



**HISTORICAL DEVELOPMENTS AND TRANSFORMATION OF RELIGIOUS
ARCHITECTURE**

A case study of Durban's Hindu Temples

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Dissertation submitted to the School of Built Environment and Development Studies, University
of KwaZulu-Natal, in partial-fulfilment of the requirements for the degree of Master in
Architecture Research

Durban

DECLARATION

I declare that this dissertation is my own, unaided work and carried out exclusively by me under the supervision of Mr. Juan Solis-Arias. It is being submitted for the degree of Master in Architecture by research in the University of KwaZulu-Natal. It has not been submitted before for any degree or examination in any other University.

Signed 30 November 2015

.....

Naresh Singh

ABSTRACT

This research is inspired by the lack of debate around what is desirable Hindu Religious Architecture, amongst the adherents to this faith in Durban. This will spur discussion to create appropriate contemporary spiritual and religious iconolatry, a symbol of divine veneration as well as a place of congregation for the Hindu in Durban.

According to Meer, the early Hindu temples were built in Durban over a thirty-five year period between 1875 and 1910, Meer (1969), which is now more than a century ago. The transformation of Hindu temples in Durban can be conceptualised as a by-product of the needs and lifestyles of the sub-culture Hinduism of the region. They are the product of a broad spectrum of role players whose academic, physical and even spiritual input is worth analysing and understanding.

The relevance of this study will be established by analysing the history of the Hindu culture in its land of origin; the Indian Sub-continent, by analysing its various interpretations through built form and lastly, by analysing its evolution, or what makes concrete the idea of Hindu Religious Architecture in Durban, South Africa.

The core of the research is the analysis of case studies, in which issues of what was historically appropriate places of Hindu worship, regional appropriateness and whether or not the Hindu Religious Architecture of Durban conveys a complex inter-webbing of meaning. It is this that either causes the decline or enhancement of the formal values and the public view, and which the Hindu Temple Architecture embodies and in turn, radiates and affects.

The influence of western culture and colonialism has had an effect on the practices of Hindu culture in Durban, particularly the apartheid planning policy, which impacted on the spaces where cultural and religious practices were performed.

The theory review analyses the integration of the pragmatic functional requirements of the building program with the metaphysical and symbolic qualities of space and art that are characteristic of Indian traditional architecture. Such architecture will be analysed with reference to its relevance in the Durban context.

Finally, the composition, evolution and meaning that need to be understood together in Hindu Religious Architecture in Durban will be investigated.

DEDICATION

I dedicate this dissertation to my amazing wife and children for their support. Thank-you for encouraging me regarding the value of education and thank-you for the sacrifices you have made for me. I will remain ever grateful for the encouragement you gave me during the sleepless nights when I needed someone close by my side.

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TABLE OF CONTENTS

DECLARATION.....	I
ABSTRACT.....	II
DEDICATION.....	III
ACKNOWLEDGEMENTS.....	IV
TABLE OF CONTENTS.....	V
LIST OF FIGURES.....	XIV
LIST OF TABLES.....	XXIII
LIST OF APPENDICES.....	XXIV
ABBREVIATIONS.....	XXV

CHAPTER ONE: BACKGROUND RESEARCH ON ISSUES.....1

1.1 INTRODUCTION.....	1
1.1.1 Background	1
1.1.2 Structure of Dissertation.....	2
1.1.3 Motivation/Justification for the Study.....	3
1.2 DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES.....	4
1.2.1 Problem Statement.....	4
1.2.2 Aims.....	4
1.2.3 Objectives.....	5
1.3 SETTING OUT THE SCOPE.....	5
1.3.1 Delimitation of the Research Problem.....	5
1.3.2 Definition of Terms.....	6
1.3.3 Stating the Assumptions.....	7
1.3.4 Key Question.....	8
1.3.5 Sub Questions.....	8
1.3.6 Hypothesis.....	8
1.3.7 Study Area.....	8

1.4	CONCEPTUAL AND THEORETICAL FRAMEWORK.....	9
1.4.1	Conceptual Framework.....	9
A	Historical Development.....	9
B	Concept of Hinduism.....	10
C	Transformation of Hindu Temple Forms.....	11
D	Hindu Religious Architecture.....	13
1.4.2	Theoretical Framework.....	14
A	Definition of Place.....	14
B	Critical Regionalism.....	15
C	Vastu Shastra.....	16
CHAPTER TWO: RESEARCH METHODOLOGY.....		17
2.1	INTRODUCTION.....	17
2.1.1	Primary Data Source.....	17
A	In-depth Interview.....	18
B	Reconnaissance Survey.....	18
C	Standardised Questionnaires.....	18
D	Case Studies.....	18
2.1.2	Secondary Data Sources.....	19
A	Literature Review.....	19
B	Precedent Studies.....	19
C	Published Print Sources and Published Electronic Sources.....	20
2.1.3	Data Analysis.....	20
CHAPTER THREE: LITERATURE REVIEW.....		21
3.1	INTRODUCTION TO GENERAL LITERATURE REVIEW.....	21
3.2	THREE DISTINCT HISTORIC STYLES OF TEMPLE ARCHITECTURE.....	21
3.2.1	The Nagara Style Temple Architecture.....	22
3.2.2	Dravida or Southern Style Temple Architecture.....	24
3.2.3	Vesara or Hybrid Style Temple Architecture.....	25

3.3 THE INFLUENCE OF MAJOR DEITIES IN	
HINDU TEMPLE ARCHITECTURE	29
A Lord Brahma.....	30
B Goddess Savatri.....	31
C Vishnu Narayan.....	32
D Goddess Lakshmi.....	33
E Lord Shiva.....	34
F Mother Shakthi.....	35
3.4 HINDUISM IN DURBAN.....	37
3.4.1 Introduction.....	37
3.4.2 Historical Background.....	37
3.4.3 Neo-Hinduism in Durban.....	39
3.5 CULTURAL SETTING AND HERITAGE OF SPACE.....	41
3.5.1 Cultural and Heritage Setting- Platonic Regionalism.....	43
3.5.2 Analysis of Form and Religious Meaning.....	44
3.6 DEFINITION OF PLACE.....	45
3.6.1 Linkage to Place.....	45
3.6.2 Place Attachment.....	46
3.6.3 Natural- A Sense of Place.....	47
3.6.4 Genius Loci-‘The Spirit of Place’.....	48
3.6.5 Place Identity.....	50
A. Search for a ‘Post-modern’Hindu Regional Temple Architecture Identity.....	51
B. Hindu Cultural Heritage and Community Environmental Identity.....	52
C. Essence of Place.....	53
3.6.6 Conclusion to Definition of Place.....	53
3.7 CRITICAL REGIONALISM.....	54
3.7.1 Introduction.....	54
3.7.2 The Awareness of a Regional Architecture.....	56
3.7.3 Constructive Regionalism.....	61
3.7.4 Conclusion.....	65
3.8 VASTU SHASTRA- IN HINDU TEMPLE ARCHITECTURE.....	67
3.8.1 Introduction.....	67
3.8.2 Vastu Shastra-in Hindu Religious Architecture.....	68
3.8.3 Sacred Architecture.....	68

3.8.4	The Vastu Purusha Mandala.....	70
3.8.5	Comparison of Proportioning System in Vastu Shastra Architecture.....	70
A	The Vastu Purusha.....	71
B	The Vitruvian Man.....	72
C	The Modular.....	73
D	The Brahmasthan.....	73
3.8.6	Types of Vastu Purusha Mandala.....	75
3.8.7	The Mandukapada vastu purusha mandala (Amorphic).....	75
3.8.8	The Paramasayika vastu purusha mandala (Morphic).....	76
3.8.9	The Five Primary Elements.....	78
A	Earth (Bhumi).....	78
B	Water (Jal).....	78
C	Air (Vayu).....	79
D	Fire (Agni).....	80
E	Space (Akash).....	81
3.9	THE DESIGN PRINCIPLES OF VASTU SHASTRA.....	82
A	Orientation of the Structure and the Shape and Orientation of the Site....	83
B	The Topography of the Site and Context.....	86
C	Outstanding: Natural Elements on or Nearby the Site.....	86
D	Site Relationship to Existing or Proposed Roads.....	86
E	Condition of Soil -Acceptable for a Vastu Structure.....	87
F	Condition of Soil -Unacceptable for a Vastu Structure.....	87
G	Existence of Man-Made Elements.....	87
H	Landscape, Trees and Shrubs.....	88
I	The Vastu ‘Tala’, System of Spatial Measure.....	88
J	The Concept of Time Measurement.....	89
K	The Sacred Number ‘Eight’ in Vastu Science.....	90
L	Hindu Symbols According to Vastu Shastra.....	92
M	The Importance of Colours.....	93
3.10	CONCLUSION.....	94

CHAPTER FOUR....PRECEDENT STUDIES.....	97
4.1 INTRODUCTION.....	97
4.2 PRECEDENT IDENTIFICATION.....	98
4.3 STRUCTURE OF PRECEDENT STUDIES.....	99
Precedent Location of selected Hindu Religious Architecture.....	100
4.4 PRECEDENT STUDY ONE.....	101
THE TAJ MAHAL- A CLASSICAL VASTU STRUCTURE.....	101
4.4.1 Introduction and Historical Perspective of the Taj Mahal.....	101
4.4.2 Appraisal of Religious Form.....	102
A. Rationale and geometry.....	102
B. Sacred Geometry Architecture of the Taj Mahal.....	102
C. The Paramasayika VPM Principle Applied in the Planning of the TajMahal.....	103
D. Modular Planning of the Taj Mahal.....	104
4.4.3 Appraisal of the Settings and Functions.....	105
A. Orientation.....	105
B. Outstanding Natural Elements.....	106
C. The General Slope of the Land.....	106
D. Vegetation - Landscape, Trees and Shrubs.....	107
4.4.4 Definition of Place.....	108
4.4.5 Critical Regionalism.....	109
4.4.6 Vastu Shastra.....	110
4.4.7 Key Lessons Learnt.....	110
4.5 PRECEDENT STUDY TWO-.....	112
THE BIRLA MANDIR OR LAKSHMI NARAYAN MANDIR – DELHI, INDIA - A Contemporary Hindu Temple.....	112
4.5.1 Introduction and Historical Perspective of the Birla Mandir.....	112
4.5.2 Appraisal of the Religious Form.....	113
A. Key Theoretical Issues Employed in the Design of the Space.....	113
B. Architecture: Analysis and Religious Meaning.....	114
C. Perfect Symmetrical Planning.....	116
4.5.3 Appraisal of the Settings and Functions.....	117
A. The Cultural Setting and Heritage of the Space.....	117

B. Temple Site and Setting.....	117
C. Linkage to the Urban Fabric Accessibility.....	118
D. Analysis of Function.....	119
E. Temple Construction.....	120
4.5.4 Definition of Place.....	121
4.5.5 Critical Regionalism.....	121
A. Materials and Climatic Response.....	121
B. Locality - Urban Context and Cultural Setting.....	121
4.5.6 Analysis of Vastu Shastra in the Lakshmi Narayan Mandir-Delhi.....	122
4.6 PRECEDENT STUDY THREE - VIDHAN BHAVAN.....	124
Vastu Shastra: In Contemporary Modern Architecture.....	124
4.6.1 Introduction and Historical Perspective of Vidhan Bhavan.....	123
4.6.2 Appraisal of the Settings and Functions.....	124
4.6.3 Definition of Place.....	125
4.6.4 Critical Regionalism.....	126
A. Historical Background.....	126
B. Local Architectural Character.....	126
4.6.5 Analysis of Vastu Shastra meaning.....	127
4.6.6 Summary Statement of Vidhan Bhavan.....	129
4.7 SUMMARY OF CHAPTER.....	130
CHAPTER FIVE: CASE STUDIES.....	132
5.1 Introduction.....	132
5.1.2 Approach to Case Study.....	133
5.2 CASE STUDY ONE - VISHWAROOP TEMPLE AND DHARMASHALA (VTD).	133
5.2.1 Historical Settings and Definition of Place.....	133
5.2.2 The Setting of the Case Study.....	134
5.2.3 Historical Setting and Definition of the VTD Temple.	135
A. Early Development- The Juggernath-Puri Temple (Built 1901).....	136
B. Raam Mandir- Built 1903-1910.	138

C. Shiva Mandir- Built 1935-1940.	141
D. The Gokhale Hall - Built 1912.	143
E. Definition of Place Analysis of Gokhale Hall.....	145
F. Vastu Shastra Analysis.	145
5.2.4 Reflections on the Last Fifty Years.....	145
5.2.5 Construction, Materials and Climatic Response – Critical Regionalism Point of View.....	147
5.2.6 Architecture Analysis and Religious Meaning.....	152
A. The Principle Architectural Elements.....	153
B. Analysis of Form.....	155
C. Raam Mandir.....	155
D. Shiva Mandir.....	159
E. The Gokhale Hall.....	160
F. Urban Context and Cultural Setting.....	165
5.2.7 Building Analysis.....	166
A. Analysis of Function.....	166
B. Analysis of Religious Meaning.....	167
C. Ambiguity of Form.....	170
5.3 CASE STUDY 2- DURBAN HINDU TEMPLE (DHT).....	171
5.3.1 Historical Background.....	171
5.3.2 The Arrival and Settlement of Indian Immigrants in Durban.....	172
5.3.3 The Labour Compound in the Eastern Vlei.....	173
A. Magazine Barracks.....	175
B. The Residents of Magazine Barracks.....	176
C. Magazine Barracks – Definition of a Place Point of View.....	177
5.3.4 Historical Setting of the Durban Hindu Temple.....	179
5.3.5 The Groups Areas Act and Forced Removals.....	180
5.3.6 The African Township: Kwa-Mashu.....	182
5.3.7 The Indian Township - Chatsworth.....	183
5.3.8 The Urban Setting of the DHT in Post - Apartheid Durban.....	184
5.3.9 The Urban Design of the Eastern Vlei - Late Twentieth Century.....	186
5.4 Analysis of Critical Regionalism and the DHT Design.....	188
5.5 Definition of Place - Integrating the new and the old.....	192
5.5.1 Analysis of Function.....	193

5.6	Analysis of Vastu Shastra at the DHT.....	198
5.6.1	Analysis of Religious Meaning.....	199
5.7	CONCLUSION.....	204
5.8	COMPARISON OF THE CASE STUDIES.....	206
5.8.1	Time - evolution of Architectural Form - Morphology.....	206
5.8.2	Analysis of Form and Religious Meaning.....	207
5.8.3	Patterns of Worship.....	208
5.8.4	Cultural Context.....	209
5.8.5	The Cultural Setting and Heritage of the Space.....	209
CHAPTER SIX-	FINDINGS AND DISCUSSION.....	210
6.1	INTRODUCTION.....	210
6.2	ANALYSIS AND DISCUSSION ON SPECIAL INTERVIEWS.....	211
6.2.1	Discussion with: Pundit Kamal Maharaj.....	210
6.2.2	Discussion with: Pundit Vinny Maharaj.....	212
6.3	ANALYSIS AND DISCUSSION OF PRIMARY DATA-.....	213
	QUESTIONNAIRE SURVEY.....	213
6.3.1	Profile of Respondents / Demographics.....	213
6.3.2	Perception of Respondents on Temple study Area.....	214
6.3.3	Introduction to Summary of Findings.....	215
6.3.4	Summary of Chapter's findings.....	216
6.4	REFLECTION ON THE STUDY OBJECTIVES.....	217
6.5	RECOMMENDATION AND FORMULATION OF A BRIEF.....	219
6.6	CONCLUSION.....	221
REFERENCES.....		222
	Related Publications.....	222
	Books.....	223
	Websites.....	225
APPENDICES.....		226
	Appendix One.....	226

Sample Questionnaires on Survey.....	226
Appendix Two.....	227
Focus Interview with Key Respondents.....	227

LIST OF FIGURES

Chapter One: Background Research on Issues

- Figure 1:** The map of Durban showing the concentration of Hindu temples in the study area
Source: www.lawlibrary.co.za, modified by researcher9

Chapter Three: Literature Review

- Figure 2:** Map of India showing the regional location of temples.
Source: <http://www.mapsofindia.com/maps/india/religiousplaces.htm>.....21
- Figure 3:** The *garbha griha* at Bhubaneshwar.
Source: <https://www.google.co.za/search?q=Nagara+hindu+temples+of+india&rlz:>.....22
- Figure 4:** Section through a typical *Nagara* style temple- depicting the sequence of spaces
Source: <https://www.google.co.za/search?q=Nagara+hindu+temples+of+india>.....23
- Figure 5:** Plan of Kandariya Mahadeva Temple: Mid 11th century.
Source: <https://www.google.co.za/search?q=kandariya+mahadeva+temple&rlz:>.....23
- Figure 6:** Gopuram at Meenakshi Amman Temple
Source: https://en.wikipedia.org/wiki/Meenakshi_Amman_Temple.....24
- Figure 7:** Plan of a typical Dravida style Temple as depicted by the plan of Meenakshi Temple
Source: <https://www.google.co.za/search?q=plan+of+meenakshi+temple&rlz:>.....25
- Figure 8:** Northwest view of a typical Vesara style temple Keshava in Somnathpur.
Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz:>.....26
- Figure 9:** East entrance view of a Vesara style temple of Keshava in Somnathpur.
Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz:>.....26
- Figure 10:** Plan of a typical Vesara Style Temple of Keshava in Somnathpur (12th C).
Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz:>.....27
- Figure 11:** Brahma, the creator of the universe.
Source: <https://www.google.co.za/search?q=brahma+the+creator&rlz:>.....30
- Figure 12:** Savathri, the consort to Brahma.
Source: <https://www.google.co.za/search?q=shiva+vishnu+and+brahma>.....31
- Figure 13:** Vishnu (Narayan) depicted with all his symbolism.
Source: http://www.stephen-knapp.com/lord_vishnu.htm:.....32
- Figure 14:** Goddess Lakshmi, the consort of Lord Vishnu.
Source: <https://www.google.co.za/search?q=goddess+lakshmi+images&rlz:>.....33
- Figure 15:** Shiva, the destroyer of evil or dissolution.
Source: <https://www.google.co.za/search?q=shiva+vishnu+and+brahma>.....34
- Figure 16:** Shakthi, the consort of Shiva.
Source: <https://www.google.co.za/search?q=goddess+shakti&rlz:>.....35
- Figure 17:** Ariel image of the towers of the Jean-Marie Tjibaou Cultural Centre in Noumea, New Caledonia
Source: <https://www.google.co.za/search?q=jean+marie+tjibaou+cultural+center&rlz:>.....57

Figure: 18. The traditional Kanak hut in foreground, in contrast to the Jean-Marie Cultural Centre, modelled on the traditional Kanak Hut.	
Source: https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz	58
Figure: 19. The blend of modern technology and traditional materials.	
Source: https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz	59
Figure: 20. An amalgam of inspiration from traditional methods and modern technology is used in creating a timeless product of the Jean Marie Tjibaou Cultural Centre.	
Source: https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz	59
Figure: 21. Front view of the original Thomas Crane Public library, built c 1882.	
Source: https://en.wikipedia.org/wiki/Henry_Hobson_Richardson	61
Figure: 22. The vastu purusha mandala .	
Source: https://www.google.co.za/search?q=the+vastu+purusha+mandala	70
Figure: 23. The concept of the vastu purusha as a miniature universe.	
Source: https://www.google.co.za/search?q=the+vastu+purusha+mandala :	70
Figure: 24. The Vastu purusha unit of measure.	
Source: https://www.google.co.za/search?q=the+vastu+purusha+mandala&rlz	72
Figure: 25. The Vitruvian Man (Leonardo da Vinci).	
Source: https://www.google.co.za/search?q=the+vitruvian+man+theory&rlz	72
Figure: 26. The Modulor (Le Corbusier).	
Source: https://en.wikipedia.org/wiki/Modulor	73
Figure: 27. The Brahmasthan .	
Source: https://www.google.co.za/search?q=vastu+purusha+images	74
Figure: 28. The various types of Vastu purusha mandala.	
Source: https://www.google.co.za/search?q=vastu+purusha+images	75
Figure: 29. Mandukapada Vastu purusha mandala (8x8 modulated spaces) .	
Source: https://www.google.co.za/search?q=vastu+purusha+images	76
Figure: 30. The Paramasayika vastu purusha mandala or 9x9 modulated spaces <i>Navataalam</i> .	
Source: https://www.google.co.za/search?q=vastu+purusha+images	77
Figure: 31. An image of planet earth as viewed from space.	
Source: http://pics-about-space.com/planet-earth-satellite	78
Figure: 32. Image of water in liquid form.	
Source: http://www.omenkaonline.com/dehydrated	79
Figure: 33. Air is a very powerful life source.	
Source: https://en.oxforddictionaries.com/definition/air	80
Figure: 34. Fire represented as burning.	
Source: https://www.google.co.za/search?q=Fire&client	80
Figure: 35. Space, the primary conductor of energy within the universe.	
Source: https://www.google.co.za/search?q=space&client	82
Figure: 36. The attributes of each cardinal direction, according to <i>vastu</i> principles	
Source: http://www.myvaastu.in/Vastu-Directions.html	83

Figure: 37. <i>Vastu Mandala</i> , with ruling deities over each cardinal direction	
Source: https://www.google.co.za/search?q=vastu+deity+facing&rlz	85
Figure: 38. Taala Maanam is the concept of measure in the technological domain of sculpture and architecture.	
Source: https://www.google.co.za/search?q=vastu+deity+facing&rlz	89
Figure: 39. The swastika is a Hindu symbol of good fortune and well-being.	
Source: http://www.religionfacts.com/swastika/hinduism	92
Figure: 40. Aum sign specific to Hinduism	
Source: https://en.wikipedia.org/wiki/Om	92
 Chapter Four: Precedent Studies	
Figure: 41. Map of India showing location of precedent locations.	
Source: http://www.mapsofindia.com/maps/india/large-color.html	100
Figure: 42. The oblong site of the Taj Mahal is divided into two main zones, the funerary and the ‘worldly’	
Source: https://en.wikipedia.org/wiki/Origins_and_architecture_of_the_Taj_Mahal	101
Figure: 43. Typical expression of the Taj Mahal architecture.	
Source: https://en.wikipedia.org/wiki/Taj_Mahal	102
Figure: 44. The paramasayika, morphic vastu purusha mandala	
Source: https://www.google.co.za/search?q=vastu+purusha+images	103
Figure: 45. The geometry of the architecture is rendered perfectly in the ground floor plan of the Taj Mahal.	
Source: The complete Taj Mahal (Koch, 2006, p.154).....	104
Figure: 46. A photographic image of the Taj Mahal -in context.	
Source: https://en.wikipedia.org/wiki/origins_and_architecture_of_the_Taj_Mahal	105
Figure: 47. An artist impression of the Taj Mahal as viewed from north-west across the river Yamuna.	
Source: The complete Taj Mahal (Koch, 2006, p.106).	106
Figure: 48. The Taj Mahal Mausoleum, seen from the upper level of the great gate.	
Source: The complete Taj Mahal (Koch, 2006, p.106).....	106
Figure: 49. Triadic divisions bound together in proportional formulas of the tala and gaz systems of measure in the Taj Mahal.	
Source: https://www.google.co.za/search?q=geometry+used+in+the+taj+mahal&rlz	107
Figure: 50. Section of the tomb, to the left is south and north to the right.	
Source: The complete Taj Mahal (Koch, 2006, p.155).....	108
Figure: 51. A street view image with context of the Birla Mandir.	
Source: https://www.google.co.za/search?q=the+birla+mandir&rlz	112
Figure: 52. The Shikara of the Bhubaneswar Temple displays the extraordinary skill and imagination of the medieval builders.	
Source: https://en.wikipedia.org/wiki/Vishnu_Temple,_Bhubaneswar	114
Figure: 53. The Birla Mandir aka. Lakshmi-Narayan Mandir- Delhi,(built c1938).	
Source: https://www.google.co.za/search?q=the+birla+mandir&rlz=1C1VFKB	115

Figure: 54. An innovative triple shrined complex designed in a simplified Orissan style, with tall rekha deul-type towers (Shikara), capped by prominent amalakhās, all composed on a double storeyed base, with Mughal-influenced arcades.

Source: <http://vedictemplesin.com>.....116

Figure: 55. Aerial photograph of Lakshmi Narayan Temple in Delhi.

Source: [https://www.google.co.za/maps/place/Birla+Temple+\(+Laxmi+Narayan+Temple\)](https://www.google.co.za/maps/place/Birla+Temple+(+Laxmi+Narayan+Temple)).....118

Figure: 56. An interior view of *Geeta bhawan*, with Mughal influenced arcades.

Source: <https://www.google.co.za/search?q=geeta+bhawan&rlz=https://>119

Figure: 57. . A front view of the Birla Mandir combining the Gopuram entrance and three imposing shikaras.

Source: <https://www.google.co.za/search?q=the+birla+mandir&rlz=1C1VFKB>.....123

Figure: 58. The Vidhan Bhavan, seat of the Madhya Pradesh legislative assembly.

Source: <https://www.google.co.za/search?q=Plan+of+the+Vidhan+Bhavan+Complex&rlz/>.....124

Figure: 59. Vidhan Bhavan, located on the crest of Arera Hill in the centre of Bhopal.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal.....125

Figure: 60. Charles Correa's sketch depicting the essential design elements borrowed from the traditional architecture of Bhopal: Notably the *stupa*, the vertically expressed element of Hamam of Islamnagar.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal126

Figure: 61. A view of Vidhan Bhavan captures its interesting articulate roof scape and the circular form.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal.....127

Figure: 62. Plan of the Vidhan Bhavan Complex- Bhopal, India.

Source: <https://www.google.co.za/search?q=Plan+of+the+Vidhan+Bhavan+Complex>.....129

Chapter Five: Case Studies

Figure: 63. Map of Tongaati Estate 1854-1882. The VTD site is located in Victoria Village, as it was known back in the 1900's.

Source: Watson (1960). Modified by researcher.....135

Figure: 64. Key landmark buildings within the context of the VTD site, in watercolour: drawn by Pat Garland in 1857.

Source: Watson (1960). Modified by researcher.....136

Figure: 65. Photograph image of the Juggernath Puri.

Source: Traditional Hindu temples of South Africa: (Harber, Kearney & Mikula, 1982).....137

Figure: 66. The Lingaraja Jaganath temple of Puri Orissa in India.

Source: <https://www.google.co.za/search?q=lingaraj+temple+of+odisha&rlz=1C1VFKB>.....137

Figure: 67. Section through the Brahmastan and Shikara, east facing the deity

Source: Traditional Hindu temples of South Africa: (Harber, Kearney & Mikula, 1982).....137

Figure: 68. Plan and section of brahma pada zone of divine energy at Juggernath Puri: (Open circum-ambulatory edged by Mango trees, creating a sense of nature and the devotee's personal experience of space and place.

Source: Traditional Hindu temples of South Africa: (Harber, Kearney & Mikula, 1982). (Modified by researcher).....138

Figure: 69. Early 1900's photograph of Raam Mandir at VTD, infused with regional influences such as the wood and iron verandah.	
Source: Traditional Hindu temples of South Africa: (Harber, Kearney & Mikula, 1982).	139
Figure: 70. Plan and section of the earliest Raam Mandir at VTD, built 1903- 1910	
Source: Traditional Hindu temples of South Africa. (Harber, Kearney & Mikula, 1982).	140
Figure: 71. The ShivaMandir: Floor plan and section.	
Source: Traditional Hindu temples of South Africa. (Harber, Kearney & Mikula, 1982).	141
Figure: 72. A 1982 photograph of the- Shiva Mandir.	
Source: Traditional Hindu temples of South Africa (Harber, Kearney & Mikula, 1982).	142
Figure: 73. Site layout and suburban context.	
Source: https://www.google.co.za/maps/search/google+image+of+Vishwaroop+temple+tongaat/ (modified by researcher).	143
Figure: 74. The Gokhale Hall built in 1912	
Source: VTD souvenir brochure (2005).	144
Figure: 75. The VTD - site layout plan.	
Source: Researcher, 2016.	146
Figure: 76. Youth and elders gathered at the Vishwaroop temple to commemorate Raam Naumee	
Source: Researcher, 2016.	147
Figure: 77. Devotees pray outside the Raam Mandir during the Raam Naumee festival. The pillared veranda of the Gokhale hall is in the background, b 2005.	
Source: Researcher, 2016	147
Figure: 78. The Shiva Mandir	
Source: Traditional Hindu temples of South Africa (Harber, KearneyMikula,1982).	149
Figure: 79. The Raam Mandir	
Source: Traditional Hindi temples of South Africa (Harber, KearneyMikula,1982).	149
Figure: 80. The Juggernath Puri Temple of VTD	
Source: Traditional Hindi temples of South Africa (Harber, KearneyMikula,1982).	149
Figure: 81. The Gokhale Hall plan as it was in 1995, adjoining the Raam Mandir on the right.	
Source: Researcher, 2015.	151
Figure: 82. The Shree Vaithianava Easparar Alayam plan and longitudinal section-	
Source: Traditional Hindu Temples in South Africa. (Harber,Kearney & Mikula,1982.), modified by researcher.	151
Figure: 83. A visual axial alignment of the three temples creates a false sense perspective as viewed from the street. The smallest Shiva temple appears to be the focal and largest of the three temples, and the tallest Juggernath Puri Temple appears least significant from this angle.	
Source: Traditional Hindu Temples of South Africa. (Harber,Kearney & Mikula,1982).	152
Figure: 84. The Ogee: Arch	
Source: http://www.harrodhorticultural.com/ogee-garden-arch-pid8484.html .	155

Figure: 85. A sketch of the 1970's brutalist design aesthetic of the Raam Mandir.	
Source: Researcher's own ,2015.	156
Figure: 86. A photograph of the 1970's remodelled Raam Mandir at the VTD.	
Source: VTD Souvenir brochure (2005).....	156
Figure: 87. The post-modern aesthetics of the Raam Mandir, 2005.	
Source: Photograph by researcher, 2015.	157
Figure: 88. The Shiva Mandir to the left in the photograph, linked to the Raam Mandir through the inclusion of the unfortunate adhoc metal structure over the yajna shala. The ardh mandap to the Gokhale hall is viewed in the distance by the observer from the south.	
Source: Photograph by researcher's, 2015.	158
Figure: 89. Photograph of the Shiva Mandir.	
Source: Photograph by researcher, 2015.	159
Figure: 90. Spatial layout plan of the Gokhale Hall in 1998.	
Source: Researcher's own (2015).....	161
Figure: 91. North-west elevation: Gokhale Hall street facing façade attached is the Raam Mandir	
Source: Researcher's own (1998).....	162
Figure: 92. North-east elevation of Gokhale hall, built 1998	
Source: Researcher's own (1998).....	162
Figure: 93. Cross section through hall- ardh mandap to the left and hall extension to the right.	
Source: Researcher's own (1998).....	163
Figure: 94. Showing floor plan, images, elevations and sections of the Gokhale Hall- 1998.	
Source: https://www.google.co.za/search?q=google+image+of+Vishwaroop+temple+tongaat&rlz ; modified by Author, (2016).	164
Figure: 95. The bramhastan mandala plan of the Raam and Shiva Mandirs at VTD	
Source: https://www.google.co.za/search?q=brahmasthan+vastu&sa=X&rlz ; adapted by researcher, (2016).	167
Figure: 96. The Raam Mandir adjacent to the Shiva Mandir, at VTD on the same site, is unusual and unique in the Durban context.	
Source: https://www.google.co.za/search?q=brahmasthan+vastu&sa=X&rlz ; dapted by researcher (2016). ..	168
Figure: 97. The pyramidal energy dynamics effect of the Raam Mandir at VTD.	
Source: Researchers own, adapted (2016).....	169
Figure: 98. Large 1898 map of Port Natal (Ethekwini-Durban).	
Source: https://www.google.co.za/search?q=magazine+barracks&rlz	171
Figure: 99. Early 1870's map of Durban, in which demarcated zones 'A' the eastern vlei represents a patchwork of controlled and segregated worker compounds, and 'B' the western vlei, which evolved into a dual 'town' space, a 'non-European' quarter. The Durban city grid to the south has frontage to the bay, and emulated European urban culture.	
Source: Rosenberg & Vahed (2014, p.1).....	172
Figure: 100. A 1962 aerial image of the eastern vlei of Durban. .	
Source: City of Durban- cadastral records, 2015.....	173

Figure: 101. An aerial plan view of the labour compound in the eastern vlel	
Source: Rosenberg & Vahed , 2014.....	174
Figure: 102. Magazine Barracks, established in 1880. Brick under tiled roof typology, as viewed with the imposing fire place and chimney, preferred design suitable by its occupants, for open fire cooking.	
Source: https://www.facebook.com/photo.php	175
Figure: 103. Typical row house aesthetics of Magazine Barracks	
Source: Rosenberg & Vahed, 2014.....	176
Figure: 104. Communal water pumps created a sense of gathering and community.	
Source: Rosenberg & Vahed, 2014.....	177
Figure: 105. The Magazine Barracks Aman Temple, which had to be demolished to make way for The Durban law courts and police headquarters.	
Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).	178
Figure: 106. The Durban Hindu temple built <i>c1901</i> has strong Colonial and Islamic architecture influences	
Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).	179
Figure: 107. 1952 Race rezoning plan for Durban.	
Source: Durban Housing Survey: 1952. Cited by Rosenberg, (2012).....	181
Figure: 108. A 1958 photograph of the African peripheral Township-Kwa-Mashu, north of the Durban CBD.	
Source: Rosenberg & Vahed, 2014	182
Figure: 109. A 1966 photograph of the Indian peripheral Township - Chatsworth, located to the south of the Durban central business district.	
Source: Rosenberg & Vahed, 2014	183
Figure: 110. Contextual urban setting of the Durban Hindu Temple	
Source: https://www.google.co.za/maps/place/24+Somtseu+Rd,+Durban	184
Figure: 111. An aerial image of the eastern vlel, with post 1990 urban upgrades. Note the law courts, police headquarters and the apartheid built railway station.	
Source: https://www.google.co.za/search?q=map+of+Somtseu :	185
Figure: 112. Urban site layout of the Eastern vlel of Durban	
Source: City of Durban- cadastral records (2015).....	186
Figure: 113. 1980 photograph of the Durban Hindu Temple- a beacon of spiritual hope in a sea of oppressive despair remained intact through the years of uncertainty and removal of the residential context of Magazine Barracks, Railway Barracks and block AK.	
Source: http://www.heritagekzn.co.za/sites/visit/durban	187
Figure: 114. A current photograph of the Durban Hindu temple. Its 1901 architecture composed of Islamic and Colonial influences now diluted by the architectural expression of its creator - remodelled in 2001.	
Source: http://www.durbanhindutemple.co.za/	190
Figure: 115. Photograph of the West Street Mosque- built 1903 (484 Dr Pixley Kaseme Street).	
Source: http://www.kznia.org.za/durban-city-guide/islamic-architecture/west-street-masjid	191

Figure: 116. An image of the minaret of the West Street Masjid closely resembles the Shikara of the 1901 DHT.	
Source: http://www.kznia.org.za/durban-city-guide/islamic-architecture/west-street-masjid	192
Figure: 117. A photograph of an architecturally transformed Durban Hindu Temple - a beacon of spiritual hope in post 1994 democratic Durban, representing all Hindus	
Source: http://www.durbanhindutemple.co.za/	192
Figure: 118. The architectural interventions (b.2010) appear modernist in their expression of structure and the architectural philosophy follows the self-centered expressivity of the architect. The coexistence of the traditional with the new enriches the aesthetic of the Durban Hindu temple.	
Source: http://www.durbanhindutemple.co.za/	193
Figure: 119. Plan of the Durban Hindu Temple site.	
Source: Jhupsee (2001), adapted by author	194
Figure: 120. An image showing the birds eye view of the spatial configuration of the DHT facing south.	
Source: Researcher (2016)	195
Figure: 121. Photograph of the courtyard space with view of the south elevation of the 1901 built temple, after alterations to its abulatory completed in 2010. Shikaras of the three north west end satellite temples are viewed to the left of the main temple.	
Source: Researcher (2016)	196
Figure: 122. Dining facilities for guests and worshippers form part of the temple additions and improvements, to coincide with the 114 th anniversary celebrations held in 2012.	
Source: http://www.durbanhindutemple.co.za/venue.html	196
Figure: 123. A stage is prepared for a vivah sanskar (wedding).	
Source: http://www.durbanhindutemple.co.za/venue.html	197
Figure: 124. Disposition of functional spaces and satellite mandirs in relation to the early built c 1901 Raam Mandir.	
Source: http://www.durbanhindutemple.co.za/venue.html	199
Figure: 125. A photograph of the present settings of the Bramhastan of the 1898 built Raam Mandir	
Source: https://www.google.co.za/search?q=the+durban+hindu+temple+history	200
Figure: 126. Photograph of the west wing temple additions to accommodate the navagrahasthan (mini universe) to the right foreground. Other satellite Mandirs include one for Lord Narayan, Sithla Ma and Hanuman.	
Source: Researcher (2016)	200
Figure: 127. Photograph of the Banyan tree that once provided shade and a meeting place, now a dry arrangement thwarted by the hard landscape around it.	
Source: Researcher (2016)	201
Figure: 128. Photograph of a Peepal tree, a popular tree at all Hindu temple sites in Durban.	
Source: Researcher (2016)	202

Figure: 129. Photograph of the inside of the Shiva Mandir at DHT, Lord Shiva's murthi is positioned to the east. Worshippers face the east in prayer.	
Source: Researcher (2016).....	203
Figure: 130. Photograph of the donations collection box inside the Shiva Mandir. A notice of appeal is placed above the box, prompting worshippers to donate.	
Source: Researcher (2016).....	203
Figure: 131. Photograph facing north east from the court yard of DHT. The imposing multi-storey Durban Law Courts in the background on what was once the Magazine Barracks site. The newly added domestic scale temples dedicated to Lord Shiva and Mother Durga appear in the foreground to the right.	
Source: Researcher (2016).....	204
Figure: 132. Photograph facing, south west. The adjoining postmodern financial institution building across from the car park of the Durban Hindu Temple, on a site that was once occupied by the Depot Road community and school.	
Source: Researcher (2016).....	205
Figure: 133. Photograph facing south from the car park of DHT. The service related buildings appear to the left.	
Source: Researcher (2016).....	205

LIST OF TABLES

Table 1: Angula Samkhya units of measurement.....	91
Table 2: Vaastu Units of measurement.....	91

Table 3: Showing accommodation schedule of Gokhale Hall- 1998.....	161
Table 4: Showing gender profile of respondents	213
Table 5: Showing age profile of respondents.....	213
Table 6: Showing the quality of space in VTD and DHT temples	214
Table 7: Showing respondents' views on social role facilities.....	214
Table 8: Showing respondents' view on the sense of place they enjoy from using the Temples.....	215

CHAPTER ONE

BACKGROUND RESEARCH ON ISSUES

1.1 INTRODUCTION

The current chapter sets out background research into the historical developments and transformation of Hindu religious architecture in Durban. The intention of this research is to place emphasis on Hindu religious cultural identity, local appropriateness and compliance of it's' temple architecture according to vastu shastra principles.

1.1.1 Background

The Hindu temple is the centre of intellectual and artistic endeavours, promoting the development of painting, sculpture, architecture and the performing arts, as well as philosophy and theology. As the nucleus of the community, as school, hostel, hospice and hospital, its expansion over the centuries catered for priests, the poor, pupils, as well as the bureaucracy sustaining its endowments, managing its estates, administering its charities and employing its servants. The conception of the Hindu temple goes far beyond mere practicalities, however. This research will focus on the analysis of Hindu religious architecture, with the view of understanding the implications of such spaces from an Indian Hindu historical point of view regarding its transformation in Durban.

The architecture of the traditional Hindu temples in Durban must be seen as one of the most important manifestations of Indian architecture outside of the Indian Sub-continent. The complexity and variations of forms encompasses the influences of the sub-cultures of the various geographic regions of the Indian Sub-continent.

Hindu temple architecture is largely defined by abstract and figurative symbolism. Symbolism in architecture has its roots in man's relationship with the cosmos. Cosmic principles relating to creation, evolution and consciousness are transformed into organisational, formal, and graphic symbols in architecture. The more physical and tactile elements of traditional Hindu architecture take the form of sculpture and fine detail, as seen in the ancient temples of India.

Basically three distinct historic styles of temple architecture have emerged in the Indian Sub-continent: The *Nagara* style temples of the northern and eastern districts, a style specific to the Hindi speaking people of North India; and the *Dravidian* style temples in the southern part of India. This is an architecture expressed horizontally, having large congregational areas, within the confines of a perimeter enclosure, and is specific to the Tamil speaking people.

Nagara and *Dravida* are not the only kinds of temple mentioned in the Indian texts on architecture. A regional variation consisting of a fusion of symbolic references and elements of the north and south styles finally gave rise to a third or eastern style called *Vesara*. The influences of Hindu temple architecture from the Indian sub-continent will be compared to those within the context of Durban.

This research intends to illustrate the causes of transformation of traditional Hindu temple architecture in Durban and the impact of cultural social activities on these sites. A hypothesis will be made that if the traditional Hindu Temple is analysed with the current circumstances in Durban, a new kind of architecture will emerge. The resultant architecture will be compared to that in the land of the origin of Hinduism, the Indian Sub-continent, specifically with focus on the North Indian *Nagara* style temple for the Hindi speaking people.

The information gathered through primary data collection and the temple architectural language of the same period will be synthesised to affirm their identity, culture and any profound impact on traditional Hindu religion and patterns of worship.

Hindi speaking Hindus who originated from North India, refer to their religion as ‘sanathan dharma’, eternal religion and ‘*varnasrama-dharma*’, a word emphasising the fulfilment of duties (*dharma*) appropriate to one's class (*varna*) and stage of life (*asrama*). To better understand Hindu temple architecture in Durban, it would require insight into the religion of Hinduism- a syncretic system of religious ideas

1.1.2 Structure of Dissertation

This study is divided into six chapters. Chapter one deals with the background of the study, the problem statement, aims and objectives, the key questions posed in the study, and concludes with the conceptual and theoretical framework underpinning the study.

Chapter two discusses the research methodology, while chapter three concentrates on the review of both local and international literature on the subject matter. Chapter four discusses the three selected precedent studies that inform the research topic. Chapter five gives an in-depth review of selected Hindi *Sanathani* temples in the study area in Durban. Chapter six presents the findings and discussions, with the resultant recommendations and conclusion of the findings.

1.1.3 Motivation / Justification of the Study

Any religious place ought to transcend mere functional requirements and should be rich in symbolism and metaphor. Both natural and spatial archetypes add to the symbolic quality of space and place. The use of critical regionalism would hence be reviewed from a local perspective. “This is a paradox: How to become modern and return to sources. How to revive and old dormant civilisation and take part in universal civilisation” (Ricoeur, 1961, p.85).

This research intends to ensure the product of the transformation of Hindu religious architecture is sustainable, suitable and appropriate in preserving the values and self-worth of the Hindu culture in Durban. Early Durban Hindu Temples’ transformation would provide useful design and technical data for future and further development of Hindu temple sites. The principles of *vastu shastra* will be implemented to determine the appropriateness of siting and planning layouts, and will provide a thorough analysis of various sites against a predetermined set of site selection criteria. The resultant formulation of a brief will be the outcome of the research undertaken.

World history is a pointer to the fact that architecture has all along played a pivotal role to create a holistic aura and instil sanctity to sacred spaces in the human environs. Traditional Hindu temple architecture has always believed in a highly disciplined and sequential planning process. Over a period of time, there has been a more liberal and diversified approach, both in defining the function and the form.

The broader issue dwells upon the new architectural connect that is being explored by architects, and how the transformation and inclusion of social spaces continues to maintain the Indian ethos

in the language of modern architectural interventions and additions. Finally, the research will be concluded in the form of proposed architectural design guidelines for the transformation and inclusion of social role activities into traditional Hindu temples in Durban.

1.2. DEFINITION OF THE PROBLEM, AIMS AND OBJECTIVES

1.2.1 Problem Statement

This research problem essentially arises from the need to prevent decline in the architectural image and identity of the traditional Hindu temple, through its transformation and further development program, borne out of local social and cultural processes in Durban. In this particular instance, the study questions the resultant architecture and the nature of self-representation of the Hindu image and identity of the temple. It also seeks to carefully study the relationship between traditional built form and the additional building stock of the Hindu temple compound. The record of this transformation will be culled from the legacy of the religious architecture of the Indian Sub-continent as it transcends countries.

Many scholars hold the view that built environments should be designed to take cognisance of ways in which local inhabitants interpret built form, states Abel (1997). If this premise is accepted, it then follows that built environment professionals need to understand how environments, spaces and forms are perceived by different cultural groups and sub-groups, and how different spatial arrangements can either support or impede locally and culturally derived patterns of use (Mthethwa, 2010) in the context of Durban.

1.2.2 Aims

The aim of the study is to identify the forces that bring about the transformation of contemporary Hindu religious architecture, to explore the possibilities of promoting informed and conscious interventions to the building program for transformation, and examine the inclusion of social role activities in traditional Hindu temples in Durban, in the 21st century

1.2.3 Objectives

The above aim will be achieved through the following objectives:

- The critical narration of historical development and transformation of contemporary Hindu religious architecture in Durban.
- The issues related to the identity of the Hindu temple architecture in that, at the spiritual level, the built-form conveys total harmony with the life-style in all its daily, as well as seasonal rituals, unifying the socio-cultural and religious aspirations of the individual and the Hindu community in Durban.
- The development of criteria for design generators for contemporary Hindu religious architecture in Durban.
- The research will further study the contextual relationship of the Hindu temple, the traditional Hindu cultural settlements and contemporary urban built forms, to unravel unpretentiously foreign ideological driving forces in Durban.
- The challenges of this research effort are to identify social and cultural activities and related uses relevant and acceptable to Hindu tradition that can be integrated within traditional Hindu temple sites to create Durban-Hindu *genius loci*.

1.3. SETTING OUT THE SCOPE

1.3.1 Delimitation of Research Problem

Hindu religious architecture is a celebration of life. For example, worship for the Hindu is introspective and therefore, architectural sequence is a gradual withdrawal from worldly to intimate. The affectivity of the communication of the architectural product depends on easy comprehension and its appropriate compliance through built form. The communication takes place at various levels and this research will look at the conceptualisation of 'space making' with the discourse being informed by theories. The primary focus of this study will be limited to

issues of what is considered to be appropriate transformation and development of contemporary Hindu temples in Durban.

This study does not intend to produce prescriptive design solutions but rather the formulation of a brief with respect to the future development and integration of social and cultural aspects into Hindu temple sites in Durban.

1.3.2 Definition of Terms

<i>Amalaka:</i>	Gourd shaped, ribbed motif at the summit of a temple tower.
<i>Arcuate:</i>	Structure based on arches.
<i>Aryans:</i>	North Indian Hindi people of India.
<i>Arya Samaj:</i>	Nobel Society: An Indian religious reform movement.
<i>Bhakti:</i>	Devotion.
<i>Dharma:</i>	Religious law; Buddhist view of a good, pure life.
<i>Dharmashala:</i>	Guest house for pilgrims within the temple compound.
<i>Dravida:</i>	A style of temple favored in the southern parts of India.
<i>Dravidians:</i>	South Indian people of India. Historical style of: South Indian architecture.
<i>Durban:</i>	A city and a metropolitan region within KwaZulu-Natal.
<i>KwaZulu-Natal:</i>	A province in South Africa.
<i>Kalasha:</i>	Ewer or vase like finial.
<i>Karma:</i>	Action.
<i>Mandala:</i>	Psychic element: A geometric representation of the world.
<i>Mandapa:</i>	Hall, pillared pavilion.
<i>Mandir:</i>	Temple.
<i>Mathr Bhumi:</i>	Planet earth, referred to by Hindus as ‘Mother Earth’. Sustains all life.
<i>Nagara:</i>	A style of temple built in northern India, expressed verticality, with minimal decoration. Later included a verandah for circumambulation.
<i>Place attachment:</i>	Is the emotional bond between person and place
<i>Sarvajanik:</i>	For everyone; all people often referred to as public.
<i>Sankara:</i>	Hybrid.

<i>Sanathanist:</i>	A term referred to orthodox Hindus.
<i>Shastra:</i>	A technique.
<i>Temple:</i>	A Hindu place of worship.
<i>Transformation:</i>	A marked change in nature, built form and/or appearance.
<i>Vastu:</i>	A place of residence – the physical environment. The science of ancient Indian architecture and art of building.
<i>Vastu Shastra:</i>	A technique of applying the ancient classical Indian theory and art in architecture.
<i>Vastu Vidya:</i>	The classical Indian theory of architecture.
<i>Vesara:</i>	Meaning hybrid or mule, as per south Indian text. A particular style of Hindu temple architecture, common to the Deccan region.
<i>Yajnasala:</i>	Space for fire sacrament.
<i>Jnana:</i>	Knowledge.
<i>A sense of place:</i>	The thoughts, feelings, memories and interpretation evoked by a landscape/ environment either (built or natural).

1.3.3 Stating the Assumptions

Quality in Hindu religious architecture is the result of understanding constraints, not of ignoring or avoiding them. How well does a building fit into its site? How intelligently does it deal with the hazards of climate? What materials and technology does it use? What is the scale and ambience of the whole environment and is it in consonance with the sensibilities of the people who use them? Transformation and inclusion of related social activities are vital to sustain the spatial requirements of cultural societies and religion. Even from the perspective of cultural internationalism, the world has somehow become much more concerned to preserve, protect and promote its culture and heritage. This however entails specialised skills, poses several challenges and raises ethical queries. We must understand our past well enough to value it, and yet also well enough to know why and how it must be changed. Hindu temple architecture is not just a reinforcement of existing values; cultural, social and economic, but should also open new doors to contemporary aspirations. Sensitivity to these factors only increases the appropriateness of Hindu temple architecture within the context of Durban.

1.3.4 Key Question

What are the causes of building transformation of contemporary Hindu temples in Durban and how has it impacted on the traditional Hindu temple styles

1.3.5 Sub Questions:

- How has the social role, activities and accommodation of the temple site impacted on the traditional architectural build quality in Durban?
- Why Hindu temples of Durban, already influenced by western and Islamic architecture, need to be evaluated in terms of their form and context?
- How do Hindu temples of India and Durban, of the same period, compare with regards to construction techniques, decorative motifs and materials?

