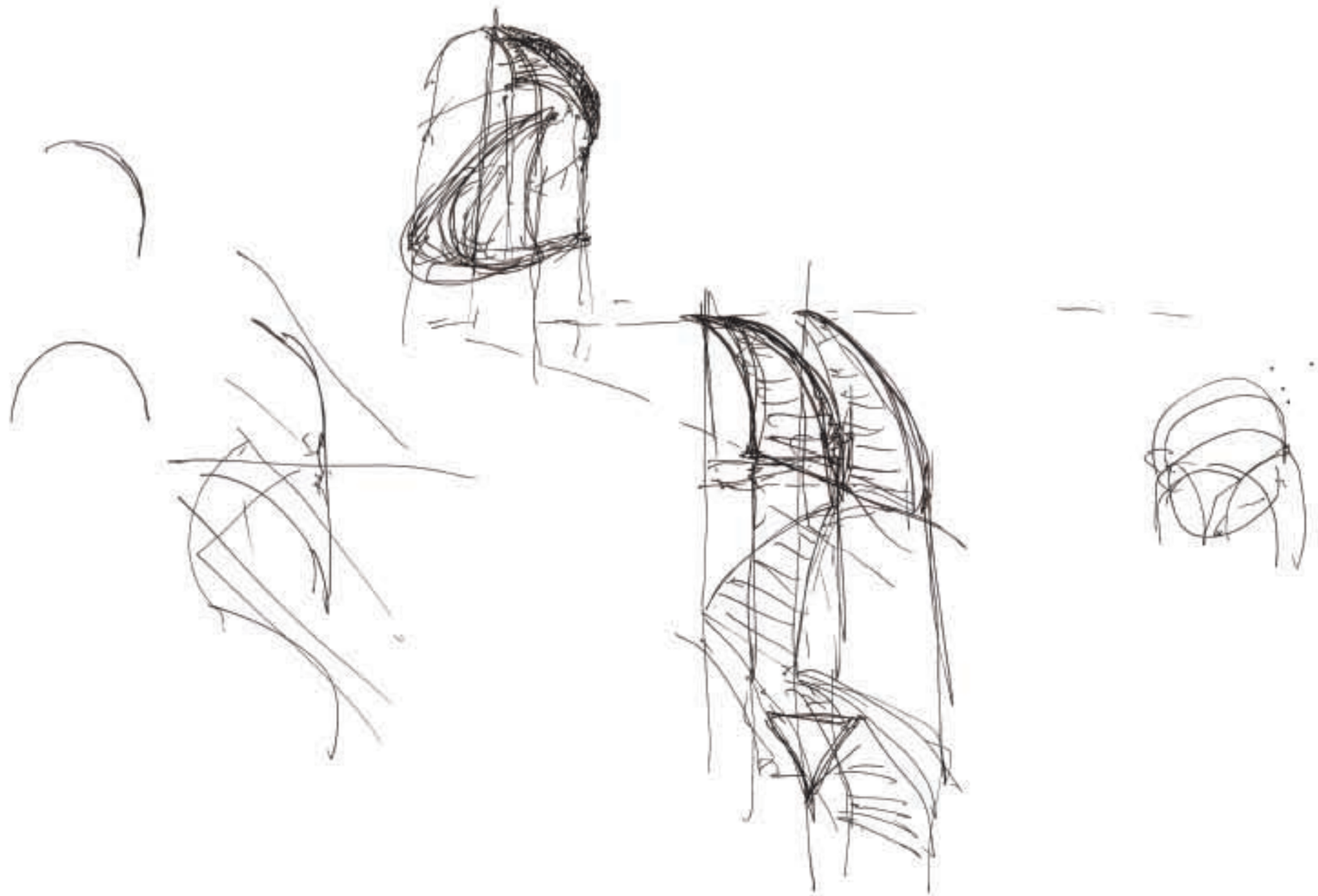
Since the courtyard in my house is closed, it does not make a good place to plant anything. Therefore I decided to separate the garden from the courtyard. I placed the garden at the entry area to be a nice gesture for the people coming into the house. And since flowers are available in a wide range of selection and it is much more feasible to plant them today than before, I decided to plant flowers there instead of using mosaics to ornament the place. This will give me a natural ornamentation at the entrance area.

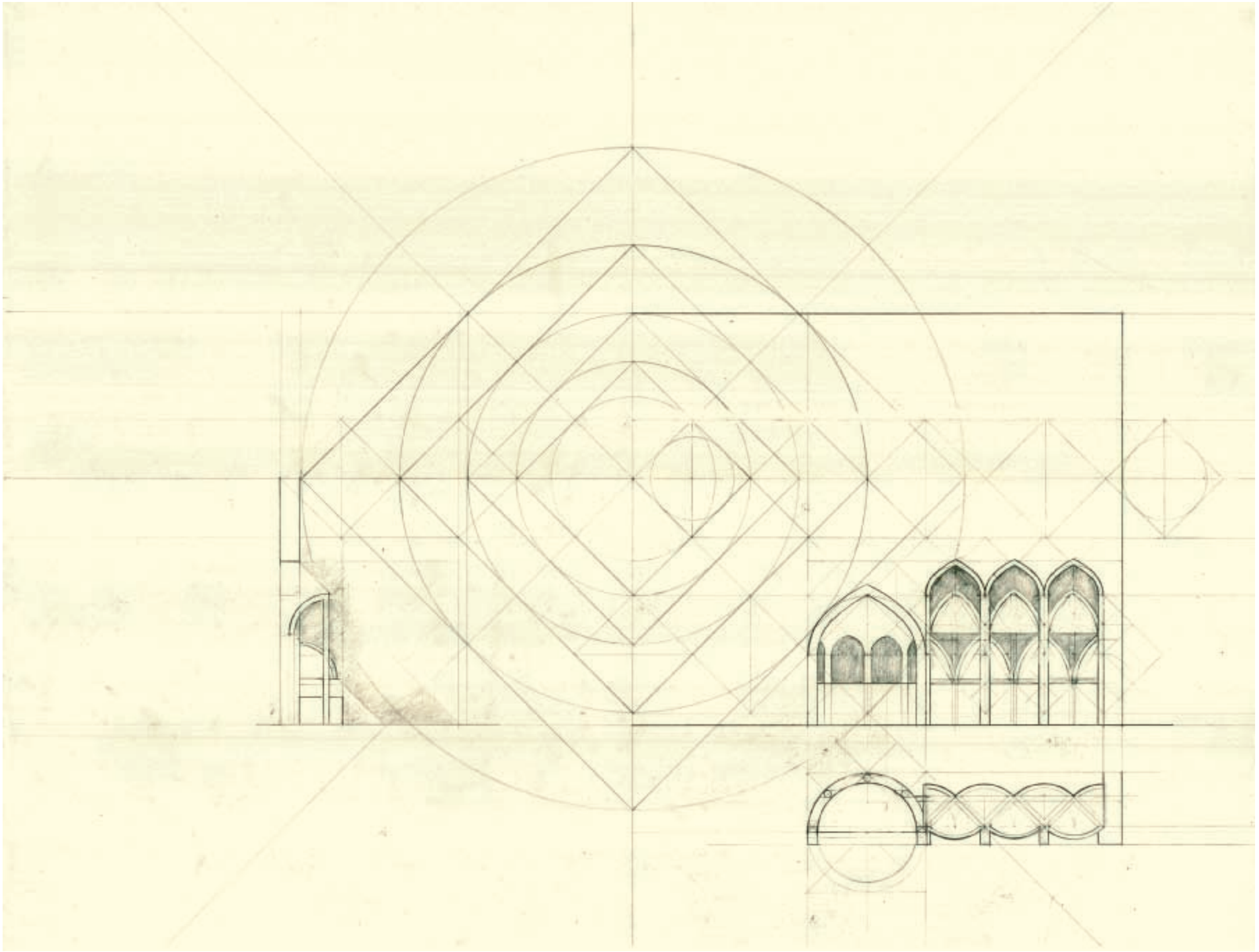
The entrance area will be open to the sky, while still surrounded by walls. I had to make openings through the wall for the sunlight to reach the plants. At first the openings that I made were random punctures through the wall. Some of these punctures were a reflection of the plan on the elevation. I had to revise these openings and make them more corresponding with the other parts of the house.

