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# **THE VISUAL EVALUATION OF HISTORIC CITY CENTRES**

**WITH PARTICULAR REFERENCE TO  
SALT CITY CENTRE IN JORDAN**

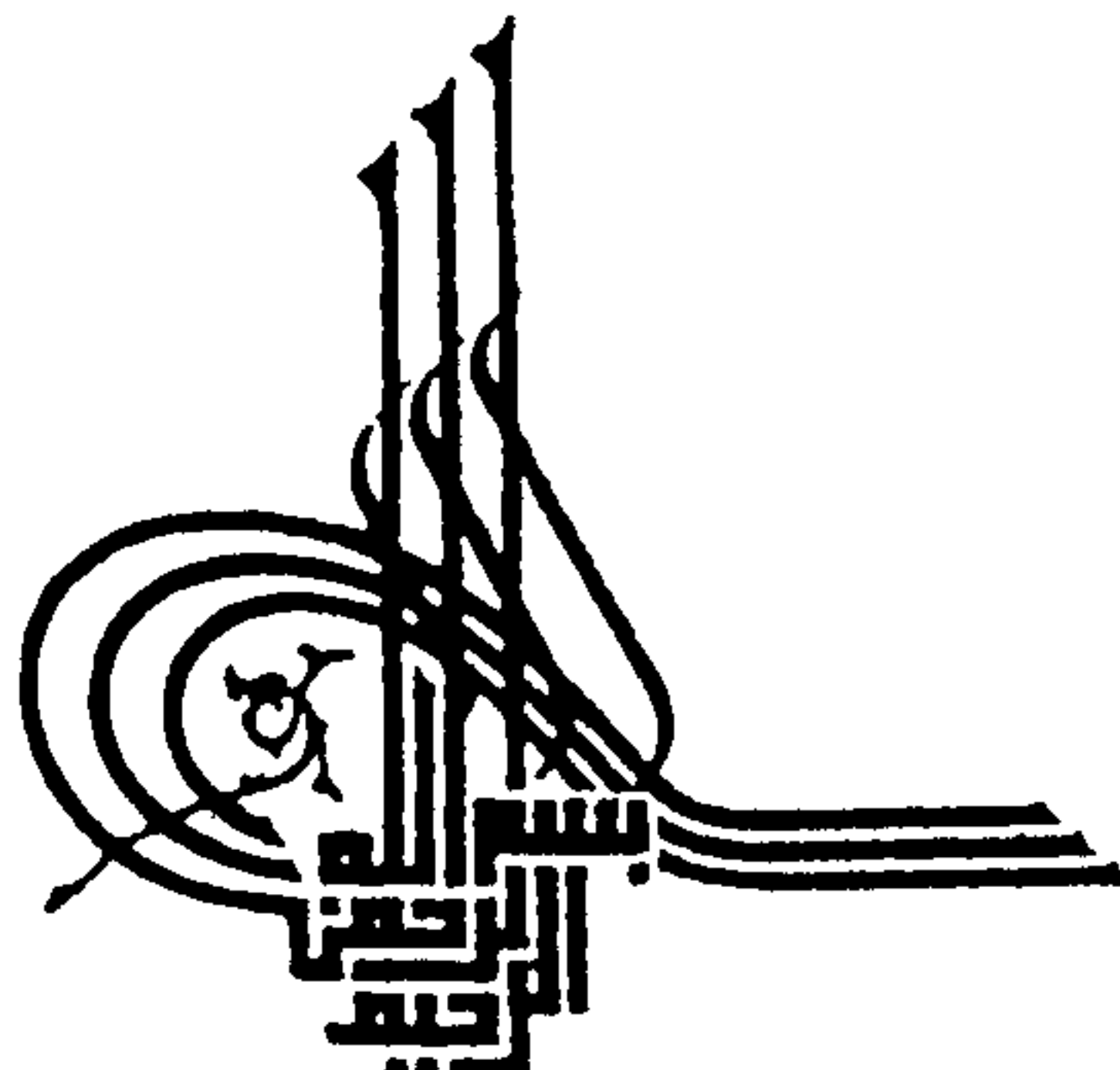
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**Ph.D. in Architecture**

**Mackintosh School of Architecture, The University of Glasgow**  
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**In the Name of Allah, The Beneficent, the Merciful**

No portion of the work in this dissertation has been submitted in support of an application for another degree or qualification to this or any other university or institution of learning

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*Gratitude is the hardest of all emotions to express. There is no word capable of conveying all that one feels. Until we reach a world where thoughts can be adequately expressed in words, Thank You will have to go.*

A. P. Gouthey

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Yasser I. Rajjal

## ABSTRACT

This thesis is concerned with the changes which are occurring in historic city centres and with maintaining and reinforcing their inherited spatial and formal qualities. It pursues this concern by evaluating the visual performance of old city centres. Visual evaluation has been recognised as important for environmental design making and is often criticised due to the subjectivity of its procedures. This study, therefore, proposes to circumvent this discussion by using the users' views, as an important component in the evaluation process.

A review of the literature concerning the visual evaluation of the built environment reveals that no single existing method is adequate to provide a comprehensive understanding of the problem. This research identifies the main visual performance dimensions in historic city centres and provides an objective method for measuring them using Salt City Centre (SCC) in Jordan as a vehicle. This systematic method employs three succeeding analytical levels of evaluation as a means of dealing with the complexity inherent in the assessment of visual performance and as a means of ensuring the reliability of the results.

The five visual performance dimensions are:

- Identity                   - visible differences which allow sensory exploration and give a sense of place.
- Order                     - the organisation of the physical components of the built environment.
- Variety                   - the intensity, diversity, contrast and abundance of the visual characteristics of the built environment in towns, which help to increase choices and vitality.
- Structure                - the way that the place fits together and is perceived.
- Fitness                   - the degree to which the natural and the built environments coexist in harmony.

The three analytical levels of evaluation under which the five visual performance dimensions are appraised are:



1. Indicative Level - an initial study that identifies the major visual successes and failures of the built environment using data collection methods, such as visual surveys and casual observations.
2. Investigative Level - a more detailed visual appraisal based on the findings of the indicative level using methods such as visual-impact checklists.
3. Diagnostic Level - a more in-depth and comprehensive undertaking aiming to provide a better understanding of visual performance from the point of view of user preferences. Questionnaire surveys are the appropriate data collection method for such purpose.

The thesis ends with an evaluation of the reliability of the study and a set of conclusions and recommendations.

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- The sources of the above listed figures are acknowledged within the main text of this dissertation.
  - Most of the visual materials related to Salt City Centre (SCC) are made by the researcher unless otherwise is mentioned. Other visual materials of SCC are revised and updated to reflect the current situation of the area.
  - Figures of the cover pages of the Introduction and Chapter X are adapted from: Gombrich, E. H., *The Sense of Order: A Study of the Psychology of Decorative Arts*, Oxford: Phaidon, 1979.
  - Figures of the cover pages of Chapters I-IX and Parts I and II are adapted from: Preiser, Wolfgang. et al, *Post-Occupancy Evaluation*, New York: Van Nostrand Reinhold Company, 1988.

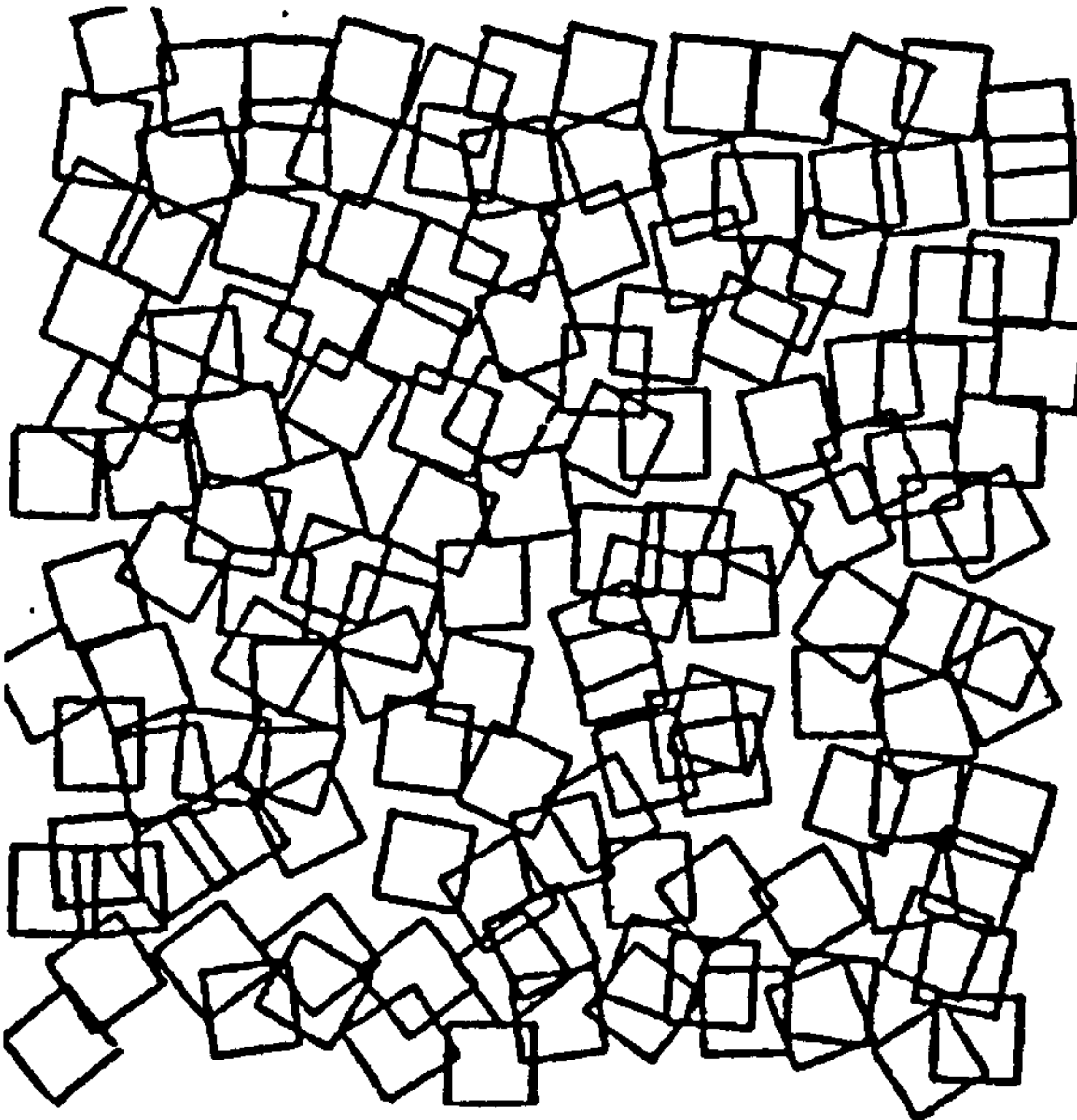
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## List of Abbreviations

ASU:	The Applied Science University, Amman.
BUG:	Basic Unit of Generation.
CEC:	Commission of the European Community.
SCC:	Salt City Centre.
JNIS:	Jordan National Information System.
MGA:	The Municipality of Greater Amman
SDC:	Salt Development Corporation.
RGS:	The Royal Geographic Society, Amman.
RSS:	The Royal Scientific Society, Amman.

# INTRODUCTION



# INTRODUCTION

## i. Background

This research is concerned with the changes which are occurring in historic city centres and with maintaining and reinforcing their inherited spatial and formal qualities. Historic city centres are a major area of interest for the culture, tradition and prestige they carry. During the past few decades, a large number of articles and books have been written about the physical and environmental problems associated with historic city centres. Authors of these publications represent a wide variety of disciplines and professions, including traffic engineering, political science, urban planning, sociology, economics, as well as architecture and urban design. The interest of architects and urban designers in historic city centres stems from the fact that architecture, in its broadest sense, is the art of modifying and shaping the built environment to satisfy human needs and enhance the quality of life.

Historic city centres share major physical and environmental difficulties manifested in the decay of the urban environment through congestion, pollution, deterioration, disappearance of useful open spaces, unsympathetic additions as well as the migration of the original residents. Such negative impacts have aroused much interest and debate. Less obvious and rarely considered, however, are the effects on the visual performance of historic city centres and the quality of the resulting urban forms.

Visual performance of a built environment should not be an afterthought, it is a necessity. Various studies in sociology<sup>1</sup>, anthropology<sup>2</sup>, psychology<sup>3</sup>, architecture and other social sciences have recognised that the visual performance of the built environment has important effects on humans and society. A study by Lozano, for example, addressed the importance of visual performance for shaping the built environment<sup>4</sup>. His basic proposition, that the visual quality of the built environment

is important to the general well-being and should be considered in designing and modifying any locality. Therefore, it is safe to conclude that visual performance has a major role in influencing subsequent reactions to both the setting and its inhabitants.

The term "visual performance" refers to the ability of the environment to support its users' psychological and physical requirements regarding its visual appearance, i.e., the spatial and formal aspects of the built environment. Spatial aspects refer to the form of the space, space-bounding and space articulation entities. The formal aspects refer to the organisational characteristics of various elements in the built environment that constitute their shapes, colours and textures.

The transformation of historic city centres has been affected by many factors and disciplines. This study is specifically concerned with the visual performance of such important urban areas. It aims to identify the spatial and formal variables of visual performance in historic city centres and to provide systematic methods for measuring them. There is a pressing need for such interest because of the present threat to the visual structure and unique spatial and formal characteristics of these important urban centres. This threat is not only related to the unsympathetic additions to existing old buildings and locations but also to the deterioration of valuable and important elements of architectural and urban heritage.

## **ii. Problem Statement**

Traditionally, historic city centres offer rich varieties of related spatial and formal events capable of coalescing into visual satisfaction in various ways as regard to different places and different people (see section 2.2). Currently, this characteristic quality is changing rapidly and producing adverse spatial and formal conditions. These adverse conditions are not only related to superficial visual pollution issues that could be easily resolved, but to key visual issues, such as, morphology, urban pattern and formal structure. Many factors have contributed to the adverse visual performance of urban centres in general and historic city centres in particular. Some



of these factors are related to: the introduction of new building materials and construction techniques leading to transformations in urban form; unsympathetic additions in new architectural styles and forms; city planning and building legislation; and most influential of all, traffic management considerations (see section 1.2).

Studies emphasising visual performance attempt to develop and enhance the quality of the living environment. They indicate the importance of the spatial and formal aspects of the environment and focus on the nature of perception of physical environments; the nature of response to such environments; and linkages between environmental appraisal and the future of the environment. Many studies of different types or forms concerning visual appearance are reviewed in this dissertation (see sections 3.1, 3.2 and 3.3). Some of the studies reviewed in the literature used quantitative factors to measure visual values which are, mainly, of qualitative nature. Some of these studies tend to be based only on personal, intuitive criteria or general ideas at high levels of abstraction that concentrate on certain dimensions and ignore other major issues significant to the study. Few of these studies concentrate on providing a basis for evaluating the different variables of visual performance and on measuring people's attitudes towards these variables at the urban level.

The literature review reveals that no single existing method is adequate to provide a comprehensive understanding of visual evaluation of historic city centres. Each has potentials along certain dimensions but ignores other features that are centrally significant. Thus it may be said that there is no comprehensive method yet for such visual investigations, and there is an urgent need to address such shortcomings in the literature.

### **iii. Research Scope and Objectives**

This research aims to contribute to the enhancement of the visual quality of built environments while taking account of the preference of their users. This in turn will

contribute to enhancing the quality of life. To achieve this goal the study attempts to identify the main spatial and formal variables relevant to the visual performance of historic city centres as well as to establish an objective method for their assessment. Such method aims at more than monitoring volatile tastes, but seeks principles that can explain commonalities and differences in response and help in producing conceptual guidelines for visual policies that can be converted into physical products.

Within these broad objectives the research proposes to test the following two main hypotheses:

1. User participation will help to establish conceptual guidelines and practical visual policies for assessing design proposals for historic city centres.
2. Differences in levels of satisfaction, regarding visual performance, will occur among users due to their previous involvement/non-involvement in the development of the built environment.

The current changes in historic city centres have significant impacts on both the natural and the built environment. This study proposes to focus on their impact on the spatial and formal characteristics of historic city centres. Such impacts have played a significant role in creating visual dissatisfaction (see section 4.2). The integration of the spatial and formal aspects plays a critical role in the visual performance of the built environment. Yet, visual performance is not only related to the spatial and formal aspects but with symbolic meaning as well ( see section 2.4 E). However, Weber suggested that spatial and formal aspects of visual performance can be studied independently from symbolic aspects<sup>5</sup>. The emphasis on the spatial and formal characteristics should not suggest that the symbolic meaning is of less importance, as all are interrelated and connected. The study does not neglect the other functional, physical, environmental and socio-economical aspects of the built environment.



#### **iv. Plan of Work**

To fulfil the research objectives and verify its hypotheses, the sequence of the research is as follows (Figure1):

1. Research planning. This includes:
  - i. Addressing the importance of the research topic.
  - ii. Determining the research scope and objectives.
  - iii. Stating the hypotheses to be investigated.
2. Conduct an analytical literature survey concerning the following topics:
  - i. Factors affecting spatial and formal characteristics of historic city centres. This is important to understand current visual problems and to determine their impacts, as well as to address the importance of involving the users in the development of their built environments.
  - ii. Visual characteristics of old urban centres aiming at identifying the main variables of visual performance, as well as addressing the qualitative nature of visual variables, which in turn will help in determining the appropriate assessment measures for these variables.
  - iii. Different methods and means used in visual investigations, identifying their potentials and limitations. This is essential to determine the choice of a suitable method.
3. Formulate a theoretical base for the research study. This is accomplished through:
  - i. Assessing the results of the literature survey.
  - ii. Relating these results to visual performance.
  - iii. Formulation of a visual imageability concept capable of understanding and evaluating spatial and formal characteristics of historic city centres.



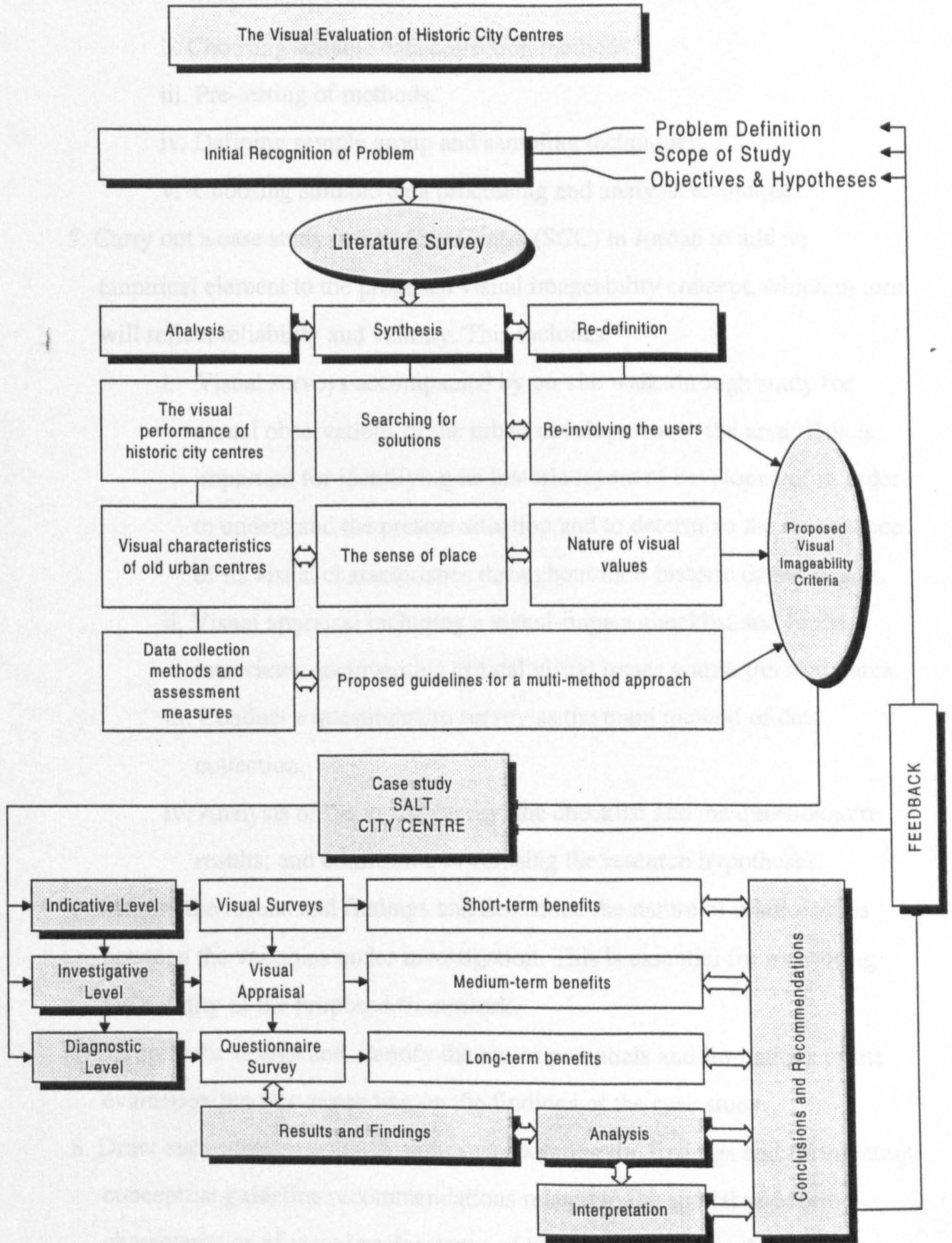


Figure 1: Plan of work.



4. Design the research case study. This includes:
  - i. Choosing an appropriate study area to apply the proposed visual imageability concept.
  - ii. Choosing suitable data collection methods.
  - iii. Pre-testing of methods.
  - iv. Defining sample group and sampling techniques.
  - v. Choosing suitable data processing and analysis techniques.
5. Carry out a case study in Salt City Centre (SCC) in Jordan to add an empirical element to the proposed visual imageability concept, which in turn will reflect reliability and validity. This includes:
  - i. Visual surveys accompanied by on-site walk-through study for casual observations of the urban development in the area. This is important for identifying its historic layers of development in order to understand the present situation and to determine the importance of its visual characteristics throughout their historic development.
  - ii. Visual appraisal including a visual-impact checklist and limited interviews documenting critical visual issues within the study area.
  - iii. Conduct a questionnaire survey as the main method of data collection.
  - iv. Analysis of the visual survey, the checklist and the questionnaire results; and confirming or refusing the research hypotheses.
6. Discuss the results and findings and determine the nature of relationships between the variables under investigation. This is essential for measuring the validity of the proposed framework.
7. Interpret the results and identify the major potentials and limitations of the evaluation process depending on the findings of the case study.
8. Draw out appropriate conclusions incorporating the findings and formulating conceptual guideline recommendations related to the spatial and formal characteristics of visual performance of historic city centres that can be converted into physical products, as well as providing insight into new directions of applied inquiries in the field of urban design.

The findings of this research should be of interest to scholars and practitioners in the field of architecture and urban design. At the theoretical level the study could contribute to a comprehensive analysis of the role of design in solving spatial and formal problems of historic city centres. At the practical level, it could assist urban designers in assessing alternative proposals for solving visual problems of historic central areas. Further, the evaluation process and case study should be of value for future research related to visual perception.

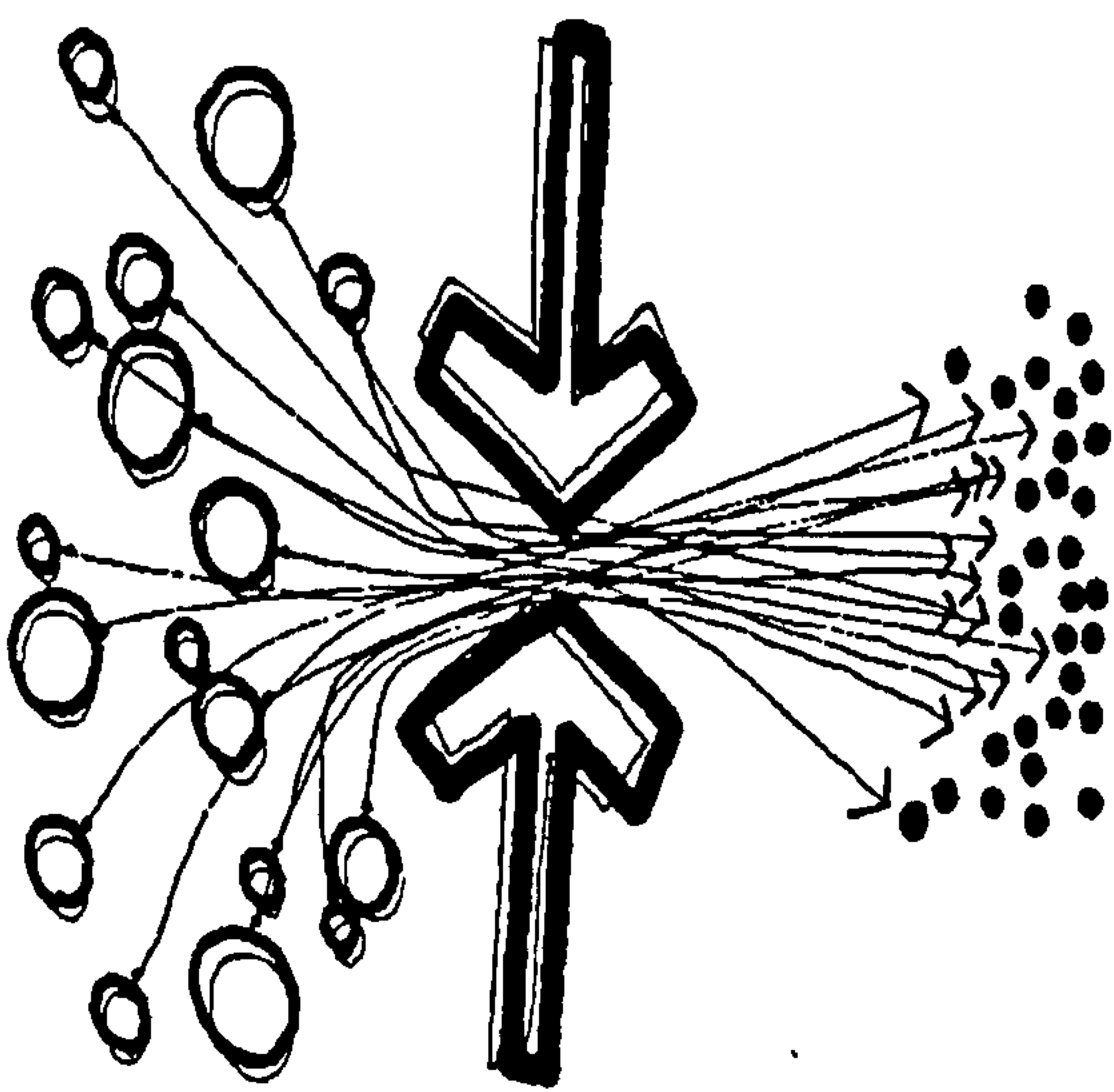
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1. For studies in sociology recognising the importance of visual performance, see for example:
    - Michelson, *Man and His Urban Environment: A Social Approach*, 2nd. edition, Reading, Mass.: Addison-Wesley, 1976.
  2. For studies in anthropology recognising the importance of visual performance, see for example:
    - Hall, E. T., *Hidden Dimension*, Garden City, New York: Doubleday, 1966.
  3. For studies in psychology recognising the importance of visual performance, see for example:
    - Sommer, *Personal Space: The Behavioral Basis of Design*, Englewood Cliffs, New Jersey: Prentice Hall, 1969.
  4. Lozano, Eduardo., 'Visual Needs in Urban Environments and Physical Planning', *Town Planning Review*, No. 45, 1974: pp. 351-374.
  5. Weber, Ralf., *On the Aesthetics of Architecture: A Psychological Approach to the Structure and the Order of Perceived Architectural Spaces*, Aldershot: Averbury, 1995, p. 35 and pp. 69-74.

**Part I**

**LITERATURE REVIEW**

4



## PART I

# LITERATURE REVIEW

This part consists of three chapters, these are:

↓

### - Chapter I: *Visual Qualities in Crisis:*

This chapter addresses the significant visual adverse effects caused by different contemporary interventions on the built environment. It highlights the different factors affecting the spatial and formal performance in historic city centres. This is important in order to understand the current problems and to determine their impacts, as well as to address the sources of users' satisfaction with visual performance. The review covers the main sources of visual dissatisfaction in historic city centres. It illustrates that the lack of user participation is one of the main reasons for the unsatisfactory visual performance of the built environment.

### - Chapter II: *Themes of Urban Richness:*

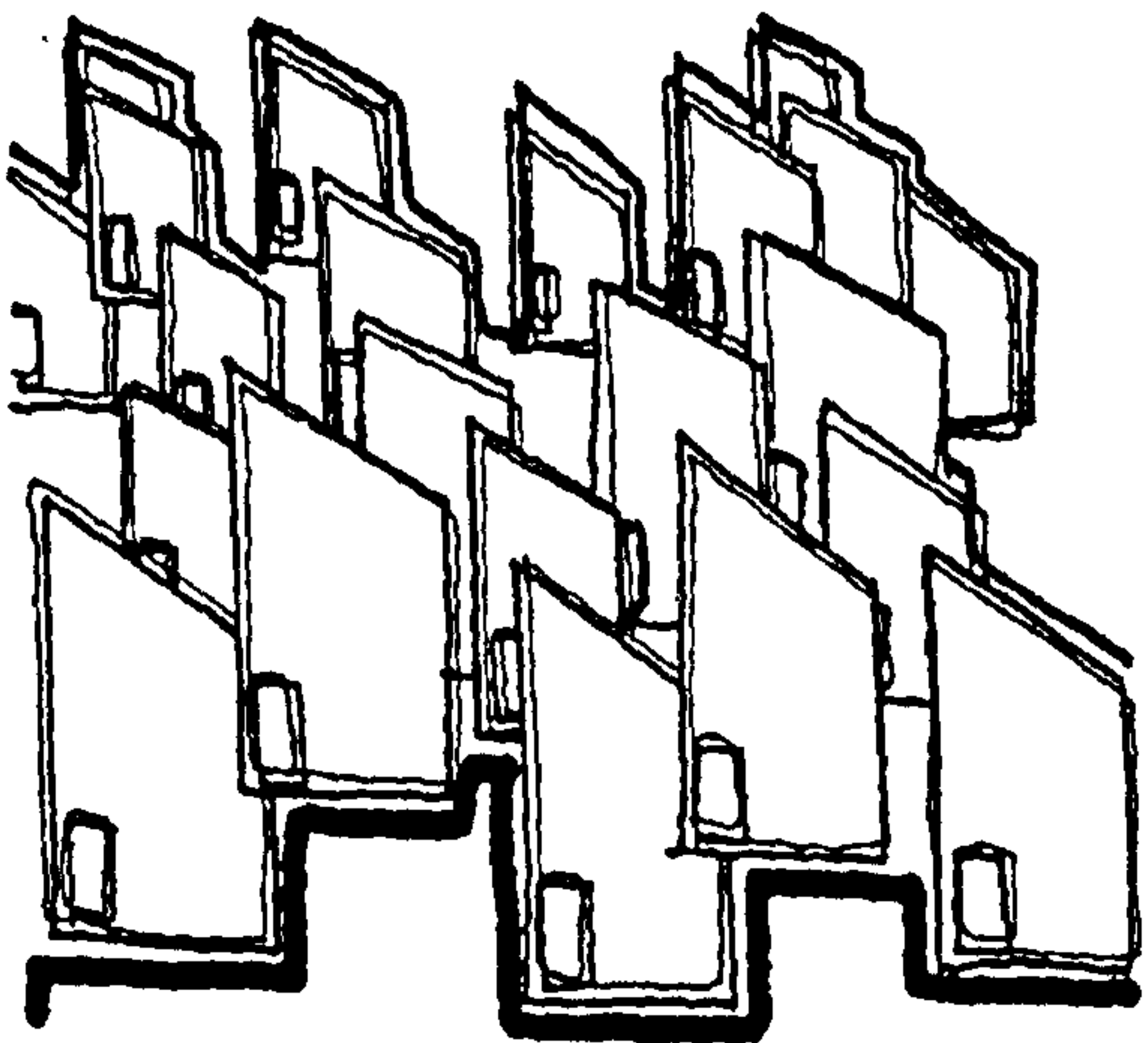
This chapter considers some of the essential visual characteristics of historic urban centres. Historic urban centres are examined in relation to their context, appraising their spatial characteristics and physical form. This includes analysing the implications of the observed visual significance in order to form a starting point for identifying and understanding the main dimensions of visual performance. The idea of "sense of place" is highlighted illustrating the importance of place history to visual performance.

### - Chapter III: *Assessment Measures:*

This chapter reviews the different approaches to visual investigations, identifying their potentials and limitations. It suggests certain guidelines for a multi-level approach for measuring public response towards visual qualities, and discusses the various determinants for the choice of suitable data collection and assessment methods in order to account for user preferences.

**Chapter I**

**VISUAL QUALITIES  
IN CRISIS**





## Chapter I

# VISUAL QUALITIES

## IN CRISIS

### 1.1 Introduction

City centres of historic value are a major area of concern for architects and urban designers for the heritage, culture, tradition and prestige they carry. The 1990 "*Green Paper on the Urban Environment*"<sup>1</sup>, for example, highlighted the importance of the historic quarters of towns and cities. The Green Paper describes how the street patterns, squares and historic buildings defined a distinctive community identity. For centuries all towns and cities were mainly pedestrian and much of their appeal was associated with their street layout. People working, children at play, passers-by, with purpose or just strolling, contributed to giving the street its particular character and image, that of "a school of life", i.e., places where interaction and learning happened.

The formal and spatial patterns of old cities provide interesting visual qualities associated with their sequences of open spaces, landmarks, sense of orientation, intimate atmosphere and other visual characteristics and symbolic connotations. In literature as in art, the significance of the streets of the old city, i.e., the lively streets with their great social differentiation, is vividly described in the novels of *Mahfouz* on the medieval city of Cairo<sup>2</sup>, Dickens on London during the Industrial Revolution<sup>3</sup>, Victor Hugo on Paris during the French Revolution<sup>4</sup> and many others.

In current literature, the street features less as an important factor in the lives of city inhabitants. This may be considered as an indication, or reflection, of the unsatisfactory spatial and formal qualities of the contemporary street. Most current planning approaches treat streets as areas of mere access and transit rather than places of interaction of vital activities. However, the researcher believes that through involving



the users in developing their built environment, there will be a chance for overcoming the current unsatisfactory conditions. This chapter aims to: i) highlight the main factors that have contributed to the crisis of visual performance in historic city centres; ii) review some of the theoretical and practical attempts to deal with that crisis; and iii) address the necessity for re-involving the users in shaping and assessing their environments.

## **1.2 The Contemporary Built Environment**

The major growth of cities began two hundred years ago with the Industrial Revolution. This event contributed to increasing the mobility potential and radius of activity within the city. It gave people a wider choice for the location of living, working, shopping and recreational activities. This eventually resulted in the spread of the city and the urban centre's peripheral dispersal. However, it was only in the immediate post-World War II years that the form and size of the city were significantly changed. These changes, in form and size, caused a number of direct and indirect negative effects on the spatial and formal characteristics of city centre areas.

Urban areas have experienced different changes that create a whole new order in their texture, form and pattern. These changes were the result of the introduction of many factors. Among these factors are the new building materials and construction techniques, the architectural styles and planning trends, city planning and building legislation, and most influential of all, traffic management means and patterns. This section discusses the impacts of the above mentioned factors on the visual performance of urban areas.

### **1.2.1 Building Materials and Construction Techniques**

Historically, buildings were the reflection of the materials, tools and the construction techniques of the time. Building materials were those normally found nearby the

human settlement. The natural resources of the region, thus, played a major role in fitting the urban components in a harmonious relationship that unified their appearance, sizes, colours and textures. Such harmonious relationships had changed when materials were changed, resulting in the formation of a new visual language.

Fundamental changes accompanied the Industrial Revolution in the eighteenth century. Architecturally, the Industrial Revolution required new building types that had no precedents in the history of architecture, such as, factories, railway stations and warehouses. Cast iron, and later steel, made the appearance together with other new building materials. Architects found themselves confronted with these materials that were not directly related to either the previous principles of architecture or to the decorative elements that they were acquainted with, such as, columns, arches and pediments<sup>5</sup>.

Many architects did achieve a visual language appropriate to the new era. The techniques they employed were wholly in keeping with their understanding of the new materials and the visual thinking directly derived from them. Form became a visual manifestation of the structure and not something imposed upon it. The configuration of forms that characterised the works included the slender supports, glass walls and high-rise structures.

The new formal possibilities that resulted from the use of new building materials dramatically affected the visual performance of the built environment. In addition mass production and prefabrication methods and techniques have made regular, repetitive and sharp forms. Mass production products were made with no regard to their adverse visual impact on the built environment. The problem was reinforced by the disruption to the skylines by high-rise buildings as well as to the morphological crisis caused by the introduction of huge volumes and large frontages.

The visual chaos that confronts most urban areas today was very little created during the Industrial Revolution. Much of it has been created in later piecemeal additions. In Jordan, for example, a stone building was considered as the ultimate aspiration for a

proper house. The introduction of hard stone-cutting machines enabled architects to build high-rise buildings with stone cladding. This is not only contradictory to the structural characteristics of stone, but also produces huge stone blocks disturbing the appearance of urban areas. Moreover, concrete enabled architects to construct large horizontal openings. Such shapes do not match either the traditional typology of openings that have vertical and narrow images nor the traditional solid to void ratio of buildings.

### 1.2.2 Architectural Styles and Planning Trends

A number of distinct architectural styles and planning trends have emerged in the nineteenth and the twentieth centuries. These architectural styles and planning trends have affected the visual quality of urban areas. The Futurists<sup>6</sup>, for example, were inspired by the technology of the first machine age. They exalted certain forms and materials as being proper to a machine age art, giving power and conviction to forms drawn from the platonic solids. These were later animated in Cubism and abstract art. These forms were realised in absolute platonic purity giving homogeneous surfaces and preserving the uninterrupted purity of form.

On the urban level, The Futurists' ideas were illustrated in Santa' Elia's *La Citta Nuova*<sup>7</sup>, a Futurist city image based on motion (Figure 1.1). Movement was an essential ingredient in this city. Buildings were held together not only by spatial relationships but also by actual movement channels. They were forming a horizontal base with skyscrapers connected above

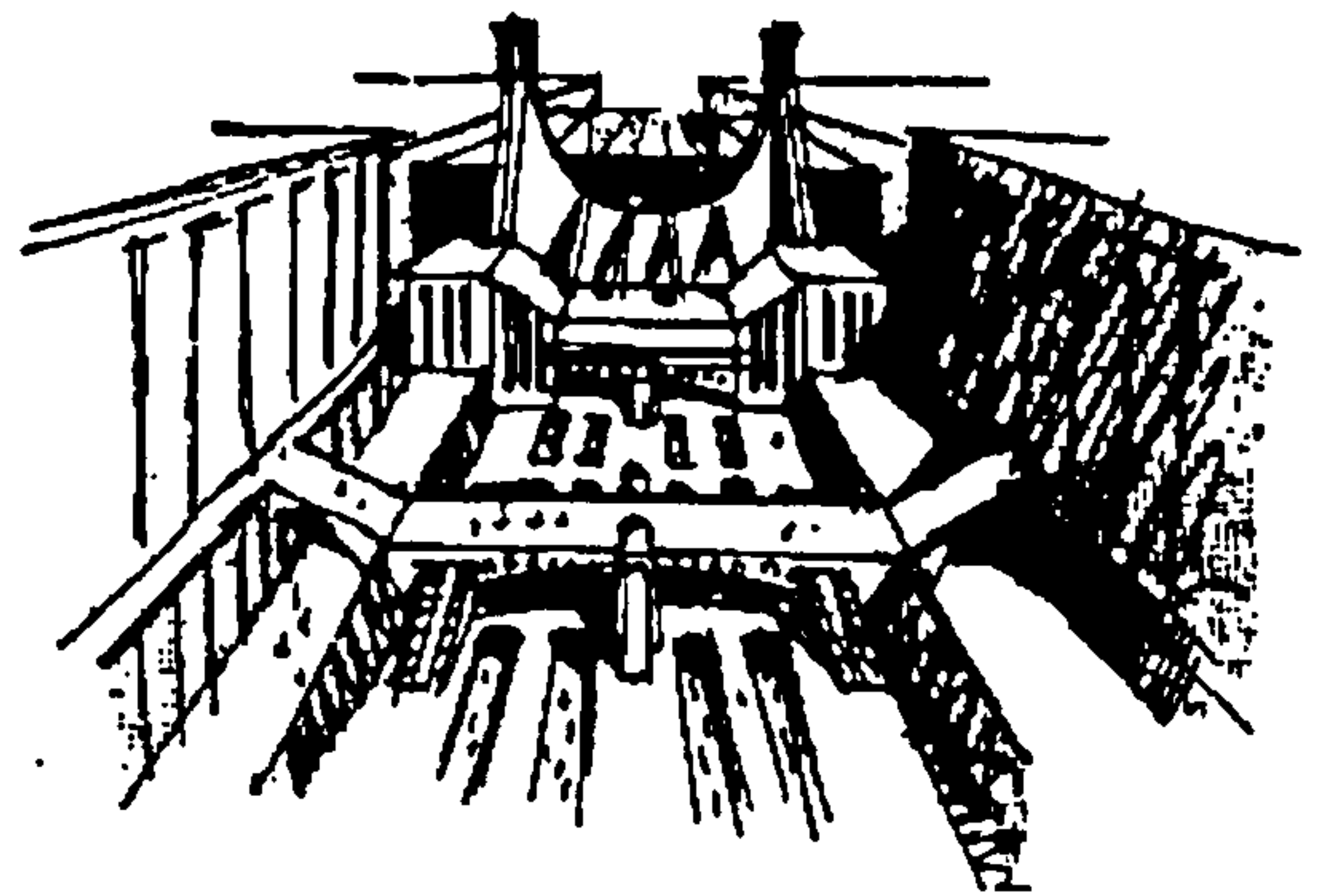


Figure 1.1: View of Sant' Elia's Citta Nuova  
Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.33.

ground by pedestrian walks and vehicular roads. These highly complex arrangements appear to be more like a machine than a liveable space respecting the human dimension. This vision of the city had a profound influence on many examples of city planning.



In parallel, Le Corbusier proposed his hypothetical "City of Three Million People" as a reaction of the congested industrial cities of the 19<sup>th</sup>. century<sup>8</sup> (Figure 1.2). The proposal aimed at three main objectives: to decongest the city centre, improve circulation and to provide more natural periphery. These objectives have had a significant influence on many Modernist planning ideas.

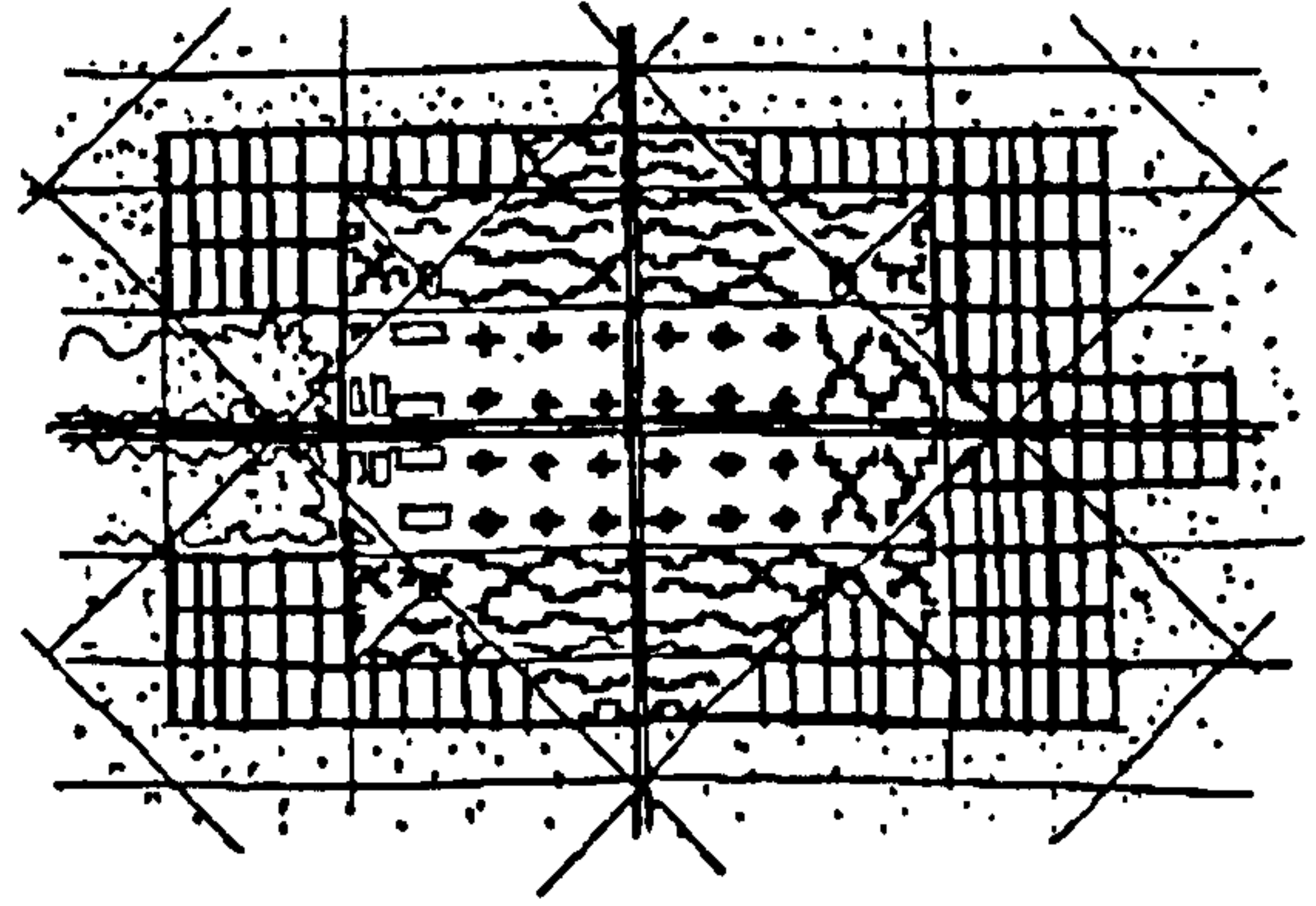


Figure 1.2: The Hypothetical City of Three Million People by Le Corbusier.  
Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.45.

The bombing of many European cities, such as, London, Rotterdam and Dresden, opened the opportunity for realising Modernist planning ideas. These ideas, however, resulted in failure. The new places lacked the essence of urban life, and the variety and richness of the old spaces. Meeting places, market places, plazas, even streets, have been eliminated without providing proper substitutes.

Moreover, Modernist planning was fascinated by the idea that it would be possible to resolve urban problems through a rational process of comprehensive planning. Few cities have been built from scratch following the Modernist planning ideas.

Exceptions include Brasilia, Brazil, and Islamabad, Pakistan. Modernism rejected the compact city of the past and replaced it by models of green open spaces interspersed with skyscrapers. These open spaces, however, were fewer parks than wasteland in most cases. These new cities became mostly ceremonial capitals and seldom contain the real life of traditional urban areas.

On the architectural level, the contemporary tendencies may be divided into four major groups. These are<sup>9</sup>: i) the functionalists; ii) the formalists; iii) the expressionists; and iv) the conceptualists. The first group, i.e., the functionalists, is mainly related to the Modern Movement. Modern architecture began early this century with the spreading acceptance of the concept of architecture as a "machine



for living". Traditional forms and visual qualities were considered to be inconsistent with the values of the machine age. Function is declared to be the primary basis of aesthetics. Nothing that is not practical can be aesthetically valid. The well-known concept of "form follows function" was widely adopted and thus, function became the primary experience in architecture.

Within the Modern Movement, the International School proposed an internationalisation of the architectural form. Successful architecture and urban spaces should have universal principles of composition and organisation. The question arises if there are such universal principles despite the varying constraints of culture, environmental conditions, time, building materials and technology. Many studies were conducted in this field to define the visual principles on which evaluation of a work could be based.

The second group, i.e., the formalists considered appearance as a matter consisting entirely of geometric relationships embedded in the form of the object itself. Late-Modernist architects, for example, tend to relate the visual experience of their works to formal properties with a higher perceptual level of complexity<sup>10</sup>. In this formalistic view architecture became the design of objects instead of the design of the urban whole. The feeling of identity and belonging to a certain place was mostly absent in these ideas. This loss had even worse consequences in historic city centres with strong architectural and urban traditions.

However, "by erasing historical references and linguistic allusions, modernists constructed disciplined cities of pure form that displaced memory"<sup>11</sup>. Venturi reviewed Modern ideas were in order to advocate different kinds of solutions<sup>12</sup>. He suggested that architects should emphasise the inner expression rather than the formal aspects in their designs. In the recent past, however, a trend towards revitalising tradition and cultural heritage has been strongly felt. The reasons for this movement were many. The most obvious one was the frequent failure of modern models in many spheres of human activity, particularly, architecture and urban

design. The Modern Movement, and its more recent variant, the Late-Modern have been replaced by the Post-Modern Movement. Post-Modernism is an attempt to link concepts of expression to the architectural form<sup>13</sup>. From this expressionist view, the form of architecture is appreciated not only in itself, but also in the meaning that it expresses.

On the urban level, Post Modernism's interest with history and tradition showed a greater appreciation of traditional urban processes and precedents. Unlike Modernist planning that tended towards universal applications, Post Modernists pretend to draw more upon the local context. They aimed at informing the urban design process through continuity of local character, historic pattern and inner expression. The inner expression, however, has been misinterpreted by people's perception of Charles Moore's Piazza d' Italia. The project intended to reflect the Italian community's culture and pride<sup>14</sup>. The plaza is now an urban ghost. The failure is partially due to placing Sicily as the focal point of the plaza while the Italian community in New Orleans who came from Northern Italy did not get along with southern Italians.

Current trends in architectural theories and practice became more conceptually oriented. The conceptual orientations are reflected in Deconstruction philosophy where form, function and context are not the only determinants of good architecture, but also the inner philosophical base it carries<sup>15</sup>. Most Deconstruction works are still paper architecture, but inevitably they will have a major visual impact on the built environment.

It is worth mentioning that the question as to, which of various styles is best, is very difficult to settle, as style is a matter of time, taste and psychology. In spite of that, visual assessment could be separated from styles and fashion, but could not be separated from context specially when historic continuity is questioned. This is an important issue when dealing with historic city centres. Where new buildings are added to an existing street the problem of matching the existing townscape always arises.

### 1.2.3 City Planning and Building Legislation

City planning and building legislation for land-subdivisions and building codes in Europe and the USA during the thirties and forties have been translated and applied in many Arab countries, among them Jordan<sup>16</sup>. These regulations have helped to control urban aspects in the name of public health, safety and welfare. Yet, their implementation has contributed to the creation of many visually adverse effects, as they could not satisfy local needs and expectations. For this study, the discussion of the effects of legislation on the spatial and formal characteristics will be limited to those affecting Jordanian cities.

City planning and building regulations in Jordan are mainly concerned with: land-use sub divisions, number of plots per hectare, plot area, minimum frontage, setbacks, building heights, number of floors, ground coverage, total allowable floor areas, plot ratio, parking requirements and some internal design criteria<sup>17</sup>. The existing legislation might be considered as one of the major reasons for the existing morphological crisis in many Jordanian cities<sup>18</sup>. The rigidity and the limitations of this legislation have contributed to the creation of, at least, the following negative visual effects:

1. The absence of conservation policies for preserving the architectural heritage caused certain urban structures to be placed in danger. Such lack of proper measures is reflected in article number 9 in the "Law of Owners and Tenants in Jordan". That article allows the demolition of any building if it was erected more than 40 years ago regardless of its importance and significance<sup>19</sup>. Furthermore, the existing legislation considers only pre 1700 AD buildings to be historic and thus cannot be altered or demolished. Only limited structures have survived from that period. Buildings built after that period are treated as any new construction regardless their importance and uniqueness. There is no legal means of considering architectural value, importance and uniqueness of such buildings as appropriate reasons for preservation.



2. Building regulations require the separation of buildings from each other by definite dimensions and specific proportions, i.e., setbacks and plot ratios. This in turn limits the spaces that enable the architect to deal with natural, climatic and social factors using design skills. Design has become a merely routine process, where an architect has little to decide except to apply envelopes of heights and setbacks without much change in the architectural treatment of facades. This results in the creation of the largest number of facade designers, regardless of the functional considerations and physical orientation of buildings and causing distraction to the visual harmony of streets, localities and cities.
  
3. The provision of setbacks on a steep site requires cut levels to accommodate the buildings, a relatively common phenomenon in Jordanian cities. This requires massive reinforced concrete retaining walls with their adverse formal and spatial effects<sup>20</sup>. These adverse effects are not limited to the resulting image of such massive retaining walls, but also to the low spatial quality of the spaces behind buildings (Figure 1.3).

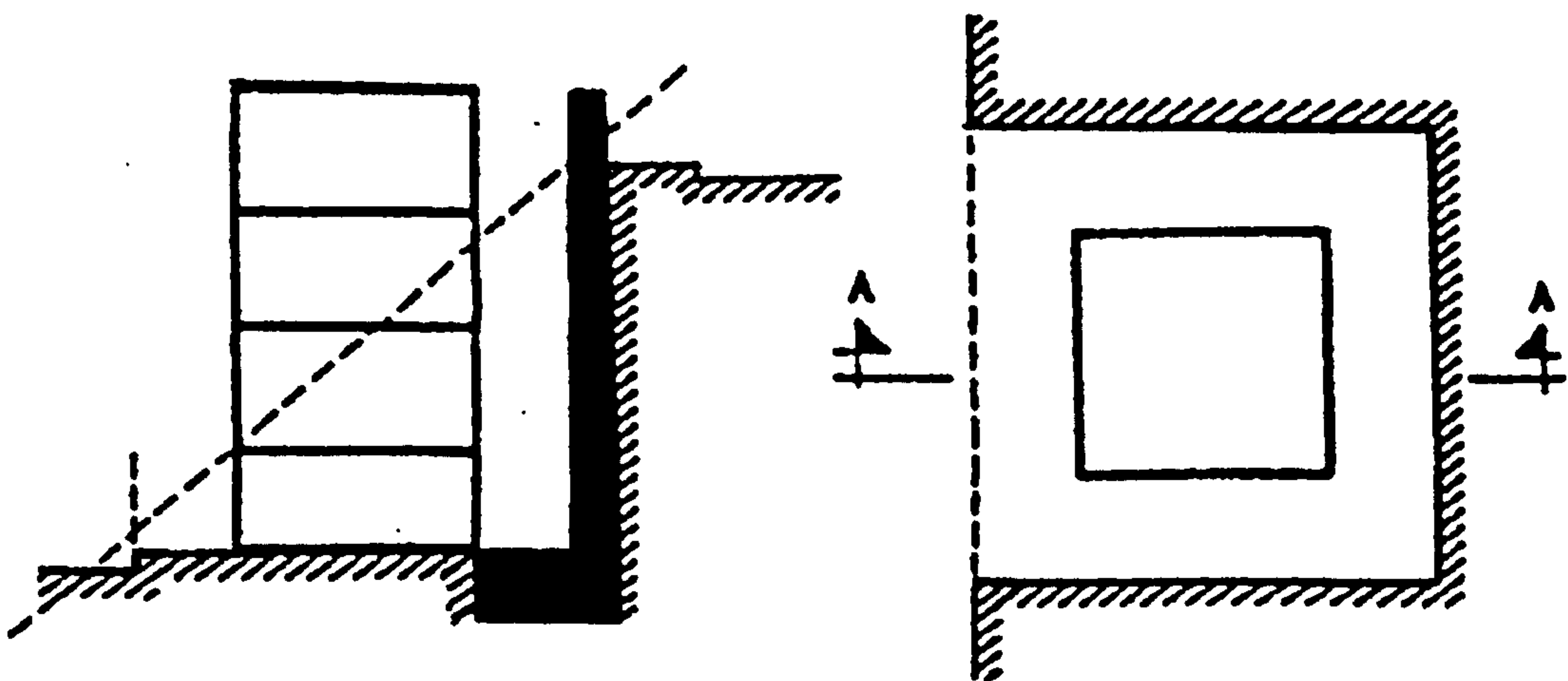


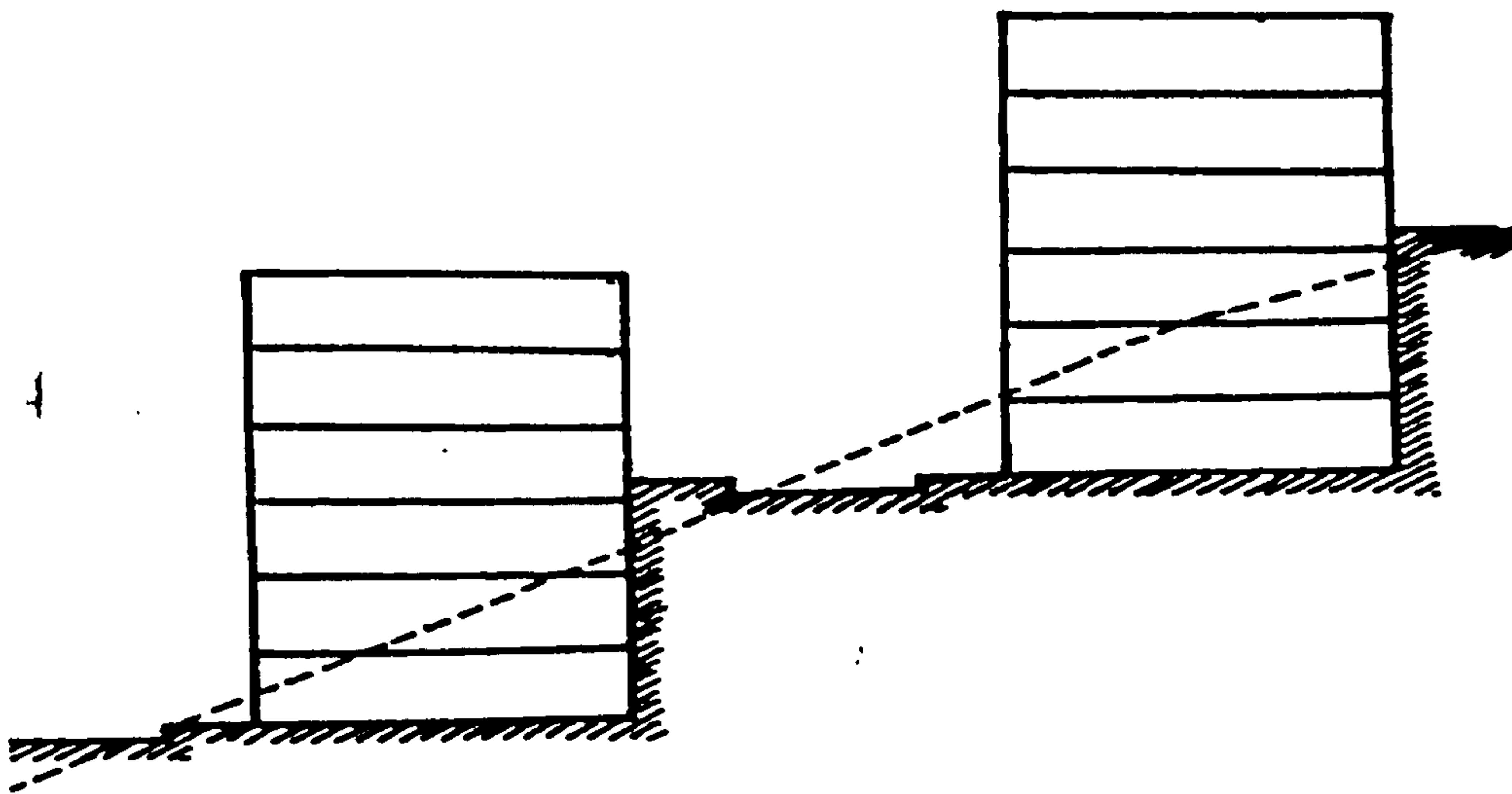
Figure 1.3: Massive reinforcement retaining walls to meet existing setback regulations in Jordan (see also Figure 9.14).

Source: Ghanem, G., 'The Amman Building Control Legislation', *Building Codes and Specifications For the Arab World*, Daghestani, F., (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.

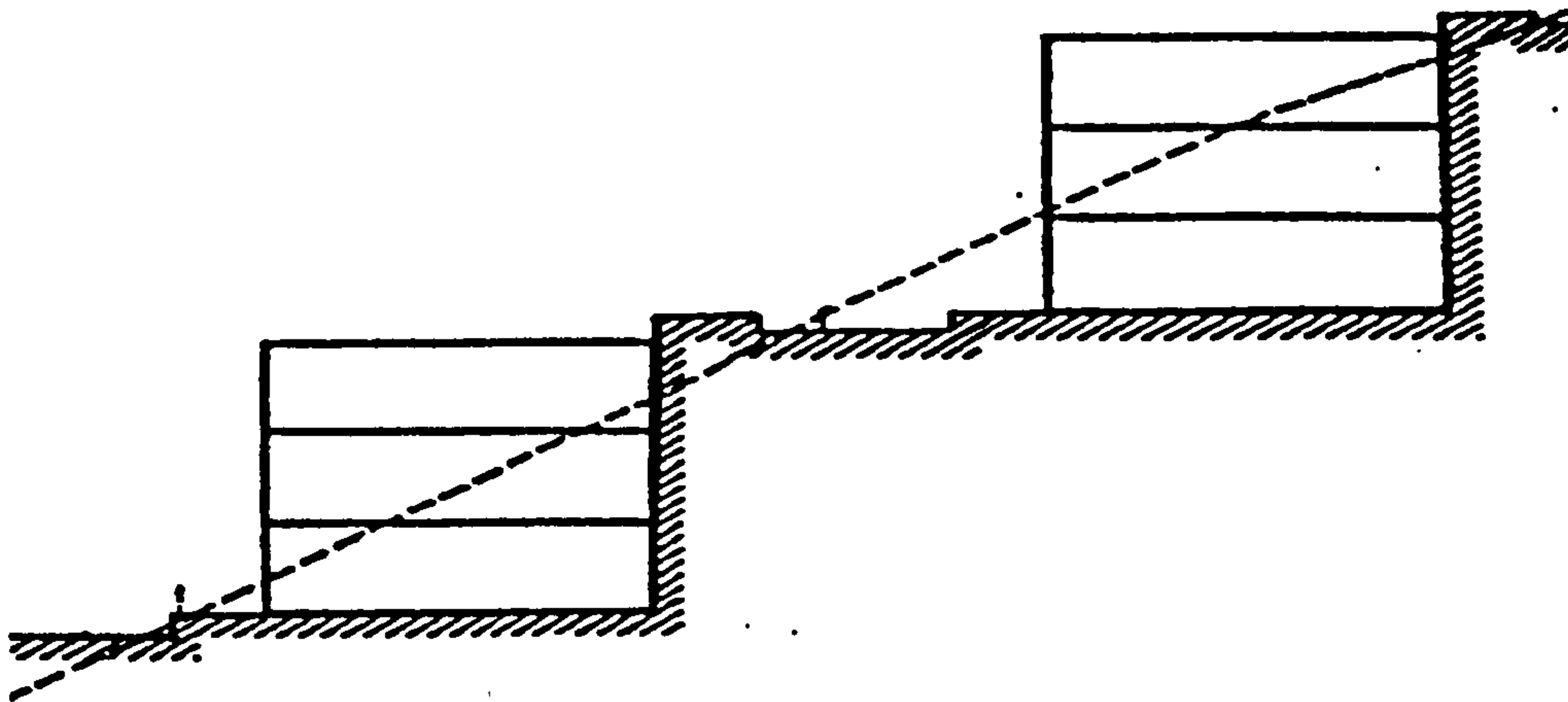


4. The existing regulations dealing with setbacks were primarily introduced to provide privacy and a healthier environment. This may be described as rigid and severely limiting the choice of character, form and type of housing solutions, as it excludes terraced, semi-detached and local traditional courtyard houses. There is no reason why these types of developments should not be allowed, as long as they meet with the approved standards required for a healthy physical and spatial environment.
5. The existing legislation does not provide a legal framework of conferring "view rights" on property owners or communities. Accordingly, new developments can block any view of/to any existing landmark or individual building.
6. Building regulations limit building heights for normal land parcels in most residential areas regardless of plot size, but provisions do exist that permit a high-rise building on certain parcels. However, there are no controls over the form or type of residential buildings so that a villa of two floors may be built adjacent to a nine or ten floor apartment building. This causes major disruption to the skyline of the city and creates variations in density within the same area. In addition, the existing regulations concerning building heights have not been strictly applied in the past or in some areas within the city.
7. Building regulations linked heights to road widths and allowed for high-rise buildings on wide roads and low-rise ones on narrow streets. This concept has overlooked that wide roads are meant for fast moving and high-density traffic. Thus, the roads suffer from additional traffic requiring new forms of space with their associated visual impacts (see section 1.2.4).
8. The regulations have caused confusion in calculating the number of floors for building on sloping sites. Until 1994, the regulations stipulated that the maximum allowable building height be measured with respect to the lowest street level in cases where sites fall on more than one street (Figure 1.4). This

produced very odd configurations on steep sites, where the roof of a building may be at an elevation very near that of the higher street level. By 1994 this code was changed so that the maximum allowable building height be measured with respect to the highest street level<sup>21</sup>. This can produce different kinds of disruptions.



- a. Odd configuration resulted when the maximum allowable building height is measured with respect to the highest street level.



- b. Odd configuration resulted when the maximum allowable height is measured with respect to the lowest street level (see also Figure 9.20).

Figure 1.4: Odd configuration resulted by calculating number of floors at hilly sites.

Source: (of b): Ghanem, G., 'The Amman Building Control Legislation', *Building Codes and Specifications For the Arab World*, Daghestani, F., (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.

9. Another aspect that adds to the confusion of permitted heights is that, if the ground floor or even other floors are used for parking or a playground, they do not count as a floor in the calculations.

10. Although the existing regulations require that 10% of the plot area is to be devoted to planting to improve visual qualities, this requirement is generally ignored.
11. The segregation of land-use functions was primarily adopted to deal with the urban problems of major industrial cities in Europe and USA and is still one of the approaches used in urban planning. Land use criteria determine the basic two-dimensional plans on which three-dimensional spaces are created for functions to be performed. Applying such regulations without much consideration to the cultural and traditional spatial aspects of old cities may result in many urban problems. Yet, total elimination of segregation is not the answer.

The existing array of building and planning regulations in Jordan, therefore, is not sufficient. Many of these regulations are obsolete for local urban issues. They may assure the maintenance of property values and more liveable modern individual houses, but they are not producing sounder community values or more liveable cities. Current zoning, setback and minimum lot size regulations dictate design. They prevent artful grouping, rhythmic spacing, spanning buildings over lanes and clustering. Many institutions and individual architects and urban designers realised the unsatisfactory situation caused by applying rigid legislation adapted to overcome the urban problems of Arab cities. They began questioning the scope and concepts of this legislation and are now calling for a review. Among these are The *Agha Khan Foundation of Islamic Architecture*, The Arab Towns Organisation, *Rasem Badran* of Jordan<sup>22</sup>, *Besim Hakim* of Iraq<sup>23</sup>, *Jamel Akbar* of Saudi Arabia<sup>24</sup> and others.

#### 1.2.4 Traffic Management Means and Patterns

Few urban issues have more influence on the spatial and formal characteristics of the built environment than movement patterns. The twentieth century witnessed a massive growth of transport facilities in urban areas. Many physical and environmental problems associated with urban transportation have appeared. Serious



attempts were made to deal with traffic management in historic city centres. Two major approaches were investigated to find satisfactory answers to these problems. First: the traffic engineering approaches for predicting the rate of traffic growth and how to provide for it<sup>25</sup>, and second: the free-pedestrianization approaches.

Traffic-engineering approaches focused on the technological solutions of traffic flow problems. The key to an efficient traffic solution was allowing and providing for all traffic demands to be met through segregation<sup>26</sup>. These ideas, apart from their traffic management merits, have a number of direct and indirect negative effects on the built environment<sup>27</sup>. This discussion is specifically concerned with their effects on visual performance reflected by: i) the new order of urban form; ii) re-patterning the city's density; iii) kinetic perception of modern built environments; iv) visual obstruction; v) and visual pollution.

Traffic-engineering approaches directly affected the city by requiring new forms of space for new movement patterns. This new movement system include structures such as, streets, railways and parking areas, which are very large land-users in the city, often exceeding 20% of the total land area<sup>28</sup>. This new system of movement creates a whole new order of perception of urban form and texture (Figure 1.5).

The developments of main transport routes allow the city to be more spread out and less dense and erase the traditional sense of enclosure which old cities offer. This affects visual characteristics in at least three ways: firstly, segregating of the grain

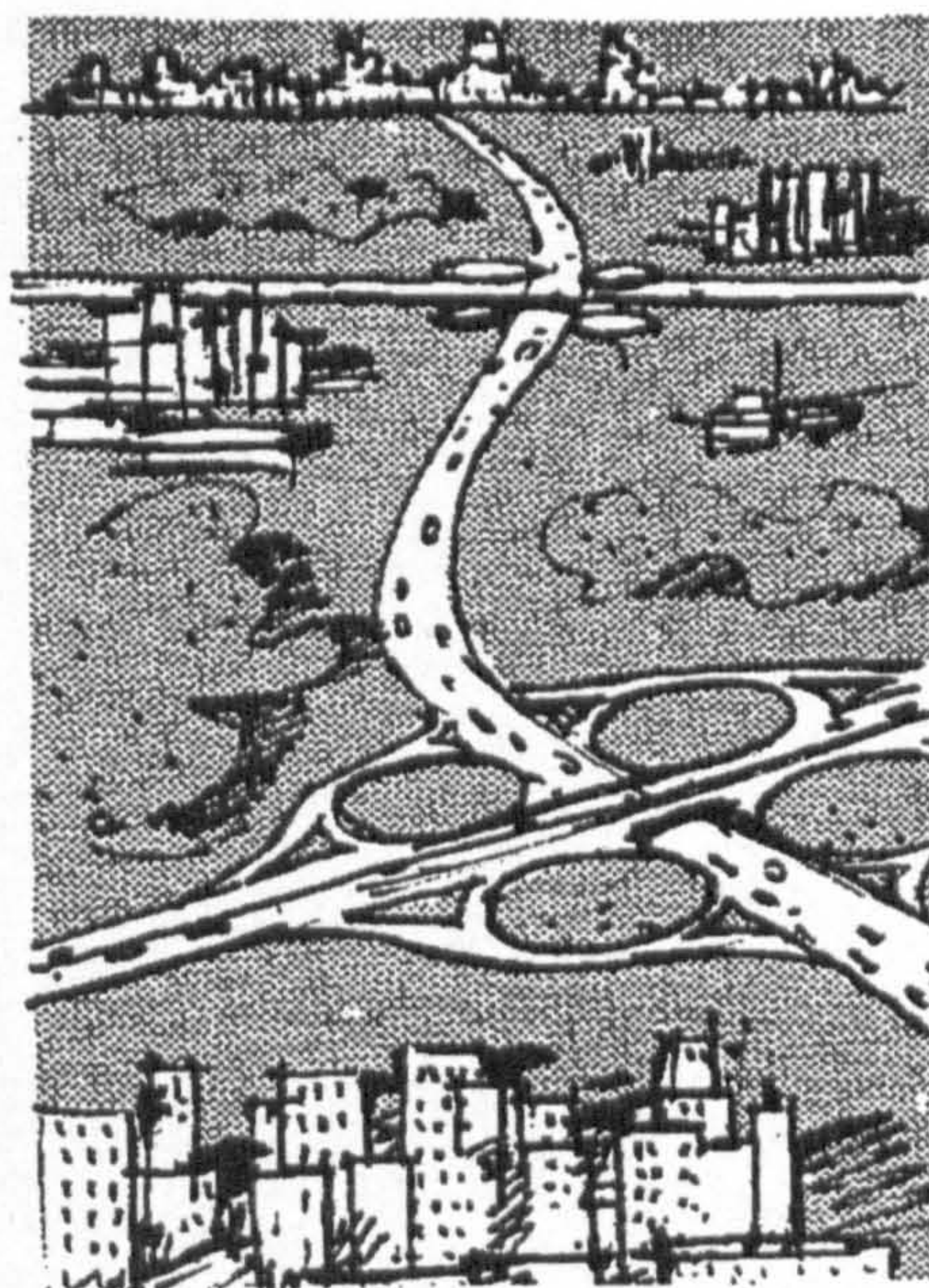


Figure 1.5: The new order of urban form.

Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.165.



of the city, i.e., its physical elements, activities, mixed-use patterns, persons and channels of movement; secondly, enlarging urban areas at the expense of agricultural land; and thirdly, creating new sub centres that may cause the decline of central urban areas and seriously erode the capabilities of street spaces to act as places where people can congregate.

Movement could be thought of as a major part of the character of the city. Traditionally, the city and its architecture drew people to its depths and involved them in an experience shared by all who were moving about within it. Twentieth century cities experience the disruptions of breaking the familiar rhythm of many streets. Travelling in motor cars at faster speed than walking gave a different kind of perspective and visual

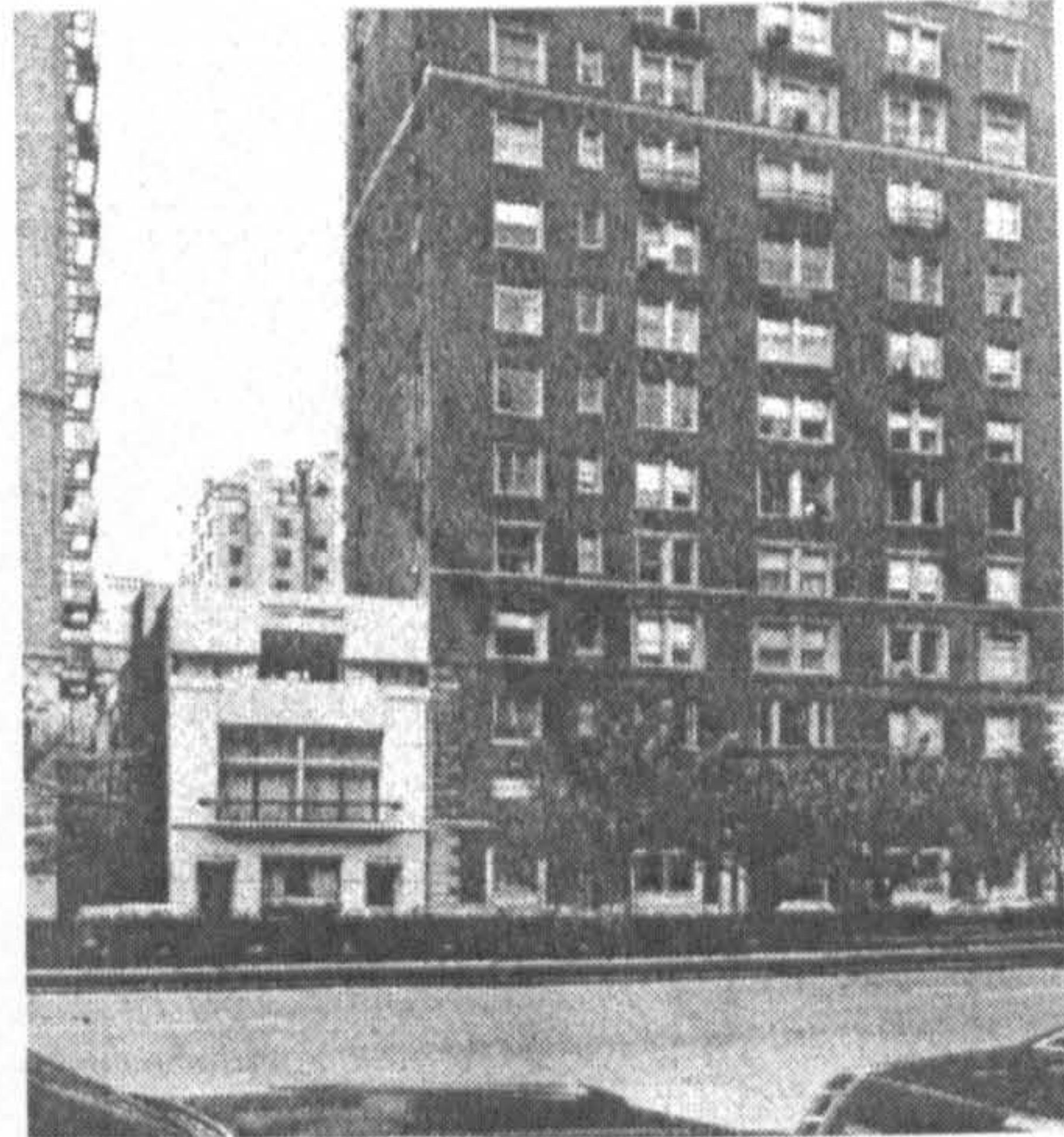


Figure 1.6: Odd configuration resulting from long frontage building adjacent to short unit frontage.

Source: Brolin, Brent., *Architecture in Context: Fitting New Buildings with Old*, New York: Van Nostrand Reinhold, 1980, p.128.

perception that was affected by time, distance and speed reflected on contemporary architectural works<sup>29</sup>. Contemporary built environments are mostly designed with little regard to pedestrian movement. They comprise long frontage

buildings among short-unit frontages (Figure 1.6),

as well as wide-frontage buildings with, usually, smooth and shallow facades. This enables passing motorists to see and identify each building. However, old buildings, usually, have narrow frontages and deep articulated facades, which can only be seen and perceived by pedestrians.

Another effect of transport means and patterns is the visual obstruction they cause to important landmarks and properties. Landmarks and open areas may be damaged by traffic passing through or too-close to them, or by other less important buildings hiding them. Destruction does not necessarily denote complete or partial physical devastation of an amenity. The physical structure of an amenity might be saved in whole, but be ruined for its purposes. This would lessen its value and limit or even



destroy the reason for its provision<sup>30</sup>. Many examples exist where new buildings or transportation structures destroy the views of important buildings. In London, the architecture built in the historical setting of Fleet Street, which obstructs the view of Saint Paul's Cathedral, provides an example of visual destruction while the structure of the cathedral is unaffected (Figure 1.7).

Another effect on the built environment is the visual pollution induced by different aspects associated with transport technology and other phenomena of industrialisation. These aspects include: first, the adverse effects of the physical design and characteristics of transport facilities, through the lack of proper consideration for the visual quality of the facilities. Second, emission of gaseous pollution that has adverse effects on exposed building surfaces by deteriorating colours and textures. Vibration resulting from motor traffic may be considered another factor causing visual and physical pollution which has long term effects on the structural elements of buildings, particularly those of archaeological importance.

Traffic-engineering oriented approaches focused on the technological solutions of traffic flow problems, without due consideration for the resulting spatial and formal qualities. On the other hand, the free-pedestrianization approaches brought about as a result of the awakening of public interest in the environment showed that not only they were capable of solving the technical problems of traffic management, but also they resulted in economic, social, spatial and environmental benefits<sup>31</sup>. However, the pedestrianization idea treats motor vehicles as monsters to be kept in tunnels and



Figure 1.7 : Sketch by Osbert Lancaster explaining the concept of visual destruction.

Source: Attoe, Wayne., *Skylines: Understanding and Moulding Urban Silhouettes*, Chichester: John Wiley and Sons, 1981, p.5.



garages. Spatial and formal qualities of cities are experienced by people wherever they go, either on foot or as car users. Neither of the two approaches is sufficient to solve all the visual problems of city centres.

### **1.3 In Search of Solutions**

The previous discussion indicated that many historic city centres suffer major spatial and formal problems manifested in the decay of the urban environment through congestion, pollution, deterioration, disappearance of useful open spaces, unsympathetic additions as well as the disappearance of the original residents. The search for solutions to such problems has motivated many theoretical and practical efforts on the urban and architectural levels. This section reviews some of these efforts, and addresses the necessity for re-involving the users to shape and assess their environments.

#### **1.3.1 Efforts at the Urban Level**

Ideas concerning city performance have been either structurally or evaluatively oriented. The structural approach focuses on the physical form of the area. It explains the city as a mere technical device, and neglects the visual considerations that are an important part of defining the nature of city spaces<sup>32</sup>. Plowden states that following structural approaches leads to the provision of more carriage-ways for dealing with transport issues but may result in less functional efficiency and an increase in traffic congestion<sup>33</sup>. This may lead to the decline of many traditional city centres not only spatially and formally but also socially and economically. Structural solutions are "based on the best that can be made of average: of average of human behaviour, average of weather, factors of safety and so on, and these averages do not give an inevitable result for any particular problem"<sup>34</sup>. Structural approaches, therefore, are not wholly effective in solving urban problems, or in preserving the unique visual characteristics of old cities' urban spaces.

Sustainability and energy conservation are relatively new factors in the design and evaluation of cities and have implications for spatial form and movement patterns<sup>35</sup>. They have been a result of the 1970s energy crisis. Sustainability defines cities as energy efficient structures. Such definition is concerned with the dynamic interaction between energy systems and the spatial organisation of the city specially its land-use patterns. Sustainability ideas are still theoretical as relatively little has been implemented. The past two decades, however, witnessed the erection of a few experimental cities at a very small scale in the USA, Denmark and Australia. Davis City<sup>36</sup>, California could be considered as one of the few examples of cities devoting sustainable effort and resources to energy conservation. It is a small university town where sustainability has been claimed by developing new building and setting regulations. These regulations encouraged a compact high-density urban pattern with general limitations in growth.

Almost all the literature on such experimental cities concerns evaluation for efficiency in energy conservation<sup>37</sup>. Sustainability ideas may change the sprawling land-uses into a better-managed and compact city. Yet it is too early to evaluate any of the attempts from the soci-economic, physical, visual and other environmental standpoints. Such evaluations are important for expanding these ideas without repeating the failed experiments of New Towns.

The evaluative approach is more concerned with the behavioural impact and activities of the urban environment. This approach attempts to explain the different factors affecting the physical form of the city and how that form functions. It deals with the general relations between human values and urban form. Hayden, for example, proposes a framework incorporating social history to urban space<sup>38</sup>. This framework consists of an approach to aesthetics and approach to politics and suggests how both apply to the history of urban spacescape. This framework links the "sense of place" to the "politics of place" (see section 2.3). Hayden highlights the role of women and ethnic groups as historical methods to develop a new kind of urban

memory. She outlines the elements of social history of urban space to connect user's lives to urban spacescape as it changes over time.

Another study by Soja provides an understanding of the meanings and significance of place<sup>39</sup>. His study is concerned with practical and theoretical understandings of place. He suggests a new concept of "third space" as an approach for understanding place different from that of both old and current urban theories. It is a three-concept approach to place incorporating spatiality, historicity and sociality as concepts that contain each other. The scope of the work is increased to include the spatial feminist critique, i.e., where spacescape is shown to be structured by the exploitative class relations of discriminatory bases.

More comprehensive is Boyer's analysis of cities with collective memories<sup>40</sup>. She examines the place of history and meaning in cities. She identifies three representational models of the image of the city. These are: i) the old city as a work of art where spacescape was transformed into series of enclosures, impressions and momentary encounters; ii) the modern city as a city of panoramas manifested in its open and expansive transformations; and iii) the contemporary city as a pure spectacle culling a programmed and projected look of electronic communications. Boyer looks for a new way of linking place memory to actual lived experience and not to reduce it to mere history.

These studies address the city as a unique historical and behavioural process. However, the main criticism directed at evaluative approaches is their hypothetical and abstract nature, which does not address three-dimensional analysis, thus neglecting the visual aspects of the built environment. Visual appearance deeply affects the spatial and formal characteristics of the city and the well being of its people, and hence should be considered within the totality of urban ideas.

Some researchers build their theoretical frameworks on utilising both the structural and evaluative approaches. Lynch's studies on urban cognitive mapping, for example,



suggest that distinction of urban images be not only physically determined but also socially. Lynch identified three sources of urban images, these are, identity, structure and meaning<sup>41</sup> (see section 2.3). In an attempt to build a broader framework for incorporating the physical and the behavioural aspects in urban analysis, Lynch, examined three existing urban theories. These are city as a model of cosmos, as a machine, and as a living organism<sup>42</sup>. These theories were shown to be inadequate and unable to hold up under sustained analysis. Accordingly, Lynch proposed a theory of good city form of five performance dimensions. These are vitality, sense, fit, access and control<sup>43</sup>. These performance dimensions were addressed as qualities that produce good settlements and allow development within continuity. Each of these dimensions is represented by physical as well as behavioural variables. These dimensions are of a very general nature that gives them the significance of use in diverse cultures with appropriate modifications.

Lynch's analysis forms a theoretical base for many later applications. Bentley's et al, for example, explains several concepts that make a built environment responsive, including permeability, legibility, variety, robustness, visual appropriateness, richness and personalisation<sup>44</sup>. The study proposes as a step-by-step design process for achieving responsiveness in the built environment. The process explains the crucial issues to be addressed, and provides a practical approach for using these issues in the development of both new and existing built environments.

Another study, by Francis Tibbalds, suggested principal themes in order to create rich, visually stimulating, vibrant and people-friendly urban environments<sup>45</sup>. These themes are based on the idea that places matter much more than either individual buildings or vehicular traffic. These themes are interrelated in nature, such as, mix uses and activities, human scale, pedestrian freedom, access for all, clear places, lasting environments and ability of controlling change. The study recommended checklists of actions for verifying each theme.

A new theory of urban design was proposed by Christopher Alexander et al<sup>46</sup>. It suggests that urban issues cannot be solved by design alone, but through a process by which the city gets its form. Such process is fundamentally changing and thus should allow the users to take charge of their built environments. The users' input could channel the process towards a comprehensive development. A comprehensive development, however, is unpredictable, as it is the result of the continuous growth. An environment that produces wholeness is always specific to its circumstances, and therefore will never have exactly repeated forms. The user involvement will enrich the coherence organism of the environment. In an attempt to recapture the process by which cities develop organically, this new theory of urban design proposes the following preliminary roles that embody the demands of urban developments:

1. **Piecemeal growth:** this idea aims to guarantee an equal mixed flow of small, medium and large projects in a certain setting.
2. **The growth of larger wholes:** where each building contributes to the city which is more important than the building itself.
3. **Visions:** where every project should be experienced in terms of its content and character.
4. **Positive and negative spaces:** where every building should create coherent and well-shaped public space next to it.
5. **The layout of large buildings:** large buildings should respect the wholeness next to them in terms of their layout, entrances, openings and circulation.
6. **Construction:** where the structure of each building should generate smaller wholes in the appearance of its architectural features, such as, wall treatments, windows and building base.
7. **Formation of centre:** where each building and larger whole should share in forming the centre.

Gosling and Maitland<sup>47</sup> made an analytical review of the different concepts of urban design. Although they did not propose an alternative direction, they provided a



comprehensive reference of the varied directions and possibilities. The study indicated that existing urban theories are mainly concerned with the development and functioning of cities. Most of these theories do not have a comprehensive view for evaluating visual performance from users' preferences. There are notions and opinions, but there is no systematic effort to state general relationships between the spatial and formal aspects of a place and its value. These theories, however, still form a useful base for a visual investigation.

### 1.3.2 Efforts at the Architectural Level

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Until the twentieth century, the life of a city had often depended on its capacity to renew itself organically. Current practice to adapt the city to the various changes seems to be uncontrolled. Huge areas of city centre land are given over to developers. This has led to a new architecture that is emerging with profit as a motive, and rarely considers the contextual aspects. Comprehensive urban development schemes have wreaked remarkable damage upon historic city centres<sup>48</sup>. Most of the new developments lack any positive response to the external context. With an increasing aggregation of individual developments, the city gradually lost its spatial coherence, and became an arena of isolated monuments surrounded by streets (Figure 1.8). When buildings became just objects in space, no texture or grain can define that city.

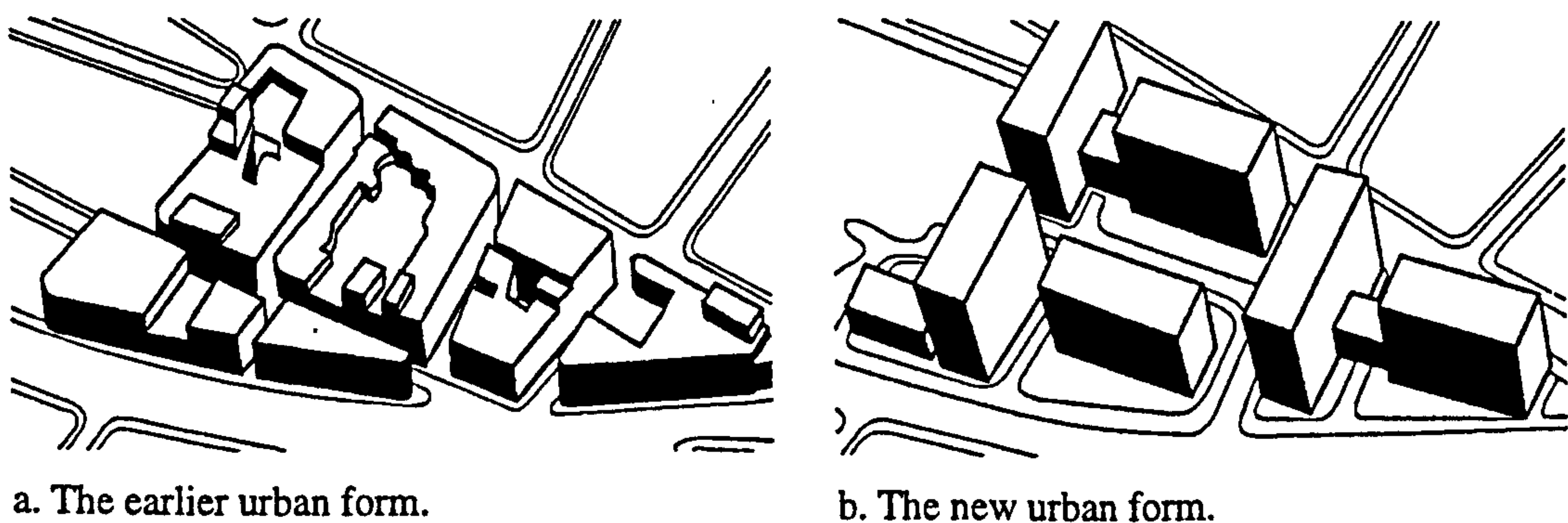


Figure 1.8: Diagrams illustrating the change of the physical form as a result of redevelopment over the earlier urban form.

Source: Tiesdell, Steven., et al, *Revitalising Historic Urban Quarters*, Oxford: The Architectural Press, 1996, p.51.



The past few decades witnessed a growing awareness towards the value and qualities of historic city centres. Conservation movements, thus, emerged largely as a reaction against the replacement of familiar buildings by architecturally unacceptable substitutes. Conservation does not concern itself merely with visual continuity but also a continuity of environmental memory. The first wave of conservation concerned the preservation and protection of certain individual buildings, structures and other artefacts. This was regarded as necessary but it was not sufficient in maintaining the sense of place. The second wave of conservation extended the scope to protect the whole setting. Accordingly, conservation policies were established covering buildings, townscapes and the spaces between buildings. The main concerns of these policies were to preserve the existing historic fabric, and to ensure that every development is sympathetic to the character of the area.

Conservation of old buildings includes rehabilitation, refurbishment and adaptive re-use. It was important to maintain the original functions of these areas, where applicable, and not to transform them into giant museums or museum environments. Conservation, however, was faced with several constraints. Some of these are attributes of the buildings themselves and their functions, whereas others relate to the area as a whole. Constraints arise through the physical and structural deterioration of buildings through the effects of age, environmental conditions and inadequate maintenance. More constraints arise from the inadequacy which results from many functional factors on which the building depends, such as parking spaces, difficulties in access and other problems.

In many cases, the internal layout of the old building interferes with the proposed occupation. Some developments allowed new buildings to be built behind a retained historic facade. This has been considered a valid method for conserving the historic streetscape while permitting contemporary spaces behind historic elevations<sup>49</sup>. However, the visual whole of an area cannot be separated into exteriors and interiors. Although the facade contributes most to the visual continuity of the streetscape, a facade in isolation can reduce the integrity and unity of the building<sup>50</sup>.

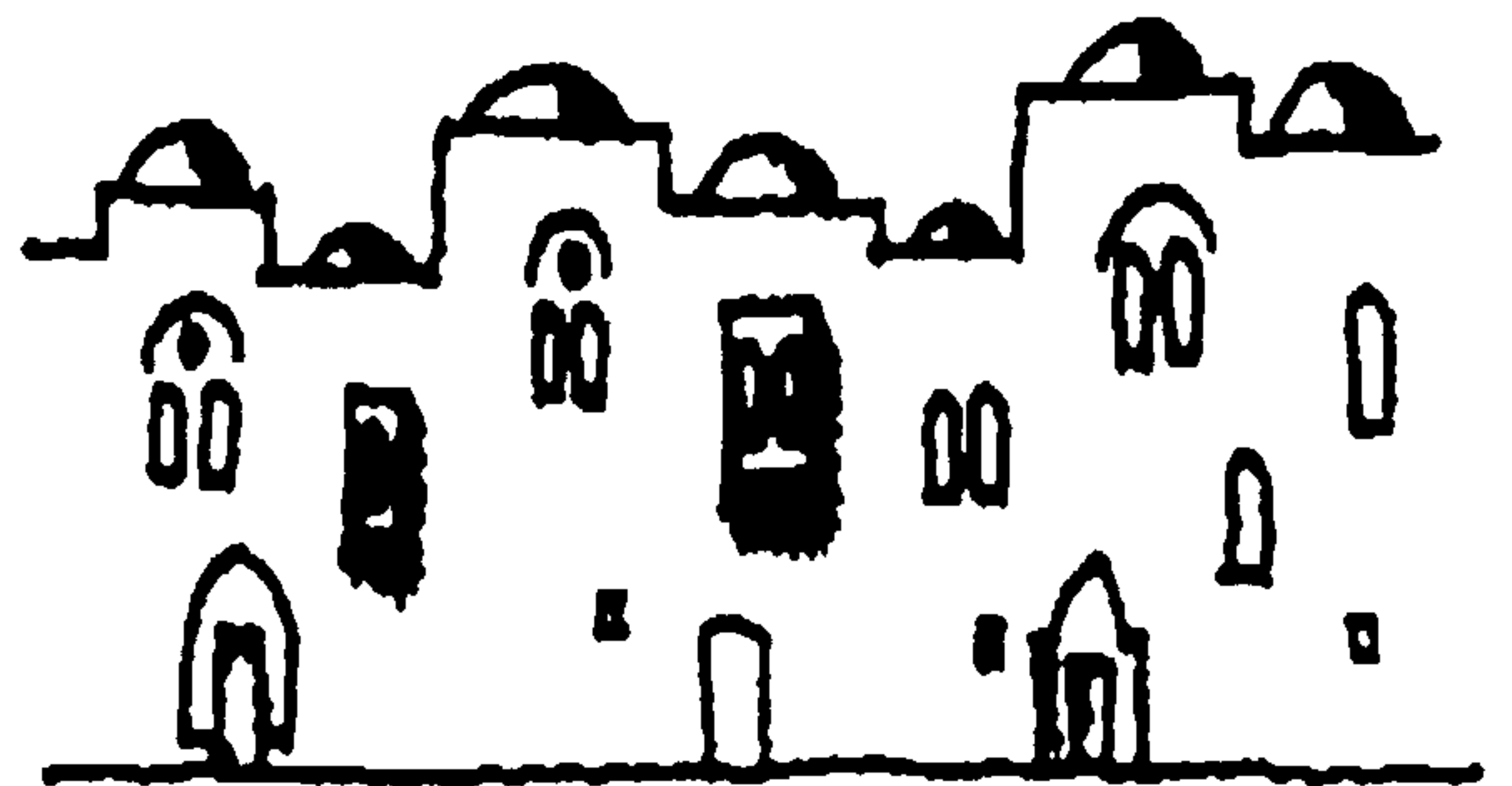
In all historic city centres the process of change is ongoing. New projects are added including infill buildings, new additions to old buildings, as well as large urban development projects. Some works stress the importance of respecting the sense of place. The approaches to designing new buildings so that they are sympathetic to their context are threefold: the contextual uniformity, contextual continuity and contextual juxtaposition<sup>51</sup>.

### A. Contextual Uniformity

Contextual uniformity concerns imitation of the old styles and images. For many architects, contextual uniformity means aping some characteristics or ornaments of historic architecture, often in a ludicrously inappropriate manner. Three design attitudes can be identified within this approach. The first concerns producing exact copies of traditional architecture of a certain period and place<sup>52</sup>. The result is thus a kind of falsification. Sometimes the new structure is not recognised as new (Figure 1.9). This could be considered as a superficial treatment where buildings lack any semblance of architectural integrity. It can be justified when filling a gap in a high quality historical environment. But even in such a case some subtle means should be used to show the border between old and new. However, when located isolated among modern buildings such a copy looks displaced and rather inappropriate.

Figure 1.9: Could you tell me which one is the new building? There used to be a gap in this elevation.

Source: Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p.100.



The second attitude is an eclectic one, i.e., using certain traditional elements to design new buildings<sup>53</sup>. Such imitation of traditional architectural elements from



various periods and places in one building might result in an over-decorated stylistic play (Figure 1.10). This attitude is related to Post Modernist ideas which have experienced major criticism during the past decade.

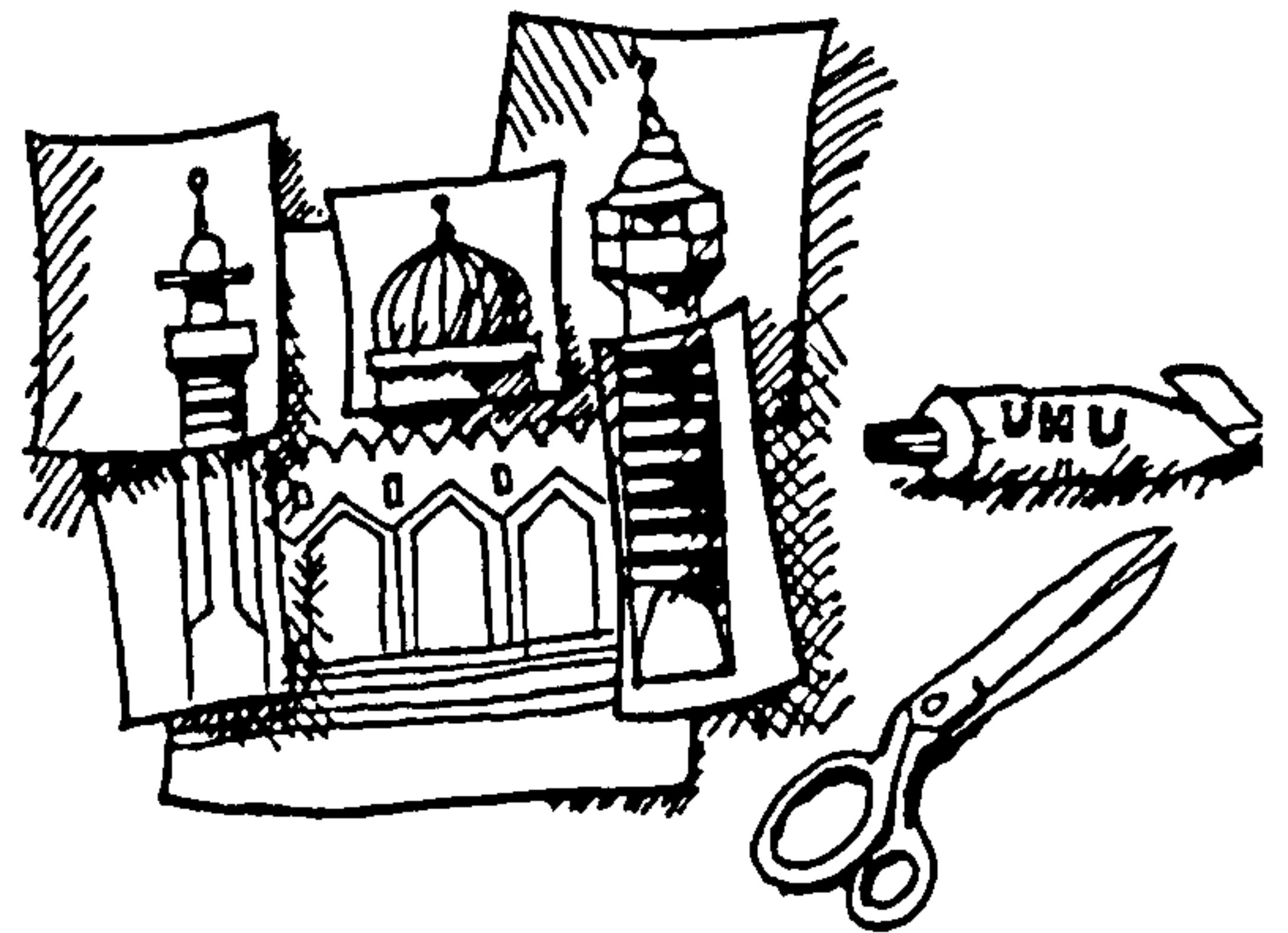


Figure 1.10: Why don't we simply borrow from our glorious past?

Source: Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', 1982: p.99.

The third attitude concerns clothing new buildings with period costume design<sup>54</sup>. Application of traditional motifs such as pointed arches out of context in the body of a modern, more or less functionalistic building, disregarding the effect of the hopelessly untraditional size and endless repetition of modules of such a structure (Figure 1.11). This might be considered a vain attempt, as the resulting architecture tends to be merely poor rather than sympathetic. Such architecture lacks unity and integrity and adds to the existing visual confusion.

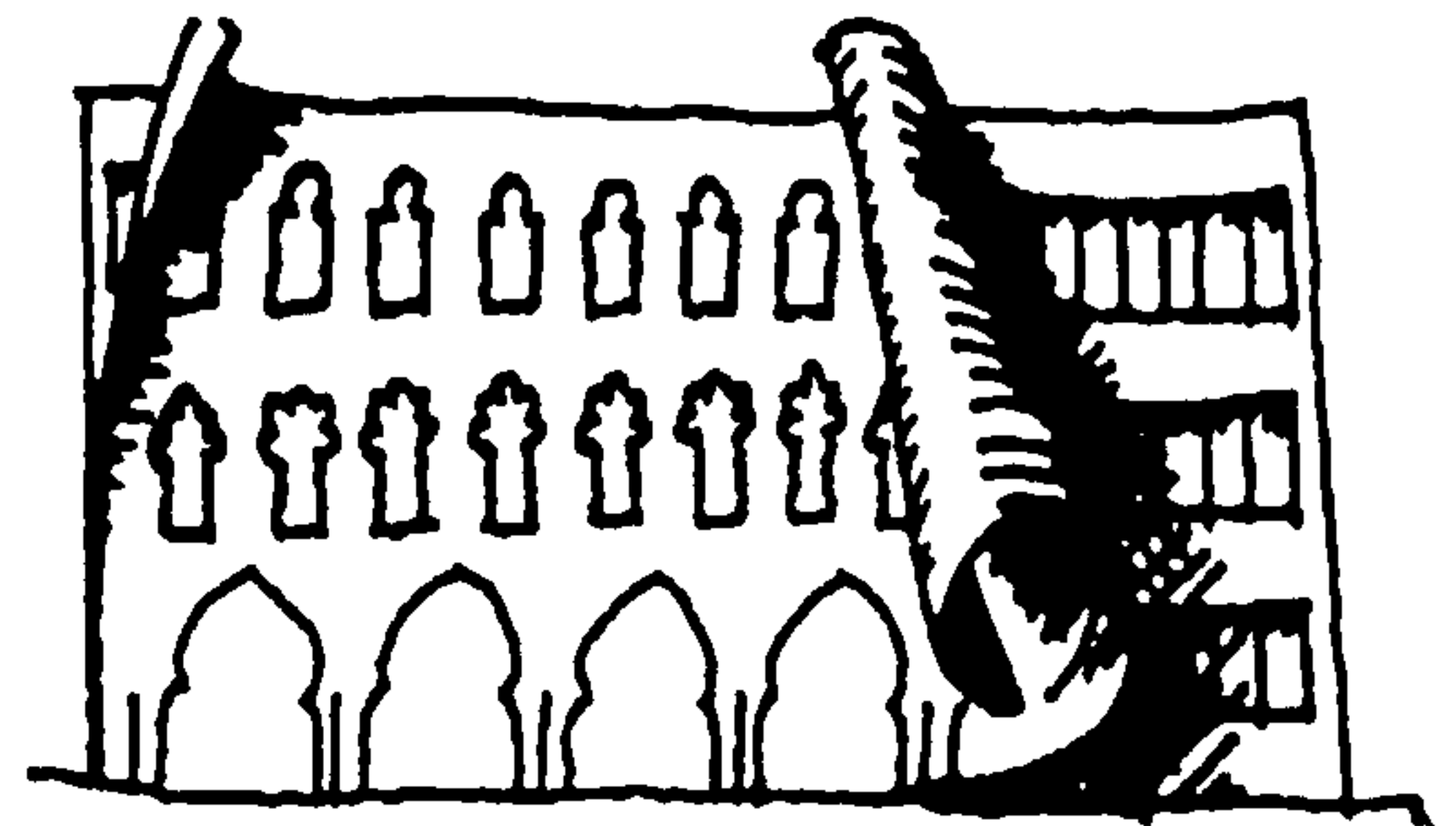


Figure 1.11: Well, let's make it Islamic.

Source: Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', 1982: p.99.

## B. Contextual Continuity:

It is important to maintain the historic continuity when dealing with historic city centres. Yet, it is not necessary to make exact copies of historic examples, or to clothe modern buildings in period costume in order to harmonise them with the rest of the street<sup>55</sup>. New buildings should exhibit a significant degree of responsiveness to the local context. They could have a contemporary image while respecting the context by capturing its visual flavour.



Much of the contextual success of such new developments is that they follow the conventions of traditional urbanism, and combine them with the grains of contemporary life. Contextual continuity does not seek a ready-made style, but it is the product of the imperatives of the setting. Accordingly, contextual continuity can be accomplished through maintaining general similarities between new and old buildings rather than playing stylistic games. This approach might be considered as a mature effort to re-evaluate traditional architecture, to re-assess what is still valid for contemporary use, and applying the substance rather than superficial decorative elements. It is a contemporary interpretation of the tradition, where the result is a transformation and not a copy. It is a document of the period, using modern technology and appropriate architectural language.

### **C. Contextual Juxtaposition:**

This conceptual approach argued that in terms of achieving harmonious relationships with the existing urban context, the size and scale of the building are more important than its particular architectural features, such as, texture, colour and grain<sup>56</sup>. Such features are considered the least important element in relating new buildings to their context. The juxtaposition is with the architectural character rather than with the spatial characteristics of the area. Buildings here have their own visual integrity and reflect their "spirit of age" with few stylistic concessions to the surrounding local context. The challenge, therefore, is to ensure that there is a continuity of the visual character rather than sinking into visual chaos.

Various design inclinations can be identified within this approach where new buildings are in contrast with their context in terms of styles but keep with the size and scale of the existing buildings. Among these inclinations is the "contrast and link" ideas<sup>57</sup>, a neutral contact point between the new building and the existing old one (Figure 1.12). The idea of the link is to achieve a sense of separation between the new and the original. This in turn could resolve the visual conflict between the new building that is in visual discord to the existing nearby buildings.



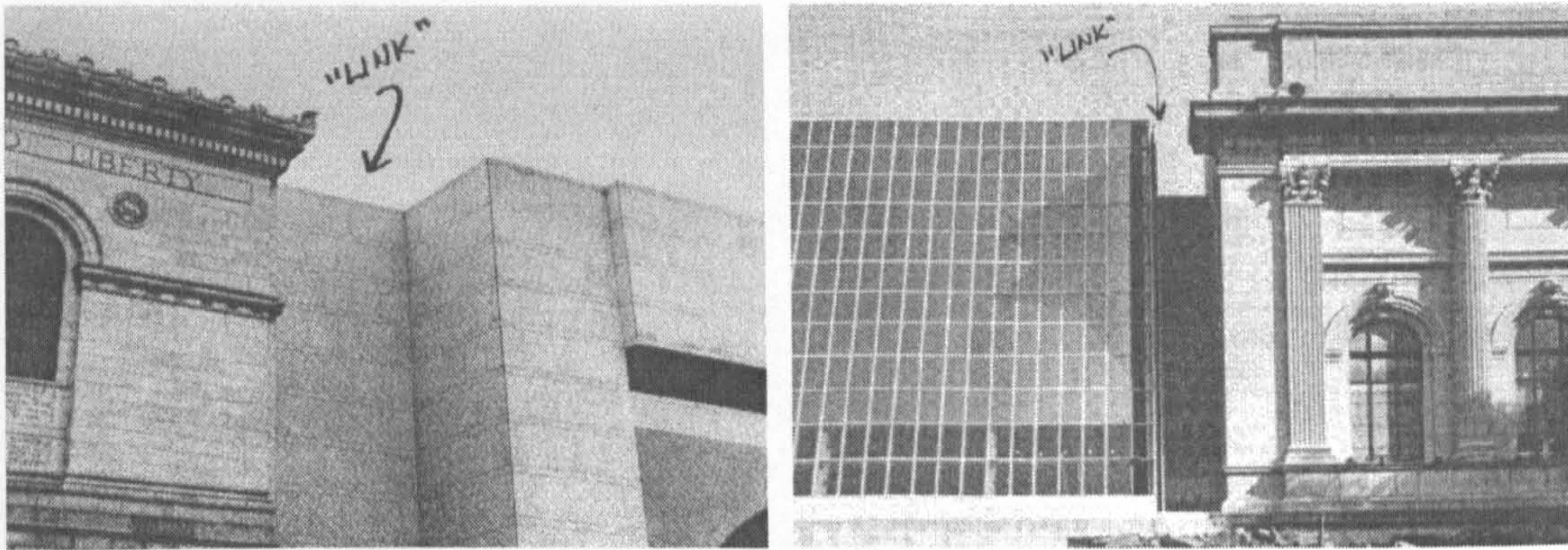


Figure 1.12: The idea of link aims to create a neutral contact point between the new building and the existing old one.

Source: Brolin, Brent., *Architecture in Context: Fitting New Buildings with Old*, New York: Van Nostrand Reinhold, 1980, pages 66 and 109.

Another attitude within this approach suggests that the sense of the place can be maintained by reflecting the images of old buildings on a new mirror-glass curtain wall building (Figure 1.13). The reflection might diminish the glass building's presence to preserve the dominance of the nearby buildings. Such ideas, however, aroused serious criticism and was considered more superficial than intellectual.

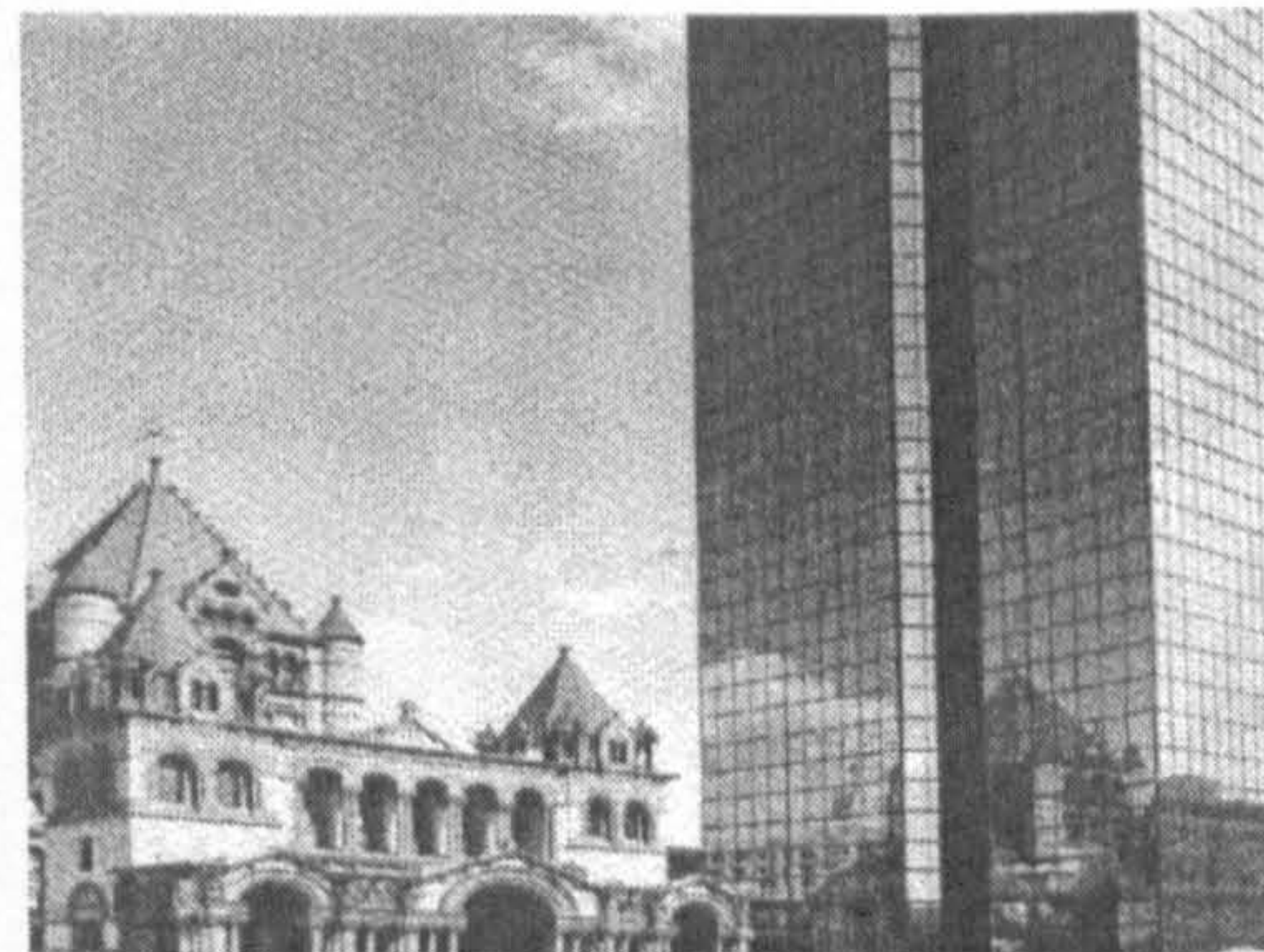


Figure 1.13: Images of old buildings reflected on a new mirror-glass curtain walling building.

Source: Brolin, B., *Architecture in Context*, New York: Van Nostrand Reinhold, 1980, p. 135.

Within these conceptual approaches there are positive ideas as well as some misconceptions. The question of which approach or attitude would be more appropriate is still arising. In such a discussion it is difficult to avoid personal preferences. The belief that architects alone can make the right decision is too idealistic. City administrations, however, make their planning decisions on the basis of regulations and by-laws. They also seem to follow the general tendency dictated by the economically powerful lobbies. It has been shown that the attitudes and interests of professionals are often remarkably different from these of the users they claim to serve<sup>58</sup> (see section 1.3.3). In such interweaving attitudes and interests, re-involving the users in enhancing their living environments is a necessity.



### 1.3.3 Re-Involving the Users

When industrialism became dominant it brought with it a pluralistic society where the diversification of decision making led designers and planners to fail to deal with and manage the needs of a large group of people. Design and planning have thus, taken place in a context of pluralistic decision making, and the people who actually use and occupy built environments became unable to influence the way their environment were designed<sup>59</sup>. Therefore, nearly all the important decisions were based on factors that have little to do with either the way people use the built environments, or the way built environments affect people. Accordingly many environments that do not properly serve the functions for which they were designed have emerged, and users' dissatisfaction began to be a general phenomenon. Rubin et al mentioned that the major reason for this dissatisfaction was the lack of user participation<sup>60</sup>.

Shirvani stated that the inability to deal with pluralism is one of the main causes of design failure in the twentieth century<sup>61</sup>. Simonds comments that "we are trapped, body and soul, in the mechanistic surroundings we have constructed about ourselves. Where in the complex process of evoking our living spaces, cities and roadways, we have become so absorbed in the power of machines, so absorbed in the pursuit of new techniques of building, so absorbed with new materials that they have neglected our human needs. Our own deepest instincts are violated, our basic human desires remain unsatisfied"<sup>62</sup>.

The Pruitt Igoe project in Missouri, USA, for example, was an award winning design<sup>63</sup>. Yet, it provides a dramatic illustration of a failure of the design process. This multimillion-dollar complex had to be destroyed because it was unsuitable for its users and occupants (Figure 1.14). The same applies to many cases throughout the world including some recent cases in Glasgow, Scotland. The users' attitudes, perception and active involvement were mis-interpreted, or even in some cases completely disregarded.



Figure 1.14: The Pruitt Igoe project was demolished due to its unsuitability for its users and occupants.

Source: Rubin, Arthur I., and Jacqueline Elder, *Building For People*, Washington DC.: National Bureau of Standards, 1980, p. 9.



As a result of disregarding the user changing needs, user dissatisfaction was inevitable and a number of serious urban problems occurred. Users' attitudes, preferences, satisfaction and involvement in the process of shaping the built environment became important to solve these problems. In the past few decades, the idea of user participation gained support from many researchers and practitioners, and opposition from others. The opposing position suggested that involving the users in shaping the environment is of little importance<sup>64</sup>. They argued that user satisfaction is not more than monitoring volatile tastes on the environment. They considered that the users' lack of necessary expertise would lead to chaos and will create poor environments. Furthermore, they considered that user participation would delay developments and increase their expenses.

Supporters of user participation argue that people need to participate in planning their own environment to be satisfied. Some were interested in limited user involvement, asking only for opinions and advice. Others were concerned with wider user involvement. They argued that participation is the only way users' interests can really be taken into consideration. Christopher Alexander et al, for example, called for user participation in all stages of design from beginning to end, as well as in feedback evaluations. The book *A Pattern Language*, composed of 253 patterns as design and construction guidelines, maintained that user participation in design and construction would not lead to chaos<sup>65</sup>.



Alexander advocated the benefits of user participation and involvement, "participation is inherently good; it brings people together, involves them in their world; it creates feeling between people and the world around them, ... the process of participation tends to create places which are better adapted to human functions than those created by a centrally administrated planning process. ...., people need the chance to make active decisions about the environment. This is a fundamental human need"<sup>66</sup>. A study by Wandersman suggested that participation gives users a sense of mastery and control over their environment and a sense of ownership<sup>67</sup>.

The researcher believes in involving multiple interests in the activities related to built environment, i.e., to learn from the experience of the users as well as not exclude focused expert experience. Users' knowledge and priorities are significantly different from these of professionals and decision-makers. Their knowledge is gained gradually and subconsciously in their day to day interaction with the environment. Users hold a wealth of experiential knowledge of their environment. Their participation in evaluating the performance of their environment is beneficial in more than one way. The different benefits of user participation can be categorised as: organisational, human and professional<sup>68</sup>:

1. Organisational benefits: the reduction in built environment problems and increasing flexibility in certain urban spaces that will contribute to a better quality of the built environment.
2. Human benefits: these are perhaps the most important resulting from the user participation process. Humane and appropriate environments for people could be achieved through the avoidance of problems; through the development of an appropriate design response that helps support activities; through the creation of an appropriate social climate; and through the creation of appropriate aesthetic qualities, image and meaning in the built environment. These benefits would enhance and improve the quality of life of the users of an environment.

3. Professional benefits: user participation allows professionals to make informed decisions about the design of the built environment. Users generate information from which professionals become better placed to decide on improvements. The systematic and comprehensive evaluation of the built environment, the development of credible performance criteria, and the availability of design guidelines will lead directly to significant improvements in the quality of the built environment.

#### **1.4 Summary of the Chapter**

The current growth of the built environment creates a whole new order of perception of its spatial and formal characteristics. The new formal possibilities resulting from the introduction of new building materials and construction techniques dramatically affected the visual performance of the built environment. Architectural styles and planning trends have direct impact on the visual appearance. New styles often separate the new additions from their context, and historic continuity is questioned.

Although planning and building legislation have contributed in many ways to control urban growth, they possess many limitations and create various side effects regarding spatial and formal qualities. Traffic management could be considered the most influential on the visual performance of the built environment. Dealing with urban problems from a traffic engineering perspective has caused many serious spatial and formal impacts. These include the introduction of a new order of urban form, re-patterning city density, visual obstructions of important buildings and visual pollution. All have changed the collective visual experience of the old city.

Ideas concerning city performance have been either structurally or evaluatively oriented. The structural approach focuses on the physical form of the area. The evaluative approach is more concerned with the behavioural impact and activities in the urban environment. Some researchers build their theoretical frameworks on utilising both the structural and evaluative approaches. Most of the existing



approaches are mainly concerned with the development and functioning of cities. They do not have a comprehensive view for evaluating visual performance from users' preferences.

Conservation policies were established to maintain the sense of place in old cities. These policies concern the conservation of the existing historic fabric; and to ensure that any new development is sympathetic to the character of the area. Three design approaches are identified for new buildings in old settings: the contextual uniformity by imitation of old architecture; contextual continuity by creating a new contextual urban language keeping with the scale, rhythm and massing of the area; and contextual juxtaposition by achieving harmonious relationships as a result of the juxtaposition of buildings expressing their own time. Such conceptual approaches should be tested through users' preferences.

Disregarding the users' needs related to the built environment was reflected in their inevitable dissatisfaction. User participation became important and gained support from many researchers and practitioners, and oppositions from others. The opposing position considered that the users' lack of necessary expertise would lead to chaos and will create poor designs. Supporters argue that people need to participate in planning their own environment to be satisfied. It is important, therefore, to deal with the urban environment from multiple interests, i.e., to learn from the experience of the users as well as not excluding expert experience.

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    - Devries, Duane, *Dickens Apprentice Years*, New York: Harvester Press Ltd., 1976.
  4. see for example:
    - Hugo, Victor Marie, *Les Miserables*, Charles Wilbour (trans.), London: Dent, 1964.



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10. See for example:
  - Jencks, Charles., *Late Modern Architecture*, London: Academy Editions, 1980.
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12. Venturi, Robert., *Complexity and Contradiction in Architecture*, London: The Architectural Press, 1977, pp. 50-53.
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  - Wigley, Mark., and Jacques Derrida, *The Architecture of Deconstruction*, Cambridge, Mass.: The MIT Press, 1993.
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  - Sawaged, Bassam., *The Influence of Building Legislation on the Urban Form*, Unpublished M. Arch. Dissertation, Amman: University of Jordan, 1989.
19. Law no.1 of 1990, of Owners and Tenants in Jordan.
20. Ghanem, Ghassan., 'The Amman Building Control Legislation', in *Buildings' Codes and Specifications for the Arab World*, F. Daghistani (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.
21. *ibid.*, pp. 201-209.
22. Rasem Badran is a well-known Jordanian architect working with Islamic Architecture. He is a recipient of the Agha Kahn Award of Islamic Architecture in 1994.
23. See for example:
  - Hakim, Besim., *Arab-Islamic Cities: Building and Planning Principles*, London: KPI, 1986.
24. Jamel Akbar is a Saudi researcher at the School of Architecture of King Abdul Aziz University, Riyadh. He has many publications regarding the effects of legislation on the performance of the built environment of Arab and Islamic cities, among which is his book: *Crisis in The Built Environment: The Case of The Muslim City*, Singapore: Concept Media, 1988.
25. See for example:
  - Buchanan, Colin., *Traffic in Towns (The Buchanan Report)*, London: HMSO, 1963.
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27. Rajjal, Yasser., *Urban Space and Movement Patterns: A Study of Amman City Centre*, Unpublished M. Arch. Dissertation, Amman: University of Jordan, 1989, pp. 15-42.
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  - Buchanan, op. cit.



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## Chapter II

# THEMES OF URBAN RICHNESS



## Chapter II

# THEMES OF URBAN RICHNESS

### 2.1 Introduction

This study attempts to establish a systematic way of assessing the visual qualities of the built environment. There is a particularly pressing need for such effort because of the present threat to many historic city centres which endanger their characteristic visual structure and unique formal characteristics as well as damaging their historic buildings and traditional spatial form.

In urban terms, the evaluation of visual performance is not a simple and straight forward act. It consists of contributions from many facets of the mind and reflects many aspects of psychological need. A city offers a rich varieties of related spatial and formal events capable of coalescing into visual satisfaction in various ways and with regard to different places and different people (see section 4.2). Weber asks whether the visual appeal is determined by the characteristics of the built environment, or by the observers' own perception and feeling about those characteristics<sup>1</sup>. In both cases, the environment itself is the main stimulus of such visual experiences.

This chapter illustrates the characteristics that contribute to the complex visual performance of historic city centres. It: i) analyses the ancient themes related to city components; ii) addresses the concept of place as theatre in historic city centres; and iii) builds-up a framework for understanding the nature of visual values in accordance with spatial and formal characteristics of historic urban centres.



## 2.2 Visual Characteristics of Old Urban Centres

This section attempts to understand the various visual characteristics of old urban centres. This is essential to formulate conceptual applications incorporating these characteristics which, in turn, will help in identifying the main variables of visual performance. Learning from the past does not suggest direct copying of forms and spaces, rather concerns analysis from which lessons can be derived.

### 2.2.1 Coherence

Traditionally, cities developed from local conditions. Every city, whether classical or medieval, had unlimited number of examples to offer where harmonious relationships were related to proper correlation of the city and its local conditions<sup>2</sup>. Cities were formed and buildings grouped in a multitude of ways, and of these there were no two alike. In most old cities urban spaces often relate to each other in a way which, on superficial level, seems to be spontaneous. Closer analysis reveals that the relationship is often achieved in a manner which maximises a kind of tension between the autonomy of each element and its dependence on the wider setting. The Arab Islamic city with its narrow, slightly zigzagging alleys, provided the inhabitants with a sense of place. The use of attached and self-contained courtyard houses provided rich shaded areas for the pedestrians by projecting *Mashrabiyas* or rooms spanning over the lanes<sup>3</sup> (Figure 2.1).

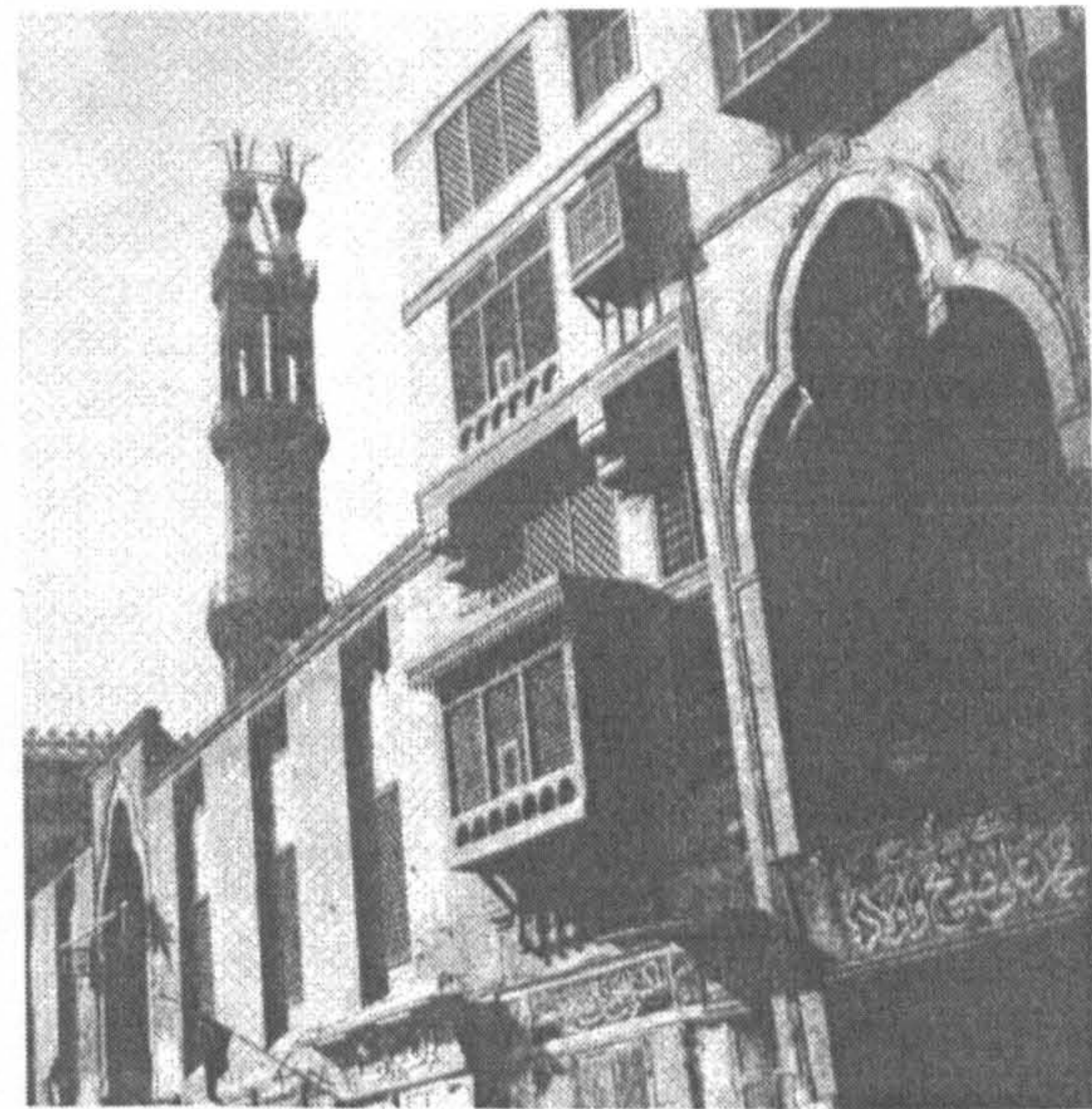


Figure 2.1: A view showing a projecting *Mashrabiya*, Cairo.  
Source: Abu-Lughod, Janet., *Cairo: 1001 Years of The City Victorious*, Princeton: Princeton University Press, 1971, p.94.



For a stranger passing through the streets of the old city of Jerusalem, for example (Figure 2.2), the city may be thought of as a very close and crowded city, but this would not be the case for a person who overlooks the city from the top of a lofty house or from the minaret of a mosque.



Figure 2.2: General view of the old city Of Jerusalem.

The Medieval Arab Islamic city, therefore, may appear as an incoherent organism. Yet, from a more in depth analysis one may obtain a clear hierarchical structure that organises the city from the most public to the most private spaces (Figure 2.3). The Arab Islamic city has three types of streets in an ascending order of widths and uses<sup>4</sup>. The main street (*share'*) contains the commercial, political and religious establishments. The secondary streets (*darb*) are semi-public in nature and often lead from the main street to a dead end. However, the private pathway (*zuqaq*) starts from the secondary street and leads to a dead end. Some can be closed at the junctions with secondary streets.

Generally, main streets have shops along both sides with apartments above them, which are seldom occupied by the shop-holders. On both sides of the main streets are the secondary and private lanes, most of them having a large wooden gateway at each end, which are closed at night providing security and privacy. Main streets are opened for use by any one, for all kind of activities and at all times. Typically, the layout pattern of the Arab Islamic city provided sequences of open spaces and visual landmarks making interesting spatial relationships as well as giving a sense of orientation.



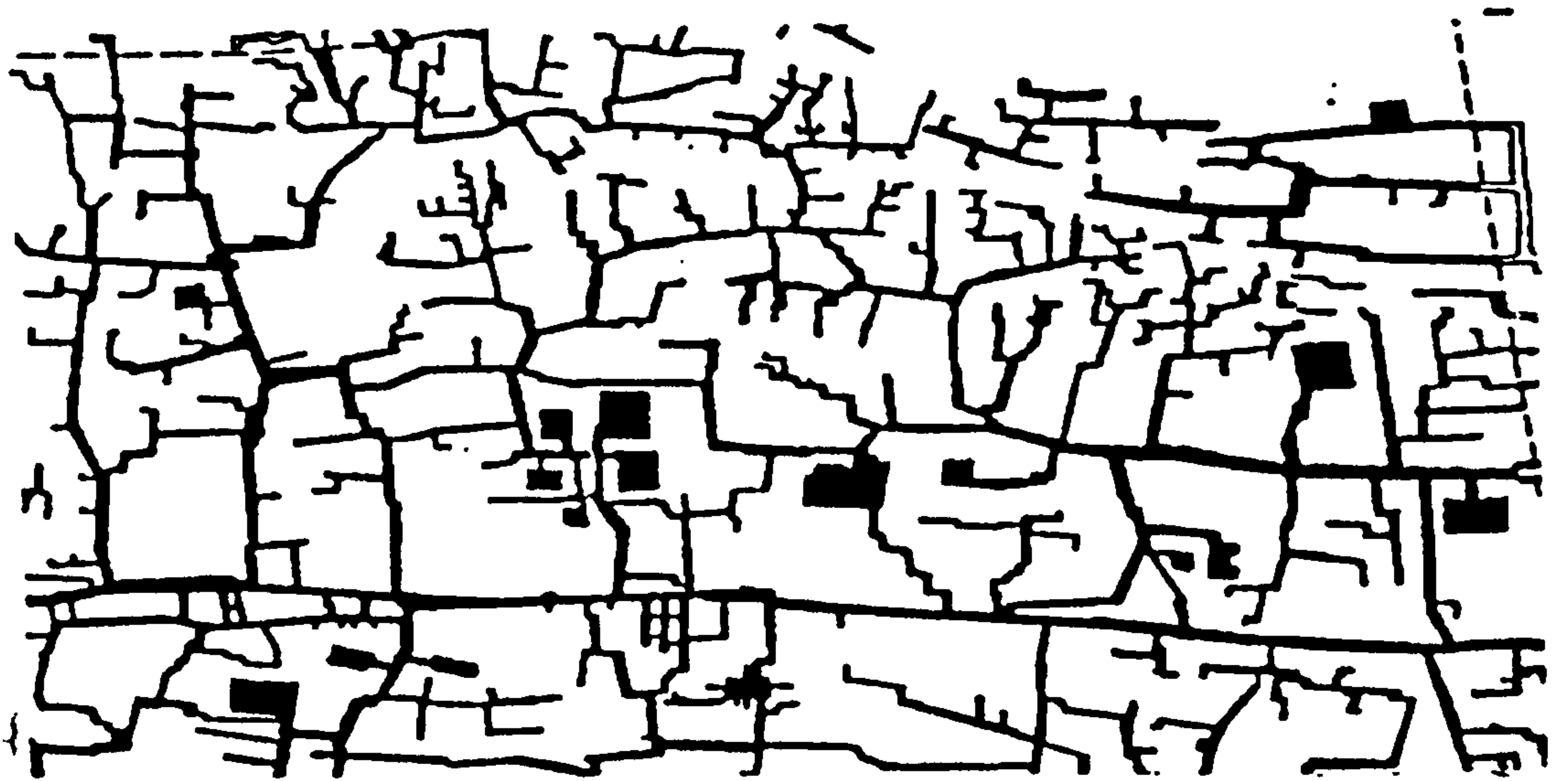


Figure 2.3: Street Hierarchy in the Arab Islamic city.

Source: Passini, R., *Wayfinding in Architecture*, New York: Van Nostrand Reinhold, 1984, p.121.

Travelling through old urban spaces one may experience various visual relationships manifested in spatial and formal interactions. The size of a building unit in a street is usually conditioned by almost standard plot sizes. Other details, such as, entrances and windows and sometimes balconies and canopies occur at certain frequencies as openings within facades, unified by texture and colour. These components are not experienced individually, but interactively in correlation to each other and to the surroundings. The degree to which they fit together into the users' image contributes to the mode of aesthetic experience.

Further, the visual message, or impact, is enhanced if rhythm and contour are added. The contour will create a terraced figural urban form of buildings with a backdrop of open spaces, pathways and stairways and slopes following topographic sequences. This offers spectacular views across the surroundings strengthening the coherent nature of building fabric. The visual appeal lies in the compound massing of the multitude of elements of the fabric rather than in any individual building. Hilly cities, such as Amman, Jordan (Figure 2.4), give rich visual experiences<sup>5</sup>. The dialogue is intensified in various ways, one example occurs when breaks suddenly appear in the

high density area to expose a strip of limitless vista, or the tension which results between the anatomy of the building mass and its correlation to the rest of the field.

The old mountainous Inca city of Machu Pichu, Peru, provides another type of visual experience<sup>6</sup> (Figure 2.5). The form of the city followed the theme of the natural environment. The landscape was a series of uniquely shaped hills forming valley and mountains. The terraced hillsides were covered with walls and buildings as a series of regular geometric shapes merging with nature. The regular buildings were counterparts to the irregular valley shape, while the pyramids were counterparts to the unique form of the hills.



Figure 2.4: The slopes of Amman City Centre in Jordan.

Source: Rajjal, Y., *Urban Space and Movement Patterns*, Amman: University of Jordan, 1989, p. 128.

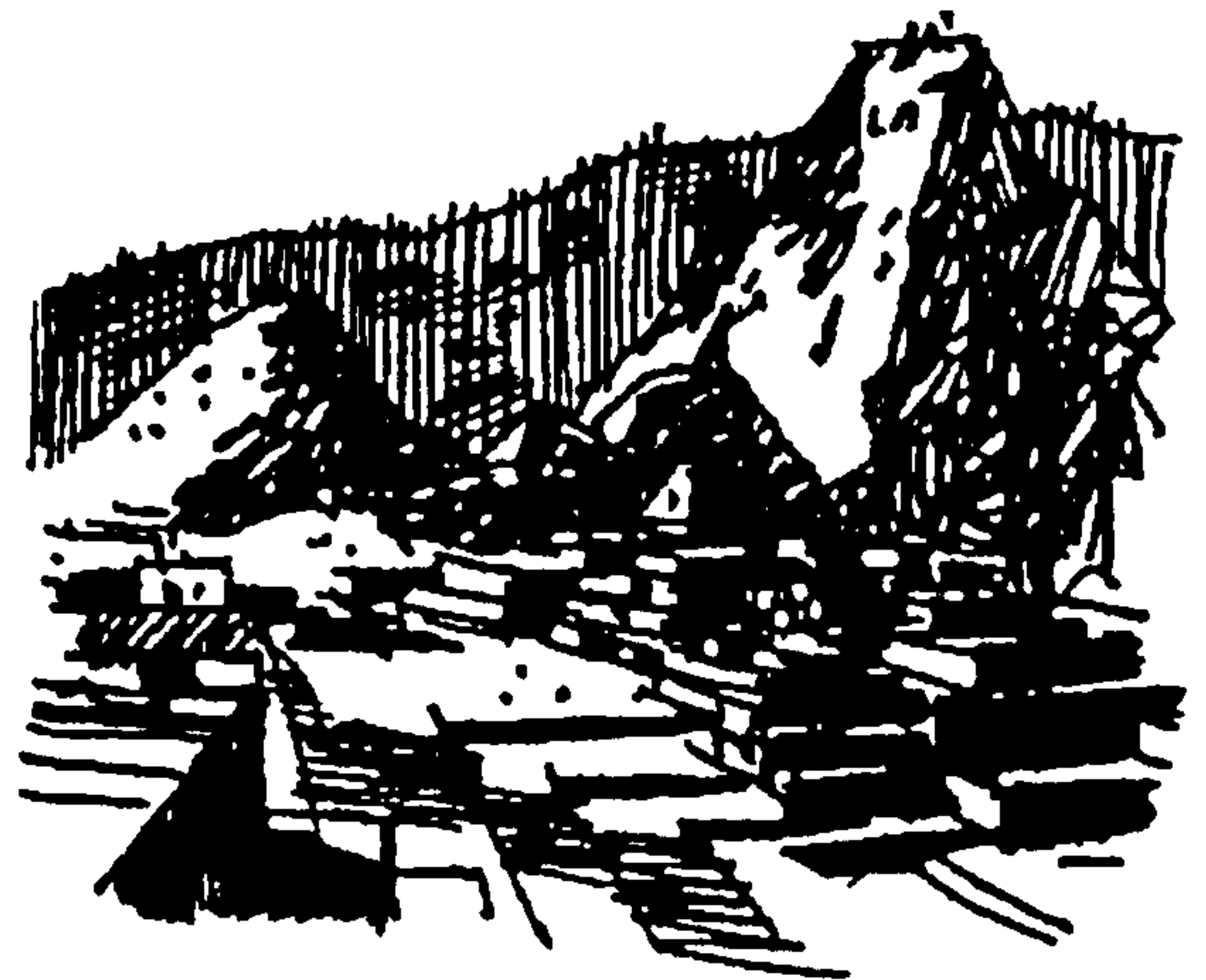


Figure 2.5: View of the hill city of Machu Pichu, Peru.

Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.108.

### 2.2.2 Organic Growth

The major observations in studying old cities revolve around their gradual growth through the ages. Within the terms of space performance there are factors that activate all levels of the mind, such as complexity, ambiguity, surprise and confusion. The visual potential lies in the way that these factors interact. As the scene subsides into a number of interweaving patterns, complexity drops behind to be replaced by



several dimensions or qualities of unity and schematic ordering of elements or pattern.

The complexity and ambiguity of the city pattern or layout highlights the relationship between the individual and the environment. There is the satisfaction of construing cognitively a pattern of streets and buildings that has meaning and coherence. This dimension is largely neglected in current city planning philosophy and building regulations (see section 1.2.3). In addition, the element of surprise and puzzle can be an important aspect of the visual experience. The appeal of historic city centres is derived from discovering how patterns and rhythms weave their way across a seemingly random array of shapes or colours, tones and textures.

A walk through such spaces is so delightful. This is due to the account of the ever-changing visual relationships one experiences. The character of space in these areas keeps changing, and thus no sameness and dullness are experienced. Along the walk one could pass a narrow side street; a dark mysterious enclosure of tunnels under buildings (Figure 2.6), sudden excitement received when entering large squares from small intimate enclosures and thoroughfares. Each stage from one kind of space to another has its own articulations, architectural details and ornaments that distinguished it. The whole is a powerful visual statement.

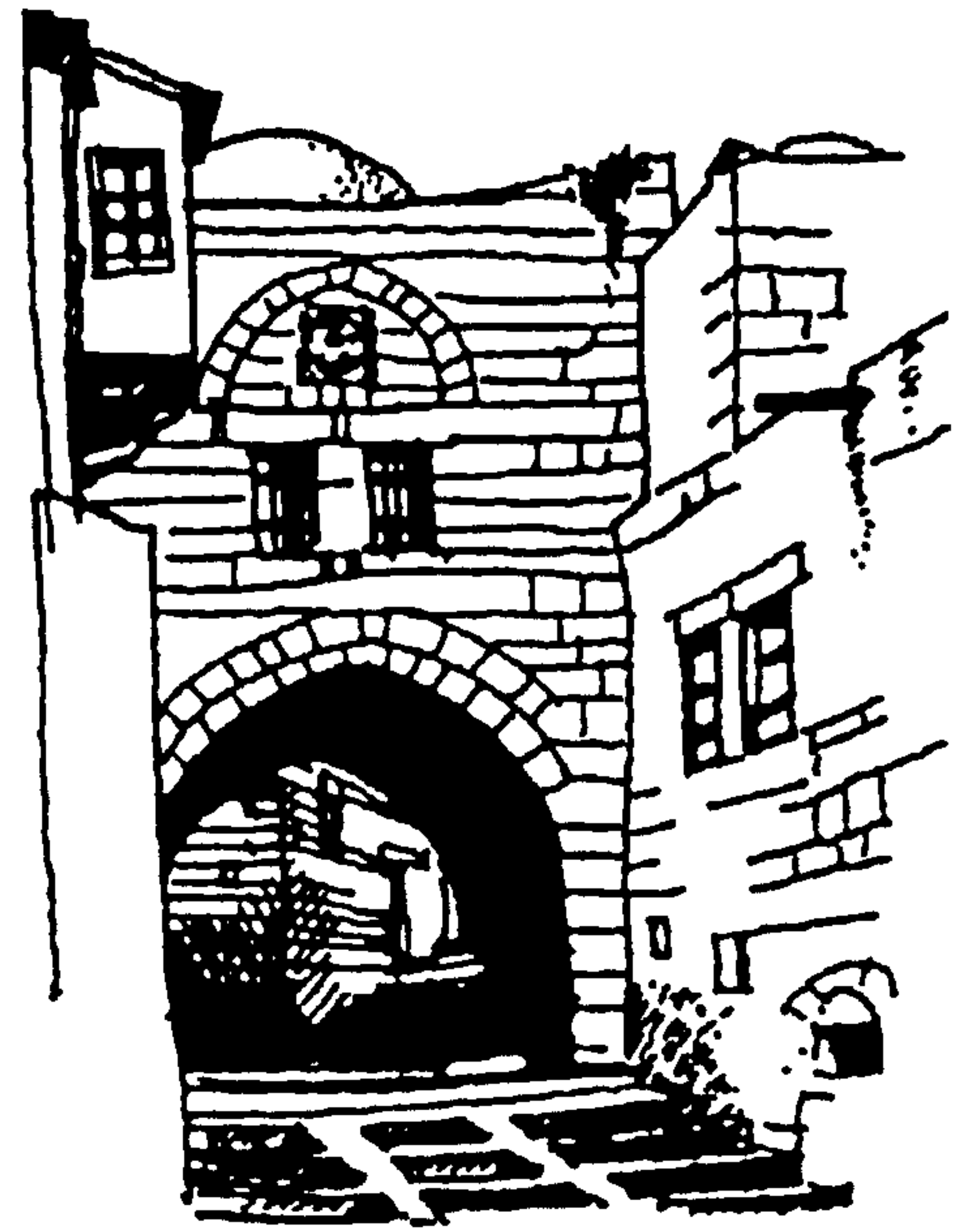


Figure 2.6: Arched street in Jerusalem  
Source: Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p. 98.

Many examples exist where places are rich in terms of these kinds of visual arrangements. Every city has its stock of urban surprises. However, it is the Arab Islamic City that really exploits this particular pattern of visual syntax<sup>7</sup> (Figure 2.7). The mediaeval informal pattern of the Arab Islamic city with its maze-like

arrangement of streets and buildings is the result of its organic growth. However, this informal pattern, with its narrow, slightly zigzagging alleys is one of the main sources of the city's appeal. The urban pattern is contrived to achieve maximum contrast between the narrow, deep-shadowed street and open squares. The idea of maze, has all the ingredients of aesthetic amplitude and it is this aspect which cries out to be utilised in a modern context and transformed into contemporary terms and conditions.

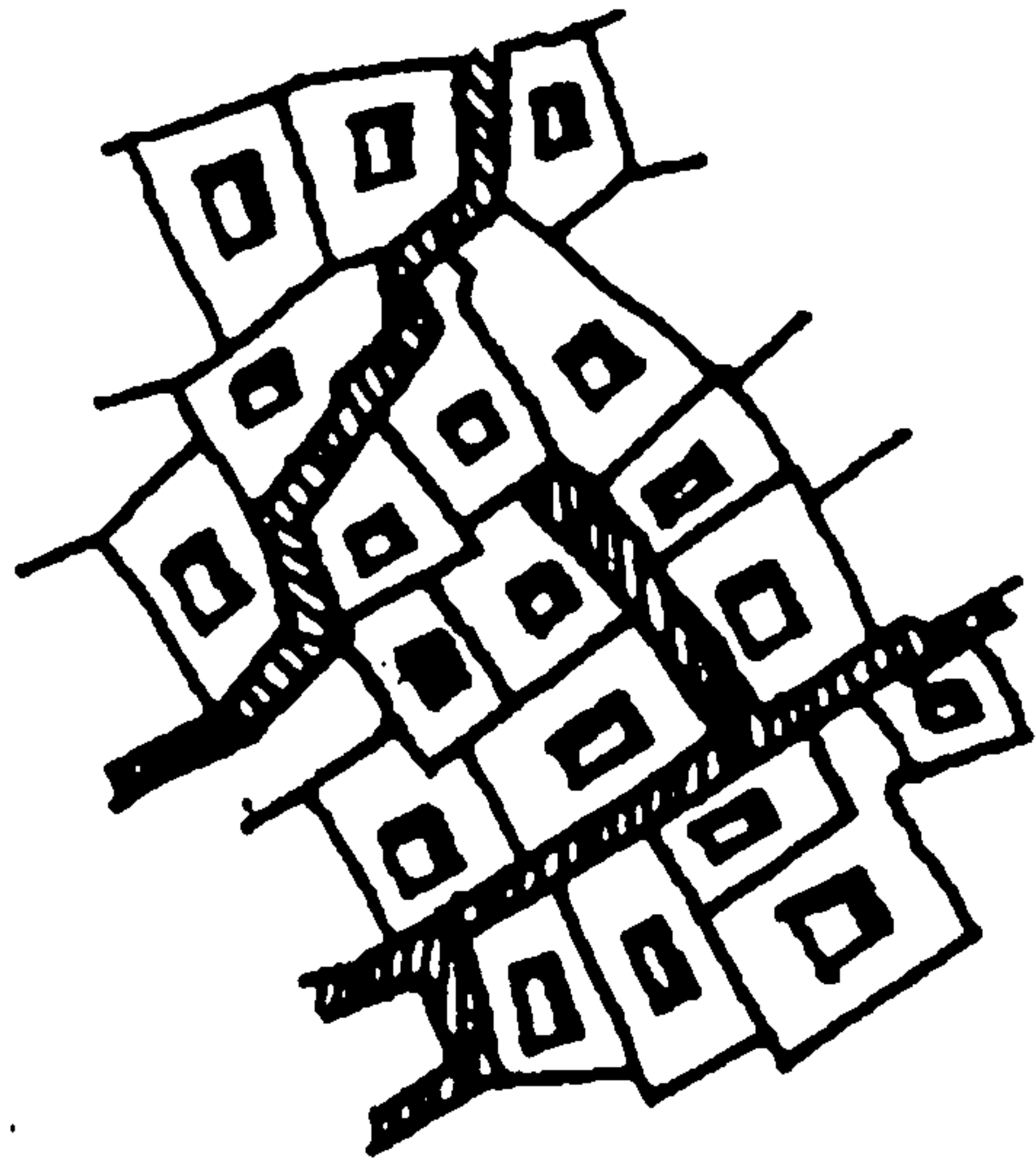
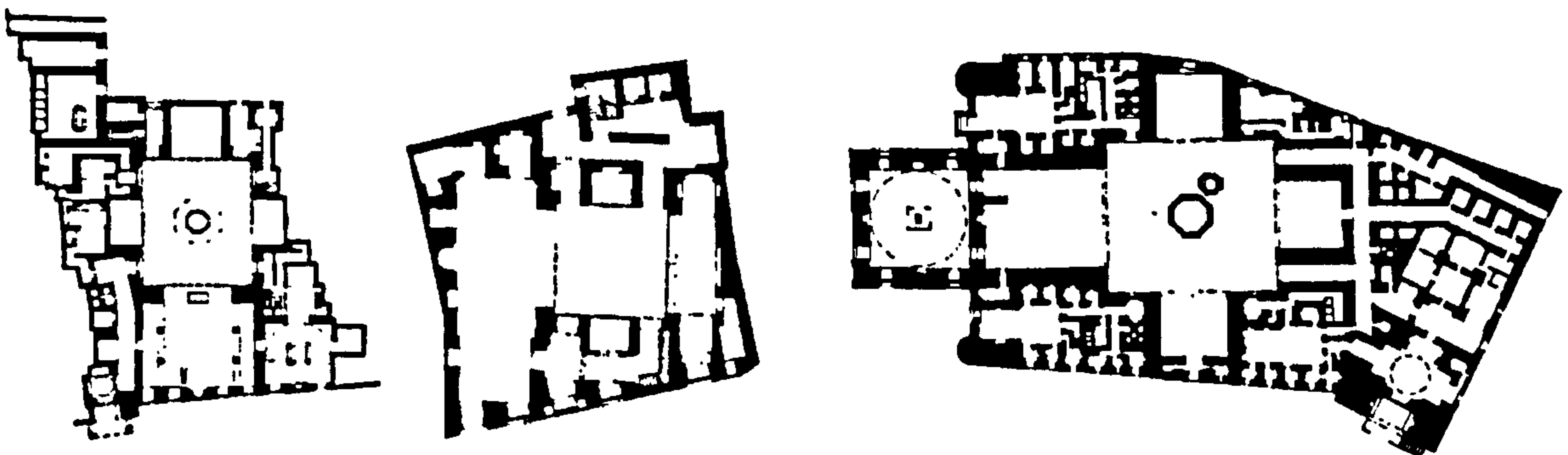


Figure 2.7: The informal pattern of the Arab-Islamic city.

In addition, the growth of the Arab Islamic City and its spatial implications are partially affected by the *Qibla* orientation, i.e., the direction of Muslim prayers towards the city of *Mecca*. The *Qibla* orientation ought to determine the direction of the urban spaces associated with the mosques. Unlike the cardinal orientation, it does not align whole parts of the city in one direction. Expressive spatial and formal solutions were the results of alignment differences between the *Qibla* direction and the outer place<sup>8</sup>. Figure 2.8 illustrates some examples observed in the medieval districts of Cairo, Egypt, explaining this quality.



a. Madrasa of Barquq.      b. Madrasa of Mithqal.      c. Mosque and Madrasa of Sultan Hassan.

Figure 2.8: Differences between *Qibla* direction and outer space, examples from Cairo.  
Source: Michell, George., (ed.), *Architecture of The Islamic World: Its History and Social Meaning*, London: Thames and Hudson, 1978, p.227.



Sienna in Italy represents one of the most distinct examples of organic growth. The shape, size, levels and location of the Piazza del Campo and its integration with the urban fabric form its main sources of visual appeal<sup>9</sup>. It was not simply a leftover space, rather it was created to accommodate deliberate acts. The piazza was curved out of the mass of the city, which accounts for its informality and irregularity. It has an irregular rectangular shape with semi-circular emphasis (Figure 2.9). The inclined and radial striped pavement together with the curved surrounding facades give the piazza its semicircular appearance and integration with the built environment.

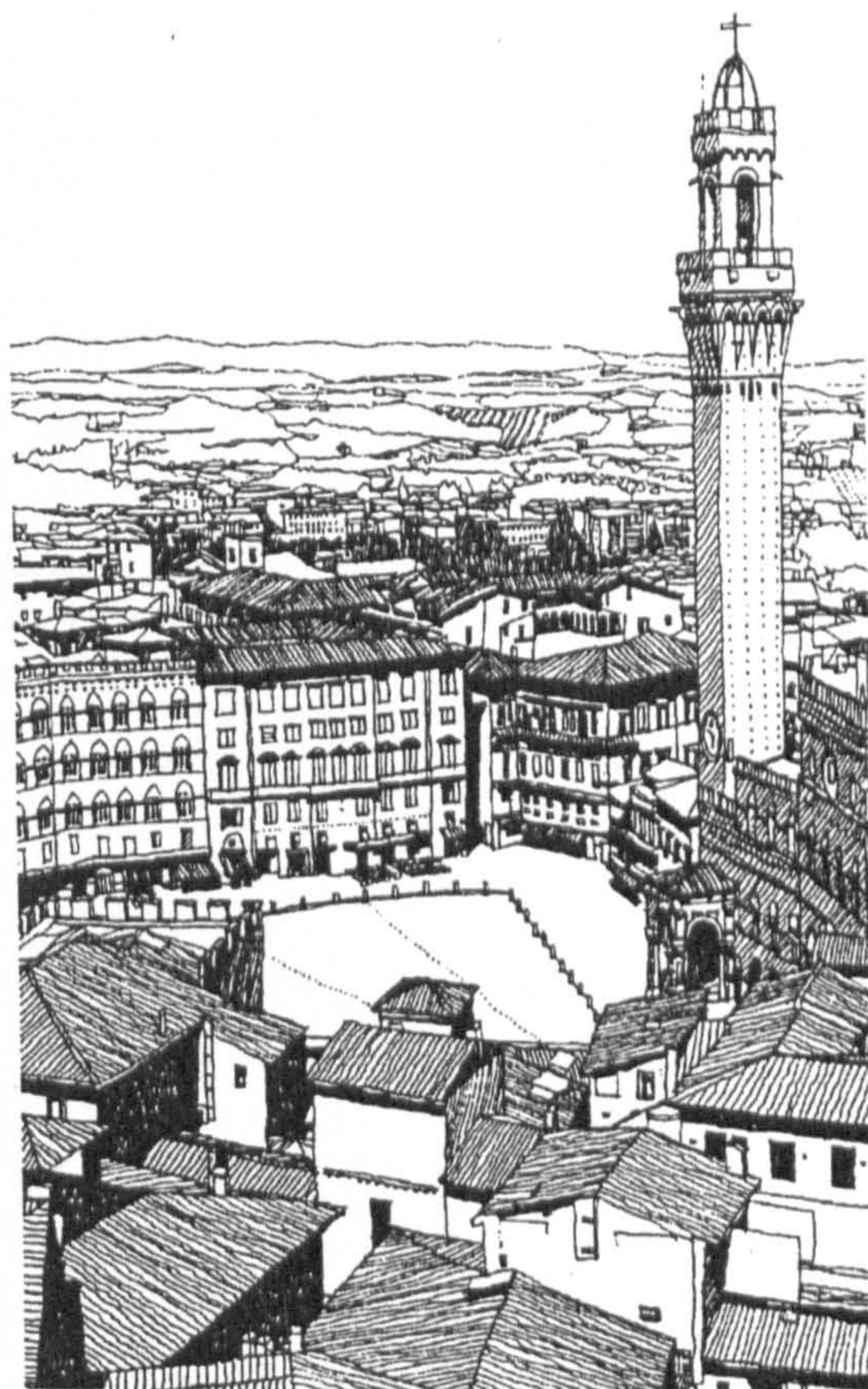


Figure 2.9: Piazza del Campo, Sienna.  
Source: Tibbalds, Francis., *Making People-Friendly Towns: Improving the Public Environment in Towns and Cities*, Burnt Mill: Longman, 1992, pp. 17-18.

Later, the irregular medieval towns were affected by the more regular Renaissance ideas of ordering open spaces, and the Baroque additions with their strict geometrical pattern of streets and squares and their scientifically designed ramparts. Town extensions did not, as a rule, merge quite so smoothly with the older patterns. During the Industrial Revolution the older parts of towns were usually decayed. In the twentieth century even industrial appendages of towns have been blighted by their own reorganisations.



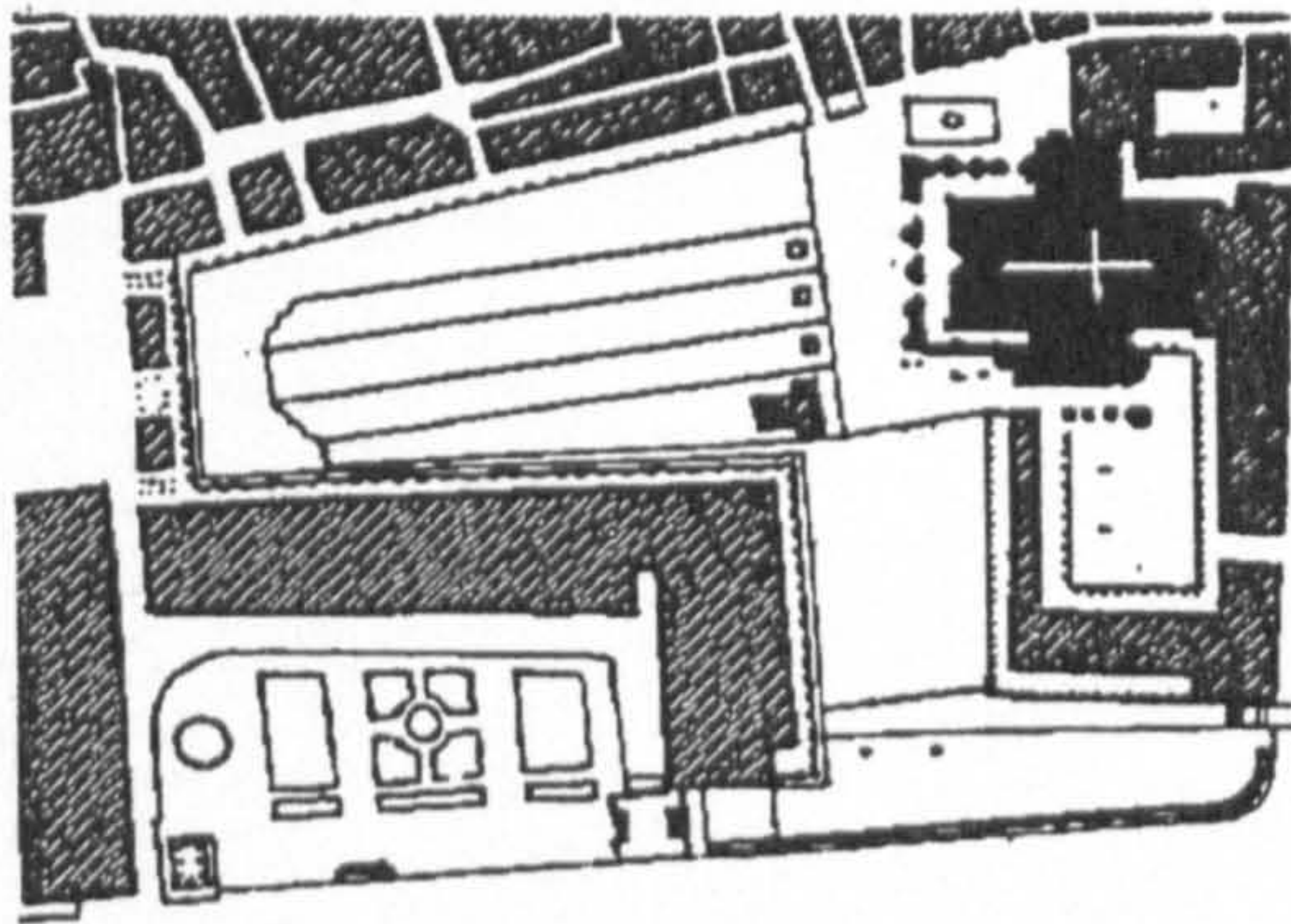
### 2.2.3 Spatial Enclosures

The experience of space is basically a result of the relationship between an object and a human being who perceives it. The city is a pattern of spaces defined by enclosures. The basic quality of a space is determined by its shape, the quality of its surfaces and its three dimensional proportion. The old urban spaces produce a collective harmonious effect because they are uniformly enclosed. Whenever a tendency exists to open up urban spaces from all sides, the organic relationship between open space and the enclosures is made difficult or even impossible. Thus, exterior space, lacking enclosing forces, tends to appear vague and characterless.

Spatial enclosures of old cities may be conceived as series of urban sequences. Each space is perceived differently according to its characteristics. Articulated interlocking spatial enclosures and attendant coupling of spaces having visual dialogue are experienced in many mediaeval and classical cities. The aesthetic impact of interlocking spatial enclosures relies on the ability to perceive two or more open spaces from the same place. The centres of many Italian towns, for example, comprise double piazzas, connected by a narrow throat sometimes emphasised by an open loggia.

St. Mark's Piazza in Venice is a refined expression of the idea of interlocking spaces<sup>10</sup> (Figure 2.10). It is a rectangular but irregular space, made even more irregular by the addition of a smaller square, the Piazzetta, the traditional link between the Piazza and the sea. Together, the two squares form one large space surrounded by buildings with arcaded facades. The arcades unify the appearance without making it formal. The building forms are variations on a theme making a pattern that conforms to the principle of variety within unity, a principle which artists have commonly tried to achieve. As the piazza is not really rectangular, it has the effect of speeding up and slowing down the movement, depending on the direction in which one looks, so the space is never the same. This adds not only an element of visual surprise, but also a feeling of movement.





a. Plan of Piazza San Mark, Venice.



b. The Piazzetta from the sea and the Church of Sant Mark beyond.

Figure 2.10 : St. Mark's Piazza in Venice

Sources: a. Weber, R., *On the Aesthetics of Architecture*, Aldershot: Averbury, 1995, p.167.

b. Spreiregen, Paul., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.111.

This principle of interactive organism is another attribute of spatial enclosures. It refers to the visual interaction that exists between two or more nodal spaces in the city due to topographic variations. Such a principle goes back at least to ancient Athens, which was marked by the termination of the Panathenic way crossing the Agora, the secular centre of the city from which the Acropolis was clearly visible<sup>11</sup> (Figure 2.11). Few places aspire to the quality of interaction that existed between the Agora and the Acropolis. A candidate may be Amman's two nodal spaces: the Roman Amphitheatre and the Citadel Hill which are drawn together in the tightest of creative tensions (Figure 2.12).

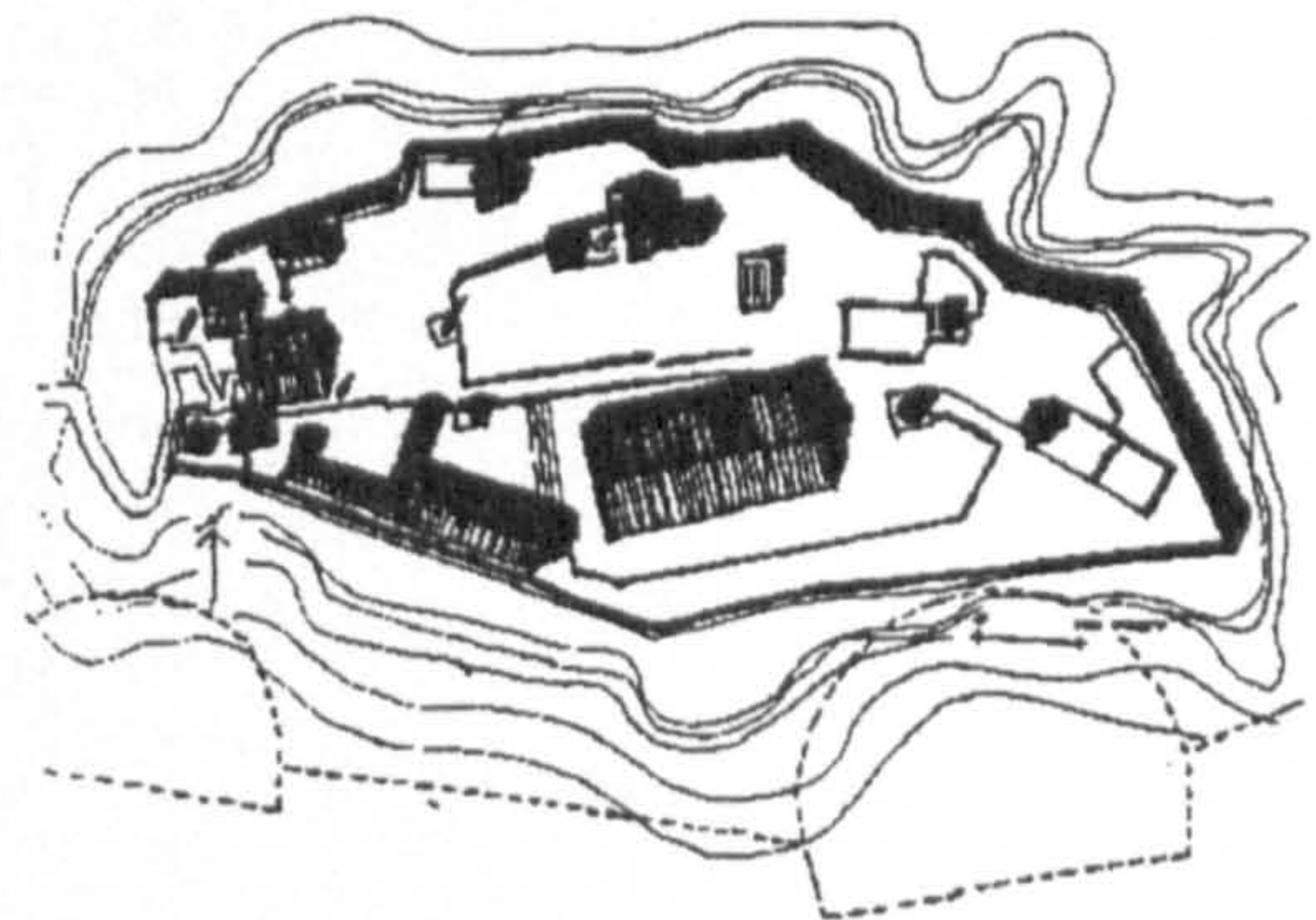


Figure 2.11: The Athenian Agora against the background of the Acropolis.

Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.3.



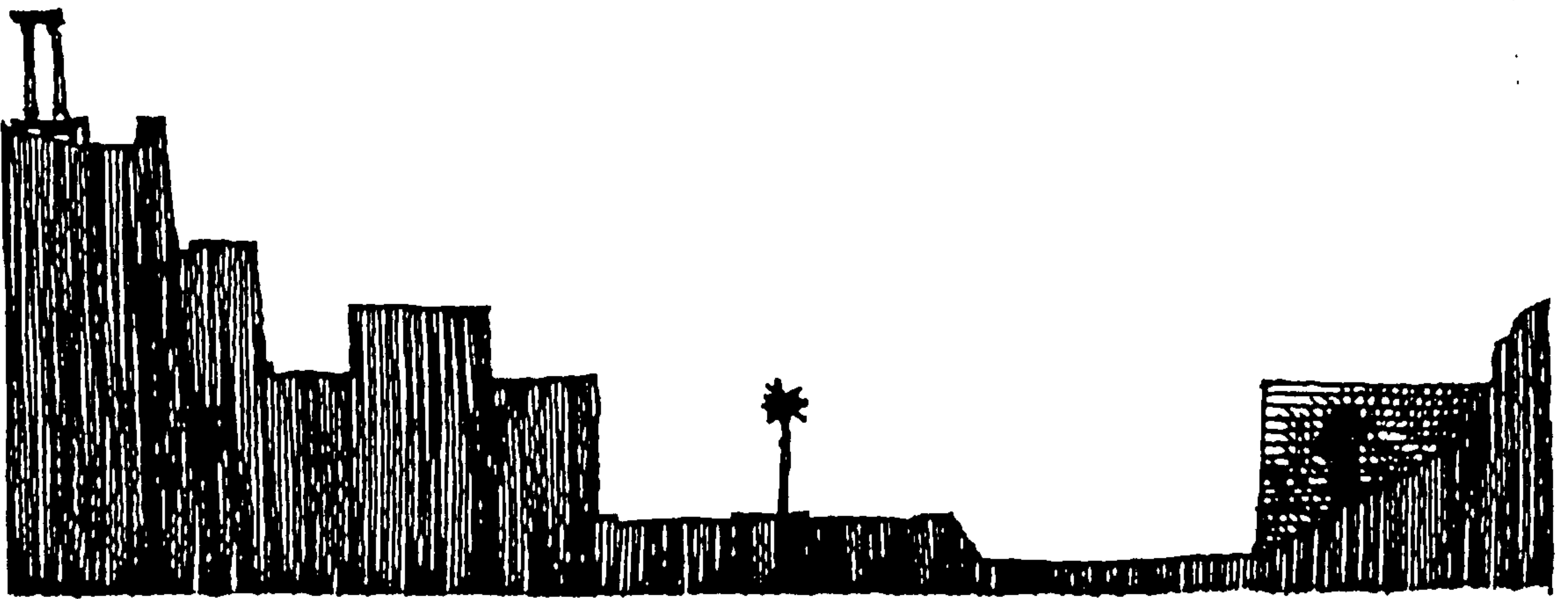


Figure 1.12: The visual interaction between Amman's Citadel Hill and the Roman Amphitheatre.

Another attribute of spatial enclosures is the blurred interface that results from the means of softening the transitional spaces from outside to inside. This allows interior and exterior space to mingle and to be reconciled creating a pleasurable human experience of penetration in depth. The open arcades, for example, allow the space to flow; they divide the space without actually shutting off the visual continuity, while the outer frame of buildings is still maintained (Figure 2.13). A sense of movement in depth is established, and where the architectural forms are related to one another, the size of the space is made comprehensible by a comparison of similar forms reduced by a diminishing perspective.

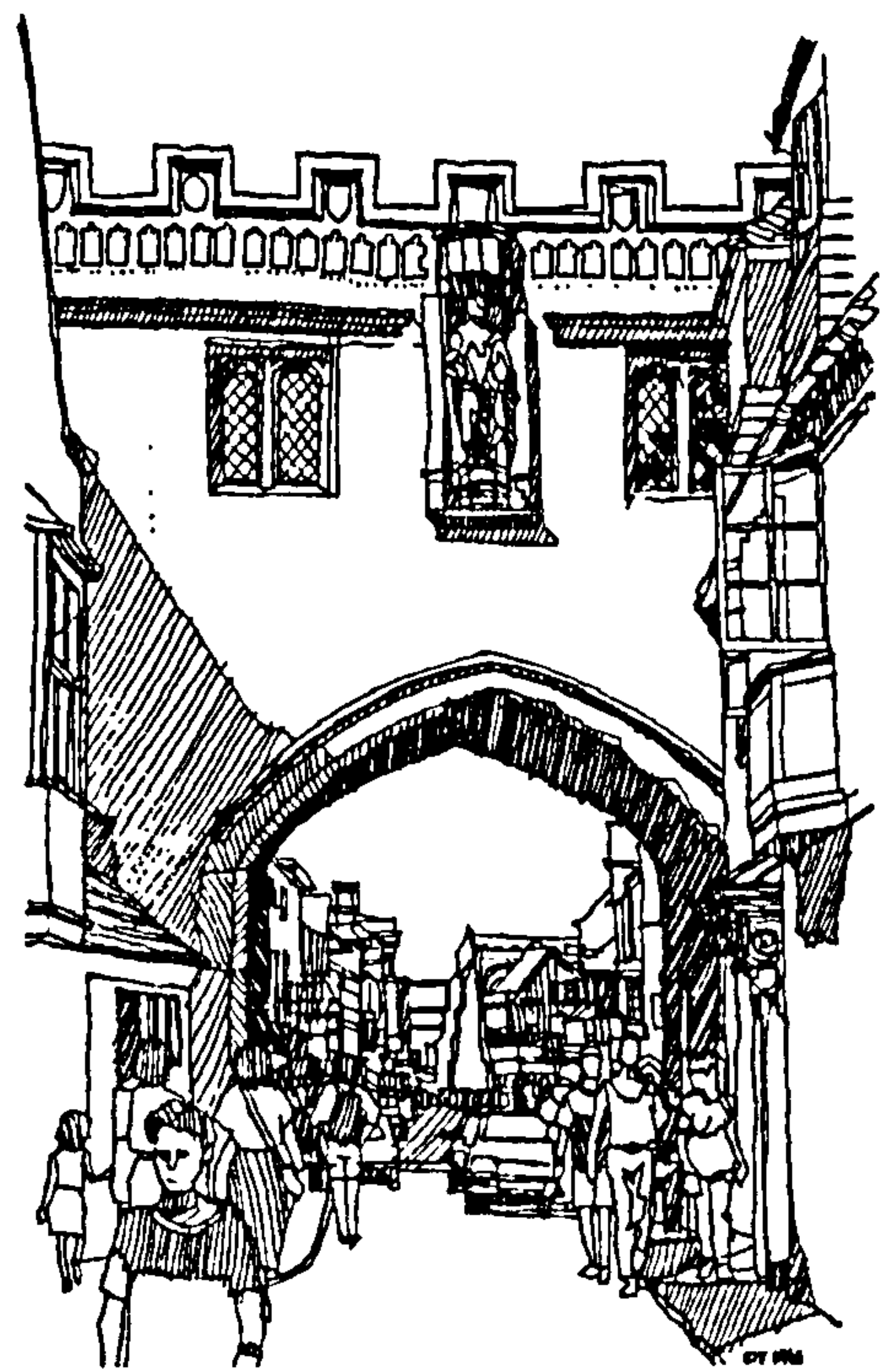


Figure 2.13: The visual continuity and the in-depth quality: a view from Salisbury, England.

Source: Tibbalds, Francis., *Making People-Friendly Towns*, Burnt Mill: Longman, 1992, p. 53.

Fluctuation is another spatial quality experienced in old cities<sup>12</sup>. Despite the zigzagging layout of their streets, a straight line of visual depth can be obtained from both ends. This quality gives a hidden sense of orientation for the passers-by. Such layout contributes to the illusion that occurs between the visual spatial depth and the



exact physical lengths of spaces, that of diminishing or expanding them. Such quality is reinforced when slope effects are added.

#### **2.2.4 Dynamic Properties**

Urban space is allocated mostly to movement. The dynamics of space are usually attained by the subjective experience of people moving through space, as well as by the spatial arrangements of an area. The sequential organisation of buildings and other urban elements will have considerable influence on the experience of movement. In terms of visual perception, satisfaction is gained from experiencing serial rhythms through motion<sup>13</sup>.

In all urban movement, the spatial and formal arrangements of architecture have the effect of reducing or increasing apparent distance. A walk through the city can be made less monotonous and more interesting through attention to the route's alignment, views and vistas; to what occurs on the sides of the route and ahead of it. From a psychological point of view, distance is a function more of interest than of metres. A special event half way along the street, like a mosque, for example, enhances the experience. Experiencing cities while moving needs rhythm. Urban ascents and rhythms should meet this need by corresponding to human scale. This is important to cope with the speed and movement of pedestrians.

Curvature is the another attribute of dynamics. The curve, modulated by the regular rhythm of openings and irregular interval between elaborate gable ends, is made even more suggestive by light gradient. There one sees the continuous interplay of two forms that involve the user completely in their spatial animation. The bifurcate type junction with its middle-placed and equally balanced symmetrical corner attains more importance and acts as a major focal point, often the place for an important building. Such relationship is also experienced in oblique T-junctions with their directional dynamics.

A slight curvature in streets connecting together gives continuity of direction and movement into a preferred direction or towards an important feature. A bend in the line of one side of the street dilates its original width and provides possible places of spatial importance for people to gather. Also it provides relatively wide distances to accommodate entrances for main buildings from where they can be easily approached and seen (Figure 2.14). In the old city of Damascus, Syria, this quality had been introduced by transforming the Roman streets into bazaar-like pathways<sup>14</sup> (Figure 2.15). This transformation of streets resulted in a rich urban environment manifested in the sense of enclosure and visual varieties.

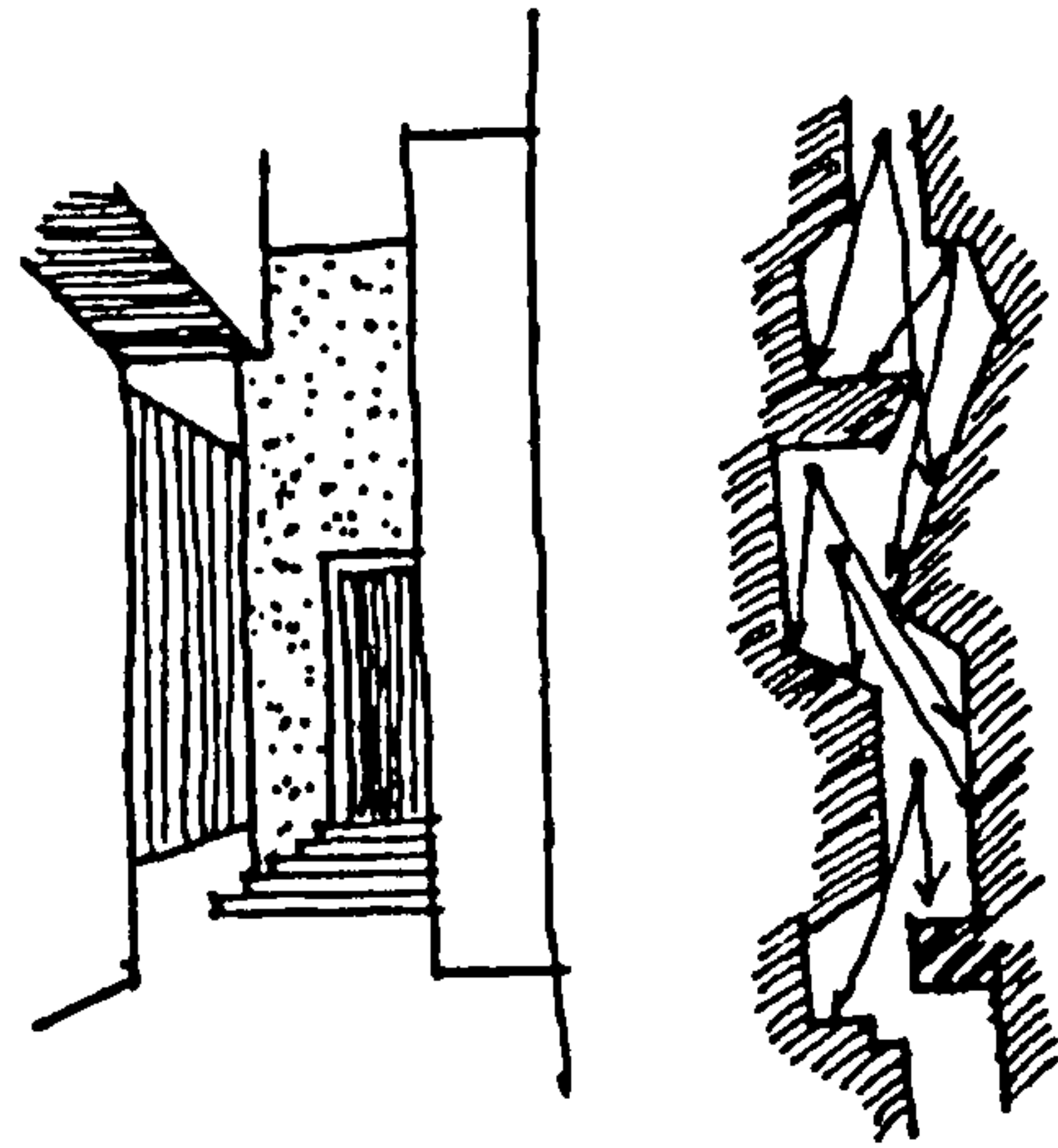
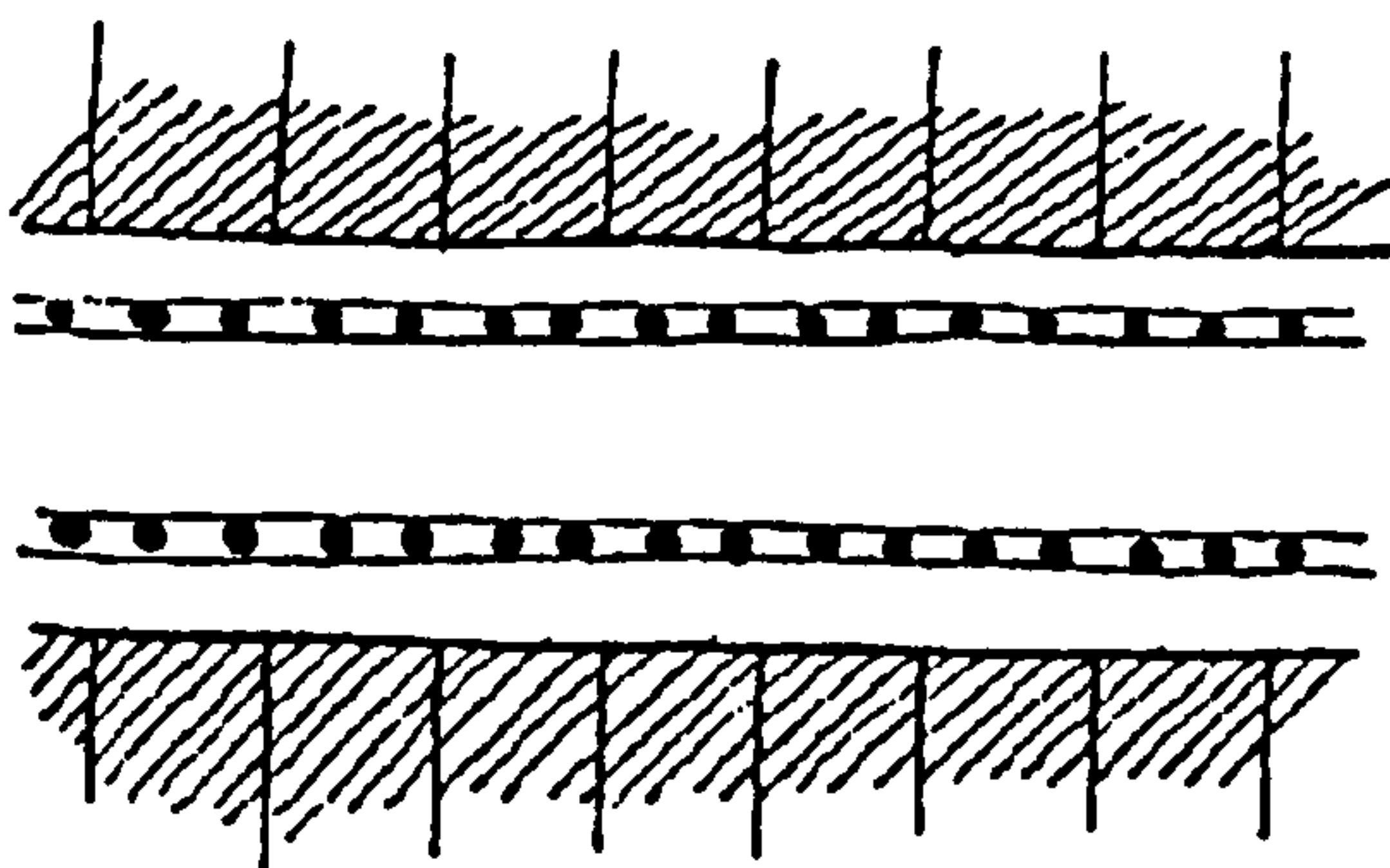
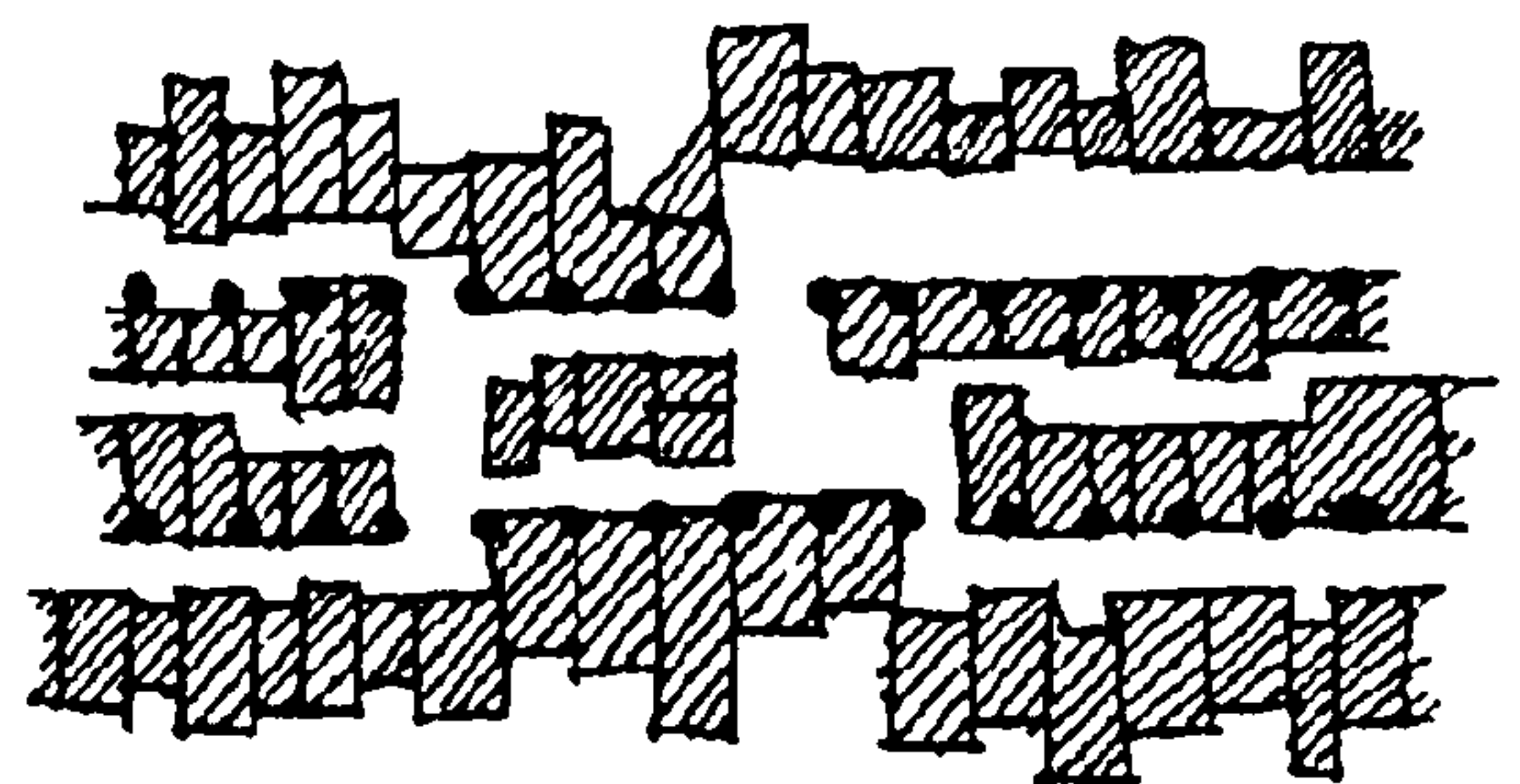


Figure 2.14: A bend in the line of the street dilates its original width and provides wide distances to accommodate entrances for buildings from where they can be approached.  
Source: Rapoport, Amos., *History and Precedent in Environmental Design*, London: Plenum Press, 1990, p.290.



a. Arcaded Roman street.



b. Bazaar-like pathways.

Figure: 2.15: Transformation of a Roman street into a bazaar-like pathway, Damascus.  
Source: Rapoport, Amos., *History and Precedent in Environmental Design*, London: Plenum Press, 1990, p.271.

There is also a particular appeal about the arrangement where the ascending and descending roads meet at a tangent. Such a deflection would transfer movement gradually between inside and outside, all contribute to an urban occasion of heightened interest and aesthetic appeal.



The experience is enhanced if a change of level is introduced. Spaces change in appearance depending on the way in which people get into and out of them, and depending on the various points from which they are seen. A space approached from below, up a series of stairs from which the space itself cannot be seen, will leave a different impression on the user than the same space approached from eye level. The approach to the Piazza Campidoglio on the Capitoline Hill in Rome<sup>15</sup> (Figure 2.16), for example, with its differences in levels, produces an ever-changing succession of views and sensations of space and form.

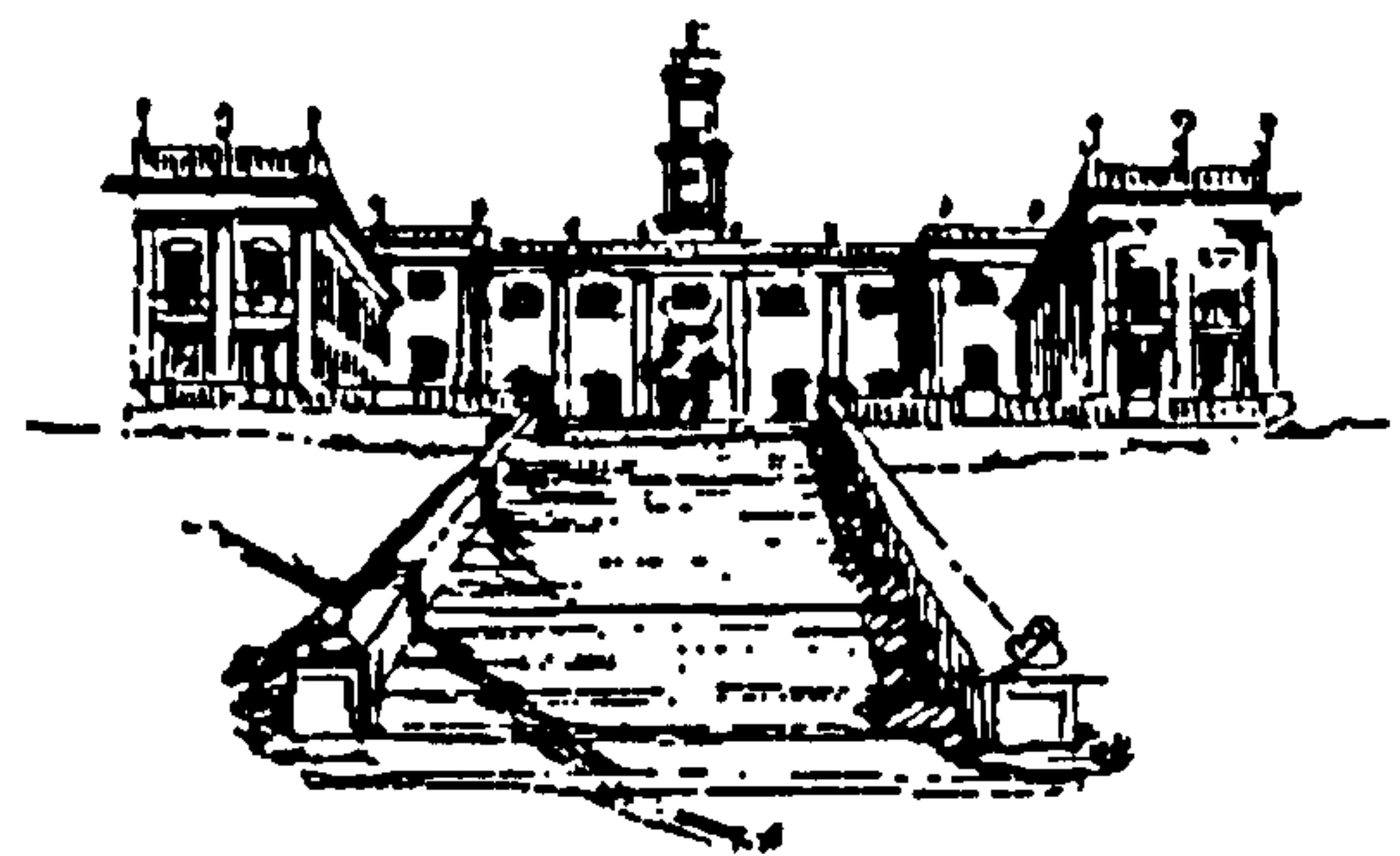
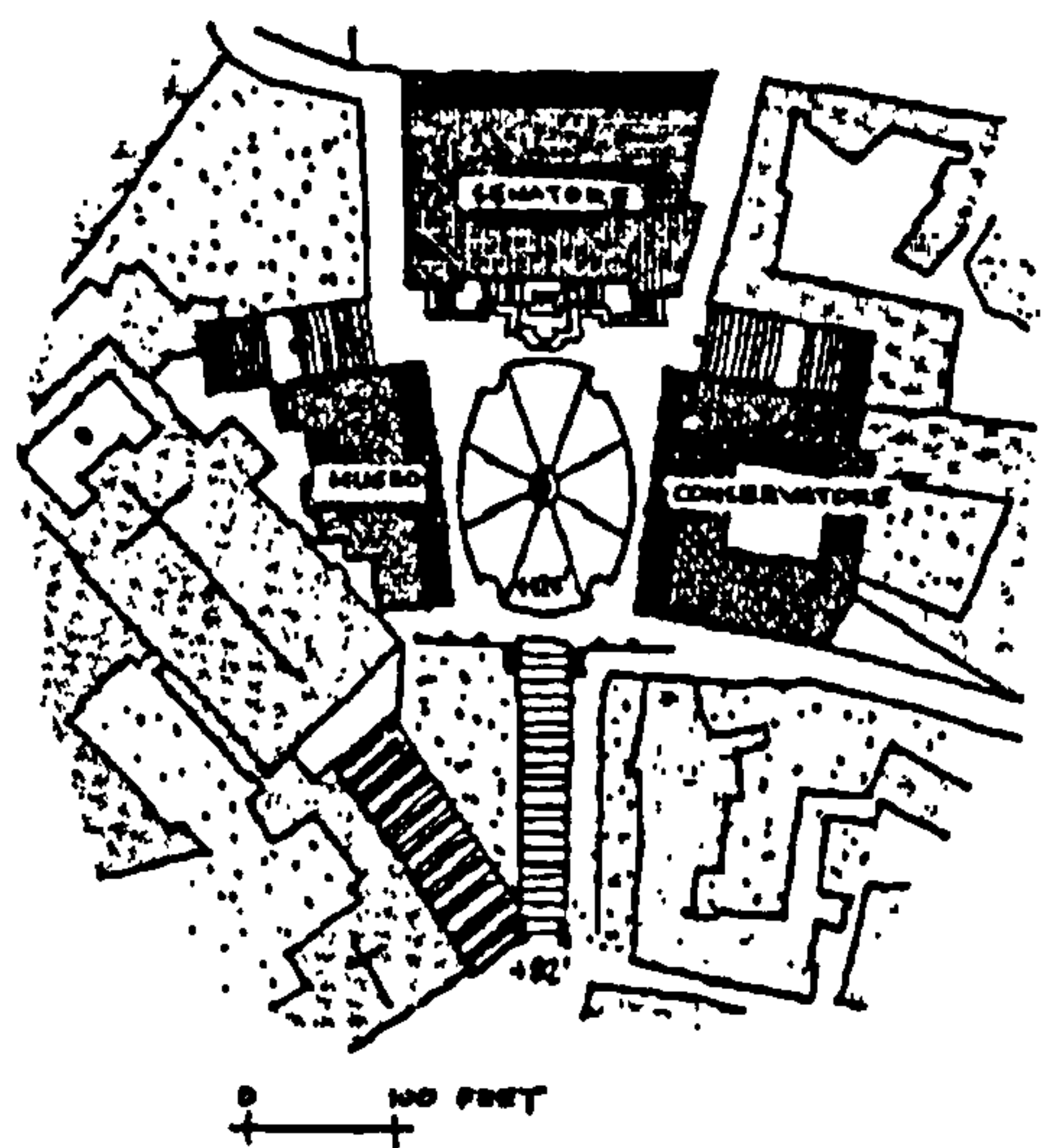


Figure 2.16: Piazza Campidoglio, Rome.

Source: Spreiregen, *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, P. 17.

More dynamic are the Spanish Steps in Rome<sup>16</sup> (Figure 2.17). They are one of the most impressive examples of the three dimensional effect of stairways in urban spaces. They have a combination of many movements, entering, parting, running in counter point, re-uniting, in a carefully composed set of spatial explorations. In conclusion, contrast of light and shade, form and texture, ambiguity between inside and outside, all contribute to an urban occasion of heightened interest and appeal.



Figure 2.17: The Spanish Steps, Rome.

Source: Spreiregen, *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, P.111.

### 2.2.5 Visual Hierarchies

Much of a person's experience of space is visual. The views of, to, through and out of spaces play an important part in determining whether a setting is site or people dominated. The sequential observation of a site not only builds a sense of anticipation towards what lies ahead, but creates for the user a feeling of ordering progression. View changes constantly as the user moves through it. This distinctive quality of space is particularly important in terms of creating symbols of visual hierarchy. Old cities are linked with the symbolism of the visual hierarchy that creates a spatial order within the city components and thus, contributes to their visual appeal. Pope Sixtus V<sup>17</sup>, for example, organised the city of Rome around strategically placed obelisks<sup>18</sup>. This ordering of the city was to direct the pilgrims in their visit to the seven basilicas. Obelisks, as vertical elements, gave the city a clear centre of gravity and created strategic nodes visible from all parts of the city.

How the buildings meet the sky is another attribute of visual hierarchies<sup>19</sup>. The skyline of the city, or cityscape, has long been a dominant element in city design and should be re-established as a major determinant in city building. However, a relative narrowness in the width and depth of streets may result in putting the skyline out of the pedestrians' vision. Additionally, the ways in which buildings rise out of the earth determines much of the quality of visual hierarchies<sup>20</sup>. Raised podiums and flights of steps are used to give stability to important buildings on which they are placed. The use of many levels with descending stairways and the perceptual sequences they produce involve the users' experiencing ever-changing spatial animations while ascending and descending these stairways (Figure 2.18).



Figure 2.18: The use of levels involve the users experiencing ever-changing spatial animations.  
Source: Rapoport, Amos., *History and Precedent in Environmental Design*, London: Plenum Press, 1990, p.291.



### 2.2.6 Protective Quality

People gain a sense of comfort and security from their environment if the physical relationship to it is in scale to their own perceptions. The architecture of classical and mediaeval eras possessed rhythms that corresponded to the human scale and the speed of movement and patterns of the users are reflected in the physical realisation of this idea. This kept the components and the overall size not too remote from human dimensions. The forms are carefully related to human scale and rhythm. Even the most monumental work was designed so that the bases of the buildings were within reach of hand. Corresponding to human scale enhanced the protective aspect of space. This sense of visual security satisfies the need for physical protection by providing psychological reassurance.

The sense of visual security of spaces is determined not only by the buildings themselves, but also by the ratio of street width to building heights; i.e., the total three dimensional space<sup>21</sup>. The use of building projections as well as architectural articulation of building facades can be very effective in endowing a space with a strong sense of aesthetic appeal. Pedestrians are aware of every passing detail. It is important that each object be appropriate to the size of the human body, and close at hand. For example, pedestrians experience objects nearby typically close to eye level and these are more noticeable than any grand effect higher up or at a distance. This evidence of human care and adaptation reflected in the visual reach and intricacy of details produces the warmth and attachment with the space.

Free-standing fountains and statues were used as visual steps across large open spaces. Such spaces are difficult to experience if they have nothing to measure against them. Yet these steps are meant to be seen, not in isolation, but in relation to the architecture. However, architecture and sculpture were not only spatially related, but also they took their place in the townscape pattern of light and shade.

On a larger scale, topography and landform had much to do with the visual sense of security. The effect of security on the visual appearance of the town can be observed widely in Palestinian and Jordanian towns. Though both share the same environmental, historic, cultural and socio-economic conditions, the former are more politically stable than the later. Palestinian hill towns and villages have buildings located on the upper levels of the terrain, while buildings are spread on the lower slopes of the terrain in Jordanian hill towns and villages (Figure 2.19). Jordanian hill towns are composed of cubes of irregular stone masonry situated on terraces created either by natural rocks or stone walls and surrounded by fields and orchards, terraced and fenced off by more stone walls.

People relied heavily on the protection derived from the setting of their towns and cities. In some isolated locations in Yemen, Morocco, Afghanistan and other countries, the buildings have a fortress-like appearance (Figure 2.20). This is due to the need of protection from tribal tensions<sup>22</sup>. House and buildings are originally constructed like forts in order to be secure. The towers at the corners of the houses served as watch points so that



a. Schematic view of a Palestinian hill town with buildings at the upper parts of the terrain.



b. Schematic view of a Jordanian hill town with buildings at the lower parts of the terrain.

Figure 2.19: Schematic sketches showing the effect of security on the visual appearance of Palestinian and Jordanian towns. Sketch (a) is based on a sketch by: Spreiregen, *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965.