1.3.6 Hypothesis

If the traditional Hindu temple is analysed with contemporary circumstances in Durban, a new kind of local Hindu religious architecture will emerge.

1.3.7 Study Area

For the purpose of this research, Durban was selected as the study area for diverse reasons suitable for the topic under discussion. Durban is located in the KwaZulu-Natal province, with a population of about 3.4 million, as at 2011. Out of these, 17 per cent (578000) are people of Indian origin, making it the highest concentration of the Indian population within South Africa. Furthermore, of the total Indian population in Durban, 85% are Hindus (Statistics South Africa, 2011). The study area in Figure 1 records a higher number of Hindu temples due to the high concentration of Hindus in Durban, and Hindus participate in mainstream western life in Durban more than ever before. This participation process has, however, not been without religious and cultural consequences.

STUDY AREA - DURBAN



Figure: 1. The map of Durban showing concentration of Hindu temples in the study area.

Source: www.lawlibrary.co.za modified by researcher.

1.4. CONCEPTUAL AND THEORETICAL FRAMEWORK

1.4.1 Conceptual Framework

This section will discuss various concepts that emerge from the research topic. The concept identified includes historical development, transformation of the built form and Hindu religious architecture.

A. Historical Development

Perhaps to define the historical development it will be appropriate to define the two words separately, and join them later to give a better comprehension of the concept. “History is concerned with the treating of past historical accounts, based on factual material” according to Facchi (1961, p.I), while Koestler (1941, p.160) states that it is the “sequence of events in which is concealed an immanent link of interconnections, it is the expression of the intentional design of a transcendent power”.

The *Shabdkosh* dictionary defines the Hindi meaning of history as “the aggregate of past events” (Shabdkosh.com, 2016). Regarding the definition of development, with almost every writer a different definition of the word exists. Development is not purely an economic phenomenon but rather a multi-dimensional process involving reorganisation and reorientation of entire economic social systems and the physical setting of a place. Development is process of improving the quality of all human lives, with three equally important aspects. These are raising peoples’ living levels, creating conditions conducive to the growth of people through the establishment of social institutions which promote human dignity and respect, and increasing peoples’ freedom (www.uky.edu/AS/Courses/GEO260/Concept_of_Development, 2006).

In retrospect, within the context of this work historical development can be defined as the aggregate of past events, resulting in the evolution of the meaning of architecture due to diverse factors which include urbanisation and population growth changes in traditional dynamics, among others.

B. Concept of Hinduism

Hinduism is not one religious practice. It is a conglomeration of various values / ways of life, fused together over a period of six thousand years, according to Meer (1969). Mahatma Gandhi called it a relentless pursuit of truth. Its theoretical foundation is contained in the *Rig Vedas*, believed to be the most ancient record of man’s concept of his world and his relation to the Divine Order. To the *Rig Vedas* were added three subsequent *Vedas*; the *Yajur*, *Sama* and the *Atharva*, which were strongly influenced by Dravidian ideology (Meer, 1969).

Philosophy in the Hindu cultural system provided a variety of God-concepts, ranging from the abstract near-agnostic, to the theistic and poly-theistic. Hinduism became known as Brahmanism, and the way to God became restricted to intricate rituals, revolving around the sacrament of the fire or *yajna*, performed by trained members of a priestly cast - Brahmins. Hinduism recognises three fundamental paths to salvation: - *Karma* (action), *Bhakti* (devotion) and *Jnana* (knowledge). Among Durban Hindus devotion takes the form of *Karma*. *Karma* means action, both in terms of ritual and work.

It is a salvation technique considered most suited to the working class, in classical India to the lower castes. Devotion through work and ritual must be selfless and without regard for reward, since caring for reward is to express desire and thereby to be caught up in the wheel of birth and death, and be prevented from permanent liberation. *Bhakti* is salvation through love, adulation, and selfless surrender to God. God is loved by repeating His name, singing His praises, bowing before him and finally surrendering the self entirely to Him. This form of salvation seeking is said to be suited to the affectionate temperament, and especially to women. *Karma* and *Bhakti* are mass mediums of salvation seeking. In both, God is worshipped as an external force. *Jnana*, by contrast, is a far more intellectualised mode of salvation, restricted to those with time for the pursuit of knowledge. God realisation is self-realisation, attained through concentration and meditation (Meer, 1969).

C. Transformation of Hindu Temple Forms

Transformation of Hindu temple forms takes place through a dual process – time as well as space. These two patterns of transformation, through time and space, reflect one another closely. Both are processes of emergence, expansion and proliferation, which simultaneously imply differentiation and fusion, growth from and dissolution into unity, states Hardy (1995). Traditional Hindu temple buildings of Durban took shape in the 1900's AD, with two very distinct styles: - the southern or *Dravida* temple architecture, which originated in the south of the Indian Sub-continent and the northern style or *Nagara* temple from the north of India. (Harber, Kearney & Mikula, 1985). A third style not frequently discussed or mentioned in the Durban context is the *Vesara* temple style. According to Fergusson's justification, *Vesara* means 'mule' (as per southern Indian *Dravida* text), implying a hybrid. On this basis then the subject of study could be said to be the transformation of *Nagara* and *Dravida* into *Vesara*, and for the evolution of *Vesara* to a uniquely Durban Hindu temple style. These temples and shrines mark the Durban landscape, allowing the dignity of the Hindu culture identity to remain intact within a foreign country. John-Naidu affirmed that the Hindu group in Durban has experienced a shift in their identity. (John-Naidu, 2005)

During the last two centuries, our concepts and lifestyles have undergone considerable changes (Doshi, 1985). These changes, causes and effects are similar to those observed locally in the Durban context. Some key factors contributing to change, according to Doshi, are:-

Foreign rule: This has had an enormous role in shaping the mind of the younger generation in Durban and elsewhere in the world where colonisation had a major role. Towards the middle of the twentieth century the decentralisation of western culture was witnessed. Countries that were slumbering begin to awaken and to become active participants in an evolution which is encompassing the world, reported Gideon (1973). The desire to take part in universal civilisation became a trend. The realisation of this trend resulted in a hybrid development, infusing traditional local architecture with western influences. This meeting of East and West may explain why India chose a western architect for the realisation of its Capitol buildings in Chandigarh. Another reason is an inherent trend in contemporary architecture towards satisfying cosmic and terrestrial conditions, and the habits which have developed naturally out of them. This explains why contemporary Hindu temples in Durban and in India, built during the same period, are imbued with the spirit of age, and the fusion of classical elements with contemporary functional space making elements.

Emphasis on industrialisation: Architecture during this period emphasised functionality and mass production, but lacked appeal. ‘Architects’ and planners had merely provided the container for an accepted way of life reported Gideon (1973). The stable and secure way of life that expressed individuality had fast vanished. Buildings became sterile, utilitarian and mass produced, which translated to basic structures with disregard for any planning or architectural consideration.

The advent of new building materials, and mass produced brick, steel and concrete replaced traditional materials such as natural stone, marble, granite and timber. Cheaply produced materials became readily available and as a result, their use became modular and predictable. In construction, the master craftsman was easily replaced by an artisan. Traditionally, temples built during the classical period in India were realised using natural materials. Contemporary temple construction employed materials such as brick, concrete, steel and glass, however the first temple in Durban, part of the VTD complex (the Juggernath Puri temple), was the first and only temple in Durban to be built with natural stone, harvested from the banks of a nearby river.

With regard to the ‘desire’ to modernise, the concern was for the debilitating effects of post modernity on the value and meaning of architectural environments. The modern movement aspired to create a universal culture while disregarding the integration of natural and material conditions, patterns of life and the forms of building in traditional societies.

These key contributory factors give rise to different patterns of building. The apparent contradiction realised is between what was had and what is available now, according to Doshi (1985) alluded to this by stating that we live in an atmosphere of contradictions because we liked what we had but did not yet know well how to improve the present and ensure a better future. The consequence of this is that people attempt improvements superficially, through certain measures in planning, design and layouts.

Doshi further purports that cultural heritage does not appeal to the hearts of the younger generations. According to him, they do not retain it since it does not symbolically or culturally belong to them. The younger generation look towards the new world, which they witness through the ever expanding communication media. To the younger generations, ‘image’ is that of the outside world, because they do not have any clue of their own heritage (Doshi, 1985). This author further questioned whether this image of the outside world reinforced the attitude of the younger generations and created a global image or global identity.

D. Hindu Religious Architecture

The Hindu temple architecture reflects a fusion of arts, the ideals of dharma, beliefs, values and the traditions cherished under Hinduism. It is a connection between man, deities, and the Universal Purusa in a sacred space, attests Michell (1988). According to ‘*Stapatya Veda*’, (the Hindu tradition of architecture), the Hindu temple and the town should mirror the ‘cosmos’, the principle of this ancient architectural tradition is delineated throughout the ‘*Shilpa- Shastra*’ and the ‘*Vastu Shastra*’, adds Rosen (2002). Generally, this temple architecture is open, with symmetry driven structures with many differences. The structures are on a square grid of *padas*, deploying perfect geometric shapes such as circles and squares (Meister, 1983).

Kramrisch (1976, p.8) described a Hindu temple as comprising of an “inner sanctum, the *garbhagriha* or womb-chamber, where the primary idol or deity is housed along with *Purusa*.” The *garbhagriha* is crowned by a tower-like *Shikhara*, also called the *Vimana*. The architecture includes an ambulatory for *parikrama* (circumambulation), a congregation hall, and sometimes an antechamber and porch.

In ancient Indian texts, a temple is a place for *Tirtha* - pilgrimage. It is a consecrated site whose character and design attempts to resonate the ideal tenets of the Hindu way of life, states (Michell, 1988). All the cosmic elements that accentuate and celebrate life in Hindu pantheon are exemplified in a Hindu temple. These cosmic elements include fire, water, space, earth and air. The architectural principles of Hindu temples are enshrined in the *Shilpa Shastras* and *Vastu Sastras*. Michell (1988) adds that the Hindu culture has provoked aesthetic freedom for its temple builders, who exercise considerable flexibility in creative expression by adopting other perfect geometries and mathematical principles in *Mandir* construction to express the Hindu way of life.

1.4.2 Theoretical Framework

This section discusses various theories underpinning the study. This includes a definition of place, Critical Regionalism and *Vastu Shastra*.

A. Definition of Place

The essence of place lies in the quality of being somewhere specific, knowing that you are ‘here’ rather than ‘there’. Enclosure becomes a very important aspect of place making which also seems in some way, to be related to the concept of territory. For many cultures and civilisations throughout history, the establishment of place and taking possession of it is accomplished by means of building structures, boundaries and personalising the resulting places in some way (Rapaport, 1977). Personal feelings are evoked from the emotional linkage to a place, natural and built. Such linkages and attachments have overpowering and lifelong significance for individuals that highlight the significance of a place and its importance in community life. Place thus

becomes a complex network of relationships that include social, cultural and physical conditions. Place is a universal human phenomenon without which human groups cannot exist.

In the literature review chapter, Rapaport's approach to the theoretical concept of definition of place, as well as some of its practical applications will be explored. The final sub-section will discuss the various problems and other issues that are related to Rapaport's approach to place definition", and the relationship between the built environment and culture (Rapaport, 1977). The particular significance of considering this work is that it specifically purports to offer a methodology for creating culturally appropriate spaces through built form. Rapaport's definition of culture as a way of coping with the ecological settings gives rise to the concept of *genius loci* and the concept of place, as presented in the work of Christian Norberg-Schulz (Norberg-Schulz, 1980; 1985).

B. Critical Regionalism

"This is the paradox: How to become modern and return to sources; how to revive an old dormant civilisation and take part in universal civilisation" (Ricoeur, 1961, p.85) The impact of globalisation and technological advancement is a world phenomenon. Regionalist architecture, as postulated by critical regionalism, would combine the traditional with the new and progressive. The future is an integral aspect of human condition. Man survives, uniquely, by his capacity to act in the present on the basis of the past experience. The theory then sets a basis for an alternative design approach whose end product owes its attraction to the particular naturally given qualities of a place, rather than to an imposed order of universal rules (Tzonis, 2003).

The above theoretical framework sets the basis for the analysis of the Hindu temple with the current circumstances, and this research will be undertaken through a qualitative study using primary data information for case studies and secondary data for conceptual analysis. Literature on various works of prominent Indian architects will be reviewed and analysed with a view to providing a qualitative and analytical precedent study.

C. Vastu Shastra

Vastu vidya is the classical theory of architecture. What it provides is a concept or set of principles for organising or structuring any building. For example, the *vastu purusha mandala* and orientation principles, which are often seen as the dominant elements of the system, were originally used to organise space and built form, to dispose the various functions of the building in relation to each other and to the structure. *Vastu vidya* does not present a set of rigid, inflexible rules (as is sometimes supposed) but a paradigm within which the realities of any given project are to be resolved. It remains logically imperative that architects, conservation architects and architectural historians have an informed knowledge of the subject, irrespective of their choice to accept or dismiss its use.

The application of the principles of *vastu vidya* gives to *vastu shastra* concept, which is a science of construction in architecture. *Vastu shastra* is a science and not a religion as many unknown would conceive it. It propagates the creation of energy and positive vibration, and thus a holistic environment. *Vastu shastra* has been applied mostly in the design of Hindu temples in India. The assumption is that the world is a ‘manifestation of the body of God’. Hence a sacred structure is indeed the body of God. It is then relevant and necessary to investigate the application of *vastu shastra* in the local context of Durban Hindu temple architecture.

CHAPTER TWO

RESEARCH METHODOLOGY

2.1 INTRODUCTION

This section sets out the research methodology that was implemented in finding solutions to the research questions listed under 1.3.4. This study used a research technique known as qualitative research to gather information from different sources, since this method helped the researcher to develop hypotheses for further testing and to develop a qualitative questionnaire which enabled the researcher to understand the feelings, values, and perceptions that underlie the transformation of the Hindu temple architecture in Durban. Finally, this research technique also assisted the researcher to capture the language and imagery with which to describe and relate to the architecture of the *Sanathani* Hindi people of Durban (Qualitative Research Consultants Association, 2015).

2.1.1 Primary Data Source

Primary sources are the first hand evidence left behind by participants or observers at the time of events. Primary sources offer first-hand testimony or direct evidence regarding the topic under investigation. They are created by witnesses who experienced the events or conditions being documented (Concordia University, 2010). The researcher adopted the use of primary data sources since it assisted the researcher to relate in a personal way to the phenomenon under study and promoted a deeper understanding of history as a series of human events. Additionally, it aided the researcher to move from concrete observations and facts to questioning and making inferences about the materials. The researcher was also informed of the fact that information collected by this method is reliable and accurate, that this is a good method for intensive investigation and that it gives a satisfactory result, provided the scope of inquiry is narrow (Kane, 1985). Some of the primary data collection methods included:-

A. In-depth interview

The use of in-depth interviews was employed as an instrument for primary data collection. Purposive sampling was used to select the four key informants who demonstrated key knowledge on the subject matter. The informants selected were the architect and spiritual head of each case study. According to Boyce (2006, p.3), “In-depth interviews are useful when you want detailed information about a person’s thoughts and behaviours or want to explore new issues in depth.” Refer to Appendix ‘B’.

B. Reconnaissance Survey

Observation is an essential and important method in all qualitative inquiry and it minimises response bias, state Becker & Meyers (1975). Consequently, the researcher took frequent visits to some of the selected Hindu temples for observation, with a checklist for a more detailed reconnaissance of the architecture or the form and functions of the temples. A first-hand opinion from the researcher’s observation was thus obtained.

C. Standardised Questionnaires

Questionnaires may provide a more concrete way of ascertaining how often the social role activities of the Hindu temples are used, who the users are and their views on providing these facilities for use by the greater community. For the purposes of this study, the questions should be structured around likes and dislikes with regard to architectural built quality, which includes the social activities. These questions will be completed through a stratified and target sampling process. Refer to Appendix ‘A’.

D. Case Studies

According to Feagin, Orum & Sjoberg (1991), a case study is an ideal methodology when a holistic, in-depth investigation is needed. A case study is expected to capture the complexity of a single case. The case study should have a ‘case’ which is the object of study. According to Yin (1994), the ‘case’ should be a complex functioning unit, be investigated in its natural context with a multitude of methods, and be contemporary. In this regard the researcher selected two

case studies relevant to the Hindi *Sanathani* temples in Durban, since this method conveyed a good opportunity for innovation and is a worthy method to study rare phenomena.

2.1.2 Secondary Data Sources

According to the Library Web Team (2012), secondary sources are materials that digest, analyse, evaluate and interpret information contained within primary sources or other secondary sources. The researcher adopted this method of data collection since it was not costly to achieve, and helped to clarify the research question posed in this work. Some of the secondary sources of data utilised by the researcher were:

A. Literature Review

Analysis of theory through literature review was aimed at finding answers to the questions regarding the impact of the architectural build quality of the Hindu temple through the inclusion of social aspects. How the integration of social role activities served the greater community and how the transformation impacted on the traditional form of architecture was established. A number of techniques were used to collect information from various sources and these included using the resources in the library which included books, journal publications and the internet.

B. Precedent Studies

Hinduism is culturally rooted in the Sub-continent of India therefore relevant works by acclaimed Indian architects were reviewed, finding a comparative analysis and solutions regarding the issues of Hindu temple transformation and the inclusion of social role activities. Precedent studies of both north Indian and south Indian archetypes from the Indian Sub-continent were looked at and compared to the Durban Hindu temple architecture from the same period. Construction techniques, decorative motifs and materials were compared. The preferred method of obtaining information for precedent studies was through the internet and a literature review through libraries. Document searches at the Government Cultural Departments, as well as at existing cultural centres provided information on broader cultural issues.

A look at past and current trends of Hindu temple architecture was researched with the view to determining the appropriate space and time trends of sacred architecture development in the land of the origin of the Hindu religion, the Indian Sub-continent, as well as elsewhere in the world where people of the Hinduism faith have established themselves.

C. Published Print Sources and Published Electronic Sources

This method concentrated on the review of local and international published prints and electronic sources which included books, journals, periodicals, magazines, newspapers, reports, e-journals, general websites and blogs on the historical developments and transformation of Hindu religious architecture.

2.1.3 Data Analysis

The data collected from primary sources was recorded, evaluated and interpreted, and this assisted the researcher to make sense of the data available. The quantitative data was represented in mathematical terms using tables. Other narrative quantitative data was represented and broken down into categories, patterns or themes. The qualitative data collected by the researcher was organised and the results were grouped and categorised into themes or topics.



Source: <http://www.mapsofindia.com/maps/india/religiousplaces.htm>

3.2.1 The Nagara Style Temple Architecture

Basically, three distinct historic styles of temple architecture have emerged in the Indian Sub-continent, the regional locations of which are shown in Figure 2 depicting the map of India. Firstly, the *Nagara* style temples of the northern and western districts of the Indian Sub-continent consist largely of tall structures with large pointed steeples, with sculptural depictions of musicians and dancers over the *garbha griha*, or the portion of the temple where the presiding deity is housed (depicted in Figure 3). As seen, such temples usually include a veranda-type area, used as an audience hall, where worshippers can circumambulate the deity.



Figure: 3. The *garbha griha* at Bhubaneswar.

Source: <https://www.google.co.za/search?q=Nagara+hindu+temples+of+india&rlz:>

The entrance is orientated to face the rising sun and therefore the preferred layout of the temple is aligned along the east-west cardinal axis. The public arrive from the west and face the deity, positioned with the rising sun providing the backdrop. The devotees enter the temple through a series of enclosures which become increasingly sacred towards the sanctum sanctorum or *garbha griha*. The worship sequence commences with the primary space being the entrance porch or *ardh-mandap*, which then leads the worshipper into a larger space or assembly hall known as the *mandap*. Here worshippers acclimatise themselves or prepare to enter the larger assembly hall,

referred to as the *maha-mandap*, all illustrated in Figure 4. Worshippers congregate in the *maha-mandap* for *sathsang*, chanting mantras or spiritual lectures. The circumambulatory in this type of temple is accessible to holy men, women and saintly priests, known as *pundits*. Prayer offerings are handed to the priest, who then circulates the inner sanctum or *garbha-griha* that houses the presiding deity, via the circumambulatory or *pradakshna* in a clockwise manner, before returning to hand the holy offerings or *prasad* back to the devotee.

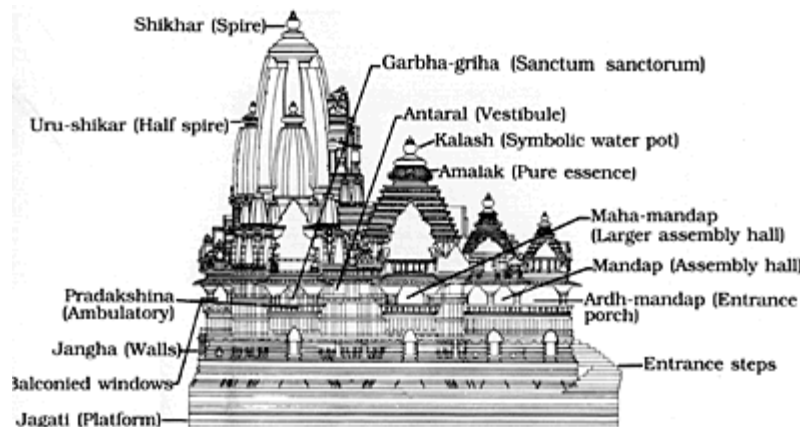


Figure: 4. Section through a typical *Nagara* style temple- depicting the sequence of spaces

Source: <https://www.google.co.za/search?q=Nagara+hindu+temples+of+india>

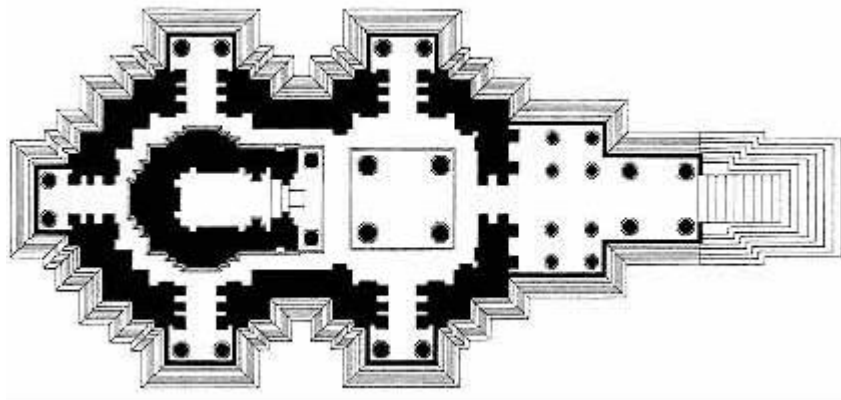


Figure: 5. Plan of Kandariya Mahadeva temple: Mid 11th century.

Source: <https://www.google.co.za/search?q=kandariya+mahadeva+temple&rlz>

This forms the basis of the worship sequence for a north Indian *Nagara* style temple, and the plan of the Kandariya Mahadeva temple in Figure 5 is a fine example of the pattern of worship.

The images are typical of a classical north Indian or *Nagara* style archetype built during the classical period (11th C). A contemporary variation of the early 20th century will be analysed in the precedent study of this research effort.

3.2.2 Dravida or Southern Style Temple Architecture

The second most prominent Hindu temple style influenced by the southern Indian Tamil or *Dravidian* culture is broadly known as the *Dravida* or Southern style temple, known for its distinct *gopurams* or entrance gateways to the temple enclosure, as seen in Figure 6. They are extremely large and decorated with elaborate sculpture, dominating the architectural composition of the entrance gateway and temple. The complex is entered on four sides through these large, lofty *gopurams*, an example of which is shown in the plan of the Meenakshi Amman temple in Figure 7. The constructions of the *gopurams* are similar to that of the main temple, except that they are rectangular in plan and capped by a barrel vault rather than a copula.



Figure: 6. Gopuram at Meenakshi Amman Temple,
Source: https://en.wikipedia.org/wiki/Meenakshi_Amman_Temple

The temple tower is pyramid shaped, consisting of progressively smaller storeys of small pavilions and capped with a *shikara*. In the south, the numerous Hindu kingdoms fortified their

temples and erected large enclosures, depicted in Figure 7, which acted as a refuge for the village population during times of strife. Within them were schools, temples and kitchens, while the *gopurams* became huge, aggressive towers embellished with thousands of demons and demigods, according to Harber, Kearney and Mikula.1982).

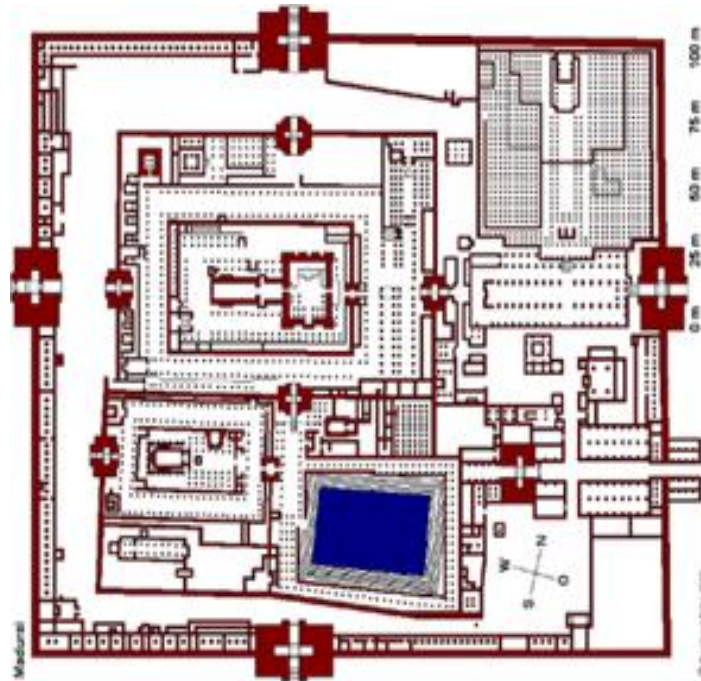


Figure: 7. Plan of a typical Dravida style Temple as depicted by the plan of Meenakshi Temple

Source: <https://www.google.co.za/search?q=plan+of+meenakshi+temple&rlz>

The classification of this style or language of temple favours a more rounded tower along with a complex of buildings. There are usually separate areas for singers and dancers and their dramatic performances, and for worshippers of the various deities (Rosen, 2002).

3.2.3 Vesara or Hybrid Style Temple Architecture

The term *Vesara* is strictly Southern Indian and means ‘mule’, an issue of heterogeneous parents. *Vesara* also means ‘hybrid’ and has been termed *sankara*. *Vesara* temple style was conceived as a hybrid between the *Dravida* and *Nagara* styles. *Vesara* temples are generally assigned to the country between the Vindhya and Agastya (Nasik) or from the Vindhya to the river Krsna.

These temples were built by the Chalukyas and the Hoysala Dynasty in Mysore. A well preserved typical *Vesara* style temple evidenced in Figure 8 and Figure 9 is the Keshava temple in Somnathpur.



Figure: 8. Northwest view of a typical Vesara style temple Keshava in Somnathpur.

Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz>



Figure: 9. East entrance view of a Vesara style temple of Keshava in Somnathpur.

Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz>

The Keshava temple in Somnathpur, situated in a small village on the banks of the river Cauvery, near the city of Mysore in Karnataka, was built (12th C) under supervision of Somnatha, an army general of King Narasimha III, of the Hoysala dynasty. The temple is famous for its elaborate and intricate sculpturing (http://ignca.nic.in/kts_about.htm, 1985).

The temple is enclosed within a walled courtyard that has a gate and an entrance porch, seen in Figure 10. The temple is built on an elevated star shaped platform. The actual temple base rises straight out of the platform and is composed of a series corbeling that wind around the star form of the building. The main shrine and *maha-mandapa* or community meeting hall of this *Vesara* style temple is enclosed at the center of a courtyard, which is bounded by a rectangular perimeter wall. The perimeter wall is composed of cloisters and subsidiary shrines, replicated all around. The only entrance pavilion is positioned on the east side of the perimeter stone wall, an indication of security issues. Every corner and angular projection of the central wall space of the temple is occupied by deities.

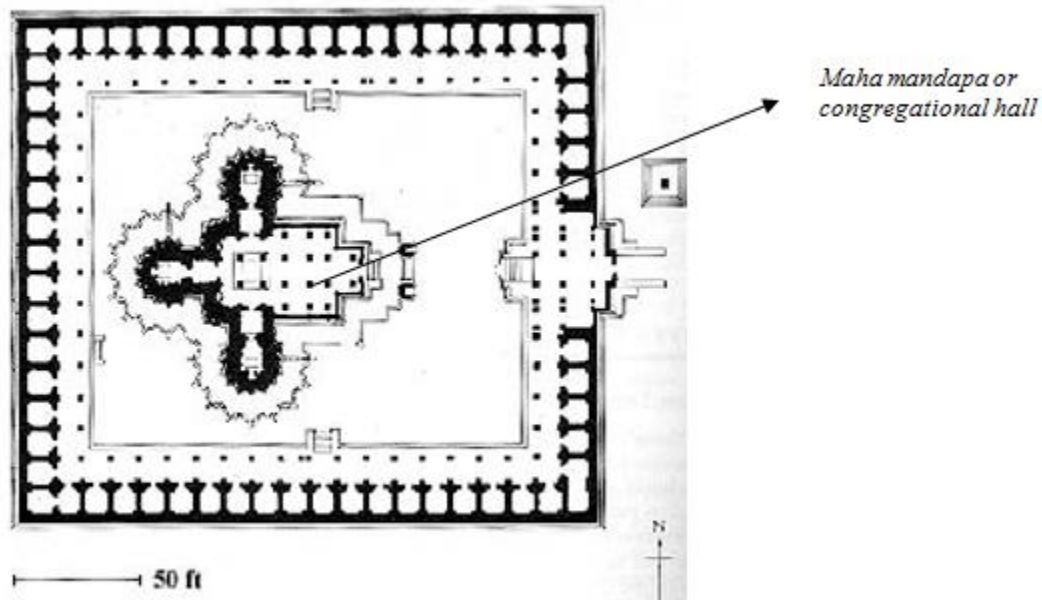


Figure: 10. Plan of a typical Vesara style temple of Keshava in Somnathpur (12th C).
Source: <https://www.google.co.za/search?q=plan+of+keshava+temple+somnathpur&rlz>

Architects of the *Vesara* temples hardly seemed interested in blending and synthesising *Nagara* and *Dravida* styles with their design of the *Vesara* style, but regarded *Nagara* and *Dravida* styles as simultaneous morphological references in the signification of the *Vesara* ideology. *Nagara* and *Dravida* are present in *Vesara* architecture as models, in the sense that they provide a vocabulary, a range of related elements, a kit of parts or a family of forms which can be put together in various ways, states Hardy (1995). *Vesara* temples can be considered as

morphologies of the southern *Dravida* and the northern *Nagara* temple forms, with the *Dravida* as the basis of their design, infusing essential compositional elements while assimilating *Nagara* characteristics. Sinha (2000) attests that the purpose to which *Vesara* architects put *Nagara* and *Dravida* references are crucial questions in recognising *Vesara* architecture as a new regional type.

Gradually over time the kings of India became less powerful and poorer. Temple projects became smaller and less ambitious, but the basic style remained unchanged and faithfully followed the rules of the *Shastras* (Harber, Kearney and Mikula, 1982). British rule affected India, as well as other colonial ruled countries throughout the world, and resulted in the arrival of the Indian indentured labourers in Durban. Most of these labourers were from southern India, and most Hindu temples were scattered across southern India, so it was not difficult for lay-builders to remember and build temples from memory. These labourers thus brought with them their culture, religion and temple architecture knowledge, and established their traditions in Durban.

Globalisation and technological advancement has had a serious impact on cultural symbolism and tradition throughout the world. Thus regionalist temple architecture combines the Hindu temple traditions with the new global and western colonial influences. Cultural identity in contemporary time and context is therefore possible. Traditional Indian archetypes, similarly, have been re-interpreted and re-invented to become relevant to the present time and context, stated Luckan (2008).

Rapaport (1989) stated that theorists came up with various ways to define the concept of built forms and environments which were generally tied to the surroundings where human inhabitants and their lifestyles coped with the ecological settings. The Hindu temple within the context of Durban is a manifestation of the symbolic link between the Hindus of Durban and their origin from India, their reason for existence in an adopted country and their inevitable destiny: Hinduism teaches that life on this planet is a perpetual cycle of suffering of enormous scale and power which results in a circle of birth, death and rebirth. Indian culture and religion is vibrant in

Durban and forms a major component of the identity of the city. In fact the cultural landscape of Durban is defined by a large Indian population, the largest outside India, reports Luckan (2008).

3.3 THE INFLUENCE OF MAJOR DEITIES IN HINDU TEMPLE ARCHITECTURE

Present day Hinduism recognises six general personalisation of God. Three male; Brahma, the creator of the universe (Figure 10); Vishnu, the preserver of all life and earth (Figure 12) and Shiva, the destroyer of all evil or dissolution (Figure 14). The three female personalisation would be Savathri (Figure 11), consort to Brahma; Lakshmi (Figure 13), consort to Vishnu and Shakti (Figure 15), consort to Shiva. Together they form a trinity, representing the three main manifestations of the abstract Divine (*Nirguna Brahma*). Brahma has been discarded in common worship, which is mainly devoted to the other three: Vishnu, Shiva and Shakti. These three main deities have in turn numerous earthly manifestations. Vishnu for example assumes ten forms, of which four are non-human- fish, tortoise, boar and man-lion. Rama and later Krishna are accepted as historical figures of the reincarnation of Vishnu, the accounts of which are given in the epics of the *Ramayana* and the *Mahabharata*. Both are believed to have been compiled about 500 or 600 B.C. (Meer, 1969).

The cults of Rama and Krishna became popular in about the third century BC, particularly through the devotional hymns of a series of saints known as *Bhagavatars* and *Allavars*. In about the tenth century A.D. they crystallised into the *Bhakti* movement, which today typifies mass Hindu religiosity, adds Meer (1969).

A. LORD BRAHMA

Brahma in Figure 11, as visualised through paintings and sculpture, has four heads suggesting he has the intuitive psychic ability to watch over the world and the universe all at the same time. His four faces represent more virtuous qualities of the mind, intellect, ego, and self-confidence. He holds a book in one hand and has a long white beard, together symbolising knowledge and wisdom. The swan is considered Brahma's chosen mode of transport (*vihana*) because of its unique ability to separate milk from water; a unique ability that none of the eighty four million other life forms have. Similarly Brahma has the ability to judge good from bad, providing justice for all his creations. Brahma wears a crown which symbolises his supreme authority over the world and the universe, as the God of creation (Satya, 2012). Although Brahma is discarded in common worship, His symbolic depiction conveys immense wisdom and meaning.



Figure: 11. Brahma, the creator of the universe.

Source: <https://www.google.co.za/search?q=brahma+the+creator&rlz>

B. GODDESS SAVATRI

Meer (1969) informs that Savatri, the consort of Brahma, is the first manifestation of creation, and the essence of final dissolution, or salvation. She appears in many mythological forms, all of which depict her many incarnations; Draupadi, Charmund, Gavri and Haimavathi being some of the well-known ones. Savatri, seen in Figure 12, is also the Goddess of dawn, who dispels darkness and ignorance by lighting the flame of eternal knowledge.



Figure: 12. Savathri, the consort to Brahma.

Source: <https://www.google.co.za/search?q=shiva+vishnu+and+brahma:>

Symbolic representation:

Savatri shares some of the same symbolism as Lord Brahma. She is the presiding deity of science, seated on a lotus, on a swan, her vehicle of grace and purity. Her back arms represent her activities in the physical world and her front arms the inner world. The arms on the left, together with the symbols, depict or symbolise the quality of the heart, while those on the right represent mind and intellect. The five faces of Savatri symbolise the five essential natural elements to sustain life. Her ten arms represent the ten senses of the body essential to function properly, according to Satya (2012).

C. VISHNU NARAYAN

Vishnu in the *Rig Veda* is the sun in its unceasing energy. He is also one of the sun's twelve manifestations, *Aditya* or twelve months of the year. In another *Vedic* version of creation he is Purusha the cosmic man, from whose sacrificial dismemberment the universe was born. He is also the great Being who measures and paces the planes of the universe, and as such is time, space and life. The preserver of all life on earth, his multifarious powers are symbolised in the posture of his limbs, and in the articles which he carries in his many hands. Meer (1969) adds that in each pictorial representation such as that in Figure 13, Lord Vishnu carries both benign and terrifying weapons.



Figure: 13. Vishnu (Narayan) depicted with all his symbolism.

Source: http://www.stephen-knapp.com/lord_vishnu.htm:

Symbolic representation:

Shesha Serpent: This snake, depicted as a shield to Lord Vishnu, is the manifestation of Lord Balaram, Krishna's brother.

Vaijayanti Garland: The rows of flowers represent the five senses and show Lord Vishnu's mastery over all senses.

Pitambaram (yellow cloth): Through the Vedas the divine reality is revealed, just as through the light yellow cloth the Lord's dark skin can be seen.

The Chakra/Discus: Represents the mind and revolving creativity. It is also used as a weapon to cut off the heads of demons.

Conch: This is the symbol of the power of illusion, from which the universe arises. The conch is the fountain that creates the five elements.

Padma (lotus): Is the symbol of purity and the unfolding of creation.

Mace (Gada): Named Kaumodaki, it represents the elemental force from which all mental and physical powers are derived. It also represents knowledge, as its name means captivating the mind.

Four Hands: They represent the four directions.

D. GODDESS LAKSHMI

Goddess Lakshmi in Figure 14 is the symbol of all that is auspicious and desirable, spiritual and material; wealth, fortune, beauty, fertility, prosperity, concentration power of the mind and intellect, and moral and ethical wealth which is needed to tread the path of realisation. The name Lakshmi has been derived from the Sanskrit word *Lakshay*, meaning 'aim' or 'one's goal'. She leads from earthly delights (*Avidya maya*) to celestial delights (*Vidya maya*).



Figure: 14. Goddess Lakshmi, the consort of Lord Vishnu.

Source: <https://www.google.co.za/search?q=goddess+lakshmi+images&rlz>

Symbolic representation:

Goddess Lakshmi is portrayed as an exceptionally beautiful lady of fair complexion, draped in an exquisite red sari and adorned with gold jewelry. She is depicted with four hands,

representing the extremes of human life; *Karm* (desires), *Artha* (spiritual and material wealth), and *Moksha* (liberation) from the cycle of birth and death. She is depicted holding lotus buds in two of her hands, which represent beauty, purity, spirituality and fertility, and is seen emerging from a fully blossomed lotus in a pool of fresh spring water, in which two white elephants pour water from a *kalash* (Meer, 1969).

E. LORD SHIVA

Shiva in Figure 15 and Shakti in Figure 16 are believed by many scholars to be the first personalisation of God, and are traced to the pre-Vedic Indus Valley civilisation of about 3500BC. They are also symbolised as male and female energy, as the phallus or *lingham*, and *yoni*. The phenomenon of creation is seen as the fusion of two fundamental energies. Hence God is a supreme father who creates in union with a divine mother. Since in Hinduism God and Satan, good and evil, are not two distinct and separate forces but rather emanations from the same single power, the deity Shiva is characterised by both benign and terrible aspects (Meer, 1969).



Figure: 15. Shiva, the destroyer of evil or dissolution.

Source: <https://www.google.co.za/search?q=shiva+vishnu+and+brahma>

Symbolic representation:

The reference to the cobra around Lord Shiva's neck signifies a person's ego which, once brought under control, can be viewed as an ornament. The symbol of the moon depicted on Lord Shiva's hair symbolises that he is timeless and the master of time. Shiva carries in one hand the

Drum, symbolising the rhythm of existence. The trident is a representational symbol of the power of knowledge, desire and implementation. The depiction of *Gangamai* tucked into his hair symbolises the flow of the primeval sap of life, the flow of knowledge from one generation to another. The large *Bindu* or dot worn on the forehead is a symbol of the third eye or Chakra which, once unlocked, has the power to destroy any evil. Wearing the tiger's skin, Lord Shiva is fearless. Finally, the *Rudraksh* or rosary beads in his right hand signify concentration and control, according to Satya (2012).

F. MOTHER SHAKTHI

According to Meer (1969.p, 139), Shakthi is a multi-dimensional goddess considered to be the most important amongst Hindus. Shakthi in Figure16 is popularly referred to as Devi or Mata Mai, the Supreme Goddess who is the eternal mother through whom man hopes to attain all his aspirations, both in this world and in the next. She is fertility itself and as such is both the earth and its waters in all forms, including sap, milk and blood. She is the river Ganges, worshipped as *Gangamai*, the primeval sap of all life.

Shakthi was incarnated as Durga from the combined wrath of the Gods, to wreak their vengeance against the demon Mahisha.



Figure: 16. Shakthi, the consort of Shiva.

Source: <https://www.google.co.za/search?q=goddess+shakti&rlz>

Symbolic representation:

Satya (2012) informs that Shakthi is depicted as a warrior Goddess, with eight hands carrying various weapons and assuming symbolic hand gestures (*Mudras*) that represent her teachings. In her first right upper hand she has a chakra which symbolises *dharma*, a person's commitment to perform duties and responsibilities in life. The conch in her first upper left hand symbolises happiness, or a person's ability to fulfil a task without resentment. The sword she holds in her second right hand symbolises the eradication of vices, a subtle message to the observer. The bow and arrow in the second left hand is a symbol of stature and authority. The trident in her third left hand symbolises courage to face challenges in life. The lotus flower in the fourth left hand is a symbol of detachment from materiality and worldly pleasures. The *gadha* or club held in her lower right hand is a symbol of *hanuman*, of strength and devotion.

3.4 HINDUISM IN DURBAN

3.4.1 Introduction

Of the 3200 randomly selected indentured Indians who arrived in Durban aboard eight ships, 90 per cent were Hindu. Within a few generations, the Hindu population had escalated to 282 797 in Durban by 1960 (Meer, 1969).

According to the religious demography census of 2001, a total of 348 894 Indians in the Durban area professed to be Hindus (Census, 2001) and having established themselves, transformation was achieved relative to their western education in the community. As a result Hindus participated in mainstream western life in Durban more than ever before, however the process has not been without religious and cultural consequences.

3.4.2 Historical Background

Hinduism and Hindu temple architecture in Durban are the products of the forefathers of the Indian South Africans “that brought to the shores of this land a heritage steeped in religion and culture” (Kuppusami, 1982) during the nineteenth century.

Eighty per cent of the Indian immigrants to Durban were Hindus, 15 per cent were Muslims and 1.4 per cent was Christians, according to Munsamy (1997). Sixty per cent of the Hindus were either Telegu or Tamil speaking from the southern villages of India, added Munsamy (1997). One hundred and fifty years later, the transformation of Hindu religious architecture can be understood as an inevitable phenomenon of the process of time, as well as space.

Early Hindu immigrants introduced a variety of ‘village rituals’ in Durban, many of which crystallised into temple cults. The debilitating effects of the caste system in Hinduism made the lessor privileged members within the faith susceptible to conversion, either to Islam or Christianity, and retarded the emergence of a modern economy (Meer, 1969). The modern Hindu movements, from the beginning of the last century, set the foundation of a new local ethos.

Between 1900AD and 1915 AD, 12 Hindu organisations emerged, where previously only one had existed. The result was not only a religious revival but also a cultural revival.

The Hindu *Maha Sabha* established in 1912 drew the different linguistic affiliations together and gave them a semblance of common identity: 'Hindu'. By 1960 there were 25 major Hindu organisations, representing every shade of Hinduism and Hindu Culture, explains Meer (1969). Practically every form of Hinduism, from the abstract to the most concrete, is practised in Durban. The vast majority of Hindus in Durban, as in India, understand religion as the performance of intricate rituals, and through the performance of these rituals Hindus are generally distinguishable from non-Hindus. Hindu rituals may be classified into two categories; those performed privately within the family, and those performed publicly, usually at the temples. Hindus generally believe God to be everywhere and in everything animate and inanimate, and impress this formally through ceremony and ritual and concrete imagery.

According to Sivananda (1953) seven classes of Hindu rituals exist:

- *Sandhyopasana* (prayers) performed at the meeting of two periods of time, dawn, mid-day and evenings. Hindus offer prayer at the break of day, generally referred to as *Surya Namaskar*; individuals greet the rising sun and absorb as much of the energy from it as possible. *Jal* is offered to the Thulsi facing the sun.
- *Samskaras*, or rites of passage. These mark the stages in the life of man from conception to death.
- *Poojas*, or worship of the supreme and unique God Brahma, through idols representing Vishnu, Shiva and Shakti in various forms.
- *Yajnas* or five daily sacrifices to God, man (both living and dead) and the elements (air, wind, fire, water and space).
- *Sraddha*, performed by relatives at funerals.
- *Pithrpaksha / Amavasya*, annual offerings to the deceased and ancestors.
- *Navathrathi*- Adoration of the Supreme Mother, annually. This prayer is observed over a nine day period and each day is dedicated to the different manifestations of the Divine mother Shakti (Meer,1969).

Durban Hindus are aware of all these rituals and perform them with varying intensity, the exact form differing with the Hindu language groups. Other rituals derived from the traditions of their original geographical areas of emigration are added to Sivananda's (1953) list: The Divine Mother Shakti is worshipped by all Hindus. Gujarathis and Hindustanis, both of north Indian origin, also place emphasis on Vishnu. Tamil / Telegu speaking *Dravidians* worship Shiva. Consequently, most Durban Hindu temples are dedicated to Shiva and his consort Shakti.

Allegory and drama are important and popular modes of communicating Hindu religion. Both of these are common practice amongst Hindus in Durban and are organised publicly by communities, asserts Meer (1969). The performance spaces included in Durban Hindu temple compounds are a key feature of Hindu tradition that need to be supported and nurtured as an artefact of a specific culture. The concept of Hindu identity in the Durban context is a complex one, and has become a subject of vigorous debate in the social context.

Hindu identity in Durban opens up the question of symbolism - how sacred places and buildings are read or interpreted and what they mean? At this juncture it must be noted that due to linguistic differences, those that originate from the south of the Indian Sub-continent either speak Tamil or Telegu, whilst the minority Hindus in Durban constitute the Gujerathi and Hindi speaking who originated from the northern parts of India. The linguistic-cultural distinction is used to create classifications within the larger Hindu group. Research has shown that the differences between these groups with regards to details of worship, ritual and social customs are minor (Diesel & Maxwell, 1993), hence a blended culture is created under a single identity of Hindu. Worship at temples is therefore not restricted along linguistic differences. Hindu religion and culture in the Durban context is subjected to various western and ethnic African cultures, and ways of life. Such influences cannot be ignored as they serve as a catalyst for a new subculture within Hinduism, identifiably compared to Hinduism in America, and gives rise to Neo-Hinduism (Gopidayal, 2011).

3.4.3 Neo-Hinduism in Durban

Neo Hinduism is a relatively modern concept that originated in the second quarter of the last century and is a contrasting concept in comparison to the Sanathanist Hindu ideals that follow

very strongly on traditional practice (Gopidayal, 2011). The initiation of Neo-Hinduism dates back to the early 1900s. The concept of the Neo-Hinduism movement in Durban was concretised through the introduction of the Hare Krishna Movement and the dedication to Sai Baba during the 1970s, according to Diesel & Maxwell (1993).

The subgroupings that make up the Neo-Hinduism movement according to Diesel & Maxwell (1993) are: Arya Samaj, an Indian religious movement founded in 1875 by Swami Dayananda; Neo-Vedanta movements, which include, the Ramakrishna Centre, the Divine life Society, the Chinmaya Mission, and Gita Mandir. Other prominent organisations include the Saiva Sithantha Sungum; the Sathya Sai Baba Organisation and the Hare Krishna Movement, adds Gopidayal (2012). Neo-Hinduism, as discussed by Diesel & Maxwell (1993), embodies the following characteristics:

- Emphasis is placed on regular communal religious services or meetings within the worship space. This is a characteristic that is seldom seen in the Sanathanist form of worship.
- The introduction of contemplative religious practices such as yoga or meditation, which co-exist with traditional rituals.
- The avoidance of certain rituals of the Sanathanist world, such as the annual fire walking festivals, in which participating members are placed in a trance.

The sub-culture of Neo-Hinduism became a global influence that introduced diversity to the Hindu religion and is practiced by diverse Hindu social groups in Durban. Worship spaces for particular Neo-Hinduism movement groups require spaces particular to their needs. The orthodox (Sanathanist) Hindus continue to worship in the traditional way, with temples that served the group well during a difficult period in Durban's history. The circumstances that effect the Hindu population in Durban today, however, are much changed, states Gopidayal (2011), hence the needs of the contemporary Hindu community in Durban are different. Thus the question is raised of how the Hindu religious groups identify themselves with the current circumstances of the Hindu temple as a place of worship. Does the expansion of Hindu temples in Durban, through alterations and additions, affirm the emerging dual identity of the religious practice and built form?

Naidu (2005) confers that the modern Hindu society of Durban have evolved, influenced by western culture in Durban and differ considerably from the traditional Hindu generation of people created by a diaspora consciousness. The first consideration is of affirming a Durban Hindu identity for the group. This process is important as the practice of Hinduism is not restricted to those of the Indian racial grouping alone, but admits people from other religious denominations as well. Mahatma Gandhi in 1939 reaffirmed the admittance of all people to contemporary Hindu temples.

The influential re-imaginings of the Hindu temples in Durban, whether in the name of religious reform and innovation or of tradition, can be considered to be a space for everyone (*sarvajanik*), including non-Hindus. The word *sarvajanik* literally pertains to all people and can be translated as ‘public’. In this instance, does Hindu temple architecture remain identifiably Hindu or does a new transformational form become necessary to represent the *sarvajanik* nature of society in Durban?

3.5 CULTURAL SETTING AND HERITAGE OF SPACE

This research study will develop and apply a theoretical framework, when analysing the two chosen case studies. The Durban Hindu temple (DHT) and the Vishwaroop temple and Dharmashala (VTD), the concept of historical settings, regionalism and *vastu shastra* were outlined in previous chapters. From a historical standpoint the realisation of the Hindu temples in a particular place needs to be understood, together with the architectural response to nearby and distant influences, both in time and place.

