LB/DON/87/03

RESPONSIVE URBAN BUILDING EDGES

EXPLORATORY STUDY ON THE SUPPORTIVENESS OF THE BUILDING EDGE; TO THE ACTIVITIES AND MODE OF BEHAVIOUR OF THE PEOPLE, IN URBAN PUBLIC SPACES



A Dissertation

Submitted to the Department of Architecture of the University of Moratuwa in partial fulfilment of the







By



um Thesis

WIJEKOON W. H. M. S. R. B.

JANUARY 2003

79046

79046

ACKNOWLEDGEMENT

My deepest gratitude goes to the following, whose most generous contributions in innumerable ways facilitated the realisation of this study:

Prof. Lakshman Alwis,

Professor of Architecture and Director Post Graduate Studies,

Prof. Nimal De Silva,

Dean, Faculty of Architecture

Archt. Vidura Sri Nammuni,

Senior Lecturer and Year Master M. Sc Year One For the inspiration

Dr. Samitha Manawadu,

Year Master M. Sc. Year Two and Present the Head of the Department of Architecture

Archt. Madhura Premathilake,

Senior lecturer and my dissertation tutor

For directing many aspects of the study, his patience and precious time expended in this respect,

Archt. Chris De Saram,

Senior Lecturer

For the kind advice and guidance given to me in my academic life

Archt. Prasanna Kulathilaka,

Archt. Suchith Mohotti,

Archt. Channa Daswathta,

For their invaluable comments, suggestions and guidance given

All My Friends

Generous help and encouragement given to me

My beloved Parents, Family Members and Nimali,

For their blessings and love extended all the time



CONTENTS

| | | PAGE NO |
|-------------------|---|----------|
| Acknowledgemen | ts | 11 |
| Table of Contents | | -V |
| List of Plates | | VIII-XII |
| Abstract | | XIII |
| | | |
| INTRODUCTION | | 01 |
| CHAPTER ONE | | |
| | S AND URBAN ENVIRONMENT | |
| | ISIVENESS IN ARCHITECTURE | |
| 1.1.1 | Introduction to Responsiveness | 08 |
| 1.1.2 | Need of Responsiveness in the Built Environment | 09 |
| 1.1.3 | | 10 |
| 1.1.4 | The Responsive Urban Building Edge | 11 |
| 1.1.5 | Socially Responsive Built Environment | 12 |
| 1.2 URBAN | SPACE AND URBAN DESIGN | |
| 1.2.1 | The City and Urban Space. | |
| | 1.2.1.1 The City Definition | 14 |
| | 1.2.1.2 The City as a Cultural Landscape | 16 |
| | 1.2.1.3 Creating Urban Ambience | 17 |
| | 1.2.1.4 Urban Environmental Quality | 18 |
| • | 1.2.1.5 Meaning of Quality of Life and | |
| | Quality of Life in Cities | 19 |
| 1.2.2 | Urban design | |
| | 1.2.2.1 The Definition | 23 |
| | 1.2.2.2 Urban Design as Social or Spatial Managemen | t 24 |
| | 1.2.2.3 Urban Design as the Organization of | |
| | Space Time Meaning and Communication | 27 |
| | 1.2.2.4 Who need to be involved in the | |
| | Urban design process | 29 |

CHAPTER TWO

2.1

2.2

2.0 PUBLIC REALM OF THE URBAN SPACE, AND RESPONSIVE URBAN SPACE.

| <u>Ę.</u> | | |
|-----------|--|----|
| PUBLIC | REALM OF THE URBAN SPACE. | |
| 2.1.1 | Introduction to Public domain of the urban space | 31 |
| 2.1.2 | Historical Overview Of The Public Realm; | |
| | Its Functions and Activities (For the Purpose) | 32 |
| 2.1.3 | Public Space as Spatial Enclosure | 36 |
| 2.1.4 | Urban edge of the Public Space | 37 |
| 2.1.5 | Problems of Present Public Spaces | |
| | 2.1.5.1 Development of New Communication | |
| | Technologies | 38 |
| | 2.1.5.2 New Transport Technologies | 38 |
| | 2.1.5.3 Fear of Crime | 39 |
| 2.1.6 | Present Functional Fragmentation of the Public Space | 40 |
| 2.1.7 | Reintegration of Socio-Spatial Fragmentation | 41 |
| 2.1.8 | Privatization Of Public Open Space | 44 |
| 2.1.9 | Public Space And Its Economic Potential | |
| | Associated With the Edge | 47 |
| CHARAC | CTERISTICS OF RESPONSIVE URBAN SPACE. | |
| 2.2.1 | Permeability | 50 |
| 2.2.2 | Variety | 52 |
| 2.2.3 | Legibility | 54 |
| 2.2.4 | Robustness | 56 |
| 2.2.5 | Visual appropriateness | 59 |
| 2.2.6 | Richness | 61 |
| 2.2.7 | Personalisation | 63 |

