Traditional Dwellings: An Architectural Anthropological Study from the Walled City of Lahore

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***Abstract*—Traditional dwellings were planned in response to ecological, cultural and economic factors as major determinants. These in results formulate the architectural style of the area in the region. The shape and form of the traditional dwellings were also dervied in harmony to the determinants and not concieved as an isolated element. The traditional dwellings were found to be the symbolic representation of beliefs, cultural norms, social principles, political systems and economic logics of their time. Therefore this interdisciplinary research was initiated through architectural anthropological methodology to study the traditional dwellings in the Walled City of Lahore and for the documentation of the interventions/ modifications with the passage of time.**

***Keywords*—Anthropological, Architectural, Dwelling, Traditional, Lahore, Walled City**

I. INTRODUCTION

Traditional dwellings or architecture (materiality of built form) is an expression of technology in combination with art for the satisfaction of human desires (ecological, cultural and economic). A traditional dwelling interact with the surrounding environment and brings together the impacts of social, cultural, natural territorial, regional and climatic features in the form of particular architectural style. The increasing globalization and advancement in science and technology have caused us to move away from our traditional architecture. And the standardization of built environments globally results in lack of cultural and regional identity [1]. The use of same building methods, materials and styles globally, challenges our ability to achieve sustainable living necssary for the climate responsive architecture which is evident in present residential architecture of Pakistan. The western style is considered more acceptable for the name of modernization leaving behind the traditional style. The modern houses usually follow environment intensive modern style to achieve comfort rather than the inclusion of natural phenomenon [2].

The houses, now being built, are losing their relevance to their region by creating uncomfortable living environments. The artificially generated indoor environments are isolated, cutting off our connection with nature [3].

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II. RESEARCH METHODOLOGY

For this architectural anthropological research, the focus of study is the traditional dwellings or residential architecture of the Walled city of Lahore, Pakistan, a city with a rich cultural background. The selected area is well known for its traditional dwellings following the historic continuity over the years even in this modern period of 21st. century. In the present scenario, the house design trends are continuing to become more and more westernized in a pattern that is not suitable for the region because of their inability to provide comfortable living environments and life-enriching spaces as was in the past [1]. For the development of the climate compatible sustainable architecture in this modern era the architectural anthropological analysis was performed in the Walled City of Lahore. The following three case studies were selected as representative sample for the study of traditional dwellings in the Walled City of Lahore as shown in Figure 1, 2 and 3.

III. RESULTS AND DISCUSSIONS

A. Traditional Dwellings of Lahore

The studied traditional dwellings clearly depicted the regional architecture following the natural terrain, environmental setting, climate, local materials and traditional construction style fully incoroporated with socio-cultural norms and comfortable living spaces with the use of passsive design strategies [4]. The selected houses represented the building typology of regional courtyard houses locally known as " Haveli" [5, 6].The architectural elements like high roofs, thick walls with ventilators, screens, verandah, balcony, shades in the form of overhangs, wide openings with orientation and natural hard/soft landscape were used for sustainable climate compatible constructions [7].

B. Spatial Structural Analysis of Traditional Dwellings

The spatial structural analysis of traditional dwellings (Table-I) showed the interplay of natural elements with the placement of house location, design and layout [8]. The architectural fabric also followed the natural settings while accomodating the complex socio-cultural principles (imbedded with the beliefs) and economic conditions [9].