The unit of study is the *Nagara* style temple as a whole, and the objective is to identify and typologically classify both the temples of north Indian origin within the greater Durban area, according to their overall plans or elevation aesthetics and religious relevance. Various other *Nagara* style temples in and around Durban have been categorised and documented by researchers Harber, Kearney and Mikula,(1982). In this thesis, the DHT and VTD were the preferred ‘median’ temples, used as an archetype to represent the area being studied. These temples are used and their surroundings are examined.

Through the historical background it was noted that the first Hindu Settlers in Durban established themselves in Durban city and the village of Tongaat, where they first concretised their culture and traditions. Patterns of settlements of Hindi speaking (*Sanathani*) Hindus resulted in yields of the *Nagara* or northern style temple.

The voluminous information collected provides details of the Hindu religion, culture and their ways of life. There is, however, little by way of understanding the philosophical thinking, the theory of the architecture they produced, or that of the realisation of the temple or its transformation. Hence the diagrammatic representation of typologies needs to be interrogated with the view of appropriating the philosophy and theory of the function and form. The information collected about the temples emphasises the temple's spatial layout, materials of construction and its uses.

The *Nagara* style Hindu temple is viewed as 'timeless' and representative of the north Indian, or Hindi speaking people of Durban. This style has an architecture which the Hindi people identify with. It will be further determined if the architectural style changes frequently as fashion does, or if it is through the expansion of functional spaces to accommodate the needs of the cultural group 'Hindi'.

Hindu religious architecture exhibits great variations from one region to another and this has been established at the outset of this research, when discussing the *Nagara*, *Dravida* and *Vesara* styles of temples of the Indian Sub-Continent.

Do the DHT and VTD represent a uniquely different style which is specific to a particular region, namely Durban? Do the DHT and VTD temples exhibit 'architecture of necessity' or contrastingly 'architecture of pride'? This is because, in addition to timelessness and uniformity, the religious cultural architecture of the Hindi group appears to be severely utilitarian to the observer.

Finally, the cultural approach of the Hindi people of Durban asserts that temple architecture reflects the character and soul of the people who produced it, i.e. organisations, trustees, and sponsors. Temple buildings of the past, as well as those of the present, are considered to be

products of the persisting religious and cultural forces of the builders' thought at that time. Similarities in form over time are viewed as the result and proof of the continuity of cultural forces and tradition.

3.5.1 Cultural and Heritage Setting: Platonic Regionalism

Temples are considered to be icons of contemporary Hindu culture (Gopidayal, 2011). Religious institutions, particularly the temple, have through the ages greatly influenced the community environment. Doshi stated that temple cities in India have survived for centuries because the religious institutions have provided the community with cultural stability, occupation and guidance in its behavioural patterns. (Doshi,1985) Can the Hindu temple architecture of Durban be considered as a source for developing a regional architectural style?

The reason for examining the DHT and VTD as Hindi vernacular architecture of this region from a Hindi culture point of view is to determine if the present circumstances, depicted through transformational processes, depicts the timeless reality of a past period.

Can the Hindu temple architectural yield of Durban be considered platonic or revival regionalism which tries to create an iconic image of a presumed regional archetype? The result of which may be considered to be neo-vernacular architecture or neoclassicism. However, what gives legitimacy to the design, according to this approach, is how well it evokes the regional archetype, in terms of its points on an architecture of regionalism: Space and place, typology and topography, and its interaction with nature. From a religious point of view, does the architecture of the DHT and VTD fulfil the requirements of spirituality, which is meant to inform all aspects of the Hindu religion? Through appropriately conceived or executed spiritual and intellectual principles (*Purusha*), the material realisation (*Prakriti*) of the Hindu temple architecture will make the material an inseparable and necessary part of the spiritual aspect of the Hindu Temple.

3.5.2 Analysis of Form and Religious Meaning

Rosen (2002) informs that according to *Stapatya Veda* (the Hindu tradition of architecture), the Hindu temple and the town should mirror the cosmos. The principle of this ancient architectural tradition is delineated throughout the *Shilpa- Shastra* and the *Vastu Shastra*.

Vastu Shastra propagates the creation of positive energy and vibrations, and the flow of balance and harmony. According to Borden (2011), *Vastu* has been applied to most Hindu temples in India and they are the supreme expression of the science of *Vastu*, which appears to be dedicated to Hindu Gods and Goddesses. *Vastu* science is part of a vast cultural tradition that has arisen around the Hindu religion, adds Borden (2011).

The DHT and VTD temples are assumed to be considered built in harmony with the mathematical system which determines the proportioning of the design. Similarly the DHT and VTD temples may be constructed as per the mathematical system stipulated in the *Vastu Shastra* and are expected to be in harmony with the mathematical basis of the universe Mitchell (1988) states that the inverse of this belief also holds true.

Hence, for the happiness and welfare of the Hindu community of Durban, it is considered important to implement this mathematical system in the design and realisation of the DHT and VTD temples, as concrete representations of religious archetypes which are an intrinsic part of Hindu worship, and which so heavily influence popular Hinduism. Thus the philosophical understanding and applying of *Vastu* principles will make the material an inseparable and necessary part of the spiritual knowledge of the designers who produced these structures.

Borden (2011) asserts that *Vastu* science can be used by any religion, providing they fully understand the principles before attempting to apply them in design. Gopidayal's (2011) thesis on the influence of traditional architecture on contemporary culture purports that the *Vastu Shastra* planning guide is based strongly on cosmology and astrology, whereas 'modern' *Vastu* is not. The notion of 'modern' *Vastu* is questionable. What constitutes 'modern' *Vastu*, when was it conceived and how different is it to the traditional *Vastu*, which is said to be more than 6000 years old?

The analysis and study of the DHT and VTD on the concept of identity, localness and religious appropriateness may be approached from a psychological and social look at problems facing sacred architecture in a developing world - in the clash between modernity and tradition. The study sites of the DHT and VTD will be examined comparatively with the view to determine their historical and current quality of place.

3.6 DEFINITION OF PLACE

The essence of place lies in the quality of being somewhere specific, knowing that you are 'here', rather than 'there'. Enclosure becomes a very important aspect of place making, which also seems in some way to be related to the concept of territory. For many cultures and civilisations throughout history, the establishment of place and the taking possession of it are accomplished by means of building structures, boundaries and personalising the resulting places in some way (Rapaport, 1977).

Everything needs to be considered in relation to humans and their needs, both physically and psychologically. The importance of place that is both natural and built is of relevance for the co-existence of people and their context. Places are all around us; not just rooms, buildings, or outdoor spaces, but whole environments and they form the setting for our daily activities. The quality of places make people feel good, excited and happy, while others feel uncomfortable, insignificant, unhappy or out of place, based on the memories or physical properties of a place. Place identity theory has provided important contributions to the field of psychology and to the social sciences of architecture, emphasising the influence of the physical environment on identity and self-perception. The physical environment is just one amongst other influences of place identity.

How does religion influence place identity, especially for those immigrants who have adopted a foreign country or place like Durban which has a multi-cultural and multi-faceted society?

3.6.1 Linkage to Place

A person's self-identity can be linked to a place specific to their culture, like a Hindu to a Hindu temple. This can be useful from a psychological point of view, particularly if the architecture of

the place is appropriately identifiable with the spiritual aspect, a necessary part that makes the material aspect - the architecture inseparable, to define a place identity. For religious persons, place significant to religion such as sacred architecture, cities, landscape and ecology, play a significant role in the development of the self and helps constitute religious place identity (Mazumdar *et al.*, 2004).

This may include characteristics, history, experience, rituals and memories of religious places. Attachment to such places runs deep as evidenced in the emotional connections to sacred cities, such as Jerusalem, Amritsar, Varanasi and Mecca; as well as to churches, temples and mosques. The Durban Hindu temple is considered such a place, according Diesel & Maxwell (1993); the DHT has become an icon of Hinduism in Durban.

This attachment to place forms an important link to place identity. Low & Altman (1992) purports that place attachment is more than just emotional or cognitive experience but includes cultural beliefs and practices that link people to a place.

3.6.2 Place Attachment

For a place to be meaningful enough for attachment to occur, for the users it must be the focus in their lives. A place of relevance to the Hindu would be the temple, as the traditional practice of worship and religious culture would be passed down from generation to generation. Additionally successful religious places, in this instance the Hindu temple, address the need or support the need to maintain the Hindu religious cultural integrities and meaning the communities have placed upon them.

Place attachment relies on both physical and social aspects, as factors responsible for effective development of place loyalty that allow cities and towns to flourish. Through religion the meaning of a certain place become elevated to the status of sacred. The Hindu temple in Durban can be seen as the Hindu religious culture catalyst, a place that brings worshippers closer to their spiritual beliefs.

Additions of buildings or monuments and the creation of outdoor spaces must be well-aligned with a specific community's place attachment, to prevent a reciprocal effect from inhabitants or users that do not agree with the intended developments. Certain architectural landmarks, religious and secular, can come to be viewed as 'collective possessions' or notional treasures, as containers of memory, heritage and history. Individual connection to a religious place may gain spiritual significance through personal experience of a place.

Attachment to places, religious or symbolic, along with the consequent feelings of place loss, forms an important component of place identity. The cultural and individual levels of place attachment can be considered collectively as attachment to a place may be grounded in emotions, as evidenced when displacement takes place, either through natural disasters, immigration or relocation. A classic case is when the religious cultural group of Magazine Barracks that formed part of the Durban Hindu temple precinct were relocated to Phoenix and Chatsworth. This caused the residents to lose familiar structures such as the Durban Hindu temple, as part of the historical social setting of the Hindu religious cultural group. Essentially, the forced relocation meant the collapse of a tight knit community and its attachment to the only remaining religious catalyst - the DHT.

Attachment to place is an affective proximity maintaining bond that can be expressed without an underlying purpose of control, especially for public spaces such as the Durban Hindu temple. Perhaps the most important dimension to place attachment is the sense of space. What is it about the sense of place to which we connect?

3.6.3 Natural - A Sense of Place

The influence that place has on identity in this research is seen as a result of a holistic and reciprocal interaction between people and their physical environment. Places that individuals find meaningful represent a range of settings, from built environments and urban settings to the natural environments, such as lakes, parks, mountains and forests.

This research will use the word 'place' based on the transactional view of settings. As Speller (2000) defines place as a geographical space that has acquired meaning as a result of the interaction of a person with the space.

According to Heidegger (1962), 'to dwell' has been described as a process of making a place a home. 'Place' gained prominence in phenomenological research, architecture and geography through Norberg-Schulz's (1965) approach to the concept of identity through linking the psychic aspects of human beings' existential space through the basic function of orientation and identification. This approach uses emotions as an instrument of defining human beings' identity and thus becomes a source of introspection and towards the world at large. According to Norberg-Schulz (1965), there are three fundamental ways through which human beings attempt to put into practice their understanding of nature, namely through:-

- Visualizing - an understanding of nature is expressed through the design and construction of buildings;
- Complementing - understanding nature by adding that which is lacking;
- Symbolising - translating an understanding of nature into another form or medium.

All these processes of understanding nature require local knowledge of a place - hence 'localness', a sense people have of place or its *genius loci*.

3.6.4 Genius Loci- 'The Spirit of Place'

The early users of the concept and the term 'genius loci', and its common English translation in the 18th century were developing a new aesthetic appreciation of landscapes, and these were exclusively rural and garden landscapes. This use of the concept of *genius loci* has been well described by the influential American landscape writer, J.B. Jackson: 'Sense of place' is a much used expression, chiefly by architects, but has been taken over by urban planners, interior decorators and the promoters of condominiums, to who the term means very little according to Jackson (1994, p.24-27).

Norberg-Schulz and 'genius loci': Norwegian architect and phenomenologist Norberg-Schulz (1963) is a key theorist in elucidating the concept of genius loci, which was explored in several of the researcher's works spanning over three decades. In the researcher's thesis, the original intention was to investigate the psychology of architecture. Norberg-Schulz (1963) used a concept of townscape to denote skyline or image. That researcher saw the skyline of the town and the horizontally expanded silhouette of the urban buildings as keys to the image of a place. The culmination of the researcher's examination of the genius loci concept is found in the document entitled 'Genius Loci towards a Phenomenology of Architecture' (Norberg-Schulz, 1980). Here, genius loci is described as representing the sense people have of a place, understood as the sum of all physical as well as symbolic values in nature and the human environment.

There are not different kinds of architecture, but rather only different situations, which require different solutions in order to satisfy man's physical and psychic needs, adds Norberg-Schulz (1980). Mthethwa (2001) explains that Norberg-Schulz's approach to the concept of identity is through linking aspects of human beings' existential space through the psychic functions of orientation and identification. This approach uses human emotions as a means of defining human beings' identity and thus becomes a source of introspection and a view of the world at large.

Norberg-Schulz's (1980) approach to the concept of localness examines the relationship of man and his built environment. In Norberg-Schulz's description of the genius loci, four thematic levels can be recognised:-

- Firstly, the topography of the earth's surface. Sensitivity to natural conditions, through building program and site interventions, must result in harmony with the site's natural context.
- Secondly, the cosmological light conditions and the sky as natural conditions. Norberg-Schulz says character can be made up of the physical elements of shape, texture and colour, as well as 'more intangible cultural' content.
- Thirdly, visualising an understanding of nature, as expressed through the design and construction of buildings. Architecture must identify the spirit of place within the landscape so that it can be interpreted and the built form can complement the specific qualities of the environment. The built form must create naturally meaningful experiences

with sympathy to the site with respect to its symbolic and existential meanings in the cultural landscape.

- Finally in this regard, it is important to understand the needs and wants of the people and their local history, economy, traditions, etc.

Norberg-Schulz (1980) says that time has consistency and change and makes space and character part of a living reality. The natural conditions of a place are understood as being based on features in the topographical landscape, including a cosmological and temporal perspective that includes continual changes of light and vegetation in the annual cycle. These characteristics are rhythmic fluctuations and contrast with the stability of physical form. This is the *genius loci* as a place in nature that has to be interpreted when changing the built environment.

Borden (2011), in the book entitled ‘*Vastu Architecture*’ stipulates the need for site selection criteria. The first step in creating a *Vastu* structure is to locate a suitable place on earth (sense of place) and this links back to Norberg-Schulz’s (1980) thematic level of topography and the spirit of place.

Other natural considerations, as per *Vastu* science, are the orientation of a structure on a site. When a project is initiated on earth, it is important that ‘Mother Earth’ (*Mathr Bhumi*) is honoured, by giving attention to how and where the structure is placed (Borden, 2011). Site selection criteria according to *Vastu*:- links the present times, in line with Norberg-Schulz’s *Genius loci* theory. Norberg-Schulz (1980) gives a special place in this conception of *genius loci* to natural conditions and feels they are the basis for people’s inspiration. It is in relation to nature that places and objects take on the meaning of the outstanding natural elements on the land or nearby. It can be argued that the concept of place is vague and instead encourage the use of more precise words like ‘dwelling’, ‘landscape’, ‘city’, or ‘neighbourhood’. However, there seems to be a need for a common term for the physical environment in relation to the social and cultural meanings of it (Lappergard, 2007).

3.6.5 Place Identity

Religion can play an important role in the formation of place identity. Religious place identity is actively created and identity involves unique characteristics, place features and ambience. Place

identity to a specific religious group is a substructure of the self-identity of the group. Unique place characteristics and features, whether they are natural settings, historic architectural landmarks, or treasured artefacts, may be invested with symbolic meaning and can contribute to place identity. For some writers and philosophers such as Langer, architecture is a kind of building which signifies a way of life or ethnic domain, and it is a conveyor of culture and faith, cites Jencks (1980).

The connection between identity and place has been the subject of extensive interdisciplinary scholarship and research. The aim of this study is to identify the forces that bring about the transformation of traditional Hindu religious architecture and to explore the possibility that the new or transformed building or place may be highly distinctive. Alternatively, it could undermine the particular character of a place that the community regard as a critical part of their cultural and religious identity. As Hinduism is a holistic religion, the transition of its principles into the built form transcends that of solely religious. Sacredness which is essentially a part of traditional Hindu culture, is determined by these principles, and expressed in its architecture and attitude to spatial organisation.

A. Search for a 'Post-modern' Hindu Regional Temple Architecture Identity

Traditional Hindu temple architecture of any given region conveyed the strength to serve the spiritual needs of the people, from an individual to the entire religious community. It embodied centuries of learning with regard to factors such as orientation, climate, building materials and construction techniques.

On the other hand, that same distinctiveness could reinforce or even create an enhanced sense of identity. Architecture, according to Doshi's (1985) interpretation in 'Cultural Continuum and Regional Identity in Architecture', is fundamentally a 'social enterprise'. "The form it takes is a result of personal expression informed by history, culture and human behaviour is the way in which it is appropriated by its inhabitants and it is also the degree to which it is imbibed with a timeless and memorable presence" (Doshi, 1985, p.87-91).

Accordingly, the analysis Doshi (1985) contributes here takes a psychological and social look at the problems facing architecture in a developing world, between modernity and traditional, both at a regional and global level. At a spiritual level the building has to communicate with the lifestyle in all its daily as well as seasonal rituals, unifying the socio-cultural and religious aspirations of its religious group or community. The transformation of the traditional Hindu temple architecture is a case in point. In this case, the role played by everyone including the architect was that of shareholders in the realisation of the temple's built form.

B. Hindu Cultural Heritage and Community Environmental Identity

Over a century, the Hindu culture of the region of Durban, through its socio-economic ramifications, has given a sense of security and yet allowed wide choices. In the traditional Hindu society of Durban, a worshiper is not alone, but is a part of a community. Temples and buildings were not built in isolation, but in groups leading to total environments, buildings, spaces and the Hindu culture in a unified way. It is therefore necessary to talk about the physical environment in terms of Hindu cultural identity rather than only the terms of 'building or religious space'.

A temple becomes a prominent social institution to the Hindu, the architectural identity of which defines it. The temple in particular, through time, may have greatly influenced the community environment. There is a need to promote interaction between people and a place, and the spaces in between are as important as the built forms. According to Doshi (1985), temple cities in India, which have survived for centuries because the religious institutions have provided the community with cultural stability, occupation and guidance in its behavioural patterns. These also help in establishing value systems and a strong conviction in continuous community belonging (Doshi, 1985, p.87).

For a similar institution to survive, grow and expand in the context of Durban, an organisational structure has to evolve in society. Building programmes and work to such institutions cannot be assigned to an assistant or contractor to achieve the expected quality and design intentions, if the designer is absent. In the case of temples, it would be the chief architect or *Sthapati* who would be required to spend a considerable amount of time on such projects.

Doshi (1985) states that the temple serves as the most important catalytic institution to preserve the Hindu culture and adds that in order to design a temple; phonetics, poetry, literature, art, music, painting and sculpture mentioned in the Hindu literature, *Vishnudharmottar Purana*, are basic and successive tools of learning. Without these tools, a designer cannot fulfil the task of a temple design, cohesively relating the symbolic and functional aspects (Doshi, 1985).

It is apparent from the above that good design must consider the tangible and the intangible functions, what Kahn would call “the measurable and the un-measurable, the physical, spiritual or the symbolic” (Doshi, 1985, p.87-91). An architect cannot preach any religious doctrine, but whatever the religious form, can plan and provide for the individual or the community. The fact that vernacular or traditional religious architecture is considered to express the cultural values, identity and lifestyle of the people that produced it, it also implies that it can be considered as a valuable link between architecture and the local cultural values, identity and settings.

C. Essence of Place

It is useful to discuss what place ‘is not’ in order to understand what place is. Place-less-ness is the loss of place or space that is empty of character or identity and lacking in unity. Loss of place is often thought to arise from a place that is empty of character or identity and lacking in unity, spatial definition and meaning, contributed to by regulations, legislation, lack of social context, universalisation and economy. Human experience of a place has changed dramatically, through the impact of social media and electronic communication means. Places can now be accessed via the internet and video footage, with the gathering of knowledge of the place without physically experiencing the particular place first hand. Rapid technological advances have facilitated a host of sophisticated innovations. The interaction of social groups with a space gives meaningful definition of that space, which in turn is considered a catalyst to other forms of development and community. The Hindu temple becomes a catalyst to the specific Hindu cultural group.

3.6.6 Conclusion to Definition of Place

With today’s technologies, it should be easy to build a-new, and be linked to the traditional without the loss of formal basic values, whilst still nurturing the ‘cultural and religious values’ of

a specific group. Quality of space will naturally emerge with time, provided the entire process of creation is nurtured with conviction. This should be the basis of architecture. Well perceived and developed spaces will naturally attract people to it and take ownership of that space as an ‘institution of man’. We should search for our cultural ‘catalyst’, which in turn will give definition of meaning of the self-worth of a particular group of people. In architectural expressions, this is what we should look for and build upon.

3.7 CRITICAL REGIONALISM

3.7.1 Introduction

The aim of this chapter is to identify the forces that bring about the transformation of contemporary Hindu religious architecture in Durban and explore the possibilities of promoting informed and conscious interventions to the building program. This is so that transformation can take place without loss of cultural identity, whilst maintaining the religious symbolism and historical importance of architecture, as per *Vastu Shastra*, within an environment of multiculturalism, ethnic diversity and social and language differences.

Regionalism was derived as a conceptual ‘device’, chosen to use as a tool of analysis of architecture. The term ‘critical regionalism’ first appeared in print during the early 1980’s in essays by Tzonis, Lefaivre, and later by Frampton (Eggner, 2002).

‘Critical’ combined with ‘regionalism’ gives rise to critical regionalism, to make architecture analysis and argument more accurate and explicit. An approach to regionalism by a critical regionalist employs specific local geographical parameters such as specific landscape features, culture and ecology in developing an identity of place, asserts Mthethwa (2001). The study of critical regionalism is an attempt to analyse the impact of globalisation and technological advancement as a world phenomenon. At the present moment in architecture it can hardly be described as anything less than rapid change.

Van Eyck, by way of attempting to delimit the problem stated that present day “architects’ are pathologically addicted to change with a tendency to sever the past from the future, with the result that the present is rendered emotionally inaccessible, without temporal dimension. I dislike a sentimental antiquarian attitude towards the past as much as I dislike a sentimental technocratic one towards the future. Both are founded on a static, clockwork notion of time (what antiquarians and technocrats have in common), so let’s start with the past for a change and discover the unchanging condition of man” cites Frampton (1987, p.20-27).

Frampton (1987) adds that van Eyck’s existential attitude implies a willingness to confront the myths and realities of the present, in a critical sense.

The architecture of critical regionalism makes reference to the site, the *genius loci*, on a more abstract level, rather than dealing extensively with the region itself or the particular location. *Genius Loci* or ‘spirit of the place’ is a concept that Norberg-Schulz (1980) developed in an attempt to explore the relationship between human beings and their built environment. This section suggests different approaches to the questions of region and localness by influential theorists.

Mthethwa (2001) reports that critical regionalism theorists such as Frampton, Lefaivre, Tzonis and the Greek architect Pikionis advocated a critical consideration of local underlying structural elements that included local landscape features, the quality of the light, climate and broader cultural settings and values, not just local vernacular traditions. This approach introduced an even greater degree of cultural connectivity than post-modernist theoretical proposals and hence gave rise to an even greater degree of fluidity, as it connected the local ‘culture’ to its physical, social and ecological setting.

The fundamental strategy of critical regionalism is to mediate the impact of universal civilisation with elements derived indirectly from the peculiarities of a particular place. In countless examples it is clear that regional architecture design expression in another geographical region does not indicate the identity of the users, as these designs designate the intention to identify with an existing or constructed group in reference to a real region of origin.

Natural causes and human rationality are supposed to determine architectural form. 'Regional' architecture is shaped by specific external and internal constraints. A particular regional style built in another geographical climatic zone is generally influenced by the conditions of that region. As climate and physical conditions influence buildings, so too, they influence human beings in their inhabited or adopted region. The task of critical regionalism is to rethink architecture through the concept of region, recognise the value of the singular, circumscribe, projects within the physical, social and cultural constraints of the particular group and aim at sustaining diversity while benefiting from universality.

3.7.2 The Awareness of a Regional Architecture

Regional architecture has a distinct identity and can be associated with an identifiable group. This awareness can be associated to further manipulate the groups' identity. The architectural elements that represent the identity of a group occupying a piece of land or the virtual presence of a group among other groups are not abstract decoration. This premise is evidenced in the first Greek trading colony in Egypt in 566bc, when the Greeks built their temple dedicated to the colonising God Apollo, using capital motifs, a girdle of hanging leaves and lotus flowers and buds around the neck; whose origins were from their mother city (Tzonis, 2003).

This developmental phase of regionalism, for example, invoked the remains of Greek symbols as evidence of national, native genius and upheld them as examples to be followed in the revolt against the 'international' norms. In this phase, localness issues were modelled around issues such as nationalism that drew its regionalism values from the nation's political and economic sphere of influence, explains Mthethwa (2001). This phase can be classified into the developmental phase of 'romantic regionalism'. The resulting architecture was thus one of nostalgia and memory that was designed to trigger the recognition of an identity based on an ethnic past.

Regionalism or regional practice opens up possibilities available only for the resuscitation of architecture of meaning, an architecture that supports the cultural identity of those it serves.

Through critical theory Frampton, as well as Tzonis & Lefaivre, in the year 2003 proposed a strategy in which regional elements are employed but used unconventionally (as viewed in Figure 17), in order to generate awareness amongst traditional societies. This could give rise to a new kind of architecture, perhaps exacerbating the problem it meant to solve. The importance of a regional responsive architecture and the transformation it produces is that it creates continuity through change, by which cultures measure their traditional lineage. According to Lefaivre & Tzonis (2003) stated that Mumford affirmed the point that traditions should be renewed for the value and meaning that they add, and not for the ornamentation in their architecture. Thus the principles that are selected should be evaluated for their positive and negative characteristics.



Figure: 17. Ariel photograph of the towers of the Jean-Marie Tjibaou Cultural Centre in Noumea, New Caledonia.
Source: <https://www.google.co.za/search?=jean+marie+tjibaou+cultural+center&rlz>

The Jean-Marie Tjibaou Cultural Centre in Noumea, New Caledonia in Figure 17 is a prime example of embracing traditions and transforming traditions. This is a case in point of local context and natural knowledge, hence ‘localness’. ‘Space’ as well as ‘place’ are two modes of experiencing the built form and the environment.

The traditional Kanak hut in contrast to the towers of the Jean-Marie Tjibaou Cultural Centre was designed by the Renzo Piano Building Workshop, and is devoted to the political leader Jean-Marie Tjibaou. The project was assigned the task of paying homage to the culture of the Kanak people whilst respecting their traditions and history, both in the past and present.

The result was a creation that honours their culture, whilst synthesising local tradition with global modernity. The facility is characterised by towering wooden structures, and modelled on the traditional Kanak Hut. The development incorporated traditional and modern materials utilising different methods of building and technology. The Kanak styled towers in Figure 19 are built with iroko wood, coral and bamboo, which are considered to be traditional materials, and infused with the use of glass and steel in a modern way.



Figure: 18. The traditional Kanak hut in foreground, in contrast to the Jean-Marie Cultural Centre, modelled on the traditional Kanak hut.

Source: <https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz>

Piano's approach to the design problem was one of critical regionalism. Piano rejected merely mimicking traditional forms in favour of a design that captured the essence of traditional forms of regional tectonics, the quality of light and spatial practices.

The design favoured sensitivity to site conditions and local tradition and drew inspiration from traditional methods to create a more meaningful architecture, thus amalgamating traditional methods with modern technology.

This design, depicted in Figure 19 and 20, affirmed the identity of the Kanak people through synthesising the traditional forms and modern technological methods of construction.



Figure: 19. The blend of modern technology and traditional materials.
Source: <https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz>



Figure: 20. An amalgam of inspiration from traditional methods and modern technology is used in creating a timeless product of the Jean Marie Tjibaou Cultural Centre.

Source: <https://www.google.co.za/search=jean+marie+tjibaou+cultural+center&rlz>

The principles demonstrated through regional transformation provide the cultural expression and identity of the Kanak, without loss of their tradition and the nature of their origin, through regional adaptation. The respect for the historical past, the local culture and site, through the architecture of Piano exudes a meaningful relationship, one which expresses 'localness'. The traditional principles demonstrated in the above precedent are important to the associated Kanak culture, to maintain their ethnic, social and religious significance expressed through their architectural symbolism.

Identity manifests itself in the built environment through its meaningful architecture, such as the Hindu temple designs, which have become major landmarks in Durban and part of the cityscapes of Hindu religious life in the late twentieth century. These temples redefine Hindu religion to conform to modern ideals of humanitarianism, combining the worship of a deity while assuming a second identity, created by the regional adaptation. Critical regionalism means seeing the importance of modernism as a mechanism for viewing tradition afresh. If the traditional Hindu temple is analysed with the current circumstances in Durban, a new kind of architecture will emerge.

This leads to the question of which would be the most appropriate language for contemporary Hindu temples, or is any one approach better than the other? Both languages inspected here operate on the basis of a reasonably well-articulated design paradigm (with their respective shares of suitability and shortcomings) and an academic debate is unlikely to resolve the question of comparative superiority of any one. Mukerji (2015) argues that while traditional languages for temples continue to be adopted in contemporary times, when viewed in respect to contemporary secular architecture, the various degrees of references to religious and cultural traditions possibly make contemporary temples appear counter-modernist altogether. In an attempt to express continuity of traditions, designers continue to look to the past for inspiration. In proposing a particular category of temple design style, it is not the only a way to look at contemporary Hindu temples, but may be useful to articulate what is being done and why it is being done in a particular way.

3.7.3 Constructive Regionalism

The intention is to discuss the multiplicity of meanings with the intent of creating nuances and distinctions in our understanding of regionalism. Based in part, on his research into Mumford's theories, Alofsin argues that a true constructive regionalism would respond to local colours, materials and customs (Alofsin, 1980). Alofsin further stated that the architecture would 'speak' to the individual and 'search' for the universal identity. Constructive regionalism architecture would exalt the craft of building while at the same time encourage a new consciousness in the manufacture of machine products.

According to Mumford (1941), the first truly American regional architect was Henry Hobson Richardson. Richardson's search for a universal expression of form in the context of regional architecture can actually be experienced through one of his major works, the Thomas Crane Public Library, built in 1882. Figure 21 showcases the front view of the original built aesthetics.



Figure: 21. Front view of the original Thomas Crane Public library, built c 1882.

Source: https://en.wikipedia.org/wiki/Henry_Hobson_Richardson.

The Thomas Crane Public library was Richardson's most successful civic building. Note the Japanese inspired eyelid dormers in the roof to each side of the entrance. This building seems resolutely anti-modern, with the atmosphere of an Episcopalian vicarage, dimly lit for solemnity

rather than reading on site. This was a preserve of culture that did not embrace the contemporary flood of newcomers to New England, yet offered a clearly defined space that was visually memorable.

There were four attributes that Mumford saw as regional in the work of Richardson, according to Alofsin (1980): - Firstly, Richardson used local materials in his buildings; New England quarries supplied Milford granite, brown sandstone, and Longmeadow stones for New England buildings. Secondly, Richardson transformed the traditional white cottage or farmhouse into a wide-windowed cottage, hence creating a feeling of new American requirements and the landscape. Thirdly, Richardson utilised local colours in his work; the richness of sumac, red oak, sweet fern, lichen rock, pine tree and butternut. Finally, Richardson continued the established tradition of working with wood in domestic production but transformed the traditional methods and use of the wood.

The essence of Richardson's regional architecture was that it could not be divorced from the landscape without losing some practical or aesthetic quality. The architectural intervention was well integrated into the site context or landscape. From Mumford's point of view, a balance was necessary in architecture to include human wants and desires, with full regard for the settings in nature. Upon exploring Mumford's ideas of regionalism, architects encouraged to absorb and use the fundamental principles, rather than that style of architecture.

'One paradox is that while constructive regionalism conveys universal qualities, it denies universal style.' as stated Alofsin (1980, p.369). According to Alofsin (1980), constructive regional architecture is an art of building that does not create an artistic elite or designer caste. Constructive regionalism would embrace native detail and colour and at the same time discourage cultural hedonism. Constructive regionalism would encourage bonds between people while providing a focus for the pride and distinction of the individual and their domain, through its production.

Alofsin (1980) concludes that despite a paradox, “constructive regionalism would provide an ideal, a direction imbued with optimism. Commodious buildings with proportions appropriate to human use and facades that are faces of architectural tradition and local life will encourage, not only the bonding of people, but also elevate architecture into an ennobling product of culture”.

The same is expected of contemporary Hindu temples in Durban, which are the focus of this research. Conformity to the non-negotiable aspects of Hindu religious architecture and the tangible construct of the related time would embrace traditions and transform tradition. For their construction, local materials should be utilised with local customary means of building, however the colours should conform to those expected of tradition, as deemed appropriate to Hindu culture and religious conformity, according to *Vastu Shastra* principles. Whilst the Hindu temples of Durban embrace the responsibilities of functional necessities, meet the requirements of the programme, provide comfort, and embody the presence of local materials and traditions, a transcendence of rootedness in the universal expression of *Nagara* temple language and form in the context of regional architecture is required. It would foster craft and push the limits of technology to counteract sterile and abstract modernism.

Frampton’s (1987) employment of critical theory, on the other hand, helps to settle the conflict between universal civilisation and local culture through the synthesis of space and place (scenographic/architectonic), which serves as points of consideration pertinent to the successful practice of a critically regional architecture. This approach by Frampton is probably informed by his wariness of the regional tendencies towards the need to accommodate local and cultural experiences, while remaining critical of sentimentality. Frampton (1987) advocated a critical consideration of local underlying physical structural elements that included local landscape features, the quality of light, climate and broader cultural settings and values, not just local vernacular traditions. This approach perhaps introduced an even greater degree of cultural connectivity than post-modernist theoretical proposals and hence may have given rise to an even greater degree of fluidity, as it connected the local culture to its physical, social and ecological settings.

In his approach to the subject of locally appropriate forms, Frampton (1987) proposed what he considered ‘a speculative manifesto’. This manifesto was organised around ten points of resistance to modernism, and issues that required extensive debate and questioning to arrive at any reliable attempt at an appropriate postmodernist philosophical architectural approach, which he termed critical regionalism. Some of these points might not be directly related to the particular interest in this study and will only be touched on, whilst those points pertinent to this research will be expounded on in greater detail herein.

With reference to critical regionalism and vernacular form, Frampton (1987) stated that regionalism should not be sentimentally identified with the vernacular. Critical regionalism is a recuperative, self-conscious critical endeavour, and nothing could be further from the vernacular in the initial sense of the term. One of the problems with the term ‘regionalism’ is that it patently implies the postulation of style, of aesthetic preferences. Critical regionalism should be beyond style. Frampton argued that the modern building was being determined by the optimisation of technology and this was being done at the expense of attention to detail and sensitivity, and the creation of locally appropriate built forms that expressed individuality to a particular region. Architecture could be achieved through delicate sensitivity and critical relevance.

The reality of a region was that regional architecture was largely considered of its locality, climate and expressivity of form. Although these factors were critical in identifying with the culture and lifestyle of a particular region, two factors of ultimate importance to consider were: Firstly the idea of region, of the notional discourse of what the local culture of a particular region was and secondly, from an institutional standpoint, the changing of the mind-set of decision makers, or “the cultivation of the client in a profound sense” Frampton (1987, p.20-27). How could an architect convince a client or make the client realise what was ‘appropriate’ architecture? A culturally significant work could hardly be achieved without a committed client.

Frampton (1987) alluded to the negative conditions of time, in particular with reference to continuing architecture as per what was considered traditional, (ideas that were too old or no

longer fit for use). He further reinforced the theory of Alofsin, one of embracing tradition and of transforming tradition.

Topography on the other hand is site specific, the concrete of rootedness itself, and nature is the precondition for its being. Typology and topography are potentially manifest at every level, from the integration of a new intervention with the existing environment, to the ecological, climatological and symbolic aspects of the resultant place-form. Frampton's (1987) concern for style and aesthetic representation neglected concern for the transformation of the topography and dismissed this aspect as unavoidable.

More than any other art form, building and architecture have an interactive relationship with nature. Nature is not only topography and site, but also climate and light to which architecture is ultimately responsive to a far greater degree than any other art form. Built form is necessarily susceptible to an intense interaction with these elements and with time, in its cyclical aspects (Frampton, 1987).

Here Frampton alluded to buildings' climatic response to the human comfort levels of the occupiers of a space, and stated that built forms should not be deprived of natural shading and ventilation design. Frampton supported the need for balancing the techniques of universal civilisation with the rooted forms of climatically inflected culture (Frampton, 1987).

3.7.4 Conclusion

This section (3.7) set out to trace the historical developments of the concept of identity in social theories and how this has been represented through architecture.

The task of critical regionalism is to rethink architecture through the concept of region. Critical regionalism's stated strategy of resistance is to establish a dialect between locally rooted traditions and globalised civilisation. The world view posited by Tzonis, Lefaivre, and Frampton assumed that no authentic cultural processes still existed. It is assumed that everything that contemporary society desired and produced had been influenced by what society desired, but

Cassidy (2000) was of the opinion that Adorno better described this concept as one of a 'culture industry'.

Cassidy (2000) reported that Tzonis, Lefaivre, and Frampton's goal was to make cultural and physical place-specific architecture, without being nostalgic. They focussed on the implementation of similar mechanisms to remove the stigma of nostalgia from historical and vernacular traditions. When resisting forms directly derived from historical and vernacular traditions, there is a possibility of the distortion of meaning and of the translation of form to meaning, so that it is no longer visually comprehensible as derived from vernacular or traditional typologies. From Cassidy's (2000) point of view, this approach treats the concept of region as a collection of self-referential objects, instead of as a complex contextual cultural web. Individual works of architecture are reduced to a set of formal relationships that can be freely manipulated without regard to regional context (Cassidy, 2000).

Critical regionalism should be bounded by context. The context offered by Tzonis and Lefaivre did not rely on deep-rooted connections between region and the architectural exemplars they examined. Frampton on the other hand, acknowledged the need to connect the architecture to the larger contextual experience of a particular region.

Hindu traditions must be scrutinised: What makes Durban Hindu's part of a global Hindu religious cultural identity or is it an identity which is particular to the Durban region? Specific needs require specific spaces, to which the architectural response must be appropriated. In other words, the non-negotiable functional space of Hindu temple architecture should not be excluded or disregarded. Hindus seeking their religious cultural identity through an appreciation of Durban's Hindu art and religious architecture will present a rosy future for local Hindu cultural groups and the revival of traditions amongst the local Hindus. Such buildings should have their own identity rather than simply be part of the universal modern architecture. Consideration for being specifically Hindu can be achieved by drawing on the *Vedas* or on cosmological principles such as *Vastu Shastra*. An ambiguous form of architecture is typical of the efforts by designers to create a Hindu architecture from an amalgam of past precedents and western/European

influences. The realisation of this fact eventually leads the researcher towards a new hybrid development which may be specific to the region of Durban.

Iyer (1926, p.131) advocated “the evolution of a proper national style, retaining the wholesome features of the ancient constructions, assimilating the architectural experience of the west, and adapting the whole conformably to modern conditions and tastes.” Iyer’s concern was specific to creating an Indian architectural identity, strictly from a critically regionalist approach.

What is sought is an eclectic style, both local and progressive, to be forcefully attempted by local designers: A contemplation of a post- modern Hindu temple architecture movement in Durban. An architecture of evolution and of ‘localness’ can be achieved by retaining the wholesome features of ancient Hindu tradition and adapting the whole conformably to modern conditions and taste.

3.8 VASTU SHASTRA IN HINDU TEMPLE ARCHITECTURE

3.8.1 Introduction

The aim of this research is to identify the forces that bring about the transformation of religious architecture and explore the possibilities of promoting informed and conscious interventions to a building programme for transformation, with the inclusion of social role activities in traditional Hindu temples in Durban, in the 21st century and beyond. Religious architecture distinguishes itself as an important source where the basic components of design such as culture, climate, technology and related symbolism are involved with the architecture.

An extremely crucial aspect of Hindu religious architecture and built environment design is that of seeking beyond mere visual aspirations and exploring the abstract cultural undercurrents which nourish society, using architecture in its dual cause and effect role. This research deals with the intangible parameter of *vastu shastra* theory, which seeks to explain Hindu religious traditions and built form as a manifestation of socio-cultural institutions which are locked into a dynamic relationship, nurturing and complementing each other.

Pre 20th century Hindu religious architecture of Durban had the strength to serve the physical and spiritual needs of the Hindus, from a single family to the entire community. The continuity of Hindu religious tradition is highly important for the Hindus in Durban in present times, to combat the fast paced nature of globalisation and ‘placelessness’. Combining tradition with modernity can only result in creating a hybrid entity which future generations can identify with, while creating a valid expression within the built environment.

On a physical level, Hindu temple architecture built according to *Vastu Shastra* embodies centuries of learning with regard to orientation, climate, building materials and construction techniques. “At the spiritual level, the built form conveyed total harmony with the life-style in all its daily as well as seasonal rituals, unifying the socio-cultural and religious aspirations of the individuals and the community” asserts Doshi (1985, p.87). *Vastu shastra* is an ancient doctrine which consists of precepts born out of tradition and was applied to Hindu temple architecture (Borden, 2011).

3.8.2 Vastu Shastra in Hindu Religious Architecture

Spirituality informs all aspects of Hindu culture. It permeates family and social life, as well as many major political movements of the Indian Sub-continent. It is all encompassing and expressed in a way that engages its practitioners, according to Rosen (2002). People interested in *Vastu* science arrive at the question, what is the origin of this knowledge?

According to *Sthapatya Veda*, the Hindu tradition of architecture, the Hindu temple and the town should mirror the cosmos. The principle of this ancient architectural tradition is delineated throughout the *Puranas* and other scriptures, most notably the *shilpa-shastra* compiled by Vishvakarma, architect of the Gods and the *vastu shastra* (Rosen, 2002).

3.8.3 Sacred Architecture

Vastu shastra is a science of construction in architecture and not a religion as many uninformed would conceive it. Though it is called *vastu* science for simplicity’s sake, *vastu* knowledge encompasses sublime artistic principles as well as scientific principles, informs Rosen (2002).

Vastu science is not religious, nor is it cultural, thus it can be used by any religion. It propagates the creation of positive energy and vibrations, flow of balance and harmony. *Vastu* has been applied in the design of most Hindu temples in India and they are the supreme expression of this science, which appears to be dedicated to Hindu Gods and Goddesses. *Vastu* science is part of the vast cultural tradition that has arisen around the Hindu religion, adds Borden (2011).

Vastu structures are vibrant connections to a universal energy matrix. These structures resonate with the most sublime and powerful forces or laws of nature, which are specified and generated by space/time/light formulas that are the basis of the temple structure. The temple building is an expanded form of the primal life-force law of nature, or 'Deity' or 'seed' within the structure.

Mitchell (1988) explains that a temple is considered to be in harmony with the mathematical basis of the universe, provided it is constructed according to a mathematical system which determines the proportions of the design. Similarly, a temple which is constructed as per the mathematical system and as per the scriptures can be expected to be in harmony with the mathematical basis of the universe. The inverse of this belief also holds true. Hence for the happiness and welfare of the community, it is considered important to follow this mathematical system.

The goal of understanding and applying *Vastu Shastra* principles is the full realisation of the intrinsic divinity of all life forms, hence the assertion by the researcher that *Vastu* science can be used by any religion.

3.8.4 The Vastu Purusha Mandala

In *Vastu* science the orthogonal *vastu purusha* mandala in Figure 22 is a sacred geometric diagram that describes the pattern of energy manifesting into substance at the most subtle level. The mandala expresses an order that is self-maintaining. The cubical *paramanu*, or ‘subtle atom’ is the basic building block of the universe, explains Borden (2011). This original pattern is the geometry at the core of all manifestations. The *vastu* designer uses this pattern as the starting point for any built form.

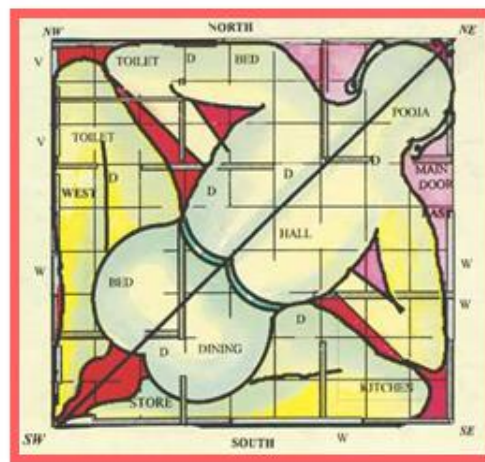


Figure: 22. The vastu purusha mandala.

Source: <https://www.google.co.za/search?q=the+vastu+purusha+mandala>.

The form of the *purusha* (human body), face down, occupying the square according to *Brihat Samhita* (Hindu religious treatise) is that of *Bhuta* (a demonic force), held down by celestial luminaries called the *Devas*. The *Devas* occupied parts of the demon. Not being able to bear the weight of the *Devaganans*, the demon concealed himself in the belly of Lord Shiva (earth). It is said that *Bhuta* is living within the framework of a square with his limbs folded, but spreading over the entire space (Fig. 22). The *vastu purusha* is all pervasive, which is signified in the spreads and folds of various limbs within the square plot. The *Devaganans* occupying the various parts of the body add another dimension to the concept of the *vastu purusha* as a miniature universe. The celestial beings such as Surya, Agni, Varuna, Vayu, Kubera and similar other divine beings are brought into the complex of the *vastu purusha*.

There are also the subtle qualities expressed by the various celestial bodies (planet and sun) represented on various parts of the *vastu bhuta* in Fig. 22. Borden (2011) explains further that the universe in which we live is filled with good and bad energies which are met or avoided by intellectual efforts. One such intellectual creation is the building, which is meant for protection against the elements and the negative effects of the forces of nature, both physical and subtle.

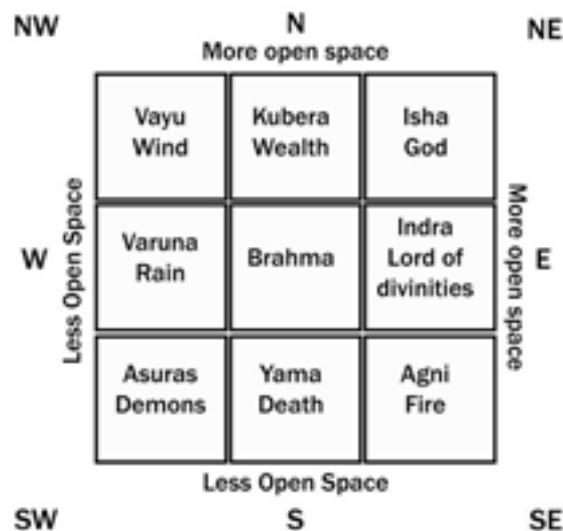


Figure: 23. The concept of the vastu purusha as a miniature universe.

Source: <https://www.google.co.za/search?q=the+vastu+purusha+mandala:>

3.8.5 Comparison of Proportioning System in Vastu Shastra Architecture

This is an attempt to establish the relationship between different proportioning systems and the use of a modular system of geometry in Hindu Religious Architecture.

A. The Vastu Purusha

The Hindu philosophy was among the first to relate the human figure as the basis of a system of proportion. The form of the *purusha* (human body), conceptualised in Figure 24, was made to fit the abstract idea of the square, as the supreme geometric form, alleges Verma (2010). All the necessary forms like the triangle and circle can be derived from the square.

The four sides of the square represent the four cardinal directions as well. The square also symbolises the order, the completeness of endless life and the perfectness of life and death.

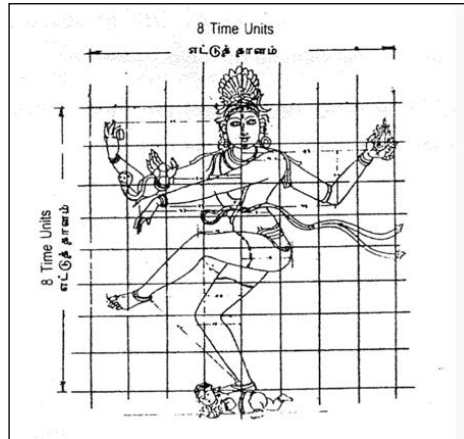


Figure: 24. The Vastu purusha unit of measure.

Source: <https://www.google.co.za/search?q=the+vastu+purusha+mandala&rlz;>

B. The Vitruvian Man

The drawing is based on the correlations of ideal human proportions with geometry, described by the ancient Roman architect Vitruvius in Book III of his treatise *De Architectura*. Vitruvius described the human figure as being the principal source of proportion among the classical orders of architecture.

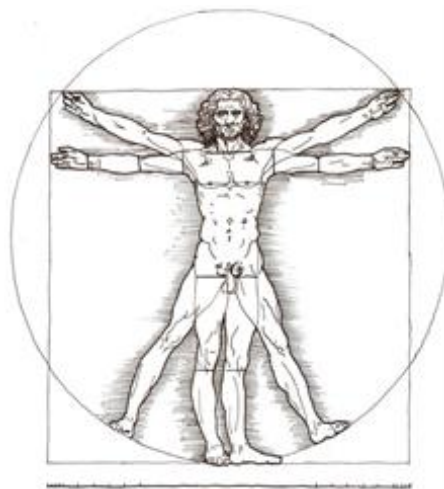


Figure: 25. The Vitruvian man (Leonardo da Vinci).

Source: <https://www.google.co.za/search?q=the+vitruvian+man+theory&rlz.>

Vitruvius determined that the ideal body should be eight heads high, and is demonstrated by Leonardo's da Vinci's drawing in Figure 25, which is traditionally named in honour of the Roman architect Marcus Vitruvius Pollio

Source: <https://en.wikipedia.org/wiki/Vitruvius>

C. The Modulor

In 1945 after several years of research, Le Corbusier's Modulor (Figure 26) was produced. It is probably the most comprehensive proportional system imagined during the 20th century.

Developed through consultation with art historians and referring to statistical measurements of the human body, the 'Modulor' concluded decades of discourse on proportions, a theme that preoccupied Le Corbusier ever since his sojourn in Germany in 1910.

