

NEGOTIATING THRESHOLDS

By

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Bachelor of Architecture

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Declaration

It is hereby declared that

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3. The thesis does not contain material, which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
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Abstract

Thresholds in the built environment manifest themselves in multiple forms throughout Dhaka City. While the physical permeability of these thresholds vary across circumstances and contexts, it is more common than not, to find at many thresholds of the city, a solid boundary wall. This thesis investigates thresholds in three distinct scales of the city, namely, neighbourhood, bazaar and public place. It seeks to identify the actors and understand the situations that arise against these respective thresholds. Having studied the aforementioned situations of the city, appropriate interventions are proposed at each site. These range from notions of what a neighbourhood's thresholds can look like to policies that may facilitate informality within the formal scope of the city's markets. Finally, a detailed design intervention of a public place demonstrates the potential of resolving the many issues arising at an urban context, at the very thresholds against which their elements coalesce.

Keywords: Thresholds, Wall, Informal Vendors, Public Place, Monument

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List of Acronyms

DNCC Dhaka North City Corporation

DSCC Dhaka South City Corporation

AQI Air Quality Index

Chapter 1: Introduction

1.1 Introduction to the Project

Dhaka, an ever-growing city, often meets in its streets. These streets have hosted many revolutions; economic, social, cultural and of course, political. An array of structures, monuments and institutes stand as testaments to each of these milestones of the four-hundred-year long narrative of the city, only to be shrouded in an envelope of boundary walls!

Cross over to the other side and the exterior of these walls are lined with impermanent, temporary shops run by hawkers. These encroach the corresponding walkways, often forcing pedestrians onto the street. Both City Corporations (North and South) conduct periodic evictions to ‘clean up’ these edges.

However, the notion of solid boundary walls at the threshold does not limit itself to monuments, markets and public places only. Even at the neighbourhoods of the city, one encounters solid boundary walls at the threshold where the plot meets the street, or another plot. From these observations, it is understood that the notion of thresholds is synonymous with the notion of walls.

The many kilometres of solid boundary walls that fragment this city at the threshold, need rethinking. Neither can we outright demolish these boundaries, nor accept them as static, non-porous edges of the city that deprive a marginalized community of their livelihood, and the street, of its activities. Can there be a spatial negotiation between the building and the street at their threshold; which is often, a wall?

1.2 Aim and Objectives of the Project

In order to negotiate such a threshold, one has to understand a wide range of factors that give shape to the edges of the city. These factors may be broadly categorized under segments such as economic, cultural, historic and urban.. At the largest scale of spaces in the city, one finds sites of historic or cultural significance, which have their own unique narratives that affect their surroundings. It is important to identify such narratives and understand them. Given the livelihoods that thrive against the city thresholds, it is imperative to formulate an understanding of the economic pull factors that cause interactions at the edge where formal markets meet informal vendors. Finally, an analysis of thresholds in the neighbourhoods of the city was also crucial in understanding the overall notion of thresholds in the city.

The aim of this research is to primarily assess these situations and identify the factors that characterize the city thresholds. The key elements identified above are to be assessed in sites of varying scales and nature. Upon completion of the analyses of each site, an intervention is to be proposed, specific to the site but addressing at the same time, the overall problem.

1.3 Research Question and Objectives

The primary objective of this research is to explore and question the current nature of the many thresholds of the city. These findings will be utilized in interventions that will seek to:

- Negotiate the threshold between the building property line and its access road, in order to establish a prototypical street section, which helps generate activity, walkability and permeability across various areas of the city.

- Find a negotiated space for the informal vendors of the city at the very threshold they occupy ‘illegally’ now. The resultant solution, which will be a notion in terms of both policies as well as a spatial intervention, should be beneficial to both the vendors, their adjacent shops and their pedestrian customers, while conforming to the policies of the city.
- Complement existing structures, institutions or monuments of historic, cultural and social significance in terms of public accessibility. The resulting design solution should draw in more people to the site in question while attempting to organize its surroundings in a manner more complementary to the monument itself.

1.4 Methodology

Numerous forces determine the nature of the thresholds within a city. These may be physical, tangible elements as well as non-tangible aspects. It was important for the purpose of this study to adopt methods that help analyse each of these major factors.

1.4.1 Determining Sites of Study

The overall situations arising against the thresholds of the city are many and occur along a wide variety of structural as well as social, political and economic situations. It was imperative for the purpose of this thesis, to identify upto three such situations of the city. These would ideally be representative of the larger narrative of thresholds in the city. For this purpose, the neighborhoods of the city were selected as the smallest scale of investigation, which repeat across the city. The second scale of exploration is the bazaar which is representative of all

commercial areas of the city. Finally, the thesis studies a public place, which is the largest scale of exploration herein. These, together, attempt to present an accurate picture of the nature of the many thresholds of the city.

1.4.2 Mapping

After having selected the sites for study, the first task was to map the areas. Primary layers of mapping include the layout of streets and their corresponding pedestrian paths. Furthermore, a solid-void analysis of each site was done in order to understand the density of built areas and identify parcels of open spaces, if any. The land-use pattern of surrounding buildings were also identified. These present a basic understanding of the nature of activities, occupants as well as pull factors at each site. All findings found through mapping were cross referenced with the impacts of thresholds at each site.

For the neighborhoods, mapping explores the physical nature of thresholds against the activities that occur at street level. For markets, an exploration into the physical space occupied by the structure of the informal vendors was necessary. In the public place, the activities, movements as well as space utilization of people and the contributions of the threshold to the aforementioned was identified.

1.4.3 Physical Survey

While mapping helps one identify the overall elements and layout of each site, a physical survey was crucial in locating sites of various activities, movement of users throughout the day and shifting of threshold lines, especially in case of a site as dynamic as a marketplace full of

moving vendors. For the neighborhood, physical survey revealed the inertness of the boundary wall in newer neighborhoods while discovering the porosity present at older neighborhoods. At markets, multiple physical surveys helped dissect the methodical layout of informal vendors and the common systems their structures follow. For public places, a physical survey was the more appropriate methodology to learn about the movements of people around the place as well as pin point pockets of spaces that people prefer for various activities with respect to time.

1.4.4 Intervention

This thesis proposes multiple modes of interventions, as appropriate for each site. As discovered through the course of this exploration, merely designing a built space cannot fully address the notion of thresholds in the city. Therefore, the adopted method of doing so employs notions of what each threshold can be instead of what is currently discovered at each site, as opposed to suggesting absolute design solutions.

Furthermore, policy level suggestions are explored, especially when it comes to finding a place for informal vendors at the thresholds of the markets of the city. Finally, the thesis explores whether a detailed design intervention can be introduced to address the thresholds present at the largest site of exploration; the public place.

1.5 Project Summary

Name of the Project: Negotiating Thresholds

Implementer of the Project: Relevant Government Bodies

Location: Multiple

Site area available for the Project Development: Variable at each site

Proposed built-up area of the Project: As available

Proposed Program of the Project: According to relevance at each site.

Neighbourhood: Interaction spaces

Bazaar: Informal vendor spaces

Public Place: Library, Museum, Ghat, Mosque and Offices

Chapter 2: Literature Review

2.1 Thresholds in the City

Cambridge Dictionary defines a threshold as a point beyond which either something starts or a change begins to take effect. In terms of the city, such a phenomenon is highly recurring. For starters, Dhaka is loosely defined by boundaries of water in the forms of the rivers Buriganga, Turag and Balu. From blurred endings of old neighbourhoods to the sharp beginning of newer developments, one finds yet another threshold. Similarly, railway lines, canals, bridges and so many other elements define the many thresholds in a city.

However, not all thresholds are as easily discernible. Cities in the developing world are often playgrounds for multiple entities that negotiate and fight for co-existence. In a post-industrialist, service-based economy such as ours, a city thrives; fuelled by a formal economy. Spatial dimensions that have specified functions designed for particular uses may characterize such a city. However, in the same physical dimension of the city, a second entity dwells. Its population may mostly comprise of migrants from rural areas, who flock to major cities in hopes of better livelihood, being under threat of calamity, loss of farmland or simply, lack of opportunities. Much of this population will live under the informal economy. They will occupy the city in ways not intended by any planning guideline, thus giving rise to informal uses of previously defined spaces of the city as per their needs; be it a sleeping arrangement under a foot-over bridge or a hawker's stall.

If the former paradigm is defined as a Static City, then the latter is a Kinetic City (Mehrotra, 2013). Negotiations between the two and the resultant terms on which they coalesce is what gives rise to the nature of the cities one finds in many developing countries. The bargain of the Kinetic and the Static take place in both physical dimensions as well as social. Plurality occurs when a previously defined function of a space is encroached by a new function; often not intended by its original user, owner or designer. Such is the case when bazaars pop up underneath the Victorian arcades of the historic Fort Area of Mumbai. At the same time, the many festivities of a city mould themselves around static structures and grow organically in order to accommodate celebrations. This may come in terms of temporary tents, stalls of a fair and many others.

The relationships between the formal and the informal are best encountered at the very thresholds of the city. As previously described, the sleeping arrangements of the homeless will often occur underneath foot over bridges, or against long stretches of boundary walls of functions such as a playing field which has little openings on it. Informal vendors, too, shall 'rest' against the threshold where plot lines of markets, offices or other structures end the street begins; setting up shops on footpaths. Therefore, in order to understand the socio-economic activities along thresholds, one must first formulate an understanding of the informal occupation of people in the 'kinetic city'.

2.2 In-Between Spaces

The physical city can be perceived as a simplified model comprising three spatial levels; the interior (often the built, private form), the exterior (usually, the public realm consisting of roads, plazas and parks) and a border that separates the two (Maric, 2011). However, when one closely examines the nature of this boundary, its physical state comes into question. Is the boundary solid or a void? What happens when one replaces the 'wall' of a boundary with

space? What impact befalls both interior and exterior when the membrane between the two becomes dynamic?

2.2.1 Liminality

These concepts are discussed under the notion of ‘liminality’, which describes a ‘third space’ between two entities. Liminality itself is originally an anthropological term introduced by Arnold van Gennep in 1909 (Ibrahim, 2012). It describes ephemerality and transitional phases in the life of an individual; often at the interim between their previous role in society and a forthcoming evolved state of existence. In terms of architecture, liminality is often used to describe a ‘third state’ or an in-between space. It speaks of a space, which is perhaps neither one, nor the other, but rather, the defined or undefined transitional space between the two (Smith, 2001). It is interesting when the term is used to describe an architecture of the in-between because the word itself originates from the Latin root word *līmin*, which literally means threshold.

The most common occurrence of such a phenomenon is when the public and private realms meet, often at the edge where the street ends and the property or plot line begins. While such a transition is typically between two binaries (public and private), the concept of liminality emphasizes on the third space that segregates the two. It recognizes this entity as a space itself rather than a simple demarcation. This allows scope for this intermediate space to become a tool for transitioning between the two binaries it separates.

2.2.2 Urban Geography and Parochial Spaces

One of the notions described by Urban Geographer Lyn H. Lofland’s ‘Exploring the City’s Quintessential Social Territory’, describes the dichotomous relationship between binary

elements such as land mass to the ocean, two nation states, neighboring countries or more appropriately, the private and public realms. Lofland argues that the definition of just public and private spheres is an absolute definition that is not flexible enough to examine the interactions people have in these spaces. Instead, he proposes a trichotomous relationship between three entities: the public realm, the private realm and a third, parochial realm. The private realm is defined as an intimate sphere consisting of one's household, friendships and kin. The parochial realm, which is next in progression, contains the neighborhood, and is the setting for relational forms of the workplace or acquaintances. Finally, the private realm is the world of strangers and can be best attributed to the 'street' (Lofland, 1998).

Lofland (1998) states that any space or realm can be appointed a physical location which remains unchanged. He terms this as a physical territory. He then proposes the notion of social territories which are far more fluid in definition. Social territories, unlike physical territories, describe spaces which are ambiguous. That is, the defined space occupied by each territory is mercurial and quick to adapt to change. This makes it difficult to designate, physically at least, a specific zone as public, private or even parochial.

To elaborate, a park may be perceived as an example of a public space. Under physical territory, a park is a public realm with a defined boundary within which it is contained. However, a small group of people having a picnic in the same public park establish a social 'bubble' of private realm amongst themselves, in an otherwise physically public territory. At the same time, interactions between frequent runners in the same park as acquaintances, or even friends, establishes a parochial realm within the same public sphere. Inversely, a house, which is the quintessential private enclosure may carry parochial connotations when hosting a large

gathering of its neighbors. Even more interesting is the notion, that an empty house, while still described as a private realm under physical territories, is neither private, public or parochial as a social territory due to its vacant nature (Lofland, 1998).

Introducing the notion of social territories makes it difficult to allocate rigid definitions for each realm. However, it is possible to observe the dominant relational form in the interactions of any given space in order to be able to identify what it is being used as. To that end, Lofland (1998) defines the three realms as such:

- Private Realm: is defined as the realm where the dominating relational form of interaction is intimate
- Parochial Realm: refers to such a space or setting where communal interactions are more common
- Public Realm: is more likely to witness stranger or categorical relational forms.

2.2.3 Contextual Interpretation of Lofland

The distinction between physical and social territories of the trichotomous relationship between private, public and parochial realms can be found in the site being studied for intervention. To begin, one has to focus on three adjacent spaces located in the site. At the centre of this, lies the Rayer Bazar badhya Bhumi Smriti Shoudha (Martyred Intellectuals' Monument). To the East of that is the 1.12 km long stretch of the Sadarghat-Gabtolli Road. And from the Western edge of the Monument complex and onwards, lies the 94 acre Rayer Bazar graveyard. In terms of spatial territories, all three spaces have defined boundaries and qualify as parts of the public realm. The graveyard, the monument and obviously, the street are spaces designated for

interactions between strangers. However, an observation of spatial territories reveals a more complex and dynamic model.

Spatially, the street is meant for stranger interactions. However, observation reveals that in places where food stalls are setup, groups of people gather in the afternoon, in order to form small parcels of parochial (neighborhood) interactions, if not private. The Martyred Intellectuals' Monument also finds individuals who are on their own, reflecting upon the monument or simply there by themselves. However, numerous groups playing cricket or having conversations within the complex itself, embody individual instances of both private and parochial interactions.

The Rayer Bazar graveyard is also a designated public realm, although restrictive to free entry. Even here, one finds people hopping over fences, climbing over locked gates or simply avoiding guards on duty to enter the open area. Once inside, people occupy spaces near the water body, bridges or any open space that have not yet been used for burial. Their activities include recreation, sports or simply using the graveyard as a pedestrian thoroughfare. Within the defined physical bounds of this public realm, one finds spatial negotiations happening between both private and parochial realms. These three elements of the site further prove the vast difference between the defined use of a space and its actual utilization by its users, often, and specially in the case of the graveyard, against the intended use of these spaces.

2.3 The Socio-Economic Threshold

In the context of a city, mere physical thresholds do not dictate the fabric of its edges. Dhaka comprises almost 2.5 lakh hawkers as of 2015. Given this number was roughly 90,000 in 2005; it is safe to say that the informal trade service sector of the city is on the rise (Husain, Yasmin, and Islam, 2015). These hawkers occupy the sides of streets, usually in places with walls or fences as backdrops. Their occupation of the street formulates an economic entity, one that has prominent contribution in defining the threshold between the plot and the road.

Such a threshold may not always be static. This is largely because the hawkers, who occupy the edges of the thresholds of the city, are not always stationary themselves. Akharuzzaman and Deguchi (2010) categorize street hawkers into four broad taxonomies. These are Permanent, Semi-Permanent, Semi-Mobile and Mobile. Of these, only permanent vendors leave their wares in their area of sales. All three other types of hawkers have varying degrees of mobility with respect to their areas of sales. This makes the pattern of occupation of the street by hawkers a constantly changing phenomenon. Periodic evictions as well as seasonal variations in both sellers and their nature of goods further add to the kinetic nature of these edges.

2.4 Wall as Threshold: A Brief History

“Walls in the end are nothing in themselves and only something as a part of a tactic, but tactics often change- for technological, political or cultural reasons- and the walls, as a result, will be rendered obsolete and useless. Walls are not final conclusions as much as temporary statements awaiting refutation. As a result, walls will tell us a lot about the outlook of the

societies that built them. Walls tell stories about presumptions and premonitions, fears and ambitions; about who we take ourselves to be and how we relate to others. Yet as far as storytellers go, they are annoyingly silent. Walls cannot talk; they stonewall us; and it does not help if we plead with, or wail before them.”

-Erik Ringmar, 2018

Simply put, a wall may be defined as a vertical structure, often made of stone or brick that divides or surrounds something. Cambridge Dictionary also defines a wall as a mass of people or things formed in such a way that one cannot get through or past them. In the case of the city, the wall may be thought of as a key component of the built environment. More importantly, in its freestanding form, when it is not a portion of another structure but its own individual entity, it may carry many connotations. Historically, walls have been used as thresholds repeatedly. Walls have been built to defend kingdoms from outsiders and invasions. Divide two factions of what was previously a single nation or define the jurisdictions of a ruler and his city. These functions are evident in cases such as the Great Wall of China, The Berlin Wall and the Walled City of Ahmedabad respectively.

2.4.1 Wall as Defense: China

European traders and missionaries initially hailed the ‘Great Wall of China’, which started as a series of mud walls to protect against marauders, as the key reason why the Chinese Empire could retain both a steady ruling system as well as resources. However, this was not the only option. According to Ringmar (2018), allowing controlled trade with the Northern Tartars would have solved the need for a wall. By the nineteenth century, as trade and travel opened up the world, China remained a gated civilization, with little scope for foreign trade, or exchanges in ideas, lifestyle and culture. In contrast, tribes such as the Mongols, who expanded

the Silk Road, carved paths instead of walls, as is cohesive with their ‘on the go’ lifestyle. It is these paths that helped in the exchange of goods, ideas and cultures that travelled from Europe to Asia and back (Ringmar, 2018).

Figure 1: The Great Wall of China



Source: <https://pixabay.com/photos/the-great-wall-china-badaling-2190047/>

2.4.2 Wall as Divide: Berlin

Perhaps the most iconic ‘wall’ of the 20th century is the Berlin Wall. Built after the Second World War, it drew up the line between the US occupied Federal Republic of Germany (FRG) and the Soviet occupied German Democratic Republic (GDR). Its primary intention, when the Soviets put it up, was to prevent citizens of East Germany from crossing over to the West (which had better living opportunities). Over the 28 years of the existence of this 155-kilometer-long wall, 80 people are reported to have been killed, while attempting to escape East Berlin. The city of Berlin itself has existed since the 12th century and has witnessed multiple iterations of city walls over centuries. Some of these were determined by focal points such as castles, or perimeters following old bastions, or simply demarcations of tax jurisdictions. However, the sheer political divide of the ‘Berlin Wall’ was a previously unseen notion (Greinacher, 1991).

Figure 2: The Berlin Wall coming down



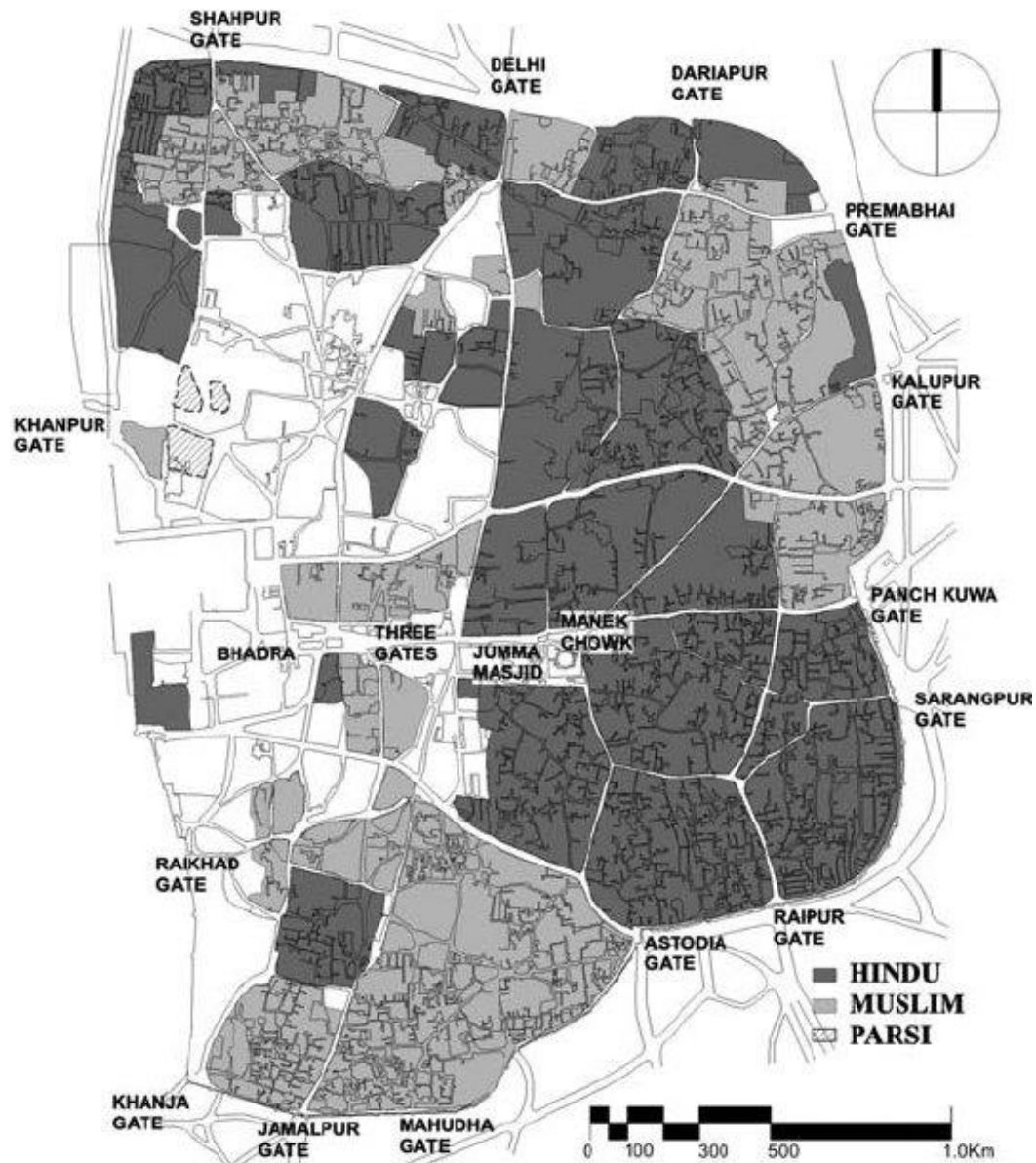
Source: Corbis/ Getty Images <https://www.thoughtco.com/the-berlin-wall-28-year-history-1779495>

2.4.3 Wall as Definition: Ahmedabad

The old city of Ahmedabad, on the Eastern banks of the Sabarmati River, was founded as a walled fortress with fourteen defined entry points along a wall spanning 6 miles in circumference. The city, defined by its walls, grew around the Bhadra Fort as its focal point. In the case of Ahmedabad, the wall can also be viewed as a defensive structure. However, another way to look at the wall is as a provider of definition. Merchants occupied twelve major land parcels (Puras) within the walled city and sought to attract nearby villagers who specialized in particular skills such as silk-spinning, metal works, etc. to come live within the walls. (Todeschini, 2013) By defining the city through a wall, or built threshold, Ahmedabad

offered the safety of enclosure in order to attract people of many crafts and trades who eventually enriched the city itself.

Figure 3: Landmarks and Communities within Ahmedabad's Walled City



Source: Raman and Dempsey, 2012

Chapter 3: Site Appraisal

In order to explore, identify and finally, address the thresholds of the city, three sites of varying scales are selected. These are:

- Neighbourhood: Old Dhaka
- Bazaar: Green Road, Farmgate
- Public Place: Rayer Bazar Badhya Bhumi, Sadarghat-Gabtolli Road

Since, the third scale of exploration at Rayer Bazar is selected in order to attempt a detailed design intervention, this particular site is analysed in its entirety herein.

The primary area of study is the Sadarghat-Gabtolli Road; specifically, the 1.12 km stretch that includes the Rayer Bazar Badhya Bhumi. Along this road, one finds four major elements: The Rayer Bazar Badhya Bhumi (Martyred Intellectual's Memorial), The Rayer Bazar Graveyard, a 3.28 kilometre long wall surrounding this graveyard and a parcel of informal settlements.

3.1 Site surroundings

- Martyred Intellectual's Monument: The Rayer Bazar Badhya Bhumi is an homage to massacred intellectuals of the Liberation War of Bangladesh. The complex covers an area of 4.34 acres and comprises of a monument, and intersecting pathways that define grass beds. Alongside being a monument of historical value, it also serves as a public space where people gather during the early afternoons and evenings.
- Rayer Bazar Graveyard: Completed in 2015, the Rayer Bazar Graveyard takes up 96.4 acres of land and is situated adjacent to the Western edge of the Badhya Bhumi. Being a relatively new burial complex, the vast stretches of land that are yet to be used, are often utilized as a playground or recreational space; against the wishes of the overseeing

authority. Pedestrian entry is not encouraged to this compound, although efforts to prevent walk-ins through its many defined and undefined entries remain largely unsuccessful.

- **The Wall:** A unique attribute of the largest graveyard of the country, the Rayer Bazar Graveyard, is the 3.2 kilometre long wall that defines its perimeter. This solid, brick boundary intends yet fails to keep out civilians from entering the cemetery and using it as a place of recreation.
- **Informal Settlements:** of the Rayer Bazar area are highly dense in nature and comprise mostly of 'kutchra' structures. The female occupants of these settlements mostly work as household helps while the male population are typically employed in some physical labour work or another (Jabeen and Cassidy, 2013). However, at the edge of the Sadarghat Gabtoli Road, where the settlements meet the street, almost all the edges are occupied by informal shops of different goods and services, run mostly by residents of the surrounding settlements.

Figure 4: Site Map showing Major Areas



Source: Google Earth

Figure 5: Site Map with Figure Ground showing Relationship of built area with Water



Source: Illustrated by Author based on data of Dhaka Detailed Area Plan 2015 (DAP)

3.2 Historical Development of the Site

The history of the locality can be traced all the way back to the designing of pottery during the Mughal era. However, the emergence of the name ‘Rayer Bazar’ is thought to have come about sometime in the early 19th century.

3.2.1 Kumartoli

Early settlers of the area were mostly potters who lived beside the Turag River. The river was crucial to their trade for two reasons. The soil adjacent to the river was an abundant source of clay. This ‘lalmati’ or red clay was ideal for the potters. In fact, the pottery craft was so prevalent in the area that during the Mughal period, the place was referred to as ‘Kumartoli’, describing a neighbourhood known for its potters (Mimi, 2017). Second, the river itself served as a mode of transport for distribution of their produce. With time, the prevalent craft began to diminish as the potters began to move towards Dhamrai, some 25 kilometres away. Instead, numerous brickfields began to pop up in areas adjacent to the site, utilizing once more, the soil of the area. Wholesale shops still sell earthenwares around the area today.

3.2.2 Rayer Bazar in the Liberation War

Surely, the most significant historic incident relevant to this site is the massacre of over 200 intellectuals of the country on the night of 14th December 1971. Rounded up from their residences, these individuals were specifically targeted for being prominent intellectuals and academics of various fields. The list includes professors, doctors, engineers, artists, poets and many others. Their subsequent execution in the brickfields of Rayer Bazar marks one of the darkest hours in the making of a nation; only two days before the liberation of Bangladesh.

In memory of the fallen martyrs, the Government of the People's Republic of Bangladesh commissioned a monument to be erected at the site of the horrific killings; the brick fields of Rayer Bazar. In fact, one of the most gruesome images of the massacre show bodies of the deceased left floating in the very puddles full of bricks in Rayer Bazar. The date has since become an occasion of mourning, remembrance as well as reflection for all.

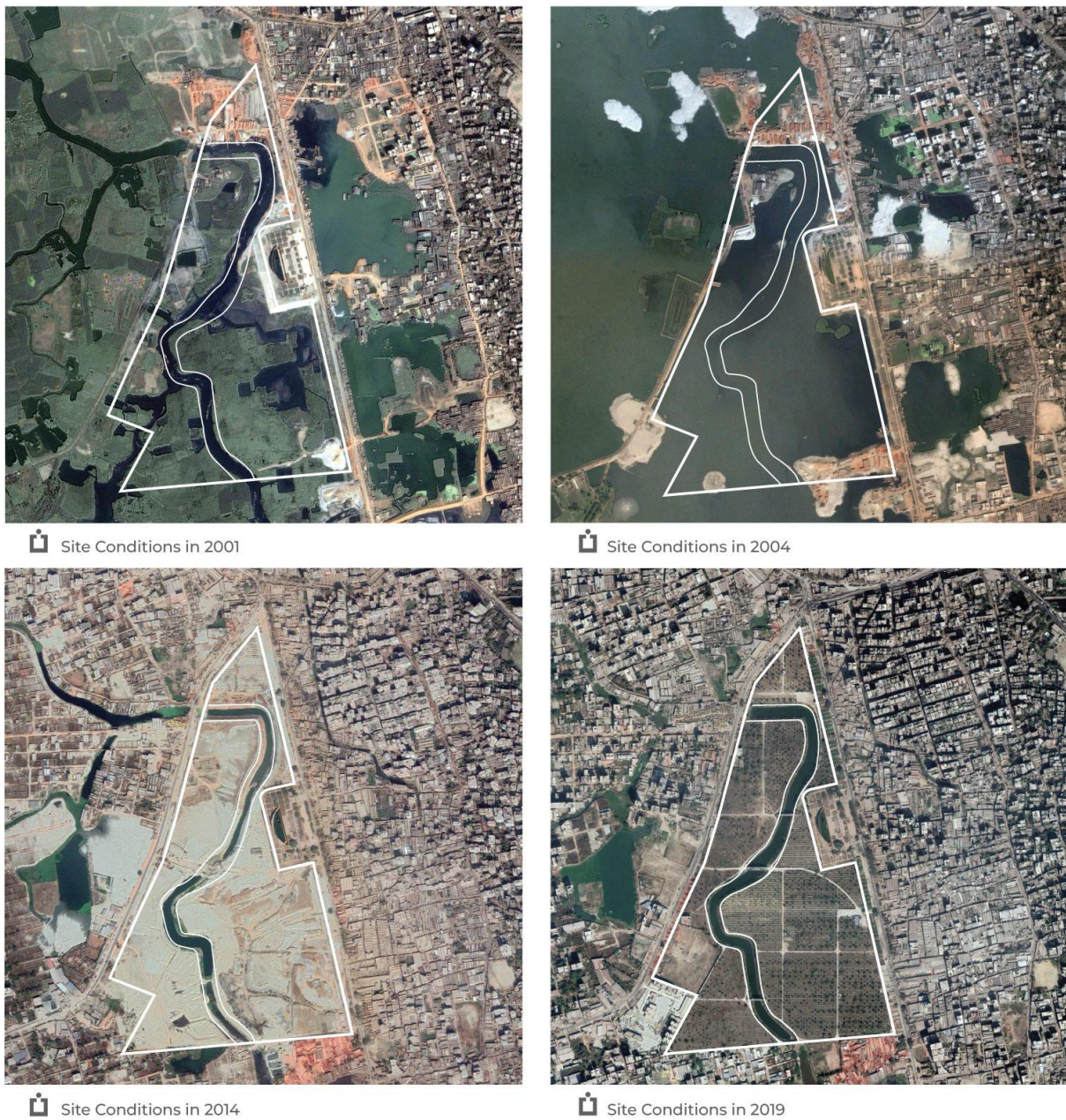
The Rayer Bazar Badhya Bhumi Smriti Shoudha (Martyred Intellectual's Monument), was designed by Architects Farid U Ahmed and Jami Al Shafi. It was opened to the public on 14th December 1993. The complex attracts a large influx of visitors every year on the 14th of December, commemorating the intellectuals lost in the war. However, for the rest of the year, the monument has few visitors who mostly avail the open space of the complex during the late afternoon and evening hours.

3.3 Geographical Characteristics of the Site

Maps of the overall site, taken from the years 2001, 2004, 2014 and 2019 respectively show the general topological nature of the area. The entire site was originally situated at a topologically low ground with respect to the city. Maps show instances of complete flooding in the area that is now the Rayer Bazar Graveyard in the year 2004. Similarly, the Rayer Bazar informal settlements are also situated at a lower altitude. Some areas that were typically submerged have been filled up over the years, leaving the unfilled areas at a greater disadvantage.