2.3 MAN ENVIRONMENTAL INTERACTION IN URBAN SETTINGS

| 2.3.1 | Environmental In | teraction in urban settings as a Key Issue | 64 |
|-------|--------------------|--|----|
| 2.3.2 | Human Characte | ristics and Physical characterises | 64 |
| | Of Urban Form | | |
| 2.3.3 | Psychology of pe | rception and behaviour | 65 |
| | 2.3.3.1 Perception | n | 66 |
| | 2.3.3.2 Behavious | - | 66 |
| | 2.3.3.3 Interpreta | tion | 66 |
| 2.3.4 | Experiencing a S | pace | |
| | 2.3.4.1 Non- Vert | pal Communication method | 67 |
| | 2.3.4.1.1 | Fixed Feature Elements | 67 |
| | 2.3.4.1.2 | Semi-fixed Elements | 68 |
| | 2.3.4.1.3 | None- fixed Feature Elements | 68 |
| | 2.3.4.1.4 | Environmental meaning | 68 |
| | 2.3.4.2 Understar | nding a Space | 70 |



CHAPTER THREE

3.0 <u>SUPPORTIVENESS OF THE BUILDING EDGE FOR ACTIVITIES IN THE URBAN PLACE</u>

3.1 BUILDING EDGE

| 3.1.1 | Introduction to Ch | apter Three | 71 |
|---|---------------------|--|-----|
| 3.1.2 | Building edge as | the central define element | |
| | of public spaces | | 72 |
| 3.1.3 | Role of the buildir | ng edge as space | 73 |
| 3.1.4 Characteristics of the building edge as a Tra | | the building edge as a Transitional Sp | ace |
| | 3.1.4.1 Physical c | ontext of the transitional space | 74 |
| | 3.1.4.2 Non-physi | cal context of the transitional space | 76 |
| | 3.1.4.2.1 | Social Content | 77 |
| | 3.1.4.2.2 | Economic context | 79 |
| | 3.1.4.2.3 | Cultural Context | 81 |

82

| | 3.1.5.1 Treat as sharp boundary / edge | 83 |
|-------------------------------------|---|----------|
| | 3.1.5.2 Treat as a perceived edge between two spaces | 85 |
| 3.1.6 | Significance of the building edge | |
| | As treating physically exotic place | 86 |
| 3.1.7 | Significance of the building edge as treating | |
| | Socially vibrant place | 89 |
| 3.1.8 | Significance of the building edge as | |
| | Psychological Meaningful place | 92 |
| 3.1.9 | Personalization of the Building Edge | 95 |
| 3.2 Conclusio | on for the chapter | 95 |
| 0.2 0 0.10.00 | | |
| CHAPTER FOUR | | *** |
| the internal property of the second | | |
| 4.0 EXAMPLE STU | IDIES | |
| | | |
| 4.1 Purpose o | of selecting example studies | 97 |
| 4.2 Basis for | selecting example studies | 97 |
| 4.3 Example : | studies | |
| 4.3.1 | Building edge with reference to the main street | |
| | Super market building Mount lavinia | |
| | 4.3.1.1 The design and the building edge | 98 |
| | 4.3.1.2 Users and functions associated with the | |
| | Building edge | 101 |
| | 4.3.1.3 Supportiveness of the building edge for | |
| | Functions and activities | 104 |
| | 4.3.1.4 Implications of the responsiveness | 106 |
| 4.3.2 | Building edge with reference to the public open space | e |
| <u>.</u> | Super market building Nugegoda | |
| | 4.3.2.1 The design and the building edge | 110 |
| | 4.3.2.2 Users and functions associated with the | |
| | Building edge | 115 |
| | 4.3.2.3 Supportiveness of the building edge for | |
| | Functions and activities | 117 |
| | 4.3.2.4 Implications of the responsiveness | 121 |

