School elementary

Kaknics Péter, Tábori Regina

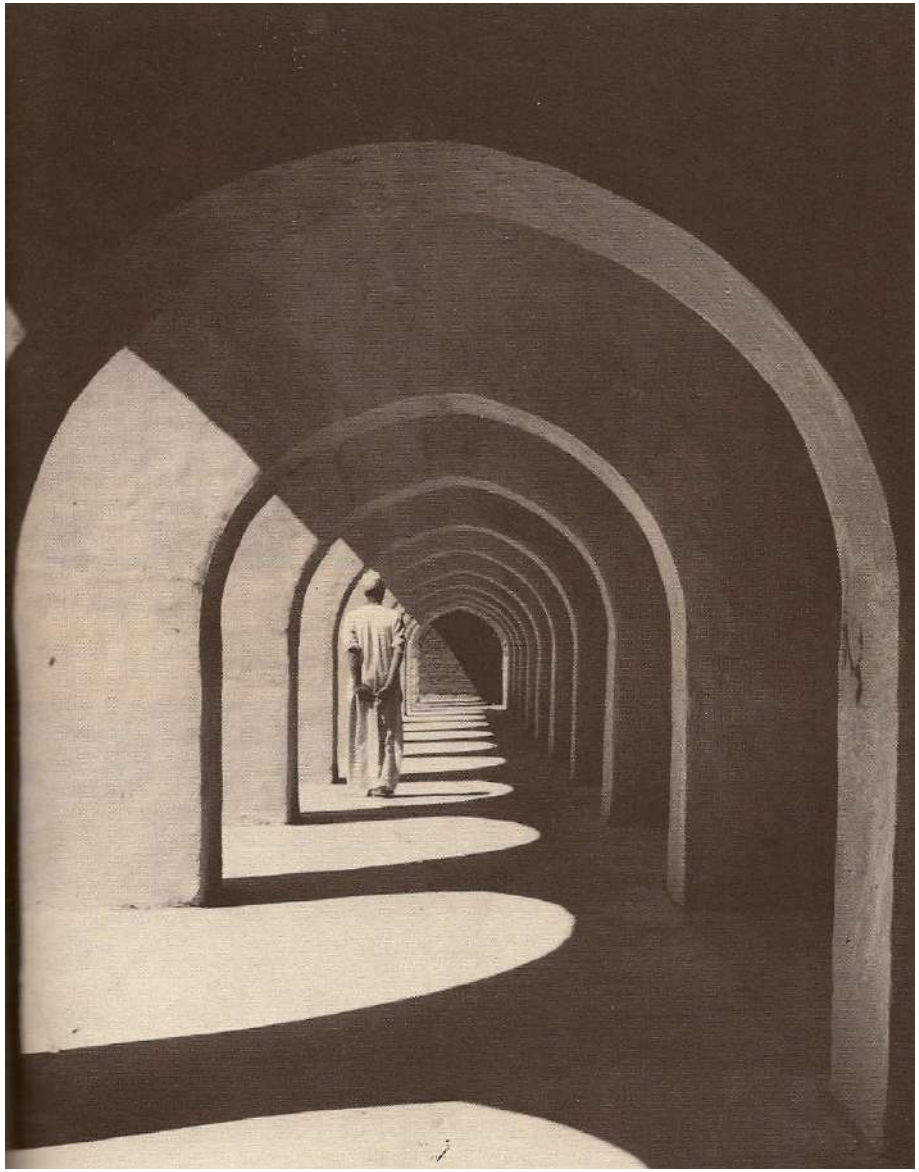
TDK_2018

Identity and culture 6

EGYPT – School for New Gourna

Ipari és Mezőgazdasági Épülettervezési Tanszék

Contents



Abstract

Drawing up the plan of the school in New Gourna faces double scale to consider: intellectual characteristics of the built environment and climatic conditions of the continent.

Increasing population is a major challange for the developing countries in public education. Due to the sudden growth of population in Egypt construction of new schools has consequently increased, copying though the European standards and regulations, but eventually not providing the proper solution under local climatic conditions. Vigorous solar radiation, drought and enormous volume of dust set criteria not applied in European architecture. Along the bioclimatic technology research launched in the middle of the 20th century more and more attention has been paid to the climatic related problem of construction in Africa, significant examples of which are the works of Hungarian origin brothers Olgyay or the African oeuvre of Francis Kéré. Similarly, primary aim of the school project in New Gourna is to provide suitable physical environment for education in a way that meets the specific climatic conditions in Egypt.

At the same time, New Gourna possesses significant intellectual substance by its mere existance which adds a unique background to the new school. Although appearance of the quarter has heavily

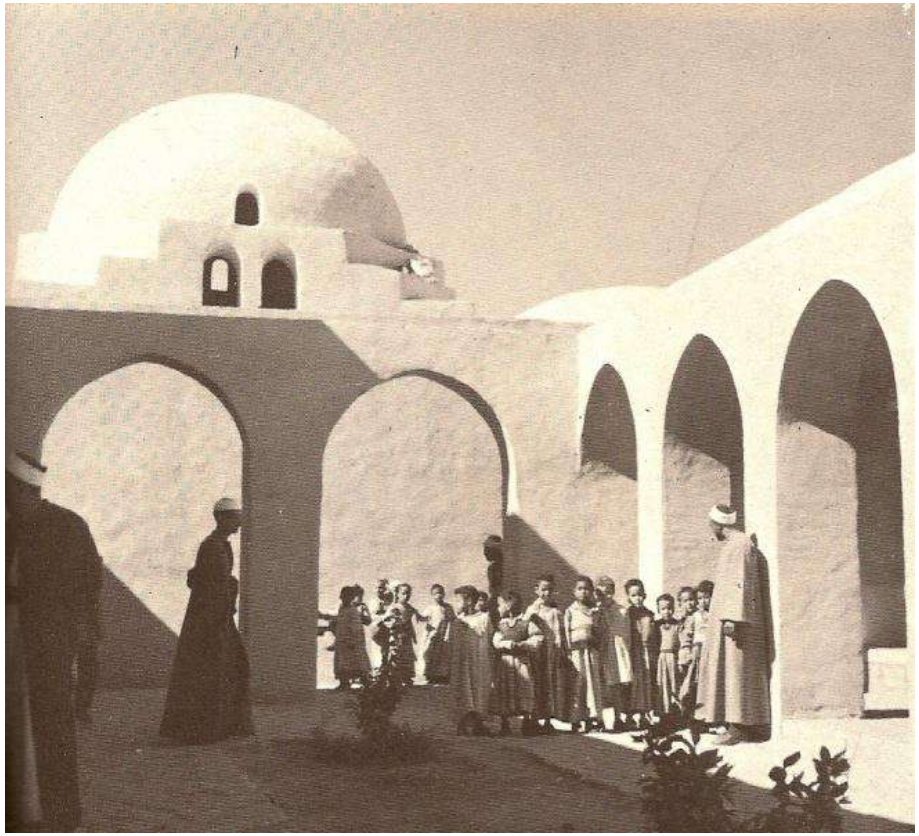
been altered by buildings made of reinforced concrete and bricks, the area is still being characterised by the architecture of Hassan Fathy. Drawing up a project in a corner not realized within the New Gourna masterplan in the vicinity of the Fathy cultural heritage is a challanging task for us. Presence of the emblematic buildings of the khan, the theatre and the mosque considerably determines the toolbar of the creative staff when planning a similarly convenient and quality building for the region. On the other hand, approach of the architect perceiving the virtues of vernacularity reflected in architecture made by the poor for the poor may as well be kept as a guideline to carry on with.