When the Rayer Bazar Graveyard's project was undertaken, the entire site was raised to the level of the street. However, the informal settlements on the other side of the road remain at a lower elevation, as is evident in the site. This leads to hydrological problems such as waterlogging during months of monsoon. At the same time, the chronological imageries of the site surroundings show an incremental increase in density of settlements

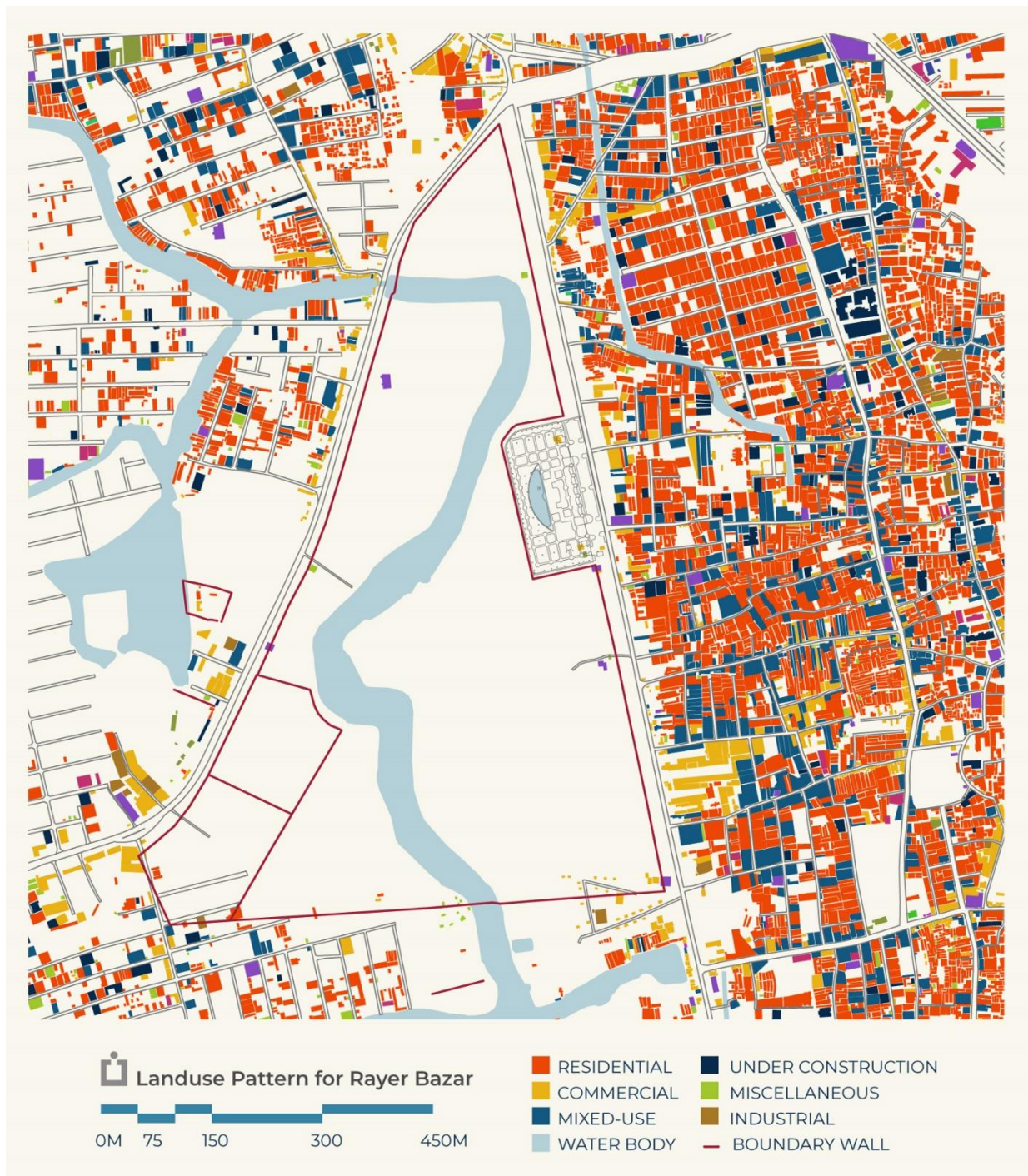
Figure 6: Site Map showing built area in the surroundings as well as flooding patterns



Source: Google Earth

3.4 Land-use Pattern of the Surroundings

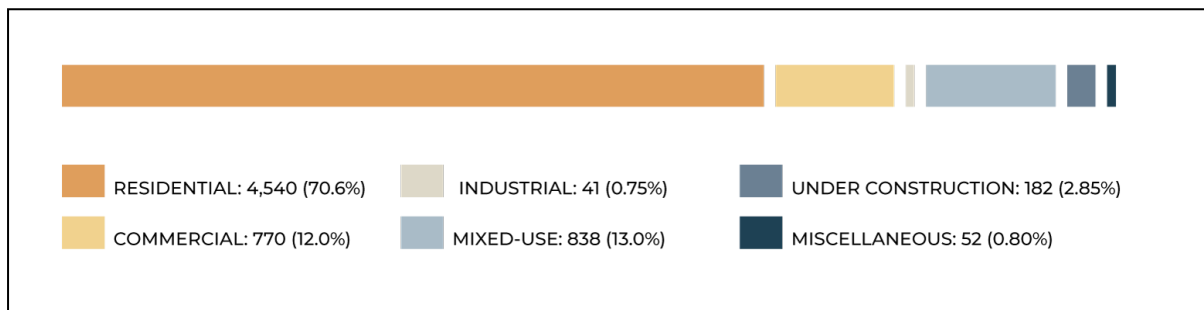
Figure 7: Land Use Pattern of the Surrounding 1.5 km X 1.5 km Area



Source: Illustrated by Author based on data from Dhaka Detailed Area Plan 2015 (DAP)

The area observed for land use is 1.5 km x 1.5 km. Such an area is selected as it contains the entirety of the three major component of site: The Rayer Bazar Badhya Bhumi monument, the 94 acres of Rayer Bazar graveyard as well as the Rayer Bazar informal settlements. The land use map reveals a little over 70% of all structures as residential. This includes the settlements of the Rayer Bazar informal settlements as well as the developing residential zone of the Bosilla area, located to the West of the Rayer Bazar graveyard. The detailed breakdown of the land use pattern is as follows:

Figure 8: Percentage land use diagram for a 1.5 km x 1.5km area around the Rayer Bazar Badhya Bhumi



Source: Illustrated by Author based on data of Dhaka Detailed Area Plan (DAP)

3.5 Accessibility and Connectivity

The major access to the site runs through the Sadarghat-Gabtolli Road. This road is currently only 20' wide with two lanes. However, given the location of the road and its direct connection to Gabtoli and Sadarghat, it is traffic prone and is unable to handle the oncoming traffic from either direction.

There is a 90' provision for expansion for this road on either side, making the right of way a total of 200' for this road. Given the nature of this road, there are truck depots on both ends of it. Bus parking is also observed along the edges at night. Pedestrian connectivity is poor as no designated walkways are present along the stretch of road, except for the segment adjacent to

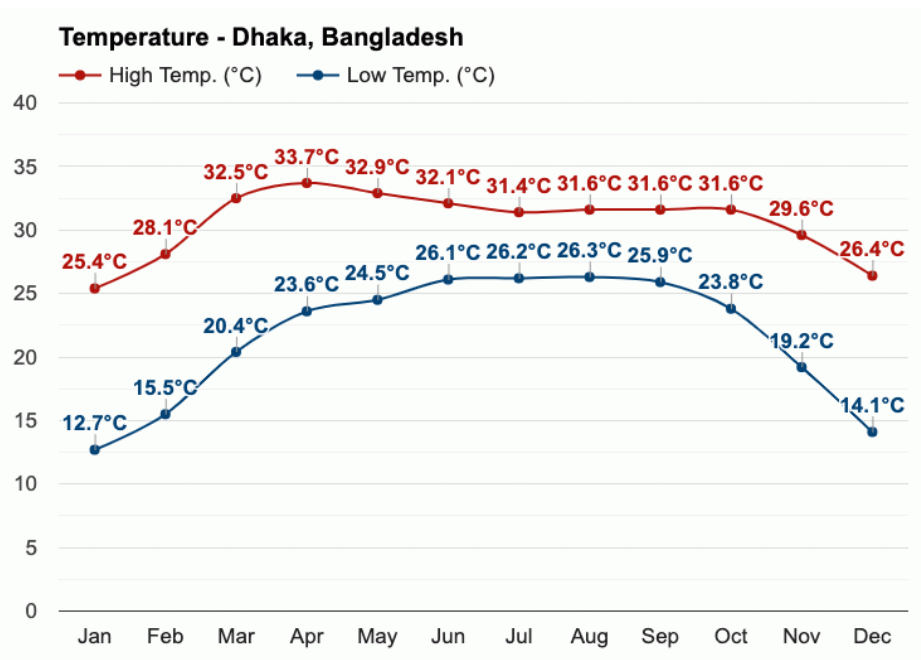
the monument. In the future, this connecting road is expected to become wider, and form a larger ring road in the surrounding area. While this should ease up traffic congestion, it will also displace a portion of the informal vendors currently occupying the right of way of the road.

3.6 Climatic Conditions

The climatic conditions of Dhaka in general apply to the site. Summer temperatures may vary from 36 °C to 25 while winter temperatures range between 12 and 25. Summer humidity is an average of 74% while precipitation is at a peak in July with almost 332 mm of rain on a yearly average. Winter months remain relatively dry (Source: <https://www.weather-atlas.com/en/bangladesh/dhaka-climate>)

3.6.1 Average Monthly Temperatures

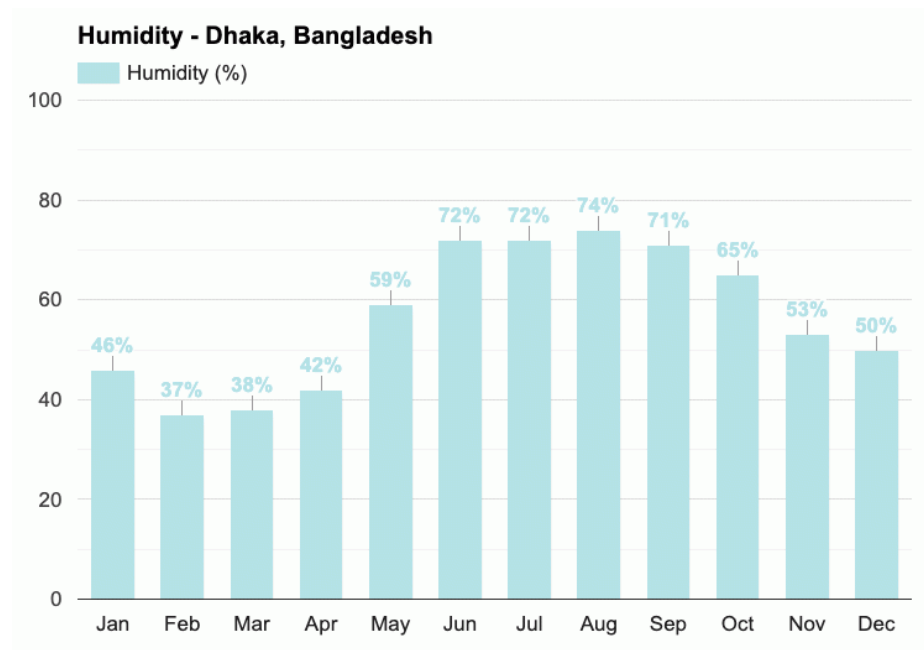
Figure 9: Monthly High and Low Temperature Data for Dhaka



Source: <https://www.weather-atlas.com/en/bangladesh/dhaka-climate>

3.6.2 Average Humidity

Figure 10: Monthly Average Humidity Data for Dhaka

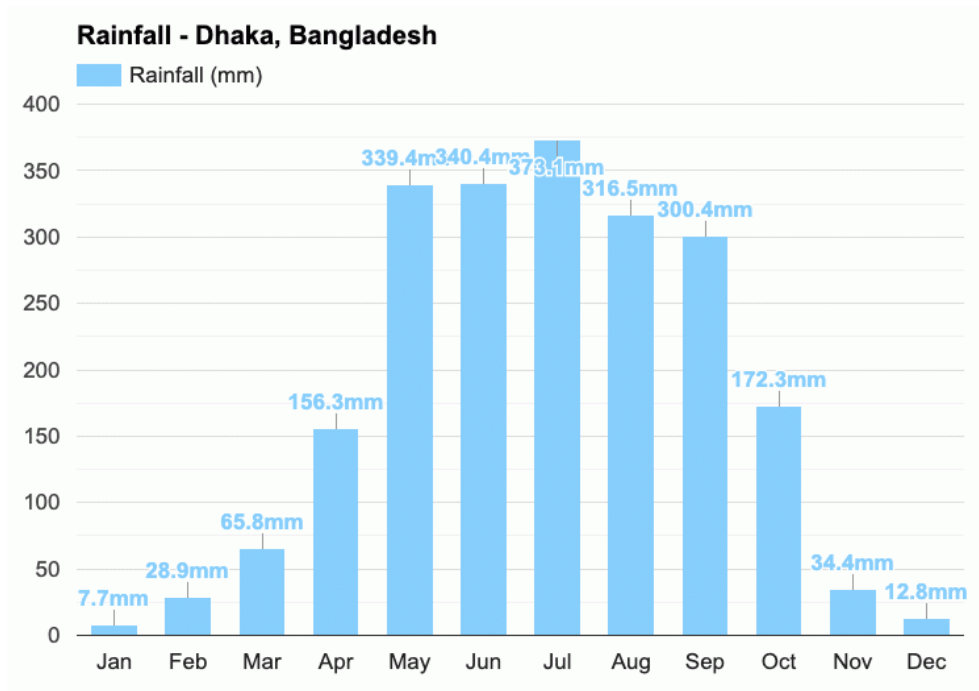


Source: <https://www.weather-atlas.com/en/bangladesh/dhaka-climate>

3.6.3 Rainfall

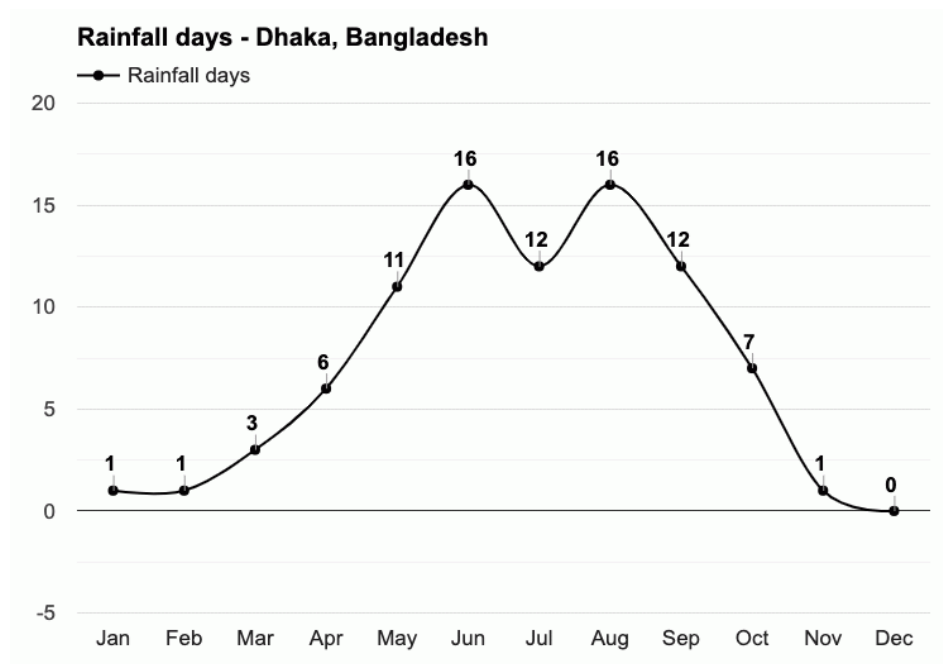
Precipitation is most frequent during the monsoon months as illustrated below. Being at a lower topological elevation, the high rainfall months often lead to flash floods, which affect the low-lying areas of the site, which have not yet been filled up. The primary challenge of the site particularly that of the informal houses is the lower elevation with respect to the road. This leaves them vulnerable to water clogging from rain as well as pluvial flooding. The current drainage systems at site are not quick enough to drain the water in such situations.

Figure 11: Monthly Average Precipitation Data for Dhaka



Source: <https://www.weather-atlas.com/en/bangladesh/dhaka-climate>

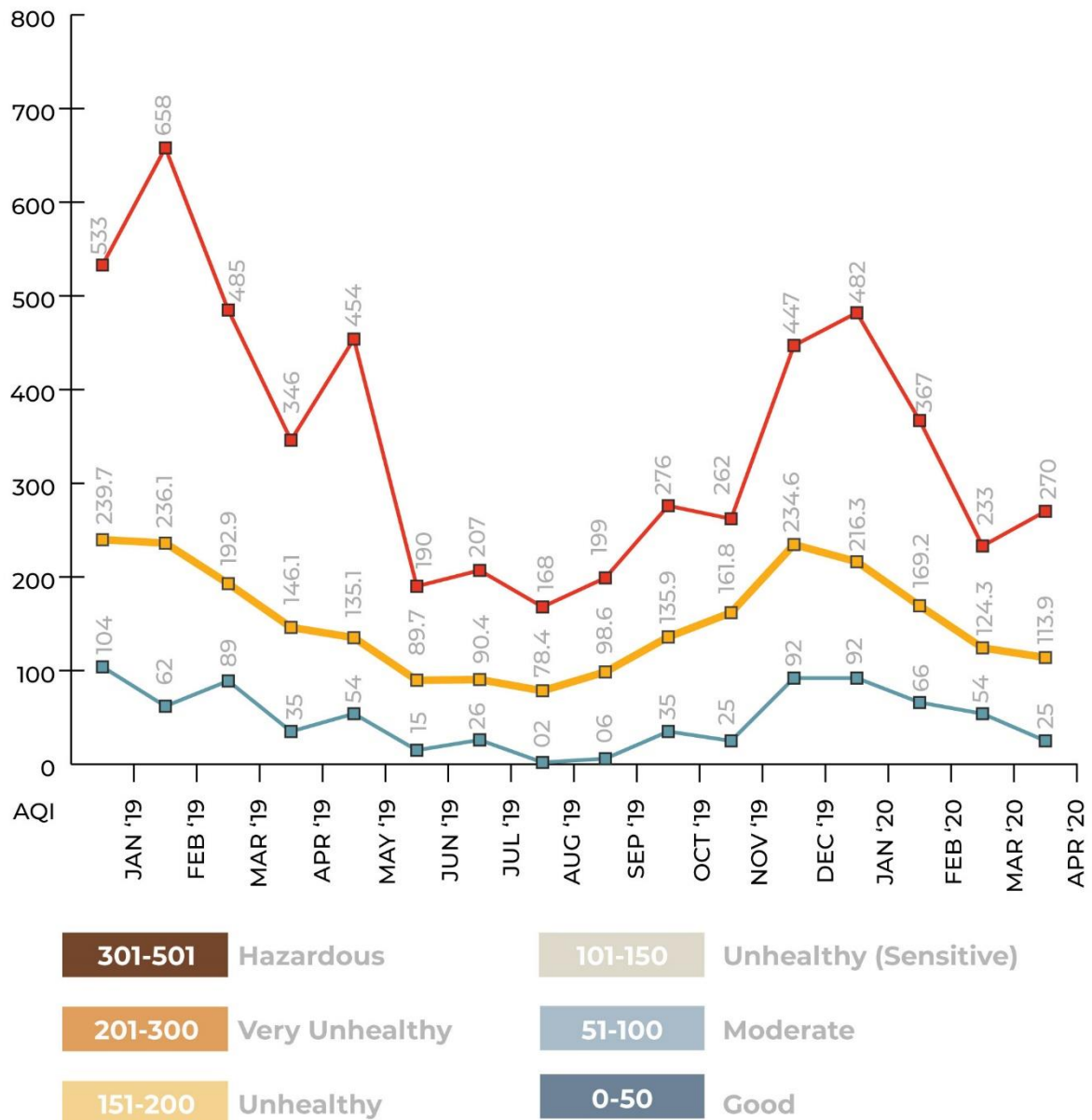
Figure 12: Monthly High and Low Temperature Data for Dhaka



Source: <https://www.weather-atlas.com/en/bangladesh/dhaka-climate>

3.6.4 Air Quality

Figure 13: Average, Highest and Lowest Monthly AQI Data for Dhaka City



Source: Compiled and illustrated by Author based on data from

([https://www.airnow.gov/international/us-embassies-and-consulates/#Bangladesh\\$Dhaka](https://www.airnow.gov/international/us-embassies-and-consulates/#Bangladesh$Dhaka))

Analysis of Air Quality Index of Dhaka City reveals two distinct periods of significantly poor air quality, deemed unhealthy or even hazardous. This stretch is usually between months of

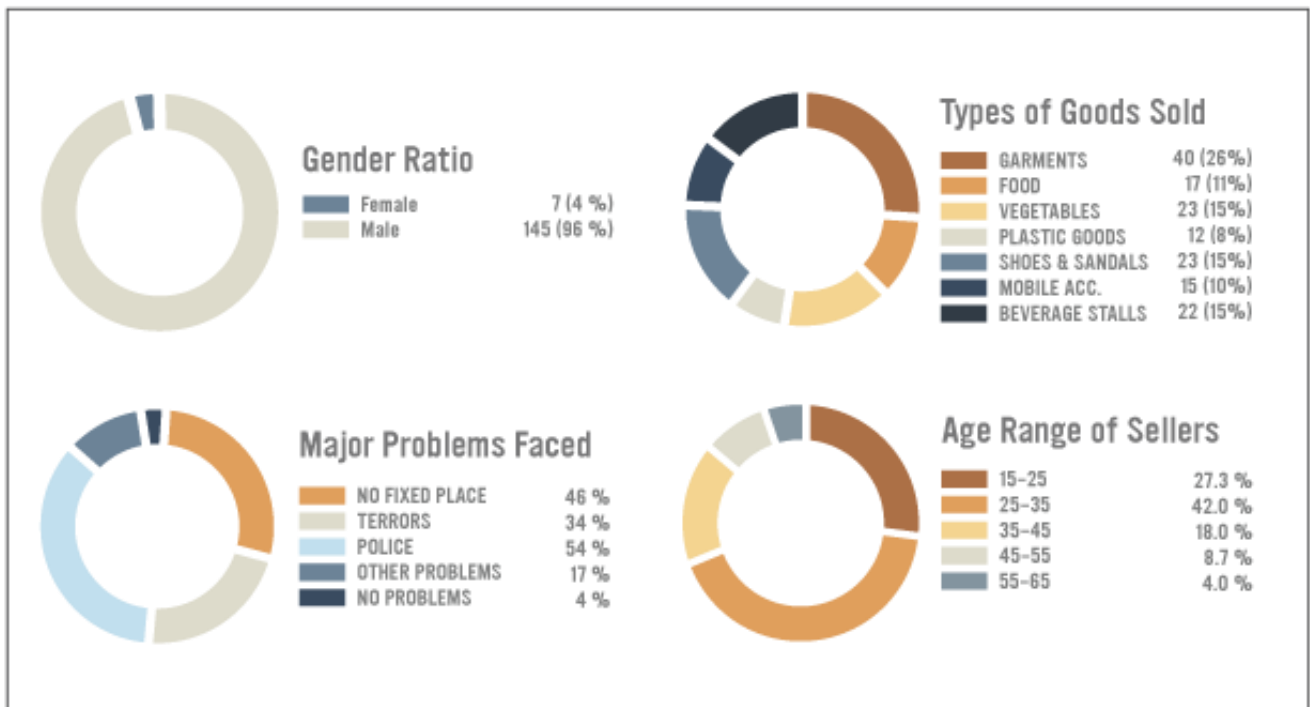
October to May. The months of June to September usually have lower AQI values, indicating healthier air quality during this period. Incidentally, better air quality coincides with the months of higher precipitation as illustrated in the graphs above. Precipitation is ideal in handling the amount of particulate matter (PM) in the air, which contributes to poor air quality.

In fact, poor air quality in the site itself was also observed during the months of January to March. The primary cause of high densities of particulate matter in the air of the site can be directly attributed to the lack of vegetation along the Sadarghat Gabtoli road. Heavy vehicular movement causes loose particulate matter from the ground to be expelled into the air, causing air pollution. Lack of ground cover, especially during the dry seasons makes the area hazardous for breathing.

3.7 Socio-Cultural and Economic Contexts

In order to explore the nature of the thresholds in the site, one has to identify the socio-economic factors that influence it, among other variables. In this regard, the state of the residents of the informal settlements are a key factor. The informal shops present at site comprise mostly of members of this locality. Therefore, it is critical to start with an overall understanding of informal vendors in the entire city.

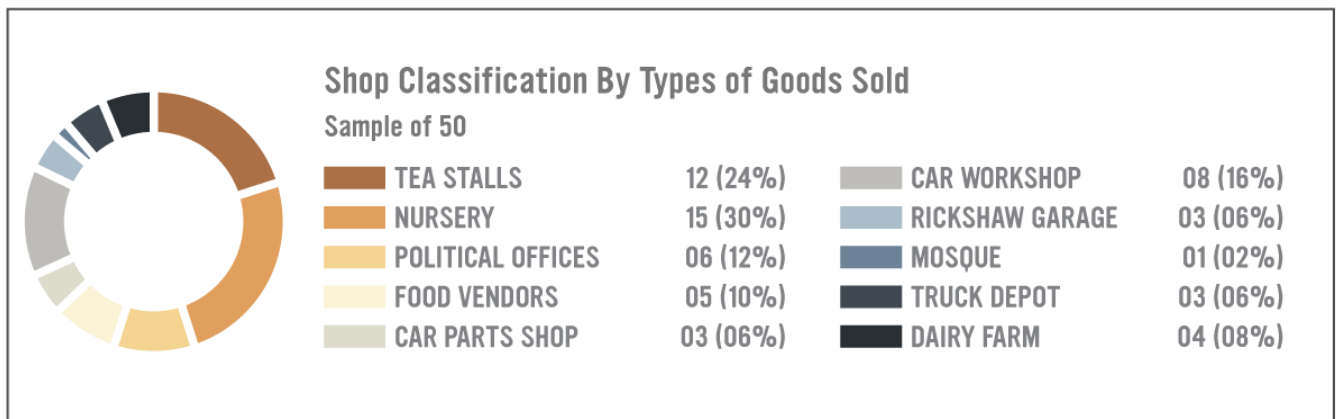
Figure 14: Statistical Data for Informal Vendors in Dhaka City, 2015



Source: Illustration based on data from Akharuzzaman, M., & Deguchi, A. (2010) and Husain, S., Yasmin, S., & Islam, M. (2015)

Furthermore, a study of the site reveals a unique make up of types of services and goods available at these informal shops. These are responsive to the specific needs of the site. For example, being situated on a heavy vehicular traffic path, many shops are dedicated workshops for automobile repairs. In response, their adjacent stores are usually small shops selling car parts for repair. Tea stalls are common in this composition of shops, and acts as an optional gathering place for the neighbourhood, although fewer gatherings are observed at night.

Figure 15: Types of Shops found at the Street Edge of the Site, 2020



Source: Author

3.8 Images of Existing Site Condition

3.8.1 Visibility

The site experiences drastic changes with the transition of night into day. The stretch of road has no street lamps. This means that the primary source of illumination during night are the light sources from shops at the edge and headlights of oncoming vehicles. These and the faint sources of faraway floodlights from the monument and its adjacent mosque are the only sources of light in the site.

Visibility is drastically lower at night, and makes it risky for general pedestrians, who are already deprived of a defined walkway; especially those trying to cross the road in the heavy traffic. The street itself does not receive any illumination on the side of the Badhya Bhumi. In fact, with most food stalls closing up after dusk, this side of the road is not only dark but also

largely unoccupied after dark. Instead, buses are parked along the entire stretch of land in front of the Badhya Bhumi and beyond.

Figure 16: View of Badhya Bhumi during daytime.



Source: Author

3.8.2 Major Site Elements

Figure 17: View of Rayer Bazar Badhya Bhumi



Source: Author

Figure 18: Badhya Bhumi from the Cemetery



Source: Author

Figure 19: View of Cemetery from the Monument



Source: Author

Figure 20: Street Shoulder with informal nurseries



Source: Author

Figure 21: Main Entry to Cemetery with adjacent mosque



Source: Author

Figure 22: The Lake inside the cemetery



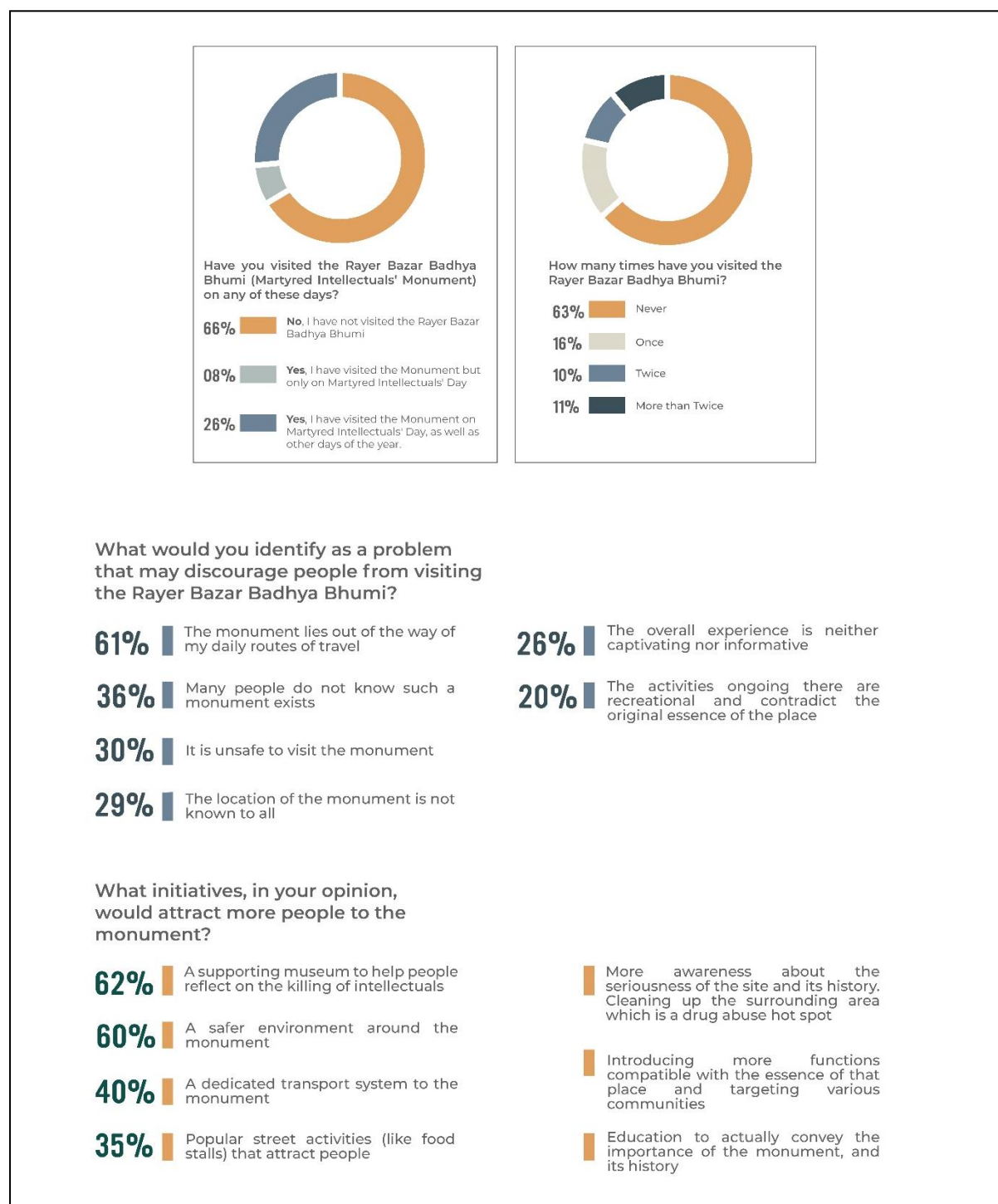
Source: Author

3.9 Site Activities

3.9.1 Youth Survey

A survey of University going students was conducted in order to find out how the youth of the nation, who are to become its future intellectuals, relate to this site. The following are the findings of the Survey:

Figure 23: Rayer Bazar Youth Survey



Source: Survey by Author

3.9.2 Pedestrian Movement

Mapping of pedestrian activities around the site reveal a distinct pattern of heavy usage of the walkways within the complex of Rayer Bazar graveyard, with the highest concentration occurring along the perimeter of the Rayer Bazar Badhya Bhumi

Figure 24: *Pedestrian 'Heat Map' of Rayer Bazar Area*



Source: <https://www.strava.com/heatmap#15.17/90.35492/23.74845/hot/run>

Figure 25: Typical view of site showing activities in afternoon



Source: Author

Figure 26: Activity and spatial breakdown of site



Source: Author

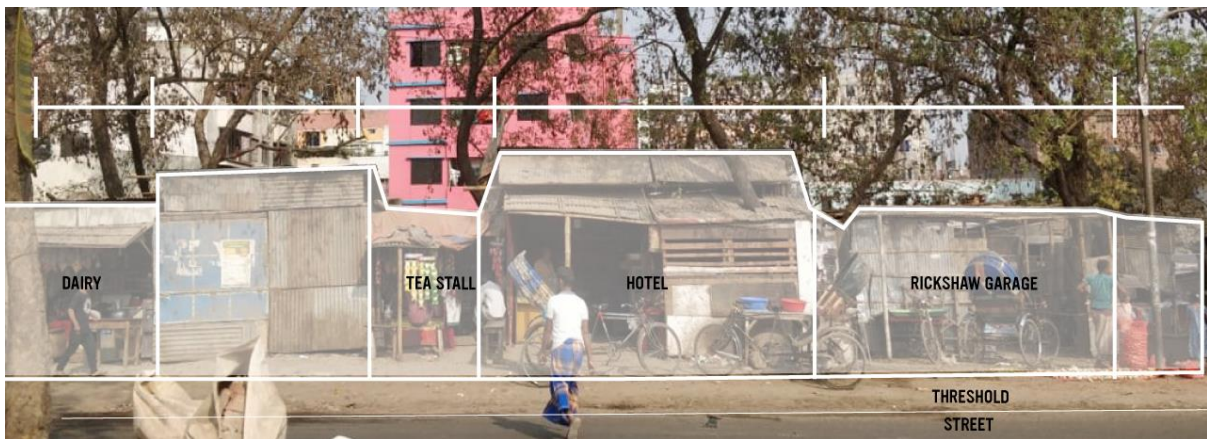
With the major street being 20' wide in definition, most activities take place on the shoulder of the street. These include not only permanent and semi-permanent vendors, but also semi-mobile carts. It is notable that these functions only prevail during the day. The general area remains dusty and polluted during dry seasons due to the abundance of barren strips of land that are not covered in vegetation.

Figure 27: Façade and layout of shops on street edge.



Source: Author

Figure 28: Designation of shop types and shop profiles.



Source: Author

Figure 29: Informal uses. People playing cricket on the grounds of the Badhya Bhumi



Source: Author

Figure 30: Informal uses. Semi-Mobile snacks cart on the outer wall of Badhya Bhumi



Source: Author

Figure 31: Snack vendors and other recreational activities inside the monument



Source: Author

Chapter 4: Case Study Appraisal

Short of historic examples of grand schemes of standalone walls, it is not common to find cases where the nature of walls become a highlighted feature. Therefore, it was important for this study to break down a threshold or a wall into fundamental functions and refer to scenarios in which one or more of these purposes of a threshold have been served by a structure or element in a city. Thresholds in a city often serve as elements that define the city itself. Sometimes, they are linear paths that direct people towards a significant structure, institute or public square. Thresholds can even be perceived as a long line of recurring functions that separate two contrasting entities such as private and public spaces.

4.1 Bazars of Iran, Iran

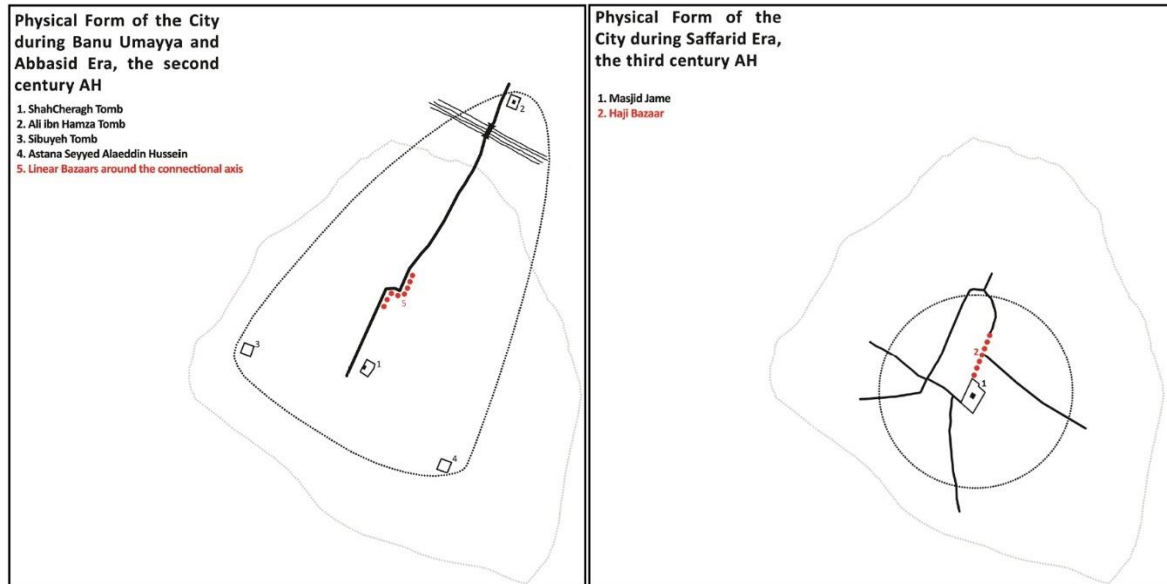
The many bazaars of Iran evolved as a linear progression of shops on both sides of a route, with each module shaded under a single roof; often a dome. The threshold created by the bazar may be perceived, not as a barrier but as a connecting element, that bridges the gap between junctions or landmarks. Historically, this unique feature of the bazar has been utilized by cities such as Isfahan to connect maidans, mosques and administrative complexes, depending on the specific city layouts of each era.

