INTERVENTIONS INTO OLD RESIDENTIAL QUARTERS

The Case of Shahjahanabad

by

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ABSTRACT

This thesis develops design guidelines for interventions into residential quarters of the old core cities in the Third World. Their purpose is to provide a suitable framework for developing residential designs maintaining the characteristics of the traditional environment without restricting the aesthetic commitments of the designer.

A clearly defined area within Shahjahanabad, the walled city of Delhi, was studied, identifying change currently taking place in their physical, social and economic aspects. Three cases are described to illustrate the various components of the walled city as a whole. Two are traditional areas; the third is a new development to which they are compared.

On the basis of these studies, which identified the formal elements both within the urban fabric and within some typical houses, the set of design guidelines was then developed. The prototypical design then tests out some of those guidelines.

The thesis concludes that when intervening in a traditional environment, the designs must incorporate the functional demands of a changing society, adapt to the occupants' needs, and react to social pressures, if social, economic, and functional obsolescence is to be avoided.

The guidelines developed are designed for use both by practitioners seeking to improve the traditional environment and by planners and government agencies contemplating intervention in traditional quarters of old cities.

Thesis Supervisor: William L. Porter
Title: Professor of Architecture & Planning

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AKHTAR BADSHAH
MAY 1983

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PREFACE

PURPOSE OF THIS STUDY

This study is intended to persuade the reader of the need for design guidelines when planning for developments (interventions) in the historic quarters of cities in the Third World. The design guidelines developed in this study are primarily for residential interventions, and are based on an analysis of the existing situation in a particular urban context, that of Shahjananabad, the walled city of Delhi. They are intended to provide a set of rules for developing a particular class of design solutions, and not one single solution applicable in every case. Their purpose is to provide architects and urban designers with a suitable framework for developing residential designs without restricting their own philosophical commitments or their design solutions, though underlying them, of course, are my own commitments to the residents and my own design sensibilities.

SCOPE

To narrow the scope of work to manageable limits, the study has been restricted to a well-defined area within a single city.

The study will identify the change taking place in that particular community in its (1) physical, (2) social, and (3) economic aspects.

Change in physcial elements are of greatest importance, and are based on my own observations and evaluation. Social and economic changes fall outside my area of competence and data have therefore been drawn from secondary sources.

PROCEDURE

The study (1) records both physical and non-physical change within the society studied, (2) compares the three case studies, (3) analyzes the physical elements and their usage, (4) designs guidelines based on the first three steps, and (5) develops a prototypical site design based on those guidelines.

METHODOLOGY

Primary data were collected through informal on-site interviews. The interviews were then compared to data available from other sources; i.e., books, articles, and government reports for their accuracy.

CRITERIA FOR SELECTION

Shahjahanabad has been selected because the authorities have undertaken urban renewal projects such as new developments that have left an impression on the urban fabric, because an appreciable amount of both legal and illegal building activity is going on and because the walled city presents a typical case of a deteriorating traditional quarter.

Three case studies have been selected, two of which are traditional neighborhoods: Mohalla Pahari Imli, Kucha Mir Ashiq, and Dojana house. The two mohallas have been selected for the different spatial configurations they present; their locations with respect to the Jama Masjid, the Chauri Bazaar and each other; for their mixed Muslim and Hindu population; and for my ability to gain access into the house.

Dojana House has been selected as an example of a new housing development to provide some basis for comparison with the two older areas in land use, efficiencies, and deficiencies.

ROLE OF DESIGN GUIDELINES

Design guidelines are a recent innovation in design methodologies employed by architects, urban designers and planners. Their purpose, according to Oscar Newman,[1] is to systematize program formulation and statement, although another important purpose, especially when dealing with areas in older quarters, is to help identify and understand the existing urban and social order. Design guidelines are also statements about the organization, positioning and hierarchy of activity areas and their linkages with one another. They are intended to provide an indication of the generic rather than the specific physical form appropriate to various activities.

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1. Newman, Oscar. Design Guidelines for Creation of Defensible Space, p. 7.

INTRODUCTION

In the latter part of the sixteenth and in the seventeenth centuries, the Mughal emperors of India were engaged in a rather remarkable burst of city building. This included the foundation of two completely new cities, Fatehpur-Sikri and Delhi, as well as a variety of major developments in their pre-existing capitals, provincial centres and summer retreats.

Today of the new cities only the monuments and the trace of its walls remain in Fatehpur-Sikri, which was abandoned shortly after its foundation. Delhi, on the other hand, is very much alive today and evolved as a modern metropolis, - a city of the world - but the remains of the Mughal constructions still constitute the major landmarks.

Delhi today is the third largest city of India, surpassed in size only by Calcutta and Bombay. New Delhi is the capital of the Indian union and lies to the south of the walled city. The city is situated in north central India and stands on the west (right) bank of the Yammuna, a tributary of the Ganges river.

The city is unique in many ways, primarily due to its blend of old and new. Physically, it combines an old, densely developed walled city dominated by a highly-convoluted street pattern and, only a few hundred feet away, a relatively new city with long, straight avenues and geometrically arranged Moghul gardens.

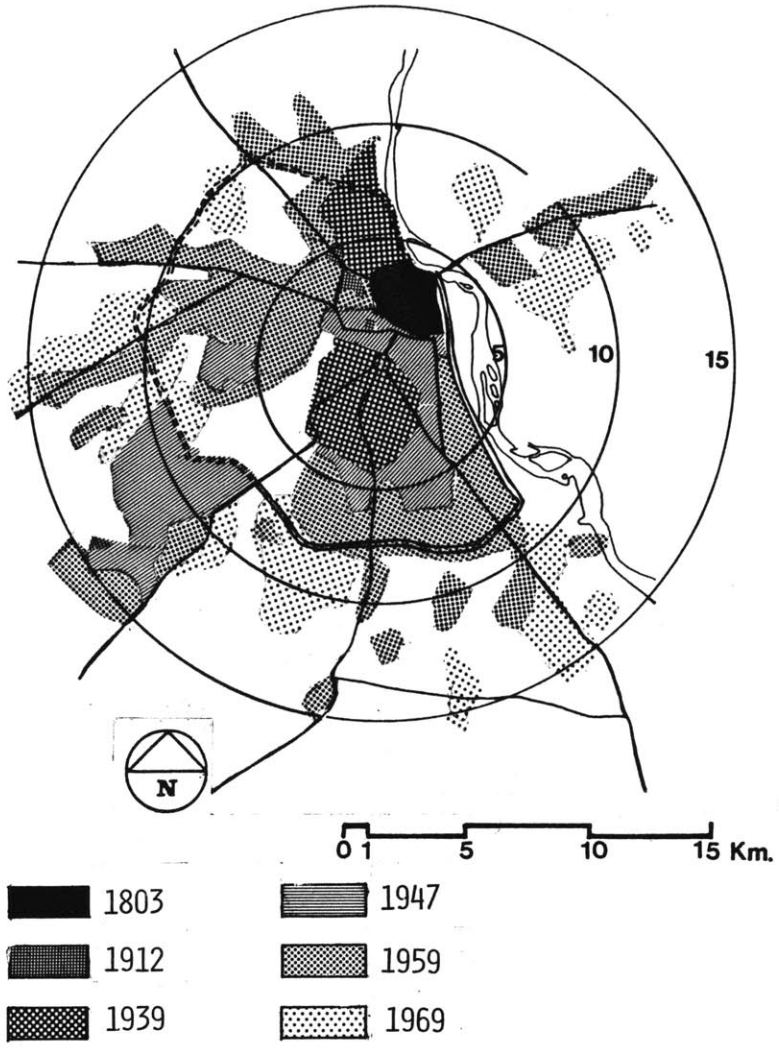
DELHI, INDIA.
LOCATION:
28°35'N Latitude
77°08'E Longitude

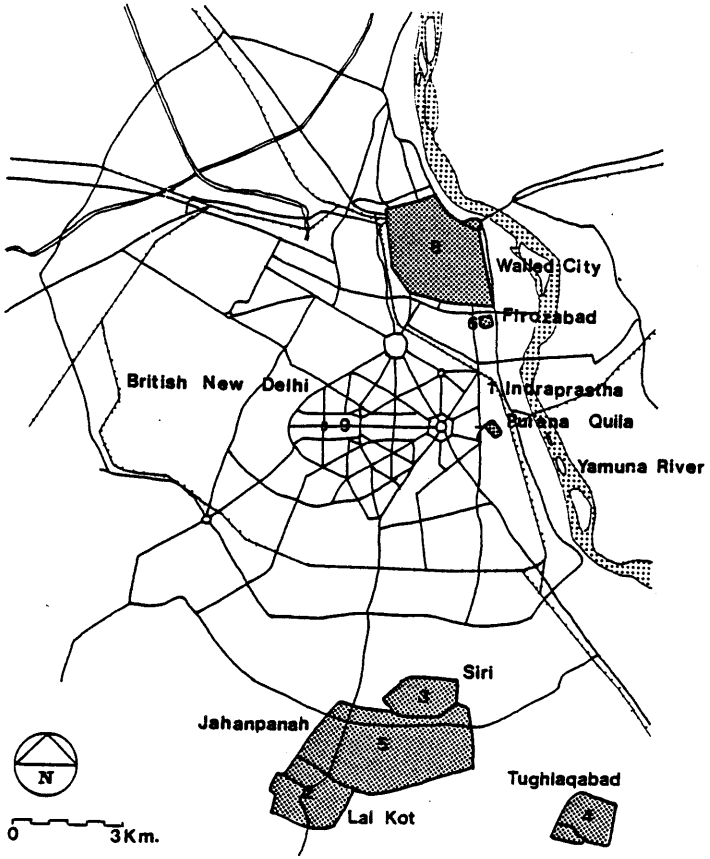
AREA:
Union Territory of Delhi - 573sq miles.
Old Delhi - 93sq miles.
Delhi Cantt. - 17sq miles.
New Delhi - 16sq miles.
Walled City - 02sq miles. (1,240 acres)

POPULATION:
Union Territory - 4,040,000.
Old Delhi - 3,280,000.
New Delhi - 0,290,000.
Walled City - 0,413,000. (overall density @ 283 ppa)

CLIMATE:
Altitude - 290m/700ft above sea level.
Summer - 97°F Max. Av.
77°F Min. Av.
Winter - 70°F Max. Av.
52°F Min. Av.
Rainfall - 25 inches, annual av.

Growth of Urban Delhi





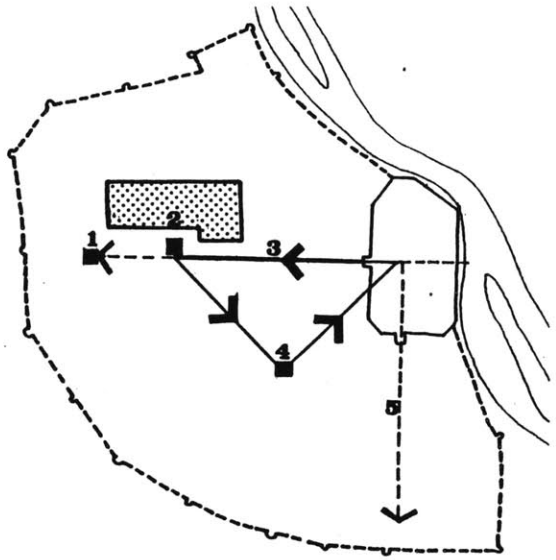
Evolution of Delhi

HISTORY

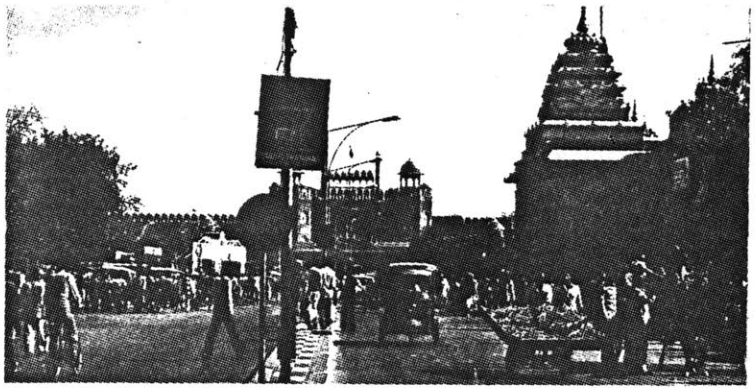
Historically, Delhi is not so much one city as the site of a succession of cities. Because of its strategic location controlling movements between the northwest frontier areas of India and the fertile valley of the river Yamuna, Delhi has been the seat of numerous dynasties controlling northern India, dating back to 1050 BC, when it was known as Indraprastha, under the Pandavas. It is in fact several cities, all overlapping and intermingling, of which only two constitute the Delhi of today: Old Delhi, which grew around the Moghul walled city of Shahjahanabad, and New Delhi, the capital city designed by Sir Edwin Lutyens.

In 1638, Shah Jahan, the greatest of Mughal builders, decided to shift his capital from Agra and construct an entirely new capital at Delhi. This remarkable city, which he named Shahjahanabad, was located on the west bank of the Yamuna, partially on top of but slightly north of Indraprashta, the site of the original Hindu settlement.

The twin foci of Shahjahanabad are Lal Quila (the fort and palace) and the Jama Masjid (Friday Mosque). The formal geometry of the city, relatively unchanged today, was aligned to six important architectural and planning elements: (1) Fatehpuri Masjid, the mosque erected in 1650 by the Begum of Shah Jahan one mile due



1. Fatehpuri Masjid 2. Begum Bagh 3. Chandni Chowk 4. Jama Masjid 5. Faiz Bazar.
The concept of Shahjahanabad was based on tying a few interconnected focal points and lines, and the city grew within this confinement.

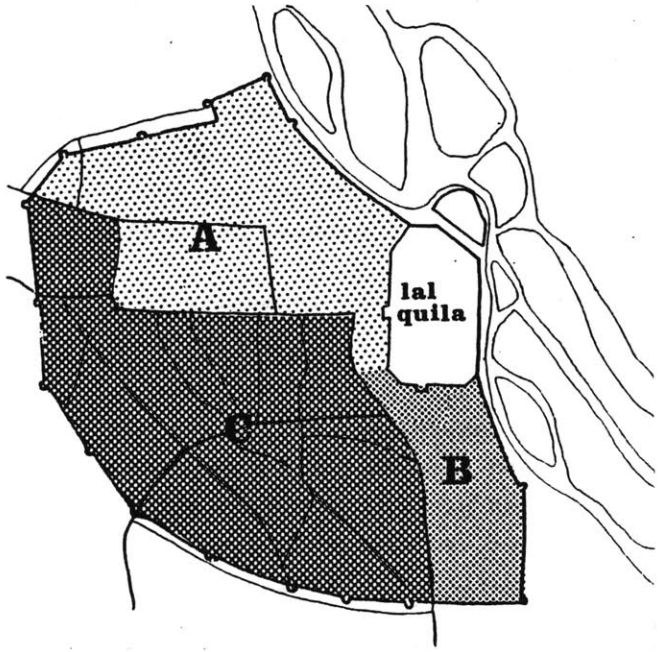


view of Chandni Chowk

west of the palace's Lahore Gate; (2) Begum Bagh, the private gardens of the Begum, encompassing some 54 acres, to the north of the principal pathway; (3) Chandni Chowk, the vista and the principal pathway between Lal Quila and Fatehpuri Masjid, abode of the bullion merchants and the main commercial street of the city; (4) Jama Masjid, the Friday mosque, built by Shah Jahan between 1644 and 1658; (5) Faiz Bazaar, the principal north-south route at right angles to Chandni Chowk and a secondary commercial street; and (6) Kasi Haus, the main water reservoir, located at the junction of the four important bazaars.[1]

The reign of Aurangzeb (1659-1707) saw the city at its zenith, with a population of about 200,000. The suburbs of Subzimandi, Paharganj, and Sadar Bazaar had been well established as service centers. By the early eighteenth century, the city had three distinguishable sectors, excluding Lal Quila: (A) the area north of Chandni Chowk with its gardens, villas, and palaces of the aristocracy; (B) Dariyaganj sector, east of Faiz Bazaar, where the European merchants, clergy, and native Christians had settled early; and (C) the quadrant south of Chandni Chowk, where the bulk of the inhabitants resided and worked.

Until 1947, when India became an independent nation, Delhi remained under English control, except for a brief mutiny in 1857 when the Indian Army recaptured Delhi for four months before being defeated. Eighty acres of the



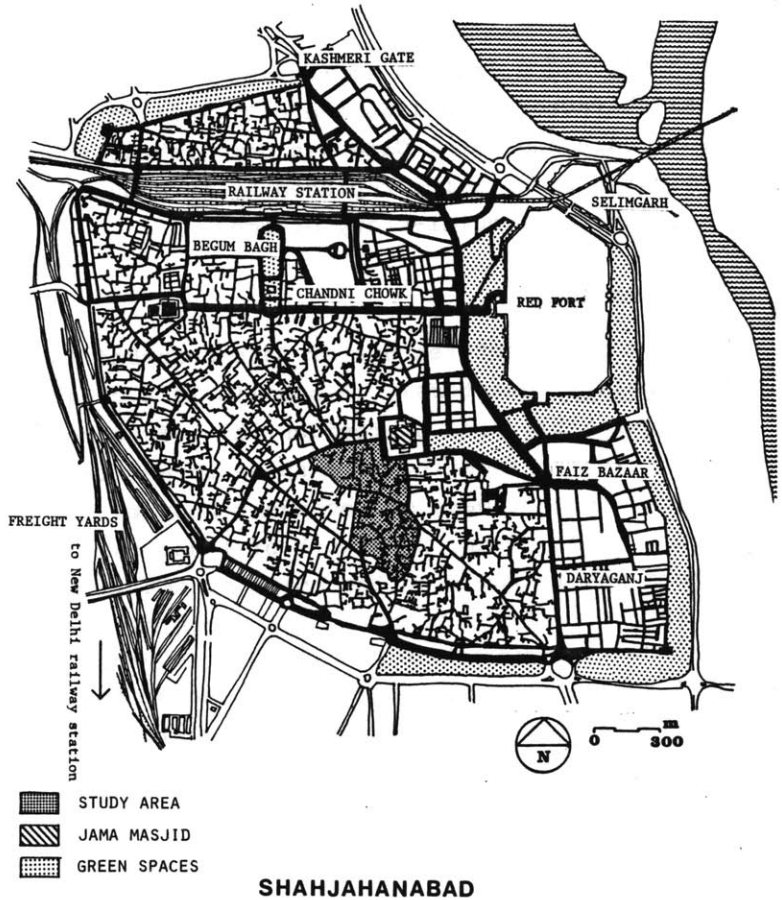
city in the shadow of Lal Quila were demolished at that time to remove a potential threat to the English community esconced behind the palace walls. The British in the nineteenth century embarked upon a massive development program. They built major vehicular roads cutting through the city. The central canal of Chandni Chowk was demolished and a wide boulevard built in its place. A period of rapid growth and economic prosperity began.

In 1867, the railway line from Calcutta entered the city from the east and terminated north of Begum Bagh; a few years later a connection to Bombay was pushed out through Kabul Gate. These intrusions of the Industrial Revolution caused further destruction in the city which has had a lasting impression on its physical character. In 1950 the city wall between Ajmeri Gate and Delhi Gate was demolished, the physical barrier being replaced by an economic one--a strip of multi-story offices.

URBAN FEATURES

The most important feature of Shahjahanabad is its mohallas (quarters). A mohalla is a clearly distinguishable area of residential and commercial activity, fronting on a spine street that connects to a primary or secondary bazaar street. Most often, a network of lanes and markets penetrates from the spine street into the interior of the mohalla. Although many are blind alleys, some lead out through gateways or small square chowks. Thus, the spine of the mohalla is spatially well-defined, while the perimeter is often more nebulous.

Within the mohalla are found katras, kuchas, galis, and chattas. A katra is a complex of buildings, enclosed by high walls and entered through a gate. Typically, structures have commercial uses on the ground floor with residences on the upper floors. Kuchas are mohallas with one linear spinal street. Galis are residential lanes which branch out from spinal streets. When an upper story of a residential structure crosses over a street or a lane, it is called a chatta. The chatta is unique in its use of air-rights, and it also acts as a cooling device.



SHAHJAHANABAD

Another important feature typical of the indigenous urban setting is the chowk. This is often no more than a widening of the street as it turns a corner or terminates, or at the junction of two or more streets. A mosque or temple frequently occurs in the vicinity of a chowk. Unlike a mohalla, the chowk has definite boundaries. Chowks belong (by usage) to the inhabitants of a group of mohallas. Though they occur as unplanned expansions in a confined environment, the fact that there is no encroachment indicates the great value that the community attaches to them. Around a chowk there is generally a change in land use, from residential to commercial and service activities--a teashop, or a general merchandise shop.

Thus the chowk becomes a community focal point and a place where the inhabitants of neighboring mohallas meet.

Each mohalla generally contains its own mosque or temple, and some of the larger ones also have their own schools and other public facilities. Markets are generally found in the form of a bazaar within the mohalla, occurring around a chowk. Typically, mohallas also have havelis, which are very large structures, the former palatial residences of the nobility and the wealthy classes.

MAIN MOVEMENT SYSTEM

If one disregards the new access routes cut during the Colonial period by the British, the pattern in the walled city displays a fourfold hierarchy:

1) The two primary bazaar streets, the Chandni Chowk and the Chauri Bazaar run roughly east-west and link the Red Fort with the Lahori and Ajmeri Gates. The buildings along these two major commercial streets are higher and more ornate than one finds elsewhere in the walled city.

2) The secondary bazaar streets connect the Chauri Bazaar to the Chandni Chowk and the city gates to the south. The smaller of these streets have production areas behind the storefronts, in interior courtyards, and in tertiary lanes. These streets are closed to all but two-wheel vehicular traffic.

3) The many tertiary streets form the main spine of the mohalla. They are narrow, primarily pedestrian pathways and closed even to cycle rickshaws. These closed circulatory systems may have their own chowks. The buildings lining them often have shops and workshops on the ground floor and apartments above.

4) Residential lanes (galis) usually are blind alleys or end in small chowks. These streets at times tend to be very narrow and are completely pedestrianized.

EXISTING LAND USES

The area under residential use measures 428.4 acres, which is 34.6% of the total area. Commercial uses occupy 131.8 acres, or 10.7%, while industrial uses occupy 29 acres, or 2.4%. The public and semi-public facilities (dispensaries, police and fire stations, primary, middle, and higher secondary schools, rest houses, night shelters, and public toilets) occupy an area of 185.1 acres, or 14.9% of the total area. Parks and playgrounds cover a total of 231.6 acres, or 18.7% of the area. Of this, Gandhi Grounds, in front of the railway station, and the Jama Masjid account for about two-thirds. Roads and streets occupy an area of 193.2 acres, or 15.6% of the total area.

The land use and occupational patterns of the walled city are thoroughly mixed, and the land intensively used. Houses are low-rise and very densely packed together, usually two to three stories high, occasionally up to four. Today, most of the houses are on rental; large houses have been subdivided and may contain two or more families. Open space is provided by internal courtyards, and typically constitutes 25% of a neighborhood. The net density is in the range of 600 to 1,200 persons per acre.

TABLE SHOWING THE EXISTING (1971) AND PROPOSED (1981) LAND USES IN THE WALLED CITY (EXCLUDING ZONE C-1)

SI. NO.	LAND USE	1971 AREA (acres)	1971 PERCENTAGE	1981 AREA (acres)	1981 PERCENTAGE
1		2	3	4	5
1.	RESIDENTIAL	428.395	34.40	434.70	36.30
2.	COMMERCIAL	131.790	10.70	101.72	8.50
3.	INDUSTRIAL	29.050	2.40	..	..
4.	PUBLIC & SEMI-PUBLIC FACILITIES	185.100	14.90	244.47	20.40
5.	PARKS & PLAYGROUNDS	231.659	18.70	240.92	20.10
6.	GOVERNMENT USES	35.810	2.90	2.20	0.20
7.	VACANT LAND	2.651	0.20	..	..
8.	ROADS & STREETS	193.212	15.60	173.68	14.50
	TOTAL .	1,237.667	100.00	1,197.69*	100.00

Note. -* This area does not include monuments, religious buildings and area under Master Plan Roads and amenities such as Hospitals and Large Commercial areas which serve the larger area than that of the Zone.

Source: Zonal Development Plans, Town & Country Planning Organization.

POPULATION BY ZONE, AREA AND DENSITY IN THE WALLED CITY, 1971

SI. NO.	ZONE	POPULATION 1971	TOTAL AREA (acres)	OVERALL DENSITY (ppa)	G.R.A. PROPOSED Z.D.P. (acres)	G.R.D. (ppa)	MASTER PLAN RECOMMENDATION FOR 1981 (ppa)
	1	2	3	4	5	6	7
1.A-13	Kucha Pati Ram	46,561 (2)	63.15 (11)	740 (1)	57.01	818 (1)	250
2.A-14	Suiwalaan	34,212 (7)	52.00 (13)	660 (2)	50.12	685 (2)	250
3.A-15	Matia Mahal	45,374 (3)	98.16 (5)	460 (7)	82.77	550 (7)	250
4.A-16	Lal Darwaza	42,497 (5)	70.05 (8)	605 (4)	63.42	675 (3)	250
5.A-17	Farash Khana	38,804 (6)	63.70 (10)	610 (3)	57.90	670 (4)	250
6.A-18	Naya Bans	18,533 (10)	40.00 (14)	465 (6)	28.99	640 (6)	250
7.A-19	Phatak Habash Khan	22,201 (9)	65.00 (9)	342 (9)	(Commercial Zone)		
8.A-20	Darya Ganj	12,378 (11)	162.25 (3)	77 (13)	74.25	165 (12)	200
9.A-21	Jama Masjid	Monument and District Park, no population					
10.A-22	Ballimaran	48,103 (1)	96.50 (6)	500 (5)	89.78	540 (8)	250
11.A-23	Maliwara Dariba	44,806 (4)	100.00 (4)	448 (8)	69.30	650 (5)	250
12.A-24	Katra Neel	10,558 (12)	88.73 (7)	120 (11)	23.89	440 (10)	250
13.A-25	Lajpat Rai Market	9,513 (13)	56.00 (12)	170 (10)	19.20	485 (9)	250
14.A-26	Red Fort & Raj Ghat	5,378 (14)	228.50 (2)	30 (14)	Monument & District Park		
15.C-1	Kashmeri Gate	30,098	311.33	97	90.65	330	250
	TOTAL	4,09,016	1,475.37	280	707.75	580	250

Note: Figures in the paranthesis indicate ranking

Source: Census of India, 1971, Delhi District Census Handbook
Zonal Development Plans, Town & Country Planning Organization
Master Plan for Delhi, Delhi Development Authority

G.R.A Gross Res. Area

G.R.D. Gross Res. Den.

