

The Courtyard as a Microcosm of Everyday Life and Social Interaction

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Abstract The habitual rooms and other structures related to everyday life are almost always grouped around the courtyard and together make up a house. There are many kinds of variety in types of courtyard houses depending on location, composition, allocation and relationship with inner space of the house. Every type of courtyard house accumulates many factors, which are social and economic circumstances, weather and geographical conditions. They are still well harmonized with life style and weather conditions in each area and basic unit of city organization. A courtyard can be shown as a place for everyday conversation like a community. Everyday space is the connective tissue that binds daily lives together, amorphous and so persuasive that it is difficult even to perceive. In spite of its ubiquity, everyday space is nearly invisible in the professional discourses of the city, like everyday life. Therefore Courtyards are special places that are outside yet almost inside, open to the sky, - a microcosm which gives relief to the inner rooms, gives the inhabitants a sense of ease and calm, and the feeling that they have their own piece of sky to use and protect them. This research will explore a variety of space use and dwelling types through courtyards based on field research and design projects.

Keywords: Courtyard, Everyday Life, Microcosm, Inhabitants, Social Interaction

1. INTRODUCTION

'Architecture reflects a life.' The aim of the Architect is to instill the creation of spaces rather than the creation of forms. Life is everyday conversation in space and time. Space is temporal because we move through it; time is spatial because, as architects, space is what we construct. It is through space that we are capable of addressing time. But time also exists to activate our spaces. Particular small events such as a snatch of conversation, for example, were recorded in their spatial and temporal context, using drawings, photographs, video and tape recording techniques. These events were called 'moments.' The particularity of each moment was considered, not just its location in space and time but through a sensory three-dimensional mapping of the space and those who passed through it. For example, a moment might record what you could hear, see and smell, whom I met, what they said, what they were doing and their use of space. Therefore, everyday space is the connective tissue

that binds daily lives together, amorphous and so persuasive that it is difficult even to perceive. In spite of its ubiquity, everyday space is nearly invisible in the professional discourses of the city, like everyday life. "It is the screen on which society projects its light and its shadow, its hollows and its planes, its power and its weakness."

According to Lefebvre, these spaces are like everyday life; "Trivial, obvious but invisible, everywhere and nowhere." It is "sustenance, clothing, furniture, homes, neighborhoods, and environment" - i.e., material life - but with a "dramatic attitude and lyrical tone." Lefebvre claimed, "Takes place when and only when...people can no longer lead their everyday lives. He presented the peasant festival as indicative of the joy, freedom, and sense of community that everyday life might come to provide in a more enduring and meaningful way. It is as multiple social and economic transactions that these mundane places serve as primary intersections between the individual and the city. As a result, everyday life is organized by time as much as by space, structured around daily itineraries, with rhythms imposed by patterns of work and leisure, week and weekend, and the repetitious gestures of commuting and consumption.

To propose design element of courtyard, this study is to analyze the courtyard characteristics through concept, theory, typology, function and so on. And to compare the cultural and architectural differences for courtyard use, this study introduce the courtyard in UK, India and Korea, which is associated with their way of life. Courtyard provides much more comfortable outdoor space for various activities.

Finally to synthesis the courtyard as a microcosm of everyday life, this study is to propose a synthesis on spatial organization of the courtyard to explore a variety of space use and dwelling types through courtyards based on the design projects.

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2. COURTYARD CHARACTERISTICS

2.1 Courtyard concept

(1) History of courtyard

The courtyard can be defined as a building, a group of buildings or building elements surrounding an internal space that is open to the sky. It is the most central space of the house and it holds the surrounding spaces together, like a nucleus towards which other things gravitate. Its strength lies in its capacity to attract people of the family into it. It encourages the extension of covered and semi-covered spaces along with a spill-over of various household activities. The courtyard is called various names in different languages and cultures: “Madang” in Korean, ‘Joong-Geong’ in Japanese, ‘Court’ in English, ‘Cour’ in French, ‘Patio’ in Spanish, and ‘Corte’ in Italian. The courtyard can represent many things: an oasis in a desert of city streets; a fragment of nature (thus a reminder of natural landscapes beyond the city); a centre of interest for the building; a concentration of light, sound, and water; a life-sustaining refuge of safety and privacy.

The haciendas in Mexico and Spain or the Chinese, Korean and Japanese models, respond to different climates and cultural issues of privacy as well as to different functions of the internal court. The North African/Middle Eastern courtyard house represents a dual response to the problems of solar radiation and a windy, dusty environment.

2.2 Courtyard characteristics

(1) Theory of N.Schoenauer

A Courtyard house contains various environmental characters. N. Schoenauer, who researched it systemically, interprets the factors of formation of courtyard houses in four ways. They are the environmental characteristics of courtyard houses. Therefore, the factors will be examined in detail based on N. Schoenauer’s four environmental characteristics.