Source: <https://en.wikipedia.org/wiki/Modulor>

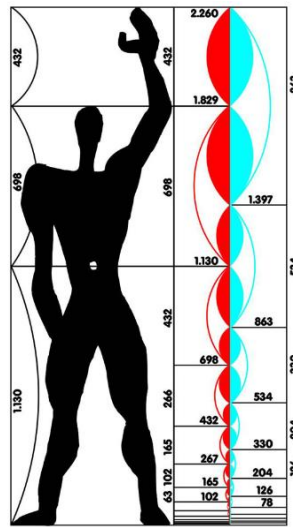


Figure: 26. The Modulor (Le Corbusier).

Source: <https://en.wikipedia.org/wiki/Modulor>

D. The Brahmasthan

Borden (2011, p.26) quoted Sthapati as having said “we enclose universal space by building four walls and a roof in a building. At this point the building becomes a living organism.” In *Vastu* architecture the living organism created is a vibrant structure embodied with a light-energy core

at its centre, known as the 'Brahmasthan'. This is depicted in Figure 27. Every *Vastu* structure has a subtle geometry that governs its form. This is called a *Vastu Purusha Mandala*, a simple orthogonal, square or rectangular form that defines the pathway which formless pure energy takes to manifest into spatial form (Borden, 2011).

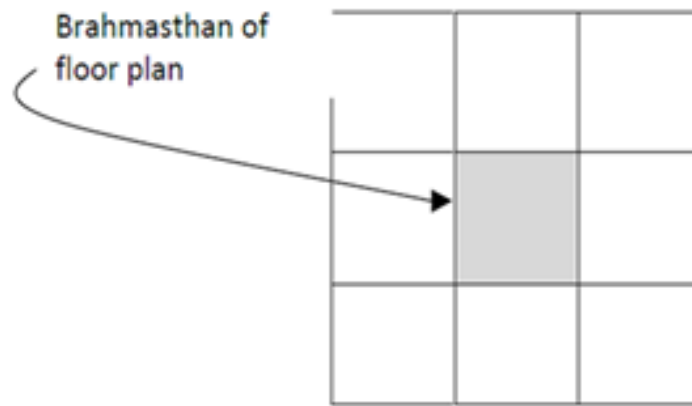


Figure: 27. The Brahmasthan.

Source: <https://www.google.co.za/search?q=vastu+purusha+images>

3.8.6 Types of Vastu Purusha Mandala

There are thirty-two types of *Vastu Purusha* Mandalas ranging from 1x1, 2x2, 3x3, up to 32x32. They are classified under two categories, one of even numbers and one of odd numbers, illustrated in Figure 28. (Borden, 2011)

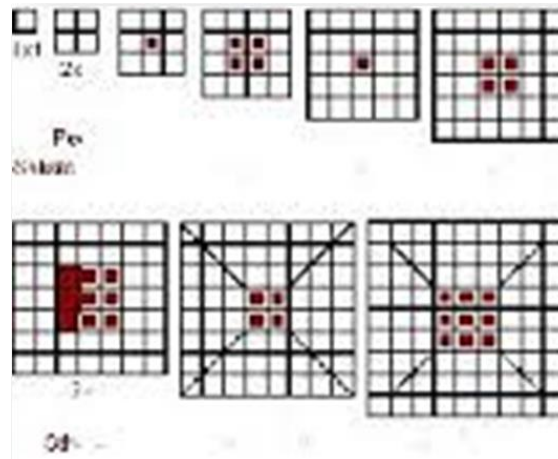


Figure: 28. The various types of Vastu purusha mandala.

Source: <https://www.google.co.za/search?q=vastu+purusha+images>

3.8.7 The Mandukapada vastu purusha mandala (Amorphic)

Subtle measure: *Ashtataalam*, as this energy grid or luminous grid is known, is the picture of the ultimate visual manifest form of Brahmin; it is an architectural octave. Traditionally, the mandala was the planning guide applied to the creation of sacred structures in Hinduism such as temples or places of a spiritual nature and the amorphous centre is beneficial. *Mandukapada vastu purusha* mandala (even numbered VPM's), are used to pattern sacred buildings. The *Mandukapada* mandala is subtle and is a square pattern of eight by eight modules, expressing the early progression of energy matter, that of the subtle universe. The energy in those buildings is highly spiritual and not ideal for human habitation. These spaces can be visited for inspiration but cannot be resided in.

The architectural octave is the *vastu purusha mandala*. The *manduka vastu purusha* mandala in Figure 29 has the layout of $8 \times 8 = 64$ units. This energy grid or luminous grid is the picture of the Ultimate; the unitary atom going into a split or explosion for manifestation in the pattern of 8×8 units. This atom is the ultimate visual manifest form of Brahman. Brahmin is the ultimate rhythm. It is the rhythm of Brahmin that is patterned for the design of a building. (Borden, 2011)

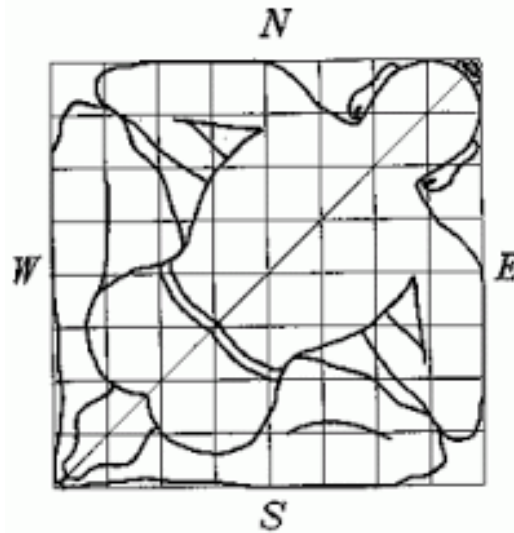


Figure: 29. Mandukapada vastu purusha mandala (8x8 modulated spaces).**Source:**
<https://www.google.co.za/search?q=vastu+purusha+images>

There are many principles in *vastu shastra*. A few which involve certain mathematical calculations include:

- *Maana*: Used for proportional relationships in a building.
- *Aayaadi*: Specifies the conditions for maximum well-being and the benefits for the occupants of a building.

3.8.8 The Paramasayika vastu purusha mandala (Morphic)

The second primary type of *vastu purusha mandala* is the *Paramasakiya vastu purusha mandala*, (odd numbered VPM's), consisting of nine by nine modules. The *paramasakiya vastu purusha mandala* in Figure 30 is later in the progression of mandalas and is the gross expression of

matter. This type of mandala is used to pattern secular buildings that have energy levels most conducive to human peace and prosperity.

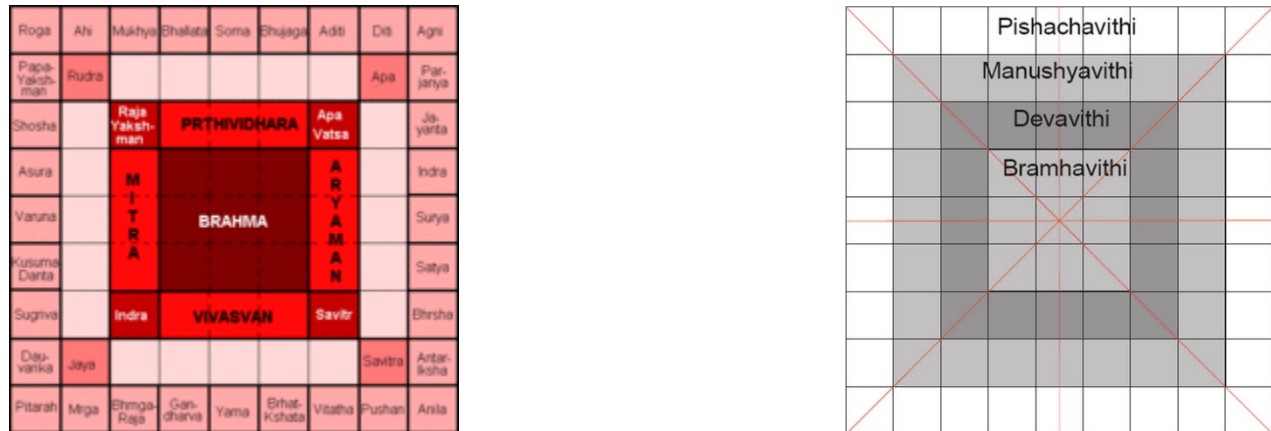


Figure: 30. The paramasayika vastu purusha mandala or 9x9 modulated spaces or *Navataalam* **Source:** <https://www.google.co.za/search?q=vastu+purusha+images>.

The VPMs are divided into concentric zones, described in Figure 30, and are specific to a quality of energy predominant in that area. The *Brahma Pada* is the zone of divine energy. This zone is the heart of the structure. The *Devika Pada* is the zone of celestial energy adjacent to the *Brahma Pada*. The *Manush Pada* is the zone of human energy. The *Paisachika Pada* is the zone of mineral energy. The two outer zones, *Manusha* and *Paisachika*, are the areas in which the mundane activities of daily life take place within the structure, explains Borden (2011).

The central concept of *vastu shastra*, according to Kumar (2004), is the embodiment of energy in the forms of the sun, wind light, and water. Hence the central concept in *vastu shastra* is the environment, as it is understood that all matter and energy are connected. *Vastu* aims to enhance the positive cosmic energy whilst neutralising negative energy to create a better built environment, adds Whelan (2002).

3.8.9 The Five Primary Elements

In Hindu folklore, it is believed that there are many ‘energies’ (*prana*) present in the environment. These are believed to be the universal life giving force around which everything evolves, explains Gopidayal (2011). According to *vastu shastra*, there are five elements known as the *pancha maha bhuta*. Out of the eight planets, ours (earth) has life because of the presence and balance of these five elements:

A. Earth (*Bhumi*)

The third planet from the sun is a big magnet, with north and south poles as centres of attraction. Its magnetic field and gravitational force has considerable effects on everything on the earth, living and non-living. Planet Earth in Figure 31 is the element which sustains all life forms, by providing nutrition for vegetation. According to Whelan, the cardinal direction for earth is south, and is associated with the shape of the square and the colour yellow, cites Gopidayal (2011).



Figure: 31. An image of planet Earth as viewed from space.

Source: <http://pics-about-space.com/planet-earth-satellite>

B. Water (*Jal*)

This is represented by rain, river and sea, and is in liquid form in Figure 32. It is also represented in solid form (ice) and as a gas (vapour, steam and cloud). It forms part of every plant and

animal. A large part of our blood is made up of water. Water is necessary for the survival of all living organisms upon earth. It is the element considered to be cleansing, cooling and life preserving. The cardinal direction for water is the north and it is symbolised by a circle, which represents fullness. The associated colour is blue (Gopidayal, 2011).



Figure: 32. Image of water in liquid form.

Source: <http://www.omenkaonline.com/dehydrated>

C. Air (Vayu)

As a life supporting element, air in Figure 33 is a very powerful life source. Gopidayal (2011) explains that human physical comfort values are directly and sensitively dependent on the correct humidity, air-flow, temperature of air, air pressure, air composition and its content. The atmosphere of the earth is about 400kms in depth and consists of oxygen (*vayu*), nitrogen, carbon-di-oxide, helium and other kinds of gases which life depends on, and it is necessary for fire. Air is associated with movement and is made apparent by the wind, which is the visible demonstration of the air energy. According to Reddy (1994), air has the characteristic of sound and the sense of touch due to the nature of wind. According to Whelan (2002), the cardinal direction of wind is the west. *Vastu shastra* prescribes that all reflective surfaces such as glass and mirror are indentifiers of the element air. Air is represented by the colour grey and the shape of the crescent.

According to *vastu shastra*, the element of air is often called the breath of the *Purusha* or cosmic man, who resides within the *Vastu Purusha Mandala* (Gopidayal, 2011).



Figure: 33. Air is a very powerful life source.

Source: <https://en.oxforddictionaries.com/definition/air>.

D. Fire (Agni)

Figure 34 represents the light and heat of burning fire, lightning, volcanic, the causes of day, night and the seasons, energy, enthusiasm, passion and vigour. The sun is associated with the element of fire and is necessary to all life upon earth, adds Reddy (1994). *Vastu Shastra* prescribes that the direction of fire is that of the cardinal direction east and the rising sun. This element is represented by the colour red, whilst the symbol is a triangle. The element is characterised by the property of shape, according to Gopidayal (2011).



Figure: 34. Fire represented as burning.

Source: <https://www.google.co.za/search?q=Fire&client>

Gopidayal adds that the *vastu shastra* perceives the sun as the source of all creative processes on earth. Hence throughout history, the sun has been worshipped as the manifestation of God (*Surya*) in the Hindu Religion (Gopidayal, 2011).

In present times, man has harnessed the energy of the sun through scientific means. Through science, the positive effects of the sun and its energy on the health and emotional conditions of all humans are apparent. *Vastu shastra* planning dictates that the construction of built environment should take into consideration proper orientation that allows for maximum solar penetration into a space. This then reinforces the idea of orientation, passive lighting and heating.

The science of *vastu shastra* also dictates that the eastern side of the site should be devoid of any high trees or built structures, to ensure that there is unrestricted access to the morning rays of sunlight. This is very important in the Hindu culture for the early morning practice of *surya namaskar*, or the salutation of the sun (Gopidayal, 2011). Trees should therefore be located to the west of the site to absorb the strong afternoon sun for the process of photosynthesis, as well as to provide shade when most needed. The principles of *vastu shastra* prescribe that the greater portion of vacant spaces on the site be on the north and east side, to allow the maximum amount of natural lighting onto the site. A gentle slope to the north-east will help increase the effect of day-lighting.

E. Space (Akash)

Space provides shelter to all the above elements, and is also considered the primary conductor of all energy sources within the universal context; physical energies such as sound and light, social energies such as psychological and emotional, and cognitive energies such as intellect and intuition. According to Whelan (2002), space has no defining characteristics such as a shape or colour. Space depicted in Figure 35 connects the sky, symbolising the connection to the rest of the world and the universe, a concept well beyond human comprehension.

There is an invisible and constant relation between all of the five elements. *Vastu shastra* combines all the five elements of nature and balances them with the person and the material. It takes advantage of the benefits bestowed by the five elements of nature to create a congenial environment, thereby facilitating spiritual well-being.



Figure: 35. Space, the primary conductor of energy within the universe

Source: <https://www.google.co.za/search?q=space&client>

3.9 THE DESIGN PRINCIPLES OF VASTU SHASTRA

The main purpose of a structure built according to *vastu shastra* is to facilitate for the occupants an alignment with natural law. People vibrate with energy and life from within and so too does the *vastu shastra* structure vibrates with energy and life. Together, the two lives resonate and are uplifted. To achieve this resonance architects set out to create a simple, perfect form in the structure, one that reflects the design goals of *vastu* architecture as perfectly as possible. The first priority in temple design is to create a perfect, vibrant space that radiates divine energy at its core, attests Borden (2011). This sublime space will nourish the soul of the worshipper and when that soul is nourished, all other aspects of life flourish.

According to Dr. Sthapati, “*Vastu* science considers earth as a living organism, which is embedded in space and a part of the cosmic, living body of the universe.

When we initiate a project to place a *Vastu* structure on earth, it is important that we honour Mother Earth (*Mathr Bhumi*), by giving attention to how and where we place the structure” asserts Borden (2011, p.14).

Borden (2011) asserts that the following fundamental criteria for *vastu* site selection must be considered:

- Orientation of the structure,
- The shape and orientation of the site,
- The general slope of the land and the adjoining topography,
- The outstanding natural features on the site or nearby,
- The condition and quality of the soil, the quality of the ground water and the soil’s ability to sustain the load of the *vastu* structure applied upon it, and
- The existence of man-made elements on or nearby the *vastu* site. Well landscaped gardens nearby are preferred.

A. Orientation of the Structure and the Shape and Orientation of the Site

With respect to earth’s location in the universe, there is no north, south, east or west; just the origin or centre of the universe body and the ever expanding outer edges.

The underlying geometry of a structure reflects this kind of centre-orientated paradigm. *Vastu* science delineates eight yonis, which are directions or life-energy lines of orientation.

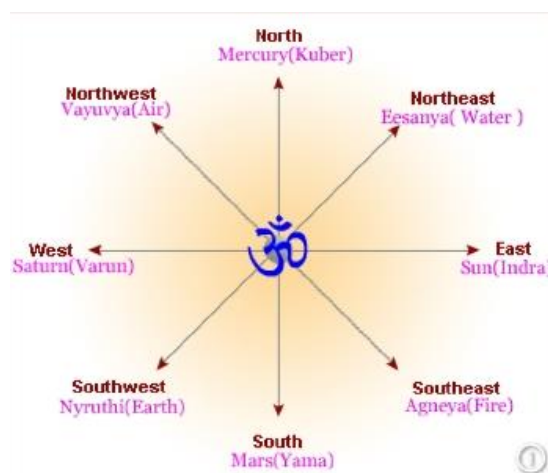


Figure: 36. The attributes of each cardinal direction, according to *vastu* principles

Source: <http://www.myvaastu.in/Vastu-Directions.html>

It is believed in Hinduism that a deity rules each of the directions seen in Figure 36, and that each direction addresses a need, a hope, and a desire (Gopidayal, 2011).

As described by Gopidayal (2011), the attributes of each direction are as follows:

EAST, *Dwajam* (Flagstaff); *Surya*

The east is characterised by the element of fire, the colour red and the shape of the triangle. This is the direction of sunrise and thus the sun rules this sector. The Hindu deity Indra, God of power, rules the east.

NORTH EAST, *Kakam* (Cow); *Isanya* (Water)

The north east is considered to be the Gateway to the Gods and is the source of positive cosmic energy. The direction is ruled by the planet Jupiter, with the accompanying attributes of meditation and spiritual wisdom. The Hindu deity Ishana, God of purity, is associated with this direction.

NORTH, *Gajam* (Elephant); *Kuber*

The cardinal direction north is ruled by the element of water and by the planet Mercury, thus the main attributes include knowledge, meditation, and truthfulness. The Hindu deity who rules the north is Kubera, the deity of wealth.

NORTH WEST, *Karam* (Ass); *Vayu* (Air)

The direction of northwest is ruled by the moon and is represented by the colour white. The Hindu deity Vayu, the God of the wind, is believed to rule the northwest.

WEST, *Vrushabham* (Bull); *Varuna*

The west is the direction of the element air. The Hindu deity Varuna, God of water, rivers, rain and oceans rules this direction.

SOUTH WEST, *Swaram* (Dog); *Pitr* (Space)

The south west is associated with our ancestors. This direction is ruled by the Hindu deity Nirriti, the God of misery. It is believed that this sector possesses the positive energy, and thus the principles of *Vastu* are applied to correct it.

SOUTH, Simhan (Lion); *Yama*

The element of the south is the earth. Thus the related shape is square, whilst the colour is yellow. The characteristics of this direction are smell, sound, taste and touch. The Hindu deity who rules the south is Yama, Lord of justice.

SOUTH EAST, *Dhumam* (Smoke); *Agni* (Fire)

The Hindu deity Agni, the God of ritual fire, rules the south east. Fire is an important element in religious ceremonies, especially so when it is applied in this sector.



Figure: 37. *Vastu Mandala*, with ruling deities over each cardinal direction

Source: <https://www.google.co.za/search?q=vastu+deity+facing&rlz:>

Within the built space, the eight cardinal directions are always expressed and honoured by the ruling deity of the *vastu mandala* floor plan layout, shown in Figure 37. *Vastu* buildings must be oriented such that they have an almost parallel relationship with the cardinal points of the compass. Perfect alignment with the cardinal points of the compass is called *Suddha Praachee*. This perfect alignment is preferred for Hindu temples.

The first rule of orientation requires the structure to be oriented true north. Magnetic north must not be used for orientation of a *vastu* structure. *Vastu* orientation rules are universally applied for both northern and southern hemispheres. The shape of the plot, determined by the legal boundaries of land, is an important consideration. In general, rectangular or square shaped plots are most easily accepted for a *Vastu* structure, and a large plot of land provides more flexibility to make corrections for *vastu shastra* considerations.

Correct orientation begins with the correct layout of a town settlement. If a settlement layout and orientation is non-compliant with *vastu shastra* principles, there will be problems throughout its history (Borden, 2011).

B. The Topography of the Site and Context

According to Borden (2011), flat or gently sloping land is preferred for a *vastu* structure. Land sloping down to the east, north-east, north and north-west is acceptable for a *vastu* site. These are the simple rules in terms of acceptable topography for a *vastu* project. Adding or subtracting (cut and fill) large quantities of earth is not recommended. *Vastu* science regards the earth as a living being and holds the existing natural conditions of the site to be an expression of the intrinsic earth energy expressed at the location.

C. Outstanding: Natural Elements on or Nearby the Site

Natural elements such as lakes, rivers, boulders and trees should be carefully observed. Generally, water bodies less than one thousand feet from the site are allowed only in the north-east area of the *vastu* site. A site with water courses, rivers, creeks and irrigation canals can have these located on the north side of the *vastu* structure, but the flow must be in an easterly direction and/or clockwise around the site.

D. Site Relationship to Existing or Proposed Roads

A roadway should not lead directly towards a site. The road is considered to be a conduit of energy. The energy of the vehicles in motion and its occupants will disrupt the peaceful atmosphere of the *vastu* structures. Frontage to busy motorways and pedestrian traffic should be avoided altogether, thereby reducing the impact of noise pollution to a *vastu* building. Instead peace and tranquillity is advocated.

E. Condition of Soil - Acceptable for a Vastu Structure

Vastu requirements stipulate good soil conditions upon which a *vastu* building is erected. The soil stability must adequately cater for the applied load of the structure. An indication of reasonable soil quality can be determined by the presence of lush vegetation and an abundance of animal and bird life. The ability of the particular site to sustain its natural surroundings including plant and animal life on and around it should reflect good fertility, for example the plants should be lush and fragrant. Good fragrance of vegetation and good soil odour is vital upon which to construct a *vastu* structure. Built form density of the surrounding context must be sparse. The need for a hydraulics test of the ground is necessary to determine the flow of sub-soil water, which must be in a clockwise direction.

F. Condition of Soil - Unacceptable for a Vastu Structure

Vastu texts do not recommend building on sites where the following conditions exist: Marshy, wet soil or soil heavily composed of clay. It could be that soil with clay presented structural design challenges that were considered unsuitable for ancient structures. Contaminated soils which include trash, bones, toxic substances and charcoal also are non-conducive for the construction of a *vastu* structure. Sites infested with rats, biting ants, snakes or frogs are excluded, perhaps because creating an imbalance in the ecosystem is prohibited. Land that is sparse and/or filled with thorn-bearing brush or trees indicates semi-arid site conditions.

In present times, modern technology provides ways of counteracting some of the challenges, which may not have been possible during ancient times when *vastu* treatise was presented. *Vastu* treatise acknowledges a harmonious balance with nature.

G. Existence of Man-Made Elements

Through research findings on *vastu* architecture, Borden (2011) supports the idea that all enclosed space is living space. Every structure emanates an influential vibration. Buildings such as thrash processing plants, factories and mortuaries should not be adjacent to a *vastu* site. The simple evaluation of function of a specific building will review the nature of influence emanating from it. A *vastu* site should not face large buildings that will overshadow it, especially another church or temple.

The basic goal of a site evaluation is to find a site that has positive vibrations, suitable for building a *vastu* structure on it. This sets down pre-conditions for the design of a *vastu* structure and is suggestive of the fact that architects engaged in designing *vastu* structures must be knowledgeable of the science of *vastu*.

H. Landscape, Trees and Shrubs

Traditional literature on *vastu* science includes information on suitable shrubs, trees and general vegetation suitable for *vastu* landscape design. The specifics of this knowledge have not been validated by western influence, an area yet to be detailed and finalised by the interested institutes in that field.

Borden's (2011) general comments and recommendations for vegetation that can be defined for the vicinity of a *vastu* structure are:

- Sweet smelling flowers and fruit will have a positive influence on the microclimate of the structure.
- Thorny or poisonous trees, shrubs and flowers are not recommended, due to their hazardous nature.
- Fruit bearing trees are good on the east facing side of the *Vastu* building. Some recommended plants are, grapes, lime (although this plant has thorns, the fruit itself is used for religious offerings in worship), tulsi, mango, bilva, jasmine, pomegranate, kondrai.
- Some plants not recommended are palmyra, agathi, oleander, erucku, tamarind, banyan and peepal.
- Plants that are not recommended in general have their place in nature and must be honoured. Some of the plants on the 'not recommended' list are considered sacred and welcome within the temple complex, just not on the east side (Borden, 2011).

I. The Vastu 'Tala', System of Spatial Measure

In *vastu* science, the building is laid out according to specific dimensions. These dimensions are a reflection of specific basic measures with which the designer begins the layout of the plan.

In the domain of a creative work of art or an object of utility, movement and measure go hand in hand. These two elements of form figuration ensure a definite shape of grace and beauty to the thought, form or experience (Borden, 2011).

Every country has developed a system of measures for its creative endeavours. In European countries the metric system is adopted. Western countries such as America use the feet and inch system. India, the home of *vastu* science, has adopted the metric system of measure however, prior to the advent of the British system, the measure that India used implied a unique concept of time and space.



Figure: 38. Taala Maanam is the concept of measure in the technological domain of sculpture and architecture.

Source: <https://www.google.co.za/search?q=vastu+deity+facing&rlz>

J. The Concept of Time Measurement

Sthapati (1997) explains that the Indian concept of time measure, as designated in the scientific field, is called *Kaala maanam*, meaning ‘merged in time or dissolved in time’; and in the technological domain as *Taala maanam*, meaning ‘time measure’.

The time that is known to *vastu* science is independent or absolute, not solar time which is physical or relative. ‘Time’ not only creates life but also gives form to life, as shown in the Figure 38 depicting a concept of human measure. The universe itself is a product of time.

The discovery of time as the giver and shaper of form (life) revolutionised the pattern of culture and civilisation of India. In India, the *tala* measure is mostly applied in the field of music and dance, but that same *tala*, has been in force for centuries in the domain of sculpture, architecture and poetry. *Tala* is also denoted by the term ‘rhythm’ which is used in the fields of music and dance throughout the world. *Tala* rhythm is used in the design of residential buildings, temple structures and sculptural form.

The physical measures and those of space measures are vibrational measures, or digital measures, which the *vastu* designers apply in their layout of spaces. The conversion of time units into spatial measures signifies that time is equal to space.

The vibration of energy is the casual element of space and spatial forms. This vibration is designated as time or *Kala* in the *Vastu* tradition. The inner space and the outer space feel and vibrate their feelings into numbers, which translate into spatial forms automatically. The dynamism of the spirit and time was identified and quantified by Mayan, an Indian scientist. It was this scientist who defined time as the unit of vibration of energy, and as being absolute (Sthapati, 1997).

The process of manifestation rests in time, which is the innate quality of the spirit (*Viswa Brahman*). Time is personified as *Viswakarma* (kinetic energy) and the spirit of *Viswa Brahman* (potential energy).

K. The Sacred Number ‘Eight’ in Vastu Science

All objects of nature are rhythm-bound-forms or time-bound-forms. The generation of forms out of the vibration of energy-space is identified and quantified by Mayan as ‘eight’ and multiples of eight. *Kishku hastam* = 2’9’’. This is the preferred unit of measure accepted universally for use in the design of all buildings according to *vastu shastra*.

The *vastu purusha* mandala of the structure is assigned to whichever *vastu shastra* unit of measure is chosen by the architect; however *Kishku hastam* is the first choice of unit measure in the design of buildings, as per *vastu shastra*. When setting out a *vastu* structure, the larger unit would make it easier to achieve a high degree of accuracy, in keeping with the prescribed *vastu* units, explains Borden (2011).

Angula Samkhya Table	
The units of Time and Space	
Table of Time units:	Table of Space units:
8 Ganam = 1 Lavam	8 Anush = 1 Car dust
8 Lavam = 1 Kaashtam	8 Car dusts = 1 Immi
8 Laashtam = 1 Nimisham	8 Immi = 1 Ellu (sesame seed)
8 Nimisham = 1 Tudi	8 Ellu = 1 Nel (Unhusked paddy grain)
8 Tudi = 1 Kuru	8 Nel = 1 Angula (Finger measure)
2 Tudi = 1 Druham	6 Angulas = 1 Taalam
2 Druham = 1 Laghu	12 Angulas = 1 Vitasti
2 Laghu = 1 Kuru	24 Angulas = 1 Hasta
3 Laghu = 1 Puvadam	8 Hastam = 1 Dandam
4 Laghu = 1 Kaaka Padam	8 Dandam = 1 Rajju

Table 1. Angula Samkhya units of measurement.

Source: Borden (2011)

Table of Vaastu Units	
1 Angula	1-3/8 inches
24 Angulas = 1 Hasta	33 inches

Table 2. Vastu units of measurement.

Source: Borden (2011)

L. Hindu Symbols According to Vastu Shastra

Symbols are frequently used to express positive energy. Two most commonly used Hindu symbols are the *Swastika* in Figure 39 and the *Aum* sign in Figure 40. In Sanskrit, *svastika* means ‘all is well’ and it is a cross with four arms of equal length, with the ends of each arm bent at a right angle. The right hand swastika is one of the 108 symbols of the Hindu God Vishnu, as well as a symbol of the sun and of the Hindu sun God, *Surya*. Sometimes dots are added between each arm (e.g. the *swastika rangoli*). The swastika is an ancient symbol that has been found worldwide, but it is especially common in India, adds Whelan (2002).

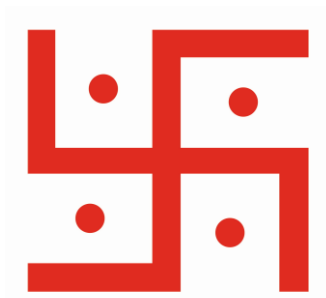


Figure: 39. The swastika is a Hindu

symbol of good fortune and well-being.

Source:

<http://www.religionfacts.com/swastika/hinduism>



Figure: 40. Aum sign specific to Hinduism.

Source: <https://en.wikipedia.org/wiki/Om>

Aum is “the visual depiction of the sound from which all matter originates”, according to Whelan (2002, p.11). In the Hindu religion, all mantras and prayers begin with ‘*Aum*’.

Traditionally, the aum symbol is used to decorate ceremonial clothes, doorways and temples, with the aim of enhancing the auspicious energy in the building (Whelan, 2002).

M. The Importance of Colours

Colours are associated with emotions and energy according to *vastu shastra*. The use of certain colours in the realisation of *vastu* structures enhances the mood of the observer and improves their reaction to *vastu* space. Important colours are violet, white, blue, green, orange, yellow and red. Each of these colours has a characteristic emotion, and sometimes a natural element attached to it, explains Gopidayal (2011).

The emotions attached to these colours are:

- Violet: Stimulates meditation and contemplation.
- White: Is associated with death and mourning, but also symbolises purity, spirituality and goodness. Buildings for the priestly caste are recommended to be constructed using white stones, according to the *Vishnudharmottara-purana* and the *shastras*. (Theoretical Sanskrit texts about art and building).
- Red: Hindus associate the colour red with celebrations, auspicious occasions, passion, desire, warmth and elegance. An example of which is the red garments worn by Hindu brides at their wedding ceremonies. The colour red is often associated with the *Kshatriyas*, the warrior caste (the Indian ruling power class. Their buildings built during classical times were constructed using red Kota or sand stone, as depicted in medieval and classical buildings in India.
- Green: Implies harmony, fertility and harvest.
- Blue: Is associated with tranquillity, serenity, calmness and contentment.
- Orange: Is a symbol of purity and is worn by Brahmins and religious men and women. The colour has associations with fire and is similar to the shade of saffron.
- Yellow: Denotes excitement and energy. It stimulates the cognitive sensors and represents knowledge.

Colours play an integral part in Hindu cultural archetypes influenced by Hindu tradition.

3.10 CONCLUSION

Vastu Shastra is an ancient science of construction in architecture and not specific to the Hindu religion. Although the principles of this ancient architectural tradition are delineated throughout the '*puranas*' and other notable scriptures such as the '*shilpa shastras*' (compiled by *Vishwakarma*, architect of the Gods), it can be used by any religion and is not specific to Hindu cultural tradition. What *Vastu Shastra* propagates is the creation of energy and positive vibrations, the flow of balance and harmony within a *vastu* designed structure. *Vastu* design was applied in the design of most Hindu temples and sacred buildings, in their land of origin, the Indian Sub-continent. The sublime and powerful forces or laws of nature, which are specified and generated by space/ time/ light formulas, are the basis by which temple structures resonate to create positive vibrations and energy for their users.

The temple building is considered to be an expanded form of the primal life force law of nature, or seed, or deity within that structure. *Vastu shastra*'s planning guide is based very strongly on cosmology and astrology, and acknowledges the historical and traditional role of sacred buildings. *Vastu shastra* dictates that there are five natural elements to be acknowledged in *vastu* structures, and these are air, water, wind, earth and space.

The implementation of *vastu shastra* in the design and realisation of Hindu temples in Durban, will be worthy of investigating. The first priority of Durban Hindu temple design is to determine if it is indeed a perfect vibrant space/structure that radiates divine energy at its core. Does the sublime space nourish the soul of the worshipper and in turn resonate with positive energy in all aspects of life, as is intended?

Traditions are not spawned by religious practices and can be created from the daily functions of our lives. For such affectivity of traditional spirituality as Hinduism, the interconnection between the built form, prescribed place, and natural elements are pertinent.

Vastu shastra architecture is strongly aligned with the proper use of the five elements, good orientation, ventilation and basic achievable principles, as per *vastu* guidelines, to create an architecture that is passively environmentally sustainable.

Hence the principles of *vastu* are utilised to create a self-sustainable structure that is not dependent on any mechanical means for human comfort. Generally, Hindu temple archetypes built according to *vastu* principles are strongly linked to nature. The principles dictated by these archetypes must be effective by those in Durban, to respectfully link the worshipper to nature.

According to Dr. Sthapati, a *vastu* structure's main purpose is to facilitate for the users an alignment with natural law. "*vastu* science considers earth a living organism, which is embedded in space and part of the cosmic living body of the universe. When we initiate a project to place a *vastu* structure (temple) on earth, it is important that we honour 'Mother Earth' (Matr Bhumi), by giving attention to how and where we place the structure" cites Borden (2011, p.3).

For any form of transformation of structures within a temple compound and for further development of Hindu religious architecture in Durban to be effective, the fundamental criteria of site selection ought to have been carefully considered. The criteria according to *vastu shastra* are the correct orientation of the placement of buildings upon a site, the general slope of the site towards the north eastern boundary, and having outstanding natural features, either on or nearby the site. The relationship of the structures on the site with the eastern boundary requires the boundary to be unobstructed, with good natural lighting and views. *vastu* sites require minimal or no vehicular or pedestrian traffic nearby, that will result in noise and affect the air turbulence, causing air friction. The soil conditions must be conducive to support the load of the structures placed upon it and the soil must not retain ground water, which in turn can cause structural problems to the buildings placed upon it. The site must be large enough to prevent over-shading by contextual adjacent structures, resulting in poor visibility into and out of the site. Finally, the *genius loci* (trees, shrubs, vegetation and landscape) must be of outstanding quality. The connection between architecture and nature, which generally characterises traditional Hindu temples, was epitomised by the riverfront gardens, such as those along the Yamuna River in Agra.

At a spiritual level, the temple structures must convey total harmony with the lifestyle in all its daily as well as seasonal rituals. They must unify the socio-cultural and religious aspirations of individuals and the religious/cultural community of Hinduism.

Sensitivity to the principles of *vastu shastra*, in its adaptation and use in the realisation of Durban Hindu temple architecture, can only increase the appropriateness of the architecture for a particular Hindu religious group. *Vastu* has been applied in the design of most Hindu temples in India and these temples are the supreme expression of this science, which appears to be dedicated to Hindu Gods and Goddesses. *Vastu* science is part of the vast cultural tradition that has arisen around the Hindu religion (Borden, 2011).

CHAPTER FOUR

PRECEDENT STUDIES

4.1 INTRODUCTION

The relationship between built form and religious culture identity has posed the question as to whether the pursuit of a specific local cultural identity may sometimes be problematic. The process of transformation of the built form, according to Hardy (1995), takes place through a dual process: Time as well as space. These two patterns of transformation through time and space reflect one another closely. Both are processes of emergence, expansion and proliferation, which simultaneously imply differentiation and fusion, growth from and dissolution into unity.

Hindu religious architecture first took form in the land where the Hindu religion originated, namely India. Firstly, an understanding of how well these spaces were defined and expressed to represent the Hindu social group responsible for its realisation needs to be understood. Secondly, how the built environment was further developed to reflect the Hindu identity needs to be understood. The built environment became a definition of place, with a regionalist approach specific to the locale while showing due consideration for geographic parameters such as the quality of light, specific landscape features, the culture and the ecology. Essentially, transformation of the built form occurred through critical regionalism and localness. Lastly, specific focus needs to be placed on the expression of Hindu religious architecture identity, represented through the implementation of the canonical text of the *vastu shastra* and the ancient principles of Indian architecture delineated in the *Rig Vedas*.

Across the landscape of India, eloquent testimonies of temple and sacred architecture are scattered, signifying the unrelenting skill and dedication of its patrons from time immemorial. The chronological focus of the precedents of Hindu religious architecture and culture identity, localness and Sanskrit sources will be revealed and elaborated upon. The first section of this chapter begins by looking at a historical example of the best known monument in India - the Taj Mahal, which Koch (2006) called a great contribution to world architecture and a masterpiece.

The practical application of the theoretical developments that were discussed in the previous chapter, in terms of definition of a place, cultural identity and the appropriate religious architecture of the Hindu social groups will be discussed and compared to contemporary Hindu temple architecture. Finally, the evolution of *vastu shastra* principles, reinterpreted in post-modern archetype by architect Charles Correa, will be discussed.

This chapter will commence by critically analysing Shah Jahan's masterpiece, the funerary mausoleum called the Taj Mahal, which is the best known monument representing the Hindu culture of the medieval or early modern period. In today's popular Hindu culture, the Taj Mahal is a symbol of excellence which conforms to the older Hindu concepts laid down in the *vastu shastra*.

4.2 PRECEDENT IDENTIFICATION

The choice of the precedents of the Taj Mahal, Birla Mandir and Vidhan Bhavan are chronological in terms of time, construction techniques, choice of materials and religious appropriate in terms of the *vastu shastra* principles. This research study is based on the analysis and documentation of these three precedents, considered to be either sacred or secular Hindu architecture.

The era of Hindus in India that survived for more than 2500 years was highly transformed through the epoch, making changes to the architectural and cultural landscape brought by Islam to India. Mughal invasion of India in 1400 AD saw the rise of some of the finest contributions of Islamic architecture in India. Mughal architecture found its roots in India and brought in influences from the west through scholarly exchange between Persia and Europe. The architecture of the Taj Mahal served as a necessary statement pertaining to religion through its architectural language that infused both Islamic and Hindu canonical principles specific to building form making. Monumental tomb buildings such as the Taj Mahal followed the principles of sacred geometry, proportion and scale which were imposed on the Indian landscape.

The Birla Mandir Delhi, built during the same period as the DHT and VTD in Durban was chosen specifically as sacred architecture of the north Indian *Sanathani* Hindus, represented through their temple architecture of the time. The triadic and symmetrical architecture of the Birla Mandir was in turn influenced by the principles first employed in the classical architecture example of the Taj Mahal. The intentional use of *vastu shastra* design principles in sacred buildings demonstrates the desire to express the harmonious relationship between the human and the divine through architecture.

Vidhan Bhavan is another such building constructed successively according to *vastu shastra* in the modern period in India. These structures became the paradigm by which the Hindu temple case studies in Durban are judged. The *vastu shastra* guiding principles, definition of culturally appropriate Hindu religious architecture space making and regional considerations employed in the transformation of traditional contemporary Hindu temples in Durban will be examined. The designs will be explained and simplified so that they can be studied individually and collectively to help the reader comprehend the essential components that make up Hindu temple architecture transformation designs in Durban.

4.3 STRUCTURE OF PRECEDENT STUDIES

This was achieved by structuring each precedent according to the themes listed below:

- Introduction and historical perspective of each precedent.
- Appraisal of the religious form.
- Appraisal of the settings and functions.
- Definition of place.
- Critical regionalism.
- *Vastu Shastra*.
- Key lesson learnt.

Precedent Location of Selected Hindu Religious Architecture



Figure: 41. Map of India showing location of precedent locations.

Source: <http://www.mapsofindia.com/maps/india/large-color.html>

4.4. PRECEDENT STUDY ONE - THE TAJ MAHAL –

A CLASSICAL VASTU STRUCTURE

4.4.1 Introduction and Historical Perspective of the Taj Mahal

Shah Jahan's Taj Mahal speaks to the observer with "mute eloquence" as his chief historian, Lahauri, put it (Koch, 2006, p.84). The architecture was the imperial representational medium par excellence: As the most prestigious and useful art, it could represent the ruler in the eyes of the wider public and provide an everlasting memorial to his fame, adds Koch (2006). The Mughals had no written architectural theory. According to Koch's assumption, it was expected that the Mughals were interested in the ancient Indian textual tradition of the *shilpa shastras* and the *vastu shastra*.

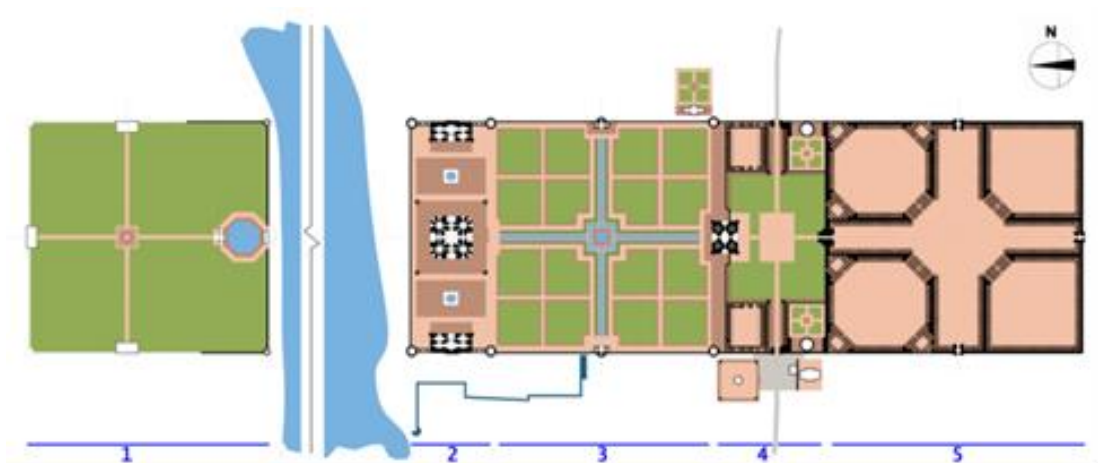


Figure: 42. The oblong site of the Taj Mahal is divided into two main zones, the funerary and the worldly.

Source: https://en.wikipedia.org/wiki/Origins_and_architecture_of_the_Taj_Mahal

It is evident that the Mughals absorbed Indian traditions into their art and architecture. There is, however, no evidence that architectural theory was absent from Shah Jahan's time of rule. Triadic divisions bound together in proportional formulas determine the shape of the site, shown in Figure 42 together with the plans, elevations and the architectural ornamentation.

4.4.2 Appraisal of Religious Form

A. Rationale and geometry

Koch (2006) reports that the principle consideration of the architecture of the Taj Mahal can be identified as its rigid geometrical planning, ensured by the grid system, and it also expresses in canonical form the architecture itself, as per *vastu shastra*. Theory was laid down in the architecture itself. The layout of the buildings on site favour a bilateral symmetry, a term used in contemporary descriptions of buildings as well. The Arabic term *Qarina* expresses the notion of pairing, counterparts and integration, thus it ties conceptually into the idea of universal harmony that played a great role in the imperial ideology of Shah Jahan, adds Koch (2006). In a typical *Qarina* scheme, two symmetrical features flank a dominant central feature, an architectural expressive language common in use in traditional Hindu temples as well. Figure 43 depicts this.

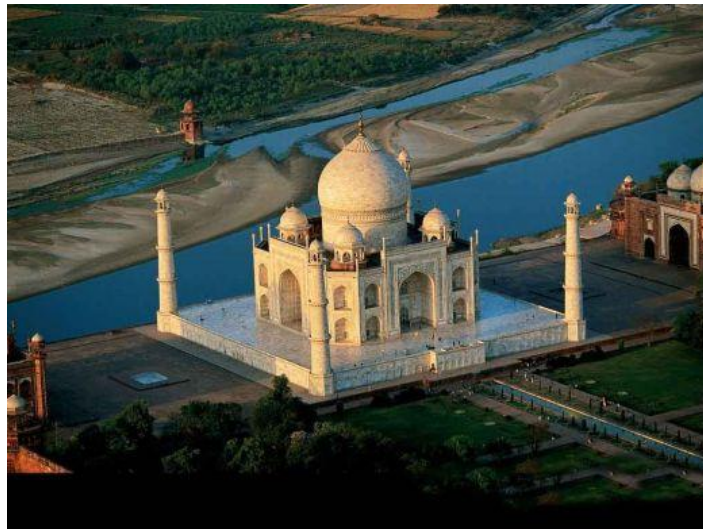


Figure: 43. Typical expression of the Taj Mahal architecture.

Source: https://en.wikipedia.org/wiki/Taj_Mahal

B. Sacred Geometry Architecture of the Taj Mahal

Mughal architecture under the rule of Shah Jahan entered its classical phase. The intentional use of *vastu shastra* design principles in sacred buildings demonstrates the desire to express the

complex relationship between the human and the divine through architecture. Evidence of careful composition and study of these principles is seen through the design and realisation of the Taj Mahal during Shah Jahan's Mughal rule in India at the time. Another feature that suggests a *vastu shastra* influence on the Taj Mahal is the fact that the monument has three shapes - a square base plan, octagonal spaces, and a circle/sphere. The circle and the square have been used as a source of completeness in architecture through their simplicity. They are believed to be perfect shapes due to the regularity of the distance from the perimeter to the centre. The dome, a spherical shape, is placed on a cylindrical drum.

It has been said, quite rightly, that the Taj Mahal is a blend of Persian and Indian architecture. Though its exterior is Persian, its soul is Indian. Natural materials were used in its construction, and they were obtained locally. The Taj Mahal and the pyramids of Giza, which have evidential proof of an architecture dependent on geometric proportions, traditional approaches and universal principles expressed in the order of nature, demonstrate that this science is timeless and important in the design these buildings.

C. The Paramasayika VPM Principle Applied in the Planning of the Taj Mahal

9X9 modulated spaces = 81 padas, also called *Navataalam* in *Dravida* architecture (superficially different). The second type of *Vastu Purusha* mandala is the *Paramasakiya Vastu Purusha* mandala (odd numbered VPM's), which consists of nine by nine modules, seen in Figure 44.

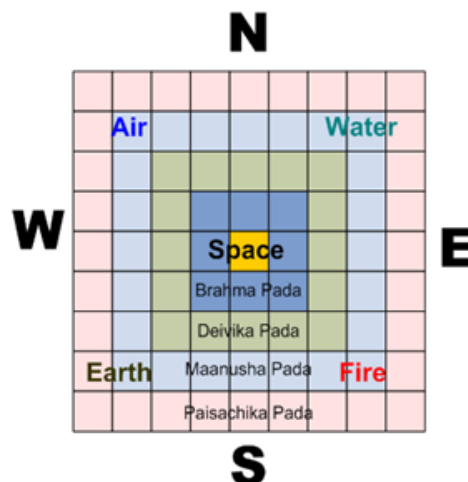


Figure: 44. The paramasayika, morphic vastu purusha mandala.

Source:<https://www.google.co.za/search?q=vastu+purusha+images>

This is later evident in the progression of architectural design and is the gross expression of matter. This type of mandala is used to pattern secular buildings that have energy levels most conducive to human peace and prosperity. The type of geometric proportioning is apparent in its use in the Taj Mahal planning.

D. Modular Planning of the Taj Mahal

The design of the Taj Mahal on a planning grid is obvious and can be seen in Figure 45. The method employed is thought to have been the generated grid system, employing the tripartite division examples 9 or 12. Koch(2006) reports that a thorough investigation by Barraud revealed that the Taj Mahal complex was designed by using the tripartite divisions.

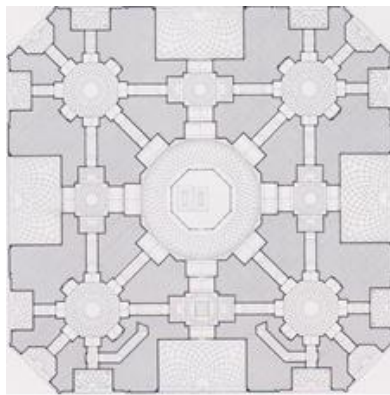


Figure: 45. The geometry of the architecture is rendered perfectly in the ground floor plan of the Taj Mahal.

Source: The complete Taj Mahal (Koch, 2006, p.154)

Barraud alludes to the inspiration of this grid system being derived from the ancient Indian planning principles of *vastu shastra*, where five is significant because it derives its symbolism from the fact that it is the sum of the first even and odd numbers ($2+3=5$), and because it is at the center of the first nine numbers (*navataalam*) or superficially different (Koch, 2006).

4.4.3 Appraisal of the Settings and Functions

A. Orientation

To the north of the Taj Mahal runs the river Yamuna, and it flows from west to east. This is ideal according to canonical text and *vastu shastra*. Water is source of life, a vehicle of cleansing and a centre of regeneration, and traditions of water symbolism are seen in various cultures. Also, running water is known to have regenerative as well as protective properties. Water is symbolic of cleansing, lending the monument an extra aura of sanctity.



Figure: 46. A photograph of the Taj Mahal – in context.

Source: https://en.wikipedia.org/wiki/origins_and_architecture_of_the_Taj_Mahal:

B. Outstanding Natural Elements

The elevated site on which the Taj Mahal is erected has exceptional views across and overlooking the Yamuna river plane. Good natural lighting, the presence of water bodies (shown in Figure 46), an abundance of clean air, and exposure to natural cool breezes (wind) due to its elevated placement are evident. The condition of the soil that the Taj Mahal was constructed upon meets the soil condition requirements and finally, the Taj Mahal has no immediate relationship to other buildings, except those that form the intrinsic part of the bilateral symmetry required for the architecture ensemble, thus allowing it freedom of space and unobstructed views all around.