The solution is obviously a clear and compact formula which is meant to make the school elementary.

Introduction

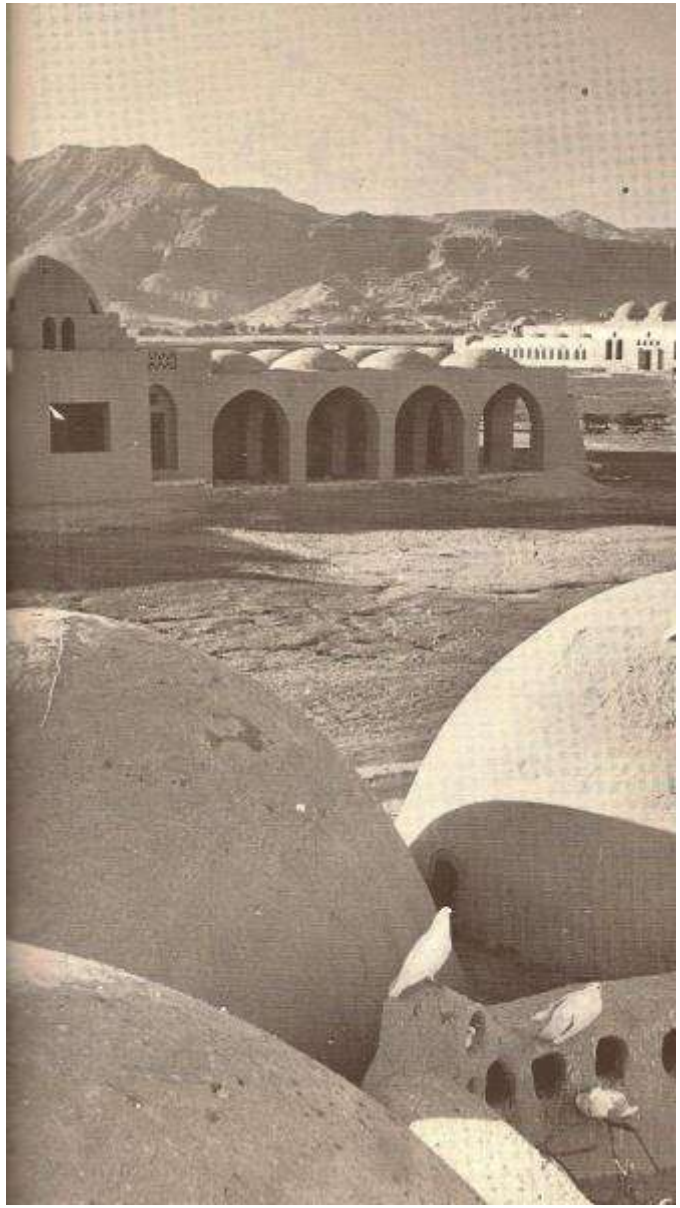
The plentiful lands on the banks of the Nile have always been an area of a densed population, however in the last fifty years the number of the inhabitants has multiplied. The recently ongoing tendency causes severe problems in Egypt in the fields of nutrition, hygiene and education. Greater part of the increase is fostered by the natural growth which means that three million children turn the school age every year. The institutional background is incapable to follow this pace of growth and the number of teachers and available school buildings fall short of the needful quantity. The announced program of planning a new school building thus forms a respectful and important task.

The problem of the schools' condition is rendered more serious with the fact that a frequently used Western European school building model which appeared decades ago cannot be adapted to the Egyptian climate. Weather of the desert, constant solar radiation, heat, dust caused by drought and sandstorms constitute special requirements in the field of residential and public buildings. Therefore the planning progress must consider the local climatic conditions so to enable the building operate properly in functional and physical meaning as well.