SOCIAL ORGANIZATION

The walled city was a close-knit community, often homogeneous and identified by common occupation, lineage, religion, or geographic origin of the people. The mohalla displayed a well-defined internal social hierarchy. They were important staging centers for migrants from rural or other urban areas. In contrast to mosques, temples, and dharamshalas (rest houses) which commonly provide overnight lodging to travelers, the mohalla, gali, and katra provided a refuge where migrants could take time to adjust to the vicissitudes of urban life before being absorbed into the city's mainstream.

The impact of the large scale relocation of refugees which occurred during partition has been devastating to these institutions. Only a few mohallas scattered over a wide area retain their original function, and instead of being assets in the present urban scene, they are viewed as liabilities--overcrowded, misused, and controlled by absentee landlords or speculators.

ECONOMY

The walled city is the central business district of metropolitan Delhi, housing a number of wholesale trades, and is a major distributive center of trade for northern India. In 1961 there were 22,072 business and commercial units. In 1972 the number rose to 54,670, an increase of 147%. These shops and commercial establishments provided employment to 62,035 persons in 1961, and to 130,640 in 1972, an increase of 111%.

In addition to business and commerce, the other important element of Shahjahanabad's economy is

GROWTH OF EMPLOYMENT IN BUSINESS AND COMMERCE IN THE WALLED CITY, 1961-1972

SI. NO.	BUSINESS TYPES	URBAN DELHI		% GROWTH OVER 1961	WALLED CITY		% GROWTH OVER 1961
		1961	1972		1961	1972	
1		2	3	4	5	6	7
1.	SHOPS	67,123	1,72,501	157.00	22,474 (33.48)	41,984 (24.34)	86.81
2.	COMMERCIAL ESTABLISHMENTS	64,251	1,93,054	200.45	38,581 (60.05)	85,736 (44.41)	122.22
3.	RESTAURANTS	6,146	15,340	149.59	980 (15.95)	2,920 (19.16)	197.95
	TOTAL .	1,37,520	3,80,895	176.97	62,035 (45.11)	1,30,640 (34.30)	110.59

Note. - Figures in the brackets indicate % to the total in each business type for years 1961 and 1972.

Source: Chief Inspector of Shops, Delhi Administration.

manufacturing. According to the survey made by the Delhi Directorate of Industries in 1969,[2] there were about 6,000 industrial units, of which 1,600 were noxious industries.

According to the 1971 census, the walled city had about 120,000 workers out of a population of 409,000, a participation rate of 29.27%. This is slightly lower than the rate for metropolitan Delhi, 30.63%. Although the difference is small, it does suggest that a large number of the population either are unemployed or work outside the walled city.

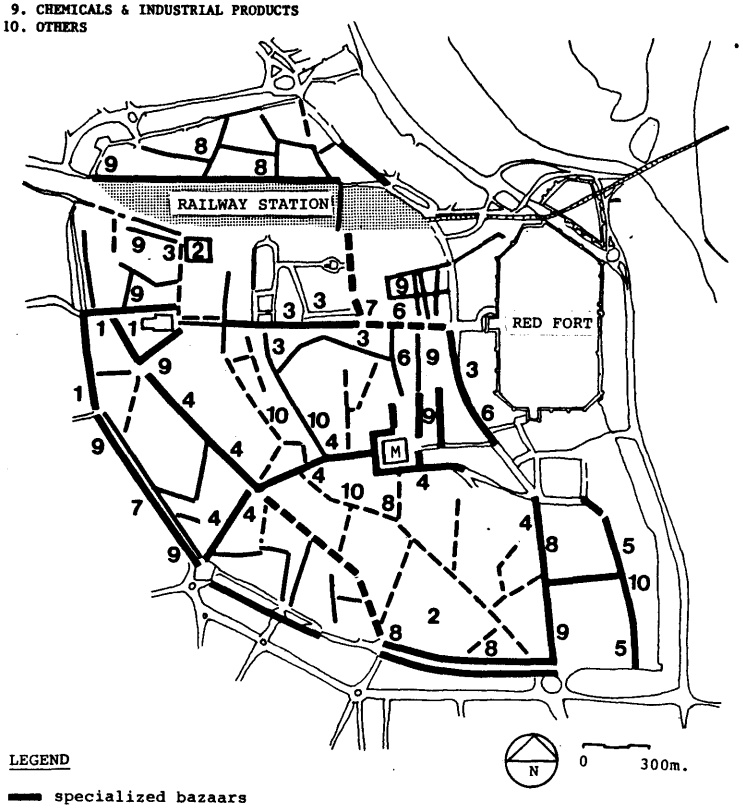
CITY TRANSFORMATIONS

The walled city has been the site of various urban renewal projects due to deterioration problems and pressure for commercial activity.

The period of dramatic transformation started in the nineteenth century, when the British built major vehicular roads cutting through the city, and opened new railway lines. Wholesale trade and commercial activities received a tremendous boost and grew rapidly within the already existing katra infrastructure. The opening of the Interstate Bus Terminus north of

THE CURRENT BAZAARS OF SHAHJAHANABAD:

1. WHOLESALE FOOD
2. RETAIL FOOD, MEATS & PRODUCE
3. CLOTH & CLOTHING ACCESSORIES
4. BOOKS, WHOLESALE PAPER & PRINTING
5. LEATHERWORKS & SHOES
6. JEWELRY
7. ENTERAINMENT
8. AUTO & TRUCK PARTS, REPAIRS
9. CHEMICALS & INDUSTRIAL PRODUCTS
10. OTHERS



LEGEND

specialized bazaars

mixed bazaars

Kashmeri Gate gave a further impetus to wholesale trading. Poor workers and their families were attracted to the area. Mounting densities heavily taxed the existing infrastructure, turning many areas into slums.

These factors, along with the massive relocation of people following Independence in 1947, made New Delhi's relatively spacious environment more attractive. At this time New Delhi was also the focus of urban development programs based on British "garden city" ideas. As a result, the walled city's former elite relocated en masse and their havelis (mansions) now serve as warehouses.

The increase in commercial activities has led to large scale conversion of residential katras. Most of these residential areas are under rent control and the owners have no incentive to repair their properties. Ninety percent of the occupants are tenants. Due to the convenience of tenement space, illegal prices are very high. Businessmen are prepared to give gross compensation for the transfer of freehold interest or rental rights far exceeding the estimated value of the property. This has led to a gradual displacement of the residents. However, complete transformation from residential to business has not occurred anywhere, probably because some businessmen and their assistants still prefer to live near their place of work.

URBAN RENEWAL

The 1962 Master Plan[3] called for a three-phase approach to urban renewal in Shahjahanabad. The entire walled city was divided into three major categories based on the degree of deterioration and obsolence:

1) Conservation Areas: Residential areas which simply need protection from the spread of slums. (408 acres, population 136,700.)
2) Rehabilitation Areas: Partially blighted areas where buildings have detriorated due to neglect. (443 acres, population 167,000.)
3) Redevelopment Areas: Dilapidated and deteriorated areas in which the proportion of physically dilapidated structures ranges from 75% to 95%. Nearly one-fourth of the walled city was classified in this category. (284 acres, population 116,000.)

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1. Rory Fonseca. "The Walled City of Old Delhi." Ekistics 182, p. 73.

2. Directorate of Industries, Delhi Administration. Census of Industrial Units in the Union Territory of Delhi, 1969.

3. Delhi Development Authority. Draft Master Plan for Delhi, 1962.

PART PLAN, LAL DARWAZA (shahjahanabad)

THE STUDY AREA

The portion of the area selected is a triangular area south of Jama Masjid and bounded by the Chauri Bazaar on the north, Bazaar Matia Mahal on the east, and Bazaar Sitaram on the west. This area is identified as Zone A-16 or Lal Darwaza in the Master Plan of Delhi, and is considered still to retain some characteristics of the pre-independence era, where one can find families who have lived in the same place for generations.

Lal Darwaza covers an area of 70.05 acres. Its population in 1971 was approximately 42,497 with an overall density of 605 persons per acre and a gross residential density of 675 ppa. The total population of the walled city was 4,09.016 for an overall density of 280 ppa or gross residential density of 530 ppa. The area is predominantly residential, but the structures are in poor condition. Furthermore, many of the apparently residential structures in reality are given over to non-residential uses such as household industries and storage godowns. This adversely affects living conditions in the locality. Between 60% and 70% of the houses have only two stories. Because many of them are being turned into commercial structures while, at the same time, the population is rising, the area might eventually become so unsuitable for housing that it will be turned

over entirely to non-residential uses.

LAND USE ANALYSIS OF LAL DARWAZA AREA

No.	Land Use		Area in Acres	% Age
1	Residential		46.86	66.59
2	Commercial/residential		7.95	11.38
3	Industrial/residential		4.35	6.28
4	Recreational and Open spaces		1.08	1.63
5	Public/Semi-public		3.82	5.52
	a) Institutional	0.42		
	b) Schools	0.92		
	c) Monuments and Religious Buildings	1.78		
	d) Grave Yard	0.72		
6	Major streets and lanes		5.83	8.37
7	Dairies		0.16	0.23
	TOTAL		70.05	100.00

SOURCE: Draft Report on Lal Darwaza Redevelopment Plan (Zone A-16), Delhi Development Authority.

EXISTING PHYSICAL CONDITION OF THE STRUCTURES OF LAL DARWAZA AREA

No.	Physical Condition	Area in acres	% Age
1	Good condition structures	0.63	1.23
2	Fair condition structures	4.14	8.02
3	Poor condition structures	46.77	90.75
4	Demolished building and vacant lands	1.08	1.63
5	Major streets and lanes	5.83	8.37
	TOTAL	70.05	100.00

SOURCE: Draft Report on Lal Darwaza Area Redevelopment Plan (Zone A-16), Delhi Development Authority.

PHYSICAL CHARACTERISTICS

The area covered by this study is 18.76 acres or 26.70% of Zone A-16, which is 70.05 acres in total. The study area is bounded on the north by Chauri Bazaar, on the east by Bazaar Matia Mahal, and on the south, connecting these two streets, by Gali Churiwalan.

There is little similarity in the land use pattern between the study area and Zone A-16 as a whole. What a comparison does show is that the residential use of the area is quite low compared to Zone A-16 generally, suggesting that

EXISTING LAND USE ANALYSIS OF THE AREA

Major Land Uses		Area in Acres	% Age
Residential		8.70	46.40
Commercial		6.22	33.15
Industrial		0.96	5.12
Public/Semi-public		1.20	6.40
i) Religious Institution	0.67		
ii) Schools	0.51		
iii) Others	0.02		
Recreational and Open spaces		0.07	0.40
Major streets and lanes		1.61	5.53
TOTAL		18.76	100.00

SOURCE: Amrish, Khan. Inner City and the Community: Shahjahanabad. p. 57.

many residences have been converted to commercial purposes. However, the study area is predominantly residential in character, but with concentrated pockets of commercial use.

The percentage of land for community recreational open space in the area is low but when the open spaces in the form of internal courts is added, the proportion is increased.

According to the DDA Draft Report on the Lal Darwaza area, 90.75% of its structures are in poor condition and 0.32% in fair condition, and

COMPARATIVE LAND USE OF THE AREA AND ZONE A-16

Land Uses	% Age to Total Area	
	Zone A-16	The Study Area
Residential	66.59	46.40
Commercial	11.38	33.15
Industrial	6.28	0.96
Public/Semi-public	5.52	6.40
Recreational and open spaces	1.63	0.40
Major streets and lanes	8.37	8.53
TOTAL	100.00	100.00

SOURCE: Draft Report on Lal Darwaza Area Redevelopment Plan (Zone A-16), Delhi Development Authority.

the remaining in good condition. Conditions in the sub-area under discussion is about the same. Most of its structures are in poor condition, and living in this area is dangerous.

Portion of the house has collapsed yet people continue living in it.

The area shows only 1.01% of structures in good condition and these are accounted for by new structures built within the last decade, suggesting that at least a few people are well enough off to reconstruct their buildings or renovate them.

STRUCTURAL CONDITION

Condition	Area in Acres	% Age
Structures in good condition	0.34	1.01
Structures in bad condition	0.23	1.23
Structures in poor condition	18.19	96.96
TOTAL	18.76	100.00

SOURCE: Amrish, Khan. Inner City and the Community: Shahjahanabad. P. 59.

The occupancy rate, or number of persons/room, is higher in the case of Muslim families. About 23% of them live more than 7 persons/room. Therefore, in the area with generally severe conditions, the Muslims are particularly badly off. Large numbers of families are living in a single room. The proportion of medium (6-9 persons/family) and large families (10 and above persons/family) in the area is much higher than small-sized families (up to 5 persons/family).

SOCIAL CHARACTERISTICS

This area is inhabited mainly by Muslims and Hindus, who constitute 66.45% and 33.54% of the population, respectively. The Muslim portion is higher in part because the average Muslim family size (8.27 persons/family) is larger than the average Hindu family size (7.75 persons/family).

The majority of the Muslims are Sunnis; the Hindus, though, show a greater range of castes and sects. The Muslims have a common mother tongue in Urdu; the Hindus have no common mother tongue. Though most speak Hindi, they show variations in the way they speak the language, and their mother tongues differ. Thus, though the Muslim population is fairly homogeneous, the Hindu population is not.

According to the sample survey carried out in 1980,[1] the families residing in this area have not been there long enough to have a close attachment to the place. But, even among the comparative newcomers in this, one would expect a greater attachment from the Muslim than the Hindu families in the area because the many Muslim religious institutions there make it easy to hand down tradition to successive generations. This makes the Muslim community more cohesive than the Hindu.

Muslim families in the area, about 28.45%,[2] originate in Delhi. Most of the Muslims came from towns within a 100-150 km radius of Delhi, though some, especially among the oldest resi-

dent families, originated from areas that are now part of Pakistan (Baluchistan, Karachi, Lahore).

The Hindu families show great diversity in place of origin, coming from places like Rajasthan, Bihar, Uttar Pradesh, the Punjab, Hyderabad, and from Pakistan. This diversity of origin is reflected in the attitude towards change, as they are neither rigidly bound by common religious beliefs nor by common origin.

In the community, 55.34% are in the 15-59 years age group of the population and represent the working force as compared to 39.06% in the 0-14 age group, or school-age population; a very small proportion are dependents above the age of 60.

These statistics shift when analyzed in terms of religious groups. In the Muslim population (15-59 years), a total of 43.63% belong to the working-age group and about 40.87% belong to the school-age group; in other words, the proportion of working age is lower than the proportion of dependents.

In the case of Hindu families, the working age group is 57.73% of the population, and the proportion of dependents to working age is lower, making it a more prosperous community than the Muslim one.

The literacy rate for both communities is high compared to the literary rate for Delhi, which is 56.61%. Hindus have 76.5% and Muslims 66.3% literate population.[3]

The enrollment of females in schools is much higher in the case of the Hindu community than the Muslim. This difference is mainly due to the orthodox attitude of the Muslim community and also due to the non-availability of separate schooling facilities for females. Because the Hindus do not segregate the sexes, females of the Hindu community take a much more active part in educational activities.

ECONOMIC CHARACTERISTICS

The economic activity generated in and around the area is interdependent in nature. The wholesale market along Chauri Bazaar dictates the activities in the rest of the area. The market is mainly relating to paper goods, including paper godowns (warehouses), printing presses, book-binderies, etc. These activities are generally in the areas with road access from the Chauri Bazaar. The next important activity, the kabadi (junk) market of old and new motor parts, is clustered around the Jama Masjid, but is gradually moving into the community through the access road of Chatta Sheikh Manglu. This activity has gotten mixed up with the hotels that have grown up around the Jama Masjid; activity along Bazaar Matia Mahal is mainly confined to local retail shops of a varied nature. Gali Churiwalan is also confined to local shopping, though, at certain points, one finds an increase in the volume of light industrial manufacturing. This has encroached onto the streets, causing movement difficulties and

change in street use.

The working force is mainly male. The Hindu population shows a larger participation of females in the working force than the Muslim group.

Family income varies little among the Muslims, though more than 28% have an income of less than Rs 600 ($60) per month, and 19.23% have an income of Rs 150 ($150) per month or more.

The disparity is much greater in the case of Hindu families. 35.71% earn less than Rs 600 ($60) per month, and 14.29% more than Rs 150 ($150) per month.

In the case of Muslim families of the area, only 13.51% of the head of the households are employees; the rest are self-employed.

About 41.7% of the Hindu family heads of household are employees and the rest are self-employed. This may be because the Muslims prefer

PART PLAN, LAL DARWAZA (shahjahanabad)

Location of Retail Shops

PART PLAN, LAL DARWAZA (shahjahanabad)

Location of Printing & Publishing Industry

to be self-employed more than the Hindus.

The distribution of owners, tenants and sub-tenants shows a high percentage of the population residing in the area as tenants of varying periods of time. The percentage of Muslims who own their homes is higher than for Hindus.

According to the draft report on the Lal Darwaza Area Redevelopment Plan, only 20% of property owners live in the area. The high percentage of ownership in the Muslim families also indicates that there is a gradual splitting up of properties among the Muslim families owing to the disintegration of the extended family structure to small nuclear families, though they still prefer to stay together and share the same house.

CHANGES WITHIN THE COMMUNITY

Land-use patterns reflect change in a community. From comparing the land-use patterns in this particular area between 1971 and 1980, one can see that the change has been significant. Commercial use has expanded; industrial use is on the decline; but the vacant spaces created when industries move out have been filled in by commercial ones.

Within this area, shelter, services, schools, and recreational facilities are all in short supply. Nonetheless, it was found that about 84.21% of the Muslim families wanted to stay in the area. The Hindu families, on the other hand, were just as anxious to move out. The reason for the families moving out is mainly due to the lack of amenities and the dilapidated conditions of the structures.

When those 81.25% of the Hindu families who want to move out of the area manage to do so, space is immediately filled by shopkeepers or turned into warehouses and other non-domestic uses.

court and dalan converted into a printing press.

Economic changes can be seen most clearly in employment and occupational patterns. Among the Muslims, only 20.7% carry on the occupation of their father or grandfather, and the trend to self-employment is increasing. The Hindus show a vacillating trend from self-employment to employee status and back to self-employment.

Women have a growing role in the working force, though the number is still small and the tendency more common among Hindu women (31.25% of Hindu families do not object to their women taking jobs, as opposed to 10.53% in the case of Muslims). The level of female education is

also a contributing factor. In the future, one is likely to expect more women to work, as the extent and level of education and vocational training open to them increases.

The unwillingness of the Hindus to remain, combined with the eagerness of the Muslims to go in business for themselves, also contributes to rapid commercial growth in the area.

The area is adjacent to the city's wholesale trade markets. Initially, its commerce centered on supplying these wholesale agents with goods but, gradually, local entrepreneurs moved into production as well.

There is an increase in the proportion of structures in good condition, which can be attributed to the building of new structures, both legally and illegally. At the same time, structures in fair condition are decreasing, owing to the lack of proper maintenance, which can be attributed to the high proportion of absentee landlords. The new structures are found mainly along the main commercial spine of Chauri Bazaar, where economic activity is most active. No data are available on the number of new buildings designated for commercial as opposed to residential use. Thus, one may expect an increase in building activity in the community. What is needed is a guiding force behind this development so that a balance of sorts between residential and commercial activities can be restored to the area.

Family structure is changing. Extended families tend to break down into small nucleated families, though these families tend to live under the same roof. This greatly influences the house form, the urban structure, and the property structure, as properties are broken up into smaller units. These nuclear families are economically independent, and they tend to use their units as income-producing spaces, either as rental or commercial units, thus changing the land use pattern and house form. The population is gradually losing its privacy and the area its residential character, owing to all these changes.

Housing is especially important because of the shortage of adequate shelter due to gradual inroads of commerce on the existing housing stock. Mosques and other religious facilities are available in the area, but presently face the problem of encroachment due to the intervening uses.

Schools are in poor condition and are inadequately lit and ventilated. They have no space to expand and the neighborhoods surrounding them are rapidly deteriorating. According to the DDA Draft Report on Lal Darwaza Area Redevelopment Plan (Zone A-16), the area has no adequate health facilities, but available hospitals nearby make this less of a problem than it would otherwise be.

Based on this, one can list the major problems of the area.

1) Extreme congestion with overall density at 605 persons per acre. Majority of the people are from low income groups with

limited rent-paying capacity.

2) Majority of the area's houses are in an advanced state of decay and several areas have been overtaken by blight. The rent control act discourages owners to invest in or properly maintain their properties. A survey by the Delhi Development Authority in 1971 found 90·75% of all structures to be in poor condition.
3) Collapse and demolition of structurally unsound buildings render many families homeless. During the monsoons a number of houses collapse and every year municipal authorities are forced to pull down houses which pose a danger to human life. Ignoring municipal warnings, occupants continue to live in unsound structures because of a lack of alternative accommodations.
4) Large number of illegal constructions and building conversions is taking place, including additions and alterations. Many courtyards have been covered so that 31% have no courtyards left or any open space within the dwelling.
5) There is overcrowding, lack of amenities, and a rising occupancy rate. As many as 62% of the area's households do not have a kitchen, while 45% have no bathrooms, and only 35% have any verandahs.
6) There is a lack of proper sanitation facilities. Dry latrines, where provided, are very poorly maintained. Due to the low-tax revenue it generates, municipality is unable to furnish even the most essential services and amenities to the area.
7) There are cattle clusters within the area and in most cases the goats and cows are kept inside the dwellings with the occupants.
8) Mixed transport modes and the encroachment by parking and loading and unloading of trucks on carriageways as well as footpaths has reduced the effective width of both, thus impeding vehicular as well as pedestrian circulation and creating frequent bottlenecks.
9) In the garb of repair and maintenance, unauthorized construction has allowed the penetration and intensification of objectionable activities. Attracted by the low overhead costs in doing business, incompatible uses have penetrated even in better residential mohallas, and many houses have been entirely converted into workshops and small manufacturing establishments, further degenerating the area.

The social fabric is gradually being eroded by the decline in privacy and by the invasion of all sorts of incompatible activities. Indiscriminate growth of commercial activities has brought so many undesirable social elements that many old residents feel very reluctant about continuing to live here. They feel so unsafe and insecure that they want to leave the area as soon as they possibly can.

Whenever a family finally manages to leave, the premises thus vacated are either taken over by

non-residential activities, further damaging the living environment, or are turned into multifamily units housing the poor, who have little or no interest in the improvement of the walled city.

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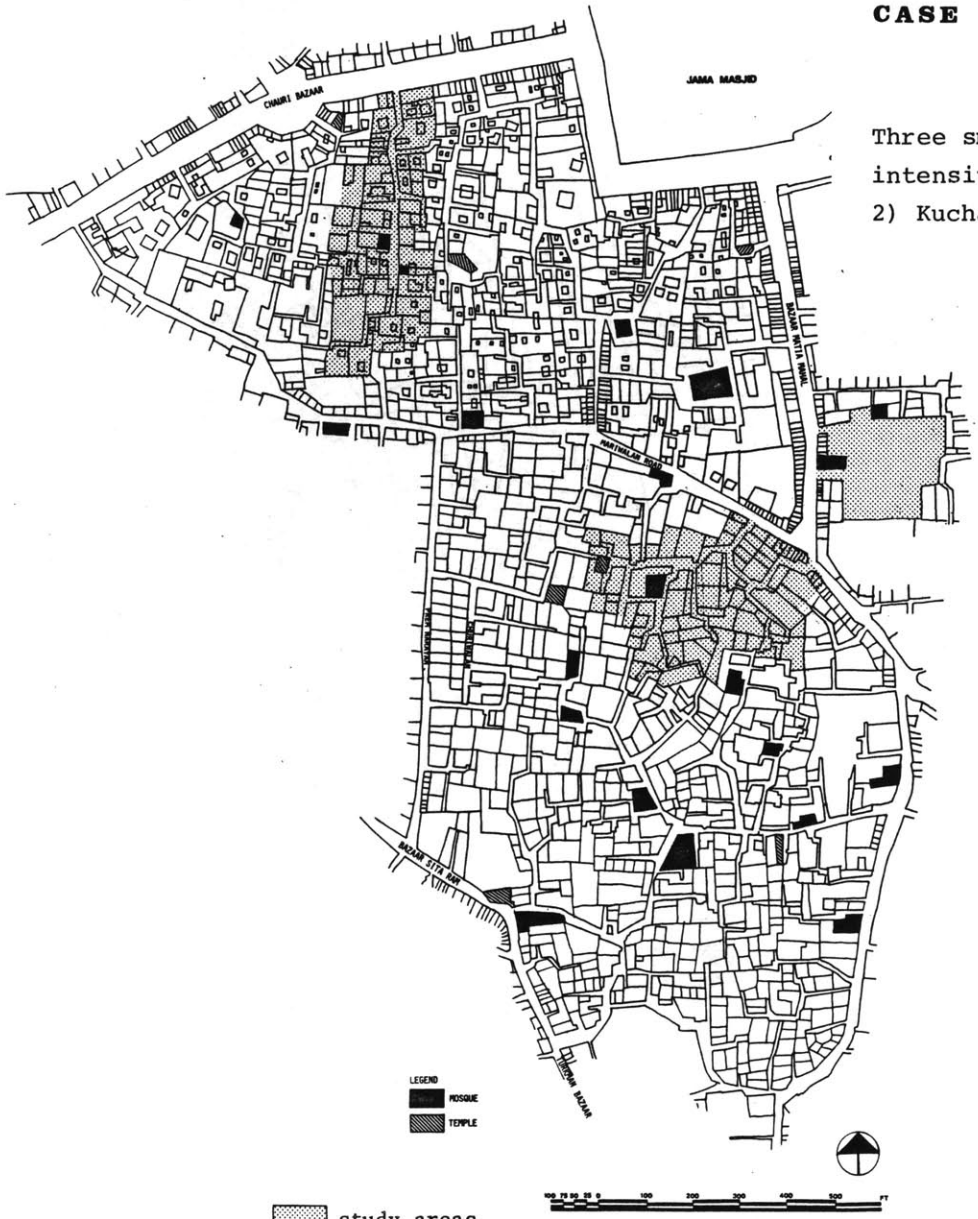
1. Amrish, Khan. Inner City and the Community: Shahjahanabad. P. 44, Table 6.

