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# RESEARCH THESIS

## related to SIX CROSS CUTTING THEMES UNDER URGENT PROJECT

**Assessing the relationship between the ancient principles of  
Vastu Shastra and climate responsive architecture in two  
different climatic regions of Gujarat**

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*Batch: 2017-2022*

**B Arch Program**

**P 12**

**NIRMA UNIVERSITY**

**AHMEDABAD**

**GUJARAT**

**INDIA**



In the final semester of a Bachelor of Architecture (B. Arch) program, students engage in academic research by selecting an area of interest within the field of architecture. This process typically involves several steps to ensure that the research is rigorous, structured, and valuable. The process starts with a course on Research Methodology in VIII Semester followed by Research Proposal in IX semester. Here's an overview of the process:

## 1. Choosing an Area of Interest

- **Exploration:** Students begin by exploring various topics within architecture, such as sustainable design, urban planning, architectural history, construction technology, or digital architecture.
- **Narrowing Down:** After exploring, students narrow down their interests to a specific research question or problem. This could be based on current trends, gaps in existing literature, or personal interest.

## 2. Defining the Research Question

- **Problem Statement:** Students formulate a clear problem statement or research question that their work will address. This defines the scope of the research and sets the direction for the study.
- **Objectives:** Setting clear objectives helps in focusing the research. These could include understanding certain architectural phenomena, proposing new design solutions, or evaluating existing practices.

## 3. Literature Review

- **Existing Research:** A thorough review of existing literature helps students understand what has already been done in their area of interest. This involves reading academic papers, books, case studies, and other scholarly articles.
- **Gap Identification:** Through the literature review, students identify gaps or areas where further research is needed, which helps in refining their research question.

## 4. Research Methodology

- **Qualitative vs. Quantitative:** Depending on the nature of the research, students choose between qualitative methods (such as case studies, interviews, or observations) and quantitative methods (such as surveys or statistical analysis).
- **Data Collection:** Students plan how they will collect data. This might involve fieldwork, archival research, simulations, or experiments.
- **Data Analysis:** Once data is collected, students analyze it using appropriate tools and methods. This could involve software for statistical analysis, 3D modeling, or comparative analysis techniques.

## 5. Design and Proposal Development

- **Conceptual Framework:** Students often develop a conceptual framework that guides the design or theoretical aspects of their research.
- **Prototyping:** In some cases, students create physical or digital models to test their ideas. This is particularly common in research that leads to a design proposal.



## 6. Documentation and Presentation

- **Writing the Thesis:** The research findings are documented in a thesis, which includes the introduction, literature review, methodology, findings, discussion, and conclusion.
- **Visual Presentation:** Architecture students often need to prepare visual presentations of their research, including drawings, models, or digital renderings.
- **Defense:** Students may be required to present and defend their research in front of a panel of faculty members and peers.

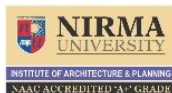
## 7. Conclusion and Future Research

- **Summary of Findings:** The thesis concludes with a summary of the findings and their implications for the field of architecture.
- **Suggestions for Future Research:** Students may also suggest areas for further study based on their findings, contributing to ongoing academic discourse.

## 8. Submission and Review

- **Final Submission:** The completed thesis is submitted for review. This may include peer review, faculty evaluation, and sometimes publication in academic journals.
- **Feedback:** Based on the review, students may be asked to make revisions before the final acceptance of their research work.

This process not only helps students gain a deep understanding of a particular area within architecture but also equips them with the skills to conduct independent research, a valuable asset in their professional careers. Some of the research works undertaken by students are listed, examples of the some are also elaborated further.



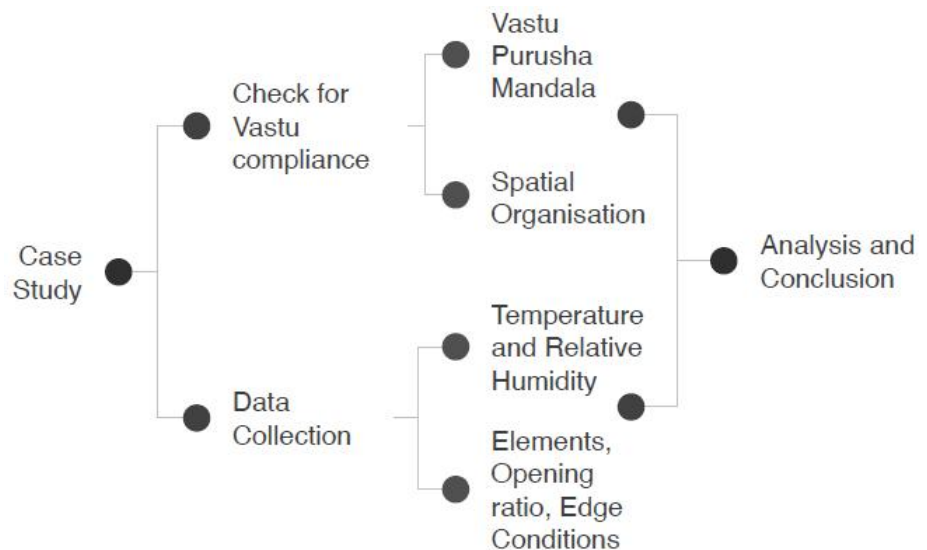
# Assessing the relationship between the ancient principles of Vastu Shastra and climate responsive architecture in two different climatic regions of Gujarat