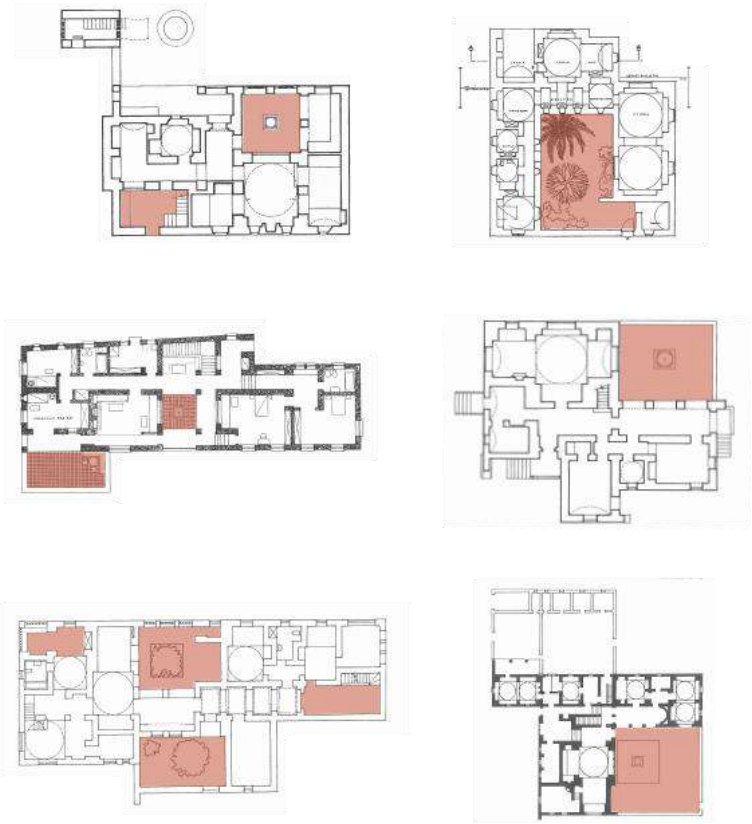
Location

New-Gourna was established in the 1940-ies on the right bank of the river Nile neighbouring Luxor and was designed by the modernist architect, Hassan Fathy. Although the lot originally meant for school in Fathy's masterplan as well is located at the meeting point of the urban tissue and the fields, the area is actually about to function as the main square of the town where the school can stand for the third main object besides the khan and the mosque. Taking into consideration the climatic conditions and local requirements Fathy is inspired by the features of vernacular architecture. His buildings and the structural set-up of the town seem almost extravagant compared to prevailing conceptions of the era. He tries to preserve the values of the traditional Arabic architecture with a sort of edited spontaneity. Materials and shapes applied by him give a specific character to the town. Although the number of multi-storey dwelling-houses made of reinforced concrete and brick has been increasing, Fathy's built heritage still determines the atmosphere of the area. In such an environment, which hasn’t suffered notable structural changes since its foundation, it’s a great challenge to create a new architectural element.

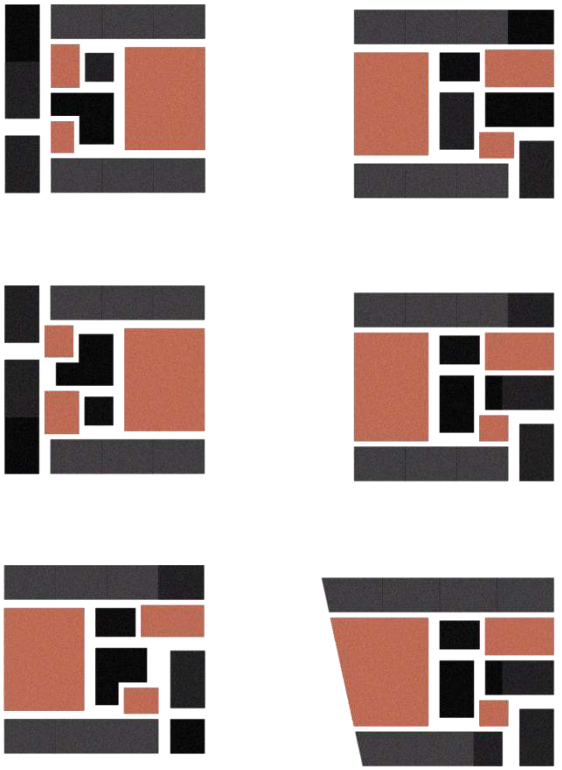


Conception

Basic motive of the conception is the model of the courtyard house. Based on the simplest pattern Arabic houses are situated behind a wall protecting it from the street where premises and functions grouped running round the courtyard. Activities of the tiny rooms bordered by massive walls leak into the inner courtyard turning the place into the core of the house with a true atmosphere. Module of the vernacular buildings of New Gourna reflecting spontaneous features of Egyptian architecture is based on this scheme, which adds up to a complex urban tissue. We interpret the school planned along with the existing part of the town as an extension of the town's structure and the operational conception is led by the independent courtyards and the premises running around them. The mission we were trying to set up was to create the contemporary and complex copycat of a single-floor courtyard house earlier applied by Hassan Fathy.



In the course of planning we took courtyards as negative spaces first and each and every necessary function around it was listed in a pre-defined way. The draft, set up in reverse order, shows a precise conception of these negative spaces first, namely that of three absolutely different types of courtyards. Primary attention has been given for children who need a large and spacious square to play and feel free in the breaks between the lessons. Another, counterbalancing space is required for teachers and children to find peace and a third, administrative yard functioning as a foreground and official school entrance as well. These three simply defined outdoor elements make the centre of the plan and we were searching for the most optimal way of placing premises around them.



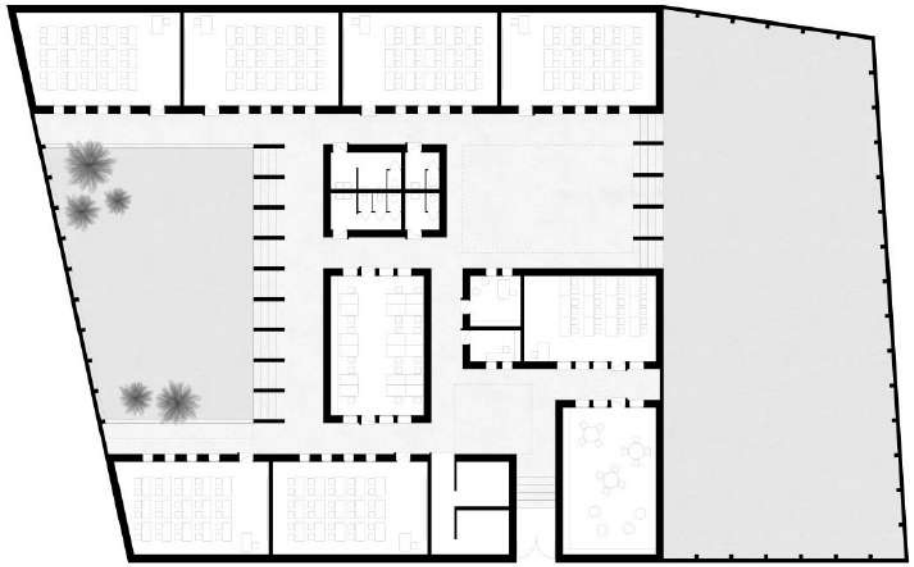
Planning

It was orientation found most important when preparing the different drafts so to protect premises from vigorous solar radiation. However, as it was inevitable to provide sufficient sunlight in the schoolrooms, we placed window openings on the longitudinal walls, on the northern and southern sides as well with canopies in the latter case. Thus schoolrooms have been allocated lengthwise which disposed a longitudinal order on the building site as a most optimal solution. On the other hand, identity of each yard defined the functions around them, so these functions were constrained to be grouped around the relevant yards based on their usage and profiles. Though the central allocation of the core functions and the orientation issue generated permanent tension, this has been overwhelmed by maintaining the conception of yards with their own functions. Connecting canopies highlights the open characteristics of the yards versus the closed/roofed spaces so we had more freedom when making wall openings on the premises under continuous slabs. The result is an internal courtyard structure made up of variations of yard schemes with loose transit spaces.

