

# Review of landscaping materials used in hotel interiors with respect to Performance and Maintenance

AR. Rohan R. Torane<sup>1</sup>, Prof. Dipti Bapat<sup>2</sup>

<sup>1</sup> Allana College Of Architecture Pune, Maharashtra- 411037, India

<sup>2</sup> Allana College Of Architecture Pune, Maharashtra- 411037, India

## Abstract

Interior landscaping has become an important approach for improving environmental quality, visual appeal, and user comfort in modern indoor spaces. The choice of materials significantly influences the durability, sustainability, maintenance needs, and overall effectiveness of landscape installations. This study examines the materials used in interior landscaping through two hospitality projects: Bora Bora Restaurant, Mumbai, and a resort landscape development project by Ar. Ajinkya Chavan.

Using case study analysis, site observations, and project-based learning, the research evaluates planter materials, landscape elements, vegetation systems, and waterscape features. The findings show that materials such as ceramic, concrete, natural stone, and metal offer durability, low maintenance, and support healthy plant growth. The integration of greenery and water features enhances visual comfort, environmental quality, and the overall user experience.

The study concludes that effective interior landscaping requires a balance between material performance, aesthetics, sustainability, and maintenance. These findings can help architects and designers make informed material choices for hospitality and resort projects.

**Keywords:** *Interior Landscaping, Sustainable Materials, Indoor Environmental Quality, Planter Materials, Hydroponics, Indoor Green Systems, Material Performance, Landscape Architecture*

## 1. Introduction

Rapid urbanization and the increasing amount of time spent indoors have highlighted the need for healthier and more sustainable interior environments. Interior landscaping has emerged as an effective design approach that integrates natural elements such as plants, green walls, water features, and planter systems to enhance environmental quality, visual comfort, and occupant well-being.

The performance of interior landscaping depends not only on plant selection but also on the materials used in its construction. Materials such as planters, structural supports, drainage systems, and hardscape elements influence durability, maintenance requirements, sustainability, and plant health. Their selection plays a crucial role in ensuring the long-term success of landscaped interior spaces.

This study examines the role of material selection in interior landscaping through two hospitality-based case studies: Bora Bora Restaurant, Mumbai, and a resort landscape development project. The research evaluates how different materials affect environmental performance, maintenance efficiency, durability, and user experience.

The findings emphasize that careful material selection is essential for creating sustainable, visually appealing, and functional interior landscapes. The study provides practical insights for architects, interior designers, and landscape professionals involved in hospitality and resort projects.

## 2. Aim

To examine the role of material selection in interior landscaping and evaluate its influence on environmental performance, sustainability, durability, and maintenance requirements within hospitality projects.

## 3. Objectives

1. To identify the materials commonly used in interior landscaping applications within hospitality environments.
2. To examine the application of planter systems, landscape elements, and supporting materials in hospitality interiors.
3. To evaluate the performance and maintenance requirements of materials used in interior landscaping.
4. To compare material selection and maintenance considerations through the analysis of a restaurant and a resort project

## 4. Literature Review

### 4.1 Interior Landscaping

Interior landscaping involves the incorporation of natural elements such as plants, planters, water features, and green walls within indoor environments. It enhances both the functionality and visual appeal of spaces while fostering a stronger connection between people and nature. This approach is closely linked to biophilic design, which promotes the integration of natural systems into built environments to create healthier and more comfortable spaces.

Studies have shown that interior landscaping can improve indoor environmental quality by supporting humidity control, reducing stress, enhancing psychological well-being, and creating a more pleasant spatial experience. In hospitality settings, the use of landscape elements contributes to a welcoming atmosphere and enriches the overall experience of visitors.

### 4.2 Role of Materials in Interior Landscaping

Materials form the physical framework that supports interior landscaping systems. The selection of appropriate materials influences durability, sustainability, maintenance requirements, and plant performance.

Material	Primary Application
Ceramic	Planters and containers
Concrete	Planter beds and edging
Metal	Structural supports
Natural Stone	Walkways and planter boundaries
Composite Materials	Decorative containers
Wood	Planters and landscape furniture

Table 2.2: Commonly used materials

Each material possesses unique properties that influence moisture retention, structural stability, aesthetic quality, and long-term maintenance.