C. The General Slope of the Land

The Taj Mahal is positioned on a site that has the preferred slope, which is gently sloping towards the north east, with the main façade facing north; a preferred site condition stipulated in canonical *vastu shastra* text and that is prescribed for secular buildings. This is indicated in Figure 47.

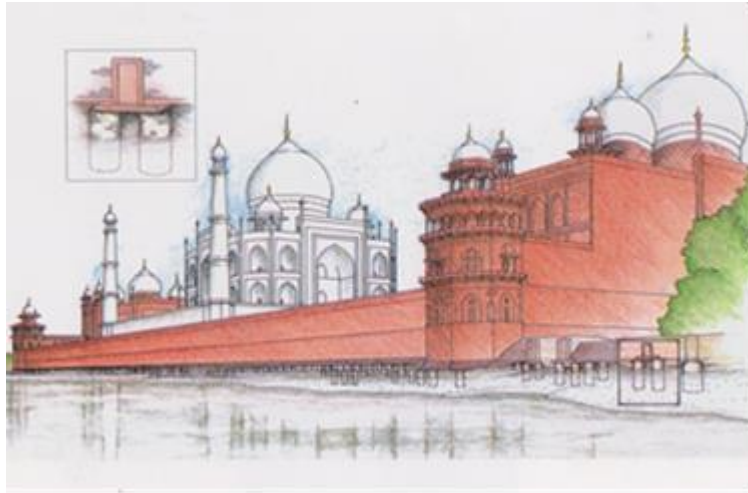


Figure: 47. An artist impression of the Taj Mahal, viewed from the north-west across the river Yamuna.

Source: The complete Taj Mahal (Koch, 2006, p.106).



Figure: 48. The Taj Mahal Mausoleum, seen from the upper level of the great gate.

Source: The complete Taj Mahal (Koch, 2006, 106).

D. Vegetation- Landscape, Trees and Shrubs

One of the distinguishing features of the Taj Mahal is its well-manicured and maintained garden, shown in Figure 48, which evokes a highly charged vision of paradise. The landscape design shows the continuing importance of nature through gardens. The garden here has selected flower beds and plants, as stipulated by the guiding principles of *vastu shastra*, and demonstrates the Mughal's ability to tame the arid landscape of India and provide lush vegetation and irrigation systems. *Charbagh*, when translated from Urdu, simply means four gardens. The basic principle of the *Charbagh* is to divide a square garden into four symmetrical parts by the use of two transverse pathways in the middle. The four quarters are further divided into smaller squares, through the use of smaller access pathways. The use of waterways also included along the main axis pathways demarcates the two cross axes. At the interception of the axes is a large pool of water.

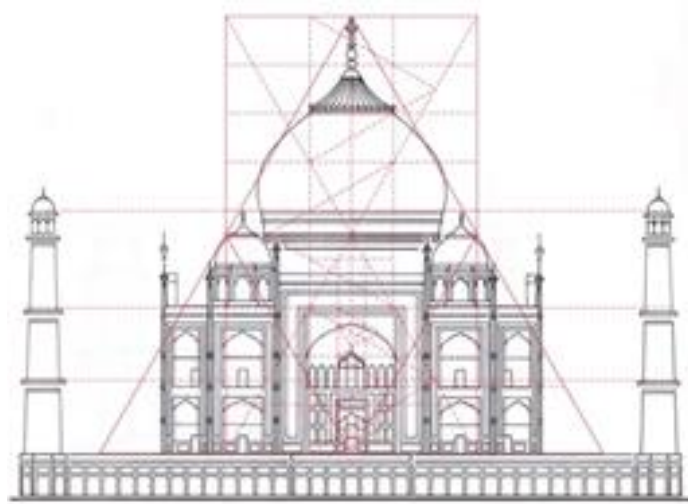


Figure: 49. Triadic divisions bound together in proportional formulas of the tala and gaz systems of measure in the Taj Mahal.

Source: <https://www.google.co.za/search?q=geometry+used+in+the+taj+mahal&rlz>

Proportional formulas expressed in triadic divisions defined in Figure 49 determine the shape of the plans, elevations and architectural ornaments of the Taj Mahal. Aleitmotif is a tripartite composition consisting of a dominant feature in the centre, flanked by two identical elements- a configuration that relates to hierarchy as well as to *qarina* symmetry (Koch, 2006).

In *vastu* science, the building is laid out according to specific dimensions. In India, the *tala* measure is mostly applied in the field of music and dance, but that same *tala* has been in force for centuries in the domains of sculpture, architecture and poetry. Also applied in the realisation of the Taj Mahal, is the *gaz* system of measurement. *Vastu shastra* holds that the width of a building should equal its height, as in Figure 50. Its length and width are exactly the same as its height, represented by the equilateral triangle depicted diagrammatically in Figure 49.

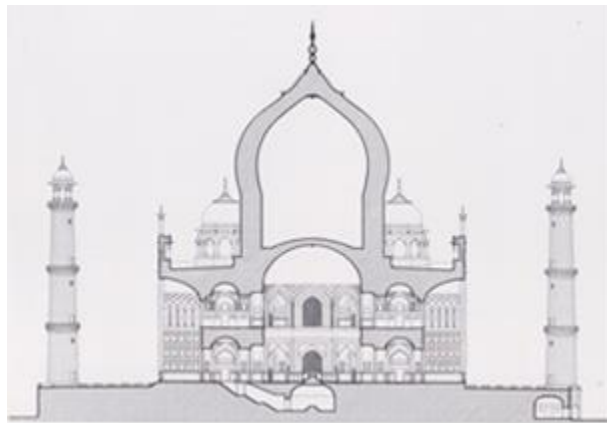


Figure: 50. Section of the tomb, to the left is south and north to the right.

Source: The complete Taj Mahal (Koch, 2006, p. 155)

4.4.4 Definition of Place

The essence of the Taj Mahal as a place lies in its quality. For Emperor Shah Jahan, the meaning of the building was as important as its form. Everything had to be considered in relation to how people perceived it and to the symbolic needs it was intended for. The potential of the Taj Mahal architecture was put into the service of creating a replica here on earth of the paradisiacal house of Mumtaz. The Taj Mahal is seen as a material expression of the architecture of what Shah Jahan and his builders considered to be heaven on earth. To this end it provides an important contribution towards the psychology and the social sciences of the architecture of Agra, emphasising the political influence and identity of the Emperor Shah Jahan's self-worth, thus linking the Taj Mahal to a particular place and in time. Attachment to the Taj Mahal as a place is grounded in the emotions of the people, and is evidenced by the number of tourists visiting the place. This is further compounded by the seductive aesthetics of the architecture and its appeal to

the senses. This makes the building more remarkable as an iconic structure which evokes emotional connections to the observer/ visitor. The quality of the Taj Mahal as a space was nurtured with conviction, giving a definition of meaning and the self-worth of its people. In architectural expressive terms, it serves as a cultural catalyst, combining sensuous appeal and intellectual quality that are decisive factors or criteria for judging cultural appropriateness for proposed buildings in contemporary time.

4.4.5 Critical Regionalism

In this particular theme the Taj Mahal architecture is analysed to determine local appropriateness, in terms of specific geographical parameters such as landscape features, culture and ecology in developing an identity of place.

The materials used in the facing of the buildings expressed symbolic values and also evoked emotions by interacting with the atmosphere. The strategic choice and application of the materials was in direct dialogue with the observer, and the most readily noticed aspects were the use of colour, accentuating meaning and hierarchy. The white marble was chosen for the mausoleum, as the most important area, and representing purity and sacredness that created mysticism and a mythical aura through the changing natural light effect. The hierarchically graded colour dualism is a general feature of the Mughal architecture of that particular region, supporting the idea of 'localness' by using local natural materials which conformed to the Indian concepts laid down in the *vastu shastras* about art and building.

The architecture of critical regionalism makes reference to the site (*genius loci*) or the spirit of place, which explores the relationship between human beings and a particular location. In this instance the garden is the heart of the Taj Mahal complex: it is to the buildings what the soul is to the body, or as Koch (2006) describes it, a 'paradise-like garden'.

Critical regionalism architecture should be bounded by context, but on the other hand, the context offered by LeFaivre & Tzonis (2003) does not rely on deep-rooted connections between the region and the architectural exemplars they examined. The Taj Mahal architecture provides a sound traditional base for culturally appropriate architecture that exemplifies regional expression and sacredness, providing a basis for cultural continuity in contemporary time.

4.4.6 Vastu Shastra

The Taj Mahal was evidently built according to *vastu shastra* principles. The architect's awareness of *vastu shastra* was no mere coincidence and greatly influenced Emperor Shah Jahan, who was a Muslim. The ideal concept of building according to *vastu shastra* requires mathematical planning and proportioning, synthesised with decoration that appealed to the senses of the observer. The relationship of built form and outdoors spaces, the use of an appropriate and honest approach to materials, response to climate and landscape, and the observance of hierarchy and order are some of the key requirements stipulated in traditional *Vastu* ways of building. According to Koch (2006), surface and ornamentation are our most immediate window into the meaning of the Taj Mahal. Fusion of intellectual knowledge and the sensuous appeal has made the Taj Mahal one of the most enduring monuments built according to *vastu shastra*.

Looking back at history, it is natural that *vastu shastra* influenced Muslim architecture, reinforcing the notion that *vastu* science is not specific to a particular religion. This science can be used by anyone desiring to propagate the creation of energy and positive vibrations, and a flow of balance and harmony within a *vastu shastra* designed structure.

4.4.7 Key Lesson Learnt

It was observed that the eminent link of this precedent study interconnects with the underlining principles of *vastu shastra* employed in the realisation of the Taj Mahal architecture, basing the design on timeless universal principles expressed by nature's system of proportion, which enables the physical, communal, cultural and spiritual levels of human wellbeing. The Taj Mahal is further defined by its distinct setting in a place befitting its significance as architecture of the memory of the Mughal people, so creating Indian *genius loci*.

Another key lesson learnt from this traditional Indian architecture is that of identity, which thus makes room for historical references to traditional forms, symbolism and site settings that are required for the continuation and self-worth of a social group. Regionalism identifies specific and local determinants of design form, methods of construction and technology, as opposed to

those that are general and universal. Critical regionalism in this research will use existing architectural attributes and lessons learnt from the Taj Mahal architecture to achieve regionalist aims for Hindu religious buildings in Durban, and measure social identity differences and similarities in cultural tradition.

4.5 PRECEDENT STUDY TWO - THE BIRLA MANDIR OR LAKSHMI NARAYAN MANDIR - DELHI, INDIA – A contemporary Hindu Temple



Figure: 51. A street view image with context of the Birla Mandir.

Source: <https://www.google.co.za/search?q=the+birla+mandir&rlz>

4.5.1 Introduction and Historical Perspective of the Birla Mandir

The realisation of the Birla Mandir in Delhi and similar temple construction elsewhere in India was the brain child of the Birla family, leading industrialists in post-colonial India. Philanthropist Baldeo Das Birla undertook to sponsor the Mandir construction as his corporate social responsibility (CSR) to the people of Delhi, and India at a broader level. Birla's CSR initiative was aimed, not only at providing employee satisfaction, but extended a personal responsibility to society, a desire to help mankind through acts of charity.

Amongst the Marwari community, the Birla family was foremost in philanthropic activities, contributing to the construction of public buildings, schools, hospitals and landmark temples such as the Lakshmi-Narayan Mandir of Delhi. This temple is also known as the Birla Mandir, is seen in Figure 50, and was built in 1938, according to Singh (2010).

It was difficult to separate what might be regarded as the traditional from the modern, or even to identify what was traditional, prior to 1857. A number of traditions could be said to have existed. The traditional patterns are responses to forces which exerted themselves over a long period of time. Two groups of such forces, geographical and socio-cultural, are fundamental. Where people have been in a location for a long time, the forces act together in a complimentary fashion, explained Lang et al. (1997). The Birla temple is situated to the west of Connaught Place in New Delhi.

4.5.2 Appraisal of the Religious Form

The design of the temple is modelled in the north Indian *Nagara* style of temple. Its tall curved *rekha-deul* towers capped by large *amalakhas* are inspired by the ancient temples of Orissa. The *shikara* is the vertical superstructure like a mountainous peak above the sanctum, typical in the *Nagara* style of temple architecture. A striking feature of the Birla temple is its multiple *shikaras* emulating Mount Mehru.

A. Key Theoretical Issues Employed in the Design of the Space

The architecture was influenced heavily by the principles of the *Swadeshi* movement in India during the early twentieth century and the canonical texts were used to derive the architectural language. Its architectural style combines the Orissa style sanctuaries and Mughal arcades.

The image of the *shikara* is important and follows the *chaitya* window form. The use of the *shikara* form is extensive, in that it is not only seen above the main *garbha griha*, but also above the subsidiary shrines and gateway as well. The highest *shikhara* of the Birla Mandir, above the *garbha griha* (sanctum sanctorum) is about 160 feet (48.8m) high and is depicted in Figure 53. The Birla Mandir is conceived in a very descriptive manner, as is the case by architects of the revivalist and post-modern era. Their view on classical architecture is one of patterns associated with a particular era and its people. The underlying principles of their design are thus missed. (Lang et al., 1997)

Chatterjee's interpretation of the *shikara* is one of seeking an image which communicates a regional identity, unlike the predecessor of temples at Bhubaneswar (Figure.52), Khajraho and the Hari-Hara group of temples at Orissa, near Jodhpur, all illustrate the extraordinary imagination and skill of the Hindu mind and Hindu builders of the medieval period. Birlar Mandir was intended to be a modern development of the ancient (Gupta or Magadha) model into a new form of *shikara* temple (Chatterjee, 1942).

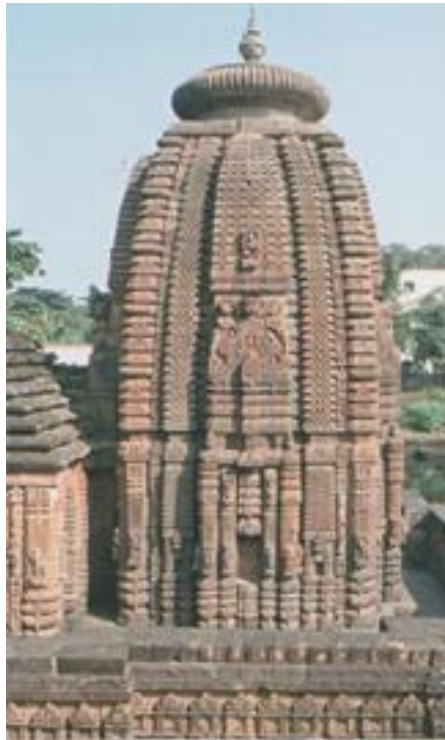


Figure: 52. The shikara of the Bhubaneswar temple displays the extraordinary skill and imagination of the medieval builders.

Source: https://en.wikipedia.org/wiki/Vishnu_Temple,_Bhubaneswar

B. Architecture: Analysis and Religious Meaning

Birla Mandir aka. the Lakshmi-Narayan Mandir in Delhi was built in honour of Goddess Lakshmi, the Hindu Goddess of wealth and her consort Vishnu Narayan, the preserver of all life forms on earth. They are the presiding deities in the main temple.

Chatterjee (1942) was deeply concerned with the symbolic meaning of elements he incorporated in his designs. In developing his design method, Chatterjee's concern was to concretise the nation's cultural identity through architecture in post-colonial India. His argument was for a renaissance of Indian architecture, and is quoted as having said, "to give oneself a proud history is a means of establishing a positive self-identity" (Chatterjee, 1942, p.132).



Figure: 53. The Birla Mandir aka. Lakshmi-Narayan Mandir- Delhi (*built c1938*).

Source: <https://www.google.co.za/search?q=the+birla+mandir&rlz=1C1VFKB>:

According to Gupta (1991), Chatterjee was dubbed the 'neo-traditionalist architect during the modern movement' and was an ardent admirer of Gandhi. Chatterjee's design of the Birla Mandir was intended to be a modern development of the ancient Gupta or Magadha models. Like most architectural practitioners in the third world, Chatterjee drew inspiration from India's vernacular architectural traditions. On the other hand, architecture books were being written by Indian architects such as Iyer, who advocated for "the evolution of a proper national style, retaining the wholesome features of the ancient constructions, assimilating the architectural experience of the west, and adapting the whole conformably to modern conditions and tastes" (Iyer, 1926, p.131). Local Indian rule architect/advocates were seeking an eclectic style, that of incorporating the past with the present to arrive at a new.

These new temple forms extended the ambit of temples from the religious to the public realm, well beyond the established institutional domain of temples with their sequestered cultic icons, policed by Brahmin priests. This included the modern temple form, which has been called the *sarvajanik mandir*, of which the Delhi Birla Mandir is an early instance. (Lang *et al.*, 1997). *Sarvajanik* means ‘for everyone’, ‘all people’, and often referred to as ‘the public’.

C.Perfect Symmetrical Planning

The tripartite composition consisting of the dominant feature of the *rekha deul*-type towers in the centre, flanked by two identical towers (a configuration depicted in Figure 54), relates to hierarchy as well as to the *qarina* symmetry of the Mughal influence seen in the earlier architecture of the Taj Mahal. The layout of the temple building and landscape features on site favour a perfect bilateral symmetry and aesthetic planning, a term used in contemporary descriptions of buildings as well. A strong axis aligned with the dominant *shikara* runs through the garden canal and park.



Figure: 54. An innovative triple shrined complex designed in a simplified Orissan style, with tall rekha deul-type towers (Shikara), capped by prominent amalakhās, all composed on a double storeyed base, with Mughal-influenced arcades.

Source: <http://vedictemplesin.com>

4.5.3 Appraisal of the Settings and Functions

A. The Cultural Setting and Heritage of the Space

This temple encapsulates the ways in which vernacular capitalism simultaneously departs from the Eurocentric modernist narrative of capitalism and is shaped by the colonial state and economy, and is integral to modernity. Here the imperatives of rule against the circumscription of a domain of ‘culture’, in which natives of India (specifically Delhi) could continue to practice their own religions and customs became the basis of demands for equal status and then for political independence. (Lang *et al.*, 1997).

The domestic culture also means that its expressive forms are deeply informed by religion, which is in turn subject to modern transformations. The Birla Mandir indexed the significant expansion of the possibilities for religious practice and patronage of the social cultural groups. The religious and cultural re-formulation, in post-Mughal and colonial India, of innovation and tradition unfolded in a number of different emerging culture vernaculars, through religious practice and architecture.

B. Temple Site and Setting

The temple is built on a site approximately 7.5 acres or 30,360 square metres in size. The actual footprint of the buildings is 0.52 acres or 2,100 square metres. Artificial landscaping and cascading waterfalls add to the beauty of the temple.

The temple is spread over an extensive landscaped garden, adorned with many shrines, fountains, and a large garden, which also accommodates a large congregational hall named Geeta Bhawan, for discourses and *sathsung*. The temple is one of the major attractions of Delhi and attracts thousands of devotees for the Hindu festivals of Krishna Janmashtami and *Diwali*. This represents the sense people have of a place, understood as the sum of all physical as well as symbolic values in nature and the human environment, and aptly described as its *genius loci*.

Schulz's approach to the concept of identity is through linking aspects of human beings' existential space through the psychic functions of orientation and identification, cites Mthethwa (2001). This approach uses human emotions as a means of defining human beings' identity and thus becomes a source of introspection and a view of the world at large. The architect of the Birla Mandir successfully executed the desired ingredients in creating a Hindu ethos through its design. A sense of place and prestige of a designated Hindu religious cultural group was achieved. The symmetry, hierarchy and pyramidal form of the *shikara* towers are distinct, as viewed in the satellite image plan of the Birla Mandir in Figure 55. The strong linear access from the street front through to the park is accentuated by the focal dominant *shikara*, dedicated to the paramount deity Vishnu Narayan and his consort Lakshmi.

C. Linkage to the Urban Fabric Accessibility



Figure: 55. Aerial photograph of Lakshmi Narayan Temple in Delhi

Source: [https://www.google.co.za/maps/place/Birla+Temple+\(+Laxmi+Narayan+Temple\)](https://www.google.co.za/maps/place/Birla+Temple+(+Laxmi+Narayan+Temple))

The temple is located on a prominent site in Mandir Marg, situated west of the Connaught Place in New Delhi. The temple is in close proximity to the city centre and is easily accessible from the city using the efficient public transport system.

D. Analysis of Function

The Lakshmi-Narayan Mandir is a complex consisting of three temples, a *dharmashala* which is a safe/guest house for pilgrims, shops, offices and a large landscaped garden. The administrative offices, shops and the *dharmashala* are located on the ground floor, having frontage to the street and activities spilling out onto the hard landscaped forecourt.

There are other smaller shrines dedicated to Ganesha, Hanuman and Lord Buddha. Two temples are located on the first-floor level, the *shikhara* to the left (when viewed from the street) is dedicated to Durga Devi, the Hindu Goddess of strength and the *shikhara* to the right houses Lord Shiva, the destroyer of evil and dissolution. To the north of the temple is a large congregational hall (depicted in Figure 56), named Geeta Bhawan, for discourses and *sathsung*. This is dedicated to Lord Krishna, the reincarnation of Vishnu, preserver of all life, according to Hindu theology. Landscaped gardens which feature unusual semi-open congregational spaces and a space for fire oblation (*yajna shala*) are included.

The three imposing *shikaras* are reminiscent of the 11th century Bhubaneswar temple. Other elements are derived from a variety of classical architectural sources. The entrance conforms to the *gopura* scheme favoured in Tamil Nadu, thereby synthesising the two main regional traditions of Hindu temple architecture into a single complex (Michell, 2000).



Figure: 56. An interior view of *Geeta Bhawan*, with Mughal influenced arcades.

Source: <https://www.google.co.za/search?q=geeta+bhawan&rlzhttps://>

The Geeta Bhawan, designed to be lofty and spacious, is suitable for congregational worship or discourses. Although built using modern technology, it characterises Mughal influenced arcades, combined with the pillared hall or *maha mandapa*. This indicates a classical south Indian *Dravida* temple influence, infused with the *Nagara* style temple of north India.

Inaugurated by Mahatma Gandhi in 1939, it was one of the first major Hindu places of worship which admitted untouchables, known as *Harijans* according to the caste system, to congregational worship. The Birla temple has redefined Hindu religion to conform to modern ideals of philanthropy and humanitarianism, combining the worship of a deity with a public institution that contributes to civil society. This temple conveys a message to the entire community to consider its' essence of 'oneness' worship to a single God, as all life seeks salvation or dissolution. This may be one of the first Indian instances of a modern site of a peri-urban nature, whose extensive landscaped grounds include theme park elements such as artificial caves and sculptures of animals and divine beings. Most usefully, as a high-profile temple built at the height of the anticolonial national struggle, and concomitantly its role highlighting the definition of different communities within the 'native' polity, it carries a great deal of self-narration in the form of inscriptions on columns and on plaques embedded in the walls.

E. Temple Construction

The architect tasked with the design of the Birla Mandir was Sris Chandra Chatterjee, a leading proponent of the 'Modern Indian Architecture Movement'. The movement did not reject the incorporation of new construction ideas and technologies. Innovative building techniques were utilised, for example the large span roof over the congregational hall (*Geetha Bhawan*). However skilled the artisans of the Lakshmi Narayan Mandir were, the outcome of their handy work on the temple lacked the ornate and intricate work of the medieval period.

The shrine adorned with fresco paintings depicting the life and work of Vishwanath Shastri. Chaturvedi relates the temple presence to the atrophied state of knowledge about ancient temple construction and the inability to replicate traditional temple forms in brick and cement. The

principle materials for ancient traditional temples were stone and sundried bricks, which provided greater prestige to an authentic method of construction.

4.5.4 Definition of Place

Religious place identity is actively created through the religious happenings of festivities and auspicious days of worship at the Birla Mandir. This identity was unique to the residents of Delhi as it is a place built at the height of the anticolonial national struggle that truly represented hindu culture. The temple conforms to the modern day concept of deity worship, unified as a place for all (*Dravidian, Buddhist and Sanathanist* Hindus all on a single site). The architecture is an eclectic mix of Mughal influenced arches, combined with elements derived from *Dravidian, Buddhist and Sanathani* traditional temples. The temple is further recognised for its theme park aesthetics that provide for the leisure and pleasure needs of the people of greater Delhi. Birla Mandir architecture can be considered as a kind of building which signifies a way of life or ethnic domain, and is useful as a conveyor of culture and faith. The architecture of Birla Mandir is highly distinctive because of the three imposing *rekha-deul shikaras*, clad in kota, sandstone and marble synthesised by the entrance (*Gopura*) of the south-Indian tradition. The form it took is the result of personal expression informed by the history, culture and human behavior.

4.5.5 Critical Regionalism

A. Materials and Climatic Response

Chatterjee extensively used modern materials in his buildings. The icons of the temple are in marble brought from Jaipur. Kota stone from Makarana, Agra, Kota and Jaisalmer were used in the construction of the temple premises. The entire temple is adorned with carvings depicting the scenes from Hindu theology. Skilled artisans from Benares, headed by Acharya Vishvanath Shastri, carved the icons of the temple. The temple faces the east and is situated on a high plinth.

B. Locality- Urban Context and Cultural Setting

According to Lang *et al.* (1997), three interrelated forces acted simultaneously on urban design and architecture in India, and they need to be considered objectively.

One is the impact of the industrial revolution. The second and more focused concern was the impact of colonising powers and the reaction to it. The third was the impact of the internal struggle for intellectual and political hegemony over an independent India. The focus is on India's attempt to develop architecture of self-worth, as a nationalist movement in post-colonial rule. New Delhi was developed under the military and economic domination of the British.

The penetration of British ideas and the industrial revolution impacted on building processes, creating situations of confrontation between foreign and indigenous values, and between tradition and modernity. India's traditional architectural heritage was key to its post-independent self-conscious architectural expression, one of borrowing from the past to assimilate with modern architectural elements to create a unique 'localness' identity. The aspiration of a national Indian architectural identity was further compounded by the regional diversity of the country and its people. The resultant architectural production is of generic national 'Indian' history through representative variety and iconic Persian signification. The Birla Mandir construction does not display the truth to 'localness' through the use of locally procured materials. It is this mode of signification that characterises its resultant effect of pastiche: Condemned in modernists view as kitsch. Chaturvedi (1982) stated that this temple was not just built for prayer and ritual visits, but for the purpose of educating visitors on the history of Hindu *dharma* and religion.

4.5.6 Analysis of Vastu Shastra in the Lakshmi Narayan Mandir - Delhi

The borrowing of traditional temple language in contemporary usage in the Lakshmi Narayan /Birla Mandir in Delhi can be considered as kitsch and/or pastiche. The religious intention is the same as with the traditional approach, but with little understanding of the significant formal approach stipulated in the *vedas* and *vastu shastra*. The designer, Sris Chatterji, instead adopted a process of adhoc mixing and matching, creating architecture of nostalgia, combining deity worship at a public institution that contributes to civil society.

The architecture produced at Birla Mandir – Delhi meets contemporary functional demands. For instance, the Geeta Bhavan congregational hall is positioned within the womb of the temple, only underplayed by its incorporation below the massive plinth of the main temple above.

The morphology is typically of a *Nagara* styled *Rekha-deul* temple of Orissa, though the vocabulary is eclectic, as seen in Figure 57, compounded by the *gopuram* entrance element typical in *Dravidian* temples and with *Bhudist* accents.



Figure: 57. Front view of the Birla Mandir which combines the Gopuram entrance with the three imposing shikaras.

Source: <https://www.google.co.za/search?q=the+birla+mandir&rlz=1C1VFKB:>

The temple employs contemporary building technology, using reinforced concrete, but the structure is sheathed in marble and red sandstone, unlike the Taj Mahal precedent where materials used were truly regional in nature, providing greater prestige to an authentic method of construction.

The site and setting, covering 7.5 acres in extent hardly compares to the grandeur of the *Charbagh* of the Taj Mahal. Birla (2009) describes the Lakshmi Narayan temple site as a modern instance of a theme park, comprising artificial landscape features and elements. Although the designer executed the ingredients in creating a Hindu ethos through his design, the symbolic value of nature and the human environment is negated as its *genius loci*.

Regardless, the Birla Mandir continues to be significant as a catalyst for the continuity of the Hindu religion in contemporary times and place.

4.6 PRECEDENT STUDY THREE - VIDHAN BHAVAN

Vastu Shastra: In Contemporary Modern Architecture

Located in Bhopal India, Vidhan Bhavan is a government facility that exemplifies how the cultural history of a society is perceived, reinterpreted and utilised at present as a process of future cultural continuity, represented through its architectural built form and meaning.

4.6.1 Introduction and Historical Perspective of Vidhan Bhavan

The implementation of the *Vastu Shastra* tradition by architects such as Charles Correa, Raj Rewal and Balkrishna Doshi in contemporary architecture has been spurred on and is evidenced in the realisation of Vidhan Bhavan, designed by Charles Correa. This complex is a key precedent for the amalgamation of traditional principles and abstract modern elements, resulting in a timeless contemporary design. Charles Correa acknowledged the traditional *Vastu Shastra* concept in his design of Vidhan Bhavan by implementing spatial planning according to the mandala plan.

4.6.2 Appraisal of the Settings and Functions

Vidhan Bhavan, in Figure 58, is located on the crest of the Arera Hill in the center of Bhopal, overlooking the Madhya Pradesh capital city.



Figure: 58. The Vidhan Bhavan, seat of the Madhya Pradesh legislative assembly.

Source: <https://www.google.co.za/search?q=Plan+of+the+Vidhan+Bhavan+Complex&rlz/>

Since the main access road is not axial, but swings towards the site (viewed in Figure 62) in a rather casual manner, the plan of the building developed as a circle so that it could have an autonomous unity and presence, regardless of the direction from which it would be approached. As such, it reveals the building's facades in sequence to suggest different functions within. The circular form recalls Correa's interest in the mandala; here it primarily reflects Indian cultural and historical references, which include the Parliament Building in New Delhi. Vidhan Bhavan conveys a modern sensibility of the heritage of Madhya Pradesh, which Correa demonstrates through this interpretation that the ancient traditions are valued even in contemporary settings.

4.6.3 Definition of Place

Through the design of Vidhan Bhavan, Charles Correa took into consideration the needs of the local people, both physically and psychologically. The importance of Vidhan Bhavan as a place built in natural settings was relevant for a local legislative building that serves the people profoundly.

Its location on the crest of the Arera Hill, as viewed in Figure 59, enhanced the stature of the political authority of the ruling party in Bhopal.



Figure: 59. Vidhan Bhavan, located on the crest of Arera Hill in the centre of Bhopal.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal

This was useful to link the identity of the people of Bhopal to the place from a psychological point of view, particularly the architecture of the place, which is identifiable with local culture

and is an architecture that signifies the ways of life and faith of the people of Bhopal. The Vidhan Bhavan design was successful as a conveyor of local culture and faith.

4.6.4 Critical Regionalism

A. Historical Background

Vidhan Bhavan is built in Madhya Pradesh, the region which is known as India's tribal province and inhabited since the prehistoric period. Its written history dates back to the 3rd century BC, when Emperor Ashoka, the ruler at the time, was responsible for the realisation of the Buddhist *stupa* at Sanchi. The same architecture was employed by Charles Correa as a continuation of the old traditions, linking to the new era through the use of this form in a part of the Vidhan Bhavan architecture, illustrated in Figure 60.

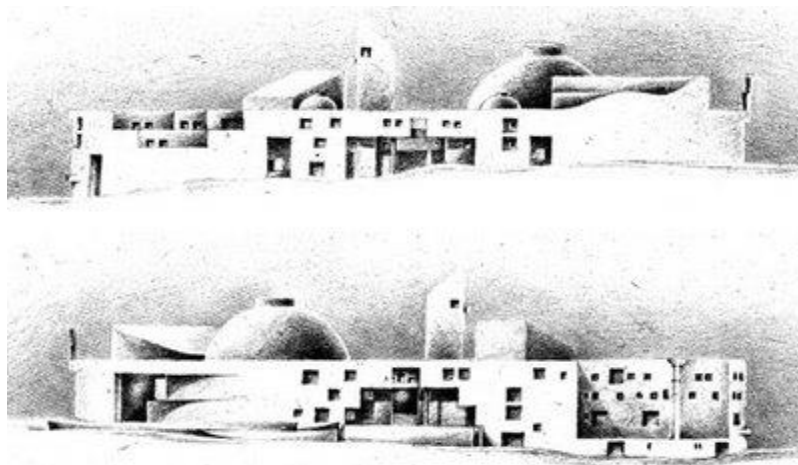


Figure: 60. Charles Correa's sketch depicting the essential design elements borrowed from the traditional architecture of Bhopal: Notably the stupa and the vertically expressed element of Hamam of Islamnagar.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal

B. Local Architectural Character

The architectural character of Bhopal corresponds to the history of the city and it is generally divided into two parts. The old part which is traditionally occupied by the Muslim community is determined by continuous blocks of two storey buildings in brick or stone that form a gridded configuration of narrow alleys, typical of Islamic cities. The community is separated by a wall from the historic ruler's quarter where the great mosque, palaces, gardens and artificial lakes are

found. The new part was built immediately after Bhopal became the capital city of Madhya Pradesh State. This part is characterised by blocks of buildings that vary in height for residential, commercial, government and public use within a defined master plan. Each building is generally constructed using local materials for the finishes and are characterised by their distinct flat slab roofs. Each building occupies a large plot of land so gardening is possible. The various land use zones are separated by greenery, parks and gardens, as well as water features and pools. Vidhan Bhavan architecture articulates many local features simultaneously, as showcased in Figure 61. These features include natural light and ventilation emulating the low density residential buildings with an abundance of open space around, access and circulation, open and closed spaces, and old and new forms of the architectural heritage of Madhya Pradesh. A sense of ‘localness’ is achieved through employing local materials in their construction that blend naturally with the local environment and with the ethos of Madhya Pradesh in general.



Figure: 61. A view of Vidhan Bhavan captures its interesting articulate roof scape and the circular form.

Source: www.google.co.za/search?q=vidhan+bhavan+bhopal

4.6.5 Analysis of Vastu Shastra meaning

The mandala was the greatest determinant of form, in disposing the various spaces is the design of Vidhan Bhavan, combining a modern sensibility with themes derived from traditional and mythological Hindu philosophy. Charles Correa’s respect and heritage of India, together with a deep understanding of *Vedic* principles of architecture, commenced the design for the legislative assembly.

It used the amorphous *Navagraha* mandala plan evoking the traditional Hindu pattern of nine squares, each representing a planet within a square which describes the universe according to Hindu philosophical meaning. The basic concept lies in the depiction of the whole of Madhya Pradesh State within one building depicted as the universe, and each square within representative of the legislative functions. The outcome is the highest political representation of Madhya Pradesh, through Correa's design excellence of Vidhan Bhavan Cantacuzino (1982).

Many factors determined its form: Its site on the crest of the hill, the old Muslim monuments, *Hamam* at Islamnagar nearby, as well as the famous *Stupa* of the Buddha at Sanchi, and the Steps at *Bathing ghat*.

The plan in Figure 62 is a series of gardens edged by administrative offices, used to define a pattern of nine compartments, explains Cantacuzino (1982). The five central ones are halls and courtyards, creating a microclimate of shade and running water, with the four corners occupied by the specialised functions: The upper house, the lower house, the combined hall, and the library. All of these functional spaces and a series of gardens are enclosed within a perimeter, a perforated circular enclosure wall. Within this perimeter, the functional spaces are dictated by the mandala structure, states Gast (2007). Symmetrical axes and entrances have resulted through the amorphous *Navagraha* mandala plan.

Vidhan Bhavan is experienced not just by its legislative assembly and authoritative stature, but as a movement through the great open-to-sky spaces that lie between them. This movement has always been a decisive factor in the spatial and functional organisation in Hindu architecture.

The cosmic organisation of functions, sequences and spaces within Vidhan Bhavan are disposed by the ancient Hindu conception of the universe, set out in the *Vastu Shastra* and according to the *Vedas*.

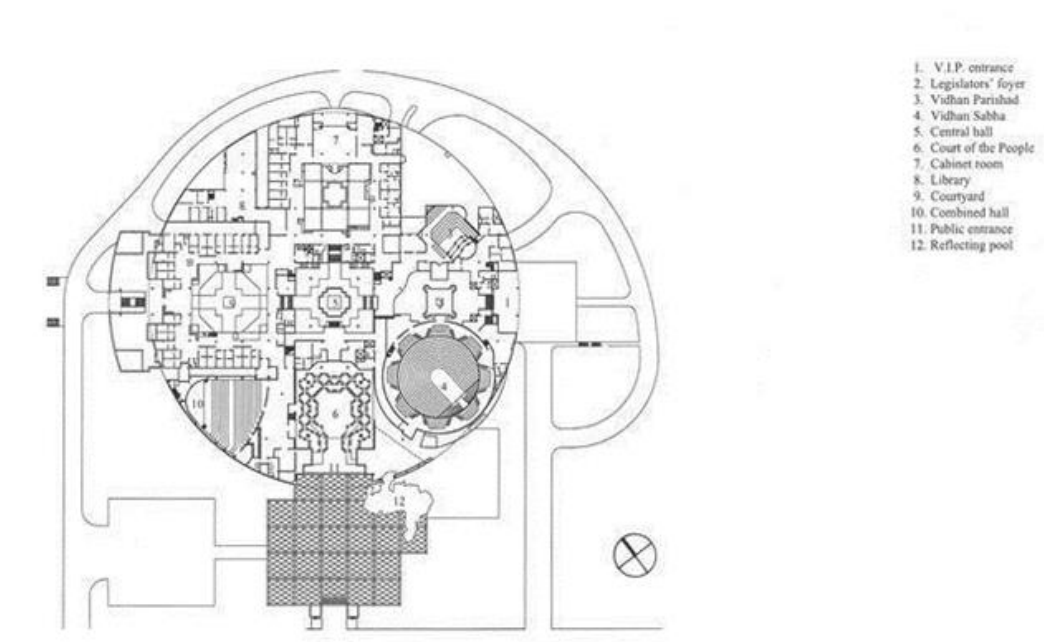


Figure: 62. Plan of the Vidhan Bhavan Complex - Bhopal, India.

Source: <https://www.google.co.za/search?q=Plan+of+the+Vidhan+Bhavan+Complex>

Patterns of movement of the three main users, namely the legislators, the VIP's and the public, form diverse and pleasurable architectural sequences along the edges of courtyards. On their way, they wind around the *Sabhas* like the ritual circumambulatory paths around temples, which allow them to experience the principal spaces.

4.6.6 Summary Statement of Vidhan Bhavan

The Vidhan Bhavan project reflects the architect Correa's concern for humanistic values in the centre of a seat of authority, rather than glorifying political power monumentally. The whole composition of the final built outcomes of the project is enclosed by a wall that defines its exterior form like a circular inner city, and is seen in Figure 61. This is based on a model of the city of Baghdad.

Secondly this approach has generated an interesting roof scape and articulate skyline, often discarded in contemporary architecture. The inclusion of gateways, outer enclosures, courts, domes and a tower develop an imagery of this complex landmark, much in the tradition of the harmonic order found in traditional Islamic architecture.

4.7. SUMMARY OF CHAPTER

This chapter was concerned with the chronological review of the phenomenon of Hindu religious architecture built elsewhere in the world that conform to the principles of *Vastu Shastra*; the relevant issues of place, character and identity, intertwined with local cultural conditions and building traditions. This insight into the selected precedents will be compared with the local Hindu temples of Durban, to determine their realisation as appropriate cultural and religious edifices of a particular Hindu social group, in contemporary modern society.

Vastu shastra principles prescribed in Hindu canonical texts go into detail regarding site selection, design, building materials, building technology, landscape design and numerous other aspects of the execution of properly built structures. It is interesting to note that traditional sacred and secular buildings such as the Taj Mahal, traditional and contemporary temples such as the Birla Mandir in Delhi, and modern buildings such as Vidhan Bhavan were constructed according to the guiding principles of *Vastu Shastra*. The precedents were intentionally chosen to demonstrate the chronological endurance of space and place of a social cultural group, maintaining their religious identity and relevance in universal society.

The question is raised as to why these principles should be adopted in the design approach to Hindu religious architecture in other geographical regions. *Vastu Shastra* was applied to these archetypes without a significant degree of departure from the historical/ traditional and the other cultural conditions that make Hindu temples symbolic and significant of the self-worth of their patrons.

The discussion in this chapter further developed the issue of Hindu religious and cultural identity being expressed through its architecture over time. The researcher sought to chronologically examine the conformity of the architecture to the Hindu religious culture and identity, defined in the public architecture of the north Indian Hindu people in India. The architecture developed by Shah Jahan in the Taj Mahal, that of Sris Chatterji in the Birla Mandir in Delhi and that of Charles Correa in the Vidhan Bhavan went to great lengths to be as inclusive as possible of the proper siting, symbolism and metaphors that might have created the desired social identity of the Hindu religious groups.

The third theoretical issue that has been emphasised throughout the current thesis is that of critical regionalism. The development of local Hindu temple and secular building identity through regional architectural characteristics has been expressed through elements and material use.

CASE STUDIES

5.1 Introduction

The relationship between built traditional religious architecture and a specific religious culture group poses the question whether the pursuit of identity may be problematic. An essay by Balkrishna V Doshi presented at the Aga Khan Award for Architecture in Dhaka, Bangladesh, in 1985, was an important contribution to ‘Architectural Transformations.’ Doshi’s (1985) essay defines the meaningful discussion which had to do with the role architecture played in the continuity of culture in regions undergoing rapid change.

The special focus of this study is centred on the historical developments and transformation of the religious architecture of the earliest built Hindi *Sanathani* temples in Durban, where the Hindi immigrants first established their places of worship. According to Doshi... “Architecture is fundamentally a social enterprise. The form it takes is a result of personal expression informed by history, culture, (and) human behaviour, and is the way in which it is appropriated by its users. Secondly, the degree to which it is imbibed with timeless and memorable presence” (Doshi, 1985).

This research examines the relationship between religious architecture and the Hindi social cultural group in contemporary times that sustains and nurtures this architecture. Traditional master craftsman created sustainable and ethical built religious Hindi temples and environments in Durban. The task now is to decipher the meanings hidden behind the transformation of built form, unmask its architecture and situate it in social space and time. This will help achieve the continuity and authenticity of the Durban Hindi religious groups in their contemporary urban multi-cultural settings. The temple architecture built form of the Hindi people in Durban is shaped by common shared values that give rise to a particular spatial organisation unique to their particular culture. This built form evolves through the needs of that particular culture and the constraints of the locality.

This chapter of the research will attempt to explore the temple architecture of the Hindi (Sanathani) people of Durban and the environment within which it exists. This process is necessary to evaluate the non-negotiable aspects of *Vastu Shastra* in temple architecture. Through definition of place, the identity of the particular cultural group, and regional appropriateness of the archetype, it produced a multi-cultural public realm of Durban. This research will examine the first two religious sites specific to the Hindi (Sanatani) religious groups: The Vishwaroop temple and Dharmashala (VTD), built in 1901, and the Durban Hindu temple (DHT), built in 1901. The current chapter will commence with the study and analysis of the VTD temple site in the northern region of the Durban metropolitan city, the area of Tongaat, formerly known as the Village of Victoria, which is said to be home to the largest Hindu population group outside of Durban central and Pietermaritzburg.

5.1.2 Approach to Case Study

Two case studies relevant to this study, namely the Vishwaroop temple and Dharmashala (VTD), and the Durban Hindu temple (DHT) were selected and reviewed. The researcher reviewed the case studies under the main themes which included:

- Historical settings and definition of place
- Cultural settings and regional context
- Hindu religious architecture appropriateness
- Critical regionalism
- *Vastu Shastra*

5.2 CASE STUDY ONE - VISHWAROOP TEMPLE AND DHARMASHALA (VTD)

5.2.1 Historical Settings and Definition of Place

The Vishwaroop temple and Dharmshala case study was chosen for its deep rooted Hindi culture and traditions, concretised through temple building and social development projects evidenced by the first *Nagara* style temple built in 1901. Secondly, from a social point of view each of the Hindu communities within the Village of Victoria, or Tongaat as it is known today, have their

own customs, their own social outlook, their own religious affiliations and their own cultural, spiritual and recreational pursuits. It is clearly evident that these interests are best served by the various built religious institutions that dot the landscape of Tongaat, in the form of contemporary Hindu temples of various architectural styles and through their representational symbolism. The Vishwaroop temple and Dharmshala is a visual landmark when approaching the town by road from the south or from the air when aircrafts attempt final approach to land at the newly constructed King Shaka International Airport. Finally the VTD was chosen for its uniqueness in demonstrating diversity through worship in separate temples dedicated to Lord Raam, Lord Shiva and Lord Vishnu, in his grotesque form of 'Jaganatha'.

The place and space sets the tone for a unique social cultural group, represented through built form that either enhances or causes decline through its further development and transformation of built architecture. The investigation will review the effect of cultural identity, religious meaning defined by the architecture and impact on tradition of the particular Sanathani Hindi cultural social group.

5.2.2 The Setting of the Case Study

The first group of 52 indentured Indians arrived in November 1860 to work on the sugar estates of James Renault Saunders, indicated on the map in Figure 63.

These pioneering settlers, dressed in meagre garments, brought with them something of great importance: their moral values, religion and culture, asserts Watson (1960).

Newly established communities began to build temples to promote the great Hindu heritage from the Indian Sub-continent.

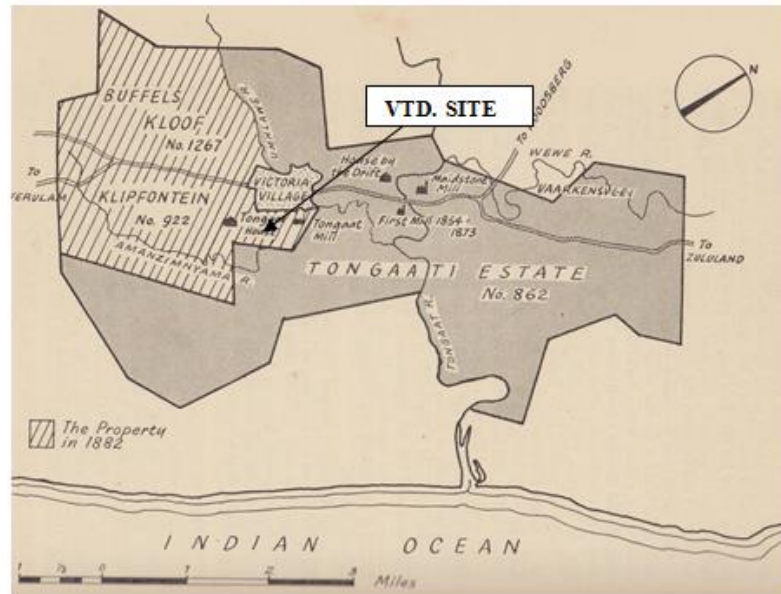


Figure: 63. Map of Tongaat Estate 1854-1882. The VTD site is located in Victoria Village, as it was known back in the 1900's.

Source: Watson (1960). Modified by researcher

5.2.3 Historical Setting and Definition of the VTD Temple

The realisation of the Vishwaroop temple and Dharmashala in the year 1903 was the endeavour of a group of men dedicated and committed to preserving their Hindu culture and their 'Indianess'. The land which is about 1 acre or 4048sqm in size and on which the temples and other ancillary structures were built was sponsored by Mr. Sookul, who was the son of Durson (who at the age of 23, arrived in Natal in August 1883, from the Namtpore Cholka village near Calcutta). Mr. Sookul took ownership of the property on 22 April 1903. He made the property available informally to the founder members of the VTD, for the construction of a temple as his personal social responsibility to the Hindi speaking Hindus residing in Village of Victoria, as it was known back in the early 1900's (Singh, 2005).

The simple unadorned *shikara* in stabilised earth plaster stands 23metres tall and is terminated with a simple dome (*amalakha*), placed onto an octagonal ring beam. Sculpture on the exterior has been kept to an absolute minimum, assert Mikula *et al.* (1982).



Figure: 65. Photograph image of the Juggernath Puri built in 1901.

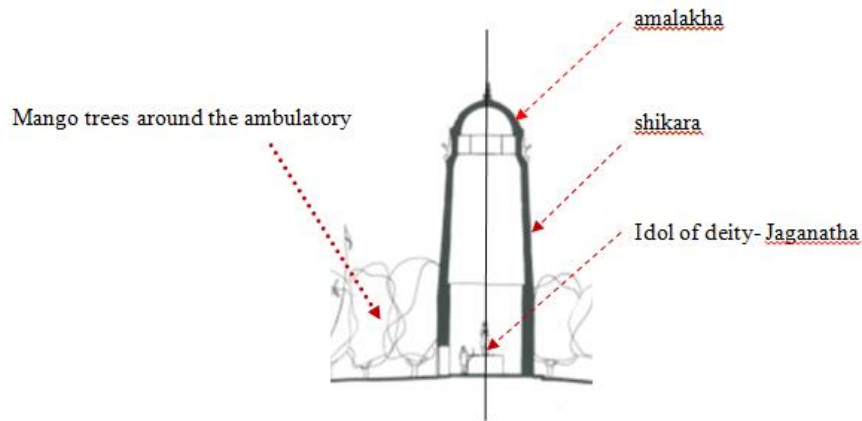
Source: Traditional Hindu temples of South Africa (Harber, Kearney and Mikula, 1982)

Four simple sculptural representations of spiritual gatekeepers, each symbolically keeping a look out to the north east, north-west, south west and south east directions are positioned at the base of the *amalakha*. Maharaj stated that a giant crystal is placed at the pinnacle of the aedicule, which is meant to energise the inside of the lofty *shikara* over the *Brahmasthan*, which symbolically links heaven and earth.

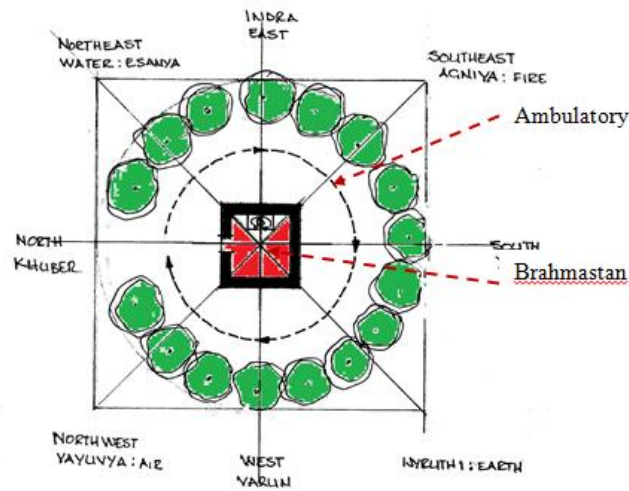


Figure: 66. The Lingaraja Jaganath Temple of Puri Orrisa, in India.