2. Ibid., p. 45.

3. Ibid., p. 50.

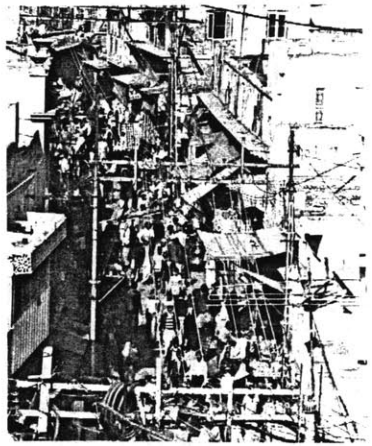
CASE STUDIES

Three small neighborhoods were selected for intensive study: 1) Mohalla Pahari Imli; 2) Kucha Mir Ashiq; 3) Dojana House.



study areas

PART PLAN, LAL DARWAZA (shahjahanabad)



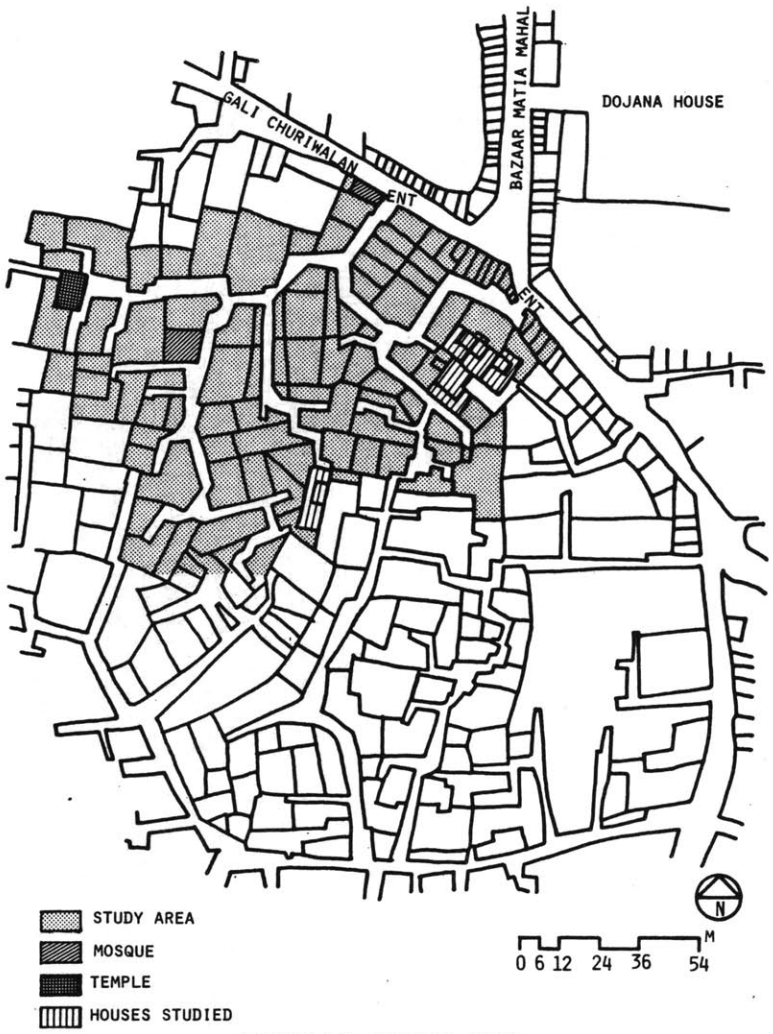
view of bazaar Matia Mahal

MOHALLA PAHARI IMLI

The main characteristics of the mohalla are:

1) its location on a hillock and therefore the nature of its streets.
2) the two main mohalla entrances.
3) spatially well-defined mohalla.
4) the restrictive impact of the urban form on the growth of commerce and light industry deeper into the mohalla.
5) clear definition of Muslim and Hindu areas.
6) the formation of small squares and blind alleys.
7) chattas primarily formed at entrances to houses.
8) mohalla houses are in fair condition.

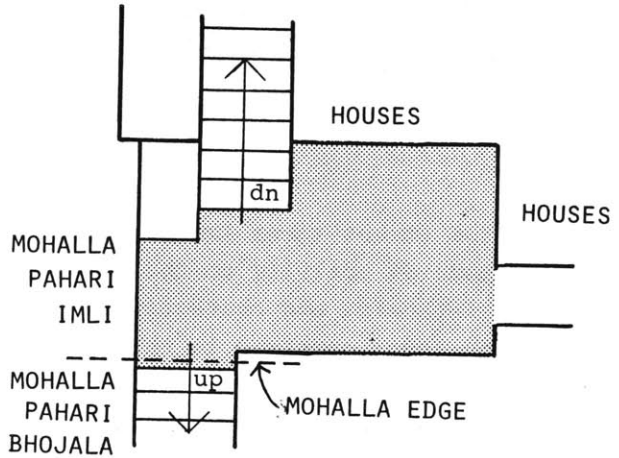
The mohalla Pahari Imli is located about 100 meters south of the Jama Masjid and is bounded on the north by Gali Churiwallan, on the east by Bazaar Matia Mahal, and on the south and east by mohalla Pahari Bhojala. Situated on a small hillock provides its unusual spatial characteristics. It is very well defined, with two main formal entrances, one on the Gali Churiwallan and the other on the Bazaar Matia Mahal. A third, less important entrance is from mohalla Pahari Bhojala. Its proximity to the mosque and hilly location have affected its street pattern: its streets branch out as a tree. The main mohalla spine is winding, and most of the streets are either sloped or stepped, giving the mohalla its special character.



MOHALLA PAHARI IMLI

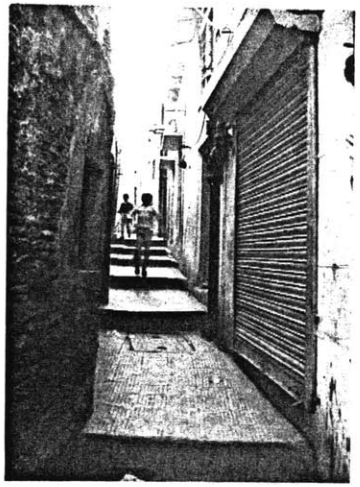
In most mohallas, the spine is well defined, but the perimeter is often nebulous; in this case, though the mohalla has more than one entrance, it is its site that defines its boundaries. Two entrances on secondary streets are

well defined, with a gateway; the third is not, but because it is located at the pinnacle of the hillock, the zone of transference is well delineated. A small square defines it further.

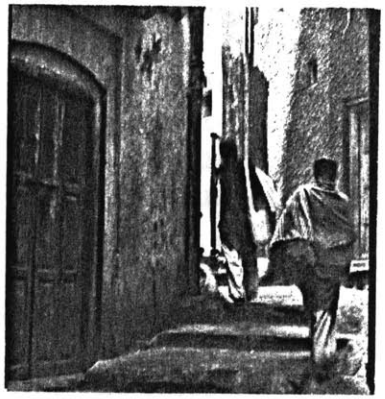


SQUARE AND STEPS DELINEATE MOHALLA

The mohalla includes residential, commercial, and light industrial uses. The latter are located near the two main entrances. No light industry has encroached further into the mohalla because the hill and the web/branch-like street pattern make accessibility difficult. The major light industries are printing and publishing, book-binding, crate-making, and metal plating. Commerce on a domestic scale is distributed evenly throughout the mohalla but with larger concentrations near the two entrances. The mohalla has within its confines a mosque, a temple, and a secondary school.



narrow winding galis



blank house facades

In this mohalla, Muslims are clearly segregated from the Hindus. The Muslim area has narrow and winding streets and few chowks. The house facades on the street are without openings and devoid of decoration, and the house entrances are subtle in appearance, though there are a

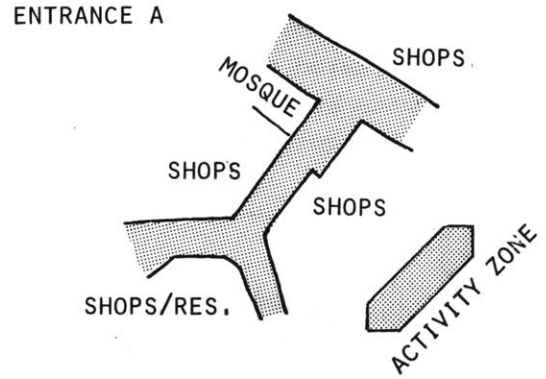
few examples of richly carved doors. Two reasons can be given for the few chowks in this area. The first is that public spaces are less used because only men have an active public social life. The second is that the Muslim area falls on the steepest part of the mohalla, where chowks are not naturally formed.

The Hindu area has a greater number of chowks and the house facades are decorated with elaborate entrance spaces. The reasons for the more chowks here are that Hindu women sit outside to talk and do housework and this section of the mohalla is located on flatter land, where chowks can be naturally formed. House decoration on the facade indicates the status of the owners or occupants.

The mohalla as a whole incorporates all the typical spatial elements of an Indian neighborhood like gateways, chattas, blind alleys, which, combined together, give it a sense of place in spite of the striking differences between the two ethnic areas.

The two gateways are the hubs of mohalla activity. Even though they both open onto secondary streets, one entrance A has a larger zone of activity than the other entrance B.

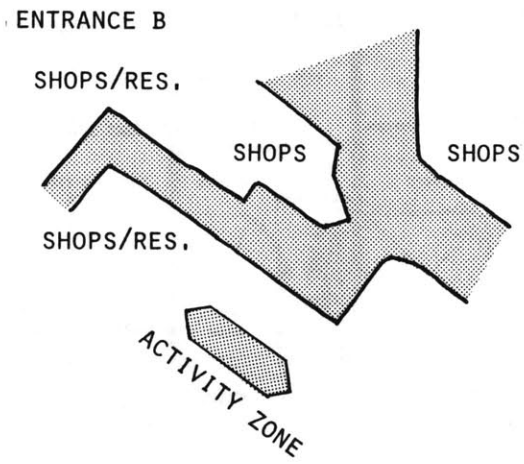
Entrance A opens onto a street that leads straight into the mohalla and then forks out. The zone of activity extends only up to the fork.



entrance A

entrance B

At Entrance B the street turns immediately, confining the zone of activity to the immediate vicinity. The intensity and character of the activity is much lower compared to the other entrance. The mohalla is, however, predominantly residential. Its streets are narrow and used only for pedestrian traffic. The interior streets are no more than 3-4 feet wide. The blind alleys sometimes end in small squares with three or four houses opening into them.



THE HOUSES

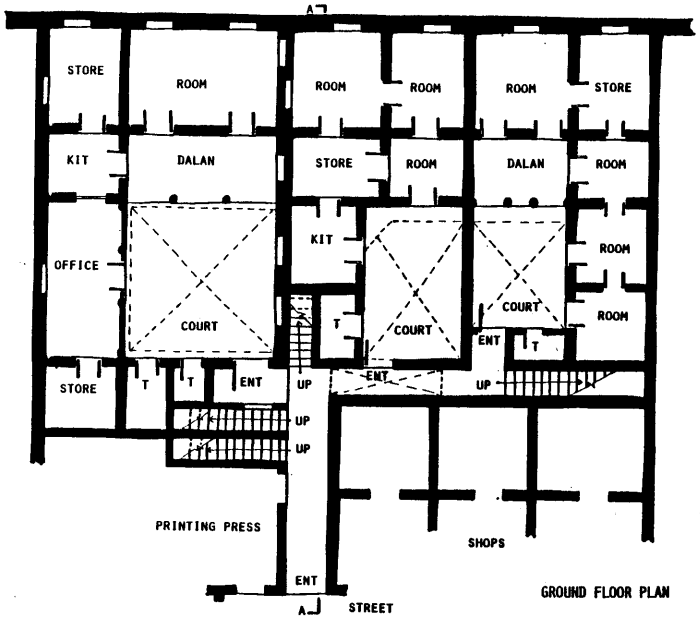
The main characteristics of the houses are:

1) introverted character of the houses.
2) siting of houses is generally back-to-back.
3) internal court as the main source of light and ventilation.
4) provision of an internal extension of space, either through a court or terraces.
5) well-defined zone of transition between house and street.
6) house plan revolves around an internal court and has a male, female, and service zone.

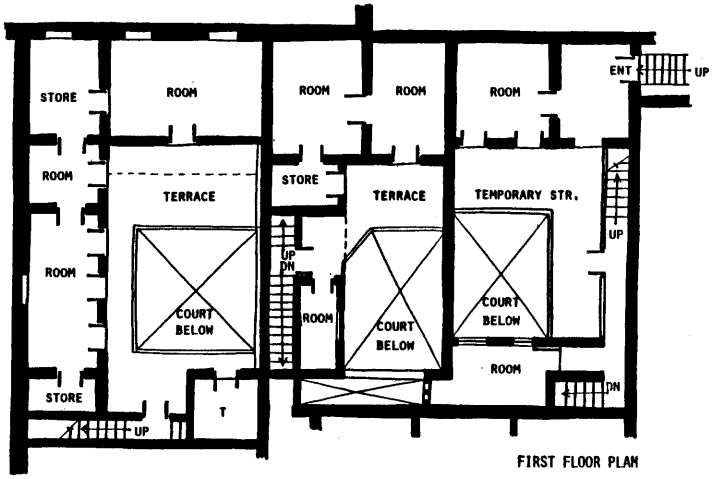
Three houses A, located just at the entrance of the mohalla at the Bazaar Matia Mahal, do not front on the street but are entered through a long, linear chatta. The chatta acts as a common entrance to all three while providing each with the required privacy. Even though the houses are situated right by the mohall's entrance, they enjoy the same privacy as houses located well inside the mohalla. Had the chatta been wider, it would have invited petty commercial activity, but this uninviting, long, dark corridor instead provides protection from it.

entrance chatta

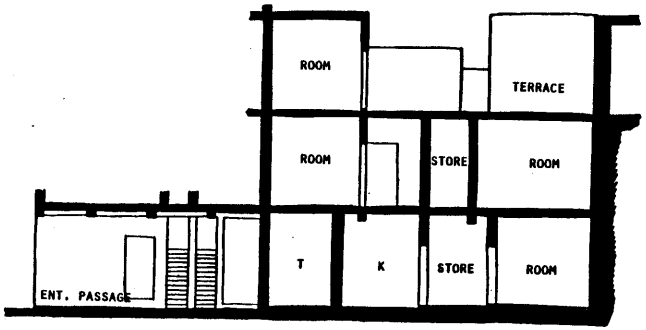
passage leading to the house



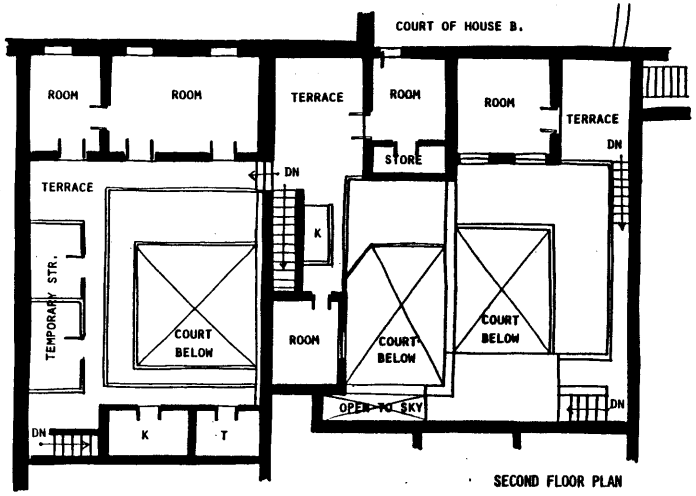
GROUND FLOOR PLAN



FIRST FLOOR PLAN

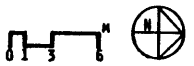


SECTION A.A



SECOND FLOOR PLAN

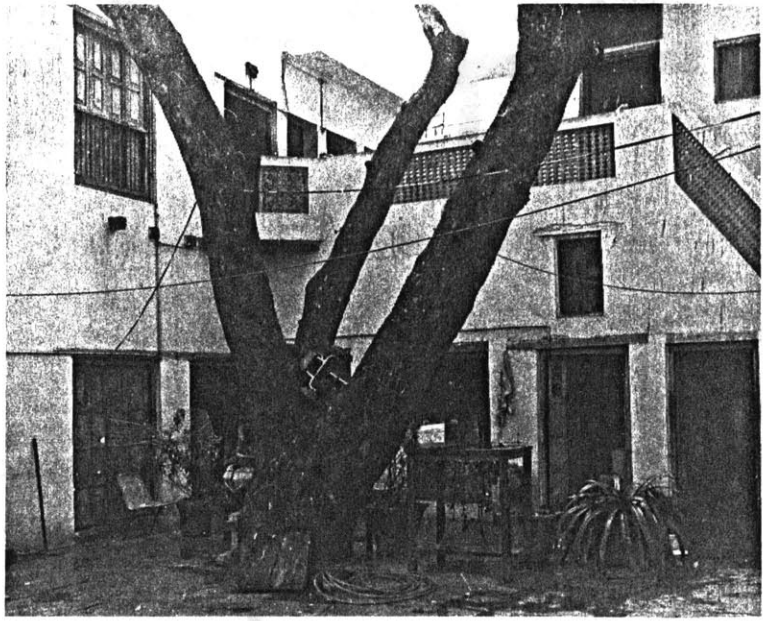
HOUSES A



court of center house in A.

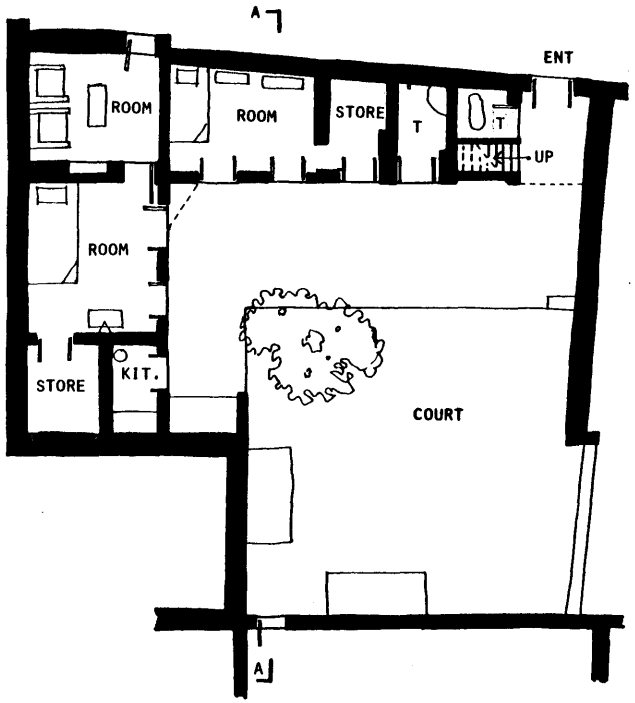
The three houses are similar: all have internal courtyards surrounded by rooms in an L-shaped arrangement. Though initially they were single-family houses, they are now sub-divided, with each family occupying two rooms and the terraces converted into cooking and working areas. Since none of the houses overlook the street, they are totally introverted. All light and ventilation come through the internal courts and the openings in the chatta.

House B lies just behind the three at the end of the chatta, but it is approached by going up the hill. It is entered through a covered doorway that leads directly into a large courtyard. The house is L-shaped, with the long side fronting the street. It has two stories and is occupied by a brother and sister and their families, each living separately, with the sister living on the ground floor. All services are separate but the court is shared. The ground floor has three rooms in addition to a kitchen, storage room, and toilets. The second floor has a semi-open room which is used as a classroom for very young children (the lady of the house runs a mohalla nursery), kitchen, toilet, and a small terrace. All the rooms are used as family rooms where guests may be entertained during the day and for sleeping at night.

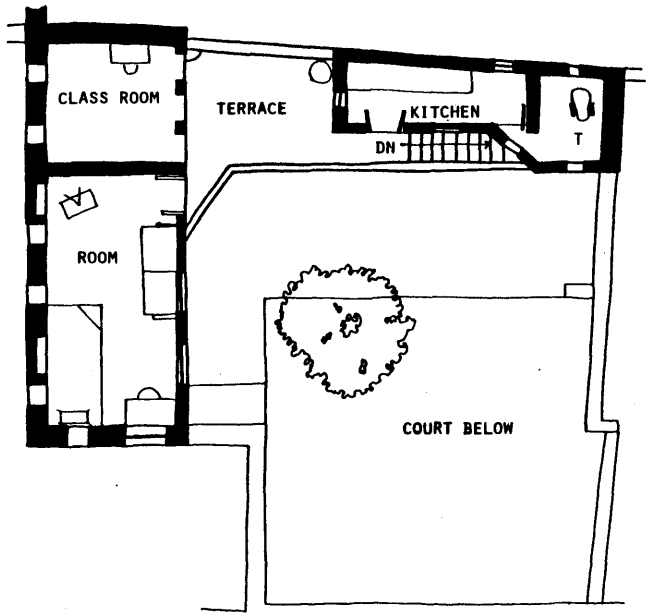


court and the internal facade.

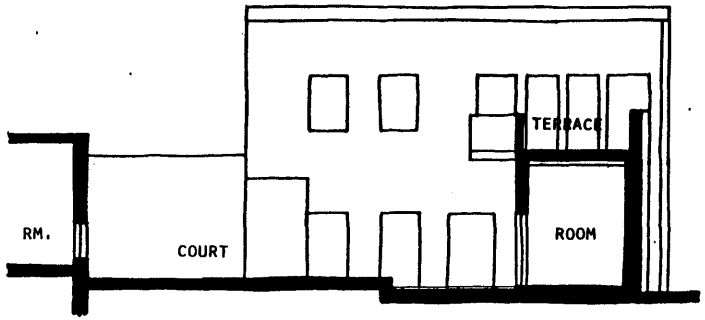
The courtyard is the largest space in the house. Because it has two levels (a difference of 30 centimeters), different activities can go on in it simultaneously. The court is enclosed on three sides by high walls and the house itself; the fourth side is a parapet wall allowing for



GROUND FLOOR PLAN

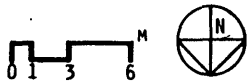


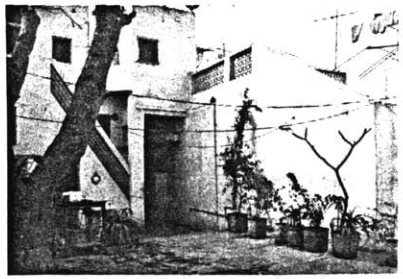
FIRST FLOOR PLAN



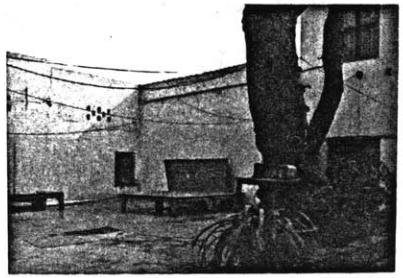
SECTION A.A.

HOUSE B





view of entrance



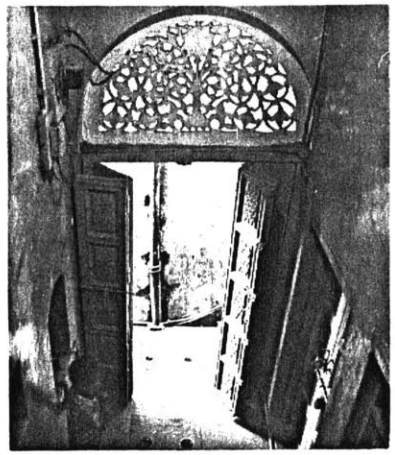
view of small window

contact with the neighbors. A small window on the north wall leads to the top floor of the center house in A. Through the window one can gain access to the staircase of that house which leads to the long chatta and, from there, to the mohalla's entrance. This window also allows access to the neighbors in the back. The window and staircase provide a private access for these two families.

The large courtyard gives the house a feeling of spaciousness, especially in contrast to the narrow, stepped street through which it is entered. Its upper floor commands a good view of the streets below and the Jama Masjid beyond.

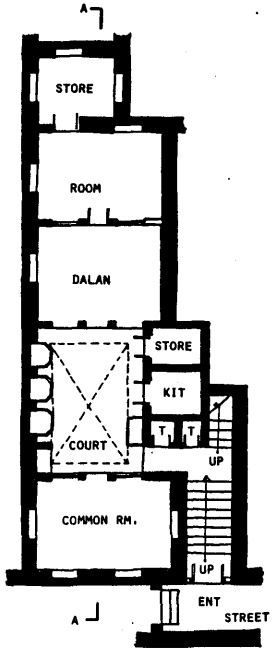
House C lies at the top of the hill and is entered through a very narrow lane. Its entrance is well decorated. One enters through a series of wide steps into a relatively small court. The court has one room in front and two behind; it is flanked on one side by a high wall and on the other by the kitchen and toilets (service zone); all movement within the house is through the court. The house has three stories and a series of rooftop terraces.

The house is occupied by about 20 people, all members of a single, large, extended family,

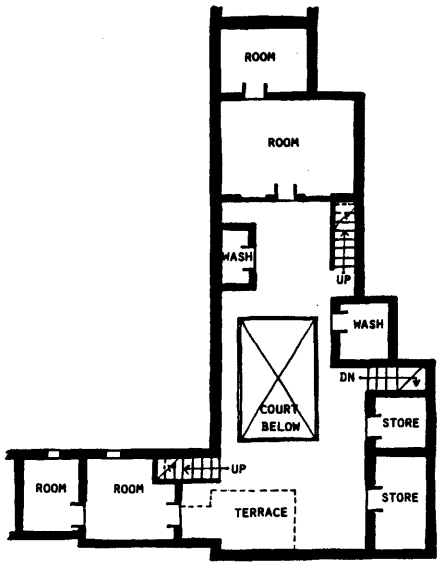


stepped entrance

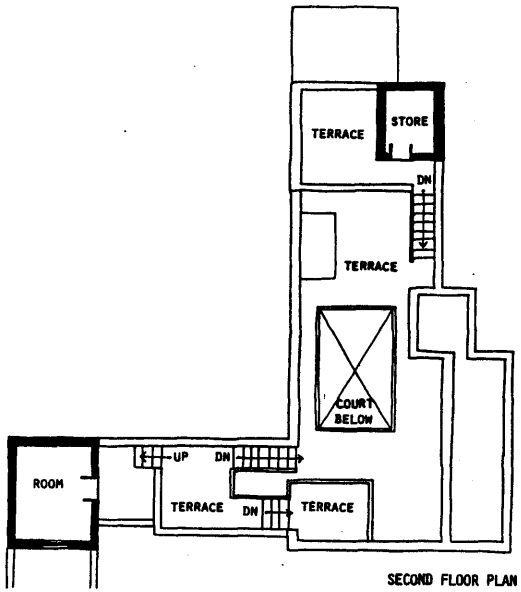
but, again, broken up into nuclear units. They maintain separate living units, but use some of the facilities of the house in common. This house is very high and narrow, with several terraces on the upper levels. The house plan follows the traditional pattern of male zone, female zone, and service zone all connected



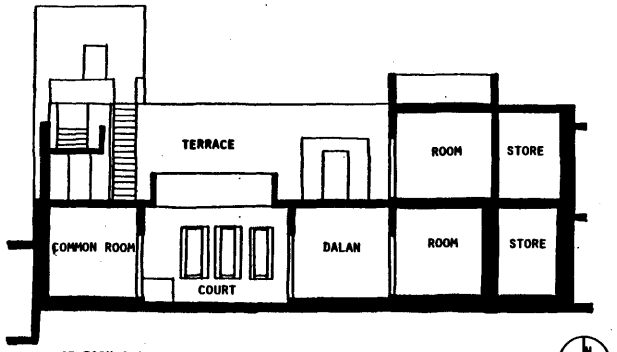
GROUND FLOOR PLAN



FIRST FLOOR PLAN

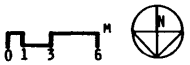


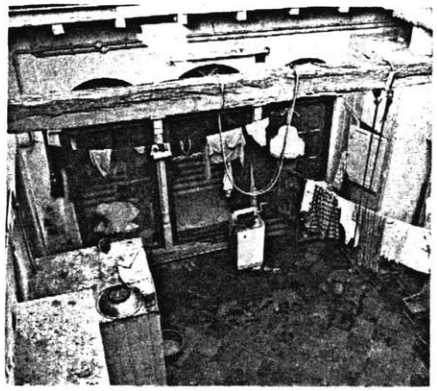
SECOND FLOOR PLAN



SECTION A.A.