4.1.1 Historic Development of Shiraz Bazar

The city of Shiraz is characterized by the series of bazars that run through it in various directions, acting as inter-connected corridors that terminate at various structures. Historically, these have evolved through a number of eras. The bazaar started out as a linear function arranged on either side of a central axis. This axis connected the tombs of Shah Cheragh and Ali Ibn Hamza during the Banu Umayyad and Abbasid Era (661 – 820 A.D.). During the

Saffarid Era (861 – 1002 A.D.), the bazaar served as a linear row of markets that connected to the Friday Mosque. These served as public pathways for interaction and recreation.

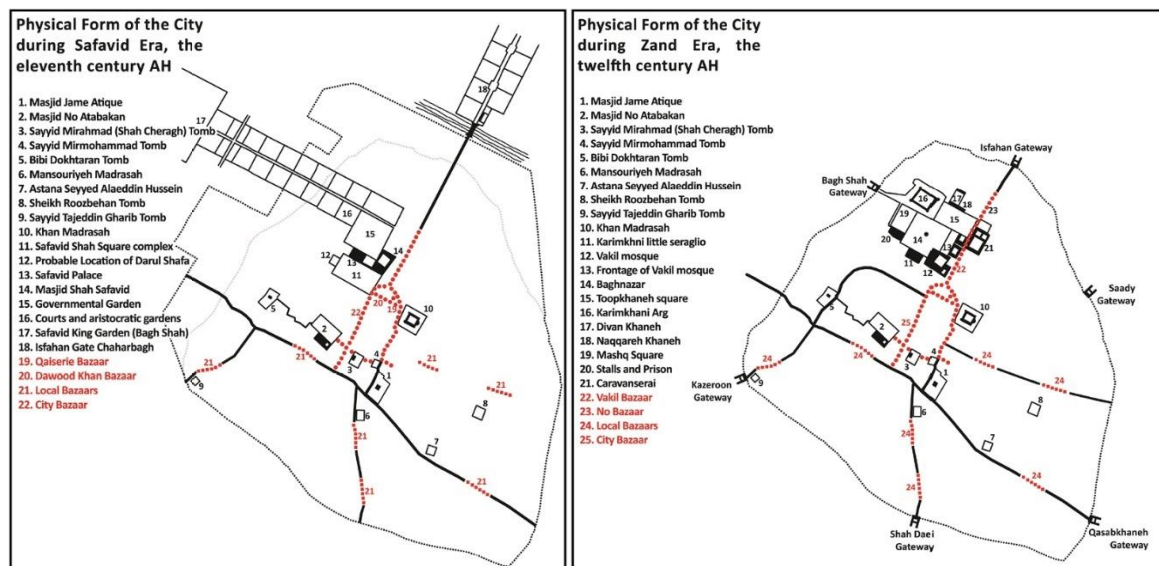
Figure 32: Historic Development of Shiraz Bazaar in Banu Umayyad, Abbasid and Saffarid Era



Source: Armanshahr Architecture & Urban Development, 12(26), 89-101, spring 2019

The bazaars of Shiraz eventually served as connectors between multiple landmarks. During the Safavid (11th century AD) and Zand Era (12th century AD), the bazaars are seen as secondary routes connected to central spines that are the major access ways in the city. Linear bazaars acted as connectors between multiple structures such as tombs of historic figures, Jami mosques, courts and administrative buildings as well as public squares and gardens. This list grew further in the Zand eras. During both periods, the bazaars sprawled across the city, not as one singular stretch but multiple segments. If one were to look at the bazaar as a series of modules, they would discover that each module is an enclosed structure with defined parcels of spaces for shops against the defining walls of the bazaar. The bazaars sought to connect newer neighbourhoods with older establishments in these eras. Furthermore, the design scheme of the bazaar was based on a strict hierarchy of spaces that finally led into one of many open squares or maidaans of the city.

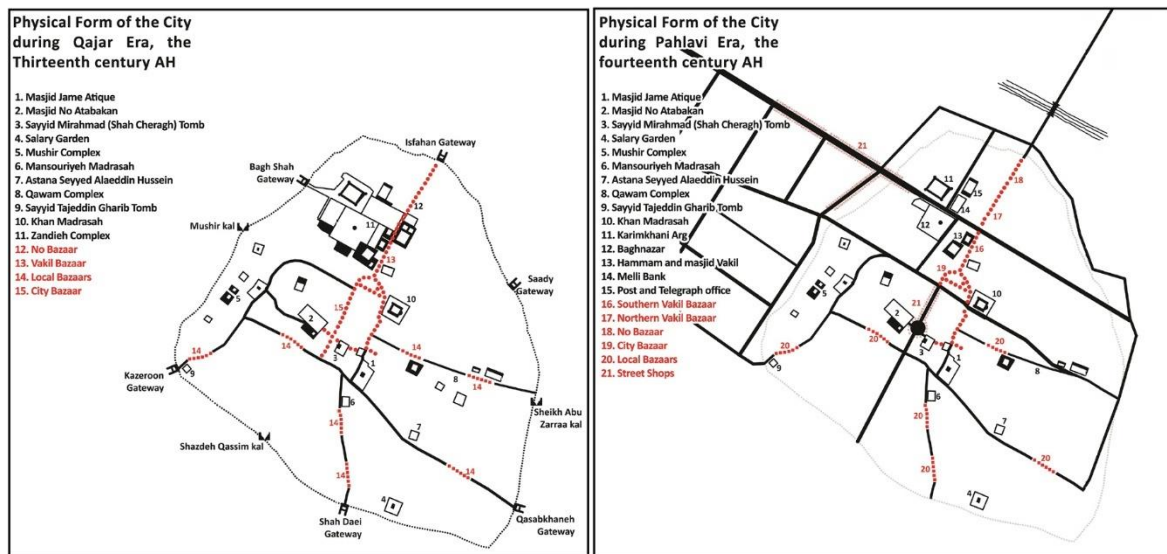
Figure 33: Historic Development of Shiraz Bazaar in Safavid and Zand Era



Source: Armanshahr Architecture & Urban Development, 12(26), 89-101, spring 2019

Subsequently, the bazaars of Shiraz grew more important as the city evolved through its many phases. Through the Qajar Era (1789-1925 AD), these bazaars picked up on the pre-existing hierarchy from previous development. They still served as prime hubs for trade and commerce, while also facilitating social interactions between people in the city. The importance of the bazaar was further established when in this era; it became the epicentre of multiple civic movements. During the Pahlavi Era, which spans from 1925 AD to current time, the bazaar retained some of its historic functions, while trying to incorporate modern functional needs such as vehicular priority into the bazaar. More importantly, the linear row of bazaars was seen as elements of historic value, regardless of their functional prominence in the context of the city.

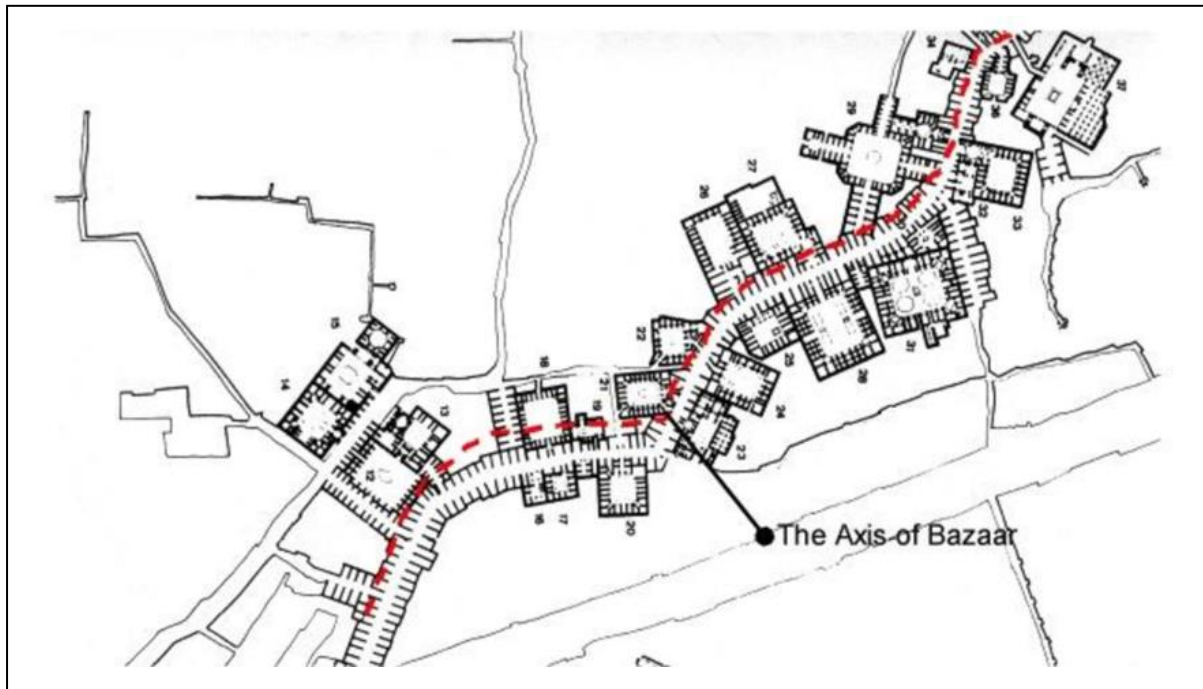
Figure 34: Historic Development of Shiraz Bazaar in Qajar and Pahlavi Era



Source: Armanshahr Architecture & Urban Development, 12(26), 89-101, spring 2019

4.1.2 Historic Development of Isfahan Bazar

Figure 35: Historic Development of Isfahan Bazar

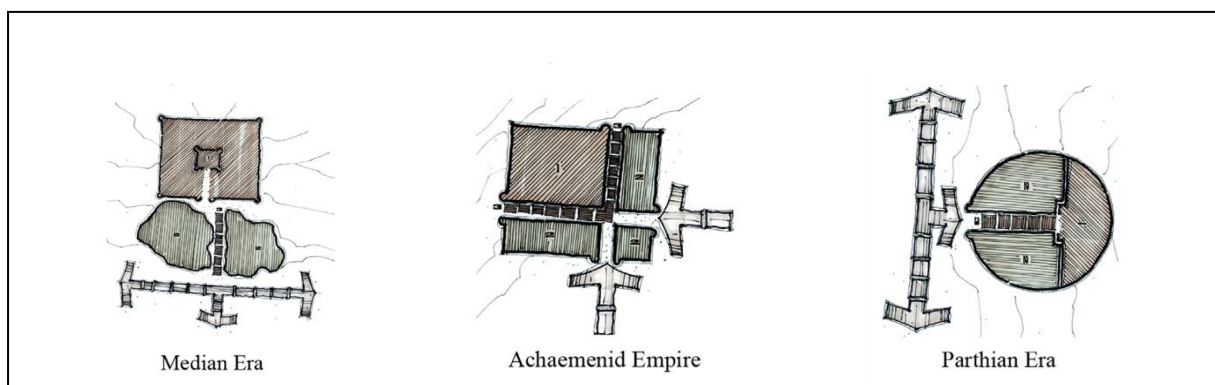


Source: Ardalan & Bakhtiar (1973)

Of the many bazaars in the history of Iran, the bazaars of Isfahan have most prominently served as connectors between three major types of structures. Much like the development of Shiraz Bazaar, the case of Isfahan is also one that evolved across multiple eras and therefore systems of rule and ways of society. This has caused the bazaar, in its capacity as an urban connector, to serve as a bridge between various types of structures across time.

Starting at the Median Era, the bazaars were of no great prominence. In this time, castles and internal divisions took importance as elements in the city. With the Achaemenid Era emerging, the city was perceived as the centre of government, trade and commerce. With this change in paradigm, the bazaars came into existence as key structures in the city. During the Parthian Era, bazaars served primarily as structures along the main street, from the city gate to downtown (Soltanzadeh, 1983). The Sassanid Era saw the bazaar evolving into the backbone of the city, with the squares it connected to, transforming into maydans of socio-economic activities.

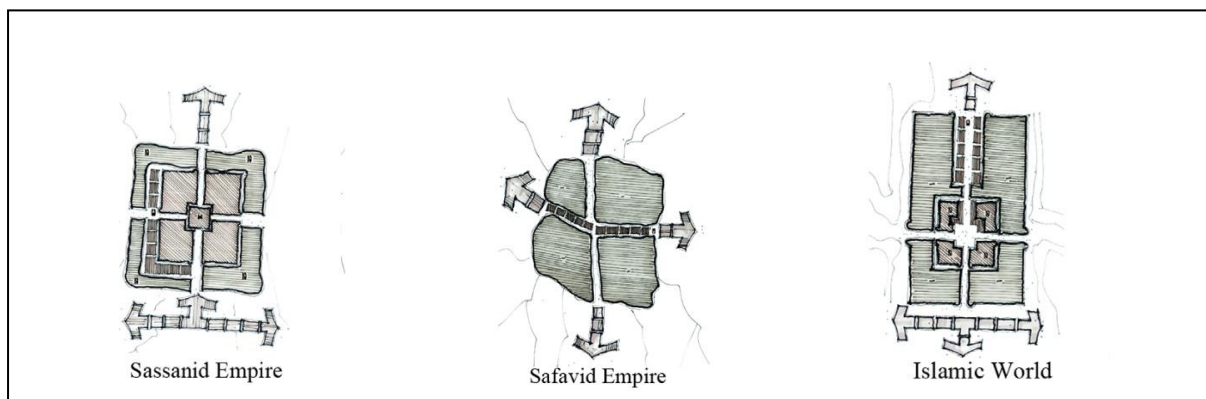
Figure 36: Historic Development of Isfahan Bazaar during Median, Achaemenid and Parthian Era



Source: Pourjafar, Amini, Varzaneh and Mahdaveinejad (2013)

The Safavid Era witnessed the connection of the Jami mosque, the bazaars, institutions of political and social importance as well as housing neighborhoods. These structures formed a cohesive dialogue with one another, maintaining a distinct hierarchy of space between them. During Islamic rule, the Iranian city was divided into three segments. These were, the Sharestan (Middle City), the Kohandeg (Out City) and the Rabaz (Bazaar). The stretch of linear bazaar would typically open into a city square. With respect to this formation, the residential precincts would be laid out according to economic and social hierarchy.

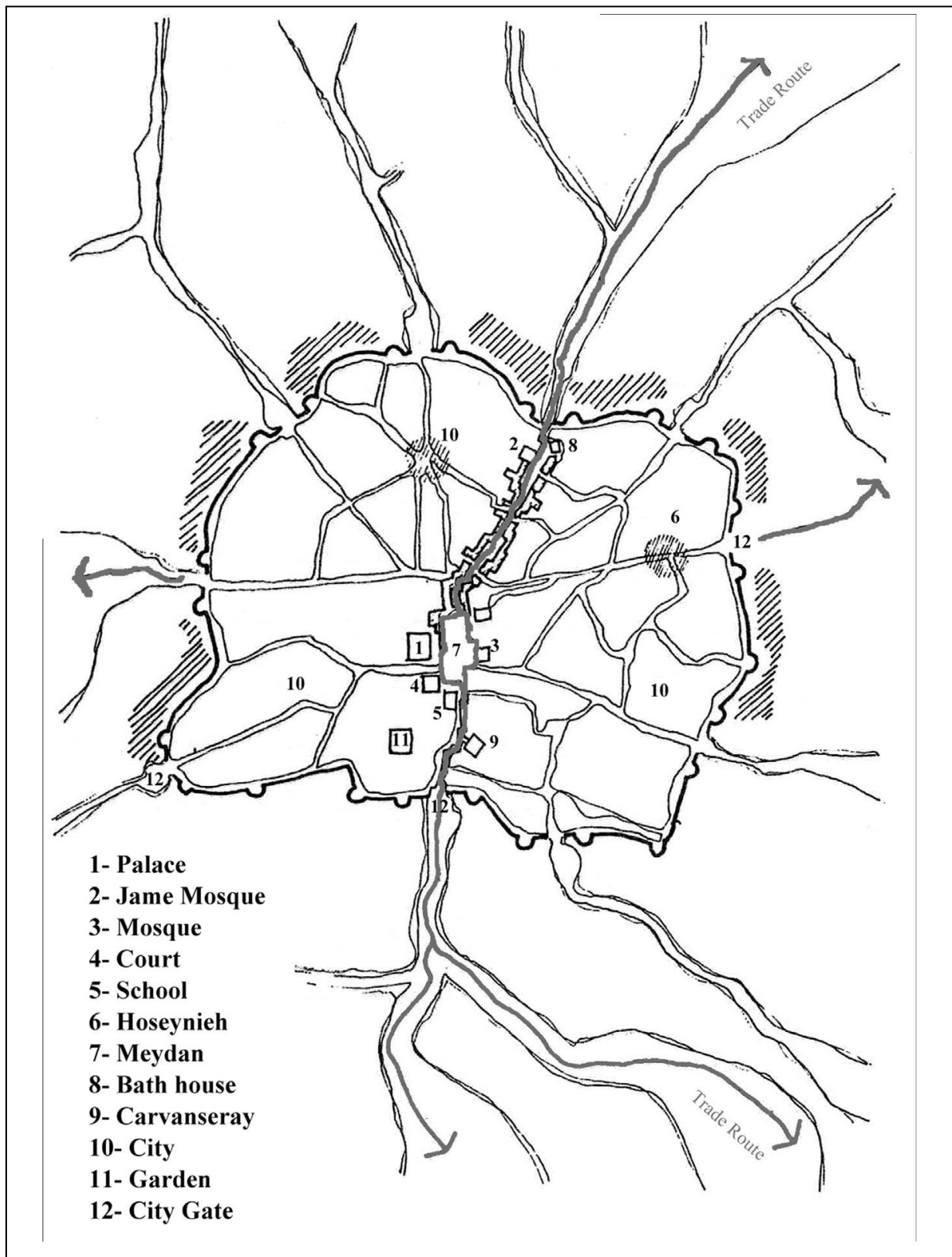
Figure 37: Historic Development of Isfahan Bazaar during Sassanid, Safavid and Islamic Era.



Source: Pourjafar, Amini, Varzaneh and Mahdavinejad (2013)

However, amongst all these eras, one could summarize the role of bazars as elements of the city which, when placed at a location, would naturally dictate the growth of structures around it. These not only included public institutions and squares but also determined residential clusters in the city. The general trajectory of the bazaar is also relatively constant, spanning across the main entrance of the city, to the other side, onto opposing gates (Soltanzadeh, 1983).

Figure 38: Physical Structure of Isfahan City outlining the Bazaar.



Source: Pourjafar, Amini, Varzaneh and Mahdavinejad (2013)

Figure 39: Aerial view of Isfahan Bazar

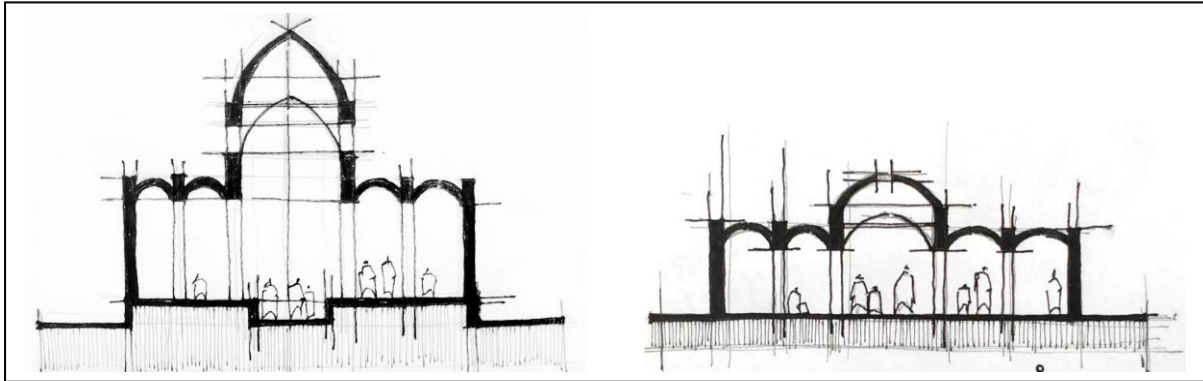


Source: [http://www.iranicaonline.org/articles/isfahan-xii-bazaar-plan-and-function#prettyPhoto\[sidebar\]/3/](http://www.iranicaonline.org/articles/isfahan-xii-bazaar-plan-and-function#prettyPhoto[sidebar]/3/)

4.1.3 Climatic Considerations

The Bazars of Iran are constructed with respect to the climatic context of each site. When the bazars are located in hot and dry climates, the roofs are seen as raised, vaulted or dome structures that sit on top of wide aisles. These provide thermal comfort to the interior. Materials of choice in such cases is locally found bricks or stone. This is the case of Shiraz bazaar. In colder climates, such as the context of tabriz bazar, the aisles are designed to be narrower while the need for smaller opening prevails. The roof is also designed to be as low as possible (Bostanian and Rahimibod, 2015)

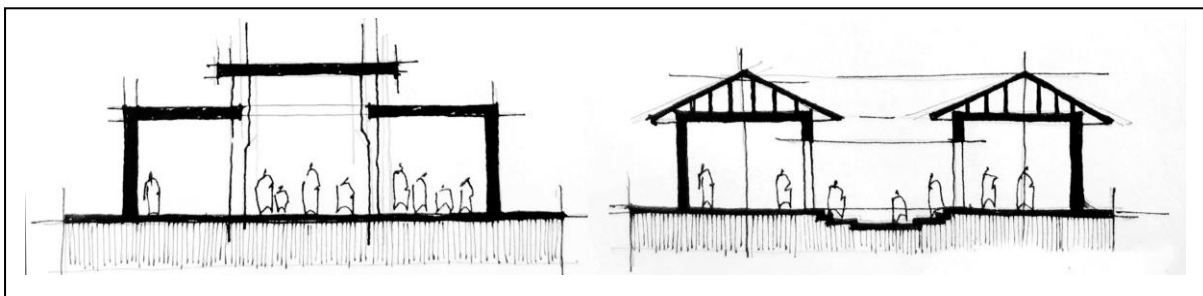
Figure 40: Roof section of Tabriz Bazar (left) and Shiraz Bazar (right) according to climatic considerations



Source: Redrawn by Author from Bostanian and Rahimibod (2015)

According to Bostanian and Rahimibod (2015), when bazars are observed in hot and humid climates, such as the Bandar Lenge Bazar near the Persian Gulf, they are facilitators of ventilation and prevention of direct sunlight exposure. Roofs are covered in timber or mats to perform this task. In the case of the Rasht Bazar, which is near the Caspian Sea, it is more important to ensure protection from rainfall. Bazars are structurally covered by inclined roofs while the rest of the pathways are mostly roofless.

Figure 41: Roof section of Bandar Lenge Bazar (left) and Rasht Bazar (right) according to climatic considerations

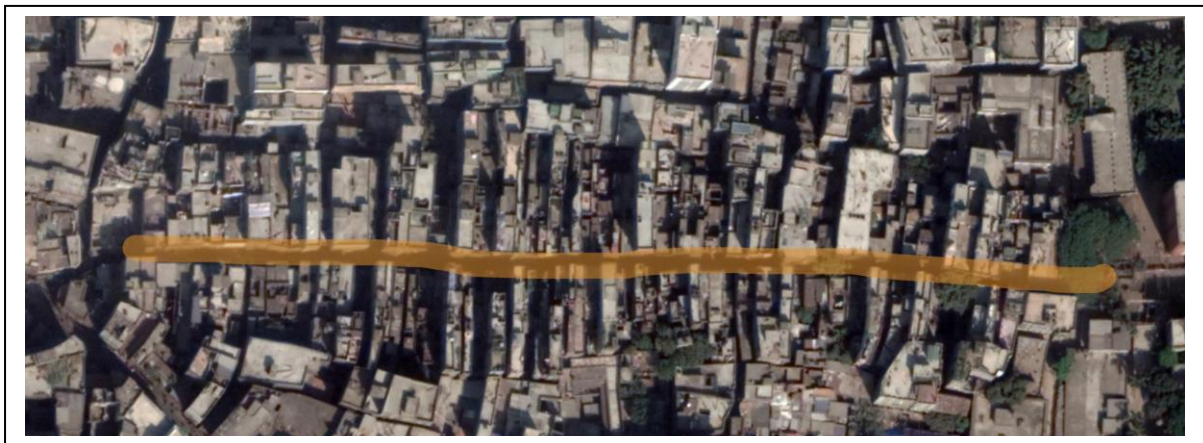


Source: Redrawn by Author from Bostanian and Rahimibod (2015)

4.2 Shakhari Bazar, Old Dhaka

In Shakhari Bazar and its neighbouring Tanti Bazar of Old Dhaka, we find two unique neighbourhoods comprising of shop houses. These row houses with shopfronts opening onto the street are a unique example of how the threshold between the semi-public street and the very private residence can be a transitional space where the residents themselves sell goods.

Figure 42: Aerial view of Shakhari Bazar



Source: Google Earth

4.2.1 Neighborhood Morphology

The settlements in Shakhari Bazar of Old Dhaka form a compact neighbourhood. Dated back to almost 300 years ago, the neighbourhood comprises of a series of linear row houses. Most of these were built during the Mughal era while some are from the later British period. Each house gets a minimal street frontage while expanding backwards. This may have been due to one of two factors. The plots may have originally been demarcated in this manner or the subsequent division of houses across generations may have led to each owner of a larger house opting to own a portion of the street side of the property (Ahmed, 2007)

Figure 43: Map of Shakhari Bazar showing linear house pattern and street.



Source: Urban Study Group (USG)

4.2.2 Occupation

A majority of residents of Shakhari Bazar are businesspersons and the entire area itself has economic importance. Historically, the residential quarter derives its name from the trade of Shakhas, crafts made from conch shells. These are crafted into bangles, mostly representing the married status of a woman. Shakhas may also be crafted into ceremonial trumpets or Jal-Shakhas for offering water to the deities (Bahauddin, 2010).

Figure 44: Street view of shop houses showing shopfronts

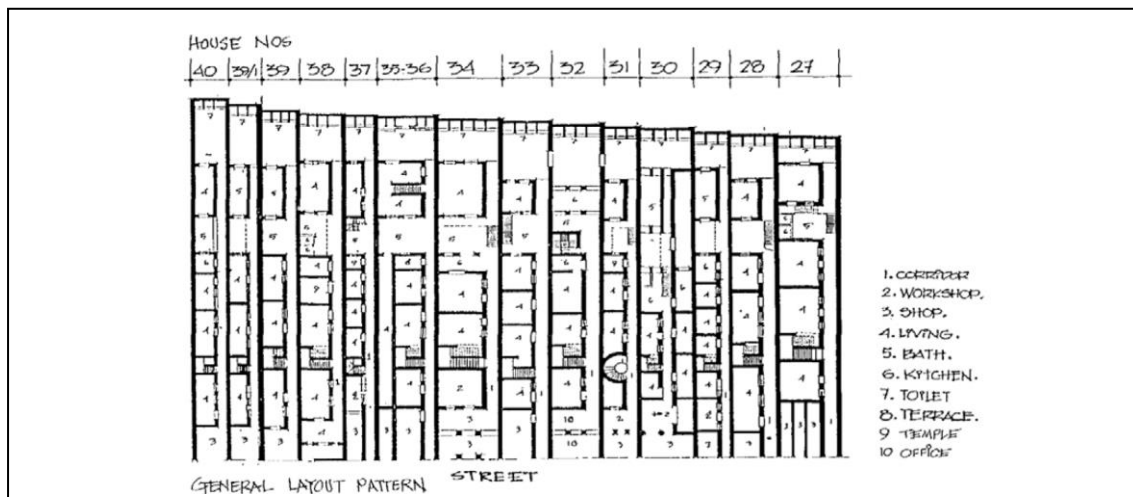


Source: Dr. Iftekhar Ahmed

4.2.3 Layout and Street Front

The houses of Shakhari bazar come in a variety of iterations of the same linear module. Each house is accessed through a corridor, with the front portion being dedicated to commercial activities (such as the sale of Shakhas). The middle portion is usually where the living quarters are placed while the back of the house is generally allotted for services such as toilets. On the upper floors, the functions are all private with living spaces for the family.

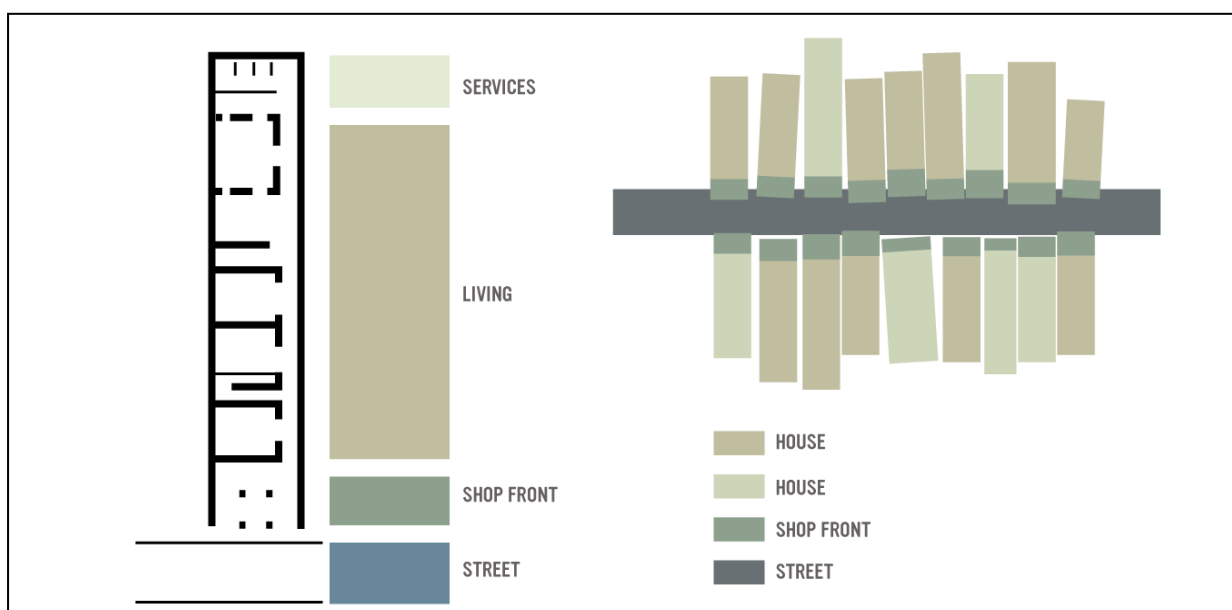
Figure 45: Various house typologies showing general functional layout



Source: Bahauddin, 2010

It is noteworthy, that each house meets the street at its commercial function i.e. the shops. Each house, laid out in a similar manner leads to a long line of shops lining both sides of the street. In this manner, the threshold between the public street and the private dwelling is addressed with an intermediate function.

Figure 46: Functional breakdown of a typical house and relationship with street edge.



Source: Author

4.3 Walled City of Ahmedabad, India

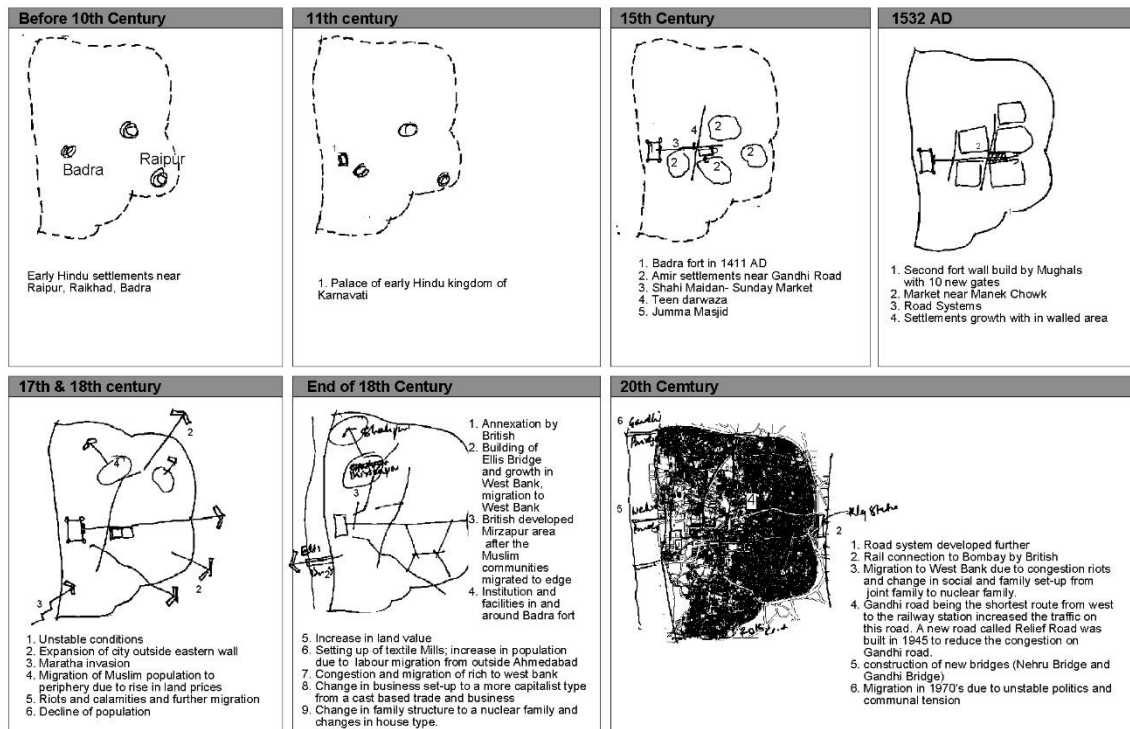
Figure 47: View across Sabarmati River showing new and old (walled) city of Ahmedabad



Source: <https://www.architecturaldigest.in/content/ahmedabad-walls-exhibition-kasturbhai-museum/>

When Sultan Ahmed Shah founded a new city on the Eastern bank of the River Sabarmati, the city comprised of primary structures such as the Citadel, Friday Mosque and three Darwaza (gateways). It was his grandson; Sultan Mahmud Begada who constructed a fortifying wall around the perimeter of the city in 1457. This city, to be named Ahmedabad, would comprise of a wall spanning 10 kilometres in circumference, or roughly six miles. Initially, 12 gateways were constructed as apertures in the wall, although later additions brought the total number of gates to about 21 (Sejpal, 1987).