Source:<https://www.google.co.za/search?q=lingaraj+temple+of+odisha&rlz=1C1VFKB>



SECTION THROUGH JUGGERNATH PURI TEMPLE



PLAN OF TEMPLE

Figure: 68. Plan and section of brahma pada zone of divine energy at Juggernath Puri temple. Open circum-ambulatory edged by mango trees, creating a sense of nature and the devotee's personal experience of space and place.

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982). (Modified by researcher)

B. Raam Mandir – Built 1903-1910

The second temple in the precinct, and the first to be established in the VTD compound was the Raam Mandir, a product of the patrons of the Hindi (Sanatani) group of the Village of Victoria.

During the period 1903-1910, the Raam Mandir in Figure 69 and a small temporary wood and iron hall was built. The cubic *Brahmastan* was surmounted by an octagonal shaft and crowned with a simple flat dome. A graceful wood and iron veranda defined the external ambulatory. The small hall building was originally detached. The purpose of the hall was for regular *Sathsangh* (congregational prayer meeting), according to Harber, Kearney & Mikula (1982). The Raam Mandir was constructed by a team of artisans from India, but knowledge about them has become vague over time. Maharaj stated that a Hindu *Shilpi*, by the name Ramjee who was from Gujarath in India was reputed to be responsible for the construction of the Raam Mandir.



Figure: 69. Early 1900's photograph of Raam Mandir at the VTD, infused with regional influences such as the wood and iron verandah.

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).

The early plan and section of the Raam Mandir is illustrated in Figure 70. It was built from 1903-1910. Its distinct local style was interpreted through its graceful ambulatory constructed of timber and iron, and was typical of early Natal-Colonial veranda-style architecture of the time. Harber, Kearney & Mikula (1982) added that it displayed beautiful Victorian elegance and simplicity.

The strong Edwardian, Colonial and Islamic influence is prevalent in the early construction of the Raam Mandir and adjoining hall captured in the background. Details of the architect responsible for the design and realisation of the hall and Raam Mandir are vague.

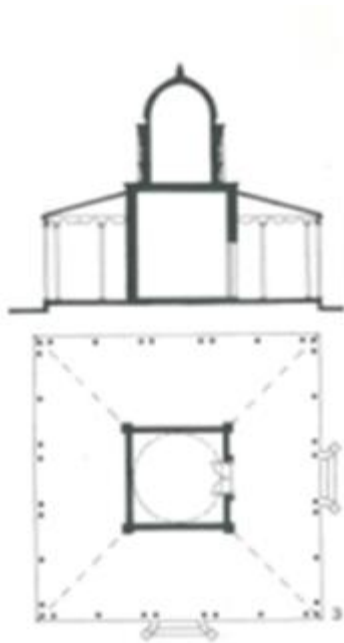


Figure: 70. Plan and section of the earliest Raam Mandir at the VTD, built 1903-1910.

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).

The subsequent remodelling of the Mandir coincided with the erection of the new temple dedicated to Lord Shiva and took place from 1935-1940. This further development of the temple compound may have become necessary to maintain its status as an icon of the growing Hindi religious cultural group's needs over time.

C. Shiva Mandir - Built 1935-1940

Historically, temples dedicated to Lord Shiva are common amongst followers of the Saivism cult and in the context of Durban these temples are favoured in *Dravidian* temple compounds.

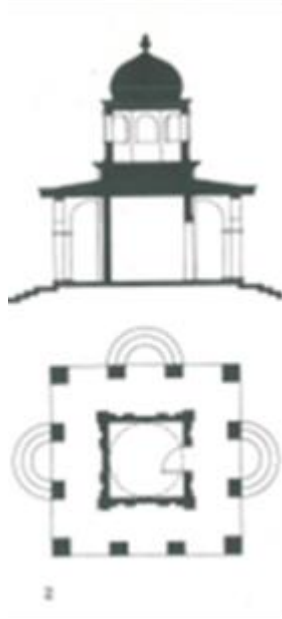


Figure: 71. The Shiva Mandir: Floor plan and section.

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).

The Shiva temple illustrated in Figure 71 was unusual to Hindi-speaking communities (Harber, Kearney & Mikula (1982). and borrows its expression from Islamic, Moghul and Edwardian architecture. Each of these temples within the compound has their own special charm and quality.

The composition of form of the Shiva temple expressed a contemporary modern form that does not readily identify it as a Hindu temple for the Sanatani Hindi patrons of the temple compound. The north Indian Hindi (Sanatani) Hindus of Durban were generally less traditional and more sophisticated in their outlook, and they built their temples with the aid of European architects or general contractors (Harber, Kearney & Mikula (1982).



Figure: 72. A 1982 photograph of the Shiva Mandir.

Source: Traditional Hindi temples of South Africa. (Harber, Kearney & Mikula,1982).

The appearance of the Shiva temple in Figure 72 borrows its aesthetics from the Victorian civic buildings and Islamic architecture influences being constructed at the time. Although classified *Nagara*-style, the temple aesthetics is more in line with the funerary architecture of the Soophie Muslims of Durban. The bronze and stone *murthis* installed in the *garbha griha* are the only signifiers of the *Nagara*-style traditions of Hindi and Gujerathi people of Durban.

The development of Hindu religious architecture in a region like Durban appears to be ‘broken’ from the mainstream development, according to traditional Hindu religious temple building practices, and is further polarised by western and Islamic influences.

According to Sthapati (2011), universal space is enclosed in a building by erecting four walls and a roof. At this point the building becomes a living organism, as per *Vastu Shastra* principles. A simple geometric square which manifests into spatial form may be meaningfully distinguished by its underlying design paradigm.

More importantly, it is worthwhile to first inspect the essence of the historical languages, to establish the points of departure of each building, then collectively of the new language. The temples are spread over the site depicted in Figure 73, and this site is considered extensive in terms of its regional ramifications, but nowhere as large in comparison to contemporary temple sites of the same period on the Indian sub-continent.



Figure: 73. Site layout in a suburban context.

Source: <https://www.google.co.za/maps/search/google+image+of+Vishwaroop+temple+tongaat/> (modified by researcher)

The three shrines are intertwined with functional spaces and landscape (hard and soft), and the site includes a large congregational hall named Gokhale Hall (Figure 74), for discourses and *sathsung*, as well as a school. The essence of unity of the Hindi social group brought about by a social space such as the hall can represent the sense people have of the place.

D. The Gokhale Hall – Built- 1912

During the period 1901-1912, the first wood and iron hall was built by Mr Kassie, who first arrived in Durban in 1886. Mr Kassie sponsored the materials, labour and transport. The increase

in demand to accommodate a larger group of devotees required change, which was made possible by its patrons. A new contemporary hall structure built with brick and plaster and with a lightweight sheeted roof replaced the old wood and iron structure. The severely utilitarian building, unadorned either through economy or a lack of resources, stood firm as a symbol of the legacy of its sponsors. The plastered walls painted in white acrylic were an attempt to identify with the Cape Dutch architecture style adopted by the Tongaat Sugar Group as an identity theme for all its architecture within the Village of Victoria. Visitors and locals adapted and became aware of its local regional identity.



Figure: 74. The Gokhale Hall built in 1912

Source: VTD souvenir brochure (2005)

The multi-purpose hall in Figure 74 was named the Gokhale Memorial Hall in honour of Mr. Gopal Krishna Gokhale, the president of the state of Benares and a member of the Imperial Legislative Council of the Government of India under the Viceroy. Arising from the Sathyagraha movement of Mr. M K Gandhi, Mr. Gokhale was sent to South Africa to investigate and report to the Indian Government on matters pertaining to the condition of people in Tongaat, which had a vast settlement of Indians, post 1860. The officials of the VTD and the community honoured him by naming the hall after him (VTD souvenir brochure, 2005).

E. Definition of Place Analysis of Gokhale Hall

Hindu cultural identity leans heavily on traditions and its built environment for social prominence, especially in places where Indian expatriates have taken up residence. From this point of view, the Gokhale Hall aesthetics lends itself to the norms of the Tongaat Village, namely Cape Dutch architecture character. Although the Gokhale Hall meets all the functional needs of the Hindu community in Tongaat, its link to the Raam Mandir remains ‘rather unfortunate’, according to Harber, Kearney & Mikula (1982). This large overbearing structure dwarfs the elegantly built Raam Mandir, which is positioned on the west end of the hall building, and this assembly results in Place-less-ness. The resultant religious implications to the Raam Mandir could be profound to the requirements stipulated in the *Vastu Shastras* and the *Vedas*.

F. Vastu Shastra Analysis

Vastu Shastra provides a set of criteria or guiding principles to be applied to sacred structures such as the Raam Mandir at the VTD. The main purpose of such a structure is to facilitate for the devotees an alignment with natural law. To create such an energy field, both the devotee and the temple structure need to resonate with positive energy vibrations, which are created by applying the pyramidal rule specific to *Vastu*. The height measured from the apex of the *shikara* of the Raam Mandir will determine the related positive energy vibrations of the temple.

5.2.4 Reflections on the Last Fifty Years

The Gokhale Hall attached to the Raam Mandir considered undesirable and of destroying the integrity of the Mandir has resulted from the functional needs of the congregation. Traditional language must be understood and synthesised with internal arrangements needed for modern life that meet contemporary functional demands. Borrowing from traditional regional vocabulary, such as *Dravidian* temple layouts, can result in the understanding of certain design intentions reflected in the Hindi Sanathani temple of VTD.

This type of infused hall (*maha mandapa* with *shikara*) plan layout is favoured in *Dravidian* temple models, thereby synthesising the two main regional traditions of Hindu temple architecture in a single complex. It is architecture of popular appeal appreciated by the lay people who recognise its Hindu cultural intentions and take pride in it.

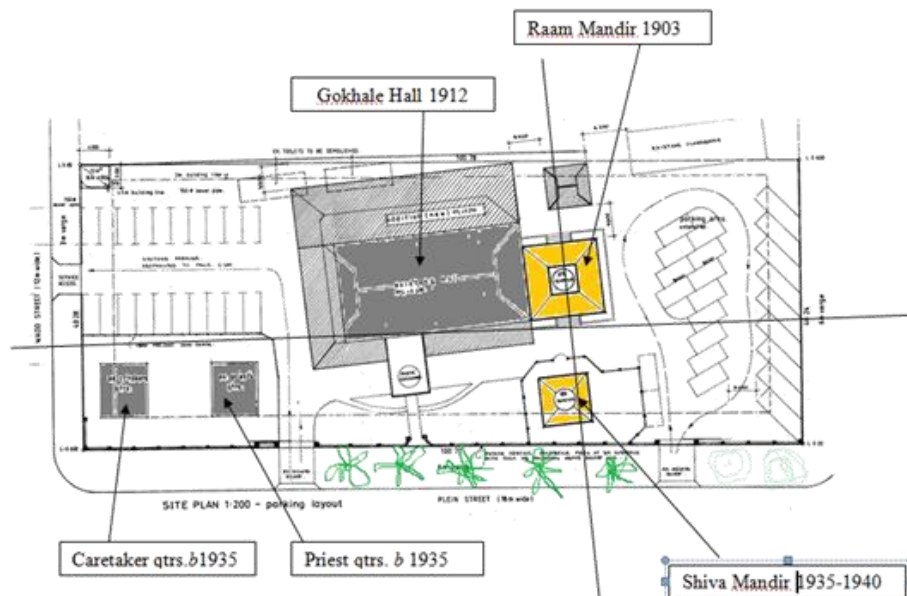


Figure: 75. The VTD site layout plan.

Source: Researcher, 2016.

Another fundamental criteria set out in the VTD compound is one of nurturing its culture and traditions, passed down from ‘father to son’ in an attempt to maintain traditional continuity through knowledge. A vernacular cultural school was established to circumvent the shortcomings of the Durban’s education system, which did not cater for Hindu languages in the schooling curricula. The hall was easily adapted into six classrooms though the use of folding screens, adding to the multiplicity of its uses for the promotion of Hindu social and cultural activities.

The property adjoining the temple to the east had been abandoned and the VTD used and maintained the land for its cultural activities; Diwali, Holy and Krishna janmastami. The school building was aligned with the street along the southern boundary and its layout formed a 'C' shaped plan configuration. Built in 1960, the school was a jointly funded effort of the VTD management and a 50 per cent government grant. (VTD souvenir brochure, 2005).



Figure: 76. Youth and elders gathered at the Vishwaroop temple to commemorate Raam Naumee
Source: Researcher, 2016.

Figure: 77. Devotees pray outside the Raam Mandir during the Raam Naumee festival. The pillared veranda of the Gokhale hall is in the background, b 2005.
Source: Researcher, 2016.

The architectural language and character of the school reflects those expected of institutional buildings of the time; one of low maintenance and colonial influence. Red face brick exteriors with clay roof tiles on timber roof trusses make up the external aesthetics of the school. Through the endeavour and perseverance of a former board member of the VTD trust, Mr. R.S. Maharaj, a new ablution block for the school was built in 1994. It separates the sports field from the school courtyard. The sports field is on the north east end of the site. The building program and improvements continue unabated according to the gatekeeper's initiatives, both past and present.

5.2.5 Construction, Materials and Climatic Response - Critical Regionalism Point of View

Construction is the process whereby the pieces are put together to form the complete three dimensional experience of the creative work of the architecture.

This can be achieved through various means and accepted processes of arriving at the final outcome. Generally, such actions become regional in terms of the authenticity of the manner in which an architectural work of art is put together.

There are three modes of architectural production. According to Steil (1988) they are: imitation, copy and pastiche. The first is truly creative. Imitation, according to Steil (1988), is creating something new, which then becomes possible by understanding the underlying principles of precedents. The design objectives and the architectonic and technological mechanisms for achieving them need to be fully understood as architecture that the society was familiar with and wanted to hang on to, a style with elements that provided psychological security as it was an expression of the society's identity.

A copy, in contrast, is the replication or reproduction of a precedent. With this in mind, the notion of copy cannot be overruled when looking at the architectural product of the Juggernath Puri temple in Tongaat, seen in Figure 80. Pundit Sris Kishan Maharaj's intention was clear from the outset; to replicate from memory the temple he was familiar with, the Orissan *Lingaraja* model of the Jaganath temple in Puri. The challenge in this attempt was the regional restraint of climate, materials and technology for its realisation. Pundit Maharaj assumingly lacked the resources of technology and skilled artisans to achieve the final product. From the material aspect the local context made available the natural resources of river boulders and slate, soft rock that could be easily manipulated or shaped for use in construction. The final outcome of the 'copy' Juggernath Puri temple remained uniquely regional, through the short comings of originality of materials, technology and resource economy.

Pastiche is a reproduction of a number of elements, compositional or stylistic, resulting in a product that is a 'partial or imperfect' copy of a precedent. In the instance of the Raam Mandir, seen in Figure 79, and the Shiva Mandir (Figure 78) of the VTD complex, Harber, Kearney & Mikula (1982) discussed influences and languages borrowed from the Edwardian, Mughal and Islamic architecture of contemporary times, which were incorporated in the designs. The impression given by the appearance of these temples may have been one of a lacking design mechanism, however it still required great skill through craftsmanship.

The creation of its symbols, especially the sculpturing and creation of ‘*murthis*’ that adorn the exteriors, niches and roof tops, required recognition of meaning and conveyed religious significance to its observer.

Construction is largely determined by the choice of material and the final desired aesthetic of a design. This can be further understood as the variance in time, resources and quality.

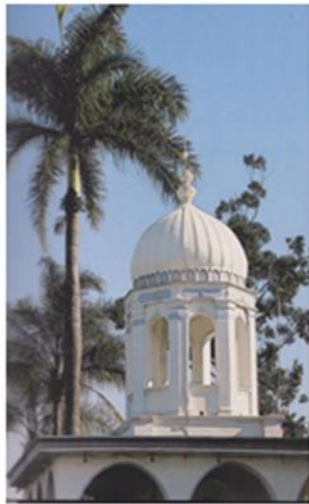


Figure: 78 b 1935



Figure: 79 b 1910



Figure:80 b 1901

Figure: 78. The Shiva Mandir (built 1935)

Figure: 79. Raam Mandir (built 1910)

Figure: 80. The Juggernath Puri temple (built 1901)

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982)

The Shiva Mandir in figure 78 displays strong islamic influences compounded by the aesthetics of a masjid, with the shafted tower resembling a minaret.

Raam Mandir in figure 79 displays stronger Edwardian features that include pilasters, corbeling and a semi circular ribbed dome.

The Juggernath Puri temple in figure 80 is an authentic local creation of a Nagara style replica of the Orissan Lingaraja temple model of Jaganath in Puri.

These contemporary Hindu temples built post industrial revolution were built using plastered stock clay bricks and reinforced concrete, as is the case with the Raam and Shiva Mandir, adopting the colonial techniques and materials readily available on demand from European manufacturers who set up factories for the production of stock materials in Durban.

This meant quicker construction time, and less and relatively cheaper labour requiring only a skilled mastercraftsman to oversee day to day construction processes. The architect's input would be minimal with fewer site visits, requiring only properly executed working drawings. The Juggernath Puri temple is the only temple in the VTD compound that employed strictly regional, locally obtained materials and traditional *Shilpaic* techniques for its realisation. From a *Vastu Shastra* point of view the use of ferrous metals is prohibited, largely for the purpose of eliminating the magnetic field effect in and around the *Vastu* structure. Traditionally natural materials are thus recommended.

Durban's climate of hot and humid subtropical conditions require good ventilation and air movement in the built form, more specifically those occupied by humans. Materials employed in the construction should have reduced heat conductivity and often have to be properly treated against the impact of natural weather forces of wind, rain and the sun. The architecture in such climatic regions must adapt and respond to the thermal comfort levels which invariably impact on human comfort. An example of climatic response in the VTD temple architecture is its open ambulatory, conforming to the local regional style of the Natal veranda architecture. The Juggernath Puri temple adopts a naturalistic approach in the traditional manner of an open to sky circum-ambulatory of the *Bhumija* style mandir. From a local regional point of view, the mango trees planted in a circular formation around the ambulation space provide shade to the devotees in extreme sunlight conditions.

The initial Gokhale Hall viewed in Figure 81 was built 1912 and constructed with stock plaster brick as the primary construction material. Mild steel stock windows positioned facing east and west completed the exterior envelope enclosure. The placement of windows facing east and west neglects the response to climate, orientation and the influence of solar penetration on human comfort conditions within the hall (*maha-mandap*).

A performance stage was positioned to the north, while the south end adjoins the Raam Mandir. An entrance doorway aligned with the central axis provides the link from the hall to the mandir. During *sathsang* devotees in the hall orientate themselves facing south. During performances and discourses they face northwards, facing the stage.

This is an unusual arrangement. This layout plan is peculiar to the *Dravida* style temples of Durban, such as the Shree Vaithianatha Easperar Alayam (SVEA) in Umgeni Road in Figure 82.

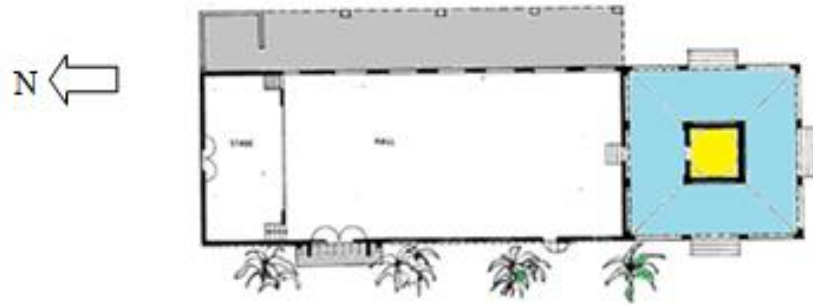


Figure: 81. The Gokhale Hall plan as it was in 1995, adjoining the Raam Mandir on the right..

Source: Researcher, 2015.

The striking differences are the position of the entrance porch (*ardh-mandap*), and the *brahmastan/garbhagriha/sanctum* adjoins the *mandap*. In the *Dravida* temple ambulation takes place around the entire temple complex. At Gokhale Hall the entrance porch is to the west, and upon entering the observer will be facing east, with the visual focus terminating on the unadorned opposite wall.

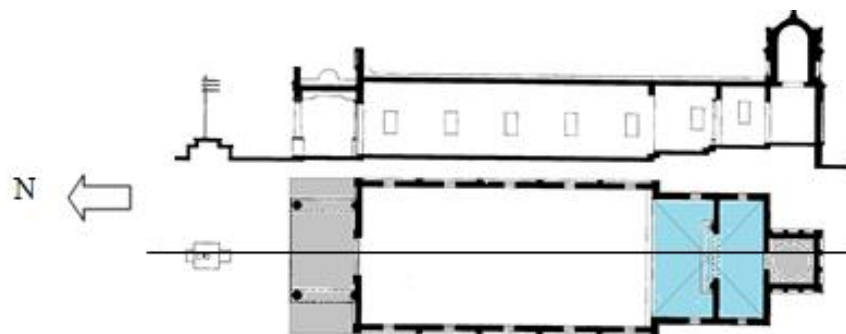


Figure: 82. The Shree Vaithianava Easperar Alayam plan and longitudinal section.

Source: Traditional Hindu Temples in South Africa (Harber, Kearney & Mikula, 1982.), modified by researcher, 2015.

The cardinal axes are acknowledged through a cross axial spatial arrangement, with emphasis on the north-south axis. This strong north-south axis also applies to the SVEA in Umgeni Road.

5.2.6 Architecture Analysis and Religious Meaning

Key theoretical issues relevant to the problem statement discussed earlier must be interrogated through the design analysis and religious appropriate architectural meaning in the present time. The concerns raised were those of cultural and religious definition of a place: How well does it signify the cultural group it was intended for? From a traditional point, specific religious groups and their social culture depend on their architectural built forms to concretise their presence amongst others in a multicultural, multifaceted social mix of people in region such as Durban, where Hindus remain a minority group.

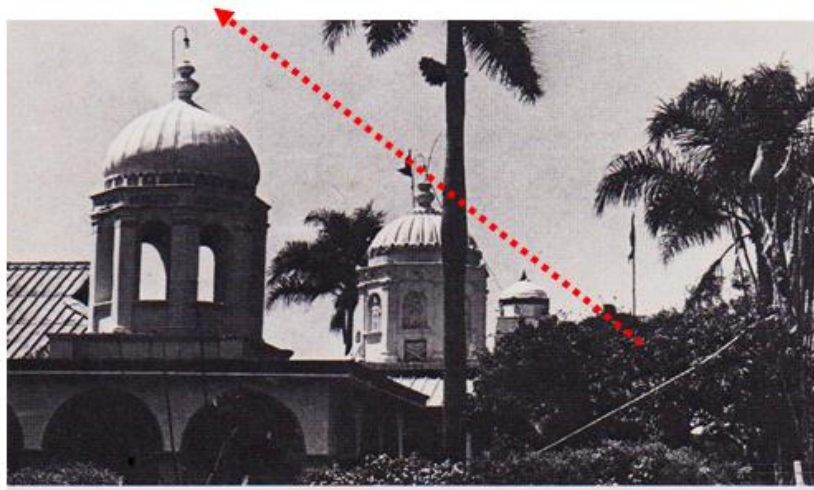


Figure: 83. A visual axial alignment of the three temples creates a false sense of perspective as viewed from the street. The smallest Shiva temple appears to be the focal and largest of the three temples and the tallest Juggernath Puri Temple appears least significant from this angle.

Source: Traditional Hindu Temples of South Africa. (Harber, Kearney & Mikula 1982.)

The Hindus of Durban have rooted themselves amidst Christians, Jews, Muslims and various other native religious groups, all requiring an architectural visual sense of presence in a multicultural society. The Hindu social group of Durban often identify with the Hindu people of the Indian Sub-continent, seeking cultural tradition and identity. From a historic point of view, architecture precedents from a classical and contemporary time and place such as the Indian Sub-continent are analysed.

The physical presence of the Hindus of Durban remains local but their religious beliefs and spirit remains Indian. Design of Hindu religious spaces requires reference to canonical texts such as the *Rig Vedas*, *Puranas* and *Vastu Shastras*. Evaluation of traditional Hindu religious principles is important in secular or temple architecture designs, which are analysed to understand religious appropriateness to the Hindi cultural group it is intended for.

A. The Principle Architectural Elements

The principle architectural elements adopted in the design of a contemporary temple, according to the requirements of a classical temple, are as follows:

- The geometry of the VPM grid must be correct, and must be correctly orientated and proportioned according to the design plan.
- A raised plinth.
- A centralised *brahmastan* with a vertical axis.
- A gradual projection of a mass from the base, resulting in a superstructure (*shikara*) and culminating in an apex.
- A predominant longitudinal visual axis.
- A circum-ambulatory (*pradakshinapatha*) around the *brahmastan*.

Entry into the *Brahmasthan* is restricted to the initiated priestly caste only, and is accessed through the north facing entrance doorway as this allows direct homage to the ancestors - south facing (*Yama*). The presiding deity on a raised stone pediment, is to the left upon entering, requiring the devotee to turn 90 degrees for unison and to face the cardinal direction – east (*Indra*). The rear of the devotee will then obviously be west (*varun*) facing. Pundit Sri Kishan Maharaj's implementation of *Vastu Shastra* in contemporary design embodies sacredness and concrete symbolism, attributes of the Sanatani Hindi religious heritage and meaning.

The *lingaraja* is the principle model for Orissan temples, of which the later Jagganatha temple Puri is the model concept upon which the Juggernath Puri temple in Tongaat is composed. The *Bhumija shikara* is the primary structural form, growing out of the ground and expressed vertically, gradually tapering towards the top. Its bareness may seem to be a matter of economy.

The *amalakha* and the *kalash* are less ornate than on its Orissan counterpart, and this can be attributed to the lack of resources and technology in the newly established Hindi cultural society of Tongaat.

Other *Vastu Shastra* considerations that are fundamental are:

- The orientation of the structure with reference to the cardinal directions.
- The shape of the site. Unfortunately this was determined by the physical survey boundaries demarcated by the urban planners of the colonial past.
- The orientation of the site. Although it originally complied with *Vastu* principles, this was later destroyed by the unfortunate urban sprawl of primarily residential, free-standing dwellings of the middle and low income working class community.
- The general slope of the land, which slopes in a north easterly direction and has a river flowing from west to east. This was carefully selected by Sri Kishan Maharaj.
- The adjoining topography consisted of fertile, almost flat farming land with sparse indigenous vegetation. The land was subjected to occasional flooding during the heavy rainfall season. The outstanding natural feature nearby remains the river, where rituals take place and it provides natural settings for leisure visits by the community.
- The condition of the soil. Its quality provided ideal conditions for market gardening, where people grew their own crops to sustain themselves and the temple's feeding scheme for the poor.
- The impact of the ground water conditions was minimal as the silt deposits were self-compacting and ideal to support the load of the *Vastu* structure constructed upon it.
- Man-made elements on or nearby the *Vastu* site were non-existent at inception with, only well landscaped gardens gradually losing their appeal over time, and perpetuated by rapid urbanisation and further subdivision of individual sites (due to increased land values and demand)
- And lastly, a process of space and time.

Today the temple compound is bounded by a busy street to the west, minor residential streets to the north and south boundaries, and some residential subdivisions to the east occupied by relatives of the old Pundit Sri Kishan Maharaj.

B. Analysis of Form

According to Hindu scriptures, the architect or '*Sthapati*' must be spiritually knowledgeable or of a priestly caste. Pundit Sri Kishan Maharaj was responsible for the design and execution of building of the Juggernath Puri temple. The design intention was to express *Vastu Shastra* principles, yet remain relevant through tradition in its simplest form. Hinduism teaches that spiritual wealth is greater than material wealth. With this philosophy in mind, the Juggernath Puri Temple (Fig.94.) stands unashameably proud and visually communicates spirituality, coated in white against the clear blue sky, thus steeped in symbolism.

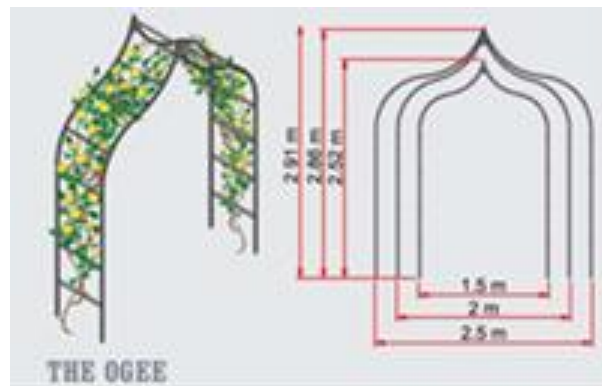


Figure: 84.The Ogee arch.

Source: <http://www.harrodhorticultural.com/ogee-garden-arch-pid8484.html>

C. Raam Mandir

Raam Mandir was dedicated to Lord Raam, the first reincarnation of Lord Vishnu. The first of the two temples built on a property bought by the local Hindu community, and the second temple within the temple precinct, it was a prototype for latter temples in Durban. The temple has a cubic *cella* (*brahmastan*), surmounted by an octagonal shaft (*shikara*) in Figure 86 and crowned by a simple hemispherical dome (*amalakha*). A graceful wood and iron veranda once defined the external ambulatory at its inception but was subsequently replaced with an 'unfortunate facelift', as Harber, Kearney and Mikula (1982) referred to it in their description of the changes taking place to contemporary religious architecture in Durban at that time. The replacement aesthetic of the ambulatory consisted of brick plastered pillars, ceramic tiled in a staggered soldier bond and supporting a flattened type of ogee arch, as in Figure 84.

The aesthetic of the 1970's built brutalist style architecture of the Raam Mandir ambulatory depicted heavy construction, in Figure 85 reflected the aesthetic flavour of the temple builders of that time. Architecture aesthetics thought to be good, chosen by the people when they were given a chance to decide for themselves.



Figure: 85. A sketch of the 1970's brutalist design aesthetic of the Raam Mandir.

Source: Researcher's own, 2015.



Figure: 86. A photograph of the 1970's remodelled Raam Mandir at the VTD.

Source: VTD souvenir brochure (2005)

Much work in Hindu temples in Durban continue unabated within the traditional mode of architecture. To this end *Sthapatis* continue to research the *Shastras* and still seek the broad acceptance of the science in architectural design.

Temple buildings presently constructed appear to be resolutely antimodern. One of the problems was to fit the *Shastras* in with a new building aesthetic, respecting the dignity of the principles in a post-modern situation. Attitudinal support was required from the patrons of the VTD, to accept that the traditional ways of temple building can coexist in post-modern times, and to accept post-modern ways of building and materials to realise a design. Such was the case with the remodelling of the Raam Mandir ambulatory and aesthetics in Figure 87. Its post-modern expression is a symbol of adaptation to and relevance in contemporary times.

Despite its most recent ambulatory aesthetics the contemporary Raam Mandir gets blurred in it representing a dilution of different timeline construction and transformation of forms. There is no loss of the contemporary form of the original built Raam Mandir its transformation process.



Figure: 87. The post-modern aesthetics of the Raam Mandir, 2005.

Source: Photograph by researcher, 2015.

The lotus flower capital, shaft and base reflect the ethos of Indian ideology and traditional symbolism and are fabricated in high quality stainless steel for the sake of durability and its aesthetic quality. It is compliant with *vastu shastra* requirements pertaining to the use of non-ferrous metals. The stainless steel modular segmented arches and support on the columns adds to the aesthetic quality. The roof over the ambulatory is powder coated aluminium sheeting and was chosen for its durability. It is an ideal material for Durban's climate which is sub-tropical; hot with a high humidity factor. Though the temple was remodelled at various stages in time, the pyramidal roof style prevails.

The *brahmastan* and *shikara* remain largely untouched, except for a fresh coat of paint intended to tone the garish appearance, achieved through the use of bright colours and ‘*togt*’ labour, as it is known in Durban.

An unfortunate adhoc metal shelter is attached to the Raam Mandir and linked over the *yajna shala* to the Shiva Mandir, pictured in Figure 88. This obtrusive structure causes a decline in the aesthetics of both of the temples. Invasive as it is, it was the product of a patron sponsor who had an engineering background and opted to make a material contribution to the VTD community. It was conceived as a structure of need, to protect devotees offering *dharshan* to the presiding deities at both temples. Its realisation offers very little relief in terms of comfort and protection from the elements of wind, sun and rain.



Figure: 88. The Shiva Mandir to the left in the photograph, linked to the Raam Mandir through the inclusion of the unfortunate adhoc metal structure over the *yajna shala*. The ardh mandap to the Gokhale hall is viewed in the distance, when viewed by the observer from the south.

Source: Photograph by researcher, 2015.

The height to width ratio and its undesirability renders the structure unnecessary and invasive. The designated *yajna shala* space located below the structure in Figure 88 is located directly in between the Raam and Shiva Mandirs and evolved out of a need for space for fire obilation. This research revealed that although the bulk of the devotees at the VTD acknowledge the goodwill and generosity of the patron sponsor of the structure, they consider it as a shelter that

offers very little relief during inclement weather. Ganapathi Sthapati states that from a *Vastu* point of view, a metallic element added to a *Vastu* structure causes imbalance in the harmony of the energy fields within and around the temples, causing a decline to its spiritual aura.

D. Shiva Mandir

The religious organisation of the VTD, like many others, continues to sponsor new work and by their very nature they tend to be conservative, favouring traditional Hindu temple forms in appearance but through the resultant outcomes, a new image is created. Such is the case of the smaller Shiva Mandir adjacent to the Raam Mandir, which remains unchanged from inception in Figure 89.



Figure: 89. Photograph of the Shiva Mandir.

Source: Photograph by researcher, 2015

However upon closer inspection and analysis of form, peculiarities specific to a language and style are revealed. Strongly influenced by Edwardian and Islamic architecture, the temple was built by the benevolent Kassie and Bala families, who contributed their skills and labour, according to the VTD brochure (2005).

The Islamic dome rests on a pierced shaft, which is surmounted on a roof slab, and which is supported onto the cubic cella (*brahmastan*) and arcade at the outer edge of the ambulatory. The octagonal shaft is completed by an ogee arch to each opening and the space cannot be accessed from below through conventional means. In contrast to the traditional *Nagara* style temples of north India, the open tower above the *brahmastan* is reminiscent of an Islamic minaret from whose balconies the Muezzin summons Islamic worshippers to prayer. The transcendal link of earth via the *brahmastan* to the universe is hence lost through the hybridity of the *shikara* of the Shiva Mandir at the VTD.

This architectural feature has minimal spiritual significance according to Hindu philosophy and remains an abstract decoration, ‘clearly borrowed from the public architecture of the period in Durban’ stated Harber, Kearney & Mikula, 1982, p,96.

The heavy construction in plaster stock brick and reinforced concrete captured the imagination of its builders but in many ways does not grow out of Hindu traditions and response to regional climatic conditions of Durban. Protection from the elements is realised but is not entirely suitable for the subtropical climate and could be better achieved through the use of low conductive, lightweight materials. While this building does not draw specifically on traditional north Indian *Nagara* style patterns for its symbolism, its meaning is readily understood by the locals and visitors to the VTD. The Shiva Mandir is a one-off architectural statement. In contrast, across the Durban region there are various Islamic secular buildings that are similar in appearance to the Shiva temple at the VTD.

E. The Gokhale Hall

Since 1912, the Gokhale hall adjoining the Raam Mandir served the needs of the Hindi devotees, providing shelter from the elements for their daily and spiritual needs. The hall continued to be transformed over time to accommodate its growing number of patrons. The Kassie and Bala brothers contributed as their social responsibility to the hall’s expansion program, making additions to its length and width to cater for the spatial needs. The background against which the architecture can be identified is ‘utilitarian’, an architecture which is less meaningful and can be mass produced. The early hall construction continued in a simplified modernist format.

This building was built much in the same manner as local trends of that period and was comparable with other buildings for similar purposes of congregation. The aesthetics looked much like the others, only grabbing attention through its individuality of being part of the religious compound at the VTD.

1	<i>RaamMandir (TEMPLE)</i>
2	<i>Existing 1960's Hall</i>
3	<i>Hall extension.</i>
4	<i>Multi purpose/ dining hall</i>
5	<i>Entrance porch and veranda</i>
6	<i>Administration & Services</i>

Table 3. Accommodation schedule of Gokhale Hall in 1998, explaining Figure 90.

Source: Researcher's own (2015)



Figure: 90. Spatial layout plan of the Gokhale Hall in 1998.

Source: Researcher's own (2015)

Further expansion and upgrades to the hall in Figure 90, and service facilities undertaken in the period of 1998 to 2005, are distinguished by strong intellectual ideas drawn from the past in the organisation of spaces and in terms of symbolic aesthetics.

The expansion and upgrades dealt with spatial plans however, rather than focusing on the facades in this well-executed architectural work which embraces the religious traditional principles of progression and of spatial experience.



Figure: 91. North-west elevation of the Gokhale Hall street facing façade attached is the Raam Mandir

Source: Researcher's own, (1998)

The current architecture represents an effort to break the mould of severe utilitarianism by including elements and aesthetics specifically recognised by locals as symbols of the Hindu culture.



Figure: 92. North-east elevation of Gokhale hall, built 1998

Source: Researcher's own, (1998)

The arcuated deep veranda incorporates a *chaittri* styled dominating *ardh mandap* columned portico, adding to the previous builders referents meant to enhance the prestige of the Raam Mandir of the Hindi VTD community.

The architecture can be aptly defined as the ‘modern Hindu vernacular’, which acts as the symbol of status of the Hindi people, seeking an identity which is uniquely Hindu in a region imbued by a multicultural society.

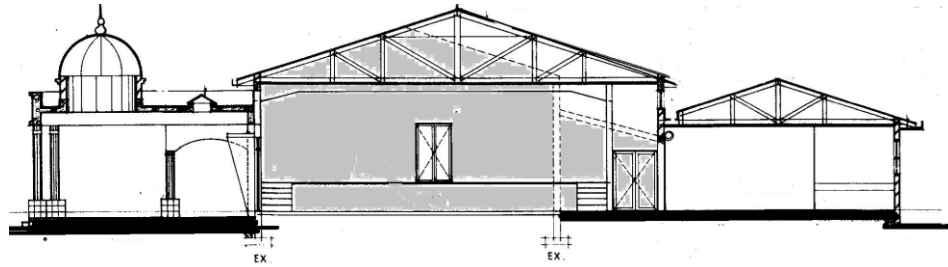


Figure: 93. Cross section through Gokhale hall- ardh mandap to the left and hall extension to the right
Source: Researcher's own, (1998)



Figure: 94. Showing floor plan, images, elevations and sections of the Gokhale hall - 1998.
Source: <https://www.google.co.za/search?q=google+image+of+Vishwaroop+temple+tonga&rlz> ; modified by Author, (2016)

F. Urban Context and Cultural Setting

The Village of Victoria or Tongaat as a repository of Hindu culture was neither simply a settlement of indentured labourers nor a completely self-contained unit. Rather, it is integrated at different levels with the social systems of the greater Durban region. Traditionally, Hindu villages in India are oriented north-south, but the village of Tongaat evolved out of the British colonial ideologies of linear development along arterial routes linking colonial administrative districts. Other deviations from the pattern of traditional Hindu villages resulted due to topography, climate and natural phenomena like rivers, mountains and physical factors that contribute to the establishment of societies.

Tongaats residential settlements and urban evolution was as a result of determinants prescribed by the planners at its inception. The realisation of the VTD complex in its present locality can be attributed to the pundit Sri Kishan Maharaj taking up residence in Plane Street and his initiative in the building of the first Juggernath Puri Temple (1901) on his private property. This iconic structure in true north Indian *Nagara* temple style can be seen as a catalyst for later development at the VTD.

Early Hindu temples of Tongaat resulted through socially segregated communities, through caste, language and occupation. Pundit Sri Kishan Maharaj, a *Brahmin* considered to be at the apex of the caste pyramid, occupied the prime location in the village next to the temple, whereas other Hindi speaking Sanatani Hindus (Kshathris, Ahirs and Sonars) were located on the outskirts of the epicentre of the Juggernath Puri Temple, thus behaviourally and symbolically expressing their social distance from the temple and other social groups; such as Tamils, Telegus and Gujerathis who created their own temples and places of social gathering. On the outskirts too, fields of cane would provide the agricultural base for Tongaat and temples to family deities, such as the Ram Mandir and Shiva Mandir, were later developed at the VTD. Natural features and sacred trees formed part of the village geography, providing the ideal location and setting for the VTD, considered to be a *Vastu* structure built in accordance with the *vedas*, Hindu canonical text.

5.2.7 Building Analysis

This section discusses the function and the religious meaning of the architecture at the VTD. The disposition of spaces, with regards to ancillary functional aspects that are required to support the everyday activities of the visitor and worshipper at the three temples, each dedicated to Lord Juggernath, Raam and Lord Shiva respectively are also discussed. It must be noted that worship is excluded at the Juggernath Puri temple due to it being on a site belonging to the Maharaj Family Trust, and it is yet to be consolidated to the VTD site.

A. Analysis of Function

The disposition of the functional buildings are in response to the expansive flat site on which the only restrictions imposed on development are through controls put into place by the city planners.

The multi-purpose Gokhale Hall is linked to the dining hall through the use of roller shutters, allowing greater flexibility of use of both interlinking spaces. Generous administration offices to the north-east end include a board room and a change room to facilitate the performances that take place on the stage. To the north-west is the *ardh-mandhap*, or entrance foyer. This generous space is in keeping with Hindu traditions, namely as a place of repose and casual meeting of guests on arrival, before entering into the *maha-mandhap* (main hall/ auditorium). The deep shaded north-west veranda which is street facing, doubles up as shelter and a spill out of guest/ worshippers at large gatherings, during auspicious prayer days and festivities.

Climatic response

All the new facilities at the temple are well ventilated and include generous natural lighting, appropriate to the hot and humid climatic conditions of Durban. Strategically positioned double doors serve as a means, both for the safe evacuation of people from the space and to provide added air circulation and ventilation when kept open. The functional spaces do not rely on mechanical ventilation, hence the exclusion of all means of mechanical ventilation. Traditionally temple settings are a blend of built form in natural settings. A strong link to nature is a principle according to Vastu Shastra.

B. Analysis of Religious Meaning

Firstly, it is expected that the architecture of the VTD is compliant with the requirements as per *Vastu Shastra*, discussed in Chapter 3.7 of this research. Generally, all sacred architecture of the Hindu religion in Durban is expected to be in compliance with the traditional purist architectural terms of the symbolic aesthetic and provide a link between man and God. Symbolism permeates into every aspect of the design process.

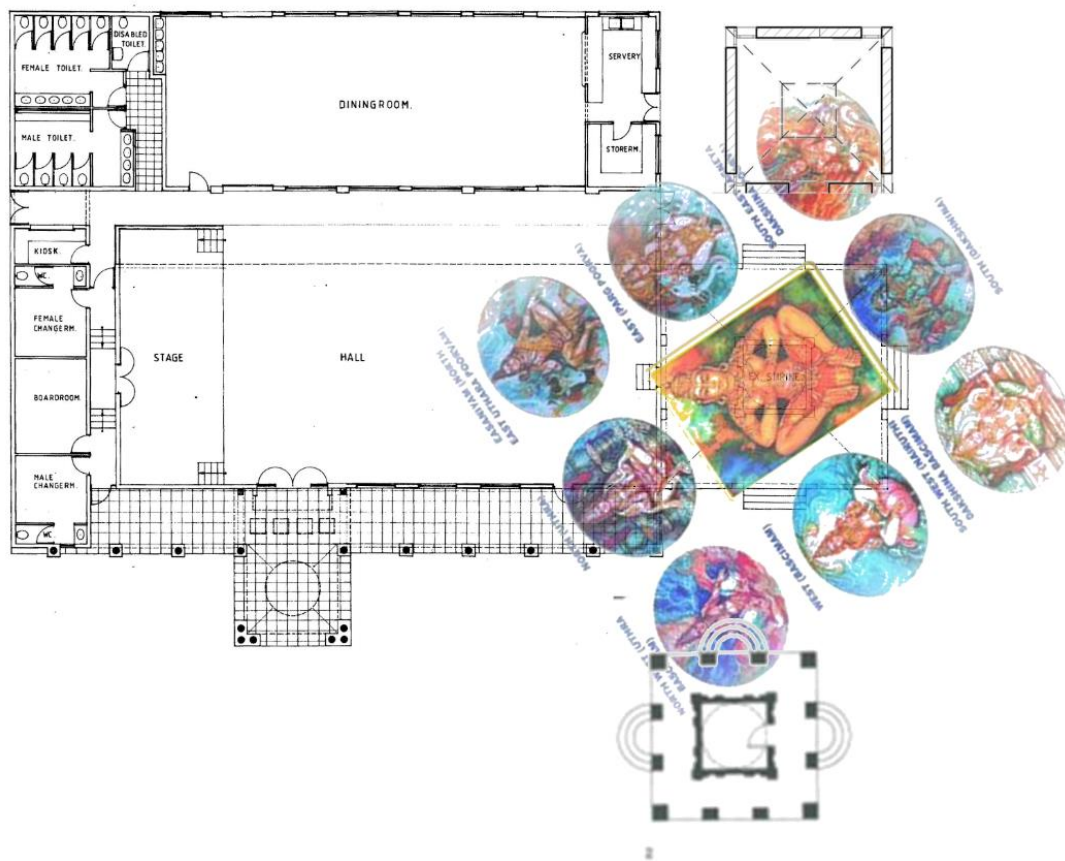


Figure: 95. The bramhastan mandala plan of the Raam and Shiva Mandirs, at the VTD.

Source: [https://www.google.co.za/search?q=brahmasthan+vastu&sa=X&rlz;](https://www.google.co.za/search?q=brahmasthan+vastu&sa=X&rlz; adapted by researcher, (2016)) adapted by researcher, (2016)

The plan of the Raam Mandir and Shiva Mandir follow the basic *bramhastan* mandala plan of nine equal squares, with the presiding deity occupying the center square (Fig.95). Of all the forms created by nature, the square is perfect geometrically and spiritually.

The temple plan follows the traditional guidance of the mandala planning principles, which embody cosmic guidance and symmetry. Through the cause and effect of time, various changes to the ambulatory and aesthetics were undertaken by its patrons. Door position and orientation are fundamental to temple design. At the VTD the alignment is north east and south west. The north-east is considered to be the Gateway to the Gods and is the source of positive cosmic energy. The direction is ruled by the planet Jupiter, with the accompanying attributes of meditation and spiritual wisdom. The Hindu deity Ishana, God of purity, is associated with this direction.

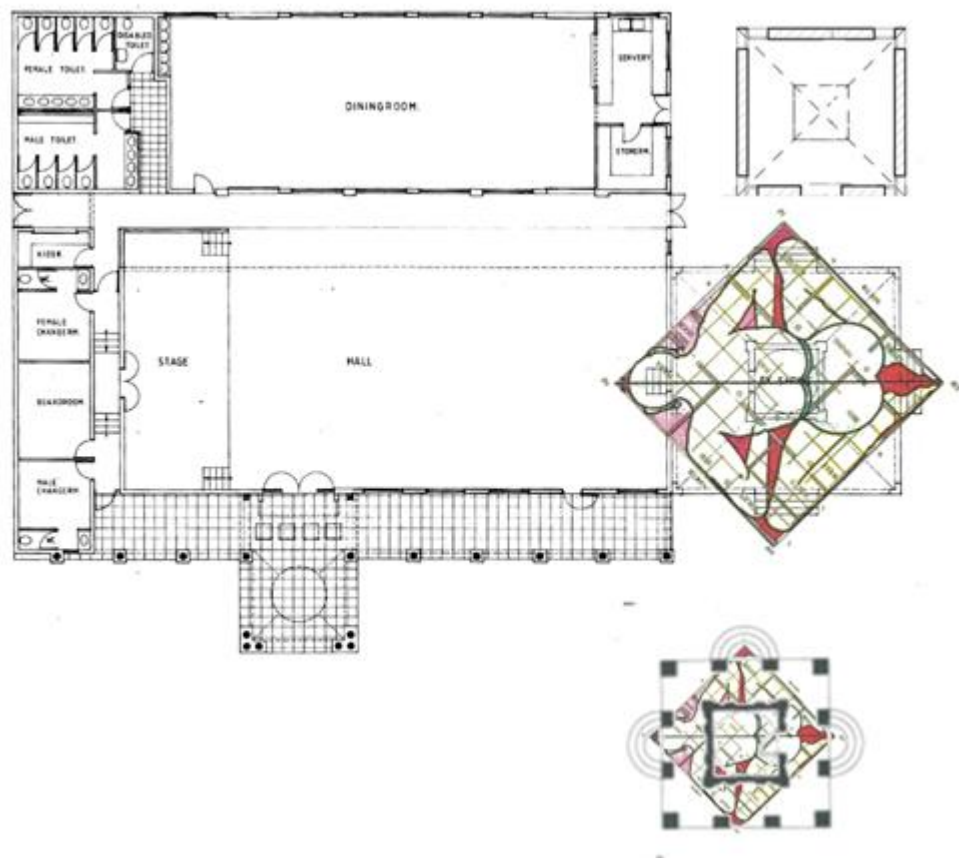


Figure: 96. The Raam Mandir adjacent to the Shiva Mandir on the same site is unusual and unique in the Durban context.

Source: https://www.google.co.za/search?q=brahmasthan+vastu&sa=X&rlz; dapted by researcher (2016)

The Shiva Mandir on the same site adds to the accommodation of every denomination of deity worshipped by all Hindus in Durban.

The concept of Shivaism and Vaishnavism as separate spiritual groupings amongst the Hindus in Durban are in the past, as all Hindus desire to be grouped as a single unit of *Sarvajanik*, seeking a single objective of worship or ‘oneness’. The Hindus of Durban come together in unison to worship all deities within the temple compound. Much of the VTD’s architecture follows self-centred philosophies in which the gatekeepers of this organisation strive to express themselves and the views of vocal patrons, in a quest for self- recognition of achievements during their terms of office. The architecture and improvements of the VTD post 2000 sought the guidance this researcher, who provided a variety of explorations on how to deal with the temple’s needs and represent them in built form. The co-existence of the two temples in close proximity to each other, together with the Gokhale Hall, enriches the composition of forms and layout, and much of the total body of the buildings of the VTD are unified by the consideration of amalgamating the past with the present. The architecture of the VTD is an amalgam of procedural and visual outcomes.