First, there is a **psychosocial consideration**: the inward-oriented dwelling provides privacy from neighbours in respect to both household activities and material possessions. Second, there is an **economic factor**: the fortifications surrounding ancient cities greatly restricted the amount of land available for housing, and the courtyard house permitted the greatest density, barring multistoried development, which, at the time, was technologically inconceivable. Third, **climate conditions** favored the courtyard house: in contrast to the detached dwelling exposed on four sides to the sun and weather, the courtyard house was attached to other dwellings and was protected by them on all but the narrow, shaded, and wind-protected alley side giving access to the house. Moreover, the courtyard could readily, through the use of water and planting, provide a favorable micro- climate. The fourth factor had a **religious connotation**: the open interior court garden had an affinity with man’s image of paradise or oasis in the wilderness; its two lateral dimensions were defined but its.

(2) Courtyard typology

It can be shown the typology of courtyard and surrounding building.

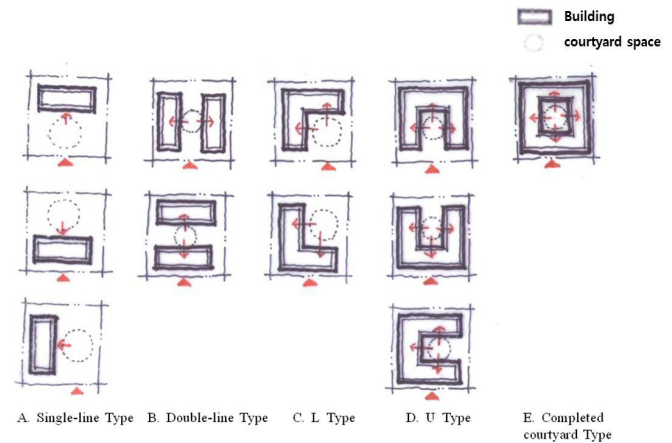


Figure 1. Courtyard typology

• The Single-line Type

The single line is the oldest and most elementary type. Technically it does not even define a courtyard except that in a city situation, the space between the building and its neighbors assumes the quality of a formed outdoor place. It is a pretty rare type to observe because most often buildings of this kind are added to and are transformed over time into higher-order types.

• The Double-line Type

The double-line type is a rare one, especially because in terms of the transformational sequences of the courtyard housing typology it is an intermediate stage leading to the most common court, the U-configuration building. Its value lies in that, especially in the case of the detached-unit model, it directly reflects the immediate formal derivation of the courtyard housing type from the typical suburban street.

• The L-Type

The L type is the first in the series we are examining which begins to define the enclosure of the courtyard by means of the building form. Typically, L type courts open up to the street, most probably in order to conceal automobiles behind the bar of the leg farthest from the street.

• The U-Type

The U type is the most common and typical idea for a courtyard-housing scheme. There appear interesting variations of the original idea.

• The Completed Courtyard Type (“□” shaped)

The completed courtyard type is the most accomplished realization of the court typology. The type is strong enough to accept access from two sides, most often two adjacent ones, and still retain the integrity of the central space. Typically, the central space is a regular grid, a rectangle or square dimensioned in such a way as to accept a fountain in its center as a major object of sizable volume. Surrounding surfaces are most often two storey in height and incorporate architectural elements at diverse scales. For instance, communal fireplaces reflecting the scale of the whole courtyard and major entrance doorways reflecting the scale of a whole unit are common. The courtyard always insistently expresses the imagery of the communal living room.

(3) Multipurpose Function in Courtyard

The courtyard is a multipurpose place a room without a roof above it and is not only habitually used for a specific activity such as sleeping or dining. Instead, the courtyard dwelling allows rooms for specific members of the household, and the family member uses these spaces for a number of functions;

Private space: eating, sleeping

Approach space: concierge (guards the gate and serves as doorbells)

Storage space: keeping food

Play space: children, pets

Safe space: women, children

Community space: entertaining close friends

Working space: laundry

Open space: food can dry in the sun. More commonly, when the kitchen is just too hot, cooking moves to the open courtyard, where the heat and moisture are quickly dissipated

Rest space, connective space etc.

3. A SURVEY OF COURTYARDS IN DIFFERENT CULTURE

3.1 Courtyard in UK.

There are completely modern dwelling types in Britain. Most of them are based on the patio and atrium courtyard type. The courtyard houses are quite different from any of the old Mediterranean types is that they have mostly been designed for northern climates where vernacular courtyard houses were not traditional. Many larger buildings in colder areas have had quadrangular plan, such as Oxford and Cambridge colleges. There have been some interesting designs of one-and-a-half and two-storey courtyard houses, and multistorey complexes. A courtyard in UK has these characteristics below:

Urban structure: Road system, planned city

Dwelling Scale: Two-storied, combination of four single storey buildings. They surround courtyard.

Shape: Mainly Regular Square, courtyard is wide and big enough compared to building height.

Access: It blocks direct access to the courtyard. To access the courtyard it uses a passage way.

