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# “Patterns” of Threshold spaces in the Historical City of Jeddah

Investigating the relationship between the public spaces and  
residential units in the City of Jeddah

By

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## **Abstract**

The availability of public spaces and their interaction with private space is one of the most important factors associated with the quality of cities. In that respect, threshold spaces between the private realm of the house and the public realm of the street are complex moments of social and cultural negotiation and are key in the constitution of “the urban”.

This thesis investigates and classifies threshold spaces, while at the same time revisiting Christopher Alexander’s theory in his canonical 1977 book, *A Pattern Language*. This work questions and expands the “patterns” in relation to the cultural, social, and environmental particularities of Jeddah. Special attention is paid to the effect of gender segregation on urban configuration. This extension has been undertaken through testing a concept from the urban design theory of the West (United States and Canada) and applying it to an Islamic city to find patterns in four different scales, which form the basis of the investigation (body, building, street, and city). Empirical methods have been used in the context of historical Jeddah, through which patterns are investigated using different approaches for the different scales (interview, observation, drawings, archival research, and photography).

This thesis explores the meaning of threshold spaces in old Jeddah. Furthermore, it shows that there are eighteen patterns of threshold spaces in the old town: patterns that are solely related to this specific case study as well as modified patterns to the ones explored by Christopher Alexander. This material shall allow not only a better understanding of the relationship between housing and the historical city but also an exploration of the role of the threshold space in shaping the old city.

## Publication Notes

Some of the works in this thesis have been published and/discussed prior to submission:

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# **Glossary of Arabic Words**

Sing.	Pl.	Description
Al Saga		Water carrier, called at least once a day to pour water into water containers
Al Tairama		A small room located on the roof of the house used for storing things and sleeping
Asir		Region in the southwest of Saudi Arabia
Atabah Mabrukah		A blessed-entrance
Bab	Biban	Door, Gate
Bait	Biout	House
Bait Allma		Bathroom
Baraha	Barahat	Positive outdoor spaces, Cul-de-sac in residential quarters.
Chalipha	Cholapha	Leader, representative
Dakkah	Dakat	Private terraces on the street
Dahliz	Dahaleez	Lobby, hall, entrance
Daraj Al Salamlik		A double sided staircase
Darb		Path
Diwan	Dawawen	Sitting room
Dribas		Transition from the street to the courtyard through the use of the Dribas
Fal		Evil eye
Fiqh		Islamic jurisprudence
Hadith	Ahadith	The Prophet's sayings
Hajj		Pilgrims to Makkah
Hajar Mangaby		Coral stone
Hara	Harat	Residential quarter
Haramlik		Main reception area used by women in houses built in Ottoman style
Hokom	Ahkam	Verdicts
Housh	Ahwash	A number of different structures with a courtyard around
Hijazi	Hojoz	A region on the west side of Saudi Arabia that includes Jeddah, Taif, Yanbu, Makkah, and Medina. Therefore, the word Hijazi refers to the people that live in this region
Jawi	Jawah	Java teak used for constructing rawashin and doors
Jeddah Al Qademah		Old Jeddah
Khan	Khanat	Inns or caravanserais
Kharja		Open outdoor spaces located on different levels of the house
khazana	Khazain	Storage
Khukhah		A small door; usually located in the right-hand leaf of most main doors of Jeddah's traditional houses
Kotab	Katateeb	Place where kids learn to read, write, memorise the Quran
Imam	Aima	A person who leads the prayer
Mabit		A family night room located in the uppermost floor.
Magad	Magaad	Men's sitting room located on the ground floor and next to the entrance hall
Majlis	Majalis	A family living room, located at the front of the house and towards the main façade
Manwar		Shaft
Mashala		Everything is under God's will
Mashrabiya		Bay windows
Masjid	Masajid	Mosques

Maucharabieh		A bay window on the upper floor covered with a wooden lattice to allow the occupants to see out without being seen
Mirkaz		Front door bench
Morakab		Kitchen
Muakhira		A family room located towards the back of the house
Omda	Omad	Quarter 'Hara' leader
Ozla	Ozal	Private area, for a nuclear family made up of several rooms
Qadi	Qudah	Judges
Ribat	Arbita	Endowment houses for poor people done by wealthy people in the city to support people who can't afford a living space. A way of social solidarity
Roshan	Rawasheen	Bay window
Roshan interior	Rawasheen	Window place
Sabat		Space bridging the street
Salah	Salawat	Prayer
Satuh		Roof open outdoor space
Salamlik		Main reception area used by men in a house built in Ottoman style
Sawm		Fasting
Shahada		Faith and belief in God
Sharia		Islamic law
Shari	Shwari	Wide streets
Sharif	Ashraf	Governor (Ottoman appointed), nobles; those who are descendants of the Prophet Muhammad (peace upon him).
Sheik	shioukh	Old man leader
Shish		Blind, shutter, latter window
Skifa		Sill
Sikafa		Entrance lobby
Sofa		A family living room located next to al-majlis
Sunnah		the Prophet's traditions, sayings and deeds
Suq	Aswaq	Market place
Taga	Tagaat	Casement windows constructed of louvred sliding panels but not protruding from the wall
Taharat		Rest room
Urf	Araf	Local tradition rooted in people which becomes part of their beings and culture. This played an important role establishing system of rules
Usha		Huts
Wakalah	Wakalat	Merchant centre
Zakat		Pay tax
Zawiya	Zawaia	Worship place for sufi convents
Zuqaq	Aziqqah	Alleys



# **INTRODUCTION**

## **Background**

“The subdivision of spaces we inhabit into public and private spheres is a key feature in how a society organizes itself. It further affects the mental state, experience, regulates behaviour, and superimposes a long-lasting structure on to human society” (Madanipur, 2003, p. i). This transition space is usually referred to as a threshold that bridges the gap between the interior and the exterior and is formed when an urban transformation occurs. They usually vary in urban scale and help ease architectural relationships with the surrounding environment to reduce conflict. “The configuration of a city and the quality of urban life are largely influenced by the way this public and private distinction is made and how we transition between the two unique spaces, by creating a flexible and elaborated boundary between the two realms, urbanism can be enriched” (Madanipur, 2003, p. 121). Transitional spaces can be thought of as a “screen” restricting the flow of outside into the space and subsequently defining “inside” (Nitschke, 1993, p. 85).

Transitional spaces have been explored from different perspectives in the literature. One of the first studies on cultural rites of passage is by Van Gennep (1960) where he came to the conclusion that Separation, transformation, and integration are the three main phases of each rite of passage,

There are many different models that illustrate transitional spaces and threshold by architects such as the Egyptian Hassan Fathy. “The public-private threshold differs between European-industrial and Egyptian rural settings, yet the idea of a complex set of interrelated functions taking place informally in the street is common. Fathy’s contribution is to formalize the possibility for this in giving the design of streets as much attention as that of buildings and in providing intermediate spaces for use among families in a society the structure of which is, at root, the extended family. The courtyard is a pivotal space between that of the family and that of the badana, and the smaller courtyard within is a pivotal space of individual family life” (Miles, 2006, p. 8)

This study aims to examine the concept of “ground floor” and the continuation of the public and private spheres of the society and the relationship between the spheres through the threshold space. The meaning of the ground floor in this research is beyond the ground level of a building. According to Zoller (2014, p. 33), it encompasses the surrounding open spaces and infrastructure, “the ground floor largely defines how a city is perceived; it is the representative public face of the street, where buildings present themselves at eye level”.

Furthermore, this study investigates certain patterns through an urban theory, which comes from Christopher Alexander’s *A Pattern Language* within the threshold spaces in the old city of Jeddah that played a huge role in aiding the public life. This theory had an impact not only on architecture but also on other disciplines by offering a new approach for providing knowledge. This is further explained in chapter two.

Jeddah is located along the east coast of the Red Sea in the western province of Saudi Arabia. Historically, Jeddah is a well-known city on Arabia's western coast. Via the Suez Canal, it serves as a connection between the Arabian Peninsula and Europe. Its importance lies in its location as it provides access to the holy city of Mecca for millions of Muslim pilgrims from all over the world. “Jeddah Al-Qademah meaning ‘old Jeddah’ developed as an Islamic city during the second half of the seventh century. It was a living entity changing over time, but within the coherent sets of Islamic values” (Abu-Ghazze, 1998, p. 226).

Old Jeddah, an example of an Islamic city had similarities to other Islamic cities through its customs and patterns of use which created an inner convergence. An example is the social factor and the division of home “private space” from the outer “public space” which was very strong. This was based on Islamic religion, local beliefs, and traditions (*Urf*). According to that, different design solutions were developed in different regions and cultures. *Urf* was “followed in most Islamic cities and tended to generate the similarities we find common amongst those cities. Although localised *Urf* practices were distinct to a specific urban centre or to a group of settlements within one region. Those localised practices helped to produce the distinctiveness and, thus, micro-characteristics of each city or settlement” (Hakim, 1994, p. 115). In this thesis *Urf* refers to local tradition which is rooted in the people and becomes part of their being and culture that played an important role in establishing systems of rules to organise the street patterns and processes in the old Islamic cities. “On the whole the smaller the scale the more evident the impact of *Urf* can be found.<sup>1</sup> Although in some instances we also find the effect on the larger scale” (Hakim, 1994, p. 112). It is important to note that *Urf* changes with time but the rate of change tends to be low. As a result, different settings were created with different solutions for designing the threshold space while sharing similar attributes that make the Islamic cities different compared with other civilisations when it comes to the urban configuration and understanding of the transitional space and its use. In this sense, Alexander’s theory in *A Pattern Language* is useful in assisting the understanding of this particular social, cultural and religious context.

In this thesis patterns are referred to as anything that has a repeated effect on the context. According to Alexander, “each pattern describes a problem which occurs over and over again in our environment” (Alexander 1977, p. x).

Jeddah’s historic centre, locally called *Al Balad*, is located at the heart of the city and “has been designated a UNESCO world heritage site in 2014” (UNESCO World Heritage Centre, 2016). The old area includes a number of heritage buildings, transportation networks and open spaces forming a homogenous pattern. Threshold spaces were embedded in areas of the urban fabric, linking the interior of private residential and public structures to the exterior public spaces. “The tightly packed urban fabric helped bring inhabitants more closely together and their meeting on a daily basis formed a sense of security” (Saudi Commission for Tourism and Antiquities, 2009, p.6). See Figure 1,2.

The city of Jeddah was chosen as a case study for this research for several reasons; first, because of its role in Saudi society as it is the second largest city in Saudi Arabia after the capital (Riyadh). Second, because of the strong urban identity in the historical area. Third, the rapid growth in line with spatial planning. Fourth, it represents a typical Islamic city where the findings can be relevant to other Islamic cities. Finally, I belong to this culture and value it and its traditions, therefore, I find it worth exploring, defending and protecting.

Due to the countless methods of creating threshold spaces, this thesis focuses specifically on a selected number of transitional spaces such as entrances, levels, and openings in the old city of Jeddah.

This study aims to examine and analyse the concept of the “ground floor” in the old city of Jeddah. The relationship between the two social realms through the threshold space which

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<sup>1</sup> *Urf*: for further explanation refer to P.30

facilitated public life as well as created layering on the ground floor resulting in a distinctive urban quality in a dense environment.

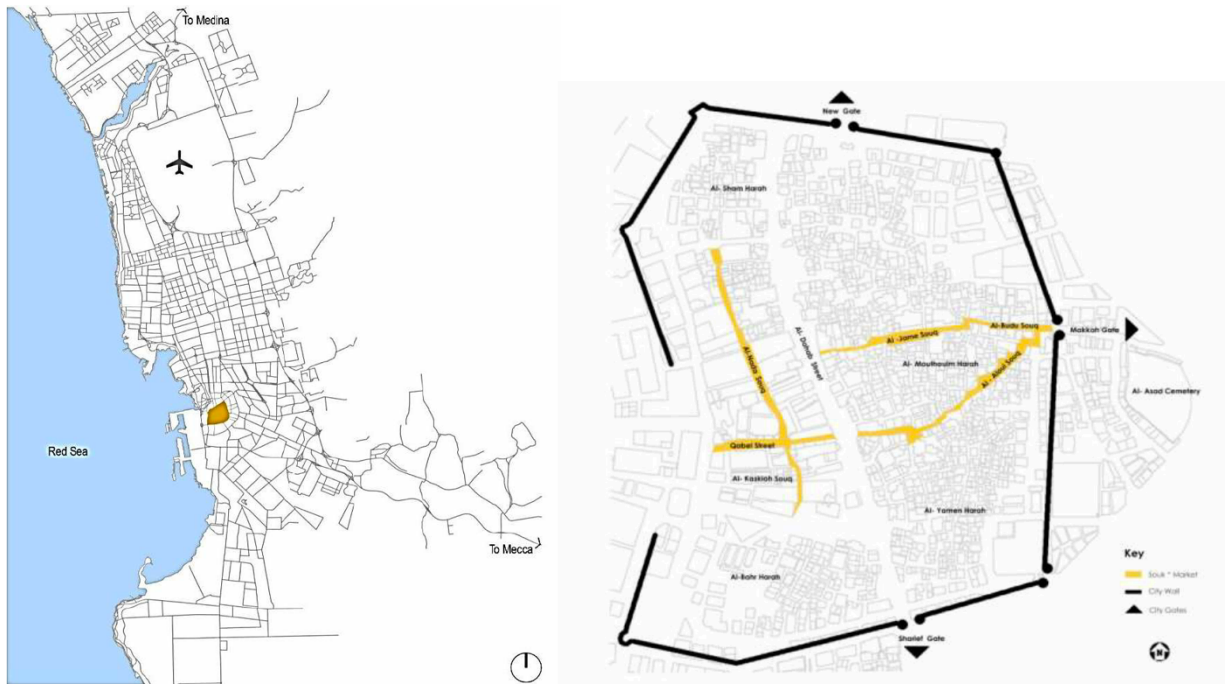


Figure 1: Left, the contemporary city of Jeddah made of gridiron patterns with the Old City at the centre. (Rahsid, Bindajam, 2014, p. 9). Right, a map of the Old City of Jeddah with important streets, squares, and buildings. (Rahsid, Bindajam, 2014, p.10)

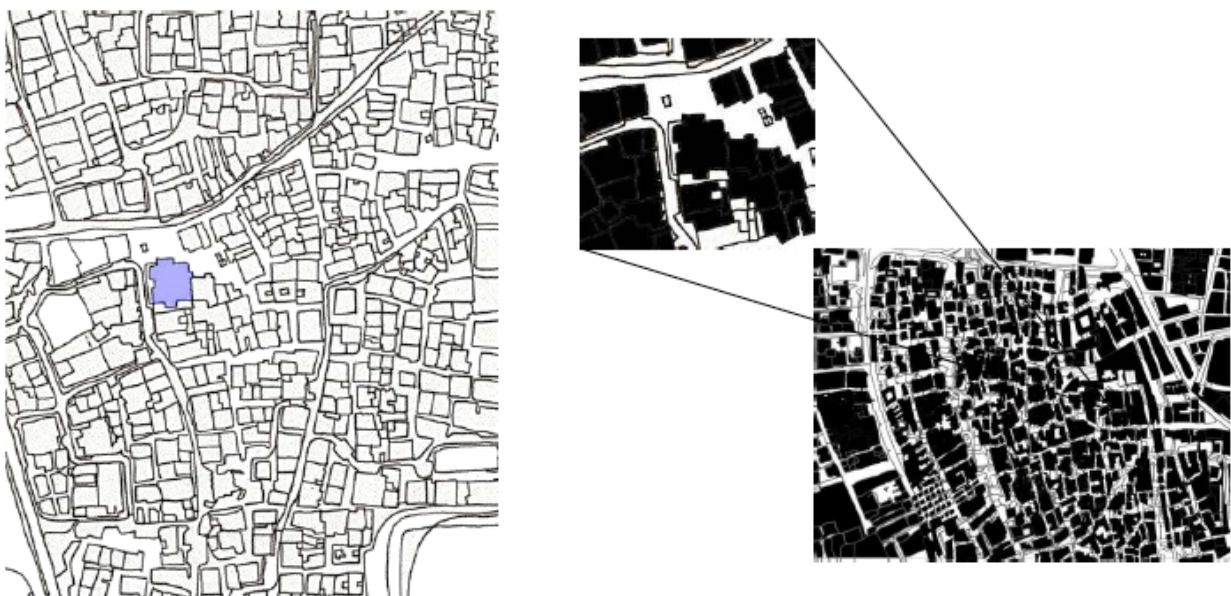


Figure 2: left, the old city of Jeddah showing Nassif house (one of the most famous houses in the area) and the public space in front of it. Right, a zoomed in image showing Nassif house, which goes under the irregular fabric.





Figure 3: Left, Nassif house main door, showing threshold space. The bench on the right and the stairs leading to the main door. Right, Baishen house men's main door. Showing threshold space. Two different stairs (levelling) leading to the door with a huge landing in between which is used as a seating area when the weather permits. Moreover, part of the building could be used as a seating area (the boy on the left).



Figure 4: “entrances create a transition between the ‘outside’ – the public world – and some less public inner world. If you have half hidden gardens the gardens help to intensify the beauty of the transition. This pattern now elaborates and reinforces the transition which entrances and gardens generate” (Alexander, 1977, A Pattern Language, p. 549).



Figure 5: “Each creates the transition with a different combination of elements” (Alexander, 1977, A Pattern Language, p. 551).

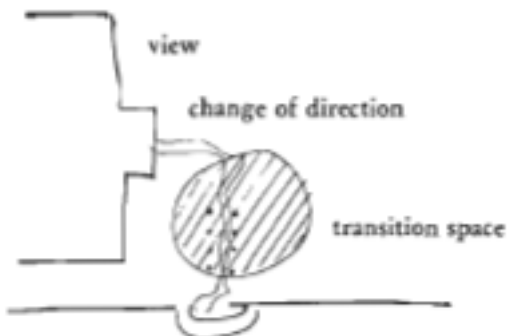


Figure 6: “make a transition space between the street and the front door. Bring the path which connects street and entrance through this transition space, and mark it with a change of light, a change of sound, a change of direction, a change of level, perhaps by gateways which make a change of enclosure, and above all with a change of view” (Alexander, 1977, A Pattern Language, p. 552).

## Aim of the Thesis

The existence of the threshold space provided a space of transition between the private and public spheres. As a result, it maintained privacy by ensuring an appropriate distance between the private and public realms and at the same time created key spaces where meetings between people took place. An important question that can be raised here is; What are the patterns within threshold spaces in the traditional city of Jeddah between the public and residential units that have facilitated public life?

This study aims to examine and analyse the concept of the “ground floor” in the old city of Jeddah. The continuation of the public and private spheres of the society as well as the relationship between the realms through the threshold space which facilitated public life. The threshold space created layering on the ground floor, resulting in a distinctive urban quality in a dense environment.

This can be approached by taking an existing urban theory, Christopher Alexander, *A Pattern Language* and a concrete case study, Jeddah, Saudi Arabia. The theory has been used as a methodology or framework on the case study of this research to find patterns and evaluate them. Moreover, threshold patterns have been investigated on various scales (body, building, street, and city) which is something that Alexander did by studying the small window ledge to the urban pattern (town, building, construction). Furthermore, the time dimension is used for tracking the act of the everyday life at different times of the day.

Qualitative methods in this architectural urban approach were undertaken in the old city of Jeddah, Saudi Arabia to investigate the patterns which played a huge role in supporting the public life.

The aim is to answer the main questions of the research which can be divided to two parts;

1. How can we present a new way of approaching Christopher Alexander’s notion of patterns in Saudi Arabia?
2. What is the notion of integration of public and private spaces in old Jeddah, Saudi Arabia?

To address this, the study needs to clarify other sub-questions:

- What is the role of the threshold space in shaping the historical city of Jeddah?
- What can we learn from the traditional urban pattern?
- Since this research does not aim to copy the European understanding of threshold, what can we learn from it? And what are some architectural principles that could be adapted?

The objective of this thesis are as following:

1. To explore a new way for presenting and approaching Christopher Alexander notion of patterns beyond western culture.
2. To examine the notion of interaction of the public and private spaces in the old city of Jeddah.

In broader terms, the argument of this research is as following; In order to understand the quality of architectural elements in thresholds, this research focuses on understanding and analysing the historical typology of patterns which played a huge role in aiding public life in the old city of Jeddah.

The results of this work are not only relevant to Jeddah, I have used this case study, which is exemplary to a traditional Islamic city, therefore, the findings will have relevance to other cities including in Saudi Arabia.

## **Research Methodology**

Linda Groat and David Wang (2002, p.) explains that “research methodology especially for architectural research covers work that ranges from the most theoretical to the most pragmatic, and also from humanities to technical fields”. In this thesis the term research methodology refers to the process undertaken to achieve the aims.

This section focuses on three different topics: research position, system of inquiry, and empirical methods.

- a. Research position refers to the approach used here as well as the research order.
- b. System of inquiry concentrates on the thinking methods to answer the research questions.
- c. Empirical methods concentrate on the qualitative methods that have been applied in this research.

### **a. Research Position**

This research is based on a methodological approach which is inspired by Christopher Alexander’s theory of *A Pattern language* (1977). As stated in the aim of this research, which is to look at the concept of “Ground Floor” in built up areas from two different perspectives, public spaces and residential units, the study focuses on the interface between these two components and questions the impact on spatial and social levels.

Introducing the thresholds in the development of new neighbourhoods will provide a clear transition between private and public spaces, as a result it maintains privacy by ensuring an appropriate distance between the private and the public sphere and creates key spaces where meetings between people can take place. This is the case in the historical city of Jeddah, Saudi Arabia.

This can be done by investigating why transitional spaces which were established throughout architectural history no longer apply today, and by exploring the role of threshold spaces in shaping the old city to find out what can be learned from the traditional urban pattern and how it can be applied in contemporary neighbourhoods.

This type of thought is part of a qualitative research approach which, according to Norman Denzin and Yvonna Lincoln, is “a multi-method in focus involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meaning people bring to them. Qualitative research involves the studied use of and collection of a variety of empirical materials” (Denzin and Lincoln 1998, p. 3).

This research follows a certain order:

1. Epistemological level
2. Methodological level
3. Application of the research methods

“The first level is the epistemological approach, which is concerned with the theory of knowledge” (Grix, 2002, p. 177), “the possible way of gaining knowledge of social reality, whatever it is understood to be. In short, claims about how what is assumed to exist can be known” (Blaikie, 2000, p. 8).

In this research, epistemology is undertaken through the interpretation of information from both the participants (interviewed people) and the researcher. This is through understanding the participant’s interpretation of the use of space and the urban patterns, and the researcher analysis the information subjectively.

This approach is considered as the understanding and identification of the social patterns and thresholds through understanding the perceived/conceived and lived spaces which will include etic and emic approaches.

“The etic account is from the point view of the observer who is outside the culture or activity in question, whereas the emic account is produced from within the culture” (Lucas, 2016, p. 10), meaning the etic approach seeks to understand the perceived and lived spaces through the understanding of the culture. The emic approach explores the conceived studied spaces through the understanding of a certain culture based on its own reference.

The second level is the methodological level which includes the ethnomethodology and ethnography approach. “Ethnomethodology can also be said to be an approach that seeks to bring about an understanding of how practice is embedded in ordinary competence. At the same time, it is stressed that practice is always unique since it must always be part of a local culture” (Bragason, 2004, p. 2). On the other hand, ethnography “attempts to capture and understand specific aspects of the life of a particular group by observing their patterns of behaviour, customs, and life style” (Sage Publications, 2015, p. 44). According to Paul Ten Have (2004, p.131) “Ethnography and ethnomethodology are related to each other in complex ways. Ethnomethodology seems to teach ethnography to be careful in its descriptive ambitions; it teaches a particular kind of ‘distrust’. In order to get its message across, however, ethnomethodology will also need ethnography, verbal depictions and characterizations of events in particular places and at particular times”. By that he means that the integration of the ethnographic field work combined with the analysis of the field work recordings is a productive strategy in ethnomethodological studies.

The last level is the application of the research methods to collect information from literature, documents and participants who live or lived in the area. The methods used in this research are as follows: literature review, interviews, observations, drawings, archive research through Jeddah Municipality and Ministry of Culture to find data (documents, maps, and images), photography, and analysis of existing threshold spaces.

These qualitative methods range from ([Figure 7](#)):

- a) Materials that others have produced, for example archival research and literature.
- b) Materials produced by the researcher including drawings, measurements, observations, and photos.
- c) Materials based on people’s experience, for example interviews.

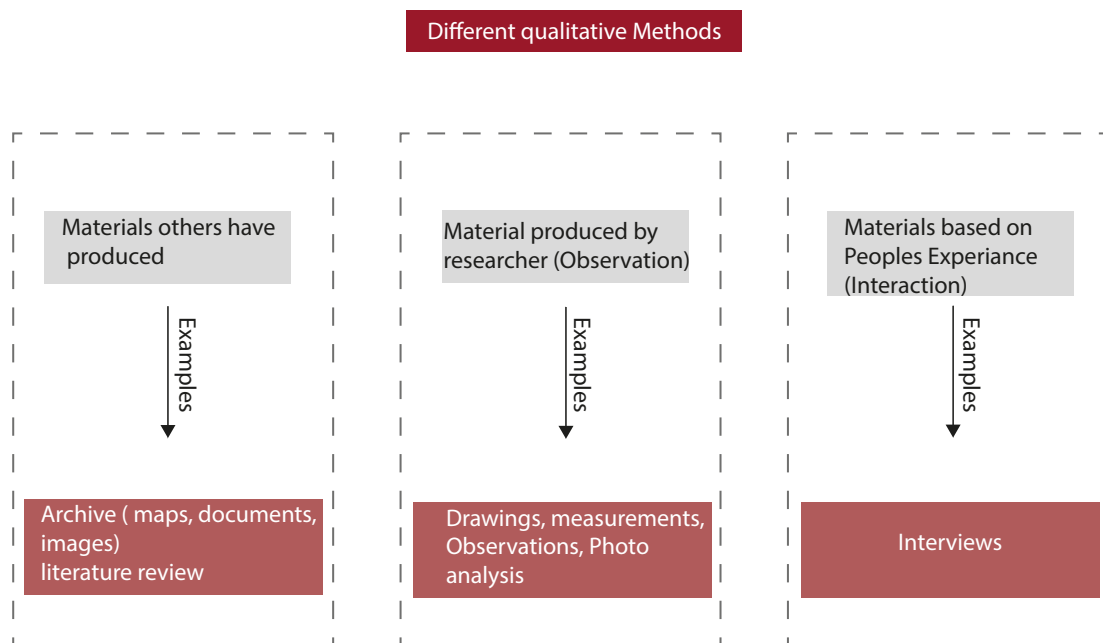


Figure 7: Different qualitative methods

## b. System of Inquiry

System of inquires is a research methodology that specifically discusses strategies and ways of thinking in aiming towards the research goal (Wang and Groat, 2002, p. 63 -91). The system of inquiry in this research consists of three parts; a theory concept, scope of study, and the methods. These three parts extends the theory of Christopher Alexander ([Figure 8](#)).

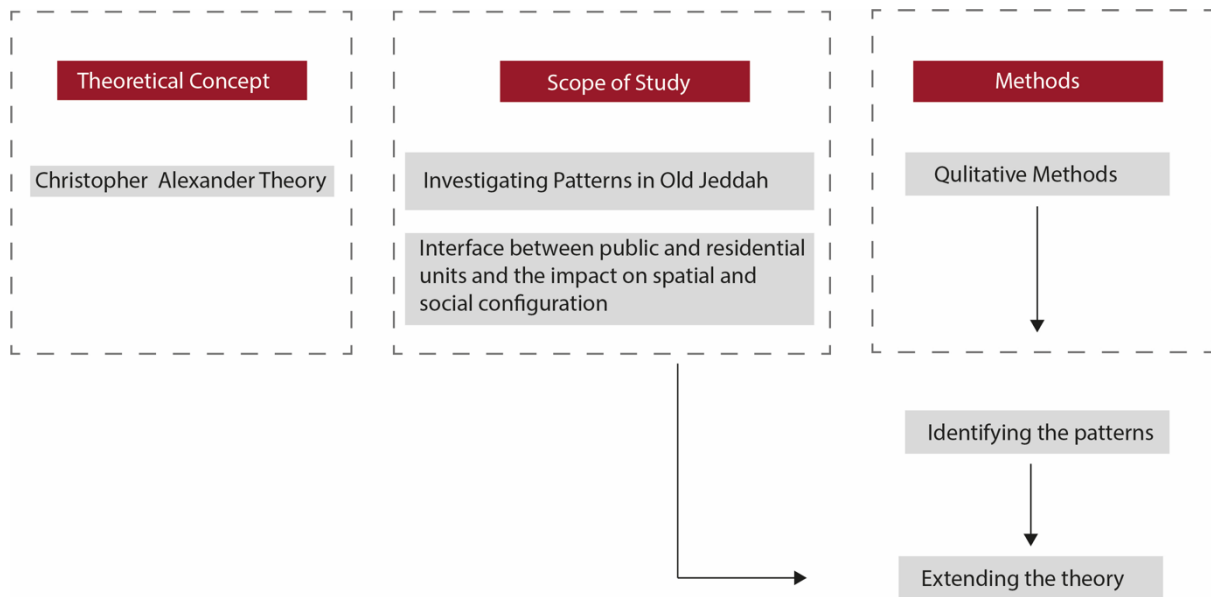


Figure 8: Strategies and ways of thinking in aiming towards the research goal

### c. Empirical Methods

As discussed previously, this research applies qualitative research focusing on the architectural urban approach to gather and analyse data from the empirical work.

This section highlights two topics. First, the qualitative methods that have been used in this research to study the urban patterns in the historical city of Jeddah. Second, process of gathering data, as explained in [Figure 9](#).

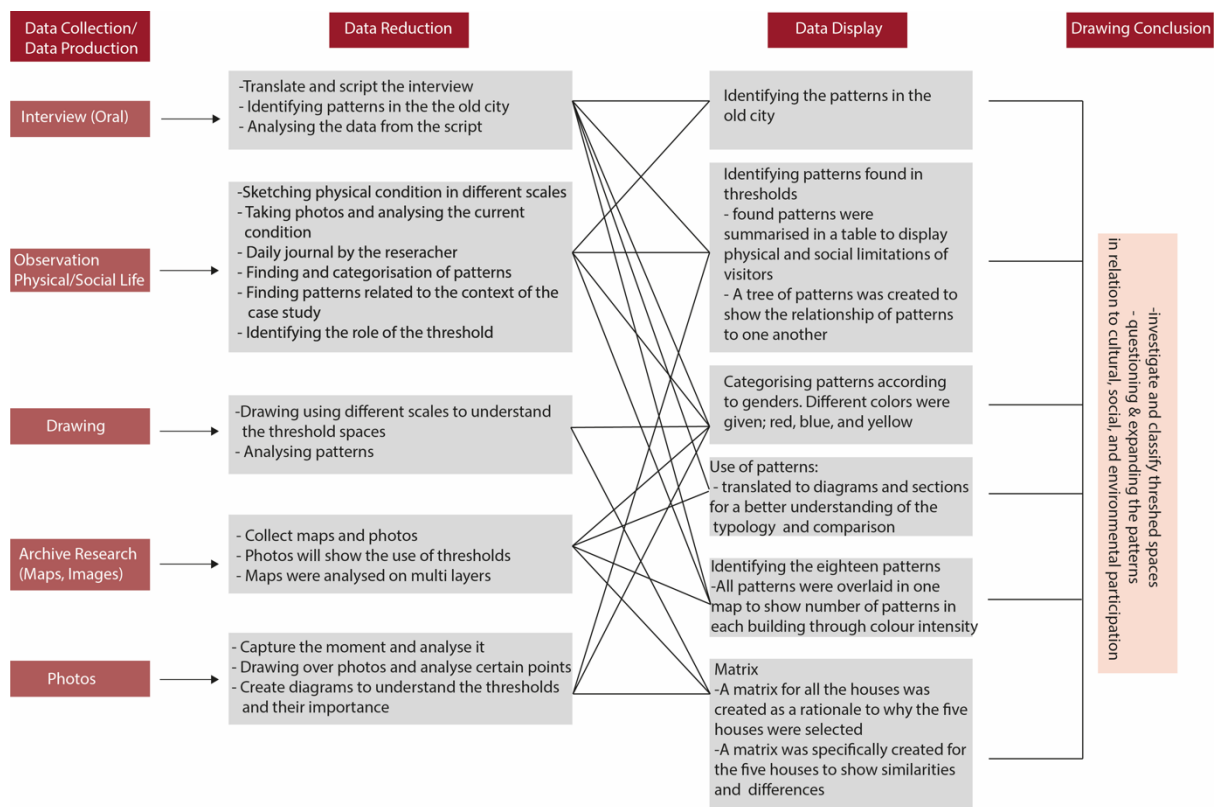


Figure 9: Qualitative methods and the process for collecting data

## The Stages

In this study, four main stages were used to gather information and data which are; data collection, data reduction, data display, and conclusion. (Figure 9) These stages are strategies that are usually applied in empirical research with a qualitative approach (Wang and Groat, 2002, p. 243). In the data collection stage, five methods were used: interviews, observation, drawing, photography, and intensive archive research and document analysis. After that, the data collected from the previous techniques went through the process of reduction after being analysed. “The idea that transcripts of in-depth interviews or visual documentation of artefacts must be reduced to data may seem counterintuitive, or perhaps even an oxymoron. However, in order for research to eventually yield conclusions or theory, at least some categorisation of the examined phenomena must be identified or screened out from the rest of the environment being studied” (Wang and Groat 2002, p. 245).

After that, data display was used as a third stage to summarise and visualise the information of the previous stages. Finally, drawing the conclusion for the empirical work. The conclusion is to classify thresholded spaces while at the same time questioning and expanding the patterns in relation to cultural and social environmental participation.



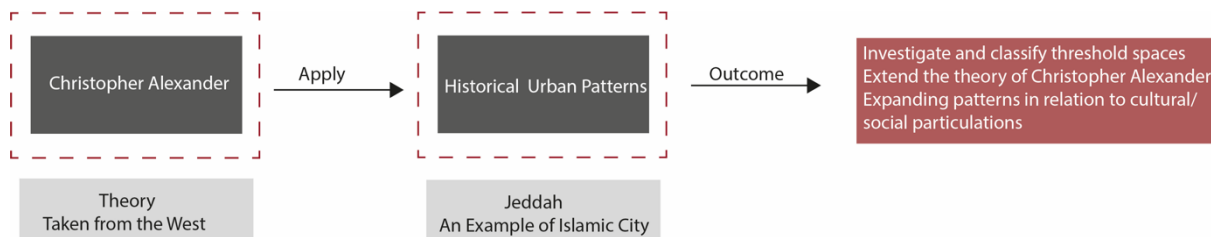


Figure 10: The figure exemplifies the steps needed to reach the final outcome. Starting with Alexander’s theory taken from the West and applying it to the case study of Jeddah.

This research is organised along four scales, which form the basis of its investigations; body, building, street, and city. This is similar to what Alexander did by studying the urban pattern to the small window ledge (town, building, construction), therefore, different methods are required for different scales. Additionally, the time dimension plays a vital role in tying the different scales to each other through the observation of the four scales at different times of the day, see [Figure 11](#).

**Time Dimension:** deals with dynamic observation of spaces/sites at different times.

**Body Scale:** this closer humanised scale requires documenting lived experience through drawings, diagrams, observation, noting, detailed photographs and interviews. It is essential to work with this scale when investigating thresholds, as we can understand the elements and their relation to the body. For example; the bench or the stairs, which I can sit on in front of the house, or the window which I can look from.

**Building Scale:** this close and more detailed scale requires diagrams, photography and drawings on several layers. This scale plays an important role as we can understand, for example, the proximity between two buildings or the height of the window to the ground floor.

**Street Scale:** this scale requires several approaches including archival, ethnographic methodologies, drawings and photography. The importance of this scale lies in the understanding of several things such as the width of the street which allows neighbours contact without visual connection, moreover, the shouting distance at that time played an important role which also relates to street width.

**City Scale:** this scale requires archival research to understand the urban morphology, which is implemented through Jeddah municipality to find data (maps, documents, and images). At this scale it is important to understand the relationship between the thresholds in the city, the proportions, typology, etc.

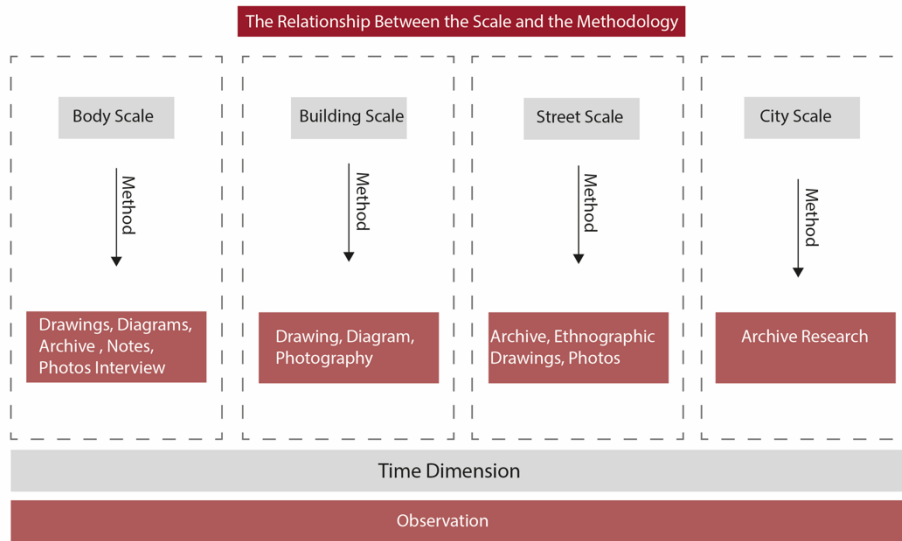


Figure 11: Showing the different methods required for the different scales.

### Data Collection

This research covered data collection in two ways; interactive and non-interactive type of collection. Interactive data collection means the tools need an involvement of the participants to interpret the information (Groat and Wang, 2002, p.244-245) in the case of this research, senior people from both genders who lived in the old town are interviewed to interpret their use of spaces and urban patterns furthermore, in situ observation and analysis of artifacts/buildings/ urban context. Non-interactive means the tools are left totally to the interpretation of the researcher. In this research, it included artifacts and site ‘photos, drawings, personal journals,’ and archival documents which includes site documentation, images, maps and sketches.

**Interviews:** This type of data collection was important for this research. As Kvale (2011, P.8) states, “The qualitative research interview is a construction site for knowledge”. interviews can lead to new interpretations of well-known phenomena for the researcher. In addition, conducting interviews might result in a significant amount of new information in a field”. Kvale also explains that today, interviews are commonly utilized in conjunction with other methodologies in social science research.

Interviews are conducted in oral form to investigate life in the old city of Jeddah, the use of the public spaces, daily activities, role of the threshold in the integration of public and private spaces, understanding the old city of Jeddah, *Urf* and shaping the traditional Islamic city, influence of culture and religion on urban configurations and on the in-between space, and the role of the threshold and its importance in the historical city.

In this thesis semi-structured interviews were conducted. “The semi-structured life-world interview seeks to obtain descriptions of the life- world of the interviewee with respect to interpreting the meaning of the described phenomenon; it will have a sequence of themes to be covered, as well as some suggested questions. Yet at the same time there is openness to changes

of sequence and forms of questions in order to follow up the specific answers given and the stories told by the subjects” (Kvale,2011, P.52).

Regarding ethical issues, information sheets about the project was given to the interviewed people which included information about the project, why the person was chosen, what will happen with the data. Moreover, the interviewer informed the interviewees about the later use of the recorded material. Also, a consent form was used and written permission were obtained.

During the interview the researcher kept a working journal to take notes of learned information throughout the investigation. In this journal daily insights gained from interview knowledge are recorded, including new perspectives on previous experiences and observations on the study process. This Journal helped the researcher to reflect during analysis and verification.

The researcher was selective while choosing the interviewees as they had to be seniors of both genders who lived in the old town of Jeddah for some period in order to obtain valid knowledge coming from their experience and self-understanding as well elaborating their own perspective on their lived world. In this research fifteen people from both genders were interviewed extensively. All interviews were conducted individually expect for one where two interviewees were interviewed together. Additionally, some of the interviewees were interviewed several times as some information was needed after the fieldwork.

Before beginning the interview, the interviewer gave a briefing of the subject at the same time explained the objective of the interview, the usage of the tape recorder, and asked the interviewee if he or she had any questions before starting the interview.

This interview stage was prepared with a script which was an outline with the topics that the interviewer wants to cover as well as suggested questions. These were brief and simple questions. In order to follow up on the responses offered and the tales recounted by the respondents, there was a flexibility to changing the sequence and question formats. (See Appendix 22).

These interviews took place in several locations; some of these interviews were conducted during a stroll in the old town as several houses were visited including the house where the interviewee was born. Others took place in the office or the house of the interviewee. Furthermore, due to the pandemic some interviews were conducted on the phone. During the interviews pictures and plans were brought by the interviewer and were used for clarifications as well drawings such as plans were done by the interviewer on spot for a better understanding. Furthermore, note taking was always conducted during the interview by the interviewer.

After that, transcriptions were translated from the oral language to a written language. then relevant quotes to work were highlighted and organized to themes (coding) for easier access and use by the researcher. After that, the data was subjected to further analysis.

**Observation:** The choice of this particular method is influenced by the Danish architect and urban designer Jan Gehl who explored public life in a Scandinavian context by worked with several methods such as observation, and photographing. Moreover, Linda and grout (2002, p.246) notes “In most qualitative research, there are likely to be extensive, sometimes voluminous, verbal or visual materials, in the form of interview transcripts, observational

notes”. Additionally, Creswell offers four different kinds of data collection strategies which included interviews and observation.

The researcher took the role of the active observer by getting directly involved in the social life, which helped in enhancing the quality of the data collection and analysis. During the observation, the researcher participated in a range of daily activities such as conversation, recording observation of field notes, drawings to understand how the threshold shapes in the historical area and its impact on socialisation and sustainability.

This method is called participant observation, and should enhance the quality of data collection and analysis. This method originally came from sociologist and anthropologist researchers in the field of ethnographical study. According to Richardson (1996) “participation is as important as observation, where the researcher takes part in respondents’ activities”. DeWalt (2011, p.) notes “actions should be taken during the observation: actively participating in a wide range of daily and extraordinary activities, using everyday conversation as an interview technique, recording observations in field notes, and using both implicit and explicit information in analysis and writing”.

In order to identify the spaces that the researcher wants to work on in the old town of Jeddah, the researcher decided to work on the areas within the UNISCO boundaries as it is the area that the Ministry of Culture is currently focusing on for development and preservation. This was done on one layer of map that looked at the whole old town. During this investigation, the researcher went through different paths concentrating on the key roads and allies. These paths were from the north, east, and south of the old town. During these strolls the researcher was documenting several things on the map such as the path, all observed patterns, and their frequency. Through that, a cluster of patterns emerged which affected the choice of spaces that the researcher decided to look at in detail. After that, the work was identified on one pattern intensively before going to the next patterns. (See Appendix 19).

So as to identify the patterns, the researcher had two options. First, to have an assumption of patterns before the fieldward then find a way to provide if they exist or not and whether they need modification to Alexanders work or not. Second, to go with an open eye with no preconceptions and establish them through the fieldwork (observation, drawing, interviews, etc..).

The researcher decided to take the second option as she felt it is more appropriate. And according to that, the researcher went for one week wondering through the old city making notations along the way to see where she finds patterns and their frequency. By that, the researcher looked at everything without digging deep.

During the first stage, a total of seven intensive tours took place. Each tour lasted for six to eight hours divided into morning, noon, afternoon and evening. During that, it was observed that the old town was mostly crowded between 4 pm to 7 pm. Therefore, the city was looked at in different times while concentrating on intense moments. In these tours social life was recorded in a daily journal of the researcher as well as documenting, photographing of 45 houses.

Twenty patterns were observed in the old town. Two were eliminated. The first is ‘Balconies’ as it appeared in few houses as well as old photographers however, the researcher could not

obtain a lot of information about it from the interviewees and the available documents. The second, is 'courtyards' which according to an interview appeared only in five houses.

In the second stage, tours of the old town took place three to five times a week also in different times of the day; morning, noon, afternoon, evening while concentrating on the peak time between 4 pm -7 pm. This lasted for three months.

The resulting data, consisting of manually transcribed maps, notes, photographs, drawings were organised in folders after every visit according to the date and name of houses that were looked at.

In this empirical work, the method of observation had two meanings in term of what to observe, which are the physical condition of the old town and the social life. The physical observation included perceived spaces, investigating building typology, street structure, and use of transitional space which was done through maps, photos, analysis by the researcher.

**Drawings:** Ray Lucas (2016, p.177,183) highlights that “Architectural research can be conducted and communicated by means other than written text.... There are a great many benefits to the graphic representation native to architecture as a discipline ...Drawing is not only an appropriate form of investigation, but one that allows for entirely different forms of knowledge to emerge”).

Drawings and analysis play a very important role in this research and were done by the researcher to understand the importance of the threshold and the transitional spaces in shaping the old city, to understand spatial composition, typologies of thresholds, how the patterns work and analysing the eighteen identified patterns in the historical city of Jeddah.

In this process 26 houses were investigated through drawing which included site plans, floor plans, sections, diagrams, and 3Ds with the aim of concentrating on the threshold space in different scales. (See Appendix 1-17). Some of these drawings were redrawn in Adobe Illustrator and were used for the analysis of the five houses. (See chapter four).

Furthermore, a map for the UNISCO area in the old town was drawn by the researcher in Adobe Illustrator and was used as the base for this research. In this map all observed patterns for the 26 houses were identified in separate maps using different colour coding according to gender use -red, blue, yellow. After that, the researcher overlaid these maps with the different patterns rather than keeping them isolated to reveal how these patterns influence each other or maybe exclude each other. For example; terraces can occur when we have steps. Steps gives a hierarchy of space. Steps and terraces give a strong hierarchy of space meaning a strong transition. This process of showing the influence of one pattern on another is similar to what alexander does when he groups patterns or hints how they should read together. According to these drawings an important question emerges which is do these patterns emerge in different combinations from the once that alexander describes? According to the fieldwork, there is a huge similarity however, Alexander relates to other patterns that are not necessarily related to thresholds and that's where the difference lies between this research and alexanders as this research is only dealing with the transitional elements.

These drawings took place during the observation method in the old town. The number of visits and time were previously explained in the observation.

**Archive Research (maps, images, documents) and document analysis:** “Within non-interactive methods of a qualitative approach in architectural research, there are two specific methods of observation: artefacts and/or buildings, and the study of archival documents” (Groat and Wang, 2002, p.243-244). This research studies official documents related to spatial organisation in the old town through the investigation of old maps and old photos which were analysed on multi layers to understand patterns of threshold spaces.

The researcher aimed to look at an institutional archive therefore, she contacted the Ministry of Culture for old maps, images, and documents. These were sent by email to the researcher. However, they were in the process of building their archive therefore, they were not sufficient. According to that, the researcher had to look for another source.

The researcher connected professor Ulrika Freitag who is the director of Leibniz-Zentrum Moderner Orient in Berlin, Professor of Islamic studies at the Free University of Berlin, as well as a historian on the modern Middle East who has been conducting researches on Jeddah for the past 20 years. The researcher met professor Freitag several times, where she was able to obtain files with documents and maps on the old town of Jeddah.

Furthermore, the University of Leiden had a collection of images of Jeddah which were photo albums of Herman Henry Dingemans who served as envoy or Charge d’affaires in Jeddah. Some of these images could be accessed online.

Regarding the five analysed houses, the researcher found the floor plans of the houses through different sources. Al Hazazi house through the archive of King Abdul Aziz University. Nassif house and Jamjoom house through the Ministry of Culture. Waqf Al Shafi house through my family. Jukhdar house through previous research. These plans are important as the researcher had to analyse them. (See chapter five).

The aim of this investigation is to read the physical changes and understand the spatial situation in the old town as well as the social aspect such as the use of threshold space.

**Photography:** Photographs are specific records of reality. They are one method mostly used for illustrative documentation. It shows still moments with selective information’s which needs to be analysed. This method complements observation. Photographs help to illustrate information you couldn’t capture when sketching or during written notes. Collier & Collier (1986, p. 9) states that “this mechanical support of field observation extends the possibilities of critical analysis, for the camera record contributes a control factor to visual observation”.

Edward T. Hall continually referred to photographic data in the development of his concepts of nonverbal communication (see *The Silent Language*, 1959), and he studied photographs to stabilize many aspects of the significance of the use of space, or ‘proxemics’ (see *The Hidden Dimension*, 1966). (Collier & Collier, 1986, p12).

Photography is used intensively in the research to capture the moment and analyse it, draw over it to emphasise certain points and create diagrams that help in understanding the threshold and its importance in creating a clear transition between the public and the private and creating key spaces where gatherings can take place. Photos were taken by the researcher during the observation period and during interviews that were done in the old town. (See chapter four)

While taking the photos, the researcher was concentrating on the facades, thresholds and their relationship to the street, alleys, topography, house entrances, open spaces, unique features

such as courtyards and balconies, and interior spaces when possible. So, the researcher looked at elements and activities to describe the space quality and to show it in diagrams. See figure 12.

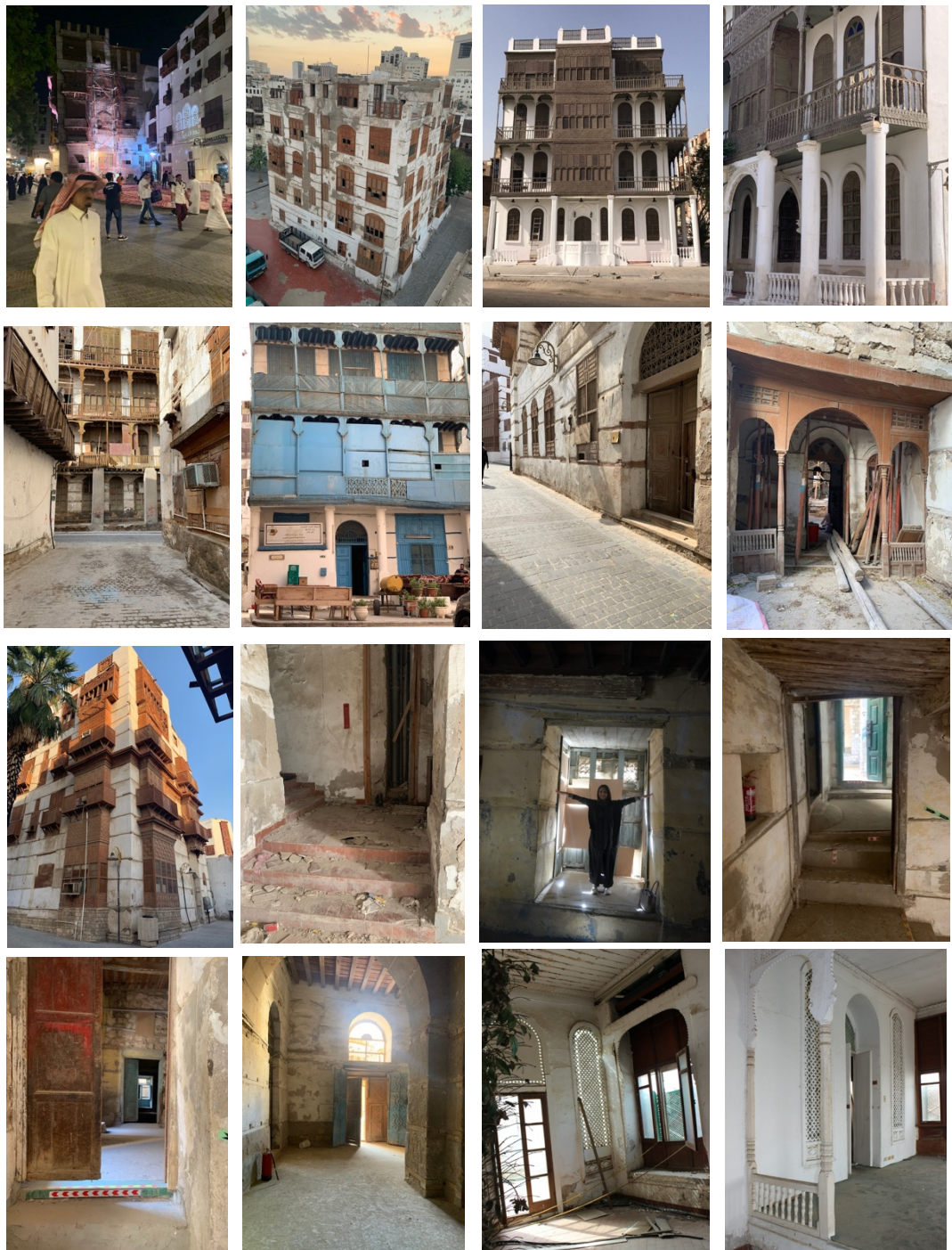


Figure 12: Example of photographs taken by author during fieldwork.

To address the thesis questions this research needs to clarify the following sub questions:

- What is the role of the threshold space in shaping the city?
- What can we learn from the traditional urban pattern?

Each of these questions require different approaches or methods to answer them, as follows:

**First sub question** can be explored through different methods. First by the researcher personal situated observation which is done on a daily basis at different times of the day by being involved in the social life of the participants who live there. This method is related to the field of ethnographical study. According to Lucas (2016, p. 39), Ethnography is essentially “conducted by mixed methods, but the key activity is to live in a context for an extended period of time, fully participating in life there”. This type of participant observation is an important type of study in this research since it involves the researcher in their work. Moreover, it is necessary for the researcher to have a journal that is filled on a daily basis at different times of the day “these field notes, are a key resource for the observations as the period of research progresses” (Lucas, 2016, p. 39). Observations are supplemented with interviews, which are done in a formal or informal way. Additionally, drawings play an important role in identifying the role of threshold space, which is later analysed on multiple layers.

**Second sub question** requires identification and analysis of the urban pattern in the old city of Jeddah through drawings and photography. Both helped in understanding the spatial configuration and typology of threshold. For the drawing, collecting aerial pictures is vital, analysing it by drawing over it and having different layers to understand distances, configuration, shape, and ratio. Having sections also aids in understanding the quality of space as well as distances. A matrix, which follows Venturi, Scott-Brown and Izenour’s (1972) *Learning from Las Vegas* approach, is useful for comparing the patterns.

The analysis takes place in a series of neighbourhoods in Jeddah from the historical walled settlement from the perspective of their urban form to understand the threshold space and the integration between the public and private sphere and how it affects the urban configuration, and the socialisation for inhabitants. It is also important to understand the elements and quality of the traditional city of Jeddah and how it contributed to social sustainability.

The subsequent data is used as the main research method for this study, this helped in understanding and analysing the urban development of the city (Jeddah). It is also important to highlight that most of the conducted research on the traditional urban form was explored from a male perspective due to cultural constraints. Looking from a female perspective definitely put forth more insight in the subject matter and providing a ray of perspective that adds to the available information.

This research is based on a methodological approach, which was inspired by Alexander’s (1977) method in *A Pattern Language*. The patterns were chosen according to three phases; phase one, during the fieldwork, the researcher was trying to identify all the patterns that she observes in the old town. After that, in phase two, the researcher checked Alexander’s book and ticked all the patterns that are found and located them on the map of the old city. Phase three, the researcher looked at the patterns with the most frequencies to see the difference between a pattern that occurs few times in particular situations or areas such as balconies and something that is more generic such as bay windows. And according to that, the eighteen patterns were identified.



According to the fieldwork, these patterns can be divided into two different kinds. First, new patterns that are specific to the city of Jeddah. Second, patterns that are found in *A Pattern Language* which may have different names but the same functions as the ones described by Alexander and his team in his book or slightly modified.

It is important to highlight that one has to behave differently in Saudi Arabia context to establish these patterns.

A unified format is used for the eighteen patterns in order to have clarity and convenience.

First, a picture that shows an archetype example of the pattern. Example [Figure 13](#).

Second, an introductory paragraph explaining the pattern and its importance in the given context “the old city of Jeddah”.

Third, a paragraph describing the problem's core, the pattern's history, proof of its validity, and the variety of ways the pattern can manifest itself.

Fourth, schematic diagrams, multi-layer visual analysis showing the pattern in the old neighbourhoods of Jeddah. Example [Figure 14](#).

Fifth, a paragraph that connects the pattern to all the other eighteen patterns in the language.

### **An Elementary Example Showing a Unified Format That is Used for The Eighteen Patterns.**



Figure 13: Stair seats. An example of stair seats in the old city of Jeddah.

One of the most important elements in architecture, which can give a new meaning to space; stairs can give a degree of enclosure, which define space and at the same time create gathering areas to socialise ([Figure 13](#)).

Alexander (1977, p. 604) asserts that “whenever there is action in a place, the spots which are the most inviting, are those high enough to give people a vantage point, and low enough to put them in action”. Looking at the surrounding context of the above picture ([Figure 13](#)) there is a

large plaza in front of the house where gathering and socialisation take place.

“On the one hand, people seek a vantage point from which they can take in the action as a whole. On the other hand, they still want to be part of the action; they don’t want to be mere onlookers. Unless public spaces provide for both these tendencies a lot of people simply will not stay there” (Alexander, 1977, p. 604).

Playing with levels can maximise the view from a certain spot creating an open-air theatre for people that are sitting to experience. It is also used for many purposes such as eating, resting and waiting for others. Jan Gehl “looks at seating as one of the most important provisions in public spaces to encourage lingering because only when opportunities for sitting exist can there be stays of any duration. If these opportunities are few or bad, people just walk on by” (Gehl, 2011, p. 155).



Figure 14: Sketch showing stair seats (Alexander 1977, *A Pattern Language*, p. 605).

In this architectural urban approach, the researcher looked at the spatial situation and then moved to a broader historical aspect of the city. In other words, it starts from the smaller element to understand the bigger element rather than starting with the big context, which gives a richer entry to the city and its structure as it comes from my situatedness since I am within the threshold.

To acknowledge the eighteen patterns entirely, it makes more sense to look at them and read them in the opposite order, small to large. This is totally opposite to how Alexander looked at the scales in *A Pattern Language*. Nikos Salingaros (2000, p. 154) claims that “the human mind can combine the smaller patterns into groups; the larger patterns utilize these groupings and also generate new properties that are not present in the component patterns. The mind is capable of validating the patterns subconsciously when we read the patterns in an evolving (small-to-large) order”.

Furthermore Salingaros (2000, p. 154) noted that “the smaller the scale in which patterns act, the more immediate it connects to human beings... We can experience them with most of our senses. Larger patterns can’t be touched or felt, they require synthesis and recognition. They become more intellectual. People who have not experienced them in person can rarely imagine their emotional impact”.

Finally, the outcome is a catalogue of criteria that presents different guidelines related to the design and planning of integrated private and public spaces in residential neighbourhoods in the contemporary oriental city ([Figure 11](#)).

## Data Reduction

According to Groat and Wang (2002, p.243-245) data reduction or coding is one available analysis process in qualitative research. In this process data or information is sorted and interpreted after collection. “This is a research stage when all data is reduced into manageable information to answer the purpose of the empirical work”.

“The idea that transcripts of in-depth interviews or visual documentation of artifacts must be reduced to data may seem counterintuitive, or perhaps even an oxymoron. However, in order for research to eventually yield conclusions or theory, at least some categorising of the examined phenomena must be identified or screened out from the rest of the environment being studied” (Groat and Wang, 2002, P.245).

According to that, this stage requires all the data to be documented and then classified into particular categories.

The categories of this research are: identifying the patterns in the historical city, finding patterns in thresholds, categorising patterns according to genders, use of patterns, identifying the eighteen patterns, and a matrix for all the houses and the five selected houses.

Below is an explanation for the data reduction used for this research and based on the data collection:

Interviews: Oral interviews were translated into English and transcribed by the researcher as a written conversation. After that, they were placed in a table according to the questions and the participants identity. Based on the transcriptions, the information was analysed into the different categories mentioned above.

Observation: Different methods were used during the observation of the physical condition through sketching the condition in different scales depending on the situation and required details, taking photos of existing situations and then drawing on them using SketchUp and Adobe Illustrator software. This observation helped the researcher in the categorisation of the patterns, comparing it to Christopher Alexander’s patterns, finding the new patterns that are related only to the context of the case study, identifying the five houses based on the number of patterns that can be found in them ‘similarity of physical appearance’. (See Appendix 18).

During the social life, observation photos were taken, sketches in different scales, and daily journals were made. Photos and drawings were taken to capture the social activity and use of patterns, identifying the role of the thresholds as well as helping in understanding the spatial configuration and typology of the threshold. The journals were filled on a daily basis at different times of the day. This was all analysed according the different categories mentioned above.

Document Analysis: Through the Ministry of Culture, the archive of Leiden University, and professor Freitag old maps and photos were collected to understand the situation as part of the old city was burned and demolished. Moreover, photos help in showing the use of the threshold in different periods, understanding hights and relationship to each other, the typology of the house, and showing building conditions which are identified in the used maps of this thesis. Additionally, maps and images were analysed on multiple layers.

For the analyses, first, the researcher used one plan that shows the houses that were looked at and used to define threshold. Second, the researcher defined the observed thresholds that were

in all houses on separate plans. Third, the researcher showed a plan for each house separately with detail analysis. Fourth, zoom into buildings to show the relationship with its surroundings.

### Data Display

Data display is the third stage of the qualitative research. In this stage all the data from the previous stage 'Data Reduction' is displayed and summarised, or visualised to different concepts. In this stage the display of data is according to the concept that has been analysed in the previous stage, which are Identifying the patterns in the old city, Categorising patterns according to gender, use of patterns, Identifying the eighteen patterns, and the Matrix. The follow is an explanation of the concept:

1. Identifying the patterns in the old city: this is concluded through a stroll in the old city of Jeddah, interviews, social life observation, as well as analysis of old photos (See figure 10) in all four quarters within the UNISCO boundaries. (See chapter four). Through an identified hypothesis that there are certain patterns that exists in old Jeddah and the fieldwork is used to identify them.
2. Identifying patterns found in thresholds: this is concluded through interviews, social life observation, and analysis of old photos. These found patterns were summarised in a table that displays the sequence of patterns from the outdoor to the indoor. This table also shows the physical and social limitations of visitors as well as controlling contact with others. Moreover, a tree of patterns was created showing the relationship of patterns to one another and how the higher levels depend on the lower, however, the lower can exist without the higher. (See chapter four).
3. Categorising patterns according to gender: through interviews, observation of daily life, and old photos from the archive. Three categories were found and were labelled with different colours throughout the research. Male: red, female: blue, and both female/male patterns: yellow. (See chapter four).
4. Use of patterns: through interviews, observation of daily life, and old photos from the archive. This was translated into diagrams and sections for a better understanding of the typology and comparison. (See chapter four).
5. Identifying the eighteen patterns: which occur over and over in the old neighbourhoods of Jeddah. This is drawn through observation, interviews, and archival research. All patterns were overlaid on one map to show the number of patterns in each building through different colour intensity. From that we can find the buildings with more and fewer patterns. This is a mapping mechanism that is used to justify the selections of case study. (See chapter four, figures 136-144).
6. Matrix: A matrix for all the houses was created as a rationale to why the five houses were selected and then another matrix was specifically created for the five houses to show similarities and differences, as well as to show the frequency of each pattern. (See Appendix 18, figure 201).

## Drawing Conclusion

“Once the data have been coded/reduced and displayed, the researcher gradually moves towards clarifying patterns, providing explanations, and evaluating these findings” (Groat and Wang, 2002, p. 249). Drawing conclusion is the final stage of the empirical work which is drawn from the previous stages ([Figure 15](#)). In this research, the conclusion is discussed in the conclusion chapter in part III.

Several strategies were applied in order to generate conclusions. The strategies are observant and analytical. The observant strategy which included photographic, drawing, and interviews was investigated in two ways; physical and social aspect in the old town.

The analytical way was applied through the analysis of the 26 houses (drawings, photographing, sections, and 3Ds) to identify the patterns of thresholds, the analysis of the eighteen identified patterns in different scale, as well as the detailed analysis of the five houses.

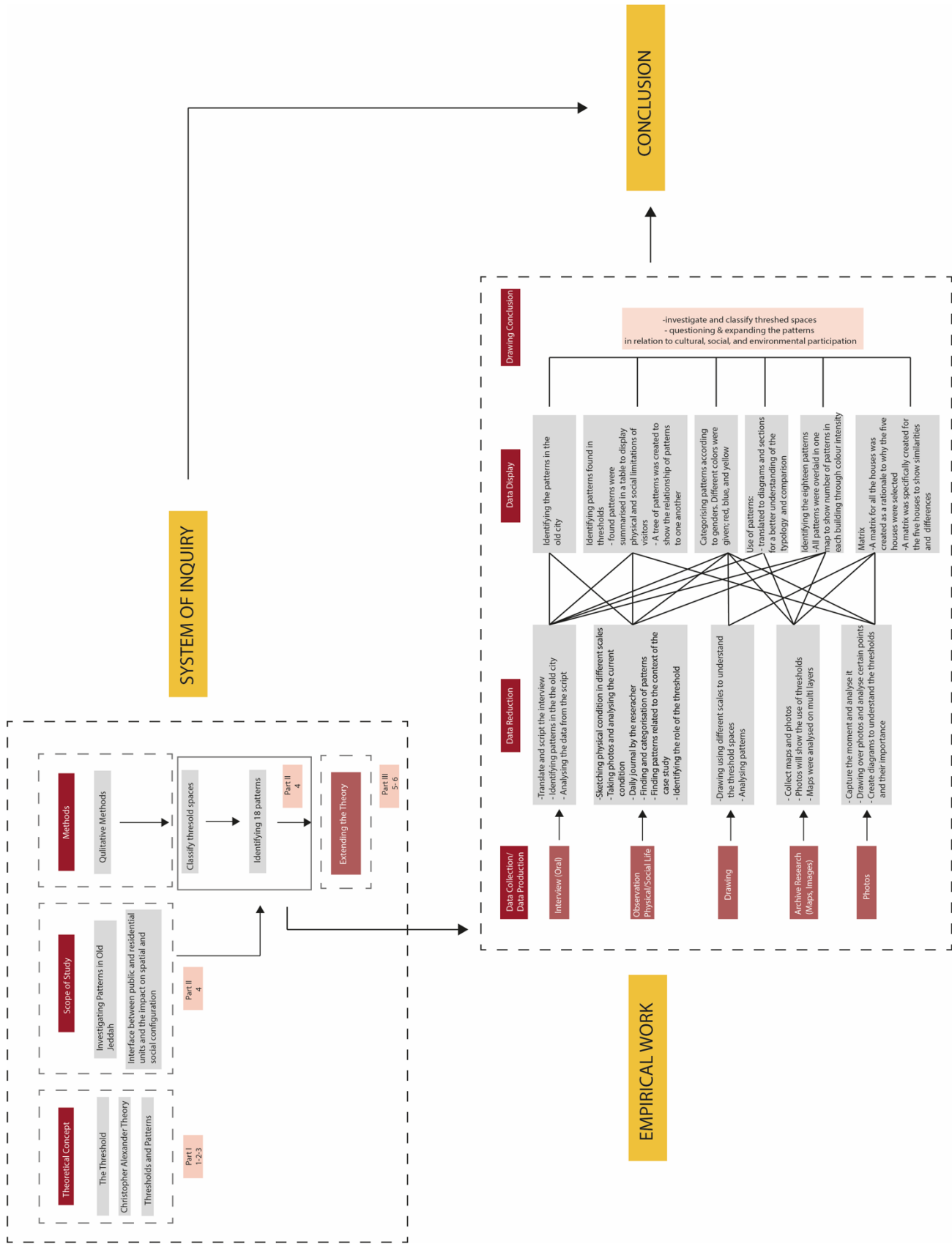


Figure 15: Showing the structure of the research which includes the empirical work, system of inquiry, and conclusion.

## **The Configuration of the Urban Structure of the Old City of Jeddah**

For this study a particular case study has been selected: Jeddah in Saudi Arabia. This part looks at the traditional house of old Jeddah through understanding and analysing the morphology of the old town, the geographical setting and climate, social spatial structure of the town, Islamic law and influence on built environment, traditional family and social structure, spatial structure of the town, and the relationship between the house and the street. This helps in understanding the configuration of the old town which helps in identifying the patterns and understand how they used to function as transition and thresholds between different spaces affecting the urban fabric and creating social sustainable interaction.

## **Social and Spatial Structure of Old Jeddah**

### **Family and Social Structure of the Town**

The Islamic religion played a significant role when it came to the ties between family members, making it very important to bring all family members together and preventing the rise of disputes between them. Usually, a household was made of one extended family with multiple generations composed of the head of the family, his wife, all sons and their wives and kids, single daughters, married or unmarried uncles and aunts.

The role of the head of a family is the subordination of all family members and, in the case of the death of the head of the family, his older son takes over the responsibility of managing the family as well as the business.

The historian Ulrika Freitag noted in her book *A History of Jeddah* (2020, p. 163) that households were the most important settings for women, who not only managed the internal machinations of daily life but, through teaching and participation in social and religious life, contributed greatly to the standing of a household in the social fabric of the quarter and city.

Furthermore, the Islamic religion also encourages good social relationships with surrounding neighbours and between different residential quarters. Bokhari (1978, p. 150) stated that “for example any celebration of one family (such as a wedding, birth, homecoming from a long journey, etc.) as well as its crises (death, sickness, etc.) were collectively shared by the houses of the various quarters”. My grandmother explained (2019) that women used to go out to visit relatives and parents, she further explains that she recalls when she was young that their house always had many female visitors that would pass by in the morning and sometimes would sit for lunch with her mother.

According to an interview with Ahmad Badeeb in 2019, most families in Jeddah were related to each other through intermarriage. Therefore, the social life in old Jeddah was looked at as a large family or a small village where all life aspects were governed by the Islamic religion, customs, and traditions. Although women would go out in the mornings to visit each other, the streets were occupied mostly by men as women would usually pass only to reach to their destinations. Again, my grandmother (2019) stresses women of well-known families would never go to markets or public places to avoid being recognised by anyone. All their needs were met through the servants/slaves that worked for them.

The society of Jeddah was considered a cosmopolitan society made up of different ethnic groups such as India, Pakistan, Egypt, Turkey, Iran, and many more. All this contributed or affected the social relations which makes it unique and different to other *Hijazi* cities. Moreover, according to Bokhari (1978, p. 151), “the town's economic prosperity also attracted a floating population of immigrants from other parts of the Arab and Islamic world. Many were skilled craftsmen who came to Makkah for pilgrimage and afterwards settled in Jeddah for work and found a place in the urban society”.

The first traders came to Jeddah from Egypt, Syria, and Morocco and with the wider connection expansion with the Indian ocean, people from far places such as Indians, Persians, Arabs of the coast of Persia, etc. started to come to Jeddah and a lot of them were integrated with the residents. As time passed, and with the sequence of immigrations some of the immigrants became notable in the town. In the early nineteenth century there were around one hundred Indian families from Mumbai and Surat. Most of them lived in Al Sham quarter where they created *Kasabat Al Honoud* which is a market street that contains inns and shops and was the Indian trade centre. Moreover, some of these families were living in Harat Al Mazloun and Yemen where Harat Al Bahr had almost no families (bukharat cited from Jeddah and the jadawi p.102)

A vital question may arise here regarding the integration of social lives between those diverse social groups without being rejected. How were people amalgamated? And what made them live in harmony and coherence together?

According to Bokhari (1978, p. 151), “first, the town as a whole was organised and administered according to the *Shariah* (Islamic law)”. For Muslims, Islamic law was an important part of people’s life in a society which regulated their behaviours and interactions with other members in the society and this played an enormous role in creating the social tranquillity in the old town.

Second, “though Jeddah's population was so diverse, it was never organized into tight parochial communities”, meaning that there was no social segregation between ethnic groups. “Ethnic grouping (Yamani, Hadrami, Indian, Turkmen, Bukharis, and Persians, etc.) was more social than physical in the strong communal bonds that existed among the members of each ethnic group in that they did not necessarily live-in close proximity to one another”. Last but not least, “there was a relative absence of spatial grouping by social status”. This means that each quarter could be viewed as a multicultural society where all classes live together in one neighbourhood. Additionally, Al-Lyaly (1990, p. 28) asserts that certain quarters were favored by the wealthy because of their adjacency or proximity to the market (*suq*), and this gave them a somewhat upper-class character.

Al-Ansari (1982, cited in Jomah,1990, p. 27) adds that “many of the traditional values of the *Hijazi* society were generated during the period of the Ottoman rule (17<sup>th</sup>-19<sup>th</sup> century) when the blend with the Turkish/Egyptian culture was at its height. On one hand, they adopted and assimilated customs and habits of a variety of non-Arab Islamic societies, Persian, Turkish and Indian, but on the other hand, they retained a core of regional, Arab and Islamic characteristics”. Kiernan’s (1937, p. 120) description of Jeddah was that “there are few true Arabs of the *Hejaz* among the population, which consisted of merchants and traders from Yemen, Hadhramaut, Egypt, Syria and Anatolia, with East Indians and Malays, a mixed stock, intermarried with Abyssinian slaves.” This explains that over a period of time, the engagement of these different external influences provided the *Hijaz* with this unique and one-of-a-kind identity, which makes it different to other Saudi cities.



## Religion and the Built Environment

The rise of Islam in the Arab Peninsula at the early seventh century played a vital role on people's lives in that it changed their way of living as well as the arrangement of their built environment.

As previously revealed, there were settlements in the old town of Jeddah prior to Islam, however, there is no history available regarding the structure or the organisation of the settlement before the arrival of Muslims.

The word tradition was and is still related to Islamic believes, as residents believe that their way of life is a manifestation of the will of Islam. For the people of Jeddah, religion surrounded and embraced their whole life.

A number of scholars tried to understand the relationship between the Islamic religion and the built environment. "It is generally acknowledged that a set of relatively uniform legislative guidelines was developed through interpretations of the *Qur'an*, *Hadith* (the Prophet's sayings), *ijtihad* (scholarly opinion) and traditions; these guidelines had a strong influence on the homogeneity of urban formation and architecture". (Hakim, 1983, p. 22–28). To clarify, the holy book *Quran* was the main regulator to the Islamic life which is sought by people. The basic sources of law are taken from the holy book as well as *Sunna* saying and traditions of the prophet Mohammed. The laws define many things in people's lives such as beliefs, manners, social relations, as well as business. The *Quran* encourages beliefs "obey God and his messenger" (Surah 8:1) and it presents the prophet as follows: "there has certainly been for you in the Messenger of Allah an excellent pattern for anyone whose hope is in *Allah* and the Last Day and [who] remembers Allah often" (Surah 33:21). Also, these sources recorded aspects of the prophet's behaviour and, according to Abu-Ghazze (1994, p. 50), this helped to "raise ancient Arab customs to the level of religious tradition. These practices contributed greatly to endowing the Muslim city with certain characteristics".

From that, we understand that "Islam, it has been repeatedly emphasized, is essentially a religion of law" (Coulson, 1964). Schacht (1964) has argued that "it is difficult to understand Islam without understanding Islamic Law".

To conclude, the foundation of Islam is founded in three sources: *Quran*, *Sunna*, and the writings of the jurists. Ibn Al-Rami (1913, cited by Abu-Ghazze, 1994, p. 51) noted "it is jurists who give Muslim law its various schools 'Madhab', but it is the first two sources to which no scholar can fail to refer, and which gives Islam identity and cohesion. These sources were the basis for decisions and dispute resolution in the Islamic city".

The most important regulators for Muslim life are *Quran* and *Sunna*; those two are the sources of sacred law (*Sharia*) for all Muslims. According to Hakim (1994, p. 137) "...the roots of the structure and unity prevalent in the numerous cities (within the fabric of each city) within the vast Islamic world are the product of the *Fiqh*: the mechanism interpreting and applying the value system of the *Sharia* (Islamic Divine Law) within the processes of building and urban development". This means that the principles that were applied in Islamic cities were based on justice.

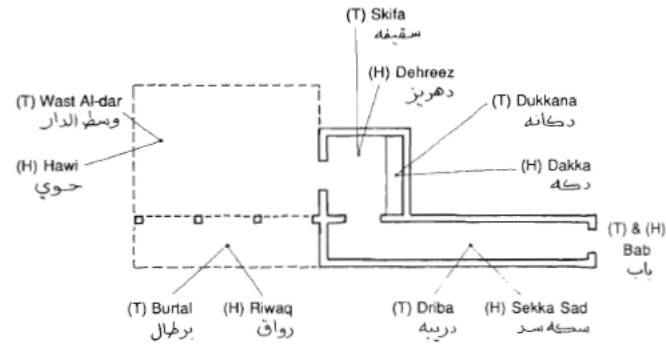
These issues were examined thoroughly by Hakim (1986) in his book *Arabic- Islamic Cities: Building and Planning Principles*. Likewise, Saleh Al Hathloul looked at it in his book *Tradition, Continuity and Change in the Physical Environment: The Arab-Muslim City*.

The cultural life was set around religious beliefs. *Urf* played an important role in shaping Islamic cities including Jeddah. “Those were generally principles and could also be viewed as common *Urf* guidelines, i.e. *Urf* practice which is common to most communities and regions. They were followed in most Islamic cities and tended to generate the similarities we find common amongst those cities. Whereas localized *Urf* practices were distinct to a specific urban centre or to a group of settlements within one region. Those localized practices helped to produce the distinctiveness and thus micro characteristics of each city or settlement” (Hakim, 1994, p. 115). In this thesis *Urf* refers to local tradition rooted in people and becomes part of their being and culture that played an important role in establishing systems of rules to organise the street patterns and processes in the old Islamic cities. *Urf* can be found, on the whole, the smaller the scale the more evident the impact. Although, in some instances, we also find the effect on the larger scale” (Hakim, 1994, p. 112). It is important to note that *Urf* changes with time but the rate of change tends to be low.

The term ‘*Urf*’ has developed a number of definitions by Muslim scholars:

- “What is accepted by people and is compatible to their way of thinking and is normally adapted by those considered to be of good character” (Al-Ghazali, 1904).
- “A habit or a way of doing things that is constantly repeated, and which settles well and is accepted by people considered of good character” (Haider, 1875).
- “The habit (or customs) of a people in their sayings or acts” (Al-Zarka, 1945, paragraph 477).
- “What is customary to a people and which they follow in their living pattern” (Alkhayyat, 1977).

According to Hakim (1994), “the implication of the above observation on building practice in the traditional Islamic city was direct and its manifestations evident in any city, particularly if viewed comparatively to other Islamic cities across space and time”. See Figure 15A.



(T) = Tunis region, Tunisia  
 (H) = Hofuf region, Saudi Arabia

Driba Sekka Sad	A primary entrance vestibule or private lane owned by one house or shared by two or more houses. Occasionally a gate (Bab) is found at the entrance.
Skifa Dehreez	A secondary entrance lobby with entry doors placed so that no one can see directly into the courtyard.
Dukkana Dakka	Built-in bench. Traditionally the male owner or occupant of the house received casual visitors or salesmen.
Wast Al-dar Hawi	Private courtyard open to the sky in the center of the house.
Burtal Riwaq	A colonnaded gallery off the main courtyard, giving importance and sun-protection to the room behind it. This gallery could be on one, two, three, or four sides of the courtyard.

Figure 15A: The linguistic *Urf* of two regions distant from each other. The vocabulary is different but they are for the same spatial/organisational elements. However, the style and architectonics of these elements are distinct to each region. Thus, we find the unity in the concepts of space and organisation and the diversity in the linguistic and practical *Urf*, which produces the specific characteristics of the region's architecture and built form. (Hakim, 1994, p. 114).

In the book *Tradition, Continuity and Change in the Physical Environment: The Arab-Muslim City*, Al-Hathloul (1981) has extracted a number of guidelines that have affected the building activity in Al Madinah city. He has extracted these rules from documents of Judges (*qudah*) as well as verdicts (*ahkam*) extracted from manuscripts cited by Muslim scholars such as *Malik*. These documents were on the urban formation of the city. There are no existing documents that demonstrate how the city of old Jeddah was developed, however, since the urban patterns and habits of the town are similar, the same Islamic principles must have been applied. Additionally, “within the region of *Hejaz* the traditional towns of Mekkah, Jeddah and Al-Madinah shared a common cultural tradition rooted in the history of the region and, therefore, were similar in most respects” (Konash, 1980, p. 54), however, some differences took place due to several factors such as climate, available building materials, and physical settings. Also, it is important to point out that Jeddah varies from Makkah and Al Madina due to the presence of the holy mosques which are considered the main focus of these cities.

Al-Hathloul (1981, pp. 83–242) “identifies four main building and planning principles: a) the right of way; b) the avoidance of harming others; c) the respect of privacy; and d) the right of ownership and usage”. These building planning principles raise questions such as the layering of private, semi-private, and public, possible activities in these streets, the threshold as a mediator between both realms, and many more.

After a brief explanation of the role of Islamic beliefs and *Urf* ‘customs’ on the built environment, we continue by exploring the spatial structure and threshold spaces of the old city of Jeddah according to the Islamic principles and, to do so, it is essential to study the plan organisation.

### Urban Spatial Structure of the Town

Many travellers described the wall, gates, and fortification towers of Jeddah after their visit. The wall was built and demolished several times. The ancient gates of the city include Bab Medina to the north, Bab Makkah to the east, Bab Sharif to the south, Figures 16, 17, 18. Moreover, there were many other gates that no longer exist, such as Bab Al Bant located on the west side of the city where the pilgrims and merchandises would enter the city of Jeddah.



Figure 16: Left, Bunt Gate on the east side of Jeddah, 1947. Right, Madinah Gate on the north side of the town, 1918. By Charles Winkels.



Figure 17: Sharif Gate, 1918.



Figure 18: Makkah Gate, east side of Jeddah. Seen from the outside, year unknown.

The urban fabric of the old city of Jeddah had a strong integration between the commercial and residential quarters which is similar to other Islamic towns. The town of Jeddah differs from other Islamic cities due to the absence of central space allocated to governmental and religious institutions. The reason behind that could be the proximity to the holy mosques in Makkah and Madinah. According to Al-Lyaly (1990, p. 31), the lack of a governmental institution might be attributed to the fact that Jeddah's origin and subsequent wealth was closely related to its proximity to the holy city of Makkah: it acted primarily as Makkah's treasury and trading outlet. See Figure 19, 20.

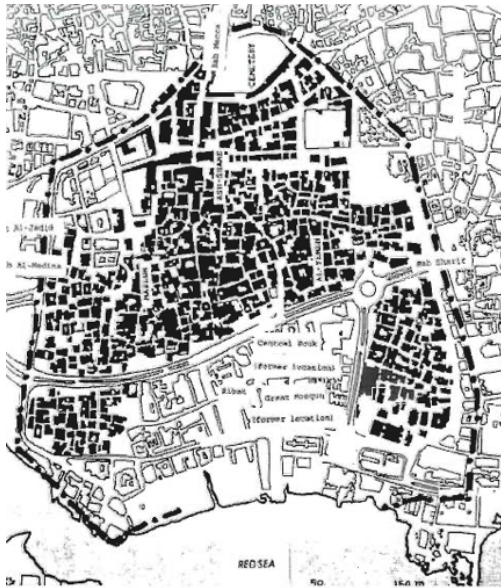


Figure 19: Layout of Old Jeddah showing the wall, the cluster organisation, major east/west roads which cut through. Left, (Source: Abu-Ghazzeah, 1904, p. 52). Right, (Source: Pesce, 1977, p. 112).



Figure 20: Layout of Old Jeddah showing the wall, the cluster organisation, major east/west roads which cut through. Left, (Source: Abu-Ghazzeah, 1904, p. 52). Right, (Source: Pesce, 1977, p. 112).



Figure 21: Old Jeddah and its quarters. Source: Author.

By the end of nineteenth century, Jeddah was divided into three main quarters, locally named *hara*. These quarters are made of fifty to eighty houses clustered around a street. Two were named according to their location inside of the wall. The people of Jeddah name the north ‘*Al Sham*’, the south ‘*Yemen*’, and the west ‘*Bahar*’ meaning the sea. And according to that, Al Sham quarter ‘*Harat Al Sham*’ is located in the north of the city to the direction of the city of Levant. Al Yamen quarter ‘*Harat Al Yamen*’ is located on the south of the city facing Yemen. The third quarter which falls between both quarters is called Al Mazloun quarter ‘*Harat Al Mazloun*’ there are different stories regarding its naming. See [Figure 21](#).

The fourth quarter was named according to its location. This included the presence of port facilities which comprised of scaffolding launches, headquarter of quarantine doctor, the Punt which includes the marina, customs yard, and warehouses on the west side of the city. According to that it was called Al Bahar quarter ‘*Harat Al Bahar*’ due to its strong relation to the sea. See [Figure 22](#).

Additionally, Jeddah is known for its strategic location which makes it an important commercial hub. It’s a gate to Makkah bringing people and merchants from all over the world with infinite variety of goods which led to the emergence of many markets (*sug*). These markets played an important role in the development of the old city of Jeddah. See [Figure 23](#), [24](#).

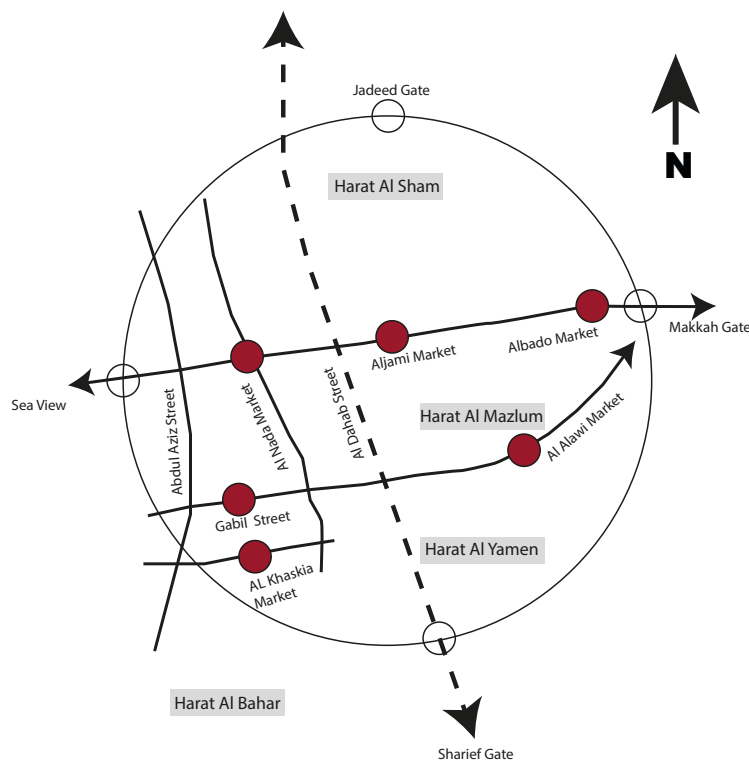


Figure 22: Main veins in the town of Jeddah. Al Dahab Street is a main street that divides the old town into two parts. Source: Author.





Figure 23: 1929 showing shops with shades. Source: Badr Badrah Facebook account.



Mosquée Akash, près du souq, Djeddah

Figure 24: 1925 showing al Al Bant Suq. Taken by General Henri Joseph Eugène Gouraud.

The heart of the town grew around the central market street (*suq*) where the land was valued which was surrounded by residential quarters creating layouts of rings: the wealthiest population consisting of merchants and rich residents were located near the centre and the poor lived far from the core and close to the town walls, as shown in [Figure 25](#). The sense of community and bonding between the people of one quarter was so strong that they all knew each other and were able to identify strangers entering their quarters easily. Therefore, the sense of community led to social amalgamation which was reflected in the architecture and layout of the residential areas.

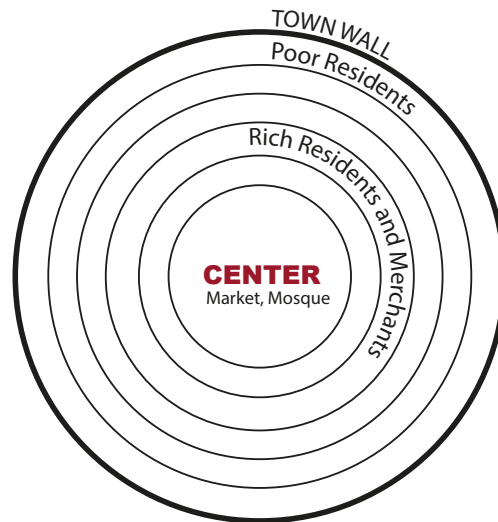


Figure 25: Central market and layouts of rings showing the proximity of houses to the centre depending on people's wealth. Source: Author.

According to an interview with Ahmad Badeeb (2019) who lived in old Jeddah, one of the special features of the old town is that the markets divide the four quarters. This means that the central markets don't belong to any of the quarters, yet they create a clear invisible boundary between the neighbourhoods.

Usually, a quarter is full of houses that have similar properties and attributes with different sizes. Each quarter is made of subsections. Each subsection has all the requirements for social life such as a local mosque, scholarly activities, and mini markets which creates a complete social unit. Streets, *shari* or *darb*, create the main vein of the town such as Al Alawi street in Al Yamen quarter, Souq Al Jami Street in Al Mazloun quarter, Al Nada Street in Al Sham quarter, and Al Bant street in Al Bahar quarter. These streets branch to a hierarchical organisation of smaller streets or alleys locally called *zuqaq* to narrower walkways ending by a Cul-de-sac or open spaces locally named *barahat*, as explained in chapter four.

Again, just like other Islamic cities, streets displayed a clear hierarchy from public to semi-public to private which we can consider as a tripartite system.

- The wide thoroughfares from the city gates to the core.
- Primary streets between the major quarters of the city connecting residential areas with the city centre.
- Third order streets provide link between quarters and are mainly used by people who live and work in the area. See [Figure26](#).
- Cul-de-sacs, these are not public and belong to adjacent buildings. In Islamic cities cul-de-sacs are used for privacy and isolation purposes.



Figure 26: Left and centre, narrow third order streets linking spaces within quarters. Right, projected balconies that share a view and are made of wood *roshan* these are used for women's privacy. (Source: Al-Ghazze 1994, p. 55).

Streets were constructed according to the movement requirements. Just as in other Islamic cities, these streets were developed for pedestrian traffic as well as animals where movement takes place in two directions.

In these residential areas streets between dwellings are called *zuqaq* and these are usually covered by projected bay windows that share a view and are made of wood (*roshan*) these are used for women's privacy and projecting shade on pedestrians. They separate the houses and they grew randomly depending on the way the houses were constructed and the presence of the open space. These narrow alleys are used by pedestrians to connect between open spaces, quarters and other narrow alleys, therefore, they can be looked at as artery movement for the residents of the old town inside the wall.

It was agreed by all the travellers who wrote about the old town of Jeddah that these alleys were narrow and winding in order to humidify hot weather and help with the movement of the sea breeze.

These alleys usually extended from the north to the south and from the east to the west. These alleys can still be seen in the old town. There are very narrow alleys that are around one metre wide which hardly allows the movement of one person.

These lanes were so narrow that the cantilevered wooden balconies of some houses were so close to one another, that it was easy for women to hold a group discussion, each sitting in her own *Rowshan* without being seen from the outside." (Jomah, 1992, p. 54).

The open spaces between houses, or cul-de-sacs, known locally as *barhat*, are free spaces that the nearby houses overlook. They are created randomly by the surrounding houses. No one is allowed to build in these open spaces and not all quarters have them as it depends on the density of the quarter and, therefore, the availability of free space. The size and shape of these open spaces differ tremendously as there are large, medium, and small ones with different shapes. Such spaces are looked at as a breathing space for the inhabitants of the quarter as the aim of these open spaces is to have different activities that bring residents of all ages together.

Below is a brief description of the different quarters of the old town of Jeddah to show the similarities and variations between them and how this could have affected the distribution of the inhabitants of the town in different areas.

## **The Four Quarters**

### Harat Al Sham

Harat Al Sham on the north-west was the least crowded. It was more exposed than the other quarters to the north-west wind as it is exposed to the sea from the north and west sides. Within its boundaries we find Jadeed gate which included many large merchant houses which are considered as the elite of the town, *khanat* (caravanserais or hostels), and most of the foreign emissaries (Bokhari, 1978, p.161) such as the British, Italian and Egyptian embassies. It is the most organised and spacious quarter with many open spaces (*barahat*).

### Harat Al Mazloun

Harat Al Mazloun is located in the east of the town. Ahmad Badeeb (2019) called it the heart of old Jeddah as it is the oldest developed quarter in the town and the first houses were built in this quarter before the construction of the wall. It is slightly raised from the rest of the town. And it is surrounded by markets (*suq*) from all sides. Perhaps it was the most crowded residential quarter in the area with dense, close, and adjoining houses. For that reason, it has very few open spaces as it lacks wide spaces. Most of the residents of this quarter work in traditional professions and craftsmen such as carpenters, builders, and perfumers. It also included more old mosques and shopping areas than other quarters. One can access the harbour from this quarter through one long street (part of the main market).

### Harat Al Yamen

Harat Al Yamen is located to the south, south of Al Alawi market. It is the biggest quarter in old Jeddah where most of the population resides. Moreover, it had the most interaction and impact by pilgrims, probably because it has a number of traditional hotels for important pilgrims. It also has a lot of mosques, markets, and open spaces. It has most of Jeddah's gates such as Al Sharif gate and Makkah. It includes some of the most important houses such as Nassif, and Jukhdar house. Most of the residents of this quarter work in traditional professions and craftsmen such as carpenters, builders, and perfumers. The south part of this quarter is considered a low working-class area because it is close to Al Sharif gate and Al Alawi market and it is the gathering and working part for the working class. It is known for its small houses compared to Al Sham and Al Mazloun quarter, and for its narrow ziqzaq allies. Additionally, Harat Al Yamen is divided into three parts. First, Harat Al Bahar which is considered as a totally separate quarter. Second, Al Alawi area in the middle. Last, in the east part, Al Idaros area which accounts for 35% of the Yamen quarter (Abudoad 2017, p. 316).