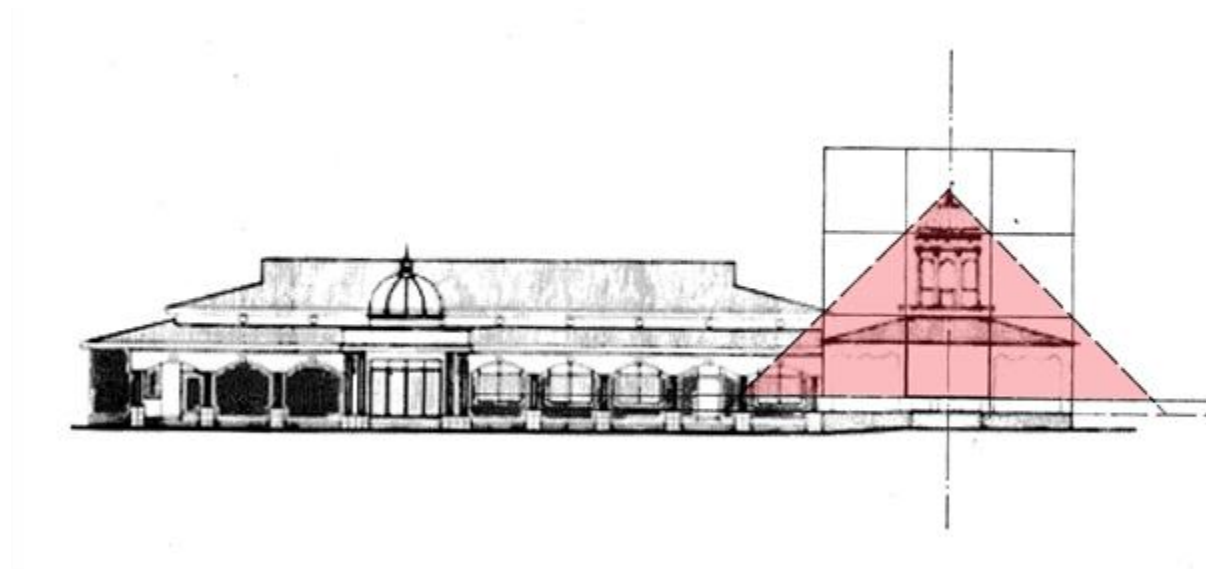


Figure: 97. The pyramidal energy dynamics effect of Raam Mandir at VTD.

Source: Researcher’s own, adapted (2016)

The solar flux and the geomagnetic energy flux are the two energy sources dealt with in *vastu shastra*. The flows are controlled by proper alignment and directions. The south-west, south and west are the directions where cosmic energy is manifested excessively.

The Raam Mandir on the south-west zone (viewed in Figure 97) consists of the epicentre of the energy balance, which is the focal point of the site and is considered the original manifest of cosmic energies at the VTD.

Positive energy vibrations are created by applying the pyramidal rule specifically according to *vastu shastra*. The height of the *shikara* of the Raam Mandir determines the related positive energy vibrations of the temple.

Through observation it was revealed that worshippers congregate within the energy pyramid spontaneously during *sathsang* and prayer. Those who congregate outside of the energy field appear to be distracted. The spiritual vibration is felt when a devotee is within close proximity to the epicentre of the *bramhastan*.

C. Ambiguity of Form

Architecture of the VTD is shaped by the many concerns of religious practice by the Hindus, whether in the hands of the traditional priest or the gatekeepers. The changing and conflicting demands of the Hindu religious cultural group whole, the personal goals of the sponsors, as well as the sponsors' social responsibilities all have a role to play in the evolution of forms at the VTD. Such is the case of the space between the two temples, the *yagya shala*, which shows much eclecticism through the inclusion of a structure which was intended to provide shelter to the space. Unfortunately it provides very little relief from the elements due to its height and desirability as a structure fabricated of industrial materials.

The changing nature reflected through the built form at the VTD is heavily influenced by the pressures of sponsors and gatekeepers, to conform to their image of good standing amongst the worshippers at the VTD at large. From a *vastu shastra* point of view, metallic elements must not be used in the construction of a temple as it affects the magnetic rhythm and harmony of energy fields within and around the enclosed space.

5.3 CASE STUDY TWO - DURBAN HINDU TEMPLE (DHT)

5.3.1 Historical Background

Religious architecture of the Hindu people in central Durban is the focus of investigation through this subsection. Background into the historical origins of the patrons, their place of residence in Durban and the cultural understanding among different linguistic groups needs to be expounded upon to unravel the unique architecture particular to the Durban region. Many Hindu temple buildings in Durban follow design principles loosely based on oral renditions of the *Vastu Shastra*, dictated to the lay Hindus by the religious caste *Brahmins*, who are considered to be the authority on the religion by the local Hindus.

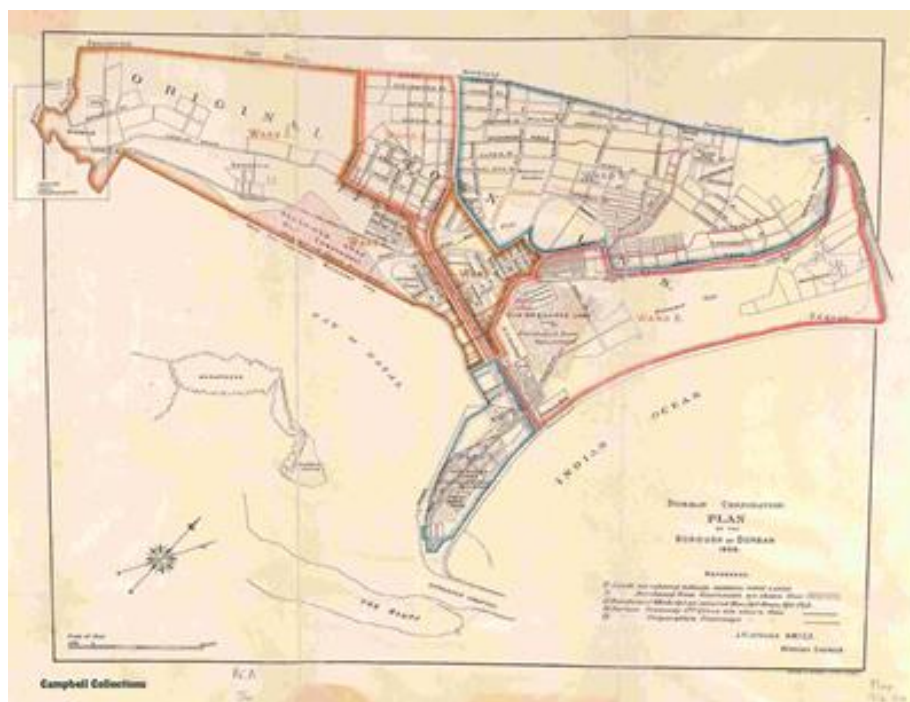


Figure: 98. Large 1898 map of Port Natal (Ethekewini-Durban).

Source: <https://www.google.co.za/search?q=magazine+barracks&rlz>

The realisation of the Durban Hindu temple in its locality was a rational approach to its cultural context by the early indentured and trader Indian settlers, during the Colonial phase (1870-1930s) of development of the city of Durban.

5.3.2 The Arrival and Settlement of Indian Immigrants in Durban

The first group of indentured Indians arrived in Durban in 1860, followed by another 383 shiploads from 1860 to 1911, totalling 152 184 indentured men and women, states Rosenberg (2012). The Durban Corporation used a large percentage of the indentured Indians, as part of its work gang, while the Natal Government Railways employed them for the purpose of its railway construction program.



Figure: 99. Early 1870's map of Durban in which demarcated zone 'A', the eastern vlei, represents a patchwork of controlled and segregated worker compounds and zone 'B' is the western vlei, which evolved into a dual 'town' space, a 'non-European' quarter. The Durban City grid to the south with frontage to the bay emulated European urban culture.

Source: Rosenberg & Vahed, (2014, p.1)

According to Dr. Ginwala, the majority of these Indians were Hindu, less than 12 percent were Muslim and approximately 2% were Christian (Gopidayal, 2011, p. 84).

5.3.3 The Labour Compound in the Eastern Vlei

The objective of labour compounds, barracks and hostels in Figure 100 was to provide accommodation in one area for Africans and Indians (Hindus, Christians and Muslim) that were employed by the municipal, industrial and commercial concerns. “The labour compound, which would become one of the symbols of the apartheid system, was part of the colonial city and predated apartheid by many decades. It brought racial ideology and capitalism into a single system of ‘cheap labour’”, according to Rosenberg & Vahed (2014, p.5).

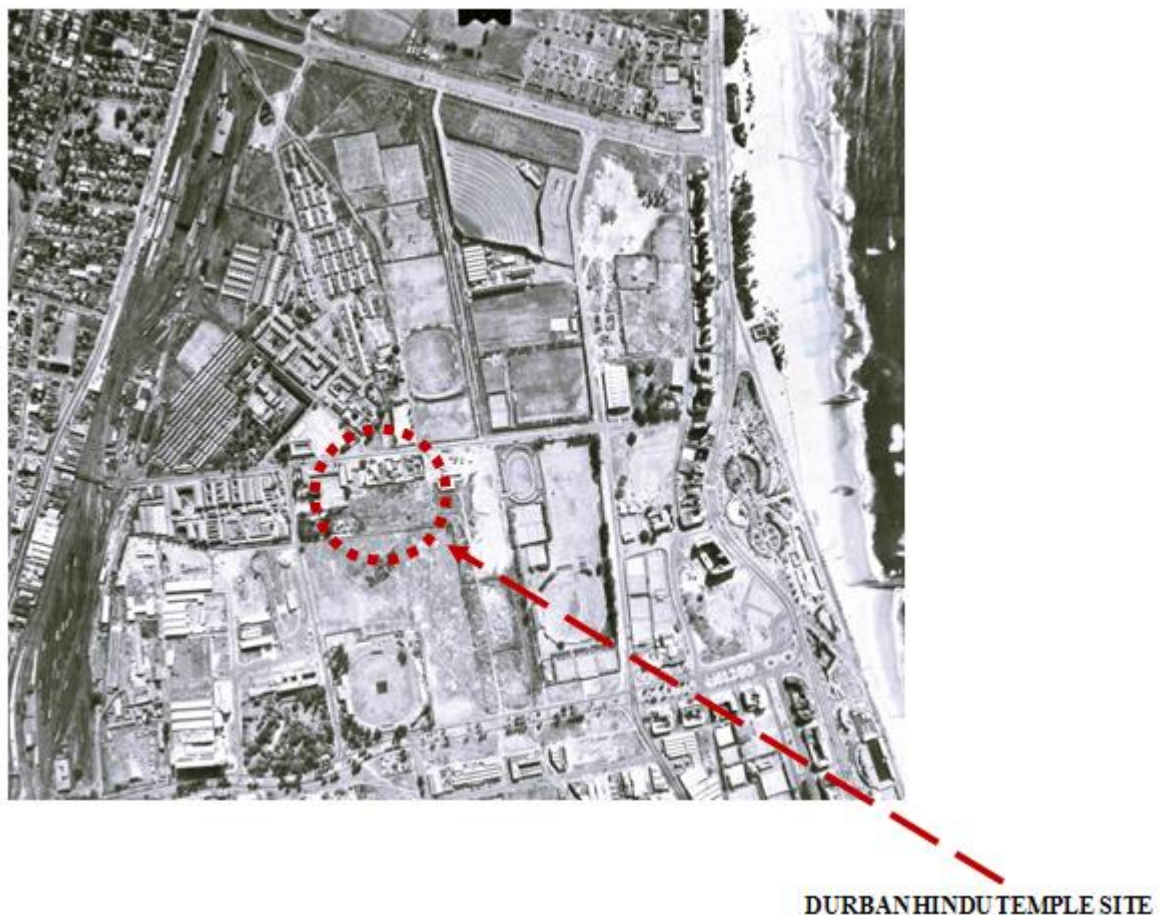


Figure: 100. A 1962 aerial image of the eastern vlei of Durban.

Source: City of Durban- cadastral records, 2015

The Durban municipality thus provided them living quarters within the eastern sector of the city, in what was known as the Railway Barracks and the Magazine Barracks in Figure 101.

These barracks were established in 1880. The worker compounds were similar in design to the first 1860 built 'Chawls' of Bombay.

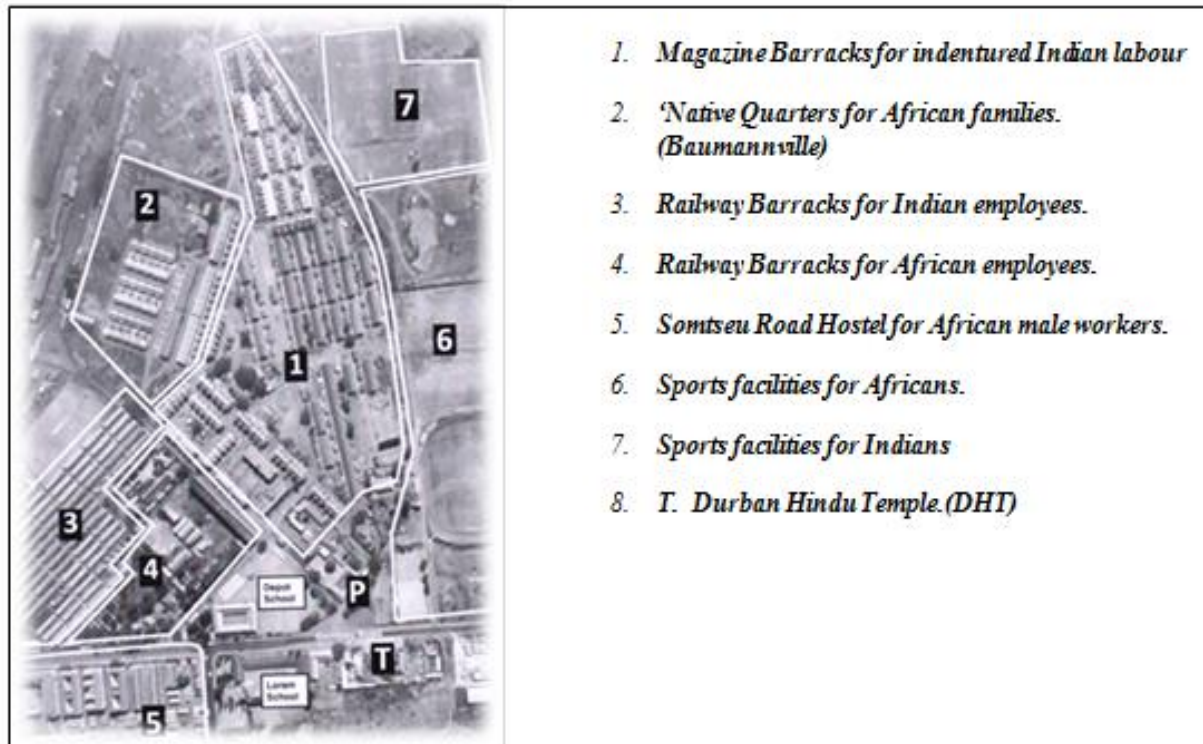


Figure: 101. An aerial plan view of the labour compound in the eastern vlei

Source: Rosenberg & Vahed, 2014

This form of back to back rows of single roomed compounds in Figure 102 was the mean version of workers' homes built during the period of colonialism in Durban, and is akin to military styled barracks.

The uncertainty of land use and rezoning of a vast tracks of prime land within the Eastern Vlei meant that the area remained a sports fields and open space for more than a decade, until the process of relocation of the residents from the Magazine Barracks, Railway Barracks and Baumanville was eminent. Residents were relocated to make way for the Law courts, Police headquarters and the Stamfordhill railway station.

A. Magazine Barracks

In the year 1933, the Magazine Barracks consisted of 1252 rooms built in a variety of wood and iron, concrete block and double-storey buildings. The high-density development generally consisted of rows of single-room dwelling units along a corridor or continuous veranda, shown in Figure 103.

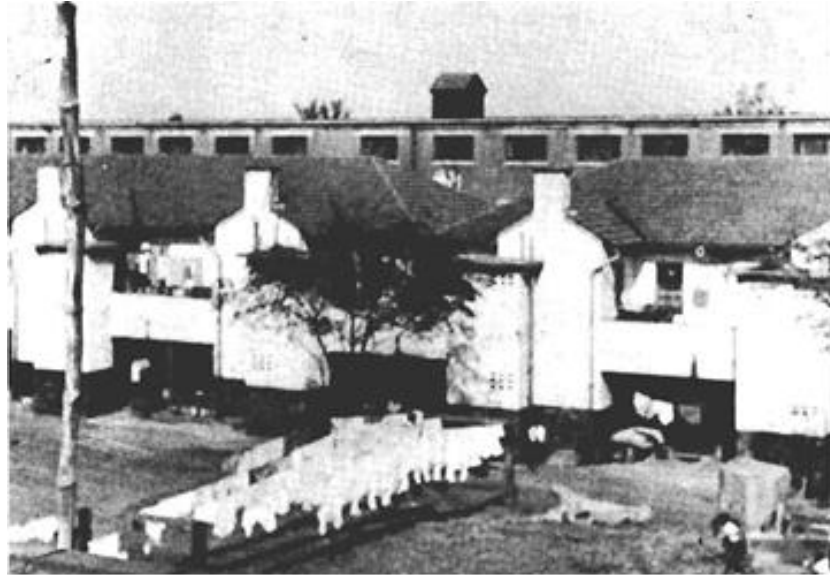


Figure: 102: Magazine Barracks, established in 1880. Brick under tiled roof typology, as viewed with the imposing fire place and chimney, preferred design suitable by its occupants, for open fire cooking.

Source: <https://www.facebook.com/photo.php>

The latrines were shared and both men and women bathed within these enclosures. Communal water pumps (Figure 104) in the alleyways provided water for bathing, cooking and drinking, as well as a meeting place for residence to gather informally, creating a sense of community. Such was the design aesthetic and planning layout of the Magazine Barracks and the labour compound of the eastern vlei.



Figure: 103. Typical row house aesthetics of the Magazine Barracks.
Source: Rosenberg & Vahed, 2014

B.The Residents of Magazine Barracks

By the year 1940, the number of people housed in Magazine Barracks numbered 4460. Notwithstanding their formation and semblance as a system of labour control, the people transformed their place of residence into communities (Rosenberg, 2012), talking in a geographical sense as being a community occupying a particular space and personalising it to suit their new found culture of an amalgamation of beliefs, rituals and peculiarities of their way of life. To maintain their culture, they held cultural activities such as the *thirukoothu* or six foot dance, engaged in religious debate, had song and dance festivals and had sport activities. In this traditional Hindu society, residents were not alone but rather a part of the Magazine Barracks community, which was completed by the inclusion of social service buildings and temples, spaces which lead to the creation of total environments, unifying the Hindu culture and way of life.



Figure: 104. Communal water pumps created a sense of gathering and community.
Source: Rosenberg & Vahed, 2014

C. Magazine Barracks - Definition of a Place Point of View

The Magazine Barracks were more complex than the mere physical setting. The concrete environment comprised of a series of phenomena which were than the mere concept of a place. The spatial facilities, accommodation, language differences, traditions and religions, when combined, established an environmental character creating in a sense of place or *genius loci*. The Durban Hindu temple in Figure 106 constitutes the epicentre of the Hindu religious ‘localness’. Other amenities included a drama hall, a small library, a temple which was known as the Magazine Barracks Aman temple (displayed in Figure 105) and now demolished, the Depot Road primary school for the boys from Magazine Barracks and Railway Barracks, and a primary school for girls, located at the Vishnu Hindu temple. Other facilities at Magazine Barracks included a soccer pitch adjacent to the soccer ground for Africans. Police and a ‘superintendent’ were permanently housed amongst the compounds (Rosenberg & Vahed, 2014).

Over Good Friday and the Easter weekend, Hindus worshipped the Mother during this time at the Magazine Barracks Amman temple. The Gangai Amman prayer commonly known as Porridge Prayers, were held. Chariot processions were a common site and so were *Ram Bhajans* during *Puratassi*. (Murugan,1997). The temple architecture displayed south Indian characteristics with a *Gopuram* and miniature gateways adorning the uppermost levels of the square based *cella*.

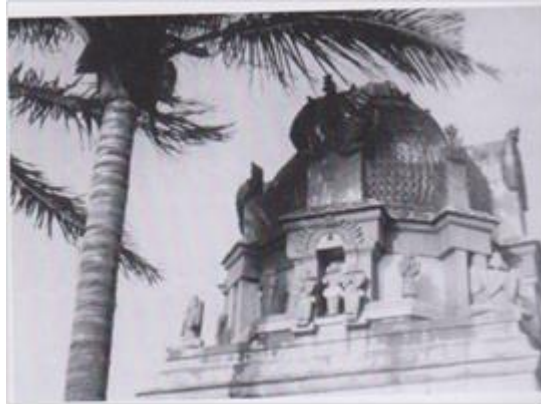


Figure: 105. The Magazine Barracks Aman temple, which had to be demolished to make way for the Durban law courts and police headquarters.

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).

Both the Amman temple and the DHT became prominent social institutions to the Hindu of Durban, defined by their architectural identity. These temples, through time, may have greatly influenced the community environment, promoting interaction between people and a place, and the spaces in between were as important as the built form, providing the community with cultural stability, occupation and guidance in their behavioural patterns. The Durban Hindu experience of Magazine Barracks was as a space which gave meaningful definition of that space and a community that was dependent on the physical environment, which included its architectural expressive temple forms as a catalyst of that Hindu cultural group.

5.3.4 Historical Setting of the Durban Hindu Temple

Built in 1901, the Durban Hindu temple, also known as Shree Thakurdwara and Dharmashala, Somsteu Road Temple and the Depot Road Temple in Figure 106 has played a vital role in the transmission of Hinduism over the past 114 years. Initially catering for the Hindu communities from the Magazine Barracks, for a century it was the north Hindu temple in the city centre, and has been aptly declared a National Monument, according to Maharaj (2014).



Figure: 106. The Durban Hindu temple built *c* 1901 has strong Colonial and Islamic architecture influences

Source: Traditional Hindu Temples of South Africa (Harber, Kearney & Mikula, 1982).

The Durban Hindu temple is the only remaining temple in the area. This was founded and built by the first wealthier Hindi speaking community of Durban, then resident in Brickhill Road and the surrounding areas. The Thakurdwara Mandir, together with its Dharmashala, served as a ‘safehouse’ for early Indian immigrants, some of whom were indigent and destitute. Eventually, the Dharmashala’s premises were converted and renovated for use as a school, report Harber, Kearney & Mikula, 1982. The chief sponsor of the temple was Sriman Premchand Baboolall Juggernath Maharaj, who worked closely with architect J.P. Mumford in adhering to Hindu religious scriptures and guiding principles for its design (Maharaj, 2012). The aesthetic quality was still largely influenced by Islamic and Edwardian architecture of Durban happening at that time. The original design of the temple was intended to be flat-roofed.

Through the intervention and contribution of its chief sponsor, the Maharaj Family, an arcaded, minaret styled square base was added above the flat roof, surmounted by an Islamic styled dome with lotus petal relief and terminated with a *kalash* above the dome. The main *shikara* is flanked by four miniature *shikaras* positioned at each corner of the square base of the main dome. Another striking element of the early DHT Mandir is the Natal Colonial style wrap-around wood and iron veranda structure delicately attached to the flat roof, and edged by pillared parapet.

5.3.5 The Group Areas Act and Forced Removals

The rapid increase of the Indian population created a demand for more housing, whilst slum clearance was the focus in the 1930s. Condemned by successive experts and committees as overcrowded and insanitary (starting with the Wragg Report in 1887), the Magazine Barracks by 1933 contained a total of 1 251 rooms in a variety of wood-and-iron, concrete block and double-storey brick buildings, accommodating over 5000 people at densities of four to a room. In 1943 during the Second World War, numbers had risen to 6 000, including 2 500 children, of whom 700 were not attending school, adds Rosenberg (2012). The Group Areas Act of 1950, which was amended and consolidated in 1957 and 1966, is referred to by Lemon (1987, p. 215) as the “cornerstone of apartheid, exemplifying the fundamental tenet of apartheid ideology that incompatibility between ethnic groups is such that contact between them leads to friction, and harmonious relations can be secured only by minimising points of contact” and cited by Rosenberg (2012).

The Group Areas Act introduced statutory controls over residential settlement in a comprehensive, rigid and prescriptive way and made attempts to reverse or eradicate any racial intermingling that had taken place prior to 1950, asserts Rosenberg (2012). Extension of the municipal boundaries was finalised through the race rezoning plan which was approved in 1952, and is shown in Figure 107.

Durban central was declared a whites only zone, forcing the non-white population to the urban periphery, both to the south and north of the city of Durban. The black African population was relocated to areas such as Kwa-Mashu to the north and Umlazi to the south.

The Indian population of the city which comprised of a mix of Hindus, Muslims and Tamil were moved to areas such as Chatsworth to the south of Durban and Phoenix to the north.

Most of the wealthier merchant Indians took residence in affluent suburbs such as Reservoir Hills, Clare Estate and Riverside.

By 1914 the city council labelled the Magazine Barracks as not suitable for human habitation and the occupants had to be rehoused. In 1948, when the Group Areas Act was implemented by the National Party, the residents were moved to Chatsworth, Phoenix and other areas in accordance with their race, add Rosenberg & Vahed (2014).

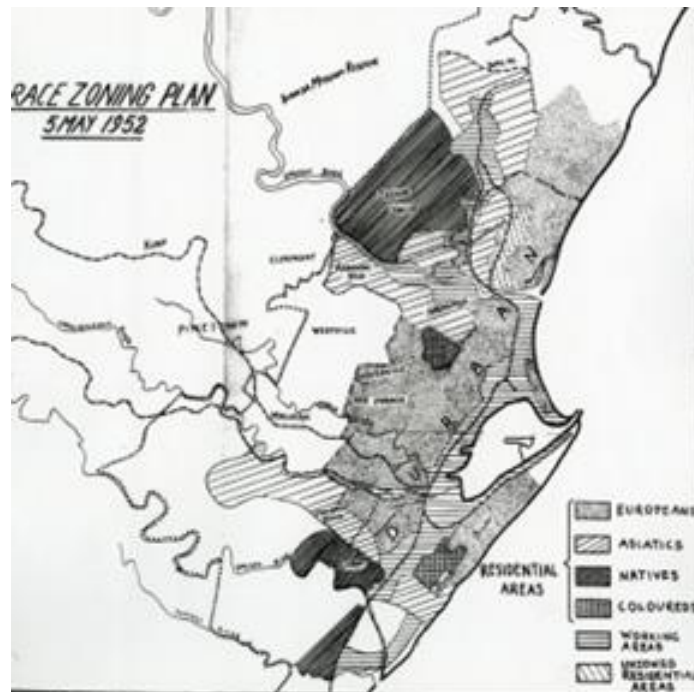


Figure: 107. 1952 Race rezoning plan for Durban.
Source: Durban Housing Survey, 1952. Cited by Rosenberg, 2012

Baumanville and Magazine Barracks were demolished, and their inhabitants relocated to Kwa-Mashu and Chatsworth.

5.3.6 The African Township: Kwa-Mashu



Figure: 108. A 1958 photograph of the African peripheral township-Kwa-Mashu, north of the Durban CBD.

Source: Rosenberg & Vahed, 2014

The formation of Kwa-Mashu began during June 1956, when the Durban city council finally concluded the purchase of the land upon which the township was realised. Construction of Kwa-Mashu began in September 1957 and in November of the same year, the council systematically removed Africans from Cato Manor and areas within and around the city of Durban, which was declared a whites only area. For those who moved to Kwa-Mashu, it meant increased costs to travel to the city centre for purpose of employment, as well as the inconvenience in terms of commuting to work and costly accommodation which they now occupied. (<https://en.wikipedia.org/wiki/KwaMashu>, 2015)

Rosenberg (2012) reports that the Indian leaders began fearing that the community could lose educational institutes, cinemas, mosques, churches and temples, as well as hospitals, which made up the vital infrastructure of the existence and self-worth of the Indians, in essence the core of their definition as a people in central Durban.

5.3.7 The Indian Township - Chatsworth



Figure: 109. A 1966 photograph of the Indian peripheral township – Chatsworth, located to the south of the Durban central business district.

Source: Rosenberg & Vahed, 2014

The Indian people in Chatsworth are from the various religious groups (Hindu, Muslim and Christians comprising the main religions) and throughout its history Chatsworth has had a predominantly Indian population. As a consequence of time Chatsworth has evolved into a fully-fledged suburb of Durban with a strong infrastructure including industrial zones and business environments, all contributing to the capital growth of the city of Durban ([https://en.wikipedia.org/wiki/Chatsworth, KwaZulu-Natal](https://en.wikipedia.org/wiki/Chatsworth,_KwaZulu-Natal), 1960)

Despite the strict enforcement of the Group Areas Act, towns and cities were still not fully racially segregated by mid-1970. In 1973, after more than twenty years of uncertainty, it was finally decided to proclaim the Warwick junction and Grey Street area as an Indian Group Area for trading and light industrial, but not residential purposes (Rosenberg, 2012). This proclamation meant that approximately 12 000 residents had to vacate the CBD of the city of Durban. The proclamation also excluded an important educational and cultural complex - the DHT, representing a large investment by the Indian community. The area had suffered from uncertainty for decades and had deteriorated. The loss of the residential component adversely affected not only residents and businesses but also the residential character of the area, an important component that influenced the socio-cultural aspects of the built form.

By 1981, only half of the residents had moved and in 1983 Indian residents were once again allowed to live legally in the Grey Street area within the CBD of Durban (Lemon, 1987, p. 253, cited by Rosenberg, 2012).

5.3.8 The Urban Setting of the DHT in Post-Apartheid Durban

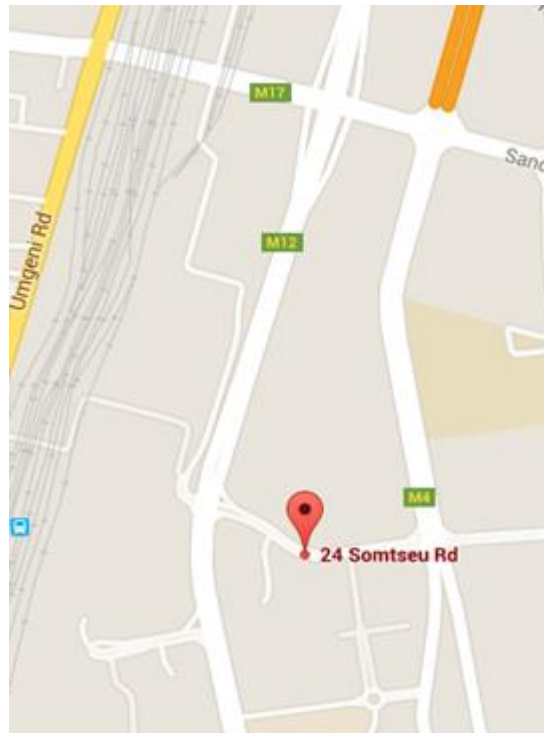


Figure: 110. Contextual urban setting of the Durban Hindu temple.

Source: <https://www.google.co.za/maps/place/24+Somtseu+Rd,+Durban>,

The urban setting of the DHT took on a new outlook with the loss of the residential context by the late twentieth century. The temple now stood void of the people responsible for maintaining the cultural ethos of its *loci*. New buildings emerged with a strong focus on administration and commercial related activities. The DHT, amidst uncertainty, remained culturally significant to the Hindi speaking ‘Sanathani’ Hindus, however uncertainty arose regarding its functional relevance in the latter years of apartheid rule, resulting in neglect and loss of patronage by the Hindus now relocated to suburbs outside the central business district, which were established under the Group Areas Act in the late 1960’s.

The DHT in its current context is a serious misfit between the built forms realised through the urban upgrades of the late twentieth century. Sometimes these changes have been radical in terms of the needs of the people they serve. In the context of Durban, the needs of the multi-cultural society is realised, rather than those of the minor, less significant societies such as the Hindi speaking Hindus of Durban.

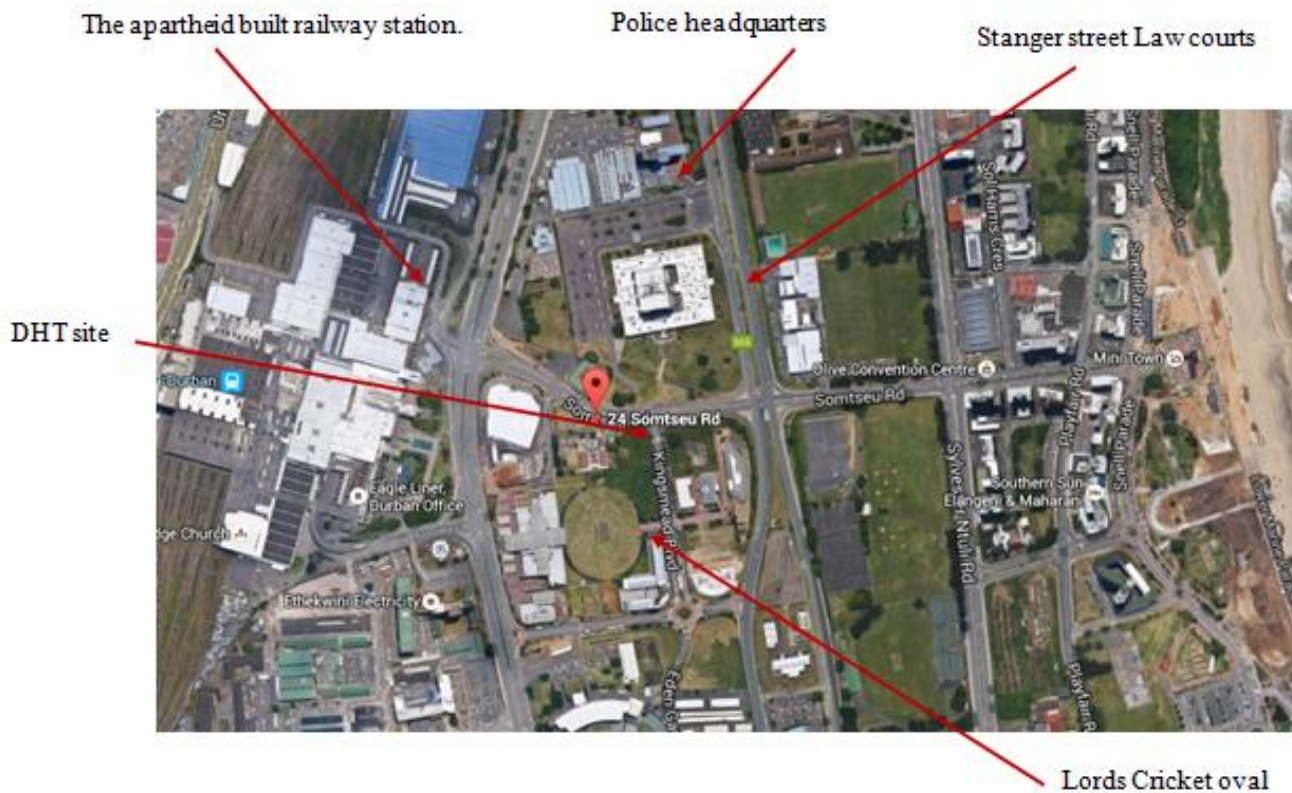


Figure: 111. An aerial image of the eastern vlei, with post 1990 urban upgrades. Note the law courts, police headquarters and the apartheid built railway station.

Source: <https://www.google.co.za/search?q=map+of+Somtseu>

The Durban Hindu temple preserved as a cultural artefact continues to serve the traders, merchant Hindus of the city, but more importantly, serves as a spiritual destination for visitors to the city.

5.3.9 The Urban Design of the Eastern Vlei - Late Twentieth Century

The city of Durban commissioned consulting firm Sarkin & Jain, urban planners, to restructure the eastern vlei in post-apartheid Durban in 1996. The outcome is what the administrative and financial hub of the city is today. Nestled amongst large post-modern medium rise buildings, in what has been transformed into a key nodal point for the area, is the DHT site shown in Figure 112.



Figure: 112. Urban site layout of the eastern vlei of Durban.

Source: City of Durban- cadastral records, 2015

The immediate adjoining building to the temple is a pooja shop, with the recently renovated girls' school on the opposite side. In an attempt to remain relevant in contemporary times, consideration of traditional principles and elements was used in the quest for an architectural aesthetic that reflects the aspirations of the building transformation of the Durban Hindu temple. The DHT signifies the Hindu cultural identity which is intrinsically linked to its structure, building materials and its external aesthetics, namely size, proportional schema, decoration and its relationship to the immediate context and adjoining buildings and the site.

While the focus on the issue of identity, communicated through the addition of the social role facilities to the temple building program is fundamental, the internal spatial organisation and symbolic meaning of the buildings and the purpose they serve are also important.

The outline of the building program and history of the temple set out the intentions of the gatekeepers of the DHT in its infancy stage. The subsequent building development and transformation was a process of time and needs of the patrons of that particular local Hindu community. Contemporary lifestyle and socio-economic scenarios may demand changes, whether functional, aesthetic, or semantic. In response to these demands, the Durban Hindu temple (DHT) showed various degrees of departure from the original, historical architectural vocabulary of its early development in 1910. The subsequent image taken in 1980 and showcased in Figure 113 was captured when uncertainty of its existence remained a critical issue to its patrons.



Figure: 113. 1980 photograph of the Durban Hindu temple, a beacon of spiritual hope in a sea of oppressive despair, remained intact through the years of uncertainty and removal of the residential context of Magazine Barracks, Railway Barracks and block AK.

Source: <http://www.heritagekzn.co.za/sites/visit/durban>

During the 1960's the Hindu temple of Durban was not so much a place of congregation as it was a symbol of divine veneration. Hence in its simplest form, the worshipper consecrates by their attitude of devotion.

5.4 Analysis of Critical Regionalism and the DHT Design

Mthethwa (2001) states that critical regionalists employ specific local geographical parameters such as landscape features, culture and ecology to develop an identity of place. Critical regionalism seeks to analyse the impact of globalisation and technological advancement as a world phenomena. Thus the present moment in architecture can only be described as one of rapid change.

In seeking to delimit the problem, van Eyck wrote... “Architects nowadays are pathologically addicted to change. This is why they tend to sever the past from the future, with the result that the present is rendered emotionally inaccessible, without temporal dimension” cites Frampton (1987). Van Eyck emphasised a dislike of both the sentimental antiquarian attitude of the past and the sentimental technocratic tendency towards the future. According to that researcher, both were founded on a static, clockwork notion of time. Van Eyck’s existential attitude implied a willingness to confront the myths and realities of the present (Frampton, 1987).

Rather than dealing extensively with the region itself and a particular location, the architecture of critical regionalism makes reference to the site, the *genius loci*, on a more abstract level. The *genius loci* or ‘spirit of the place’ is a concept developed by Norberg-Schulz (1980) to explore the relationship between human beings and their built environment. This research proposes different approaches to the questions of region and localness by influential theorists such as Frampton, Lefavre, Tzonis and Pikionis, who advocated for the critical consideration of local underlying structural elements including local landscape features, the quality of the light, climate and the broader cultural settings and values, rather than just local vernacular traditions. This approach introduced a greater degree of cultural connectivity than post-modernist theoretical proposals and hence gave rise to increased fluidity, as it connected the local culture to its physical, social and ecological setting (Mthethwa, 2001).

The fundamental strategy of critical regionalism is to mediate the impact of universal civilisation with elements derived indirectly from the peculiarities of a particular place. This is the case with the Hindu temple which originated in the Indian sub-continent.

Countless examples can be cited to show that the regional design across other geographical regions does not indicate the identity of its users, as they seek to identify with an existing or constructed group in reference to a real region of origin, or obtain the same poetical and environmental qualities. It is for this reason that architects should produce a different architecture that suits social, economic and technical conditions that change over time. As new forms and relationships emerge, architecture must adapt to cater for new conditions.

Natural causes and human rationality determine architectural form. Regional architecture is shaped by specific external and internal constraints. A particular regional style built in another geographical climatic zone is generally influenced by the conditions of that region. As climate and physical conditions influence buildings, so too they influence human beings in their inhabited or adopted region. The task of critical regionalism is to rethink architecture through the concept of region, recognise the value of the singular, circumscribe projects within the physical, social and cultural constraints of the particular, and aim to sustain diversity while benefiting from universality.

Regionalism or regional practice opens up possibilities for the resuscitation of architecture of meaning, an architecture that supports the cultural identity of those it serves, as in the case of local Durban Hindus who are not the indigenous people of Durban.

Frampton, Tzonis & Lefaivre employ critical regionalism to propose a strategy that uses regional elements in an unconventional manner (reflected in Figure 8), in order to generate awareness amongst traditional societies. This could give rise to a new kind of architecture, perhaps exacerbating the problem it meant to solve. Regionally responsive architecture and the transformation it produces create continuity through change, by which Durban Hindus measure their traditional lineage. Mumford affirms that “Traditions should be renewed for the value and meaning that they add and not for the ornamentation” (Lefaivre & Tzonis, 2003, p.39). Thus, the principles selected should be evaluated for their positive and negative characteristics.

The Durban Hindu temple in Figure 106 is unlike other temples in that this structure was actually designed by an acknowledged architect, J.P. Mumford, whose background knowledge of the classical languages of Hindu temple architecture is worthy of understanding, specifically with regards to the requirements for the orthodox Hindi (Sanathani) group of patrons in Durban at that time. How does the architecture of the temple express the distinctive vocabulary aspects of the philosophical paradigm of contemporary Hindu temples elsewhere in the world? It is worthy of knowing that Mumford also designed the West Street mosque (Figure 115) in Durban during the same time and that it bears similar architectural aesthetics and elements, employing ‘an architecture of imagery’ particular to a specific region and time.



Figure: 114. A current photograph of the Durban Hindu temple. Its 1901 architecture composed of Islamic and colonial influences now diluted by the architectural expression of its creator - remodelled in 2001.

Source: <http://www.durbanhindutemple.co.za/>

Harber, Kearney & Mikula (1982, p.60) noted that the language of the Durban Hindu temple's composition was “a strange mixture of the Victorian civic architecture of the time, with a strong flavour of the Islamic Mogul architecture of north India”. The distinction of the temple language would be confounding if analysed superficially through its vocabulary alone, indeed it may be more distinguishable through its underlying design paradigm. The Durban Hindu temple needs to be evaluated in terms of its form and context.

Jhupsee's approach to the design problem at the VTD was one of critical regionalism as he rejected merely mimicking traditional forms like Mumford did in the early temple design of 1901.

Instead, Jhupsee favoured a design that captured the essence of the traditional forms of regional tectonics, the quality of light and the spatial practices. Jhupsee's design favoured sensitivity to the site conditions and local Hindu tradition. Jhupsee drew inspiration from traditional Hindu methods to create more meaningful architecture, fusing traditional methods with modern technology (see Figure 114) to affirm the identity of a group in the public realm. The principles demonstrated through regional transformation/adaptation support the cultural expression and identity of the Hindus, without losing their tradition or the nature of their origins in India. The West Street Masjid in Figure 115 was built four years later, several blocks away from the Grey Street Masjid, making it the second *masjid* to be erected in Durban.



Figure: 115. Photograph of the West Street mosque - built 1903 (484 Dr Pixley Kaseme Street).

Source: <http://www.kznia.org.za/durban-city-guide/islamic-architecture/west-street-masjid>

In 1903 it was extended to include an enlarged prayer area, a *madressa*, shops, residences and a two-storey minaret. A few months later, architects Henry & Hill prepared revised plans for the minaret to be raised to four floors, but with a reduced dome, in order to satisfy the sensitivities of white traders in the area. In 1917 a *madressa* (religious school) was established on the Pine Street side, but it was demolished in 1918 in order to increase the size of the prayer area. In the late 1980s the *masjid* underwent substantial alterations again. (KZ-NIA, 2014). Architectural interventions in Durban at the time had to be exemplified by the authorities, favoring the concerns of white traders in the city.

The penetration of British ideas impacted on building processes, creating situations of confrontation between foreign and indigenous values, and between tradition and modernity.



Figure: 116. An image of the minaret of the West Street Masjid closely resembles the shikara of the 1901 DHT.

Source: <http://www.kznia.org.za/durban-city-guide/islamic-architecture/west-street-masjid>

5.5 Definition of Place - Integrating the new and the old

Through community organisation and participation, the trustees of the DHT have succeeded in implementing a viable organisational plan for the improvements to the temple in Fig.117 in post-apartheid Durban, obtaining recognition and rights to add to the existing contemporary temple.



Figure: 117. A photograph of an architecturally transformed Durban Hindu temple - a beacon of spiritual hope in post 1994 democratic Durban, representing all Hindus.

Source: <http://www.durbanhindutemple.co.za/>

When historical buildings are extended or altered which are deemed to be of historical or aesthetic importance, such design proposals have to be exemplified by Amafa, which is the provincial heritage conservation agency in KwaZulu Natal.

The choices in such situations are to copy what exists; to pick up on some basic design principles of the past forms and to develop them in a new manner; or simply not to care. The second option occurs almost everywhere in residential settlements but is readily in focus in places such as the temple and historical buildings within the city. In the new satellite Mandir development at the DHT, the architect Ravi Jhupsee blended the new with the old temple (1901) by picking up on the theme of the *shikara*, the choice of materials, and by reducing the scale and height of the new to maintain the historical importance of the old temple. The new addition is at the same time strictly up to date in its technology and aesthetic quality. The *shikaras* of the new do not directly copy from the old but represent the architecture of the present time through their simplicity, lack of decoration and detail.



Figure: 118. The architectural interventions (b.2010) appear modernist in their expression of structure and the architectural philosophy follows the self-centered expressivity of the architect. The coexistence of the traditional with the new enriches the aesthetic of the Durban Hindu temple.

Source: <http://www.durbanhindutemple.co.za/>

5.5.1 Analysis of Function

The site constraints further perpetuated by the urban design restrictions and compliances of the late 1990's have severely constrained what could have been the desires of its patrons and building execution according to the *shilpaic* tradition; design principles loosely based on oral *vedic* traditions. The schedule of accommodation could have been better realised if the site was

not so restrictive in terms of size and its rigid geometric shape. The expectations of Hindus in modern Durban society demand a variety of uses to space catering for their various individual needs. To this end spaces are created which include a hall for weddings and functions, on site catering facilities to sustain and maintain the charities, a *yagya shala* for fire oblations and the various *bramhastans* for deities. The modern Hindu worshippers look for comfort and convenience in comparison to the lifestyles of the early settlers who were content with their concern for worship in its simplest form.

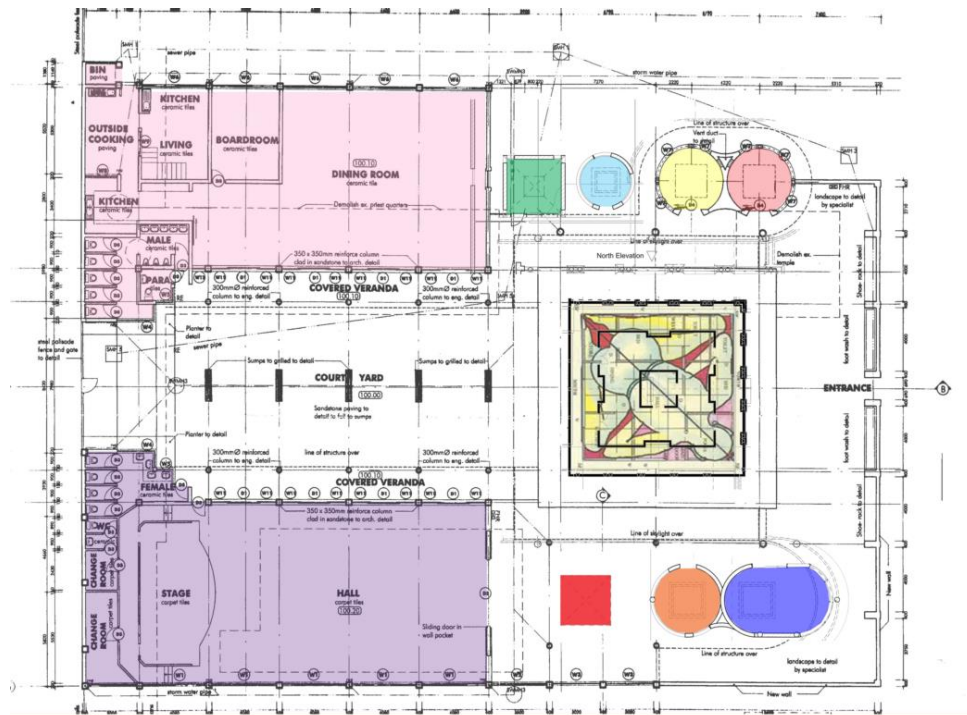


Figure: 119. Plan of the Durban Hindu temple site.

Source: Jhupsee, 2001. Adapted by researcher.

Due to the nature of the site, the various functional spaces are disposed of around a courtyard, typical as a gathering space in traditional Indian architecture. The courtyard is surfaced with hard burnt clay tiles pictured in Figure 121, in lieu of turf which is desired in Durban's hot, humid climate. Although the courtyard is tiled, some relief from the hot sunlit effect is offered in the form of deep verandas mediating the inside spaces to the courtyard.

The longer façade of the dining hall is edged onto the western boundary, blocking out the undesirable afternoon summer sunlight. Its west/south western position on site helps to block out the harsh affects of weather elements; wind, rain and heat.

It is noted that visitors to the temple compound are required to remove their shoes and clothing items of leather, before entering through the gateway. No lockers or facility has been provided for the safekeeping of such items, and it is observed that some visitors prefer to leave their personal effects in their motor vehicles.