I decided to use the rib and vault structure, which I used in the dome as well, to make the openings at the entry area.









Rooms

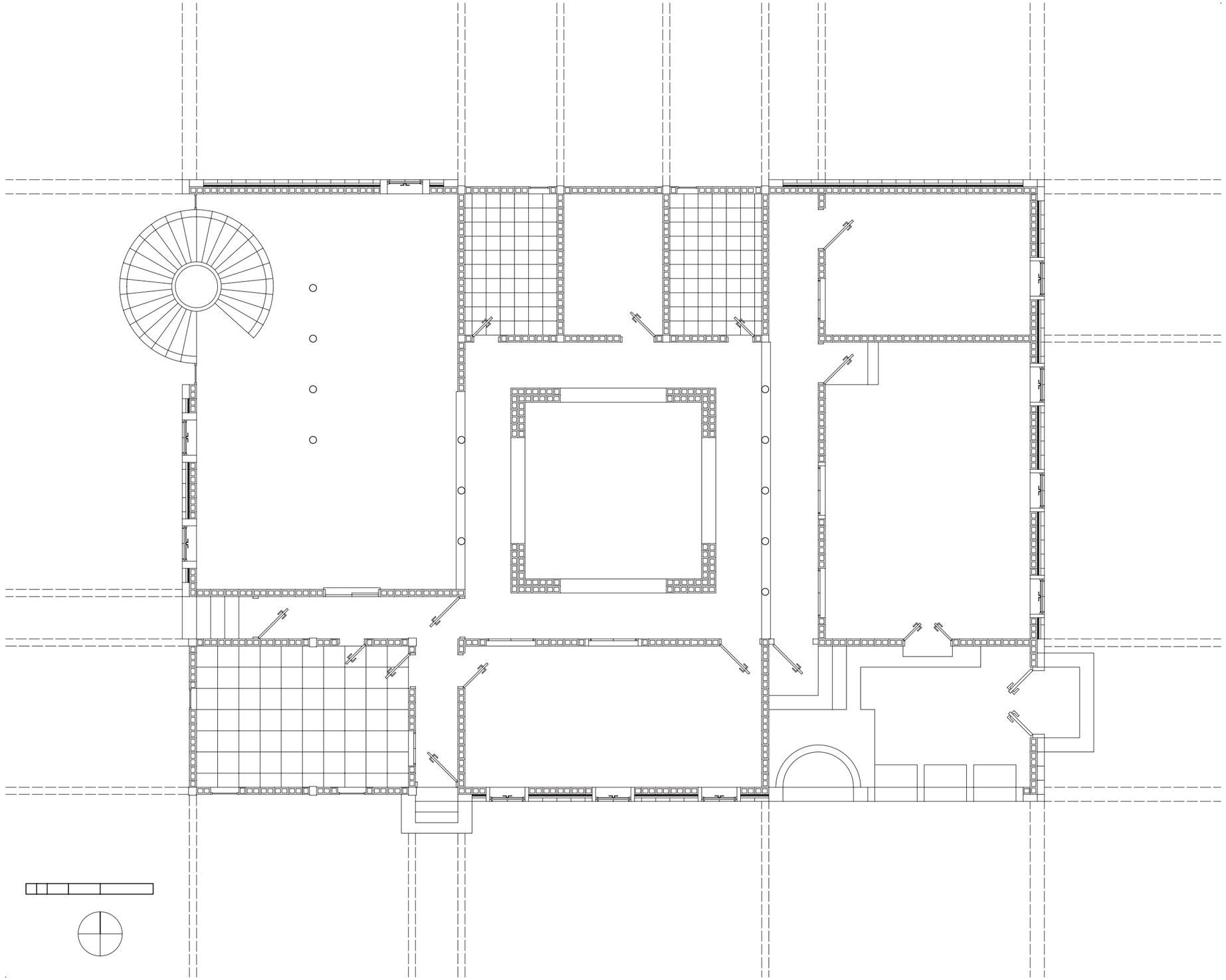
There has to be a room where guests can enter without disturbing the privacy of the house. The east side room satisfies that need, where it has an independent door for guests.

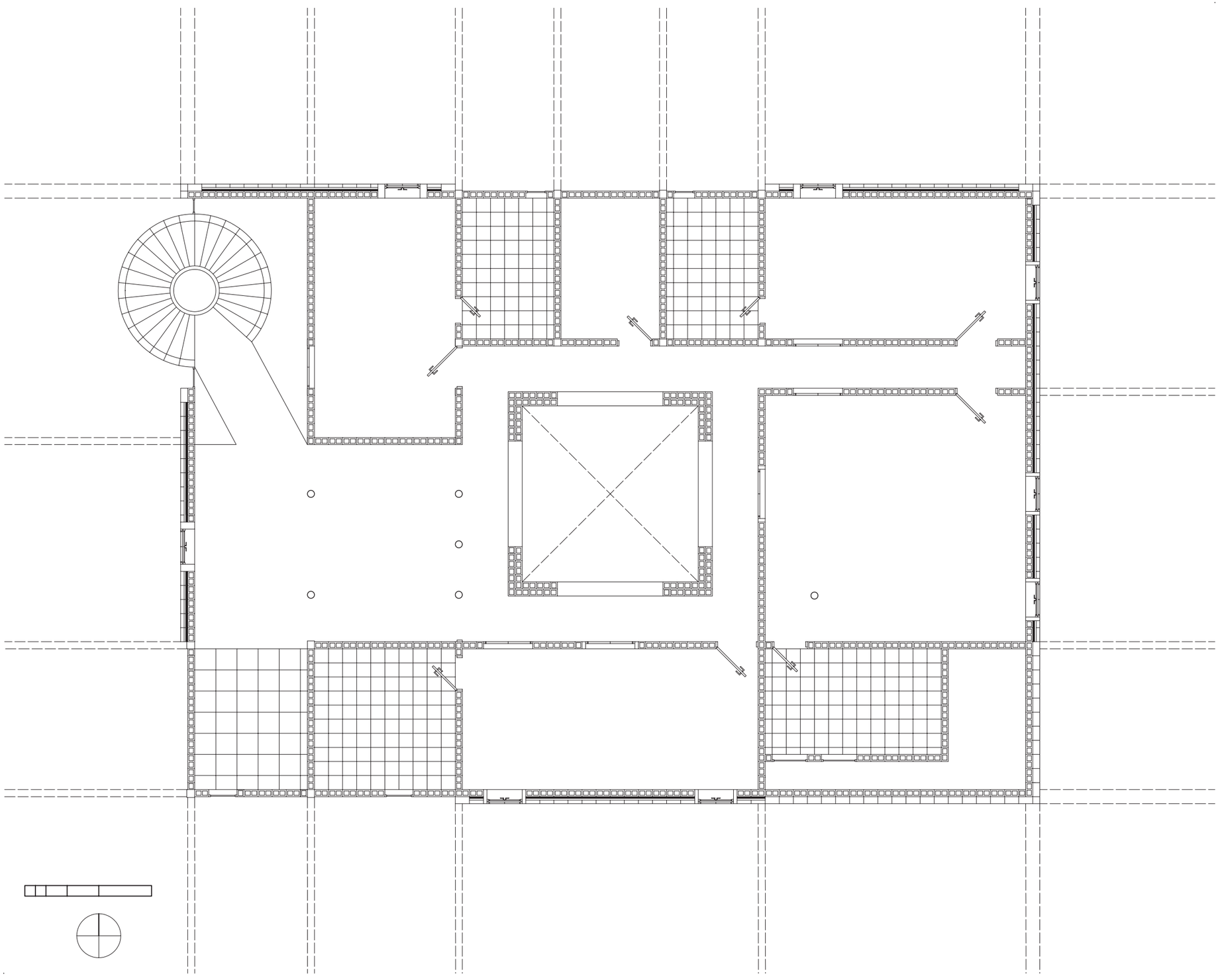
The idea of the modern kitchen was imported to Bahrain from western countries. The kitchen was not modified to fit the cultural needs of Bahrain. Because of that most contemporary houses have two kitchens today, an outdoor kitchen for cooking and an indoor kitchen for serving. In my house I designed a kitchen that is suitable for both, cooking and serving. The corridor around the kitchen can act as a ventilation tunnel that stops the smell of cooking from entering the house, while still being accessible for serving.