HOUSE C

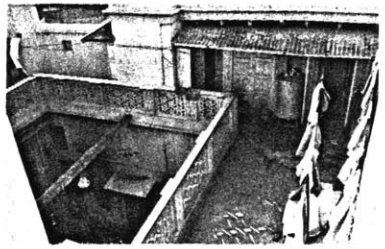




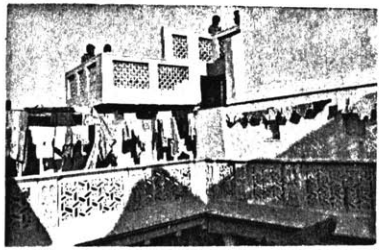
court used as an extension of the service zone

No part of the house opens onto the street, although it fronts on one. All light and ventilation are through the court. Since the court is small, it does not serve as an extension of family space, but only of the service zone. The terraces extend family space, provide entertainment areas for guests, and, during the day, a place for the women to sit or work.

through the court. The uppermost level has two rooms in addition to the series of terraces. Some of the latter have also been built upon to absorb family growth and separation.



lower level terrace overlooking the court



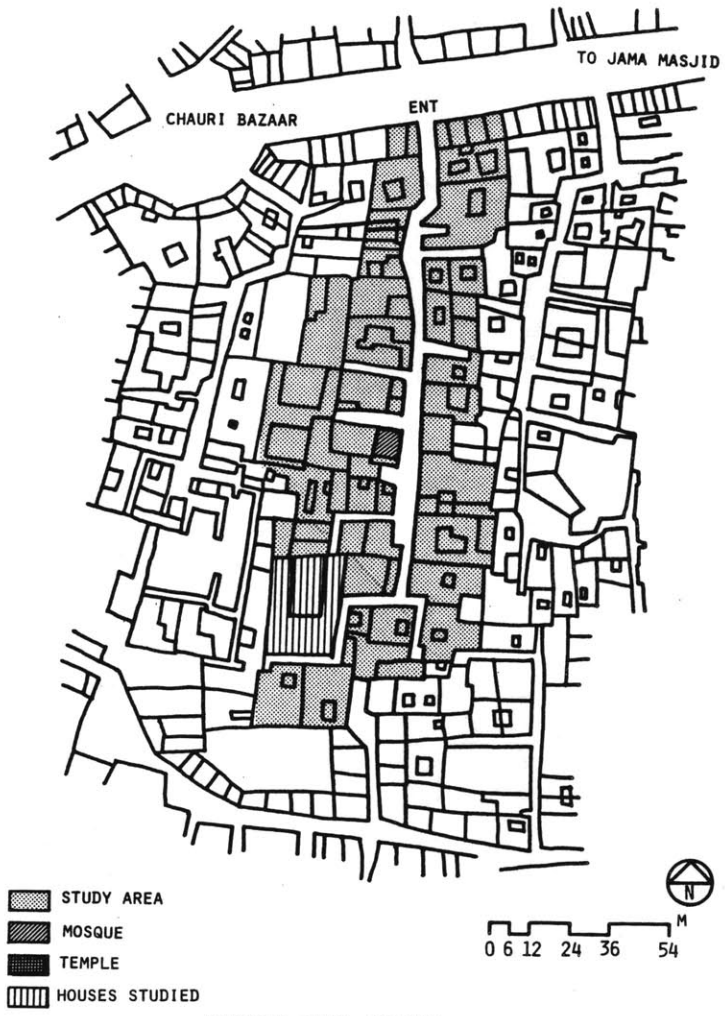
upper level terrace

KUCHA MIR ASHIQ

The main characteristics of the mohalla are:

1) its location adjacent to Chauri Bazaar, a major commercial street.
2) the linear mohalla spine with a single entrance.
3) spatially well-defined mohalla.
4) growth of commerce and light industry far into the mohalla and its relation to the form of the mohalla.
5) Muslims and Hindus are evenly intermixed over the mohalla.
6) the formation of squares within the spine street and the occurrence of blind alleys in residential street.
7) chattas primarily formed at junction of streets acting as a transitory element and identifying different urban spaces.
8) mohalla houses are in poor condition.

The mohalla Kucha Mir Ashiq is located about 50 meters west of the Jama Masjid and is entered through Chauri Bazaar though the formal gateway is no longer extant. The mohalla is flanked on the south, east and west sides by other mohallas, and on the north by the Bazaar, one of the major streets of the walled city. It is a well-defined quarter, with only one entrance and a straight central spine running north-south and closed branches running perpendicular to it. In this mohalla, too, location has had a major effect on spatial characteristics. The Chauri Bazaar is the hub of its commercial activities. All the houses in the mohalla open either onto



KUCHA MIR ASHIQ

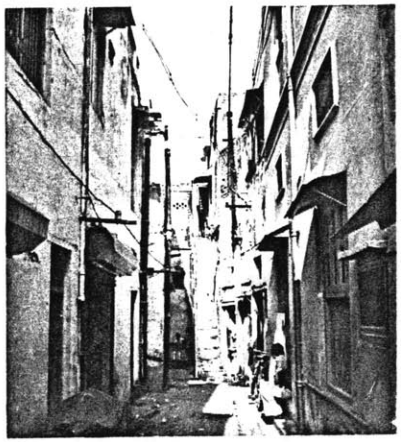
the main mohalla spine or one of its branches. The spine runs deep into the mohalla and then bifurcates.

The mohalla includes residential, commercial,

and light industrial uses. The latter are concentrated near the entrance where shops flank both sides of the street until it turns, but have encroached into the mohalla to the point where the spine bifurcates. The street is relatively wide, about 6-10 feet. Its major commercial activities are, for the most part, related to the printing industry, presses, bookbinderies, and paper dealers.

house in a state of disrepair

The mohalla has two mosques, but there is no clear segregation of Muslims from Hindus, aside from small pockets of one community or the other. The owner-occupied Hindu houses are elaborately decorated. The mohalla is in a general state of deterioration, with a large number of ruined and poorly repaired houses. A large number of houses are subdivided, with a whole family occupying just one room.



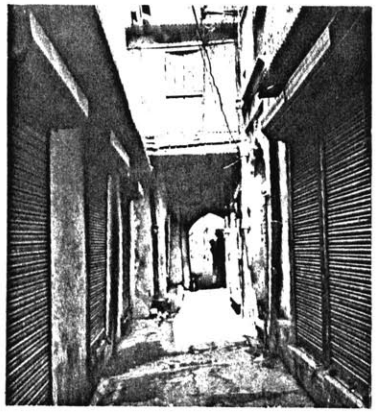
residential galis

Narrow residential cul-de-sacs branch out from the main spine. The spinal street forms small squares where the street shifts its axis slightly. From the entrance to the bend, the predominance of commercial activity makes the street very crowded. As one moves further along the spine into the mohalla, commerce dwindles and one sees people sitting around teashops and children playing. Still further along the spine and along the branches of the bifurcation, people sit on doorsteps and chat, and the street becomes a more private space.

shift in street axis
forms a small chowk

The progressive shift from public to semipublic to private is a result of the shift in the street axis, which blocks the view from the entrance and protects it from the distracting view and sound of the hurried and chaotic movement outside.

The change from semi-public to semi-private results from the chatta which forms just before the spine bifurcates into two narrower streets. The chatta acts as a transitional element, not from street to house but from street to street.



chatta changes
gali quality

mohalla entrance

The chatta occurs at street junctions and acts as a transition leading the passerby from one zone to another. Steel posts are driven into the ground at the mohalla's entrances to prevent vehicles from entering. The symbolic gateway and the post in the ground also define the edge between the primary street and the mohalla spine.

THE HOUSES

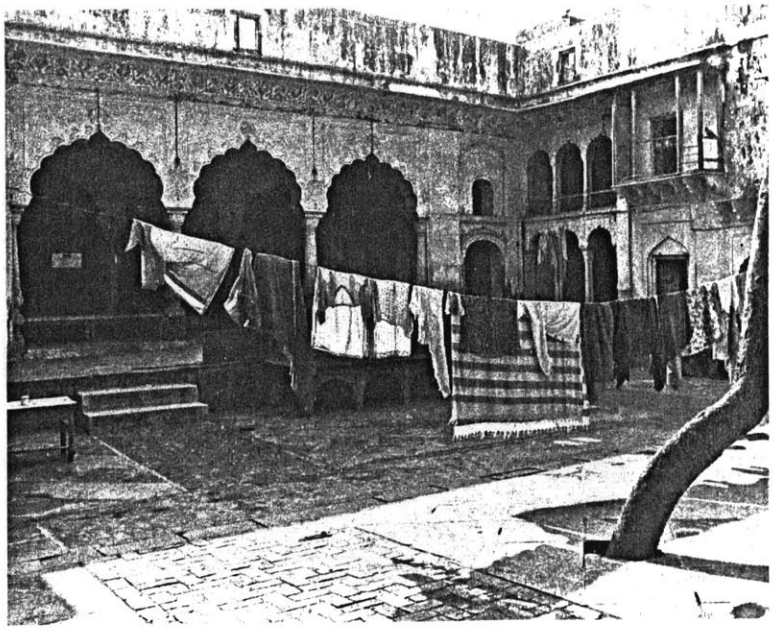
The main characteristics of the houses are:

1) introverted character of the houses.
2) siting of houses is generally back-to-back.
3) internal court as the main source of light and ventilation.
4) provision of an internal extension of space either through a court or through terraces.

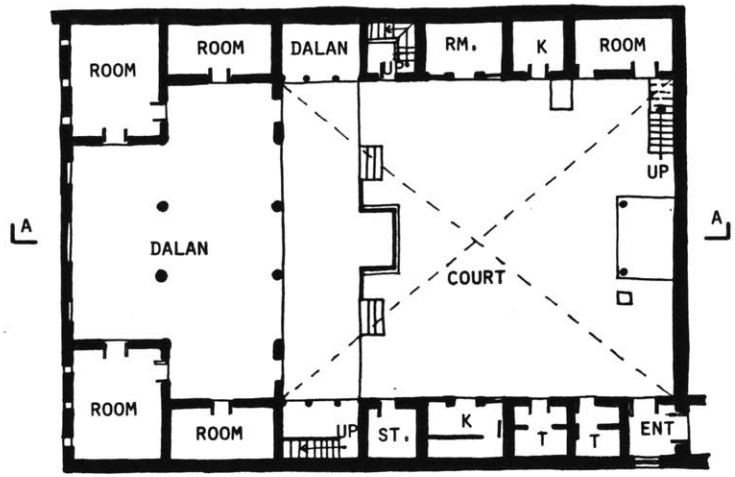
5) well-defined zone of transition between house and street.
6) the house plan revolves around an internal court, and has a male zone, female zone, and service zone.

House D opens onto a residential street which is entered through a chatta. The house is the largest and most elaborate in the mohalla. One enters it through a formal gateway and then turns left into a very large courtyard. The house is U-shaped around the court.

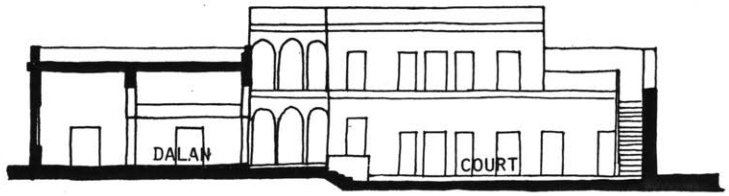
The two-story house is occupied by a 20-member extended family which has again split up into family units but uses common facilities. The



view of large courtyard

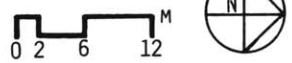


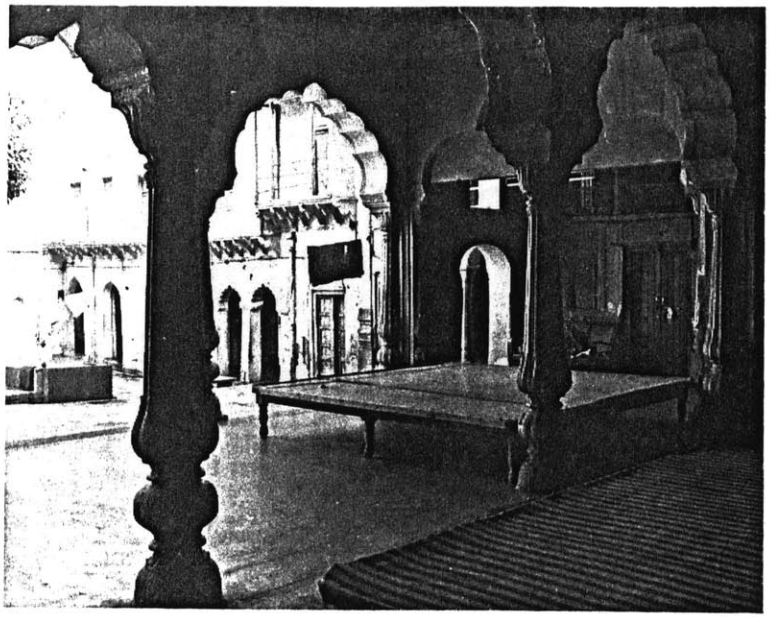
GROUND FLOOR PLAN



SECTION A.A

HOUSE D





view of the formal delan
looking out into the courtyard

house surrounds a huge court, with rooms along its two longer sides. On the south is a large formal delan (verandah), elaborately decorated and richly carved. This delan is double height, with a screened balcony along the sides. The upper level is for women to watch or participate in the activities going on below. It was once used to entertain guests (the head of the household was a priest), but is not much used today. It is still maintained, however, and lent out for festive occasions (marriages and the like) to the mohalla residents.

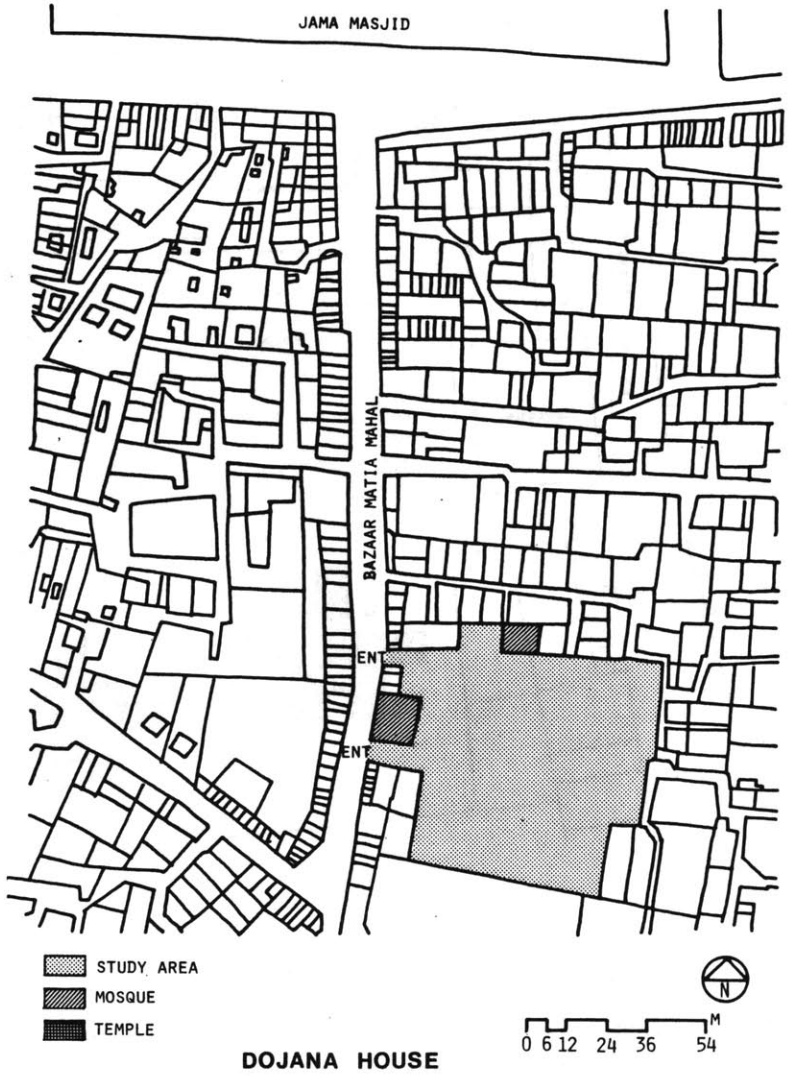
In addition to the delan, the house has a terrace on the roof which is used for various functions. The large courtyard has a well that provides the whole family with water.

DOJANA HOUSE

The main characteristics of Dojana House are:

1) its location on Bazaar Matia Mahal and its proximity to Jama Masjid.
2) spatially well-defined.
3) no defined movement pattern within the site. All movement is through incidental spaces.
4) concentration of commerce and light industry around the entrance and in the open park.
5) overall condition is very poor even though the development is recent.
6) no spatial identification to different areas of the site or to the residents' class, status, etc.
7) housing primarily for low-income group.
8) no formation of different street pattern, blind alleys, chattas, transitory elements, etc.

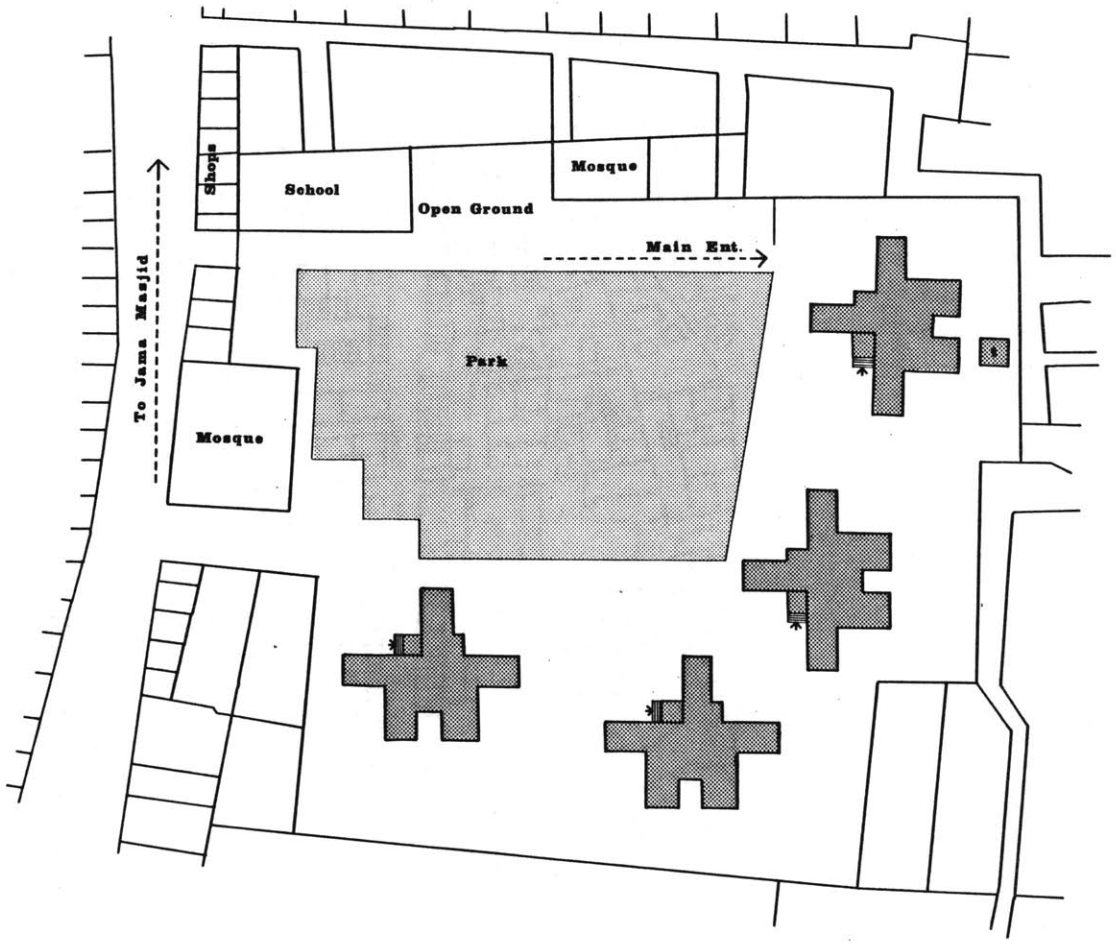
Dojana House is a low-income housing project built by the Delhi Development Authority in 1977. Its entrance is located about 100 m south of the Jama Masjid and on the righthand side of the Bazaar Matia Mahal, on a tract previously occupied by a haveli (mansion) in the heart of the walled city.



DOJANA HOUSE

URBAN FEATURES

Dojana House has two entrances, both of which open onto the Bazaar Matia Mahal. Its four-story residential buildings are arranged in a semicircle around a public park. It occupies about 4,000 sq. m. and houses 80 families. Its two entrances flank a mosque. The apartments are situated well inside the site. There are



DOJANA HOUSE

the two entrances

no streets in the site. Incidental spaces between the fenced-in park and the buildings and between the buildings themselves are characterless. Because they belong to no one in particular, they are also very difficult and expensive to maintain. The site also has a second mosque and a school on its periphery.

Though designed as a residential area in Dojana House, commerce and light industry have encroached upon the area, and both entrances have shops around them.

The wider entrance has become an illegal cycle-rickshaw stand. The operators are mostly male

migrants to the city who sleep in the numerous vacant areas within the site and accounts for the large number of people hanging around the site. The other entrance is much narrower and flanked by tea shops. It is covered by a tin roof which has transformed the entrance into a pleasant place, with people sitting along the wall and talking to each other. The park is used for every imaginable purpose except the one intended. Building materials are stored there; a small auto repair shop has been set up with a truck's chassis lying in one corner.

the park is used for storing building materials making it dangerous for children to play here

The park is a patch of bare ground. Children are more apt to play in the spaces between the buildings than in the park, which is used to either graze cattle or fetter them to the park fence.

The appearance of Dojana House gives no hint of the class or religious affiliation of its occupants. The apartments were developed for low-income occupants, but they found it more profitable to rent or sell their flats than to live there themselves. The housing cluster presents no elements for either spatial or visual relief. The only redeeming features are the small entrance and the mosque which provides some communal space.

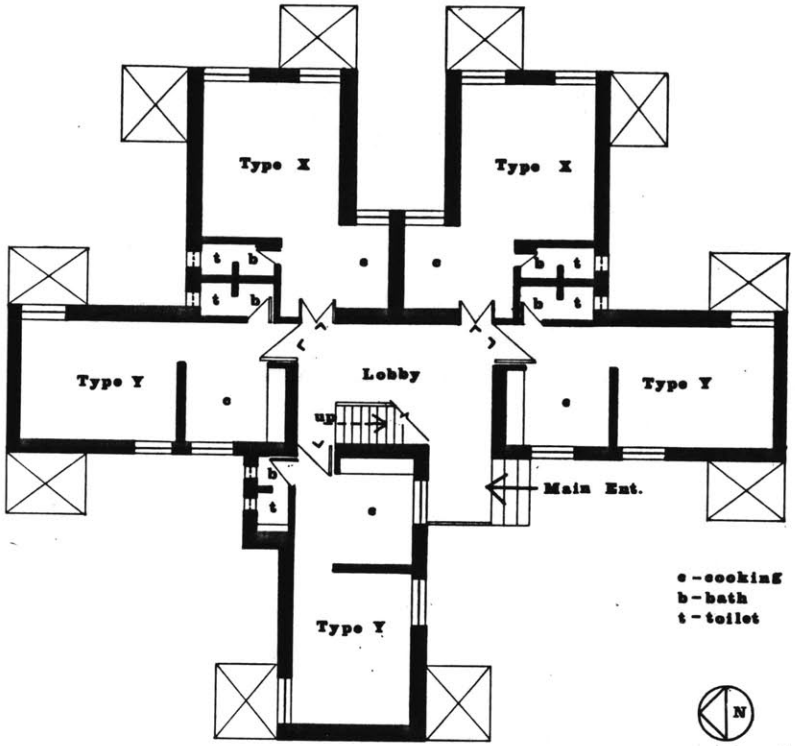
The area uses none of the urban elements such as streets, blind alleys, gateways, chattas, and transitory zones as space-making devices.

THE APARTMENTS

The main characteristics of the apartments are:

1) the form of the house is the result of modern 'block' design.
2) no provision for private or shared extension of space.
3) no transition space between house and street.
4) apartment plan has no different zones and does not have an internal court.

The entrance to each building is through the main lobby, a plinth raised above ground. The entrance to each flat is through this lobby. Each building has four floors and each floor has five family units. Each unit consists of one room, a cooking space and a bath plus toilet. The second and third floors have balconies. The top-floor residents share the roof terrace. Each unit is then essentially one room with services.

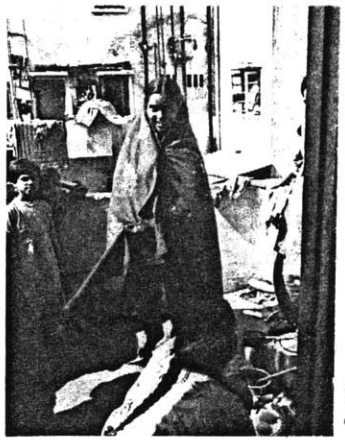


DOJANA HOUSE

The planning of the building reflects standard modern planning principles, but no social characteristics of the residents. The flats have no defined areas to separate male from female, so any joint or extended families cannot live there. There is no common place that extends living space as otherwise shared by the residents. The common lobby space is too small,

one small room does not meet the residents' requirements

view of the apartments



the terrace being used for cooking purposes

dark, and dingy to be attractive. One room provides no privacy, forcing drastic changes to adjust to the spatial arrangements in traditional attitudes.

The unit plan makes no allowance for climatic considerations. The residents have to depend on mechanical cooling in summer, since the cross-ventilation the windows provide is insufficient in summer.