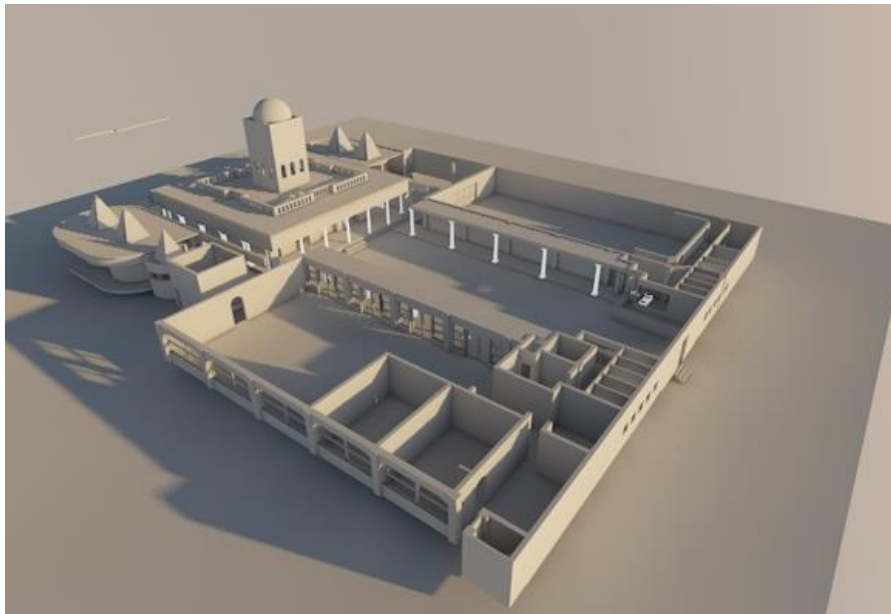


Figure: 120. An image showing the birds eye view of the spatial configratinon of the DHT facing south.

Source: Researcher's own, 2016

The ratio of built form is greater than to that of open space, and a hardened surface covers 100 percent of the temple site. Landscaped gardens and natural surroundings are non-existent. These prevailing conditions can be attributed to its urban setting and the lack of available land space provisions in the urban planning scheme. Although it is noted that a large cricket training oval, 'The Lords' ground, is adjoining the southern site boundary, physical access to this land is denied and it only serves as a visual link, when viewed from the temple courtyard. The northern boundary abutts a small carpark, which is edged by Somptseu Road.

At present, the Durban Hindu temple caters for all the religious and spiritual needs of the community, which include Hindi cultural classes, promoting Hindi literacy, dance, drama and philosophy.



Figure: 121. Photograph of the courtyard space with view of the south elevation of the 1901 built temple, after alterations to its abulatory completed in 2010. Shikaras of the three north west end satellite temples are viewed to the left of the main temple.

Source: Author's own, captured 2016



Figure: 122. Dining facilities for guests and worshippers form part of the temple additions and improvements, to coincide with the 114th anniversary celebrations held in 2012.

Source: <http://www.durbanhindutemple.co.za/venue.html>

A *vivah sanskar* or wedding ceremony at the Mandir on a *mandap* or stage in Figure 123, in full view of an audience, promotes growth and cultural continuity which is a fundamental principle of existence according to Hindu religious literature. The added facility of a multi-purpose hall provides for the lifestyle of the Hindi people in contemporary times. Weddings are held here regularly, and usually at auspicious times and dates prescribed by the priest, according to Hindu religious scriptures. These may also be held at a random time and date upon which the hall (*maha-mandap*) and service related facilities for preparation; ablution and dining are available to accommodate the event.



Figure: 123. A stage is prepared for a vivah sanskar (wedding).

Source: <http://www.durbanhindutemple.co.za/venue.html>

Traditional wedding ceremonies are regularly held in the new hall. Present day Hindus in Durban resort to past forms and decorative patterns as potential symbols for achieving both a sense of identity and psychological comfort, that distinguishes them outside of India. Couples wanting to marry at the temple are treated as royalty, hence the elaborate decoration of the stage, befitting the auspicious occasion of marriage.

5.6 Analysis of Vastu Shastra at the DHT

Hindu religious architecture such as the temples and secular buildings ought to be constructed according to *vastu shastra* principles. Although much of what is being built at the DHT in the name of the *shastras* is simply revivalist in appearance, it is defended on the grounds that it is compliant with the *Shastras*. The *brahmasthan* or *shikara* of the original built Mandir, for instance, not only resemble Islamic Mosque language but can easily be mistaken as such. As per *vedic* tradition, the *shikara* serves as a spiritual link between heaven and earth. The clear space between the installed deity within the *shikara* and the sky above is impeded by the platform for a *muezin*, typical in a mosque such as the West Street mosque designed by Mumford in the early 1900's.

DHT architecture is not entirely in 'accordance with natural law'. The proposition by architects Bubbar & Iengar, who have given considerable thought to the topic, is that "when space is enclosed by a receptacle, or by walls of a room, it acquires spiritual qualities determined by its shape, size, orientation and location on earth, due to the magnetic lines of energy between the poles" (Lang *et al.*, 1997, p.272). This varies considerably according to the location of the satellite *mandirs* at the DHT and is also perpetuated by the movement of the sun and the influence of the contextual buildings adjoining the site. What is required at the DHT, based on the interpretation of *Vastu Shastra*, is to derive an ecologically sound and humanistic basis for design. The visual appearance created by Jhupsee is possible, as long as it abides by the rules of *Vastu Shastra*. The DHT's *genius loci*, according to the stipulations of *Vastu Shastra* and highlighted by the works of Borden (2012), is less credible as a direct result of the urban design created by Sarkin & Jain (1996). The DHT site is 'land locked' by Somptseu Road, Lords' cricket oval to the south east and mid-rise buildings on either side. This setting is hardly desirable according to *Vastu Shastra*, which dictates the natural settings for a temple, with an abundance of vegetation, water flowing in an easterly direction and park-like features for human indulgence.

5.6.1 Analysis of Religious Meaning

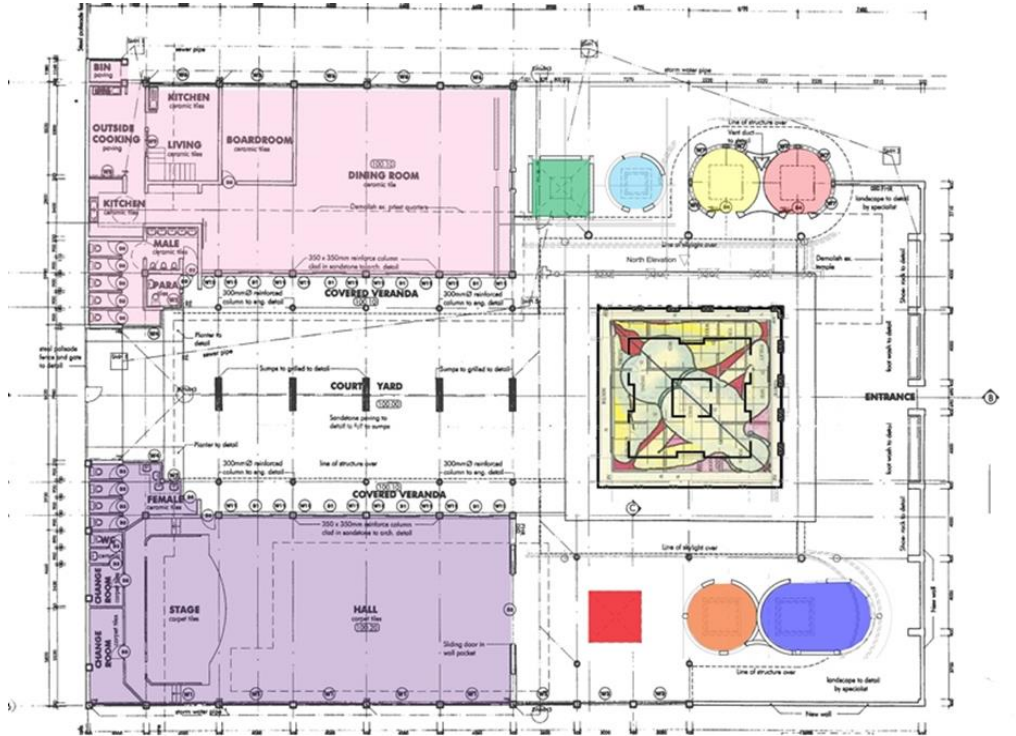


Figure: 124. Disposition of functional spaces and satellite mandirs in relation to the early built c 1901 Raam Mandir.

Source: Jhupsee, 2001. Adapted by researcher, 2015

LEGEND	DESCRIPTION
	THE YAGYA SHALA
	GODDESS DURGAS MANDIR
	LORD SHIVAS MANDIR
	LORD HANUMANS MANDIR
	SITHLA MA'S MANDIR
	LORD NARAYANS MANDIR
	THE NAVAGRAHASTHAN (MINI UNIVERSE)
	DINIG AND ADMINISTRATION BUILDING.
	THE MULTI PURPOSE HALL
A	THE ORIGINAL RAM MANDIR.

The womb chamber or *bramhasthan* in Figure 125, which was historically only accessed by the priestly caste or the religiously initiated, is now accessible to all common worshippers at the temple, resulting in sense of loss of mysticism and intimacy during prayer.



Figure: 125. A photograph of the present settings of the bramhasthan of the 1898 built Raam Mandir.

Source: <https://www.google.co.za/search?q=the+durban+hindu+temple+history>

Worshippers no longer face the deity in unison but in view of others present within the *bramhasthan*, a part of which was modified to accommodate the movement of worshippers within that space.



Figure: 126. Photograph of the west wing temple additions to accommodate the navagrahasthan (mini universe) to the right foreground. Other satellite mandirs include one for Lord Narayan, Sithla Ma and Hanuman respectively.

Source: Researcher's own, captured 2016

Worshippers at the recently renovated temple compound can now worship their favourite deity, accommodated in individual satellite *mandirs*, as depicted in Figure 126, without having to follow long lines of people, as was the case in the past. The traditional circumambulation of the *bramhastan* of the satellite *mandir*'s is no longer possible, however, due to the nature of the planning layout and the architectural realisation of the temple additions. Circumambulation continues to take place in the traditional manner around the original built Raam Mandir only. The *navagrahasthan* is favoured by those seeking astrological alignment with their birth dates, a common form of worship by the modern local Hindus of Durban.



Figure: 127. Photograph of the banyan tree that once provided shade and a meeting place, now a dry arrangement thwarted by the hard landscape around it.

Source: Researchers's own, captured 2016

The banyan tree or wild fig, although not desirable according to *Vastu Shastra*, forms part of the history of the Durban Hindu temple site, remembered by most past residents of the Magazine Barracks as a place of meeting for which the tree in Figure 127 offered shade as relief to people from the midday sub-tropical sun. Parallels are drawn between the large canopy of the tree and the likeliness of shelter that is provided by God to his devotees.

The banyan tree known for its ability to grow for centuries is a sacred symbol of the Hindu people in most towns and villages, both in Durban and elsewhere.

Today the banyan tree at the Durban Hindu temple stands as a sculptural artefact of the rich culture it was once a part of. The building alterations and additions have infringed on its space, suffocating the tree out of existence.

The Peepal tree in Figure 128 is considered sacred by Hindus and is considered the abode of guardian angels. It is a symbol of fertility and life as well. Symbolically, it is rooted in the ground and stretches towards the heavens, thus representing the spiritual path that man must follow.



Figure: 128. Photograph of a ‘Peepal’ tree, a popular tree at all Hindu temple sites in Durban.

Source: Researcher’s own, captured 2016

Since ancient times it has been believed that divine interactions occur under such a tree. (Gopidayal, 2011). This tree continues to be of religious significance to visitors at the Durban Hindu temple, with regular homage and worship offered at the tree.

The position of the idol of Shiva is appropriate with regards to orientation, however the mysticism and intrigue presented to the worshiper is toned down by the use of glass blocks that allow generous natural lighting, hardly expected within a *brahmasthan* in classical times.

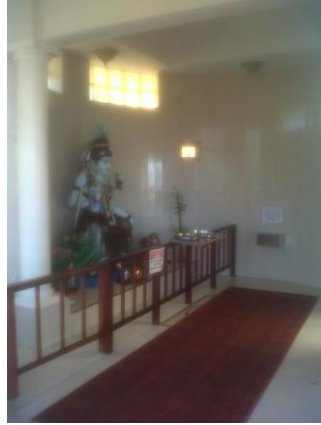


Figure: 129. Photograph of the inside of the Shiva Mandir at the DHT, Lord Shiva's murthi is positioned to the east. Worshippers face the east in prayer.

Source: Researcher's own, captured 2016

Donation collection boxes serve as a subtle reminder to worshippers to contribute spontaneously towards the upkeep of the temple and its various charities, whose survival is contingent upon the goodwill and continued affluence of their congregations



Figure: 130. Photograph of the donations collection box inside the Shiva Mandir. A notice of appeal is placed above the box, prompting worshippers to donate.

Source: Author's own, captured 2016

5.7 CONCLUSION

The Durban Hindu temple is the only surviving Hindu temple in the Durban city centre that reflects the spiritual and cultural history of the early Hindi ‘Sanatani’ settlers. The iconic Mandir has undergone various stages of remodelling over a 114 year timeframe to best reflect and represent the social group that supports and nurtures it. Its current aesthetic is a more recent attempt to satisfy the desires of its patrons, to create an architectural expression satisfying the needs of the greater Hindu community, through accommodating a pantheon of deities in a specifically built *brahmastan* dedicated to each, flanking the contemporary built 1901 temple. The facilities at this iconic temple are in keeping with the needs of the everyday Hindu spiritual lifestyle in post-modern Durban.



Figure: 131. Photograph facing north east from the court yard of the DHT. The imposing multi-storey Durban Law Courts are in the background, on what was once the Magazine Barracks site. The newly added domestic scale temples dedicated to Lord Shiva and Mother Durga appear in the foreground to the right.

Source: Researcher’s own, captured 2016

The architectural consequences at the DHT in post-apartheid democratic Durban have to be seen in the context of the events that occurred before apartheid and what has ensued since. The desire to take part in universal civilisation has become a trend and the realisation of this trend resulted in hybrid development at the Durban Hindu temple, infusing traditional Hindu architecture with western influences. This meeting of east and west may explain why the DHT chose a western schooled architect for the realisation of its transformation.

Another reason is an inherent trend in contemporary architecture towards the desire to modernise, although the concern is with the debilitating effects of post modernity on the value and meaning of architectural environments for the Hindi cultural group. The modern movement aspired to create a universal culture with disregard for the integration of natural and material conditions, patterns of life and forms of building in traditional societies.



Figure: 132. Photograph facing south west. The adjoining post-modern financial institution building situated across the car park of the Durban Hindu Temple on a site that was once occupied by the Depot Road community and school.

Source: Researcher's own, captured 2016



Figure: 133. Photograph facing south, from the car park of DHT the service related buildings appear to the left.

Source: Researcher's own, captured 2016

The apparent contradiction realised in the patterns of buildings is between what was had previously and what is had now, the consequence of planning, design and spatial layouts which is attempted superficially through certain measures. People live in an 'atmosphere of contradictions', perpetuated by a post-modern building culture on traditional cultural practices.

5.8 COMPARISON OF THE CASE STUDIES

The chosen case studies demonstrated the requirements and social attitude of the Hindi Sanatani cultural groups responsible for the realisation of the temples and cultural continuity within a diverse mix of people in the greater Durban region. The selected examples were the earliest built temples of north Indian origin, of the Hindi speaking Hindus, who are also considered to be recognised for developing temples in Durban based on the *Nagara* style influences of north India.

The contrasting characteristics between the chosen case studies was elaborated upon, and a comparison made using a set of criteria applicable to both the DHT and VTD temples. Both these temples have redefined religion to conform to the modern ideals of philanthropy and humanitarianism, combining the worship of a deity with a public institution that contributes to civil society.

5.8.1 Time – Evolution of Architectural Form - Morphology

Both these temples built around 1900 were conceived from memory and Hindu *Vedic* ideologies, for the purpose of continuity of Hindu religious practices in an adopted city (Durban) that the Hindus now call home. The DHT and VTD temple forms developed through time, in a characteristic way specific to circumstances and the evolution of a society.

The architecture of the Durban Hindu temple evolved more remarkably because of a process of transformation dictated to the Hindu society by laws and law makers of the land from the time that the Hindus arrived in Durban. The incremental nature of development at the temple was further perpetuated by apartheid rule and forced removals of the residential context largely consisting of Hindus. Hindus made up the cultural context which contributed to the realisation of the evolution of the architectural language of the temple. Apartheid was responsible for denting the image of a vibrant Hindu cultural group and their sense of belonging to a place, through forced removals from areas such as the residential components of Magazine Barracks, Block AK the inner City and the eastern vlel.

The Vishwaroop temple and Dharmshala in Tongaat is the northern most entity of the Durban metropolitan city. Tongaat has the largest Indian settlement dating back to the first indentured labour employed on sugarcane farms in that region. The area boasts the only true 23 metre tall *Nagara* style temple, built by Pundit Shris Kishan Maharaj. The area around the temple precinct and the temples themselves appear to be dated, owing to the resuscitation of traditional design procedures and forms, but the attitude to form making manifested in some basic design principles of the past forms. The results obtained differ from those at the Durban Hindu temple, where interventions were developed in a new manner representing change through the notion of time and place. Tongaat continued to remain largely an Indian area, home to Muslim, Christian and Hindu Indians least affected by apartheid policies.

Religious architecture at the VTD assumed a distinctly subordinate role with the implied notion of being ‘backward’ in comparison to the architecture adopted at the Durban Hindu temple. The temple at VTD is infused with an overwhelming sense of centrifugal movement.

5.8.2 Analysis of Form and Religious Meaning

The facilities at the VTD and DHT have developed with the changing needs of the Hindu community, requiring functional spaces in line with the lifestyle of modern Hindus. The implications of ‘modern’ architecture are global, as experienced by all societies, and at the VTD the architectural interventions adhere to principles of rationalism, functionalism and an honest expression of materials, such as face masonry and construction processes. Decorations to the addition are minimal, with the exception of innovation employed in the traditional approach of utilising lotus bud columns in polished stainless steel. The *Shiva Mandir* at the Durban Hindu temple (built 2001 by Ravi Jhupsee) discards all embellishment, and retains only key symbols of association: A sculpture of the bull Nandi at the entrance and a pyramidal form above a flat concrete roof slab, which evokes in memory the traditional *shikara* form. This modern *shikara* is only a metaphor of the classical *shikara* form which has a spiritual significance; it was only used in the construction of the Juggernath Puri temple in Tongaat’s VTD complex.

The architectural forms of the newest additions to the Durban Hindu temple incorporate innovative dual-purpose structures into the temple design, that alter temple practices to reflect the concerns of modern Hindu culture within a religious site.

The traditional pillared hall or *mandapa* of classical temples is reinterpreted as an expansive, flexible open space (courtyard) and the sky as ceiling defined by concrete columns supporting a concrete slab roof over the periphery walkway, flanked by functional internalised spaces of the hall and multifunctional dining facility.

The dominant hall of the VTD in Tongaat, designed by Naresh Singh and Associates in 1998, once again employs a rational solution to a roofing problem, using contemporary material and technology. Much of the design was in response to the functional demand of accommodating large gatherings of devotees. In fact, functionality overruled and replaced the conventional spatial connotations of the temple *mandapa*. The traditional progression of distinct spaces is reinterpreted here, with the Raam Mandir being fused together with a double-height rectilinear hall.

5.8.3 Patterns of Worship

Hindu temples continue to be of significant functional relevance in contemporary Durban Hindu lifestyle, although the Hindus of Durban have attuned themselves to the 21st century, with a 'shift' in the pattern of worship amongst modern Hindu devotees. Alternative religious practices of the emergent *Bhakti* cults in Durban, such as the Hare Krishna movement and the *Sathya Sai* organisation, give rise to different spatial requirements - like worshipping in groups and for religious *kirtan* recitals. The contemporary architectural languages for such Hindu temples may be more meaningfully distinguished by their underlying design paradigm. *Bhakthi* movements are welcomingly embraced at the DHT and VTD. The facilities at these temples accommodate *Bhakthism* as a cultural phenomenon, which all Hindus can identify with as it abides by their Hindu principle of *VasuDaiva Kutumbhakam*, which translates 'the world is one family'. Although the DHT and VTD facilities are symbolically 'Sanathani', they have transformed into icons of spirituality for the Hindu culture, creating a sense of belonging for all Hindu worshippers, broadly categorised as 'Sarvajanic'; unity of the Hindu worshippers through diversity.

Other contributory considerations to a communal/congregational form of worship can be attributed to the proximity of the individual worshipper to the installed deity in the *garbha griha* and the proximity of the worshipper's place of residence (residential context of a social group) to the temple where they offer daily or weekly prayer.

5.8.4 Cultural Context

The architecture of the DHT and VTD had developed in response to the local hot and humid sub-tropical climate conditions, evidenced by the open-ended ambulatories, their footprint only emphasised by the raised plinth above natural ground level. Both temple compounds embody traditional *Vedic* principles that contribute to the identity of *Sanatani* Hindus in a multi-cultural society of Durban. The temples are catalysts for Hindu culture, promoting a resurgence for Hindus to take up residence closer to the temples; for the sake of promoting and maintaining Hindu cultural continuity, and as a result of the spiritual and social needs of the modern Hindu in contemporary Durban.

5.8.5 The Cultural Setting and Heritage of the Space

The Durban city centre constituted a heterogeneous society prior to apartheid rules and domination of the past. During this time, all race groups claimed residence and the right to coexist amongst social and cultural differences. The Durban Hindu temple was the cultural and religious catalyst for the Sanatani Hindi speaking people of the city of Durban. During the same era, the Vishwaroop temple and Dharmshala concretised the religious and cultural setting of the Hindi speaking Sanatani's in the sugar town of Tongaat, which was, and still is a predominantly Hindu settlement.

The Durban Hindu temple is now, in post-apartheid Durban, a symbol of modern Hindu society, represented by its major architectural transformation; representing Hinduism as a whole, rather than the Sanatani Hindi alone. Its architecture is representational of the growth and expansion of the Hindu cultural group.

CHAPTER SIX

FINDINGS AND DISCUSSION

6.1 INTRODUCTION

This chapter focuses on the reporting, analysing, synthesising and interpretation of findings from the focus interview and survey conducted on the two selected temples, namely the VTD and DHT. As indicated already, the aim of the study was to identify the forces that brought about the transformation of contemporary Hindu religious architecture, and explore the possibilities of promoting informed and conscious interventions to building programs for transformation and the inclusion of social role activities at the traditional Hindu temples in Durban in the 21st century. In this regard, the key question posed in the study was; what are the causes of the building transformation of contemporary Hindu temples in Durban and how has it impacted on the original architectural built form?

The researcher employed mixed methodologies to investigate the users' perception of the Durban Hindu temples, namely the VTD and DHT. Two Pundits of the VTD and DHT temples were interviewed to ascertain their opinions/perceptions on the transformation and inclusion of social role activities the two temples VTD and DHT. The opinion of the pundits regarding Hindu cultural identity, religious place definition and critical regional appropriateness of the building additions were reviewed. A total of ten respondents in addition to the two pundits were interviewed, regarding the subject matter raised the sub-questions in Chapter One. The questions on the questionnaire were open and close-ended, and the respondents were selected through random sampling.

6.2 ANALYSIS AND DISCUSSION OF SPECIAL INTERVIEWS

6.2.1 Discussion with Pundit Kamal Maharaj

Pundit Kamal Maharaj is the grandson of Pundit Shris Kishan Maharaj, the *stahpathi* (engineer) of the first *Nagara* style Juggernath Puri temple built in Durban. Continuing in his grandfather's tradition, Pundit Maharaj is well versed with Hindu traditions and spirituality. According to Pundit Maharaj the building transformations at the VTD compound are commendable, both as built form and in terms of their structural integrity. However the materials used in construction were industrially produced and not natural as is required according to *vastu shastra* requirements. The *brahmasthan* which is intended to serve as a conduit that links the universe directly to earth are compromised in both the temples. This premise is particularly apparent in the Shiva Mandir, compromised by the roof slab over the *brahmasthan*. Pundit Maharaj however raised concerns about the orientation of the functional spaces, the aesthetics and the lack of knowledge with regards to *vastu shastra* guiding principles by the temple's Gatekeepers. Interestingly, interviews conducted by the researcher with board members confirmed the Pundit's views.

Firstly it was determined that the seating arrangement and the hall position in relation to the Raam Mandir is problematic in terms of orientation. The worshippers face west which is typical of local *Dravidian* temples. The door position and the location of the Shiva Mandir adjacent to the Raam Mandir have serious implications regarding energy vibrations, as an overlap of energy fields can cancel positive effects. Such energy fields will require advanced recording and monitoring. The Raam and Shiva Mandirs are not entirely conformant to *vastu shastra* principles in terms of their construction and completion as *vastu* structures. Some basic fundamentals require introspection, such as the use of crystal to harness positive energy directly from space.

6.2.2 Discussion with Pundit Vinny Maharaj

A brief discussion with Pundit Vinny Maharaj, the resident priest of the DHT, was conducted to determine the functioning of the temple as the spiritual destiny of the Hindu people who work and live in and around the Durban city centre. The Pundit affirms that worshippers arrive and depart at various times during the day, starting from as early as 05h00 during the summer and until late after sunset each evening. This Pundit attests that on auspicious Hindu religious days, large numbers of people remain at the temple for greater periods of time, offering assistance and joining in rituals. Mass Hindu community participation occurs and to this end, adequate facilities must be provided; from ablutions, to dining and communal prayer spaces for *sathsang* and *havan*. The provisions for comfort and the relevant facilities to shield devotees from the rain, wind and midday heat are adequate, according to the Pundit.

Individual temple shrines for a pantheon of Gods such as: A mini universe or *Navagraha Mandir*, another dedicated to *Swami Narayan*, *Sitla Matha*, *Hanuman*, *Shiva* and *Durga*, are included alongside the main contemporary temple dedicated to Lord *Raam* and his consort *Sita*. According to Pundit Vinny Maharaj, the temple is not just a space for religious worship; the facility offers multiple functions in one location, aimed at enhancing the Hindu culture. A temple which was intended for the *Sanathani* Hindi community now embraces and welcomes all Hindus and non-Hindus as well. This coming together creates unity through diversity in the community, '*Vasu dhaiva kutumbakham*'. There are programs aimed at youth development, health care, motivational workshops and social services, all of which are accommodated in the recently renovated school building in Figure 130. This transformation of a contemporary Hindi temple into an architectural icon representing *bhaktism* and interfaith worshippers is an all-inclusive religious and culturally competent centre for the *Sarvajanik* community that need spiritual guidance and upliftment.

When compared with apartheid times of the mid-20th century, the temple compound site is 80 per cent developed, leaving only 20 per cent of free space for future development, continuing Hindu cultural legacy into the future. Development and upkeep of the temple relies on donor funding to undertake improvements which occur incrementally over a period of time.

6.3 ANALYSIS AND DISCUSSION OF PRIMARY DATA QUESTIONNAIRE SURVEY

6.3.1 Profile of Respondents/Demographics

A total of ten respondents, both male and female, were interviewed using questionnaires. Table 4 and 5 below show the gender and age profiles of the respondents.

Gender	No. of Respondents	Percentage %
Male	6	60
Female	4	40
Total	10	100

Table: 4. Gender profile of the respondents.

Source: Researcher, 2016

Age in Years	No. of Respondents	Percentage %
13-19	0	0
20-29	2	20
30-39	2	20
40-49	4	40
50 and above	2	20
Total	10	100

Table: 5. Age profile of the respondents.

Source: Researcher, 2016

6.3.2 Perception of Respondents on Temple study area

A. Temple

Respondents were asked about their perceptions of the improvements made to the shrine and the ambulatory spaces of their temples. The results are listed below in Table 6.

	Facility	Inadequate	Marginal	Adequate	Good	Excellent	Total	%
VTD	<i>Shrine</i>	1	1	3	5	0	10	100
	<i>Ambulatory</i>	0	2	2	6	0	10	100
DHT	<i>Shrine</i>	0	2	3	5	0	10	100
	<i>Ambulatory</i>	2	3	3	2	0	10	100

Table: 6. Perception of the quality of the shrine and ambulatory spaces in the VTD and DHT temples.

Source: Researcher, 2016

B. Social Role Facilities

The researcher also ascertained the view of the respondents regarding the social role of the facilities at both temples. The results are tabulated below in Table 7.

Temple	FACILITIES	Inadequate	Marginal	Adequate	Good	Excellent	Total	%
VTD	<i>Hall</i>	0	0	2	5	3	10	100
	<i>Dining</i>	0	0	2	6	2	10	100
	<i>Ancillary</i>	4	2	2	2	0	10	100
DHT	<i>Hall</i>	0	0	2	6	2	10	100
	<i>Dining</i>	0	1	3	5	1	10	100
	<i>Ancillary</i>	0	0	1	7	2	10	100

Table: 7. Respondents' views on social role facilities.

Source: Researcher, 2016

Table 8 shows the respondents' views on the sense of place that they enjoy regarding the use of the two temples.

Temple	FACILITIES	Inadequate	Marginal	Adequate	Good	Excellent	Total	%
VTD	<i>Security</i>	1	4	3	2	0	10	100
	<i>Parking</i>	0	0	2	6	2	10	100
	<i>Legibility</i>	1	2	2	7	2	10	100
	<i>Hospitality</i>	0	0	2	6	2	10	100
DHT	<i>Security</i>	3	2	3	2	0	10	100
	<i>Parking</i>	0	0	4	5	1	10	100
	<i>Legibility</i>	0	0	3	6	1	10	100
	<i>Hospitality</i>	0	0	3	7	0	10	100

Table: 8. Respondents' views on the sense of place they enjoy when using the temples.

Source: Researcher, 2016

6.3.3 Introduction to Summary of Findings

This research paper analysed the architectural languages employed in the design of the contemporary Hindu temples, the VTD and the DHT, of the *Sanathani* Hindi group of people in Durban. The two chosen temples, designed and built in contemporary times, continue with the traditional languages of Indian temple architecture, infused with local style influences. However, there are instances of functional spaces which depart from the traditional Hindu temple spaces in various ways. The research argued that a distinct new architectural language is witnessed in these departures, which are identified as modernist and post-modernist – the latter, in turn, revisiting the relevance of the post-modern in contemporary Hindu religious architecture. The analysis of the differing design paradigms consists of intentions, which are manifested by adopting particular strategies, and employing a selection of suitable tropes. The interpretive and argumentative investigation involved selected illustrative case studies, and employed primary visual appraisals, interviews, as well as material available from secondary sources. The characteristics of the languages were established through the research findings and are presented through a comparative matrix indicating the salient features.

6.3.4 Summary of Chapter's Findings

Most of the respondents alluded that the temples are a great place to worship and that they provide the community with cultural enrichment. The temples enrich the youth with the pride and honour of the area, as they display the deep rootedness of the Hindu heritage. The facilities and services are well maintained.

In terms of the temples' shrines and the state of the facilities: The shrines at the VTD have always been available to the public and some of the social role facilities lack upkeep due to insufficient funding and the intentions of the older gatekeepers to preserve funding rather than improving the facilities. At the DHT, however, the current facilities and temples are of exceptionally good quality, largely due to its locality in an affluent Hindu neighbourhood.

Through observation it was established that worshippers are more coherent and gel together as a social group, enjoying collective unity through religious worship. Worshippers at the DHT are always visiting the temple at random times, largely due to the temple's proximity to their places of employment. It was also observed that the VTD community are contemporary in their lifestyle, aspiring to a traditional religious lifestyle in comparison with the worshippers at the DHT, who are more rooted in post-modern society and this is evident through the architecture at the DHT.

This leads the researcher to believe that the people in the area of Tongaat are more rooted in a traditional lifestyle compared to worshippers in Durban central, who are impacted by the modern social lifestyle of the city and thus have a more liberal interpretation of the traditional lifestyle. This is, in turn, reflected through the architecture of the DHT.

The general discussion regarding the opinions of the respondents centred on the use of a standardised questionnaire, administered randomly to devotees at the temples. Focused interviews were conducted with key respondents, the spiritual heads at each temple. The general consensus by the participants of the facilities is that they are favourable to their comfort at the temple.

However, some have raised concerns over the lack of adequate site area and the lack of natural settings which include trees, waterways, and a hard and soft landscape. This is partly due to the site constraints created by its urban setting and context. The restrictions are imposed by urban planning controls, and road and infrastructure development adjoining both temples.

Discussions with patrons confirm family engagement with spirituality, aided or enforced by the motor vehicle mode of transport, where children accompany parents to this temple as a destination away from the residential suburbs that they live in. Another compelling reason was that both parents travelled to their places of employment, often in family run businesses, whilst their children attended school and tertiary education within the city. This social arrangement required both parents and children to commute together on a daily basis, making frequent visits to the temple possible.

The Hindu population census of 2001 revealed that there are 348 894 Hindus within the municipal boundaries of Durban, constituting 11.3 per cent of its entire population of just over three million people. The Hindus have established themselves in their populous suburbs, where various new temples have emerged to cater for the religious needs of the growing population. New modern temples in Hindu Indian suburbs need to be further researched and understood in terms of their architecture language, style and the social group they are meant for.

6.4 REFLECTION ON THE STUDY OBJECTIVES

Before considering the outcome of this research and the resultant formulation of a brief, the following section of this concluding chapter will briefly reflect on some of the issues discussed in the research, so that conclusions can be drawn.

The following five objectives were set out at the onset of the research in Chapter 1:

- The first was to critically narrate the historical development and the transformation of contemporary Hindu religious architecture in Durban.

The theoretical basis with which the study was approached was through the analysis of the relationship between the cultural setting and Hindu religious built form.

- The second objective sought to investigate the issue of the identity of the Hindu temple architecture at a spiritual level. This objective further sought to explore if the built form conveyed total harmony with the Hindu lifestyle in all its daily, as well as seasonal rituals, unifying the socio-cultural and religious aspirations of the individual and the Hindu community in Durban.
- The third objective investigated the development criteria for the design generators for contemporary Hindu religious architecture in Durban.
- Moreover, the fourth objective of the research studied the contextual relationship of the Hindu temple, together with the traditional Hindu cultural settlements and the contemporary urban built forms, to unravel the foreign ideological driving forces in Durban, responsible for the change to context and cultural settlements.
- The final objective was to identify the social and cultural activities and the related uses relevant and acceptable to the Hindu tradition that could be integrated within traditional Hindu temple sites to create Durban Hindu *genius loci*.

Reflecting on questions posed in the study, it becomes evident that the researcher has addressed all the key questions and sub-questions set out in the work. The key objective which sought to investigate the causes of the building transformation of contemporary Hindu temples in Durban and how it has impacted on the original architectural built quality was answered through review of the case studies on the VTD and the DHT. Furthermore, an intense literature review of both local and international scholarly materials, coupled with suitable precedent studies, aided the researcher to answer the key objective of this study.

The second objective which sought to inquire how the accommodation of the social role activities on the temple site impacted on the traditional architectural built quality in Durban was achieved through the case studies discussed in Chapter Five. This endeavour was also aided by focused interviews with key respondents, who contributed immensely with their responses. The third objective was answered through the case studies in Chapter Five, while the final objective

was answered in Chapter Four with the aid of precedent studies, as well as in Chapter Five through the selected case studies.

6.5 RECOMMENDATION AND FORMULATION OF A BRIEF

Durban faces what seems to be insurmountable problem with the rate of population increase, mixed marriages and social influences according to Nel, Hill, & Maharaj (2003). The implications of these for Hindu temple architecture are always a concern to the Hindus.

An expression of ideas by architects of the future must take into consideration the preservation and education of the past. Architecture education becomes necessary for increasing the efforts of historic preservation and the conservation of what is important from the past, regardless of whose architecture it is. Further consideration of architects and planners' ability to integrate opposing ideas will provide a procedural base for the Hindu temple architecture, which requires dealing with the specific needs of the Hindu people.

Architects designing Hindu religious architectural spaces need a socio-political environment that allows them to do so. In the multicultural society of Durban, architecture interventions that are specific to a cultural group, such as the temples of the Hindu people, have raised concerns regarding the creation of symbols without really addressing the fundamental concerns of religious appropriateness. This needs attention and consultation with religiously informed intellectuals and specialists in that field.

Hindu temple architecture of Durban may well be 'haunted by the past', but it has succeeded in promoting cultural continuity within a multicultural society. While architectural critics worry about the rapid globalisation of architecture, it is the needs of the specific socio-cultural group which are primary.

In an attempt to create new temples, the gatekeepers of such organisations must generally consider a set of guiding criteria, through the formulation of a design brief, which must take into account:

- Site selection criteria according to *Vastu Shastra* principles, in which architects and urban designers have an important role to play
- The design of Hindu temple architecture must be appropriate in defining Hindu culture, through the consideration of traditional approaches, symbolism and universal principles in order to conform to the requirement of relevance in contemporary times.
- Architects should avoid nostalgia and classicism in temple architecture, and seek to produce manifestations of the divine order of the universe. In short, architects must create models of heaven on earth and to do so, derive design from nature's geometry - the creative principles embedded in sacred traditions which display order and proportion, relevant for universal harmony.
- Designers must place importance on geometry or 'spiritual mathematics', or what Plato referred to as; the universal languages of humanity, or the precise 'grammar of harmony', which will communicate directly to the observer and resonate with their being. Placing the human being at the centre of the design process will go beyond seeing these people as observers. As traditional thinking teaches, basing designs on universal principles will fulfil the physical, cultural and spiritual levels of humanity. (Hadnagy,2011)
- The use of local materials is critical for construction, in order for the buildings to be 'rooted in localness', and there must be no dependence on unnaturally produced or industrialised materials. In this way a modern temple development will not follow the dictates of fashion, which over time will appear old fashioned or worn-out. Instead, it must seek to create an iconic structure of local Hindu cultural identity that engenders a strong sense of place for the Hindu community, where its social group can enjoy a sense of shared pride of their place of worship.

6.6 CONCLUSION

The expressive form of the Birla Mandir is deeply informed by religion, which is in turn subject to modern transformation. The Birla Mandir was built in response to the demand for a Hindu temple by orthodox *Sanathani* Hindus (Chaturvedi, 1982). Largely due to colonial influences of the time, both in the Indian Sub-continent and in Durban, materials such as brick and cement were readily available for construction. Stone has greater prestige but is rarely used in the modern period. In this view, the pictorial tableaux of the contemporary Hindu temples are a way of invoking the past to compensate for the absent aura of both historicity and the cultic materiality of the buildings itself. As discussed in Chapter Four; Chatterjee, in the design of the Birla Mandir, extensively used modern materials in the buildings. The implications of ‘modern’ are global and have been experienced by all societies and cultures, including the Hindus in Delhi and Durban that subscribed to the enlightenment of spiritual and religious traditions and their way of life. Both temples in Delhi and in Durban, built during the modernist period, employ contemporary technology yet retain their traditional vocabulary for the sake of cultural continuity and religious symbolism.

Temples in Delhi, built in a post-colonial India, were a product of the mega-revival of India’s ancient Hindu tradition, while temples built in Durban during the same time were a product of nostalgia and memory. The Birla Mandir, named after its patrons, the Birla family, was the product of their corporate social responsibility to the Hindus who served them through employment or loyalty. On the other hand, the Hindu temples in Durban were built by a sponsored collective effort and the contribution of a community still in its infancy stage in a foreign adopted city. Although Hindus in Durban are not the indigenous people of the land, they built temples from memory of their ancestral country, the Indian Sub-continent.

The stark contrast in scale and grandeur is evidenced when both the Birla Mandir and Durban Hindu temples are compared; the latter being the modest humanistic scale attempt void of sculpture and artistic decoration. The Hindus of Durban, unlike Hindus of India and elsewhere, fused regionally influenced architectural elements such as the verandah style, a local climatic inflicted design element and Islamic domes, minarets and arches, creating their own distinctive architectural style in Durban.

REFERENCES

Related Publications

- **Arjun, M., & Sanghamitra, B.** (2015, Apr 02). Contemporary Architectural Languages of the Hindu Temple in India. *South Asian Studies*, pp. 38-57.
- **Begde, P.** 1998. *Vaastu Shastra – Then and Now*
Architecture & Design, Sept – Oct, P28 – 32.
- **Begde, P.** 2004. *Critical Regionalism Architecture of Pluralism.*
Architecture & Design, Dec, P66 – 68.
- **Chakrabarti, V.** 1998. *Looking Beyond Directions on Vaastu Vidya.* Architecture & Design, Sept – Oct, P42 – 47.
- **Chhaya, H.D.** 1998. *Vedic Spirit in Architecture.*
Architecture & Design, Sept – Oct, P21 – 25.
- **Correa, C.** 1996. *Charles Correa.* London: Thames & Hudson
- **Correa, C.** 2004. *Make Sure its Your Train.*
Architecture & Design, Dec, P60 – 63.
- **Doshi, B.V.** 2004. *The Biocentric Essence.* Architecture & Design, Dec, P84 – 87.
- **Frampton, K.** 1992. *Modern Architecture: A Critical history.* London: Thames & Hudson.
- **Geertz, C.** 1973. *Thick description: Towards an interpretive theory of Culture*, in: *The Interpretation of Culture: selected essays*. New York/NY/USA etc. Basic Books, P 3 – 30.
- **Kanvinde, A.P.** 2000. *Quest for quality architecture and urbanization.* Architecture & Design, Sept – Oct, P28 - 32
- **Lefaivre, L & Tzonis, A.** 2003. *Critical Regionalism: Architecture and identity in A Globalized World.* Prestel, Munich.
- **Menon, K.A.G.** 2004. *Interrogating Modern Indian Architecture.*
Architecture & Design, Dec, P38 – 43.
- **Mthethwa, M.N.** 2001. *A Study of the relationship between Built Form and Culture: The Bulawayo Executive Mayor's Residence and its Environment, A Master of Architecture thesis* submitted to the University of Cape Town, South Africa.

- **Mthethwa, M.N.** 2002. *Towards a Regional Identity: Application of Traditional Forms and Decorative Elements in Zimbabwean Contemporary Architecture.*
- **Norberg-Schulz, C.** 1971. *Existence, Space and Architecture.* Studio vista, London.
- **Oliver, P.** (Ed), 1997. *Encyclopedia of Vernacular Architecture of the World Vol. 1: Theories and Principles.* Cambridge University Press, Cambridge.
Open House International, Vol. 27 No.3, P54 – 65.
- **Rewal, R; Doshi, B.V.; Ganju, A.** 1987. *Work of three Indian architects.*
The Architectural review, August, P39 - 49.
- **Saini, B.** 2000. *Ancient symbols in Architecture.*
Architecture & Design, July – Aug, P103 – 105.
- **Sinha, A.** 2000. *Designing with Archetypes.*
Architecture & Design, Sept – Oct, P33 – 37.
- **Varkey, K.** 2000. *The essence of the Indian Tradition.*
Architecture & Design, July – Aug, P98 – 101.

Books

- **Deva, K.** 1990. *Temples of India.*
- **Correa, C.** 1996. *Charles Correa,* Great Britain: Thames and Hudson Ltd.
- **Errington, E. & Cribb, J.** (eds.) 1992. *The Crossroads of Asia: Transformation in Image and Symbol.*
- **Frampton, K.** 1985. *Towards a Critical Regionalism,* London: Thames and Hudson
- **Giedion, S.** 1973. *Space, Time and Architecture: The growth of a new tradition.* Fifth Edition. London: Oxford University Press.
- **Harber, Kearny & Mikula.** 1982. *Traditional Hindu Temples in South Africa,* South Africa: Hindu Temple Publications.
- **Hardy, A.** 1995. *Indian Temple Architecture: Form and Transformation.*
- **Hardy, A.** 2007. *The Temple Architecture of India,*
Great Britain: John Wiley and Sons Ltd.

- **Heidegger, M.** 1971. On the way to language, trans. Peter Hertz. New York: Harper & Row.
- **Leedy, P.D.** 1997. Practical Research: planning and Design. Sixth edition, New Jersey: Prentice-Hall, Inc.
- **Munsamy, S. S.** 1997. Sunrise to Sunset, South Africa: Dravidian-Afro Publications.
- **Nath, A.** 1996. Jaipur: The last Destination, New York: Rizzoli.
- **Norberg-Schulz, C.** 1980. Genius Loci: Towards a Phenomenology of Architecture, Academy Editions, London
- **Oliver, P.** 1987. Shelter, Sign & Symbol, Barrie & Jenkins Ltd., London.
- **Rosen, Steven J.** 2002. The Hidden Glory of India, Bhaktivedanta Book Trust Int., China
- **Rosenberg & Vahed**, 2014. Dirty Linen 'Other Durban 1870s- 1980s, Durban South Africa, the ROCS Project, DUT Press.
- **Stutley, M & J.** 1977. A Dictionary of Hinduism.
- **Tadgell, C.** 1990. The History of Architecture in India. United Kingdom, Longman Group UK Ltd.
- **Tillotson, G.** 1989. The Tradition of Indian Architecture: Continuity, Controversy and Change since 1850.
- **Lang J and Desai, Madhavi and Desai, Miki.** 1997. Architecture and Independence. The Search for Identity - India 1880-1980. Delhi, Oxford University Press.
- **Meer, F.** 1969. Portrait of Indian South Africans, Durban, South Africa, Avon House.
- **Michell, G.** 2000. Hindu Art and Architecture. London, Thames & Hudson Ltd.
- **Borden, M.** 2011. Vastu Architecture. USA,
- **Vincent B.Canizaro.** 2007. Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition. New York: Princeton Architectural Press
- **Reddy, G.T.** 1994. The Secret World of Vaasthu. India: Prajahita Publishers
- **Kumar, V.** 2004. Vaastushastra. India: New Dawn Press.
- **Lefaire, L & Tzonis, A.** 2003. Critical Regionalism: Architecture and Identity in a Globalized World, Germany: Prestel Verlag.
- **Vale, L.J.** 1992, Architecture, Power and National Identity, London: Yale University, Press.

- **Whelan, B.** 2002, Vastu in 10 Simple Lessons, Great Britain: Aurum Press Ltd.
- **Koch, E.** 2006. The complete Taj Mahal, London: Thames and Hudson Ltd.
- **Watson, R. G. T.** 1960. Tongaati-An African Experience, London: Hutchinson & Co. Ltd.

Websites

- **Dr. Balakrishna Vithaldas Doshi** – Architecture Forum:
<http://www.designcommunity.com>.
Date accessed: 07/04/2013 – 10.30am
- **B.V. Doshi:** <http://en.wikipedia.org>
Date accessed: 07/04/2013 – 11.15am
- **Charles Correa:** <http://archnet.org>
Date accessed: 09/04/2013 – 10.43am
- **Indian Architecture:** Articles on Indian Art & Culture: www.vignanam.com
Date accessed: 13/04/2013 – 11.45am
- **Menon, K.A.G.** Rethinking Architecture: www.hinduonnet.com
Date accessed: 21/04/2013 – 11.48am
- **Stefanovic, I.L.** Speaking of Place: In dialogue with Malpas, in *Environmental & Architectural Phenomenology Newsletter*:
http://www.arch.ksu.edu/seamon/stefanovic_malpas.htm
Date accessed: 17/05/2013 – 12.18pm

APPENDIX ONE

SAMPLE QUESTIONNAIRES ON SURVEY

- i) This questionnaire is for academic purposes only.
- ii) Confidentiality: Efforts will be made to keep personal information confidential. Your real name / identity are not needed. Absolute confidentiality cannot however be guaranteed. For example, personal information (in this case age, gender, and contact detail) may be disclosed if required by law.

Please answer the questions to the best of your ability. You do not have to answer all the questions, but it is preferred that you do. There are no wrong or right answers. Use your instinct.

1: Is this your first time at the Durban Hindu Temple (DHT)? If 'YES', ignore the questions you feel you are unable to answer.....

2: On average, how often do you come here, and why do you come here?
.....

3: What would you say gives the Durban Hindu Temple, its character or spirit?
.....

4: Do you think the look of the additions to Durban Hindu Temple contribute at all to the character of a Hindu Religious building, and why?
.....

5: Do you think the improvements add spiritual quality to the Temple building compound?
.....

6: What words do you think best describe the atmosphere, or feeling of being here?
.....

7: Please describe / identify your favourite place within the Temple compound, and give a short reason why. If you wish, you may identify more than one place.
.....

8: Do you think the Durban Hindu Temple, is successful as a place of worship for the Hindu community? Please give a short reason why.
.....

..... :) End. Thank You ☺

APPENDIX TWO

FOCUS INTERVIEW WITH KEY RESPONDENTS

For members of a local Hindu Cultural and Religious organization

Research into: **Historical development and transformation of Hindu Religious Architecture.**

Participation is voluntary and all information will be treated in a confidential and anonymous manner.

PREAMBLE

I am interested in how your association feels about the transformation and inclusion of social role activities to the traditional temple and wish to ask you a series of questions about this. I will not ask specific questions but I do wish to cover a number of topics. Your answers will be treated in the strictest confidence.

CONTEXT (sample site) _____

Informant: _____

General:

a) Age: _____

b) Gender: Male ☐ Female ☐

c) Race Black White Indian Coloured Other
☐ ☐ ☐ ☐ ☐

d) Religion: _____

e) Profession: _____

f) Employment: yes ☐ No ☐

CULTURAL ORIENTATION

a) Are you a Hindu? _____

b) Do you worship at this temple regularly? _____

- c) When else do you visit this facility? _____
- e) Are you satisfied with the architectural built quality? _____
- f) What can be done to improve these facilities? _____
- g) Are you a member of this cultural organization? _____
- h) When did you join this cultural organization? _____
- i) Did you join because of the social role activities it provides? _____
- j) Where you a member before the building additions were done? _____
- k) Do you think the architectural design is appropriate and is in keeping with the traditional built form? _____
- l) If you answered no then substantiate how can the built form be improved or how can it be made better? _____
- m) Do you think the adjoining buildings add value to the general environment within which this temple is located? _____
- n) Do you understand what is Vastu Shastra? _____
- o) What has been the attitude of the cultural association to other religious groups using these facilities? _____
- p) Do you link up with other cultural groups? _____
- q) How successful have been the actions of the association in the promoting social role activities to the general community? _____
- r) How has the local council responded to the changes?

- s) What assistance does the council provide and when? _____

DISCUSSION OF IDEAL NEIGHBOURHOOD AND ARCHITECTURAL BUILT ENVIRONMENT