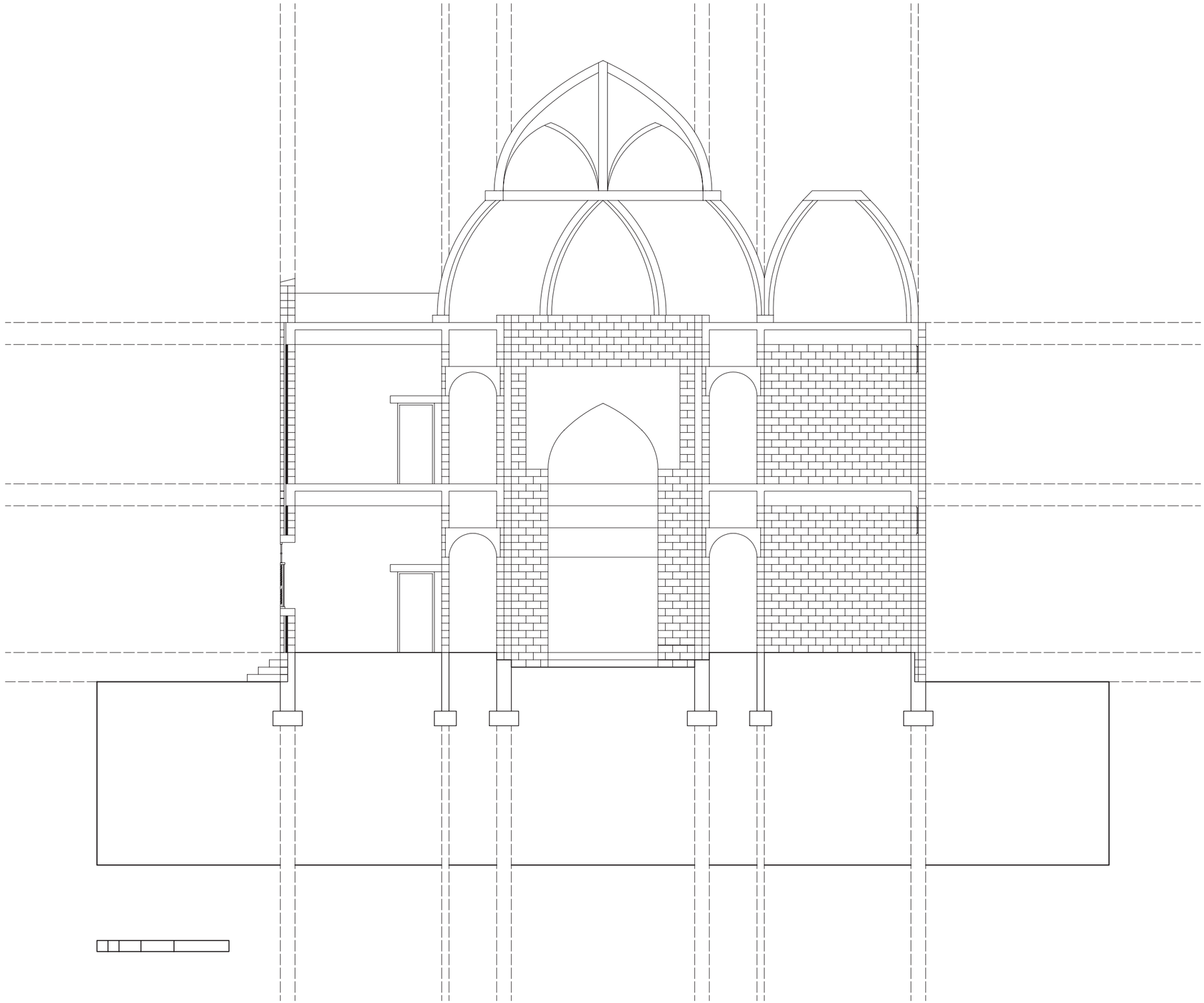
In my design I have two rooms next to the kitchen for the ease of serving food into them. These rooms are the west facing room and south facing room.

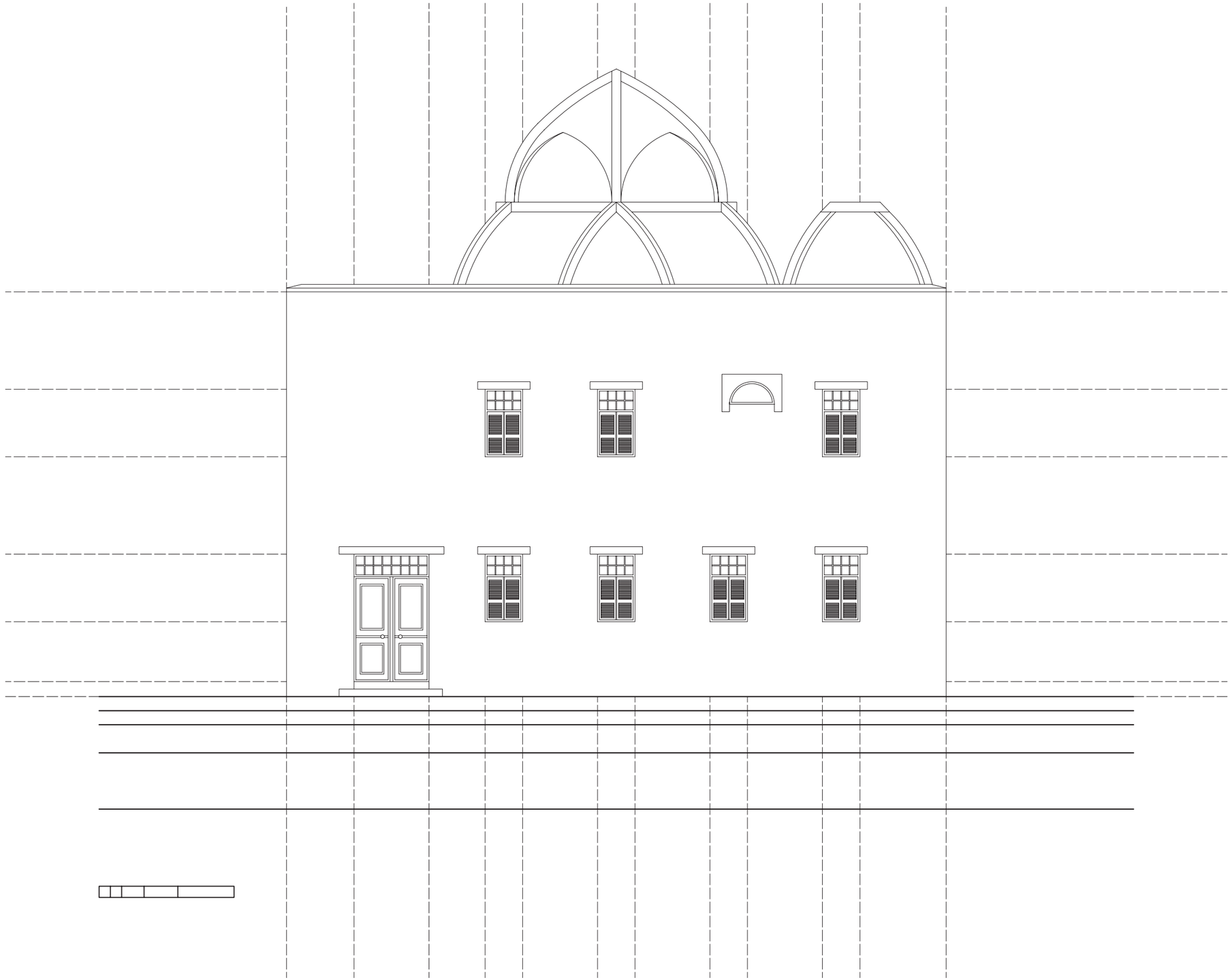
The west side room is different than most of the other rooms because it is not entirely closed within walls. It is also a space that is divided into smaller spaces by columns and not by walls. The round columns in the room are indicators that you are free to move around that space freely without the restriction of its borders. The columns are also there for structural purposes. The walls that I used in the house are borders for the private spaces in the room.