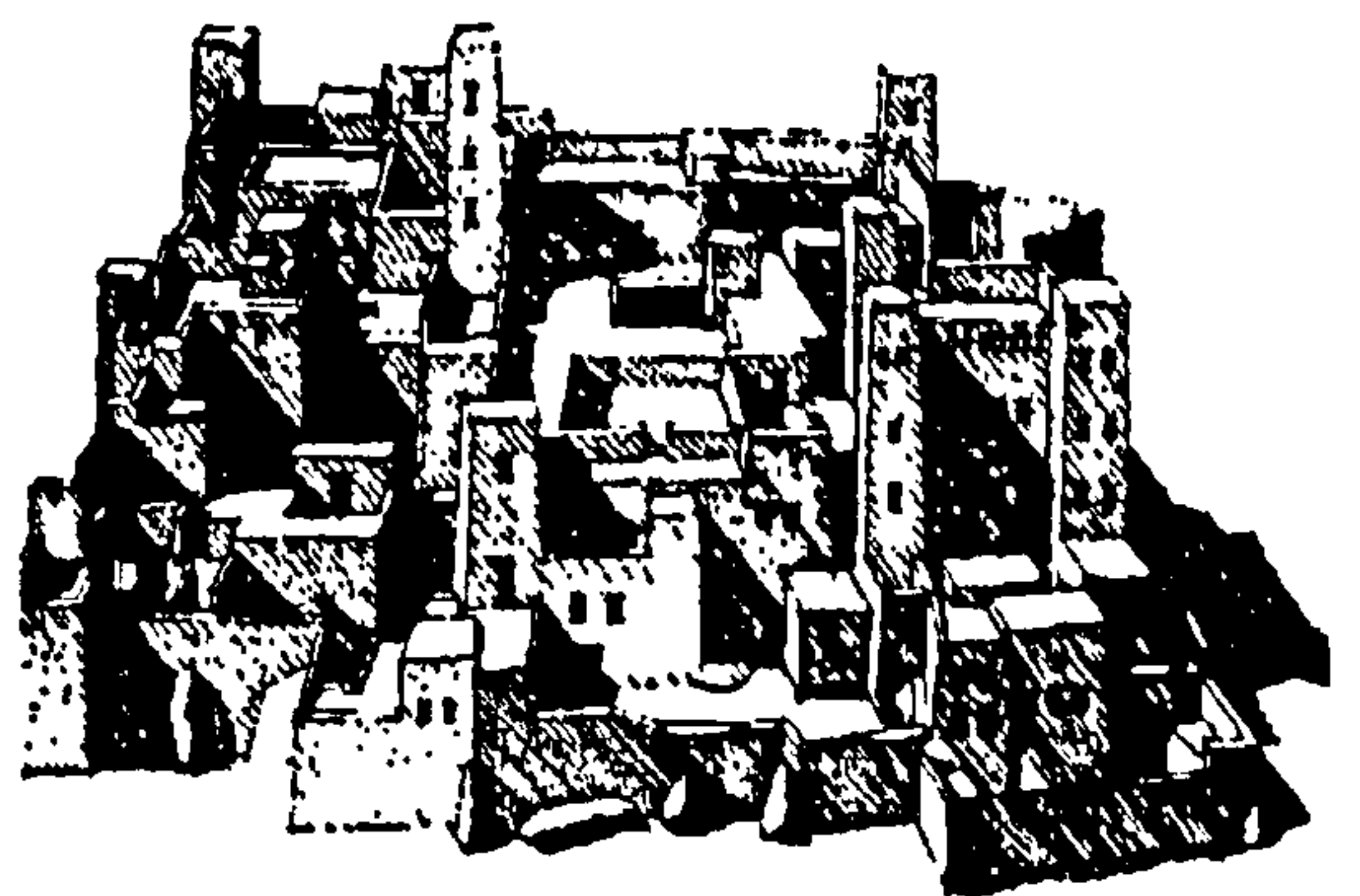


Figure 2.20: Fortified houses at Ait Benn Haddu, Morocco. Source: Lari, Yasmeen., *Traditional Architecture of Thatta*, Karachi: Lari Research Centre, 1989, p. 151.



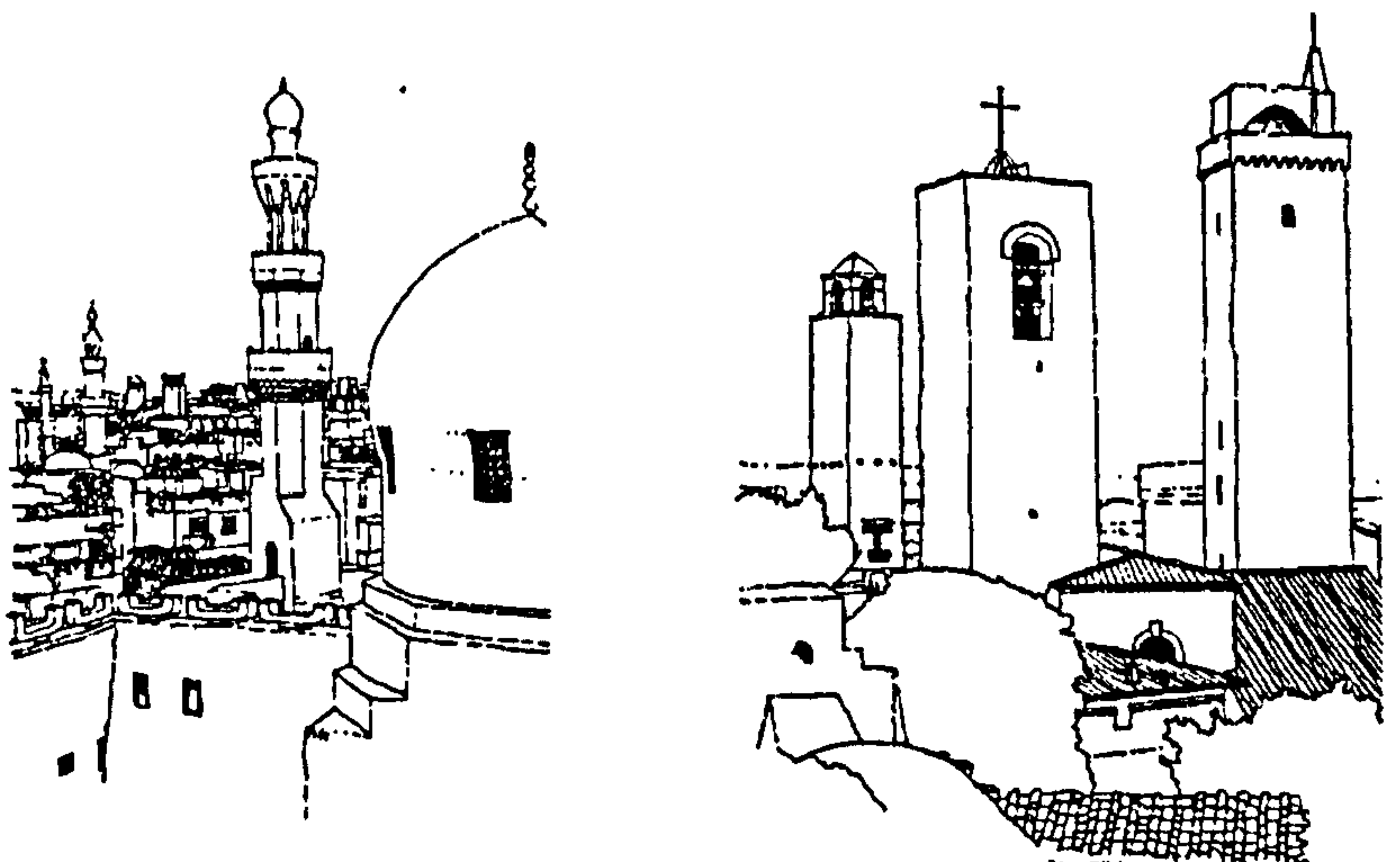
intruders could be sighted well in time. This fortress-like concept of building gives a visual message of security for both their inhabitants and intruders.

### 2.2.7 Meaning

Perception of the city is very much influenced by sensory images and fantasies that add a powerful symbolic dimension to the whole perception process. Certain sensory patterns owe their impact largely to the fact that they contain a strong symbolic meaning. There are, however, three levels of symbolic meaning: syntactic, semantic and pragmatic<sup>23</sup>. The syntactic meaning results from the location of an element in its surroundings. Accordingly, its symbolic connotation as well as its meaningful associations heightens the spatial impact of the city centre on the inhabitants.

The semantic meaning refers to the norms, idea or attitude that an element represents or designates. A main attribute of semantic meaning is the visible identity. A visually appealing environment is richly diverse, its parts have distinct, identifiable character; they are marked by visible differences that allow choice and sensory exploration, and they give a sense of place and home. Landmarks play a distinctive role in building the matrix of visual events. Vertical elements, such as, minarets and bell-towers attained visual prominence in height and disposition within the urban arrangement<sup>24</sup> (Figure 2.21). They are the predominant visual features of the city that are reinforced in prominence by historic meaning, location and function associated with them.

Figure 2.21: Vertical elements, such as, minarets and bell-towers attained visual prominence in height and disposition within the urban arrangement. Source: Tibbalds, Francis., *Making People-Friendly Towns*, Burnt Mill: Longman, 1992, p.65.





Minarets, in the Arab Islamic city, are usually disposed on streets' building line or projected from it towards the centre of the streets. Placing such elements on strategic positions within the city will enhance their surroundings. Minarets visually infiltrate the spaces and give clues to the importance of directions as well as to the domain. However, the effect of two adjacent minarets is not only visually conferred to their surroundings but also reaches far away from their enclave space<sup>25</sup>. Placing them on city gate towers, such as, *Bab Zuwaila*, Cairo, will further emphasise the visual performance of such landmark (Figure 2.22).

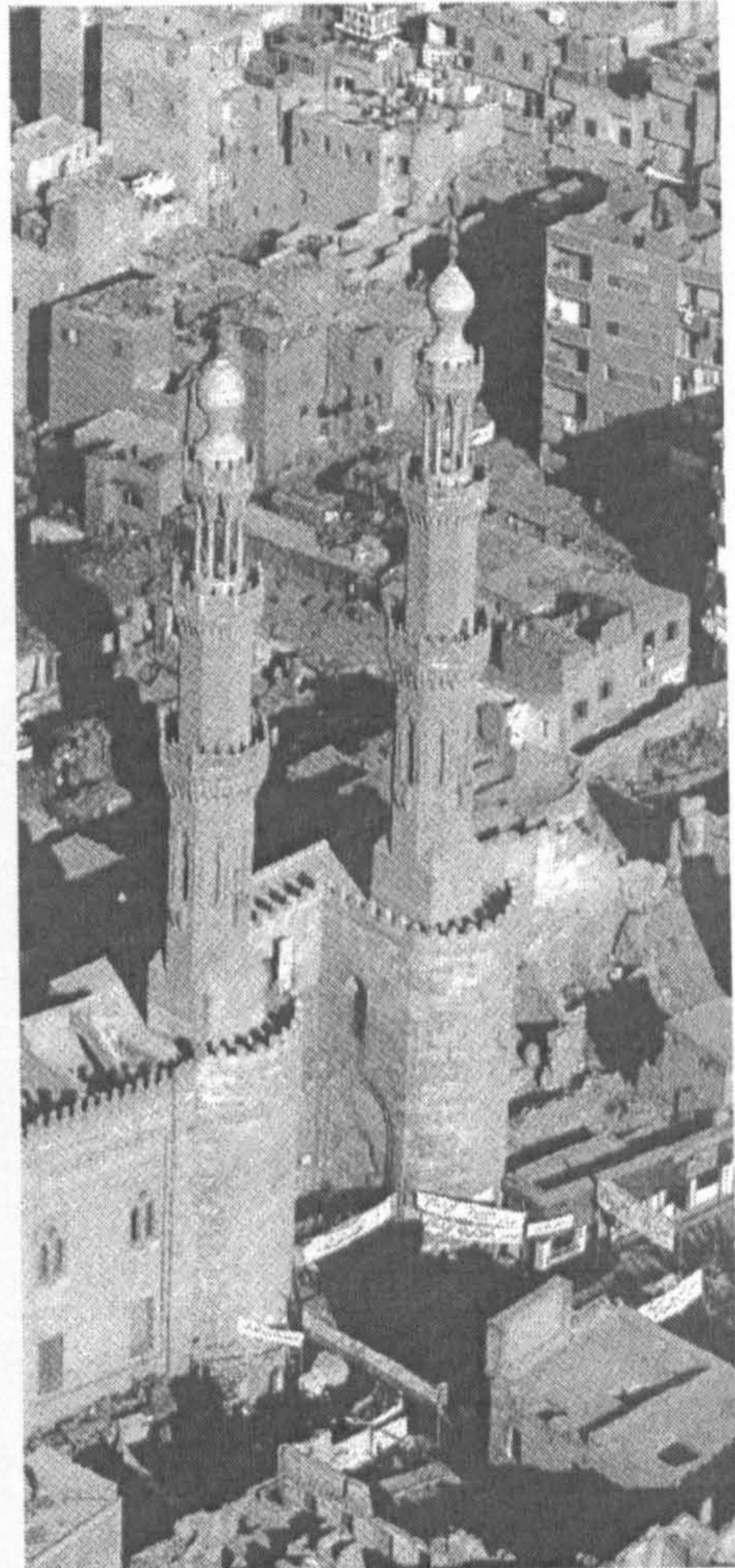


Figure 2.22: Bab Zuwaila, Cairo, with the two adjacent minarets placed on its towers.

Source: Rodnbeck, Max., and Guido Alberto Rossi, *Egypt from the Air*, London: Thames and Hudson, 1991, p.84.

The pragmatic meaning, however, relates the symbol to those who use it. Many spaces allow the users to read the environment as a system of signs in time and space, and to understand the functions and activities they contain. They provide the user with a sense of orientation, i.e., the sense of clear relation of the observer with the city and its parts. This could be achieved by the gradation pattern and feeling that there is a centre, as well as by landmarks, when the whole movements in and out spaces are manipulated by series of recognisable visual images.

### 2.3 The "Sense of Place"

The previous discussion shows that many old urban centres, despite differences in, socio-economic, cultural and environmental conditions, share common characteristics and qualities that trigger similar notations. Although personal abilities



to perceive the built environment vary for different places, in each of these old urban centres there are significant and fundamental constants which arise common experiences among those who use them. This ability has been recognised by many researchers and addressed as "the sense of place" which a particular area gives. The term "place" has geographical, architectural and social connotations. It is concerned with various aspects including: buildings and structures, location, people and activities<sup>26</sup>. This section, however, aims to explain this ability in historic city centres.

The term "genius loci" was used, for example, by Norberg-Schulz to describe the "sense of place" with its particular contrasts of form and effect, the spacescape framework, and humans' complementary pattern of geometric co-ordination<sup>27</sup>. It is a very comprehensive concept referring to the qualities of a place that, all together, make it unique and special. Many cities have areas that have a special "sense of place" through the historic and cultural associations they offer. This special "sense of place" distinguished these areas from others and gives them a unique character. These places became integral parts of the city's visual appeal, and their spatial and formal qualities are important elements of the city's image and identity.

The "sense of place" is not only a visual concept, though spatial and formal aspects form its main sources. The experience of place engages all five senses in seeing, smelling, feeling, hearing and even tasting the essence of place<sup>28</sup>. Thus, the "sense of place" is related to the physical setting as well as to behavioural aspects that make a place distinctive and imageable, i.e., activities and meaning<sup>29</sup> (Figure 2.23). It refers to how physical issues match the non-physical ones, i.e., how an abstract form of a place matches the features of the society which inhabits it. Accordingly, understanding the

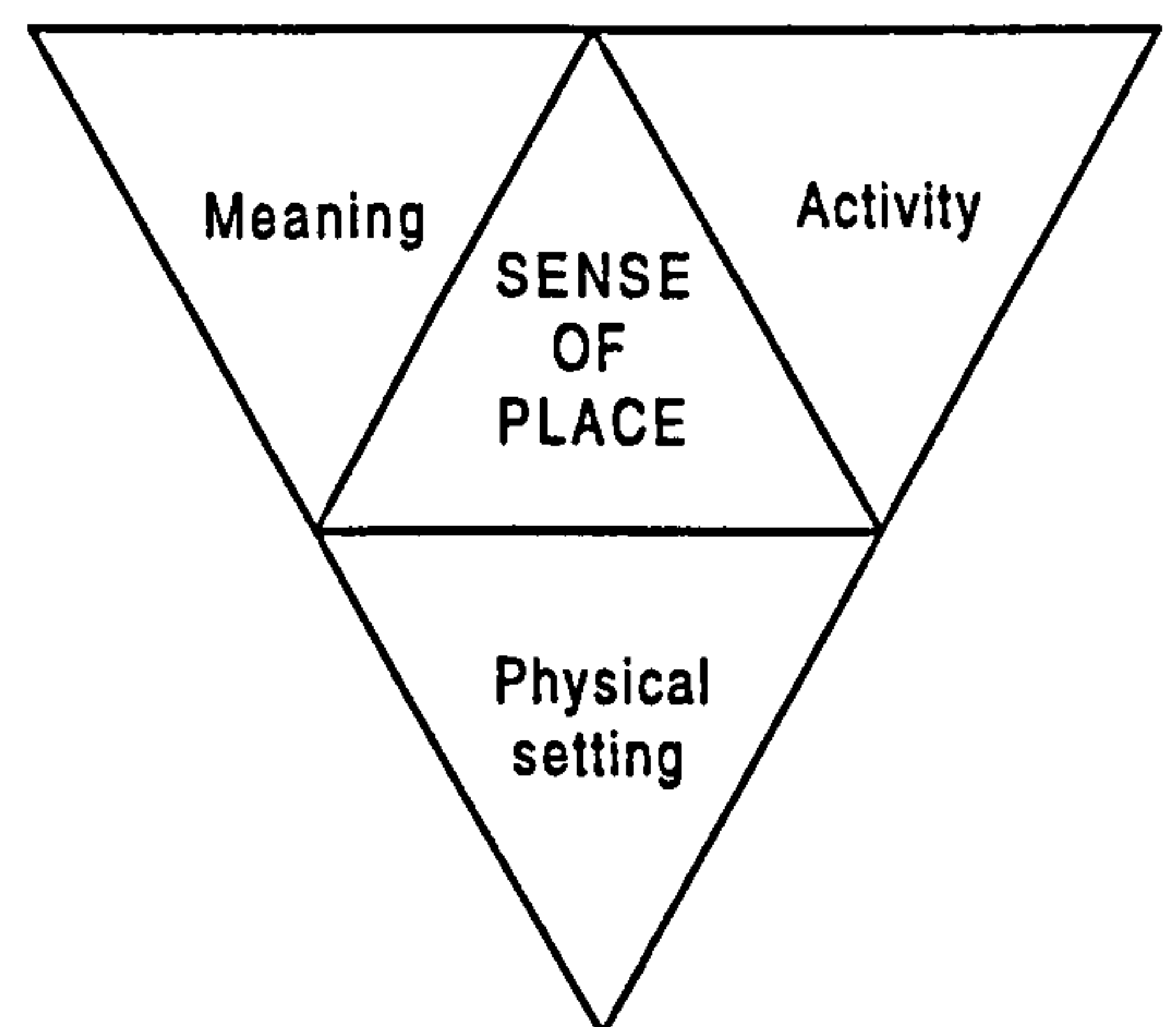


Figure 2.23: Components of a "sense of space".

After: Panter, J. V., 'Participants in the Design of Urban Space, *Landscape Design*, No. 200, 1991: pp. 24-27.



"sense of place" in a city incorporates the recognition of the behavioural patterns related to the common uses of a particular place as well as the traces of time embedded in that place<sup>30</sup>. Lynch, however, identified three major sources of the "sense of place", these are identity, structure and meaning<sup>31</sup> (see section 1.3.1).

The first two sources, i.e., identity and structure, are, mainly spatially and formally oriented, while the mental representation, i.e., meaning, can be connected to behavioural and cultural experiences. Identity refers to the clarity that makes a place recognised and perceived, to stand out and be distinct from other places. This is accompanied by clear structure, i.e., cognitive and spatial relationships between different parts of that particular place. However, the meaning of those parts in relation to the users creates the place's ability to attach personal and national memories, feelings and values. Such analysis expresses the importance of place memory on the image that a place gives.

Many researchers addressed place memory as an important source of "sense of place". Quantrill's analysis of environmental memory recognised the concept of "ubiquity" as the quality or state of being in a place in relation to other components<sup>32</sup>. This concept involves the recollection of images and memories of experienced built environments. Time, i.e., the depth of exposure to the space that gives familiarity to the place, as well as, space and form which are the sources of the environmental memory.

Another study by Connerton illustrates that urban memory is place-oriented and cognitively structured according to semantic codes, i.e., descriptions of an area; verbal codes, i.e., building labels and street names; and visual codes, i.e., landmarks and important features<sup>33</sup>. Accordingly, buildings and urban spaces like everything else can be remembered more easily if observers can pin a linguistic label on them<sup>34</sup>. People also remember buildings more on the basis of visibility (for example: siting considerations, contours and scale) and accessibility (for example: possibility of moving around them) than on the basis of detailed appearance (for example: texture



and typology of details). However, such emphasis still gives more weight to the structural phenomena of the built environment.

Uses and activities, such as, special celebrations and great ritual occasions reinforce the place memory and the "sense of place". Rowe and Koetter explain the city as "theatres of memory" where drama of events take place in the city open spaces and directed to the users of these spaces<sup>35</sup>. Open spaces of old cities were essential to accommodate the collective functions of urban life, such as civic ceremonies, religious procession and even daily commercial activities. They were literally stages on which the daily and civic life of inhabitants was performed in full view.

Furthermore, in old cities theatrical performances were held out of doors, where open places reflect city life as well as patterns of growth and change<sup>36</sup>. Such ability creates the place attachment, i.e., the human connection to places, which in turn makes it powerful as a source of memory. Place attachment could be increased if the rhythm of social activity matches the visual rhythm. However, as the city grew in population and size these characteristics of space, i.e., the "sense of place", was allowed to vanished and disappeared.

## **2.4 Visual Value Groups**

Within the visual characteristics of historic city centres one can identify five visual value groups. These are, the sensory, functional, technical, novelty/familiarity and hidden value groups.

### **A. Sensory Values:**

People's perceptions of the environment are more than visual. They respond to the environment with all senses. Within an urban setting lay many connotations of memories, experiences and dramas manifested in smells, sounds, speed, texture and the cold and warm of changing seasons. Although the most essential part of perception seems to have clear connection to the visual issues associated with the



built environment, other senses are also important. The hearing sense, for example, provides information beyond the visual field. This includes, the sound of rain, the roll of thunder, the whistling of winds, and the noise of crowds and motorways.

Studies of hearing, however, have been exclusively limited to noise levels

rather than sound in general. The sense

of smell is also important. Many

believe that smell has the power to

evoke emotionally charged memories

of past events and scenes. The visual

field, however, is far larger than the

fields of other functions. Vision tends

to be more emphasised at the expense

of the other senses of smell, such as

taste, hearing and touch. In addition to

being the dominant sense for receiving

information, vision is the most

controlled one<sup>37</sup>, i.e., it can be directed

in a selective way (Figure 2.24).

The human being is a visual animal. Of the five senses humans are more consciously dependent on sight to make their way in the world. It is through vision that the environment is mostly appreciated. Vision evokes people's memories and experiences. Visual values, therefore, are the more often recognised values. They are concerned with the appreciation of spatial and formal aspects. Vision has the power to recognise the variety of elements of an urban scene. A list of these elements, suggested by Rapoport, further supports the power of vision<sup>38</sup> (Table 2.1). It is important to consider how a new development may affect total perception. A new development can be made to maintain the visual image of the city and vice versa.

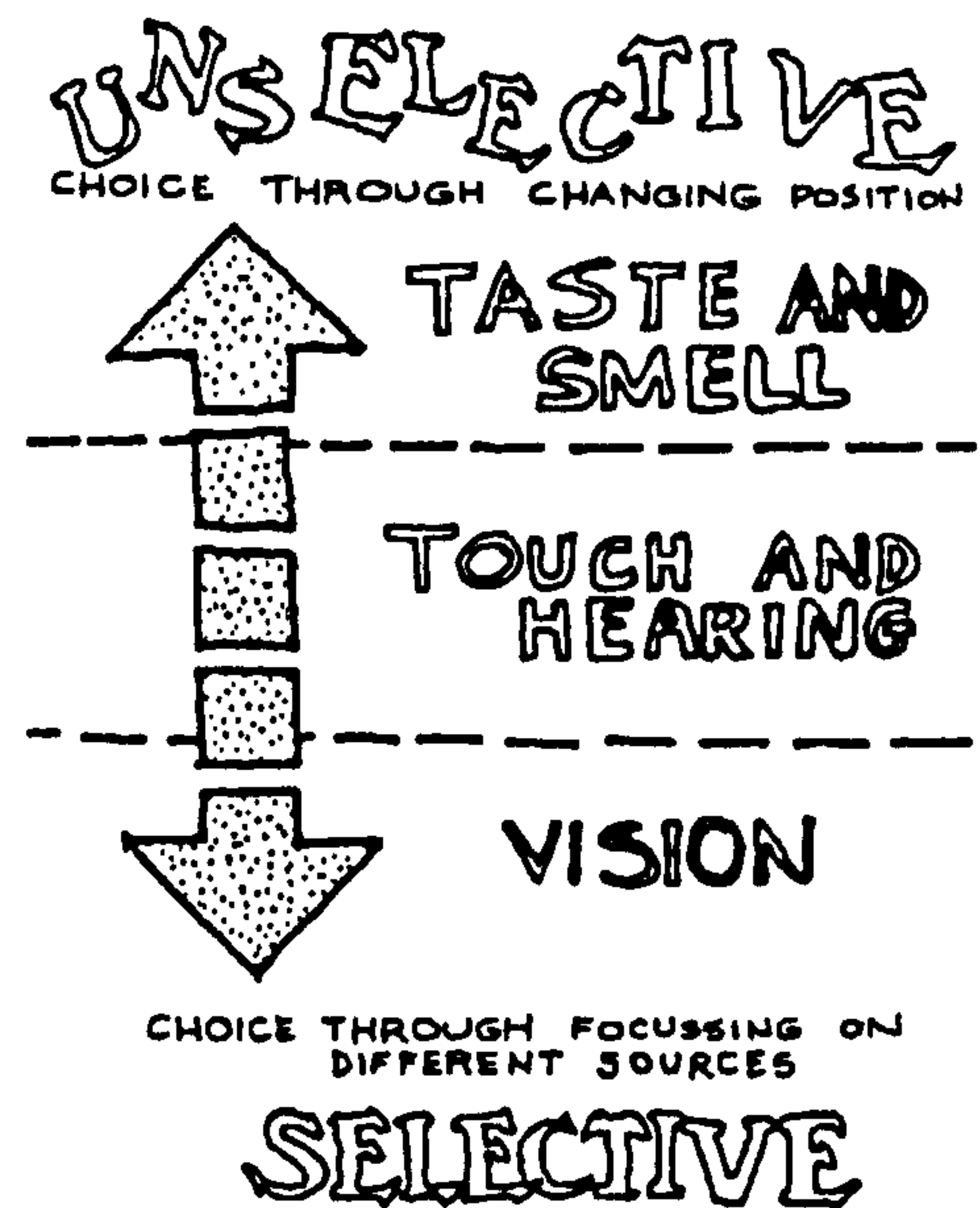


Figure 2.24: Vision is the most controlled sense among other senses as it can be directed in a selective way.

Adapted: Bentley, Ian., et al., *Responsive Environments*, London: The Architectural Press, 1985, p. 89.



Table 2.1: The elements of urban scene that are recognised by vision.

Adapted : Rapoport, Amos., *The Meaning of the Built Environment: A Non-verbal Communication Approach*, Beverly Hills: Sage Publications, 1982, p.106-107.

Elements of urban scene	
Physical elements	shape, size, scale, height, colour, materials, textures, details, decorations, graffiti, furniture, massing, density and level of maintenance.
Spatial elements	size, shape, enclosing forces, paving, barriers and links.
Natural elements	topography, hills and valleys, greenery, presence of planting, controlled versus natural, type of planting and arrangement.
Age	new versus old.
Type of order	order versus chaos, prominence, exposed or hidden.

### B. Functional Values:

This group incorporates the survival attributes of structure, sanitation, environmental control and energy conservation. Though recognised often, this value group seems to have questionable links to spatial and formal issues. Furthermore, cultural and social forces relevant to the time and place in which they occur, affect some functional values that might be regarded as quantitative. Visual issues, such as, skylines, for example, can be utilitarian and functional. They can be used as an aid to orientation. The highly decorated street corner can indicate entrance point. It is important, however, that functional values are measured in relation to their visual impacts. Their impacts seem to affect the importance of the area and how it serves its purposes.

### C. Technical Values:

Technical values are more related to spatial and formal issues than functional ones. They deal with health, safety, circulation, and welfare and often appear in planning legislation and building codes. Although technical performance of an area can be measured by instrumentation, its visual implementation refers to the quality of design, materials, execution and details, as well as conservation levels. People perceive the environmental aspects with certain general but detailed characteristics of form, such as, textures, colour and patterns.



#### **D. Novelty / Familiarity Values:**

This group incorporates the values related to the interaction between novelty and familiarity. This value group has clear connections with visual issues. Yet, they are more concerned with the dialogue between past and present; between blurred image and sharp reality; as well as the metaphoric quality of the situation. In a world of rapid change, such dialogue between past and present may also be valued for the sense of place it conveys<sup>39</sup>. However, Tunbridge argues that "place familiarity is valuable in maintaining the individual's psychological stability and an over abrupt change in the physical environment must be modified by conservation policies, so that the excitement of the future should be achieved in the security of past"<sup>40</sup>.

Opinions toward both "familiarity" and "novelty" can hold positive or negative aspects<sup>41</sup>. One, for example, might know an area very well and not like it, or might like some settings that he/she had never seen before. The importance of familiarity lies in its attributed symbolism<sup>42</sup>. Awareness of the past is an important element in the love of place. Familiar elements/features in a city are essential contributors to the ultimate sense of place which that city projects. They are vital clues that keep experience alive. Even in the current situation of expansion and change there are places that symbolise stability simply because familiarity has survived.

#### **E. Hidden Values:**

The previous value groups could be considered a useful starting point in understanding the spatial and formal variables of visual performance in a built environment. Yet, visual performance is not only concerned with spatial and formal aspects but, to a certain extent, with symbolic meaning as well. This group, however, deals with values that are as strong as the sensory values, i.e., the symbolic meaning of the place manifested in its locality, environmental memory, spirit of age and the power of city pattern. Although many studies have indicated that symbolic meaning



is an important aspect of urban perception, Appleyard argued that design professionals and researchers are rarely aware of this aspect<sup>43</sup>.

The works of Jon Lang, however, could be considered as an attempt to structure the symbolic aspects of the urban environment<sup>44</sup>. He suggested that symbolic meaning is not directly connected to the visual experience, as it might vary according to the situation that is articulated through experience and time. Lang has identified the physical as well as the non-physical variables related to the symbolic dimension. The physical variables include: building configurations of shape, pattern and style; spatial configurations of volume, degree of enclosure and proportions; the visual character of materials including the acoustics and thermal performance associated within them, the nature and level of illumination; the effect of directionality on behaviour setting; and pigmentation including colours of buildings and details.

The non-physical variables related to symbolic dimension are not dependent simply on their visual qualities but are associated with certain events/people and are acquired in their schemata over time, i.e., all knowledge gained from experience<sup>45</sup>. Schemata of urban imagery suggest that buildings and urban spaces are remembered by most people not only for their architectural characteristics but also for their significance for use<sup>46</sup> (see section 2.3). The perception of these physical and non-physical variables is influenced by various factors. Many desirable values are based on common human characteristics. Persistent differences in the perception and evaluation of such values might happen due to the nature of individuals, their history, needs, purposes and social environment.

Two people of different class, different upbringing or different employment may see some of the objects quite differently. Such differences are more often observed between various groups in the community, such as, different sexes, visitors and residents and majority and minority ethnic groups. Where sex roles are distinct, males and females will look at different aspects of the performance and acquire different attitudes toward them. Visitors and residents adopt different values and perceive



different aspects. Visitors focus on aesthetic issues and judgement of appearance. The native has a complex attitude derived from his/her immersion in the totality of his/her experience<sup>47</sup>. The perception and environmental evaluations of majority and minority ethnic groups might show little overlap because their experience and purpose has little in common.

The previous discussion of the visual characteristics of historic city centres highlighted the qualitative nature of the different visual value groups. These value groups refer to many scattered issues that are connected to spatial and formal characteristics by many separate yet overlapping mechanisms. Suitable assessment measures are required to deal with such complexity. These include incorporating users in the evaluation process as a necessary means to achieve a reliable evaluation.

## **2.5 Summary of the Chapter**

This chapter considers some of the essential visual characteristics of old cities by examining them in their relation to surroundings, appraising their formal and symbolic dimensions, and analysing the implications of their structure. The coherent organism and the organic growth governed the spatial and formal conceptions of most old cities. These characteristics helped create the visually distinctive spaces experienced in these cities. The meaning of spatial enclosures and the protective quality they produced reinforced this quality. All these add to the spatial appeal of old city spaces. Perception of city is very much influenced by the visual hierarchies within it and the movement its spaces allow.

In spite of cultural, environmental and socio-economic differences, most old urban centres share a common ability of being significant and unique. This is the "sense of place" that most current transformations lack. This ability is established by the existence of three concepts, i.e., clear identity, clear spatial structure and meaning associated with that location. Old cities served as "theatres of memory" where drama was performed by the users and the various activities and occasions. Nowadays,



many old cities have lost their spatial coherence, and have become arenas of isolated monuments surrounded by streets. This has caused lack of feeling of belonging, identity and sense of place which are the largest causes of visual dissatisfaction.

Visual values refer to many scattered issues that connected to spatial and formal characteristics by so many separate yet overlapping mechanisms. Suitable assessment measures are required to deal with the qualitative nature of these values. Such measures should involve users in the evaluation process to achieve an evaluation with a high reliability.

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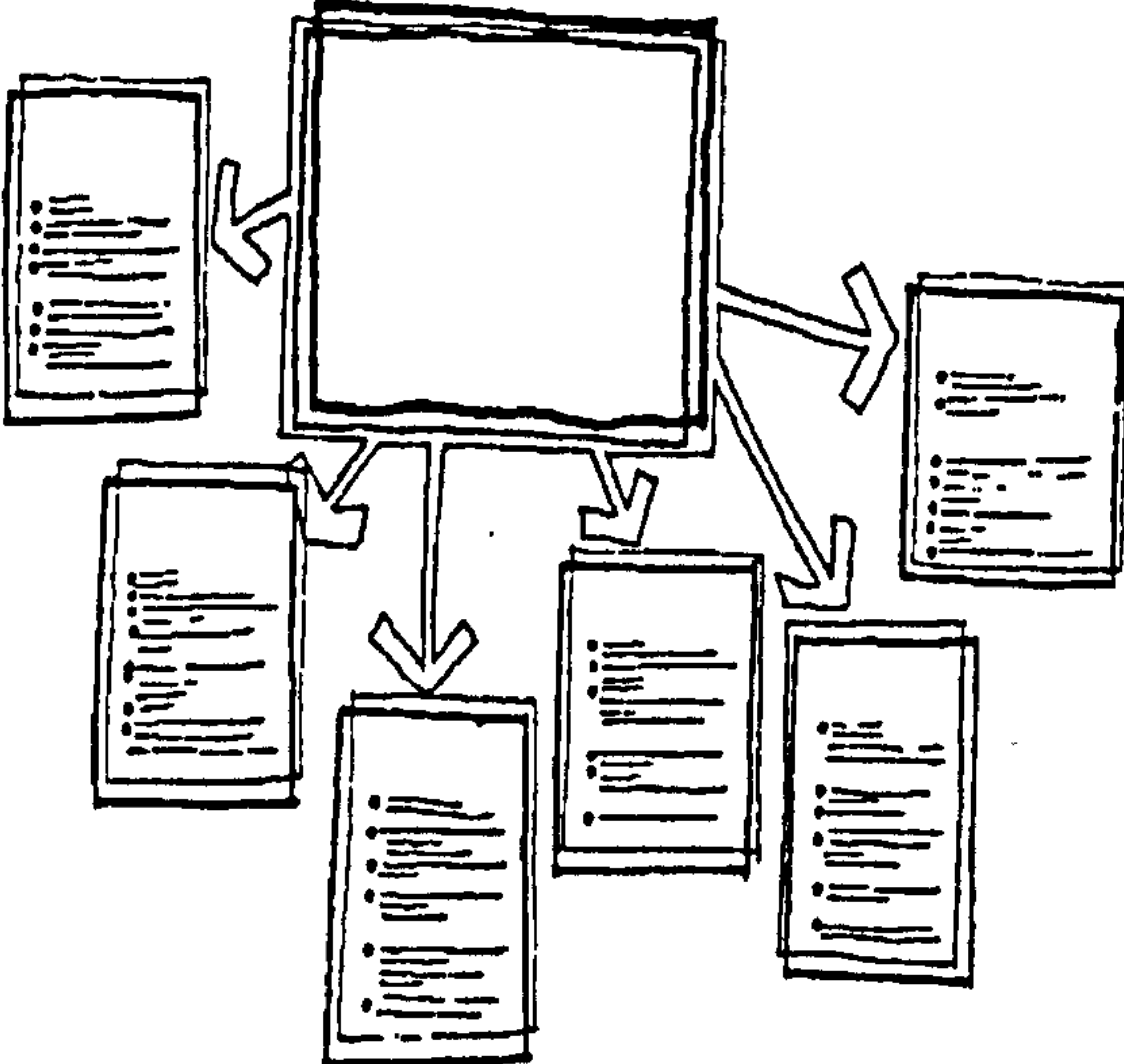
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**Chapter III**

**ASSESSMENT MEASURES**





## Chapter III

# ASSESSMENT MEASURES

Assessment is the ability to understand, form an opinion, to estimate, infer and conclude, i.e., to make a decision on the basis of indications and probabilities of received information. This chapter reviews the different assessment methods that could be used in visual investigations. These are classified into three main approaches. The first refers to the capacity to discern spatial and formal features of objects. It deals with measuring spatial preferences and includes analytical studies of numerical harmony systems, mathematical models, visual surveys and visual simulations. The second approach deals with measuring peoples' behaviour towards visual qualities. Its investigation is based, mainly, on observations, behavioural mapping, visual-impacts checklists and space syntax models. The third approach deals with measuring the attitudes towards visual qualities. These are investigated through conducting questionnaire surveys and interviews. Opportunities and limitations of each method are illustrated, and guidelines for selecting suitable methods for the purpose of this study are addressed.

### 3.1 Assessment of Spatial Preferences

Assessing spatial preferences refers to the capacity to discern spatial features of objects. Spatial and formal features in an urban environment are, partially, the manifestation of certain conception of performance with regard to the beholder's psycho-physical needs for pleasure and delight. Researchers in this field have been striving for explanation of universal emotions. The most important issue that they



assert is that one has an emotional reaction to the objective geometrical, expressive and symbolic qualities embedded either in the building and townscape or psychologically attributed to it, or the perception of the specific emotional character which each object expresses.

The different methods that could be used in assessing spatial preferences are classified into four main categories. These are the numerical harmony systems, mathematical models, visual surveys and visual simulation techniques.

### **3.1.1 Numerical Harmony Systems**

Architectural elements are grouped in order to establish controlled relationships among its components. In many cases their relationships can be interpreted in terms of numerical harmonies. Numerical harmony systems refer to the numerical / geometric relationships between components. The idea of numerical harmony was originated from the belief that certain numerical relations manifest and structure the universe<sup>1</sup>. All theories of numerical harmony aim to create a visual sense of ratios among the elements within an architectural composition. A ratio is the quantitative comparison of two similar objects, while proportion is the comparison of one set of ratios to another set. Thus, a numerical harmony system deals with the establishment of a consistent set of ratios between the parts of a building as well as between the parts and their whole.

Several theories of numerical harmony systems have been used aiming to produce appropriate proportions by mathematical/geometric rules. Among these are:

- a. the classical theories of proportion including the Golden Section and the principles of the Orders;
- b. the Renaissance regulating lines;
- c. the Japanese Kin;
- e. Le Corbusier's Modulor and its related anthropomorphic proportions; and
- d. the basic unit of generation (BUG) used in Islamic Architecture.



These systems claim to unify visually the multiplicity of elements in a composition that provides a sense of order within, as well as to establish relationships between the various elements of a building, a group of buildings and the open spaces created by these buildings.

The classical theories of architecture consist of an attempt to transfer to architecture the notion of a harmonious order, by giving specific rules and principles for the proportionate combination of parts. The Golden Section<sup>2</sup>, for example, unifies the multiplicity of elements in an architectural design by having all its parts belong to the same proportions (Figure 3.1).

The rectangle formed by the Golden Section possesses a peculiar visual harmony and, to the normal eye, shows the same visual stability as the square. The Golden Section suggests that the ratio (1:1.618) represents the ideal displacement between the identical and related elements. In terms of simple geometry, the square is a clear pattern. As one co-ordinate is

progressively increased to be a rectangle it should be sufficient to distinguish it clearly from a square. The same rules apply to the circle and its derivations when it is converted into an oval it should be clearly distinguished from the circle.

One attraction of this proportion is that it produces a number of integrally related areas. Its character is such that the ratio of the bigger and smaller sizes are equal to the ratio between the sum of the two and the bigger one. The Golden Section has proved the most durable proportion across time and space. Also, it was widely claimed in the nineteenth and the twentieth centuries to be the key to aesthetic proportions. It was used in the classical revival in the nineteenth century. Some

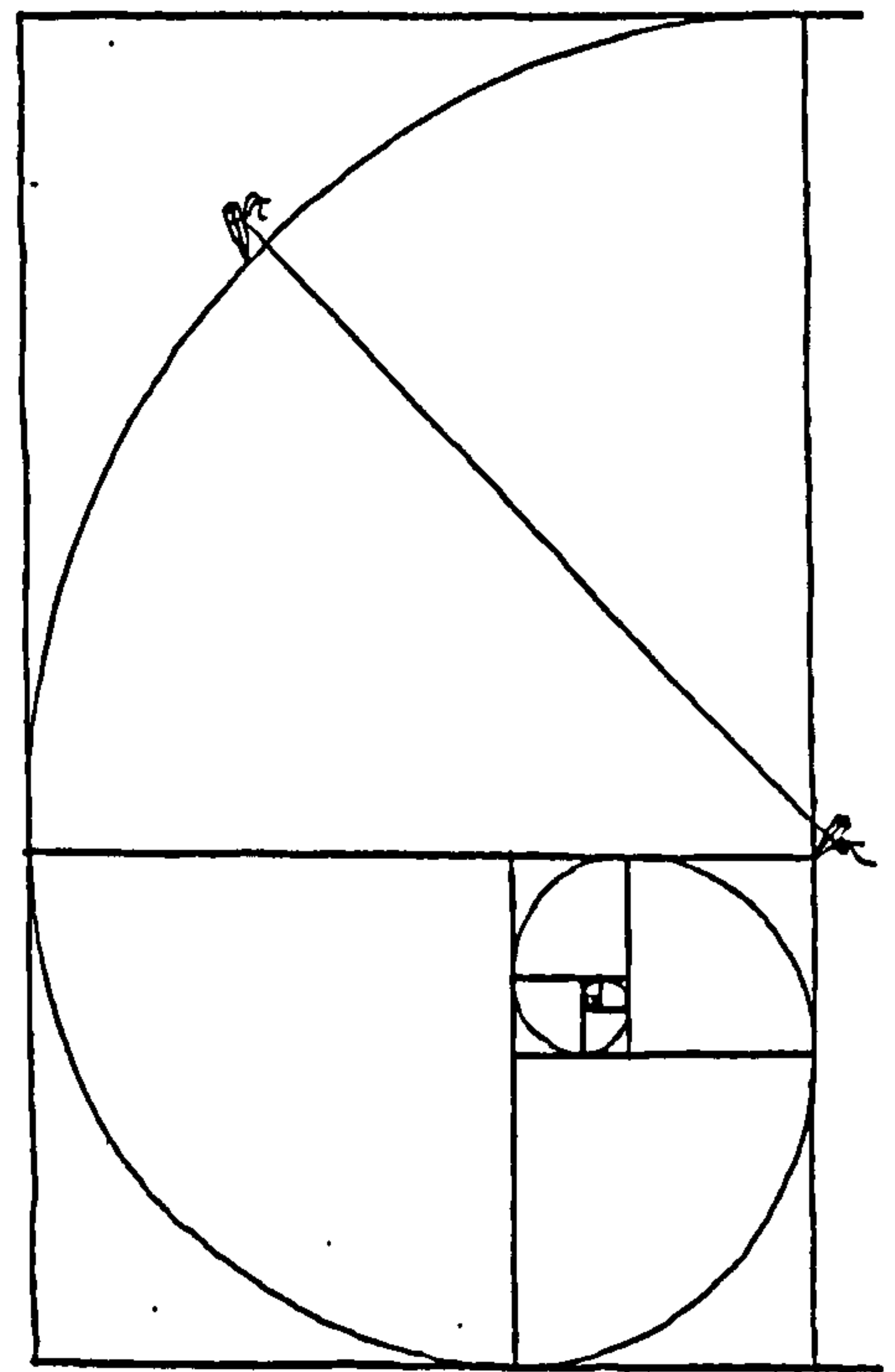


Figure 3.1: The Golden Section.  
Source: Licklider, H., *Architectural Scale*, London: The Architectural Press, 1965, p.41.



suggest that the Golden Section should be the reference of perfection regardless of time and context. However, many saw that the success of aesthetics is more often the consequence of breaking rules rather than ordering them<sup>3</sup>. The proportions of the Golden Section may work for an isolated building but might be not a valid solution in the majority of cases especially on the spatial level.

To the Greeks and Romans the principle of the orders was associated with a complete system for the measurement and combination of architectural parts. The basic unit of dimension was the diameter of the column on which all parts of the building were based<sup>4</sup>. It can be seen as a device for the construction of precise mathematical relationships, which diffuse the architectural harmony through the visual appearance of the building.

A related system of expanding relationships comes from the Renaissance, the Fibonacci Series, where the succeeding number in an array is obtained by adding the two preceding numbers<sup>5</sup>. The fundamental idea was to regulate the arrangement of shapes and lines of architecture to be peculiarly fitting and harmonious, producing series of ratios manifested not only in the dimensions of a facade, but also in the interlocking proportions of a sequence of spaces or an entire space.

Unlike the module of classical orders, e.g., the diameter of a column varied with the size of a building, the Kin<sup>6</sup>, the traditional Japanese modular system, was the absolute measurement in architectural design (Figure 3.2). It was originally used to designate intervals between columns, i.e., planning the buildings and their components to fit as a related module. It was soon evolved into an aesthetic grid that ordered not only the structure, but also the formal and spatial

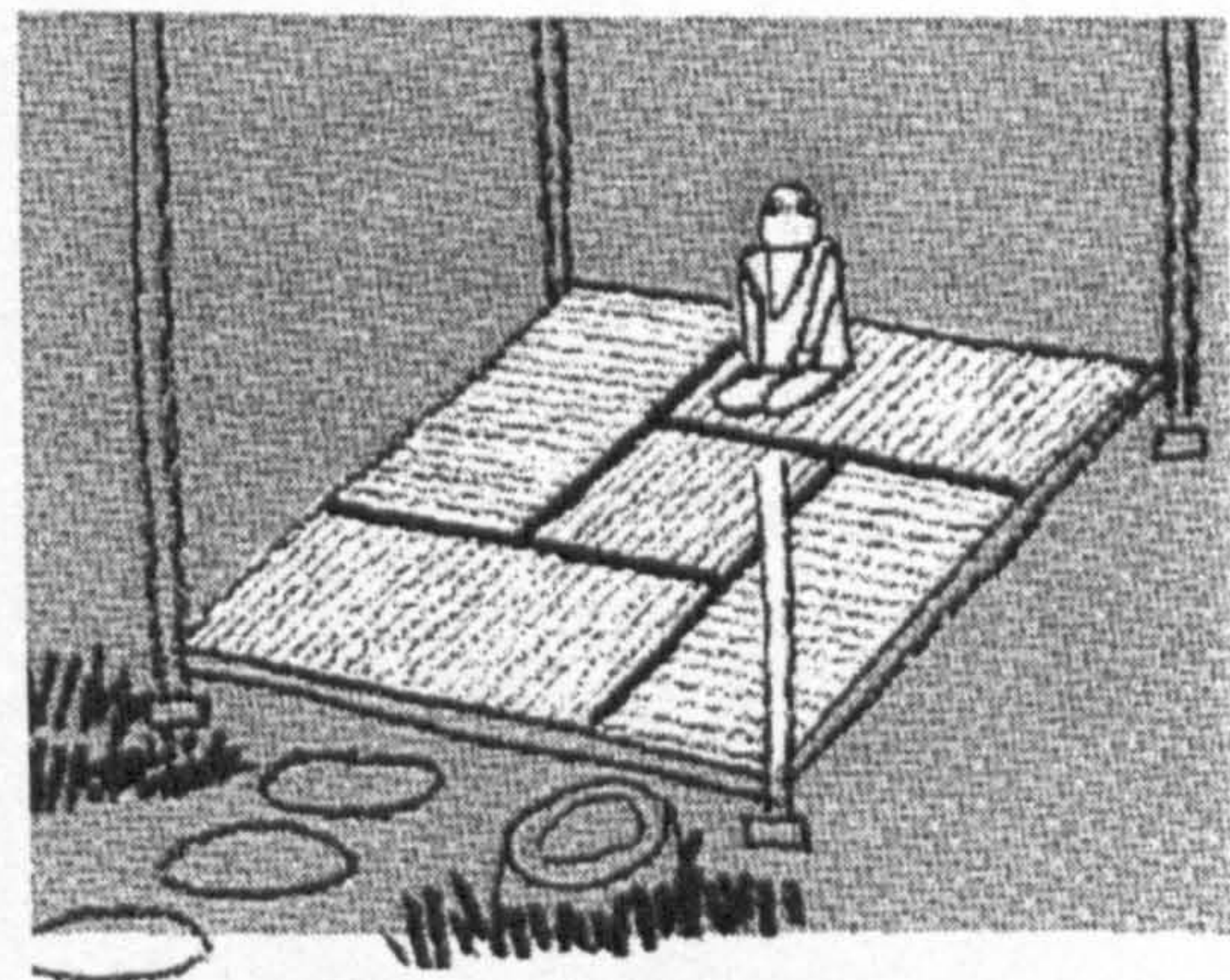


Figure 3.2: A Japanese tatami mat based on the Kin proportion.

Source: Ashihara, Y., *The Aesthetic Townscape*, Cambridge, Mass.: The MIT Press, 1983, p. 12.



dimensions of architecture. The relatively small size module allows the rectangular spaces to be freely arranged in linear, staggered or clustered patterns. which may result in harmonious relationships as well in additive, space-to-space sequence of buildings.

Numerical harmony in modern architecture has been claimed in Le Corbusier's Modulor (Figure 3.3). This measuring tool aimed to create a comprehensive harmony from understanding the clear mathematical paradigms from which an architect may start<sup>7</sup>. The Modulor was culled from the Golden Section, the Renaissance Fibonacci series and the proportions of the human body. Similar, but less comprehensive, is the Anthropomorphic proportioning<sup>8</sup>. It is based on the theory that the dimensions and

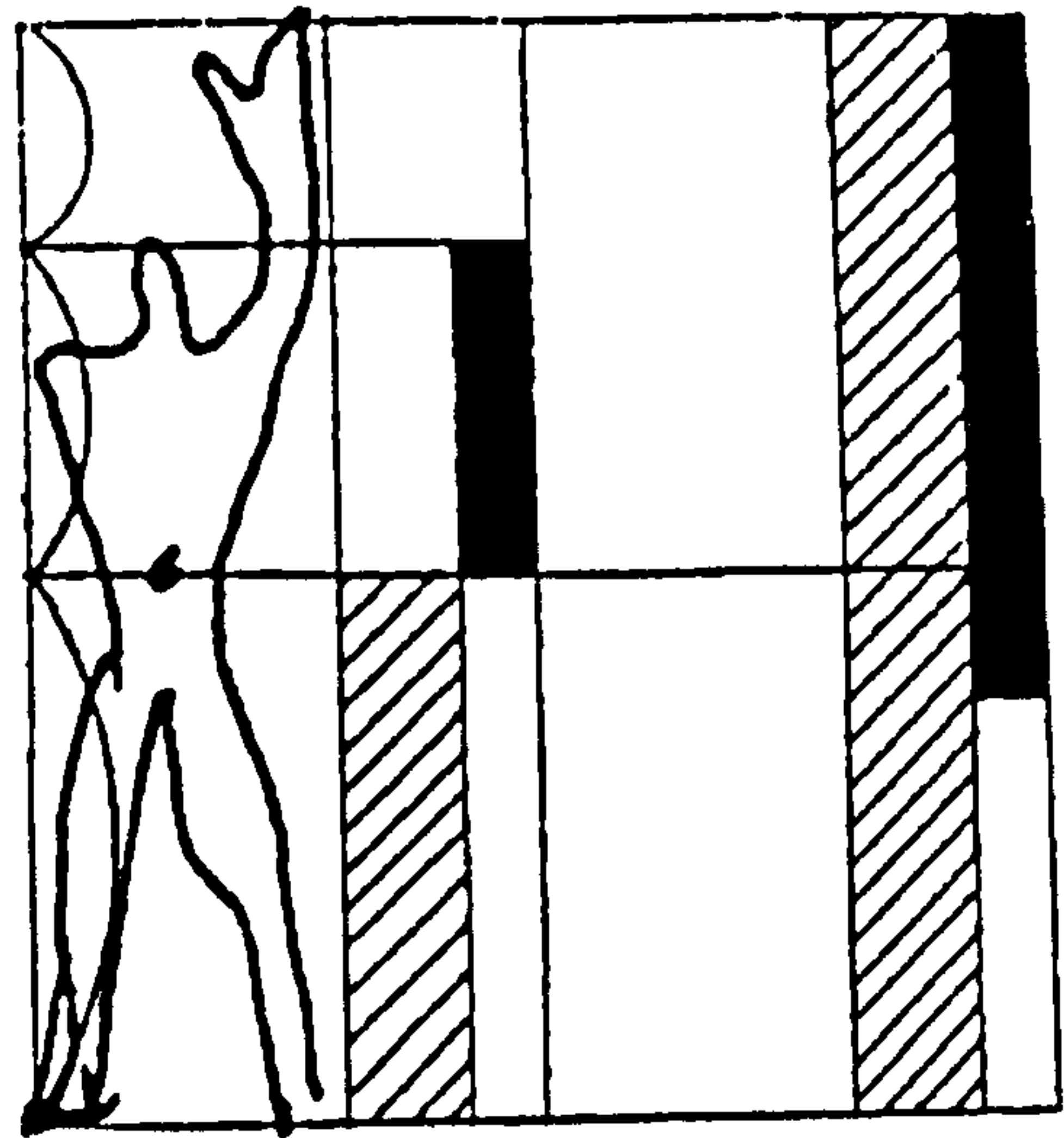


Figure 3.3: The Modulor.  
Source: Le Corbusier, *Modulor II*, London: Faber and Faber, 1958, p.58.

proportions of human body should affect the proportions of objects as well as the volume of space that a man requires for movement, activities and rest. It is worth to mention that the size of architectural and urban elements cannot be limited by human physical capabilities but must be tempered by human capacity for comprehension.

It has been argued that numerical harmony systems were used to produce appropriate proportions in Islamic architecture. However, few analytical studies are available on that subject. A relatively recent study by Walls investigated a partially destroyed late 15<sup>th</sup>. Century Mamluk religious school in Jerusalem, *Al-Ashrafiyya madrasa*<sup>9</sup>. The study aimed to provide a reconstruction of the building relying on its remaining sections. Walls analysed the building in relation to its context and related his analysis to other Mamluk buildings, especially in Cairo. He traced certain fundamental and primary geometric relationships related to the plan dimensions including covered as well as open spaces. He found that these geometric relationships are also raised from



the plan to the elevations, sections and typologies. Accordingly, a basic unit of generation (BUG) was established unifying the overall the design of the building (Figure 3.4).

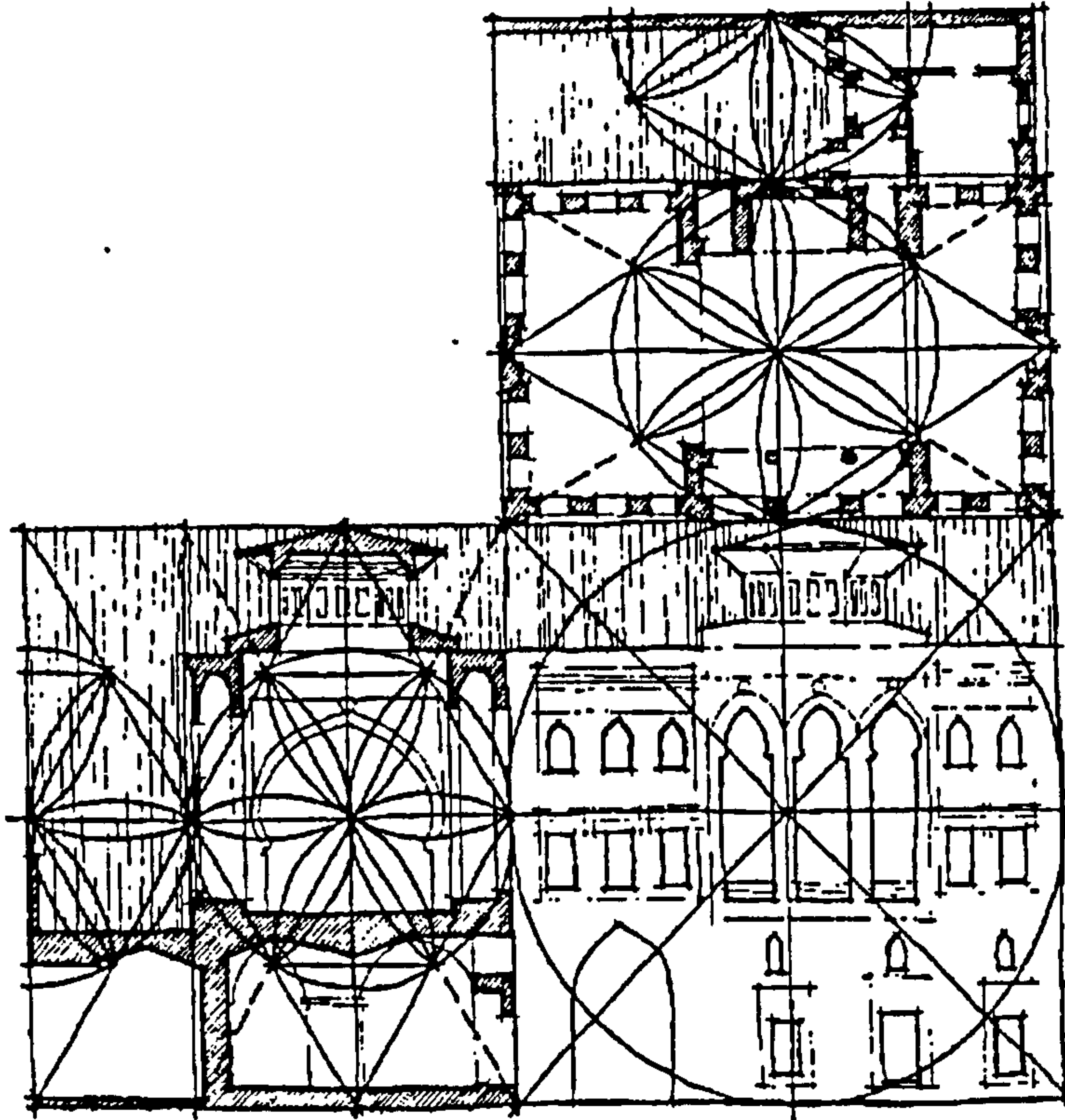


Figure 3.4: Geometrical relationships based on the basic unit of generation (BUG) unify the overall design of Al-Ashrafiyya building.

Source: Walls, Archie G., *Geometry and Architecture in Islamic Jerusalem: A Study of the Ashrafiyya*, London: Scorpion Publishing Ltd., World of the Islamic Festival Trust, 1990, p.197.

The study concluded that geometric rules were used to control architectural design in Islamic Mamluk architecture. However, it did not claim a generalisation of its major finding, i.e., the application of the unit of generation (BUG) to other buildings. Walls' study set a precedent for other applications. An M. Sc. researcher at the University of Jordan, Amman, investigated Walls' methodology, process and findings on another Mamluk building in Jerusalem, *Sabil Qaytabay*<sup>10</sup>, aiming to set up a model with a more general application, covering open spaces, masses, details and typology.

Sitte<sup>11</sup> adopted relevant principles in the nineteenth century. He examined many Renaissance and medieval cityscapes and set up certain principles of harmony based on solid to void numerical relationships. His work suggested, for example, that the minimum dimensions of a city/town square ought to be equal to the height of the



principal building it accommodates; and its maximum dimensions ought not to exceed twice that height unless the form, the purpose, and the design of the building will support greater dimensions. Sitte's ideas influenced Ashihara who set up certain proportional and metric measures to assess spatial preferences<sup>12</sup>.

Following the same principles, the author, in 1996, carried out an experiment with the first year architectural design students at The Applied Science University (ASU), Amman. Fifteen students were asked to design a three dimensional abstract composition based on a repeated unit. Each design would be generated from two mathematical equations that were found to be appropriate by the student. The first equation governed the growth of the selected unit, while the second one governed the organisational relationships. The task ended with interesting results. The researcher, however, believes that it is difficult to apply such ideas at either the architectural design or at the urban level. Architecture and urban spaces contain many other units and variables that are organised through a complex structure and cannot be designed or evaluated on a purely mathematical basis.

The fundamental proportions based on numerical relations have been widely used to predict visual harmonies. It is debatable whether such numerical harmony systems do produce the effects which the eye and mind consciously see and understand. Numerical harmony systems depend mainly on what people see and not on how they conceive space. The main reservation aroused by numerical harmony systems is the difficulty of relating these measurements to urban design<sup>13</sup>. While proportions can be experienced in two-dimensional facades, it is difficult to relate the abstractly calculated proportionality of a building to a real experience of proportion in a three dimensional form or space. The harmonious form from one angle, however, is not necessary harmonious from another, and it is difficult for the numerical harmony systems to ensure the production of harmony from many points of view in space. Although according to these ideas of proportions, the visually appealing proportions occur equally in different macro and microstructures regardless of their scale (see section 4.3.5 B).



### 3.1.2 Mathematical Models

Different approaches incorporating mathematical models were developed and used for measuring spatial preferences. Birkhoff, in 1933, proposed one of the first mathematical expressions to measure aesthetics as follows<sup>14</sup>:

$$M = O / C$$

Where the aesthetic measure (M) is a function of Order (O) and complexity (C). The critical issue is how to define order and complexity, and how one can reduce this definition to a qualitative variable. Birkhoff did not have the chance to test his model and the model was kept hypothetical.

Elwood L. Shafer, Jr., in 1969, produced his mathematical model to measure spacescape preferences<sup>15</sup>. The model is based on analysing still photographs to measure the quantities of spacescape zones, such as sky, water, land and edge conditions. Areas in these zones were quantified by using grid system analysis where a quarter-inch grid was placed over photographs. The study showed that the variation within photograph proportions produced different levels of performance. Shafer did not come up with information about the quality of elements but rather the quantity.

The use of mathematical models, based on analysing still photographs, was also developed to determine aesthetic satisfaction related to various visual and spatial aspects. Lassiere suggested a formula to calculate the visual satisfaction index related to traffic impacts as follows<sup>16</sup>:

$$V = 3.42 + 0.16 C - 0.005 Q - 0.13 P$$

This formula was based on three factors: i) peak flow (Q), i.e., vehicles per hour; ii) percentage of heavy vehicles (P); and iii) context constant (C). To measure the amount of visual satisfaction, according to this model, one has to calculate the size of some categorised components in a particular situation based on analysing still photographic views of roads showing size of traffic and vehicles.



However, the major shortcoming of this mathematical model can be illustrated as follows:

- i. It depends on a static view, while space is usually experienced by a moving observer. Single views are not sufficient compared to the cumulative effect of a sequence of views. The form of motion itself has meaning: direct or indirect, fluid or formal, smooth or erratic, purposeful or whimsical.
- ii. The model ignores the effects of traffic speed and viewer position and speed. The viewer's speed is a significant variable since vision is restricted to a narrow forward quadrant as speed increases.
- iii. There are many other visual variables affecting aesthetic satisfaction that were not considered in this model. These variables could not be isolated, they are complex in nature and related to various formal, spatial and symbolic connotations.
- vi. The model ignores the viewer's aesthetic sensibility and design characteristics of the context.

A recent study, by Elsheshtawy<sup>17</sup>, proposed a mathematical model for measuring the physical complexity of buildings and streetscapes. His model depends on three factors:

1. The arrangements of the facades of buildings within a street, manifested in their overall massing, secondary massing and openings.
2. The grouping of the buildings under investigation.
3. Other visual factors/variables including: building texture, height, width and setbacks.

This model reduces reality into a few variables affecting complexity. Other variables related to various formal, spatial and symbolic connotations were not considered. It also depends on what people see and not on how they conceive space. Moreover, this model depends on a two-dimensional understanding of buildings, i.e., their facades. Buildings, however, are composed of various elements that stand in a complex relationship to each



other. Applying this two-dimensional understanding to streetscapes would be more critical.

The researcher believes that visual values are qualitative in nature (see section 2.4). They are connected to various interrelated formal, spatial, cultural and symbolic connotations. Thus, it is difficult to use mathematical models, which are quantitative means, to measure the complexity of such values.

### 3.1.3 Visual Surveys

Visual surveys are widely used for spatial and formal investigations in urban areas. Gordon Cullen's studies provide excellent examples in using visual surveys for assessing the performance of urban areas<sup>18</sup>. His visual surveys are based on creating serial visions (Figure 3.5), i.e., viewing the city through a sequential journey in the built environment. The visual analysis is organised by experiencing serial rhythms through motion, i.e., series of sequential perspectives in both directions. Sequential organisation of buildings and urban spaces has considerable influence on the experience of movement. They link urban enjoyments to human scale and support the idea of pedestrianization.

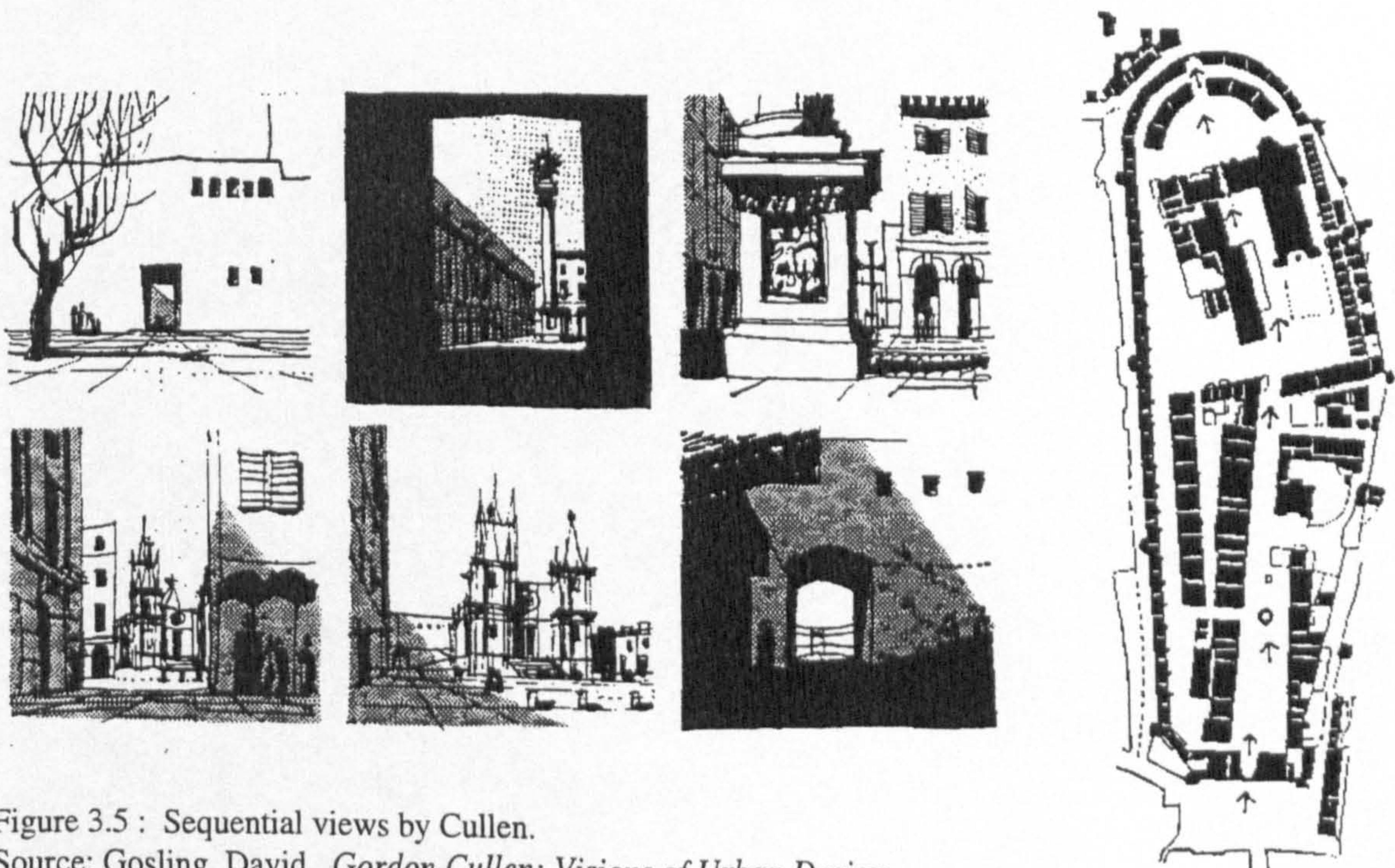


Figure 3.5 : Sequential views by Cullen.  
Source: Gosling, David., *Gordon Cullen: Visions of Urban Design*,  
London: Academy Editions, 1996, p.22.



Many researchers adopted Cullen's ideas for the application of serial vision as an analytical tool for understanding spatial sequences. Few, however, matched the brilliance of his drawings. His serial vision concept was imitated in analysing the main street of medieval Cairo, i.e., *Al- Mu'i'z Street*<sup>19</sup>. The analysis included perspective sequential views as well as succession of sections explaining the proportional and visual relationships within the street and its open spaces. These sections illustrated the different relationships between the heights of the buildings and the width of the street at various intervals. They also explained the visual hierarchies within the street and its open spaces.

Appleyard, Lynch and Myer used the serial vision concept to produce sequential views of the city from an urban expressway<sup>20</sup>. Their work arrived at the conclusion that a visually oriented urban expressway can tell the speeding driver where he/she is, which in turn, will clarify the city movement patterns to that driver. Bacon also used the same concept of serial vision in his urban studies<sup>21</sup>. He used sequential photographic documentation to explain the effect of colours in progression through the streets of Panza, a little Italian hill town on the Mediterranean Island of Ischia. Ashihara, however, developed a new concept of visual analysis based on the serial vision technique<sup>22</sup>. His concept of primary and secondary profiles was found to be appropriate for Japanese shopping streets (Figure 3.6). These streets are different from most western cities' streets in that they are filled with perpendicular sign boards and other fixtures that project over the building facades.



Figure 3.6: A visual study by Ashihara at a Japanese commercial street.

Source: Ashihara, Y., *The Aesthetic Townscape*, Cambridge: Mass.: The MIT Press, 1983, p.83.



Visual surveys provide interesting and rich visual information. The main reservation on such studies is that architecture and urban spaces are, always, perceived all at once in a three-dimensional way; two-dimensional representations, however, can not simulate actual conditions under which the built environment is experienced. Eye movement always experiences space sequentially, and a still image does not reflect this perceptual reality. While recognising these reservations, visual surveys are still considered appropriate data-collection methods for visual investigations.

#### **3.1.4 Visual Simulations**

As it is difficult to run actual experiments concerning urban issues, architects and urban designers adapted other tools. Among these are, e.g., visual simulations. The term visual simulation refers to translating conceptual ideas into visual form as imitations of actual situations. Such techniques have the benefits of replicating the complexity of planning situations in terms that may be comprehended by laymen. Typically, simulations are designed to save time, to facilitate experimentation with a variety of policy options and proposals in order to assess their impact, and to gain an appreciation of the influence of selected variables.

Much of the use of simulations focuses upon the appearance of projects and on visual considerations. Thus, visual simulations can play a key role in project design, public presentations, environmental assessments, decision-making construction and monitoring. The simulation process is frequently played on theoretical spacescapes with a variety of pieces representing physical features that can be added or removed to accord with the implementation of policies and proposals.

Many forms of visual simulations are available for architects and urban designers. Every successive design phase requires different forms of visualisation because of the different degrees of complexity of the information. Visual simulations as design supporting tools can be classified into conventional and innovative techniques. The



conventional techniques include two-dimensional and three-dimensional drawing simulations, scale-models and model photography and photomontage. These conventional techniques require intellectual abstractions and offer only limited views. Perspective drawings and photographs are fixed. Models, regardless the accuracy they may replicate, form and details cannot substitute for the experience of actually moving through buildings and spacescapes.

Simulation techniques using slides and pictures have been a thorny aspect for many years. Buhyofh<sup>23</sup>, for example, uses Thurstone's laws<sup>24</sup> of comparative judgement to find people's preferences relative to a set of slides. His work illustrated the different possible combinations of a ten slides set (which resulted in 45 comparisons) to show the subject. He then identified the preferred one. His research included a study of the effects of changing seasons on space preference. However, the use of photographs can produce accurate images, but they only capture a vague impression of the environment and space.

The innovative simulation techniques, however, concern adding movement to the study, by travelling through a space in a sequential manner. The use of modelscopes, for example, allowed for such techniques<sup>25</sup>. By varying the speed of the moving camera one can achieve a movement corresponding to walking, cycling and travelling by car. Computer-generated visualisations and building virtual environments, however, can provide displays where the visual field is perceived all at once and as a whole<sup>26</sup>. Although computer-generated simulations can be dynamic, many are still very simple and abstract looking, with low resolutions and with pre-determined walk-through paths.

Virtual environments, however, are distinct from other computer simulations by the fact that the respondents have the illusion of being completely surrounded by spatial and formal information. Daniel Henry involved the users in employing a virtual environment for evaluating the visual performance of the Henry Art Gallery, Washington DC<sup>27</sup>. His experiment allows for free movement and change in direction



with more accuracy in representing colours and textures and improves observation. The power of simulation, as a communication device, follows from the importance of people's perception of a project in shaping their decision about it.

However, there is no comprehensive set of established guidelines to aid those who are involved with a visual simulation process knowing whether a simulation is spatially and formally promising or not. In many cases, combining various techniques may result in optimum effectiveness. As visual appearance involves a complex situation in which many variables are mixed together, visual simulations can be more rational, systematic and balanced if other tools are incorporated with them.

Therefore, it is important to provide insight on the influence of simulations on the opinion and decisions of people, together with potential consequences (promising or not) for public acceptability of projects and the project approval process. This could include the development of practical principles and policies for those who produce or use simulations in project planning and review.

### **3.2 Assessment of Behaviour**

In dealing with human aspects related to space performance, consideration should be made of behavioural, psychological, perceptual, cultural and social data. Many researchers have applied different methods in order to find out how people use the built environment. These include observations, behavioural mapping, impact-checklists and space syntax models. These behaviourally oriented methods in urban design attempt to examine the influence of the physical environment on the user's behaviour. People's behaviour in a space is very much a function of the space itself, and what it enables people to do in it. Behavioural approaches appear to be well suited for studying small-scale environments that could be relatively contained. This section reviews some of these approaches.



### 3.2.1 Observations

Observation is a method for studying commonplace behaviour in which people may not be consciously aware of how they are acting<sup>28</sup>. It concerns recording what people actually do in a place. Sommer mentioned that "direct observation may be the ideal method of studying commonplace non-verbal behaviour, such as gestures, postures or seating arrangements, in which people may not be consciously aware of how they are acting"<sup>29</sup>. Observation does not require conversation, it is economical in terms of money and equipment, but expensive in terms of time. There are several types of observation such as: casual, participant and selective observations.

Casual observation is always done without pre-arranged categories or scoring system. It is most useful at an early stage of research, or as an accompaniment to other procedures; e.g., before holding an interview, casual observation will yield information that is indispensable for developing an appropriate line of questions<sup>30</sup>. However, systematic observation employs a scoring system with pre-arranged categories, or checklists on which information is recorded. Casual observation may also be helpful in developing categories for use in systematic observation.

Participant observation is where the observer becomes part of the events being studied. However, there may be serious ethical problems and emotional stresses for an observer while having a role in the setting. Participant observation is not widely used method since it is stressful for the investigator and has serious ethical problems<sup>31</sup>. Selective observation, however, is the most efficient process when focused on particular issues that are of interest to the observer. That is, the observer may look only for some evidence of difficulty or any revealing signs of behaviour that could be detected. "It considers the physical setting primarily as something which blocks, or facilitates intended human activity. It is rapid, powerful and limited"<sup>32</sup>. Thus, it can be modified to detect certain issues related to spatial and formal qualities and visual performance of historic city centres.



The observational techniques are useful for designers who will adapt existing sites for present users. However, recording observed phenomena is not an easy task, it has some limitations. Observational methods do not inform about inner feelings, images, attitudes and values of the observed. The observation should be made in a way that its process does not affect users' behaviour, since many people might change their ordinary behaviour if they feel that they are observed. Through observation one may find many things which occur together, but observation alone cannot determine if one thing is the cause of another. Lynch stated that "when behavioural observation is supplemented by an inquiry into felt experience, the combination is the most reliable data; one can get on how places are working"<sup>33</sup>.

### 3.2.2 Behavioural Mapping

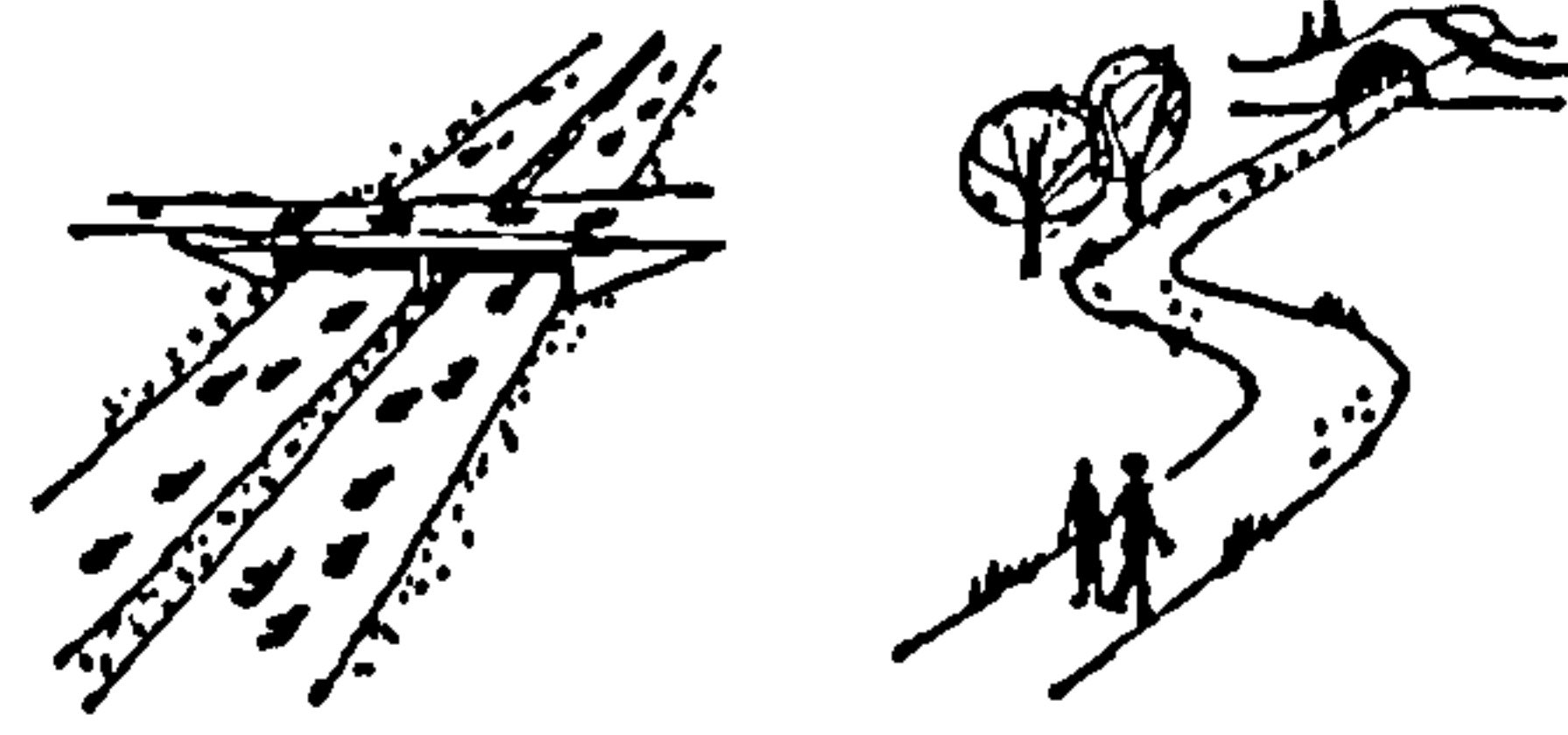
When people experience a new environment, they unconsciously build a kind of behavioural map of that environment. It is often referred to as a cognitive mental map. It is a way of storing spatial information in memory with continuous refinements and updating. Researchers used mental mapping in measuring people's ability to structure their own environments. It is a special application of observation techniques which describe the actual behaviour rather than what was planned for the space<sup>34</sup>. It is suitable for urban design and site planning purposes.

A researcher may take and analyse only a limited space that is of special interest [to him] such as a street, a corner or a pedestrian plaza, and study the range of activities in that space. Behavioural mapping is useful in showing capabilities, preferences, habitual actions and cyclic changes. The resulting data of behavioural mapping may indicate the latent environmental problems or successes such as unused spaces, crowded places and danger spots. Behavioural mapping approaches have been applied by many researchers in order to find out how people recall the environment they live in and how they react to it.

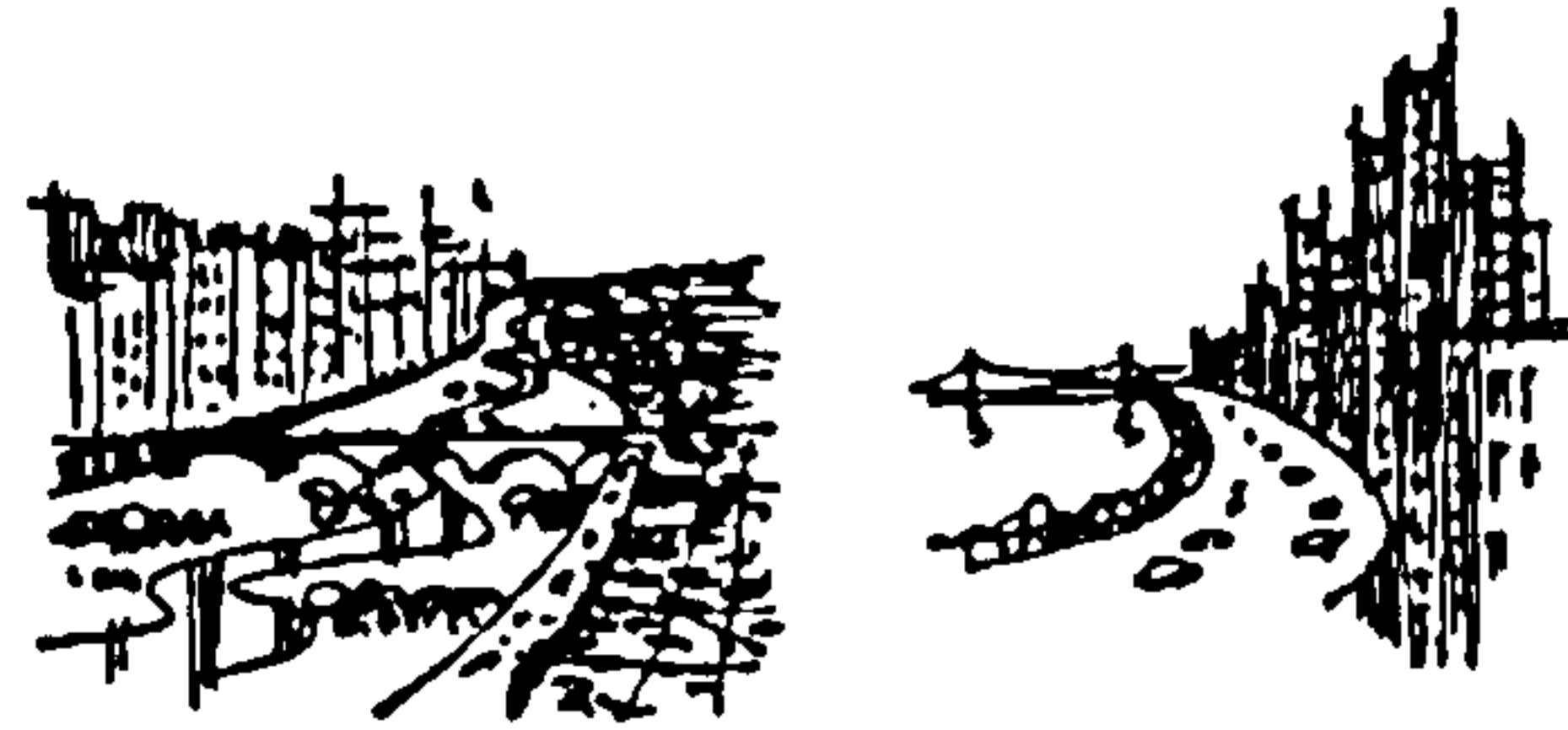


Lynch studies of three American cities, i.e., Los Angeles, Boston and Jersey City, could be considered the first extensive investigations using cognitive mental mapping<sup>35</sup>. His studies aimed at identifying the different key physical elements of the city and how these elements affect the distinctive and evoking images of different city places. Lynch was able to determine the large patterns of space arrangement that, for an average person, were memorable, and to distinguish those elements of a city that were making little or no impression. His works provided five headings under which the image of the city could be structured. These are: paths, edges, districts, nodes and landmarks (Figure 3.7).

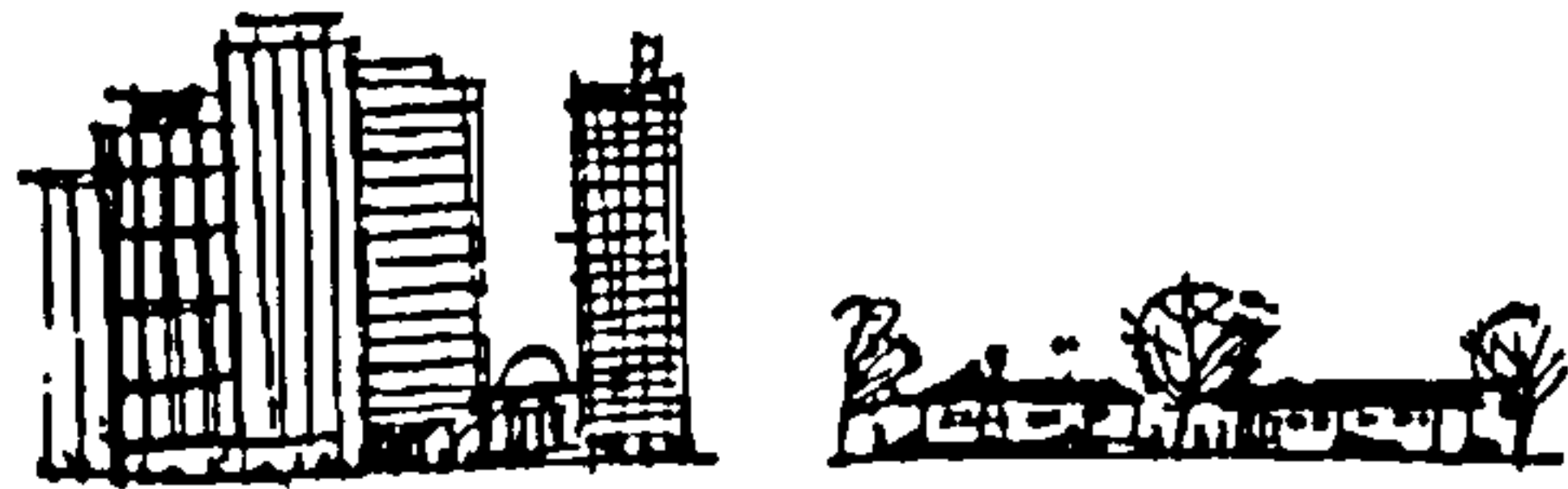
Lynch linked the "imageability" of a city to the idea of legibility, i.e., the ease with which the different districts of a city could be recognised and organised into coherent mental images. Because of the investigation's stress on spatial impressions, the findings emphasise physical dimensions at the expense of others that may be as important. However, the main reservations aroused by his studies are:



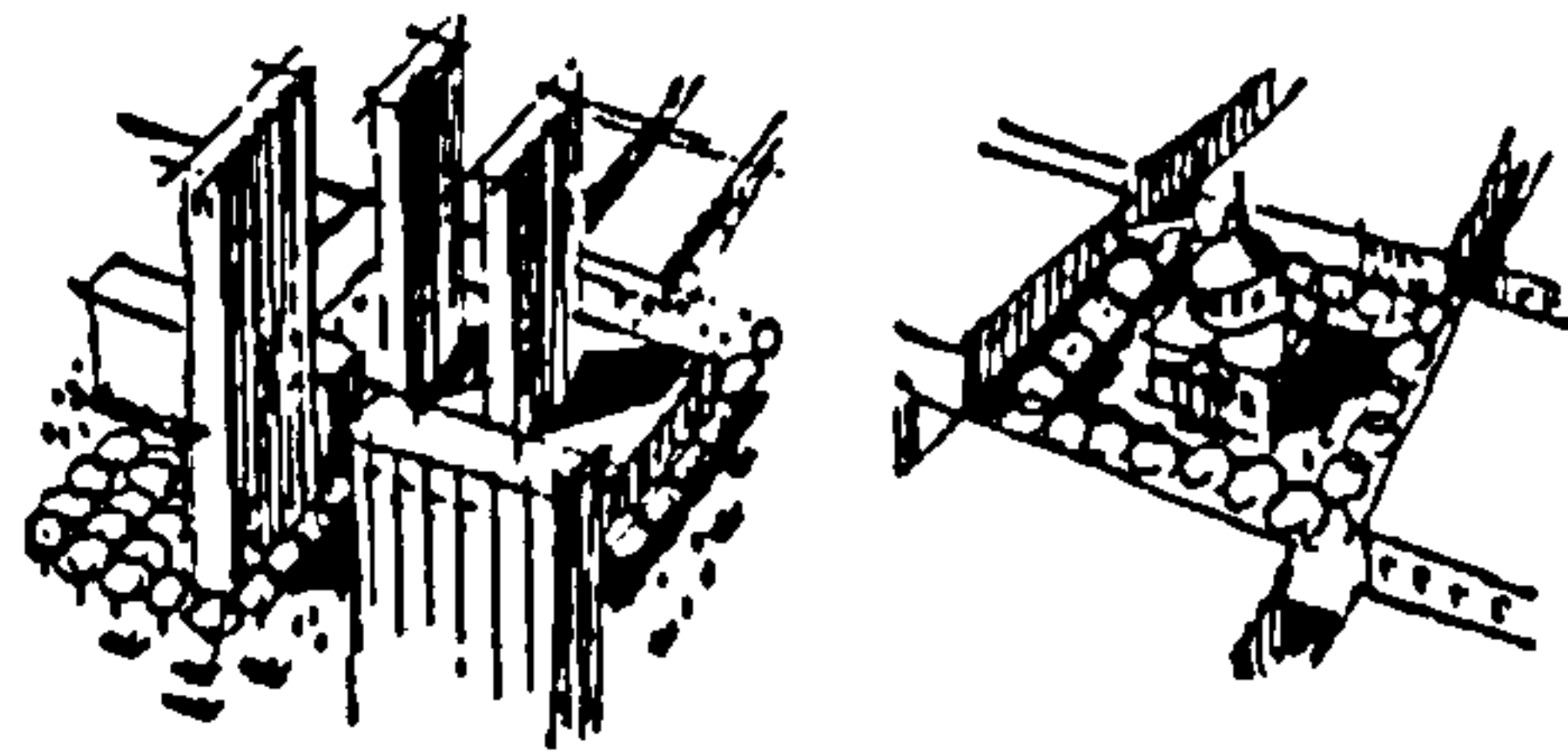
Paths



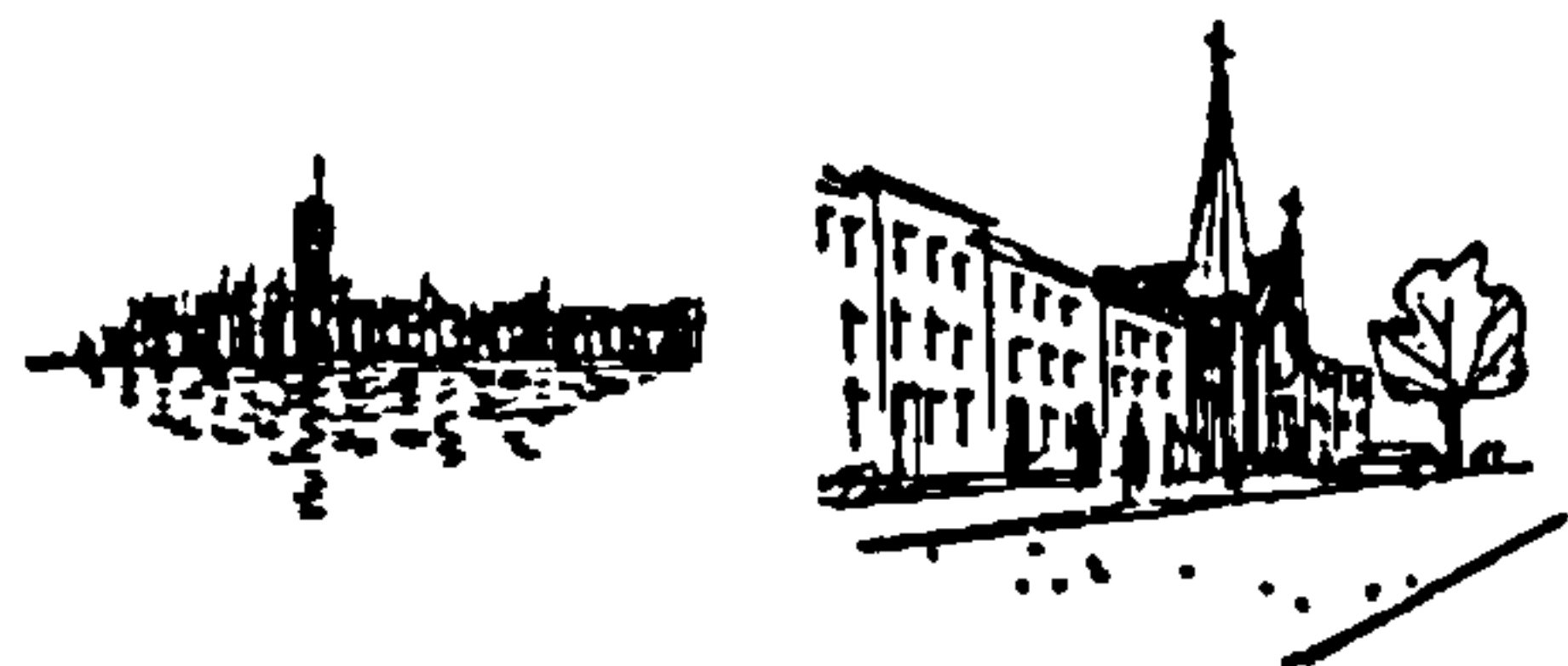
Edges



Districts



Nodes



Landmarks

Figure 3.7: Lynch's five key physical urban elements.

Source: Spreiregen, P., *Urban Design*, New York: McGraw Hill, 1965, pp. 50-51,



1. The sample number of participants was too low and did not allow for a "public image" generalisation.
2. The questions included in the surveys did not cope with different levels of abilities and personalities of the respondents, as not all people are able to draw or understand maps.
3. The definition of the city's key physical elements ignores the inherent variability of this basic classification<sup>36</sup>. For example, the same physical element, depending on local situations and users roles, may be defined either as a pathway or as an edge. Lynch defined pathways as "... the channels along which the observer customarily, occasionally or potentially moves"<sup>37</sup>. Accordingly, a major highway can be seen as a pathway by a motorist and as an edge by a pedestrian. The same applies when he defined landmarks as the external reference points that the observer does not enter. Perceiving some objects as landmarks, however, does not depend on their locational prominence, but also on the observer's characteristics. An old person, for example, may use no longer prominent "landmarks" while a younger one may recognise new objects ignored by older people. Lynch definition of districts as the relatively large city areas with identifiable physical characteristics may be a subjective and variable one that could include nodes which are physically distinguished as small districts.
4. Gosling and Maitland addressed the abstract and elusive nature of Lynch's theory of city image<sup>38</sup>. The stress on the clarity and legibility of cities' key physical elements may only be accepted at the expense of and denial of the inherent complexity of these elements and the interaction between them. Different city elements are used and seen at different scales, so while Lynch included street junctions and corners in his definition of nodes, Gosling and Maitland recognised nodes according to their spatial organisation and degree of enclosure. Lynch's definition referred to movement of people and activities, while the other definition referred to the physical structure.
5. In a later study, Lynch considered some of the limitations of his theory of city image. He mentioned that "... it was a momentary insight, which neglected the



rhythm of time, or the way in which an image was changing, or how it had developed"<sup>39</sup>.

Lynch's concern with cognition influenced many researches and studies. Appleyard's studies at Ciudad Guayana<sup>40</sup>, for example, aimed to determine how different groups of people would perceive and structure their cities differently. The methodology includes mental mapping made by the inhabitants for their local areas, as well as written questions to obtain descriptive answers concerning the structure of the city. The findings draw on two components of image: the spatial and the rational image. Appleyard identified movement, contour, size, shape and surface as the significant attributes of the spatial image of the city. Appleyard suggested two types of urban perception: environmentally dominant or human-dominant. The tension between those two types of urban perception appears to be fundamental to one's environmental experience. He concluded that cognitive ability of people to recall places could help in planning and designing better environments.

Extensive examinations of the descriptions which people apply to places were carried out by Lowenthal and Riel<sup>41</sup>. Their works had some correspondence to that of Lynch, but also significant differences. They concerned urban walks and responded to the five key physical elements suggested by Lynch. Lowenthal and Riel involved about 300 participants, varying in age, gender, occupation, education and residential background, in evaluating the performance of four American cities: Cambridge, Boston, New York and Columbus. The participants were taken for half-mile walks at selected areas within these four cities. Descriptions and evaluations of the performance of the built environment followed the walks.

In order to deal with the descriptions, Lowenthal and Riel used a semantic differential scale, developed by Osgood et al<sup>42</sup>. They used a long list of tested adjectives that are valid to be used for both natural and synthetic environments<sup>43</sup>. Lowenthal and Riel were also interested in the role of other senses besides vision. The investigation aimed to discover the major themes that came through the



descriptions used. The findings were categorised into three major themes: aesthetic appreciation, quietness and sub-urbaness.

Behavioural mapping techniques were extensively used to obtain descriptive answers concerning city structures. Such techniques, however, have not revealed much about the meaning people attach to their environment. Yet, with certain modification, amendments and omissions, behavioural mapping techniques still form a useful guide for a visual investigation.

### 3.2.3 Visual-Impact Checklists

Impact checklists have been widely used to guide the assessment of an area performance. Impact-checklists cover most of the important functions that would normally occur. Alexander's principle of patterns, for example, provides an excellent example of how to address the different repeated patterns in an area<sup>44</sup>. These patterns are the characteristics embodied in the elaborate series of environmental models and are primarily concerned with spatial form. Lynch and Hack illustrated a comprehensive site-impact checklist covering various aspects of the built environment that includes the visual aspect<sup>45</sup>.

In visual performance studies, checklists may be designed to examine the noticeable visual attributes and the relevant measures of emotional response, as well as to identify relationships between features of scenes and appraisals of those scenes. Peter Smith's analytical program for aesthetic assessment can be considered among the first attempts that focused on detailed appearance and the visual richness as important factors in assessing the visual quality of an area<sup>46</sup>. The program involves five analysis check-list's sheets related to the visual quality of individual buildings and their urban context. The checklist issues are valued on an eleven point scale. The results, whether positive or negative, are expressed as percentage success. Smith's analytical program requires professional experiences, and thus does not allow incorporating the



users in the evaluation activities. Combination of impact-checklists with other methods, involving users, can result in more reliable data-collection.

### 3.2.4 Space Syntax Models

Space syntax is a set of analytical models, sometimes involving computers, for examining the relationships between human behaviour and the built environment. They consist of many models, including a conceptual model within which the society-space relation can be investigated, as well as a model for analysing spatial patterns. These models were originally conceived by Hillier and Hanson to help architects simulate the likely effects of their designs<sup>47</sup>. Space syntax models have been developed by the Space Syntax Laboratory at the Bartlett School of Architecture, London, and have been applied in various kinds of urban investigations in the past two decades.

Space syntax urban investigations deal with the layout and street patterns of urban areas. They aim at correlating densities, movement and interaction of people within these areas, and forecasting the way in which these areas will be used by people encountering them. These aims are achieved by conducting detailed observations, repeated by different observers and in opposite directions, within the areas under investigation. The observations concern different patterns of movement including pedestrian and vehicular, consumer distribution in a retail development and communication networks. The results of the observations are then analysed and interpreted using purpose-designed techniques, such as the Alpha-analysis technique<sup>48</sup>. The Alpha-analysis technique involves mathematical models for syntactic representation, analysis and interpretation of spatial patterns.

Previous studies which used space syntax models on urban areas produces interesting findings regarding the interaction of social patterns and spatial configurations. Among which are the following<sup>49</sup>:



1. Remarkable similarities were found between the results of repeated observations in terms of the number of people using the same places within an area.
2. Little variations in the pattern of distribution of people were found with different weather conditions.
3. Little variations in the pattern of distribution of people were found with different time intervals of the same day.
4. The density of people using an area is not necessarily a function of the density of people living in that area.
5. The density of people using a traditional public space was remarkably higher than that of people using new public spaces.

Space syntax models provide a systematic method for evaluating, analysing and interpreting quantitative values related to society-space relationship. Yet, they do not provide a comprehensive explanation of the complexity of visual values and their effects on users' behaviour. However, the Space Syntax Laboratory is currently developing a three-dimensional sketch programme that could be of help in visualising various urban aspects in the future<sup>50</sup>.

The use of space syntax models focuses on the professional and experts' view point and does not allow for user participation in the evaluation process. It has been argued earlier that the values and interests of professionals are different from those of users (see section 1.3.3). Professional interests reflect their theoretical knowledge and value systems. On the other hand, users' interests are the result of their personal environmental knowledge, i.e., experience, motivations and expectations. Thus, it would be helpful if other methods, involving users, accompany space syntax models. Such combination of methods would result in more reliable results.



### 3.3 Assessment of Attitude

Assessing people's attitudes towards visual aspects in the built environment can be accomplished through direct communication techniques, such as, questionnaire surveys and interviews. Such techniques are the main source of information for measuring how people feel, conceive and value certain aspects of their environment. Various investigations to measure people's preference of visual townscape elements were conducted by many researchers. This section, however, discusses the most frequently used direct communication techniques, i.e., the questionnaire and the interview.

#### 3.3.1 Questionnaires

A questionnaire is a series of written questions on a topic about which respondents' written opinions are sought. Oppenheim explained the various issues related to questionnaire design<sup>51</sup>. The most critical aspect of a questionnaire is the construction and interpretation of the results. Thus, it is best to be restricted to a single issue. However, a pre-holding of a casual observation accompanied by a loose open-ended interview would help to learn the range of activities about which topics and questions must be included in a questionnaire.

Casual observations provide the researcher with the range of questions that could be asked. This requires brief inspection rather than systematic detailed categories of observation. Interviews should accompany the observations to learn the range of opinions people hold regarding this aspect. A loose-open ended interview is preferable. The replies will be used primarily to find out which topics or questions should be included in the questionnaire.

Although the questionnaire has proved to be economical to administer and score, it can only give the general structure of the situation but not the details. A poorly worded questionnaire can create the appearance of attitudes where none exist. Unless



the researcher asks precisely the right questions, the information will not be very useful. In addition, insuring the selection of the most appropriate sample and the maximum returns of responses should be given attention in this process. However, the questionnaire technique is limited in use with the young, the very old or uninterested respondents. It is also not appropriate for people who are moving and who are busy with other activities. Generally, the main shortcoming of a questionnaire survey is that it identifies only attitudes and does not predict behaviour.

Many researchers have used the questionnaire in their urban investigations in the past few decades. Cutler and Cutler, for example, developed a comprehensive citizen preference questionnaire for a waterfront urban renewal project in Newburyport, Massachusetts, USA<sup>52</sup>. They stated that "the concept of Citizen's Preference Questionnaire was that it would serve as a tool in gathering a broad-based range of opinions and concerns from which the professionals could determine the priorities of the factors that were dominant in the people's mind"<sup>53</sup>. The main goal of the survey was to receive inner feelings of the citizens about their town. The questionnaire was but one of the used methods of gathering public opinions and data, as radio contacts, meetings, working sessions and interviews were utilised as well. The work was very useful for the development of the questionnaire and the critical issues included.

Wandersman used a methodology composed of simulation and questionnaire techniques to investigate the effects of three levels of participation in a planning process<sup>54</sup>. He examined the consequences of each of the three levels on participants' feelings and attitudes toward the planning process and about their role in that process. Kaplan used a combination of direct communication techniques at an urban park at Michigan<sup>55</sup>. The main objective of the survey was to assess the degree of success or failure among two users groups. First: the on-site group that included users who happened to be in the park at the time of the investigation. With this group she used a structured interview technique. The second group, i.e., the off-site group included people who lived or worked within two-block radius of the park. A Questionnaire survey was used to measure the opinions of the second group.



Mahadin used a questionnaire survey in a visual investigation at Louisiana State University<sup>56</sup>. The main objective of the survey was to find out if there is a special recognisable aesthetic character of the campus. This was one of the few visual investigations incorporating users participation. The sample used was representative of the different categories of population, i.e., students, staff and faculty. He used a semantic differential scale as a rating technique for measuring of performance. Such scale incorporated the use of opposed adjectives at either end. The main reservations aroused by his study were the type of opposed adjectives he used, i.e., pleasant / unpleasant, attractive / unattractive, beautiful / ugly and other similar pairs. Such adjectives have vague meanings and are difficult to address. Such reservations may question the reliability of the results and the validity of the questionnaire in measuring what was intended.

### 3.3.2 Interviews

An interview is a conversation with purpose. It is useful in areas where opportunities for observation are limited and with people who may be unwilling and unable to write out a long coherent answer. The purpose of an interview is to obtain information about a person's beliefs, opinions, feelings, attitudes as well as personality. It is particularly useful for the exploration of topics connected with formal and symbolic dimensions of visual performance, which are complex and emotionally loaded. Interviews may range from highly organised and structured to unstructured interactions. In a structured interview the questions are formulated beforehand and asked in a set order and in a specific manner. However, the main objectives of the unstructured interview are to explore all the alternatives in order to pickup information and define areas of importance that might not have been thought ahead of time, and to allow the respondent to take the lead.

The most effective learning of interview methods will come from practice combined with response. It should begin with the more general and interesting questions to



engage the interest and attention of the respondent. Among the limitation of the interview technique are, what people say is not always what they do, the interview is time-consuming and expensive if compared to the questionnaire technique, it needs some training for the interviewer and the responses are subject to bias introduced by the human interaction during the interview process.

Appleyard developed a structured interview schedule as a data collection method at Ciudad Guayana<sup>57</sup>. It begins with general questions on the situation ascending to more specific types of questions covering the values, preferences, functions and other aspects related to the area. The descriptions gathered by the interview were supported mental mapping activity (see section 3.2.2). Though people seem to enjoy making judgements on their built environments, yet the interview appears to have many problems and is time consuming. This may in turn cause loss of interest in the respondents.

### **3.4 Guidelines for Appropriate Data Collection Methods**

The previous survey covers the various assessment methods that could be used in visual investigations including qualitative and quantitative methods. It reviews different application of these methods and addresses the potentials and limitations of each method. The question is, can we deal with visual data by quantitative means, or is it a matter of perceptive feeling. It might be possible to express some visual data in quantitative terms, such as, measuring how large an object bulks the visual field. However, it remains to be shown whether this is a good predictor of visual satisfaction (see section 4.2). Quantitative measures are useful in dealing with two major data groups: the natural factors, such as, climate, solar energy, geology, hydrology and water quality; and the actual measurements of the physical form, such as, height, bulk, setbacks, built-up ratio and building intensity.

Quantitative measures, therefore, are useful, but are inadequate to quantify visual values that are intangible and subtle. The numerical nature of quantitative measures



could not be elaborated to handle the complex meanings of visual values<sup>58</sup>. Quantitative methods reduce the visual reality into few variables. Other variables related to various formal, spatial and symbolic connotations are not considered. Working with visual values will vary with culture and situation as well as with the relative importance of their components. The evaluation of such values was long regarded as the realm of critics and considered largely subjective. Accordingly, qualitative measures are required to deal with the complexity of such values. Qualitative measures require intensive interaction with the users and the built environment under study. Qualitative measures are significant for the following reasons<sup>59</sup>:

1. Qualitative measures seek to explain the interactions between the visual characteristics. The data is directed towards narrative and lengthy descriptions aided by visual material in order to explain performance.
2. Qualitative measures are concerned with the changing and dynamic nature of reality. They allow the researcher to move forth and back during the investigation.
3. Qualitative measures focus on a holistic view of what is being studied.
4. Qualitative data are collected within the context of their natural occurrence. They may involve intensive interaction with the real world and users of the built environment.

The previous discussion shows that no single method has the capacity, alone, to deal with the complexity of visual investigations. Thus, it would be helpful to use a combination of methods so cross-checking would improve reliability. Such approach can be organised around the following two dimensions:

1. Evaluation should be based on qualitative measures with a systematic way of seeing, analysing and assessing the visual performance of the built environment.
2. Incorporating user participation in the evaluation process.



Within these two dimensions, the applicability of such multi-method approach is governed by the following constraints:

1. The original cultural and socio-economical patterns of an area, i.e., the method must fit the way in which the inhabitants think, perceive, imagine and feel.
2. The ability to be verified and evaluated in respect to time and resources available as well as different circumstances that may affect the study.
3. Future forecasting for the different successive stages within time as well as ways of assessing them. This would allow for different kinds of actions that might be appropriate; the introduction of adequate management measures for changes in spacescape.
4. Flexibility to allow the researcher to move freely back and forth between data collection and theoretical analysis. Thus, it should include a feedback evaluation process.

Within these dimensions and constraints, a review of the various determinants for selecting the appropriate data collection methods is illustrated in Appendix A (see section A.2). The selection of the appropriate data collection methods is determined by: the nature of study to be conducted extents of participation and available resources of time, money and expertise<sup>60</sup>. These determinants are also discussed in relation to the case study in Chapter V (see section 5.2.3).

### **3.5 Summary of the Chapter**

This chapter attempts to understand the different methods of evaluation regarding the spatial and formal dimensions of visual performance. It illustrates the main factors that influence the process of evaluation, as well as the different approaches that have been experienced in the assessment process. It reviewed the various methods of assessment used in visual investigations including qualitative and quantitative methods. It concluded that quantitative methods are inadequate for assessing the



complexity of visual performance. Quantitative methods reduce the reality into few variables. Other variables related to various formal, spatial and symbolic connotations are not considered.

Different assessment methods are discussed and analysed. No single method has the capacity, alone, to deal with the complexity of the visual performance dimensions. Thus, it would be helpful to use a combination of methods to provide a reliable assessment of users' preferences. Such a multi-levelled approach should have the ability to be objectively verified and evaluated in respect to resources available. The evaluation process should be organised by means of the assessment of spatial preferences, i.e., the capacity to discern spatial features, assessment of users' behaviour towards visual qualities, and assessment of users' attitudes towards visual qualities. For different situations the appropriate methods will be different.

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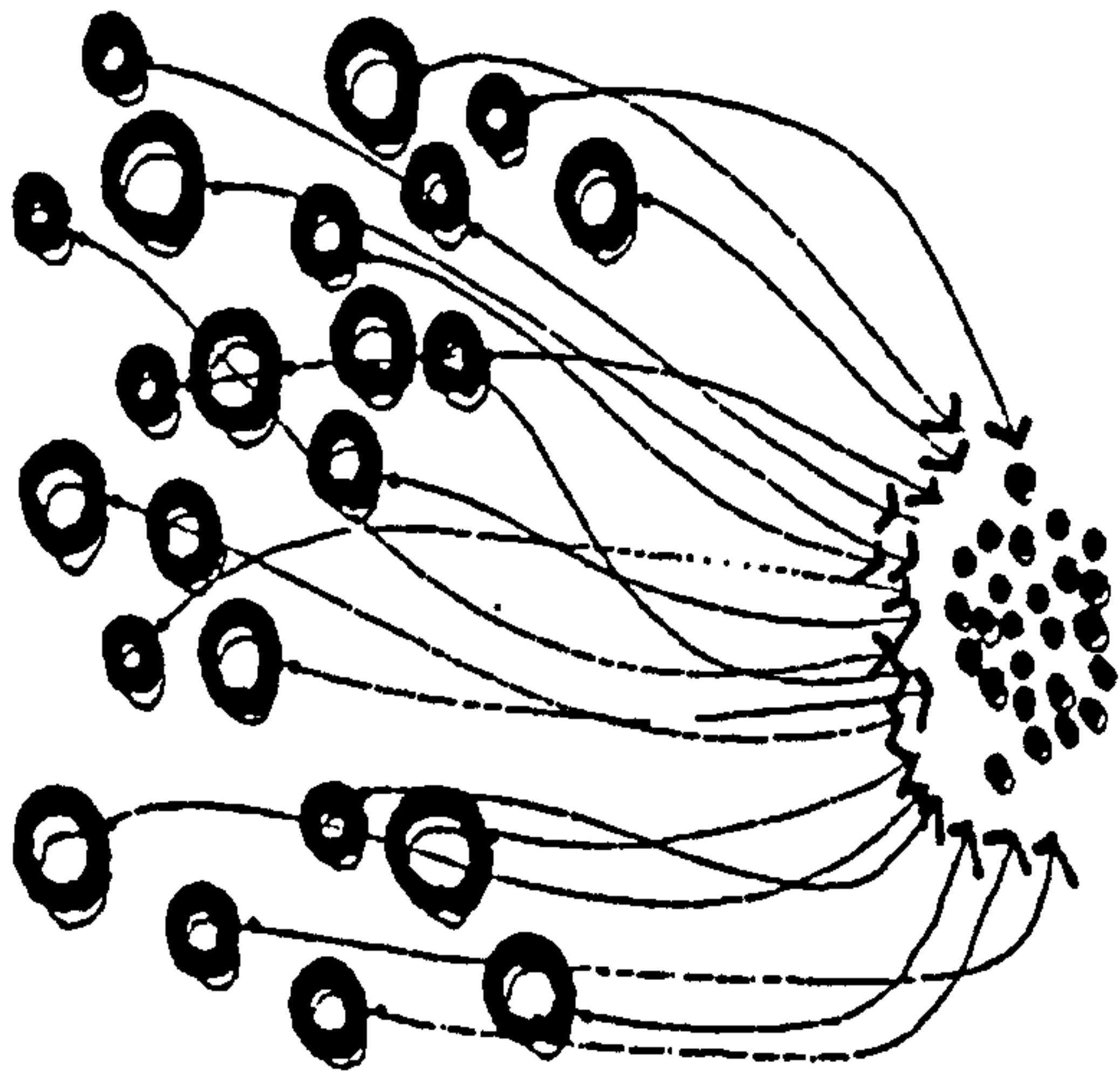


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**Part II**

**RESEARCH AND APPLICATIONS**





## PART II

# RESEARCH AND APPLICATIONS

The second part of the thesis consists of seven chapters, these are:

**- Chapter IV: *A Proposed Visual Imageability Concept* :**

This chapter proposes a visual imageability concept as a useful guide in analysing and understanding the spatial and formal aspects of visual performance in historic city centres. The visual imageability concept comprises three interrelated systems. The first system identifies the main sources of visual satisfaction. System two incorporates five visual performance dimensions of identity, order, variety, structure and fitness. System three concerns the levels of evaluation and adapts a modified version of a user participation process to the visual imageability concept.

**- Chapter V: *Research Process and Methodology*:**

In this chapter, the proposed visual imageability concept is applied to the research case study, i.e., the historic centre of Salt in Jordan. The rationale behind site choice is explained and a three-level evaluation method is chosen which includes: indicative, investigative and diagnostic levels. The visual dimensions and variables to be investigated are identified, and data collection and analysis methods are planned. Visual surveys are used for the indicative method, while a visual-impact checklist accompanied with a limited interview survey are found appropriate for the investigative level. A questionnaire survey is the main diagnostic method for this study. A target group is identified, and a sampling process is planned. Data analysis techniques are determined.

**- Chapter VI: *A Visual Survey In Salt City Centre*:**

This chapter illustrates the visual analyses which results from the indicative evaluation in SCC. The proposed five visual performance dimensions are used as a vocabulary for the visual survey. The survey is accompanied by the researcher's evaluations and descriptions of the visual performance of the studied area.



**- Chapter VII: *Visual Appraisal In Salt City Centre:***

This chapter illustrates the results of the investigative evaluation in SCC, i.e., the visual-impact checklist. The checklist is applied at selected areas at SCC covering the various types of urban components, i.e., paths, localities, nodes, landmarks and edges. The users were involved in the choice of the sample areas through limited interviews based on Lynch's theory of city image. The results are presented as notes and sketches related to the map of the study area and accompanied by the researcher's descriptions and explanations.

**- Chapter VIII: *The Questionnaire Analysis:***

This chapter presents the results and findings of the diagnostic level where the questionnaire was the main data collection and assessment method. The measurement quality is discussed explaining the different measures that have been taken to ensure the reliability and validity of the questionnaire survey. The measurement quality is addressed.

**- Chapter IX: *Opportunities for Actions Affecting Visual Characteristics:***

This chapter proposes visual improvement guidelines based on the results and findings of the case study. Possible uses and benefits are stated, evolution of the field is presented.

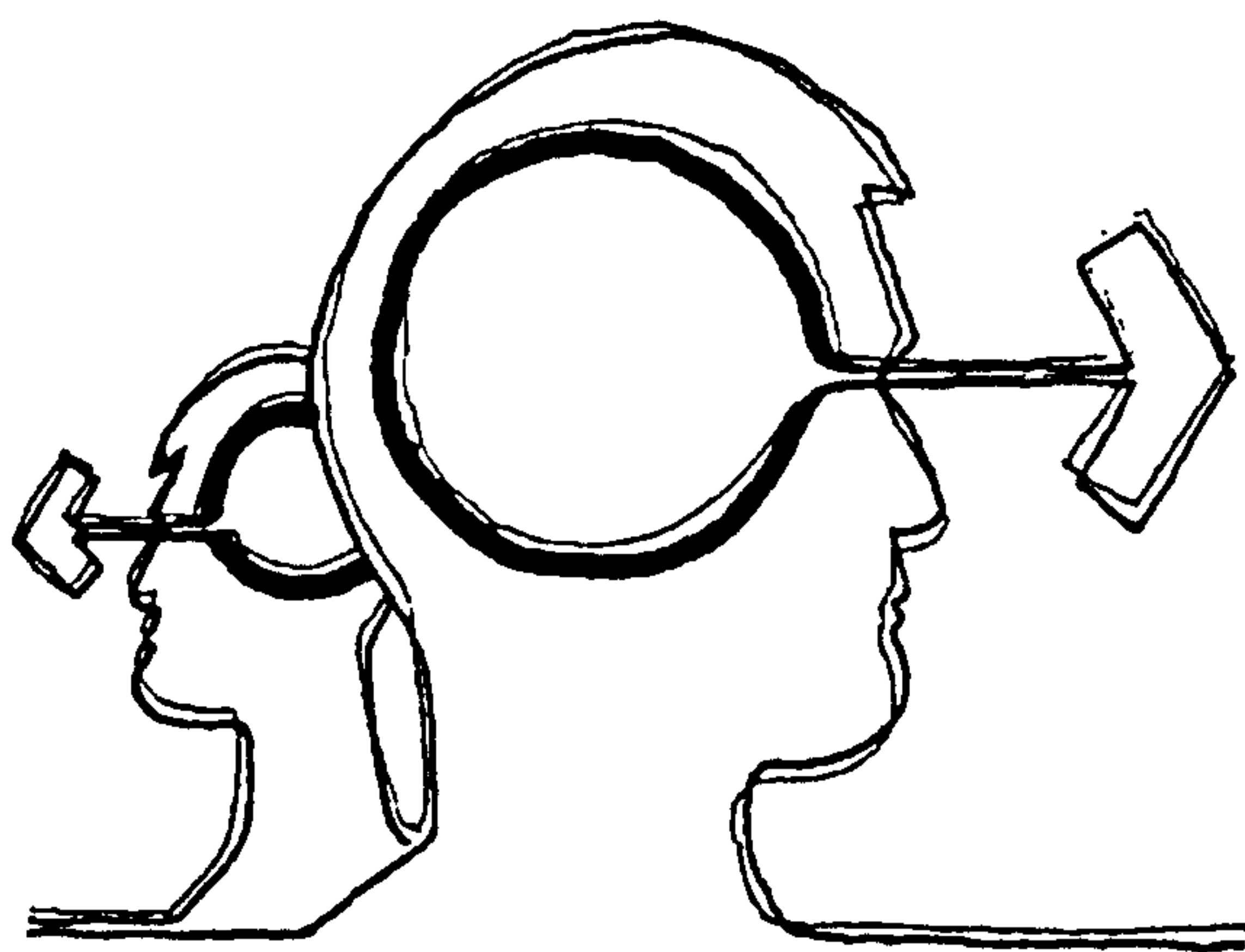
**- Chapter X: *Conclusions and Recommendations:***

In this chapter the results of the case study are compared with the objectives and hypotheses in order to assess the success of the proposed visual imageability concept. The most important conclusions are drawn and a number of recommendations concerning the future possible research directions are proposed. The opportunities and limitations of the study are addressed.



**Chapter IV**

**A PROPOSED  
VISUAL  
IMAGEABILITY CONCEPT**





## Chapter IV

# A PROPOSED VISUAL IMAGEABILITY CONCEPT

### 4.1 Introduction

Visual performance concerns the spatial, formal and symbolic aspects of the built environment. The integration of the spatial and formal aspects plays a critical role in the visual appearance of the built environment. Spatial aspects refer to the form of the space, such as, space-bounding and space articulation entities. Formal aspects refer to the organisational characteristics of various elements in the built environment that constitute, for example, their shape, size, colours and textures. Symbolic aspects usually vary according to various individual experiences and cultural conventions. Although they are as strong as spatial and formal aspects, they have questionable links to visual issues (see section 2.4 E). While addressing the importance of the symbolic dimension in visual investigations, the scope of this study covers the evaluation of the spatial and formal aspects of space performance. This does not dismiss the importance of the symbolic aspect, as all are significant and interrelated.

As mentioned in the Introduction, this research aims at identifying the various variables of visual performance in historic city centres, and establishing a method for evaluating them. People, usually, identify the environment in terms of visual images. To deal with the visual interaction between people and their environment, this study proposes a visual imageability concept. The term "imageability" was introduced by Lynch in *The Image of the City*<sup>1</sup>. He developed the hypothesis that a user's knowledge of the form of an urban area is a function of its imageability. The term "imageability" is used, here, to describe the ease with which the visual appearance of a place can be mentally represented. Imageability is that quality in an area that gives



it a high probability of evoking a strong image in different observers. The proposed visual imageability concept is a systematic process involving multiple interests in the evaluation activity. It involves the users but does not exclude focused expert experience.

The proposed visual imageability concept aims at understanding and evaluating the visual variables in reference to historic city centres. The proposed concept is based on three inter-related systems culled from the literature (Figure 4.1). These are:

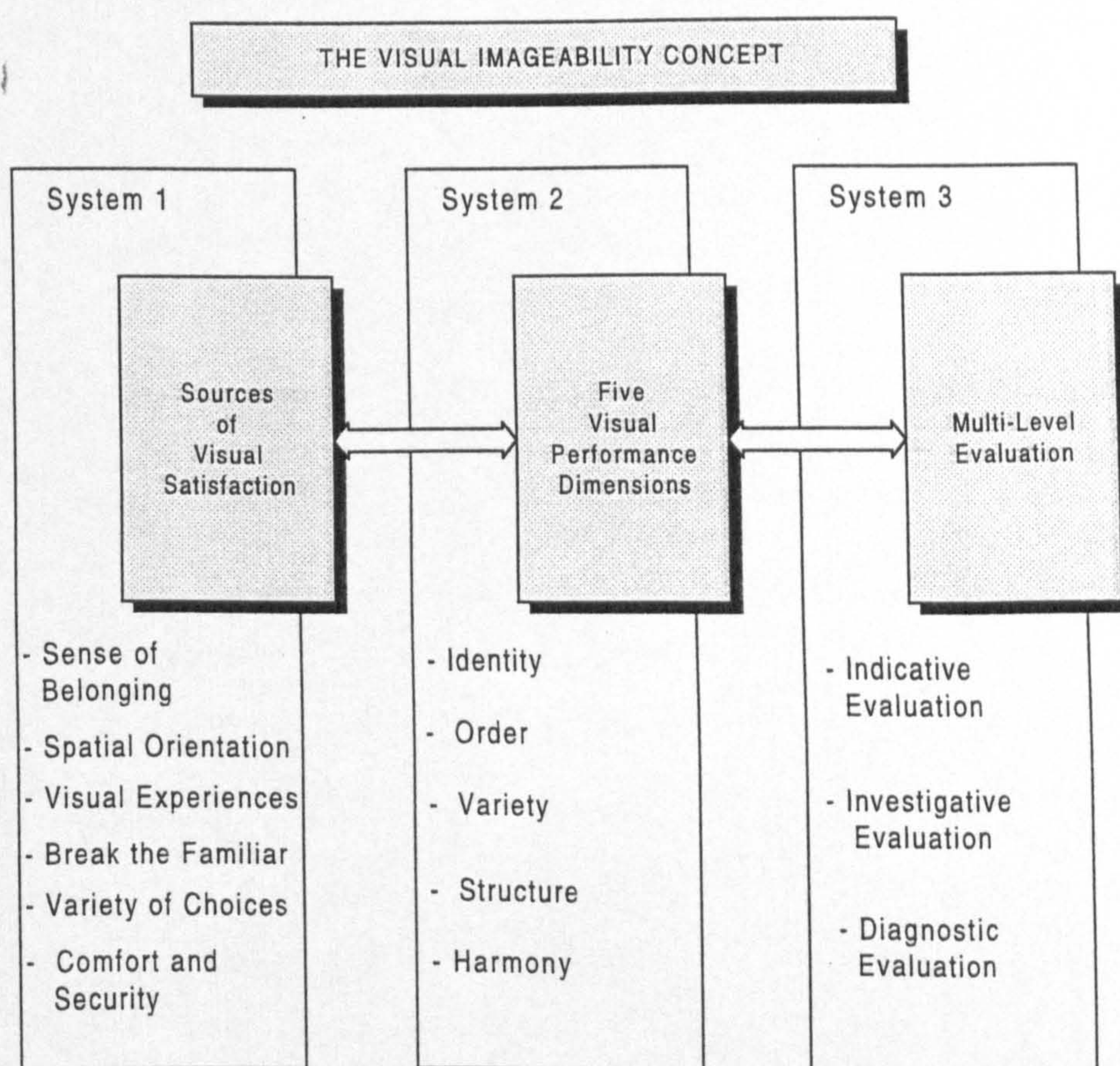


Figure 4.1 The proposed visual imageability concept.

- System 1. concerns the sources of visual satisfaction, which are identified and related to the visual characteristics of historic city centres (see section 4.2);
- System 2. is related to the visual characteristics of old city centres, which are devised as five visual performance dimensions of: identity, order, variety, structure and fitness (see section 4.3); and



- System 3. concerns adopting a multi-level evaluation that allows for user participation. To increase reliability, a modified version of Preiser's et al performance concept is adopted to assess the spatial and formal characteristics of historic city centres from users' preferences<sup>2</sup> (see section 4.4)

This chapter explains the general aspects of the proposed visual imageability concept, whereas in Chapter V these aspects will be discussed in relation to the case study, i.e., the historic centre of Salt in Jordan.

;

## 4.2 Sources of Visual Satisfaction

This section concerns the first system of the visual imageability concept, i.e., the sources of visual satisfaction. Satisfaction relates to three main concepts, these are<sup>3</sup>:

1. The concept of comfort reflected in enjoyment, gratification, happiness and pride. To receive less than one wants (needs, or desires) results in a feeling of loss.
2. The concept of achievement reflected in appeasing, settlement and fulfilment. To receive less than one expects results in a feeling of disappointment.
3. The concept of amends reflected in justice and compensation. To receive less than is mandated by accepted rules and values, however, results in a sense of injustice.

A satisfying model designed by Simpon suggests that people's selection between different options/alternatives is based on their level of satisfaction<sup>4</sup>. Satisfaction clearly dominates and leads the choice or rejection of an option, i.e., one may choose an option because of its desirability, or reject another one if he/she finds within that option certain unacceptable aspects.

Visual satisfaction is not a result of superficial aesthetic judgement, but the consequence of a spatial and formal experience within the built environment. There are many aspects of dissatisfaction related to visual performance. These include, illegal extensions which cause considerable visual pollution and very poor finish in building facades, sizes, forms and appearance of buildings, lack of spatial orientation and ease of access, boredom generated by repetitive blocks that lack architectural character, lack of contact with nature, neglect of service utilities and their proper maintenance and inadequate open spaces. Fried and Gleicher pointed that the lack of feeling of belonging, identity and sense of place are the largest sources of dissatisfaction<sup>5</sup>.

However, Passini's analysis provided a more comprehensive framework for understanding the sources of visual dissatisfaction<sup>6</sup>. His analysis related visual satisfaction to both the spatial and formal qualities of the built environment as well as to the meaning, people and activities generated from the built environment. According to his analysis, visual satisfaction is a state of fulfilment of desire regarding spatial and formal issues, as well as the pleasure and enjoyment obtained from that fulfilment. Lynch considered three objectives of visual satisfaction<sup>7</sup>. These are: increasing the individual perception; increasing his/her range and ease of choice; and increasing his/her pleasure.

Historic city centres offer rich varieties of related spatial and formal events capable of producing visual satisfaction in various ways as regard to different places and different people. One can state the main sources of visual satisfaction in historic city centres as follows (Figure 4.2):

- a. The pleasure and enjoyment obtained by the feeling of belonging to the area. A city centre is to be enjoyed for its historical traces, emotional attachments, meaning it gives, and more important its visible signs of life. Visual signs of life include open furnished windows, children at play, laundry, as well as the various sights of people and activities.



- b. The pleasure obtained by the feeling of spatial orientation in an area. A city centre is to be enjoyed for its order, clarity and legibility. It should offer choices of direction to the users without creating chaos. One feels spatial orientation through various visual aids, such as, sequences, landmarks, key points, significant form, as well as the use of maps and street signs. However, enjoyment might be experienced through visual shocks, puzzles and ambiguities that challenge the observer to find an orientation organisation for himself/herself.
- c. The pleasure and enjoyment obtained in acquiring interesting visual experiences. A city centre is to be enjoyed for its diversity, surprises and high levels of visual interactions. The secret of the creation of a visually satisfactory urban environment lies in the recognition of movement as part of experiencing the city.

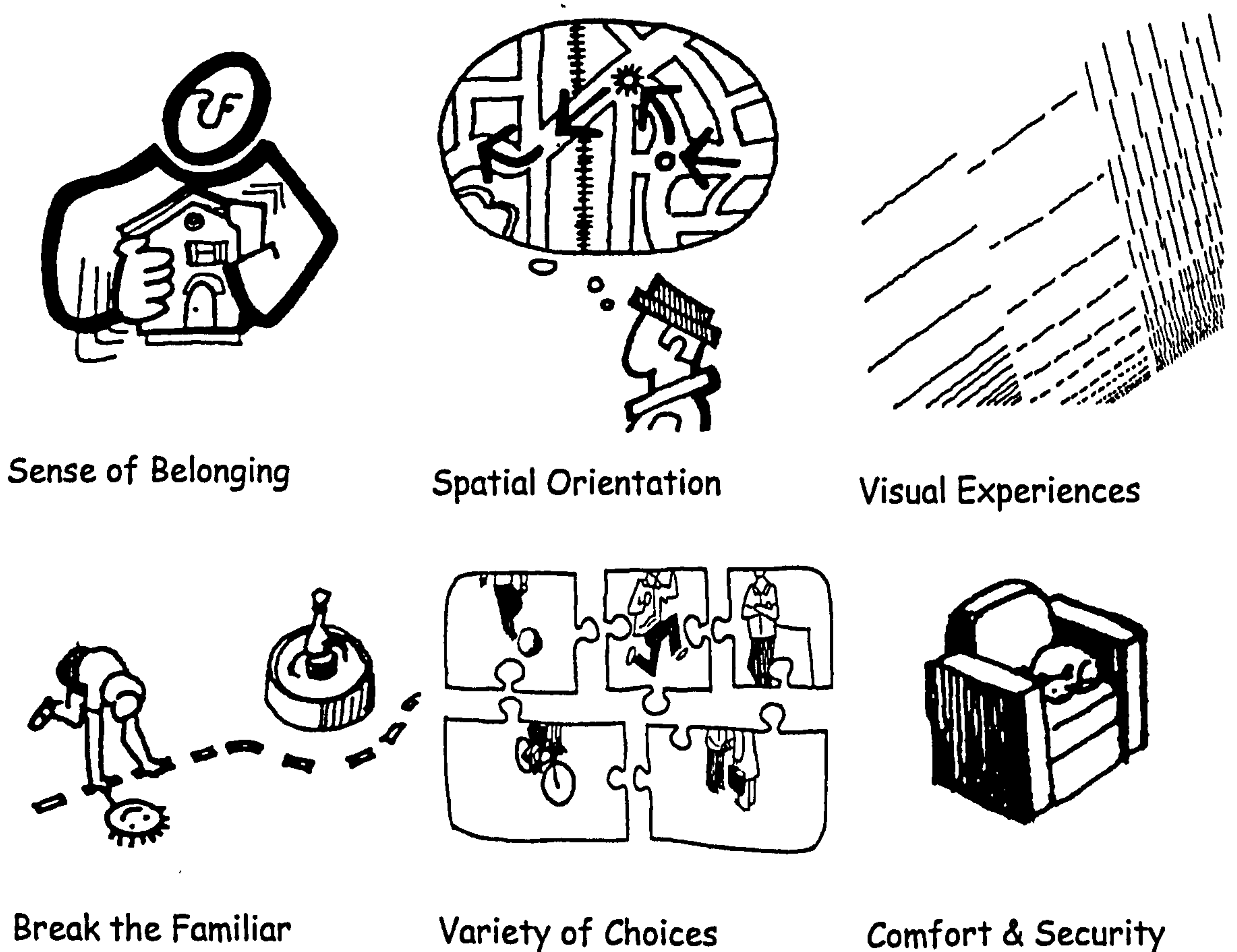


Figure 4.2: Sources of visual satisfaction.  
Adapted: from various sources.

- d. The pleasure and enjoyment obtained in exploration, change and break with the familiar. Such pleasure of curiosity is obtained through exploring new experiences and impressions.
- e. The pleasure and enjoyment obtained by the variety of choices and opportunities the city provides. Such choices may increase due to visual variations by night and day and seasons.
- f. The pleasure and enjoyment obtained by gaining a sense of comfort and security from the visual appearance of the environment. The physical relationship to it is in scale according to user's own perception.

To build a broader vocabulary, where opinion is replaced by measures of performance, the above sources of visual satisfactions are incorporated into five visual performance dimensions.

### **4.3 Visual Performance Dimensions**

This section explains the second system of the proposed visual imageability concept, the visual performance dimensions. Visual performance focuses on the attributes of the built environment as they contribute to visual response. Identifying the urban environment is a vital sensory ability of human beings. Though understanding the spatial and formal characteristics of the environment is a matter of all senses, the experience of architecture and urban spaces is, primarily, visual and kinetic. The movement of the body provides ever-changing dimensions of sense and direction. Exploring visual performance, however, is often expressed in superficial, confused and vague terms. The lack of appropriate language of visual expression prevents proper debates on visual issues. What is needed is a concept that allows people to discuss and evaluate what they see in more than pleasant / unpleasant or beautiful / ugly. This study proposes five performance dimensions for understanding and evaluating the visual performance of historic city centres. To be a guide to a visual policy, these proposed visual performance dimensions should have the following characteristics:



1. They should refer to the sources of visual satisfaction and consider their objectives for the individuals (see section 4.2).
2. They should refer to the spatial and formal issues in the area, covering all features of urban activities.
3. They come into play simultaneously as sometimes one dimension may dominate the others. This is due to the complex aspects of reality that cannot be reduced into few explanations.
4. These dimensions cannot be studied in isolation as they are connected and interrelated. A change in one dimension may affect the other.
5. The locations along these dimensions should be identifiable so that their assessment is able to deal with qualities that change over time.
6. Since the visual performance development is a two-way process between the observer and the environment, the performance dimensions should concern themselves with the development of the visual image. This could be accomplished by operation of the external physical shape as well as the internal expression, i.e., connecting human aspirations with the visual performance of urban centres.

It is important to differentiate here between performance "dimensions" and performance "standards"<sup>8</sup>. It is not the purpose of this study to set visual standards or ideals. People have persistently searched for the ideal environment, but how it looks varies from culture to culture, and even from one person to another. Accordingly, it will be impractical to set performance standards if we seek generalisation.

Performance "dimensions", however, refer to the certain identifiable characteristics of the performance of any built environment, and thus, are measurable. Along these dimensions there are different positions. Different user groups will value different aspects of them and assign different priorities. Moreover, while the proposed dimensions concern the visual performance of historic city centres, the total performance of any built environment is considered as an entity. It depends on much more than its visual qualities. It is obvious, however, that these dimensions require much thought to be transformed into a comprehensive urban theory. Detailed



examinations of these dimensions, therefore, are recommended for further investigations (see section 10.3.1).

The proposed visual imageability concept requires the appearance of the following five visual performance dimensions: identity, order, variety, structure and fitness (Figure 4.3). These dimensions are presented as inclusive measures of visual performance.

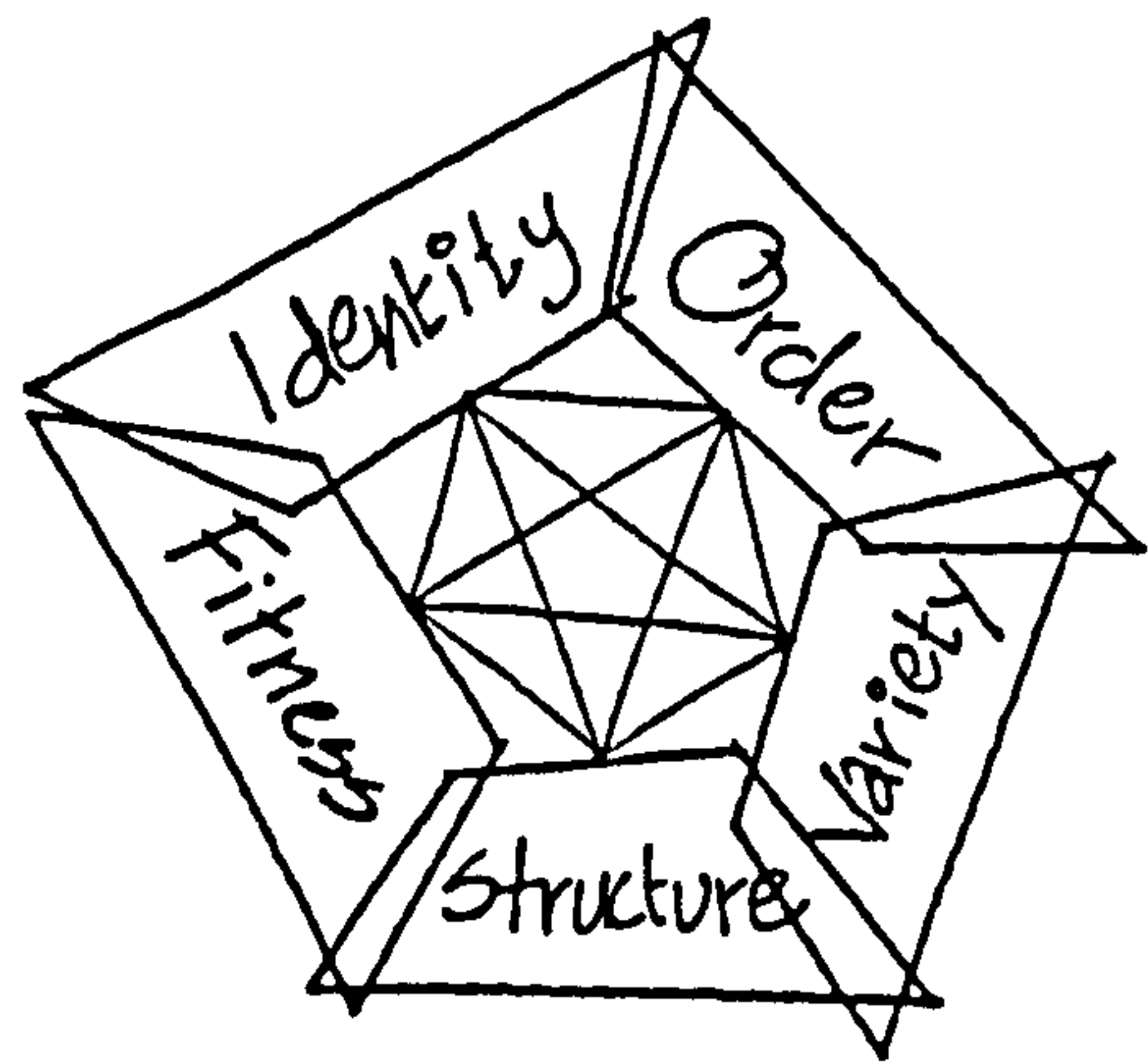


Figure 4.3: The five visual performance dimensions.

### 4.3.1 Identity

Identity is the degree to which an area is perceived as different from other ones. Places should be differentiated, recognisable and memorable. Neither the city nor its urban components should look like other cities or their urban components. This dimension is not only concerned with the fixed and regularly ordered objects in the environment. It is also related to the human interactions and pattern of life within that environment. Such connections have the capacity to strengthen the identity of an area and to admit appropriate forms of inflection. This includes the emotional and practical meanings attached to that area. Lynch stated that identity is to have character with visible differences that allow choice and sensuous exploration and give a sense of place to the area<sup>9</sup>. Accordingly, this dimension is represented by the following variables:

#### A. Morphology:

The term morphology refers to the arrangement of the built environment (Figure 4.4). Such definition includes, urban intervals, texture, colour and light. Urban intervals refer to the spacing between urban components. The compounds of massing,



sequences and skyline are the product of the urban intervals. Urban intervals can be equal, variable, or a combination of both. An equal interval creates a sense of stability, regularity and formality. A variable interval can be either randomly derived or through some sort of progression.



Figure 4.4: Morphology refers to the arrangement of the built environment.

Texture is another attribute of morphology. It can be experienced at the building level as well as at a larger scale creating the spacescape patterns. Each building has different textures brought about by its architectural features, building materials and treatments. Their textures range from fine to rough. The various textures with various densities, when seen at different distances create variety of urban patterns with various visual weights. Areas of greater density tend to have greater visual weight.

Colour is another attribute of morphology (as well as typology)<sup>10</sup>. It is an important element as it has a considerable effect on the visual identity throughout the city.

Despite its varied forms, colour in the city can be seen on different scales ranging from that of a city district or locality, to the scale of a street or an open space, to the scale of an individual building, to the scale of small details. Colour can contribute to a city's unity or it may destroy that unity. It is important to understand the appropriate hue, chroma and value to harmonise the buildings in the spacescape. Colour could be seen as a determinant of light. The human eyes are remarkably discerning in colour gradation in different lighting conditions. The chromatic sensibility of human vision boasts a high degree of accuracy in perceiving varying degrees of intensity and values. Accordingly, strong, bright colours could suit areas subjected to sunny and cloudless atmosphere. In areas subjected to soft, muted light, muted tones might be more appropriate.

People need light to perceive the environment. Light quality involves the strength of light and clarity of the atmosphere. In a smoggy and cloudy area the clarity of light is reduced and diffusion is increased. In sunny days the light tends to produce well-defined strong shadows. The built environment by day is viewed in reflected light, and by night it is illuminated by light transmitted from within<sup>11</sup>. During daylight hours the morphology of the built environment is determined as a shadowy presence of reflecting exterior walls and windows. Once light falls, walls withdraw from views and windows take over, producing a reversal view, and the interior space that could not be seen by day becomes visible.

### B. Typology:

Similarities among certain elements can be grouped conceptually into typologies including urban, architectural and building typologies. Urban typologies emerge from the interaction between buildings and spaces between them. They include network elements, i.e., streets and pathways; infill elements, i.e., buildings; and un-built elements, i.e., open spaces<sup>12</sup>. Architectural typologies refer to the features that occur repeatedly in a certain area (Figure 4.5). For this research, typology of buildings does not refer to functional classifications of building types. It refers to their organisational characteristics, such as, detached and semi-detached buildings, crescents, courtyard houses and free-standing buildings.



Figure 4.5: Typology refers to urban components, buildings, and architectural features.

Source: Bentley, Ian. et al, *Responsive Environment: A Manual for Designers*, London: The Architectural Press, 1985, p.76

The above attributes of typology are often experienced through time. Time is the fourth dimension along which all objects change. Different speeds affect the



perception of typology. At fast speeds the eye is unable to register details. A pedestrian perception of typology is related to his speed and rhythm. The perception of typology is through its rhythmical series of beats and intervals. Time and experience are required for the full development of vision. Time is also involved in motion and position. The changing position of the observer may gradually affect the form, degree of intimacy, protecting quality and the orientation within an area.

### **C. Character:**

The character of the built environment is determined by distinctive visual characteristics that gave it its image, symbol and sign, i.e., the sense of place (see section 2.3). An image is a similitude or imitation of formal aspects that affect the observer's mind. The symbol is an abstract association of the built environment. An image can become a symbol when the built environment acquires a connotation beyond its instrumental use. However, a sign is a conventional figure that stands for something else in a literal meaning rather than an abstract sense.

### **4.3.2 Order**

City parts should be arranged so that an average observer can relate them together. Such ability allows for understanding their pattern in space. The development of design principles to express such ability has assumed the following observable variables of order making:

#### **A. Regularity:**

Regularity is based on a form of rhythmic repetitions. It is necessary for developing the sense of orientation within an area. However, regularity when based on a repetition of identical elements or on a perfectly geometric grid can produce monotony. It is not the regularity that is questionable here, but rather the context, situation and the hierarchical structure that come from similar additions. The eye

tends to group elements that have the same position, whether it is vertical, horizontal or parallel to certain objects. Unity of materials and texture reinforce this tendency in spite of the individuality of each building. On the scale of urban design, the absence of a limit, of a beginning or an obvious end, easily becomes disruptive.

Humans echoed the rhythms of nature in various forms of arts such as dance, music, and architecture and its related spacescapes. Rhythm as a form of order achieves a high level of patterning (Figure 4.6). It can manifest itself obviously where it is strictly metrical, less obviously where it is disjointed. Disjointed rhythms have also appeal because it contains a measure of complexity that has to be resolved. Richly diverse cities like old ones have great visual appeal because the essence of rhythms prevails. Most historic cities are unified by commensurate rhythms at various frequencies. Rhythm can be established by the positioning of buildings, streets, canals or any other urban element. However, different factors and influences are affecting current practice in street buildings that either lack street perspective or are at odds with established building rhythms.

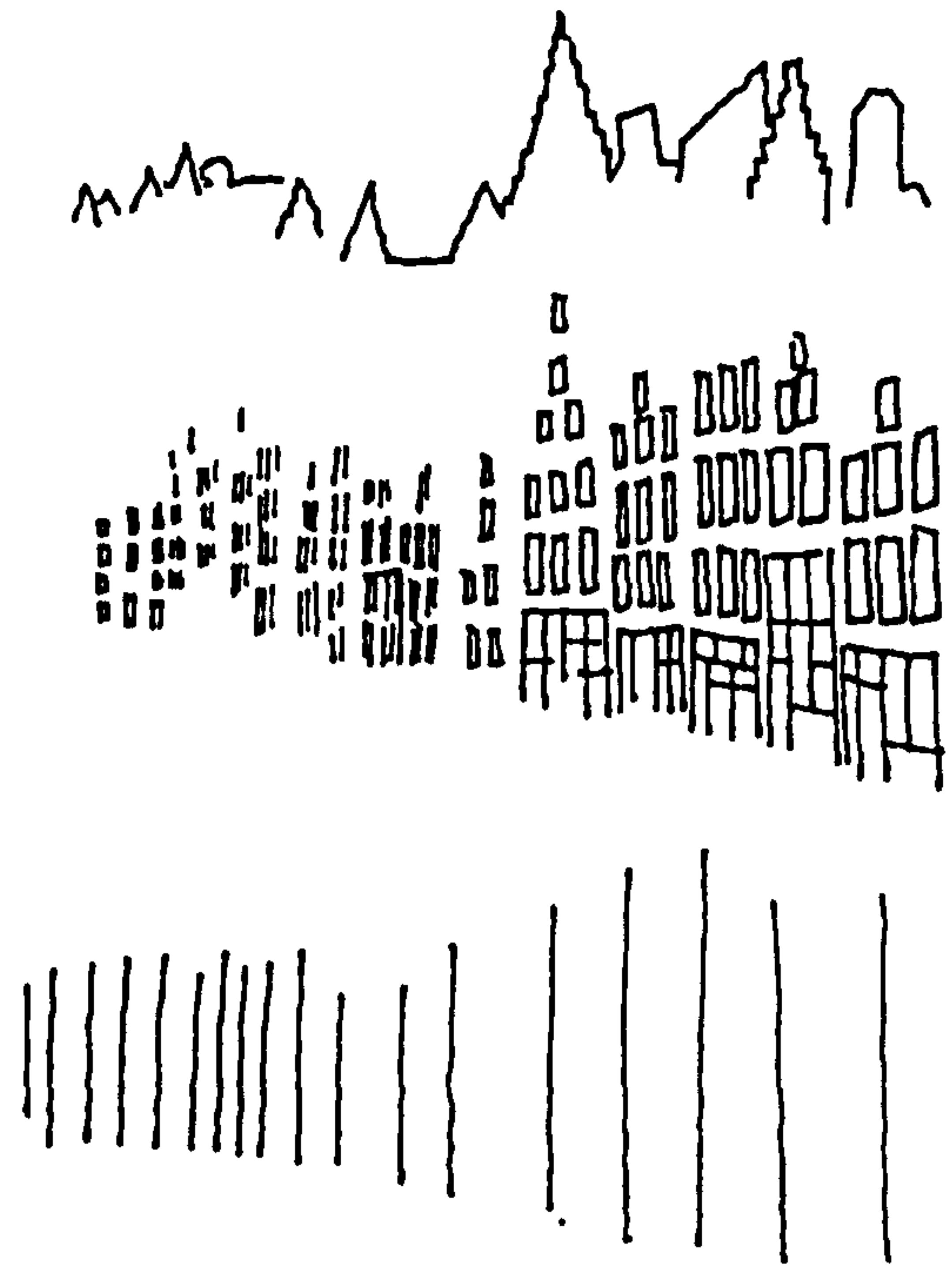


Figure 4.6: Rhythm in urban areas is the product of the grouping of elements, of emphasis, intervals, accents and directions. Source: Smith, Peter., *Architecture and the Principle of Harmony*, London: RIBA Publications Ltd., 1987, p.54.

### **B. Alignment & Ordering Form:**

Alignment does not only concern the relation to a street or a square, where no projecting building breaks the alignment and ordering form (Figures 4.7). It is a more sophisticated issue that includes instances of sensitivity generated by different ways



in which streets intersect and join (Figure 4.8). It concerns different types of ascending and descending road crossing. Contrast of light and shade, form, texture and ambiguity all contribute to the street alignment and ordering form, and all highlight its interest and visual appeal.

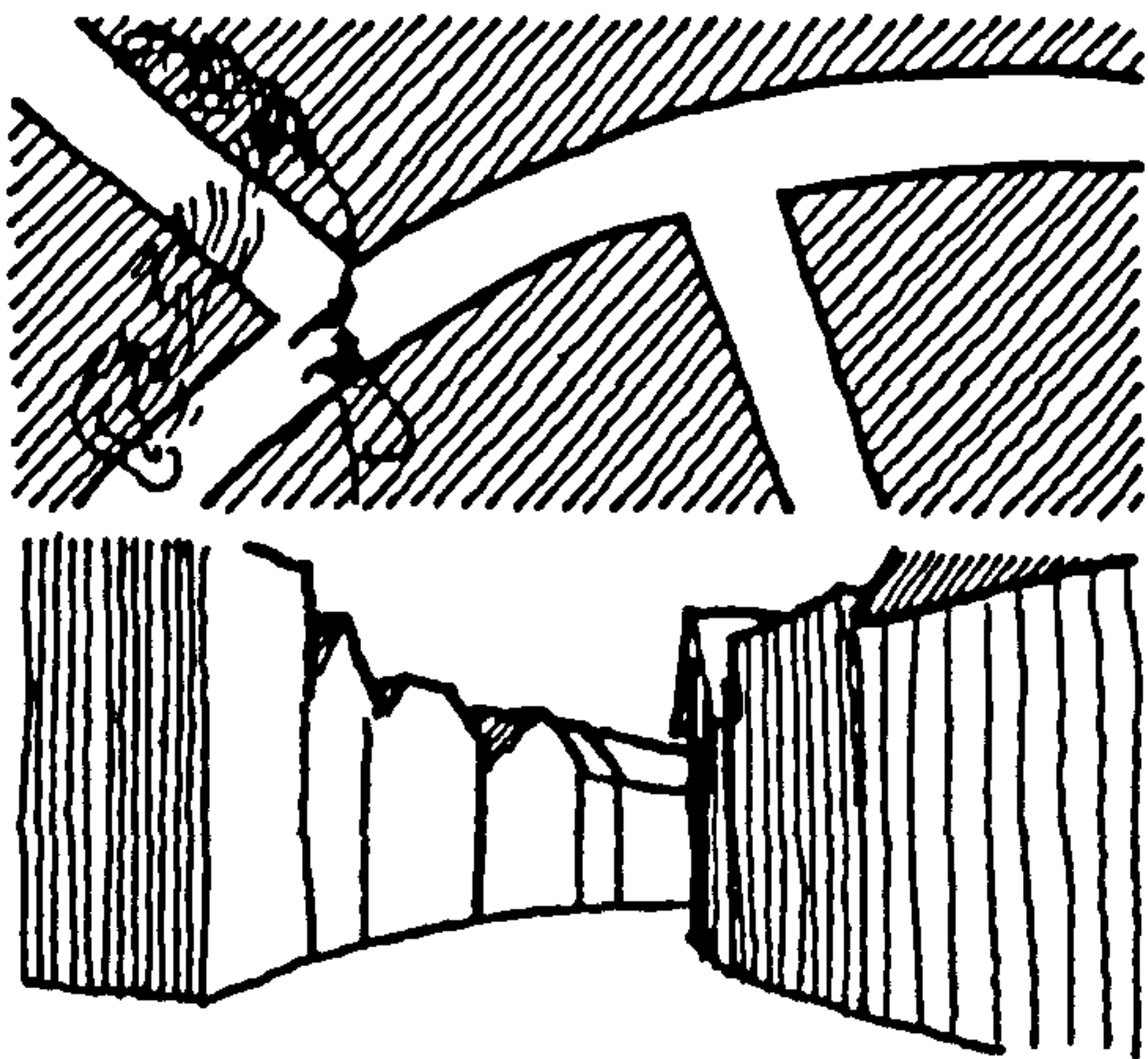


Figure 4.7: Alignment concerns the relation to a street, where no projecting building breaks the ordering form.

Source: Bentley, I., et al, *Responsive Environment*, London: The Architectural Press, 1985, p. 52.

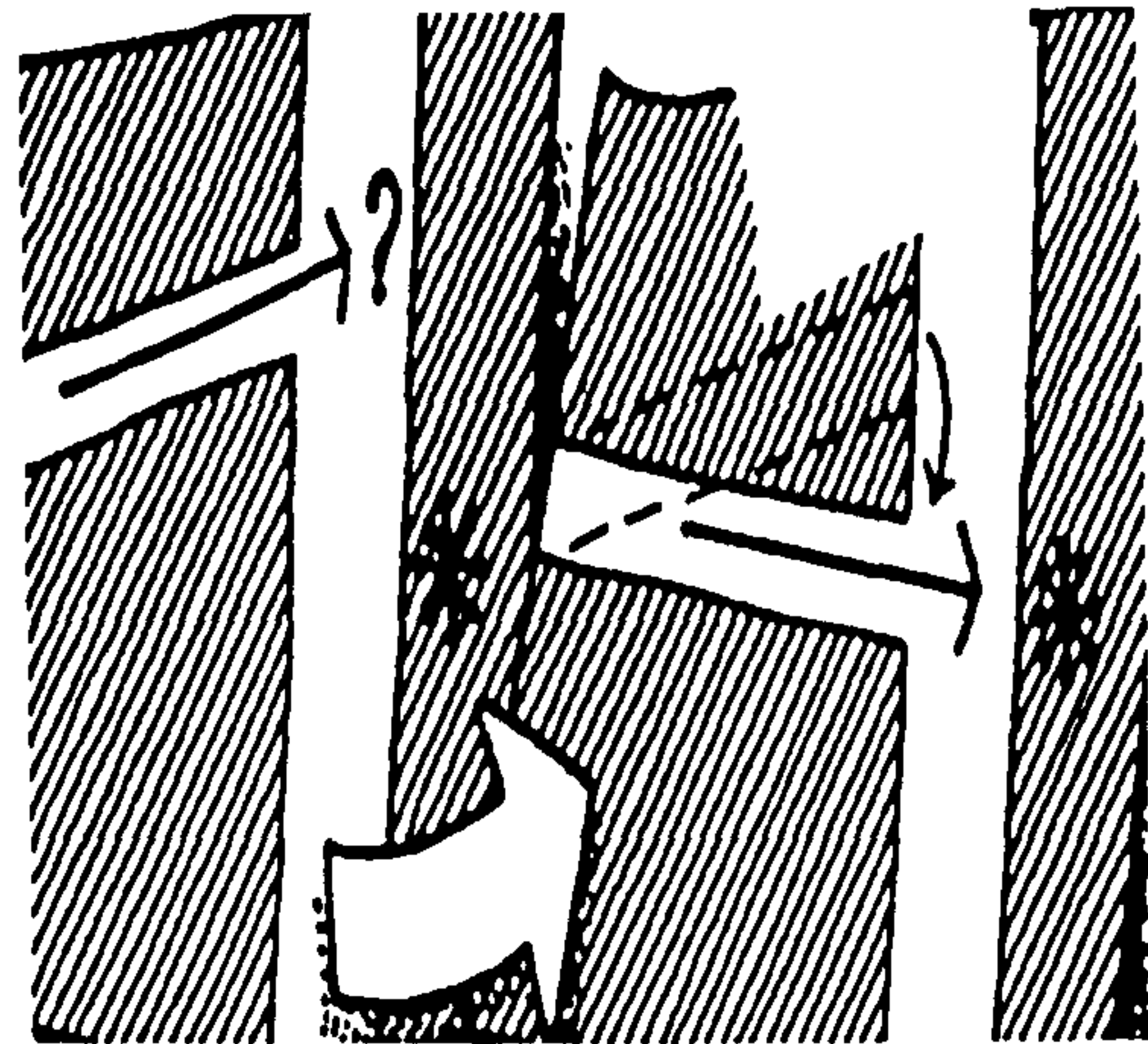


Figure 4.8: Alignment concerns the instances of sensitivity that generates by different ways streets intersect and joint.

Source: Bentley, I., et al, *Responsive Environment*, London: The Architectural Press, 1985, p. 52.

### C. Hierarchy:

Hierarchy refers to the basic structural order of an area. It implies different elements with dependent relationships of scale of importance. Urban areas and architectural works are, often, characterised by several levels of organisation in a hierarchy specific to their composition. Hierarchies provide a framework for reading and understanding the complexity of an urban system. Thus, hierarchies are not only a question of size but of relative position within context (Figure 4.9). The discovery of dominant and

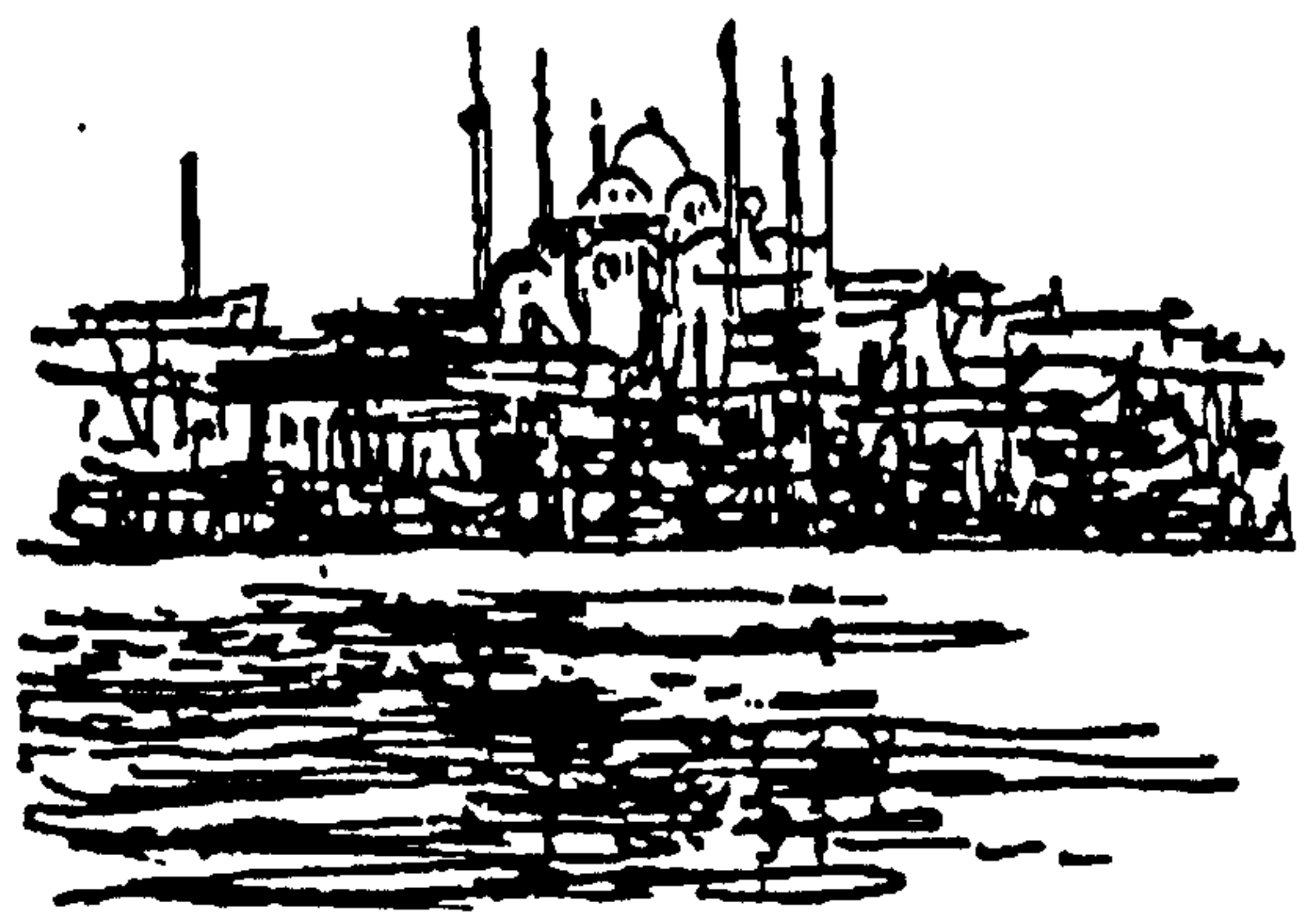


Figure 4.9: A view of Istanbul, with the Santa Sofia dominating the skyline. Here, hierarchies are not only a question of size but of relative position within context. Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.110.

subdominant elements in urban settings is applicable not only to solid structures but equally to the space generated by these structures. The availability of too many hierarchies of equal value within the same setting, however, breaks down the clarity of dominance.

### **4.3.3 Variety**

Variety, as a dimension of visual performance, refers to intensity, contrast and abundance. Visual richness requires the appearance of a variety of accents. A single accent city would be both visually and psychologically unacceptable. Urban accents, therefore, are the means of establishing tension between partness and wholeness on the scale of the entire city. The purpose of various urban accents is to increase choice, attract various people and increase vitality. They contribute to a more intimate sense of place by breaking down the urban mass into perceptually agreeable packages. It is important to mention that whatever the forms of variety are, the overall performance of the built environment should produce a unified effect. Achieving visual unity out of variety is a major goal in urban design. It is important, here, to decide on the right degree of variety. Taken to an extreme, various elements can produce discord and lack of clarity. When the variety of elements are so individually insistent they compete rather than act as a foil to each other. A clear dominant theme, here, is necessary to overcome such competitive elements. The discussion of this visual dimension considers the range of variation of uses, in complexity and of relationships:

#### **A. Variety of uses:**

Places are more successful when they do not prescribe precise patterns of use but rather provide a loose framework that can accommodate variety and freedom of activity and interpretation. Places that can be used for various purposes offer their users more choice than places that are limited to a single fixed use. Variety of uses



implies places with varied building types and forms, that attract varied people at varied times (Figure 4.10).



Figure 4.10: Variety of uses implies places with varied building types and forms, that attract varied people at varied times.

Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p. 125.

The variety of uses depends on three main factors: i. The volumes of buildings and the spaces generated among them as well as their detailed appearance which helps in maximising the variety of uses; ii. The range of activities and demand which act as the most important support for various uses; and iii. The ability of the place to encourage positive interactions. These factors contribute in providing a rich perceptual mix to the setting.

The different areas within the city require varying degrees of intermix with complementary facilities in order to function well. Diversity and intensity of use, does not mean overcrowding of facilities, but their complementary proximity<sup>13</sup>. A small-scale plaza or group of buildings consists in accommodating a variety of functions. As the scale increases, the intensity increases too, but the objective is the same. On the scale of the city, the design of the urban functions is a matter of allocating the major hubs of activity to the most desirable places. This includes intermixing these hubs with other facilities that functionally complete them and linking all those to each other.

### **B. Variety in Complexity:**

Variety in complexity concerns the urban richness of an area<sup>14</sup>. Within the term of complexity there are factors that activate all levels of the mind, such as, ambiguity, surprise and confusion. The visual potential lies in the way that these factors interact.

As the scene subsides into a number of interweaving patterns, complexity drops behind to be replaced by several dimensions or qualities of unity and schematic ordering of elements or pattern. Complexity is reflected by spatial configuration, meaning and users-related characteristics<sup>15</sup>. Urban areas serve a complex memory system for ideas about behavioural and emotional connotations. A study by Lozano addressed the importance of visual performance for shaping the built environment<sup>16</sup>. This quality, however, varies from one situation to another and from one observer to another. A young person, for example, may not have the same emotional attachments to an area as an older person who had experienced happy or sad events in that area. The effect of a landmark on a visitor is, usually, different from that on a resident as the former may not absorb the various meanings it may carries.

Additionally, some places have visible traces of history reflected in their formal treatments and settings, as well as in their importance and detailed appearance. Complexity can be recognised in the density and depth of meaning, which such places express, i.e., through functional, social, symbolic, historic heritage, and national and political values. The built environment, usually, addresses three levels of complexity: low, medium and high. The lower level refers to the Modern Movement and its functionalism and international Style. The Late-Modernism as well as the Neo-Modernism are more toward the medium level of complexity. The Post-Modernism, however, have intently increased the level of complexity in buildings and spacescapes, yet, often, in a superficial manner (see section 1.2.2).

Complexity can be also achieved through the activities generated by the users of an area that promotes vitality and dynamics. Vitality makes a call on visual attention. Therefore, complexity should increase excitement and decrease calmness.

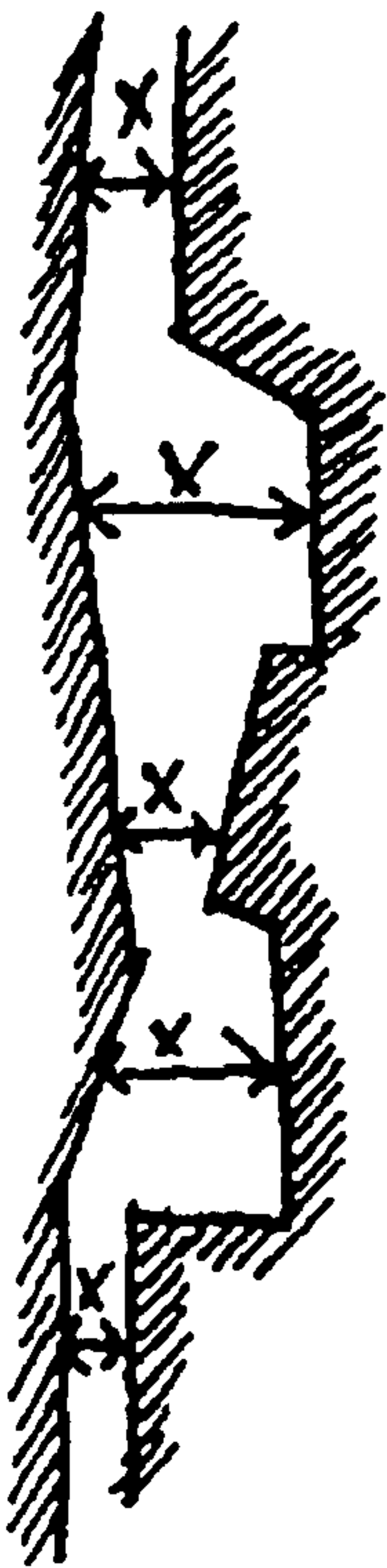
### **C. Variety of Relationships:**

Our experience of the built environment depends upon changing perceptions of patterns generated in variety of visual relationships. The meaning of variety of

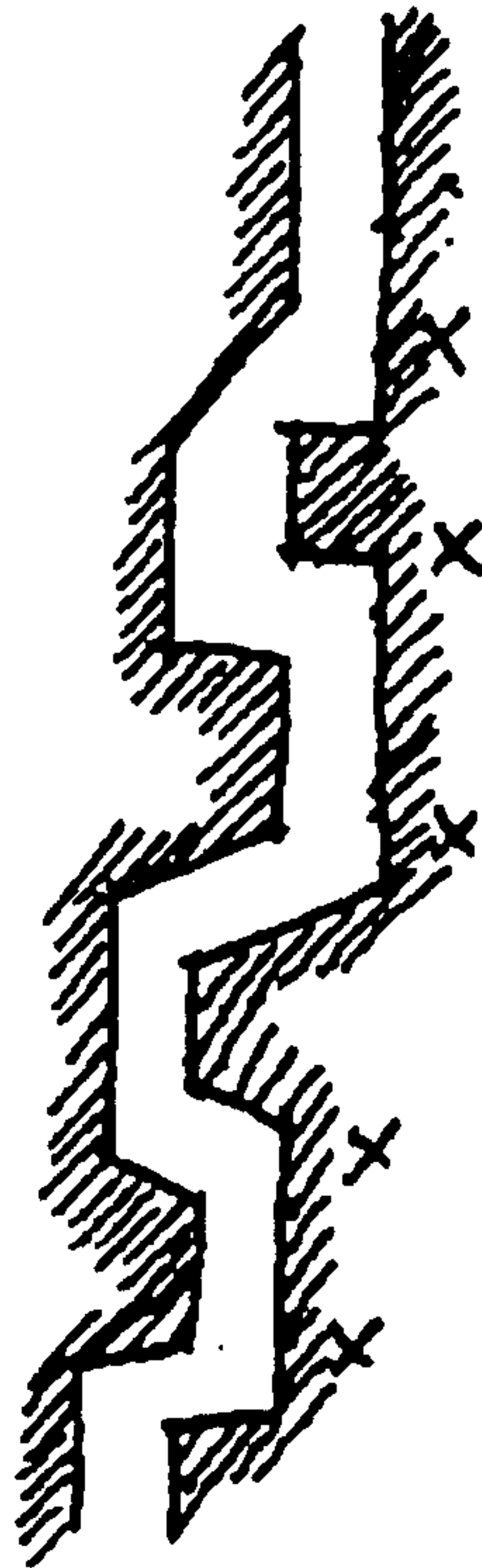


relationships is accentuated by the contrast of opposites, such as: negative and positive spaces, concave and curved, solids and voids, light and shade, rough and smooth, wide and narrow, calm and stimulating, crowded and empty, dense and open, restrictive or free, and other opposites. Every set of two establishes a dialogue within the urban setting. Variety of relationships is linked to urban realities establishing the differences of the foreground/background phenomena. Such quality is experienced while moving, changing position or speeding in an area.

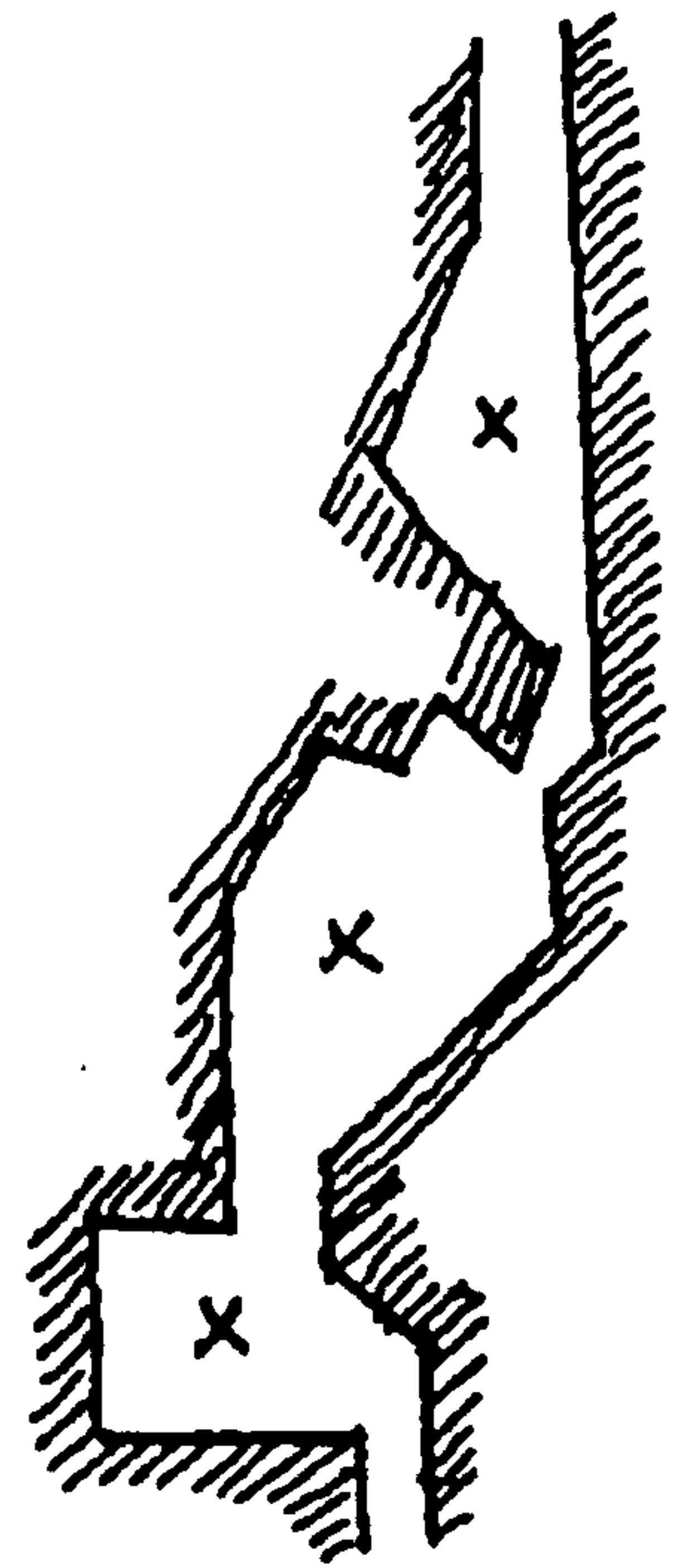
People moving in a city made up of similar width-streets or building heights tend to lack visual enjoyment. Variety of street scenes, of street widths, of building heights and functions are a source of joy (Figure 4.11). They contain recognisable architectural features, open spaces, distinguished places that serve as landmarks that help to differentiate the different parts of the city.



a. Variety in street widths: minimum, maximum and average width.



b. Many turns and twists per unit length within a given space.



c. Articulation of space made up of a sequence of sub-spaces.

Figure 4.11: Variety of street widths, of scenes, of building heights and functions are a source of joy. Source: Rapoport, Amos., *History and Precedent in Environmental Design*, London: Plenum Press, 1990, p. 289.

### 4.3.4 Structure

Structure is the way that the place / space fits together and gives a sense of orientation. It concerns the physical relationship between the observer and the area components as well as the relationship among the components themselves. Structure plays a major role in defining the fields that enables forming an image of the urban setting. This dimension is manifested in three major variables that interpenetrate visual performance: spatial orientation, visual inertia and enclosures.

#### A. Spatial Orientation:

Spatial orientation is the sense of clear relation of the observer with the city and its parts (Figure 4.12). It is affected with the immediacy or how one quickly perceives the space. A place that facilitates the obtaining and understanding of environmental information quickly will have a high transparency factor.

Accordingly, spatial orientation is that visual quality of the built environment that enables people to explore extensively without being lost. It refers to the ease of reading an area or a network by a system of signs in time and space.

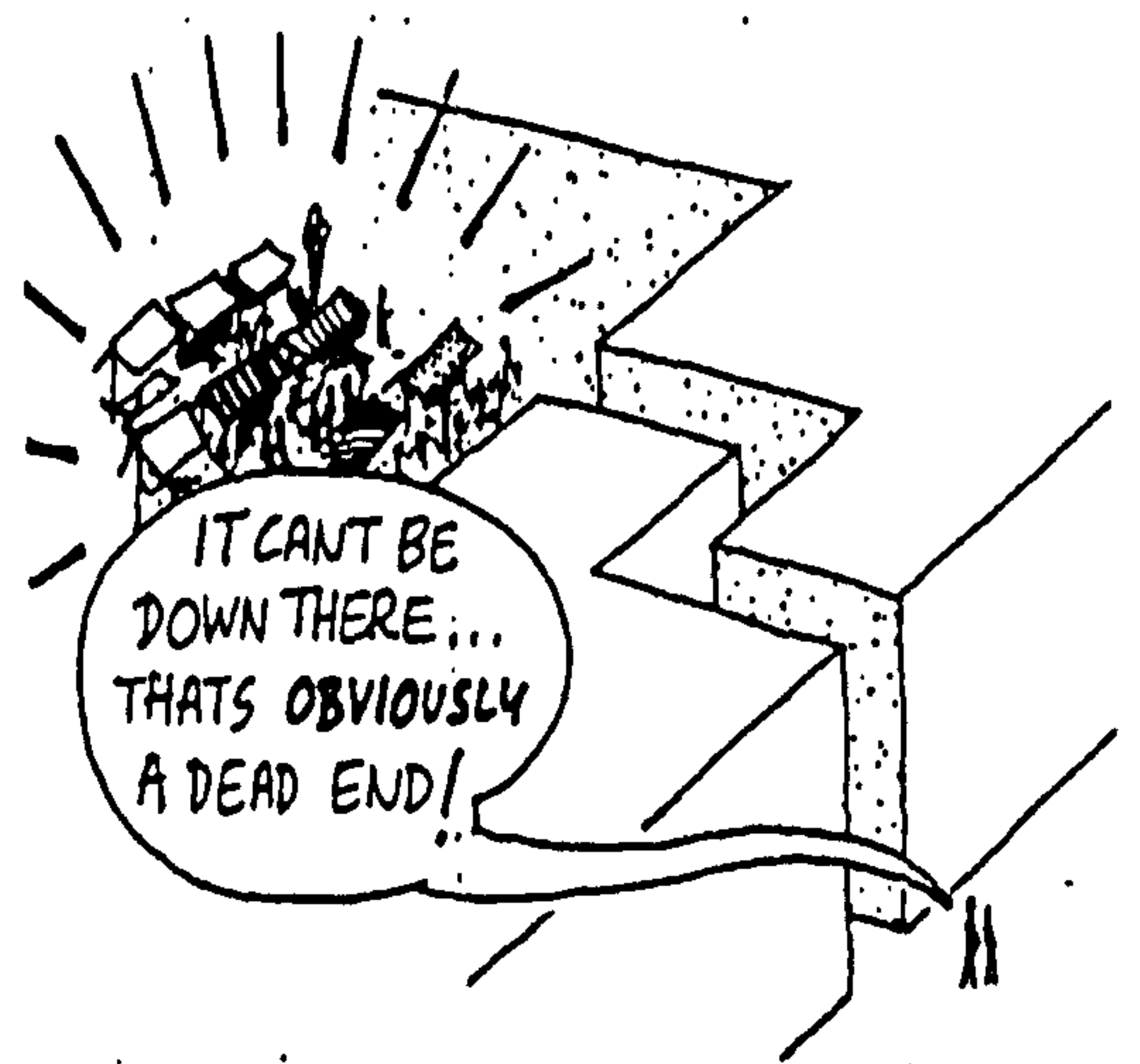


Figure 4.12: Spatial Orientation is the sense of clear relation of the observer with the city and its parts.

Source: Bentley, I., et al., *Responsive Environments*, London: The Architectural Press, 1985. p. 12.

The visual performance of an open space could be reinforced by supporting its spatial orientation quality in terms of its form and detailed appearance, and the function and activities it carries<sup>17</sup>. Therefore, to support spatial orientation, building forms should be visually integrated into their context, and the detailed appearance of the spaces among the buildings should help people to read the pattern of uses they contain.



Large topographic features, sequences of landmarks and open spaces and directional lines and patterns, can achieve spatial orientation. Such features allow the user to develop a cognitive structural image among which he/she sees the relations among the different parts of the city<sup>18</sup>. However, it may also include eye and floor level details of visual texture, form, colour and levels.

### **B. Visual Inertia:**

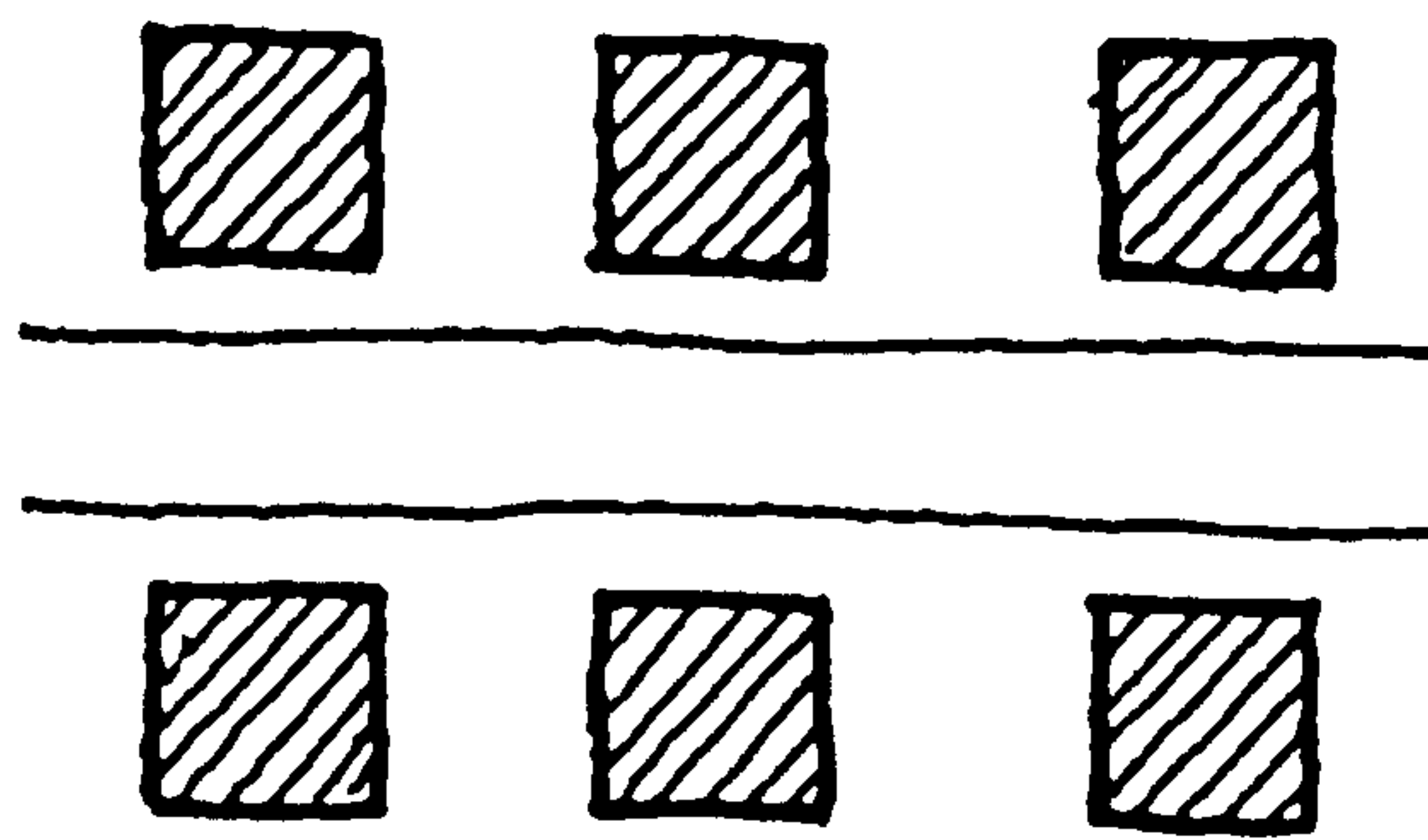
The city must be visually and socially dynamic. As a visual quality, visual inertia is determined by the structure of the built environment. Its expression is a primary quality of perception. Visual experience is not typically limited to one aspect of an object, rather it is extended to different viewpoints. From the multiplicity of views, the mind synthesises a comprehensive image of the built environment's three dimensional form and space.

The visual experience is conveyed by the displacement about the environment that serves as the frame of reference. It is the displacement of the surrounding objects that confirms for the eyes the kinaesthetic information. Static environments cannot offer the observer a sense of progress while moving and boredom is achieved. Monotony and boredom could be relieved when enrichments are added to give the traveller enlivening variety of things to look at. Dynamics has generic qualities, such as straightness and flexibility, expansion or contraction, openness or closeness.

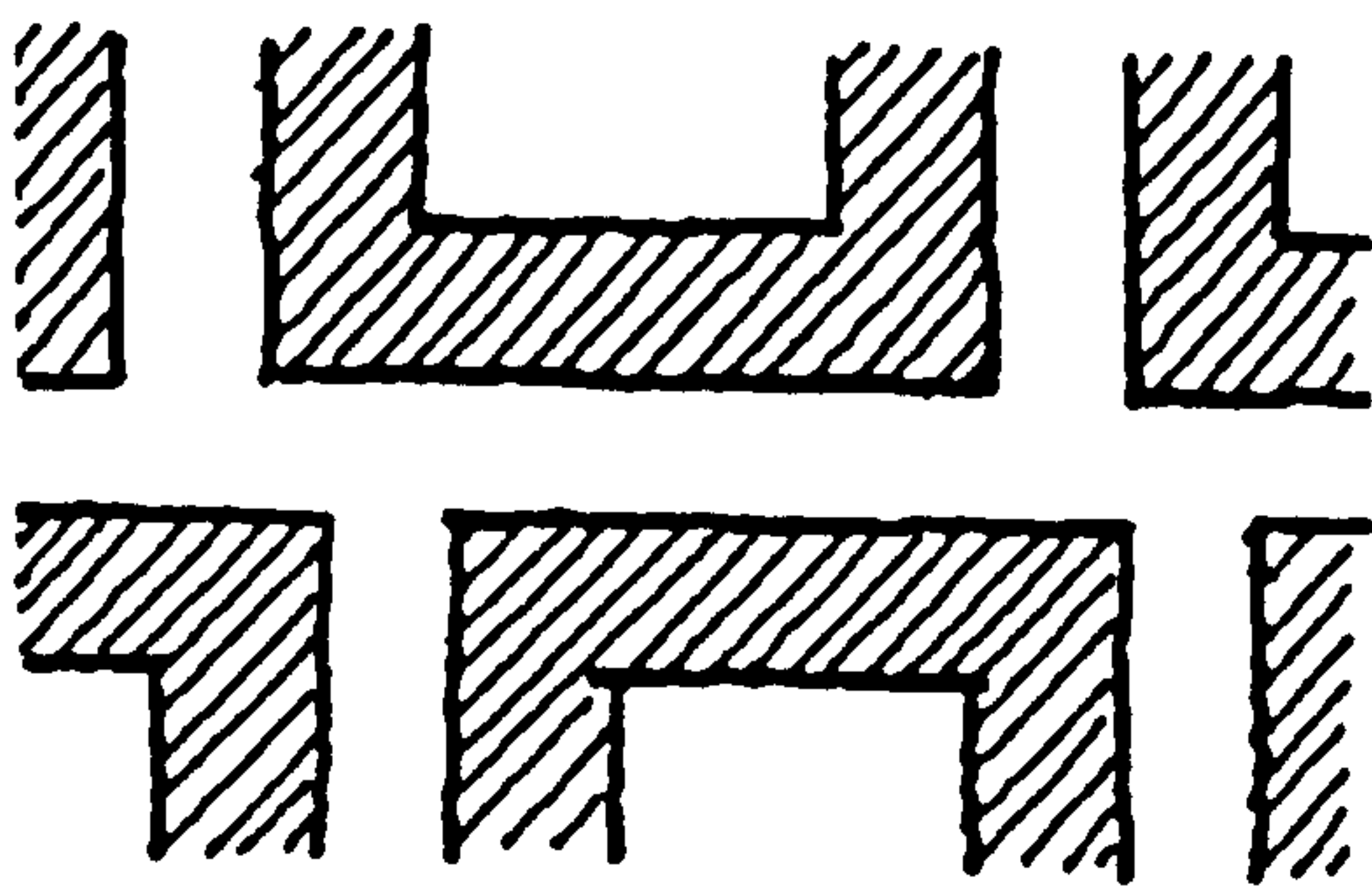
### **C. Enclosure:**

Enclosures refer to the relative configurations of a space to observers and other spaces. Such definition includes the different relationships of spaces in sequence, i.e., jointly, overlapping and interlocking. A fundamental requirement of urban space is its actual physical enclosure. When elements enclose space, both the elements and the space appear as a complete form. Enclosure is the function of shape and position of elements (Figure 4.13). It is important to determine how much enclosure is

necessary for different types of urban spaces (Figure 4.14). The more complete the enclosed space is the more inward looking the space becomes. A large plaza, for example, may need a sufficiently large enclosure from all sides so the attention focuses on the space as an entity.



a. Less Enclosure.



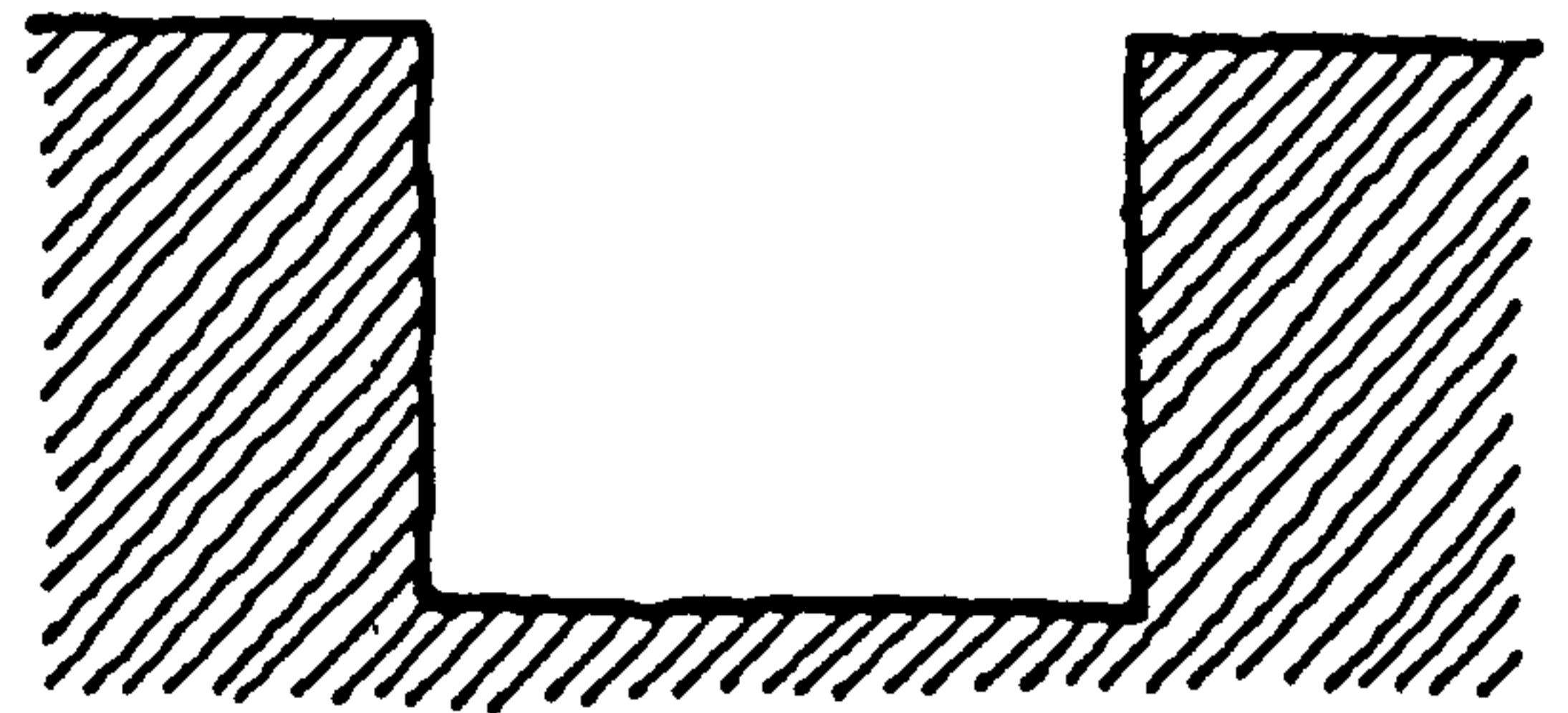
b. More Enclosure.

Figure 4.13 : Enclosure is the function of shape and position of elements.

Source: Bentley, I., et al, *Responsive Environment*, London: The Architectural Press, 1985, p. 52.



a. Less enclosure.



b. More Enclosure.

Figure 4.14 : It is important to determine how much enclosure is necessary for different types of urban spaces.

Source: Bentley, I., et al, *Responsive Environment*, London: The Architectural Press, 1985, p. 52.

In smaller urban spaces visual interaction seems to be vital. It could be achieved by reducing the enclosing forces. Such spaces could be partly enclosed with open sides allowing light and air and affording views to the city beyond. The balance of openness and closure can be manipulated in design to create different degrees of enclosed space. On a street, however, the enclosure can only be created at two sides, but it should be sufficient to hold the attention to it as a channel of spaces. The perception of the enclosure may vary depending on the quality of light that makes the space apparent. The intensity and direction of light have great effect on the visual appearance of space.



### 4.3.5 Fitness

Fitness refers to the degree to which the spatial and formal aspects of the city match and fit the natural as well as the built environments.

#### A. Fitness with Natural Environment:

Successful urban form rests largely on the fitness between its buildings and open spaces and nature., i.e., the city's basic relationship to nature. Every city has its personality that its form should express the basis for developing its buildings and spaces. The form of a city differs to the customs of the place established by its local conditions and people. Fundamental rules seem to govern the interdependence of the form of urban areas.

The topographical advantages led to the development of various high-ground urban analogies. Norberg-Schulz suggested three conditions in which an urban setting be said to fit its natural environment<sup>19</sup>. These are, the cosmic/dominance analogy, the romantic/harmonic analogy and the natural analogy. The cosmic/dominance analogy relates to man's unconscious integration of cosmic laws (Figure 4.15). Spaces and

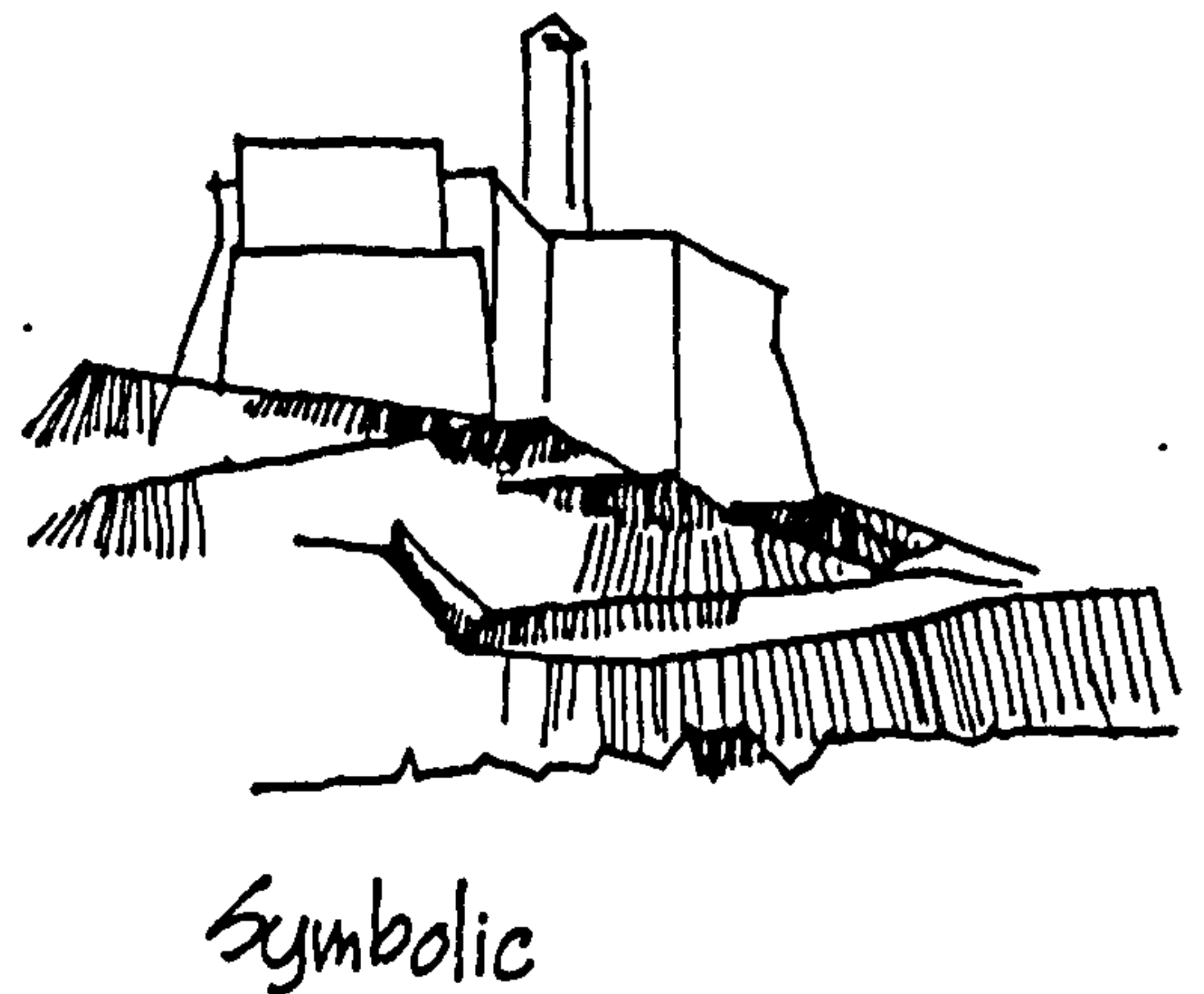


Figure 4.15: The cosmic/dominance analogy .

volumes are the abstract manifestation of man's world view, spread large upon the surface of the earth, expressing domination and security. Here, the contrast and difference to the conditions of a site are the basis for fitness between the city and its setting.

The romantic/harmonic analogy creates multiplicity within unity through the maximum use of architectural vocabulary (Figure 4.16). The geometric shapes are

linked in a harmonic way within the framework of a super-conscious geometry. This system refers to the belief that human being exists most wholesomely within a physical environment that is analogous to him. The natural analogy, however, refers to extending nature to architecture (Figure 4.17). It has been developed by those closest to nature. The shapes and places of nature in as much as they define creation and symbols, become more universal than anything human being creates.

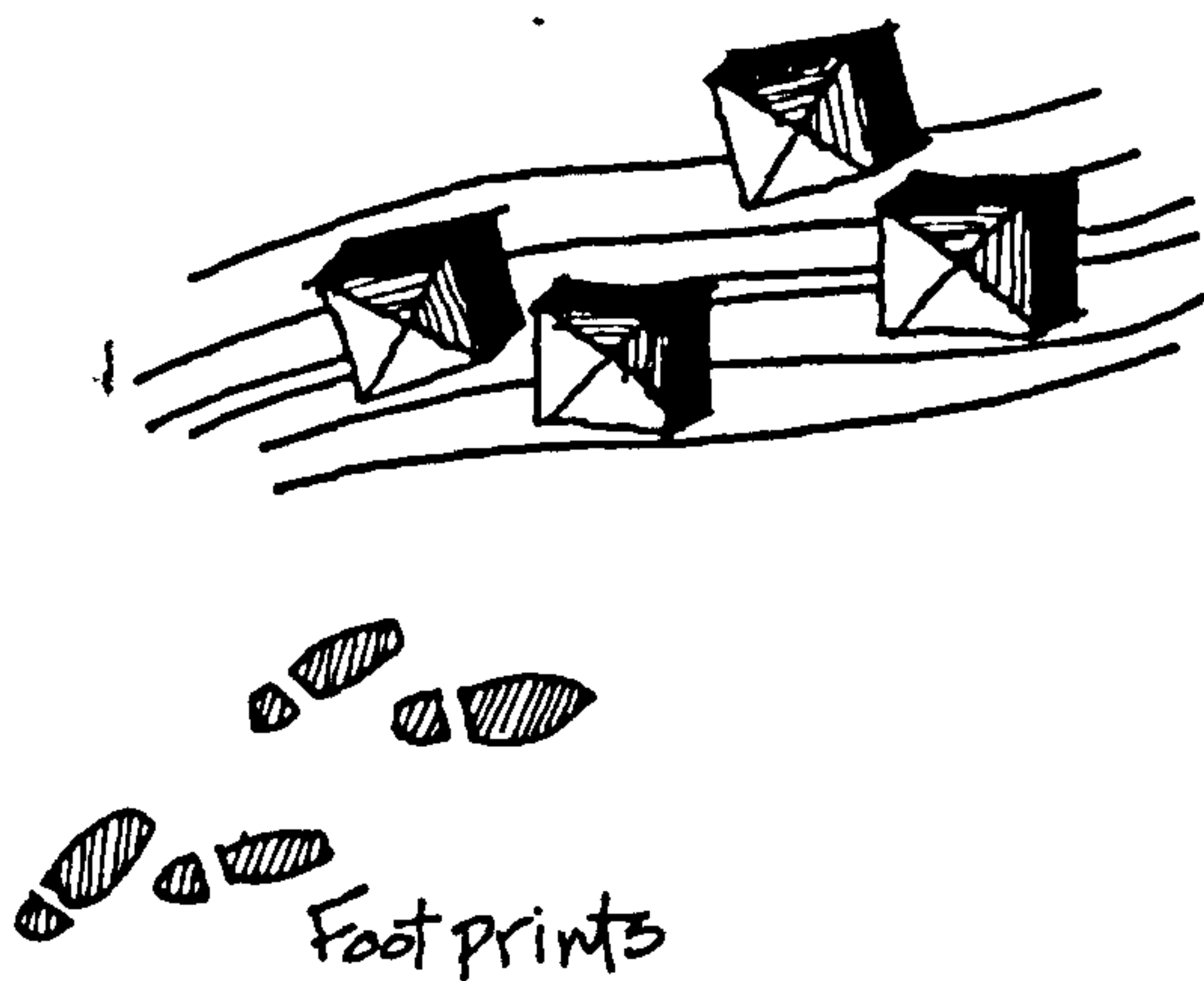


Figure 4.16: The romantic/harmonic analogy.  
Based on: Sketches by Paul Laseau in: *Graphic Thinking for Architects and Designers*, New York: Van Nostrand Reinhold, 1980, p. 118.