Contact to the outside: Windows on the outside walls of house were hardly installed. It is closed space

Size Proportion: inner space > courtyard > transition space

Material: Hard standing soil ground,

Size: various sizes

Microclimate Control: By the garden and pond in the courtyard.

Distinction: outside and courtyard are connected (visible, open space)



Figure 2. Modern dwelling types in Britain (Most of them are based on the patio and atrium courtyard type)

3.2 Courtyard in India

Traditional urban house is the courtyard in India. Until these days, many cities- Jaisalmer, Jaipur, Udaipur, and Ahrnedabad - have their distinctive type of courtyard house. Among all the cities, Jaipur and Ahrnedabad are unique and contrastive. They are different cities from the formation in process. Jaipur is a planned city and it has a cross street system. However, Ahrnedabad is a naturally originated and systematic city. A courtyard in Ahrnedabad has these characteristics:

Urban structure: systematic space organization, hierarchical road system and road type with a community hall, which is strongly linked to society.

Dwelling Scale: narrow front and long site type house, three stories (general)

Shape: well type courtyard

Access: Road and courtyard are connected (visible, open

Contact to the outside: By a prominent window on the first floor.

Size Proportion: transition space > courtyard > inner space

Material: Hard standing soil ground,

Size: Mainly big and various sizes

Microclimate Control: Louver inside of the house

Distinction: Perfectly symmetrical composition, social and sexual distinction into the spatial hierarchy is strongly maintained.



Figure 3. Modern dwelling types in Britain (Most of them are based on the patio and atrium courtyard type)

3.3 Courtyard in Korea

Korean courtyard is called a 'Madang'. Madang is slightly different from the courtyard of Middle East and India in composition. In fact, courtyards in other culture are formed into high dense dwellings, which share walls with each house, but the Madang is recognized as an outer-shape of Korean courtyard house in the whole site and as a courtyard house in the house. The Korean courtyard the "Madang", has these characteristics below:

Urban structure: irregular space organization.

Dwelling Scale: single storey building.

Shape: mainly regular square, incomplete square: u-shape with single-line or wall. (General)

Access: single-line building, the Moonkan-Chae, where the servants live. It contains the entrance of the house. There is an open space under the roof of the Moonkan-Chae. It faces the Madang and it is a transition space.

Contact to the outside: It is limited and windows on the outside walls of house are small in size and positioned high up.

Size Proportion: inner space > courtyard > transition space

Material: Hard standing soil ground,

Size: Mainly big and various sizes

Microclimate Control: By trees and watering in the Madang

Distinction: Single storey courtyard house. Transition space between the inside and outside in the Moonkan-Chae (servant space) protects a view of the outside.

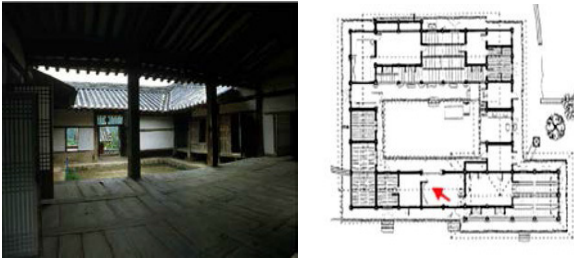


Figure 4. Modern dwelling types in Britain (Most of them are based on the patio and atrium courtyard type)

4. THE SEARCH FOR COURTYARD FACTORS AND SYNTHESIS

4.1 Courtyard factors

(1) Entry sequence

With so many possible functions and endless variations in size and shape, there are many ways of classifying courtyards. The following approaches could be taken in any order, but entry sequence is first, because it presents the courtyard as experienced on first contact.

In the relationship between courtyard and surrounding building, three types of courtyard entry are distinguished from the road to the inside of house: Direct, less- direct, and indirect courtyard entry type.

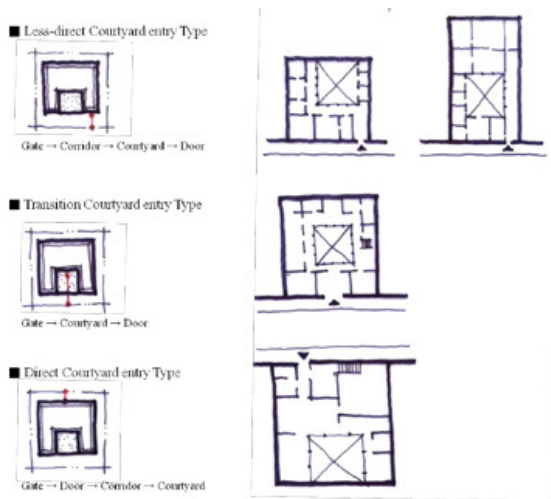


Figure 5. Variations on entry

Firstly, 'Less- direct courtyard entry type' is the example that can see the courtyard but do not pass the courtyard. The entry sequence: the gate → corridor → courtyard → the door. This can be seen mainly in Venezuela, Egypt, Greece, and Morocco.