COMPARATIVE MATRIX

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
MOHALLA	SPATIALLY WELL DEFINED. LOCATION ON HILL HAS DETERMINED THE STREET TYPOLOGY.	SPATIALLY WELL-DEFINED. LOCATION ON CHAURI BAZAAR HAS GUIDED STREET TYPOLOGY, A DETERMINED CHARACTER OF THE STREET.	SPATIALLY WELL DEFINED. LOCATION ON BAZAAR MATIAL MAHAL, NO EFFECT ON STREET TYPOLOGY.
COMMERCE AND INDUSTRY	CONCENTRATED AROUND THE TWO ENTRANCES. SLOPE & STEPPED STREETS HAVE RESTRAINED GROWTH OF COMMERCE DEEPER WITHIN THE MOHALLA.	CONCENTRATED AROUND THE ENTRANCE. LINEAR STREET HAS ALLOWED GROWTH OF COMMERCE WELL INTO THE MOHALLA'S INTERIOR.	RETAIL SHOPS CONCENTRATE AROUND THE ENTRANCE. STORAGE AND INDUSTRIAL USES AND SMALL RETAIL ALSO FOUND EVERYWHERE. THE FORM OF THE SITE PROHIBITS GROWTH.
STREET PATTERN	TREE LIKE. MOST STREETS ARE SLOPED OR STEPPED. STREET SIZES VARY FROM 6-10 FT. AT ENTRANCES TO 2-5 IN THE INTERIOR. MOHALLA HAS FOUR DIFFERENT SPINES.	LINEAR PATTERN RUNNING DOWN THE LENGTH OF THE MOHALLA FORMS THE SPINE, FROM WHICH SMALLER RESIDENTIAL STREETS BRANCH OUT. STREET SIZES VARY FROM 6-10 FT. FOR THE SPINE STREET TO 3-5 FOR INTERIOR RESIDENTIAL STREETS.	NO STREET PATTERN. MOVEMENT AREA IS ALL INCIDENTAL SPACE BETWEEN PARK AND BUILDINGS, AND BETWEEN BUILDINGS. STREET ONLY FUNCTIONS AS A CONNECTOR. STREET TRANSFORMATION TAKES PLACE THROUGH RESIDUAL SPACE.
	BESIDES FUNCTIONING AS A CONNECTOR, THE STREET ALSO FUNCTIONS AS AN EXTENSION OF DOMAIN. IT IS NO LONGER LINEAR, BUT IS TRANSFORMED THROUGH SQUARES, BLIND ALLEYS, CHATTAS, STAGGERING TO INCORPORATE EXTENSIONS FROM THE HOUSE.		

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
ENTRANCE (GATEWAY)	WELL-DEFINED FORMAL GATEWAY WITH HUGE DOORS, WHICH ARE NO LONGER CLOSED. THE GATEWAY ACTS AS AN EDGE-DEFINING ELEMENT. THE SHAPE OF THE STREET ACTS AS A RECEPTACLE, AND ALLOWS PEOPLE TO SIT/STAND AROUND ONE ENTRANCE. ALSO HAS A BENCH FOR PEOPLE TO SIT ON. THE ENTRANCE IS FULL OF ACTIVITY BUT THERE IS A CLEAR SENSE OF TRANSITION.	WELL-DEFINED ENTRANCE. DEFINITION IS ACHIEVED THROUGH A SYMBOLIC GATEWAY OF A BEAM AND POST STRUCTURE. ALSO A POST ANCHORED IN THE GROUND ACTS AS SPACE DEFINER. LINEAR STREET OPENING ON TO THE MAIN STREET, DOES NOT PROVIDE THE NECESSARY FACILITIES FOR PEOPLE TO GATHER AROUND THE ENTRANCE. ALSO THE ENTRANCE AREA HAS INTENSE COMMUNITY ACTIVITY, RESTRICTING PEOPLE TO GATHER AROUND.	THE COVERED ENTRANCE IS WELL-DEFINED AND HAS PROVISION FOR PEOPLE TO MEET. ONCE AGAIN, THE SENSE OF A GATEWAY HAS BEEN ACHIEVED BY A SIMPLE STRUCTURE. THE OPEN ENTRANCE IS NEBULOUS IN CHARACTER, WITH BAZAAR STREET ACTIVITY SPILLING OVER INSIDE. A SENSE OF A TRANSITORY ZONE IS ACHIEVED THROUGH THE EDGE CREATED BY DIFFERENT PAVINGS. BENCHES ALONG THE MOSQUE WALL INVITE PEOPLE TO GATHER AROUND.
CHOWKS	THERE IS A LIBERAL DISTRIBUTION OF CHOWKS. THE HINDU AREA HAS MORE THAN THE MUSLIM AREA AS IT IS ON RELATIVELY FLATTER GROUND. THE CHOWKS AROUND THE ENTRANCES ARE BIGGER AND MORE PUBLIC IN NATURE, WITH SHOPS & PUBLIC BUILDINGS OPENING ONTO THEM.	MOST OF THE CHOWKS ARE FORMED ON THE SPINE STREET. THROUGH THE WIDENING OR NARROWING OF THE STREET, THROUGH A SHIFT IN ITS AXIS, OR WHEN A CHATTA OCCURS OVER IT. THESE CHOWKS ARE PUBLIC IN NATURE AND HAVE PUBLIC BUILDINGS AND SHOPS OPENING ONTO THEM. AS ONE	THERE ARE NO CHOWKS PER SE IN THIS AREA. THE AREA BETWEEN BUILDINGS AND THE PARK SERVES MARGINALLY AS A PUBLIC SQUARE. EXCEPT AT THE ENTRANCES, NO ACTIVITIES TAKE PLACE HERE. THESE AREAS ARE NOT USED AS EXTENSIONS OF HOUSE SPACE. ONLY CHILDREN PLAY AROUND

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	THE CHOWKS IN THE INTERIOR ARE SMALLER IN SIZE AND ARE PURELY RESIDENTIAL IN NATURE. THEY ARE USED BY WOMEN TO SIT AND TALK, FOR CHILDREN TO PLAY, TO DRY GRAINS, FOR SOCIAL GATHERINGS.	MOVES DEEPER INTO THE MOHALLA, THE PUBLIC NATURE OF THE CHOWKS CHANGES: BUT THEY DO NOT BECOME COMPLETELY RESIDENTIAL.	THESE.
BLIND ALLEY	ALL FORMS OF BLIND ALLEYS. EXCEPT FOR THE BLIND ALLEYS FORMING SQUARES, THEY ACT AS CONNECTORS. SEMI-PRIVATE IN NATURE. THE DEGREE OF PRIVACY DEPENDS ON THE LENGTH OF THE ALLEY AND ON THE NUMBER OF HOUSES OPENING ONTO IT.	ALMOST ALL THE STREETS BRANCHING OFF FROM THE SPINE ARE BLIND ALLEYS, ABOUT 3-5 FT. WIDE AND STRAIGHT, HENCE THEY DO NOT INVOKE A SENSE OF PRIVACY. THEIR PROXIMITY TO THE SPINE DOES NOT ALLOW FOR PRIVACY EXCEPT WHERE A CHATTA OCCURS. THE ALLEY THEN BECOMES SEMI-PRIVATE WITH THE CHATTA ACTING AS ITS ENTRANCE.	NO BLIND ALLEYS OCCUR IN THIS AREA.
CHATTA	HERE CHATTAS OCCUR BOTH AT INTERSECTIONS AND AT ENTRANCES TO HOUSES. WHERE THE RESIDENTIAL STREET RUNS INTO THE	THE CHATTA OCCURS ON THE SPINE STREET WHEREBY CHANGING THE CHARACTER OF THE STREET FROM PUBLIC-TO-SEMI-PUBLIC.	HERE A CHATTA-LIKE SPACE IS CREATED BY ROOFING THE ENTRANCE. IN ADDITION TO PROVIDING AN IDENTITY, THE

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	SPINE, THE CHATTA ACTS AS A GATEWAY AND ENCLOSES THE LONG, NARROW RESIDENTIAL STREET, MAKING IT SEMI-PRIVATE. AT THE ENTRANCE TO THE HOUSE THEY MAKE THE STREET PRIVATE.	A CHATTA ALSO OCCURS AT THE JUNCTION OF ALLEY AND SPINE STREET. HERE, TOO, THIS ENCLOSES THE ALLEY AND MAKES IT SEMI-PRIVATE OR PRIVATE.	SPACE WITH ITS LITTLE TEA-SHOP INVITES PEOPLE TO GATHER THERE. BECAUSE IT IS AT THE ENTRANCE, THE SPACE IS USED BY BOTH THE RESIDENTS OF THE AREA AND THE GENERAL PUBLIC.
	THE SPACE UNDER THE CHATTA TAKES ON VARIOUS ROLES, DEPENDING ON THE CHATTA'S LENGTH, WIDTH, AND LOCATION (I.E., THE TYPE OF STREET, DISTANCE FROM ENTRANCE TO THE MOHALLA, ETC.). THE SPACE COULD BECOME AN EXTENSION OF A PRIVATE DOMAIN OR A SMALL GATHERING PLACE.		
DAHALEEJ (THRESHOLDS)	THE FORMATION OF THE DAHALEEJ DEPENDS ON THE DEGREE OF SLOPE ON THE SITE. ON STEEPER GRADES, THE ENTRANCE AREA IS RAISED HIGH ABOVE THE GROUND WITH A SERIES OF STEPS LEADING TO IT. ON GENTLER SLOPES, THE PLATFORM IS NEARER THE GROUND.	SINCE THE GROUND IS FLAT, ONE SEES FEWER PLATFORMS. HERE ONE FINDS AN ENTRANCE AREA WITHIN THE HOUSE. IN SMALLER HOUSES THE COURTS BECOME THE TRANSITION ZONE.	HERE THE ENTRANCE LOBBY RESEMBLES A DAHALEEJ EXCEPT THAT IT IS DARK AND DINGY. THE SPACE ALSO SERVES MANY HOUSES AND IS THEREFORE SEMI-PUBLIC - SEMI-PRIVATE IN NATURE.
	A DAHALEEJ IS PRIMARILY A ZONE OF TRANSITION SEPARATING PRIVATE INSIDE FROM SEMI-PRIVATE OUTSIDE SPACE. THOUGH A		

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	DAHALEEJ IS A SEMI-PRIVATE SPACE, IT BELONGS TO THE HOUSE. ITS DEGREE OF PRIVACY CAN BE CONTROLLED THROUGH DESIGN. THIS SPACE ALLOWS PARTICIPATION WITH PUBLIC SPACE WHILE MAINTAINING PRIVACY.		
LEVEL CHANGE	THE SITE GRADE HAS MADE STEPS NECESSARY. HERE THE STREETS ARE STEPPED, PREVENTING PEOPLE FROM GATHERING. WHENEVER THE STREET LEVELS OUT, POCKETS OF ACTIVITIES TAKE PLACE. CHANGES IN GRADE THEREBY ACT AS TRANSITIONAL ELEMENTS. WHEN A CHANGE OF LEVEL OCCURS BETWEEN STREET AND HOUSE, IT THEN ACTS AS A DAHALEEJ.	THE SITE HERE IS LEVEL. CHANGE OF LEVEL OCCURS ON THE SPINE STREET UNDER THE CHATTA, FURTHER EMPHASIZING THE CHANGE IN THE CHARACTER OF THE STREET. HERE ONE SEES CHANGES IN LEVEL BETWEEN STREET AND HOUSE, WHICH ACT AS A DAHALEEJ. THE SPACE ASSUMES VARIOUS ROLES, DEPENDING ON HOW ABRUPT THE LEVEL CHANGE IS.	CHANGE OF LEVEL OCCURS AT THE CHATTA, FURTHER STRENGTHENING THE ZONE OF TRANSITION. CHANGE OF LEVEL ALSO OCCURS AT THE ENTRANCE LOBBY OF THE APARTMENT BLOCKS, IDENTIFYING DIFFERENT ACTIVITY ZONES AND USES.
PAVING	HERE ONE SEES VARIOUS PAVINGS. STEPPED STREETS ARE PAVED DIFFERENTLY WHERE THE GROUND LEVELS OUT. CHANGES IN PAVING IDENTIFY DIFFERENT AREAS. CHANGE IN PAVING CAN ALSO BE	NO CHANGE IN PAVING IN THE MOHALLA. CHANGE IN PAVING ONLY BETWEEN STREET AND HOUSE.	NO CHANGE IN PAVING IN THE MOHALLA. CHANGE IN PAVING ONLY BETWEEN STREET AND HOUSE.

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	ATTRIBUTED TO SITE SLOPE, NEED FOR DRAINAGE, ETC.		
THE HOUSE	THE HOUSES ARE SITED BACK TO BACK. THE INCREASE IN GRADE CREATES INTERESTING SITING OF HOUSES WITH BOTH BACK AND NEXT-DOOR NEIGHBORS, WITH CONNECTIONS OCCURRING AT VARIOUS FLOOR LEVELS. HERE HOUSES TEND TO OVERLOOK EACH OTHER. THE HOUSES ARE ONE - TWO STORIES ON THE AVERAGE, AND LONG, NARROW AND VERTICAL IN APPEARANCE.	THE HOUSES ARE SITED BACK-TO-BACK. HERE CONTACT WITH NEIGHBORS IS ESTABLISHED AT THE SAME FLOOR LEVEL. IT IS ALSO ESTABLISHED WITHIN THE DAHALEEJ AND BLIND ALLEYS. THE HOUSES ARE ONE-TWO STORIES HIGH. HOUSE FORM DEPENDS ON THE SITE SUB-DIVISION.	THE APARTMENT BLOCKS ARE ALL FOUR STORIES. THE SPACES BETWEEN THE BUILDINGS ARE RESIDUAL. CONTACT WITH NEIGHBORS IS ESTABLISHED ONLY AT THE SAME FLOOR LEVEL AND ONLY IN THE ENTRANCE HALLWAY. HERE THE PLAN OF THE APARTMENT IS INCOMPATIBLE EVEN WITH THE CHANGING SOCIAL AND FAMILY STRUCTURE. ASIDE FROM PROVIDING SHELTER, THE SPATIAL ORGANIZATION DOES NOT TAKE INTO CONSIDERATION ANY OF THE OCCUPANTS' NEEDS.
	MUSLIM HOUSES HAVE EITHER PLAIN OR LITTLE DECORATED FACADES; HINDU HOUSES ARE MORE ELABORATELY DECORATED. MOST OF THE HOUSES HAVE THREE WELL-DEFINED AND CONNECTED SECTIONS. THE MARDAN KHANA (MALE SECTION) USED BY VISITORS AND MALE MEMBERS		

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	OF THE FAMILY. THE ZANAN KHANA (FEMALE SECTION) COMPRISES A ROOM AND A VERANDA (DALAN) USED BY THE FEMALE MEMBERS. SERVICE AREAS, ALL ARRANGED AROUND AN INTERNAL COURT. THE LOCATION OF THE DALAN BETWEEN THE ZANAN KHANA AND THE SHEHAN (COURT) PROVIDES PRIVACY FROM THE MARDAN KHANA. TODAY, WITH CHANGING SOCIAL AND FAMILY STRUCTURE, THE WAY DIFFERENT SECTIONS ARE USED IS ALSO CHANGING. SUBDIVIDING A HOUSE ALSO CHANGES THE WAY IT IS USED.		
COURT	THE COURTS HERE ARE GENERALLY SMALL. WHEN THE HOUSE IS SUBDIVIDED, THEY MAY ALSO BE SHARED BY MORE THAN ONE FAMILY.	THE SIZE OF COURTS VARY. SOME OF THE LARGE ONES ASSUME CEREMONIAL FUNCTIONS. HERE ONE FINDS COURTS SHARED BY MORE THAN ONE HOUSE. THE VUNCTIONS THEY SERVE REMAIN THE SAME, EXCEPT THAT THEY ARE NO LONGER AN EXTENSION OF PRIVATE SPACE. TERRACES ARE COMMON.	NO COURTYARDS. PUBLIC PARKS OR RESIDUAL OPEN SPACES ARE THE ONLY OPEN AREAS AND THEY DO NOT PROVIDE THE MUCH NEEDED EXTENSION OF PRIVATE INTO SEMI-PRIVATE LIVING SPACE. THE PARK AND OTHER SPACES ARE MISUSED AND ILL-MAINTAINED. THESE ARE MORE OF A HEALTH HAZARD THAN A GREEN SPACE.
	ALMOST ALL HOUSES HAVE INTERNAL COURTS, BUT THEY MAY VARY IN SIZE, SHAPE, AND LOCATION WITHIN THE HOUSE. COURTS PROVIDE EXCELLENT CLIMATE CONTROL, ALLOWING CROSS-VENTILATION IN HOT		

ELEMENTS	MOHALLA PAHARI IMLI	KUCHA MIR ASHIQ	DOJANA HOUSE
	WEATHER. IT ALSO PROVIDES THE NECESSARY BREATHING SPACE IN AN OTHERWISE CROWDED ENVIRONMENT AND AN EXTENSION OF PRIVATE LIVING SPACE.		
TERRACES	MANY HOUSES HAVE OFTEN MULTI-LEVEL TERRACES.	HERE TERRACES ARE COMMON	TERRACE AVAILABLE BUT TOO SMALL FOR USE EXCEPT AS STORAGE SPACE. ROOF-LEVEL TERRACE IS ACCESSIBLE TO ALL AND HENCE TOO PUBLIC FOR PERSONAL USE.
	TERRACES ALSO ACT AS AN EXTENSION OF PRIVATE SPACE. BUT THEY OCCUR AT THE UPPER LEVEL OF THE HOUSE. TERRACES PROVIDE A SECOND LAYER OF CIRCULATION FOR WOMEN TO ESTABLISH CONTACTS.		

IN SUMMATION

The new development, Dojana House, violates the surrounding spatial order to both scale and character. It is laid out in complete disregard of the spatial organization of the surrounding area. The open spaces are impersonal and unsuited to the social and cultural life of an Indian household and costly to maintain. The project lacks identifying elements to provide the occupants with visual relief and a sense of belonging. The mosque and the smaller covered entrance area provide some communal space and identity, but they are the only redeeming factors. The individual apartments, although they provide basic amenities and more hygenic than the slums, are unsuited to the lifestyle of these occupants. The lack of courts and terraces deprives occupants of a useful common space.

Besides being a poorly constructed project, the major deficiency of Dojana House is that its design is very rigid. It does not lend itself to any change by the occupants who need both outside and inside spaces flexible enough to accommodate their needs.

Older neighborhoods are more appropriately or-

ganized. The residents do identify them, because they include meaningful elements, though some are by now purely symbolic in function and could be changed in their formal aspects. The typical house form also manages to serve the needs of its residents, but changing socio-economic family structure calls for its modification.

A study of the formal aspects of the urban elements and their uses is needed before one can begin to select those elements that can lend themselves to change. In the following pages I will describe the urban elements, identify their formal aspects and the experiences they generate, and how those experiences change in different locations.

STREETS

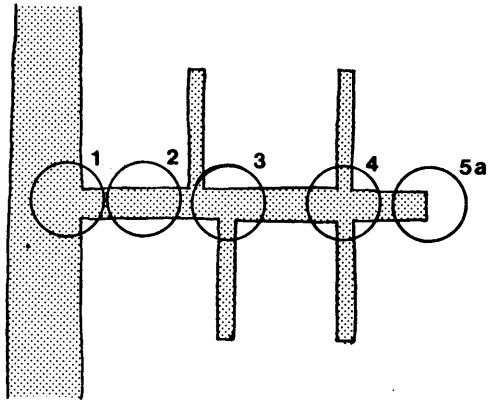
The factors that contribute most towards establishing a set of mohalla relationship through street form are:

1) the street pattern
2) location of mohalla entrances vis-a-vis the bazaar streets
3) dimensions of the street
4) visibility of mohalla from entrance
5) continuity of street surface
6) hierarchy of spaces
7) use of other urban elements.

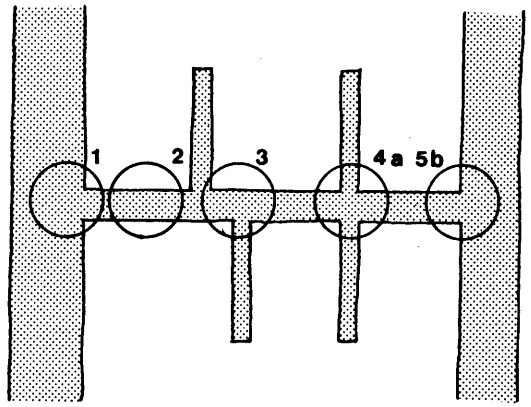
Three street patterns help define or form a mohalla: linear streets, looped streets, and streets which branch out as trees.

LINEAR

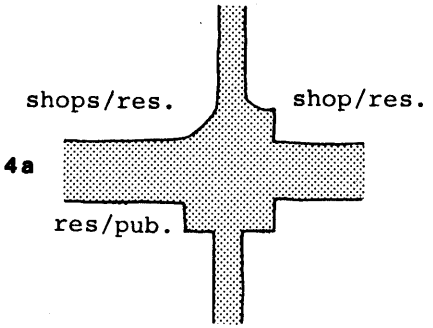
SINGLE ENTRY



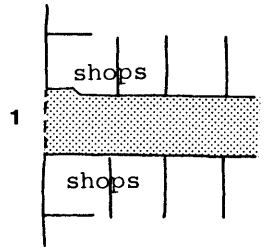
TWO OR MORE ENTRIES



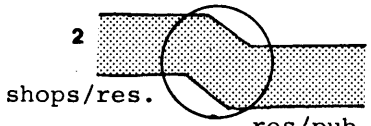
char. depends on proximity to entrance



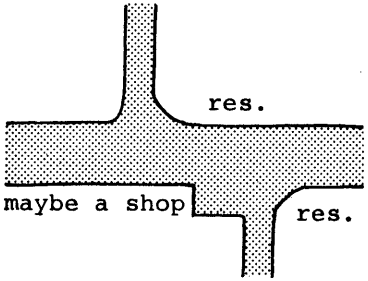
MOHALLA ENTRANCE



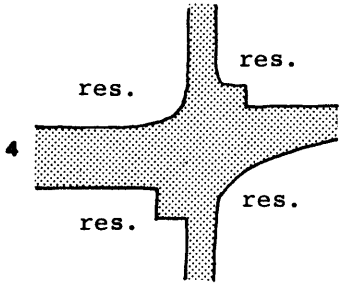
STREET SHIFTS SLIGHTLY yet maintains its linear char.



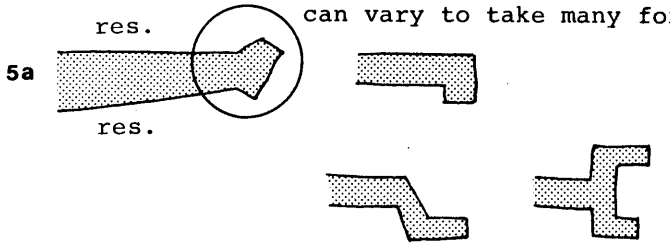
SQUARE FORMATION THROUGH SHIFT OF AXIS



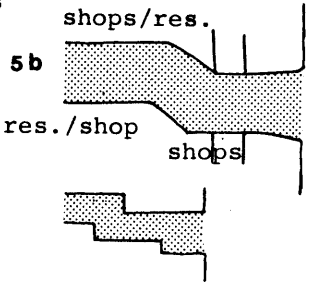
SQUARE AT CROSSROADS

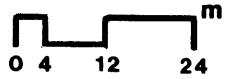


STREET JUNCTION AT END OF MOHALLA



MOHALLA ENTRANCE





STREETS

LINEAR

Linear streets can have only one entry, or two or more. A street with only one entry is prone to commercial and public use, if it lies near a main bazaar street, or is particularly broad or long. Use of chowks, blind alleys, and chattas help reduce commercial infiltration.

The street with two or more entries is obviously less secluded and therefore more prone to commercial and public use, even in the mohalla's interior. The spine will have many public uses concentrated at its entrances. How far these activities penetrate into the mohalla depends on the length of the spine and what kind of street it opens onto. For example, the end opening onto a main bazaar street will have a larger commercial and public zone than the end opening onto a secondary street.

The character of the junction a spine street forms with a residential street varies according to its proximity to the mohalla entrance and the types of uses found there. Predominantly public activities gradually shift at these junctions to semi-public and private activities as one moves away from the entrance and deeper into the mohalla. This phenomenon holds true for all the street patterns, except that the intensity of activity varies according to pattern.

LOOPED

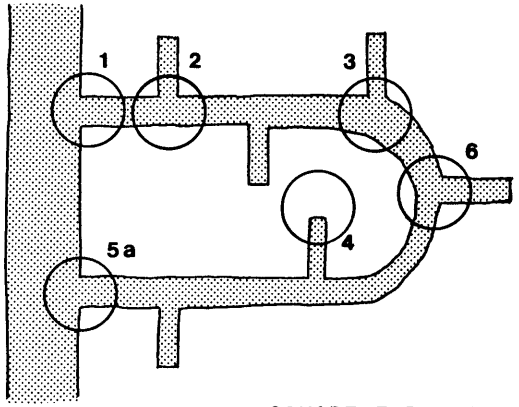
Looped streets can have both entries on main bazaar streets or one entry on a bazaar street and the other on a secondary street. Each displays spatial characteristics that promote different uses.

When both entries are on bazaar streets, both have a high activity zone whose influence infiltrates deep into the mohalla. The type and intensity of activity depends on what the main bazaar street houses: for example, cinemas, office buildings or public facilities tend to dominate the type of commercial activity in their immediate vicinity, making the entrance hyperactive but only at certain times of the day. The dimensions of the spine also help determine the zone of influence as to the occurrence of other urban elements such as chowks, blind alleys, and chattas. Entrance on a secondary street has a less intensive activity zone than one opening onto a primary street.

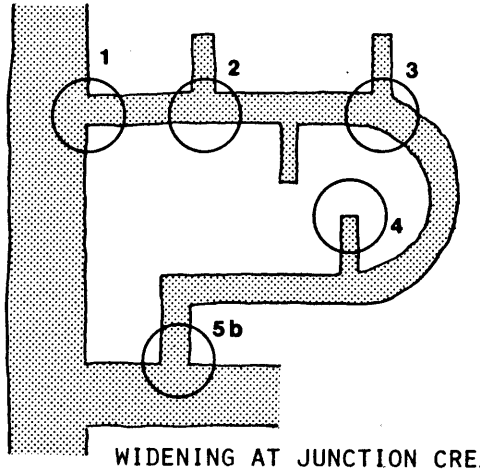
Because the overall character of the street networks depends on the variety and intensity of the entrance activity zone and the depth to which that influence penetrates into the area, urban elements used in a particular place clearly have an important role in determining its character. A looped street, for example, can generate a residential climate and effectively tackle the problem of commercial infiltration.