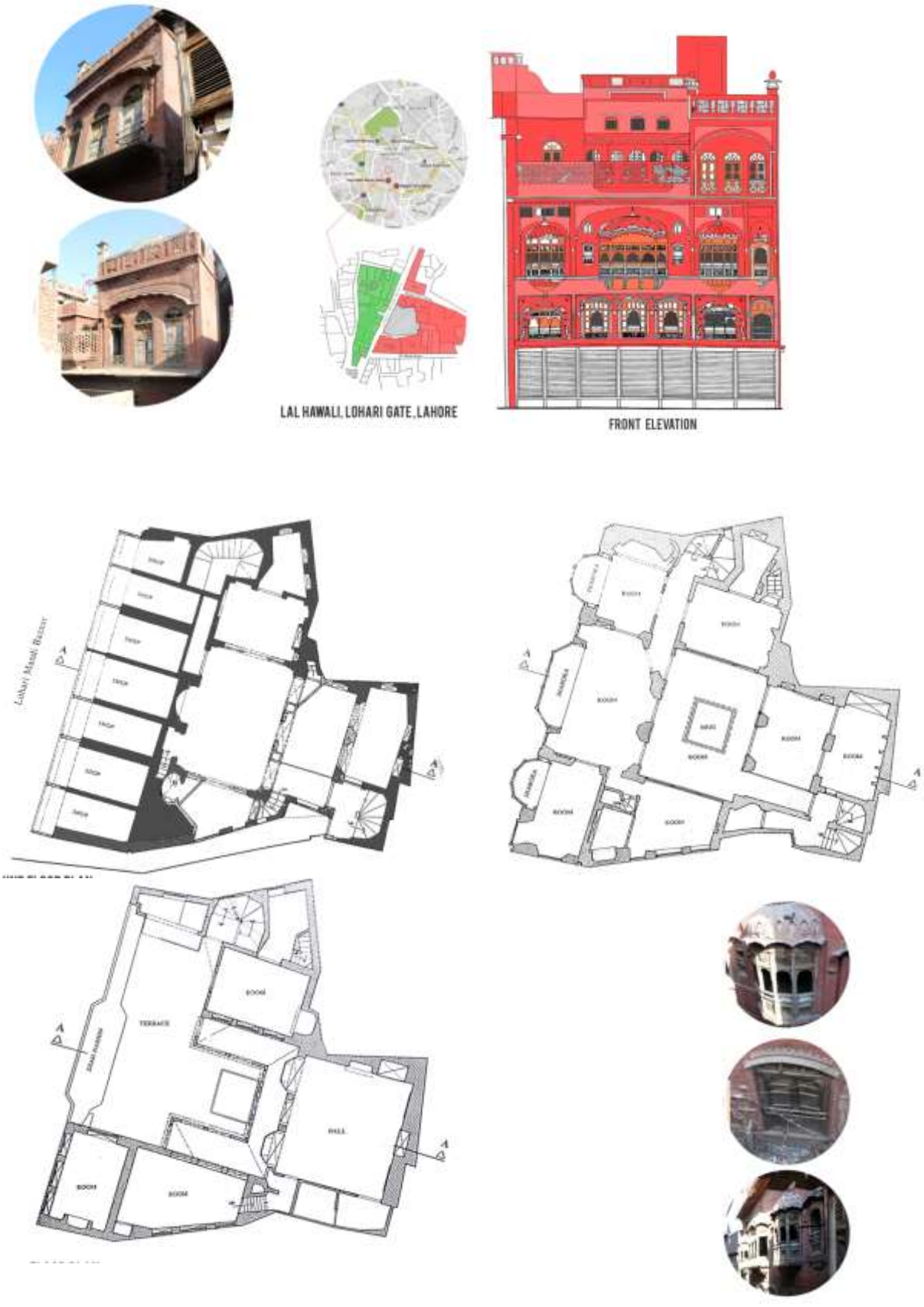

Fig. 1. House No-1 (Lal Haveli) in the Walled City of Lahore-Pakistan (Gulzar, 2016)

Fig. 2. House No-2 (Nawin Haveli) in the Walled City of Lahore-Pakistan (Gulzar, 2016)

Fig. 3. House No-3 (Lahori Haveli) in the Walled City of Lahore-Pakistan (Gulzar, 2016)

TABLE I: SPATIAL STRUCTURAL ANALYSIS OF TRADITIONAL DWELLINGS OF WALLED CITY LAHORE-PAKISTAN

Spatial Indicators	House No-1	House No-2	House No-3	Conclusions
Environ-ment Setting				Placement in narrow winding and covered streets as climate responsive, Internal and External open spaces on all sides, Openings to achive Sustainable Designs
Beliefs	Perimeter high walls, ventilators, Internal courtyards with openings, surrounded by verandah	Public areas separated from outside, Restricted internal movements, walled high on street side and ventilators	Male and Female accessible areas division, openings directions	Concept of Islamic Values through division of spaces, Height of walls, Shared Values
Materiality of Built Form				Inner circulations, courtyards, Projected Balcony, Clusters
Socio-Cultural Principles	Cultural lifestyle of Joint family system where 2-3 generations live together in these houses, Extended domestic spaces	Inner Courtyards for family interaction and functions, social center, Interaction within Clusters	Access within the house and outside based on Privacy factor, Gender segregation	Public and Private areas segregation, Extended Family Structures, Privacy, Gender Separation,
Economic Structure	Locally abundant materials, Thick walls for sustainable designs, Natural heating and cooling	Balcony as shading devices, Summer sun block and winter sun penetration through screens	Porous nature of materials helps in evaporative cooling	Simple Constructions, Low cost materials based on Temporary Living Concepts