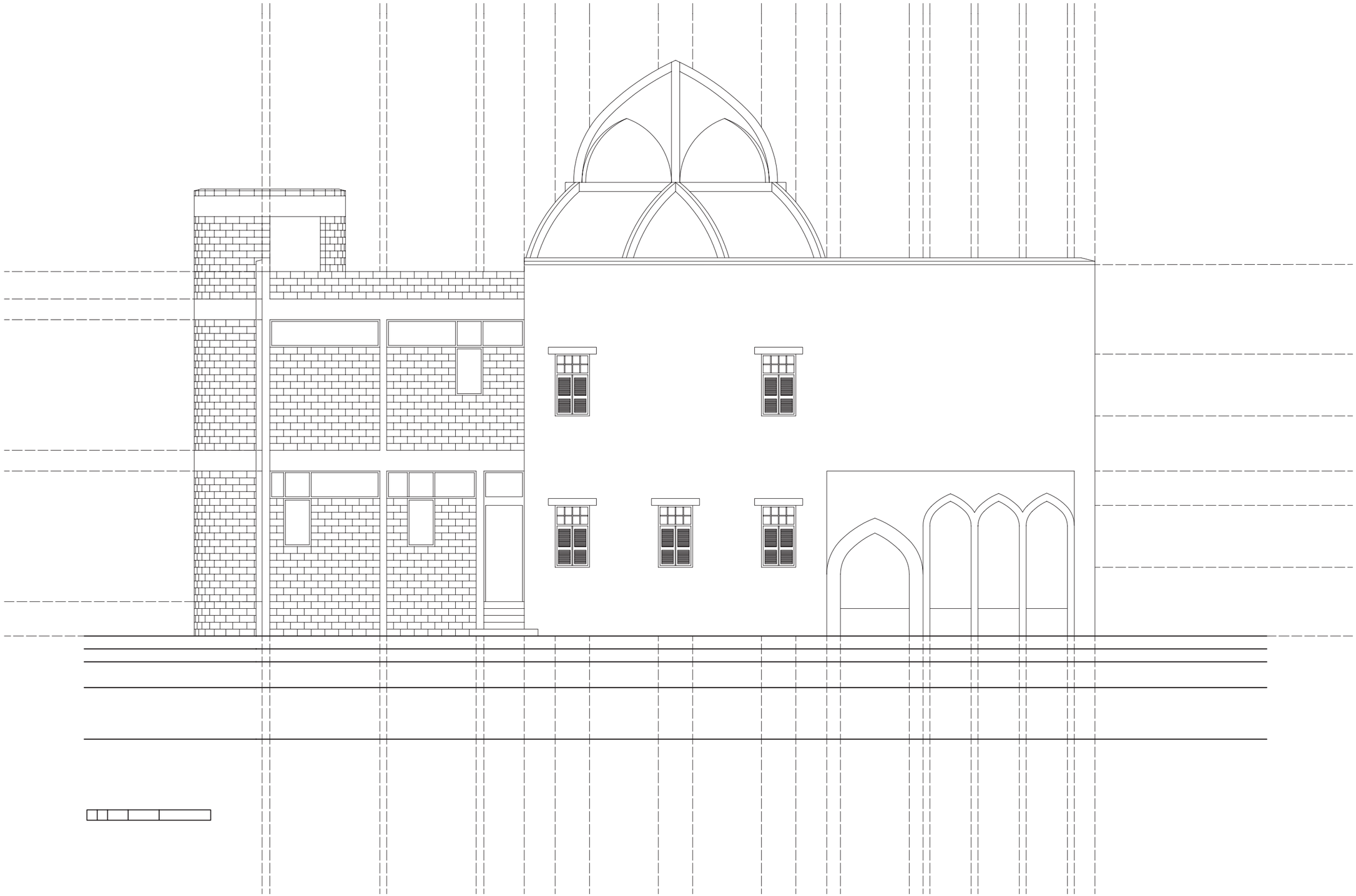
The rooms will have high ceilings because higher ceilings work better in the humid climate of Bahrain.