LOOPED

BOTH ENTRIES ON SAME STREET



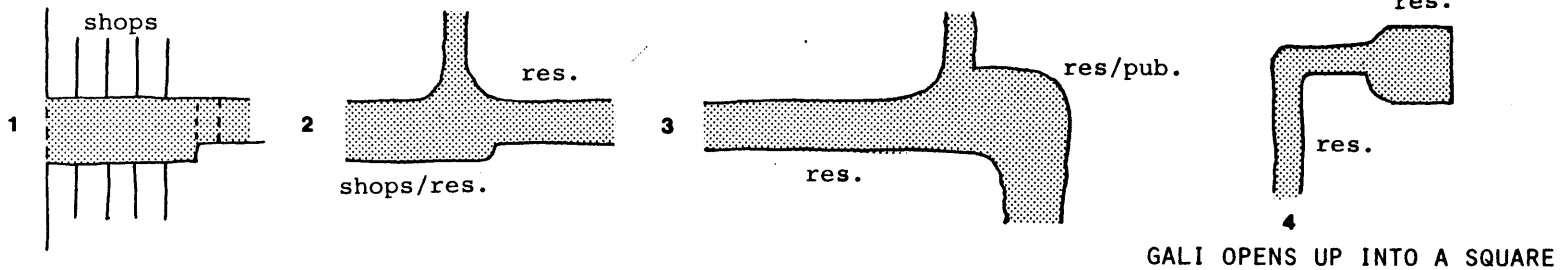
BOTH ENTRIES ON DIFFERENT STREETS



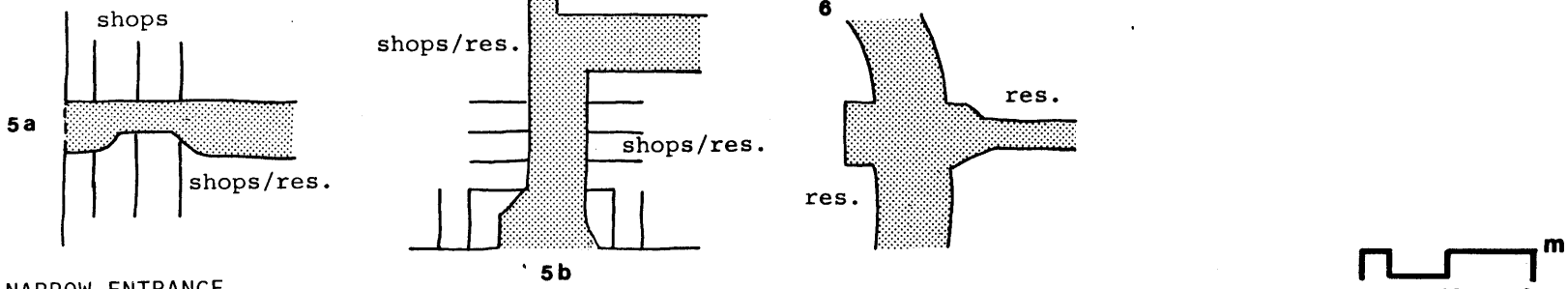
MOHALLA ENTRANCE

SQUARE FORMATION THROUGH SHIFT OF AXIS

WIDENING AT JUNCTION CREATES A SQUARE



GALI OPENS UP INTO A SQUARE



NARROW ENTRANCE WIDENING OUT

ENTRANCE FALLING ONTO SEC. STREET

FORMATION OF A SQUARE AT JUNCTION OF MAIN SPINE AND INTERNAL STREET

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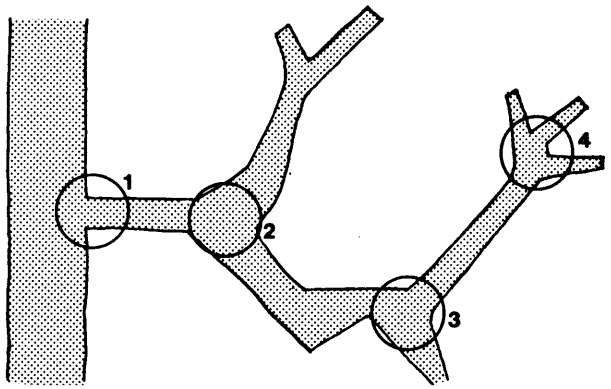
0 4 12 24

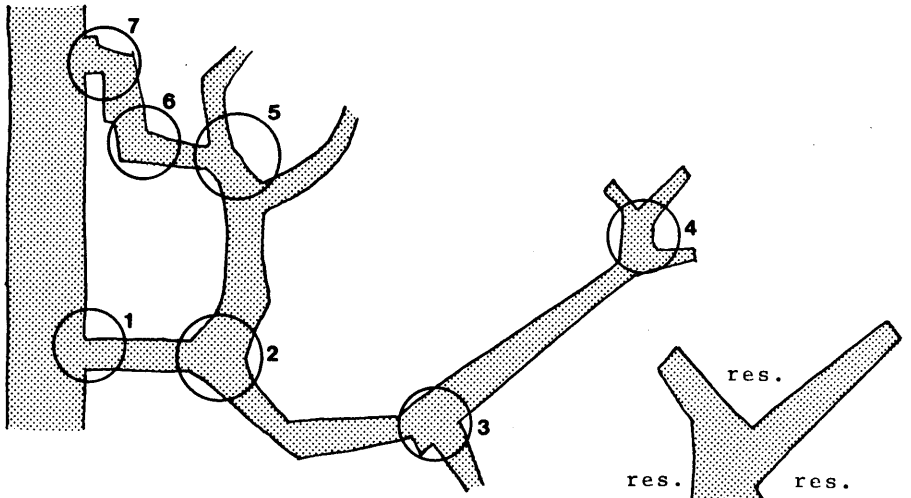
STREETS

TREE LIKE

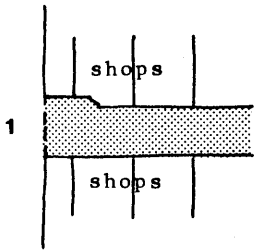
HAVING SINGLE ENTRY

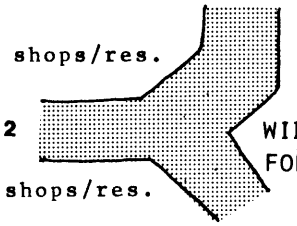


TWO OR MORE ENTRIES

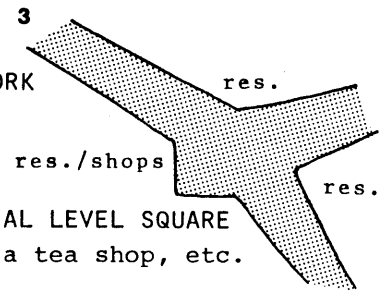


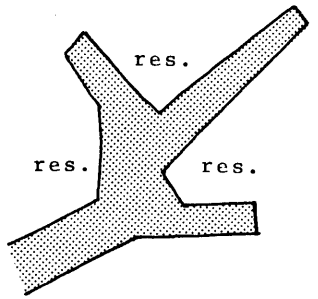
MOHALLA ENTRANCE





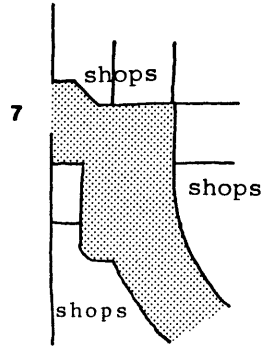
WIDENING AND A FORK FORMS A SQUARE



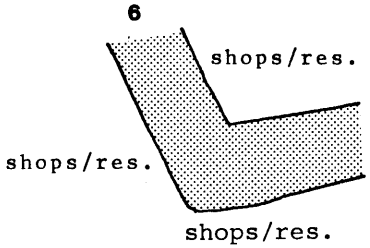


RESIDENTIAL LEVEL SQUARE

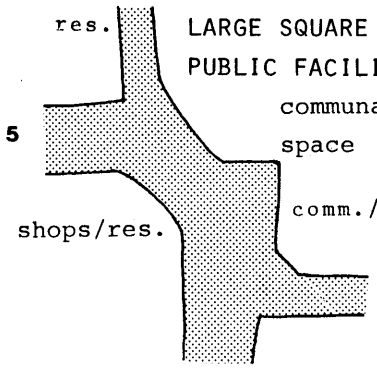
ENTRANCE FROM BAZAAR



JUNCTION SEPERATING MOHALLA AND BAZAAR STREET

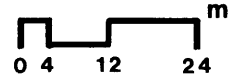


RESIDENTIAL LEVEL SQUARE
may have a tea shop, etc.



LARGE SQUARE HAS PUBLIC FACILITIES
communal gathering space

angle and narrowing of street
effectively seperates mohalla form bazaar



STREETS

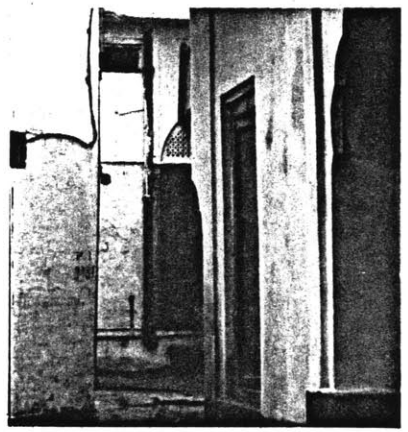
TREE LIKE

The tree-type of street with a trunk and branches also displays different spatial characteristics promoting different uses, depending on how many and what kind of entries it has.

The mohalla spine with only one entry displays the greatest level of privacy, in terms of the degree of infiltration of commercial uses and public functions. Here, too, factors such as proximity to primary bazaar streets, the dimensions of the spine, and the occurrence of other urban elements exert their influences.

A branching street pattern is much more effective in maintaining privacy and in controlling the infiltration of commercial and public functions than a linear one. The branches act as barriers, as is apparent from the clustering of commercial and public uses directly around the entrances. Even the looped pattern controls the growth of commerce and public uses to some extent but the linear form, especially where the spine has more than one entrance, encourages public and commercial activity well into the interior, unless the spine is unusually long.

Through the choice of street pattern, then, for both spinal and residential streets, combined with the manipulation of other urban elements, a designer can control the overall quality of the mohalla by controlling the infiltration of commerce and other public uses. The street does not function merely as a connector, but as an extension of one's domain. Its sense of place is achieved through the use of urban elements like chowks, blind alleys, chattas, and dahaleej.



blind alleys form interesting spaces

BLIND ALLEY

Blind alleys act primarily as connectors from residence to spinal streets. Their character depends on length, width, number of houses served, and the presence of urban elements such as chowks and chattas. The presence or absence of these elements determines whether a blind alley is simply a connector or an extension of private space.

Blind alleys can be used as play areas, a place to hang things out to dry, and other domestic uses. Even though part of the street, they provide breathing space in this otherwise dense setting. It also provides an identity for the resident who gets to be known as Mr. A of mohalla X and kucha or gali Y.

CHOWKS

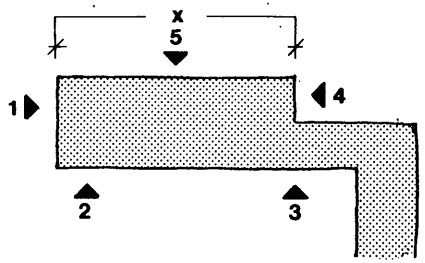
Within a mohalla, chowks form on spinal streets, on galis, at crossroads, at T-junctions, and at Y-junctions, but each form spaces of a somewhat different character. The type of activity they generate depends on: a) their proximity to the mohalla entrance; b) the dimensions of the square and the streets that feed into it; c) the characteristic of the street hierarchy, whether it is spinal or residential; d) the encroachment of commerce into the mohalla; e) occurrence of elements such as chattas and gateways; f) visibility; g) surface continuity; h) street material; i) zones of influence (i.e., commercial or residential); and j) street furniture.

Chowks on spinal streets are public and commercial in nature, serving both mohalla residents and outsiders. If the mohalla is large or its entrances fall on primary streets, public buildings can also be located there.

Chowks on galis serve only the houses which open onto them. They are used as informal gathering spaces by the residents. Occasionally one may find a tea-shop there if the gali is large enough. As an urban element they serve effectively as open communal space and as a private extension of space shared among neighbors. They are focal points where the inhabitants of the mohalla meet.

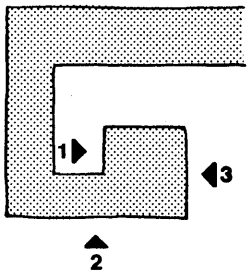
small residential chowks

FORMING CHOWKS



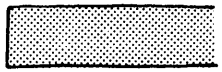
DEGREE OF PRIVACY
HIGH. THIS DEPENDS ON X

SOELY RESIDENTIAL AND SERVE AS EXTENTION OF SPACE FOR THE HOUSES OPENING ONTO IT

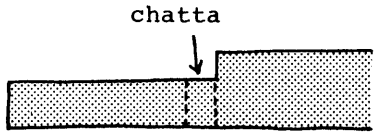


DEGREE OF PRIVACY
VERY HIGH

WITHOUT A TURN

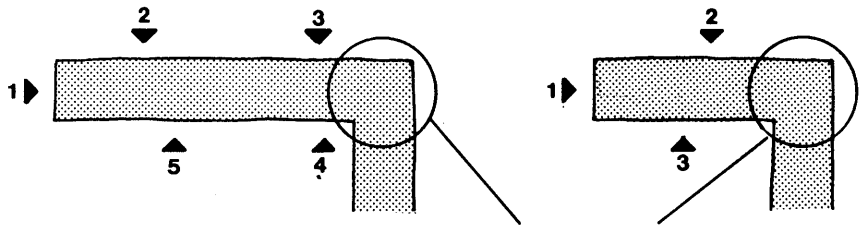


STREET WILL RETAIN A SEMI-PRIVATE - SEMI-PUBLIC QUALITY



STREET ASSUMES A SEMI-PRIVATE CHAR. WHEN CHATTA OCCURS AS A ENTRY

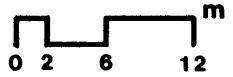
NOT FORMING CHOWKS



WHEN MORE THAN THREE HOUSES OPEN ONTO THEM DEGREE OF PRIVACY IS LOWER

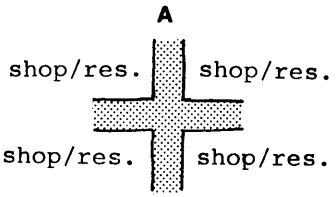
TURN IN STREET IS VERY IMPORTANT IN ACHEIVING PRIVACY

LESS THAN THREE HOUSES OPENING ONTO THEM DEGREE OF PRIVACY IS HIGHER

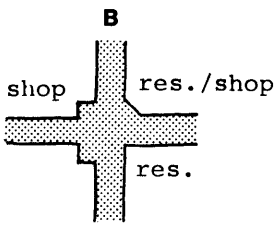


BLIND ALLEYS

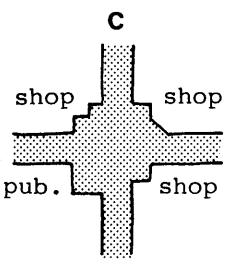
AT CROSSROADS OF STREETS WITH EQUAL WIDTHS



STARIGHT METTING OF STREETS DOES NOT INVITE PARTICIPATORY PUBLIC ACTIVITIES
no pockets formed for people to gather
high movement frequency



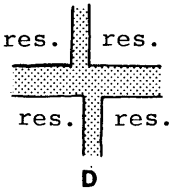
OPENING OF JUNCTION INVITES PUBLIC ACTIVITIES
pockets act as gathering spaces



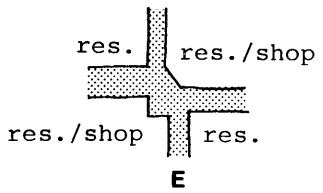
EXCESSIVE OPENING OF THE JUNCTION CHANGES STR. SCALE FROM SPINAL TO SECONDARY OR PRIMARY

AT CROSSROADS OF STREETS WITH UNEQUAL WIDTHS

THESE CHOWKS ARE FORMED BETWEEN SPINAL AND RESIDENTIAL STREETS

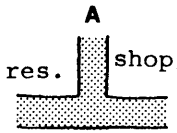


STRAIGHT MEETING OF STREETS DOES NOT GENERATE MUCH ACTIVITIES

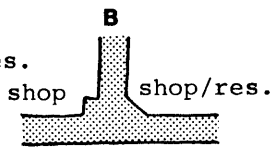


SHIFT IN AXIS FORMS A CHOWK
pocket holds activities

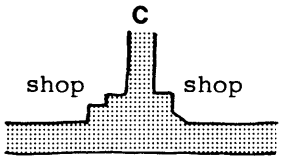
AT T JUNCTIONS WITH EQUAL WIDTHS



SAME AS IN A-1

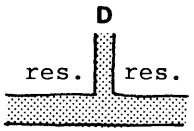


SAME AS IN B-1

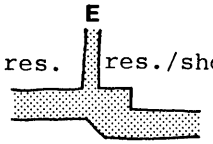


SAME AS IN C-1

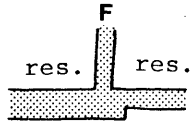
AT T JUNCTIONS WITH UNEQUAL WIDTHS



SAME AS IN D-1

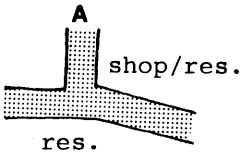


TURN IN THE STREET FORMS CHOWK

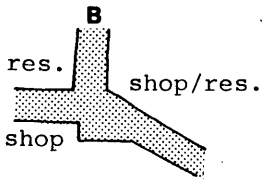


NARROWING OF SPINE FORMS A CHOWK

Y JUNCTIONS WITH EQUAL WIDTHS

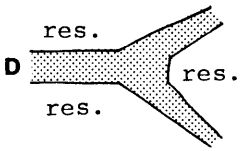


SAME AS IN A-1

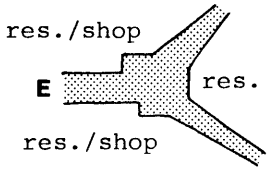


SAME AS IN B-1

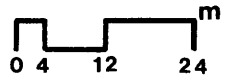
Y JUNCTIONS WITH UNEQUAL WIDTH



SAME AS IN D-1



SAME AS IN E-1

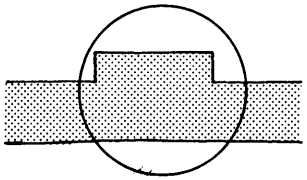


CHOWKS

WIDENING OF STREETS

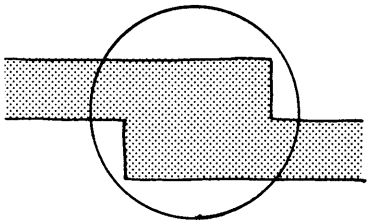
BOTH ENDS OPEN

A



DEGREE OF PRIVACY
LOWER

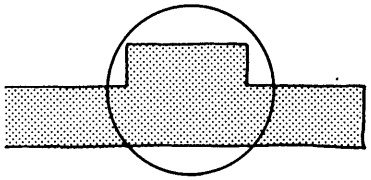
B



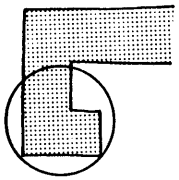
DEGREE OF PRIVACY
HIGHER AND IS
DEPENDENT ON
WIDTH OF STREET

ONE END OPEN

C



DEGREE OF PRIVACY
IS GREATER THAN
IN -A-
ALSO DEPENDENT
ON LENGTH OF
STREET

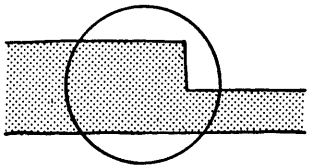


BLIND ALLEY
HIGH DEGREE OF
PRIVACY

NARROWING OF STREETS

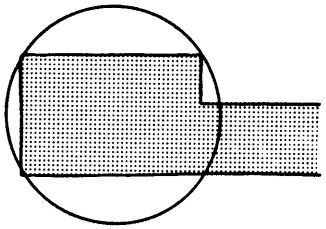
BOTH ENDS OPEN

A



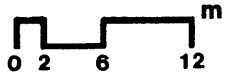
DEGREE OF PRIVACY
LOW

B



ONE END OPEN
DEGREE OF PRIVACY
IS VERY HIGH
ALSO DEPENDS ON
SIZE
CONDITION SAME
AS THAT OF A
BLIND ALLEY

CHOWKS ARE PRIMARILY
RESIDENTIAL IN
CHARACTER
THESE SQUARES ARE
NOT NECESSARILY
FORMED AT STREET
JUNCTIONS
THEY ARE WITHIN THE
STREETS THEMSELVES



CHOWKS

CHATTA

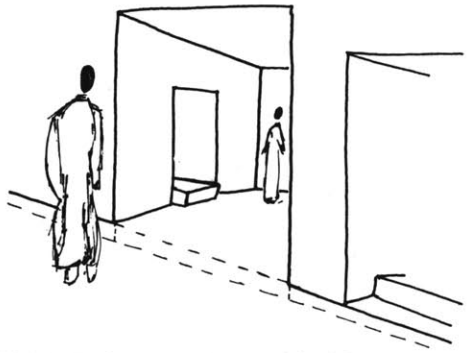
Whenever a chatta occurs, it changes the quality of space, whether on a spinal street, chowk, or blind alley. Aesthetically it provides a pleasing break in continuity by producing different light conditions and volumes. As an extremely strong element of spatial definition, it creates a sense of place. It is very much a deep gateway or portal. It forms a shaded space for people to gather, provides visual relief by creating a change in the light and shadow conditions, and acts as an identifying element for the neighborhood.

Chattas are rarely built today because modern bylaws allow use of air rights only if both houses are owned by the same person. But designers could use overhangs, cantilevers, pergolas to create more or less the same effect by breaking surface continuity, creating areas of light and shade, and defining space.

chattas create interesting light and shade conditions

CHATTA

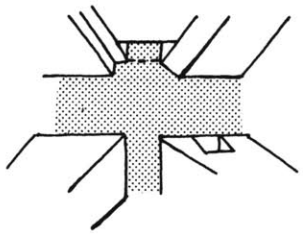
CHATTA DEFINES AN EDGE AND INDUCES A SENSE OF TERRITORY



ENTRANCE TO HOUSE COULD BE FROM WITHIN THE CHATTA

CHATTA AND ALLEY

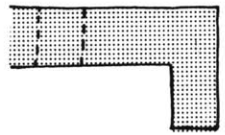
CHATTA AND CHOWK



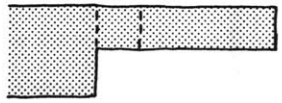
SHIFTS THE FOCAL POINT OF THE CHOWK

ENCOURAGES ACTIVITIES

ADDS PRIVACY



TRANSFORMS AN OPEN ALLEY INTO A PRIVATE SPACE



DEFINES THE ALLEY AT THE THE JUNCTION WHERE IT WIDENS

GATEWAYS

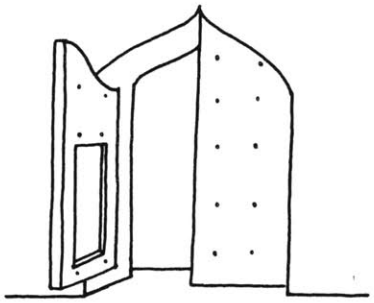
Gateways occur not only at entrances to mohallas but in some larger mohallas they separate different areas within it. Traditionally they were used for defensive purposes, and were shut after sunset. Today their function is symbolic: a gateway evokes a sense of territory demarcating the mohalla boundary from the primary/secondary street.

A gateway's function is similar to that of a chatta, with respect to a square, street, or alley. A gateway also acts as a focal point of activity. A bench under the gateway invites people to sit under it and participate in the various activities going on there. Gateways within a mohalla distinguish one area from another or distinguish a Muslim from a Hindu community.

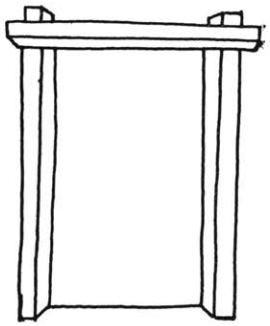
Today, elaborate gateways are no longer needed for protection, but they can still be built in new developments to define its edges, become focal points for various activities, and provide visual relief and a break in continuity.

gateway as a symbol

GATEWAY

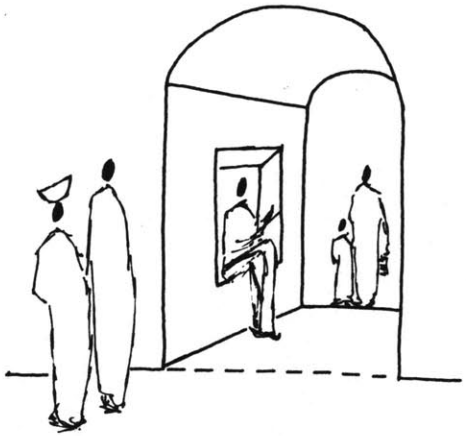


FORMAL GATEWAY WITH DOOR



POSTS SYMBOLIZING A GATEWAY

DEMARCATES MOHALLA BOUNDARY AND DEFINES THE EDGE

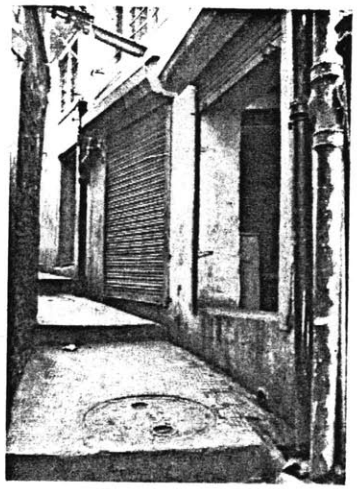


SERVES AS A FOCAL POINT AND ATTRACTS PEOPLE TO GATHER AROUND IT

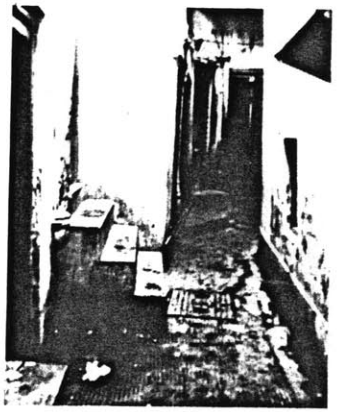
CHANGE OF LEVEL

In public places steps are most frequently seen at mohalla entrances, chowks, under chattas, and at gateways. At times a series of steps can act as a street. In private places, steps define a house or shop entrance and form the dahaleej (threshold).

Although steps function primarily as connectors between different levels, they can also be used to define areas and hence to generate different uses. The activities generated depend on the size of the spaces thus set off.