## Harat Al Bahar

Harat Al Bahar is located in the south west area of the town overlooking the Red Sea. As already mentioned, it is part of Al Yamen quarter but it is looked at as a totally separate quarter with many open spaces (*barahat*). Al Bant gate is located within its boundaries. The majority of the residents of this quarter are sailors, boatmen, and pilgrims' guides. There were many well-known families in the quarter that had a respectable social status such as pilgrims' guides who are considered to be one of the elites of the city. Mana (2011, p. 30) refers to it as “the heart and the life of the economic cycle” because of the management of the *Hajj*, the quarantine area, the post, the transportation, customs, and the port.

## House and Town System

In Muslim towns two parallel systems work at the same time; one is connected to the house and the other is linked to the market and mosque. Each is associated with a certain gender. As Shalaby (1986, pp. 73–77) notes, “men and women move in two separate circles. The market place and the mosque formed the man's world while the women's activities clearly centred around the house which served the private life of the family”.

As a consequence, it created a sequence of progression with hierarchical layers and transitions – private, semi-private, semi-public, and public – in the city with a clear separation of the public and private life (as shown in [Figure 27](#)). When projecting this on the old town of Jeddah, we find four different levels. The first level is the major streets where the active public area is – market street and mosque. The second level is social spaces where major streets intersect with narrow streets (*zuqaq*). The third level is small common cul-de-sac areas (*barahat*). The fourth level is residential units with restricted approach.



Figure 27: Hierarchical spaces in the old town of Jeddah. Source: Author.

When looking at the sequence of movement of men in old Jeddah we find that they pass through different layers until they reach the most public layer, or centre, where the market street (*suq*) is (see [Figure 28](#)).

The house is considered the private realm or first degree of privacy. When leaving the entrance hall (*dahliz*) he enters to a lesser degree of privacy, either a narrow alley or an open space, *baraha*, which belongs to residents of the neighbourhood. With this progression, there is a loss of privacy and an increased public progression while moving towards the main streets of the quarter to the public open space of the market street (*suq*). This means that men have to pass by two different layers to arrive in the public realm.

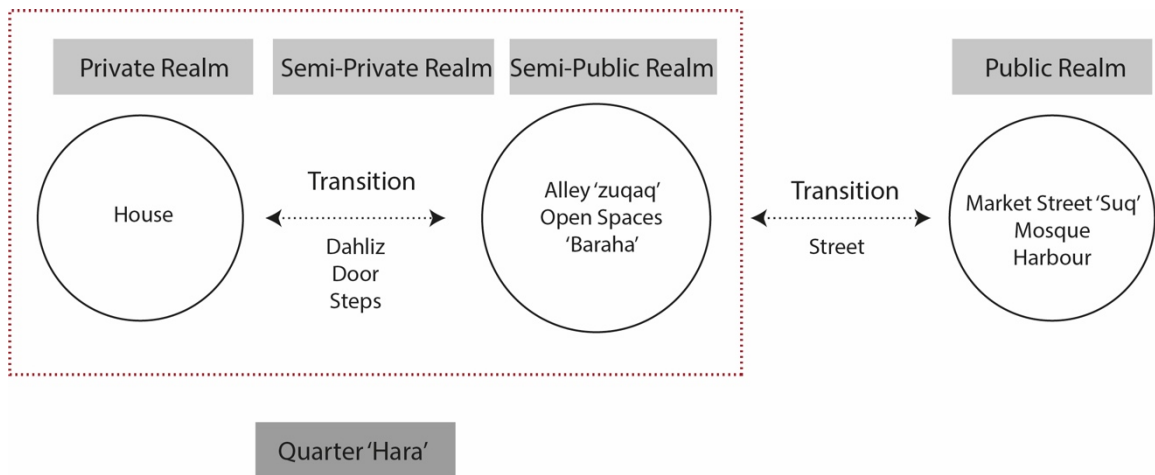


Figure 28: Abstract understanding for the hierarchical spaces in the old town of Jeddah. Source: Author.

### House and Street Relationship

The orientation of houses towards the streets served the purpose of social integration creating gradual transition and space sequence between the house, the street, and the voids within the town. “The narrow street (*zuqaq*) was nothing else but an extension of the house frontage. Thus, the family houses in the quarter were never physically or visually isolated from one another” (Al-Lyaly, 1990, p. 39). “As a result, there was always a sense of shared territoriality among the neighbouring family-houses, which in turn led to the enhancement of social integration and the sense of community” (Bokhari, 1978, p. 175).

There were many different activities that took place in the narrow-shaded alleys (*zuqaq*) and the open spaces (*barahat*) which affected the inhabitants’ pattern of behaviours and created social bonds and interactions between the residents. “For example, older men of each group of neighbouring houses would gather after sunset in front of one of the large houses, listen to the recitations from the *Quran*, or converse and enjoy sweet tea and aromatic Arabian coffee” (Bokhari, 1978, p. 175). Such gatherings take place on raised wooden benches covered with rugs and supplied with cushions, locally named *mirkaz*, this is further explained in chapter four. Furthermore, many special occasions took place in these open spaces (*barahat*) such as weddings, and *Eid* festival.

## Social Cultural Concept of The Traditional Houses

There were several reasons behind the verticality of the traditional houses of Jeddah. On one hand, the limited space inside the wall, on the other hand, the need for full privacy inside the house which is attained through two separated zones; the private zone for females and their visitors from the first to the last floor and the semi-private zone for males and their guests on the ground floor of the house extending to the outdoor and creating the threshold space.

[Figure 29](#) shows social and physical means of privacy by demonstrating the circulation movements for both genders and their invitees/guests. What is crucial in privacy is that it shields the family members and females of the house from the view of strangers. The street and market are places associated with men where the house, particularly starting from the first or second floors which were related to women and family. Through the fieldwork, visiting different houses, and interviews with people who lived in these houses, one can understand that there was no spatial segregation between both zones, female and male. However, as previously explained, the outdoor domain was associated with males to socialise where the indoor, starting from the first and sometimes second floor and above, were the social zones for women, taking place in *al majlis*. “This principle of gender segregation caused the emergence of mutually excluded gendered public space” (Maneval, 2019, p. 78). Agreeing with Charles Hirschkind (2006, cited from Maneval, 2019, p. 79). who looks at the Islamic counterpublics, a term borrowed from Fraser and Warner and adapted to the Islamic context, and provides an illuminating example of how such public can change the overall social landscape.

This seclusion can also be seen in the entrances of houses as they would have more than one entrance to exclude the female movement from the male zone by having a secondary family entrance, creating a double circulation and movement system. This gives more freedom for females and their visitors to enter and leave the house without passing through the male domain. Moreover, this ground floor, which is a semi-private zone, works independently of the rest of the house by having all needed necessities to serve the guests such as bathroom, kitchenette, and male servants.

As seen in [Figure 29](#), the graph demonstrates the hierarchy of movement for men horizontally in different layers in the town. The ground floor was an extension of the male zone where different commercial activities as well as socialisation could take place, meaning that the ground floor allows the presence of unrelated male guests as well as strangers that would want to meet with the head of the house. The Jamjoom, Hazazi, Nassif houses discussed in chapter four are good examples showing both kinds of activities, commercial and social, on the ground floor of the house. Also, since the ground floor is rented to pilgrims during *Hajj* season (Al-Ansari, 1972, p. 183) which relocates the family in the house either by moving them to the upper floors of the house or to a completely different house. This kind of change in the ground floors of houses in the old town of Jeddah suggests another way of interpreting this level. Agreeing with Stefan Maneval (2019, p. 63), “we conceive of these spaces as variable products of social practice”. By that he means that the architectural elements of a building do not play a role in deciding if a space is private or public, it is the use or practice that takes place in the space which gives it a certain character.

The graph also clarifies the imaginary boundary between the public and the private spheres where the architecture helped to sustain the imaginary borders between both zones. Jomah (1992, pp. 179–81, 229) notes that “most of the day, the front door of a residential building served as a symbolic threshold rather than a physical barrier”. My grandmother explains in an



interview (2019) that the door of the house was usually left open and typically only people who knew someone from the family would enter the house for different reasons. The opening of the door during the day helps with the continuation of the threshold and transition from the street (*dakkah/mirkaz*) to the interior of the house (*dahliz* and *magaad*) creating a semi-private space on the ground level of the house. Also, one can look at the *dahliz* as one degree less private than the *magaad*. On the same floor as the *magaad* is used to receive friends daily by the head of the family where the *dahliz* is open to receive guests/visitors that are not friends.

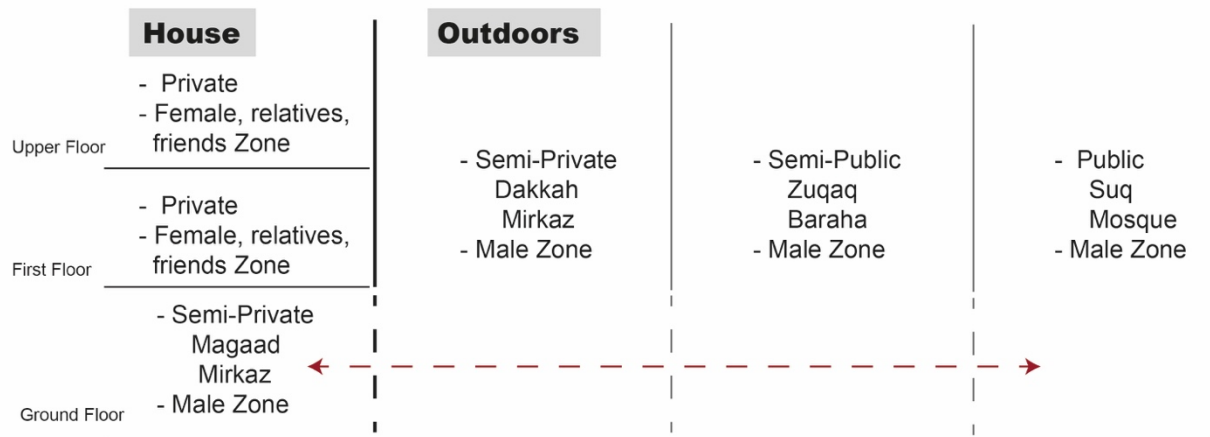


Figure 29: Understanding the privacy, circulation, and layering movement for men and women. The female zone is from the first or second floor to the uppermost floor where the male zone is restricted to the lower floor extending to the outside. Source: Author.

## **Geographical Factors and their Influence on the Houses**

This part looks at several aspects such as the location, trading, port, and *Haji*. Moreover, in order to understand the adaptation of the traditional houses' interior and exterior to the geographical factors, it is vital to look at any climatic conditions such as humidity, wind, temperature variation, and sea/land breeze. All this had an effect on the multiculturalism of the city, house setting, and the urban form of the microclimate.

Understanding the microclimatic characteristics will help in understanding the arrangements of the threshold spaces and their use during the day and night in the old town of Jeddah.

### **Site and its Impact on the Architecture**

The city of Jeddah gained its importance from its central location on the eastern coast of the Red Sea. It is one of the most famous cities in *Hijaz* and the gate to enter Makkah for pilgrims and visitors of the sacred house of God. "Jeddah owes its existence as a town and as a major harbour on the Eastern Coast of the Red Sea to the presence of a gap in this natural barrier (marking the erosional path of Ghalil Valley) which allows ease of communications between Makkah and the seacoast, and to another gap in the triple line of coral reefs fringing the Red Sea shore" (Pesce, 1977, p. 102).

Moreover, "because of its distinguished location, almost in the middle of the Red Sea, it started to develop and prosper which led to the expansion of its area and the increase in the architecture buildings until it became one of the most famous ports in *Hijaz*" (Al Jaziri, 1964, p. 206) as it is considered the link between production areas and consumer centres, local and international. Also, because it's the main port to Makkah due to its proximity and easy access to it from a number of ports that had major historical importance (Diab, 2003, p. 11), for example the port of Aden which is close to Indian ports and the port of Suakin.

"The area where Jeddah is located is relatively flat, rising eastward gradually from sea level to an elevation of about 12 meters with slight change in elevation towards south and north in some places and for a limited distance" (Al-Ansari, 1982, p. 26).

Because of its location, the city of Jeddah suffers from high humidity most of the year, "the highest levels of humidity are reached at the end of the summer (late August to early October), when the sea temperature reaches its maximum" (Najib, 1987, p. 52). In general, the humidity is considered lower in winter than in summer.

The north, north-west and west winds are considered the most desirable winds because of their cooling effect during the summer months as they prevail about 50% of the time (General Directorate of Meteorology, cited in Al-Lyaly, 1990, p. 89). This affected the configuration of the interior spaces in the houses as well as the orientation of buildings and streets, and as a consequence, the threshold space.

Likewise, because of its location on the Red Sea, Jeddah experiences diurnal wind changes, commonly referred to as land and sea breezes. The prevailing winds are modified by sea-land breezes during the day and, to a much lesser extent, by land-sea breezes at night (Naval Intelligence Division, 1946, p. 159–160).

Sanderson (1982, p. 77–83) noted that "the sea breeze, a flow of air from the sea towards the land, develops during daylight hours, usually reaches its maximum strength in early or mid-

afternoon, and dies down about sunset. The reverse flow, the land breeze, occurs late at night and is, of course, most strongly developed during quiet, settled weather, but their direction depends on the angle of the shore”.

In Jeddah, the pattern of wind goes through several phases. The north wind is mostly during the early morning. By noon, the north-west wind takes place and by mid-afternoon, the west wind takes place. This change illustrates the sea breeze effect. “The sea breeze is most vigorous in spring and summer, since during the winter it tends to be obliterated by the north winds” (Steedman and Ashour, 1976, p.299-305, cited in Al Layaly, 1990, p. 90).

All this had an impact on the microclimate of the old town of Jeddah as well as the use of patterns at different times of the day since the sea is a large water body.

Despite its harsh weather, its location gave it more importance than other cities of *Hijaz* in two different ways: first, the emergence of political development more than other cities in the *Hijaz* region. Second, the economic system is linked to the city of Jeddah more than other cities. Therefore, it was the centre of attention of the greedy people who wanted their influence over the *Hijaz* region and eventually over the holy cities.

Because of its importance, in addition to being a port to Makkah, it also resulted in it being an attractive place to live for those who wish to settle, build, and earn a living.

Besides the good location for a port, “the surrounding area was also rich with lime coral sediments that were used in the construction of the city of Jeddah, and contributed to the development of the urban movement in it” (Al Hamdan, 1987, p. 33).

From all of the above, we understand that there were many factors that made the city of Jeddah a very attractive place to many rulers as well as to people who wanted to settle and live which all had a consequence and effect on the urbanisation and multiculturalism of the city in general.

## Pilgrimage ‘Hajj’ and its Impact on the Urban Configuration

Pilgrimage played a vital role in the urban configuration of the old town of Jeddah. Starting with the location of the gates in the city wall (Al Bant gate on the sea side to welcome pilgrims and Makkah gate on the east side where the departure to Makkah took place) to major streets that lead to the gates to markets and open spaces and finally to the configuration of the houses. Therefore, looking at pilgrimage, locally known *Hajj*, is a significant factor to understanding the development of the town in the macro and micro level.

After the opening of the Suez Canal in 1864, it was possible for the commercial merchant boat to enter and, therefore, “*Hajj* related trade expanded, and the sea routes became superior on the road trips. Moreover, it was cheaper and safer” (Al Amr, 1978, p. 40).

During the Ottoman empire, the port of Jeddah was very important as it received most of the pilgrims going to Makkah.

Here a question arises: What is the sequence of layers or paths that a pilgrim takes when arriving to Jeddah before leaving to Makkah and how does it affect the urban configuration?

As previously mentioned, until the middle of the twentieth century, most merchants, pilgrims and other travellers arrived to Jeddah by boat (Sanger, 1954, p. 11). As stated by several visitors to Jeddah, the first thing the travellers would see are the white-washed clustered houses behind the wall. When the travellers arrive to the city of Jeddah they pass through different layers before entering the city itself. First, the customs house. Second, the health check in the marina office, as seen in [Figure 30](#). As mentioned by Mana (2008, p. 30), “these facilities were situated on the shore among a row of other official buildings: the quarantine station, the post office, and further north in a building know as Bait Al Baghdadi, the foreign office”. After passing these buildings, the French traveller Victor Fontaine (translated version 2013, p. 60–61) in 1834 described Jeddah and the urban life during *Hajj* season as follows: “when entering the Punt Gate, you find yourself in the middle of a square or an open space full of cafés where a huge number of pilgrims would gather”. All this played a significant role in affecting the configuration and the image of the town, as shown in [Figure 31](#).

After passing this open space one goes through the western gate, known locally as Bab Al Bahar, which leads to Qabil Street, one of the most significant and widest streets in the town at that time. Furthermore, at the eastern end of Qabil Street is an intersection with *Suq Al Nada*, one of the main north-south axis markets in the city. On accessing *Suq Al Nada*, one will pass through *Barahat Nassif* to the east which leads to *Suq Al Alawi* which is an extension to Qabil Street. This leads eventually to Makkah Gate as seen in [Figures 32](#) and [33](#).

Because of the significant increase in the population of Jeddah, because of pilgrims, soldiers, merchants, workers and sailors, etc., and in addition to the people of the town itself during the *Hajj* period every year, the city has expanded by building housing and *khans* also named *al ahwash*, to house pilgrims before and after the completion of the *Hajj*. These *khans* are made up of three or more floors with large storage in the corners and an open space in the middle (courts). The lower floor was used for merchandise and guests occupied the upper floors where they had to rent a room for themselves and also pay to store their goods.

The pilgrims used to arrive in Jeddah a few months before the *Hajj* season, sometimes more than six months in advance, to guarantee that they perform their duty. During this period, most of them used to stay in Jeddah. Many travellers during their visit to Jeddah wrote about this

season which shows its importance, strong occurrence, and effect on different levels. Ibn Al Mujawir noted during his *Hajj* trip in the seventh century that Jeddah was all inns (*khanat*) meaning all of the houses that were used by its residents turned into inns during the *Hajj* season to accommodate the pilgrims. Moreover, usually, the residents would either rent the lower floor of the house where the sitting area is located near the stairs (*al magaad*) and they would move to the upper floor of the house (*satuh*) (interview with Ahmad Badeeb, 2019). This, in a way, transforms the ground floor to almost a public space or they would rent the whole house to pilgrims and move to another house. Also, Salih Al Amoudi (2017) noted in his book *Biot Al Balad* that “in Al Mazloun quarter the pilgrims’ agents used to rent the north floors of the house to families of pilgrims where the south floors were for the single pilgrim”. This was the main source of income that the residents of Jeddah depended on to serve them the whole year. Golden Sari Yildiz (2000, p. 158. Translated version) stated that “the houses designated for the accommodation of pilgrims are prepared, as many of the people of Jeddah live on what they earn in return for the provision of services to the pilgrims”.

Furthermore, the open spaces ‘*Barahat*’ were also used by many pilgrims during the *Hajj* season who were not able to rent a place to stay in until the leave to Makkah. An example was Barahat Abudaod because of its location close to the punt as well as the *Hajj* path in the old town (Abudaod, 2017, p. 330). Also, during busy years, pilgrims’ accommodation could include the stone benches in front of houses. In some instances, pilgrims also resorted to renting benches in coffee shops or camping in the streets (Freitag, 2020, p. 255–256). “Sometimes, pilgrims who had no personal connections also found a place in a *wikala*, or a *zawiya* space” which is, according to Abudaod (2017, p. 930), a place of worship. *Sufi* convents were also used to house travellers, or *ribat* which were dedicated to pilgrims from different parts of the world for free, all they had to pay was for their meals. All this contributed to the changing urban spaces or the faces of the town of Jeddah in this particular season.

Among the Pilgrims that came to perform *Hajj* in Makkah were scholars, merchants, carpenters, builders, and many other professions. Their journey was for religious purposes as well as for mutual benefit of the people of Jeddah. According to Bukharat (translated version, 2007, p.39) Sometimes merchants or traders were unable to expedite the collection of their debts and settle their accounts, forcing them to stay another year where they lived, according to the customs there, and resulting in them getting married and having family which is a reason for them to settle in the area. As a consequence, the *Hajj* season played a role in increasing the number of residents in Jeddah and Makkah which affected the growth year after year resulting in the cosmopolitan population, we see to this day in the town of Jeddah.

As the season of *Hajj* gets closer, Jeddah becomes more and more active as everyone is optimistic that their income will increase and, accordingly, a raise in the standard of living. Houses and restaurants prepare to receive the pilgrims, shops open periodically, and sailors go often to fish as they are sure they will sell all their goods. Even the perfumers sell really well during this season. So, as we see, the whole city flourishes during this period.

To sum up, the *Hajj* season had a huge presence and importance that affected the configuration, development, and use of spaces in the old town of Jeddah.



Figure 30: Right, 1906, pilgrims arriving to Jeddah via the sea. Left, 1940, pilgrims await inspection in quarantine. Source: <https://www.skyscrapercity.com/threads/jeddah-l-1800s-early-1900s.489776/>.



Figure 31: *Hajj* caravan going to Makkah through one of Jeddah's streets. Source: <https://twitter.com/badrbadrah/status/772495803806089216>.



Figure 32: 1918, random neighbourhoods outside of the wall of Jeddah. Source: <https://hawamer.com/vb/hawamer673118> . <http://images.google.com/hosted/life/3142a4c489216928.html>. By Bob Landry 1942.



Figure 33: 1900, view of the town and the open space behind the customs house. Source: Leiden University Libraries, C.S. Hurgonje collection.



Figure 34: Pilgrims passing through Makkah Gate during their trip to Makkah. By Bob Landry. 1942. Source: <http://images.google.com/hosted/life/0880f08175ac2c7b.html>.



## **Urban Form and Microclimate**

In hot cities the aim is always to reduce the direct heat exposure and maximise the cooling. For that reason, in the example of the old town of Jeddah, the goal should be to maximise the exposure to the north west wind and sea breeze from the west side. This means the goal should be to optimise the ventilation and minimize the exposure to solar radiation.

### **Urban Patterns and the Morphology of the Old Town**

An analysis of the urban plan of the old town of Jeddah shows that the layout of the town follows and considers the waterfront contour. [Figure 35](#) shows that there are several regular main streets radiating out from the shore. At the same time there are also alleys that branch out from the main streets laid out along the north and south axes, consequently, benefiting from the wind and sea breeze. These alleys are narrow and opposite to the sun movement and are surrounded with tall buildings which increases the velocity of the air. Bukhari (1981, p. 45) noted that to overcome the harsh environment conditions, the residents of Jeddah had to have several development methods; in order to make their lives bearable, they made good use of the existence of the sea by directing the city entirely to the north to enjoy the view of the sea and the breeze coming from the north-west.

Al-Lyaly (1990, p. 113) studied the interaction between the climate, form, and living patterns and examined the solar exposure and the street system of the old town. He explains that, during the summer, the north/south axis enjoys shadows that are cast along every street all day long with the exception of a short period during the midday when the sun is overhead. However, because of the grouping of the buildings, the width of the street is reduced keeping the streets in shadow most of the summer days. This observation raises vital questions such as; are the locations of the thresholds, to a certain extent, in the old town affected by wind and solar exposure? Also, are the thresholds in old Jeddah related and connected to the street orientation?

Furthermore, [Figure 35](#) shows that the houses were grouped in blocks of three or more, creating dense development of tall buildings because of land shortage with narrow alleys (*zuqaq*). These buildings are scattered organically and buildings could be attached side-to-side or back-to-back. However, most of the buildings were semi-detached or completely detached in order not to disrupt the air flow and movement. One can also observe that there are limited angles formed by the narrow streets and buildings which helps to reduce the exposure of the building façades to the sun.

To sum up, the morphology of the city is in harmony with the climate; the narrow streets ‘*zuqaq*’ are located within the north-west axis to capture the wind and sea breeze. Regarding solar exposure, the heights and grouping of the buildings results in reducing the façades’ exposure to the sun. Thus, it all helps to improve the microclimate in the narrow streets which eventually affects the threshold and social interaction.

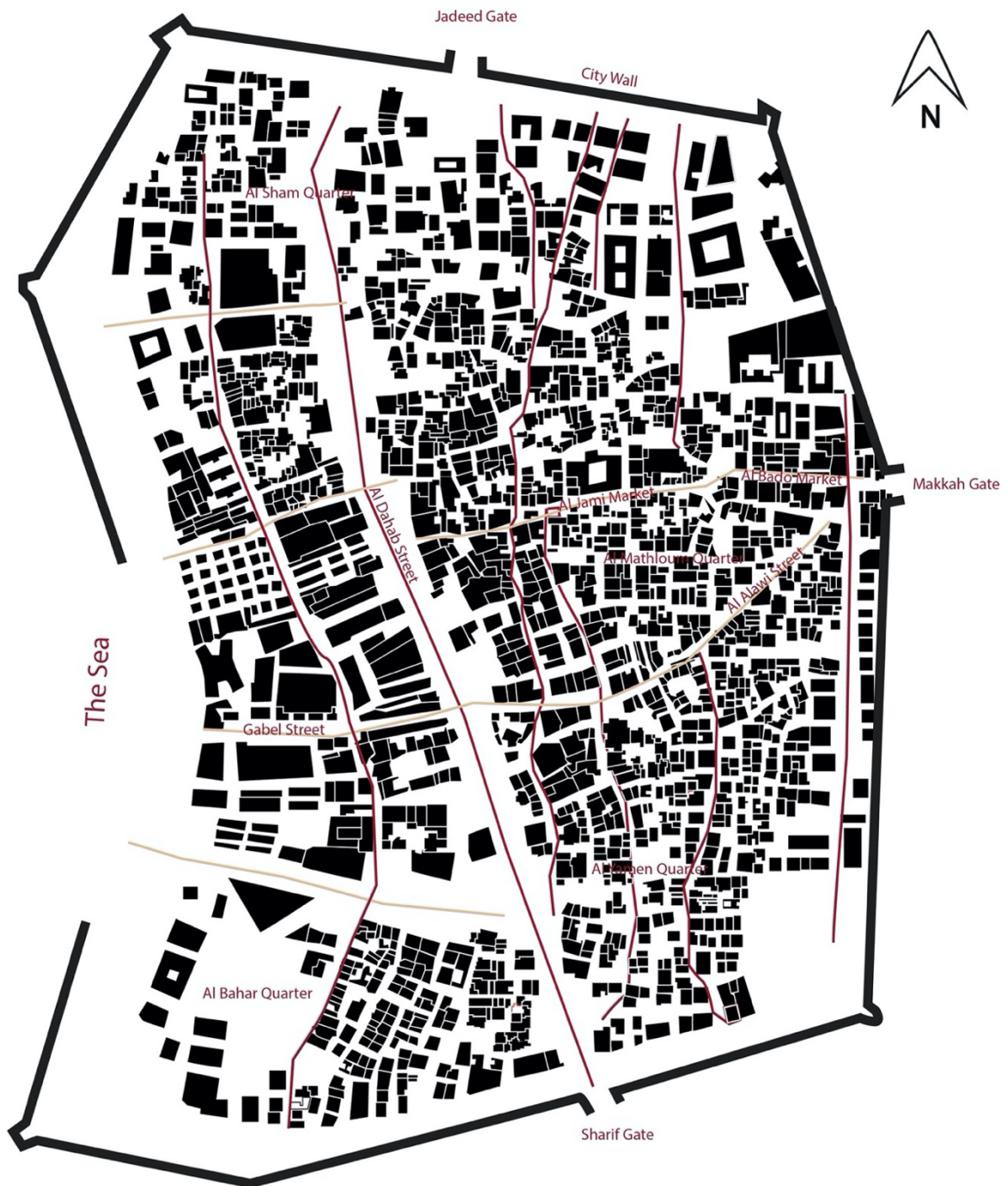


Figure 35: Plan of old Jeddah showing main streets radiating out from the shore highlighted in yellow. An example of alleys highlighted in red branch from the main streets on the south-north axis. Source: (Khan, 1982, p.193). edited and redrawn by author.

# **PART I. THE THRESHOLD**

# **CHAPTER ONE**

## **Historical Threshold Spaces**

The first chapter of this thesis is the foundation of this research. It begins with an explanation of the diverse *Hijazi* population and how this could have contributed to the development of its architecture. Furthermore, the chapter discusses the historical threshold spaces in Islamic cities during different periods and how this could have contributed or influenced the urban and architectural configuration of the historical city of Jeddah. The intention of this chapter is to show what the architecture looks like in Jeddah; what are the *Hijazi* houses? what is its typology like? what are the most important architectural elements, and what is the significance of the elements of threshold compared to other Islamic cities.

### **Culture and Organisation of Tradition**

*Hijaz* is a region on the west side of Saudi Arabia that includes Jeddah, Taif, Yanbu, and the holy cities Makkah and Medina. Jeddah is one of the most important cities in the region as it is the gate to Makkah as well as an important business port for trading in the *Hijaz* region. Yanbu, is the second most important port in the region and includes important petroleum and industrial activities. Taif is known as a summer resort area.

Zwemer (1900, cited in Jomah, 1992, p.10) and Rihani (1930, cited in Jomah, 1992, p.10) who visited the region in the late 1800s, stated that, because of the existence of the Holy Cities as religious centres, the region became the site of enormous trading activities at the time. These cities were the centre of attention and because of the annual pilgrimage season (Cited from Jomah, 1992, p.10). Also, the *Hajj* season affected the characteristics of the *Hijaz* area on both cultural and political levels. On the cultural level, it affected the culture exchange as well as the trading. Some pilgrims, especially wealthy traders, settled in the *Hijaz* region and worked on trading with their home towns. And on the political level, there was a lot of struggle to control the area because of the holy mosques.

According to Al Batnoni (1911) in his book *The Hijazi Trip*, foreign travellers to Jeddah all agreed that most of the population of Jeddah were foreign and Arab Muslims that came from different regions, from Egypt, Syria, Yemen, Morocco, Persia, India, Indonesia, Africa, and some tribes, and, among the residents of the city of Jeddah, there were around 100 more non-Arabs, most of whom were Romans (Al Batnoni, 1911, p. 87).

In 1854 the Swiss traveller Charles Didier wrote in his book *A Trip to the Hijaz in the Second Half of the Nineteenth Century* that “most of Jeddah’s population are from foreign origins” (Didier, 1854, cited in Albakai 2001, p. 184).

Moreover, according to a study that was done in the UK at the University of Leicester by the Department of Genetics and Genome Biology, by testing the DNA of 597 Saudis from five geographical divisions of the country, the Saudi population is a diverse society. As stated in the outcome of the study, there was low diversity in the north and south and high diversity in the east and west because of the proximity to the sea and ports.

The majority of Saudis belong to Arab tribes, however, there are many Saudis that are originally ethnic Persians, Turks, and Indians. The study found that most of the non-Arabs are

from South Asia (India, Pakistan, and Bangladesh) who came from wealthy merchants and Muslim scholars who settled in Makkah and Madinah after they completed *Hajj*. Furthermore, many Saudis have Turkish blood from the time of the Ottoman Empire colonies. Additionally, many immigrants known in *Hijaz* as Bukharis came from central Asia after the Soviets conquered their countries. There are also immigrants from Indonesia and South Asia known as “*Jawa*” and, lastly, a minority from Afghanistan.

This diversity in culture was due to many reasons. One of the main reasons is that Jeddah was the most famous *Hijazi* city and was a very important port in certain periods as it was located in the middle of the Red Sea and close to other major ports. Another important reason is that it's the gate to Makkah meaning that in order for people to access Makkah during *Hajj* or other periods they have to go through the city of Jeddah. All this played a vital role in the urbanisation of the city.

This diversity gave Saudi Arabia's western region the rich and distinct culture which makes it different to other parts of the country and, at the same time, creates this unique *Hijazi* culture that Saudis have to this day. Without a doubt, the combination of different cultures affected not only the way people dress but their lifestyle in general, including social behaviours, beliefs, customs, urban configuration, and architecture. Therefore, it is worth looking at the spatial arrangements and elements of the notion of threshold in some of the immigrant countries to see if we can trace similarities between those cultures and the *Hijazi* society.

Furthermore, Jeddah was disturbed by several events and political circumstances which affected it from the inside and out. These played an important role when it comes to its architecture. Some of the important influences of different periods are noted in [Figure 36](#).

Additionally, in order to understand underlying principles and demonstrate references and influences between old Jeddah and other Islamic and Ottoman cities, it is necessary to look at several cities such as Suakin in Sudan and Rashid in Egypt. Both cities exemplify Ottoman cities that were built around the same time as the buildings we see today in old Jeddah. These cities are explored in the next chapter of this thesis.

The threshold in the historical city of Jeddah is discussed further in the following chapters.

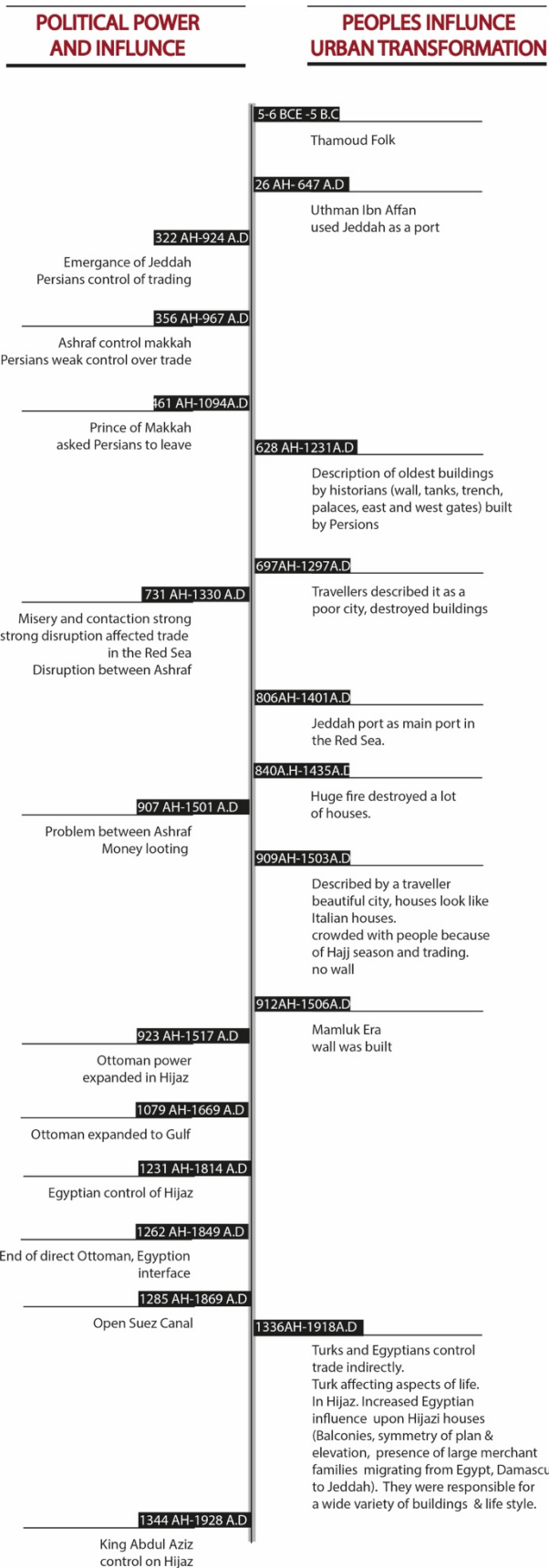


Figure 36: Influences, political circumstances affecting power, immigration, and trade. Source: Author.

## **Persians**

According to historical sources, it was known that the Persians ruled and controlled trade in the *Hijaz* area, and “because of the commercial and urban development they took it as their trading centre” (Al Homairy, 1975, p.157) until the area fell under the control of *Al Ashraf*, “representative of *Hijaz* and a descendant of the Prophet Mohammed” in 967 AD. During this period, the Persians had control of many things and trade became weak until they were asked to leave the area.

The architectural influence of the Persians appeared in the formation of the city plan as it took a circular shape and included several basic elements such as the fortification, external fence, water storage system, straight streets, as well as fortification by digging trenches for military purposes which was known by Persians.

## **Stages of the Architectural Houses of Jeddah**

The traditional architectural houses of Jeddah went through three different stages as follows:

First stage, before the Ottoman Empire period, buildings were so simply made huts built from a clay or wood structure taking the shape of a cube. They consisted of a number of rooms where the roof was made up of burlap and distributed either in single form or in groups around an open space (Mane, around 1980, p.100). Jomah (1992, p. 56) states that, “from the late 1600s to the middle 1800s - is the earliest time for which we can clear up any information about houses, either from oral accounts or from securely dated existing buildings”.

Second stage, buildings in the first era of the Ottoman Empire were built between the 17<sup>th</sup> and 18<sup>th</sup> century. During this period, the architectural buildings “were a combination of simple Arabian, cube-like three-roomed shack (much like west stone the small houses of the island of Suakin), and are the elaborate house built during the Turkish domination of the region. These were relatively simple and small houses” (Jomah, 1992 p.56). Hence, the buildings in the area changed from huts to one- or two-story buildings around an open space (Mane, around 1980, p.100).

Third stage, the late Ottoman period, built between the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. The houses we see in the historical city of Jeddah are all from this period, therefore, it is the most important period. These houses are more developed and sophisticated Turkish houses. As they were made of two- to five-floors, they had many rooms and many architectural elements. They had the influence of houses in Egypt mostly Cairo and Rashid during the Mamluk and Ottoman times.

Upon that, we will look at the Ottoman period to see the impact of its influence on the city of Jeddah and the contrast with other Muslim cities.



## The Ottoman Empire and the Contrast with Muslim Countries

In 1517 AD, the *Hijaz* region was joined to the Ottoman Empire power and the Ottoman Empire handed over the *Hijaz* in 1915 AD, which means it ruled the area for around 400 years.

In order to study the mutual effect between the architecture in Jeddah during the Ottoman Empire era and the surrounding environment, “it is vital to look at the weather as an important factor that affected the architecture during the Ottoman Empire period” (Alhamdan, 1987, p. 44). The increasing temperature and humidity throughout the year was one of the architect’s primary concerns when building. Several scholars such as Althakafi (2010) and Al-Layaly (1990) explain various aspects of the buildings;

1. The compactness and closeness of the buildings was to reduce the exposure of the façade to the sun’s heat as much as possible, and to shade other parts of the buildings due to height differences.
2. Roads, paths, and alleys were narrow and tight and were directed as much as possible towards the north and south, unlike the path of the sun from east to west. This helped to shade the buildings and their neighbours while keeping pedestrians in the shade during the day. Moreover, it helps to maintain the cold air collected during the night for long hours which helped to keep the area cooler and more pleasant for pedestrians. This is known as natural thermosyphonic effect. Also, people used to spray the ground with water to keep it cooler on hot days.
3. We can also see the influence of heat on the creation of windows and bay windows, *rawasheen*, during the Ottoman period as the windows are large and spread over all floors, and are made of perforated wood to reduce heat inside the home and at the same time allowing a clear view from inside to outside without being seen from the outside.
4. 48.3% of the wind comes from the north-west (*Al Sham* wind), which played an important role (Alhamadan, 1987, p.46) and, due to that, the city was oriented or directed towards the north-west to make use of the sea breeze (Bukari, 1981, p. 45). As explained previously, large bay windows, *rawasheen*, covered the façade and the projection helped to shade house fronts which helped to reduce the heat.
5. During the Ottoman Empire era, some houses had courtyards which are an important feature of houses in hot cities. Usually located at the rear of the house, they helped in sun light penetration as well as keeping the air pleasant. People who live in houses that don’t have courtyards usually use the upper open roofs, *satuh*, for different activities such as sleeping on hot days.
6. Because of the type of soil and topographical nature, the architecture during the Ottoman Empire period used local building materials and imported only important materials that couldn’t be found locally such as wood “that was docked on the bottom of the ship, and pilgrims sat on it” (Maghrabi, 1984, p. 87).
7. In addition, “the climate factors in Jeddah led to the use of special lime that helped in protecting the surface layer from erosion of lime stone due to high moisture during the year” (Al Salih, 1981, p.18).

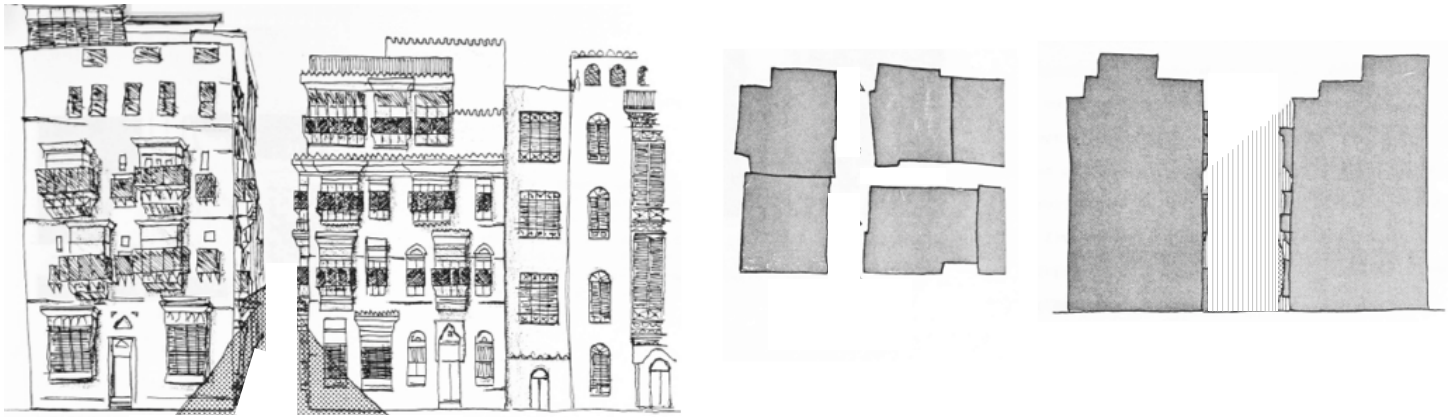


Figure 37: Narrow roads and alleys shade the buildings and produce a channelling effect because of pressure difference and creates a thermosyphonic effect. (Al Lyaly, 1990, p 114). Edited by author.

Ahmad (2009) stated that in Jeddah some of the architectural elements were affected by external influences because of the continuous communication with the Islamic world which led to a lot of immigration to Jeddah, among them were architects, craftsmen, and skilled construction workers. All of this affected the architecture by adding elements which can be clearly seen in mosques, houses and military buildings.

The craftsmen and builders who settled in the area were known locally as foreigners. With no doubt, their background was conveyed in the architecture in the area in general. A good example is Nassif house which was built between 1872–1881 and is said to be Ottoman Turkish in style. The head of the building guide of the house was a Turkish builder named Sursar. The diagram in [figure 38](#) expresses the trade connection between the Ottoman power and *Ashraf* with different Islamic cities such as Baghdad, Aleppo, Damascus, and Cairo, and through this exchange, *Hijazi* cities were influenced on different levels such as culture, art, architecture, construction, techniques, and terminologies.

During the Ottoman Empire era in *Hijaz*, architectural elements and internal voids in the houses of Jeddah were influenced, as the elements of the houses were affected by, the contact of the *Hijazi* and other regions where pilgrims and merchants of *Hijazi* and other areas had contacts. We see most of the influence in Jeddah houses in their motifs and decoration. In woodwork, inspiration came from Malaysia, Indonesia, and India where most of the wood came from.

Many travellers to Jeddah have revealed the similarities between *Hijazi* houses and those in Cairo, Syria and Yemen. For example, Snouck Hurgronje (1931, p. 38) said that, “the *Ashraf* and rich merchants of *Hijaz* were in the habit of employing Turkish, Syrian, and Egyptian architects for the production of their houses”.

The swiss traveller Burckhardt (1814) stated that, “the space organisation of rooms in Jeddah is almost the same as what is known in Egypt and Syrian houses and that’s the difference in the upper floors of Jeddah houses as they are not as high and spacious as in the other countries” (Burckhardt, 1814, p. 22, translated from the Arabic version, Hassan, 2007, p. 33), “the reason behind it could be that houses in Jeddah are built as one volume where in Egypt there is a setback on the ground floor and a projection in the upper floors” (Ahmad 2009, p. 480).

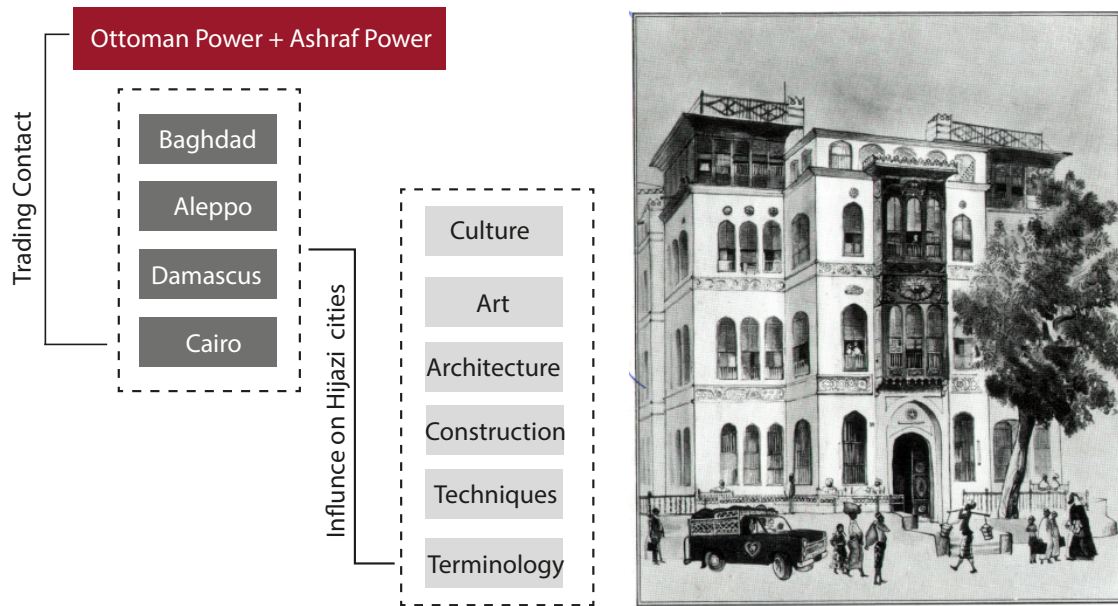


Figure 38 Left, Ottoman and Ashraf trading with certain cities had a high influence on the culture, art, architecture, construction, techniques, and terminology of Hijazi cities. Right, Nassif House, 1924 (Pesce, 1977, p. 114).

Agreeing with Burckhardt’s point of view, when we look at the space configuration in all of these regions, we find them very similar, however, privacy is achieved in different regions in distinctive ways through various architectural solutions, as shown in [Figure39](#). For example, in Jeddah, the family area is moved to the upper floors or to the far end of the house. In addition, the location of the stairs is carefully thought out because of privacy issues. For example, in Noor Wali House, just like many houses the stairs are located at the far-left end of the house so when people enter the house, they don’t see the stairs directly and, in order to access them, one has to change direction and access certain rooms that lead to them. This is an example that shows different solutions for achieving privacy in Jeddah’s houses for female movements. Additionally, in large houses, an entrance for families is provided with a *dahliz* and stairs to separate female movement completely and achieve full privacy as seen in the Hazazi house, Nassif House, Noor Wali, and many other houses in the historical city of Jeddah.

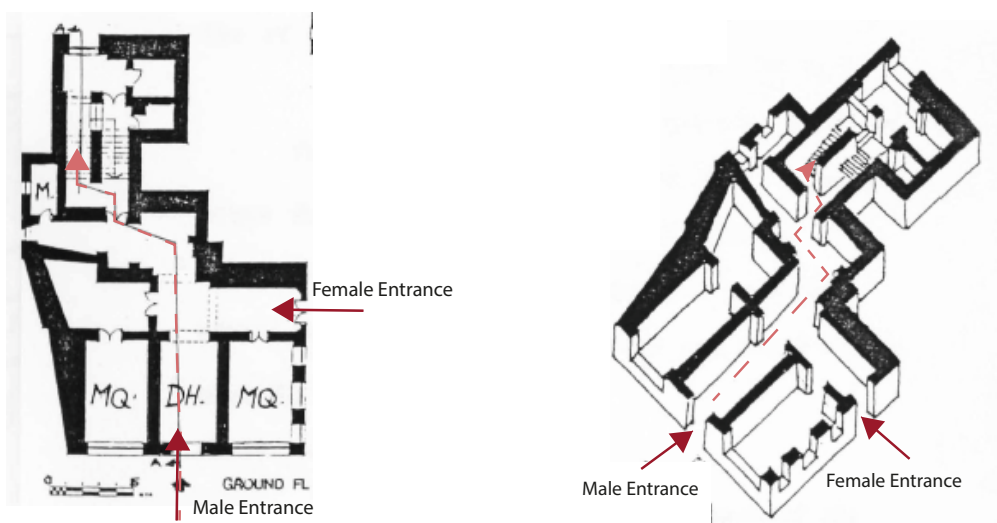


Figure 39: Noor Wali House. The stairs are located at the far-left end of the house for privacy (Khan, 1981, pp. 34–38).

In contrast, courtyard houses such as the ones seen in Damascus, Cairo, Baghdad and Medina have, to some degree, different space arrangements than the houses in Makkah, Jeddah, and Sana. Houses in Makkah, Jeddah, and Sana were inverted where the interior walls of the *dahliz* “lobby” inside the house were considered exterior elevations. On the other hand, houses with courtyards were different, as the courtyard tends to define the movement of family members and guests. The reception and the living area could not all be located on the ground floor at the same time. In small houses the reception overlooked the courtyard and could either be isolated from the rest of the house or it could take up the entire ground floor putting the family living space on the upper floor. Furthermore, looking at houses in Sana in Yemen, privacy is achieved in a totally different way as it is totally inverted when comparing it to Jeddah where the men’s gathering area is located on the last floor and the women’s gathering area is on the first, second, and third floor. However, the similarities lie on the location of the *dahliz* on the ground floor as soon as one passes the main entrance.

A report by Jeddah Municipality on the architectural characteristics of old Jeddah states that the traditional houses are explained simply by the use of Turkish and Egyptian models (Jeddah Municipality, NA, pp. 100–108). As previously explained, many skills and techniques were brought to Jeddah during the *Hajj* season and through immigrants from different cultures including Turkish and Egyptian. However, “the imported impulses underwent local modifications resulting in a culture with its own character formed by the social structure and state of knowledge of the inhabitants, and by the limitations of the environment” (Al-Lyaly, 1990, p. 49).

That being so, it is difficult to construe the traditional houses of Jeddah directly to the Turkish and Egyptian model as the traditional houses of this period were replete with influences. Nevertheless, it is hard to define the extent of the influence of one culture over the other. The hypothesis that is put forward here is that there were definitely a combination of influences, yet, each area had its own character formed by certain local circumstances such as the environment.

According to my observation, and as noted by Jomah (1992, p. 86), “No significant similarities could be detected between the traditional houses of *Hijazi* and those of Turkey, other than projecting oriel windows. Otherwise, I found the plan configuration, architectural features and spatial configuration of both houses model to be very different, I believe that attributing some features of traditional *Hijazi* houses to the Turks is only based on the fact that the Ottomans (Turkish/Egyptian) dominated the region during the evolution of the house which would only explain the similarities between the technical terminology of these regions”. Furthermore, Geoffrey King in his book *The Traditional Architecture of Saudi Arabia* confirms this by saying, “the houses of Jeddah (and the other *Hijazi* cities generally) are often termed Ottoman. Yet the houses are not the same as those of Istanbul in Ottoman times. I am inclined to regard Jidda houses as belonging to the Red Sea area and predating the Ottomans. It also seems more reasonable to seek the broader origins and closest parallels for the *rawshin* in the countries bordering the Red Sea – in Arabia itself or Egypt, rather than afield” (King, 1998, p.48).

[Figure 40](#) shows the similarities in the transitional spaces; bay windows, *roshan*, as well as the steps leading to the main door of the house. Furthermore, we see that there are normal windows on the ground floor and that the bay windows are located on the first floor of both houses. However, this does not apply to all houses in the historical city of Jeddah.



Figure 40: Similarities between the Turkish houses and the Hijazi's. Left, an old house in Istanbul with bay windows. Right, Banaja house in the old city of Jeddah, 1917.

To summarise, and according to my observation, there are three architectural elements that work as transitional spaces and can be perceived from the Ottoman Empire era in the historical houses of Jeddah, these are:

First, houses of wealthy families were divided into two parts “*salamlik*” and “*haremlik*” to segregate genders. *Salamlik* refers to “the main reception area used by men in a house, usually located in the first floor and contains pillows, cushions, and rugs” (Abudaod, 2017, p. 469). *Haremlik* refers to “the main reception area used by woman, found in rich houses built in the Ottoman style” (Abudaod, 2017, p. 469). This kind of segregation between genders created an isolated dual movement system at the same time. As a result of dividing the houses into *salamlik* and *haremlik*, the men's reception room is directly connected to the entrance hall, and is sometimes on two levels, the lower to receive guests and take off their shoes and the upper to sit and relax (Khan, 1986, p. 9). Moreover, certain houses such as Baishin House (as shown in [Figure 41](#)) contain one courtyard for *salamlik*. In these courtyards some family and religious important events took place such as weddings, and prayers.

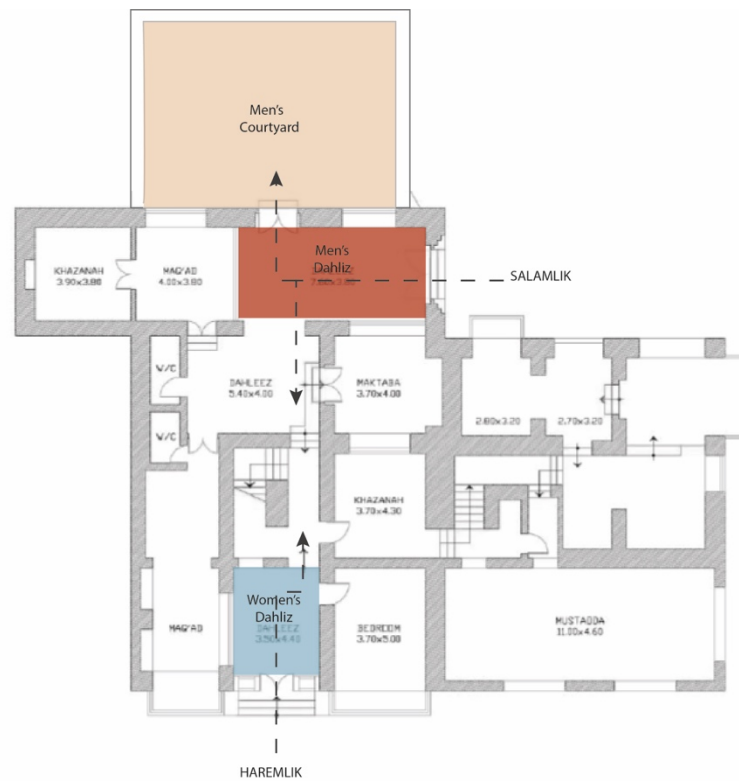


Figure 41: Baishin House built during the Ottoman Era, showing Salamlik and haremlik (Al Ban 2016, p. 132).

Second, double height doors with low doorways were an important feature in houses found in the main entrance of the house. They are made of two leaves and usually the low doorway, *khukhah*, right leaf would be open and one would have to bend to pass through the door. The proportion of the door and the need to bend to enter aids privacy which is very important in the Islamic culture. Both entrance doors of Suakin and Jeddah were built of Java teak wood which is a heavy-duty wood. The difference between both doors is the amount of decoration. Unlike in Jeddah, the doors in Suakin were not heavily decorated. Refer to low doorway pattern in Part II, chapter four for more information.

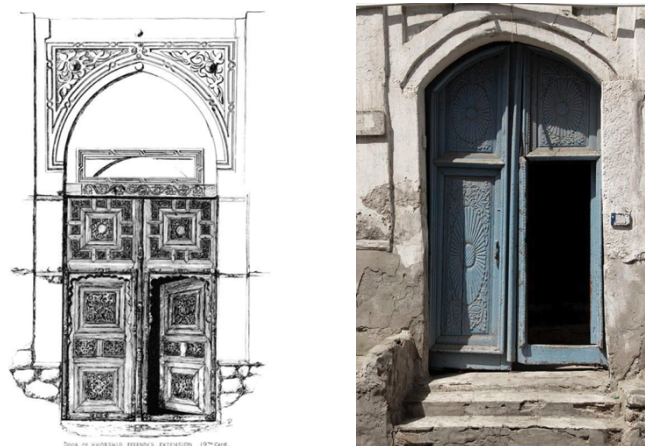


Figure 42: Left, Bajsair house main entrance. Source: (King, 1998, p. 37). Right, double height door with double leaf and low entrance named 'Khukhah'. Source: (Greenlaw, 1995, p. 115).

Third, bay windows, *roshan*. According to many Scholars, there were many different sources regarding the origin of the bay window, *roshan*, yet, “they were spread in the Islamic world during the first century AH in Al Basra” (Khadairi, 1983, p. 123) and they appeared in Egypt during the Mamluk and the Ottoman Empire eras and were known as *mashrabiya* (Mohamadain, NA, p. 160). They appeared in Ottoman houses in the eighteenth century and until (1650–1700 AD) it was an extension of the bridge that carried the weight of the house horizontally (Zain Alabden, 1998, p. 85). As previously mentioned, when we look at the houses of Jeddah and compare them to those in Egypt, Syria, Yemen, and Iraq, we find that the Ottoman and Mamluk Empire was one of the most influencing common denominators. Of course, these similarities do not apply to the whole region but parts of it. Moreover, we see this influence on all the buildings of the port cities of the Red Sea such as the Island of Suakin, also called the twin of Jeddah, which is worth comparing and looking at. However, there is a variation in shape, location, and decoration in these cities.

To conclude, an article written in 1953 by a British architect named Derek Mathews coined a unifying label “The Red Sea Style” (Um, 2012, p. 243). It suggests that buildings around the edge of the Red Sea could be visualised as a unified building language. As previously mentioned, and according to many scholars, there is no doubt that these cities share a lot of visual similarities with their inland local cities, however, “the mechanisms by which these traditions were innovated and then disseminated are unclear. For this reason, the labels ‘Turkish’ or ‘Ottoman’, which are often used to define Red Sea buildings, are misleading” (Um, 2012, p. 248). This proposes that the architecture was not imported from the Turks, nor had they imposed any official style for the construction of the buildings on the rim of the Red Sea. Rather, it is suggested that the strong cross regional network that took place during the Ottoman rule, as well as economic factors, played a role in the construction of the building without creating a building style. As Jomah (1992, p. 78) mentions, “the general organisation of the traditional *Hijazi* house derived from the organisation of the different patterns of houses that were produced in the Arab world”. The Mamluk and Ottoman Empire had the most influence on the western Arab region architecture and from that the unity of architecture comes in the form, space organisation, and motifs. However, at the same time, there were regional variations caused by different factors such as climate, social economics, typology, and the availability of building land.

## The Island of Suakin, Sudan

Jeddah's twin city, Suakin, is a port located in the east African coast of the Red Sea. It demonstrates a good example as a case study because it shares the same architectural culture as Jeddah. It was an important port for trading with Europe, the Far East, and Arabia and a cultural gateway for centuries. The area was abandoned after the establishment of a new harbour called Port Sudan between 1905-1909. After the first world war, Port Sudan became more important as a trading centre and by the end of the 1930s the Island of Suakin became deserted.

The city was built on a flat oval shaped island. "Its role as a major port derived from its connections with inland areas and the Nile Valley by way of caravan routes via Berber and Kassala" (Salim, 1997, p. 63). In the Muslim world, as well as for the Sudanese, Suakin had a sentimental value as it was the gateway to holy cities.

The island is considered to have a desert climate as in summer it is hot and humid and in winter it has similar weather to the Mediterranean region with a pleasant cool sea breeze and rain. This had an effect on the urban and architectural configuration of the city.

The history of Suakin is unclear, however, it was mentioned by many travellers as it is assumed that the island had settlements before 3000 BC. Vine and Schmid (1978, p. 177) wrote, "The Red Sea ports have a lengthy history sometimes going back thousands of years. They have been greatly influenced by international events so that their development until very recent times has owed more to external influences than to internal policies. A case in point is Suakin on the Sudanese coast".

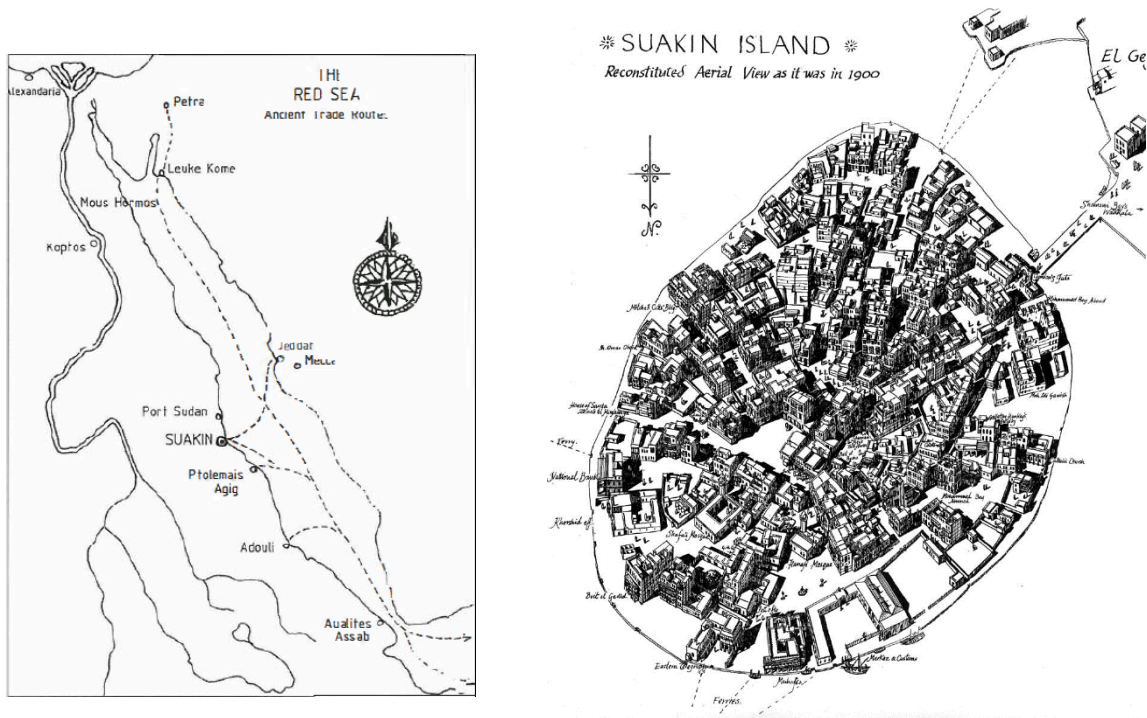


Figure 43: Left, location of Suakin in relation to ancient Red Sea trade routes (Salim, 1997, p. 64). Right, aerial view of Suakin island in 1900.



In 1995, Jean-Pierre Greenlaw wrote a book called *The Coral Buildings of Suakin*; in this book he traces the history of the city of Suakin, life in the city as well as documenting architectural buildings which he and many travellers state that it is so similar to the historical city of Jeddah. In Greenlaw's view, in certain periods of its architectural history, Suakin in Sudan was a *Hijazi*-built town and some of its finest structures are associated with the vitality of the building tradition in Jeddah.

In terms of architecture, Suakin was an Islamic city and had all the general features and character of the Islamic urban configuration. "Suakin is an example of a small Turkish town built between the 16<sup>th</sup> and 20<sup>th</sup> centuries like other towns situated around the Red Sea coasts; Massawa, Jeddah, Hodeida, Assat and Mowka" (Greenlaw, 1995, p. 8). The centre of the city was the focus of social and business activities where the two mosques, the market, *suq*, and shops were located. The houses had a compact layout that surrounded the central area with their open spaces that took different forms and sizes. Narrow irregular alleys which served as ventilation and brought a cool breeze from the sea and ended with a cul-de-sac for privacy just like the historical city of Jeddah.

Looking at the social life in Suakin, houses accommodated big families "and were divided into social categories" (Greenlaw, 1995, p.17). Just like Jeddah houses were divided into private and public spaces where each family inside the house would have their own apartment or quarter where they would live with their children and servants.

In general, "houses are divided into two parts: on the ground floor, a smaller but usually more imposing part for the reception and entertainments of guests, called in Turkish, the *salamlik*, and the larger, upper part of the house which is occupied by the family, the women and children, which is called *harim*" (Greenlaw, 1995, p.17). The *dahliz* and *maggad* are located on the ground floor after the main entrance. This will be further illustrated in typical house plans of Suakin. Just like in Jeddah, the top roof open area "*Satuh*" is used for sleeping at night and is divided into several parts; one for the owner of the house with his wife and the other parts for the rest of the family.

There were two entrances, the first was for men and their visitors and the second was for women, family, and their visitors.

It is also noticeable that the buildings have the bay windows "*roshan*" used for privacy which is a typical feature or element in other Islamic cities in general and cities of the Red Sea as well as in Mamluk architecture. This could indicate that the buildings were built during this era. They were the focal point of the living room as many activities took place there. "The *roshan* can be traced as far east as India and, westwards, there are some superb *roshans* on the town hall of Lima in Peru, made on eastern models by the Spanish; they are familiar in southern Spain and a similar feature built in masonry is common in Malta and many coastal towns in the Peloponnese. *Roshan* are also found in Massawa and Somalia" (Greenlaw, 1995, p. 21).

In his book, Greenlaw (1995) categorised the buildings into two types. The first type is built before 1860 and was called Earlier and large Turkish houses which derived mainly from Jeddah, and the second type, built after 1860, which shows European influences from Egypt. However, Hansen (1972, p. 5) states that "the majority of Suakin houses actually date from the Ottoman period (sixteenth to nineteenth century)".

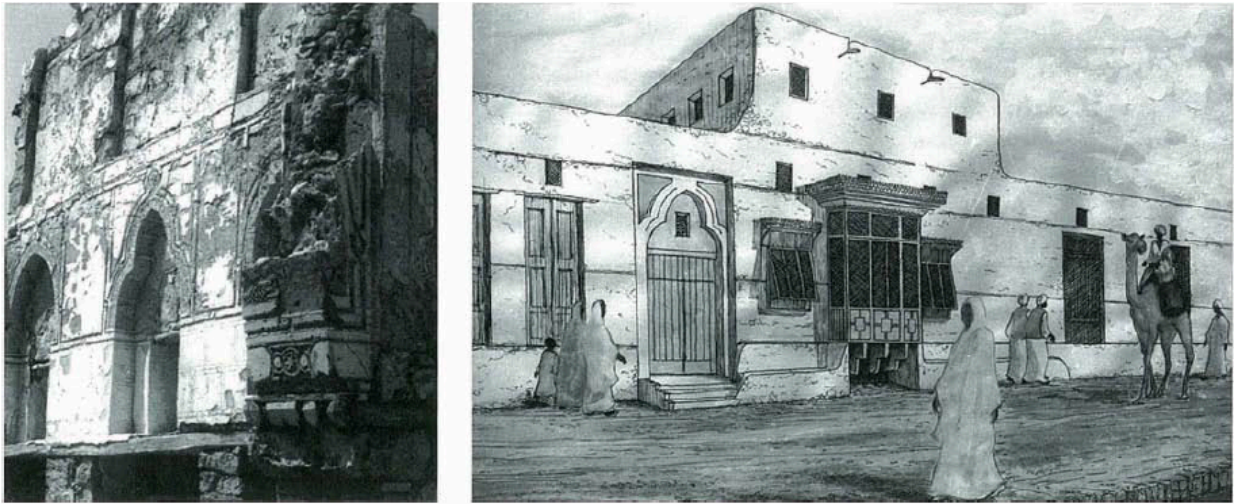


Figure 44: Khorshid House, believed to be the oldest house on Suakin Island and is an example for a house built before 1860. The threshold of steps, bay windows “roshan”, sitting area, low doorways are clear on the right. Left, existing condition. Right, historic rendering of the house based on an old photo (Salim, 1997, p. 64).

We will look at several basic plans which represent houses built during the Turkish power made of three stories and see the similarities with a historical house in Jeddah in terms of space configuration, thresholds and transitional spaces.

The layout plan of the buildings (as shown in [Figure 46](#)) is as follows; on the ground floor as you enter the main entrance there is a *dahliz* and *diwan* for men and sometimes shops or stores which belong to the owners of the house. The second entrance for women and families is located on the opposite side for privacy and leads directly to the stairs and upper floors. On the second floor we find several rooms such as the *majlis* with two bay windows, *roshan*, situated on two different facades and overlooking the main streets as well as a *khazana* with another bay window, *roshan*, also viewing the main street.

The third floor contains several areas such as the open outdoor spaces known locally as *satuh/ kharja* where the household will sleep at night when the weather permits.



Figure 45: Floor plans of one of the houses built during the Ottoman Era. Source: (Greenlaw, 1995, p. 39).

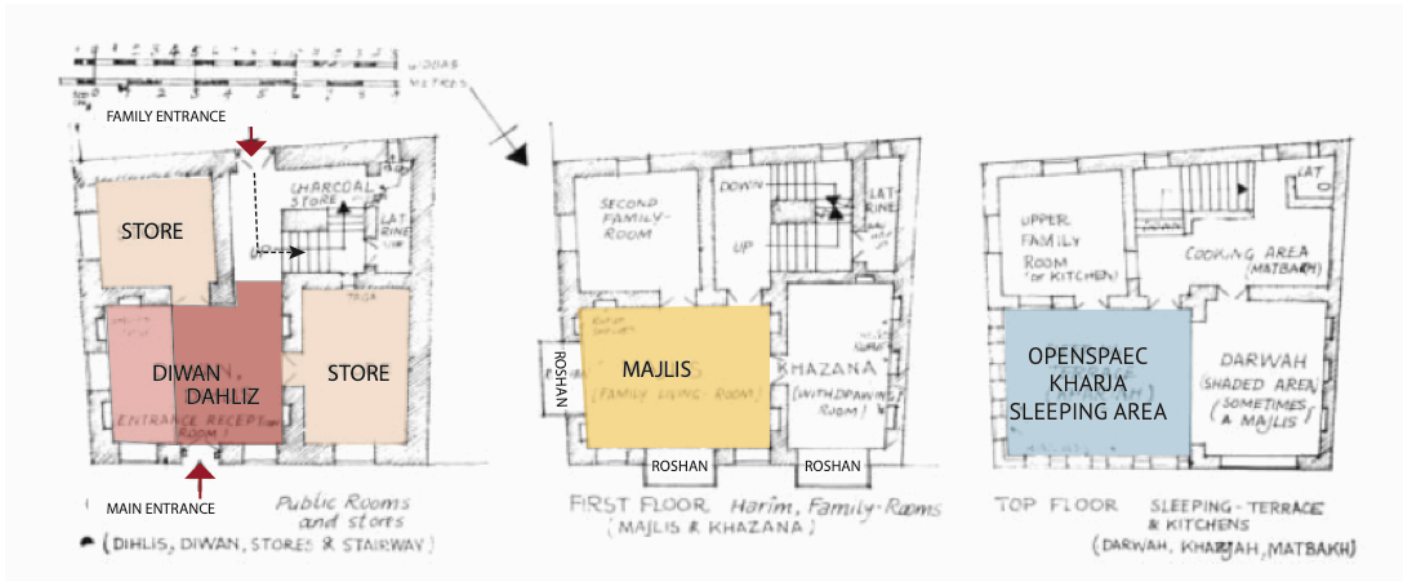


Figure 46: Floor plans and elevation of one of the houses built during the Ottoman Era. Source: (Greenlaw, 1995, p. 38).

When comparing houses in the historical city of Jeddah with Suakin, we find a huge similarity in patterns and threshold space. Below are my observations;

1. Generally, privacy and segregation of both genders in these houses was an important issue. Looking at the threshold of the ground floor we see similarities in the segregation of both genders through two entrances as well as the *dahliz* and the *majlis* which are mainly for men's guests. See [Figure 45](#).
2. The similarities on the second floor lie mainly in the bay windows "*roshan*" that are used a lot by women as a connection between the indoor and the outdoor space since they spend most of their time in the house. See [Figure 45](#).
3. Window places are the core of the families living room as many activities take place there. See [Figure 45](#).
4. The use of the open roof spaces "*satuh/kharja*" function exactly like houses in Jeddah.
5. The doors of the main entrances are also made of two leaves, the right leaf has a small door called *khukhah* where the house is accessed. See [Figure 45](#).
6. Connected buildings through grouping of houses in blocks is a feature that is found in the majority of Jeddah and Suakin urban layouts. See [Figure 48/47](#).
7. Positive outdoor spaces that are created by the cul-de-sac which are used by the inhabitants living around the open space. See [Figure 47](#).
8. The hierarchy of open spaces move from the most public to the most private.
9. Narrow paths called *zuqaq* taking inhabitants from the most public to the private. See [Figure 47/49](#).
10. The outdoor benches known as *mirkaz*. See [Figure 49](#).



Figure 47 The hierarchy of open spaces in Sauakin.

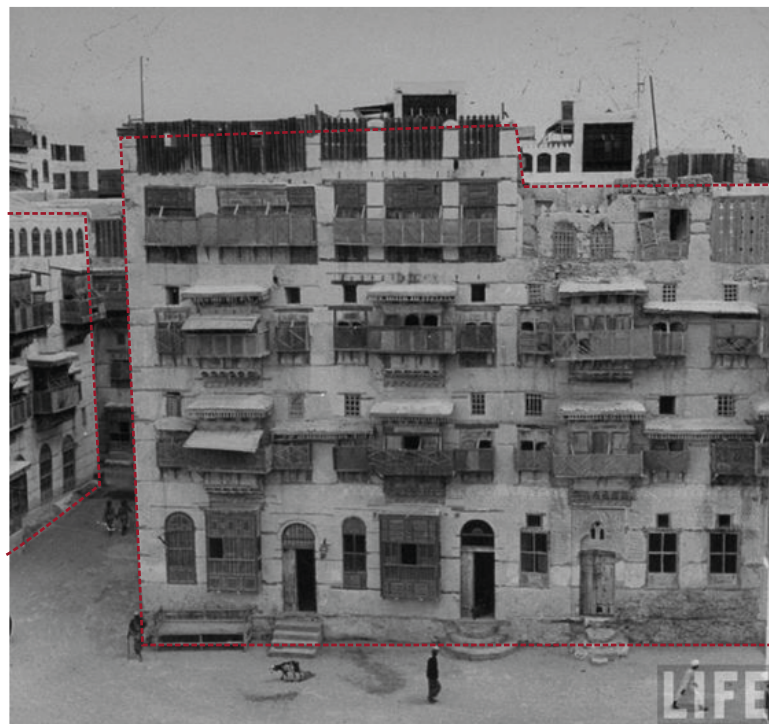
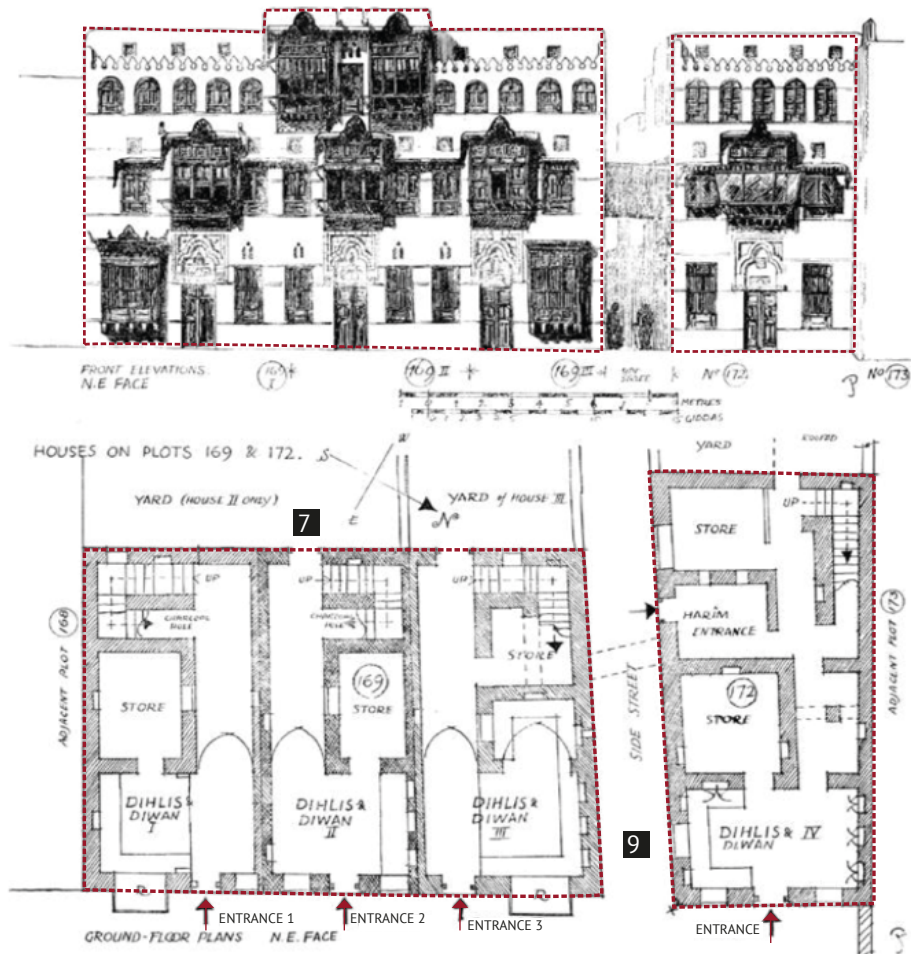


Figure 48: Floor plans and elevation of one of the houses built during the Ottoman Era in Suakin. Source: (Greenlaw, 1995, p. 45) last elevation: Banaja house in Jeddah very similar to the first elevation. Notice the similarities in the grouping of houses in blocks. Source: (Life Magazine, 1942, by the photographer Bob Landry).

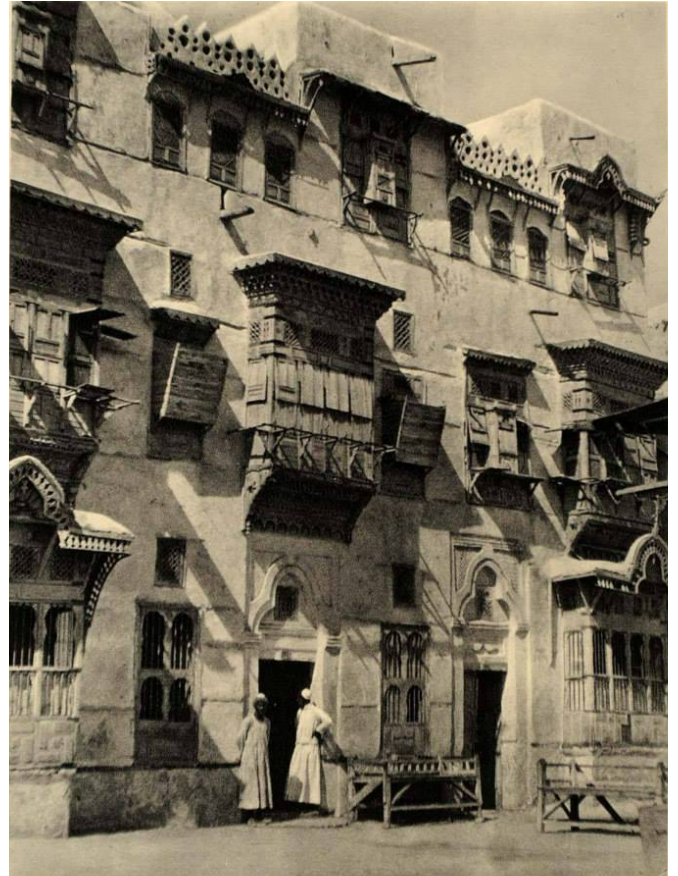


Figure 49: Left, Jeddah 1928. Right, life in Suakin by Hugo Adolf Bernatzik 1927-1930. It is very hard to tell the difference between both cities.

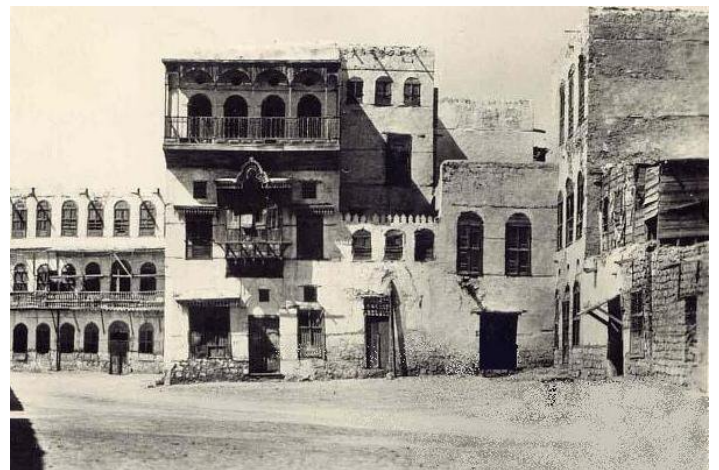
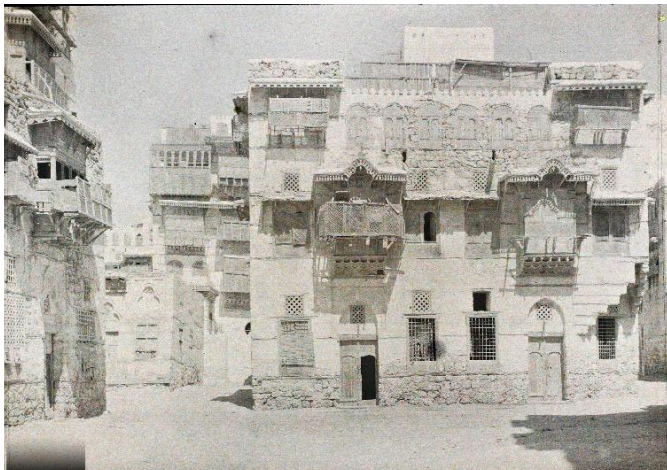


Figure 50: Left, Jeddah. Source: (Jeddah Historical Photopedia, taken by the French photographer Paul Castelnuau, 1918, from Albert Kahn Museum). Right, Suakin.

## The City of Rashid, Egypt

The city of Rashid is considered one of the most important cities when it comes to the preservation of the planning of the Ottoman Empire era, this includes civil, religious, and military buildings. It is the second most important city after the old city of Cairo in the preservation of old houses as it has one third of the ancient buildings of Egypt.

A port city on the Nile Delta, Rashid is located in the far north of Egypt. It gained its importance during the Mamluk era as it was an important trade centre and remained so throughout the Ottoman Empire period. There is a huge similarity between the historical city of Jeddah and the historical city of Rashid.

We see the similarities in more than one aspect. First, Jeddah's location, as an important city on the Red Sea coast, made it a commercial hub and the gate to the holy city of Makkah. On the other hand, the costal location of Rashid gave it an importance when it comes to trading. Second, the *Hijazi* region and its cities in many periods were under the rule of the Egyptians, hence, they had the same historical background during the early Islamic periods until the end of the Ottoman Empire era, passing by the Umayyad, Abbasid, Fatimid, Ayyubid, and Mamluk era. Third, the preservation of houses belonging to the Ottoman Era.

These similarities make it worth investigating whether the Ottoman era imposed certain features or characteristics on the cities that were under its rule, or if those cities had their own architectural features due to local and environmental factors.

Before we start, it's important to point out that Rashid city has a hot desert climate, meaning that in the summer its hot and humid and in winter it is moderately wet.

Looking at the architectural planning of the houses in Rashid, we find that the buildings, just like in Jeddah, are made of several floors, therefore, "they go vertically rather than horizontally due to religious, social, economic, and climate factors" (Ahmad, 2009, p. 524). According to Darwish (1989), the ground floor was usually used for commercial purposes. The first floor was the *salamlik* floor, belonging to men, where the reception of guests takes place in the *dahliz* and several rooms. The *haremlik* is located on the second and third floors, this is the female and family floor and is called the centre of the house. The last floor, is where the open roof spaces, *satuh*, are situated. Similar to Jeddah, people used to sleep at night when the weather permitted (Darwish, 1989, p. 95).

Looking at the threshold spaces, the ground floor usually had two doors. The main door was made of two leaves with a low doorway, *khukhah*, just like in Jeddah. These doors take the household directly to the stairs and upper floors. The second door is also made of two leaves leading to the commercial area and storage on the ground floor. Sometimes the commercial area had stairs that leading to the first floor. In this case, the segregation between both genders and the circulation were much better. "However, in many houses this floor is considered residential" (Darwish, 1989, p. 102). Looking at Jeddah and Rashid, we see a strong similarity in houses, however, the difference lies in the ground floor. Mostly, in Jeddah, the ground floor is used by men and their guests, and on that floor the *dahliz* and *majlis* are found. In some cases, the ground floor is used for commercial activities, for example Bakhsh house. In contrast, the ground floor in Rashid city was used for commercial purposes and also contained storage. Moreover, occasionally, this floor could also be used as a residential floor with reception rooms just like Alamsili house built in 1804 AD ([Figure 51](#)). The bay windows,

*roshan*, in Rashid are usually located on the first and upper floors which is different to Jeddah where you can also find them on the ground floor.

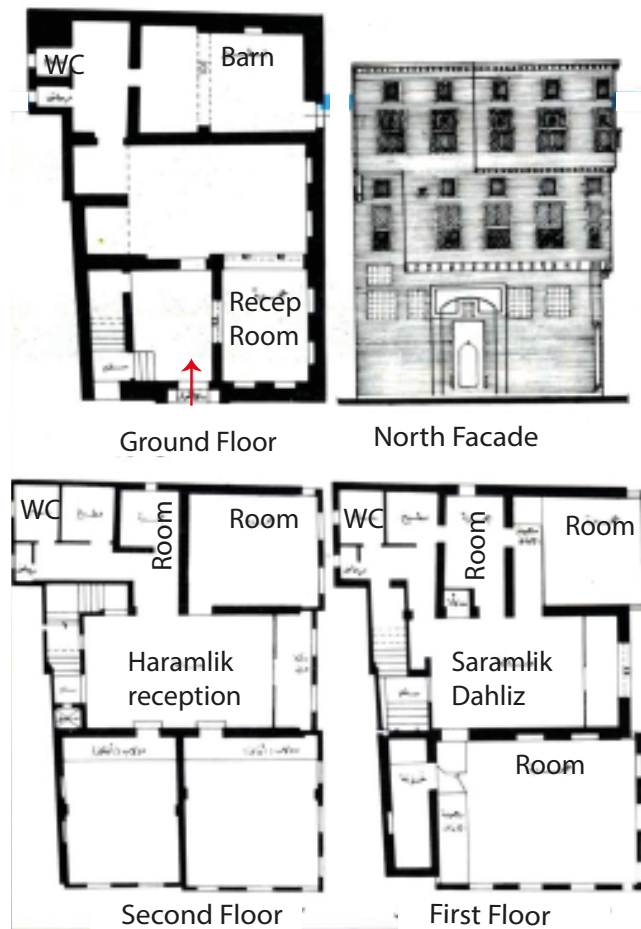


Figure 51: Alamsili house had one entrance. The ground floor was for commercial activities, the first floor is for men and the upper floors are for family and women. Source: (Archaeological Review, 1985, p. 5) edited by author.



## Influences from Indonesia and India on Jeddah's Old Houses

The foreign influence from other civilisations is most noticeable in the decoration which is merged within the house fabric rather than being added at a later stage. This is evident in the woodwork which mostly had the influence of Malaysia, Indonesia, and India. "In larger merchant houses, some pre-Islamic, Mogul Indian and Byzantine motifs were used" (Jomah, 1992, p. 73).

The quality of woodwork in Jeddah houses was considered of high quality. This woodwork can be divided into three categories as follows:

First, bay windows *roshan*, which sometimes covered most of the front facades, and during the Ottoman era the buildings were distinguished by many bay windows. Second, carved doors. For example, the main entrance doors which had a symbolic importance as they were the transition between two realms; the semi-public and the private world. This was emphasised by excessive decorative motifs taken from nature; floral, geometrical shapes, and calligraphy bordered with pointed arches or sometimes a trifoliated arch, common in Islamic architecture. Third, grilled work locally known as *shish*, a cheaper version of the expensive *roshan*. They were used in poor households that could not afford the *roshan*, or on the side facades of wealthy houses. The *shish* was a relatively simple alternative to small wooden-balconies with latticed-screens serving the same functions as the *roshan*.

Several sources have claimed that the woodwork was carved in the Far East then imported to Jeddah, others contend that the wood was imported and then carved in Jeddah. Greenlaw (1995) mentioned that the wood was imported from the island of Java, Indonesia, after being carved. Akbar (1998, p. 80) noted that, "the *rawasheen* were made from Indian or Java teakwood imported from the Far East. Local skilful wood-craftsmen then engrave and construct them".

Jomah stated after interviewing several master builders that it is well known that the carpenters in Jeddah that are specialised in the making of *roshan* learned their craft from the Indian and Egyptian masters during the *Hajj* annual pilgrimage to Makkah, as those masters used to work for local builders for the three months of *Hajj* season until it was time for them to leave. From that, we can conclude that the apprentices followed, to a certain extent, their techniques and wood carving styles and patterns, and we see evidence of that in most of the remaining houses (Jomah, 1992, p. 114).

Mana (2011, p.27) states that there was an economical dimension when implementing the decoration and motifs on the entrance doors and bay windows, *roshan*; since their execution takes a long time, the master builders decided to apply the elaborate or detailed motifs on the first floor of houses, 50% of them on the second floor and 30% on the third and fourth floor. The reason behind this was that viewer could see the first floor and all its details on the woodwork very well, however, they can't see the same amount of detail on the upper floors.

Moreover, we can see the Indian influence in domes, as in the dome of Al-Falah School (shown in [Figure 53](#)), whose design is dominated by the Indian form and character.



Figure 52: Example of wood carving in Jeddah. Drawing by G. Saccardo from an old photo (Pesce, 1977, pp. 118-119).



Figure 53: Left, the dome of Al Falah School in Jeddah showing the Indian influence. Right, a dome in Pakistan.

To sum up, this chapter looked at the historical threshold spaces concentrating on the following points:

- The diverse culture gave Saudi Arabia's western region the rich and distinct society which makes it different to other parts of the country and at the same time creates the unique *Hijazi* culture that we have to this day. The combination of different cultures affected not only the way people dress, but the lifestyle in general, which includes social behaviour, beliefs, customs, urban configuration, and architecture.
- Because of the Holy Cities, Jeddah was a site for huge trading activities from different cities such as Egypt, Syria, yamen, India, Indonesia.
- Persia's control on Jeddah and its influences in the city planning such as the circular shape and several basic elements.
- There were three different stages for the traditional architectural houses of old Jeddah: first, before Ottoman Empire; second, during the first era of the Ottoman Empire, and; third, late Ottoman Empire.
- Ottoman Empire and contrast with other Muslim cities: the architecture in Jeddah was not imported from the Turks, nor had they imposed any official style for the construction of the buildings on the rim of the Red Sea. Rather, it is suggested that the strong cross-regional network that took place during the Ottoman rule, as well as certain economic factors, played a role in the construction of the buildings without creating a building style.
- The trade connection between the Ottoman power and *Ashraf* with different Islamic cities such as Baghdad, Aleppo, Damascus, and Cairo, and through this exchange, *Hijazi* cities were influenced on different levels such as culture, art, architecture, construction, techniques, and terminologies.
- Exploring different Islamic cities; the Island of Suakin in Sudan and the city of Rashid in Egypt. Both cities exemplify Ottoman cities that were built around the same time as the buildings we see today in old Jeddah. Because of that, principles are learned about the influences between those cities and Jeddah in order to understand the impact of the Ottoman Empire on them in general.
- The foreign influence from other civilisations is most noticeable in the decoration which is merged within the house fabric rather than being added at a later stage. This is noticeable in the woodwork which mostly had influences from Malaysia, Indonesia, and India.

This chapter is the foundation of this research which will help us understand why the architecture looked the way it did, and what the most important elements were and the significance of these elements of threshold compared to other Islamic cities.

After exploring the historical threshold spaces in different periods and how they played a role in influencing the urban fabric of old Jeddah, the next discussion is regarding the extension of the Christopher Alexander's theory. Chapter two discusses the theory itself, its intellectual roots, and different critics on the theory, and aims to identify the methodology or framework of this research which will be used to analyse the case study of this research.

## **CHAPTER TWO**

## Christopher Alexander and A Pattern Language

Chapter two is the methodology or framework of this research, which is an extension of Christopher Alexander's theory, "*A Pattern Language*". This chapter is divided into three sections and concentrates on the theory itself, its intellectual roots, and critiques of the theory by different scholars. The intention of this chapter is to help in understanding the meaning of patterns according to Alexander and the way to categorise them which will help to identify patterns in the case study of this research.

### **Christopher Alexander**

Christopher Alexander is a British-American architect and theorist. He holds a bachelor's degree in architecture, a master's degree in mathematics, and earned his PhD from Harvard University. "He was a fellow at Harvard University, and at the same time he worked at MIT in transportation theory and computer science and at Harvard in cognition and cognitive studies" (Wikipedia, accessed June, 2019).

His work and theories influenced many architects as well as many people from different disciplines. He is considered to be the father of pattern language movement which was found to be very beneficial in other domains such as software development, interface design, education, project management, music, and many other disciplines.

Various books on patterns were published after his work in different domains as well as papers, articles and theses.

Alexander's work is at the heart of everything relating to the wiki. Leitner (2016, p. 1) noted that Wikipedia is an outcome of Alexander's work, "which would not exist without his theoretical foundation. Furthermore, Wikipedia should not be seen as an isolated phenomenon; it includes the wiki system as its direct predecessor and spreads to the social media".

As an architect, he built more than 200 buildings in different parts of the world and was awarded several prizes such as the Vincent Scully Prize and the first ever medal for research by the American Institute of Architects (AIA). He became well-known in architecture after his award-winning thesis in the 1980s, *Notes on the Synthesis and A Pattern Language* which were a great success. His theories and concepts were taught to students in university, however, today, most of his theories are excluded from the curriculum.