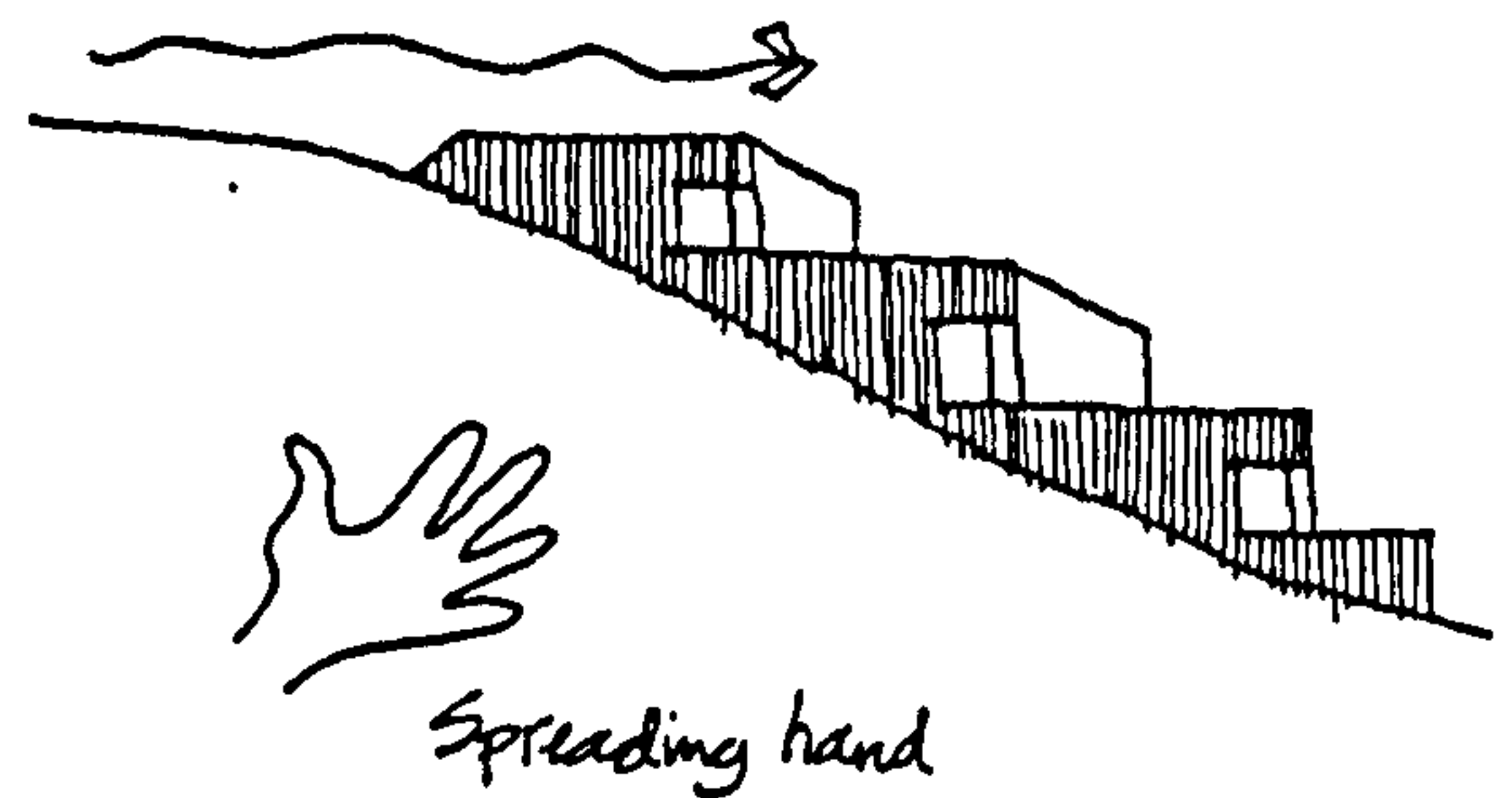


Figure 4.17: The natural analogy.  
Based on: Sketches by Paul Laseau in: *Graphic Thinking for Architects and Designers*, New York: Van Nostrand Reinhold, 1980, p. 119.

Old urban areas found a way of turning local climatic liabilities into assets. The work with local climate not only provided environmental protections but also resulted in powerful urban patterns. Compact forms and clusters, for example, are manifested in hot areas, whereas, pitched roofs and covered walkways can be seen in rainy climates.

### **B. Fitness with Built Environment:**

Architecture and urban development in a historic city centre should fit the existing built environment. Thus, the starting position regarding the new developments should be from the angle of the following three themes: i) sense of place; ii) maintaining the historic continuity; and iii) relationship between form and matter.



Sense of place refers to the ability of the environment to be distinctive and imageable (see section 2.3). Understanding the sense of place in a city incorporates the recognition of the behavioural patterns related to the common uses of a particular space as well as the traces of time embedded in that space<sup>20</sup>. Every piece of architecture in a city should be an element of urban design. It should contribute positively to the image of the urban environment. New buildings, even when they are greater in size, should act as subservient to other existing and important buildings nearby. A pair of buildings flanking an old landmark, for example, although taller than the landmark itself, focuses attention on the smaller building<sup>21</sup> (Figure 4.18).

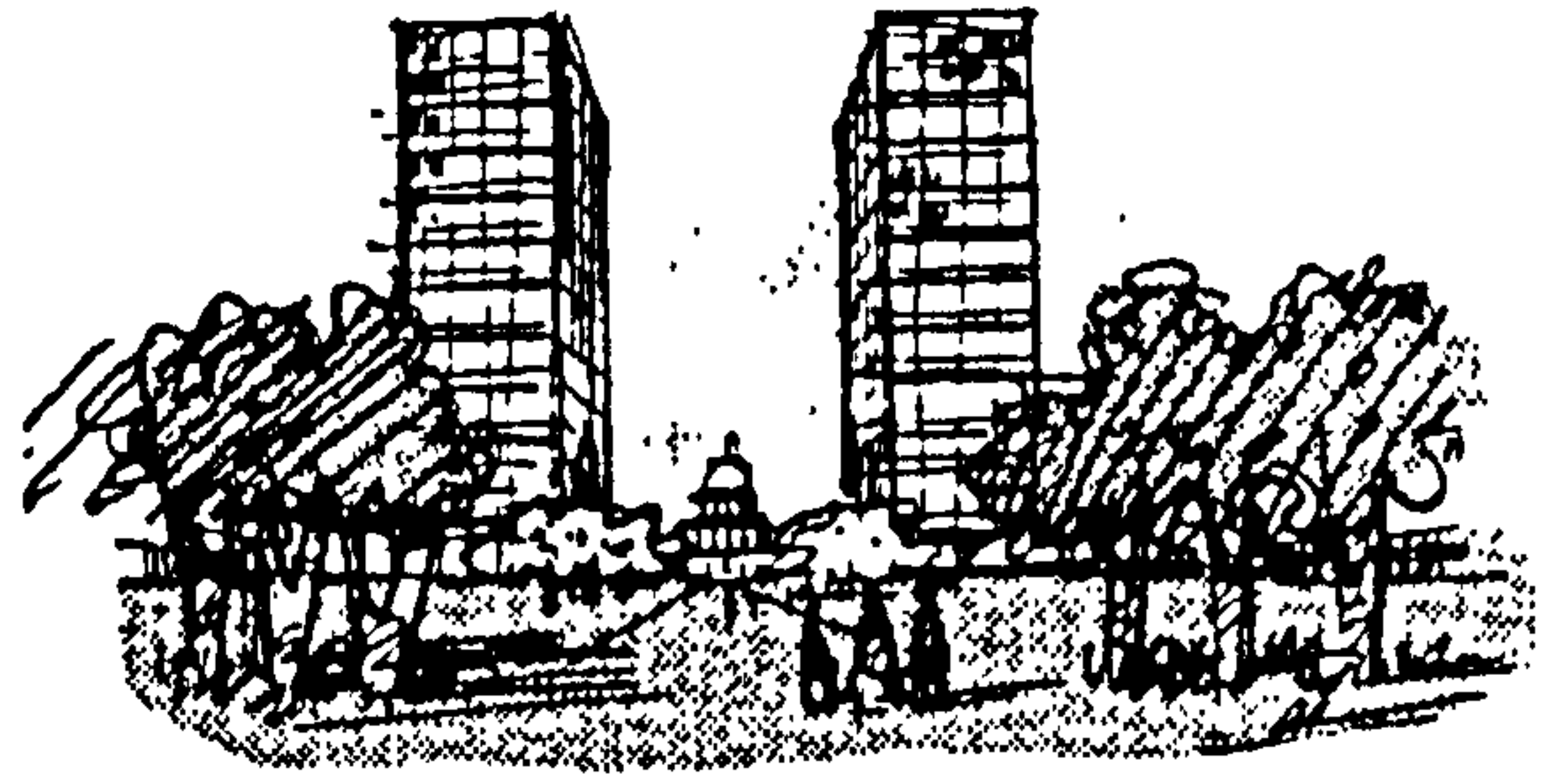


Figure 4.18: New buildings as sub-servants to other nearby landmarks.  
Source: Spreiregen, P., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill, 1965, p.102.

To maintain the historic continuity, the design of new developments should be sympathetic to their context. Various approaches could be applied to achieve historic continuity and sympathy (see section 1.3.2). Every building ought to be conceived as an occasion for making a, rather than as another moment in which to display the ego of the client and the prowess of the designer. This should be applied regardless of the chosen architectural style or fashion.

To ensure that any new development accords with the city's special visual qualities, it should be designed not as a separate entity, but as part of a larger whole, which has a well-established character of its own. Various visual considerations could be applied to achieve these qualities. One of the important visual considerations is based on an impression of balance. Balance can be achieved in two ways: symmetrical/static and asymmetrical/dynamic balance<sup>22</sup>. Symmetry has a quality of perfect balance. As such it is the foundation of classical architecture. The asymmetrical balance is no more

difficult to understand and convey than those of symmetry. It is achieved through the user's experience and perception.

In an architectural context, the components perceived as contributing to balance include: form, colours, lines, textures and light in relation to gravity and the horizontal and vertical components in the composition. At the urban level, however, balance can be recognised in scenes that at first seem to be quite arbitrarily composed. One of the great attractions of urban spaces lies in the discovery of views in which everything seems to contribute to produce a dynamic balance. Dynamic balance is achieved through organic form and is intended to change throughout day and seasons. Here, balance does not mean a static situation but equilibrium that allows for dynamism. Therefore, the opposite of balance is not dynamism but imbalance and instability.

Among the important spatial characteristics is the scale of the setting. Unlike ratio and proportions, that refer to numerical relationships among the real dimensions of a form or a space (see section 3.1.1), scale refers to how one perceives the size of a building element or space relative to other forms. If proportions are assured to be a source of visual appeal, then satisfaction will occur equally in macro and microstructures having similar proportions. Here, the scale becomes a very important determinant of perception, where the size of each element is perceived relative to the sizes of other elements around it. Thus, scale is a relationship set up between a building/townscape and a human being's demands. Scale is a matter of detailed treatment of the city as well as overall size. Different aspects affect scale. Among these the purpose for which the building is established, the building elements and their functions, the surrounding context and the personal inherited image to which one relates the dimensions of any observed object. These aspects affect the use of different scale qualities. The range of scale effects extends from the natural, human and intimate, to the monumental and the scales which shock.

The natural scale, as a spatial and formal quality, is usually attributed to residential units. It appears in the adaptation of different architectural elements to their purposes.



This visual quality can also be observed in the design of openings, in their human dimensions of heights and widths. Such intimate scale gives a feeling of relaxation and charm by means of a slight and relative change of height compared to a human scale. In contrast, the monumental scale is used to achieve a super personal enlargement and make people rise above their limitations. This, therefore, can create two contradicting effects: first, lifting people to a world of spiritual feeling; and second, oppressing and over powering people with crushing power. The shock scale, however, was spontaneously employed to provide a feeling of excitement, startle and surprise by the accidental change of different design elements, space, volume, light and texture.

Scale is also determined by the means people employ for moving around and in cities. In historic city centres where pedestrians are predominant, distance and speed affect scale. The visual quality of the near scale was considered in the design of the ornaments of the exterior facades. The human scale of the residential street helped greatly in allowing a clear appreciation of these ornaments. The jump in scale could indicate the size or significance of the space behind, or it could alter the perception of the size of the other elements of the facade. The recessed entry portal of Asfahan Mosque, Iran, for example, can be seen and recognised at a distance as the building entrance. However, the actual entrances are simple doors within the larger portal, and are scaled to human dimension (Figure 4.19). It is safe to conclude that the largest buildings and cities can be made to feel appropriate if human scale is maintained. The principles of scale can be employed to create different impressions of size and importance in a building or a built environment, creating a sense of grandeur in a tiny plaza of a city or a sense of intimacy in a large square.

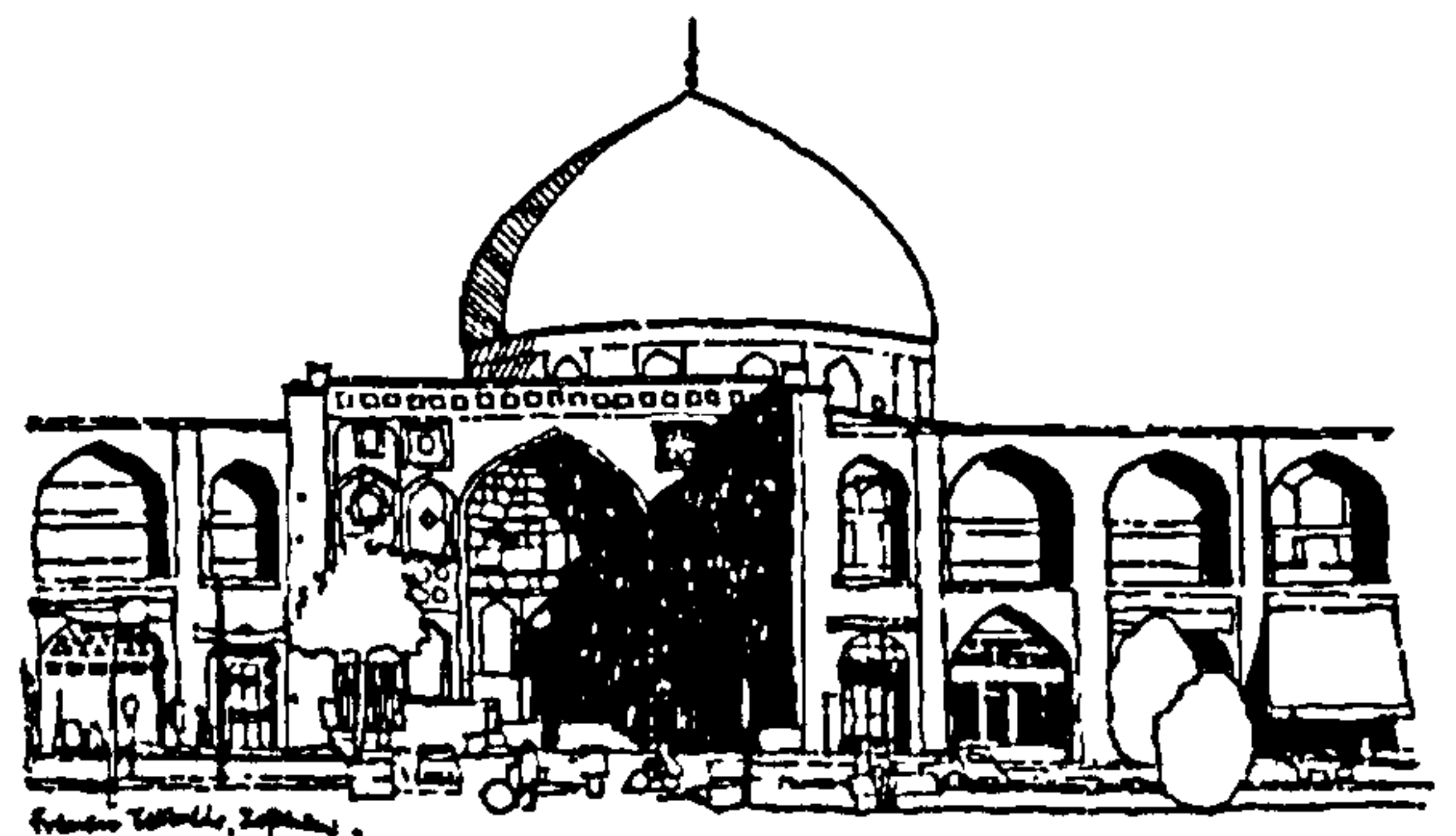


Figure 4.19: Asfahan Mosque with its recessed entry portal.

Source: Tibbalds, Francis., *Making People-Friendly Towns*, Burnt Mill: Longman, 1992, 21.

It has been argued that visual values are of a qualitative nature (see section 2.4). The evaluation of the five visual performance dimensions demand actual contact with the environment and the users in that environment. To incorporate users in the evaluation process requires suitable assessment measures to be adopted. This is necessary to achieve an evaluation of high reliability.

#### **4.4 The Performance Concept**

This section deals with the third system of the visual imageability concept, i.e., adopting a multi-level evaluation process that allows for user participation. The idea of evaluation is not a new one. Most evaluations are based on professional experiences in a specific field of study. People who live/work in an environment are not normally involved in the design, construction, management, maintenance or evaluation of their environment. The previous three chapters, however, argued for the necessity of re-involving the users in the various decisions related to their built environment. It has been argued that the attitudes and interests of professionals are considerably different from these of the users they claim to serve (see section 1.3.3). The belief that architects and urban designers alone can make the right decision concerning the built environment is too idealistic. City administrations seem to follow the general tendency dictated by the economically powerful lobbies.

In such interweaving attitudes and interests, re-involving the users in shaping and enhancing their living environments becomes important. Re-involving the users is a necessity when dealing with visual evaluations. The researcher believes that visual satisfaction will increase if the users are involved in the development of their built environments. Designers and planners can no-longer ignore user aspirations when designing for them, particularly when dealing with important urban settings, i.e., city centres with historic importance. Such settings draw their users into their depths and involve them in experiences shared by all the people who are moving about in them. The true involvement comes when the community and the designer turn the process of planning and building into a work of art.



The qualitative nature of visual values requires contact with the real world and users of the built environment. To incorporate users in the evaluation process requires suitable measures to be adopted, i.e., an appropriate participation process and data-collection methods. This is necessary to achieve a high reliability evaluation (see section 3.4). Accordingly, this study aims at adapting a multi-level evaluation process allowing for user participation to be used in visual investigations. A modified version of Preiser's "performance concept" has been selected for that purpose<sup>23</sup>. The discussion of the "performance concept" comprises, i) illustrating the basis of this selection, ii) addressing its significance as a user participation process, and iii) illustrating its levels of evaluation.

#### **4.4.1 The Significance of the Performance Concept**

To incorporate users in the evaluation process requires a suitable participation process to be adapted. This is considered necessary to achieve a high reliability evaluation. The search for an appropriate participation process was guided by the following:

1. Involving multi-level interests in evaluating the visual performance of historic city centres. These multi-level interests allow for learning from the experience of the users while not excluding focused expert experience.
2. Allowing for evaluations of spatial preferences, of behaviour in relation to visual aspects, and of attitudes toward visual qualities.
3. Flexibility so as to be applied at different stages, scales of settings and kinds of participants.
4. Proved reliability, i.e., used many times and proved to have a reasonable degree of success, comprehensiveness, practicality and applicability.

A review of some of the participation means and techniques has been made (see section A.1/ Appendix A). These cover conventional as well as innovative means<sup>24</sup>. Conventional means include static displays and exhibitions, public meetings, the

dissemination of information through leaflets and brochures, as well as the collection of information through questionnaire surveys. The innovative means cover the nature of most planning issues generating a demand for citizen participation. User participation means are suitable to facilitate the exchange of ideas, opinions and attitudes, as well as the evolution of a consensus, a policy or plan in a situation of mutual trust between the participants. The characteristics of the potential participants seem to suggest that solution-oriented participation is more likely to be successful than any other type of planning situation.

The choice was towards Preiser's et al "performance concept" as a systematic user participation process that aims to improve the quality of the built environment<sup>26</sup>. It was chosen as a previously used process that gave appropriate results. The performance concept itself does not introduce a new technique, yet it systematises the evaluation process, thus making it more scientifically oriented and increases the reliability of the findings. Such process appears to be applicable to any site and user groups as long as appropriate data collection methods are adopted. It includes a variety of mechanisms intended to make the built environment more responsive to the functions it supports and the needs of users.

#### **4.4.2 Levels of Evaluation**

The performance concept is a comprehensive user participation process. It was, originally, designed as a post-occupancy evaluation process, i.e., it incorporates the users in the post-occupancy stage of evaluation. However, with appropriate modifications it could be used by researchers at different sites and stages of participation, i.e., at programming, planning and design, implementation, maintenance and feedback/post-occupancy stages. In this concept the performance of the built environment is measured, compared to developed criteria and then, the evaluation



results are used to improve the performance of the previously evaluated built environment.

The performance concept has three levels of evaluation in an ascending order of complexity and time-consuming nature. These are: the indicative, investigative and the diagnostic levels (Figure 4.20).

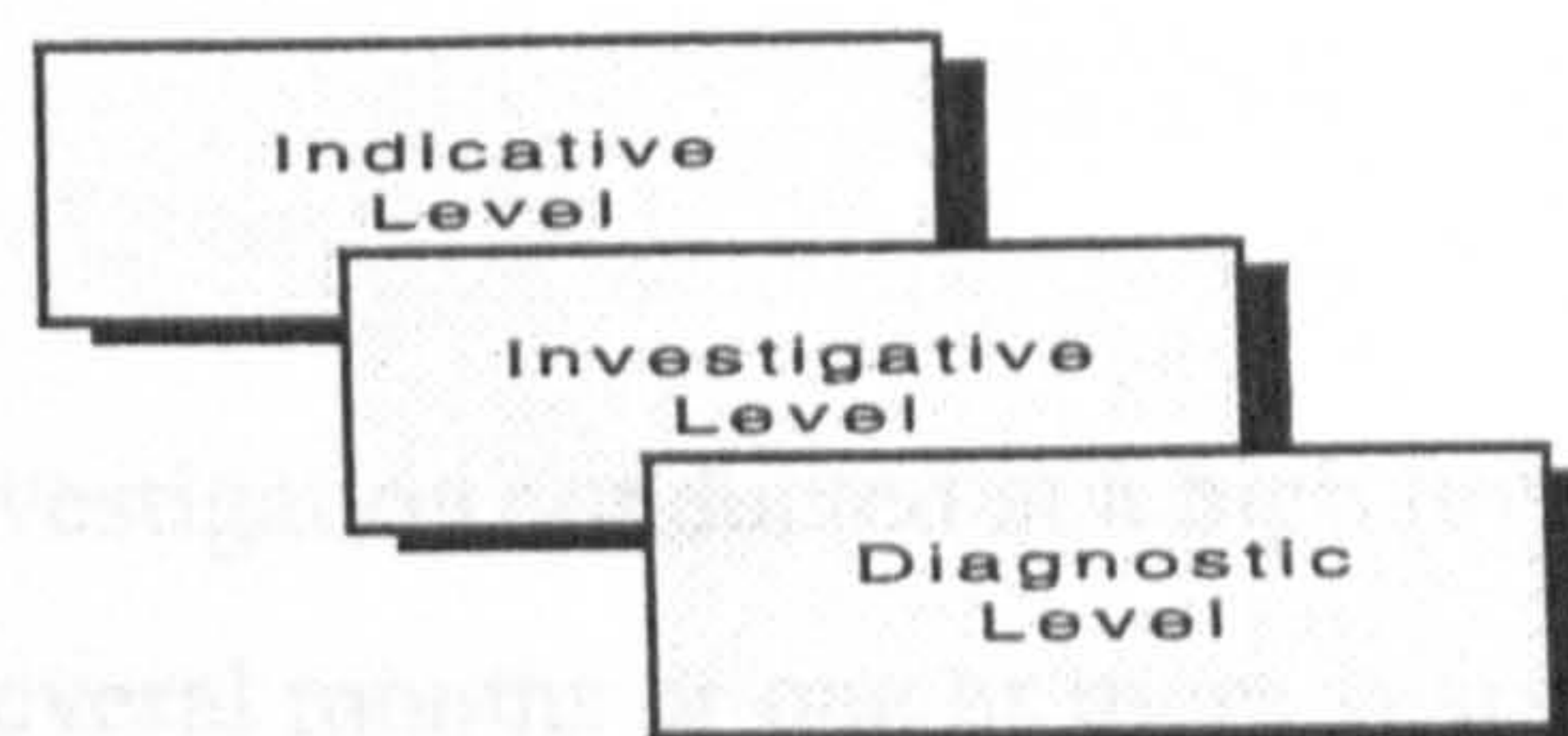


Figure 4.20: The performance concept has three levels of evaluation in an ascending order of complexity and time-consuming nature.

#### **A. The Indicative Level:**

The indicative level may be quick and inexpensive, yet it can yield good results, particularly when focused on few evaluation issues. It is usually carried-out within a short time-span. It provides an indication of major failures and successes of a built environment performance. The evaluation processes are usually made at a very basic level, e.g., the presence, frequency and location of elements that support activities. The commonly used data-collecting methods at this level are archives and document evaluation, walk-through evaluation using visual surveys. Performance evaluation for this level of effort is usually related to spatial preferences (see section 3.1), and based on the evaluator's experience.

#### **B. The Investigative Level:**

This level covers more issues with increasing depth, and with better reliability than an indicative level. It concerns performance assessment in relation to users actual behaviour in the areas under evaluation (see section 3.2). It is more time-consuming, and more complicated than the indicative level. It can cover more topics in greater detail, as it is usually conducted after an indicative level has identified issues that need further investigation. Techniques and methods of data collection and analysis include observations and impact-checklists. The results of an investigative level tend to be appropriate when they can be used to make major decisions about improving the environment under study.



### **C. The Diagnostic Level:**

This level is an in-depth and comprehensive investigation conducted at a high level of effort. The diagnostic evaluation may take several months or one or more years to complete. Large corporations and government agencies usually sponsor it. It is a research-oriented effort and it involves a high-cost as well as a high-effort. Its results are long-term oriented aiming to improve the knowledge in a given type of the built environment. Diagnostic evaluations use extensive and sophisticated data collection and analysis methods exceeding those of the indicative and investigative levels. They are concerned with the correlation of visual performance evaluation and attitude measures, and thus provide a better understanding of the relative significance of various performance criteria (see section 3.3). The resulting data from diagnostic evaluations are fairly accurate for use in making predictions for a given built environment performance and usually add to the knowledge through improvements in design criteria and guidelines.

The performance concept comprises three stages of development, i.e., planning, conducting and applying. Planning involves three activities: reconnaissance and feasibility, resource planning and research planning. The conducting phase is concerned with the description of the data collection procedure. The applying stage involves different data analysis techniques and cross-comparison measures. It is also concerned with the findings, reporting and recommending planning actions. Reviewing the outcomes of the evaluation process should be made after allowing the reactive effects of the process caused changes to be ameliorated. These stages of developments are discussed in detail in Appendix B. They are also related to the case study application in Chapter V (see section 5.2.3).

The proposed visual imageability concept is a systematic process involving multiple interests in the evaluation activity. It involves the users but does not exclude focused expert experience. The various benefits that might be gained when applying it include: increasing objectivity since opinion is replaced by measures of performance; helping in the development of a range of solutions to a design problem; and aiding in



decision making through objective analysis of different alternatives. Moreover, the visual imageability concept can be used for various purposes relevant to the visual performance of historic city centres including, studying the visible historical layers, studying the differences in reactions between certain user groups, evaluating the visual performance of existing historic city centres, comparing alternative urban proposals and establishing visual policies in terms of the visual performance dimensions. The visual imageability concept is adopted to the case study area, i.e., the historic centre of Salt in Jordan in Chapter V.

#### 4.5 Summary of the Chapter

This study aims to identify the main visual variables and to establish a systematic method for evaluating these variables at historic city centres. To address these broad objectives, the study proposes a visual imageability concept of three inter-related systems culled from the literature. The first system concerns the sources of visual satisfaction. Visual satisfaction is not a result of superficial aesthetic judgement, but the consequence of a spatial and formal experience within the built environment. Visual satisfaction is the pleasure and enjoyment derived from, the feeling of belonging to the area, the feeling of spatial orientation in the area, acquiring interesting visual experiences, the exploration, change and break with the familiar, the variety of choices and opportunities the area provides and from gaining a sense of comfort and security from the visual appearance of the environment.

To build a broader vocabulary, where opinion is replaced by measures of performance, these sources of visual satisfactions are incorporated in the second system as five performance dimensions: identity, order, variety, structure and fitness. Each dimension is represented by some visual variable concerning the spatial and formal characteristics of historic city centres. The third system concerns adopting a multi-level evaluation process that allows for user participation. The qualitative nature of the visual variables implies the necessity of involving the users in visual investigations. Preiser's et al "performance concept" has been selected as appropriate

participation mean. It has been chosen as a previously used process that supplied appropriate results. The performance concept has three levels of evaluation: the indicative, investigative and diagnostic.

The proposed visual imageability concept is a systematic process which involves the users but does not exclude expert experience. It aims at: increasing objectivity since opinion is replaced by measures of performance; helping in the development of a range of solutions to a design problem; and aiding in decision making through objective analysis of different alternatives. It can be used for studying the visible historical layers; differences in reactions between certain user groups; evaluating the visual performance of existing historic city centres; comparing alternative urban proposals; and establishing visual policies in terms of the visual performance dimensions.

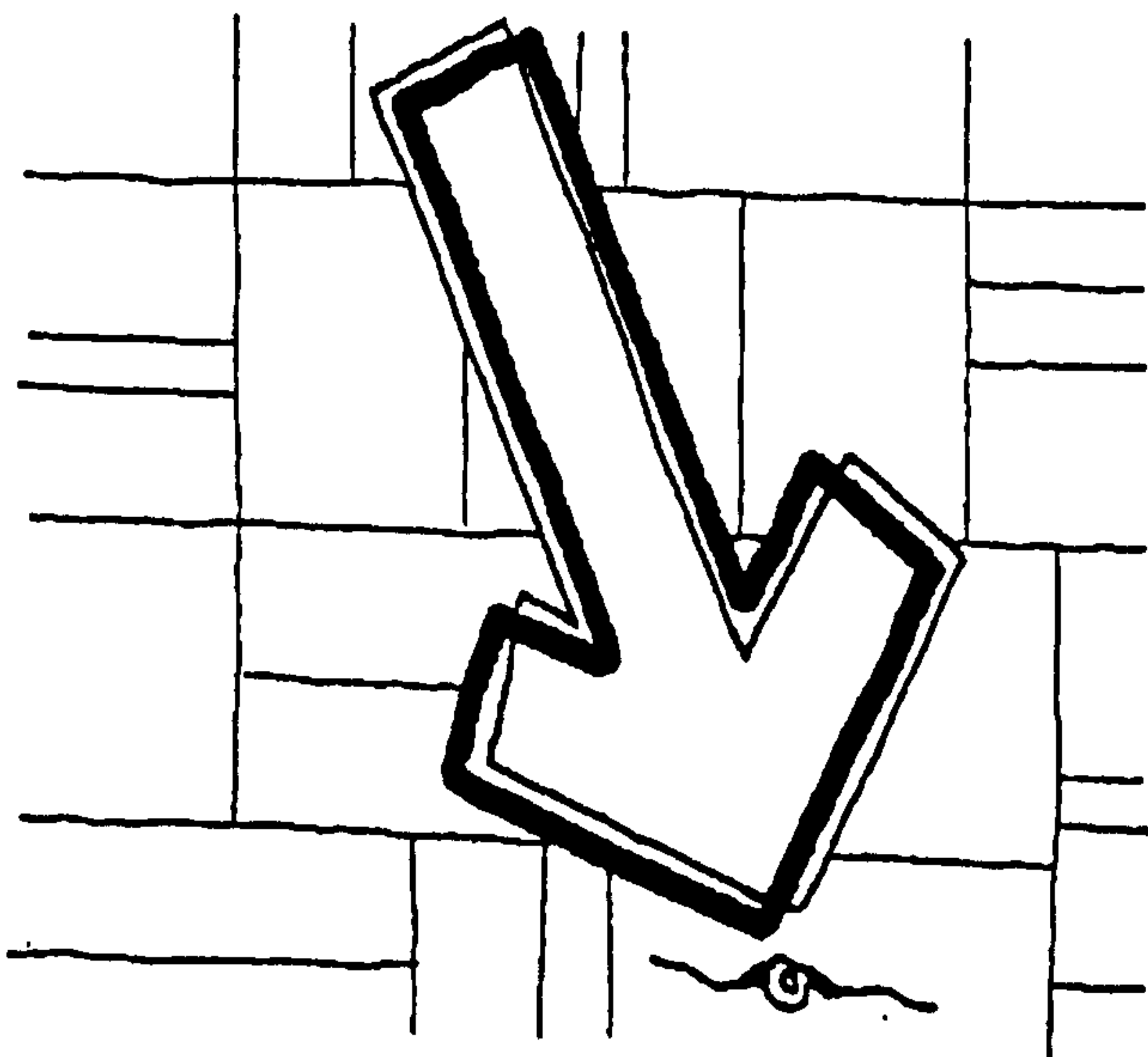
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**Chapter V**

**RESEARCH PROCESS  
AND  
METHODOLOGY**





## Chapter V

# RESEARCH PROCESS AND METHODOLOGY

### 5.1 Introduction

The previous chapter proposed a visual imageability concept for identifying and evaluating the dimensions of visual performance in historic city centres (see Chapter IV). In this chapter, the visual imageability concept is adapted to the case study area, i.e., the historic centre of Salt in Jordan, as a systematic and objective method of evaluating the visual performance from user preferences.

It was argued earlier that without evaluating the visual performance of the urban environment regarding its effects on users and occupants, there would be no improvement to the spatial and formal qualities of the built environment (see section 1.3.3). In Jordan, as well as most third world countries, the planning and designing of major urban design schemes are usually done without any input from the users and without evaluation of their performance including visual performance. This study is an experiment in the direction of developing a more comprehensive strategy of public participation in shaping the built environment.

This chapter presents the case study area where the three levels of evaluation have been conducted, i.e., the indicative, investigative and the diagnostic levels. Data-collection methods for these levels are described. Visual surveys are the main indicative data-collection method, while in the investigative level, visual-impact checklists are found to be appropriate. A questionnaire survey is the main diagnostic

method. Questionnaire design including pilot studies and pre-testing, sample design, processing and analysis techniques are explained.

## **5.2 Approach to Case Study**

This section addresses the scope of the case study, stating its objectives and hypotheses; discusses the rationale behind the site choice; and describes its stages of development and levels of evaluation.

### **5.2.1 Case Study: Scope, Objectives and Hypotheses**

The scope of the case study is concerned with the urban open spaces within Salt City Centre (SCC) in Jordan. Urban open space will refer to all spacescape elements, such as, buildings, streets, pedestrian ways and sidewalks, stairways, parks and green spaces and street furniture elements. Activities and uses that may help strengthen the urban open spaces, e.g., commercial and recreational activities are also considered open space elements.

Two major urban design schemes have been implemented in the historic centre of Salt in the 1990s. The first was concerned with the conservation and rehabilitation of "*Al-Hammam*" street. Occupants of the street were involved in the development and rehabilitation of the area at the various stages of the project, i.e., design and implementation. The second scheme was the introduction of a major urban development project known as the "Salt Civic Centre". The implementation of the new civic centre required the demolition of some old buildings that were considered, by the municipality, to be inadequate. The occupants of these old buildings were not involved in any of the project's stages, and they were forced to leave their area with compensation arrangements. The two schemes vary in scale, objectives, architectural style, building materials and morphological references. Yet both have contributed to the change of the visual performance of the area.



The objectives of the case study can be stated as follows:

- i. to evaluate the visual performance of SCC in accordance with the users' actual opinions, behaviour, preferences and level of satisfaction with the different components of the built environment. This would satisfy the main objective of the study stated in the introduction;
- iii. to establish practical guidelines for a visual policy for SCC based on the users' opinions and desires. This will satisfy the first hypothesis stated in the Introduction that "user participation will help to establish conceptual guidelines and practical visual policies for assessing design proposals for historic city centres"; and
- iii. to find out the differences in user's satisfaction and to identify the basis of these differences. This would satisfy the second hypothesis stated in the Introduction.

The proposed visual imageability concept suggested that the visual dimensions and the various variables that represent them come into play simultaneously as sometimes one dimension may dominate the others (see section 4.3). A change in one dimension may affect the other. These dimensions cannot be studied in isolation as they are connected and interrelated. Accordingly, within the objectives stated earlier, the case study tries to investigate and verify the following hypotheses:

- i. Differences in user's level of satisfaction will occur regarding the visual performance of *Al-Hammam* street rehabilitation project, and the Salt Civic Centre urban development project.
- ii. There is a positive association between the visual variables of "spatial orientation" and "hierarchy", i.e., it is easier to find one's way in a place if it contains landmarks and distinguished features that work as visual clues.
- iii. There is a positive association between the visual variables of "morphology" and "character". SCC's visual appearance, for example, is highly related to its unique topography and landform.
- iv. There is a positive association between "character" and "spatial orientation". SCC memorable images could help in finding one's way in the area.

The above mentioned hypotheses are complementary to the general hypotheses stated in the Introduction (see section iii), and compatible to the proposed visual imageability concept.

### 5.2.2 Rationale Behind the Site Choice

The historic centre of Salt was chosen for the following cultural, social and practical factors:

- i. Salt City Centre (SCC) is significant for the numerous reminders of its past that still exist, as well as for its dramatic landform and topography. Thus, it was chosen for study as one of the earliest and most unique urban settlements in the region (see Appendix G).
- ii. There is a pressing need for such undertaking in SCC. This is due to the present threat to its visual structure and unique spatial qualities, as well as to halt the danger of destruction of its historic buildings and traditional form. Such danger is not only caused by the unsympathetic new additions but also by the deterioration and demolition of many valuable buildings and places. Many old traditional and architecturally unique buildings of the city centre were demolished during the twentieth century<sup>1</sup>. These include a twelfth century Citadel, an eighteenth century Ottoman *Saraya* (administrative headquarters), *Posta* (post office), mosque and other important buildings.
- iii. There is a current trend of social segregation in the area. Some of the area's original residents are moving into other places and leaving their architecturally valuable buildings to be used as warehouses. Those who can not afford relocation are mainly the poor residents.
- iv. The ability to recognise and compare between the visual impacts of the two major urban design schemes implemented in the study area (see section 5.2.1).
- v. The availability of previous detailed urban studies covering aspects affecting the city and its development prospects<sup>2</sup>. Although these studies



did not tackle the visual performance of the area, they are significant in more than one sense. Firstly: they showed awareness of SCC's rich historic spatial, cultural and historic importance. Second: they defined the common problems relating to the existing urban conditions, i.e., the pedestrian-vehicular conflict, decline of commercial facilities and deterioration of historic pattern. Third: they provided a great deal of documented and analysed data as well as general guidelines that will be helpful and useful to this study.

- vi. The possibility of applying the research results, proposals and recommendations.

### **5.2.3 Case Study Stages of Development**

The application of the proposed visual imageability concept at SCC involves three stages of development: planning, conducting and applying<sup>3</sup>. This section reviews the first two stages of development. The third stage is presented in Chapters VI, VII and VIII. Figure 5.1 explains the general framework of the visual imageability concept, whereas Figure 5.2 shows its application at SCC.

#### **A. Planning the Case Study:**

This stage of development involves three activities: reconnaissance, resource planning and research planning (see Appendix B). Reconnaissance and feasibility planning are important to determine the appropriate data collection methods of the three evaluation levels. Resource planning is the second step in planning the case study. Basic data and maps were obtained from the Municipality of Salt. These included the city Master Plan, land-uses and land subdivision maps, the two major urban schemes, and other general information concerning the residents and activities within the study area.

Research planning is the third step in planning the case study. This step includes a number of activities, these are: determining the items to be investigated, choosing



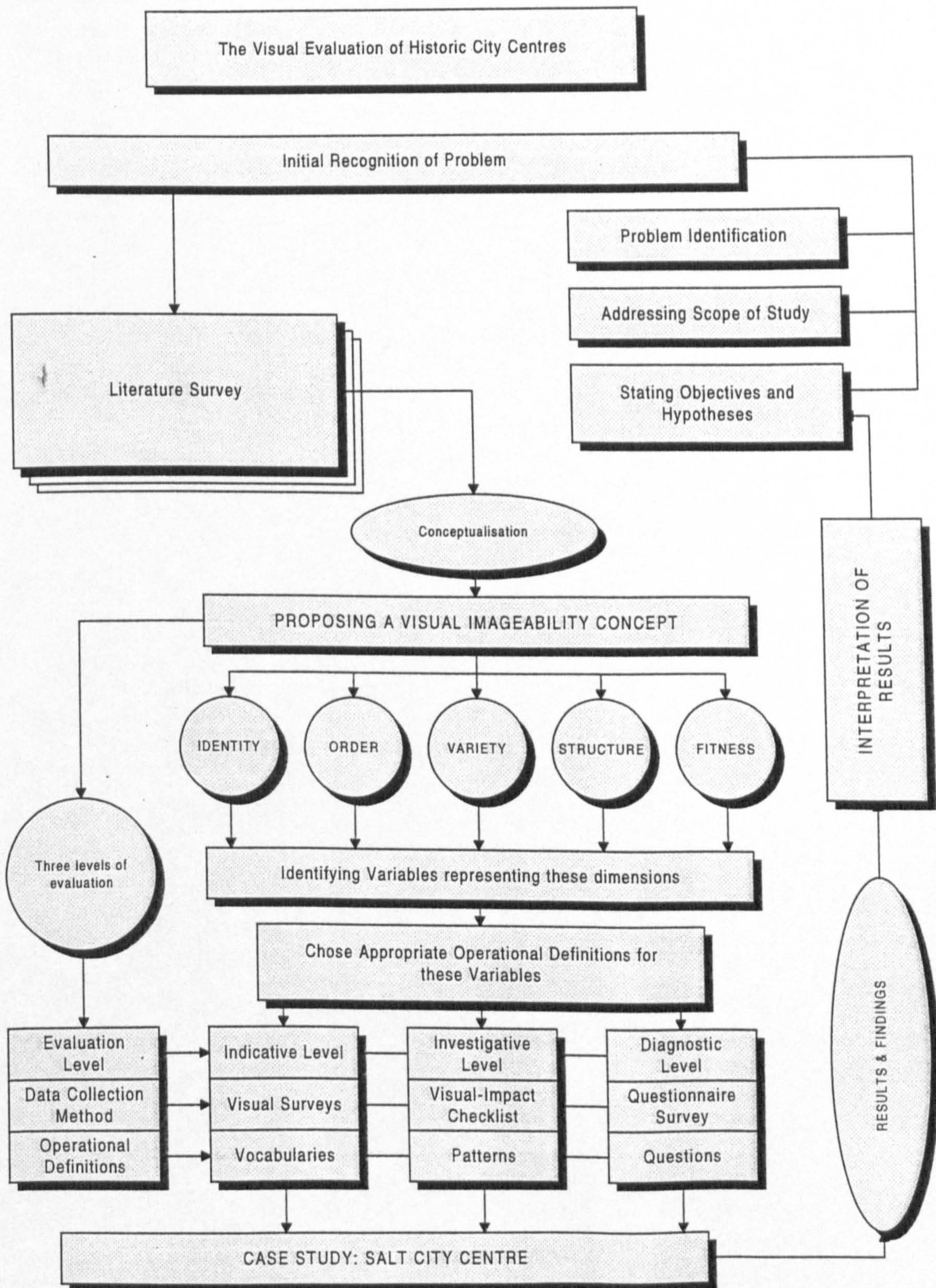


Figure 5.1: Flowchart showing the general aspects of the visual imageability concept .



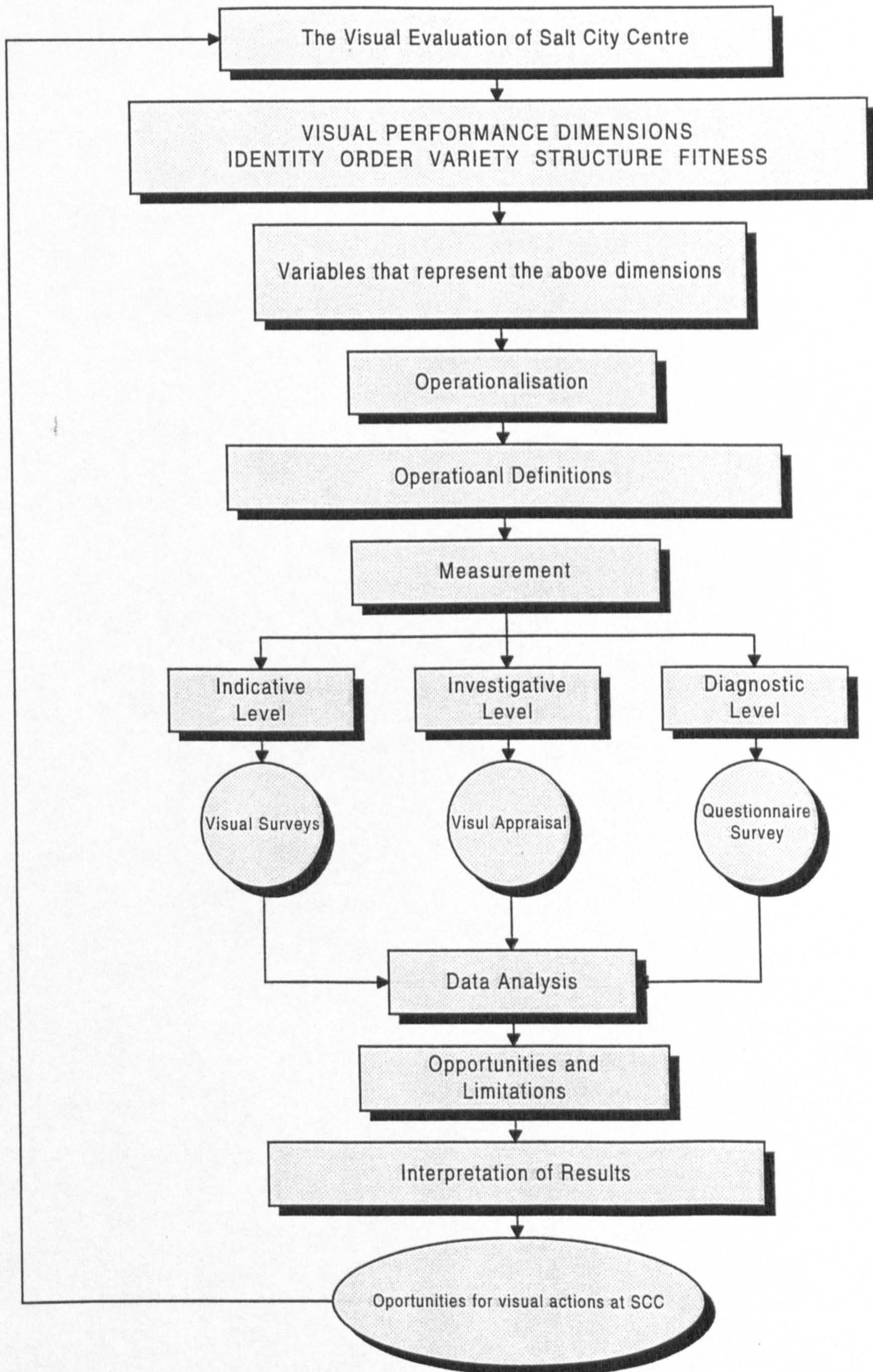


Figure 5.2: The application of the visual imageability concept at SCC.



variables that will represent these items, developing specific measures for these variables, setting criteria to evaluate the measures and interpreting the results and conclusions.

To avoid personal bias and error, the data collection and analyses do not rely on subjective sources of data, such as: personal diaries, historic accounts, autobiographies, family's photo albums and other sources. These sources were used only to enhance the researcher's general knowledge about the complex events and processes in the study area, but they were not considered as reliable sources of data.

### B. Conducting the Case Study:

The key task in conducting the case study is the data collection procedures and management. A multi-level evaluation process has been selected for this study, i.e., a modified version of Preiser's performance concept<sup>4</sup> (see section 4.4.2). The process has three evaluation levels: the indicative, investigative and diagnostic<sup>5</sup> (Figure 5.3). For each evaluation level there are different data-collection methods. A preliminary plan of the data collection and assessment methods was established based on three determinants (see section A.2/Appendix A). These are: the

nature of the values to be studied, extents of participation and the available resources.

This study, at SCC, aims to describe the visual performance of the area, assess its merits and explain its performance. The qualitative nature of the values under investigation, therefore, suggests qualitative research measures that allow for user participation and do not exclude the experience of experts.

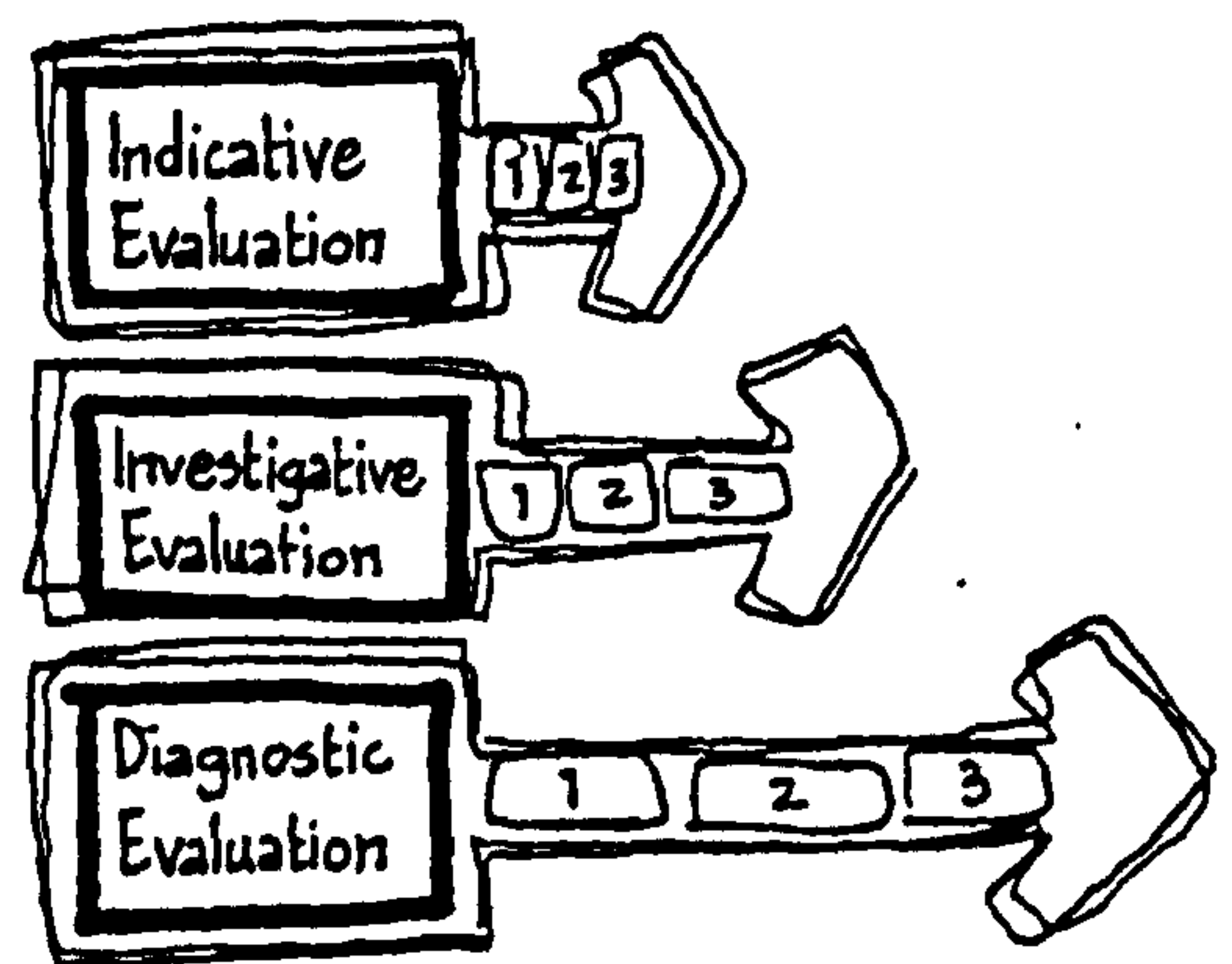


Figure 5.3: The process have three levels of evaluation: the indicative, investigative and diagnostic.

Adaptive: Preiser, Wolfgang., et al., *Post-Occupancy Evaluation*, New York: Van Nostrand Reinhold, 1988, p. 53.



The indicative level<sup>6</sup> concerns the evaluation of visual performance in relation to spatial and formal preferences. It aims at analysing the visual characteristics of the study area (Figure 5.4). This is necessary to identify the layers of development, to determine the importance of its visual characteristics and to provide a broad framework of understanding of the present situation. For this level, visual surveys accompanied by casual observations are appropriate for determining the visual characteristics of the area. Many of the critical aspects of the visual performance could be discovered and resolved at that stage.

Other critical aspects would need further in-depth analysis and have been focused-on in the investigative and diagnostic levels of evaluation. The investigative level concerns the evaluation of visual performance in relation to the actual behaviour of users in the area. It aims at covering visual aspects in greater detail than the indicative level and with greater reliability<sup>6</sup> (Figure 5.5). For this evaluation, a visual-impact checklist concerning SCC's various visual aspects were found to be suitable. Limited unstructured interviews will aid in preparing that visual-impact checklist.

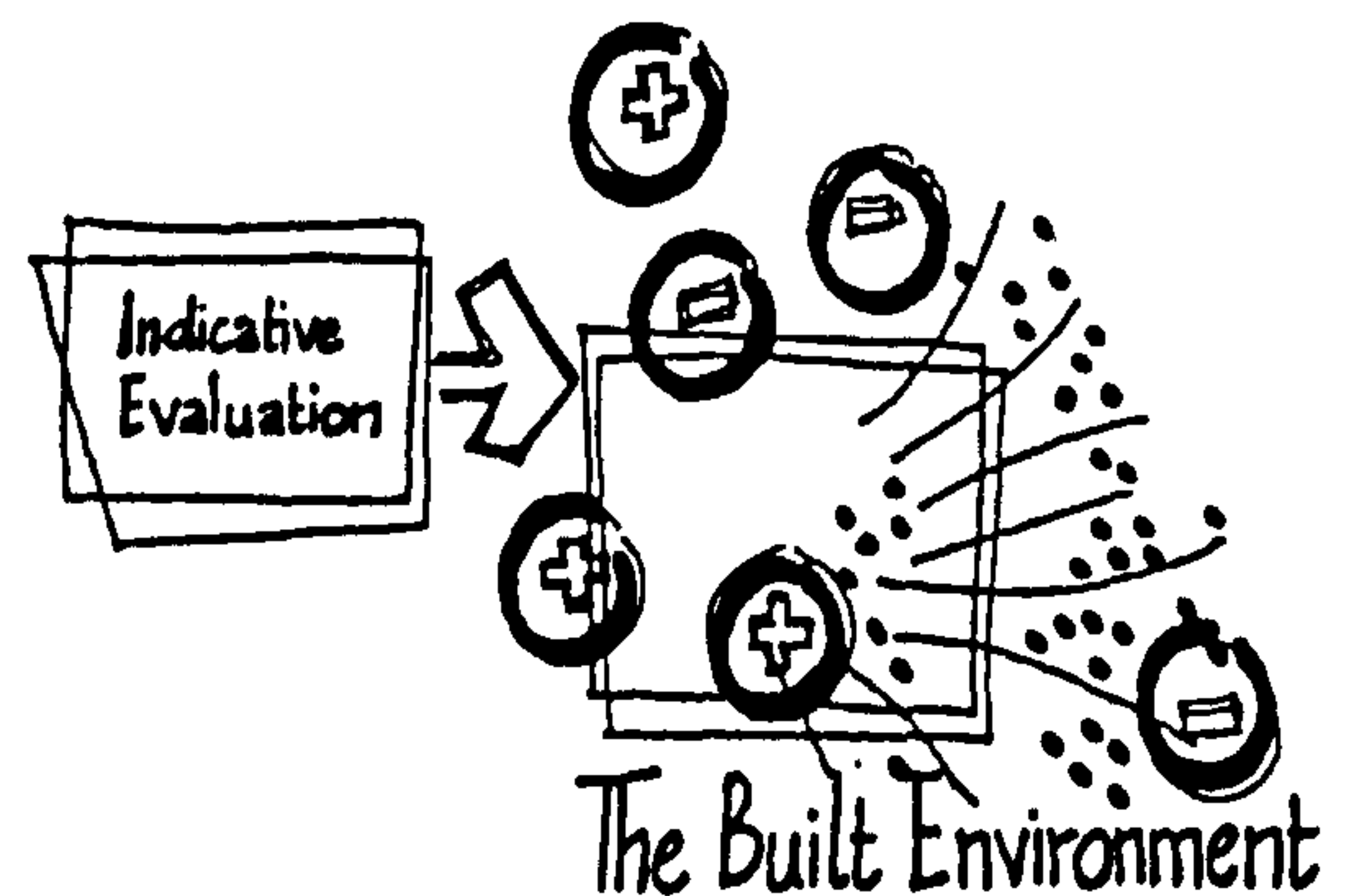


Figure 5.4: The indicative evaluation indicates the major success and failure of the visual performance of the built environment. Adapted: Preiser, et al., *Post-Occupancy Evaluation*, p. 55.

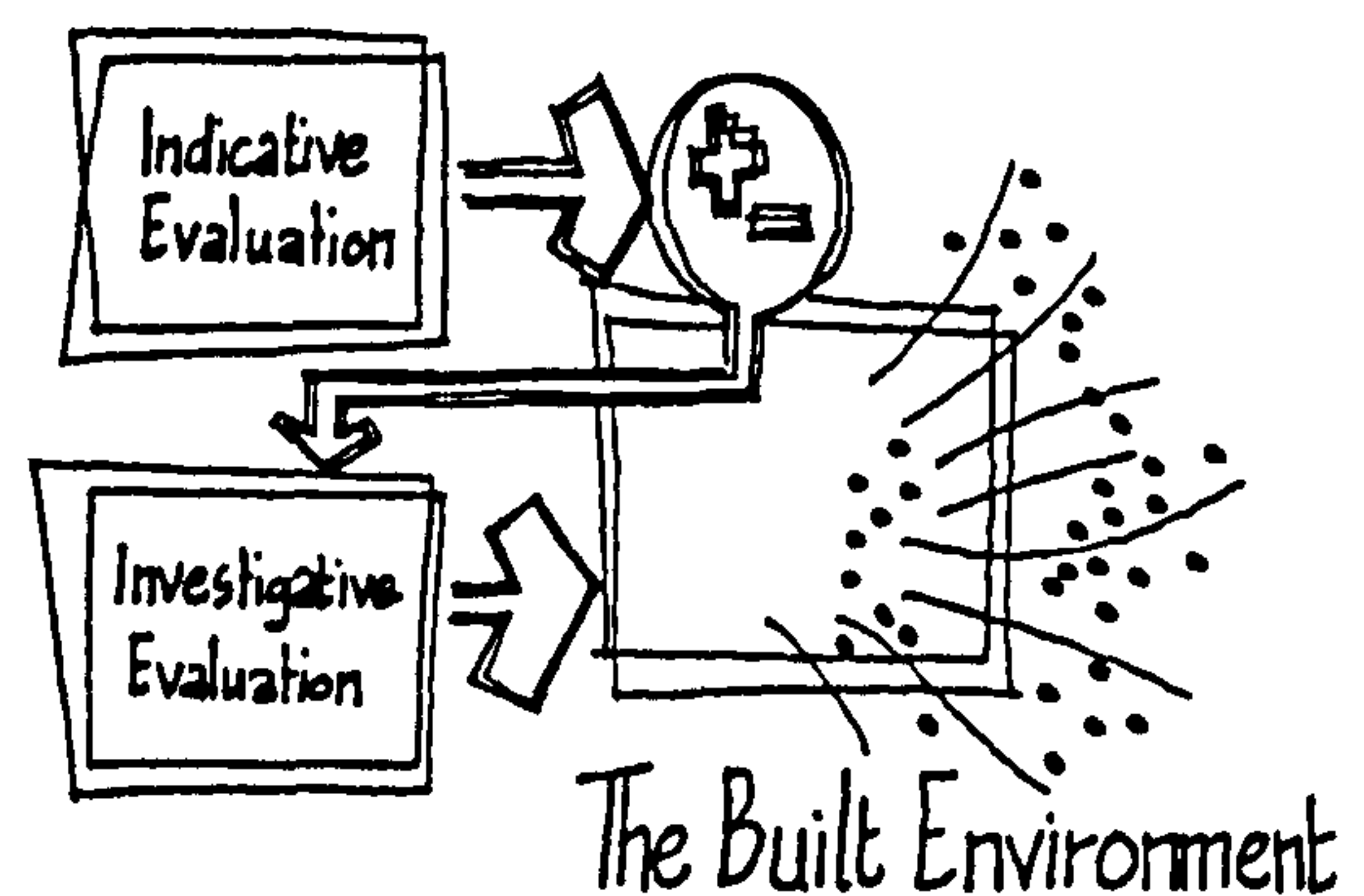


Figure 5.5: The investigative evaluation concerns more detailed studies. Adapted: Preiser, et al., *Post-Occupancy Evaluation*, p. 56.

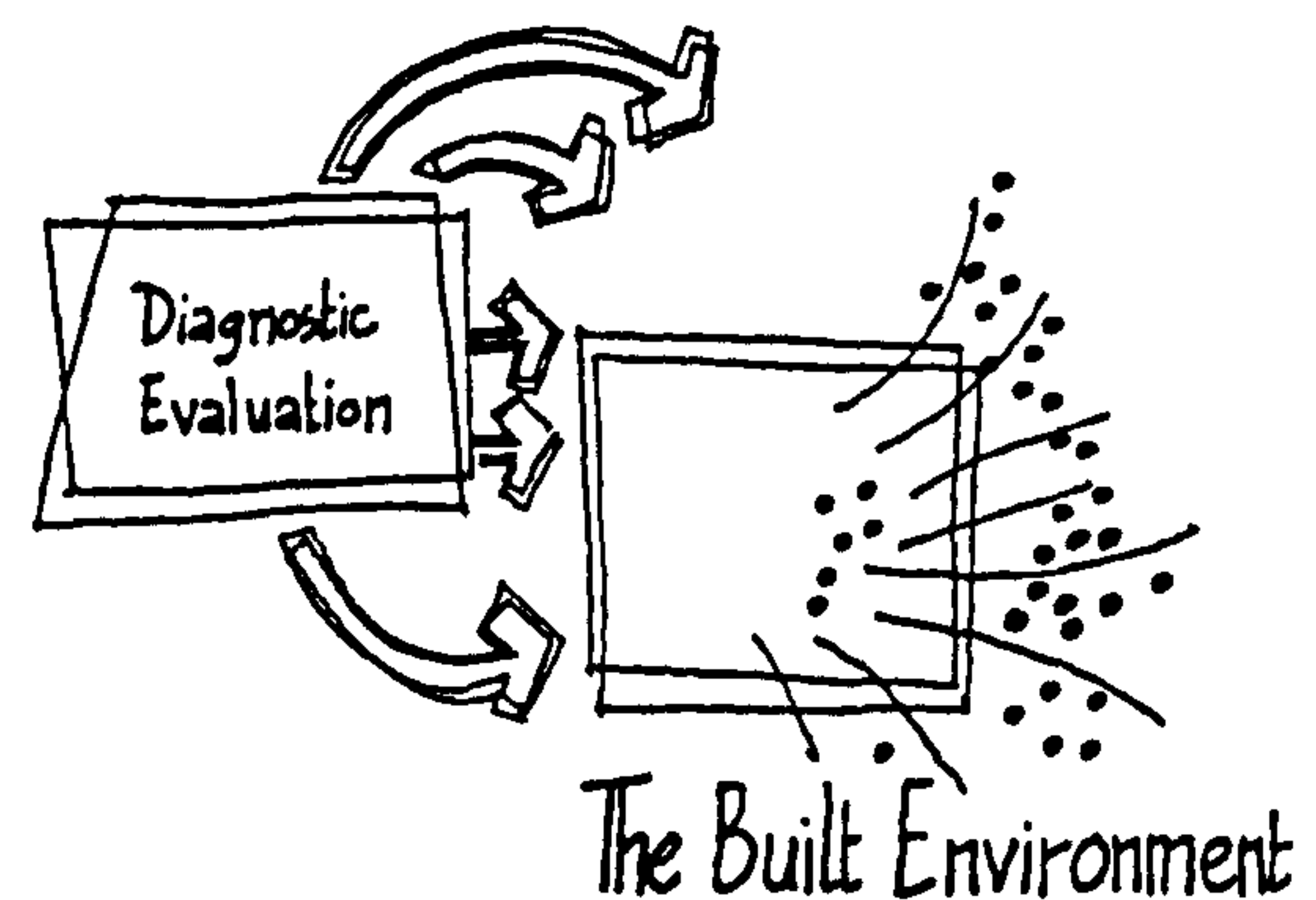


Figure 5.6: The diagnostic evaluation is an in-depth and comprehensive undertaking. Adapted: Preiser, et al., *Post-Occupancy Evaluation*, p. 57.

The diagnostic level concerns the evaluation of visual performance in relation to users' attitudes. It is an in-depth and comprehensive undertaking aiming to provide a better understanding of the different aspects related to visual performance<sup>7</sup> (Figure 5.6). For the diagnostic level, participation aims to achieve a feedback evaluation of the visual performance of SCC. This includes identifying successes and failures in the performance, and recommending suitable actions to resolve its problems. The scale of setting, here, is an important determinant of the appropriate data-collection method. The opportunities of small scale setting (see section A.1/Appendix A), however, are applied at SCC. For small scale settings the use of direct communication methods, such as, a questionnaire survey is suitable for involving the users intensively in the evaluation process. This choice is suitable for SCC where users are a relatively small and reasonably homogeneous group.

The data collection is related to the proposed five visual performance dimensions, i.e., identity, order, variety, structure and fitness, and the variables that represent them. It is required to translate these concepts into observable and measurable events. Accordingly, specific operational definitions should be made for explaining, comprehensively, each of the five visual performance dimensions and the variables that represent them, i.e., translating the variables under study into measurable aspects.

A multiple understandings of the operational definitions should be generated according to the nature of the level of evaluation and the data collection methods used, i.e., the indicative, investigative and diagnostic. For each level of evaluation specific operational definitions should be made for explaining, comprehensively, each of the five visual performance dimensions and the variables that represent them. In the indicative level the visual dimensions and variables were defined as vocabularies for visual survey. In the investigative level these dimensions and variables were developed into a pattern language capable of representing the visual dimensions under investigation (see Appendix C). These dimensions and variables were incorporated into the questionnaire survey through the different questions that the respondents were asked (see section D.1/Appendix D).



### 5.3 Case Study Levels of Evaluation

Within a 14 months research horizon, the visual evaluation of SCC is to be conceived in three levels of evaluation, i.e., the indicative, investigative and diagnostic (Figure 5.7). The researcher has chosen an appropriate timing for conducting the case study. This was important to minimise the effects of the local events on the results of the evaluation process. Local events, such as municipality or local government elections, football matches, major economic crisis, as well as other events, can have a significant effect at the expense of the true performance.

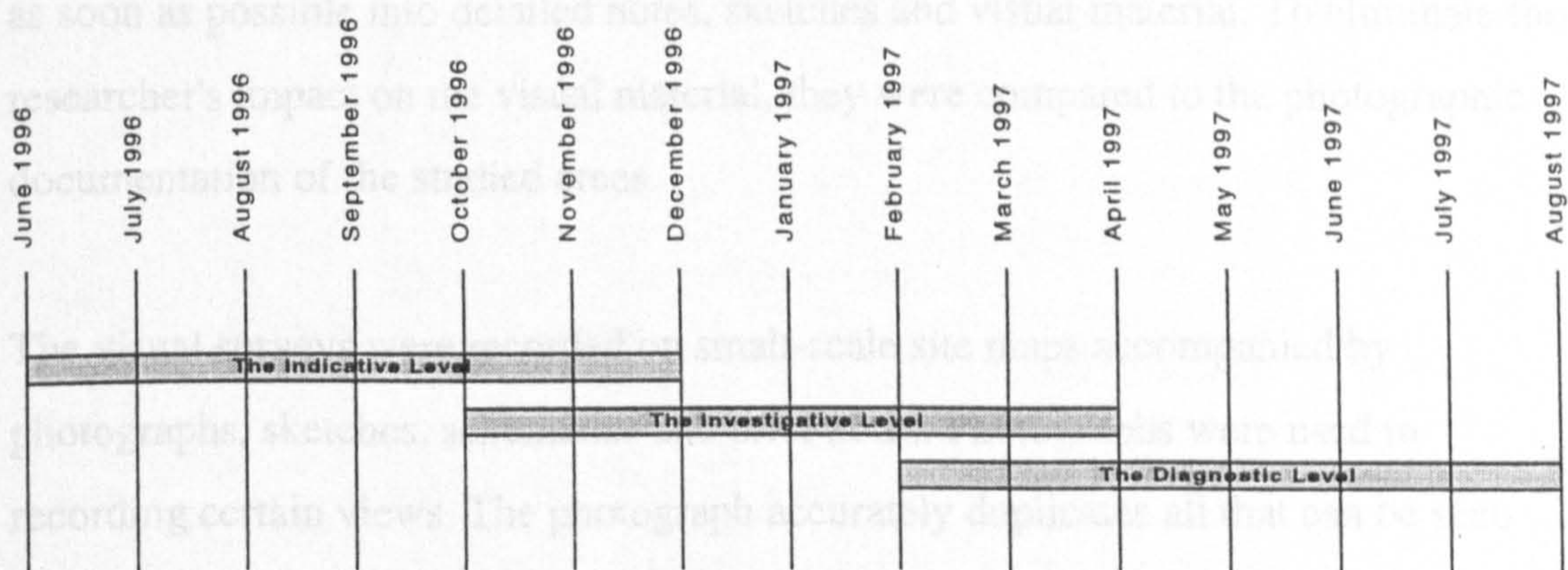


Figure 5.7: Research timetable.

#### 5.3.1 The Indicative Level

The indicative level focuses on measuring the spatial preferences of SCC. Since this study is concerned with visual matters, it is appropriate that it is conducted in visual terms. Visual material alone, however, cannot provide a comprehensive level of understanding. A verbal description accompanying visual material is essential. Although visual information is not as easily conveyed by written word, a verbal description could be a source of a rich and profound level of understanding. The sequence of practical data collection started with a visual survey as the main indicative method of this study. Existing professional research literature and the evaluation of previous works dealing with similar situations were of great



importance. Gordon Cullen's visual analysis of townscapes<sup>8</sup>, as well as Paul Spreiregen<sup>9</sup> analysis, were very useful for the development of that vocabulary. Conducting the visual survey requires the availability of two abilities: visual acuity and visual expression<sup>10</sup>. Visual acuity is concerned with the visual message one receives, whereas visual expression is concerned with the visual message one sends. The researcher carried out many intensive visits to the area spread over a number of days during June-December 1996. These visits were planned to cover different days of the week including weekends and holidays at differing hours, i.e., mornings, evenings and nights; and on different weather and climatic conditions. Notes, diagrams, schematics and photographs were taken at the time. They were transformed as soon as possible into detailed notes, sketches and visual material. To eliminate the researcher's impact on the visual material, they were compared to the photographic documentation of the studied areas.

The visual surveys were recorded on small-scale site maps accompanied by photographs, sketches, schematics and brief notes. Photographs were used in recording certain views. The photograph accurately duplicates all that can be seen from a specific standing point. Sketches are more elaborated than photographs. They involve experience and provide a higher level of interaction and understanding between the researcher and the observed subject. Schematics, however, are important in recording ideas, placing emphasis on certain points, or underlying anything that the eye cannot see all at once. The use of visual notations is necessary to record what cannot be seen directly by the eye or by the camera.

An on-site walk-through study and casual observations analysing the existing conditions as well as the visual aspects and conflict points in the study area supported the visual survey. Both observations and a walk-through study were beneficial in clarifying the critical issues regarding the space performance of the area. Certain discordant elements were noted as faults to be enhanced; others noted as assets to be protected. They also lead to some ideas for actions, i.e., disclose a number of ideas for improving, correcting or replacing certain objects in SCC.



### 5.3.2 The Investigative Level

The investigative level focuses on the nature of behaviour as a way for evaluating the visual performance of SCC. It aims at understanding two human aspects related to visual performance: how people conceive the visual performance of the area and how they act in it. The investigative level concerned a visual appraisal at SCC with a visual-impact checklist as the main data collection method. Within the checklist a few users were informally interviewed to get their impressions about the key physical elements based on Lynch's theory of city image<sup>11</sup> (Figure 5.8). This was important to select appropriate sample areas for the checklist's application.

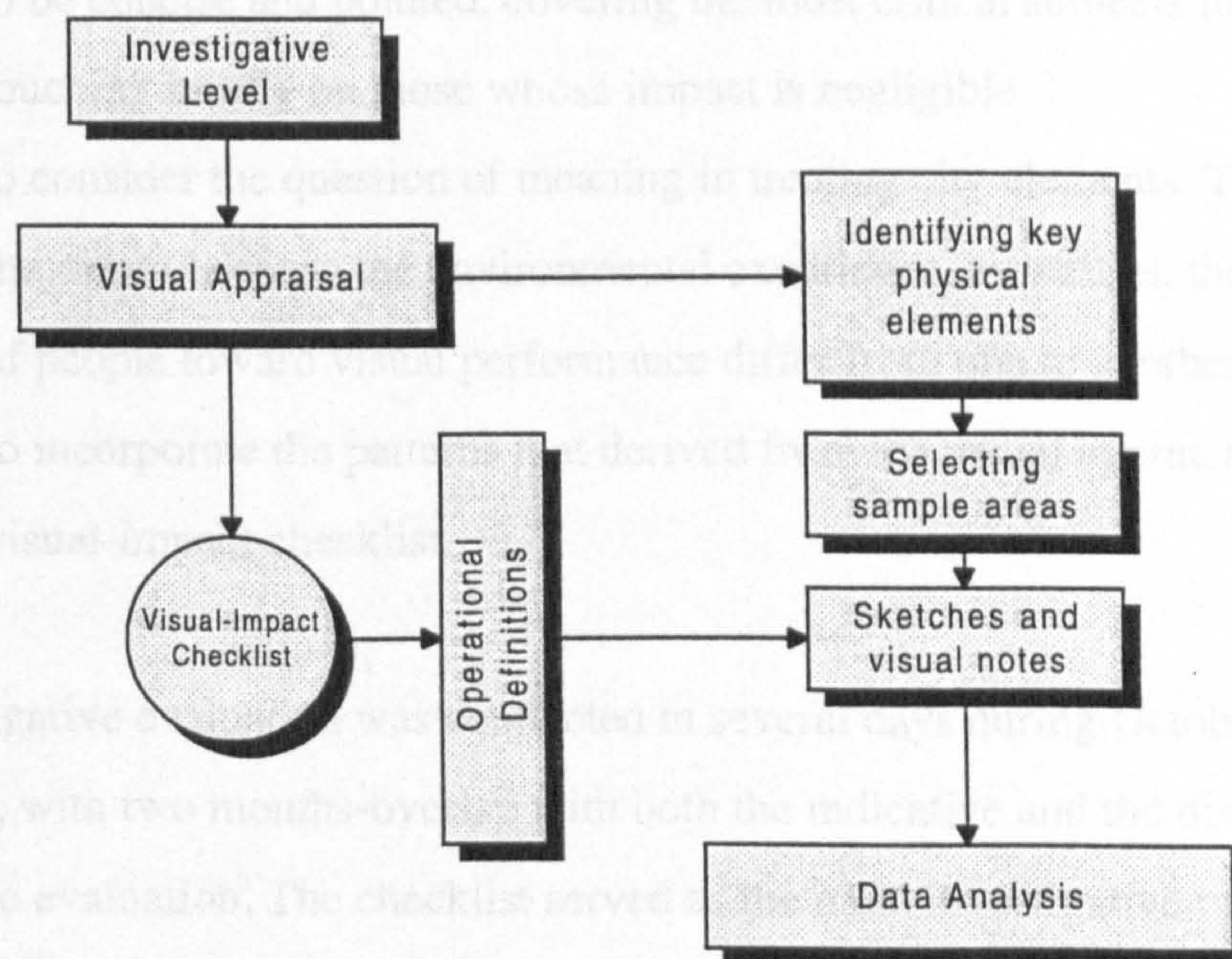


Figure 5.8: A flowchart showing the different stages in the investigative level.

#### A. The Visual-Impact Checklist

To guide the collection of existing visual information, a visual impact checklist of patterns was prepared for use in the investigative level. Christopher Alexander's pattern language<sup>12</sup> as well as Lynch's and Hack's<sup>13</sup> proposal for a site-impact checklist was of great help in the designing and preparing of the visual performance checklist. Peter Smith's analytical program for aesthetic assessment was also important for the preparation of this stage<sup>14</sup>. His program is among the first attempts



to focus on the detailed appearance of aesthetic qualities as important factors in assessing the visual performance of an area (see section 3.2.3). The checklist was prepared according to the following considerations:

1. to emphasise that the different key physical elements of the built environment are not experienced individually, but interactively in relation to their context.
2. to consider the importance of movement while investigating the checklist's components. Visual experience can be better gained through movement through the area.
3. to be concise and pointed, covering the most critical subjects in depth, touching briefly on those whose impact is negligible.
4. to consider the question of meaning in treating city elements. This is important because the environmental experience, as well as, the objectives of people toward visual performance differ from one to another.
5. to incorporate the patterns that derived from the visual appraisal in the visual-impact checklist.

The Investigative evaluation was conducted in several days during October 1996-April 1997, with two months-overlap with both the indicative and the diagnostic levels of the evaluation. The checklist served as the main investigative method of the study. It covered both positive and negative patterns (see Appendix C). However, the problem of objectivity in applying the visual impact-checklist has some entry points of error and bias that should be eliminated. These are:

1. The selection of the aspects to be observed within the broad framework of visual performance dimensions, variables and patterns provided.
2. The researcher's preconceptions may also affect the judgement. Instead of recording what he actually observed, he may fit his inference.
3. The researcher's ability to describe objects and phenomena as they are observed.



4. Appealing to a single element, or treating the researcher's point of view as an explanation.

The researcher's interest, experience and academic background helped him to avoid the effects of these points. It is important to mention that the investigative level is limited to certain sample-areas representing the different key physical elements within SCC. Accordingly, the data obtained is useful for preparing development measures for these particular areas. For other areas, it is essential to expand the scope of the investigation.

## **B. Selection of Sample Areas**

Before conducting the checklist, it is necessary to identify the areas in which the checklist will be applied. It is important to avoid a subjective selection of these sample areas based on the researcher's personal preference. Accordingly, the selection of these areas depended on Lynch's theory of city image<sup>15</sup>, i.e., to involve the users in selecting sample areas representing the key physical elements of SCC according to Lynch's studies. Lynch suggested five key physical elements of city form: paths, nodes, edges, districts and landmarks. This is an attempt to link the proposed visual imageability concept to an existing theory of urban form. While considering the reservations expressed to Lynch's city image studies (see section 3.2.2), the study of SCC's key physical elements will consider the following:

1. the definitions used by different groups of people rather than imposing one rigid definition for each element of the city.
2. these key elements are not experienced individually, but interactively with their surrounding and activities.

To identify SCC's key physical elements, the researcher interviewed 32 passers-by in SCC. They were asked three similar, but not identical, questions to those of Lynch's. Certain modifications, amendments and omissions were made to adjust the city image theory to suit SCC situations. The questions are:

1. Give a brief description of the route you followed today, starting with your departure point at SCC up to this point.
2. List the most distinctive elements of SCC where a distinctive element might be a street, a building, a sign, a garden or any other feature you feel has a character it worthy of being pointed out.
3. Why do some areas in SCC appear as enjoyable and hospitable for people on their daily activities while others are unattractive?

Lynch's first question asking the users to draw directional maps is changed to ask for a verbal description of SCC in order not to influence the respondent's way of seeing. Asking the respondent for a directional map, might force him/her to draw streets and pathways. However, when left to his/her devices, the respondent may see and describe the area as a wholly integrated space with various characteristic spatial elements, i.e., sets of places, journeys or images. Such change also allows for coping with the different levels of ability and personality of the respondents, as not all people are able to draw or understand maps.

The second question of listing distinctive elements is similar to Lynch's question. An explanation of what might be a distinctive element, however, is made. To build a broader picture from the basic framework provided by Lynch, a third question was added. This question asked about the reasons that make some spaces in the city centre hospitable and enjoyable and others unattractive and boring. This question was posed to give weight to other aspects of SCC besides its physical objects.

The main objective of the interview is to help the researcher in selecting certain areas for conducting the visual-impact checklist depending on the users' reactions regarding SCC physical elements. However, there is no aim to gather any statistical data, as the sample of 32, and the sampling process used do not allow for a "public image" generalisation.



### 5.3.3 The Diagnostic Level

The diagnostic level focuses on user attitudes toward the visual performance of SCC. The questionnaire is the main diagnostic method of this study. It includes a comprehensive set of questions enabling the users to express their opinions about the major points relating to the visual performance of the study area (Figure 5.9).

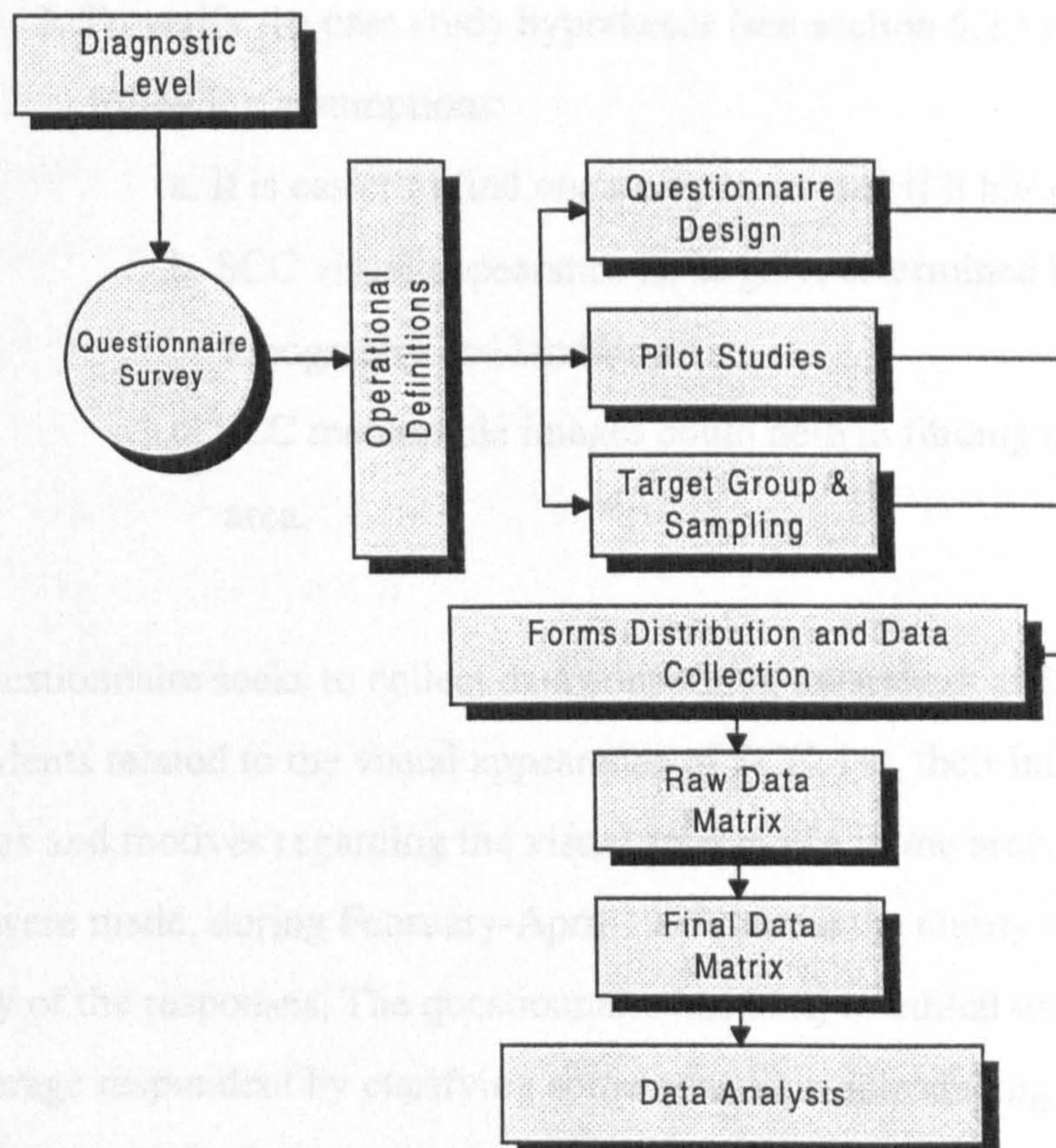


Figure 5.9: A flowchart showing the different stages in the diagnostic level.

The main objectives of the questionnaire survey are:

1. To evaluate the visual performance of Salt City Centre (SCC) with respect to the proposed five visual performance dimensions, i.e., identity, order, variety, structure and fitness. This is important to determine the hierarchy of the variables represented by these dimensions, which, in turn, will help in establishing a visual policy for SCC.
2. To address the effect of user participation on the level of satisfaction. This can be accomplished through:



- a. Compare the responses toward " *Al-Hammam Street Rehabilitation Project*" where the users participated in the development process, and the "Salt Civic Centre Urban Development Project" where users were ignored.
  - b. Compare the overall opinions toward SCC's visual appearance of those who were previously involved in the area's development and those who were not.
3. To verify the case study hypotheses (see section 5.2.1) through testing the following assumptions:
- a. It is easier to find one's way in an area if it has strong visual clues.
  - b. SCC visual appearance is, largely, determined by its unique topography and landform.
  - c. SCC memorable images could help in finding one's way in the area.

The questionnaire seeks to collect data concerning awareness and knowledge of respondents related to the visual appearance of SCC, i.e., their intentions, attitudes, opinions and motives regarding the visual appearance of the area. Three pre-testing pilots were made, during February-April 1997, to test the clarity of the form and validity of the responses. The questionnaire has been re-edited to be meaningful to the average respondent by clarifying some questions, introducing others and cancelling some irrelevant ones.

The questionnaire was five pages long with eleven main questions, some of which have a number of secondary questions. A letter describing the goals of the survey as well as instructions for how to complete the questionnaire was attached. The questionnaire forms were in Arabic to enable communications with respondents. A combination of closed and open-ended questions was used. The questionnaire depends mainly on a five-point semantic differential scale on which the participants rate their opinion towards the issue under investigation.



The target group included the users who are most exposed to the built environment and use it most often, i.e., shop-keepers, house-holders and office-workers. Rating records, listing all buildings within SCC district, have been provided by The Salt Municipality. A probabilistic method for sampling was used, i.e., employing a table of random numbers representing the different shops, houses, offices and other activity zones within the study area. That provided equal opportunity for every member of the target group to be selected<sup>16</sup>. This is important for generalising the propositions established from the sample to the entire population.

The sample size was decided according the required accuracy and the availability of time, personnel, cost and other practical considerations. To produce meaningful results, a sample size of 7%-10% of the target group was found to be appropriate. Out of 425 forms distributed, 349 were returned with an 82% response rate. The number of non-responses was quite small and did not affect the adequacy of covering the whole target group population. The survey was conducted in a 12 weeks period during April-August 1997. Detailed explanations of the questionnaire operational definitions and design, pilot studies and the sampling process as well as the English translation of the questionnaire form is contained in Appendix D (see section D.5).

Addressing the data analysis techniques is important to ensure that the analysis undertaken contributes directly to the research objectives and hypotheses.

Accordingly, statistical analysis of the questionnaire survey aims to: i) interpret the data obtained; ii) assess the statistical significance of the findings; iii) test the inter-reliability of responses; and iv) determine the nature of relationships between two variables, i.e., whether they are related or not.

Analyses includes descriptive statistics in order to provide a useful initial examination of the data as well as an appropriate test of associations to assess the nature of relationships between certain pairs of visual variables. The categorical nature of data, the qualitative nature of variables, the level of measurement, i.e., parametric or non-parametric measurement and the sample characteristics<sup>17</sup> determine the selection of the appropriate statistical tests for analysis. These three



determinants are summarised and illustrated in relation to commonly used statistical tests (see section F.2/Appendix F). The "Phi-Coefficient" test was found to be appropriate for this study<sup>18</sup>.

#### 5.4 Summary of the Chapter

The proposed visual imageability concept was applied to Salt City Centre. The study area was chosen as one of the unique urban areas in the region, as well as the possibility of applying the research results, proposals and recommendations. The case study scope, objectives and hypotheses are presented. They are complementary to the general objectives and hypotheses stated in the Introduction.

The application of the proposed visual imageability concept at SCC involves a multi-levelled evaluation process of indicative, investigative and diagnostic evaluations. Such multi-levelled process allowed for user participation while not ignoring experience of experts. It also allowed for visual evaluations in relation to spatial preferences, users' behaviour, and users' attitudes toward visual qualities. Each of three levels of evaluation has three stages of development: planning, conducting and applying. For each level of evaluation there are different data-collection methods. A visual survey of SCC was made in the indicative level documenting its visual characteristics. The investigative level was accomplished by conducting a visual-impact checklist at sample areas representing SCC's key physical elements. Users were involved in selecting these sample areas depending on a modified version of Lynch's studies of city image.

The questionnaire survey found appropriate for the third level. Pilot studies were made to refine the questionnaire form. The target group was defined as those who are most affected in the area developments, i.e., the householders, shop-keepers and office-workers. The sampling was made giving an equal opportunity for all the members of the target group population to participate. The objectives of the analysis have been identified. Descriptive statistics and Phi-Coefficient statistical tests found



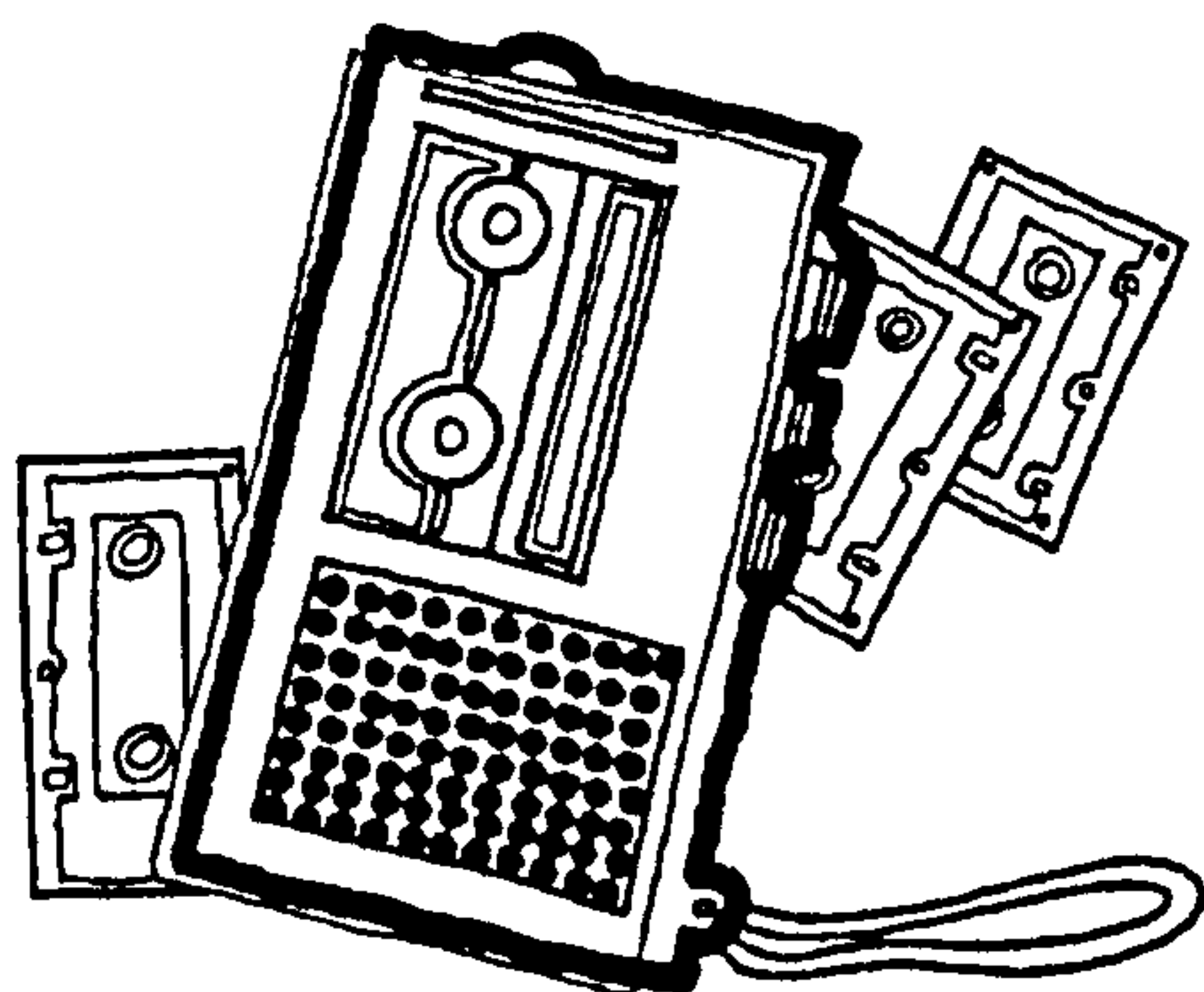
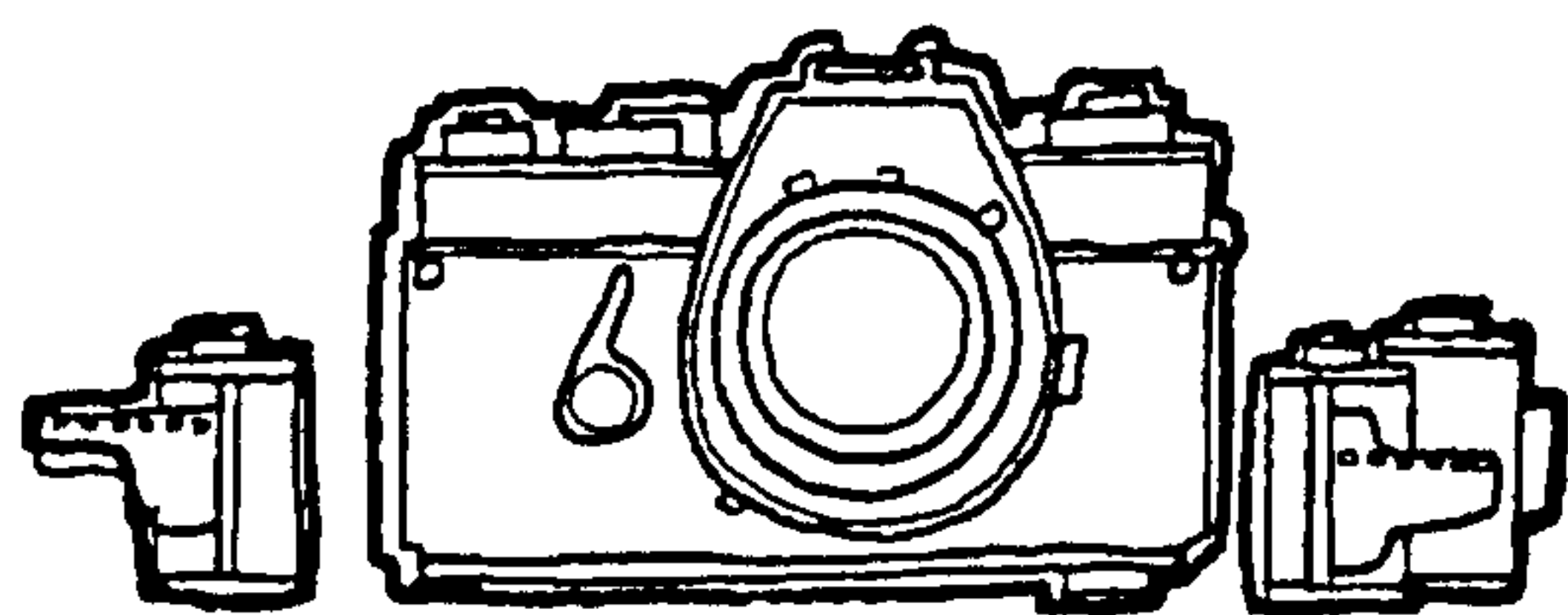
appropriate for analysing the questionnaire survey as they are directly contributing to the research questions.

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1. Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981.
  2. For urban and architectural studies of Salt, see:
    - Dar Al-Handasa Consultants, op. cit.
    - Fakhoury, Leen., *Salt: A Study of Conservation*, Un-published MA Dissertation, York: University of York, 1987.
    - RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989.
    - SDC, *Salt: A Plan For Action* ( in Arabic), Vol. I, Salt: Salt Development Corporation, 1990.
    - SDC, *Salt: A Plan For Action* ( in Arabic), Vol. II, Salt: Salt Development Corporation, 1990.
    - Al-Zoabi, A. Y., *City Images: A Case Study of Salt, Jordan*, Un-published Ph. D. Dissertation, Nottingham: University of Nottingham, 1993.
  3. Based on: Preiser, W., et al., *Post-Occupancy Evaluation*, New York: Van Nostrand Reinhold, 1988, pp. 65.
  4. *ibid.*, pp. 53-58.
  5. *ibid.*, pp. 54-55.
  6. *ibid.*, p. 56.
  7. *ibid.*, op. cit., p. 57.
  8. See for example:
    - Cullen, Gordon., *The Concise Townscape*, London: The Architectural Press, 1971.
    - Gosling, David., *Gordon Cullen: Visions of Urban Design*, London: Academy Editions, 1996.
  9. Spreiregen, Paul., *Urban Design: The Architecture of Towns and Cities*, New York: McGraw Hill Book Company, 1965, pp. 49-66.
  10. Crowe, Norman., and Paul Laseau., *Visual Notes for Architects and Designers*, New York: Van Nostrand Reinhold, 1984, pp. 6-8.
  11. Lynch, Kevin., *The Image of The City*, Cambridge, Mass.: The MIT Press, 1960, pp. 46-83.
  12. Alexander, Christopher., et al, *A Pattern Language*, New York: Oxford University Press, 1975.
  13. Lynch, Kevin., and Gary Hack, *Site Planning*, 3rd. edition, Cambridge, Mass.: The MIT Press, 1984, pp. 420-425.
  14. Smith, Peter., *Architecture and the Principle of Harmony*, London: RIBA Publications Ltd., 1987, pp. 157-165.
  15. Lynch, 1960, op. cit., pp. 46-83.
  16. Sommer, Robert., and Barbara Sommer, *A Practical Guide to Behavioral Research*, New York and Oxford: Oxford University Press, 1980, p. 186.
  17. See for example:
    - Diamantopoulos, Adamantios., and Bodo B. Schlegelmilch, *Taking the Fear out of Data Analysis*, London: The Dryden Press, 1997, pp. 66-70 and p.174.
    - Cramer, Duncan., *Introducing Statistics for Social Research: Step-by-Step Calculations and Computer Techniques Using SPSS*, London: Routledge, 1994, pp. 52-55.
  18. Cramer, op. cit., 55 and pp.187-191.



## Chapter VI

# A VISUAL SURVEY IN SALT CITY CENTRE





## Chapter VI

# A VISUAL SURVEY IN SALT CITY CENTRE

This chapter reports on the implementation of the indicative level of the proposed visual imageability concept at SCC. The results of the investigative level are reported in Chapter VII, whereas the findings of the diagnostic level are reported in Chapter VIII. The chapter starts with a description of the urban and natural characteristics of SCC. Reporting the findings of the visual survey at SCC follows this. The five visual performance dimensions were used as a vocabulary for evaluation. An on-site walk-through study and casual observations supported the visual survey.

### 6.1 Characteristics of Salt City Centre

The city of Salt is the administrative headquarters and the commercial centre of the Governorate of *Balqa* in Jordan (Figure 6.1). It is about 35 kilometres west of Amman, on the road to Jerusalem across the Jordan Valley. It has about 68,000 inhabitants, about one quarter of them living in the city centre area in 1996<sup>1</sup>. The scope of the study will cover the city centre area (Figure 6.2); the historic heart of the city, the original settlement which grew into modern Salt. SCC is significant for its numerous reminders from the pre-historic, Classical and Islamic eras, many of which still exist<sup>2</sup>. SCC was chosen for study as one of the earliest and most unique urban settlements in the region. This section reviews the natural and the urban characteristics of SCC. This is important to provide an initial description of the area and the various aspects affects its development. A concise history of Salt is reviewed in Appendix G.



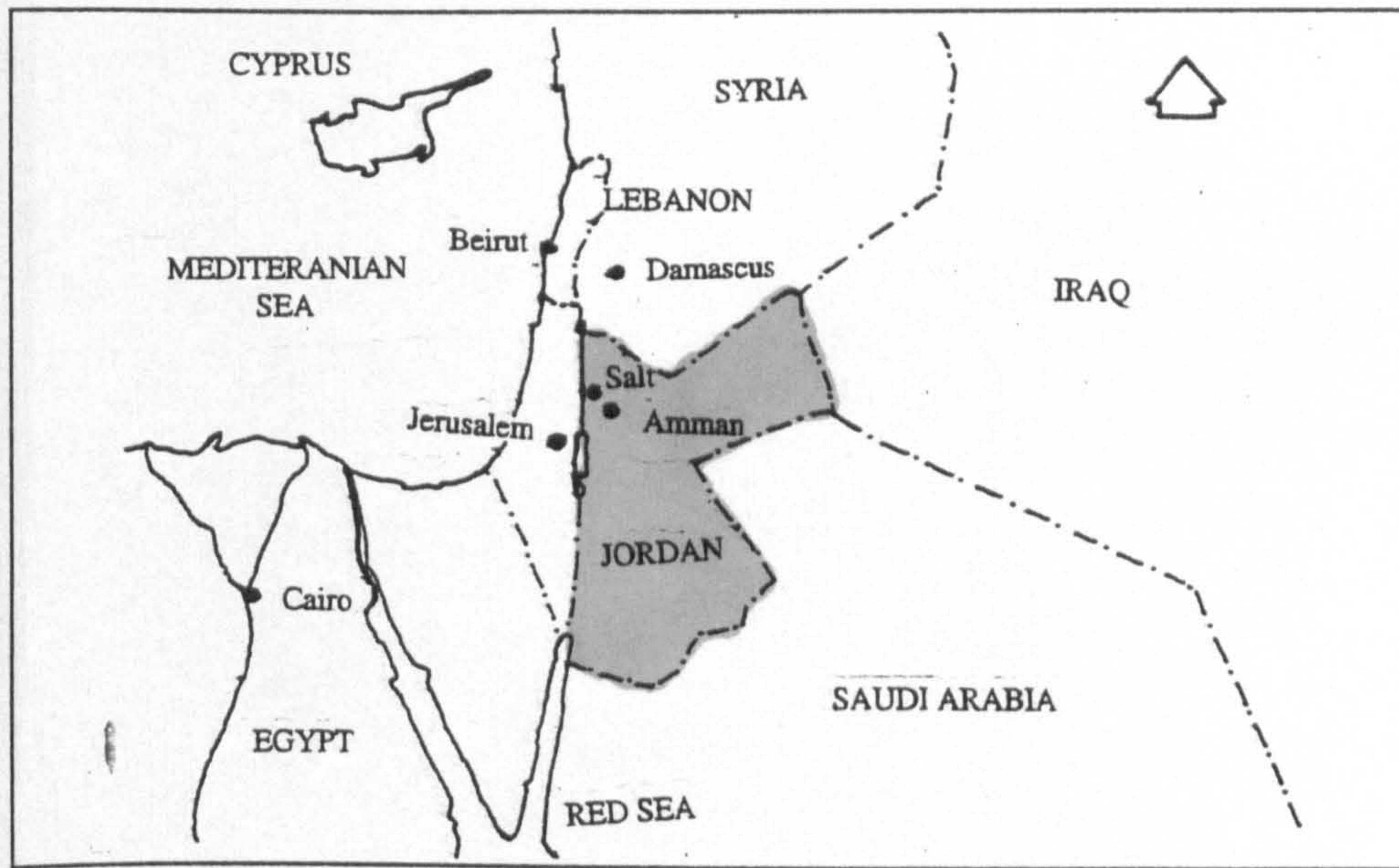


Figure 6.1: Map of Jordan showing the location of Salt.

Adapted: JNIS, Jordan National Information System: Geology, GIS Maps, <http://nic.gov.jo>, 1996.

### 6.1.1 Natural Characteristics

The study of the natural characteristics of SCC in relation to architecture and urban design includes its topography and landform, climatic conditions and landscaping.

The objective of such study are threefold in scope. First, to determine the character of surrounding environment to which architecture and urban development must respond visually and functionally; second, to evaluate the degree to which the existing development enhances the environment; and third, to decide what natural characteristics and urban activities could be related to the behavioural patterns of the inhabitants.

#### A. Topography and Landform:

The geological formation of SCC shaped both the landform and the pattern of urban development of the area (Figure 6.3). The bed of the valleys is at an elevation of 800 m. above sea level, while the surrounding hills reach levels of around 970 m., resulting in slopes exceeding 70% inclinations on some of the surrounding hills<sup>3</sup>.



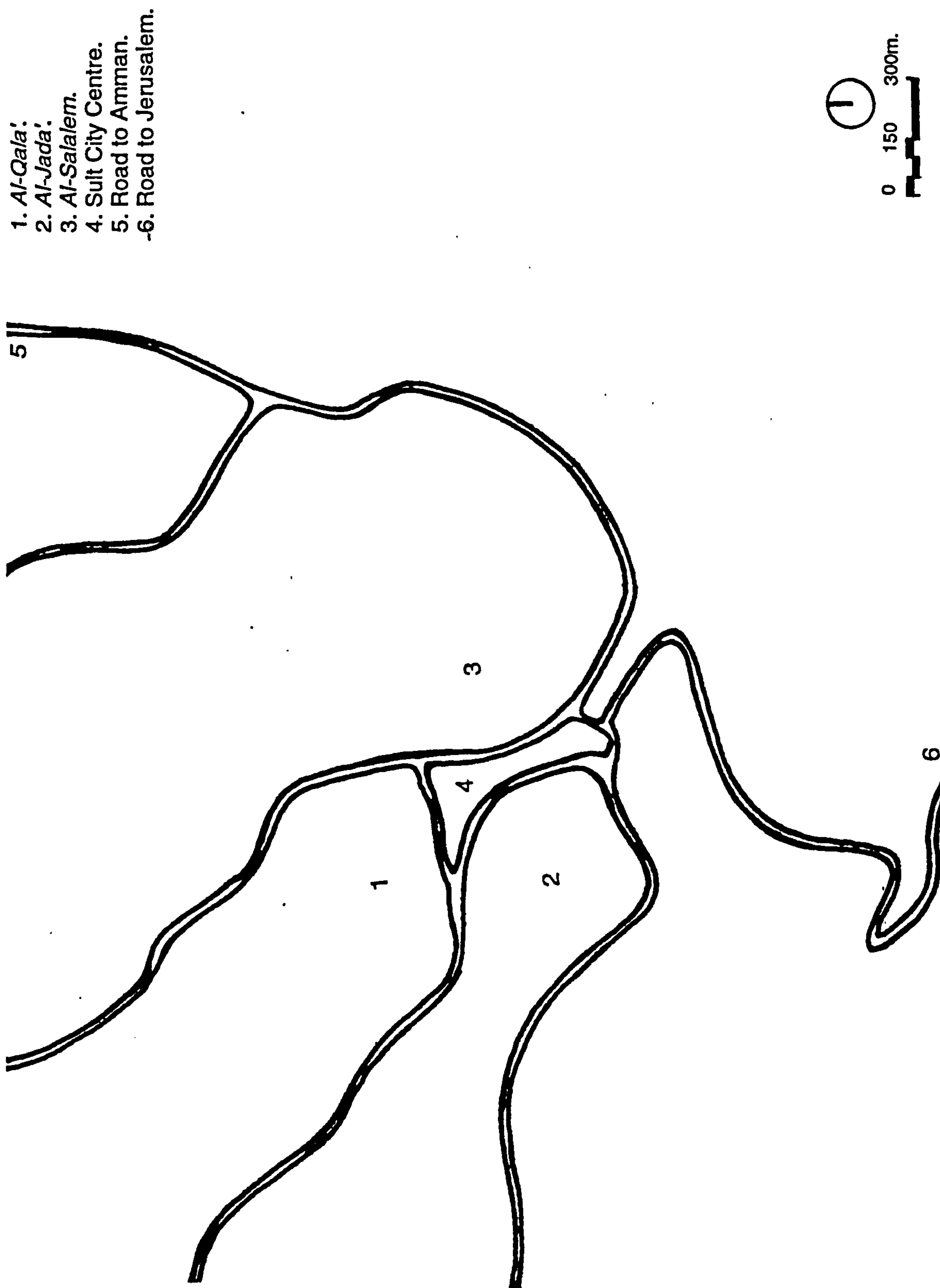


Figure 6.2: SCC's pattern of urban development related to its topography and landform.  
Source: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.9.



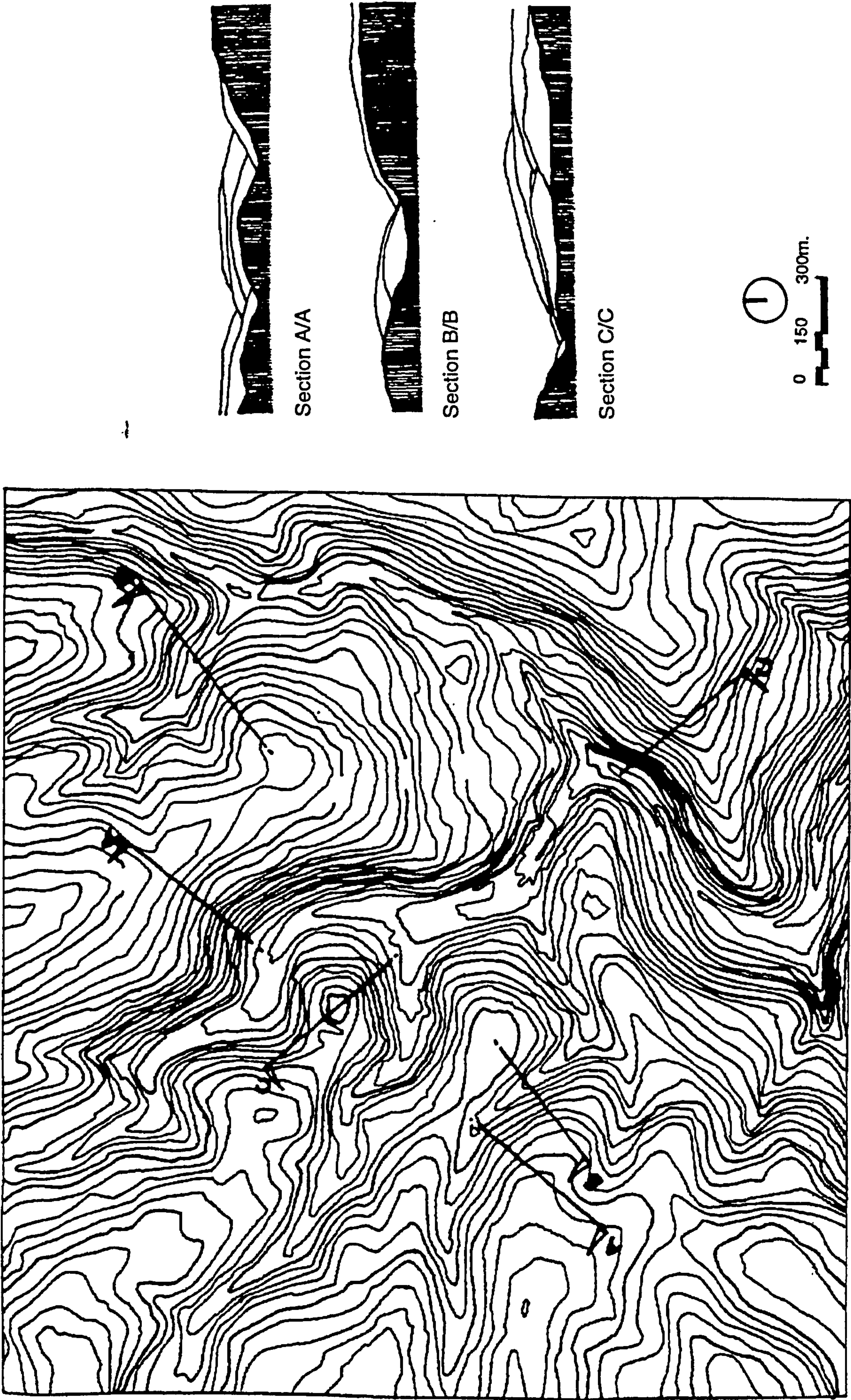
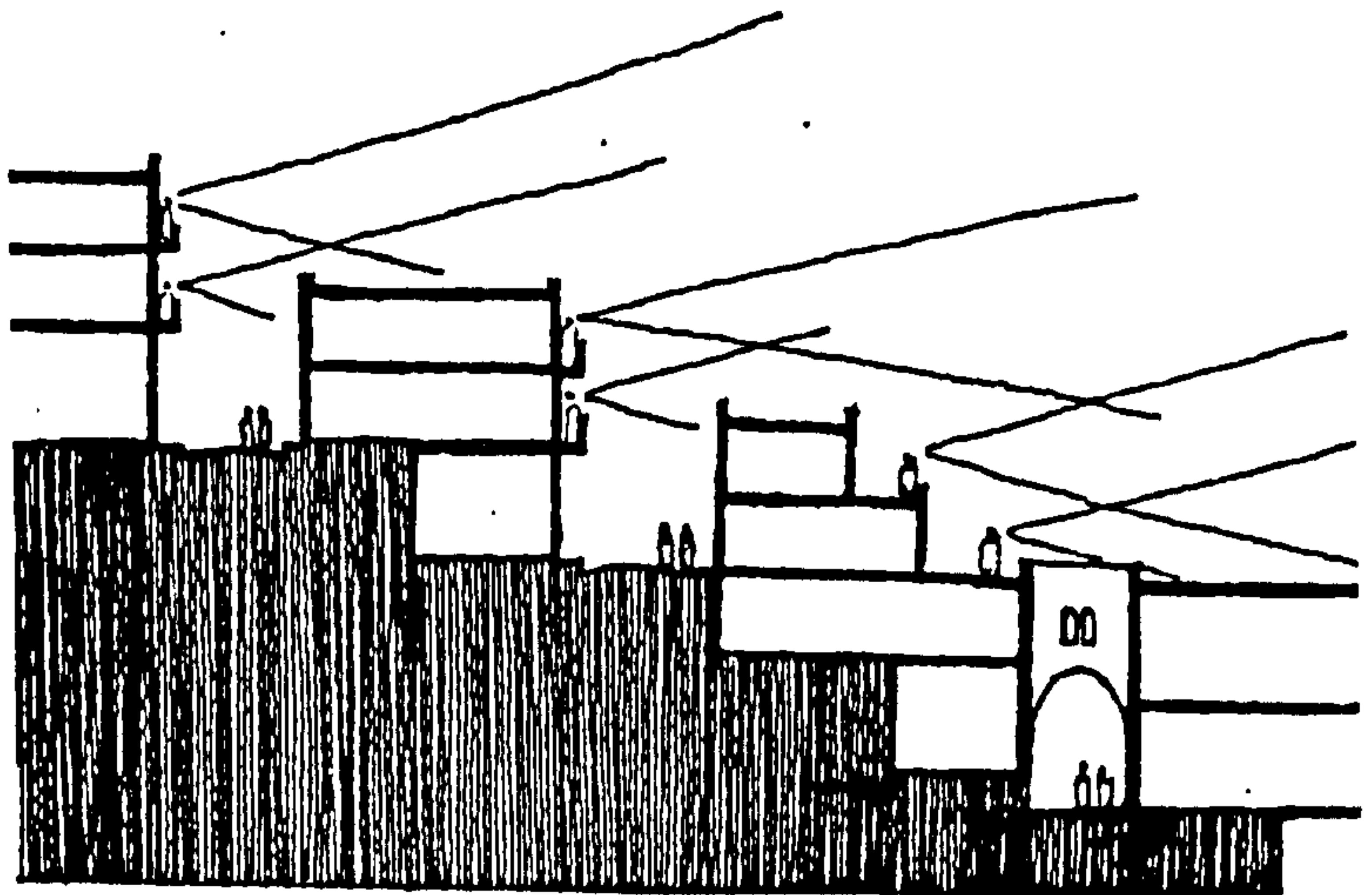


Figure 6.3: The topographic characteristics of SCC.  
Source : Source: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.8.



As every human-made structure affects the natural landform, either positively or negatively, so does architecture and all other human activities. Landform as a setting for constructions, is the visual framework to which these constructions must respond. Thus, the topography of SCC gave the distinct pattern of terraced buildings erected on the slopes of the hills. This creates a characteristically unique and rich grain that is both functional and visually pleasing. The buildings are distributed more or less evenly on the slopes, and since they are generally of similar heights, every house may enjoy the same advantages of orientation and view (Figure 6.4).

Figure 6.4: SCC's buildings enjoy the advantage of panoramic viewing offered by its unique topography and landform.



### B. Climatic conditions:

Being part of the Mediterranean weather system, Jordan boasts one of the world's most pleasant climates. The eastern hilly region in which Salt is located enjoys sunny, cloudless weather from May through to early November, with warm days and cool evenings. Spring has the best weather, when temperatures range between 21-25 degree Centigrade. Winter can be cold and wet with moderate chances of snowfalls. Rain falls regularly between late November and early April, and temperatures vary between 8-15 degrees Centigrade. Figure 6.5 illustrates the micro climatic conditions in Salt<sup>4</sup>.



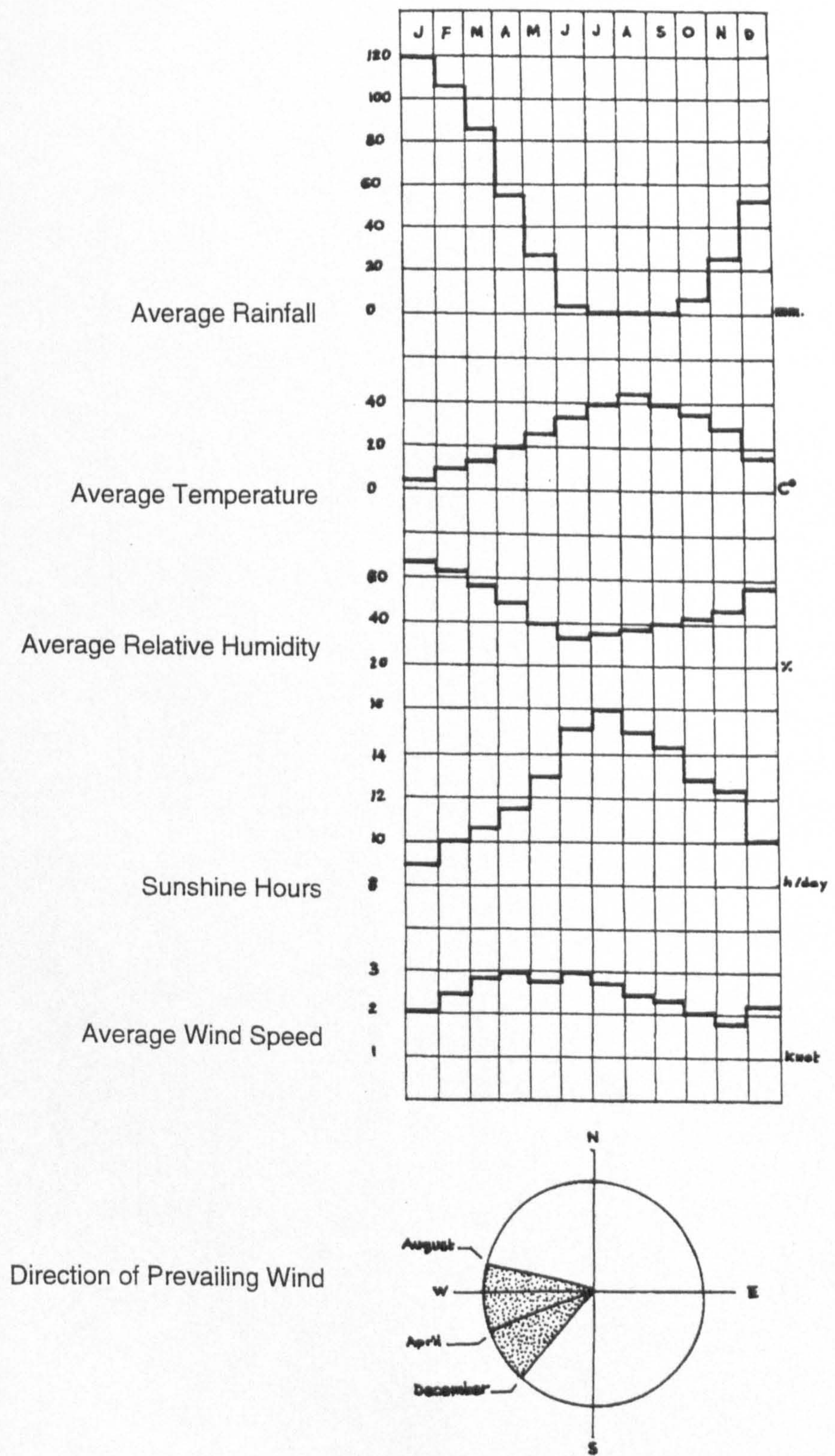


Figure 6.5: The micro-climatic characteristics of SCC.  
 Drawn by the author and based on data from: RGS, *Jordan Atlas of Climate and Agoclimatology*, Amman: The Royal Geographic Society, 1984.



Micro climatic conditions determine much of the character and appearance of an area. A study of SCC micro climatic conditions would indicate the following:

1. The remarkable variations in temperature from winter to summer, in SCC, indicate the importance and necessity of the available wide variety of outdoor activity areas. Such open spaces can be used intensively for at least ten months during the year.
2. Use of the most efficient forms to provide the best possible compatibility with the area's micro-climate, such as providing protection from solar radiation in summer and from rainfall in winter. The quality of light, sharp and clear or cloudy and dull, should be a factor in layout and setting of buildings and open spaces within any urban development scheme at SCC.
3. For most of the year, the prevailing winds at SCC are warm and humid from the West, Northwest and Southwest. Cold winter winds are generally gentle with severe intensity during January and February. Hot dry winds from East and South-East are common in Spring and Autumn, carrying desert sands, and influencing the eastern faces of the surrounding hills.
4. Streets are largely affected by their orientation. A North-South street receives greater variety of light and shadow during a sunny day than an East-West street. The sunny side of an East-West street can be overbearingly hot during summer. As SCC streets vary in their orientations, it is important to provide appropriate shading devices in summer which can be also used for protection against rainwater in winter.
5. Streets with East-West orientation also experience the chilling effects of the blast of winter wind. A possible area of research and experimentation is the study of devices which could block chilling winter wind on city streets in Salt, as well as other devices which could induce and magnify cooling summer breezes (see section 10.3.3).



6. The normal pattern of temperature stratification may be inverted due to the topographical character of SCC (Figure 6.6). The thermal inversion happens "... when a warm air mass moves in over a cooler one; when warm air flows over a colder surface; or when air near the ground is cooled from below at night. The cooler air, unable to rise into the warmer air above, is trapped near the ground for hours or even days and all the city's poisonous emissions with it"<sup>5</sup>. Inversions at SCC form on clear, calm nights, when dense, cool air temperatures remain at about 6-Degrees Centigrade on adjacent hillsides.

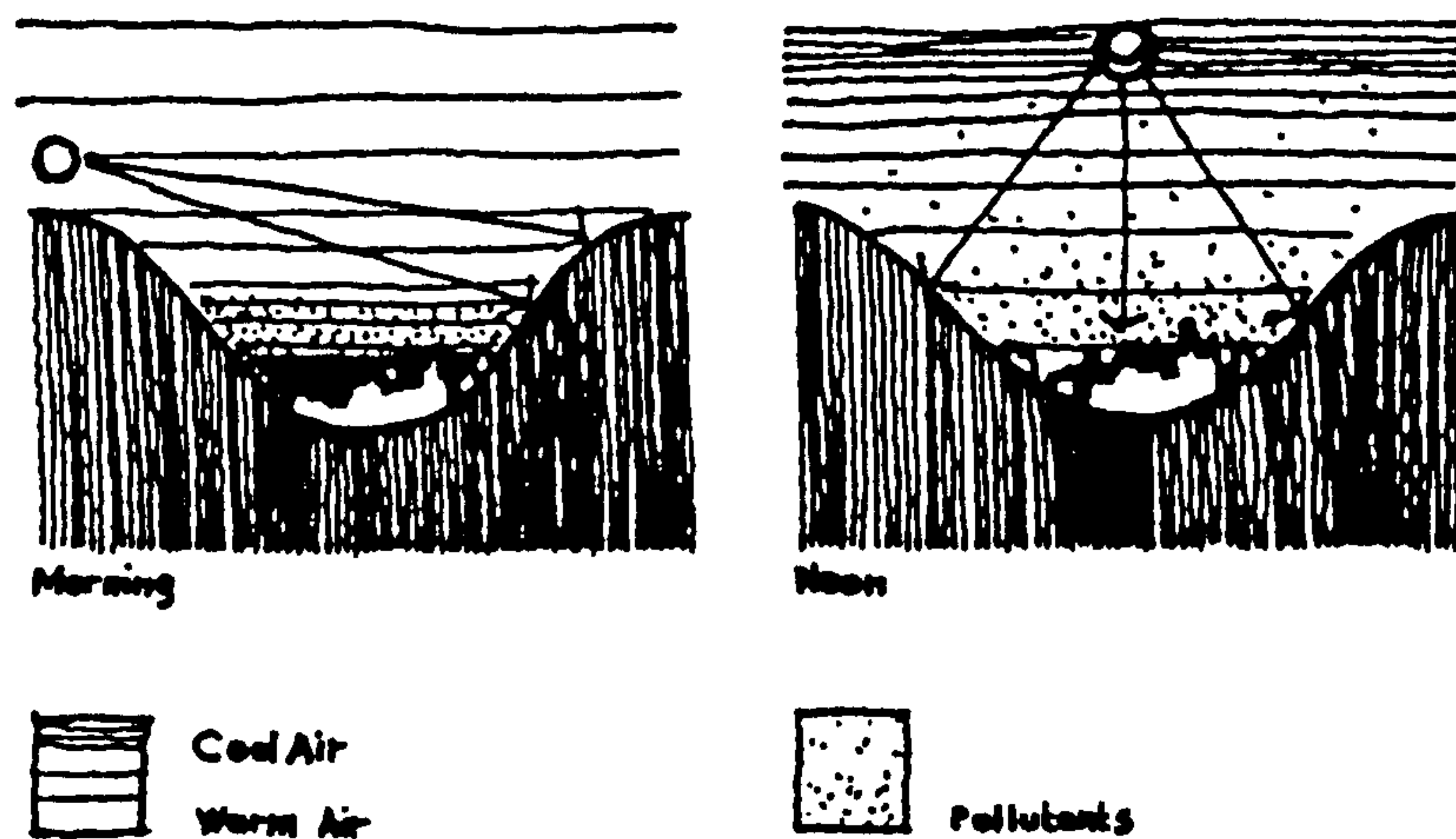


Figure 6.6: The phenomenon of thermal inversion at SCC.

Adapted : Spirn, Ann., *The Granite Garden*, New York: Basic Books Inc., 1984, p.50.

### C. Landscaping:

The effects of variation in climate and landform strongly influence the range of plantation and natural vegetation within SCC areas. Formally shaped thickly foliated trees are used for lining the roads. These trees are largely neglected and seldom attended except when it is too late or else to remove dangerous branches or invasive roots harmful to pavements. Many old trees were allowed to deteriorate and then replaced by too small ones which were planted in places where their size made them easy prey to the normal abuses of city life.



Spreading shade trees of informal shape are used in various lower areas and open spaces that work as restful sitting places away from the crowds of the city. The variety includes Silk trees, China Berry, Washingtonia and Wisteria trees. Vertical trees occupy the upper parts of the hills and include Pine, Cypress and Cider tree. The building clusters on the slopes of the hills have terraces with orchards that are often bounded by irregular stone walls. These together with Olive and Fig trees, vine, dark spots of spiny Oak, reddish soil and yellowish rock, mediate between the human-made elements and nature.

As the public green areas tend to be neglected, they should be either limited to a reasonable minimum or designed to be maintenance free, using the indigenous planting material. Private green areas, however, are usually well kept by their owners. They could be used for improving visual as well as climatic conditions of the area.

### 6.1.2 Urban Characteristics

SCC has developed along the valleys formed around the three hills of: "*Al-Salalem*", "*Al-Jada'a*" and "*Al-Qal'a*" (Figure 6.7). The slopes of three hills and the valleys between them form the basic urban setting of the city's historic centre with concentrations of buildings interwoven vertically and horizontally in a mosaic-like mesh (Figure 6.8).

The city is brought to life by the social congregation of people and business, for pleasure and for ceremony. SCC is the primary area where such activities occur. In its administrative capacity, SCC is the meeting place of the citizens and the work place of local officials. Their commercial functions include offering a wide choice in kind and price-range of commodities as well a multitude of services: personal and professional. As a locus for entertainment and cultural activities, it contains facilities for music and play, for exhibition and art books, for eating and drinking, for intimate gatherings and general worship.



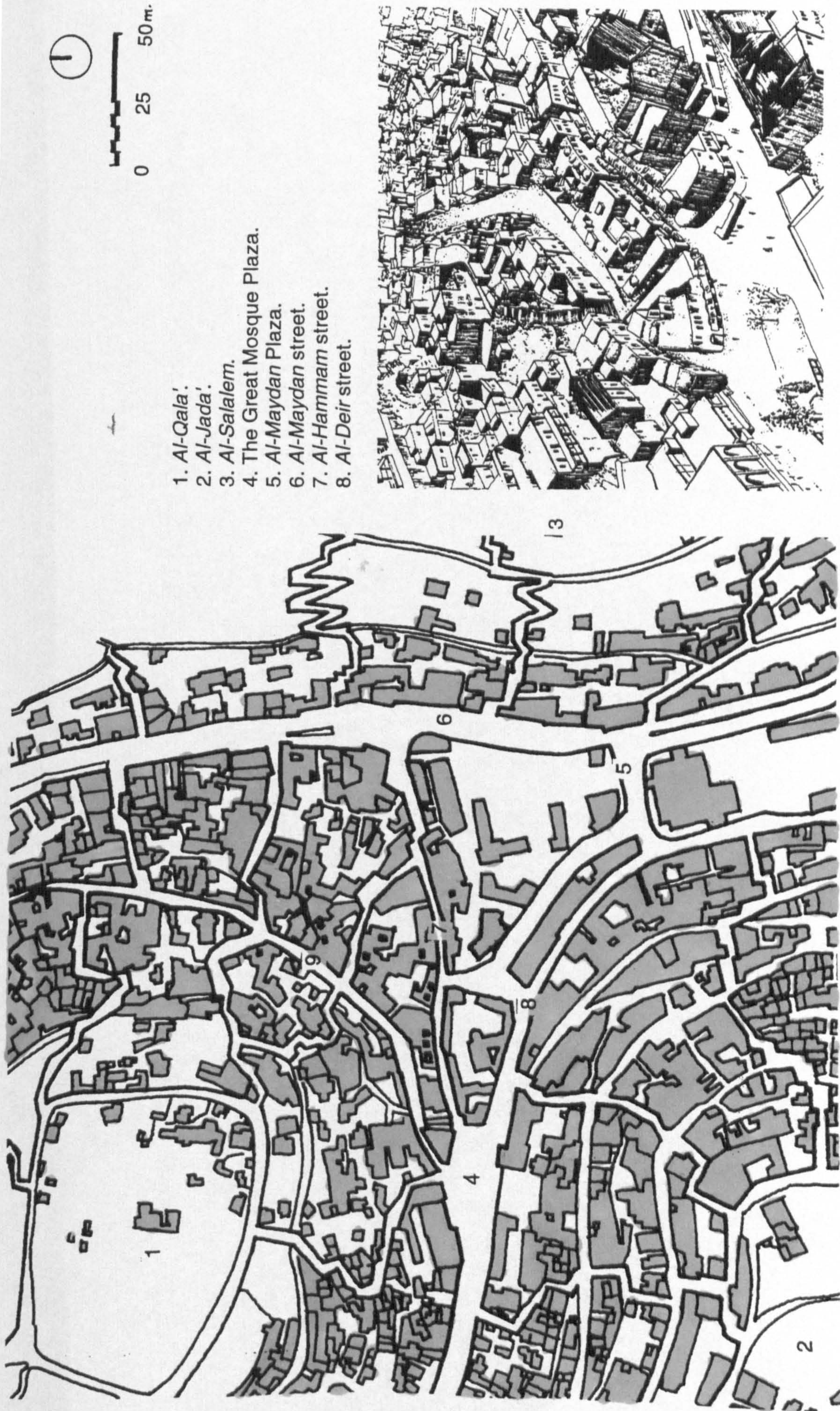


Figure 6.7: Salt City Centre. Map is revised and drawn by the author, based on: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, section 10.4.2. Source (of sketch): SDC, *Salt: A Plan For Action* (in Arabic), Vol. I, Salt: Salt Development Corporation, 1990, section 3, page.14.



Figure 6.8: The mosaic-like mesh resulted by the vertically and horizontally interwoven buildings at SCC.



The functions of SCC are performed mainly in *Al-Deir Street*, *Al-Hammam Street* and a segment of about one kilometre long of *Al-Maydan Street* (Figure 6.9). *Al-Deir Street* contains the main concentration of shops for clothes, general merchandise, household goods and personal services. *Al-Hammam Street* continues its function as a retail market, while located in *Al-Maydan Street* are the transportation services, car repair and personal services.

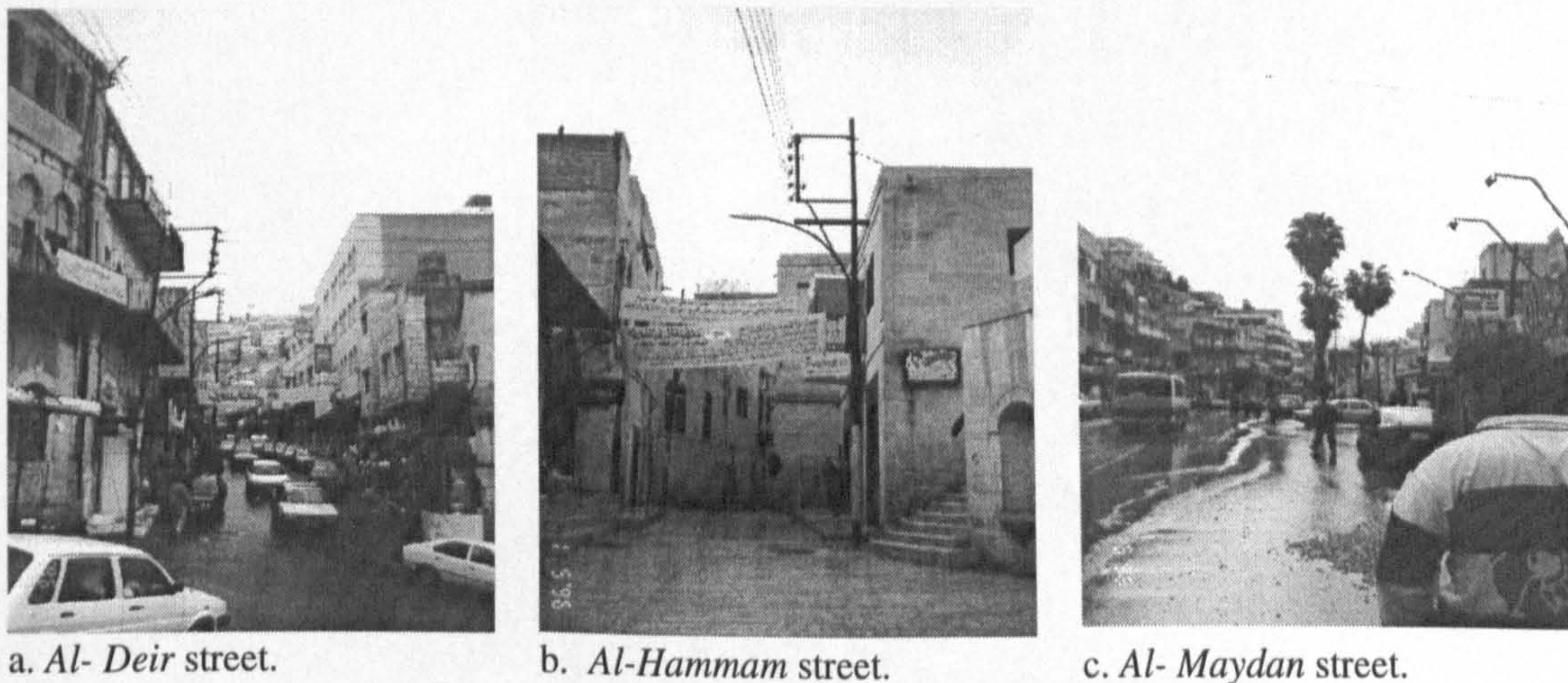


Figure 6.9: The functions of SCC are performed mainly in *Al-Deir Street*, *Al-Hammam Street* and a segment of about one kilometre long of *Al-Maydan Street*.

SCC is the focus of the circulation system. As in all typical linear commercial centres, any growth in activities necessitated by the increase of population and purchasing power results in endless sprawl along main transportation routes. This strip development is made possible by the increased dependence on the car with the ultimate results of traffic congestion, lack of parking spaces and appearance of vehicular-pedestrian conflict points. There is one transportation terminal currently serving Salt travellers to various locations in the city as well as other Jordanian cities. Local public transportation depends mainly on shared-service taxis as other



transportation modes are not appropriate to the areas' topography. National transportation modes includes mini-buses and buses as well as the shared-service taxi system. The transportation terminal, however, suffers from its inadequate design and layout, bad environmental conditions, inadequate green areas, dirty utilities and lack of travellers facilities. It does not even meet the user minimum standards.

Physically, it seems that up to World War II, growth occurred while preserving the area's traditional form, i.e., architecture, townscape and movement patterns. The end of World War II marked the start of the recent and present growth patterns, the emergence of new architecture utilising new building materials, forms and character<sup>6</sup>. The added difficulties of loss of stonework craftsmanship and construction together with the versatility of concrete architecture have led to the acceleration of this process. SCC has reached a critical situation and cannot afford to suffer any further loss of its traditional visual image as reflected in buildings and setting.

## **6.2 Results and Finding of the Indicative Level**

This level of evaluation provides an indication of major failures and successes of visual performance in SCC. It aims at developing short-term visual actions dealing with the features that characterise SCC according to the five visual dimensions of: identity, order, variety, structure and fitness. Visual surveys accompanied by on-site walk-through analysis and casual observations were the main data collection methods for this level of evaluation. Evaluations were constantly made while conducting the visual survey. Certain discordant issues were noted as faults to be corrected and certain appropriate elements were noted as assets to be protected. The survey disclosed a number of specific ideas for action for improving, correcting or replacing certain urban elements.

### **6.2.1 Identity of Salt City Centre**

The evaluation of the identity of SCC comprises examining the variables that represent this visual dimension, i.e., morphology, typology and character.



### A. Morphology:

The on-site walk-through study indicated that SCC is mainly a hilly area. It is predominantly composed of the hillside terraced development of *Al-Jad'a*, *Al-Salalem* and *Al-Qal'a* (the Citadel) hills and the valley between them. A close analysis of the development on each hillside shows that the formal characteristics of the terrain have dictated an urban structure on each hill different from those on the other hills, yet, they all maintain overall similarity of urban form. This "variety in unity" quality is evident in the unity of materials, spaces, proportions, character and the general prevailing environment.

*Al-Jad'a* has a steep but even rise with terraced development and horizontal elevations. Buildings are predominantly grouped alongside movement routes that run almost horizontally across the hillside (Figure 6.10). *Al-Salalem*, however, has a band like linear stretch along the lower parts of the hill slopes (Figure 6.11). In contrast *Al-Qal'a* has steep rises in its middle and upper parts while its lower parts have a gentle slope (Figure 6.12). The hillside is covered with closely spaced buildings without interruption from base to



Figure 6.10: The slopes of *Al-Jad'a* with its steep and homogeneous rise terraced developments.



Figure 6.11: The slopes of *Al-Salalem* with its band-like linear stretch along the lower parts of the hill slopes.



Figure 6.12: The slopes of *Al-Qal'a* with steep rises in its middle and upper parts, while its lower parts have a gentle slope.

The above three sketches are up-dated and redrawn by the author, based on: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, Pages 172 and 206.



summit. The skyline, thus, has an uninterrupted profile with a major dramatic break, the minaret of the Upper Mosque on the Citadel hill. This gives it a predominant character of terraces ascending and descending the hill slopes (Figure 6.13). The street pattern on the three hills is characterised by the absence of diagonal and cross-links among the horizontal streets except for the stairways and pedestrian paths.

Changes in levels and interaction of planes are predominant characteristics of SCC morphology. Different heights of terrain are not levelled but fully exposed as ramps and stairways. This is basically due to the nature of landform and the adaptation and exploitation of the hillsides by the inhabitants whether for buildings, open spaces, terraces, streets, pathways or stairways. Buildings are constructed close together providing a compact high-density setting. No right angles exist in the town-plan although the buildings are not far from being rectangular. In Salt it is the roof terraces, rather than the courtyards, that are the most distinctive elements of the house. This characteristic provides broad panoramic vistas and watch points to the hill peaks and ranges of hills on the horizon as well as plateaus and buildings. SCC has many vantage points overlooking the roofs of buildings across the city.

The character of the area is reversed at night. When the working day ends and the shops and offices close and people go home to rest, the streets also become quiet and, as many say, they become sleepy streets. In SCC, when seen at night with the artificial lights on its slopes, perspective vision disappears, and the urban components change to sequences of points, patterns and lines. Night-lights transform the detailed reality into visual abstractions that can be enjoyed for their scale-lessness and purity. This emphasises the effects of time and lighting as important contributors to the "sense of place".

It is significant that the design of street lighting has been dominated by street lighting for vehicles. In the interest of getting the maximum candlepower per square metre, overly bright lights were installed. The number of lights was also reduced to the



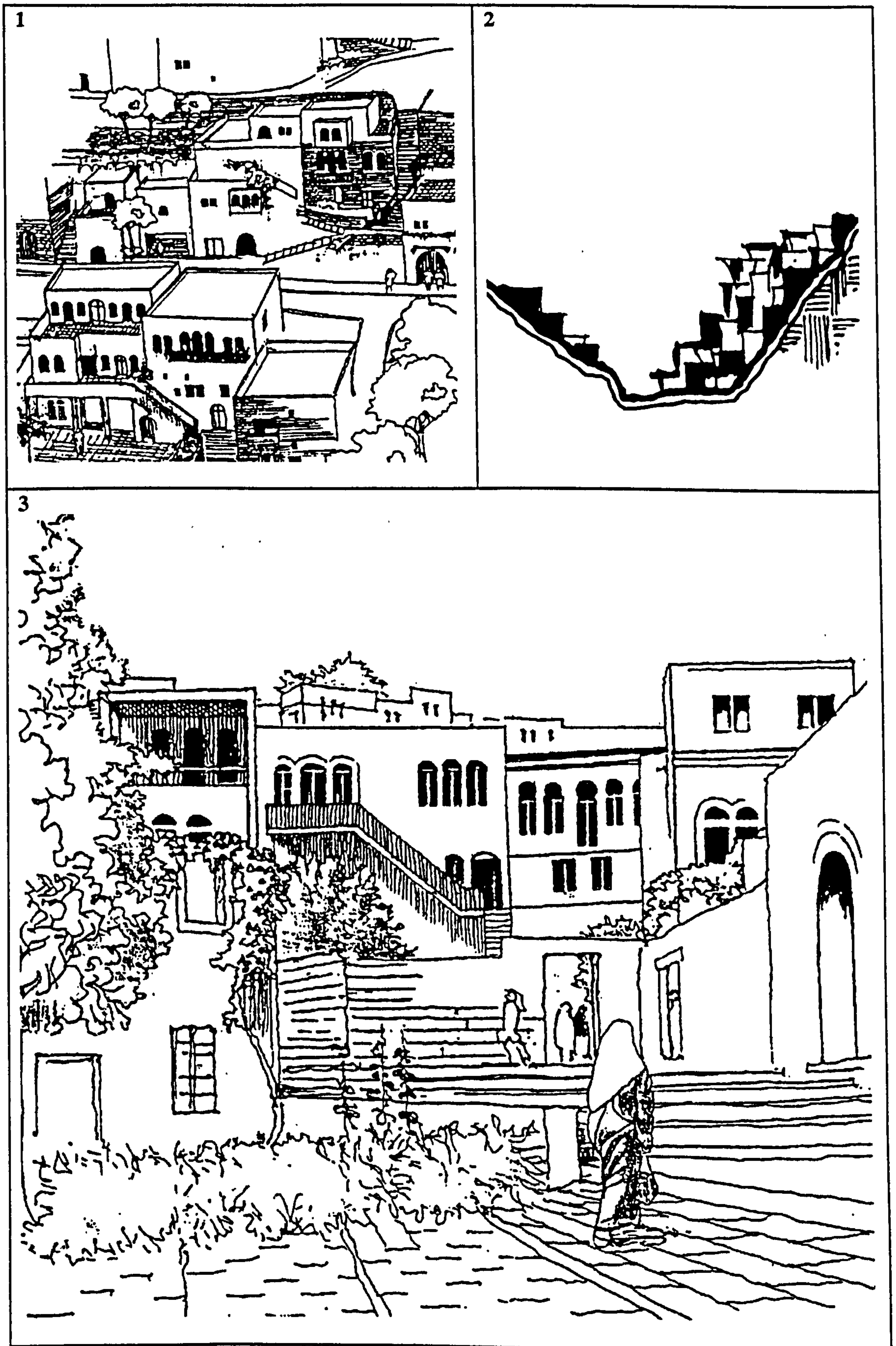


Figure 6.13: The predominant character of SCC, with terraces ascending and descending the hill slopes.

Source (of sketch no.3): *Salt: A Plan For Action* (in Arabic), Vol. I, Salt: SDC, 1990, section 3, p. 5.



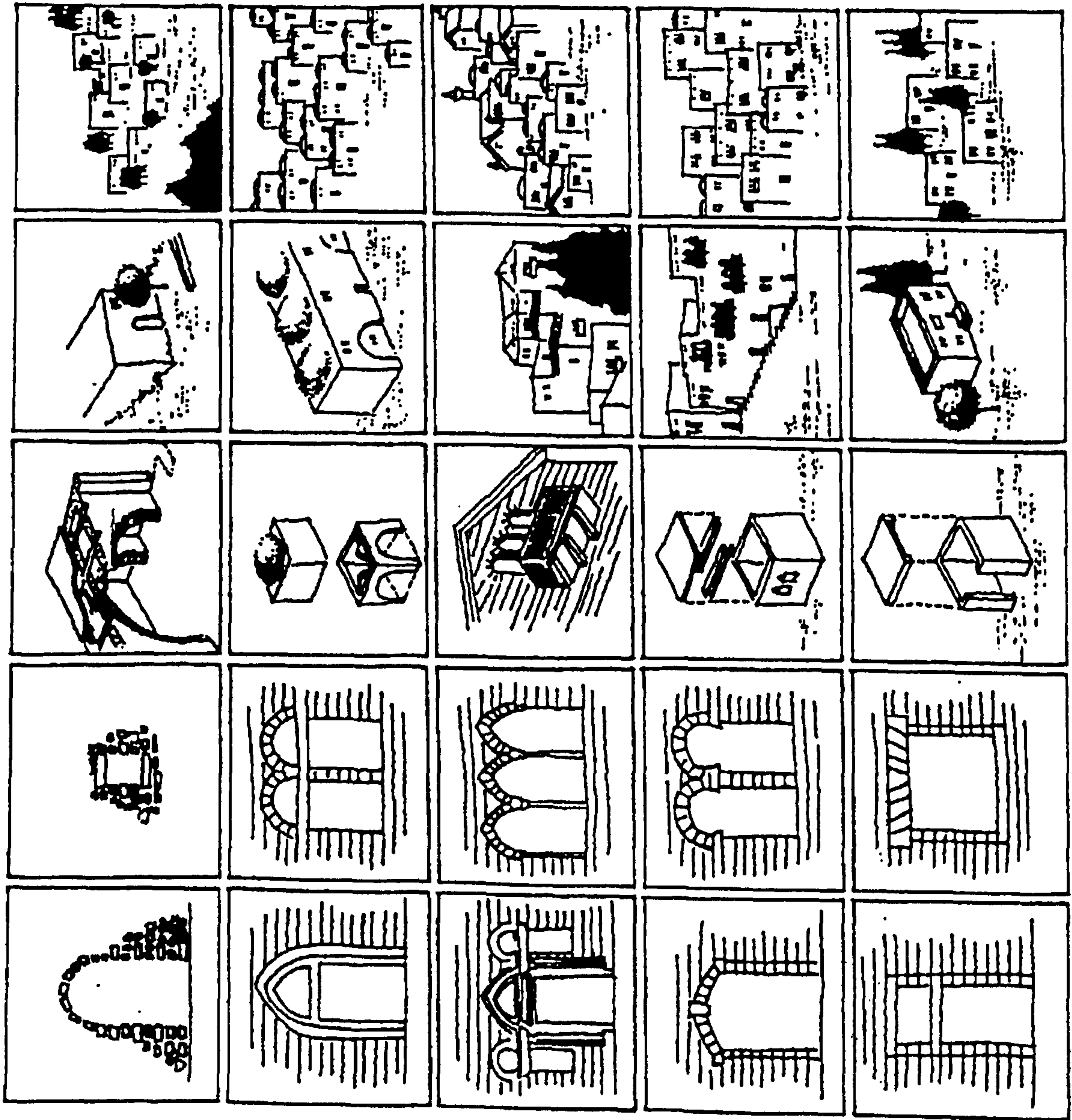
minimum, and the results are huge pools of light completely out of the scale, with no attempt at selective and beautifying illumination. Though this might be accepted where vehicular traffic is concerned, pedestrian streets and stairways require a more delicate lighting. It is not only a matter of a fine pole and lamp, it is rather a matter of total appearance of the street and its lights seen together. In shopping streets the light from shop windows often provides adequate illumination by itself. On such streets, lighting has an aesthetic role of unifying the street's image.

### **B. Typology:**

The typology of SCC is investigated in relation to the development of its urban components, buildings and architectural features where different periods can be distinguished (Figure 6.14). The visual survey of SCC's streets, pathways, stairways, and open spaces shows the predominant architecture of the area: the forms, roofs and terraces, facades, doorways, windows and balconies. The unity of SCC's traditional spacescape stemmed from the homogeneity and integration of these architectural elements. The forms are augmented by the unity of material and colour giving the sense of infinite texture, value and depth. They keep similar but not identical treatment of surfaces and detail as well as standard proportion of solid walls and openings, although justified exceptions may bring refreshing surprise. The unique impression of the yellow stone courses at SCC is due to the interplay of light exposing its earth texture and giving an added quality to the buildings.

SCC has a wide range of buildings of interesting architectural features. In terms of age and style, it can be noticed that buildings built before 1866 had timber framing and thick earth finish on stone arched supports. These are the very old traditional roofs that are disappearing or are in derelict conditions. Buildings between 1866-1918 were barrel or cross-vaulted with thick walls and arched windows that are either semicircular or pointed arches. Domed roofs of crushed stones, sand and lime finish, formed in undulating shapes, were also common at the time.





Post 1866:  
 Rubble walls.  
 Small openings with no ornaments.  
 Tree trunk spanning for roof construction.  
 Single storey, one cell buildings.  
 Rural character.

1866-1890:  
 Pointed arches for gateways with simple details.  
 Semi-circular twin windows.  
 Domes and cross vaulted roof construction.  
 Multi-cells buildings, up to two-storey heights.  
 Urban character.

1890-1918:  
 Venetian influences.  
 Sophisticated decorations.  
 Pitched roofs with red tiles, and projected balconies.  
 Clusters up to four storey heights.  
 Urban image with mixture of roof types.

1918-1935:  
 Segmental arches for gateways.  
 Horse-shoe twin windows.  
 Reinforced concrete slabs with I-Beams.  
 Clusters and terraced houses.  
 Densed buildings with flat roofs.

1935-1950:  
 Modern influences.  
 Rationalisation and less decorative elements.  
 Flat reinforced concrete roofs.  
 Villa type buildings with private gardens.  
 Less densed buildings, with open spaces.

Figure 6.14: The developments of typology of SCC.  
 Revised: Salt: A Plan For Action (in Arabic), Vol. I, Salt: Salt Development Corporation, 1990, p.6.



Buildings built between 1918-1935 had mainly I-Beams with flat reinforced concrete slabs with screed finish supported by load bearing walls. This type of roofs is similar to the modern constructions in the area. Flat roofs are predominant in SCC. Units were closely related in heights but not identical. Some buildings built in that time had pitched roofs with red tiles. During this period horseshoe arches were introduced as well as prominent keystones and opening surrounds. Post 1935 buildings had reinforced concrete slabs and rectangular openings. Material used in construction is generally Salt yellow stone except for most post 1970 buildings which used white Amman stone.

Covered terraces are rare in SCC, only few buildings have them. However, open terraces are created on roofs of buildings due to the change in levels and landform. Although roofs are predominately experienced visually as terraces spreading along the hill sides, nowadays, they are seldom utilised by the inhabitants as viewing terraces, roof gardens or rest areas in summer nights. They are usually left cluttered and unused except for laundry. The proper utilisation of such predominant visual elements can result in a highly interesting and delightful roofscape.

The area has a variety of rich and interesting architectural treatments. The facades of old buildings display a variety of treatments ranging from plain to the elaborate and articulated. They expose a variety of rich stonework constructions. The versatility, texture and sculptural effects obtained from Salt yellow stone have helped crystallise the highly personalised adaptation of styles and forms based on a mix of Classical Roman and local motifs and to blend them within the physical setting. The unusual mixture of motifs led to many different forms of pilasters and other decorative features to be used. There was a predominance of Corinthian capitals, however, several local variations were also used. The capitals, shafts and bases do not follow any set principles of Classical Orders as the combinations were left to the craftsmen who must have enjoyed innovating according to their own knowledge and perception, giving a certain exotic charm to the finished work (figure 6.15).



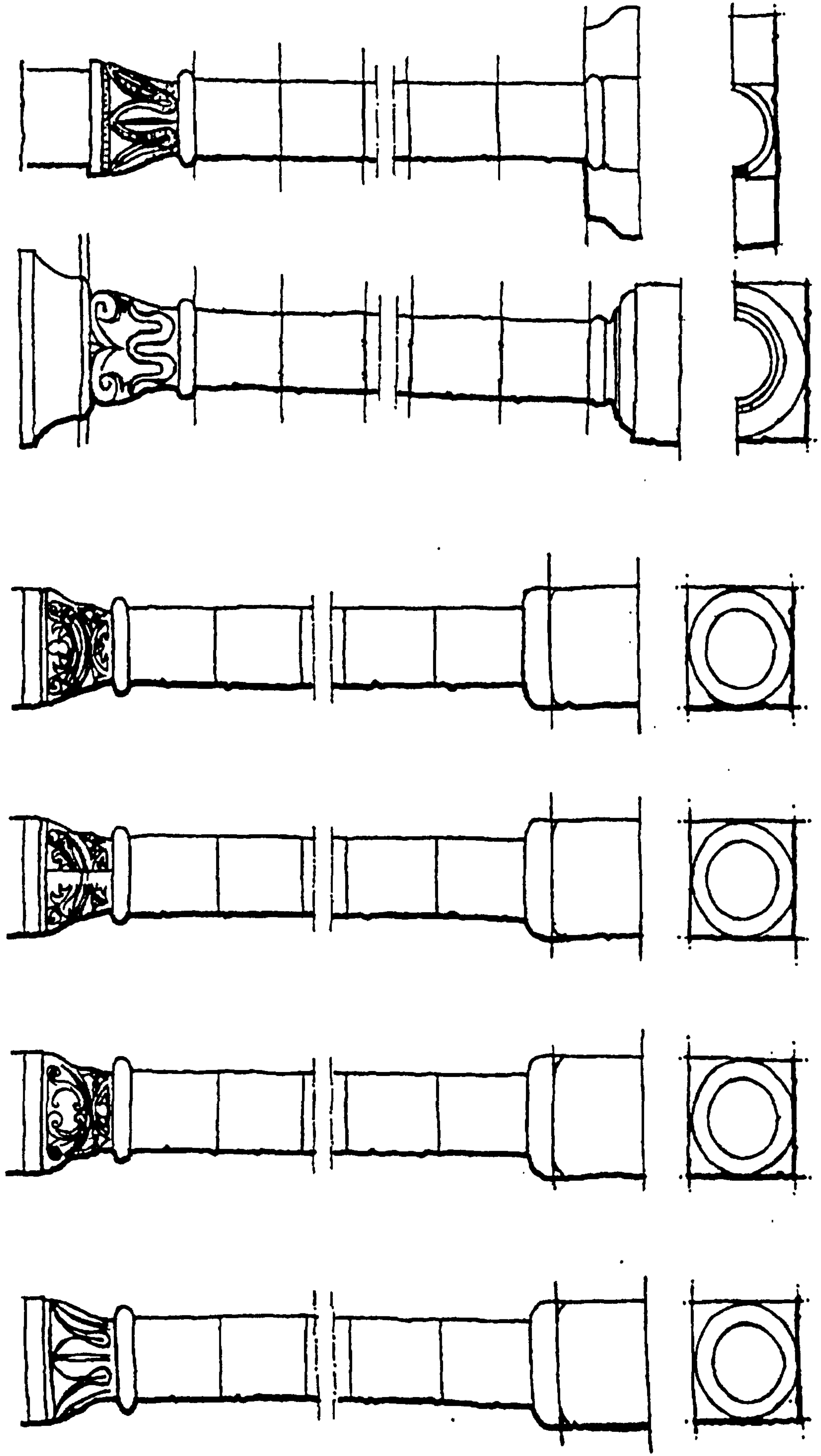


Figure 6.15: The mixture of motifs led to many different forms of pilasters to be used with a predominance of Corinthian capitals. Drawn by the author and based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p. 136.



Articulation of stonework varies in detailing and sophistication from the highly elaborate ornamented parapets and cornices, doorways and windows fenestration and surrounds to the fine wall corner junction (Figure 6.16). Handling corner junctions is an indication of the quality and mastery of the craftsmen. On the ground level, some corners were curved or faceted in order to provide a smooth turning for pedestrians and horse riders. These curved and faceted corners were squared on the upper levels with highly sophisticated decorative treatments.

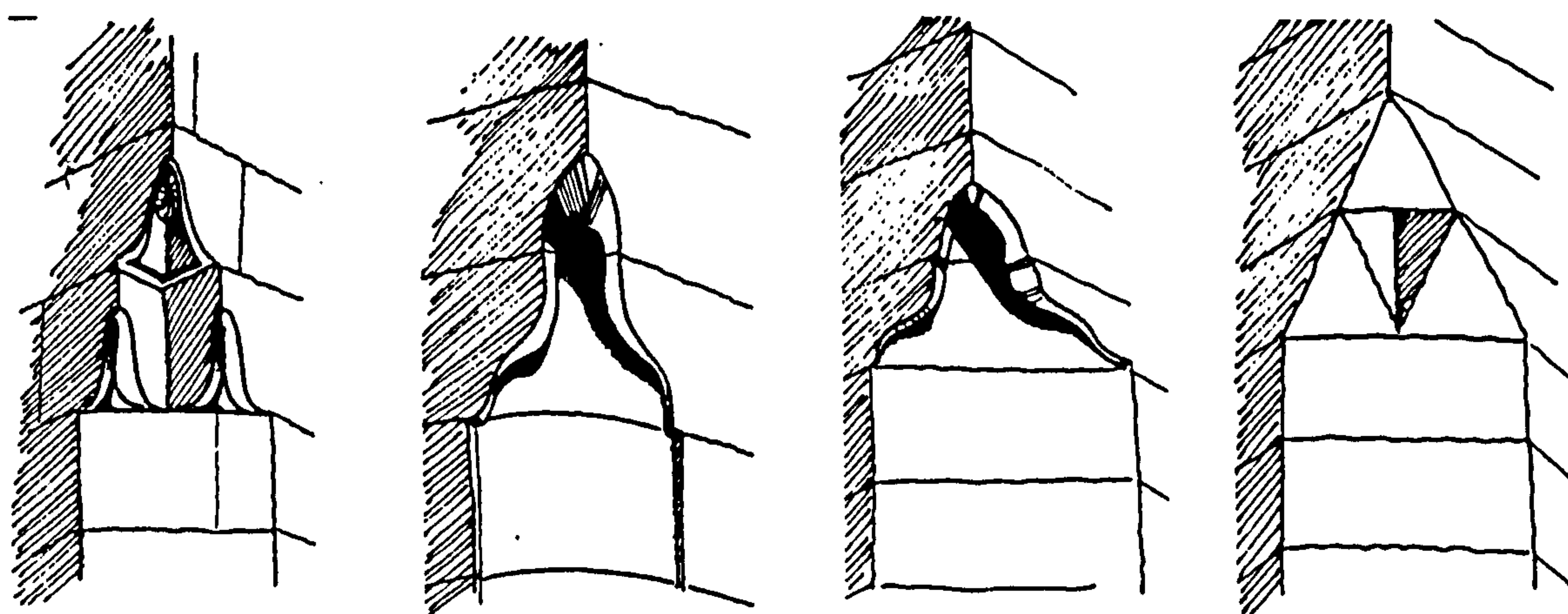


Figure 6.16: Examples of corner junctions in SCC's buildings.

Horizontal decorations were used boldly displaying considerable variety. Parapets were either balustraded or defined by a strong band cornice. Simple horizontal bands, however, were used to define one storey from another. At eye level, more elaborate horizontal bands were used to provide a greater emphasis by the use of repetitive motifs. Unfortunately, the current practice of renovation by plastering caused the loss of most of these elaborated eye-level bands.

Rhythmic arrays of solid and void are created in the facades that ranged from the highly sophisticated to the simple but attractive detailed facades. The unity and homogeneity of facades were achieved through colour as well as through the scale and proportions of openings and fenestration. Yellow stone facades are predominant in old buildings. The Ammani white stone, however, is currently used for new additions and infill projects. Such use disturbed the homogeneity of facades. The



constant use of indigenous building materials and colours should be maintained. Such use will help in producing places with homogeneity despite the varied forms. The walls are geometrically articulated and smoothly finished. Some buildings display a variety of wall constructions, building materials and finishes. This is due to the process of evolution of these buildings. Transformation of the character of walls is evident as the inhabitants continue to repair, add, demolish, extend or decorate their buildings.

SCC is rich in the variety of traditional doorway designs that indicate different periods in the development of the style and the decorative articulation of stonework. Door openings include semicircular, segmental and pointed arches (Figure 6.17). Horseshoe arches are also used but to a lesser extent. The majority of the remaining doorways can be classified into two main categories: the simple but elegant doorways with little decorations including shop doorways (Figure 6.18), and the elaborately decorative grand entrances (Figure 6.19). Grand entrances were given special emphasis by the decorative use of stonework and keystones, giving depth and interest to the openings (Figures 6.20).

In some cases rosettes were used for decorating blank wall areas above grand entrances (Figure 6.21). They were based on local traditional motifs and classical circular patellae. The two main elements of the doorways are the stone arched openings with their decorative relieve and wooden doors. These old traditional doorways are disappearing due to deterioration and replacement. It is obvious that SCC has already lost a considerable number of doorways in the process of change, modernisation and renewal.

One of the striking architectural elements in SCC traditional facades is the variety of window openings. They range from the mere functional arched openings to the more sophisticated, articulated or ornamented shapes. These types reflect the proper utilisation of the construction and the material of the period when stone and timber were the main building materials. Figure 6.22 shows the various types and



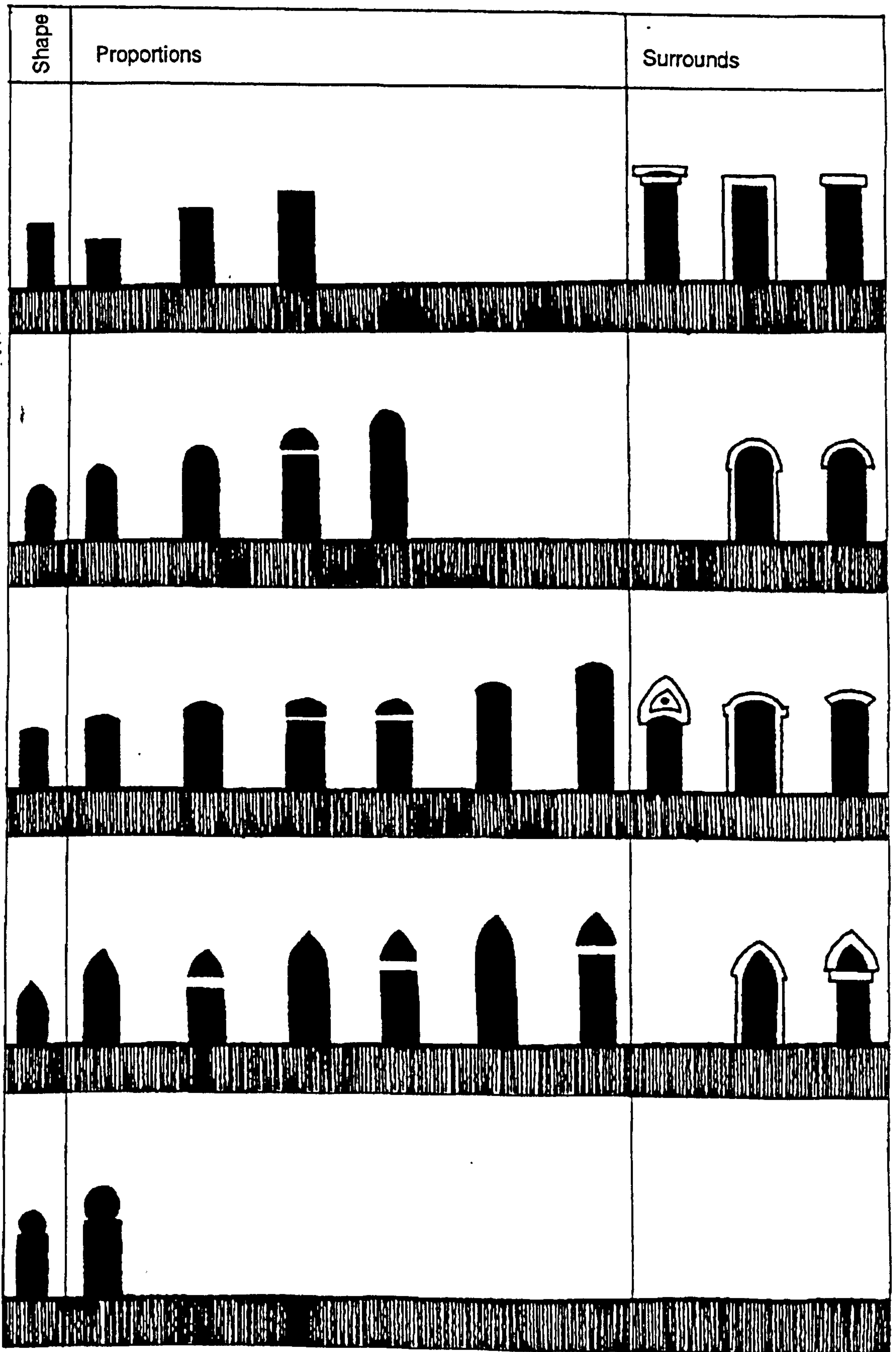


Figure 6.17: Door opening typology: shape, proportion and surrounds.  
 Revised and drawn by the author, based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, pages 216 and 220.



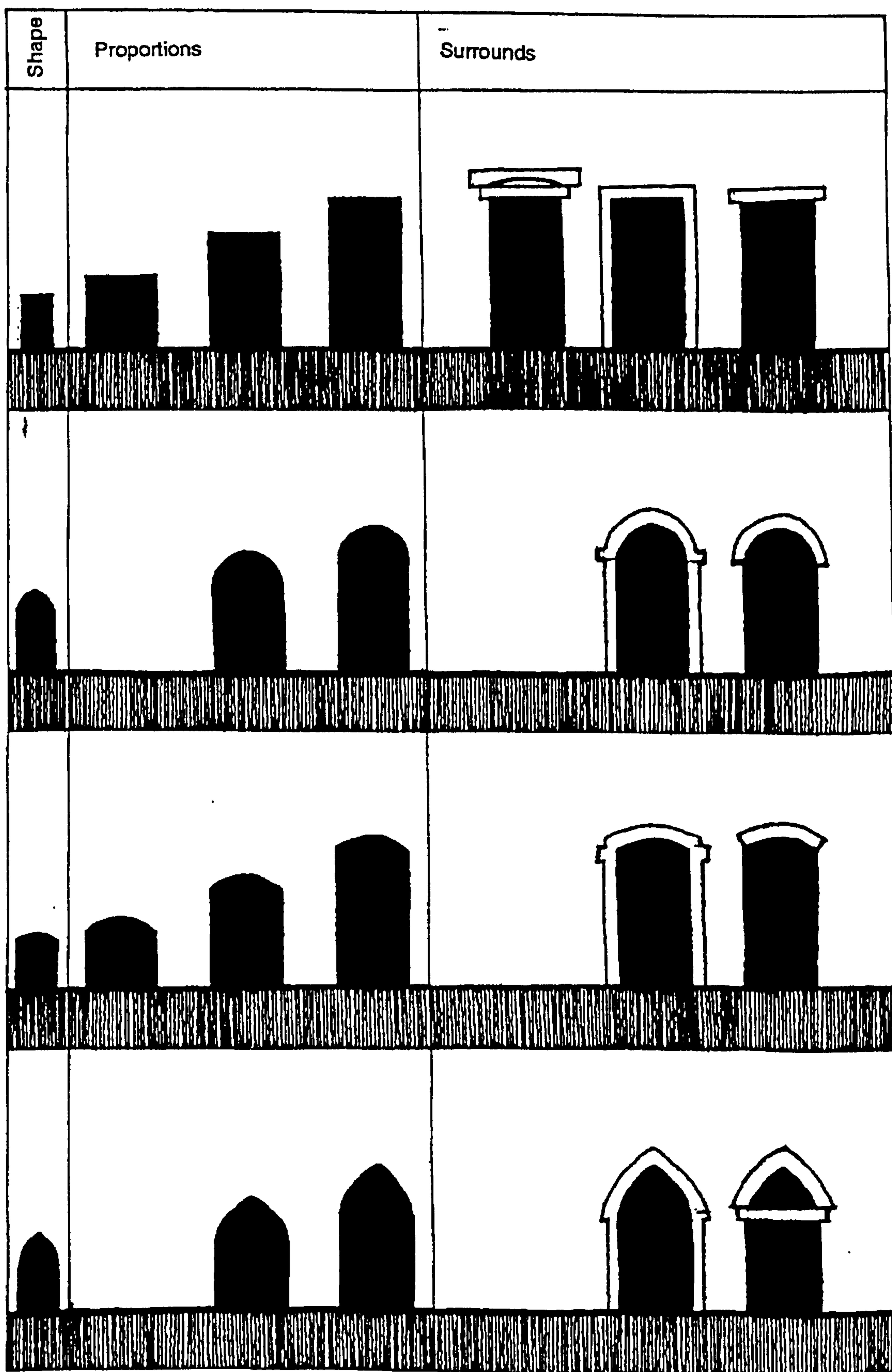


Figure 6.18: Shop doorway typology: shape, proportion and surrounds.  
 Revised and drawn by the author, based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, pages 216 and 220.



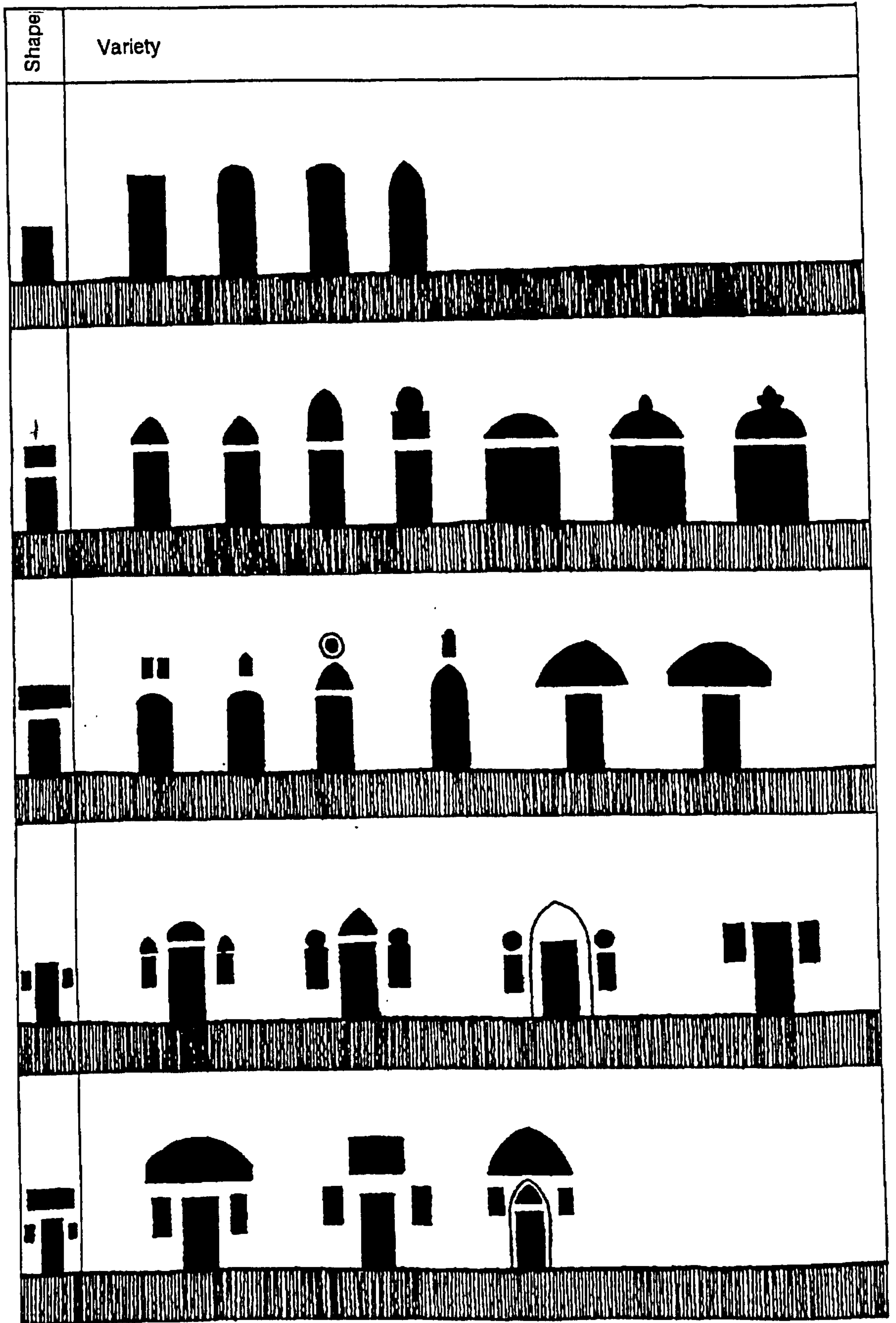


Figure 6.19: Grand entrance typology.

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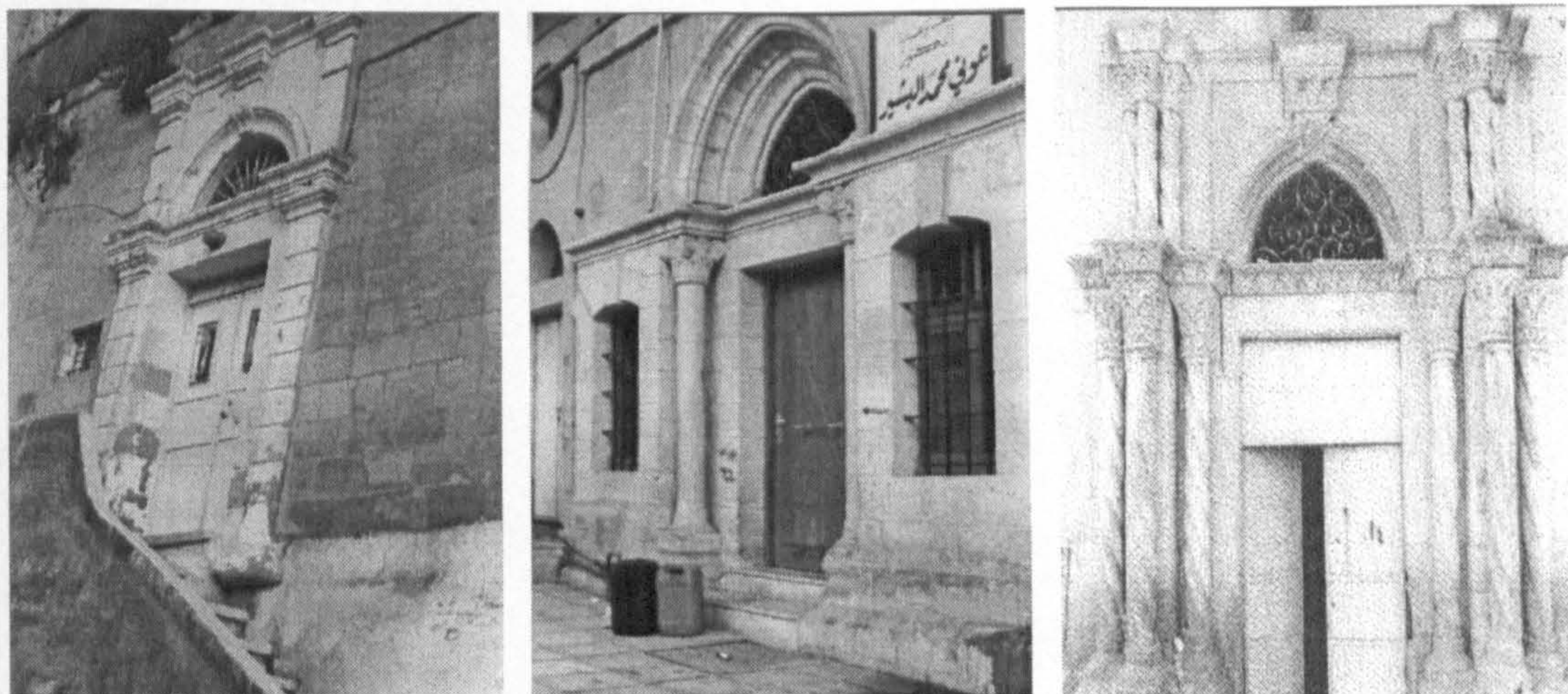


Figure 6.20: The decorative use of stonework and keystones that give depth and interest to the door openings.

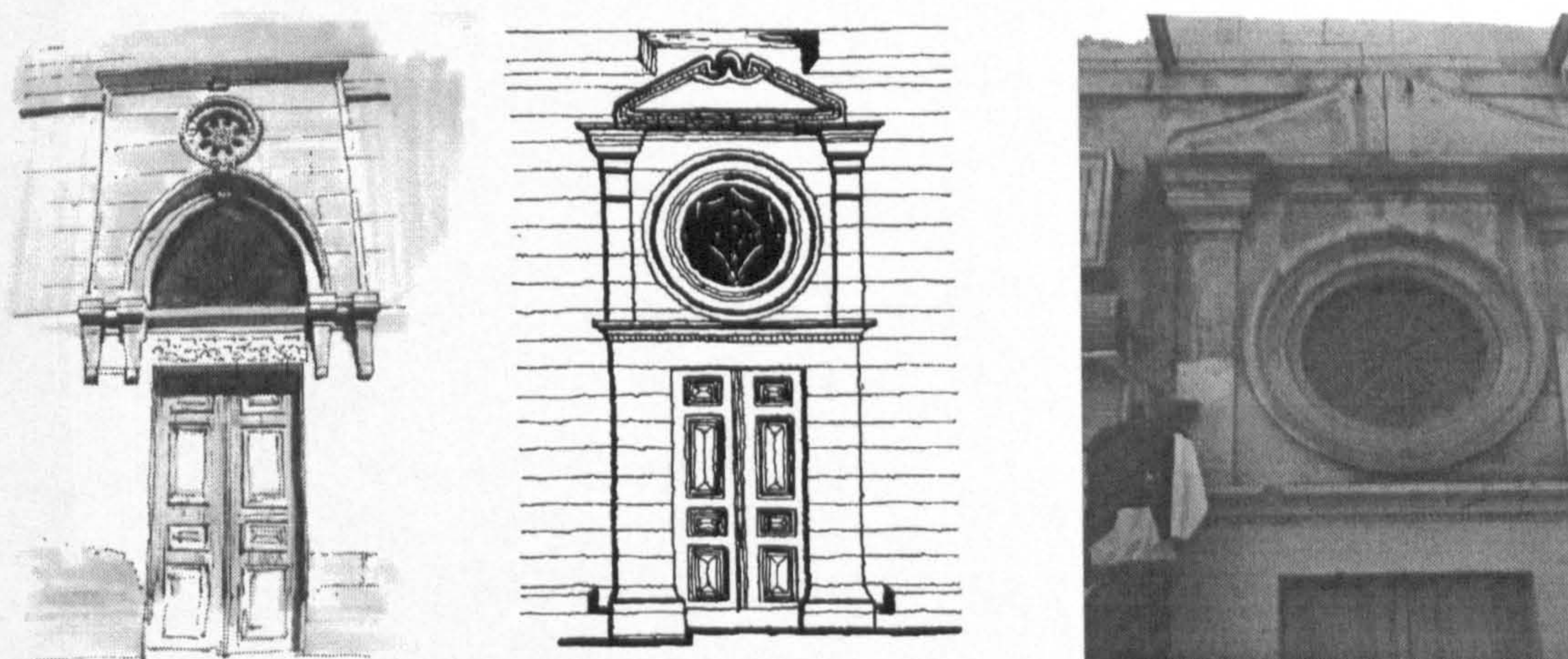


Figure 6.21: Rosettes were used above grand entrances.

fenestration. Certain types reflect different periods in the evolution of some buildings, and accordingly, each has more than one window type. Window openings are usually arched semicircular, segmental, pointed or horseshoes arches. Window openings were essentially small and vertically proportioned (Figure 6.23). Single openings are rare as they were mostly used in groups. They were very frequently doubled under a common relieving arch, i.e., two windows with pilasters separating them are common. These pilasters were designed in many different ways adding interest and variety. This was partially due to the simple building techniques, and partially due to the climate. The repetitive character of the windows itself lends a certain rhythm and grace to the facade.





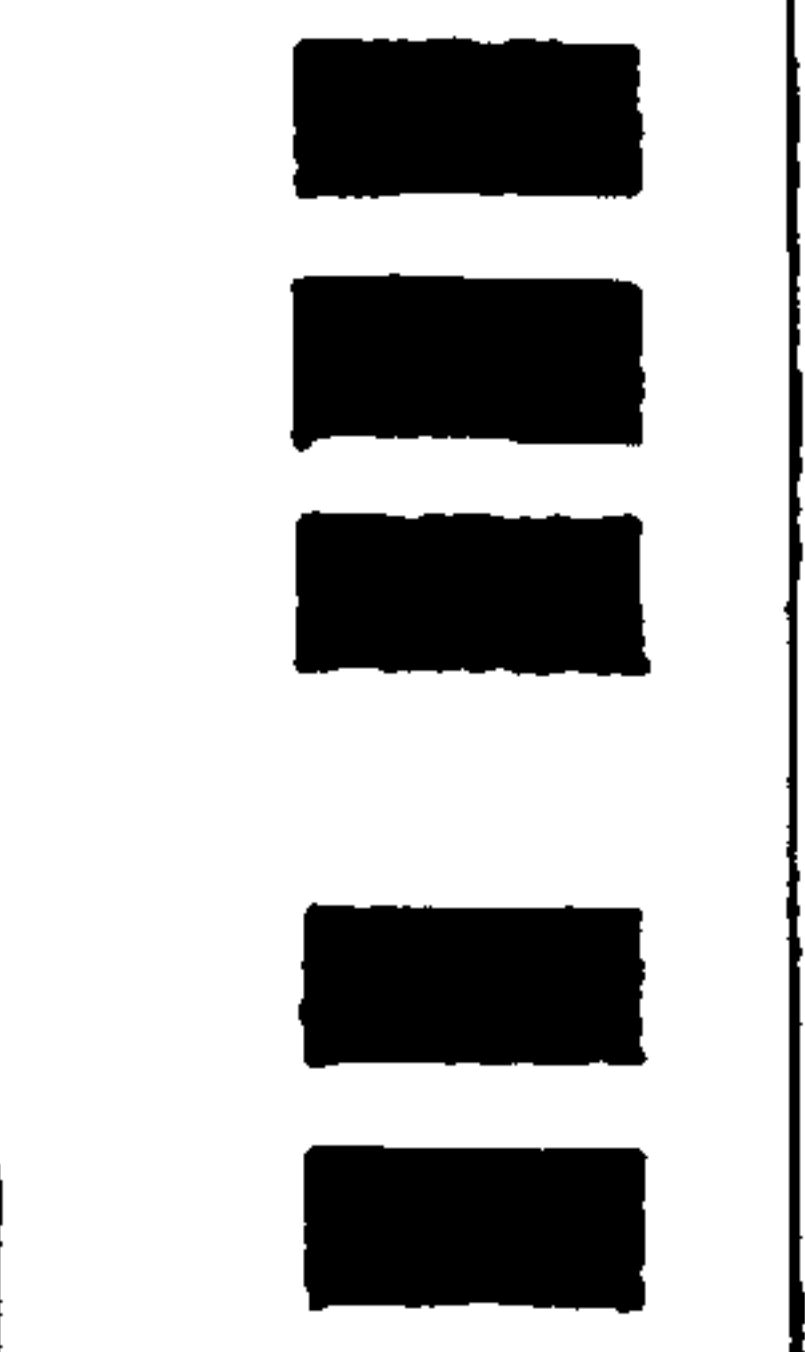
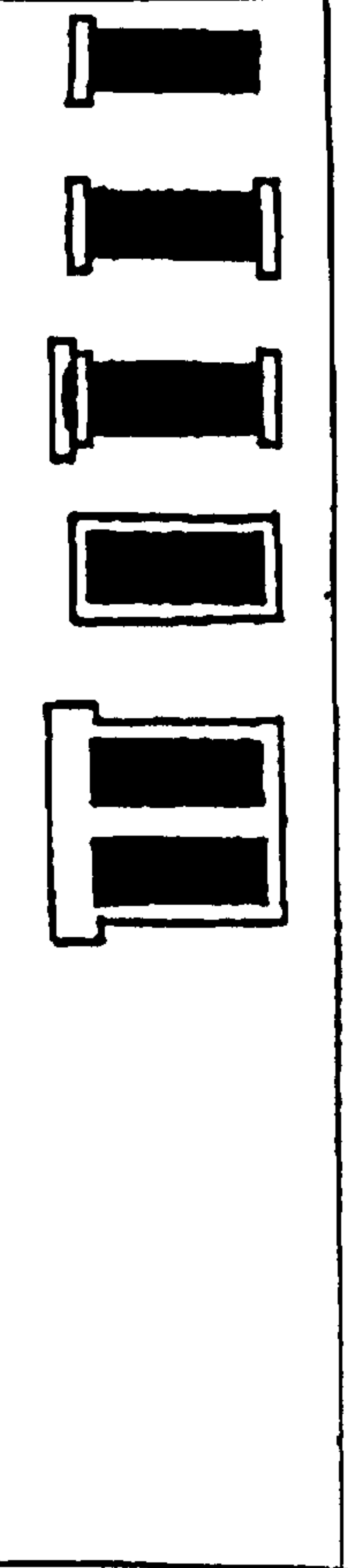


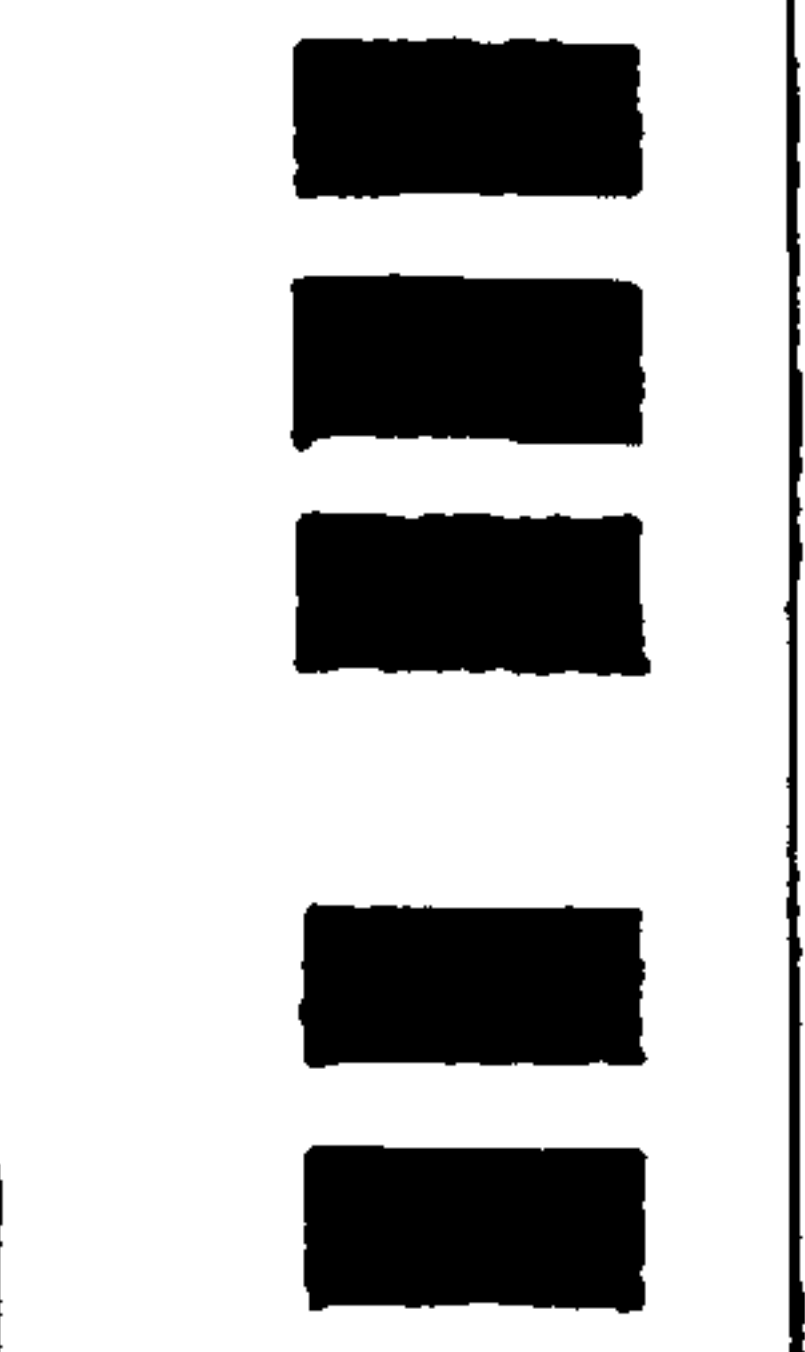
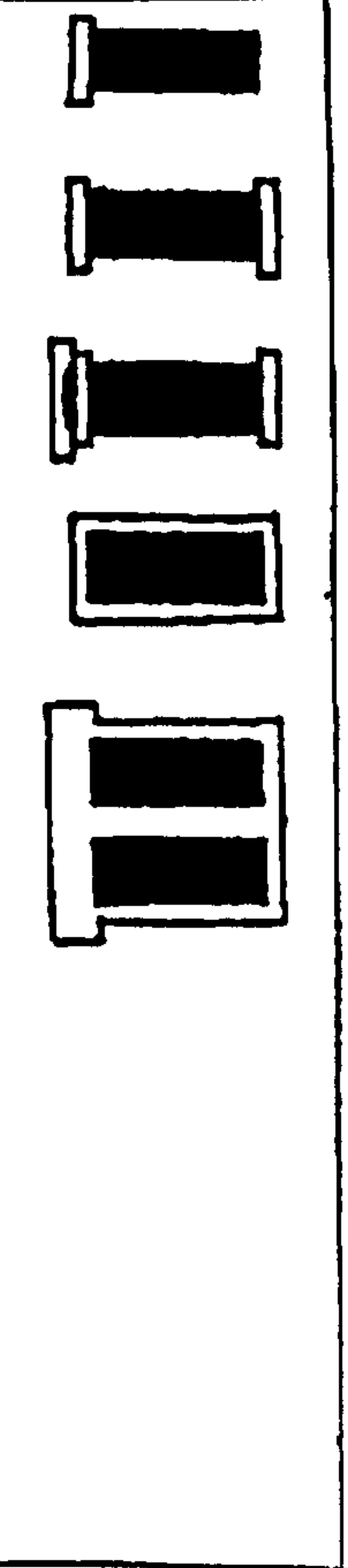


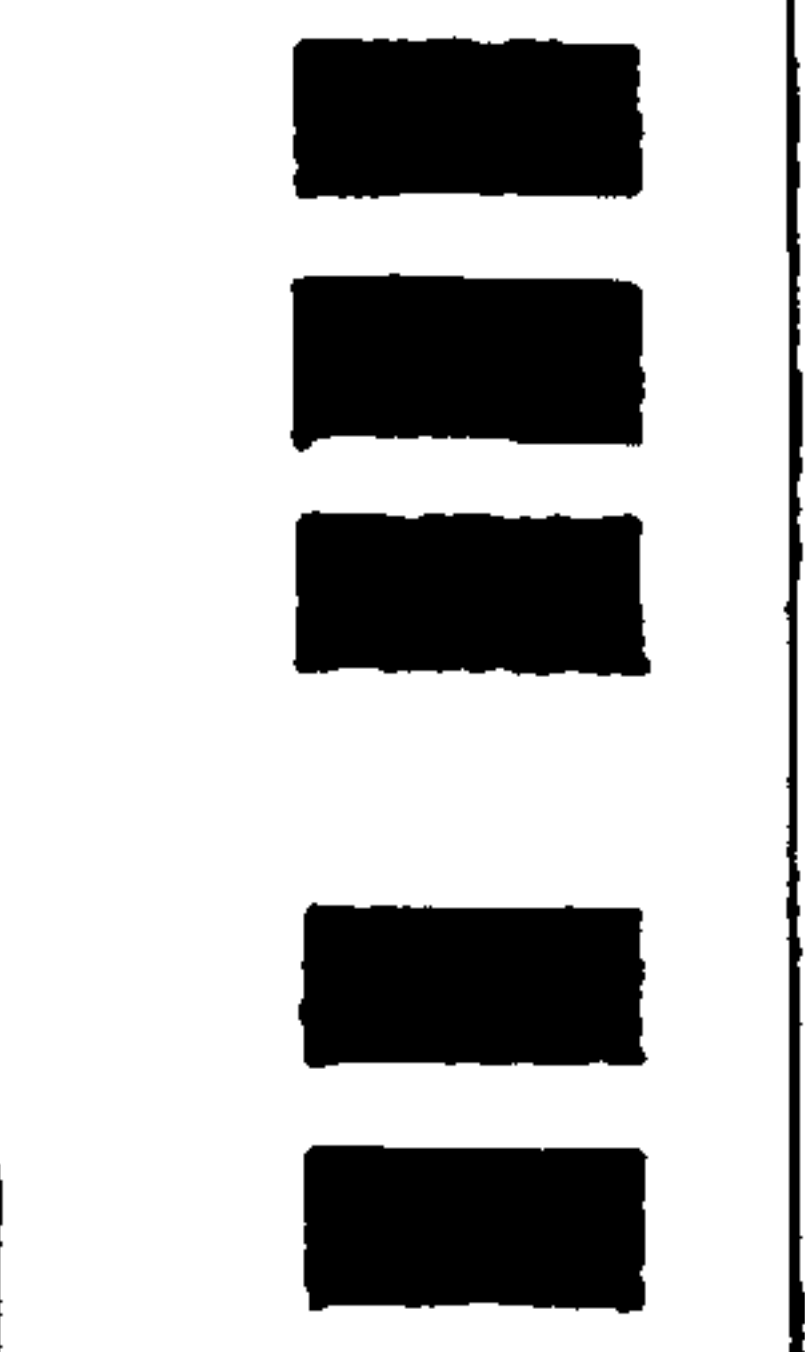
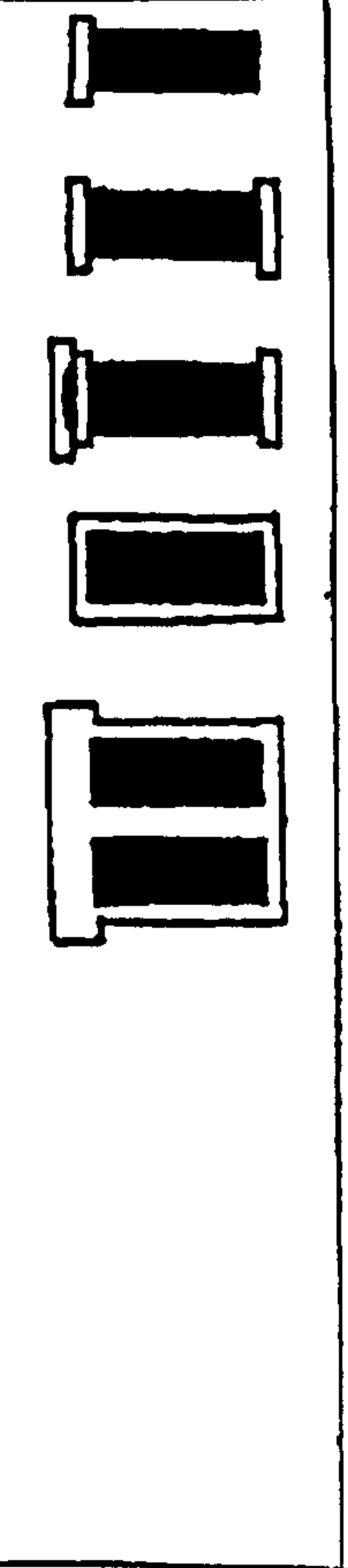


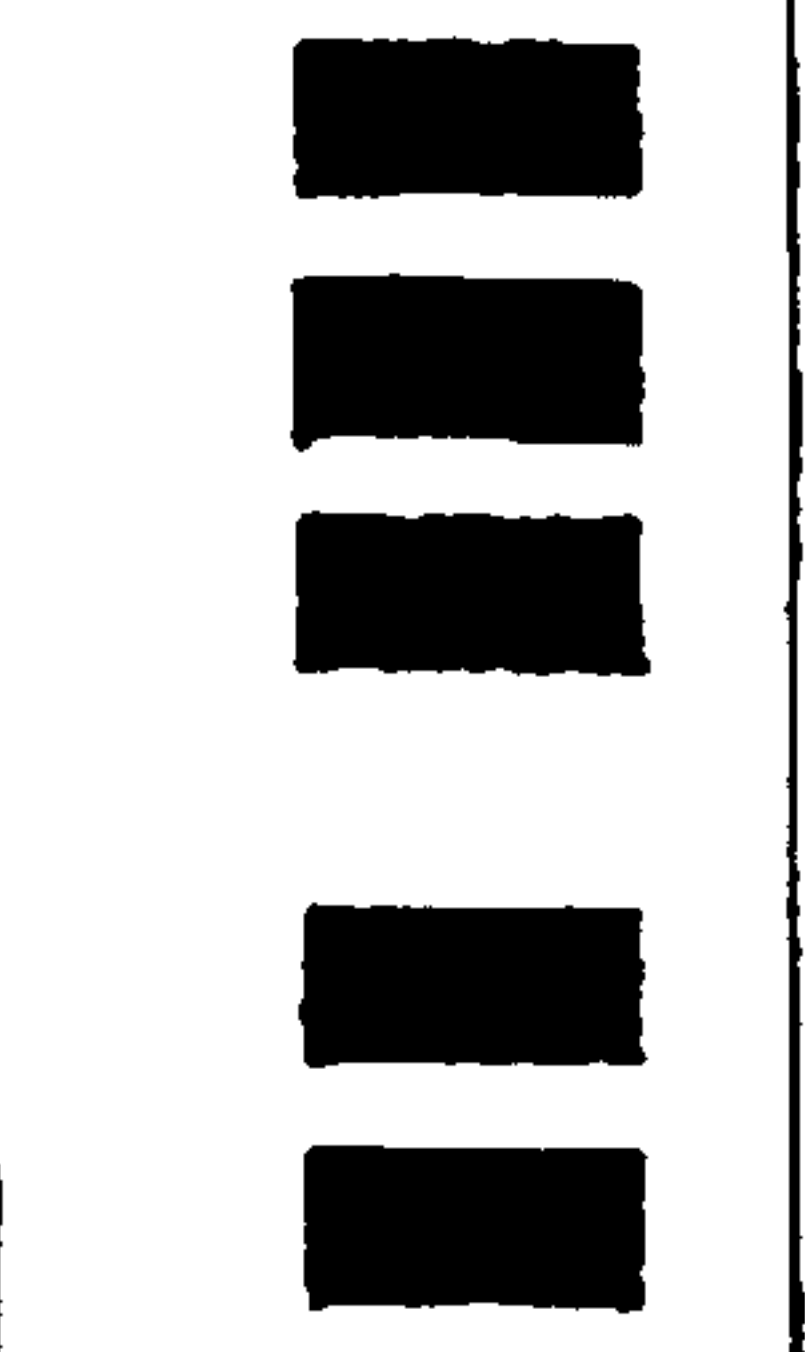
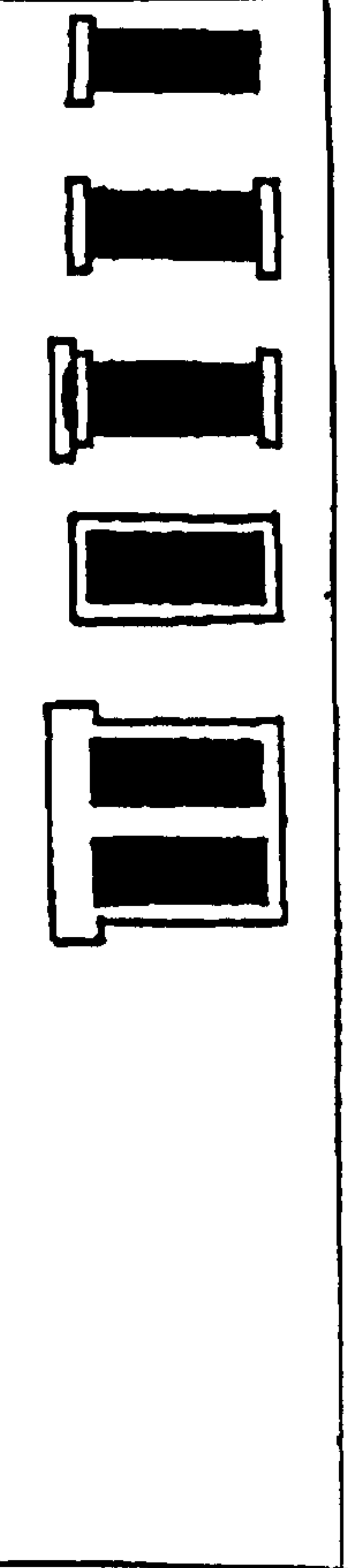


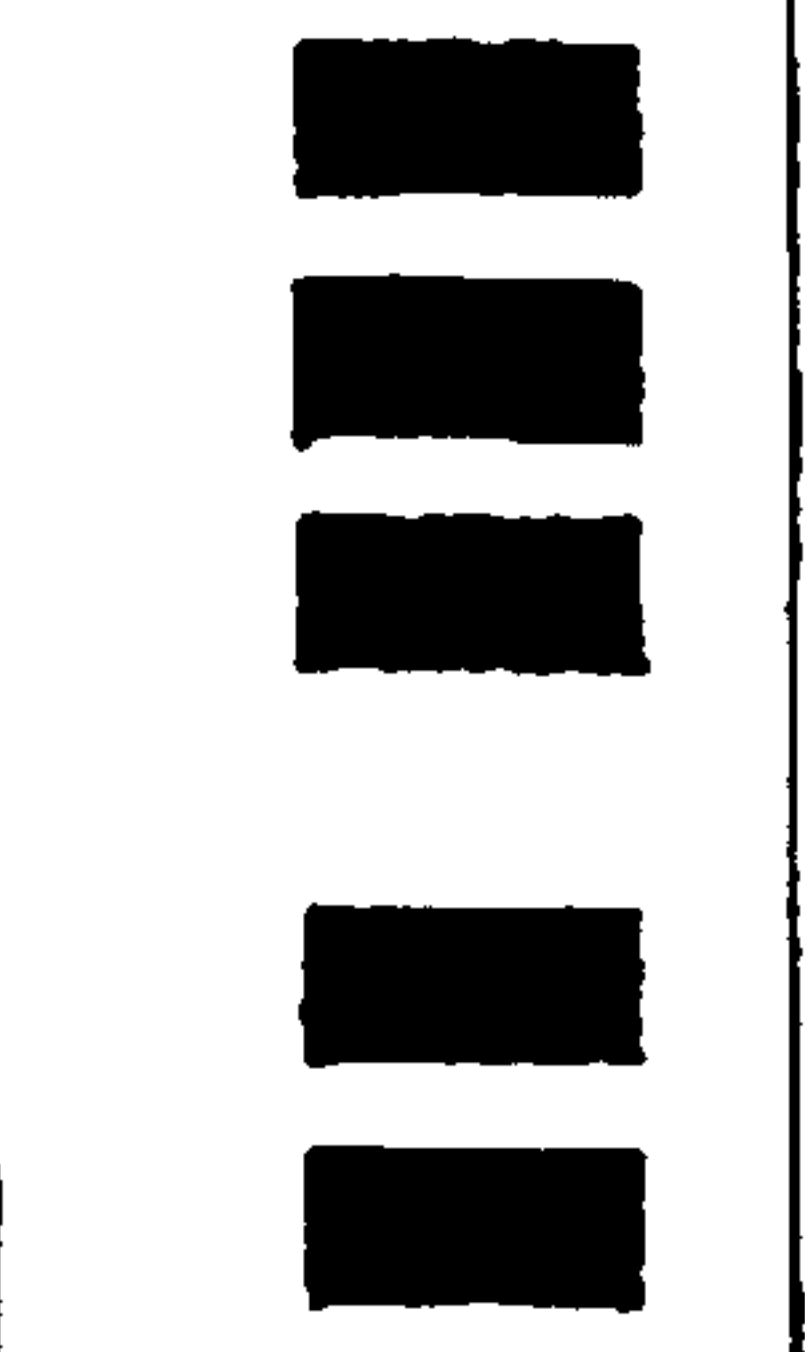
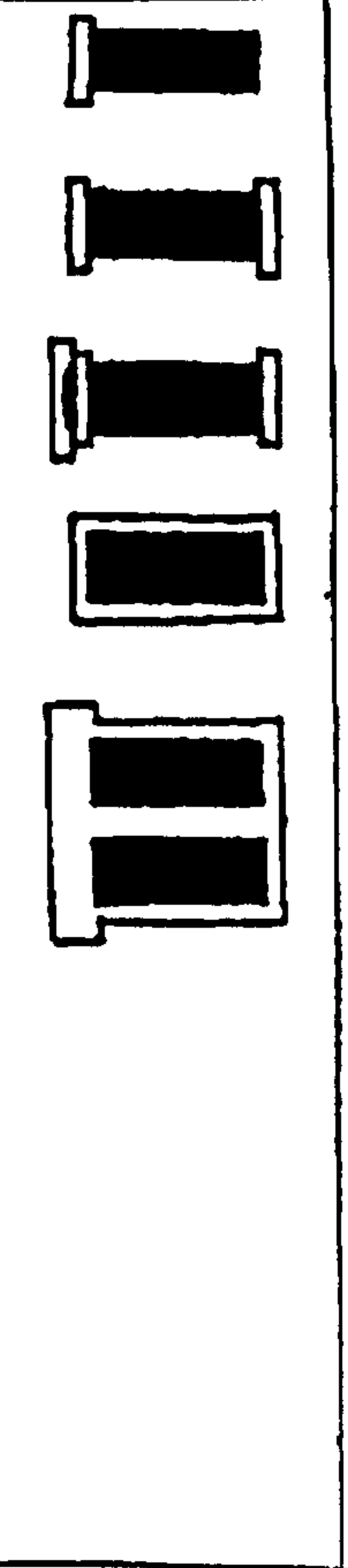
Shape	Proportions	Grouping	Surrounds
			
			
			
			
			

Figure 6.22: Fenestration typology: shape, proportion, grouping, and surrounds. Revised and drawn by the author, based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: RSS Press, 1989, pages 218 and 220.