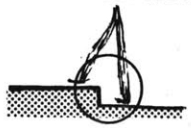


street as a series of steps

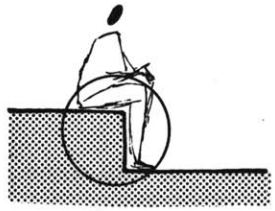


steps leading to a house

LEVEL CHANGE

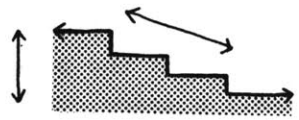


MARGINAL CHANGE IDENTIFIES CHANGE IN AREA

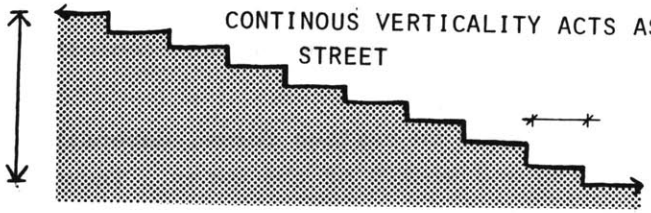


MAJOR CHANGE ALLOWS FOR VARIOUS ACTIVITIES TO TAKE PLACE

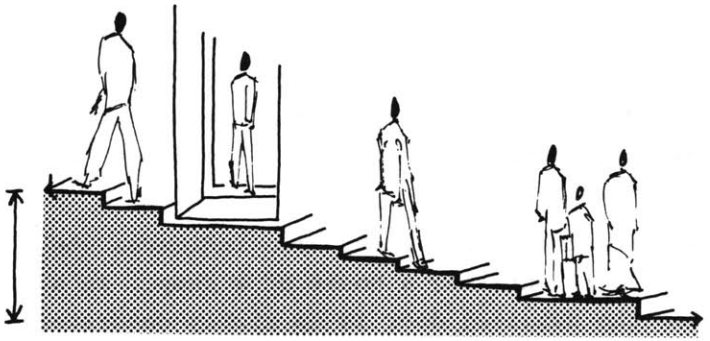
ACTS AS A BARRIER



INDICATES VETICALITY



CONTINOUS VERTICALITY ACTS AS A STREET



INTERRUPTED GRADIENT ACTS AS A STREET AND ALLOWS FOR VARIOUS ACTIVITIES

CONTINOUS GRADIENT ACTS AS A STREET

PAVING

Paving can also define different areas. By changing the paving, one can emphasize a change in function. A visual identification can thereby be established between different patterns, different colors, and different materials.

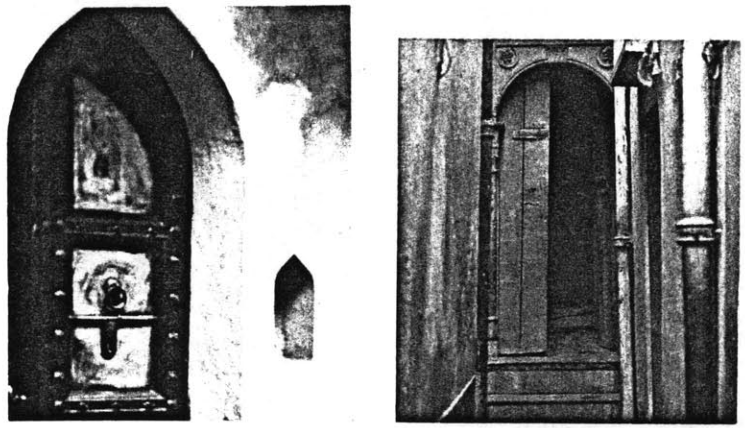
DAHALEEJ

The dahaleej, or threshold, is the area between the house and the street that forms the entry into the house. It therefore acts as a zone of transition in the level of privacy from interior to exterior. As an extension of the private domain it is also in itself a space, which technically belongs to the house, as its entrance is apt to be highly decorated according to the owner's taste.

The dahaleej comes in various forms, depending on the status and wealth of the owner. Though belonging to the house, it is part of the street in the sense that it can be used by both passersby and the occupants. Wherever a large, well-defined dahaleej is available, it becomes the meeting space for neighbors and a shaded area for passersby to rest or sit and look out into the street.

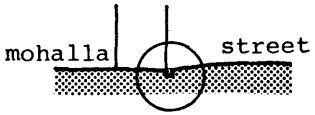
The character of the entry also indicates whether one is entering a house or a shop. In a house the dahaleej door is as richly decorated as the facade. The decoration not only indicates the occupant's social status, but tells what religious group--i.e., Muslim or Hindu--he belongs to and perhaps even the sect to which the family belongs. Door knobs have identifying elements and add to the richness of the space.

The dahaleej, as the only decoration in an otherwise blank facade, adds visual interest to the street by providing breaks in what would otherwise be a monotonous surface. Its insertion changes the street from a linear element to a series of linked spaces acting as extensions of the private domain. The manner in which each extends into the street and is decorated gives each street its own distinct quality. Entrances to shops are less decorated and have only a few steps as an entrance area. They usually have no extended plinth unless the shop is a large one. Within the mohalla, though, one never sees such large shops.

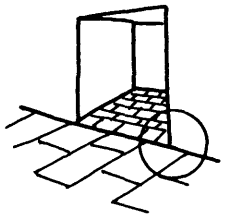


doorways as thresholds

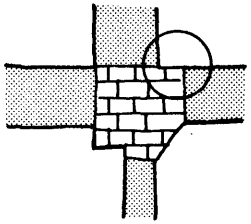
MOHALLA ENTRANCE



CHATTAS AND GATEWAYS

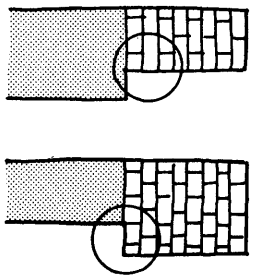


AT CHOWKS

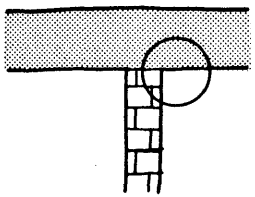


CHANGE OF PAVING EMPHASIZES THE SQUARE

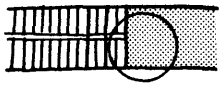
BLIND ALLEYS



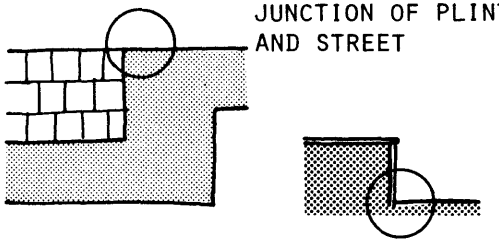
STREET JUNCTIONS



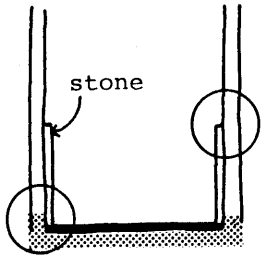
STEPS



JUNCTION OF PLINTH AND STREET

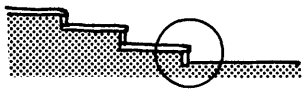


HOUSE AND STREET JUNCTION

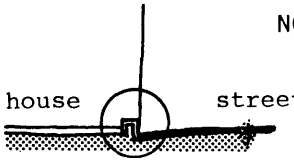


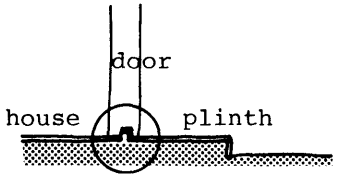
HOUSE ENTRANCE AND STREET

STEPPED ENTRANCE

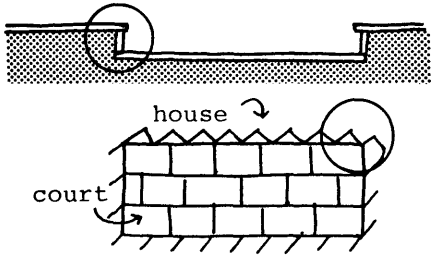


NO STEPS





WITHIN COURTS

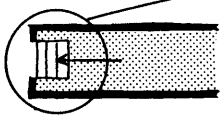


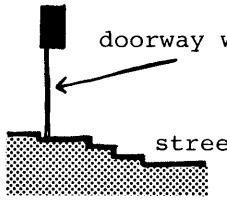
PAVING

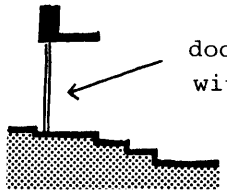
PAVING CREATES AN EDGE

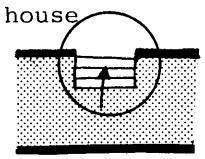
STRAIGHT ENTRY

HOUSE SITUATED AT
END OF NARROW STREET





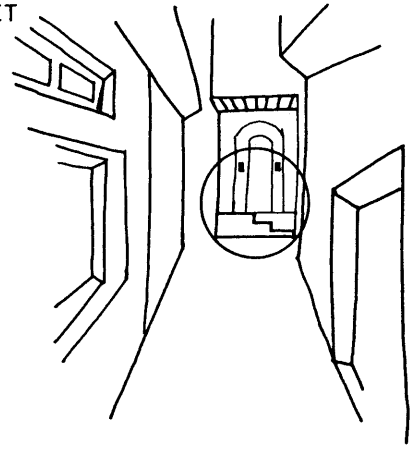




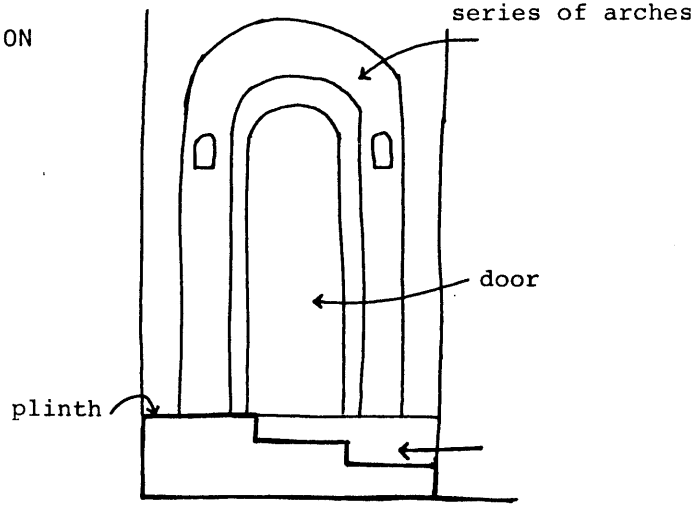
HOUSE SITUATED IN
WIDE STREET

ENTRY STEPS PARALLEL TO STREET

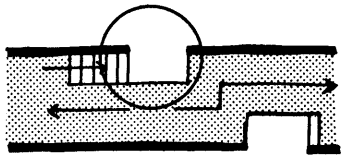
HOUSE SITUATED AT A JUNCTION

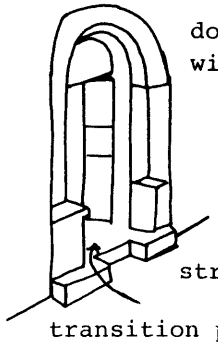


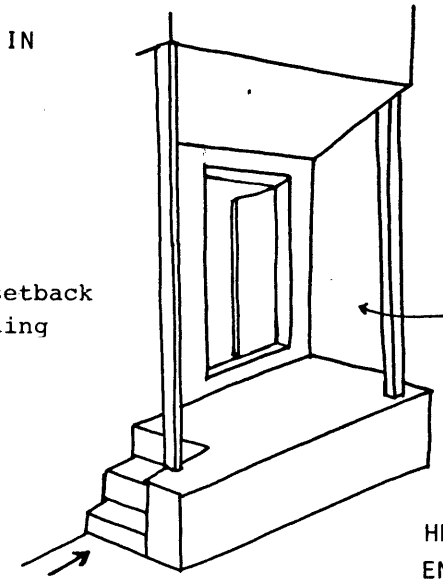
DOORWAY MANIFESTED
AS A GATEWAY

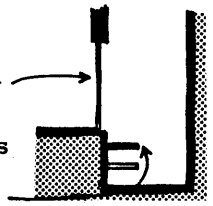


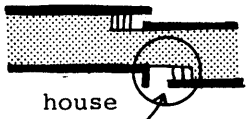
STAGGER











HERE ONE DOES NOT DIRECTLY
ENTER THE STREET. STAGGER
CREATES AN ENCLOSURE

DAHALEEJ

ENTRY AREA BETWEEN
HOUSE AND STREET

THE COURT

The internal courtyard is the most important element of the house in the walled city. It acts as an extender and a mediator of space. It can also function as a) a transitional element, or b) as a space articulator, or c) as a definer of space.

When it acts as a transitional element, it functions as an entry. In this case, to enter the house one has first to traverse the court. It is also a space where visitors are entertained. Sometimes, if it has two levels, its space can be devoted to more than one use.

When it acts as a space articulator, the court is further within the house. The house is not entered through the court and the court is, therefore, more secluded, becoming primarily a family place where only close friends are invited to enter.

When it acts as a definer of space, a court forms part of a larger room. Here the court is almost secluded and is usually small. It is exclusively for the use of the immediate family and functions primarily as a source for light and ventilation. It also serves as an extension of space, but only for the room that contains it, which limits its use. Larger houses may also contain courtyards of one or the other two varieties.

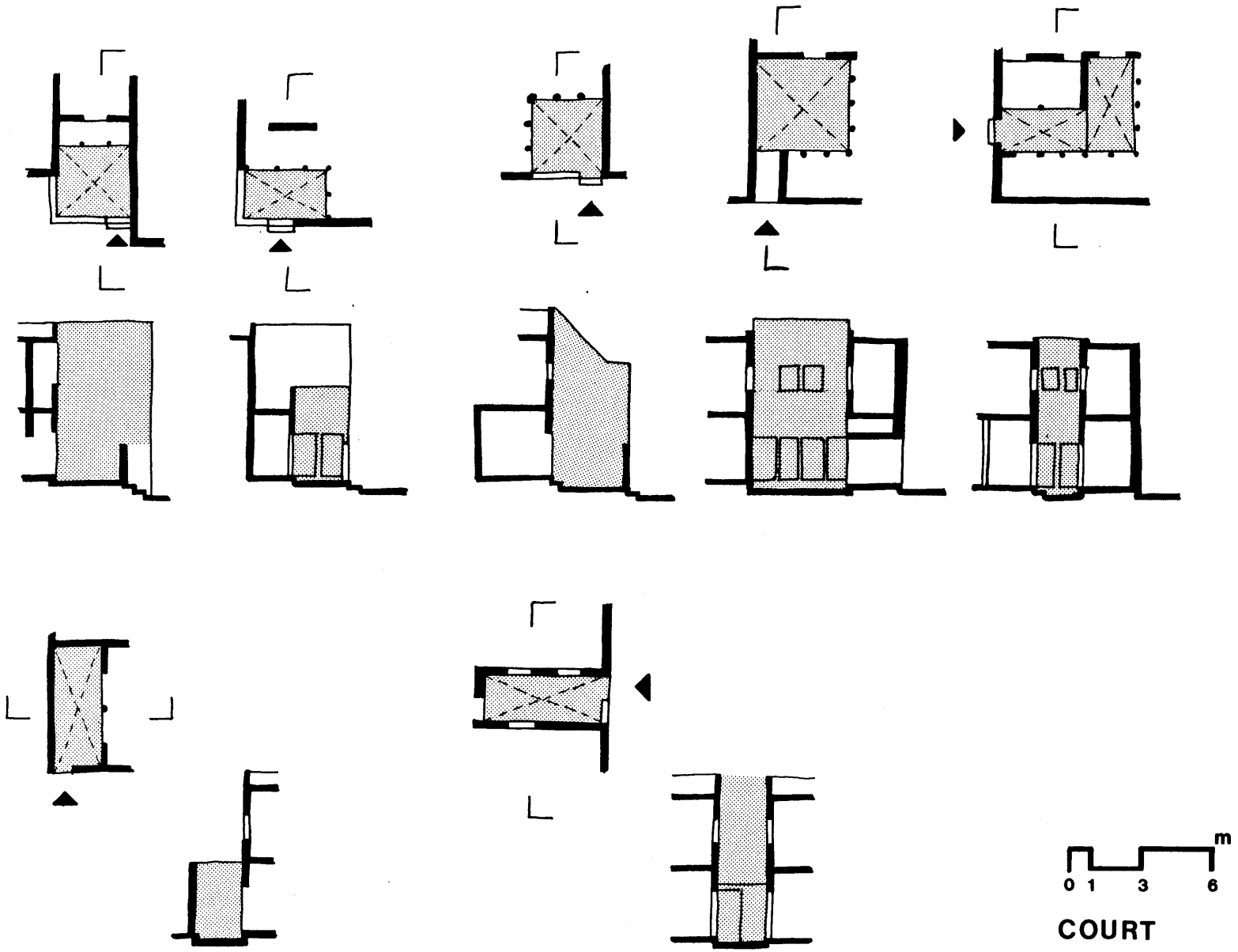
Although the court may originally have developed because of the hot climate, its present association and use far exceeds that of providing ventilation and light. The court functions as a link between an individual, a family, and a particular community. In different communities, the interior facade assumes different levels of complexity or simplicity. Muslims ornament the court or interior facade, whereas the Hindus decorate the exterior. Expression and size of courts also vary by ethnic group. One rarely finds a court as a definer of space in Muslim houses as one does in Hindu houses.

The kind of activity that goes on in a court depends on its position in the house, its size, its visibility from outside, and surface continuity or break both in plan and section, the type and use of the rooms around it, its paving, materials used, and landscaping.

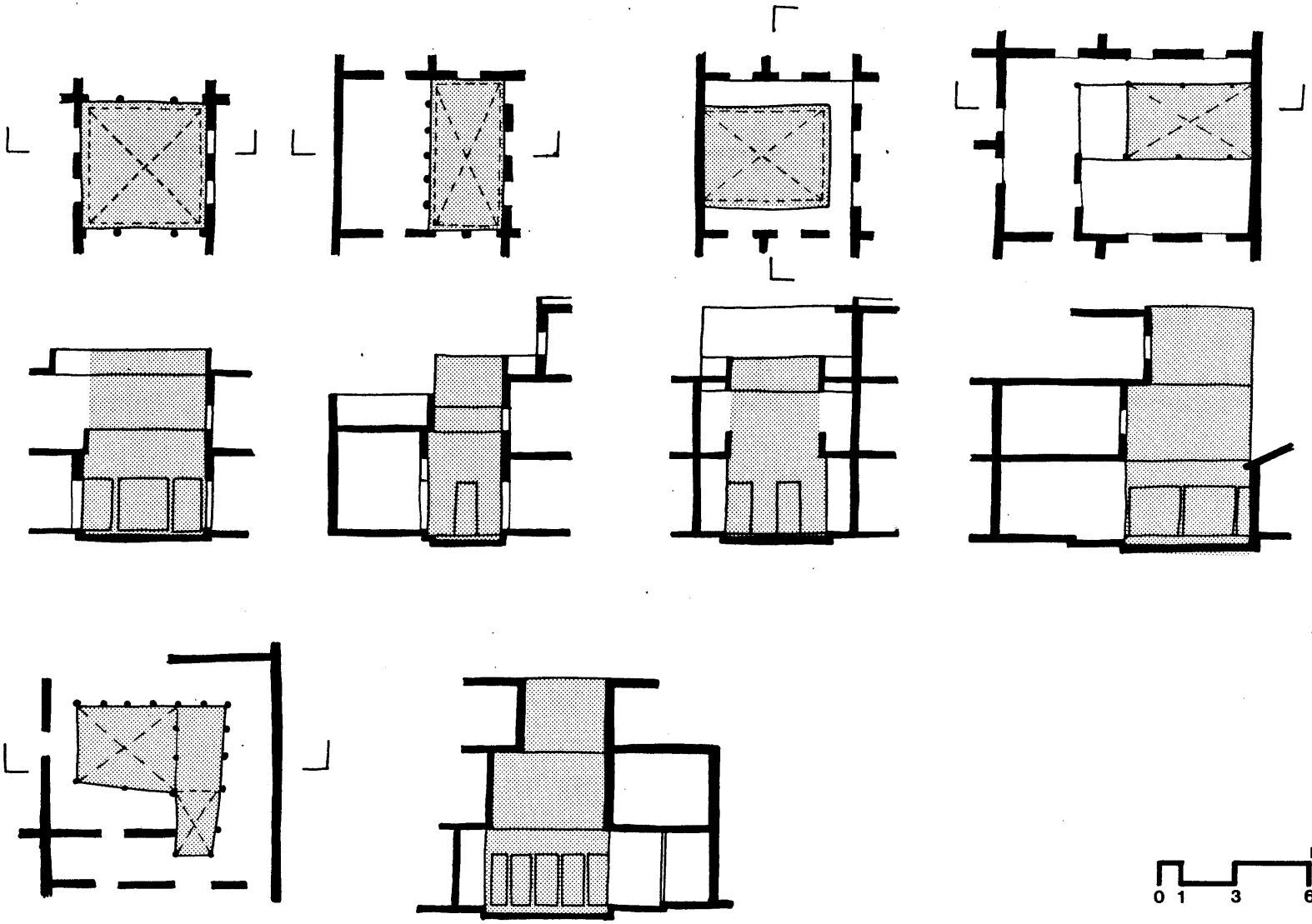
The court has always been used for multiple purposes: as a divider of the house into different zones, a connector of space, extension of living space, cooking space, and a variety of other uses.

Courts will continue to serve multiple functions, but now they have to be designed to accommodate newer uses. It can no longer effectively serve as a space definer, as it is now difficult and costly to build large houses, but as a transitory element and as an articulator of space, it can be a very effective tool both as an extension of private space and as a space for growth.

TRANSITIONAL ELEMENT

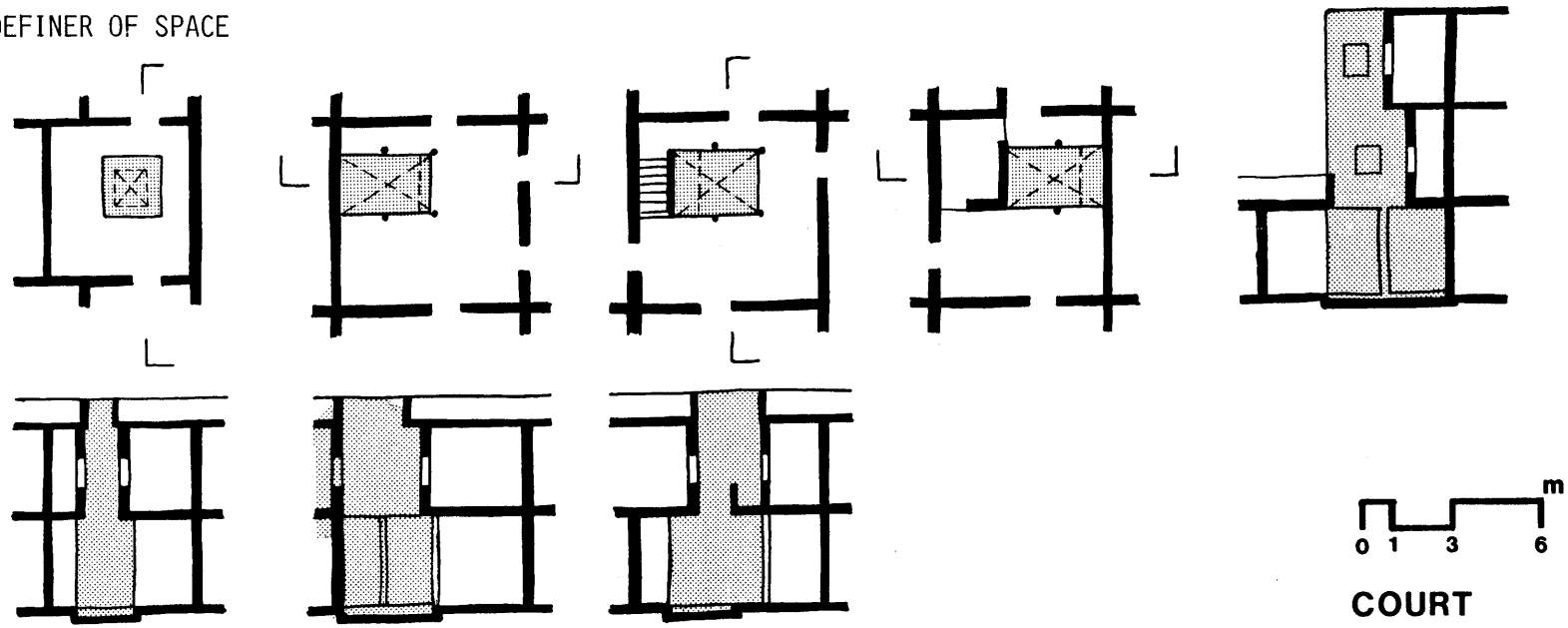


ARTICULATOR OF SPACE



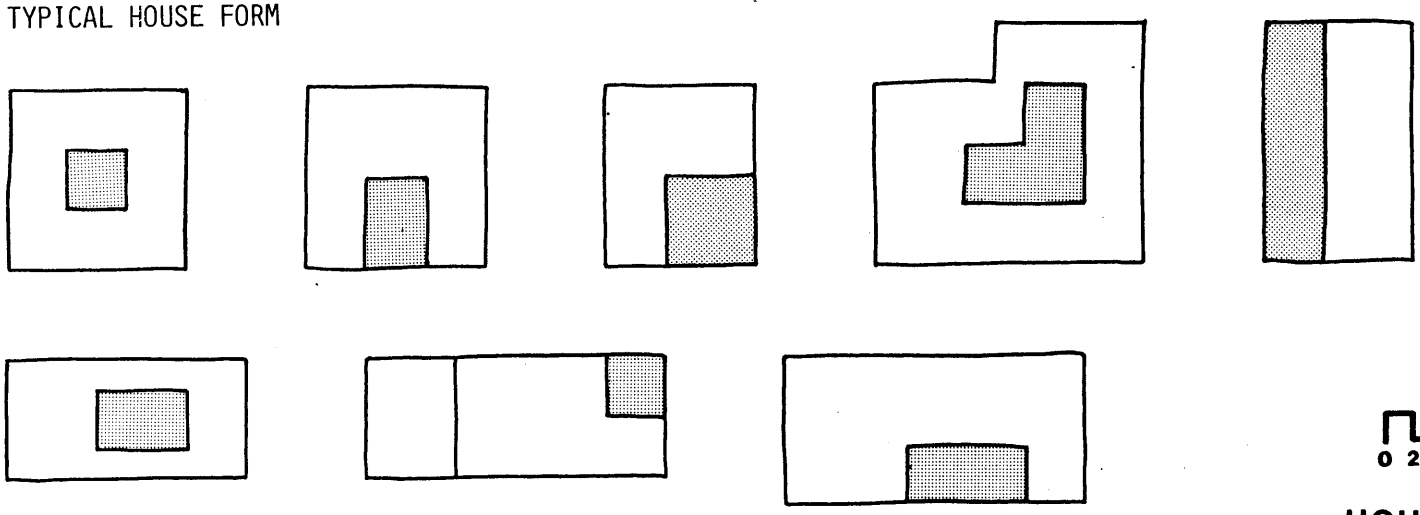
COURT

DEFINER OF SPACE



COURT

TYPICAL HOUSE FORM



HOUSE FORM

HOUSE FORM

A typical house assumes many shapes and sizes but it is always introverted and revolves around a court. Houses are sited back-to-back with the main facade on the street. The internal three zones--male, female and service--are linked through a court.