He has written several recognised books such as *A City is Not a Tree* (1965), but is perhaps most famous for his book *A Pattern Language* which sold around half a million copies and became a bestselling book, and remains so to this day. *The Timeless way of Building* could be seen as a complimentary book to *A Pattern Language*. It is less known but just as important as it helps in understanding patterns, how to make use of them, and where his theory came from.

I personally think it's very hard to understand *A Pattern Language* without reading *The Timeless Way of Building*. Both books were meant to be one however, since it was so huge it was split into three volumes which, in a way, weakened the message that Alexander wanted to convey as people only read one volume.

Volume One: *A Pattern Language*  
Volume Two: *The Timeless Way of Building*  
Volume Three: *The Oregon Experiment*

*A pattern language* book has been in continuous publication since 1977, it's clearly a highly important book and has been read by generations of architects. The book is still a top seller despite this, it was slightly out of favour as it did not align with the concepts and way of thinking of the modernist and post-modernist.

Alexander was not satisfied with contemporary architecture as he found it lacking quality, therefore, he wrote his book *The Timeless Way of Building* which started a conflict with postmodern architects and the building industry after writing on the first page of his book "the theory of architecture implicit in our modern world today is bankrupt" (Alexander, 1979). This had a negative impact on architects and led to many criticisms and conflicts which made him write around 200 articles and 16 books.

Christopher Alexander way of thinking 'rejection of modern architecture and approach' was part of a set of thinkers who were also questioning modernism and its impact on the city.

Traditional buildings became more admired by architectural writers since the rise of modernism in the twentieth century because of the immediate relationship between form and function that they believed controlled their design where there is a practical response to practical conditions. It was characterised as "a functional shelter 'built to meet needs', constructed according to the availability and performance of materials and formed in response to environmental and climatic conditions" (Oliver, 2006, Al Sayyad 2004) which is very similar to Christopher Alexander's understanding in *The Timeless Way of Building*.

By the end of the twentieth century, the understanding of the elements that contribute towards the production and evolution of traditional buildings were expanded by several architectural writers such as Amos Rapoport and Paul Oliver. These understandings included the cultural practice and social rituals, or the study of 'cultural impact' (Rapoport 1969; Oliver 2006).

Bernard Rudofsky's famous 1964 MOMA exhibition and best-selling catalogue, *Architecture Without Architects: A Short Introduction to Non-pedigreed Architecture* demonstrates the functional and cultural richness of vernacular architecture. His interest in the form and function of traditional buildings was broadened in the late 1960s by architects Paul Oliver and Amos Rapoport, who wrote about the cultural influence, or human dimension, of traditional buildings. Paul Oliver has consistently proved that traditional buildings are a rich cultural resource "highly complex artifacts that may communicate many meanings through shape and decoration, contain inhabitable space, and frame human ritual and daily life performances" (Oliver 1969; 2003; 2006). In the same year, Amos Rapoport's published *House Form and Culture* (1969) which was extremely significant.

Rudofsky, Oliver and Rapoport were considered pioneers in this field of study 'vernacular architecture research' as they believe "global traditional cultures and their buildings embodied a sense of place and cultural authenticity that had been destroyed, forgotten or corrupted in modern capitalist society (Brown, Maudlin, 2021, p.7).

Along the same lines, on the urban level, Kevin Lynch in *The Image of the City* (1960) talked about how people perceive and recall features in the urban space and Jane Jacobs in *The Death and Life of Great American Cities* (1961) criticised modern urban planning and attacked the

principles and aims that have shaped modern, orthodox city planning. Both theories “focused on the importance of cognitive cohesion, vitality and piecemeal growth as part of a vibrant built environment” (Kohn 2002, Bhatt, 2010).

All of the above concepts played a huge role on Alexander’s theory which concentrated on traditional urban spaces and the inherent beauty of it.

A famous debate regarding the fundamental essence of architecture occurred in 1982 between Peter Eisenman and Christopher Alexander. The debate took place at Harvard Graduate School of Design to discuss in front of an audience with the title “*Contrasting Concepts of Harmony in Architecture*”. Both architects are considered immensely influential in architecture. They had a debate regarding the fundamental essence of architecture.

Alexander defines design as “the process of inventing things which display new physical order, organisation, form, in response to function”, where Eisenman does not concern himself with function, aesthetics or any meaning of attendant of form.

At the beginning of the debate Alexander explains that the Post Modernists refereeing to Eisenman architecture/ work are nothing but a pointless philosophical argument as it “has little to do with the core of architecture that depends as it always has, on feeling” (Alexander, 1982, p. 4).

They move on with the discussion by trying to find a building that they both agree on. Eisenman (1982, p. 7) find the building Palladios Palazzo Chiericati interesting as he says “it’s more intellectual and less emotional” by this, he describes the quality he is looking for in a building which is “not the typology of sameness or wholeness; it’s the typology of difference. It’s the typology which transgresses wholeness and contaminates it”.

He continues by describing an Arcade in the town hall of Logrono, Spain, by Rafael Moneo that he first witnessed in photos. One can understand Eisenman’s opinion of order which is not about wholeness as Alexander sees it but rather, the expression – one could say celebration – of separation and frustration. By this he wants to produce disharmony which Alexander finds shocking.

“It was profoundly disturbing to me when I first saw photographs of the building. The columns seemed too thin for an arcade around the court of a public space. And then, when I went to see the building, I realized what he was doing. He was taking away from something that was too large, achieving an effect that expresses the separation and fragility that man feels today in relationship to the technological scale of life, to machines, and the car-dominated environment we live in”.

The debate continues by Eisenman discussing his understanding of wholeness and how it may differ or contrast from one person to another. “Wholeness for you might be separation for me”. Alexander reply’s by explaining his opinion of harmony and that it’s not only a product of one’s self but of the surroundings.

From this debate one can understand that their perspectives and thoughts about design are dramatically apposed. For the Post-Modernist including Eisenman’s the method of design is based on the image using the shock of scale and the contrast which is opposite to Alexander’s design method which is based on comfort, feeling, and harmony. This famous debate was one

of the most important debates in architecture where we find ourselves facing very different concept of what architecture is and should be.

According to the editor comments, professional opinion steadily embraced Eisenman's paradigm, where Alexander's 'New Paradigm' was marginalized. Perhaps because it turned out to be an ideal match for a post-industrial culture which looked out for new and exciting forms, new assemblies, and alien geometries.

Despite winning over his Harvard audience, Alexander missed out on having a larger impact on the architectural community.

Regarding the broader ambitions of pattern language and its ongoing significance, Alexander and his team developed a website <https://www.patternlanguage.com/> which states (2021) the following; "We believe that people have a right to determine and shape their own environment" The website provides users with methods by which they can design something for themselves to fulfil their needs. Furthermore, it also provides the user with a practical framework that enables them to materialize the project and have it built inexpensively, well, and according to their specifications.

In his website he claims that the quality is found in traditional buildings and towns. However, the aim is to develop a modern interpretation of living structures that can communicate to us and our culture where there is a deep understanding of spatial arrangements which depends on the understanding of space and human response to it.

It is a tool that helps the user to design for themselves in small and large scale through a certain sequence. This is intended through a tool named '*Language Builder*' that would formulate pattern sequence from *A pattern Language*, keeping in mind the needs of the project.

In 1963, he became a professor of Architecture in Berkeley, California. He retired in 2002 but still writes, teaches and builds.

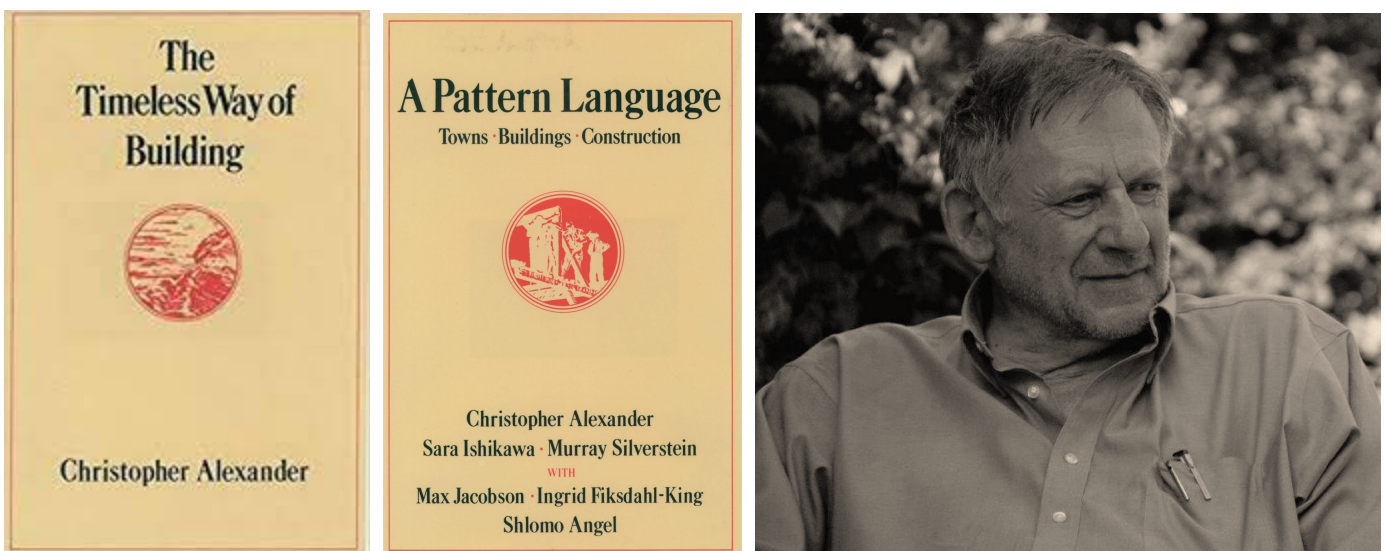


Figure 54: The cover of two important books by Christopher Alexander.



## Christopher Alexander's Theory

We believe...“that the languages which people have today are so brutal, and so fragmented, that most people no longer have any language to speak of at all- and what they do have is not based on human, or natural considerations”.

(Alexander, 1977, p. xvi)

We, as human being, have basic emotional and physical needs that our built environment should meet. In the present time and in contrast with the past, many cities like contemporary Jeddah neglected those needs completely. In incorporating Alexander's patterns in our built environment in a way that suits our era, we are making it feel more natural and more humane than the current situation.

The theory of *A Pattern Language* is based on two books written by Alexander and his colleagues. *A Pattern Language* described 253 patterns of architecture in different scales. It is a concept based on problem and solution patterns which he considers as designing patterns. In his book, he defines patterns as, “Each pattern describes a problem that occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice” (Alexander, 1977, p. x). On the other hand, *The Timeless Way of Building* is the complimentary book that helps in understanding the background of patterns.

Christopher Alexander argues in his book, *The Timeless way of Building*, that there are thousands of different forms in different places and times for creating successful buildings, live, and vibrant towns. For a very long time, buildings were designed according to people's needs in their local well-known and traditional way of building using local materials. These buildings were built by normal people that passed their knowledge from one generation to the next; Jeddah is an example of such a case where the techniques of building passed orally from one generation to another without being documented.

He claims that this way of building has always existed:

“It is behind the building of traditional villages in Africa, and India, and Japan. It was behind the buildings of the great religious buildings: the mosque of Islam, the monasteries of the Middle Ages, and the temples of Japan, it was behind the building of the simple benches, and cloisters and ...”

(Alexander, 1977, p. 10)

The secret is in the invariant core in all of them, which gives cities and towns their quality. Quality is the core of Alexander's philosophy. He refers to it in his book as “The Quality Without a Name”. He calls it that as he believes there is no word in the English Language that suits this quality, which he claims is an objective quality. It is based on the interaction of structure and their users which creates the living city. This can be identified by a deep level of analysis of patterns of events that always take place there and gives each city the character that we see.

For Alexander, the quality without a name is absent in modern architecture, therefore, his rejection of this period and practice was shown through his shift to vernacular architecture exploring and investigating a solution outside the box.

To recapitulate, Alexander looks at the quality without name as the core of successful design which is related to people's requirements, and at the same time aids and assists a good life. This is implied as patterns that are inherited from one generation to the next. Alexander pioneered an approach to collect these patterns and publish them in one book named *A Pattern language*. I will start by explaining how buildings and towns are made of entities called patterns. Secondly, I will describe how patterns come from certain combinatory processes and how all patterns, together, create a language.

## **Patterns of Events**

Christopher Alexander argues in his book, *The Timeless way of Building*, that the experience we get in a place and from its character are not solely related to the physical environment but to the pattern of events that we encounter there. So, it is an amalgam of different events that has an impact on our lives. These events are not necessarily human events, and they differ from one person to another as well as from culture to culture. He further takes the life in a house or a town as an example to explain "what matters in a building or a town is not its outward shape, its physical geometry alone, but the events that happen there" (Alexander, 1979, p. 65).

If we look at the pattern "Stair Seats" as an example, since it's an important architectural element which gives a space a new meaning, stairs can give a degree of enclosure, which define space and at the same time create gathering areas to socialise. Playing with levels can maximise the view from a certain spot, creating an open-air theatre for people that are sitting to experience watching the world go by. It is also used for many purposes such as eating, resting and waiting for others.

The behaviour and the space are linked to each other. The space supports this behaviour. And both together create patterns of events in a space.

Looking at cultures, we find that towns are defined by a number of elements that create the patterns of events and clarifies the way people live there.

If we think of an Islamic city for example, certain elements come to mind such as; privacy, semi-public, semi-private, segregation, narrow alleys, layering, cul-de-sac, mosques linked to markets... all these elements together create the pattern of events and shapes people's lives in a town.

Alexander further notes that spaces don't create events, nor do they cause them. It is the pattern in people's mind that causes them to behave the way they do and this pattern is related to the culture. Therefore, we see different behaviours in space according to patterns linked to each culture. Looking at the historical city of Jeddah as an example, terraces on the streets are socialising male patterns meaning that they are used only by men. There is no way in this culture that people will accept this pattern to be a pattern for both genders or only for female. However, looking at western countries, terraces connected to the house are patterns used by both genders to socialise at the same time.

According to that, we see that two different cultures with the same pattern react or use it in a different way and, as previously mentioned, it is linked to patterns in people's minds which cause them to behave the way they do.

Alexander notes that in order to understand any town or building, one must understand the structure of the space itself. Therefore, an understanding of space is crucial to look at patterns of events and space as united or indivisible.

## Patterns of Space

In this part, Alexander tries to define a theory of why a specific space is related to a certain pattern of events. He takes the church as an example, but since we are looking at an Islamic city, I look at the mosque as an example. A mosque is an element, and the pattern of event that takes place there is praying. However, the elements in a mosque vary tremendously, for example, columns look different, some mosques have courtyards others don't, niches look different, and so on. Based on that, there is no persistence since the elements keep changing.

Upon that, he looks back at the building or town trying to find elements that repeat themselves there. He finds out that each pattern is made of many smaller patterns that look like part of the bigger pattern, and, therefore, he finds that everything is made of interlinking patterns and that each pattern in space has a pattern of event related to it. Looking at old Jeddah's houses, the pattern of a living room, *Majlis*, is made of defined patterns of events such as; the use of the room, the time spent in the room, lunch taking place there or not, reception room for guests in winter, and so on.

He notes an important point:

“Neither does the pattern of events cause the pattern in the space. The total pattern, space and events together, is an element of people's culture. It is invented by culture, transmitted by culture, and merely anchored in space. But there is a fundamental inner connection between each pattern of event and the pattern of space in which it happens. For the pattern in space is, precisely, the precondition, the requirement, which allows the pattern of events to happen.... The pattern of events keeps on repeating over and over again, throughout the space...which gives a certain building, or a certain town its character”.

(Alexander, 1979, p. 92)

In the coming part, I describe how patterns come from certain combinatory processes and how all patterns together create a language.

## Pattern Languages

Alexander looks at the patterns as a language for designers and non-designers made by people in society as a way of exploring one's self in a space and making towns and buildings alive and liveable. “It is possible to make buildings by stringing together patterns, in a rather loose way. A building made like this is an assembly of patterns. It is not dense. It is not profound. But it is also possible to put patterns together in such a way that many, many patterns overlap in the same physical space: the building is very dense: it has many meanings captured in a small space; and through this density, it becomes profound” (Alexander, 1979, p. xli). Each pattern is related to many other patterns and to the whole language, meaning the relationship of patterns together forms the language that creates the living city.

Additionally, he further extends the definition of a “pattern”. He describes A Pattern Language as “a system which allows its users to create an infinite variety of those three-dimensional combinations of patterns which we call buildings, gardens, towns” (Alexander, 1979, p. 186). These combinations create our unique buildings and towns. By defining a language, he claims

that we are limiting the number of arrangements of spaces that make sense in any given culture and, at the same time, generating a coherent arrangement of space.

Looking at different cultures, we see some patterns that keep repeating themselves; that's because there is a common language between people and, when repeated, it creates a pattern language that makes our towns and buildings distinctive.

### **Identifying a Pattern**

What are the rules for identifying a pattern? What is the structure for analysing a pattern? According to Alexander's theory, to identify a pattern there are three rules; first, express a relationship between a certain context, second, define a problem, and third, a solution.

Let's look at old Jeddah as an example. According to the theory, first, we have to describe a physical feature in the place that we find interesting.

Taking the houses as an example, and looking at the second and third floor, there are spatial qualities that make the space of the living room, *majlis*, cosy, interesting, and gives the space its unique quality. The pattern window places which is "an extension of a room over the adjoining street" (Khan, 1981, p. 11) plays an important role in the living room, *majlis*, of the old houses of Jeddah. Each space is big enough to accommodate two people to sleep in it. It is a well-defined space in which different activities take place.

Second, we have to define the problem.

Certain questions could be looked at here such as the benefit of having bay windows, *roshan*. What kind of problem does it solve? And to answer these questions we can say: there are many benefits for having *roshan*; they create window places in a living room, they are a good source of ventilation through being projected to catch as much as possible air, they are a screen against harsh light, a social area where many activities take place such as sleeping, tea drinking, chatting, etc., and at the same time connecting the inside with the outside world, the public with the private, since it is used a lot by women living in the house. This gives an essential quality and experience that totally differs from a window that is only understood as a physical object. The window in itself is not important. What is vital is what the window can do in a human's experience. Moreover, this projection gave shade to the street for moving pedestrians.

Third, solution where this pattern can take place within a context.

After defining the pattern and its benefits we should decide which context it should take place in. Is it located in a bedroom? A Kitchen? In the main living rooms?

In this part, it's important to find the context where this pattern would make sense the most to take the maximum possible benefit of it.

In our case, this pattern takes place in the main living room, *majlis*, of all houses in the historical city of Jeddah, located on the north and sometimes west façade to catch the sea breeze and view the main street.

Finally, it may be concluded that each pattern has a relationship with a context, a problem that needs to be solved and a solution to the problem within a context. According to Alexander (1979), there is a generic form which is a rule for every pattern found, as follows:

**Context → System of force → Configuration**

In our given case;

Living Room → Conflict between privacy → Bay window, *roshan*, and  
*majlis* and community window places.

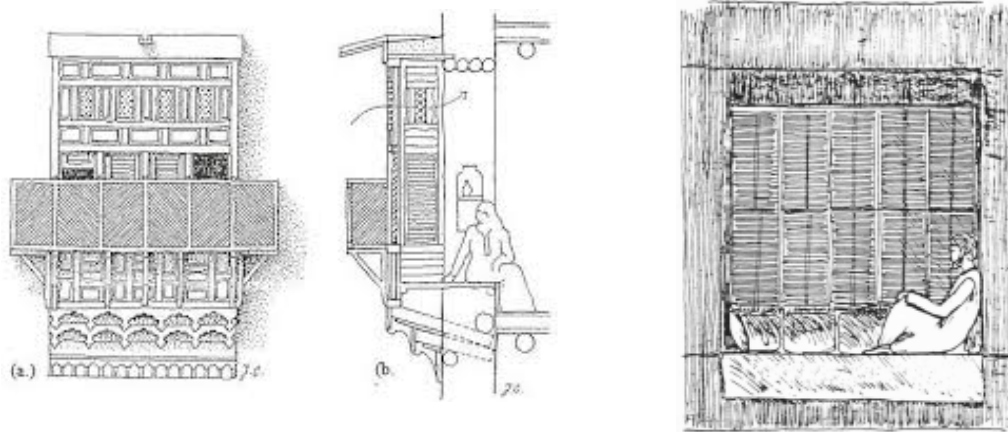


Figure 55: Roshan allowing privacy and connection with the outer world. Source: (Al-Lyaly, 1990, pp. 76, 149).

Alexander had a certain format for presenting his patterns. First, a picture of an archetypical example of the pattern. Second, a statement that explains the context of the pattern and how this pattern can help in completing larger patterns. Third, a problem statement explaining the core problem. Fourth, the body paragraph made up of research of the problem, its necessity and, when possible, showing different ways the pattern may occur. Fifth, a statement in the form of an instruction. Sixth, a solution in the form of a diagram. Last, a paragraph with a number of smaller patterns that help to complete this pattern. Refer to [chapter three](#) for examples of patterns found in the historical city of Jeddah.

Alexander (1979) noted:

“By hard work, it is possible to discover many patterns which are deep, and which can help to bring a building or a town to life. They vary from culture to culture; sometimes they are very different, sometimes there are versions of the same pattern, slightly different, in different cultures. But it is possible to discover them, and to write them down so that they can be shared”.

(Alexander, 1979, pp. 275–276)

From the previous statement and according to the fieldwork of my case study, patterns do differ from one culture to another and, as stated by Alexander, sometimes there are slightly different versions of the same pattern in different cultures. If we look at the last given example, we find that *roshan*, one of the key elements in old Jeddah, is also found or described by Alexander in his book *A Pattern Language* under the name “bay windows”. In agreement with Alexander, some of the discovered patterns in old Jeddah were described in his book from different cultures under different names, yet carry the same concept of our culture. This is further illustrated in Part II, chapter four of this thesis.



Figure 56: Bay window, *roshan*, is big enough to accommodate more than one person. Used for socialising, siesta and viewing the outdoors. As Alexander claims, ‘sometimes there are versions of the same pattern, slightly different in different cultures. Top right, Baeshen House. Other pictures, Jamjoom House. Taken by author, February 2020.

## The Structure of a Language

After discovering how to find patterns in building and towns it is now possible to form a language. In *The Timeless Way of Building*, each pattern is organised according to a scale from the largest to the smallest (town, building, construction). The larger pattern requires medium patterns and the medium patterns require smaller patterns to complete the larger ones. From that, we can conclude the importance of the relationship in Alexander's theory and that the patterns are not isolated but are reinforced by other patterns to help complete each other, and "it is the network of these connections between patterns which creates the language" (Alexander, 1979, p. 313).

[Figure 57](#) demonstrates the network of patterns which create the language. Each node is equivalent to a pattern. The pattern's "nodes" are connected to each other to create a framework. Just like a language, there are certain rules to these connections in order to create a cohesive arrangement of higher-level pattern.

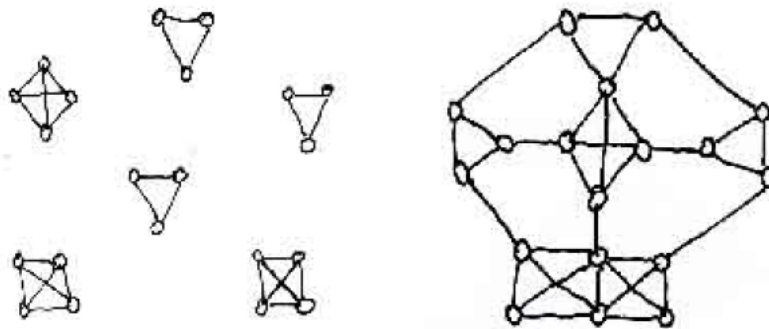


Figure 57: Creating a higher-level pattern through connections. Source: (Salingaros, 2000, p. 155).

We can view the world as a network of different patterns, each linked to other patterns. Culture plays an important role in defining the language of patterns and their relationship to each other. Because of that, we find many successful towns and buildings in many different countries.

[Figure 60](#) illustrates the relationship between patterns and how they influence each other in order to create a structure. In the left column, we see the description of each pattern using elements with the same sequence in the pattern language book that was used by Alexander and his team. The other columns exemplify the large patterns. Each large pattern is made up of many medium and small patterns that are all connected. Each pattern is connected to a random number of other patterns which establishes the network. For example, Pattern A is a large-scale pattern which is made up of many other small-scale patterns. In our case, it is made up of Pattern F, Pattern G, Pattern H, keeping in mind that every small pattern below pattern A is also connected to other medium and/or smaller patterns, and so on.

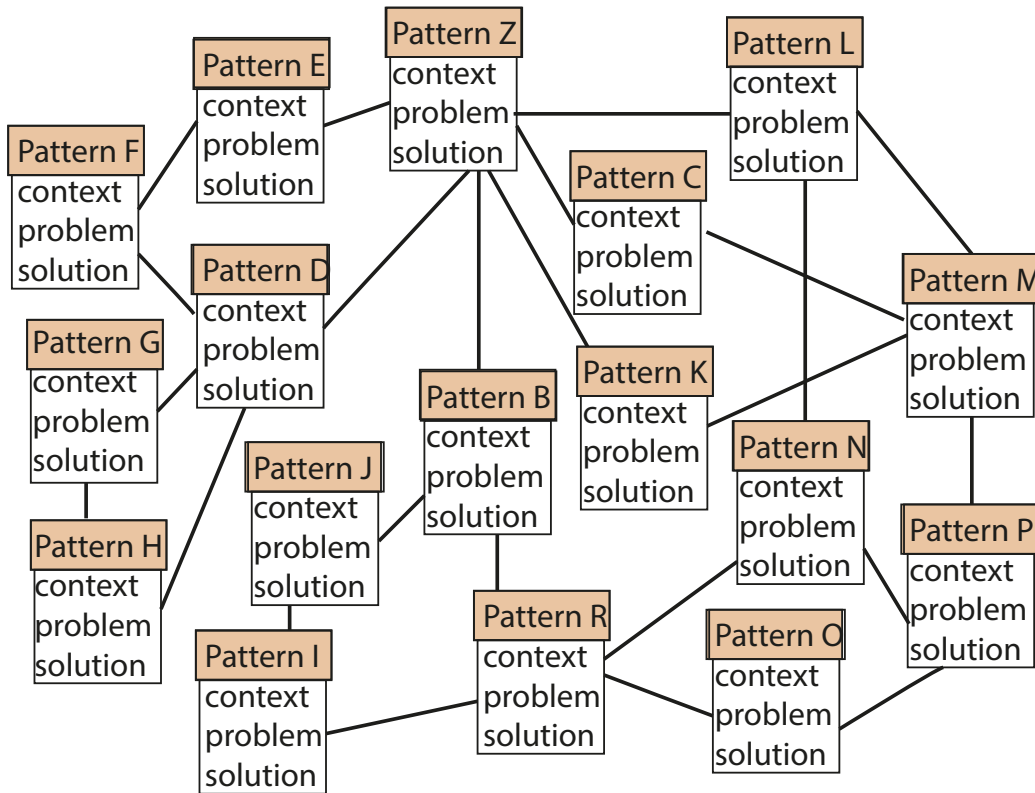


Figure 58: Shows how patterns are connected to each other to create other patterns. Source: (Salingaros, 2000, p.155) edited and redrawn by author.

Pattern Language:	Pattern A	Pattern B	Pattern C	Pattern D	.....
Pattern Name					
Picture					
Context					
Problem					
Problem Body					
Solution					
Diagram					
linking Patterns					

Figure 59: Shows how Alexander classifies and orders patterns. Source: (Salingaros, 2000, p.155). Edited and redrawn by author.



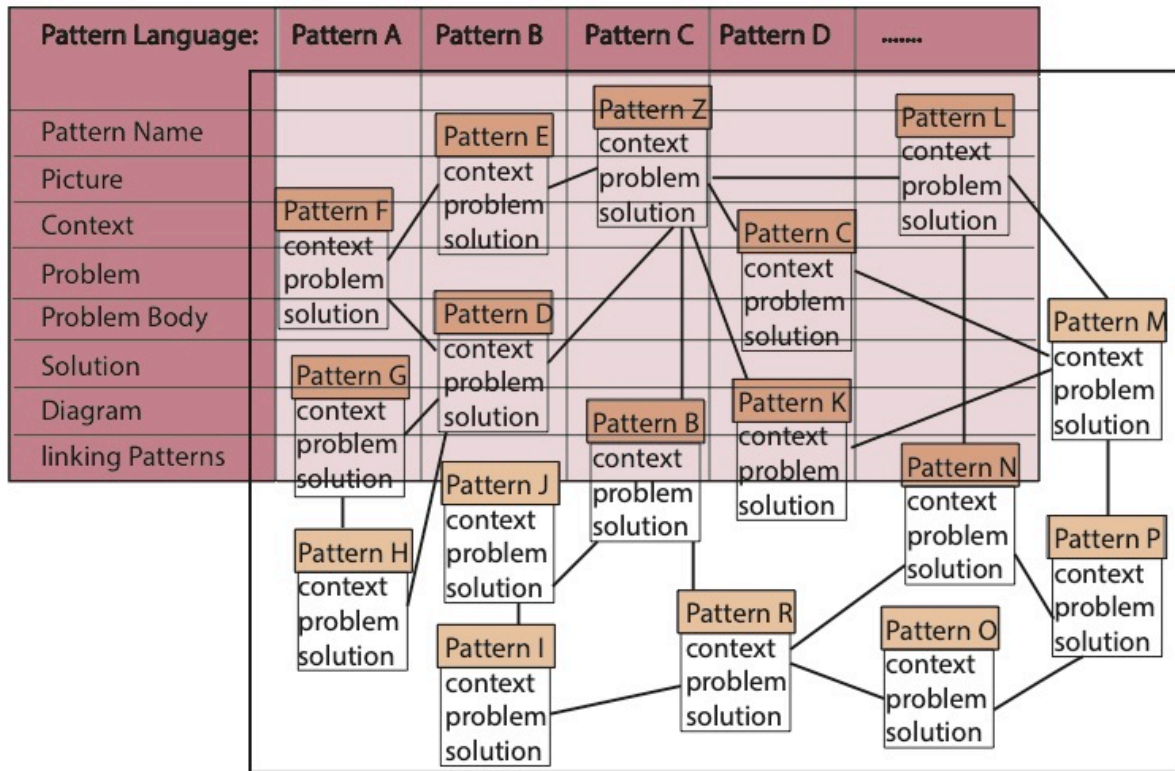


Figure 60: Pattern language network. Source: (Leitner, 2016, p. 23). Edited and redrawn by author.

## Critics of the Pattern Language

The work of Christopher Alexander and his team in *A Pattern Language* was opposed by many critics in different periods from different perspectives. It was questioned whether one can consider it as a theory. How would such a way of thinking adapt to our modern era? And many more disagreements. As Dovey (1990) argues, “the fundamental significance of the pattern is hardly appreciated. Many people still think of it as a catalogue of personal performance, which is a total misconception”.

In *Enclosing Behaviour*, Robert Bechtel (1977, p. vii) argues that “there is no such thing as the design of space or spaces. Behaviour, not space, is enclosed by architecture”. He states that many architects in the 1960 and 70s, including Alexander, investigated the relationship of human behaviour to space. He claims that the work of Alexander in *A Pattern Language* is based on making the traditional design more organised which will not add to the innovation of architecture in any way. Therefore, he finds that the work of Alexander could not be considered a theory but a potential theory.

Jean Pierre Protzen criticised Christopher Alexander in an article by the name *The Poverty of a Pattern Language* (1980). In his article, Protzen disagrees with Alexander’s idea that a single pattern can describe how people would perceive and value design.

He finds that the patterns can't solve problems according to preferences, or adapt to local conditions, as he finds the patterns so detailed in solution and in the form of instructions which gives the user no choices. Furthermore, because the patterns are not isolated entities and all are connected to many other patterns, larger and smaller, when trying to follow the instructions of one pattern, the pattern must be imbedded to other patterns connected to it.

Another point that Protzen argues in his article is that Alexander is too romantic as his archetypal examples of patterns states this point of view as they show medieval towns, English cottages, swiss farmhouses, paintings by the French painter Bonnard etc...

In his article *Christopher Alexander and the Pattern Language*, Gelernter (1983) had a similar opinion to Bechtel, where he argues that such a way of thinking forces the design of a pre-industrial society in a modern era, taking Alexander's patterns as it attempts to ignore many factors in the modern society such as the methods of building.

The German critic Rolf Gruber (1987, p.65) criticises Alexander in "Abschied von der Postmoderne: Beiträge zur Überwindung der Orientierungskrise". He believes that it is not enough to focus on the "human environment". He condemns Alexander "by claiming that his work is limited to wishful thinking for a harmonious whole depending and focusing on the connection of space and restrict patterns of action while neglecting the phenomena of people's relationship or connection to each other which would give more depth to the patterns". Additionally, he finds that Alexander's understanding of everyday life is limited to the conflict-free world that he labels as "ideal architecture laboratory".

The architect Geoffrey Broadbent in *Emerging Concepts in Urban Space Design* questions some of the patterns when it comes to applying them to other cultures, climates, and social conditions. He notes, "Other must be taken with a pinch of salt nor can these, or any other patterns, be applied in all cultures, all climates, all social conditions" (Broadbent, 1990, p. 290). This criticism reveals that these patterns were thought of in certain conditions for certain cultures, however, I believe one can view them and interpret them as a methodology that can be adapted in different environments, just as in the case study of this thesis. Furthermore, Alexander states in *A pattern language* (1977, p. xvi) that, "The Timeless Way of Building says that every society that is alive and whole, will have its own unique distinct pattern language", this simply means that the patterns differ from one culture to another.

Kimberly Dovey wrote an article named *The Pattern Language and its Enemies* in which he criticises Alexander on different level, for example, in the use of the phrase "empirical, quasi-empirical research of individual patterns, and hypothesis of science". He explains the meaning of empirical according to Webster's New World College Dictionary, "based on experiment and observations". Furthermore, empirical also means "based on practical experience without references to scientific principles". Dovey notes that "the relationship with empirical science is more by analogy than inclusion" (Dovey, 1990, p. 3). This echoes Protzen who argued that "the patterns have a low empirical content in the scientific sense and are mostly not falsifiable".

Alexander went one step further with his thoughts as he believed the physical form of buildings alone cannot serve or create a stimulating urban fabric. One must search for underlying principles with abstract relations. He believed that people have physical and emotional needs which should be fulfilled and met by their built environment which, at that time, was mostly neglected. Many theorists, such as Rossi, looked at spatial configuration while ignoring the users of the building and the in-between space.

The distinction of his theory lies in his experiment to connect the social with the physical aspect of the environment through the attempt to relate the patterns of events, behaviours and human experience to geometrical patterns which creates a compelling picture of a living city. Mark Gelernter (1983, p.17-21. Cited from Elsheshtawy, 2011, p.398), an architect and historian, “claims that a number of researches have attempted to link sociology and psychology draw very vogue conclusion when it comes to architectural forms whereas Alexander’s research begins with real and successful places and then he attempts explore the subtle connection between the geometry forms and the activity it supports”. When we understand the underlying thoughts behind his work, one can start to appreciate *A Pattern Language*.

In line with the above, one can consider Alexander’s work in *A Pattern Language* as a theory since there is a profound concept behind it linked to empirical reality where he combines anthropological studies with system analysis and linguistics. Moreover, Elsheshtawy (2001, p. 398) also notes that it can be called a design theory because it describes a mechanism by which architects create design, since Alexander expressed a vision of what the built world should look like in *The Timeless Way of Building* making it a normative theory. Finally, he also says “it is a scientific theory since it poses contacts- patterns- which are tested and, thus, could be refuted through empirical observation”.

I find the theory of Alexander useful, and taking the patterns as a methodology makes sense if we are trying to attain social sustainable urban fabric that addresses physical and emotional needs in the built environment through a highly connected structure.

## Alexander's intellectual roots (potential source of his idea and concept)

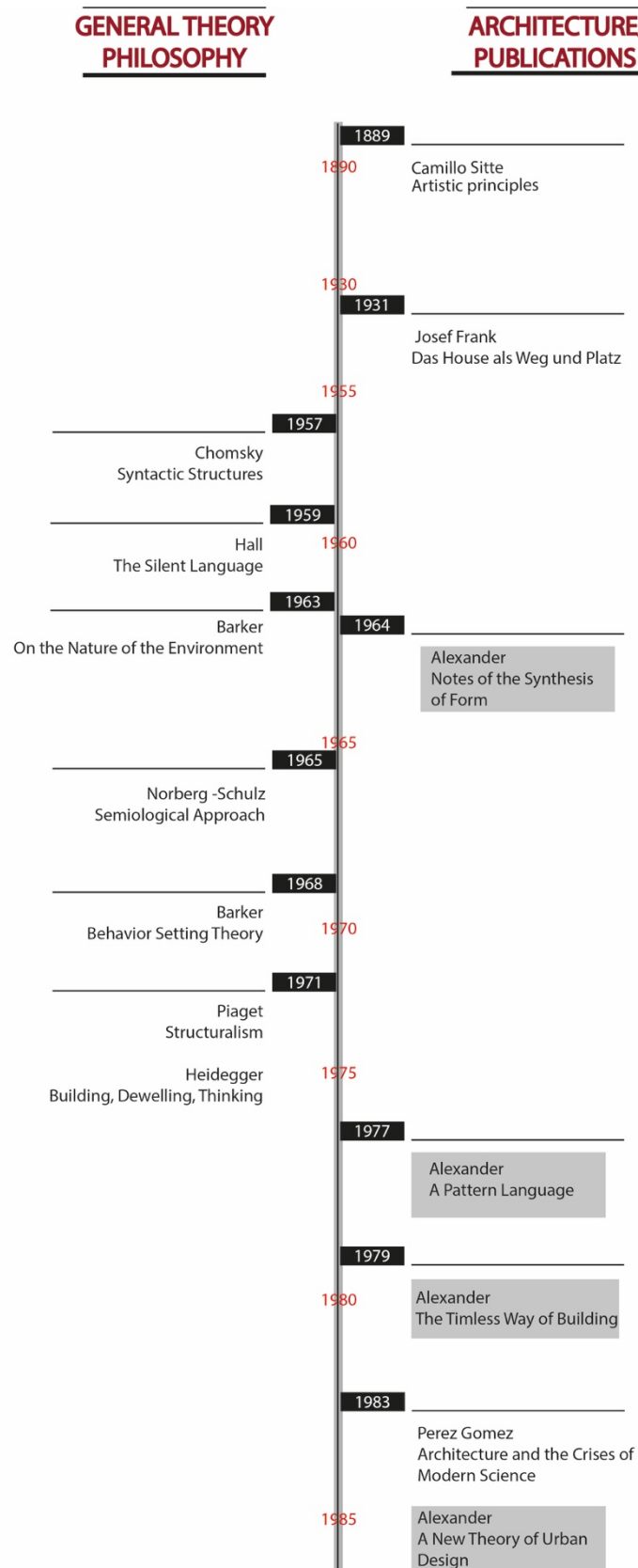


Figure 61: The origin of Alexander's theory. Source: (Elsheshtawy, 2001, p. 399). Edited and redrawn by author.

The 1960s is a decade in which the architecture was rarely loved and frequently criticised and attacked. There was a huge dissatisfaction with the quality of the built environment. It is that time that theory Christopher Alexander's theory emerged. In that period, many people were seeking solutions to help solve their problems. Architects were viewed as the reason behind these problems; therefore, solutions were looked for outside the discipline of architecture.

In order to understand the intellectual roots of the origin of Christopher Alexander's theory, it is important to look at theories that took place before or around the same period as his. [Figure 61](#) indicates Alexander's significant theories and other theories that took place around the same period and earlier that could have influenced his work in one way or another.

Referring to [Figure 61](#), Alexander's book *Notes on the Synthesis of Form* was published after two other major publications; first, Chomsky who published *The Syntactic Structure* in 1957, establishing the independence of syntax, the study of the sentence structure. His aim was to show that there are infinite ways to create a structure in any language. Second, E. T. Hall published *The Silent language* in 1959 exploring cross-cultural context of communication. Both theories deal with linguistic approaches and propose that languages encompass deep structure which could be analysed. Christopher Alexander (1979) talks about languages such as English in *The Timeless Way of Building* where he explains that ordinary languages have a certain system which allows users to create sentences that are made of an infinite variety of one-dimensional combinations of words. First, by telling us which arrangement of words makes sense in a given situation and which don't. Moreover, it clarifies ways for creating valid sentences through the understanding of arrangement of words and, therefore, it reduces the possible arrangements of words. Second, there is always a clear system to produce sentences. He refers to it as "generative system which allows us to generate sentences that are appropriate to any given situation".

He looks at *A Pattern Language* "as a system which allows its users to create a dimensional combination of patterns which we call buildings, gardens, and towns" (Alexander, 1979. p 186). By first determining a limited number of arrangements of spaces that give significant meaning to each culture, pattern language helps to generate cohesive arrangements of space. Hence, he sees the pattern language just like ordinary languages, generative where it not only shows us rules of arrangements but it shows us how to construct arrangements.

"...both ordinary languages and pattern languages are finite combinatory systems which allow us to create an infinite variety of unique combinations, appropriate to different circumstances, at will".

(Alexander, 1979, p. 187)

Josef Frank an architect from Vienna wrote an essay in 1931 called *Das Haus als Weg und Platz* (*The House as a Path and Place*) where he uses Sitte's principles in the private dominion. His work matches the work of Alexander and his team in *A Pattern Language*, and *The Timeless way of Building* as they evolved from Sitte's pattern principles, first published in 1889, *Artistic Principles*, where he focuses on the evolution of ancient towns. "He searches for an inner structure, a hidden pattern, that allows for unending change in response to the demand of historic time...these patterns of compositional elements analogue to those in tiles and textiles derives meaning from the relationship and contiguity of such elements" (Collins, 1986, p. 14–16). For both Alexander and Sitte, "no pattern is an isolated entity. Each pattern can exist only to the extent that it is supported by other patterns that are larger patterns in which it is

embedded, the pattern of the same size around it, and the smaller patterns which are embedded in it” (Alexander, 1977).

Last but not least, the social and behaviour aspects which come from Barker’s behaviour setting theory, Norberg-Schulz’s semiological approach, Piaget’s structuralism, Heidegger’s phenomenology, and Perez-Gomez’s exploration of the role of myth and dream in architecture.

In *Searching for Theory: Christopher Alexander’s Intellectual Roots*, Yasser Elsheshtawy (2011) attempted to link Piaget’s structuralism theory to Alexander’s work. Furthermore, David Seamon (1989), in *Phenomenology and Environment-Behaviour Research*, tries to find a connection between Heidegger and Alexander’s theories. My attempt in this part is to try to enhance his findings and add to them from my point of view and my own understanding. Additionally, there could be other theories that had an impact on Alexander’s work that I look at briefly.

## **Structuralism**

Piaget argues that structuralism involves three main ideas: wholeness, transformation, and self-regulation. According to Piaget, wholeness defines structuralism. He describes wholeness as follows:

“... elements of a structure are subordinated to laws, and it is in terms of these laws that the structure qua whole or system is defined ... These laws confer on the whole as such overall properties distinct from the properties of its elements”.

(Piaget, 1971, p. 7)

This means that “laws” have a primary position in the structure as he sees them as responsible for how the system is formed.

Looking at *The Timeless Way of Building*, there is a strong impact of structuralism in patterns that Alexander talks about and explains in depth. According to Alexander:

“...the fact that our world has a structure, in the simple fact that certain patterns of events – both human and nonhuman – keep repeating, and account, essentially, for much the greater part of the events which happen there... if we hope to understand the life which happens in a building or a town, we must therefore try to understand the structure of the space itself”.

(Alexander, 1979, pp. 69–74)

Moreover, the connection between the patterns plays a vital role in his theory and it is the relationship of patterns that creates the wholeness; “the element itself is not just imbedded in a pattern of relationship, but is itself pattern of relationship, and nothing else” (Alexander, 1979, p. 89), “the individual buildings which you make, will live, or not, according to the depth and wholeness of the language which you use to make them with” (Alexander, 1979, p. 324).

There is a strong similarity between Alexander and Piaget explanation of wholeness of pattern and the relationship between them. In *The Timeless Way of Building*, “each pattern sits at the centre of a similar network of connections, and it is the network of these connections between patterns which creates the language” (Alexander, 1979, p. 313).

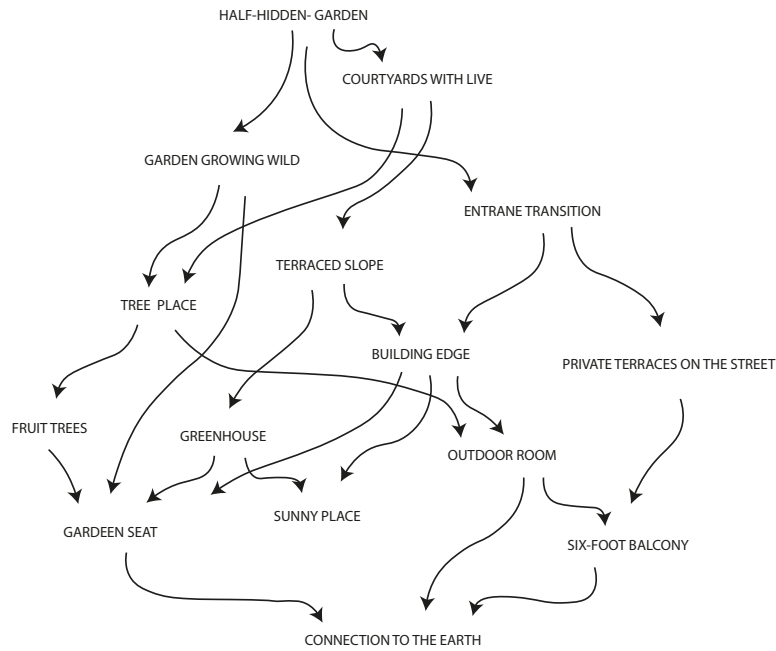


Figure 62: Structure showing patterns connected to each other. Source: (Alexander, 1979, p. 314). Redrawn by author.

The second aspect in Piaget’s structuralism theory is transformation, which is defined as the capability of law governing structures to be themselves structuring; the constant duality of being simultaneously structuring and structured. “All known structures are, without exception, systems of transformation” (Piaget, 1970, p. 11). When looking at Alexander’s theory, we find that patterns combined together result in a new pattern that is higher in scale. This means that the combination of patterns transforms to a new entity. For example, the combination of different patterns such as; tree places, garden wall, trellised walk, hierarchy of open space, building fronts, building edge, all help to create a larger pattern named positive outdoor space.

The third aspect in Piaget’s theory is self-regulation which entails self-maintenance and closure. This is achieved “by application of perfectly explicit rules, these rules being, of course, the very ones that define the structure under consideration. But what is an operation structurally considered? It is a perfect regulation, which has its inverse in the system” (Piaget, 1971, p. 15). By looking at *The Timeless Way of Building*, we find a strong connection to the theory as Alexander explains that each pattern is a rule that helps generate the entities which it defines. Additionally, individual patterns only make sense when they are part of the structure of the network because it helps make them whole. Keeping in mind, being part of a whole does not make the building lose its identity, as each small pattern has its own rules that contribute to completing the larger whole.

### Behaviour Setting Theory

Our physical environment has a great effect on our behaviour in space. Roger Barker developed the behaviour setting theory where he studied behaviour in the natural environment as well as explaining small-scale social systems. He coined the term “behaviour setting” as a “standing pattern of behaviour and milieu, with the milieu circumjacent and synomorphic to the behaviour so that he can account for the relationship between the behaviour that most people reveal in a particular situation and the structural characteristic of that situation.... Barker’s

theory begins with a strong emphasis on spatial and temporal elements and gradually shifts to an emphasis on behaviour” (Popov, Chompalov, 2012, p. 20).

Looking at Alexander’s theory in *A Pattern Language*, there is a strong relationship between places, human activities and experience. Many of his patterns rely on behaviour-determinable settings. Alexander states:

“We must first recognise that what a town or building is, is governed, above all, by what is happening there.... All of our experience there, depends not simply on the physical environment, but on the patterns of events which we experience there ... there is a fundamental inner connection between each pattern of events, and the pattern of space in which it happens”.

(Alexander, 1979, pp. 62, 92)

## **Phenomenology**

In *Phenomenology and Environment-Behaviour Research*, David Seamon looked at Alexander’s work to see its relevance to the theory of phenomenology, which Heidegger is well known for. Seamon claimed that “pattern language” is an implicit phenomenology of the way in which elements of the built environment contribute to a sense of place and dwelling. The aim was to find out whether there is a link or influence between both theories.

In *The Timeless Way of building*, Alexander refers to “the quality without a name” which he believes is the right way of building places. He notes the following:

“There is a central quality which is the root criterion of life and spirit in a man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named... this quality can only come into life in us when it exists within the world that we are part of. We can come alive only to the extent the building and towns we live in are alive. The quality without a name is circular: it exists in us, when it exists in our buildings; and it only exists in buildings when we have it in ourselves”.

(Alexander, 1997, pp. 19, 62)

Seamon argues that there is a connection between Heidegger and Alexander when it comes to dwellings. Heidegger describes the dwelling as an intimate bond between people and place. The previous quote by Alexander echoes Heidegger’s understanding of dwelling in building, dwelling, thinking. Heidegger states:

“When we speak of man and space, it sounds as though man stood on one side and space on the other. Yet space is not something that faces man. It is neither an external object nor an inner experience ... Even when we relate ourselves to those things that are not in our immediate reach, we are staying with the things themselves... we always go through spaces in such a way that we already experience them by staying constantly with near and remote locations and things”.

(Heidegger, 1971, p. 156-157)



Elsheshtawy explains that the “oneness” of humans and space is critical to the whole notion of dwelling. He thinks that it may be what Alexander alluded to in mentioning that the quality without a name is circular and pervades humans and buildings. Alexander states the following:

“The action and the space are indivisible. The action is supported by this kind of space. The space supports this kind of action. The two form a unit, a pattern of events in space”.

(Alexander, 1979, p. 70)

Additionally, Heidegger defines dwelling as “the way in which you are and I am, the manner in which we humans are on earth, is... dwelling. To be a human being means to be on earth as a mortal. It means to dwell” (Heidegger, 1971, p. 146). It is also described as to preserve and care for; and, according to that, buildings have greater meanings in them. A deeper relation rather than being a shelter that does its job, “A person’s whole being hinges on being able to dwell properly” (Elsheshtawy, 2001, p. 401). This compliments Alexander’s theory in *The Timeless way of Building*, where he notes the following:

“Places which have this quality, invites this quality to come to life in us. And when we have this quality in us, we tend to make it come to life in towns and buildings which we help to build... and we must seek it, for our own sakes, in our surroundings, simply in order that we can ourselves come alive”.

(Alexander, 1979, p.53-54)

Lastly, Alexander claims that the quality without a name is best reflected in such vernacular and traditional places. This matches Heidegger’s thinking as he describes a farmhouse in the Black Forest in Germany built two-hundred years ago, which reveals that both are interested in old places. However, Heidegger highlights that the Black Forest farm was just a reference and is not meant in any way that we that we could or should return to constructing such homes. It only exemplifies a dwelling that was built in a certain way. This contrasts with Alexander who looks at patterns as a way of designing archetype.

To conclude, the objective of the previous sections was to exemplify the relationship and possible inspiration between Piaget’s theory of structuralism, behaviour setting theory by Barker, and Alexander’s theories in *The Timeless Way of Building* and *A Pattern Language*. This would prove that Alexander may have been influenced by previous theorists and theories. Moreover, there could be other influences on Alexander, however, my aim was to give a general idea of some theories that could have had a direct or indirect influence on his work.

To summarise this chapter, “Christopher Alexander’s work has been the most exhaustive exploration of the relationship between people and their spatial settings. His contribution to urban design theory is principally to move away from focus on features and objects, or building and space altogether and concentrate attention instead almost entirely on the relationships between them and the people who interact within” (Chen and Thwaites, 2018, p. 143).

In this chapter the following points were explored

- Alexander claims that the secret is in the invariant core in all cities and towns which give them their quality.
- The phrase “the quality without a name” is used in his book as he believes that there are no words in the English language that describe this quality, which he claims is an objective quality.
- Alexander asserts that the quality is based on the interaction of structure and their users which creates the living city.
- Looking at cultures, we find that towns are defined by a number of elements that create the pattern of events and clarifies the way people live there.
- Alexander notes that spaces don’t create events, nor do they cause them. It is the pattern in people’s minds that causes them to behave the way they do and this pattern is related to culture.
- The relationship of patterns together forms the language that creates the living city.
- According to Alexander’s theory, to identify a pattern there are three rules. First, express a relationship between a certain context. Second, a problem. Third, a solution.
- Patterns are not isolated entities but are reinforced by other patterns to help complete each other.
- Culture plays an important role in defining the language of patterns and their relationship to each other.
- The relationship and possible inspiration between Piaget’s theory of structuralism, Barker’s behaviour setting theory and Alexander’s theories in *The Timeless Way of Building* and *A Pattern Language*.

This chapter sets the methodology of this investigation through the exploration of the theory of *A Pattern Language* and exploring the meaning of patterns. It will help in identifying patterns in the case study of this research.

After exploring Alexander’s theory, the next discussion is regarding the threshold space. Chapter three inspects the concept of threshold which will help to understand the relationship between both spheres and, according to that, the configuration of the city and the quality of urban life at that time. This investigation will help to understand the concept of the ground floor in the area.

# **CHAPTER THREE**

## The Threshold Space

The third chapter of this thesis discusses the threshold space. The difference and the meaning of boundaries, threshold, and threshold space. Christopher Alexander's understanding of threshold is also explored as he has patterns which describe threshold and how it is created. It is vital to define the meaning of threshold as it is the lens which will allow us to understand the urban fabric, the notion of integration between the public and private sphere in the field work case study. The chapter also explores the importance of threshold space in urban configuration, their impact on the environment sustainability and its organisation in Islamic cities.

### **Boundary, Threshold, Threshold Space**

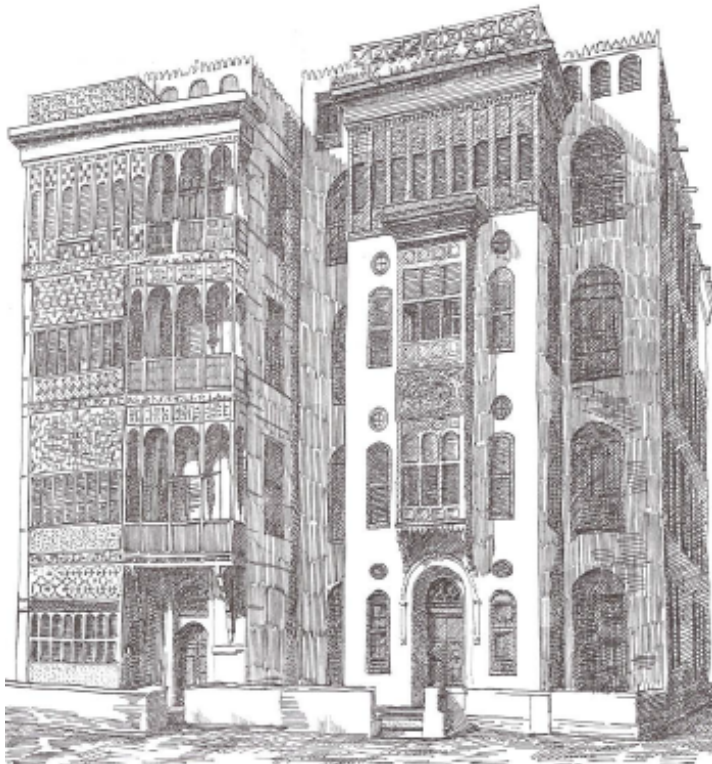


Figure 63: Drawn by Saccardo from a 1960 photograph. Source: (Pesce, 1977 p. 115).

[Figure 63](#) illustrates an example of a house in old Jeddah where the boundary, threshold, and threshold space can be clearly seen.

As we can see, the boundaries of the house are not enclosed, meaning it does not create a closed shell. However, it defines a space that can be accessed through the stairs which can be conceived as a threshold that leads to a threshold space.

This threshold space, locally named *Dakkah*, is used by the owner of the house to socialise with relatives and friends at different times of the day.

This image is an example to show that boundaries, thresholds, and threshold spaces do exist in the context of my case study, Jeddah. In the next section I define each terminology in more detail.

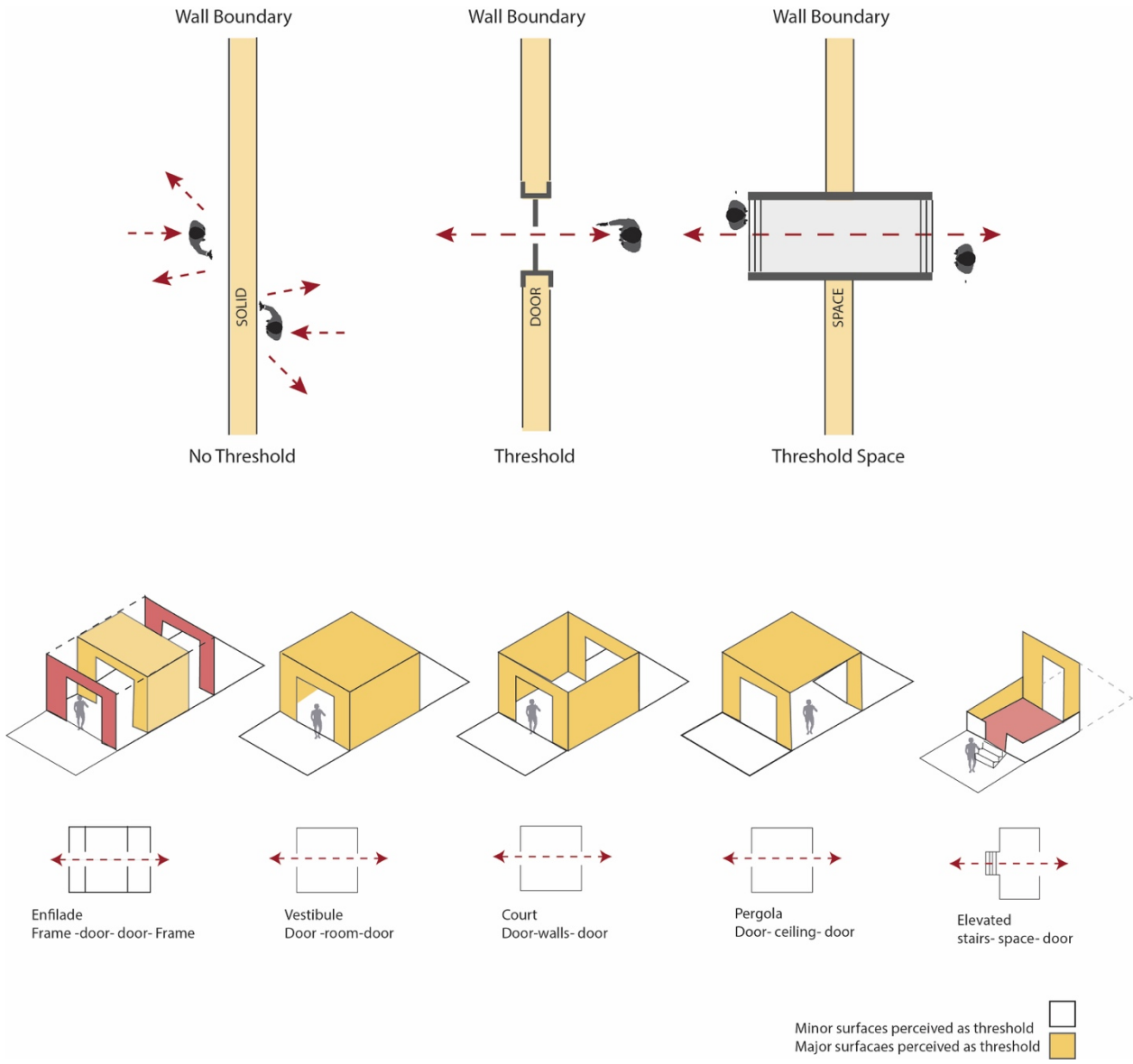


Figure 64: Understanding the difference between threshold and threshold spaces. Source: (Chen, 2016, p.4,5,6). Edited and redrawn by author.

## Boundary (limit, border)

Generally, the term boundary refers to “a real or imaginary line that marks the limits or edges of something and separates it from other things or places as a dividing line” (Oxford Dictionary, accessed 4. May.2019). We use the term national boundary or country boundary to define the limits of a country. Boundaries define the space into two parts or define the limits of an area. In this thesis, boundaries do not relate to geographical understanding; rather, boundaries define a line. The understanding of a boundary as a line or area depends not only on the line but the surrounding context exterior-exterior or interior-exterior.

Boundaries create spaces that can be experienced and entered. These boundaries can form extremely closed bodies with clear limited volumes, which can be found in architecture in different scales from a large urban square to a room in a house. A space, on the other hand, may exist as an open spatial body where boundaries do not form a closed volume. There are different degrees for the enclosure which forms the space and gives it certain qualities. When defining a space, a boundary can be expressed in different ways such as vertical columns, beams, short walls, long walls, pierced walls, roofs, and fully contained space with four walls. You can take the space gradually from a more open space to a more defined space. Each would give a different experience to the user. These characteristics are illustrated in detail in Ching’s (2014) book *Architecture Form, Space, & Order*.

To sum up, I agree with von Meiss’ (2014, pp. 101–102) definition of boundary in his book *Elements of Architecture: From Form to Space*, where he explains that “Architectural space is born from the relationship between objects or boundaries and from planes which do not themselves have the character of objects, but which define limits maybe more or less explicit, constitutes continuous surfaces forming an uninterrupted boundary or on the contrary, conciliates only few cues ‘for example only four columns’ between which the observer establishes relationship, enabling him to interpret an implicit limit”.

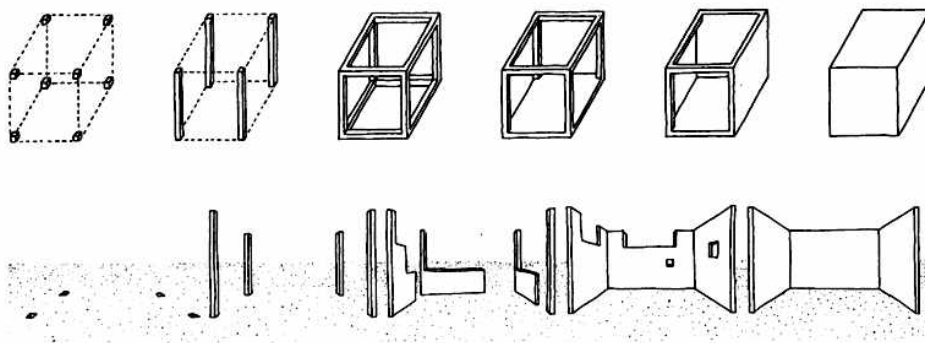


Figure 65: From implicit to explicit space, as defined by von Meiss. The notion of “imaginary space boundary” supports these implicit spaces.

## Threshold

Generally, the term threshold refers to a doorsill. The Oxford dictionary describes it as following “It is a strip of wood or stone forming the bottom of a doorway and crossed when entering a house or a room; a point of entry or beginning, the level at which one starts to feel or react to something”.

It is a structural element which is the lower jamb of the door that helps seal the entrance and the house from harsh climates such as wind, dust, and rain. This structural element exists in many cultures for different reasons and has different symbolic meanings.

In some cultures, such as in China, the door sill is raised up to 20 cm to stop animals from accessing the house, to keep the door open for a connection between the inside and the outside, and it reflects the owner’s status and wealth; “the higher the status you were in, the higher the door sill” (Data, 1970 Blog). Moreover, door sills are thought to protect from evil spirits. “In Jeddah these raised sills are there to support the door, prevent water from leaking, prevent insects and dust from entering to the house. These sills are called *Skafa*” (Ibn Alrami, 1988, p. 184).

In the *Hijazi* tradition, the threshold also played an important role as a physical transitional mark in a society that segregates between two genders.

There are certain social cultural behaviour codes that are related to threshold. For example, when a new house is built, there are some traditions that are carried out to the threshold area to bless the entrance. As Jomah (1992, p. 173) states “the important ritual then, would be the demarcation most of the threshold and front door when the first course of stones was laid, an amount of five riyals was buried under the threshold to make it *atabah mabrukah* a blessed-entrance”.

Just like other religions and cultures, the *Hijazi*’s strongly believe in omen, *fal*, the evil eye of other people, and ghosts and spirits. This belief determines a certain way of acting when with others and socialising by the use of certain words such as *Mashala* meaning everything in under God’s will. Moreover, people believe in evil eyes in many things, especially when it comes to wealth, marriage, number of children, and health. Therefore, it is expected to use the word “*Mashala*” when you see something you like or when entering a house, which automatically takes place on the threshold as the threshold is the transitional point between the inside and the outside. “The threshold tends to be the place where any jealous spells or ‘healthy blessings’ could take place ‘where household objects or family relations could become observable” (Jomah, 1992, p. 180).

In the Islamic world the threshold took its importance as a dividing element between the two realms; the individual private world inside the house and the public sphere outside the house. Therefore, we see certain patterns of behaviour that should be followed when crossing the threshold from one state to another. Moreover, visitors cross the threshold of the house using their right feet and leave using the left as it shows their good will. This custom is also used when entering a mosque as it is related to religious beliefs, respect, and habits that are done by the prophet when crossing the threshold of the mosque.

A well-known phrase that is used a lot in the *Hijazi* culture when a guest leaves a *Hijazi* house is “*Allah yedjalha atabah khadra*” or “*mabriikah*”, meaning “may God make it a green, or blessed, threshold”. The reason behind this is to prevent the visitor’s evil eye. The threshold

here refers to the whole house. Jomah notes that, “the term 'green' threshold was only symbolic and was rarely manifested on the threshold. Hardly any threshold in *Hedjaz* houses were painted green, instead the colour was applied to doors, door lintels or free-standing arches marking house entrances” (Jomah,1992, p.181), as seen in [Figure 66](#).



Figure 66: Different ways of representing the green colour in the historical city of Jeddah to symbolise the green threshold. Source: taken by author, 2019.

According to Till Boettger (2012, p. 47), there is a strong argument that “a threshold can also be a space-defining, independent element that places a particular focus on the act of crossing from one space to another. The materiality of the threshold is a deciding factor as to the context in which the threshold is perceived”. We can take from that statement that the elements of space definition can describe any independent element that concentrates on the act of crossing from one area to another.

In the house typology of Jeddah, the threshold is not only defined as a doorsill but it includes several other architectural elements that lead to the main door and doorsill of the house, for example the steps which differ in height according to the owner’s status and wealth, the platform/terrace, *dakkah*, in front of the house where the owner and his guests generally gather at certain times of the day, and benches, *mirkaz*, in front of the house which are located on the terrace of the house or, in certain cases, in the absence of a terrace, next to the main door. These architectural elements are spaces with different natures that fall under different regulations. As explained previously, it is the in-between zone that divides the public from the private and at the same time joins both to create the unique experience of each space and place.

Furthermore, a threshold could be identified or looked at as a gap in a boundary to access or transition from one space to another. It could be viewed as part of the boundary and an opening in it. “Thresholds serve to delineate one place from another, as well as to connect them – places that have a mutual relationship of discontinuity, opposition or complementary – and to constitute a transition from one to the other. Thresholds are always linked to the idea of crossing” (Ferrier, Marchetti, imay, Mompean, 2018, p. 7). Furthermore, it could also be



looked at as a preceding space to another space as Boettger (2014, p. 47) notes that “they are preface to a space and create not only the transition but also the space itself. In terms of defining space, thresholds are both boundary and transition. That means they thrive on the ambiguity of both opening and closing off spaces”.

This echoes with Ferrier, Marchetti, Imai, Mompean, as they state that in order to have a threshold, we must have two contiguous spaces that are the object of a distinction. “The rich history of thresholds is linked to the fact that people believed for a long time that there existed spaces of different natures and statuses, governed by different laws” (Ferrier, Marchetti, Imai, Mompean, 2018, p. 9).

## **Threshold Space**

Threshold space is a term that was used in different disciplines to describe different transitional conditions from various perspectives. Therefore, it has developed a countless number of different meanings. It is not restricted to the shell of the building with its openings from entrance and window, it is more than that. It connects the inside with the outside and it's a fundamental feature of any special arrangement in architecture. Below is a selection of these definitions.

In ethnography, Arnold van Gennep (1960, p. 18) made one of the first studies on cultural rites in which he describes the transitional moment in ritual where one state is left and other is entered. Victor Turner (1977, p. 95) further propounds that thresholds “are neither here nor there; they are betwixt and between the positions assigned and arrayed by law, custom, convention, and ceremonial”.

In urbanism, Kevin Lynch talks about edges in *The Image of the City*, which are equal to threshold. For him, these can simultaneously divide and unite creating various boundaries. He notes the following, “many edges are uniting seams, rather than isolating barriers” (Lynch, 1960, p. 65).

In architecture, Christopher Alexander argues that, “while people are on the street, they adapt a style of ‘street behaviour’. When they come into a house, they naturally want to get rid of this street behaviour and settle down completely into the more intimate spirit appropriate to a house. But it seems likely that they cannot do this unless there is a transition from one to the other which helps them to lose the street behaviour. The transition must, effect, destroy the momentum of the closedness, tension and ‘distance’ which are appropriate to street behaviour, before people can relax completely” (Alexander, 1977, p. 549). Upon that, we understand the significance of creating an in between space to allow a gradual movement and change between two heterogeneous spheres with different qualities and characteristics and combining two different functions which allows the change of experience to take place in a gradual manner, such space is called threshold space. This is vital in this thesis as Alexander looked at many threshold patterns in his book *A Pattern Language* where he calls these transitional spaces “breathing spaces”.

The Dutch architect Herman Hertzberger remarks about the transition of space, using the term “threshold”. He says that, “the threshold provides the key to the transition and connection between areas with divergent territorial claims and, as a place in its own right, it constitutes, essentially, the special condition for the meeting and dialogue between areas of different orders” (Hertzberger, 1991, p. 32).

The Dutch architect Aldo van Eyck Coined the term ‘in- between’. According to Van Eyck (1968, pp.96-105, cited from Laiprakobsup, 2007, p.1), the in-between is understood as “the architectural reciprocity reconciling between differences: the inside and the outside, one space and another, an articulation between spaces with a transitional realm. It induces simultaneous awareness and associative meanings at once with respect to place and occasion, providing twin-phenomena”. This means that the idea of separating place according to different functions was replaced with the idea of integrating spaces. To him the in-between space belongs to two different zones at the same time, its aim is to blur the separation between the interior and the exterior.

Also, for the architect William Kleinsasser (1981, p. 92) the in-betweens are considered as spaces with potential, however, undesignated spaces “that can develop into places responsive to two or more sets of conditions at the same time”.

According to Boettger (2014, p.49) “threshold space is a compound term. The word “threshold” is the transition from one part to another. Threshold spaces thrive on announcing the upcoming spatial experience; in other words, such space exists in the experience of moving on. “Space” means architectural space, which is determined by an individual’s physical experience in motion and perception”.

Threshold spaces consist of threshold combined with space elements. These elements could be one or more spaces joined together. Together, they create a unique spatial perception. “The process of perceiving space can be defined as a form of absorbing and ordering the information gained whilst experiencing and interacting with the space” (RA, 2014, cited in Vasilski, 2016, p. 62).

Threshold spaces preface main space or functional spaces, they can be outside the targeted space, act as a bridge between two spaces, an in-between space as a breathing space, or an inside space. This is further illustrated in the case study of the historical city of Jeddah in the coming chapters.

The use of different materials, form, and orientation can affect the atmosphere of the threshold by giving it more attention or, in contrast, make them unclear, mask them, or vanish them. In order for the threshold to be fully experienced, a change in the atmosphere is significant.

“The manner in which people enter space is in a constant state of flux. Various cultures develop threshold rituals based on beliefs and tradition, as a result, accessibility and the demarcation of boundaries are variable” (Boettger, 2014, p. 50).

In Islamic culture, thresholds were defined and controlled by *Urf*, which, played an important role in shaping Islamic cities including Jeddah, Saudi Arabia. “Those were generally principles and could also be viewed as common *Urf* guidelines, i.e. *Urf* practice which is common to most communities and regions. They were followed in most Islamic cities and tended to generate the similarities we find common amongst those cities. Whereas localized *Urf* practices were distinct to a specific urban centre or to a group of settlements within one region. Those localized practices helped to produce the distinctiveness and thus micro characteristics of each city or settlement” (Hakim, 1994, p. 115). From that, we can understand the differences we see between Islamic cities where the threshold differs from area to area based on the local understanding of *Urf*.

Ferrier (2018, p. 15) noted that “the threshold refers to the experience of a transition where, most of the time, a transformation of the self takes place. It is for this reason that we find thresholds in numerous rituals, both sacred and profane”.

### **The Importance of Threshold**

The city is a place for interaction, communication, and coexistence with others. In accordance, buildings are designed in a way that will enhance the urban configuration and the public realm of the city to contribute to urban life. In order to attain this goal, there has to be an interaction between the public spaces and the residential units (the public and private realm).

Madanipur (2003, p. 121) states that, “the configuration of a city and the quality of urban life are largely influenced by the way this public and private distinction is made and how we transition between the two unique spaces, by creating a flexible and elaborated boundary between the two realms, urbanism can be enriched”.

When looking at historical cities in general, one can notice that transitional spaces are experienced and observed in our everyday existence through distinctive elements that allow a degree of connection between two different domains. Such elements are doors, steps, balconies, windows, canopies, gates, and terraces. These elements are part of the outer layer that belongs to the house, yet affects and enhances the configuration and the image of the city by creating various layers of semi-public (spaces used by public but have a private character to them such as narrow alleys, and cul-de-sac) and semi-private (spaces with controlled access such as *dahlia*) that we experience from the public street to the private home. All this contributes to the way we experience the city.

This transitional space is usually referred to as a threshold that bridges the gap between the interior and the exterior. They usually vary in urban scale and help ease architectural relationships with the surrounding environment to reduce conflict. As explained previously, they are found in many cultures, if not all, and in different eras to regulate the movements and express one’s relationship with space.

Thresholds create atmosphere that affects the emotional condition, behaviours, experience, and creates social and cultural communities which have an effect on and impact environmental sustainability.

### **Organization of the Threshold as an Urban Design Concept in the Islamic Cities**

In the Islamic city, threshold spaces are used to define three spaces: the inner courtyard, the space in front of or around the building, and in some cases an internal space such as reception area, *dahliz*. While most Islamic cities are made up of a low rise, courtyard housing typology, Jeddah features a very compact multi-story “town-house” typology. In Jeddah, threshold spaces only define two spaces; the *dahliz* and the space in front of and around the building. These spaces had different applications in expressing the threshold. When we look at different Islamic cities to understand the organisation of the thresholds in the urban context we can find many common denominators, “the market, trading hall, quarters, religious structures, city edges, squares, and buildings along the water edges are all examples of the wider context which were found in nearly every Islamic city” (Nooraddin, 1998, p. 68).

It is known historically that any city located within the boundaries of an Islamic country is considered a Muslim city, regardless of the type of the urban fabric. This structure usually emerges because of different factors such as environmental, climatic, economic, social and cultural factors that differ from one region to another which helps give each city its distinctive character.

To start, it is important to look at city formation during the Islamic period (about 9<sup>th</sup>/10<sup>th</sup> century AD onwards) to understand the organisation of the threshold spaces.

When it comes to composition, Islamic cities went through various and different circumstances. Some cities were central like Baghdad, which was made of three layers; centre, inner ring, and outer ring, where the government controlled the planning and buildings, as illustrated in [Figure 67](#). Others were not central, like the city of Mashhad in Iran, as the city grew spontaneously. The orientalist von Grunebaum (1961, pp. 144-145) suggests that the Islamic cities should be divided into two different kinds. First, spontaneous cities which grew randomly. Second, created cities which were planned.

Most Islamic cities were built spontaneously. They grew without careful planning from the government.

Planned cities are, again, further divided to different kinds.

1. New capitals like Baghdad which was the capital of the Abbasid Caliphate
2. Princes' cities which are created when a governor decides to leave his capital to a new capital like the city of Samarra in Iraq which was built 70 miles north Baghdad.
3. Military cities which are cities created by early Muslims after their conquer, like Kufa, a city in Iraq and Fustat in Egypt.

Scholars consider cities that were established before Islam and were inherited and conquered by Muslims as spontaneous cities, like the city of Damascus although it was a planned and highly ordered city before Islam, however, Muslims changed the planned city to make it look like a spontaneous city with irregular street patterns. Von Grunebaum referred to the orthogonally planned Hellenistic and Roman cities that were not conserved until the Islamic era, stating that the decomposition of the plans began as early as the second century AD. For example, "he refers to Sauvaget's study of Aleppo and Damascus which shows the gradual forsaking of their geometric block during the Byzantine period" (Sauvaget, 1934, pp. 441, 452, cited in Al Hathloul, 1981, p. 22). Both agreed that the radical plans took place during the Islamic era. Van Grunebaum describes the transformation of focus as follows, "the ancient political interest in the community, the classical ideas of city oneness and of the clarity of the architectural 'and administrative' design have been replaced by a dominant religious interest" (von Grunebaum, 1955, p. 149). See [Figure 68](#).

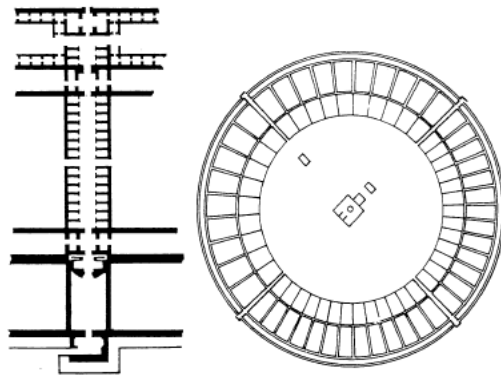


Figure 67: Right, Baghdad city made of three layers; central, inner ring, and outer ring. Left, plan of arcades showing the outer and inner ring. Source: (Lassner, 1980, pp. 190-191).

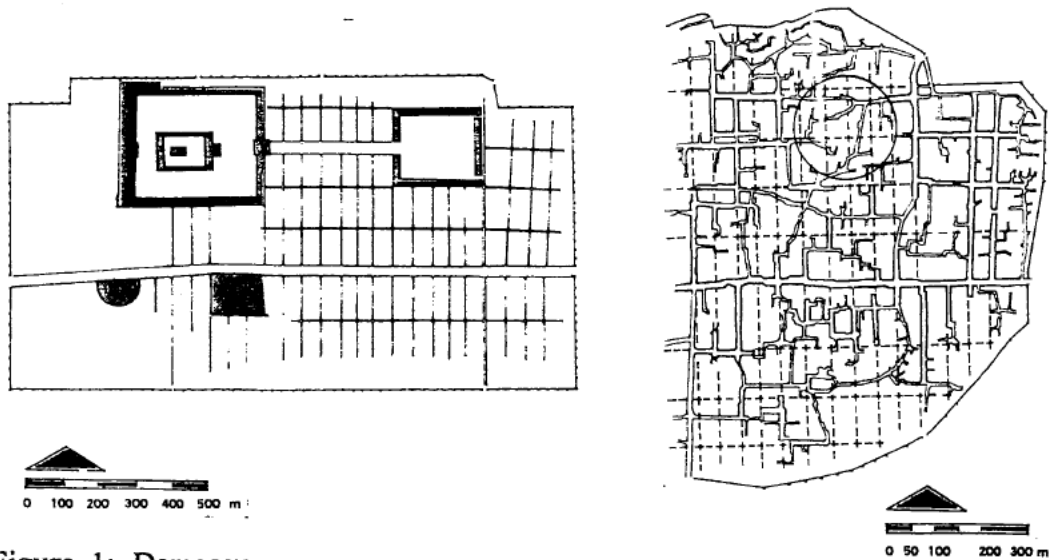


Figure 1: Damascus

Figure 68: Left, original plan of antiquity. Right, part of the original plan transformed during the Muslim era. Source: (Sauvaget, 1947, p. 342, 356).

The style of the Islamic architecture is not linked by similarities but based on the shared customs and patterns of use which shows inner affinities. There are certain denominators that are shared between them such as climate conditions and social factors. Social factors are based on the Islamic religion and people's beliefs. Different design solutions were developed in different regions and cultures. This reflected many things such as climate, habits, customs, and beliefs in a society. As a result, different settings were created with different solutions for designing the threshold space while sharing similar attributes that make the Islamic cities different compared to other civilisations when it comes to urban configuration and understanding of transitional spaces and their uses.

According to that, there is always a relationship between what people believe and what they build. Bianca (2000, p. 22) noted that it's an equation that works in both senses: "man structures his environment, while he is also influenced and confirmed by it in his attitudes as a result of interacting with it over time".

Referring to the first denominator, which is climate or natural law, "and the climatic need for protection from sun, which did not seem to have been considered in the Hellenistic plans, must have played a major role in such transformation" (Al Hathloul, 1981, p. 29). Let us explain briefly how it contributed to the urban configuration of the Islamic city. Islam arose in a desert region where tribal structure with nomadic background existed. The natural environment conditions and the nomadic life of the tribal society imposed a distinctive environment and architectural response, which had an impact on Muslim architecture.

The architecture of the Islamic world had an exemplary response to the living conditions of the social and natural environment. Courtyards demonstrate a good example of the adaptation to the extreme climatic conditions of the occupied regions where cold winter nights and extreme hot days took place. The tight envelope with the protected interior shell "courtyard" gave an isolation and independency from the outer world, which served the social, religious, and environmental conditions. The feature of the enclosed courtyard became omnipresent in Islamic architecture from the private house to the mosque, see [Figure 69](#). It is vital to remark that "the courtyard is a form of construction that have a presence since the humans started to build their houses" (Bridson, 2012, p. 1). It has been used in many parts of the world for thousands of years., therefore, it is a common design feature, particularly in houses, used as a gathering space for the household. Edwards (2006, p. XIV) reveals in his book *Courtyard Housing: Past, Present and Future* that "the courtyards do not belong to one specific period of history; it seems that it has always been around. The idea of courtyards as a plan configuration goes back thousands of years to Neolithic settlements".

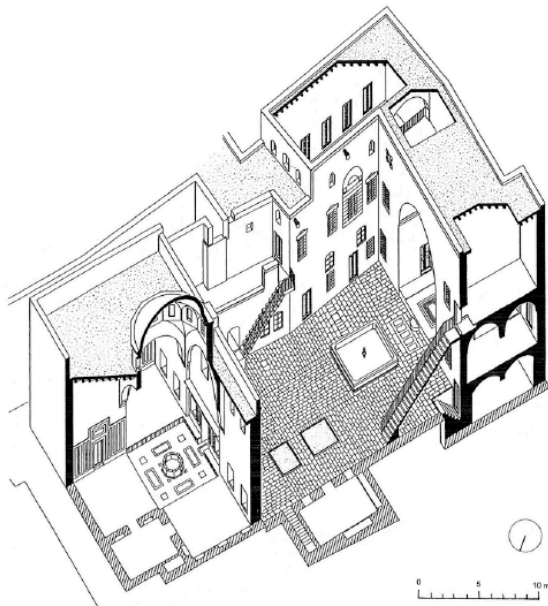


Figure 69: Left: Aleppo (Syria), sectional axonometric of a house showing the courtyard, which was a source of light, air, and privacy (Ragette, 2003, p. 116). Right: Al Shafi Mosque in old Jeddah built in 13 A D showing the courtyard.

The structure of an Islamic city differs from those of other religions as it gave birth to a comprehensive and integrated cultural system by implanting religious practice in the lifestyle of the individual and the society in general. According to Bianca (2000, p. 23), there are no formal architectural concepts in Islam, however, the behaviour of the society based on its beliefs gave birth to a certain matrix of rules when building; “while Islam did not prescribe formal whole way of life by providing a matrix of behavioural archetypes which by necessity generated correlated physical patterns”. According to that, and in order to understand the urban and architectural structure, it is important to briefly tackle the religious and social aspects of Islam.

The Islamic *Sharia* law was established around 200 years after the death of the prophet Mohammed. During that period, Islam expanded beyond the Arabian Peninsula creating the Islamic empire with Baghdad and Damascus being the new capitals for the Islamic world. With the huge empire and to meet the needs, the jurisprudence *Fiqh* was established, which is human understanding of *Sharia*. This contributes to the development of the Islamic law, *Sharia*, and is used to maintain the Islamic identity. The Islamic law is based on the religion; therefore, it was not a secular based practice.

Hence, the special character and the urban layout was influenced by the practice of Islam which also had an effect on the social structure and living habits of the Muslim people.

The five pillars of Islam are mandatory to Islam believers and they create the foundation of Muslims’ lives. This can be good evidence for understanding the social implication of religion and how this could have affected the urban configuration of the Islamic city. The five pillars are: first, *Shahada* or faith and belief in God; second, *salah* or praying five times a day; third, *zakat* or paying tax to benefit the poor; fourth, *Sawm* meaning fasting which takes place in the holy month of Ramadan, and; fifth, *Hajj* or the Pilgrimage to Makka. The practice of these five pillars affected the structure of the social life in the Islamic city as well as the urban and architectural configuration.

For example, believing in God played a role in the design of the houses in old Jeddah. The segregation of genders through first, having more than one main entrance when the house is big or when the family can afford it. Second, segregating or dividing the floors in the house vertically for different genders as the lower floor was mainly for the men and their guests and the upper floors for women, families, women’s relatives and guests.

Looking at the practice of praying, which is done five times a day and on Friday afternoons it is mandatory to practice praying in the mosque, which brings the community together. As a consequence, this had an influence on commercial activities in the city as well as structuring the life of the community. Moreover, in Jeddah the mosques were attached to other architectural structures such as the library, the residence of the *Imam*, water wells and tanks, as well as places where kids can learn to read and write, and memorise the Quran named locally *Katateeb*.

The *Hajj* played a significant role, not only on the commercial level but on the urban and architectural development of the city of Jeddah, as there were certain units in the upper floor of most of the houses to accommodate pilgrims or travellers. The traveller Tamisier stayed in one of these units and described it as follows: “we stayed in a nice house looking on the roofs of neighbouring houses” (Tamisier, 2001, p. 70). Ibn Almojawir (1998, p. 65) said that “most of Jeddah houses have rooms on the upper last floor, and the owner has to pay a tax amount of three dirham yearly” (Ibn al-Mujawir, 1998, p. 65). Moreover, there was a spread of yards locally named *housh* which is a courtyard surrounded by a number of houses or rooms on two

floors in the west side of the city “where the lower floors were used as storages for merchants goods and the upper floors were rented by merchants, pilgrims and travels” (Maghrabi, 1981, p. 34) to spend the night in. On the urban level, the port has been expanded several times to accommodate the large numbers of pilgrims coming by ships.

Formal institutions such as a city hall and the open space linked to it did not exist in the traditional Islamic cities. It is replaced by the Friday mosque, which is considered as the main public building that played different roles besides the religious aspect such as social and political functions. “It was used for meetings, as a school, and a court. When tracing the era of the prophet and the right guided *Caliphas*, the mosque was a place that brings all people together to do different activities, religious and non-religious as long as it does not conflict with it being a praying place” (Khalos, 1998, p. 10). Unlike the European cathedral, the mosque, which is considered as a sacred space, was imbedded in the urban fabric of the city, rarely being monumental. As Bianca (2000, p. 30) noted, “while being the major religious building, it usually remained a polyvalent structure integrated into the urban fabric, with no intention of expressing the power of religious or secular authority”, see [Figure 70](#).

Regarding the *Hijazi* cities, while under the Ottoman control, the Ottomans did not try to show power by building monumental secular or religious buildings in the *Hijaz* area. The reason behind this could be the fear of the negative impact on them from the Islamic world as such buildings could have superiority over the two holy mosques in Makkah and Madinah. Therefore, it was much more convenient for them to work on enlarging the two holy mosques which was done several times.

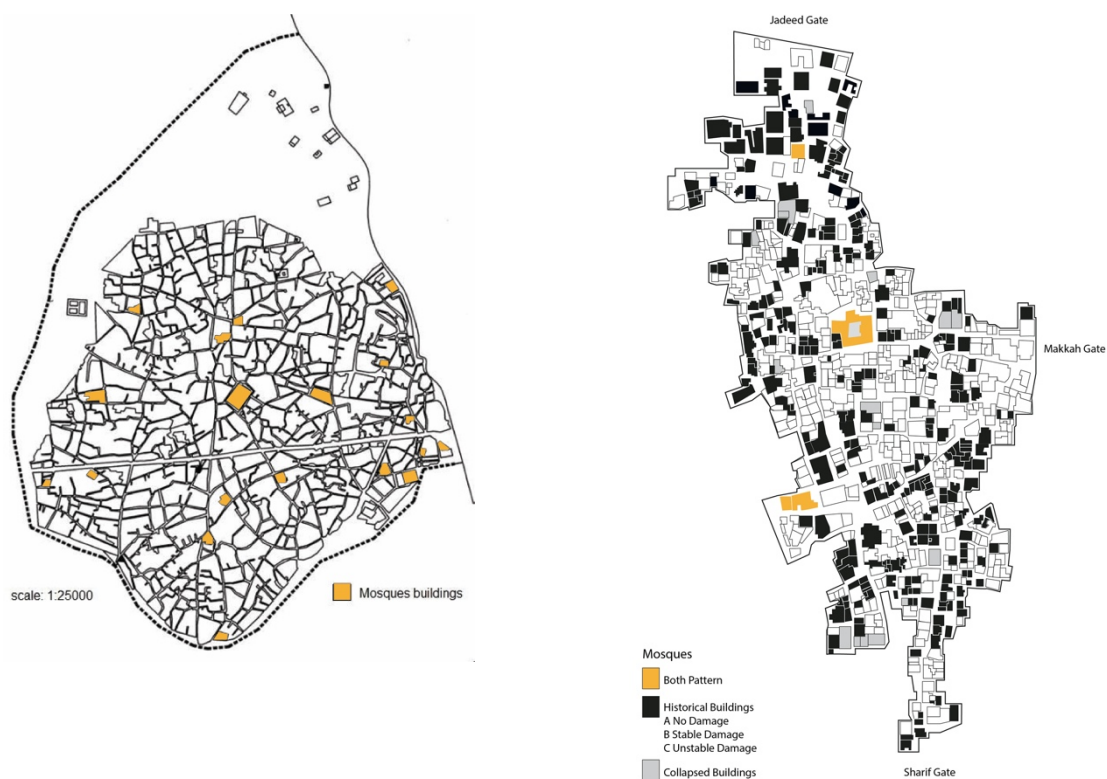


Figure 70: Left, Plan of old Mosul city 1918. Source: (Matloob, Sulaiman, 2014, p.87). Right, Historical Jeddah. Source: drawn by author.



It is important to note that in the Islamic city the notion of sacred spaces refers not only to the mosque, which is the religious building, but also to homes which have a degree of sacredness to them. This is due to Islamic religion which is reflected in people's beliefs and understanding of separation between both genders. Therefore, sacred spaces and mosques are integrated within the whole urban fabric of the Islamic city which makes it unique and different to other civilisations. Bianca (2000, p. 35) states that "the sacred within the Islamic cities does not stand out in concentrated and isolated form but spreads over the urban fabric as a whole".

When looking at the urban configuration of the Islamic city, it is clear that it mostly follows an organic pattern of growth. There is no disruption in the architectural fabric by religious buildings, huge public spaces or major open spaces with outstanding monuments like in European cities. It is made of different layers that take us from the public gradually to the more private by passing by a semi-public and a semi-private layer. This helps to protect the private sacred spaces when needed. The institution of the mosque and surrounding market are considered the public core of the city. Being the sacred space, mosques are defined by gates and threshold spaces where people need to take off their shoes before entering. This transition from secular to sacred space is defined by raising the area with a few steps. However, it is still considered as part of the public sphere in the urban fabric. "As the prayer space has to meet special requirements of cleanliness, it is always neatly defined, and marked by gates and threshold where visitors take off their shoes. The transition from the secular to the sacred spheres, both contained within the same public section of the urban fabric, is accomplished by a few steps, which allows for easy interaction between the mosque and the market" (Bianca, 2000, p. 37).

When looking at the residential districts, it is noticeable that they are completely isolated from the stream of public life. Houses are either so close to each other or built wall-to-wall when the courtyard structure exists which creates the inward focus or core of the dwelling unit that is protected from the outer realm and used for social purposes. In order to move from the public area to the residential units, one has to pass by several hierarchal spaces starting from the public to an increasing degree of privacy. In other words, streets from the public area turn to private access corridors usually ending with a cul-de-sac. This is achieved by alleyways, a sequence of gates and threshold spaces. All this helps to protect the private sphere from the public. In traditional Islamic cities, public street systems linked the main city gates and central markets with accessibility to the private residential areas. Open spaces were connected to certain social and architectural entities. This is because Islam relies on autonomy and different social groups within society. "Since the definition of private territorial identities was so dominant, this led to the absence of representative civic spaces in the western sense, and also to the lack of undefined public open space which, if it ever existed, tended to be neglected or rapidly appropriated for other users" (Bianca, 2000, p. 38). In other words, the civic spaces did not exist mostly because of the importance of privacy and one can see that clearly in the historical city of Jeddah.

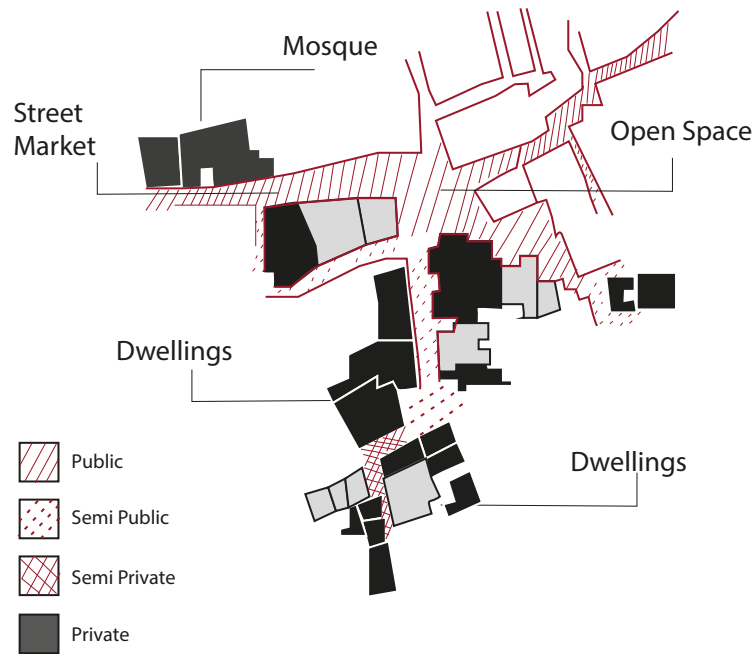


Figure 71: Hierarchy of urban spaces in old Jeddah. Source: Author.