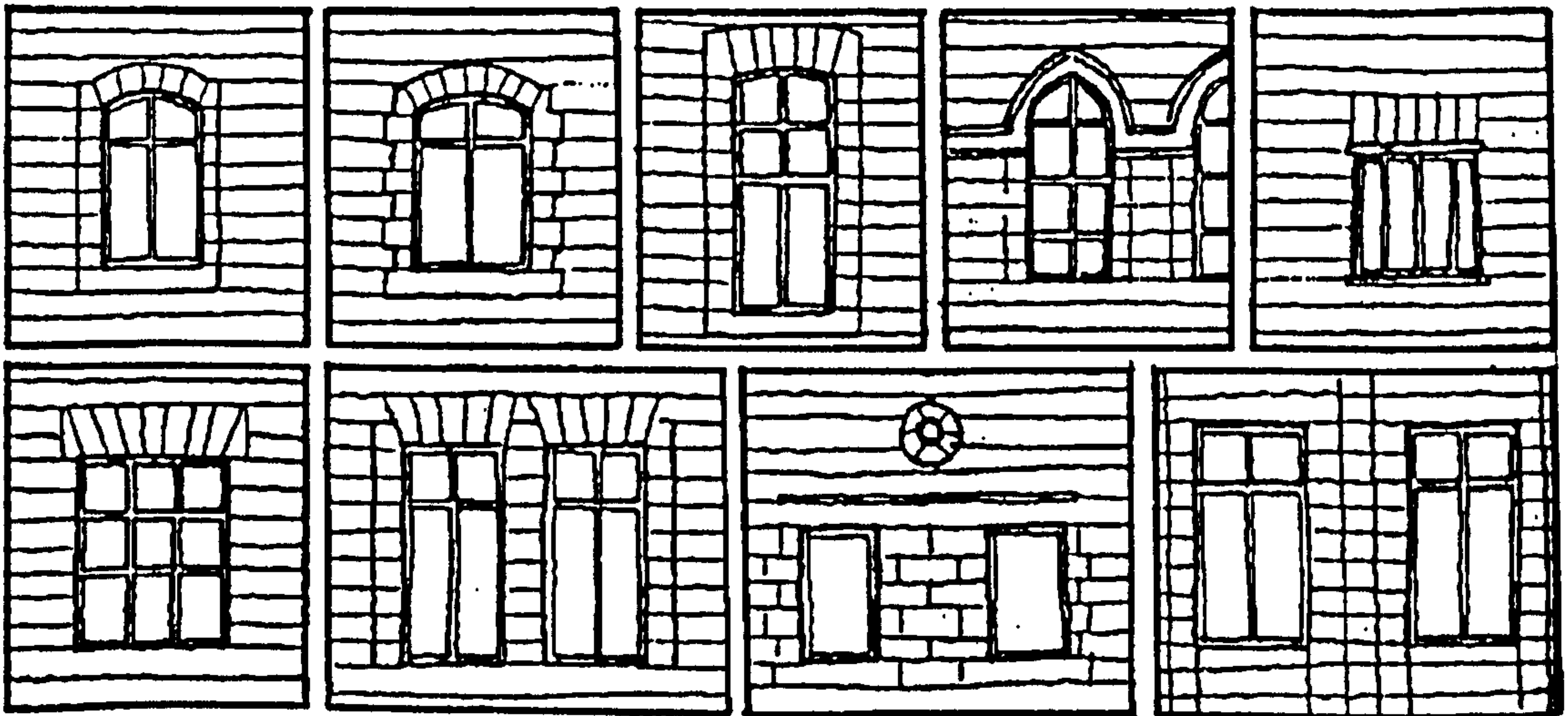


Figure 6.23: Window openings were essentially small and rather vertically proportioned.

Windows have either one or two sets of double leaf shutters, which are usually covered wood panelled shutters (Figure 6.24). The smaller sets of shutters are used at the lower part of the openings possibly for use at night. Arched and circular openings usually have glass in a Venetian or radial pattern. Coloured glass, transmitting diffused sunlight was often used. The common practices prevailing at present is to white plaster or paint the window's stone frame surrounded. Another common practice is to block the broken or irreparable window with concrete blocks or wooden blanks. These measures seem to be taken as a quick economical way for protection against rain water penetration without due regard to aesthetic measures.

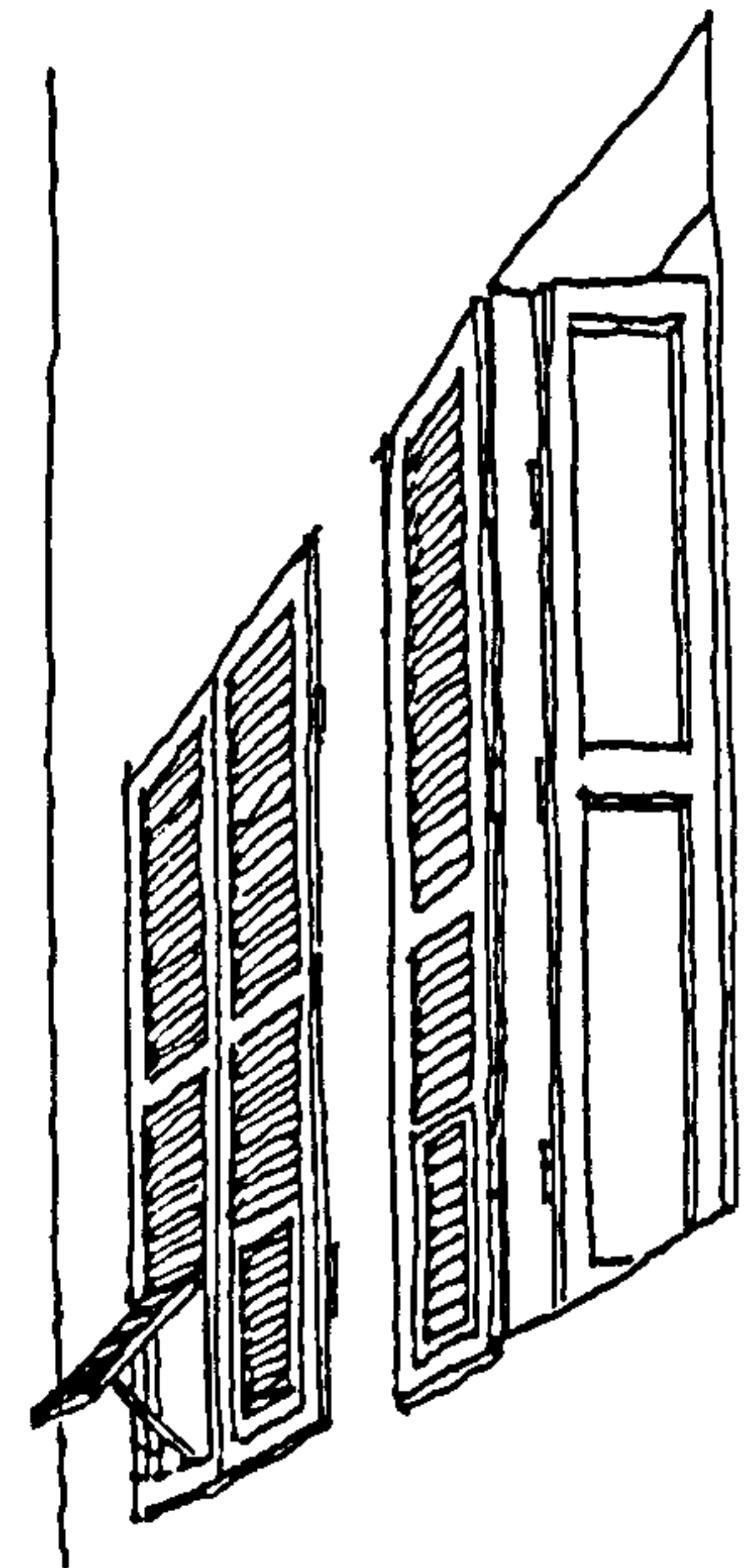


Figure 6.24 : Windows have either one or two sets of double leaf shutters, which are usually covered wood panelled shutters.

To compensate for the absence of ground level courtyards, attractive open and enclosed projecting balconies have been used at the upper levels, thus adding variety and interest to the basic square form of the building (Figure 6.25). Projected balconies were essential architectural elements of almost all SCC's post 1900 buildings. Because of the available construction techniques, buildings constructed



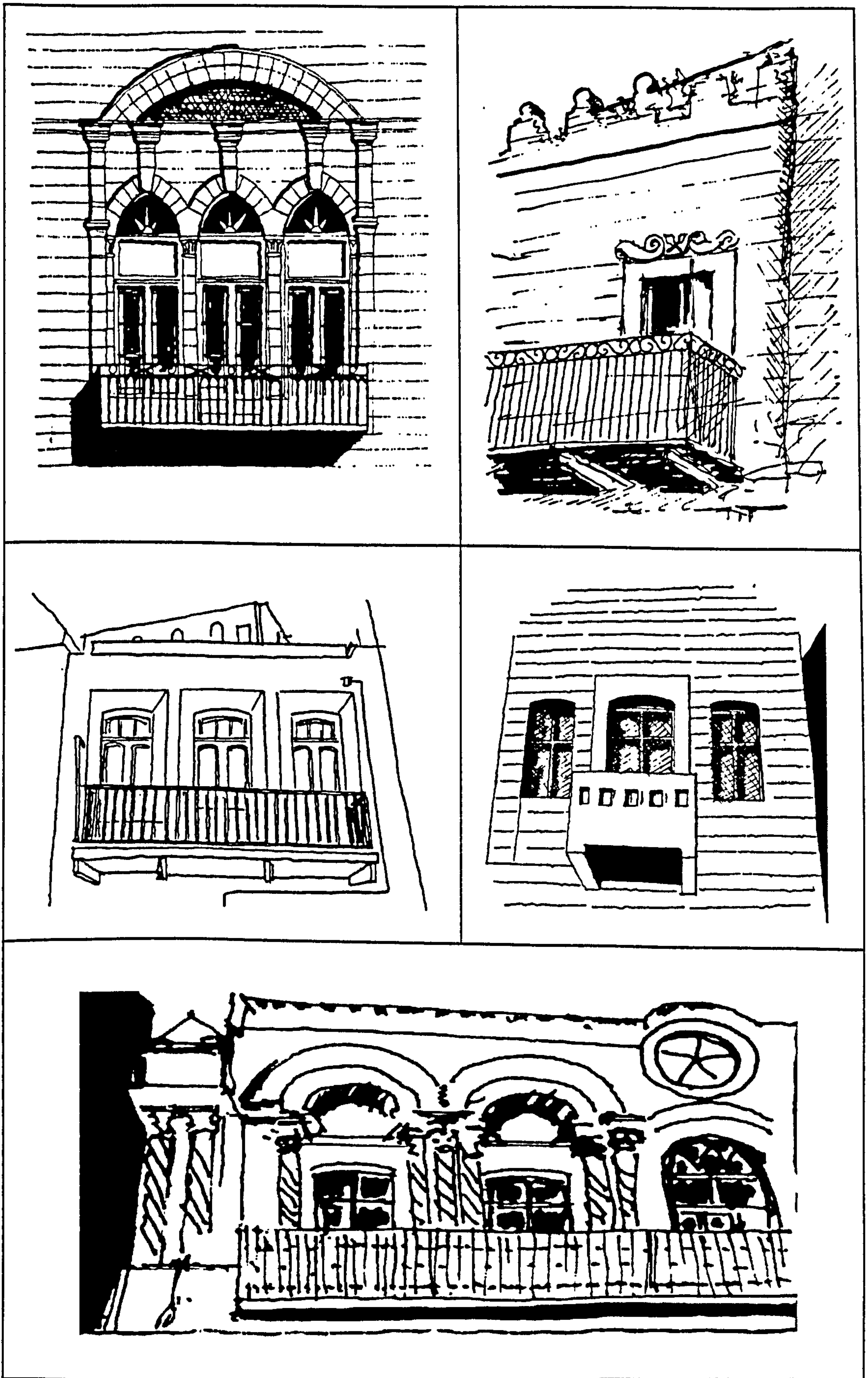


Figure 6.25: Projecting balconies have been used at the upper levels adding variety and interest to the basic square form of the buildings.



prior to 1900 AD. had no balconies. As these buildings were extended upwards and new concrete roofs were installed balconies were added. The construction methods consist of small I-steel sections cantilevered from the building wall, supporting a thin concrete slab with ornamental stonework or wrought iron balustrades. The undersides of the balconies are, in most cases, untreated.

Many balconies, today, are either discarded, surrounded by a low unfinished concrete block wall, or just left to deteriorate until they are demolished. Some balconies were closed to provide space for a bathroom or a toilet. Therefore, most of SCC's balconies require certain improvement measures, including proper treatment and finishing of the concrete slab with its steel supports in order to withstand age and weather as well as the need for proper maintenance of the balustrades.

### **C. Character:**

The visual predominance of the traditional character of SCC contributes to the unique architecture and the yellow stone colour that gives harmony and unity. Patterns, grain, size, density and texture are primarily aspects of the building masses of SCC. The above physical components, however, are not experienced individually, but interactively in relation to their surroundings and activities. The degree to which they fit contributes to the method by which they can be identified.

SCC could be identified as a place with human scale, as an expression of the inhabitant's built values and traditions. If the canals are the reminders of Venice, then it is the hills of Salt with their terraced buildings that establish SCC's distinctive image (Figure 6.26), which is expressed in the buildings, open space, pathways and stairways that follow the slopes of its hills and valley. This urban image, with its delicate scale and texture following the topography through sequences of open spaces, gives the area its sense of orientation, and it may be said that Salt, due to its topography, is a city of panoramas.



Figure 6.26: The hills with their terraced buildings establishing SCC's distinctive image.



The spatial quality of SCC is determined by the predominant characteristic of its landform, its quality of enclosure, as well as the detailed treatments of its buildings. In addition to these physical characteristics, SCC is also determined by the way the space affects people and how the people use the space and affect it in turn. Each of SCC's urban spaces has different capabilities for serving its users. The inhabitants and users of SCC possess different personal characteristics. They differ in their socio-economic class distribution as they differ in cultural and intellectual levels. They differ in their way of using space. All in all, the identity of SCC and its people are inter-related.

### 6.2.2 Order of Salt City Centre

The discussion of order in SCC includes its regularity, street alignments and ordering form and hierarchy.

#### A. Regularity:

SCC with its old development patterns are the essential contributors to the ultimate sense of place. Its old buildings reflect the nature of the community and convey its regularity. The regularity of its buildings and spaces have profound psychological importance. SCC buildings, over a period of time, became symbolically intensive. SCC



traditional patterns are perhaps the most effective symbol of memorable experiences. Its environment provides the context of such experiences. The probability of recall of a memory pattern is further enhanced with the frequency with which it is recalled, i.e., the huge number of traditional elements.

Mixtures of open space and built-up space are formed by regular and irregular routes and buildings. Along these routes pedestrians usually walk at a uniform speed. The scenery of the city, however, is often revealed in a series of jerks of revelations corresponding to human rhythm. The behaviour of pedestrians on a stairway is different from that on a levelled or inclined walkway. The rhythm of the steps controls the spacing and the speed of the ascending and descending flow patterns. The behaviour of pedestrians here, depends mainly on the degree of inclination and the direction of movement either up or down.

The availability of intermediate landings, pausing terraces and vistas enhance the performance of the stairway. Some of SCC's stairways are narrow and steep and some have wider sections with vacant areas for their adjacent plots. The availability of such vacant plots along some of SCC's stairways provide the area with potentials of developing important urban open spaces with various visual opportunities and qualities, i.e., vistas and panoramic viewing points, and visual connections with various areas.

### **B. Alignment and Street Ordering Form:**

The streets, stairways and open spaces of SCC are crucial elements of a way of life, and an expression of the bonds among the inhabitants of the area. Buildings are generally built directly on the streets/stairways with no front yards. Any left-over ground surface around the buildings is paved and used as part of the street/stairway. Alignment and ordering form can be observed in the continuity and rhythm created by the even positioning of buildings. Streets/stairways are determined by the shapes of the buildings, i.e., opening wide, becoming narrow, turning at odd angles, becoming covered by an archway and intersecting at different patterns.



Streets and stairways constitute major common parts of SCC (Figure 6.27). Within SCC streets and pathways there are a great variety in lengths, cross sections, shapes, character, function and meaning. A study of SCC streets and pathways suggests three defining characteristics according to their proportion, shape, scale and density. First; city streets play a major role in access and orientation of the city circulation network, i.e., *Al-Maydan* and *Al-Deir* streets where vehicular movements dominated the space (Figures 28 and 29); and second: local streets, which are smaller and more intimate in scale than the city streets. In a local street vehicular movement shares space with pedestrians rather than, dominate it, such as, *Al-Khader* street (see section 7.2.1). Third; the intimate streets and pathways where a strong sense of identity is experienced along them are more suited for pedestrian use. Among these pathways are *Al-Hammam* street (Figure 6.30), and the various stairways within SCC.

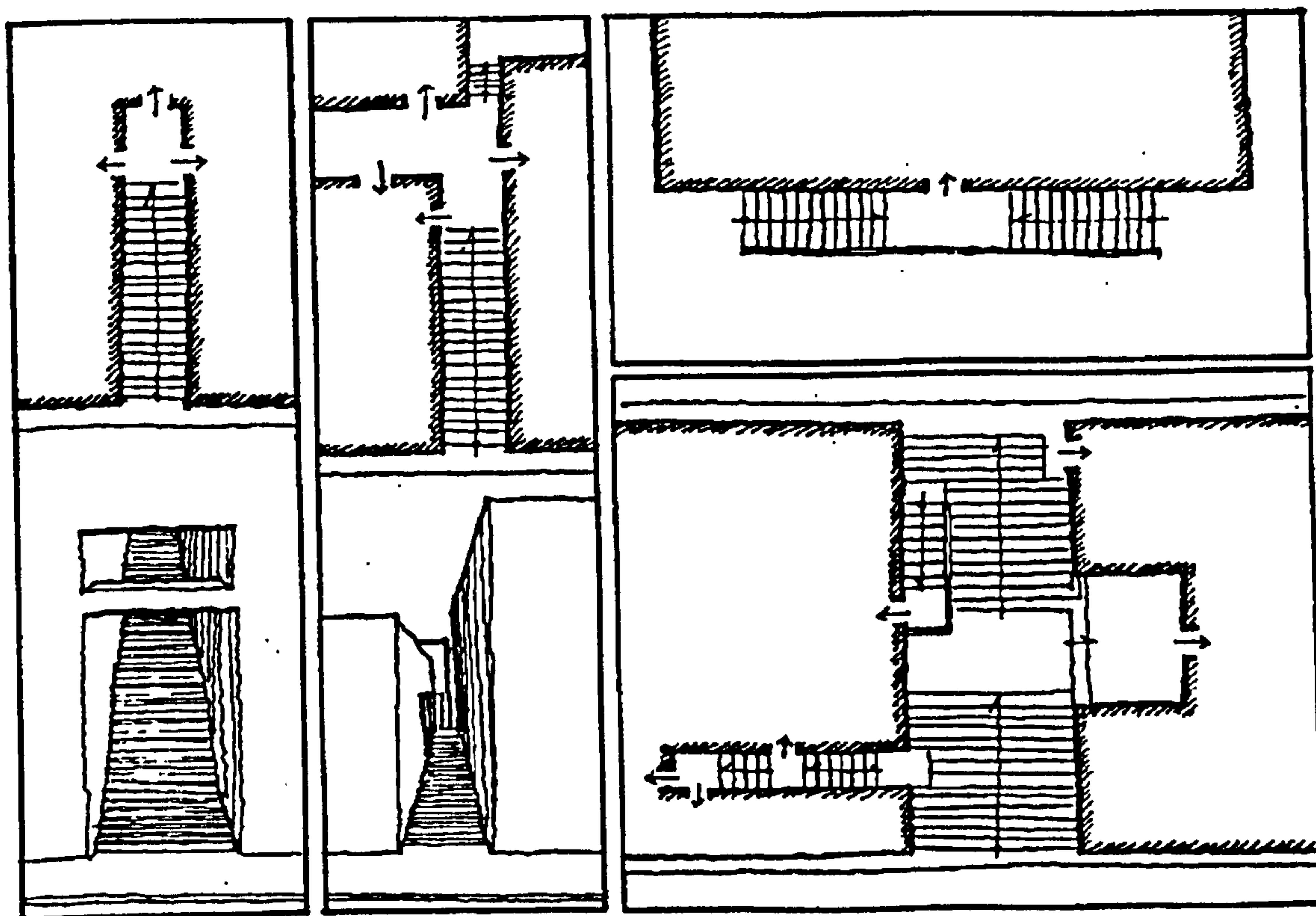


Figure 6.27: Examples of SCC's stairways.



Figure 6.28: *Al-Maydan* street.Figure 6.29: *Al-Deir* street.Figure 6.30: *Al-Hammam* street.

Vehicular streets have smooth curvatures allowing for vehicular manoeuvring. This can be observed in *Al-Maydan* street, one of the two principal vehicular streets of SCC, with two to three storey buildings built with the distinctive yellow Salt stone (Figure 6.31). This quality is also observed in the second principal vehicular street, i.e., *Al-Deir* street (Figure 6.32). Pedestrian streets and stairways are more mysterious allowing for varieties of visual relationships.



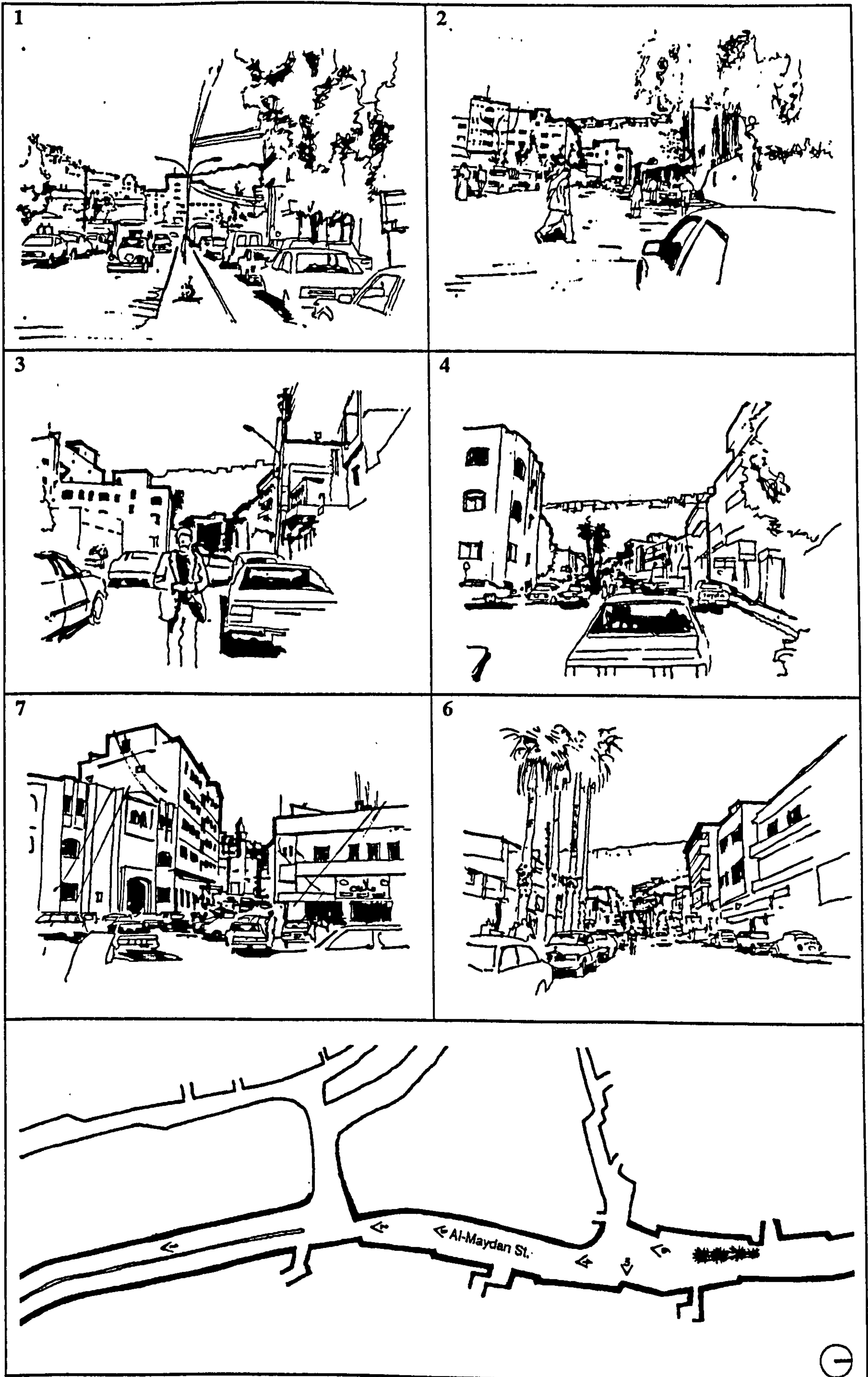


Figure 6.31: Serial visions at Al-Maydan street.



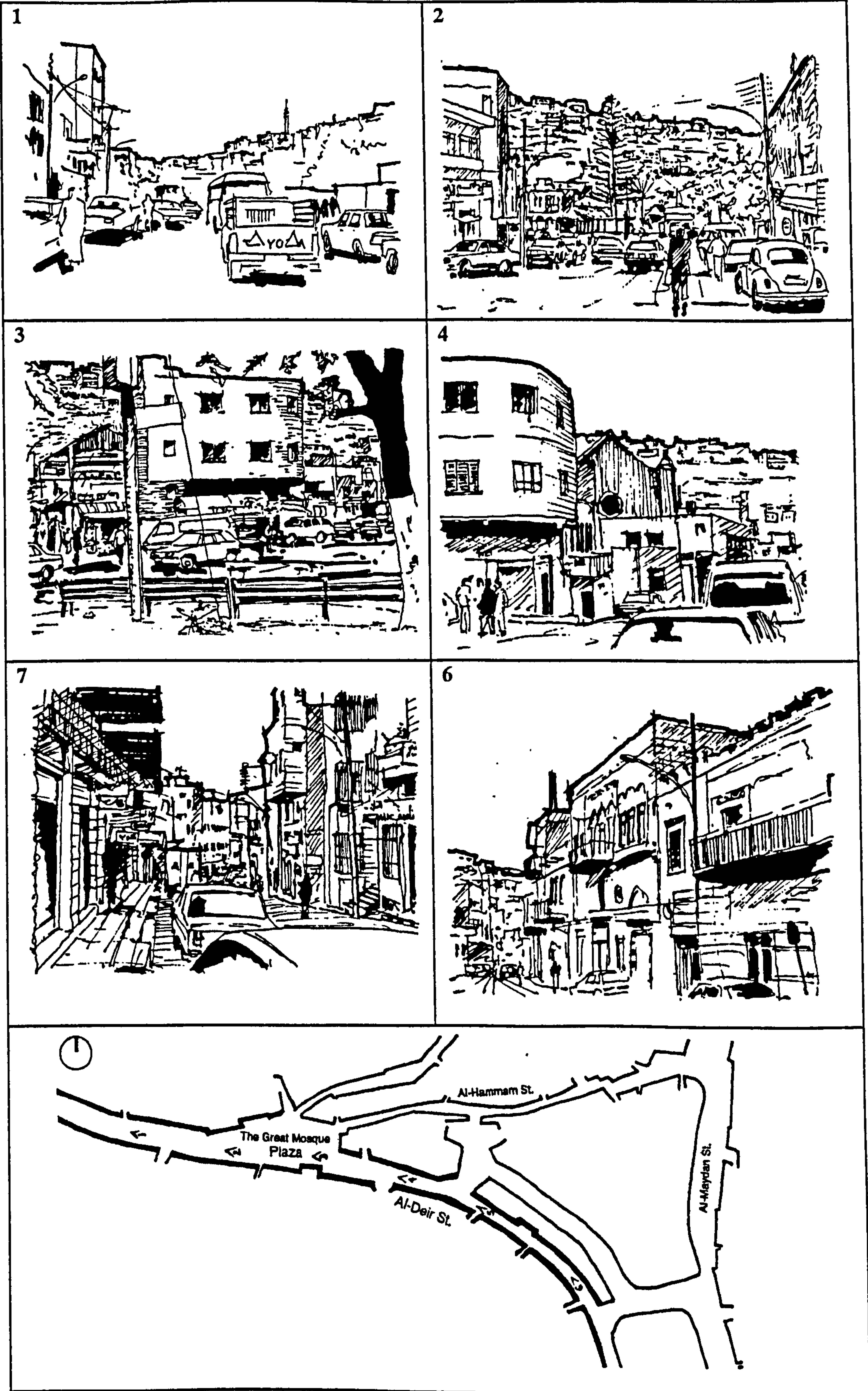


Figure 6.32: Serial visions at Al-Deir street.



However, some infill new buildings have a discordant structure, such as having various frontal setbacks. This can be observed in the case of the urban "development" scheme of Salt Civic Centre (see section 6.2.4 C). In this project, some of the setbacks form sunken trenches so as to provide natural lighting and ventilation to the lower level, which in turn, contributes to changing the visual equilibrium.

People, in SCC, as well as in all urban centres, usually end up as pedestrians no matter how they arrive there. Designing for pedestrians usually gives respect to their physical safety. With exceptions to few parts of SCC, i.e., *Al-Hammam* street (see section 6.2.3 A), pedestrians' comfort and amenity has been badly considered. Not much attention has been given to pedestrian movement patterns and their spatial qualities and requirements. The common use of pedestrian walkways is mainly linear along the length of the road with possibly wider areas at special points, such as street crossings, street corners and may be where gathering of activities occurs.

As the pedestrian is not guided by space alone, it is difficult to answer the question of how much space he/she may need to move while avoiding overcrowding. However, pedestrian walkways should consider the capacity of the pedestrian flow and the nature of the movement resulting from his/her psychological behaviour on the street. These include irregular and variable movements and short cuts following obvious detours and speed and frequency of movement. Such behaviour is related to age, sex, lifestyle and social habits. It is also related to environmental characteristics such as topography and weather conditions. Pedestrian walkways should also consider the objects that people usually carry such as sacks, baby cots and umbrellas, and allow for the provision of auxiliary spaces for pedestrians to wait at street crossings with sight area free of obstacles.

The absence of adequate walkways in SCC is obvious. Sidewalks largely disappeared, giving way to carriageways, gas stations, car repair yards or simply mud (Figure 6.33). This forces people to change path and move onto the carriageway. The provision of metal fences along the narrow sidewalks, however, caused pedestrian in congested



walkways to slow down, which doubles or triples the pedestrian flow. It is essential, however, to restore the pedestrian facilities so as to create a viable pattern linking SCC spaces by footpaths and stairways with distinctive floor patterns. Vehicular streets sweep along impersonally but the pedestrian network creates the human city.

Figure 6.33: The sidewalks disappeared giving way to carriageways, gas stations, car repair yards or even mud.



Stairways are important parts of SCC pedestrian pathways. Some of them may be seen as a complementary structure, such as the various stairs connecting the lower area street with the upper residential areas (Figure 6.34), where any one set of stairs has a consistent wholesome relationship with the others. Usually the stairways are perpendicular to SCC contour lines. Some of them serve different specialised shops while most, especially those connecting the city centre with the surrounding hills, accommodate residential buildings. Stairways, here, act not only as pathways but also as nodes where the inhabitants can meet and children play.

Once SCC pedestrian streets and stairways were full of archways. Unfortunately, the current "developments" caused the loss of many of these elements. The existing archways give access and through ways providing a variety of light and shaded spaces (Figure 6.35). Such changing patterns of light were supposed to bring added visual attraction. Archways afford closure to the pedestrian streets and to the stairways they cover. They provide rich shade for the pedestrian by projecting rooms spanning both sides of the lane like bridges. They provide framed views with interesting visual relationships. Moreover, the treatment of the walls supporting the archway provided a visual indication regarding the ownership of the rooms spanning over the lane (Figure 6.36). If the archway is supported directly by the walls of the buildings at the two sides of the lane, both sides belong to one owner. The archway, here, is most probably private



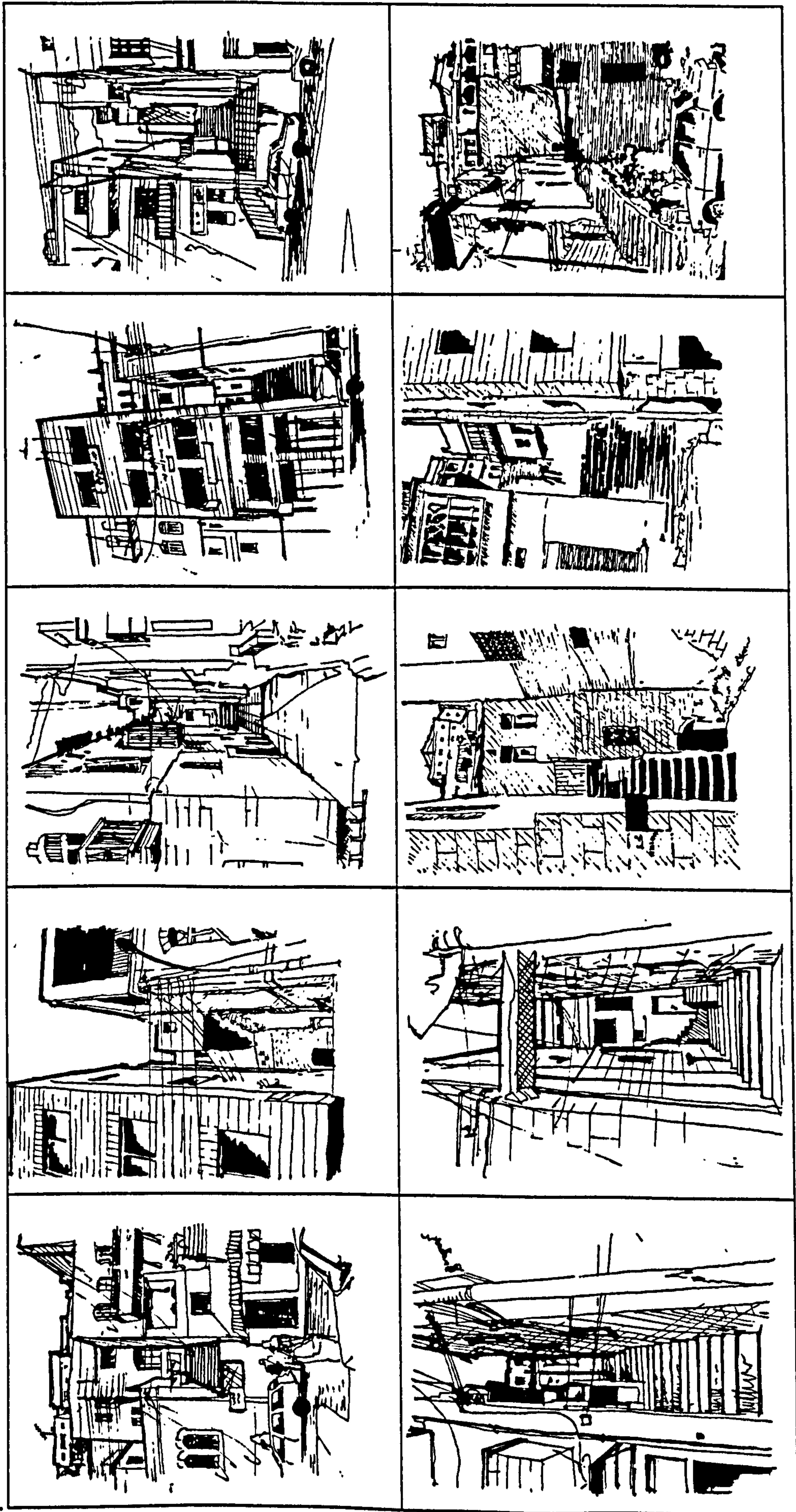


Figure 6.34: Examples of the various stairways connecting the valley with the upper residential areas.



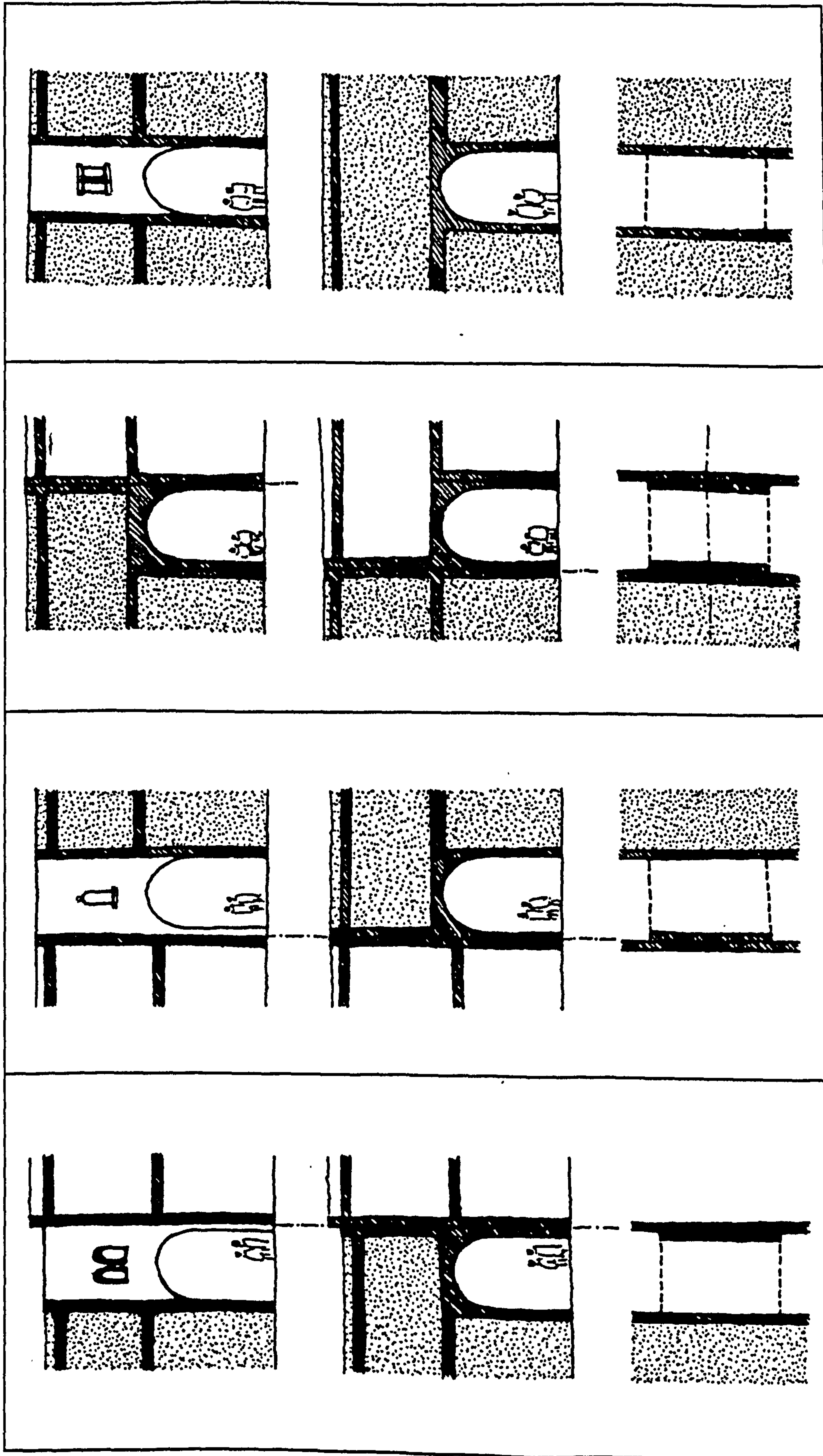


Figure 6.36: The treatment of the walls supporting the archways provides visual indication regarding the ownership of the rooms spanning the lane.



property. If the archway is supported by an additional wall at one end, the ownership of the spanning rooms belongs to the house on the other end. The availability of two additional walls supporting the archway at both ends indicates that the spanning rooms belong to the houses at both ends.

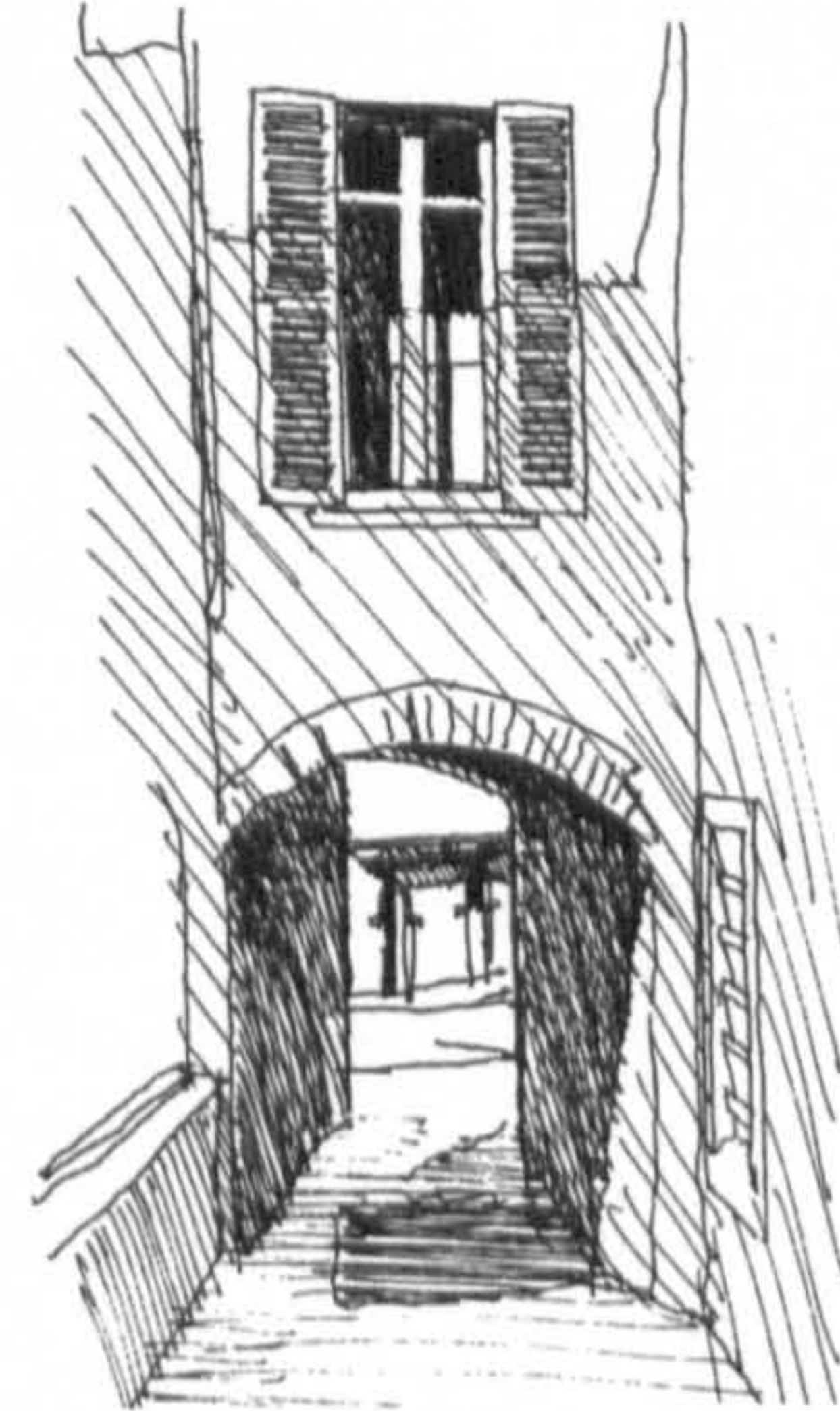


Figure 6.35: Archways serve access and through ways providing a variety of light and shade spaces.

It is hard to think of streets and pathways without thinking of their buildings (Figure 6.37). A street is not only the part where vehicles move or the side-walks where pedestrians usually walk, but it is also the way it looks and functions, which often depends on the way its buildings are formed and used for. Street buildings are like walls, the ground pavement are its floor and the open spaces between buildings are its doors and access ways. These walls, floors and access ways have many textures, different visual qualities and various spatial configuration characteristics. Magazine kiosks, store signs and lights, traffic signs and lighting fixtures are the furniture which people use.

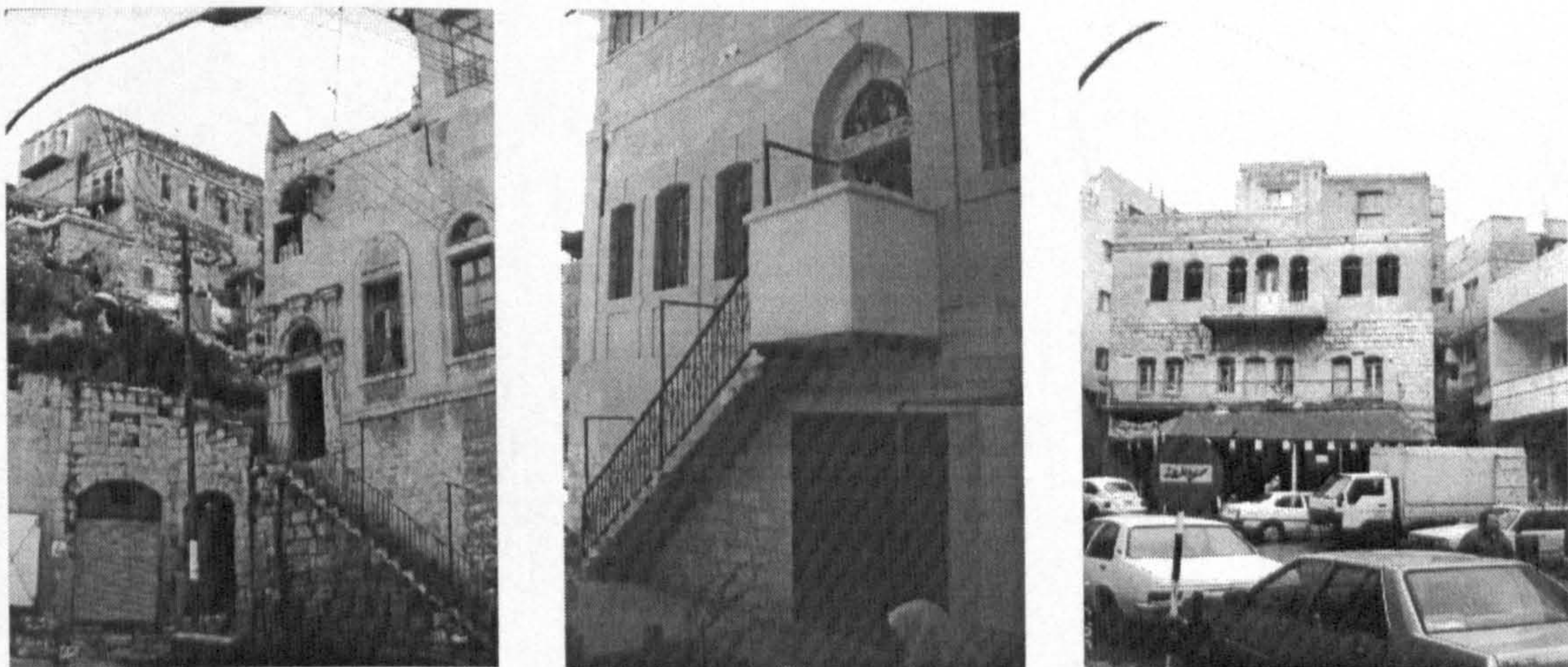


Figure 6.37: It is hard to think of streets and pathways without thinking of their buildings.

The existing street furniture is poor in design and limited to a few benches and bus shelters. More attention should be paid to these items and proper street furniture designs



should be made. Designed as formal and informal walks, the layout of the street furniture should provide interesting accents, events, pauses, transitions, intersections and a point of arrival. In addition to street furniture, the street hardware is poorly maintained. Street hardware includes outfitting of utility and mechanical systems, parking yards, electricity transformers, direction signs, curbs, manholes and sewer covers and other elements.

### C. Hierarchy:

SCC can be described as a hierarchical order of open spaces varying in size, form and importance. The plazas and open spaces are organically created demonstrating the close relationship between the closure of the space and the vistas and watch points they provide. SCC open spaces range from the small terraces to the large plazas. Large plazas are usually formal and moulded by building facades, whereas the smaller open spaces represent nature brought into and around the city hills. These open spaces can be valued for the expanded opportunities they provide for people to meet and interact. Small open spaces provide a balance between community and privacy that can never be experienced in large plazas.

SCC has many prominent visual features that are enhanced and reinforced by meanings, locations, or activities associated with them. The Upper Mosque on the dominating Citadel hill, for example, is one of the warmly regarded landmarks of SCC (Figure 6.38). The Upper Mosque has a very clear definite relationship with the various parts of SCC. From the Citadel hill, there is a striking panoramic view of the surrounding hills and valleys (Figure 6.39).



Figure 6.38: The minaret of the Upper Mosque dominating the Citadel hill.



This panorama is dramatically accented by the foreground of the mosque while the slopes of the Citadel hill are articulated as a series of purposefully sculptured masses (Figure 6.40).



Figure 6.39: The striking panoramic view of the surrounding hills and valleys from the Citadel hill.



Figure 6.40: The slopes of the Citadel hill are articulated as a series of purposefully sculptured masses.

The Small Mosque, built in 1906, is another major visual element in SCC (Figure 6.41). It is a two-storey building with a pitched roof covered with red tiles. The indigenous yellow stone was used for building the mosque. The ground floor is directly accessible at *Al-Hammam* street level through a unique decorated gateway (Figure 6.42). The ground floor consists of the main praying hall, an open court, as

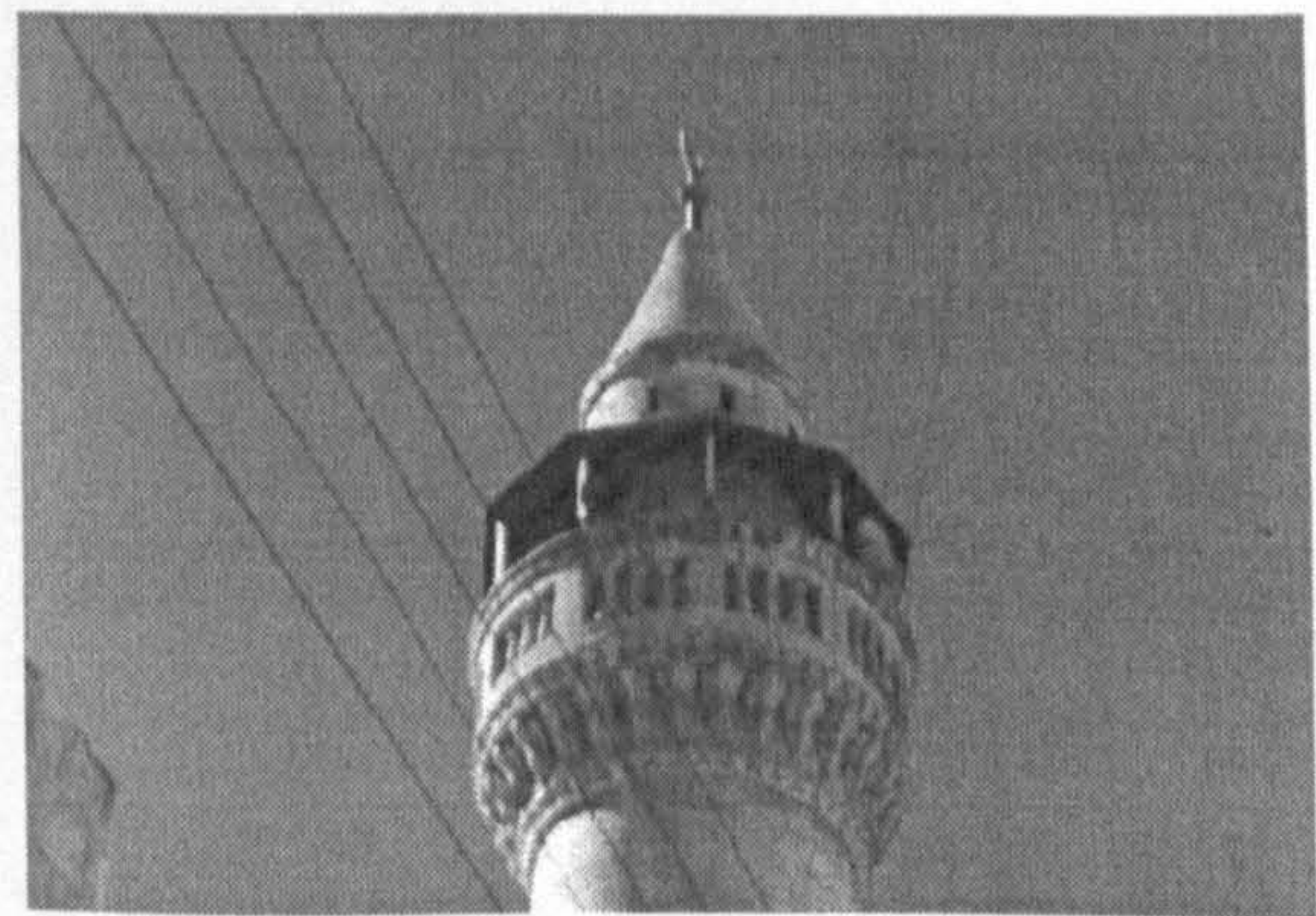


Figure 6.41: The minaret of the Small Mosque at *Al-Hammam* street with its rich and detailed stonework.

well as some shops. The lower ground floor is accessible from the back street and is currently used for the mosque's services (Figure 6.43). Despite the dominant position of the mosque there is no reflection of its formal features on the surrounding buildings. The order imposed by a building on its surroundings may be recognised and appreciated through the density and complexity that it encourages and harmonises with, i.e., the building produces neither monotony nor chaos within its space.



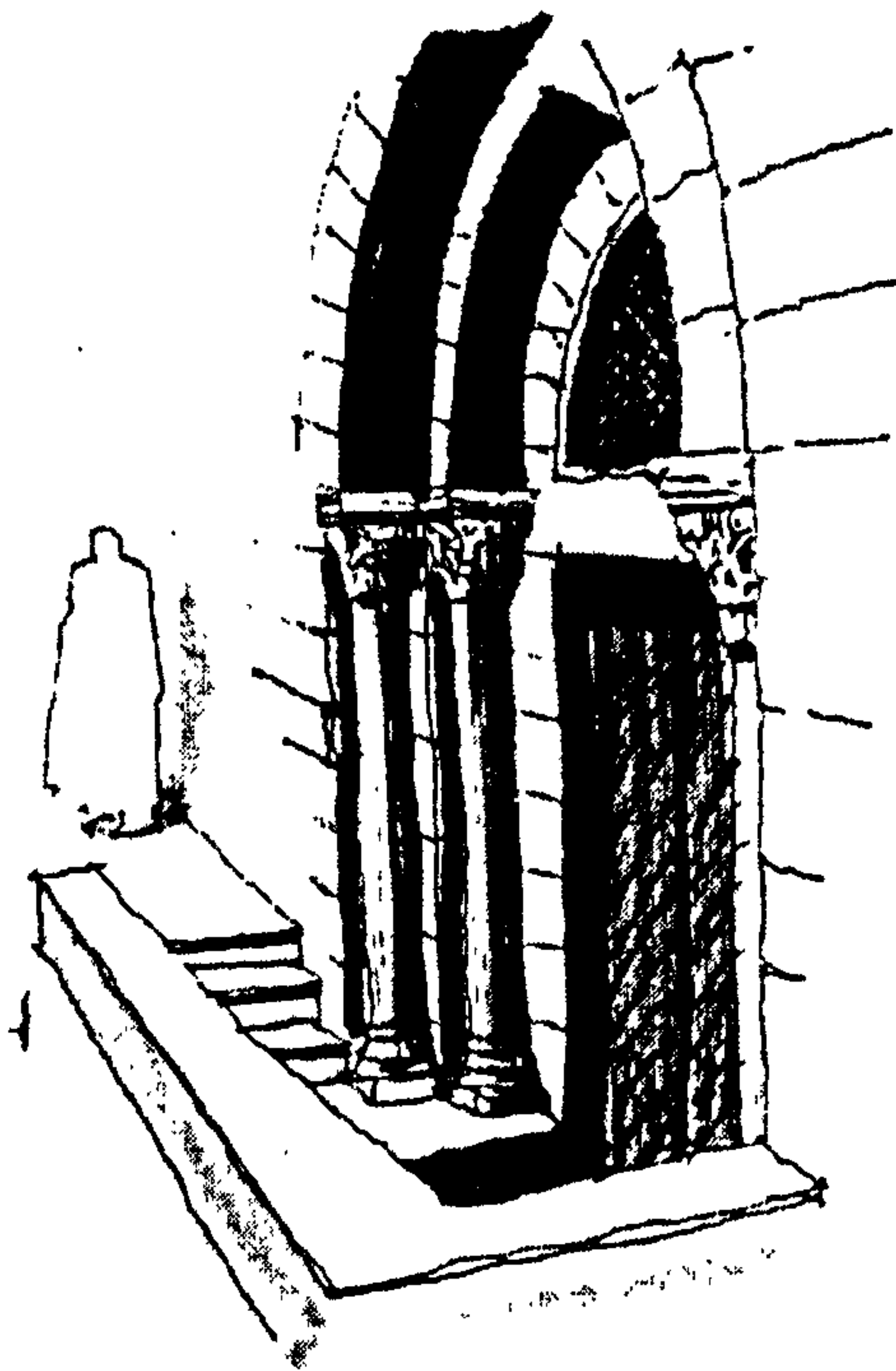


Figure 6.42: The decorative entrance to the Small Mosque at *Al-Hammam* street with its rich and detailed stonework.

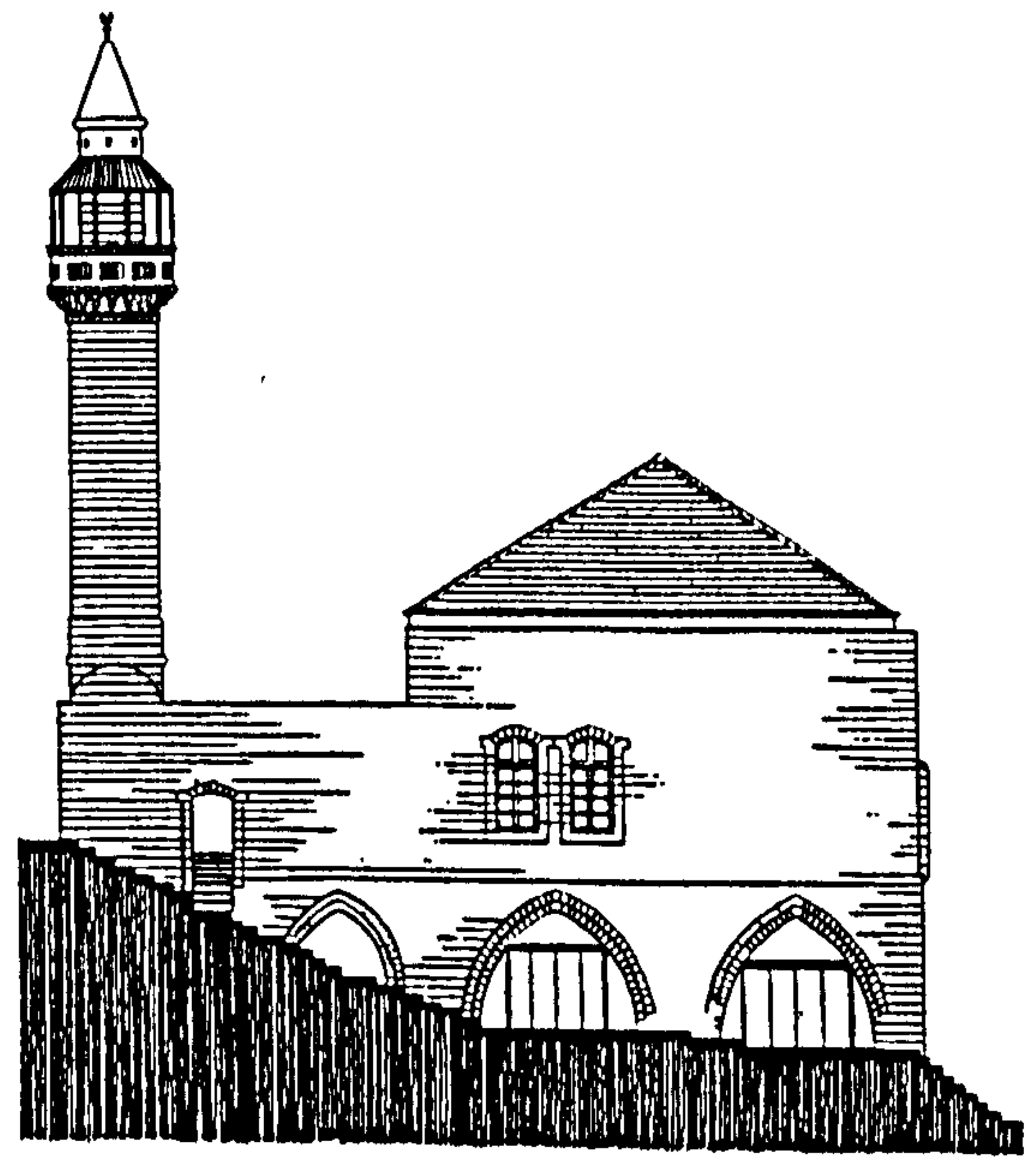


Figure 6.43: The Small Mosque: Side elevation. Source: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.157.

### 6.2.3 Variety at Salt City Centre

The discussion of variety at SCC includes the investigation of the variables that represent this dimension, i.e., variety of uses, variety in complexity and variety of relationships.

#### A. Variety of Uses:

SCC streets, walkways and stairways have the ability of offering a variety of uses. The concentration of a specialised use of activity along a street gave it prominence in the mind. The concentration of retail shops along *Al-Hammam* and *Al-Maydan* streets make them important features of SCC, where people seem to be sensitive to crowds and guide their activities largely along these streets following the main stream of movement. However, some uses along the ground floor level of the buildings along *Al-Deir* street, do not relate to the interest of pedestrians. Uses such as car repairs and services can only generate low levels of pedestrian activity, therefore, lowering the



vitality level of the street. Furthermore, the width of vehicular streets, especially *Al-Maydan* street, preclude the visual and physical contact with both sides of the street. The street has too narrow sidewalks. This is inimical to shoppers because they cannot maintain full contact with the shops on both sides.

Most of SCC streets, however, have too narrow sidewalks. This precludes the possibilities for shading by tree, or development of sidewalk displays, coffee-shops, or simply a place to sit down. This also limits the variety of choices for the pedestrian movement patterns, such as, irregular and variable movements, short cut and following obvious detours. Such patterns are related to age, sex, cultural backgrounds and social habits as well on weather conditions. Furthermore, SCC streets do not allow for the provision of auxiliary spaces for pedestrians to wait at street crossings with sight area free of obstacles, and the side walks are not integrated with the overall spatial form of streets.

The perception of *Al-Hammam* street, for example, is reinforced by the application of pedestrianization, conservation and rehabilitation in 1994 (Figures 6.44 and 6.45). The spatial image of the street is favourably affected by the existence of the pedestrian zone. There is thus plenty of room to walk accommodating heavy pedestrian flows. Walking from one end of the street to another provides a sequence of discovery (Figures 6.46 and 6.47). The progress is illuminated by a series of sudden contrasts. The slight deviation in alignment and quite small variations in projecting elements have a disproportionate and powerful visual effect.

Changing directions along the street produced interesting kaleidoscopic perspectives, where one's feeling might be characterised and associated with the different ratios and different images produced. *Al-Hammam* street gives the users an ever-changing visual scene. The tall narrow spaces created by the buildings contribute to its visual appeal. The buildings stand up to the edge of the pavement creating a street of canyon-like effect.



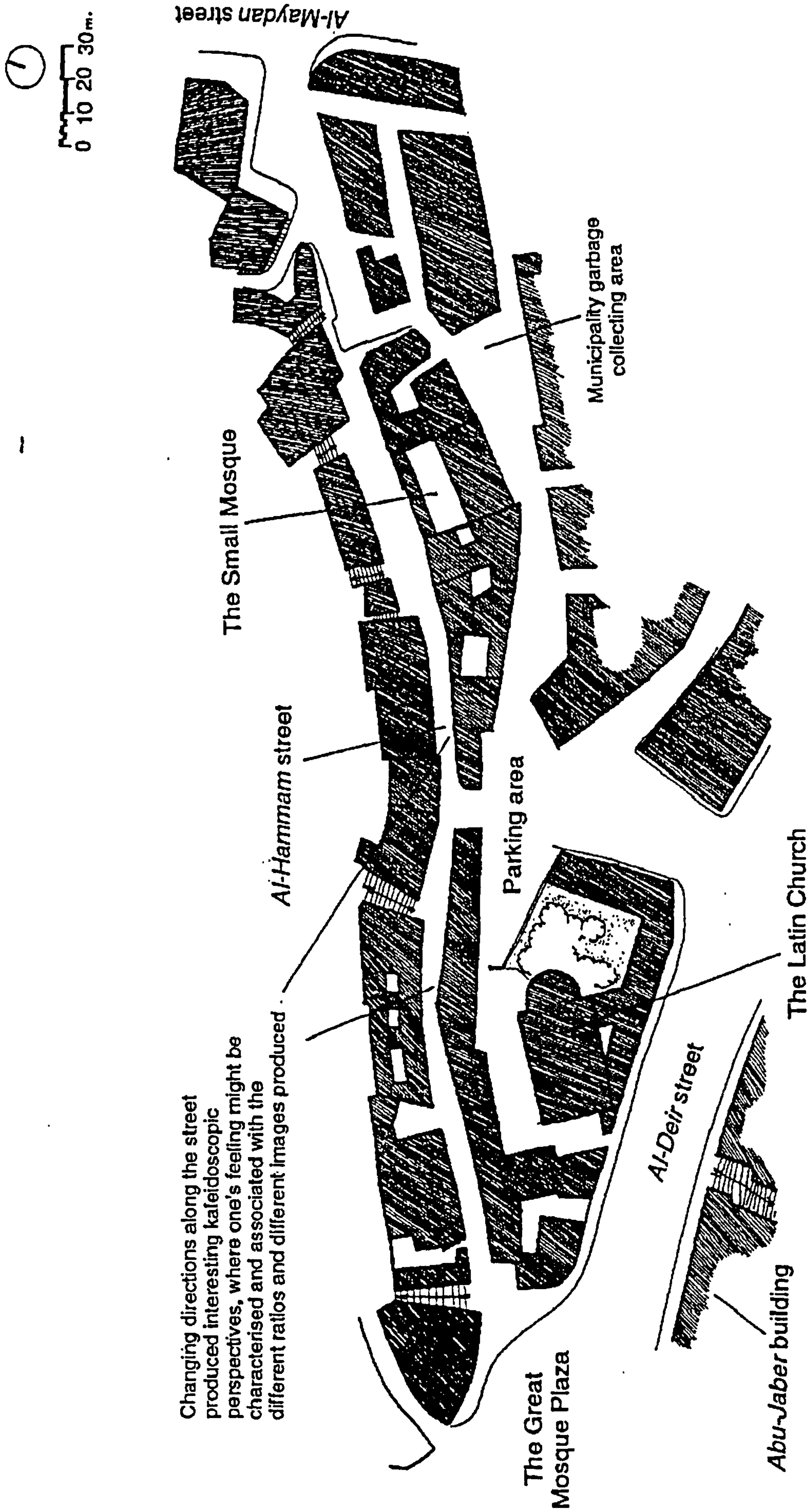


Figure 6.44: Al-Hammam street: Plan. Drawn by the author and based on: Salt: A Plan For Action (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 4, p.2.



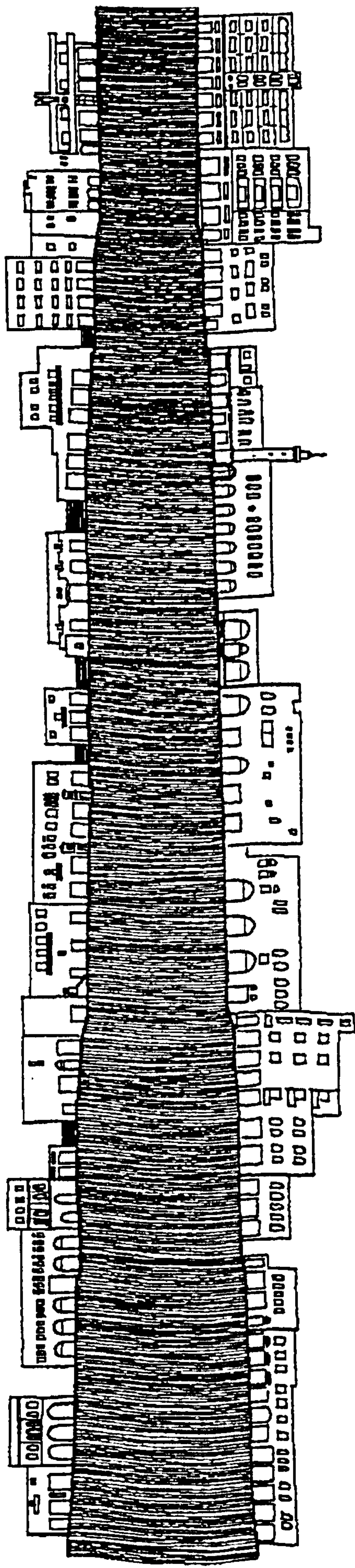


Figure 6.45: Al-Hammam street: street elevations.



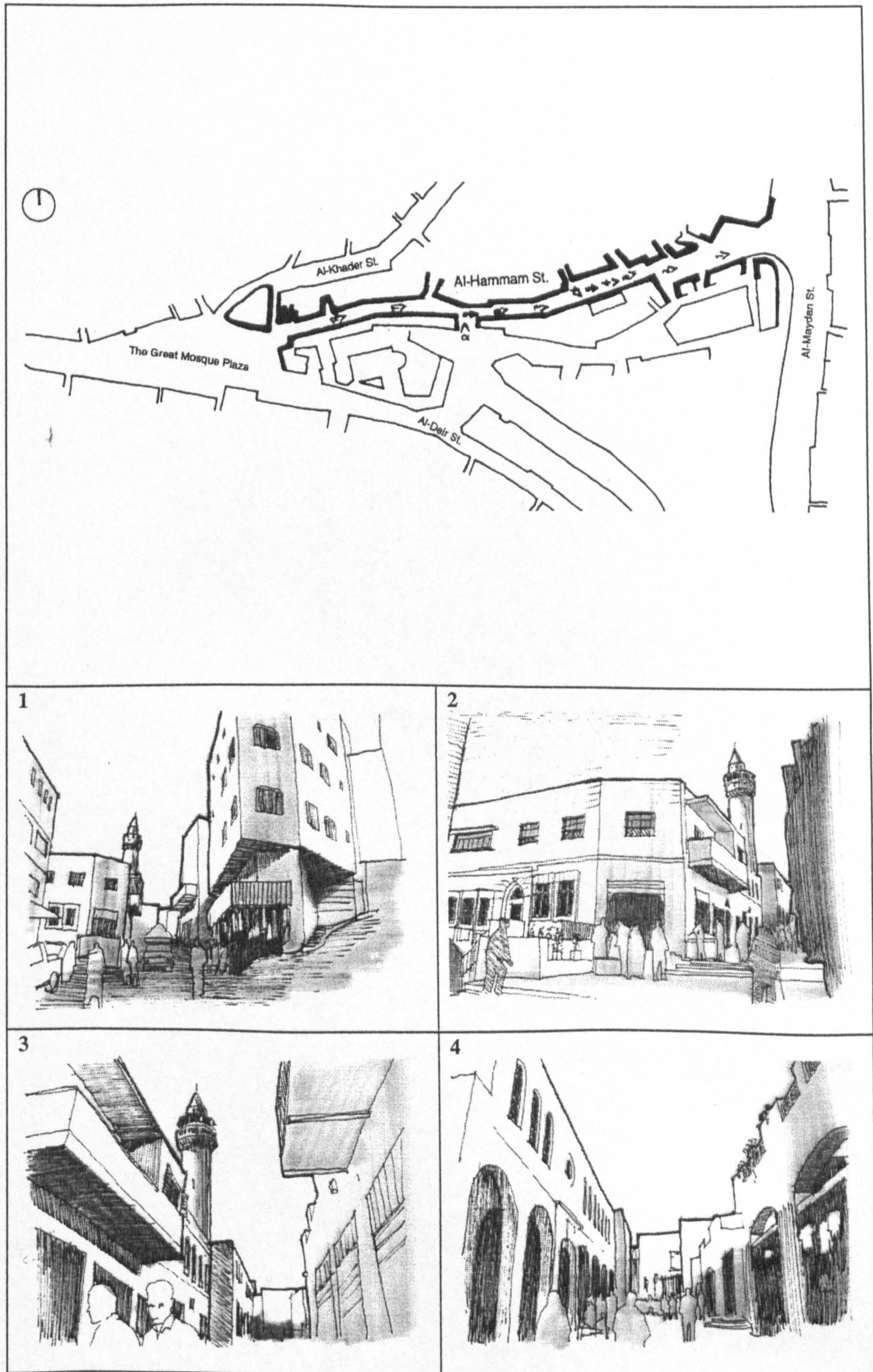


Figure 6.46 a: Serial visions at Al-Hammam street: from East to West.



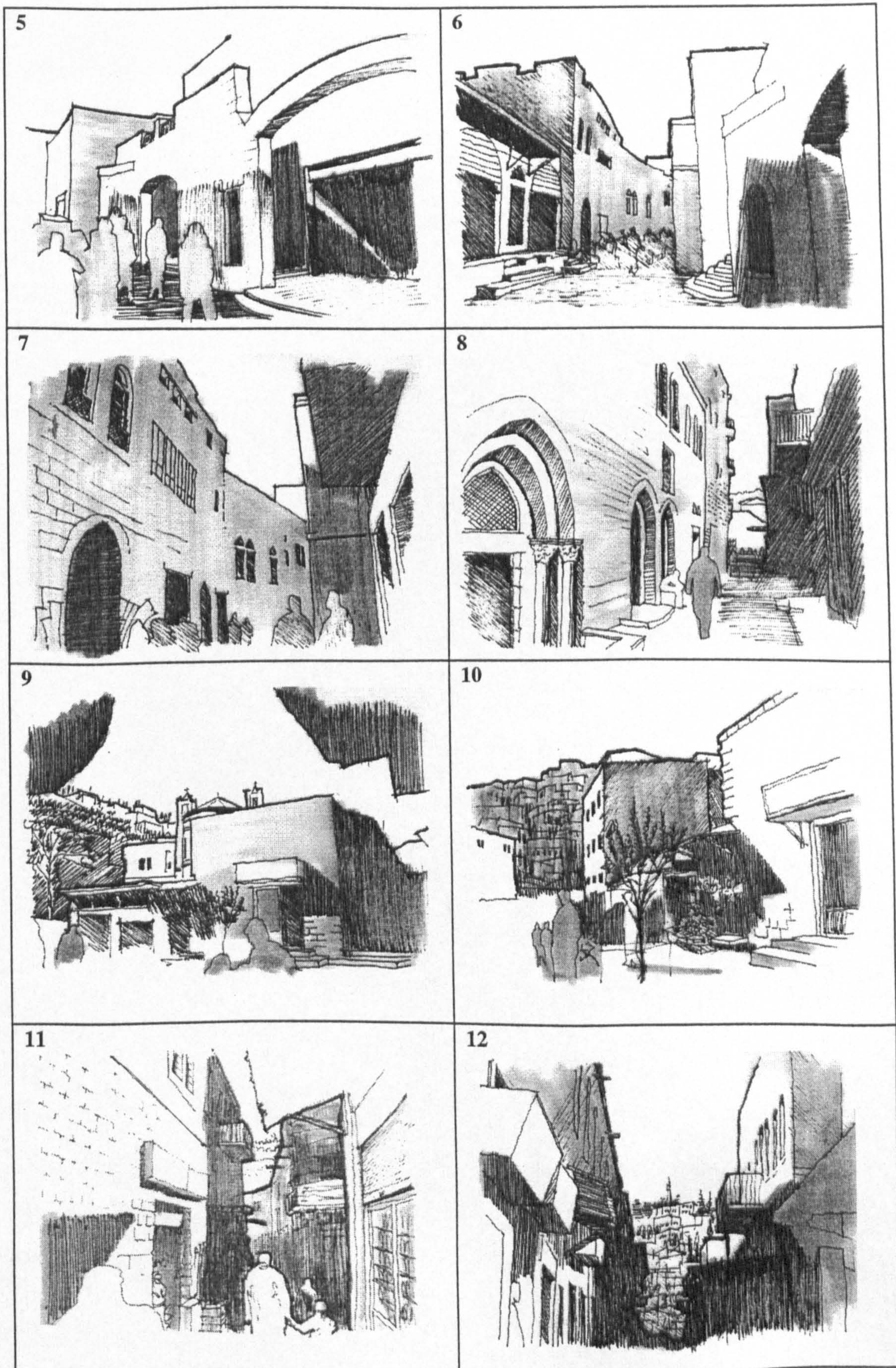


Figure 6.46 b: Serial visions at Al-Hammam street: from East to West.



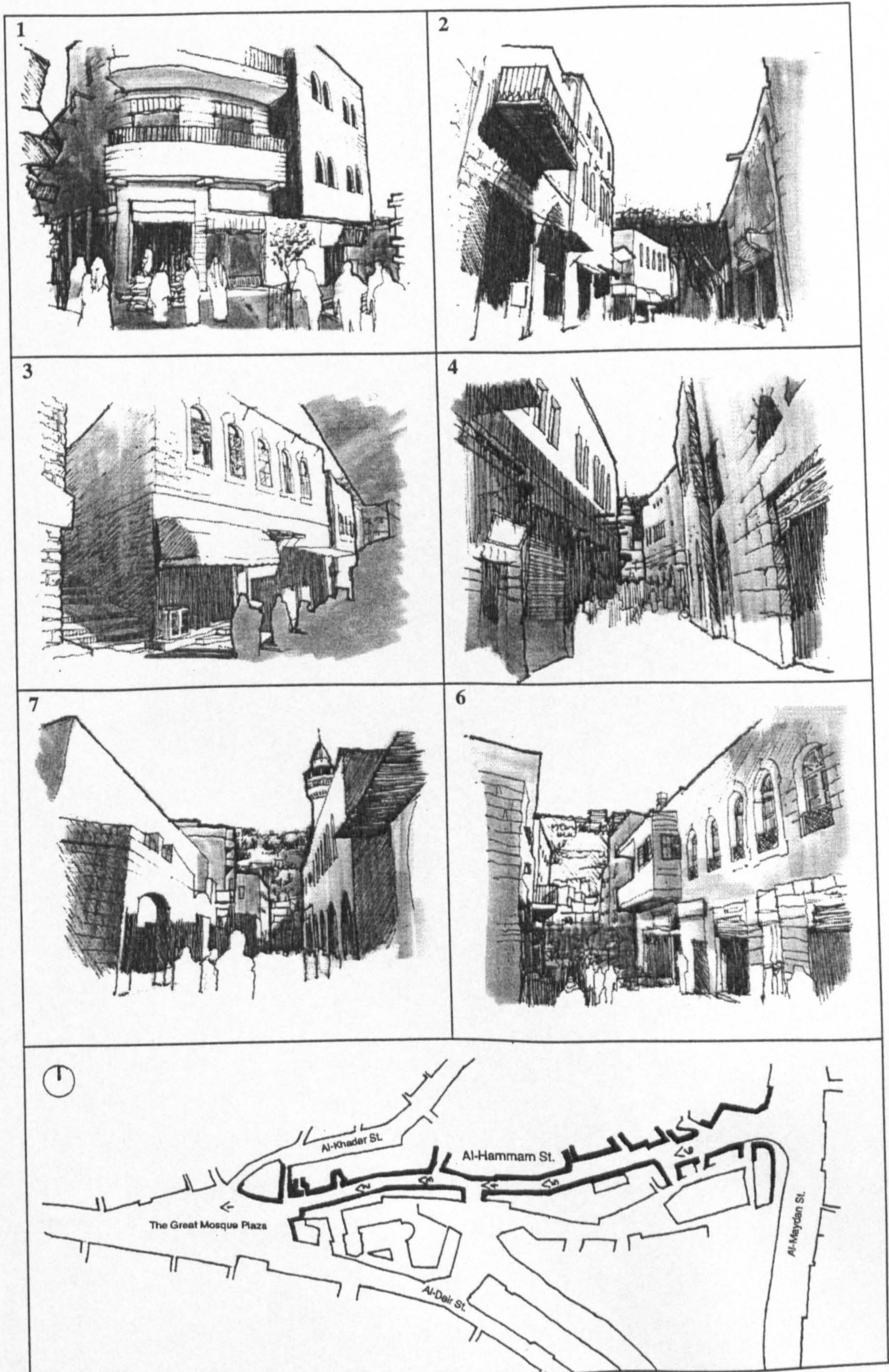


Figure 6.47: Serial visions at Al-Hammam street: from West to East.



*Al-Hammam* street is a heavy passage of pedestrians. It still keeps its traditional character of the *souq* (market place or *bazaar*) both in the materials its shops sell and the way in which the goods are displayed (Figure 6.48). Goods are stacked on shelves, in heaps on the floor, or hung on the walls, both inside and outside the shops. The goods are crowded but orderly. All pieces are exhibited equally: cloth, food, posters and name of products and shops. This provides an attractive atmosphere, that both the local people and tourists are interested to experience. The street and store signs are small and delicate and hung low enough so that they are easy for pedestrians to see. *Al-Hammam* street attracts people like a magnet. They are attracted to the shops and restaurants, to the space itself and the spatial quality it provides.

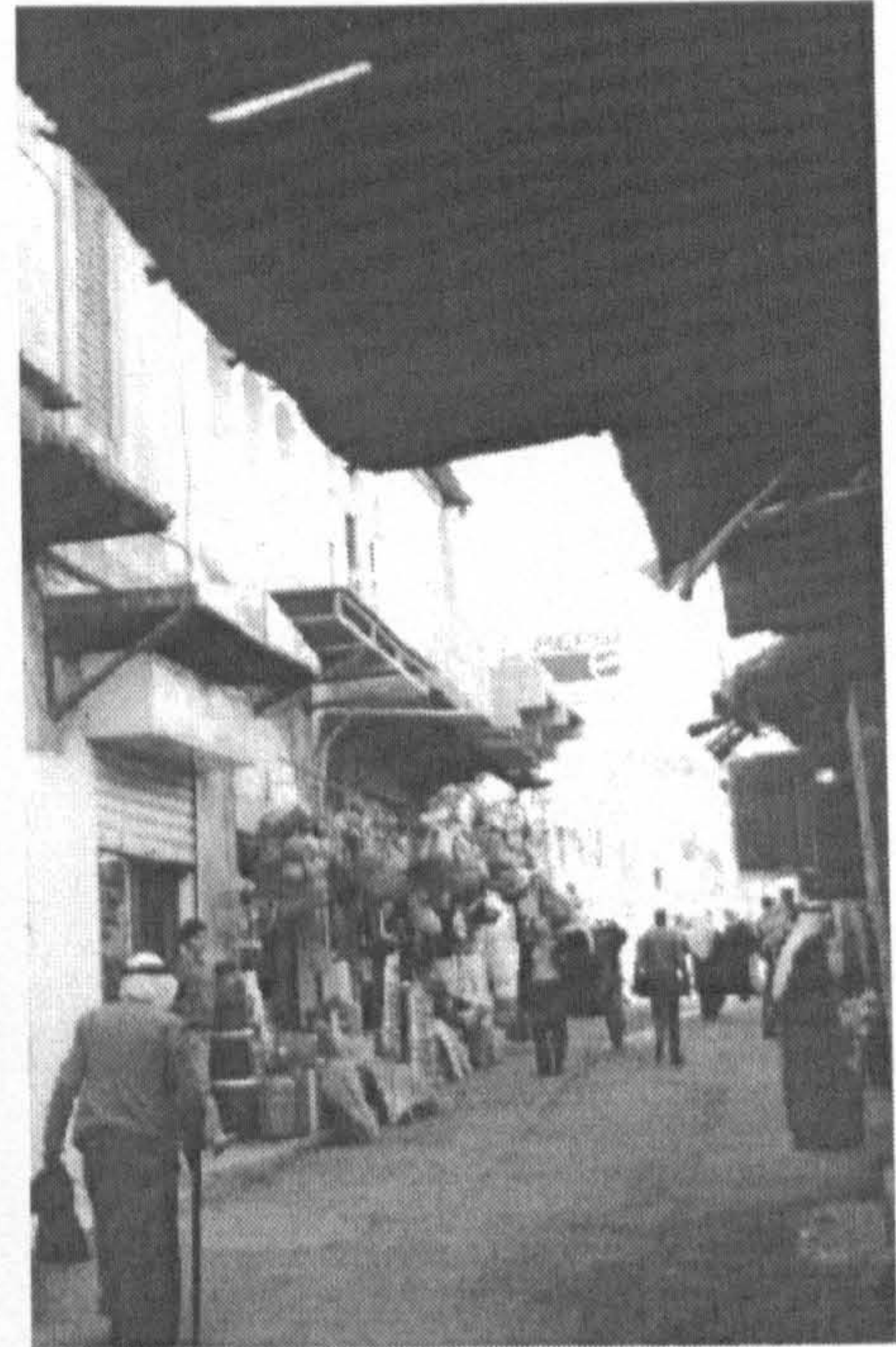


Figure 6.48: The traditional *souq* image of *Al-Hammam* street.

Crowds and people's use of the street helps to create a more secure atmosphere, discouraging vandalism; i.e., self policing by the users themselves. The provision of residential units and religious buildings; i.e., a church and a mosque in and around the street, further increased *Al-Hammam* street usage to cover late evenings and part of the night, which in turn helped to create an atmosphere of intimacy and vitality. However, the lack of furnishing as well as the wrong choice of ground materials and patterns drastically reduces the expressive quality of the space. Another situation affecting the vitality of adjacent areas to *Al-Hammam* street is the juxtaposition of incompatible land-uses. The area behind the Housing Bank building is used for parking municipal garbage containers adjacent to the vegetable market where goods are exposed to all kinds of pollutants laid in air. Thus, both areas for garbage and vegetables become major causes of hazards and lowering of health standards. This decreases the area's vitality.



It is worth mentioning that city streets would become lifeless without vehicular movement. It is, however, possible to have both cars and pedestrians in a busy urban centre if the cars operate at a very low speed and if through traffic is reduced to the utmost. A proper pedestrianization would knit the movement of the pedestrian into the city wide network while allowing for vehicular movement. Such plan would be connected to the major generators of pedestrian traffic.

### **B. Variety in Complexity:**

SCC has many visual traces of history. These are shown in its many historic buildings and spaces that act as forums of activities. SCC has different strategic key points and magnets into which the observer can enter. These include plazas, junctions of paths, and concentration of activities or of special characteristics. A key point might be any small place along a street where people like to gather. Such a place could be either planned or not, it could be the front steps of a stairway, a corner where people meet, a sidewalk outside a cinema entrance, or any other place which is special to someone along the street.

The Salt Municipality building is a major landmark of SCC, if only as a reminder of Salt history and heritage (Figure 6.49). It is not only a building of significant architectural details, but also a building with strong national meaning. It is almost a rectangular building of smooth stone dressing and adorned with almost classical architectural elements. i.e., cornices and engaged columns. It has a symmetrical, palace like, frontal elevation with narrow openings arranged in groups of two and three semicircular arches. The entrance is in the middle with a portico stressing the central bay.

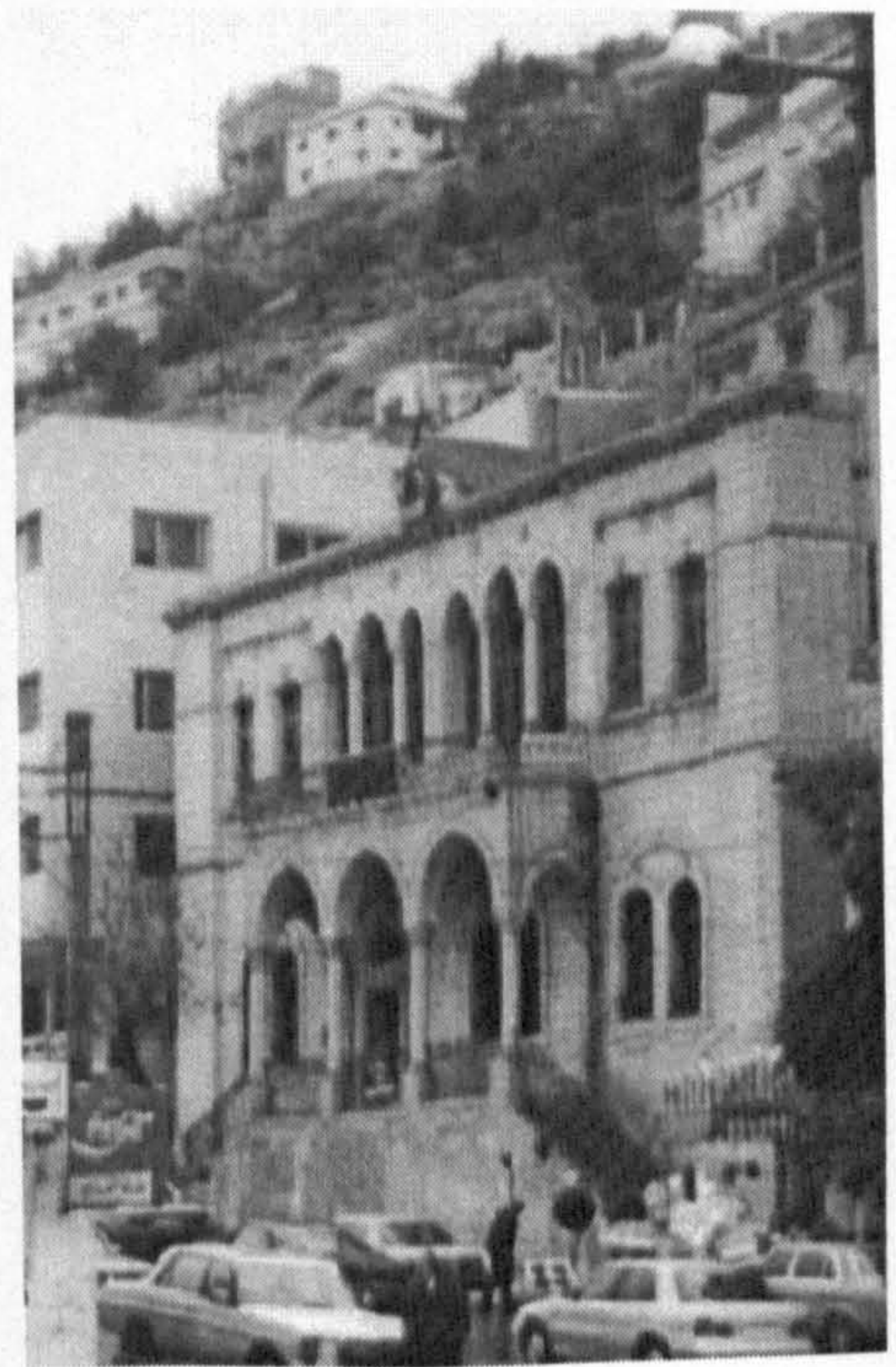
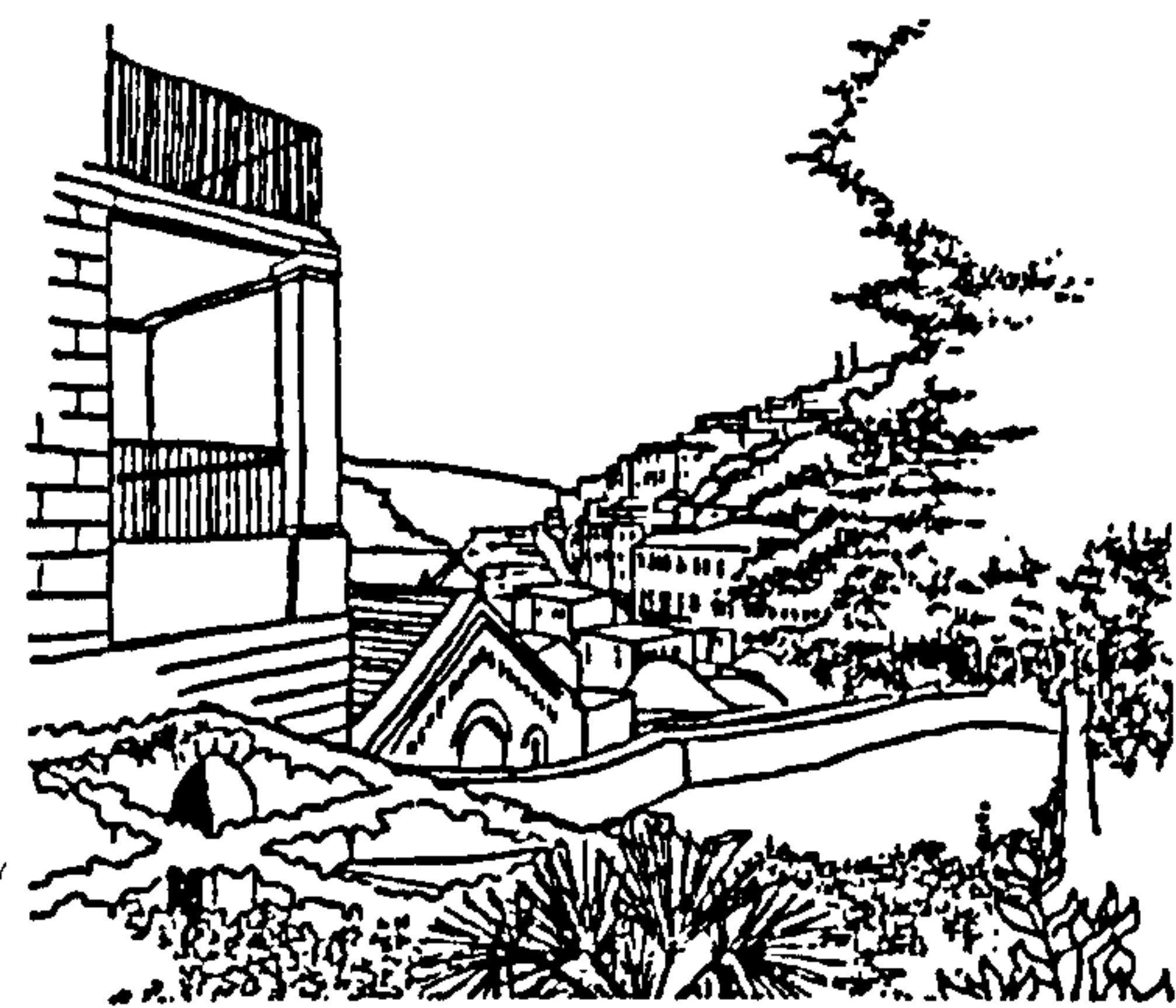


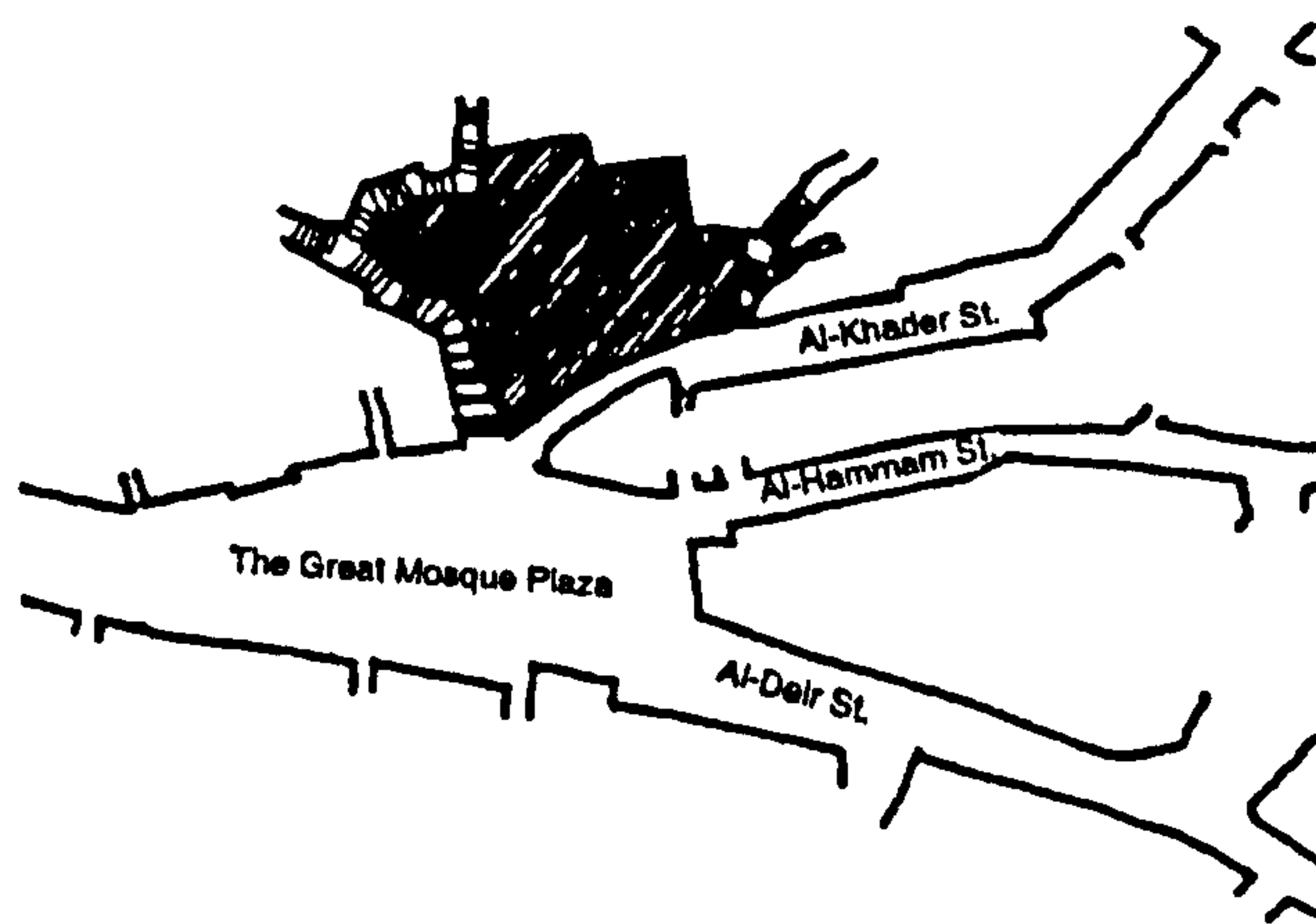
Figure 6.49: The Salt Municipality on Al- Maydan street.



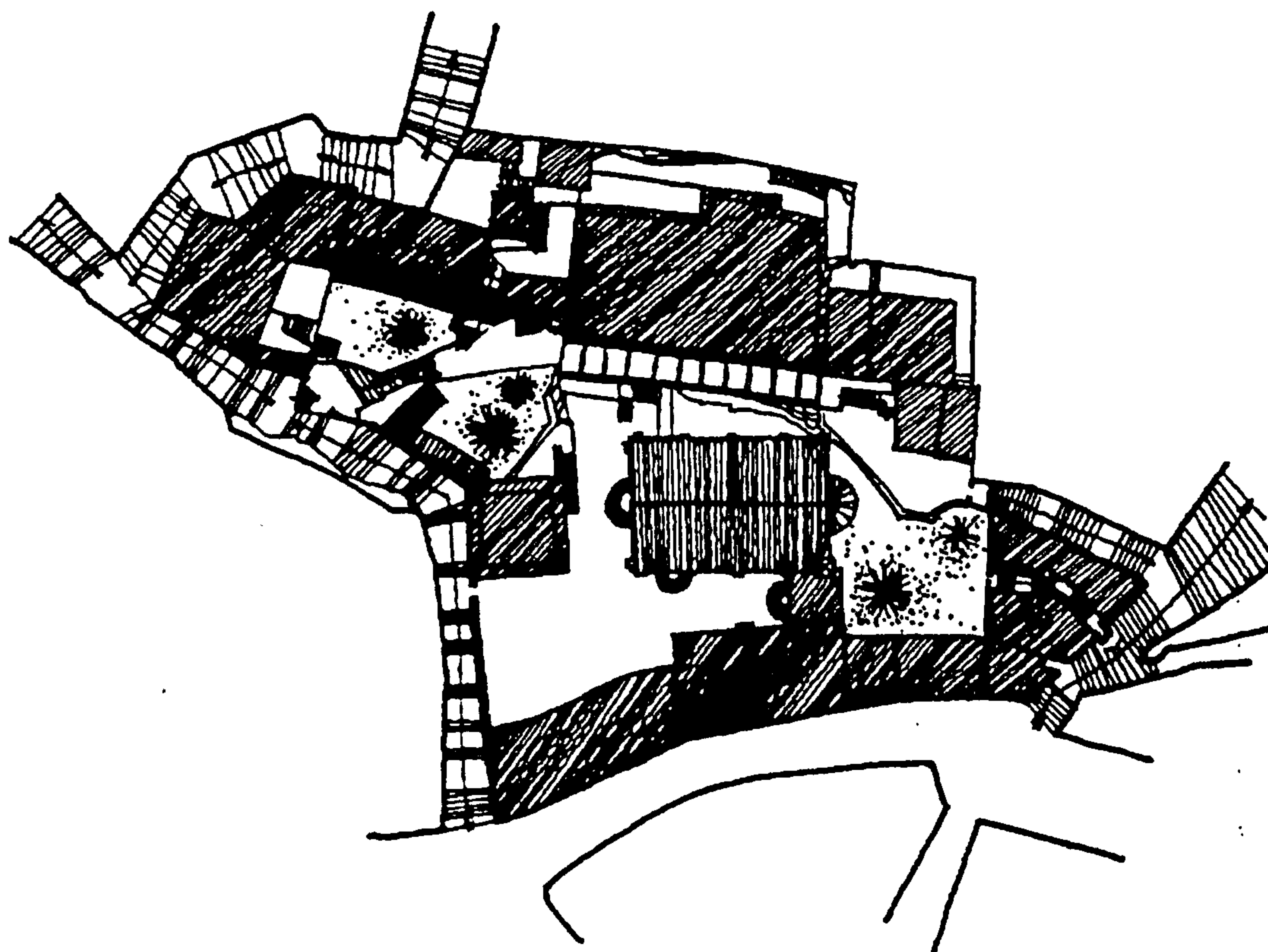
The Anglican Church complex is one of the most important features in SCC (Figure 6.50). The church was built by an English mission in 1873 on the foundations of an ancient Roman temple<sup>7</sup>. In addition to the church, the complex consists of some other old buildings including: the Sunday School, the Caretaker's house, the English



View



Location



Layout

Figure 6.50: The Anglican Church complex.

Source (of the view): *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 4, p. 6.



Hospital, and the Doctor's residence. All the buildings are still in use except the hospital. In historic terms, the complex was closely related to a certain period of the modern history of the city, particularly World War I. This complex, as well as other important visual features in SCC, are hidden and surrounded by less important buildings (Figure 6.50). This altered the identity of many spaces within SCC and erase many physical reminders of the origins of the city. Yet, with appropriate conservation measures, they might become again very significant visual features of SCC as they surely deserve to be.

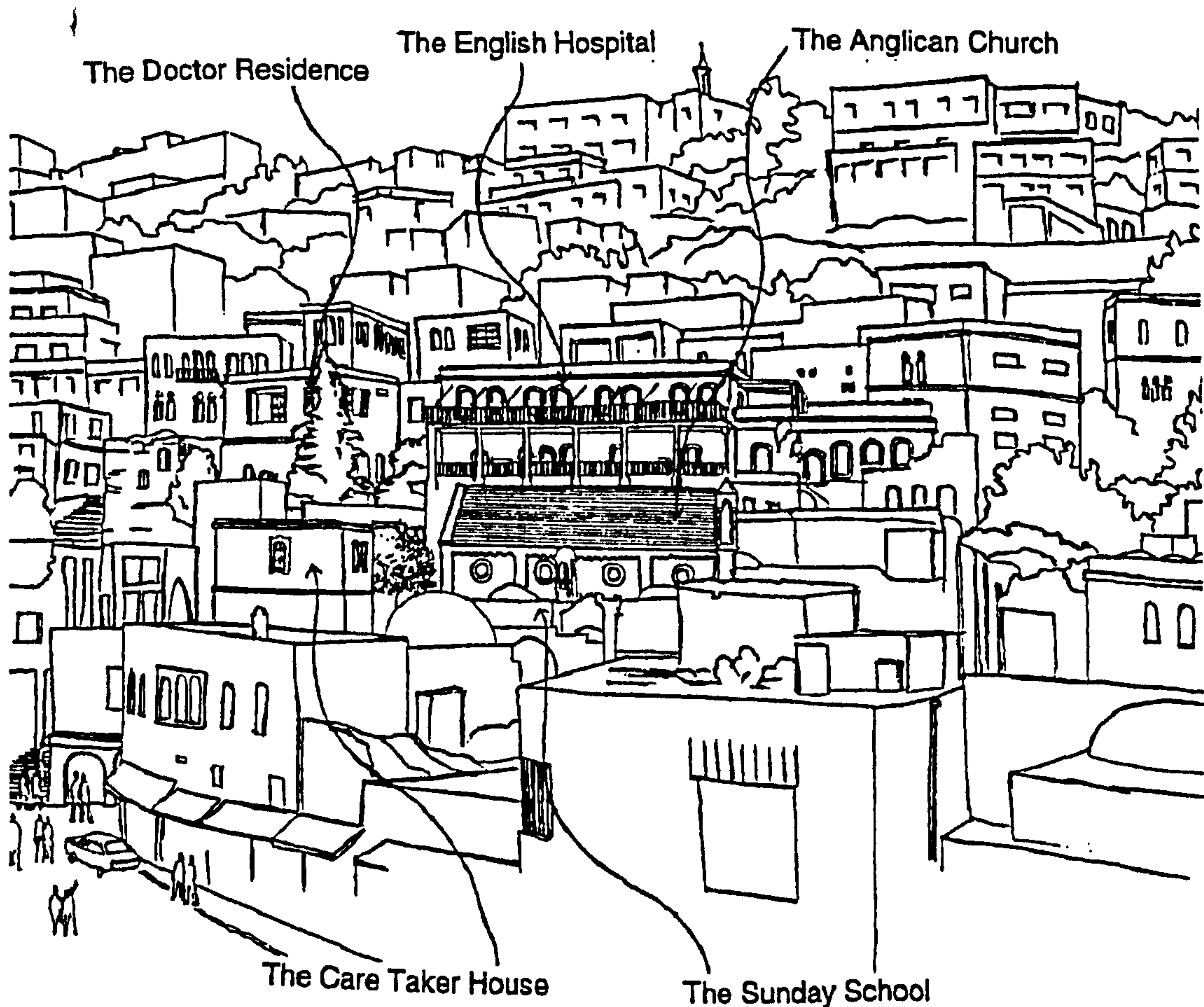


Figure 6.51: The Anglican Church complex is hidden and surrounded by less important buildings. Source: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.173.

Many other buildings of architectural, cultural or political importance are within the SCC area, including *Abu-Jaber* building (see section 7.2.5), (Figure 6.52), *Al-Mou'asher* house (Figure 6.52) and many other buildings, all of which could be treated, restored or adapted for re-use, creating other important landmarks. Such



buildings are important links with the past and should be properly used as a valuable heritage element.



Figure 6.52: *Abu-Jaber* building overlooking the Great Mosque Plaza.

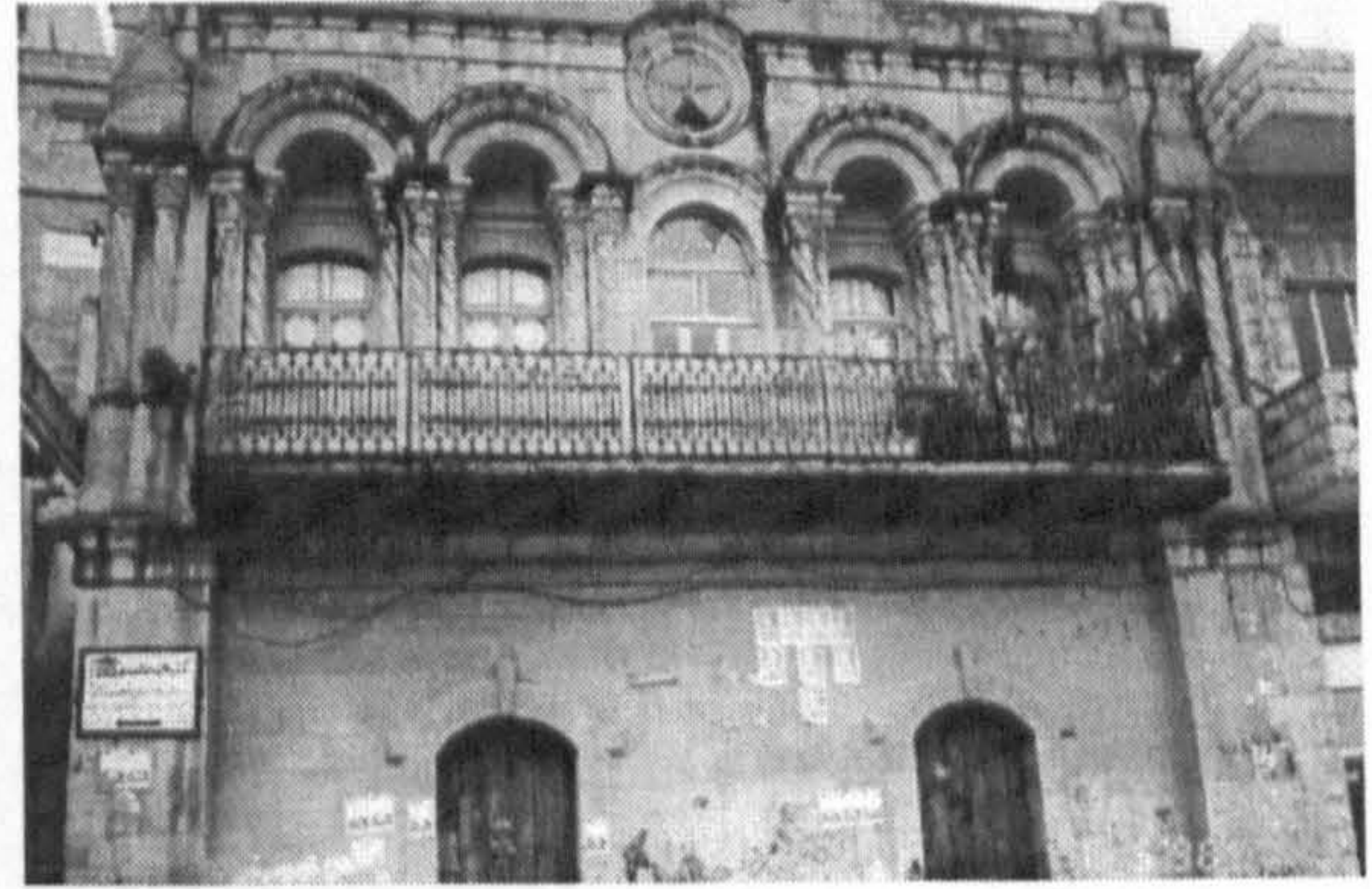


Figure 6.53: *Al-Mou'asher* house with its distinguished architectural features.

In addition to these architecturally valuable heritage buildings, there are many archaeological sites around SCC. These sites are in need of comprehensive and detailed studies, rehabilitation, conservation and treatment through proper conservation approaches and appropriate steps. The archaeological sites include the remains of the Crusaders' Citadel at *Al-Qal'a*, the Shrine of *Yosha'*, the Shrine of *Shuaib*<sup>8</sup> and many ancient Roman sites. Recognition of these important sites and monuments would help make SCC a more vital and attractive core for both inhabitants and tourists.

### C. Variety of Relationships:

The variety of visual relationships in SCC is obvious. On the architectural level, contrast and unity are expressed in design of the old buildings at SCC. These qualities can be seen in their compound visual masses and the articulations reflected through surface treatments. Architectural detailing is one of the most interesting features of SCC's old buildings, expressing accuracy and simplicity while integrating with the building materials and form. However, some of the new buildings added to the area have a problem of matching the existing pattern.

On the urban level, the overall impression is unified by the contrasting interplay of basic themes, such as, open space and closed space; narrow winding streets lined with shops with various views and points of interest; frequent and dazzling vistas



into surrounding hills; stairways with panoramic watch points to different locations; the relatively small size of the city; the varying building heights; and other urban themes (Figure 6.54). All contribute to the walking experience and visual complexity, and enhance the changing patterns of space perception of SCC.



Figure 6.54: The varying urban themes at SCC contribute to the walking experience and visual complexity and enhance the changing patterns of space perception.

Source (of sketches 5 and 6): Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, pages 38 and 45 respectively.



#### **6.2.4 Structure of Salt City Centre**

The discussion of structure of Salt city centre includes its spatial orientation quality, visual inertia and enclosures.

##### **A. Spatial Orientation:**

SCC has very clear topographic edges. The valley form of the area together with the steep slopes of the surrounding hills gives it clear boundaries. These boundaries, characteristically have directional qualities based on the composite sense of the consciously memorised and subconscious impressions of the direction and location of landmarks. This sense of outer setting is the product of topography and elevation, where one can perceive the city's spacescape through the gaps between buildings. This sense of orientation may help SCC inhabitants to build a cognitive mental map of their own area, which may in turn inculcate legibility and transparency.

SCC landmarks are a prime aid to spatial orientation. Distinctive features such as minarets, bell towers and open spaces can play an important part in the construction of the cognitive mental image. In addition to these landmarks, the setting provides an instinct to climb to high places from which one can look down and survey the city. Accordingly, an overall image can be made which people can orient themselves towards when they are in the lower parts. The understanding of the spatial relationships in SCC is a cumulative development process through daily journeys ascending and descending its stairways.

##### **B. Visual Inertia:**

As typical of most hill towns, SCC's primary circulation mode is pedestrian with strong emphasis on vertical movement. The movement sequence is of a highly irregular nature where the various stairways and footpaths interact and interchange in unplanned but functional pattern. Within this irregular pattern it is possible to



establish a definite hierarchy of pedestrian routes. There are basically two categories of stairways; the first is the minor stairways which are mostly short, direct and of transitional nature. The second type, however, are the long main stairways which give access to and from the areas which are complemented or intersected by horizontal or semi-horizontal lanes that serve as vehicular streets or pedestrian ramps. Main stairways mostly wind irregularly through SCC as unplanned routes turning softly or abruptly to utilise available space and ease of movement. These narrow flights of stairs often open to unexpected vistas with great dynamic potentials.

The street pattern of an old hill town is evident in SCC's pedestrian streets: winding, narrow and irregular. A dynamic space is created by the change in the ratio of height of buildings versus width of street. Such quality is experienced in most of SCC streets and stairways. The sloping and unexpected destinations of most of these streets add special character, intimacy and sense of scale. Recently, some of the footpaths and stairways were altered into vehicular streets. Their positive contributions to the movement pattern are, in most cases, offset by their detrimental effects on the townscape and city character.

Vehicular streets are mainly in the valley. They have smooth curves so as to allow for vehicular flow and manoeuvre. Street junctions are places for slowing or breaking movements, where people may change directions, hesitate and stop for a while. Many factors affect such decisions, including the elements and visual features of a junction. Some junctions in SCC have the ability to emphasise the spatial prominence of their locations, and enhance the traveller's sense of arrival. However, the crude treatments of the shop-fronts have reduced such quality.

### **C. Enclosures:**

A strong sense of enclosure engulfs one walking through SCC streets. In addition of being routes of movements, most SCC's streets and stairways are enclosed on two sides with some element of unifying character in their buildings. Continuous facades,



acting like walls, bound the streets on either sides. A strong sense of place can be felt, particularly, at pedestrian streets such as *Al-Hammam* street. Such feeling is brought about by the physical features of the surrounding walls and floor, the variation in building heights, as well as the activities and the distinct purpose the street serves.

The height, width and layout of a street greatly affects its spatial character. Variations in these dimensions strongly determine the sense of enclosure that a user may experience. However, the change in scale of spaces is not only determined by height and width, but also by length, i.e., the total three dimensional space, as in the case of *Al-Hammam* street. The use of building projections as well as architectural articulation of building facades at eye-level can be very effective in relating the street space to human scale. All the buildings on the street respect the street alignment and ordering form giving it a sense of homogeneity and character. They are of more or less the same shape, size, features and building materials.

SCC has a variety of small and large open spaces. Small open spaces, due to changes in level, are clearly defined by buildings (positive edges) as well as sloping contours (negative edges), allowing light and air and affording views to the city beyond. Large open spaces; plazas, are mainly related to major intersections and dominating nodes. They are clearly defined by the buildings surrounding them. SCC used to have two main open spaces: the Great Mosque Plaza (see section 7.2.4) and *Al-Maydan* Plaza. The former still exists while the later has vanished through "development".

*Al-Maydan*, an Arabic refers to the city's multi-purpose large open space where people can meet, gather, walk, talk or just be present. The area in front of the Salt Civic Centre used to be one of the two grand open spaces of Salt, *Al-Maydan*. This "square" is totally vanished as it was penetrated by a new vehicular street (Figure 6.55). Its floor is divided into a carriageway, two sidewalks and a parking lot. Thus, it no longer suits its purpose. With the relatively low facades of the Salt Civic Centre



buildings, the plaza now lacks the entirely the peripheral walls which are needed for a sense of enclosure. It has become a poorly enclosed space with no identity. However, the plaza should have the opportunity to be redefined even though the current movement patterns are effectively reducing it to a mere traffic utility.



Figure 6.55: The location of *Al-Maydan* plaza which has been transformed into a carriageway, two sidewalks and a parking lot.

Some of the new buildings and developments, specially the Salt Civic Centre urban "development" project, contribute in lowering the spatial enclosure quality. This major urban design scheme opened in the early 1990s consists of an enclosed shopping space, open spaces, a mosque and other facilities. Salt Civic Centre took the place of some old buildings facing *Al-Maydan* Plaza. It has too low walls which are rarely perceived as edges (Figure 6.56). Additionally, its location, because of the circulation patterns, acquires a loose spatial connection with the surroundings in terms of accessibility.



Figure 4.56: The walls of Salt Civic Centre facing *Al-Maydan* Plaza are too low and could not be considered as edges.

The Salt Civic Centre urban development scheme poses various interesting questions. One major question is the form of the shopping areas in the project. These areas are completely internal where shops open on narrow and low corridors without natural lighting or ventilation. Furthermore, most of these corridors are dead-end. Such an arrangement gives rise to the serious question of vitality, as most of the shops are



wholesale which does not encourage shoppers and activities. The design of the project does not keep with the scale, colour and rhythms of other buildings in the area. Its pink colour, for example, does not cope with the traditional yellow stone buildings of SCC. Moreover, the mosque has been designed as a separate entity that does nothing to maintain the historic continuity of the area. The treatment of its minaret as a square form and as a free standing element in the space are alien to the area (Figure 6.57). Furthermore, the design of its open spaces might be the cause of its failure to attract people to use them (Figure 6.58).

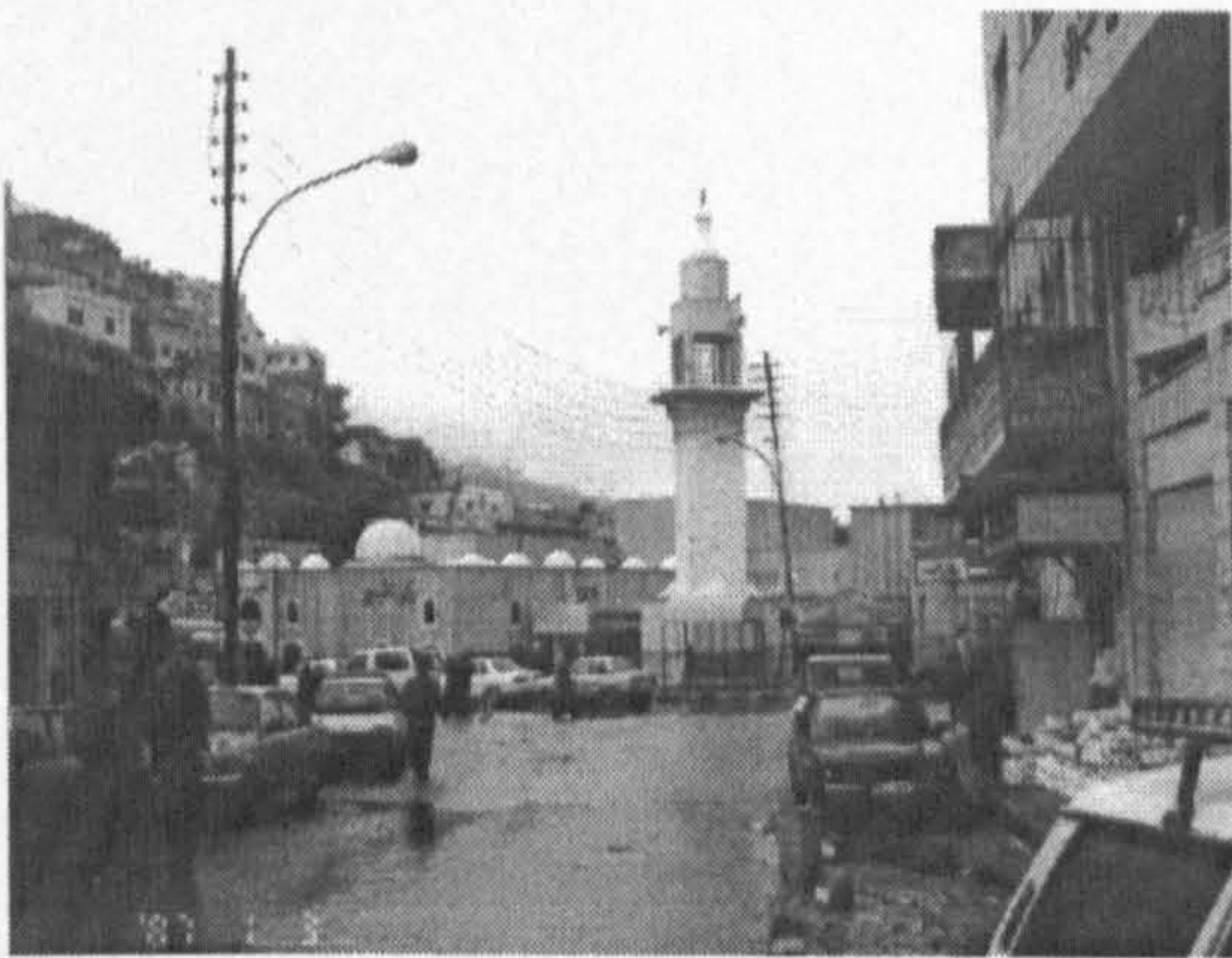


Figure 6.57: The treatment of the minaret as a square form and as a free standing element in the space is alien to the area.



Figure 6.58: The design of the open spaces at the Salt Civic Centre might be the cause of its failure to attract users.

The solution of designing new projects in old settings is not only functional, as full allowance for needs and demands can be achieved with aesthetic sensitivity and proper formal and spatial design considerations. An urban development should be easy for people to get into by providing physical as well as functional continuity with the nearby space. Physical continuity can be achieved through an extension of the project as a series of outreaching links and through careful blending with the existing traditional pattern. Achieving functional continuity, however, requires redesigning the internal spaces to encourage variety of uses as well as the existing ones.

### 6.2.5 Fitness at Salt City Centre

The study of "fitness" as a visual performance dimension refers to the degree to which the spatial and formal aspects of SCC match and fit the natural as well as the built environments:



### **A. The Natural Environment:**

SCC areas have distinct patterns. These patterns are seen in the match between its buildings, open spaces and channels of movement, with its topography and landform. The collective image of SCC seen from a distance is of hills covered uniformly with light-yellow coloured buildings. The buildings are mainly rectangular but set at odd angles to each other. This organic grouping of regular units is the secret of the charm one feels wherever one moves in the area. No T-square grouping is experienced, but instead a very careful consideration of natural topography. The result is a massing into the natural environment. Moreover, its skyline rhythm has different varieties representing buildings which assert themselves against the horizon and the spaces in between them. The skyline is the product of the harmonious relationship between the buildings and the terrain; human-made intrusions on the horizon fit with the natural environment.

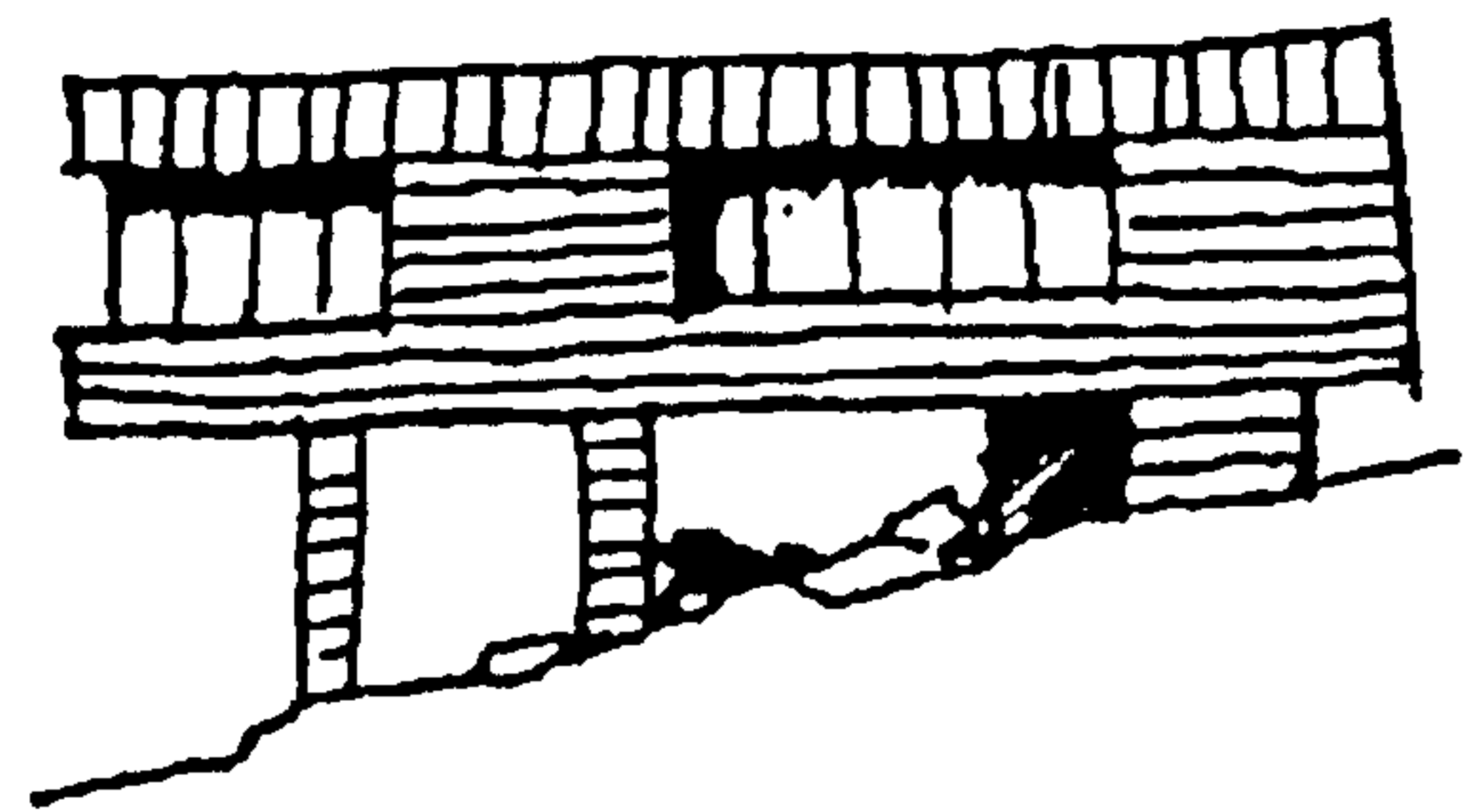
The buildings of SCC are seen in their entirety in the framework of nature. Here, nature is less a setting than a major component of the whole scene. This quality is the product of the unique landform of SCC as well as the relatively small size of the city. Larger hilly cities, Amman for example, can seldom be seen in their entirety, but only in part, from various viewing points. The distinctive quality is in the integrated composition of its clusters of low-rise yellow buildings constructed in an overlapping profusion along its steep sloping streets. In this harmonic relationship, most parts are equal in weight. The exceptions are the mosques and churches and their punctuation points, i.e., minarets and bell towers that mark the city's skyline and draw the attention. These architectural structures of cultural significance, take their placement and scale from the rhythms of the hills, and from the ordering principles of dominance and sub-dominance resounding among them giving them cosmic relationships.

Such harmonious relationships with nature are largely neglected in most new buildings. Present day architecture tends to think only within the limits of the site. It



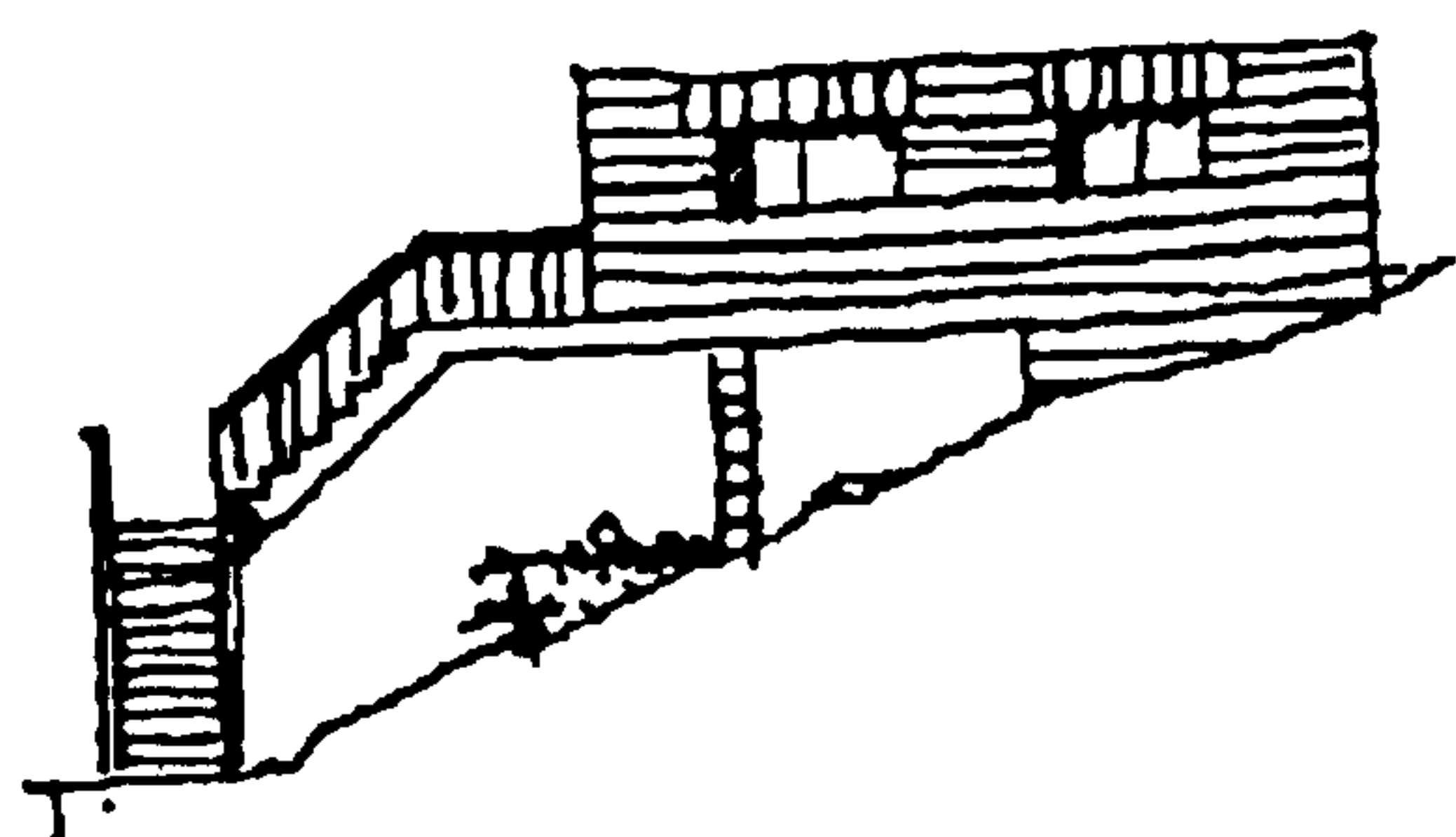
is evident that the old buildings of SCC sit firmly on the ground. The typical stone masonry stresses this quality. To let a stone wall hang in the air, supported by thin concrete columns, as in the case of many new buildings, contradicts the traditional use of this material as well as architectural common sense<sup>9</sup> (Figure 6.59).

Figure 6.59: Many new buildings do not set firmly on the ground (see also Figure 9.11). Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982:p. 98.



Another problem is in setting new buildings into the hilly sites of SCC. New buildings tend to be planned as if all sites were level. When the ground floor is set on the ground at one side, the opposite side, eventually with the entrance, may happen to hang high in the air, connected to the ground by a fancy flying staircase<sup>10</sup> (Figure 6.60). This again has nothing to do with the topography of the site and also very little with practical considerations. The cavernous space under the ground floor is filled with a boiler room or a storage space, rendering the adjacent open space unattractive.

Figure 6.60: Many new buildings do not have natural access to the ground (see also Figure 9.12). Source: Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p.97.



Off-street parking is quite common in SCC. However, some of the vacant plots have been paved and converted into parking lots (Figure 6.61). Such areas, however, suffer from inadequate design and layout. In addition they interact negatively to the formal and spatial quality, their large asphalted surfaces absorb the heat in great amounts and became sources of heat.



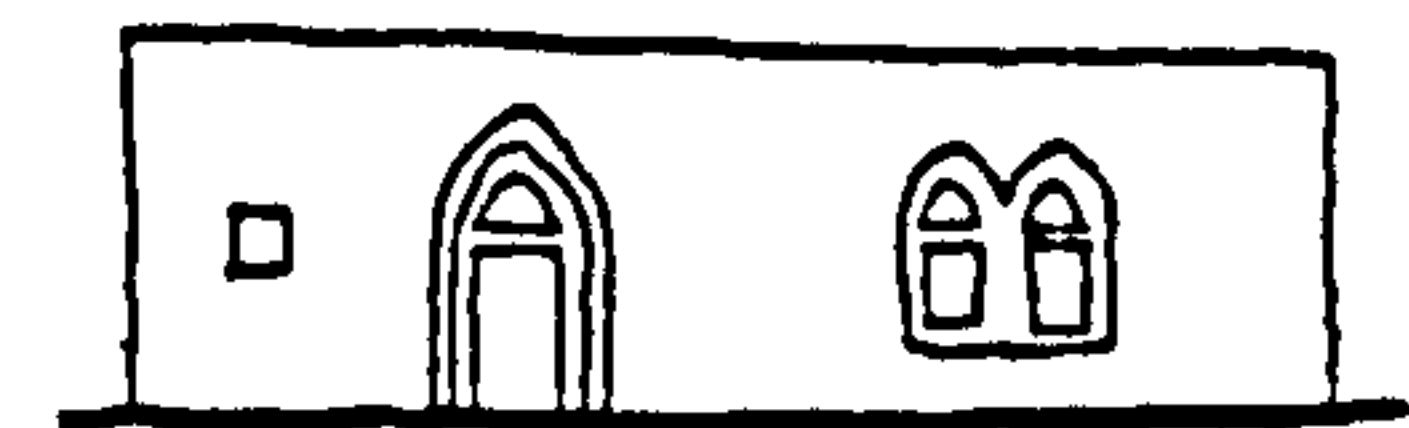


Figure 6.61: Off-street parking is common in SCC.

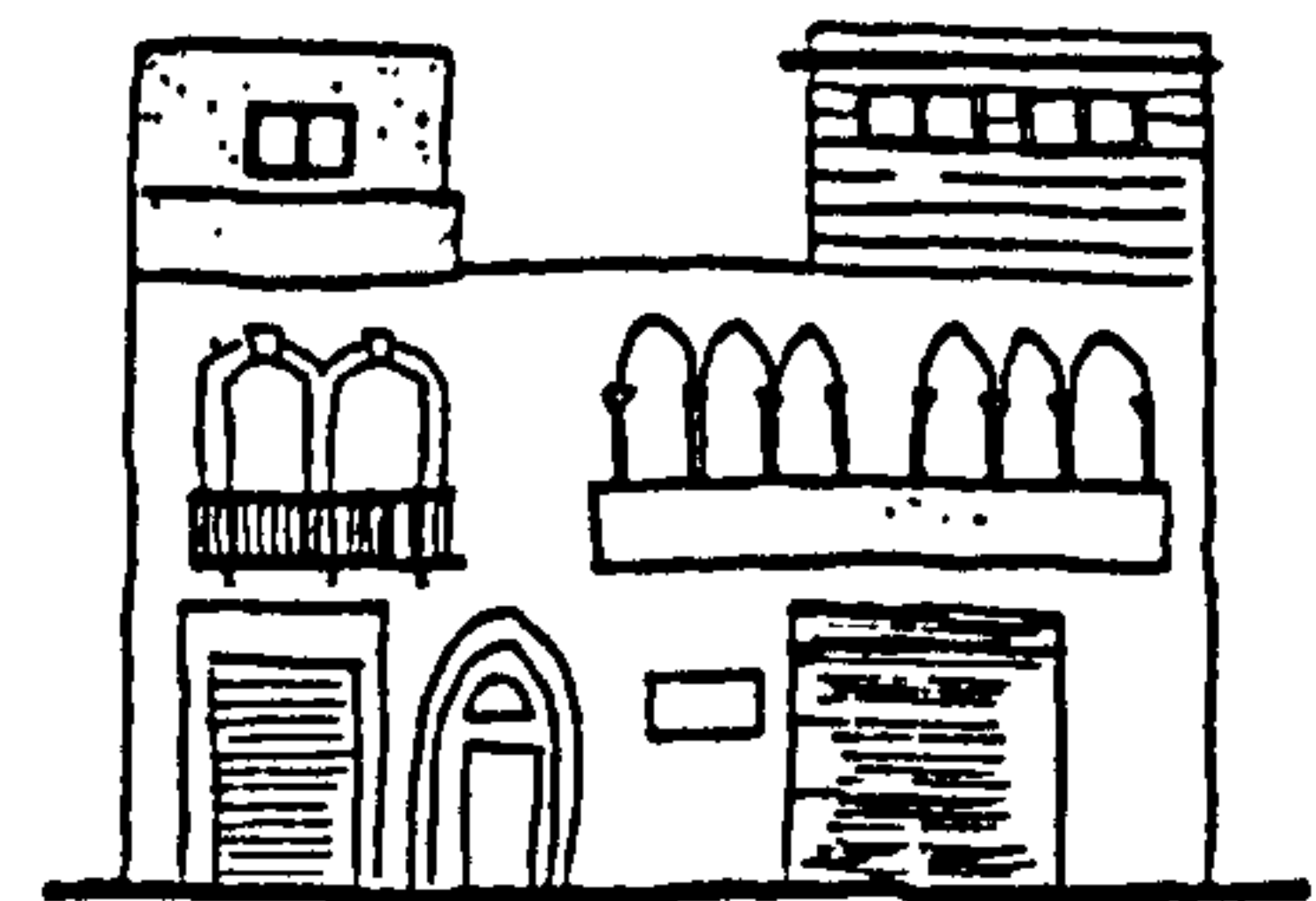


## B. The Built Environment:

The previous discussions showed that urban uniqueness, elegance, as well as, coherence are important aspects of SCC. This traditional form is unmatched by a haphazard current architecture of a weak conviction and confused concepts and colour schemes. Many aspects of modern life, however, combine to erode this urban uniqueness. SCC is recently spoilt by many factors. The old traditional and architecturally valuable buildings are being covered, replaced, or topped by new unsympathetic buildings. Moreover, the conservation measures of old buildings are not totally appropriate and should be modified and enhanced. A study by the "Salt Development Corporation" for one of SCC's old buildings showed that the renovation actions had changed the original character of the ground floor<sup>11</sup>. Furthermore, the treatment of the architectural elements on the third floor did not respect the historic continuity. These elements have characteristics older than that on the lower floors (Figure 6.62).



a. The building as it was built.



b. The building before renovation.



c. Renovation measures changing the original character of the Gr. floor, and adding older features on the 3rd. floor.

Figure 6.62: The conservation measures of old buildings are not totally appropriate and should be modified and enhanced (see also Figure 9.8).

Source: SDC, *Salt: A Plan For Action*, Vol. I, Salt: Salt Development Corporation, 1990, p.14.



In the past few decades, infill modern buildings and extensions have invaded the townscape to a large degree (Figures 6.63). Few of these buildings have characteristics that are, or can be, assimilated to the general built environment. The transformation of the urban form has been accelerated by the increase of such new structures. This accelerated transformation changed the urban setting of SCC to one of a transitory nature. The transitory nature is also experienced in the poorly designed and executed buildings which are left half-finished or with unfinished exteriors.

Many multi-storey box-like blocks are popping up. They are based on a typical floor plan which is repeated floor after floor without the least change or imagination. Repeated floors, typical of profit-oriented apartment blocks, are alien to the local tradition<sup>12</sup> (Figure 6.64). Not only they are hopelessly dull, they also spoil the skyline. Multi-levelled masses of the building may give a sympathetic scale, reminiscent of an old pattern.

Figure 6.64: Multi-storey buildings based on a typical floor plan are alien to the local tradition (see also Figure 9.17).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p. 95.

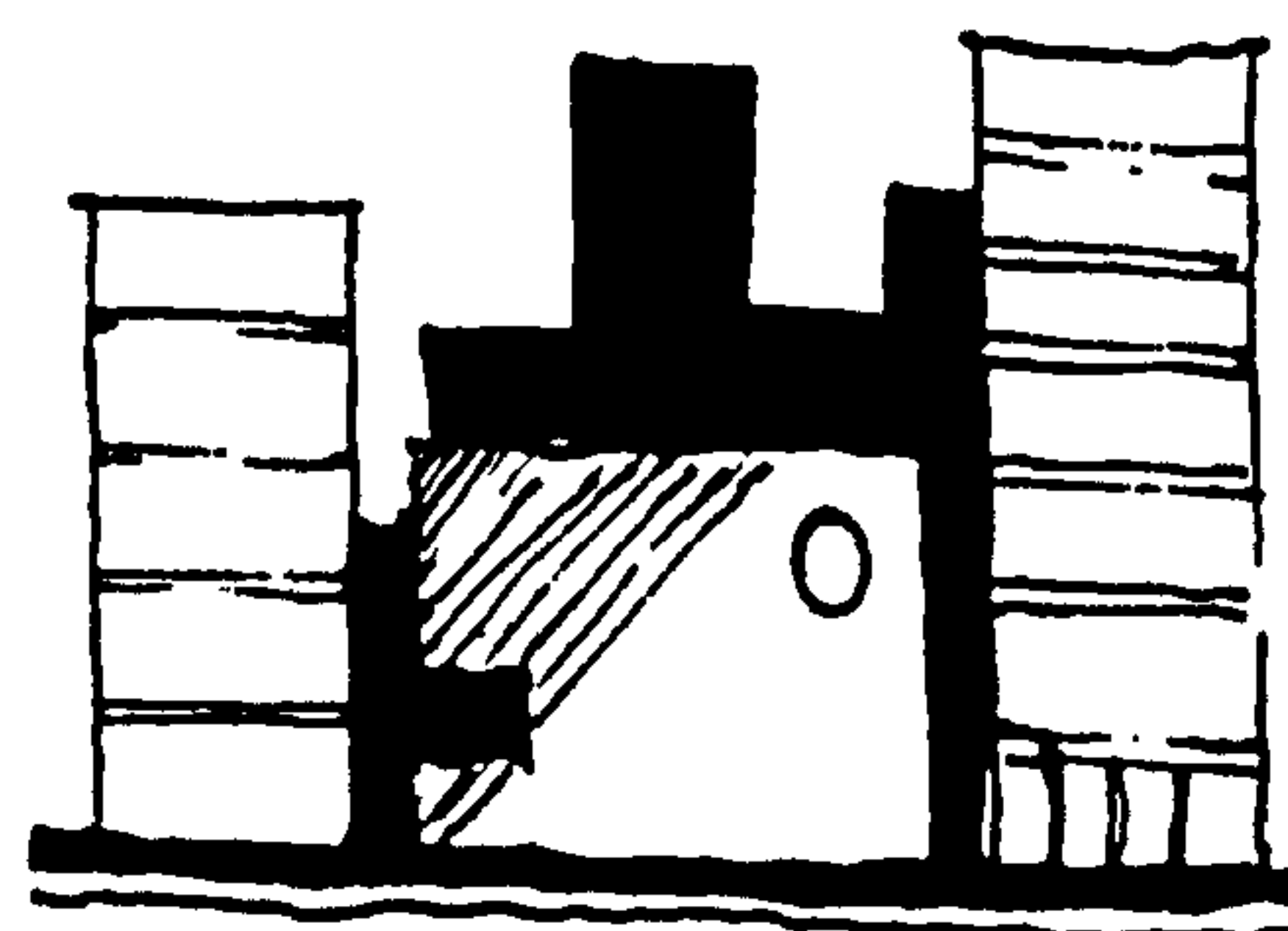
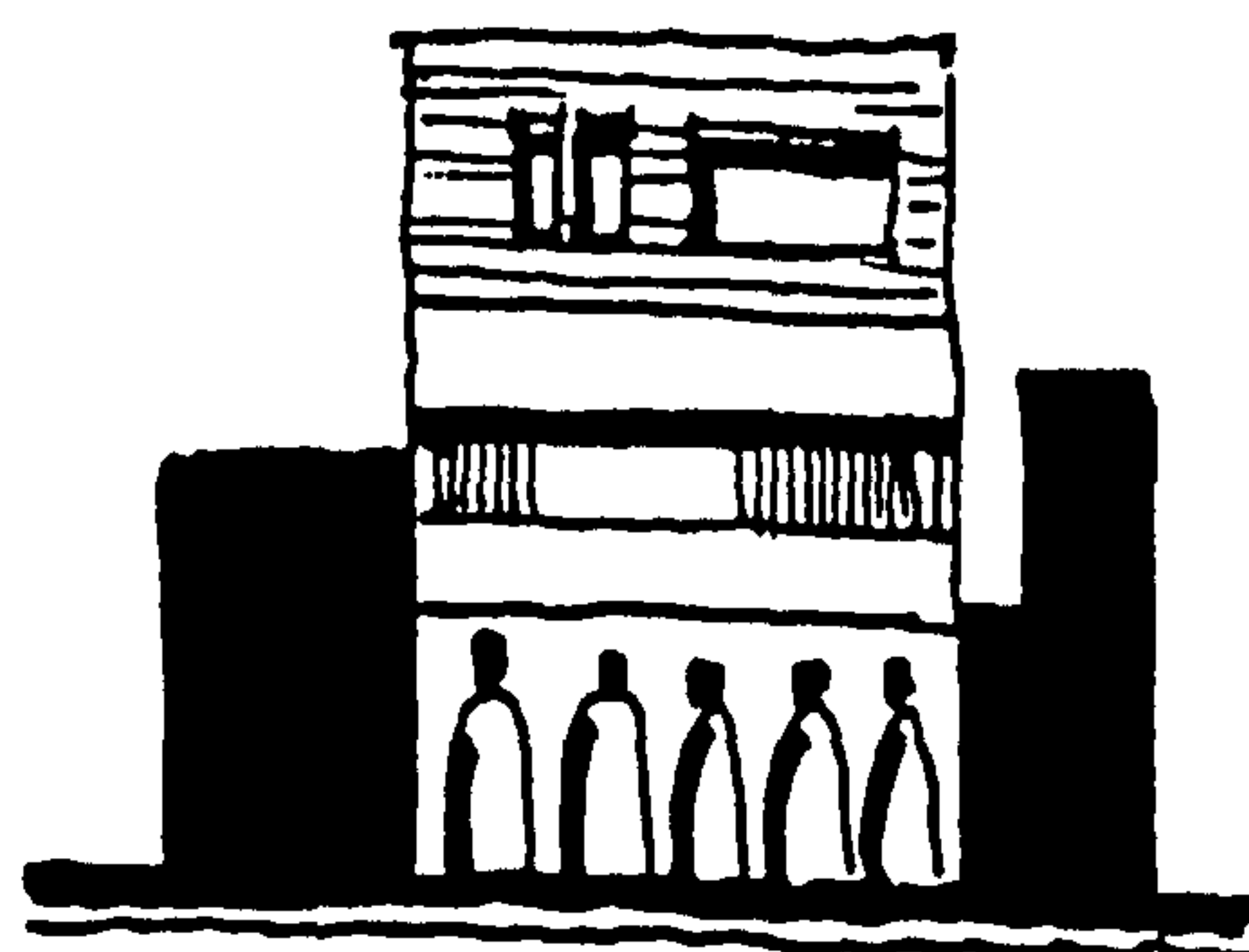
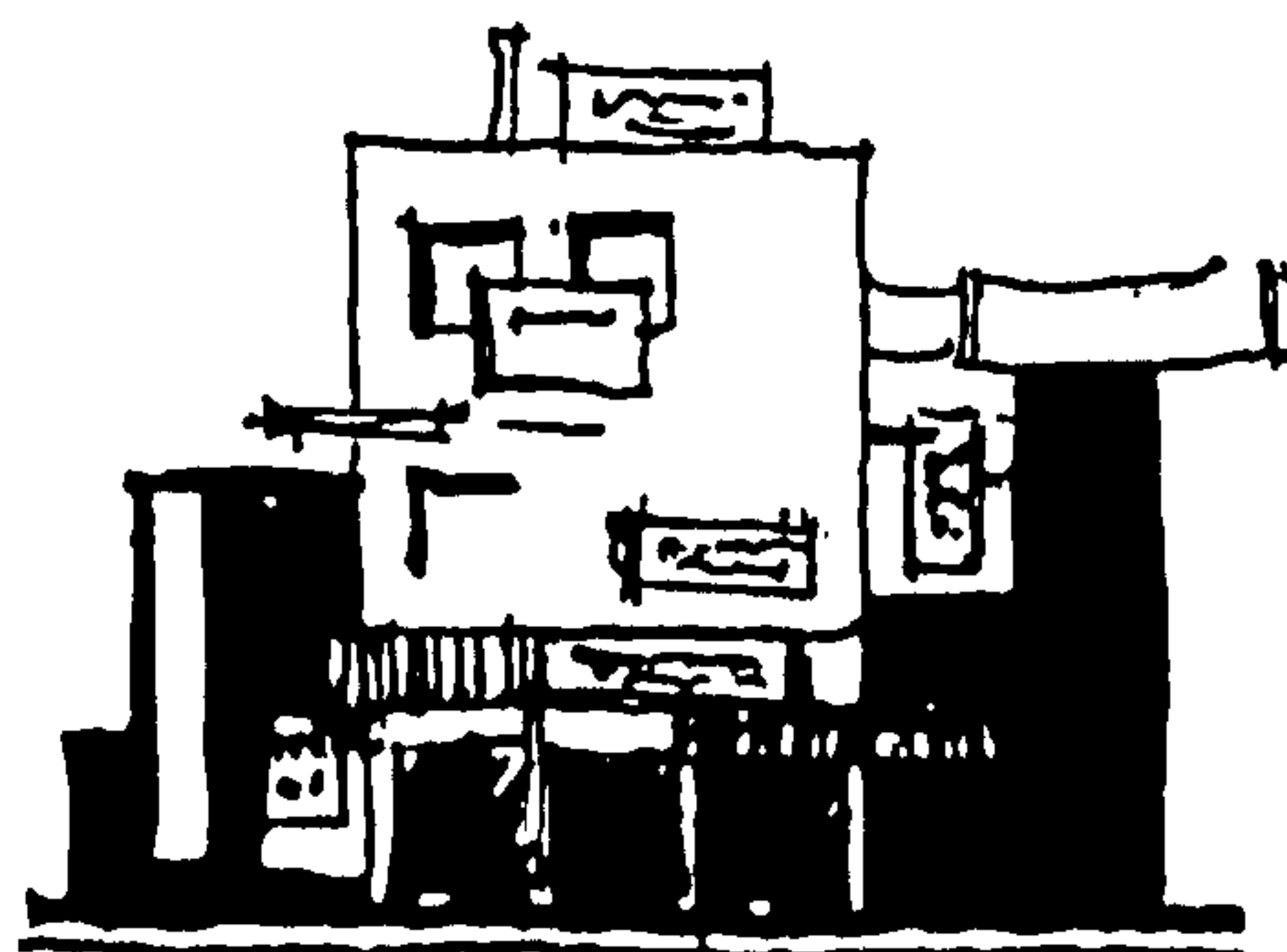
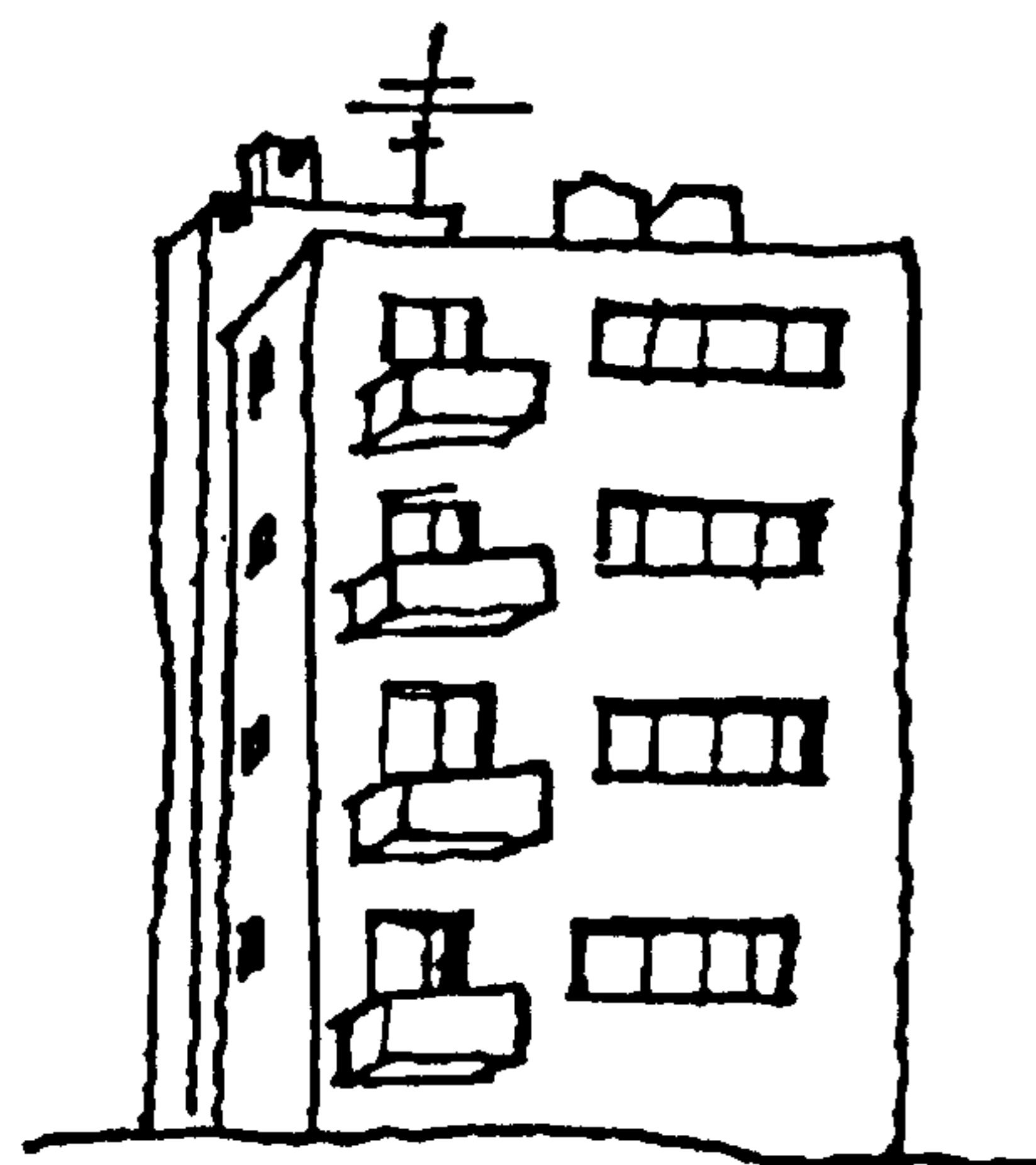


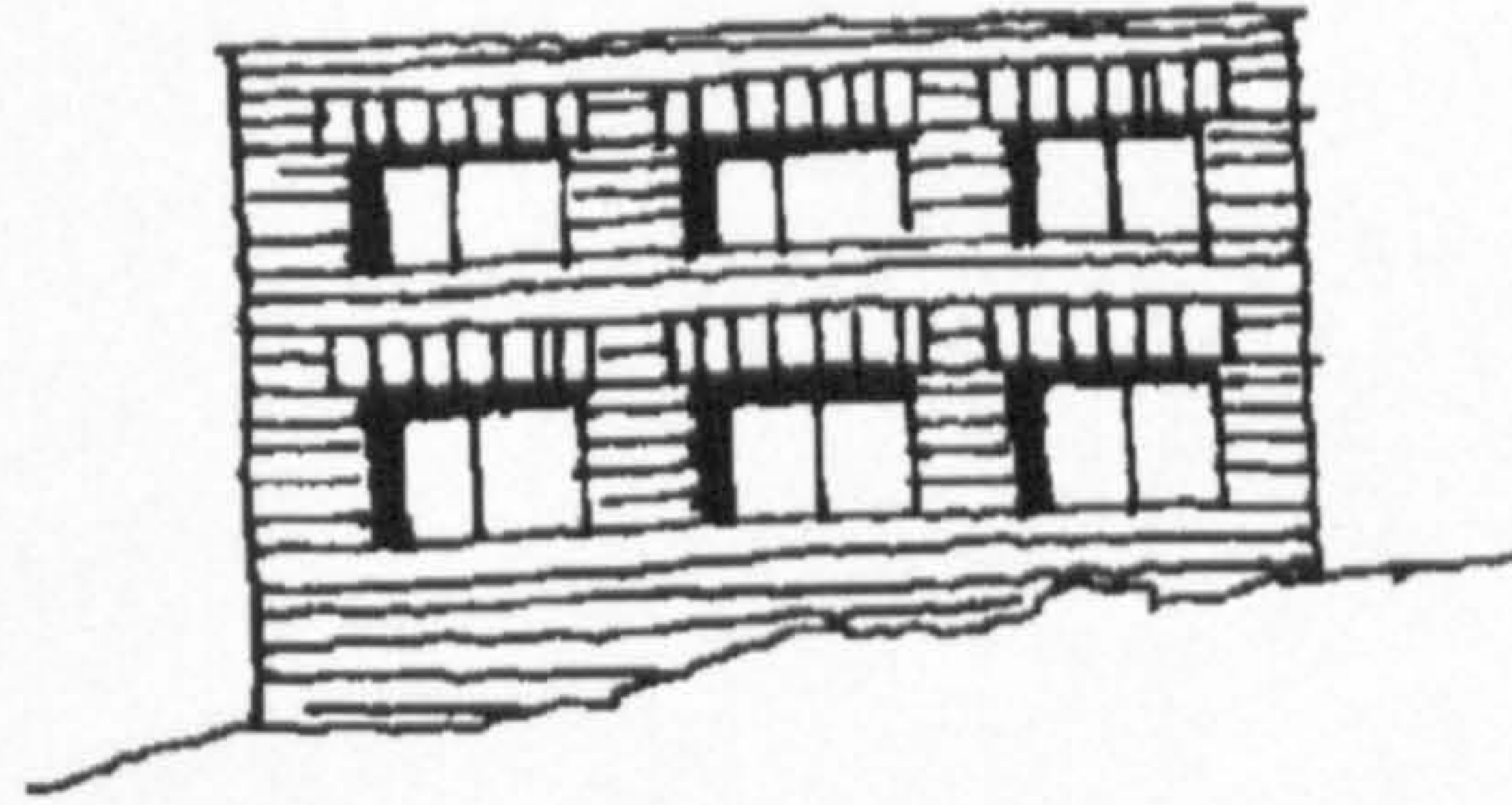
Figure 6.63: Schematics of infill modern buildings and extensions that have invaded the townscape.





The predominance of solid stone walls in the old buildings gives the area its visual cohesion. The stone masonry generally constitutes a much larger portion of elevations than the openings. New buildings, however, have walls punctuated by repeating horizontal rectangles, as required for sliding aluminium panels<sup>13</sup> (Figure 6.65).

Figure 6.65: New buildings have walls punctuated by repeating horizontal rectangles (see also Figure 9.18). Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p.97.



Moreover, the new architectural styles, sizes and patterns make SCC lose much of its abrasive individuality and regularity in favour of vapid buildings of alien treatments. To provide such buildings with arches does not help. The arch does not guarantee the new architecture will match the existing context if the proportions remain utterly untraditional. (Figure 6.66).



a. Solid and void ratio as established in traditional buildings.



b. The arch does not guarantee new buildings to match the existing context.

Figure 6.66: Features of old and new buildings.

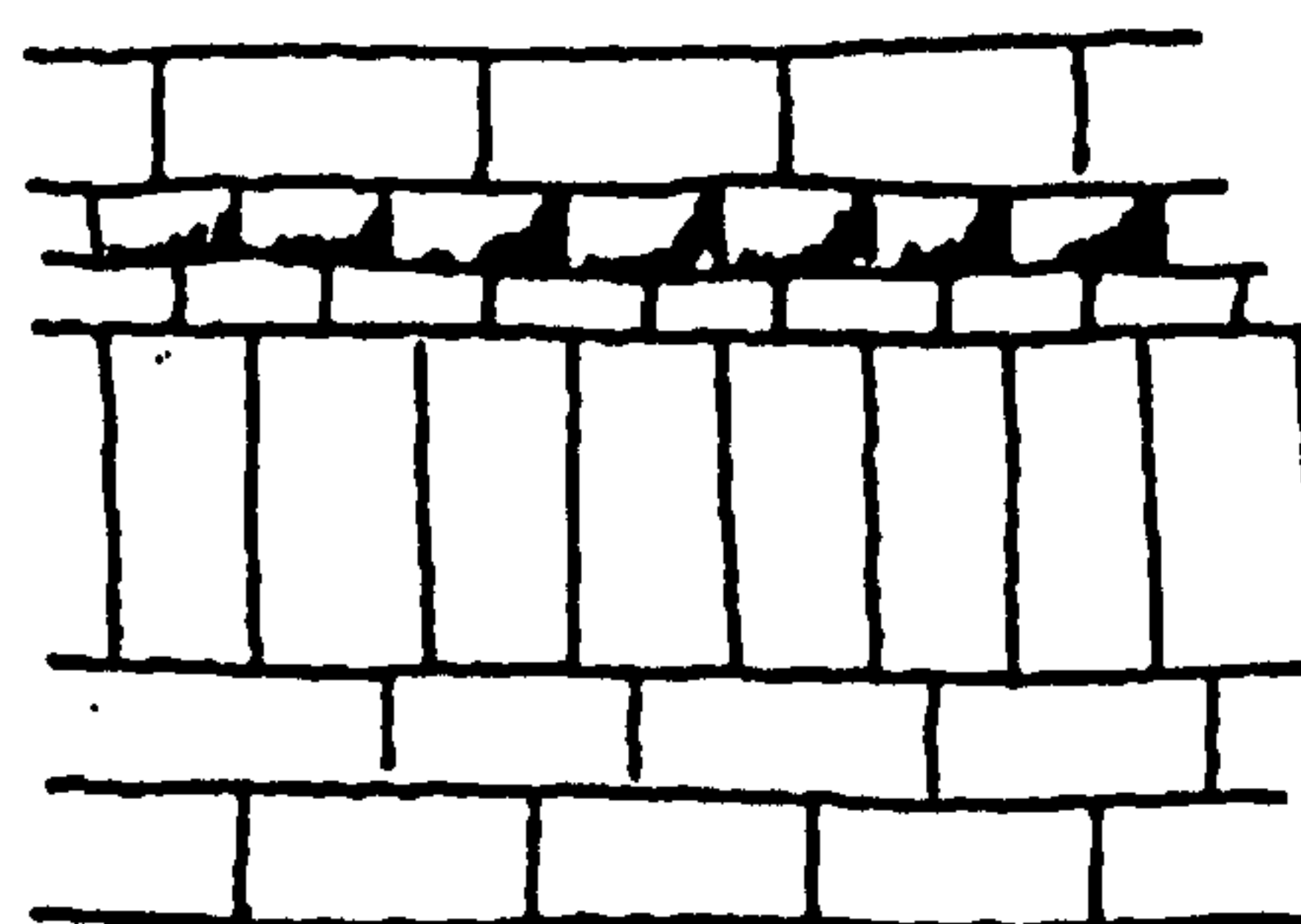
The treatment of stone is another problem in new buildings. In the old buildings the character of the wall was rather uniform when looking at it from a distance. When observed closely the wall reveals slight variations in the size and texture of stone which make them lively. In new buildings, the quality of stonework and the understanding of its use have declined. The machine-sawed smooth surface does not



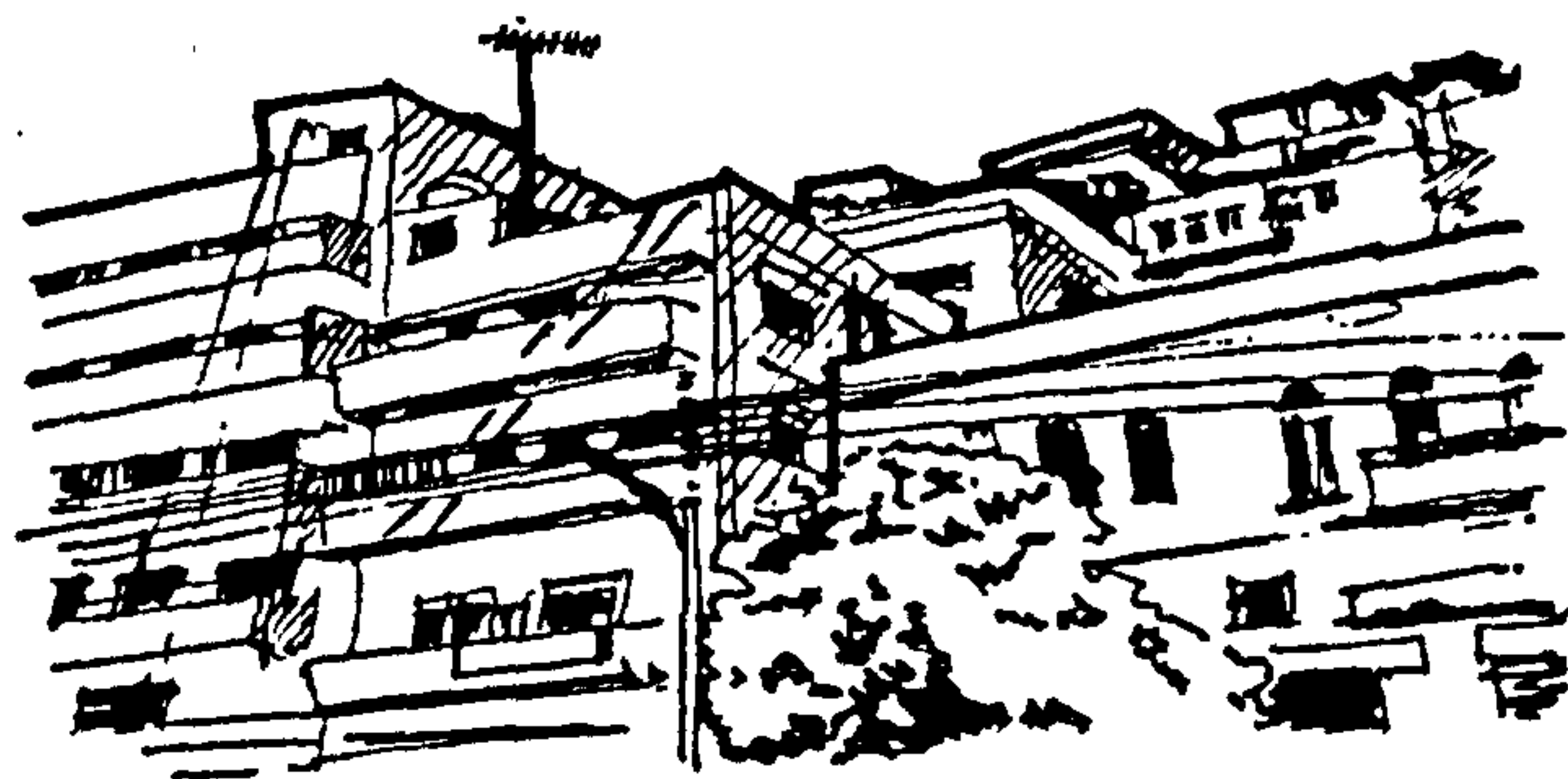
expose the grain of the stone and creates the expression of an artificially produced facing tile. In old buildings the stone is smooth and carefully dressed. The wall appears as a mass, the joints are hardly perceivable from the distance. On the contrary, many new buildings look like a sample exhibition of a quarry<sup>14</sup> (Figure 6.67). The differential mass of the building is more important than applying various samples of stone treatment on the surface of a dull box. The traditional pointed dressing (*msamsam*) or rock-face courses (*tubze*) should be preferred.

Figure 6.67: Many new buildings look like a sample exhibition of a quarry (see also Figure 9.19).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p. 97.



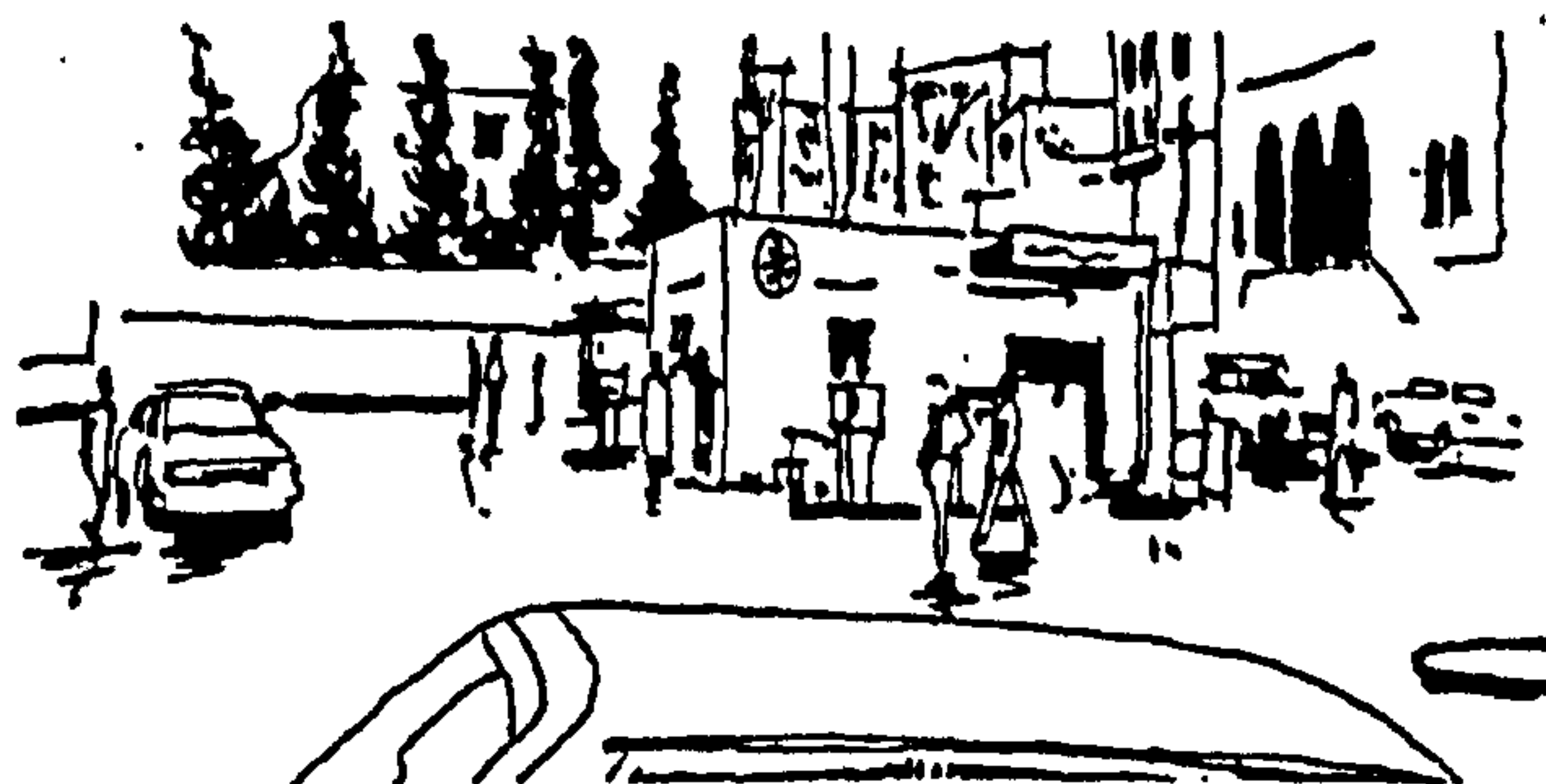
The visual signs of physical transformation of SCC are clearly evident (Figure 6.68). If not treated, the impact of this transformation will be the eventual disappearance of the traditional urban form and its cohesiveness.



a. New buildings with horizontal emphases.



b. Huge signage.



c. Unightly designs of gas stations.



d. Television aerials

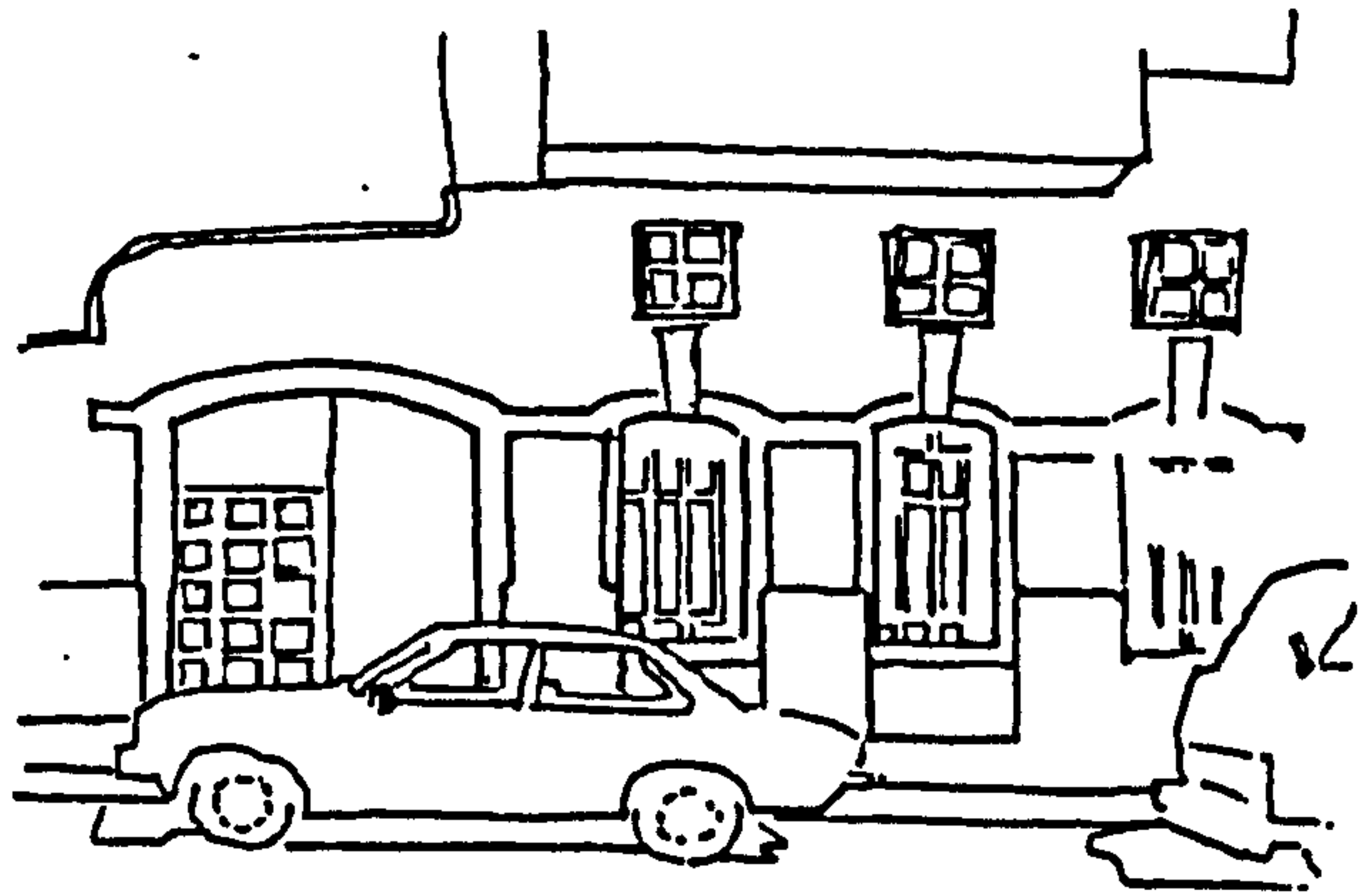
Figure 6. 68: The visual signs of physical transformation of SCC are clearly evident.



Remodelling new buildings could be as important as preserving historic ones (Figure 6.69). A visual policy for SCC should include preservation and remodelling programmes. It is important to maintain the scale, atmosphere and character of the area, and insure that new additions and infill projects are carefully blended in sympathetic contemporary terms.



a. *Al-Hammam* street.



b. A recently remodelled new building in SCC.

Figure 6.69: Remodelling new buildings is as much important as preserving historic ones.

Furthermore, an overall sense of neglect and visual deterioration envelops the area (Figure 6.70). Potentially pleasant yellow stone facades are covered by paint or



Figure 6.70: An overall sense of neglect and visual deterioration envelops the area.



cement plastering; signs and corrugated awnings hide behind them rich arches and stonework; some arches have been replaced by new flat lintels to provide for metal shutters; water tanks, pipes, vents and electric wires, run all over the place; even the interiors of some shops have had regrettable work in them where new concrete mezzanine floors have been added, so that cross and barrel vaults are sometimes hidden.

### **6.3 Summary of the Chapter**

Visual surveys accompanied by on-site walk-through analysis, and casual observations were the main data collection methods for the indicative evaluation at SCC. The visual evaluation concerned the five visual performance dimensions of : identity, order, structure, variety and fitness. It indicated the successes and failures of the visual performance of SCC.

The geological formation of SCC shaped both the landform and the pattern of urban development of the area. the topography of SCC gave the distinct urban pattern of buildings, open spaces and movement channels erected on the slopes of the hills. The formation of SCC with its hills and valleys aided in creating different levels of visual hierarchies and dominance in the area, which also creates a feeling of orientation and ordering progression.

The old parts of SCC experience a sense of "variety in unity", while almost all the new additions do not experience this visual quality. The same can be said regarding the variety of uses. Old sections of SCC with their various forms and activities have the ability of attracting various people at various times and for various reasons. Moreover, the conservation measures of old buildings are not appropriate and should be modified and enhanced. Some of the important landmarks are not visible due to new constructions obstructing their views. Furthermore, new sections, especially Salt Civic Centre, have failed in acting as magnets and meeting spaces.



SCC has clear visual and physical edges manifested by its slopes and landform. The legibility of form and use is evident in that SCC users are able to form clear and accurate images of its spaces, routes and buildings. Its spaces promote dynamism and kinetic experiences where monotony and boredom do not exist. A sense of enclosure can be experienced in most of SCC's plazas and open spaces. Yet, this sense is totally absent in *Al-Maydan* plaza. The plaza was divided into a carriageway, two sidewalks and a parking lot. Thus, it no longer suits its purpose.

It was clear that Salt Civic Centre has the lowest standards of visual and formal qualities while *Al-Hammam* street has the highest. The visual evaluation showed that SCC's urban patterns and old buildings match the natural setting of the area, whereas its new developments, do not match that setting. The size of green areas are unsuitable. The architectural features of old buildings found to be more familiar than these of new buildings. Additionally, vacant lots and neglected incomplete constructions are sources of visual pollution.

Generally, SCC may be seen as relating to different aspects of life. Its urban origins still interact with past habits which affect present life rhythms and future aspirations of society. Indeed all SCC areas have the potential to be visually modified to fit with the varying behavioural patterns of its people.

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1. *Statistics Yearbook* (in Arabic), Amman: The General Directorate of Statistics, 1997.
  2. For the history of Salt, see for example:
    - Hadidi, Adnan., *Studies in the History and Archaeology of Jordan*, Amman: Department of Antiquities, 1982.
    - Musa, Suliman., and M. Madi., *Jordan in the 20th. Century* (in Arabic), Amman: Al-Muhtaseb Book Shop, 1988.
  3. RJGS, *Jordan Atlas of Climate and Agoclimatology*, Amman: The Royal Jordanian Geographic Society, 1984.
  4. *ibid.*
  5. Spirn, Anne., *The Granite Garden*, New York: Basic Book Inc., 1984, pp.47-48.
  6. Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981.
  7. Harrison, W. Parker, *Salt Medical Mission: The Mission Hospital No. 304*, London: CMS, 1923.
  8. *Yosha'* and *Suaib* are two Israeli profits .
  9. Cejka, J., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: pp. 90-100.
  10. *ibid.*, pp.90-100.

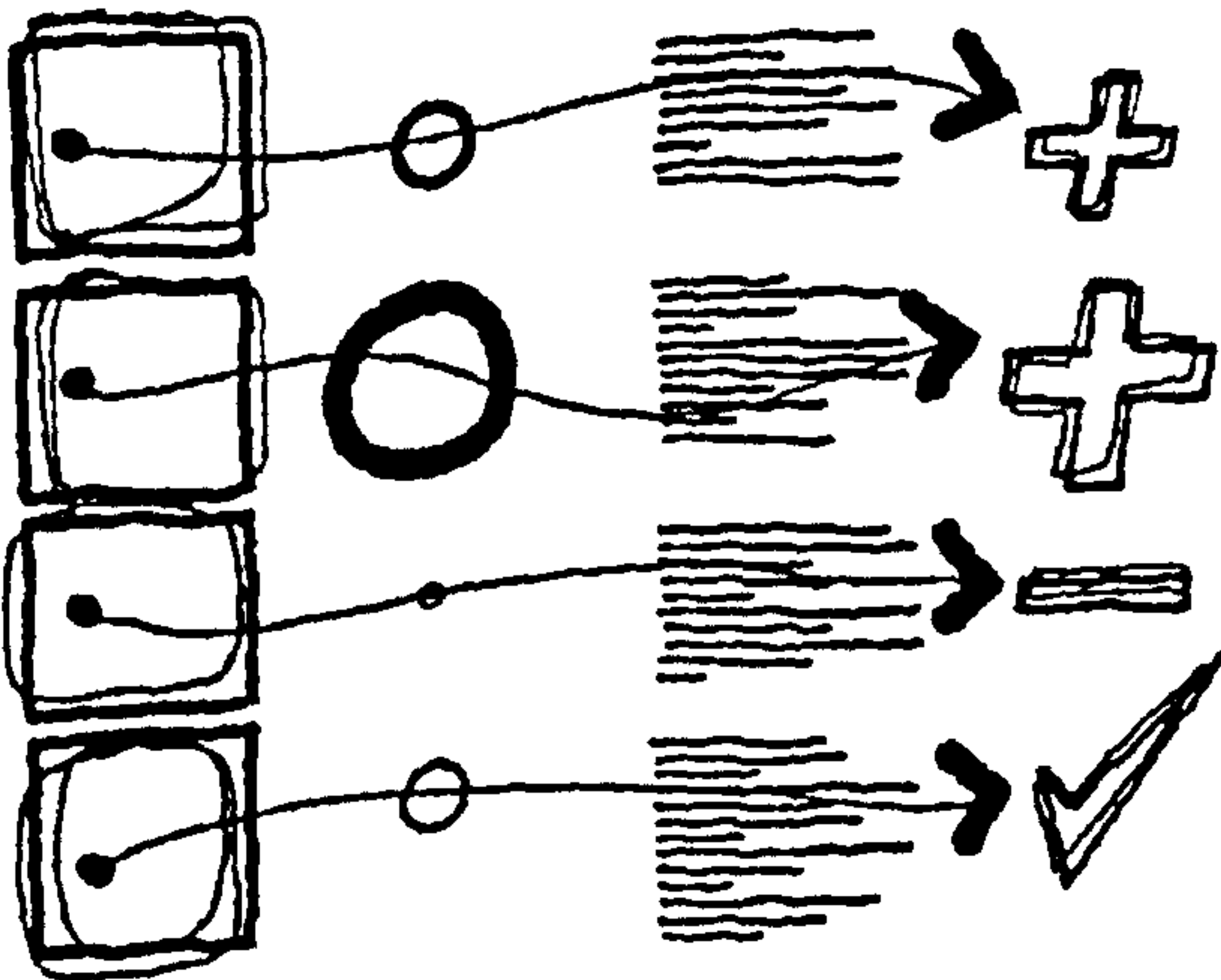


11. SDC, *Salt: A Plan For Action* (in Arabic), Vol. I, Salt: Salt Development Corporation, 1990, p.14.
12. Cejka, op. cit., Vol. 17, No.27, 1982: pp. 90-100.
13. *ibid.*, pp. 90-100.
14. *ibid.*, pp. 90-100.



Chapter VII

VISUAL APPRAISAL  
IN SALT CITY CENTRE





## Chapter VII

# VISUAL APPRAISAL IN SALT CITY CENTRE

This chapter reports on the visual appraisal that resulted from the investigative evaluation of SCC. The discussion covers: i) a study of the key physical elements of SCC based on Lynch's theory of city image aimed at involving the users in selecting the sample areas for the checklist application; and ii) the application of the visual-impact checklist at the selected sample areas at SCC representing the various key physical elements of the area.

The investigative level is aimed at understanding two human aspects related to visual performance: how people conceive the visual performance of the area and how they act in it. This investigation focused on the nature of behaviour as a way for evaluating the visual performance of SCC. The procedure concerns watching the area, using a visual-impact checklist based on the five visual performance dimensions of: identity, order, variety, structure and fitness. The visual-impact checklist is a systematic way of seeing the spatial and formal characteristics of SCC as well as assessing them. It served as a programme for organising personal assessments to arrive at a form of value judgement that will serve as a cross-checking tool together with other measurement methods.

The five visual dimensions and the variables that represent them were explained in terms of a pattern language (see Appendix C). This explanation was necessary to translate these dimensions and variables into observable and measurable events. The findings of the indicative level of the study were also a help in the development of the checklist's patterns (see Chapter VI).



## 7.1 The Key Physical Elements of Salt City Centre

The investigative level concerns the application of the visual-impact checklist in selected sample areas at SCC representing the various key physical elements of the area. It was important to avoid a subjective selection of sample areas based on personal preference. Accordingly, users were involved in helping the researcher to choose the sample areas based on Kevin Lynch's theory of city image<sup>1</sup> (see section 3.2.2). This is also as an attempt to link the proposed visual imageability concept to an existing theory of urban form.

### 7.1.1 Results of the Interview Survey

A randomly selected sample of 32 passers-by in SCC was asked three questions in order to identify SCC's key physical elements (see section 5.3.2). The aim of this exercise was to test the users' reactions regarding SCC key physical elements and not to gather any statistical data. The sample number of 32, and the sampling process used do not allow for a public image generalisation.

In the first questions, every respondent was asked to give a verbal brief description of the route he/she followed in the day of the interview, starting with his/her arrival point at SCC. The respondents were left to their own devices in answering the question. Asking for a directional map, however, might force the respondent to draw streets and pathways. The answers to the question stress mainly pathways and open spaces (nodes). Individual buildings did not constitute a major focus for the description. Additionally, the verbal description showed that the respondents also think of the key physical elements of the city as wholly integrated urban elements. Four clear cut frequency categories were derived from the respondents' descriptions of SCC (Figure 7.1). These are: i) high frequency items noted by 25-32 respondents; ii) medium frequency items noted by 17-24 respondents; low frequency items noted by 9-16 respondents; and minimal frequency items noted by 8 respondents or less. The high frequency items are the Great Mosque Plaza, *Al-Hammam* street, *Al-Khader*





Figure 7.1: The key physical elements of SCC derived from the verbal description of the respondents.



street, various small plazas and open spaces, *Al-Maydan* street, *Al-Haddadin* stairway and *Abu-Jaber* building. The medium frequency items include *Al-Deir* street, *Al-Khader* stairway, the Small Mosque and the Anglican Church. The low frequency items are 25 in number, ten of them are individual buildings and shops, while the minimal frequency items include street furniture, signs, traffic lights and small shops.

The responses to the second question to list distinctive elements of SCC, were consistent with the replies for the description question. However, the topography and landform as well as certain buildings occupy a relatively more prominent position than their position in the first question. The ideas of pathways and nodes among other key physical elements, were found to be critically important to the respondents' image of SCC.

The third question asked for elements that make some of SCC's spaces hospitable and enjoyable for the respondents, as well as the elements they do not enjoy. The answers indicate general satisfaction due to the various open spaces, wide range of activities, the lively crowds, as well as SCC topography. Most of the respondents, however, indicated reservations concerning the lost identity of *Al-Maydan* Plaza and Salt Civic Centre. They also indicated reservations concerning accessibility and movement at vehicular streets at rush hours, cleanliness, deterioration of old buildings, and asked for widening the scope of the pedestrianization scheme at *Al-Hammam* street so that SCC can attract more people and activities.

### 7.1.2 The Image of Salt City Centre

The findings of the interview survey support the idea that users relate the "imageability" of certain elements of their environment to physical and behavioural factors. Physical factors include the appearance of elements, their size, design, colour and location. Behavioural factors involve the social, personal, political, cultural and historic connotations associated <sup>with</sup> those elements. The findings are consistent with



those revealed by Al-Zoabi concerning Salt city as a whole<sup>2</sup>. He concluded that people value elements of traditional form more than those with modern characteristics. His study indicated that the citizens of Salt simplified the physical form of the city in terms of the five elements identified by Lynch<sup>3</sup>. These are: pathways, districts, nodes, landmarks and edges. A study of these elements at SCC suggests the following (Figure 7.2):

### **A. Pathways:**

A pathway is a movement channel which people use to move about. SCC circulation network includes vehicular and pedestrian streets, as well as many stairways connecting the valley to the surrounding hill areas. Streets and stairways constitute the major and minor circulation routes which people use to move about. It is difficult to categorise SCC streets according to their functional type. Most of its streets were built with many functions. They are multi-functional with concentration of commercial activities and civic activity buildings. The commercial activities are stimulated by the life and movement of the pedestrians.

Within SCC streets and pathways there is a great variety in length, cross section, shape, character and function. A study of SCC streets and pathways suggests three category levels according to their proportion, shape, scale and density. First, city streets play a major role in access and orientation of the city circulation network, i.e., *Al-Deir* and *Al-Maydan* streets where vehicular movements dominated the space. Second, local streets, which are smaller and more intimate in scale than the city streets, vehicular movement shares space with pedestrians rather than dominate it, such as *Al-Khader* street. Third, the intimate streets and pathways where a strong sense of identity is experienced along them and are more suited for pedestrian use. Among these are *Al-Hammam* street and the various that are important parts of SCC. Stairways act not only as pathways but also as nodes where various activities can prevail.



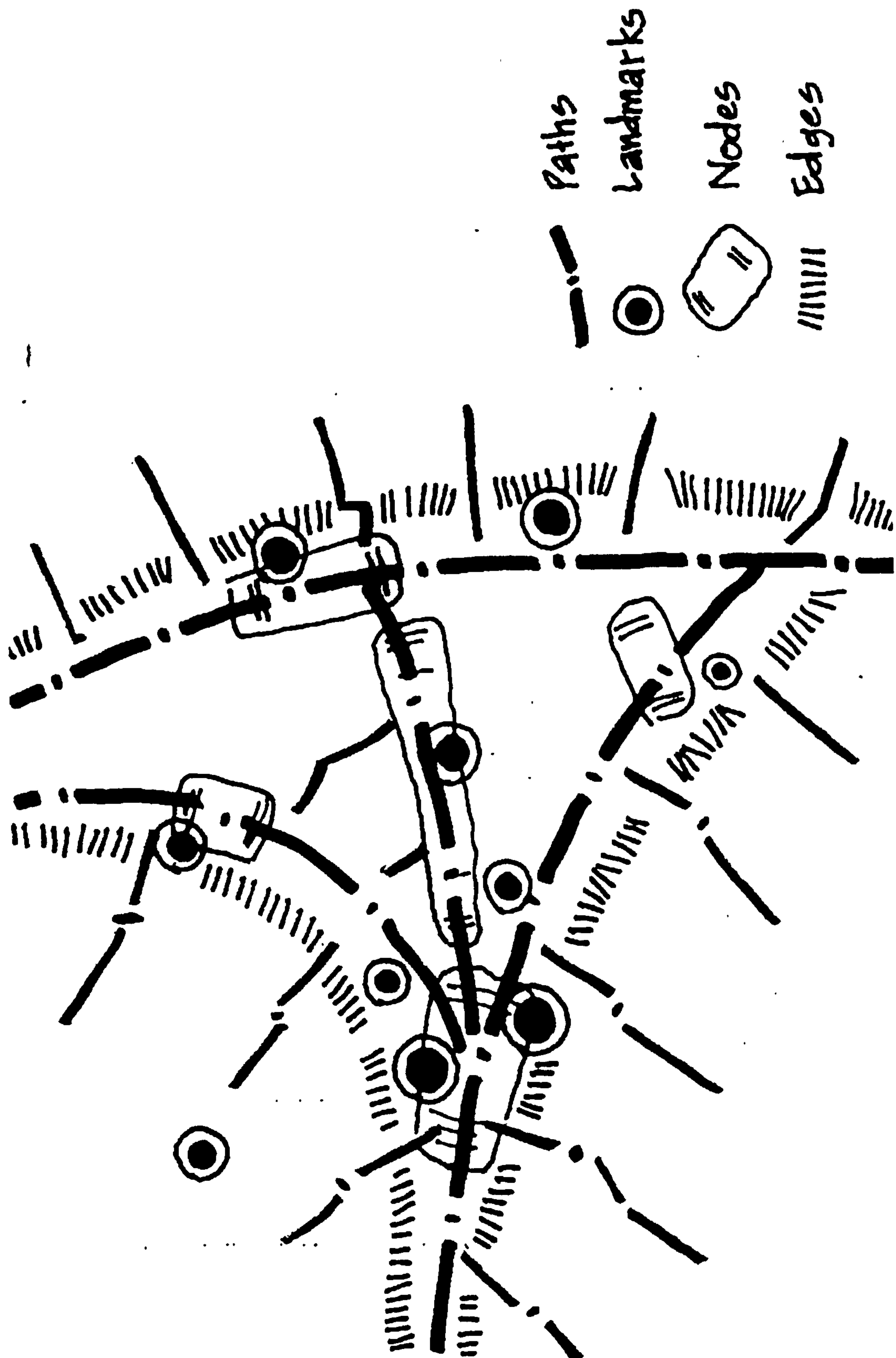


Figure 7.2: The key physical elements of SCC.



**B. Localities:**

Localities are socially, culturally and economically identifiable areas which often be of physical or architectural distinguished characteristics. They have, often, associations with memorable activities and character. On the city level, SCC could be considered as a major distinctive district. On a smaller level, the term "locality" is used to describe the relatively small distinctive districts within the area. SCC is composed of component localities: the valley, *Al-Hammam* pedestrian network, the Anglican Church complex, Salt Civic Centre and the various localities on the slopes of the hills, such as *Al-Haddadin* area. SCC localities are considerably interrelated and seem not to have distinctive limits.