When placing bordering walls of the open spaces and actually positioning premises a third principle has been adopted as well. German architect Hans Scharoun, a contemporary of Hassan Fathy, uses the analogy of a city structure for the school building where pupils and teachers make the society, schoolrooms make the private sphere and corridors and leasure rooms make the public spaces. We introduced this parallelism when setting the conception, perpetuating the New Gourna tissue, whilst Scharoun’s concept reinforced the basic idea of the building’s operation. Transit routes and moving between the different functional spaces have become more and more important. Corridors connect yards like alleys do so with squares in the Arabic city while rambling routes lead to each premise. A game of corridors and moving routes – facing walls and junctions – has become an underlined principle to reflect the urban tissue.

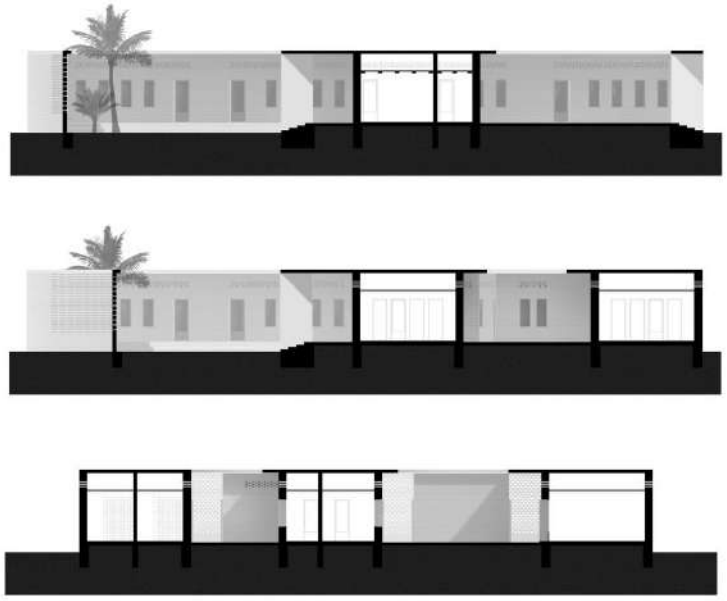
The building

In the structure finally set up, beyond the internal system, adaptation to the real surroundings has come into the foreground. The most spacious yard, meant for the children, has been located in the western part of the site so to protect the precious palm trees. As a result we dropped the appealing idea of creating an entrance facing the mosque. Instead, entrance area has been placed to the southern part of the site where a decent lane is to be left for a common area between the school building and the street line. Ownership of the northern triangular part of the site has been handled in a similar way, i.e. this corner is to get back to the town. Internal yards of the school building continue their way to a sports court spreading in the eastern part of the site.



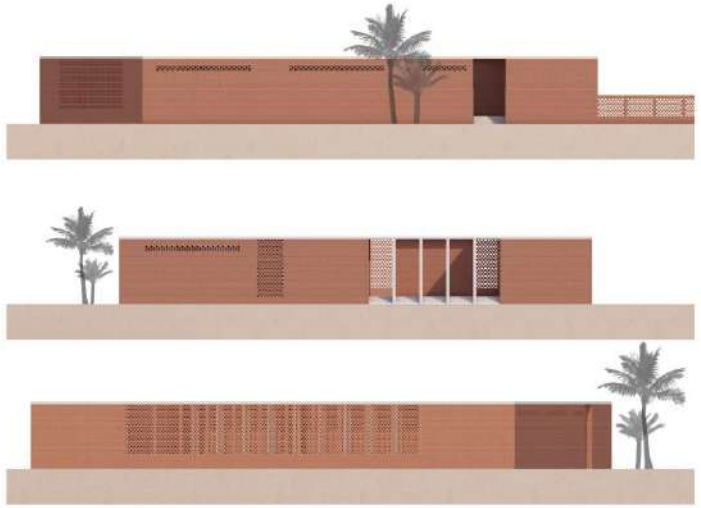
Single-floor mass of the school building follows the closed characteristic of the archetype of a courtyard house. Solid surface of the burnt brick walls – rather popular as no daubing required - is only broken by the vents in the upper lines but bearing a rather strict appearance in fact. Entrance falls in the well-proportioned quartering point of the street front of the

building simply letting the plane of the façade turn in under the concrete slab running the length of the front. Over the gate there are four stair-steps leading to the pedestal of the rooms lifting the school complex from the sandy ground. The first open yard bears the administrative and service functions. Following guidance at the reception these are accessible in three ways: the first leads to the right reaching the library and the IT lab making them available to the citizens as well. Moving almost straight forward you can reach the peaceful yard passing by the director’s office while turning immediately left you can head for the spacious play yard but may call first at the praying rooms both oriented east. Alongside the play yard six school rooms have been launched lengthwise with a rather rational disposition, running in parallel on the northern and southern sides of the site carefully providing each of them with similar conditions. It is solely the spacious play yard ending up at the lateral wall of the site but a lacy pattern of tiny holes has been applied to ease the giant appearance of the brick wall. Another set of stairs is used to indicate the playing section for children on the ground letting the palm trees emerge like oasis. Teachers’ office and restrooms can be found in a central position, in the intersection of the three yards for supervising reasons and easy access, respectively.



Besides the entrance, internal structural tissue of the school is only broken at the covered slim walls leading from the peaceful yard to the sports court. The school building is on one hand a loose network of indoor and outdoor functions and a steady, almost strict framework of a rational order at the same time.