When looking at the residential units of the internal structure, it is noticeable that rooms were not created by mechanical subdivisions of available spaces. The main central room was treated as a canter shell or focal point. The internal circulation is adjusted to the functions and shapes of the main rooms. The central shells are looked at as houses within houses.

Likewise, it is noticeable when looking at the structure of the house and the city that they were both based on gradual movement with differentiation of the interior and the exterior.

Furthermore, the city and house units were created with multiple focal points of a number of centres rather than the typical grid of streets and squares that are more related to the classical European cities. This is described in more depth in the following chapters.

As mentioned previously, in the Islamic cities, threshold space defines three different spaces where in historical Jeddah it only defines two. In order to understand the threshold space, it is important to analyse the streets to comprehend the organisation and the relationship with its surroundings. “The study of the local context emphasises the importance of culture in the study of the street environment” (Rapoport, 1990).

Nooraddin (1998) states that different opinions concerning the definition of the boundaries of the transitional spaces and its regulations regarding private and public land were developed from jurisprudence and these differences basically resulted in the particular method of jurisprudence of each tradition. Furthermore, according to the literature, threshold depends on identifying the application then the components. Four components were the results of each application as follows;

1. Its design
2. Its functions which include use and the effect of the surrounding environment
3. Type and behaviour of people involved
4. Organisation order of the solution, function, and people involved

Furthermore, some questions were considered by jurists in order to approve or disprove the application of the in-between space, some of the questions include the following;

1. The benefit, either public or private
2. Street width
3. Cause and type of harm if applicable
4. Alternatives in case of harm

In the Islamic society, the ownership of the threshold space was either private, public, or semi-public. This depends on the type of street and its location in the city which could be in the residential or commercial area as the right of benefit for the pedestrian and the neighbour is different. According to Nooraddin (1998, p. 68), as a consequence of the above, some basic rights were developed to organise this space, such as the rights of passage, the right to sit, the right to protect privacy, and the right to build.

After exploring the roots and the character system of organisation in the Islamic cities in general, we look at the oriental city of Sidi Bou Sa'id in Tunisia as an example to understand the threshold in the Islamic cities. In the book *Sidi Bou Sa'id, Tunisia: Structure and Form of a Mediterranean Village*, Hakim (2009) extracts design criteria after breaking the environment of the village into components. He relies on Alexander and his team's work in *A Pattern Language* where he identifies patterns that are imbedded in the physical structure of Sidi Bou Sa'id.

## An Example of Thresholds in Islamic cities. Sidi Bou Sa'id, Tunisia

### Spatial Structure and Built form of the Village Sidi Bou Sa'id

Sidi Bou Sa'id is a town located in northern Tunisia, 20 km from its capital Tunis. The town is situated on top of a steep cliff, which looks directly over the Mediterranean Sea. It is known for its extensive use of white washed façade with blue window frames and doors.

Because it's a small town, Sidi Bou Sa'id did not develop some of the basic features of huge Islamic cities. The focal point of the town is the mosque, which at the same time is the cultural and social centre. The market, *souk*, took place in front of the mosque as the town grew down the hill. There are vistas where one can look directly on to the Mediterranean Sea, which gives the pedestrian the sense of surprise while strolling through the town. Moreover, there are a lot of enclosed urban spaces where children can play safely. The town is made of main streets where vehicles can move and secondary streets that are characterised by levelling and different widths, which makes it more appealing to the pedestrian, [see Figure 72](#).



Figure 72. Location of Sidi Bou Sa'id in Tunisia. (Karass, 2017, p. 6).

In Hakim's book *Sidi Bou Sa'id, Tunisia: A Study in Structure and Form* the author goes in depth when explaining the factors that shaped the traditional village Sidi Bou Sa'id. In his book he chose to break the environment of the village into components in order to transfer it into usable design criteria (Hakim, 2009).

He refers to the work of Christopher Alexander and his associates in *A Pattern Language*. "Of their 253 patterns, I have identified 92 which are embodied in the built environment of Sidi Bou Sa'id – 42% of these are of the "proven usable" category (marked by two asterisks), 45% are of the "very reliable" category (marked by one asterisk) and the remaining 13% are considered to be sound but need further verification. Of the total identified patterns in Sidi Bou Sa'id, 27% relate to the village scale and 73% to the building scale and related construction details" (Hakim, 2009, p. 144). Before going into the patterns that are embedded in the Tunisian village, the writer refers to several generalities;

### **Primary Urban Elements (Hakim, 2009, p. 145)**

1. The courtyard buildings are referred to as the basic module used for housing and public buildings with 24% of the ground coverage. Building heights range from one to three stories.
2. The street system shows two different types
  - a) The through streets, which are wide streets for two packed camels to pass. These streets are considered public
  - b) The cul-de-sac, which is looked at as the private property of the people living on it.
3. Primary element above the streets consists of
  - a) The *sabat* which is the room or space that bridges the street. See [Figures 73A and 73B](#).
  - b) Arches spanning between walls to avoid building collapse and provide strength.
4. The Site. Natural boundaries of the village created by the steepest slopes of the hill and landlines.
5. The mosque, the main building and the focal point from where the whole village grew outwards in three different directions.

### **Criteria Rooted in Islamic Values (Hakim, 2009, p. 145)**

1. Privacy. By privacy the author refers to the visual privacy of female members which is taken into consideration in the entrance lobby *skifa* as well as in the interior courtyard to shield from visual penetration by neighbouring structures.
2. Beauty without arrogance. Refers to the simplicity of the exterior when it comes to decorating and the high level of sophistication in the interior.
3. Keeping the neighbours and the public in mind during building design decisions as they must not harm either.
4. Interdependence. Used as a balanced mechanism to minimise clashes over the common use of walls, cul-de-sac, etc.



Figures 73A, 53B. “The *Sabat* – an air-tight structure bridging a public right of way is a concept designed to provide additional space for the building to which it is attached. It is used in most Islamic cities, acting as an element of unity. The local Urf in each city shapes its architectonics and thus contributes to the phenomenon of diversity” (Hakim, 2009, p. 117).

Since this research focuses on “patterns” of threshold spaces, only patterns that are related to transitional spaces that are embedded in Sidi Bou Sa’id in Tunisia will be highlighted on three different scales (village scale, building scale, and construction details), which the author referred to previously.

### **Village Scale**

1. (37 House Cluster\*\*) “Although the village is made of large building clusters, the most effective clusters are those which share a common access. The effect of the clusters is particularly enhanced by the cul-de-sacs, which are jointly owned by the people whose access to their houses are from it” (Hakim, 2009, p. 147).

### **Building Scale**

1. (102 Family Entrances\*) All doors and windows are derivatives of basic archetype and are unified by size, proportion, and colour. This tends to clarify the orientation and location of the buildings with respect to the street system.
2. (106 positive Outdoor Spaces\*\*) The hierarchy of positive and public outdoor spaces order and direction within complexity, a sense of place and a sequence of movement which enhances the three-dimensional manmade setting. (Hakim, 2009, p. 148).
3. (110 Main Entrance\*\*) Main entrance of buildings are bold and clear in relation to their importance. These are the only façade elements in Arabic Islamic architecture which are allowed to be given prominence through decoration. Their clarity is achieved

- through location and combination of elements such as steps, stone frames, colour, and stud design. (Hakim, 2009, p. 148).
4. (112 Entrance Transition\*\*) Transition from the street to the courtyard is handled by the use of *dribas* or *skifas* and occasionally a walled garden, or a row of tall trees visible from the street. (Hakim, 2009, p. 148).
  5. (118 Roof Garden\*\*) There are many useable roof spaces such as private garden rooms in Sidi Bou Sa'id. (Hakim, 2009, p. 148).
  6. (121 Path Shape\*) "There is a wide variety of path shapes within the boundaries of the village, created by the determinants of the building process, the camel, donkey and the hilly terrain. It is interesting to note that most streets have maximum lengths without a bend of 25 m: the limiting distance for recognizing a human face. Many of the irregularities of the streetscape are used for planting and seating. The use of wide gentle steps for level changes enhances the uses and visual appeal of the streets" (Hakim, 2009, p. 149).
  7. (122 Building Fronts\*) "The use of the courtyard buildings as the primary growth module, the built-in entrance lobbies, *Skifas*, and the inward-looking major rooms did not require that the buildings be set back from the street. In addition, Islamic law recognized wall to wall dimensions for street widths" (Hakim, 2009, p. 149).
  8. (125 Stair Seats\*) "The large flight of steps from the square to the Café des Nattes offers magnificent views of the village and the sea – people use it extensively for sitting on, and occasionally the cafe owner provides a roll matt for the purpose" (Hakim, 2009, p. 149).
  9. (158 Open Stairs\*)
  10. (160 Building Edges\*\*)
  11. (161 Sunny Places\*\*)
  12. (164 Street Windows\*\*) "A street window type specifically developed by the Arab-Islamic culture is the *Maucharabieh* (see [Figure 74](#)). A bay window on the upper floor covered with a wooden lattice to allow the occupants to see out without being seen. It is usually located on a busy street side, and often has built-in seating" (Hakim, 2009, p. 149–150).
  13. (169 Terraced Slope\*)
  14. (171 Tree Places\*\*)
  15. (180 Window Place\*\*)
  16. (192 Window overlooking life\*)
  17. (172 Window Wall\*) "The enclosing wall is an integral component of the Islamic garden. It defines the boundary of the man-made 'paradise'. It also provides privacy, security and sound protection. This concept is reinforced by the requirements of compact planning, so that in many instances a building on at least one or two sides would surround the garden. Sidi Bou Sa'id had a variety of small and large walled gardens" (Hakim, 2009, p. 150).

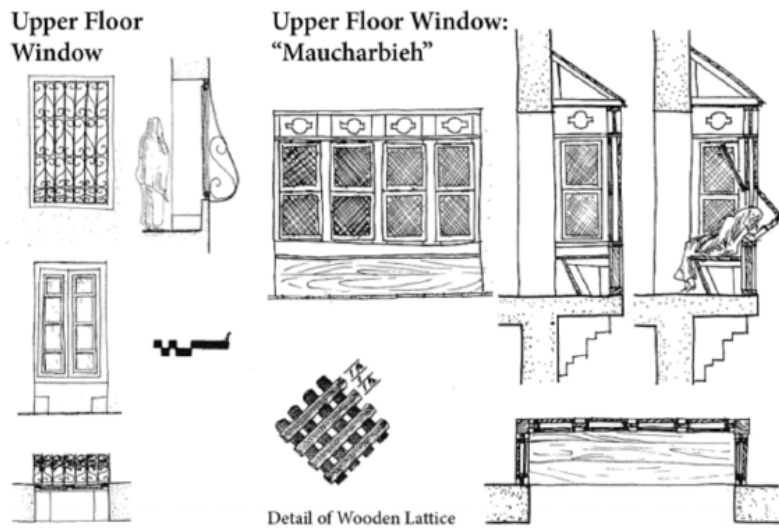


Figure 74: Windows, ‘maucharabieh’, that provide the link to the public street. (Hakim 2009, p. 75).

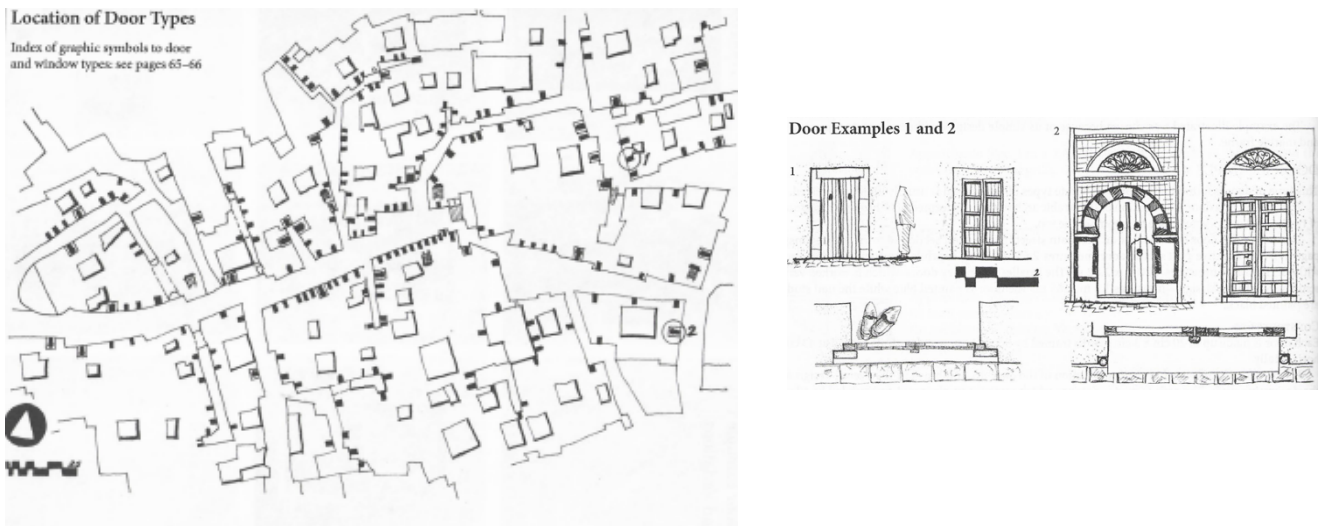


Figure 75: Two different door types are present. Location of door types in the village. (Hakim, 2009, p. 68–69).

## Construction Details

1. (221 Natural Doors and Windows\*\*)
2. (224 low Doorway) “Its height of 1.52 m (5 feet) requires that an adult bend down before entering a dwelling-symbolizing respect to his host” (Hakim, 2009, p. 151).

Agreeing with Hakim, the existence of these patterns in the village shows evidence of the high quality of the living environment there. However, the most important point is how these patterns interact together in a poetic way to create the desired atmosphere (Hakim, 2009, p. 151). This can be recognised by the people that live there through the changes of levels, texture, heat, light, direction, and the degree of the enclosure. “Such complexity implies that the total spatial environment can only be perceived and appreciated by a pedestrian who can sense the changes in level, direction, light, heat, texture, sound, scent, and the degree of enclosure” (Rapoport, 1971, p. 29).



To summarise, this chapter looked at the following points;

- The difference between the meaning of boundaries, threshold, and threshold space. As discussed previously, spatial delimiters create boundaries which can be expressed in different ways such as vertical columns and short walls. They can take the space gradually from a more open space to a more defined space. Thresholds are looked at as a gap in a boundary to access and transition from one place to another. Threshold spaces consist of threshold combined with space elements. These elements could be one or more joined together. Together, they create a unique spatial perception.
- The importance of threshold space lies in creating atmospheres that affect us on different levels such emotional conditions, behaviours, experience, and creates social and cultural communities, which has an effect and impact on the environmental sustainability in general.
- Understanding the roots and character system for organisation in the Islamic cities as well as the organisation of threshold which helps in understanding it in the historical city of Jeddah. As previously mentioned, the structure usually emerges because of different issues such as environmental, climate, economics, social, and cultural factors. These differ from one region to another and give each city its unique character.
- The case study Sidi Bou Sa'id gives a good example for understanding the threshold spaces as Hakim relies on Alexander and his team's work in *A Pattern Language* where he identifies patterns that are imbedded in the physical structure of Sidi Bou Sa'id, Tunisia.

This chapter is the lens through which we can understand the urban fabric, the notion of integration between the public and private sphere in the field work case study. Moreover, the chapter also explores the importance of threshold space in the urban configuration, its impact on the environmental sustainability and its organisation in Islamic cities in general.

After investigating the concept of threshold space through understanding the difference between boundaries, threshold, and threshold space and their impact on the ground-floor in Islamic cities, and how it influences the perception of a city, the next chapter (chapter four in part II) is the fieldwork and analysis part of this thesis where the application of the method takes place.

## Summary of Part I

Part I of this thesis discussed the theoretical and historical part of this research which helped in investigating patterns at the ground-floor in built-up areas from two different perspectives: public space and residential units in the historical city of Jeddah. It also sets the foundation, the lens, and the methodological approach for part II, in order to define the patterns in the historical city of Jeddah.

Chapter one discussed the diverse culture which gave Jeddah the rich and distinct society and way of life, and, as a result, makes it different than other parts of the country and creates this unique *Hijazi* culture that we have to this day. The combination of different cultures affected not only the way people dress but their lifestyle in general, which includes social behaviours, beliefs, customs, urban configuration, and its architecture.

The chapter also examined the influences of planning on the case study of this thesis, historical Jeddah by studying the Persian control, the Ottoman Empire and the contrast with other Muslim cities which explains that the architecture in Jeddah was not imported from the Turks, nor had they imposed any official style for the construction of the buildings on the rim of the Red Sea. Rather, it is suggested that the strong cross regional network that took place during the Ottoman rule, as well as economic factors, played a role in the construction of the building without creating a building style. The examination of these influences also led to the exploration of different Islamic cities such as the Island of Suakin in Sudan and Rashid in Egypt. Both cities exemplify Ottoman cities that were built around the same time as the buildings we see today in old Jeddah. Because of that, principles are learned and influences between those cities and Jeddah to understand the impact of the Ottoman Empire on them in general.

There were three different stages for the traditional houses of old Jeddah. First, before the Ottoman Empire. Second, during the first era of the Ottoman Empire. Third, late Ottoman Empire which all houses fall under. Last but not least, the chapter also looked at the foreign influence from other civilisations which is most noticeable in the decoration which is merged within the house fabric rather than being added at a later stage. This is noticeable in the woodwork which was mostly influenced by Malaysia, Indonesia and India.

Chapter two of this thesis explores a specific theory *A Pattern Language* by Christopher Alexander and his team. This chapter is the framework or methodology of this thesis in which we learn and understand the meaning of patterns to Alexander, which was significant to help identify patterns in the case study of this research.

In this chapter we explored Christopher Alexander's theory which claims that the secret is in the invariant core in all cities and towns, and that gives them their quality. The phrase "the quality without a name" is used in his book as he believes that there are no words in the English language that describe this quality, which he claims is an objective quality. He asserts that the quality is based on the interaction of structures and their users which creates the living city.

This chapter also explores Alexander's explanation of patterns of events of space which he claims, by looking at cultures, we find that towns are defined by a number of elements that create the pattern of events and clarifies the way people live there. He further explains that spaces don't create events, nor do they cause them. It is the pattern in people's minds that causes them to behave the way they do and this pattern is related to culture.

The chapter also explains that the relationship of patterns together forms the language that creates the living city.

Another important point in this chapter is the way Alexander identifies patterns as this helps to identify patterns in the case study of this research. According to Alexander's theory, to identify

a pattern there are three rules; first, express a relationship between a certain context. Second, a problem. Third, a solution.

Understanding the structure of a language is crucial as patterns are not isolated entities but are reinforced by other patterns to help complete each other. Of course, culture plays an important role in defining the language of patterns and their relationship to each other.

This chapter also explored the intellectual roots of Alexander's theory by trying to understand the relationship between several theories and Alexander's work. The table below (Table 1) lists particular theories that could have influenced his theories in one way or another.

Theory	Scholar, Year	Type of Theory	Alexander's Theory
Pattern principles and evolution of ancient towns' search for inner structure	Sitte, 1890	Architecture/ Publications	Patterns
Search for Inner Structure Sitte's Principles	Frank, 1931	Architecture/ Publications	Patterns
Linguistics Approach theory	Chomsky, 1957	General theory/Philosophy	Structure and systems in languages
Linguistics Approach theory	E.T. Hell, 1959	General theory/Philosophy	Structure and systems in languages
Semiological Approach	Norberg - Schulz, 1965	General theory/Philosophy	Relationship between people and spatial setting.
Behaviour Setting Theory	Barker, 1968	General theory/Philosophy	Places, human activities, and experience = Behaviour
Structuralism theory	Piaget, 1971	General theory/Philosophy	Wholeness, transformation, self-regulation.
Phenomenology theory	Heidegger, 1971	General theory/Philosophy	Quality without a name

Table 1: Theories that could have influenced Alexander's work. Source: Author.

Chapter three explores the difference between the meaning of boundaries, threshold, and threshold space. As discussed previously, spatial delimiters create boundaries which can be expressed in different ways such as vertical columns and short walls. They can take the space gradually from a more open space to a more defined space. Thresholds are looked at as a gap in a boundary to access and transition from one place to another. Threshold spaces consist of threshold combined with space elements. These elements could be one or more joined together. Together, they create a unique spatial perception.

Chapter three also explores the importance of threshold spaces which create atmospheres that affect us on different levels, such as emotional conditions, behaviours, experience, and creates social and cultural communities which have an effect and impact on environmental sustainability in general.

Last but not least, the chapter looks at the roots and character system for organisation in the Islamic cities as well as the organisation of threshold which helps to understand it in the historical city of Jeddah. It further explores the case study Sidi Bou Sa'id which gives a good example for understanding the threshold spaces, as Hakim relies on Alexander and his team's work in *A Pattern Language* where he identifies patterns that are imbedded in the physical structure of Sidi Bou Sa'id, Tunisia.

The next chapter which is chapter four in part II is the fieldwork and analysis part of this thesis where the application of the method takes place.

## **PART II. THE OLD CITY OF JEDDAH**

# **CHAPTER FOUR**

## Identifying the Eighteen Patterns in the Old City of Jeddah

In this part, I look at the eighteen patterns in relation to four different scales which form the basis of the investigations.

“Every complex system has a hierarchical structure; i.e. different processes are occurring on different scales or levels. Connections exist both on the same levels, and cross level” (Mesarovic, Macko et al., 1970). This also applies to *A Pattern Language* where we find that the large patterns depend on the small ones, at the same time the small ones can exist alone. i.e. hierarchy of open spaces cannot exist without private terraces on the street, nevertheless, vice versa can work.

“The language generates a connective network by which the ordering of nodes on one scale creates nodes at a higher level. The process goes on all the way up, and all the way down in levels” (Salingaros, 2000, p. 19).

Patterns in one level when combined help define a new pattern on a higher level, i.e. “positive outdoor spaces are often created at the same time as other patterns are created” (Alexander, 1977, p. 521). This pattern depends on hierarchy of open space, building fronts, building edge, path shape, etc.

This research is formed around four different scales; body scale, building scale, street scale, and city scale. Furthermore, time dimension is used to understand the relationship between different scales.

**Time Dimension:** deals with dynamic observation of spaces/sites at different times. This will be looked at in more detail at the end of this chapter.

**Body Scale:** this closer humanised scale requires documenting lived experience through drawings, diagrams, observation, notes, detailed photographs and interviews. It is essential to work with this scale when investigating thresholds, as we can understand the elements and their relation to the body. For example; the bench or the stairs which I can sit on in front of the house, or the window which I can look from.

**Building Scale:** this close and more detailed scale requires diagrams, photography and drawings on several layers. This scale plays an important role as we can understand, for example, the proximity between two buildings or the height of the window to the ground floor, etc.

**Street Scale:** this scale requires several approaches including archival, ethnographic methodologies, drawings and photography. The importance of this scale lies in the understanding of several things such as the width of the street which allows neighbour contact without visual connection, moreover, the shouting distance at that time played an important role which is also related to street width.

**City Scale:** this scale requires archival research to understand the urban morphology, which will be implemented through Jeddah municipality to find data (maps, documents, and images). At this scale is it important to understand the relationship between the thresholds in the city, the proportions, typology, etc.

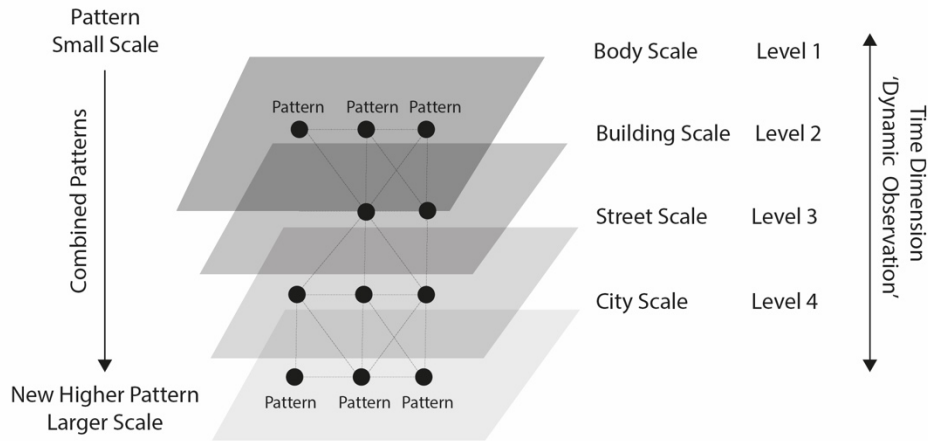


Figure 76: Understanding the hierarchical connection across different scales/levels.

This architectural urban approach looks at the spatial situation and then moves on to the broader historical aspect of the city.

To acknowledge the eighteen patterns entirely, it makes more sense to look at them and read them in the opposite order, small to large. This is totally opposite to how Alexander looked at the scales in his book, *A Pattern Language*. While “the human mind can combine the smaller patterns into groups; the larger patterns utilise these groupings and also generate new patterns. The mind is capable of validating the patterns subconsciously when we read them in an evolving order (small to large)” (Salingaros, 2000, p. 154).

Salingaros (2000, p. 154) noted that, “the smaller the scale in which patterns act, the more immediate it connects to human beings... We can experience them with most of our senses. Larger patterns can’t be touched or felt, they require synthesis and recognition. They become more intellectual. People who have not experienced them in person can rarely imagine their emotional impact”.

Moreover, I look at Alexander’s patterns and investigate how relevant these patterns are to the old city of Jeddah as an example of an Islamic city. Are these patterns slightly modified? And should they be looked at with some kind of reservation because they’re not exactly the same? [Figure 77](#) illustrates the four scales and the patterns in each scale.

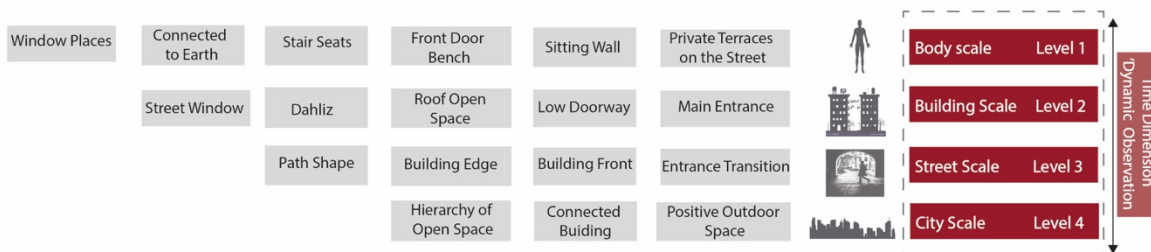


Figure 77: Showing the four different scales used in this research and the eighteen patterns related to it.

# **BODY SCALE**



## WINDOW PLACES



Figure 78: Nassif House, showing window places 'roshan from the interior'. Source: taken by Unknown. Nassif House (Digital Image) (Viewed 30.09.2019).

... this pattern completes the street windows, *roshan*, pattern which will be explained under building scale. Alexander suggests at least one of the windows in each room needs to be shaped in such a way as to increase the usefulness of a space (Alexander, 1977, p. 834). This is the current situation in the city of Jeddah. By observing many floor plans, it is clear that window places appear in the important rooms of the house such as in *Al majlis* as it was the source of ventilation for the interiors as well as for view and light.

**“Everybody loves window seats, bay windows, and big windows with low sills and comfortable chairs drawn up to them” (Alexander, 1977, p. 834).**

There are many different kinds of window places such as window seat, bay window, low sill, and glazed alcove. The historical city of Jeddah had the *roshan* which is a form of bay window. Alexander defines bay windows as a “shallow bulge at one end of a room, with windows wrapped around it. It works as a window place because of the greater intensity of light, the view through the side windows” (Alexander, 1977, p. 835), as shown in [Figure 46](#).

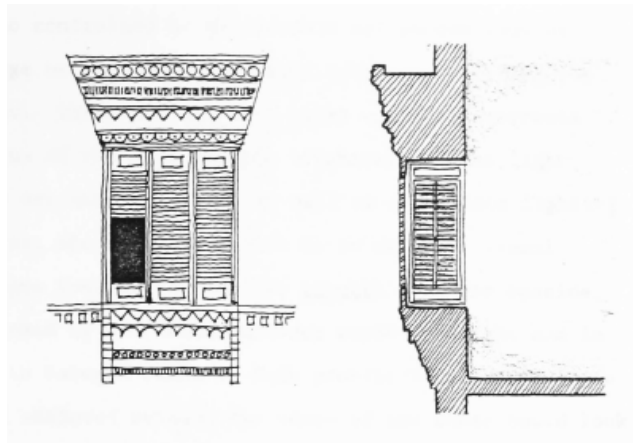


Figure 79: A bay window is a bulge at one end of a room, with windows wrapped around it. Source: (Al-Lyaly, 1990, p.136).

It was one of the important architectural features of its time. This kind of structure is added to the body of the main structure. “They sub-divided the main space into sub-spaces with different character and use. A difference in level was also made between the main space and sub spaces which gave an introverted character to the former and emphasized the differentiated character of the latter” (Al-Lyaly, 1990, p. 58). See [Figure 80](#).

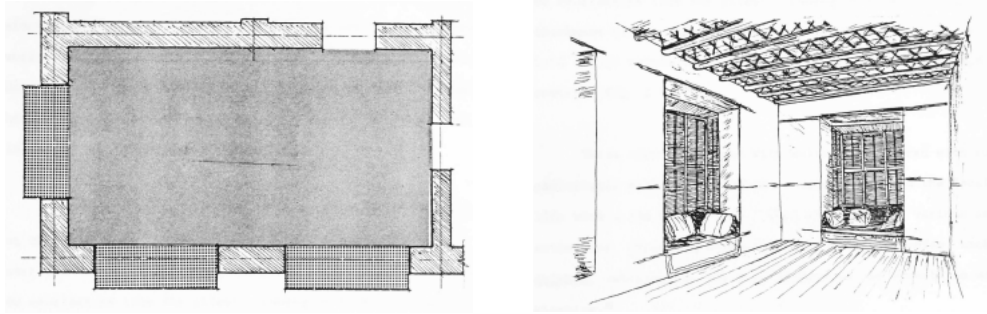


Figure 80: Subspaces within the main spaces. Source: (Al-Lyaly, 1990, p. 60).

Bay windows are one of the major architectural features in Middle Eastern cities and some parts of the Islamic world, however, they differ in size and shape and that's what makes them unique in the historical city of Jeddah.

“The unique quality of the *Rawasheen* of Jeddah's traditional houses lay in their stateliness, and the large openings they created in the facade of the house” (Kurdi, 1981, p. 199).

The *roshan* was constructed to human scale. “The size of a single *Rowshan* type was related to the dimensions of the human body; it was wide enough to lie down in comfort. Just over 2.3 metres - often high enough to stand in, and projected about 60 centimetres into the street. Adding 50 to 60 centimetres for the thickness of the wall, it made an alcove about 2.3 metres wide by 1.10 - 1.20 metres deep, a space in which two people could sit in comfort” (Al- Lyaly, 1990, p. 61).

“These alcoves, fitted with mattresses covered with rugs, and comfortable pillows and cushions, were considered the focal point of life within the living room. They were used for various social activities, including chatting, sipping tea or coffee, smoking shisha, watching the world go by down in the streets as well as sleeping” (Khan, 1981, p. 13).

This pattern is described by Alexander in his book *A Pattern Language* which is similar to the case of old Jeddah. It is slightly modified in the sense that it is constructed to human scale which makes it a bit different in size and use to Alexander's explanation of bay window. In the context of old Jeddah, it is an important social and gathering area with different functions. It could be viewed as a female pattern since it is mainly used by women who spend most of their time in the house.

## STAIR SEAT

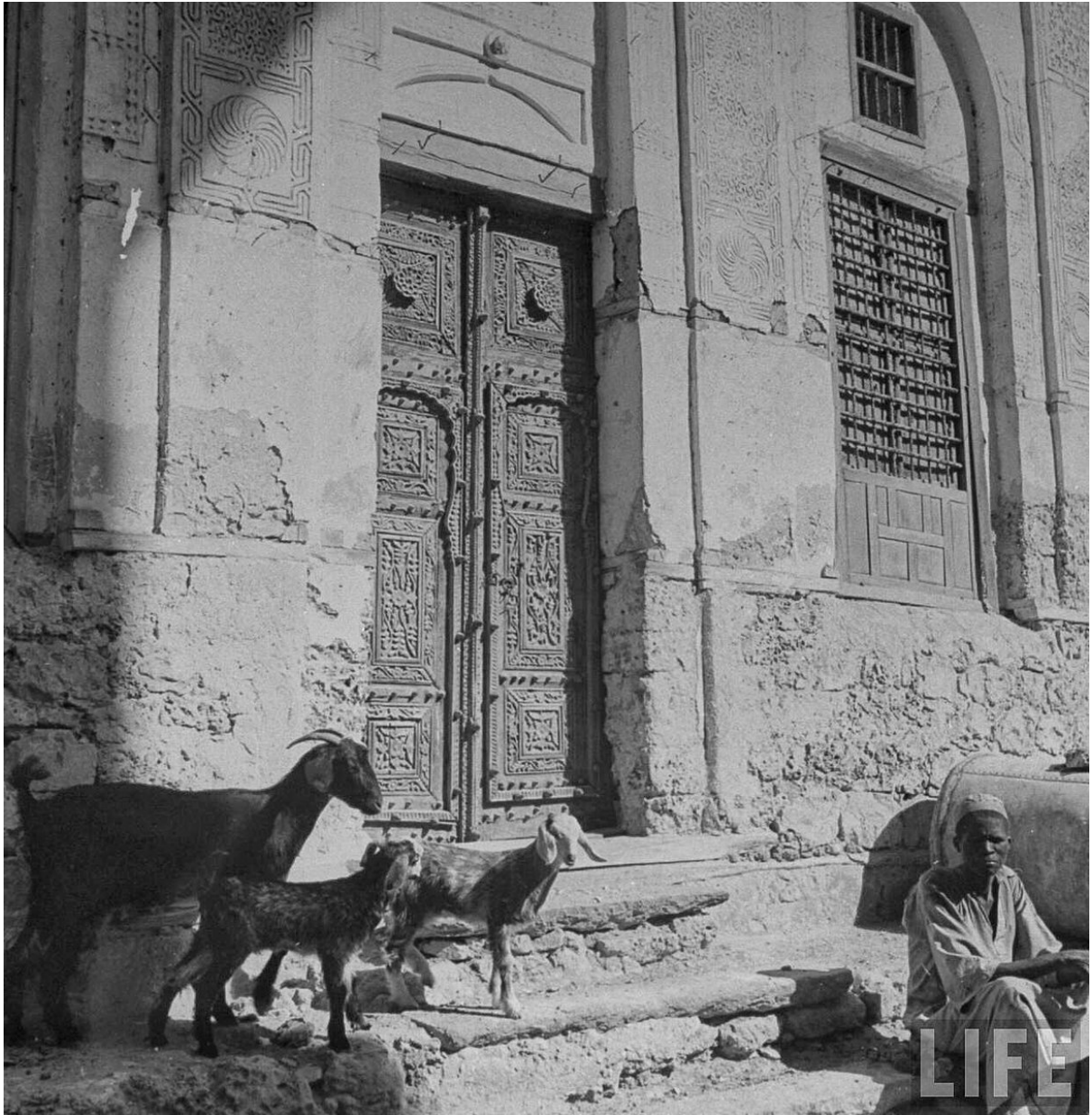


Figure 81: Stair seats in Jeddah 1942. A transitional element. Source: taken by Bob Landry for Life Magazine.

Stairs are one of the most important elements in architecture, which can give a new meaning to a space. Stairs can give a degree of enclosure, which defines space and at the same time creates gathering areas to socialise. Moreover, stairs can enhance the appearance of the main entrance.

“Wherever there is action in a place, the spots which are the most inviting, are those high enough to give people a vantage point, and low enough to put them in action” (Alexander, 1977, p. 604).

Playing with levels can maximise the view from a certain spot, creating an open-air theatre for people that are sitting to experience. It is also used for many purposes such as eating, resting and waiting for others. See [Figure 82](#). Gehl (1987, p. 155) considers seating to be one of the most critical features in public spaces for encouraging people to stay longer because “only when opportunities for sitting exist can there be stays of any duration. If these opportunities are few or bad, people just walk on by”.

According to Alexander, “people seek a vantage point from which they can take in the action as a whole. On the other hand, they still want to be part of the action; they don’t want to be mere onlookers. Unless public spaces provide for both these tendencies, a lot of people simply will not stay there” (Alexander, 1977, p. 604). In accordance with Alexander, we can conclude that when we elevate a space, it should be kept in mind that this space should be accessed easily by users from the path, public space, etc. and they shouldn’t be so high that the user feels he is not part of the action.

In the historical city of Jeddah, this male pattern is used to enhance the entrance of a house and to protect houses from floods. Each house is raised with a number of steps depending on the family capabilities. These steps lead either to the main entrance or to a private terrace, *dakkah*, on the street that is around one to one and half metres above ground level. This also stresses the transition between the inside and the outside.



Figure 82: Stair seats (Alexander, 1977, p. 605).

This transitional pattern is similar to Alexander’s description, yet one has to look at it with some reservation as it is solely used by males and, therefore, it is considered as a male pattern. It is a social focal point in the outdoor area where different activities takes place.

## PRIVATE TERRACES ON THE STREET \**DAKKAH*\*



Figure 83: 1917 Barhat Faransa, located in Al Sham neighbourhood 1917. The building interacts primarily with the city via its façade. In this case the *Dakkah* works as an in-between space separating the private from the public. Source: <http://lostopportunitiesandwastedtimes.blogspot.com/2014/05/blog-post.html> (Viewed 12.09.2019).

This pattern is the link between the residential realm and the public realm. It basically connects the inhabitants of the house with the outside world. Furthermore, it gives life to the streets and paths that it looks at.

**“The relationship of a house to a street is often confused: either the house opens entirely to the street and there is no privacy, or the house turns its back on the street, and communion with the street life is lost” (Alexander, 1977, p. 665).**

As Christopher Alexander states, “a good house supports both kinds of experience: the intimacy of a private heaven and our participation with a public world” (Alexander, 1977, p. 665).

This male pattern is widely spread in the old city of Jeddah. It takes place where the male entrance is as it is one of the architectural features where socialisation plays an important role. According to Abudaod (2017, p. 466), private terraces on the street, locally called *dakkah*, are built in front of the houses facing a street, open spaces, or a path, *zuqaq*. It is usually attached to the façade of the houses and on both sides of the male main door. It is usually elevated by one to one and half metres from the ground level and made of stone, and usually built at the end when the whole house is complete. It is used in the morning by adults before they go to work and at night after coming back from work. The terrace is used for socialisation for long periods by the owner of the house and his neighbours or friends. When the adults leave the space, it is used by the young ones. Moreover, strangers would sit on these terraces to rest before continuing their journey – [Figure 84](#).

As previously explained, the concept of terraces was to socialise and exchange news – [Figure 85](#). There were benches on the terraces, locally called *mirkaz*, made of wood (refer to front door benches for more information – [Figure 92](#)). To keep the area cool when the owner and his friends are using the space, water is sprayed on the floor of the terrace. Sometimes the walls of the terraces are low enough that they are used as sitting walls (refer to sitting walls for more information – [Figure 87](#)).

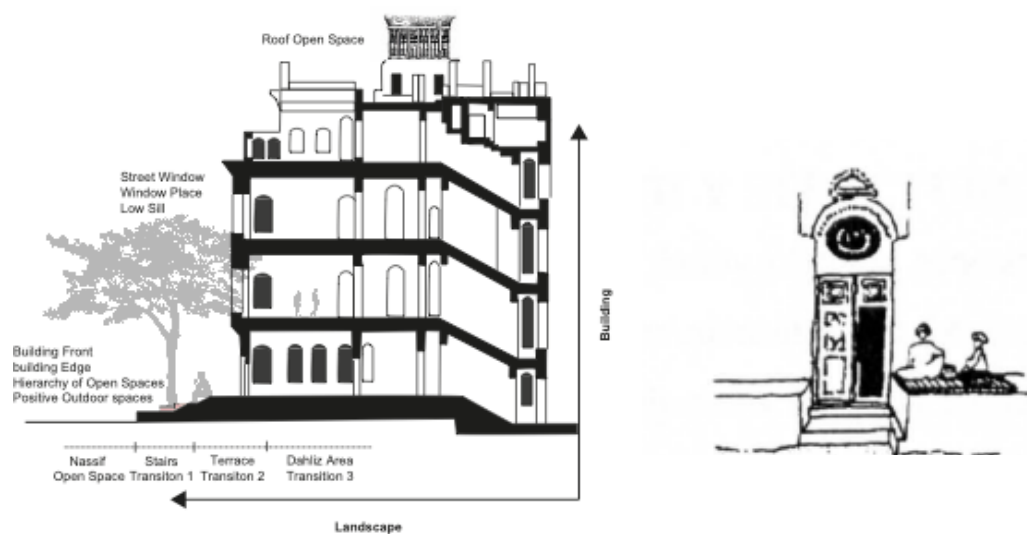


Figure 84: Right, section of Nassif house showing the relationship of the terrace to the house and the open spaces in front of the house. Source: redrawn by the author with some additions. Left, closer view of *dakkah*. Source: (Akbar, 1998, p. 70).



Figure 85: Nassif house showing socialisation on the terrace which is located in front of an open space ‘Barhat Nassif’. Drawing by P .Williams, courtesy of Aramco World Magazine. Source: (Pesce, 1977, p. 114).

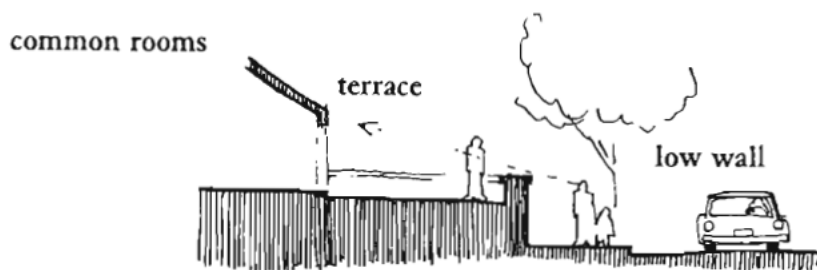


Figure 86: Private terraces on the streets (Alexander, 1977, p. 667).

This pattern, described by Alexander – [Figure 68](#), is found in the context of Jeddah under the name ‘*Dakkah*’. It is found in many houses in different sizes. Alexander describes its function in western culture as a place to wave to neighbours and friends, greet, and invite to chat. In the context of Jeddah this space is slightly modified in use. It is a male pattern which makes it different to the Western world as it is related to certain rituals at certain times of the day.



## SITTING WALLS

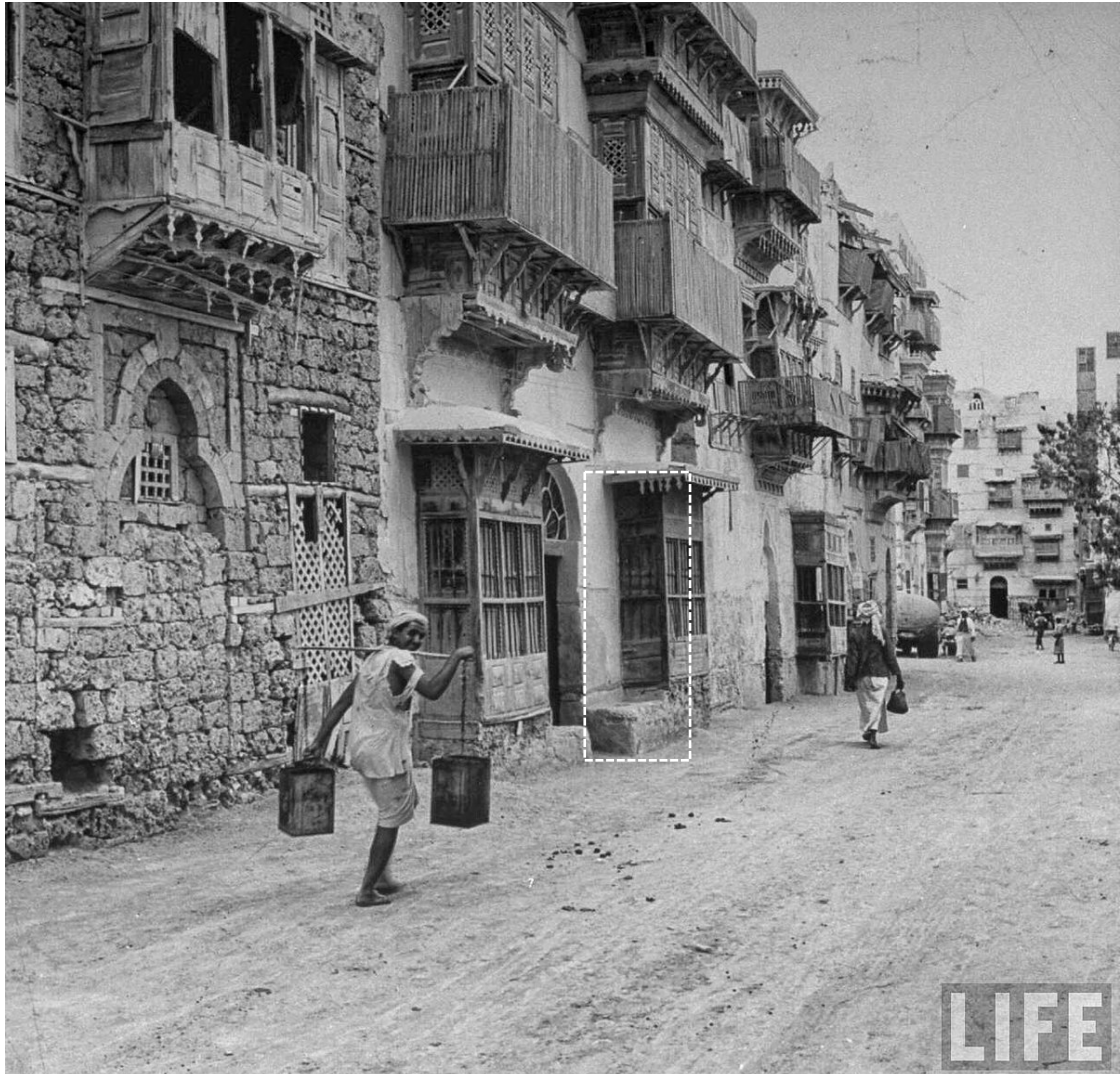


Figure 87: Sitting walls next to the front door create active edges making opportunities for interaction.  
Source: taken by Bob Landry, 1942. Life Magazine.

A good example of an outdoor area is made up of positive outdoor spaces, which are defined through boundaries, such as boundaries between private terraces on the street and the street itself. These boundaries can be low enough to sit on and high enough to define a space and provide a sense of enclosure. This creates a unity between two spaces and at the same time each is defined and separate.

Ching (2014) explains in his book *Architecture: Form, Space, and Order* how the height of a vertical plane in relation to eye level and body height affects the ability of the plane to visually describe the space, as shown in [Figure 88](#).

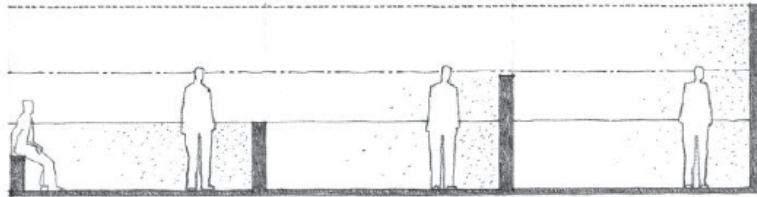


Figure 88: Height and sense of enclosure. (Ching, 2014, p.145).

**“In many places walls and fences between outdoor spaces are too high; but no boundary at all does injustice to the subtlety of the division between the space” (Alexander, 1977, p. 1125).**

The traveller Burckhardt (1829, p.14) noted in his book *Travels in Arabia* that “some of the houses featured stone benches immediately adjacent to the walls”.

Referring to a 2019 interview for this research with Ahmad Hawas who lived in the old city of Jeddah for a long period, in some houses there were walls attached to the house façade which worked as an edge and at the same time they were used as seats for people passing and in rare cases as a meeting point, instead of gathering at the *mirkaz* which are the front door benches. Moreover, I was told that sometimes next to the main door entrance there were sitting walls used by the owner of the house to sit and watch people, as shown in [Figure 89](#) and [Figure 90](#). In busy years, pilgrims’ accommodation could include the stone benches in front of houses. In some instances, pilgrims also resorted to renting benches in coffee shops or to camping in the streets. (Freitag, 2020, p. 256).

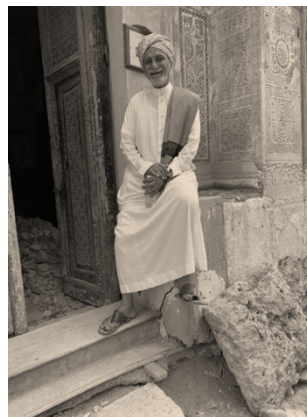


Figure 89: Sitting wall next to the door entrance used by the owner of the house. (photo of Ahmad Hawas taken by author).



Figure 90: Sitting walls next to door front. Source: French officer Charles Winkelson, April 1918. Mosque (corner) Faraj Yusr (Digital Image) (Viewed 12.09.2019).

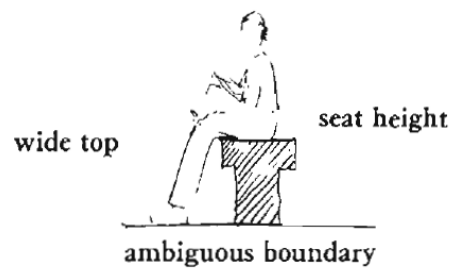


Figure 91: (Alexander, 1977, p. 1127).

Alexander suggests locating sitting walls where seating could take place so that benches are no longer needed. This pattern described by Alexander is found in old Jeddah. According to travellers, it had different uses especially during the *Hajj* period which gives it a more distinctive character than Alexander's description of the pattern. Also, there is a slight modification to Alexander's explanation in its location as it is usually attached to the façade of the building.

## FRONT DOOR BENCHES \*MIRKAZ\*



Figure 92: 1956, Al Sham neighbourhood showing benches in front of the houses (*mirkaz*) which had a vital role when it came to social interaction. Source: collection Snouck Hurgronje, Leiden, cited in Vrolijk, Mols, 2016, p.122.

This pattern, together with other larger patterns such as building edge, and connection to earth creates a distinct atmosphere for buildings which can make it more unique than other buildings. This pattern helps in creating lingering places which can work as transition and definition for the building edge of a house.

**“People like to watch the street” (Alexander, 1977, p. 1122).**

One of the most important male social features in the historical city of Jeddah are front door benches, locally named *mirkaz*. Their purpose is for socialising, and exchanging news while enjoying tea, coffee, cold drinks and sometimes smoking *shisha*. In an interview with Ahmad Badeeb (2019) I was told that “each house had a *mirkaz*, especially when the owner of the house is the head of a certain profession as people will also go to him to finish some paper work and take money loans”.

People would usually gather after sunset in front of the houses. “Any familiar and friendly passer-by was welcomed in as soon as he uttered the Islamic greeting” (Al-Lyaly, 1990, p. 40).

As previously mentioned, it is usually located in front of the house, and when a house has more than one entrance then it is located next to the male entrance. When a house does not have enough space to accommodate this pattern it can be located in the semi-private open spaces, *barahat*, or in a narrow shady street, *zuqaq*, under street windows, *rawasheen*.

The *mirkaz* is usually made of several long high wooden chairs covered with expensive rugs and furnished with cushions for sitting, as shown in [Figure 93](#).

“Usually, the owner of the house has young boys that serves his guests, sprays the floor with water to reduce the heat, and remove the rugs and furnished cushions from the benches when all the guests leave” (Abudaod, 2017, p. 899).



Figure 93: Men socialising and exchanging news in front of a house on front door benches known as *mirkaz*.

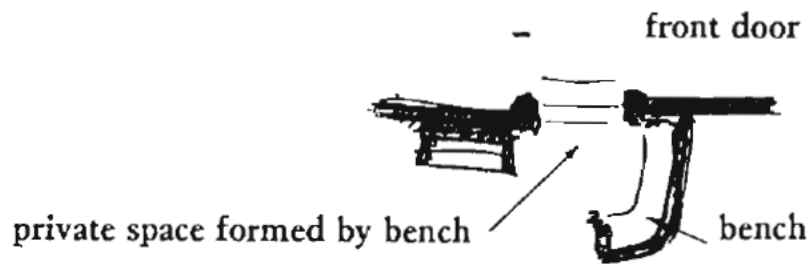


Figure 94: Location of bench (Alexander, 1977, p. 1123)

This pattern is applicable in Jeddah and is one of the main features of socialisation for men. It also creates a strong engagement with the street. As seen in the old city of Jeddah, and as Alexander notes in *A Pattern Language* the bench could be one of the patterns that makes the house entrance more visible and it can be part of a sitting wall.

Looking at the pattern of front door benches, or *mirkaz*, this pattern together with other larger patterns such as building edge, and connection to earth creates a distinct atmosphere for buildings by creating lingering places which work as a transition point and definition for the building edge of a house.

## CONNECTED TO EARTH



Figure 95: Floor surface integrated with surrounding earth gives a connected feeling. Source: date unknown (Digital Image) (Viewed 12.09.2019).

Alexander describes this pattern as a pattern that helps to define the building edge as well as private terraces on the street by specifying the way the floor of the building reaches out into the land and garden around about it (Alexander, 1977, p. 786).

**“A house feels isolated from the nature around it, unless its floors are interleaved directly with the earth that is around the house” (Alexander, 1977, p. 786).**

Alexander distinguishes between surfaces of houses that are connected totally to earth to those that are unconnected to earth. See [Figure 96](#).

In the old city of Jeddah, private terraces on the street, steps, and main entrances are connected to *dahliz*. Usually the floor of the *dahliz* is made of either sand or flagged stone. These materials are connected to earth which helps make the connection between the floor material inside the house *dahliz* and the outside area smooth. When you are inside the house you feel connected to the outside.

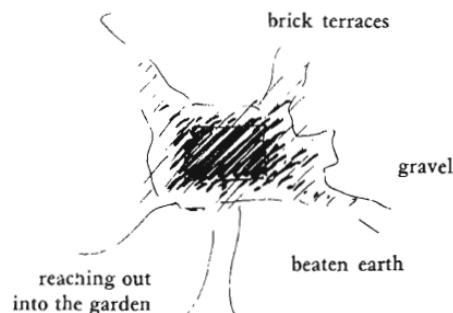


Figure 96: The connection between the inside and the outside through earth surfaces (Alexander, 1977, p.788).

Like Alexander's description, this pattern is found in Jeddah. Alexander suggests using the connection to the earth to form the ground for the outdoor rooms and entrances, and private terraces on the street. Moreover, he recommends tying the terrace to the wall that connects to the edge of the ground floor slab.

In this part we looked at the body scale which is the smallest and closest humanised of all the scales. This scale included the following patterns; window places, stair seat, private terraces on the street (*dakkah*), sitting walls, front door benches (*mirkaz*), and connected to earth.



# **BUILDING SCALE**

## STREET WINDOWS \**ROSHAN*\*



Figure 97: Al Sharif Taha Mhana House, located in Al Sham neighbourhood (Harat Al Sham) 1925. Highly detailed bay windows overlooking the main streets as a way of interaction between the inside and the outside. Source: taken by St John Philby 1925. (Digital Image) (Viewed 10.03.2019).

Windows help us to view the outside world, offering an engagement with the street or square through the exchange of smells and sounds.

**“A street without windows is blind and frightening. And it is equally uncomfortable to be in a house which bounds a public street with no window at all on the street” (Alexander, 1977, p. 770).**

Street windows are threshold patterns that give a unique experience by connecting the life inside of the house to the outside world. In the old city of Jeddah, street windows, locally termed *roshan*, are bay windows and are one of the distinguishing external features of its houses. They were admired by many travellers and explorers who visited the city.

This female pattern varies in size and taste as it reflects the wealth of the owner of the house because it's the most expensive part of the house. Its main use is for air ventilation as the air enters from three different areas, light penetration without direct sun light, and privacy for women as they can sit in it to look at the outer world without being seen by strangers from the outside. “*Roshan* acted as an intermediary zone offered an excellent solution to the problem of both the social and climatic interaction” (Eyuce, 1985, p. 38).

According to Abudoad (2016, p. 460) it was the most important sitting area in the old houses of Jeddah and many social activities took place there. “They were used for various social activities, including chatting, sipping tea or coffee, smoking *shisha*, watching the world go by down in the streets as well as sleeping” (Khan, 1981, p. 13), see [Figure 98](#).

In an interview with Ahmad Badeeb (2019), I was told that women who live in houses with large street window, *roshan*, that don't look at large streets may communicate through these windows if the distance is not much. See [Figure 99](#).

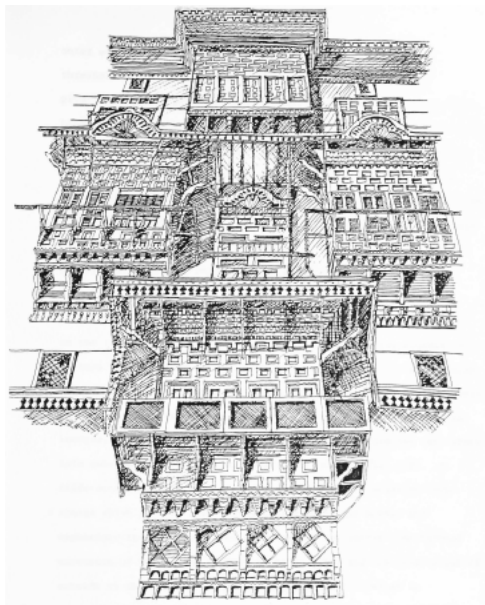


Figure 98: Highly decorative street window, *roshan*, in one of the houses in Jeddah (Talib, 1984, p. 69).

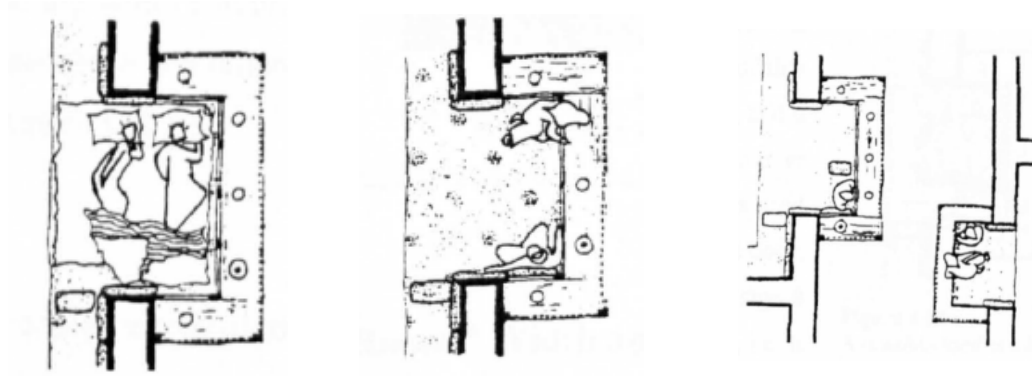


Figure 99: Different activities take place in *roshan* such as sleeping, watching the world and chatting with neighbours. Source: (Akbar, 1998, p. 70).

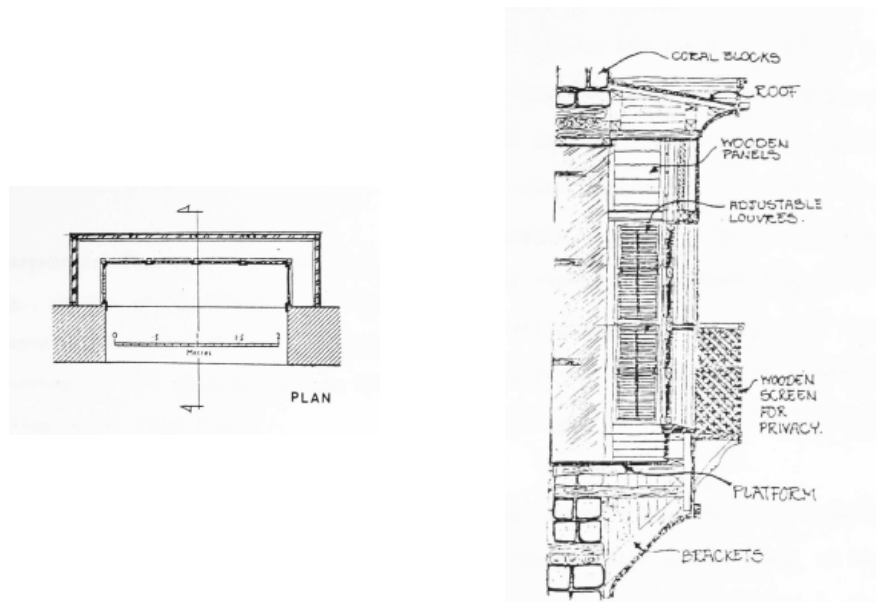


Figure 100: The detail of a Street window, *roshan*, in the old city of Jeddah (Talib, 1983, p. 249).

Street windows in old Jeddah were located on all floors and on main façades, see [Figure 101](#). “The number of street windows varies in each house according the location of the façade. Façades that looks at the main street or open spaces ‘*Barhat*’ had the greatest number of windows because of ventilation and to have a large angle of view” (Al Thakafi, 2010, p. 250). Moreover, according to Al Thakafi the number of windows differs from one house to another depending on the size of the façade and the number of floors. *Roshan* size and height differs according to the available interior space. When the room is large, it requires larger street windows and vice versa. In addition, the back façades did not take the same importance as the main façade when it comes to arranging the street windows, *roshan*, as they were located randomly with no care about their relationship to each other; its main purpose was to serve the ventilation of the room (Al Thakafi, 2010, p. 251).

Alexander states that “street windows are most successful on the second and third floors. Anything higher, and the street becomes a ‘view’ – the vitality of the connection is destroyed....

At ground level street windows are less likely to work. If they are too far back from the street, they don't really give a view onto the street – though of course they still give height” (Alexander, 1977, p. 771).

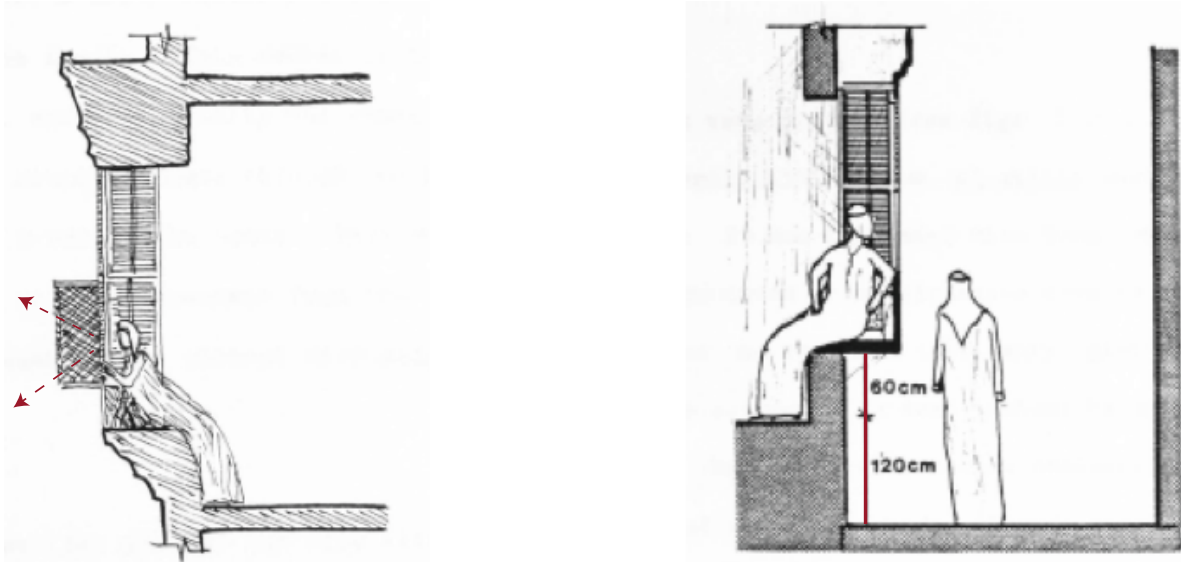


Figure 101: On the left, street windows allow women to see the outer world without being seen (Al-Lyaly 1990, p. 76) Edited by author. On the right, street windows should not be located on the ground level but a bit elevated from the ground floor (Kurdi, 1981, p. 199) Edited by author.

As Alexander described, the pattern street windows, *roshan*, is found and makes sense in this context of historical Jeddah as it brought life to the house and its inhabitants, particularly women who spend most of their day inside the house. It is their way of connecting to the outer domain. By giving each window its special character, such as window places, it makes it more likely to be used by the inhabitants. Additionally, decorating the street windows, *roshan*, from the outside and giving them bright colours makes it interesting and more attractive for people in the street to look at and at the same time creates the variation and uniqueness we see to this day in every street.

## MAIN ENTRANCE



Figure 102: Al Ashgar House, main entrance, 2011. The door is more than 150 years old. Source: taken by Sakhr Abdullah, 2011. Al Ashgar House Door (Digital Image) (Viewed 26.09.2019).

The location of the main entrance of a building is very important. Usually this step comes after having a rough idea of the building orientation on site according to the site analysis as well as major circulation in the building.

**“Placing the main entrance (or main entrances) is perhaps the single most important step you take during the evolution of a building plan”** (Alexander, 1977, p. 541).

When designing a building, the layout and the movement inside the building is determined or controlled by the location of the entrance. A good entrance leads to a good, and easy building layout and vice versa, therefore, entrances play a vital role in the experience and impression of the visitors. It is the first and last thing we experience in a building, therefore, it is very important to think of your entrance at a very early stage. Think of the location, the approach, the experience you want your visitor to go through, etc.

Alexander pinpoints the functional problem which guides the placing of main entrances, “the entrance must be placed in such a way that people who approach the building see the entrance or some hint of where the entrance is, as soon as they see the building itself” (Alexander, 1977, p. 541).

According to Alexander, in his book *A Pattern language*, there are two steps to solve the problem: first the position of the main entrance and, second, shaping the entrance so that it is visible.

#### 1. Position

Regarding the position, it is discussed in *A Pattern Language* that in order for the visitor to decide on his path, he should be able to view the entrance at an early stage as he sees the building. This will help him direct himself to the right path. Moreover, a 15 m threshold was suggested as a detour, as the entrance should be the first thing you arrive at.

#### 2. Shape

The shape of the entrance will help in seeing the entrance at an early stage as we approach the building. Ching, in his book *Architecture: Form, Space, and Order*, shows different ways of making the entrance visible, by projecting it out of the building, and making it recessed. Furthermore, Alexander suggests playing with the colour, light and shade.

In the historical city of Jeddah, the strong social division requires, when possible, more than one entrance; one for each gender (male and family) and sometimes more than two. This mainly depends on the size of the house, adjacent street width, and the number of elevations facing the street. The main benefit of more than one entrance is that families, and mainly women, will have easy access to the upper floors without passing through the men’s area *dahliz* and *magad*. This will achieve the required privacy for them.

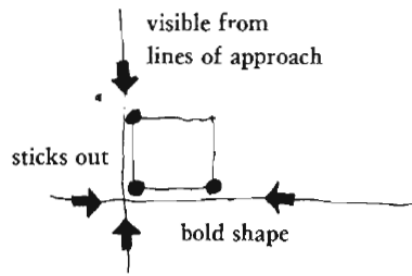


Figure 103: (Alexander, 1977, P.544).

This pattern is found in the context of historical Jeddah following Alexander's explanation of the pattern in his book. Entrance transition can be used in many ways to emphasise the main entrance, just as we see in the old city of Jeddah. As clearly shown in [Figure 103](#), these entrances stand out in the street which makes them easy to approach. Moreover, the male entrances are enhanced and distinguished from the female entrances by using certain other patterns such as entrance transition, for example private terraces on the street, *dakkah*, and front door benches, *merkaz*. These patterns make the entrance stick out beyond the building line or façade making the entrance more visible.



## LOW DOORWAY \*KHUKHAH\*

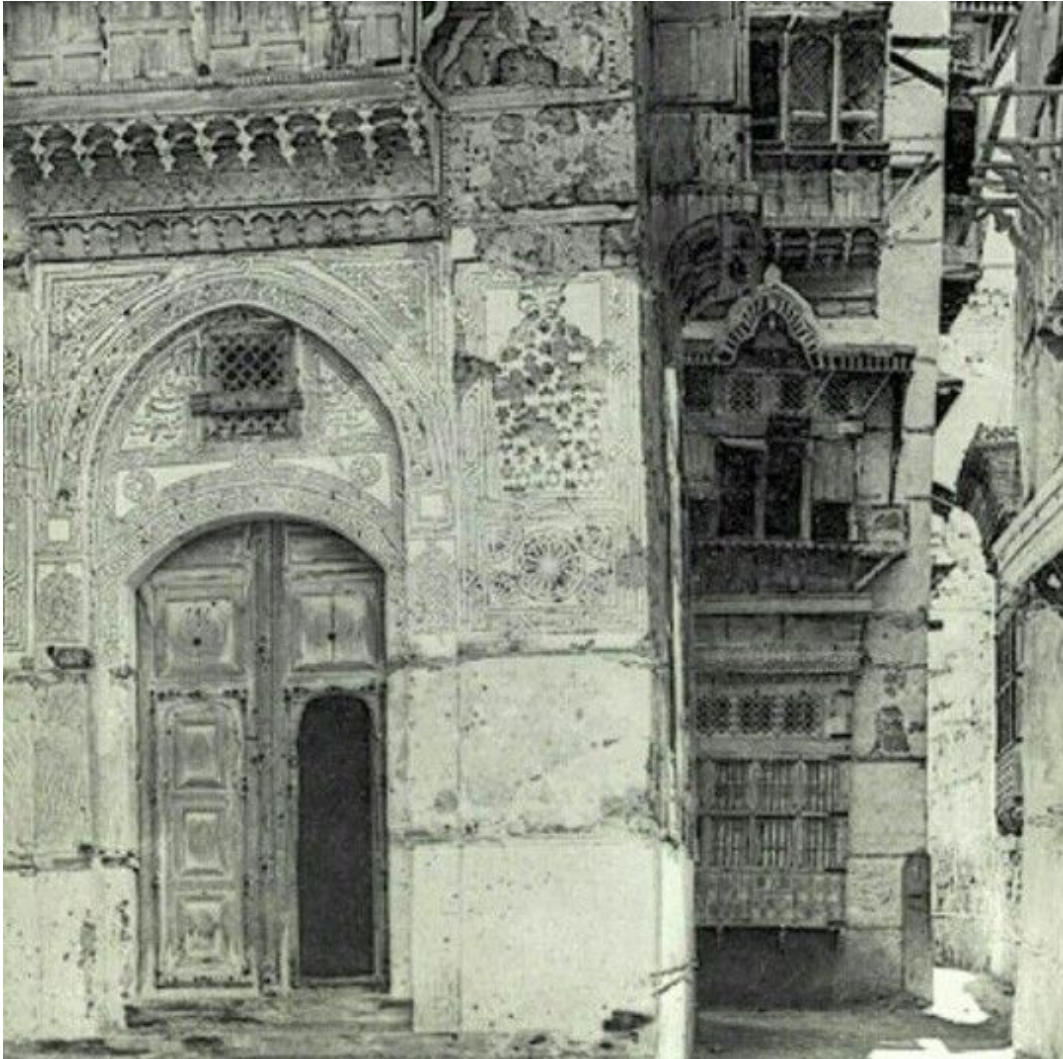


Figure 104: Low doorways in old Jeddah are the main entrances to the house. A different transitional experience through different realms. Source: taken by unknown. Low doorway (Digital Image) (Viewed 28.09.2019).

“Some of the doors in a building play a special role in creating transition and maintaining privacy” (Alexander, 1977, p. 1057) these doors could be main entrance doors. Such pattern has a strong effect on the proportion of the door.

**“High doorways are simple and convenient. But a lower door is often more profound” (Alexander, 1977, p. 1057).**

The experience of transition is affected by many different things, one example is the door entrance. In the historical city of Jeddah, the door was one of the architectural features that distinguished houses. Most, if not all, doors had a low doorway used to access the house. One would have to bend to pass through the door (see Figure 72). The reason behind it is cultural and for privacy as the person entering the house would have to bend which will change their eye level so that if there were any women in the *dahliz* area he would not see them directly. This gives a totally different experience to our modern doors where the eye level is totally different as the modern doors are full height.

Throughout my field work in the old town, I have noticed that the residential doors are typically made of two leaves with a small entrance mainly on the right side, as shown in [Figure 106](#) According to Jomah (1992, p.153), “the emphasis *Hedjazes* gave to entrances and main gates led to special treatment of these by clients and craftsmen. Front doors usually have double heights with elaborate brick, stonework and decoration. These were fitted with large wooden doors, usually two-leaved with the right-leaf having a smaller door or entryway known as *khukhah*. Specially designed two-leaf doors were somewhat heavier and required stronger frame supports. These were only opened to admit large loads while the *khukhah* was the main entrance to the house. During the 1950s, these doors were in fashion and became something of a status symbol”.



Figure 105: Carved door in traditional house. (Alexander, 1977, p. 519).

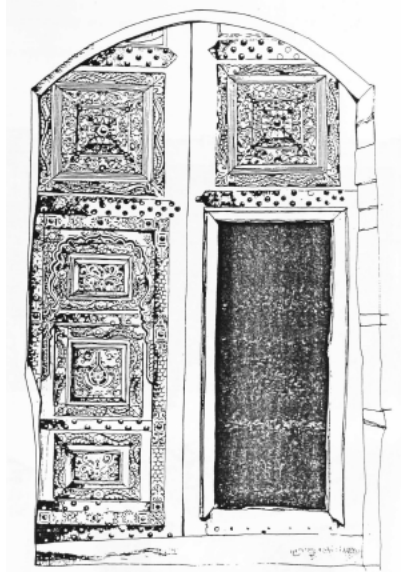


Figure 106: Carved door in traditional house showing the low doorway, locally named *khukhah*. Drawing by Williams, P of Aramco World Magazine. Reproduced by Pesce, 1974, p. 59.

This pattern is applicable in old Jeddah and follows Alexander's explanation in his book *A Pattern language*. It is one of the most important features of the façade. Alexander recommends to test the door height before building it in place, making the frame part of the structure, and decorating it with ornaments (Alexander, 1977, p. 1058) which is the case in the old city of Jeddah.

ENTRANCE, HALL, LOBBY \*DAHLIZ\*



Figure 107: Al Jukhdar House, 2016. A point of transition between the outdoor and the house. Source: taken by unknown 2016. Al Jukhdar House (Digital Image) (Viewed 26.09.2019).

Referring to Abudoad (2017, p.456), the *dahliz* is the first space you enter after passing the main door. It is the space between the door and the house ([Figure108](#)).

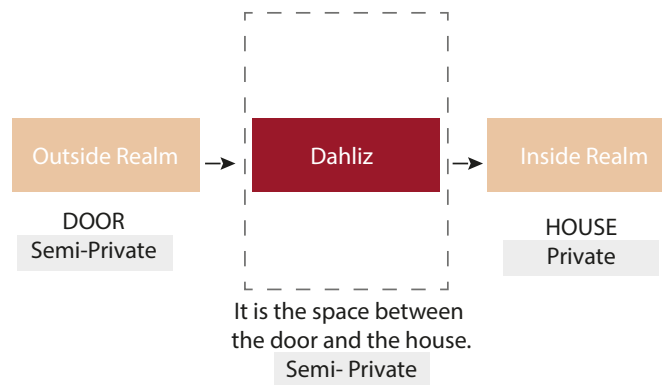


Figure 108: *Dahliz*, a semi-private space in the old houses of Jeddah

This male pattern is commonly used as a reception area for guests. A *dahliz* is directly located after the door step and the door in the roofed house. In most houses, whoever enters the *dahliz* is faced by the stairs that take you to the upper floors. This space is usually open all day and is closed only at night, which means any one can enter this space. The floor of the *dahliz* is usually made of sand or sometimes flagged stone. The swiss traveller Burckhardt described the *dahliz* in his book *Travels in Arabia* as follows: “there is generally a spacious hall at the entrance where strangers are received, which during the heat of the day, is cooler than any other part of the house, as its floor is kept almost constantly wet” (Burckhardt, 1829, p.18).

In small houses we usually find two wooden benches similar to the ones seen in cafés at that time. The owner of the house receives visitors who have not arranged their visits in advance. In the houses of the wealthy families the *dahliz* is very luxurious and tidy, and the back of it that is accessed by steps has carpets. Moreover, there is an area along the wall with cushions used for sitting or lying down (Abudoad, 2017, pp. 456–457).

Usually next to the *dahliz* from both sides or one side a number of small rooms are elevated from the *dahliz* level by a few steps to avoid or prevent water from reaching the room in case of floods (see [Figures 109](#) and [110](#)). These rooms are locally called *magaad* and are used as a reception for relatives, family and acquaintances which creates another platform of exchange for men. They are also used sometimes for sleeping, a storage with the *dahliz*, or for keeping luggage. According to Abdullah Mana’s (2011, p.107-8) memories of the 1950s, the *magaad* of houses such as Nazer house and the Banaja house provides a forum for “a complete social network of men and male youths of a quarter to meet and gossip, explore the news of the day, and play games”.

According to the above, the ground floor of the houses of Jeddah were open to invitees and visitors who don’t belong to the family household of the building. Meaning that the entrance of the house forms an emblematic threshold between the house and the street where the physical division of the house is in a vertical manner through the stairwell of the house.

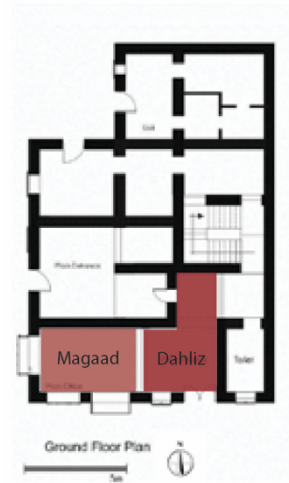


Figure 109: Waqf Al Shafi House. Next to the *dahliz* from both sides or one side are a number of small rooms which are elevated from the *Dahliz* level by a few steps to avoid or prevent water from reaching the room in case of floods. These rooms are locally called *magaad* and are used as a reception for relatives, family and acquaintances. Taken by author, 2019.

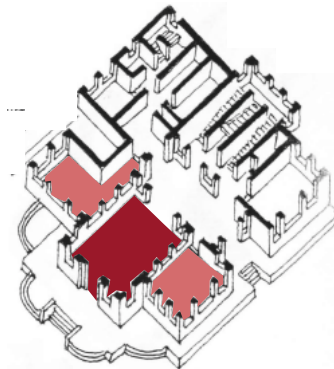
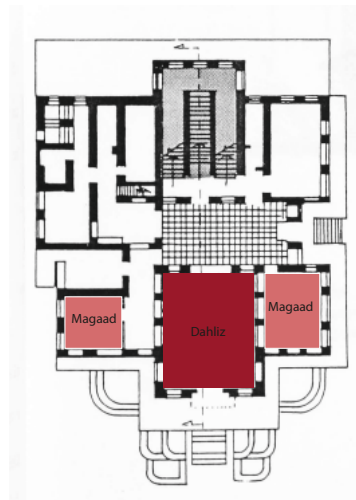


Figure 110: Nassif House. Showing the adjacent spatial relationship between *dahliz* and *magaad* houses in general. (Khan, 1981, p.22-32).

This pattern is unique and is related to the urban context of old Jeddah. It could be also found in cities on the rim of the Red Sea. It is a point of transition from the outside world to the more private world of the house. The *dahliz* is an example of a pattern that is solely related to particular cultures and is not found in Western cultures at all.

## ROOF OPEN SPACES \*SATUH, KHARJA\*

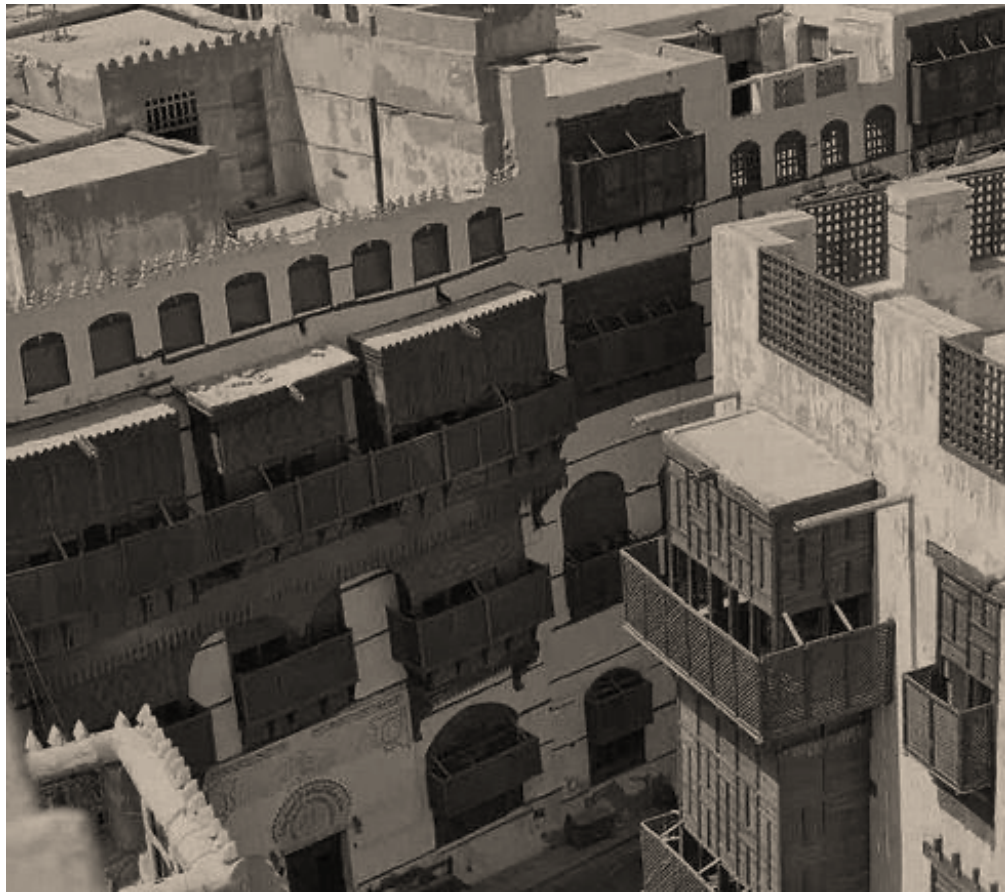


Figure 111: Setbacks on the roofs creating roof open spaces which had different social dimensions and uses. Source: taken by unknown. Roof Open Space (Digital Image) (Viewed 13.03.2019) Available from Arch Asem Helmi Twitter.

This pattern describes the characteristics of the open roofs, *kharja/satuh*, in the old city of Jeddah, one of the most important architectural features of buildings at that time as it had different social dimensions and uses. In 1701 CE Charles Poncet, a French doctor visited Jeddah. Writing about the houses of Jeddah, Poncet (1949, p. 33) notes: “The greatest part of the houses are built of stone, and are flat-roofed after the eastern manner”.

**“A vast part of the earth’s surface, in a town, consists of roofs. Couple this with the fact that the total area of a town which can be exposed to the sun is finite, and you will realize that is natural, and indeed essential, to make roofs which take advantage of the sun and air” (Alexander, 1977, p. 576).**

Roof open space, locally called *kharja/satuh*, is a private open space surrounded by high parapet walls (see [112](#)). This is an exclusively female/family pattern located on the upper floor of the house, usually third or fourth floor, open to the sky with an opening that allows air ventilation. It’s a private space for the inhabitants (women, their guests, and family members) used for gatherings after sunset in summer. The roof open space contains several spaces that are used by the house inhabitants, According to Al-Lyaly (1990, p. 56), it includes family living rooms, called *al-mabit*, often with two or three sides built of panelled woodwork with movable louvres, in addition to *morakkab* (kitchen), small storage rooms, rest room, *taharat*, and a laundry room which was also used as a service area where mattresses and rugs were dusted and cleaned, and clothes were dried (shown in [Figure 113](#)).

Furthermore, referring to Fadan (1983, p. 57), privacy was maintained in the roof open space, *kharja*, by 1.8-metre-high parapet walls, and this privacy was respected by a social and moral agreement between neighbours to refrain from inflicting any damage to the privacy of these terraces.

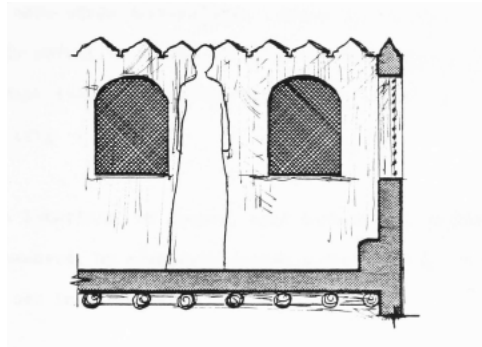


Figure 112: *Kharja* surrounded with high parapet walls. Pierced by arched openings with wooden grill-work. (Al-Lyaly, 1990, p. 67).



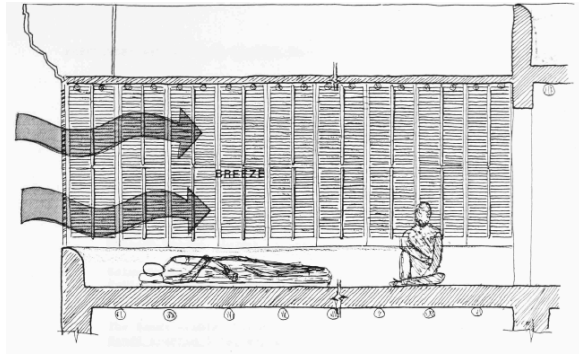


Figure 113: The louvred timber walls surrounding al-mabit on the uppermost floor allow the air to circulate freely in the space and at body level. (Morcos-Asaad, p. 67). cited in (Al-Lyaly, 1990, p. 138).

Since courtyards and outdoor spaces are not possible for families because of a shortage of land in the old city of Jeddah, these roof open spaces, *kharja/satuh*, were necessary as a way of socialising, gathering and for entrainment.

“The *Satuh* was an outcome of the reduction of building volume towards the top. It was screened from all sides by parapets but opened to the sky. In addition to the horizontal extension of the inside space, *kharjat* provided the house with an upward vertical extension towards the sky” Jomah (1992, p. 72).

As seen in [Figures 114](#) and [115](#), mostly, houses had more than one *satuh* distributed on the last level of the house for each nuclear family in the house. Each *satuh* is adjacent to an interior room named *al mabit* and works as a private open space. Additionally, the open spaces could also be situated on different levels such as in Jamjoom, Nassif, and Waqf Al Shafi House where other rooms could look at it just like in the Jamjoom House. In this case it is called *kharja*.



Figure 114: Most houses had more than one open roof, *kharjah*, which were situated in different levels on top of the house. Left, Al Hazazi House top floor. Source (Hariri & Sultan, 1995, p. 46) redrawn and edited by author.

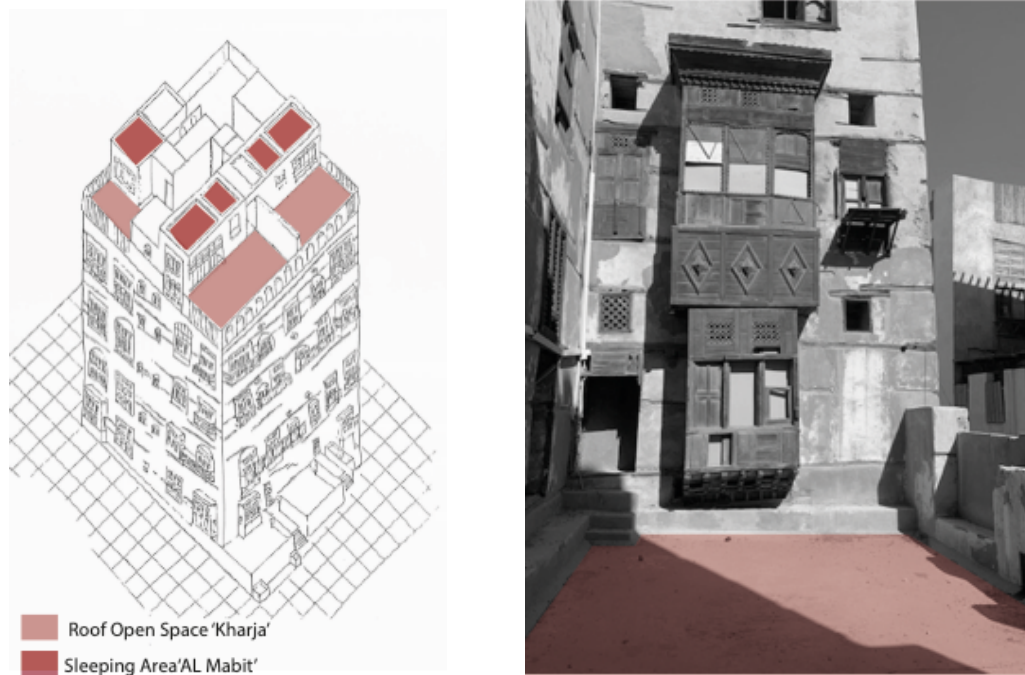


Figure 115: Right, showing more than one roof open space as well as sleeping spaces on the top floor of Al Hazazi House (Hariri & Sultan, 1995, p. 55). Left, Jamjoom House. Open space, *kharja*, situated on the second floor. Taken by author.

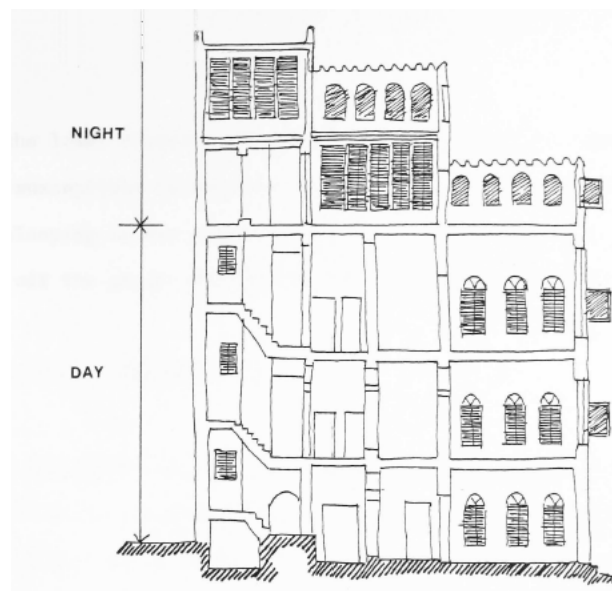


Figure 116: The distribution of family activities during the day and night (Al-Lyaly, 1990, p.124).



Figure 117: Nassif House showing the sleeping areas on different levels built into the roof open space. (Al-Lyaly, 1990, p. 128).

The pattern roof garden, which is explained in Alexander's book *A Pattern Language* is applicable yet slightly modified in the context of the old city of Jeddah. Here I call it roof open spaces. In Jeddah's context, it is more related to an outdoor room. Alexander looks at it as a liveable environment which is the case in the old town. As previously explained, this pattern is a significant space in houses. Roof open spaces, *kharj/satuh*, could be balconies or terraces, including different rooms for different uses such as sleeping rooms (*mabit*), washrooms, and laundry areas. See [Figure 117](#).

In the building scale which is a close and more detailed scale we looked at the following patterns; street windows (*roshan*), main entrances, low doorways (*khukah*), *dahliz*, roof open spaces (*kharja/satuh*).

As discussed in chapter two, the larger patterns require medium patterns and the medium patterns require smaller patterns to complete the larger ones. From that, we can conclude the importance of the relationship in Alexander's theory and that the patterns are not isolated but are reinforced by other patterns to help complete one another. For example, looking at the pattern street window (*Roshan*) which is meant to have a connection to the outdoors, therefore, to make it substantial, one has to link this pattern to other patterns such as window places and low sill. These two patterns are related to a smaller scale which is the body scale.

# **STREET SCALE**

## ENTRANCE TRANSITION



Figure 118: 1918. Showing the entrance transition through the stairs to the elevated terraces from the street to the house. Source: French photographer Paul Castellano from Albert Kahn Museum.

One of the first things to consider when designing a building is the location of its entrances which are affected by different factors. Entrances are transitions between the outer ‘public’ realm and the inner ‘private’ realm. “The entrance door of the house signalled the private world behind it and the change of level by the use of steps and high thresholds stressed transition between inside and outside” (Al-Lyaly, 1990, p. 40).

**“Buildings and especially houses, with a graceful transition between the street and the inside, are more tranquil than those which open directly off the street” (Alexander, 1977, p. 549).**

Alexander asserts that the feeling inside the building is affected by the experience and sequence of entering a building, “the experience of entering a building influences the way you feel inside the building. If the transition is too abrupt (as in [Figure 119](#)), there is no feeling of arrival, and the inside of the building fails to be an inner sanctum” (Alexander, 1977, p. 549). Moreover, he terms human behaviour on the street “street behaviour” and in order to relax completely in a house one must get rid of this street behaviour.



Figure 119: An example of a house in Jeddah with no transition. Source: (Digital Image) (Viewed 16.09.2019).

The transitional spaces are spaces of experience that fall between both realms. They are considered as buffer zones and physical links that are not solely private or public. Hertzberger (2001, pp. 32–35) notes that “they are places where two worlds overlap” (as shown in [Figure 120](#)).