Today, changes in society, family structure, economic needs, tastes, and materials of construction precludes the replication of the traditional house form.

The delan is now rarely seen because, although such a space would still make a very effective outdoor-living space, land pressure and the need for more rooms have required its enclosure. A designer has to take this into account when designing new housing by making sure that the delan he devises can be converted into a separate room.

A verandah, though enclosed, still acts as a connector to the internal room, which limits its use since social attitudes now require privacy. Therefore, verandahs also must be convertable into conventional rooms.

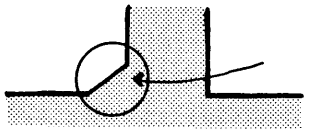
OTHER TRANSITIONAL ELEMENTS

Considering the urban fabric as a whole, there exists another set of physical relationships which have their sensory aspects. They include:

a) street corners and house corners, which invoke different perceptions and act as elements of transition and identification.

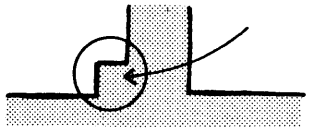
CORNERS

STREET AND HOUSE CORNERS



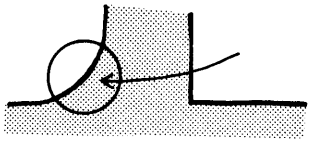
SPLAYED CORNER GIVES A VISUAL INDICATION OF A TRANSITION POINT

SPLAYED CORNER



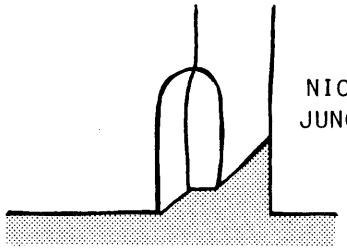
SIZE AND SCALE CONTROL VARIOUS ACTIVITIES

CORNER BROKEN UP



GIVES DIRECTION

ROUNDED CORNER



NICHE OPENS UP TIGHT JUNCTION

TREATMENT CORNER IN ELEVATION

OCCURS PARTICULARLY AT NARROW STREET JUNCTIONS

b) street junctions, which also act as transition points. A Y junction is distinctly different from both the T and the L junction.

c) different types of street stagger--e.g., widening, narrowing, turning, curving--also produce distinct characteristics which act as identification points.

d) movement from lighted areas into shaded ones provide transition. Variety in roof construction, projections, balconies, chattas, gateways all produce light and shade conditions, each with its own identity.

e) variations in ratio of vertical to horizontal create a sense of place and do not depend on the changing light conditions. One obtains the same effect of volume in light or in shadow.

Another set of relationships acts purely as elments for identification. These include:

a) constancy or change in material--different materials suggest different uses.

b) the age of buildings which provide a chronological point of reference. One can distinguish new buildings from old.

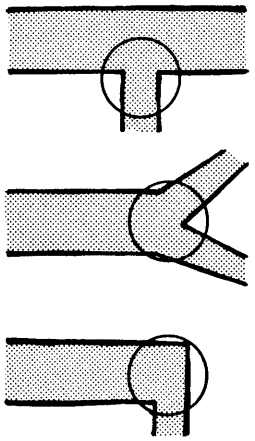
c) every structure or element has its own typical details recognizable even to an untrained eye.

d) color, too, is an easily identifiable element.

e) door decorations are identifiable elements that add their quality to a space.

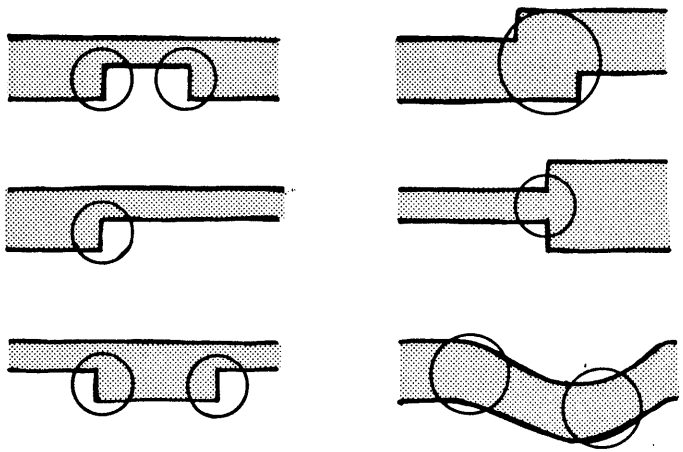
JUNCTIONS

JUNCTIONS BETWEEN STREETS

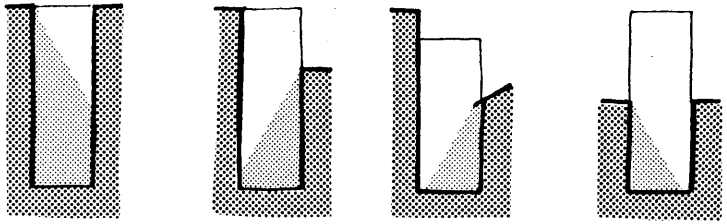


STAGGERINGS

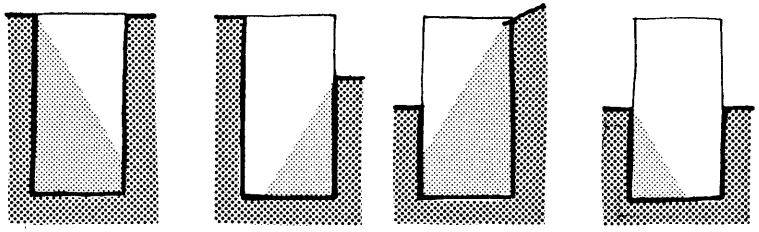
STAGGERING OF STREETS ACT AS POINTS OF TRANSITION



LIGHT & SHADE

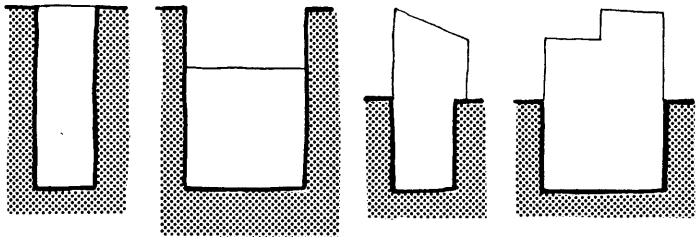


DIFFERENT HOUSE HEIGHTS ON BOTH SIDE OF THE STREET CREATE DIFFERENT LIGHT CONDITIONS



HOUSE HEIGHTS REMAINING
THE SAME CHANGE IN STREET
WIDTH ACTS AS TRANSITION POINT

VOLUMES



LONG & NARROW | LONG & WIDE | SHORT & NARROW | SHORT & WIDE

All of these elements depend for their effect on size, visibility, and surface continuity.

Size determines use and scale. Elements are all measured in terms of each other, giving scale to the whole and thereby playing an important role in place making: The same element can seem monumental or insignificant depending upon the environment in which it appears.

Visibility also helps establish the character of the space or structure. It also makes a place seem private or public.

Continuity, or its absence in plan and section, also helps establish the character of a space.

The elements which retain their importance even today are: a) the street, its hierarchy and typology, b) the chowks, c) the dahaleej, d) the court, and e) the house form. These elements should be designed incorporating today's changed needs. Their sizes, materials and forms should meet the necessary requirements to avoid functional obsolescence over a short period of time.

The use of other elements have changed over time, yet they serve as an effective tool for creating a place. They should be considered in design with the appropriate changes in form, size and materials.

IN SUMMATION

These remarks suggest the significant features the traditional city offers that need to be incorporated in any new building, while still accommodating changes in social attitude and in construction techniques. Colonial influences have already transformed the settlement pattern and have given rise to new house forms. More recently, new materials and techniques used for construction have given rise to new building forms, which today represent progress and modernity to the people. Changing social attitudes increase the need for privacy, removing life further from the street and increasing the semi-public space in between. New construction within the city walls manifests more sharply defined interior functions that are even more sharply defined than they are in the older houses.

Old living habits persist, however. The court, with its basic household facilities, remains, as does the relationship between the street and the chowk and the relationship of both to the individual and to the house.

Social, economic and family structures are changing faster than living habits, which are still tied to a certain extent with traditional urban patterns and forms. On the other hand, the change taking place in society demands change in the traditional physical pattern. It is up to architects and planners to find a compromise between these sometimes conflicting demands and provide the environment the society requires.

GUIDELINES

The viable elements of the existing urban settlement are:

1) the quality and hierarchy of primary, secondary, tertiary and residential streets as opposed to a grid-iron pattern.
2) the importance of the chowk, gali, chatta, dahaleej for the neighborhood both as livable spaces in the climate and as place-making devices.
3) the courtyard and its importance to the family, which can be adapted to modern needs.
4) the mohalla as the entity responsible for the welfare of its inhabitants in contrast to the impersonal living in apartment buildings.
5) the need for temples, mosques, and schools in the neighborhood and the implications of their presence there on the social and cultural life of the inhabitants.
6) maintaining a balance between residential and commercial functions.
7) the advantage of low-rise, high-density settlements over high-rise, low-density settlements.

Traditional cities present urban designers and planners with these and other elements which can be used in designing for these areas. Instead of trying to understand the complexity which is the essential characteristic of the

existing built form and modifying it in terms of today's context, it has simply been seen as a liability. These areas can easily become dark, dingy places without proper light, ventilation and sanitary facilities. To avoid that, designers and planners need to find a balance between the traditional urban form and the modern conveniences and services which the population demands

The following planning guidelines are intended to put all new developments within what I feel to be a desirable context.

1) The social norms and values of the community can be reconciled with new requirements by designing both urban and house forms in ways that respect the interactions within this environment. New developments should maintain the traditional zones, with their various definitions and degrees of protection between the house and the outside street and between the outside street and the mohalla. This set of relationships also has to accommodate the need for increasing the amount of privacy within the house.

2) Maintain a balance between commercial and residential uses within the area. This can be achieved by identifying businesses willing to move from the locality through a program of incentives that would supply necessary financial and space allocations. The local government should be made responsible for this. The space, thus vacated, can then be re-designed for residential purposes.

3) Families willing to move out of the area should also be identified and accommodations be provided for them in new predefined areas. The houses made vacant could then be allocated either to families living in poor conditions or the redesigned areas.

4) House design should take into consideration the changing family structure by providing separate units for the various components of the extended family living in the same house. This can be accomplished by designing a two-story house as two separate units with the courtyard, staircase, and the main family room serving as shared space. The staircase should be within the house to maintain family privacy.

5) New designs should recognize the preference of the Muslim community's need for additional commercial space by incorporating into the design spaces for additions that can serve as shops. In doing this, one has to impose sufficient control so that these additions do not overwhelm the land use characteristics of the development. This can be done by restricting, through design decisions, the size of spaces available for commercial additions and limiting use to small workshops and retail commerce and forbidding wholesale or industrial uses. If it is not carefully designed and regu-

lated, within a few years, the problems of commercial growth will appear once again.

6) The design of the existing schools needs improvement. Land around the schools ought to be cleared to provide playgrounds and additional facilities. Since the options in choice of oocupation are limited, vocational training institutions are particularly needed within the walled city.

7) Spinal streets should be wide enough to allow access to small emergency vehicles. Government standards propose 6-8 meters as standard street widths. This is wider than necessary. If one is to maintain the character of the streets, the right of way should not be greater than 5-6 meters and that is sufficient to accommodate emergency vehicles.

DESIGN GUIDELINES FOR INTERVENTIONS

These guidelines are basically intended more as an indication of the generic rather than be specific as regards the actual physical form.

1) All new developments should be residential but should allow for some restricted retail uses. No industrial use, wholesale trade, or warehouse activities should be allowed.

2) On secondary or primary streets, retail shops should be provided with residences on the floor above. Shop and residence should preferably be owned by the same person. Commerce should not be allowed after the first block or two beyond the mohalla entrance. Details of the zoning regulation should depend on the size and nature of the site.

3) Design of the site should deter growth of commerce beyond the designated area through the selection of street pattern, street size, and the use of other urban elements. The mohalla should have a) a commercial cum residential zone fronting the main streets and around the entrance, b) a growth area beyond the mohalla entrance, and c) a completely residential area in the interior.

4) The overall division of the site into different blocks should suggest a flow of activities and should not segregate areas. This can be regulated by the manipulation of the street hierarchy and the placement of the chowks.

5) New developments should be designed for a mixed income group; houses should not be segregated by size.

6) Streets should be laid out on a pedestrian scale. New developments should retain the narrow streets within the residential lanes. Spinal streets should also retain their pedestrian character, but streets

should be wide enough to allow emergency vehicular access.

7) The new developments should incorporate fire-fighting devices, since the area lacks these services, and the streets and lanes are too narrow to allow fire vehicles into it. Whenever possible, new developments should include fire stations and fire hydrants.

8) House heights should be restricted to the heights of the surrounding houses. Maximum permissible height should never be more than ground floor plus two stories.

9) Depending on site location and topography, the branch or looped pattern of streets should be chosen as the more effective way both of organizing a mohalla into different zones and of controlling the environment from commercial pressure.
   - Chowks should be designed for public and residential uses. Chowks on the spinal street near the entrance should have public or commercial uses opening onto them. Chowks in the interior, especially those formed in residential lanes, should be small and designed to serve only the residences opening out onto them.
   - Chattas will be difficult to incorporate, given the bylaw restrictions, but the environment they create can be approximated by the use of cantilevers, pergolas, and other kinds of projections to create a similar environment, yet be distinctive in material and design.
   - Gateways are an important mohalla and area-defining element. Since their function is by now purely symbolic, they need not be elaborate. The area around the gateway should be designed to allow for the kinds of activities that tend to take place around an entrance. When mohallas have more than one entrance, care should be taken to differentiate between the two. One should be kept more secluded even though both may open onto either primary or secondary streets.
   - All houses should be provided with an entrance transition area. Its shape, nature, and size will depend on its relation to the street.
   - House siting should maintain the traditional back-to-back relationship. Each house either fronts on a street or have semi-private access to it. Each house should have its own court, whose size, shape, and location should be determined by identical occupant needs. Each house should be provided with a verandah (delan) space that can be converted into a fully functional room and terrace space that can also be used for potential expansion. Most old houses do not have windows opening out into the streets, but modern life now requires some windows on the facade. But they should be

designed to ensure privacy from the neighbors across the street.

10) A second layer of circulation should be provided for the use of women. This can be done through an interconnecting house terrace, but care should be taken to maintain the privacy of each terrace.

11) Particular care should be paid to the way scale and surface are used. Together they establish relationships between structures; their judicious and sensitive application adds tremendously to achieving a sense of place.

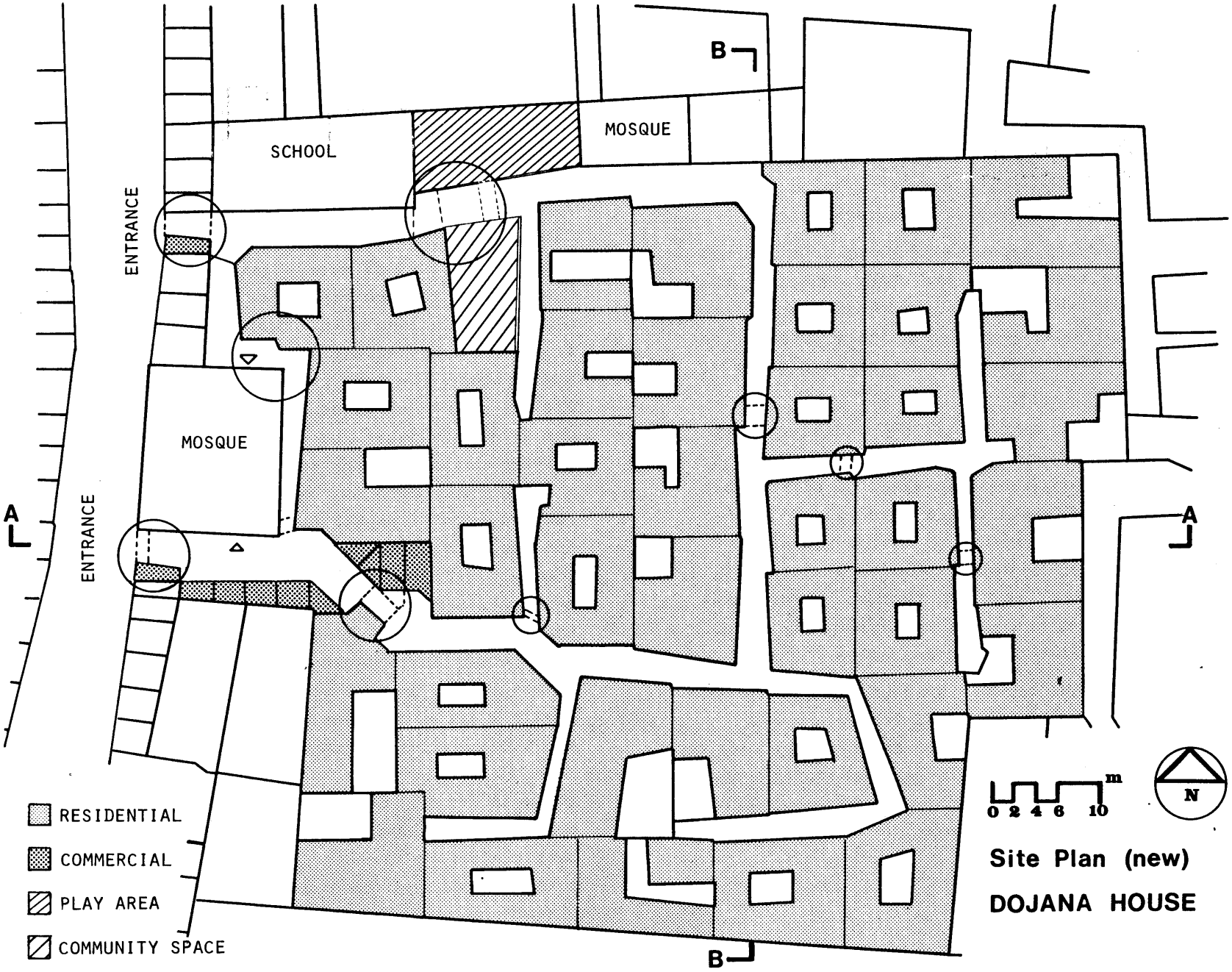
12) Choice of detail will help identify both house and area. New developments should not be monotonous in their details. Each area and house should have its own distinct detailing, both inside and out. Doors can be differentiated by material, size, detailing, and hardware. External differentiation can be achieved by using different materials and color.

13) Similarly, street furniture should differentiate public spaces. Certain areas should be provided and designed for use by children. More primitive lighting can add to the quality of chowks, gateways, and residential lanes.

PROTOTYPICAL SITE DESIGN FOR DOJANA HOUSE

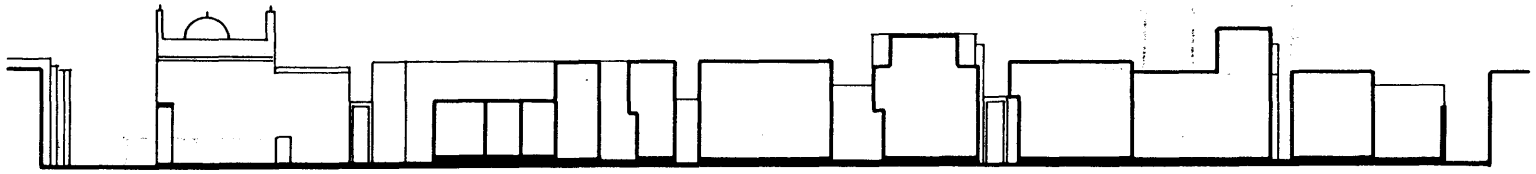
A new design is presented based on the guidelines proposed here for the Dojana House site. The designs are not detailed, but are only intended to test the feasibility of the guidelines. For the hypothetical design, the site has been cleared of everything except the two mosques and the schools. The spinal street is designed as a loop road. The two site entrances and the square site determined that choice since the loop can link the two entrances. The entrances are distinctly different from each other and are designed for different uses also. The larger entrance has shops opening onto it. By turning the street and providing a portal there the character of the street between commercial and residential zones is differentiated. The turn also helps to maintain that character. The smaller entrance leads to the play area and the community space. The pergolas designed there help create a link between the two spaces and also create a sense of place. These spinal streets are about 5-6 meters in width.

The area around the mosque has been designed to provide for some outdoor seating. The children's play area is located next to the school so that it can double as the school playground. The gates are about 2-3 meters in width and end in small squares. The design displays a high level of flexibility in the

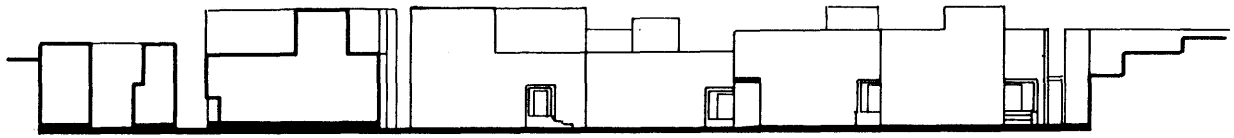


Site Plan (new)

DOJANA HOUSE



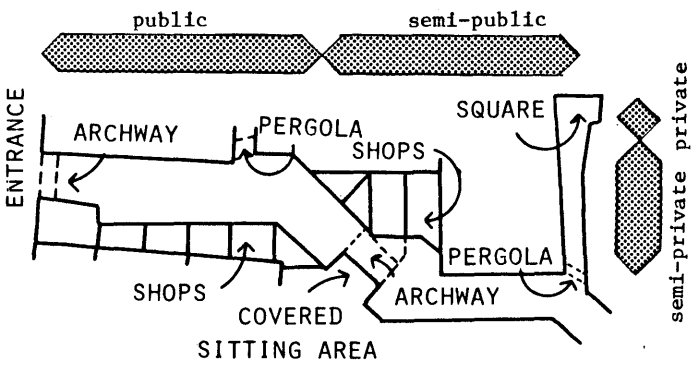
A-A

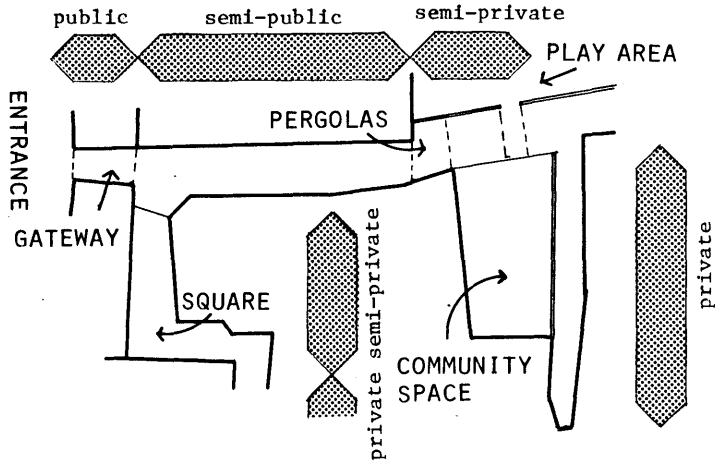


B-B

0 2 4 6 10 m

Site Sections





design of its open spaces both in the form of streets, chowks and play areas.

The houses are sited in a back-to-back relationship and all have internal courts. The total area of the site is 4992 sq. m. The built-up area is about 60%, of which 10% has been slated for shops. Courts constitute 15%, play area and community space 5%, and streets 20% of the total area. In all, there are 41 houses designed to accommodate about 60-70 families -- the larger houses can accommodate two families, or extended families, who live independently but prefer to remain under the same roof.

The design has incorporated modern service requirements in providing both for access routes for emergency vehicles and for infrastructure and its maintenance. The costs and the actual implementation process have not been worked out in detail. This ought to be done if one wants to compare its cost with those of block or apartment style buildings, but it would entail a study in itself. But even if the latter could prove to be equally cost effective, the proposed design still has the clear advantage.

The flexibility of this design allows for any adaptation the occupants will require as the social and economic conditions of the society change over time. Interventions in older quarters should avoid the social and economic obsolescence that results from rigidity. A design must be able to adapt to the occupants' needs and react to social pressures. This design and the guidelines aim to achieve the required flexibility.

AFTERTHOUGHTS

Although cultural discontinuity results from abrupt changes in the structure of the society and its systems, architects can alleviate the problem by a judicious use of appropriate interventions. This thesis has listed some techniques for manipulating physical elements to provide continuity. It has also raised issues that pertain to the nature of the physical forms, and the importance of social, economic, administrative and political systems in the shaping of the environment. Its' message is that a balance must be struck between technology and innovation on the one hand and maintenance of continuity through the conservation of a cultural heritage on the other--a balance that cannot be achieved simply through pseudo-adaptations of past forms, pure or modified. It requires understanding society, the change it is undergoing, and how that change can be represented through physical forms.

The physical forms provide clues to the underlying structure of the traditional built environment. Those, in turn, provide principles which can then be used to generate guidelines for making a new environment. Reinterpreting the traditional language involves the identification of elements, the hierarchical structure, and the significance of physical forms to that culture.

Traditional societies place their stamp on the structure of both the house form and the urban fabric. As societies change, the functions of the house form changes. However, the manifestation of the form has its effects on the culture's perception of space. The differentiation and clear separation of the formal and the informal parts of the house still have a meaning in the contemporary society, but it is more flexible. The reception or living room, in particular, no longer displays the same flexibility as furniture and television sets find their place in them as symbols of modernity. Cooking areas also become less flexible as the use of appliances make it impossible to move meal preparation into the court. In the mohallas as well forms have changed to accommodate new uses and new street furniture. The link between form and determinant is not direct. The mechanics are complex.

From the structure of physical forms, one can project trends in the physical environment. Through observing the traditional environment for formal adaptations to a changing context, one can begin to understand how an urban structure can be derived from a built form that is rooted in a traditional setting.

The thesis is an attempt to understand the structure of the traditional form and its transformations and to demonstrate a step by step analysis of its component parts. One important conclusion to be drawn is that one's design should maintain traditional continuity but not the traditional built forms. To do this, one needs to utilize the intuition that is developed through gaining familiarity with the community and its culture. Unfortunately, most architects and planners look upon culture as a static phenomenon, and their attempts to revive tradition have been nothing more than a step backward.

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GLOSSARY

CHATTA	- Upper story of a residential structure crossing over a street or lane
CHOWK	- Squares
DAHALEEJ	- Threshold. The entrance space between the street and the house
DALAN	- A verandah, or a semi-open space which surrounds the court
DARWAZA	- Gateway. Also means a door
GALI	- Residential lane
HAVELI	- Large mansion
KATRA	- A complex of residential and commercial buildings, enclosed by high walls and entered through a gate
KUCHA	- Indicates a quarter with a linear spine
MARDAN KHANA	- Male section of the house
MOHALLA	- Clearly defined residential cum commercial quarter
SHEHAN	- Internal courtyard
ZANAN KHANA	- Female section of the house