The lively description is meant to reflect the diversity and impetus which encouraged us to draw up a plan of spaces with different characteristics. Details, samples of which feature traditional Arabic cities and specifically New Gourna, definitely boost this diversity. Covered slim walls appearing at the peaceful yard as well as at the eastern side of the spacious play yard are a good example for it. This gesture imitating the series of vaults at the New Gourna cattle market not only serves as a shadowing function but visualises the buzzing crowd as an allegory of Scharoun. Gloomy concrete elements at the stairs are made cheerful by colourful wall paint. Non-tectonic buttresses used at the entrances of the school rooms are a similar motive cited from several houses of the town. Pictograms on slightly salient wall parts copy the sign-boards of shops inviting those passing by in the narrow corridors. Most frequently recurring detail of the Hassan Fathy buildings is the lacy wall which results from the tricky holes patterned in the



brick walls. Besides the advantages of the motive – diffused light and ventilation – it pampers us with an awe-inspiring sight so it is quite often used when varying facades and dividing elements of the praying rooms or in the fence of the sports court.

While paying special attention to the detailed design of the common spaces, rooms have been planned to meet the requirements of sufficient physical operation. Floors of the premises are one step higher than that of the corridors mainly to keep dust out as much as possible. 50 cm wide brick walls are supposed to help maintain a tolerable inner temperature under critical climatic conditions and 4-5 pieces of high window openings with outer shutters let diffused light in the rooms.

A ventilation level above the false ceiling made of palm trunks, branches and leaves has been created at a height of almost 3 meters to let flows of wind blow rising warm air through the

patterned holes of the attractive upper facades. The line of standing-position bricks over the door and window openings echoes this functional division of levels while acting as a balanced dividing fascia in the structural order on the facades. Canopy is actually the continuation of the reinforced concrete roof which may as well serve for the base of a further storey any time in the future. roof which may as well serve for the base of a further storey any time in the future.

Assessment

Plan of the New Gourna school is a challenging scene for learning and discovery. The design strives to meet all climatic, cultural and communal expectations. Numerous details demonstrate the environmental attachment like the structure originating from the characteristic courtyard house or the minor gestures reflecting urban references. The rigid but graceful mass has a character of its own but the simple tectonic features make it organically integrate in the urban tissue. Though the area behind the mosque has not been involved as a foreground to the school, a balanced sequence of the lacy brick wall and the standing-position brick line respectfully closes it.

The plan we have drawn up may exceed the simplest solution but adopting traditional motives and using materials requiring the expertise of local masters resulted in creating a culturally deeply rooted but contemporary fashioned elementary school of all senses.

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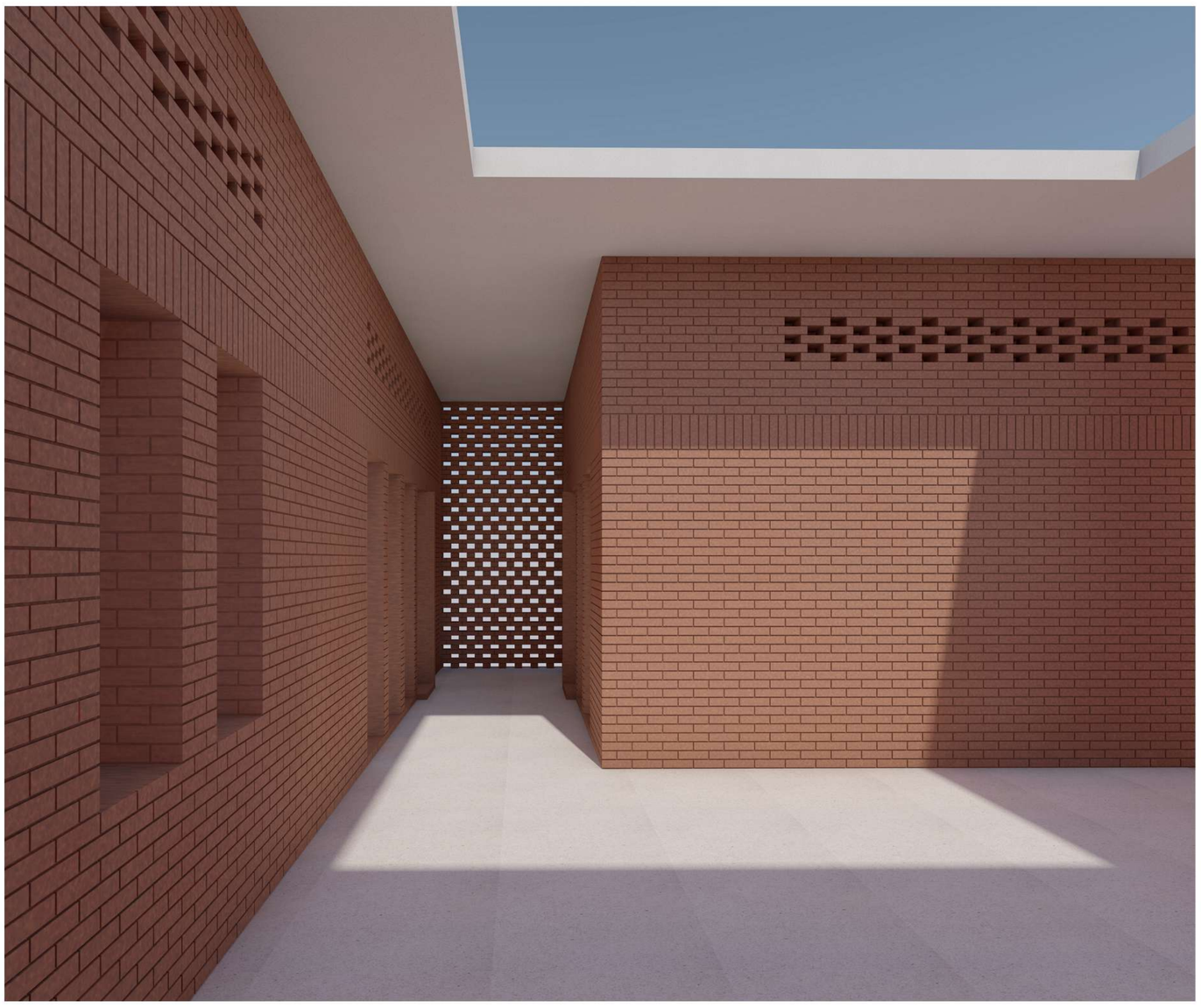