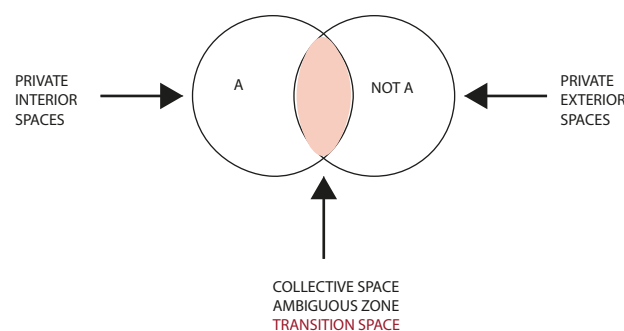


Figure 120: Understanding transitional spaces (Kent, 1990) redrawn by author.

In the old city of Jeddah, entrance transition, which is a male pattern, is one of the most important key features of its urban configuration as it takes place on different levels. The

building ground floor façades in the houses of historical Jeddah had two different forms. Either the house had a raised platform or terraces locally named *dakkah*, they were elevated by several steps from the street level. These spaces work as an in-between space that connects and at the same time gives a better view to the street and the surroundings. Other houses had no terraces but sitting benches called *mirkaz* used by the owner of the house to meet his guests on a daily basis.

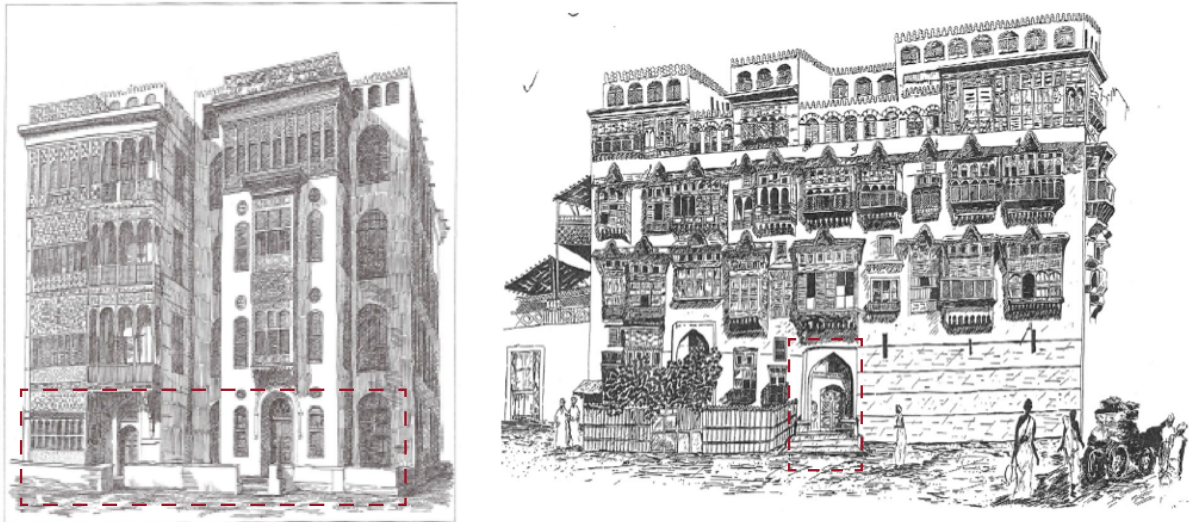


Figure121: Showing transitional spaces in old Jeddah using different elements and patterns (Pesce, 1977, pp. 56, 115).

Referring to [Figure 121](#), transitional spaces in the old city of Jeddah are physically experienced in different ways by using one or more elements together (such as seating stairs, private terraces on the street (*dakkah*), change of materials, and front door benches (*mirkaz*). In some houses we can see the seating stairs (change in level) as the transitional spaces, in others houses we can see private terraces on the streets combined with seating stairs and benches, etc.; each house is unique and gives a different experience.

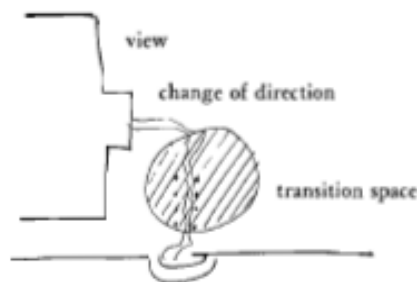


Figure 122: Showing the transition through sequence (Alexander, 1977, p. 552).

Like Alexander's description, see [Figure 122](#), the entrance transition pattern is applicable in Jeddah and gives a physical, social, and cultural experience which differs from one place to another. This transition goes all the way to the front door. Emphasize this experience or moment through seating stairs, private terraces on the street, *dakkah*, change of materials, and front door benches '*Mirkaz*'. This pattern which was created through men's need for social interaction is considered as a vital pattern in the creating of houses at that time where its position and orientation was carefully chosen.

PATH SHAPE \*ZUQAQ\*



Figure 123: A path in Al Sham neighbourhood Jeddah 1954. Narrow paths between houses were developed randomly. Source: <https://i.pinimg.com/originals/c0/5b/43/c05b439cf2a8f6b0935c211d077e1473.png>. (Viewed 01.04.2019).



Paths are one of the patterns that are usually defined by other patterns such as building front, building edge, entrance transition, stair seats, and street windows, *roshan*.

**“Streets should be for staying in, and not just for moving through, the way they are today” (Alexander, 1977, p. 590).**

In old cities, the streets were designed in a way where the residents could socially interact outside of their houses through open spaces. On the other hand, modern cities create streets where people can move from point A to B meaning that they are no longer designed for people to stay, interact, or socialise. As a consequence, modern streets have lost their appeal and are no longer as attractive as they used to be. Alexander (1977, p. 590) pinpoints the problem as follows: “streets are ‘centrifugal’ not ‘centripetal’: they drive people out instead of attracting them in”. There are many ways to design paths that can attract people to stay rather than to go through, such as adding seats along the edge of the houses, shading the path and having stair seats.

Paths plays a vital role in the urban fabric of the old city of Jeddah due to its harsh climate and socio-cultural values. The old city of Jeddah is made of a number of street paths (*zuqaq*) which are formed through the arrangements of irregular buildings. “The street pattern in the old town obviously did not conform to any rigid geometric pattern. It developed naturally and in stages according to specific needs” (Khan, 1981, p. 197). The function and location of the path determines its width. “They were sometimes as narrow as two and a half meters” (Najib, 1987, p. 34)

Looking at the map of the old town in [Figure 124](#), there is a very noticeable layering and hierarchy through street width. Abu-Ghazze (1998, p. 227) states that, “the indigenous urban pattern of Jeddah Al Qadimeh shows an intriguing maze of irregular streets, hierarchically diminishing in width from public thoroughfares into semi-private narrower lanes, than further into private cul-de-sacs and houses”. This indicates that the width of a street is determined by its location in the city and its use. Streets that are located in the public and active areas near the centre are wider than those located between houses. See [Figure125](#).

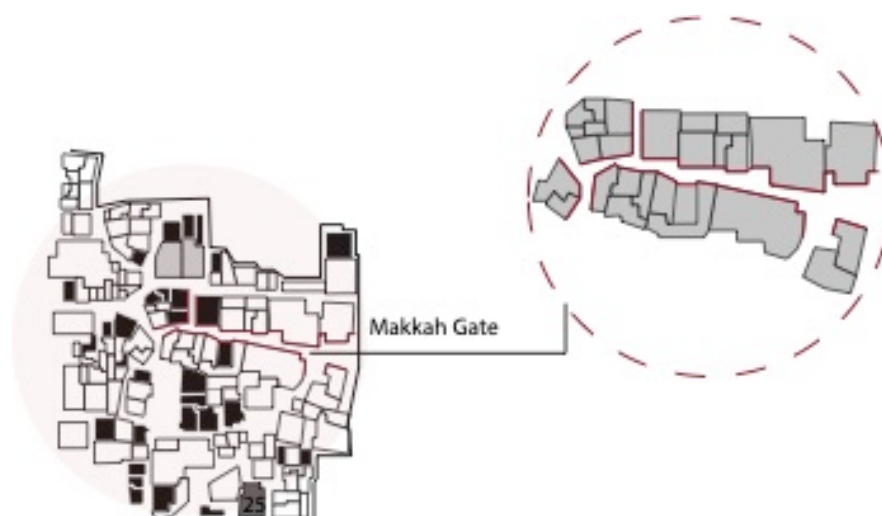


Figure 124: Street path, *zuqaq*, which are formed through the arrangements of irregular buildings in Jeddah. Drawn by author.

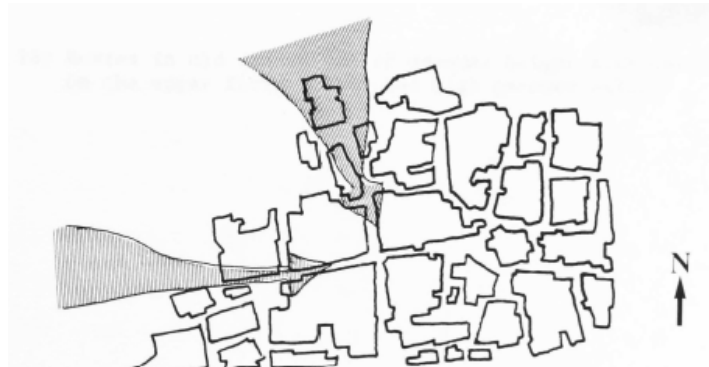


Figure 125: To the right, showing the narrow streets with six-storey houses (Edwards, 1987, p. 51) to the left, Jeddah is made up of a number of street paths (*zuqaq*) which are formed through the arrangements of irregular buildings affected by the climate (Talib, 1982, p. 8).



Figure 126: (Alexander, 1977, p. 591)

This pattern is clearly noticeable and makes sense in old Jeddah, again due to the segregation of both genders through the hierarchy and layering from the most public to the most private zones. The shape of these narrow alleys developed naturally due to the shape of the façades and building fronts of houses and their extension towards the streets creating different angles

Alexander suggests, to create the shape of the path, one should locate the building fronts in the right position. Moreover, choose the location of the 'bulge' to locate the stair seats, outdoor rooms and street windows (*roshan*) to give as much life as you can to the path length.

## BUILDING FRONT



Figure 127: Banaja House in Al Sham neighbourhood, 1971. Building Fronts are important patterns that shape other patterns in the public realms. Source: (Digital Image) (Viewed 01.04.2019).

This pattern helps to shape other patterns such as positive outdoor spaces and path shape.

**“Building set-backs from the street, originally invented to protect the public welfare by given every building light and air, have actually helped greatly to destroy the street as a social space” (Alexander, 1977, p. 593).**

In the positive outdoor spaces, Alexander (1977) argues that buildings play a vital role in shaping the outdoors. Building fronts have such an important role in shaping streets and squares. In this pattern, Alexander (1977) describes the problem that played a role in affecting the building front which is setbacks. In the early twentieth century a law of setback was created in the urge for cleanliness and cleaning up slums. Buildings were placed several feet back from the edge of the street in order to keep away from street crowding created by buildings and to avoid the disruption of sunlight and air. The setback had a negative consequence as it destroyed the streets and their appeal.

He argues that there are many ways to guarantee sunlight and air to buildings, therefore, he suggests that “it is essential to build the front of buildings on the streets, so that the streets which they create are useable” (Alexander, 1977, p. 593). Moreover, he proposes that building fronts should take the shape of the outdoors which will give a variety of uneven angles, as is the case in the old city of Jeddah (shown in [Figures128](#) and [129](#)).

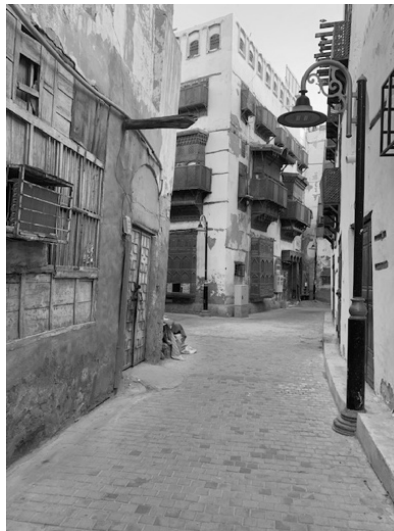


Figure 128: Al Yemen neighbourhood not far from Nassif House. Showing slight angles in the building fronts. Source: taken by author, 2019.

In 1916, Tomas Edward Lawrence visited Jeddah and later described the houses as follows: “it was indeed a remarkable town. The streets and alleys, were wood roofed in the main bazaar, but elsewhere open to the sky in the little gap between the tops of the lofty white-walled houses. These were built four or five stories high, the coral rag tied with square beams and decorated by wide bow-windows running from ground to floor in grey wooden panels. There was no glass in Jidda, but a profusion of good lattices, and some very delicate shallow chiselling on the panels of the window casings.... House-fronts were fretted, pierced and pargeted till they

looked as though cut out of cardboard for a romantic stage-setting” (Lawrence, 1965, p.152). This confirms that all the building fronts had openings towards the street which is called street window pattern, *roshan* as well as screen and shutters which are considered female patterns.

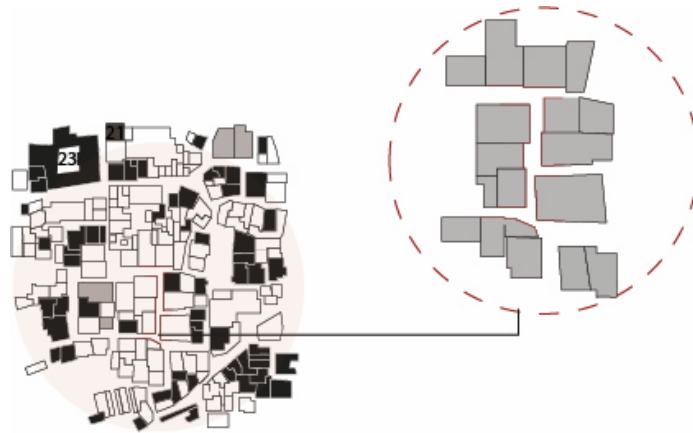


Figure 129: Building fronts should take the shape of the outdoor which will give a variety of uneven angles.  
Drawn by author.

Like Alexander describes, this pattern makes sense in the context of old Jeddah where the building fronts are highly decorated with architectural elements for both genders which had social importance for the males and females and connected the social fabric, the indoor with the outdoor.

This pattern is completed through other male and female patterns. Alexander (1977) suggests detailing the whole building including the fronts. He also advises using the pattern private terraces on the street if some outdoor spaces are need in front of the building. Moreover, he recommends giving the building various openings to the street through stair seats, street windows (*roshan*), and front door bench (*mirkaz*).

## BUILDING EDGE



Figure 130: Photograph of the exterior of the Dutch Consulate, Jeddah c. 1910. Live edges in buildings affect the social interaction. Source: probably by Consul N. Scheltema. Cited in Vrolijk, Mols, 2016, p. 6.

The building edge is a pattern that is located between two realms, the indoor and the outdoor as a boundary which is called the transitional zone. Lynch (1960, p. 47) refers to it as a line which separates two areas having different features from each other. Alexander states that “often this ‘zone’ is thought of as an edge, a line on a paper without thickness, a wall. But this is wrong...” (Alexander, 1977, p. 753).

**“A building is most often thought of as something which turns inward toward its rooms. People do not often think of a building as something which must also be oriented toward the outside” (Alexander, 1977, p. 753).**

In order for the building to support social interaction and life and not be isolated, its edge should be alive, meaning that the building should be oriented towards the outside. This concept was developed by Alexander and his colleagues in *A Pattern Language* in 1977. Moreover, Gehl (2011) addressed in his book, *Life Between Buildings*, the concept of edge and how buildings generate activities in public areas.

Looking at the contemporary city of Jeddah, the residential buildings are totally isolated from the outside realm as villas are designed and built individually and are located in the middle of an individual plot that retreats inwards and is laid out on different kinds of gridiron plans. The huge solid fence surrounding the villa works as an element that isolates the public from the private (as shown in [Figure 131](#)). This could be one of the factors that had an impact on the vitality of street life, which is still to be found in traditional planning.



Figure 131: No transition, no social life as the edge does not support it. Source: Jeddah (Digital Image) (Viewed 16.09.2019)

By connecting the social fabric through the building edge, different kinds of buildings will arise that are completely different to the ones we see these days in the contemporary part of the city, see [Figures 132](#) and [133](#).

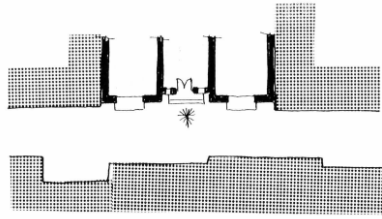


Figure 132: Building edge in the traditional city of Jeddah through stair seats and street windows (Scott & Mason, 1946, p. 159).



Figure 133: Nassif House. Building edge in the traditional city of Jeddah through stair seats, street windows, and private terraces on the street. (Pesce, 1977, p. 144).

Like Alexander's description, this pattern is found in the context of the houses of old Jeddah and is created by male and female patterns which include; connecting to the earth, stair seats, street windows (*roshan*), and front door bench (*mirkaz*). The building edge pattern creates social interaction and life in the city through different social activities.

In this part, we looked at the street scale which includes the following patterns; entrance transition, hierarchy of open spaces, path shape (*zuqaq*), building fronts, and building edge. Again, as seen in Alexander's (1977) book *A Pattern Language*, there is a connection between patterns in different scales which is also the case in the old city of Jeddah. To illustrate, detailing the building front as well as the building edge supports in shaping the path (*zuqaq*). The building edge, for example, is connected to other smaller patterns that help to complete the image of the edge such as stair seats, street windows, connecting to the earth, and front door benches. By that, we can say that a connection between all patterns in the same scale is not necessary, however, there is always a connection of smaller patterns to one another to form a larger pattern.



# **CITY SCALE**

## POSITIVE OUTDOOR SPACES \*BARAHAT\*



Figure 134: Barhat Faransa, located in Al Sham neighbourhood. Open spaces between houses were created randomly by the surrounding buildings. Source: unknown, 1950s. Barahat Faransa (Digital Image) (Viewed 12.09.2019).

Positive outdoor spaces are named *barahat* in the old city of Jeddah are seen as male patterns. As Alexander (1977, p. 518) states, the location of the houses and the outdoor spaces should be carefully chosen; “you cannot shape one without the other”. This pattern gives you the geometric characteristic of the outdoor.

**“Outdoor spaces which are merely ‘left over’ between buildings will, in general, not be used” (Alexander, 1977, p. 518).**

In *A Pattern Language*, Alexander (1977) differentiates between two different kinds of outdoor spaces: negative spaces and positive spaces. This depends mainly on the division of the outdoor space, as the space either has a shape ‘positive’ or is shapeless ‘negative’. Positive outdoor spaces depend mainly on the form of the surrounding buildings to increase the degree of spatial quality of its self through openness and closeness. On the other hand, a negative outdoor space has no defined shape which is usually created by the surrounding masses.

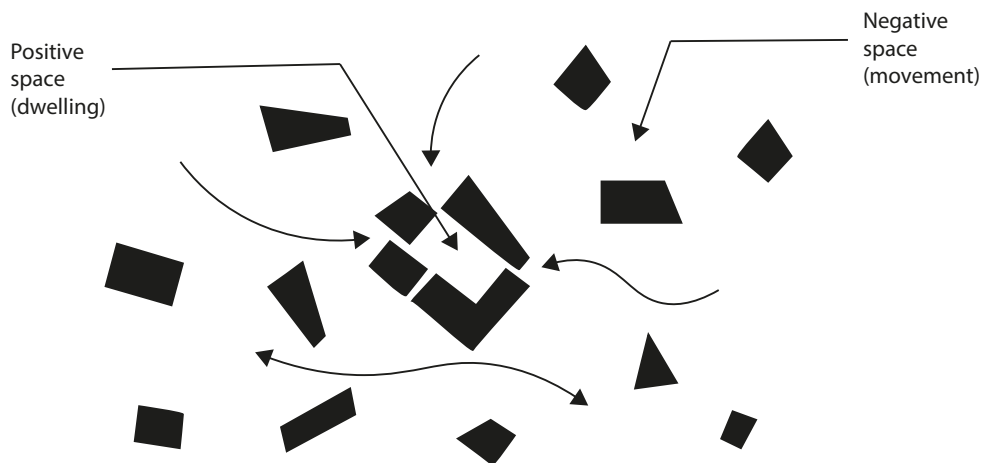


Figure 135: Positive and negative outdoor spaces (Frederick, 2007, P.6). redrawn by author.

According to Frederick ([Figure 135](#)), “the shape and quality of architectural spaces greatly influence human experience and behaviour, for we inhabit the spaces of our built environment and not the solid walls, roofs and columns that shape it. Positive spaces are almost always preferred by people for lingering and social interaction. Negative spaces tend to promote movement rather than dwelling in space” (Frederick, 2007, p. 6). This stresses the importance of carefully considering and creating positive spaces in cities, and their effect on socialisation and behaviour in general.

Moreover, another way of defining positive and negative spaces is through convex and non-convex spaces, a term which was first coined by Hillier and Hanson (1984) to identify spaces of a system (as shown in [Figure 136](#)). A positive space is a space that is defined and incompletely enclosed with boundaries but tends to give a feeling of enclosure to the space. On the other hand, negative non-convex spaces are weakly defined compared to positive spaces as the boundaries or enclosure of the space are missing.

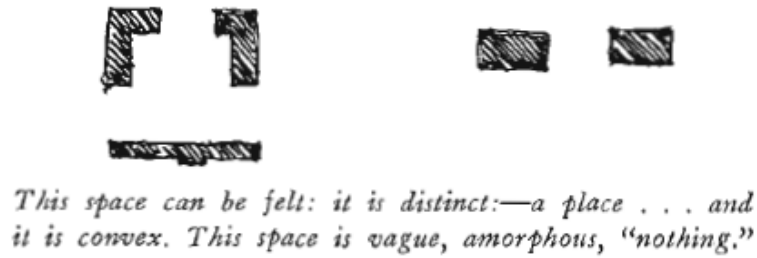


Figure 136 : Convex and non-convex (Alexander, 1977, P.519).

Alexander’s hypothesis is that “people feel comfortable in spaces which are ‘positive’ and use these spaces; people feel relatively uncomfortable in spaces which are ‘negative’ and such spaces tend to remain unused” (Alexander, 1977, p. 519).

Alexander refers to the theory outlined by Sitte and Collins (1986), in *City Planning According to Artistic Principles* when discussing the hypothesis of this pattern which is the morphology of historical urban squares. Sitte observed and analysed many cities while traveling and developed a set of rules for the plazas and public spaces. He analysed a number of open spaces (city squares) and distinguished between the lively used spaces and the dead ones. He argues “that the key characteristics of a successful public plaza is their enclosed nature, restricting view out of the space and limiting endless perspectives” (Jiang, 2015, p.67) out of the space and the irregularity of shape, as seen in [Figures 137](#) and [138](#).

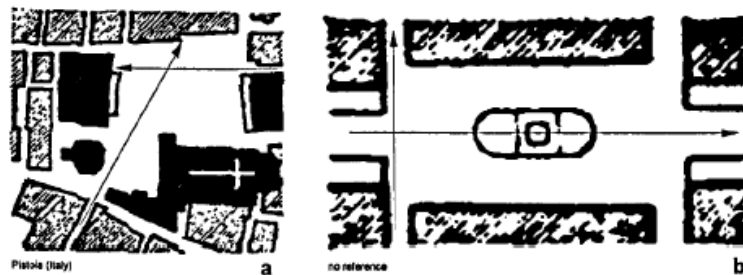


Figure 137: Example of how entry points can characterise spatial enclosure (Sitte, 1889, cited by Alshafie p. 11).



Figure 138: Example of the irregularity of shape (Sitte, 1889, P. 53,48).

Furthermore, Alexander explains how to transform a negative open space to a positive space through building projection, adding a small building or wall, and, vice versa, when an open space is too enclosed, breaking the building helps to open the space up, as shown in [Figures 139](#) and [140](#).



Figure 139: Transforming an open shape to a more enclosed space (Alexander, 1977, p. 521).

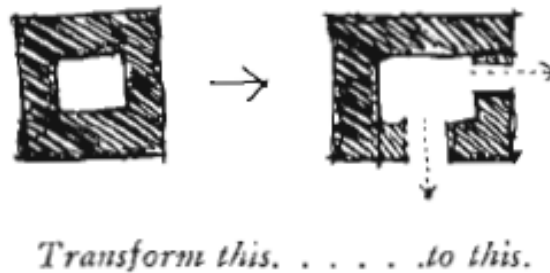


Figure 140: Transforming an enclosed to a more open space (Alexander, 1977, P.522).

According to Abudoad (2017) *Barahat* are empty lands that fall between houses in the historical city of Jeddah. These spaces are intended as a meeting point for people that live around the same area. They are used at different times of the day for different occasions such as weddings, funerals, and places where teens and children meet to play games. Moreover, these spaces include benches (*mirkaz*) for people to sit, playing areas for singles and groups, and pedestrian walking areas. Therefore, they are considered as a social, economic, and meeting spot. *Barahat* in the old city of Jeddah are not all equally sized as it depends on their location and the number of houses surrounding them. They are usually located in front of mosques or prominent houses. Such shared territories among the neighbours enhance the social integration and sense of community which is missed these days in the modern area.

This male pattern is usually named according to its proximity to one of the famous family houses that it surrounds. Additionally, according to Abudoad (2017), these open spaces are used differently in different seasons, for example during *Hajj* season these spaces are occupied by a lot of pilgrims who can't afford to rent a place to stay until they leave the city to Makka.

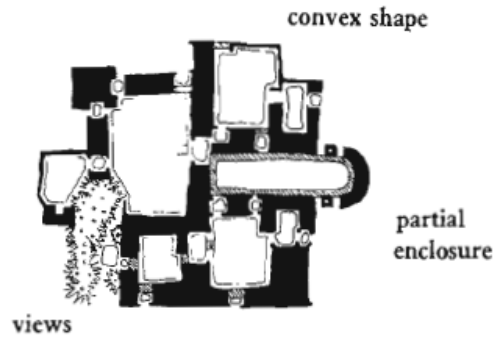


Figure 141: (Alexander, 1977, p.522).

Positive outdoor spaces described by Alexander (Figure 141) are seen in the urban configuration of the city of Jeddah, however, there is a slight modification as these open spaces, known locally as *barahat*, are situated in residential areas between houses. They are considered semi-public spaces. These open spaces can also be found in the public realm, for example next to mosques and port area. As previously explained, they are mainly male pattern which means that their use is different than the public spaces described by Alexander.

In old Jeddah these spaces are formed through the hierarchy of open spaces, use of building fronts, as well as building edge through making places all around the edge of the building. This will give the space its shape (for example seating, benches and street windows). Alexander suggests applying this pattern to roof open space (*satuh/ kharja*), and path shape to create positive character in the outdoors on different levels.

## CONNECTING BUILDINGS



Figure 142: The houses in the old town of Jeddah were clustered in blocks in random arrangements due to the excessive heat and the need for air movement. Source: taken by the photographer Bob Landry for Life Magazine.

According to Alexander, the pattern connecting buildings helps to complete positive outdoor space (Alexander, 1977, p. 532). This pattern helps to create positive outdoor spaces as it excludes wasted spaces between buildings which will automatically concentrate people in certain areas in front of the buildings creating positive spaces where people can meet, interact, and socialise.

**“Isolated buildings are symptoms of a disconnected sick society” (Alexander, 1977, p. 532).**

Alexander (1977, p. 532) refers to isolated buildings as sick society. He argues that even in high density societies people still build isolated structures which have a negative impact on people’s social interaction.

The houses in the old town of Jeddah were clustered in blocks which helps to create a stronger bond between neighbours as the interaction takes place in front of the houses. “The buildings inside the wall were closely packed without any particular arrangement” (Pesce, 1977, p. 106). This is due to the excessive heat and the need for air movement – [Figure 143](#), “houses were grouped in blocks or terraces of three or more, thus forming a relatively dense development of tall buildings with narrow streets and alleyways.... Sometimes the houses formed a haphazard conjunction, back-to-back or side-to-back... but the majority of the houses, building blocks seem to tend towards a certain amount of scattering, so as not to obstruct incident prevailing breezes and increase the potential for natural ventilation” (Al-Lyaly, 1990, p.116)

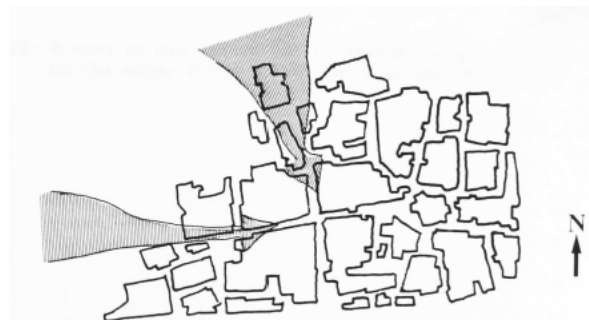


Figure 143: The loose cluster in the hot and humid old town of Jeddah. Source: (Talib, 1984, p. 8).

As Alexander (1977 p. 532) argues that connected buildings have healthy consequences as you are forced to connect and interact with your neighbour and that isolated buildings have unhealthy ones\_ [Figure144](#). People nowadays don’t even know their neighbours as they are totally isolated. See [Figure 145](#).





Figure 144: Modern detached buildings. Source: Dom Arquitectura. Four Houses in Jeddah. Source: (Digital Image) (Viewed 16.09.2019) <https://archello.s3.eu-central-1.amazonaws.com/images/2014/01/10/1->



Figure 145: Connected buildings crates spaces for interaction. Source: (Alexander, 1977, p. 534).

This pattern is applicable in old Jeddah with slight modifications due to the climate, particularly the microclimate, in the area where the land and sea breeze, temperature, and wind direction played an important role in the urban configuration of the old town. Looking at the urban plan of old Jeddah we find a loose cluster where a few buildings are grouped with narrow alleys for wind channelling and movement of pedestrians. This grouping helped to minimise wasted space and forming and defining the open spaces used by residents in different times and for different occasions.

## HIERARCHY OF OPEN PACE



Figure 146: Jeddah, 1950, showing the hierarchy of open spaces which is created through the sequence of several positive spaces that overlook other larger spaces such as *barahat* in residential quarters between houses. Source: ([https://twitter.com/55\\_gayed](https://twitter.com/55_gayed) viewed: 18.06.18).

The hierarchy of open spaces is created through the sequence of several positive spaces that overlook other larger spaces. Alexander (1977, p. 558) states that, “the main outdoor spaces are given their character by .... positive outdoor space. But you can refine them and complete their character by making certain that every space always has a view out into some other large one, and that all the spaces work together to form hierarchies”.

**“Outdoors, people always try to find a spot where they can have their backs protected, looking out towards some larger opening, beyond the space immediately in front of them” (Alexander, 1977, p. 558).**

People allocate themselves towards the view while sitting alone or socialising. In *A Pattern Language*, Alexander refers to three major ways of applying the hierarchy to spaces according to scale from small, to slightly large, to large, in order to make people comfortable. See [Figure 149](#).

Looking at the old city of Jeddah, it is clear that its structure is made of hierarchical spaces based on the Islamic beliefs and culture. “The hierarchical organization of spaces from the most public to the most private and the sequences between different levels of privacy gave an introverted character to open spaces. The town can be viewed as a sequence of spatial elements where the *suq* and the mosque were the focus of social interaction among men, and the houses were the more private, sheltered part of the living realm” (Al-Lyaly, 1990, p. 39.) [Figure 147](#). [Figure 148](#) shows the relationship between the private terraces on the street and the street or the open spaces, *barahat*.

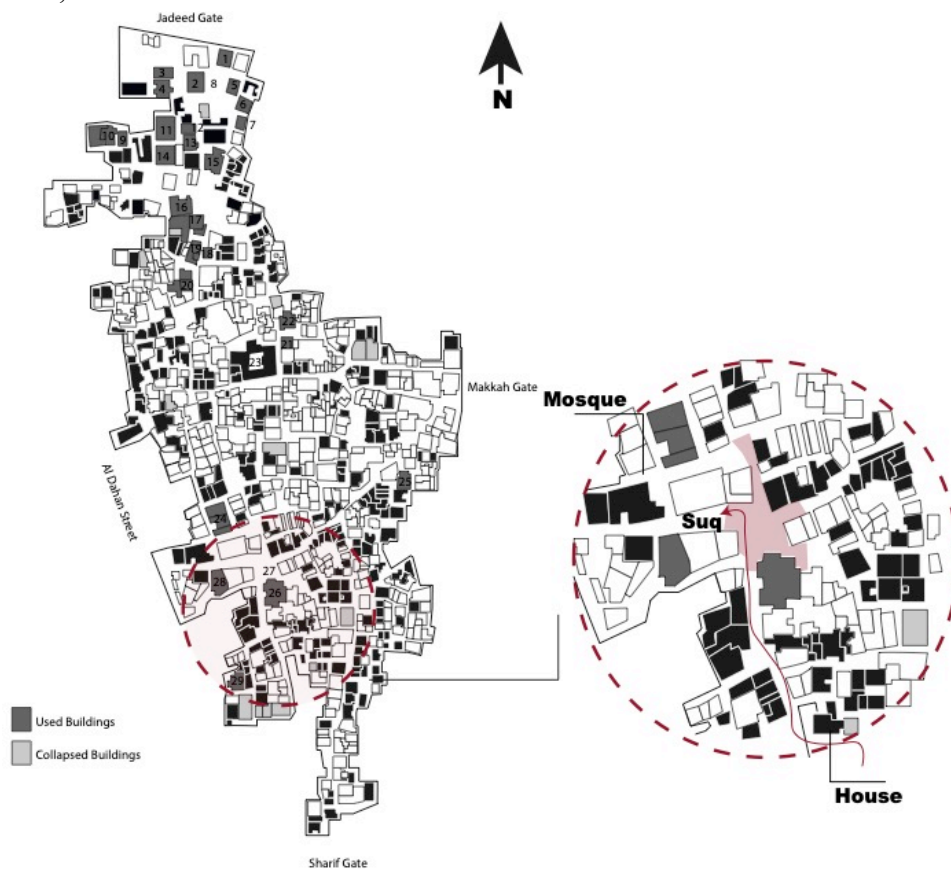


Figure 147: Showing the sequence and hierarchy of spaces in the old town of Jeddah. Source: Author.

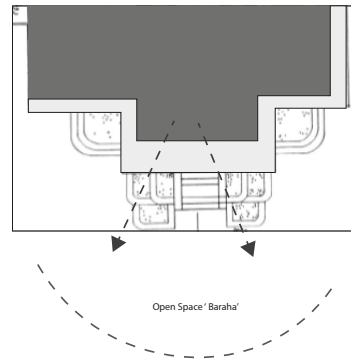


Figure 148: Nassif house showing the connection between the open space (*baraha*) in front of the house and the private terrace on the street which is viewing the space. Source: Author.

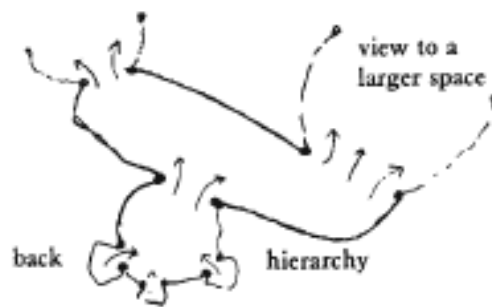


Figure 149: Sequence of several outdoor spaces creating a hierarchy of open spaces. Source: (Alexander, 1977, p. 560).

The pattern hierarchy of open spaces is applicable in old Jeddah as it makes sense in this context due to the segregation needed between genders in Islamic cities in general. Consequently, this pattern helped to create layers and, therefore, different hierarchies in the city with different views going, for example, from narrow alleys to larger open spaces. Private terraces on the street open on to large positive outdoor spaces (*barahat*) or streets.

In this part we looked at the city scale which is the largest of all the scales. This scale includes three patterns; positive outdoor spaces (*barahat*), connecting buildings, and hierarchy of open spaces. These patterns are achieved through their connection to each other as well as to other patterns from different scales. For example, to achieve the positive outdoor spaces (*barahat*) a connection between hierarchy of open spaces, connected buildings, building fronts, and building edge is necessary to give the space its shape and required attention.

## Time Dimension

Time dimension is used in this research to identify patterns in the old city of Jeddah. This dimension is not used or identified by Alexander and his team in *A Pattern Language*. The tracking of time involves vast time through dynamic observation which is characterised by constant change or activities that take place at different times, it varies through the day, the week, the year, and the season. This means that the observation of this dimension at different times; historical, day, night, and season, creates different seasonal patterns which are related to the use of patterns and practice that brings it to life through human interactions, socialisation, ordering, and regulating social life. Barbra Adam (2006, pp.121–122) asserts, “often, the tracking of time has been rooted in the capacity to identify patterns associated with differences: light and dark, day and night, summer and winter, hot and cold, dry and wet... knowledge of the right time and season was power, for it was this knowledge that governed both the acts of everyday life and decisions of state”. Adam’s work on time in her article *Tracking Time and the Quest for Know-how* directs us to the importance of time for tracking the act of the everyday life and decisions of state.

This applies to all patterns in the old town of Jeddah, I describe below two examples; first, window places (*rawasheen*), second, roof open space (*satuh/ kharja*).

Window places (*roshan*) are a focal point in certain rooms where they subdivide the room to subspaces with different uses and atmospheres. When we perceive this pattern through time dimension, we find that it has several different uses depending on the time of day. As seen in [Figure 150](#), they were constructed to human scale, therefore, different social activities took place in them. They could be used for sleeping at night, or napping during certain times of the day, chatting, enjoying a snack with a cup of tea in the afternoon, and observing the streets and the city, mainly by women, during the day.

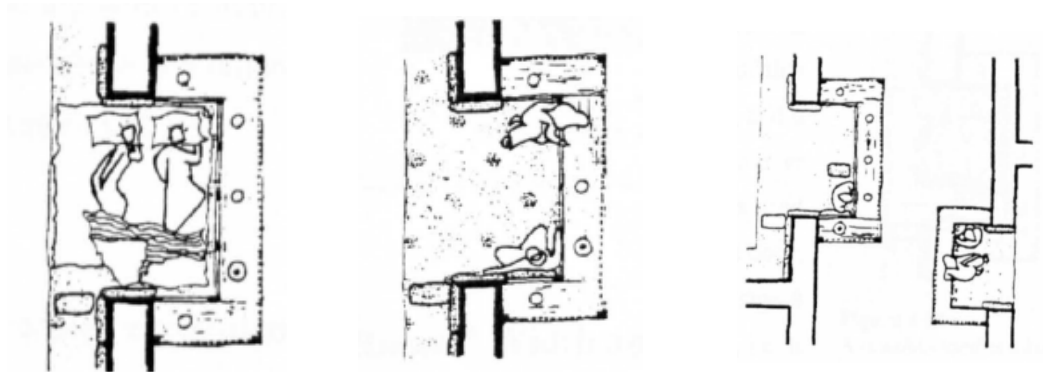


Figure 150: Different uses for the *rohan* during the day and night. Source: (Akbar & Akbar, 1998, p. 70).

Another example of a pattern is the roof open space (*satuh/ kharja*) on the upper floor of the house (as shown in [Figure 151](#)). This space also had many different functions depending on the time of the day. For example, during the day laundry takes place there. And in summer after sunset, it is a place for gathering and socialising for women, their guests, and family members. Moreover, as per space availability and household preference, this space contains a

number of sleeping rooms named *al mabit* where the inhabitants of the house would sleep at night. Also, different occasions can take place there such as weddings.

Furthermore, this space is also occupied through different seasons. First, because *Hajj* is a good source of income, some families would rent the whole house to pilgrims and move to the upper most floor until the pilgrims leave to Makkah. Second, according to an interview with Samira Fitahi (2019) during Ramadan, this space is always ready and prepared to be used for socialisation at night where people will enjoy nuts, popcorn, tea, coffee and the leftovers of the *Iftar* food that is eaten during fast breaking after sunset in the holy month of Ramadan.

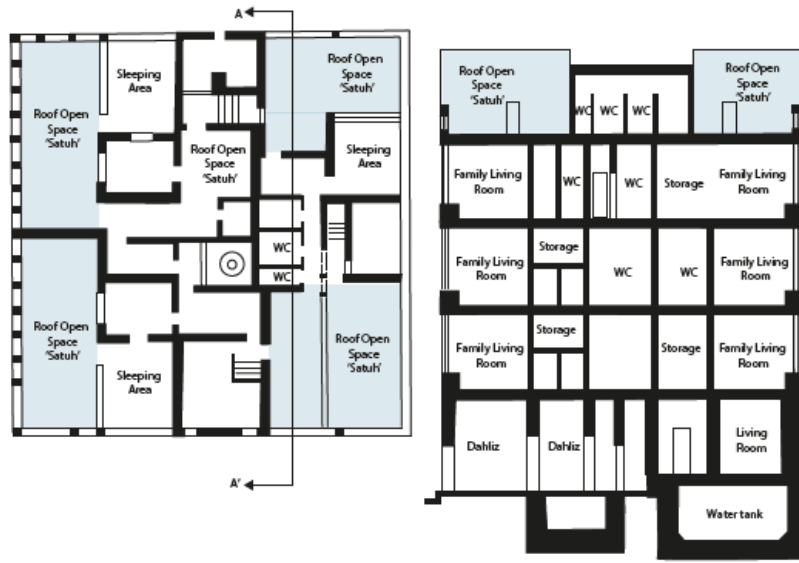


Figure 151: Al Hazazi House upper floor. Showing the roof open spaces area where different activities take place during the day and night. Source: (Hariri & Sultan, 1995, p. 46) redrawn by author.

The above example explains the notion of time as we see how practice alters according to time. As I already mentioned, this is applicable to all patterns in the old town of Jeddah in all four different scales; body scale, building scale, street scale, and city scale.

In summary, this part identified eighteen patterns in the old town of Jeddah. It is organised along four scales, which form the basis of its investigations; body scale, building scale, street scale, and city scale. This is similar to what Alexander did by studying the small window ledge to the urban pattern (town, building, construction), therefore, different methods are required for different scales. Additionally, time dimension is used to understand the act of the everyday life.

To acknowledge the eighteen patterns entirely, it makes more sense to look at them and read them in the opposite order, small to large. This is totally opposite to how Alexander looked at the scales in his book *A Pattern Language*. While “the human mind can combine the smaller patterns into groups, the larger patterns utilise these groupings and also generate new patterns. The mind is capable of validating the patterns subconsciously when we read them in an evolving order (small to large)” (Salingaros (2000, p. 154) .

Salingaros (2000, p. 154) noted that, “the smaller the scale in which patterns act, the more immediate it connects to human beings... We can experience them with most of our senses. Larger patterns can’t be touched or felt., they require synthesis and recognition. They become more intellectual. People who have not experienced them in person can rarely imagine their emotional impact”.

These patterns occur over and over in the selected traditional neighbourhoods of Jeddah. Fieldwork is used to identify these patterns which can be divided into two different kinds: first, new patterns that are specific to the Islamic city of Jeddah and cities on the rim of the Red Sea; second, patterns that are found in *A Pattern Language*, which may have different names but the same functions or slightly modified to the ones described by Christopher Alexander and his team in his book.

[Figure 152](#) shows the relationship and connection between the patterns in all scales. As previously explained, each large pattern is made up of many medium and small patterns that are all connected. Each pattern is connected to a random number of other patterns which establishes the network. I demonstrate two out of many possible connections of patterns taken from the old town of Jeddah.

First example, window places, street windows, building fronts, positive outdoor spaces are all connected to one another as the window places are part of the whole window (*roshan*) through which I can look from the inside to the outside, and part of the building stands on the street which is part of the city.

Second example, low doorway, front door benches, private terraces on the street, stair seat, building edge, and positive outdoor spaces. There are several layers of transitional and threshold spaces that take us from the private realm of the house to the semi-private which is part of the house that overlooks the street which is part of the city.

These connections demonstrate the constitution of scale up or down of pattern interdependency which confirms Alexander’s theory regarding the networks and their links with each other to produce the pattern language.

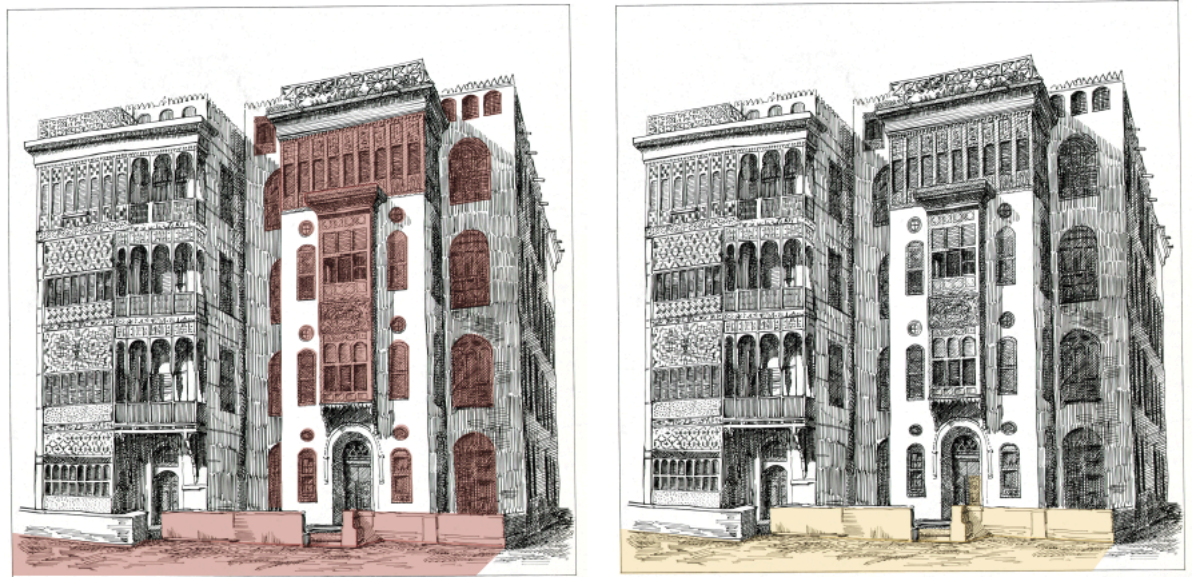
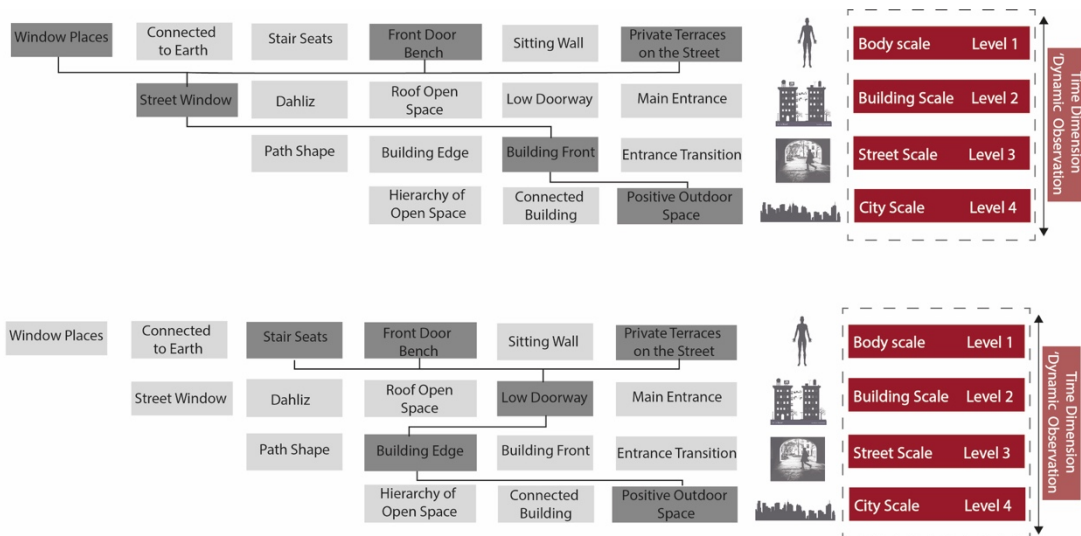


Figure 152: A vanished example of Jeddah's Architecture demonstrating the relationship between the eighteen patterns in four scales. Each figure shows a different sequence possible in the old town of Jeddah. The first diagram is related to building highlighted in red. The second figure is related to the building highlighted in yellow. Source: Drawn by G. Saccardo from a 1960 photograph. Edited by author.



## Analysing the Eighteen Patterns

This part, which is the last part of chapter four looks at two main points: first, we look at each identified pattern from the previous part of this section on a number of houses that were looked at in general in the old town of Jeddah to see the frequency of appearance of each identified pattern in the urban context of Jeddah. Second, we take a close look at five selected houses that differ in size, number of households, and status from the historical city of Jeddah in different neighbourhoods and analyse the identified patterns from the previous section of this chapter through different methods such as interviews, sections, observation and diagrams.

[Figure 153](#) shows 26 houses that were looked at in general during the fieldwork to identify the selected patterns. These houses are all within the boundaries of the UNESCO selected area which is shown by the black boundary line surrounding the area in the old town of Jeddah. Moreover, these houses are in good condition compared to many other ramshackle houses, and are within the Ministry of Culture’s plan to develop and preserve.

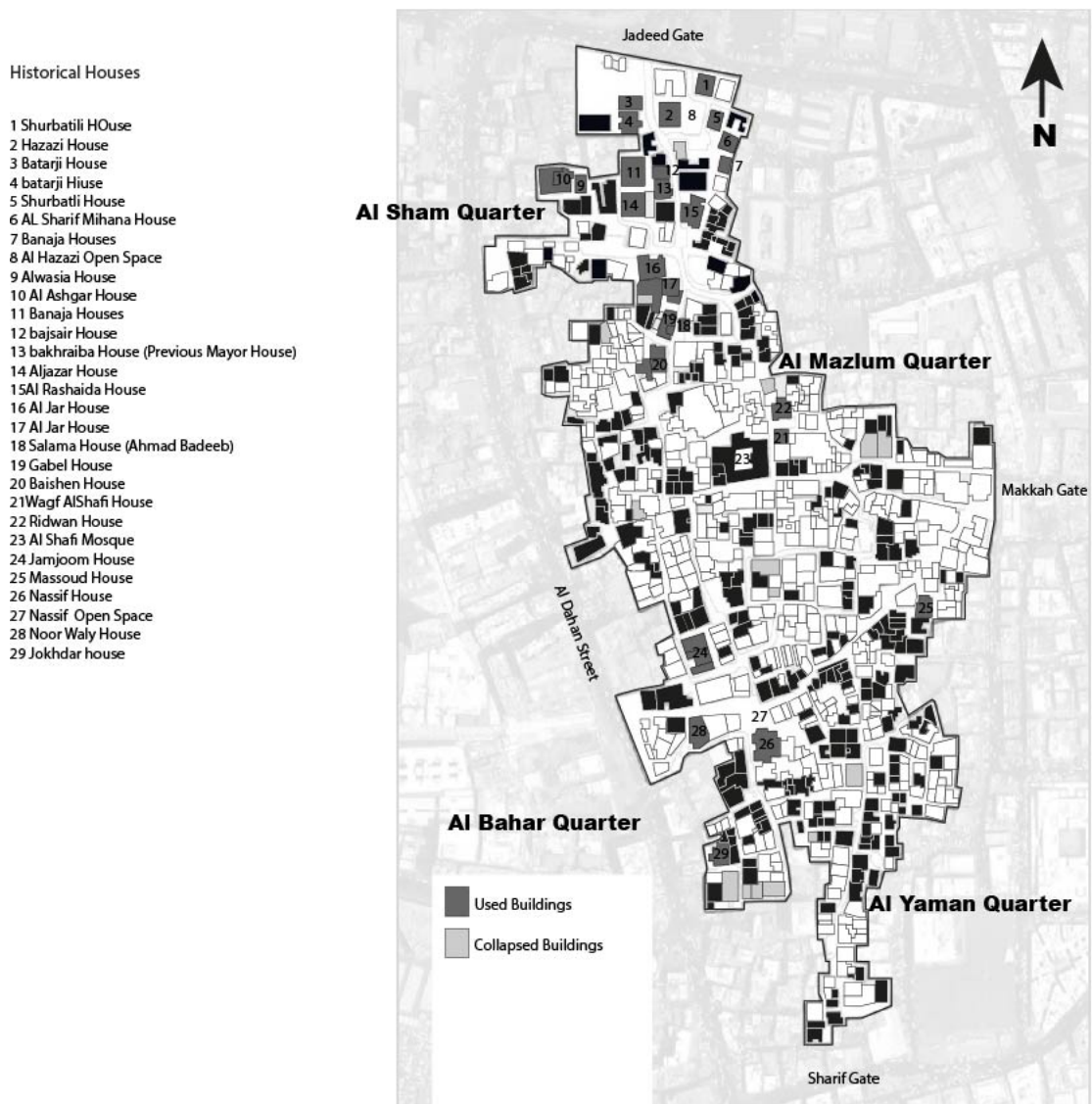


Figure 153: 26 houses that were looked at to investigate patterns in the old town of Jeddah. Source: Drawn by author.

After identifying the eighteen patterns that occur over and over in the old town, which are explained thoroughly in the previous part of this chapter, a map of the old town was used to show the frequency of each pattern individually. These follow the same sequence presented in the previous part of this chapter from the small-scale to the large-scale. Additionally, three different colours were used to identify the patterns in three categories which are; red for male patterns, blue for female patterns, and yellow for patterns that are used by both genders. For example, front door benches are male patterns as they are solely used by men, therefore, the colour red was used to identify them. Another example is the colour yellow which is used for houses with one entrance as it is shared by both genders at the same time, whereas some houses have more than one entrance, therefore, two different colours were used to identify the male female entrances.

In the body scale, six patterns are presented which are; window places, connected to earth, stair seats, front door benches, and private terraces on the street.

It can be seen in [Figure 154](#) that the pattern window places, *roshan*, indicated in blue, are one of the important architectural elements found in all the houses of the old town of Jeddah. This female pattern could differ in size and number according to the wealth of the family. Figure 136 also demonstrates the pattern connection to earth which is shown in the colour red as it is found in all the male domains on the ground floor area, entrances, and private terraces on the ground (*dakkah*) used by men.

[Figure 155](#) presents the pattern stair seat in red as it is considered a male pattern found in the men's domain in the outdoor area. This pattern is found in all 26 houses out of 26 investigated houses, which shows its importance as one of the architectural elements in the old town. Again, in some cases just as window places the number of steps differ according to the wealth of the family. Moreover, Figure 137 demonstrates the pattern front door bench, *mirkaz*, in red as they are solely male patterns in the men's domain and are one of the most important features of socialisation in the old town. The figures show 25 out of the 26 investigated houses that contain this pattern.

It can be seen in the male pattern private terrace on the street, *dakkah*, illustrated in [Figure 156](#), that 17 out of the 26 investigated houses hold this pattern. While it is an important feature in the old town for socialisation, this can take place in other patterns such as the *dahliz* and *al magaad* or *al diwan* next to it. It all depends on the preference of the owner of the house and the available space.

Window places 'roshan'

Connected to earth

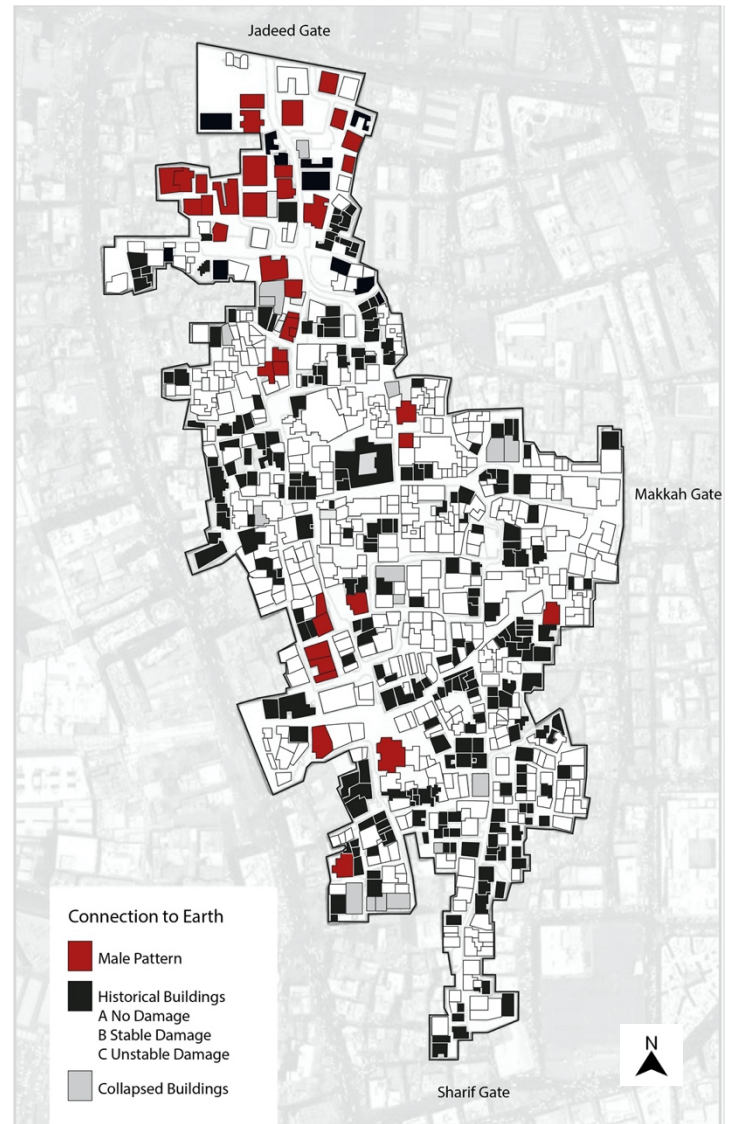
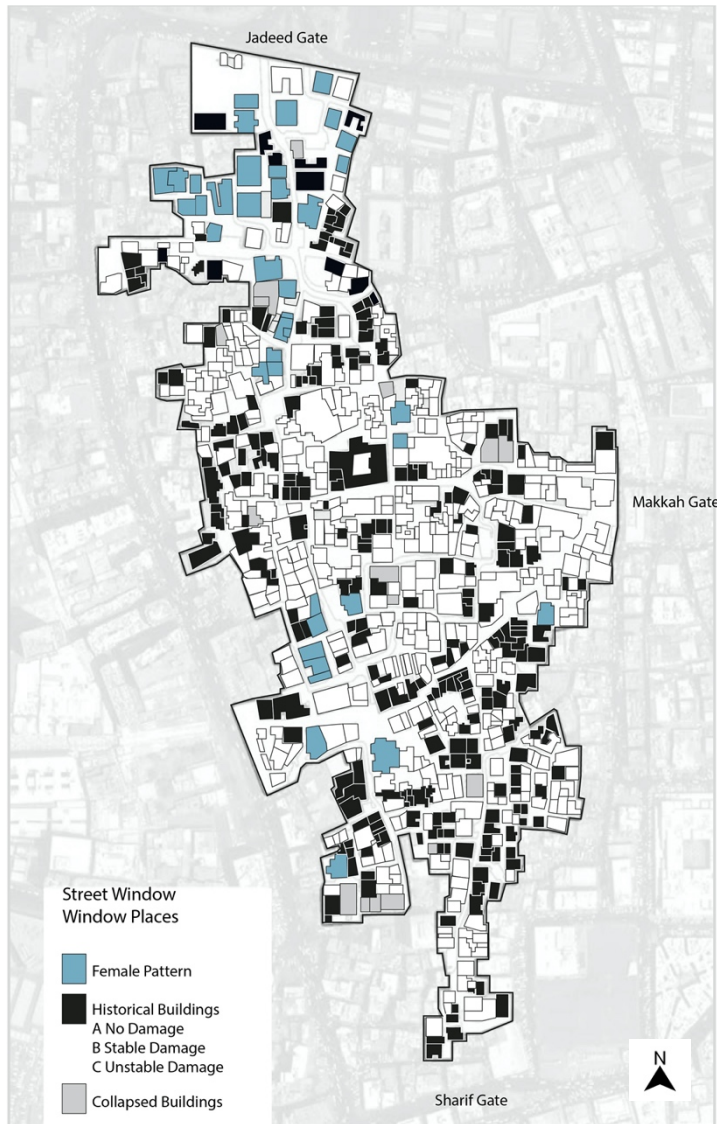
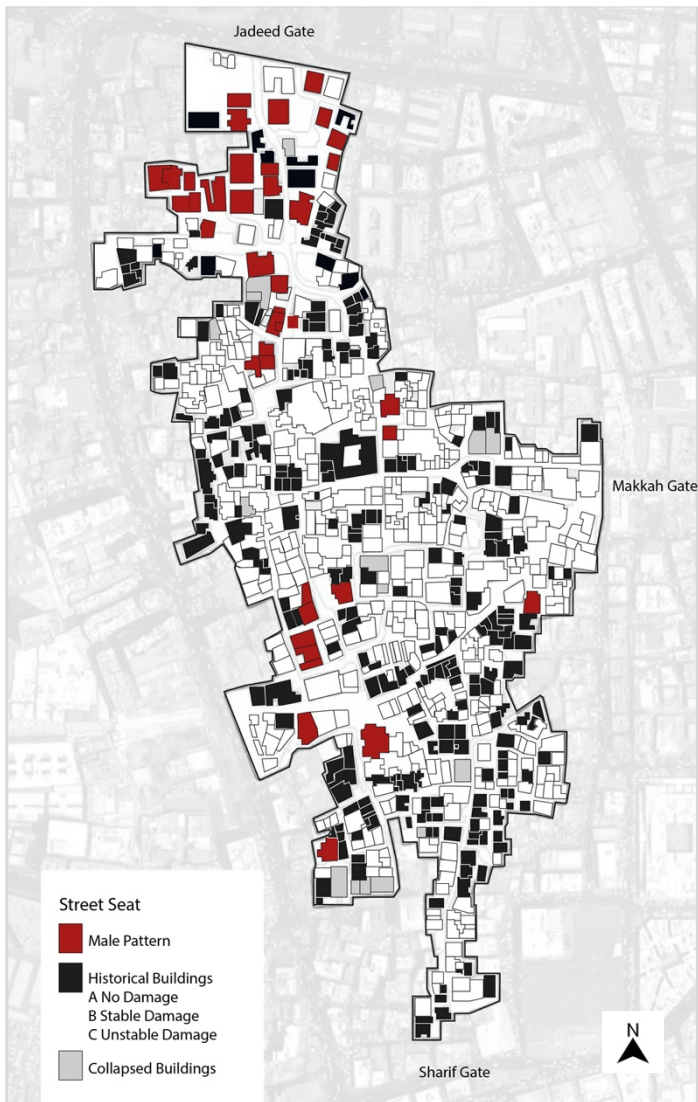


Figure 154: Left, window places are a female pattern found in all houses. Right, connection to earth is the ground of the outdoor rooms, entrances, and private terraces on the street used by men. Source: Drawn by author.

### Stair seats



### Front door benches 'mirkaz'

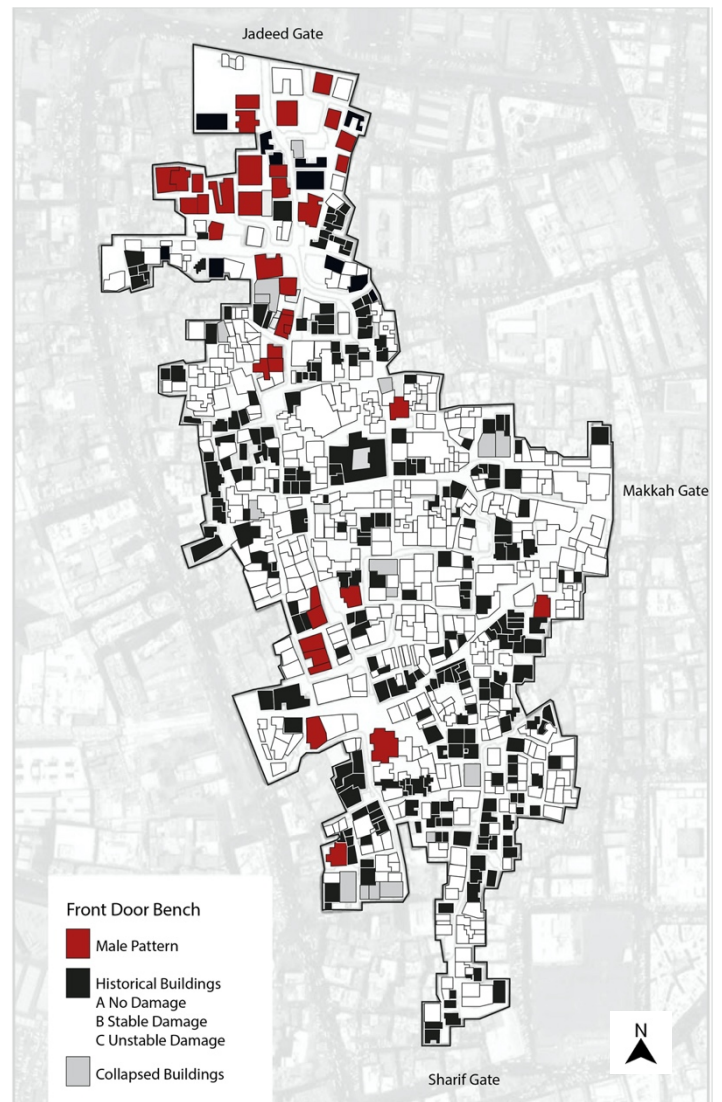


Figure 155: Left, stair seats are identified in red as they are solely male patterns used to enhance the entrance of the house and protect the house from floods. They either lead to the main entrance or to a private terrace on the street (*dakkah*). Right, front door benches (*mirkaz*) are also exclusively male patterns, identified in red, used at certain times of the day by the owner of the house to gather with friends. Source: Drawn by author.

Private terraces on the street ‘dakkah’

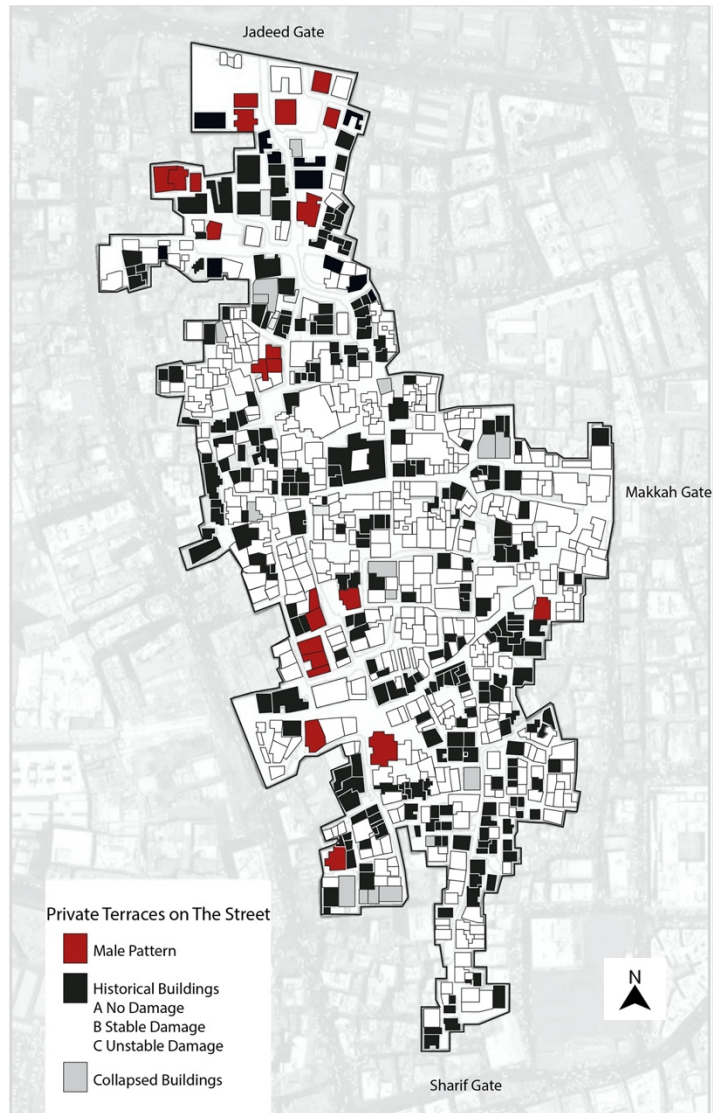


Figure 156: Private terraces on the Street (*dakkah*) are male patterns identified in red. These are found by the entrance and are one of the architectural features where socialisation plays an important role during certain times of the day. Source: Drawn by author.

In the building scale, five different patterns were identified which are; main entrance, low doorway, roof open space, *dahliz*, and street window.

[Figure 157](#) presents two diagrams showing the pattern main entrance. The first diagram illustrates houses with more than one entrance, where the male entrance is separated from the family entrance. This is illustrated in red. The second diagram also shows houses with more than one entrance where a family entrance is provided, shown in blue. Moreover, the figure illustrates some houses in the colour yellow that indicates that the house has only one entrance shared by both genders.

The figure shows 18 out of the 26 investigated houses that contain separate male and female entrances, and eight of 26 studied houses contain one entrance which is used by both genders.

[Figure 158](#) displays the pattern low doorway (*khukhah*) in two different diagrams illustrating male and female patterns. This pattern is related to the previous pattern main entrance and is one of the patterns that is found in all houses in the historical city with one or more entrances. The figure illustrates in red and blue all 18 houses out of 26 with more than one entrance and 8 houses out of 26 with one entrance.

[Figure 159](#) illustrates two patterns, the first is the female pattern roof open spaces (*satuh/kharja*); this pattern is used by family and relatives and is one of the significant architectural elements found in old Jeddah. It is found in all of the 26 examined houses.

The second figure demonstrates the pattern reception area (*dahliz*), indicated in red, as it is found on the ground level of the houses. Therefore, it is a male pattern. It is also one of the architectural elements found in all the houses of the old town, therefore, it appears in all 26 studied houses.

[Figure 160](#) presents the pattern street window (*roshan*) which is related to the pattern window places. This female pattern is one of the key architectural elements in the old town of Jeddah and is found in all 26 of the houses studied.

Main entrance (male)

Main entrance (female)

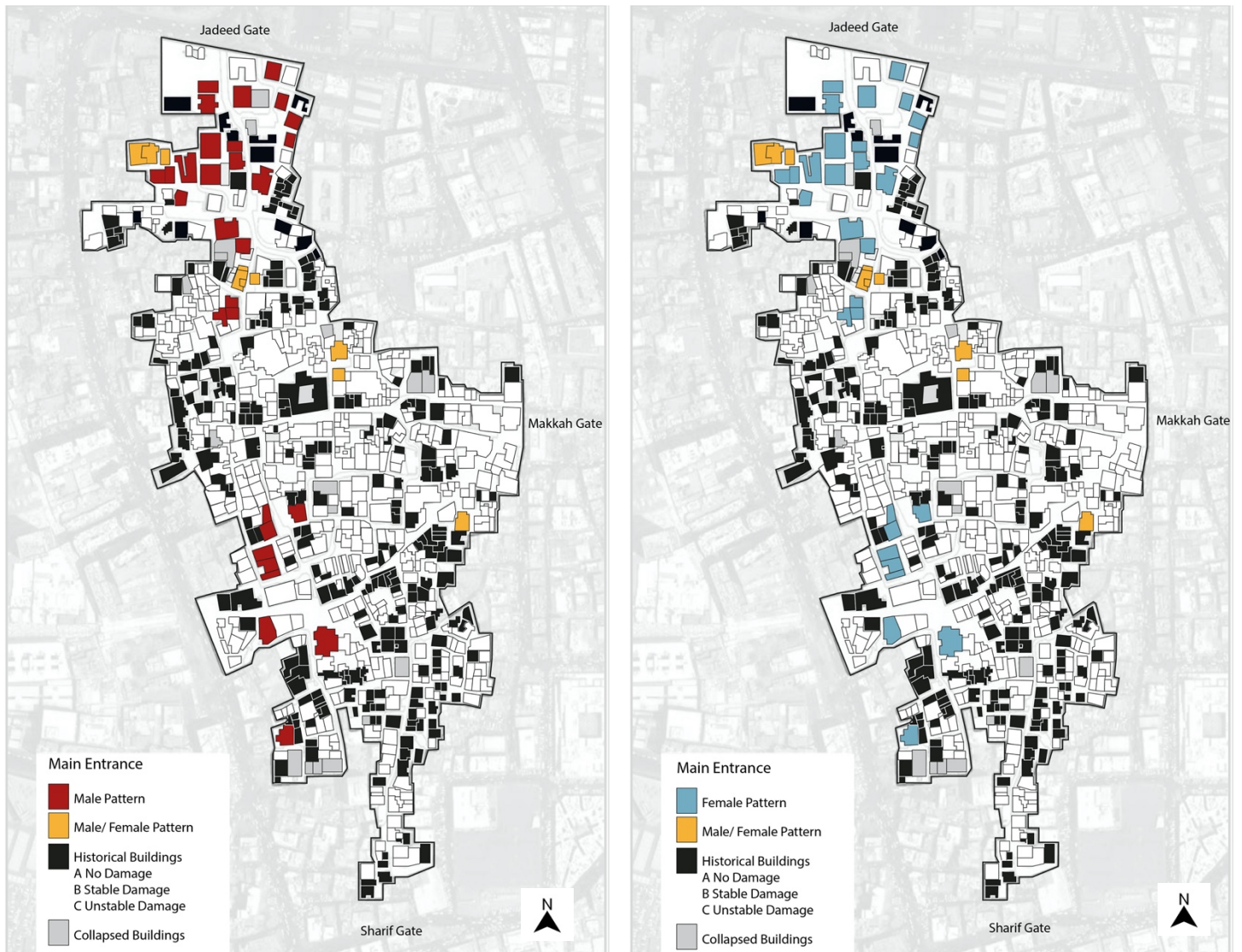


Figure 157: Main entrances differ from house to house as some houses have only one entrance, identified in yellow, as it is shared by both genders, and other houses have more than one entrance, shown in red for male and in blue for female. Source: Drawn by author.

Low doorway 'khukhah' (male)

Low doorway 'khukhah' (female)

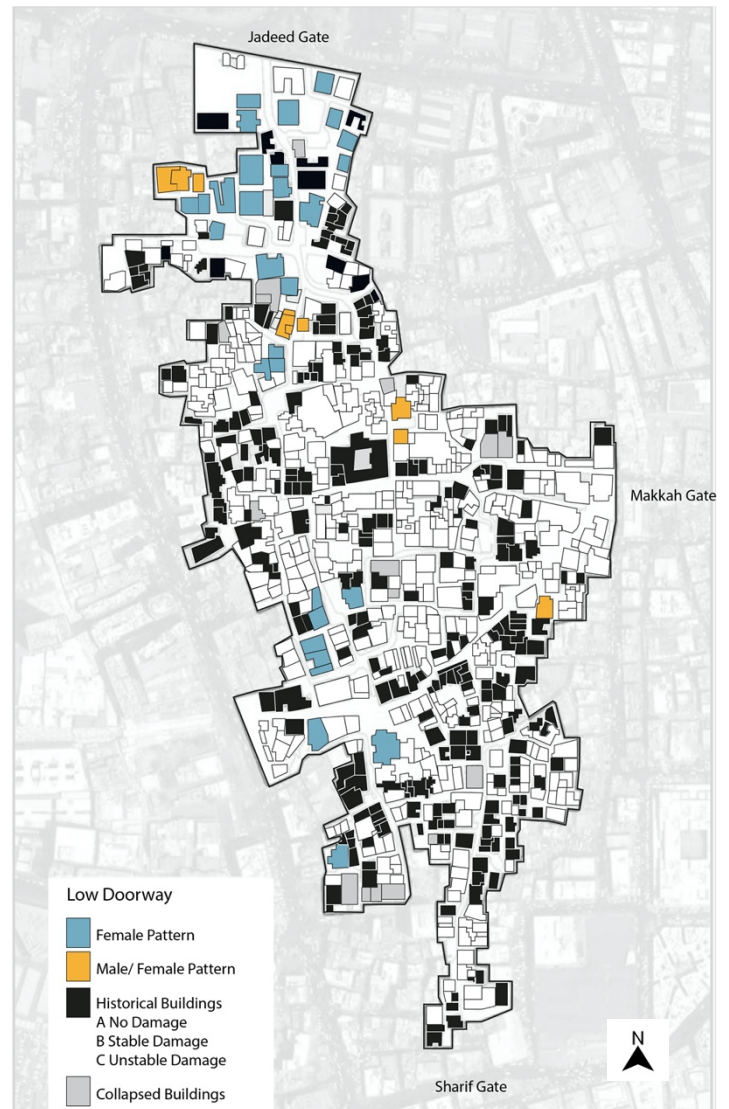
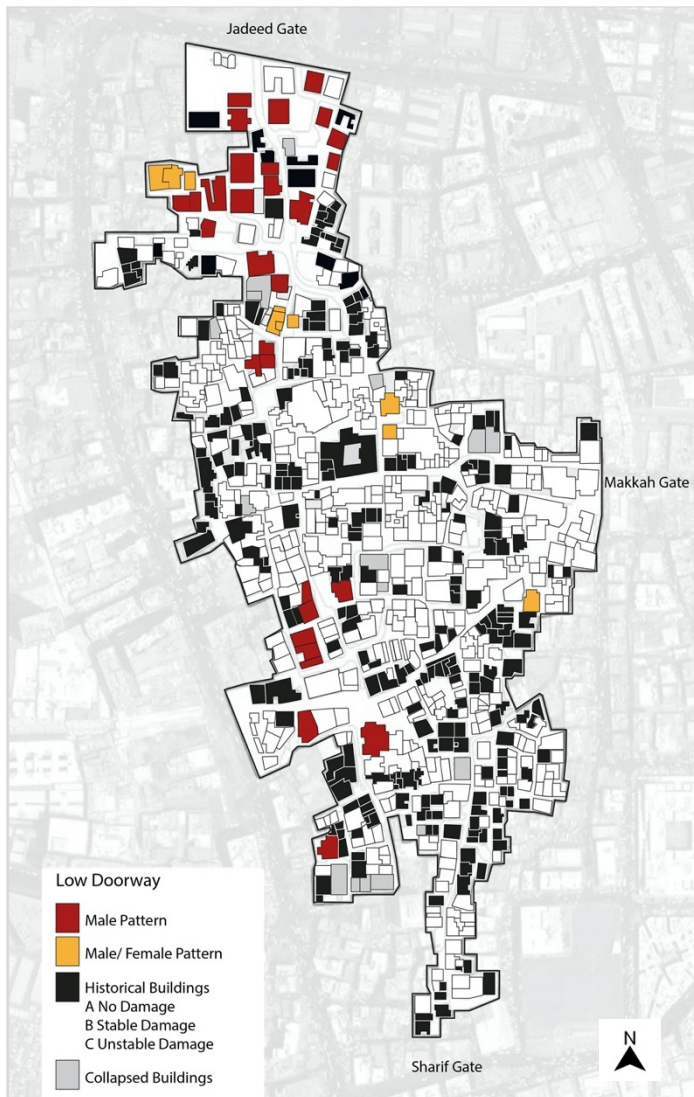


Figure 158: Low doorway, *khukhah*, an element that is found in all houses in the old town of Jeddah. Source: Drawn by author.



Roof open space 'satuh/kharja'

Dahliz 'Reception area'

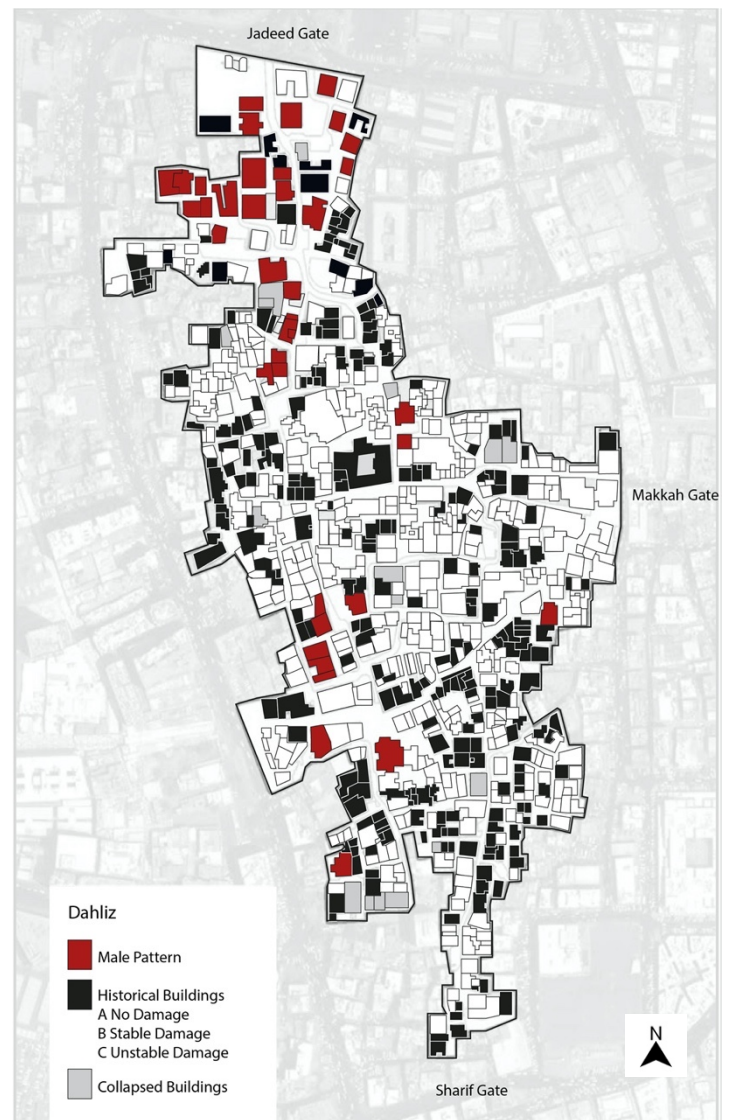
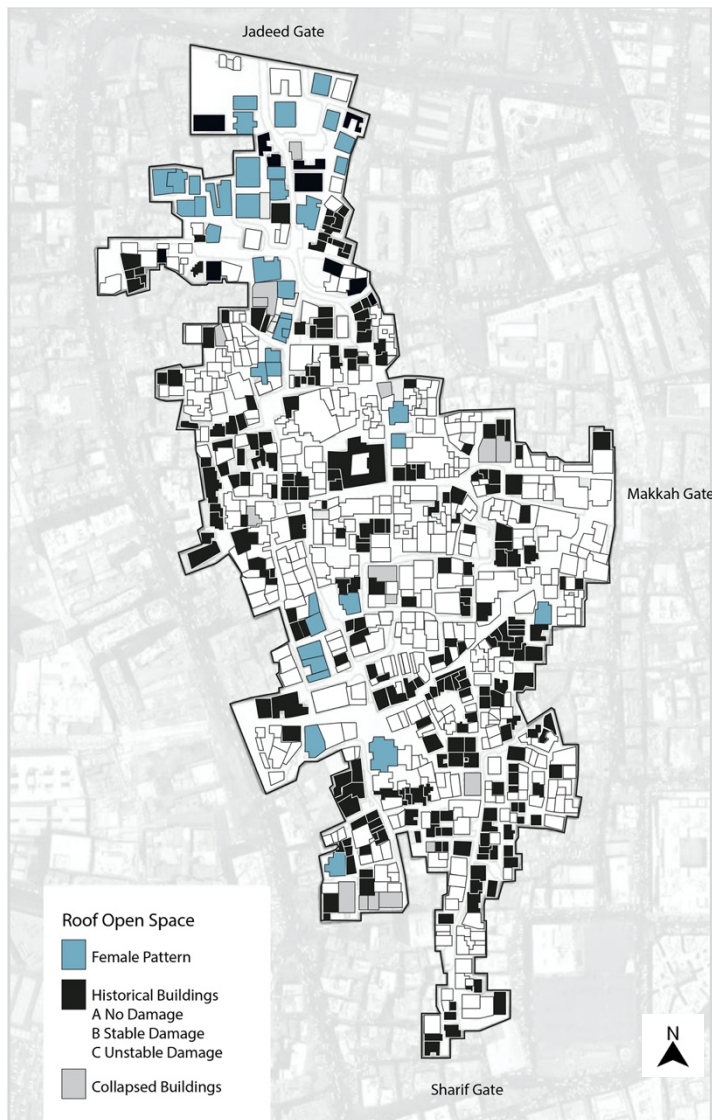


Figure 159: Left, roof open spaces are identified in blue as they are used by women, their friends, and relatives. Right, *dahliz* is shown in red as it is a pattern used by the owner of the house and his guests, therefore, it is identified in red. Source: Drawn by author.

## Street window 'roshan'

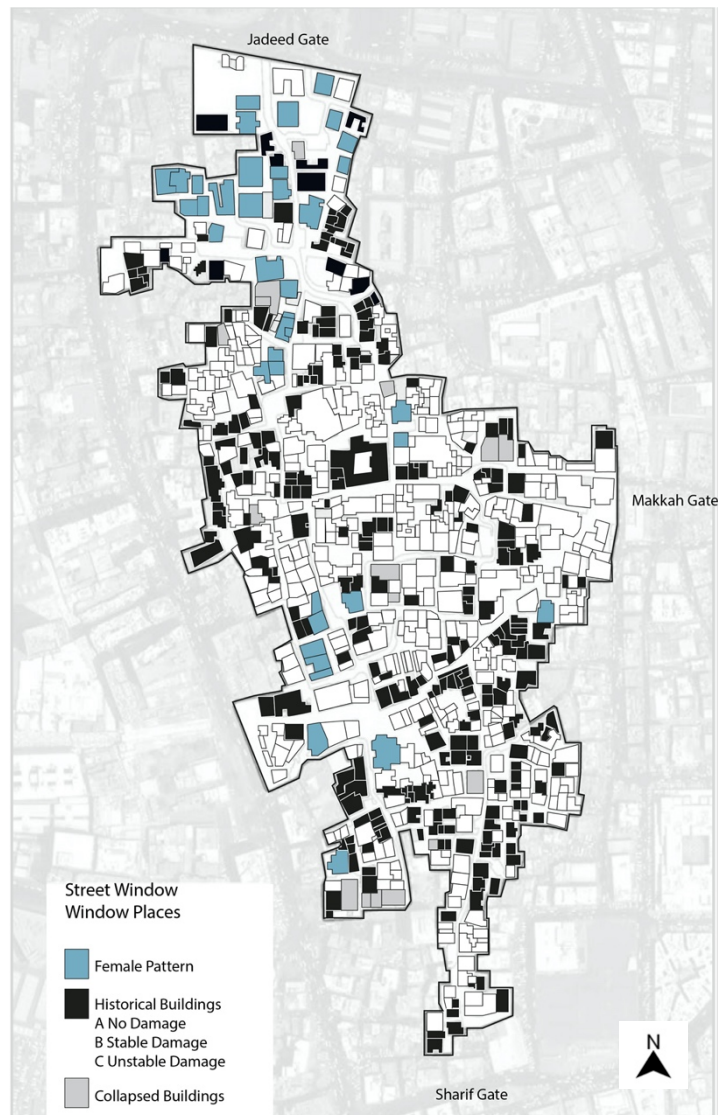


Figure 160: Street windows are patterns used by females at different times of the day. A great solution for social and climate interaction giving a unique experience by connecting the life inside of the house with the outside. Source: Drawn by author.

In the street scale, four different patterns were identified which are; entrance transition, building fronts, building edge, and path shape (*zuqaq*).

In the city scale, three different patterns were identified which are; positive outdoor spaces '*barahat*', and hierarchy of open space.

Some of the patterns found in the large scales 'street scale' and 'city scale' cannot be identified by themselves in the maps of the old town of Jeddah as they depend on other smaller patterns that were identified in the previous scales and maps. Therefore, they will be excluded in this part.

[Figure 161](#) shows two different illustrations of patterns. The first, entrance transition pattern which is the gradual movement between two heterogenous spheres. This pattern is indicated in red as it is made up of a number of different small male patterns such as; stair seats, private terrace on the street (*dakkah*), benches (*mirkaz*), and *dahliz*. All of the 26 houses investigated contain a form of entrance transition made up of a number of combined patterns.

The second illustration, shows the pattern connected building which is a large pattern that helps to create and define other patterns such as; positive outdoor spaces (*barahat*) as well as hierarchy of open spaces.

## Entrance transition

## Connected buildings

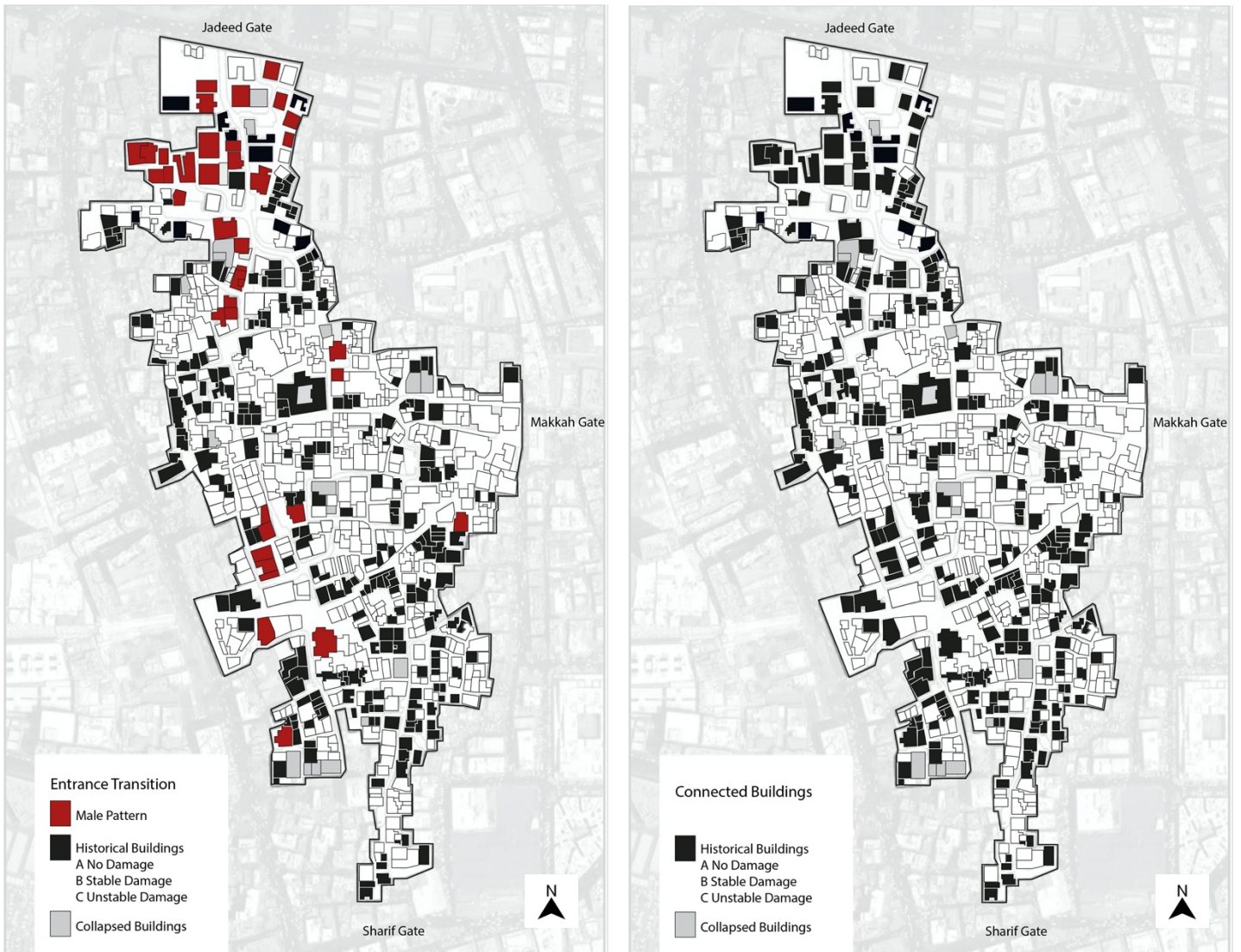


Figure 161: Left, entrance transitions are highlighted in red as they are a male pattern which takes place on different levels made of several patterns. It is an in-between space that connects and separates at the same time. Right connected buildings are patterns that featured in the old town. Houses are grouped in blocks of three or more which impact other pattern such as positive outdoor spaces (*barahat*), building fronts, and building edge. Source: Drawn by author.

To conclude, the analysis of the eighteen patterns showed the existence of each pattern in the map of the old town of Jeddah by categorising them into different colour codes depending on the gender use. Red refers to male, blue to female, and yellow for patterns used by both genders. As previously explained, some patterns from the large scales 'street scale' and 'city scale' were not identified in single maps like the other patterns as they rely on other smaller patterns. These are path shape, building edge, building front, positive outdoor spaces, and hierarchy of open spaces.

[Figure 162](#) is the over layering of all the previous graphs in one graph. It shows five different colours which resemble the number of patterns found in each of the 26 houses. These identified patterns are as follows: private terraces on the streets, sitting wall, front door benches, stair

seats, connected to earth, window places, main entrances, low doorway, roof open spaces, *dahliz*, street windows, entrance transition, and connected buildings. The figure demonstrates that; eight houses have fourteen patterns, nine houses have thirteen patterns, four houses have twelve patterns, one house has eleven patterns, and four houses have ten patterns.