3.1.5 Different ways of defining the building edge

| 4.3.3 | Building edge with reference to the function of the | building |
|-------|--|----------|
| | Bus terminal Ambalangoda | |
| | 4.3.3.1 The design and the building edge | 122 |
| | 4.3.3.2 Users and functions associated with the | |
| | Building edge | 125 |
| | 4.3.3.3 Supportiveness of the building edge for | |
| | Functions and activities | 129 |
| | 4.3.3.4 Implications of the responsiveness | 123 |
| 4.3.4 | Building edge with reference to the Design Bias | |
| | Bus terminal Mathara | |
| | 4.3.4.1 The design and the building edge | 133 |
| | 4.3.4.2 Users and functions associated with the | |
| | Building edge | 137 |
| | 4.3.4.3 Supportiveness of the building edge for | |
| | Functions and activities | 140 |
| | 4.3.4.4 Implications of the responsiveness | 142 |
| | University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.lib.mrt.ac.lk | |

CHAPTER FIVE

5.0 CONCLUSIONS

| 5.1 General Conclusions | 144 |
|--------------------------|-----|
| 5.2 Specific Conclusions | 147 |
| 5.3 Final Conclusions | 149 |
| REFERENCES | 152 |



LIST OF PLATES

PLATES PAGE NO.

CHAPTER ONE

| Plate: 1. 1 | Arpico super centre building Mountlavinia | 10 |
|--------------|--|----|
| Plate: 1. 2 | George E. De Silva Park, Kandy Front and inner views | 12 |
| Plate: 1. 3 | New town Hong Kong | 18 |
| Plate: 1. 4 | Present developed condition in local city | 18 |
| Plate: 1. 5 | Rural scenic beauty | 21 |
| Plate: 1. 6 | Luxuries of the city | 21 |
| Plate: 1. 7 | Present urban spaces (true nature) | 22 |
| Plate: 1.8 | The city as a fascinating place for rich urban experience, | 22 |
| Plate: 1. 9 | Local urban spaces | 22 |
| Plate: 1. 10 | Urban design as "nice drawings to pin on the wall" | 25 |
| Plate: 1. 11 | Urban design attention to the aesthetics of the urban environment? | 25 |
| Plate: 1. 12 | Is urban design merely "lots of architecture"? | 25 |
| Plate: 1. 13 | Urban design concerned with spatial or social management | 26 |
| Plate: 1 14 | Ruilding edge of the bus terminal Ambalangoda with Galle road | 26 |

CHAPTER TWO

| Plate: 2. 1 | Lucca in Tuscany, | 33 |
|--------------|---|----|
| Plate: 2. 2 | The campo in Siena - Italy | 33 |
| Plate: 2. 3 | User friendly qualities of building facades, has evolved from years | 34 |
| Plate: 2. 4 | Centre Pompidou, Paris | 34 |
| Plate: 2. 5 | Singer Mega building Mt- Lavinia | 35 |
| Plate: 2. 6 | Royal bakery building, Wellawathta | 35 |
| Plate: 2. 7 | Houston, in Texas City | 42 |
| Plate: 2. 8 | Renewal of the Galle face green - Colombo | 43 |
| Plate: 2. 9 | French comer building Mt- lavinia | 46 |
| Plate: 2. 10 | French comer building | 46 |
| Plate: 2. 11 | premodern urban public space | 47 |
| Plate: 2. 12 | Urban open space-Nugegoda city | 47 |
| Plate: 2. 13 | permeability and public place | 51 |
| Plate: 2. 14 | Visual permeability | 51 |
| Plate: 2, 15 | Both physical and visual permeability is blocked | 52 |
| Plate: 2. 16 | variety diagram | 52 |
| Plate: 2. 17 | Variety in the Street of Moraluwa, Sri Lanka. | 53 |
| Plate: 2. 18 | Variety. Mutual support of activities | 53 |
| Plate: 2. 19 | Legibility | 54 |
| Plate: 2. 20 | Buildings cannot lie | 55 |
| Plate: 2. 21 | Singer Mega Building Mt-Lavinia | 55 |
| Plate: 2. 22 | Arpico supercentre building | 56 |
| Plate: 2. 23 | Royal Bakery - Wellawaththa | 57 |
| Plate: 2. 24 | Jorge E. De Silva Park, Kandy | 57 |
| Plate: 2. 25 | indoor outdoor relationship | 58 |
| Plate: 2. 26 | Indoor and Outdoor Visual connection | 58 |
| Plate: 2. 27 | Nugegoda Super Market dead areas | 58 |
| Plate: 2. 28 | Bus terminal Mathara Dead Areas | 59 |
| Plate: 2. 29 | Potential of accommodating various activities in the edge | 59 |
| Plate: 2. 30 | Use of cues in design | 61 |
| Plate: 2. 31 | How do users choose | 62 |
| Plate: 2 32 | Visual Richness | 62 |