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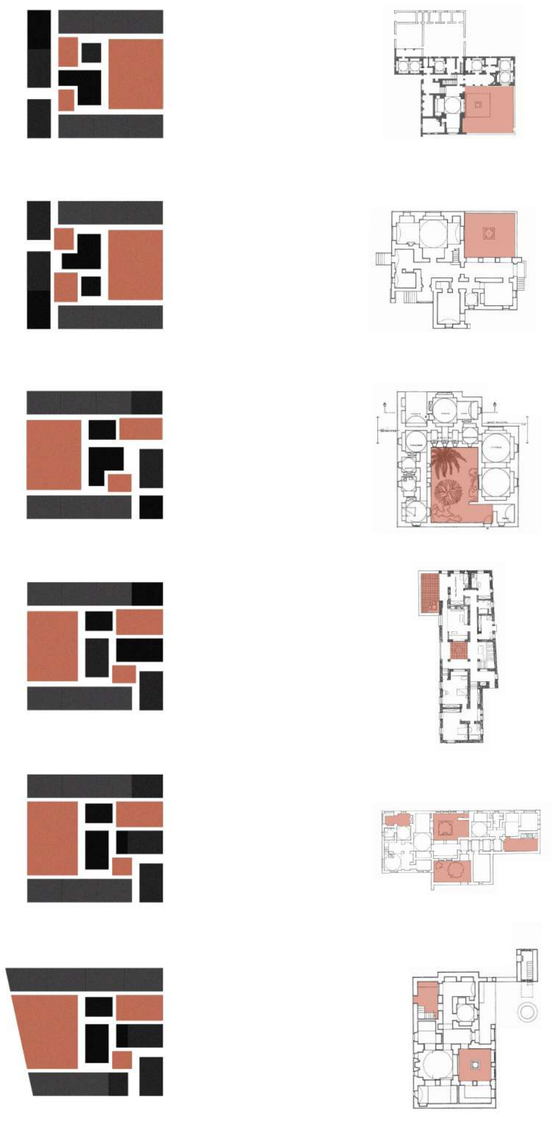
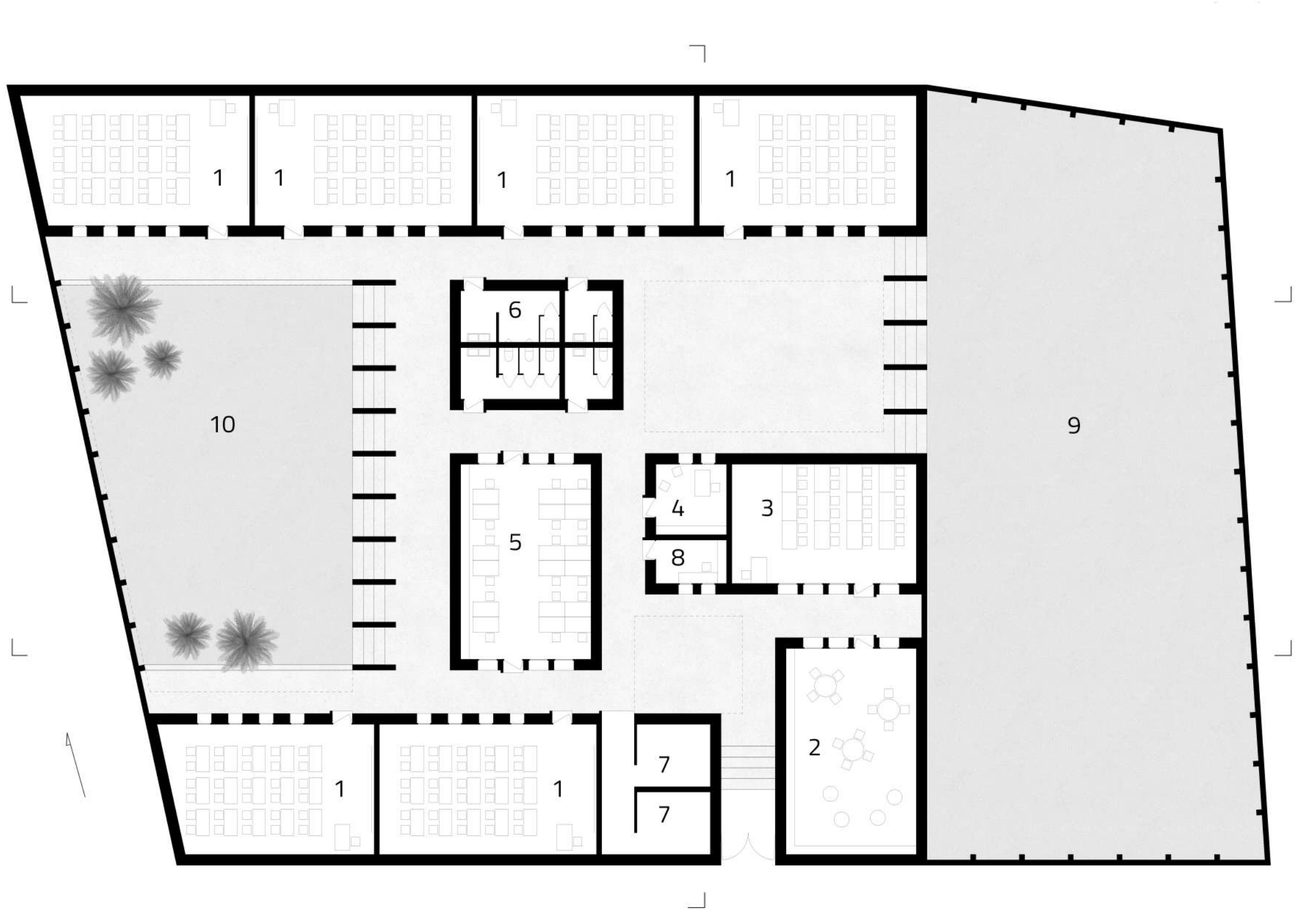
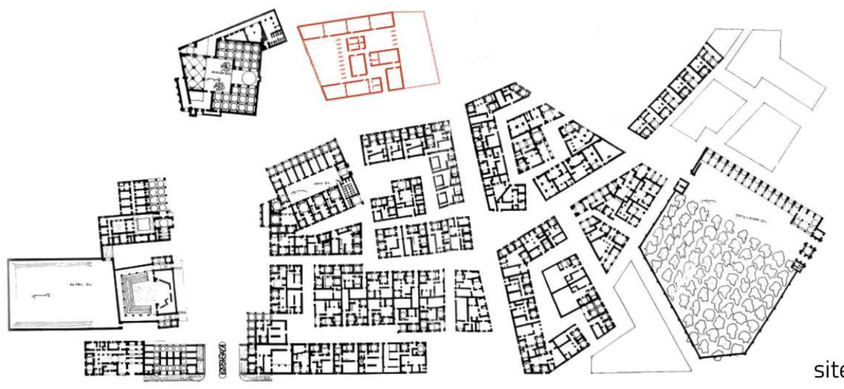