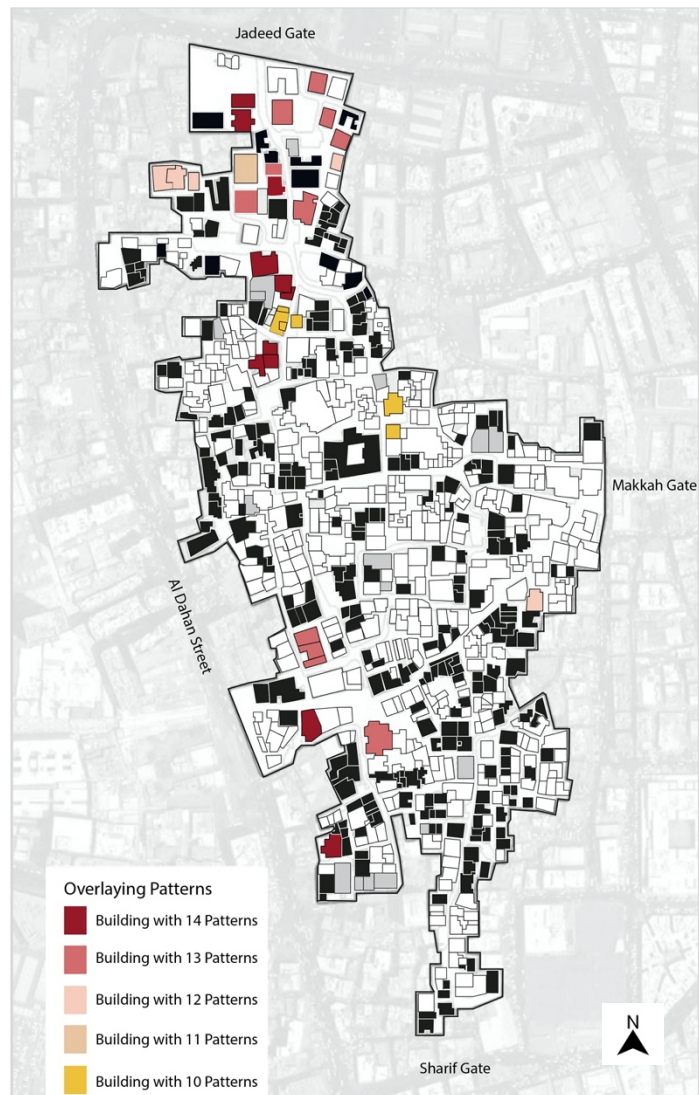


Figure 162: The graph shows the overlaying of fourteen patterns out of eighteen patterns. Source: Drawn by author.

## The Five Houses

This thesis looked in depth at threshold spaces in five different houses from different quarters of the historical city of Jeddah. These houses differ in the numbers of households, size, as well as status. The reason behind that is to have houses that resemble different examples found in the old town of Jeddah. Moreover, these houses are found in different neighbourhoods as shown in Figure 145 and the bellow table.

House	Quarter	Profession
Bait Al Hazazi	Al Sham Quarter	Trading
Bait Waqf Al Shafi	Al Mazloun Quarter	Trading
Bait Jamjoom	Al Mazloun Quarter	Trading and <i>Hajj</i> services
Bait Nassif	Al Yamen Quarter	Trading
Bait Jukhdar	Al Yamen Quarter	<i>Hajj</i> services

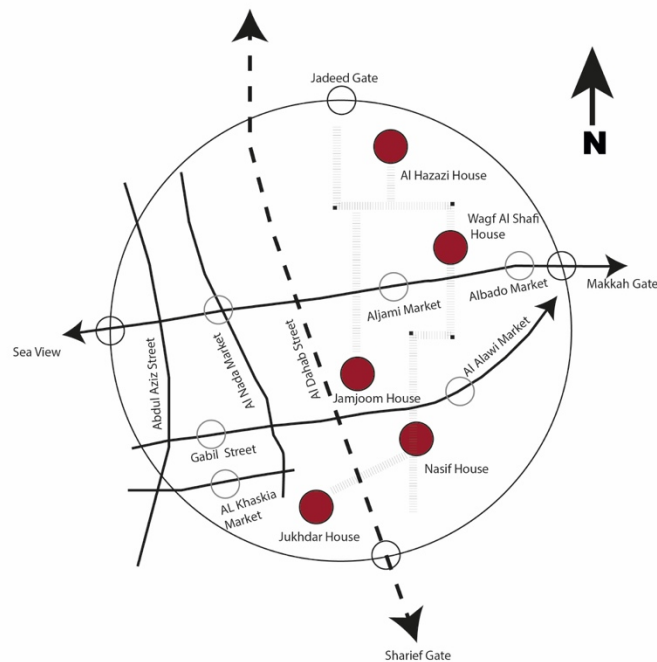


Figure 163: The graph is an abstraction of the old town of Jeddah map showing the locations of the five houses and their relationship to each other as well as the major streets and markets. Source: Drawn by author.

Each of the five houses is analysed separately according to the fieldwork through diagrams, sketches, sections, and interviews with a member who lived in the house in order to look at the threshold space in each house and to find the similarities and the differences between them. Different colour coding is used to identify the user-male, female, and both genders.

## **The Diagrams**

Show the unique experience of available patterns found in each of the five houses. It explains a walk, visualized as a story where thresholds are the focus in our experience. Since gender segregation is the centre of our focus due to social and cultural regulations, this diagram illustrates two stories. The first is from a male perspective and the second is from a female point of view. Each shows a different experience as physical and social limitations are different to control the contact with each other.

In all five houses, the male zone is divided into several layers, the permeability is according to the status of the visitor (stranger, friend, relative).

Regarding female visits, according to several interviews, women visit their friends during the day when men are still at work. For them to go from the ground level to the upper floors a woman has to clap when she arrives at landing of the stairs as her voice should not be heard by strangers. This is done to inform the ladies of the house that you are here to visit.

## **The Sections**

Describes the inhabitants' spaces in the house and the thresholds that we witness in our everyday existence through different architectural elements that allow us to define a degree of connection such as steps, doors, and windows. These architectural elements enrich the appearance of the city street with layers of semi-public and semi-private spaces. These semi-public spaces belong to the façade of the house, while, at the same time, is seen as part of the fabric of the city. Their importance lies in their definition of the edge while at the same time enriching the character of the city as they determine the way we experience them. The section demonstrates different layering's of thresholds in the house vertically and horizontally.

After that, a matrix for all the five houses is presented to sum up the findings and compare them to each other.

## **Bait Al Hazazi**

The house is located in Harat Al Sham, one of four quarters in the old town, close to Jadeed Gate in the north part of the wall, see [Figure 146](#). The Al Hazazi family is one of the well-known families in Jeddah, they have been the owners of the house for around 142 years. In around 1940 about 25 people lived in the house, excluding servants.

The house is made up of four floors with three entrances. The transitional space is very clear on the west side as one can see the stair seats leading to two private terraces on the street. These are the *dakkah* which are facing each other, one is on the right and the second is on the left side of the door. The *dakkah* acts here as the threshold through which one can access the house entrance.

All three different entrances are connected to each other from the inside. The first entrance faces south looking at a side street, and the other two entrances are on the west side facing a quiet residential street. Each entrance has its own *dahliz* with three different staircases. The ground floor, which is the semi-private floor, contains three so-called *magaad* rooms - men's sitting room located on the ground floor and next to the entrance hall, as shown in [Figure 165](#).

The second, third, and fourth floors are very similar to one another, with minor changes where each floor comprises of three different apartments, the *ozlas*, which are made up of five different rooms for each nuclear family. The roof top contains three sleeping rooms (*mabit*) with restrooms and five separate open spaces (*satuh*).

A close observation shows that a large number of bay windows (*roshan*) are situated on the north and west façade of the house, particularly the west façade as it is the most pierced with large bay windows. The main façade, on the west of the house, has around fourteen bay windows overlooking the residential street. On the ground floor, there are two bay windows located on the left and the right side of the two doors. Each is located in a different *magad* room. The one on the left side overlooks the raised private terrace on the street whereas the second one overlooks the street. On the first and second floors one can see six bay windows that differ in size located in *al majlis* rooms. The third floor contains two bay windows and four normal windows. These are also situated in *al majlis* rooms, see [Figure 165](#). The north façade has around fourteen bay windows. On the ground floor of the house there are two bay windows; one situated on the far right and the second on the far left located in two *magaad* rooms.

On the first and second floor of the house, in *al majlis* rooms, two bay windows are located on each floor. On the south and east elevation, there are fewer bay windows as most of the rooms have small windows. This suggests that the location of the bay windows were carefully positioned according to the climate, specifically the wind and sea breeze.

After analysing the house, seventeen patterns were identified. The house elements match and relate to sixteen specific patterns from Alexander, with one specific element related to the context of the old town of Jeddah. Furthermore, all these elements are related to the notion of thresholds. These are;



### Body Scale

- Window places (*roshan*)
- Stair seat
- Private terraces on the street (*dakkah*)
- Sitting wall
- Front door bench (*mirkaz*)
- Connected to earth

### Building Scale

- Street windows (*roshan*)
- Main entrance
- Low doorway (*khukah*)
- *Dahliz*
- Roof open spaces (*satuh/ kharjah*)

### Street Scale

- Entrance transition
- Path shape (*zuqaq*)
- Building front
- Building edge

### City Scale

- Positive outdoor spaces (*barahat*)
- Hierarchy of open spaces

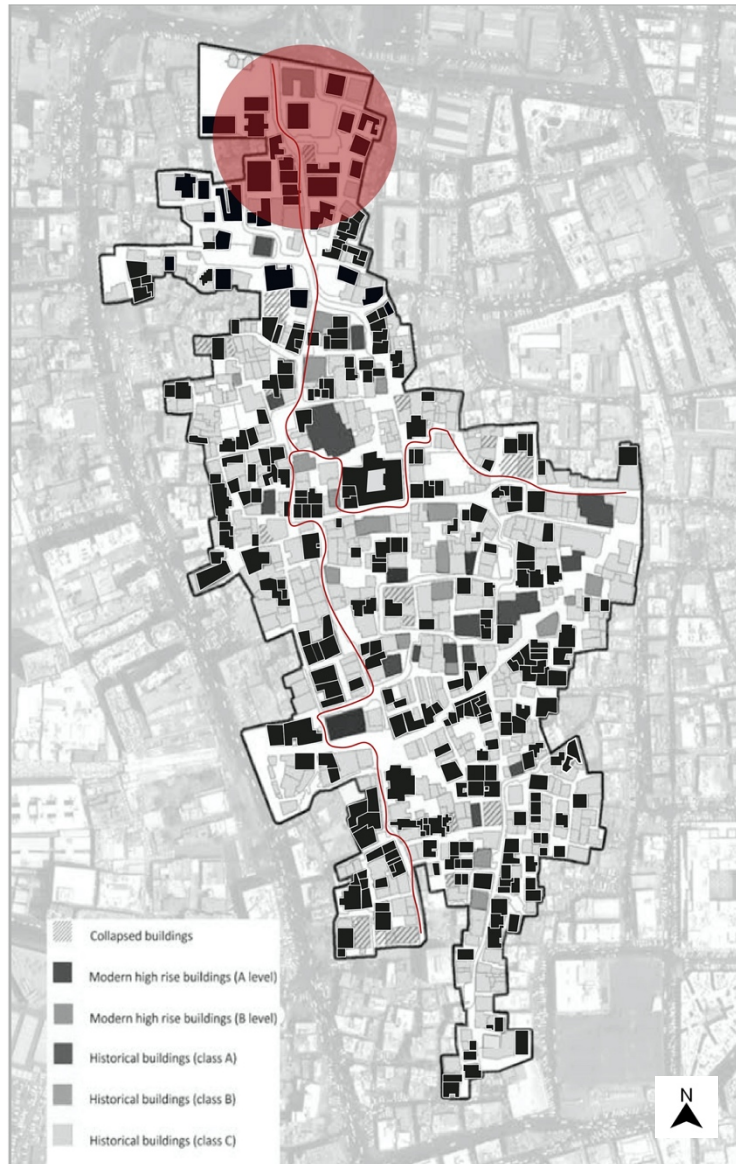


Figure 164: Showing the location of Al Hazazi house in Al Sham quarter in the north part of the old town close to the wall. Source: Drawn by author.



Figure 165: Floor plans of Al Hazazi house. Source: (Sultan, Hariri, 1995, p. 31, 37, 41, 43, 46). Edited by author.

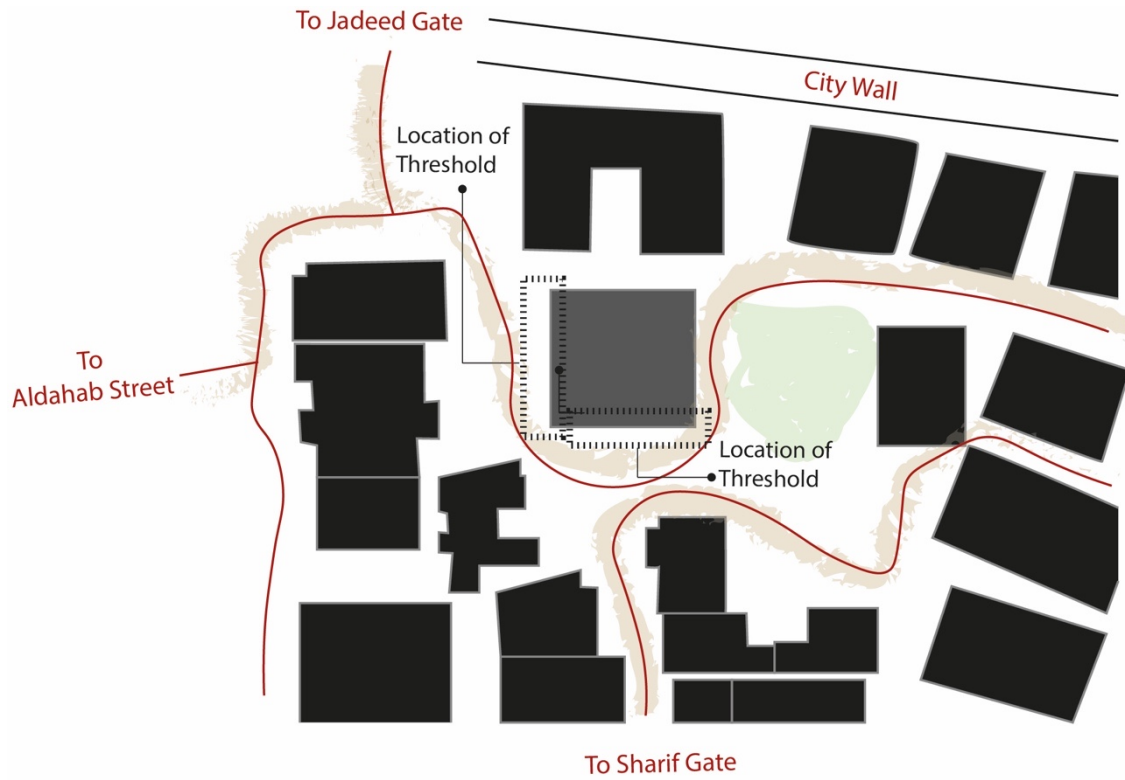


Figure 166: Site plan showing Al Hazazi house and the surrounding houses as well as the town wall. Source: Author.

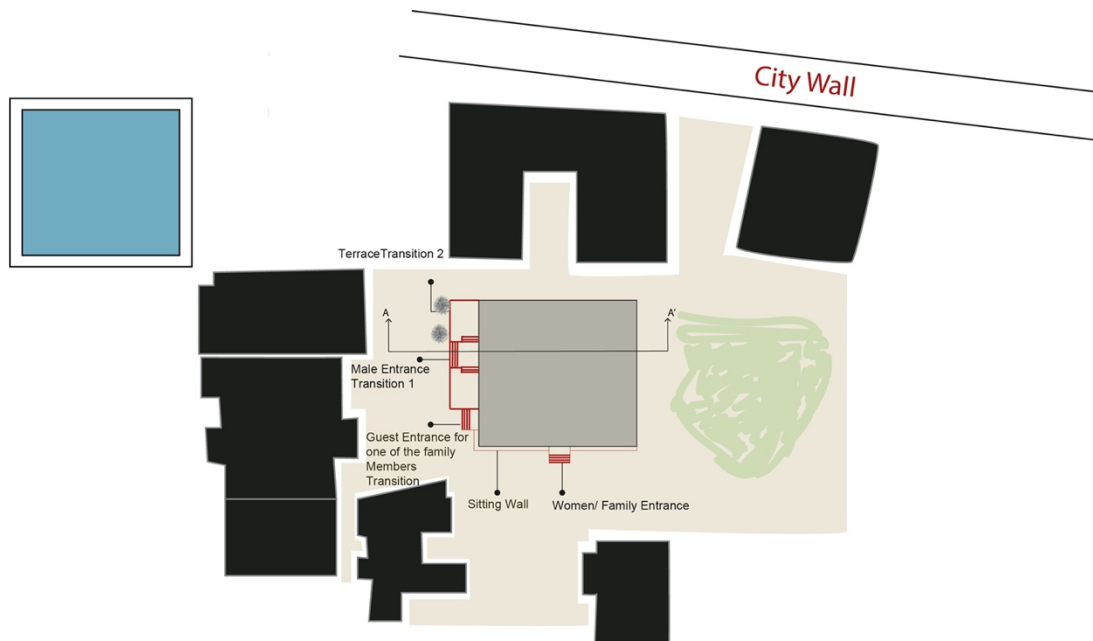


Figure 167: Indicating the visible thresholds in the plan and their relationship to the street and surrounding buildings. Source: Author.

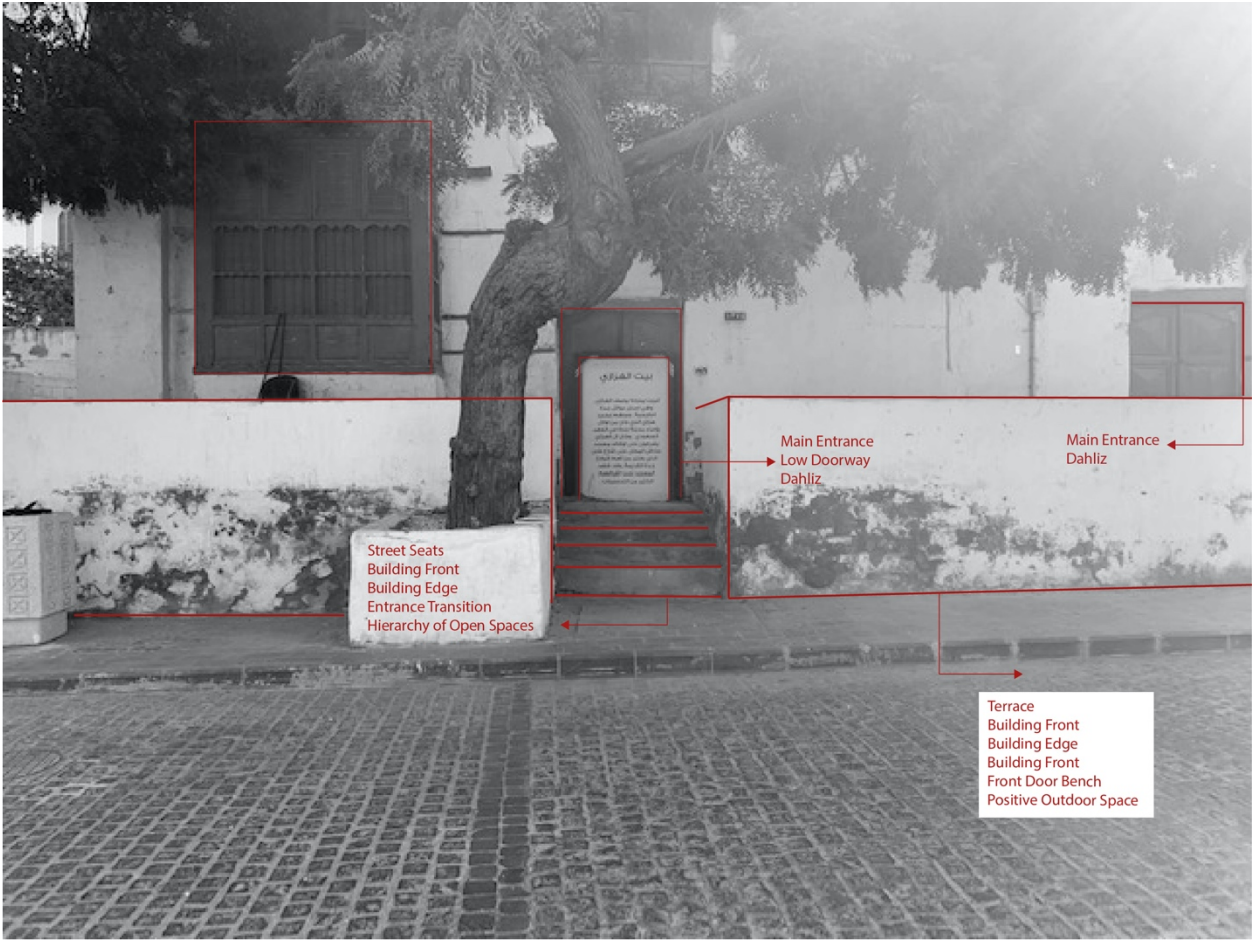


Figure 168: West façade of Al Hazazi House. Patterns are highlighted in red indicating that they are male patterns. Source: Author.

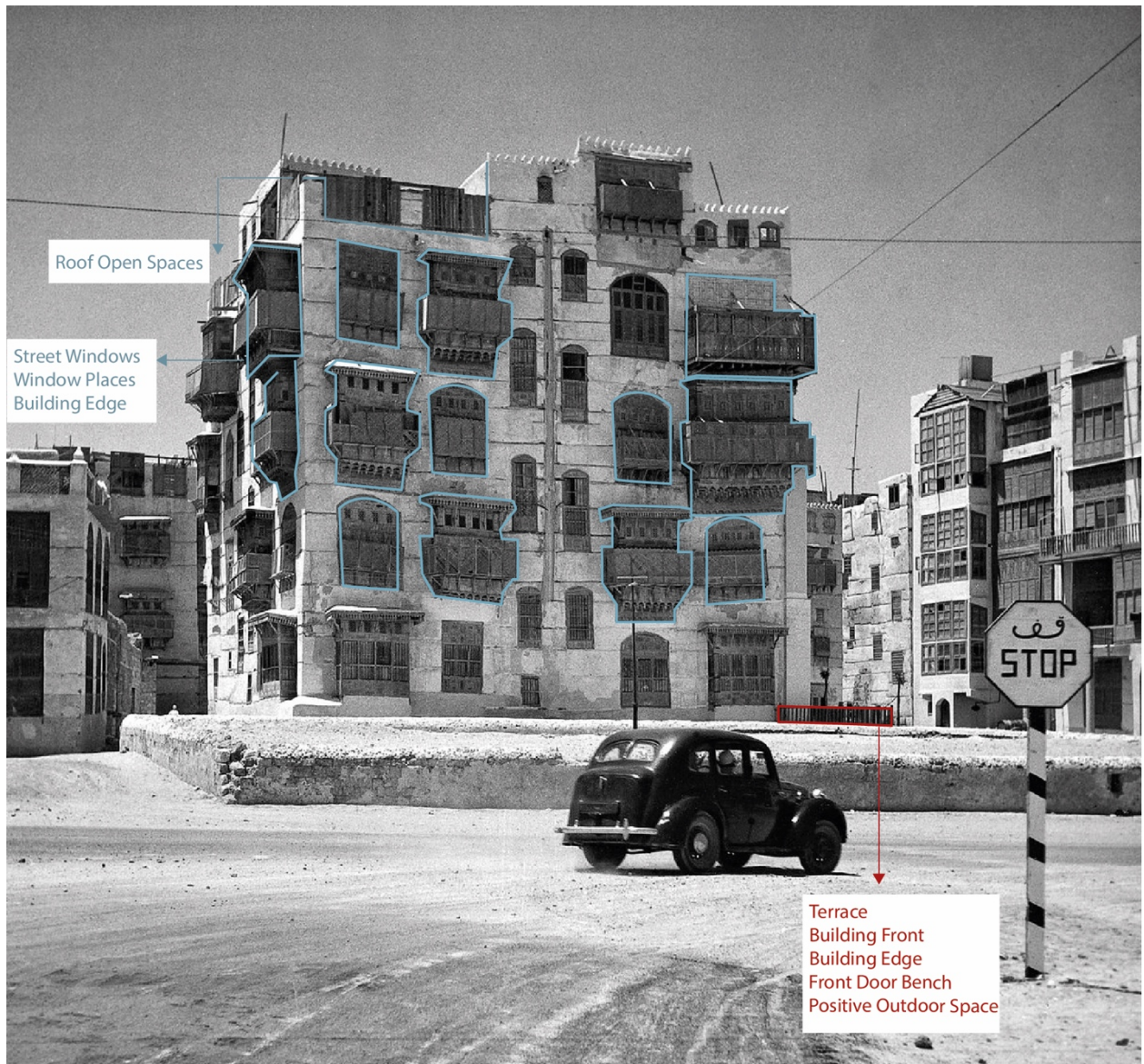


Figure 169: South façade of Al Hazazi House. Highlighted patterns in blue indicate a female pattern and patterns in red indicate a male pattern. Because of the social and cultural dimensions as you go horizontally, the male patterns are dominant while the female patterns take place vertically. Source: [https://twitter.com/55\\_gayed/status/990534875127087104](https://twitter.com/55_gayed/status/990534875127087104).

From a male view, as you walk through the residential street, the west façade of Al Hazazi house is highly visible because of the strong presence of the threshold spaces. The ground level is raised by four steps from the street level. As you stand in front of the steps you directly see the men's wooden door entrance. The house is landmarked with a huge tree located on the left side casting shadows on the entrances of the house.

The west façade is made up of several layers of thresholds which gives a unique experience when compared to other houses in the area. The steps are the first layer of threshold leading to two symmetrical private terraces on the street (*dakkah*), one on the left side of the door and the second on the right, which could be accessed by additional steps that could be viewed as a second filter or layer, leading to two terraces with low walls which are considered as a third layer or filter where the space gives an intense urban scene, yet the owner of the house retains a sense of privacy and ownership of the space while engaging totally with life in the street. Since the space is used by the owner of the house at certain times of the day to socialise with friends and relatives, benches known as *mirkaz* are found in this space covered with cushions. On the left side of the façade there is a huge window that views the left terrace and the street which creates continuation between the space inside and the outdoor area when opened.

The low doorway of the right leaf of the main wooden door is open during the day, through which one can access a reception area (*dahliz*) which is a further layer of threshold viewed as a semi-private space. This space is cooler than any other part of the house during the heat of the day. The owner of the house receives visitors who have not arranged their visits in advance in this space on wooden benches. Through the *dahliz*, one can access *al magad* which is also a semi-private space but one degree higher in privacy than the *dahliz* space. This space is also elevated by a few steps and seen as another layer of threshold leading to a space used by the owner of the house to receive guests, family and acquaintances. See [Figure 170,171](#).

From a female view, the experience and permeability are different. The family door on the south façade, accessed by several steps, is the first threshold a woman would experience taking her to the *dahliz* after passing the main wooden door which is another layer of filter or threshold. The *dahliz*, which is viewed as the third threshold, takes us to a staircase located on the right side. The staircase is another threshold that takes women to a level that men are not allowed to access. women's friends are welcomed in a large reception room, locally named *al majlis*, which is usually situated in the main façade because of the air breeze. This space accommodates family members, close friends and relatives (female visitors and their family members). As previously explained, each *majlis* has at least one bay window (*roshan*) that is elevated and is the focal point of the room where different activities take place such as socialising and snacking. See [Figure 172](#).

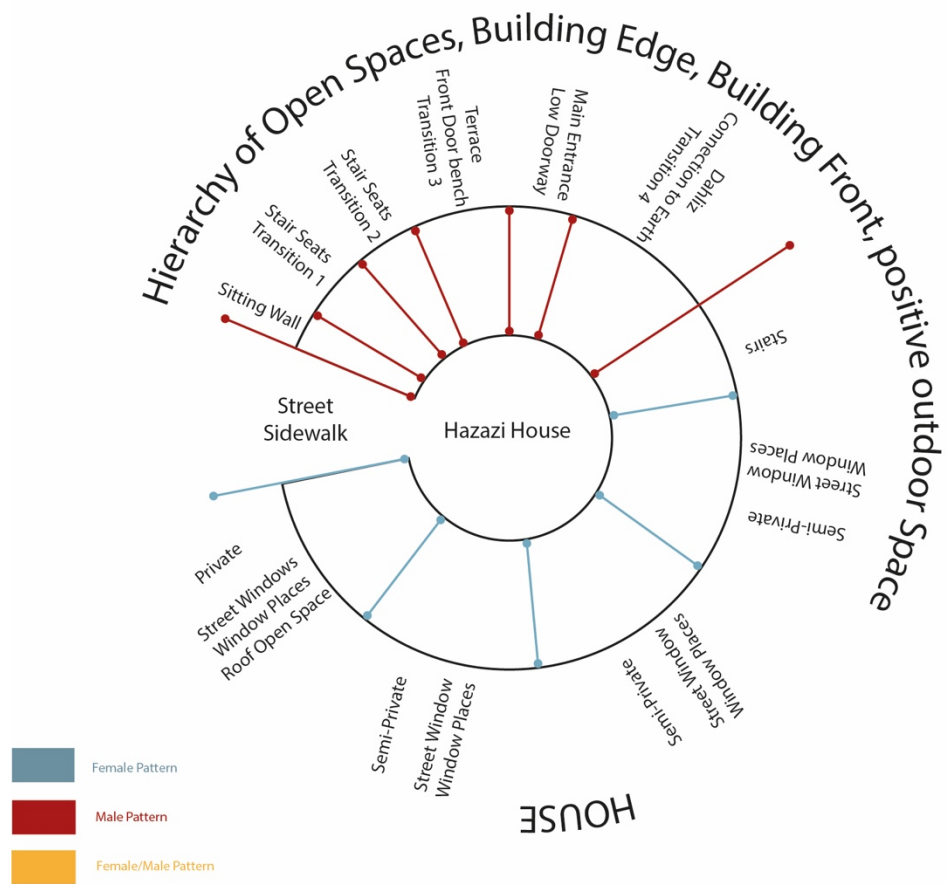


Figure 170: This diagram shows the unique experience of all 18 patterns found in Al Hazazi House through a stroll to the house while putting thresholds at the centre of our focus. Source: Author.



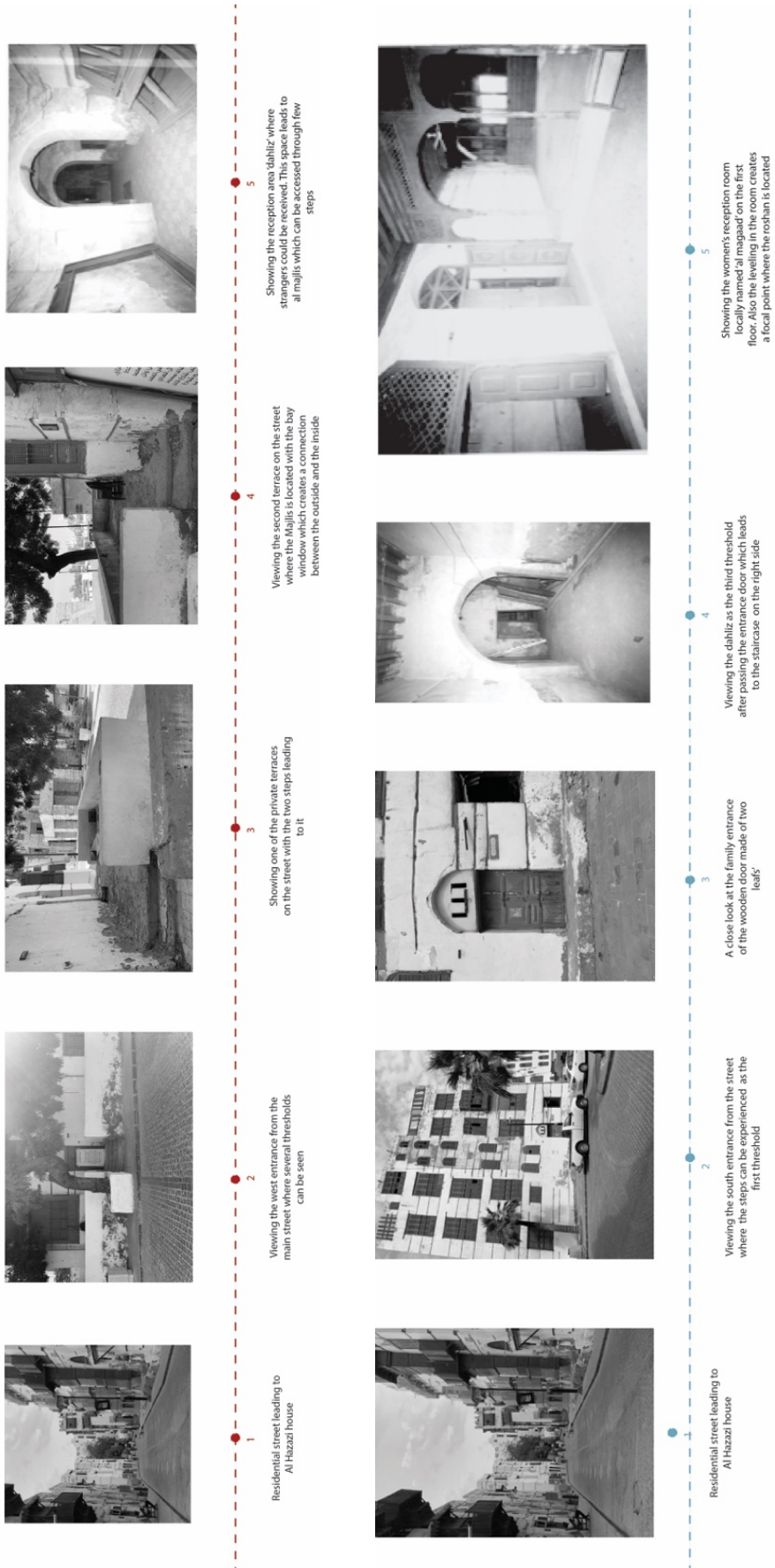


Figure 171: Showing the layering and thresholds in a house from a man's perspective. Source: Author.

Figure 172: Showing the layering and thresholds in a house from a woman's perspective. Source: Author.

Horizontally, one can witness five transitional spaces from the sidewalk to the inside of the house in the ground floor area by passing through two sets of steps. The first steps work as the first transition to the second steps, while the second steps function as the second transition leading to a third transition made up of two private terraces on the street (*dakkah*). One on the left side and one on the right side of the façade. The importance of the third threshold space lies in the fact that it's a social and gathering space for men at certain times of the day, making it a focal point. Another path could be directly through the steps which is the first transition to the main door of the house, which is, again, another transition leading to a third transition located inside of the house locally named *dahliz*. The semi-private space of the *dahliz* leads to another semi-private space via several steps that make it one degree higher in privacy than the *dahliz* area. This horizontal transition demonstrates the male zone creating a harmonic atmosphere between the street and the house. [Figure 173](#)

Vertically, one can see from the section a number of spatial thresholds. Starting from a semi-public space in the street which is the private terrace on the street (*dakkah*) raised by a few steps from street level to the second threshold space, the *dahliz*, located inside the house. As previously mentioned, the *dahliz* is part of the male domain. As you go up, the transition is more private where women can welcome their guests on the first level of the house, sometimes on the second level depending on the layout of the house. By going up, the space becomes more private as only the household can access these spaces, until we reach the private roof open space (*satuh/ kharjah*) used mostly by women for socialisation and other activities described in the previous chapter. This indicates that as we go vertically the privacy in the house increases. [Figure 173](#)

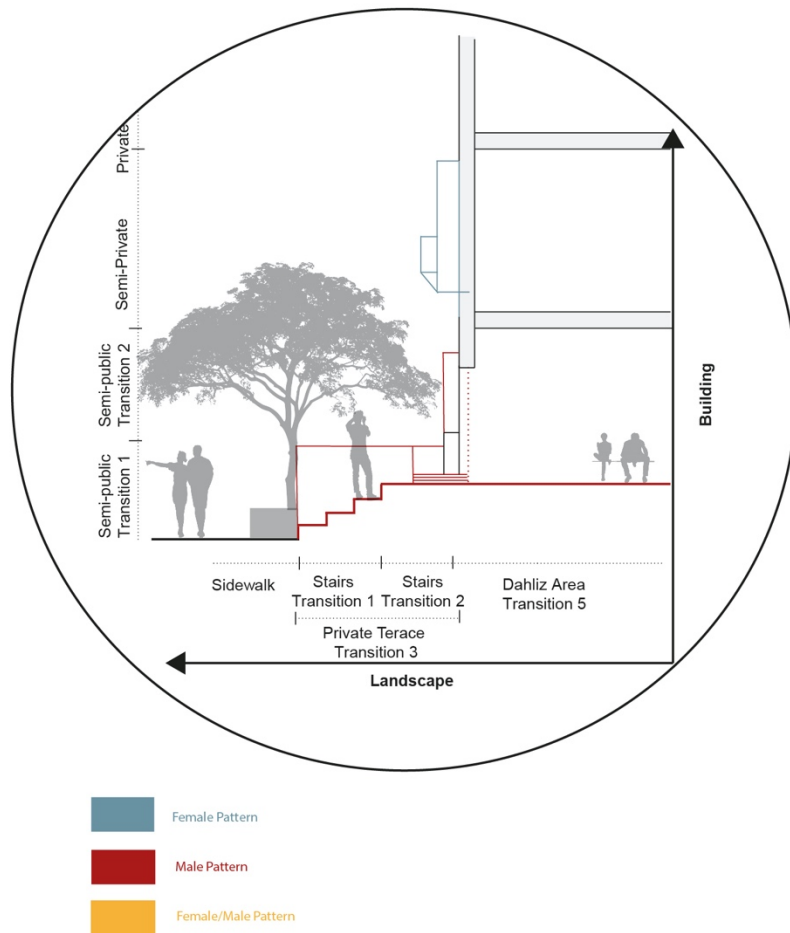


Figure 173: Section of the house showing the relationship between the patterns and the degree of privacy in the house as we go vertically. Moreover, the section shows the number of transitions possible both horizontally and vertically. Source: Author.

# House 02

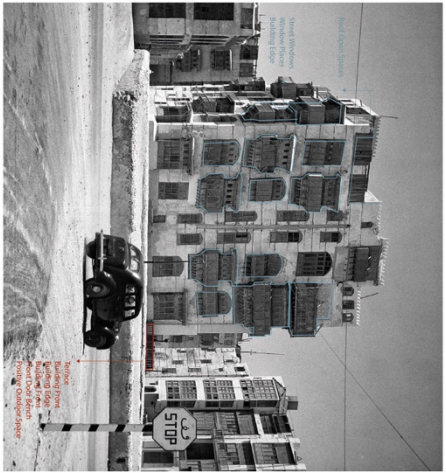


Fig 1

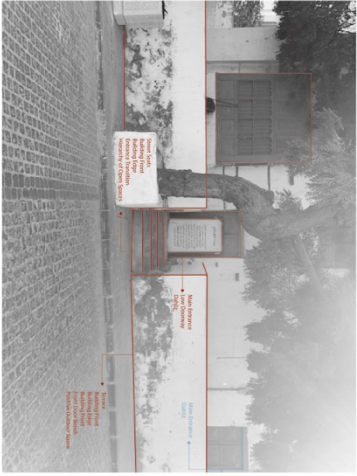


Fig 2

located in Al Sham Neighbourhood not far from Jeddah Gate on the North side of the wall 19 male, female patterns were found.

Fig 1, 2 shows some of those patterns highlighted in different colours as red refers to the male patterns while blue refers to female patterns.

Fig 3,4 indicates the visible thresholds in plan and its relationship to the street and surroundings buildings.

Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns takes place vertically Fig 5.

Fig 6 is a diagram showing the unique experience of all 19 patterns through a stroll to the house while putting thresholds at the centre of our focus.

Fig 7. Made of four floors and is considered as one of the important houses in the area.

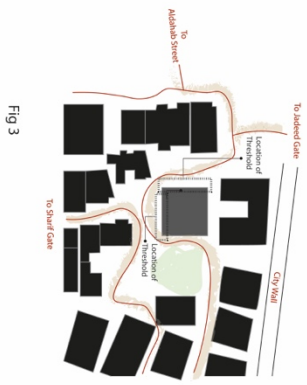


Fig 3

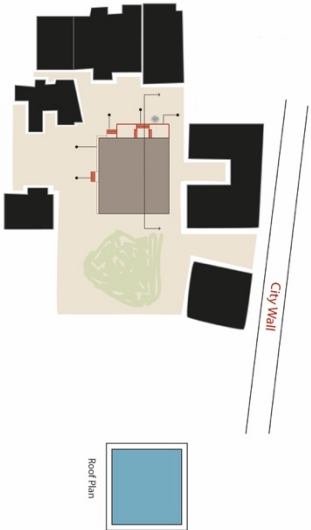


Fig 4

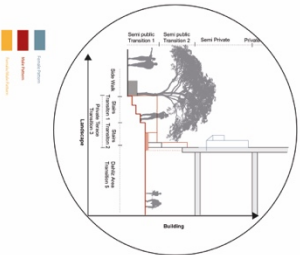


Fig 5

Fig 6

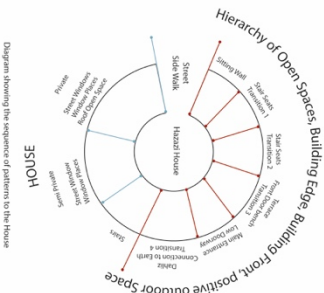


Fig 7

## Patterns Found

- Main entrance
- Connected building
- Entrance transition
- Hierarchy of open spaces
- Roof garden (open space)
- Path shape
- Street seats
- Positive outdoor spaces
- Building front
- Building edge
- Street window
- Connection to earth
- Window places
- Low sill
- Low doorway
- Dahliz
- Front Door Bench
- Sitting Wall
- Private terraces on the street

Figure 174: Combining all the analyses in one sheet. Source: Author.

## **Bait Waqf Al Shafi**

The house is located in Harat Al Mazloun close to Al Jomaa Market and Al Shafi Mosque, the oldest and largest mosques in the old town of Jeddah, see Figure 158. My grandmother was born in this house and lived there for seventeen years until she got married and moved with my grandfather to his family house. Her father rented the house for a very long period. In around 1940 nineteen people lived in the house, excluding servants. According to an interview with my grandmother who described the house and the way they lived in it (2019); the house is made up of four floors.

In the semi-private space of the ground floor there are two entrances, as shown in Figure 158. The main entrance of the house is on the south side which opens to the *dahliz*. In front of this entrance is a narrow street that overlooks the mosque. In this narrow street they would usually have their celebrations. The second door was on the west side where her uncle had his carpentry workshop. Therefore, this house had only one main entrance. The house was raised from the street level by three steps which no longer exist today. As you enter the *dahliz* you find *al magaad* to the left as well as a small storage area. Unlike other houses, *al magaad* was used by *Al Saga*, who is the person who provides water to the household. He used to sleep in this space. The staircase is located on the right side of the *dahliz*. When taking the stairs, after three steps, there is a landing where a small outdoor space (*housh*) is located in which they used to keep sheep.

As you go up to the first floor, on the right side is her father's wing where he received his guests. This includes a corridor, a restroom, and *al diwan* on the right side. Again, you go up two steps from the same landing and you would find an apartment (*ozla*) where her dad's aunt and her husband lived. This is made up of *al sofa*, *majlis* on the left, and on the right side a restroom.

The second, third and fourth floors were the family's living spaces. As you go up to the next floor there is another big landing where my grandmother lived with her parents and sister. In this apartment (*ozla*) there is a corridor and on the right side there was *muakher*, and on the left side a bathroom. From the corridor you can go to the *sofa*, the *majlis* and a storage room where they would store blankets.

Again, you go to the next floor where another of her dad's aunts lives and on the same floor there is another apartment where another aunt lived with her husband. On this floor, on the right side there is an open outdoor space (*kharja*) with a restroom attached to a *majlis* and a storage room.

On the next floor there is another *majlis* where her dad used to sit most of the time. On this floor there is a bathroom to the left as well as an open outdoor space (*kharja*) where her dad used to sit to enjoy tea and smoke *shisha*, 'hubble bubble', in the summer. On the right we find *al sofa* with two steps leading to *al majlis*. Also, on the same floor there is an apartment (*ozla*) where another aunt lives with her husband. Through a corridor you would find on the left side a restroom and a storage room (*khazana*). On the right there is a *sofa* and a *majlis* where they sleep in winter as well as an outdoor space (*kharja*).

On the uppermost floor, just like all other houses, there is the roof open space (*satuh*) which is divided into two parts. Women would gather to socialise and other activities would take place such as the laundry.

A large number of bay windows (*roshan*) are situated on the north and west façade of the house. On the west façade, which is the main façade of the house, there are six bay windows overlooking the narrow street and the Shafi Mosque. On the ground floor there is one bay window located in *al magaad* on the left side of the main door. On the first and second floor of the house one can see two bay windows on each floor. On the third floor one bay window is situated almost in the middle of the façade. These bay windows are located in *al sofa* and *al majlis* rooms. See Figures [176](#) and [178](#). The north façade has around five bay windows. On the ground floor of the house, one bay window is situated in the carpentry workshop. On the first and second floor of the house, in *al majlis* rooms, two bay windows are located on each floor. This shows that the location of the bay windows were carefully positioned according to the climate, specifically the wind and sea breeze.

After analysing the house, fifteen patterns were identified. The house elements match and relate to fourteen specific patterns from Alexander, with one specific element related to the context of the old town of Jeddah. Furthermore, all these elements are related to the notion of thresholds. These are;

#### Body Scale

- Window places (*roshan*)
- Stair seat
- Connected to earth

#### Building Scale

- Street windows (*roshan*)
- Main entrance
- Low doorway (*khukah*)
- *Dahliz*
- Roof open spaces (*Satuh/ kharjah*)

#### Street Scale

- Entrance transition
- Path shape (*zuqaq*)
- Building front
- Building edge

#### City Scale

- Positive outdoor spaces (*barahat*)
- Connecting buildings
- Hierarchy of open spaces



Figure 175: Showing the location of Waqf Al Shafi house in Al Mazloun quarter in the east part of the old town. Source: Author.



Figure 176: Floor plans of Waqf Al Shafi House. Source: (Khan, 2015, p. 184) edited by author.





Figure 177: Left, west elevation of Bait Waqf Al Shafi. Right a section of the house. Source: (Khan, 2015, p. 183).

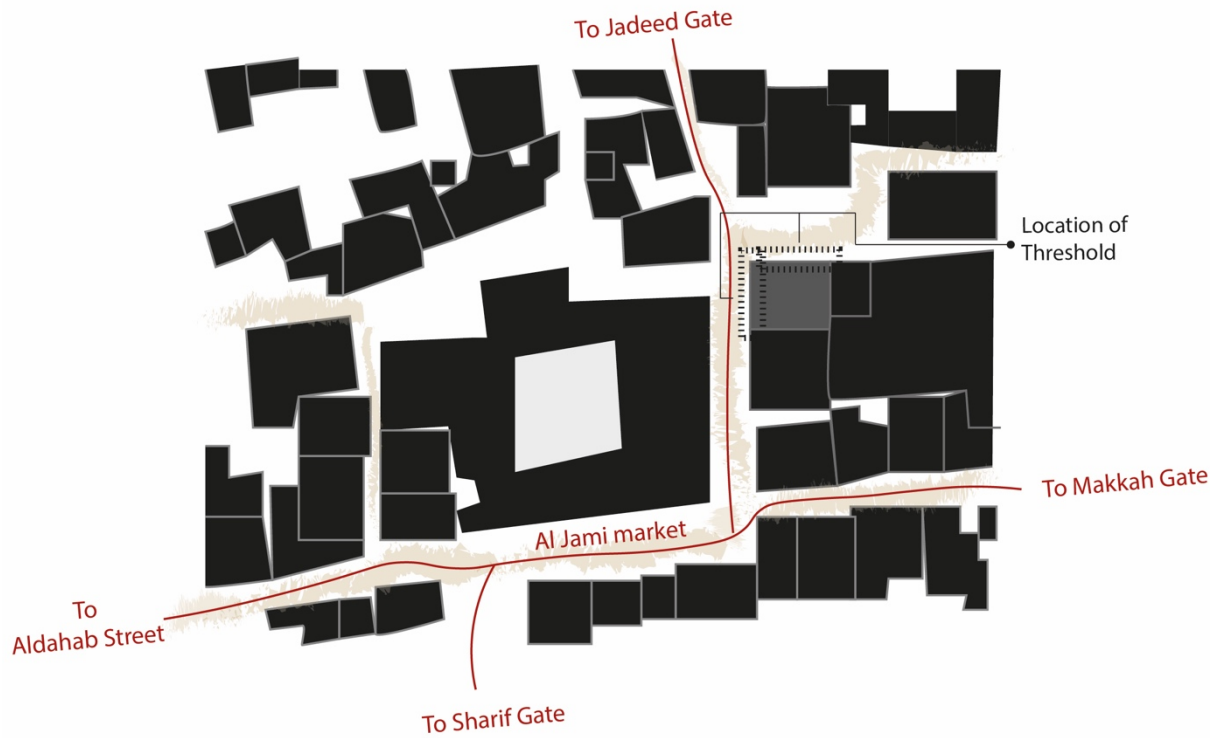


Figure 178: Site plan showing Waqf Al Shafi house and the surrounding houses as well as one of the oldest mosques in the area, Al Shafi Mosque. Source: Author.

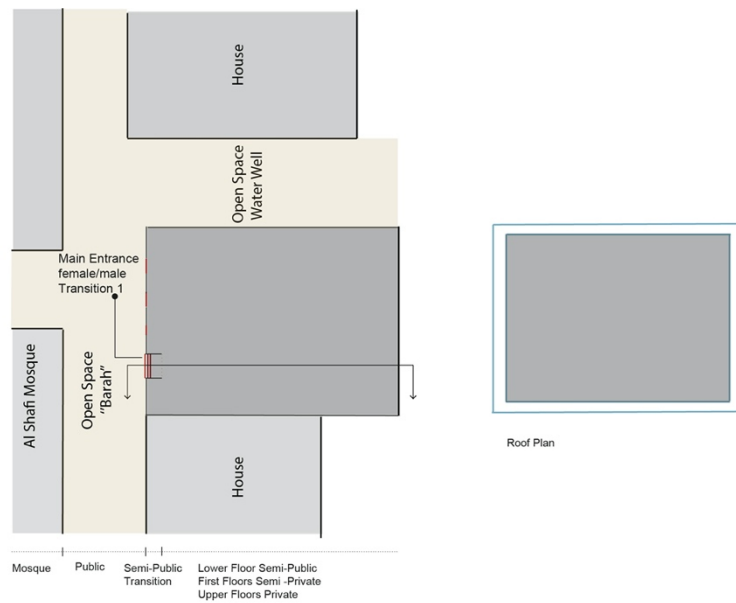
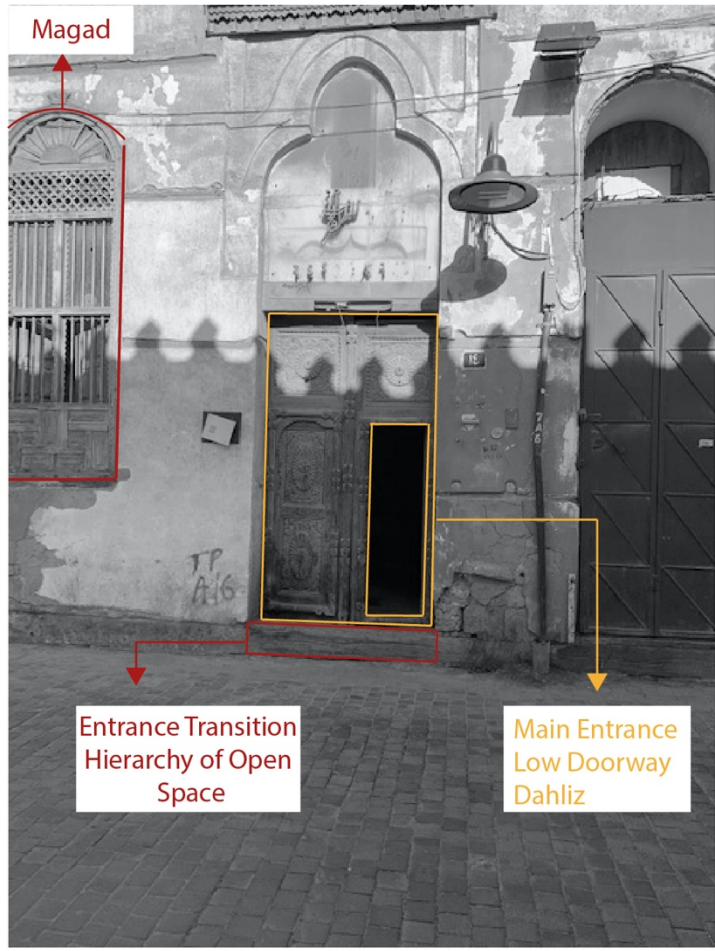


Figure 179: Indicating the visible thresholds in the plan and their relationship to the street and surrounding buildings. Source: Author.



Figure 180: North façade of Waqf Al Shafi House. Highlighted patterns in blue indicate that female patterns. And patterns in red indicate a male pattern. Because of the social and cultural dimensions as you go horizontally, the male patterns are dominant while the female patterns take place vertically. Source: Author.



Street Windows  
Window Places  
Building Edge



Figure 181: A zoomed in view of the south façade of Waqf Al Shafi House. Patterns highlighted in blue indicate a female pattern. And patterns in red indicate a male pattern. Source: Author.

From a male view, as you walk from the Jami market, which was a major market in the old town, to the narrow street leading to Al Shafi Mosque on the left, one would see on the right side a number of multi-storey houses. Waqf Al Shafi is one of those houses which is only attached to another house from the left side. On the right side there is an open space where a water well is located. The main entrance of the house overlooks the Shafi mosque. The ground floor is raised by three steps from the street level. As you stand in front of the steps you would directly see the highly decorated main wooden door entrance made of two leaves.

The south façade is made up of several layers of thresholds which gives a one-of-a-kind experience.

The steps are the first layer of threshold leading directly to the main entrance. The low doorway in the right leaf of the main wooden door is open during the day, through which one can access a reception area (*dahliz*) which is a further layer of threshold viewed as a semi-private space. This space is cooler than any other part of the house during the heat of the summer day. The owner of the house receives visitors who have not arranged their visits in advance in this space on wooden benches. Through the *dahliz* one can access *al magaad* which is also a semi-private space but one degree higher in privacy than the *dahliz* space. *Al magaad* has one window that overlooks the streets and the mosque. This space is also elevated by a few steps and is seen as another layer of threshold leading to a space usually used by the owner of the house to receive guests, family, and acquaintances. In the case of Waqf Al Shafi house, my grandmother explained (2019) that this space is occupied by *al saga*, the person who provided water to the household. This means that the owner of the house had another space where he would receive guests, family members, and acquaintances.

By going through the *dahliz* on the right side, one would find the staircase that would take the male guests to the first floor. On the right side her father's wing is located. This wing includes a corridor, restroom, and *Al diwan*. A space that is divided into two parts by a number of steps and is located on the main façade of the house overlooking the street. Also, this space contains three bay windows (*roshan*), two are located on the south side and one on the west side where the air breeze is nice. In this space her dad welcomed visitors. See [Figure 182,183](#).

From a female view, the experience and permeability are different. In the case of Waqf al Shafi, the house has only one main door, meaning that it is used by both genders to access the house. As explained previously through the steps which is the first transition one can access the *dahliz*, another layer of transition after passing the wooden door. The staircase, another threshold, is located on the right side of the *dahliz* taking women to the other levels of the house. they are welcomed to go up the stairs to the second floor where women's friends are welcomed in a large reception room, locally named *al majlis* which is located on the south and west side. This space is divided into two parts by two steps. This space accommodates family members close friends, and relatives (female visitors and their family members). The *majlis* has three bay windows (*roshan*) that are elevated and are the focal point of the room where different activities take place such as socialising and snacking. See [Figure 184](#).

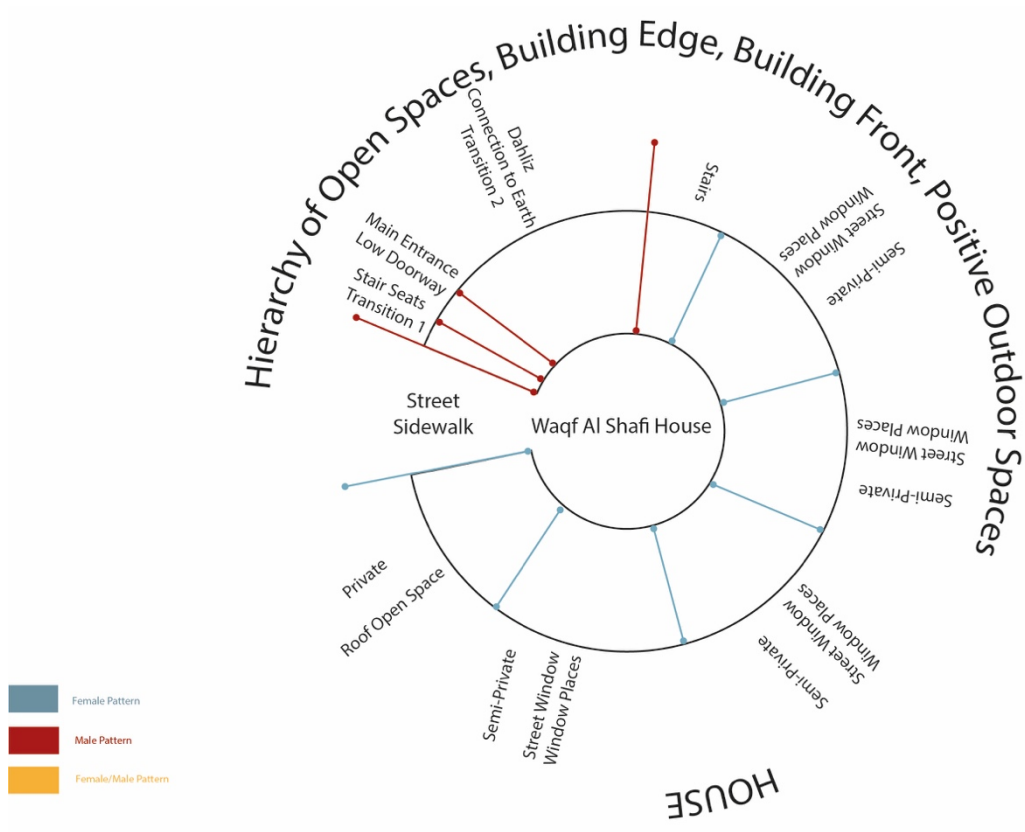


Figure 182: A diagram showing the unique experience of all 15 patterns to the house while putting threshold at the centre of our focus. Source: Author.



Figure 183: Showing the layering and thresholds in a house from a man's perspective. Source: Author.  
 Figure 184: Showing the layering and thresholds in a house from a woman's perspective. Source: Author.

Horizontally, one can witness three transitions from the sidewalk to the inside of the house in the ground floor area. By passing through three steps which is the first layer of transition leading to the second layer of transition which is the main door entrance to the semi-private space of the *dahliz* inside the house looked at as the third threshold space. In the case of Waqf Al Shaif house the transitional space of the male domain extends all the way up to the first floor of the house meaning the semi-private space stretches to the first floor. As previously described, the owner of the house used to socialise on the first floor *al diwan* as the edge or the number of layering horizontally in this house differs, for example, to the previous house. This horizontal transition demonstrates the male zone creating a harmonic atmosphere between the street and the house. [Figure 185](#)

Vertically, one can see from the section a number of spatial thresholds. Starting with a few steps from the street level to the second threshold space, the *dahliz*, located inside the house all the way up to the first floor where the *al diwan* takes place. As previously mentioned, it is part of the male domain. As you go up, the transition is more private where women can welcome their guests on the second level of the house. By going up, the space becomes more private as only the household can access these spaces until we reach the private roof open space (*satuh/kharja*) used mostly by women for socialisation and other activities described in the previous chapter. This indicates that as we go vertically the privacy in the house increases. [Figure 186](#)



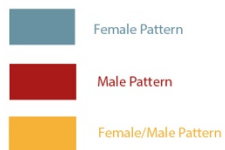
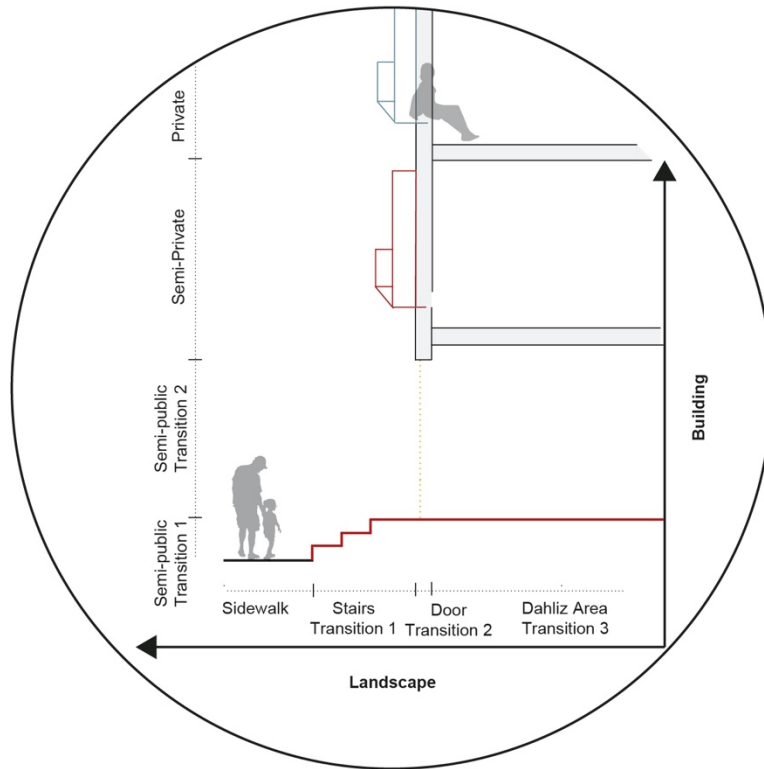


Figure 185: Section of the house showing the layering of the threshold, because of the social and cultural dimensions. As you go horizontally the male patterns are dominant while the female patterns take place vertically. Source: Author.

# House 52

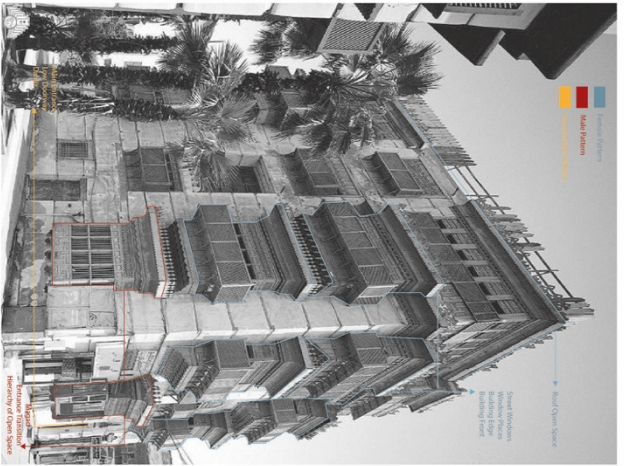


Fig 1

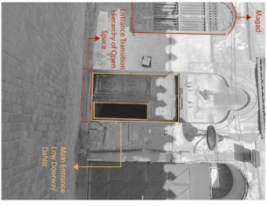


Fig 2 A

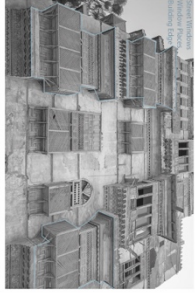


Fig 2 B

Made of three main floors. 15 male/female patterns were found. Fig 1, 2 A,B shows some of those patterns highlighted in different colours such as red refers to the male patterns while blue refers to female patterns and yellow refers to patterns that are used by both.

Fig 3-4 indicates the visible thresholds in plan and its relationship to the street and surrounding buildings. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns take place vertically Fig 5.

Fig 6 is a diagram showing the unique experience of all 16 patterns to the house while putting threshold at the centre of our focus. Located in Al Mathloom Neighbourhood Fig 7.

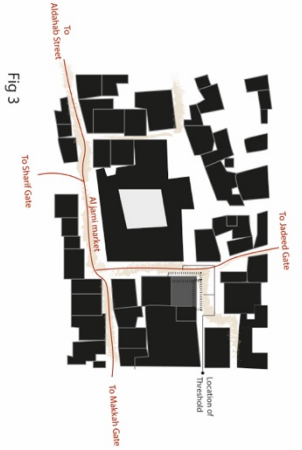


Fig 3

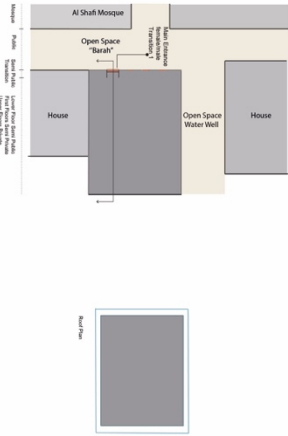


Fig 4

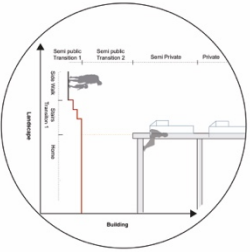
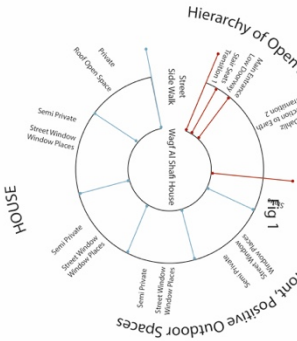


Fig 5 Fig 6

Diagram showing the sequence of patterns to the house



## Patterns Found

- Main entrance
- Connected building
- Entrance transition
- Hierarchy of open spaces
- Roof garden (open space)
- Path shape
- Street seats
- Positive outdoor spaces
- Building front
- Building edge
- Street window
- Connection to earth
- Window places
- Low doorway
- Dahliz



Fig 7

Figure 186: Combining all the analyses in one sheet. Source: Author.

## **Bait Jamjoom**

The Jamjoom house is more like a palace located in Harat Al Mazloun in the heart of Jeddah. It occupies the largest area compared to other houses in the old town, see [Figure 169](#). The Jamjoom family is one of the most prominent families in Jeddah and the *Hijaz* region. The family's origin goes back to Egypt where they migrated from Palestine during the late Ottoman rule (Jamjoom, 2021).

Abdullah Bakor noted that the house belonged to an Indian merchant who built and lived in it, then the Jamjoom family bought the house from him. Therefore, the Indian style that dominates the house can be seen in the engravings on the doors and other details. The Jamjoom family were famous for receiving visitors on their way to Makkah for *Hajj* and *Umrah* in different seasons.

According to Hisham Jamjoom (interview, 2021) around fifty people lived in the house. Jawahr Salih Jamjoom (interview, 2021) explained to me that six brothers lived in the house with their nuclear families. The house stands alone, meaning it is not attached to any other house. It is made up of five floors and on the sixth floor is the outdoor space (*satuh*) where they used to sleep in summer.

According to Jawahr Jamjoom who was born in the house (interview, 2021), The house has two entrances, One to the west known as *Al Wajha Al baharia*, and is used by men and one on the south side known as *Al Wajha Al Yamania* used by women and servants. The largest entrance with stair seats and a private terrace on the street (*dakkah*) is located on the west side. To access this entrance, one has to go through the stair seats to the private terrace then a further three steps to enter the house. According to Ghasi Jamjoom (2012) the oldest person in the family used to sit on the terrace and give the young kids of the family and poor people money in the form of pennies. Furthermore, the family was famous for trading in Jeddah thus, on the right side of this entrance is the office of Mohammed Jamjoom and his brothers. It is a large space divided into two parts by one step. Also, there is a large bay window in this room that looks out to the private terrace on the street (*dakkah*).

Each entrance opens to the semi-private *dahliz* that differs in size, probably according to its use and location in the house. During my visit to the house, I found that the door to the west side described previously has the largest *dahliz* area opening to different rooms. There is a large room directly in front of the *dahliz* with several steps and high windows described by Jawahr Jamjoom (interview 2021) as a space for storing merchandise and goods. Furthermore, the door to the south can be accessed via several steps that lead to a small *dahliz* on the right, a room that can be accessed via three steps, probably its *al magaad* as they are always attached to the *dahliz*.

In the middle of the house there is one staircase that takes us to all the floors. There are small split stairs with landings on each floor leading to different apartments (*ozla*) where each nuclear family lives.

According to Jawahr Salih Jamjoom (interview, 2021) the first floor was used by men and their guests where they would also have their lunch on the north façade.

I noticed during my visit to the house that the *majlis* rooms are extremely big compared to other houses such as Waqf Al Shafi for example. On the third floor to the west side there is a large interesting outdoor space (*kharja*) that can be accessed through a large *majlis* room. Many rooms look at this open space as well as bay windows (*roshan*) facing north and south. The

south *roshan* extended between two floors. This is a great space for use during the day as the upper floors provide shading from the sun.

The uppermost floor is very interesting as it is made up of many different rooms overlooking different angles of the city.

The house elements match and relate to seventeen specific patterns from Alexander with one specific element related to the context of the old town of Jeddah. Furthermore, all these elements are related to the notion of thresholds. These are:

#### Body Scale

- Window places (*roshan*)
- Stair seat
- Private terraces on the street (*dakkah*)
- Sitting wall
- Front door bench (*mirkaz*)
- Connected to earth

#### Building Scale

- Street windows (*roshan*)
- Main entrance
- Low doorway (*khukah*)
- *Dahliz*
- Roof open spaces (*satuh/ kharjah*)

#### Street Scale

- Entrance transition
- Path shape (*zuqaq*)
- Building front
- Building edge

#### City Scale

- Positive outdoor spaces (*barahat*)
- Hierarchy of open spaces



Figure 187: Showing the location of Jamjoom house in Al Mazloun quarter. Source: Author.

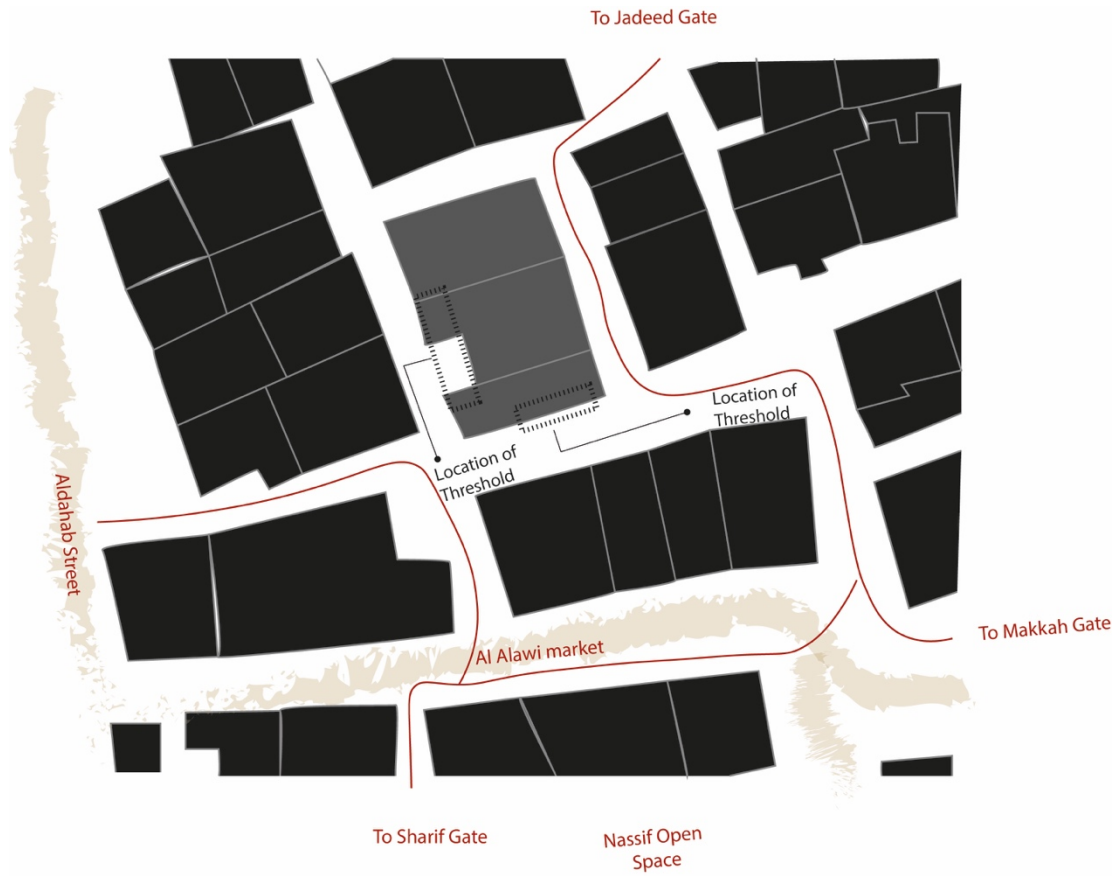


Figure 188: Site plan showing Jamjoom house and the surrounding houses. Source: Author.

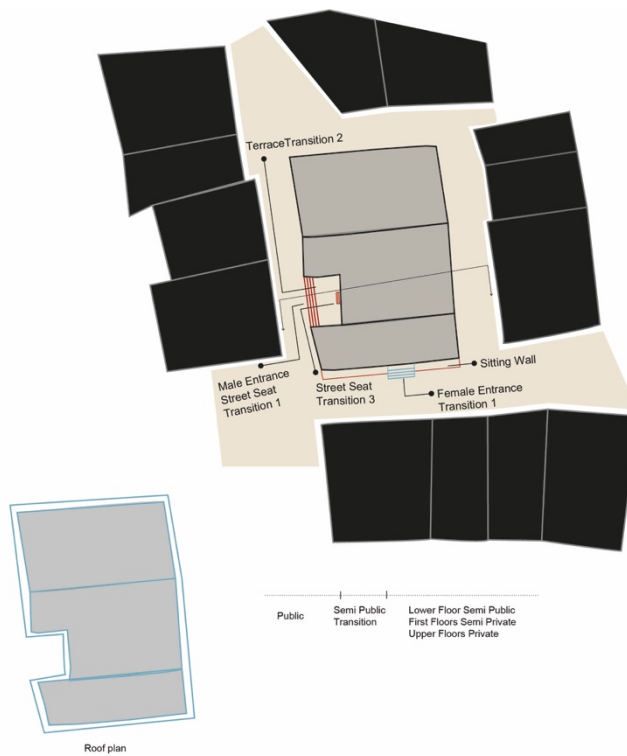


Figure 189: Indicating the visible thresholds in the plan and their relationship to the street and surrounding buildings. Source: Author.



Figure 190: West façade of Jamjoom house. Patterns are highlighted in red indicating that they are male patterns. Source: Author.

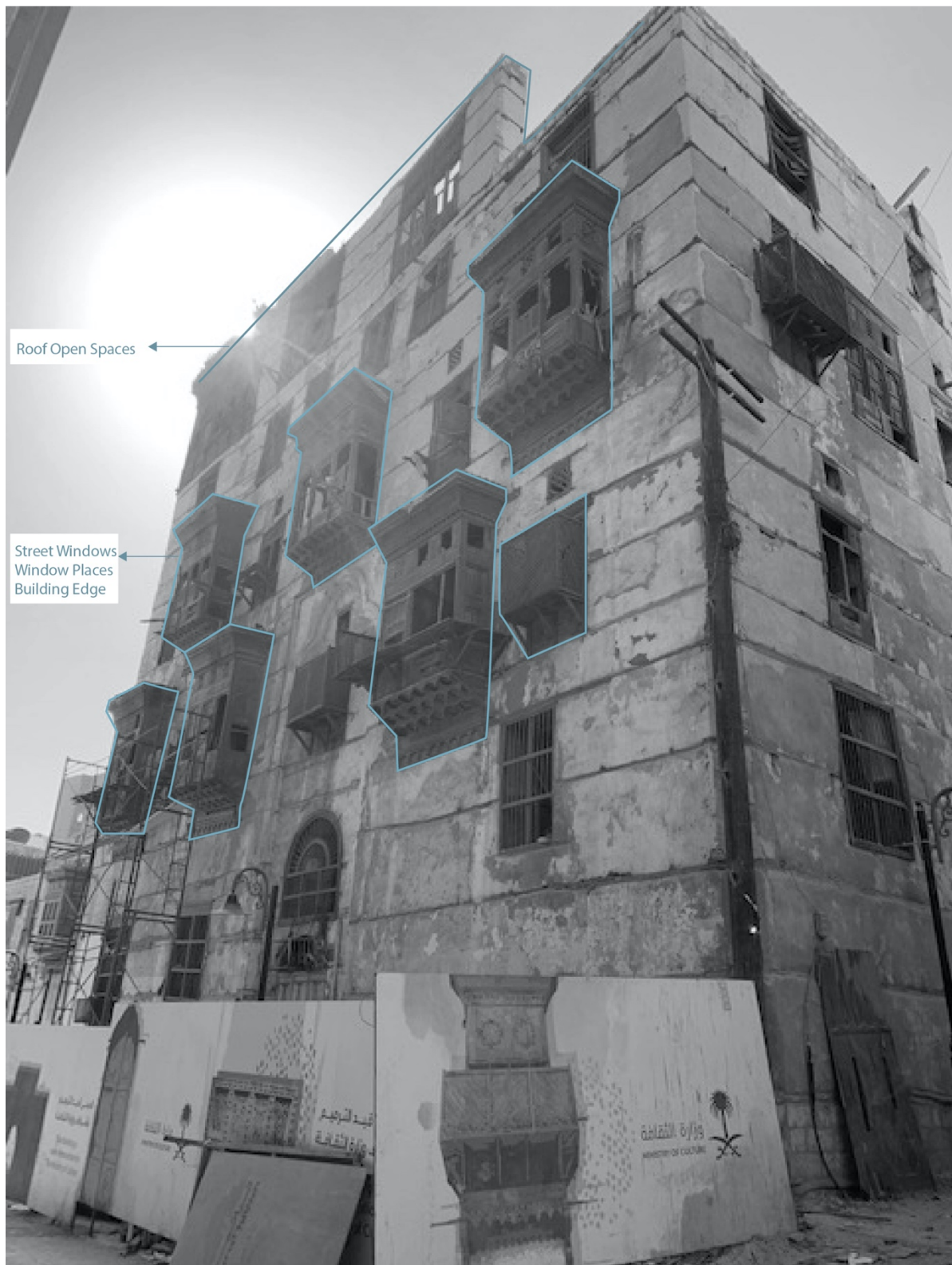


Figure 191: West façade of Jamjoom house. Highlighted patterns in blue indicate a female pattern and patterns in red indicate that a male pattern. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns occur vertically. Source: Author.



From a male perspective, as you walk through the narrow street, the west façade of Al Jamjoom house is strongly visible because of the strong presence of the transitional spaces. The ground level is raised by four steps from the street level. As you stand in front of the steps you immediately see the men's wooden entrance.

The west façade consists of several layers of thresholds showing a one-of-a-kind sequence of experiences. The steps are the first layer of threshold leading to one private terrace on the street (*dakkah*) with low walls which gives the space an intense urban scene and yet the owner of the house retains a sense of privacy and ownership while engaging totally with life in the street. Since the space is used by the owner of the house at certain times of the day to socialise with friends and relatives, benches, or *Mirkaz*, are found in this space covered with cushions.

This terrace is the second layer of threshold. In order to access the entrance door, one has to pass by another level of threshold made of three steps. Viewing the right side of the terrace there is a huge window that overlooks it and the entrance of the house. This creates a connection between the inside and the outside as well as controlling who enters the house.

The low doorway of the right leaf of the main wooden door of the house is open during the day, through which one can access the reception area (*dahliz*) which is a further layer of threshold viewed as a semi-private space. This space is larger than in other houses and usually the *dahliz* is cooler than any other part of the house during the heat of the summer days. The owner of the house receives visitors who have not arranged their visits in advance in this space on wooden benches. Through the *dahliz* one can access *al magaad* which is also a semi-private space but one degree higher in privacy than the *dahliz* space. This space is also elevated by a few steps, seen as another layer of threshold, leading to a space used by the owner of the house to receive guests, family, and acquaintances.

Also, on the right side of the *dahliz*, one can find the office of Mohammed Jamjoom and his brothers. The space is divided into two parts through one step. This space overlooks the terrace and the entrance of the house through the huge window. See [Figure 193](#).

From a female point of view, the experience and the permeability are different. The family entrance on the south façade is accessed via several steps which is the first threshold a woman would experience taking her through the wooden door, a second transition to a narrow rectangular reception area (*dahliz*) which is smaller in size than the previous *one* discussed above. On the right side of the *dahliz* one can see an elevated room which could be another *magaad* space. Furthermore, this *dahliz* is connected to the larger *one* through which one can access the staircase located at the back side of the house. The staircase is another threshold that takes women to a level that men are not allowed to access. Women's friends are welcomed in a large reception room locally named *al majlis*, usually situated in the main façade because of the air breeze. This space accommodates family members close friends, and relatives (female visitors and their family members). As previously explained, each *majlis* has at least one bay window (*roshan*) that is elevated and is the focal point of the room where different activities take place such as socialising and snacking. See [Figure 194](#).

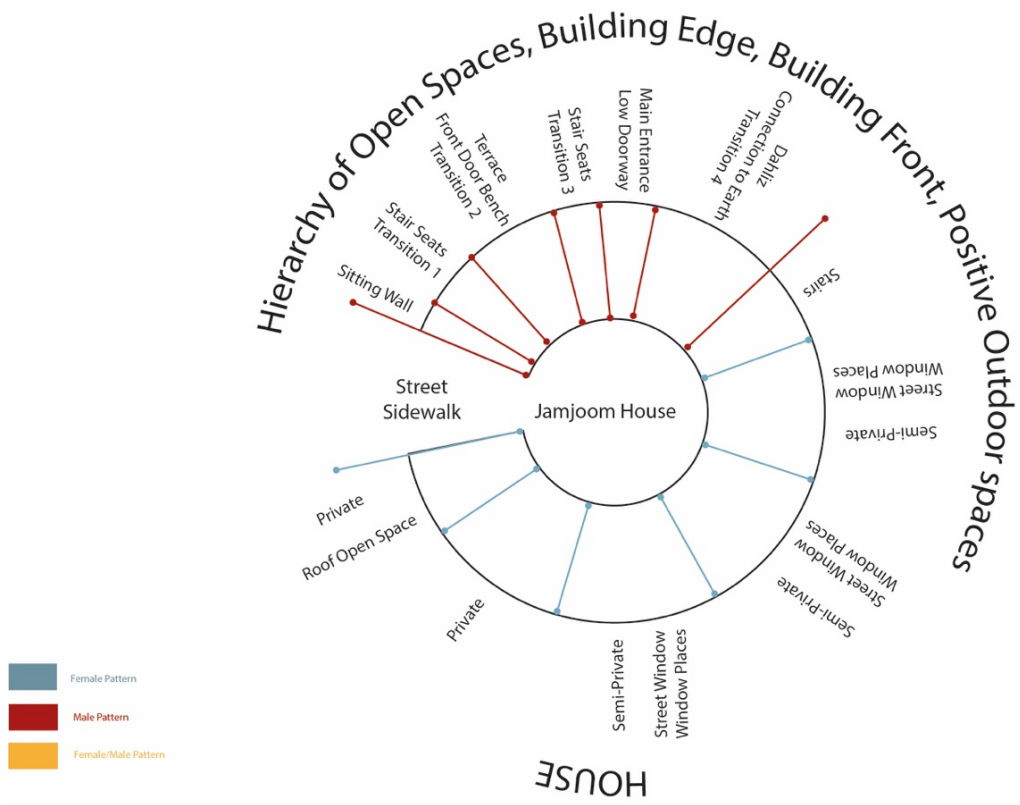


Figure 192: A diagram showing the unique experience of all 18 patterns to the house while putting threshold at the centre of our focus. Source: Author.

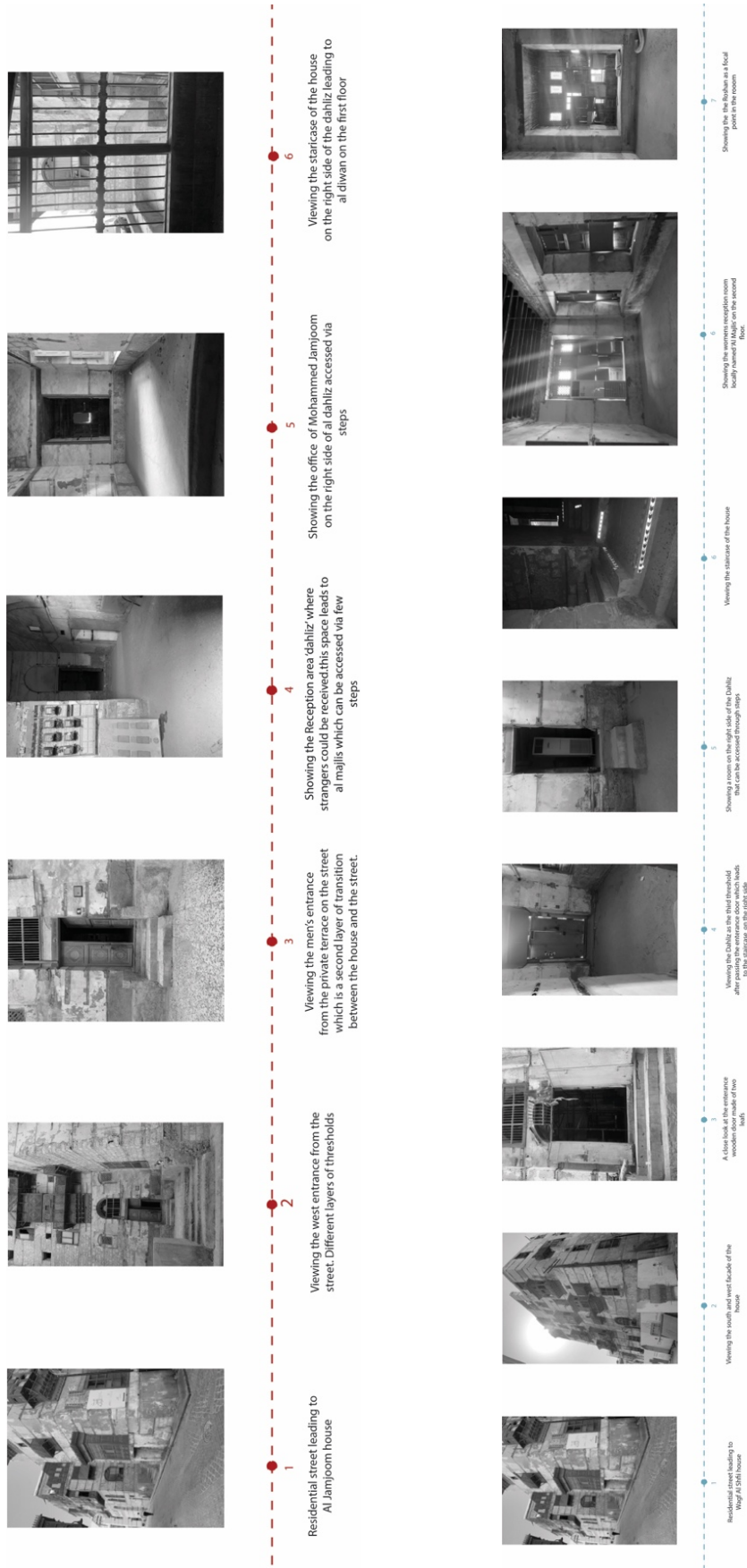
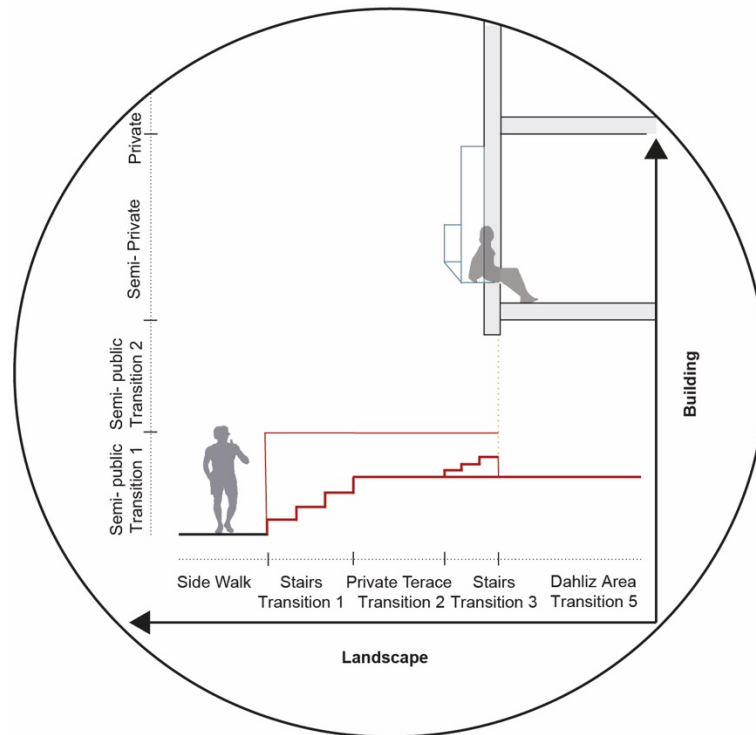


Figure193: Showing the layering and thresholds in a house from a man’s perspective. Source: Author.  
 Figure194: Showing the layering and thresholds in a house from a woman’s perspective. Source: Author.

Horizontally, one can witness five transitional spaces from the sidewalk to the inside of the house in the ground floor area. The high stairs work as the first transition between the street and house leading to the second transitional space which is the private terrace on the street (*dakkah*). The importance of the second threshold space lies in the fact that it's a social and gathering space for men at certain times of the day making it a focal point. To access the house, one must pass the third threshold which is the steps leading to the main door of the house and from that to the *dahliz* space, a fifth transition on the ground floor of the house. The semi-private *dahliz* leads to another semi-private space via several steps which makes it one degree higher in privacy than the *dahliz* area. This horizontal transition demonstrates the male zone creating a harmonic atmosphere between the street and the house. [Figure 195](#)

Vertically, one can see from the section a number of spatial thresholds. Starting from a semi-public space which is the private terrace on the street (*dakkah*) raised by a few steps from the street level to the second threshold space located inside the house which is the *dahliz*, as previously mentioned, this is part of the male domain. As you go up, the transition is more private where women can welcome their guests on the first level of the house, sometimes on the second level depending on the layout of the house. By going up, the space becomes more private as only the household can access these spaces until we reach the private roof open space (*satuh/ kharja*) used mostly by women for socialisation and other activities described in the previous chapter. This indicates that as we go vertically the privacy in the house increases. [Figure 195](#)



- Female Pattern
- Male Pattern
- Female/Male Pattern

Figure 195: Section of the house showing the transition in spaces horizontally and vertically. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns occur vertically. Source: Author.

# House 24



Fig 1

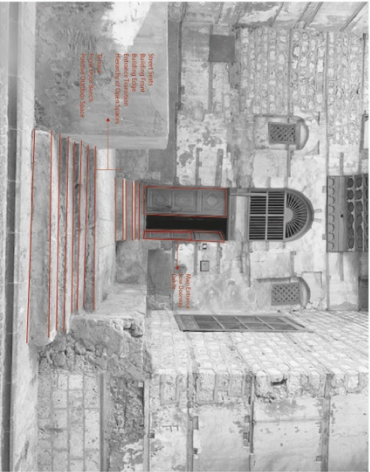


Fig 2

Located in Al Yaman Neighbourhood Fig 7.

Made of four main floors: 15 male/female patterns were found.

Fig 1, 2 shows some of those patterns highlighted in different colours as red refers to the male patterns while blue refers the female patterns.

Fig 3, 4 indicates the visible thresholds in plan and its relationship to the street and surroundings buildings. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns takes place vertically Fig 5.

Fig 6 is a diagram showing the unique experience of all 17 patterns to the house while putting threshold at the centre of our focus.

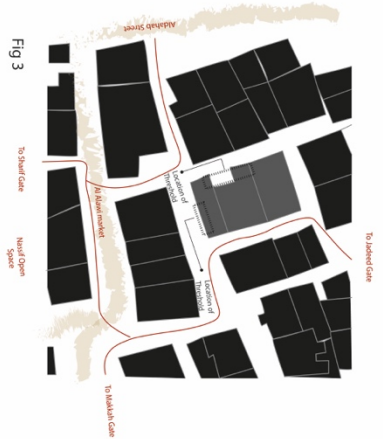


Fig 3

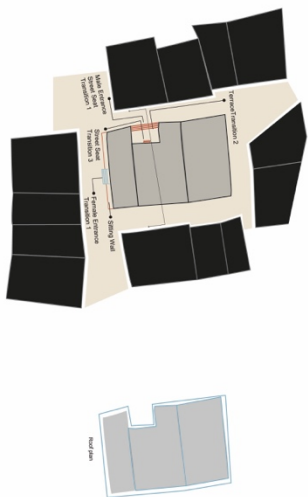


Fig 4

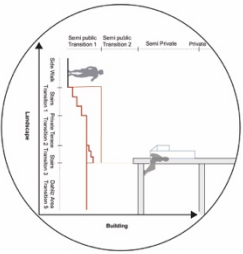


Fig 4

Fig 5

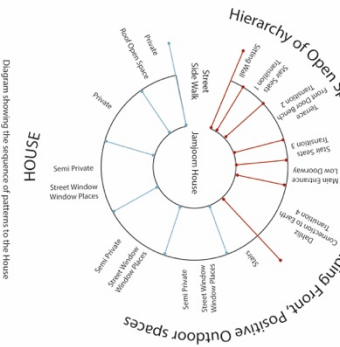


Diagram showing the sequence of patterns to the House



Fig 7

## Patterns Found

- Main entrance
- Entrance transition
- Hierarchy of open spaces
- Roof garden (open space)
- Path shape
- Street seats
- Positive outdoor spaces
- Building front
- Building edge
- Street window
- Connection to earth
- Window places
- Low doorway
- Dahliz
- Front Door Bench

Figure 196: Combining all the analyses in one sheet. Source: Author.

## **Bait Nassif**

Bait Nassif is one of the most famous houses in the old town, located in the heart of Jeddah in Harat Al Mazloum, see [Figure 197](#). It was built in 1842 around 178 years ago by Omar Nassif who traded in grains brought from Africa. Abdul Aziz Nassif stated in an interview (2019) that his great grandfather bought ten to twelve houses and demolished them to build this house. The house is located in Al Mazloum quarter on the *Hajj* path where pilgrims would come from the port on the west side moving along Gabil street to Nassif open space '*Barahat Nassif*' which faces the main entrance of Nassif House going to the east to Makkah Gate.