### 4.3 Environmental Performance of Landscape Materials

Material selection affects environmental performance through:

- Durability and life-cycle performance
- Resource efficiency
- Thermal properties
- Compatibility with plant growth
- Contribution to visual comfort

Natural and long-lasting materials reduce replacement frequency and support sustainable landscape development. Materials that resist moisture, corrosion, and climatic variations contribute positively to environmental performance and operational efficiency.

### 4.4 Maintenance Considerations

Maintenance remains one of the most significant factors affecting landscape performance.

Key maintenance activities include:

- Irrigation management
- Surface cleaning
- Pest control
- Plant replacement
- Structural inspection

Materials requiring less maintenance reduce operational costs while improving long-term landscape sustainability.

### 4.5 Research Gap

Although previous studies have examined the environmental benefits of interior landscaping, limited research focuses specifically on the relationship between material selection, maintenance requirements, and landscape performance in hospitality environments. This study addresses this gap by investigating material performance through practical case studies of hospitality and resort projects.

## 5. Methodology

This study adopts a qualitative case study approach to investigate the role of materials in interior landscaping within hospitality environments. Two case studies were selected: Bora Bora Restaurant, Mumbai, and a resort development project designed by Architect Ajinkya Chavan. Data were collected through site observations, visual documentation, project drawings, material specifications, and professional involvement in the resort project as a 3D visualizer. The collected information was analyzed to identify commonly used landscape materials, their durability, maintenance requirements, and suitability for hospitality applications. A comparative analysis was then conducted to evaluate material performance and derive recommendations for effective material selection in interior landscaping.