Secondly, in case of 'Transition courtyard entry type', the typical courtyard, all access to rooms is made by passing through the courtyard that is, the entry type by which central to courtyard. It is the introvert space structure that the function of courtyard is a

passage way.

The entry sequence: the gate → courtyard → the door.

Thirdly, 'Direct courtyard entry type' is the example that access directly from street to the door without passing through the courtyard: the gate → the door → corridor → courtyard. This extrovert space structure is the type that considers only the building as important and it reduces the type of function of courtyard. This case is a popular type in contemporary buildings in Britain and Europe.

(2) Orientation

In the tropics, east and west-facing walls receive more direct radiation from the sun and should therefore be kept short. Openings in these walls should be as few and as small as possible. Buildings should have an axis as near as possible to east west; openings for access, ventilation and light should be on the longer north and south walls.

(3) Shade

Shading from the sun's heat is necessary in all warm climates, apart from highlands or outside the tropics in winter. Direct sunlight through doors and windows should be shaded after early morning, preferably outside the windows. North and south-facing walls and openings can be shaded by horizontal overhangs and canopies, allowing windows to be kept open when it is raining. West and east-facing surfaces require sun breakers and screens, which reduce daylight but obstruct the view. Shades should be light in colour. In a hot, dry climate, buildings should be grouped close together to give some shade to each other and provide small shady spaces between. In humid regions, wide spacing of buildings helps ventilation.



Figure 6. The aerial view of traditional Korean housing showing Gahoe-dong 11-17 streets and shaded courtyards.

(4) Wind

Wind is almost always a friend in a hot humid climate. It is sometimes helpful in hot dry and temperate climates, especially for night ventilation when outdoor temperatures are lower, wind more primarily horizontally, and this easily skips over the horizontal opening to a courtyard.

(5) Ventilation- Courtyard effect

The principle of the courtyard effect is explained by Figure 7.8.

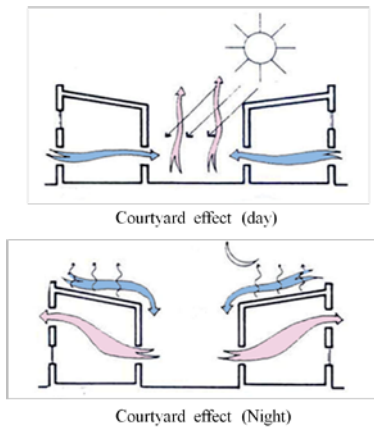


Figure 7. Effect of day and night Courtyard

Due to the incident solar radiation in the courtyard, the air in the courtyard becomes warmer and rises up. To replace it, cool air from the ground level flows through the louvered openings of the room, thus producing the airflow.

During the night, the process is reversed. As the warm roof surface gets cooled by convection and radiation so the cooled air sinks into the court and enters the living spaces through the low-level openings and leaves through higher-level openings. To make it work efficiently, a parapet wall is to be raised around the roof to prevent air mixing. When the courtyard is small and does not get enough radiation during the daytime, it acts as shown in Figure 8, and in addition climatic condition in Figure 9.

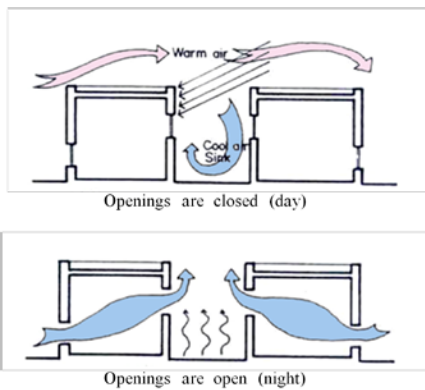
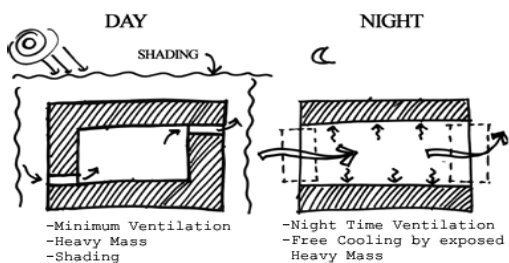
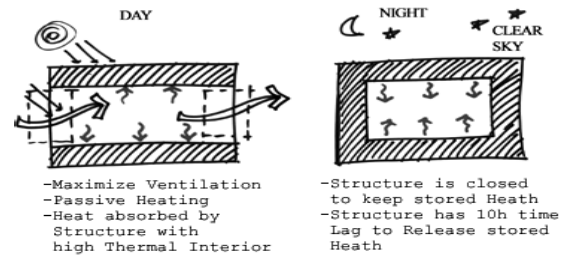


Figure 8. Ventilation mechanisms in small courtyards

Hot – Dry season



Warm – Humid season



Winter (Warm Day- Cold Night)

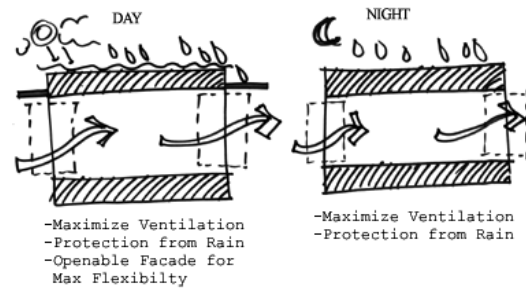


Figure 9. Climatic condition.