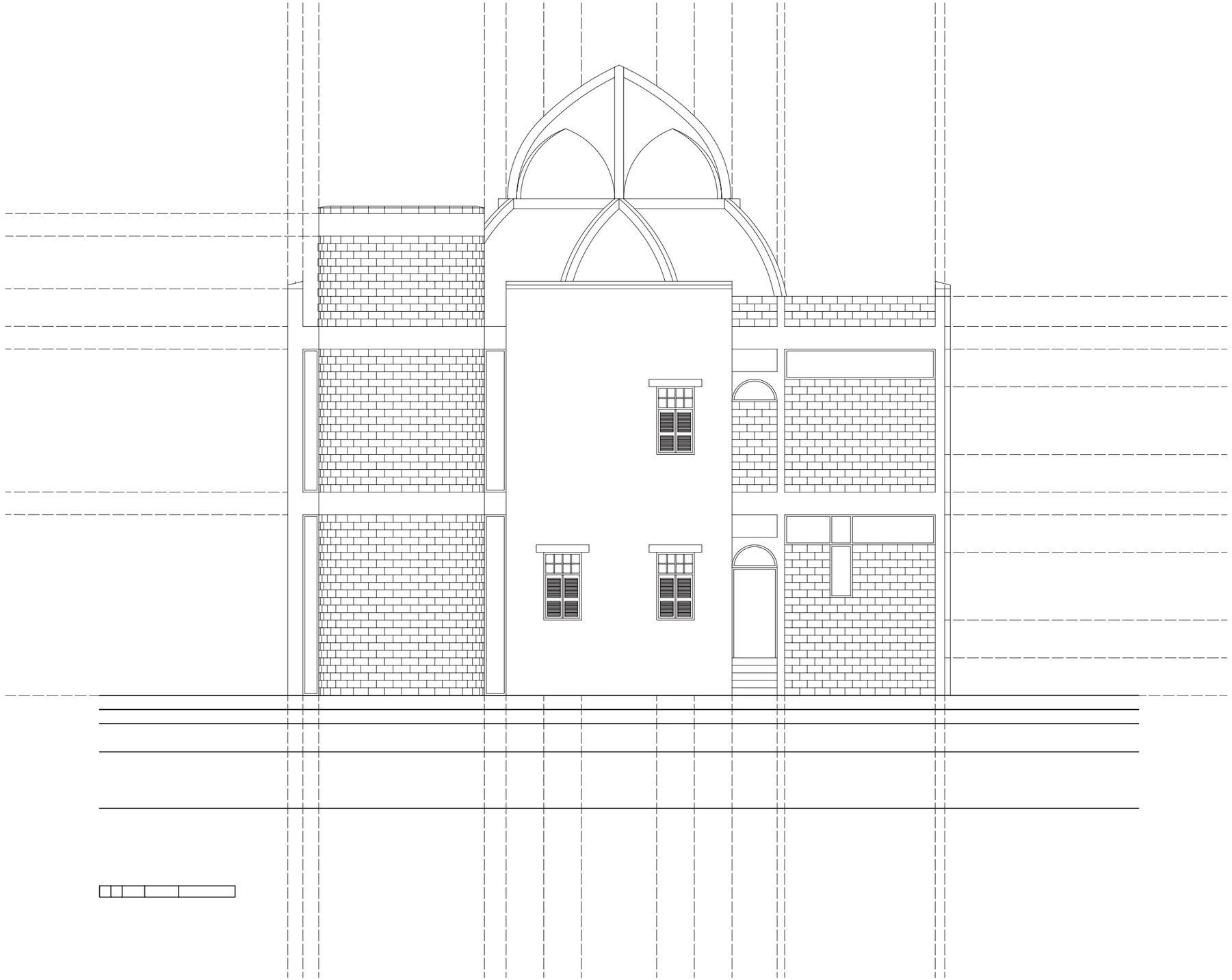


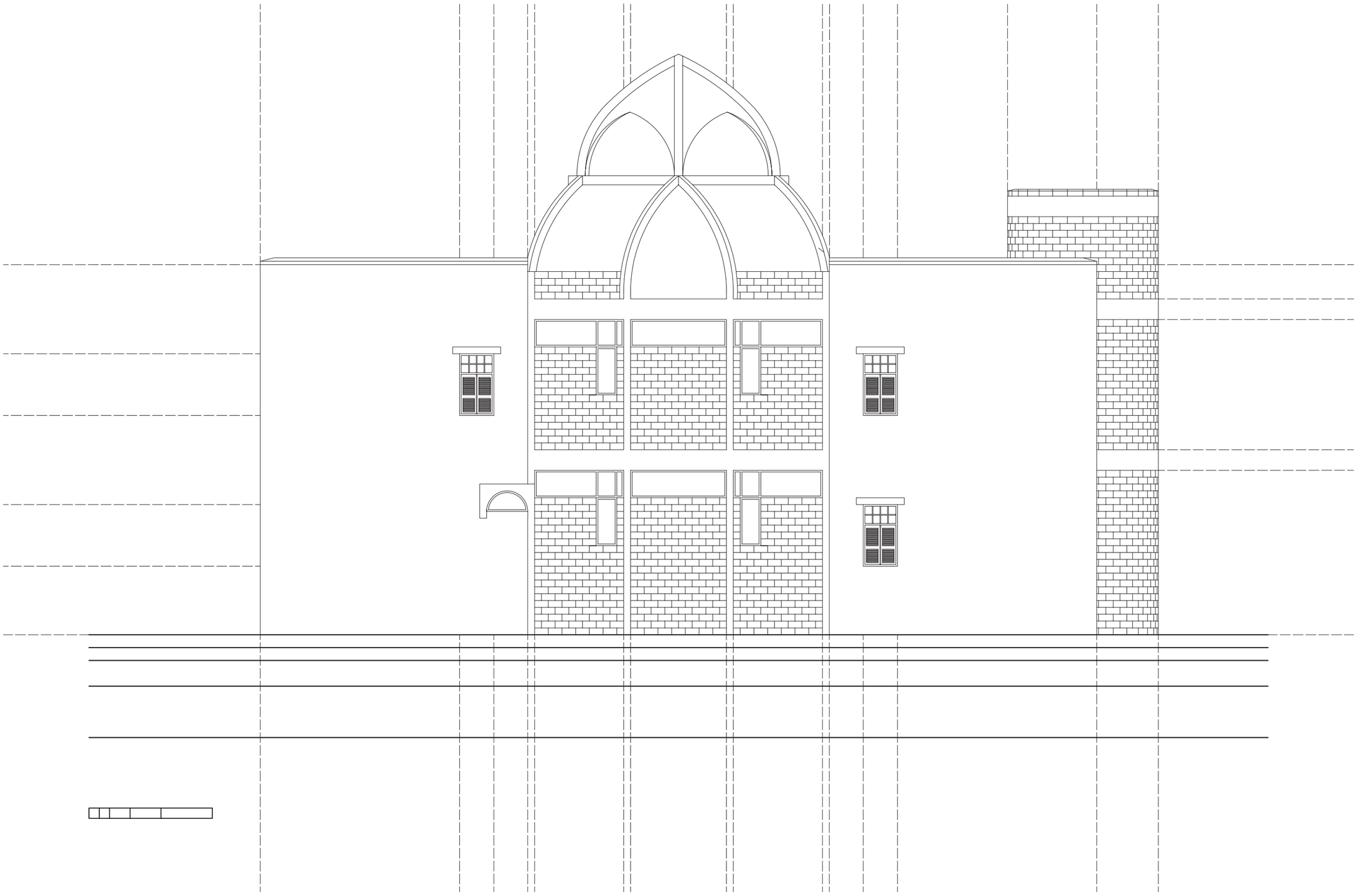








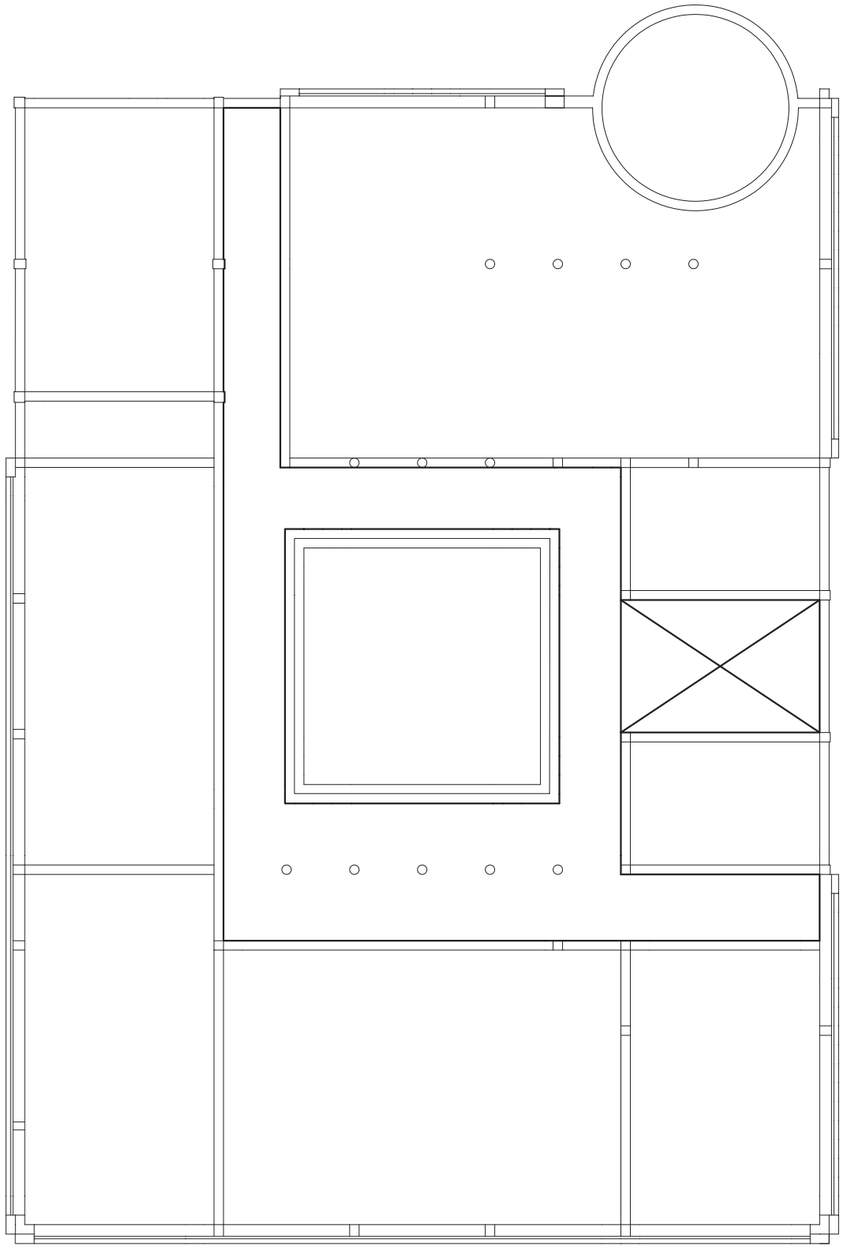


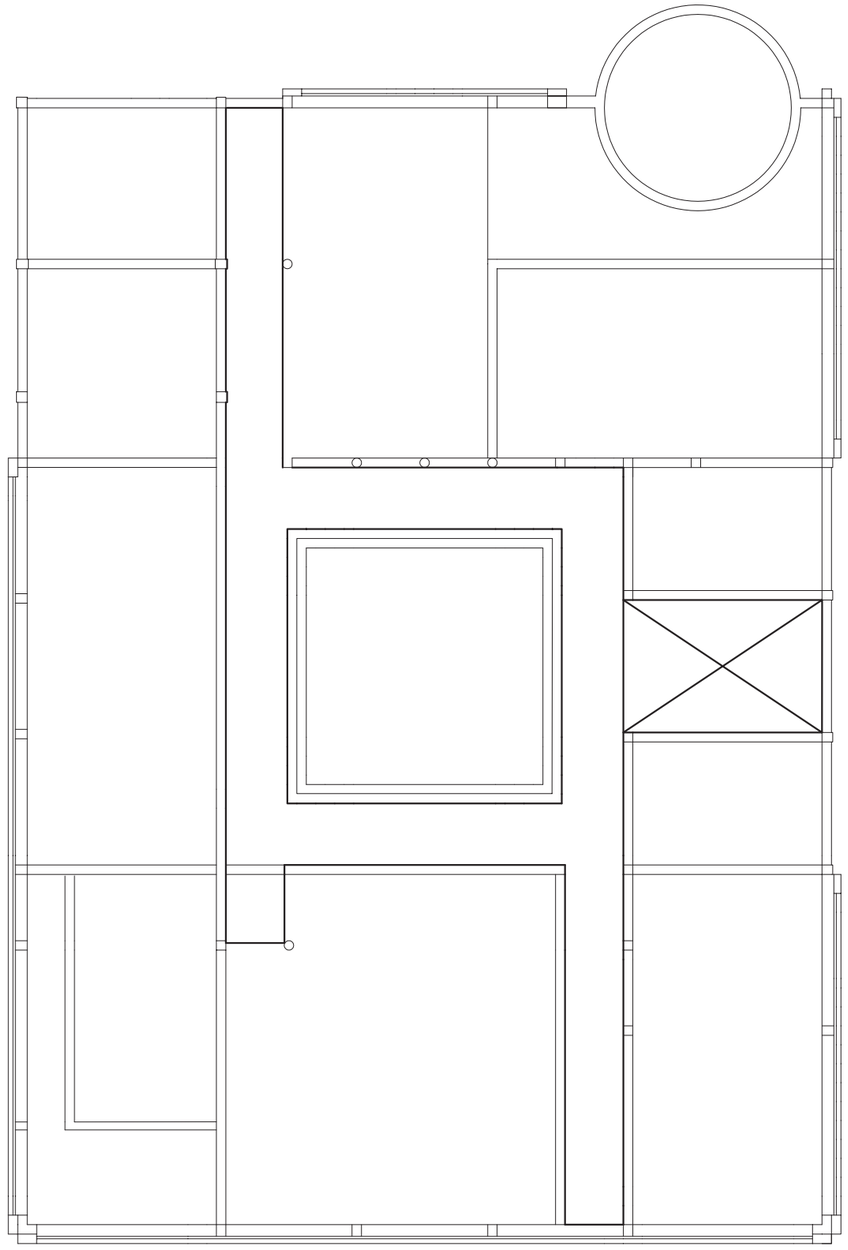


Services

The mechanical systems used in the contemporary buildings requires them to have spaces that are strictly defined for those systems. Theses service rooms have functional properties that distinguish them from all other rooms.

Most of the HVAC ducts in my house will be placed on top of the corridor that surrounds the courtyard, and then it will feed into the rooms. The ducts will lower down the ceiling so that the corridors will have lower ceilings than the rooms.