**C. Landmarks:**

Landmark refers to prominent visual features in an area. The landmark's appearance, however, is enhanced if a historic meaning or activity is associated with it.

Landmarks have an important role in spatial orientation in the area. SCC with its unique topography is an area of visual hierarchies and many prominent visual features. Its skyline ingredients have successive layers becoming lighter and lighter as they retreat into the distance. Some SCC visual features penetrate the skyline and thus can be seen at great distances, like the Upper Mosque on Citadel hill. Certain old buildings are greatly considered as landmarks for their prominent location as well as their importance to the inhabitants, such as, *Abu-Jaber* and the Salt Municipality buildings.

**D. Nodes:**

A node is a landmark because of its active function. The difference remains that while a landmark is a distinctive visual object, a node is a distinctive hub of activities. Nodes can be small or big. They include plazas, magnets, linkages and generators even if they are pathways in themselves, as well as street junctions and



corners. SCC has a number of large and small open spaces where people gather. Large open spaces include two major plazas: the Great Mosque Plaza and *Al-Maydan* Plaza. Such a number is appropriate to the size of the city as too many grand spaces may dissipate the sense of occasion they attempt to proclaim.

The most important and the larger is the Great Mosque Plaza. The Great Mosque Plaza in SCC is both a node and a landmark. It has a civic, religious and commercial role that provides an opportunity for displaying the urban life of the inhabitants. Unfortunately, the current transformations allowed the *Al-Maydan* Plaza to be changed into a mere traffic utility (see section 6.2.4 C). SCC has also a number of linked spaces, physically or visually, both at the valley or along the ascending and descending stairways.

### **E. Edges:**

An edge refers to the termination of a locality. It is the boundary between two distinctive localities. The boundary, however, could be physical, visual, or psychological. SCC localities have various types of edges. Some are hard, definite and precise, such as the slopes of the hills, while others are of more fluid in nature. On a smaller scale, an edge might refer to the physical boundaries of a street, a plaza or a small open space. Such edges are less identifiable as they gradually taper off and blend into other nearby localities. They are also distinctive by their considerably mixed character that has no distinctive boundary limits. Due to SCC topography, such edges can be positive ones, i.e., buildings' walls; or negative ones with panoramic view point, i.e., contour lines or a parapet of a terrace.

## **7.2 Findings of the Visual-Impact Checklist**

The visual-impact checklist is a systematic way of observing the formal and spatial qualities of SCC as well as assessing them in relation to users' actual behaviour in the elements under study. The checklist was applied at selected sample areas



representing the five key physical elements of SCC. These are: *Al-Khader* street and stairway representing pathways, *Al-Haddadin* area representing localities, *Abu-Jaber* building representing landmarks, the Great Mosque Plaza representing nodes, as well as the boundaries of the valley area representing edges. These sample areas were selected according to the high frequency responses to the first and second questions of the interview (see section 7.1.1).

### **7.2.1 *Al-Khader* Street:**

The objectives of the study of *Al-Khader* street are to investigate the prevailing conditions of its evolution especially in view its having been transformed from a pedestrian into a vehicular street (Figure 7.3). Such investigation is required in order to arrive at conclusions regarding measures that can be used for the improvement of this particular street and streetscapes in general. *Al-Khader* street was originally used by pedestrians. Nowadays the street has undergone basic change to its envelope, fabric, movement, sequence and overall organisation. It has been subjected to a widening scheme in two phases. The first phase demolished the majority of the traditional building stock at the eastern side of the street. The second phase has been stopped due to public appeal. The plots that were demolished to widen the street for vehicular traffic were left in a derelict state. They are used now as junkyards for neighbouring plots, which consequently give an impression of a run-down area.

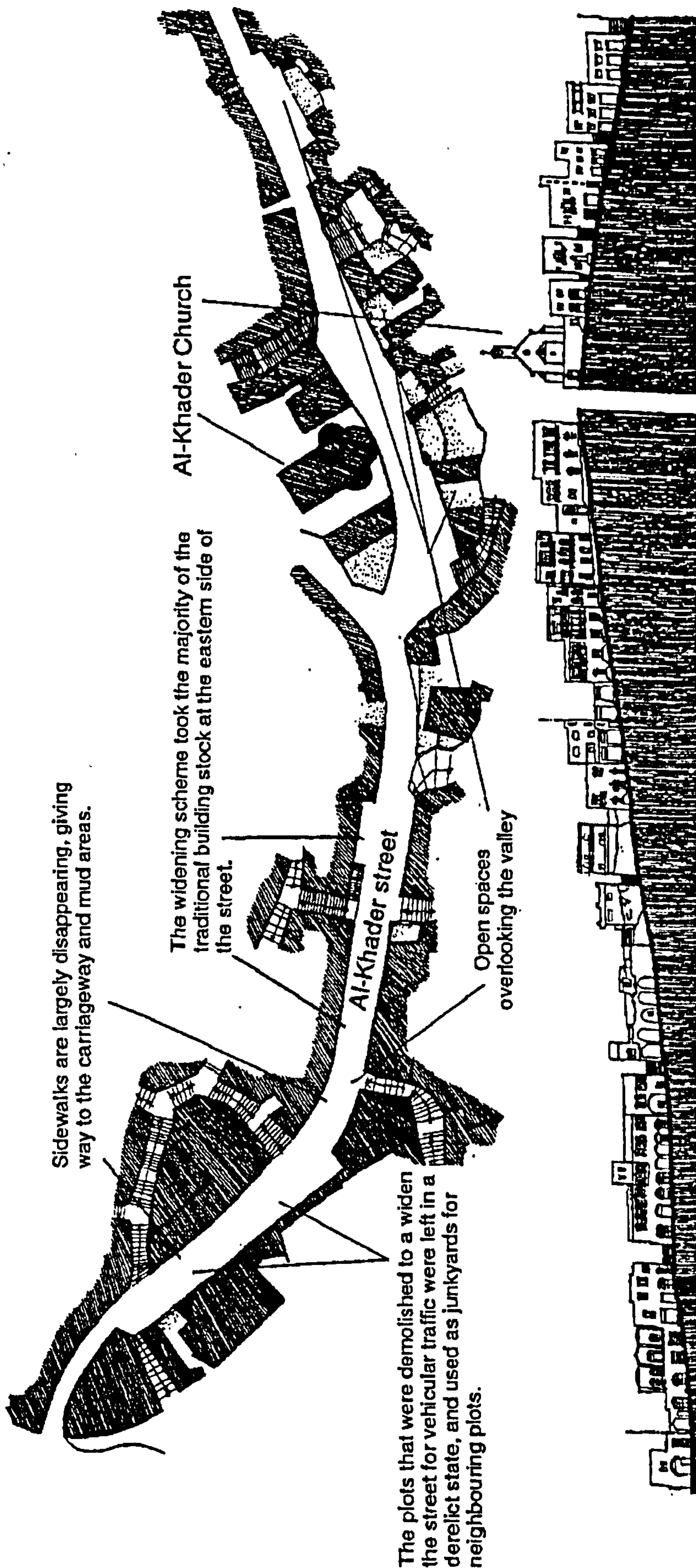
The street's widening schemes resulted in its envelope being of lower quality. It has no positive contribution to the townscape and does not relate to the character of the old pattern. The street once paved with stone is now covered with asphalt. It is in bad condition, with no provision for rainwater drainage, creating ponds in the street in winter. Sidewalks are largely disappearing, giving way to the carriageway and mud areas. Sidewalks are found in front of a few shops only. Even there, they are not made for the use of the pedestrians as they are fully used for display of goods (Figure 7.4).





0 10 20 30m

The Great Mosque Plaza



Sidewalks are largely disappearing, giving way to the carriageway and mud areas.

The widening scheme took the majority of the traditional building stock at the eastern side of the street.

The plots that were demolished to a widen the street for vehicular traffic were left in a derelict state, and used as junkyards for neighbouring plots.

Open spaces overlooking the valley

Figure 7.3: Al-Khader street: Plan and elevations. Drawn by the author, based on: *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.57.



Many traditions have been allowed to vanish through neglect. This applies to many activities that once made *Al-Khader* street one of the most vital parts of everyday life of SCC inhabitants. The street is suffering from a visible decline in its commercial activities. Traditionally, it had an interesting mixture of commercial activities that made it an attractive place for shoppers. Nowadays, many shops have been closed for years and used as warehouses and many traditional wooden shop-doors are left to deteriorate (Figure 7.5). The rest are mainly being used for poultry shops. These shops cause a major problem for the street due to the lack of proper disposal of the leftovers, causing discomfort and a health hazard.



Figure 7.4: *Al-Khader* street with the sidewalks largely disappearing.

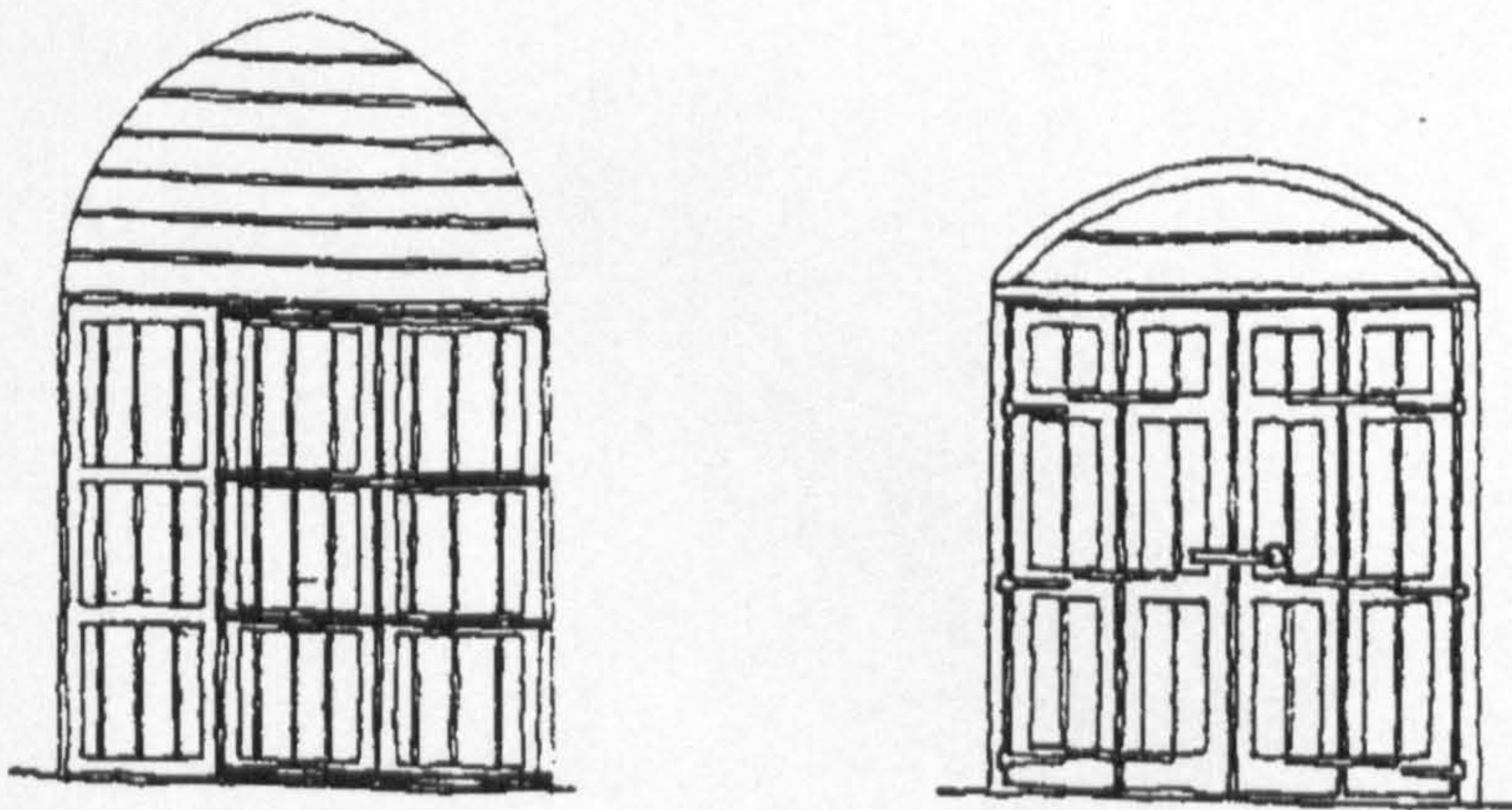


Figure 7.5: Many traditional wooden shop-doors are left to deteriorate.

Source: SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 4, p.16.

Therefore, the gaiety and activity that once prevailed are lost: one cannot sell anything, promote anything, or do anything but walk. The street lacks definition and contains pockets of vacant land and remains of old buildings. It is unsafe for pedestrians, and still unsuitable for vehicles. However, the street still has many distinguished features, such as the *Al-Khader* Church and the Salt Handicrafts School with its open, closed and semi-closed spaces overlooking the valley. The overall



condition of buildings, however, seems to be fair to poor. The old buildings on the street have a major problem with dampness. Dampness caused the growth of algae on stone facades, deterioration of balconies caused by rust in I- beams and reinforcement, and cracks and broken stone lintels.

Major work in restoration and maintenance of buildings is required to improve the existing situation and revitalise the traditional character of the street. With appropriate measures of conservation, the unique spatial movement and sequences could be maintained. A pleasant, healthy atmosphere should be provided for shoppers, passers-by, shop-keepers and house holders. This should provide better traffic conditions for the pedestrian, including the possibility of banning vehicular traffic. Such measures should take into consideration the proper delivery of goods to the shops as well as the provision of parking spaces. The open space next to *Al-Khader* Church should be improved and used as a major focal point in the street. It provides a panoramic view point towards the area below.

### 7.2.2 *Al-Khader* Stairway

*Al-Khader* stairway was chosen as a sample stairway in order to study the stairscape characteristics of SCC. This stairway goes up from *Al-Maydan* street to *Al-Khader* street (Figure 7.6). The envelope of the stairway includes the elements or groups of elements that define its shape, movement, sides and ground, as well as skyline. These elements include traditional and modern buildings, walls, projections and balconies, vacant areas and voids, as well as roofs and terraces.

One of the characteristics of the stairway is its irregularity in movement, incline and definition (Figure 7.7). The stairway has sequences that result in a variety of visual experiences highlighted by the juxtaposition of solids and voids, narrow and wide spaces, and the changing pattern and movement of steps and landings. The stairway is constructed of, generally, stone steps and landings with some concrete steps. They are mostly irregular in shape, width, length and height. The general conditions of



steps are mostly acceptable, however, it is worth mentioning that there are other stairways that suffer a higher degree of deterioration.

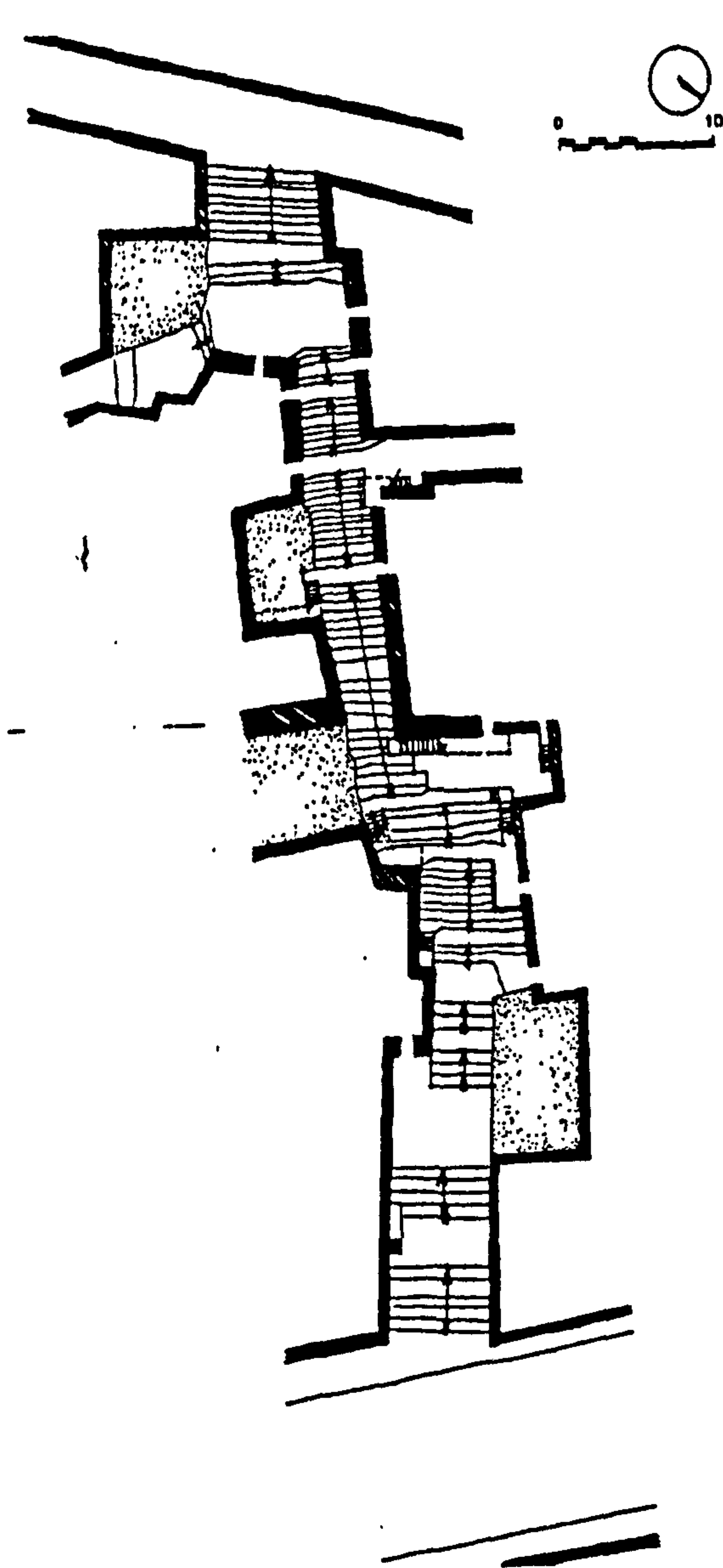


Figure 7.6: Al-Khader stairway: Plan.

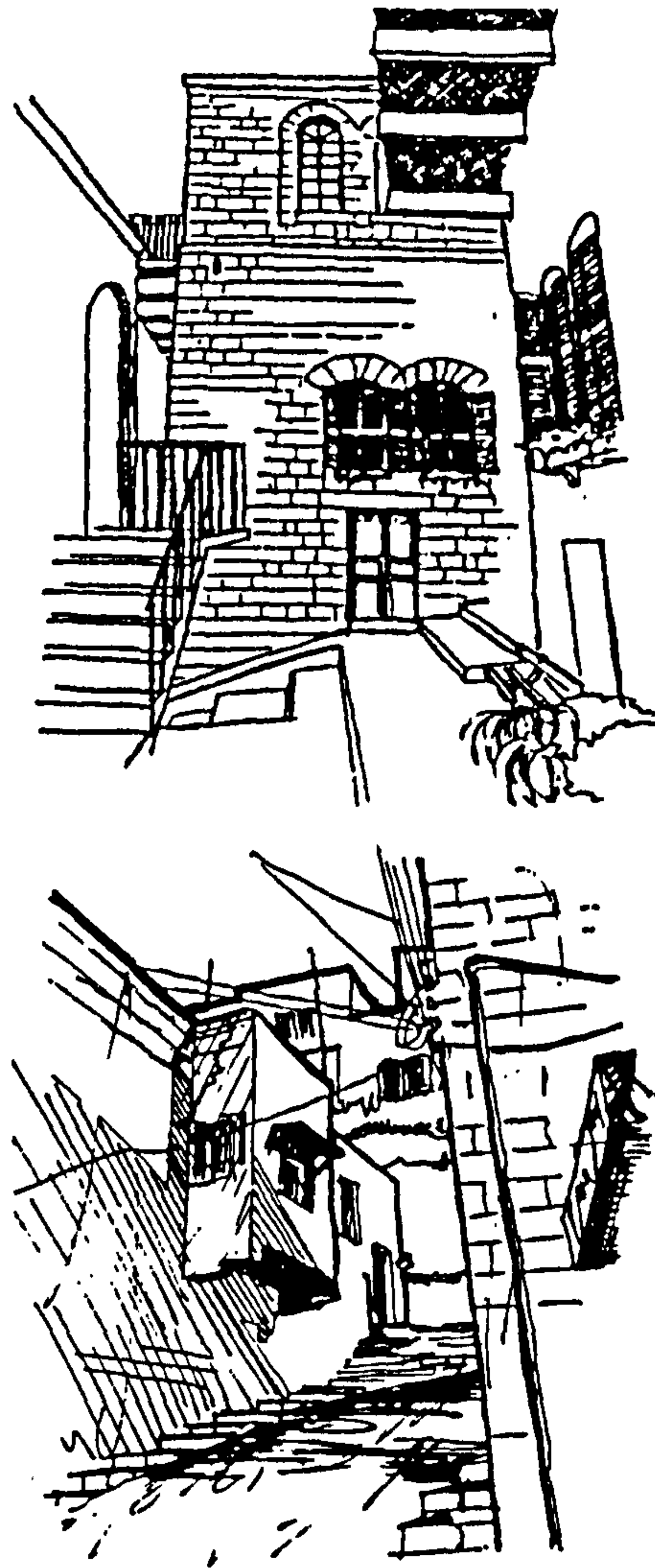


Figure 7.7: Al-Khader stairway: General views.

Source (of upper sketch): Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, p.180.

There are a few ramp-like steps that form an easy and comfortable method of stairway climbing. There are no pedestrian or service ramps within the stairway. However, it is quite difficult to provide for pedestrian ramps as the width/length ratio is not enough to accommodate such ramps. The provision of service ramps that can ease transportation and carrying of heavy goods is possible. The stairway has interesting spacescape and rock walls highlighted by wild plants and trees, thus giving a fine ambience and coolness.



### 7.2.3 Al-Haddadin Area

*Al-Haddadin* area is characterised by its residential buildings that are grouped around a two-branch stairway connecting the Great Mosque Plaza and the Citadel hill (Figure 7.8). The stairway is the only access to most of the area's buildings. It has a well-defined urban space surrounded by buildings and boundary walls that form the approach to the various open spaces leading to all the houses in the area. The buildings are generally directly accessible from the stairway (Figure 7.9). Some buildings, however, have front yards surrounded by stone walls with elevated entry spaces.

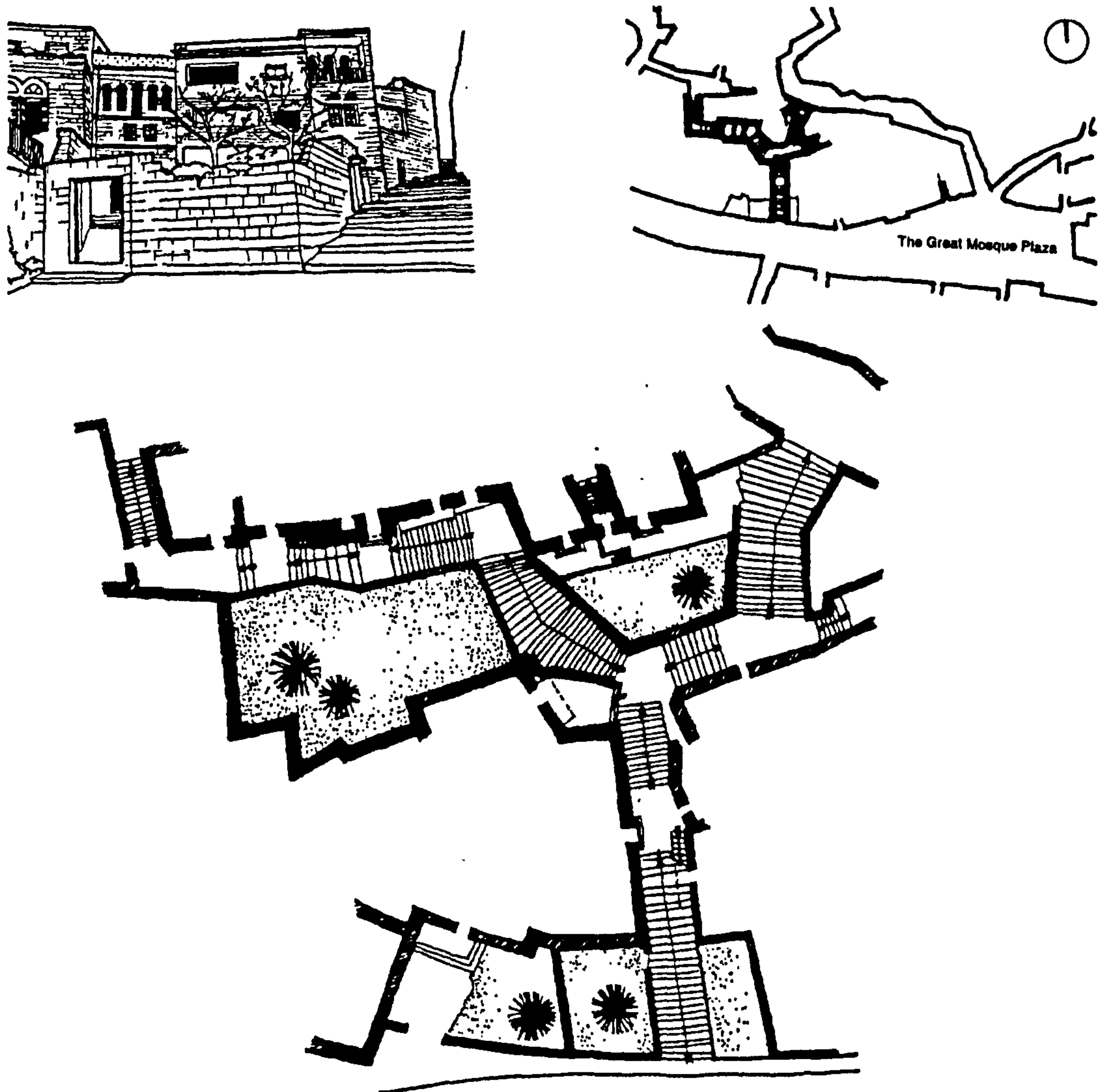


Figure 7.8: *Al-Haddadin* area.

Source: a. Upper sketch: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, p.173.

b. Map is revised and drawn by the author based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.71.



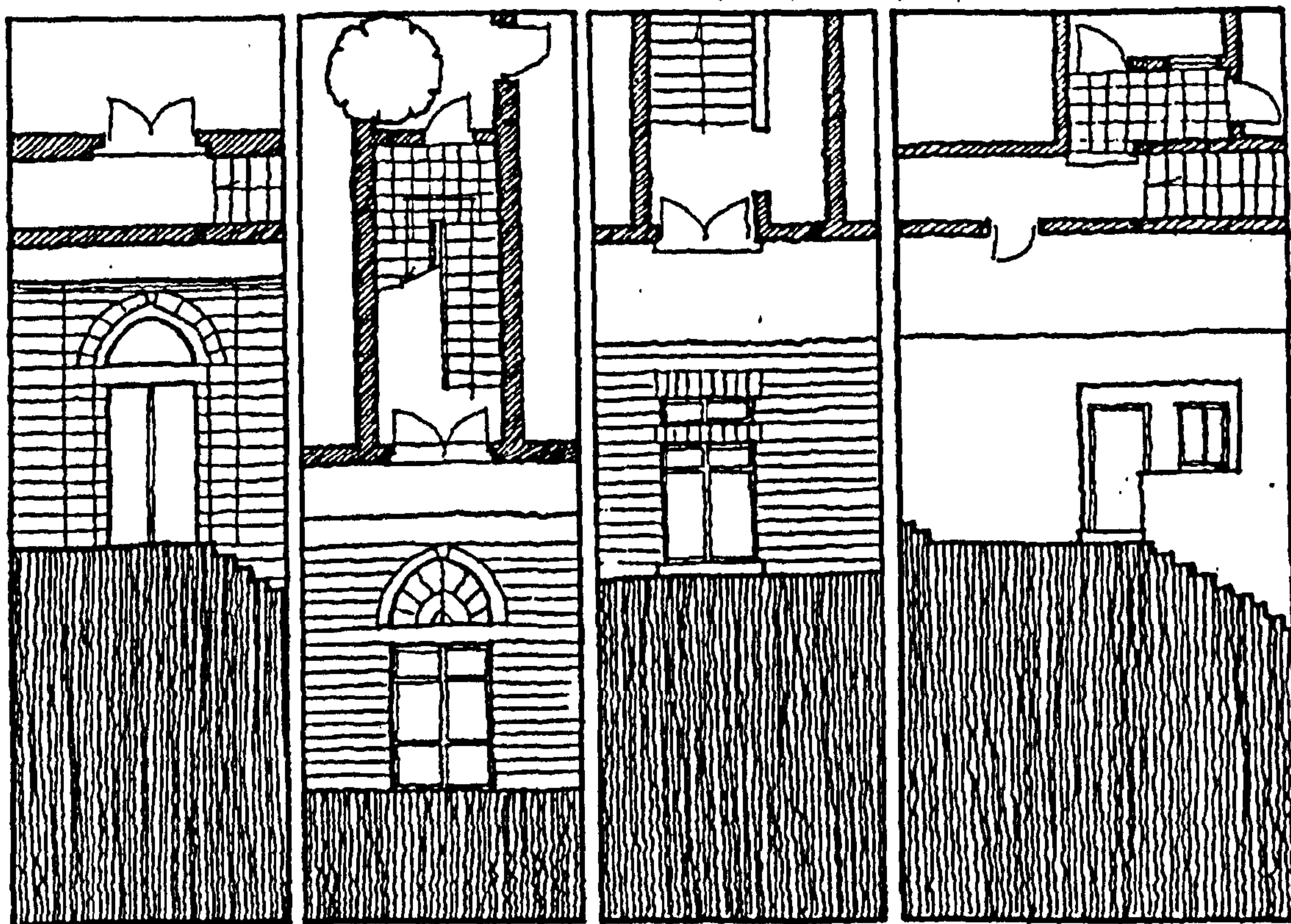


Figure 7.9: The buildings are directly accessible from the stairway or through front yards surrounded by stone walls with elevated entry spaces.

A strong sense of enclosure engulfs one ascending to the area from either of the stairway branches that bend and change direction. This sense of enclosure is given by walls that are a mixture of two and three storey buildings (Figure 7.10). A different sense of enclosure is experienced while descending the stairway, where the view opens up to a remarkable scene of SCC with the minaret of the Great Mosque dominating the view.

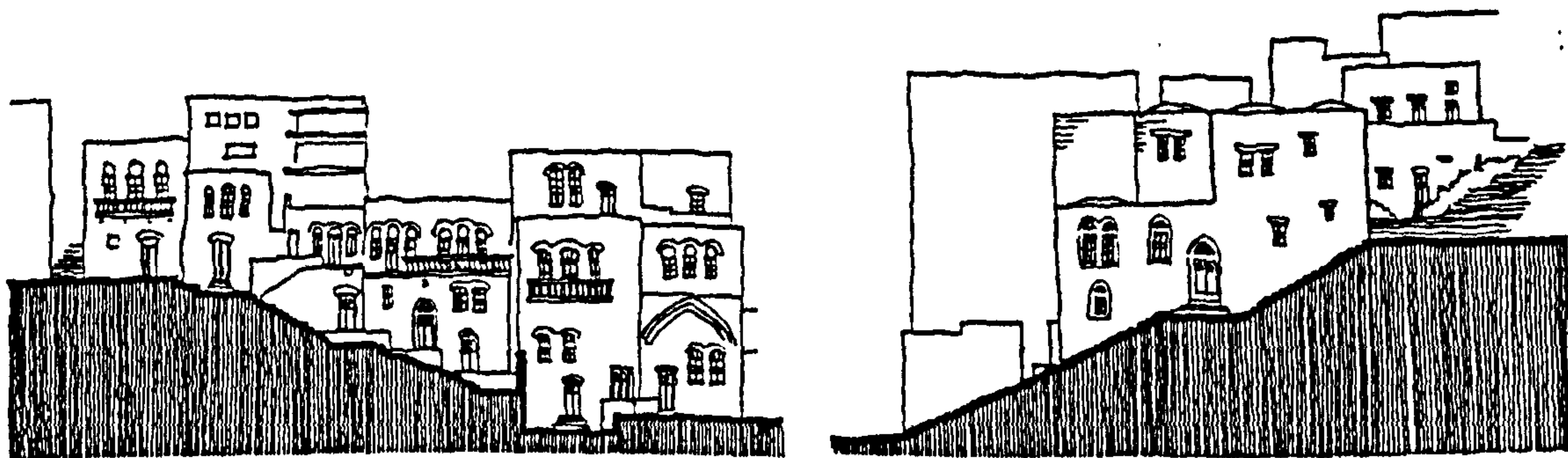


Figure 7.10: This sense of enclosure is given by the building walls and elevations that are a mixture of two and three storey buildings.

Source: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.73.



The buildings appear to have been built during the period of 1900 to 1918, with few later additions apart from the very few intrusive recent concrete infill buildings. The architectural quality of the old buildings is almost distinguished. The spacescape, however, seems to be generally rated as fair and low with a few exception of good rating in some sections. The spacescape, however, has three components. The first refers to public spaces, dominated by the stairway branches, and the open space in the middle of the area that provides vistas and panoramic view points. The second spacescape component is the sense of enclosure, as some of the facades dominate the spacescape. Green areas, mainly private gardens, make a vital contribution to the urban spacescape. Some of the individual trees can be identified as significant.

This potentially interesting, attractive and valuable mixture of buildings, spaces and landscaping is damaged in several ways. Due to the continuous lack of maintenance and new extensions, the external appearance gives an overall sense of distraction. Exterior maintenance and restoration are required including re-cladding, removal of paint and plaster, treating dampness, cracks and other structural faults. Furthermore, footpaths and steps are in poor condition. Worn-out steps patched every now and then with concrete layers add to the sense of deterioration. Intrusive utility poles and electricity overhanging wires also detract from the area's visual value. There is no clear system of pavement or treatment of steps. Another issue for consideration is the relationship between the stairway and the doors in the surrounding walls. The difference in level between steps and buildings' entrances is mainly treated with inappropriate concrete landings.

#### **7.2.4 The Great Mosque Plaza**

As an urban space the Great Mosque plaza has an imposing sense of place. Besides being a religious focal point, it is a landmark of a national and cultural importance, a retail commercial centre, as well as a traffic node (Figure 7.11). It is the hinge point of the three main streets of SCC: *Al-Hammam*, *Al-Deir* and *Al-Khader* streets. Once the plaza was surrounded with traditional buildings covering civic, religious and



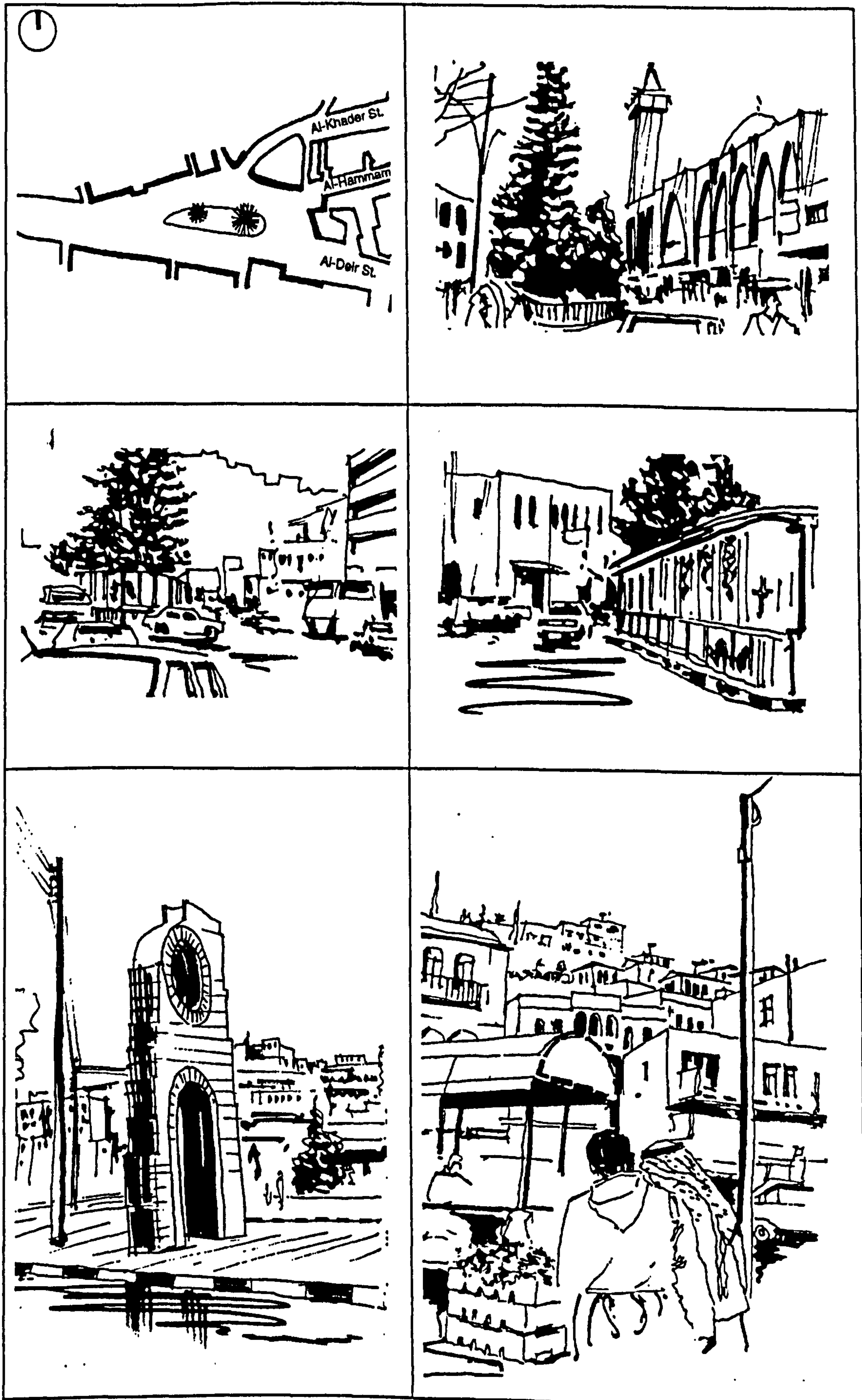


Figure 7.11: Besides being a religious focal point, the Great Mosque Plaza is a landmark of cultural and national importance, a retail commercial centre, as well as a traffic node.



administrative functions. All of these old buildings were replaced by new ones but maintaining the same important functions. These include the Great Mosque of Salt, the *Balqa* Region Governorate, the Directorate of Education and the Central Post Office (Figure 7.12). The presence of these buildings provides constant potential demand for vital and active space. Their architectural styles, however, contradict that of the nearby traditional buildings.

The dominance of the Great Mosque within the plaza enhances the inherent important feeling of the function it accommodates, the uses it serves and the meanings it conveys. In the 1970s, the mosque was enlarged and a new facade was added covering the original Ottoman building. However, such a large centre of activity is still strongly identified. The plaza continues its role as a major meeting place where seasonal national demonstrations and celebrations take place. It provides a symbolic destination and room for an audience along the way. The plaza is a preferred hangout for people of various ages and both sexes. It is a place where they can gather, talk and watch the world pass (Figure 7.13). Teenagers enjoy the nearby restaurants and coffee-shops. Aged people, however, use the open air coffee-shops where they sit at the edge of the action from where they can see and be seen but not be directly in the public way.

The deteriorated Ottoman Bathhouse (*Hammam*) had been used as a major communal place for Salt's women. It provided a place where women could spend their free hours and for children to play and enjoy the hot and cold water springs. Traditionally, water springs were important features of the plaza. A main water course came from *Al-Qala'* into the plaza, to form three covered springs and water fountains, one for men, another for women and the third for animals. The main water course then went under the Latin Church courtyard, into *Al-Maydan* Plaza and continued down to the Jordan Valley.



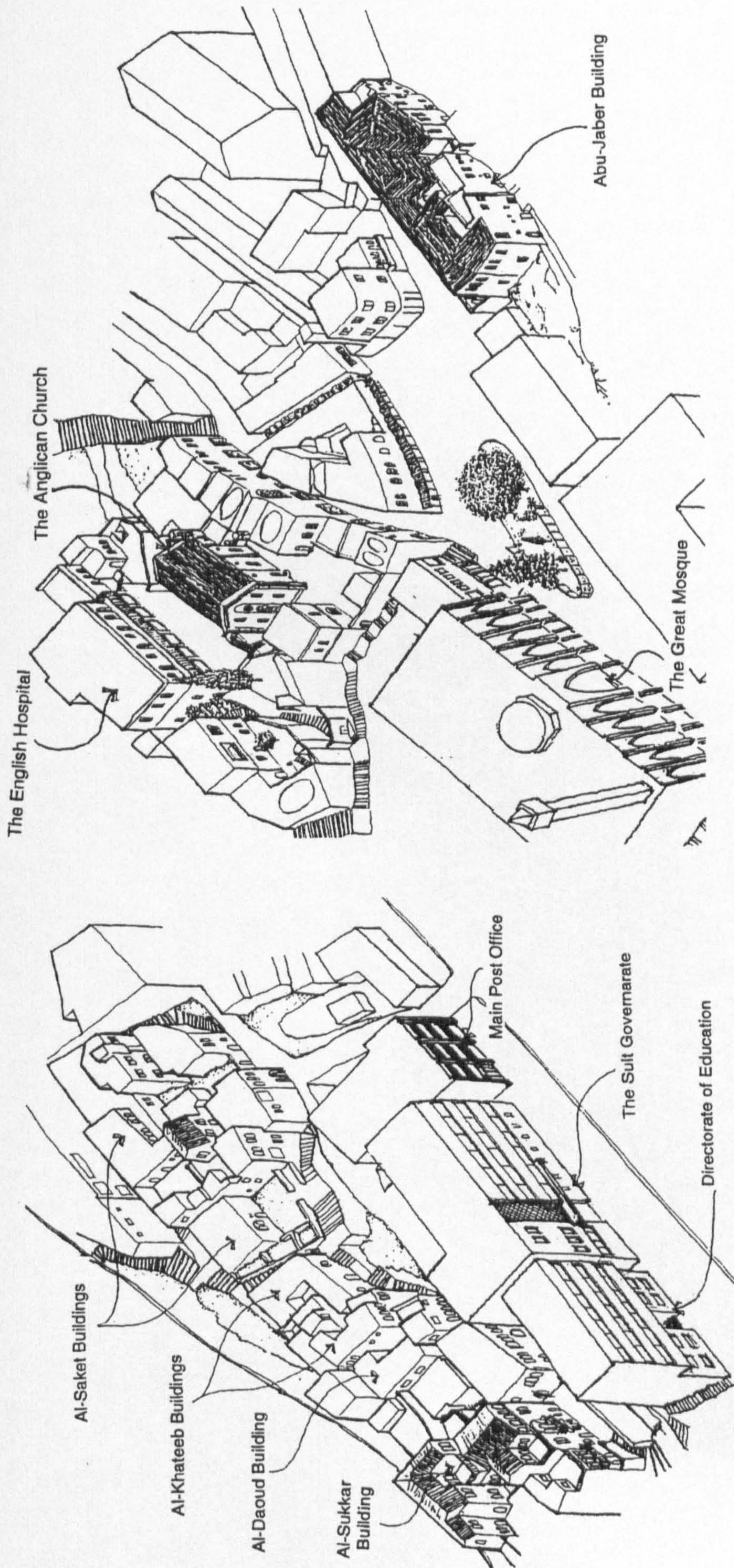


Figure 7.12: The plaza accommodates many important buildings including the Great Mosque of Sult, the Balqa Region Governorate, the Directorate of Education, and the Central Post Office.

Drawn by the author, based on drawings of solid masses in: *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: RSS, 1989, pages 75 and 121.



Figure 7.13: The Great Mosque Plaza is a preferred hangout for SCC people.



### 7.2.5 Abu-Jaber Building

*Abu-Jaber* building lies in *Al-Deir* street next to the Great Mosque Plaza (Figure 7.14). It is the largest old building at SCC. It can be considered as one of the most important buildings in SCC, both architecturally and historically. *Abu-Jaber* building is three-storeys high. It was built in stages during the 19th. century. No additions or major alteration have been made since 1906. The ground level is used for commercial uses which the upper floors used to accommodate the *Abu-Jaber* family<sup>4</sup>. The upper floors are currently vacant, as the owners donated the building to the Salt Municipality in order to be conserved and used as a cultural and heritage centre of Salt.

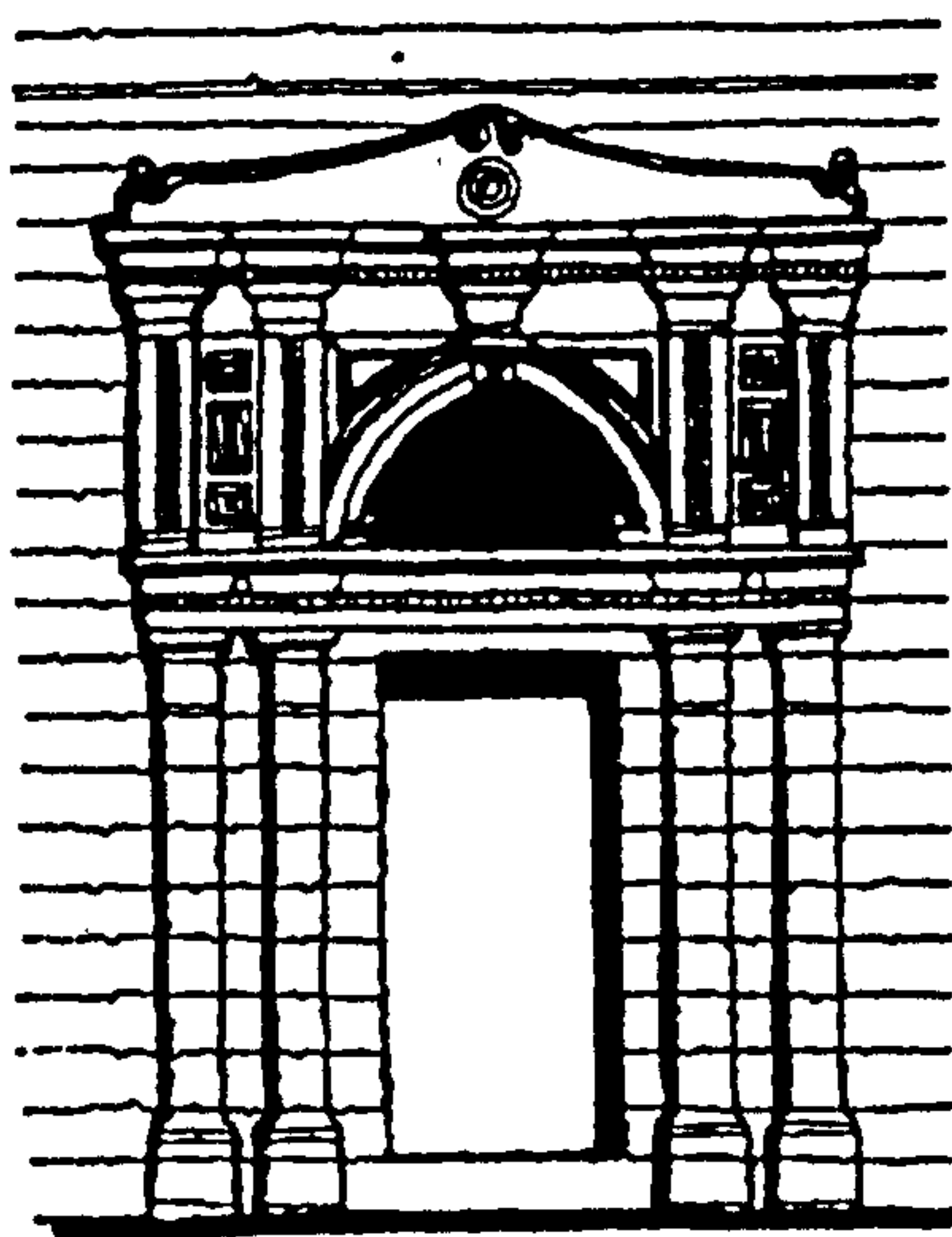
Figure 7.14: The scale of *Abu-Jaber* building, its massive effects, the variety of its building materials, all make it a distinguished building among the other old buildings of SCC.



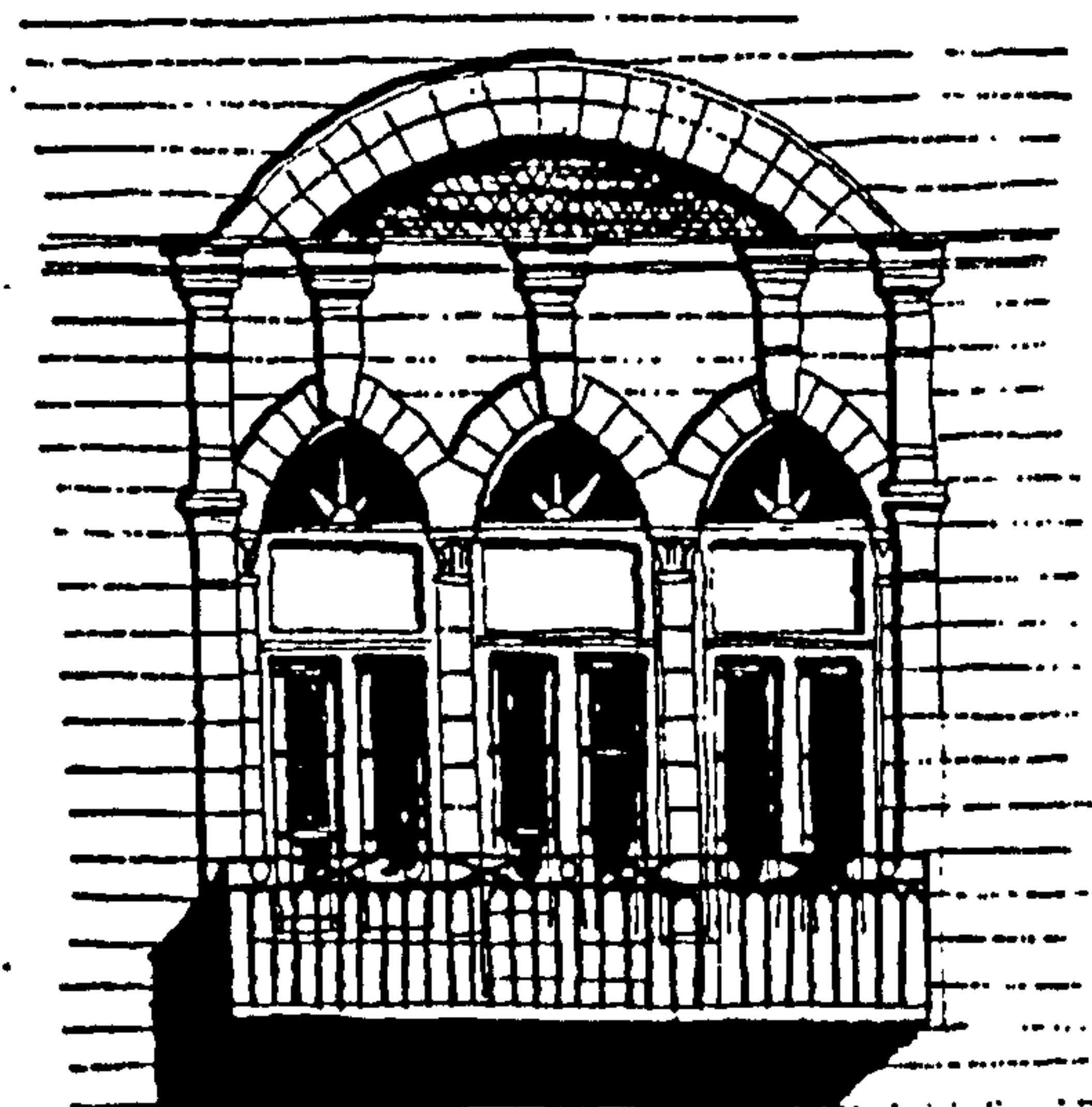


The building as a whole has a high urban value due to its location in the historic heart of the city. It has certain features of particular importance in urban terms. The scale of the building, its massive effects, the variety of building materials, all make it a distinguished building among the other buildings of SCC. Furthermore, the building witnessed one of the most important national events in the modern history of Jordan. It accommodated parts of the negotiations with the British, which culminated in the declaration of the State of *Trans-Jordan* in 1921<sup>5</sup>.

The quality of the exterior facades, especially the frontal facade facing *Al-Deir* street is high. This is manifested in its architectural features of rich and elaborated stonework, doors, windows, balconies, stained glass, metal work (Figure 7.15), as well as the screened terrace overlooking the Great Mosque Plaza. These features, however, are in a poor condition due to lack of maintenance. The major problem is the poor state of the red-tile roof where many tiles are missing. Other problems include defacement as well as dampness in elevations, especially the northern one.



a. The grand entrance to *Abu-Jaber* building.



b. One of the balconies at *Abu-Jaber* building.

Figure 7.15: The building has many architectural features of rich and elaborated stonework, doors, windows, balconies, stained glass and metal work.

Drawn by the author, based on: RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, pages 132 and 133.

The commercial section of the building, on the ground level, has been highly defaced. The shops have unsightly metal canopies protruding from above their doors. The rich stonework at one of the shops has been covered by cheap ceramic tiles.



Some have wooden mezzanine extensions hiding the internal view of the cross-vaults. The internal conditions of the building, in general, is better than the external one. The internal space owes its high spatial quality to the vaulted and cross-vaulted ceilings as well as to the visual interactions between various spaces. It has luxurious and charming finishes including interesting floor and wall marble tiling of rich *Arabesque* patterns as well as lively painting on walls, ceilings and wall niches. It would be appropriate to conserve this building and convert it, as intended, into the heritage centre of Salt. It would be the initial focus for conservation in SCC that could provide an example for future projects.

### 7.2.6 The Valley Boundaries

SCC valley has very clear topographic edges (Figure 7.16). A strong sense of enclosure engulfs one walking through the valley of SCC (Figure 7.17). The valley form of the area together with the steep slopes of the surrounding hills gives it clear boundaries. These boundaries characteristically have directional qualities based on the impressions of the direction and location of landmarks.

It is hard to trace distinct edges of SCC's localities as most of them are integrated and connected in a unique harmonic relationship. However, the structure of its streets and open spaces provided them with clear and distinctive edges. The height, width and layout of SCC streets

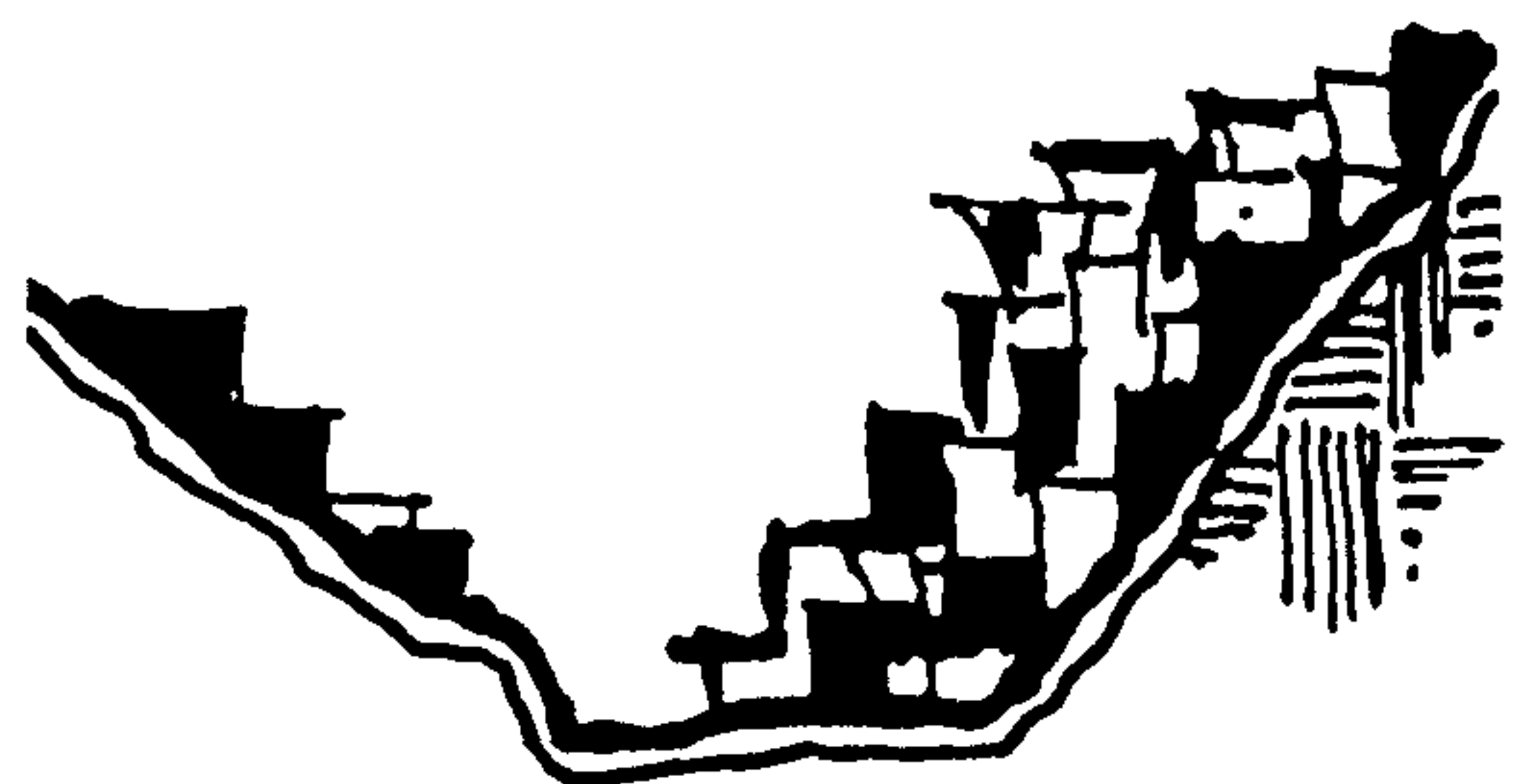


Figure 7.16: SCC valley has very clear topographic edges.



Figure 7.17: A strong sense of enclosure engulfs one walking through the valley of SCC.



and open spaces greatly affects their spatial character. Variations in these dimensions strongly determine the sense of enclosure that a user may experience.

### 7.3 Summary of the Chapter

The visual appraisal of SCC focused on the nature of behaviour as a way for evaluating the visual performance of SCC. It concerns watching sample areas within SCC using a visual-impact checklist based on the five visual performance dimensions of: identity, order, variety, structure and fitness. Users were involved in helping the researcher to choose these sample areas based on Kevin Lynch's theory of city image. The sample areas represents SCC's key physical elements of pathways, localities, nodes, landmarks and edges.

Most of SCC's streets are multi-functional with concentration of commercial activities which are stimulated by the life and movement of the pedestrians. SCC streets and pathways vary in length, cross section, shape, character and function. They play a major role in access and orientation of the city circulation network. Recent transformations are affecting the visual performance of many of SCC's streets. *Al-Khader* street, for example, has been subjected to a widening scheme undergoing basic changes to its envelope, fabric, movement, sequence and overall organisation.

Stairways are important part of SCC's urban network. They act not only as pathways but also as nodes where various activities can prevail. *Al-Khader* stairway, for example, is characterised by its irregularity in movement, incline and definition. It has interesting spacescape and rock walls highlighted by wild plants and trees, thus giving a fine ambience and coolness.

SCC localities are considerably interrelated and seem not to have distinctive limits. *Al-Haddadin* area is characterised by its residential buildings that are grouped around a two-branch stairway. A strong sense of enclosure engulfs one ascending the area



from either of the stairway branches that bend and change direction. This potentially interesting, attractive, and valuable urban mixture of buildings, spaces and landscaping has been allowed to decline through neglect.

The Great Mosque Plaza is a religious focal point, a landmark of national and cultural importance, a retail commercial centre, as well as a traffic node. The traditional buildings which surround the plaza have been replaced by new ones but maintaining the same important functions. Unfortunately, the current transformations at *Al-Maydan* Plaza changed it into a mere traffic utility

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SCC is an area of visual hierarchies and many prominent visual features. Certain old buildings are considered by many as landmarks for their prominent location as well as their importance to the inhabitants. The scale of *Abu-Jaber* building, its massive effects, and the variety of building materials all make it a distinguished building among the other buildings of SCC. It has distinguished architectural features of stonework, doors, windows, balconies, stained glass and metal work. Some parts of the building have been highly defaced affecting these elaborated and rich features.

The topography as well as the structure of the streets and open spaces provided SCC with clear and distinctive edges. However, SCC's localities have a mixed character that has no distinctive boundary limits. They gradually taper off and blend into other nearby localities.

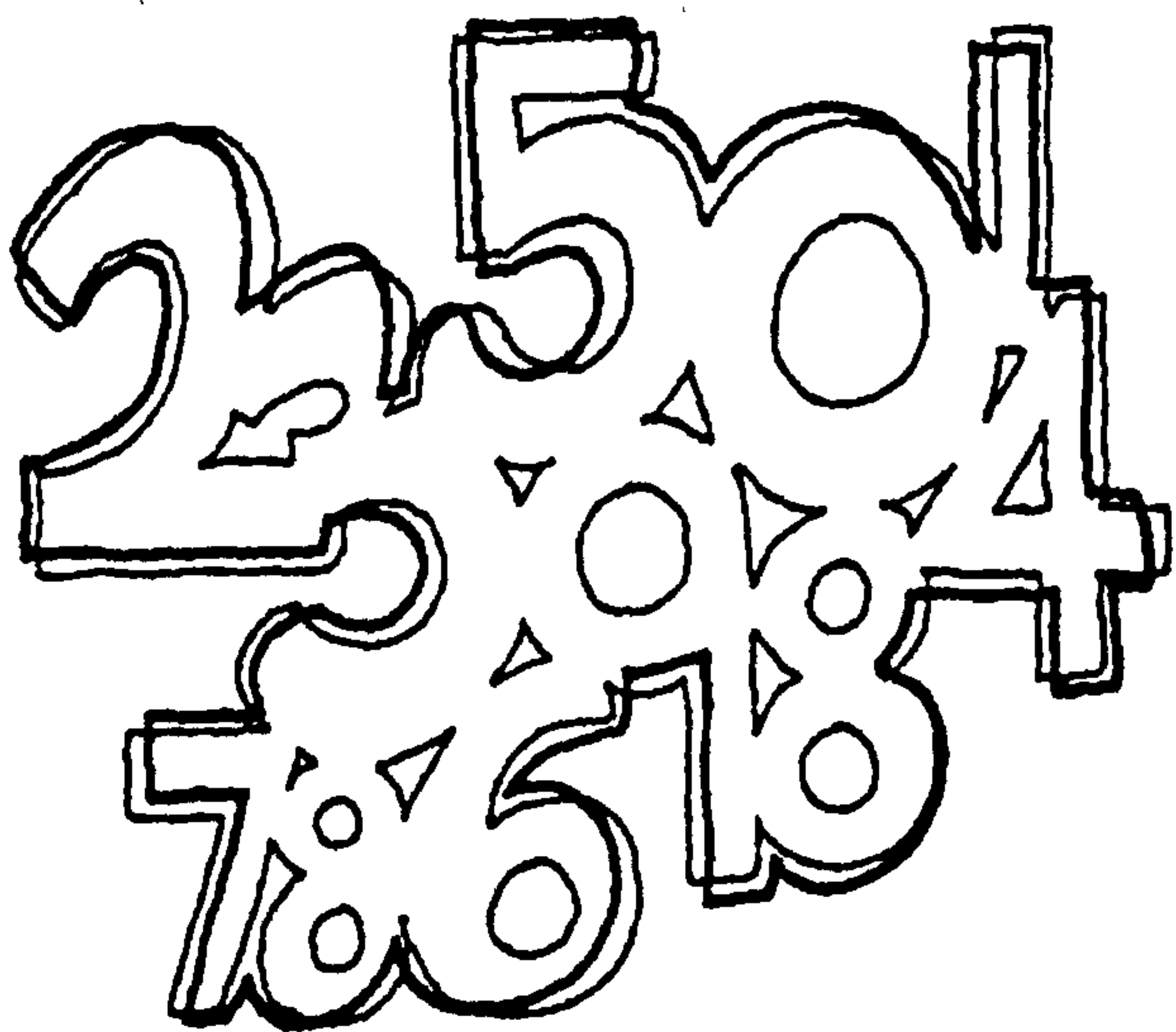
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1. Lynch, Kevin., *The Image of the City*, Cambridge, Massachusetts: The MIT Press, 1960, pp. 46-83.
  2. Al-Zoabi, A. Y., *City Images: A Case Study of Salt, Jordan*, Un-published Ph. D. Dissertation, Nottingham: University of Nottingham, 1993, pp. 250-258.
  3. Lynch, 1960, op. cit., pp. 46-83.
  4. SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 2, pp.1-20.
  5. RSS, *The Architectural Heritage of Jordan: Salt* (in Arabic), Amman: The Royal Scientific Society Press, 1989, p.115.



**Chapter VIII**

**THE QUESTIONNAIRE ANALYSIS**

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## Chapter VIII

# THE QUESTIONNAIRE ANALYSIS

### 8.1 Introduction

The previous two chapters report the findings of the indicative and investigative evaluations at SCC. This chapter reports on the results and findings of the diagnostic evaluation, i.e., the questionnaire survey. The questionnaire survey served as a systematic way of seeing and assessing the spatial and formal qualities of SCC from the point of view of user preferences. It is the first survey of visual performance conducted at SCC. A greater understanding of user responses to visual performance is needed for any urban development action in the area. The essence of the analysis is not mere counting but rather to arrive at explanations of the data obtained.

This chapter provides analytical explanations of data referring to three distinct issues. These are: i) the respondents; ii) their responses towards the visual performance of SCC; and iii) the variables representing the five visual performance dimensions. The data analysis aimed at fulfilling the objectives of the questionnaire concerning (see section 5.3.3):

1. The evaluation of the visual performance of Salt City Centre (SCC) in terms of the proposed five visual performance dimensions, i.e., identity, order, variety, structure and fitness.
2. Addressing the effect of user participation on users' satisfaction, as well as the differences in users' satisfaction.
3. Verifying the thesis and the case study hypotheses (see sections iii and 5.2.1).



Out of 425 forms distributed, 349 were returned with an 82% response rate. Six of the returned forms were excluded from the sample, thus the actual number of response forms used is 343, 153 forms (44.6%) from shopkeepers, 132 (38.5%) from householders and 58 (16.9%) from office workers. The majority of the respondents (207/60.3%) had not been previously involved in any user participation activity.

A discussion of respondent profile concerning the distribution of respondents according to their gender, age, living/working category groups as well as their previous involvement in user participation activities is presented in Appendix E (see section E.1). A comparison between the respondent profile and the target group population shows that this research sample can be considered as representative of the target group in terms of covering the different activities in the area (shops, houses and offices).

The difference between the sample and target group regarding age-groups is limited to those who are between 60 and 75 years old. This age group has a high illiteracy level that might affect their response to written questionnaires. However, differences were found between the sample and the male: female national ratio<sup>1</sup>. The limited participation of females might be due the commercial nature of the area where male involvement predominates. This also could be related to social influences of a male dominated society. The sample seems to allow for generalisation of results to the total population with certain reservations regarding gender. Accordingly, further studies in the same field are needed with emphasis on the role of women (see section 10.3.1).

## **8.2 The Visual Performance of Salt City Centre**

This section presents the responses to the visual performance of SCC as derived from the questionnaire survey. Respondent satisfaction was measured with reference to the five visual performance dimensions of identity, order, variety, structure and fitness. This is important to determine the hierarchy of the variables represented by these



dimensions, which, in turn, will help in establishing a visual policy for SCC. This will also allow the verification of the first hypothesis of this study, i.e., that "user participation will help to establish conceptual guidelines and practical visual policies for assessing design proposals for historic city centres" (see section iii).

### 8.2.1 Responses toward Identity

The respondents were asked three sub-questions to rate their responses regarding the identity of SCC on a five-point evaluation scale. The scale was set out with opposing concepts at either end. These three sub-questions cover the morphology, typology and character of the area. The replies to these questions showed that SCC has a distinctive architectural and urban identity (Figure 8.1).

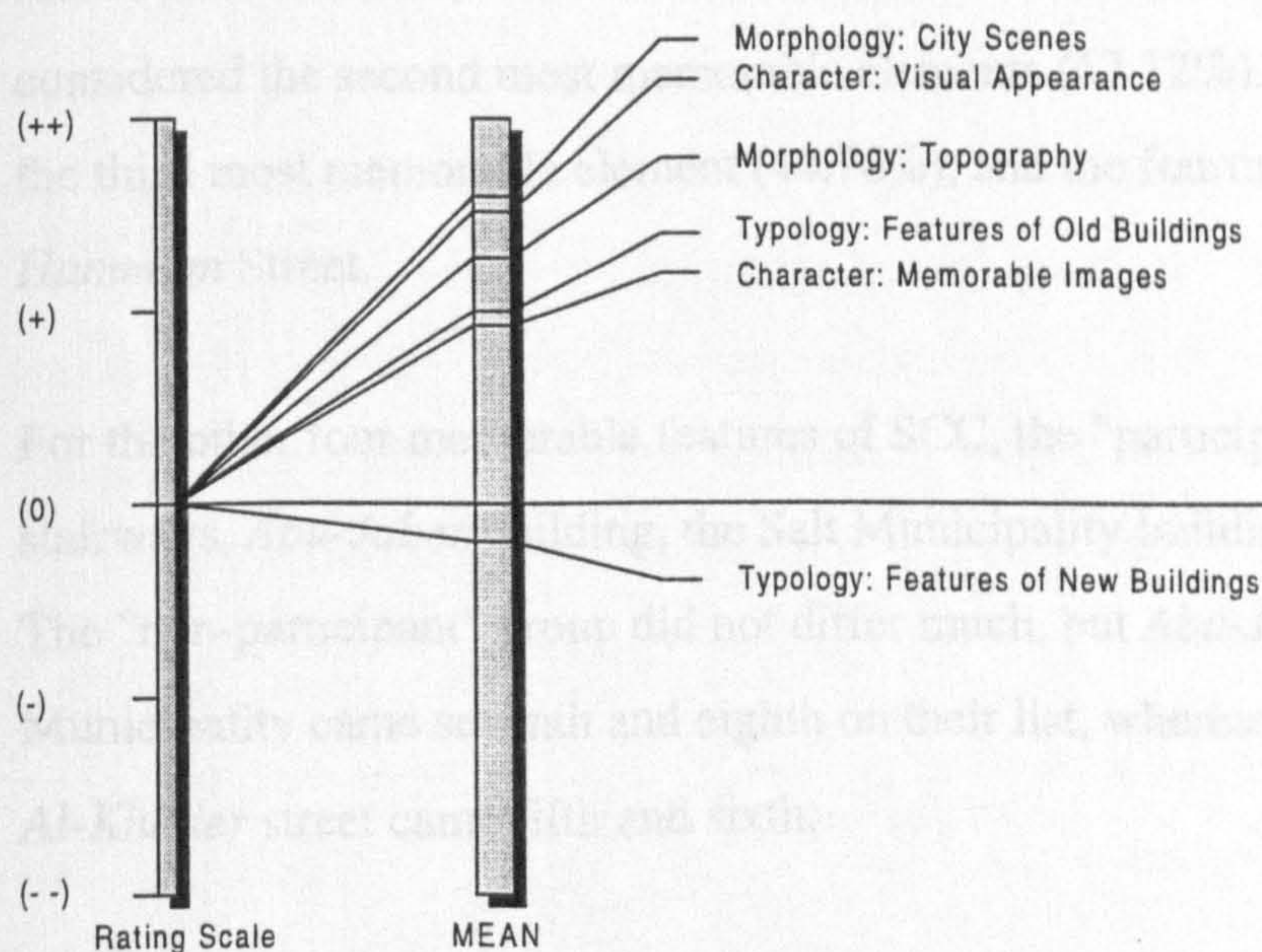


Figure 8.1: Responses toward identity at SCC.

Concerning "morphology", SCC's distinctive identity is reflected by the uniqueness of its topography and landform. This is further supported by the positive responses concerning the enjoyment derived from the observation of city scenes while ascending and descending its stairways. SCC's stairways give a great opportunity to experience the area's morphological patterns. Pedestrians moving about SCC's stairways can enjoy the various visual relationships resulting from their ever-changing position. Concerning "typology", it was found that old buildings are rated to



have more unique architectural features than new buildings. Accordingly, in any improvement plans more attention should be placed on the existing new buildings as well as in future developments.

Replies to questions concerning "character" considered SCC to have an outstanding visual appearance. Users were also asked to rate their impressions of the memorable images at SCC. The responses considered the area to have unique memorable images. To achieve better understanding of SCC's memorable images, the respondents were asked, through a open-ended question, to rank in order the most memorable elements in the area (Question 2). Both sub-sample groups, the "participants" and "non-participants", agreed on the first four memorable features of the area. Open spaces including plazas and small terraces on the hill slopes were considered the most memorable element (74.31%). The Landform and unique topography were considered the second most memorable elements (67.12%). The Small Mosque was the third most memorable element (44.76%), and the fourth element was *Al-Hammam Street*.

For the other four memorable features of SCC, the "participant" group considered the stairways, *Abu-Jaber* building, the Salt Municipality building and *Al-Khader* street. The "non-participant" group did not differ much, but *Abu-Jaber* building and the Salt Municipality came seventh and eighth on their list, whereas the Great Mosque and *Al-Khader* street came fifth and sixth.

### 8.2.2 Responses Toward Order

The "order" of SCC was evaluated through the replies to the various sub-questions concerning "regularity", "alignment" and "hierarchy" (Figure 8.2). Concerning "regularity", the replies showed that the heights of buildings give a feeling of intimacy and comfort to those who are passing-by in the streets and open spaces. Most of the replies to the questions regarding "alignment" tended to consider the facades on the pedestrian streets and stairways as more continuous in following the curve and slope of the street than those on vehicular streets.



8.2.3 Responses Toward Variety

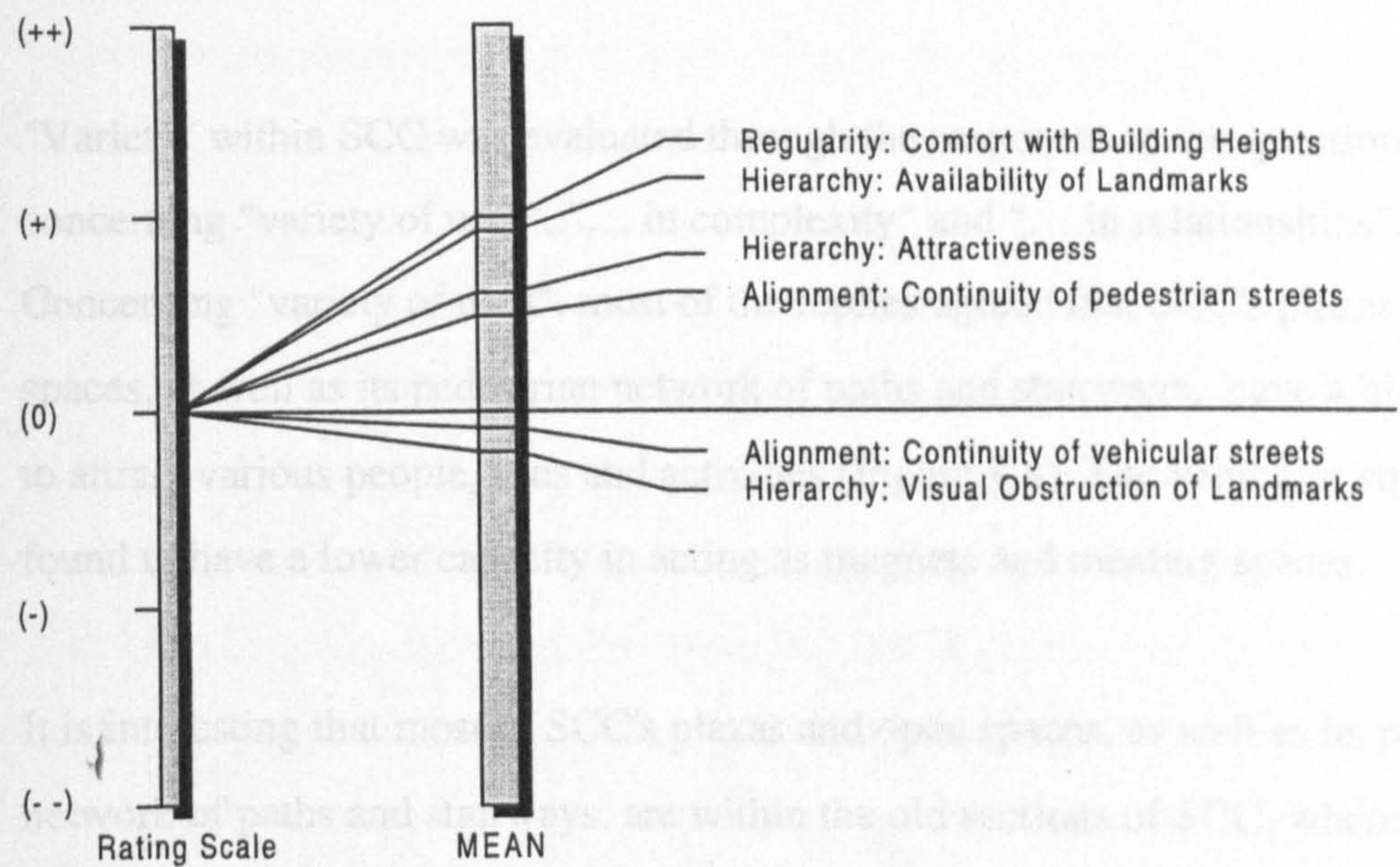


Figure 8.2: Responses toward order at SCC.

Concerning "hierarchy", the replies suggested that the topography of the area with its hills and valleys aided in creating different levels of visual hierarchies and dominance. These are reflected in the various visual clues that the topography offers (Figure 8.3). Such visual clues, in turn, helped to create a feeling of orientation in its plazas and open spaces, vehicular streets and pedestrian streets and stairways. It was found that some of the important landmarks of SCC are visually obstructed, i.e., not visible due to new constructions obstructing their views.

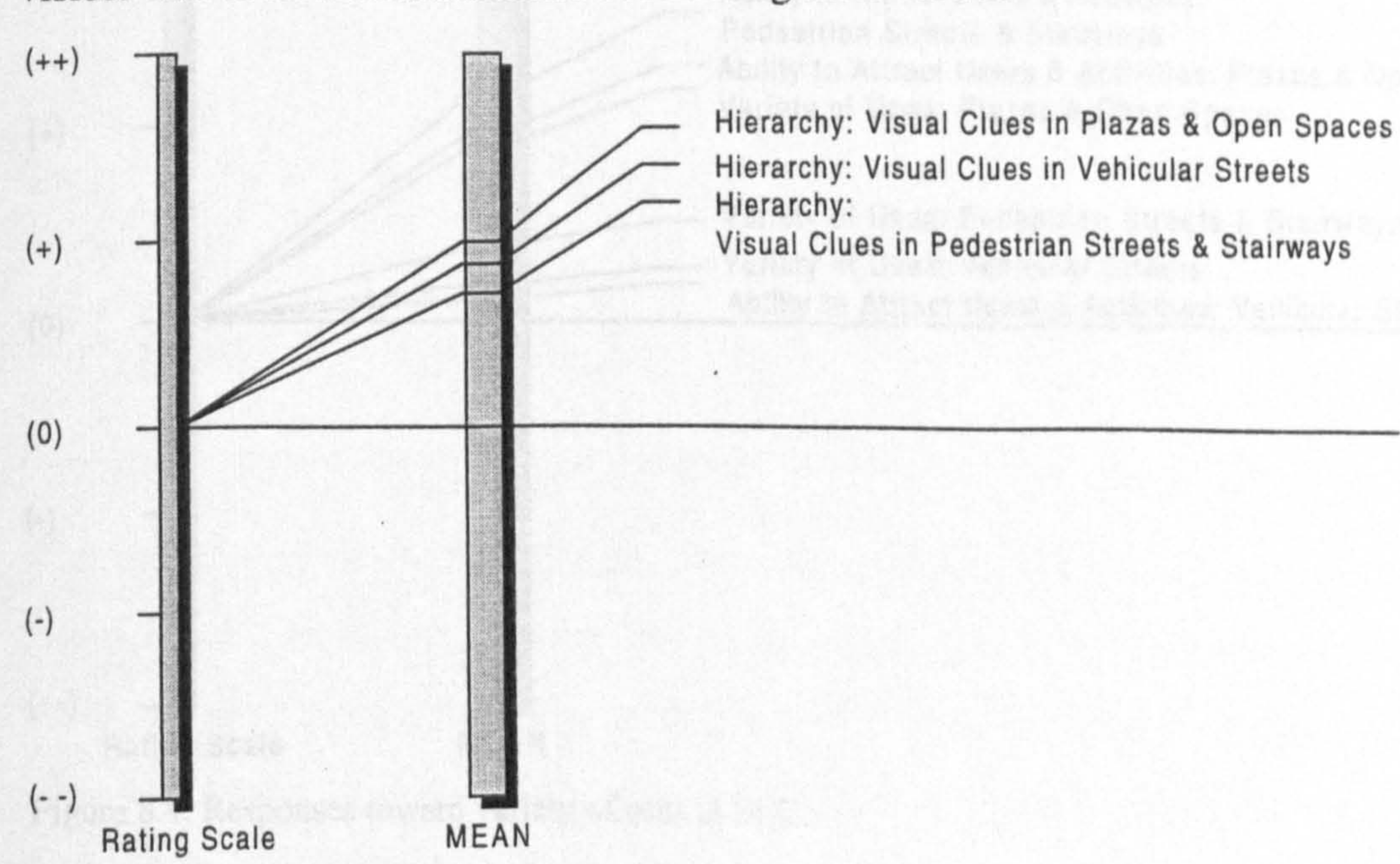


Figure 8.3: Responses toward hierarchy at SCC.



### 8.2.3 Responses Toward Variety

"Variety" within SCC was evaluated through the responses to the questions concerning "variety of uses", "... in complexity" and "... in relationships". Concerning "variety of uses", most of the replies agreed that SCC's plazas and open spaces, as well as its pedestrian network of paths and stairways, have a high capacity to attract various people, uses and activities (Figure 8.4). The vehicular streets were found to have a lower capacity in acting as magnets and meeting spaces.

It is interesting that most of SCC's plazas and open spaces, as well as its pedestrian network of paths and stairways, are within the old sections of SCC, whereas the vehicular streets are within new sections. This may suggest that the old sections of SCC, with their various forms and activities, have a higher ability than new sections, to attract various people at various times and for various reasons. This is consistent with the findings of the indicative and investigative evaluations where users of the old parts of SCC were found to experience a sense of "variety in unity", while users of almost all new additions did not experience this aesthetic quality.

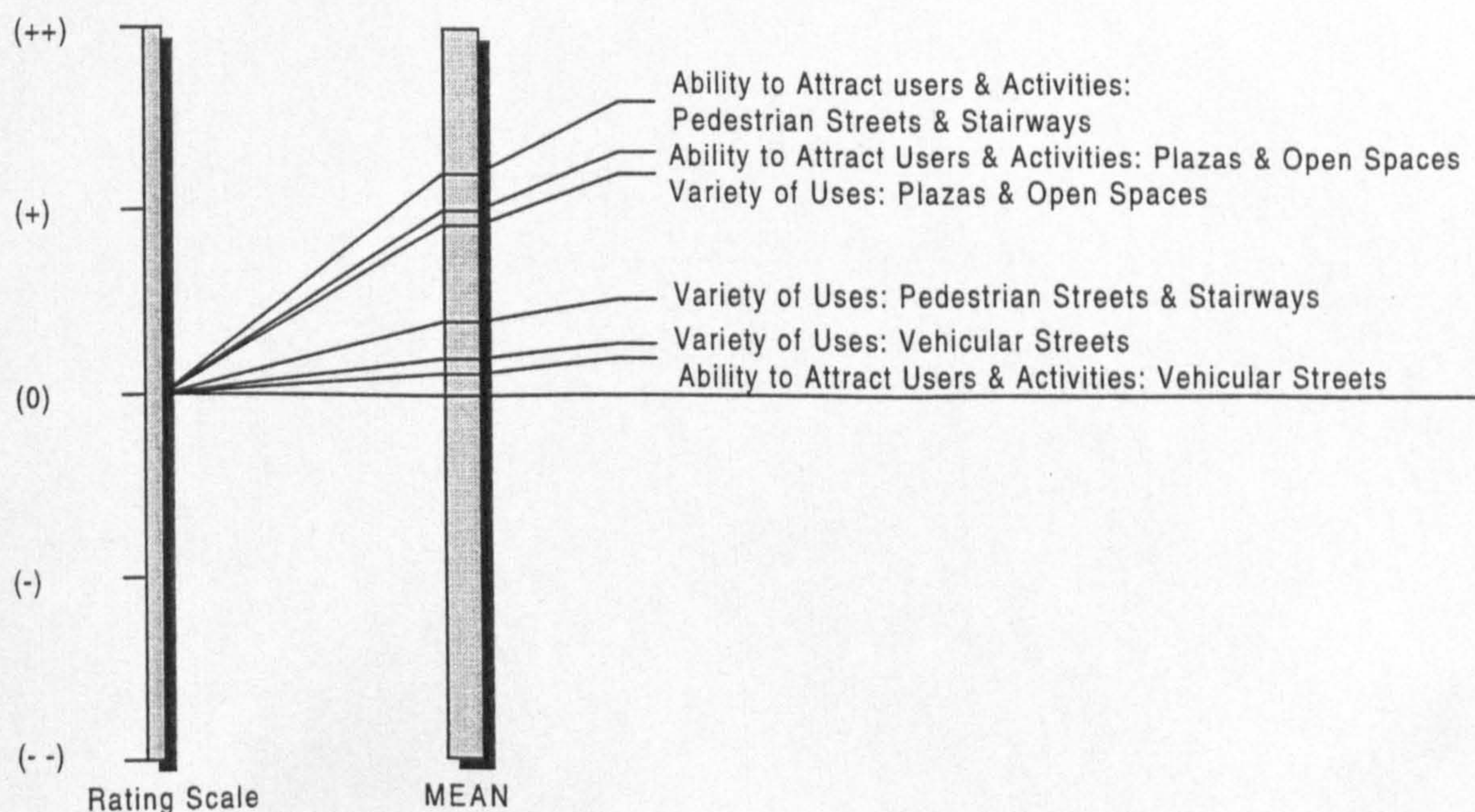


Figure 8.4: Responses toward variety of uses at SCC.



Concerning "variety in complexity", the replies indicated that the SCC has many places with emotional attachments that remind the respondent of some local or national event whether they are happy or sad (Figure 8.5). Moreover, the replies strongly agreed with the availability of visible historic traces at SCC's plazas and open spaces. A first impression may assume that the replies did not consider the modern nature of the majority of buildings accommodating the Great Mosque Plaza (see section 7.2.4). However, that plaza has strong physical and visual contacts with the neighbouring traditional spaces and buildings, such as *Abu-Jaber* building, *Al-Hammam* Street, as well as the whole traditional pattern of the townscape. This may suggest that the power of the pattern of the old townscape is greater than that of the architectural styles. This is also true for most of the small open spaces of SCC which offer panoramic view points from which many old buildings are visible.

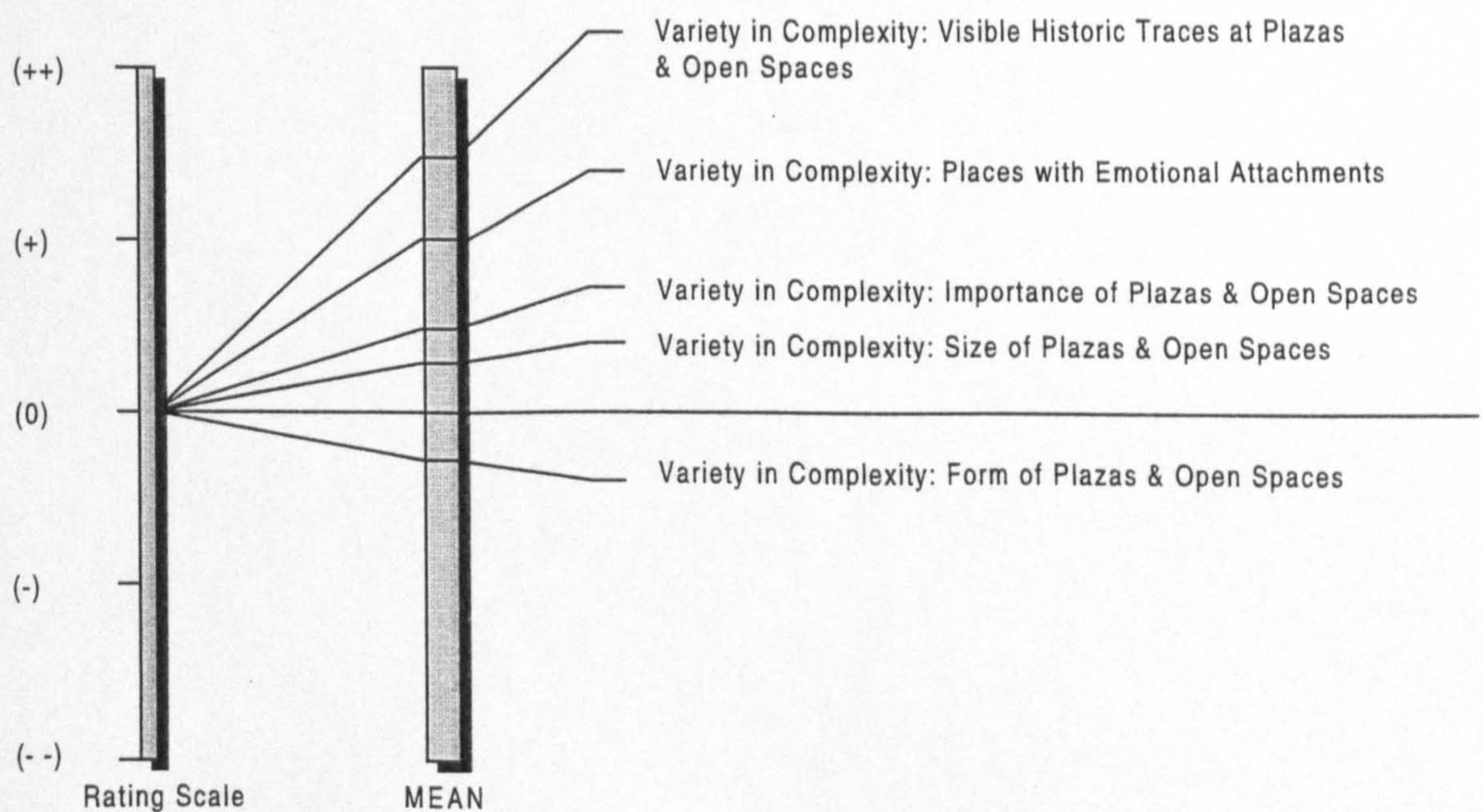


Figure 8.5: Responses toward variety in complexity at SCC.

Concerning variety in form, size and importance of plazas and open spaces, the indicative and investigative levels of evaluation showed that SCC has a variety of small and large open spaces (see section 6.2.4 C). Small open spaces, however, were considered to be similar, but not identical, in size and form. Such similarity is due to their settings along the hill slopes. Their settings also offer each of them a different role, use and inevitably, a different importance. This is consistent with the responses



regarding variations in importance of plazas and open spaces, as most replies considered the variation in importance as more noticeable than variations in size or form.

Concerning "variety in relationships", the responses strongly agreed with regard to the plentiful availability of vistas and panoramic view points in SCC's urban elements, i.e., plazas and open spaces, vehicular streets and pedestrian streets and stairways (Figure 8.6). However, the respondents found that the availability of such vistas is higher at pedestrian streets and stairways, as well as at plazas and open spaces, than at vehicular streets.

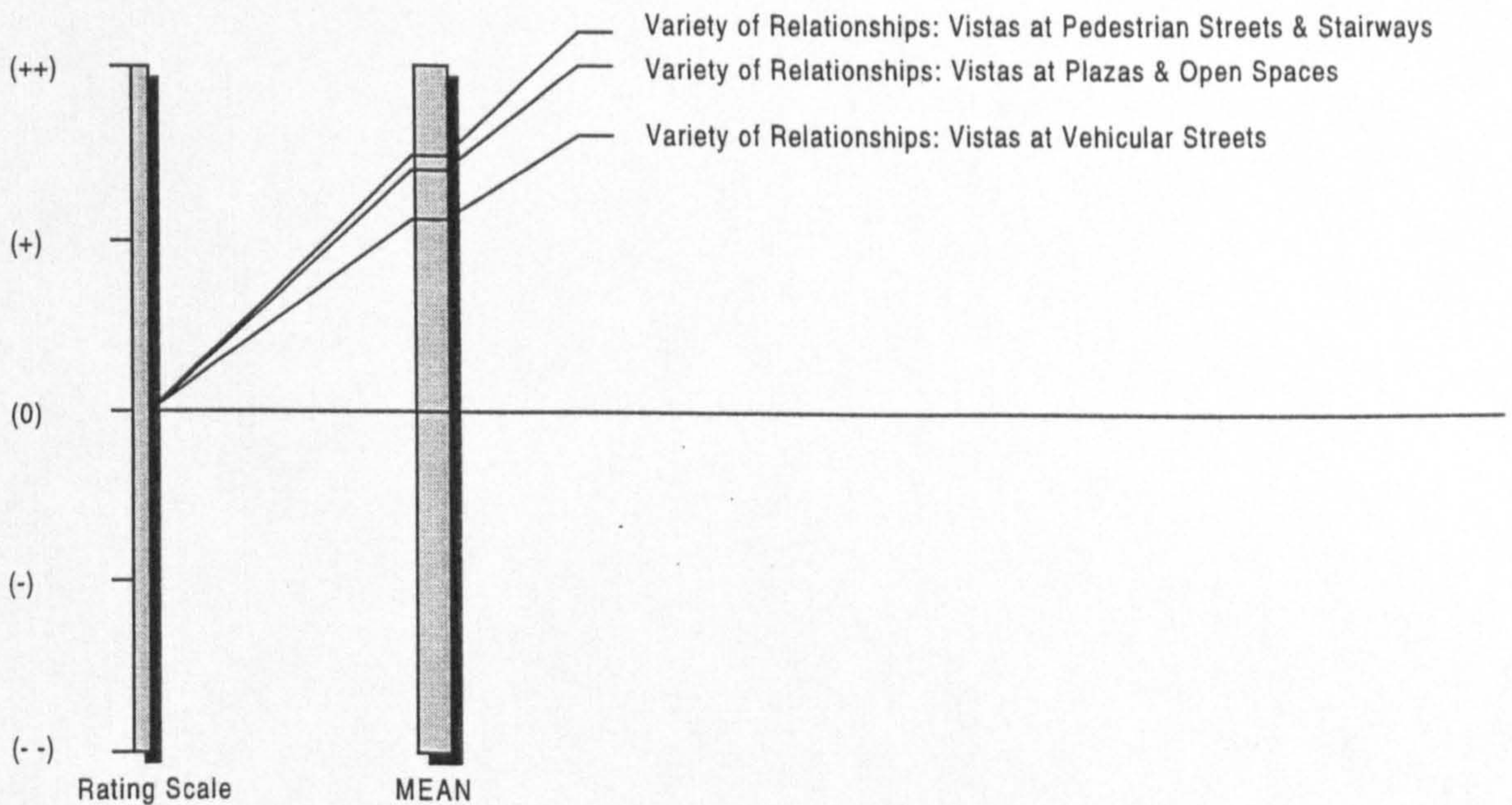


Figure 8.6: Responses toward variety in relationships at SCC.

#### 8.2.4 Responses Toward Structure

The "structure" of SCC was evaluated through the replies to the various questions concerning the variables that represent this visual dimension, i.e., "spatial orientation", "visual inertia" and "enclosure". Concerning "spatial orientation", the users were asked to rate their opinions about how easy it was to find one's way in SCC's open spaces, vehicular streets and pedestrian streets and stairways respectively. The replies strongly suggested that it is easy to find one's way at SCC's



plazas and open spaces. However, finding one's way in SCC's pedestrian streets and stairways was more difficult than that in plazas and open spaces. The replies suggested that SCC's vehicular streets are the easiest urban element to find one's way in among all other tested key physical elements (Figure 8.7).

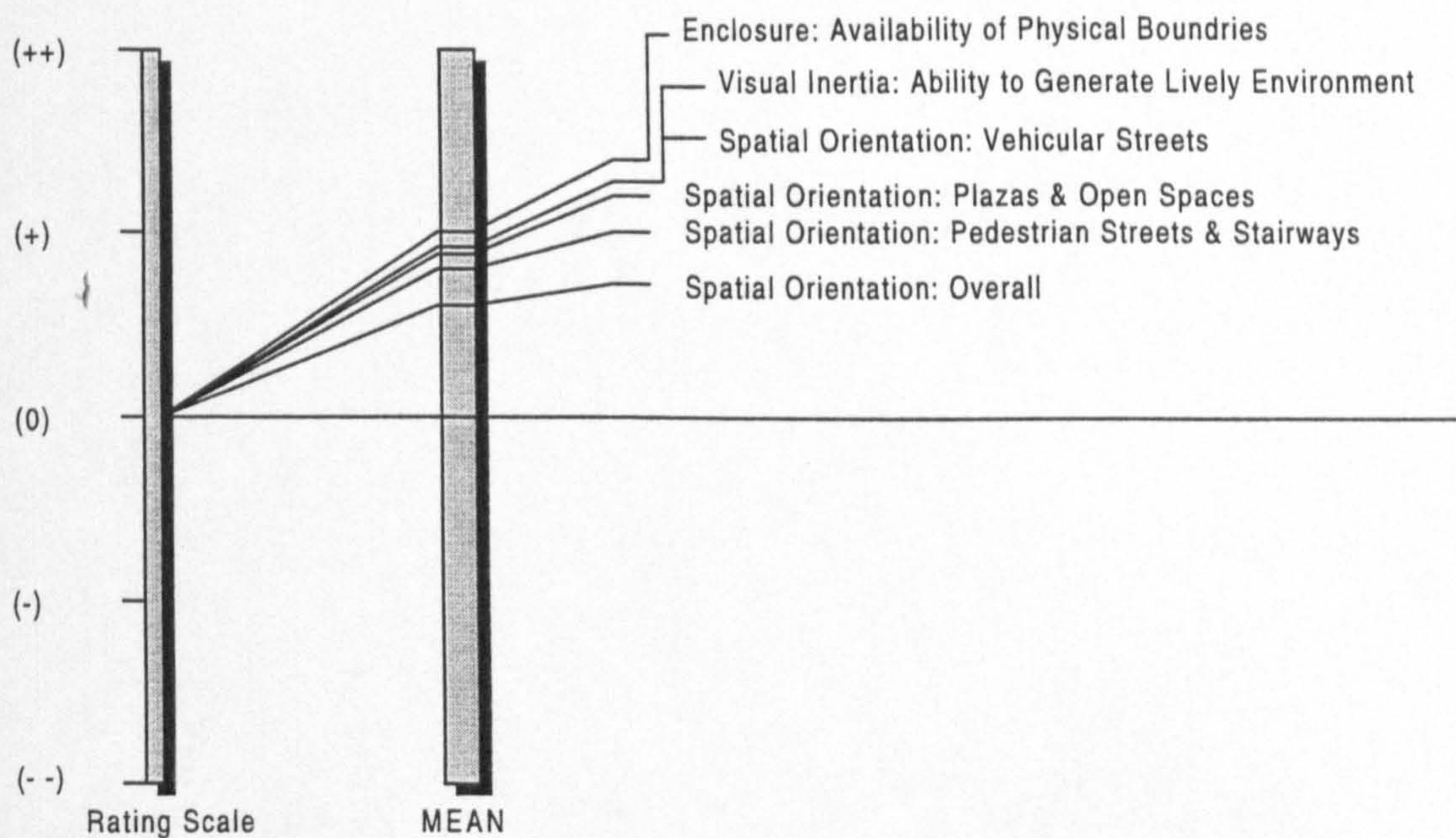


Figure 8.7: Responses toward structure at SCC.

These findings are consistent with the responses concerning the availability of visual clues in these physical elements of SCC. SCC's physical elements found to have plentiful visual features that act as visual clues which help respondents find their way in SCC (see section 8.2.2).

SCC's spaces promote dynamic and kinetic experiences where monotony and boredom do not exist. They clear visual and physical edges manifested by the slopes and landform. The legibility of form and use made SCC's users able to form clear and accurate images of its spaces, routes and buildings.

### 8.2.5 Responses Toward Fitness

"Fitness" as a visual performance dimension referred to the degree to which the area matches and fits the natural and the built environments (Figure 8.8). Concerning the



natural environment, the users' replies considered a high match and fit between SCC's urban pattern and landform. The replies indicate that old buildings match the topography more than new ones. However, the responses regarding the adequacy of the size of green areas showed that SCC lacks sufficient green spaces.

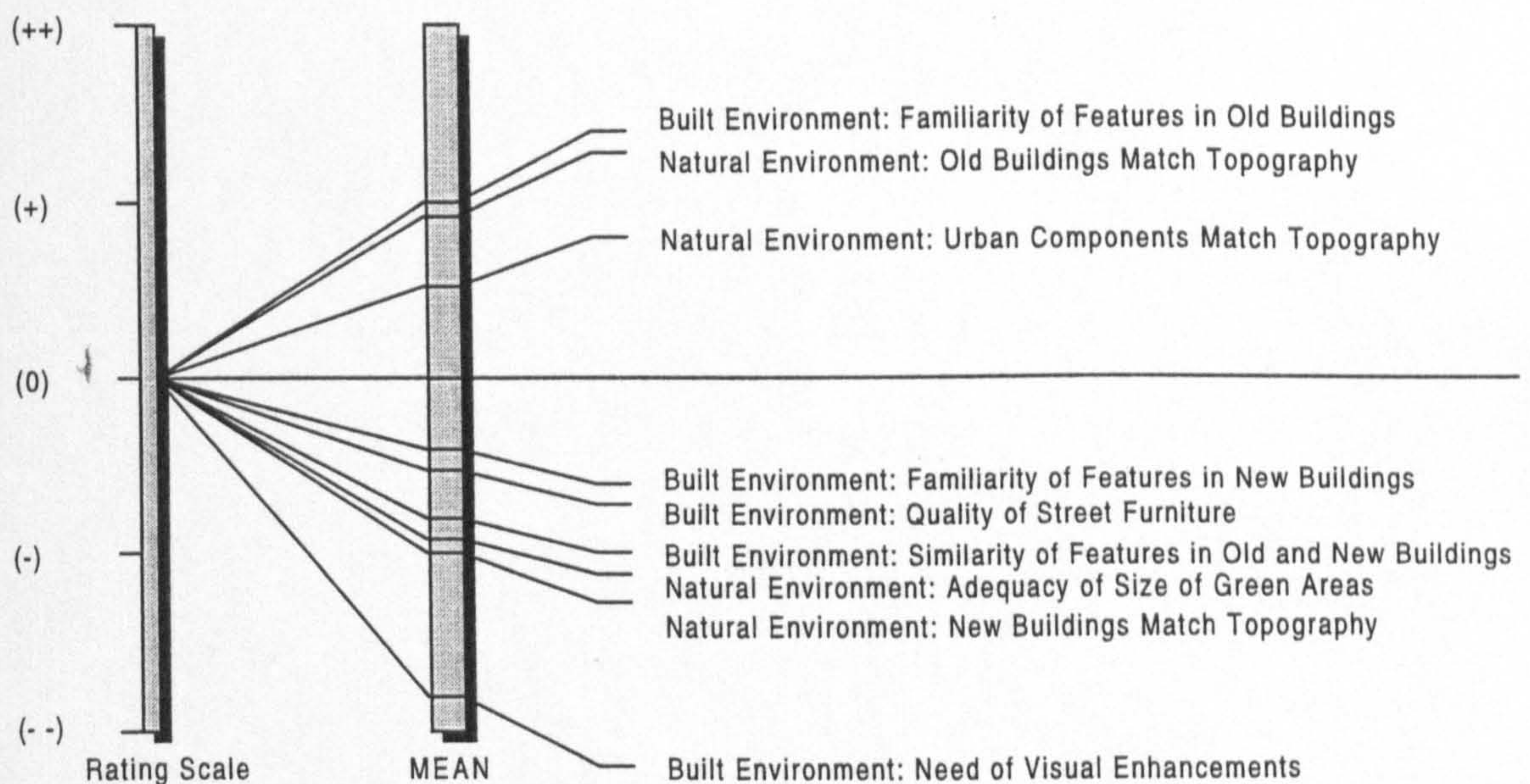


Figure 8.8: Responses toward fitness at SCC.

Concerning the built environment, the familiarity of the features of old and new buildings was examined. These included styles, forms, textures, colours and building materials. Old buildings, however, were found to have familiar features whereas new buildings were considered to have unfamiliar features. These were consistent with the replies regarding the degree of similarity between old and new buildings. These replies considered the degree of similarity between old and new buildings to be below average.

The quality of street furniture of SCC was considered unattractive. Moreover, the respondents tended to agree on the need for visual enhancements. Visual enhancements include stone facade cleaning and maintenance, upgrading the appearance of the vacant blocks and other measures. These replies are consistent with the findings of the indicative and investigative evaluations which suggests that the current conservation measures to important old buildings are not totally



appropriate and should be modified and enhanced. Vacant lots and incomplete constructions were considered to be sources of visual pollution and danger as they are used for dumping.

### 8.2.6 Hierarchy of Responses Toward the Visual Variables

The idea of involving the users in shaping their built environment has gained support from many researchers and practitioners, and opposition from others<sup>2</sup> (see section 1.3.3). The opposing position considered that the users' lack of necessary expertise will lead to chaos and will create poor designs. Supporters argue that people need to participate in planning their own environment to be satisfied. This study involved multi-level evaluations, indicative, investigative and diagnostic. It aimed at dealing with the urban environment from multiple interests, i.e., learning from the experience of the users while not excluding focused expert experience.

The previous discussion provided an analytical explanation of the users' responses toward the visual performance of SCC. In general, the replies rated the visual performance of SCC to be fair to good. The replies indicated general satisfaction with regard to the various open spaces, wide range of activities, the pedestrianization of *Al-Hammam* street, as well as SCC topography. Most of the respondents, however, indicated reservations concerning the unsympathetic changes made in the area. They also stress the limitations of green areas, the unattractive street furniture, as well as the need for visual enhancements.

To build a broader view of the users' opinions and desires, they were asked to name the visual enhancements that they hoped would be implemented at SCC concerning buildings, streets, stairways, open spaces and other urban elements (Question 9). This question was aimed at understanding users' personal relationship to their area by making explicit their hopes for the future. The respondents recommended certain visual enhancements in their replies. Regarding buildings, most of the responses stressed the need for maintaining old buildings and converting them in order to accommodate contemporary requirements. The respondents, however, had



reservations concerning the use of the white Ammani stone and concrete in the new buildings that have invaded the area and threatened its character.

The answers indicated the success of the pedestrianization scheme at *Al-Hammam* street and wish for the improvement to other streets to accommodate pedestrians. The respondents indicated the importance of stairways in the area, and asked for the improvement of the physical condition of steps, as well as enhancing the intermediate open spaces so as to accommodate various functions and resting areas. The answers also stress the need for a more suitable environment at the plazas and open spaces so as to attract different users and activities. Recreating *Al-Maydan* Plaza, which has been demolished through "development", was a common denominator of almost all the responses. This is consistent with the findings of the indicative evaluation which considered that the current "developments" converted *Al-Maydan* plaza into a poorly enclosed space with no identity (see section 6.2.4 C).

The obvious advantage of the questionnaire is that the generated information is concerned with the users' perceptions of the realities of the area and not with abstract theories about the area. User experiences of the area are important, because they have direct experience of it. As important are the opportunities that arise out of the various, and possibly opposing, interests and values. The data obtained from the questionnaire survey reflect the visual weaknesses and significance of SCC from the users' point of view. This conclusion is important in determining the hierarchy of the variables represented by the visual performance dimensions, which, in turn, will help in establishing a visual policy for SCC. A hierarchy of visual variables, however, can be listed as follows:

### **1. Visual weaknesses:**

The replies indicated the following as visual weaknesses that would need to be solved:



- Identity : the non-contextual typology of new buildings.
- Order : the visual destruction of important landmarks.
- Variety : the similarity in form of plazas and open spaces.
- Structure : the poor enclosure of *Al-Maydan* plaza.
- Fitness : new buildings do not match and fit the natural setting and the existing traditional and historic pattern of the area; the unsympathetic performance of the Salt Civic Centre urban development project; the need for visual enhancements involving cleaning, repairing and maintaining old building, vacant plots, and sources of visual pollution, the low aesthetic quality of street furniture, congestion of vehicular streets and the inadequacy of the size of green areas.

## 2. Average visual performance:

The replies indicated the following items to have an average performance:

- Order : the alignment of vehicular streets.
- Variety : the ability of vehicular streets to attract users and activities; and the similarity of size of plazas and open spaces.

## 3. Visual Significance:

The replies indicated the following significant aspects regarding the visual performance of SCC:

- Identity : the unique urban and natural setting of SCC gave the area its memorable image.
- Order : the availability of landmarks act as visual clues, the alignment of pedestrian streets and stairways and the attractiveness of the area.
- Variety : the pedestrianization of *Al-Hammam* street, the ability of plazas and pedestrian streets to attract various uses and activities, the visible traces of history and the ever-changing urban scene.



- Structure : the high degree of spatial orientation, the sense of enclosure and the lively and dynamic characteristics of the area.
- Fitness : The familiarity of old buildings and their match with the natural setting, and the high degree to which SCC's urban components match the natural setting of the area.

A visual policy for SCC can be established in terms of the five visual performance dimensions and in relation to previous classification (see Chapter IX). This satisfies the second hypothesis stated in the Introduction that "user participation will help to establish conceptual guidelines and practical visual policies for assessing design proposals for historic city centres" (see section iii). A visual policy for SCC should include working methods and implementation devices for meeting the priorities in accordance with users' preferences. It is important, however, to superimpose a further priority, i.e., a plan of action which would take into consideration both the city's resources and the urgency of the task (see section 9.3).

### **8.3 The Effects of Participation on User Satisfaction**

This section concerns the effects of the respondents' previous experience in user participation activities on their visual satisfaction level. The aim is to verify the second hypothesis, that "differences in levels of satisfaction, regarding visual appearance, will occur among users due to their involvement/non-involvement in user participation activities" (see section iii). This thesis suggests that involvement in user participation activities will reinforce the users' feeling of belonging, which in turn will enhance their opinion of the visual appearance of the area. This can be verified by:

1. Comparing the opinions toward SCC's visual appearance of those who were previously involved in the area's development and those who were not.



2. Comparing the responses to *Al-Hammam* Street Rehabilitation Project, where users participated in its development process, to those towards the Salt Civic Centre Urban Development Project, where users were ignored.

### 8.3.1 Responses of Sub-Sample Groups

This section presents users' satisfaction with the visual performance of SCC with reference to their previous involvement/non-involvement in user participation activities. Respondents were asked to indicate their previous participation and contributions in the development of their built environment. The replies indicated that 60.3% did not participate in any way. Most of those who had previous involvement in user participation activities are those living/working at *Al-Hammam* street and its surrounding areas. Among them 6.28% participated in planning and revisions of designs, 17.6% in maintaining the area around their own properties, 12.34% participated in giving advice and only 3.18% participated by giving financial support.

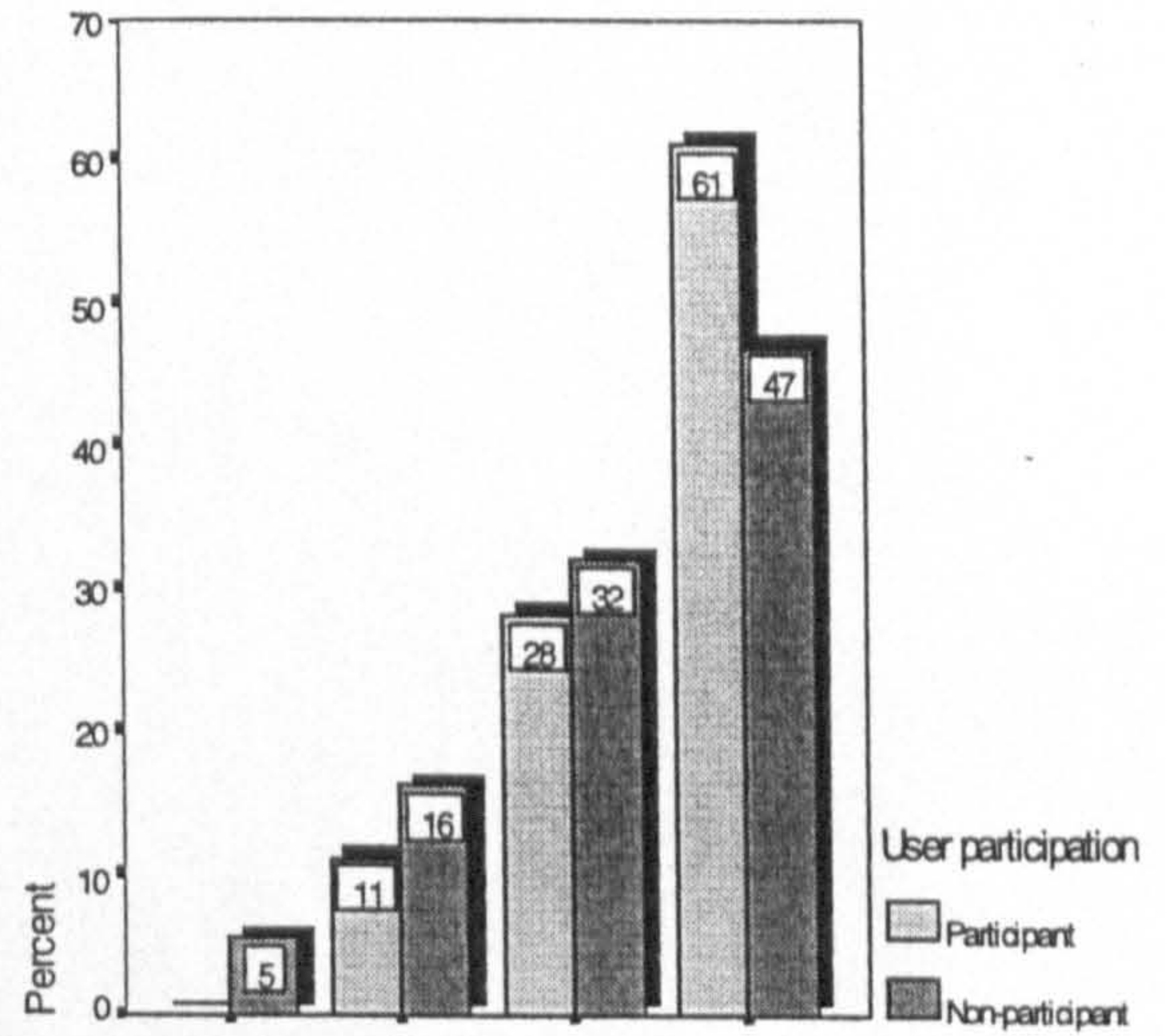
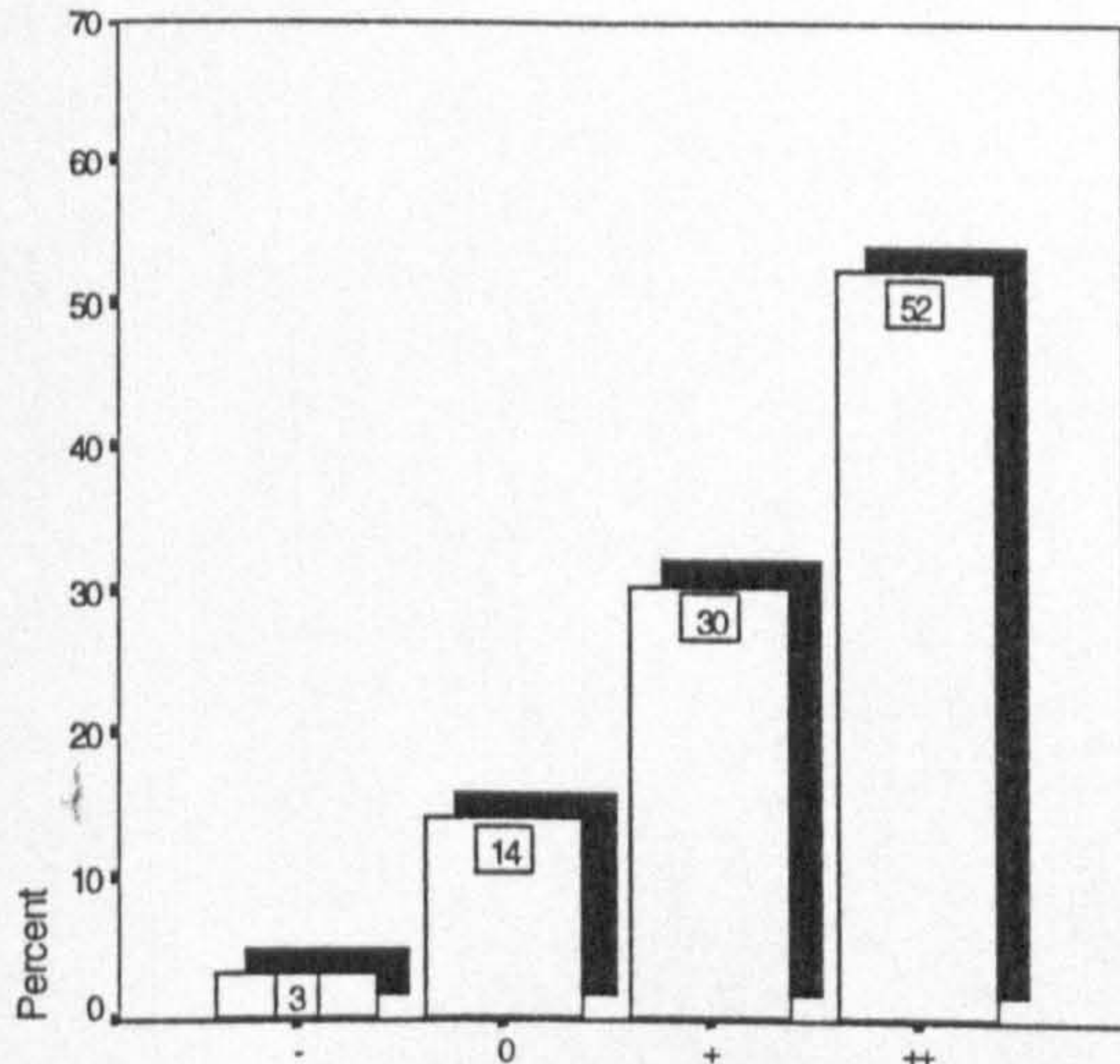
For the purpose of this discussion, those who were previously involved in user participation activities will be referred to as the "participants", whereas those who did not have such involvement will be referred to as the "non-participants". A comparative analysis of the replies of the two sub-sample groups showed a greater user satisfaction with the "participants" than with the "non-participants" (Refer to Appendix E where a complete analysis of the results and findings derived from the questionnaire survey are presented). The replies of the two sub-sample groups were found to be consistent with their replies to the following questions:

#### A. Question 6:

In this question the respondents were asked to rate their opinions, on a five point scale, as to whether it makes a difference if SCC has a pleasant or unpleasant visual appearance for their living/working lives in the area. The majority (52%) found that



visual appearance made a great difference for their living/working lives at SCC (Figure 8.9). The participants seemed to have stronger relations to the area than the non-participants.



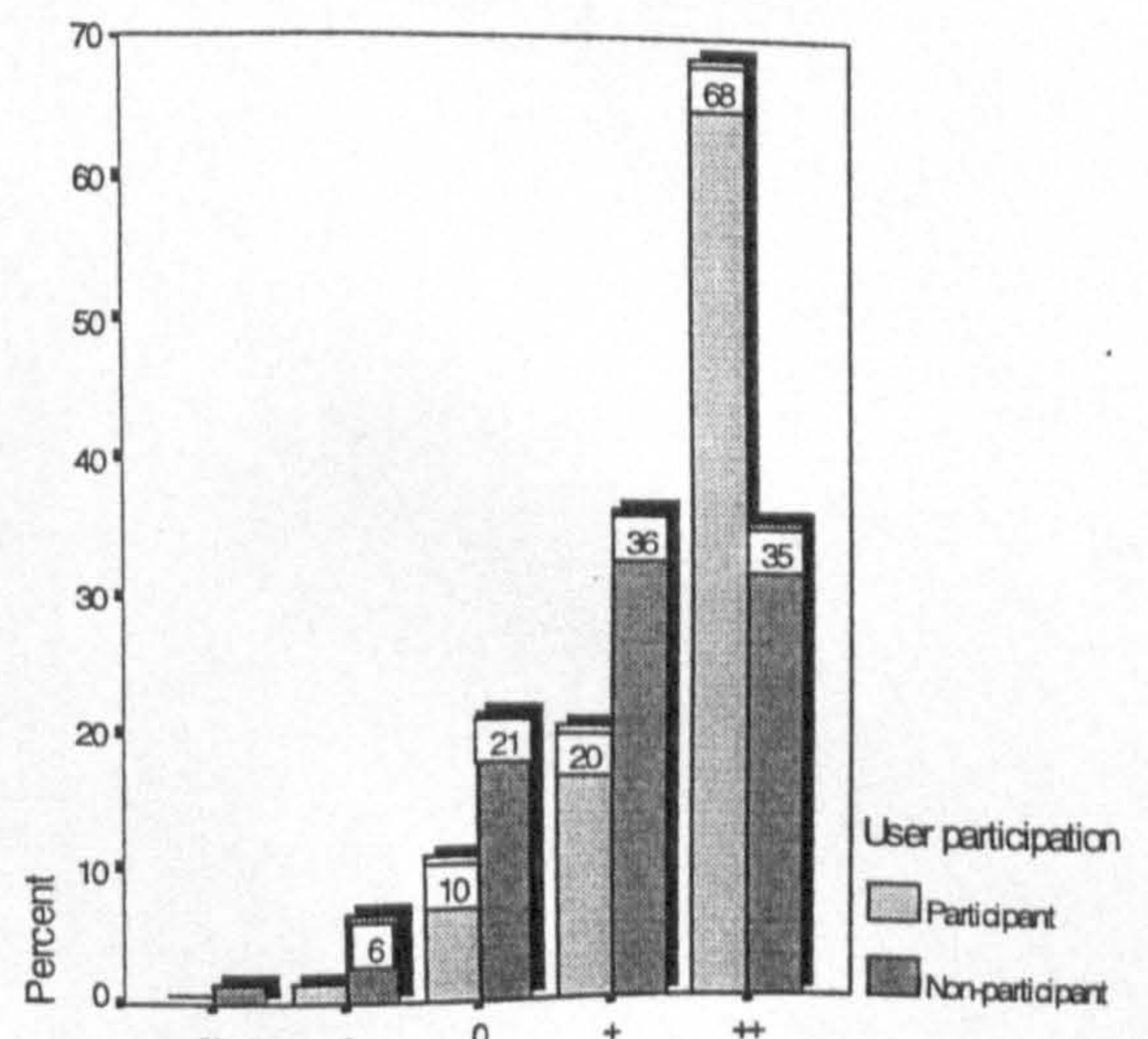
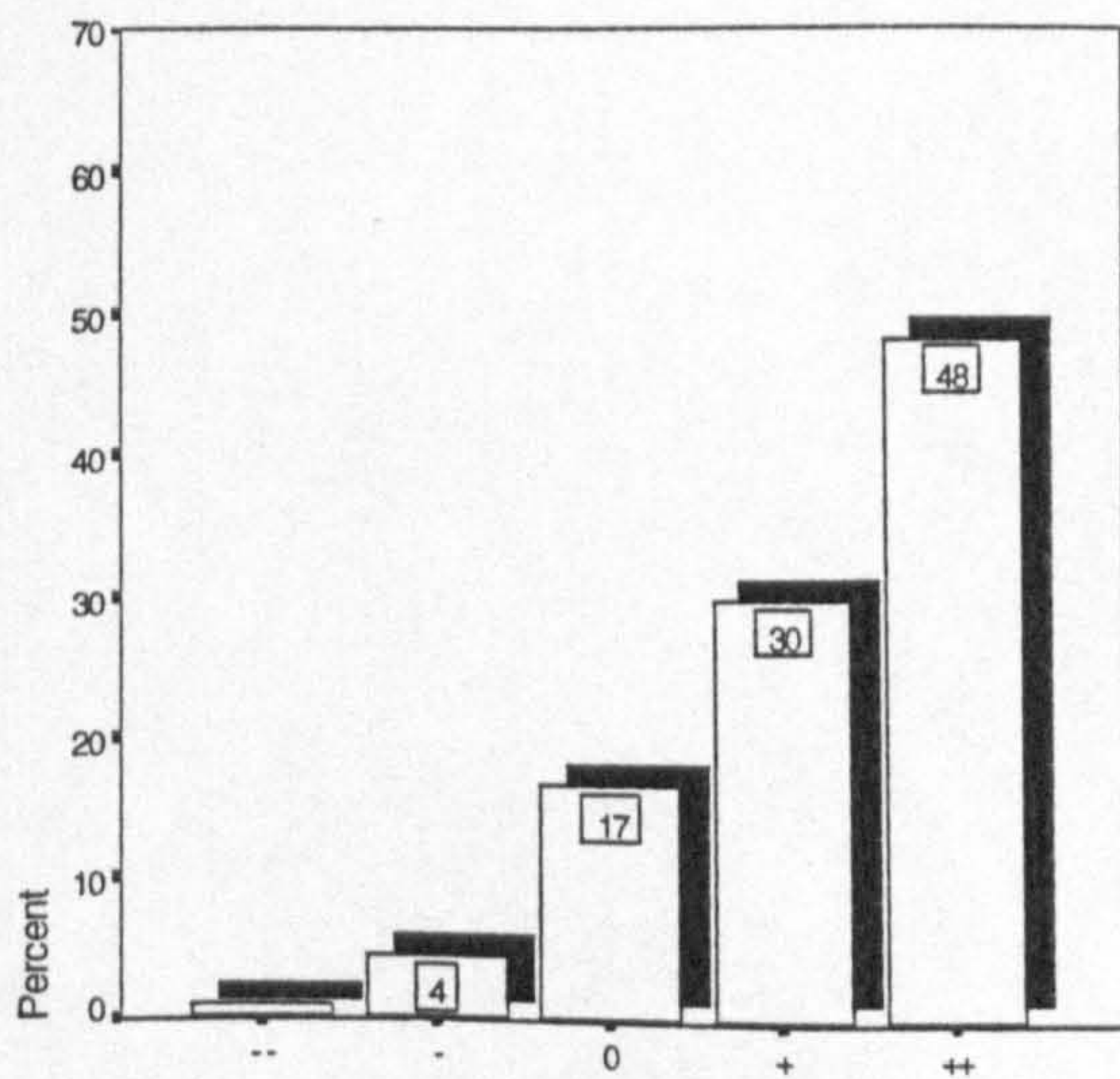
a. General response:  
(MEAN=4.32).

b. Responses of sub-sample groups.

Figure 8.9: Responses to the effect of visual appearance on the respondent working/living in SCC.

**B. Question 7:**

In this question, 48% of responses fall in the positive end of the rating scale when asked if they would recommend others to visit, live or use SCC (Figure 8.10). The participants tended to be more positive regarding this aspect than the non-participants.



a. General response.  
(MEAN=4.20).

b. Responses of sub-sample groups.

Figure 8.10: Responses to recommending others to visit, live, or use SCC in relation to its visual appearance.



**C. Question 8:**

In this question the respondents were asked to rate their feeling regarding the visual appearance of SCC compared to that of other Jordanian cities. The responses found the visual appearance of SCC was on average considered to better than that of other Jordanian city centres (Figure 8.11). The participants were much more satisfied than the non-participants.

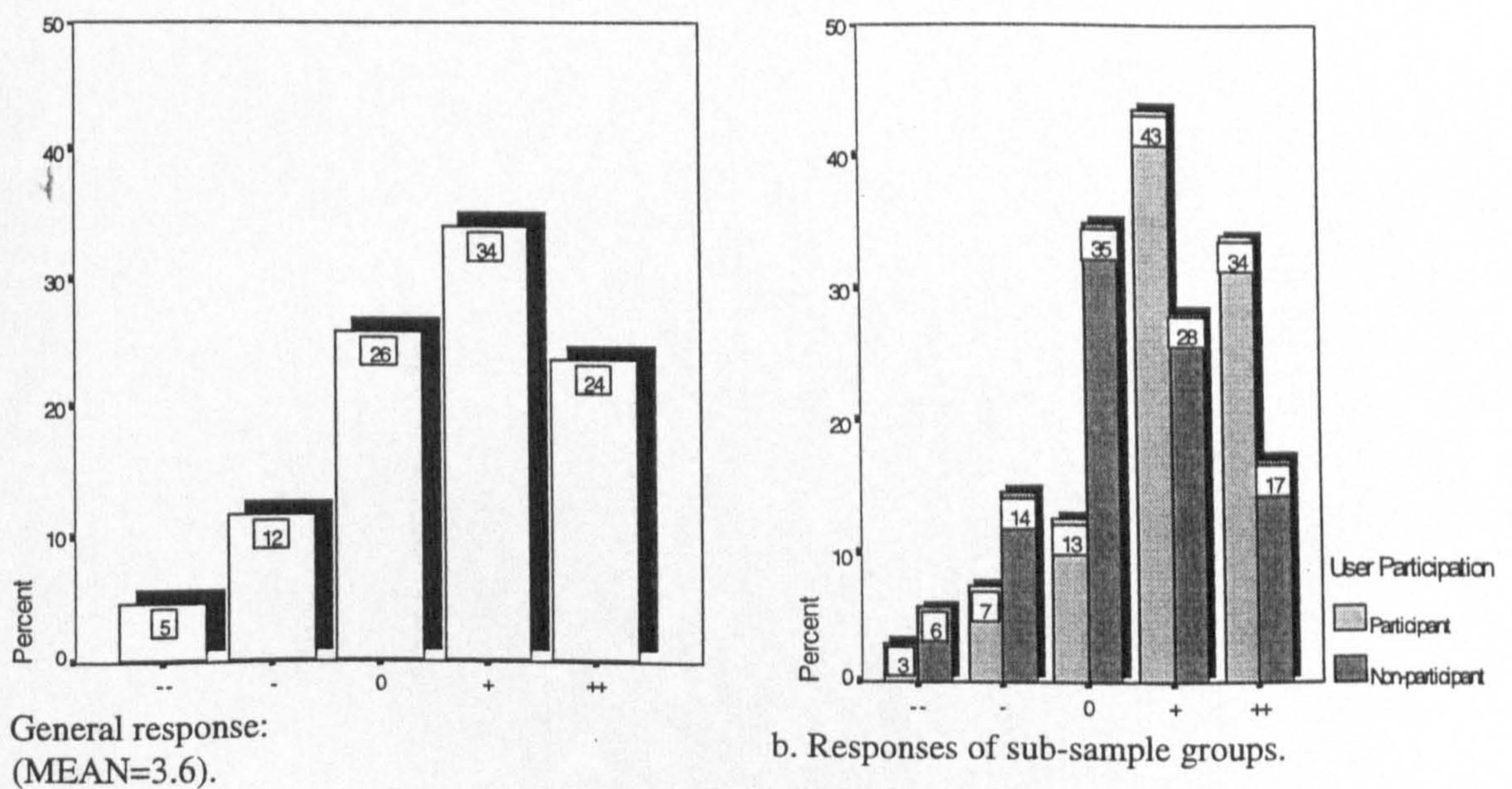


Figure 8.11: Responses to the visual appearance of SCC compared with other Jordanian cities.

**D. Question 10:**

To build a broader understanding of the concept of participation respondents were asked to show if they would be willing to participate in a future development activity in their area, indicating the level, the type or method of contribution they would consider or prefer. The preferred type of participation was through advice (52.54%). The second was participation in the decision making process (21.82%), while 11.49% preferred to participate in management and maintenance. Only 9.94% preferred to contribute financially, while 6.21% indicated that they would prefer not to participate at all. These findings indicate the possible number of users who are willing to be active in the different types and levels of participation.



**E. Question 11:**

In this question the users were asked to feel free to add any further comments regarding the visual appearance of SCC or the participation concept. This question was aimed at discovering and articulating user needs and desires. It was posed to give more consideration to aspects other than its physical characteristics. Few of the respondents had witnessed an evaluation in progress. Even those who had previous involvement in user participation activity indicated that they had been not fully involved in any evaluation activity. Most of the respondents were surprised when they found out that it was the first time that the visual performance of their area was being evaluated. Most of them thought that the evaluation of performance was carried out as a matter of fact. Most thought that performance evaluation was likely to be carried out by local authorities. Furthermore, they appreciated being involved in the evaluation process. They were also willing to help in various ways to improve their area.

It is difficult to analyse the various replies and remarks made by the users in a numerical way. Yet, these replies provide an opportunity to test the concept of participation. The replies indicated that the users of *Al-Hammam* Street have made further formal and visual modifications and improvements in their area. Such modifications include maintaining old facades and openings, planting vacant plots on the adjacent stairways and placing smaller signs at their shops. The replies of the participants showed a greater sense of control over their environment, a greater feeling of matching of their needs, a greater feeling of responsibility and a feeling of being helpful and productive than the replies of non-participants. These results are consistent with Wandersman's findings that user satisfaction within an environment depend to a great extent on the degree of user participation in shaping that environment<sup>3</sup> (see section 1.3.3). Therefore, it is safe to conclude that participation makes people more able to define their problems, more able to solve them, and encourages co-operation among community members.



### 8.3.2 Responses Toward The Urban Development Projects

This section concerns the users' opinions regarding the visual performance of the two urban schemes conducted at SCC, i.e., *Al-Hammam* street rehabilitation project and The Salt Civic Centre. The rehabilitation project at *Al-Hammam* Street fully involved the users in the various stages of development, while the Salt Civic Centre was built with no due consideration of its user opinions or requirements. The respondents were asked to rate their opinions regarding: the visual appearance, the vitality and the possibility of extending the schemes. The rating was set on a five point satisfaction scale (see Question 4 and its sub-questions). The average responses to the questions concerning the visual appearance clearly considered Salt Civic Centre to have unpleasant visual qualities (MEAN=1.87), whereas they considered the *Al-Hammam* street scheme to be extremely pleasant (MEAN=4.25), (Figure 8.12).

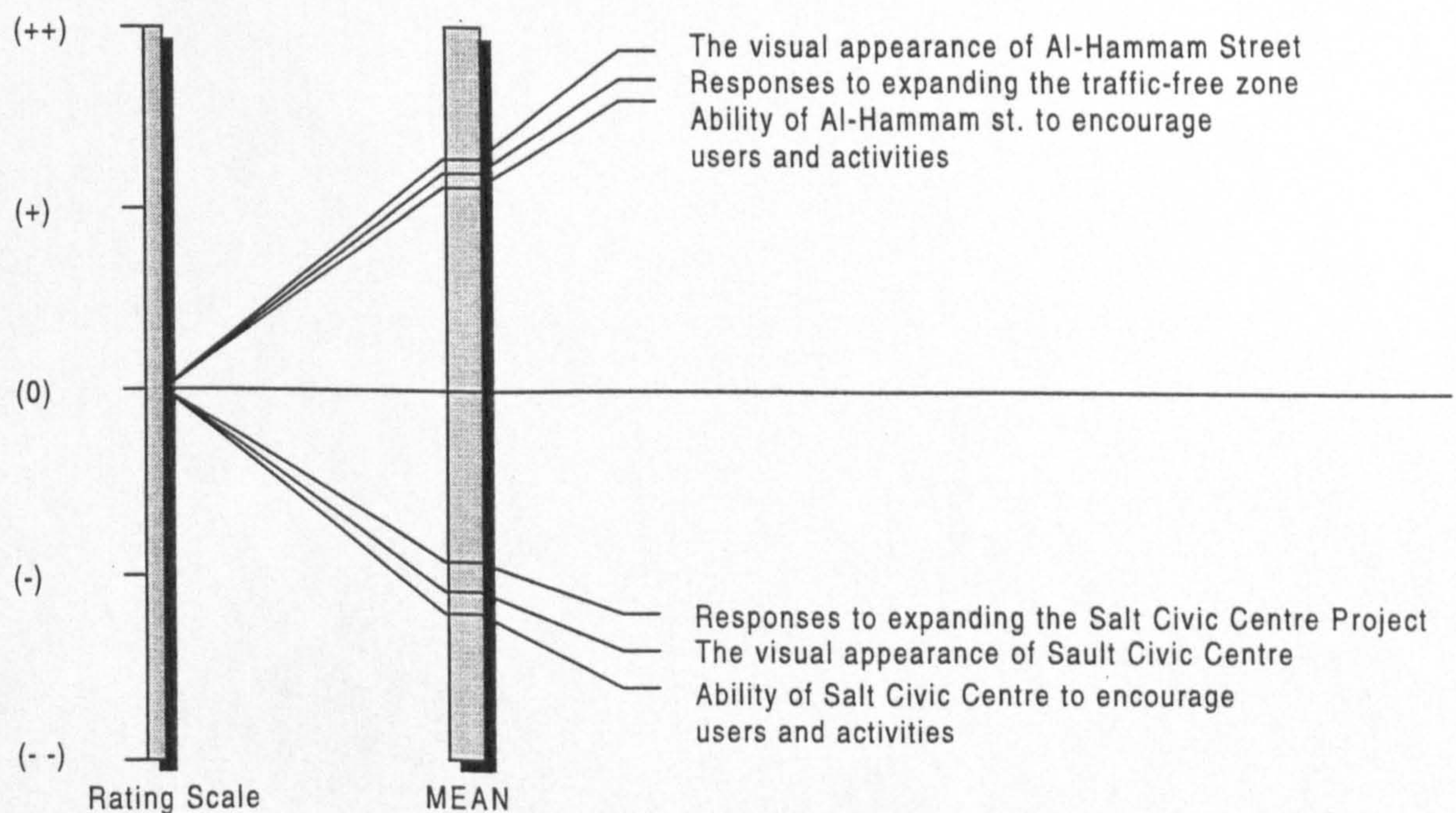


Figure 8.12: Responses to the visual performance of *Al-Hammam* street compared to Salt Civic Centre.

Concerning the ability of the two areas to attract diverse users, it was evident that *Al-Hammam* street has great potential to encourage people from different ages and sexes to use the area at different times and for various reasons (MEAN=4.10). This is not the case at Salt Civic Centre (MEAN=1.84), (Figure 8.12). The users were also asked



to rate their opinions regarding the possibility of extending the two schemes. The average responses were in favour of extending the pedestrian network of *Al-Hammam* street to cover other areas. The responses, however, rarely suggested the erection of other projects similar to that of Salt Civic Centre (Figure 8.12).

In an urban area the sense of community exists when certain behavioural and perceptual relationships develop among its residents. This sense of community will be affected and may be even disrupted by the removal of a common unifying space. SCC's community suffered from the construction of Salt Civic Centre that required the demolition of existing structures and the relocation of their users and inhabitants. This directly caused physical and psychological upheaval in addition to the economic costs of replacement and relocation. Change includes migration from the area and arrival of newcomers to it. In the process the area lost most of its social cohesion and the inhabitants lost their sense of belonging.

The above discussion shows that responses tended to rate the visual performance of *Al-Hammam* street area considerably higher than that of Salt Civic Centre. It can be seen that differences in users' level of satisfaction appear between those who participated in the development of the area and those who did not participate. This, in turn, verifies the second thesis hypothesis as well as the first hypothesis of the case study (see sections iii and 5.2.1). Detailed graphic presentation of the responses toward the two schemes are presented in Appendix E (see section E.3.2).

### **8.3.3 Basis for Differences in User Satisfaction**

The previous section reported the results with reference to the respondent's previous involvement in user participation activities. The basis of differences of responses may also be due to other characteristics, such as, the respondent's gender, age and working/living category. To build a broader understanding of the results, it is important to find the different bases for differences in user satisfaction. Although this particular study was not part of the research agenda, these bases of differences may



contribute to the determination of the relative weight of various variables affecting users' satisfaction, as well as the understanding of the complicated satisfaction phenomena. This research, therefore, undertakes a separate response analysis with reference to these different characteristics, and compares their responses.

The satisfaction differences between respondents according to their living/working category are found to be relatively varied, with the shopkeeper group more satisfied than the other two groups, i.e., householder and office worker. The shop-keeper group responded as "most satisfied" to 42.86% of the questions and "least satisfied" to 14.28%. The householder responded as "most satisfied" to 20.00% of the questions and "least satisfied" to 31.43%. The office worker group responded as "most satisfied" to 27.24% of the questions and as "least satisfied" to 22.50%.

The householder group, however, were the least satisfied compared with responses of other two groups. Such differences might be related to the negative characteristics of the area, such as, air pollution, noise, vibration, inadequate services, lack of parking spaces and lack of easy access, as well as other issues that make SCC less suitable for dwellings. This can also be caused by the physical conditions of many old residential buildings that do not satisfy modern requirements.

From 55 sub-questions measuring user satisfaction with SCC's visual performance, the male group responded to 64.5% of the questions as "most satisfied" and to 16% of the questions as "least satisfied". The female group responded as "most satisfied" to 29% of the questions and to 22.58% of the questions as "least satisfied". These results suggest a significant difference in satisfaction. As the majority of the female group were householders, the previous explanation concerning the responses of the house-holder group applies here also. These findings, however, may only be considered as indicators and should be tested further in future research, as it is difficult to generalise the findings according to gender differences (see section 10.3.1). The satisfaction differences between the different age groups are found to be



insignificant. This might be related to the common feeling of the importance and uniqueness of the area.

Another separate response analysis was taken with reference to the key physical elements of SCC, i.e., its pathways, localities, nodes, landmarks and edges. The opinions regarding the visual performance of SCC's plazas and open spaces, as well as pedestrian streets and stairways tended to be highly positive. The reactions toward the vehicular streets were on the negative side of the rating scale. Furthermore, the responses tended to rate the visual appearance of *Al-Hammam* street area much higher than that of Salt Civic Centre. A complete explanation of these findings is presented in section E.3/Appendix E.

#### **8.4 The Nature of Relationships between Certain Visual Variables**

The proposed visual imageability concept suggested the overlapping nature of the various visual dimensions and variables that represent them (see section 4.3). These dimensions and variables come into play simultaneously as sometimes one dimension may dominate and/or overlap the others. Accordingly, these dimensions cannot be studied in isolation as they are connected and interrelated. A change in one dimension may affect the others. This section is concerned with determining the nature of relationships between particular pairs of the visual variables. This is necessary in order to verify the case study hypotheses (see section 5.2.1). The nature of relationships can be generalised to other traditional hilly city centres.

The case study hypotheses suggested positive relationships between the following pairs of variables: i) "spatial orientation" and "hierarchy"; ii) "morphology" and "character"; iii) and "character" and "spatial orientation". The questionnaire survey aimed to verify these hypotheses through testing the following assumptions (see sections 5.2.1 and 5.3.3):



- a. "spatial orientation" and "hierarchy": It is easier to find one's way in an area that has strong visual clues.
- b. "morphology" and "character": SCC visual character is largely determined by its unique topography.
- c. "character" and "spatial orientation": SCC's memorable images could help in finding one's way in the area.

The "Phi-Coefficient Test" was used to assess the nature of the relationships between the above pairs of visual variables in order to verify the case study hypotheses. This test measures the strength of the positive association between two categorical variables. The "Phi-Coefficient" test is derived from the "Chi-Square" test (see section F.3/Appendix F). The "Chi-Square" test is a test of significance. Its value lies in examining the relationship between the frequencies of the variables under investigation and whether these measures occur by chance or are statistically significant<sup>4</sup>. After obtaining the statistical significance between the variables under investigation, the value of "Phi-Coefficient" determines whether these variables are positively associated or not. The value of (phi) can vary from zero to 1.0, in an ascending order of positive association between the examined variables<sup>5</sup>.

The interpretation of data requires the use of table F.2/Appendix F. The table is used to decide whether an obtained value of Chi-square is due to chance or not. The value of Chi-square depends on two factors: the significance level (s) and the degrees of freedom (df). There are various levels on which the value of Chi-square can be statistically significant<sup>6</sup>. For this study, a significance level of 0.05 was selected. Being at 0.05 level of statistical significance indicates the probability of less than 5 in 100 that the obtained relationship between the variables under examination is due to chance.

#### **8.4.1 Spatial Orientation and Hierarchy**

The first hypothesis stated in the case study suggested a positive association between the two visual variables of "spatial orientation" and "hierarchy", i.e., "spatial



orientation" in an area will increase if the level of "hierarchy" increases. The respondents have evaluated the "spatial orientation" within SCC physical environment. They have responded to three questions regarding "the ease of finding one's way" in SCC's plazas and open spaces, vehicular streets and pedestrian streets and stairways (Questions: 3.A.5, 3.B.3 and 3.C.2). These responses were compared to the respondents' replies to another three separate questions concerning "hierarchy" (Questions: 3.A.10, 3.B.7 and 3.C.7). In these three questions the respondents have evaluated "the availability of visual clues" (such as landmarks and important visual features) in SCC's urban elements.

This section examines the nature of the relationship between these two variables. By applying the "Chi-Square" test on SCC's plazas and open spaces, the calculated value of Chi-square was found to be 61.52 with 16 degrees of freedom. Table 8.1 (extracted from Table F.2/Appendix F) is used to decide whether this value of Chi-square is due to chance or not. The level of probability is determined by comparing the calculated value Chi-square to the given values of (df) in the table. For a significance level of 0.05 the critical value of Chi-square with 16 degrees of freedom is 26.30. A value of Chi-square less than 26.30 tends to indicate a large amount of difference between the frequencies of the two variables. When a calculated value of Chi-square is larger than the figures shown in the table under the appropriate degree of freedom, and the calculated value of (phi) is between zero and 1.0 we can conclude that the positive association is reliable<sup>7</sup>.

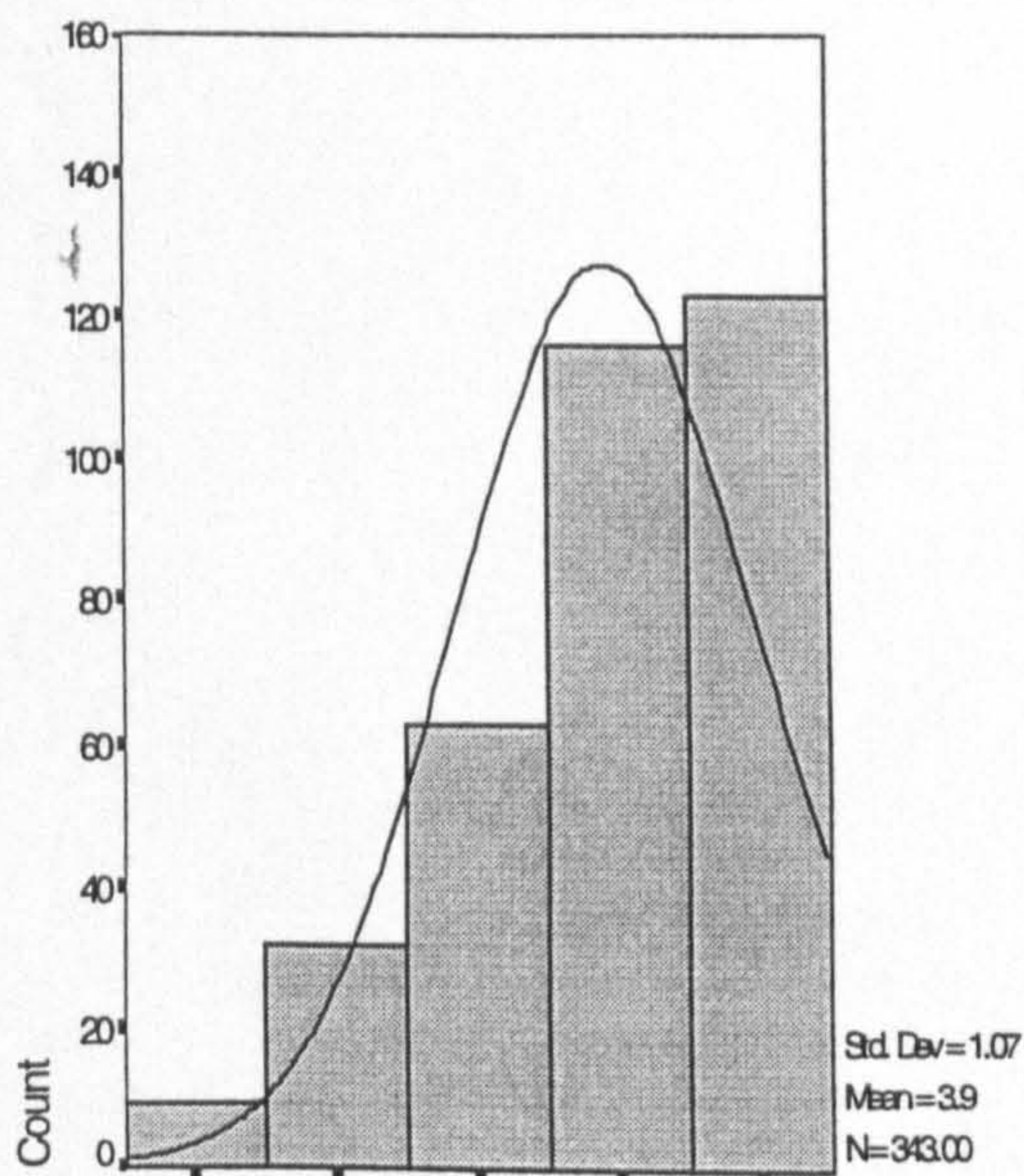
Table 8.1: Critical values of Chi-Square (extracted from Table F.2/Appendix F).  
Source: Ebdon, David., *Statistics in Geography*, Oxford: Basil Blackwell, 1977, p. 171.

Degree of freedom (df)	Significance Level (s)				
	0.1	0.05	0.01	0.005	0.001
6	10.64	12.59	16.81	18.55	22.46
16	23.54	26.30	32.00	34.27	39.29

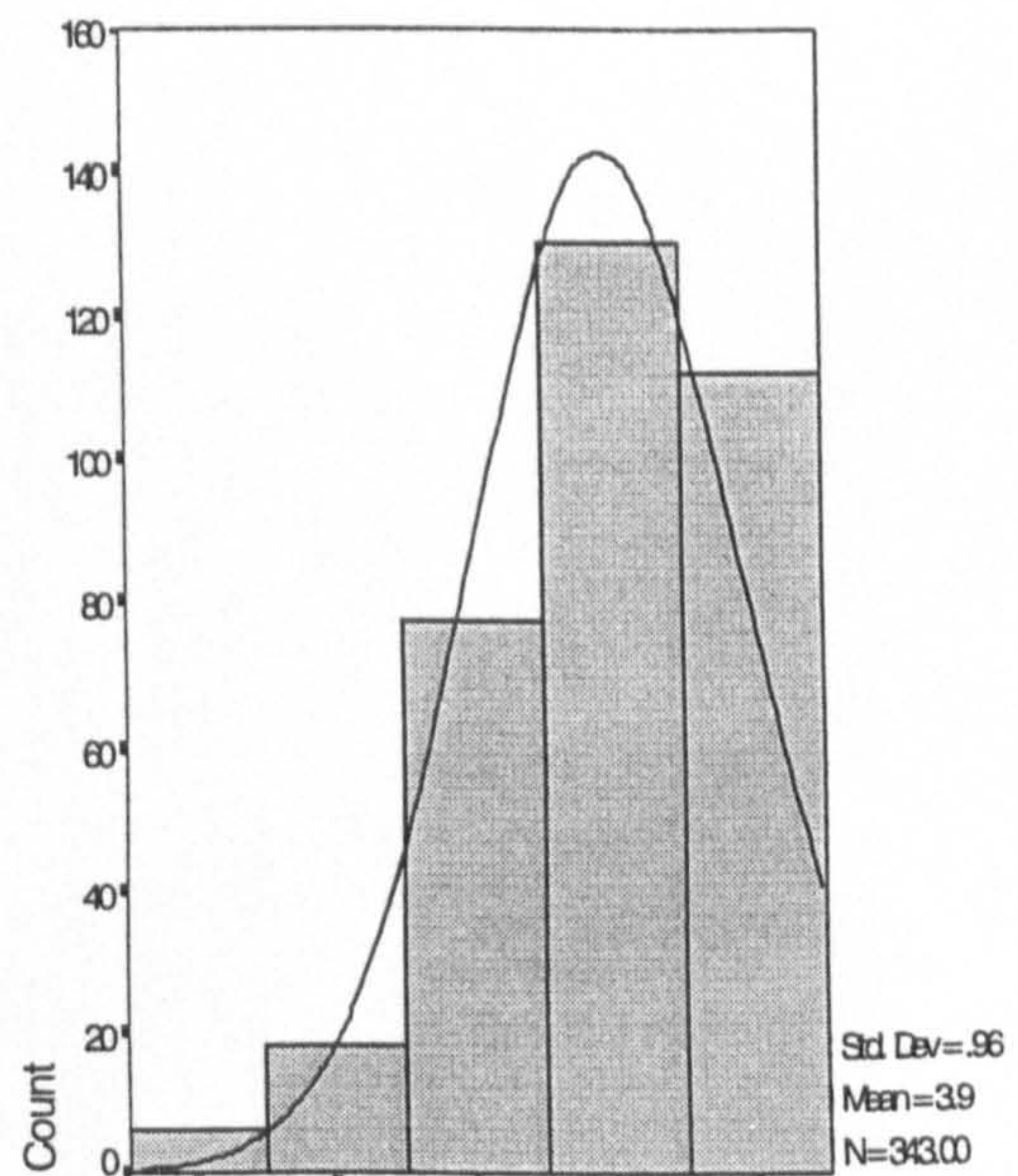
Since the computed value of Chi-square is greater than the critical value of Chi-square at the selected significance level, the relation between the two variables is statistically significant. After obtaining the statistical significance between the variables, the calculated value of "Phi-Coefficient" determined whether these



variables are positively associated or not. Since the value of ( $\phi$ ) was found to be 0.423, i.e., between zero and 1.0, the positive association of the two variables should be accepted at 0.05 probability. Figure 8.13 shows the distribution of the frequencies of the replies concerning these two variables and allows us to visually assess their association. The limited differences in frequency distributions can be attributed to chance factor.



a. Spatial orientation (ease to find one's way).

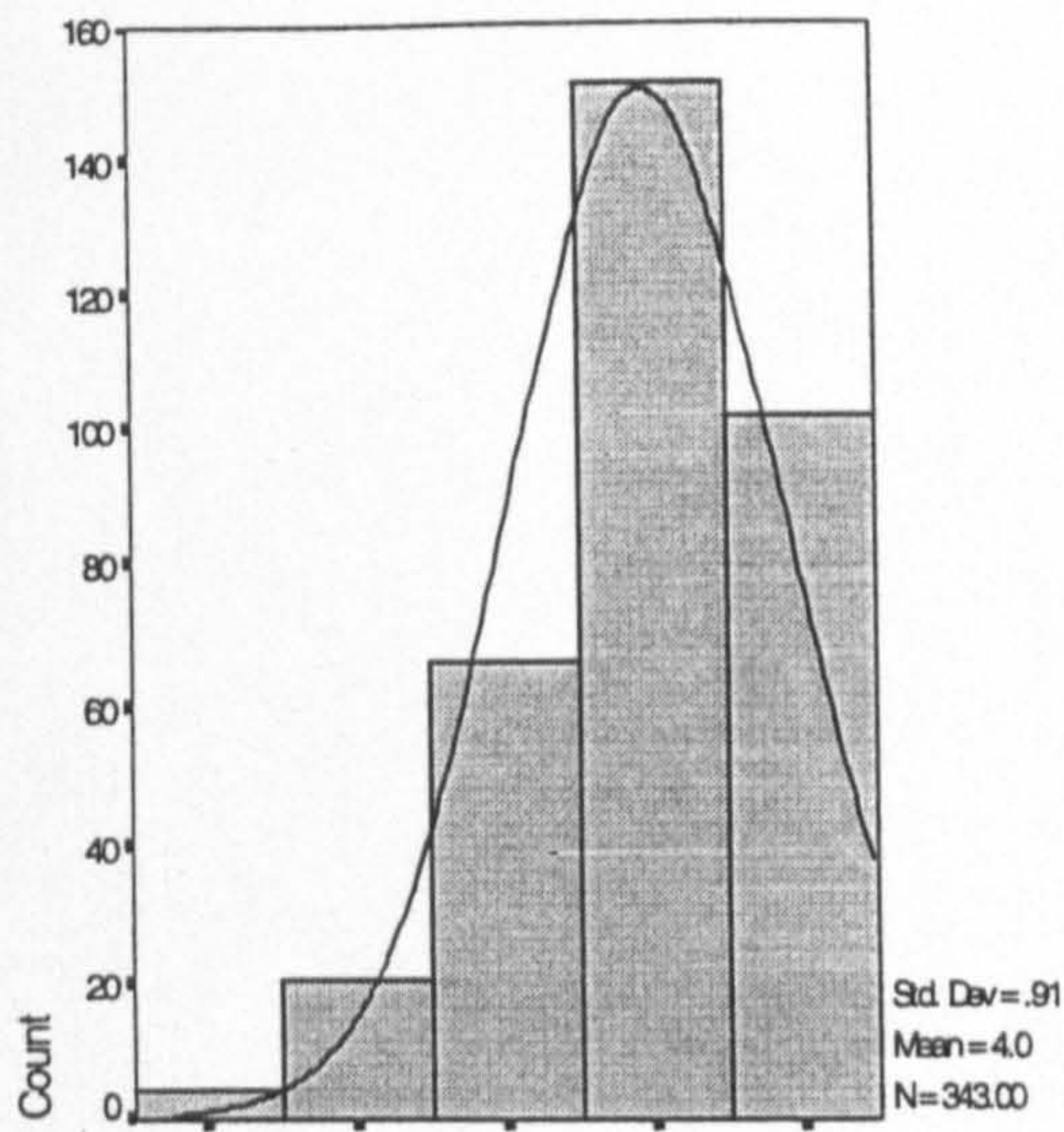


b. Hierarchy (availability of visual clues).

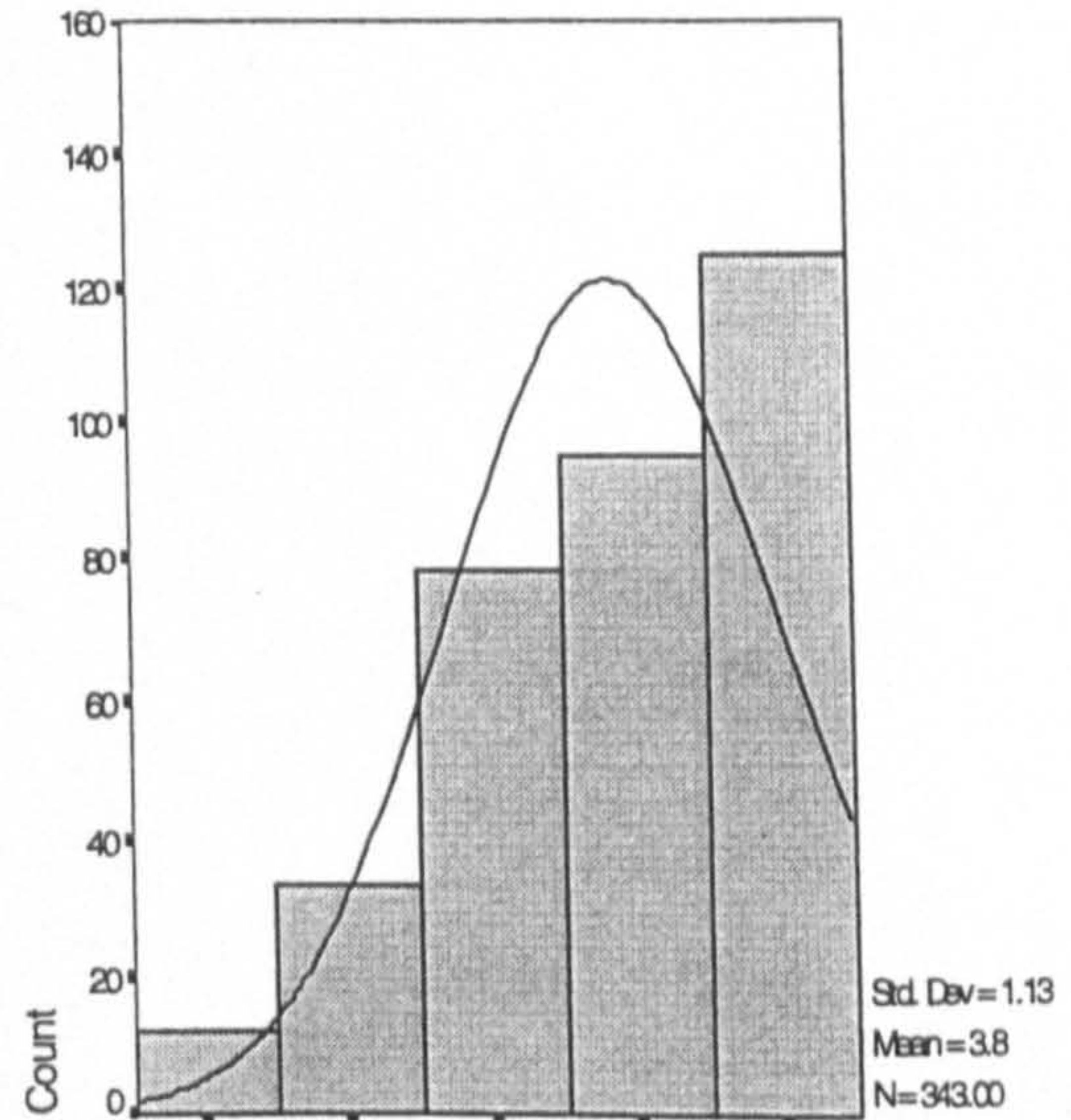
Figure 8.13: Responses to plazas and open spaces.

For SCC's vehicular streets, the computed calculated value of Chi-square was found to be 68.60 with 16 degrees of freedom. Since this value is more than 26.30, i.e., the critical value of Chi-square at 0.05 significance, the two variables are statistically significant. The calculated value of "Phi-Coefficient" ( $\phi$ ) was found to be 0.447, i.e., between zero and 1.0. Thus, the positive association of the two variables should be accepted at 0.05 probability. Figure 8.14 shows the distribution of the frequencies of the replies concerning these two variables and allows us to visually assess their association. The limited differences in frequency distributions can be attributed to chance factor.





a. Spatial orientation (ease to find one's way).

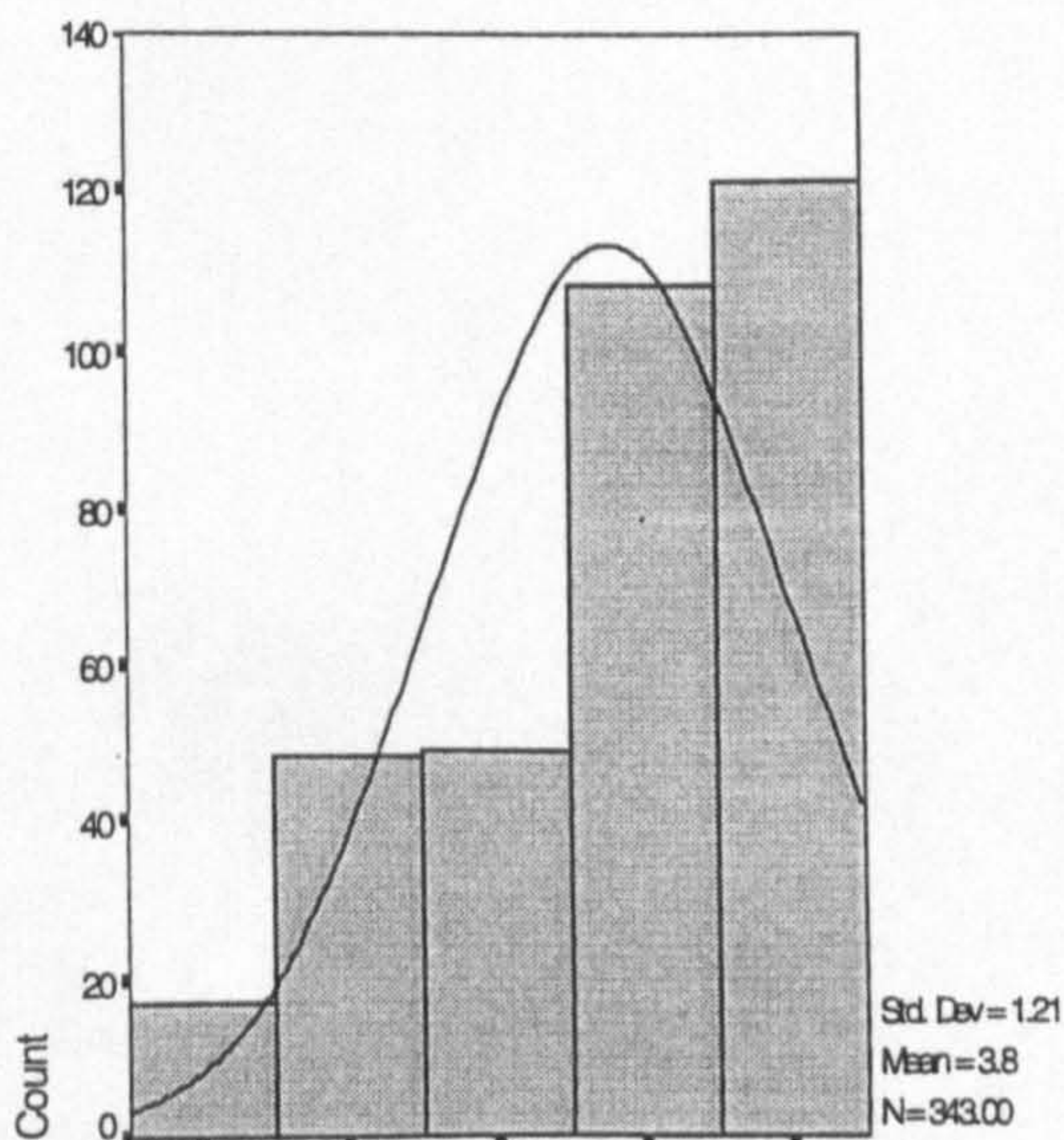


b. Hierarchy (availability of visual clues).

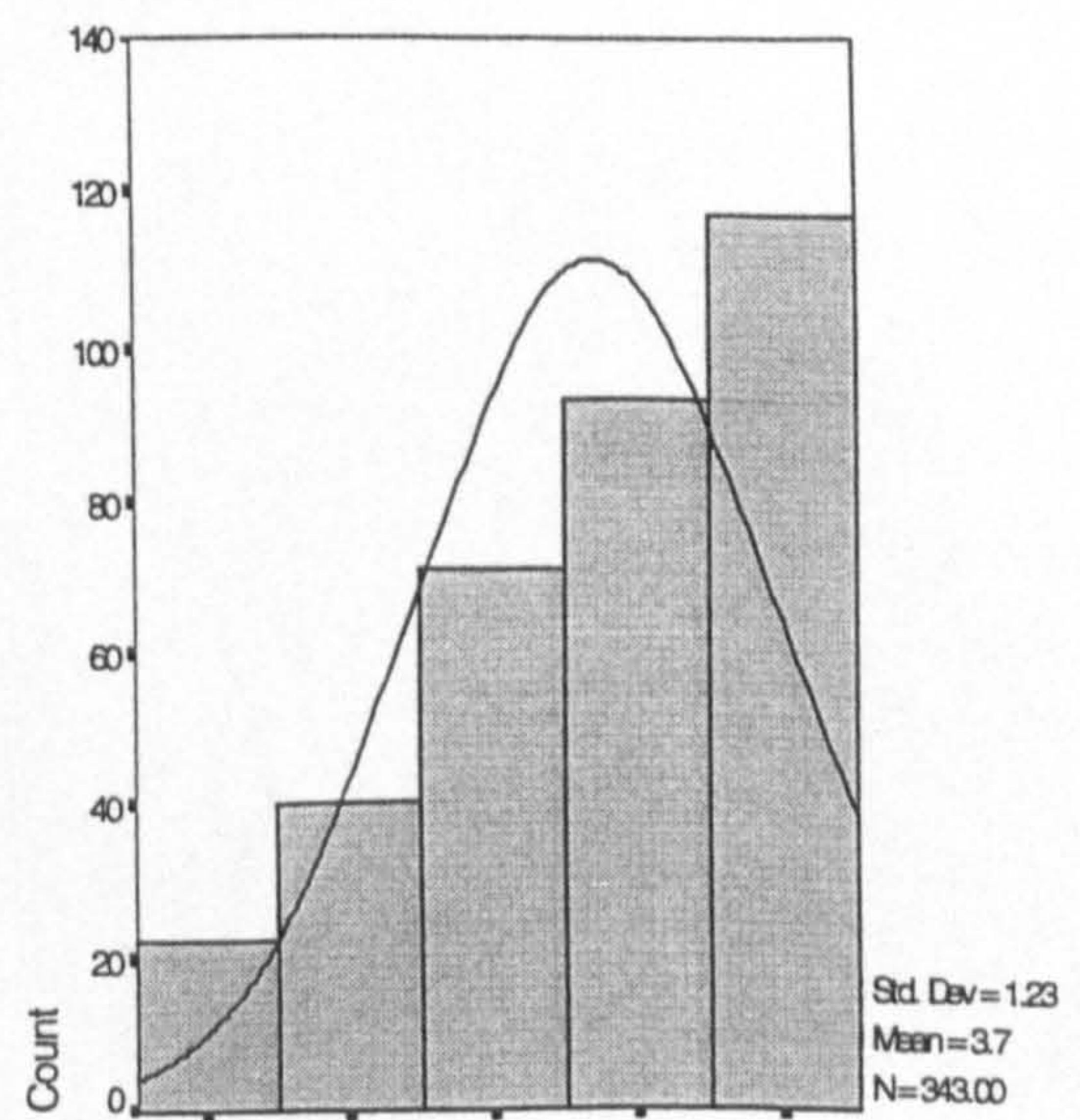
Figure 8.14: Responses to vehicular streets.

The value of Chi-square for SCC's pedestrian streets and pathways was found to be 179.59 with 16 degrees of freedom. Since the value is greater than the critical value at 0.05, the two variables are statistically significant. The calculated value of "Phi-Coefficient" ( $\phi$ ) was found to be 0.759, i.e., between zero and 1.0. Thus, the positive association of the two variables should be accepted at 0.05 probability.

Figure 8.15 shows the distribution of the frequencies of the replies concerning these two variables and allows us to visually assess their association.



a. Spatial orientation (ease to find one's way).



b. Hierarchy (availability of visual clues).

Figure 8.15: Responses to pedestrian streets and stairways.



The statistical analyses showed positive associations between "the ease of finding one's way" at SCC's urban elements, i.e., its plazas and open spaces, vehicular streets and pedestrian streets and stairways, and "the availability of landmarks that act as visual clues" in these urban elements. The positive associations were found at 0.05, i.e., a probability of less than 5 in 100 that the obtained associations are due to chance. Such findings support the assumption that: "It is easier to find one's way in an area if it has strong visual clues". Therefore, a significant relationship between the two variables of "spatial orientation" and "hierarchy" can be suggested. This in turn verifies the second hypothesis of the case study that suggested that there is a positive association between the visual variables of "spatial orientation" and "hierarchy". However, the values of ( $\phi$ ) differ from one urban element to another with the pedestrian streets having the highest value of ( $\phi$ ) and plazas and open spaces having the lowest. The differences of the values of ( $\phi$ ) indicate that the positive association of the two variables is higher in pedestrian streets than that in vehicular streets and plazas and open spaces.

#### **8.4.2 Morphology and Character**

The case study also hypothesised a positive association between the two visual variables of "morphology" and "character". An examination of the data related to these two variables was made in order to verify this supposition. The Chi-Square test was applied to examine the relationships between the responses of two pairs of questions. The first concerns "the uniqueness of SCC's topography" (Questions 1.1), and "the availability of memorable images" in SCC (Question 1.10). The second pair of questions concerns "the enjoyment of SCC's scenes" while ascending and descending its stairways (Question 3.C.5), and "the visual appearance" of the area (Question 1.2).

For the first pair of questions, the value of Chi-square was found to be 159.53 with 16 degrees of freedom. This value, however, is greater than the critical one of Chi-square at 0.05 significance level. This indicated that the relation between the



responses to the two questions concerning "visual appearance" and "unique topography" is statistically significant. After obtaining the statistical significance between the variables, the calculated value of "Phi-Coefficient" determined whether these variables are positively associated or not. Since the value of (phi) was found to be 0.682, i.e., between zero and 1.0, the positive association of the two variables should be accepted at 0.05 probability. Figure 8.16 shows the distribution of the frequencies of the replies concerning these two variables and allows us to visually assess their association.

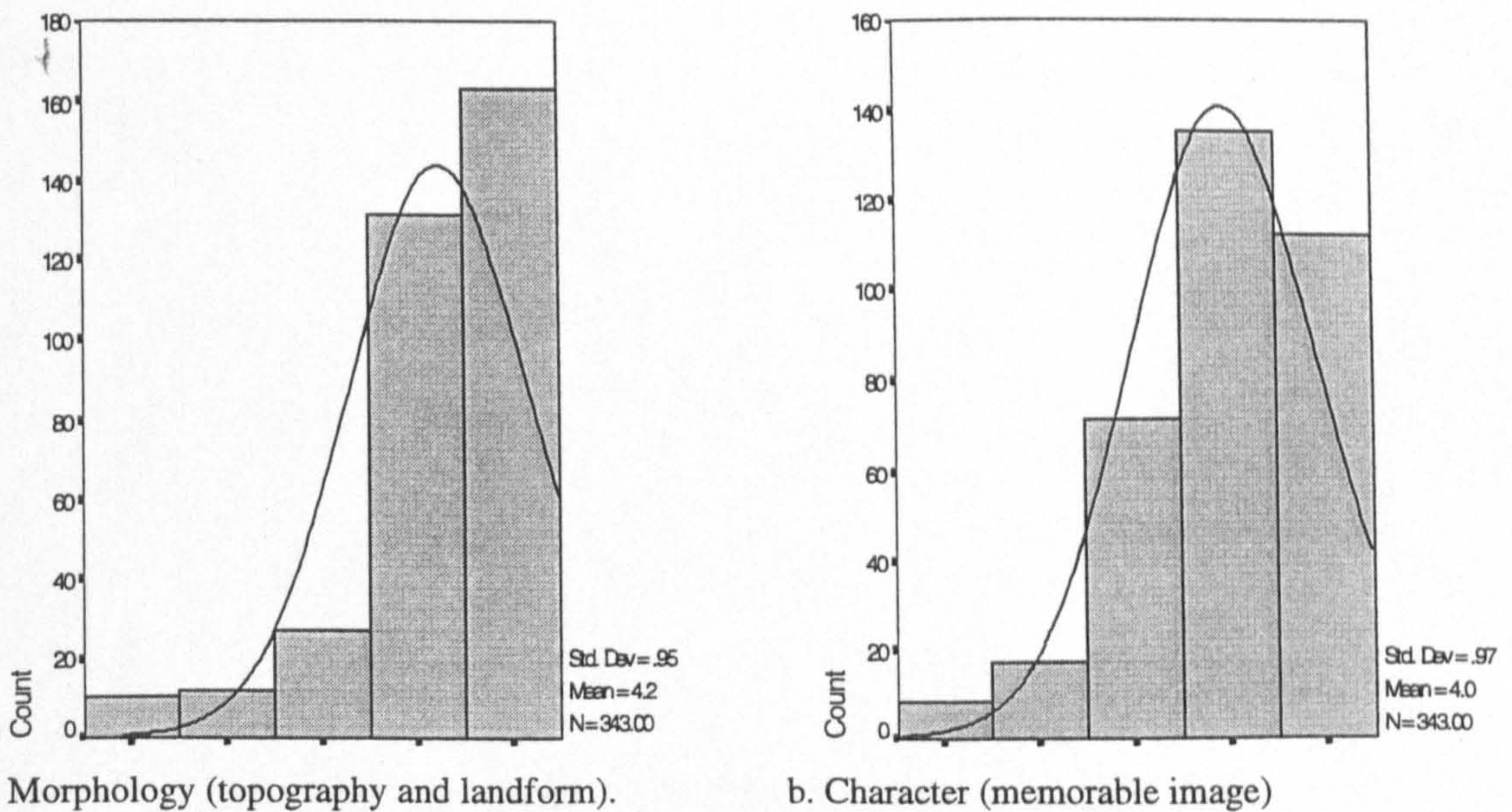
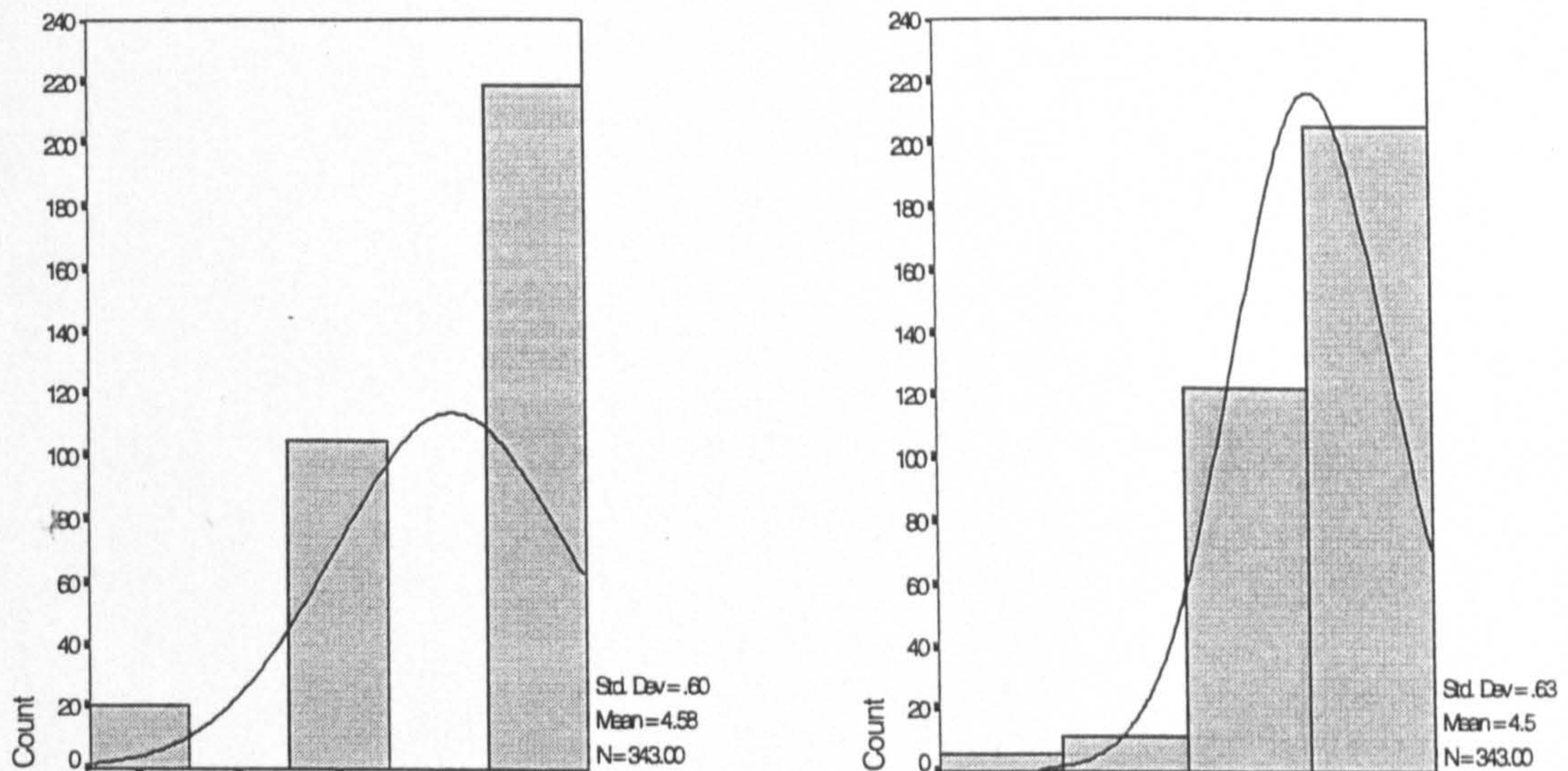


Figure 8.16: Morphology and Character 1.

The second pair of questions concerned examining the relationship between the "visual appearance" of SCC and the "enjoyment of its scenes" while ascending and descending its stairways. The computed calculated value of Chi-square, for that pair of questions, found to be 12.63 with 6 degrees of freedom. This value is slightly greater than the critical value at 0.05 significance level. Since this value is slightly greater than 12.59, i.e., the critical value of Chi-square at 0.05 significance, it is safe to conclude that the relationship between the two variables are statistically significant. The calculated value of "Phi-Coefficient" (phi) was found to be 0.192, i.e., between zero and 1.0. Thus, the positive association of the two variables should be accepted at 0.05 probability. Figure 8.17 shows the distribution of the frequencies of the replies concerning these two variables and allows us to assess visually their



association. The differences in frequency distributions can be attributed to chance factor.



a. Morphology (enjoying city scenes).

b. Character (visual appearance).

Figure 8.17: Morphology and Character 2.

Since the value of ( $\phi$ ) is greater at the first pair of questions than that at the second pair, the association between "topography" and "memorable image" is more significant than that between "visual appearance" and "enjoyment of city scenes". The statistical analyses support the assumption that: "visual appearance of SCC is determined by its unique topography and landform". It is safe to conclude that the two variables of "character" and "morphology" are associated. This, in turn, verifies the third hypothesis stated in the case study that there is a positive association between the visual variables of "morphology" and "character".

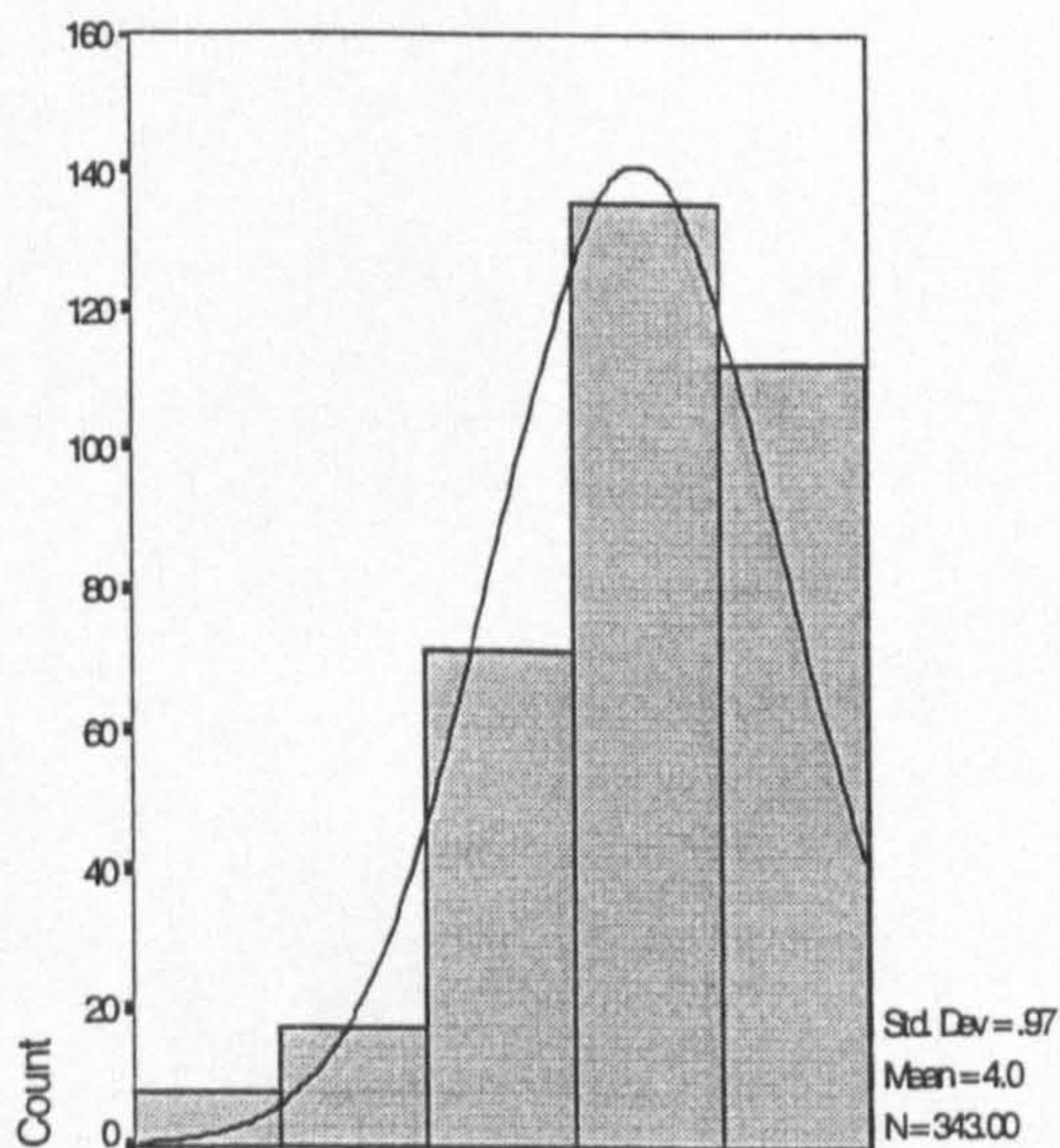
### 8.4.3 Character and Spatial Orientation

The third case study hypothesis suggested a positive association between the two visual variables of "character" and "spatial orientation". Character was evaluated through examining "the availability of memorable images" at SCC (Question 1.10). The overall spatial performance of SCC was evaluated by asking the respondents to rate their opinions regarding "the ease of finding one's way" in the area (Question

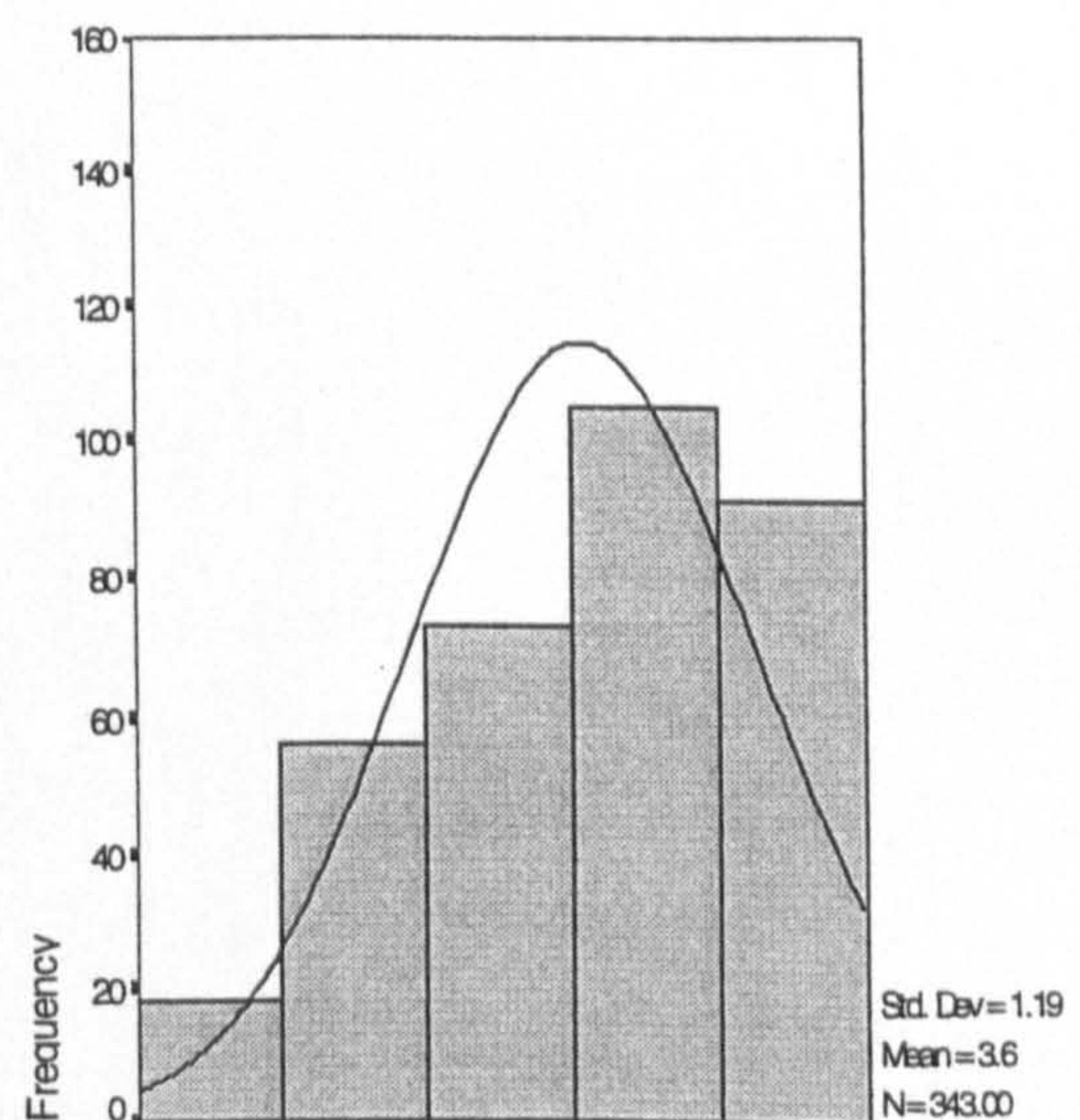


1.5). The value of Chi-square for the above two questions was found to be 59.07 with 16 degrees of freedom. Since this value is more than the critical value at 0.05 significance level, the relation between the two variables is statistically significant. The calculated value of "Phi-Coefficient" ( $\phi$ ) was found to be 0.415, i.e., between zero and 1.0. Thus, the positive association of the two variables should be accepted at 0.05 probability, i.e., a probability of less than 5 in 100 that the obtained association is due to chance.

These statistical analyses support the assumption that: " SCC's memorable images could help in finding one's way in the area". Therefore, the two variables of "character" and "spatial orientation" are associated. This in turn verifies the fourth hypothesis of the case study that there is a positive association between "character" and "spatial orientation". Figure 8.18 shows the distribution of the frequencies of the replies concerning these two variables and allows us to visually assess their association. The limited differences in frequency distributions can be attributed to chance factor.



a. Character (memorable image).



b. Spatial Orientation (overall).

Figure 8.18: Character and Spatial Orientation.

## 8.5 Measurement Quality

Interpreting the findings of the questionnaire survey requires addressing the opportunities and limitations of the measurement. Measurement quality concerns the



degree of validity and reliability that the questionnaire survey provides. Validity concerns the extent to which the questionnaire survey measures the particular purpose it was designed for<sup>8</sup>. The validity of the questionnaire as a measuring tool for this study is supported by the objectivity of the process, since opinion is replaced by assessments of visual performance.

Moreover, measured performance information can help in: i) clarifying which factors are relevant in design decision making; ii) allowing the development of a range of solutions to a design problem; and iii) aiding in decision making through objective analysis of different alternatives on a detailed level. A visual policy for SCC can thus be established based on the results and findings of the questionnaire survey. This in turn will reinforce the validity of the questionnaire for the particular purpose it was designed for, i.e., evaluating historic city centres and showing where visual performance is poor and should be improved and where it is adequate and should be maintained.

Reliability refers to the stability and consistency of the results over time, i.e., how well the results illustrate present performance and how well they predict future performance as well<sup>9</sup>. The reliability of this study can be evaluated by comparing the findings of the survey to those of other similar studies in the area. This study was the first visual investigation at SCC. However, a study by Al-Zoabi, on the image of the city as a whole, is considered appropriate for such comparison<sup>10</sup>. His findings indicated that those who valued highly their local neighbourhood were most likely the same group that highly valued the city as a whole. These findings, though they are related to a different aspect, could be compared to the findings of this study, that differences in users' level of satisfaction appeared between those who participated in the development of the area and those who did not participate (see section 8.3).

Al-Zoabi's findings, consistent with those of this study, are that people value areas with traditional characteristics more highly than those with modern characteristics<sup>11</sup> (see sections 8.2.3 and 8.2.5). However, this study disagrees with his findings that



users highly value the residential facilities in the city centre<sup>12</sup> (see section 8.3.3). This study indicated that the householder group was the least satisfied compared with shopkeeper and office-worker groups. This result was related to the physical condition of many old residential buildings that do not satisfy modern requirements.

Al-Zoabi's study indicated a significant relationship between the image and the evaluation of the city as a whole<sup>13</sup>. Such finding supports the idea that there is a positive association between the "morphology" and "character" of SCC (see section 8.4.2). In this study "morphology" of SCC was represented by "topography" and "enjoyment of city scenes", whereas "character" was represented by the "memorable image" and "visual appearance" of the area.

The reliability of this survey is further supported by the anticipation of the likely sources of error and the appropriate precautions that have been taken to minimise them. Every stage of the questionnaire survey has been treated as a possible source of error, i.e., its design, sampling process, measurement process characteristics and data processing and analysis (see section D.3/Appendix D). Therefore, in this questionnaire survey one should expect a high level of reliability.

However, the researcher noticed the following limitations that should be considered:

1. Regarding the questionnaire design: the visual performance dimensions and the various variables that represent them were adopted in the questionnaire survey through the different questions that have been asked. Most of the variables were easy to explain in non-technical and simple terms. However, a few variables, such as visual inertia and alignment were difficult to explain in non-technical terms while keeping to the specific issues under investigation.
2. Regarding the sampling frame, i.e., the Municipality rating records. Although the rating records were relatively new, there are a few missing elements, such as the names of the occupants which were rarely present,



new buildings which were not recorded and vacant sites in which buildings were still recorded.

3. Regarding the sample characteristics: the sample could be considered as a true representation of the target group population with certain reservations regarding gender.
4. Regarding the measured aspects: the total performance of the built environment depends on much more than its visual qualities. The questionnaire survey, however, concerns one single aspect, i.e., the visual performance of historic city centres. Accordingly, the conclusions related to visual performance only.
5. Regarding social and cultural effects: the respondents were asked to rate their opinions concerning the different visual aspects on a five point rating scale of opposing concepts. The majority of responses, for most questions, arrived either to the positive or to the negative sides of the rating scale. Only very few questions arrived at the middle scale point. This can be related to the social and cultural aspects affecting the respondents' judgement. The researcher is aware that respondents, in a city like Salt where people are proud of their city, may have overstated their responses<sup>14</sup>.
6. Regarding results and findings: the results generated from the visual evaluation are useful in arriving at certain conclusions concerning SCC. Some of the results and findings, however, were found to be applicable to some city centre areas in the region sharing similar topographical features, climatic conditions and cultural background. Among these are the historic centres of Amman in Jordan and Nablus in Palestine. Moreover, generalisation of the theory can be claimed for historic settings, but not adopted for a modern urban scale.



## 8.6 Summary of the Chapter

In the questionnaire survey conducted at SCC 425 forms were distributed and 343 were returned (82% response rate). The respondents' profile was found to be representative of the target group. This allowed for the generalisation of the results to the total population with certain reservations regarding gender.

Respondent satisfaction was measured with reference to the five visual performance dimensions of identity, order, variety, structure and fitness. The visual performance of SCC has found to be fair to good. The hierarchy of user preferences toward the visual variables was classified as: visual weaknesses, average visual performance and visual significance. The visual weaknesses covered the reservations against the unsympathetic changes in the area, the limitations of green areas, the unattractive street furniture, as well as the need for visual enhancements. Average visual performance covered few visual variables, whereas visual significance covered the general satisfaction due to the various open spaces, wide range of activities, *Al-Hammam* street, as well as SCC topography. This classification will help to establish a visual policy for SCC, which in turn satisfies the first hypothesis stated in the Introduction.

Concerning the visual appearance of SCC, the "participants" group was found to be more satisfied than the "non-participants". The responses toward "*Al-Hammam* Street Rehabilitation Project", where users participated in its development process, were highly positive. Regarding the "Salt Civic Centre Urban Development Project", where users were ignored, the responses were remarkably negative. Such findings satisfy the second hypothesis stated in the Introduction.

A separate response analysis with reference to the different characteristics of the respondent profile was made. The householder group was the least satisfied compared with responses of shopkeeper and office-employee groups. This is due to the negative environmental connotation of the area that makes SCC unsuitable for



dwellings, as well as to the physical conditions of many residential old buildings that do not satisfy contemporary requirements.

Phi- Coefficient and Chi-Square tests were used to determine the nature of relationships between particular pairs of the visual variables. Positive associations were detected between the visual variables of: "spatial orientation" and "hierarchy", "morphology" and "character", as well as "character" and "spatial orientation". These results verify the case study hypotheses. The generalisation of these results covers other old hilly city centres of the region.

†

Various considerations were made to ensure the reliability and validity of the measurements. The questionnaire survey can be modified and used to study the differences in reactions between certain user groups, to compare alternative urban proposals and to study the visible historic layers of the built environment. Certain limitations were noticed concerning the survey. These limitations, however, are minor and do not affect the nature of the conclusions.

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1. *Statistics Yearbook*, Amman: The General Directorate of Statistics, 1997.
  2. See for example:
    - Goldblatt, H., 'Arguments for and Against Citizen Participation in Urban Renewal', *Citizen Participation in Urban Development*, Vol. I: Concepts and Issues, Spiegel, Harold. (ed.), Washington DC.: NTL Institute, 1968, pp. 31-42.
    - Bazan, G., et al, Wesleyton Report, Pennsylvania State University (Un-published), 1973, Cited from: Wandersman, Abraham., 'User Participation : A Study of Types of Participation, Effects, Mediators and Individual Differences', *Environment and Behavior*, Vol. 11, No. 2 (June), 1979: pp. 185-208, (p.187).
    - Scott-Brown, Denise., 'Architectural Taste in a Pluralistic Society', *Harvard Architecture Review*, Vol.1 (Spring), 1980: pp. 40-51.
  3. Wandersman, op. cit., pp. 185-208.
  4. Cramer, Duncan., *Introducing Statistics for Social Research: Step-by-Step Calculations and Computer Techniques Using SPSS*, London: Routledge, 1994, pp. 79-92.
  5. *ibid.*, pp.187-189.
  6. Ebdon, David., *Statistics in Geography: A Practical Approach*, Oxford: Basil Blackwell, 1977, p. 171.
  7. Cramer, op. cit., pp. 187-189.

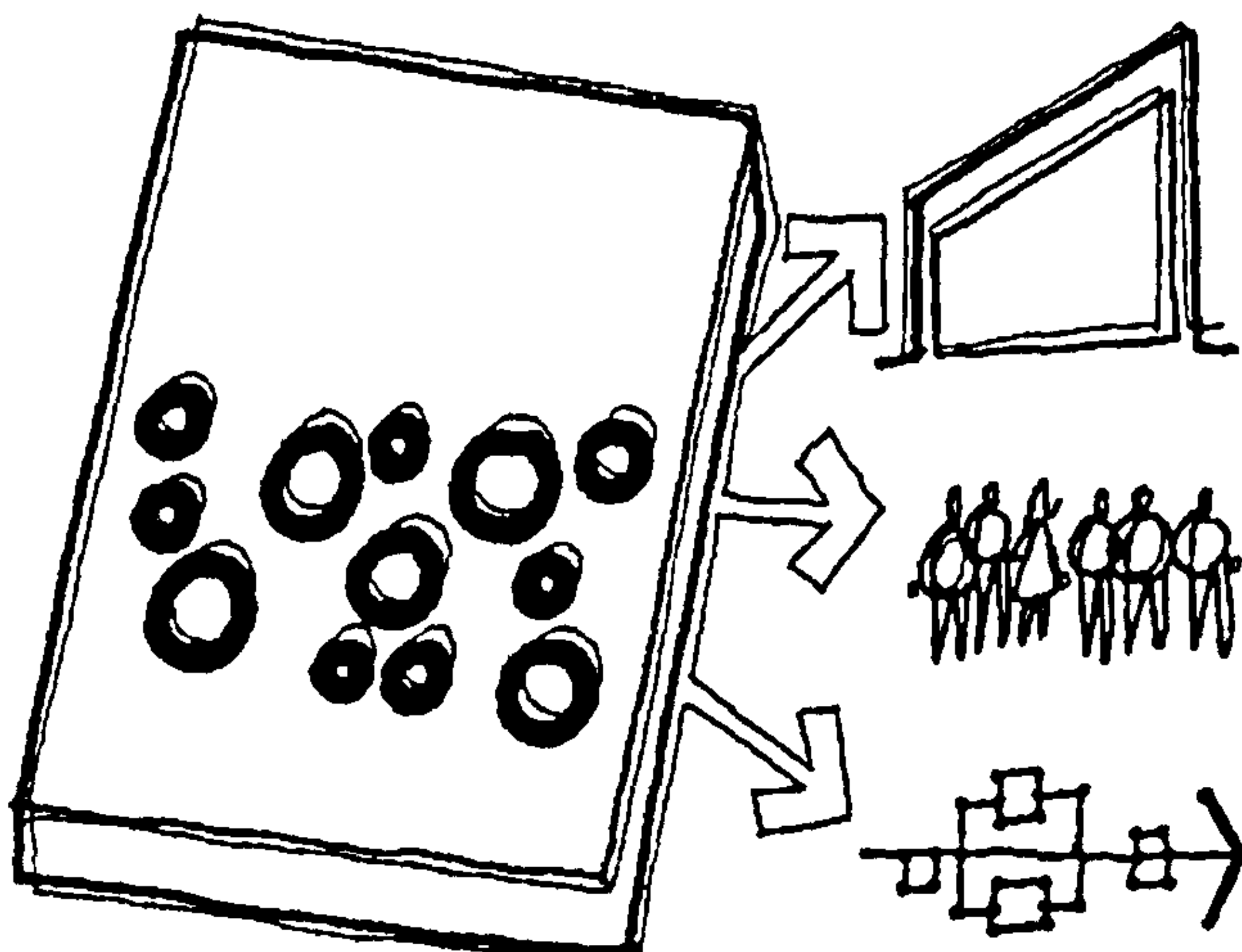


8. See for example:
  - Mark, Raymond., *Research Made Simple: A Handbook for Social Worker*, Thousands Oaks: Sage, 1996, p.61.
  - Oppenheim, A.N., *Questionnaire Design and Attitude Measurement*, London: Heinemann, 1966, pp. 69-78.
9. See for example:
  - Mark., op. cit., p.61.
  - Oppenheim, pp. 69-78.
10. Al-Zoabi, A. Y., *City Images: A Case Study of Salt, Jordan*, Un-published Ph. D. Dissertation, Nottingham: University of Nottingham, 1993, p. 253.
11. *ibid.*, p. 254.
12. *ibid.*, p. 253.
13. *ibid.* p. 258.
14. The people of Salt often consider their city as the most important city in Jordan. The competition between Salt and Amman to be the capital of the State of *Trans-Jordan* in 1921 is a well-known event in the history of modern Jordan. That struggle is documented in Musa, Suliman., and M. Madi., *Jordan in the 20th. Century* (in Arabic), Amman: Al-Muhtaseb Book Shop, 1988. It is also documented in many Salti popular songs. The responses to the questionnaire might be affected by this pride.