Figure 48: Growth of the Walled City



Source: Raman and Dempsey, 2012

The expansion of the city would eventually exceed the extents of the wall. This led to three distinct urban morphologies in the city over time. At the core, the Walled City still stands, although missing its walls. Multiple neighbourhoods (pols) that are internally homogeneous in terms of religion, caste or culture lived together in close proximity without fear of clashes or violence within the Walled City. The same cannot be said as time progressed. While the first mills were within the parcel of the walled city, expansion soon followed outwards to the East. This led to a second distinct morphology- the new industrial district. The third segment is the westward growth of the city from the western bank of the Sabarmati and onwards. This new expansion mostly saw economic and professional elites as settlers. At the same time, this new segment of the city became ideal ground for the establishment of numerous universities as well as institutions (Mahadevia, Desai and Vyas, 2014)

[illegible]

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4.4.1 Patrick Geddes and Demolition

When Patrick Geddes, the noted Scottish polymath, compiled his *Note on Ahmedabad* in 1915, he spoke much about the ‘Wall’ of the Walled City. After all, he had been asked to weigh in on the call of many at the time, for the demolition of the city walls. For one, the demolition of the wall altogether was considered as a quick solution to numerous problems such as density of settlements within the Walled City, prevalent problems in sanitation as well as evident slum conditions. The most prominent demand for such a demolition was common along the Western edge of the wall, where the wall stood between the city and the Sabarmati River. (Tyrwhitt, 1947)

These notes suggest that the threshold of the Walled City, in this case, the wall itself may have been retained and other initiatives could be taken instead to solve the problems within the Walled City at the time of observation. Geddes emphasized on the preservation of the ‘Wall’ as a key component of the legacy of the city of Ahmedabad, by encouraging people to engage further with the structure. His recommendations suggest ways to treat the long stretch of wall as an extension of the public realm as opposed to a mere monolithic entity at the edge of the city. He proposes turning the 8’ thick wall into a walkway that people can easily reach the top of by placing stairways at regular intervals. In places where the wall was at a lower height, he simply suggests the use of stone blocks at the foot of the wall so that people may climb up and look past the visual barrier.

Geddes remarks that the wall was generally too low to impede wind flow into the city on all sides. In fact, the demolition of the wall on the Western edge, in places like Jamalpur, would only expose residents to the sewage disposed by the river (Tyrwhitt, 1947). According to a report published by the World Monument’s Fund in 1998, the wall was demolished around the 1940’s. This loss of a defined boundary encouraged growth furthermore.

The resultant nature of the walled city is one that has lacked appropriate planning measures to accommodate expansions, while acknowledging the historic significance of the place. As Ahmedabad celebrates 600 years of its foundation and becomes listed as a UNESCO World Heritage City, ensuring preservation of its formerly walled precinct become ever more important. (World Monument's Fund, 1998)

Figure 50: Current view of Astodia Gate showing severed edge of the 'Wall'



Source: <http://ingujarat.net/astodia-darwaja-in-ahmedabad-check-of-details-astodia-darwaza/>

Chapter 5: Threshold Appraisal

As discussed previously, Cambridge Dictionary describes a threshold as a level or point beyond which something begins to happen or a change is experienced. Alternatively, a threshold may also be defined as the part of a floor defining the entrance to a building or room. It may also be thought of as a boundary marking a region. Thresholds may be in-between spaces by themselves, transitioning the movement from one space to another.

Beyond the spatial connotations of thresholds, the word also describes the difference between two intensities, signifying the threshold as the difference that must be exceeded to transition from one state to another. These maybe two voltages, concentrations or pressure among other things. Finally, a threshold may also be described as the point beyond which a psychological change in state of mind begins to take place.

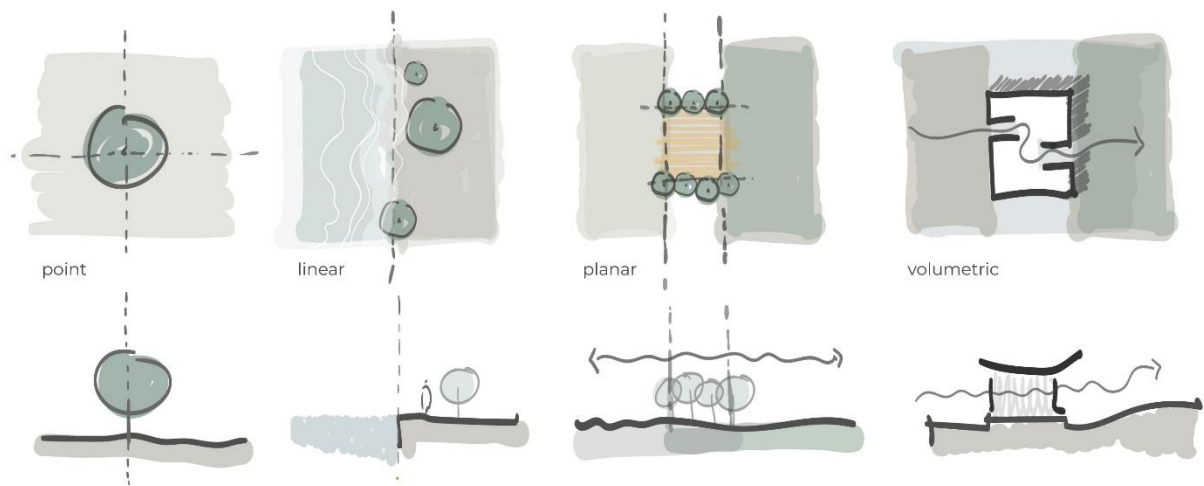
5.1 Thresholds: An Analysis in Form

In the context of Dhaka city, thresholds present themselves in a number of variants. Each of these vary in their physical manifestations with respect to their site forces as well as needs of the user groups and surrounding structures. In terms of the geometric manifestation of thresholds, they can be discovered along the city in four broad expressions:

- **Point Thresholds:** A lone tree in an open field itself can become a threshold wherein, one can either be on one side of it or the other at any given time.
- **Linear Thresholds:** Perhaps the best example of such a threshold is when the land slopes into the very edge where it meets a lake, pond or river.

- **Planar Thresholds:** An intermediate spatial plane between two spaces. The setback plinths of many buildings serve as intermediate spaces between the busy vehicular street and the entry to the building.
- **Volumetric Thresholds:** A three-dimensional enclosure serving as in between space. Fore rooms before entering the prayer halls of Sultanate, mosques are one of many examples.

Figure 51: Geometric expression of Thresholds

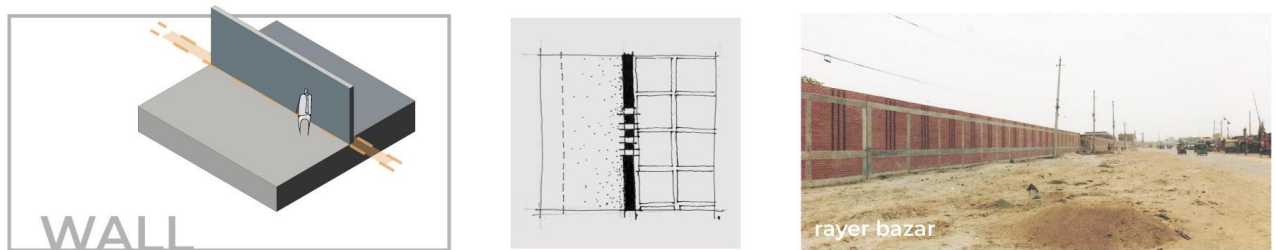


Source: Author

5.1.1 Wall

One of the most recurring physical features at the threshold is the solid boundary wall. It is designed to impede both physical and visual access at the threshold.

Figure 52: Typical Example of Wall as Threshold

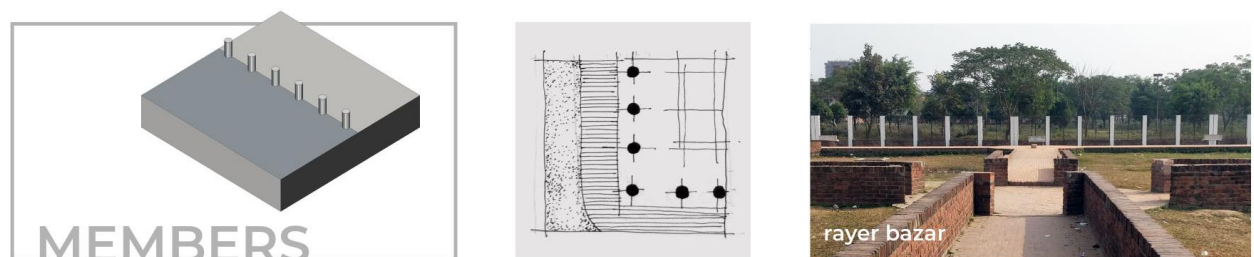


Source: Illustrations by Author with imagery from <http://smcdccbd.com/home/projects/Completed>

5.1.2 Members

Threshold is defined by a series of vertical members. Visual access is possible but physical access depends on spacing between members. Most common examples include fences and bollards.

Figure 53: Typical Example of Members as Threshold

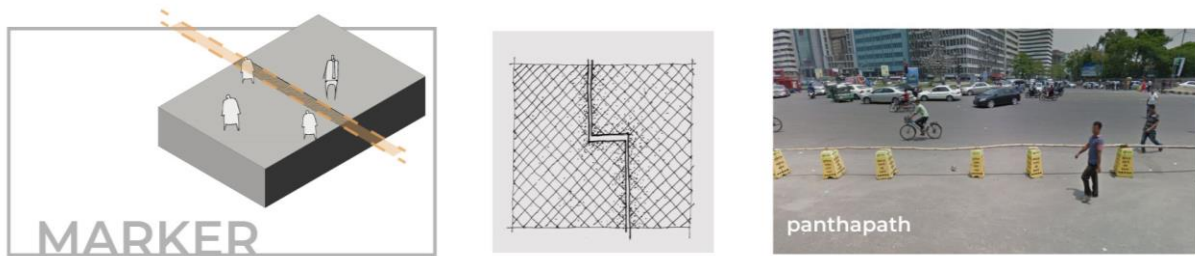


Source: Illustrations and Imagery by Author

5.1.3 Marker

A marker can be a threshold between two homogeneous surface and levels. Such a demarcation is mostly a visual indication, as opposed to being intended as a physical barrier of any sort.

Figure 54: Typical Example of Marker as Threshold

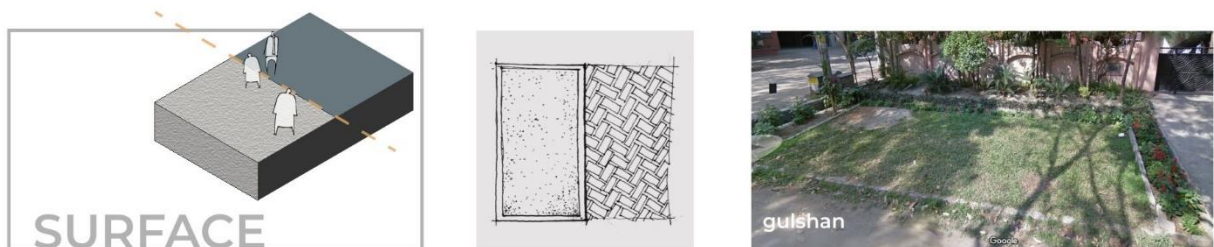


Source: Illustrations by Author with imagery from Google Maps

5.1.4 Surface

Thresholds may also be demarcated by the change in surface between two spaces. The concrete plinth of a building, ending at a patch of grass at the setback may open onto the tiled surface of the footpath. All three spaces are at the same elevation but are distinguished by individual surfaces.

Figure 55: Typical Example of Surface as Threshold

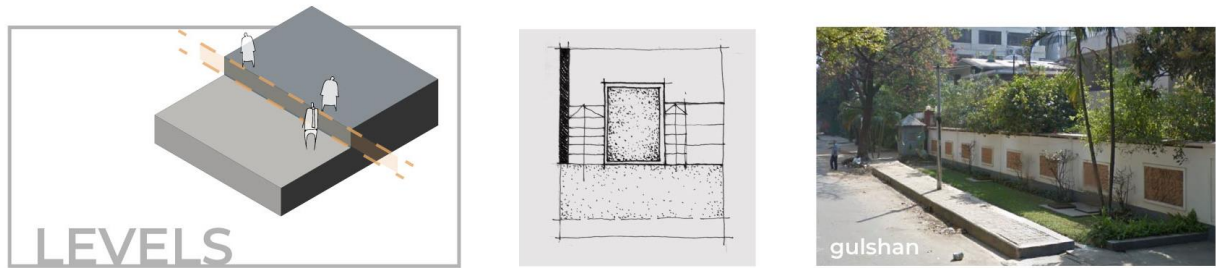


Source: Illustrations by Author with imagery from Google Maps

5.1.5 Levels

From the raised plinth of the building to the exceptionally high (upto 12-18”) footpaths of the street edge, levels are a common distinction found at the threshold.

Figure 56: Typical Example of Levels as Threshold

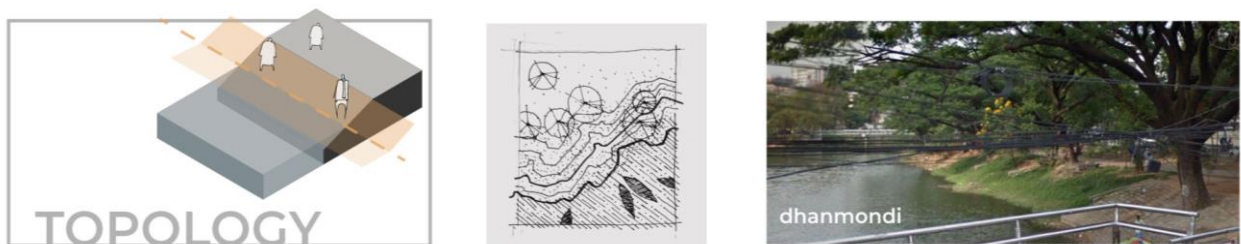


Source: Illustrations by Author with imagery from Google Maps

5.1.6 Topology

Dhaka city is surrounded by rivers at its edges and has a wide array of water bodies scattered throughout. At each of these edges, the naturally formed threshold between land and water form distinct edges.

Figure 57: Typical Example of Topology as Threshold

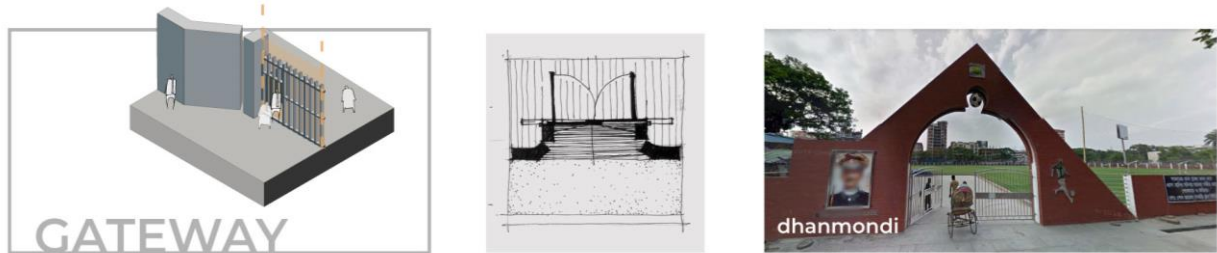


Source: Illustrations by Author with imagery from Google Maps

5.1.7 Gateway

Gateways are most commonly found as a ‘break’ in the walls discussed above. These punctures allow selective entry and depending on the design, some amount of visual porosity to the outsider.

Figure 58: Typical Example of Gateway as Threshold

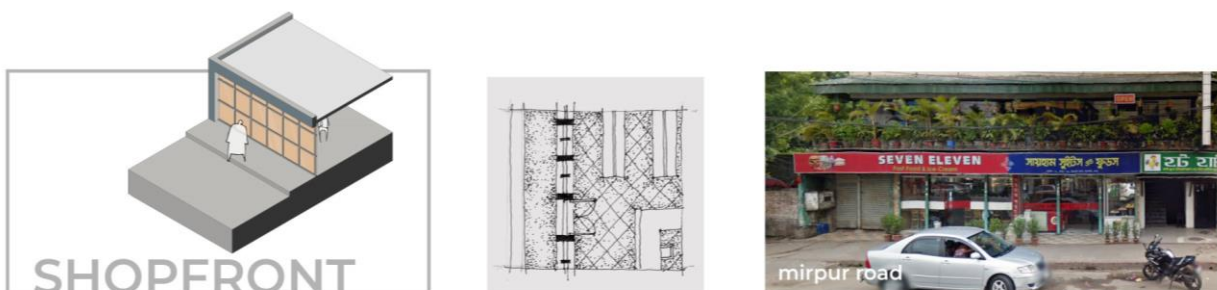


Source: Illustrations by Author with imagery from Google Maps

5.1.8 Shopfront

Shopfronts at the street edge not only offer activities at the threshold, but are also create a more porous facade than the solid boundary wall. Entry is usually universal given the commercial nature of the structure, unless socio-economic factors dictate otherwise.

Figure 59: Typical Example of Shopfront as Threshold

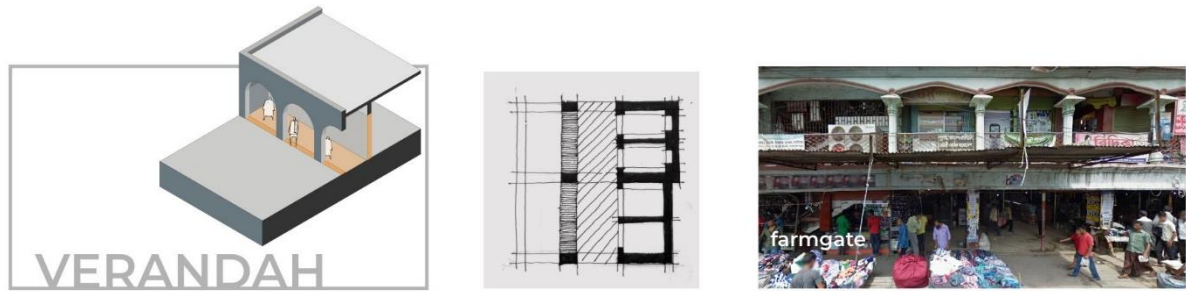


Source: Illustrations by Author with imagery from Google Maps

5.1.9 Verandah

A building opening onto a verandah at street level is usually observed along some of the market complexes of the city. Such a space at the threshold makes the transition from street to market more lively, often inviting interactions as well as informal vendors.

Figure 60: Typical Example of Veranda as Threshold

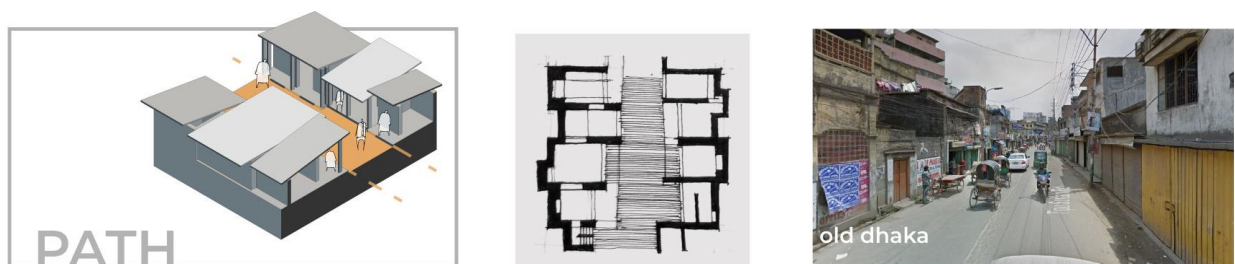


Source: Illustrations by Author with imagery from Google Maps

5.1.10 Path

The path is perceived as a linear plane between two homogeneous functions. It is a threshold comprising of changes in surfaces, levels or shading.

Figure 61: Typical Example of Path as Threshold

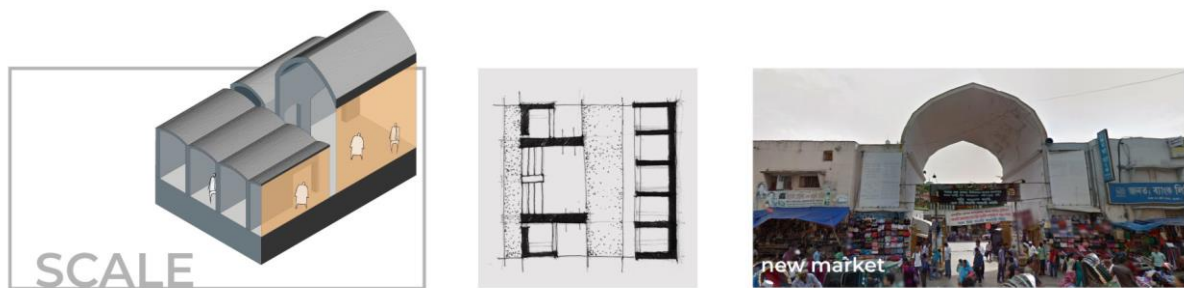


Source: Illustrations by Author with imagery from Google Maps

5.1.11 Scale

A change in scale at the threshold suggests a transition from one space to another. Large arched openings at gateways are an example of changes in scale designed to suggest the entry to a market, street or area.

Figure 62: Typical Example of Scale as Threshold



Source: Illustrations by Author with imagery from Google Maps

5.1.12 A comparison of two situations

Of this diverse range of thresholds in the city, two particular situations are described along a public place and a bazaar. The contrasting nature of the thresholds between these two sites is observed while identifying the actors against each threshold.

Public Place: A solid uninterrupted wall is encountered at the perimeter of the Rayer Bazar Cemetery. This 3.28 km long brick wall is a unique example of such a long stretch of wall belonging to a single entity. The wall opens up in two gateways, only one of which allows limited access into the graveyard.

In addition to the wall, stationed armed guards patrol the graveyard compound to keep pedestrians from trespassing into the property. The distinction of the graveyard from the rest of the city is enforced at all times and according to the staff on site, a graveyard must be segregated as it is a place for the departed and should be isolated from the public realm. Anybody found within the compound without a reason relating to the deceased is shown out, establishing a defensive mentality which attempts to keep the place off limits to people.

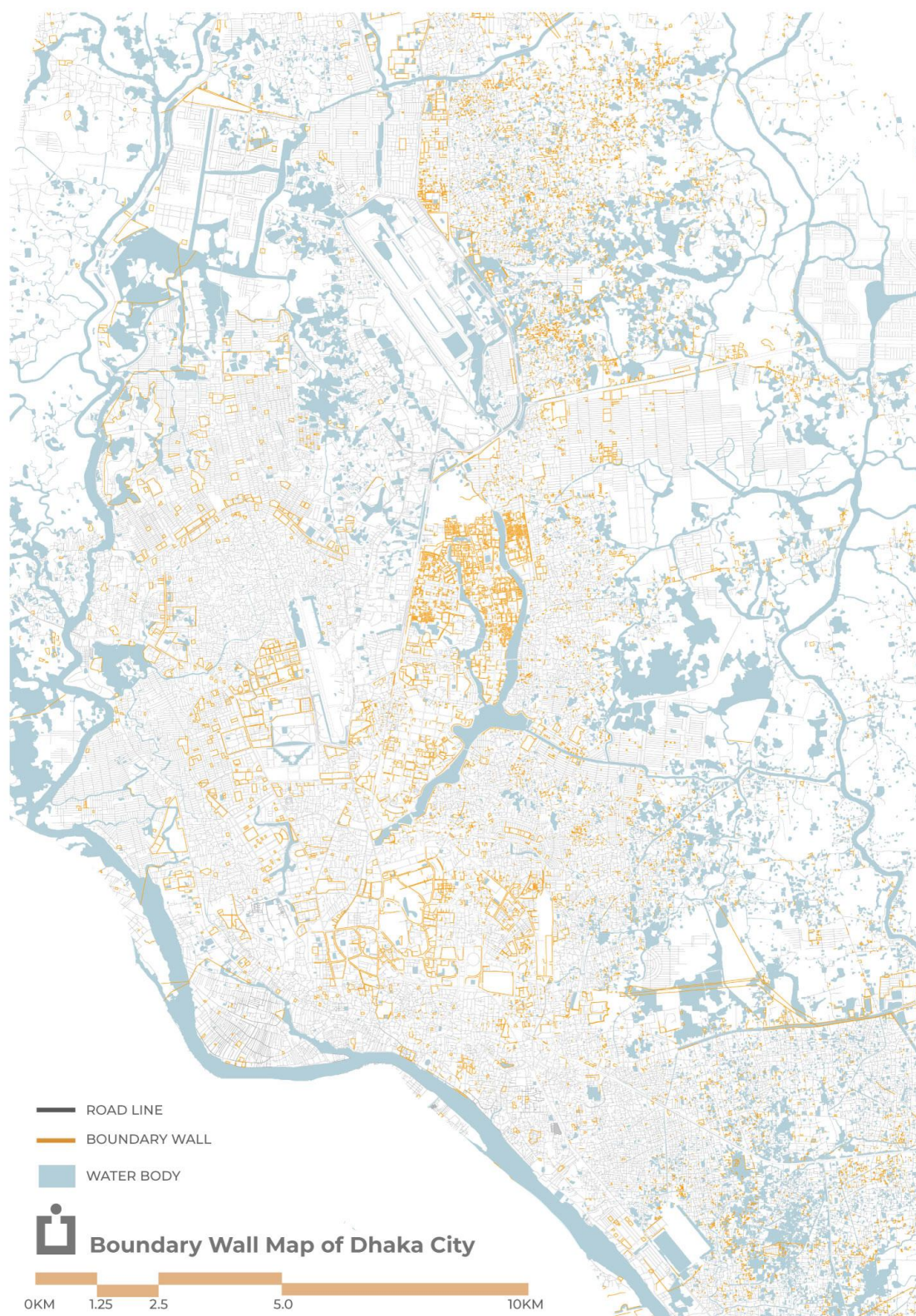
Bazaar: One does not encounter a solid wall at Farmgate. Instead, the threshold found at this site, is the line where the buildings meet the street at the level of the pedestrian walkways. This line manifests as rows of shopfronts or verandahs segregating the privately owned structures from their connecting public streets. The barrier to entry for pedestrians is non-existent in this site as people may venture past the line of street vendors onto the buildings, most of which are commercial. Farmgate presents a threshold that directs people through a series of commercial structures. It does not define the space as a rigid enclosure, nor divide the street from the building line as every façade is physically permeable despite the stark contrast between interior and exterior.

The distinction set forth by the façade of the buildings is that of the formal and informal commercial activities. On the interior, enclosed shops run businesses while the exterior comprises of informal vendors selling various goods. Neither can cross this threshold at the façade, establishing a hard line.

5.2 City of Walls

In the identification of thresholds of the city, one discovers a certain synonymy between thresholds and walls. After all, where the public street meets the edge of a private plot in the city, it is most common to find the demarcation in the form of a boundary wall. According to a 2015 survey of the Detailed Area Plan (DAP) for Dhaka, a cumulative stretch of 1,631.72 km of boundary walls was identified in the city. It is noteworthy that this survey only covers a partial portion of the entire jurisdiction of Dhaka City. The prominence of solid walls at this portion is representative of the dominant practice of erecting boundary walls at the threshold in the context of Dhaka. Therefore, it becomes important to examine the ‘wall’ when one seeks to understand thresholds in general.

Figure 63: Map of Dhaka City identifying boundary walls in the city.



Source: Illustrated by Author from Dhaka Detailed Area Plan (DAP) 2015

5.3 Informality at the Threshold

While a hawker may be defined as ‘someone who sells goods informally in a public place’ (Cambridge Dictionary), observation reveals that the actual spectrum of what constitutes a hawker is quite wide, and the number of variants in which they are found are many.

5.3.1 Previous Precedent for Distinction of Hawkers

The categorical distinction of hawkers in the city divide them into four types. The basis of these distinctions is rooted in the works of Akharuzzaman and Deguchi (2010), in their paper titled ‘Public Management in Street Vendor Problems in Dhaka City’. While this paper outlines four basic categories of informal vendors in the city, it does not elaborate on what criteria determine each type. The following study seeks to establish a rationale behind defining each type of hawker, under the four broad typologies discussed by Akharuzzaman and Deguchi (2010). These are Permanent, Semi-Permanent, Semi-Mobile and Mobile. The following description is how they are defined in the paper:

Permanent Vendors: Permanent vendors are most likely to face high loss due to eviction as they conduct their business permanently at a single site, individually or in groups. They are characterized by their quality of goods, which are mediocre at a low price.

Semi-Permanent Vendors: These vendors are likely to set aside their structures at the footpath at the end of the day. They take away all their goods home, only to return on the following business day.

Semi-Mobile Vendors: Vendors who are semi-mobile do not leave behind any of their goods at the footpath at the end of the business day, leaving no trace of their existence in the footpath. They also take their goods home at the end of the day.

Mobile Vendors: These vendors are described as being on the move constantly. Therefore, their regulation or monitoring by City Corporation authorities is not possible. Naturally, this also means that they are very difficult to evict from a particular location.

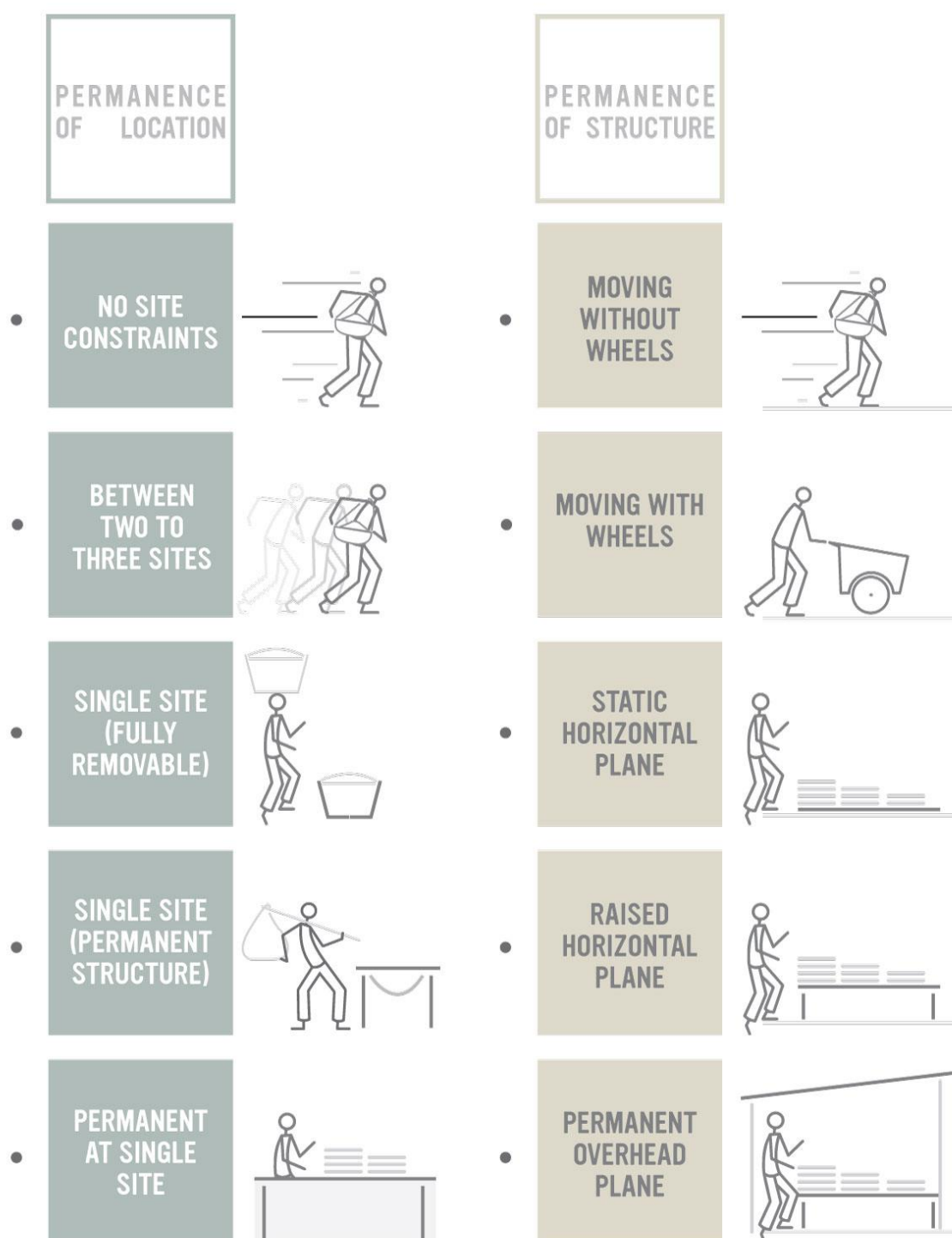
5.3.2 Categorical Distinction of Hawkers

Being informal and often subject to movement, hawkers operate on varying levels of permanence, as allowed by the thresholds against which they operate. This paper seeks to build on the works of the aforementioned publication and further elaborate on the definitions of types of hawkers. Therefore, hawkers are defined in terms of two broad parameters below:

- Permanence of Structure.
- Permanence of Location.

The variations in both parameters are as follows:

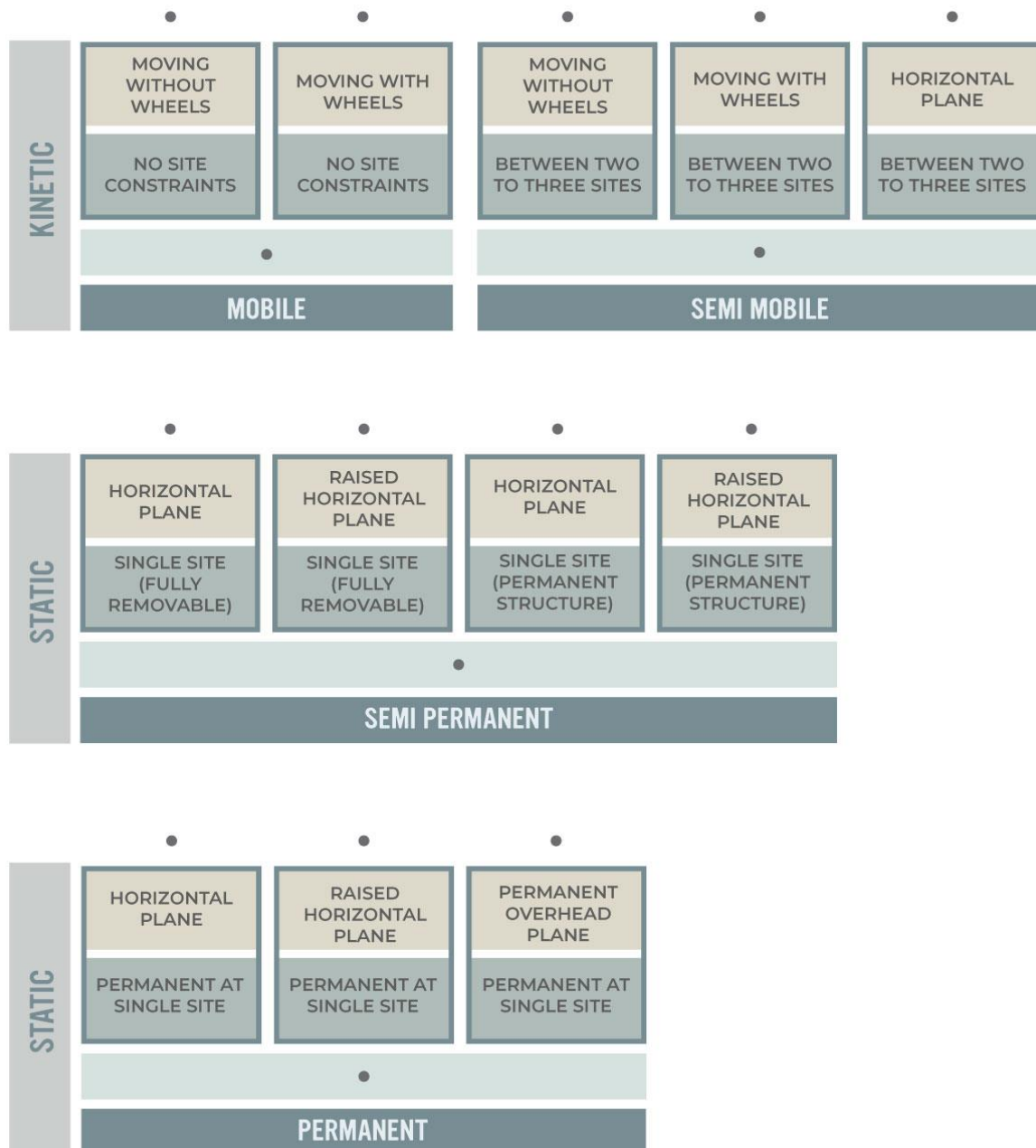
Figure 64: Levels of Permanence of Informal Vendors in terms of Location and Structure



Source: Field Survey by Author

These two parameters are combined in order to determine all possible iterations of hawkers based on permanence of both structure as well as locations. Finally, the feasible combinations are identified in order to add a working definition to the pre-existing typologies of hawkers: Permanent, Semi-Permanent, Semi-Mobile and Mobile.