(6) Air pollution in courtyards

The courtyard receives good protection from the bulk of windblown dust. The building may be orientated in any direction without lowering the efficiency of dust exclusion.

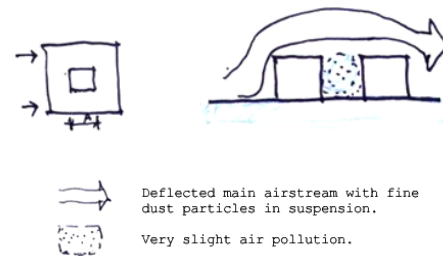


Figure 10. Air pollution in courtyard.

(7) Materials

Many courtyard-paving materials are small stones, marble, brick, natural soil and concrete and so on. These Pavements that absorbs water are especially good paving materials, because they can slowly release the water through evaporation, cooling all the while. White marble, for example, is a popular paving material and it reflects maximum daylight from the potentially dark courtyard floor. Dense or heavyweight materials such as mud, brick,

and stone have a very high heat-storage capacity. They take a considerable time to heat up and once heated take a long time to cool down again. Such materials, with their high heat-storage capacity, have a great advantage in hot dry regions, where they take a long time to absorb most of the heat received during the day before it is passed on to the inside surface. Thus their use ensures a cool interior.

The construction of the building largely involved the use of local labor and materials. Limestone is used for ground-floor bearing walls, but the upper walls are of cavity construction with an inner leaf of cement bricks and an outer screen of terracotta.

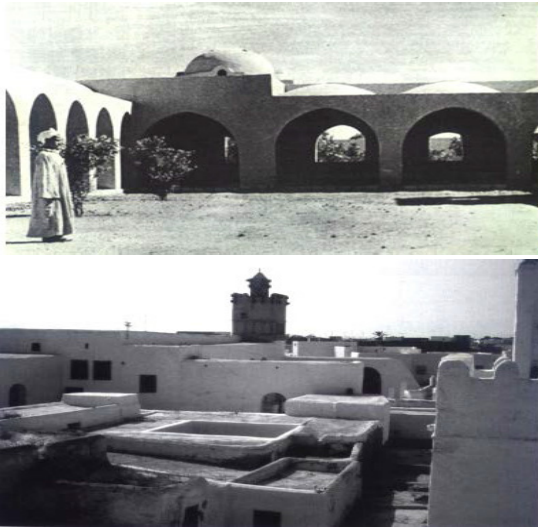
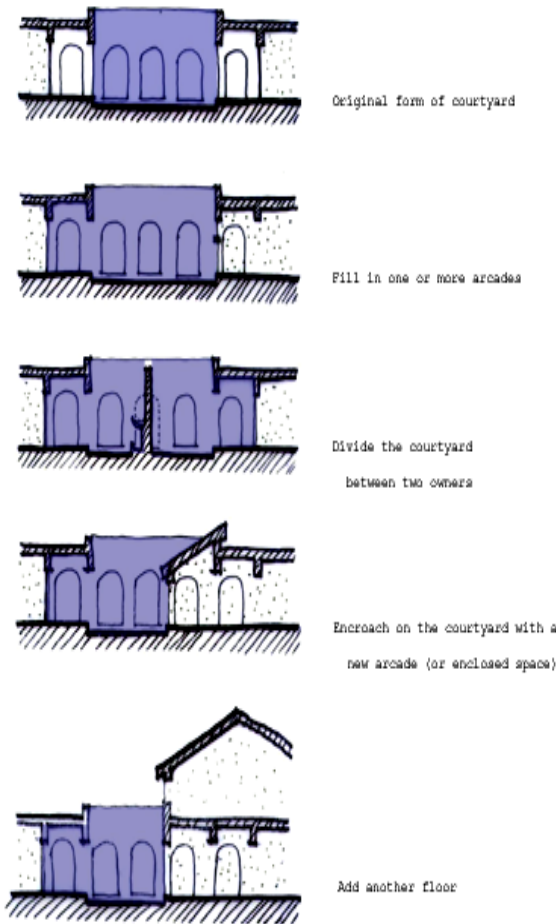


Figure 11. Heavyweight Materials in Hot and Dry climate

(8) Extension (Flexibility)



Courtyards are compromised by building expansion in several ways

Figure 12. Extensions of courtyard

Courtyards are compromised by building expansion in several ways. There are many opportunities for building expansion. However, in courtyard buildings, consider these limited opportunities for expansion:

- Fill in one or more arcades
- Divide the courtyard between two owners
- Encroach on the courtyard with a new arcade (or enclosed space)
- Add another floor

4.2 Synthesis of the courtyard as a microcosm

There are so many kinds of variety in types of courtyard houses depending on location, composition, allocation and relationship with inner space of the house. Every type of courtyard house accumulates many factors, which are social and economic circumstances, weather and geographical conditions. They are still well harmonized with life style and weather conditions in each area and basic unit of city organization. This research will explore a variety of space use and dwelling types through courtyards based on the unit projects for a year. The research revealed the following subjects: the courtyard as a space to activate a underused space in the Brick Lane project, the multi-use occupied courtyard in India, typical courtyard house of Meerut in India, and the Korean traditional Madang. To compare the structure of space, the items are arranged this following order; (see the table 2.)

1. Courtyard type
2. Storey
3. Access
4. Climate
5. Management
6. Social support

4.3 Design proposal of the social interaction based courtyard

(1) Social interaction

The fact that the old city is so closely built up has also a few counter effects on the social part of life in the city. All interactions with the rest of the people in the city are up close and the lack of large spaces for public use overflows the rest of the city. Social interaction in the streets of Meerut was very intense along with the cultural difference that experienced. It works in an almost exhausting way in ones private thoughts.



Figure 13. The aerial view of traditional Korean housing showing Gahoe-dong 11-17 streets and shaded courtyards.

The built environment of the city is actually typical of the traditional architecture of Meerut. It consists of buildings with exquisitely carved stone facades, beautiful courtyards, Zharookhas, narrow meandering streets perfectly negotiating the terrain, compact bazaars, community spaces and religious buildings, all put together harmoniously.

(2) Site conditions

The city of Meerut just northeast of Delhi, the capital of India, was the area of investigation. Meerut with a population of just over one million people even though it is not considered to be a large city in India. It is densely built and populated around its center. The old city, and spreads around loosely in to the open, the outskirts.

Meerut has moderate tropical climate that stays relatively warm throughout the year and gets most of its annual rainfall throughout the monsoon season.

Basically, the surrounding area is of mixed used buildings which is in front of street consists of scattered small shops and behind houses.



Figure 14. Site map of surrounding area

(2) Concept & analysis

There are three different types of courtyard where I researched. The 'L' type courtyard is used for the school and temple. The house is completed courtyard type. Another one is used for a school and a house, which is a little different courtyard type like Atrium type.

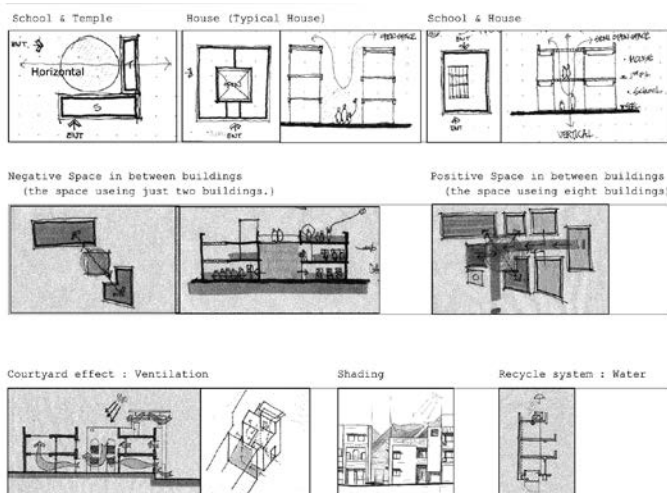


Figure 15. Types of courtyard

At first, it is just connected between the two buildings and the courtyard. Afterwards I developed that courtyard into a more positive approach. It can be used in multi-occupied space. It means that many buildings need to be shared.

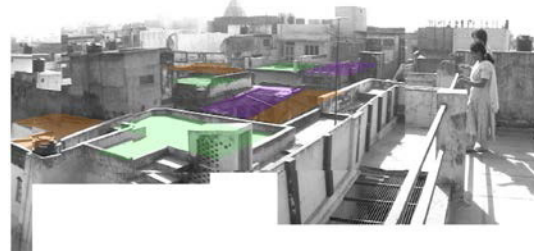
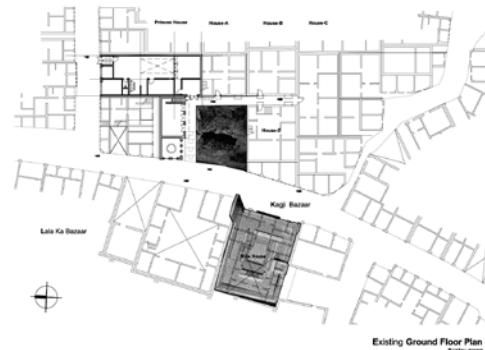