Chapter IX

**OPPORTUNITIES FOR ACTIONS  
AFFECTING VISUAL CHARACTERISTICS**





## Chapter IX

# OPPORTUNITIES FOR ACTIONS AFFECTING VISUAL CHARACTERISTICS

### 9.1 Introduction

It is important that the visual evaluation of SCC leads to a proposal for visual improvements. In accordance with the results and findings of the visual evaluation, opportunities for a future visual policy within the case study area are suggested. A visual policy for SCC should be established as a part of an overall urban strategy for the area. An urban strategy should provide the means for verifying whether or not the desired quality of the built environment was achieved. Urban strategies, usually, have multiple goals and interests, and comprise a number of policies, such as conservation, landscape, transportation, environmental, visual and other policies. Each policy should provide a precise statement of what it aims to achieve to enhance the quality of the built environment. To be a guide to visual actions, a visual policy for SCC should include<sup>1</sup> (Figure 9.1):

1. Objectives: come in the form of precise statements of what the policy aims to achieve regarding the visual performance of the area. Interaction of the policy's objectives with those of policies should be addressed.
2. Principles: these form a link between the objectives and the guidelines by addressing the hierarchies of priorities, and considering the effects of various constraints on meeting the objectives.
3. Guidelines: to specify how to meet the objectives.
4. Advice: further guidance on how to meet the objectives.



5. Working methods / Procedures: including methods for appraisal, consultation, briefing, illustrating and evaluating the outcomes.
6. Implementation devices: including grants, controls and agreements.

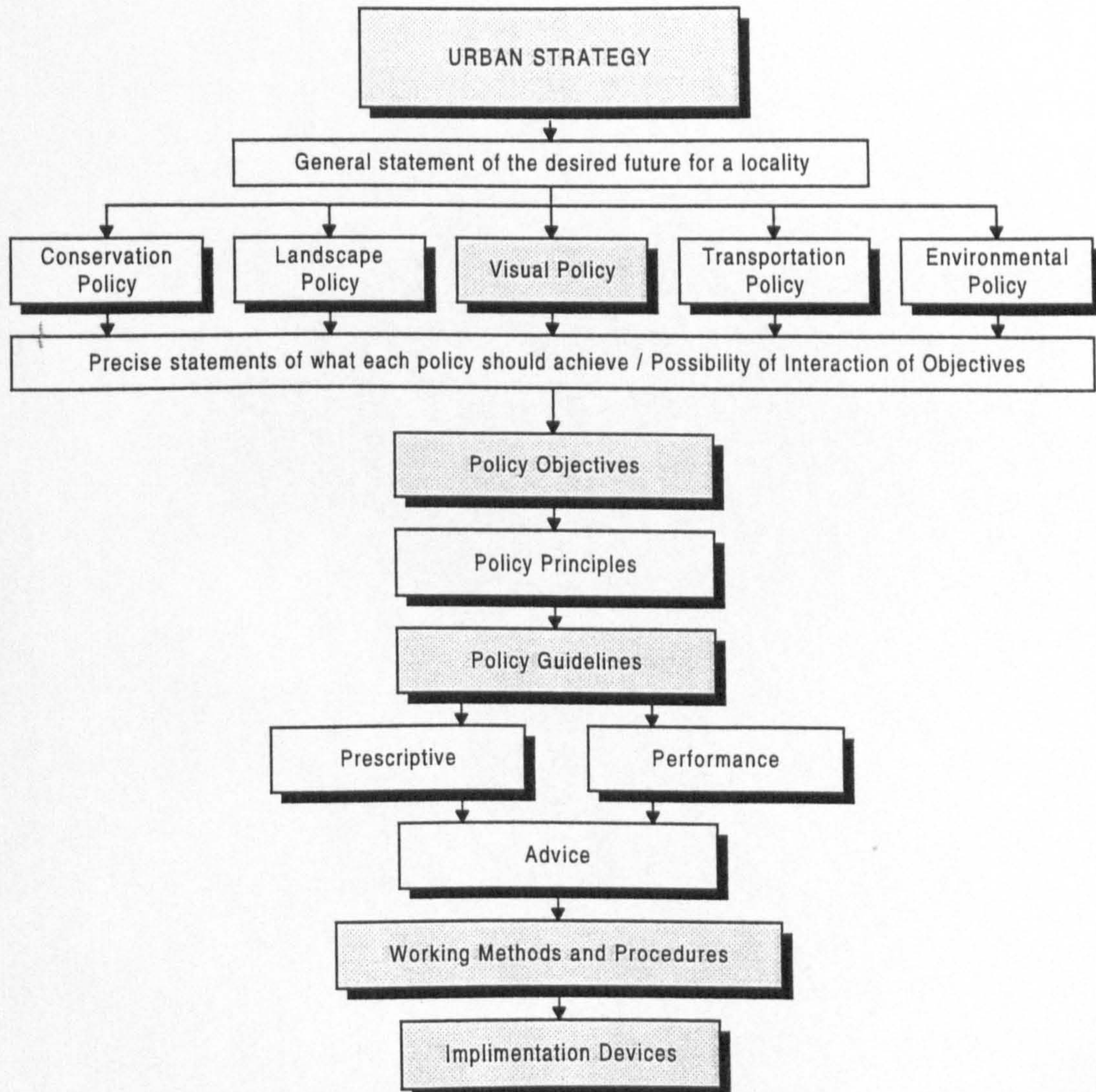


Figure 9.1: Policy conception and organisation.

Based on: Punter, John., and Matthew Carmana, *The Design Dimension of Planning: Theory, Content and Best Practice for Design Policy*, London: E & FN SPON, 1997, p. 94.

This chapter discusses the opportunities for visual actions at SCC based on the results and findings of the visual evaluation of the area. The discussion of these opportunities, however, does not result in a specific visual policy, rather it suggests a series of visual objectives and types of possible actions, i.e., how the visual evaluation could lead to visual actions regarding the spatial and formal characteristics of SCC.



## **9.2 Objectives, Principles and Guidelines for a Visual Policy**

This section states the objectives of a visual policy for SCC. There are many constraints that govern the applicability of these objectives. The principles for controlling these constraints are discussed, and guidelines for the visual policy are suggested.

### **9.2.1 Objectives of the Visual Policy**

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A visual policy for SCC should contribute to the enhancement of the visual quality of the area while taking account of its users' preferences. Accordingly, a visual policy for SCC should fulfil the following objectives:

1. To prevent further deterioration and maintain the existing unique urban character, historic importance and natural setting of the area. This will enhance the spatial and formal characteristics of the area and promote its cultural heritage.
2. To ensure that any new developments would be sympathetic and sensitive to the existing context. This will maintain SCC's spatial and formal character as well as strengthen its symbolic attachments.
3. To enhance the visual character of streets, stairways and open spaces of SCC. This will upgrade the spatial quality, encourage existing businesses, as well as improving and facilitating the retail environment.
4. To provide a secure, relaxed and socially conducive atmosphere capable of encouraging people to live within SCC. People of all classes should be considered as the backbone of all urban activities. This will promote the satisfactory social and psychological performance of the area.
5. To increase the visual satisfaction of users (see section 4.2). Visual satisfaction refers to the pleasure and enjoyment derived from: i) the feeling of belonging to the area; ii) the feeling of spatial orientation in the



area; iii) having ever-changing visual experiences; iv) exploration, change and break with the familiar; v) the variety of choices and opportunities the area provides; and vi) gaining a sense of comfort and security from the visual appearance of the environment. Increasing visual satisfaction will reinforce the opportunity of people to interact with their street space and usage for shopping, resting, talking, and celebrating festivals and other popular and religious events.

### **9.2.2 Principles for Establishing the Visual Policy**

The applicability of the above objectives is extensive and is likely to face many legal, political, financial and social constraints and obstacles. The discussion of the principles for controlling and minimising the effects of these constraints includes:

#### **1. Scope of Policy:**

The visual policy should not have an overall perspective that covers all urban issues in a superficial manner. It should rather focus on particular problems and include solutions and actions. It should be established in accordance with a comprehensive view for evaluating visual performance. The visual imageability concept proposed in Chapter IV proved to be useful in visual evaluations (see Chapters VI, VII and VIII).

#### **2. Hierarchy of Actions:**

Actions for fulfilling the objectives of the visual policy should be achieved in successive stages and in various time spans. The priority of these actions should be relative to the hierarchy of users' preferences taken from the questionnaire survey (see section 8.2.6). Meeting the hierarchy suggested by the users has to be confronted with the means of the city as well as with the necessity for other actions. It is important, however, to consider further priority approaches to implement the visual actions. Accordingly, two parallel priority approaches are also required to perform



the visual actions. One would come from the means and resources available to the city where what is easiest is to be done first; and the other would focus on the most urgent actions that cannot wait.

### **3. The Role of Users:**

The questionnaire survey provided meaningful facts concerning the visual performance of SCC from the users' point of view (see Chapter VIII). The role of users should not be limited to this stage, rather extended to cover a continuous and constant monitoring of the visual performance of the area. Constant monitoring is necessary to ensure the continuous successful visual performance of SCC. Monitoring will allow for re-considerations, adjustments, refinements, redevelopment and further development. It is necessary, therefore, to devise further procedures that will involve the users in the various decisions concerning the intended visual actions. Some shifts in legal controls may be required for considering assessments based on users' reactions and opinions.

### **4. Flexibility:**

The visual policy, once established, should not be seen as a complete and fixed future guide. Urban issues are continuously changing. Each new issue will cause revision and extension of the visual objectives. Moreover, it should not constitute presumptions against development, or set mandatory standards. It should be able to be tailored to meet the needs of the different localities within the study area.

### **5. Justification:**

The visual policy should be phrased to be legally solid, technically accurate, clear and concise. It should be well justified so as to be understood and accepted by both the politicians (local authorities) and the financial sponsors (developers). Politics and finance play an important role in the decision making process. Therefore, the visual policy should anticipate political and financial decisions that may affect the



realisation of its actions, and making the assumptions that the implementation process would be compatible with them.

## **6. Target Groups:**

Every effort should be made so that the original residents do not move into other places and neglect their architecturally valuable buildings until they deteriorate. Moreover, pedestrians should be identified as the most affected users of the area. Accessibility and demands of contemporary life are the most crucial constraints here. Regarding accessibility, the topography of SCC limits practical diversions of traffic routes. The only flat land lies in the valley bottoms that are served by the main traffic routes of Salt. Accordingly, it is important to reconcile the needs of SCC with traffic routes through the preparation of an environmental and traffic management scheme. The constraints related to contemporary life demands are manifested in the negative issues that make SCC unsuitable for dwellings. These include air pollution, noise, vibration, inadequate services, lack of parking spaces and of easy access, as well as the physical conditions of many old residential buildings that do not satisfy modern requirements.

## **7. Conservation Measures:**

The conservation of SCC historic buildings and areas is governed by some legal and economic constraints. The legal constraints are caused by the absence of legislation for preserving the architectural heritage (see section 1.2.3). Accordingly, legal means should be established so that architectural and historical value, importance and uniqueness of buildings would be considered as appropriate reasons for preservation. It is evident that SCC cannot rehabilitate itself depend from its own financial resources. The main constraint is the lack of profit motive to encourage developers. It is important to minimise the economic constraints through contacting different agencies to provide finance and responsibility of restoration and subsequent maintenance.



### 9.2.3 Guidelines for the Visual Policy

The previous discussion explains the principles of controlling the constraints affecting the applicability of the visual objectives. These principles serve as a link between the objectives of the visual policy and the guidelines that specify how to meet these objectives. Therefore, to meet these objectives, the visual policy can be organised around the following guidelines:

1. The visual policy should be established in accordance to the five visual performance dimensions of identity, order, variety, structure and fitness. It should focus on particular problems related to the visual performance of the area, and include actions for solving these problems.
2. The visual policy should be based on awareness of the users' desires. It should involve the users in regular monitoring and continuous assessment of outcomes relating to the visual performance of SCC.
3. The visual policy should include visual actions, priorities, demands and expectations that could be achieved in successive stages and in a various time-spans, i.e., short-term, medium-term and long-term. It should allow for change within time.
4. The visual policy should maintain and improve the existing human scale and pedestrian image of SCC. The current situation where the city development is to meet the needs of traffic should be reversed. Traffic should be planned and regulated to meet the needs of the city.
5. The visual policy should include measures for conservation and rehabilitation of buildings, groups of buildings and unique settings. This should not, however, transform the area into a huge museum, rather encourage the original users to resettle in the area by providing them with the necessary requirements of the modern life.
6. Working methods and implementation devices for realising the visual policy should be established.
7. As verbal descriptions alone cannot provide a comprehensive level of understanding, visual policies should be demonstrated in visual terms.



Visual material accompanying verbal description is essential for a profound level of understanding.

### **9.3 Basis for Priority of Visual Actions**

The previous discussion shows that the policy should be seen as a succession of various actions, rather than as a predetermined fast moving decision making and unwavering exercise. The establishment of a visual policy for SCC is beyond the scope of this study. However, it is necessary to show how the visual evaluation would lead to visual actions regarding the spatial and formal characteristics of SCC. The visual evaluation of SCC involved three levels, i.e., indicative, investigative and diagnostic.

The indicative evaluation depended on the researcher's experience and judgement of the spatial and formal characteristics of the area. It aimed at identifying the successes and failures in visual performance as well as achieving short-term problem-solving actions for minor failures. Minor failures are those that can be solved in a short time and with little resources, such as minimising visual pollution, treating vacant plots, cleaning polluted facades and other actions. Specific visual problems related to certain areas at SCC were identified in the indicative evaluation (see Chapter VI).

The investigative evaluation depended on the actual users' behaviour within the investigated areas, as well as the researcher's judgement of whether the existing characteristics support the visual performance and fulfil the visual satisfaction (see Chapter VII). Some of the findings can immediately inform design and planning decisions, while others are concerned with major visual failures that may need some time to resolve. Actions to resolve these kind of visual failure may include major changes in the organised structures of the area, such as remodelling, modification and development of the major scheme of Salt Civic Centre to cope with the morphology of the area.



The findings of the diagnostic evaluation are directly related to users' reactions and judgement of the visual performance of SCC (see Chapter VIII). The data, obtained from the questionnaire survey, reflect the users' opinions and desires regarding the visual performance of the area. These opinions could form a base for actions to improve that performance.

A hierarchy of the users' responses to the visual variables was established covering: the visual weaknesses, average visual performance and visual significance of the area (see section 8.2.6). Visual weaknesses should be resolved. These concern typology of new buildings, destruction of important landmarks, similarity in form of plazas and open spaces, current condition of *Al-Maydan* plaza, new buildings not matching the natural setting and/or traditional and historic pattern of the area, the Salt Civic Centre urban development project, deteriorated old buildings, vacant plots, visual pollution, street furniture as well as congestion of vehicular streets and the size of green areas.

The average visual performance should be upgraded. These concerned: alignment of vehicular streets, ability of vehicular streets to attract users and activities and the similarity of size of plazas and open spaces. The visual significance, however, should be maintained and reinforced. These concern the unique urban and natural setting of SCC which gave the area its memorable image, the availability of landmarks that act as visual clues, the alignment of pedestrian streets and stairways, the attractiveness of the area, *Al-Hammam* street, shows the ability of plazas and pedestrian streets to attract various uses and activities, with visible traces of history, the ever-changing visual relationships, the degree of spatial orientation, the sense of enclosure, the lively and dynamic characteristics of the area, the familiarity of old buildings, and the high degree to which SCC's urban components and old buildings match the natural setting.

The findings of the indicative, investigative and diagnostic evaluations at SCC have a great level of consistency that indicates a high degree of confidence. The three levels of evaluations agreed on the following:



1. SCC built environment reflects and expresses both formally and symbolically Salt's history and its social and economic activities. SCC possesses a human scale and intimate identity, and is mainly characterised by its pedestrian users.
2. Since the beginning of Salt's history as a human settlement, the open spaces and the streets of SCC played an important part in its life. Open spaces have been regarded and used by its inhabitants as an important public amenity. It is important, therefore, to reinforce and maintain these open spaces. Much attention should be given to *Al-Maydan* Plaza so that it will become once again a very significant visual feature of SCC, as it surely deserves to be.
3. The past practice of separating architectural design from the city redevelopment processes leads, and will continue to lead, to streets and open spaces which are often only considered in terms of traffic flow; and with buildings which are almost defiant of their contextual environment.
4. The conservation and rehabilitation scheme at *Al-Hammam* Street could be considered as a policy shift towards emphasis on visual quality. This scheme enhanced and revitalised the area through the re-introduction of the pedestrian scale.
5. Conservation measures inappropriate to old buildings should be modified and improved.
6. Most of the visual problems of SCC are related to its new buildings and developments. Most of these buildings do not fit or match either the natural environment or the inherited urban context.

Some conflicts in interests and objectives, however, are also found between the findings of the three levels of evaluations. This is consistent with the idea that users have different objectives and interests to professionals (see section 1.3.3). The indicative evaluation, for example, identified SCC's topography and landform to be the most memorable items of SCC. This was consistent with the findings of the investigative evaluation. Yet, the responses to the limited interview survey also stress



the importance of plazas and open spaces. The investigative evaluation, however, considered SCC's plazas and open spaces to be the most memorable elements of the area. Topography and landform were rated as the second most memorable elements of SCC. Yet, it is interesting that the diagnostic evaluation suggested a positive association between the "morphology" and "character" of SCC ( see section 8.4.2).

Both the indicative and the investigative evaluations suggested that it is easier to find one's way in SCC's pedestrian streets and stairways than in vehicular streets. On the other hand, the diagnostic evaluation found that it is easier to found one's way at the vehicular streets than that at pedestrian streets. Regarding plazas and open spaces, the indicative evaluation showed that SCC has a variety of small and large open spaces (see section 6.2.4 C). The diagnostic evaluation considered SCC's plazas and open spaces to be similar in size and form (see section 8.2.3). However, both levels of evaluation agreed that the variations of importance are more noticeable than variations in size and form.

Moreover, some interests were expressed in only one evaluation level. The investigative evaluation, for example, indicated that the no longer existing water springs of the Great Mosque Plaza were important features of SCC. The same applied for the Ottoman Bathhouse (*Hammam*) that had been used as a major communal place where women could spend their free hours and children could play and enjoy the hot and cold water baths (see section 7.2.4).

Since the researcher's viewpoints represent those of the professionals, the findings of the different level of evaluation show that the attitudes and interests of professionals are different from those of users. Professional interests reflect their theoretical knowledge and value systems. On the other hand, users' interests are the result of their different environmental knowledge, i.e., experience, motivations and expectations. In such interweaving attitudes and interests, recommending actions to be taken becomes a critical part of the evaluation process.



Basically, there are two types of recommendations. The first might address the hierarchy of possible implications. It is important that the priority of actions would respect the users' opinions and desires as derived from the questionnaire survey. Users' opinions are important because they have direct experience with their area. However, their opinions may suggest a priority hierarchy that does not accord with the means of the city, the urgency of some tasks, as well as the conflicts of interests with the findings of the indicative and investigative evaluations at SCC. The second type of recommendations may relate to different time-horizons for their implementation, i.e., short-term, medium-term and long-term actions.

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#### **9.4 Outlines for Visual Actions**

The previous discussion suggests the consideration of another two priorities, in addition to users' preferences, to perform the necessary visual actions (see section 9.2.2). One concerns the resources of the city; and the other concerns the most urgent actions that cannot wait. This study proposes outlines for visual actions at SCC. These are based on the results and findings of the indicative, investigative and diagnostic evaluations of the area. Users' opinions and interests were considered as a first priority. The findings of the indicative and investigative evaluations indicated some of the most urgent actions. This hierarchy of the proposed outlines should be revised in accordance to the city's means and resources, i.e., related to successive stages for their implementation.

Since the visual evaluation of SCC showed that the "fitness with the built environment" incorporates the most critical visual failures of the area, visual actions for solving such failures are recommended as short-term, medium-term and long-term-action. The proposed outlines for visual actions are presented in terms of the five visual performance dimensions of identity, order, variety, structure and fitness. Verbal descriptions are accompanied by visual material. The visual material aims to provide an understanding of the proposed actions. Most of the visual material is general in nature, as does not refer to specific examples or situations in SCC.



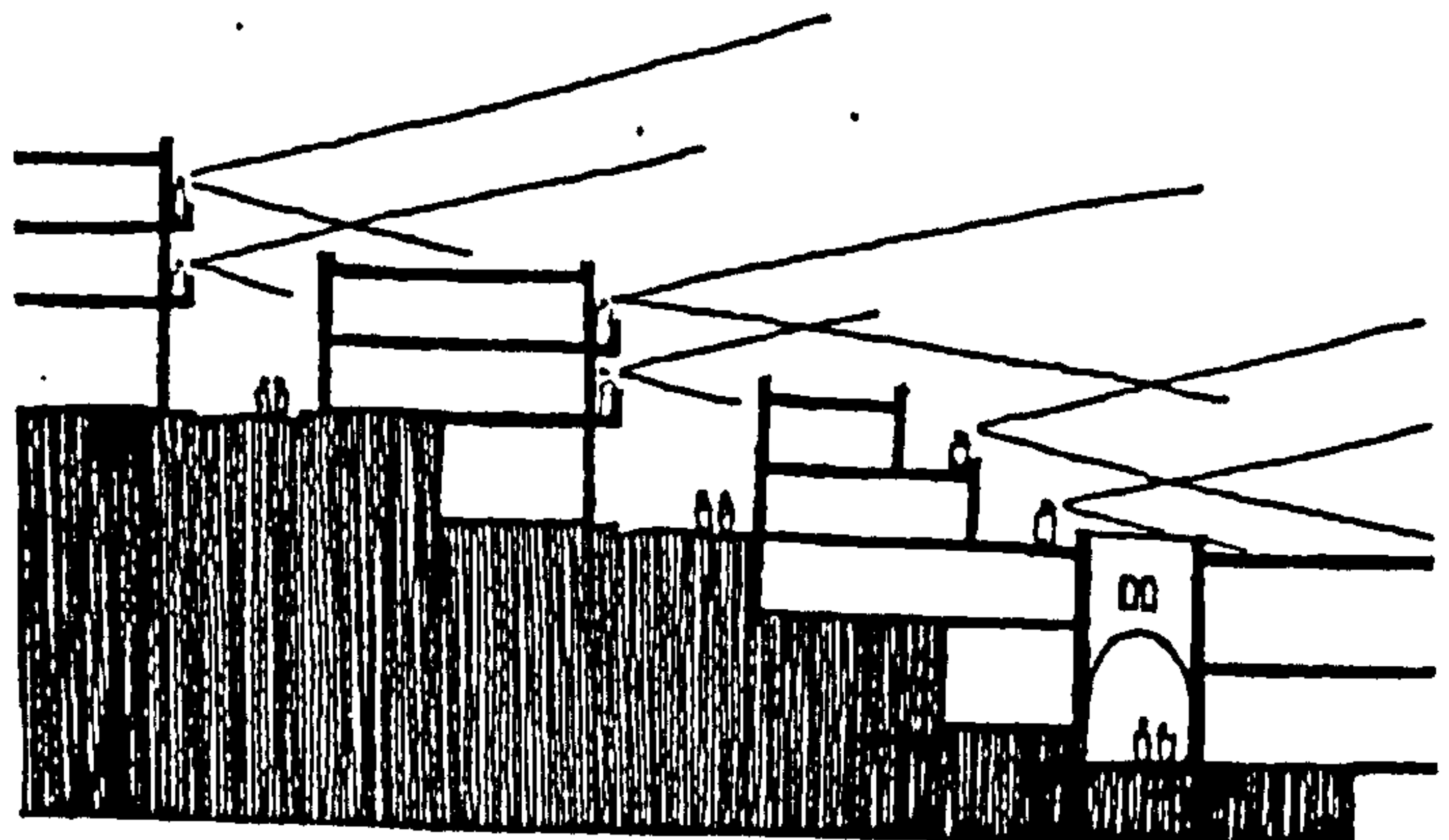
### 9.4.1 Visual Actions Concerning Identity

The visual evaluation of SCC showed that SCC has a distinctive architectural and urban identity reflected by its unique landform, open spaces, streets, stairways and buildings. SCC still has the potential to be visually modified to fit with the desires and behavioural patterns of its people.

#### A. Morphology:

- SCC has a magnificent topography and landform. Its open spaces and buildings often enjoy panoramic views of this unique setting. Any policy concerned with the visual form of SCC would make sure that its landform is visible from the lower areas of the valley. This could be accomplished by maintaining distant views through improving the visibility of the hillsides. In reverse it would be important to make the hilltops accessible and to open up the panoramic views from them. Such actions may confront with the absence of legal means of conferring "view rights" in the existing legislation (see section 1.2.3). Accordingly, legal measures should be established for controlling height, size and bulk of new developments, as well as developing rules for sight lines (Figure 9.2).

Figure 9.2: Legal measures should be established for controlling height, size and bulk of new developments, as well as developing rules for sight lines.



- The natural setting of SCC provides a unique opportunity of enjoying the view. The appearance of the roofscapes is important and should be improved. Roofs can accommodate functions, such as, terraces, patios and gardens.



## B. Typology:

- The transformation and deformation of traditional elevations has been a continuing process caused by the deterioration of buildings, lack of maintenance, ageing, application of colour coats, renovation using inappropriate materials and techniques, replacement of traditional elements (windows, doors and balconies) and haphazard extensions and additions. These require the implementation of incentive programmes that will encourage the adherence to quality design as well as maintenance of buildings and their surroundings (Figure 9.3). A development programme should include measures to be reinforced by building codes to protect and preserve the basic forms, character and finishes of traditional facades.



a. Example of the existing conditions.

b. A proposed solution.

Figure 9.3: Incentive programs are required for maintaining the traditional buildings.

Source: SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 5, p.22.

- The preparation and enforcement of building regulations and by-laws dealing mainly with quality control of the architecture, its styles and its finishes. Recommended finishes should match the traditional yellow-stone of Salt. Ammani white stone and stonework effects on white plaster are to be discouraged. People should be encouraged to use features (scale, heights, proportions and typology of architectural elements, colours and textures of building materials) which are in line with the intimate character of traditional buildings and settings of SCC. This can be accomplished through preparing a book of typical details covering these elements (see section 10.3.3).



- The treatments of door and window openings are one of the main items in the building elevation that characterise traditional architecture in SCC. Appropriate measures to restore these valuable elements must be worked out with the aid of experts including technicians and craftsmen (Figure 9.4). Such measures include repairs, stone pointing and wooden frame repairs. Further studies of the possible alternative designs and materials that could be utilised while keeping the overall original style should be considered (see section 10.3.3).

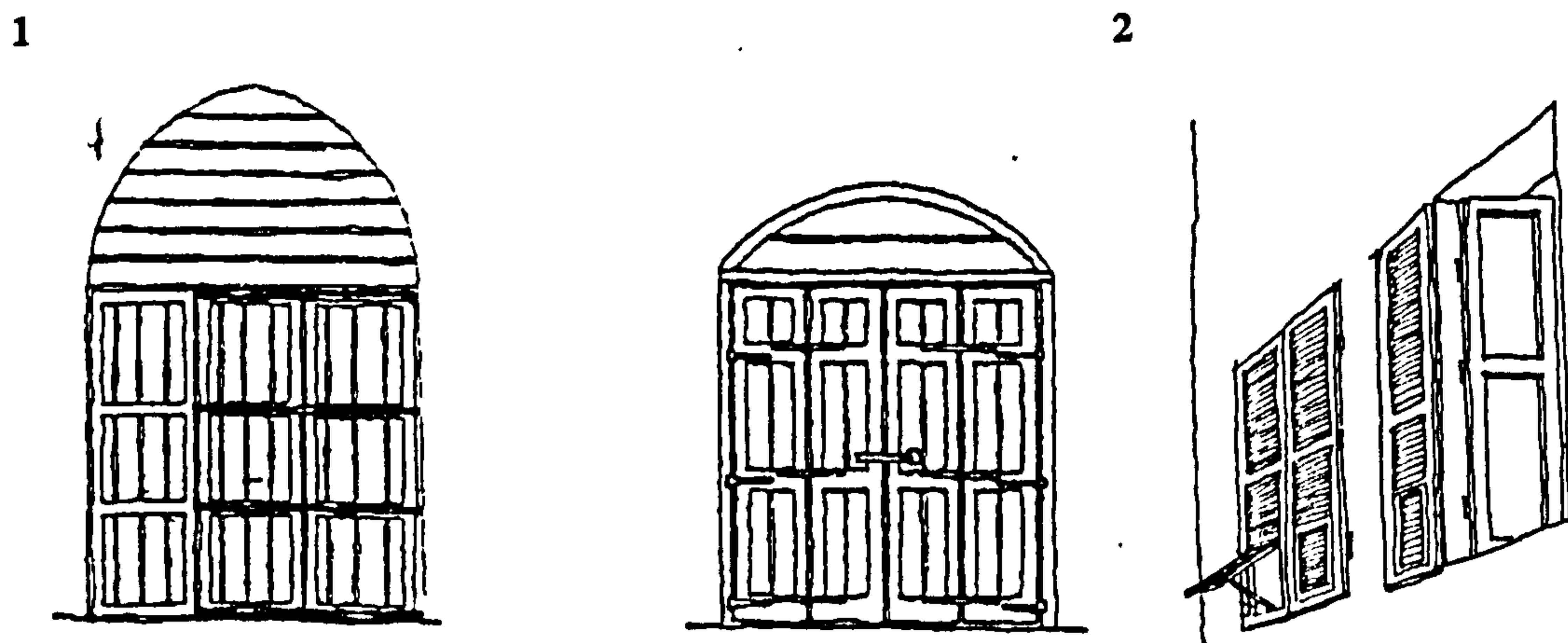


Figure 9.4: Appropriate measures to restore traditional openings must be worked out with the aid of experts and technicians.

Source (of sketch no.1): SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 4, p.16.

- Some of the present practices should be strictly prohibited, such as leaving squatter-like structures unfinished for extended periods; covering up the traditional facades and their details with new materials; utilising balconies as new extensions for toilets and bathrooms.

### C. Character:

- The visual evaluation of SCC showed that the area has a recognisable and memorable image determined by its pattern of compound massing and open spaces merged into its natural setting and unique landform. These characteristics confer a strong sense of place (Figure 9.5). Visual actions should be made to conserve these characteristics that make SCC remarkable and coherent. The effect



of new buildings on this distinct character, however, should be identified to clarify the possible treatment and thus to reinforce and maintain the sense of place. Such action requires the revision of existing building regulations and changing those that permit development out of SCC's character. The regulations should also incorporate appropriate measures to control materials and design details sympathetic to SCC's character.

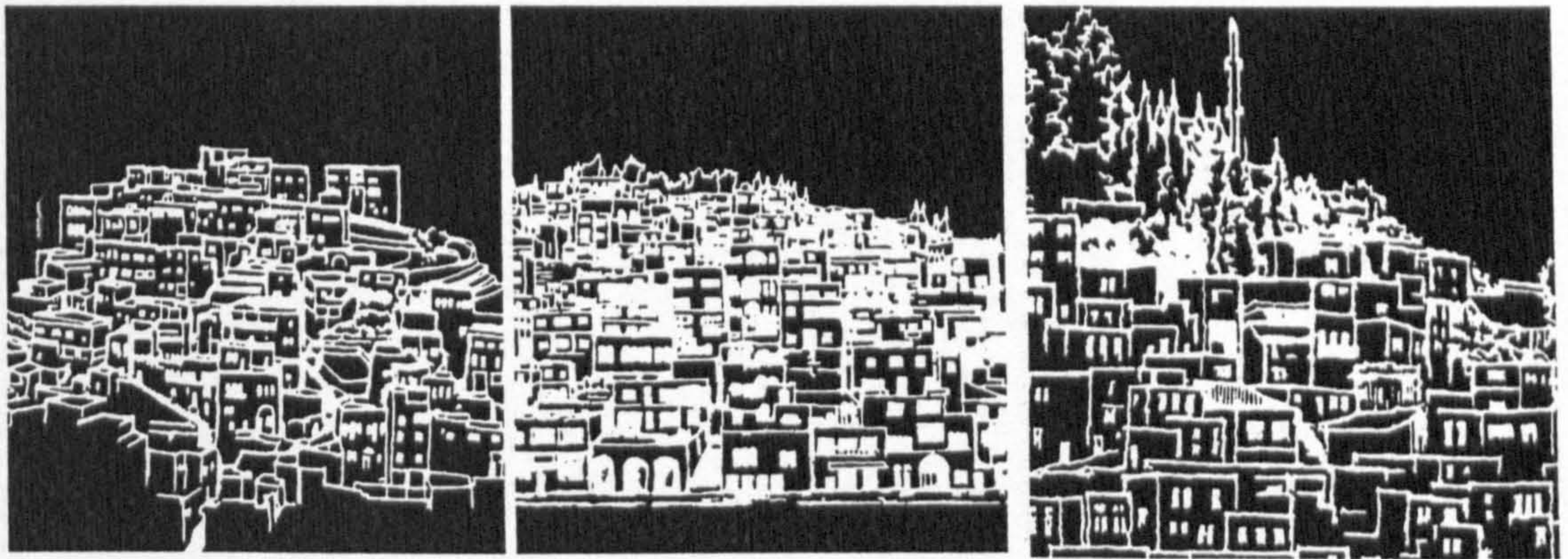


Figure 9.5: A strong "sense of place" is established by the pattern of compound massing and open spaces merged into its natural setting and unique landform of SCC.

The above three sketches are up-dated and redrawn by the author, based on: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, Pages 172 and 206.

- The character of the locality could be reinforced according to the visual features of its buildings, such as heights, frontages, materials and details.
- Maintain and reinforce the pedestrian character. The idea of traffic-free zones should acquire a much wider application at SCC where pedestrian movement is by far the dominant form of circulation. The city's pattern of paths and stairways is ideal for pedestrian circulation, and should be extended, where opportunities arise, to act as an interrelated pedestrian network. This requires applying traffic controls and measures to discourage the unnecessary traffic from using the area by banning the use of any vehicle which contribute to the production of pollutants, examining the possibility of constructing alternative routes to accommodate through-traffic and re-routing through traffic to alternative routes.



### 9.4.2 Visual Actions Concerning Order

The formation of SCC with its mountains and valleys aided in creating different levels of visual hierarchies and dominance in the area, which also creates a feeling of orientation and ordering progression.

#### A. Regularity:

- The visual evaluation of SCC showed that the area has a human and intimate scale that allows users to feel comfortable and not overwhelmed in the city. This scale, however, is derived from the patterns of open spaces, massing, buildings and facades which people can relate to. The human scale should be reinforced and maintained. There should be no indiscreet changes in these patterns, and the size of new development should reflect the predominant features of the surrounding areas.

#### B. Alignment:

- Preserve and reinforce the unique movement and visual sequences in pedestrian streets by keeping the varying widths thus preserving the usual blocking effects of certain buildings.
- The current practice of urban "improvement" by road widening schemes seems to concern itself only with maximising accessibility at the high cost of detrimentally affecting the urban character of SCC. An assessment, redefinition and reorganisation of hierarchy and functional requirements including vehicular traffic in SCC's streets should be made. Streets are not required to be smooth and fast or uniform in width.
- The pedestrian crossings at SCC, if available, have conventional pattern stripes. Such patterns act as visual barriers to pedestrians and as invitation to vehicular



traffic, giving the impression of priority for moving to vehicular traffic. Reversing the marking pattern is required in order to provide a better warning and incentive to brake by the moving traffic visually and psychologically (Figure 9.6).

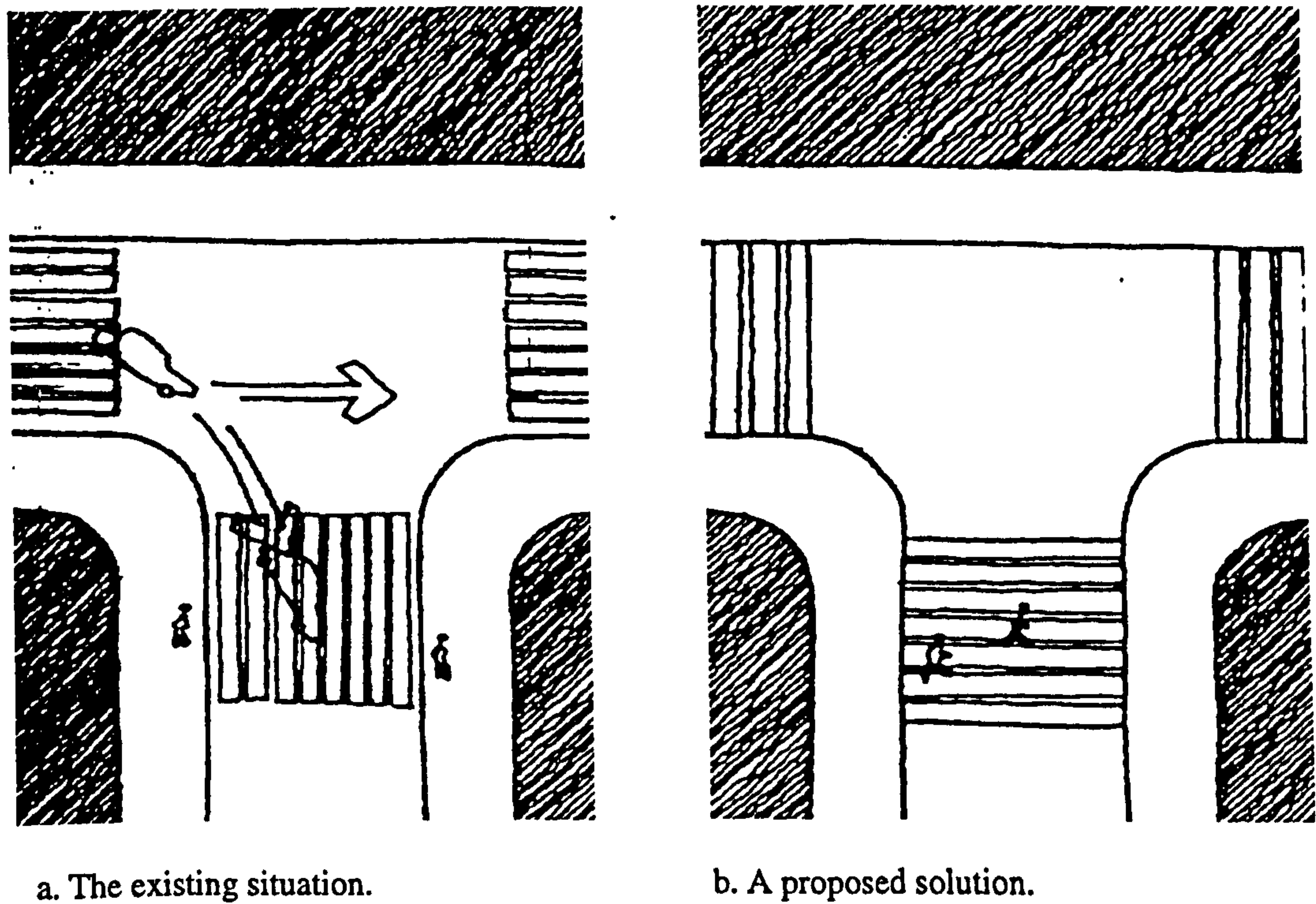


Figure 9.6: The conventional pattern of stripes for pedestrian crossings at SCC, and a proposed solution.

### C. Hierarchy:

- Visual actions should include opening up access to vistas and panoramic view points. This is important to provide visual rhythm and continuity, express natural features and create spatial sequences.
- Maintaining the visibility of important landmarks as well as re-exposing hidden landmarks and integrating them visually, spatially and physically in the pedestrian network. These include identifying the important buildings and landmarks of SCC, such as the Anglican Church and the English Hospital, that are hidden behind new structures obstructing their views, and designing for re-introducing those buildings to SCC.



### 9.4.3 Visual Actions Concerning Variety

In the old parts of SCC one experiences a sense of variety in unity, while almost all the new additions do not evoke this experience. The same can be said regarding the variety of uses. Old sections of SCC, with their various forms and activities, have the ability of attracting various people at various times and for various reasons. However, the conservation measures of important old buildings are not totally appropriate and should be modified and enhanced. New sections, especially Salt Civic Centre, have failed in acting as magnets and meeting spaces.

#### A. variety of Uses:

- Enhancing the visible human activity along streets and building fronts. This requires upgrading the existing building fronts of commercial facilities and encouraging the car-repair shops at *Al-Deir* Street to change in type and quality to match with the pedestrian character of the area. This could be accomplished through accommodating uses connected to the public at ground floor level. It is difficult to change the uses of some building fronts. Such building fronts, however, can still contribute to the pedestrian character by providing places where people can sit and rest, such as at the column bases or stairs.
- Choice should be increased for all users, such as, children and parents, disabled and sick people, poor people, minority groups and women. This could be accomplished by using parts of the pedestrian areas as street restaurants and coffee-shops, by providing outdoor seating arrangements at points of rest and relaxation in the area in various layouts and clusters (Figure 9.7), and by adding sculptural forms, water fountains, advertising and information stands and other street furniture to act as visual landmarks and points of reference. Such actions will re-introduce the opportunity of people to interact with their spacescape and increase shopping, resting, talking, celebrating festivals and other popular and



religious events. Celebrating such events would be an additional attraction for visitors as well as a source of pride for the inhabitants.

- Interaction of uses should be encouraged. Every effort should be made to maintain the existing residential occupation and to attract new residential uses to vacant old buildings. This is important to promote the vitality of the area. However, it is important to provide modern facilities for these residential uses. These include enhancing the visual as well as the functional performance of parking lots.

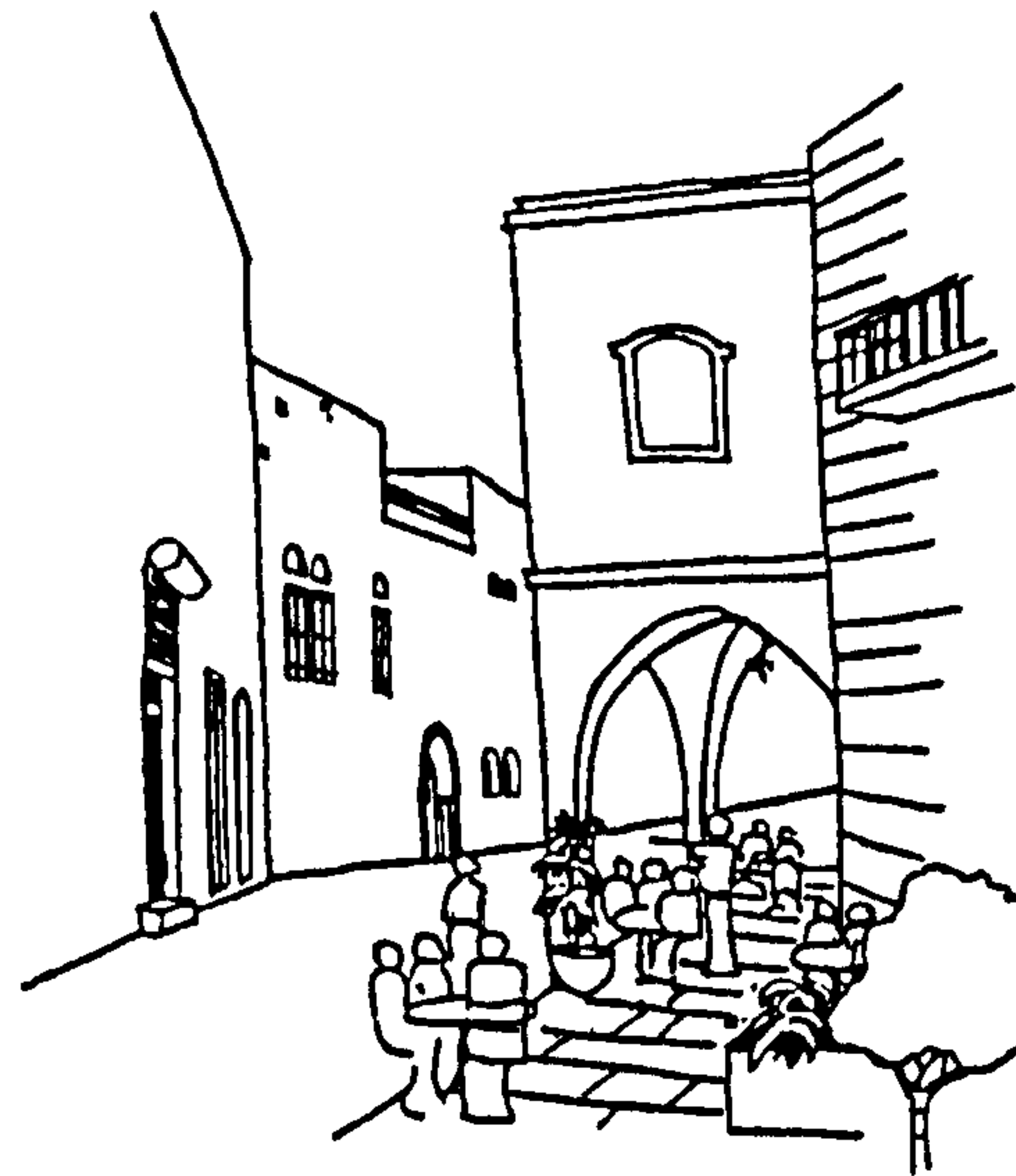


Figure 9.7: Choice could be increased providing of outdoor seating arrangements at points of rest and relaxation in the area, in various layout and clusters.

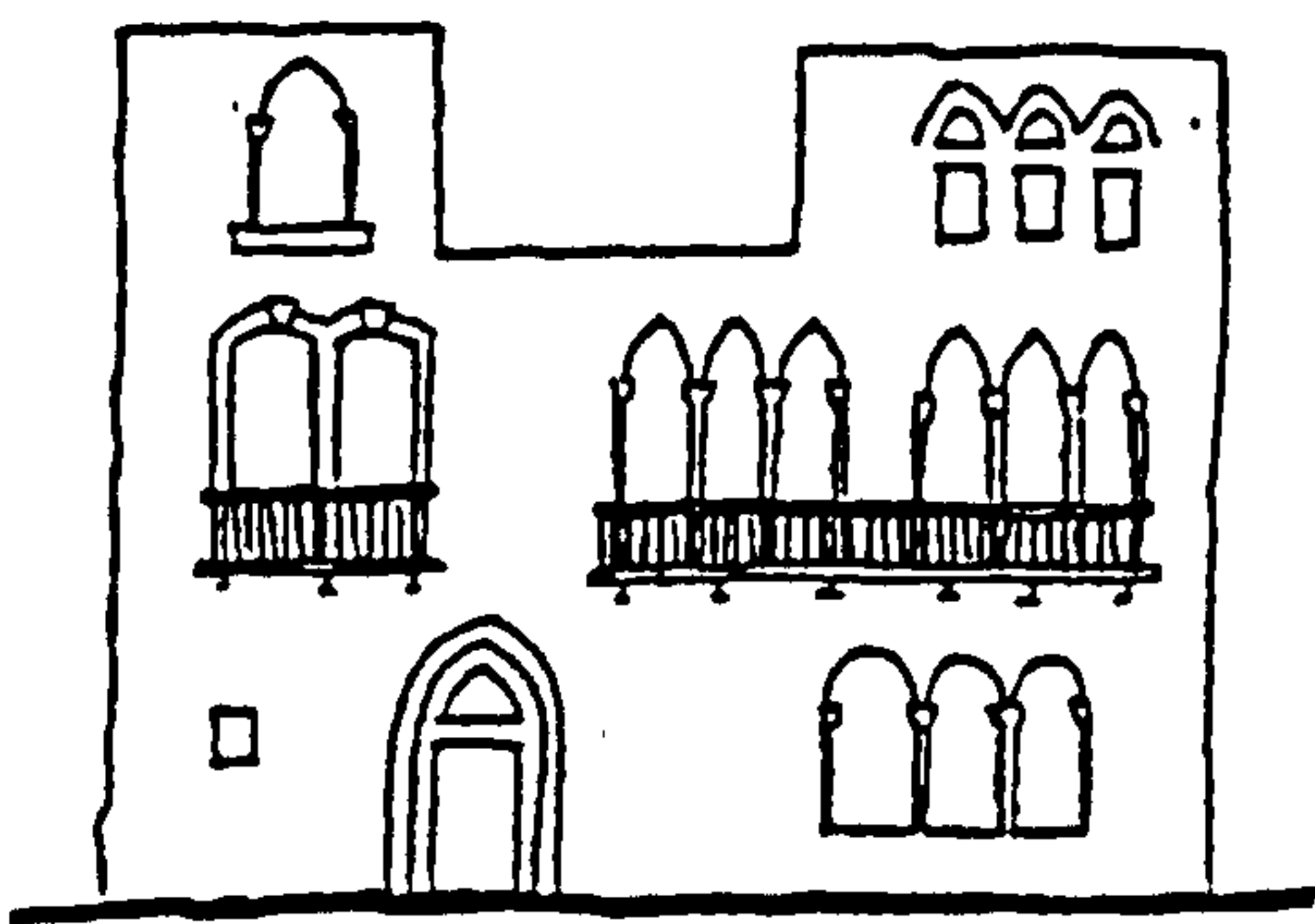
Source: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, p. 176.

### B. Variety in Complexity:

- Documentation of the significant buildings in SCC and preparation of a "list of heritage buildings" classified by grades. This will be of great help in design and restoration programs. Permission should be necessary before demolishing or altering all buildings on the "Heritage List". It is important, however, that experts who classify buildings should not impose the conservation priorities by their historic importance or architectural quality only. These should arise out of the values and memories of the users, i.e., through "a collaborative study with the users of a place, to explore their own image of time: how it is put together, what its critical foundations are, where there are gaps and disconnections, how it is changing"<sup>2</sup> (see section 10.3.2).



- Such action should be followed by an early move to restore, and rehabilitate "Grade 1" buildings as a first priority. Suggesting adaptive re-uses for these buildings is necessary. The suggestions should not separate them totally from their original uses, otherwise, the city centre will become a big museum. Moreover, it is important that the criteria for choosing new users are not limited to income or status but allow a relatively complete and normal mixture of society.
- The current inappropriate conservation measures for old buildings should be revised, modified and enhanced<sup>3</sup>. Conservation measures should respect the original character of heritage as an expression of historic continuity (see section 6.2.5 B), (Figure 9.8).



a. Inappropriate renovation measures changing the original character of the ground floor, and adding older features on the third floor.



b. The proposed treatment, by SDC, maintaining the original character and respecting historic continuity.

Figure 9.8: Conservation measures should respect the original character of such heritage as well as the historic continuity (see also Figure 6.62).

Source: SDC, *Salt: A Plan For Action*, Vol. I, Salt: Salt Development Corporation, 1990, p.14.

- Proper actions should be made to conserve the Ottoman Bathhouse (*Hammam*) that had been used as a major communal place women could spend their free hours and for children to play and enjoy the hot and cold baths. A study by the "Salt Development Corporation" suggested the use of water springs as drinking fountains at the Great Mosque Plaza<sup>4</sup> (Figure 9.9).

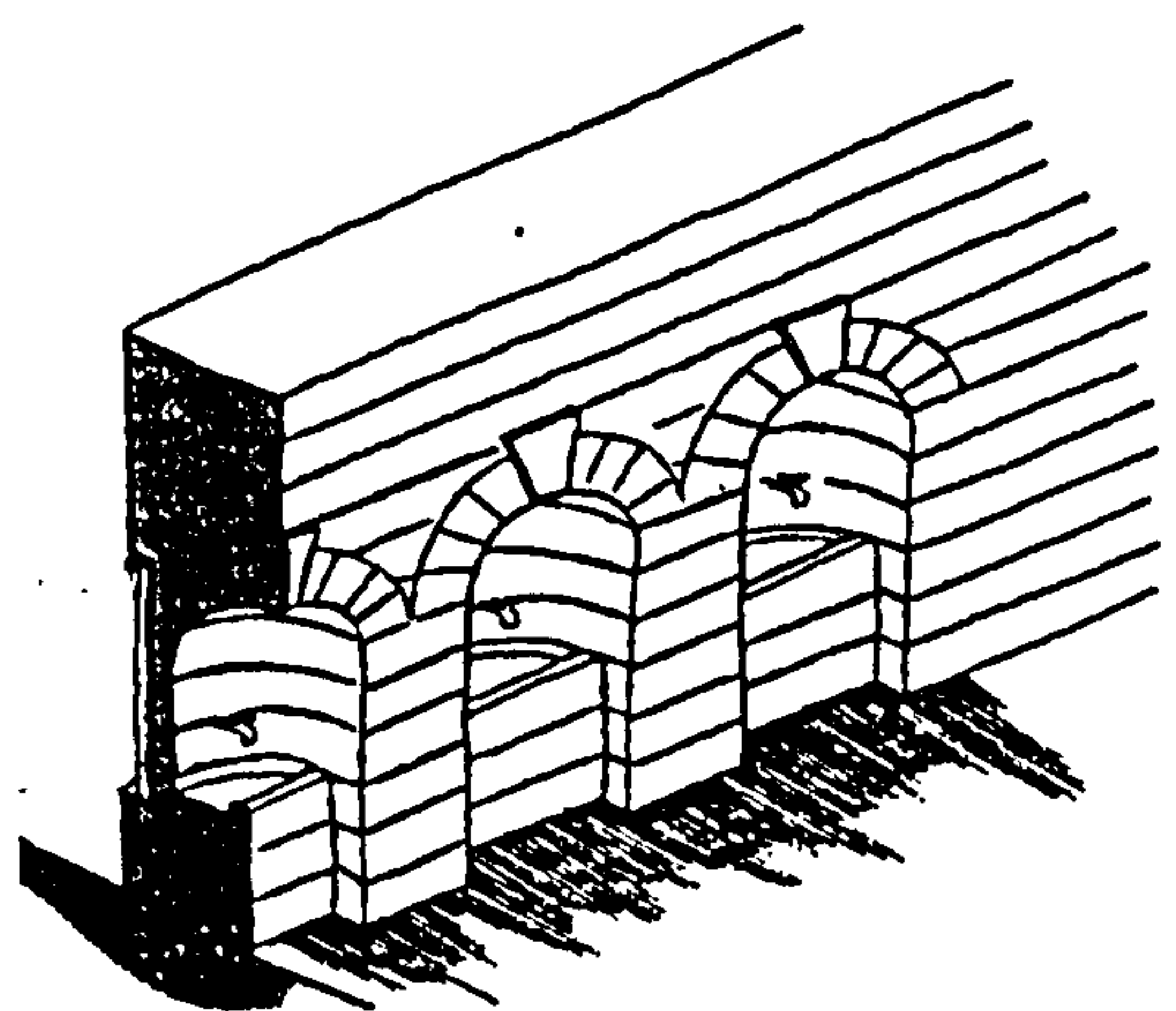


Figure 9.9: The proposed drinking fountains at the Great Mosque Plaza.  
Source: *Salt: A Plan For Action*, Vol. II, Salt: SDC, 1990, sec. 4, p.18.



### **C. Variety in Relationships:**

- Reinforcing and maintaining the physical and visual connections among city areas. A sense of connected whole is important. This creates a more enjoyable walking environment through sequences of spaces and visual varieties, as well as in building a sense of spatial orientation.

### **9.4.4 Visual Actions Concerning Structure**

SCC has clear visual and physical edges manifested by its slopes and landform. The legibility of form and use is evident in that SCC users are able to form a clear and accurate image of its spaces, routes and buildings.

#### **A. Spatial Orientation:**

- Reinforce the spatial orientation of the key physical elements of the area, i.e., pathways, localities, nodes, landmarks and edges. The character of each pathway, especially stairways, should be reinforced so that it will be easier to distinguish by the users. Each stairway should have an identifiable character and thus the area's network will be memorable as a system of clear and coherent sequences.
- Landmarks should be used as a focus for a potential open space, i.e., open spaces and nodes could be developed adjoining existing landmarks. This would allow the users to read the environment as a system of sequences and signs.

#### **B. Visual Inertia:**

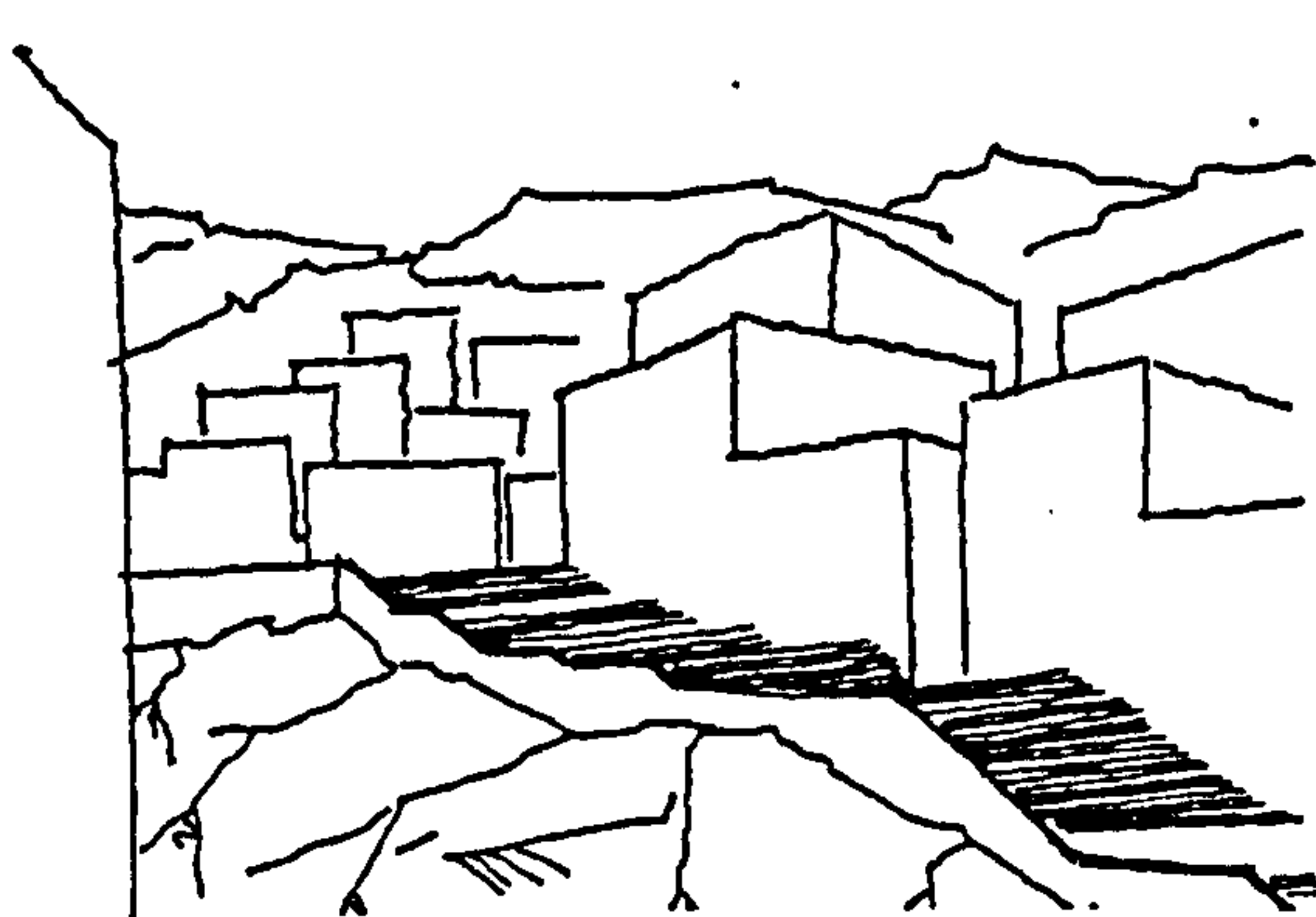
- Maintain and reinforce the sense of motion and continuous flow by providing a variety of movement sensations experienced in relationships both to near-by parts of streets and open spaces and to distant city views. The movement system,



however, would act not only as a prime source of information and orientation but also as a visual organiser of the city.

### C. Enclosure:

- The role of open spaces of SCC should be maintained and reinforced as a focus of activity and contact. The Main Mosque Plaza should be enhanced to reflect its importance as a powerful landmark in SCC. However, the central plaza of *Al-Maydan*, should be recreated as a means to extend the user's emotional reach. The special character of these plazas and open spaces may provide for the natural human desire of experiencing and participating in interesting events.
- SCC contains a variety of stairways that must be maintained, organised and improved. Maintenance includes conservation of the traditional envelopes of the stairways, i.e., their buildings and walls. Organisational measures are concerned with landscaping of terraces. Certain areas could be reclaimed and organised into platforms or terraced gardens. This will create a spacescapes with vistas at these areas, which in turn will re-introduce an opportunity for people to interact with their spacescape (Figure 9.10).



a. The existing condition.



b. A proposed solution.

Figure 9.10: Certain areas could be reclaimed and organised into platforms or terraced gardens.



### 9.4.5 Visual Actions Concerning Fit

The visual evaluation showed that SCC's urban patterns and old buildings match the natural setting of the area, whereas its new developments, do not. The size and amount of green areas are inadequate. The architectural features of old buildings were found to be more familiar than those of new buildings. Additionally, vacant lots and neglected incomplete constructions are sources of visual pollution.

#### A. Fitness with Natural Environment:

Maintaining the visibility of the natural settings. New buildings and additions should be utilised so as to expose the visual and sculptural effects of the landform. They should be augmented in order to achieve unity, continuity and added sense of place to the setting. The location of any new building, cluster and landmark should contribute positively to the visual quality of the area.

- The typical stone masonry old buildings of SCC sit firmly on the ground. Many new buildings, however, have stone walls hanging in the air, supported by thin concrete columns. This contradicts the traditional use of this material and neglects the natural setting<sup>5</sup> (see section 6.2.5). Such largely neglected harmonious relationships with nature should be reconsidered in new buildings (Figure 9.11).

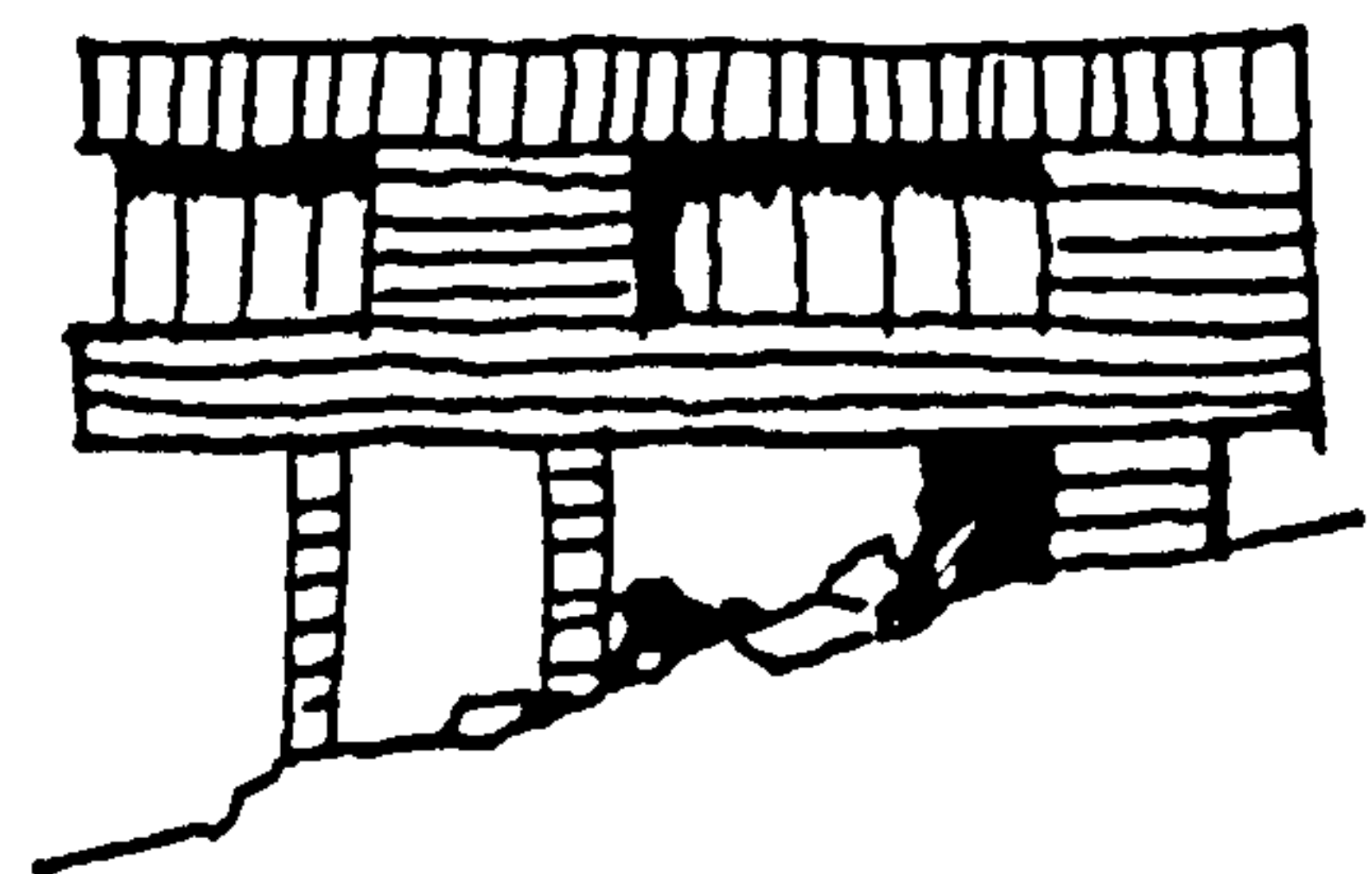


Figure 9.11: Buildings should sit firmly on the ground in contrast to the current practice of letting stone walls hanging in the air (see also Figure 6.59).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982:p. 98.



- New buildings tend to be planned as if all sites were level. When the ground floor is set on the ground at one side, the opposite side, eventually with the entrance, may happen to hang high in the air, connected to the ground by a fancy flying staircase<sup>6</sup> (see section 6.2.5). Buildings should be planned according to the topography of the site. This will ensure that buildings will have direct access from the ground, and not through overhanging stairways and bridges (Figure 9.12).

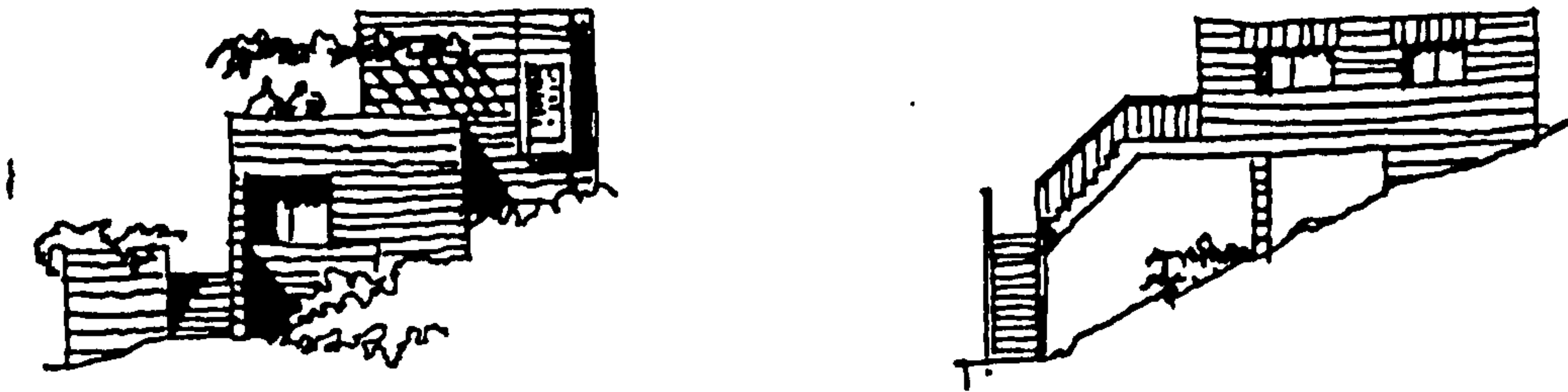
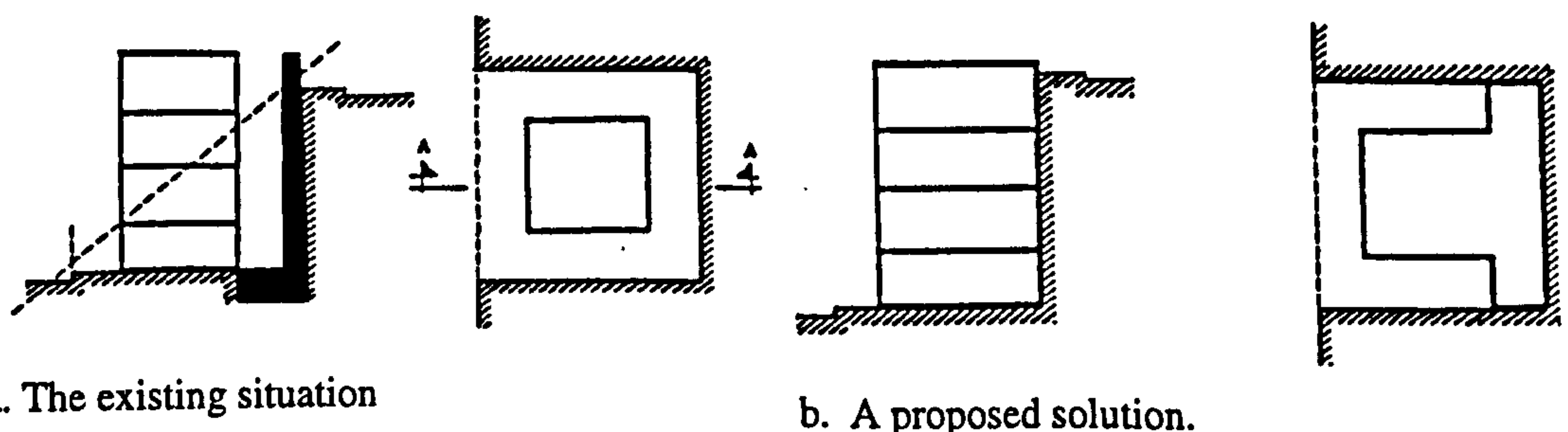


Figure 9.12: Buildings should have a direct access from the ground, and not through overhanging stairways and bridges (see also Figure 6.60).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p.97.

- The existing legislation concerning setbacks on sloping sites requires cut levels to accommodate the buildings<sup>7</sup>. This requires massive reinforced concrete retaining walls with their adverse formal and spatial effects (see section 1.2.3). Shifts in the existing building and planning legislation, concerning setbacks, are required so that new buildings will fit and match the natural setting of SCC (Figure 9.13).



a. The existing situation

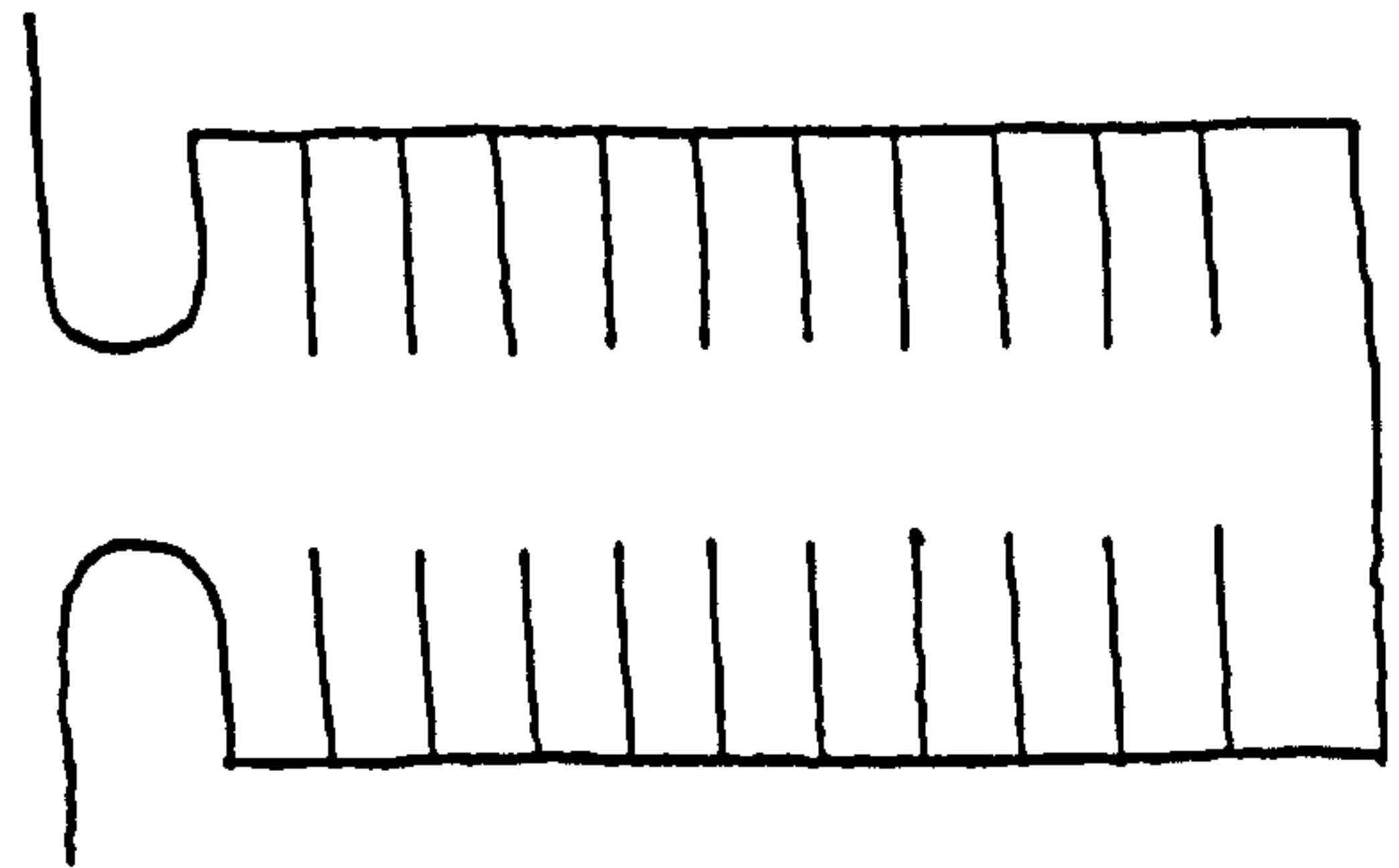
b. A proposed solution.

Figure 9.13: A proposed solution to the massive reinforcement retaining walls required to meet existing setbacks regulations (see also Figure 1.3).

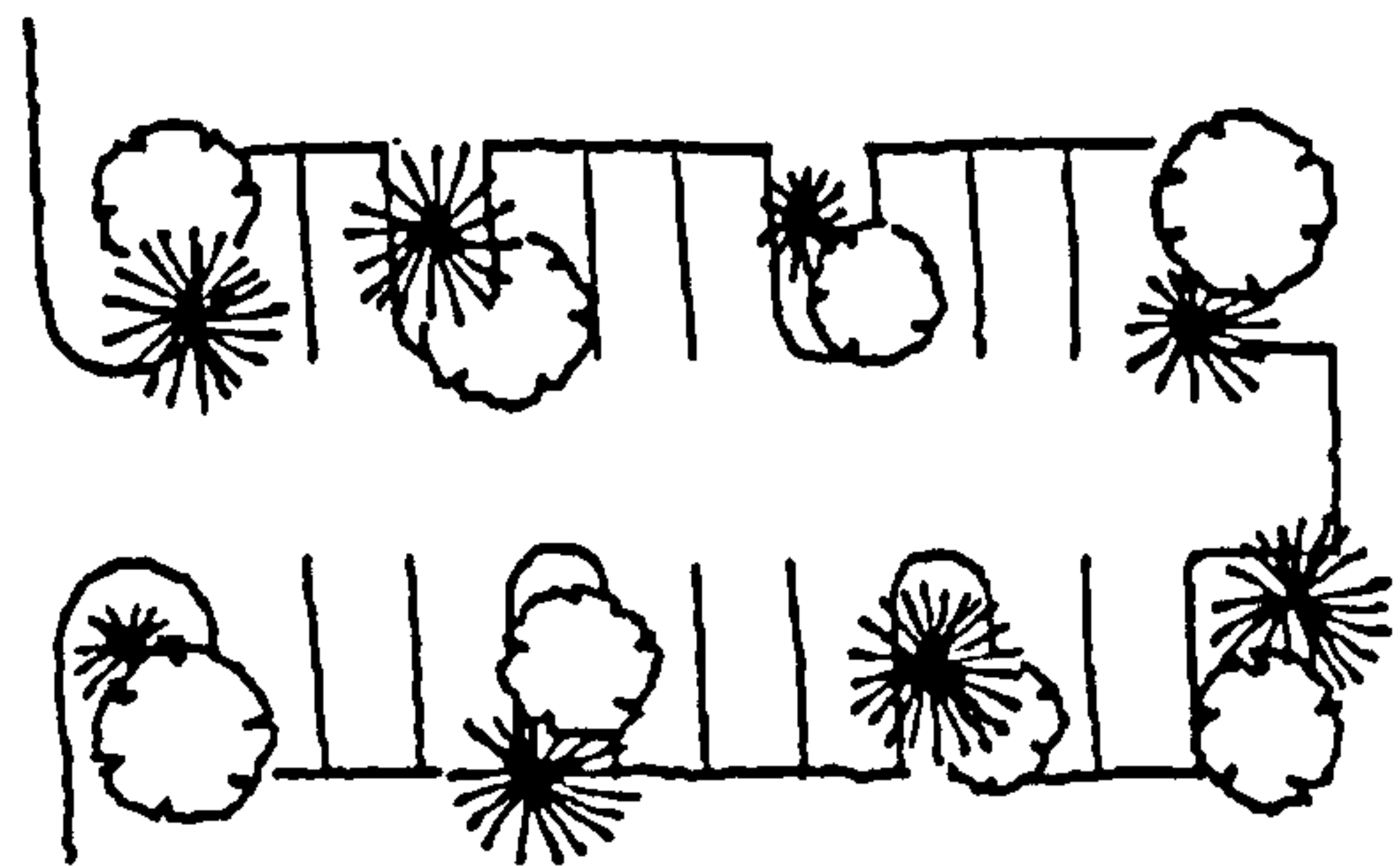
Source: Ghanem, G., 'The Amman Building Control Legislation', *Building Codes and Specifications For the Arab World*, Daghestani, F., (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.



- Provisions for the control of micro-climate, including the use of planting. Visual as well as environmental considerations should affect the designs of parking lots (Figure 9.14). Planting a combination of deciduous and evergreen trees is recommended. Functionally, the alternating types will provide some year-round shade and protection from heat and glare and allow some winter sun to penetrate. Visually, it will reduce the impact of the hard surface areas of the parking lots. Figure 9.15 shows the implementation of this idea at the existing parking area on *Al-Deir* street.



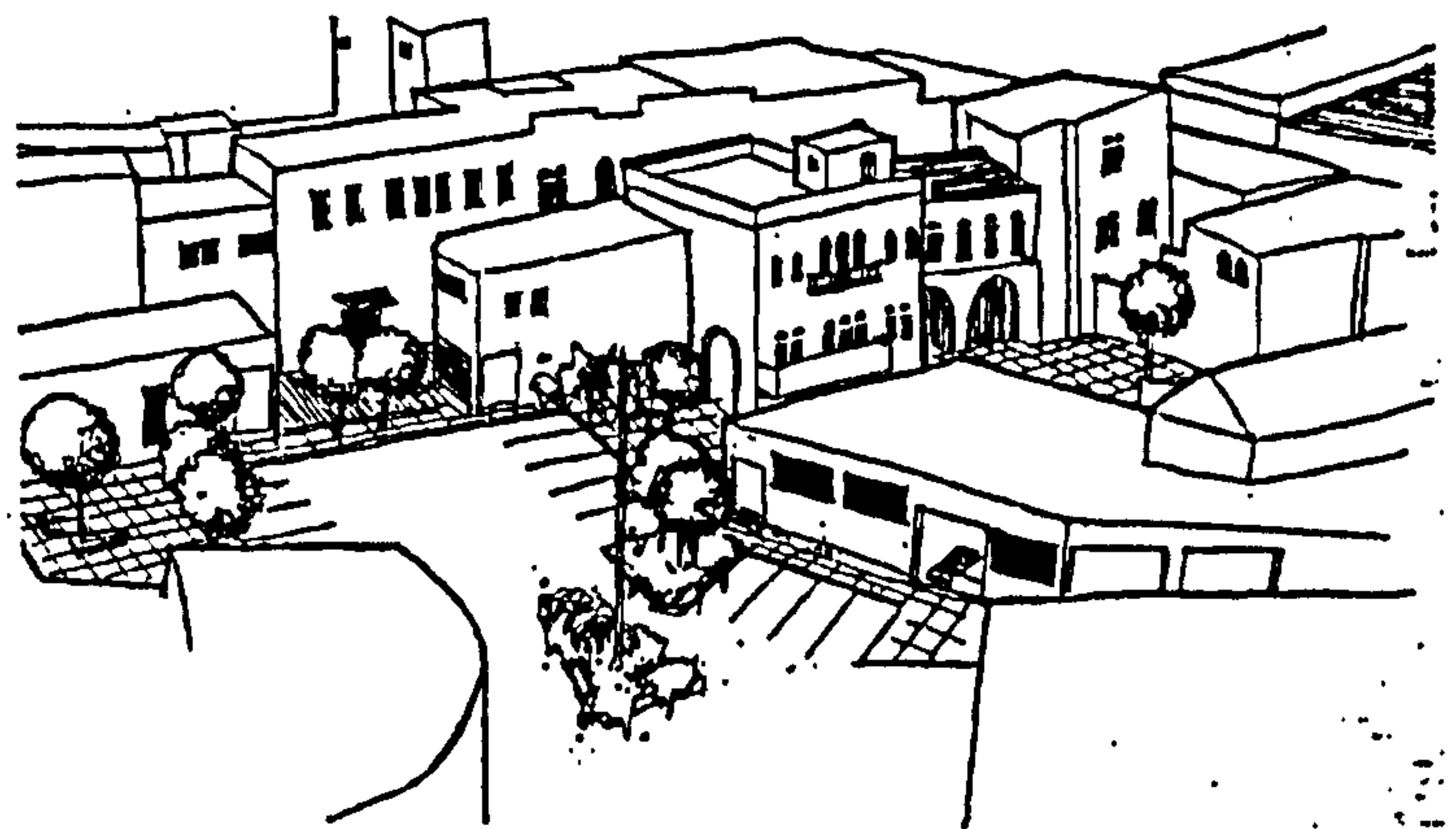
a. Typical treatment.



b. A proposed treatment.

Figure 9.14: Visual as well as environmental considerations should affect the designs of parking lots.

Figure 9.15: A proposed treatment for the parking area at *Al-Deir* street.  
Based on: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, p.204.



## B. Fitness with Built Environment:

The visual evaluation of SCC showed that the "fitness with the built environment" incorporates the most critical visual failures of SCC. Accordingly, visual actions for solving such failures are recommended as short-term, medium-term and long-term-action.



## 1. Short-Term Actions:

A beautification programme covering tidying up and carrying out minor repairs and small improvements to the area can accomplish through short-term actions. These include:

- Cleaning stone buildings covered with the dirt and layers of paints and coatings; clearance of rubbish from public areas, waste sites and vacant plots; planting trees in empty pavement planters; terracing and planting vacant plots where possible (Figure 9.16);

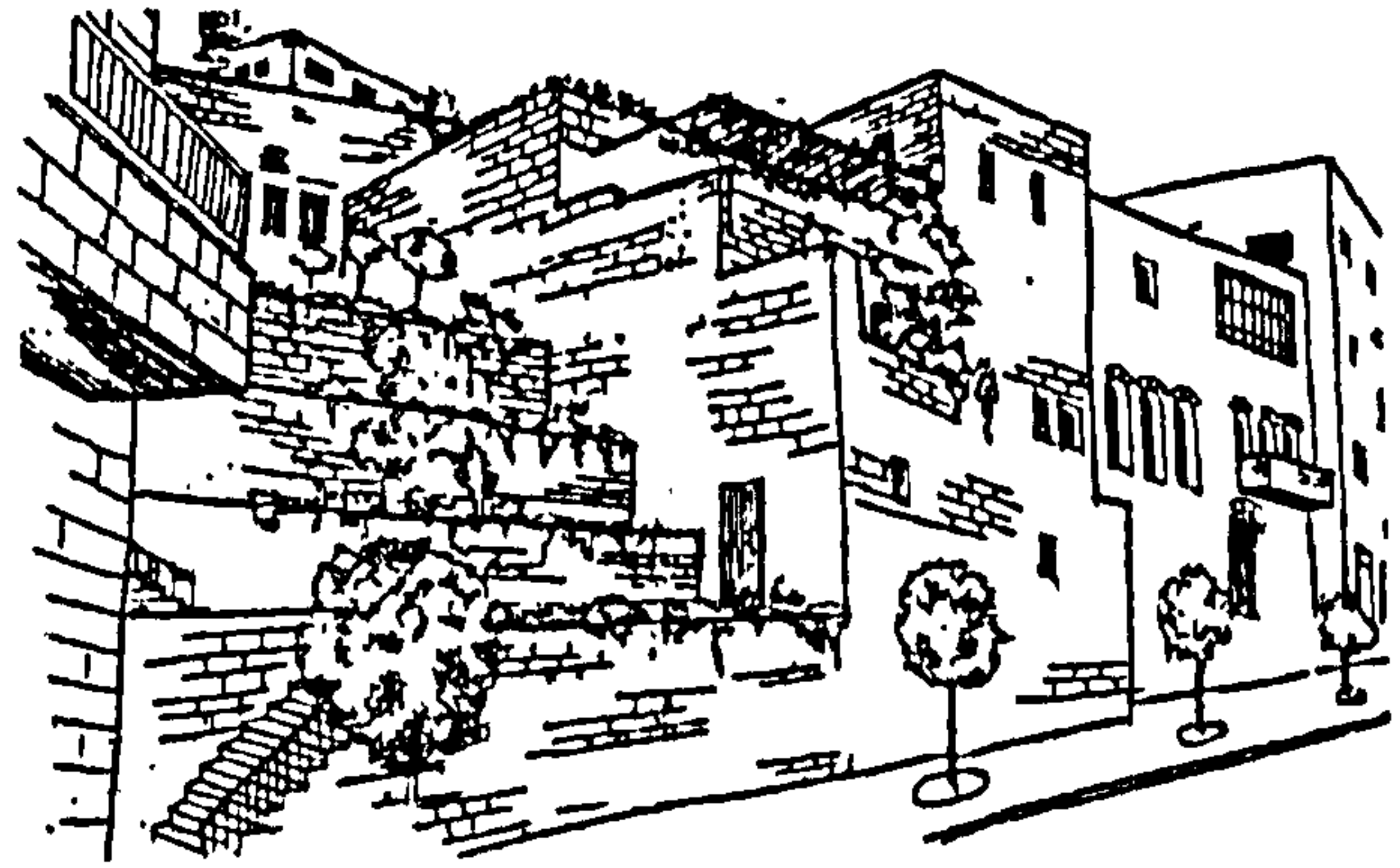


Figure 9.16: Short-term actions include terracing and planting vacant plots where possible. Source: Dar Al-Handasa Consultants, *Salt Master Plan: 1981-2010*, Beirut: Dar Al-Handasa Press, 1981, p.148.

- by the provision of a programmed underground infrastructure network; immediate replacement of any unsightly additions, notices and other elements that can be done easily and at a small cost; repair of minor damage to building fittings; and removal of unsightly small areas of concrete patching on stairways and sidewalks.
- Gradual improvement of the physical conditions of roads, sidewalks and stairways. This includes the provision of paved roadways of minimal widths adequate to vehicular movement through the length of the vehicular street. Areas in excess of car moving lanes should be converted to sidewalks and parking spaces with appropriate street furniture and plants

## 2. Medium-Term Actions:

Appropriate measures should be made to ensure that future architectural and urban design schemes at SCC would not destroy the visual quality of the area. It is



important, however, that new developments express the changing time if they are guided by the visual objectives stated earlier (see section 9.2.1). New designs should only be allowed subject to approval of design. Moreover, design review procedures should be made for any structure larger than a certain size. These measures include:

- New developments should match the scale and pattern of old buildings. Multi-storey box-like blocks based on a typical and repeated floor plan should not be allowed. Such buildings are alien to the context, dull and spoil the skyline. Multi-levelled masses of the building may give a sympathetic scale, reminiscent of an old pattern<sup>8</sup> (Figure 9.17).

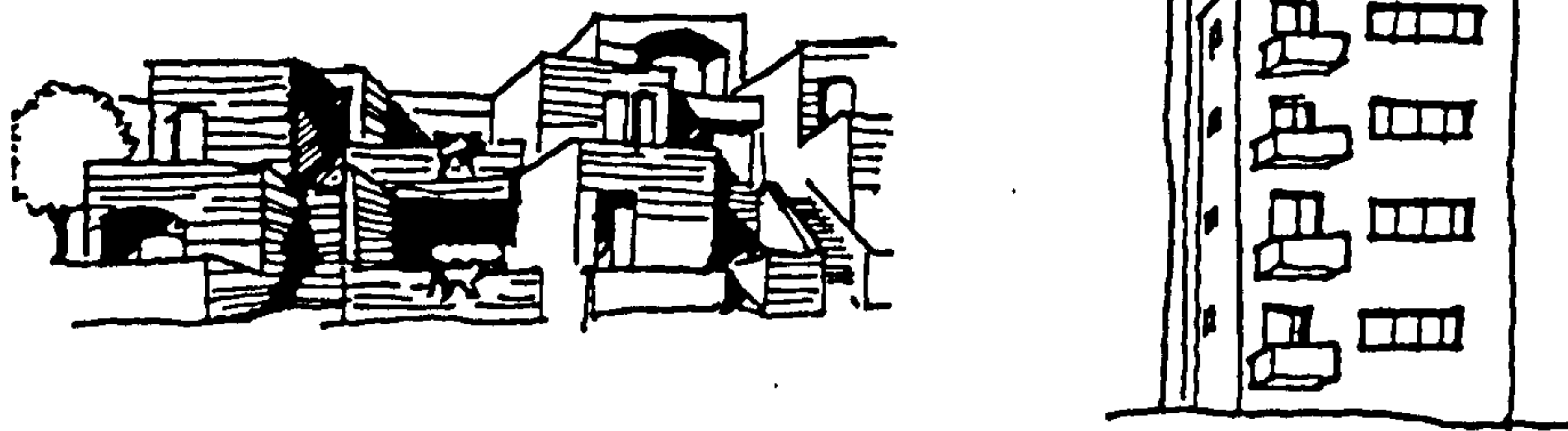


Figure 9.17 : Multi-levelled masses of buildings rather than repetition of typical floors (see also Figure 6.64).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p. 95.

- New buildings should match the predominant solid to void ratio of the context that gives the area its visual cohesion. The stone masonry generally constitutes a much larger portion of elevations than the openings<sup>9</sup>. Walls punctuated by repeating horizontal rectangles, as required for sliding aluminium panels, are alien to the area (Figure 9.18).

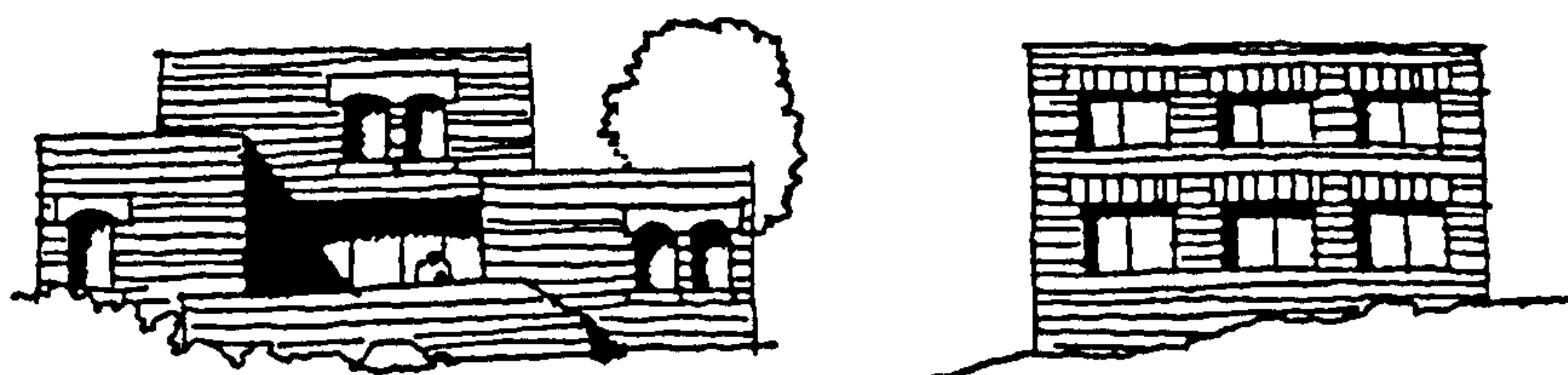


Figure 9.18: Variety of treatments rather than uniform horizontal punctuation of openings (see also Figure 6.65).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p.97.



- New buildings should match the traditional stone treatment where the wall appears as a mass, and the stone joints are hardly perceivable from the distance. The differential mass of the building is more important than applying various samples of stone treatment on the wall surfaces<sup>10</sup>. Many new buildings look like a sample from an exhibition of a quarry. The traditional pointed dressing (*msamsam*) or rock-face courses (*tubze*) should be preferred (Figure 9.19).

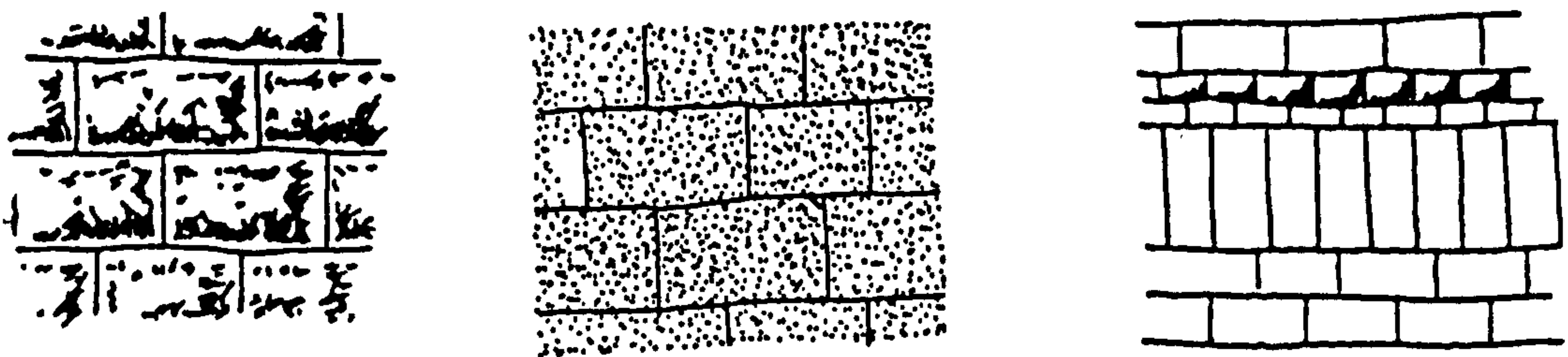


Figure 9.19: Traditional pointed dressing or rock-face courses rather than a book of samples (see also Figure 6.67).

Source: Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: p. 97.

- The existing building and planning legislation concerning building heights have caused confusion in calculating the number of floors for building on sloping sites (see section 1.2.3). The legislation defined maximum allowable building height be measured with respect to the highest street level in cases where sites fall on more than one street<sup>11</sup>. Shifts in legislation concerning building heights are required to overcome the odd configurations that result from such definition (Figure 9.20).

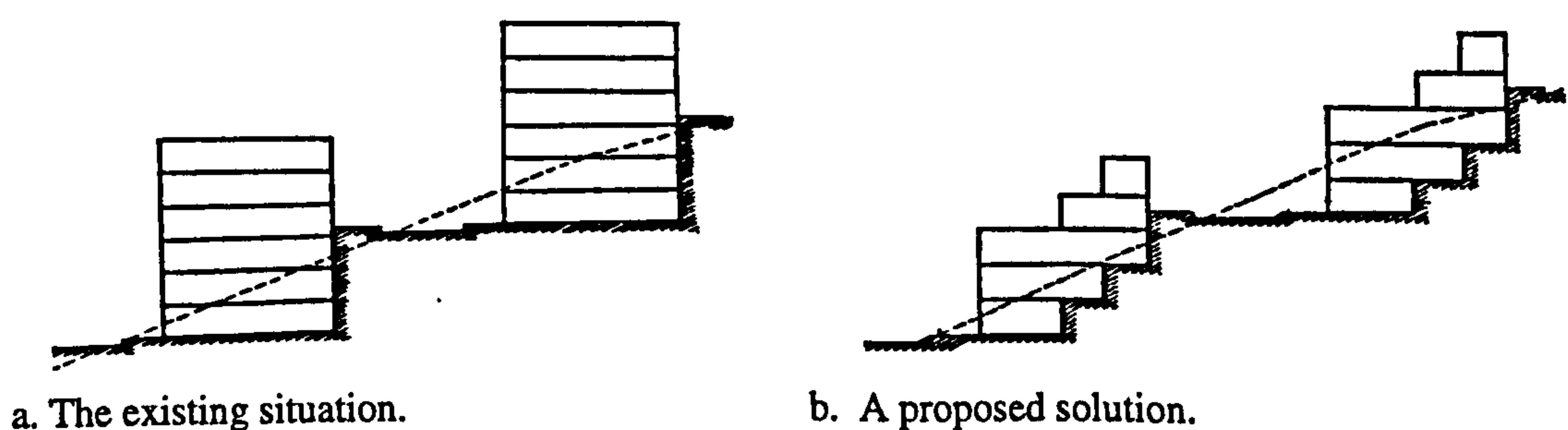


Figure 9.20: A proposed solution to the odd configuration resulted when the maximum allowable building height is measured with respect to the highest street level (see also Figure 1.4).

Source: (of b): Ghanem, G., 'The Amman Building Control Legislation', *Building Codes and Specifications For the Arab World*, Daghestani, F., (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.



- Using special types for lighting fixtures to reflect the pedestrian usage of the area, i.e., appropriately designed free standing and/or attached to buildings, and other types that may be integrated with shop or window signs or within street furniture. Lighting fixtures should be placed and mounted in a way that fulfils their function as well as creating visual harmony with other elements.
- The introduction of district graphic and single regulations to treat the existing chaos in signs currently used in the area. The single sizes, positions, desired image, colours, character and form should be regulated to harmonise the overall aesthetic quality of the area (Figure 9.21). The signs should reflect and express the specific pedestrian character of SCC, i.e., prohibition of large signs, restrictions on flashing signs, and regulating the free-standing, wall, window, projecting, canopy and awning sign.

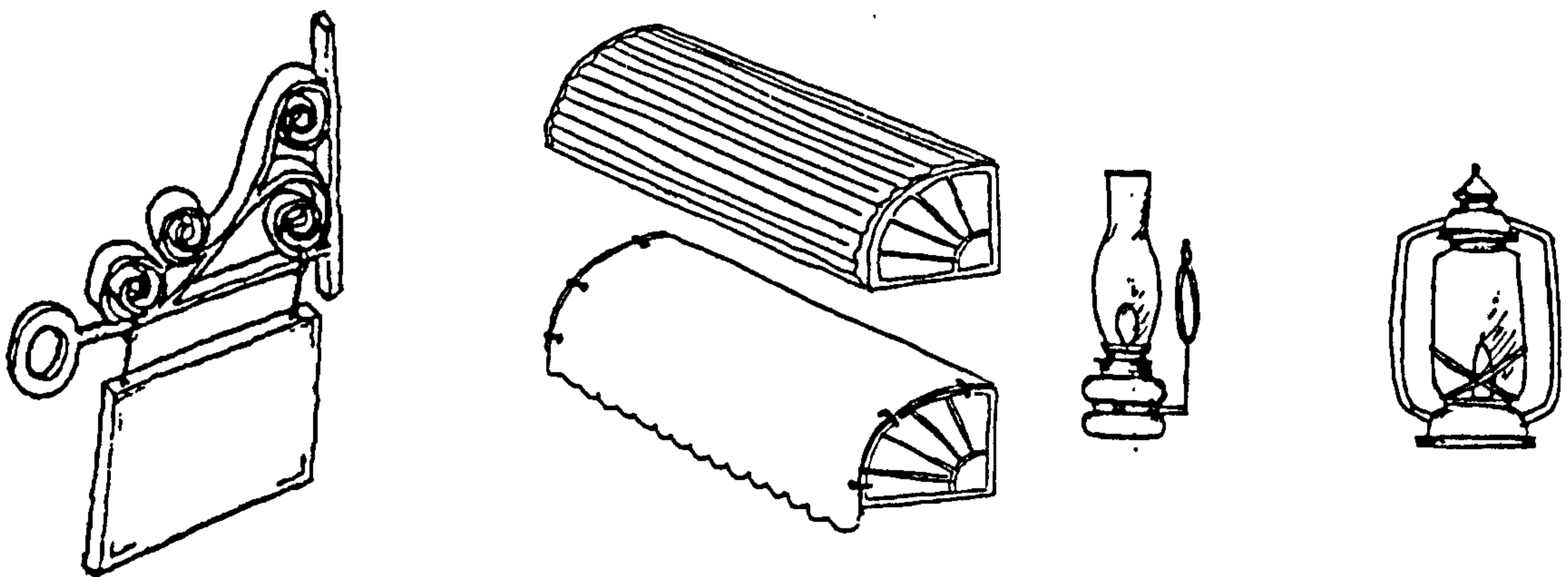
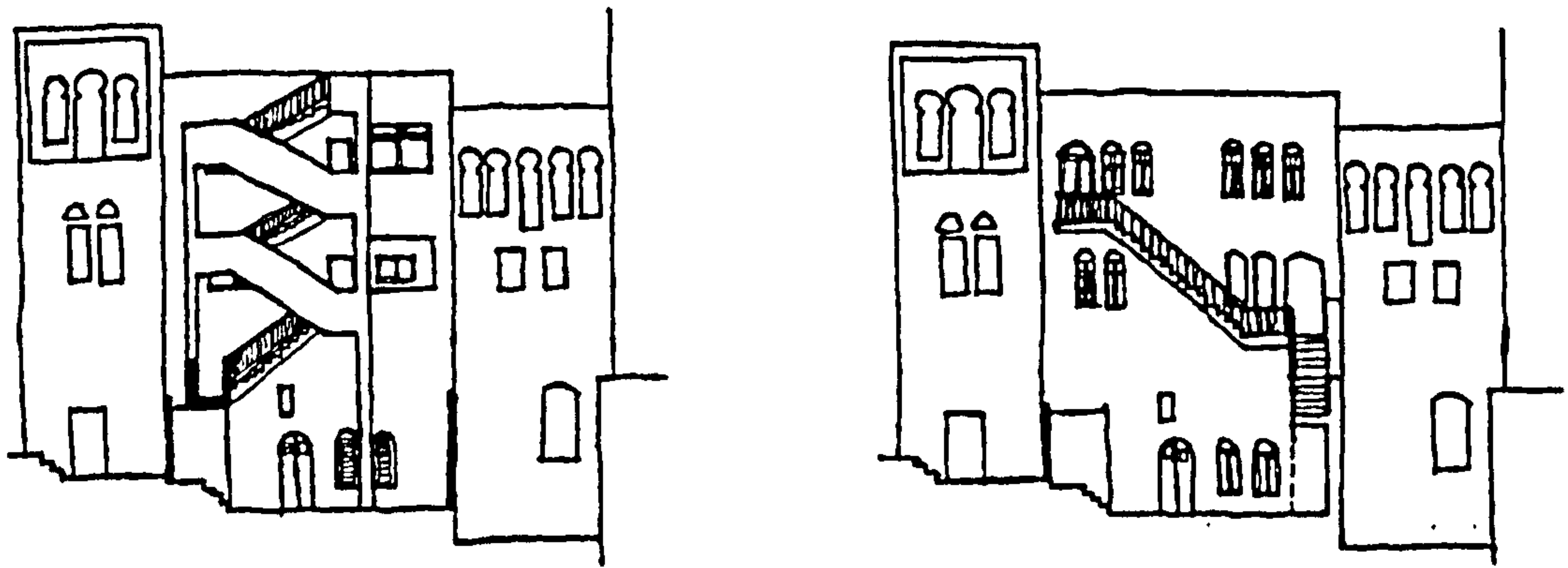


Figure 9.21 : Street furniture should reflect the specific pedestrian character of SCC.  
Adapted: From various sources.

### 3. Long-Term Actions:

Recent and new infill buildings are increasingly affecting the spatial and formal quality of SCC. Therefore, long-term actions and measures should be established as part of a visual policy to halt the general low quality of recent architecture and to reverse their detrimental effects on the area (Figure 9.22). These include:





a. Example of the existing conditions.

b. A proposed solution.

Figure 9.22 : Long-term actions should be established to deal with the general low quality of recent architecture and to reverse their detrimental effects on the area.

Source: SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 5, p.22.

- Further assessment of the visual performance of existing new buildings within SCC, especially the major scheme of Salt Civic Centre; and proposing actions for their remodelling, modification and development to cope with the morphology of the area. Moreover, replacement of demolished buildings should contribute positively to the visual objectives. These would require setting out legal frameworks to deal with situations where existing new buildings do not match the visual characteristics of the area.
- Recommendations for the location, design and design review of new public buildings. Public buildings should be subjected to a careful review process. Such process might well be extended to individual buildings built on certain designated landmark sites, or to structures that are of large scale.

## 9.5 Summary of the Chapter

A visual policy for SCC should be established as a part of an overall urban strategy for the area. The organisation of a visual policy for SCC comprises: policy objectives explaining its aims regarding the visual performance of the area; principles for controlling the effects of various constraints on meeting the objectives, guidelines specifying how to meet the objectives, advice, working methods and implementation



devices. The objectives of the policy concern maintaining the existing unique setting of the area, ensuring the sympathy of future developments; enhancing the overall visual character of SCC; providing an atmosphere capable for encouraging people to live within SCC; and increasing the visual satisfaction of users.

Legal, financial, social, political and other constraints, however, govern the applicability of these objectives. Principles are established to control the effects of these constraints. These principles cover: the scope of policy, hierarchy of actions, role of users, flexibility, justification, target groups and conservation measures.

↓

Determining the priorities of actions is a critical part of the evaluation process. This is because the findings of the three levels of evaluation reflected interweaving attitudes and interests. Users have direct experience with their area, but may suggest a priority that conflicts with the means of the city and the urgency of some tasks. Two further approaches to performing the necessary visual actions are suggested. One concerns the resources of the city; and the other concerns the most urgent actions.

Shifts in legal measures are required for considering assessments based on users' opinions and allowing opportunities for constant monitoring. The measures should be flexible to meet the various urban changes of the different localities within SCC and allowing for change within time. It is important to reconcile the needs of SCC with traffic routes through the preparation of an environmental and traffic management scheme. The visual policy should anticipate political and financial decisions that may affect the realisation of its actions. Legal means should be established to consider architectural value, importance and uniqueness of buildings as appropriate reasons for conservation. Economic constraints should be minimised through contacting different agencies for providing finance.

Outlines for visual actions at SCC are proposed based on the results and findings of the indicative, investigative and diagnostic evaluations of the area. They are



presented in terms of the five visual performance dimensions of identity, order, variety, structure and fitness. The aim is to solve the visual weaknesses, to upgrade the average visual performance, and to maintain and reinforce the visual significance of the area.

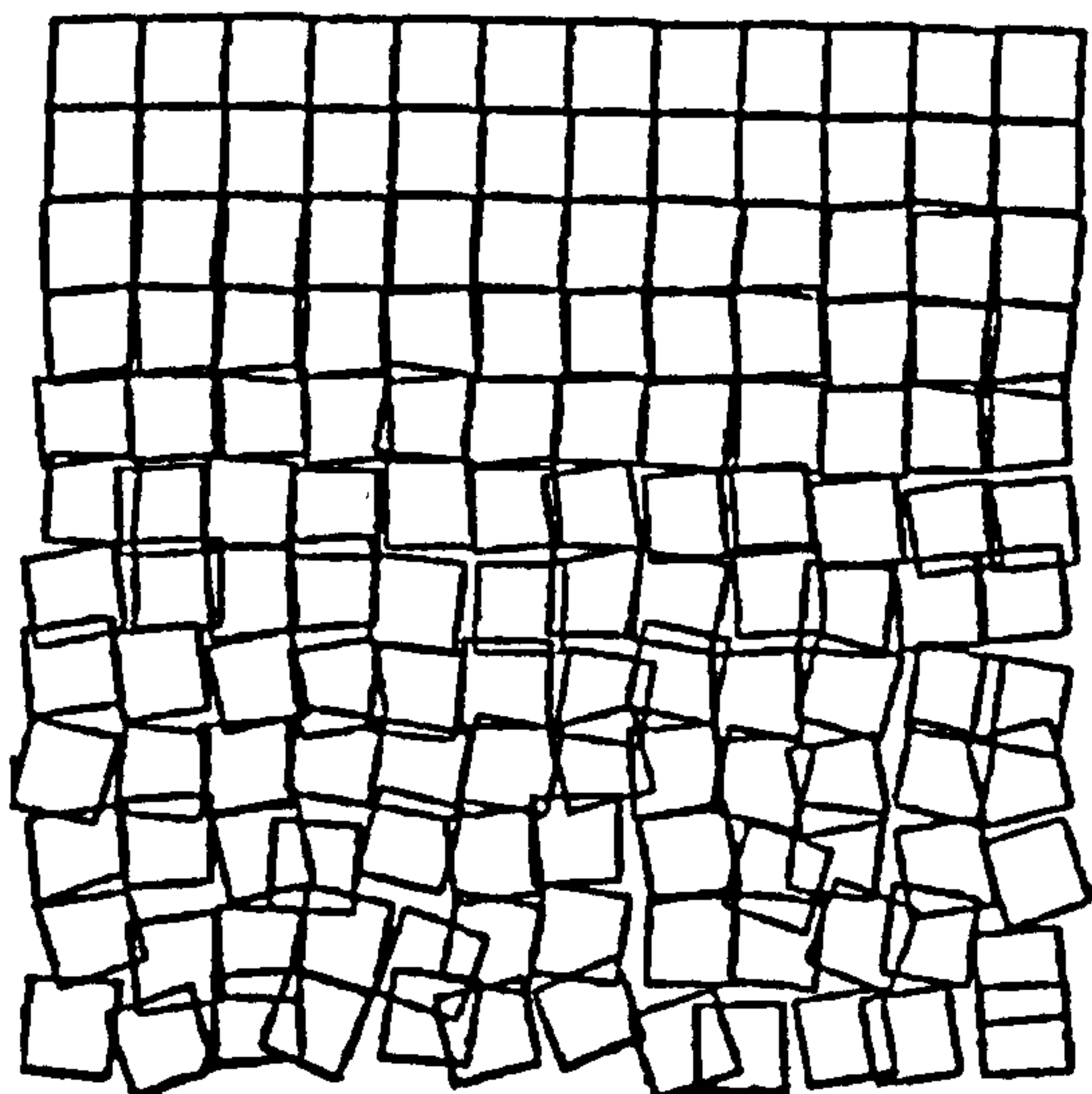
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1. Based on: Punter, John., and Matthew Carmana, *The Design Dimension of Planning: Theory, Content and Best Practice for Design Policy*, London: E & FN SPON, 1997, p. 94.
  2. Lynch, Kevin., 'The Image of Time and Place in Environmental Design', *City Sense and City Design*, Bangerjee., Tridib., and Michale Southworth (eds.), Cambridge, Mass.: The MIT Press, 1990, pp. 628-633, (p. 630).
  3. SDC, *Salt: A Plan For Action* (in Arabic), Vol. I, Salt: Salt Development Corporation, 1990, p.14.
  4. SDC, *Salt: A Plan For Action* (in Arabic), Vol. II, Salt: Salt Development Corporation, 1990, section 4, p.18.
  5. Cejka, Jan., 'Regional Tradition and its Implications in Contemporary Architecture', *Journal of the Jordanian Engineers Association*, Vol. 17, No.27, 1982: pp.90-100.
  6. *ibid.*, pp. 90-100.
  7. Ghanem, G., 'The Amman Building Control Legislation', *Building Codes and Specifications For the Arab World*, Daghestani, F., (ed.), Cambridge, Mass.: The MIT Press, 1980, pp. 201-209.
  8. Cejka, *op. cit.* Vol. 17, No. 27, pp. 90-100.
  9. *ibid.*, pp. 90-100.
  10. *ibid.*, pp. 90-100.
  11. Ghanem, *op. cit.*, pp. 201-209.



**Chapter X**

**CONCLUSIONS  
AND  
RECOMMENDATIONS**

4





## Chapter X

# CONCLUSIONS AND RECOMMENDATIONS

This research focuses on the visual performance of historic city centres. It aims to identify the visual dimensions relevant to spatial and formal characteristics and to establish a systematic method of measuring these dimensions employing user preferences. The theoretical and practical investigations of this research have pointed to various conclusions regarding the visual performance in historic city centres and to numerous avenues for other researchers to pursue.

### 10.1 Conclusions

Four groups of conclusions can be derived from the study: conclusions concerning the research objectives; conclusions concerning the research hypotheses; conclusions concerning the research process and methodology; and conclusions concerning the case study area, Salt City Centre.

#### 10.1.1 Conclusions Concerning Objectives

This research has two main objectives, as well as three other complementary objectives concerning the case study area. These objectives were fulfilled as follows:

##### A. The Main Objectives:

This research aimed at identifying the main variables relevant to visual performance in historic city centres as well as establishing an objective method for their measurement (see sections iii). These two main objectives were fulfilled through the establishment of



the visual imageability concept (see chapter IV). This concept aims at understanding and evaluating the visual performance of historic city centres. The visual imageability concept has three-interrelated systems. The first system concerns the sources of visual satisfaction. Visual satisfaction is not mainly a superficial aesthetic judgement, but the consequence of a spatial and formal experience within the built environment. The second system incorporates five visual performance dimensions of identity, order, variety, structure and fitness. The third system adapts a modified version of a user participation process with three levels of evaluation: indicative, investigative and diagnostic.

†

The proposed visual imageability concept is considered as a sufficiently appropriate and flexible method for evaluating visual performance because it is a systematic process involving multiple interests in the evaluation activity, it involves the users but does not exclude expert experience and its significance is due to its adaptability and flexibility of use as well as to the various benefits that might be gained when applying it. These benefits include:

- a. Increased objectivity, since opinion is replaced by measures of performance. Formulating multiple-evaluation levels of indicative, investigative and diagnostic assessments further enhances objectivity.
- b. The use of visual performance dimensions would help in the development of a range of solutions to a design problem; and
- c. Aid in decision making through objective analysis of different alternatives on a detailed level.

Evaluation is not the end phase but rather it is an integral part of the urban development process. The proposed visual imageability concept is concerned mainly with historic city centres, i.e., evaluating existing historic centres showing where visual performance is poor and should be improved and where it is high and should be maintained. As this study is mainly concerned with historic city centres, the proposed visual imageability concept cannot be used as a model for built environments on a modern urban scale (see section 4.3). However, it has a wide



range of applicability concerning historic city centres. It can be used for various purposes relevant to the visual performance of historic city centres. These include:

1. To study the different visible historical layers of a historic built environment.
2. To study the differences in reactions between certain user groups, such as, minorities, children or women, and the built environment.
3. To evaluate existing historic city centres showing where visual performance is poor and should be improved and where it is high and should be maintained.
4. To compare alternative urban proposals, such as, infill projects, new additions, large urban development projects, as well as locations for certain activities.
5. To test the application of new ideas and to justify actions.
6. Visual policies can be established in terms of the visual performance dimensions.

### **B. The Complementary Objectives:**

In addition to the two main objectives stated in the Introduction, this study aims to fulfil another three complementary objectives related to the case study area (see section 5.2.1). The first case study objective aims "to evaluate the visual performance of SCC in accordance to the user's actual opinions, behaviour, preferences and level of satisfaction". This study carried out a three-level visual evaluation process at SCC, i.e., indicative, investigative and diagnostic evaluations. The evaluations provided rich data concerning the visual performance of SCC in accordance to the users' preferences, which in turn fulfil this case study objective (see Chapters VI, VII and VIII).

The second case study objective aims "to establish practical guidelines for a visual policy for SCC based on the users' opinions and desires". This study suggests an outline of a visual policy for SCC (see section 9.2). This covered the policy



objectives, principles and guidelines. Furthermore, the study proposes an outline for visual actions at SCC based on the findings of the case study (see section 9.4). This outline for visual actions fulfils the second case study objective.

The third case study objective aims "to find out the differences in users' satisfaction and to identify the basis of these differences". This research reported the differences in users' satisfaction with reference to the respondent's previous involvement in user participation activities. To build a broader understanding of the results, the research also undertook a separate response analysis with reference to other characteristics, such as, the respondent's gender, age and working/living category. The basis for differences in user satisfaction, however, were reported (see section 8.3.3). This fulfils the third objective of the case study, i.e., to find out the differences in users' satisfaction and to identify the basis of these differences.

### **10.1.2 Conclusions Concerning Hypotheses**

This research aimed at testing certain hypothetical propositions related to the user participation concept as well as to the nature of the relationship between certain pairs of visual variables (see sections iii and 5.2.1). These were tested and verified as follows:

#### **A. The Main Hypotheses:**

The findings of the case study form the bases of the proposed actions for future improvements within the study area (see section 9.4). This satisfies the first research hypothesis that "user participation will help to establish conceptual guidelines and practical visual policy for assessing design proposals for historic city centres" (see section iii). The findings indicated that users feedback may lead to fruitful design solutions for the existing visual problems and the enriching of the visual quality of open spaces within the built environment.



The results and findings of the case study showed that differences in visual satisfaction have occurred among users due to their previous participation/non-participation in the development of the built environment (see section 8.3.1). Such findings may indicate that user satisfaction increases with the level of participation. Concerning the levels of visual satisfaction of the urban rehabilitation of *Al-Hammam* street and the urban "development" project of Salt Civic Centre, it was found that the users were generally more in favour of *Al-Hammam* street than Salt Civic Centre (see section 8.3.2). These findings support the second hypothesis that "differences in levels of satisfaction, regarding visual appearance, will occur among users due to their previous involvement/non-involvement in the development of the built environment" (see section iii).

#### **B. The Case Study Hypotheses:**

The findings concerning the levels of satisfaction of *Al-Hammam* street and the Salt Civic Centre also verify the first hypothesis of the case study that "differences in users' level of satisfaction will occur regarding the visual performance of *Al-Hammam* street rehabilitation project, and the Salt Civic Centre urban development project" (see section 5.2.1). These findings suggest that urban conservation and rehabilitation projects are considered by their users to be more appropriate for historic city centres than new major urban design schemes.

The case study suggested positive associations between certain pairs of visual variables (see section 5.2.1). The statistical testing of the responses related to these variables, however, provides evidence of the positive association between these variables. Statistically significant relationships have been found between: "Spatial Orientation and Hierarchy", "Morphology and Character" and "Character and Spatial Orientation" (see section 8.4). The generalisation of the results, however, is to the case study area as well as to other old hilly city centres of the region. This, in turn, verifies the validity of the second, third and fourth hypotheses of the case study.



### 10.1.3 Conclusions Concerning Process and Methodology

This study proposed a visual imageability concept for understanding and evaluating visual qualities. It is apparent that evaluating visual performance is extremely complex. Social, cultural and personal factors come into play, interact and affect the evaluation. Visual variables are qualitative in nature. They incorporate complex aspects, meanings and values. It is inappropriate, however, to quantify such qualitative aspects. Quantitative measures are useful for recording numerical characteristics such as temperature, sound level and solar radiation. The use of quantitative measures, in visual investigations, should be handled carefully. They should be limited to certain aspects, such as, the directions of relationships between particular visual variables, or a clear-cut performance.

To handle the qualitative nature of visual variables, this study sets forth a visual imageability concept involving a multi-level evaluation process of indicative, investigative and diagnostic evaluations. This multi-levelled evaluation allows for learning from the experience of the users while not excluding expert experience. It also allows for evaluations of spatial preferences, of behaviour in relation to visual aspects, and of attitudes toward visual qualities. This systematises the evaluation process, making it more scientifically oriented and increasing the reliability of the findings. To add an empirical dimension to the proposed visual imageability concept it was tested at SCC. Two types of data have been gathered from that evaluation, these are:

1. Highly specific information that is to be used as feedback to improve the visual performance of this particular area.
2. Inclusive information that can be generalised into similar hilly city centres of the region, such as Amman and Nablus.

Not all information, however, can be generalised. Salt is a relatively small city with a homogeneous community. Cities not only differ in size but also in their social



characteristics, i.e., homogeneous / heterogeneous, rich/poor, stable/unstable, centralised/decentralised, as well as other characteristics. The buildings of SCC, for example, are experienced in their entirety in their relation to the natural setting. The setting becomes a major component of the whole scene. This quality is the product of the landform as well as the relatively small size of the city. Cities of different sizes might exhibit qualitative differences. Larger hilly cities, Amman for example, can seldom be seen in their entirety, but only in part, from various viewing points.

Therefore, the application of the visual imageability concept to other historic city centres may require certain modifications, adjustments and refinements. These are suggested as follows:

#### **A. The Indicative Level:**

In future applications it will be helpful if a lateral data-collection approach is implemented at the indicative level. The indicative evaluation could include limited direct communication techniques, such as limited interviews and questionnaire surveys in parallel to the visual survey. The data obtained from such early interaction with the users should be treated as an indication of the critical issues and allow for back and forth movements in the evaluation process.

#### **B. The Investigative Evaluation:**

It is clear that no one person can handle all evaluation levels. In the investigative evaluation of SCC, for example, 32 passers-by were involved in a limited interview survey for identifying the key physical elements of the area (see section 5.3.2). The size of the sample did not allow for gathering statistical data, and the sampling process used did not allow for a "public image" generalisation. This type of study, i.e., Ph. D. dissertation, does not allow one to use the help of other professionals. The dependence on this limited interview



survey was due to the difficulty of conducting a wide interview survey solely by the researcher. The investigative evaluation covered some sample areas representing SCC's key physical elements. It would have been better if the resources allowed for a wider coverage of other areas. Visual evaluations should involve team-effort. This is important not only for covering wider scope, but also for achieving higher reliability findings.

A limited interview survey and visual-impact checklists were the main data-collection methods of the investigative evaluation. It will be helpful if some additional methods are incorporated in the investigative evaluation. The use of space syntax models, for example, at the selected sample areas may provide interesting explanations of some social-visual relationships (see section 3.2.4).

### **C. The Diagnostic Evaluation:**

It will be helpful if some additional visual tools are incorporated in the diagnostic evaluation, i.e., the questionnaire survey. The use of graphic stimuli to obtain responses reflecting the city image is important for providing a more comprehensive understanding of the aspects under study. Since the findings of the study confirm that the professional and users differ in their interests and objectives toward visual aspects, it will be of interest and significance for future investigations to include a separate sample of professionals in the questionnaire survey. This will offer greater insights to the differences and similarities in the interests and objectives of the users and professionals.

### **D. Recommending Visual Actions:**

Team-effort is required for establishing the visual policies and recommending visual actions derived from the findings. It is evident that architects and urban designers alone cannot deal with the full range of aspects related to visual policy making. The recommendation of visual actions stresses the need for



maximum relationship with other disciplines to deal with the various constraints governing their applicability (see section 9.2.2). Accordingly, the establishment of visual policies should involve interdisciplinary as well as multidisciplinary team-effort.

#### **10.1.4 Conclusions Concerning the Case Study**

The study aims to test the validity of the five visual performance dimensions in developing visual policies and design guidelines dealing with features that characterise spatial and formal qualities in historic city centres in general, and in SCC in particular. The visual evaluation of SCC could be considered as a first step in the process of improving the visual performance of the area. It will benefit the decision-makers responsible for the urban development of the City. The benefits that resulted from the visual evaluation of SCC include short-term, medium-term and long-term benefits. Short-term benefits are those that resulted from the immediate use of the findings, such as:

1. Identifying successes and failures in the visual performance of the area, and recommending suitable action to resolve these problems.
2. Showing the implications of various development alternatives to achieve the best level of visual performance within a limited budget.
3. Improve users' attitudes toward the area through involvement in the evaluation process.

Medium-term benefits are those that lead to major decisions about the area. Long-term benefits, however, will result when the lessons learned from the failures and successes are applied in design considerations for future developments. These lessons are useful for to SCC in two terms. One in terms of better understanding of the existing conditions; and the other is in terms of applicability to future developments. Long-term benefits also include the presentation of lessons and experiences of SCC to other Jordanian cities.



## 10.2 Implementations and Contributions

Visual evaluation is often criticised due to the subjectivity of its procedures. This study, therefore, claims to overcome this discussion by producing an "objective" concept for understanding and evaluating visual performance in historic city centres, i.e., the visual imageability concept. One may argue that the term "objective" in many social science studies has proved no more reliable than using "educated intuition". This is due to the fact that many of these studies used that term in a similar way to its use in natural sciences. The term "objective", in this study, is used in a different way from that in natural sciences. This study recognised the qualitative nature of visual variables (see section 2.4). It reviewed the various methods of assessment used in visual investigations including qualitative and quantitative methods (see Chapter III). It concludes that quantitative methods are inadequate for assessing the complexity inherent in visual performance. Quantitative methods reduce reality to a few variables that are seldom capable of representing adequately the visual experience of an urban setting.

The objectivity in this study is achieved by dealing with the qualitative nature of visual variables from the point of view of multiple interests, i.e., learning from the experience of the users while not excluding expert experience. Therefore, this study addressed the importance of incorporating users and using the users' views as an important component in the evaluation process. The argument about the "objectivity" of this treatment will continue. One could, perhaps, argue that the choice of the elements to be valued by the users was subjective. However, the three level evaluation process and the incorporation of users' views, should ensure, to some extent, that we can be confident about the findings.

The elements chosen are the five visual performance dimensions of identity, order, variety, structure and fitness, and the variables that represent them. The identification of these visual dimensions and variables has been built upon foundations laid by others. The works of Lynch<sup>1</sup>, Bentley<sup>2</sup>, Cullen<sup>3</sup>, Alexander<sup>4</sup>, Tibbalds<sup>5</sup>, Smith<sup>6</sup> and



many other researchers and practitioners formed a useful base for identifying these dimensions and variables (see section 1.3.3). Moreover these dimensions and variables were also derived from the analytical study of the visual characteristics of old cities and were related to sources of visual satisfaction (see Chapter II and section 4.2). The opportunities for the use of these five visual performance dimensions were confirmed in the case study. The study of the visual characteristics of historic city centres comprises the analysis of various examples covering:

1. Broad cross-cultural coverage including western, eastern and Islamic civilisations.
2. Changes over historic periods covering Classical, Medieval, Renaissance and Baroque.
3. Broad inclusion of different urban areas, i.e., preliterate, popular, spontaneous, as well as monumental settings.
4. Different geographic locations and climatic zones covering the Middle East, Europe, North Africa, Latin America and the Far East.
5. Different geographic settings, i.e., deserts, highlands, midlands, lowlands and coastal areas.

Accordingly, the identification of the visual performance dimensions does not rely on specific explanations. This allows a wide generalisation, validity and applicability of the proposed visual imageability concept.

One may argue that claiming generalisation and wide application of these visual performance dimensions may be problematic when applied to different cultural settings. People have persistently searched for the ideal environment, but how it would look varies from culture to culture, and even from one person to another. This argument is valid if we propose performance "standards" or "ideals". It is important to differentiate here between performance "dimensions" and performance "standards" or "ideals". It is impractical to set performance standards if we seek generalisation. Performance "dimensions", however, refer to the certain identifiable characteristics



of the performance of any built environment, and thus, are capable of being assessed<sup>7</sup>. Along these visual dimensions there are different positions and values expressed by different users and societies.

Objectivity was further enhanced by formulating multiple-evaluation levels, i.e., indicative, investigative and diagnostic. Each level built upon and assessed the findings and results of the previous one. The choice of the elements to be investigated in the visual-impact-checklist, for example, was based on the findings of the visual survey conducted at the indicative level. The choice of the elements to be incorporated in the questionnaire survey was based on the findings of the previous stages as well as the results of the pilot studies. Accordingly, the patterns of the visual-impact checklist and the questions included in the questionnaire survey cannot be generalised for other situations.

Involving the users in the development of their built environment is another debatable issue. The idea of user participation has gained support from many researchers and practitioners, and oppositions from others (see section 1.3.3). The opposing position considered that the users' lack of necessary expertise will lead to chaos and will create poor environments. Supporters of user participation argue that users' knowledge and priorities are significantly different from those of professionals and decision-makers. The researcher's inclination is to involve multiple interests in the urban development activities, i.e., involving the users does not exclude expert experience. Users hold a wealth of experiential knowledge of their environment, and thus their participation is beneficial in more than one way. Professionals have the experience and the know-how that can transform users' desires and opinions into physical products. However, one has to be aware that the decision making process, that represents diverse user groups may produce a product which is so compromised, or so varied, that it will have no value to anyone. Such a topic is recommended for further investigation (see section 10.3.2).



Another debatable topic is the idea of conservation. Many have addressed the need for conserving traditional buildings and townscapes (see section 1.3.2). The current practice however, shows that it becomes increasingly difficult to maintain historic buildings and townscapes. The objectives of conservation conflict with the financial and commercial interests of developers. Moreover, townscapes are harder to protect and conserve than buildings<sup>8</sup>. This is due to many factors including the differences of scale, lack of visual distinctiveness, and difficulty in justifying the limits of townscapes in space and time. The researcher believes that societies have to conserve their traditional buildings and townscapes. Such desire for conservation has not only a historic and architectural importance, but also is important for the activities and experiences associated with them.

### **10.3 Recommendations**

No single effort could possibly, fully or conclusively, cover the topics discussed, but it is only through a chain of integrated efforts that a sufficient and reliable conclusion may be formulated. This study has opened numerous avenues for other investigations in theory, research and applications.

#### **10.3.1 Recommendations for Theoretical Investigations**

The various discussions of this dissertation have pointed to certain topics that are worth investigating. The recommended theoretical investigations are:

1. The total performance of any built environment depends on much more than its visual qualities. The proposed imageability concept, however, concern the visual performance of historic city centres. The concept requires more detailed examination to be transformed into a comprehensive urban theory. The visual performance dimensions, for example, might be affected by the changing cultural, social and environmental variables. The effects of such changes, however, are recommended for further investigations.



2. This study addressed the importance of the "sense of place". A further study of the correlation between visual performance and the perceived emotional importance of a setting in enhancing the visual experience is recommended.
3. This study showed that women and minority groups were rarely considered in urban investigations. The respondents' profile of the visual evaluation of SCC, for example, allows for generalisation of results to the total population with certain reservations regarding gender (see section E.1/Appendix E). Women had not been represented in accordance to their real percentage of the target group. This limited participation might be due the commercial nature of the area where males are more involved in such activities. However, the house-holder group, of whom the majority are females, was found to be the least satisfied compared with responses of the shop-keeper and office-employee groups. Accordingly, further studies in the same field are needed with emphasis on the role of women and minority groups in evaluating visual performances of urban areas.

### **10.3.2 Recommendations for Research**

The various discussions of this dissertation have pointed to certain research areas that are worth investigating, these include:

1. This research has examined the nature of relationships between particular pairs of visual variables (see section 8.4). Statistically significant positive associations were found between the examined variables. The generalisation of the results, however, applies to the case study area as well as to other old hilly city centres of the region. Further investigations concerning the relationships between these variables as well as other visual variables in other areas are recommended.
2. The revision of the existing planning and building legislation. This legislation should be revised in relation to natural, urban and historic



characteristics of the setting, so as to deal with the variations within the urban context.

3. The study suggested that the role of users should not be limited to questionnaire surveys, but rather extended to cover a continuous and constant monitoring of the visual performance (see section 9.2.2). This will allow for re-considerations, adjustments, refinements, re-development and further development. Therefore, it is recommended that further procedures are devised to allow for continuous assessment based on user reactions and opinions.
4. The study argued that the decision making process, by representing diverse user groups could produce a product which is so compromised, or so varied, that it will have no value to anyone (see section 10.2). Such a topic is recommended for further investigations to ensure that a coherent and unitary vision is at the core of an urban strategy for Salt.
5. Research towards conservation, revitalisation and re-use of traditional built environments is recommended. These include the establishment of legal measures for considering architectural and historical value, importance and uniqueness of buildings as appropriate reasons for preservation.
6. A more detailed visual analysis of SCC's stairways and their role as spatial, visual and pedestrian links, should be carried out.
7. This study illustrated that the same area might perform differently at night than in daylight. Historically, the exterior parts of buildings were designed to be viewed in reflected light. It is safe to conclude that until modern times, no buildings were built with their appearance at night as a prime consideration. Nowadays, with the introduction of glass as a major cladding material, nightscapes have different perceptual implications and are worth investigating.



### 10.3.3 Recommendation for Applied Investigations

The aim of research is to describe reality, to show its structure. The future is necessarily the realm of speculation and design. Verifying speculation requires applied investigations. Recommendations for applied investigations include:

1. In a world in which technical advances have greatly expanded the range and ease with which man can change and create the built environment, there is a pressing need to save traditional building techniques from being lost through neglect. It is a national duty to encourage master-builders to train a new generation of builders on traditional building techniques. People in Jordan often associate such activities with poverty. Providing an acceptable socio-economic standard for those working in these activities should challenge this idea.
2. This study mentioned the need for alternative techniques and materials for restoring the exterior of old buildings. Further studies of the alternatives that could be utilised while keeping the original style of the building should be considered. This could be accompanied by the preparation of a "book of details" covering architectural detailing that is in line with the intimate character of traditional buildings and settings of SCC.
3. A possible area of experimentation is the study of devices which could block chilling winter wind on city streets in Salt, as well as other devices which could induce and magnify cooling summer breezes and provides shade(see section 6.1.1).
4. This study indicates the need for identifying the important buildings and landmarks of SCC. A collaborative study including users is recommended for this purpose.

Such topics involve the architect, urban designer, landscape architect, planner, sociologist, engineer and many other professional interests. However, a great deal of research and study of types and levels of public participation may also contribute in



the efforts to achieve a better design for the built environment suitable for the maximum number of users.

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1. See for example:
    - Lynch, Kevin., *The Image of the City*, Cambridge: Massachusetts: MIT Press, 1960.
    - Lynch, Kevin., *A Theory of Good City Form*, Cambridge: Mass.: The MIT Press, 1981.
  2. Bentley, Ian. et al, *Responsive Environment*, London: The Architectural Press, 1985.
  3. Cullen, Gordon., *The Concise Townscape*, London: The Architectural Press, 1971.
  4. See for example:
    - Alexander, Christopher., *The Oregon Experiment*, New York: Oxford University Press, 1975.
    - Alexander, Christopher., et al, *A New Theory of Urban Design*, New York: Oxford University Press, 1987.
    - Alexander, Christopher., et al, *A Pattern Language*, New York: Oxford University Press, 1977.
  5. Tibbalds, Francis., *Making People-Friendly Towns: Improving the Public Environment in Towns and Cities*, Burnt Mill: Longman, 1992, p. 9.
  6. See for example:
    - Smith, Peter., *Architecture and the Human Dimension*, London: George Godwin Limited, 1979.
    - Smith, Peter., *Architecture and the Principle of Harmony*, London: RIBA Publications Ltd., 1987.
    - Smith, Peter., *The Syntax of Cities*, London: Hutchinson, 1977.
  7. For differences between performance "dimensions" and performance "standards", see for example:
    - Lynch, *A Theory of Good City Form*, Cambridge, Mass.: The MIT Press, 1981, pp. 111-120.
  8. Shoard, Marion., 'Why Landscapes are Harder to Protect than Buildings', *Our Past Before Us: Why do we Save it?*, Lowenthal, David., and Marcus Binnely (eds.), London: Temple Smith, 1981, pp. 83-108.



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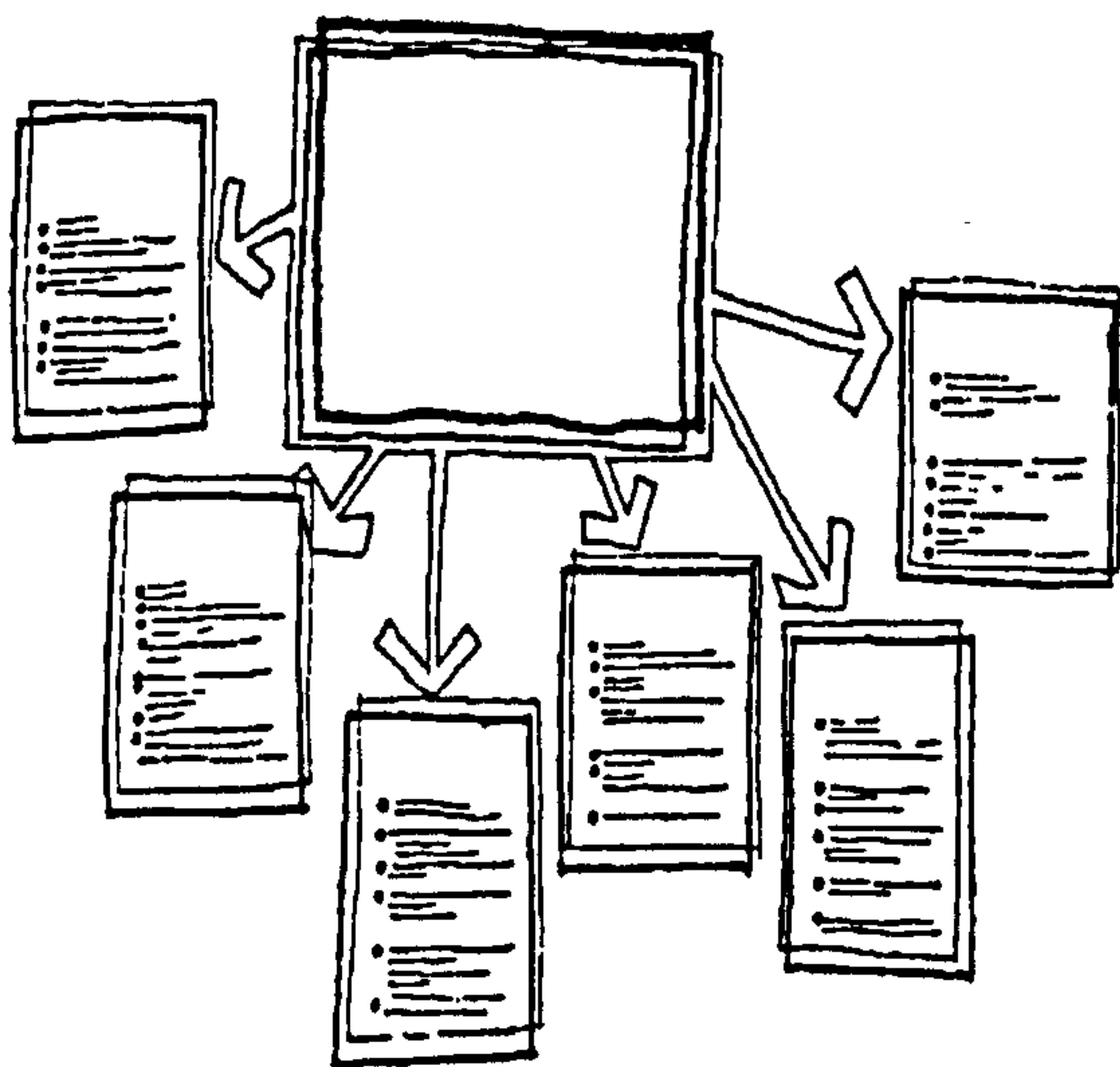
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# APPENDICIES

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## Appendix A

### User Participation

This appendix reviews two aspects related to user participation. The first explains the various methods and means of participation, whereas the second deals with the determinants for selecting appropriate data-collection methods allowing for user participation in the evaluation process.

#### A.1 Methods and Means of Participation

The methods and means of participation illustrated in this section are those suitable to facilitate the exchange of ideas, opinions and attitudes, as well as the evolution of a consensus, a policy or plan in a situation of mutual trust between the participants. These techniques are summarised from Michael Fragence's book *Citizen Participation in Planning*<sup>1</sup>.

##### A.1.1 Conventional Means

Conventional methods include static displays and exhibitions, public meetings, the dissemination of information through leaflets and brochures, the collection of information through questionnaire surveys.

##### i. Exhibitions:

The exhibition technique is adopted by most local planning authorities as a means of communicating its proposals simply and graphically. Despite the high cost of mounting a well produced exhibition, both in terms of money and man-made hours, the value afforded as a communication and publicity device are often considered to be sufficient justification. Display materials should be simple and easy to understand, yet be of a suitable level of detail to enable the viewer to form his / her own judgements. The location of exhibition has a significant impact upon its communicability. It has been asserted that the medium is communicative only to those viewers who are familiar with the presentation styles and professionals.

##### ii. Public Meetings and Hearings

The holding of public meetings and hearings is as traditional as the mounting of exhibitions. It has been recommended that each events should be conducted on neutral ground rather than in city hall. Public meetings usually take are of two forms: either they are truly public in that an open invitation is extended to all citizens to attend an exposure of the planning authority's intentions, or they take the form of meetings closed to the public and open only to the membership of identified interest and professional bodies. Public meeting is not a very suitable means for achieving a meaningful feedback from the participating public, rather it is a means for



disseminating information, for exposing local politicians and planners to their client public, and for airing sectionalised opinions. To be useful, public meetings should be restricted in size, localised, and should concentrate on the consideration of issues which are fairly simple. However, public meeting is a one-way information flow, from the planning agency to the client public, with little opportunity for feedback which can be usefully translated into the plan-making process. There is a wealth of evidence from case studies that the usefulness for planning purposes of the lay input from public meetings is small.

### **iii. Information Documentation:**

This is an important tool in dissemination or spreading information to the public. It constitute the major element of local authorities publicity programmes. Since the cost of producing documents is often substantial therefore, there is a need to ascertain the purpose of each document, and the public to which it is aimed. There are different levels of detail suitable to meet the particular information requirement of different publics. However, to insure the mass publicity, documentation must be written in a suitable way. Publications may take a form of reports of surveys, and statements of policy intention, monthly and quarterly bulletins, or news-sheets, or books. Limitations of information documentation are that they are implicitly catering for the literate and the usually intellectually conscientious sections of the community, and the per-capita costs are likely to be high.

### **iv. Documentary Reporting:**

Press conferences would help towards maintaining a dialogue with the press and through them with the public. Television is a very expensive medium. It is of very immediate impact and. Television is unlikely be used for extended and comprehensive coverage of planning matters. The opportunity which occurs should be capitalised by the avoidance of detail and the concentration on simple but essential issues, particularly those which are obviously visual. Newspapers are useful media to communicate with those sections of the community usually outside the scope of more intellectual contact.

### **v. Public Inquiry:**

Public inquiry is a method of citizen participation in the making of policy. The conception of the inquiry is to consider argument between people who are interested in or affected by a development, has been found necessary to restrict the range of persons entitled to be heard at an inquiry.

#### **A.1.2 Innovative Means**

The nature of most planning issues generating a demand for citizen participation. The characteristics of the potential participants, seem to suggest that solution-oriented participation is more likely to be successful than any other type of planning situation.



### **i. The Delphi Method:**

The Delphi method is a means of combining the knowledge and abilities of a diverse group of experts and applying them to the development of a consensus towards the production of policies or plans. This method has been devised to ameliorate some difficulties that arises through the round-table discussions of a problem such as dominant personalities, influence of majority opinion, by providing for anonymity, for controlled feedback, and for a scored or statistical response. Anonymity is achieved by the use of questionnaires with the responses being recorded separately, known only to the controller of the exercise. Controlled feedback is achieved by the conduct of several rounds in which the opinions generated in one round are summarised and communicated back to the panel for use in the considered responses of the following round. The Delphi method is particularly useful in identifying problems, needs, in setting goals and priorities, and in identifying and evaluating alternatives. The principal disadvantage is that it is best suited to participants who can express themselves well in writing, the required organisation is considerable, and a high degree of skill is required in the phrasing of meaningful and pertinent questions. Clearly, the Delphi method is not to be considered lightly or to be launched from an ill-prepared or ill-considered base.

### **ii. The Nominal Group Method:**

The nominal group method is designed to overcome many of the psychological problems common to conventional group meetings. Its purpose is to achieve a high degree of innovation and creativity in the identification of strategic problems and the development of appropriate programmes of solution. The technique is a situation in which individuals work in the presence of others but do not interact, all individuals participate, the central purpose of the discussion is maintained, and the participants become thoroughly committed and involved. The maximum effect of this method is realised in the development of a range of alternative solutions to the problem, and the reduction through analytical discussion of the inventory to one or two choices which are generally acceptable.

The nominal group method is, usually, conducted in a sequence of five or seven stages:

1. Identification of the problem/question: by the meeting conveyer.
2. Nominal group activity: each participant is needed to list his / her responses to the posed questions privately.
3. Listing of ideas: each participant is requited to nominate his/her ideas in sequence.
4. Discussion of ideas: discussion, debate, questioning and the advocacy of ideas. At the conclusion each participant is issued with cards to independently and privately record which of the ideas seem to be most important.
5. Ranking of ideas: allocating a numerical value consistent with the total number of ideas, by each participant.



6. Further discussion.
7. Final ranking of ideas.

This method is designed to give each person a maximum opportunity to participate. Verbal skills is not essential for an effective contribution; the relative prestige of participants is minimised. The process focuses discussion on the desired topic and produces a high volume of ideas; long emotional arguments are avoided; the premature omission of an idea is eliminated; ideas tend to become anonymous and depersonalised among the large list of ideas. It has been found that the technique may be applied to most decisions forming situations, but its most efficient use have been in the identification of citizen, problems and views on general community and environmental issues. Considerable skill is required to activate the process. The recommended number of participant in a session would be five to ten participants.

### **iii. Brainstorming:**

This technique has achieved wide acceptance as a means of facilitating creative thinking. The purpose of the method is to free the participant from their inhibitions, self-criticism, and criticism by others in order to produce as many as different ideas as possible, on the assumption that the larger the number of ideas produced, the greater the probability of achieving an effective solution. There are four basic principles:

1. Adverse criticism of ideas in delayed until the full list of possible solutions has been attained.
2. No horizon of realisation is set on the ideas.
3. The target is the maximum number of ideas from the participants.
4. The combination and improvement of tabulated ideas to produce new and different ideas is desirable.

This concept was not to be opened for mass participation. The optimum size for a brainstorming session would be five to ten participants having some familiarity with the scope of planning. However, the technique has a high potential as a learning device, even if its operational creativity value is suspect.

### **iii. The Charrette:**

This both a planning process strategy and an educational process. The charrette is a means of developing a community plan by achieving a working relationship of people within the community and those from outside and by providing a learning environment, to heighten the awareness of the community to the intricacies of planning, and of the outsiders to the problems within the community perceived by those residents there. The process involves citizens, planners, community representatives, politicians, working together in an informal atmosphere. The charrette has four essential ingredients:



1. A problem to be solved co-operatively.
2. A group of interested citizens willing to co-operate.
3. The professional experts to assist with the technical determinations.
4. A commitment from the prevailing local government power structure to put into effect the plans and recommendations which emerge from the charrette.

It is a decision making process in which the decisions are made and implemented at the community or district level. One of the valuable benefits of the process is the assumption that if the local residents have dynamically involved themselves in producing the community plan, there should be significant popular support of the end product. The technique is not one of mass involvement. The charrette typically passes through four phases:

1. Preparatory phase: the community set in motion the organisation necessary for the production of a plan including, the formation of steering committee of local residents, and the selection of the charrette manager.
2. Discovery: takes the first few days familiarising the participant with the process and flow of public observers with the assembled data.
3. Consolidation: the interested participants organise themselves into working groups, each group concentrating upon particular problem. These groups are expected to precisely identify the communities problems and their causes and to consider some of the resources necessary to achieve the alleviation of those problems. Most of the working groups would be expected to draw up on expert advise, the deliberations of these groups are expected to be summarised and made generally available.
3. Proposal development: at this phase, the working groups review their reports in the light of public comment passed on them, the presentation at an open public meeting of the revised report and its plan implementations, the synthesis of the various proposed problem-solutions by indications of public preference before a jury consisting of the community elected individuals after the public meeting, the working groups would rework their proposals in light of the official comment. At the final conference session the total plan and the implementation strategy are publicly presented for conformation.

## **A.2 Determinants for Appropriate Data Collection Methods**

While considering the dimensions and constraints for selecting appropriate data collection methods illustrated in section 3.5, this study suggests a multi-level approach that allows for user participation in the evaluation process. The various determinants for selecting the appropriate data collection methods for that multi-level evaluation approach include: the nature of values under investigation, extents of participation and the available resources. These are also discussed in relation to the case study in chapter V (see section 5.2.3)



### **i. Nature of Values:**

The nature of values under investigation is a key determinant of the appropriate data collection and assessment methods. The discussion of the visual values addressed the qualitative nature of these values (see section 2.4). Accordingly, their measurement needs intensive interaction with the users and the built environment under study.

### **ii. Extents of Participation:**

The choice of a data collection and assessment method depends largely on the different extents of participation. These include: scale of the setting, type of participation and kinds of participants.

#### **1. Scale of Setting:**

The scale of setting is one determinant of the appropriate data collection and assessment method. There are three levels of scale of settings. These are: the local or small scale, the municipal or the intermediate scale and the central government or the large scale settings. In different scales there are different levels of action, different kinds of organisations, and mixes of skills<sup>2</sup>. Scale also affects communication opportunities, e.g., as the project scale becomes larger, the communication opportunities are reduced. In small scale projects, the use of direct communication methods, i.e., interviews and questionnaires are suitable. As the project scale becomes larger the use of direct communication methods is still possible. Therefore, the use of samples becomes necessary, and the questions must be more general.

#### **2. Type of Participation:**

Type of participation refers to the stage as well as to the level of participation within that stage. Stages of participation include: programming, planning and design, implementation, maintenance and feedback stages<sup>3</sup>. However, the level of participation ranges from full and continuous involvement, monitoring, choosing among alternatives, evaluating proposals, decision making, to the no involvement in any mentioned activity.

With different types of participation, there are also different suitable techniques. For example at the programming stage, public meetings and hearings might be appropriate; while in the planning and design stage, a questionnaire accompanied by observational techniques might be appropriate. Different stages of participation might require the use of different techniques. Planning and design stages involve different levels of participation. In evaluating different alternatives, for example, the use of simulation techniques such as scaled models, computer animation and virtual reality constructions are appropriate. At a feedback stage, however, participation aims to seek facts about performance. This includes identifying successes and failures in the performance of the built environment, and recommending suitable actions to



resolve its problems. The choice includes the use of behavioural maps, interviews, and questionnaire surveys.

### 3. Kind of Participants:

One of the most important determinants for the choice of a suitable technique is the kind of participants. There are many groups that might be involved in the participation activity, such as, users and occupants, experts, governmental agencies and authorities. Since this research is concerned with those who are most affected by the area, the user and occupant groups will be the main focus of attention. Where users are a relatively small and reasonably homogeneous group, then the use of direct communication techniques, i.e., interviews and questionnaire surveys are suitable. As the user group becomes larger and more complex, but still present and familiar with the site, the same direct techniques are used. However, they must become more general in their form, and sample surveys, and narrower more quantifiable interviews are employed. With the use of a sample survey, decisions about who will be heard are an important issue. Observational techniques are also usable with this kind of user groups. Where users are present, but are transient and anonymous (as in a city plaza), one turns even more to the observation of action, and the brief sample survey of the street.

### iii. Available Resources

The choice of data collection and assessment is also determined by the available resources of time, money and expertise. Different methods have different costs, need different numbers of personnel and expertise, and need different amounts of time. Choice of methodology is most critical when evaluating qualitative values because it always require a multi-dimensional approach that uses more resources and time than a single technique.

The amount of time and effort needed for evaluating different dimensions of visual performance vary. The variation is due to wide range of values to be assessed in each performance dimension, such as, sensorial, functional, technical, novelty/familiarity and hidden values (see section 2.4). Technical and functional values of visual performance can usually be evaluated in a relatively short-time, while the sensorial and novelty/familiarity ones take somewhat longer to evaluate. The hidden values are the most laborious and time-consuming to evaluate. These values often need to be collected over a long period of time.

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1. Fragence, Michael., *Citizen Participation in Planning*, Toronto: Pergamon Press, 1977.
  2. Barnett, Jonathan., *An Introduction of Urban Design*, New York: Harper and Row, 1982, pp. 34-36.
  3. Wandersman, A., 'User Participation in Planning Environments: A Conceptual Framework', *Environment and Behavior*, Vol.11, No. 4, 1979, p. 446.



## Appendix B

### The Performance Concept's Stages of Development

Incorporating users in the evaluation process requires a suitable participation process to be adopted. Accordingly, a modified version of Preiser's et al performance concept was selected as appropriate participation mean for this study<sup>1</sup>. It was chosen as a previously used process that proved appropriate results. The performance concept's significance, as a user participation process, its levels of effort were discussed in the main text of this dissertation (see section 4.4). This appendix explains its stages of development. These are also explained in relation to the case study area in Chapter V (see section 5.2.3). The performance concept involves three stages of development: planning, conducting and applying<sup>2</sup> (Figure B.1). Each of these stages includes three steps or activities.

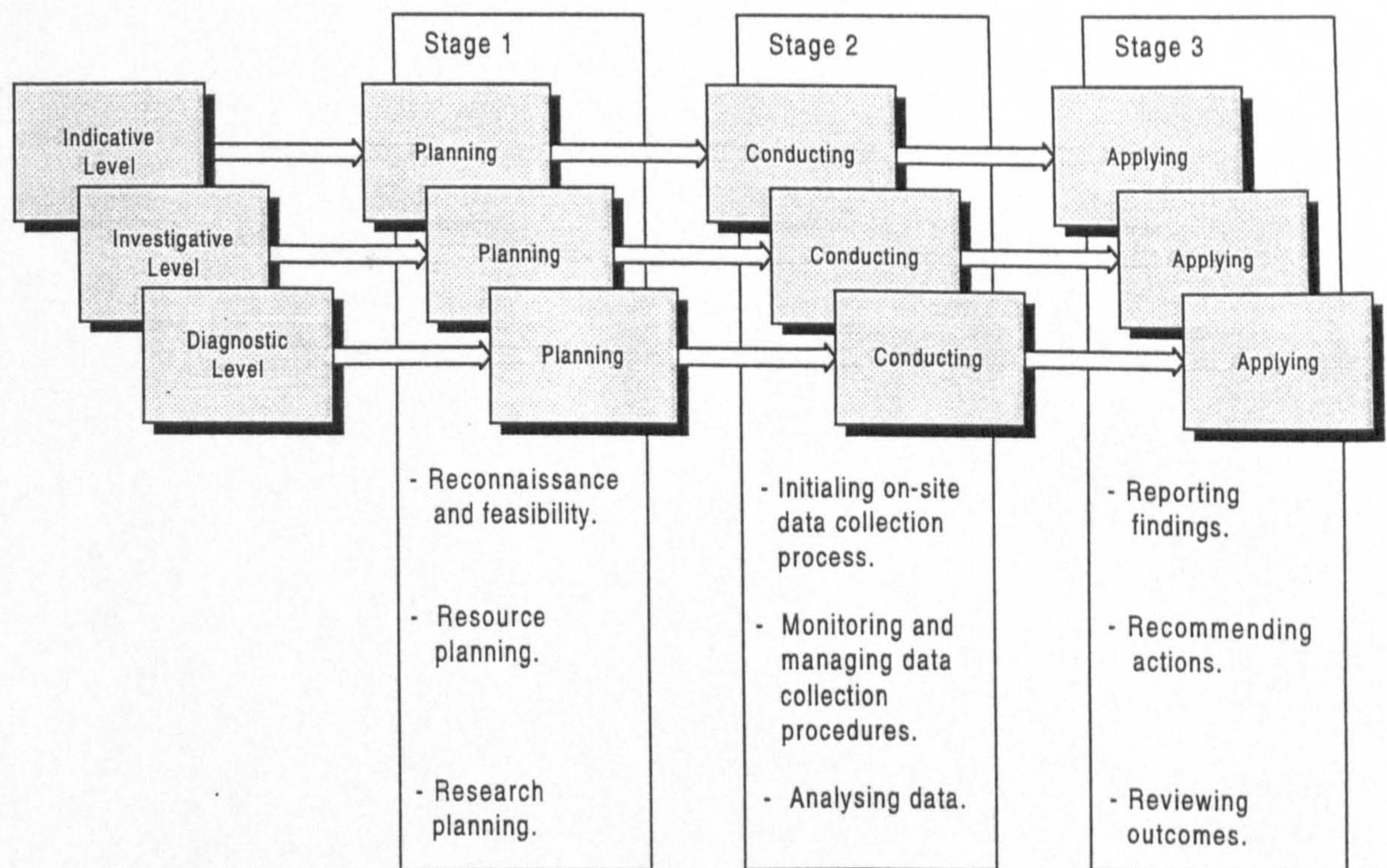


Figure B.1: The performance concept's stages of development.

Adapted: Preiser, Wolfgang., et al, *Post Occupancy Evaluation*, Van Nostrand Reinhold, New York, 1988, p. 54.

#### B.1 The Planning Stage

This stage, however, involves three activities<sup>3</sup>: reconnaissance and feasibility, resource planning and research planning. Reconnaissance and feasibility concerns initiating the performance concept in a certain study area and determining the



needed level of effort (Figure B.2). This will help in making a preliminary judgement concerning the intensity and complexity of usage.

The second activity, i.e., resource planning concerns determining the scope and level of effort needed. These involve allocating the needed personnel, scheduling the process and developing a budget (Figure B.3). These are important for selecting the most appropriate type of data collection methods to be used.

Research planning is the third activity in the task of planning the performance concept (Figure B.4). It aims at<sup>4</sup>:

- a. Determining the items to be investigated;
- b. Choosing variables that will represent these items;
- c. Stating operational definitions for these variables;
- d. Developing specific measures for these variables;
- e. Setting concept to evaluate the measures; and
- f. Interpreting results and conclusions.

The level of detail and sophistication of research planning varies with the three levels of effort to be conducted. Research planning and preparation for the indicative level are straight forward. An indicative level places equal emphasis on the planning, conducting and applying stages. However, at this indicative level of effort, measures can take the form of notes on the plans, surveys of visual materials, and lists when the environment under evaluation has repetitive elements with similar functions, not all of these elements may need evaluation.

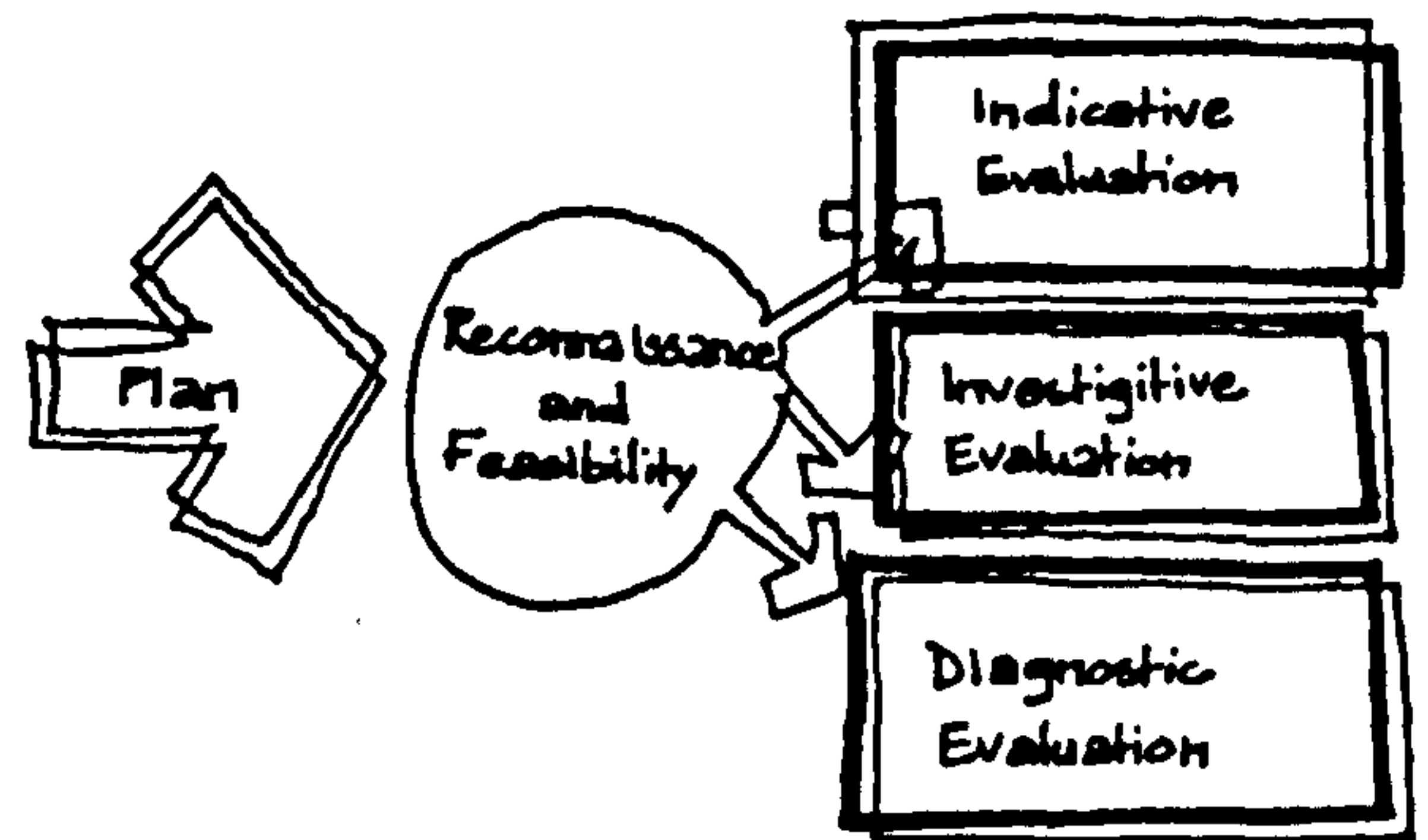


Figure B.2: The reconnaissance and feasibility planning activity.

Adapted: Preiser, et al, *Post Occupancy Evaluation*, p. 66.

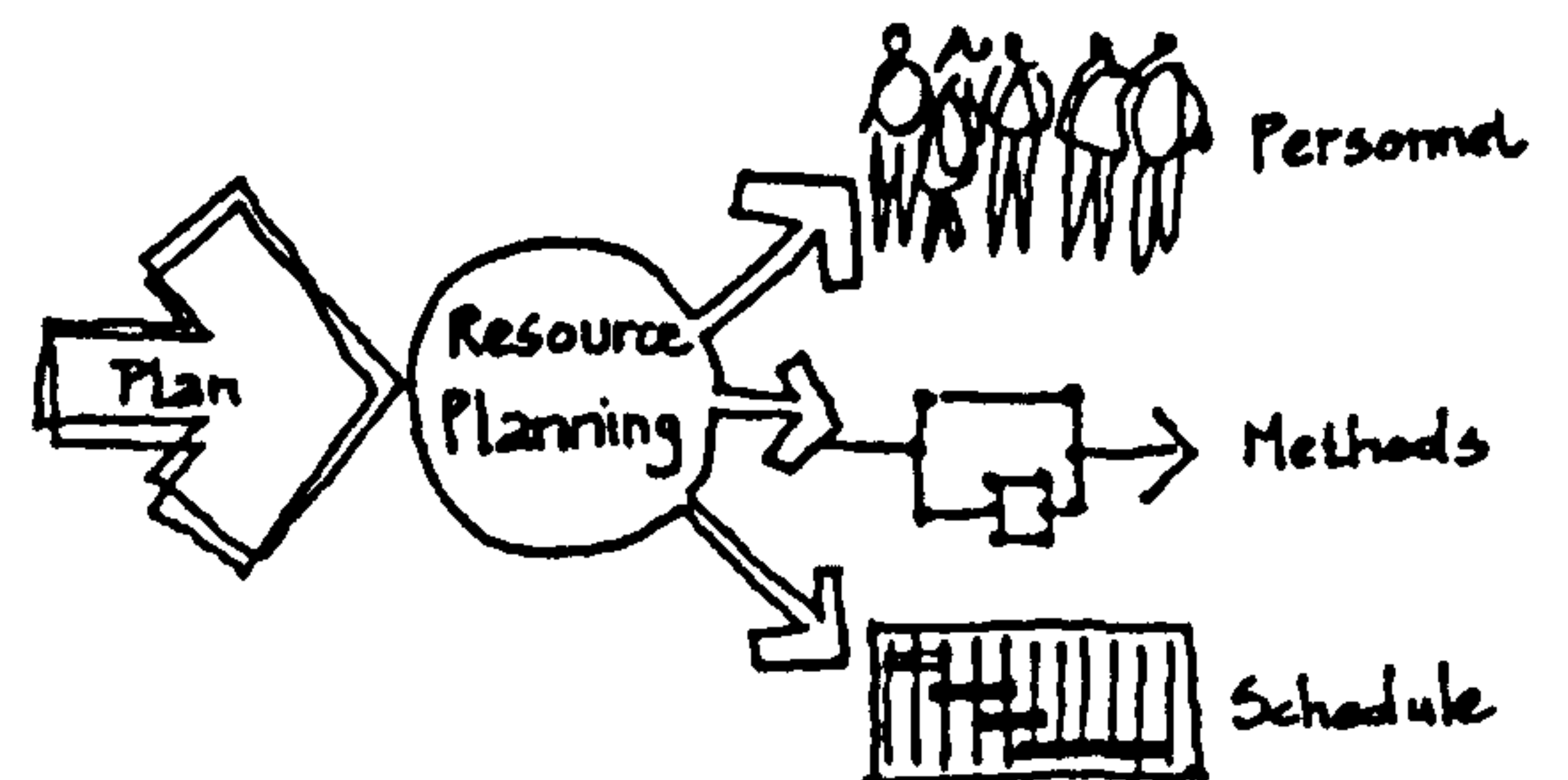


Figure B.3: The resource planning activity.

Adapted: Preiser, *Post Occupancy Evaluation*, New York, 1988, p. 66.

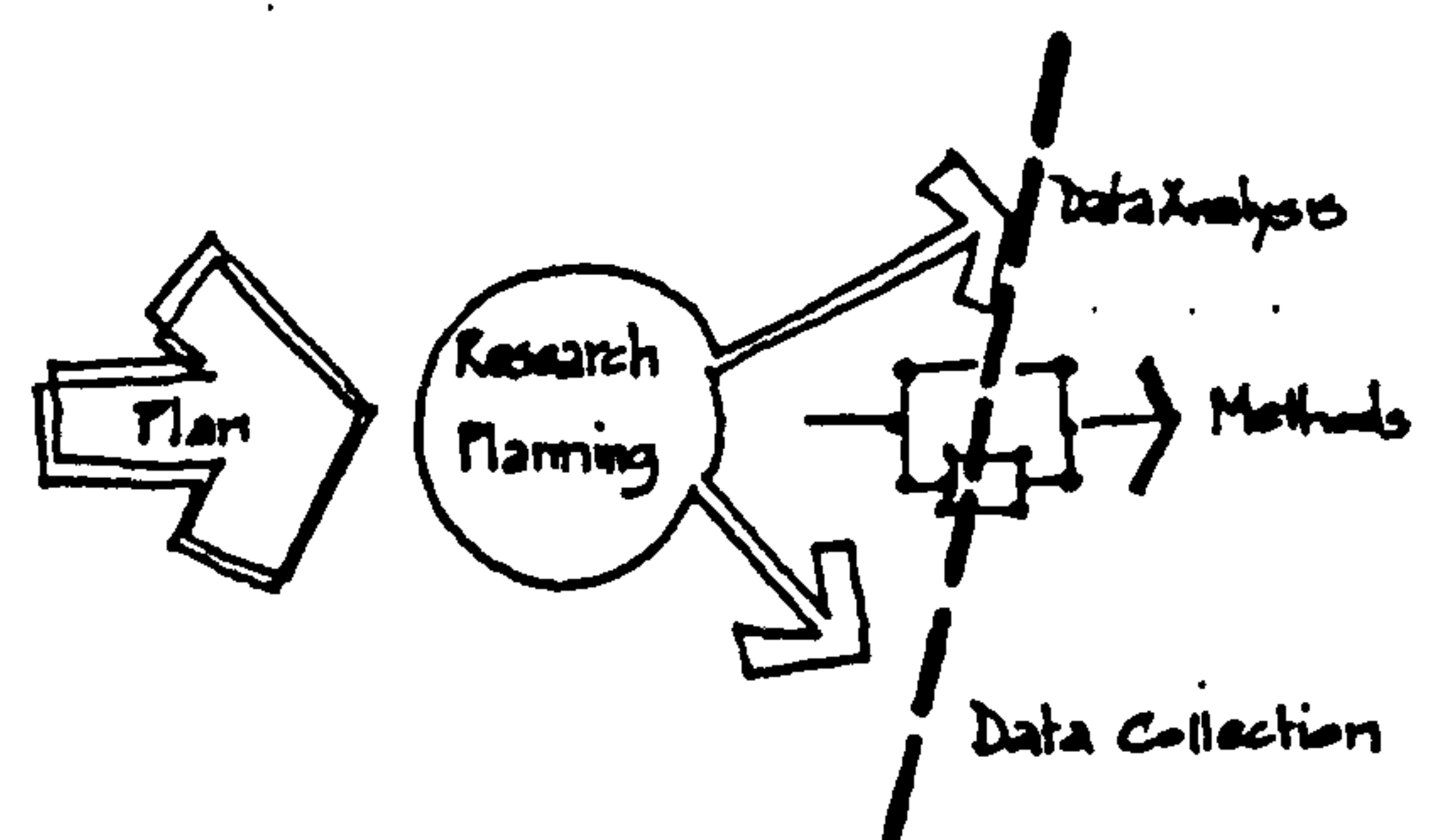


Figure B.4: The research planning activity.

Adapted: Preiser, *Post Occupancy Evaluation*, New York, 1988, p. 66



Research planning for an investigative level requires considerable time for preparation. Methods for data collection, analysis and communication must be created for each performance dimension to be measured. For a diagnostic level, research planning resembles in concept that of the investigative one, but has considerably more depth and breadth. The methods used for data collection and analysis are more elaborated than the other two levels of effort and a cross-comparison checking is essential to ensure the reliability of findings.

## **B.2 The Conducting Stage**

Conducting the performance concept comprises three steps<sup>5</sup>: initiating the on-site data collection process; monitoring and managing data collection procedures; and analysing the data. Initiating the on-site data collection process includes establishing the base of operations; pilot testing and co-ordinating data-collection methods, to co-ordinate the timing and location of evaluation activities, and practice runs of data collection procedures. The second step, however, concerns monitoring and managing the data-collection. The purpose of this step is to assure the collection of appropriate and reliable data.

Analysing the data is the third step of conducting the performance concept. The purpose of analysing the data is to identify the response patterns, or differentiate among the findings of the evaluation. This analysis step tries to make sense of the data with the research questions. Generally, data analysis has three objectives:

- a. to describe the (visual) performance of the built environment under study and its elements;
- b. to interpret this performance and judge its merit; and
- c. to explain this performance.

## **B.3 The Applying Stage:**

The major activities or steps in applying the performance concept are<sup>6</sup>: reporting the findings; recommending actions; and reviewing the effects of those actions on the environment. The findings of the performance concept are primarily geared towards four objectives:

- a. Identifying problems and evaluating successful and unsuccessful visual performances in existing elements;
- b. Achieving short-term problem solving by identifying and resolving minor spatial and formal problems. These actions require limited resources. Actions to resolve this kind of short-term problems lie in improving maintenance and operations of the area under study; making changes in relatively short-lived elements, e.g., furniture and signs;
- c. Resolving major spatial and formal problems of the studied area that may take several years, such as major constructions and changes in the organisational structure. This is considered a medium-term objective; and



- d. Affecting the long-term objectives, the findings of the evaluation process can be fed into information systems such as a data base with the purpose of improving the spatial and formal qualities of new built environments as well as replacement of major systems.

A critical part is to recommend actions to be taken. Basically, there are two types of recommendations: those that may address a hierarchy of possible implications in terms of modifications in policies, procedures and techniques; and the other recommendations that may relate to different time horizons for their implementation, organised in hierarchical fashion, i.e., short-term, medium-term and long-term. Reviewing the Outcomes is the final step in the application. This step ensures that the recommendations and resulting actions from an evaluation process are followed and put to use to achieve the intended results. Such review should not occur immediately after completion of evaluation, time should be allowed so that the reactive effects of the evaluation caused changes are ameliorated.

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1. Preiser, Wolfgang., et al, *Post Occupancy Evaluation*, Van Nostrand Reinhold, New York, 1988, pp. 33-38.
  2. *ibid.*, pp. 58-65.
  3. *ibid.*, pp. 66-74.
  4. *ibid.*, pp. 70-72.
  5. *ibid.*, pp. 75- 89.
  6. *ibid.*, pp. 90-97.



## Appendix C

### The Visual-Impact Checklist

The investigative evaluation aimed at understanding two human aspects related to visual performance: how people conceive the visual performance of the area and how they act in it. This investigation focused on the nature of behaviour as a way for evaluating the visual performance of SCC. The procedure concerns watching the area using a visual-impact checklist. The visual-impact checklist is a systematic way of seeing the spatial and formal qualities of SCC as well as assessing them. It served as a program for organising personal assessments so as to arrive at a form of value judgement which will serve as a cross-checking tool together with other measurement methods.

The checklist's patterns incorporate the five visual performance dimensions of identity, order, variety, structure and fitness. The checklist patterns cover both positive and negative performances. The findings of the indicative level of the study were also a help in the development of the checklist's patterns (see Chapter VI). The evaluation of the visual dimensions and the variables that represent them requires certain operational definitions in order to translate them into observable and measurable events. For the investigative level, these dimensions and variables were transformed into a pattern language checklist covering positive and negative patterns as showed in table C.1:

Table C.1: The Investigative operational definitions

Concept	Variables	Operational Definitions (Patterns)
<b>Identity</b>	Morphology	- topography and landform. - density and character of buildings.
	Typology	- patterns, textures and grains. - paving, signs and night lighting.
	Character	- physical patterns of space. - memorable images and reminders.
<b>Order</b>	Regularity	- sense of place and feeling of intimacy. - where people sit, lie, lean against something, or handle something.
	Alignment	- principal paths of movement. - traffic to be tolerated before the area is impaired or dead. - points of conflict. - the origins and destinations.
	Hierarchy	- major hubs and nodes, landmarks in various localities. - hidden important features behind other less important ones.



<b>Variety</b>	<b>Variety of Uses</b>	<ul style="list-style-type: none"> <li>- uniform and varied uses.</li> <li>- crowding and behaviour.</li> </ul>
	<b>Variety in Complexity</b>	<ul style="list-style-type: none"> <li>- features that serve a symbolic civic role.</li> <li>- vitality.</li> <li>- historic and special elements.</li> </ul>
	<b>Variety in Relationships</b>	<ul style="list-style-type: none"> <li>- grouping of different activities.</li> <li>- change in activity pattern according the time of the day, week or season.</li> <li>- hubs of intensive visual experience.</li> <li>- various vistas, magnets, generators and feeders.</li> </ul>
<b>Structure</b>	<b>Spatial Orientation</b>	<ul style="list-style-type: none"> <li>- detrimental features of the place.</li> <li>- blighting features of the place.</li> <li>- places needing clarifying elements.</li> <li>- strong and weak areas of orientation.</li> <li>- the way finding behaviour.</li> <li>- movement conflicts.</li> </ul>
	<b>Visual Inertia</b>	<ul style="list-style-type: none"> <li>- the involuntary delays and detours.</li> <li>- lively, vital, vigorous and active streets and spaces.</li> <li>- behaviour at decision points.</li> </ul>
	<b>Enclosure</b>	<ul style="list-style-type: none"> <li>- street widths and heights.</li> <li>- interlocking spaces.</li> <li>- physical and visual contact.</li> </ul>
<b>Fitness</b>	<b>Fitness with Natural Environment</b>	<ul style="list-style-type: none"> <li>- site supremacy.</li> <li>- natural settings.</li> <li>- vacant areas.</li> </ul>
	<b>Fitness with Built Environment</b>	<ul style="list-style-type: none"> <li>- novelty and familiarity: weaknesses and significance.</li> <li>- changing patterns.</li> <li>- areas for preservation, moderate remodelling or complete overhaul.</li> <li>- visual pollution.</li> <li>- street furniture.</li> </ul>



## Appendix D

### The Questionnaire Survey

The questionnaire is the main data collection method for the diagnostic evaluation of SCC. It was originally prepared in Arabic to allow communications with the respondents. It is restricted to one major issue: the visual performance at Salt City Centre. The objectives of the questionnaire are explained in section 5.3.3. This appendix discusses the various issues related to the questionnaire design, pilot studies and the sampling process. It also represents the English translation of the covering letter attached to the questionnaire as well as the English translation of the questionnaire form.

#### D.1 The Questionnaire's Operational Definitions

The questionnaire is a systematic way of seeing and assessing the spatial and formal qualities of SCC from user preferences. The questionnaire was directed to one major aspect: the visual performance of SCC. The evaluation of the visual dimensions and the variables that represent them requires certain operational definitions in order to translate them into observable and measurable events. Accordingly, these dimensions and variables were transformed into questions covering the five visual performance dimensions of the visual imageability criteria (Table D.1).

Table D.1: The questionnaire operational definitions.

Concept	Variables	Operational Definitions: Initial questions concerning the following issues
Identity	Morphology  Typology  Character	- unique/ordinary topography and landform.  - buildings with old and unique architectural elements, such as, arches and cornices with rich decorations.  - places with distinctive visual character. - places with unique memorable images which could be considered as reminders of Salt.
Order	Regularity	- buildings (old and new) with familiar features, such as styles, forms, colours and building materials. - feeling of intimacy regarding the heights of buildings in the area.



	<p>Alignment</p> <p>Hierarchy</p>	<ul style="list-style-type: none"> <li>- streets with continuous facades matching curvature and slopes of the street.</li> <li>- important landmarks that can be seen from different spaces within the city.</li> <li>- enjoyable scenes of the city while descending and ascending stairways.</li> </ul>
Variety	<p>Variety of Uses</p> <p>Variety in Complexity</p> <p>Variety in Relationships</p>	<ul style="list-style-type: none"> <li>- streets, open spaces, and stairways which encourage people (of different ages and/or sexes) to use, sit and relax, and move-through at various times and for different purposes.</li> <li>- streets and open spaces with visible traces of history, such as, monuments and important old buildings.</li> <li>- places with emotional attachments that remind people of local and/or national happy or sad events and memories.</li> <li>- places from which one can have views to various districts of the city.</li> </ul>
Structure	<p>Spatial Orientation</p> <p>Visual Inertia</p> <p>Enclosure</p>	<ul style="list-style-type: none"> <li>- streets and spaces with features (clues) that help people to find their way easily to other districts in the city.</li> <li>- lively, vital, vigorous and active streets and spaces.</li> <li>- open spaces with clear physical boundaries</li> </ul>
Fitness	<p>Fitness with Natural Environment</p> <p>Fitness with Built Environment</p>	<ul style="list-style-type: none"> <li>- site supremacy and natural settings.</li> <li>- vacant areas.</li> <li>- appropriate/limited green areas.</li> <li>- new buildings often similar to old ones in terms of sizes, shapes of windows and doors, and heights.</li> <li>- hidden important features behind other less important ones.</li> <li>- exposed wires and pipes.</li> <li>- dirty building facades.</li> <li>- attractive/unattractive street furniture.</li> </ul>

## D.2 The Questionnaire Design

The indicative and investigative evaluations of SCC formed a useful help for formulating the questionnaire (see Chapters VI and VII). After reviewing the initial questions, a revised set was developed mainly covering the visual performance dimensions. The questionnaire aims to fulfil the objectives of the research and to test the validity of the hypotheses. Within this framework, the questions seek to collect five data types. These are:



1. Data concerning facts, i.e., characteristics and situations that exist or have existed, such as, age, gender and previous involvement in users participation processes.
2. Data concerning awareness and knowledge of respondents of some objects and phenomenon related to the visual appearance of SCC area.
3. Data concerning the respondents' intentions towards some objects and phenomenon at SCC.
4. Data concerning the respondents' attitudes and opinions towards some objects and phenomenon at SCC, i.e., that indicate views, preferences and inclinations.
5. Data concerning respondents' motives, i.e., desires, wishes and needs regarding the visual appearance of SCC.

The sequence of the questions was an important part of the questionnaire design. As the visual dimensions could be considered difficult to understand by the average respondent. Ordering the questions in relation to these dimensions could largely affect the respondents natural and spontaneous reply. Accordingly, the questions were ordered to follow a logical sequence that could be easily understood. The sequence, therefore, was related to the physical elements of SCC that the respondents are familiar with. The questionnaire started with the more general items and gradually moved in to the specific ones. Additionally, the questionnaire allowed for inter-consistency reliability of the respondents by checking the consistency of the results of two similar or related questions.

The design of factual questions, i.e., questions concerning facts about the respondents, were left to the end of the questionnaire as to avoid crowding the opening minutes with personal questions. As many respondents could be rather conservative and slightly reluctant in answering personal questions, such questions were reduced to the minimum information needed. Questions that might cause offence, such as income, religious and political attitudes were avoided. Moreover, most factual questions involve the respondents in recalling information. The needed information, however, should not have caused serious memory errors.

Collecting data concerning opinions is much complex than that of facts. A person's opinion on any issue could be many sided. Attention was paid when asking about the visual appearance of two particular old and new buildings. It was important to choose two buildings with similar emotional attachments and meanings to the users, i.e., the Great Mosque and the Small Mosque. This was necessary to avoid any preferences other than visual. Regarding a respondent opinion of the small mosque, for example, it is possible that the respondent could be against it on visual grounds, but in favour on religious grounds. However, answers to such questions are sensitive to changes in wording, emphases and sequence. Therefore, the wording of the questions and the context created by previous ones placed emphases on the visual aspects.

Respondent's characteristics are potential points of error. Temporary characteristics, such as, the mood of the respondents, whether bad or good, might affect his/her



reply. Respondents may give an answer other than the correct one because he/she lacks the knowledge or because simply he/she misunderstands the question. It is important to understand the cultural forms through which "truths" are accomplished. Questions involving prestige and social gain may lead respondents to inaccurate answers<sup>1</sup>. A respondent may overstate his response when answering if he/she recommend others to visit the study area, for example, to appear generous. This might be considered as a major entry-point of bias in city like Salt where people are proud of their generosity. Accordingly, emphases were made on visual aspects to minimise the bias that might be generated through such questions.

No pre-assuming questions were used to collect data on respondents' desires and wishes. These questions were open-ended to give respondents complete freedom in answering. A combination of closed and open-ended questions were used rather than relying upon a single type of item. Closed-ended questions were used to elicit users' preferences, opinions and priorities to a number of alternatives to be tested or arranged in order of their importance, and rating-scales are used to rank respondents' judgements. Open-ended questions were used to permit the respondent to reply in any terms that appeared to be appropriate. They were necessary for expressing information or opinions that may be unknown or unrecognised by the researcher, or where the number of possible answers were numerous.

Commonly used scales in behavioural research include different rating scales among which the semantic differential scale could be considered as an appropriate tool for exploring the connotative meaning of objects. The researcher used different types of scales depending mainly on the semantic differential scale. Pairs of opposed concepts were developed for measuring the qualitative visual tasks. The measurement consists of administrating a list of opposite adjectives on which the participants scale their opinion towards the issue under investigation. The choices become the measure of his/her satisfaction on that particular issue. It is recommended not to use more than a seven-point scale<sup>2</sup>. However, a five-point scale has been proven to be easier to manage.

The selection of the pairs of opposed concepts was obtained from the nature of the experiment. They are also in line with those already used and tested by other researchers. Lowenthal and Riel, for example, developed a long list of tested adjectives that are valid to be used for both natural and synthetic environments<sup>3</sup>. In a similar way Kasmar prepared a comprehensive list of 66 opposite adjectives for use in environmental descriptors<sup>4</sup>. Both studies were of great help in the selection of appropriate adjectives. Sommer also recommended to counterbalance the order of positive and negative concepts so as "to prevent the respondents from falling into a fixed pattern of always checking to right or to left"<sup>5</sup>. Accordingly some of the concept pairs were counterbalanced.

### **D.3 Pilot Studies**

Various measures have been taken to minimise the error entry points. These include: pre-testing the methods and standardising the conditions under which the research study is taken. The first draft of the questionnaire was informally tested on



architectural students of the fourth year at The Applied Science University, Amman. It was important to test the questionnaire before distributing the final form. This was necessary to provide guidance to the different issues related to the survey before conducting the actual investigation. Accordingly, three pre-testing pilots were made, during February-April 1997, to test the clarity of the form and validity of the responses. The pilot tests helped in providing information regarding the adequacy of the questionnaire as follows<sup>6</sup>:

1. Sample and population, i.e., the adequacy of the sample frame from which it is proposed to select the; and the variability of the population to be surveyed. These were important to determine an efficient sample design (see section D.4).
2. Respondent reactions, i.e., the answers they are likely to give; and the non-response rate and the various ways of reducing it. Such reactions led to re-editing of the forms (see section D.2).
3. The efficiency and the clarity of the wording, instructions, rating-scales and definitions. These were important to ensure that: the instructions and the rating scales were clear; the questions do not lead to certain answers; the questions are direct and do not have vague or double meanings; they are about aspects known to the respondents; and that the language used is simple and does not include sophisticated terms. Accordingly, the questionnaire has been re-edited to be meaningful to the average respondent: clarify some questions, introducing others and cancelling some irrelevant ones. Loaded terms and double-barrelled questions were also avoided.
4. Testing the efficiency of the layout, font and font-size used.
5. Testing the adequacy of time needed for completing the questionnaire form. Accordingly, the length of the questionnaire was adjusted so as the respondents will not become less attentive or accurate after certain time.
5. Estimating how long the survey will take and the personnel needed for handling the questionnaires. Respondents to the pilot tests showed their appreciation to the inquiry by volunteering to join the researcher in distributing the questionnaire forms. Another benefit of the pilot tests was evident, since they assured the importance of the personal contact with respondents to get higher returns in a relatively short period of time.

Questionnaire forms were handed personally with the aid and support of many volunteers including Salt's Society of Boys Scouts, and fourth year students of architecture at The Applied Science University (ASU) in Amman. About 43% of all forms were distributed by the researcher. In this way, a good return ratio, amounting to 82% resulted from the distribution that was accomplished in a moderate time, i.e., 12 weeks during April-August 1997.



#### **D.4 The Sampling Process**

A sample is a part of a larger population. The rationale behind sampling is clear for cost and time. The sampling process for this case study consists of four steps. The first step concerns the defining of the target group of population. It would be misleading to think about the population as a homogeneous group, as there are a diverse set of users who have a variety of roles. Categories of different individual variables that may exist between people and groups may include the following<sup>7</sup>:

- a. **Personality variables:** including locus of control, need for power and stimulus seeking, life style, and education or culture.
- b. **Demographic variables:** such as age, gender, race and socio-economic status.
- c. **Environmental preferences:** concerns the degree to which a person cares about or is sensitive to a particular environment.
- d. **Effectiveness factors:** perceived expertise and relevant prior experience may affect willingness to participate and the results of this participation.

The key question is how to select the sample so that it is a true representative of the target group. It is likely that when sampling does occur, there may be some groups who are not represented or excluded. This exclusion causes what is known as sampling error, i.e., the difference between the results obtained from the sample and the target group. Accordingly, the focus must be on those who are vulnerable to the area, who are most likely to be harmed or supported by it. Accordingly, the target group for this investigation includes the users who are most exposed to the built environment and use it most often. Although SCC is the main commercial district at Salt, it is, also, a mixed-use area with residential, recreational, cultural and office developments. Accordingly, the target group was selected as follows:

1. **In terms of sampling units:** it includes shop-keepers, house-holders and office-workers.
2. **In terms of extent:** It includes those who are living/working in SCC's vehicular streets, pedestrian streets, stairways, as well as at the major scheme of Salt Civic Centre.
3. **In terms of time:** those who lived/worked in SCC district for at least three years.
4. **In terms of age group:** those who are between 18-75 years old.

Gender, race, ideology and political orientations, experience, education and social and economic status are considered constants.

The second step of the sampling process concerns specifying the sampling frame, i.e., the source or directory from which the sample will be chosen. Rating records listing all buildings within SCC district have been provided by The Salt Municipality. The records were arranged in order of street names and addresses for all commercial, residential, offices and other activity zones and buildings within the area. The names of the occupants were rarely recorded. The Municipality rating



records were relatively new. Yet, there are a few missing elements such as, the names of the occupants which were rarely recorded, new buildings which were not recorded, and vacant buildings which were recorded.

The name of the occupants was not important prior to the forms' distribution. During the distribution activity, names of occupants were recorded and related to the rating records for future consultations. The number of new unrecorded buildings were found to be negligible, specially because most of these buildings were still under construction and were not occupied when the survey was conducted. Occupants of some of the buildings were away, i.e., moved either within the same area or to another area; or out at the time of the call. The researcher had no control on the former group, however, the later group were re-visited at different times. The number of non-responses was quite small and did not affect the adequacy of covering the whole target group population.

This was followed by the third step of the sampling process, i.e., selecting the sampling method. Accordingly, a probabilistic method for sampling was used, i.e., using a table of random numbers representing the different shops, houses, offices and other activity zones within the study area. The target group population was ordered in random number of selection and thus the randomness was ensured giving an equal and independent chance for participation. That provided equal opportunity for every member of the target group to be selected<sup>8</sup>. This is important not only for generalising the propositions established from the sample to the entire population, but also for allowing for a statistical evaluation of the sampling error to be undertaken.

The fourth step of the sampling process concerns determining the sample size. There are many factors affects the size of the appropriate sample. These include: the variability of population, i.e., homogeneous or heterogeneous; the desired degree of confidence; and the use of sub-samples for cross-classification<sup>9</sup>. The sample size for this study was decided according the required accuracy and the feasibility of time, personnel, cost and other practical considerations. To produce meaningful results, a sample size of 7%-10% of the target group was found to be appropriate.

### **D.5 The Questionnaire Form**

This section represents the English translation of the questionnaire. A letter describing the goals of the survey and why it was important for the population to participate was attached to the first page. The covering letter was followed by instructions explaining who to use the questionnaire<sup>10</sup>.



**A. Translation of the Questionnaire's Covering Letter into English:**

## **The Visual Evaluation of Salt City Centre**

May, 3, 1997

To shop-keepers, house-holders and office-workers at Salt City Centre:

Have you ever thought:

'I wish they would ask me what I thought about that area before they made these changes, I'd tell them'.

Well, this is your chance. Enclosed is a survey questionnaire designed to obtain your views regarding the visual appearance of Salt City centre. And, where appropriate, give your views. So that they can be incorporated in planning and design guidelines for future developments and improvements.

The questionnaire was designed by Mr. Yasser Rajjal who is a lecturer in architecture and urban design at The Applied Science University, Amman. He is currently reading for his PhD. studies at The University of Glasgow, UK. His study is concerned with the contributions of users to enhancing the visual appearance of the built environment.

Salt was chosen for the study as one of the significant and unique cities in the region. The historic centre of the city is suffering the danger of threat of its historic buildings and traditional form. Together we can lay the foundation for improving and planning its future developments, while maintaining its valuable heritage which will be inherited by generations to come.

We encourage all of you to complete the Questionnaire and place it in drop boxes located in the main lobbies of Salt Municipality, Salt National Museum, and Salt Chamber of Commerce, or simply return it directly to the researcher.

On behalf of Mr. Yasser Rajjal and Salt Development Project/Municipality of Salt, we wish to convey that your participation in completing the questionnaire is deeply appreciated.



**B. Translation of the Questionnaire into English:**

**The Visual Evaluation of Salt City Centre**

Questionnaire No.: ..... Date:.....

**HOW TO ANSWER THIS QUESTIONNAIRE:**

In this questionnaire you will find different questions on issues related to the visual appearance of Salt City Centre. In answering these questions, please make your own judgement on the basis of what these issues mean to you. In each question you will find a different issue to be judged and a set of scales to place your check-mark on. Here is how you are to use these scales:

If you feel that the issue you are judging is very closely related to one end of the scale, you should place your check-mark as follows:

	1	2	3	4	5	
	X					

OR

	1	2	3	4	5	
					X	

If you feel that the issue you are judging is closely related to one or other end of the scale , you should place your check-mark as follows:

	1	2	3	4	5	
		X				

OR

	1	2	3	4	5	
				X		

If you consider the issue you are judging to be neutral on the scale, in other words, if you consider that both ends of the scale are equally valid, then you should place your check-mark in the middle space:

	1	2	3	4	5	
			X			

**IMPORTANT:**

1. Please be sure you answer all questions.
2. Please do not put more than one check-mark in the same question.
3. Sometimes you may feel as though you have been asked the same issue before in the questionnaire. This is not the case, so do not look back and forth through the questions. Do not try to remember how you checked similar issues earlier. Make a separate and independent judgement for each question.
4. Answer the questions at a fairly high speed. It is your first impressions, the immediate feelings that we want. On the other hand, please do not be careless because we highly appreciate your input.



## The Visual Evaluation of Salt City Centre

1. Please mark your overall impression on the visual appearance of Salt City Centre on the scale below:

		1	2	3	4	5	
1.1	It has unique topography						It has ordinary topography
1.2	It has outstanding visual appearance						It has ordinary visual appearance
1.3	It is a dull area						It is an attractive area
1.4	It has enough green areas						It has limited green areas
1.5	It is difficult to find your way in the area						It is easy to find your way in the area
1.6	It has attractive street furniture						It has unattractive street furniture
1.7	Needs visual enhancements, such as, maintaining building facades and vacant blocks						It is good as it is

1.8: In general, the streets, stairways and open spaces of Salt City Centre fit and match its topography:

	1	2	3	4	5	
Strongly agree						Strongly disagree

1.9: Salt City Centre (SCC) has important landmarks, such as, buildings, minarets and open spaces, that can be seen from different spaces within the city centre:

	1	2	3	4	5	
Strongly agree						Strongly disagree

1.10: SCC has unique memorable images (certain buildings, topography, spaces) that could be considered as reminders of Salt City Centre:

	1	2	3	4	5	
Strongly agree						Strongly disagree

1.11: SCC has many places with emotional attachments that remind you of some local and/or national events (happy or sad) attached to them:

	1	2	3	4	5	
Strongly agree						Strongly disagree

1.12: Its streets, stairways, and open spaces encourage lively, vital and vigorous activities:

	1	2	3	4	5	
Strongly agree						Strongly disagree

2. Please list the urban elements you feel are most memorable in Salt City Centre, please list them in order of importance. An urban element could be a street, pathway, open space, building or any thing you feel it is memorable:

.....

.....

.....

.....



**3. For the following particular features, please mark your impression on the scale below:**

**A. Plazas and Open Spaces:**

		1	2	3	4	5	
A.1	Vary in sizes						Similar in sizes
A.2	Vary in form						Similar in form
A.3	Vary in importance						Similar in importance
A.4	Have clear physical boundaries						Lack clear physical boundaries
A.5	Easy to find your way within them						Difficult to find your way within them
A.6	Contain a wide variety of uses						Contain a limited variety of uses

A.7: Plazas and open spaces have visual traces of history, such as, important old buildings and monuments:

	1	2	3	4	5	
A great deal						Not at all

A.8: Plazas and open spaces offer vistas and panoramic watch points to various districts of the city:

	1	2	3	4	5	
A great deal						Not at all

A.9: Plazas and open spaces encourage people from different ages and sexes to use them for different purposes, such as, shopping, relaxing and eating:

	1	2	3	4	5	
A great deal						Not at all

A.10: Plazas and open spaces have visual features (clues) which help you to find your way easily to other districts in the city:

	1	2	3	4	5	
A great deal						Not at all

**B. Vehicular Streets:**

		1	2	3	4	5	
B.1	Contain a wide variety of uses						Contain a limited variety of uses
B.2	Congested						Not congested
B.3	Easy to find your way within them						Difficult to find your way within them

B.4: Vehicular streets offer vistas and panoramic watch points of various districts of the city:

	1	2	3	4	5	
A great deal						Not at all

B.5: Vehicular streets encourage people from different ages and sexes to use streets for different purposes, such as, shopping, relaxing, eating snacks and killing time:

	1	2	3	4	5	
A great deal						Not at all

B.6: Vehicular streets have continuous facades which follow the curvatures and slopes of the street:

	1	2	3	4	5	
A great deal						Not at all



**B.7:** Vehicular streets have visual features (clues) which help you to find your way easily to other districts in the city:

	1	2	3	4	5	
A great deal						Not at all

**C. Pedestrian Streets and Stairways:**

	1	2	3	4	5	
<b>C.1</b>	Contain a wide variety of uses					Contain a limited variety of uses
<b>C.2</b>	Easy to find your way within them					Difficult to find your way within them

**C.3:** Pedestrian streets and stairways offer vistas and panoramic watch points of various districts of the city:

	1	2	3	4	5	
A great deal						Not at all

**C.4:** Pedestrian streets and stairways encourage people from different ages and sexes to use streets for different purposes, such as, shopping, relaxing and eating:

	1	2	3	4	5	
A great deal						Not at all

**C.5:** One enjoys the panoramas of the city while ascending and descending its stairways:

	1	2	3	4	5	
Strongly agree						Strongly disagree

**C.6:** Pedestrian streets and stairways have contiguous facades which follow the curvatures and slopes of the street:

	1	2	3	4	5	
A great deal						Not at all

**C.7:** Pedestrian streets and stairways have visual features (clues) which help you to find your way easily to other districts in the city:

	1	2	3	4	5	
A great deal						Not at all

**D. Buildings:**

**D.1:** Most of old buildings have unique features, such as, styles, forms, colours, textures and building materials:

	1	2	3	4	5	
Strongly agree						Strongly disagree

**D.2:** Most of new buildings have unique features, such as, styles, forms, colours, textures and building materials:

	1	2	3	4	5	
Strongly agree						Strongly disagree

**D.3:** Most of old buildings are built of familiar components:

	1	2	3	4	5	
Strongly agree						Strongly disagree

**D.4:** Most of new buildings are built of familiar components:

	1	2	3	4	5	
Strongly agree						Strongly disagree



D.5: Most of new buildings have similar characteristics to old ones, such as, size, shapes of doors and windows, heights, colours and building materials:

	1	2	3	4	5	
Strongly agree						Strongly disagree

D.6: The heights of buildings in the area, in general, give a feeling of intimacy and comfort:

	1	2	3	4	5	
Strongly agree						Strongly disagree

D.7: Some of the important buildings in the area (for example: the Anglican Church and Al-Sukkar building) are not visible because they are hidden behind other less important buildings:

	1	2	3	4	5	
A great deal						Not at all

D.8: Most of old buildings match the topography and inclination of the hills:

	1	2	3	4	5	
Strongly agree						Strongly disagree

D.9: Most of new buildings match the topography and inclination of the hills:

	1	2	3	4	5	
Strongly agree						Strongly disagree

4. For the following two major schemes, please give your opinion regarding their visual appearance on the scale below:

**A. Salt Civic Centre Project:**

	1	2	3	4	5	
A.1	Has pleasant visual appearance					Has unpleasant visual appearance

A.2: Salt Civic Centre encourages people from different ages and sexes to use streets for different purposes, such as, shopping, relaxing and eating:

	1	2	3	4	5	
A great deal						Not at all

A.3: Similar urban development projects should be made in Salt City Centre:

	1	2	3	4	5	
Strongly agree						Strongly disagree

**B. Al-Hammam Street Pedestrianization Project:**

	1	2	3	4	5	
B.1	Has pleasant visual appearance					Has unpleasant visual appearance

B.2: Al-Hammam street encourages people from different ages and sexes to use streets for different purposes, such as, shopping, relaxing and eating:

	1	2	3	4	5	
A great deal						Not at all

B.3: The pedestrianization experiment should be expanded to cover other streets of the city centre:

	1	2	3	4	5	
Strongly agree						Strongly disagree



5. For the following buildings, please mark your opinion regarding their visual appearance on the scale below:

5.1: The Small Mosque:

	1	2	3	4	5	
Has outstanding visual appearance						Has normal visual appearance

5.2: The Great Mosque:

	1	2	3	4	5	
Has outstanding visual appearance						Has normal visual appearance

6. Overall, does it make a difference if Salt City Centre has a pleasant or unpleasant visual appearance for your living/working at the area:

	1	2	3	4	5	
A great difference						Does not matter

7. Overall, would you recommend others to visit, live or use Salt City Centre and enjoy its visual appearance:

	1	2	3	4	5	
A great deal						Not at all

8. Comparing Salt City Centre to other Jordanian cities, how do you feel about its overall visual appearance:

	1	2	3	4	5	
Far better						Below average

9. What visual enhancements you hope could be done at Salt City Centre:

- a. Regarding buildings: .....
- b. Regarding streets: .....
- c. Regarding stairways: .....
- d. Regarding open spaces: .....
- e. Others: .....

10. Have you ever participated in the development of the area: a. Yes    b. No.

If yes, please indicate the type and level of your participation:  
 a. giving advice    b. decision making    c. financially    d. management and maintenance.

In the future, do you like to participate in the development of the area: a. Yes    b. No.

If yes, please indicate your preferable method of participation:  
 a. giving advice    b. decision making    c. financially    d. management and maintenance.

11. Please feel free to add any additional comments on the idea of participation in evaluating the visual appearance of Salt City Centre:

.....  
 .....  
 .....

**Background information:**

- You are: a. Shop-keeper b. House-holder  
c. Office-employee d. Others (specify): .....  
 You work or live: a. in a pedestrian street b. at a vehicular street  
c. within Salt Civic Centre e. at the sides of a Stairway  
 You are living in Salt since: ----- Age: ----- Sex: a. Male b. Female



- 
1. Oppenheim, A.N., *Questionnaire Design and Attitude Measurement*, London: Heinemann, 1966, pp. 62-64.
  2. Sommer, Robert., and Barbara Sommer, *A Practical Guide to Behavioral Research*, New York and Oxford: Oxford University Press, 1980, p. 149.
  3. Lowenthal, David. and M. Riel, *Environmental Assessment: Comparative Analysis of Four Cities* Publications in Environmental Perception No.5, New York: American Geographical Society, 1972a, pp. 63-64.
  4. Kasmar, Joyce., 'The Development of a Usable Lexicon of Environmental Descriptors', *Environment and Behavior*, No. 9, 1970: pp. 153-169.
  5. Sommer, op. cit., p. 149.
  6. See for example:
    - Moser, Sir Claus., and G. Kaltan, *Survey Methods in Social Investigations*, second edition, London: Heinemann Educational Books, 1975, pp. 47-52.
    - Oppenheim, op. cit., pp. 25-30.
  7. Rubin, A., and Jacqueline Elder, *Building for People*, Washington, DC.: National Bureau of Standards, 1980, pp. 12-16.
  8. Sommer, op. cit., p. 186.
  9. Moser and Kaltan, op. cit., pp. 146-165.
  10. The questionnaire's instructions were made according to:
    - Osgood, Charles et al., *The Measurement of Meaning*, Urbana: University of Illinois Press, pp. 82-84.
    - Oppenheim, op. cit., pp. 67-68.