CHAPTER THREE

| Plate: 3. 1 | Royal Bakery, Wellawaththa | 75 |
|--------------|--|----|
| Plate: 3. 2 | Royal Bakery, Wellawaththa | 75 |
| Plate: 3. 3 | Apricot building Dehiwala | 76 |
| Plate: 3. 4 | Physical Context | 77 |
| Plate: 3. 5 | Non-physical context | 77 |
| Plate: 3. 6. | "People", fundamental element in social place | 78 |
| Plate: 3.7 | People in front of a building | 78 |
| Plate: 3.8 | Shoemaker | 80 |
| Plate: 3. 9 | mixing of uses in an urban space. | 80 |
| Plate: 3. 10 | Kandy perahara | 82 |
| Plate: 3. 11 | French corner Parade-Dehiwala | 83 |
| Plate: 3. 12 | Royal Bakery Wellawaththa | 83 |
| Plate: 3. 13 | Bus terminal Mathara | 84 |
| Plate: 3. 14 | Machine edge buildings | 85 |
| Plate: 3. 15 | Ambalangoda Bus terminal | 86 |
| Plate: 3. 16 | Arpico building and singer-mega building Mountlavinia | 88 |
| Plate: 3. 17 | French-comer building | 89 |
| Plate: 3. 18 | Road to Mountlavinia | 90 |
| Plate: 3. 19 | Chatham Street | 90 |
| Plate: 3. 20 | Some Contributions to responsiveness | 91 |
| Plate: 3. 21 | Personalising the building edge- in local street situation | 96 |

CHAPTER FOUR

| Plate: 4. 1 | Mountlavinia super Market building | 98 |
|--------------|---|-----|
| Plate: 4. 2 | Layout plan | 99 |
| Plate: 4. 3 | Building front edge facing the Galle road | 99 |
| Plate: 4. 4 | Building front edge facing Station road | 100 |
| Plate: 4. 5 | Building front edge facing CTB bus stand | 100 |
| Plate: 4. 6 | Building rear edge facing to the rear road | 100 |
| Plate: 4. 7 | Center court yard with fountains and seating | 101 |
| Plate: 4. 8 | Shady tree provides a setting for youngsters to meet | 102 |
| Plate: 4. 9 | Public movement along the edge of the building | 102 |
| Plate: 4. 10 | Front transitional space | 102 |
| Plate: 4. 11 | Edge Facing CTB Bus Stand | 103 |
| Plate: 4. 12 | Rear edge of the building | 104 |
| Plate: 4. 13 | Active areas of the building | 105 |
| Plate: 4. 14 | Interior court yard and the interior edge of the building | 105 |
| Plate: 4. 15 | some of unplanned structures done in the interior | 106 |
| Plate: 4. 16 | socially isolated areas | 106 |
| Plate: 4. 17 | Indoor activities into adjacent public outdoor space | 107 |
| Plate: 4. 18 | Majestic city interior – "full of activities, full of people" | 108 |
| Plate: 4. 19 | Majestic city public corridor | 109 |
| Plate: 4. 20 | Mountlavinia supermarket main entrance corridor | 109 |
| Plate: 4. 21 | Super market building – Nugegoda | 110 |
| Plate: 4. 22 | Super Market, Nugegoda | 110 |
| Plate: 4. 23 | The key layout of the building reference to the main roads | 111 |
| Plate: 4. 24 | Inner court yards and the corridors facing open public plaza | 111 |
| Plate: 4. 25 | The shops are arranged either side of the interior corridors | 111 |
| Plate: 4. 26 | Building facade facing Stanley Thilakarathna mawatha | 112 |
| Plate: 4. 27 | Facade facing to the open air theatre | 112 |
| Plate: 4. 28 | View from the open air theatre | 113 |
| Plate: 4, 29 | Stairway and the balconies overlooking the open air theatre | 113 |
| Plate: 4. 30 | View from old Kottawa road | 113 |
| Plate: 4. 31 | Structures done within that prime space | 114 |
| Plate: 4, 32 | Rear side facade of the super market | 14 |
| | | |