development of the distribution of the premises

plans of the traditional courtyard house of Hassan Fathy





1. classrooms
2 library
3 IT lab
4 director's office
5 teachers' room
6 restrooms
7 praying rooms
8 reception
9 sports court
10 play yard

site plan - 1:1000 - and floor plan - 1:200 - of the school

The building

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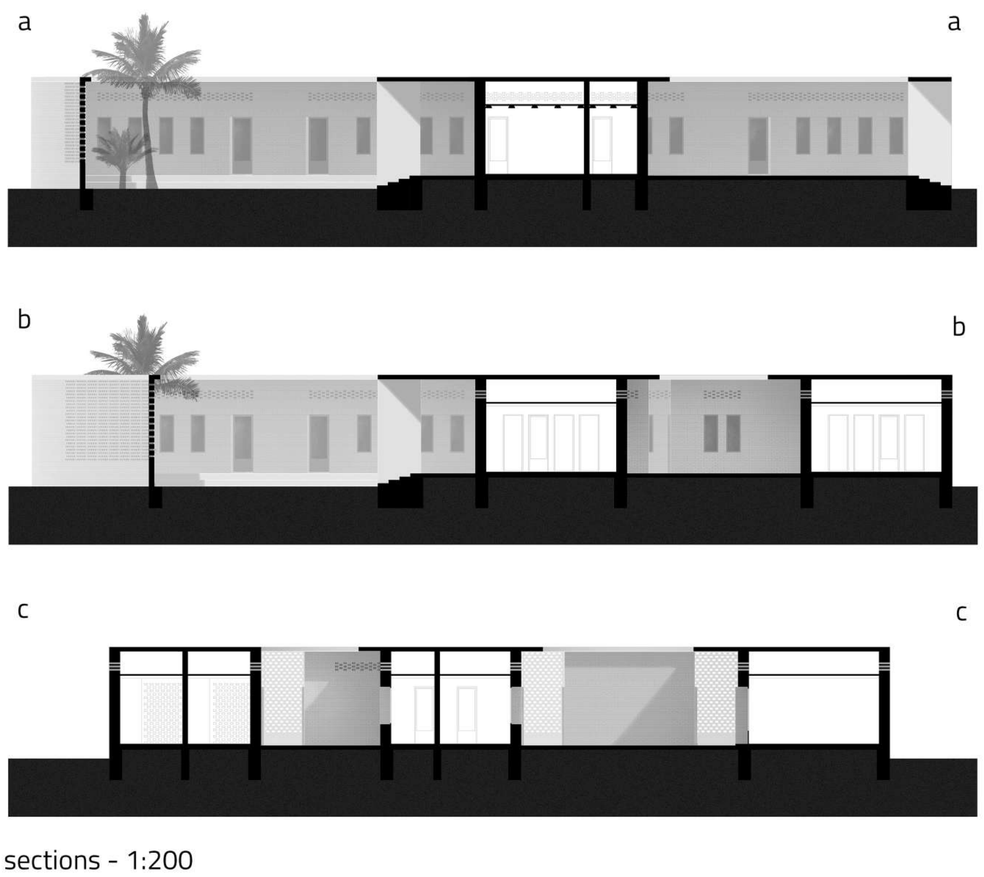
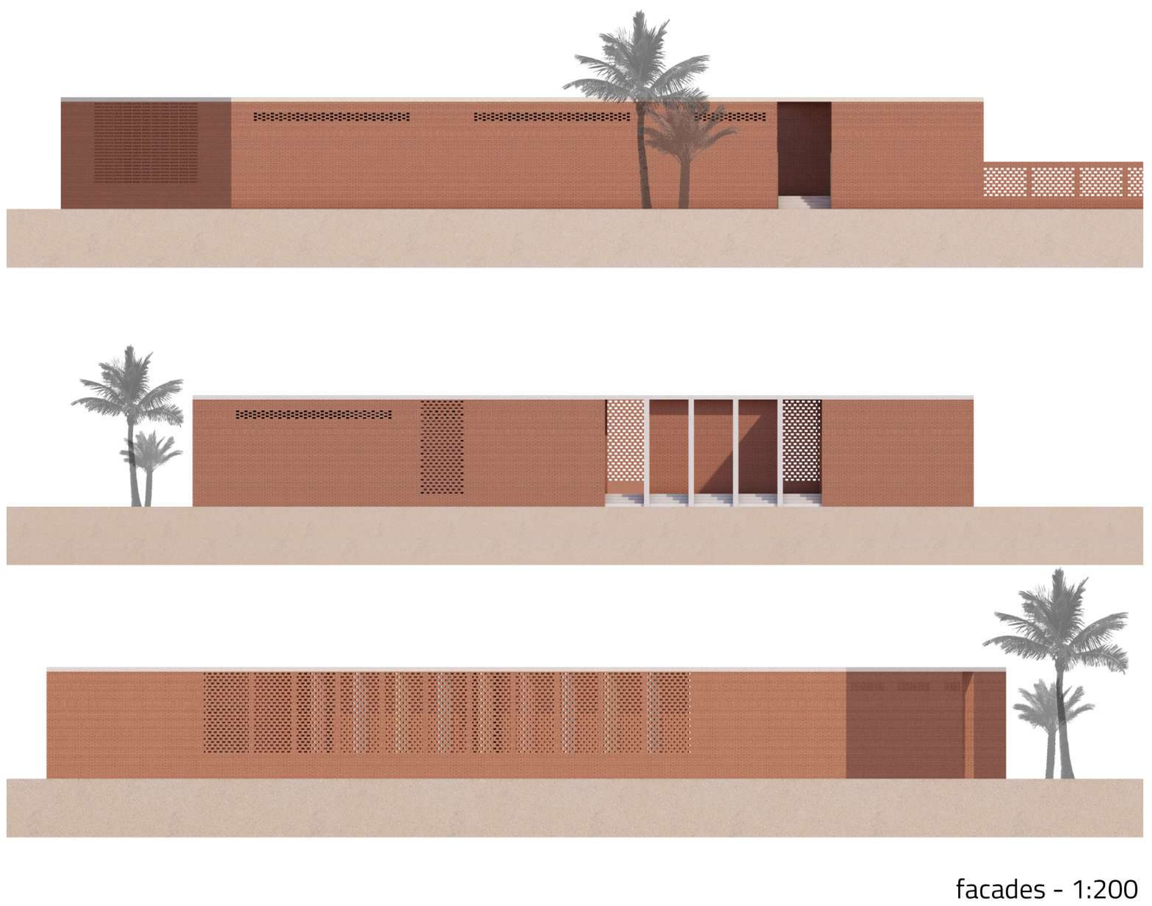
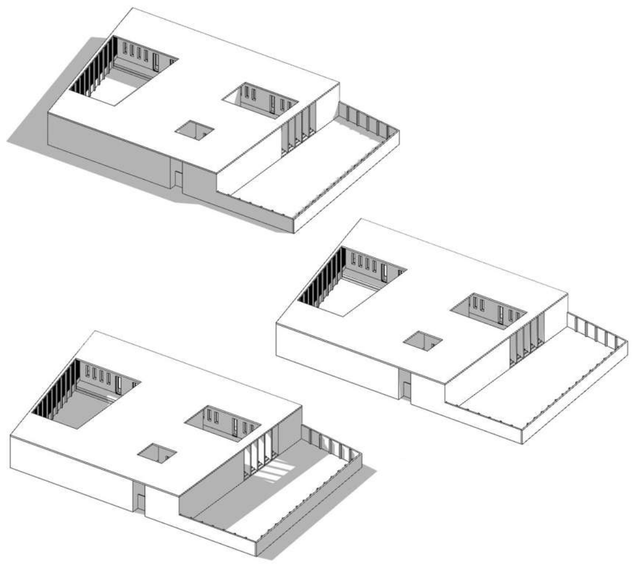


