



ACHARYA'S NRV SCHOOL OF ARCHITECTURE
SOLADEVANAHALLI, BENGALURU -560107

“RE-IMAGINING THE VERTICAL WAY OF LIVING”
ARCHITECTURE DESIGN PROJECT (THESIS) – 2022-23

Submitted in partial fulfillment of the Requirements for the
“Bachelor of Architecture” Degree Course

Submitted by : Gattu Mohammed Rehan
USN : 1AA18AT019
Guide : Prof. Malavika Jayachandran

A project report submitted to
VISVESHVARAYA TECHNOLOGICAL UNIVERSITY
“Jnana Sangama”, Machhe, Belgaum – 590018



ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ - ೫೯೦೦೧೮

DECLARATION

This thesis title “Re-Imagining The Vertical Way of Living”, submitted in partial fulfillment of the requirement for the award of the under graduate of Bachelor of architecture is my original work to the best of my knowledge.

The sources for the various information and the data used have been duly acknowledged.

The work has not been submitted or provided to any other institution/ organization for any diploma/degree or any other purpose.

I take full responsibility for the content in this report and in the event of any conflict or dispute if any, hereby indemnify Acharya’s NRV School of Architecture and Visveshwaraya Technological University, Belagavi, and its official representatives against any damages that any raise thereof.

(Signature)

Gattu Mohammed Rehan

1AA18AT019

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all those who have contributed to the completion of my thesis project.

I am immensely grateful to my guide Prof. Malavika for their guidance and support throughout this research endeavor. Their expertise and insightful feedback have been invaluable in shaping the direction and quality of my work. Their valuable input and constructive feedback have helped me refine and strengthen my research.

I am thankful to the our Principal Sanjyot Shah, administration and staff for providing the necessary resources and facilities that have facilitated the progress of my thesis.

I would like to express my heartfelt gratitude to my family and friends for their unwavering support and encouragement. Their belief in my abilities and their presence during this journey have been a constant source of inspiration.

I would like to acknowledge the pivotal role of my uncle, Ahmed Basha in shaping my passion for architecture and providing mentorship throughout this project. His guidance and support have been instrumental in my growth as a student and researcher.

Lastly, I extend my thanks to all the participants and individuals who generously shared their time and insights for my research. Their contributions have enriched the depth and diversity of my study.

To all those mentioned above, as well as countless others who have supported me in various ways, I am sincerely grateful for your contributions.

Table of Contents

ABSTRACT.....	6
1. INTRODUCTION	7
1.1 GENERAL.....	7
1.2 AIM.....	8
1.3 OBJECTIVES	9
1.4 SCOPE	10
1.5 LIMITATIONS.....	10
2. BACKGROUND STUDY	12
2.1 CITIES	12
2.2 NEIGHBORHOODS	14
.....	15
.....	15
2.3 CITIES OF INDIA.....	16
2.4. POINTS OF FAILURE OF THE CITIES	19
2.5. URBAN SPRAWL	20
2.6. FUTURE OF THE CITIES.....	23
2.7 HIGH-RISE BUILDINGS	26
2.8 HIGH-RISE CONSTRUCTION IN INDIAN CITIES	29
2.9. CONCEPT OF MIXED-USE	31
2.10. MIXED-USE BUILDINGS	32
2.11 VERTICAL NEIGHBORHOODS	34
2.12 THE CONCEPT OF VERTICAL NEIGHBORHOOD AS A SOLUTION.....	35
2.13. SPATIAL ANALYSIS AND ITS EFFECTS ON THE HUMAN PSYCHE	37
2.14 PSYCHOLOGICAL EFFECTS OF LIVING HIGHER FROM THE GROUND.....	39
3.CASE STUDY	41
3.1 LITERATURE STUDY.....	41
3.1.1 LOTTE WORLD TOWER, SEOUL, SOUTH KOREA	41
3.1.2 SKY HABITAT, SINGAPORE.....	49
3.1.3 CAPITASPRING, SINGAPORE.....	58
3.2 LIVE CASE STUDY	71
3.2.1 KOHINOOR SQUARE, MUMBAI	71
4.SITE ANALYSIS	80
5.CONCEPT	93
.....	93
6.PROGRAMME & AREA STATEMENT	94
7.ZONING	94
8.DRAWINGS	95

8.1.Master Plan	95
8.2.Plans	96
8.3.Section.....	103
8.4.Elevation	104
.....	104
8.5.Renders	105
9.PLAGARISM REPORT	106
10.BIBLIOGRAPHY	110

TABLE OF FIGURES:

Figure 1: City	7
Figure 2: Urban Fabric.....	12
Figure 3: Neighborhood Layout.....	14
Figure 4: Characteristics Elements of Indian Neighborhood.....	15
Figure 5: Extreme Air Pollution in Indian Cities	16
Figure 6: Space Crunch in Indian Cities	16
Figure 7: Saturation in Indian Cities.....	17
Figure 8: Uncontrollable amounts of Water Pollution.....	18
Figure 9: Imagined Future of Cities.....	23
Figure 10: Classification of Buildings based on Height	26
Figure 11: Burj Khalifa, Dubai	28
Figure 12: Mumbai City Skyline	29
Figure 13: Concepts of Mixed-use Buildings	33
Figure 14: Evolution of High-rise Buildings with Changing Times.....	35
Figure 15: Lotte World Tower, Seoul, South Korea.....	41
Figure 16: Location Map	43
Figure 17: Vertical Distribution of Programme.....	44
Figure 18: Site Plan.....	45
Figure 19: Office and Main Lobby	47
Figure 20: Podium Top overlooking Courtyard.....	47
Figure 21: Sky Habitat, Singapore.....	49
Figure 22: Location Map	50
Figure 23: Site Plan.....	51
Figure 24: Typical Floor Plans.....	53
Figure 25: Section Through the Towers	54
Figure 26: Balcony Detail 1	54
Figure 27: Balcony Detail 2	54
Figure 28: Sky bridges that connect the towers at different levels	55
Figure 29: Views of Sky Bridges and Interiors	56
Figure 30: CapitaSpring, Singapore.....	58
Figure 31: Location Map	59
Figure 32: Vertical Zoning.....	60
Figure 33: Vertical Zoning.....	61
Figure 34: Site Plan.....	62
Figure 35: Podium Plan	62
Figure 36: Typical Office Plan and Green Oasis Plan	64
Figure 37: Roof Scape Plan and Typical Service Residence Plan	65
Figure 38: Section through Tower and Podium	65
Figure 39: Elevation Showing the Openings in the Facade	66
Figure 40: Views of Interior and Green Oasis	67
Figure 41: Facade Details	68
Figure 42: Kohinoor Square, Mumbai	71
Figure 43: Location Map	72
Figure 44: Site Plan.....	73
Figure 45: Vertical Distribution of Program.....	74
Figure 46 : Building Programs.....	74
Figure 47: Typical Podium Floor Plans	75
Figure 48: Typical Office Floor Plan	76
Figure 49: Typical Residential Floor Plan	76
Figure 50: Central Core Plan	76
Figure 51: Mechanical Systems	77
Figure 52: Sustainability Features.....	77
Figure 53: Worli Koliwada, Mumbai.....	80

Figure 54: Location Map	81
Figure 55: Deteriorating Conditions	82
Figure 56: Site Context	83
Figure 57: Site Images	84
Figure 58: Site Activities	84
Figure 59: Mobility Figures	85
Figure 60: Demographics.....	85
Figure 61:Identifies Site.....	86
Figure 62: Mumbai Master Plan 2034	88
Figure 63: Site Issues	88
Figure 64:Proposed Site.....	89
Figure 65: Solid Void Analysis	Figure 66: current Land use
Analysis	90
Figure 67: Green Cover Analysis	Figure 68: Road Network
Analysis	90
Figure 69: Slope Analysis	Figure 70: Sun Path Analysis
Figure 71: Wind Data.....	91
Figure 72:Wind Pattern Analysis.....	91
Figure 73: Site Sections	92

ABSTRACT

Efficient use of urban space has never been more critical. As cities grow and expand, the traditional approach of sprawling outwards is no longer feasible or sustainable. Instead, vertical expansion of buildings has emerged as a promising solution, with high-rise buildings and vertical neighbourhoods offering the potential to provide much-needed urban density while promoting community building, liability, and sustainability.

This thesis project explores the concept of rethinking urban living in a vertical horizon, with a focus on creating sustainable and eco-responsive architecture in the context of a vertical neighbourhood. Located in the Worli Koliwada region of Mumbai, the project aims to promote the concept of walkability while providing a mix of residential, commercial, institutional, and recreational facilities.

The project's central idea is to stack various functions vertically, creating a holistic vertical neighbourhood that supports sustainable living. This approach involves rigorous form generation, climatic response, and the use of sustainable features such as green roofs, rainwater harvesting, and energy-efficient systems. The project also emphasizes the use of natural light and ventilation to enhance the quality of life for residents and users.

Through an iterative design process, the project proposes a mixed-use building that can accommodate a diverse range of functions and activities. The design is guided by the principles of sustainability, community building, and liability, creating a model for vertical living that can serve as a prototype for future urban developments.

Overall, this thesis project aims to contribute to the ongoing discourse around sustainable urban development and the potential of vertical living to address the challenges of rapid urbanization. By reimagining the vertical way of life, the project proposes a more sustainable, efficient, and liveable future for urban communities.