| Plate: 4. 33 | unplanned structures arisen from the new facade | 114 |
|--------------|--|-----|
| Plate: 4. 34 | interior corridors | 115 |
| Plate: 4. 35 | building front edge, | 116 |
| Plate: 4. 36 | two side edges are away from people | 117 |
| Plate: 4. 37 | interior edges | 117 |
| Plate: 4. 38 | people and activity distribution diagram | 118 |
| Plate: 4. 39 | Stanley thilakarathna mawatha | 119 |
| Plate: 4. 40 | Informal sector commercial activities | 119 |
| Plate: 4. 41 | unplanned structures | 120 |
| Plate: 4. 42 | the passive areas in the building edge | 120 |
| Plate: 4. 43 | Bus terminal Ambalangoda view to Galle Road | 122 |
| Plate: 4. 44 | Building layout | 123 |
| Plate: 4. 45 | Space between the Galle Road and the main block | 123 |
| Plate: 4. 46 | ide spaces of the building | 124 |
| Plate: 4. 47 | Space between two building blocks | 124 |
| Plate: 4. 48 | Interior lobby space | 124 |
| Plate: 4. 49 | Transparent edges with shade | 125 |
| Plate: 4. 50 | Front edge of the building as a space | 126 |
| Plate: 4. 51 | Front edge as a space Mariana Strumba | 126 |
| Plate: 4. 52 | Upper floor balconies man le | 127 |
| Plate: 4. 53 | Stairway leading upper floor | 127 |
| Plate: 4. 54 | Detailing and use of colors | 128 |
| Plate: 4. 55 | Building side edge view from railway station exit | 128 |
| Plate: 4. 56 | Building side edge | 128 |
| Plate: 4. 57 | Edges between Two Blocks | 129 |
| Plate: 4. 58 | People density in a weekday evening | 130 |
| Plate: 4. 59 | Setting for shopping | 131 |
| Plate: 4. 60 | Upper floor corridor | 131 |
| Plate: 4. 61 | Separation of pedestrian and vehicular movement | 131 |
| Plate: 4. 62 | Bus terminal Mathara view to Galle road | 133 |
| Plate: 4. 63 | Building layout | 134 |
| Plate: 4. 64 | The interface between the Galle road and the bus stand | 135 |
| Plate: 4. 65 | Facade facing to the public space | 135 |
| Plate: 4. 66 | Building edge facing to sea side | 136 |
| Plate: 4. 67 | The edge is designed as a wire mesh boundary | 136 |
| Plate: 4. 68 | building interior spaces | 137 |
| Plate: 4. 69 | Edge wall designed as "Rampart" | 138 |

| | | · XI |
|--------------|---|------|
| Plate: 4. 70 | Socially isolated building edge | 138 |
| Plate: 4. 71 | Wire mesh boundary | 138 |
| Plate: 4. 72 | South facade has treated fence using half boundary wall | 139 |
| Plate: 4. 73 | Upper floor "empty corridors" | 139 |
| Plate: 4. 74 | Upper roof terrace | 139 |
| Plate: 4. 75 | Pola and the beach promenade | 140 |
| Plate: 4. 76 | People density and activity distribution diagram | 140 |



A B S T R A C T

Most of our present day cities have not provided proper "architectural settings" for the urban spaces. Since, the "urban activities" have an inseparable link with the urban place, or in other words social and spatial attributes are intertwined in our urban space: most of urban places and urban buildings designed recently, in our cities have not understood or neglected to cater to such social and spatial attributes in the urban environmental design.

This has created "socially unresponsive urban spaces" (as well as buildings) in all over the cities, as a result of this phenomenon (centrally); modern city experiences have little to offer as a social, cultural experience of an urban public place. In the other hand local cities are being mass produced by the developers, and due to unplanned rapid development, urban outdoor spaces or city open spaces have become lost as, urban pockets; misused spaces or dead spaces. The aliveness of the urban spaces and their activities are increasingly diminishing due to various negative effects of this unplanned urban development.

Electronic Theses & Dissertations www.lib.mrt.ac.lk

The negative effects of this rapid mega development could thus be found at all places in all levels. Towns, open spaces, public buildings and other areas around the world are fastly becoming similar, due to standardization of production methods, improper use of materials and lack of concern in urban environmental design.

As a result of that, especially urban people are in a danger of fastly loosing there sensitivity, attachment and identity to local urban spaces. Therefore especially in local urban context, urban public places have to play a major role in accommodating "urbanized people" and fulfilling their various requirements and needs. Hence the need of "meaningful, socially responsive urban places and buildings", which are capable of accommodating various urban public activities with "positive architectural responses", has become a central issue among the present urban designers.

Thus novel way of approach for "urban environmental design": which essentially deals with and cater to "intertwined social and spatial attributes" in urban places is essential...