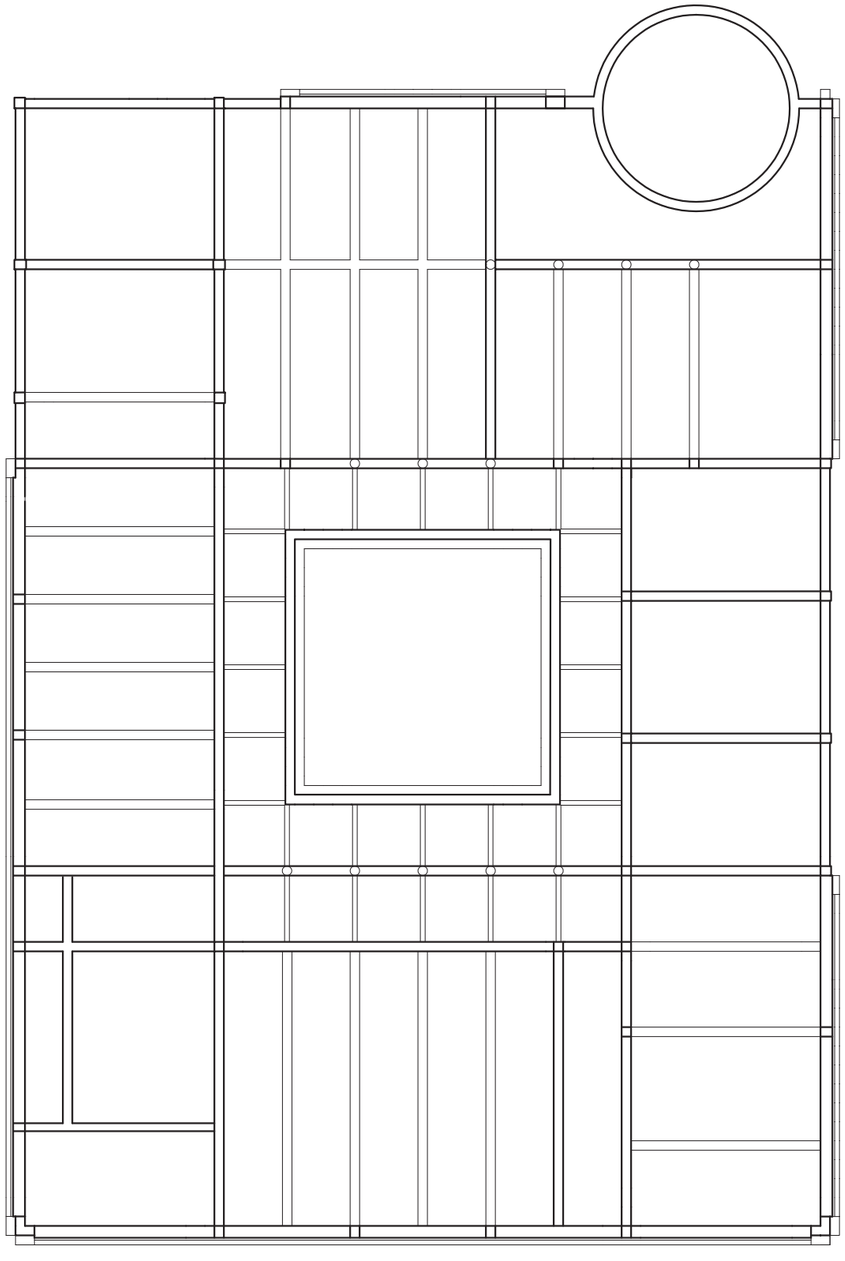
Materials

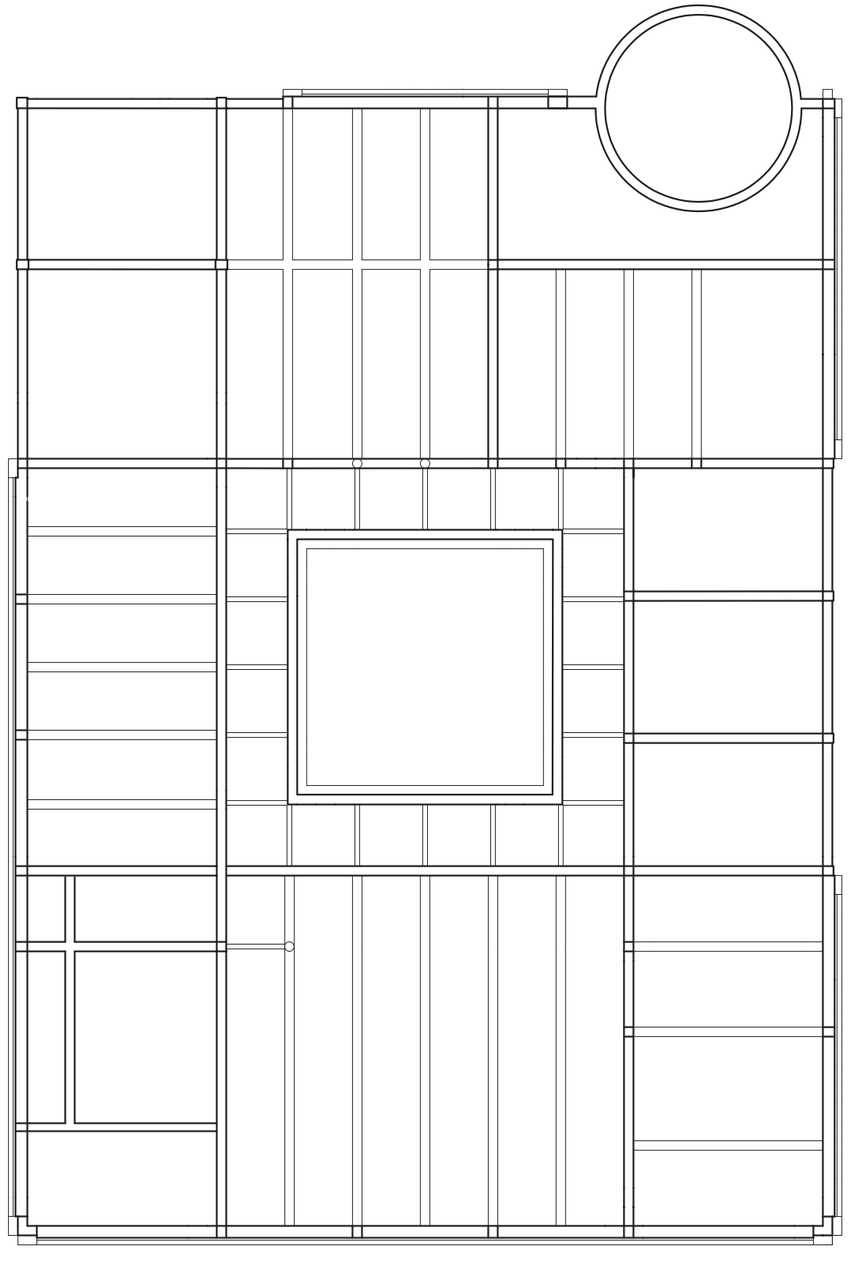
I am going to use blocks that are made with limestone aggregate. Then, I am going to plaster the blocks with the same limestone plaster that was used traditionally. The floors and the beams will be made out of poured in place concrete.

For the service areas I will use concrete blocks, because it is more durable than limestone, and the activities that are held in the service rooms usually need the extra strength in the material. The service rooms will not need insulation because of the drastic changes of temperature that it will go through when used. The lighting required in the service rooms is also different because the activities that are held there usually requires more lighting, and this is why I have large windows for light on top of the walls.

Structure

Concrete beams and columns make the main structure of the house. Some of the columns are exposed and others are inside the walls.
The exposed beams that I used in the rooms are to reference back the exposed wooden beams that were used in the traditional buildings.
The beams will have different thickness depending on the load that it is carrying.