Figure 65: Feasible hawker combinations



Source: Author

5.3.3 No Site Constraints/ Moving Without Wheels

Movement of these vendors is constant unless encountered. Owing to the fact that they carry the weight of their goods on their own, the quantity of goods sold by them is limited, with a minimal footprint.

Figure 66: Informal vendors with no site constraints who are moving without wheels

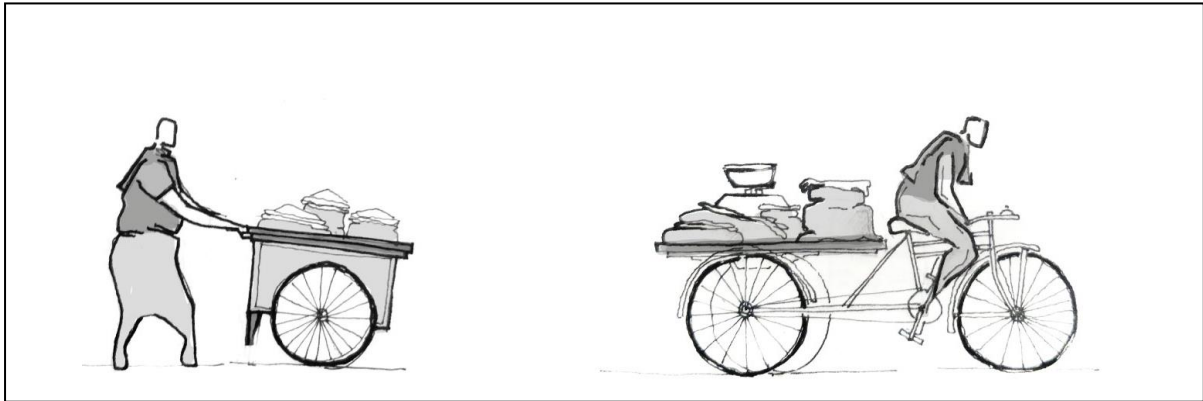


Source: Author

5.3.4 No Site Constraints/ Moving With Wheels

Movement of these hawkers is constant unless encountered by customers. Having wheels allows for a much larger quantity of goods to be sold, and therefore leading to a larger footprint. Rain protection is mostly absent, making vendors seek shelter underneath building overhands or trees as appropriate.

Figure 67: Informal vendors with no site constraints who are moving with wheels

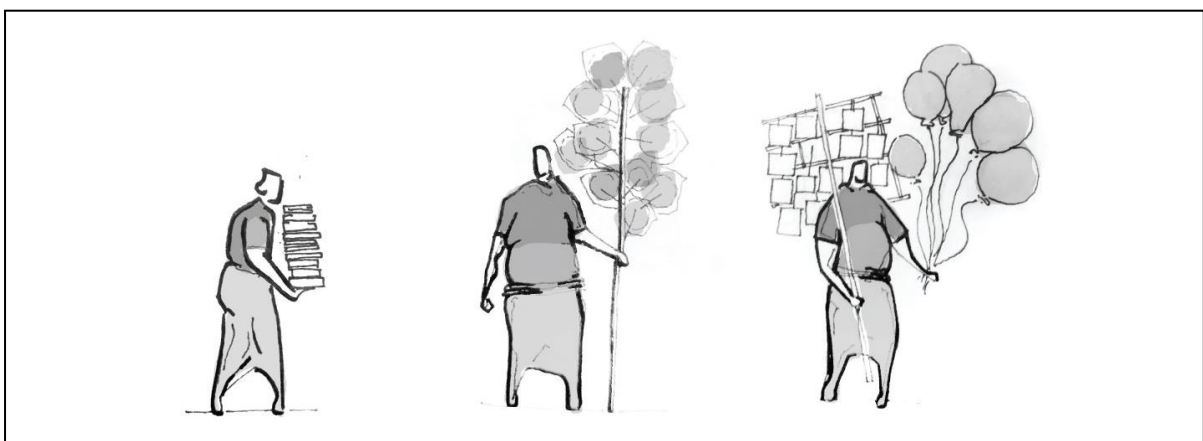


Source: Author

5.3.3 Two to Three Sites/ Moving Without Wheels

These vendors are also among some of the more compact setups, larger only than the ones who have no site constraints and are moving without wheels. Examples include peanut vendors who may move between parks and busy intersections, or book vendors who limit their area of sales to busy traffic stops, selling mostly to cars waiting in traffic.

Figure 68: Informal vendors with two to three sites who are moving without wheels

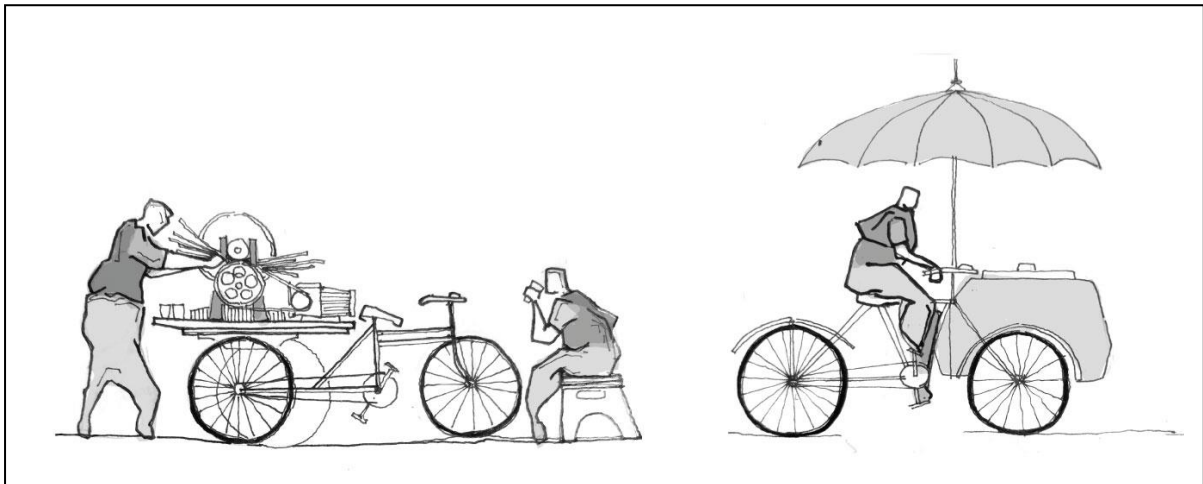


Source: Author

5.3.4 Two to Three Sites/ Moving With Wheels

This typology of vendors have locations relevant to the goods they offer. Structures are allowed to be relatively more relevant than the last typology, owing to the presence of wheels. One example of such vendors are ones who sell ice cream near schools in the afternoon but move to parks in the evening.

Figure 69: Informal vendors with two to three sites who are moving with wheels

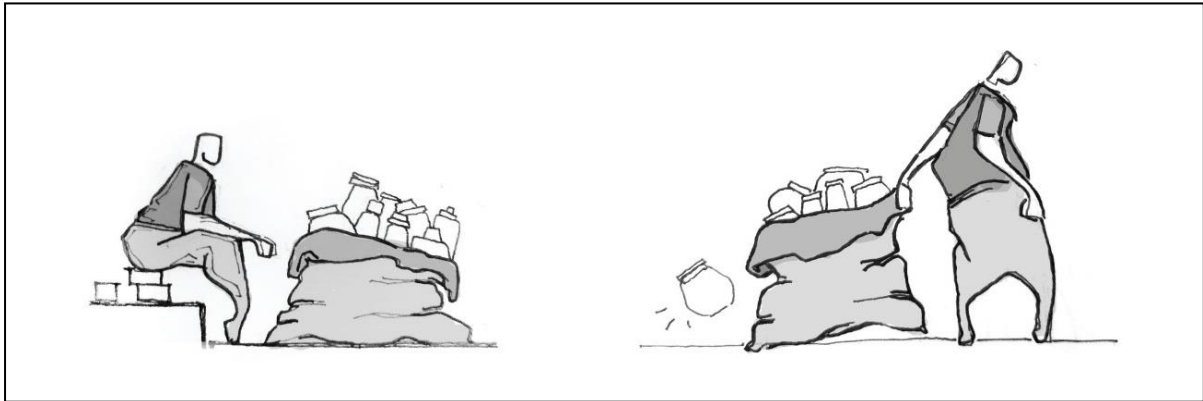


Source: Author

5.3.5 Two to Three Sites/ Static Horizontal Plane

These vendors rely on their goods being light since movement is still a factor between their sites of choice. Weather protection relies on external factors such as finding shelter under a building or tree.

Figure 70: Informal vendors with two to three sites and a static horizontal plane



Source: Author

5.3.6 Single Site (Fully Removable)/ Static Horizontal Plane

These vendors remove both their goods and structures from their singular site of sale at the end of the day. Such vendors do not usually sell food items since their goods are at ground level and more directly subject to dirt, and other pollutants.

Figure 71: Informal vendors with a single site (fully removable) and a static horizontal plane



Source: Author

5.3.7 Single Site (Fully Removable)/ Raised Horizontal Plane

The same site constraints apply as above for these vendors too, with goods being sold of a larger variety, owing to the fact that their goods are at a raised horizontal plane. This makes the goods relatively more secure from dirt and pollutants at ground level.

Figure 72: Informal vendors with a single site (fully removable) and a raised horizontal plane

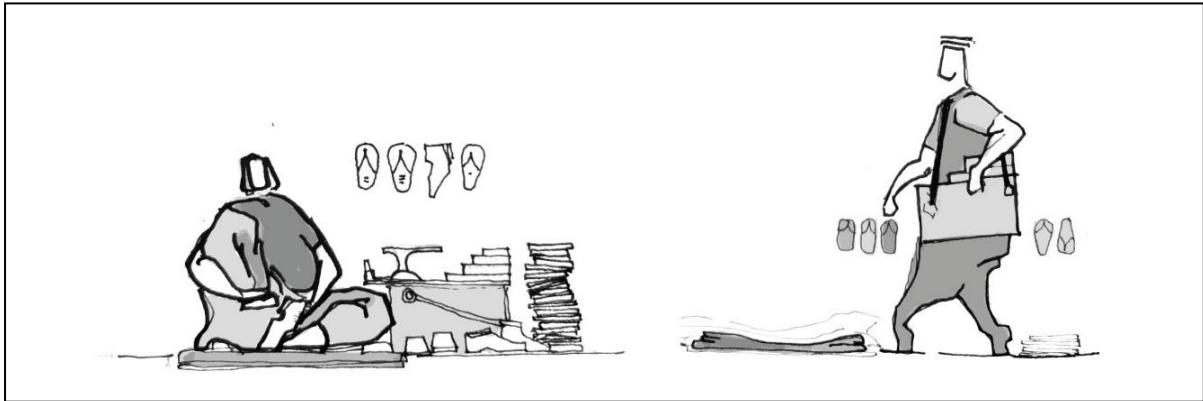


Source: Author

5.3.8 Single Site (Permanent Structure)/ Static Horizontal Plane

In the case of these vendors, they are able to remove all their goods from their singular site of sales, leaving behind the structure on which these are sold. The static horizontal plane in these cases is usually a wooden plank, such as those left behind by cobblers at the end of their sales.

Figure 73: Informal vendors with a single site (permanent structure) and a static horizontal plane

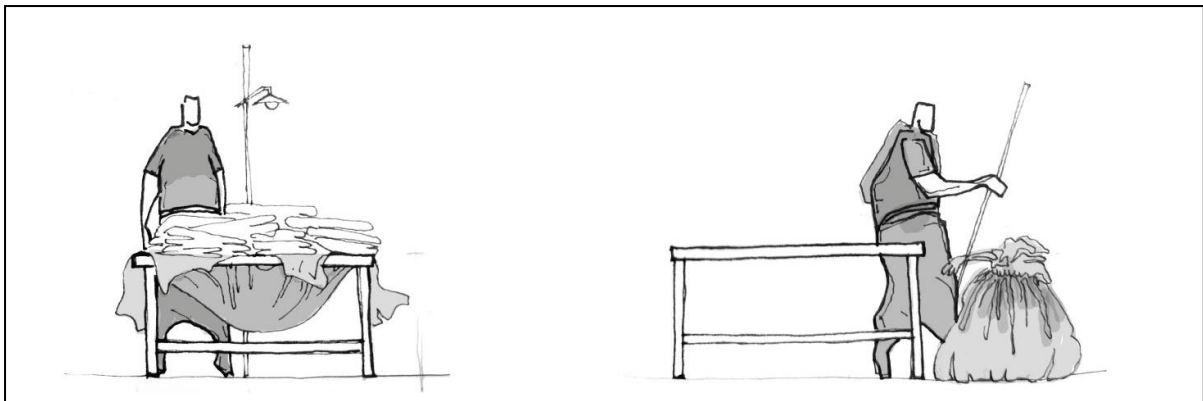


Source: Author

5.3.9 Single Site (Permanent Structure)/ Raised Horizontal Plane

These vendors also leave behind only their structure. The most common example of such vendors are ones who sell clothing at the footpath. Their goods are sold in a fabric cradle, which can easily be removed from the frame, to be taken away at the end of the day.

Figure 74: Informal vendors with a single site (permanent structure) and a raised horizontal plane

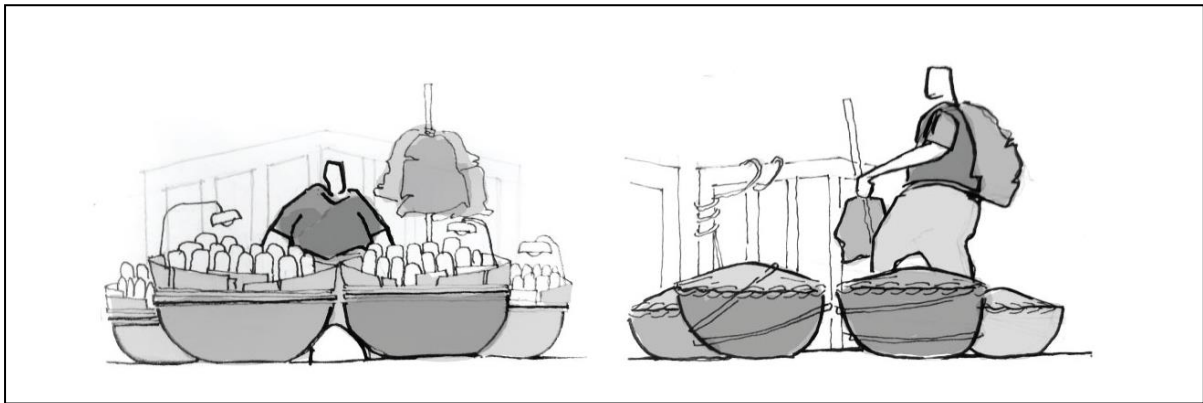


Source: Author

5.3.10 Permanent at Single Site/ Static Horizontal Plane

These vendors are among the most permanent ones in terms of permanence of location, with both their goods and structures remaining on site constantly. Vendors may sell a variety of goods in baskets or crates at ground level. These are usually wrapped in tarpaulin or polythene sheets and secured against adjacent permanent structures such as posts or fences.

Figure 75: Informal vendors who are permanent at a single site with a static horizontal plane

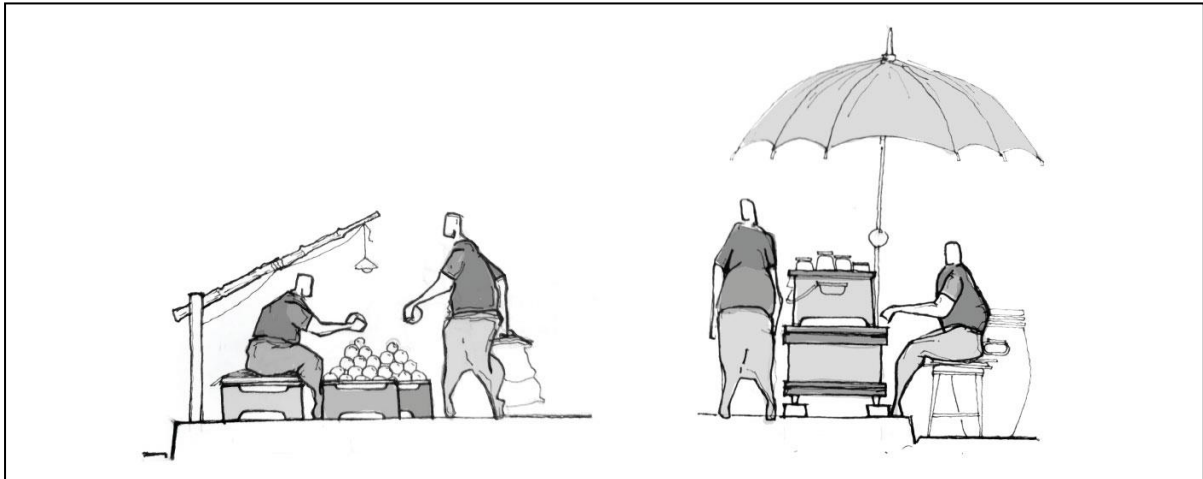


Source: Author

5.3.11 Permanent at Single Site/ Raised Horizontal Plane

These vendors also leave behind their entire setup at site, securing their raised structures of sale by means of chains, chords or otherwise. A wide variety of goods is found to be sold through this setup, such as fruits, candies, etc.

Figure 76: Informal vendors who are permanent at a single site with a raised horizontal plane

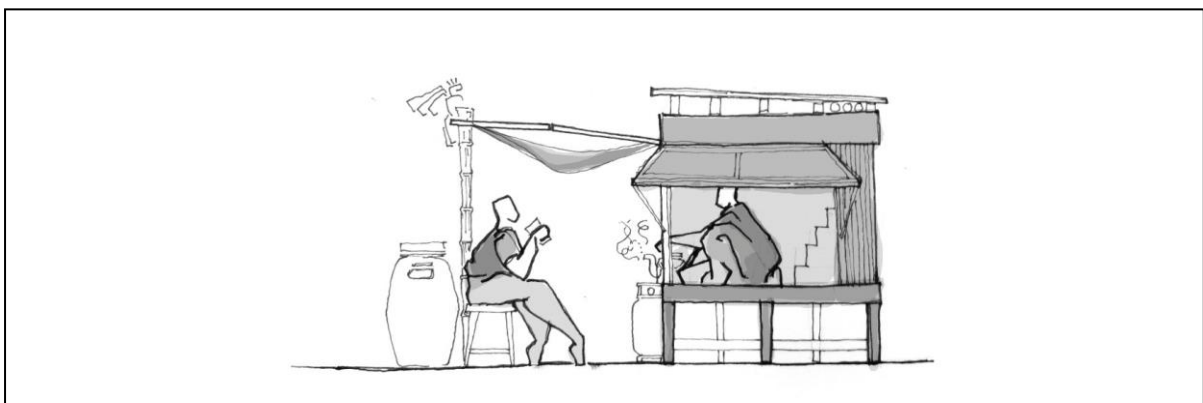


Source: Author

5.3.12 Permanent at Single Site/ Permanent Overhead Plane

These are the most permanent vendors of all the typologies explored above. Not only do they have a single site containing both their structure and goods, but also these are contained within a setup with a permanent overhead plane and multiple solid enclosures. These can all be locked in safely. It is noteworthy that while these vendors are the most permanent, they are naturally the most prone to eviction, having no flexibility of movement when in need.

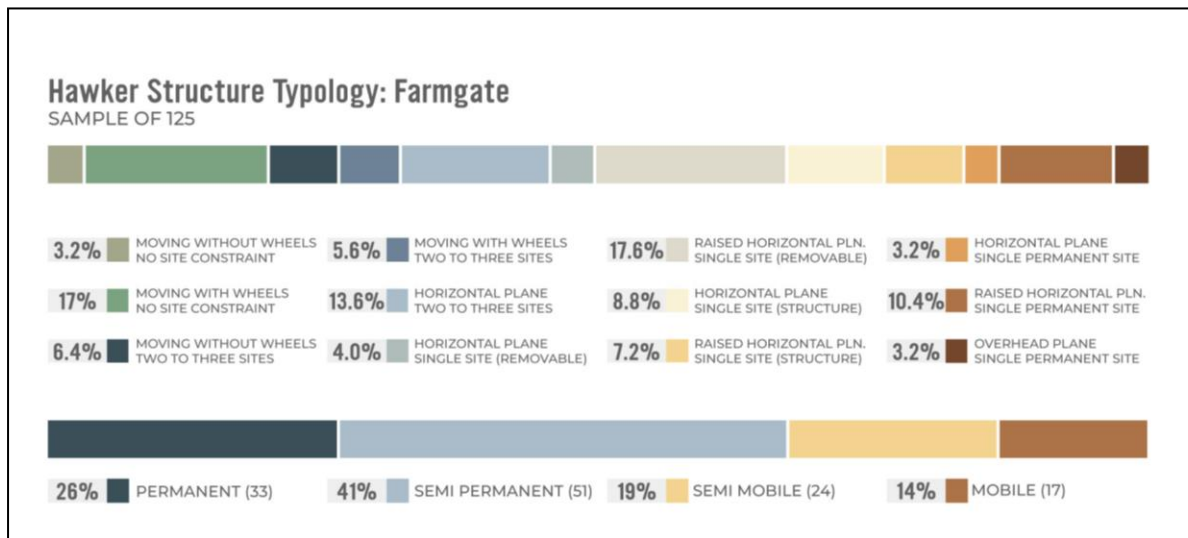
Figure 77: Informal vendors who are permanent at a single site with a permanent overhead plane



Source: Author

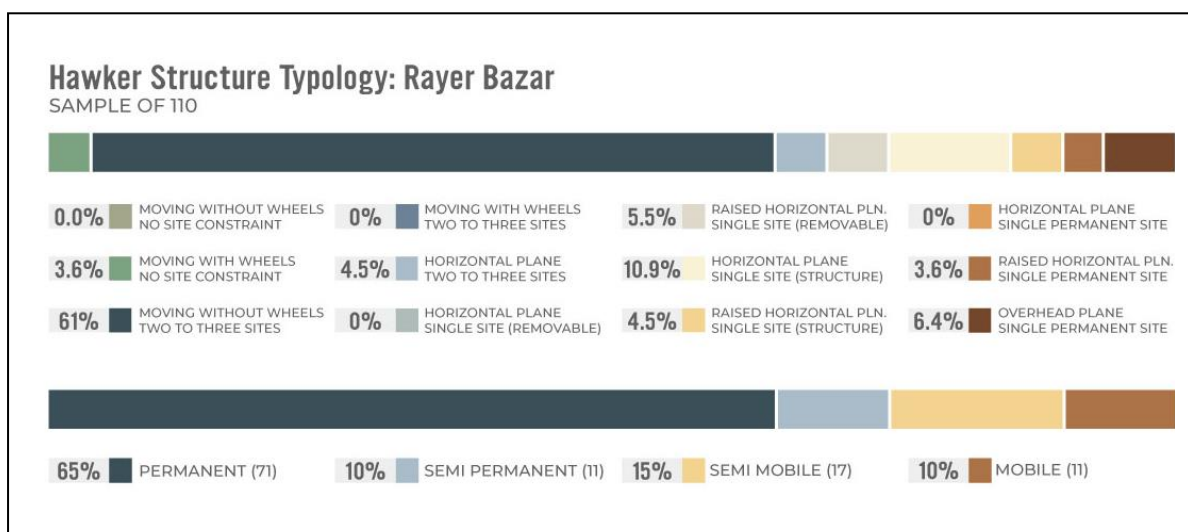
5.3.13 Structural Variations at Sites

Figure 78: Structural Variations in informal vendors found in Farmgate



Source: Field Study by Author, 2020

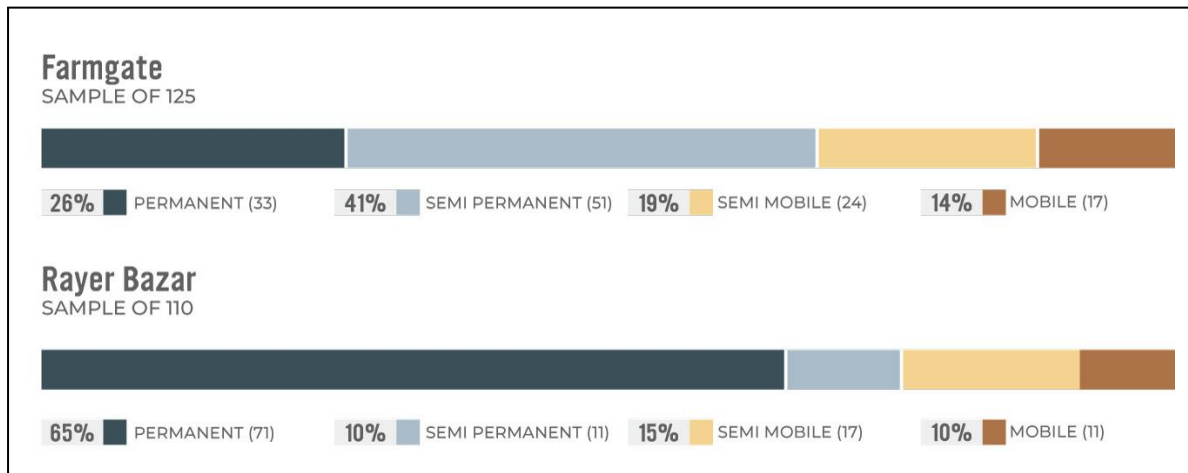
Figure 79: Structural Variations in informal vendors found in Rayer Bazar



Source: Field Study by Author, 2020

5.3.3 Comparative Analysis between Sites

Figure 80: Quantitative comparison of Structure Types found in each site



Source: Field Study by Author, 2020

Rayer Bazar has a significant percentage of permanent structures (65%). The site presents a threshold in the form of a wall, allowing structures such as nurseries to set up permanent shops with the boundary wall as their backdrop. On the other hand, the threshold present in Farmgate comes in the form of a shopfront or veranda. The character of this threshold is permeable, allowing little solid surface for vendors to set up permanently against. This is evident in the type of shops found. Permanent shops are the lowest at 14% of the sample

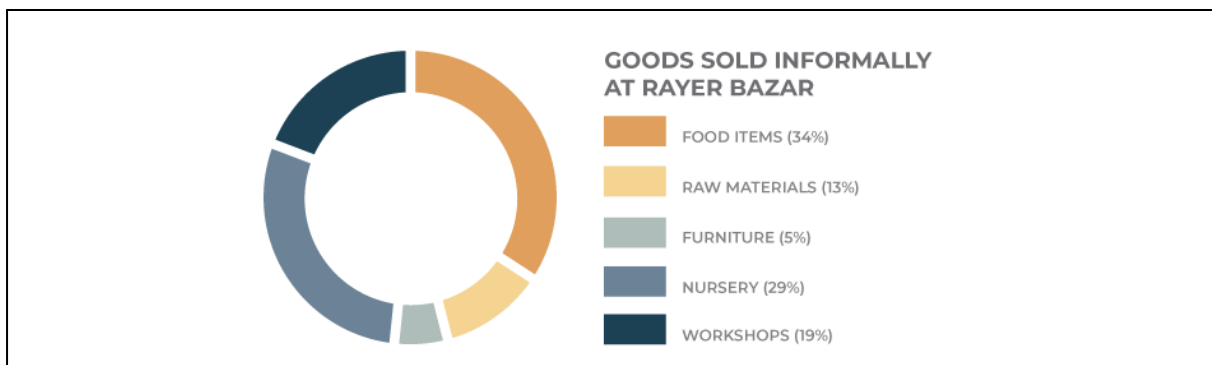
5.3.15 Goods Sold by hawkers

Figure 81: Types of goods sold at Farmgate



Source: Field Survey by Author, 2020

Figure 82: Types of goods sold at Rayer Bazar

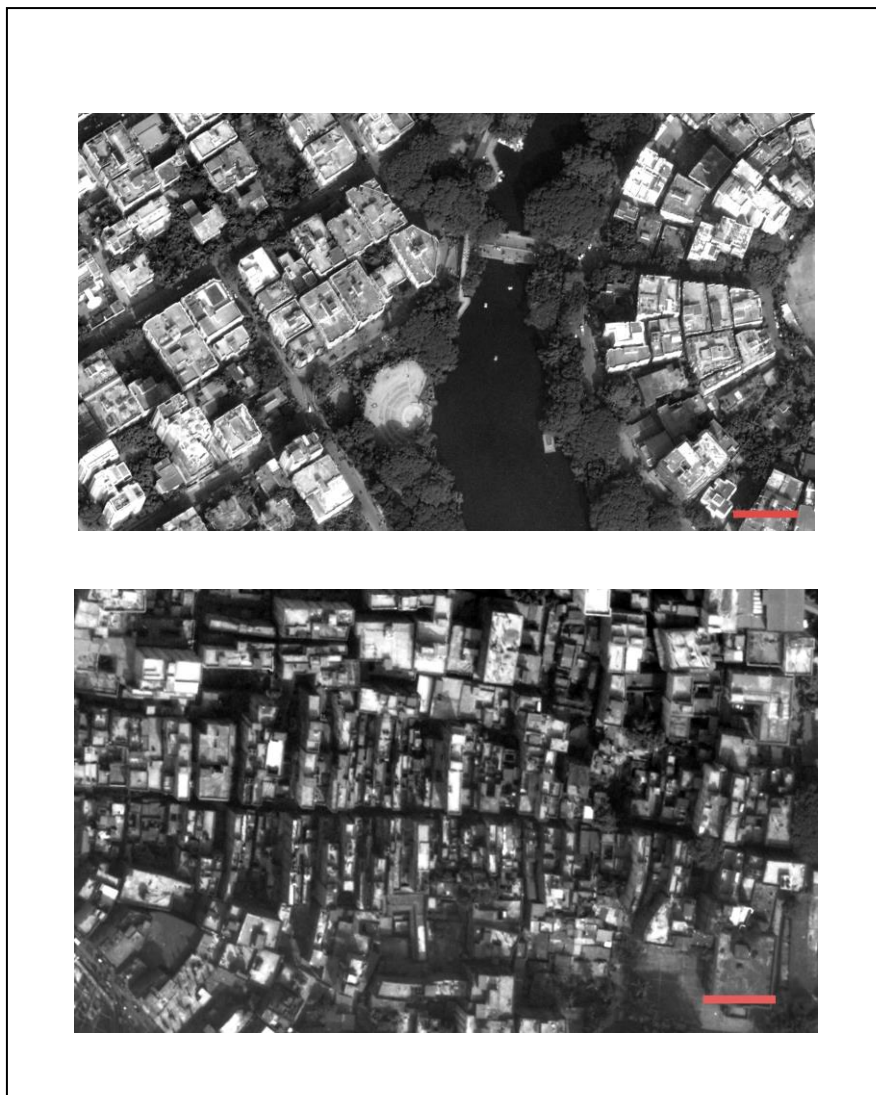


Source: Field Survey by Author, 2020

5.4 Thresholds of Old Dhaka

Neighbourhoods in Dhaka can be broadly categorized into two distinct typologies: newer, plot based developments and older, more spontaneously developed neighbourhoods. Their own unique planning principles, scales and hierarchies of spaces characterize these two types of neighbourhoods. For the purpose of this thesis, the spatial features at the thresholds of the newer neighbourhoods are examined in terms of both space as well as their corresponding communal connotations.

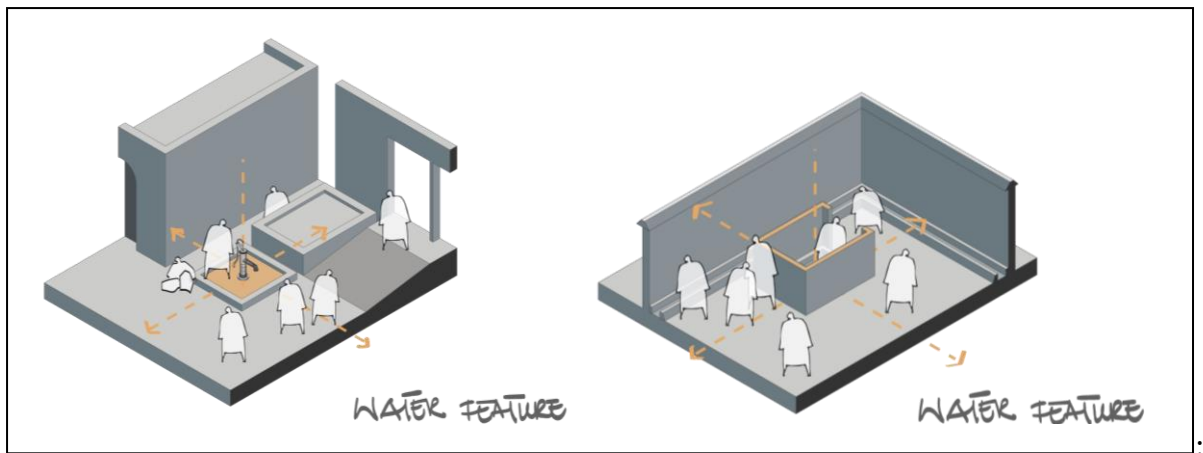
Figure 83: New and Old Neighbourhoods in Comparison



Source: Google Maps

5.4.1 Water Features

Figure 84: Water Features in Section



Source: Author

Points along the old Dhaka thresholds present themselves in the form of amenities such as water sources. These functions, open for all, serve the community and become nodes for people to come together,

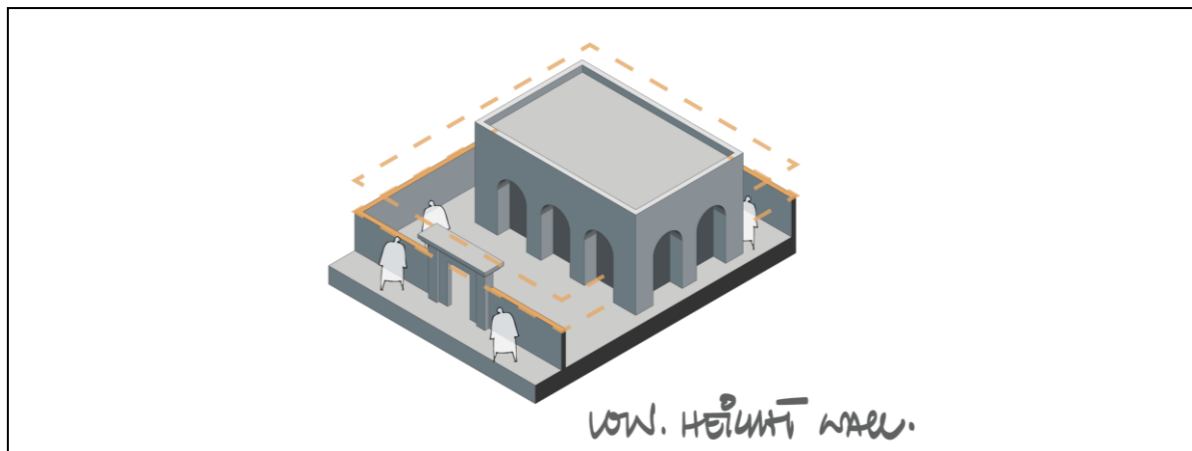
Figure 85: Example of Water Feature in Puran Dhaka



Source: Google Maps Street View

5.4.2 Low Height Wall

Figure 86: Low height wall in Section



Source: Author

Low height walls, ranging around 5' in height, characterize settlements in Old Dhaka. This is absent in the newer developments coming up in the same neighbourhood. This character of walls at the threshold are representative of a wider sense of trust and security in the neighbourhood, which has changed since, as evident in the newer boundary walls being built now.