A lot of wood was used to construct this building and because wood was needed in certain lengths, they used the timber of an English ship which was sunk on the coast of Jeddah.

The house is made up of six floors, see [Figure 198](#). This is because, in the front façade, the rooms were double height where the back rooms were normal height. The house contains around forty rooms.

On the semi-private space of the ground floor there are three doors. The main door is to the north side overlooking an open space. *Barahat Nassif* is a very famous open space in the old town of Jeddah, named after the house of Nassif. This main entrance has several thresholds. It is elevated with a number of stair seats which take us to a private terrace on the street (*dakkah*) where men gather. Through it, one can access the entrance of the house to the spacious *dahliz*. The west side contains the second entrance, which is the female entrance, that overlooks a narrow street. It is also elevated from the street level with a number of steps. It leads to an open space that is connected to the main spacious *dahliz*. On the south side is the last door which is used by the servants of the house. It is a small door that leads directly to the stairs located in the centre of the house. These doors are only found in large houses.

The *magaad* room is located to the north-west side and is elevated from the *dahliz* by around 30 cm. On the opposite side, to the east, we find *al magad* which can be accessed up two steps. On the north-east side there is also a dining room. On the south-east side of the house is the servants' wing which is only found in large houses. This is accessed via a small staircase that goes from the ground floor to the fifth floor and is totally isolated from the rest of the house.

By looking at the floor plans of the house, there is a similarity in the interior spaces of the house up to the fourth floor, however, they could differ in the use.

According to an interview with Abdul Aziz Nassif in 2019, the first floor was designated to receive the guests, and the second floor was designated a place for the guests to sleep. The third floor was the family house area, and the fourth floor was a summer residence, to which the family would move in the summer. This is because the fourth floor was designed in a way that would allow the cold breeze to enter the house through special openings from every direction.

The house had two staircases. One spacious staircase linked to the *dahliz* made up of a double side staircase, *daraj al salamlik*, that goes from the ground floor to the fifth floor. This staircase takes us to the main rooms of the house where the other staircase takes us to the servants' wings. Camels used to go to the upper floors of the house with groceries via the main stairs from a back door which is unique and different to other houses in the old town.

On the first floor, which is the guest floor, we find *al sofa* which takes us to the main *majlis* room located to the north side. This space has a large bay window (*roshan*) which goes all the

way up to the second floor of the house. Also, there is another *majlis* space on the east and west side that is smaller in size compared to the one located to the north. All these spaces are pierced with a number of windows for ventilation and light. In front of the east *majlis* there is a room that takes you to an open bay window. Furthermore, on the west side there is a *mabit* room where people would sleep.

The second floor is also a guest floor where the rooms are similar to the first floor. The third floor is the family floor where we find the arrangements of rooms differ from the first and second floor. The main stairs lead us to *al sofa*, similar to the previous floors. Through the *sofa* we can access *al kharja* which is located above the *majlis* space on the first and second floor or the two *majlis* rooms located on the east and west sides of the house which is similar to the previous floors, however, these two spaces are built with wood instead of stone which aids air circulation and light.

The fourth floor does not include the entire area like the previous floors. It is made of two parts. The first part is the main kitchen (*morakab*) as well as a storage room. The second part is the servants' wing located on the south side.

Through a staircase in the west side we can access the fifth floor that takes us to the open space (*satuh*) as well as *al tairama*, accessed via a staircase, which is the highest point in the house. This space is open on all sides for air movement. The household used to sleep in this space in summer and use it in the afternoon for socialising where they would play games and eat snacks.

Regarding the openings in the house, there are around thirty windows that do not protrude from the outside and one bay window (*roshan*) that are all situated on the north façade of the house. Each floor has around ten openings of large windows. In the centre of the house, over the main door there is one large bay window that goes from the first to the second floor and overlooks *barahat Nassif*, which is a focal point when looking from the outside. The west façade is made up of forty windows distributed vertically, similar to the north façade. The east elevation overlooks a small open space that is connected to the main open space (*barahat Nassif*). This elevation contains a large amount of windows that look like the north and west façade windows. It also contains a number of small windows located in the restrooms. On the ground floor of this façade there is one bay window that overlooks the open space. The south elevation overlooks a courtyard, this elevation also contains a large amount of windows similar to the windows found in the other façades of the house. Moreover, just like the east elevation, there are a number of small windows situated in the restroom (*bait allma*).

After analysing the house, seventeen patterns were identified. The house elements match and relate to sixteen specific patterns from Alexander, with one specific element related to the context of the old town of Jeddah. Furthermore, all these elements are related to the notion of thresholds. These are;



## Body Scale

- Window places (*roshan*)
- Stair seat
- Private terraces on the street (*dakkah*)
- Sitting wall
- Front door bench (*mirkaz*)
- Connected to earth

## Building Scale

- Street windows (*roshan*)
- Main entrance
- Low doorway (*khukah*)
- *Dahliz*
- Roof open spaces (*satuh/ kharjah*)

## Street Scale

- Entrance transition
- Path shape (*zuqaq*)
- Building front
- Building edge

## City Scale

- Positive outdoor spaces '*barahat*'
- Hierarchy of open spaces

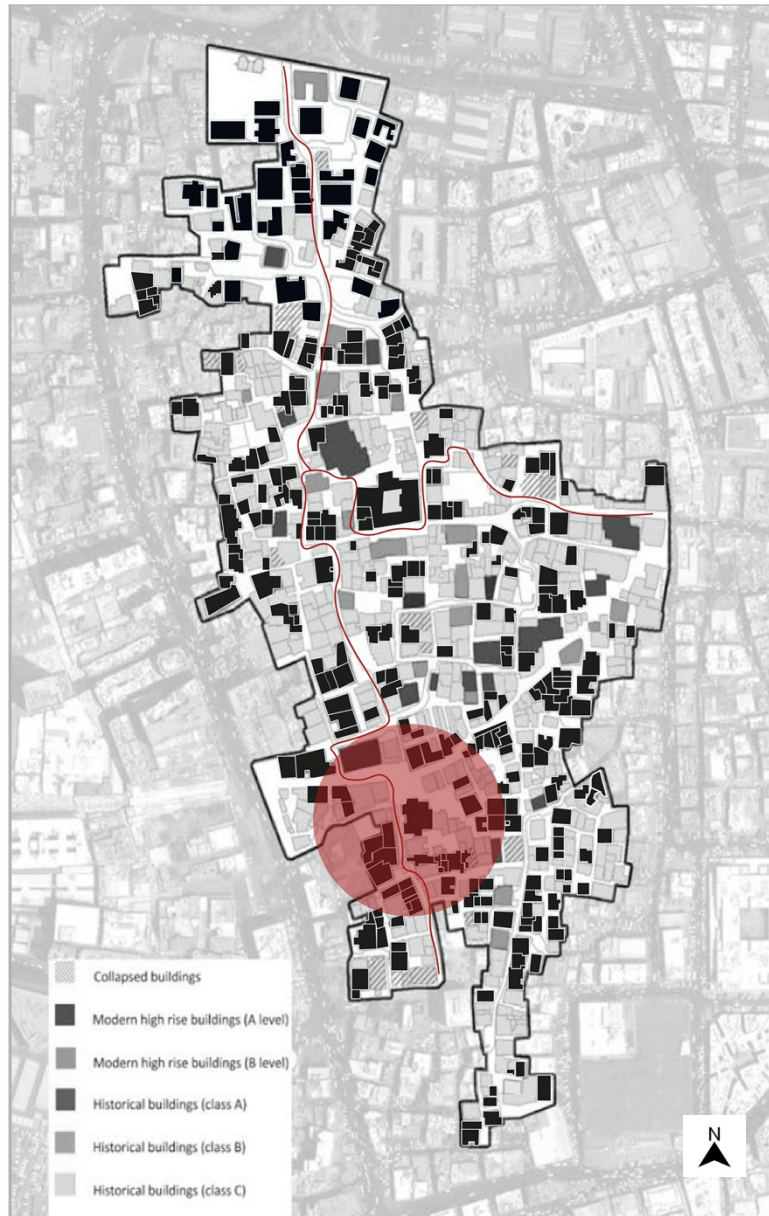


Figure 197: Showing the location of Nassif house in Al Mazloun quarter. Source: Author.



Figure 198: Nassif house floor plans, different colours were used to identify different spaces. Source: (Al-Lyaly, 1990, p. 51), edited by author.



Figure 199: Site plan showing Nassif house and the surrounding houses. Source: Author.

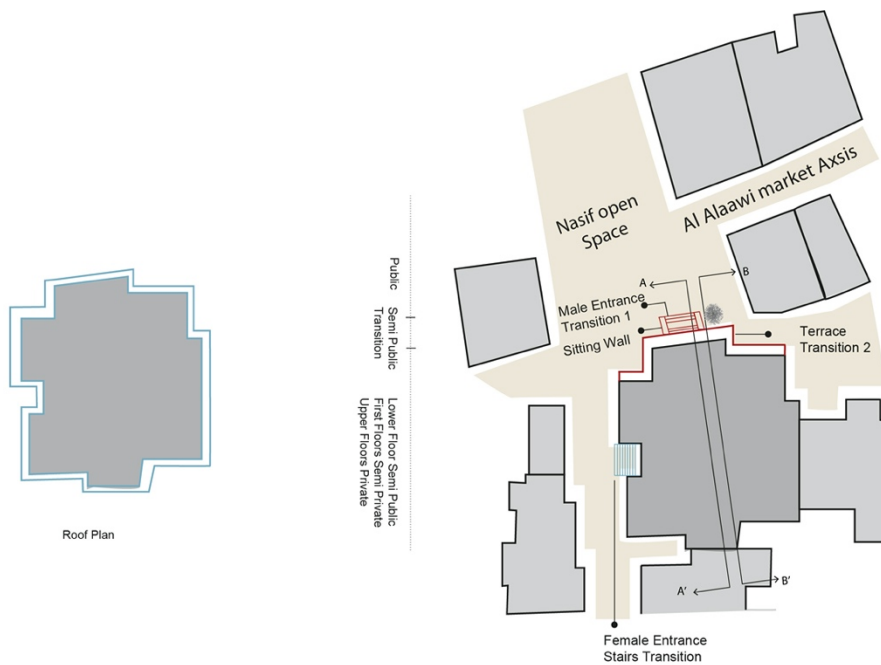


Figure 200: Indicating the visible thresholds in plan and their relationship to the street and surrounding buildings. Source: Author.



Figure 201: North façade of Nassif house. Patterns are highlighted in red indicating that they are male patterns.

Source: Author.

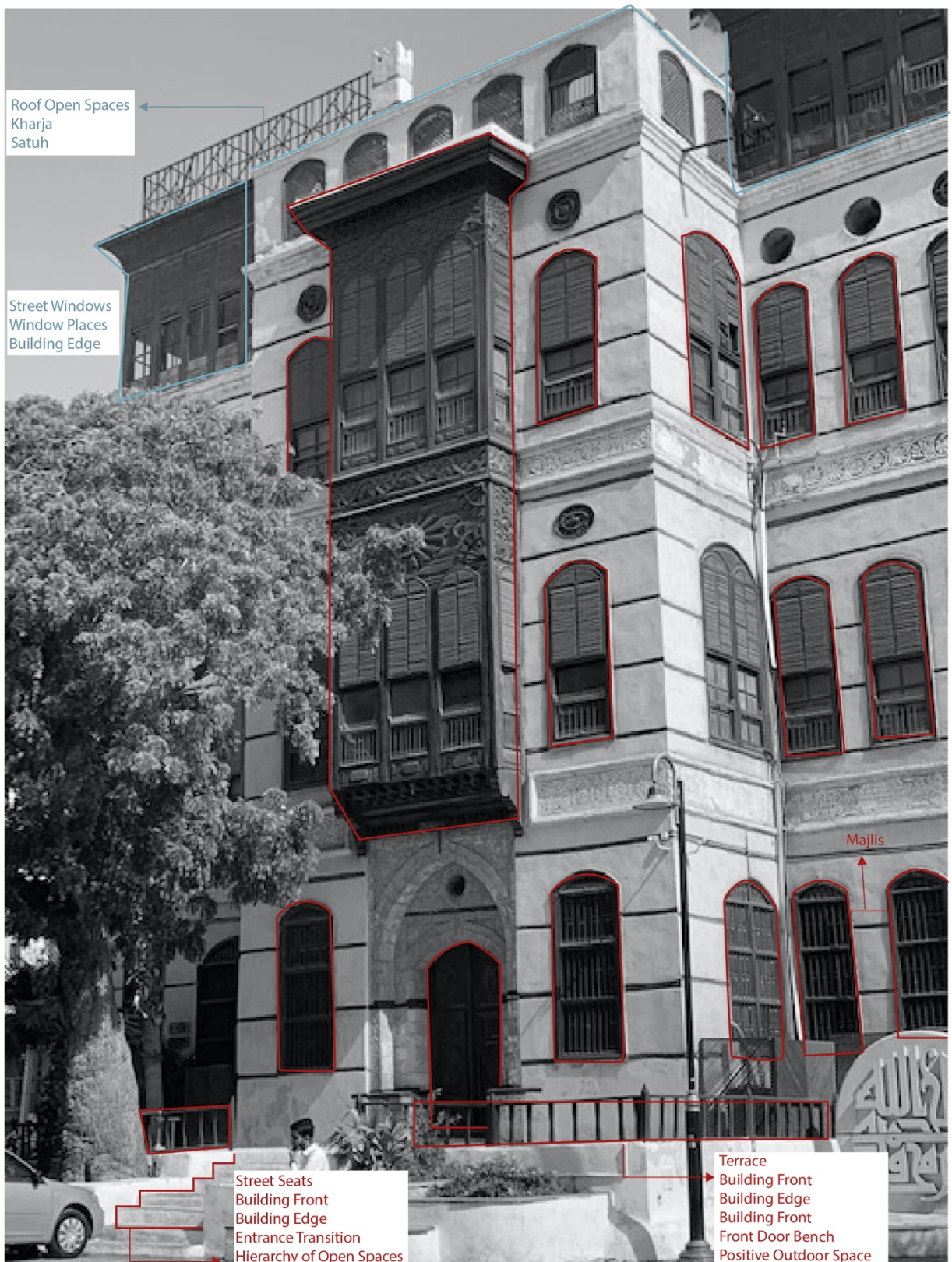


Figure 202: North façade of Nassif house. Highlighted patterns in blue indicate a female pattern and patterns in red indicate a male pattern. Because of the social and cultural dimensions as you go horizontally, the male patterns are dominant while the female patterns take place vertically. Source: Author.

From a male view, as you walk through the narrow residential streets, the north façade of Nassif house is highly visible as it overlooks one of the most well-known open spaces in the old city, *Barahat Nassif*. This open space has a significant location as it falls on the *Hajj* path which is from the west side to the east side passing by Gabil Street and Al Alawi Market.

The number of visible thresholds on the north façade make this house stand out in the area. The ground level is raised by seven steps from the street level with a landing in between. When standing in *Barahat Nassif* one can easily view the highly ornamented wooden entrance of the house from any angle. The house is landmarked with a huge tree situated on the left side casting shadows on part of the terrace.

As previously mentioned, the north façade is made up of several layers of threshold that emphasise the entrance while giving more significance and recognition to the house. The steps are the first layer of threshold leading to a second layer of threshold which is the private terrace on the street (*dakkah*) that covers the length of the north façade. It is protected by a low wooden handrail where the space gives an intense urban scene, yet the owner of the house retains a sense of privacy and ownership of the space while engaging totally with life in open space and the surrounding streets. Since the space is used by the owner of the house at certain times of the day to socialise with friends and relatives, benches, so called *mirkaz*, are found in this space covered with cushions.

On the left and right side of the terrace there are several big windows that overlook the terrace and the open space which interrelates with the public space *Barahat Nassif* creating a connection between the inside and the outside.

The low doorway of the right leaf of the main wooden door of the house is open during the day, through which one can access a large reception area (*dahliz*) which is a further layer of threshold viewed as a semi-private space. This space is cooler than any other part of the house during the heat of the day. The owner of the house receives visitors who have not arranged their visits in advance in this space on wooden benches. Through the *dahliz* one can access two *magaads*, the first is positioned on the north-west façade and the second on the north-east façade which is also a semi-private space but one degree higher in privacy than the *dahliz*. This space is also elevated by a few steps, seen as another layer of threshold leading to a space used by the owner of the house to receive guests, family, and acquaintances. See [Figure 203,204](#).

From a female point of view, the experience and the permeability are different. The family entrance on the west façade is accessed via nine steps which is the first threshold a woman would experience taking her through the highly ornamented wooden door, a second transition to a triangle reception area (*dahliz*) connected to the larger *dahliz*. One can access the staircase located at the back side of the house after passing by the *Dahliz*. The staircase is another threshold that takes women to the upper level of the house. Women's friends are welcomed in a large reception room, locally named *al majlis* which is located on the north-west and north-east façade. This space accommodates family members, close friends, and relatives (female visitors and their family members). This space has several large windows and one large bay window (*roshan*) overlooking the open space on the north façade that is elevated and is the focal point of the room where different activities take place such as socialising and snacking. See [Figure 205](#).

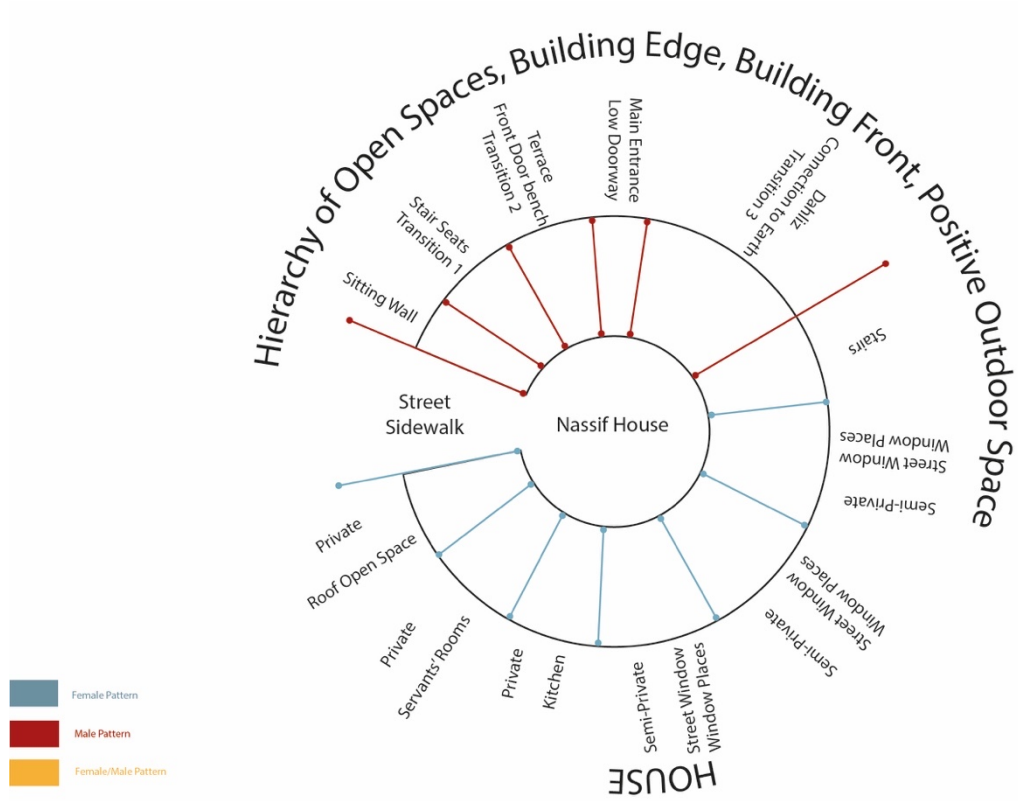


Figure 203: A diagram showing the unique experience of all 18 patterns to the house while putting threshold at the centre of our focus. Source: Author.



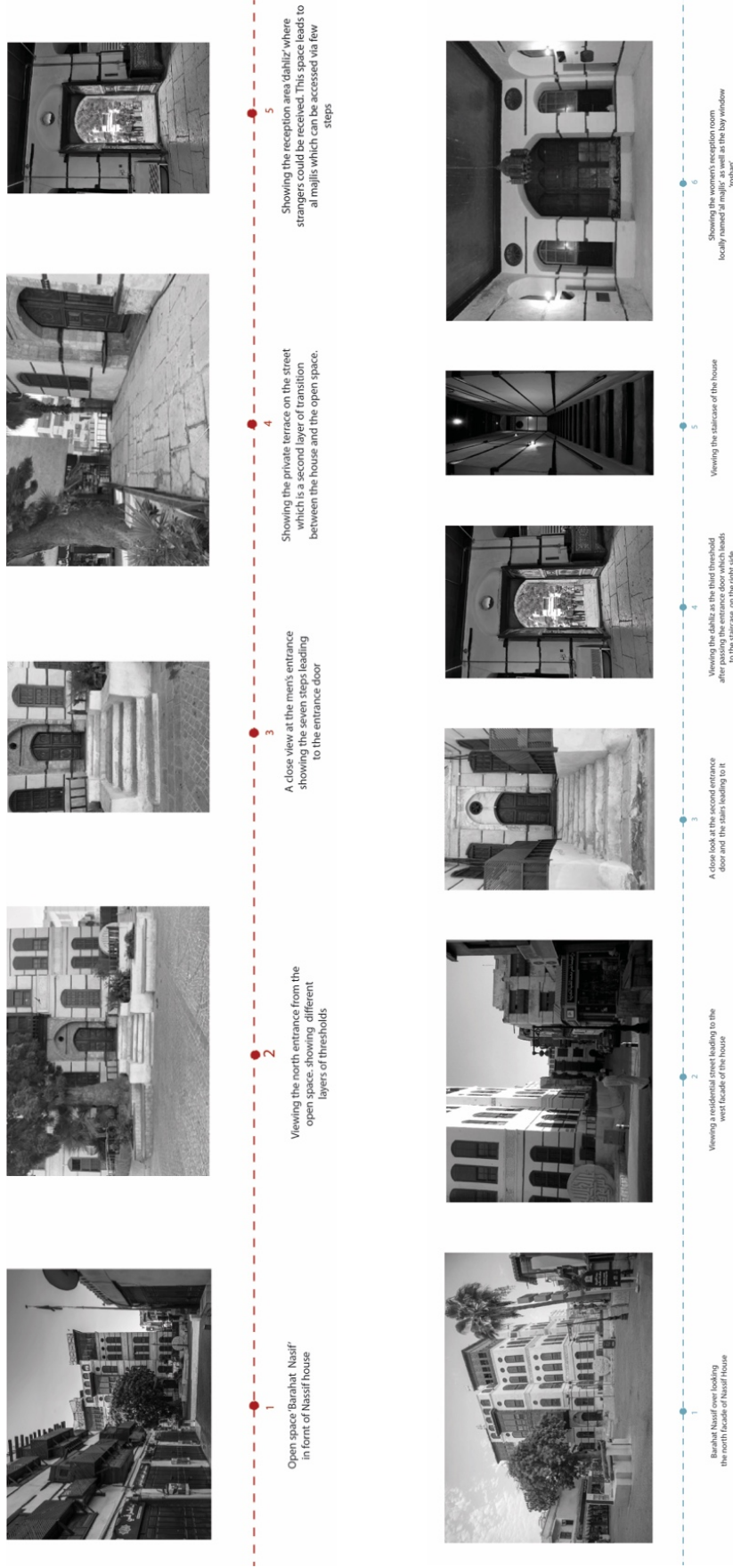
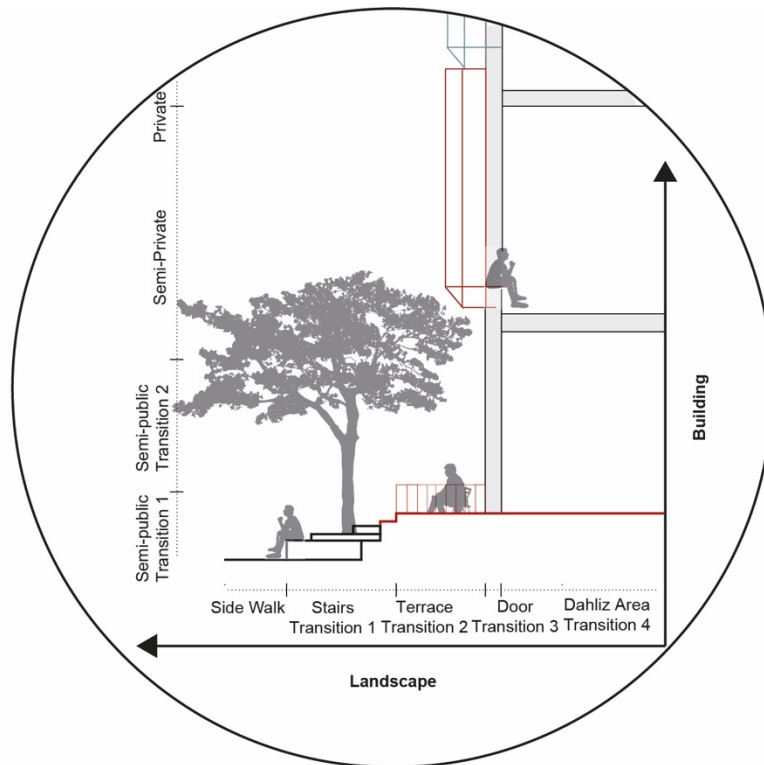
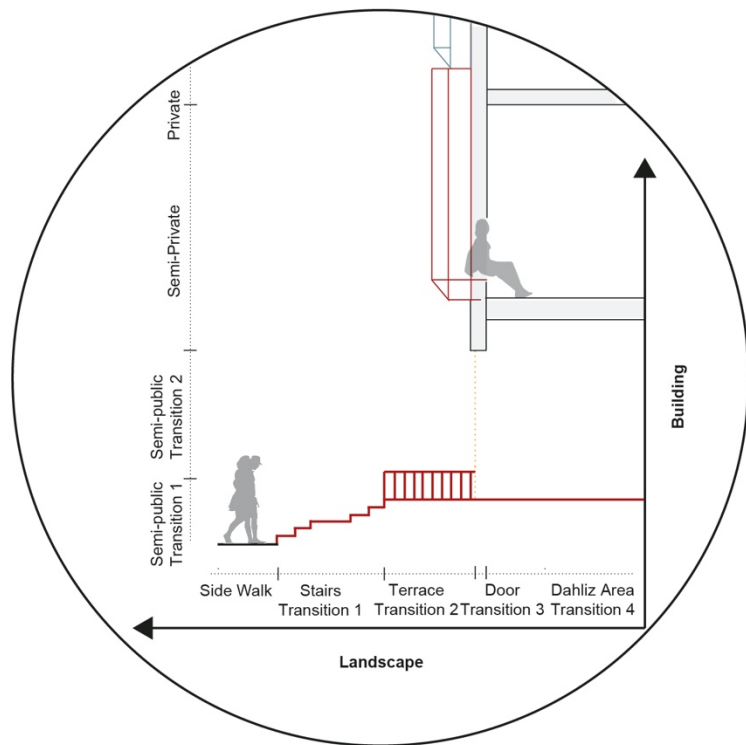


Figure 204: Showing the layering and thresholds in a house from a man's perspective. Source: Author.  
 Figure 205: Showing the layering and thresholds in a house from a woman's perspective. Source: Author.

Horizontally, one can witness four transitional spaces from the sidewalk to the inside of the house in the ground floor area. The first transition from the street is a number of steps separated by one landing, through which one arrives on the private terrace on the street (*dakkah*) which is the second transitional space viewed as a focal point where male socialisation takes place during certain times of the day. Through the door, which is the third transition, one can access the fourth transitional space, the *dahliz*, inside of the house. The semi-private space of the *dahliz* leads to another semi-private space via several steps, which makes it one degree higher in privacy than the *dahliz*. This horizontal transition demonstrates the male zone, creating a harmonic atmosphere between the street and the house. [Figure 206](#)

Vertically, the section shows a number of spatial thresholds. From the street level, one can access the private terrace on the street, *dakkah*, a semi-public space up a number of steps that raise it from the street level. The main door of the house is a third transition that leads to a fourth transition inside of the house. The *dahliz*, as previously mentioned, is part of the male domain on the ground floor level. In the case of Nassif house the male domain extends to the first floor of the house. As you go to the second floor the transition is more private where women can welcome their guests. By going up, the space becomes more private as only the household can access these spaces until we reach the private roof open space (*satuh/ kharja*) used mostly by women for socialisation and other activities described in the previous chapter. This indicates that as we go vertically the privacy in the house increases. [Figure 206](#)



- Female Pattern
- Male Pattern
- Female/Male Pattern

Figure 206: Section of the house showing the threshold space. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns take place vertically. Source: Author.

# House 26



Fig 1

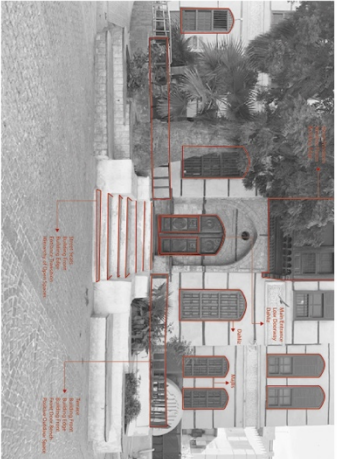


Fig 2

Located in Al'Yaman Neighbourhood on Al Alawt Street "Main Street" 18 male/female patterns were found.  
 Fig 1, 2 shows some of those patterns highlighted in different colours as red refers to the male patterns while blue refers to female patterns.  
 Fig 3,4 indicates the visible thresholds in plan and its relationship to the street and surrounding buildings. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns take place vertically Fig 5 A,B.  
 Fig 6 is a diagram showing the unique experience of all 19 patterns to the house while putting threshold at the centre of our focus.  
 Fig 7. Made of four main floors and is considered as one of the important houses in the area.

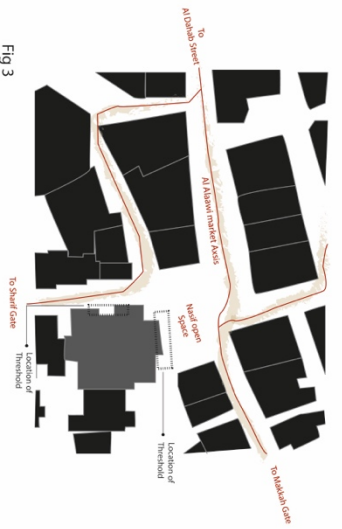


Fig 3



Fig 4

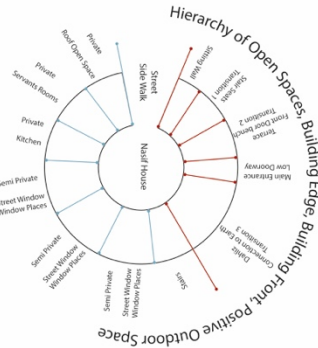


Diagram showing the sequence of patterns to the House

Fig 6

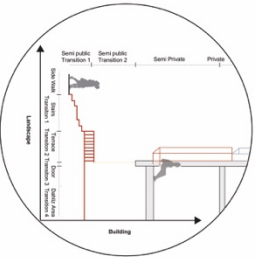


Fig 5 A

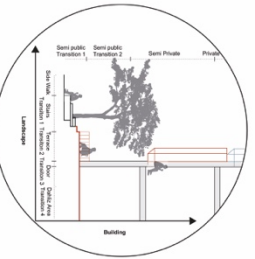


Fig 5 B



Fig 7

- Patterns Found**
- Main entrance
  - Connected building
  - Entrance transition
  - Hierarchy of open spaces
  - Roof garden (open space)
  - Path shape
  - Street seats
  - Positive outdoor spaces
  - Building front
  - Building edge
  - Street window
  - Connection to earth
  - Window places
  - Low doorway
  - Dahliz
  - Front Door Bench
  - Sitting Wall
  - Private terraces on the street

Figure 207: Combining all the analysis in one sheet. Source: Author.

## **Bait Jukhdar**

The Jukhdar house is located in Harat al Yemen in a residential area one block away from Gabel street and Al Alawi Market area. As seen in [Figure 208](#), the house is located on a corner and is attached to other houses on the north and east sides. The house belongs to Mohammed Nur Al Jukhdar. It was built in the late 1800s. The Al Jukhdar family is a well-known family with Turkish origins. Mohammed Jukhdar used to work with pilgrims as he used to manage the *Motawifs* of the Javanese pilgrims, a service for pilgrims coming from outside the Kingdom of Saudi Arabia for the duration of their stay in the holy cities of Makkah and Madinah.

The house is made up of five floors. An underground floor, ground floor which is an extension of the male area, first and second floor, which contain the family living spaces, and the third floor which is the outdoor space (*satuh*) where they used to sleep in summer. The transitional space is clear on the west façade as one can see the stair seats leading to a private terrace on the street (*dakkah*) divided into two parts, one on the left side of the door and the second on the right. The *dakkah* acts as a threshold through which one can access the house entrance.

The house has two entrances, one main entrance on the west side overlooking a quiet residential street where a number of thresholds can be seen leading to a large beautifully decorated *dahliz* space. A second small entrance, also on the west façade, on the far-right side leading to a corridor that goes to *al magaad* as well as to the *dahliz* area. As seen in [Figure 209](#), the semi-private space of the ground floor is made up of one large *dahliz* space and two *magaad* spaces situated on both sides of the *dahliz* which can be accessed via several steps, making the space one degree higher in privacy than the *dahliz* space. The double staircase is situated in the back of the house, directly in front of the *dahliz*, with a corridor space in between for privacy.

The first and second floors of the house are similar to each other, made up of *sofa* on the west façade and two *majlis*, also located on the west façade. Furthermore, each floor contains a back room locally named *Moakhira*, a restroom (*bait allma*), a storage room (*khazana*). According to an interview with Saliha Jukhdar who lived in the house “the family gathered in the first floor for almost every meal, especially for lunch” (Abbas, 2017, p. 367).

The last floor, which is the third floor, contains the kitchen area (*morakab*) as well as two large sleeping areas (*mabit*), and, finally, two outdoor spaces (*satuh*) that differ in size; one situated on the west façade and the second on the east. Saliha Jukhdar noted in an interview, “we used to divide the roof among us to preserve the privacy of each family, even though we were all cousins” (Abbas, 2017, p. 367).

A large bay widow (*roshan*) is situated in the middle of the west façade with openings to the north, west, and south façade to catch the breeze. Furthermore, this bay window goes all the way from the first to the second floor, overlooking the residential street. Also, three narrow windows are situated on each side of the large bay window. On the ground floor, each *magaad* space contains a large narrow window facing the residential street as well as the private terrace on the street (*dakkah*). Moreover, the *dahliz* space contains two narrow windows that overlook the street. This creates a connection with the outdoors when opened. The first and second floor of the south façade of the house contain two round arched windows as well as one bay window (*roshan*) situated in *al sofa* room. The third floor has one bay window that is aligned with the bay windows below. See [Figure 209](#).

Upon that, we see that the west façade contains the largest *roshan* with openings on three different sides, south, west, and north which indicates that it was carefully positioned according to the climate, specifically the wind and sea breeze.

After analysing the house, sixteen patterns were identified. The house elements match and relate to fifteen patterns from Alexander with one specific element related to the context of old Jeddah. Furthermore, all these elements are related to the notion of thresholds. These are;

#### Body Scale

- Window places (*roshan*)
- Stair seat
- Private terraces on the street (*dakkah*)
- Front door bench (*mirkaz*)
- Connected to earth

#### Building Scale

- Street windows (*roshan*)
- Main entrance
- Low doorway (*khukah*)
- *Dahliz*
- Roof open spaces (*satuh/ kharjah*)

#### Street Scale

- Entrance transition
- Path shape (*zuqaq*)
- Building front
- Building edge

#### City Scale

- Connecting buildings
- Hierarchy of open spaces

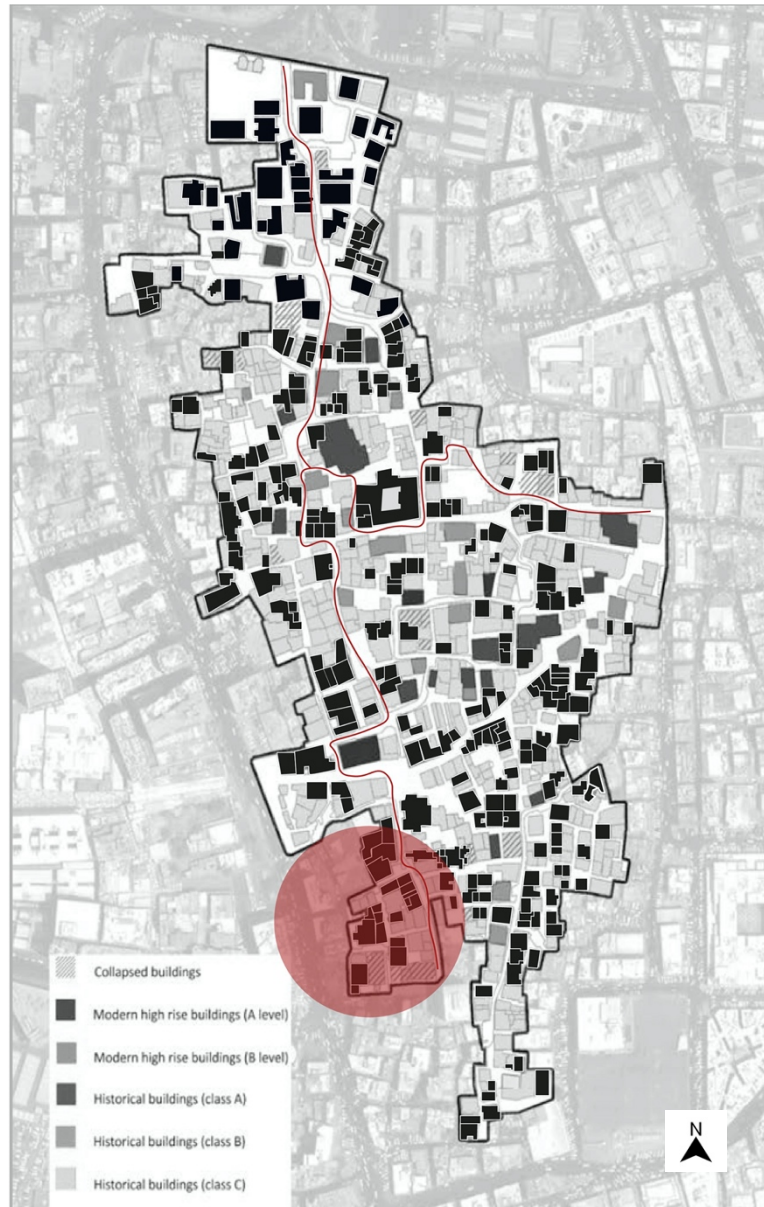


Figure 208: Showing the location of Jukhdar house in Al Yemen quarter. Source: Author.

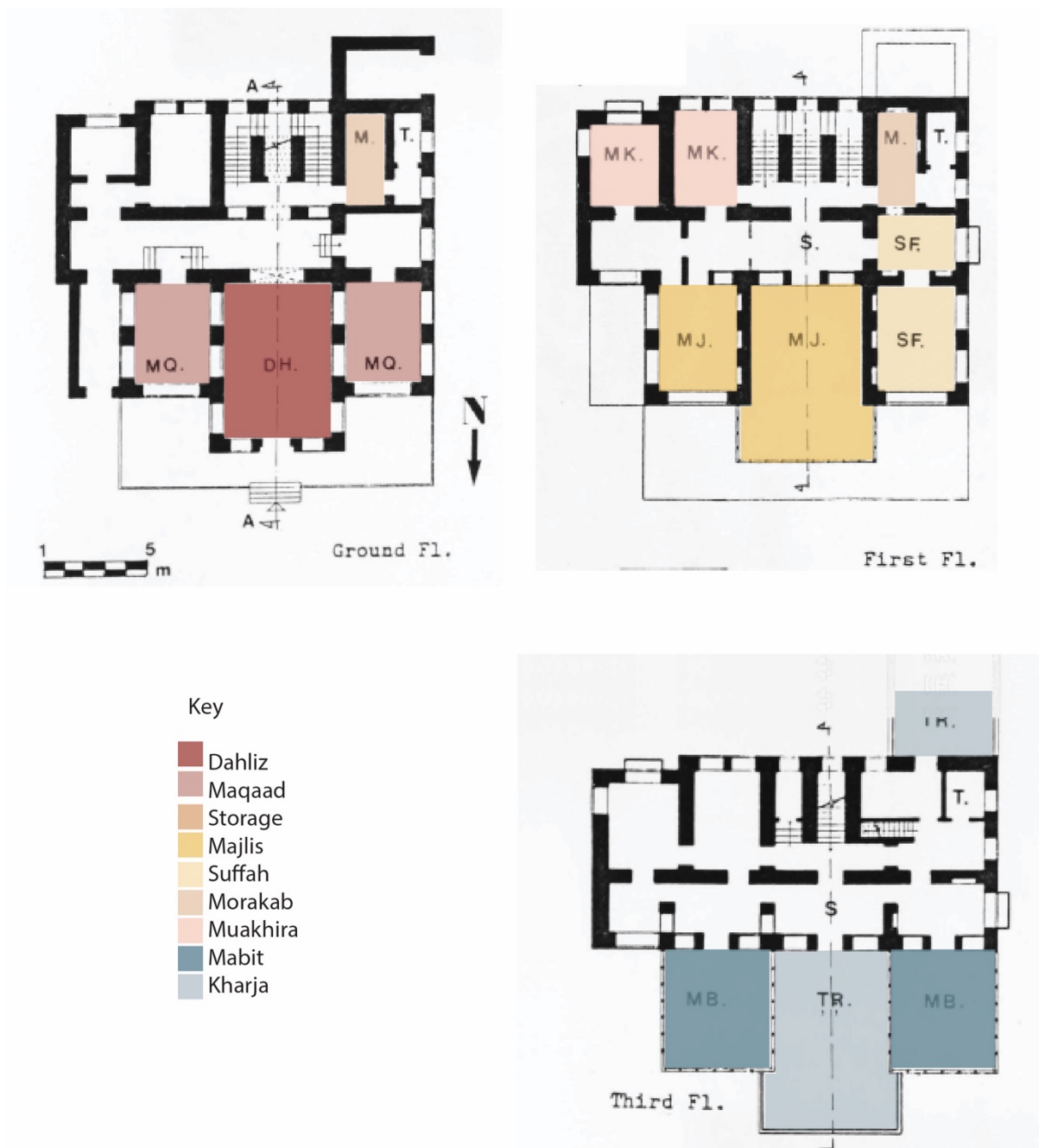


Figure 209: Jukhdar house floor plans, different colours were used to identify different spaces. Source: (Abbas, 2017, pp. 370, 372), edited by author.



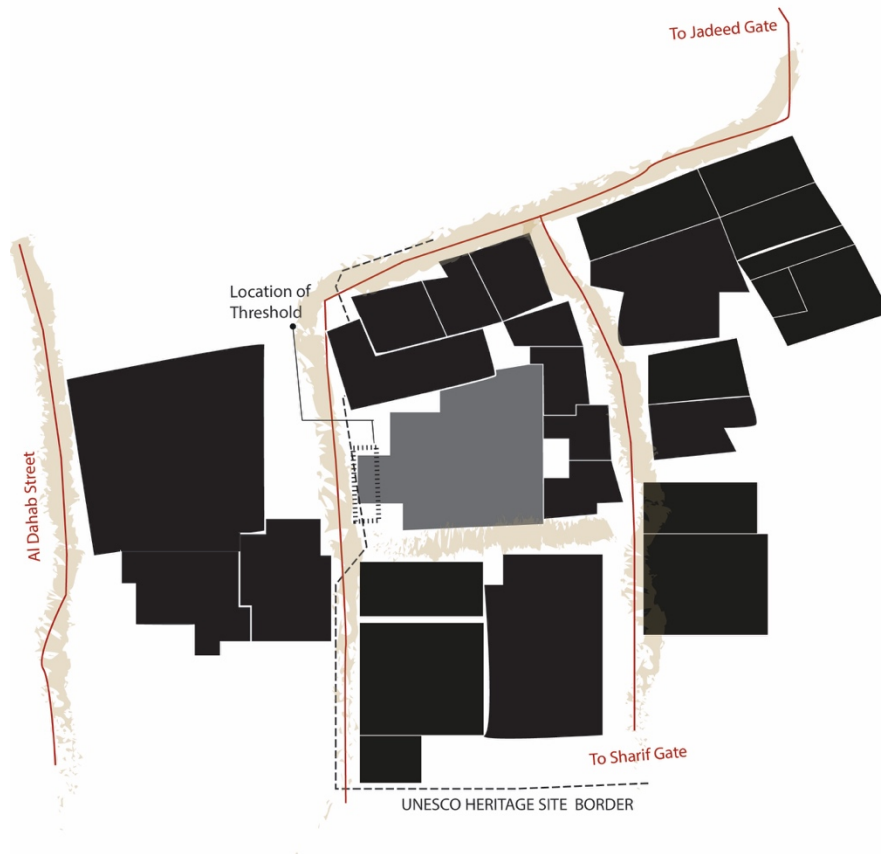


Figure 210: Site plan showing Jukhdar house and the surrounding houses. Source: Author.

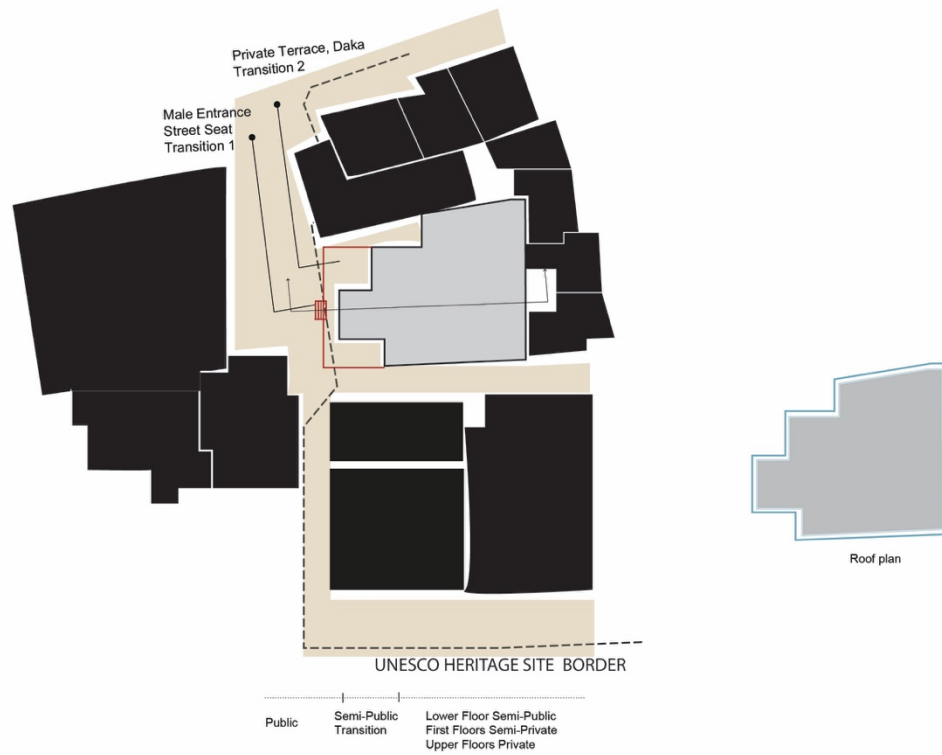


Figure 211: Indicating the visible thresholds in plan and their relationship to the street and surrounding buildings. Source: Author.

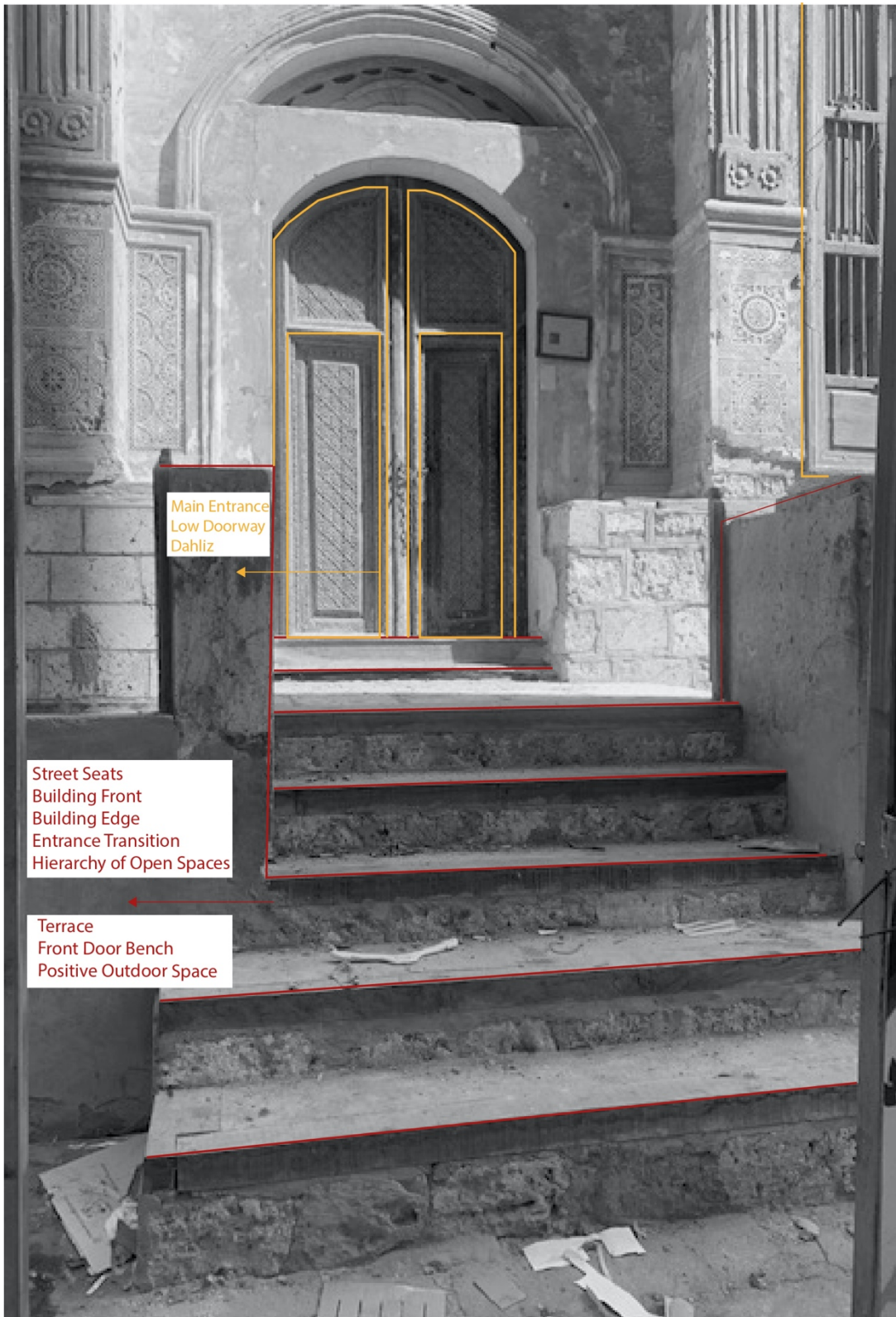


Figure 212: Main façade of Al Jukhdar house. Highlighted patterns in red indicates a male pattern.  
Source: Author.



Figure 213: Main façade of Al Jukhdar house. Highlighted patterns in red indicate a male pattern. Source: Author.

From a male perspective, as you walk through the narrow street, the west façade of Al Jukhdar house is highly visible because of the strong presence of the transitional spaces. The ground level is raised by four steps from the street level. As you stand in front of the steps you immediately see the men's wooden entrance.

The west façade consists of several layers of thresholds showing a one-of-a-kind sequence of experience. The steps are the first layer of threshold leading to one private terrace on the street (*dakkah*) with low walls which gives the space an intense urban scene and yet the owner of the house retains a sense of privacy and ownership of the space, while engaging totally with life in the street. Since the space is used by the owner of the house at certain times of the day to socialise with friends and relatives, benches, known as *mirkaz*, are found in this space covered with cushions.

This terrace is the second layer of threshold. In order to access the entrance door, one has to pass by another level of threshold made of two steps. Viewing the right and left side of the main door there are two long narrow windows on either side that overlook the terrace and the entrance of the house. Two are located in the *dahliz* area and two are located in different *magaad* rooms. This creates a connection between the inside and the outside as well as controlling to who enters the house.

By going up two steps, another transition, one can access the low doorway of the right leaf of the main wooden door which is open during the day, through which one can access the reception area (*dahliz*) which is a further layer of threshold viewed as a semi-private space. This space is larger than other houses and usually the *dahliz* is cooler than any other part of the house during the heat of the summer days. The owner of the house receives visitors who have not arranged their visits in advance in this space on wooden benches. Through the *dahliz*, one can access two *magaad* spaces, one on the right and the second on the left side of the *dahliz*, which is also a semi-private space but one degree higher in privacy than the *dahliz*. This space is also elevated by a few steps, seen as another layer of threshold, leading to a space used by the owner of the house to receive guests, family, and acquaintances. See [Figure 214,215](#).

From a female point of view, the experience and the permeability are different. Since the house has only one entrance, women use the same door to access the house. A woman would go through the same experience as a man, from the first transitional steps to the private terrace up two steps to the main door, which is the fourth filter and transition, to the semi-private space of the *dahliz*, which is the fifth layer of transition, to the main staircase which is another transition that takes the women to a level that men can't access. Women's friends are welcomed in a large reception room, locally named *al majlis*, which is usually situated in the main façade because of the air breeze. This space accommodates family members, close friends, and relatives (female visitors and their family members). As previously explained, each *majlis* has at least one elevated bay window (*roshan*) that is the focal point of the room, where different activities take place such as socialising and snacking. See [Figure 216](#).

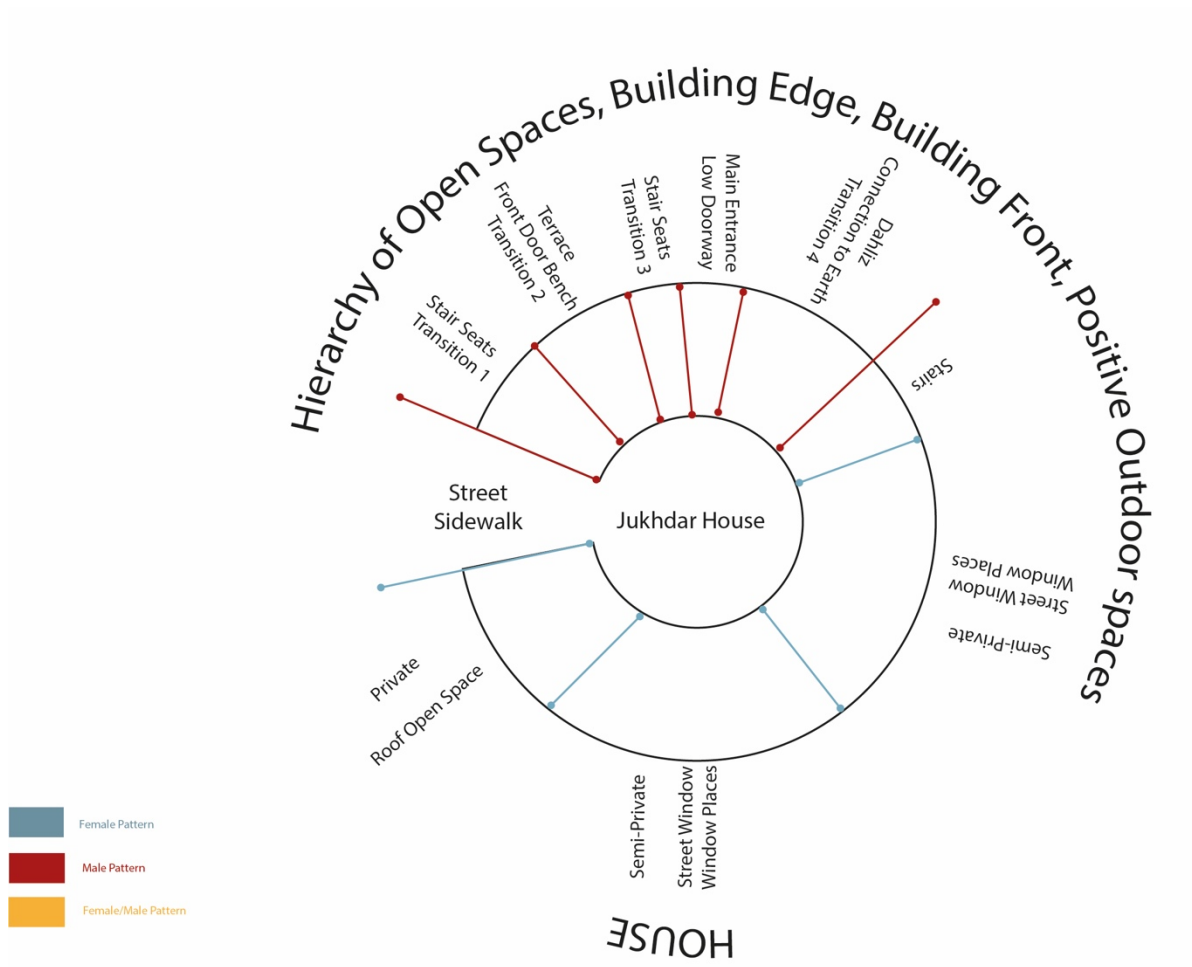


Figure 214: A diagram showing the unique experience of all 17 patterns to the house while putting threshold at the centre of our focus. Source: Author.



Figure 215: Showing the layering and thresholds in a house from a man's perspective. Source: Author.

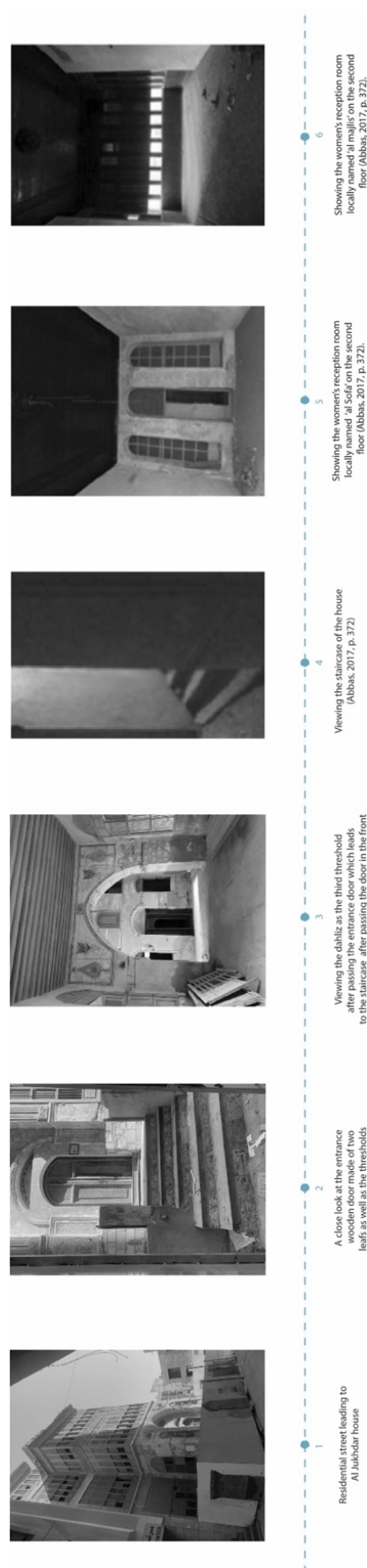


Figure 216: Showing the layering and thresholds in a house from a woman's perspective. Source: Author.

Horizontally, one can witness five transitional spaces from the sidewalk of the residential street to the inside of the house on the ground floor area. The first transition from the street is a number of steps from which one lands on the private terrace on the street (*dakkah*) which is the second transitional space viewed as a focal point where male socialisation takes place during certain times of the day. Up two steps, a third transition, one can access the door which is the fourth transition leading to the fifth transitional space, the *dahliz*, inside the house. The semi-private space of the *dahliz* leads to two semi-private spaces (*magaad*) via several steps which make it one degree higher in privacy than the *dahliz* area. This horizontal transition demonstrates the male zone creating a harmonic atmosphere between the street and the house.

[Figure 217](#)

Vertically, the section shows a number of spatial thresholds. From the street level, one can access the private terrace on the street (*dakkah*), a semi-public space up a number of steps that are raised from the street level. The main door of the house is a fourth transition that leads to a fifth transition inside the house. The *dahliz*, as previously mentioned is part of the male domain on the ground floor level. As you go to the second floor the transition is more private where women can welcome their guests. Going up, the space becomes more private as only the household can access these spaces until we reach the private roof open space (*satuh/ kharja*) used mostly by women for socialisation and other activities described in the previous chapter. This indicates that as we go vertically the privacy in the house increases. [Figure 217](#)

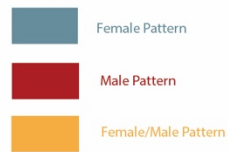
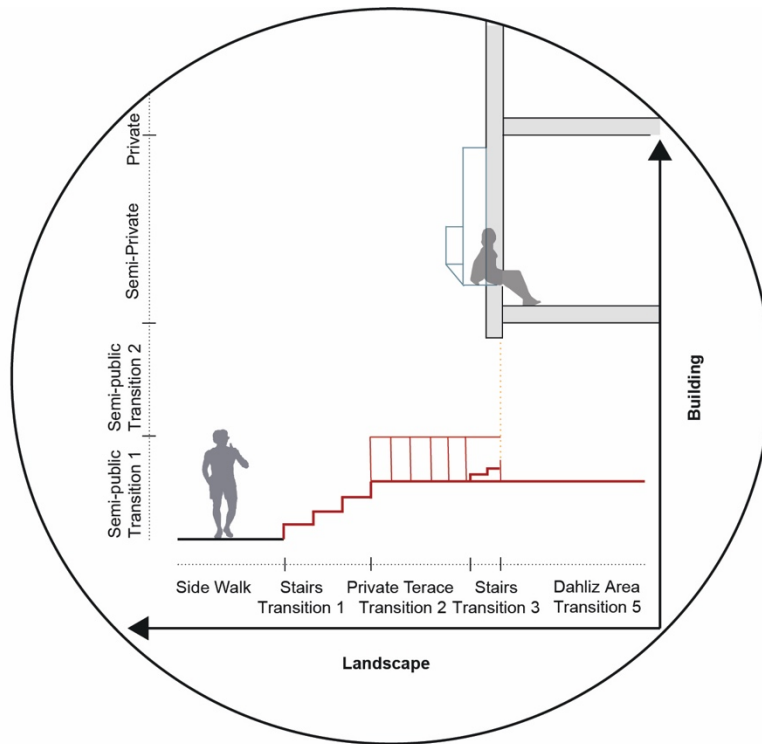


Figure 217: Section of the house showing the threshold space. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns take place vertically. Source: Author.



# House 29

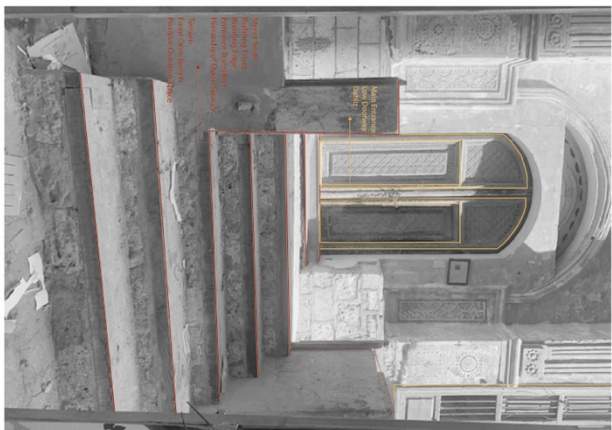


Fig 1

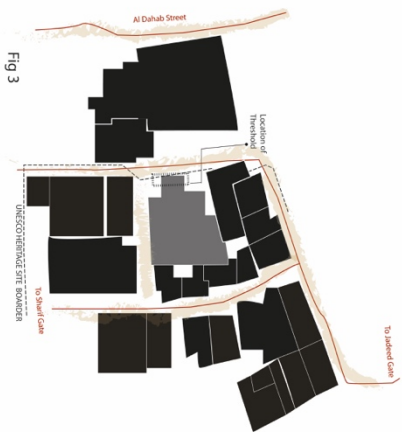


Fig 3



Fig 4

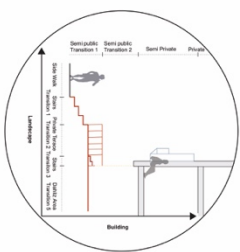


Fig 4

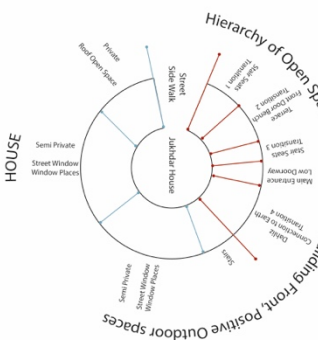


Fig 5

Diagram showing the sequence of patterns to the house



Fig 7

- Patterns Found**
- Main entrance
  - Entrance transition
  - Hierarchy of open spaces
  - Roof garden (open space)
  - Path shape
  - Street seats
  - Positive outdoor spaces
  - Building front
  - Building edge
  - Street window
  - Connection to earth
  - Connected Buildings
  - Window places
  - Low doorway
  - Dahliz
  - Front Door Bench

Made of five floors, 16 male/ female patterns were found. Fig 1, 2 shows some of those patterns highlighted in different colours as red refers to the male patterns while blue refers the female patterns. Fig 3, 4 indicates the visible thresholds in plan and its relationship to the street and surrounding buildings. Because of the social and cultural dimensions as you go horizontally the male patterns are dominant while the female patterns take place vertically Fig 5. Fig 6 is a diagram showing the unique experience of all 17 patterns to the house while putting threshold at the centre of our focus. Located in Al Yamani Neighbourhood Fig 7.

Figure 218: Combining all the analyses in one sheet. Source: Author.

## Matrix for all five houses

The matrix below summarises the analyses of all five houses examined in this chapter. A comparison between the five houses is done in the form of a matrix for ease of reading and to compare the similarities and differences, as well as to show the frequency of each pattern. See [Table 4](#).

After presenting the five houses side by side the comparison takes place on different levels. These are as follows;

1. The location of the house in the old town to show in which quarter it falls to help understand the size of the houses in relation to the quarter, which affects the threshold space as some quarters are more dense than others.
2. Site plan to understand the surroundings which includes other houses, open spaces (*barahat*), and narrow alleys (*zuqaq*) as they have a vital role in the threshold space.
3. Zoomed in site plan to indication the visible thresholds in plan and their relation to the street and surrounding buildings.
4. The roof top of all five houses is presented to show the divisions of spaces and the rooms available (*mabit*) which is related to the number of households in the house.
5. One to two sections were presented for each house to demonstrate the transitions of spaces and layering both vertically and horizontally for both genders.
6. Sequence of pattern diagram which displays a series of unique experiences through the engagement of the body and by putting the threshold at the centre of our daily focus.

After that, the eighteen patterns were looked at separately for all the five houses to see the frequency of each pattern, i.e. front door benches (*mirkaz*) are found in four out of five houses as socialisation in the old town could take place in different ways, either inside the house or outside, where bay windows (*roshan*) are found in all five houses as they are one of the most important architectural elements in *Hijazi* houses.

According to table 2, the occurrence of each pattern in the five houses is as follows;

	Patterns	Frequency
1	Narrow path ( <i>zuqaq</i> )	5/5
2	Connected buildings	2/5
3	Positive outdoor spaces ( <i>barahat</i> )	4/5
4	Building edge	5/5
5	Building front	5/5
6	Hierarchy of open spaces	5/5
7	Entrance transition	5/5
8	Sitting wall	3/5
9	Street seat	5/5
10	Front door benches ( <i>mirkaz</i> )	4/5
11	Private terraces on the street ( <i>dakkah</i> )	4/5
12	Low doorway ( <i>khukha</i> )	5/5
13	Main entrance	5/5
14	Connection to earth	5/5
15	<i>Dahliz</i>	5/5
16	Street windows ( <i>roshan</i> )	5/5
17	Window places ( <i>roshan</i> )	5/5
18	Roof open space ( <i>satuh/kharja</i> )	5/5

Table 2: Occurrence of patterns in all five houses. Source: Author.

Furthermore, by looking at the sequence of patterns diagrams for each of the five house one can notice that the ground floor transition differs from house to house. Some are much more complex than others as the transition is made of many layers. Looking at the Hazazi house we find the transition from the public to the private is made of eight layers. The second house, Waqf Al Shafi is made of four layers. The third house, which is Jamjoom house is also made of eight layers. The fourth house, which is Nasif house is made of seven layers. The last house, which is Jukhdar house is made of seven layers. From that, we can conclude that the number of the thresholds varies from house to house as well as the combination of these elements together which gives each house a distinctive character. As for the upper floors and the last floor, there is a huge similarity between all houses the difference lays on the location, size, and the number of these architecture elements in each room. See Table 3.

Also, Figure 219 is extracted from the analysis of the five houses. It shows the elements of threshold which can be divided to open spaces, exterior architecture, in between, and interior architecture. The threshold is arranged from the open space to exterior and interior architecture which is according to the circulation. Under the open space we have the pattern connected to earth which is found in all houses. The analysis of the five houses suggests that exterior architecture is made up of additives which can be divided to two parts first, stairs and terraces which fall under elevated visual connection (as seen in Nassif and Jukhdar house) second, partial visual connections where the terrace partially covered (as seen in Jamjoom house). The in between space refers to the main entrance of the house and the low doorway. This is also divided to two parts. First, elevated visual connection where the stairs take us directly to the entrance of the house (as seen in Waqf Al Shafi house). second, elevated partial visual connection where the stairs and terrace are partially covered takes us to the main entrance (as seen in Jamjoom house). lastly, the interior architecture which refers to the *dahliz* located inside of the house in the ground floor and is connected to the outside by the open doors.

These different arrangements are observed in the five houses where the number of elements vary in each house leading to different combinations of threshold spaces.

	Ground Floor Transition									Upper Floors		Last Floor	
	Sitting Wall	Stair Seat 1	Stair Seat 2	Terrace	Front door Bench	Stair Seat 2	Main Entrance	Low Doorway	Dahliz	Stairs	Window Places	Street Window	Roof Open Space
Hazazi House	●	●	●	●	●		●	●	●		●	●	●
Waqf Al Shafi House		●					●	●	●		●	●	●
Jamjoom House	●	●		●	●	●	●	●	●		●	●	●
Nasif House	●	●		●	●		●	●	●		●	●	●
Jukhdar House		●		●	●	●	●	●	●		●	●	●

Table 3: Showing the different ways of transition between the five houses. Source: Author.

# Elements of Threshold

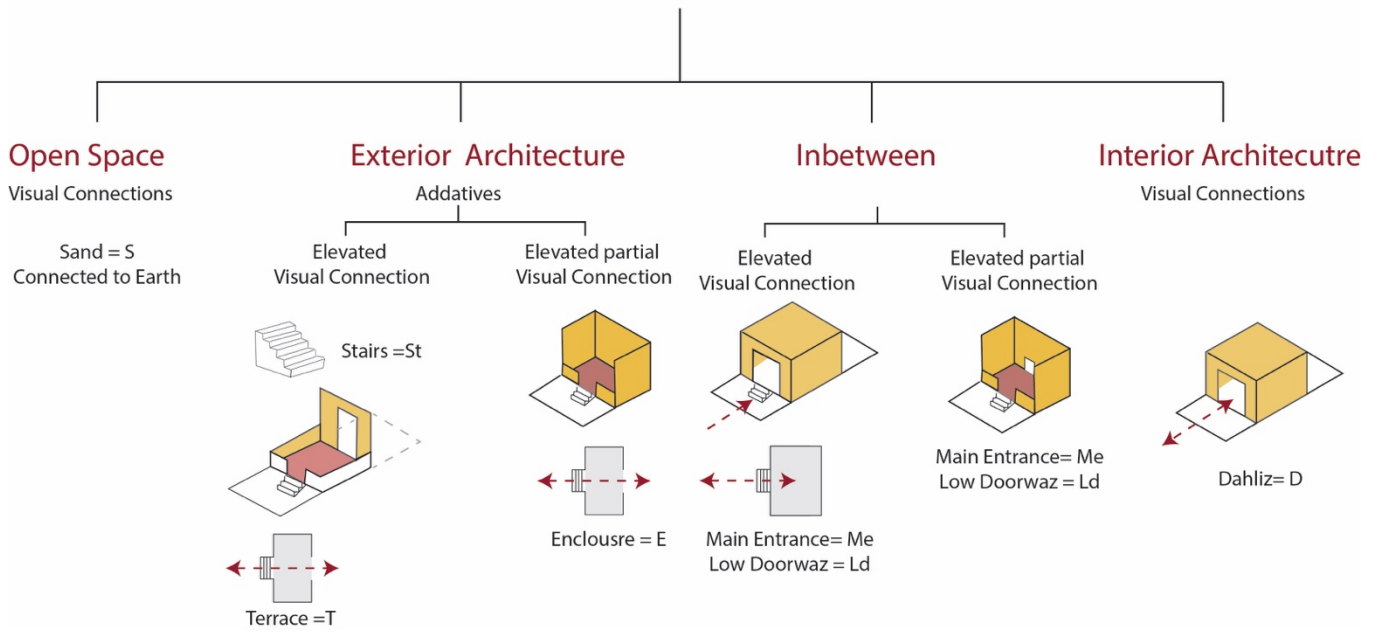


Figure 219: Combination of different threshold elements in the five houses. Source: Author.

	Hazazi House	Nassif House	Jamjoom House	Wagf Alshafi House	Jukhdar House	Comments
House Picture						Pictures were taken in Different Years 1. 1948 2. 1918 3. 2019 4. unknown 5. 2020
Site Plan						The Five Houses are located in different Neighbourhoods;  1. Harat al Sham 2. Harat al Yaman 3. Harat a Yaman 4. Harat Al Mathloom 5. Harat al Yaman
Zoomed Site Plan						Male Entrance looking at 1. A public street 2. A major open space "Barahat" 3. Narrow Street and houses 4. Narrow Street and a Mosque 5. An open space "Barahat"
Plan						1. 3 doors, Male, female, and guests 2. 2 doors. Male, female 3. 2 doors. Male, female 4. 2 doors. Female and male, carpenter 5. 1 door. Male and female
Roof Plan						Roof open space "Satuh" is a female pattern used by family members, female guests, and relatives
Section 1						Sections showing patterns and their relationship.
Section 2						Sections showing patterns and their relationship.
Sequence of Patterns Diagram						There is a series of unique experiences through the engagement of the body and by putting thresholds at the centre of our everyday focus.
Path Shape "zoqaaq"	●	●	●	●	●	Appears 5 times
Connected buildings				●	●	Appears 2 times
Positive Outdoor Spaces "Barahat"	●	●	●	●	●	Appears 4 times
Building Edge	●	●	●	●	●	Appears 5 times
Building Front	●	●	●	●	●	Appears 5 times
Hierarchy of Open Spaces	●	●	●	●	●	Appears 5 times
Entrance Transition	●	●	●	●	●	Appears 5 times
Sitting Wall	●	●	●			Appears 3 times
Street Seat	●	●	●	●	●	Appears 5 times
Front Door Bench "Mirkaz"	●	●	●		●	Appears 4 times
Private Terraces on the Street	●	●	●		●	Appears 4 times
Low Doorway	●	●	●	●	●	Appears 5 times
Main Entrance	●	●	●	●	●	Appears 5 times
Connection to Earth	●	●	●	●	●	Appears 5 times
Dahliz	●	●	●	●	●	Appears 5 times
Street Window "Roshan"	●	●	●	●	●	Appears 5 times
Window Places	●	●	●	●	●	Appears 5 times
Roof Open Space "Satuh"	●	●	●	●	●	Appears 5 times

Table 4: Combining the analyses of all five houses in one sheet. Source: Author.

To summaries, this chapter looked at the following points;

- The first part of this chapter investigates the eighteen patterns through the methodology to explain the fieldwork. By looking at two points; first, the qualitative methods that have been used in this research to study the urban patterns in the historical city of Jeddah. Second, the process of gathering the data.
- Eighteen patterns in the old town of Jeddah were identified and were organised along four scales, which form the basis of its investigations; body scale, building scale, street scale, and city scale.
- Time dimension is used in this research to identify patterns in the old city of Jeddah. It is needed in this research for dynamic observation which is characterised by constant changes or activities that take place at different times, it varies throughout the day, the week, the year, and the season.
- The identified patterns occur over and over in the selected traditional neighbourhoods of Jeddah. Fieldwork is used to identify these patterns which can be divided into two different kinds. First, new patterns that are specific to the oriental city of Jeddah and cities on the rim of the Red Sea. Second, patterns that are found in *A Pattern Language* which may have different names but the same functions as the ones described by Christopher Alexander and his team in his book.
- The last part looked in depth at threshold spaces in five different houses from different quarters in the historical city of Jeddah. These houses differ in the numbers of households, size and status. The reason behind that is to have houses that resemble different examples found in the old town of Jeddah.
- Each of the five houses are analysed separately according to the fieldwork through diagrams, sketches, sections, and interviews in order to look at the threshold space in each house and to find the similarities and the differences between them. After that, a matrix for all five houses is presented to sum up the findings and compare them to each other.

## Summary of Part II

Part II discussed the fieldwork and analysis of the research in two chapters which looked at the eighteen patterns and the configuration of the urban structure of the old town of Jeddah.

Chapter four looked at the eighteen patterns in the historical city of Jeddah. The first part of the chapter investigates the eighteen patterns through a methodology to clarify the fieldwork by looking at two points; first, the qualitative methods that have been used to study the urban patterns in the old town. Second, the process of gathering the data.

These were organised along four different scales which form the basis of the investigation; body scale, building scale, street scale and city scale. Each scale required different methods of investigation. Time dimension is used in this research for dynamic observation which is characterised by constant change or activities that take place at different times. It varies through the day, the week, the year, and the season.

Through the investigation and fieldwork, eighteen patterns that occurred over and over in the selected quarters of the old town were identified. These can be divided into two different kinds. First, new patterns that are specific to the oriental city of Jeddah and cities on the rim of the Red Sea. Second, patterns that are found in *A Pattern language* (Alexander, 1977) which may have different names but the same function or slightly modified to the ones described by Alexander and his team in the book.

Furthermore, this chapter explored in depth the threshold spaces in five different houses in different quarters. The houses differ in the number of households, size, as well as status. The reason behind this is to have houses that resemble different examples found in the old town. Each of the five houses are analysed separately according to the fieldwork through diagrams, sketches, sections, and interviews in order to look at the threshold space in each house and to find the similarities and differences between them. After that, a matrix for all the five houses is presented to sum up the findings and compare them to each other.

The next chapter, chapter five is the discussion and findings of this research.

## **PART III. DISCUSSIONS AND FINDINGS**



## **CHAPTER FIVE**

## Discussions and Findings

This part, Part III refers to the main research questions which are divided into two sections, namely:

1. How can we present a new way of approaching Christopher Alexander's theory and the notion of patterns in Saudi Arabia?
2. What is the notion of integration of public and private spaces in old Jeddah, Saudi Arabia?

The process of presenting a new way of approaching Alexander's theory is achieved by answering the sub-research questions. The discussion is divided into four sections addressing the sub questions of the research, which are:

1. Usefulness of Alexander's patterns in the analysis of the Islamic city, Jeddah.
2. Methodological Approach through testing a concept from urban design theory in the West applied to the historical city of Jeddah. Through these patterns we can analyse threshold spaces between public and private realms in relation to a Muslim society. This answers the first research question, and has been investigated in Part I (chapters 2-3), (discussion on methodology).
3. Historical Typo-morphological analysis where specific house types are analysed by focusing on threshold and presenting it with detailed analysis of influences, where it comes from and spatial organisation. This answers the first and second research question, and has been investigated in Part I and II (chapters 1 and 4), (discussion on historical architecture).
4. Empirical Findings by identifying patterns of threshold spaces in the case study of this research. This answers the main research questions and has been investigated in Part II (chapter 4)

## 1. Usefulness of Alexander's Patterns in the Analysis of the Islamic City, Jeddah.

This research focuses on threshold spaces and investigates patterns between public spaces and residential units in the old city of Jeddah while presenting a new way of approaching Christopher Alexander's theory *A Pattern Language* and questions its impact on spatial and social levels as threshold spaces in the old city of Jeddah played a huge role in aiding public life.

Threshold spaces were embedded in areas of the urban fabric, linking the interior of private residential and public structures to the exterior public spaces. "The tightly packed urban fabric helped in bringing the inhabitants more closely together and their meetings on a daily basis formed a sense of security" (Saudi Commission for Tourism and Antiquities, 2009, p.6).

As explored in chapter two, Christopher Alexander (1979) argues in his book *A Timeless way of Building* that there are a thousand different forms in different places and times for creating successful buildings, live, and vibrant towns. For a very long time, buildings were designed according to people's needs. These buildings were built by normal people that passed their knowledge from one generation to the other. Jeddah is an example of such a case, where the building techniques passed orally from one generation to the next without being documented. He claims that this way of building has always existed:

"It is behind the building of traditional villages in Africa, and India, and Japan. It was behind the buildings of the great religious buildings: the mosque of Islam, the monasteries of the Middle Ages, and the temples of Japan, it was behind the building of the simple benches, and cloisters and ..." (Alexander, 1977, p. 10).

The secret is in the invariant core in all of them, which gives cities and towns their quality. Quality is the core of Alexander's philosophy. He refers to it in his book as "the quality without a name". For Alexander the quality without a name is absent in modern architecture, therefore, his rejection to this period and practice was shown through his shift to vernacular architecture, exploring and investigating a solution outside the box.

Explaining and communicating the old town of Jeddah's qualities by referring to Alexander's book for this purpose was determined to be an effective method. In a review of the book by The Next Whole Earth Catalog, it is mentioned that the book is "the most important book in architecture and planning for many decades, a landmark whose clarity and humanity give hope that our private and public spaces can yet be made gracefully habitable" (ND, quoted in Patrika Book Centre, ND).

As Alexander explains, the patterns are present in all cultures, however, they differ from place to place. In the *Timeless Way of Building*, he says that "every society which is alive and whole, will have its own unique and distinct pattern language; and further, that every individual in such a society will have a unique language, shared in part, but which as a totality is unique to the mind of the person who has it. In this sense, in a healthy society there will be as many pattern languages as there are people – even though these languages are shared and similar" (1977, p. xvi). This can be confirmed through the detailed analysis of the five houses in the old town of Jeddah where each house has its distinctive character through the pattern language made of different combinations of patterns that differ from other houses, yet, they are shared and similar in part.

While the patterns were primarily addressed to focus on the problems of buildings and urban design in the United States and Canada, through the testing of his theory on my case study, I can say that his work corroborates my study of threshold spaces in the historical city of Jeddah. This is explained thoroughly in the coming part of this chapter.

## 2. Methodological Approach

This research focuses on Christopher Alexander and *A Pattern Language* as the methodological or framework of this research. It is an extension of Christopher Alexander's urban theory in *A Pattern Language* within the threshold spaces in the old city of Jeddah which played a huge role in enabling the public life. The threshold patterns were investigated on various scales (body, building, street, and city) which is something that Alexander has done by studying the urban pattern to the small window ledge (town, building, construction). Additionally, the time dimension plays a vital role in tying the different scales to each other through the observation of the four scales at different times of the day.

### Christopher Alexander's Theory and A Pattern Language

What are the patterns within threshold spaces in the traditional old city of Jeddah between the public and residential units that have facilitated public life? in order to answer this question, Christopher Alexander's theory in *A pattern Language* was used in this study to investigate patterns in the old town of Jeddah.

During the nineteenth century, massive social, technological, and economic upheavals fuelled the growth of modernism in architecture, resulting in the creation of some of the world's most recognizable structures. The constant pursuit of the modernist aesthetic, however, resulted in examples of uninviting and unpleasant places. Christopher Alexander was one of the most outspoken critics of these spaces.

Alexander believes "there is a central quality which is the root criterion of life and spirit in a man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named" (Alexander 1997, p.19). *The Timeless Way of Building*, the first volume of Alexander's theory details his conviction that this unnamed quality lies at the root of traditional architecture's intrinsic beauty. It is suggested here that traditional cultures' common beliefs and conventions create a guiding framework, or design language, that restrains and integrates the many little acts of individual creation into a broader coherent environment.

Alexander argues that this quality exists, to some extent, in every individual, and this allows us to recognize its presence in the environment and each other. Thus, "the central scientific fact" (Alexander 1997, p.54) of Alexander is that there is a strong interaction between environment and the inhabitants. The theory explains that places which shows this quality will awaken it in the inhabitants and that the people will imbed it in the places they produce. Which will create sustainable, healthy, and live spaces. So, for Alexander the quality without a name is formed when people use the timeless way of building to create a language.

yet, Alexander also argues that the traditional languages and values that once guided this process have been lost over time, or else have become so corrupted as to be utterly

dysfunctional (Salingaros 2000). Thus, the second volume, *A Pattern Language* was intended to address the issue by introducing a design language which forms the foundation for his theory.

Each pattern is related to other patterns in order to create a language and is organised along a scale, from the small to the large. This relationship of patterns to each other creates vibrant cities. These combinations create our unique buildings and towns. Like a language, there are certain rules to these connections in order to create a cohesive arrangement of higher-level patterns. Culture plays an important role in defining the language of patterns and their relationship to each other.

This research has tested a concept from the urban design theory from the West and applied it to an Islamic city to find patterns of threshold spaces. This method was effective in the investigation of my case study as it extended Alexander's theory by finding new patterns that are solely related to the context of Jeddah, as well as showing modified patterns to the ones explored by Alexander. This is a result of different attributes caused by culture, society, religion, and the environment.

### **The Threshold Space**

The definition of threshold space has a number of different meanings as it was used in different disciplines to describe different transitional conditions from various perspectives. Ruby and Ruby (2004, p.11) describe entrance as being a more complicated space made of sequence and that the experience of space depends on it, they noted that "the entrance ... is becoming less a spatial element and more a complex sequence. We do not enter at a particular point, it is a process in space and time. So, the threshold is no longer linear, but a 'threshold space' that can be in both in front of and behind the façade".

There is a significance of creating an in-between space to allow a gradual movement and change between two heterogeneous spheres with different qualities and characteristics and combining two different functions which allows the change of experience to take place in a gradual manner, such space is called threshold space. This is vital in this thesis as Alexander looked at many threshold patterns in his book *A Pattern Language* where he calls these transitional spaces breathing spaces.

As explained in Part I, chapter three, transitional spaces create a degree of connection between two different domains. These are witnessed in many historical cities in the form of different architectural elements such as; steps, doors, windows, gates, terraces and balconies. These elements are part of the outer layer that belongs to the house yet affects and enhances the configuration and appearance of the city by creating multiple layers. All this contributes to the way we experience the city.

Based on the Islamic religion and people's beliefs, different design solutions were developed in different regions and cultures. This reflected many things such as climate, habits, customs, and beliefs in a society. As a result, different settings were created with different solutions for designing the threshold space while sharing similar attributes that make the Islamic cities different compared with other civilisation when it comes to urban configuration and understanding of transitional spaces and their use.

This research has established a method to read and understand threshold spaces to identify patterns between the public realm of the streets and private realm of the house. This is through oral interviews, observation of physical and social life, drawings, analysis, intensive archive research, and photography. It helped to provide a way of observing urban spaces through social, religious, and environmental factors. This was illustrated in Part II, chapter four, under the analysis of the 26 houses as well as the five detailed houses.

### 3. Historical Typo-morphology

This section answers the second part of the main research question, the notion of integration of public and private spaces in old Jeddah, through the analysis of specific house types, while focusing on the threshold historical backgrounds, influences, and spatial arrangement.

#### Influences on the Threshold Spaces of Old Jeddah

The hypothesis that is put forward here is that there were, for sure, amalgam influences yet each area had its own character formed by certain local circumstances such as the environment. According to my observation in Part I, chapter one, the following was noted;

Looking at the Ottoman Empire era and comparing it to old Jeddah, this research has shown that there are three architectural elements in the form of transitional spaces cognized from the Ottomans, these are; first, in wealthy houses, two entrances *salamlik* and *haramlik* segregate genders creating an isolated dual movement. Second, double height doors with low doorways (*khukhah*). Third, bay windows (*roshan*).

This research also shows huge similarities in the threshold spaces when comparing the historical city of Jeddah to the Island of Suakin, Sudan, which was explored by Jean Pierre Greenlaw in his book *The Coral Buildings of Suakin* (1976). These are as follows;

- 1) Looking at the threshold of the ground floor, we see similarities in the segregation of both genders through two entrances as well as the *dahliz* and the *magaad* which is mainly for male guests.
- 2) The similarities on the second-floor lie mainly in the bay windows (*roshan*) that is used a lot by women as a connection between the indoor and the outdoor since they spend most of their time in the house.
- 3) Window places are the core of the family's living room as many activities take place here.
- 4) The use of the roof open spaces (*satuh/kharja*) functions exactly like houses in Jeddah.
- 5) The doors of the main entrances are also made of two leaves, the right leaf has a small door called *khukhah* through which the house is accessed.
- 6) Connected buildings through grouping of houses in blocks is a feature that is found in the majority of Jeddah and Suakin's urban layout.
- 7) Positive outdoor spaces that are created by the cul-de-sac are used by the inhabitants living around the open space (*barahat*).
- 8) The hierarchy of open spaces by moving from the most public to the most private
- 9) Narrow paths called *zuqaq* take inhabitants from the most public to the private.
- 10) The outdoor benches in front of houses locally known as *mirkaz*.

Furthermore, this research also demonstrates that there are similarities between the houses in the city of old Jeddah and the city of Rashid in Egypt. However, the difference is in the ground floor. Mostly in Jeddah the ground floor is used by men and their guests where the *dahliz* and *magaad* are found. In some cases, the ground floor includes an office which belongs to the owner of the house. In contrast, the ground floor in Rashid is used for commercial purposes and storage. Moreover, this floor can rarely be a residential floor with reception. Also, the bay windows (*roshan*) in the city of Rashid are usually located on the first and upper floors which is different to Jeddah where you can also find them on the ground floor.

### The Eighteen Patterns

In Part II, chapter four, through the analysis of the spatial situation, the research investigates eighteen patterns of threshold spaces in four different scales found in the historical city of Jeddah, see [Figure 219](#). These patterns occur over and over in the selected traditional neighbourhoods of Jeddah within the UNISCO boundaries. Fieldwork is used to identify these patterns. Additionally, these patterns were divided into three different categories according to gender use, these are: men, women, and both genders, see [Table 5](#).

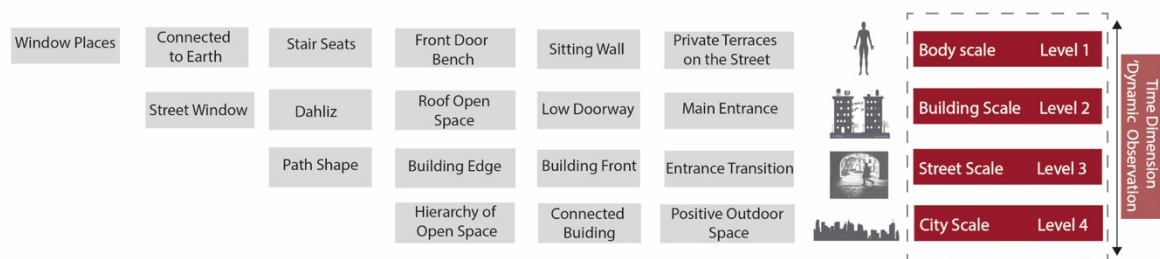


Figure 220: Showing the four different scales used in this research and the eighteen patterns related to it.

<b>New Pattern</b>	<i>Dahliz</i> 'Reception Area'
<b>Same Patterns</b>	Connected to earth
	Main entrance
	Low doorway ' <i>Khukhah</i> '
	Entrance transition
	Building front
	Building edge
	Path shape ' <i>Zuqaq</i> '
	Hierarchy of open spaces
<b>Modified Patterns</b>	Private terrace on the street ' <i>Dakkah</i> '
	Sitting Wall
	Front door bench ' <i>Mirkaz</i> '
	Stair seat
	Window places ' <i>Roshan</i> '
	Roof open space ' <i>Satuh/Kharja</i> '
	Street window ' <i>Roshan</i> '
	Positive outdoor space ' <i>Barahat</i> '
	Connected building
<b>Female Patterns</b>	Window places ' <i>Roshan</i> '
	Roof open space ' <i>Satuh/Kharja</i> '
	Street window ' <i>Roshan</i> '
<b>Male Patterns</b>	Private terrace on the street ' <i>Dakka</i> '
	Sitting wall
	Front door bench ' <i>Mirkaz</i> '
	Stair seat
	Connected to earth
	Main entrance
	Reception area ' <i>Dahliz</i> '
	Entrance transition
	Path shape ' <i>Zuqaq</i> '
	Positive outdoor space ' <i>Barahat</i> '
	Connected building
	Hierarchy of spaces
<b>Both Patterns</b>	Low doorway ' <i>Khukhah</i> '
	Building front
	Building edge

Table 5: Dividing the patters according to new patterns, same patterns, modified patters. Also categorising the patterns according to genders.

Furthermore, in Part II, chapter four, under the analysis of the eighteen patterns, this research has shown original analysis and mapping of thirteen patterns out of eighteen studied patterns and were investigated in 26 houses as some patterns in the large-scale can't be identified by themselves in the map of old Jeddah as they depend on other smaller patterns that were identified in the previous scales. For this reason, they were excluded in this part. The 26 houses are in good condition and within the plan of the Ministry of Culture for preservation. All thirteen patterns were individually identified on the map of old Jeddah to show their frequency and appearance in Jeddah. This was done through colour coding to identify the use by genders. Also, this was taken a step further by creating multiple layers of overlapping patterns on one



map to show and compare the frequency of patterns in each of the 26 houses. See Figures 220, 221.