**Student Name:** Tejshree Joshi

**Guide:** Ar. Parag Mistry

**Batch:** 2017-2022

**AIM:** To assess the relation between the principles of Vastu Shastra and climate responsive architecture through analysing the cases of contemporary residences in two different climatic regions of Gujarat.



## Framework for Analysis

Sr. No.	Attributes	What would be studied
1	Spatial organisation	<ul style="list-style-type: none"> <li>To study the arrangement of the spaces inside a residence according to the functions.</li> <li>The positioning of the spaces according to the Vastu Purusha Mandala and its scientific reasoning leading to climatic response.</li> </ul>
2	Orientation	<ul style="list-style-type: none"> <li>The orientation of the site and its entrance.</li> <li>The orientation of the built-form in response to climate and Vastu Shastra.</li> </ul>
3	Directions	<ul style="list-style-type: none"> <li>The study of sun direction, wind direction and earth's magnetic field to study Vastu Shastra and climate.</li> <li>The importance of cardinal directions.</li> </ul>
4	Elements of the built-form	<ul style="list-style-type: none"> <li>The elements used in a residence for different climatic regions.</li> <li>Elements suggested in Vastu principles and its effect on climate response.</li> </ul>



# Vastu Analysis : Case 1 and Case 2

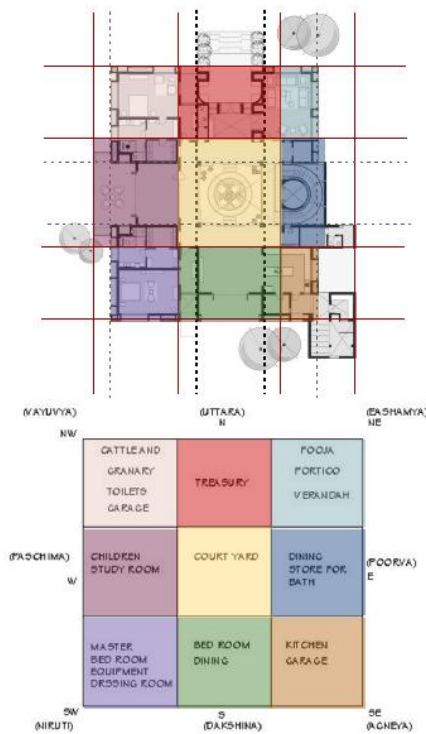


Fig. 5.19 Spatial Arrangement Diagram

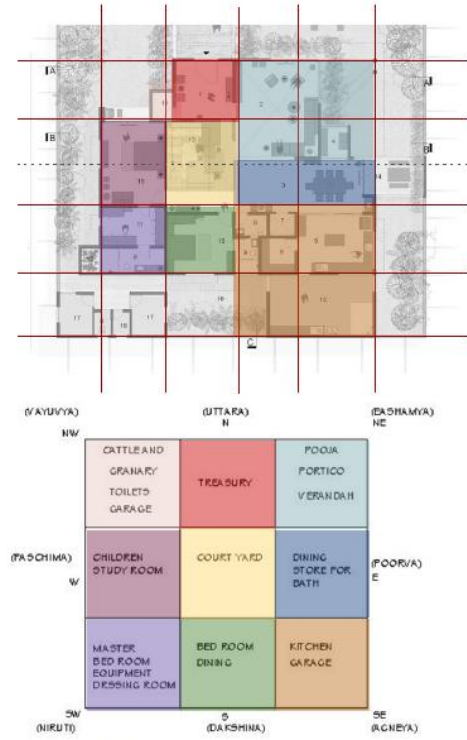


Fig. 5.50 Spatial Arrangement Diagram

# Climatic Analysis - Case 1



Fig. 5.20 Temperature Mapping Diagram



Fig. 5.21 Temperature Mapping Diagram