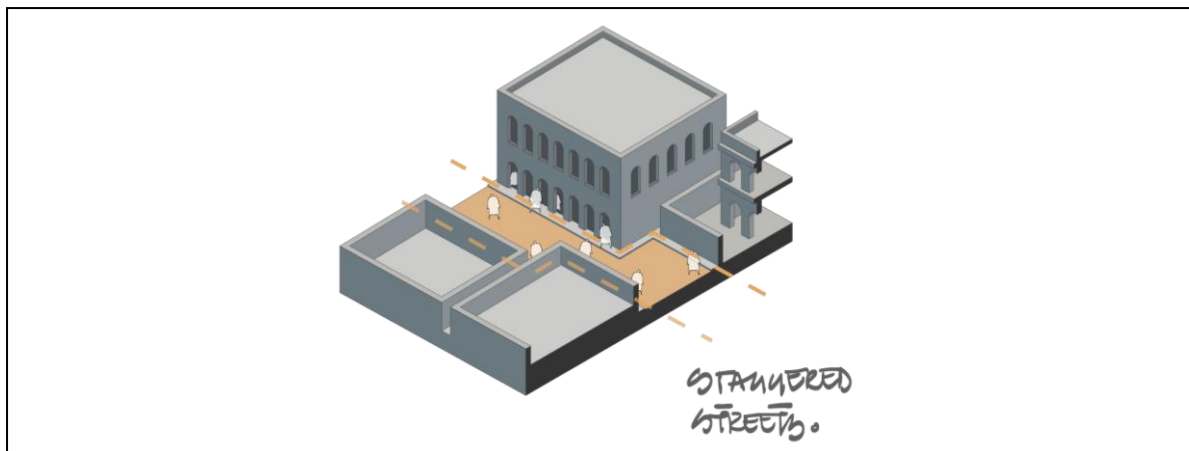
Figure 87: Example of low height wall in Puran Dhaka



Source: Google Maps Street View

5.4.3 Staggering Streets

Figure 88: Staggering Street in Section



Source: Author

The staggering nature of the streets of Old Dhaka lead to pockets of spaces along each street. These spaces, while potential zones for interactions as well as vendors along commercial shopfronts, may also become negative spaces for garbage and waste disposal. Again, the utilization of these spaces is subject to the social fabric of the neighbourhood and their modes of interactions.

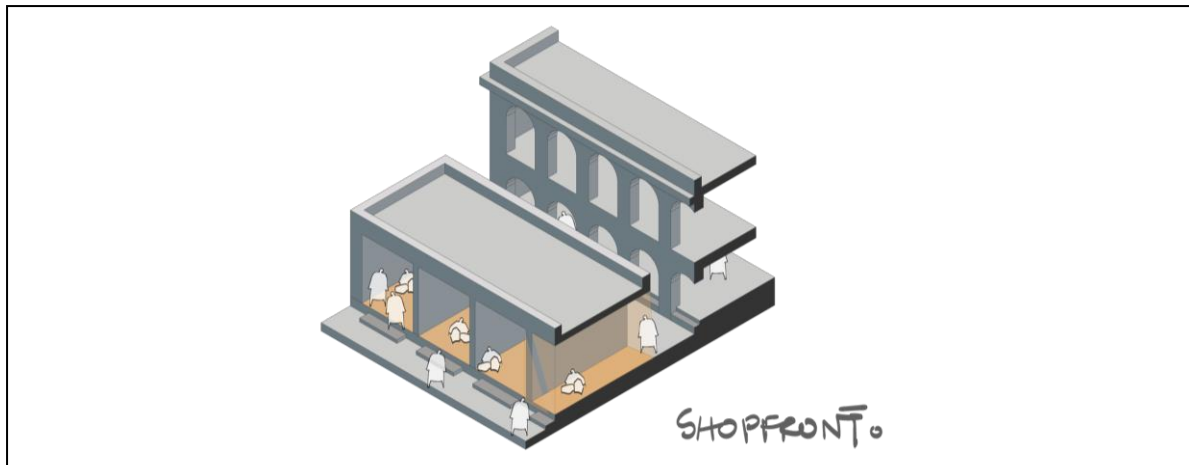
Figure 89: Example of staggered street in Puran Dhaka



Source: Google Maps Street View

5.4.4 Shopfronts

Figure 90: Shopfronts in Section



Source: Author

Shopfronts present a unique example of a transitional function between the semi-public street and the private residence. These shops, mostly owned and operated by the residents themselves, create a threshold, which allows interactions between the two contrasting functions.

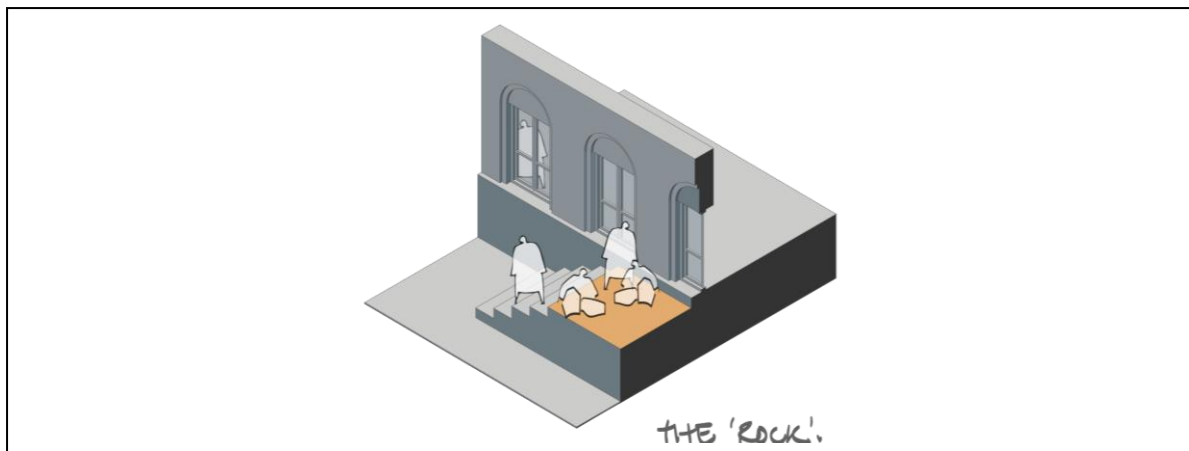
Figure 91: Example of Shopfront in Puran Dhaka



Source: Dr. Iftekhar Ahmed

5.4.5 Rock

Figure 92: Rock in Section



Source: Author

Houses opening onto the street at raised plinths become spaces for communal activities and gatherings. These raised platforms, locally known as ‘rock’ are one of many unique spatial features of the neighbourhood where friends and neighbours interact.

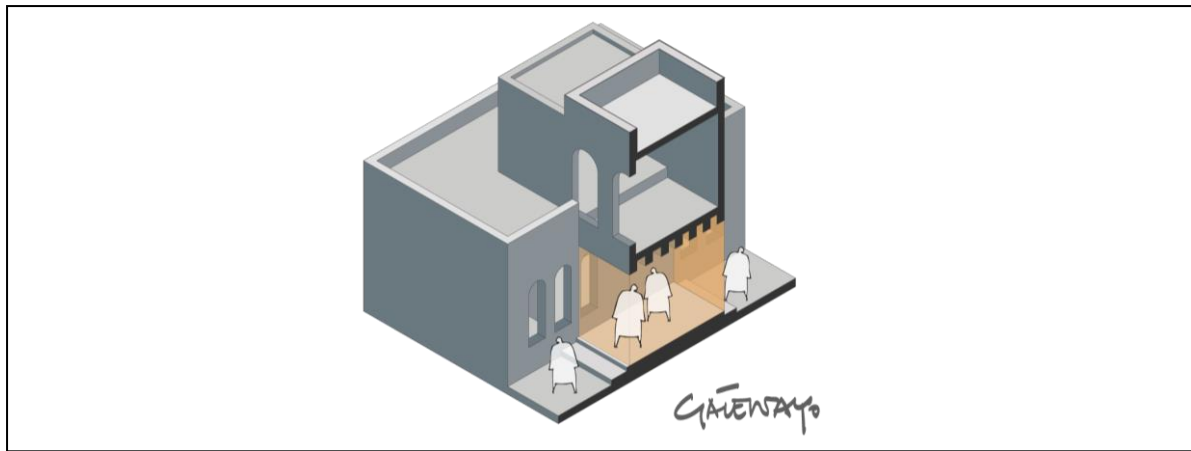
Figure 93: Example of Rock in Puran Dhaka



Source: Dr. Iftekhar Ahmed

5.4.6 Gateways

Figure 94: Gateways in Section



Source: Author

Rooms going over pathways between two buildings, often frame a volumetric gateway. These passages lead to internal courtyards or smaller streets and usually occur at two neighbouring structures owned by family members.

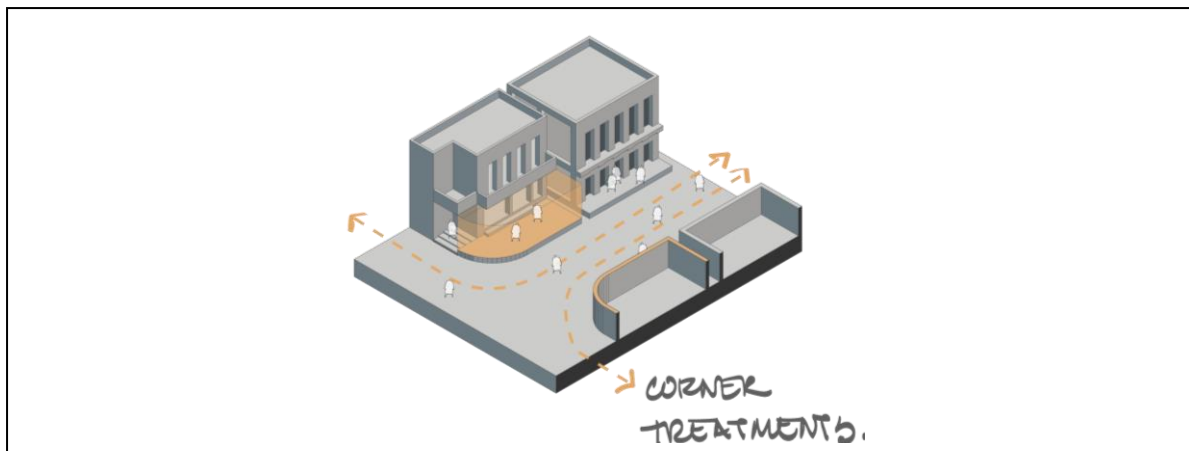
Figure 95: Example of Gateway in Puran Dhaka



Source: Dr. Iftekhar Ahmed

5.4.7 Corner Treatment

Figure 96: Corner Treatment in Section



Source: Author

Corner treatments at the entry to smaller alleys are often distinct in Old Dhaka neighbourhoods. Common features include chamfered walls, designated shopfronts and open plinths among others. These are meant to allow activities at this junction, making the entry to the street livelier.

Figure 97: Example of corner treatment in Puran Dhaka



Source: Google Maps Street View

5.5 Thresholds at the Bazaar

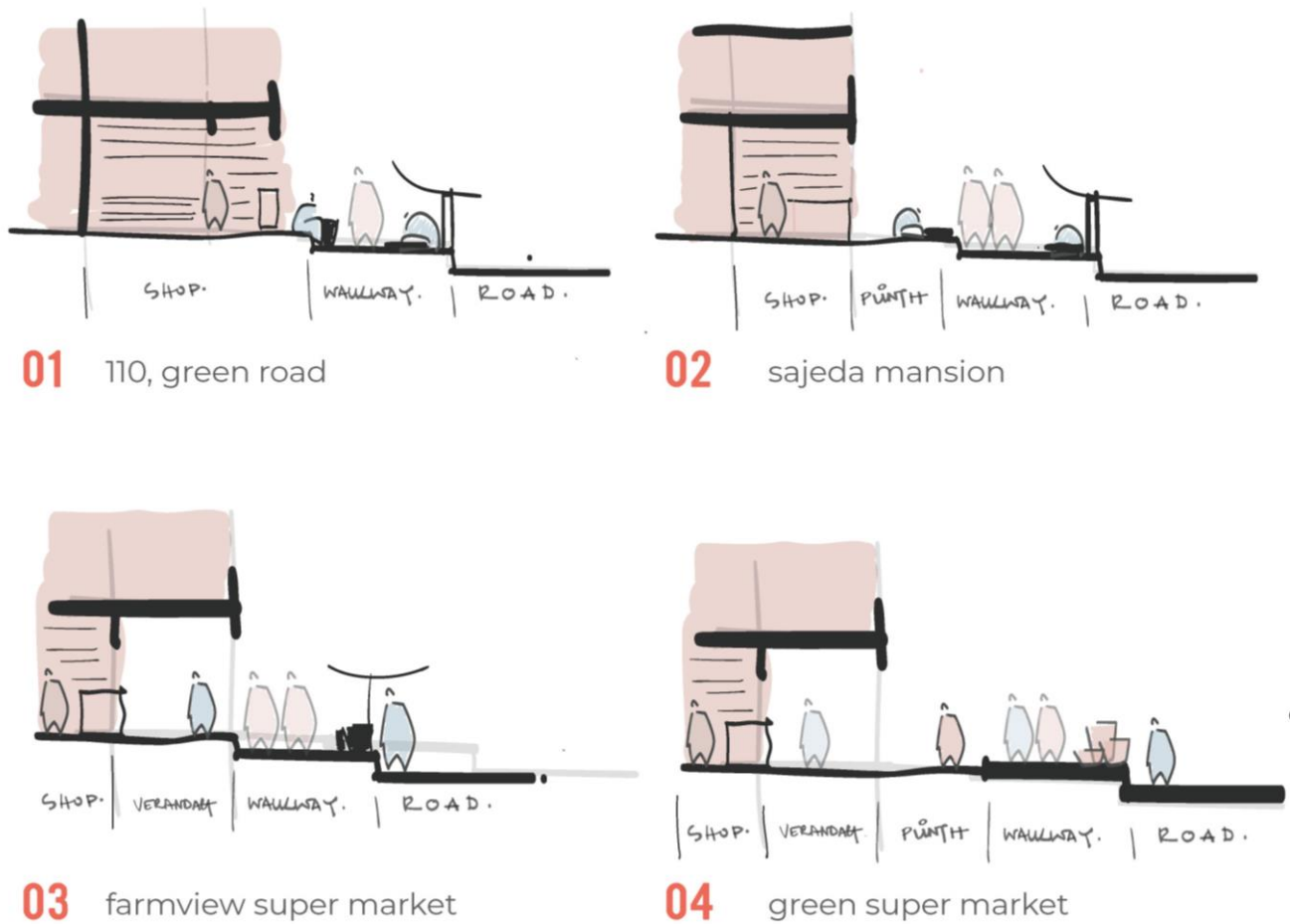
Thresholds occur in a wide variety along the many market places of Dhaka City. These may be as simple as a shopfront opening onto a pedestrian walkway and can be as elaborate as a shopfront opening onto a veranda, a setback plinth and finally, the walkway. For the purpose of this thesis, the variations in market thresholds in section are observed.

Figure 98: Figure Ground map of Green Road, Farmgate



Source: Author

Figure 99: Typical Sections of Marketplaces at their thresholds



Source: Author

At each section, one encounters the constant presence of informal vendors. Their setup is a response to the physical nature of the threshold itself. An examination at street level reveals the location of informal vendors and their setup against the openings at the thresholds of the shops.

Figure 100: Farmview Super Market Street View outlining hawkers



Source: Google Maps

Figure 101: Green Road Street View outlining hawkers



Source: Google Maps

Chapter 6: Design Considerations

6.1 Designing for Informality

As observed previously, thresholds are highly variable entities. The physical nature of a threshold itself occur in numerous forms depending on what two entities they are situated between. Activities along this threshold are influenced by the kind of structures or land use patterns found in the two entities on either side of the threshold. At the same time, the physical nature of the structures found along the threshold may be determined by the physical nature of the threshold itself. From this, it is evident that every threshold presents a unique set of findings that depend entirely on the context specific to the site. Therefore, a singular design strategy to address every threshold may not be relevant. At the same time, a threshold may need to be addressed using more than one design strategy. As learned from history, thresholds are not singular, but rather, plural entities that serve multiple functions. Therefore, it is only natural that addressing them may require a number of solutions working together.

6.1.1 Supports

The concept of ‘Supports’ is explored by N J Habraken in his book under the same name. The concept originally relates to housing design. Supports describe the notion of building out static structures that form a framework within the scheme of a housing complex. These static structures will include such things as structural support to the building and necessary amenities and common services such as toilets. These form the entirety of supports. Based on the structure laid out by the supports, that provide a vertical framework, individual units can be installed in an almost ‘plug and play’ manner. This provides two components to the housing scheme. A

static, constant element and a fluid, ever changing cluster of units that are free to be customized according to the needs of the tenants.

The concept may be translated to the design of thresholds. Thresholds also comprise of two contrasting entities. Often, these are a combination of static, formal structures and fluid, mobile, informal structures. A design intervention involving the thresholds of a city will have to involve addressing both of these contrasting entities. A comparison can be drawn between this situation and the notion of supports as laid out by Habraken (1972). In such a comparison the design would have to be divided into two broad components. This would include laying out the formal framework of the threshold that is defined and static. This structural framework would then be used to facilitate a second layer of design; one that would be entirely fluid.

Much like the modular units of apartments proposed by Habraken that would be laid into the supports modules of temporary structures may be ‘plugged’ into the underlying static framework as needed. This would lead to the second phase of the design involving the generation of modules as well as finding multiple iterations in which they may be able to interact with their supports.

6.2 The Neighbourhood Facade

Having studied the thresholds in the neighbourhoods of Old Dhaka, it was imperative to observe the thresholds of the newer settlements of Dhaka too. Two contrasting images emerge from these studies. On one hand, one finds the typical street elevation of Old Dhaka being porous and more inviting towards activities. On the other hand, the facades at street levels of

newer developments are typically more inert and offer little or no scope of activities, interactions or notions of porosity.

Figure 102: The more porous elevations of older settlements (top) in comparison to the inert nature of newer developments (bottom)



Source: Author

Having studied these two situations against thresholds of these neighbourhoods, it was crucial to explore whether the porous and inviting nature of the older settlements could be translated to the newer neighbourhoods, typically characterized by non-porous, solid boundary walls.

6.3 Addressing Site Situations: Rayer Bazar

The three major components at Rayer Bazar are:

- The Rayer Bazar Badhya Bhumi
- Rayer Bazar Cemetery
- 90' Shoulder consisting of Informal Vendors
- A 3.28 kilometre boundary wall
-

Figure 103: Key threshold elements at Site.



Source: Author

The activities observed in this site and its surrounding areas are mostly recreational and are observed most frequently during the evenings.

Figure 104: Use of monument as a recreational space



Source: Author

Figure 105: Snack shops at the entry to the monument



Source: Author

Figure 106: Locals playing cricket inside the monument

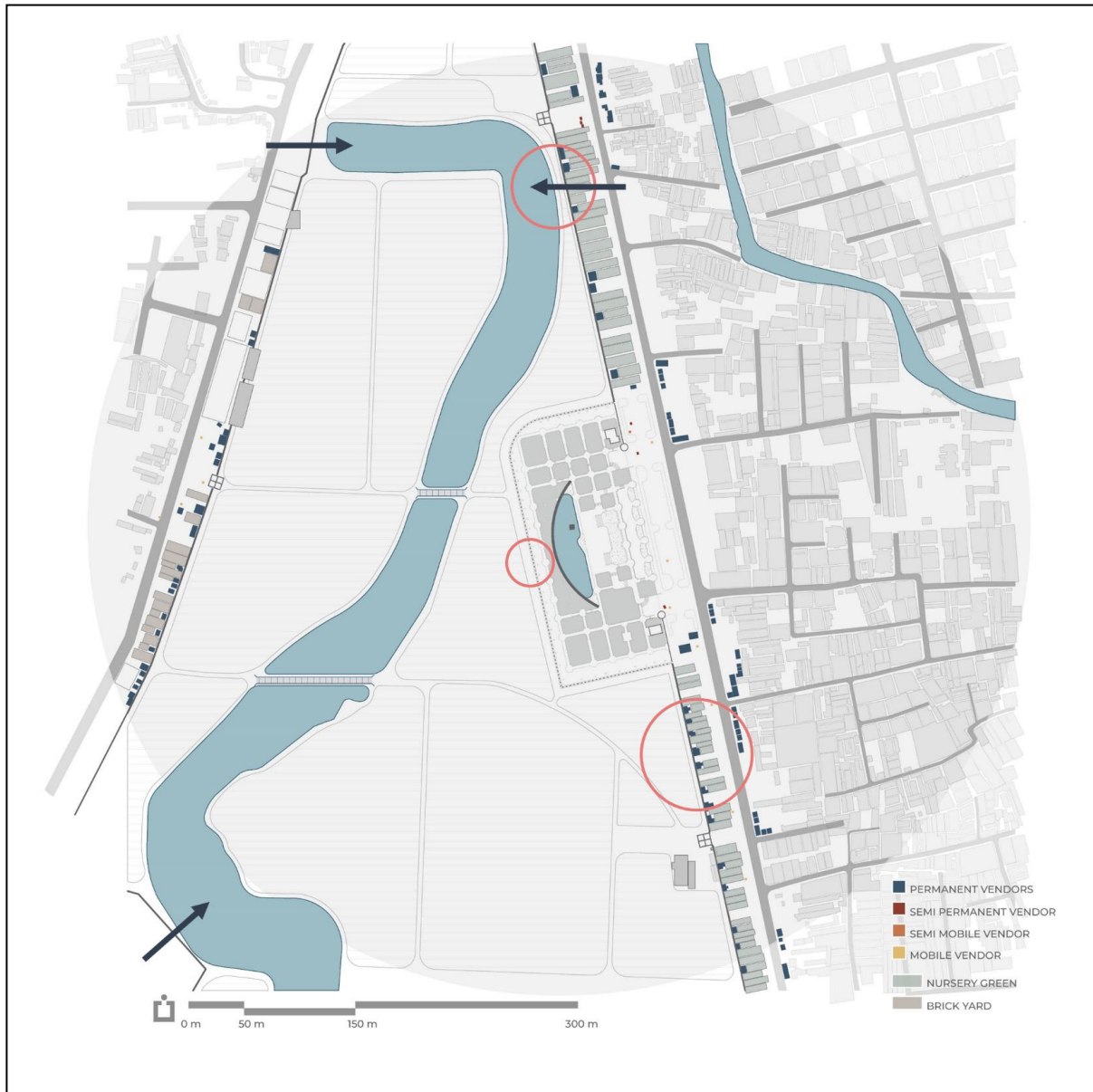


Source: Author

6.3.1 People's need for a public place

The situation at Rayer Bazar comprises of people utilizing a cemetery and monument as places of gathering and recreation. While neither of these functions are cohesive with these uses, the inevitable need for the people of the surrounding neighbourhoods of a public place is not one that can be disregarded altogether. One of the considerations for this site is the relocation of these places of gathering. An ideal negotiating ground for this are the three edges where the boundary wall meets the lake, as illustrated below:

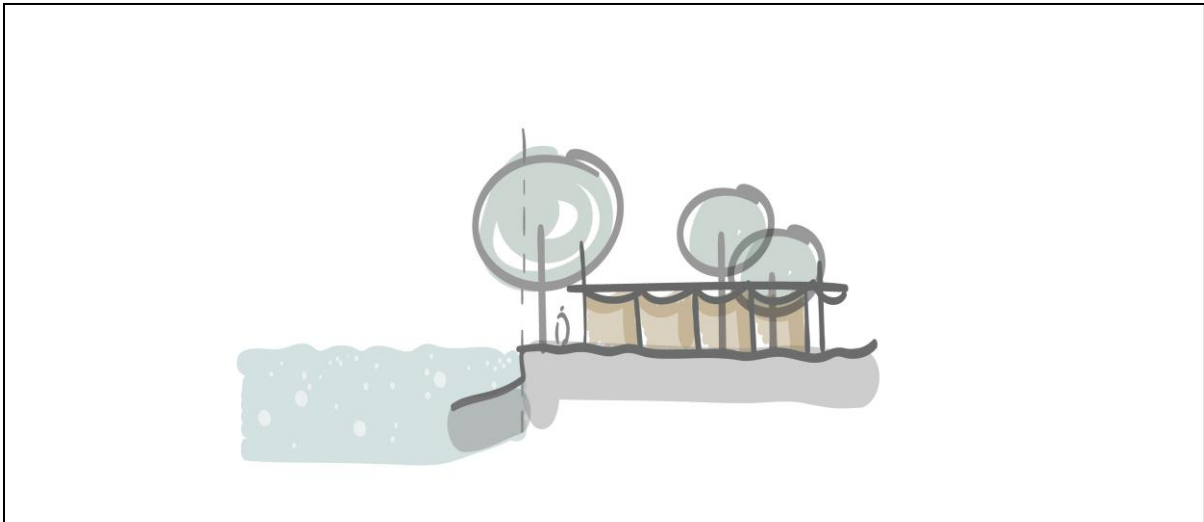
Figure 107: Key edges where the lake comes close to the boundary wall



Source: Author

These can be opened up to form lakeside ‘ghats’ which allow people to gather as well as utilize the water network for recreation as well as movements to the other sides of the graveyard. The lake becomes an ideal negotiating ground for this since it is the only portion of the cemetery, which cannot be used for burial purposes.

Figure 108: Conceptual sketch of a ghat in section

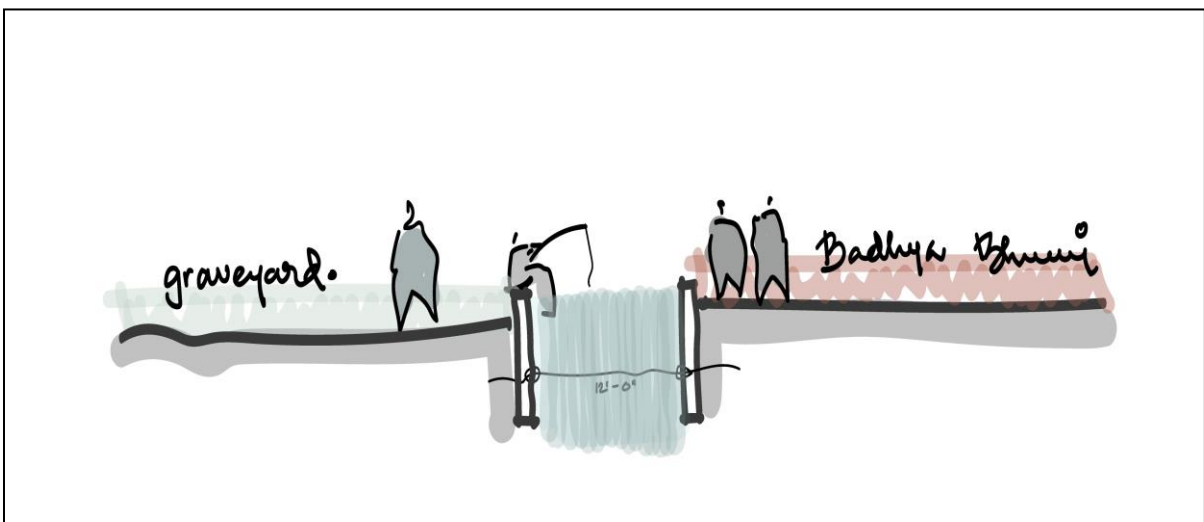


Source: Author

6.3.2 Preserving the sanctity of a monument

It is also imperative to ensure that a monument of such importance and gravity should never be used as an intermediate space, only to be used to cross over to a graveyard. Therefore, it was important to consider a bold, yet discrete design intervention than a fence, a solution that would remove the very option of crossing over from one space to another.

Figure 109: Conceptual sketch of water as the edge between monument and cemetery

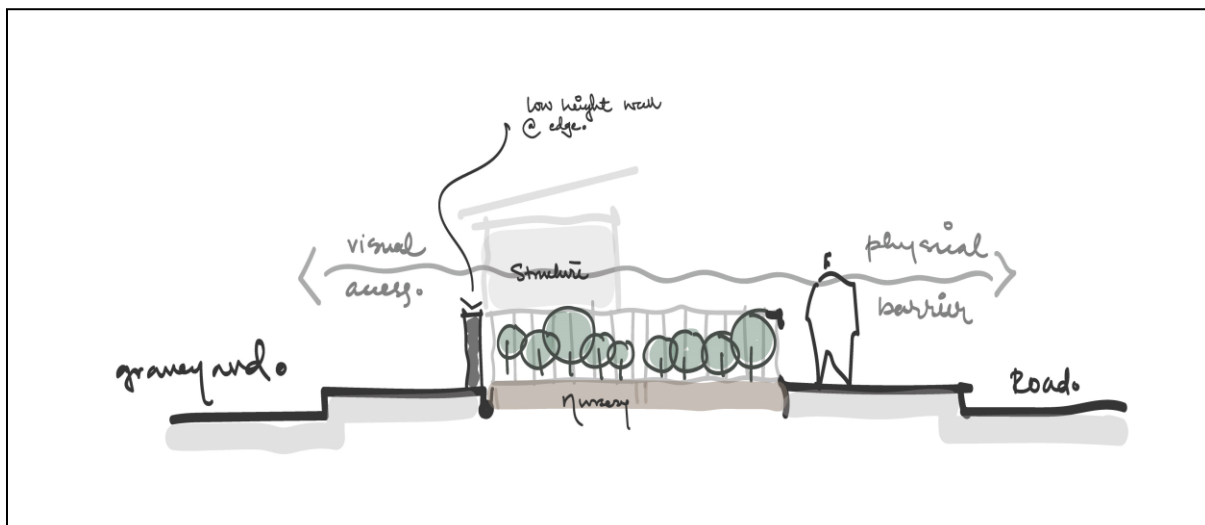


Source: Author

6.3.3 Informality as Threshold

Finally, having addressed the need for a public place as well as ensuring that the sanctity of a monument is preserved, it is important to ask whether the 3.28 kilometre wall remains necessary any longer. The very people who are meant to be kept out with the help of the wall have been given an alternate place to gather. Having done so, a less solid and inert solution can be imagined at the thresholds of the cemetery instead of the existing wall. This intervention takes into consideration the barrier naturally created by the potted plants of a nursery. These allow visual access across opposite sides while restricting physical accessibility. In this manner, the existing nurseries at this site can become a replacement for the wall.

Figure 110: Conceptual sketch of nursery plants as threshold



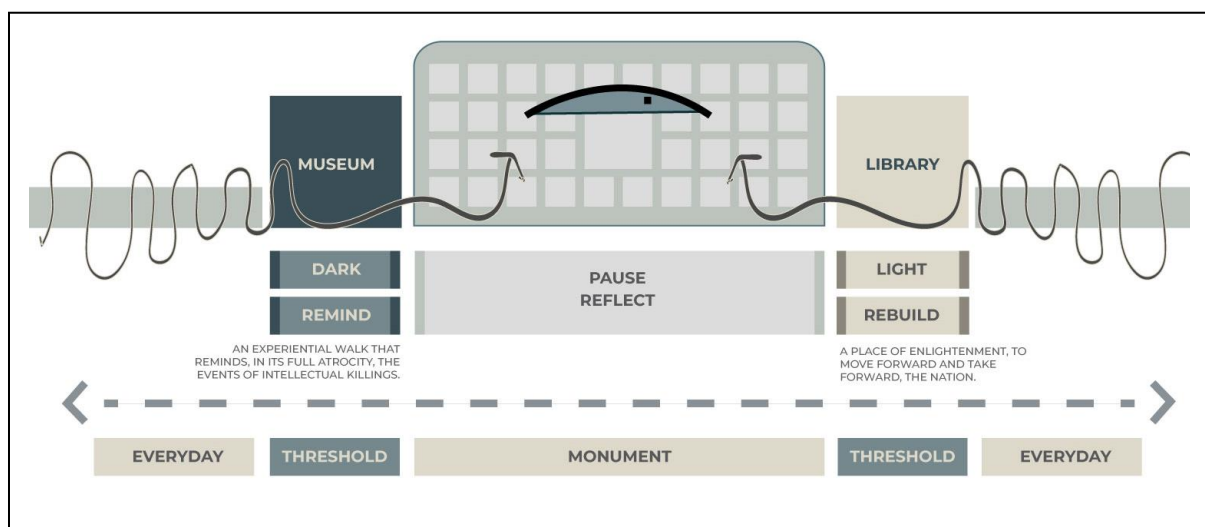
Source: Author

6.4 Volume as Threshold

As discussed earlier, a threshold can geometrically manifest itself as a point, a line, a plane or even a volume. The final inquiry of this thesis explores whether a volume can be introduced

adjacent to the monument at Rayer Bazar Badhya Bhumi. These volumes are perceived in such a way that a visitor passing through them, who may come from a wide variety of activities, moods or states of mind, becomes better prepared and sensitized to appreciate the gravity of the killings that occurred at this site. Such an intervention would not only be a volumetric intermediate space but would also facilitate the crossing of the threshold to a new psychological state of mind.

Figure 111: Transitions in ambience around the monument.



Source: Author

6.4.1 Program

The proposed volumes are envisioned as two nodes adjacent to the two entries to the monument. Their primary functions are a library and an experiential museum respectively. The tentative functions and space requirements of these volumes are illustrated below.