TABLE II: BUILDING TYPOLOGY AND CONSTRUCTION STYLE OF TRADITIONAL DWELLINGS OF WALLED CITY LAHORE-PAKISTAN

Built Form Indicators	**House No-1**	**House No-2**	**House No-3**	**Conclusions**
Historical Perspective/ Continuity	Courtyard houses in continuation with history	South facing courtyards, Traditions followed	Historical style constructions for the collection of daylight	Traditional Dwellings Concept evoloved from history
Materials and Construction	Brick and Lime Plaster with typical traditional construction style	Simple and plain elevations with brickwork	Brick and lime core structure with dressed brickwork decoration	Traditional construction with local materials
Built Form Typology	Central Location, Access through courtyard	Accessibilty through courtyards	All openings into the courtyard	Courtyard Housing Typology
Space Layout	Entrance-Public zone, Courtyard-Central zone than Private zone	Entrance-Public zone, Courtyard-Central zone than Private zone	Entrance-Public zone, Courtyard-Central zone than Private zone	3 Step Space Layout Philosophy
Natural Landscape Elements	Fountains, Biophilic Design	Focussed with light, sound and water	Safe and private with sustainable design	Naturally Operated Systems for Heating and Cooling [10]

TABLE III: ARCHITECTURAL SYMBOLIC REPRESENTATION OF TRADITIONAL DWELLINGS OF WALLED CITY LAHORE-PAKISTAN

Architectural Element Indicators	**House No-1**	**House No-2**	**House No-3**	**Conclusions**
Architectural Vocabulary	Simple and plain facades with wooden balconies	Arches mainly with balcony, geometrical designs	Arched openings with perforated patterned screens	Traditional elements with local architectural vocabulary
Space Ordering	Public, semi-private and private areas	Accessible, through passage, inaccessible areas	Male dominant, mix, Female dominant areas	Space ordering followed socio-cultural pattern
Symbolic Human Dimensions	High Roofs, wide openings, punctured walls, perforations	Inviting entrances, Large windows	Feeling of vastness-connecting verandahs	Spaces planned for Human comfort
Comfort Design Elements	Cross Ventilation, concept of stack effect through the provision of ventilators, Roof tops	Balcony as shading devices, perforated screens, brick thick walls for insulation	Courtyards and landscape for cooling summers and bright winters, Basements	Passive Techniques for sustainable design solutions
Interaction of Spaces	Separated visually but linked virtually	Connection through verandah	Verticle and horizontal connections	Organically interacted spaces

C. Building Typology and Construction style of Traditional Dwellings

The building typology and construction style of traditional dwellings (Table-2) showed the historic continuity in the form of orientation with the use of local materials, public and private zones concepts and passive design techniques (cross-ventilation, stack effect, inhabitants' migration, shading devices, evaporative cooling, insulation and the required sun exposure) for naturally operated comfortable houses [9].

D. Architectural Symbolic Representation of Traditional Dwellings

The Architectural fabric analysis of traditional dwellings (Table-III) showed the adoption of traditional architectural elements evolved locally in the regional context to achieve the maximum benefit of natural features in the house designs for comfortable environments.

IV. CONCLUSION

Typologically Traditional Dwellings are considered as primitive and simple constructions based on tectonic elements (implying horizontal and verticle polarity with beliefs) forming the basic spatio-cultural patterns as material culture of traditional societies. The traditional dwellings of Lahore Walled City revealed the traditional set-up with the courtyard house typology incorporating all the ecological, socio-cultural and economic parameters. The comfort of inhabitants was achieved by following the architectural and anthropological dimensions. The socio-cultural dimensions were achieved throught the interactive indoor and outdoor spaces with natural landscape. The Walled City of Lahore still represents one of the traditional societies in this modern era through this architectural anthropological analysis.

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