sections - 1:200



facades - 1:200



sun analyzing at 8 am, 12 and 4 pm

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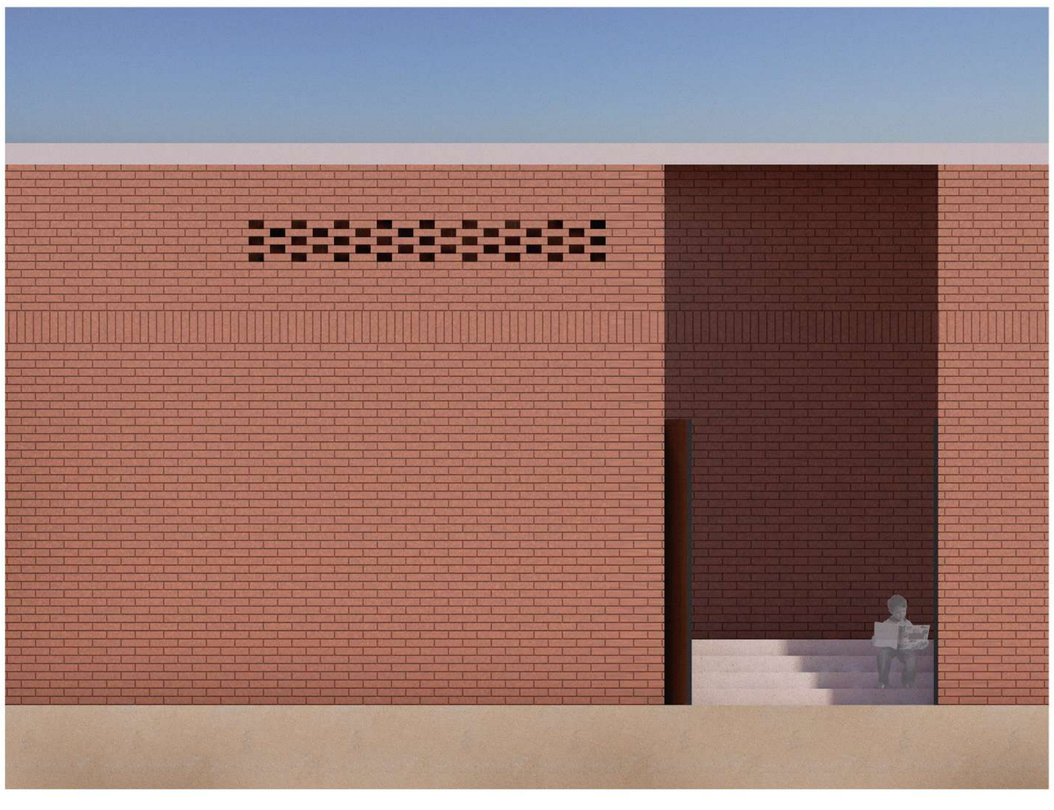

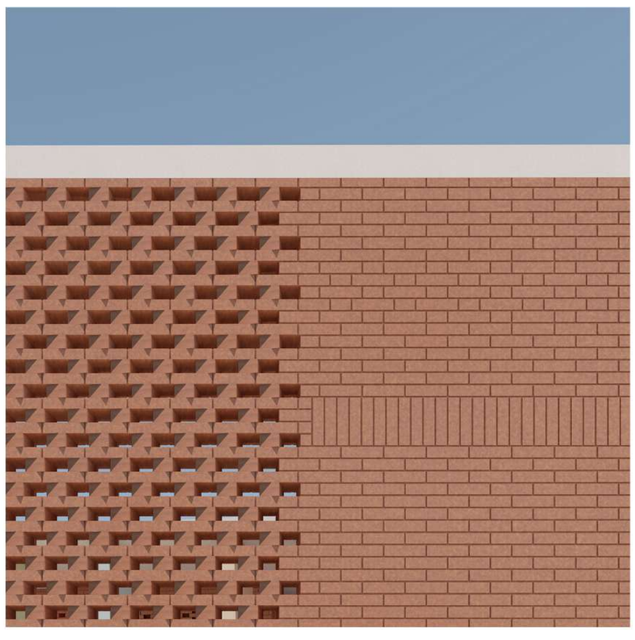

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