Fig. 5.22 Temperature Mapping Diagram



Fig. 5.23 Temperature Mapping Diagram

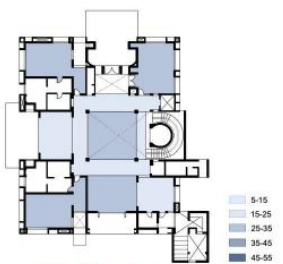


Fig. 5.24 Humidity Mapping Diagram

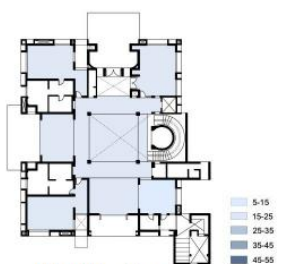


Fig. 5.25 Humidity Mapping Diagram



Fig. 5.26 Humidity Mapping Diagram



Fig. 5.27 Humidity Mapping Diagram





### Climatic Analysis - Case 1

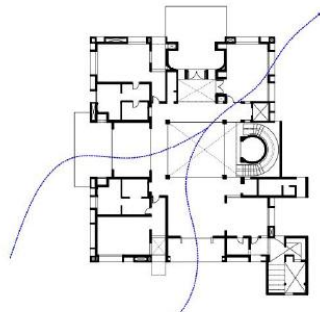


Fig. 5.28 Wind Flow Diagram



North-South Section

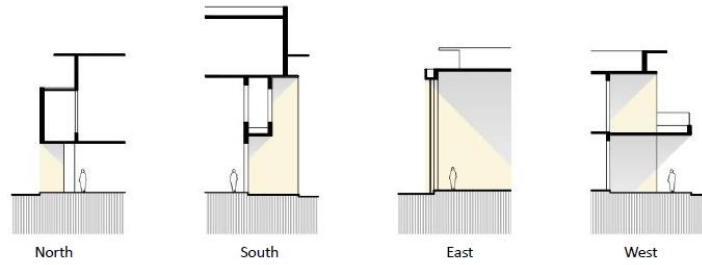
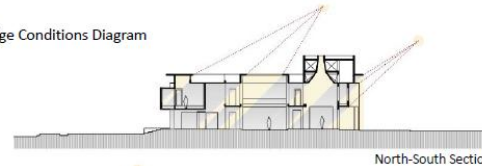


Fig. 5.32 Edge Conditions Diagram



North-South Section

### Opening Analysis - Case 1



Fig. 5.30 Openings Diagram

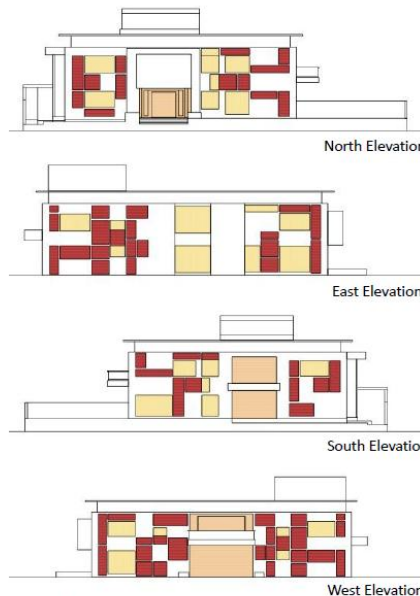
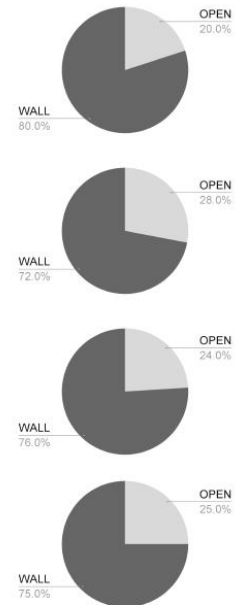


Fig. 5.31 Openings Diagram



In conclusion, while Vastu Shastra principles provide a foundational framework for climatically responsive architecture, it is essential to recognize their limitations. A building's responsiveness to climate extends beyond Vastu principles and encompasses factors such as material selection, architectural elements, and consideration of users' lifestyles. While the core principles of Vastu remain relevant, the evolving language of architecture and diverse climatic conditions necessitate additional considerations for a comprehensive and effective climatic response in architectural design. Therefore, while Vastu principles offer a starting point, achieving true climatic responsiveness requires a holistic approach that integrates various elements and factors tailored to the specific context and needs of the users.