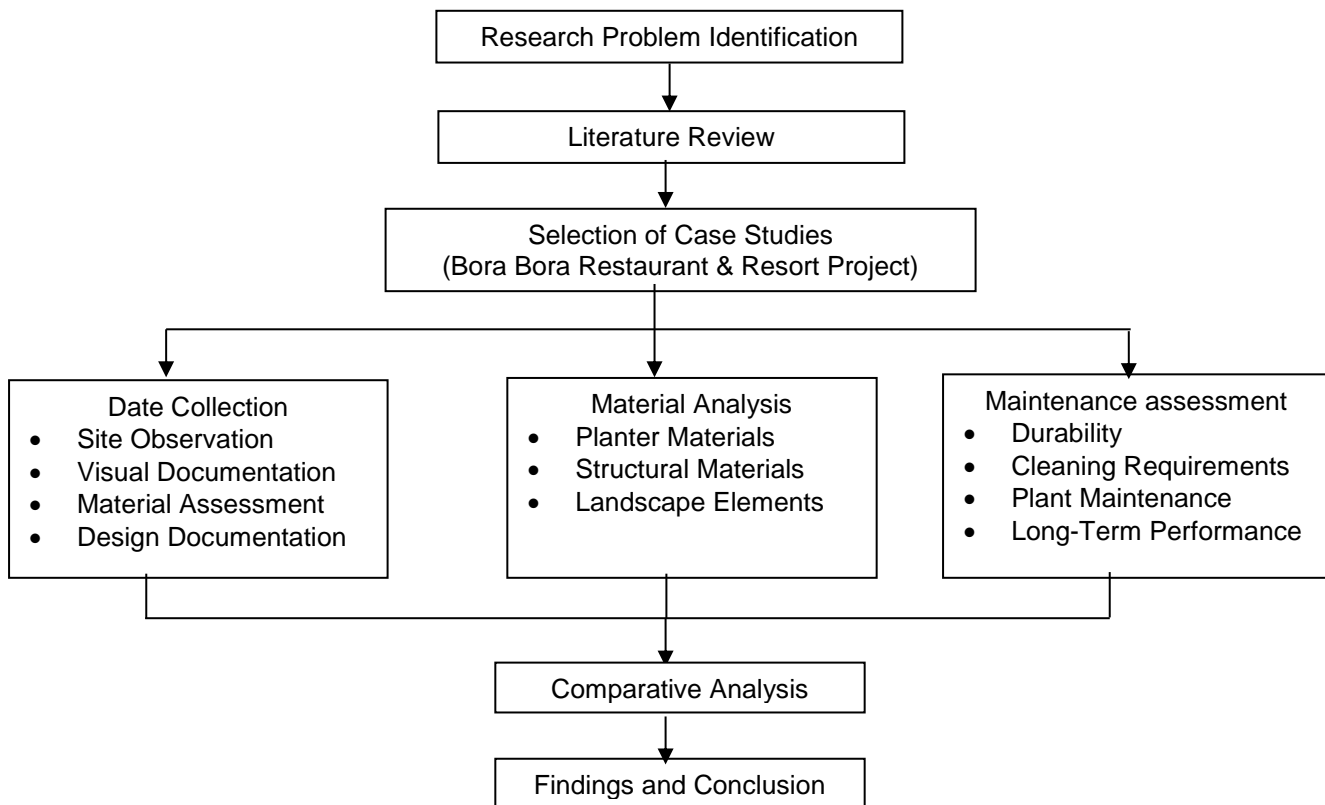


Fig 5: Methodology flow chart

## 6. Case study

### 6.1 case study 1- Field visit

<b>Project name :</b>	Bora Bora Restaurant
<b>Location :</b>	Juhu Tara Road, Mumbai
<b>Project Type :</b>	Restaurant and Lounge
<b>Surrounds :</b>	Beachfront Hospitality interior
<b>Interior Character :</b>	Tropical, Biophilic, Contemporary
<b>Primary Landscape Features:</b>	Hanging plants, planters, semi-open seating, green ceiling elements



Fig. 6.1.1: Location map Bora Bora restaurant



Fig.6.1.2: Interior view

## 6.2 Case Study 2 - Resort Landscape Development

<b>Project Type</b>	: Resort Development
<b>Project Architect and Landscape Consultant:</b>	Ar. Ajinkya Chavan
<b>Role</b>	: Architectural 3D Visualizer and Design Documentation Support
<b>Study Focus</b>	: Analysis of material selection, planter systems, waterscape elements, green walls, drainage planning, and landscape integration within resort environments

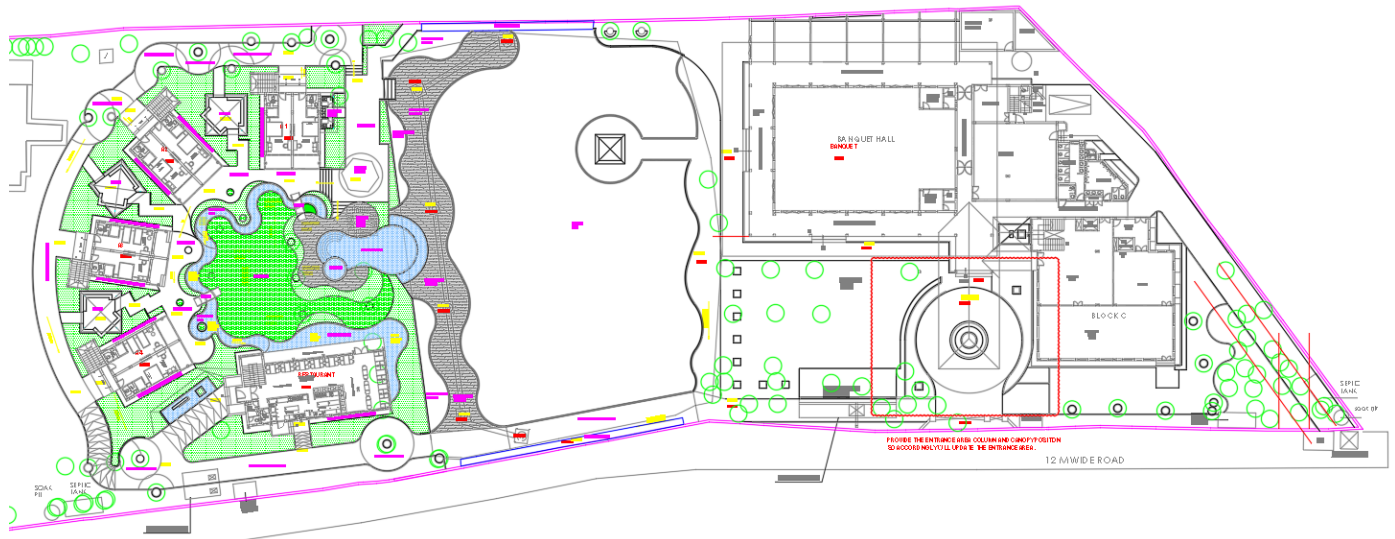


Fig. 6.2.1: Master plan for resort

## 7. Finding & Analysis

### 7.1 Material Performance Analysis

#### Bora Bora Restaurant

The project demonstrates successful integration of tropical vegetation within a semi-open hospitality environment. Ceramic planters, metal supports, and concrete landscape elements provide structural stability while maintaining visual quality.