Patterns	1	2	3	4	5	6	7	9	10	11	12	13
Window Places												
Connected to Earth												
Stair Seats												
Front Door Bench												
Private Terrace on the Street							•			•	•	
Main Entrance Male							•	•	•	•		
Main Entrance Female							•	•	•	•		
Main Entrance (one)	•	•	•	•	•	•					•	•
Low Doorway Male												
Low Doorway Female								•	•	•		
Roof open Space												
Dahliz 'Reception'												
Bay Windows												
Entrance transition												
Connected buildings	•	•			•	•						

Patterns	14	15	16	17	18	19	20	21	22	24	25	26
Window Places												
Connected to Earth												
Stair Seats												
Front Door Bench					•	•		•	•			
Private Terrace on the Street	•				•	•		•	•			
Main Entrance Male					•	•		•	•		•	
Main Entrance Female					•	•		•	•		•	
Main Entrance (one)	•	•	•	•			•			•		•
Low Doorway Male												
Low Doorway Female					•	•		•	•		•	
Roof open Space												
Dahliz 'Reception'												
Bay Windows												
Entrance transition												
Connected buildings		•								•		•

Patterns	28	29
Window Places		
Connected to Earth		
Stair Seats		
Front Door Bench		
Private Terrace on the Street		
Main Entrance Male		
Main Entrance Female		
Main Entrance (one)	•	•
Low Doorway Male		
Low Doorway Female		
Roof open Space		
Dahliz 'Reception'		
Bay Windows		
Entrance transition		
Connected buildings		

Historical Houses

- 1 Shurbatili House
- 2 Hazazi House
- 3 Batarji House
- 4 batarji Hiuse
- 5 Shurbatli House
- 6 AL Sharif Mihana House
- 7 Banaja Houses
- 8 Al Hazazi Open Space
- 9 Alwasia House
- 10 Al Achgar House
- 11 Banaja Houses
- 12 bajsaar House
- 13 bakhraiba House (Previous Mayor House)
- 14 Aljazar House
- 15AI Rashaida House
- 16 Al Jar House
- 17 Al Jar House
- 18 Salama House (Ahmad Badeeb)
- 19 Gabel House
- 20 Baishen House
- 21Waqf AlShafi House
- 22 Ridwan House
- 23 Al Shafi Mosque
- 24 Jamjoom House
- 25 Massoud House
- 26 Nassif House
- 27 Nassif Open Space
- 28 Noor Waly House
- 29 Jokhdar house

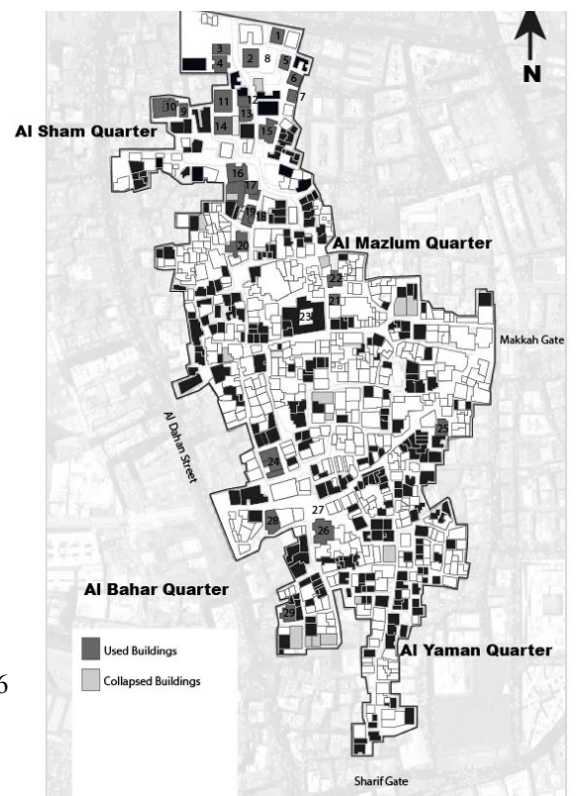


Figure 221: The matrix shows the elements that are not present in the 26 houses.

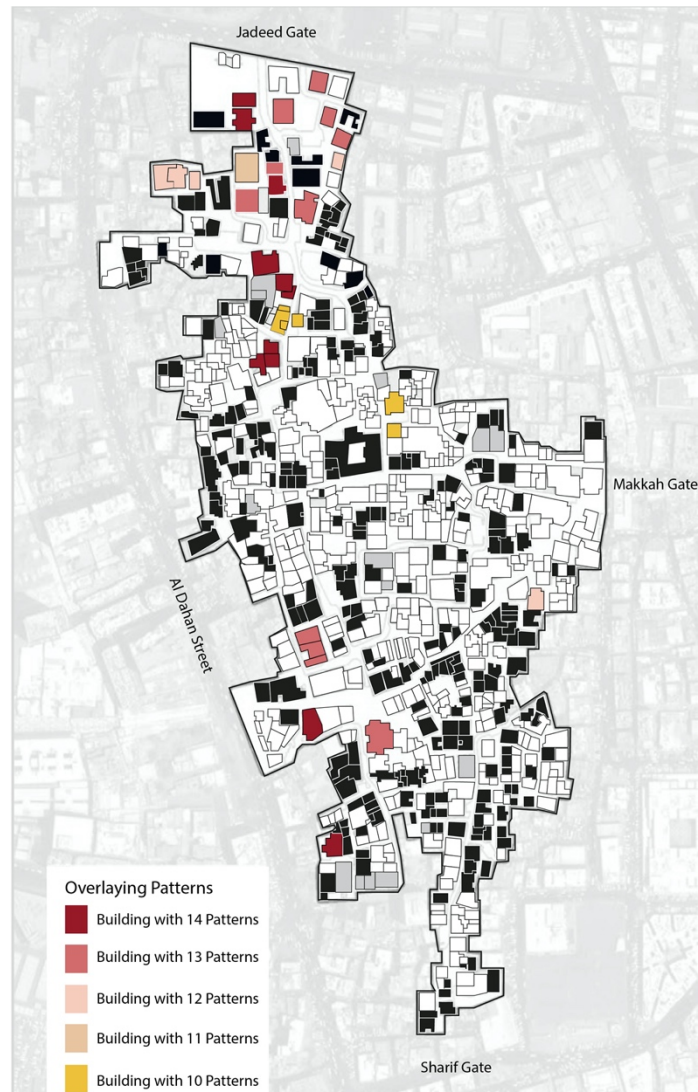


Figure 222: The graph shows the overlaying of the patterns in the 26 investigated houses. houses

In Part II, chapter four, under the section of The Five Houses, the research has also shown detailed analysis and original mapping of five different houses by focusing on threshold spaces and analysis of photos, sections, sketches, mapping on different layers, diagrams, and a combination of narrative collected from current and former residents of these houses. This was then translated into one matrix for easy reading and comparison of similarities and differences in patterns, as well as to show the frequency of each pattern in the five analysed houses.

	<b>Patterns</b>	<b>Frequency</b>
1	Narrow path ' <i>Zuqaq</i> '	5/5
2	Connected buildings	2/5
3	Positive outdoor spaces ' <i>Barahat</i> '	4/5
4	Building edge	5/5
5	Building front	5/5
6	Hierarchy of open spaces	5/5
7	Entrance transition	5/5
8	Sitting wall	3/5
9	Street seat	5/5
10	Front door benches ' <i>Mirkaz</i> '	4/5
11	Private terraces on the street ' <i>Dakkah</i> '	4/5
12	Low doorway ' <i>Khukhah</i> '	5/5
13	Main entrance	5/5
14	Connection to earth	5/5
15	<i>Dahliz</i>	5/5
16	Street windows ' <i>Roshan</i> '	5/5
17	Window places ' <i>Roshan</i> '	5/5
18	Roof open space ' <i>Satuh/Kharja</i> '	5/5

Table 6: Occurrence of each pattern in the five houses.

#### 4. Empirical Findings

Based on the investigation of the threshold spaces between the private realm of the house and the public realm of the street, which is shaped and facilitated by specific building elements and by socially conditioned spaces as explored in part II, the study demonstrates that:

First, while most Islamic cities are made up of a low-rise, courtyard-housing typology, Jeddah features a very united multi-storey “town-house”-typology. By studying the twenty-six houses, detailed analysis of the five houses, as well as interviews with people who lived in these houses, this research has shown that threshold spaces in historical Jeddah defines two spaces: first, the area in front of or around a building; and second, the reception area on the ground level of the house, locally called the *dahliz*, which is also related to other cities on the rim of the Red Sea such as the Island of Suakin.

Second, in terms of the tested concept of Christopher Alexander regarding finding patterns in four different scales related to the specific case study, the method was effective, as it extended Alexander’s theory by finding new patterns that are solely related to the context of Jeddah, as well as modified versions of the patterns explored by Alexander, which was a result of different attributions caused by culture, society, religion, and the environment. See table 7.

Table 6 demonstrates the patterns that were found in the four different scales, dividing them into three categories: new patterns, patterns used by Alexander, and modified versions of the ones explained by Alexander. Furthermore, the patterns were divided according to gender use. The study shows that there are eighteen patterns in old Jeddah. One pattern was uniquely related to the historical city of Jeddah as well as cities on the rim of the Red Sea. Eight patterns are similar to the ones described by Alexander in his book *A Pattern Language*, and nine patterns differ from the ones explained by Alexander. This modification is due to different factors such as use, size, and location, which are influenced by various factors, as explained previously. Also, one can see in the table that three patterns fall under female patterns, eleven under male patterns, and four patterns fall under both genders. From that, we can observe that most of the threshold spaces were associated or connected to males, since females spent most of their time at home.

Third, the analysis of five houses suggests that the sequence of patterns of the threshold spaces in the old town differs among the large-scale multi-family houses, especially on the ground floor. This means that one can notice distinctive combinations of patterns in different houses, yet there is a strong harmony between all the houses in the area. This echoes with Alexander (1977, p. x) as he notes that “you can use the solution a million times over, without ever doing it the same way twice”. As a consequence, the number of combined patterns in different scales differs from one building to another.

Additionally, when looking at the relationships of patterns to each other in order to complete one another and hint how they should be read together, this work differs from Alexander’s, as it focuses on transitional spaces; therefore, the connection of patterns from different scales are only related to threshold spaces, whereas in Alexander’s work the patterns range in scale from regional planning through to interior design.

The results of this work are built on the theory of Alexander, as he clearly states in *The Timeless Way of Building* (1979, p. 100): “the patterns vary from place to place and from culture to culture... They all depend on culture. But still, in every age and every place the structure of

our world is given to it, essentially, by some collection of patterns which keep on repeating over and over and over again.” This means that the theory that was applied in the West (United States and Canada) is applicable in other cultures, which Alexander already stated in his book.

Pattern		New pattern	Same pattern	Modified Pattern	Female Pattern	Male Pattern	Both Pattern
<b>BODY SCALE</b>							
1	Private Terrace on the Street ' <i>Dakkah</i> '			•		•	
2	Sitting Wall			•		•	
3	Front Door Bench ' <i>Mirkaz</i> '			•		•	
4	Stair Seat			•		•	
5	Connected to Earth		•			•	
6	Window places ' <i>Roshan</i> '			•	•		
<b>BUILDING SCALE</b>							
7	Main Entrance		•				•
8	Low Doorway ' <i>Khukhah</i> '		•				•
9	Roof Open Space ' <i>Satuh/Kharja</i> '			•	•		
10	Reception Area ' <i>Dahliz</i> '	•				•	
11	Street Window ' <i>Roshan</i> '			•	•		
<b>STREET SCALE</b>							
12	Entrance Transition		•			•	
13	Building Front		•				•
14	Building Edge		•				•
15	Path Shape ' <i>Zuqaq</i> '		•			•	
<b>CITY SCALE</b>							
16	Positive Outdoor Space ' <i>Barahat</i> '			•		•	
17	Connected Building			•		•	
18	Hierarchy of Spaces		•			•	

Table 7: Showing the pattern in the four different scales used in this research and identifying them according to gender use as well as categorising them according to patterns similar/modified to ones found in Alexander's book or new patterns related to the context of Jeddah.

## **CHAPTER SIX**

## **Conclusion**

This chapter presents a conclusion drawn from the data presented in chapter four. It provides the limitations and critical assessment, contribution, and future research.

### **Conclusion**

When it comes to experiencing a space, both arriving and leaving it are crucial moments. Threshold areas are viewed as places where movement either speeds up or slows down. We can perceive a threshold space as an experience and an entrance space when we cross it. Our route, which is determined by time and direction, leads us to perceive areas as being ahead of or behind the threshold.

As I mentioned in my introduction, this thesis aimed to examine and analyse the concept of the “ground floor” in the historical city of Jeddah and the continuation of the public and private spheres of the society, as well as the relationship between the realms through the transitional space in order to identify patterns of threshold spaces. In this architectural urban approach, which was based on a qualitative analysis, it can be concluded that:

First, eighteen patterns were identified in the old town, organised along four different scales, with the researcher looking at the spatial situation and then moving to a broader historical aspect of the city to explore new ways of presenting and approaching Christopher Alexander’s notion of patterns.

This thesis presents new patterns uniquely related to the context of Jeddah as well as modified versions of the ones explored by Alexander, which is a result of different aspects caused by society, culture, and the environment. The result indicates that these socially conditioned spaces played a huge role in enhancing and aiding the public life.

Second, the analysis of the five houses in the old town indicates that the sequence of the threshold spaces differs from house to house. This means that each house is made of different combinations of patterns, yet there is a strong harmony between all the houses in the old city.

The hypothesis that is put forward here is that there are certain patterns within threshold spaces in the traditional city of Jeddah which have facilitated public life. This is currently missing or not found in the contemporary city of Jeddah. By studying these principles and patterns in the old town, we may be able to translate it to the contemporary city to improve the transitional spaces between the public spaces and the residential units.

The modern architecture of Jeddah is not able to keep the traditional society going with how family and social life is organised. This is because the modern urban architecture has destroyed the connection and bond that was in the old city and society. By that, I mean the connection between the indoor and the outdoor through the layering in the city. Furthermore, the weakness of the ties between the individual, the family, and the group in general in the society. Thus, the interconnectedness, which was the base of the quarter and the character of the town in the *hijazi* society, became weaker. This impacted the homogeneity of the society, which had an effect on the house in the small scale and the neighbourhood in the large scale. This created a more complex and less integrated society. All this led to the strong distinction in spatial organisation

and the loss and disappearance of the threshold space while implementing physical boundaries such as high walls between the houses and the street to maintain privacy and security, which as a consequence led to the break in the social bonding of society and destroyed the community spirit that was significant in the old town of Jeddah.

### **Limitation and Critical Assessment**

This section regards the critical assessment and limitation of this research. There are several limitations in this study that could be addressed in future research.

First, in terms of the interviews, the researcher found it more beneficial if all interviews were conducted in the old town of Jeddah during a stroll, as this added a lot to the quality of the interview and helped the interviewee speak more about their experience and stories in the old town. The researcher managed to conduct some of the males' interviews in the old town while strolling in the city and visiting their birth houses; however, it was not possible to do this with the females. Visiting interior houses with the female interviewee would have enriched the description of the five analysed houses.

Second, the research focused on a limited number of intensive interviews from both genders. It would have been more beneficial if the researcher increased the sample size, as it would have deepened and enriched the discussion and findings in terms of spatial perception and physical and social conditions.

Third, regarding one of the five analysed houses, 'Jamjoom House', the Ministry of Culture provided the researcher with the floor plans of the houses; however, after visiting the house, the researcher found the plans inaccurate. Therefore, it was eliminated from the research. It would have enhanced the analysis if the floor plans were redrawn, but due to the size of the house, as it is the largest in the old town, it was not possible to be redrawn by the researcher alone and permission from the authority was needed before this could take place.

Fourth, the researcher contacted people who lived in the five analysed houses, as the researcher was aiming to visit the houses with them for a better understanding of the social life and use of space; however, some of the interviewees did not show up for the meeting. In some cases, such as in Waqf Al Shafi House, the researcher took photos of the house and conducted several meetings in order to understand the spaces and their use. Visiting the houses with people who lived in them would certainly have added a lot and would have helped the researcher in understanding the spaces, especially in the huge houses, which were a bit more complicated.

Fifth, the researcher interviewed both genders separately, as each had a different experience. A family/friends interview of both genders together could be undertaken to explore their different points of view and the stories that took place there.



## **Contribution**

This research work can contribute to academia in different ways. It derives originality from the place and the time context that it covers. The research focuses on threshold space and social structure and their impact on urban quality in old Jeddah, something that has never been explored in detail and constitutes a clear gap in the knowledge.

One of the most significant academic contributions of this research is the methodological approaches and methods that it used. As the social, cultural, and geographic contexts of Jeddah are different to those of the Western cities, there was a need to design a methodology that fulfils Jeddah.

From the tested concept of Christopher Alexander in his book *A Pattern Language*, published in 1977, a theory from the West (United States and Canada) and applying it to an Islamic city, the work extended the theory to find patterns in four different scales (body, building, street, and city), which is solely related to this case study.

This research established a methodology that suits the context of Jeddah and its limitations. Thus, the methodology and methods of this work could be applied to other cities that have common similarities, including in Saudi Arabia. The designed methodology also informs other scholars and researchers who aim to develop studies of transitional spaces of Jeddah and other similar Middle Eastern case studies.

The fieldwork and data collection process was the challenge of this research work, but it is also its strength. The amount of data, including the maps, documents, analysis, drawings, and photographs, is a contribution as well. The number of maps, analyses, and drawings prepared in this research work will enrich the archives involved in the urban form of Jeddah and its history. The considerable number of photographs by the researcher (around 680) covering the four quarters of Jeddah from 2018 to 2019 document the transitional spaces and, when possible, the interior spaces of the residential houses in the city, as well as (around 200) old photos, maps, floor plans, and social life in the city collected by the researcher from different sources. This document can be useful for other studies concerning the morphology of the city as well as the transitional spaces and architecture by the researcher or other researchers. This work opens up possibilities which can be investigated and extended further for future academic studies.

## **Future Research**

One of the potentials of this research work is the high possibility of achieving continuity. This research opened a way for a wide range of possible issues that can be studied and researched further. Some of these issues have already been addressed in this research. Yet, due to the limitations of the research, it was not possible to go into more depth. The need for developing these issues further in future research works becomes a priority.

The first issue is that the researcher intended at the biggening to enlarge or broaden this research to cover the old city of Jeddah as well as the contemporary part of the city. However, due to limitations of time and the considerable amount of time needed in the old town for the fieldwork and data collection, it was only possible to work within the old part of the city.

The development of points one and two in the conclusion could be taken further, as the researcher intended by analysing five houses in the contemporary city of Jeddah from different quarters with a gridiron pattern of streets from the perspective of their urban form, to

understand the threshold space and the integration between the public and private spheres and how it affects the urban configuration and socialisation of inhabitants. The aim of the researcher was that these five houses should belong to the same families interviewed in the old town of Jeddah (Hazazi, Jamjoom, Nasif, Abu Salih, and Jukhdar). In other words, the same senior people and other members of their family who lived in the old town and later (from the late 1940s onwards) moved to the new part of the town should be interviewed, which would automatically determine the neighbourhoods and area the researcher would concentrate on. Furthermore, their houses should be analysed in the same way the houses in the old town were analysed, by creating plans, diagrams, sketches, sections, and taking photographs in order to look at the threshold spaces and find patterns in each of these houses, comparing them to see similarities and differences and how these threshold spaces changed with time. This could raise important questions, which are: how much are traditional patterns translated to modern architecture and urban design? Could there be new patterns that do not exist in traditional housing? What are they?

The second issue, which comes from the development of point one in the conclusion, is that the high demand of the “oil boom”, as it is called, led to many changes in the city of Jeddah. As an example, there was the loss of layering in the city, as well as the *dahliz*, an important pattern found in all houses in the old town of Jeddah. The role of the *dahliz* in the traditional house was influenced by the transitional relationship between the private zone of the house and the public zone of the alley. This space, which could be accessed through the open doors throughout the day, is no longer useful, nor does it make sense in this new context. Thus, the elements and patterns discussed in chapter four that contributed to men’s strong connection with the outdoor space was destroyed. The process of formation and transformation and the phenomenon of change can be studied further in the future.

Finally, when observing the modern part of the city of Jeddah, one can notice that the relationship between the inside and the outside (indoor and outdoor) of the apartments and villas was achieved through openings in the façade.

In the apartments, as you go up, the connection with the outdoor area is weaker, as the inhabitants can only relate visually to the public sphere through the windows and sometimes through balconies that are not used. On the other hand, in the villas, the relationship between the private sphere and the outdoor sphere is achieved through an outdoor private space that belongs to the villa. This private outdoor space is connected to the house by balconies, large openings in the façade concentrating on the living areas. See [Figure 223](#). This needs more investigation to be understood through academic studies.

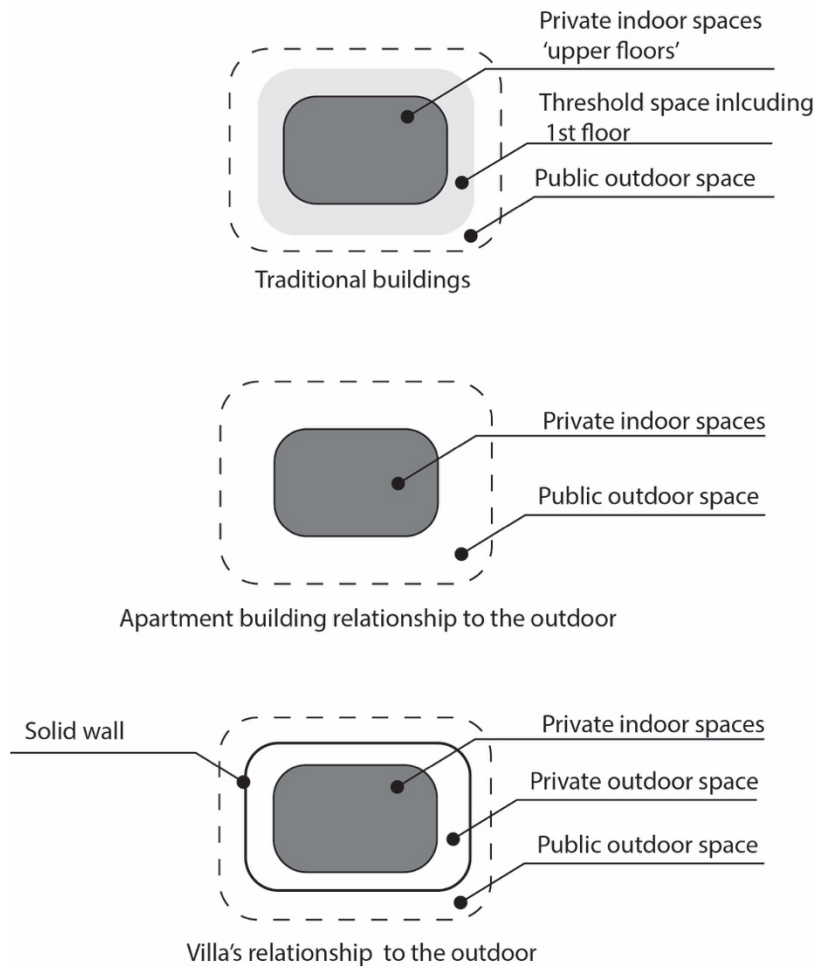


Figure 223: The relationship between the outdoor and the indoor in the traditional houses, apartment buildings, and villas. Imaginary boundaries in the traditional houses were understood by society. In the modern period, strong physical boundaries between the inside and the outside.

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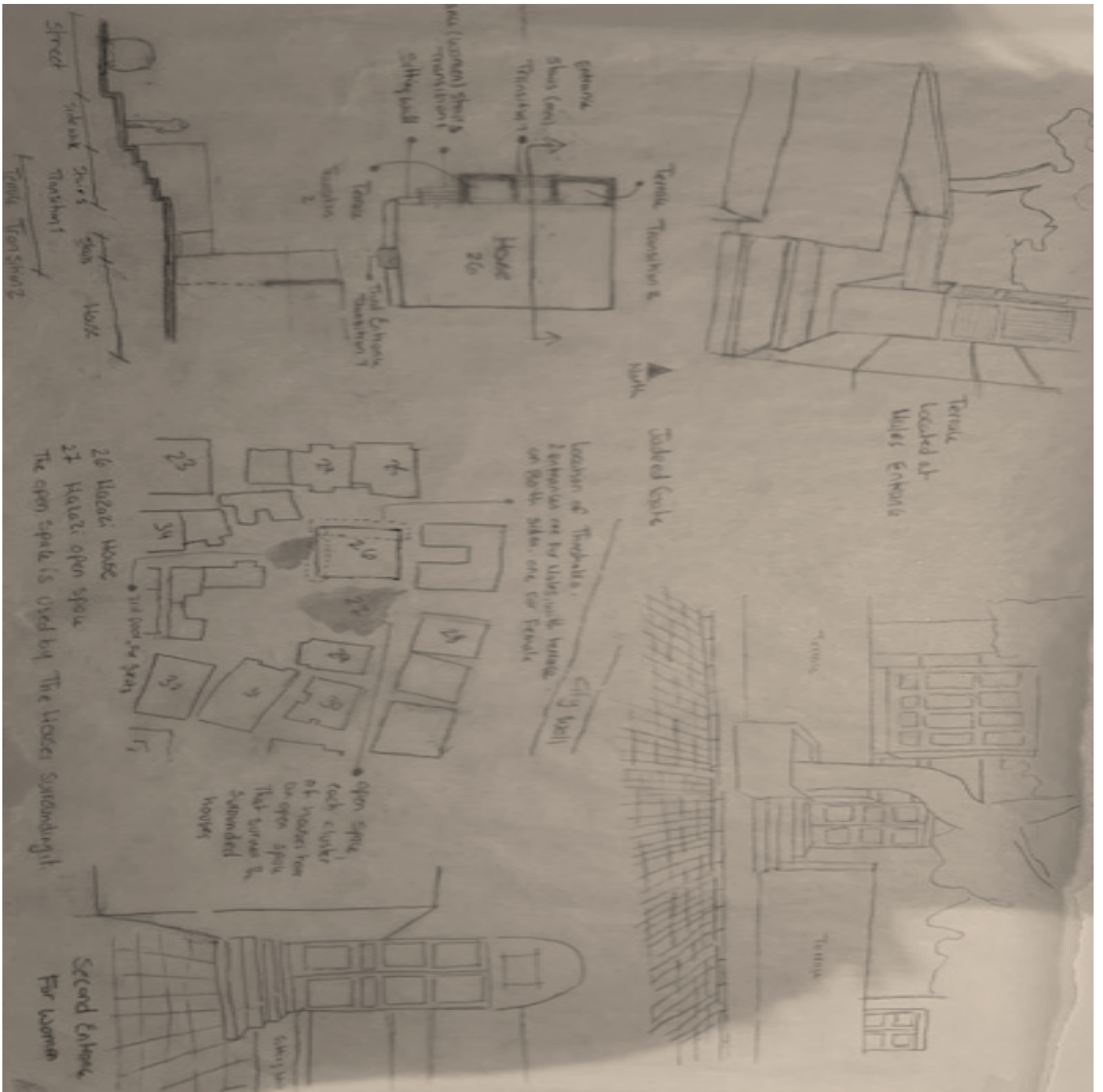
محمد لبيب البنتوني: الرحلة الحجازية، المطبعة البولاقية، القاهرة، مصر، ١٩١١م

## Appendices

- Appendix 1: Analysed house in old Jeddah, Hazazi house
- Appendix 2: Analysed house in old Jeddah, Shorbatli house
- Appendix 3: Analysed houses in old Jeddah, Al Sharif Mhana house- Shorbatli house
- Appendix 4: Analysed house in old Jeddah, Jukhdar house
- Appendix 5: Analysed house in old Jeddah, Banaja houses
- Appendix 6: Analysed houses in old Jeddah, Al Wasia house-Al Ashgar house
- Appendix 7: Analysed house in old Jeddah, Baishen house
- Appendix 8: Analysed house in old Jeddah, Al Rashaida houses
- Appendix 9: Analysed houses in old Jeddah, Salama House ‘Ahmad Badeeb’-Gabil house
- Appendix 10: Analysed houses in old Jeddah, Thakir house- Al Jar house
- Appendix 11: Analysed houses in old Jeddah, Waqf Al Shafi house- Ridwan house
- Appendix 12: Analysed house in old Jeddah, Nassif house
- Appendix 13: Analysed house in old Jeddah, Jamjoom house
- Appendix 14: Analysed house in old Jeddah, Massoud house
- Appendix 15: Analysed house in old Jeddah, Batarji house
- Appendix 16: Analysed house in old Jeddah, Noor Wally house
- Appendix 17: Analysed house in old Jeddah, Batarji house- Batarji house
- Appendix 18: Matrix showing examples of patterns found in analysed houses in old Jeddah
- Appendix 19: an example of one of the paths during the observation, drawing, and photo taking
- Appendix 20: Participant Information Sheet (English Version)
- Appendix 21: Consent Form to be filled by the participant (English Version)
- Appendix 22: some of the interviews questions



# Appendix 1

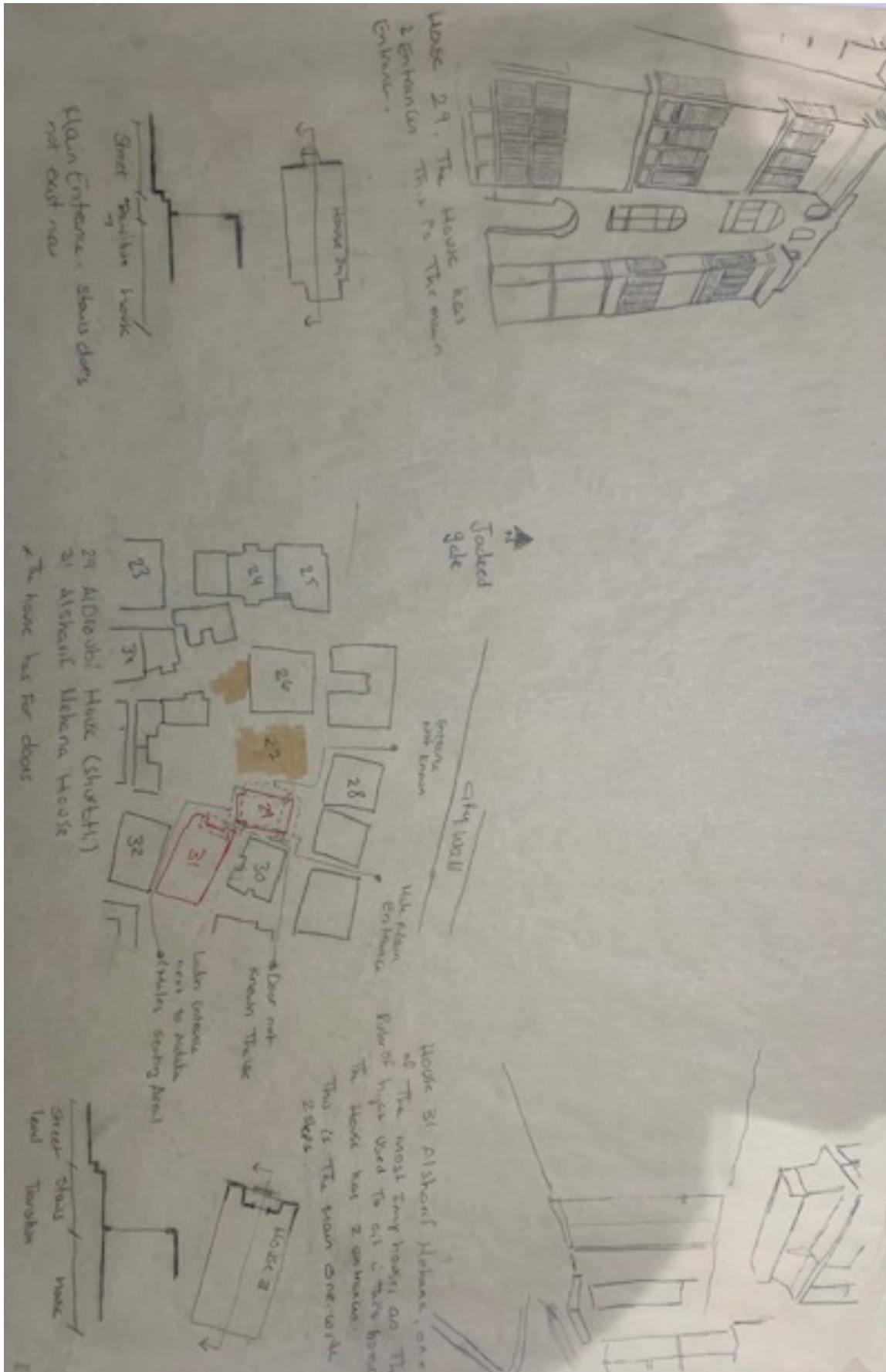




Appendix 2



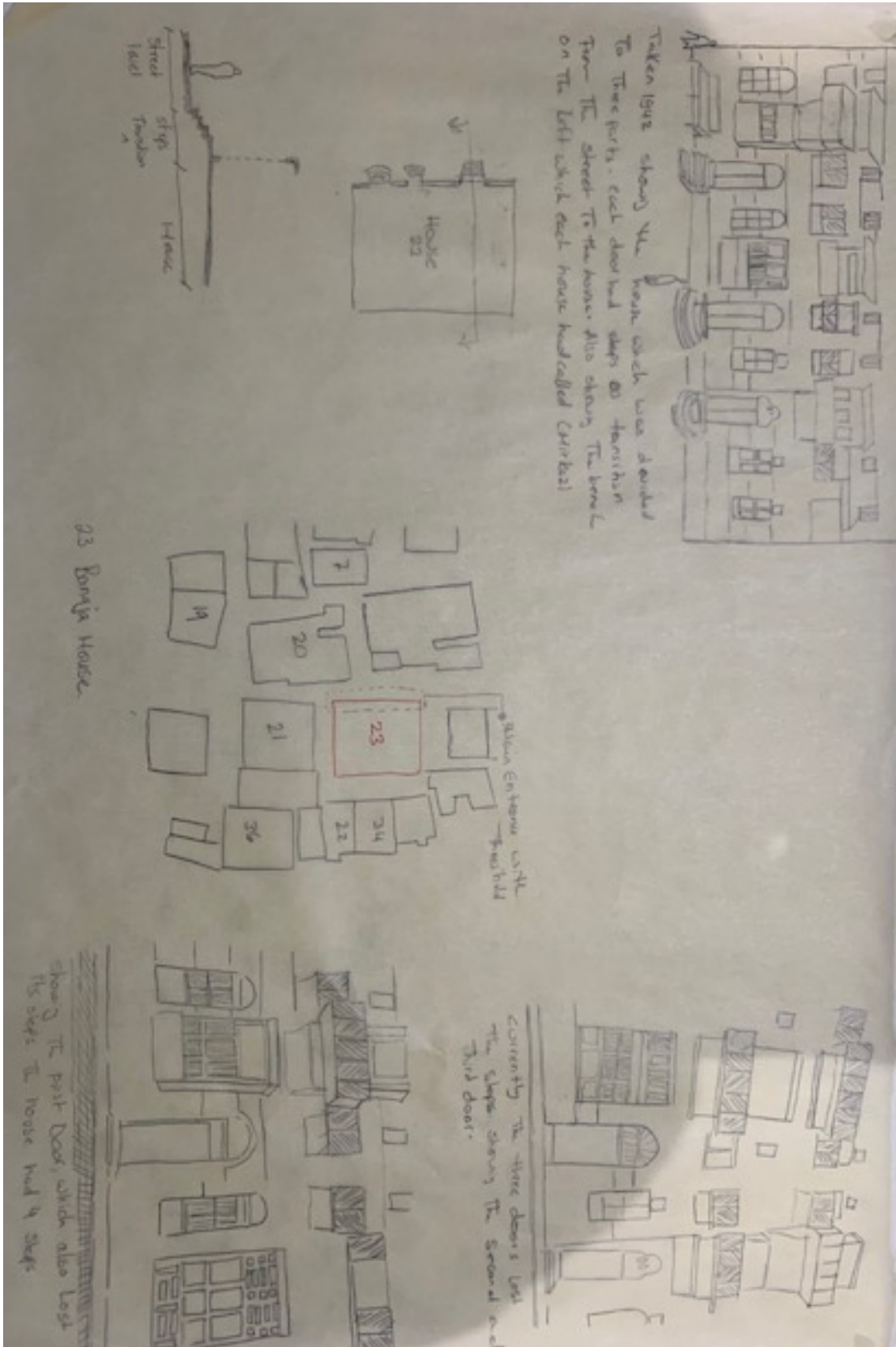
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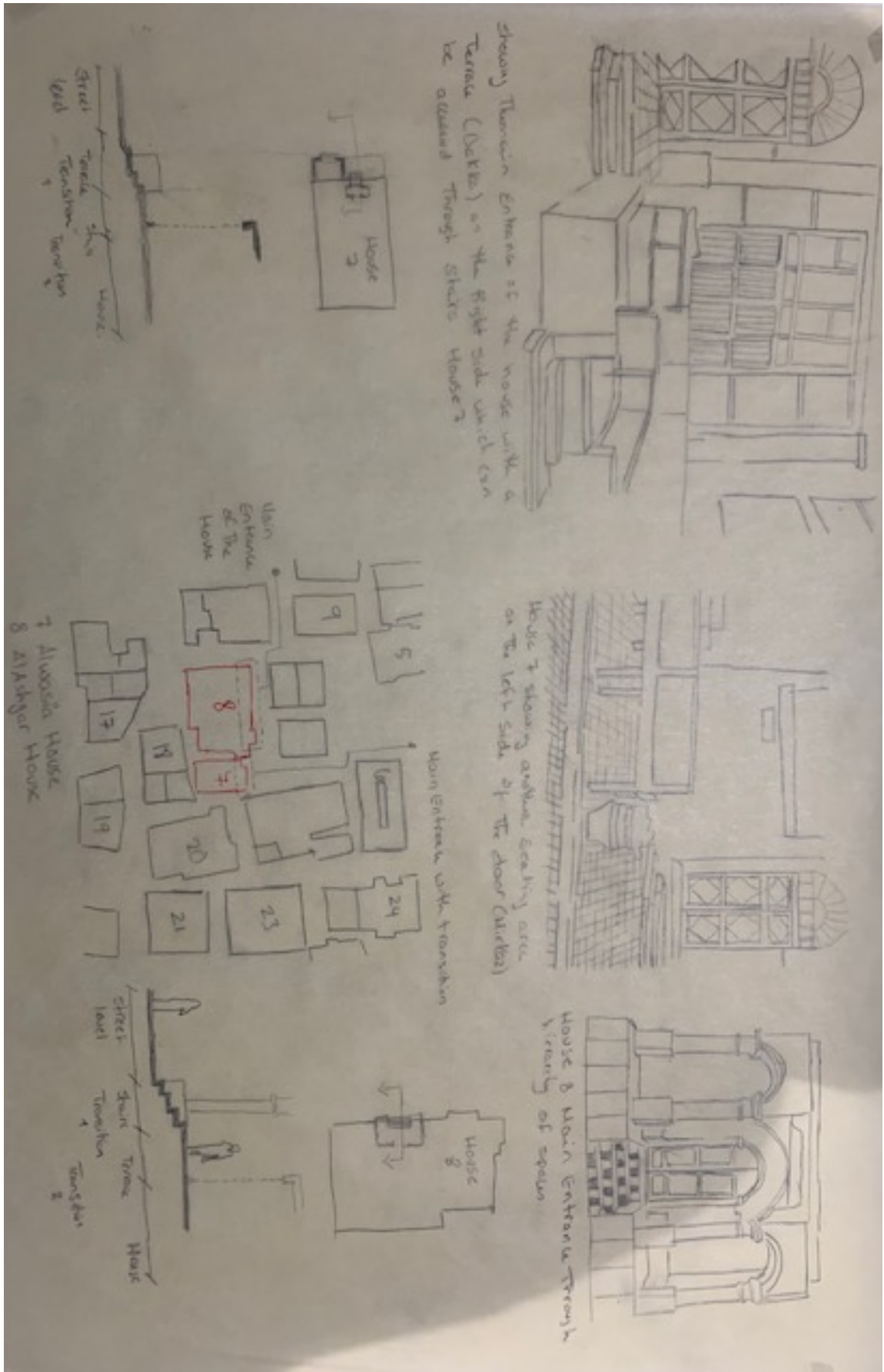
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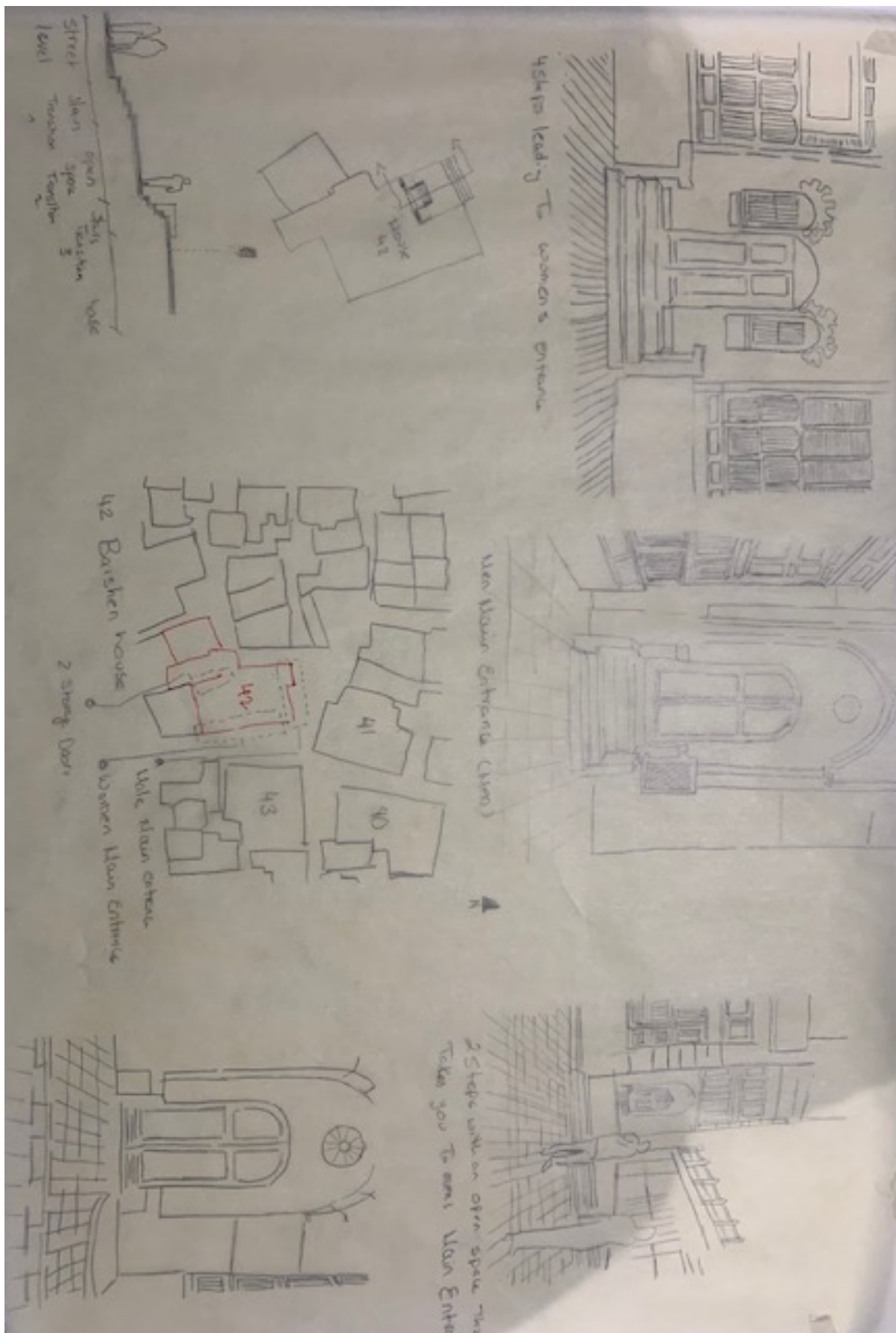
Appendix 5



Appendix 6

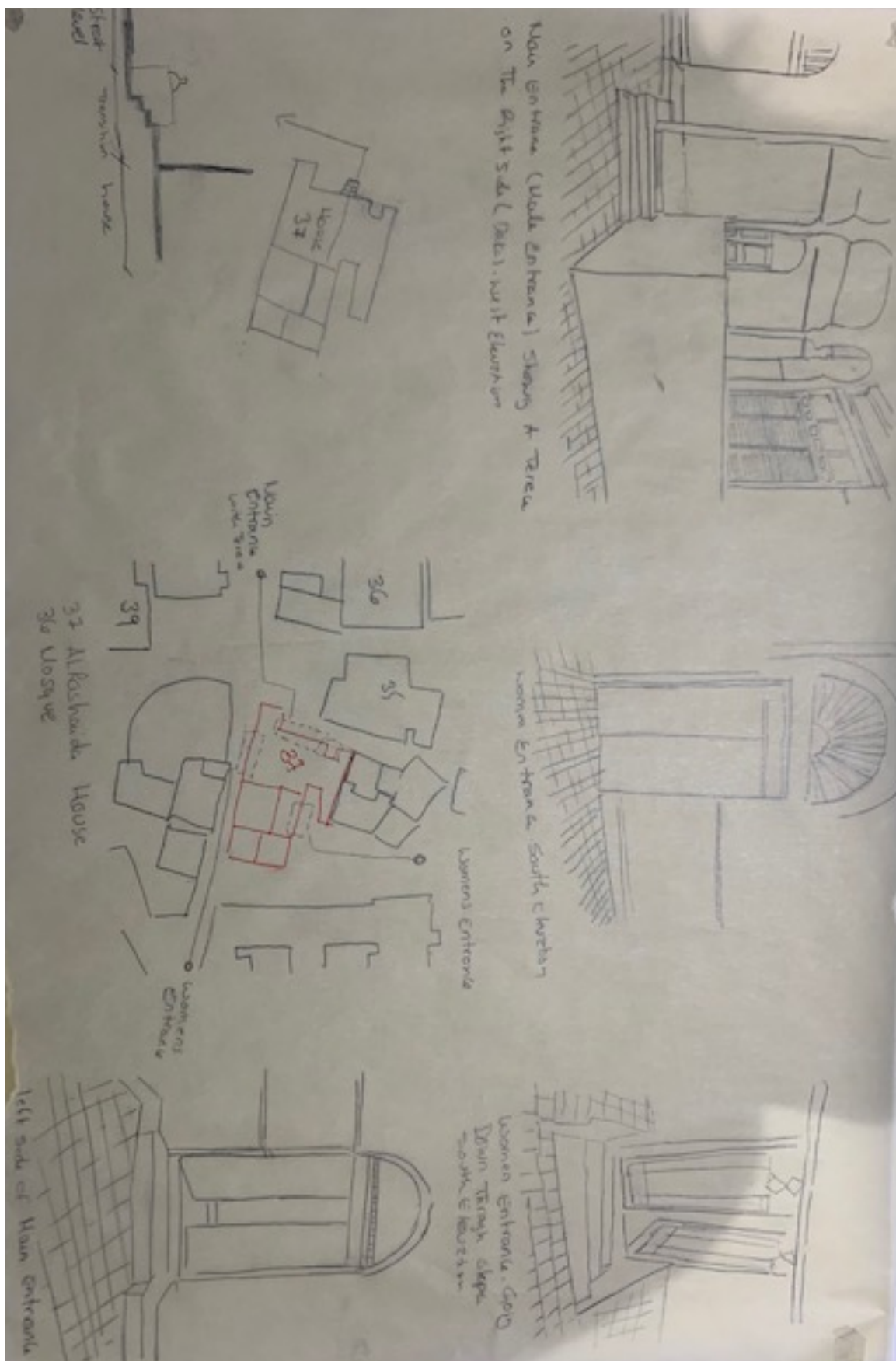


Appendix 7

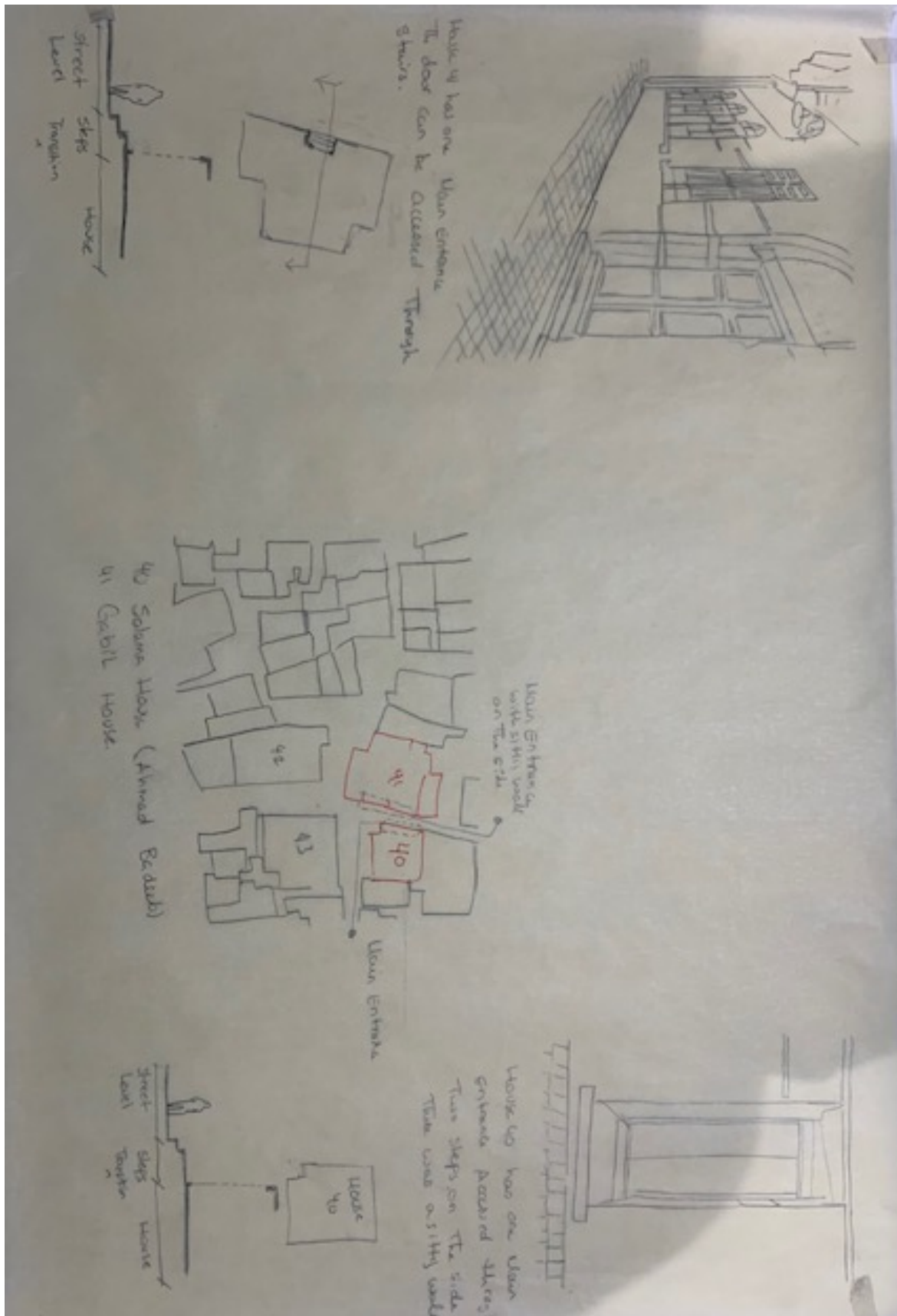




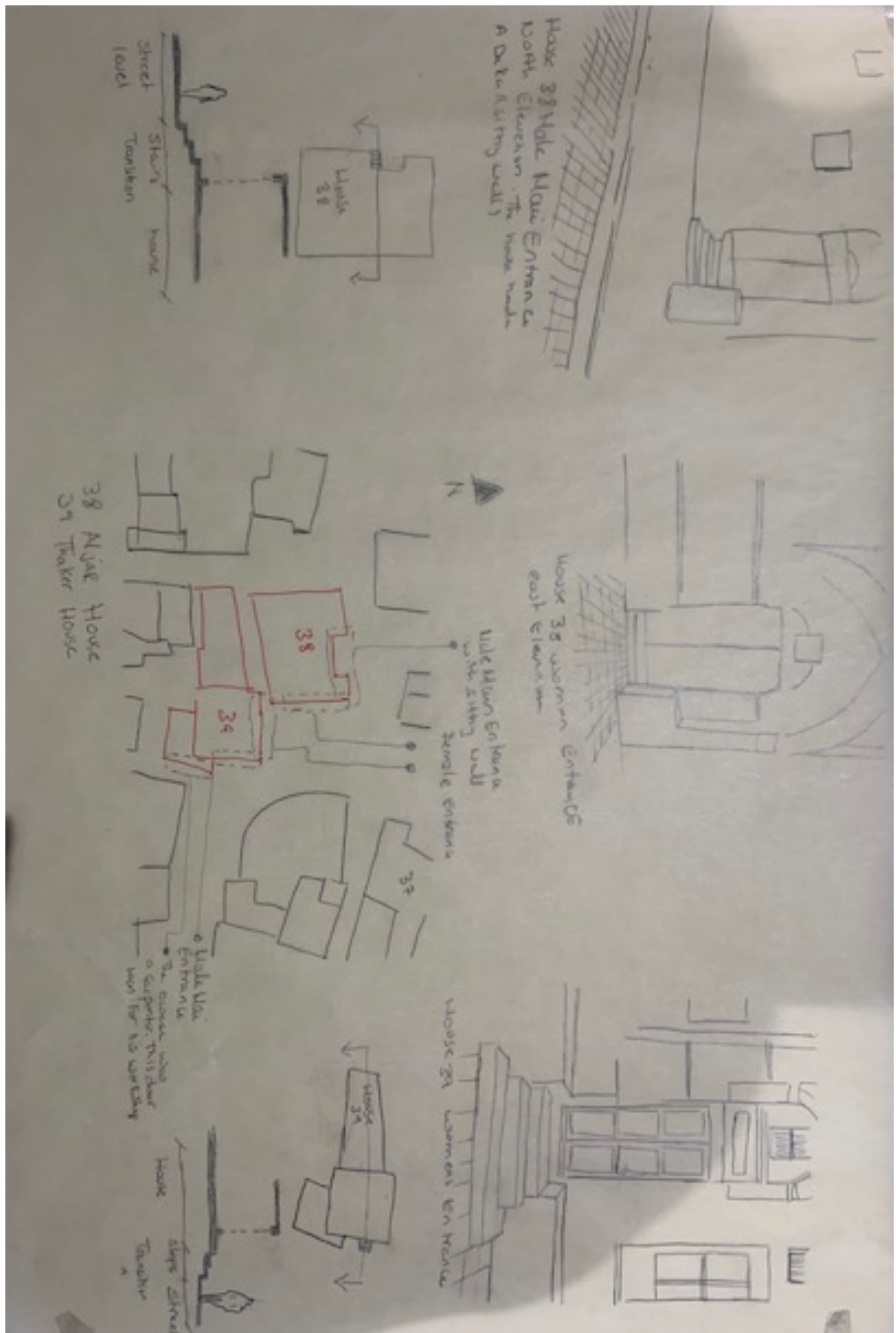
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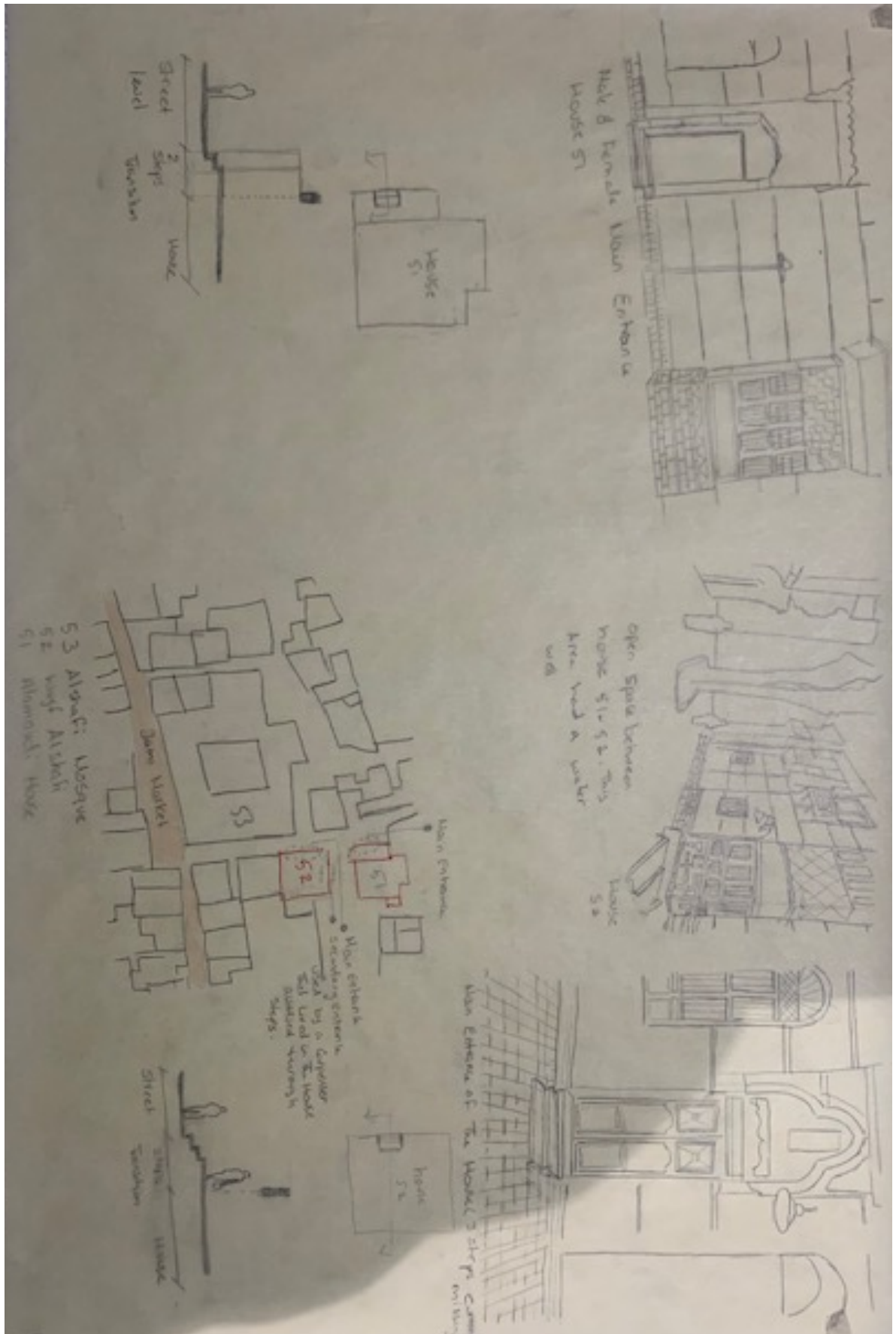
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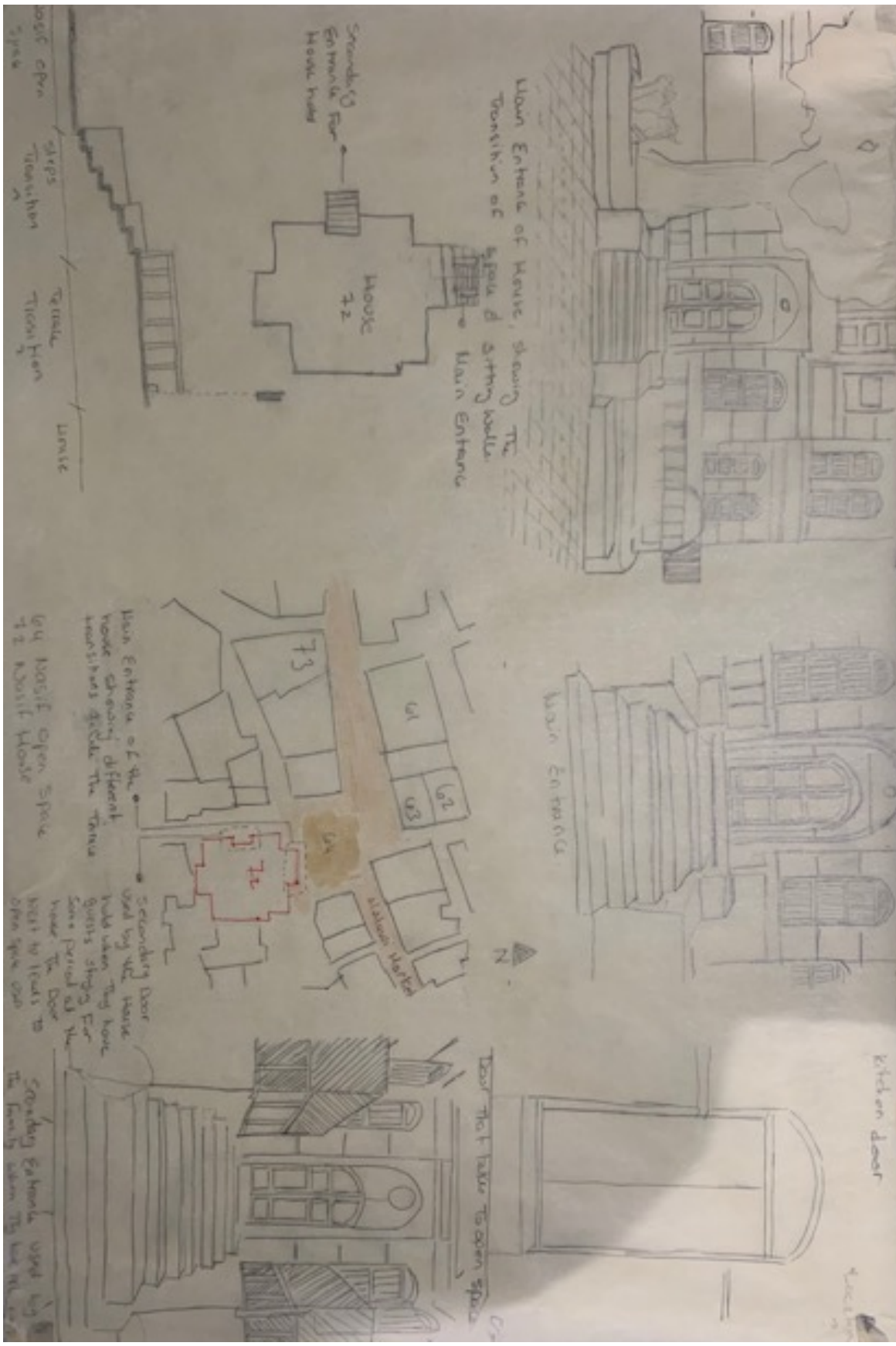
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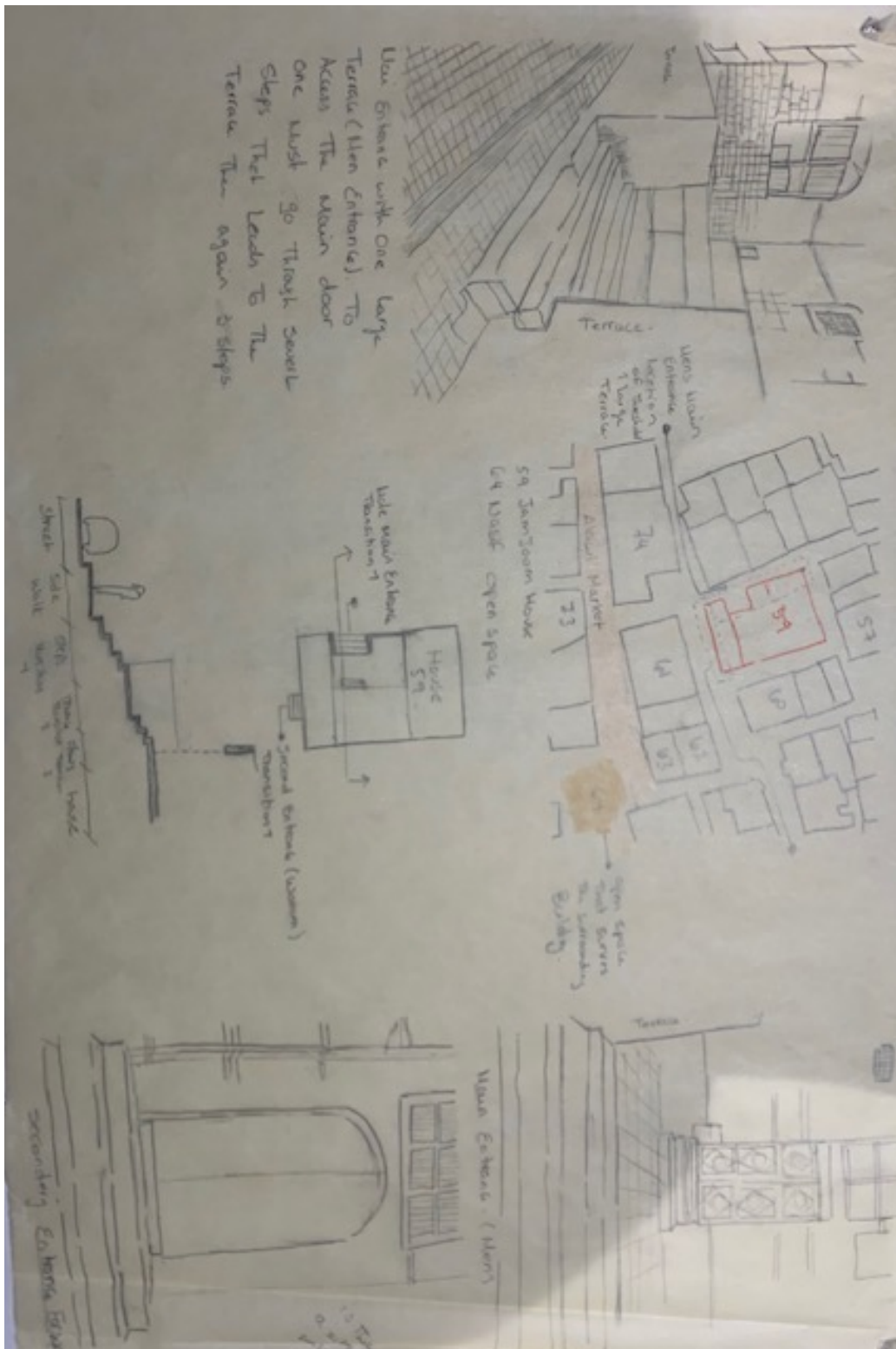
Appendix 11



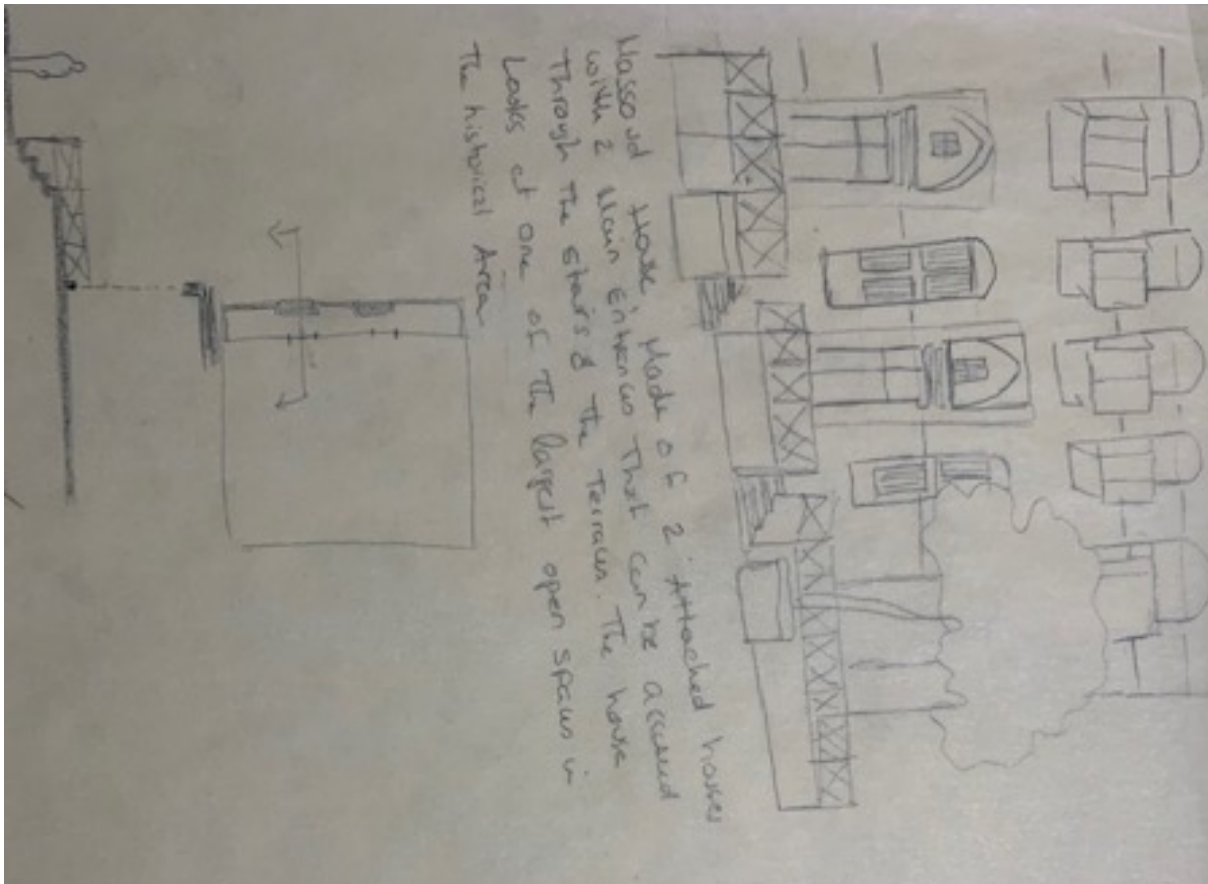
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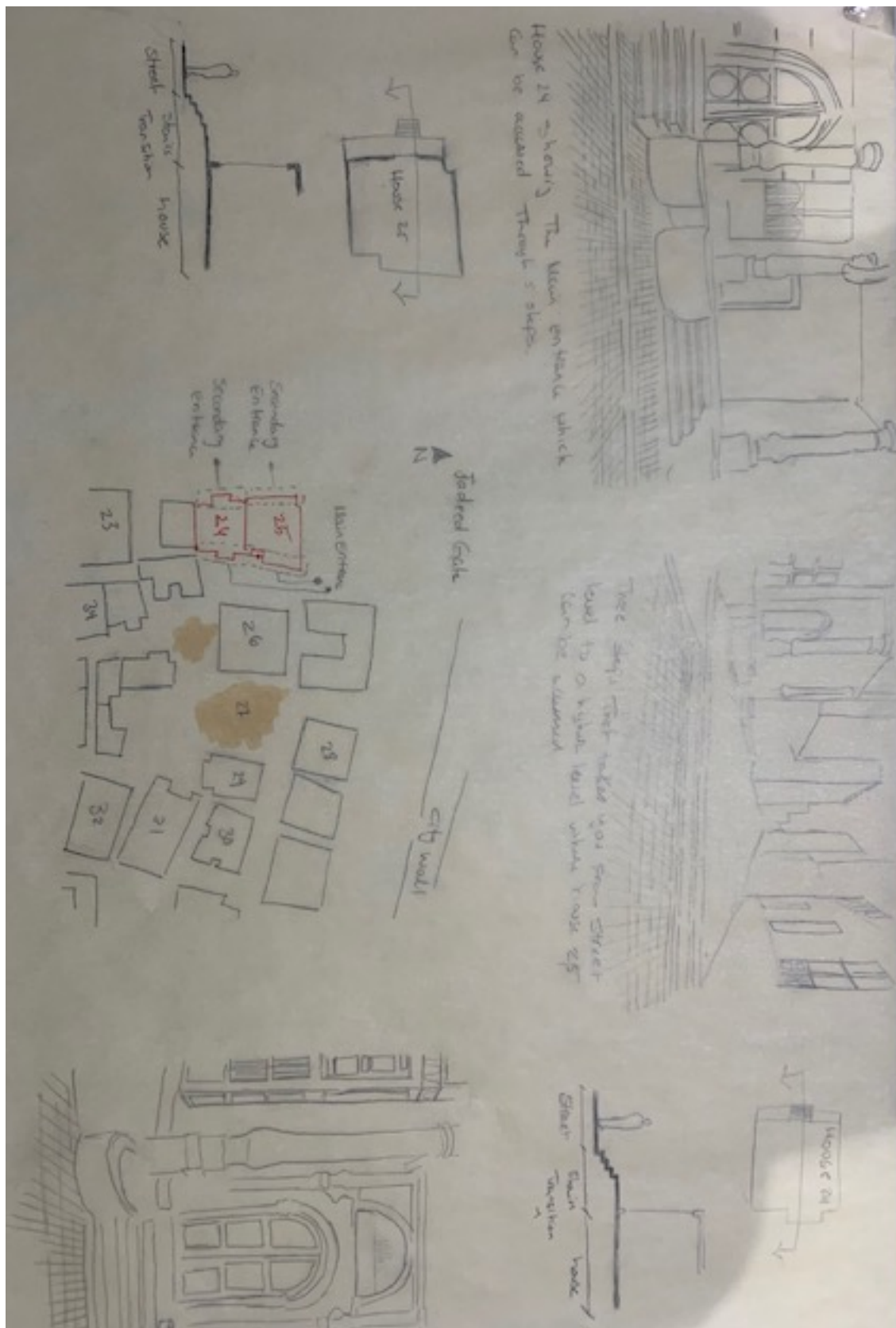
Appendix 13



# Appendix 14



Appendix 15

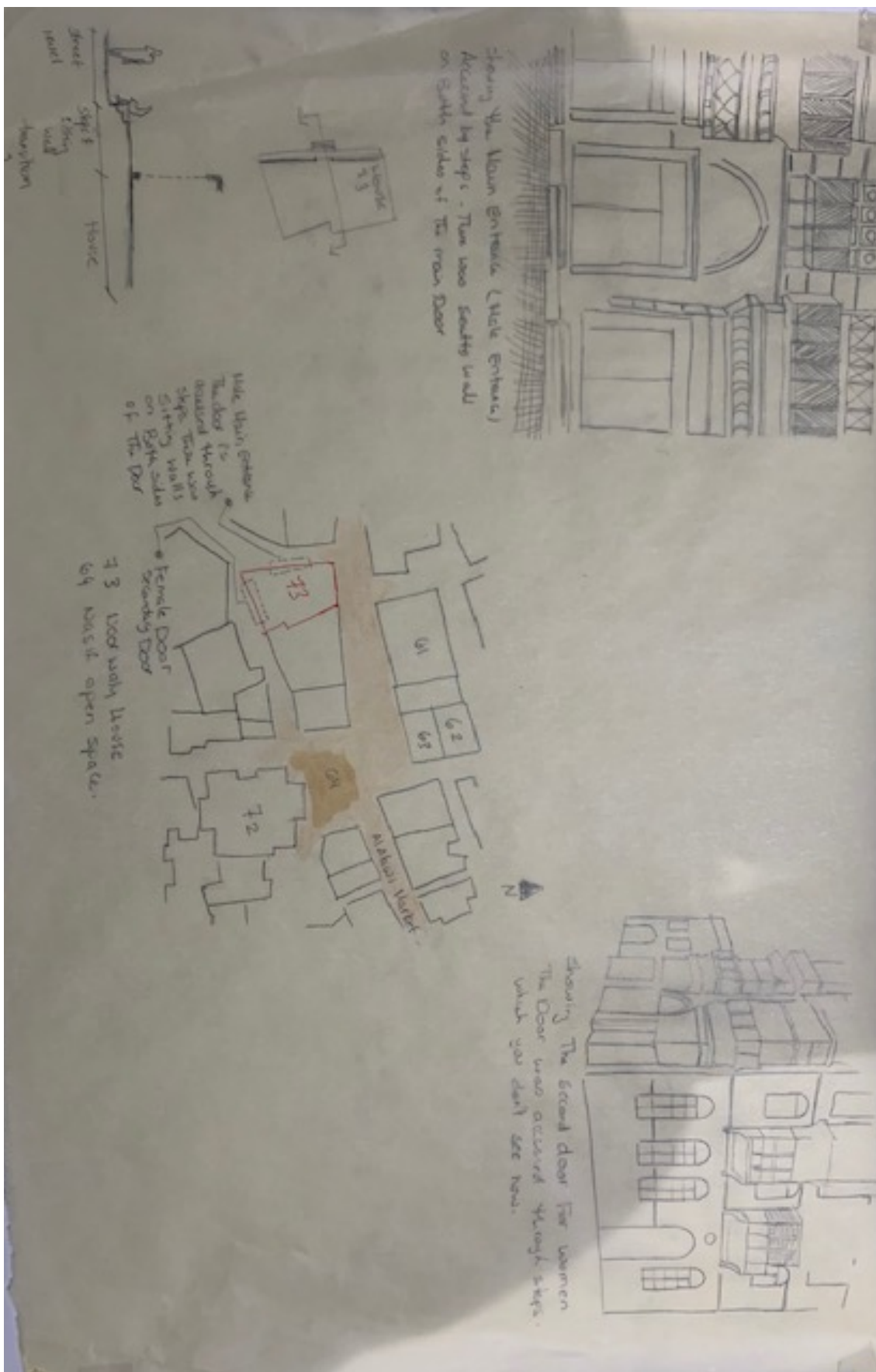


House 24 showing the main entrance which can be reached through 5 steps.

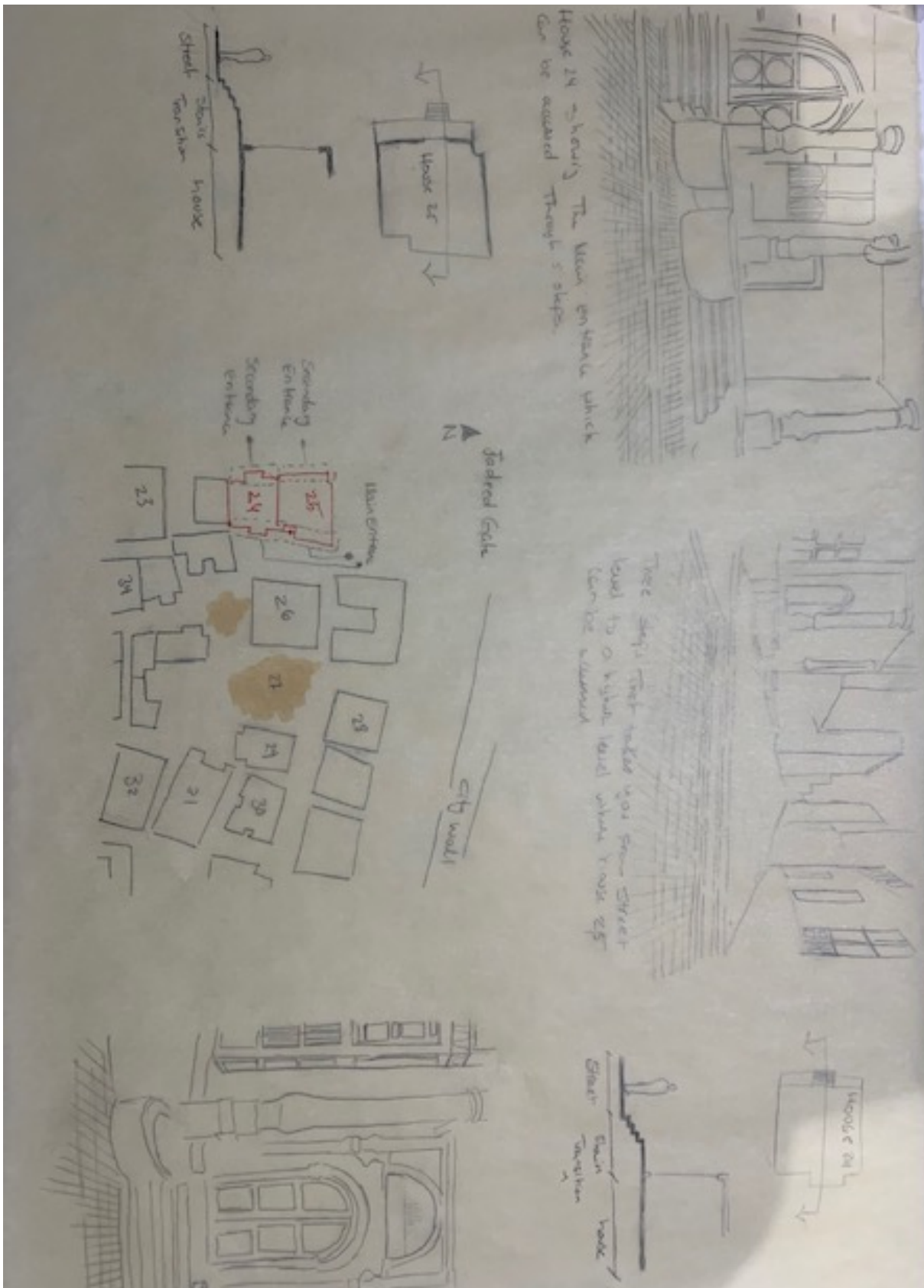
These steps that take you from Street level to a higher level where house 25 can be accessed.



Appendix 16




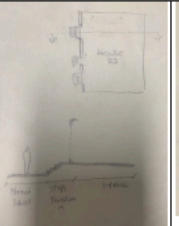



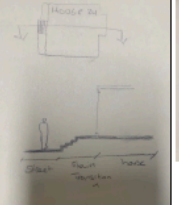



Appendix 17



# Appendix 18


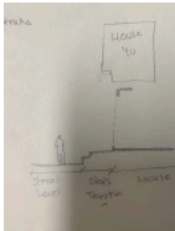

29						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Stair seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Private terrace on the street</li> <li>• Building edge</li> <li>• Street window</li> <li>• 6 foot balcony</li> <li>• connection to the earth</li> <li>• window place</li> <li>• low sill</li> <li>• low doorway</li> <li>• dahliz</li> <li>• front door bench</li> </ul>
31						<ul style="list-style-type: none"> <li>• main entrance</li> <li>• entrance transition</li> <li>• Hierarchy of open space</li> <li>• Roof garden (open space)</li> <li>• Stair seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street windows</li> <li>• 6 foot balcony</li> <li>• Connecting to earth</li> <li>• Window place</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> </ul>



23						<ul style="list-style-type: none"> <li>• main trance</li> <li>• connected buildings</li> <li>• entrance transition</li> <li>• hierarchy of open spaces</li> <li>• roof garden (open space)</li> <li>• path shape</li> <li>• stair seats</li> <li>• positive outdoor spaces</li> <li>• building front</li> <li>• building edge</li> <li>• street window</li> <li>• connection to earth</li> <li>• window place</li> <li>• low sill</li> <li>• low doorway</li> <li>• dahliz</li> <li>• front door bench</li> </ul>
24	<p>STILL LOOKING FOR AN OLD PHOTO</p>					<ul style="list-style-type: none"> <li>• main entrance</li> <li>• connected buildings</li> <li>• entrance transition</li> <li>• hierarchy of open spaces</li> <li>• roof garden (open space)</li> <li>• path shape</li> <li>• stair seats</li> <li>• positive outdoor spaces</li> <li>• building front</li> <li>• private terraces on the street</li> <li>• building edge</li> <li>• street window</li> <li>• 6 foot balcony</li> <li>• connected to earth</li> <li>• window place</li> <li>• low sill</li> <li>• low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>



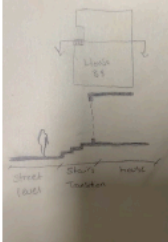

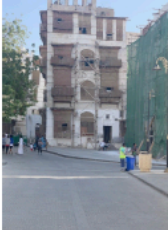

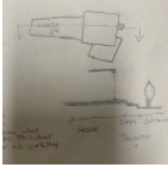

25	STILL LOOKING FOR AN OLD PHOTO					<ul style="list-style-type: none"> <li>• main entrance</li> <li>• connected buildings</li> <li>• entrance transition</li> <li>• hierarchy of open spaces</li> <li>• roof garden (open space)</li> <li>• path shape</li> <li>• stair seats</li> <li>• positive outdoor spaces</li> <li>• building front</li> <li>• private terraces on the street</li> <li>• building edge</li> <li>• street window</li> <li>• 6 foot balcony</li> <li>• connected to earth</li> <li>• window place</li> <li>• low sill</li> <li>• low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>
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NUM	Old Picture	Current Pic	Zoomed Site Plan	The House	Sketches	Patterns
7	STILL LOOKING FOR AN OLD PHOTO					<ul style="list-style-type: none"> <li>• Main entrances</li> <li>• Connected buildings</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof gardens (open space)</li> <li>• Path shape</li> <li>• Street stairs</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Private terraces on the streets</li> <li>• Building edge</li> <li>• Street windows</li> <li>• 6 foot balcony</li> <li>• Connected to the earth</li> <li>• Window places</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>
8						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected buildings</li> <li>• Entrance transition</li> <li>• Hierarchy of space</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seat</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Private terraces on the street</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connected to the earth</li> <li>• Window places</li> </ul>

	Old Picture	Current Pic	Zoomed Site Plan	The House	Sketches	Patterns
28						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden</li> <li>• Stair seats</li> <li>• Building front</li> <li>• Private terraces on the street</li> <li>• Building edge</li> <li>• Street window</li> <li>• 6 foot balcony</li> <li>• window place</li> <li>• low sill</li> <li>• dahliz</li> </ul>
26						<ul style="list-style-type: none"> <li>• Private Terrace on the street</li> <li>• Street window</li> <li>• Window places</li> <li>• Building edge</li> <li>• Main entrance</li> <li>• Entrance transition</li> <li>• Hierarchy of open space</li> <li>• Roof garden</li> <li>• Building edge</li> <li>• Street stairs</li> <li>• Connection to earth</li> <li>• Low sill</li> <li>• Dahliz</li> <li>• Building front</li> <li>• Low doorway</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>

						<ul style="list-style-type: none"> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> </ul>
40	STILL LOOKING FOR AN OLD PHOTO	 <p>NEED A BETTER PIC</p>				<ul style="list-style-type: none"> <li>• Mai entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open space</li> <li>• Path shape</li> <li>• Street seat</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window place</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>
41	 <p>NEED A BETTER PIC</p>	 <p>NEED A BETTER PIC</p>				<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Stair seat</li> <li>• Positive outdoor space</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connected to earth</li> <li>• Window place</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> </ul>











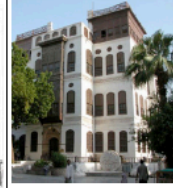






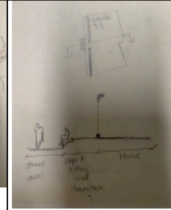



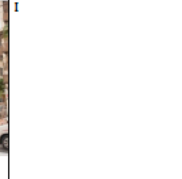
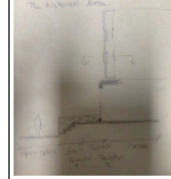

42	 <p>1982</p> <p>NEED A BETTER PIC</p>	 <p>NEED A BETTER PIC</p>				<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>
37						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>

38		NEED TO TAKE A PIC				<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• Sitting wall</li> </ul>
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51	STILL LOOKING FOR AN OLD PHOTO					<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> </ul>
52	STILL LOOKING FOR AN OLD PHOTO					<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> </ul>

Appendix 19



59	STILL LOOKING FOR AN OLD PHOTO					<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• <b>Sitting wall</b></li> </ul>
70						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• <b>Sitting wall</b></li> </ul>
72						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• <b>Sitting wall</b></li> </ul>
73						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> <li>• <b>Sitting wall</b></li> </ul>
00						<ul style="list-style-type: none"> <li>• Main entrance</li> <li>• Connected building</li> <li>• Entrance transition</li> <li>• Hierarchy of open spaces</li> <li>• Roof garden (open space)</li> <li>• Path shape</li> <li>• Street seats</li> <li>• Positive outdoor spaces</li> <li>• Building front</li> <li>• Building edge</li> <li>• Street window</li> <li>• Connection to earth</li> <li>• Window places</li> <li>• Low sill</li> <li>• Low doorway</li> <li>• Dahliz</li> <li>• Front door bench</li> </ul>



## Participant Information Sheet

**1. Research Project Title:**

“ Patterns” of threshold spaces in the historical and contemporary city of Jeddah

**2. Invitation paragraph**

You are being invited to take part in a research project. Before you decide whether or not to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

**3. What is the project’s purpose?**

The aim of this field research is to investigate why transitional spaces, which were established throughout architectural history no longer apply today. Moreover, exploring the role of the threshold space in shaping the old city to find out what can be learned from the traditional urban pattern and how it can be applied in contemporary neighbourhoods.

Duration of the project: starting Jan 2019 – Dec 2021

This research is aimed for educational qualification

**4. Why have I been chosen?**

Will be updated according to the participant

**5. Do I have to take part?**

Taking part in the research is entirely voluntary.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time\* without any negative consequences. You do not have to give a reason. If you wish to withdraw from the research, please contact Basma Massoud on the following number 0504681838

**6. What will happen to me if I take part? What do I have to do?**

The participant will be involved in this research for the coming 6 month, no longer than 3 hours for each meeting. The information obtained from the participant will be used for data analysis during the filed work period.

For the audio recording I will be using semi-structured interviews with the participant.

All interviews will take place either in the historical area, modern part of the city, and my office. The location will depend on the phase am working on. The meeting point will be agreed on a week before the interview.

**7. What are the possible benefits of taking part?**

While there are no immediate benefits for those people participating in the project, it is hoped that this work will enhance the development of new neighbourhoods in Jeddah Saudi Arabia.

**8. Will my taking part in this project be kept confidential?**

All the information that we collect about you during the course of the research will be kept strictly confidential and will only be accessible to me and the supervisor. You will not be able to be identified

in any reports or publications unless you have given your explicit consent for this. If you agree to us sharing the information you provide with other researchers (e.g. by making it available in a data archive) then your personal details will not be included unless you explicitly request this.

**9. What is the legal basis for processing my personal data?**

Personal data will not be collected

**10. What will happen to the data collected, and the results of the research project?**

The researcher and the supervisor will access data collected only.

Data will be kept until the completion of the PHD research. Consent will be given to use some of the data in future research.

As a participant you will be able to obtain a copy of this published research

**11. Who is organising and funding the research?**

The University of King Abdul Aziz will be funding this research

**12. Who is the Data Controller?**

The University of Sheffield will act as the Data Controller for this study. This means that University of Sheffield is responsible for looking after your information and using it properly.

**13. Who has ethically reviewed the project?**

This project has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by the architectural department.

**14. What if something goes wrong and I wish to complain about the research?**

Should they wish to raise a complaint please contact Dr. Florian Kossak. And if you felt your complaint was not handled to their satisfaction by the supervisor Dr. Florian Kossak you can contact the Head of Department Dr. Wen-Shao Chang, who will then escalate the complaint through the appropriate channels.

information about how to raise a complaint can be found in the University's Privacy Notice:

<https://www.sheffield.ac.uk/govern/data-protection/privacy/general>.

**15. Contact for further information**

Dr. Florian Kossak, [f.kossak@sheffield.ac.uk](mailto:f.kossak@sheffield.ac.uk)

Dr Wen-Shao Chang, [w.chang@sheffield.ac.uk](mailto:w.chang@sheffield.ac.uk)

*The information sheet should state that the participant will be given a copy of the information sheet and, if appropriate, a signed consent form to keep.*

## Appendix 21



### Consent Form

#### "Patterns" of threshold spaces in the historical and contemporary city of Jeddah

<i>Please tick the appropriate boxes</i>	Yes	No
<b>Taking Part in the Project</b>		
The project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	<input type="checkbox"/>	<input type="checkbox"/>
I have been given the opportunity to ask questions about the project.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to take part in the project. I understand that taking part in the project will include... (interviews, being recorded (audio and / or video, participating in a focus group)	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my taking part is voluntary and that I can withdraw from the study at any time; I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	<input type="checkbox"/>	<input type="checkbox"/>
<b>How my information will be used during and after the project</b>		
I understand my personal details such as name, phone number, address and email address etc. will not be revealed to people outside the project.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	<input type="checkbox"/>	<input type="checkbox"/>
I GIVE PERMISSION FOR THE DATA THAT I PROVIDE TO BE DEPOSITED IN [NAME OF DATA REPOSITORY] SO IT CAN BE USED FOR FUTURE RESEARCH AND LEARNING	<input type="checkbox"/>	<input type="checkbox"/>
<b>So that the information you provide can be used legally by the researchers</b>		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	<input type="checkbox"/>	<input type="checkbox"/>

Name of participant [printed]

Signature

Date

Name of Researcher [printed]

Signature

Date

## Appendix 22

### Some of the interview questions

- There were many public spaces in the old town, what were their uses?
- define *mirkaz*, *Magaad*, *diwanz*, *daka*, *dahliz*? what were their uses?
- Were there sitting walls on the edge of the house? what was its use?
- Were there gatherings in the houses?
- Why are the entrances of some houses higher than the ground level and others not? Does it have to do with the house size?
- What are the typical architecture elements are found in all houses?
- Did they women use the bay windows for chatting and communication?
- Some house such as the Shurtabli and Al Sbai house has balconies? What were their uses?
- Bajnaid house looked totally different than the other houses in the old town, why is that?
- What is the relationship of the house to the shops? Did most of the houses have shops on the ground floor like the ones we see these days?
- Were terraces present in most of the houses? Like Jamjoom house?
- Where is the main market located? What is the small and large market?
- *Hosh* is only present in few houses, is that true? Why? What was its use?
- What was the material used for the *daka* and *dahliz*?
- Describe your house in detail
- Was there an office on the ground floor?
- What did your father do?
- What was your daily routine?
- Were there any rituals of space use in different seasons or times?
- What are your memories of the old town?
- Can you talk about the *hajj* period? How did it affect the city?
- Can you talk about the gender segregating in a house?