## Appendix E

### The Questionnaire Results

This appendix presents an analytical discussion of the results derived from the questionnaire survey. The essence of the analysis is not mere counting but rather to arrive at explanations of the data obtained by means of the questionnaire survey. The data analysis process starts by providing a matrix of the raw data obtained from the survey. Editing and coding of the data was done in order to refer the five visual performance dimensions to the variables representing them. Accordingly, a final data matrix was made available for the analysis process. The appendix starts with comparing the respondent profile with the target group population. It presents the responses toward the visual performance of SCC as derived from the questionnaire survey. Respondent satisfaction was measured with reference to the five visual performance dimensions of identity, order, variety, structure and fitness. To build a broader understanding the responses are also illustrated in relation to the various key physical elements of SCC. Frequency distribution of answers with respect to user's previous involvement in participation activities are presented. The responses were presented as percentages of the five rating scales.

#### E.1 The Respondent Profile

Discussion of respondent profile concerns the distribution of respondents according to their gender, age, living/working category group as well as their previous involvement in user participation activities. Questionnaire data was transferred to specially prepared sheets with a specified row for each form. Out of 425 forms distributed, 349 were returned with an 82% response rate. Six of the returned forms were excluded from the sample, thus the actual number of response forms used were 343: 153 forms (44.6%) are from shop keepers, 132 (38.5%) are from house holders, and 58 (16.9%) are from office workers (Figure E.1).

Concerning the respondents' profile in terms of their living/working zone, most respondents are living/working on vehicular streets (148/43.1%). Those who are working at Sult Civic Centre area, however, form the minority (59/17.2%) (Figure E.2). Such distribution is logical due to the concentration of commercial activities in the area. Commercial activities in SCC, usually, take place on the sides of vehicular streets. Out of the 343 responses only 109 (31.8%) were completed by females (Figure E.3). This limited participation might be due the commercial nature of the area where male involvement predominates. The majority of the respondents (136/39.7%) are between 31-40 years old. Only 27 (7.9%) respondents are over 60 years old (Figure E.4). The majority of the respondents (264/ 76.7%) has been living in Sult for ten years or more, whereas only 4 (1.2%) has been living in Sult for less than 1 year (Figure E.5). The majority of the respondents (207/60.3%) have not been previously involved in any user participation activity (Figure E.6).



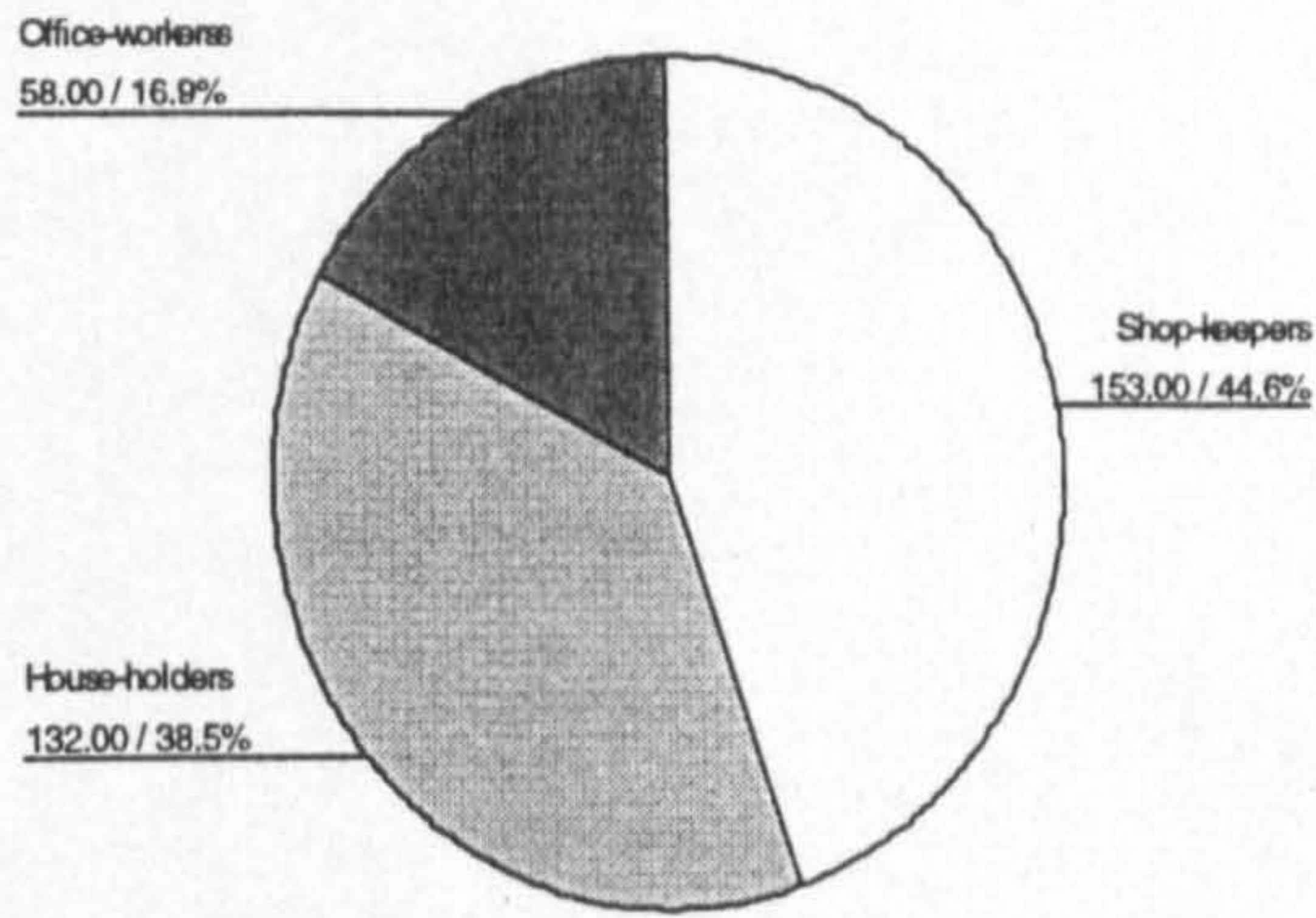


Figure E.1: The respondent profile in terms of their category groups.

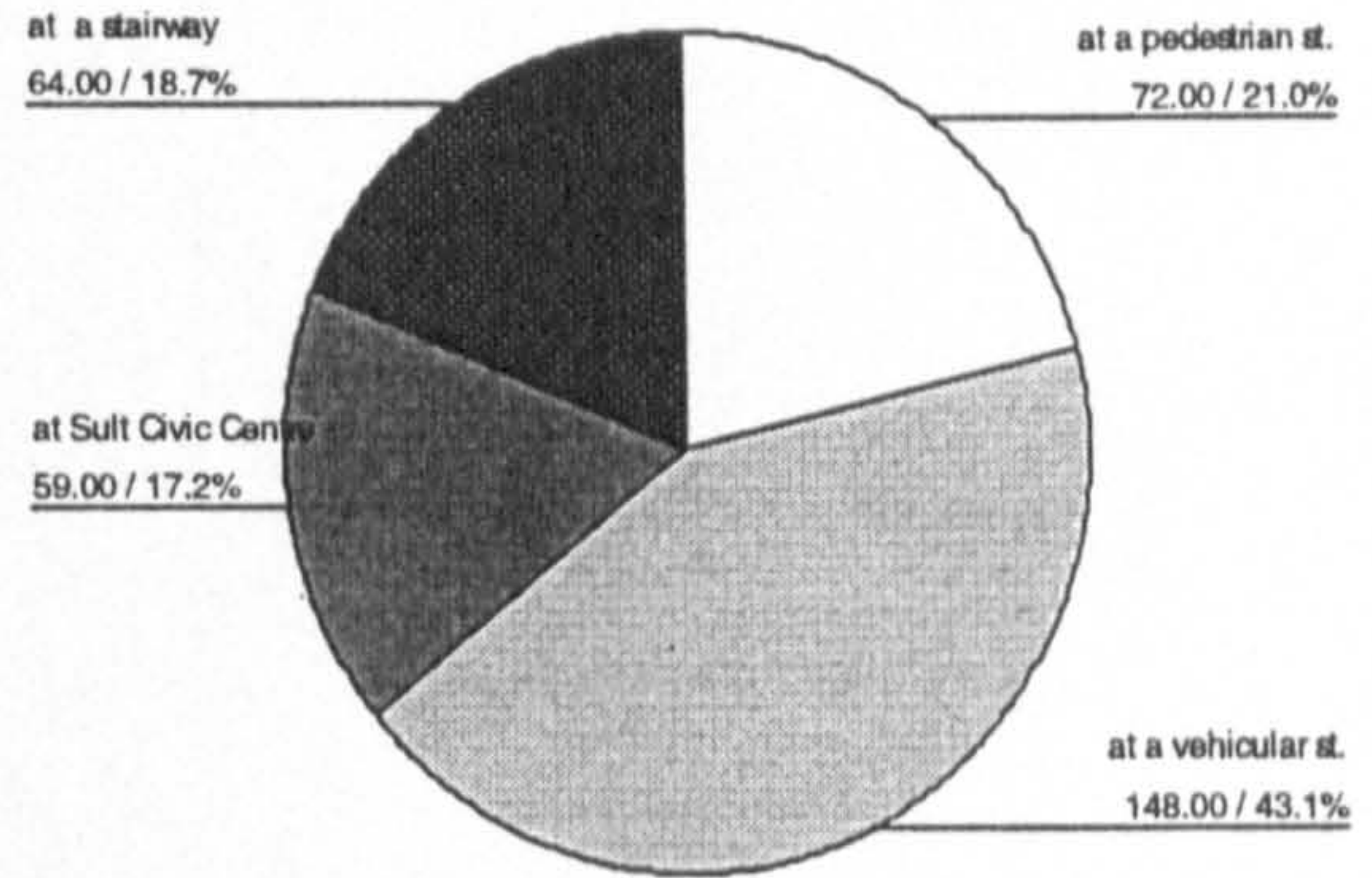


Figure E.2: The respondent profile in terms of their living/working zone.

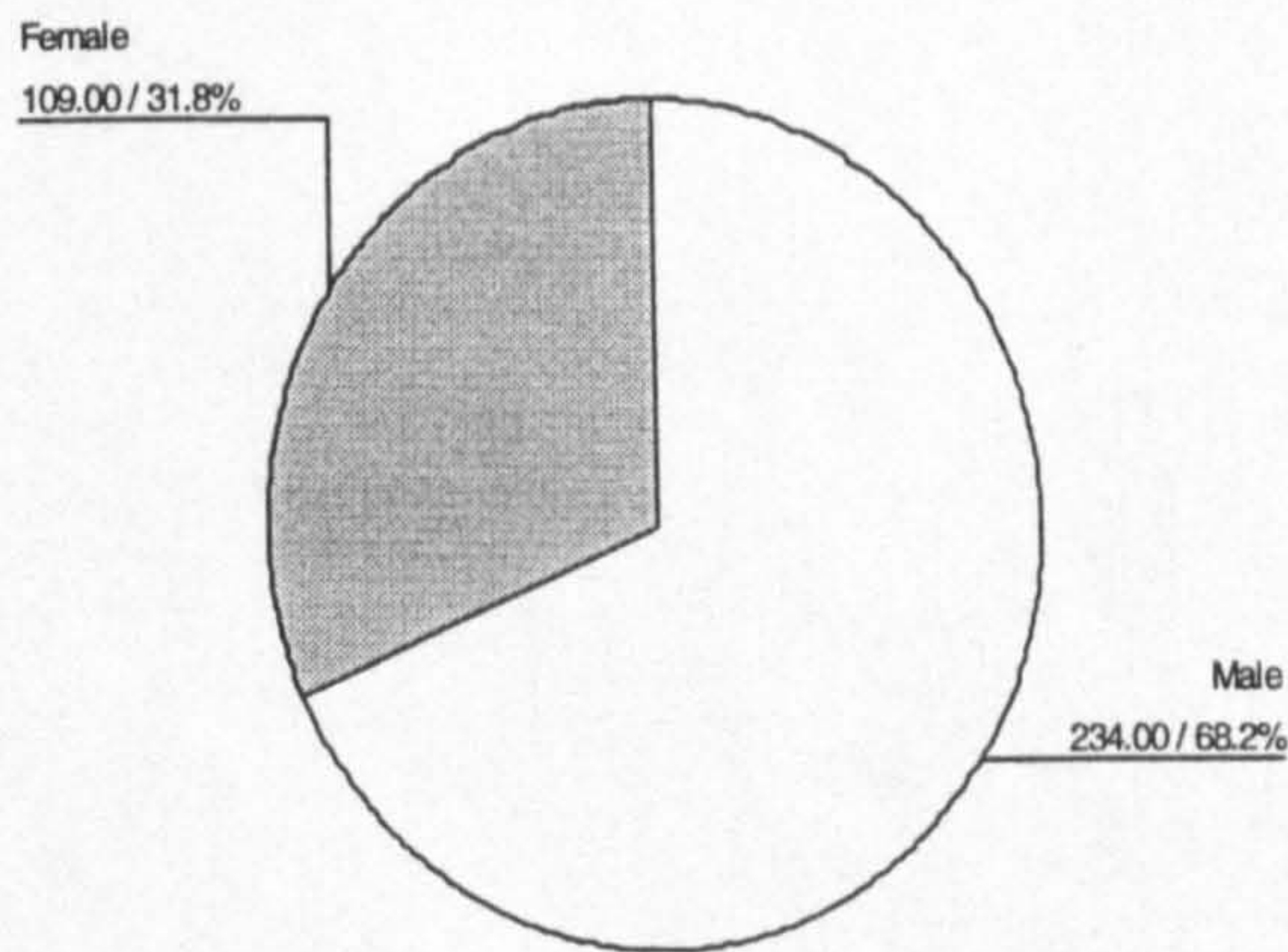


Figure E.3: The respondent profile in terms of gender.

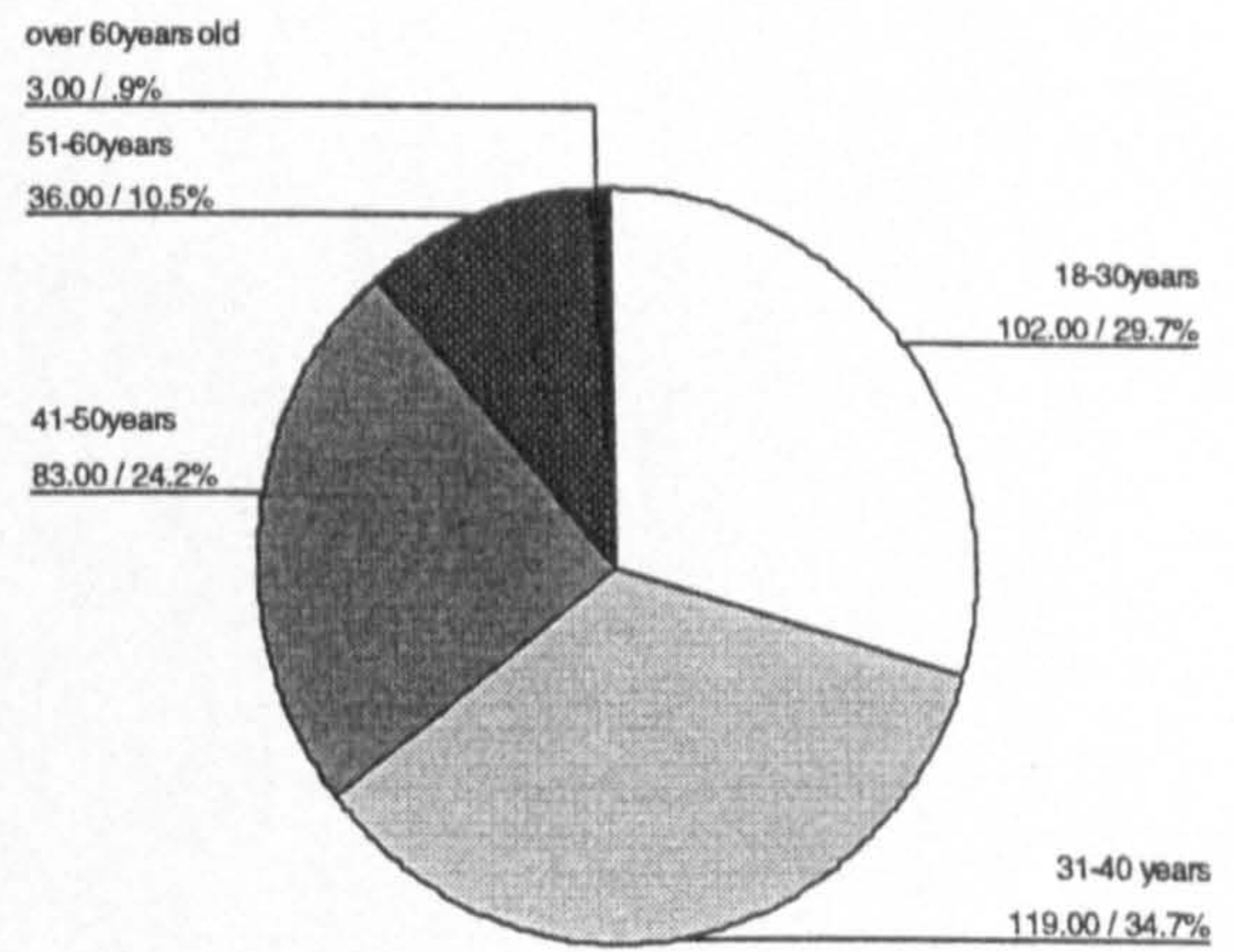


Figure E.4: The respondent profile in terms of age groups.

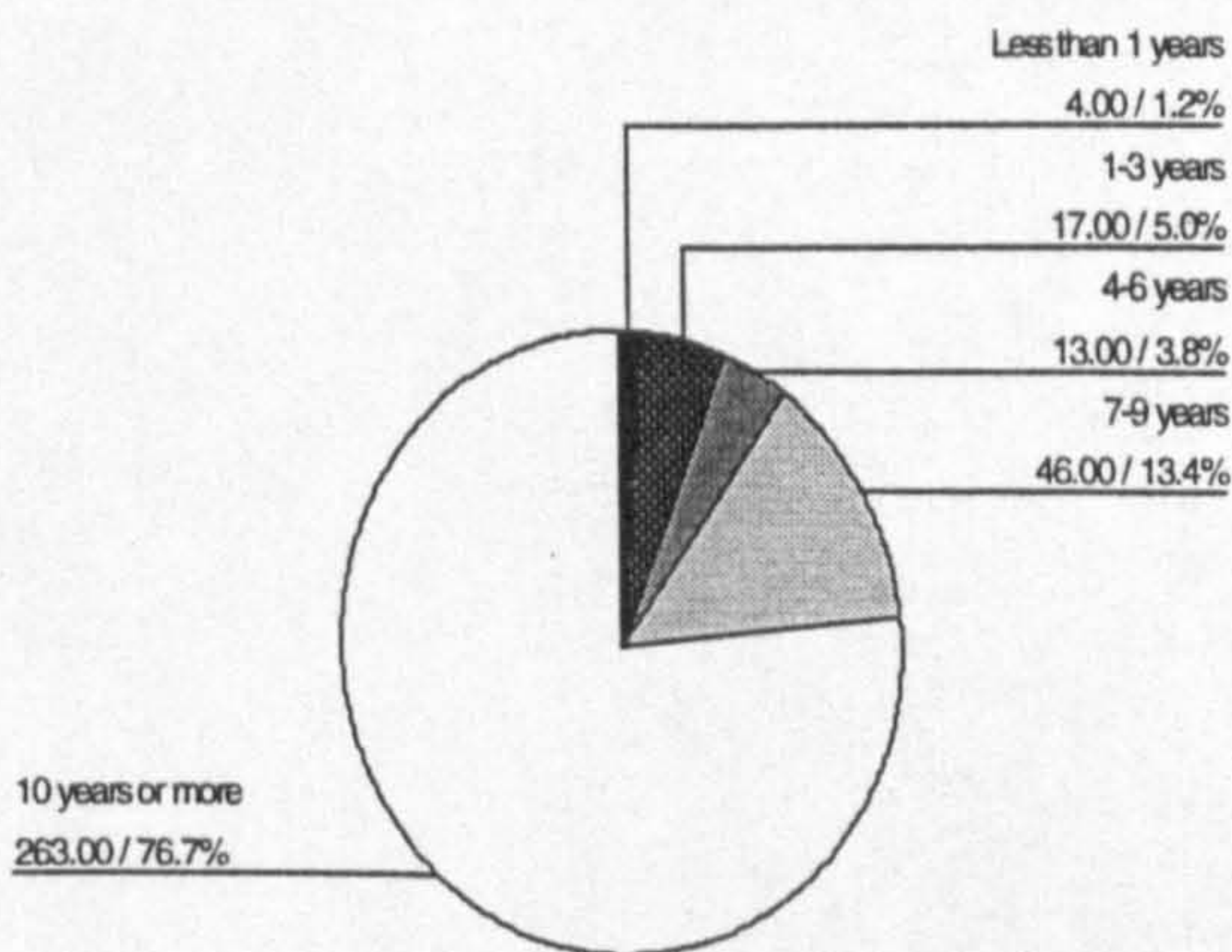


Figure E.5: The respondent profile in terms of no. of years they have lived in the area.

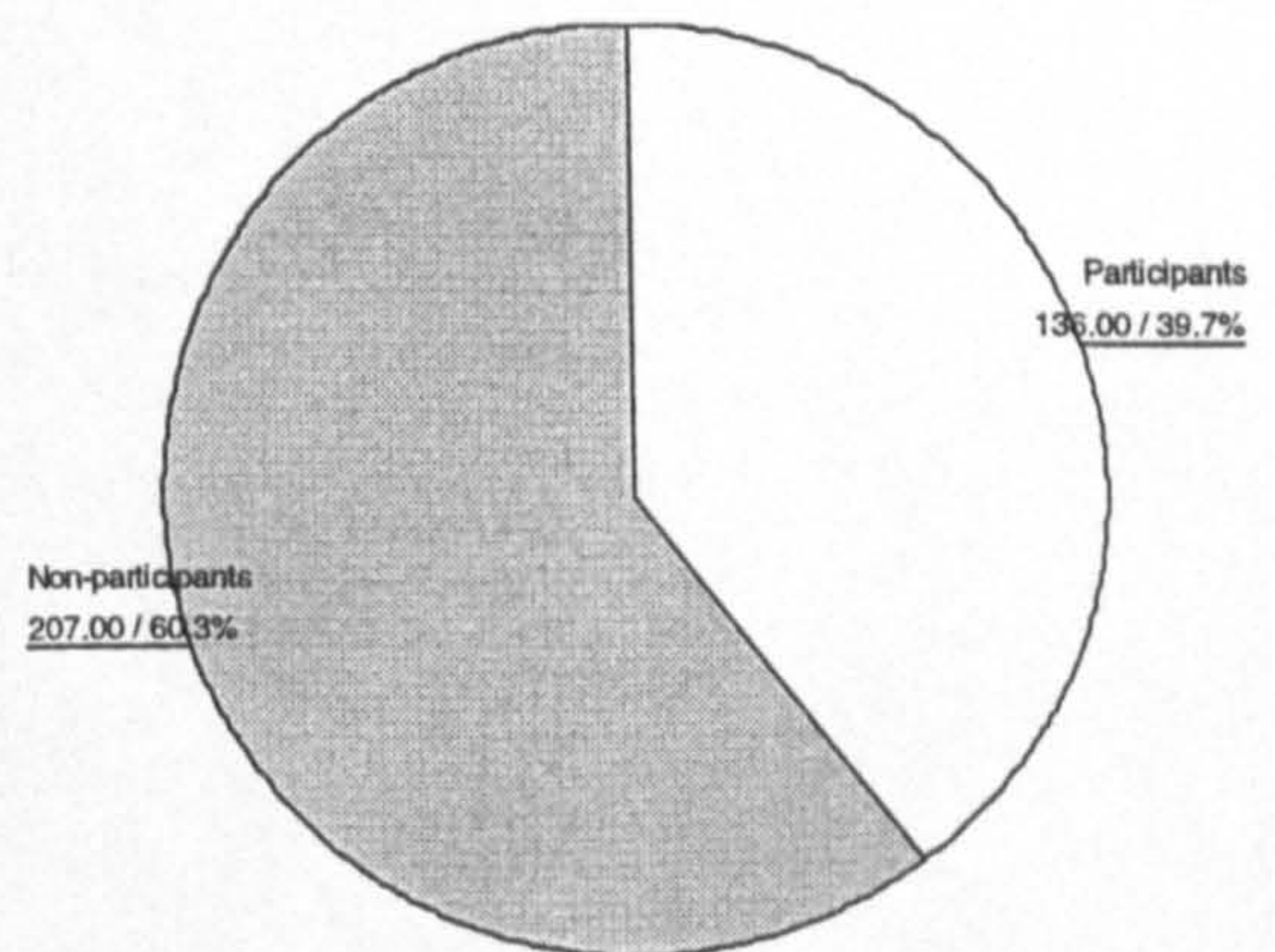


Figure E.6: The respondent profile in terms of their previous involvement in user participation activities.



Table E.1 illustrates the respondent profile compared to target group population<sup>1</sup>. It shows that this research sample can be considered as a true representative of the target group in terms of covering the different activities in the area (shops, houses, and offices). The differences between the sample and target group regarding age-groups are limited to

Table E.1: Target group's characteristics and respondent profile.

Terms of Comparison		Target Group (%)	Sample (No.)	Sample (%)
<b>Category Group</b>	Shop-keepers	52.3%	153	44.6%
	House-holders	34.25	132	38.5%
	Office-workers	11.35%	58	16.9%
	Others	1.1%	0	0.0%
<b>Living / Working Zone</b>	A Pedestrian St.	NA	72	21%
	A Vehicular St.	NA	148	43.1%
	Sult Civic Centre	NA	59	17.2%
	A Stairway	NA	64	18.7%
	Others	NA	0	0.0%
<b>Living in SCC Since:</b>	Less than 1 year	NA	4	1.2%
	1-3 years	NA	17	5.0%
	3-6 years	NA	13	3.8%
	7-9 years	NA	46	13.3%
	10 years or more	NA	263	76.7%
<b>Previous User Participation Involvement</b>	Participant	NA	136	39.7%
	Non-Participant	NA	207	60.3%
<b>Gender</b>	Male	47.9%*	234	68.2%
	Female	52.1%*	109	31.8%
<b>Age Group</b>	<18 years	**	0	0.0%
	18-30	34.07%*	102	29.7%
	31-40	25.01%*	119	34.7%
	41-50	21.81%*	83	24.2%
	59-60	12.01%*	36	10.5%
	>60 years	7.10%*	3	0.9%

- NA = Not Available.

\* Statistics Yearbook, Directorate of Statistics, Amman, 1997.

\*\* This age-group was not included in the target group population.



those who are between 60-75 years old. This age group has a high illiteracy level which in turn might affect their response to written questionnaires. No data is available regarding the target group's different living/working zones (on a pedestrian/vehicular street, within Salt Civic Centre, and at the sides of a stairway), or their previous involvement in the development of the area. Thus, such aspects are difficult to compare. No data is available on the male : female ratio at the level of the study area. However, remarkable differences were found between the sample and the male : female national ratio. This could be explained, partly, because of the concentration of commercial activities in the study area where males usually run such activities. This also could be related to social influences of the male dominated society.

The sample seems to allow for generalisation of results to the total population with certain reservations regarding gender. Accordingly, further studies in the same field are needed with emphases on the role of women (see section 10.3.2).

## **E.2 Responses Toward the Visual Performance Dimensions**

This section illustrates the respondent satisfaction with reference to the five visual performance dimensions of identity, order, variety, structure and fitness. For the purpose of this presentation, those who were previously involved in user participation activities will be referred to as the "participants", whereas those who did not have such involvement will be referred to as the "non-participants".

### **E.2.1 Responses Toward Identity**

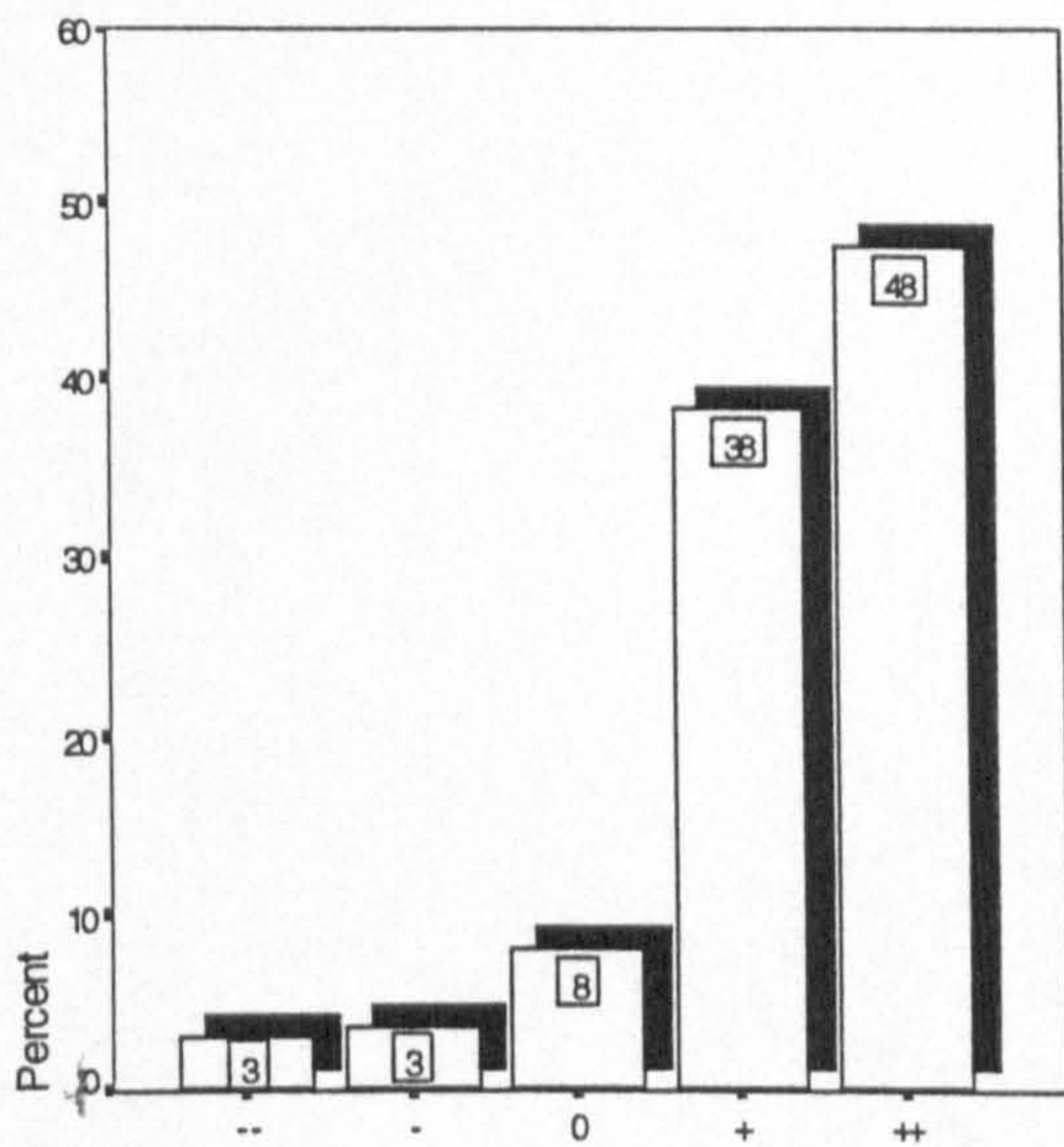
The respondents were asked three sub-questions to rate their responses about the identity of SCC on a five-point evaluation scale with opposed concepts at either ends. These three sub-questions represent the morphology, typology and character of the area. The results were as follows:

#### **Variable: Morphology - Questions 1.1, 1.2 and 3.C.5:**

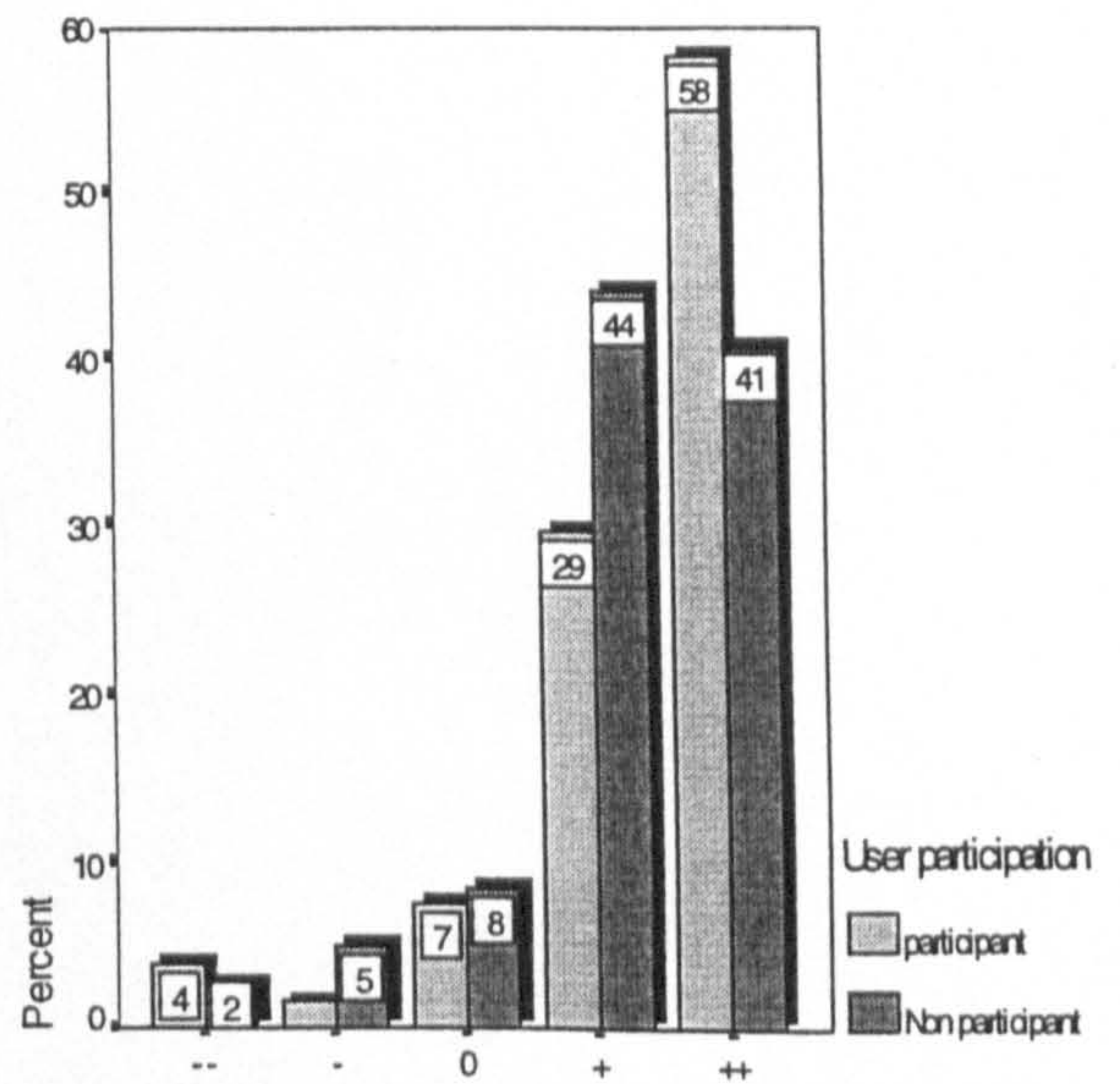
Users were asked to rate their impressions of the topography of SCC on a five semantic scale of opposing concepts (unique & ordinary). The majority of responses (48%) considered the topography as unique (Figure E.7 a). The majority of the responses of the participants (58%), however, tended to rate the first scale point (++), whereas in the non-participants, most of the responses (44%) are shifted to the second scale point (+) (Figure E.7 b).

Figure E.8 shows that the responses to the uniqueness of topography at SCC were consistent with the responses to Question 1.2 in which users were asked to rate their impressions on the overall visual appearance of SCC. The majority considered SCC to have an outstanding visual appearance. Most of the responses of the two sub-sample groups were shifted to the first scale point.



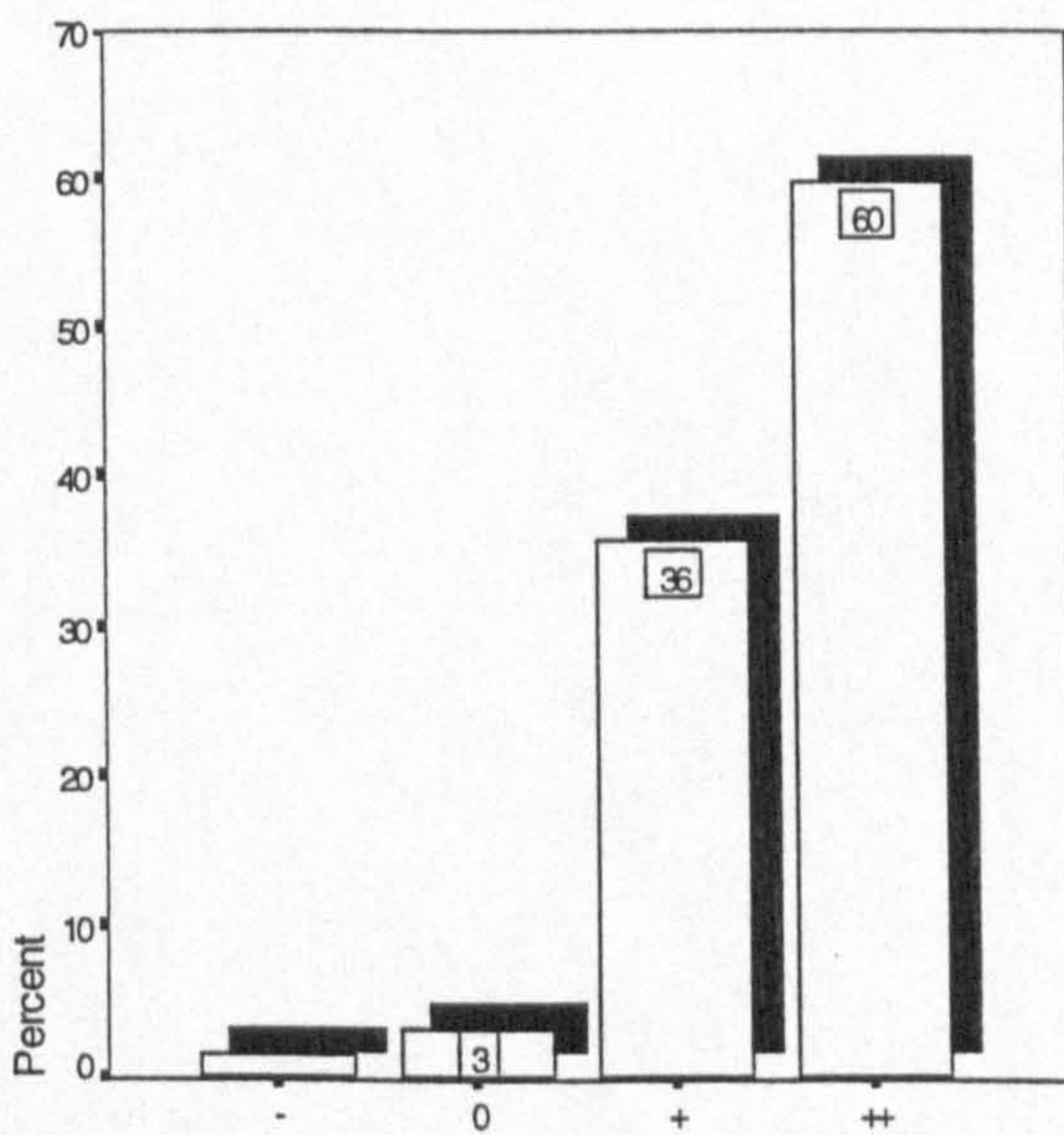


a. General response.  
(MEAN=4.24).

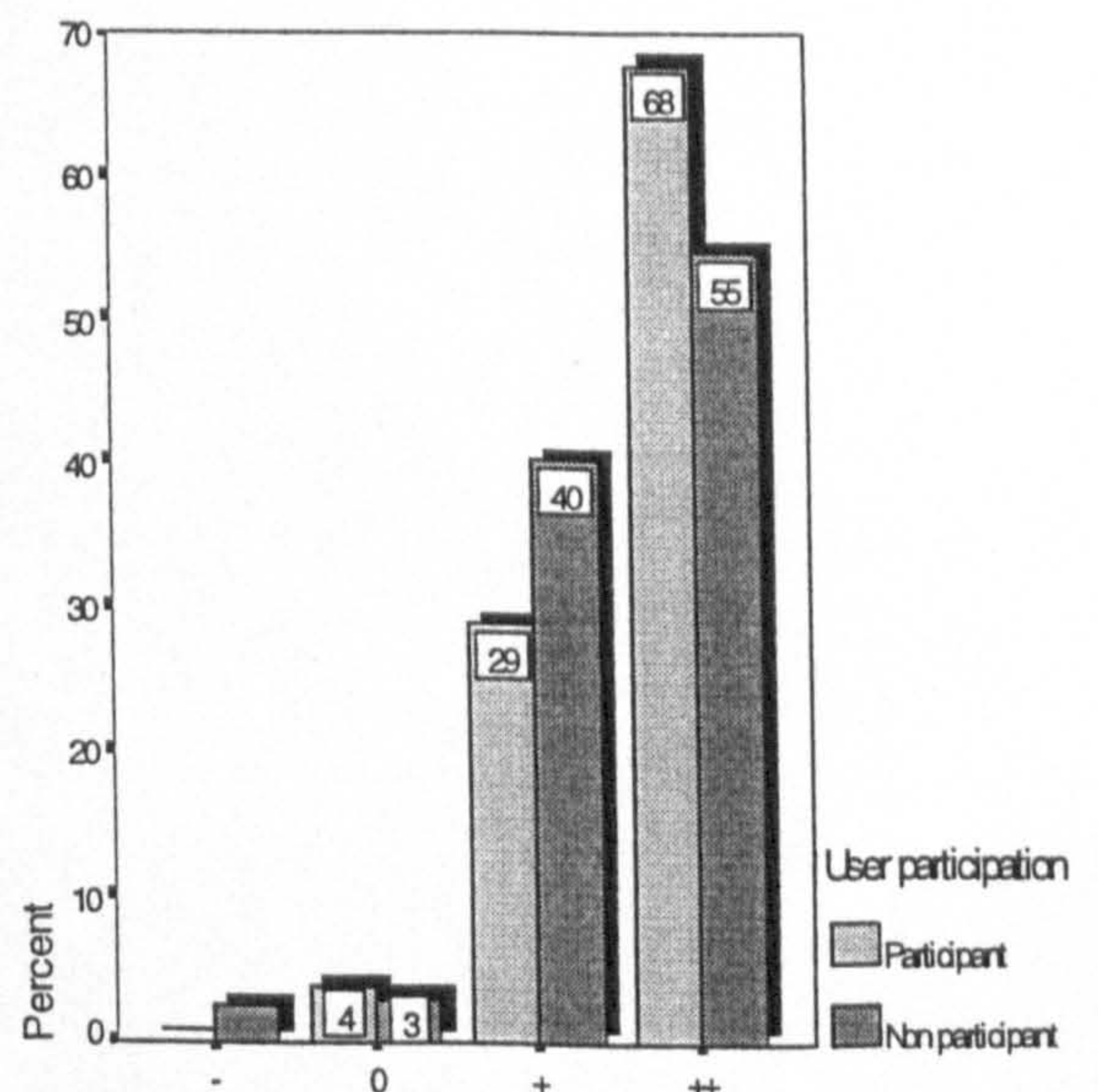


b. Responses of sub-sample groups.

Figure E.7: Responses to the quality of topography of SCC.



a. General response.  
(MEAN=4.54).

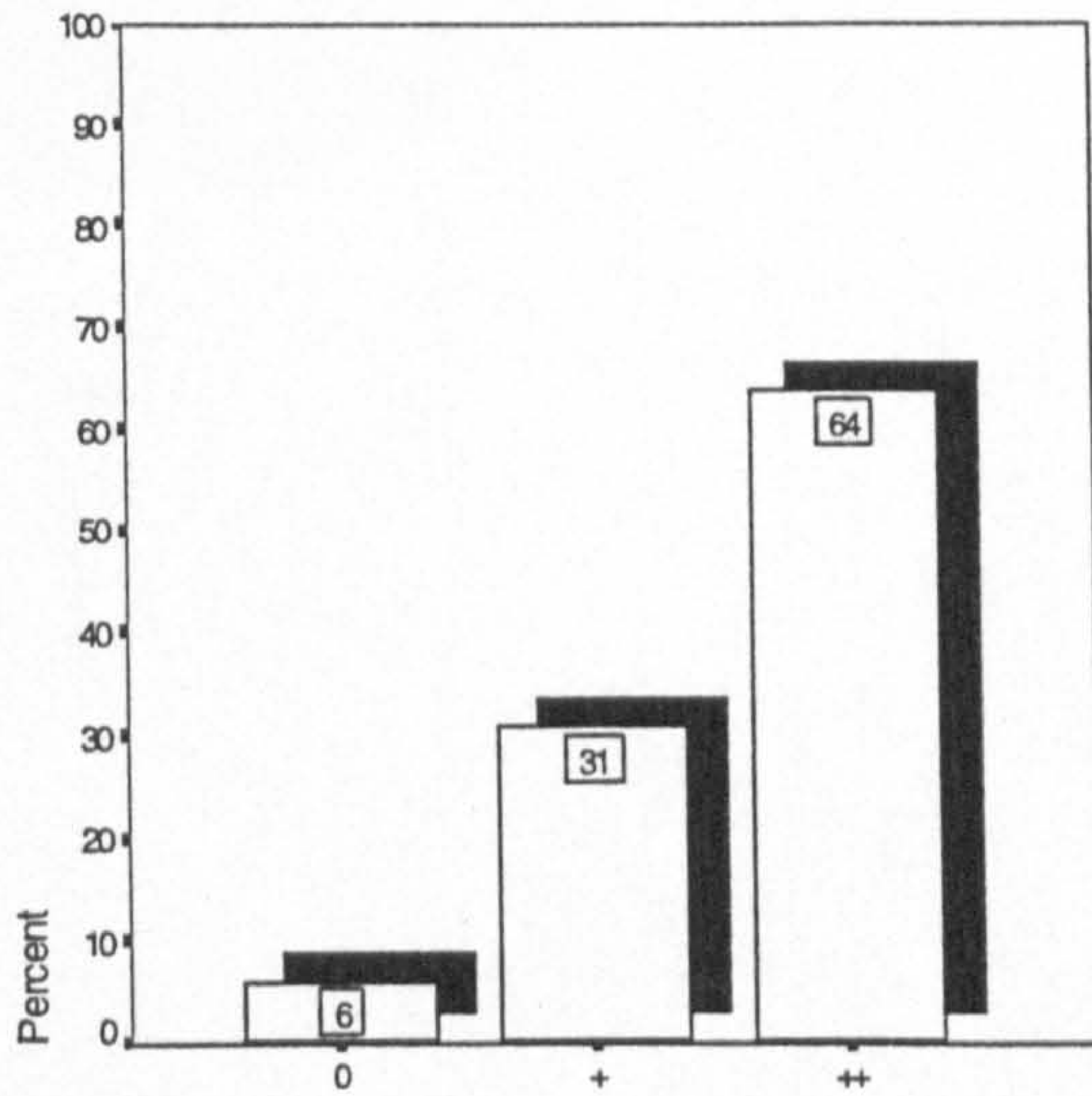


b. Responses of sub-sample groups.

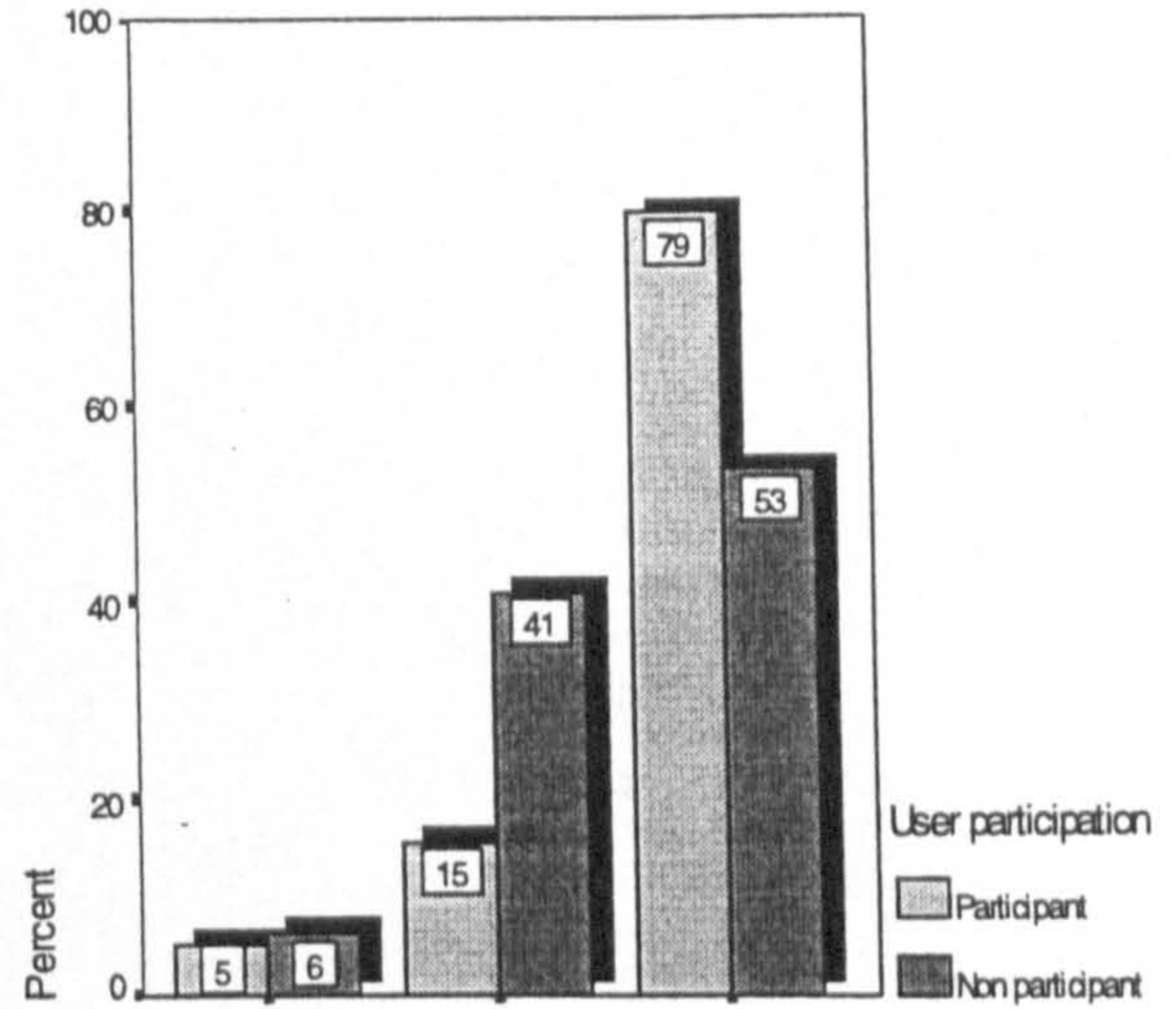
Figure E.8: Responses to the overall visual appearance of SCC.

In another question, concerning morphology (Question 3.C.5), the respondents were asked to rate their level of enjoying the scenes of SCC while ascending or descending its stairways. The responses were remarkably shifted toward the first scale. No responses, however, were located on the fourth and fifth scale points (Figure E.9). Such findings strongly link the visual appeal of SCC to the uniqueness of its topography and landform.





a. General response.  
(MEAN=4.58).



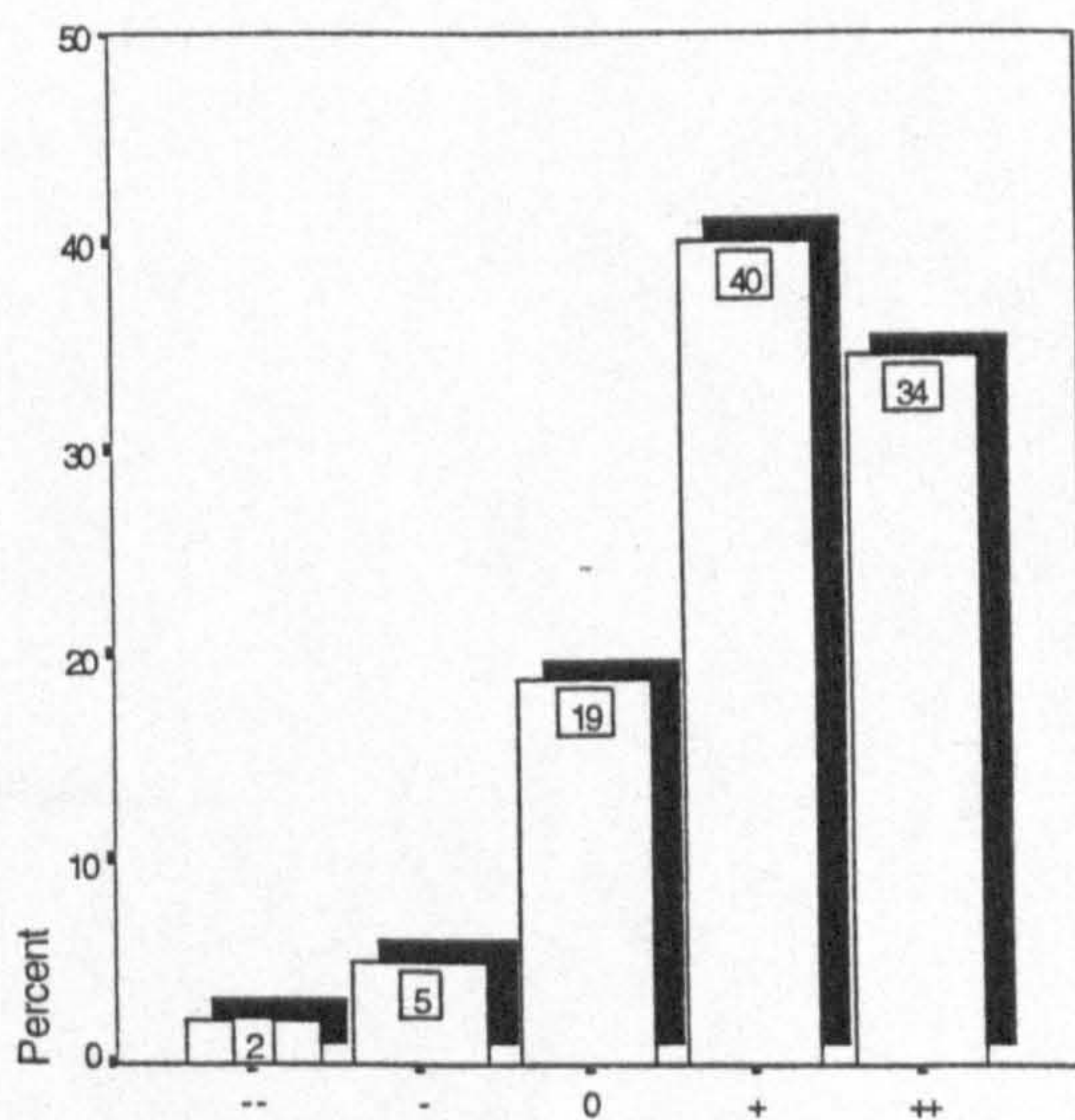
b. Responses of sub-sample groups.

Figure E.9: Responses regarding enjoying the scene of SCC while ascending and descending its stairways.

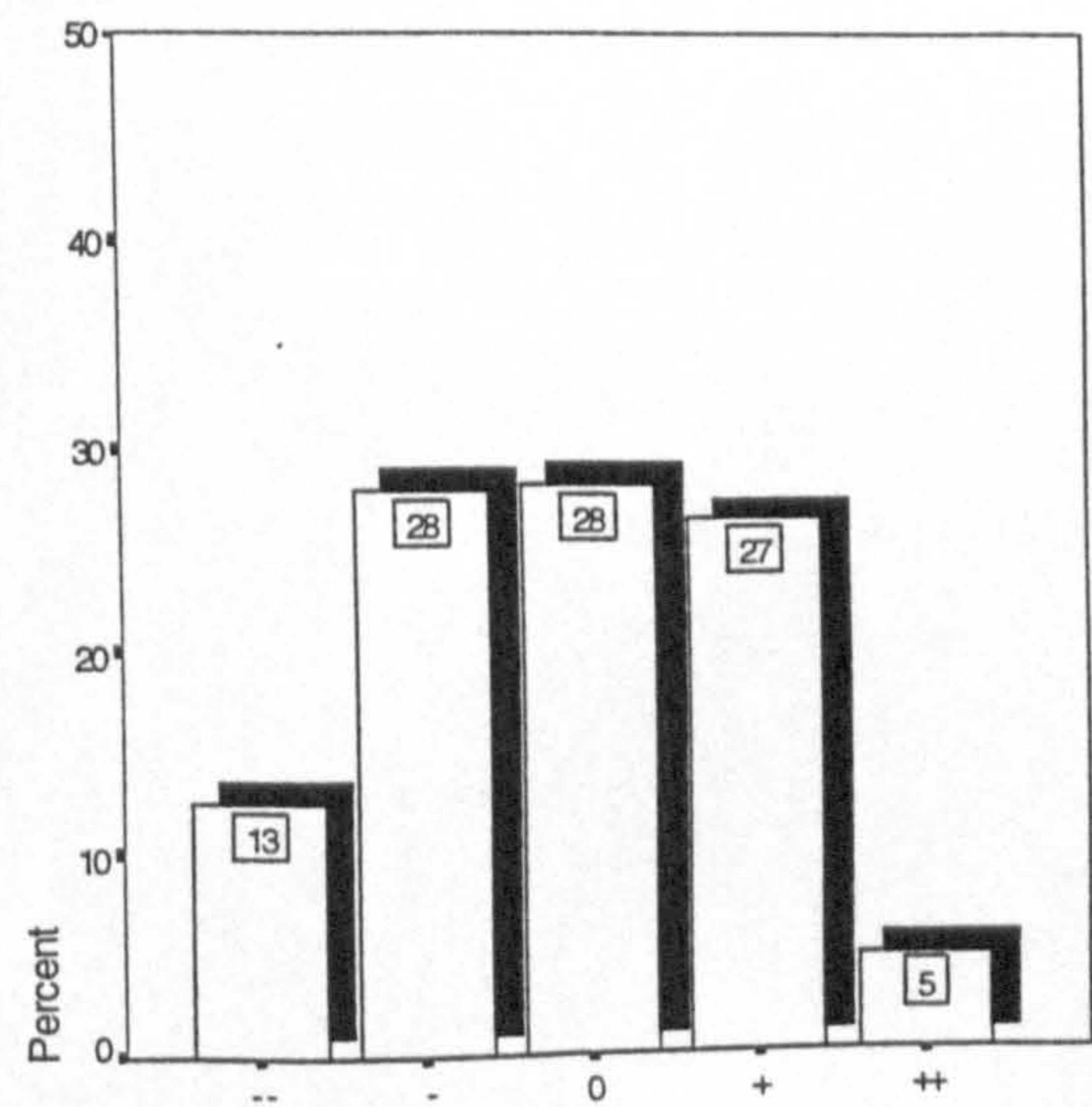
The findings of the previous three questions show that SCC's unique topography and landform is a major source of the visual appeal that the area has. This supports the case study hypothesis stated in Chapter IV which suggested a direct relationship between the "character" of SCC and its "morphology" (see section 5.2.1). Further discussion of this relationship is presented in section 8.4.2.

**Variable: Typology - Questions 3.D.1 and 3.D.2:**

In two separate questions, users were asked to rate their responses about the availability of rich architectural elements in the old as well as in the new buildings of SCC in general. The average responses rated the old buildings to have rich architectural elements notably more than new buildings (Figure E.10).



a. Response to old buildings.  
(MEAN=4.00)

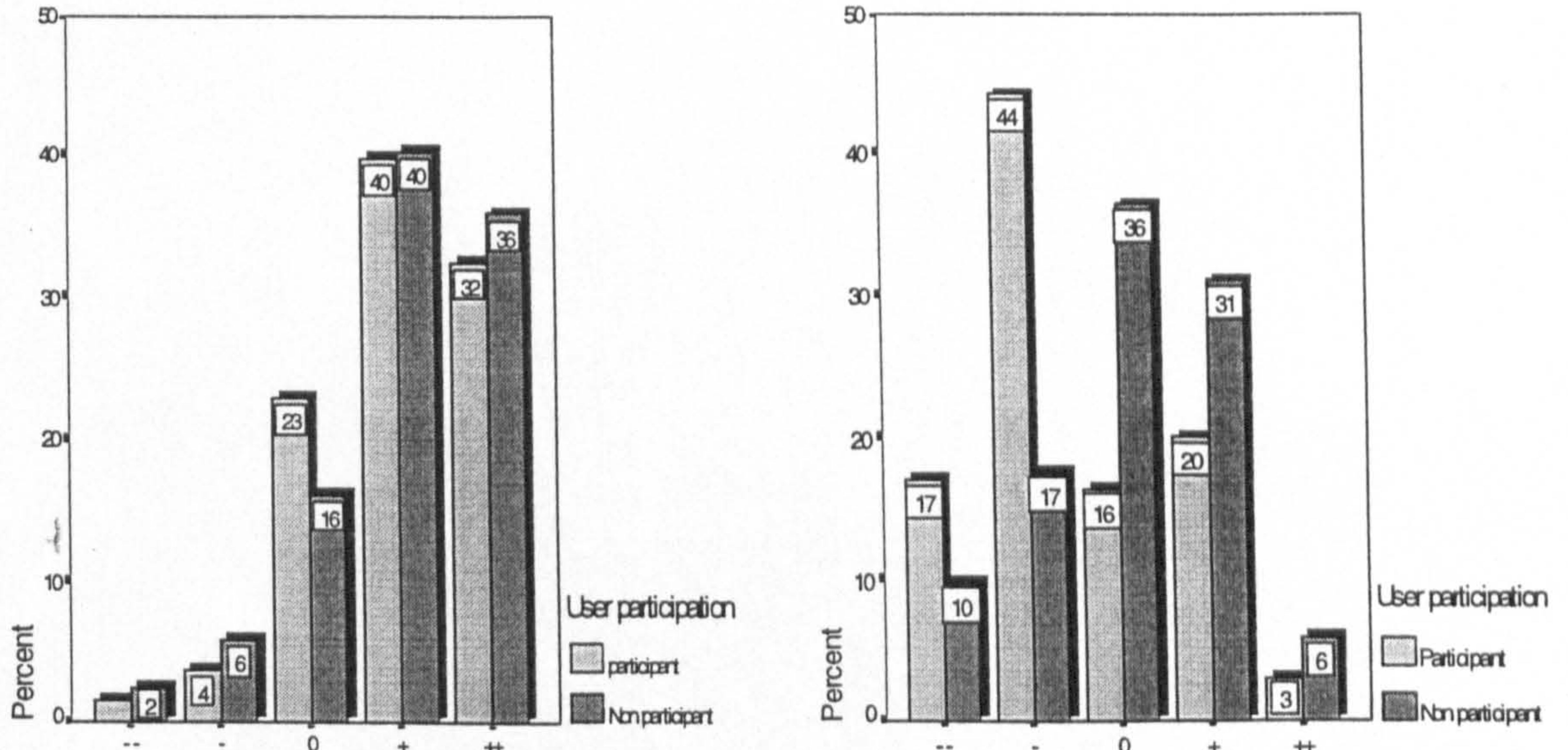


b. Response to new buildings.  
(MEAN= 2.83).

Figure E.10: General response to the availability of rich architectural features.



Agreement and correlation of the two sub-sample groups were carried through as the majorities of both groups rated old buildings to have more rich architectural features than new buildings (Figure E.11).



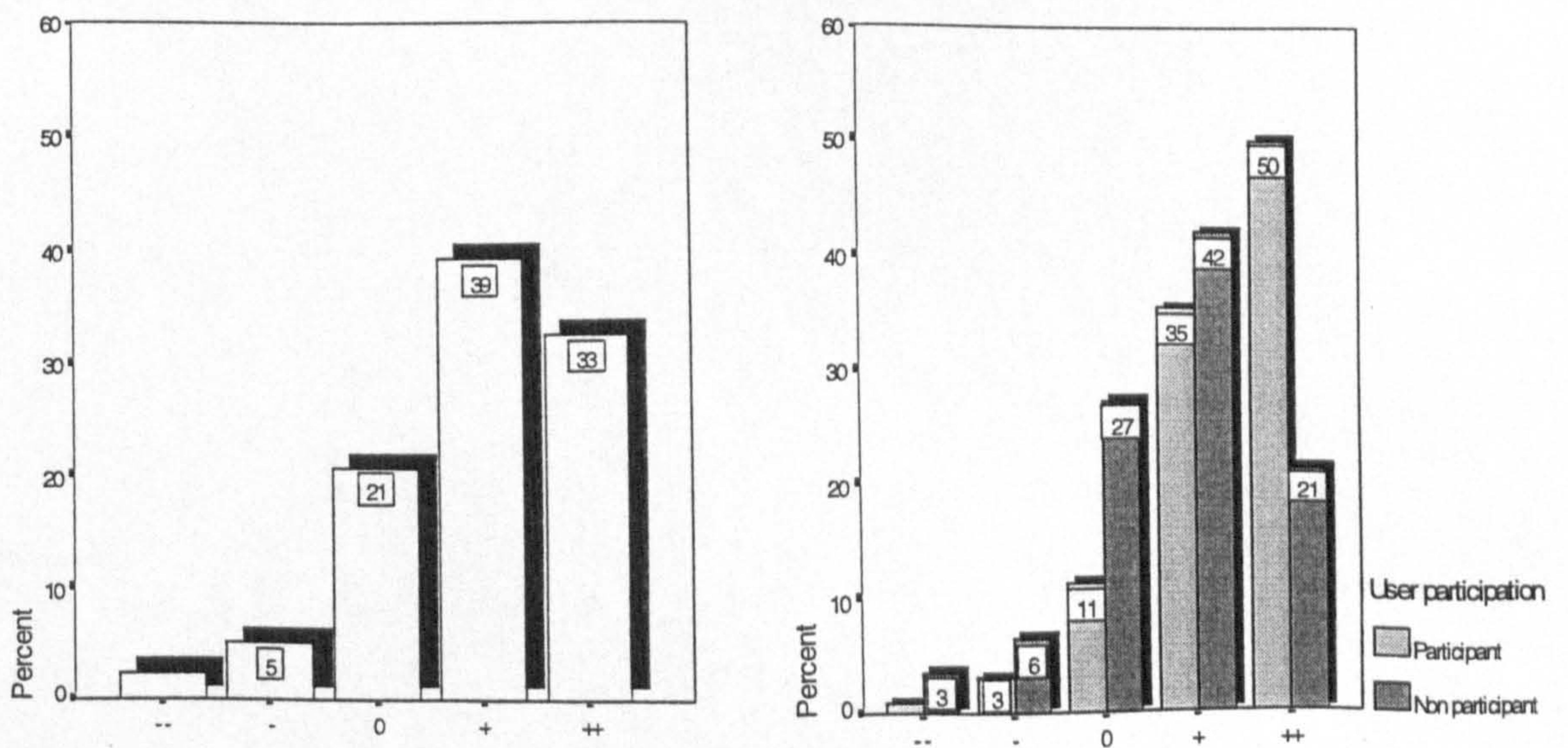
a. Responses to old buildings.

b. Responses to new buildings.

Figure E.11: Responses of sub-samples to the availability of rich architectural features in the old and new buildings of SCC.

**Variable: Character - Questions 1.10 and 2:**

Users were asked to rate their responses about the availability of unique memorable images at SCC. The responses were rated on a five visual scale of two opposing concepts (a great deal & not at all). The responses were shifted to the first two scales and thus considered the area to have unique memorable images (Figure E.12 a). The responses of the participants, however, are higher than the non-participants (Figure E.12 b).



a. General responses.  
(MEAN=3.95).

b. Responses of sub-sample groups.

Figure E.12: Responses to the availability of memorable images at SCC.



Furthermore, the responses toward the identity of SCC are supported by the results of Question 2 in which the respondents were asked through a open-ended question to rank in order, the most memorable elements in SCC. Both sub-sample groups tend to agree on the first four memorable features of the area. Open spaces including plazas and small terraces on the hill slopes were considered the first most memorable element (74.31%). The Landform and unique topography were considered the second most memorable elements (67.12%). The Small Mosque was the third memorable element (44.76%), and the fourth element was *Al-Hammam* street. For the other four memorable features of SCC, the participants considered the stairways, *Abu-Jaber* building, the Sult Municipality building, and *Al-Khader* street. The non-participants did not differ much, but *Abu-Jaber* building and the Sult Municipality came seventh and eighth on their list, whereas the Great Mosque and *Al-Khader* street came fifth and sixth.

### E.2.2 Responses Toward Order

The variables that represent "order" were incorporated in various sub-questions. These are:

#### Variable: Regularity - Question 3.D.6:

In this question the respondents were asked to rate their opinions about the heights of buildings in SCC and to which degree they give a feeling of intimacy and comfort. The majority of responses showed that the heights of buildings give a feeling of intimacy and comfort to those who are passing-by the streets and open spaces (Figure E.13 a). Most of the responses of the participants were shifted to the first scale. For the non-participants, however, the second scale hold the majority of responses.

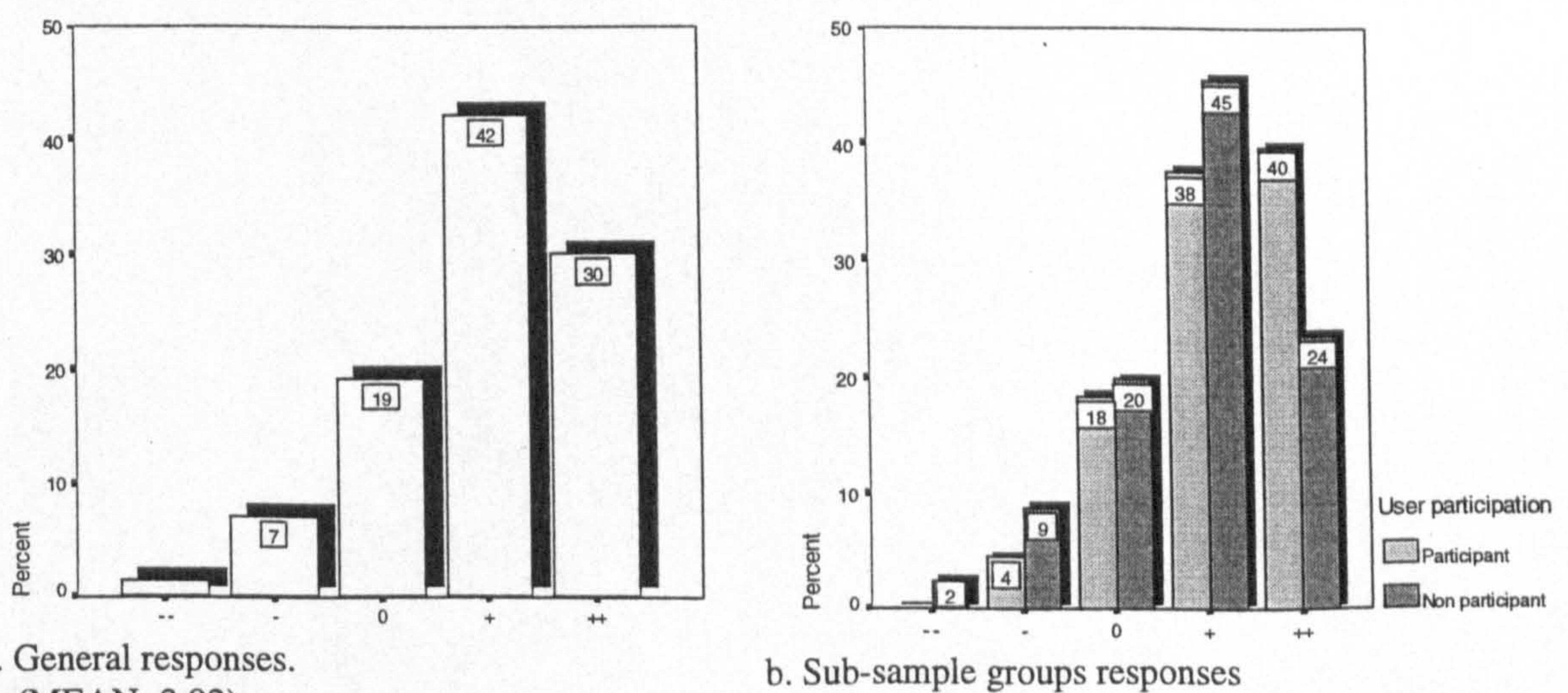


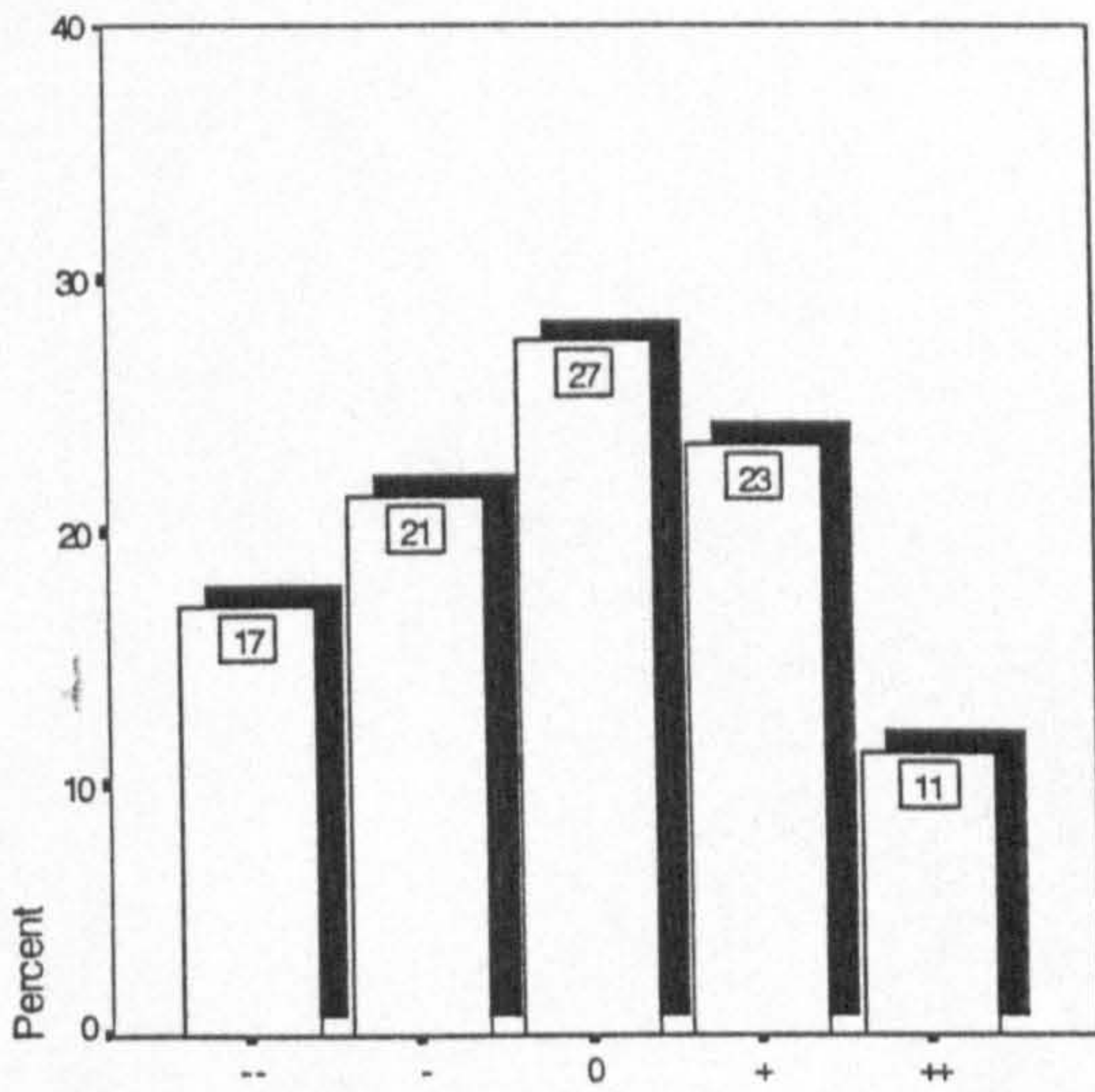
Figure E.13: Responses to buildings' heights while passing SCC's streets and open spaces.

#### Variable: Alignment - Questions 3.B.6 and 3.C.6:

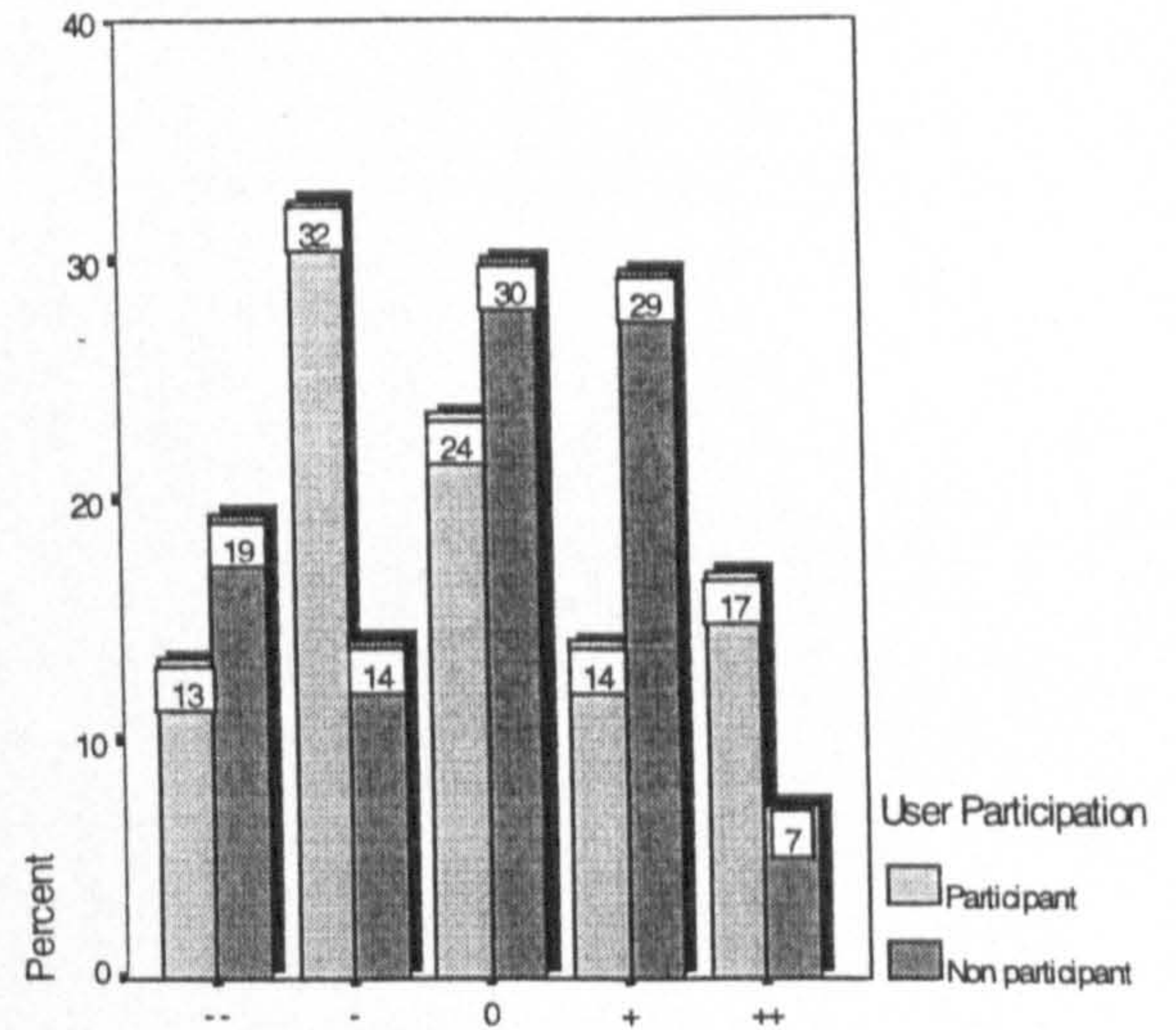
In two separate questions, respondents were asked to rate their opinions about the continuity of facades at the vehicular and pedestrian streets and stairways of SCC.



For the vehicular streets the average responses are slightly higher than the middle rating point (MEAN=2.9), (Figure E.14 a). The majority of responses of the participants tended to consider the facades at vehicular streets to have little continuity in following the curvature and slopes. The responses of the non-participants were distributed among the various scale points, but slightly shifted to the third and second scale points (Figure E.14 b).



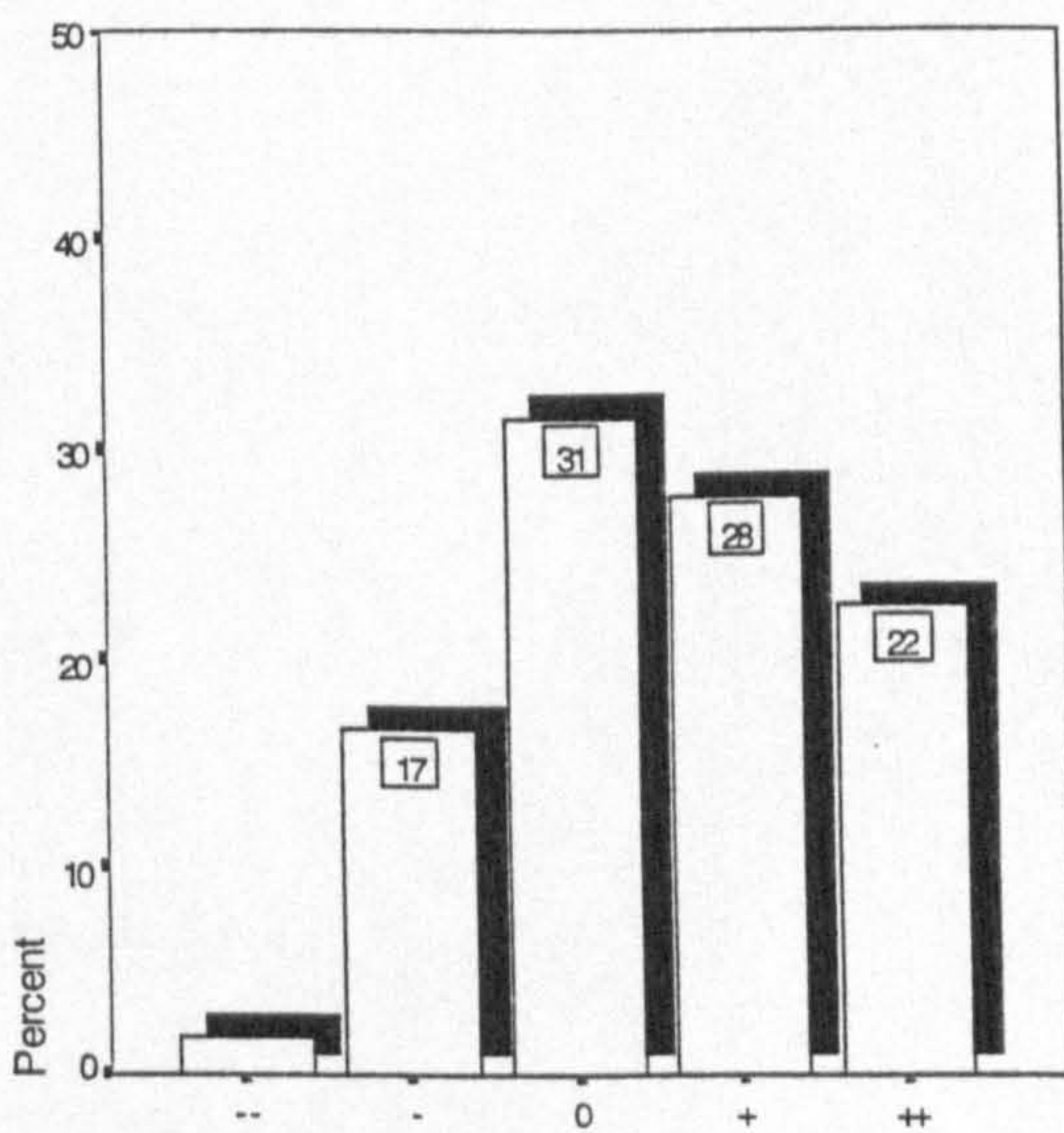
a. General response.  
(MEAN=2.9).



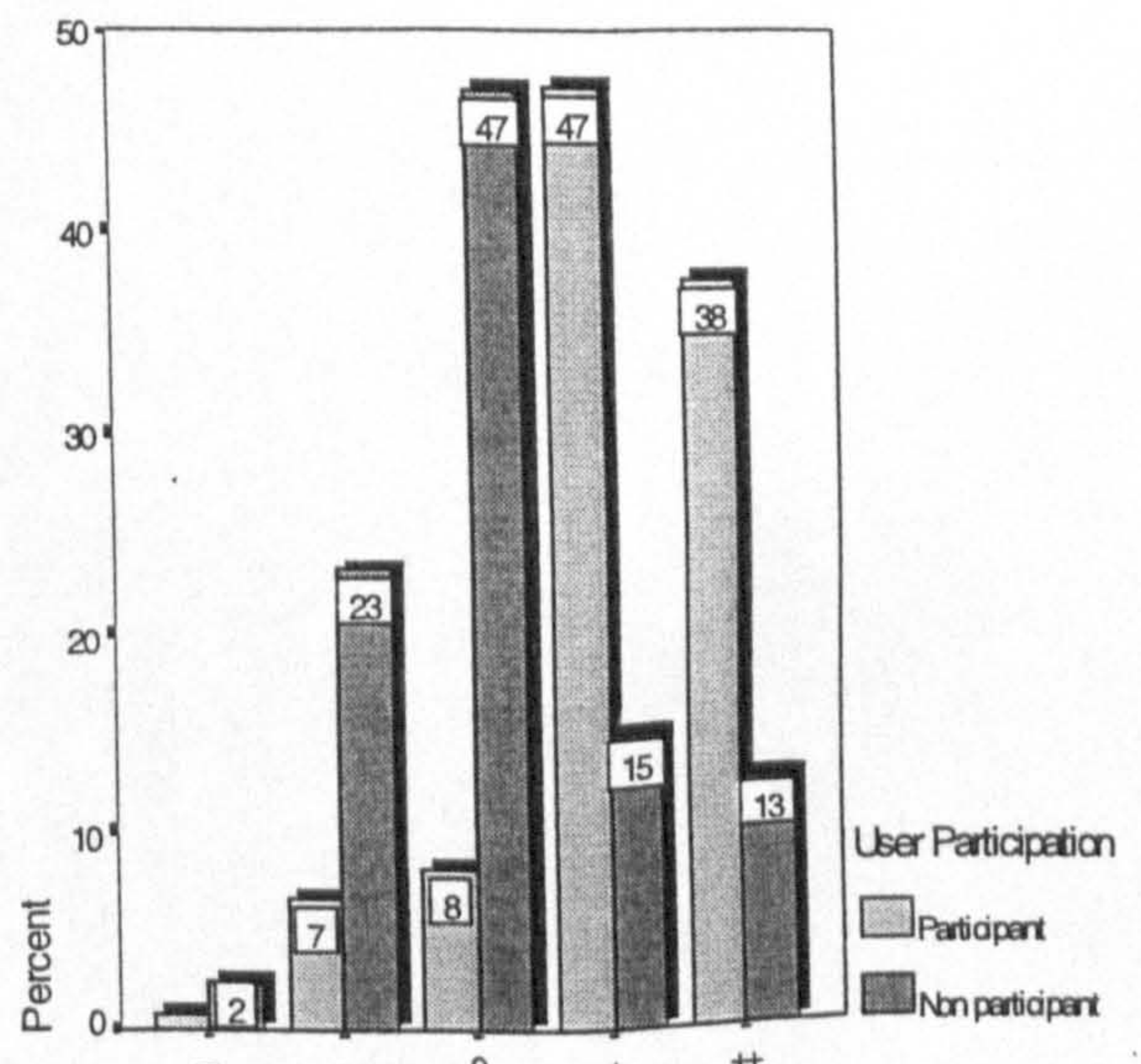
b. Responses of sub-sample groups.

Figure E.14: Responses to the continuity of facades in following the street curvature and slopes at vehicular streets.

The average responses (MEAN=3.52), however, agreed that the facades at the pedestrian streets and stairways are more continuous in following the curvature and slopes of the street than those at vehicular streets (Figure E.15 a). Most of the responses of the participants are shifted towards the positive side of the scale, whereas, for the non-participants, the responses seems to be neutral.



a. General response.  
(MEAN=3.52).



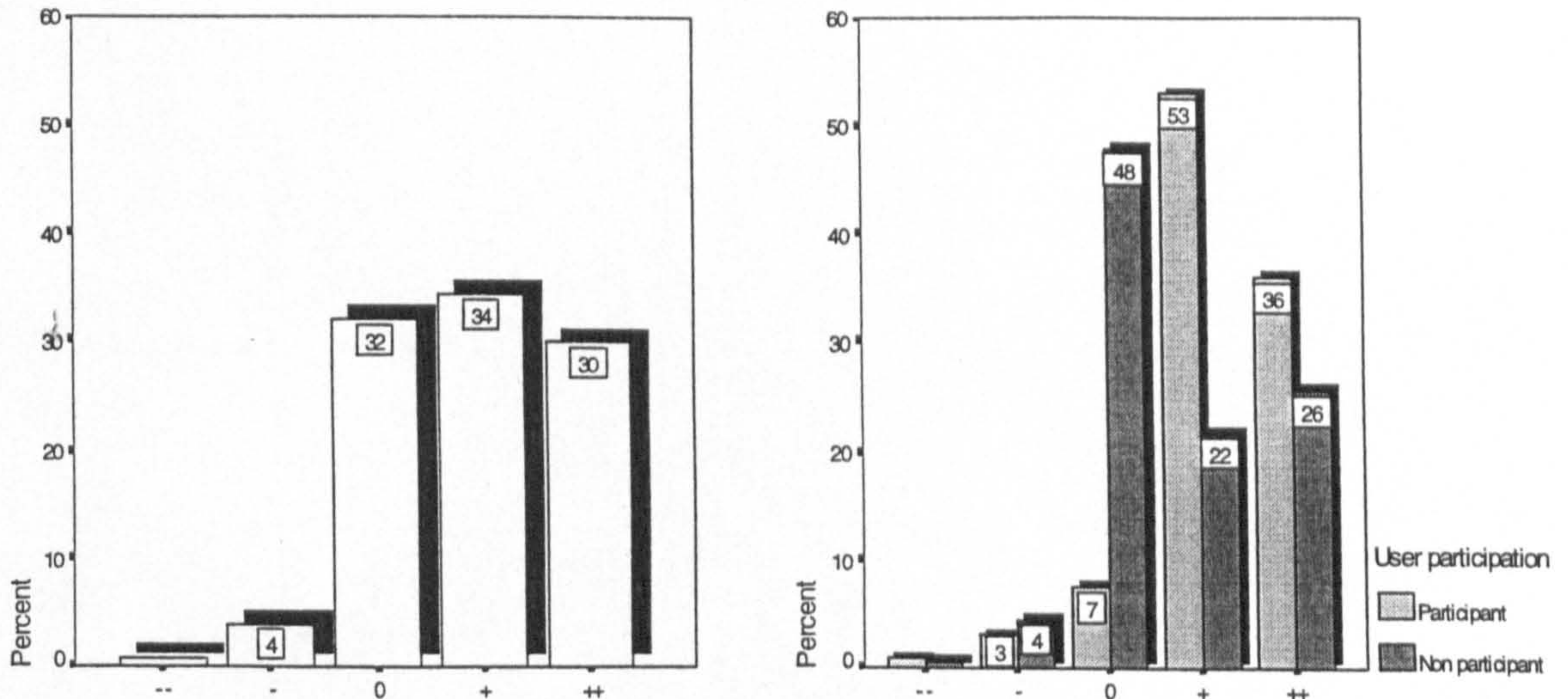
b. Responses of sub-sample groups.

Figure E.15: Responses to the continuity of facades in following the street curvature and slopes at pedestrian streets and stairways.



**Variable: Hierarchy - Questions 1.9 and 1.3:**

Respondents were asked to rate their opinion about the availability of unique and important landmarks in SCC, such as, buildings, minarets, and open spaces, that can be seen from different areas within the city centre. The average responses (MEAN=3.89) rated highly the availability of such important landmarks. Most of the participants (53%) were shifted to the second scale point (+). Most of the non-participants (48%), however, had responded neutrally (Figure E.16).

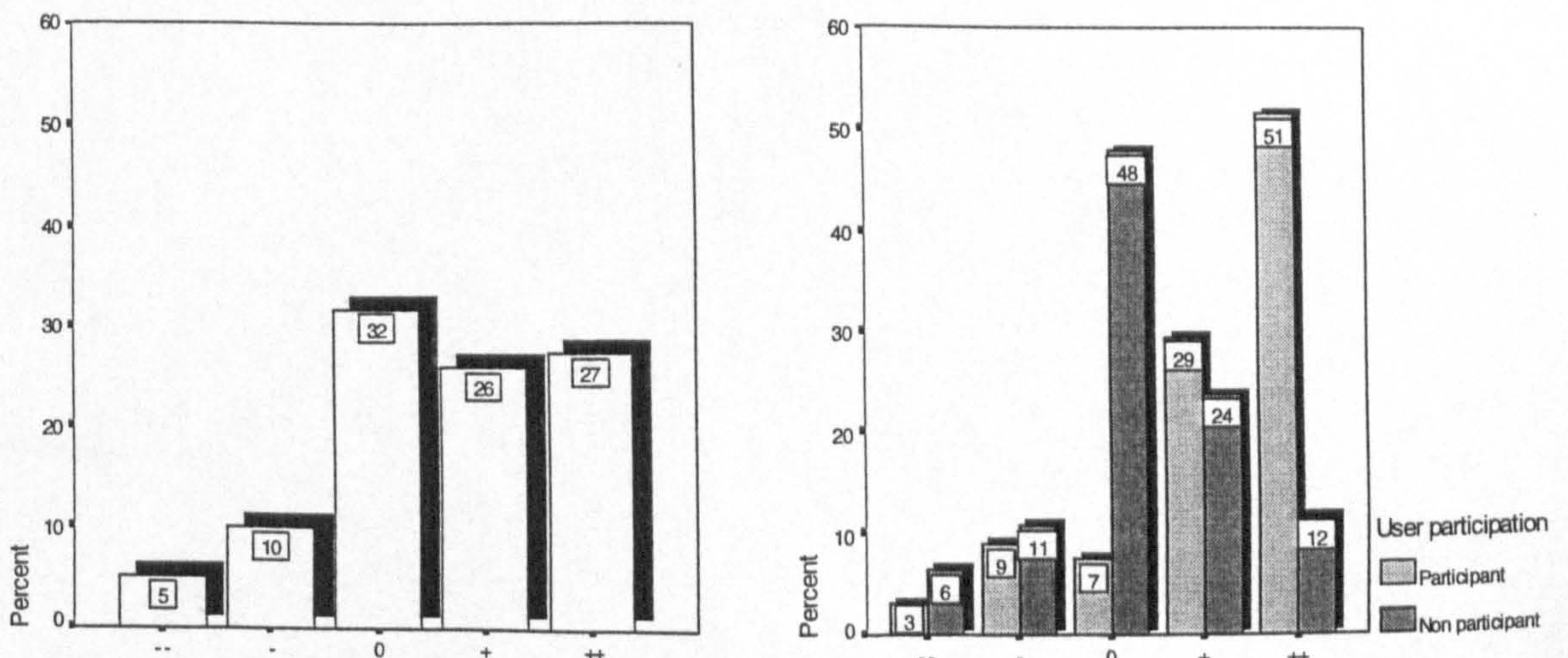


a. General response.  
(MEAN=3.89).

b. Responses of sub-sample groups.

Figure E.16: Responses to availability of unique and important landmarks in SCC.

The availability of such visual hierarchies might be considered as one of the major factors of the attractiveness of the area. To test this notion, the respondents were asked to rate their opinion about the attractiveness of the area on a five semantic rating scale (Question 1.3). The two opposite concepts of the semantic rating scale were: attractive and monotonous. The results were consistent with the results of the question concerning the availability of landmarks in the area (Figure E.17). The responses rate SCC's attractiveness to be above average (MEAN=3.61).



a. General response.  
(MEAN=3.61).

b. Responses of sub-sample groups.

Figure E.17: Responses regarding attractiveness of SCC.



The responses were asked another three questions regarding the availability of visual clues, such as, landmarks and minarets, in SCC (Questions 3.A.10, 3.B.7 and 3.C.7). The responses are presented later in relation to visual variable of "spatial orientation" (see section E.2.4).

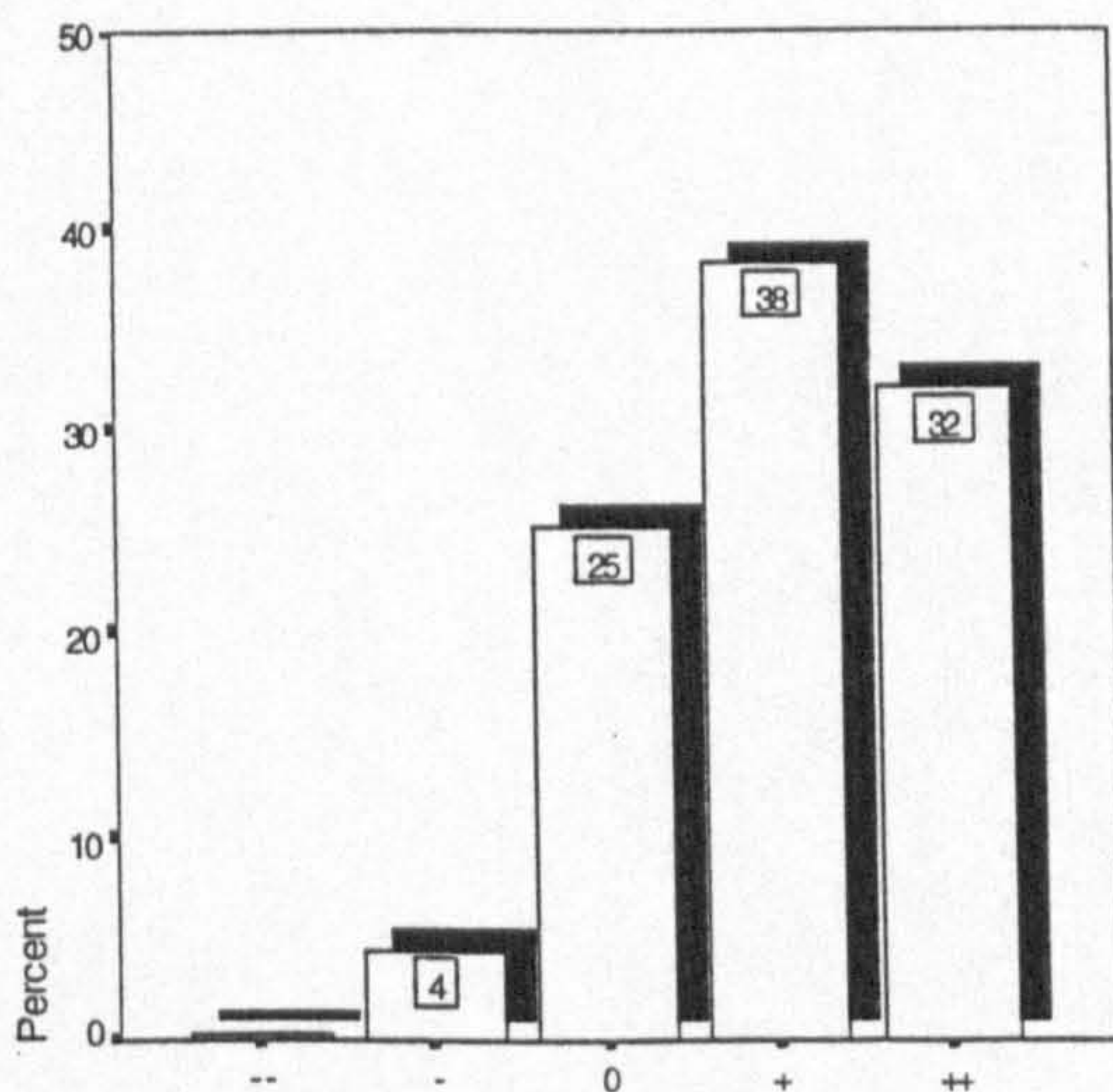
**E.2.3 Responses Toward Variety**

The following are the responses to the sub-questions concerning the variables of the visual performance dimension of variety:

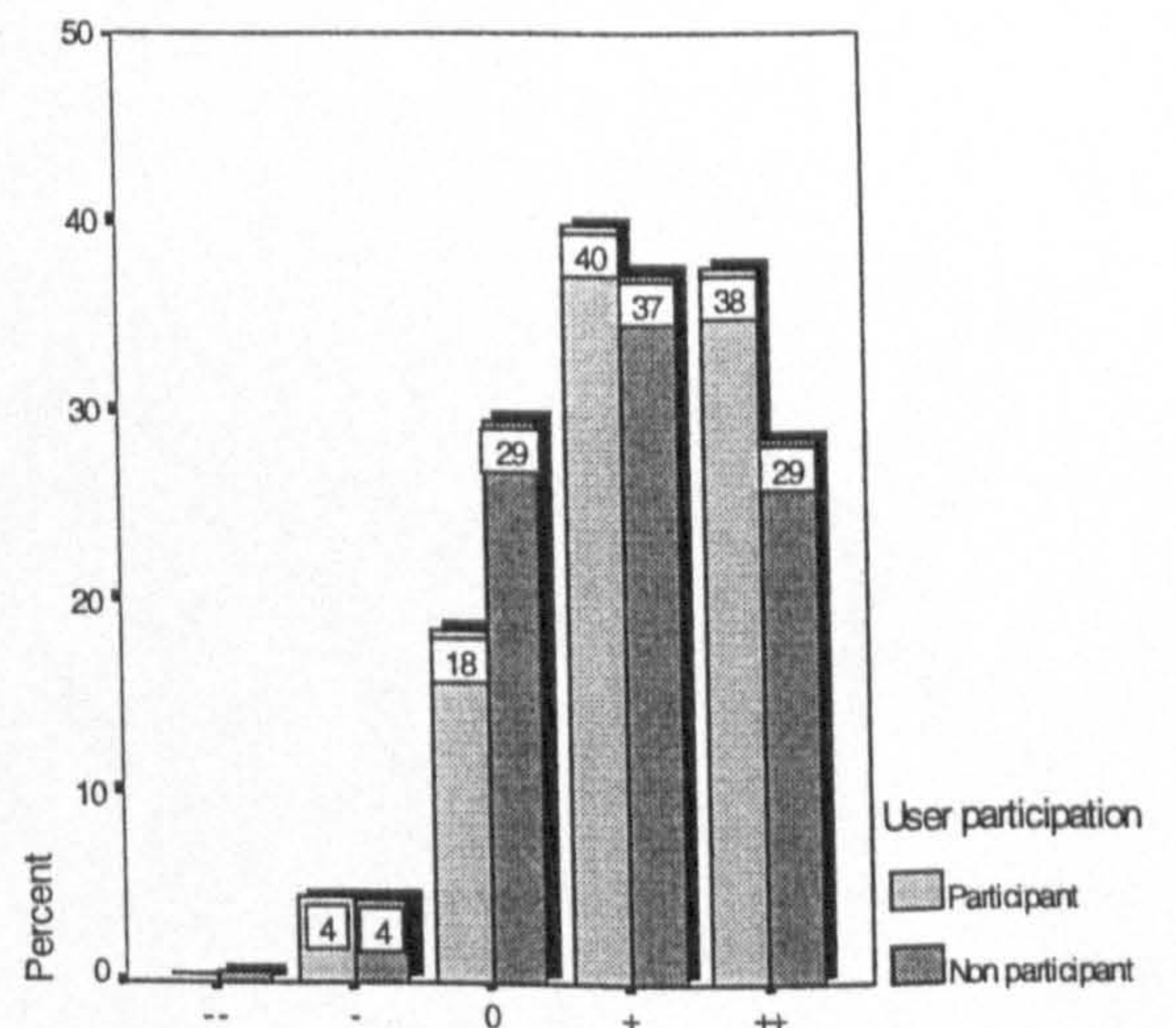
**Variable: Variety of Uses - Questions 3.A.6, 3.B.1 and 3.C.1:**

In three separate questions respondents were asked to rate their opinions about the variety of uses at SCC's plazas and open spaces, vehicular streets, and pedestrian streets respectively. In an attempt to measure the consistency of answers, another set of questions (Questions 3.A.9, 3.B.5 and 3.C.4) asked the respondents opinions on the ability of the above mentioned urban elements to attract people from various ages and sexes at various times and for various reasons.

The average response (MEAN=3.97) is notably shifted to the positive end of the rating scale. Correlation and agreement between the two sub-sample groups were achieved. Both majorities strongly agreed that SCC's plazas and open spaces offer a wide variety of uses (Figure E.18).



a. General response.  
(MEAN=3.97).

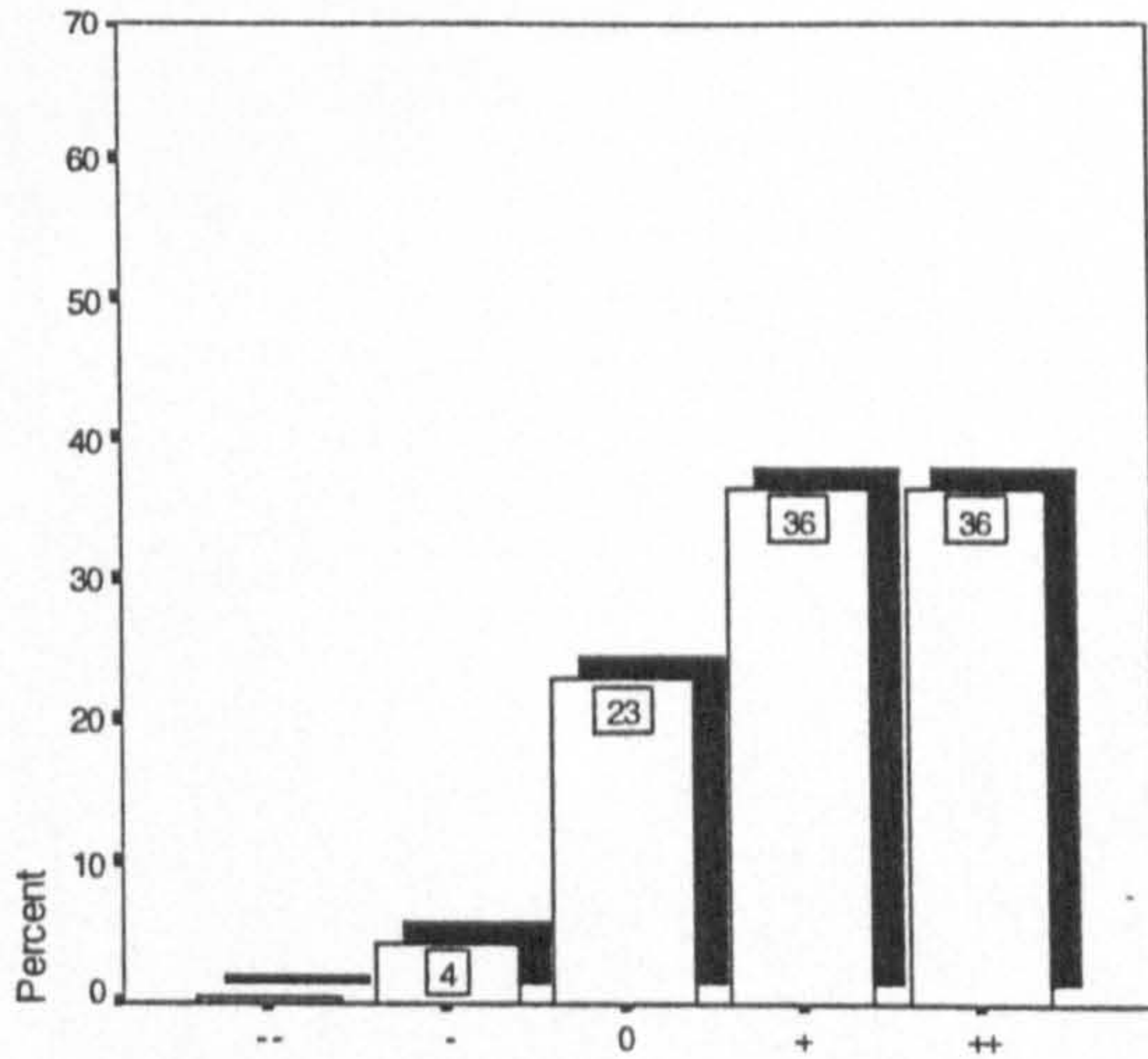


b. Responses of sub-sample groups.

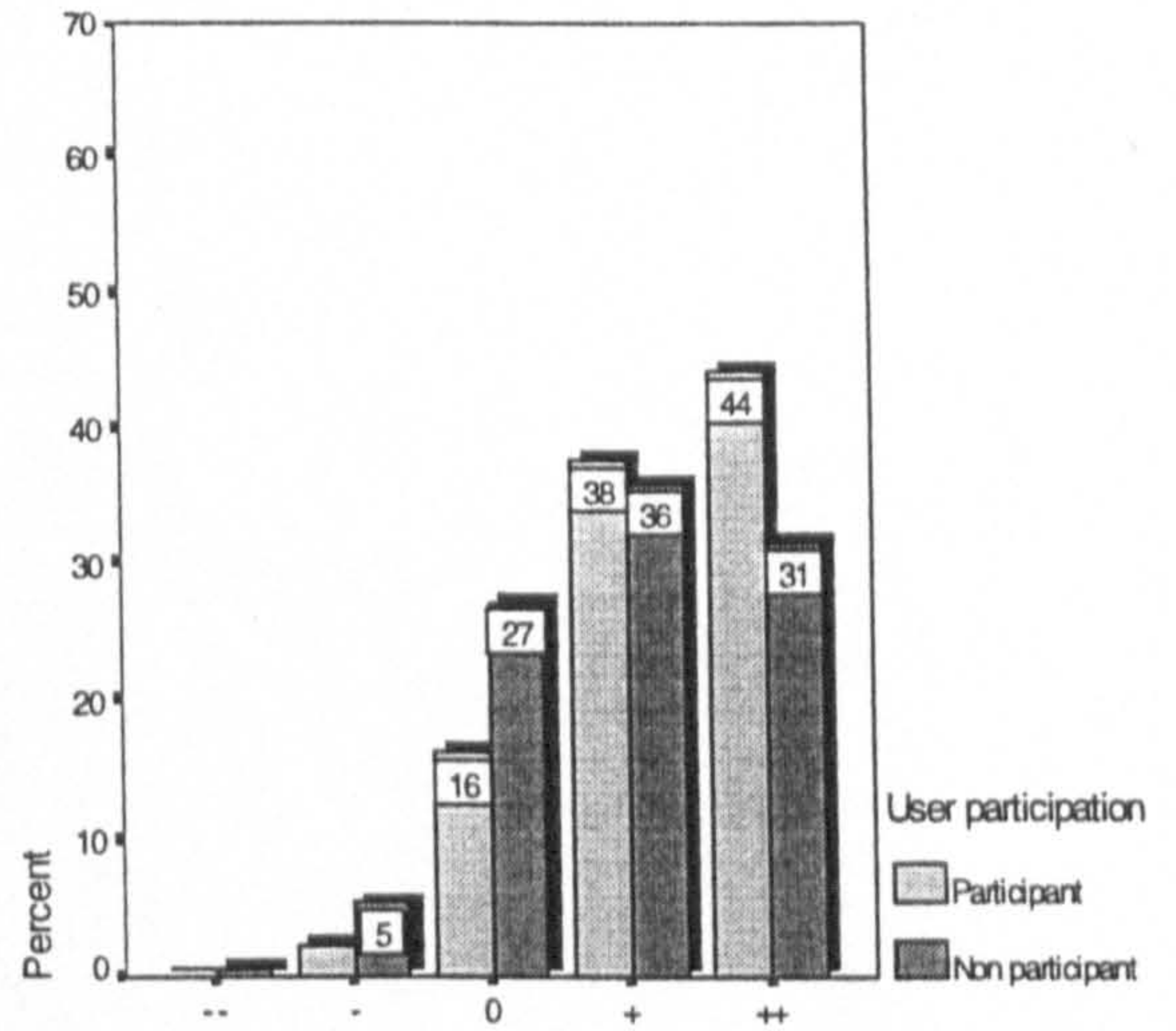
Figure E.18: Responses to the variety of uses of SCC's plazas and open spaces.

Furthermore, plazas and open spaces found to have a strong ability to attract people and activities (Figure E.19). The findings of these two questions are consistent with the results of Question 2, illustrated earlier, where plazas and open spaces ranked as the first most memorable element of SCC (74.31%).





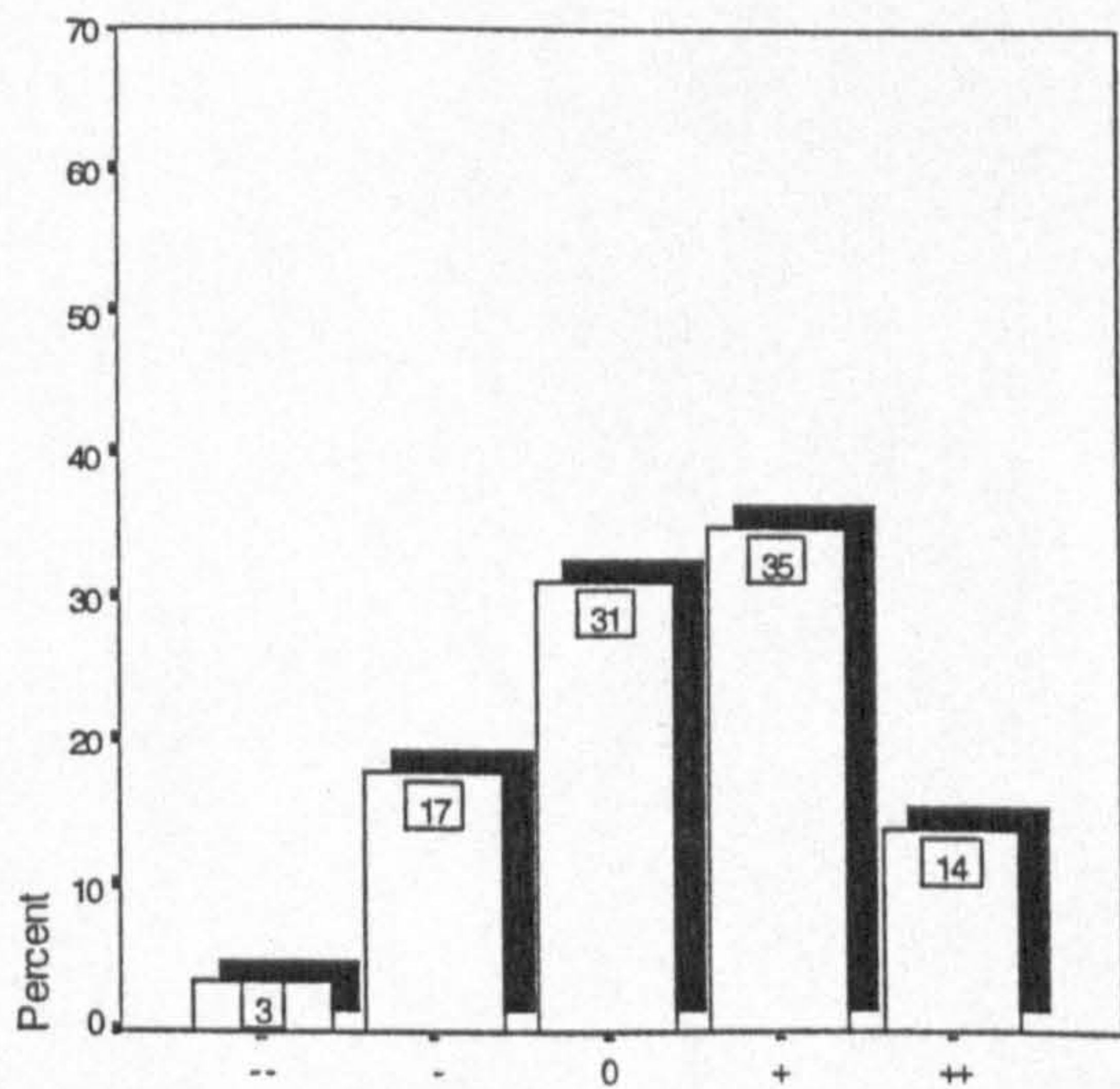
c. General response:  
(MEAN=4.05).



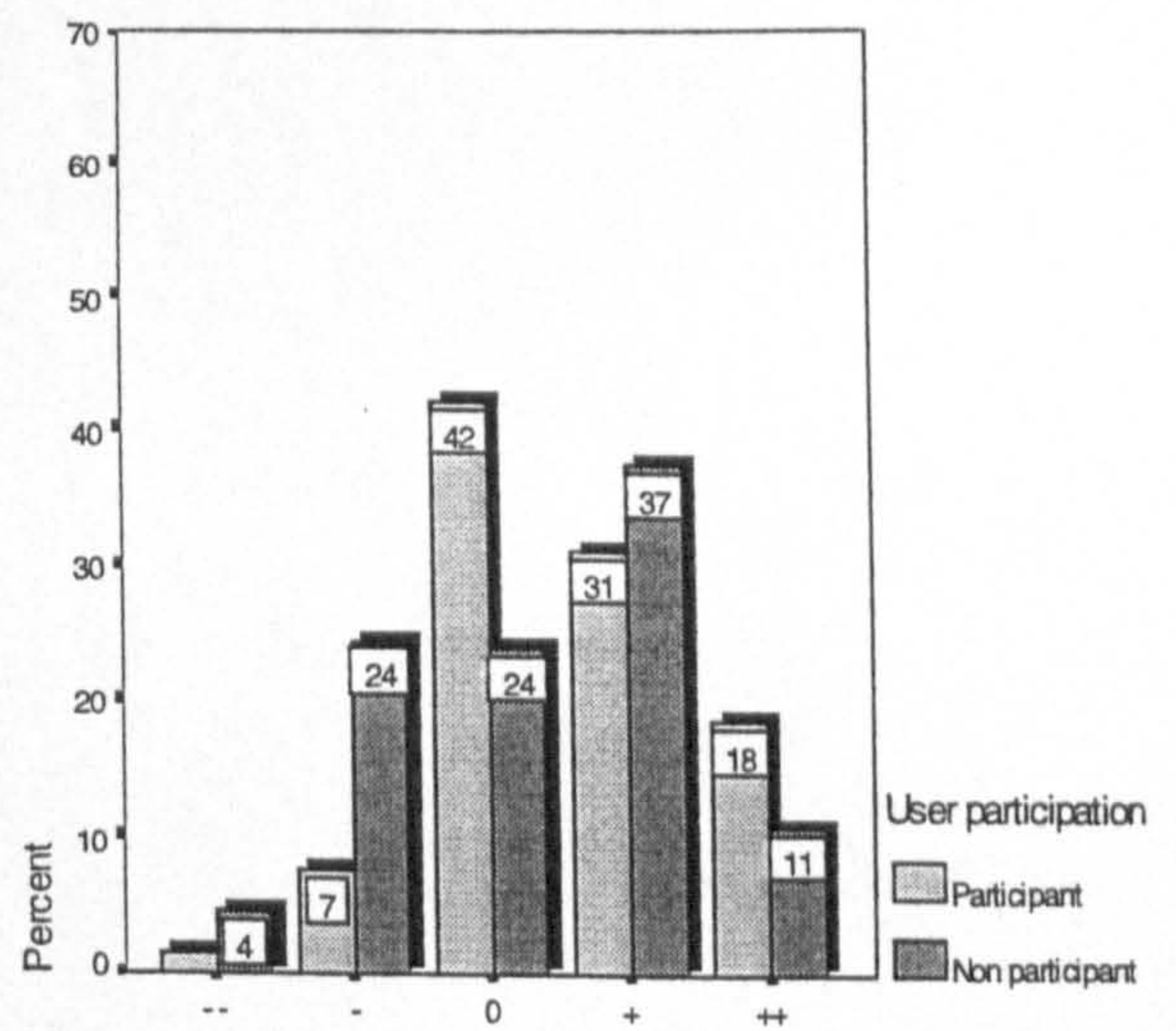
d. Responses of sub-sample groups.

Figure E.19: Responses to the ability of SCC's plazas and open spaces to encourage users from various ages and sexes.

Pedestrian streets, however, though they offer less variety of uses than plazas (MEAN=3.38), have a greater ability to attract users from various sexes and ages to use the area for various purposes and at various times during the day, as well as at various seasons (MEAN=4.21). The responses to the first question were distributed among the rating scale points with emphasis on the middle (Figure E.20).



a. General response.  
(MEAN=3.38).

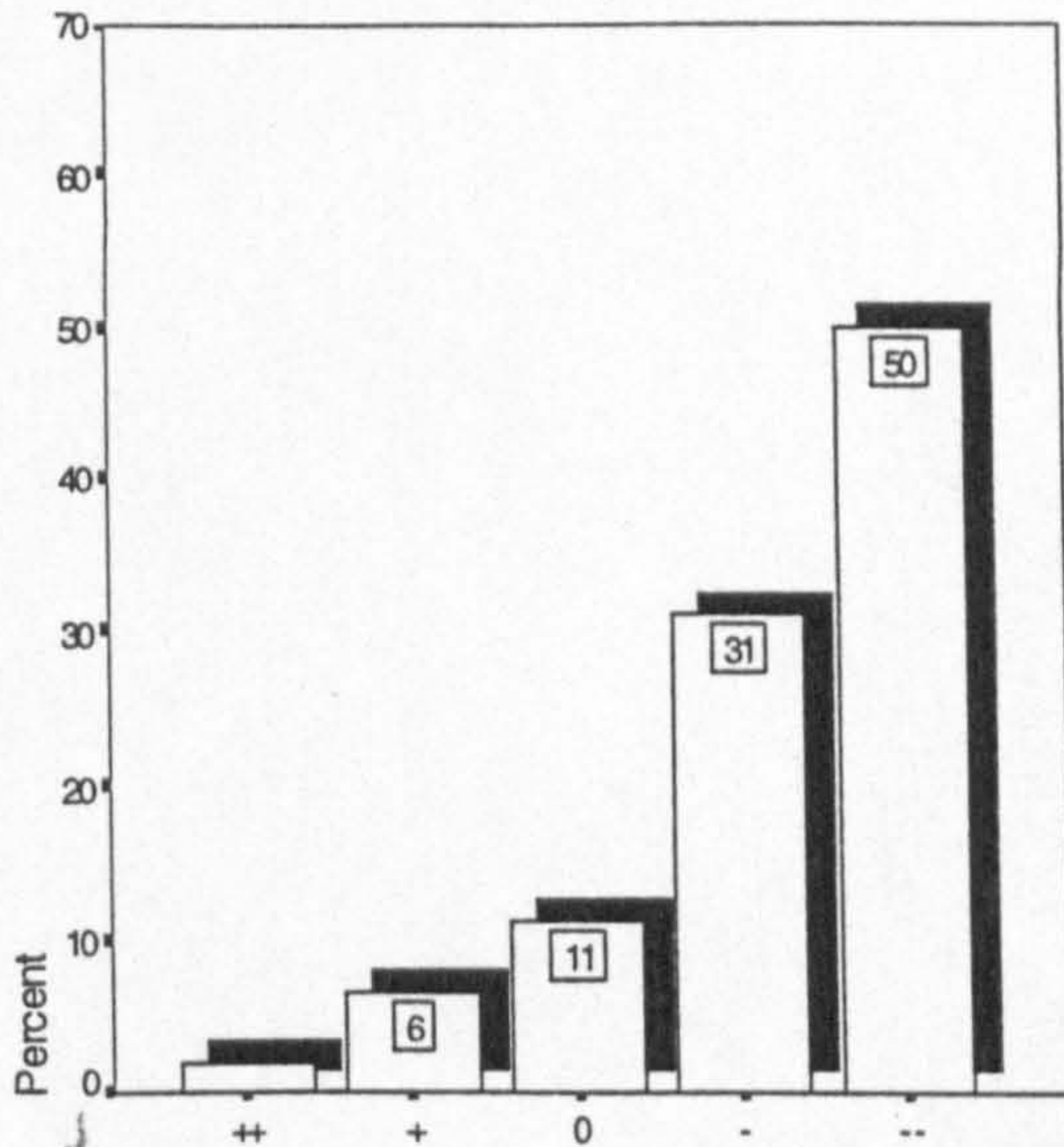


b. Responses of sub-sample groups.

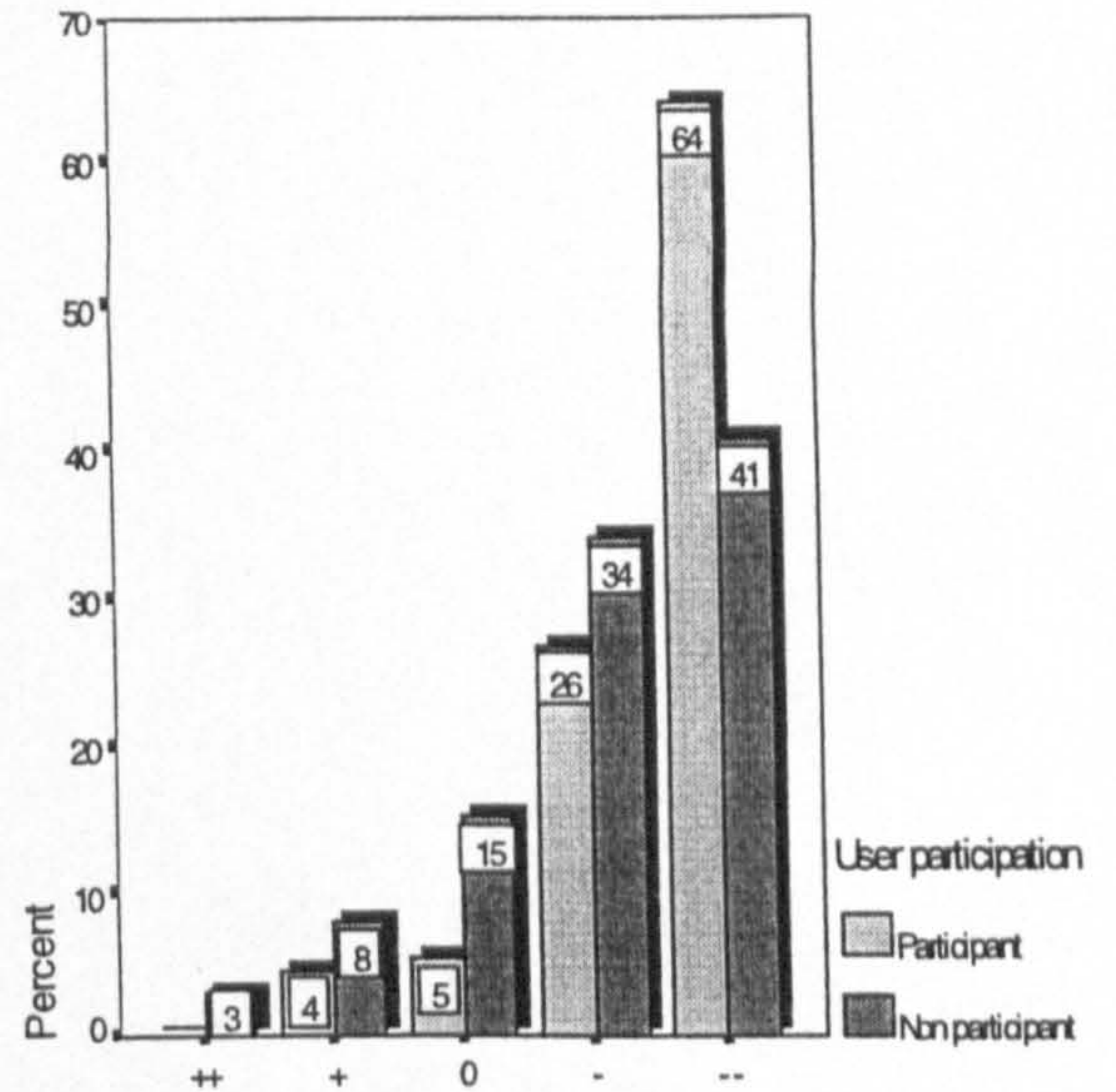
Figure E.20: Responses to the variety of uses of SCC's pedestrian streets and stairways.

The responses for the other question regarding the ability to attract users were clearly defined toward the first two scale points (Figure E.21). This may support the notion that there are other factors than the variety of uses that attract people to a certain area. The finding is consistent with that of the third question of the interview in the investigative level asking for the elements that make some of SCC's spaces hospitable and enjoyable (see section 7.1.1). The answers indicated general satisfaction due to various aspects including: open spaces, wide range of activities, the lively crowds, as well as SCC topography.





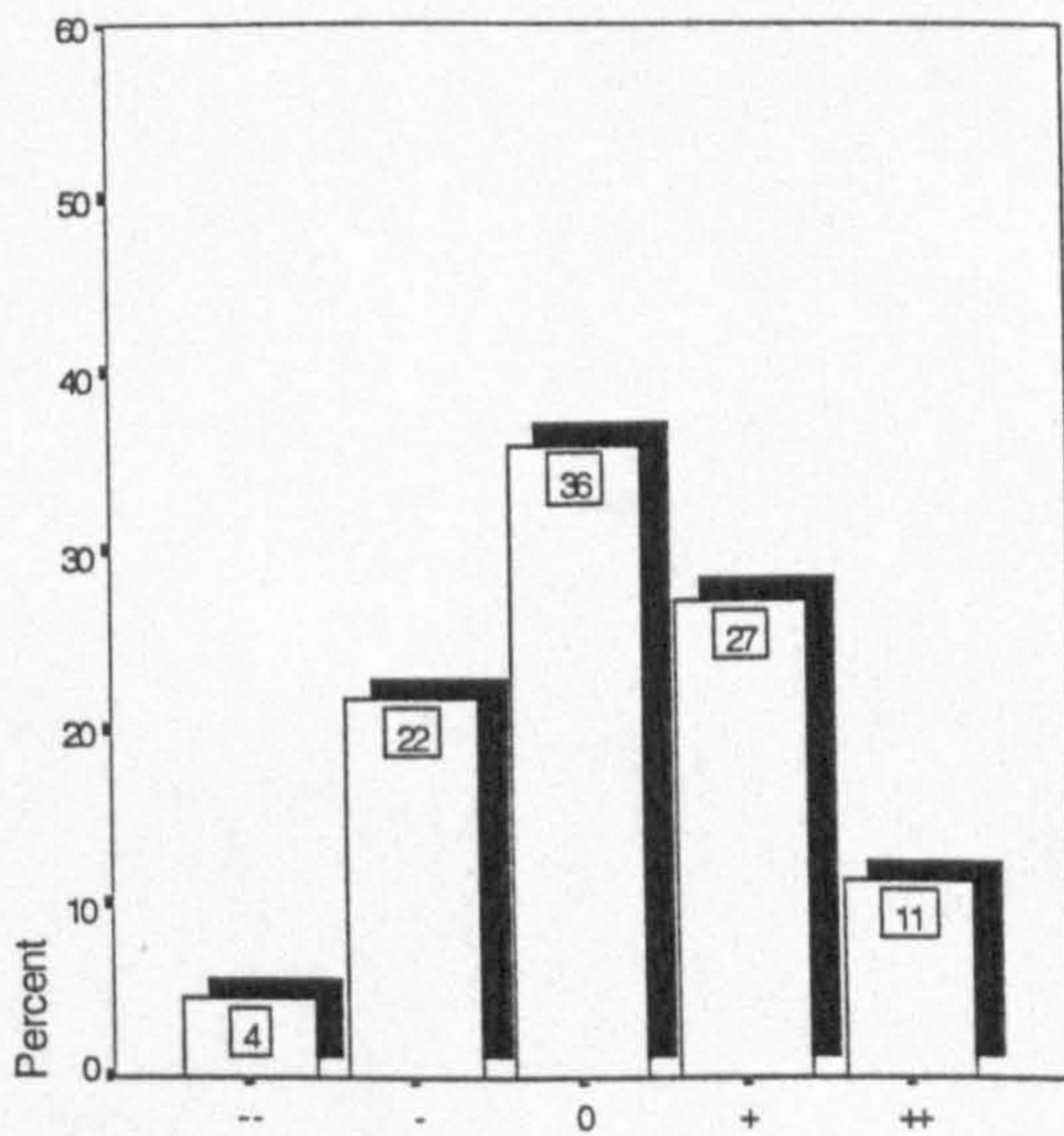
c. General response.  
(MEAN=4.21)



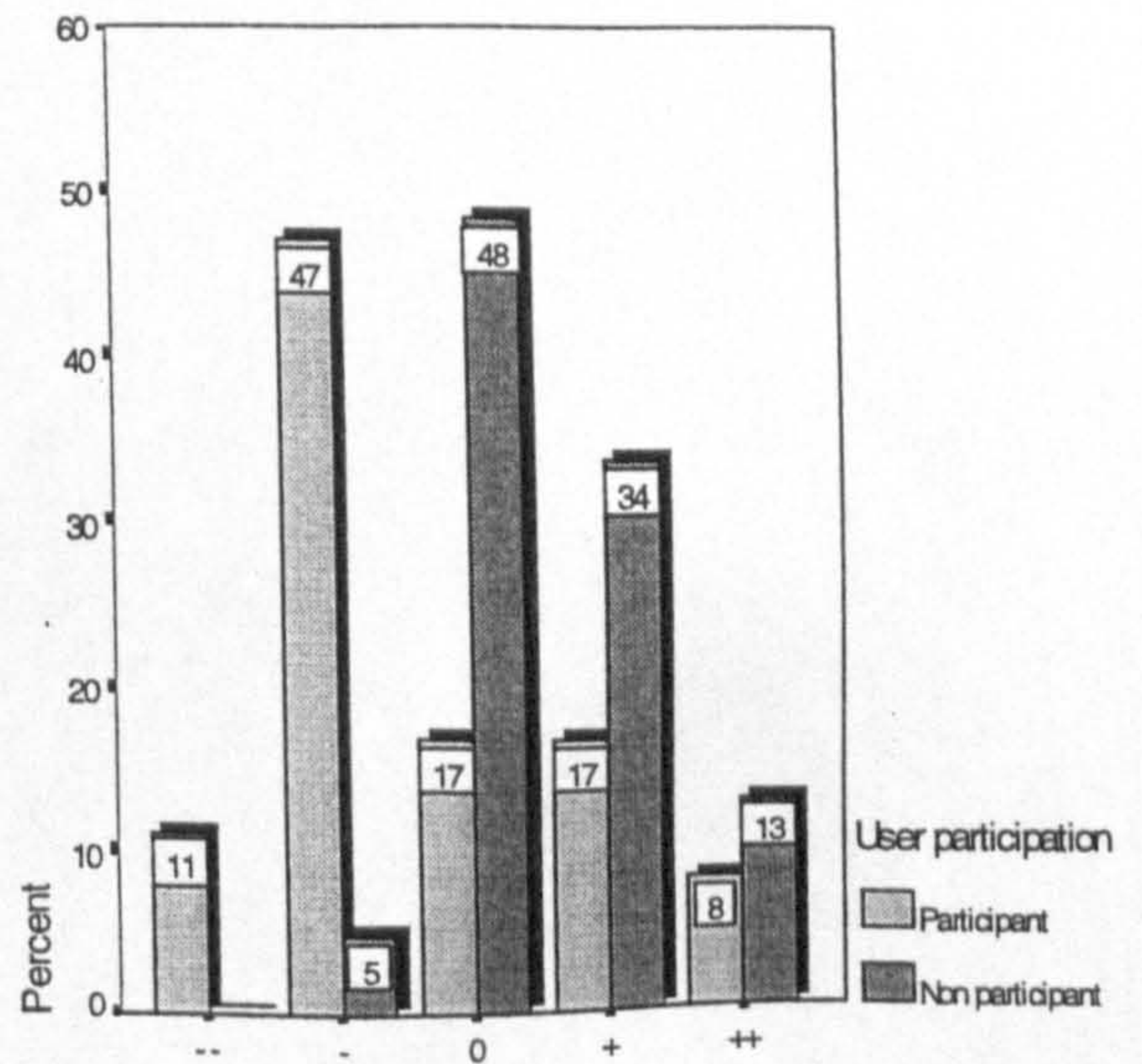
d. Responses of sub-sample groups.

Figure E.21: Responses to the ability of SCC's pedestrian streets and stairways to encourage users from various ages and sexes.

Responses of the variety of uses at vehicular streets varied between the two sub-sample groups. The majority of the participants (47%) considered vehicular streets to have a limited variety of uses. On the contrary, the responses of the non-participants were more shifted to the positive end of the scale with the majority of responses (48%) in the middle scale point (Figure E.22). Regarding the ability of vehicular streets to encourage users and activities, the majorities of both sub-samples rated to the middle scale point (Figure E.23).



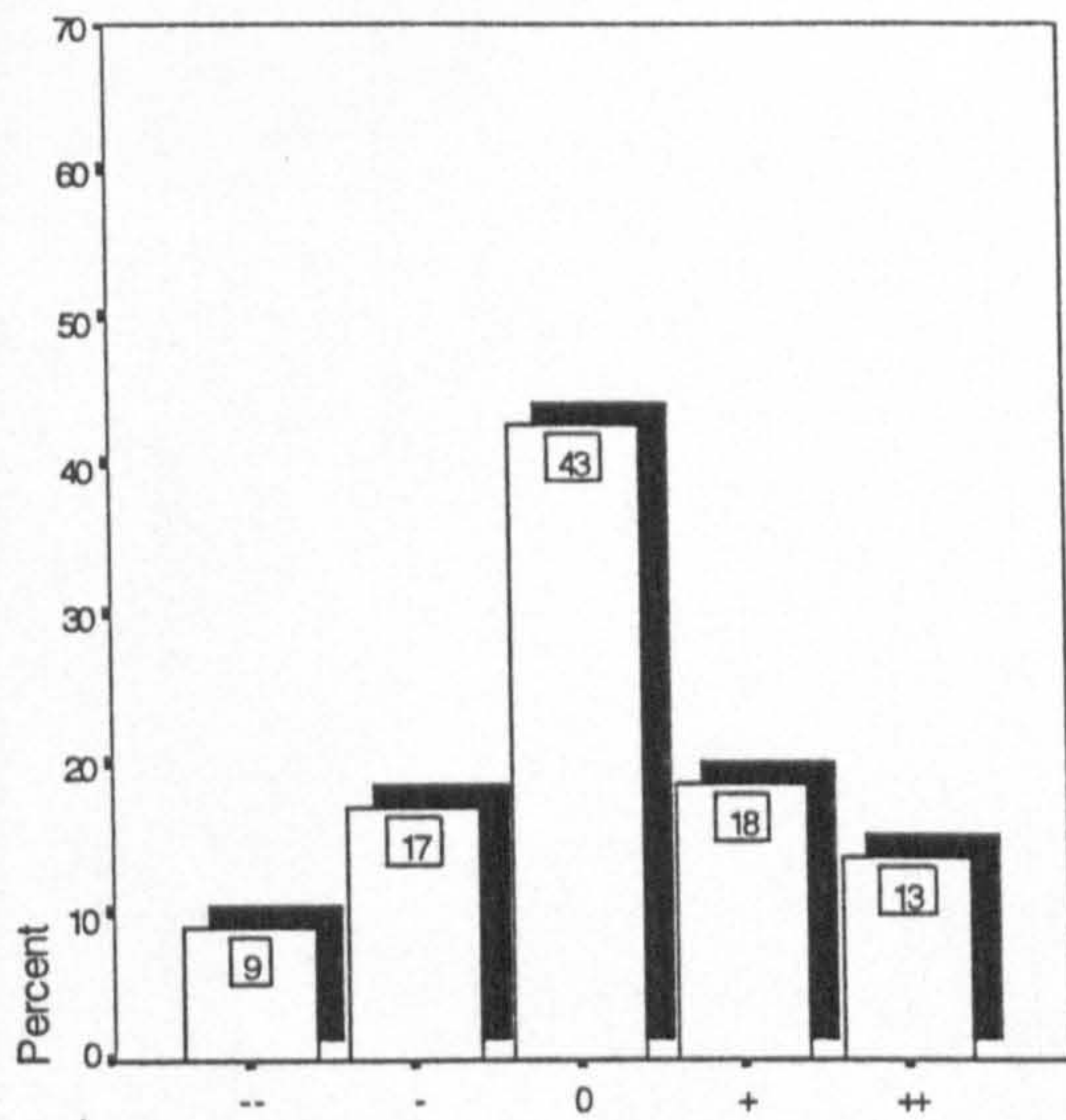
a. General response.  
(MEAN=3.19).



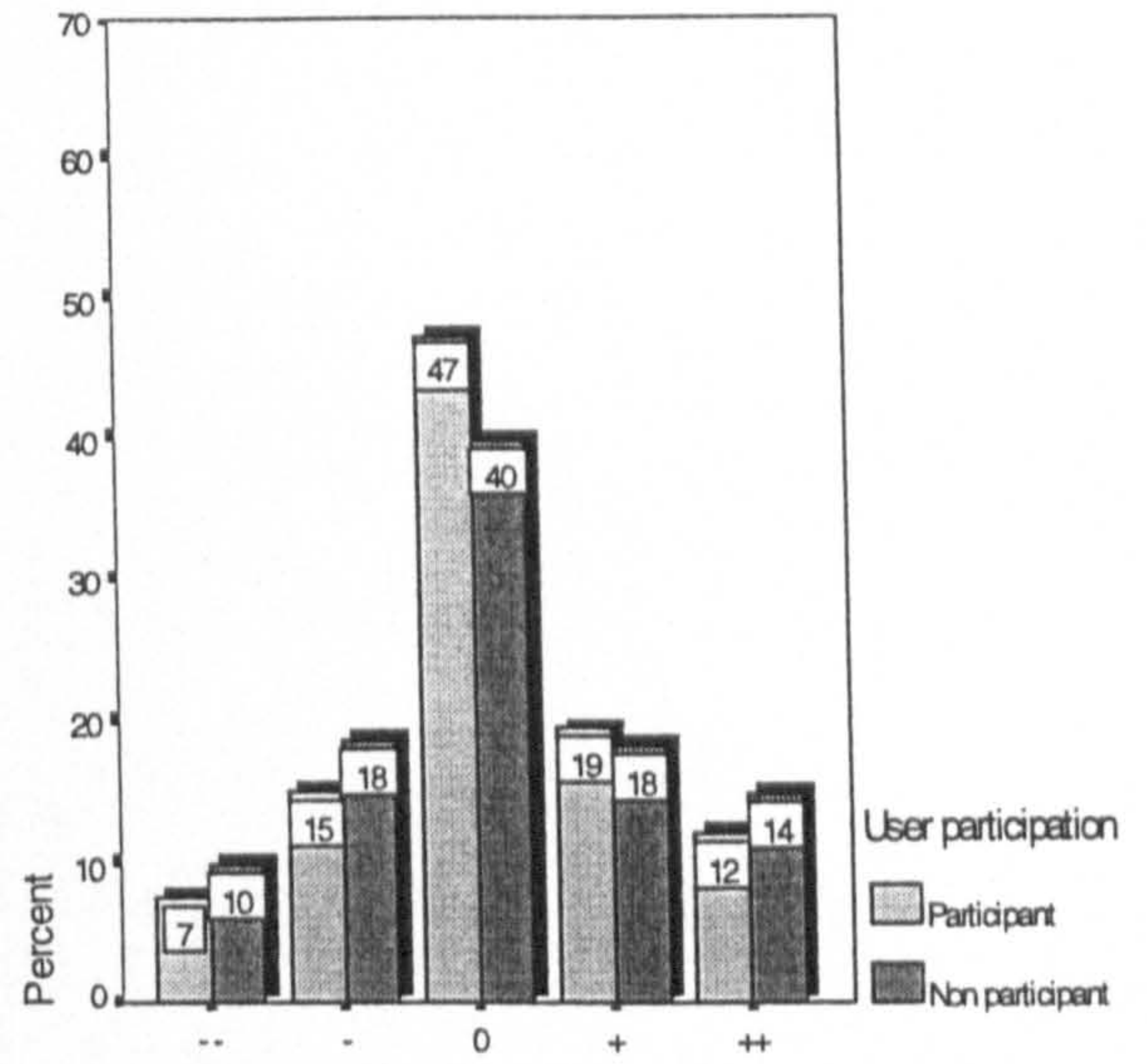
b. Responses of sub-sample groups.

Figure E.22: Responses to the variety of uses of SCC's vehicular streets.





c. General response.  
(MEAN=3.11).

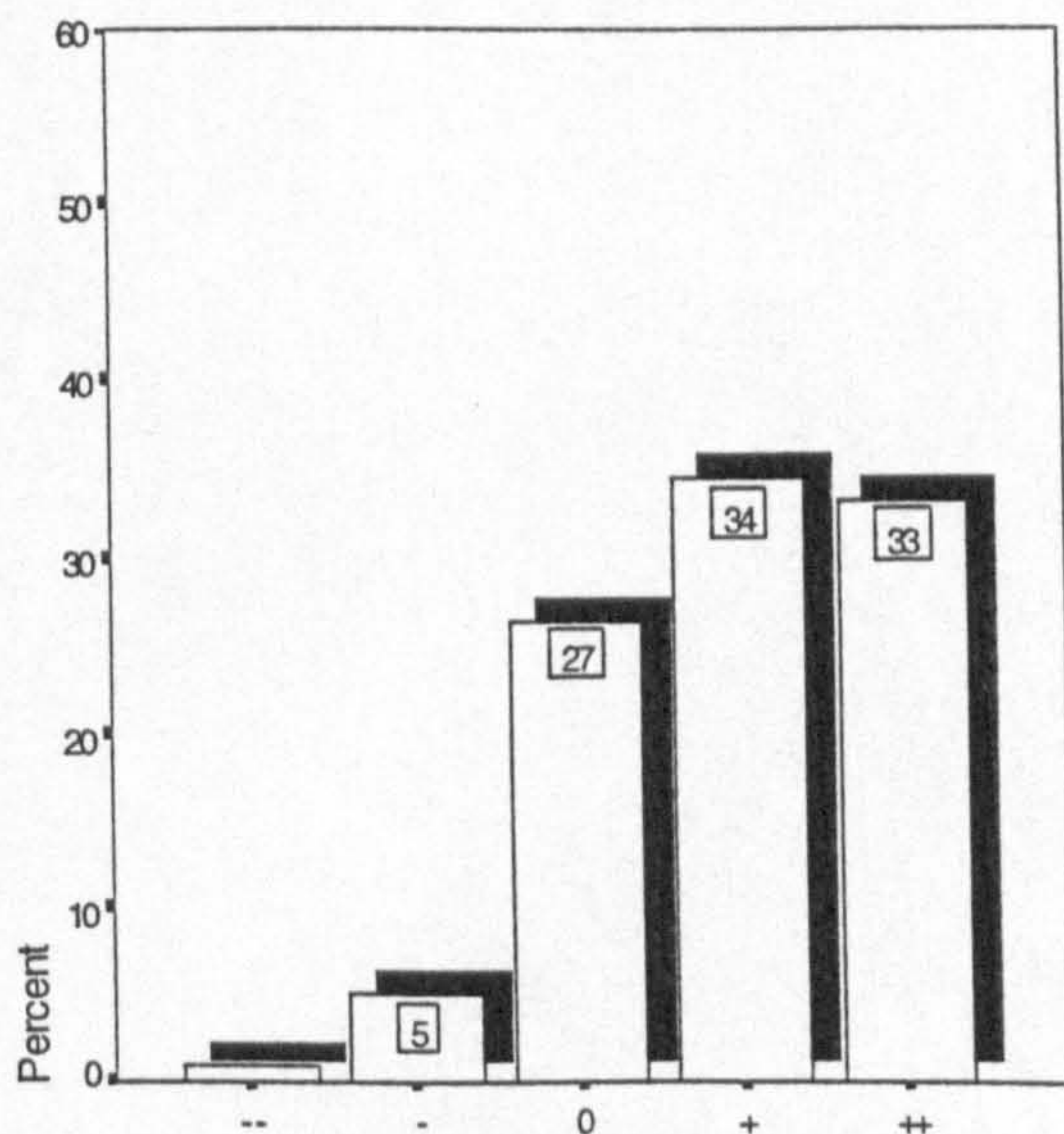


d. Responses of sub-sample groups.

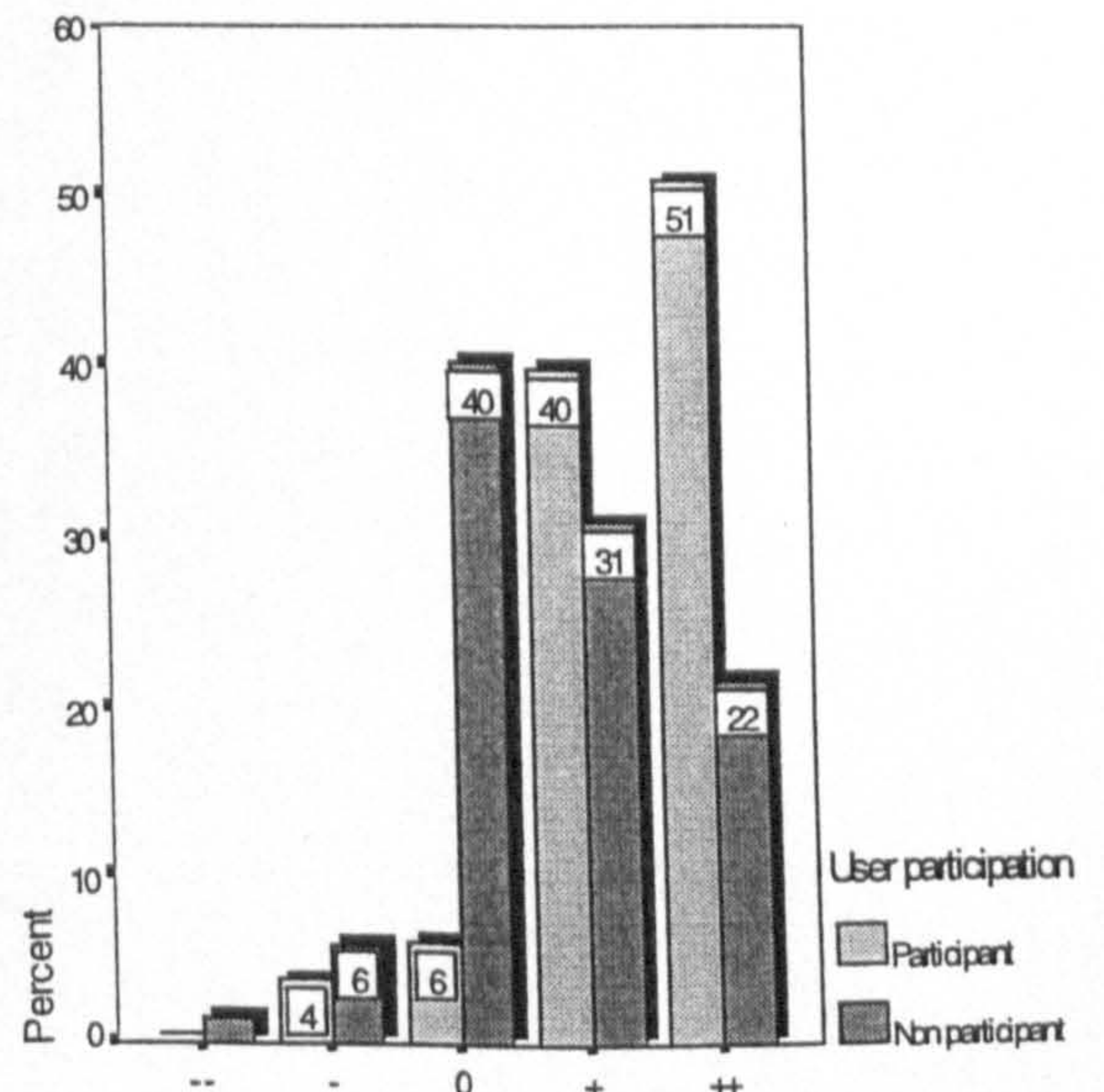
Figure E.23: Responses to the ability of SCC's vehicular streets to encourage users from various ages and sexes.

**Variable: Variety in Complexity - Questions 1.11 and 3.A.7:**

In Question 1.11 the respondents were asked whether SCC has places with emotional attachments or not. To make the question easy to understand, it was mentioned that emotional attachments are those that remind the respondent of some local or national events whether they are happy or sad. The average responses (MEAN=3.94) indicated that the area in general had many places with emotional attachments (Figure E.24). The majority of the participants (51%) rated the first scale, whereas the most of the non-participants (40%) were shifted to the third scale.



a. General response.  
(MEAN=3.94).



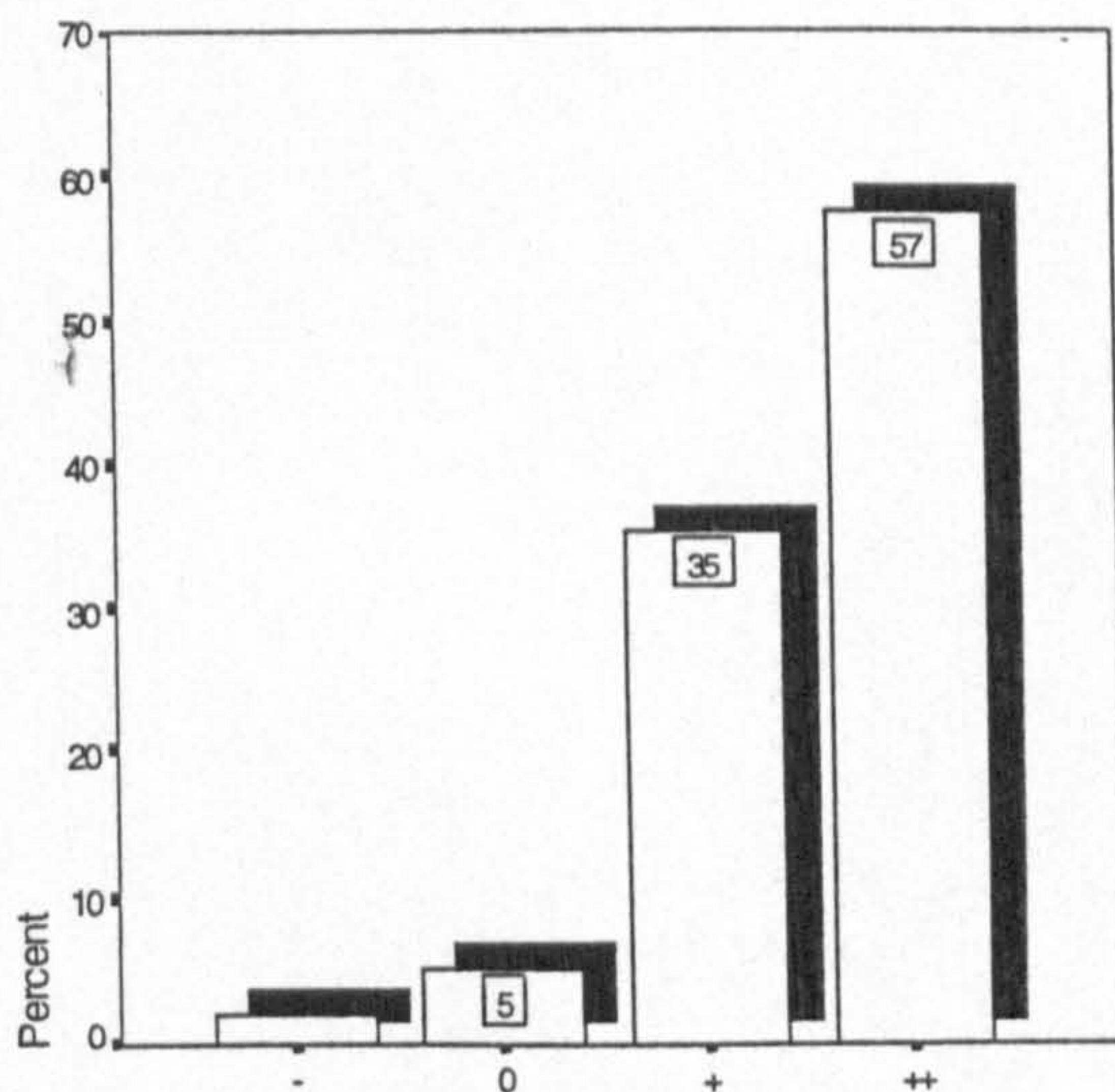
b. Responses of sub-sample groups.

Figure E.24: Responses to the availability of places with emotional attachments in SCC.

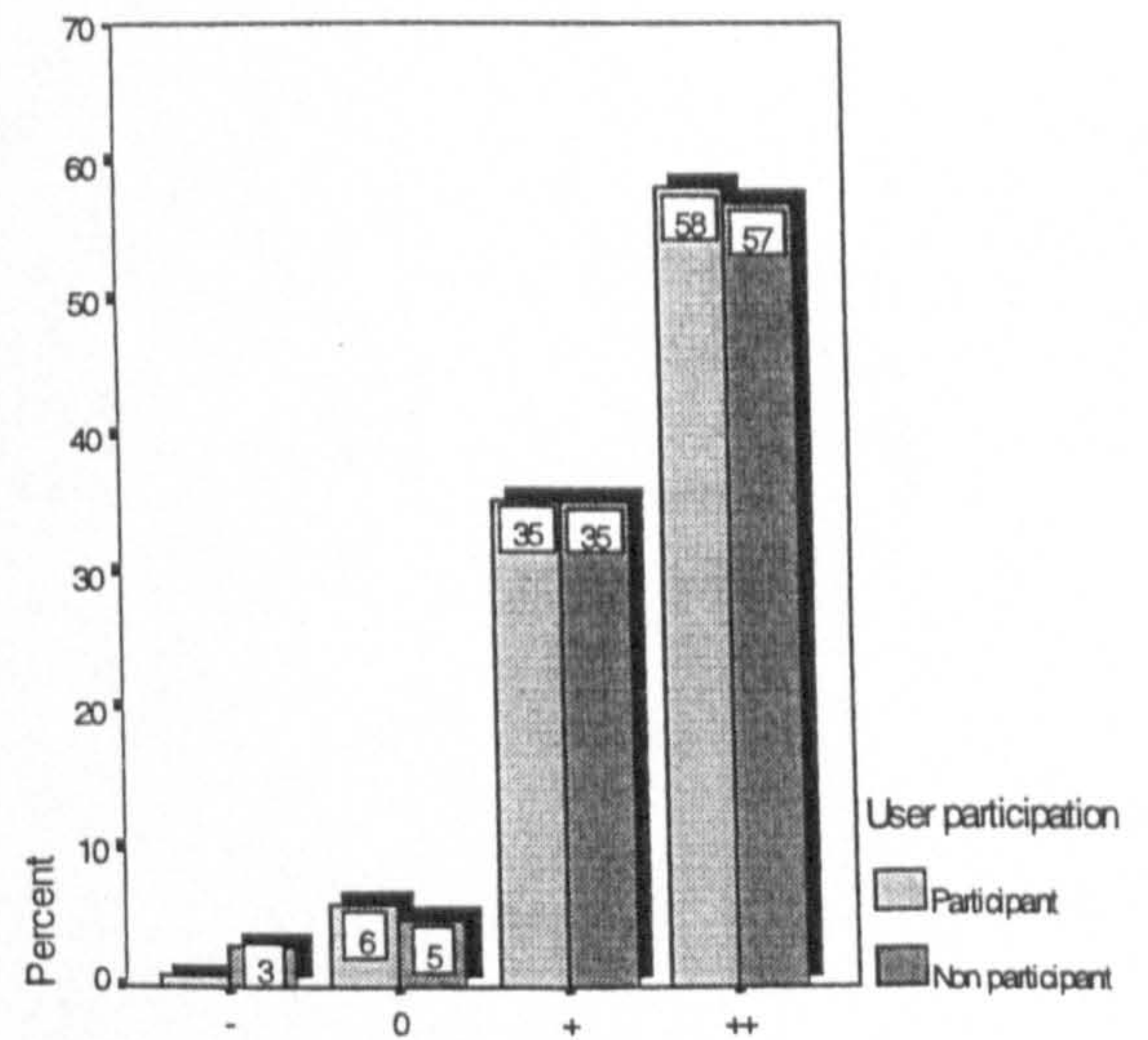
In Question 3.A.7 the respondents were asked to rate their opinions about the availability of visual traces of history at SCC's plazas and open spaces. The responses



of both sub-samples strongly agreed with the availability of visible historic traces at SCC's plazas and open spaces (Figure E.25). A first impression may assume that the responses were biased as they did not consider the modern nature of the majority of buildings accommodating the Great Mosque Plaza. With a deeper understanding, one may find that the plaza has strong physical and visual contacts with the nearby old features, such as *Abu-Jaber* building, *Al-Hammam* street, as well as the whole traditional pattern of the townscape. Therefore, it is safe to conclude that the power of the old pattern of the townscape is greater than that of the architectural styles. This is true also for most of the small open spaces of SCC which offer panoramic watch points from which many old buildings are visible.



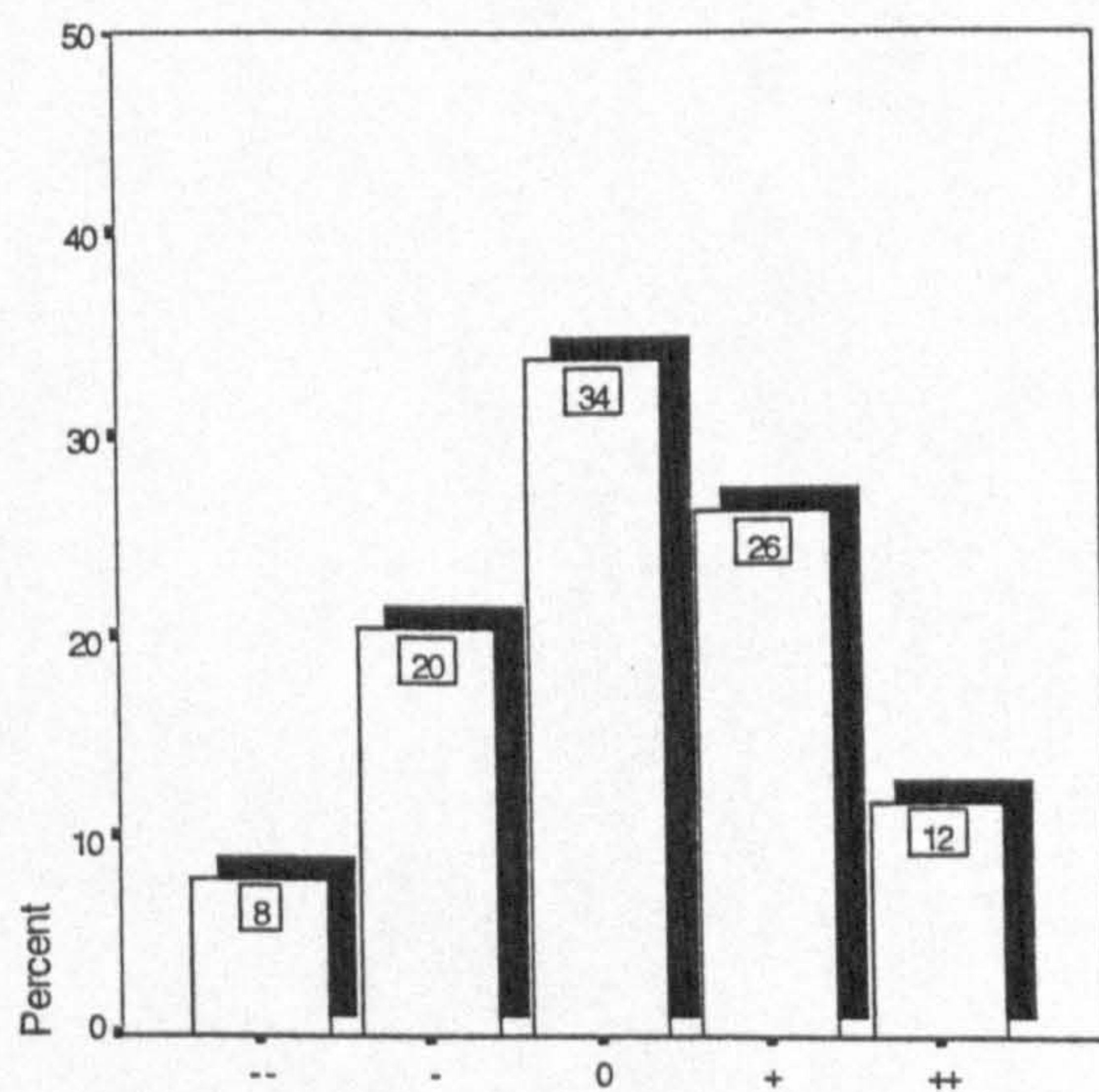
a. General response.  
(MEAN=4.48).



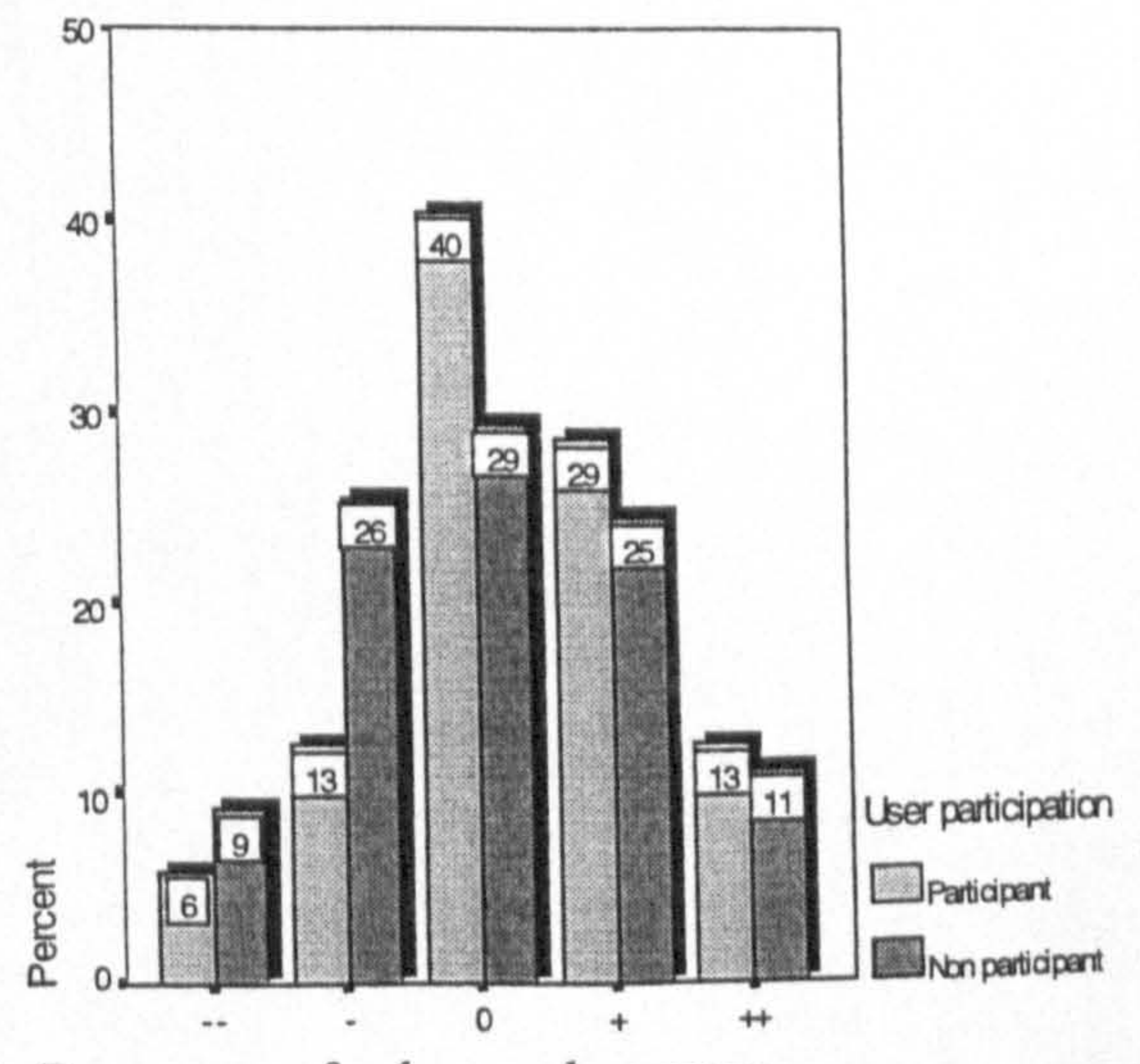
b. Responses of sub-sample groups.

Figure E.25: Responses to the availability of historic traces in SCC's plazas and open spaces.

In another set of questions (Questions 3.A.1, 3.A.2 and 3.A.3) the respondents were asked to rate whether these plazas and open spaces vary in size, form, and importance respectively. No major variations in size or form were found (Figures E.26 and E.27).



a. General response.  
(MEAN=3.13).



b. Responses of sub-sample groups.

Figure E.26: Responses to variation in size of SCC's plazas and open spaces.



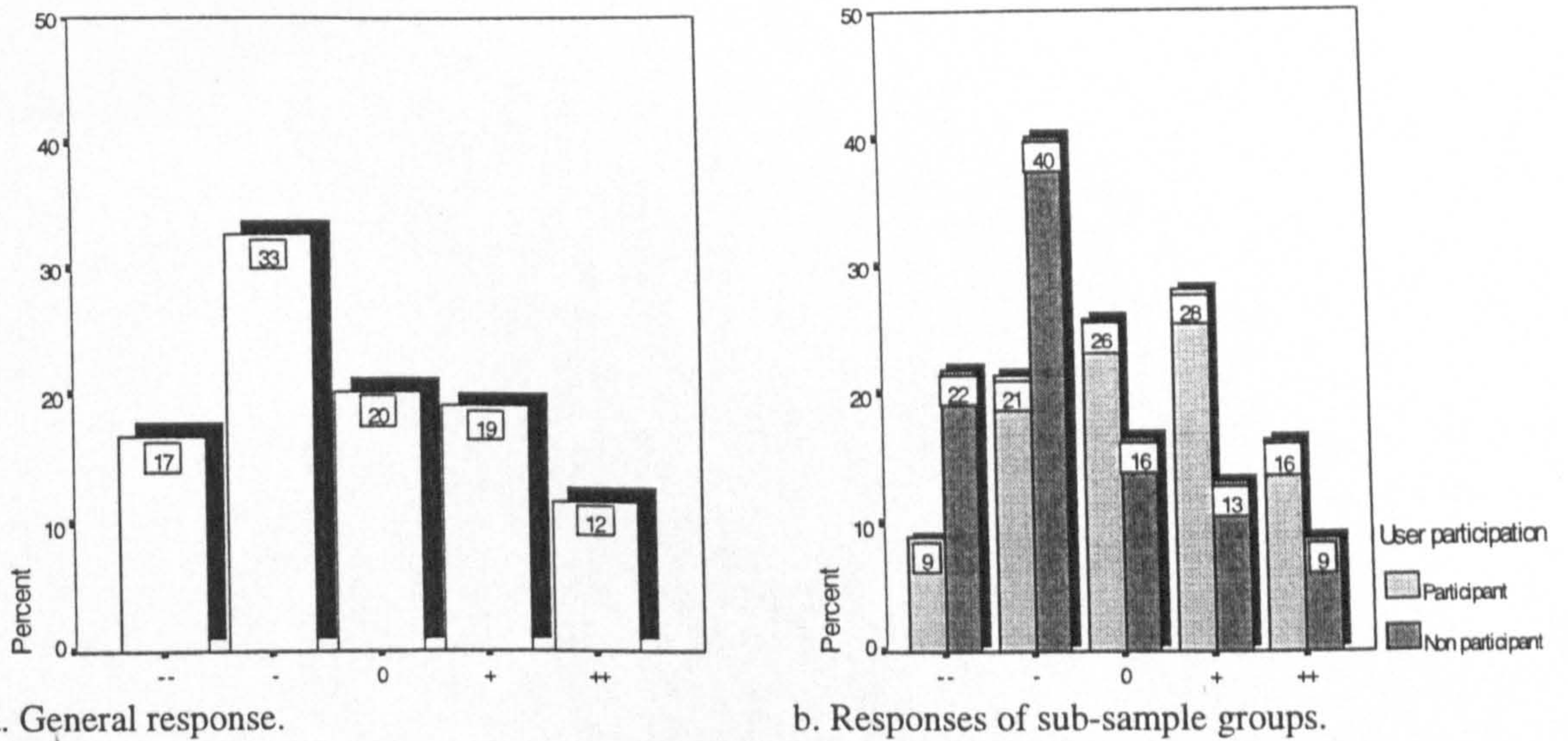


Figure E.27: Responses to variation in form of SCC's plazas and open spaces.

The responses are consistent with the findings of the indicative and investigative levels of evaluation. These levels considered most SCC's open spaces to be of similar, but not identical, in sizes and forms. Such similarity is due to their settings along the hill slopes. Their settings also offer each of them a different role, use, and inevitably different importance. This is also consistent with the responses regarding variations in importance of plazas and open spaces (Figure E.28). The average responses (MEAN=3.48) tended to consider the variation in importance as more noticeable than variations in size or form.

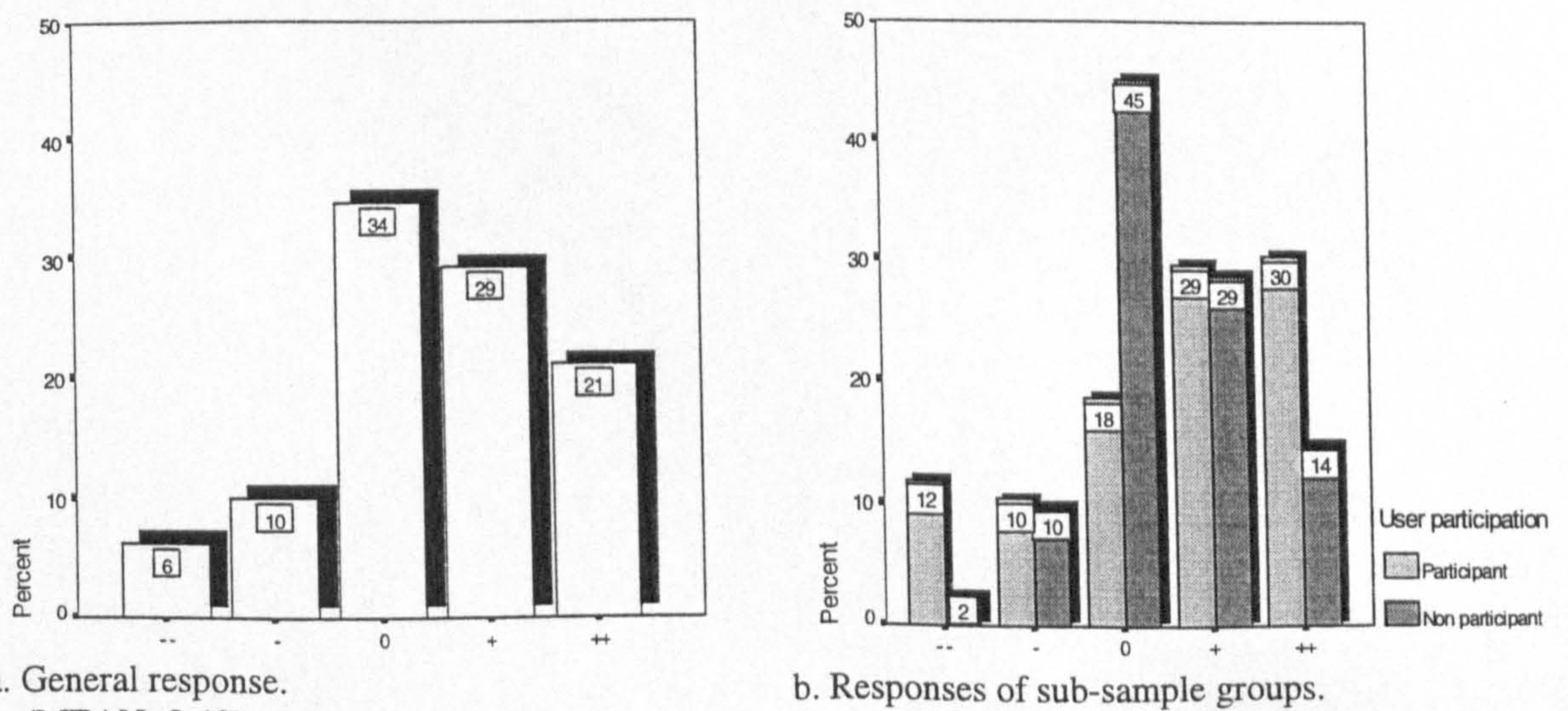


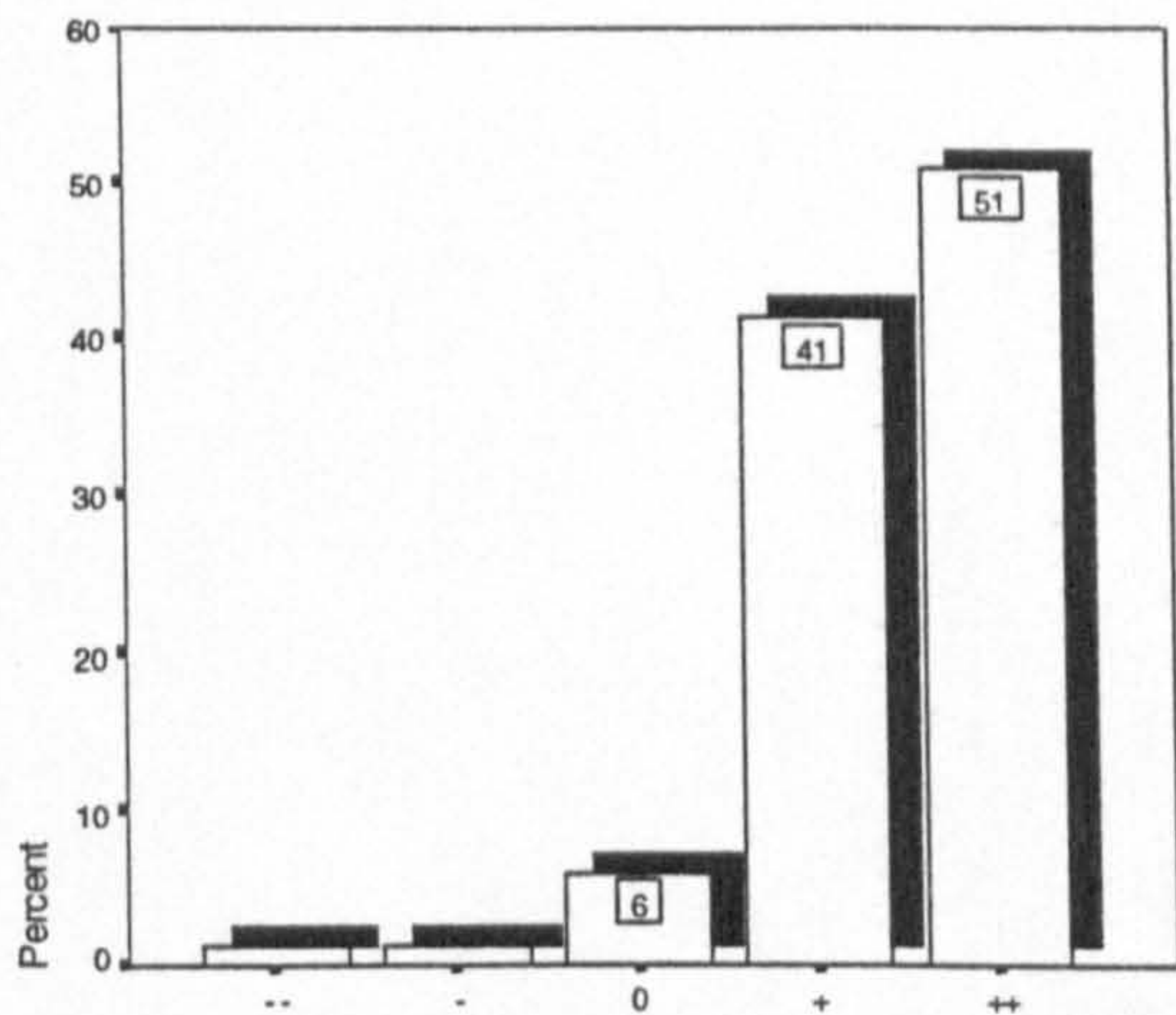
Figure E.28: Responses to variation in importance of SCC's plazas and open spaces.

**Variable: Variety in Relationships - Questions 3.A.8, 3.B.4 and 3.C.3:**

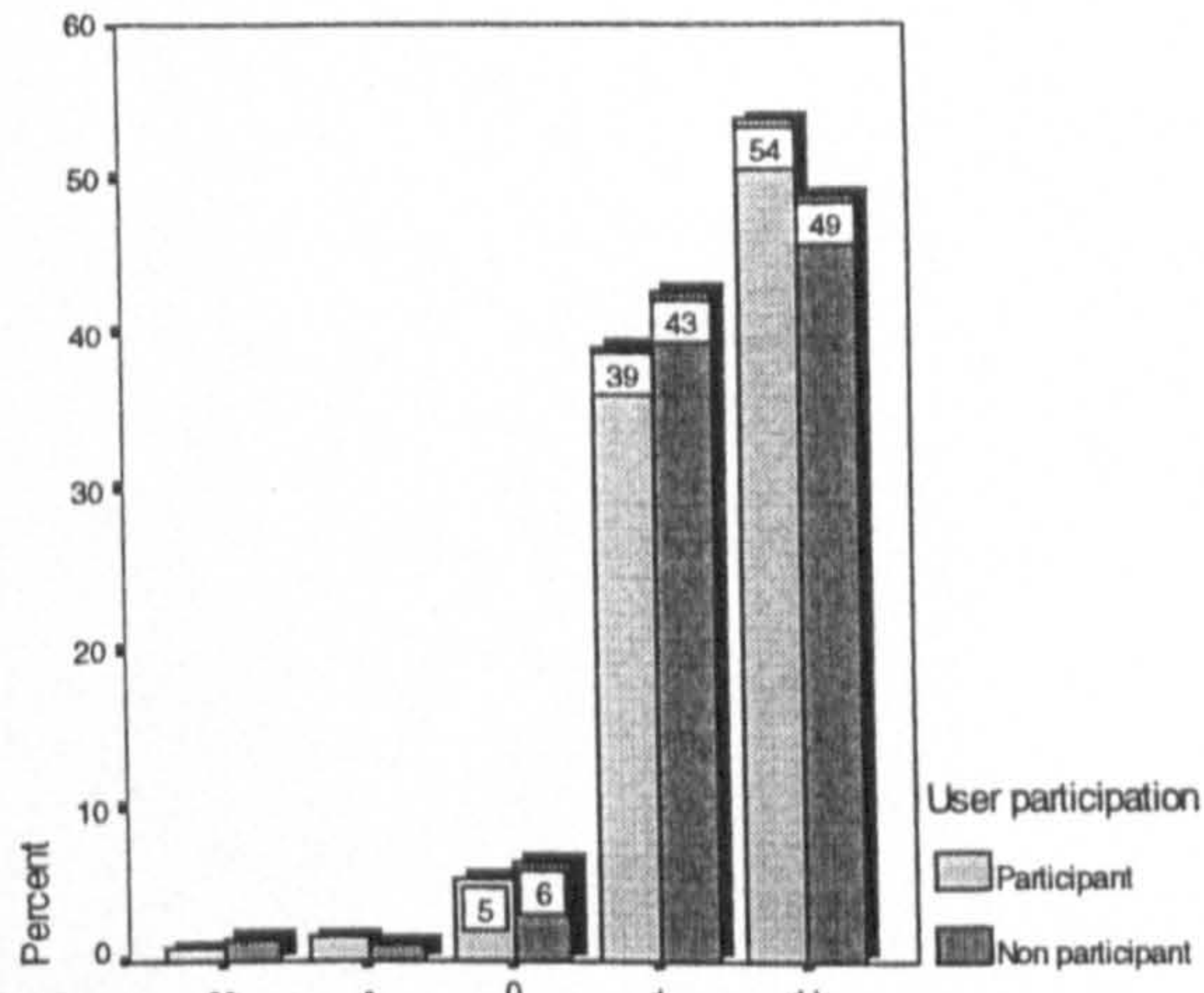
The respondents were asked in three separate questions to rate the availability of vistas and panoramic watch points at SCC's open spaces, vehicular streets, and pedestrian streets and stairways respectively. The responses, however, strongly



agreed with the availability of such vistas and panoramic watch points in the above mentioned urban elements of SCC (Figures E.29, E.30 and E.31).

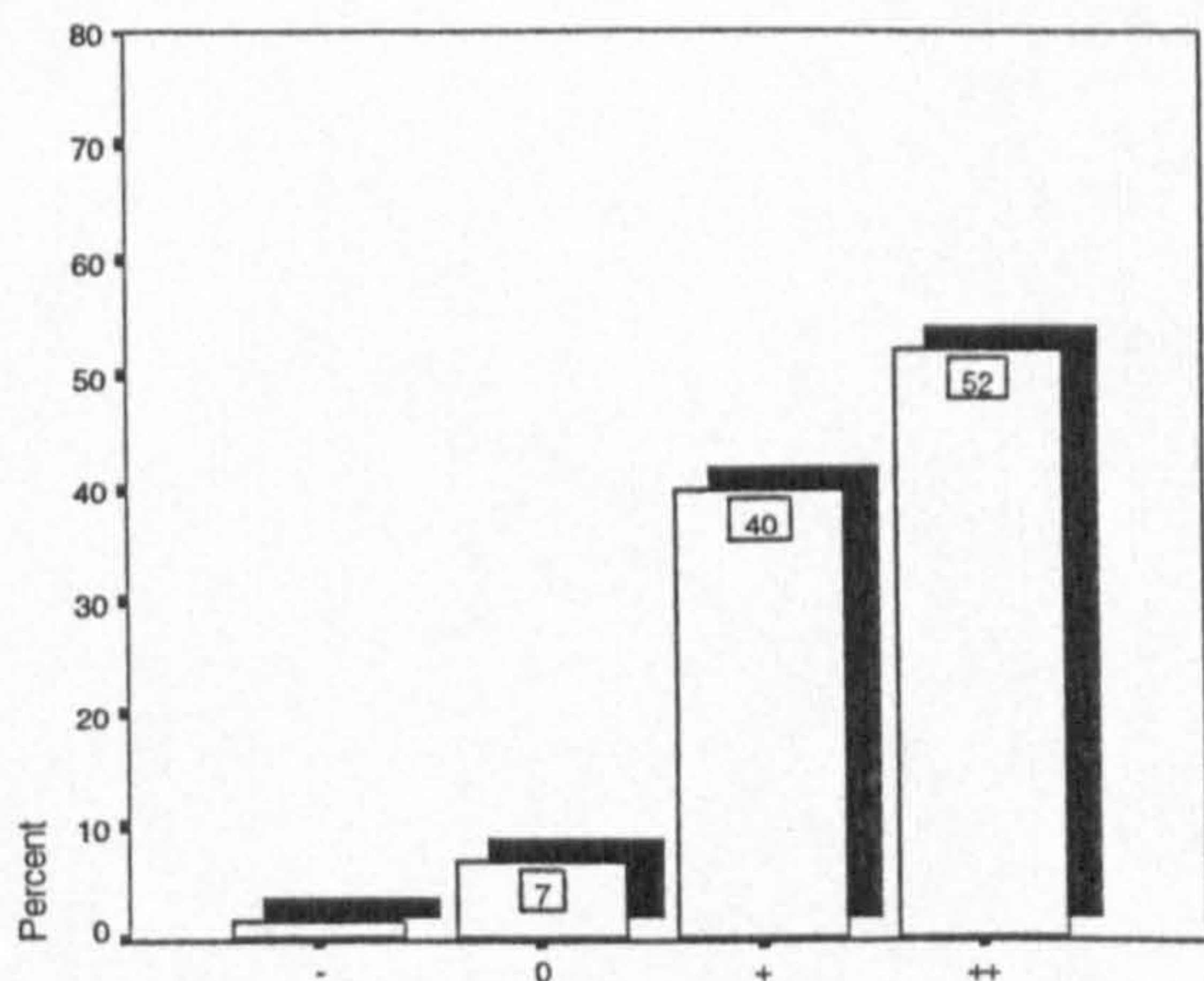


a. General response.  
(MEAN=4.39).

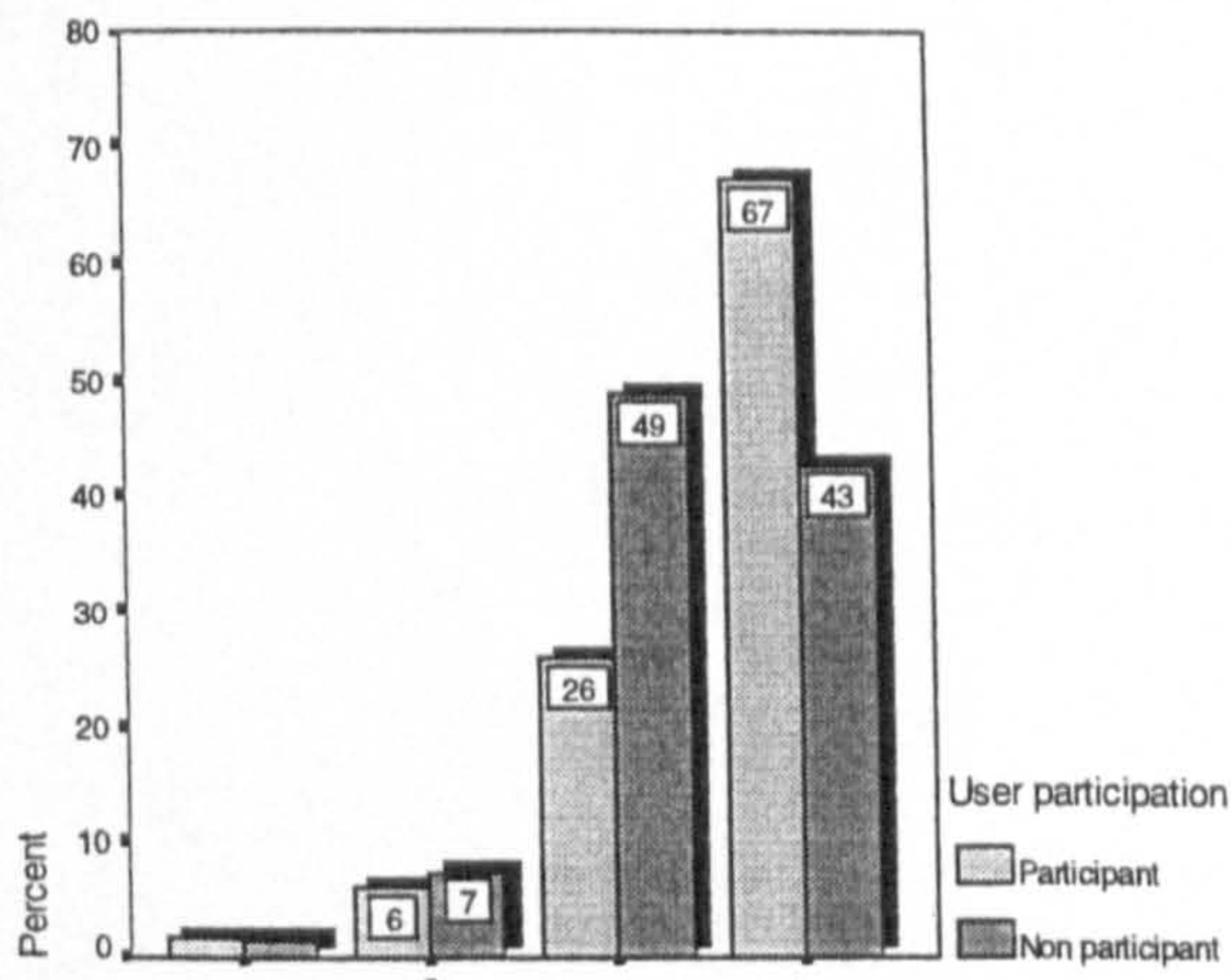


b. Responses of sub-sample groups.

Figure E.29: Responses to the availability of vistas and panoramic watch points at SCC's plazas and open spaces.

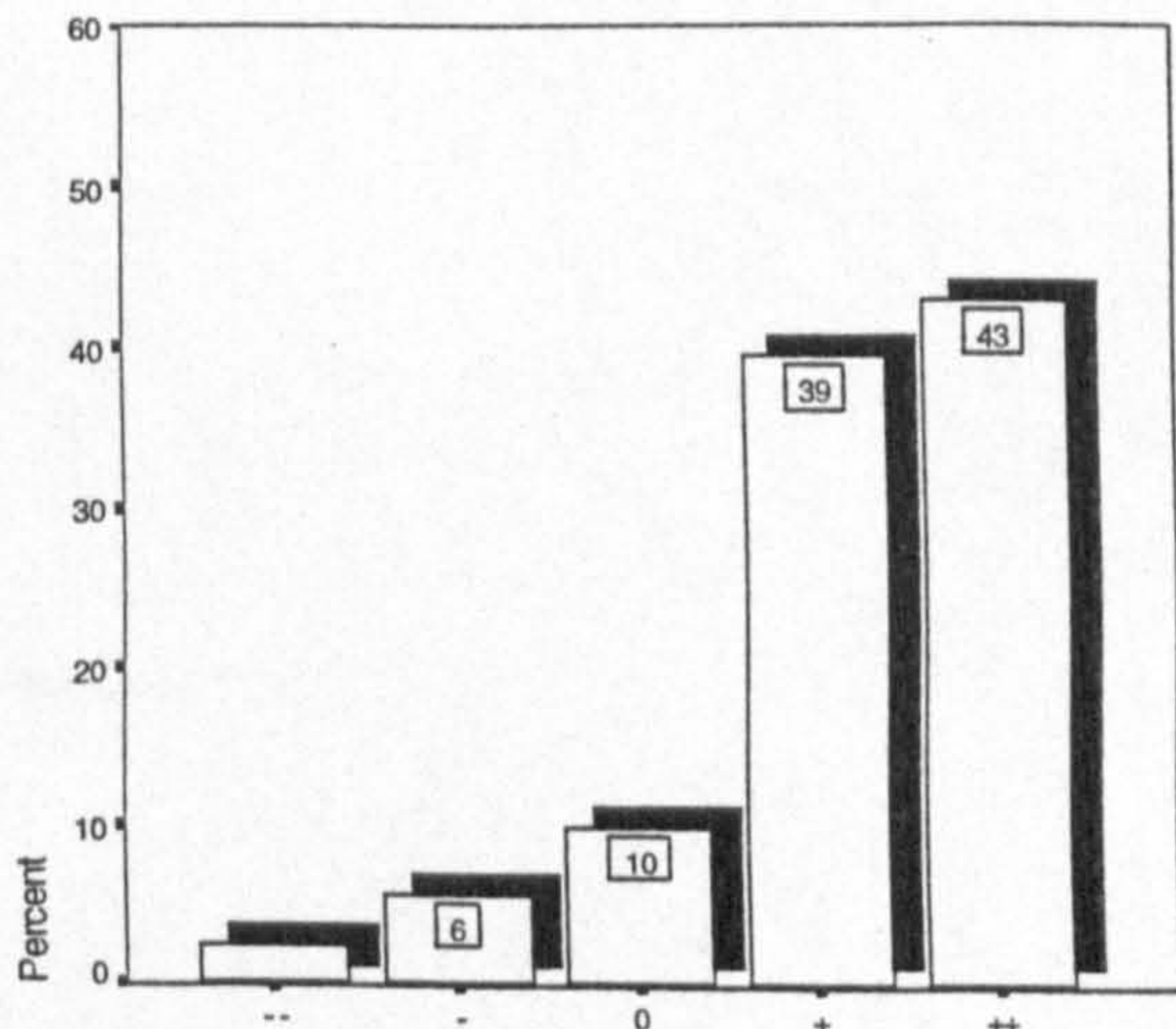


a. General response.  
(MEAN=4.43).

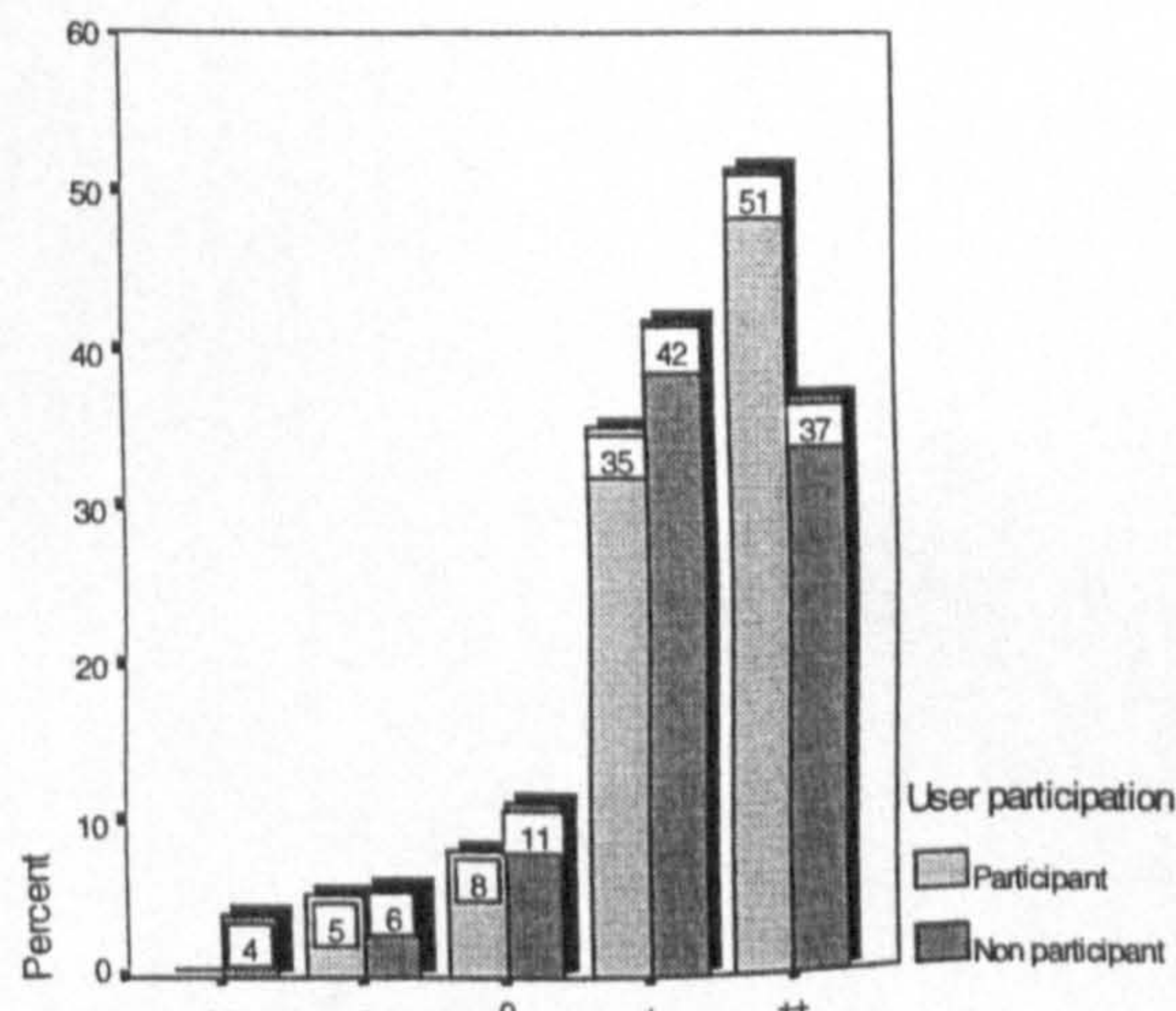


b. Responses of sub-sample groups.

Figure E.30: Responses to the availability of vistas and panoramic watch points at SCC's pedestrian streets and stairways.



a. General response.  
(MEAN=4.15).



b. Responses of sub-sample groups.

Figure E.31: Responses to the availability of vistas and panoramic watch points at SCC's vehicular streets.



### E.2.4 Responses Toward Structure

The variables that represent this visual dimension include: spatial orientation, visual inertia, and enclosure. These were represented in the following questions:

#### Variable: Spatial Orientation - Questions 3.A.5, 3.B.3 and 3.C.2:

In three separate questions the users were asked to rate their opinions about how easy it was to find their way within SCC's open spaces, vehicular streets, pedestrian streets and stairways respectively. Another set of questions (3.A.10, 3.B.7 and 3.C.7) asked the users to rate opinions about the availability of visual clues in the above mentioned physical elements. These aimed to measure the direction of relationships between two related variables: "spatial orientation" and "hierarchy" (see section 8.4.1). The average responses (MEAN=3.91) strongly suggested that it is easy to find one's way at SCC's open spaces. The majorities of both sample groups are shifted to the positive end of the rating scale (Figure E.32).