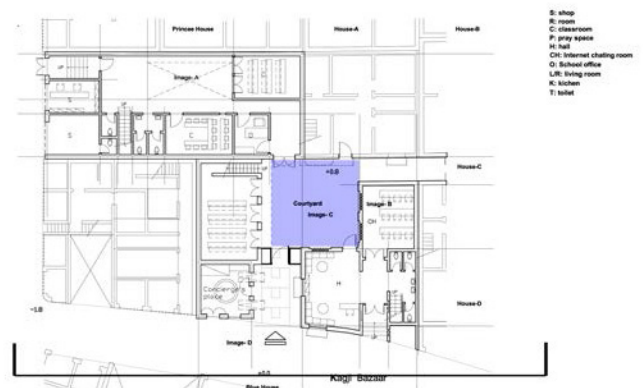
Figure 16. Proposal site and abandoned space

(3) Design proposal

My proposal is to focus on turning part of the abandoned space where is underused rooftops or courtyards into the valuable space for people.

Ground floor

A multi-use occupied courtyard is unprogrammed space, which gives the court liveliness and dynamism, an event-seeking courtyard



First floor

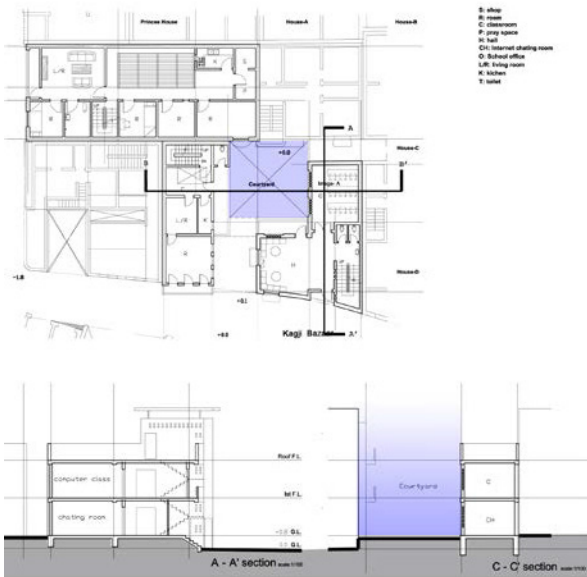


Figure 17. Proposal site and abandoned space

Roof floor

Proposal with the introduction of roof-top gardens above ground level in the Meerut dwellings a new meaning for yards is needed, leading to the improvement of the whole quality of life.

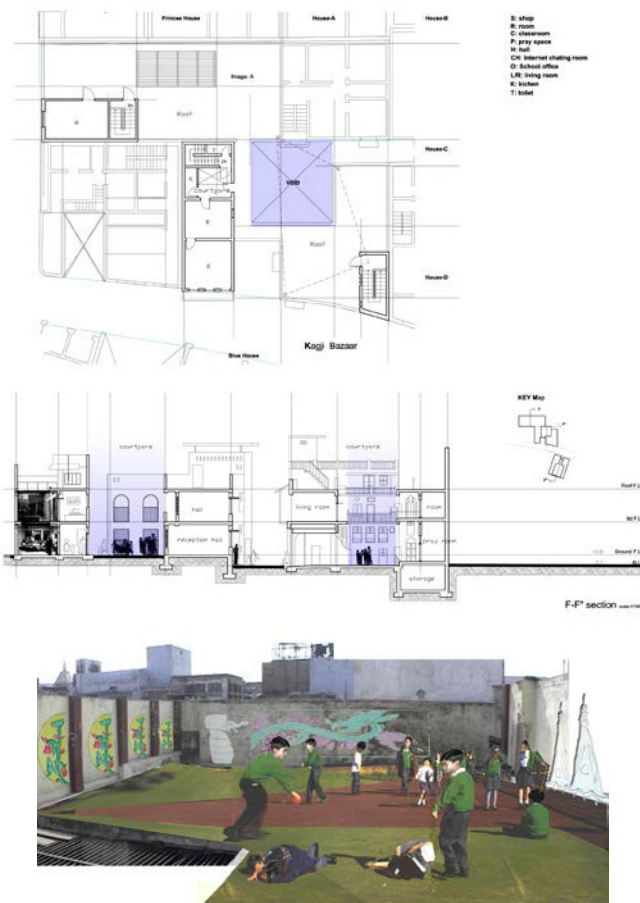


Figure 18. Empty roof space for children's playing place.

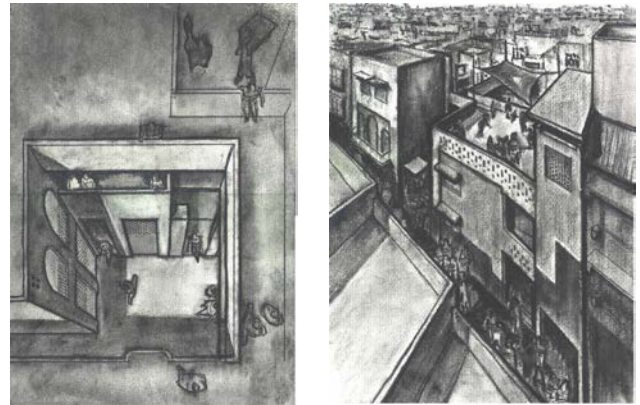


Figure 19. Proposed charcoal drawing of courtyard and aerial view

Therefore my proposal aims to provide spaces to improve their quality of life using empty roof space for children's place and using this site into a communication centre for people of Meerut.