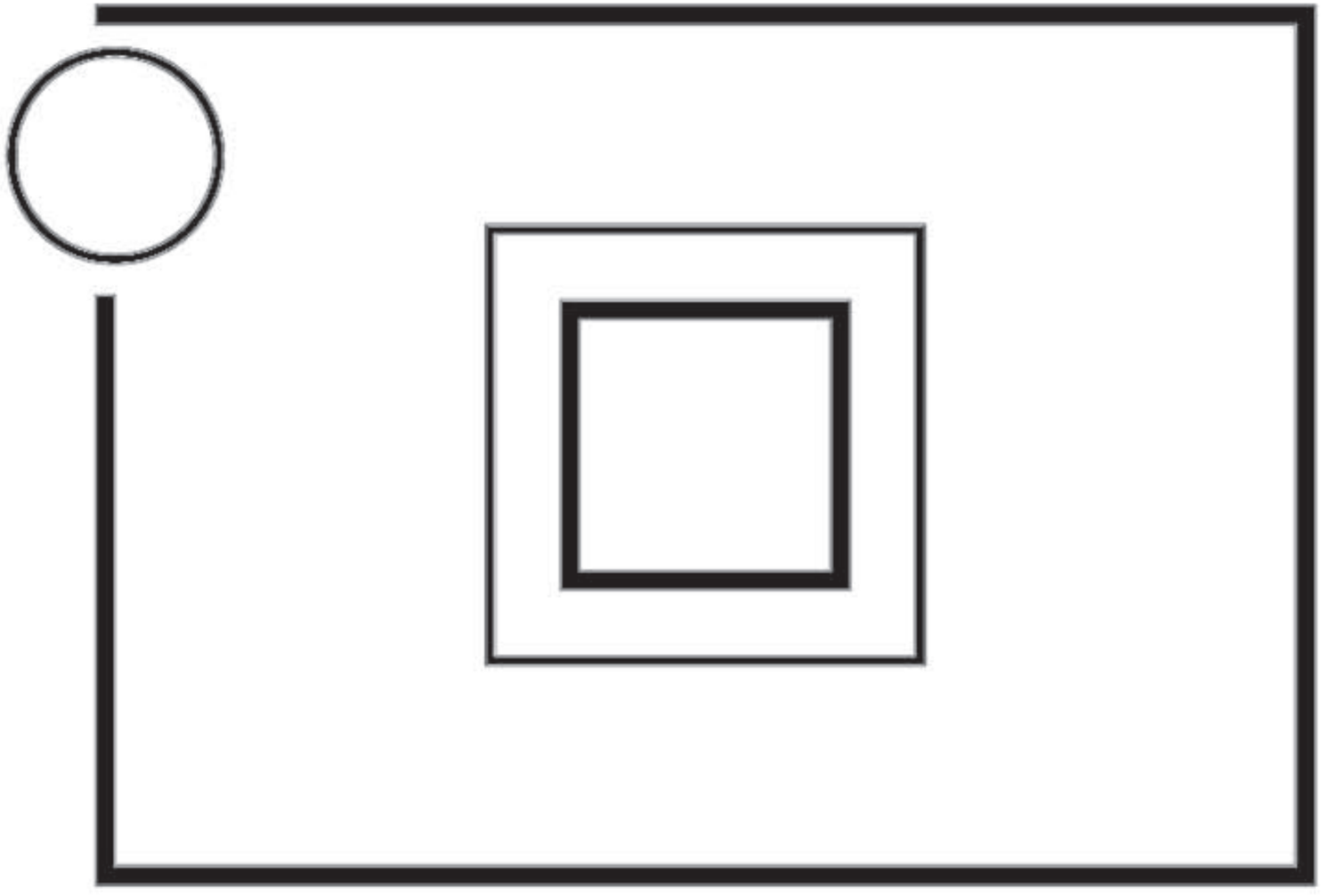
Windows

The windows that I used on the exterior of the house are the exact same windows that were used traditionally in Bahrain. These windows do a much better job than most of the contemporary windows used today. They are used for lighting, ventilation, and for view in a way that enables the user to use each part independently.

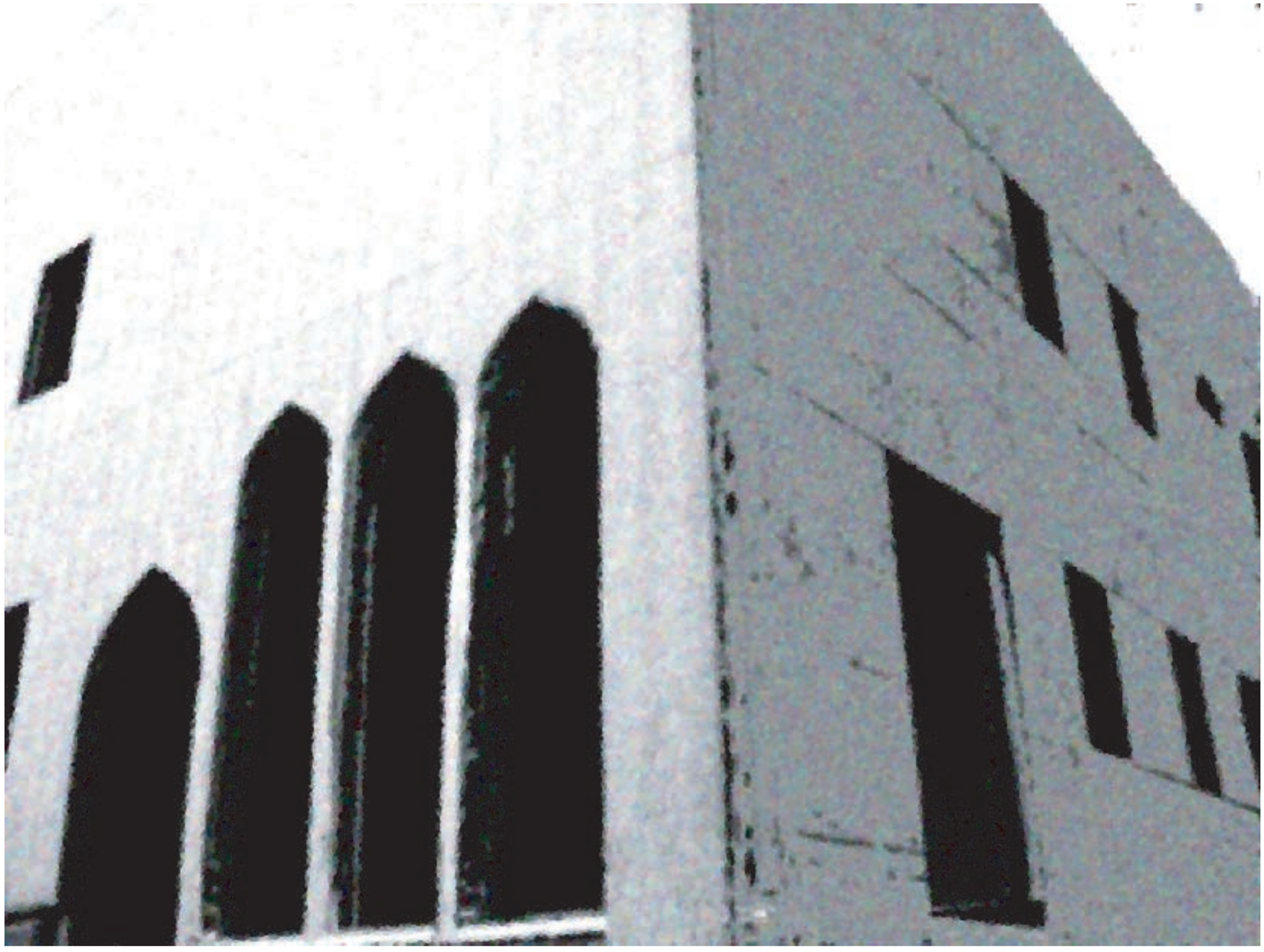
I will also have windows in the interior walls of the rooms to allow them to cross ventilate.

Staircase

I decided to break the rule of the border limitation for the staircase, because the border limitations are intended for the horizontal movement in the house and not the vertical movement.



My investigation on the subject of housing in Bahrain is that of an ideal. My work is a study of the process of designing a modern house in Bahrain that respects the land's tradition, culture, and values. I believe that if architects in Bahrain can follow the steps and the ideals that I took in design, Bahrain's architecture will be in a much better shape than it is right now.



Bibliography

"Bahrain". Wikipedia. 18 Sept. 2006 <http://en.wikipedia.org/wiki/Bahrain>.

Critchlow, Keith. Islamic Patterns: An Analytical and Cosmological Approach. Rochester, Vermont: Inner Traditions, 1999.

Mid East Maps-Bahrain. Mid East Web <http://www.mideastweb.org/bahrain.htm>

Prochazka, Amjad Bohumil. Introduction to Islamic Architecture. Zurich, Switzerland: MARP, 1986.

Prochazka, Amjad Bohumil. Islamic Arches. Zurich, Switzerland: MARP, 1994.

Yusufali, The Qur'an in English Translation. SIME, 18 Sept. 2006 <http://majalla.org/books/quran/49.htm>.