Figure 112: Tentative Space requirements for the Library

LIBRARY FOR A POPULATION OF 50,000					NOTE
At Rayer Bazar Badhya Bhumi					
Books: 100,000					
Estimated Readers: 200					
Built Up Area: 36,368					
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
A. ADMINISTRATIVE FACILITIES					
1 Librarian's Office	1	1	250	250	
2 Library Manager's Office	1	3	160	160	
3 Office Meeting Room	1	20	400	400	at 25 sft/person
4 Break Room	1	15	225	225	at 15 sft/person
5 Break Room Kitchennette	1	15	75	75	at 1/3 break room
6 Security Control Room	1	4	180	180	
7 Server Room	1	2	400	400	
8 Staff Toilet	2	15	50	100	at 1 fixt. per 25 people
9 Central Counter	1		100	100	
10 Section Counters	4		30	120	Approx. 4 Sections
11 Office Storage	1		100	100	
Subtotal				2110	
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
B. READING FACILITIES					
1 Reading Space	200	200	30	6000	4 seats/ 1000 people
2 Digital Reading	50	50	25	1250	
3 User Toilet	12	200	30	360	at 1 fixt. per 25 people
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
C. MISCELLANEOUS FACILITIES					
1 Seminar Room	1	150	3000	3000	10 sft per person plus stage
2 Toilet	10	150	30	300	
3 Café	1	50	900	900	12-18 sft per cover
4 Kitchen	1		250	250	3-5 sft per cover
5 Toilet	2	50	30	60	
Subtotal				4510	
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
D. ARCHIVE FACILITIES					
1 Stack Area	1		10000	10000	1 sft per 10 books
2 Local Studies Stock	1		1500	1500	
3 Reserve Stock Area	1		1270	1270	
4 Archive Workroom	1		700	700	with office and bindery
5 Archive Reading Area	30	30	30	900	restricted access
Subtotal				14370	
Total				27,975.00	
Lobby and Circulation (30%)				8393	
Grand Total				36,368	

Source: Author

Figure 113: Tentative Space requirements for the Museum

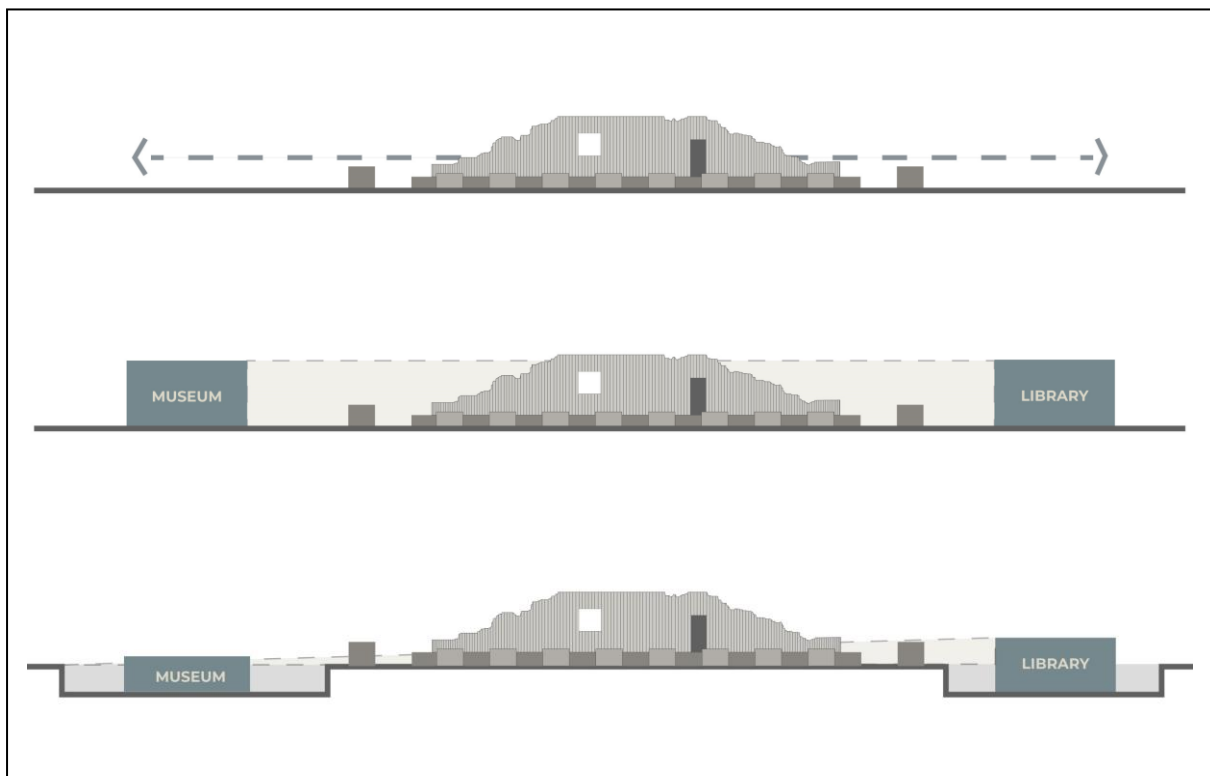
MUSEUM FOR MARTYRED INTELLECTUALS					
At Rayer Bazar Badhya Bhumi					
Built Up Area: 27,560 sft					
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	NOTES
A. ADMINISTRATIVE FACILITIES					
1 Curator General	1	1	250	250	
2 Curatorial Office	1	3	160	160	
3 General Admin Office	1	5	300	300	
4 Office Meeting Room	1	20	400	400	at 25 sft/person
5 Break Room	1	15	225	225	at 15 sft/person
6 Break Room Kitchennette	1	15	75	75	at 1/3 break room
7 Security Control Room	1	4	180	180	
8 Server Room	1	2	400	400	
9 Staff Toilet	2	15	50	100	at 1 fixt. per 25 people
10 Cloakroom	1		50	50	
11 Security Booth	3		30	90	
12 Office Storage	1		100	100	
Subtotal				2330	
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
B. MUSEUM FACILITIES					
1 Galleries	4		2400	9600	Approx.
2 Workshops	2		1500	3000	Approx.
Subtotal				12600	
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
C. ARCHIVE FACILITIES					
1 Exhibit Storage	1		4210	4210	Display: Storage ratio is 57:25 for local museums
2 Restoration Room	1		400	400	
3 Restoration Office	1		150	150	
Subtotal				4760	
FUNCTIONAL SPACE	NO. OF UNITS	NO. OF USERS	AREA PER UNIT (sft)	TOTAL AREA (sft)	
C. MISCELLANEOUS FACILITIES					
1 Multipurpose Hall	1	250	2500	2500	
2 Services	1		750	750	
3 Toilet	12		30	360	
4 Café	1	50	900	900	12-18 sft per cover
5 Kitchen	1		250	250	3-5 sft per cover
6 Toilet	12	50	30	360	
Subtotal				1510	
Total				21,200	
Circulation and Lobby (30%)				6360	
Grand Total				27,560	

Source: Author

6.4.2 Designing near a monument

Introducing two built spaces at the edge of a monument is a sensitive task. Therefore, it was imperative to constantly ensure through the design process that the new structures do not overpower or even seek to compete with the scale of the monument. Therefore, these are perceived as two depressed structures; each one entered through a courtyard below ground level.

Figure 114: Placement considerations for library and museum blocks



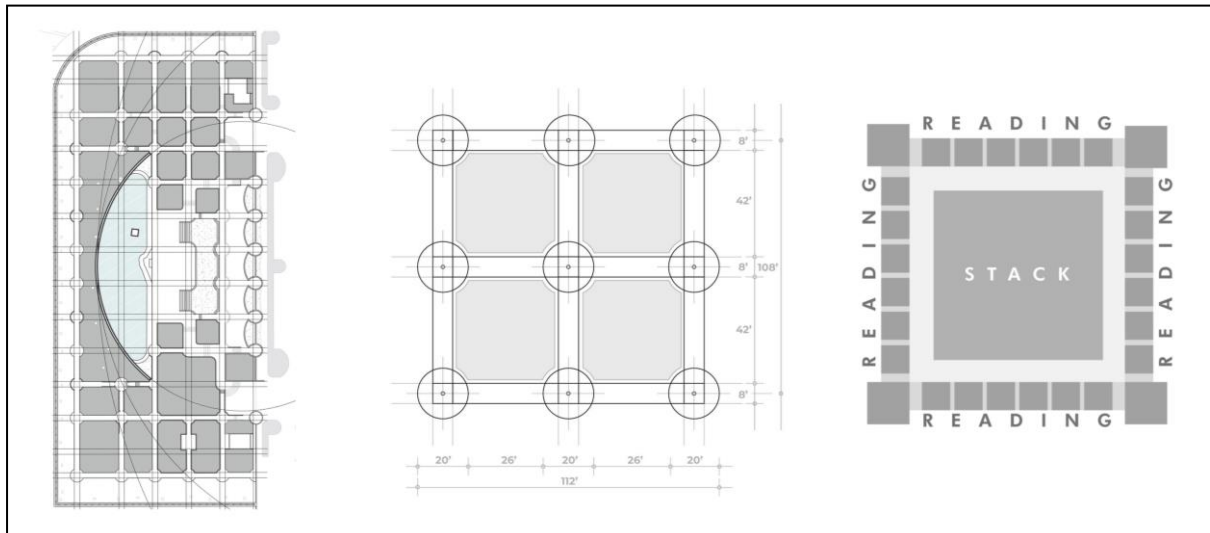
Source: Author

6.4.3 Design Inspirations

The newly introduced library and museum blocks draw inspiration from the existing monument. Situated mostly underground, these volumes are designed by studying the grid-like layout of the landscape pathways, creating a palette of grass and brick. The dominance of

symmetry and orthogonal layout of intersecting pathways is adopted in the planning principals of both structures, in an attempt to create a visual continuity of the landscape of the monument.

Figure 115: Analysis of Rayer Bazar Badhya Bhumi with landscape modules inspiring the layout of structures.



Source: Author

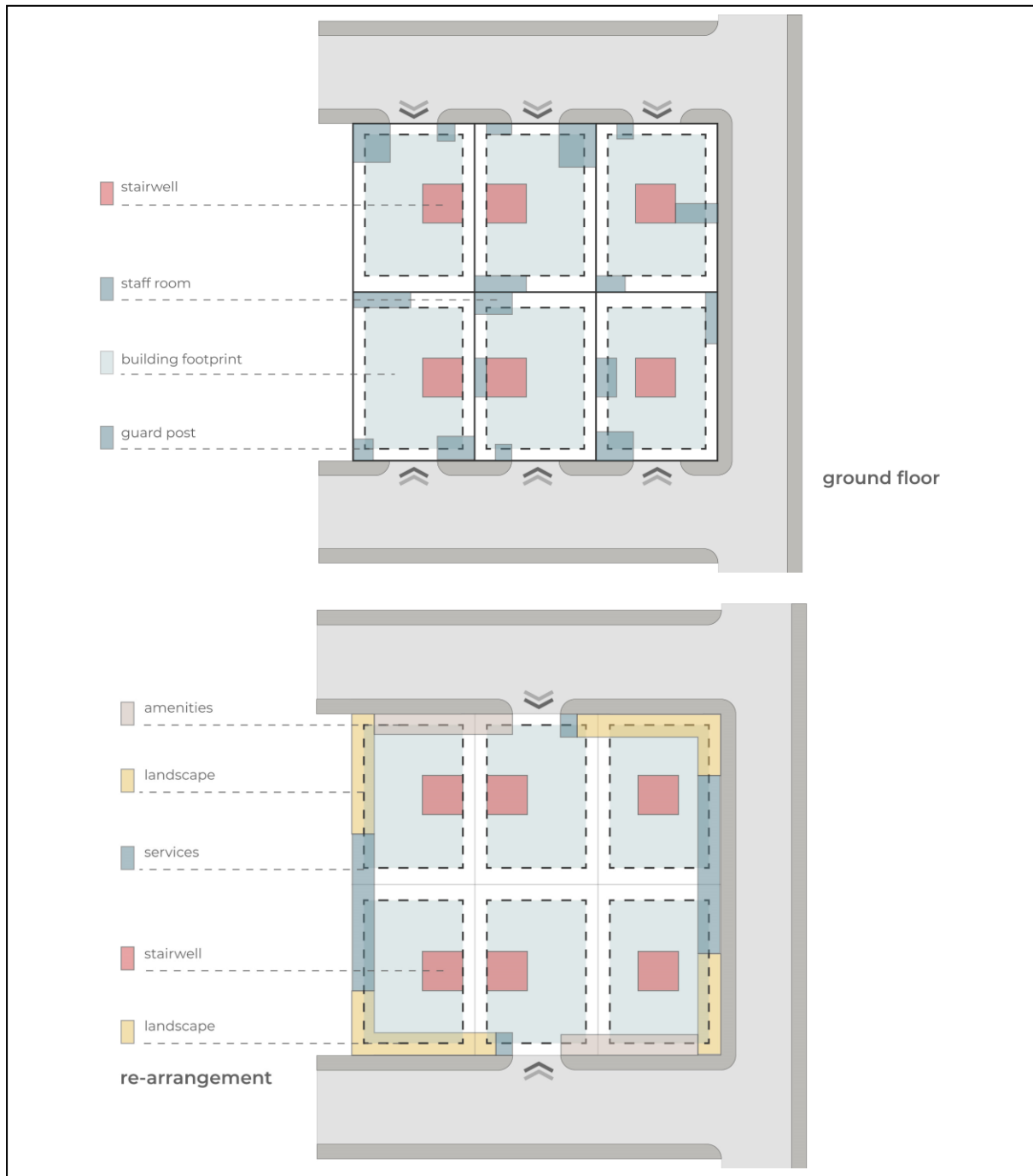
Chapter 7: Design Suggestions

7.1 Neighbourhood

The neighbourhood intervention is one that is envisioned as a notion instead of an absolute solution in terms of spatial design. Users, contexts and their negotiations with each other will lead to unique manifestations of this notion at each site. It is important to illustrate the existing conditions of a typical neighbourhood with individual boundary walls, a stair well and scattered services against the boundary walls at ground floor. This is illustrated in contrast to the changes in the neighbourhood described below:

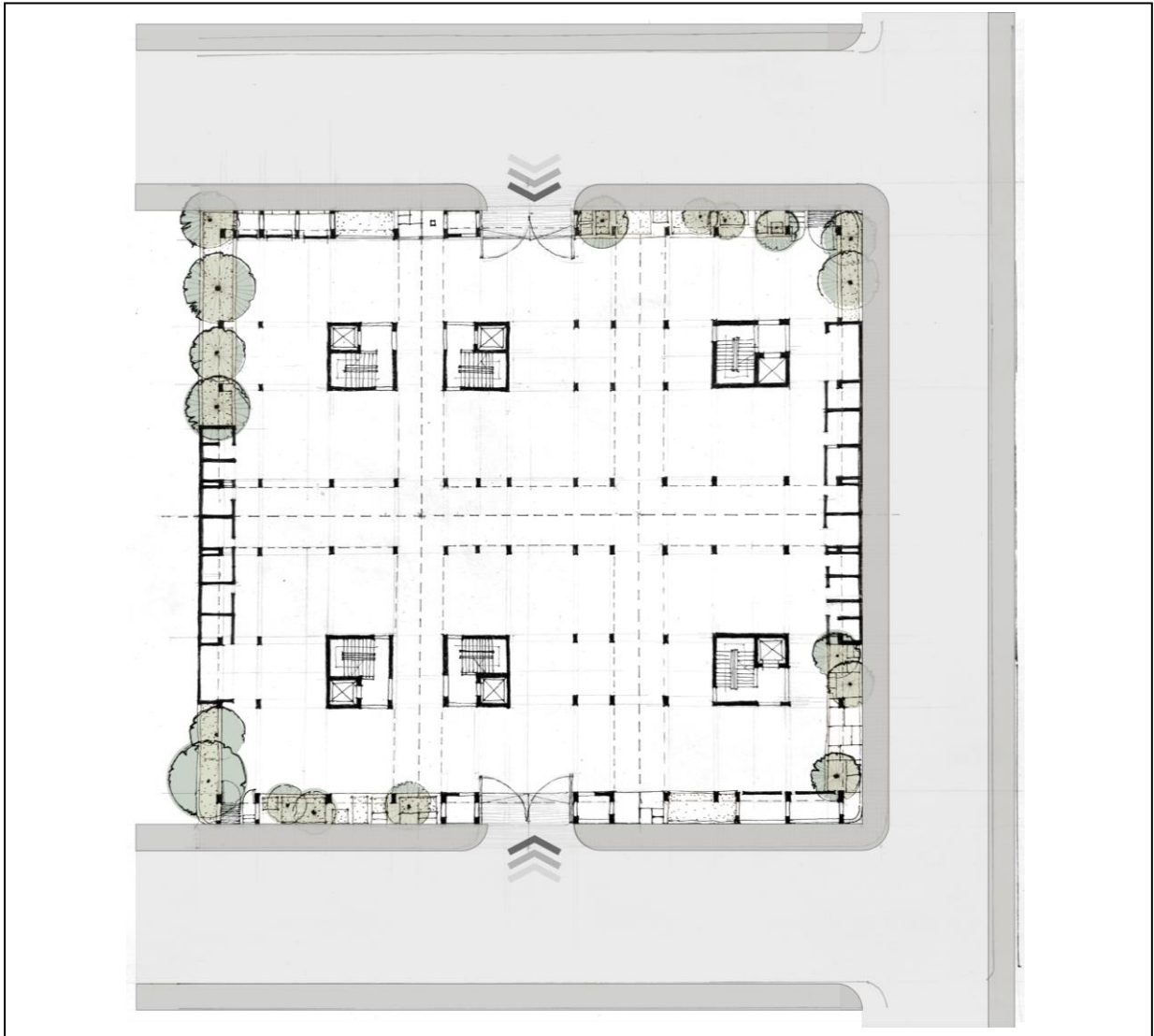
- Removal of individual boundary walls to introduce porosity at the thresholds between plots, allowing scope for interaction and movement.
- Re-arranging services to opposing sides, leaving a larger collective open space at ground level for all residents.
- Limiting the number of vehicular entries (since one plots vehicular entry can serve multiple in the absence of walls), making the pedestrian walkways more continuous with fewer breaks.
- Reimagining the outer walls of this hypothetical block with landscape, small shops, and communal functions such as drinking water fountains as replacements for the solid boundary wall that dominates our neighbourhoods.

Figure 116: Existing and proposed neighbourhood blocks with thresholds



Source: Author

Figure 117: Notion for a new neighbourhood block



Source: Author

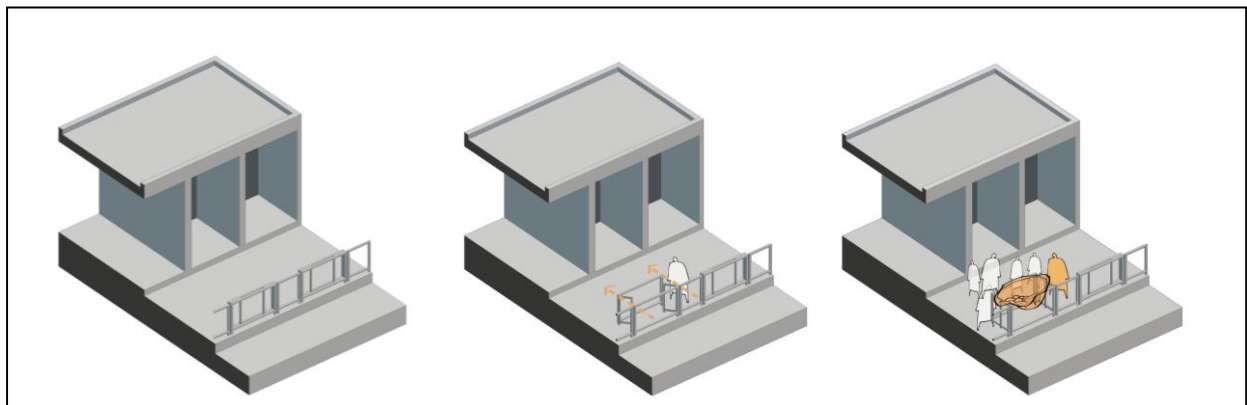
7.2 Bazaar

The notional interventions at the Bazaar are demonstrated along the 500 m stretch of Green Road, Farmgate discussed in the previous chapter. These notions of both design policy are as follows:

7.2.1 Edge Design

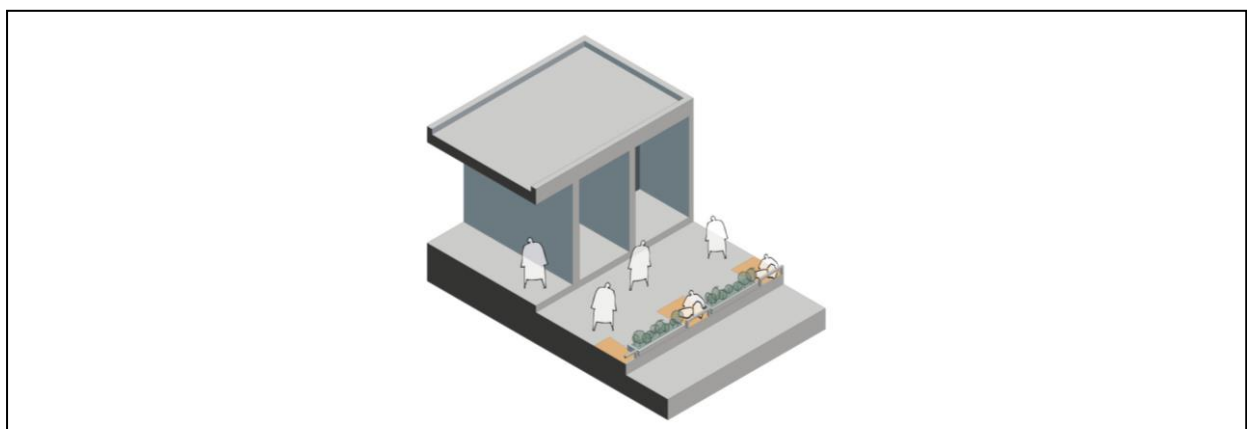
Two separate approaches are demonstrated at the edge where the road meets the pedestrian walkway. A foldable fence is introduced instead of the existing, static one. This folds out to create the frame structure hawkers use to display their goods. At the end of the day these can be folded back to leave no footprint unlike the timber platforms used currently by the informal vendors. At the same time, pockets of green may be introduced in this busy vehicular street. The gaps between each planter can be demarcations for hawkers to place their static horizontal planes.

Figure 118: Folding Fence design at footpath edge



Source: Author

Figure 119: Landscape introduction at footpath edge

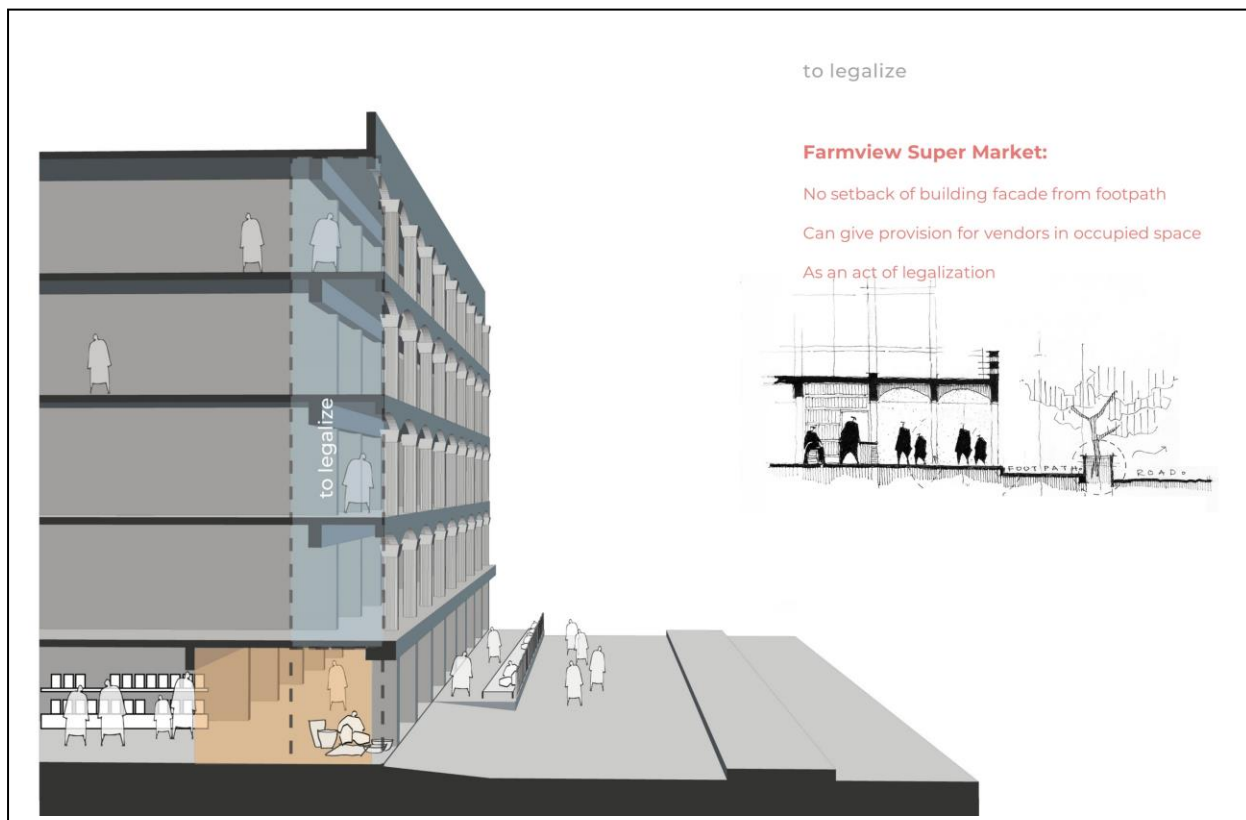


Source: Author

7.2.2 Intervention at Veranda without Setback

Commercial buildings that open onto the street without setback are essentially occupying land that would be left open otherwise. Verandas of markets like Farmview Super Market can accommodate informal vendors within the additional space that the building footprint occupies. In doing so, the city finds a way to utilize these edges, which are built upon illegally. Such an accommodation, instead of demolition, not only becomes an act of legalization at policy level but also an act of reclamation by the city itself.

Figure 120: Intervention at Farmview Super Market

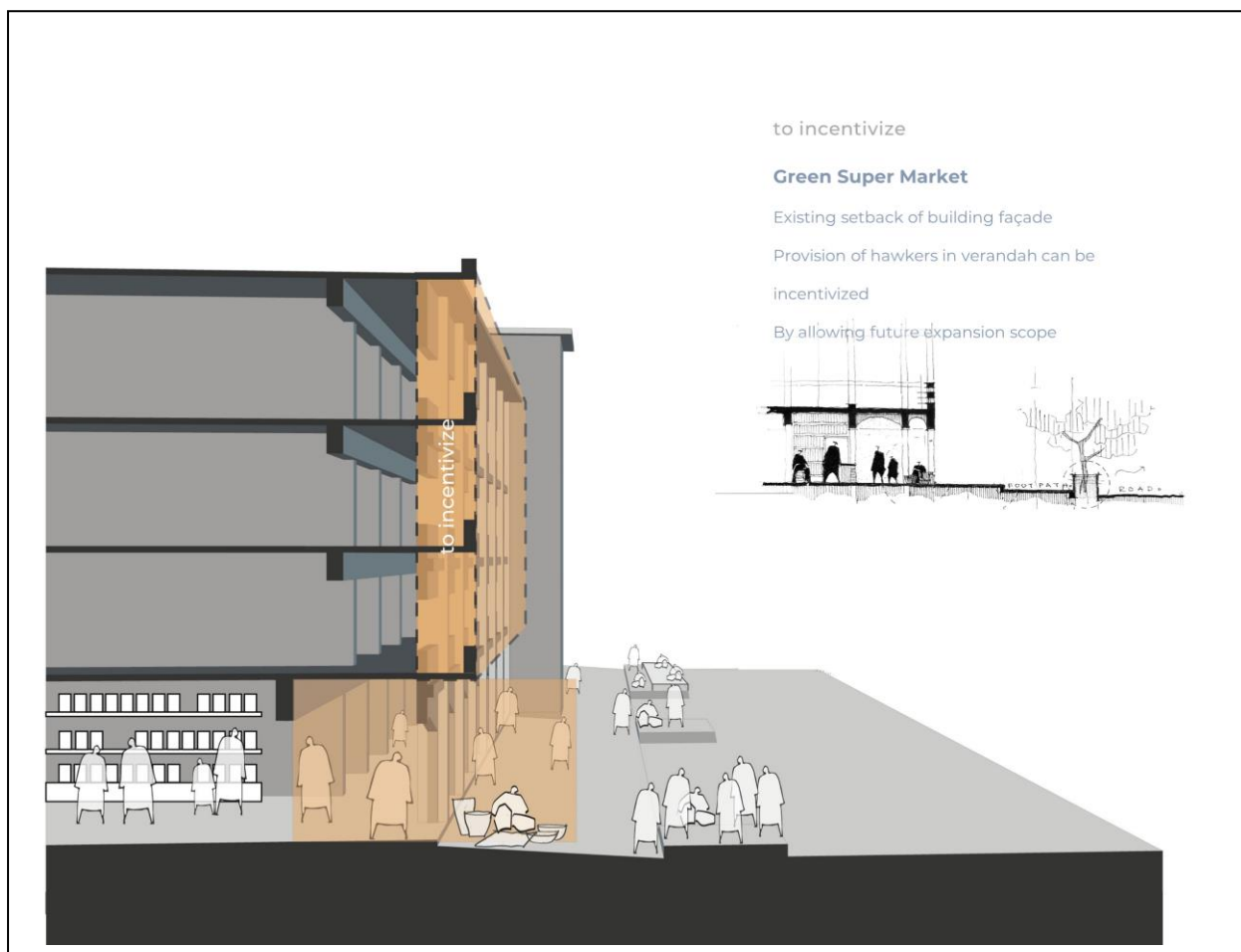


Source: Author

7.2.3 Intervention at Veranda with Setback

Buildings opening onto the street with adequate setback can also be a part of this intervention at policy level. Markets such as the Green Super Market may allow the occupation of their setback area by informal vendors- selectively, or all week round. In doing so, they can be incentivized by allowing additional floor space for future scopes of expansion.

Figure 121: Interventions at Green Super Market



Source: Author

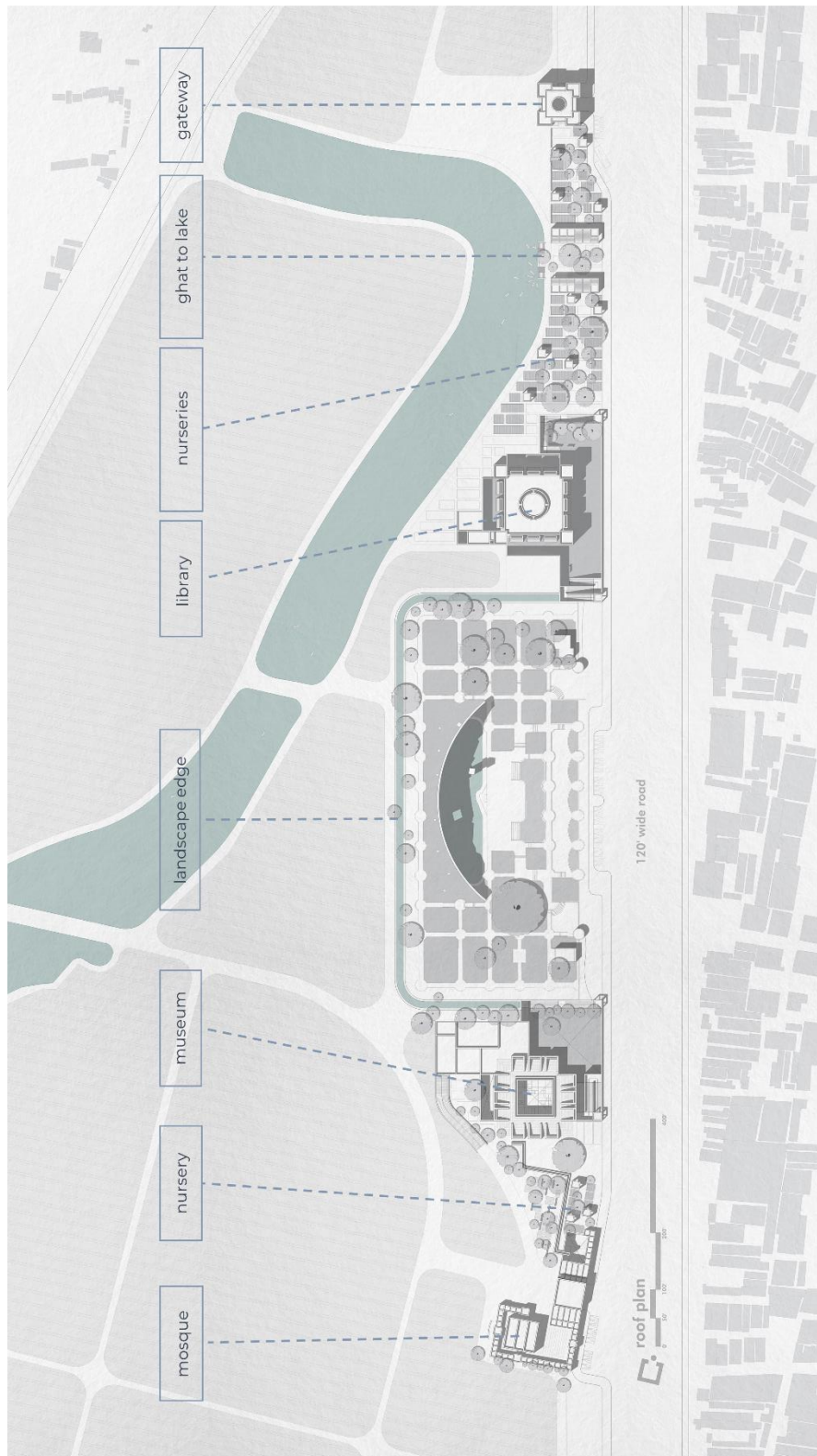
7.3 Public Place

The observations made at Rayer Bazar have informed the following design decisions. These are then illustrated in plans, sections and three-dimensional visualizations in the following pages.

- Introduction of a library block to the North of the monument. This may be entered at a depressed courtyard through a Northern ramp or a Southern one from the monument.
- Introduction of a museum complex narrating the abduction, torture and subsequent execution of the Intellectuals who were murdered at this site, as well as all others who have been martyred throughout the war. This block is also accessed through its own depressed courtyard.
- Re-arrangement of existing nurseries to create a tertiary path in the middle, parallel to the path of the lake and road.
- Introducing shops and public toilet blocks near the ghats where the road opens up to the lake.
- Introducing additional shops, shaded verandas and plinths for the informal vendors of the general surroundings.
- Increasing the capacity of the existing mosque by creating a courtyard to its East, with the use of shaded corridor loosely defining the open space.