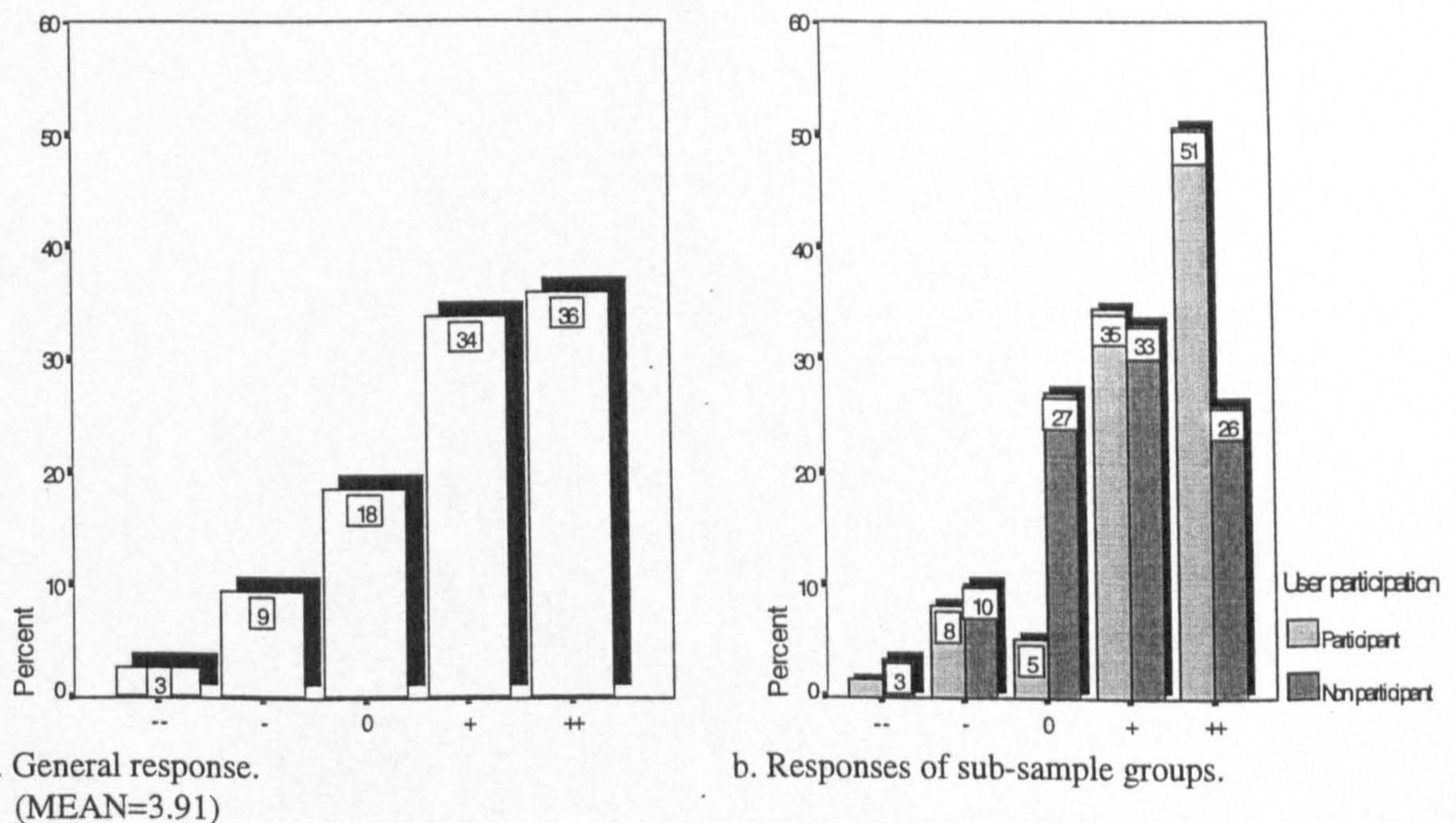
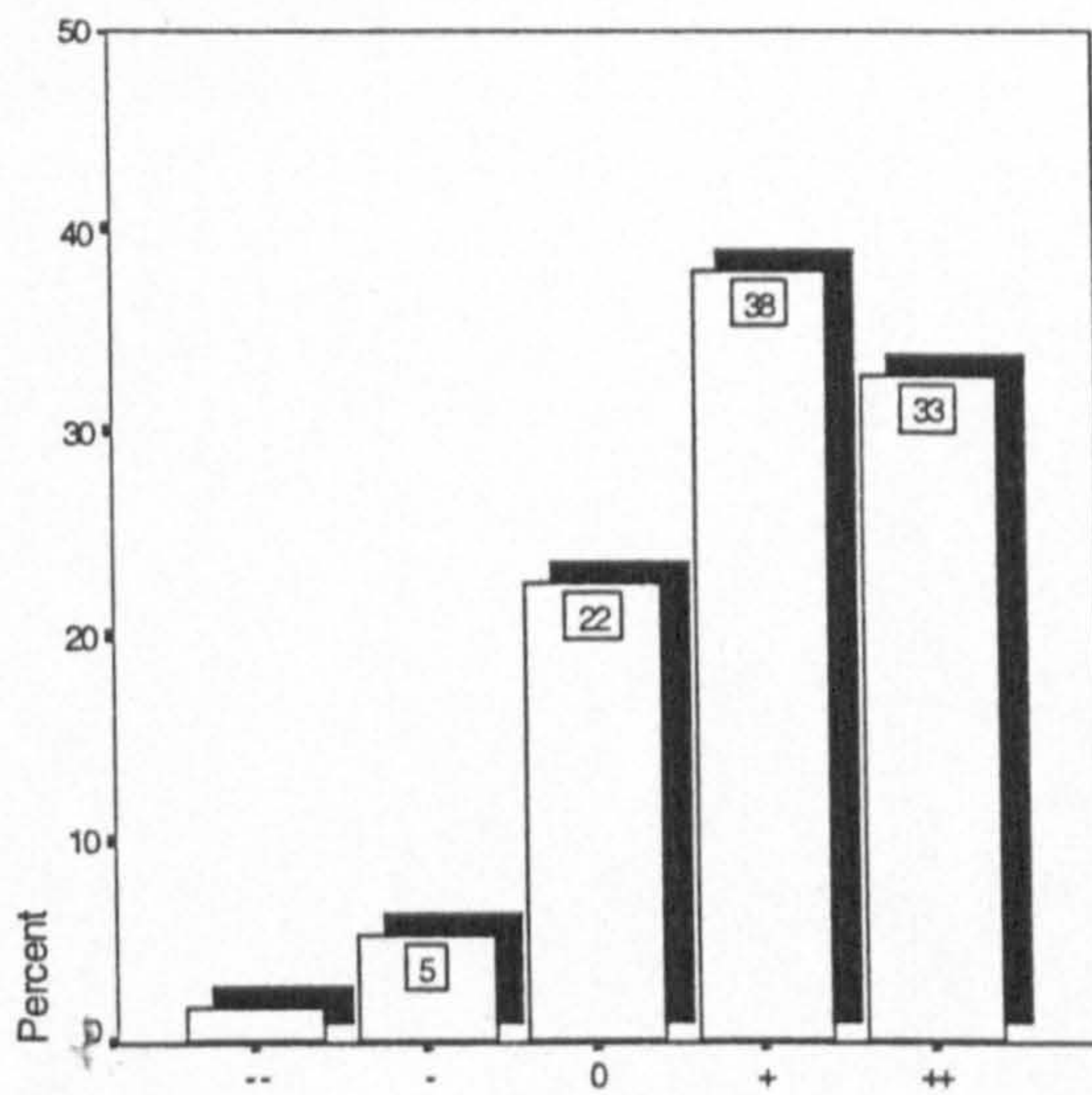


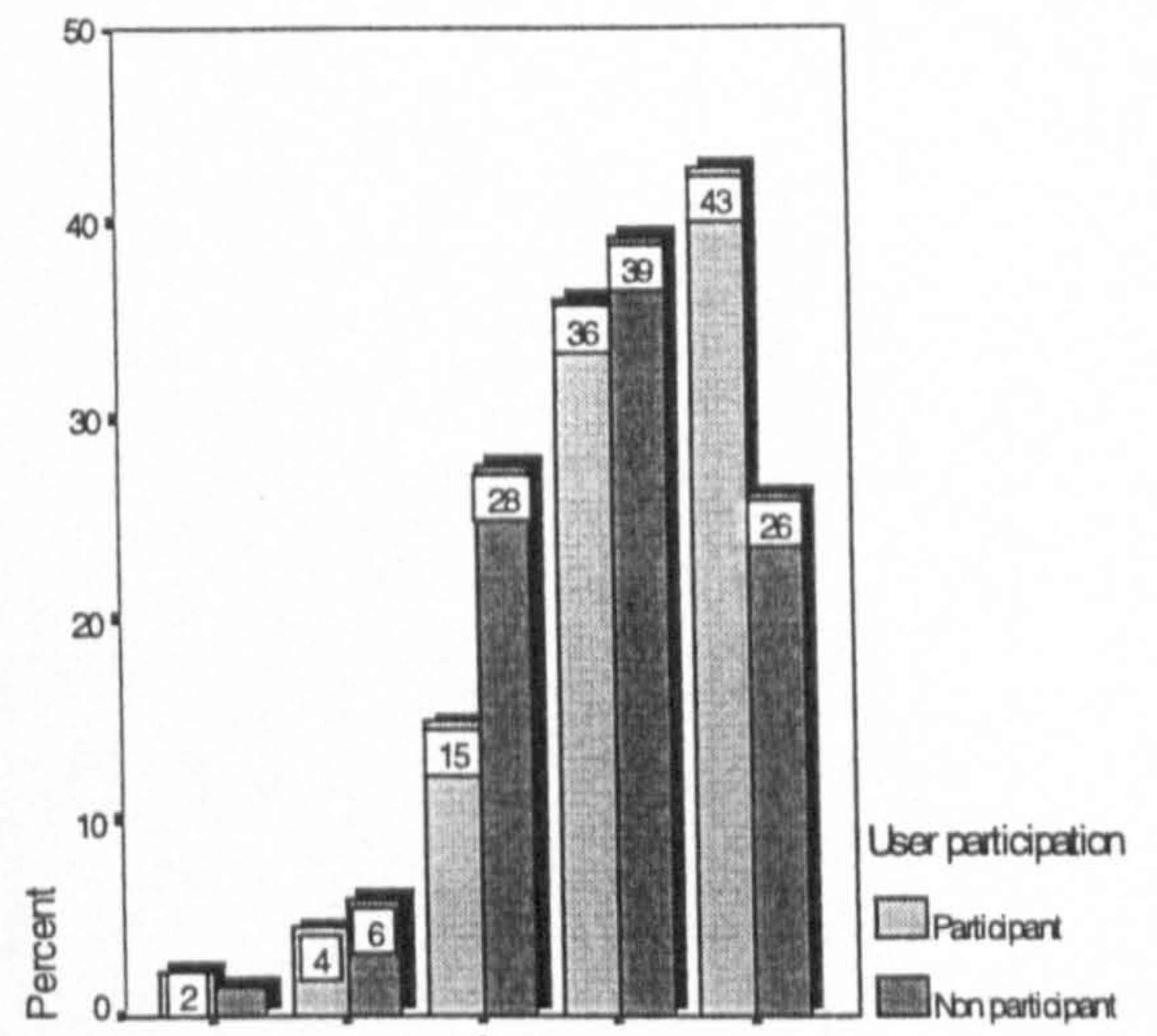
Figure E.32: Responses to the ease of finding one's way at SCC's plazas and open spaces.

Such finding is consistent with the responses regarding the availability of visual clues in plazas and open spaces. Both sub-sample groups considered these urban elements of SCC to have, "of a great deal", visual features that act as visual clues which help respondents find their way in SCC (Figure E.33).





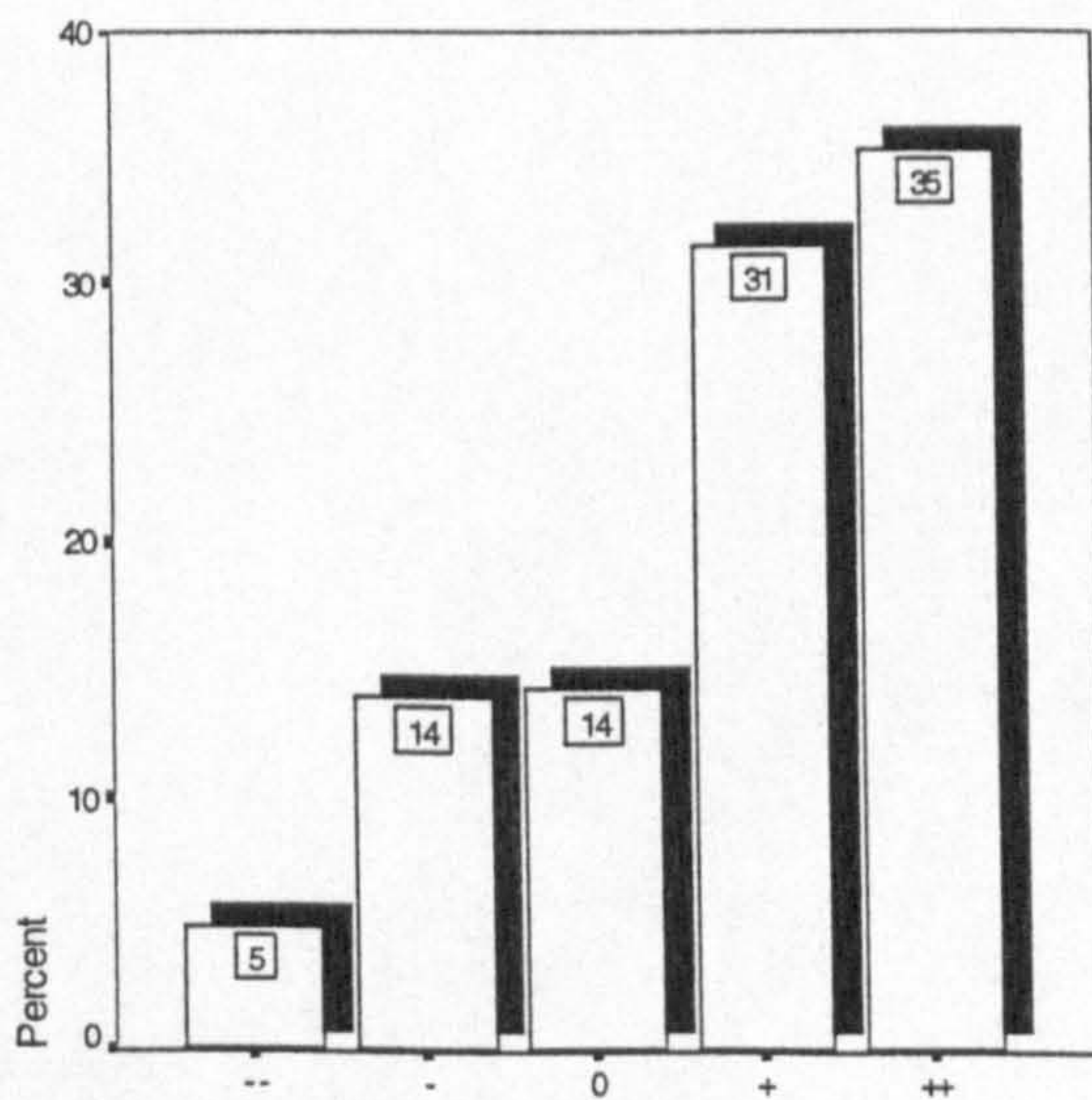
a. General response.  
(MEAN=3.94).



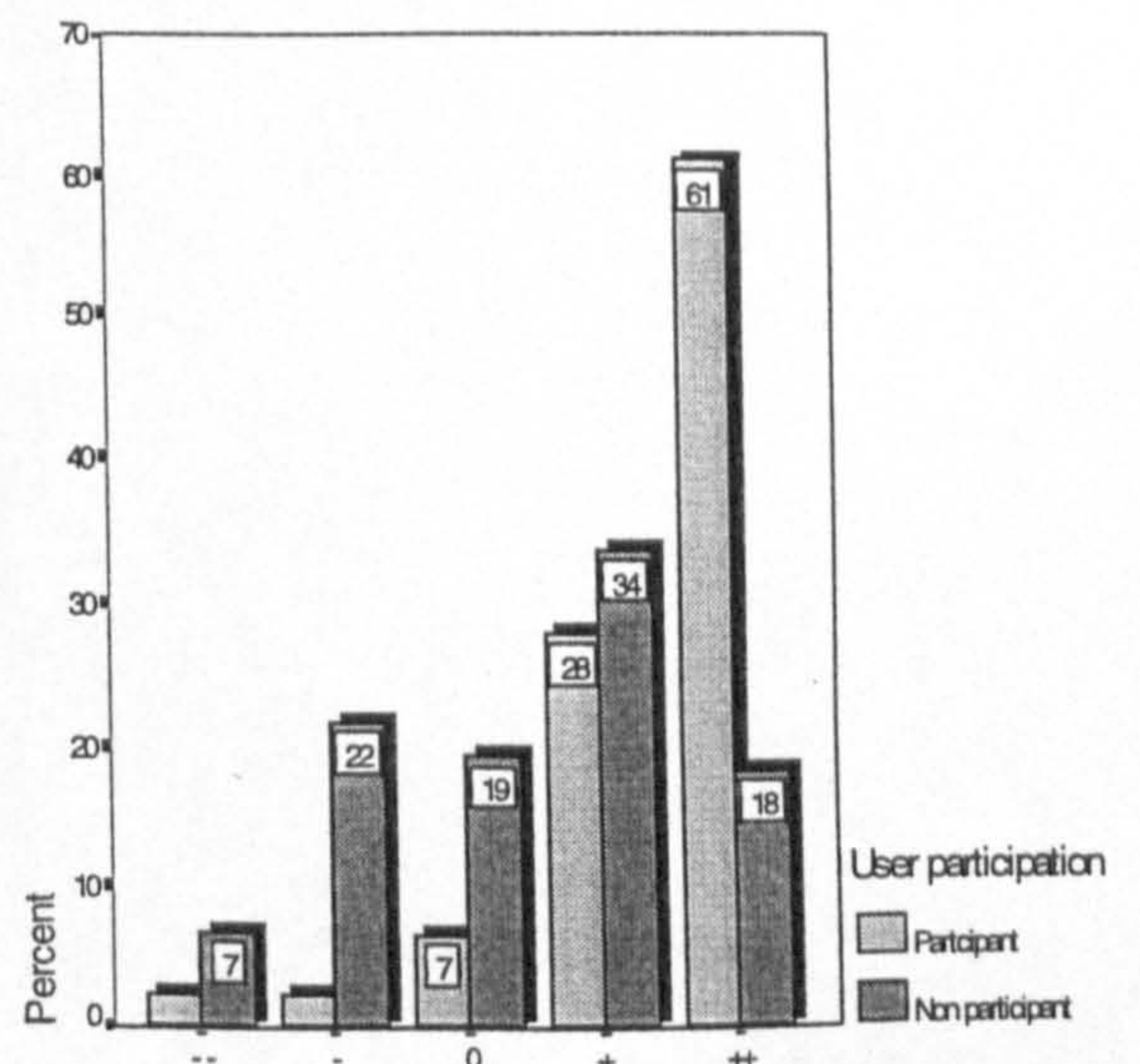
b. Responses of sub-sample groups.

Figure E.33: Responses to the availability of visual clues at SCC's plazas and open spaces.

Regarding the ease of finding one's way at SCC's pedestrian streets and stairways, the average responses (MEAN=3.78) were slightly lower than that for plazas and open spaces (Figure E.34). The majority of responses of the participants (61%), however, considered that it is much easier to find one's way at pedestrian streets and open spaces than that at plazas and open spaces (51%). On the contrary, only 18% of the non-participants rated the first scale when evaluating the ease of finding one's way at pedestrian streets and stairways. The responses found to be consistent with those rating the availability of visual clues at these urban elements (Figure E.35).



a. General response.  
(MEAN=3.78).



b. Responses of sub-sample groups.

Figure E.34: Responses to the ease of finding one's way at SCC's pedestrian streets and stairways.



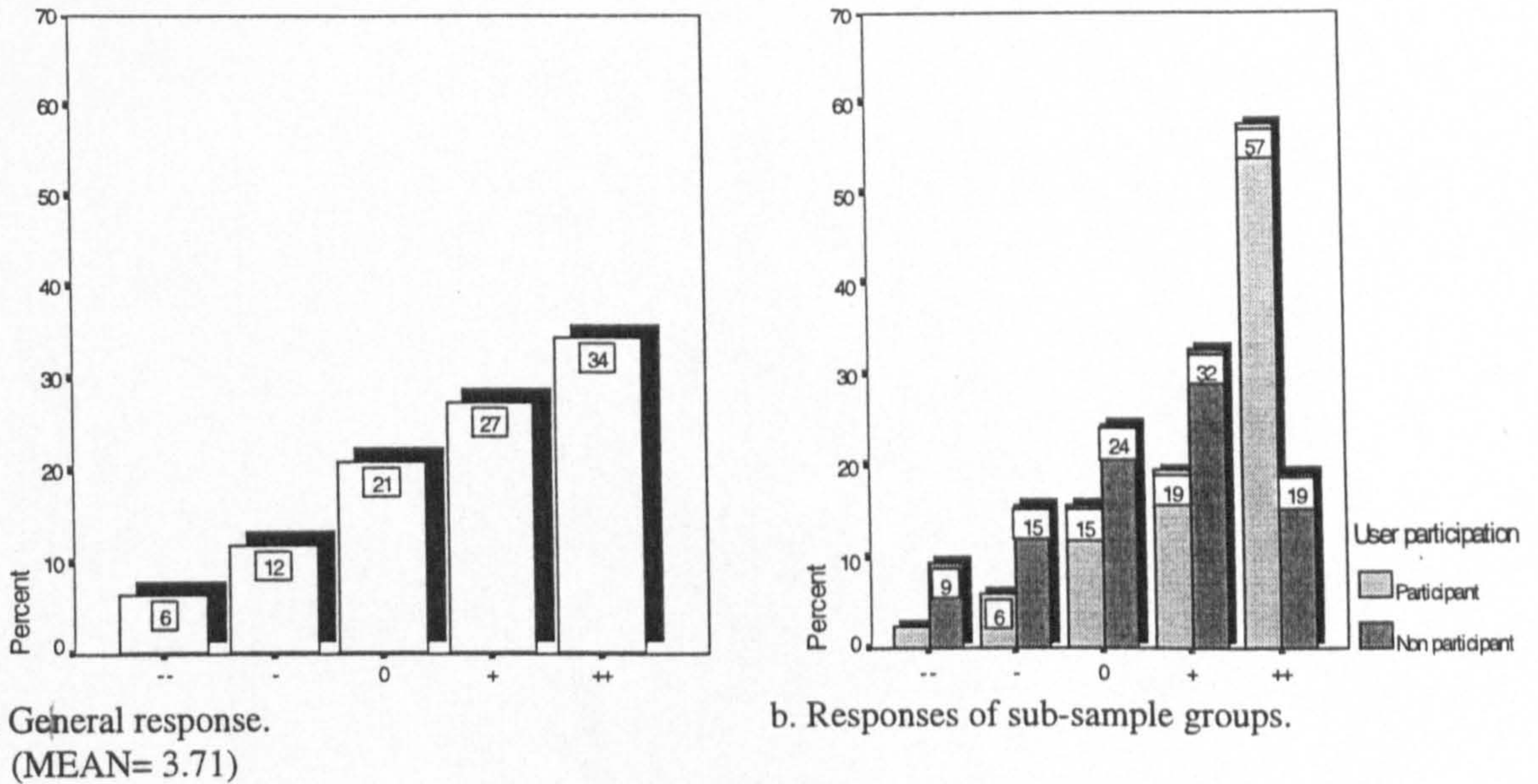


Figure E.35: Responses to the availability of visual clues at SCC's pedestrian streets and stairways.

The average responses (MEAN=3.95) considered finding one's way at SCC's vehicular streets to be the easiest among all other tested key physical elements (Figure E.36). Agreement was found between the majorities of responses of both sub-sample groups. Both majorities fell in the second positive scale point.

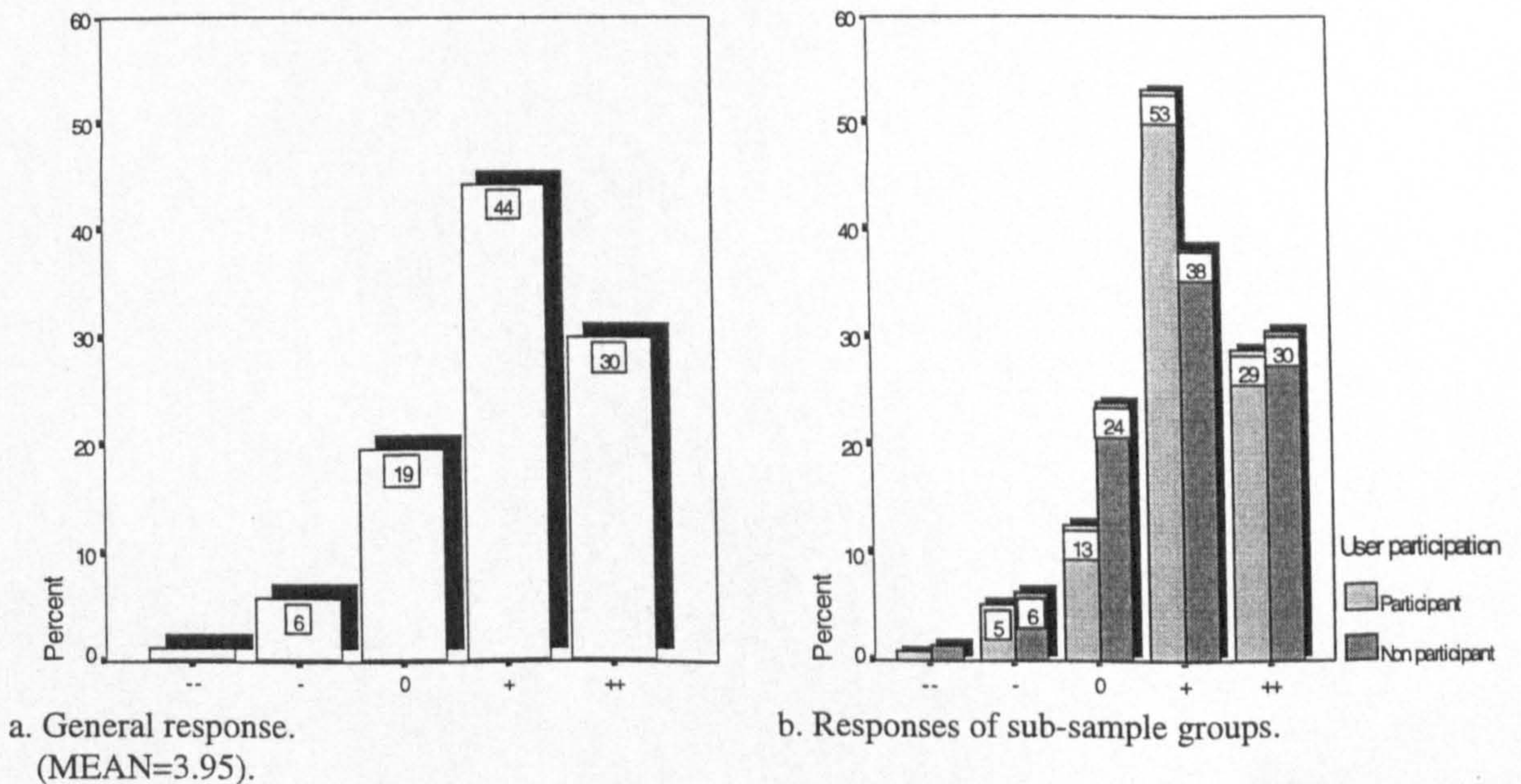
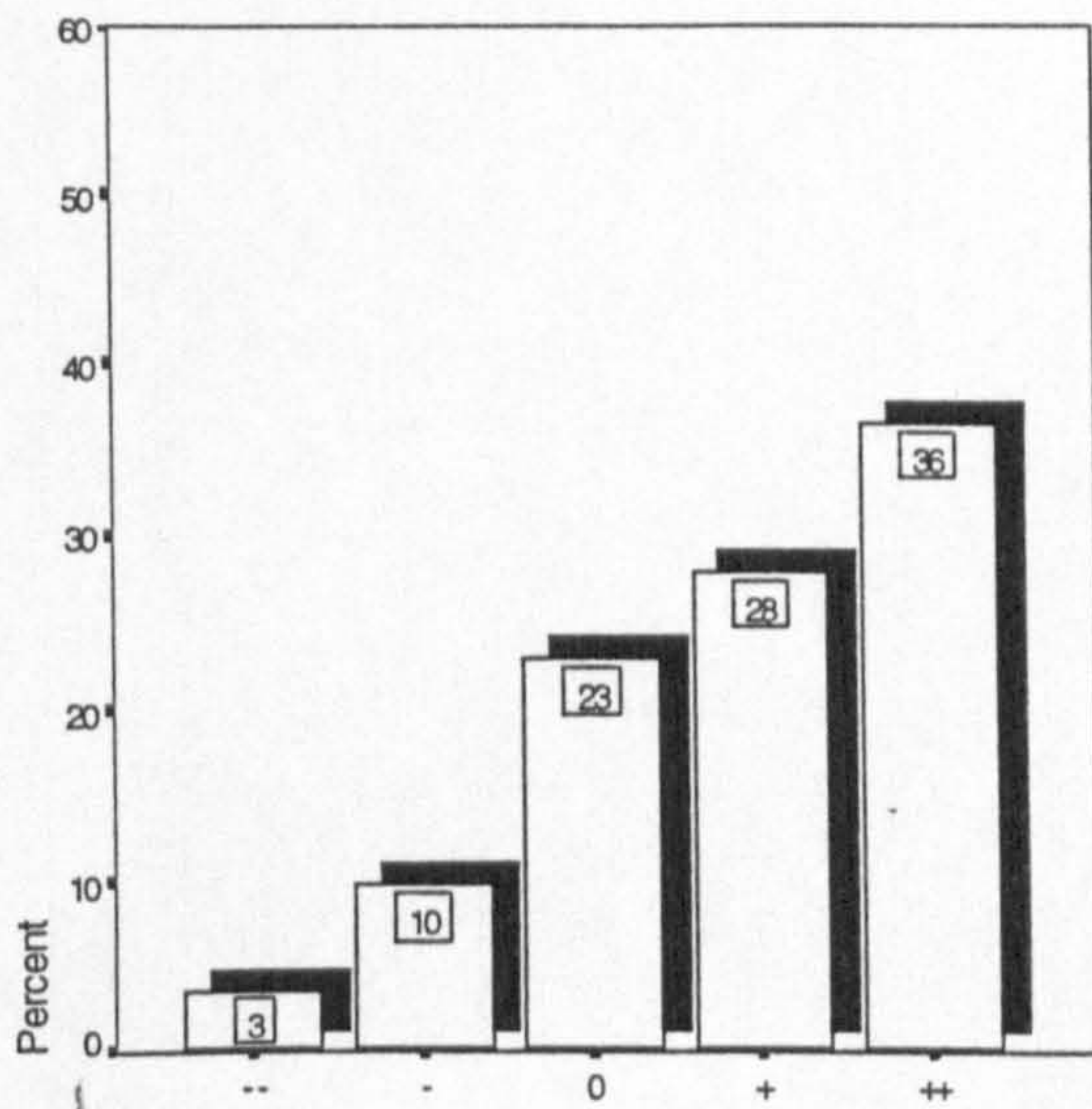


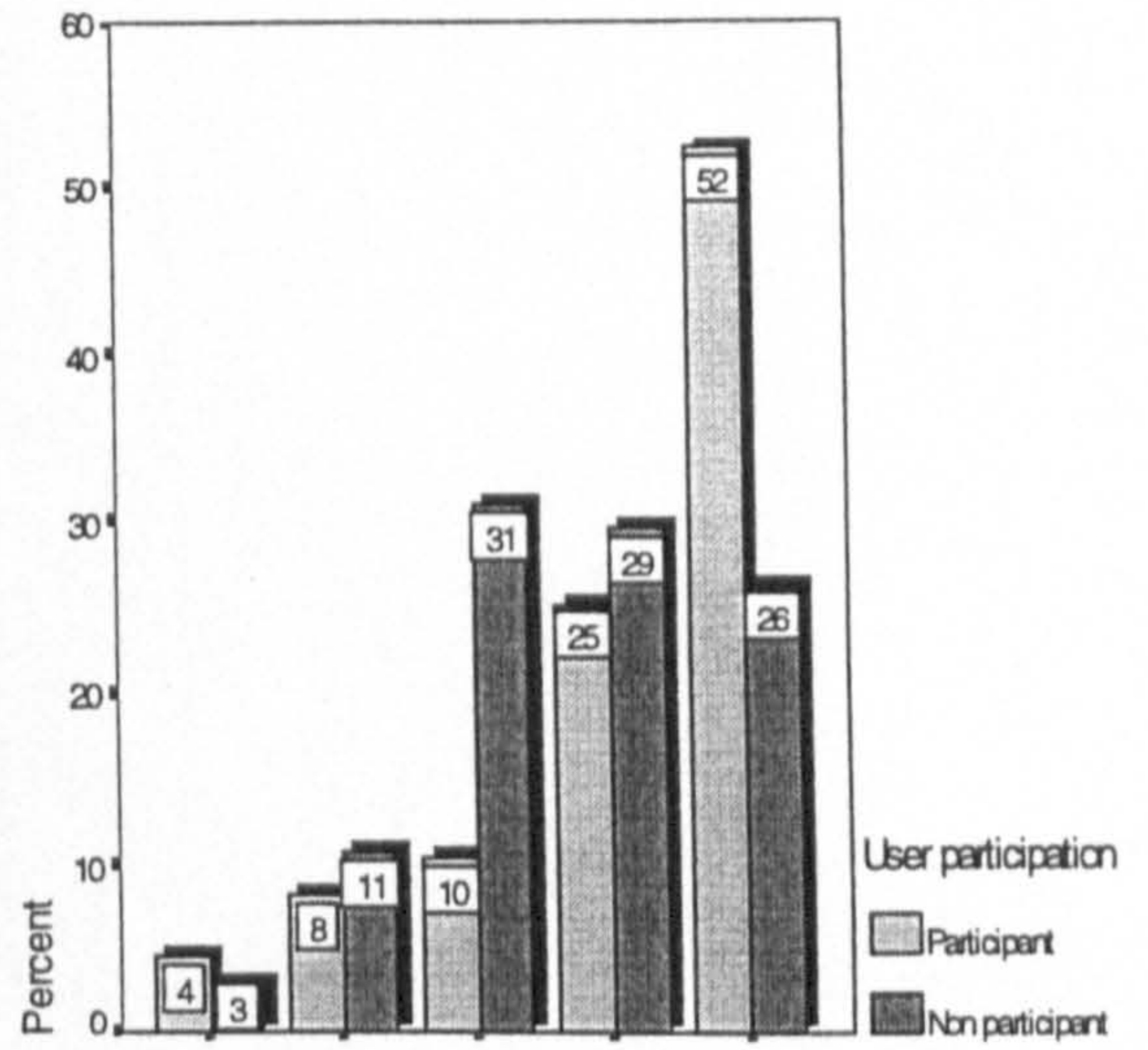
Figure E.36: Responses to the ease of finding one's way at SCC's vehicular streets.

Regarding the availability of visual clues in vehicular streets, the average response (MEAN=3.84) is slightly less than that when considering the ease of finding way (Figure E.37). However, most of the responses are shifted to the first positive scale point.





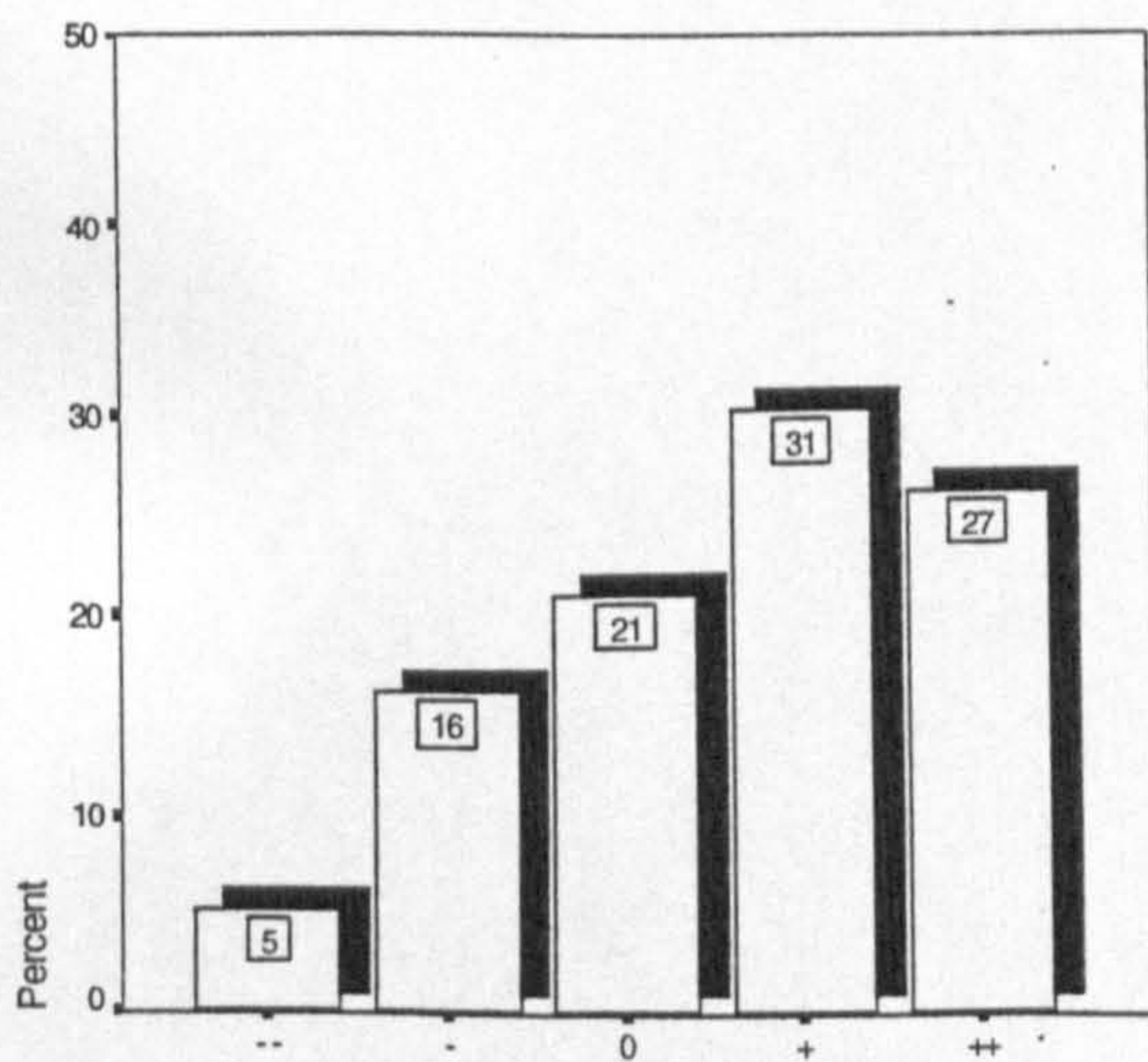
a. General response.  
(MEAN=3.84).



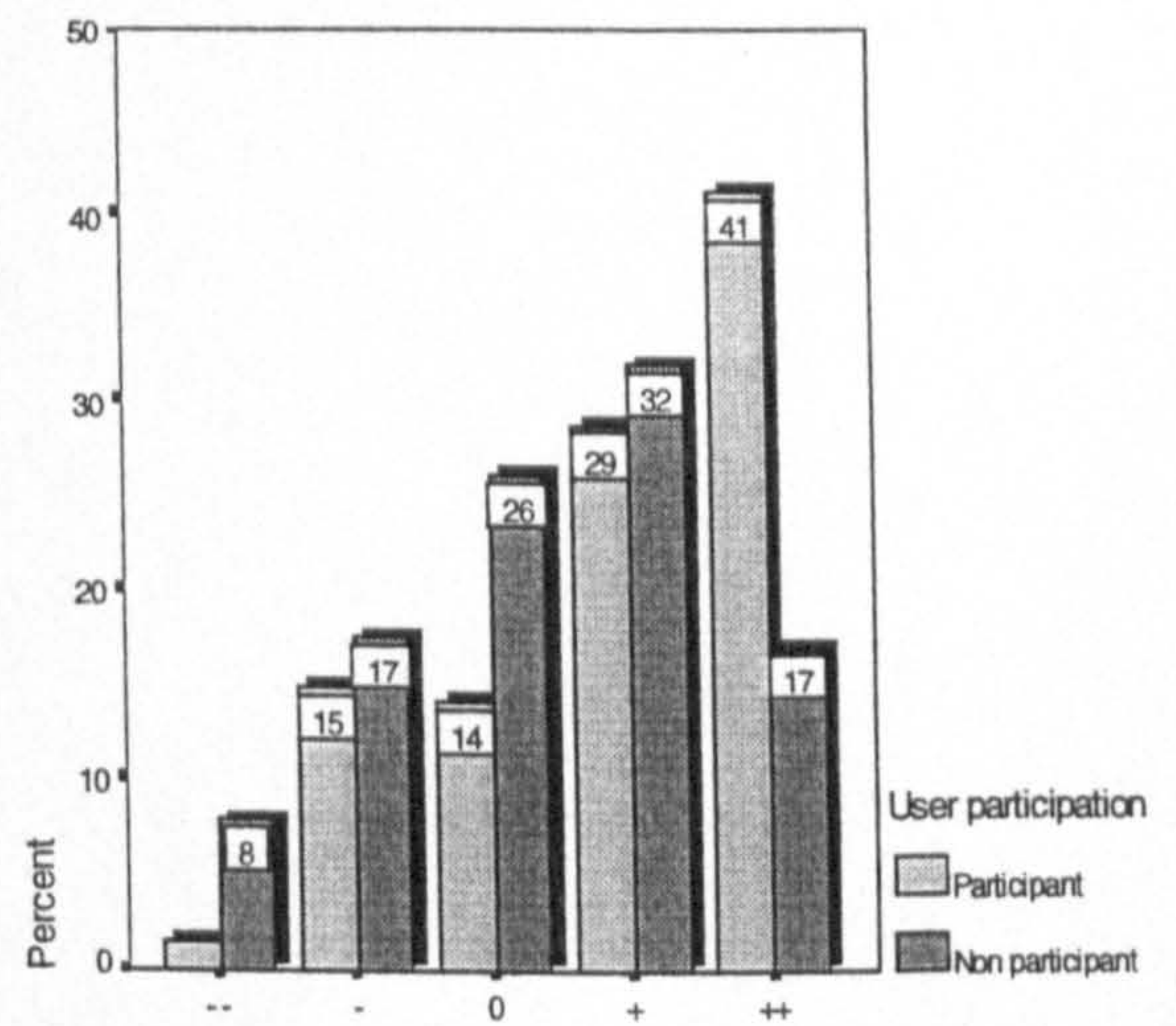
b. Responses of sub-sample groups.

Figure E.37: Responses to the availability of visual clues at SCC's vehicular streets.

These results indicate that the user's sense of spatial orientation in SCC is remarkably high. The results are also consistent with those of Question 1.5 which concerns the overall spatial orientation of the area. The average responses (MEAN=3.57) support the conclusion that it is unusual to get lost in SCC (Figure E.38).



a. General response.  
(MEAN=3.57).



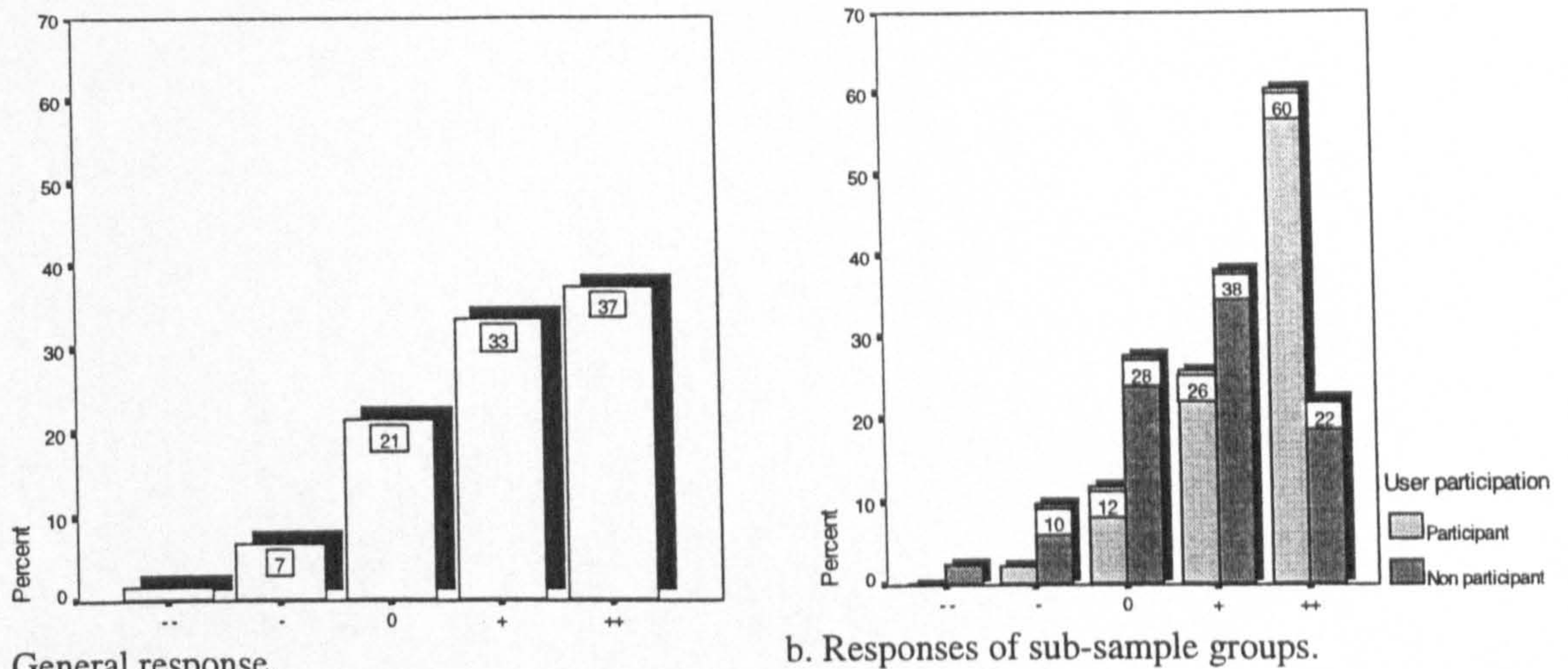
b. Responses of sub-sample groups.

Figure E.38: Responses to the overall spatial orientation at SCC.

**Variable: Visual Inertia - Question 1.12:**

In this question the respondents were asked to rank their opinions regarding the ability of SCC's urban pattern to accommodate vital, lively and vigorous activities. The responses (MEAN=3.98) were strongly in favour (Figure E.39).





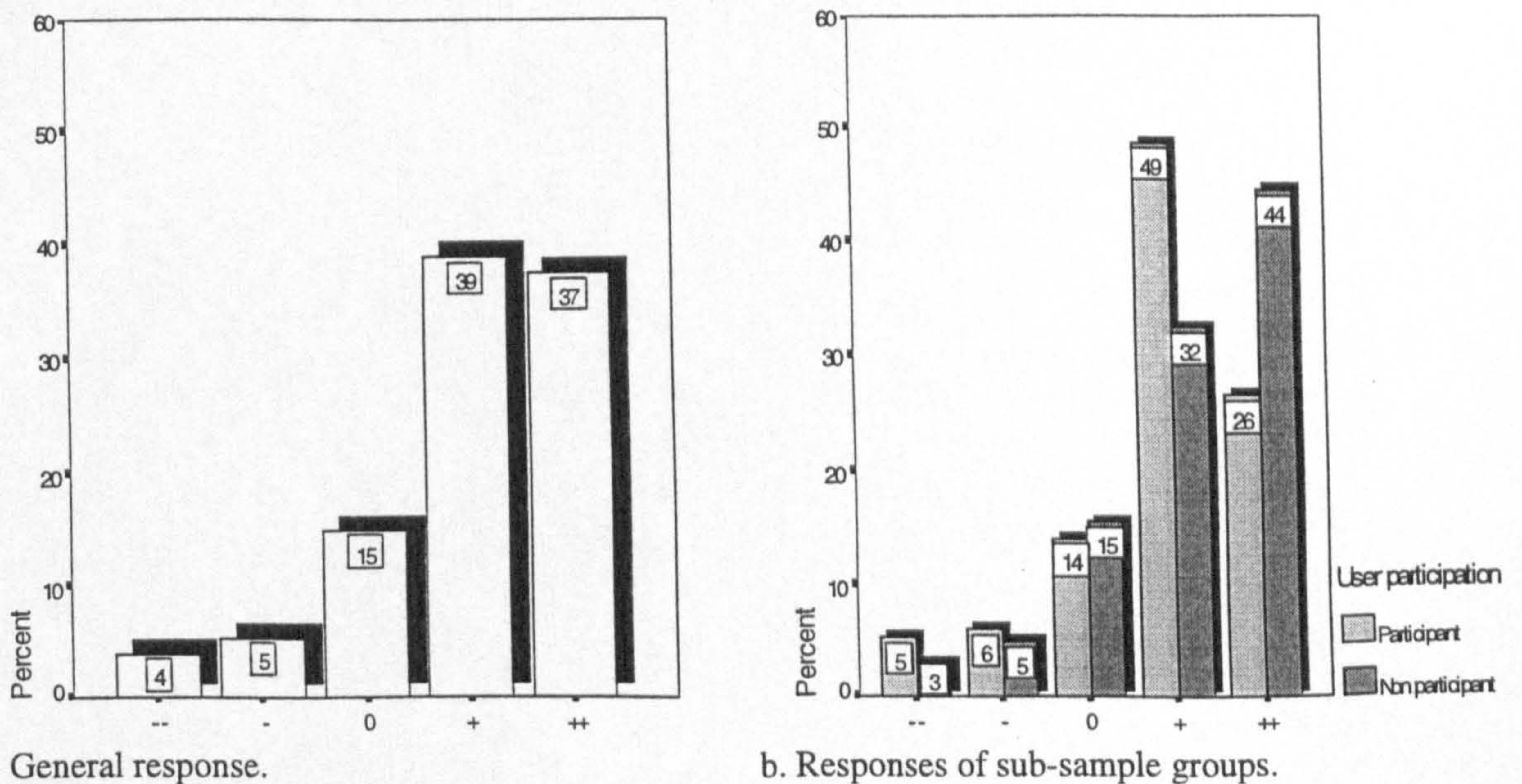
a. General response.  
(MEAN=3.98).

b. Responses of sub-sample groups.

Figure E.39: Responses to the ability of SCC spaces to accommodate vital, lively and vigorous activities.

**Variable: Enclosure - Question 3.A.4:**

The users were asked to rate their opinions regarding the degree of enclosure of SCC's plazas and open spaces. The average responses (MEAN=4.01) showed that they have very clear and definite physical boundaries. Not much difference was found between the responses of the two sub-sample groups. However, the majority of the participants tended to rate the second positive scale point, whereas that of the non-participants rated in the first positive scale point (Figure E.40).



a. General response.  
(MEAN=4.01).

b. Responses of sub-sample groups.

Figure E.40: Responses to the physical boundaries of plazas and open spaces.

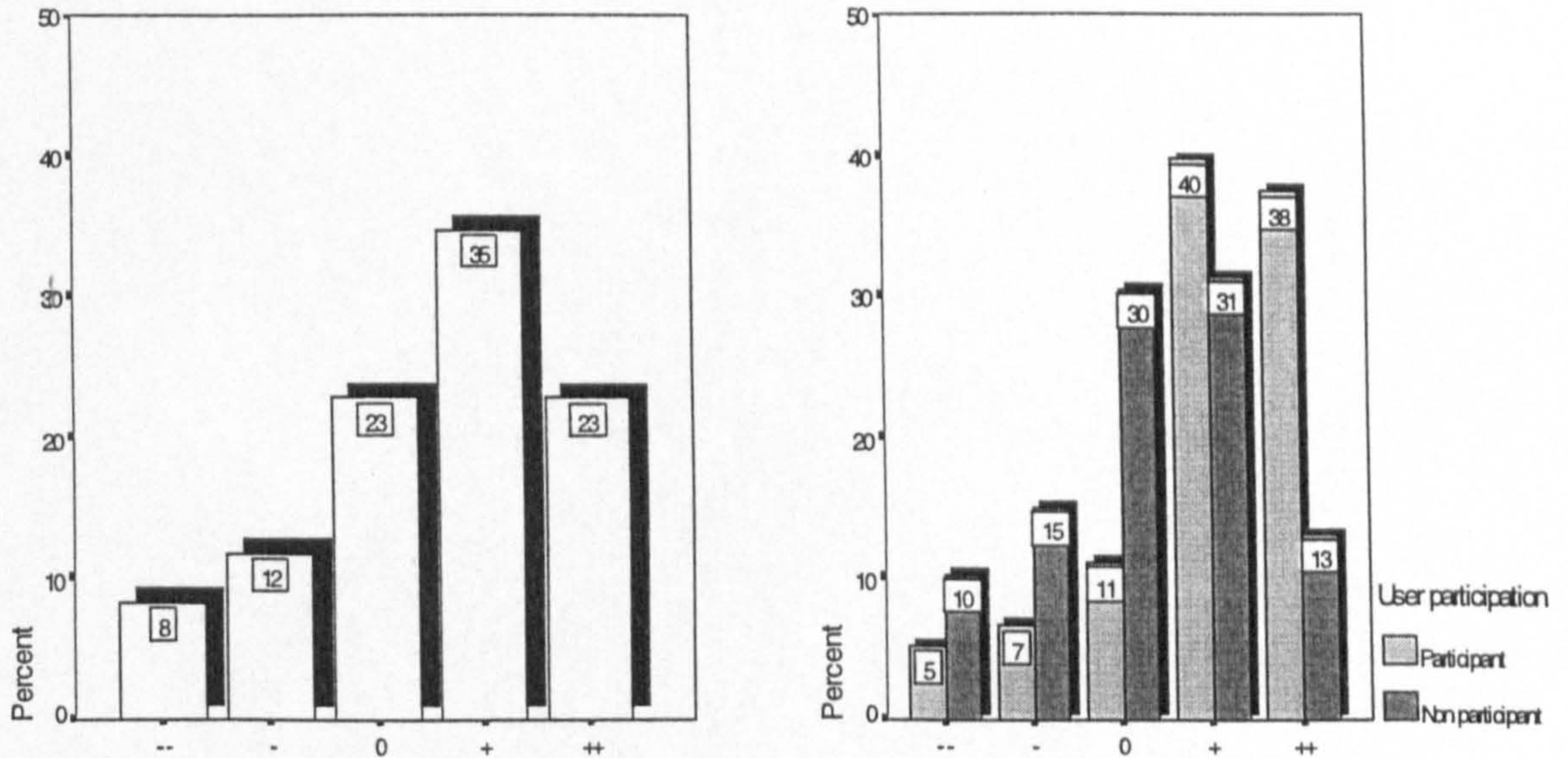
**E.2.5 Responses Toward Fitness**

Fitness as a visual dimension referred to the degree to which the area matches and fits the natural and the built environments:



**Variable: Fitness with the Natural Environment -  
Questions 1.8, 3.D.8, 3.D.9 and 1.4:**

The respondents were asked four questions regarding the natural environment of SCC. In the first question users were asked to rate their impressions regarding the degree to which SCC's urban pattern matches and fits its topography and landform. The average responses (MEAN=3.52) considered a high match and fit of SCC's urban pattern and landform (Figure E.41).

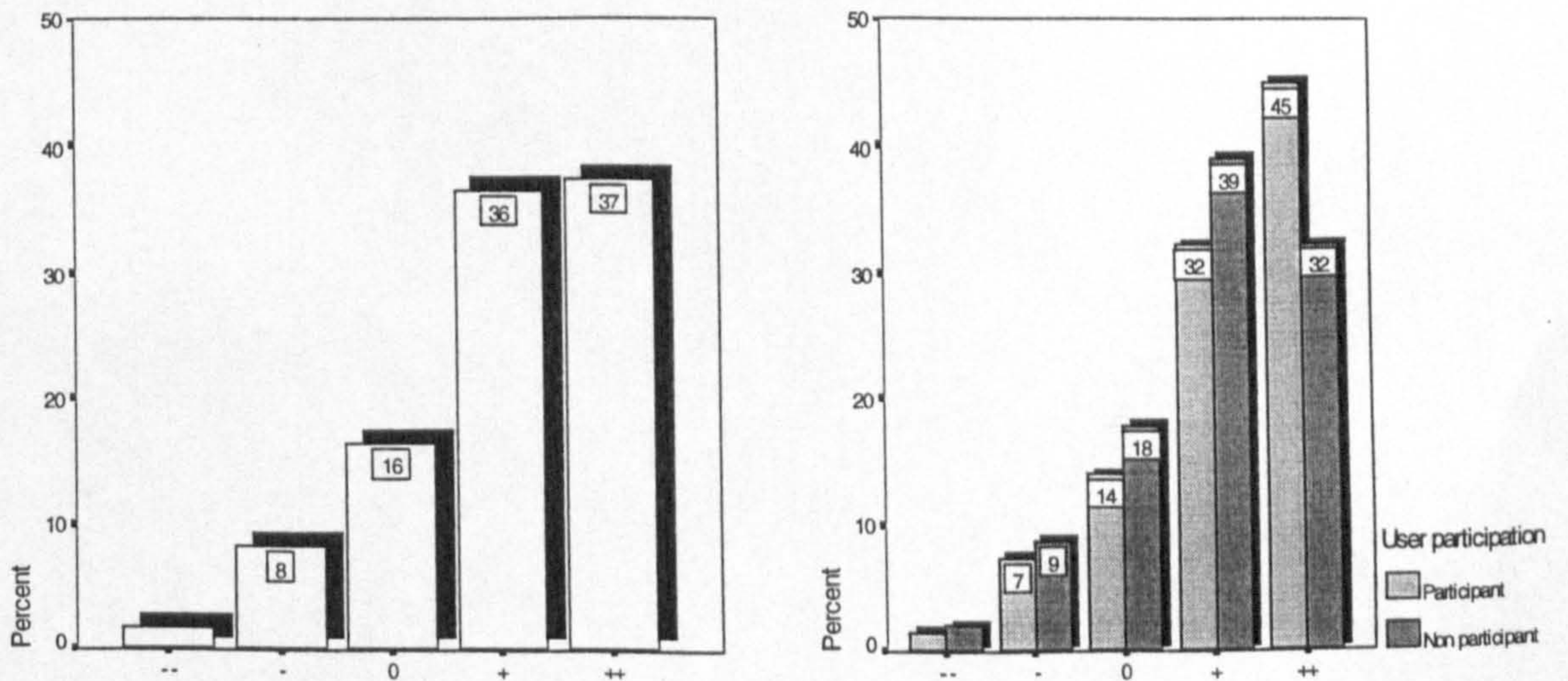


a. General response.  
(MEAN=3.52).

b. Responses of sub-sample groups.

Figure E.41: Responses to the degree to which SCC's urban pattern match its topography.

In another two separate questions (Questions 3.D.8 and 3.D.9), users were asked to rate their responses regarding the degree to which SCC's old and new buildings match and fit its topography and landform. The average responses rated the old buildings to match SCC's topography and landform remarkably more than new buildings (Figures E.42 and 43).

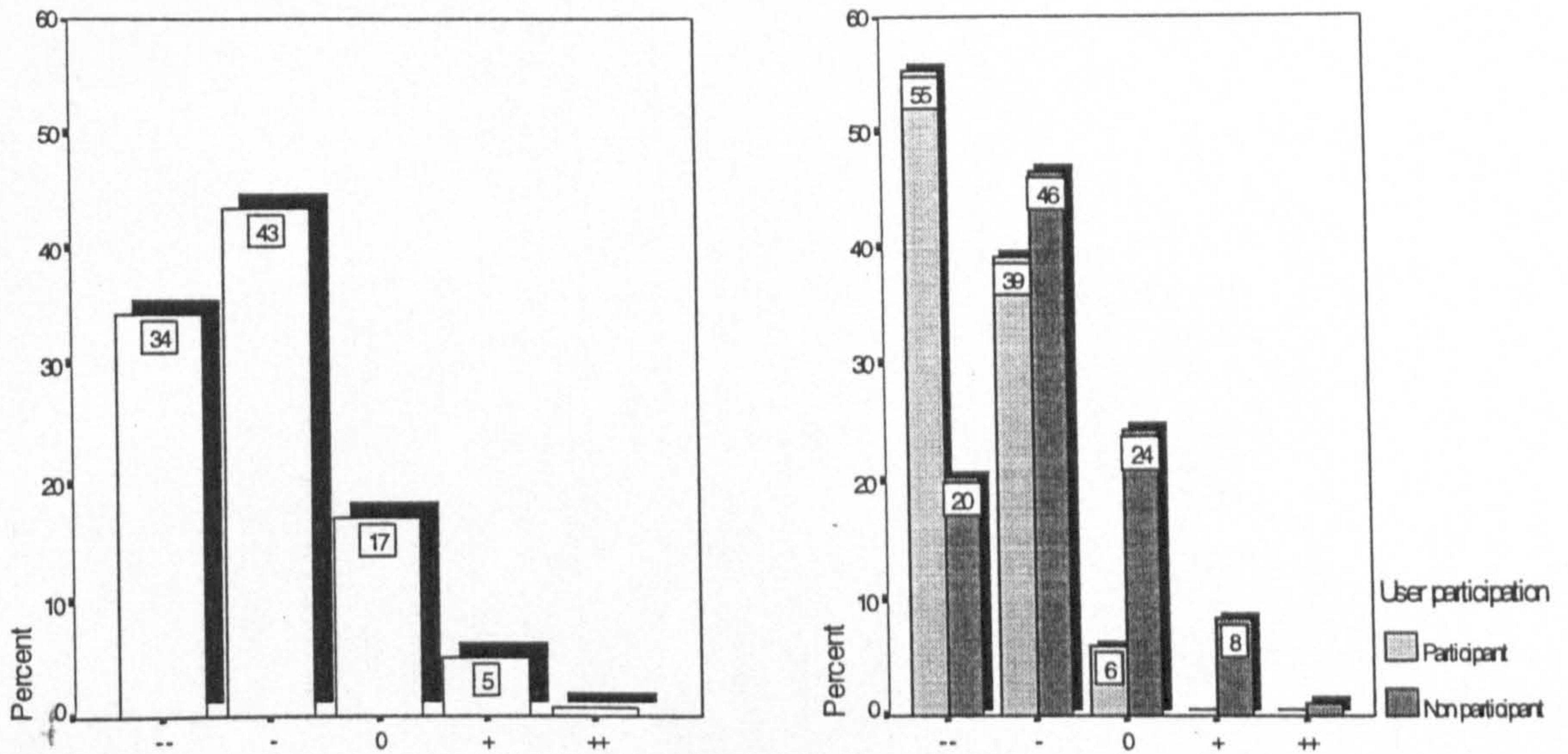


a. General response.  
(MEAN=3.99).

b. Responses of sub-sample groups.

Figure E.42: Responses to the degree to which SCC's old buildings match its topography.



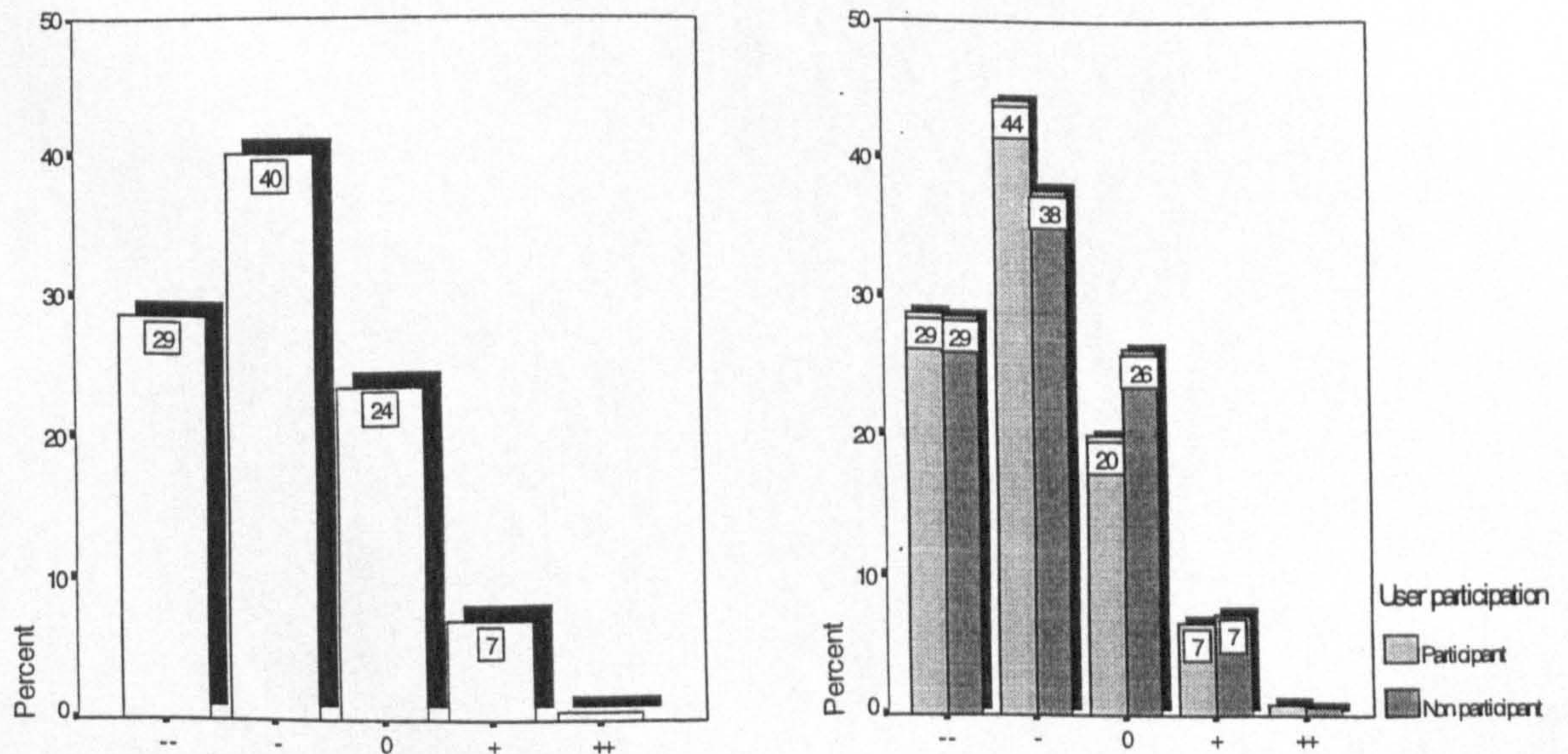


a. General response. (MEAN=1.94).

b. Responses of sub-sample groups.

Figure E.43: Responses to the degree to which SCC's new buildings match its topography.

Another question asked to rate the opinion on the adequacy of the size of the green areas at SCC. The average responses (MEAN=2.11) showed that SCC's green areas are limited (Figure E.44). Correlation and agreement between both sub-samples are obvious. The majorities of both sub-sample groups were rated the second positive scale point.



a. General response. (MEAN=2.11).

b. Responses of sub-sample groups.

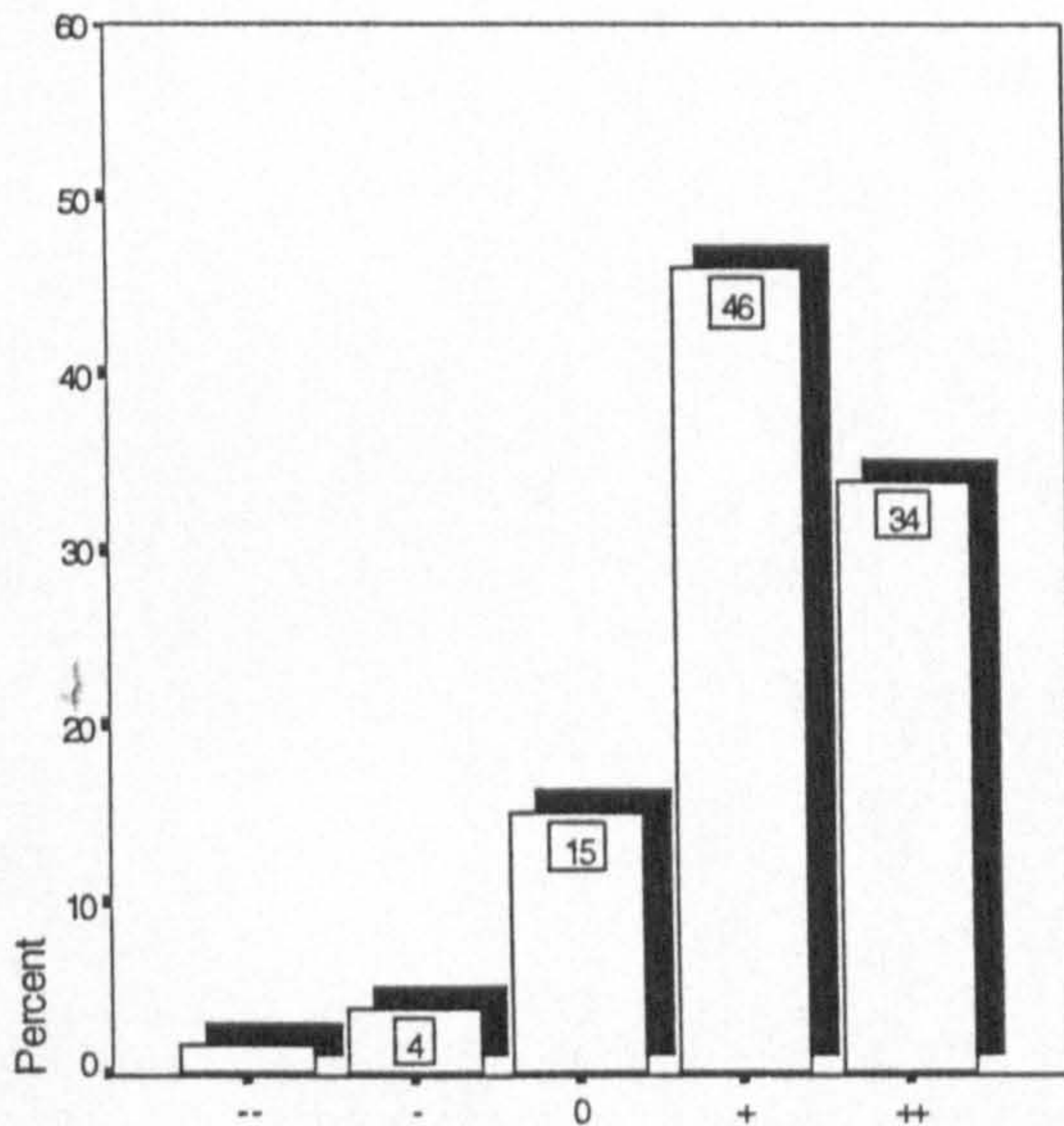
Figure E.44: Responses to adequacy of the size of green areas of SCC.

**Variable: Fitness with the built Environment - Questions 3.D.3, 3.D.4 and 3.D.5:**

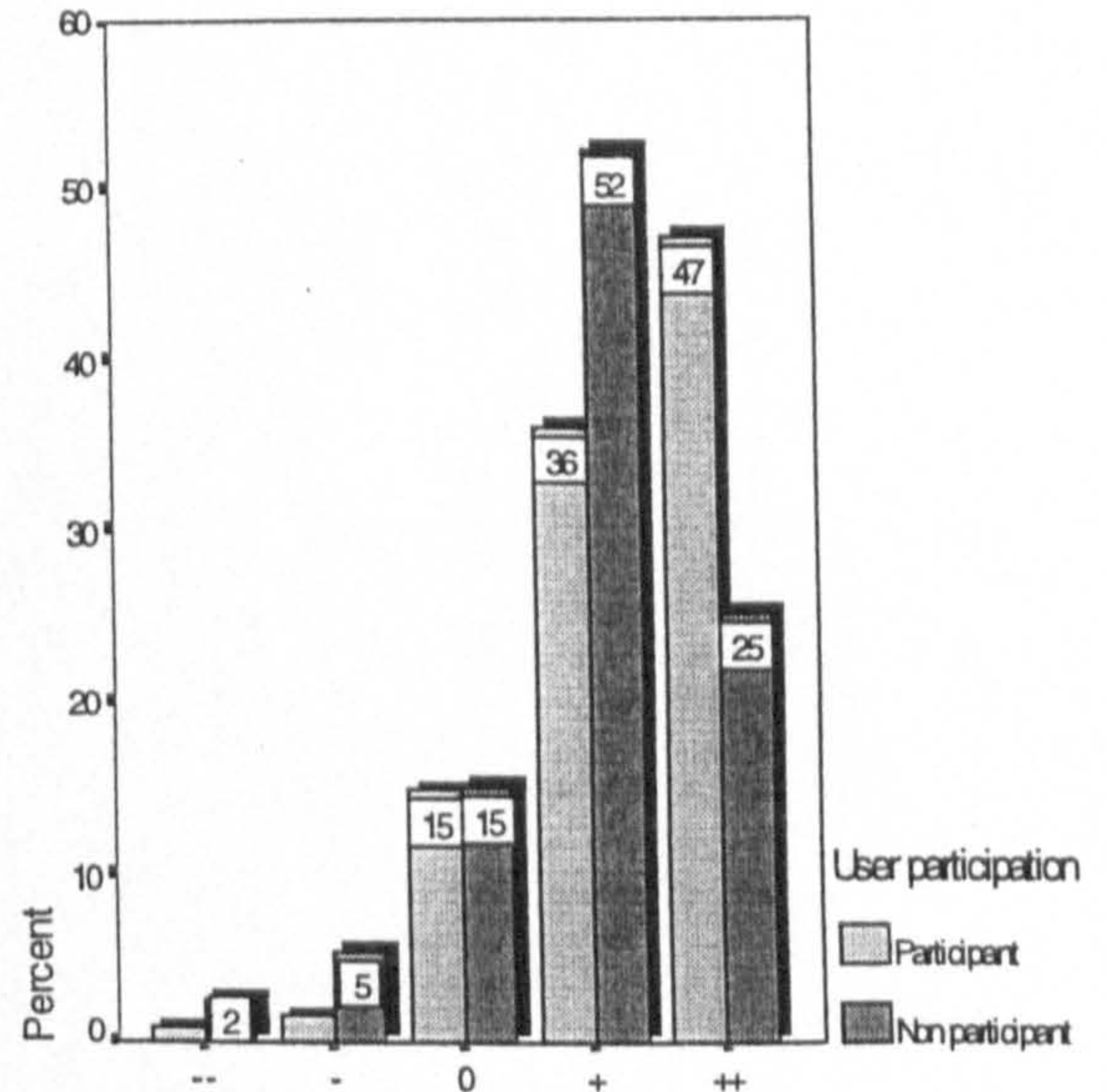
In two separate questions, users were asked to rate their opinions on a five point evaluation scale regarding the familiarity of the components of old and new



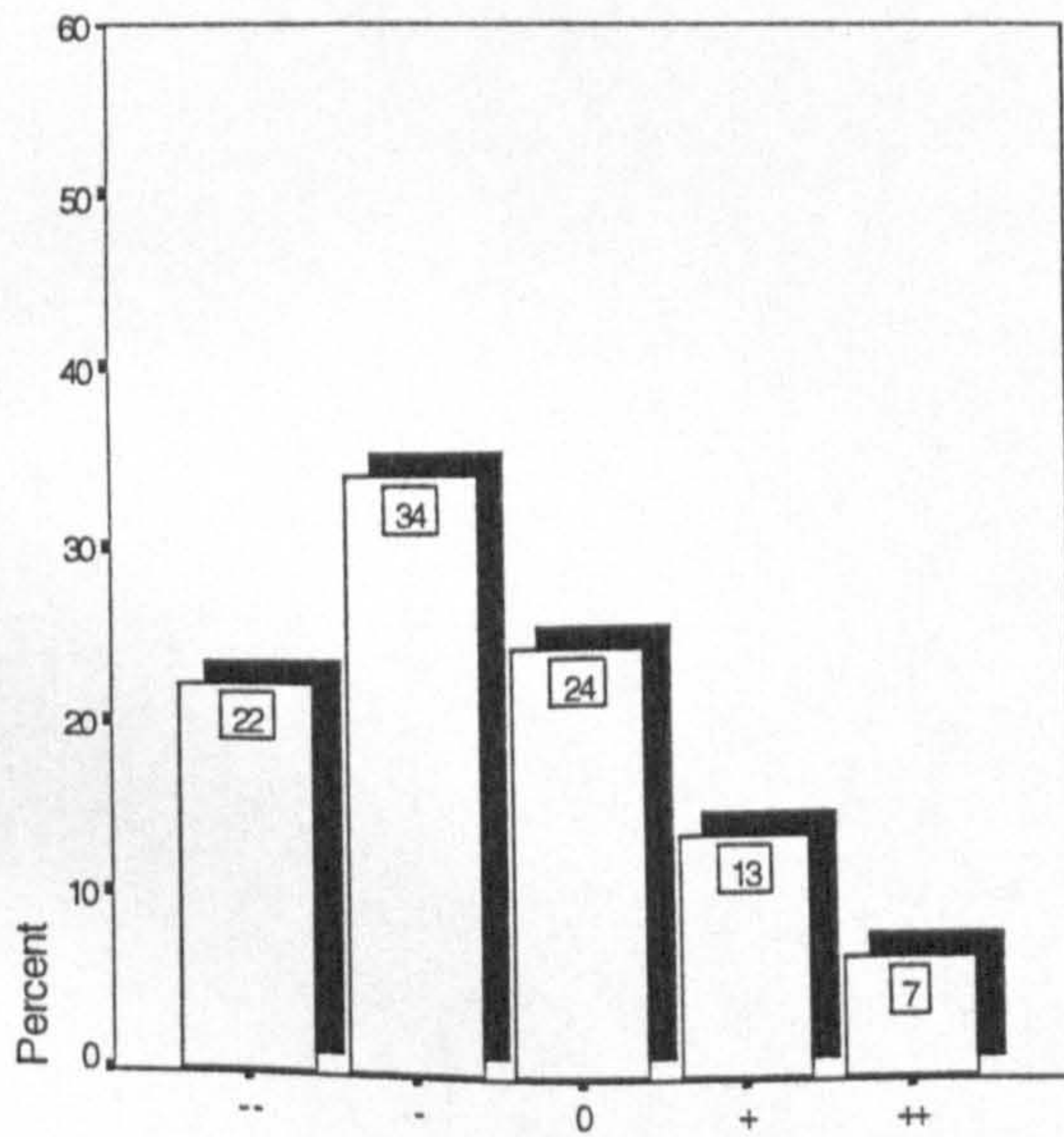
buildings, such as, styles, forms, textures, colours and building materials. The average responses considered old buildings (MEAN=4.06) to have familiar components whereas new buildings (MEAN=2.64) are considered to have unfamiliar components (Figure E.45).



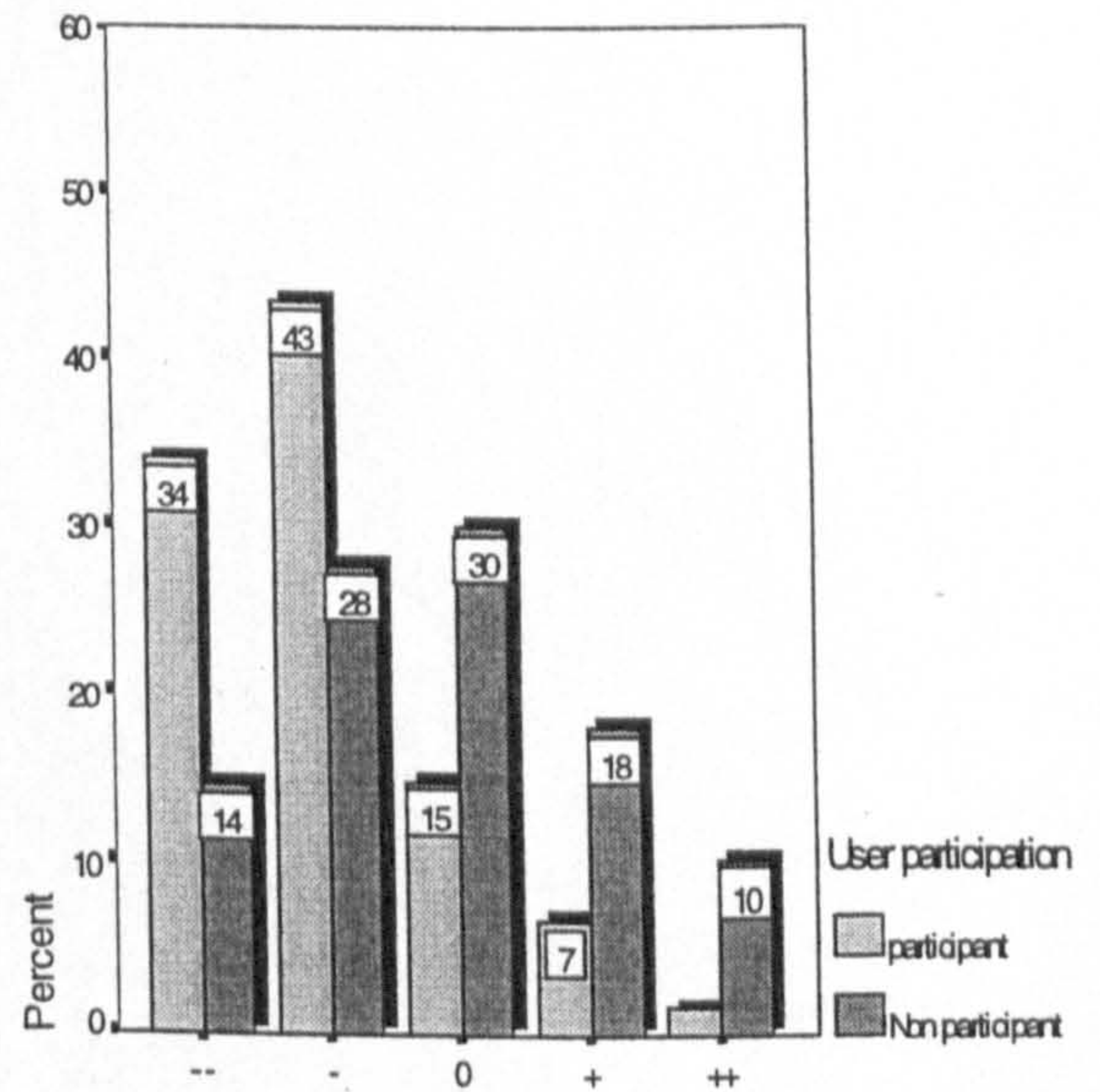
a. General response to old buildings. (MEAN=4.06).



b. Sub-sample responses to old buildings.



c. General response to new buildings. (MEAN=2.49).

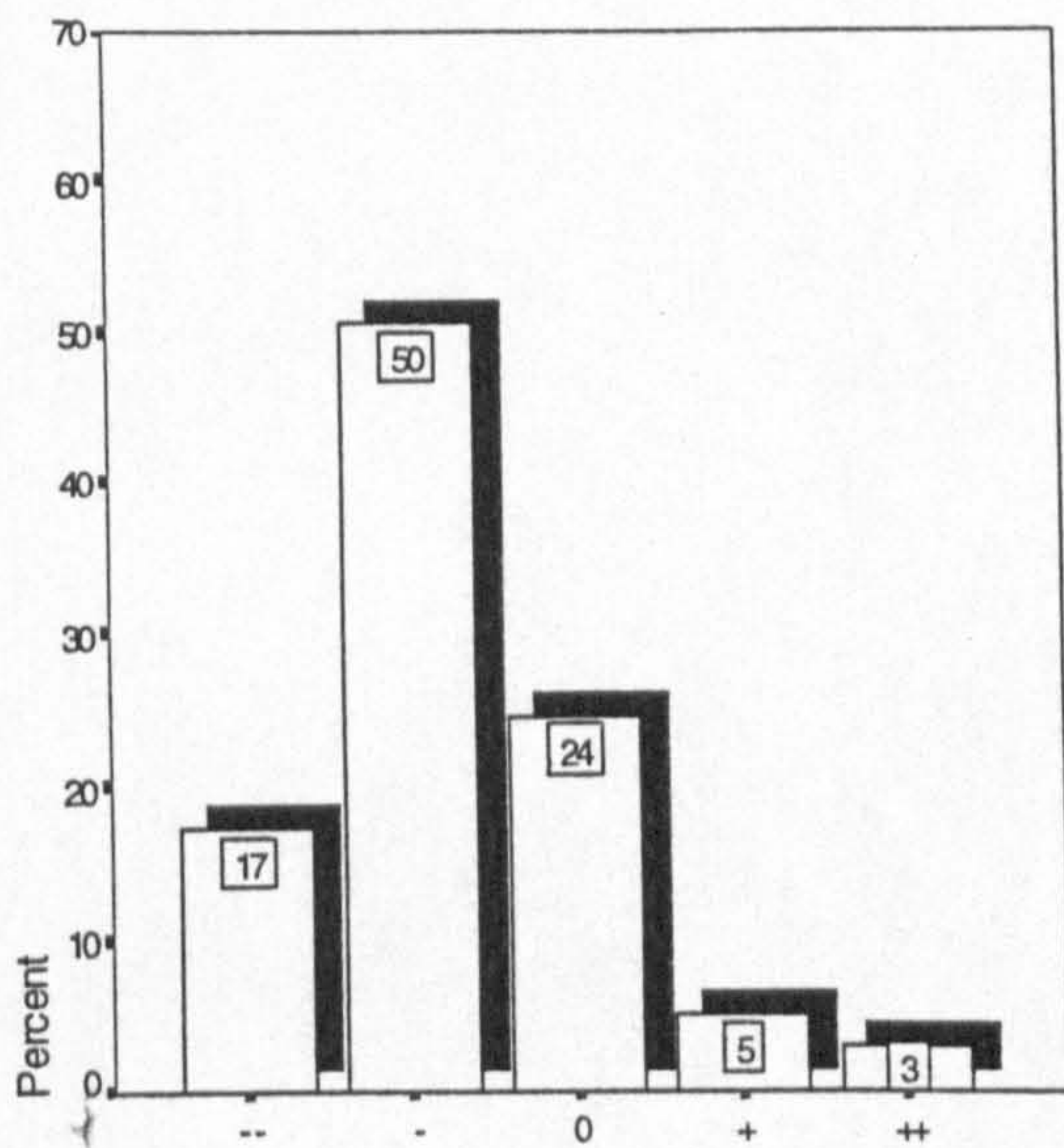


d. Sub-sample responses to new buildings.

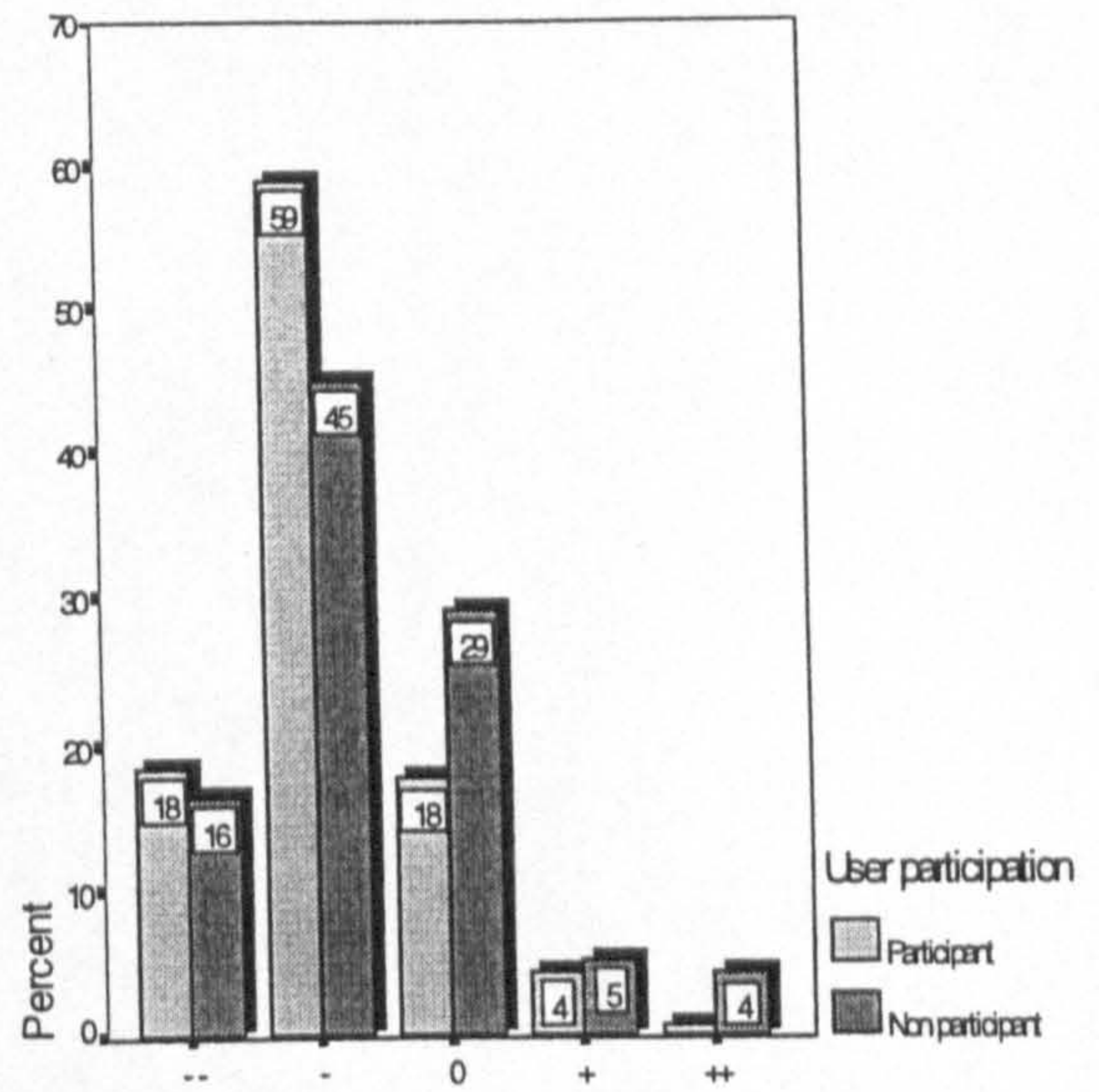
Figure E.45 : Responses to familiarity of components of SCC's buildings.

In another question, the respondents were asked to rate their opinion regarding the degree of similarity of old and new buildings of SCC (Question 3.D.5). The average responses (MEAN=2.26) indicated that the degree of similarity of old and new buildings is below average (Figure E.46).





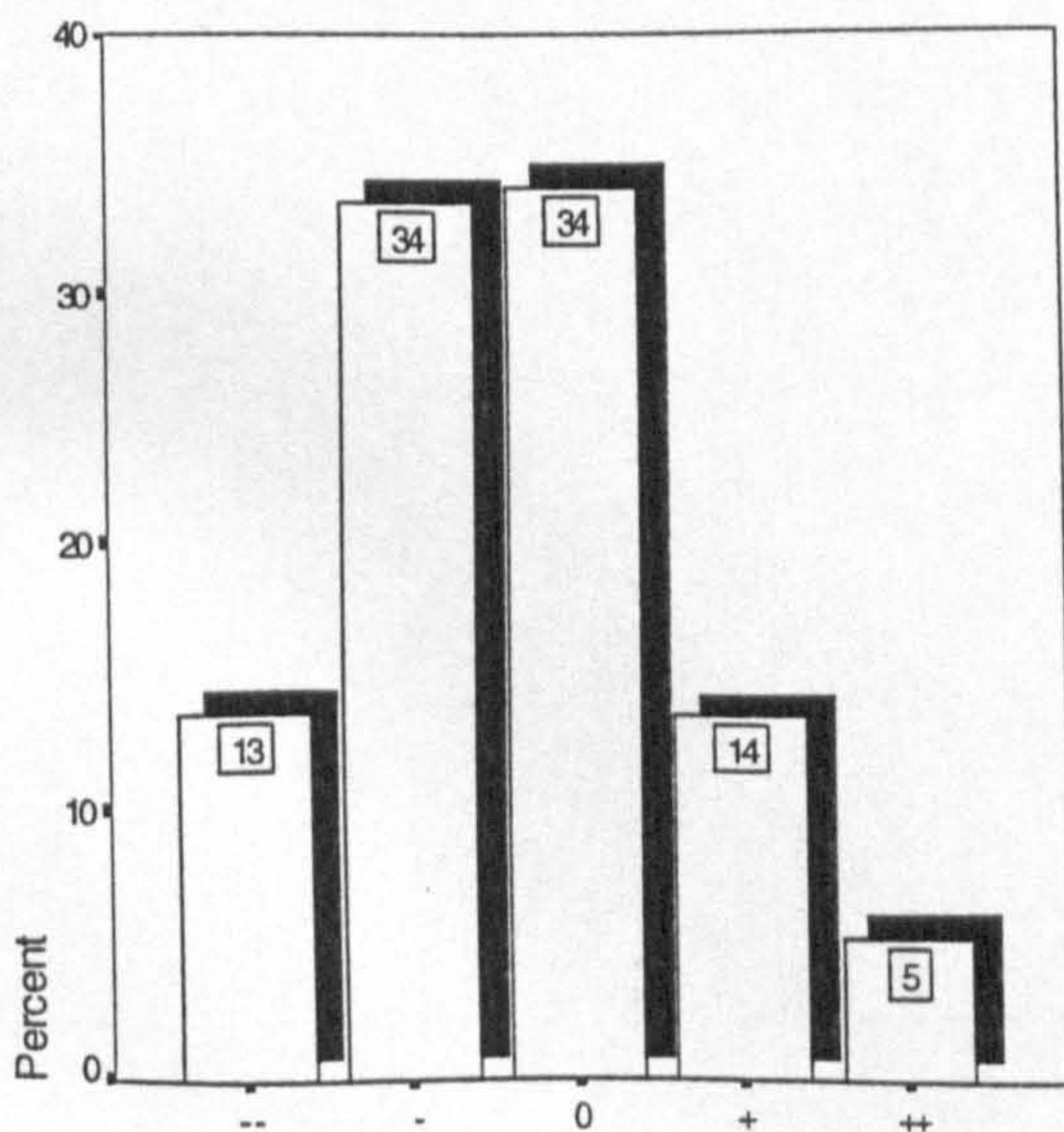
a. General response.  
(MEAN=2.26).



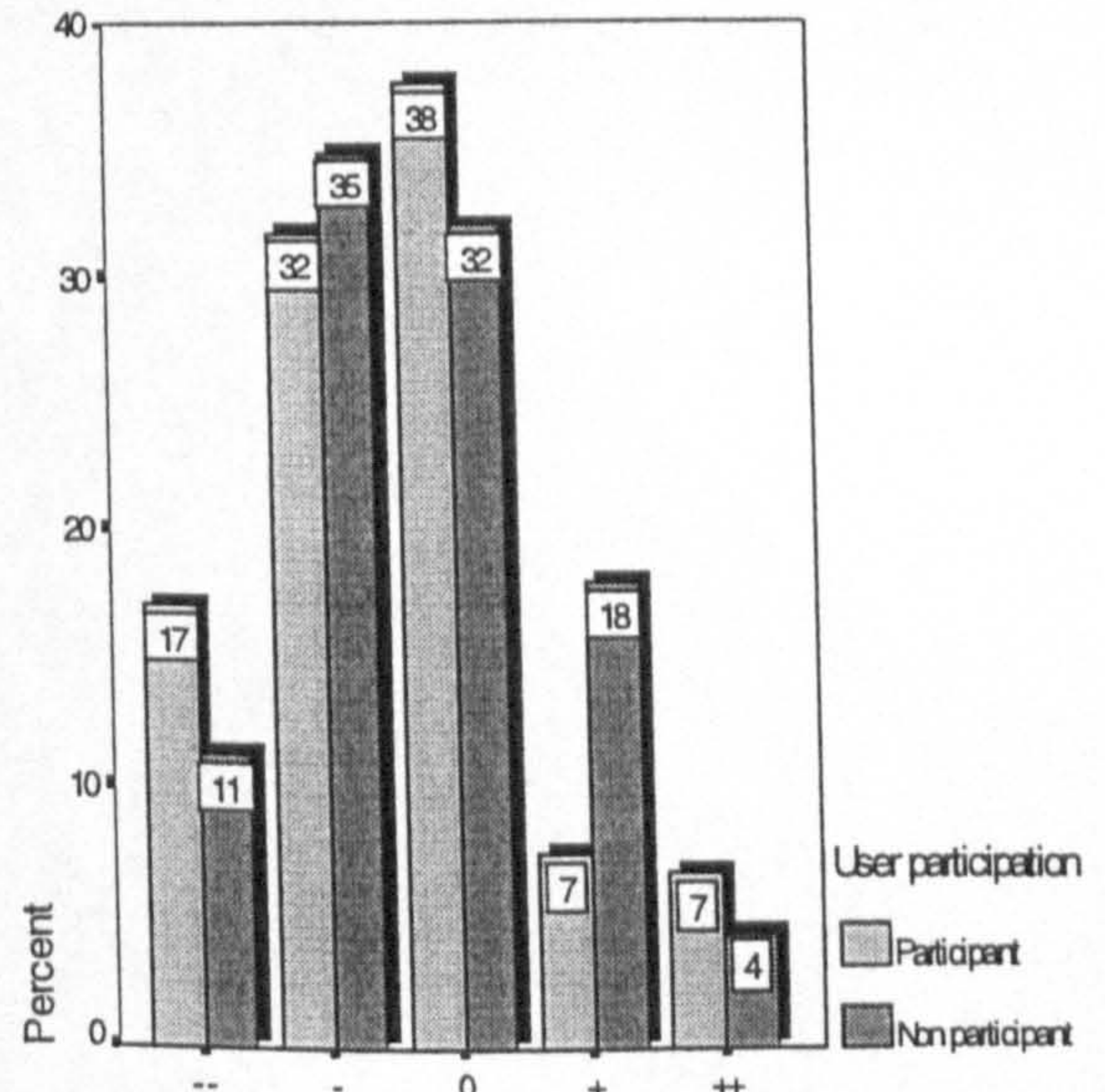
b. Responses of sub-sample groups.

Figure E.46: Responses to the degree of similarity of old and new buildings of SCC.

In their responses to the quality of street furniture of SCC (Question 1.6), the average responses (MEAN=2.64) considered it as unattractive (Figure E.47).



a. General response.  
(MEAN=2.64).



b. Responses of sub-sample groups.

Figure E.47: Responses to the quality of street furniture.

Responses, however, tended to agree on the need of visual enhancements (Question 1.7), (Figure E.48). Visual enhancements include stone facade cleaning and maintenance, improving the appearance of the vacant blocks, and other measures.



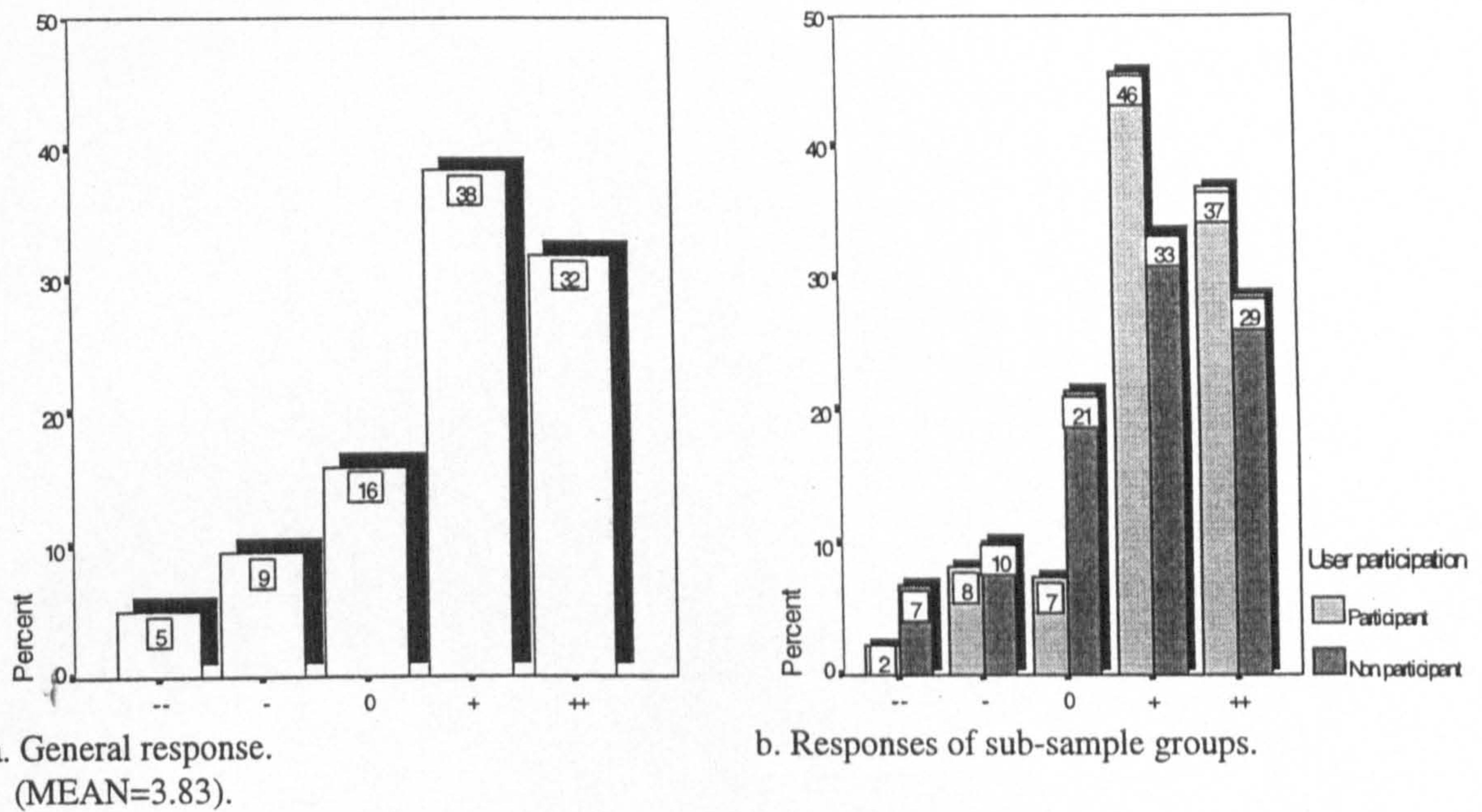


Figure E.48: Responses to need of visual enhancement.

The findings of the previous discussion, however, verify the second hypothesis (see section iii), as it is evident that differences in users level of satisfaction have occurred between those who participated in the development of the area and those who did not participate (for more details, refer to section 8.3.1).

### E.3 Responses Toward the Key Physical Elements of Salt City Centre

The previous section provided an evaluation of the five visual performance dimensions in SCC from the users preferences. To build a broader understanding this section illustrates user responses to the various key physical elements of SCC. The answers were converted to percentages with the "MEAN" as the measure of central tendency.

#### E.3.1 Pathways:

Pathways in SCC include vehicular streets as well as pedestrian streets and stairways. Question 3.B has 7 sub-questions regarding the visual performance of SCC's vehicular streets. The visual performance of vehicular streets was evaluated by the users on a five point scale of satisfaction. The sample average tended to consider them congested and able to slightly encourage people of different ages and sexes to use them. This was consistent with the finding regarding the limited variety of uses they offer. Furthermore, their buildings' facades were considered to be only slightly continuous or following the curvature and slopes of the street. Vehicular streets, however, were considered to be easy to find one's way in. They were also considered to have a plenty of visual clues that help in spatial orientation (Figure E.49).



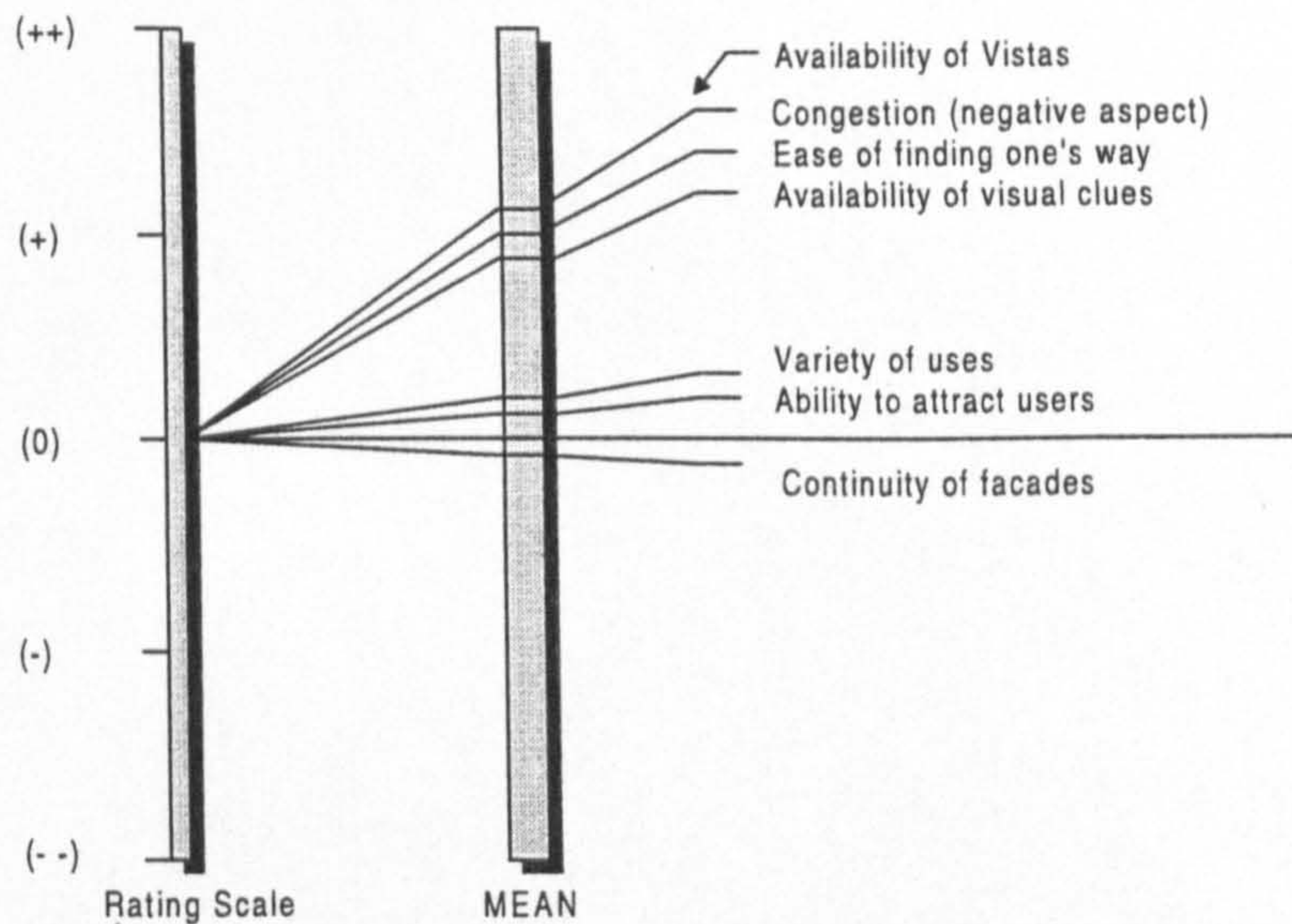


Figure E.49: Responses to the visual performance of SCC's vehicular streets.

Question 3.C has 7 sub-questions concerning the visual performance of SCC's pedestrian streets and stairways. The pedestrian streets and stairways were considered to be vital and with a great potential to encourage people from different ages and sexes to use them. Yet, the variety of uses are slightly limited compared to plazas and open spaces. It is safe to conclude that user satisfaction depends on other factors in addition to variety of uses. These additional factors could be what enhances pedestrian environments, such as, people and activity, window shopping, restaurants, views, diversity, nearby destinations, short cuts, protection, directness and continuity.

The sample average considers that pedestrian streets and pathways are less easy to one's way in than vehicular streets. This is consistent with the number of visual clues they offer. SCC's pedestrian streets and stairways have numerous vistas and panoramic watch points. A vista is a view directed toward a terminal space or element. The topographic conditions of the area, however, make SCC's vistas imposing, impressive, and site-dominated. These vistas were considered to be highly enjoyable, especially while ascending and descending the stairways (Figure E.50).

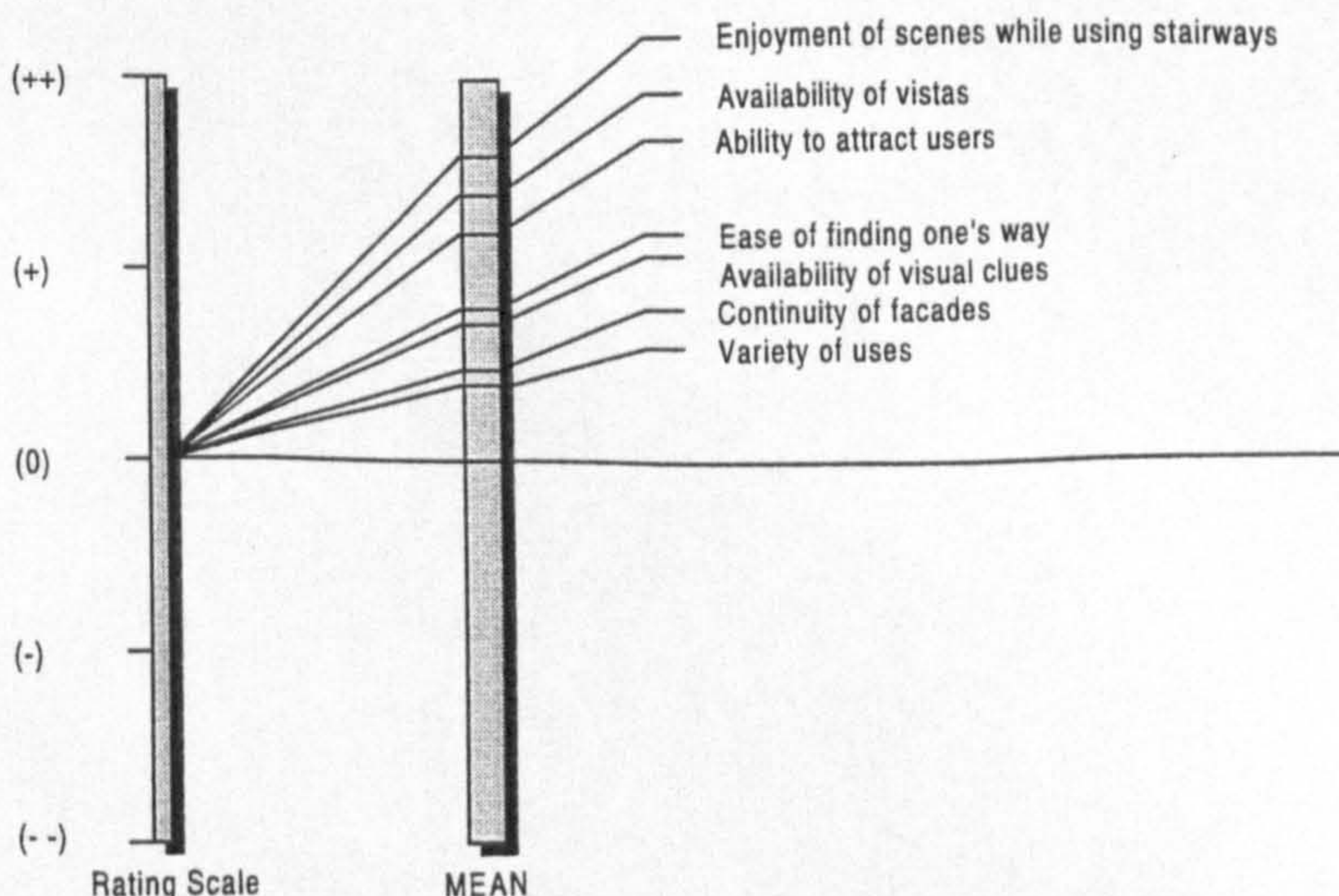


Figure E.50: Responses to the visual performance of SCC's pedestrian streets and stairways.



Thinking of streets and stairways requires mentioning their buildings. Question 3.D consists of 7 sub-questions regarding the visual performance of old and new buildings of SCC. The average responses considered that the buildings heights provide the streets with a feeling of intimacy as well as comfort. Old buildings were considered to have familiar features with unique and rich architectural elements. New buildings, on the contrary, were considered to be less familiar or unique. Concerning the matching the topography and landform, the users' replies indicated that old buildings match the topography more than new ones (Figure E.51).

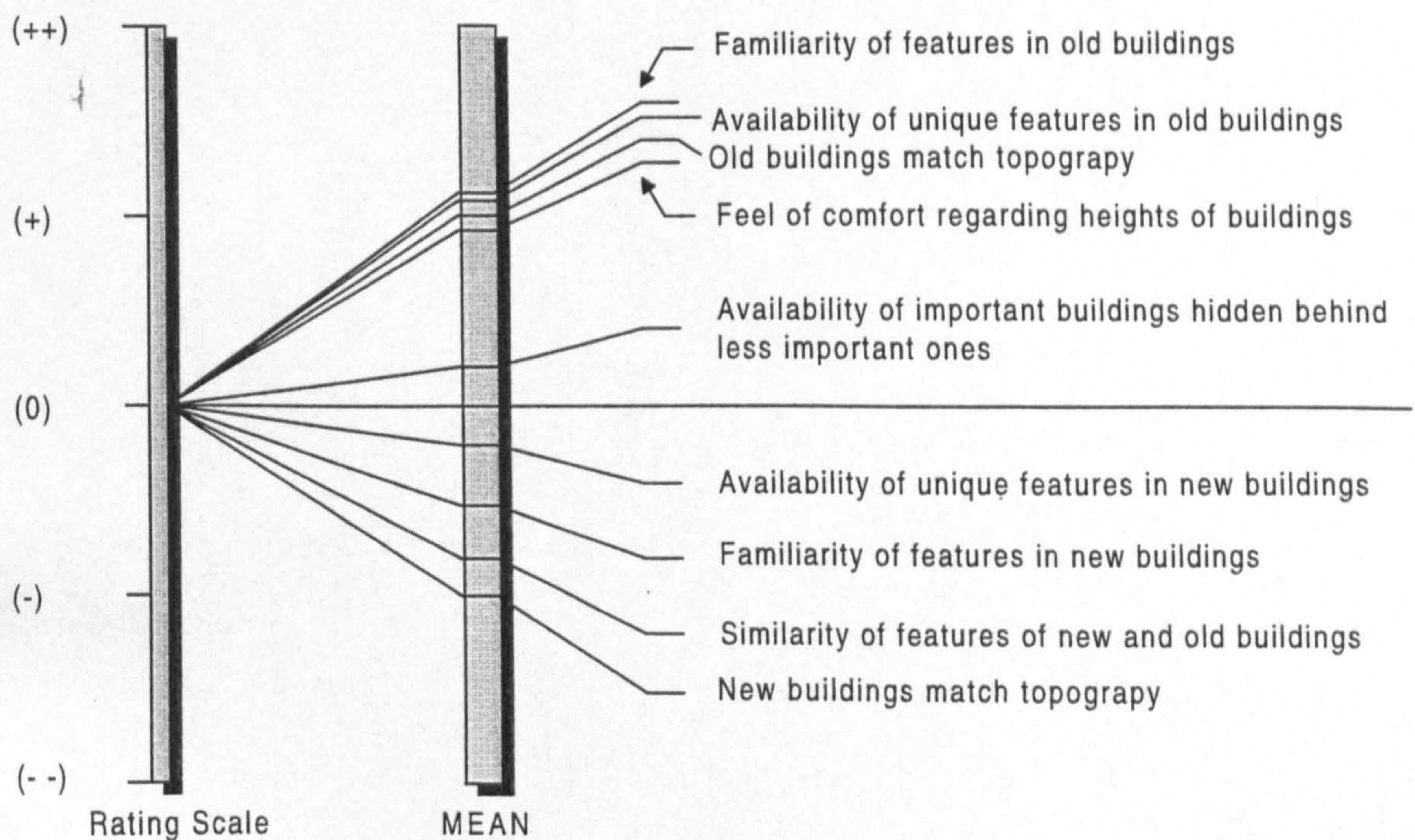
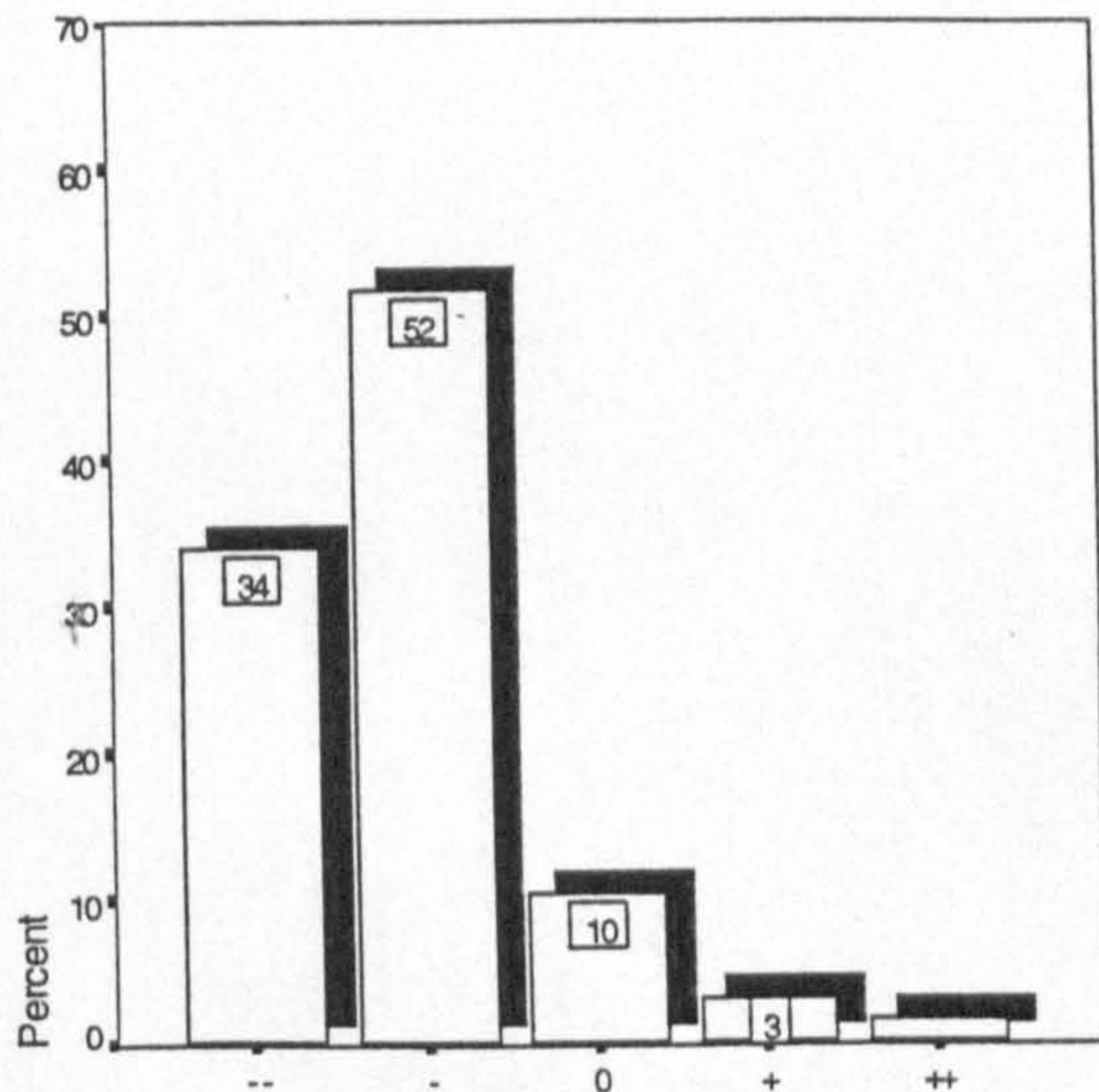


Figure E.51: Responses to the visual performance of buildings at SCC.

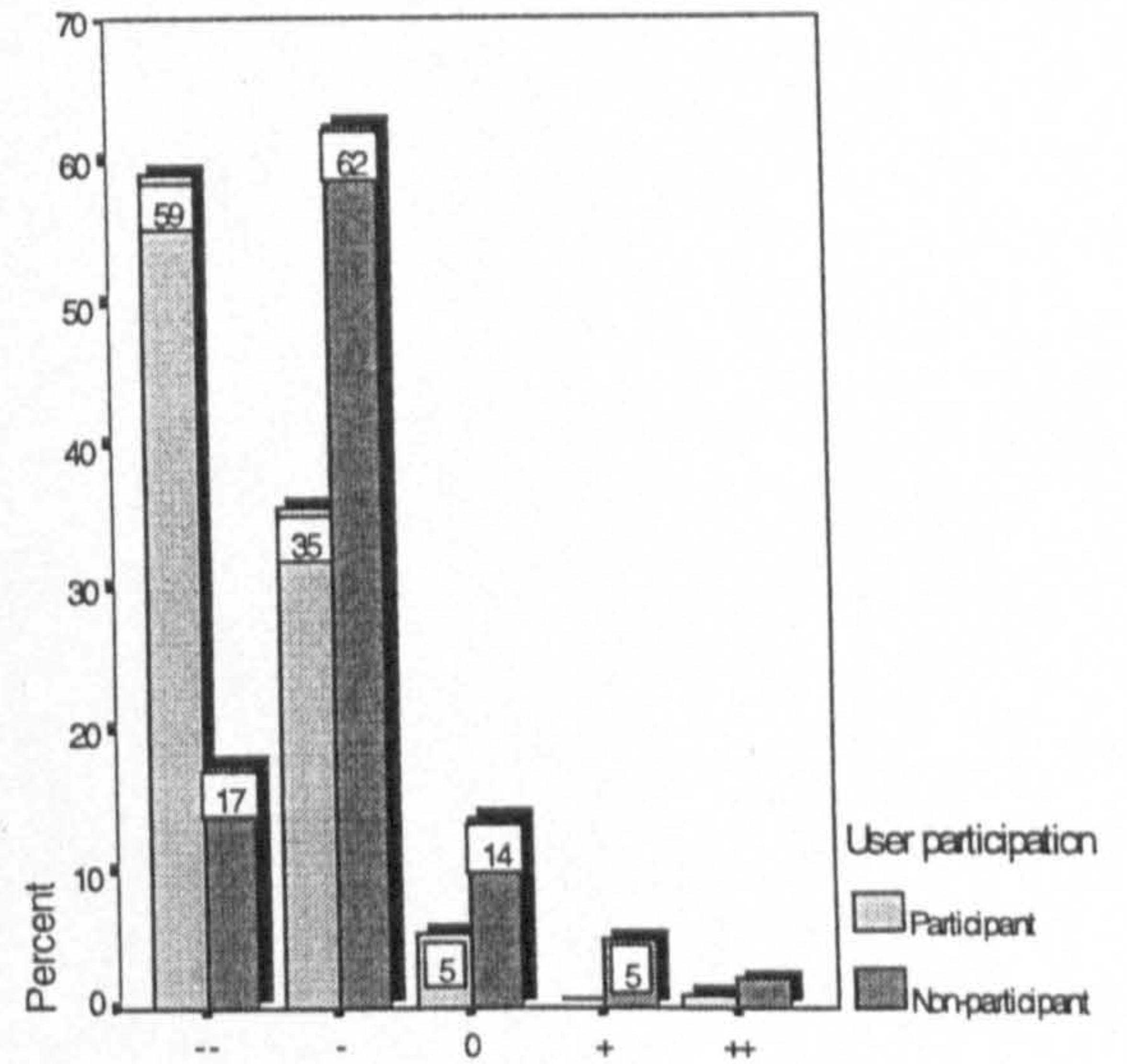
### E.3.2 Localities:

Two of SCC's localities were visually evaluated in the questionnaire survey. These are *Al-Hammam* street area, and the Salt Civic Centre urban development project. The rehabilitation project at *Al-Hammam* street fully involved the users in the various stages of development, while the Salt Civic Centre was built with no due consideration of its user opinions or requirements. The respondents were asked to rate their opinions regarding: the visual appearance, the vitality and the expansion of the scope of these two projects. The rating was set on a five point satisfaction scale (see Question 4 and its sub-questions). The average responses to the questions concerning the visual appearance clearly considered Salt Civic Centre to have unpleasant visual qualities (MEAN=1.87), whereas they considered *Al-Hammam* street to be extremely pleasant (MEAN=4.25), (Figure E.52).

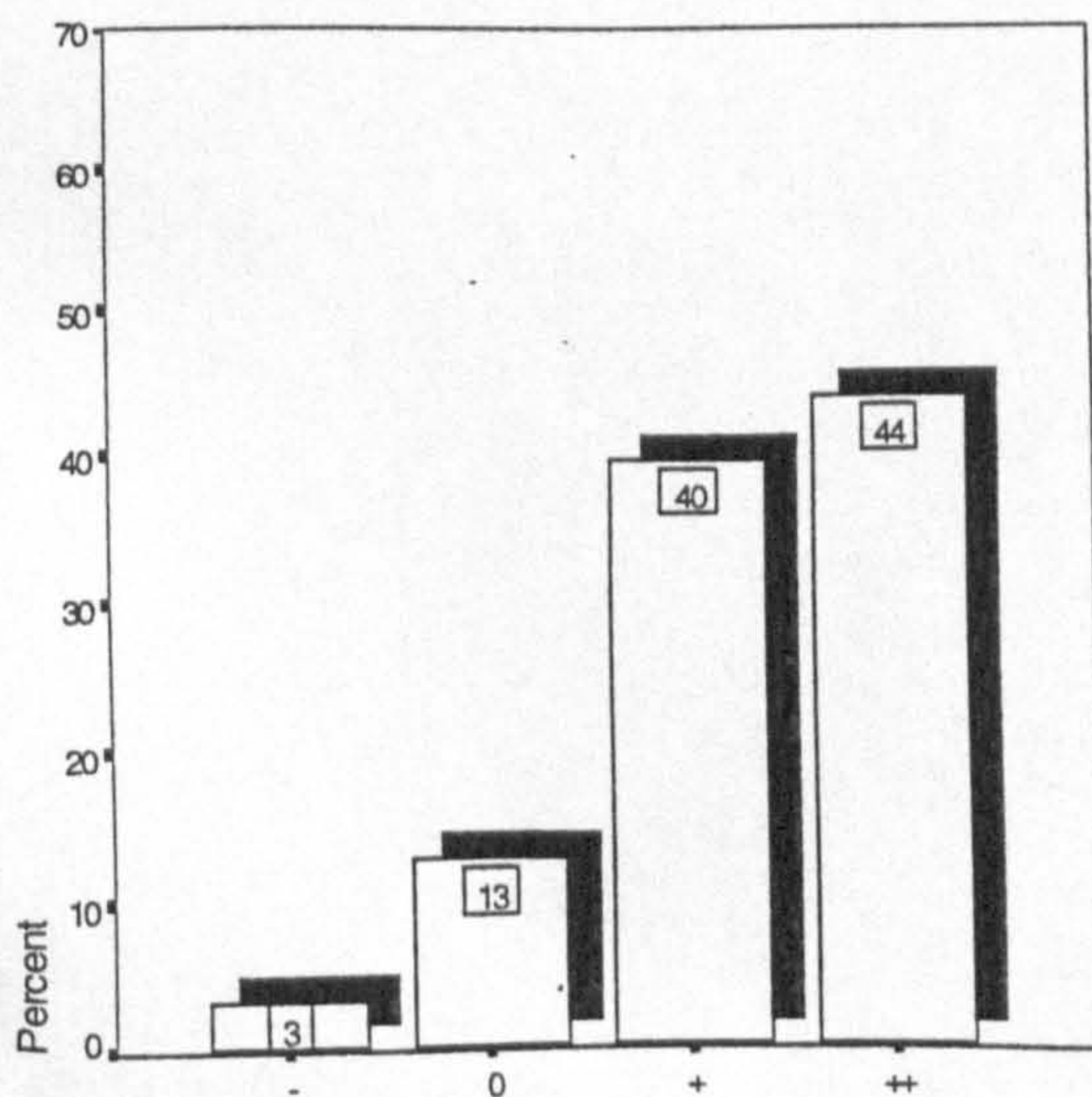




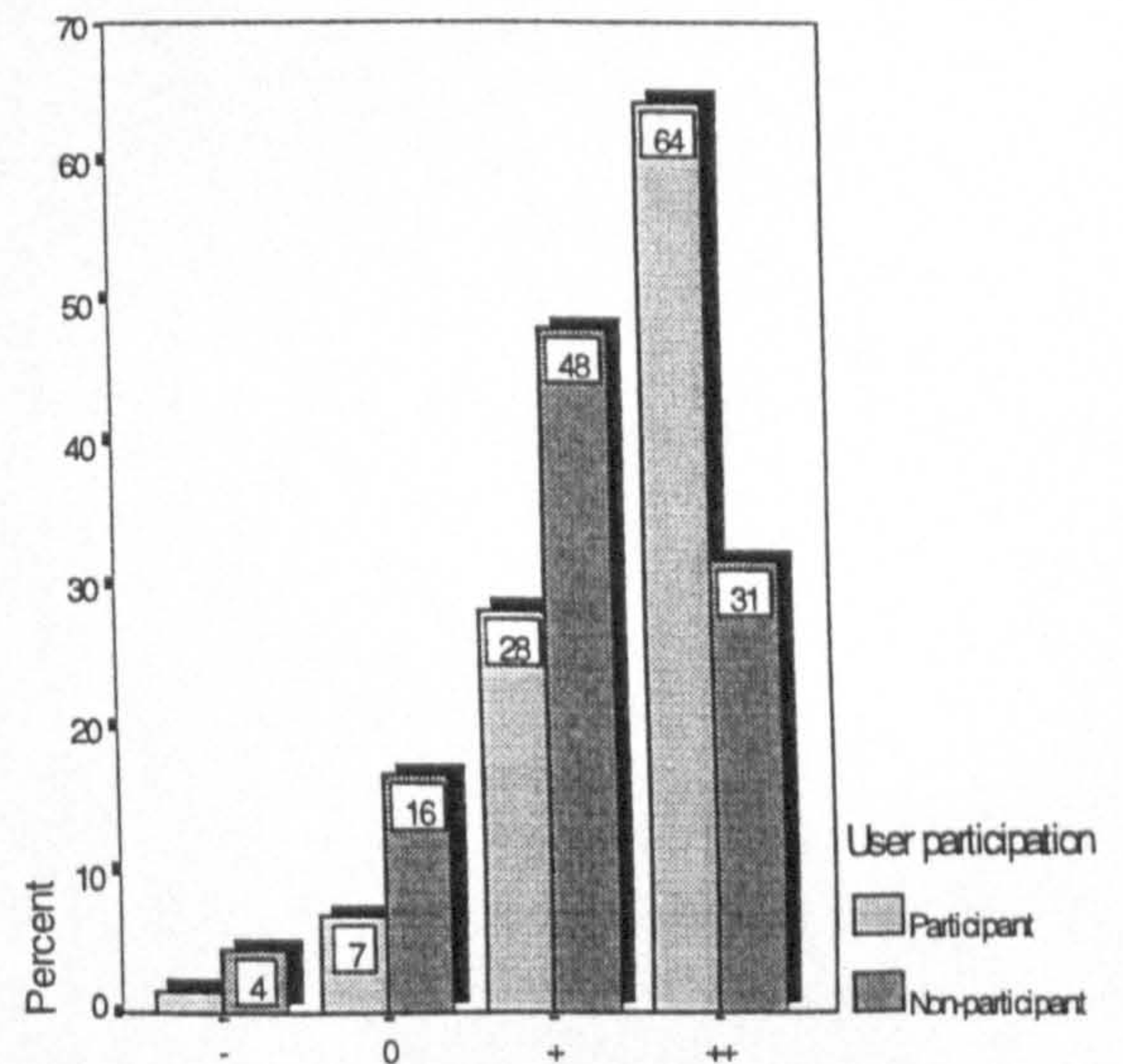
a. General response: Salt Civic Centre. (MEAN=1.87).



b. Responses of sub-sample groups: Salt Civic Centre.



c. General response: Al-Hammam Street. (MEAN=4.25).

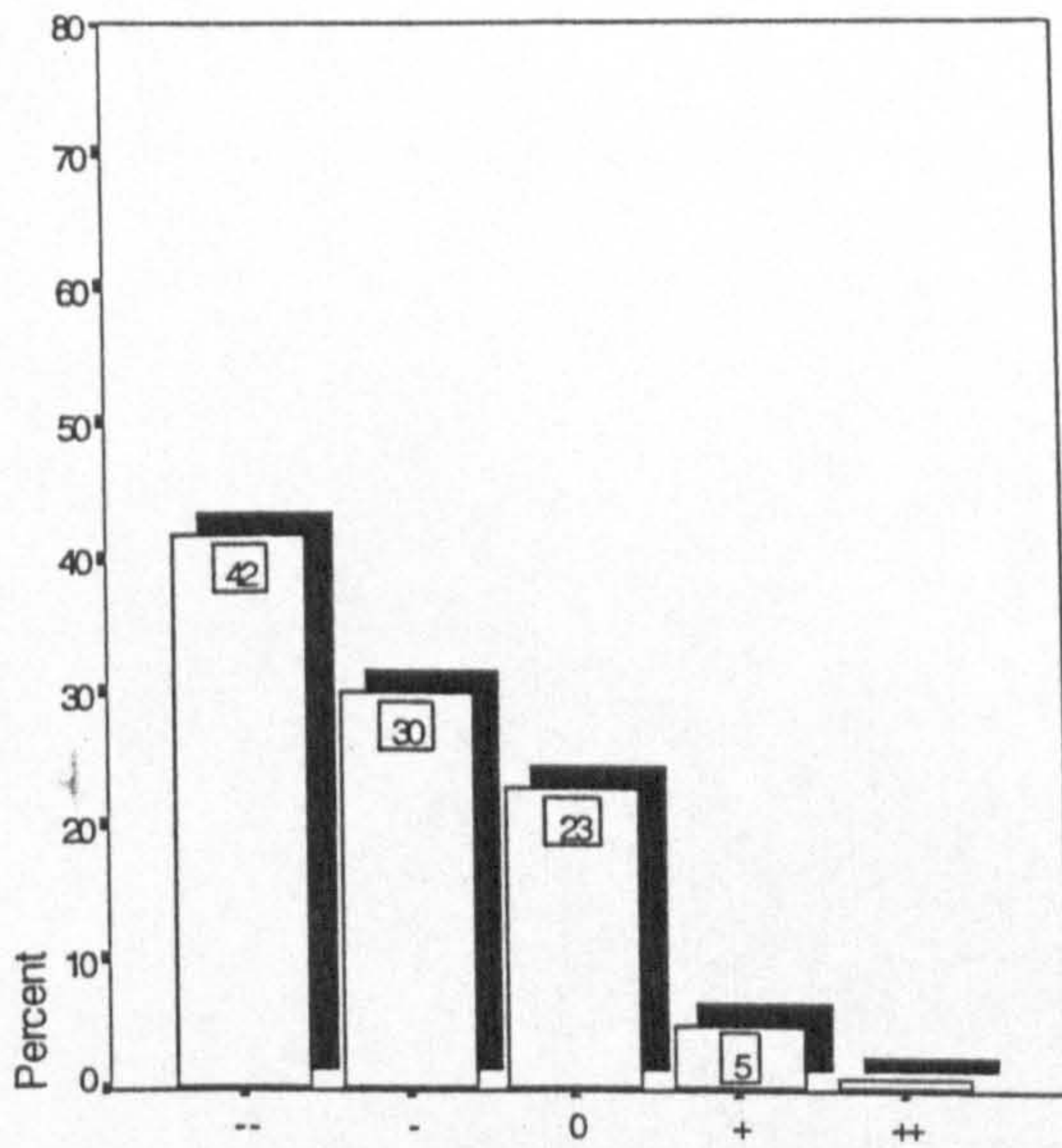


d. Responses of sub-sample groups: Al-Hammam street.

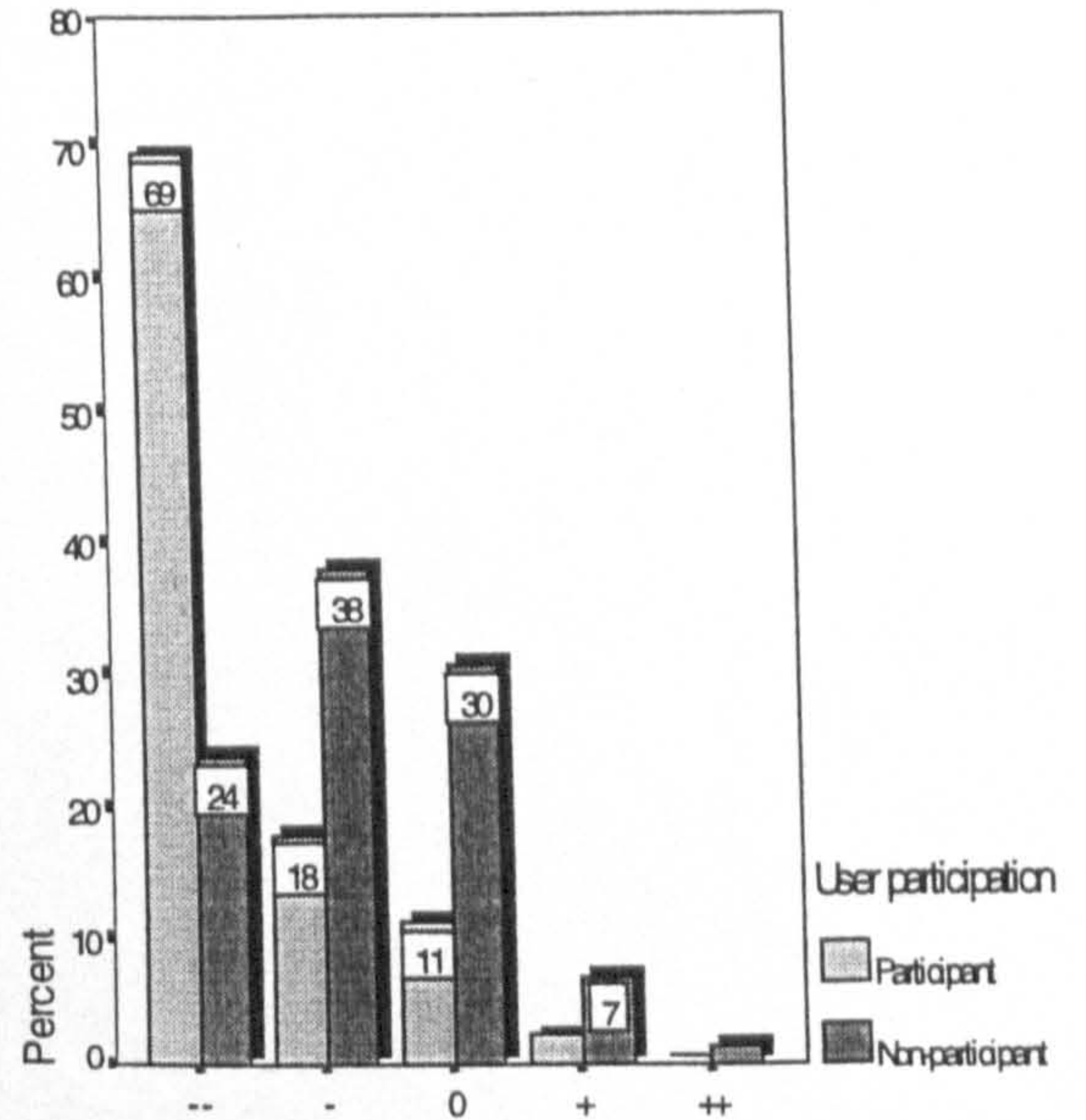
Figure E.52: Responses to visual appearance

Concerning the ability of the two areas to attract diverse users, it was evident that *Al-Hammam* street has a great potential to encourage people from different ages and sexes to use the area at different times and for various reasons (MEAN=4.10). This is not the case at Salt Civic Centre (MEAN=1.84), (Figure E.53).

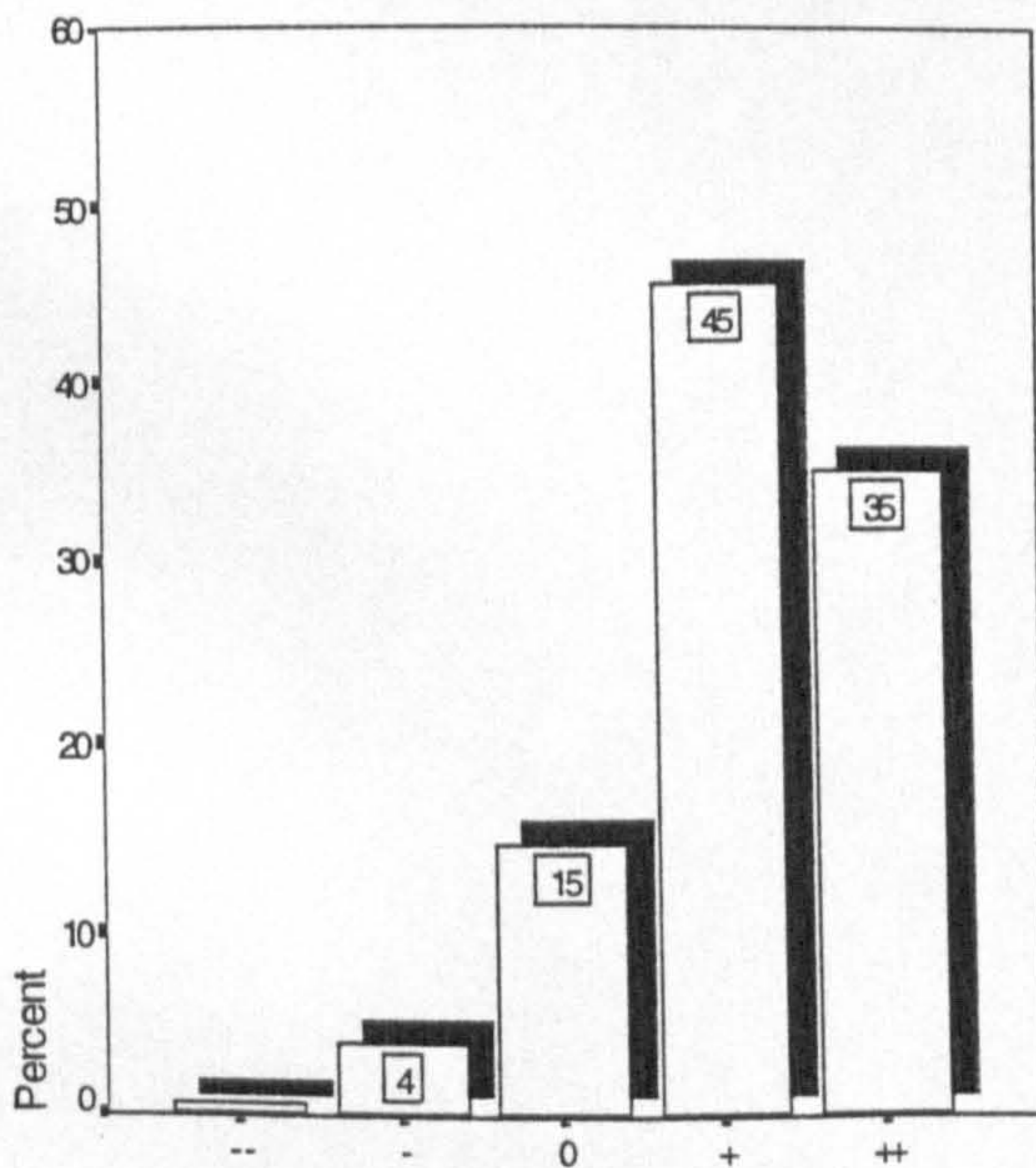




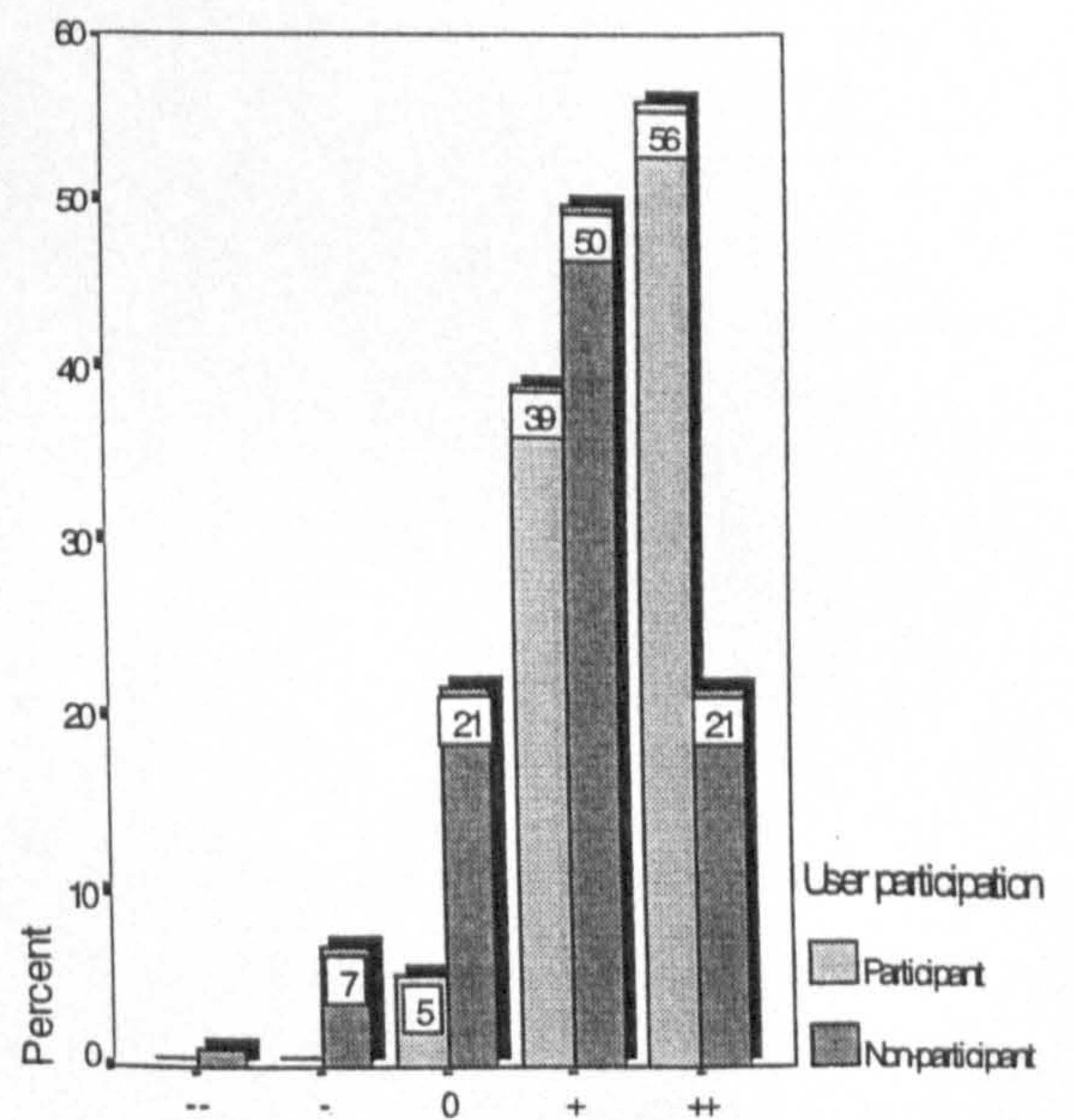
a. General response: Salt Civic Centre. (MEAN=1.84).



b. Responses of sub-sample groups: Salt Civic Centre.



c. General response: Al-Hammam Street. (MEAN=4.10).

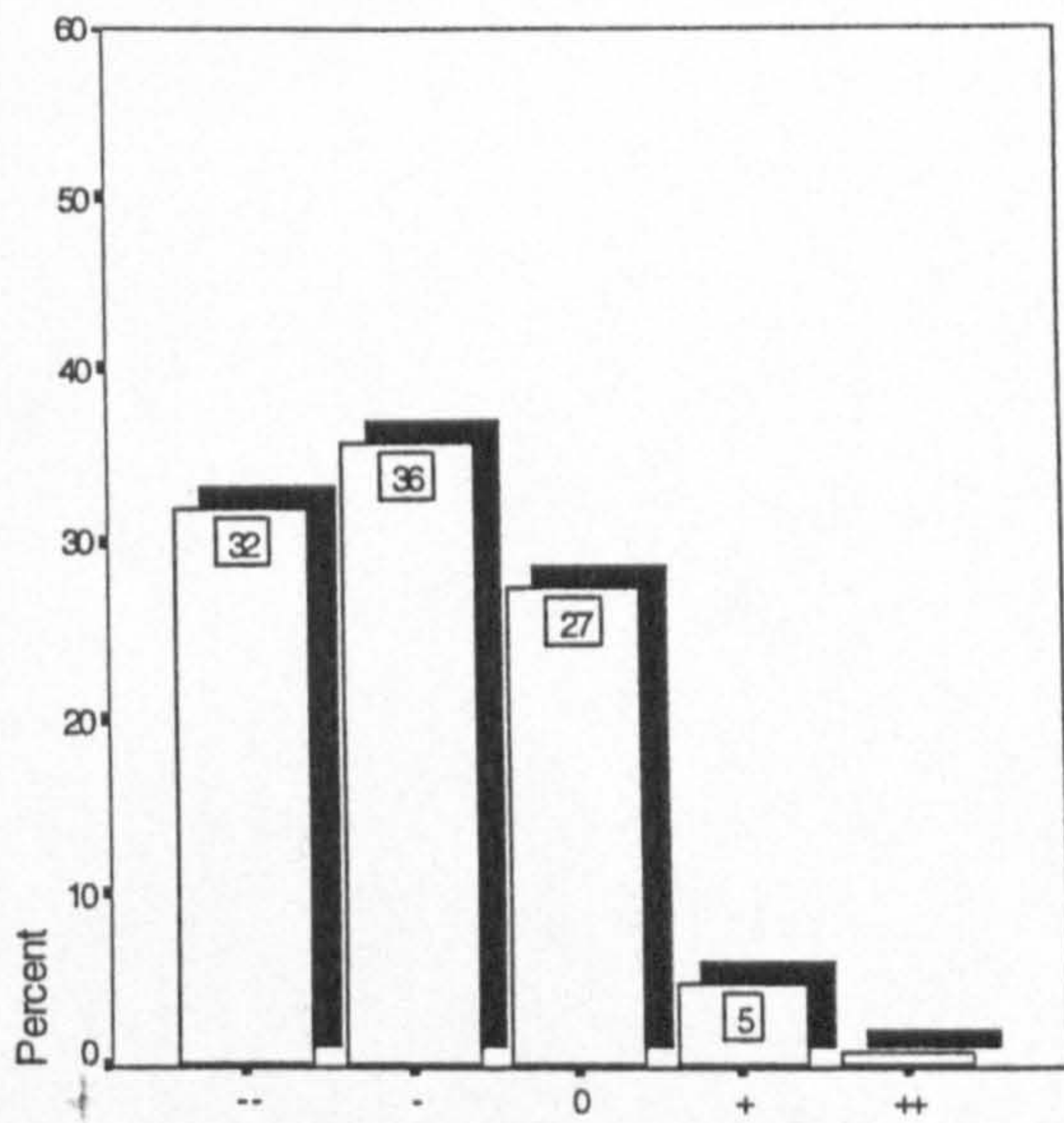


d. Responses of sub-sample groups: Al-Hammam Street.

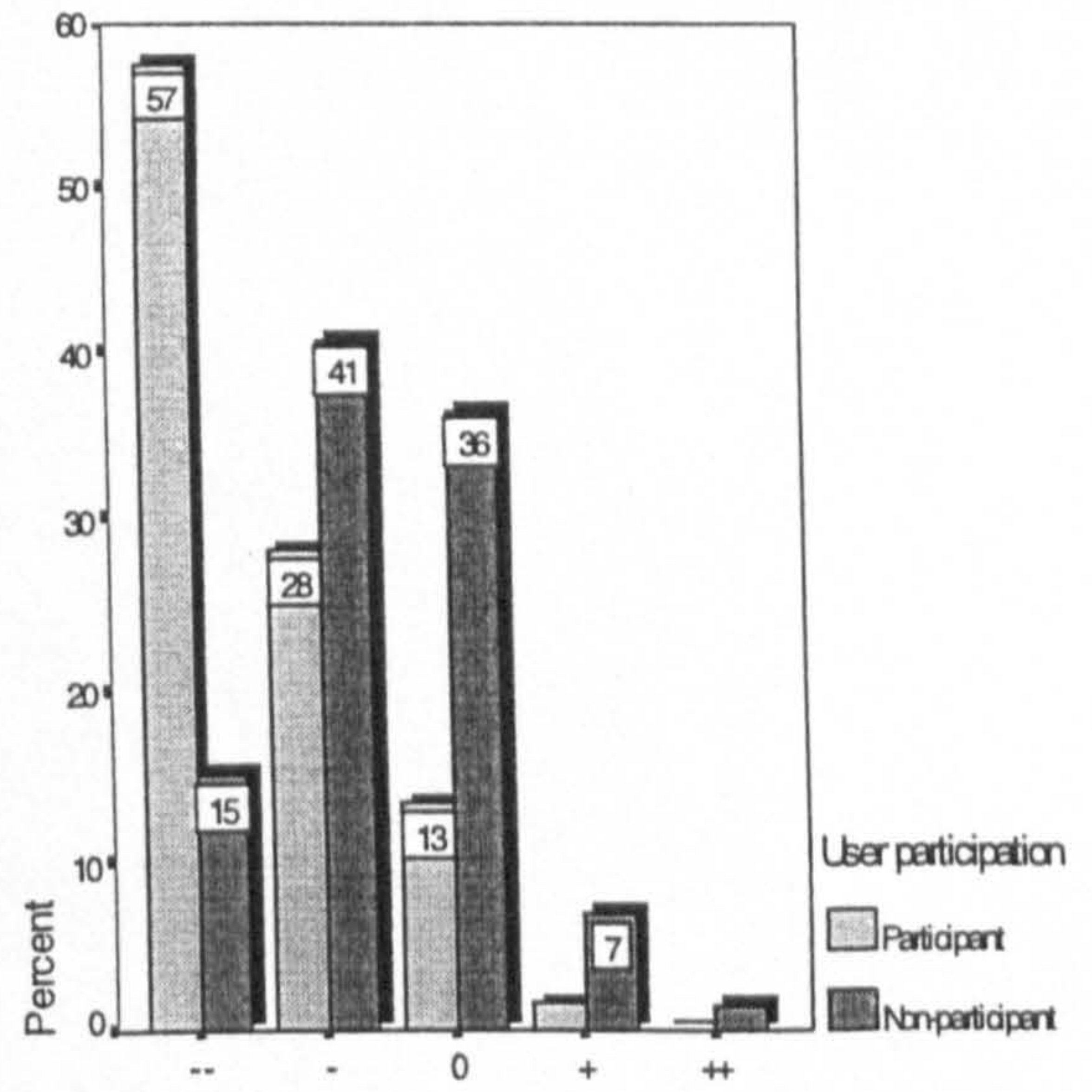
Figure E.53: Responses to the ability of the two projects to encourage various users and activities.

The users were also asked to rate their opinions regarding the possibility of extending the two projects. The average responses were in favour of expanding the pedestrian network of *Al-Hammam* street to cover other areas. The responses, however, rarely suggested the erection of other projects similar to that of Salt Civic Centre (Figure E.54).

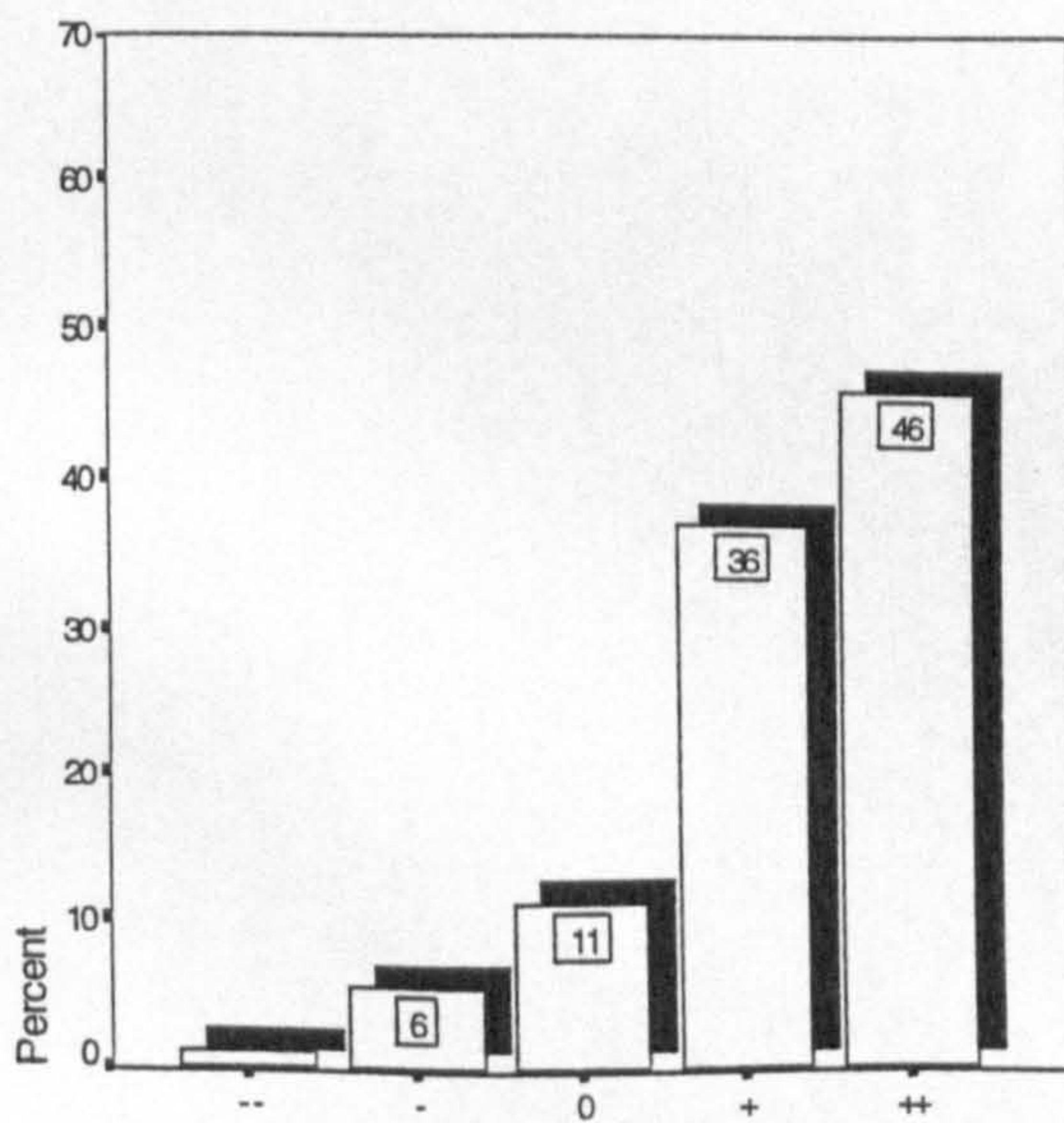




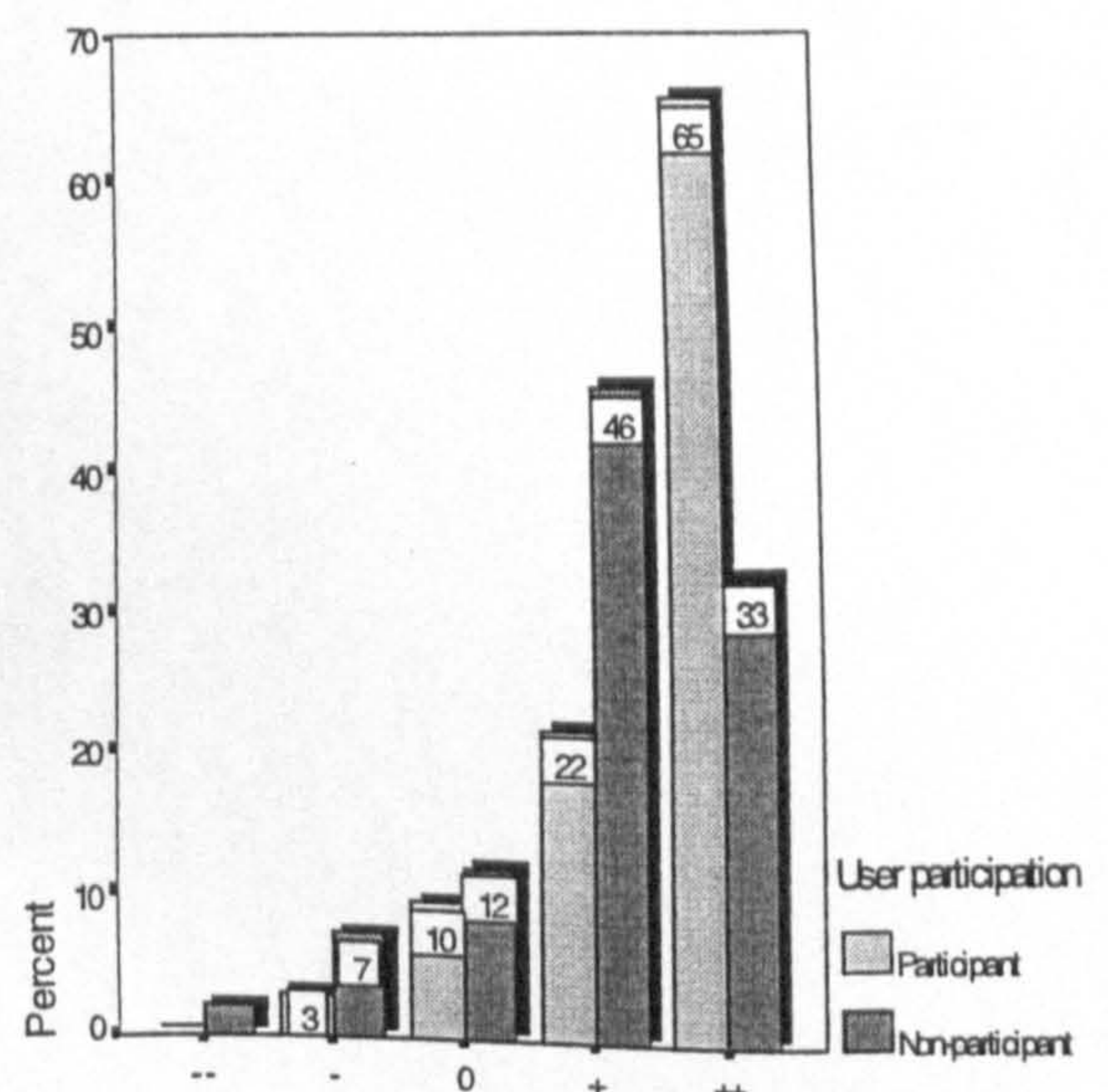
a. General response: Salt Civic Centre. (MEAN=2.07).



b. Responses of sub-sample groups: Salt Civic Centre.



c. General: Al-Hammam Street. (MEAN=4.20).



d. Responses of sub-sample groups: Al-Hammam Street.

Figure E.54: Responses regarding extending the two projects.

### E.3.3 Nodes:

The findings of Question 2 indicate that SCC's plazas and open spaces are the most memorable urban elements. Question 3.A addressed these important nodes and centres of activities. The question was subdivided into 9 sub-questions concerning the visual performance of SCC's plazas and open spaces.

SCC's plazas and open spaces were found slightly similar in their sizes and forms, but remarkably different in their importance. The average responses considered the buildings they accommodate to have clear and visible traces of history. They were considered easy to find one's way in. They were also considered to have a great



number of visual clues which aid the user in finding his/her way easily to other districts in the city. SCC plazas and open spaces have the potential to offer vistas and panoramic watch points over various districts in the city. The wide variety of activities they provide increases their abilities to encourage people from different ages and sexes to use them for different purposes including shopping, relaxing and eating (Figure E.55).

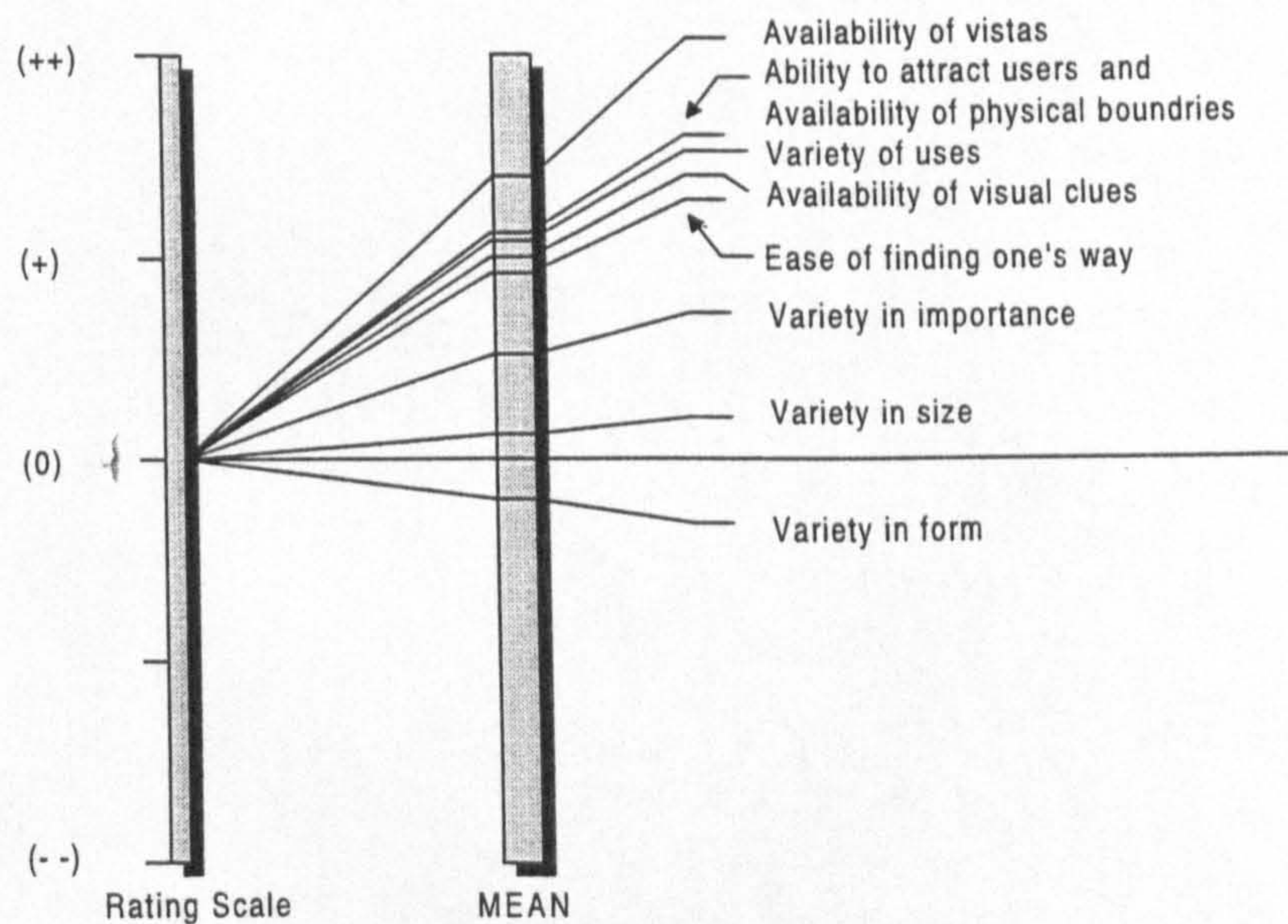


Figure E.55: Responses to the visual performance of SCC's plazas and open spaces.

It was considered that SCC area has numerous places and elements which evoke emotional attachments. It is important to maintain these places by establishing appropriate measures for conservation and renewal. The recreation of *Al-Maydan* Plaza should be considered as a first priority in order to maintain its role as a major part of the environmental memory of the area.

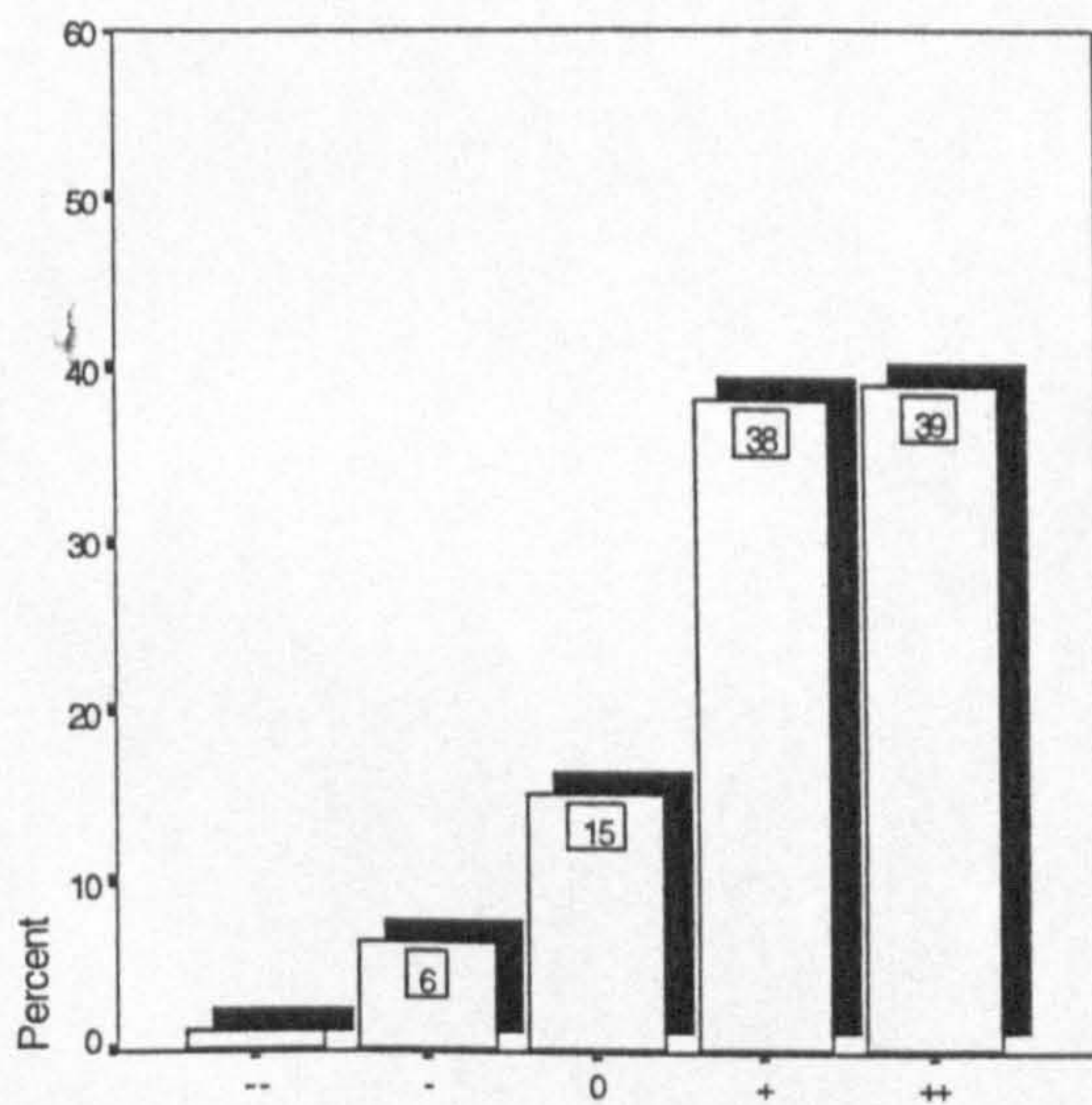
Being the most memorable key physical element of SCC, it is safe to conclude that plazas and open spaces are the essential part of the urban life of the users. They are able to offer a sense of place, a feeling of historic continuity, sense of out setting overlooking the various places of the city, and to act as an urban theatre. They are rewarding to experience as they offer excitement and vigorous markets, public ceremonies, a place to meet friends and watch the world go by. Therefore, they could be considered as the first choice for community celebrations.

### E.3.4 Landmarks:

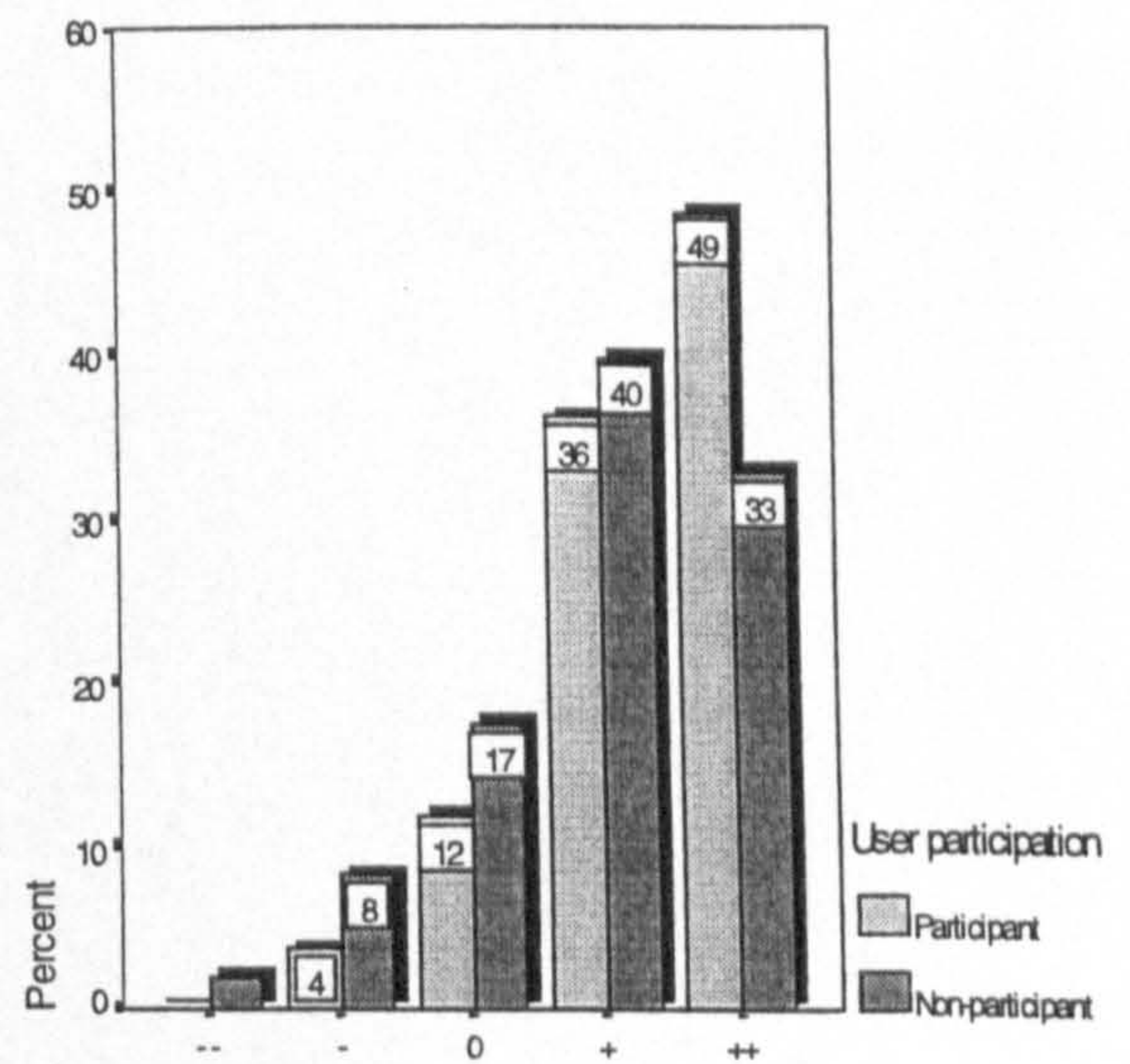
The average responses to question 1.9 considered SCC to have important features, including buildings, landmarks and open spaces. Furthermore SCC was considered to have unique memorable images that act as reminders of the area. Such images are related to its topography and landform. The average responses to SCC's topography considered the distinctive landform and skyline which SCC offers. These landmarks made SCC easy to remember and with high spatial orientation potentials.



Two of SCC's landmarks were visually evaluated in the questionnaire survey. These are the Great Mosque (a newly expanded old building), and the Small Mosque (old building). For such evaluation, it was necessary to select two buildings of similar emotional and symbolic attachments with the users. This was important to eliminate any entry point of bias when the respondents evaluate the visual appearance of the two buildings. The responses highly rated the visual appearance of the Small Mosque (MEAN=4.08), (Figure E.56). On the other hand, the average responses considered the visual appearance of the Great Mosque to be below average (Mean=2.44), (Figure E.57).

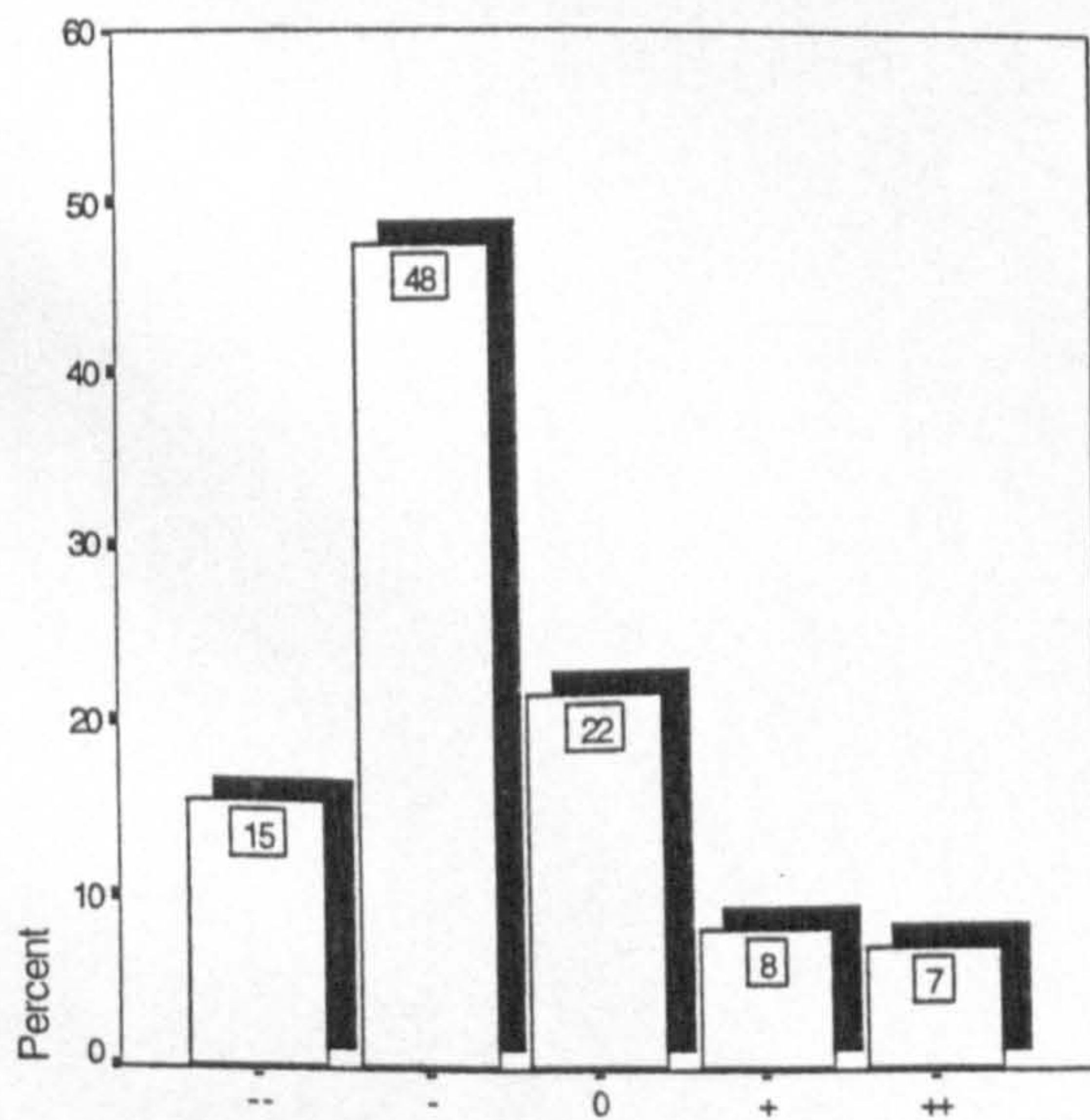


a. General response.  
(MEAN=4.08).

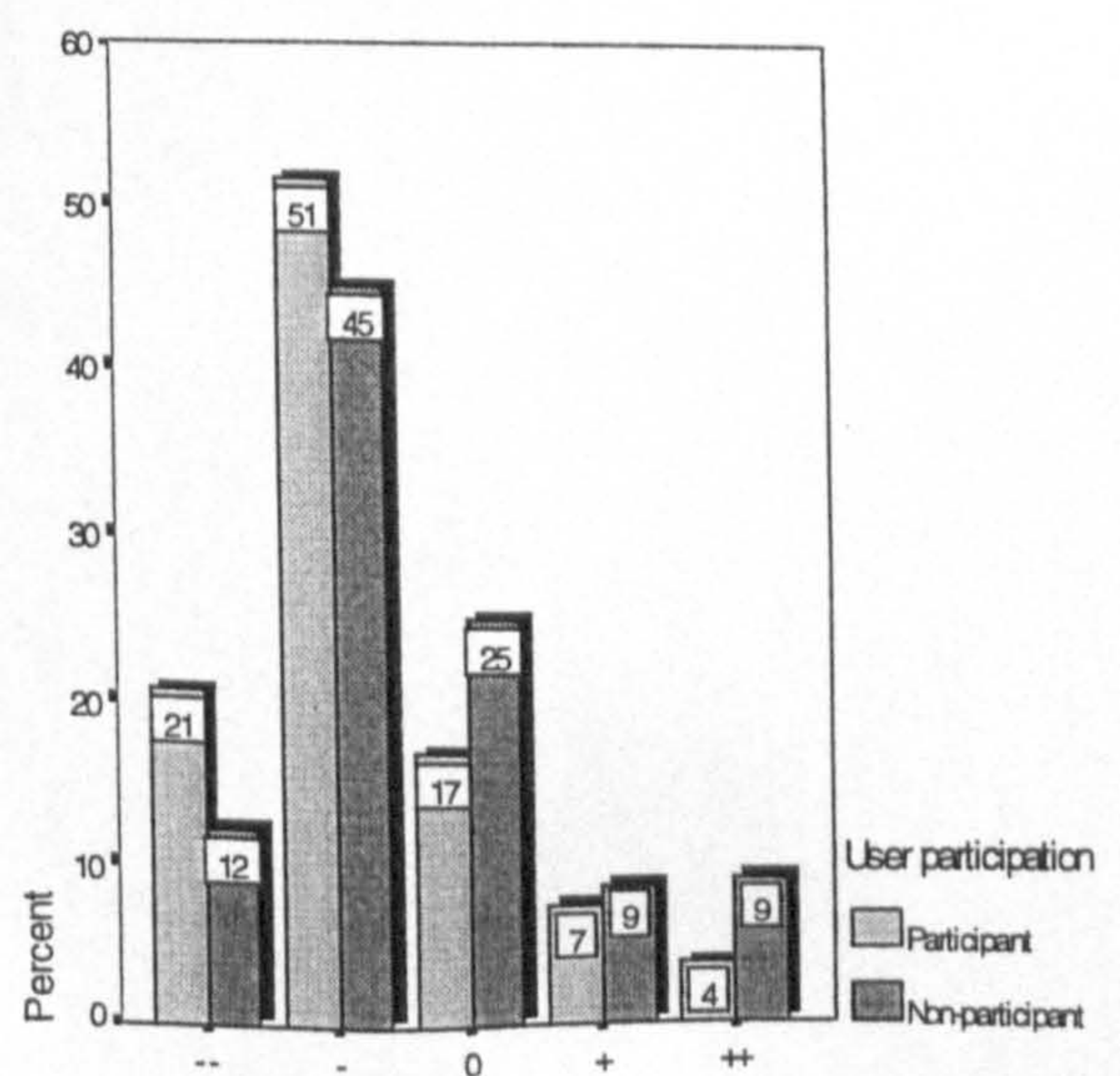


b. Responses of sub-sample groups.

Figure E.56: Responses to visual appearance of the Small Mosque.



c. General response.  
(MEAN=2.44).



d. Responses of sub-sample groups.

Figure E.57: Responses to visual appearance of the Great Mosque.



### E.3.5 Edges:

The average responses showed that SCC has definite topographic edges whereas its localities are connected and interrelated physically and visually. The clear cut physical boundaries of SCC help in establishing the identity of the area. A great part of the localities' success depends on the overlapping and interweaving of their activities.

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1. The national statistical figures of Table E.1 are obtained from: *Statistics Yearbook*, Amman: The General Directorate of Statistics, 1997. The other figures are obtained from the questionnaire survey.

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## Appendix F

### Data Processing Techniques

This appendix concerns the data processing techniques for the questionnaire survey conducted at SCC. It consists of three sections: i) the objectives of the statistical analysis; ii) the determinants for statistical tests of association; and iii) the concepts behind the Phi-Coefficient and Chi-Square tests.

#### F.1 Objectives of the Statistical Analysis

To guide the analysis process, it is important to address the analysis objectives. The analysis objectives of this research have an explicit link with the research general objectives and hypotheses presented in the introduction as well as with the case study specific objectives and hypotheses (see sections iii and 5.2.1). Addressing the analysis objectives is important to ensure that the analysis undertaken contributes directly to the research questions.

Data obtained by the questionnaire survey at SCC refers to three distinct issues. These are:

- i. The variables that represent the five visual performance dimensions;
- ii. The respondents (sample); and
- iii. Their responses towards the variables (values).

However, statistical analysis of the data collected is required for many reasons among which are the following<sup>1</sup>:

1. Interpreting the data.
2. Assessing the statistical significance of the findings. A finding is considered more likely to be statistically significant when the number of observations on which that finding is increased.
3. Testing whether the sample drawn from the population is a true representative of that population.
4. Testing the inter-reliability of responses.
5. Determining the nature of relationships between two variables, i.e., whether they are related or not.

Accordingly, statistical analysis of the questionnaire survey will include descriptive statistics as well application of some statistical tests of association. Descriptive statistics provide a useful initial examination of the data. These will cover all the crucial issues that were investigated. The initial examination will help to provide preliminary insights regarding the nature of responses toward the variables of visual dimensions. "MEAN", i.e., the measure of average, is selected as an appropriate representative of central values of responses in this study. Statistics include:



- i. Descriptive statistics to address the importance and hierarchies of variables in relation to the visual dimensions they represent. This, in turn, will help in establishing guidelines for a visual policy in SCC, and thus satisfying the first hypothesis of this research, i.e., user participation will help to establish conceptual guidelines and practical visual policy for assessing design proposals for historic city centres (see section iii).
- ii. Descriptive statistics to illustrate the differences in responses of: i) those who were previously involved in user participation activities in the area and those who were not; and ii) toward the visual appearance of the two major urban design schemes at SCC, i.e., *Al-Hammam* street rehabilitation project and Salt Civic Centre urban development project. Users were involved in the development stages of the former project whereas they were ignored in the later. These are necessary to verify the validity of second hypothesis of this research, i.e., difference in level of satisfaction will occur between those who were involved in the development of the area and those who were not (see section iii).
- iii. Descriptive statistics to measure the consistency of the responses in two questions measuring the same variable. This is important to test how reliable and valid is the measurement. Multiple-line graphs representing the deviation of responses provide a visual aid for understanding such measurements.
- iv. Descriptive statistics to check if the sample drawn from the target group is representative of that population.

In addition to the descriptive statistics statistical, analysis of the questionnaire survey requires the application of some statistical tests for determining the degree of association between certain pairs of visual variables.

## F.2 Determinants for Statistical Tests of Association

The use of appropriate test of associations to assess the nature of relationships between certain pairs of variables in order to verify the case study hypotheses (see section 5.2.1). However, the selection of the appropriate method for analysis is determined by the following<sup>2</sup>:

- i. The nature of data, i.e., categorical on non-categorical. Categorical data is described in terms of counts, while non-categorical data can be described in a more inter-related mathematical relationships.
- ii. The nature of variables. This includes: the number of variables; the nature of measurement, i.e., independent or related variables; and the level of measurement, i.e., parametric or non-parametric measurement. Non-parametric measurements, for example, are not appropriate for making assumptions about the distribution of values of variables while parametric measurements depend, under certain circumstances, on the distribution of variables.



- iii. The sample characteristics, i.e., type of sampling (probabilistic or non-probabilistic), sample size and number of sample groups to be compared. Some tests are valid only for comparing the responses of two-sample groups, while other tests have the capacity to deal with more than two-sample groups.

For determining the appropriate statistical test of association for this research, the main characteristics of the data, sample and variables are illustrated in Table F.1. The table shows that the "Phi-Coefficient" test is appropriate to determine the positive association between two categorical variables.

Table F.1: Determinants for statistical tests of association.

Adapted: Cramer, Duncan., *Introducing Statistics for Social Research: Step-by-Step Calculations and Computer Techniques Using SPSS*, London: Routledge, p. 55.

Nature of data	Nature of measurement	Appropriate test
Categorical	Non-parametric	<ul style="list-style-type: none"> <li>- Phi-Coefficient</li> <li>- Contingency Coefficient</li> <li>- Cramer's V</li> <li>- Goodman and Kruskal's lambda</li> <li>- Goodman and Kruskal's tau</li> </ul>
Non-categorical	Non-parametric	<ul style="list-style-type: none"> <li>- Kendall's tau a</li> <li>- Kendall's tau b</li> <li>- Kendall's tau c</li> <li>- Goodman and Kruskal's gamma</li> <li>- Somer's d</li> <li>- Spearman's rank order correlation</li> <li>- Mantel-Haenszel's Chi-Square</li> <li>- Kendall's partial rank order</li> <li>- Correlation</li> <li>- Partial gamma</li> </ul>
	Parametric	<ul style="list-style-type: none"> <li>- Pearson's product-moment correlation</li> <li>- Pearson's partial correlation</li> <li>- eta</li> <li>- Unstandardised regression coefficient</li> <li>- Standardised regression coefficient</li> <li>- Part correlation</li> </ul>

### F.3 The Phi-Coefficient Test

The "Phi-Coefficient Test" was used to assess the nature of the relationships between the certain pairs of visual variables in order to verify the case study hypotheses. It measures the strength of the positive association between two categorical variables. The "Phi-Coefficient" test is derived from the "Chi-Square" test. The "Chi-Square" test is a test of significance. The calculation of the "Phi-Coefficient" ( $\phi$ ) requires the calculation of the "Chi-Square". The Chi-square test examines the relationship between the frequencies of the two variables under investigation and whether these measures occur by chance or are statistically significant<sup>3</sup>. After obtaining the statistical



significance of the variables under investigation, the value of "Phi-Coefficient " determines whether these variables are positively associated or not<sup>4</sup>. The value of (phi) can vary from zero to 1.0, in an ascending order of positive association between the examined variables.

The value of Chi-square depends on two factors<sup>5</sup>: the significance level (s); and the degrees of freedom (df). The significance level (s) refers to the level of probability of a value of Chi-square calculated from the data. There are various levels on which the value of Chi-square can be statistically significant. Table F.2 illustrates five levels of significance (in an ascending order): 0.1, 0.05, 0.01, 0.005 and 0.001. For this study, a significance level of 0.05 was selected. Being at 0.05 level of statistical significance indicates the probability of less than 5 in 100 that the obtained relationship between the variables under examination is due to chance.

Table F.2: Critical values of Chi-Square.

Adapted Ebdon, David., *Statistics in Geography: A Practical Approach*, Oxford: Basil Blackwell, 1977, p.171.

Degree of freedom (df)	Significance Level (s)				
	0.1	0.05	0.01	0.005	0.001
1	2.71	3.84	6.64	7.88	10.83
2	4.60	5.99	9.21	10.60	13.82
3	6.25	7.82	11.34	12.84	16.27
4	7.78	9.49	13.28	14.86	18.46
5	9.24	11.07	15.09	16.75	20.52
6	10.64	12.59	16.81	18.55	22.46
7	12.02	14.07	18.48	20.28	24.32
8	13.36	15.51	20.09	21.96	26.12
9	14.68	16.92	21.67	23.59	27.88
10	15.99	18.31	23.21	25.19	29.59
11	17.28	19.68	24.72	26.76	31.26
12	18.55	21.03	26.22	28.30	32.91
13	19.81	22.36	27.69	30.82	34.53
14	21.06	23.68	29.14	31.32	36.12
15	22.31	25.00	30.58	32.8	37.70
16	23.54	26.30	32.00	34.27	39.29
17	24.77	27.59	33.41	35.72	40.75
18	25.99	28.87	34.80	37.16	42.31
19	27.20	30.14	36.19	38.58	43.82
20	28.41	31.41	37.57	40.00	45.32
21	29.62	32.67	38.93	41.40	46.80
22	30.81	33.92	40.29	42.80	48.27
23	32.01	35.17	41.64	44.18	49.73
24	33.20	36.42	42.98	45.56	51.18
25	34.38	37.65	44.31	46.93	52.62
26	35.56	38.88	45.64	48.29	54.05
27	36.74	40.11	46.96	49.65	55.48
28	37.92	41.34	48.28	50.99	56.89
29	39.09	42.56	49.59	52.34	58.30
30	40.26	43.77	50.89	53.67	59.70
40	51.81	55.76	63.69	66.77	73.40
50	63.17	67.51	76.15	79.49	86.66
60	74.40	79.08	88.38	91.95	99.61
70	85.53	90.53	100.43	104.22	112.32
80	96.58	101.88	112.33	116.32	124.84
90	107.57	113.15	124.12	128.30	137.21
100	118.50	124.34	135.81	140.17	149.45



The interpretation of data requires the use of Table F.2. The table is used to decide whether an obtained value of Chi-square is due to chance or not. The level of probability is determined by comparing the calculated value Chi-square to the given values of (df) in the table. For a significance level of 0.05, for example, the critical value of Chi-square with 16 degrees of freedom is 26.30. A value of Chi-square less than 26.30 tends to indicate a large amount of difference between the frequencies of the two variables under investigation at the 0.05 significance. When a calculated value of Chi-square is larger than the figures shown in the table under the appropriate degree of freedom, and the calculated value of (phi) is between zero and 1.0 we can conclude that the positive association is reliable.

The Statistical Package for the Social Sciences (SPSS) was selected for data analysis for the following reasons<sup>6</sup>:

1. It is specifically written for the social sciences.
2. It is well documented and widely used.
3. It is a comprehensive software with an extensive variety of statistical procedures.
4. It is a flexible software allowing examining data in various ways.

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1. Cramer, Duncan., *Introducing Statistics for Social Research: Step-by-Step Calculations and Computer Techniques Using SPSS*, London: Routledge, 1994, pp.1-13.
  2. See for example:
    - Diamantopoulos, Adamantios., and Bodo B. Schlegelmilch, *Taking the Fear out of Data Analysis*, London: The Dryden Press, 1997, pp. 66-70 and p.174.
    - Cramer, op. cit., pp. 52-55.
  3. Cramer, op. cit., pp. 79-92.
  4. *ibid.*, pp.187-189.
  5. Ebdon, David., *Statistics in Geography: A Practical Approach*, Oxford: Basil Blackwell, 1977, p. 171.
  6. See for example:
    - George, Darren., and Paul Mallery, *SPSS/PC+ Step-by-Step: A Simple Guide and Reference*, Wadsworth Publishing Company, Belmont, 1995.
    - Stockburger, David W., *Introduction to Statistics: Concepts, Models and Application*, <http://www.amazon.com>, 1996.



## Appendix G

### A Concise History of Salt

The city of Salt is the administrative headquarters and the commercial centre of the Governorate of *Balqa* in Jordan (Figure G.1). It is about 35 kilometres west of Amman, on the road to Jerusalem via the Jordan Valley. It has about 68,000 inhabitants, about one quarter of them living in the city centre area in 1996<sup>1</sup>.

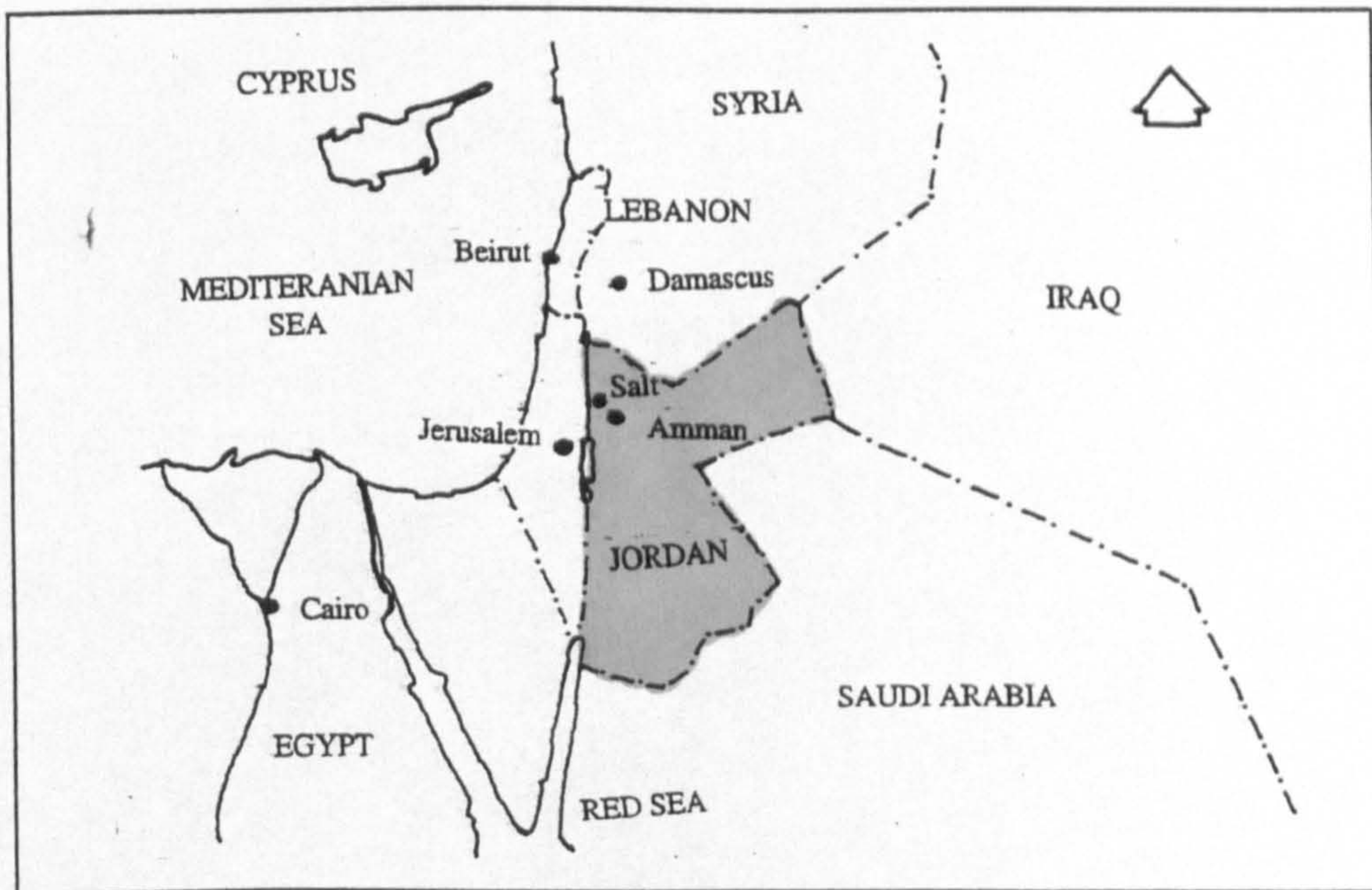


Figure G.1: Map of Jordan showing the location of Salt.

Adapted: JNIS, Jordan National Information System: Geology, GIS Maps, <http://nic.gov.jo>, 1996.

As a human settlement, Salt dates back to approximately to 1200 BC, when various tribes, migrating from the Arab Peninsula, started to inhabit Ancient Syria<sup>2</sup>. The seventh century BC, marked the beginning of a series of occupations, starting with the Assyrians in the seventh century BC, the Babylonians in the sixth century BC, the Persians in the fifth century BC, and culminating with the Greeks in the fourth century BC who named the city as "*Saltus*". Some 300 years later the Roman invaded and for two hundred years the city shared the general prosperity of the Roman Empire. *Saltus* also shared the decline and the chaos that characterised the internal affairs of the Empire during the third century AD.

The seventh century AD marked the end of Roman control of the region, when the Arabs, under the stimulus of Islam, swept over Arabia. The city was named "Salt" and enjoyed a period of renaissance. Because of its strategic importance, control over Salt was interchanged among those who ruled the region including Crusaders, Mamlukes, Tatars and Ottomans. Salt reached the peak of its importance under the rule of Crusaders, who rebuilt its Citadel and used it as an advanced post in their defence system against the Mamlukes' attacks from the west. During the Ottoman era



Salt became the administrative centre for the southern Syria, i.e., Jordan and Palestine.

Salt was on the front line during the World War I<sup>3</sup>. When the Turkish Army entered the city in 1917, the residents fled. The residents started to return when the war ended in 1918. The houses were ransacked. Wooden window frames and doors, furniture, and even trees were taken away for use as fuel for the Turkish military railway transportation. After the break-up of the Ottoman Empire and World War I, the State of *Trans-Jordan* was established in 1921 and Amman assumed the administration of the country. Jordan earned its full independence in 1946 and The Hashimite Kingdom of Jordan was established.

Jordan was affected by the results of many regional struggles including the Arab-Israeli wars of 1948 and 1967; the Lebanese civil war (1976-1989); Iraq-Iran war (1980-1988), and the *Desert Storm* in 1991. Many refugees and migrants moved to Jordan in search of more secure living/working environments. Such sudden and large increases in population caused major problems not just to the new arrivals but also to the authorities that struggled to accommodate and regulate services and amenities for them.

Among the visual signs on the townscapes of cities were the marked increase of buildings and urban development projects. Being the capital of Jordan, Amman was seriously affected. The effects of these events on Salt, however, were less harmful. Accordingly, although the choice of Amman as the Capital of Jordan affected the political importance of Salt it also contributed to keeping its physical prominence.

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1. *Statistics Yearbook* (in Arabic), Amman: The General Directorate of Statistics, 1997.
  2. For the ancient history of Salt, see for example:
    - Hadidi, Adnan., *Studies in the History and Archaeology of Jordan*, Amman: Department of Antiquities, 1982.
  3. For the modern history of Salt, see for example:
    - Musa, Suliman., and M. Madi., *Jordan in the 20th. Century* (in Arabic), Amman: Al-Muhtaseb Book Shop, 1988.



## GLOSSARY OF TERMS

**Chi-Square:** Statistical test of significance for the analysis of relationships between two variables when the data are categorical.

**Conservation:** The revitalisation of the essential character of a building, group of buildings, or specific area of a city. Conservation may involve new buildings which are sympathetic with the old and respect the character of the area.

**Descriptive Statistics:** Summaries of numerical data.

**Design Guidelines:** A series of principles regarding the design and character of new developments.

**Image:** The perception of a given environment in terms of visual qualities.

**Infill Development:** The process of development or redevelopment within an existing built-up area of a city.

**Msamsam:** the traditional pointed dressing of masonry work in Jordan.

**Orientation:** The process of determining one's location in relation to the city.

**Parameter:** A variable that can be kept constant while the effect of shifting other variables is investigated.

**Perception:** The process of obtaining information about the world through the senses.

**Performance:** The ability of an environment to support users requirements.

**Phi-Coefficient:** A measure of strength of association between two categorical variables.

**Pilot Study:** Preliminary limited research performed as a forerunner to an experiment, i.e., to test the adequacy of research method or approach.

**Vista:** A confined view directed toward a terminal space or element.

**Urban Physical Key Elements:** Pathways and circulation network pattern, nodes, localities, landmarks and edges.

**User:** Any person occupying, managing, running or visiting a given building, space, or area.

**Satisfaction:** Acceptable accommodation of user's various needs.

**Significant Difference:** A difference in measured values which cannot reasonably be attributed to chance factors.

**Spacescape:** The visual effect created by the relationship of a city's urban components to each other and to the patterns formed by these urban components.

**Statistical Tests:** Numerical processes of reasoning based on the mathematical theory of probability.

**Tubze:** The rock-face traditional stone treatment used in Jordan.