Table 1. Proposal for the courtyard based on social interaction.


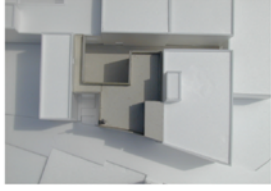
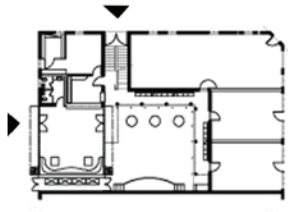

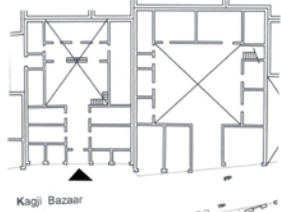



ITEMS	Communication Centre in Meerut, India
PLAN	
IMAGE	 Communication Center in Meerut, India
COURTYARD TYPE	Multi Use-Occupied entry type
STOREY	Two-Storey (GF- 1F)
ACCESS	Less-direct Courtyard
CLLMATE	Tropical-Winter: hot-dry, Summer: hot-wet
MANAGEMENT	Concierge
SOCIAL SUPPORT	Playground, Teaching place, Passway, Open cafe
DISTINCTION	-The courtyard using eight neighbouring houses -Provide communication centre with open space for inhabitants -Passway change into multi purposed space

Table2. Design Principle: Synthesis (UK/ India/ Korea)

ITEMS	Brick Lane in London, UK	Madang in Korea	Blue House in Meerut, India
PLAN			
IMAGE	 Eastenders House in Brick Lane, London (proposed)	 Madang in Korea	 Blue House in Meerut, India
COURTYARD TYPE	U-Shaped	Completed Courtyard Type □ - Shaped	Completed Courtyard Type □ - Shaped
STOREY	Five-Storey (GF-ROOF)	One-Storey (1 F)	Four-Storey (BF -3F)
ACCESS	Less-direct Courtyard entry type	Transition Courtyard entry type	Transition Courtyard entry type
CLIMATE	Temperate-mostly, warm, not very humid, wet but windy	Temperate-four season very clear, Winter: very cold, Summer: very hot-humid	Tropical- Winter: hot-dry, Summer: hot - wet
MANAGEMENT	Concierge	Family	Family
SOCIAL SUPPORT	As a proposal, talking place, playground, book club activity space with different day and program	Living space, Meeting place, playground	Passway, Parking place for motorbikes, meeting place
DISTINCTION	-Common Urban Context (five-storey Flat.) -All connection with corridor into 12 units. -Courtyard paving material: small stones	-Compact urban dwelling type -Single storey courtyard (Madang) house -Paving material: natural soil	-Two families share the courtyard and divide vertically -Space composition Mezzanine floor, Basement, Roof terrace use for sleeping, cooking, washing place

6. CONCLUSION

Throughout the year project, my approach is to understand and learn from the situations and experiences of the people we met and to develop an architecture that responds to and evolves with their everyday lives and ambitions for the future. This thesis is an extended reflection on the one-year of study in both research and design project, an exploration of the right way to approach architecture.

The conclusion of this study can be summarized as follows:

Firstly, the courtyard can be a microcosm of everyday life. Courtyards are special places that are outside yet almost inside, open to the sky, - a microcosm which gives relief to the inner rooms, gives the inhabitants a sense of ease and calm, and the feeling that they have their own piece of sky to use and protect them.

Secondly, the salient characteristics and advantages of the courtyard are to :

- Offer essential privacy and protection in a compact urban situation

- a cut off from the noise of outside
- Natural lighting
- Extension

Thirdly, Life in the courtyard provides opportunities for social interaction. For example, the Madang is an open space at the center of the Korean traditional house, a hard soil ground, and an empty space. But the emptiness is not empty because it is the first step to fill in substance fully. It is not only functional space but also flexible space for use. The Madang is used as a passage, a workplace, a playground, a banquet hall, and for almost any purpose. It is not only a space but also a place for activity.

Fourthly, a multi-use occupied courtyard carries the 'public' and 'private' life in the courtyard. The research has kept the key issue, 'The experiment to activate an under-used or abandoned space in the community' and it was related to design works based on the events in everyday practice. The courtyard was examined as a main space where there is a centre of house and community. Nowadays, we can find unused or abandoned spaces everywhere in the city whether we realize its existence or not.

I believe it is important to rethink how we can understand the

nature of the spaces and how we can activate the spaces. This research is only the first step of the experiments in everyday practice.

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