7.3.1 Overall Site Planning

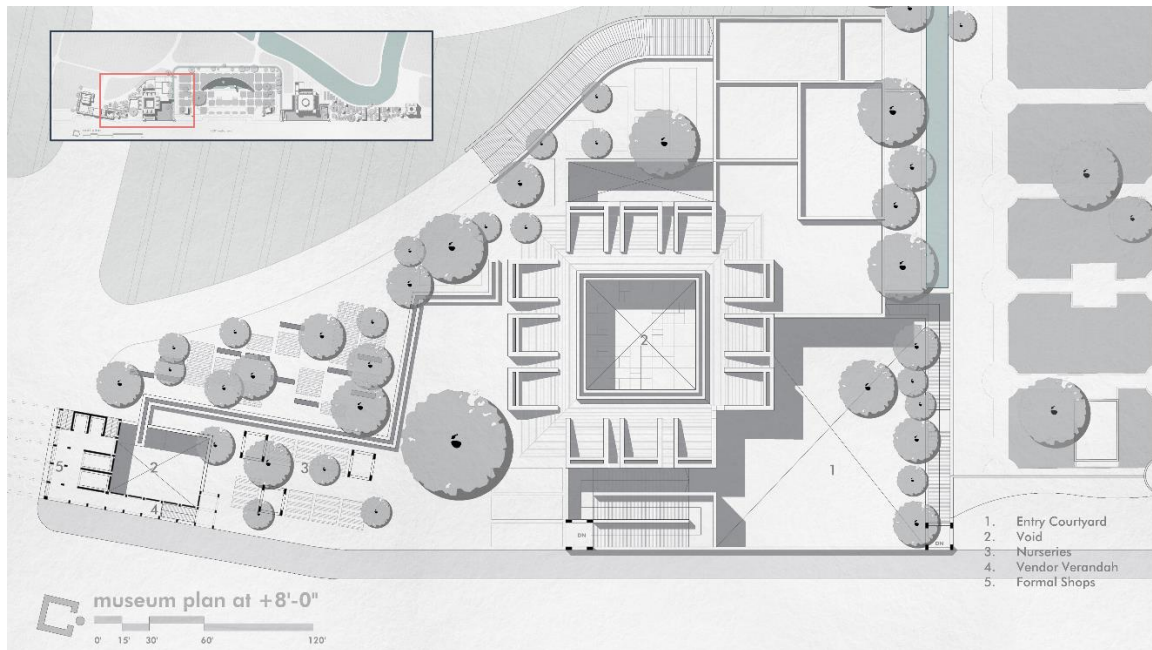
Figure 122: Roof Plan showing interventions at Rayer Bazar



Source: Author

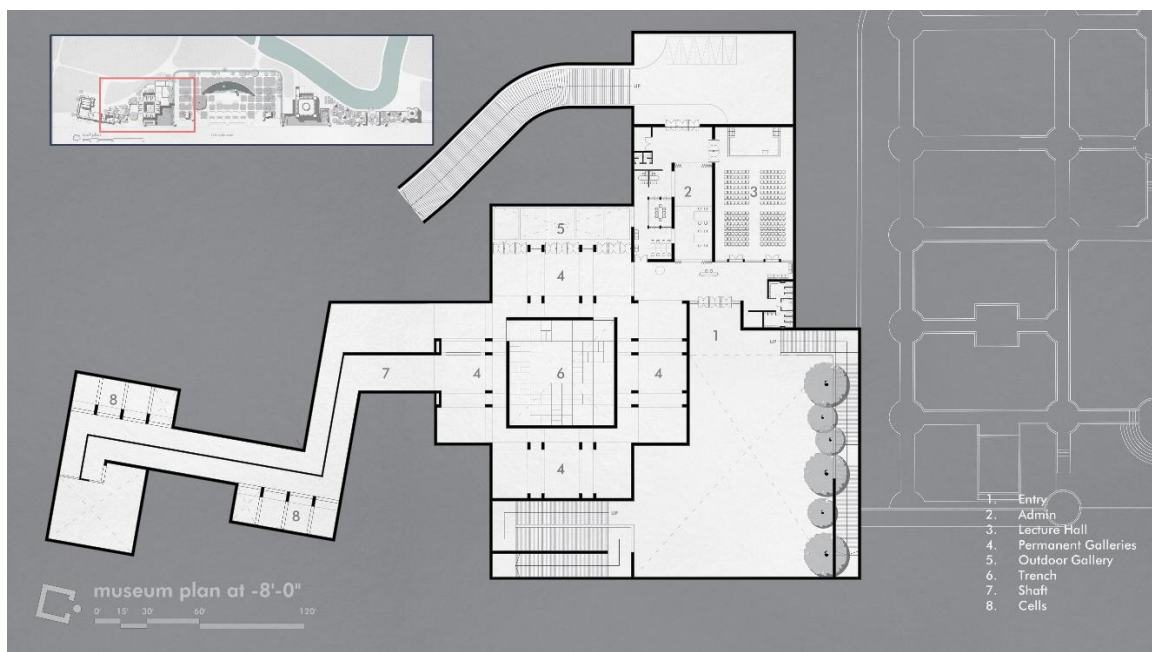
7.3.2 Museum

Figure 123: Ground floor plane of the museum



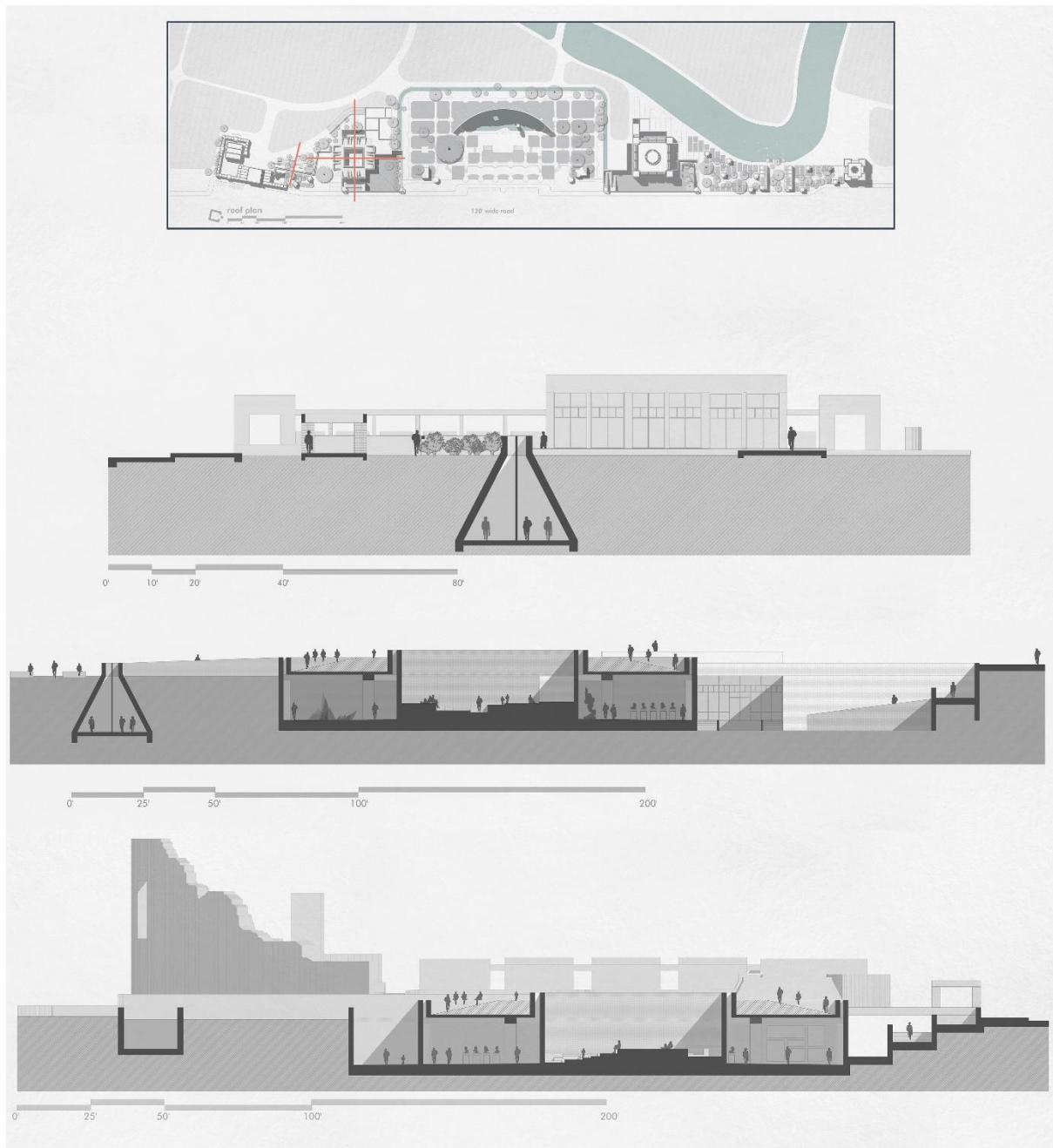
Source: Author

Figure 124: Museum plan at -8'-0"



Source: Author

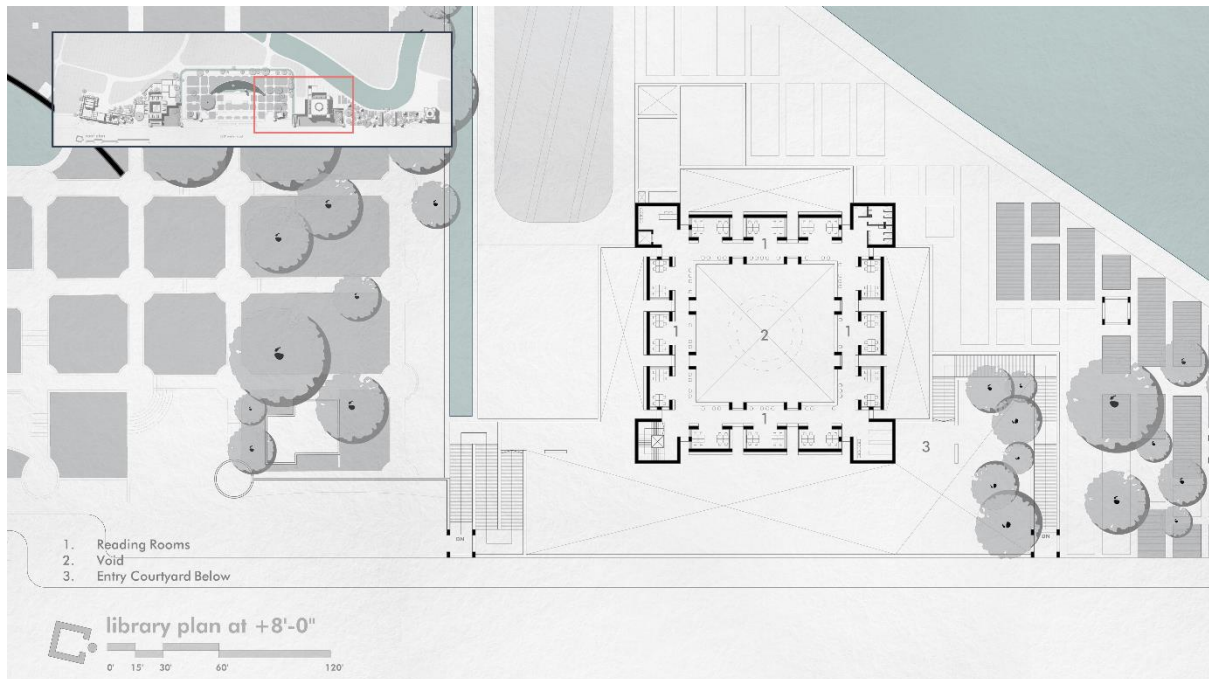
Figure 125: Sections through the museum



Source: Author

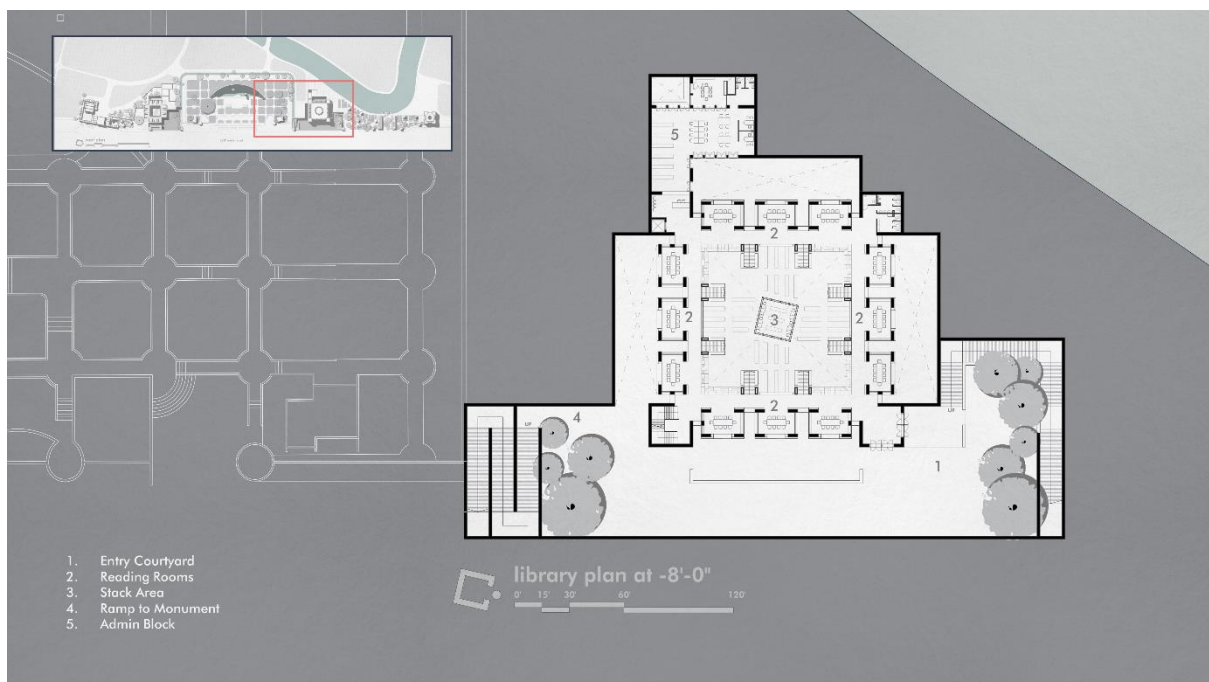
7.3.3 Library

Figure 126: Ground floor plan of library



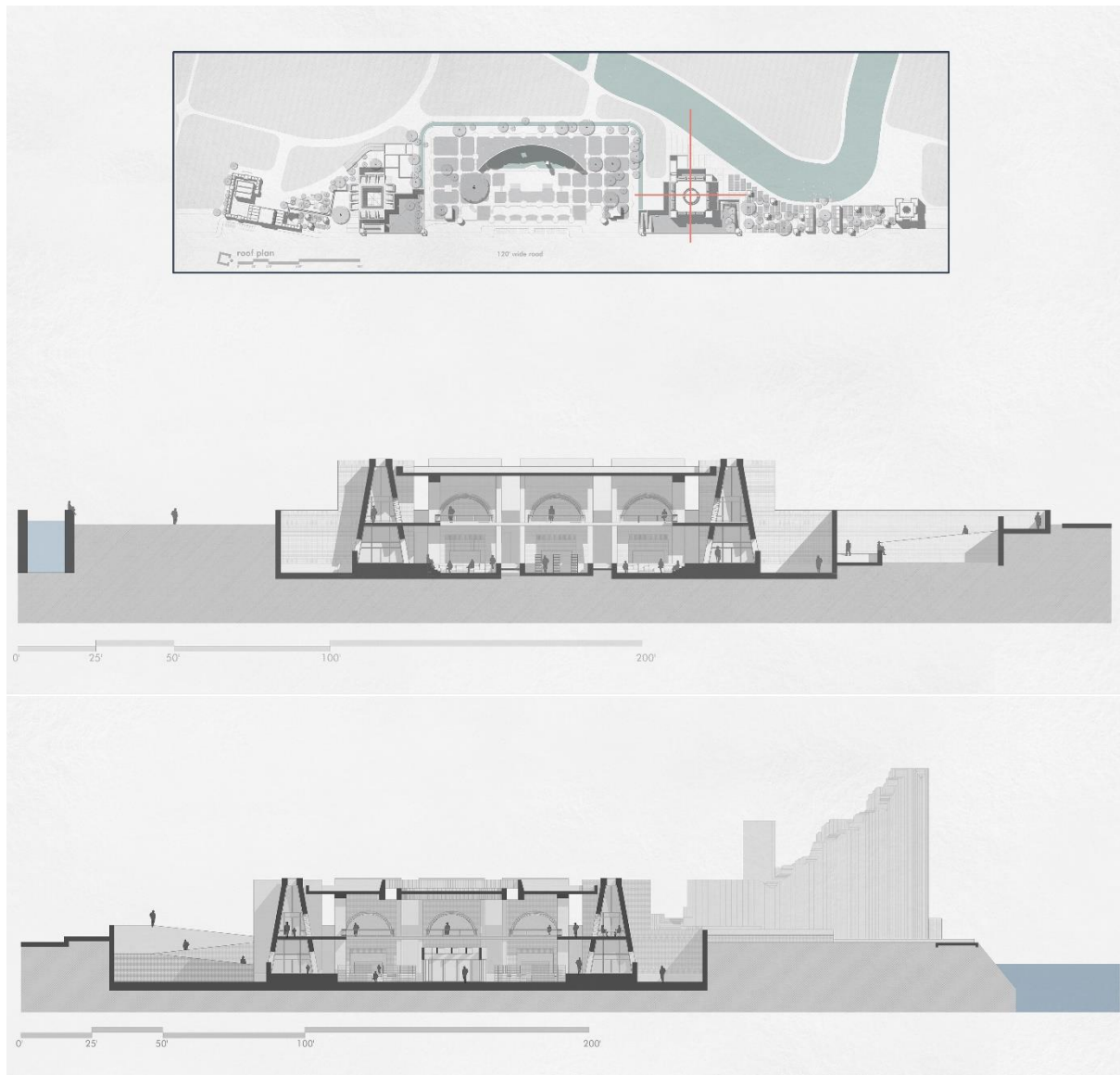
Source: Author

Figure 127: Library plan at -8'-0"



Source: Author

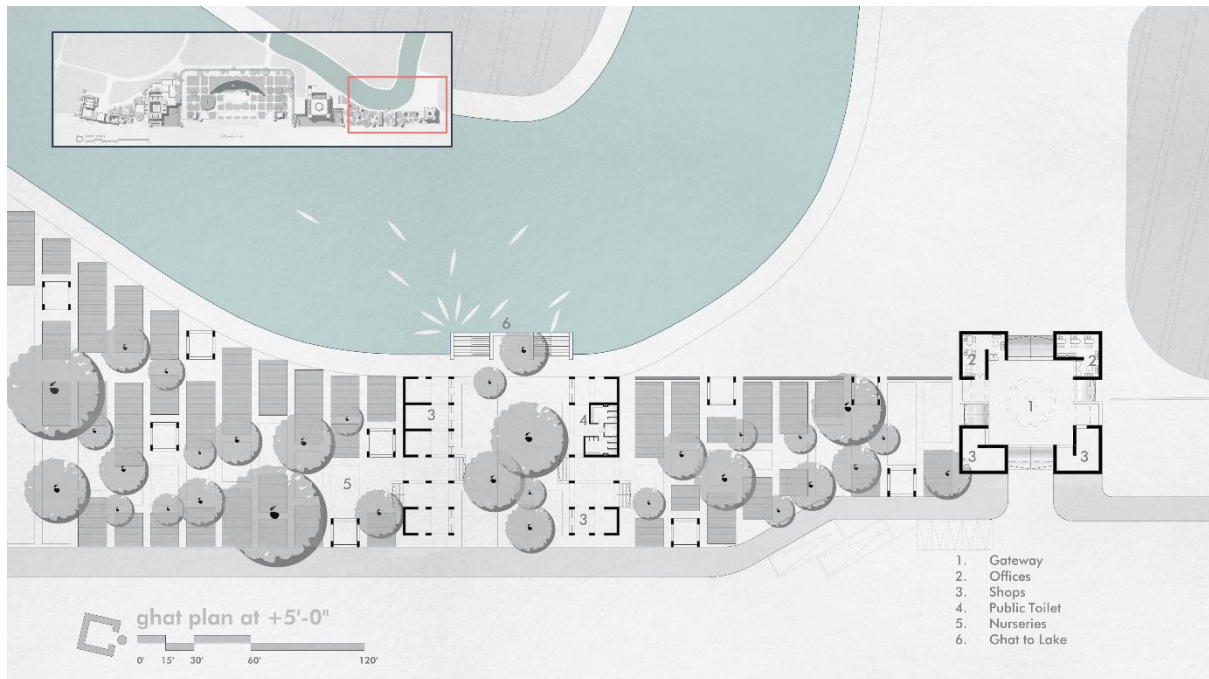
Figure 128: Sections through the library



Source: Author

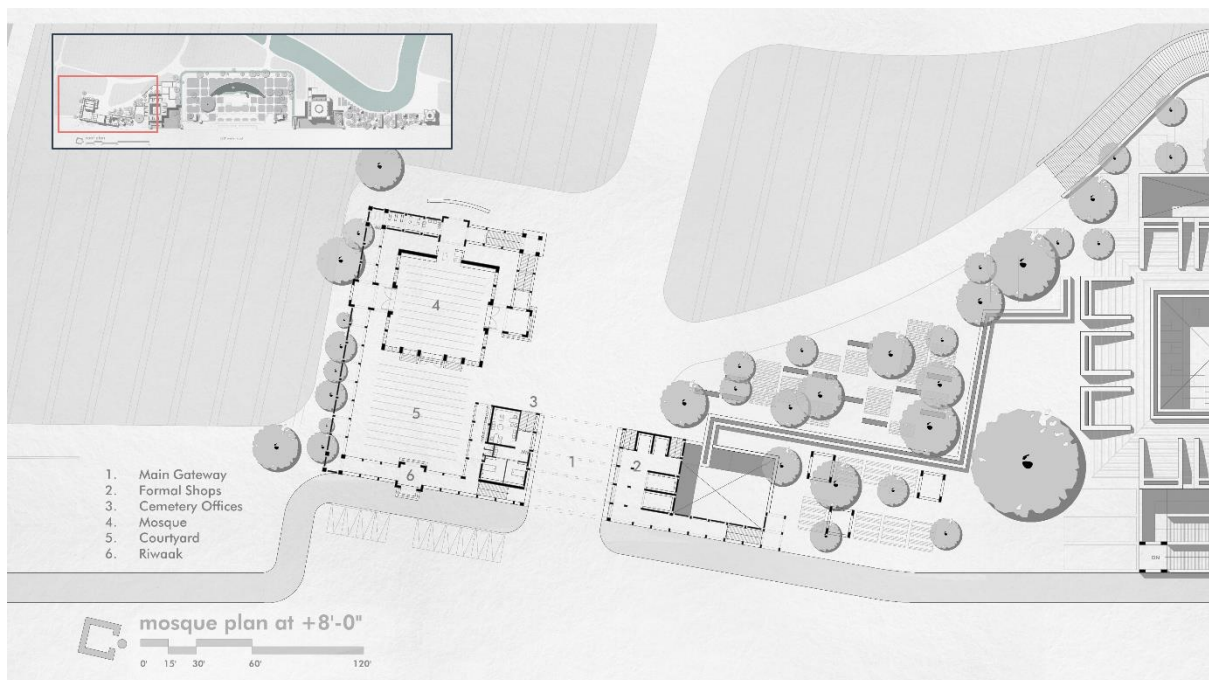
7.3.4 Surrounding Interventions

Figure 129: Ground floor plan of the nurseries



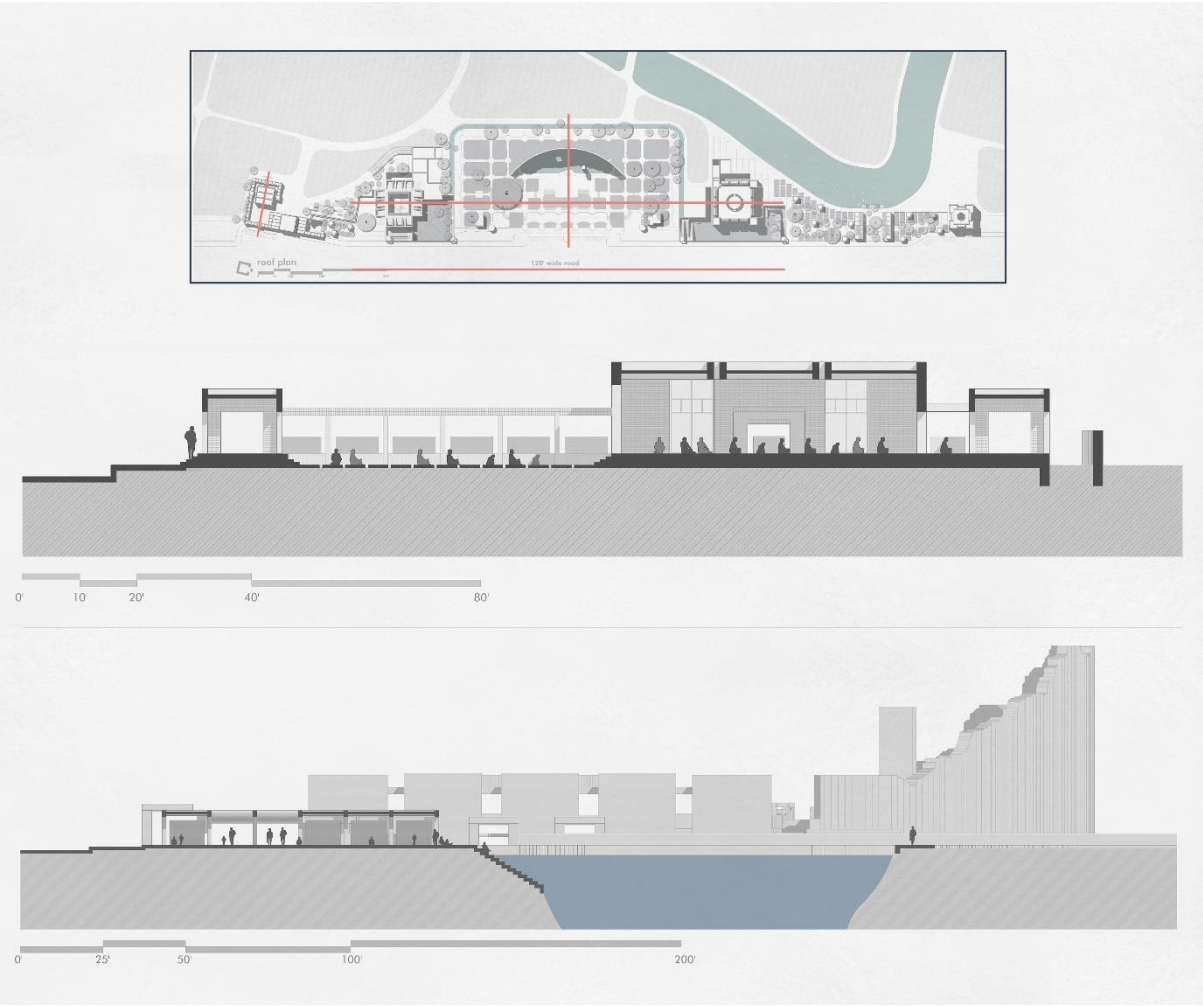
Source: Author

Figure 130: Ground floor plan of the mosque



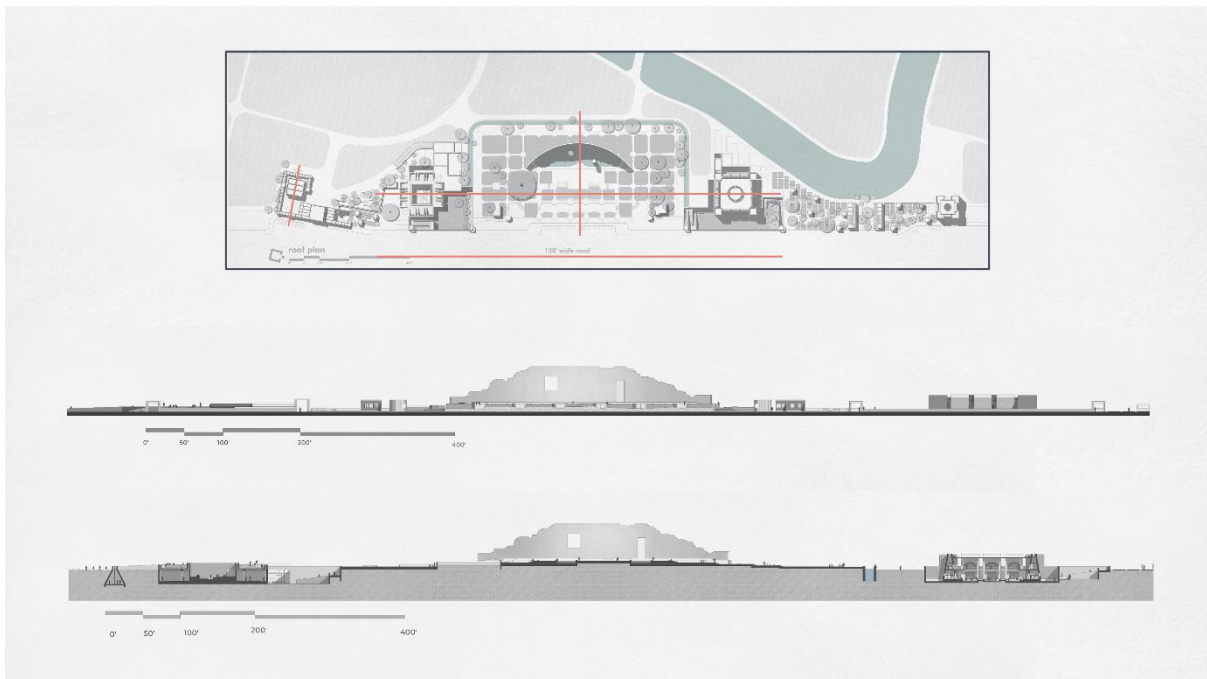
Source: Author

Figure 131: Sections through the mosque and ghat



Source: Author

Figure 132: Street Elevation (top) and Section through library, monument and museum (bottom)



Source: Author

7.3.5 Design Visualizations

Figure 133: Pathway through Nurseries



Source: Author

Figure 134: View of ghat from lake



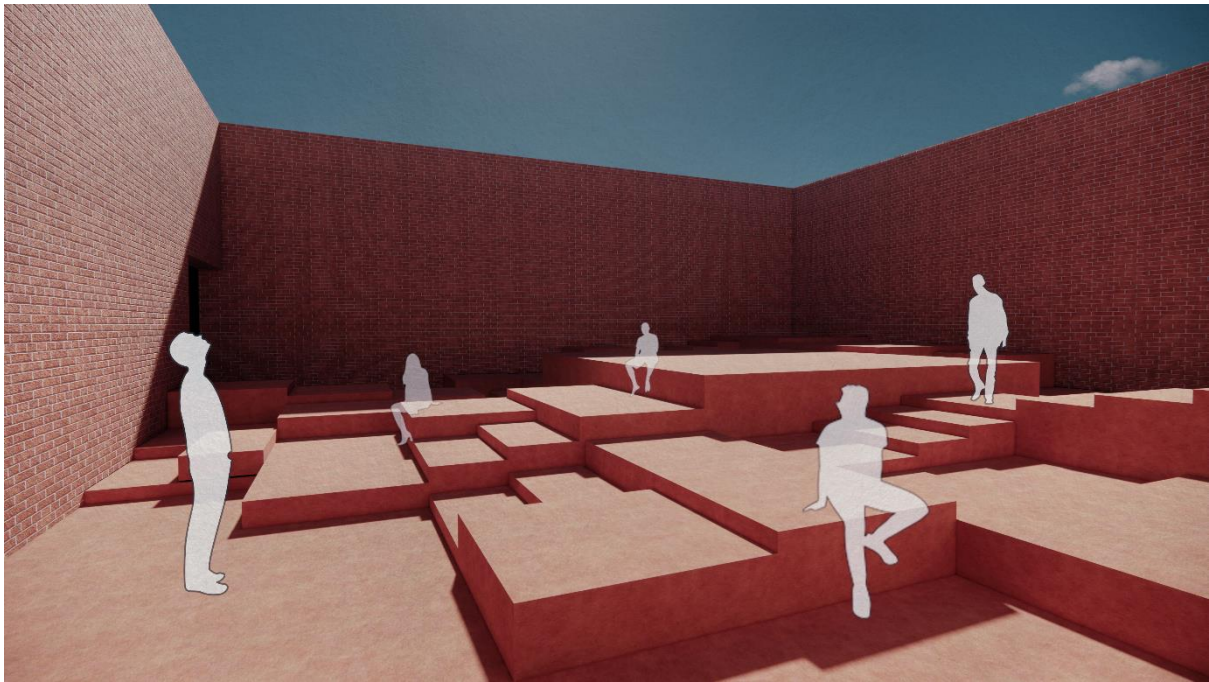
Source: Author

Figure 135: View of the new mosque and gateway from the cemetery



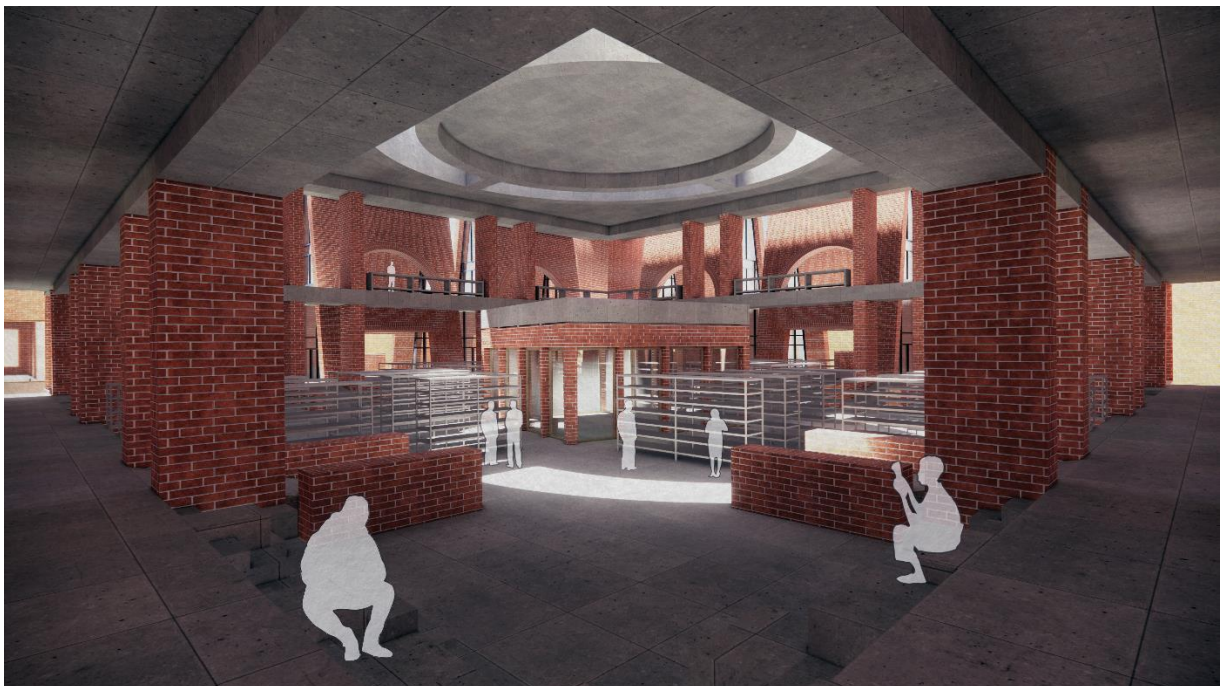
Source: Author

Figure 136: Central trench of the museum complex



Source: Author

Figure 137: Interior view of the library



Source: Author

Figure 138: From the museum, looking onto the monument



Source: Author

Figure 139: The library viewed from its entry courtyard



Source: Author

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Appendix A.