The use of durable materials supports resistance to coastal humidity and frequent public use. Tropical plant species contribute to environmental enhancement and biophilic character.

#### Resort Development Project

The resort project incorporates a wider range of landscape materials including natural stone, concrete planter systems, waterscape elements, and green walls.

The integration of drainage systems and sustainable material strategies enhances long-term landscape performance. Natural stone and concrete provide durability while reducing maintenance requirements.

### 7.2 Comparative Material Evaluation

Material	Durability	Sustainability	Maintenance
Ceramic Planters	High	Moderate-High	Low
Concrete Planters	High	Moderate	Low
Metal Supports	High	Moderate	Moderate
Natural Stone	Very High	High	Low
Composite Containers	Moderate	Moderate	Moderate
Tropical Plants	Moderate	High	Moderate

Table 7.2: Material evaluation

### 7.3 Environmental Performance Comparison

Parameter	Bora Bora Restaurant	Resort Project
Visual Comfort	High	High
Biophilic Experience	High	Very High
Plant Health Support	High	High
Environmental Enhancement	Moderate-High	High
Sustainability	Moderate	High

Table 7.3: Environmental Performance

### 7.4 Maintenance Assessment

Component	Maintenance Frequency
Ceramic Planters	Low
Concrete Elements	Low
Natural Stone Surfaces	Low
Metal Supports	Moderate
Green Walls	Moderate-High
Waterscape Features	High

Table 7.4: Maintenance assessment

The findings indicate that natural stone, concrete, and ceramic materials provide the most effective balance between durability and maintenance efficiency. Green walls and waterscape systems offer significant environmental benefits but require higher maintenance inputs.

## 8. Analysis

The comparative analysis demonstrates that material selection directly influences landscape performance, environmental quality, and maintenance efficiency. Bora Bora Restaurant illustrates how durable planter materials and tropical vegetation can create a strong biophilic atmosphere within a hospitality environment while maintaining manageable maintenance requirements.

The resort project further demonstrates the importance of integrating durable hardscape materials, drainage systems, and sustainable landscape strategies. Natural stone and concrete materials exhibited superior long-term performance due to their durability and resistance to environmental deterioration.

The study highlights that successful interior landscaping depends not only on plant selection but also on the performance characteristics of supporting materials. Durable and climate-responsive materials contribute significantly to sustainability, user satisfaction, and operational efficiency.

## 8. Recommendation

Based on the findings of the study, careful material selection should be considered an essential aspect of interior landscaping in hospitality projects. Durable materials such as ceramic, concrete, natural stone, and metal demonstrated satisfactory performance and reduced maintenance requirements, making them suitable for long-term applications.

Hospitality designers should select materials that are resistant to moisture, wear, and frequent public use while maintaining aesthetic quality. Planter systems and landscape elements should be integrated with appropriate drainage provisions to support plant health and minimize maintenance issues.

The adoption of sustainable and biodegradable materials should also be encouraged wherever feasible. Materials such as coir, bamboo, reclaimed wood, recycled composites, and other environmentally responsible alternatives can reduce environmental impact while supporting sustainable landscape practices. The use of recycled and locally sourced materials can further contribute to resource conservation and minimize material transportation requirements.

Regular maintenance practices, including irrigation monitoring, cleaning of planter surfaces, pruning, and inspection of landscape structures, should be incorporated into facility management strategies to ensure the long-term success of interior landscaping installations.

Future hospitality projects should adopt a balanced approach that considers material durability, maintenance efficiency, sustainability, biodegradability, plant requirements, and overall user experience during the design and implementation of interior landscaping systems.

## 9. Conclusions

The study examined the impact of material selection in interior landscaping through a hospitality restaurant and a resort landscape development project. The findings show that material choice plays an important role in durability, maintenance, sustainability, and the overall success of landscape installations. Materials such as ceramic, concrete, metal, and natural stone performed effectively due to their strength, longevity, and suitability for landscape applications.

The study also found that tropical plants, green walls, and water features enhance visual appeal, user comfort, and the connection between people and nature. Additionally, maintenance requirements were identified as a key factor influencing the long-term performance of interior landscapes. Materials that are durable and easy to maintain contribute to greater sustainability and operational efficiency. Overall, the research highlights the importance of selecting appropriate materials and landscape elements to create attractive, functional, and sustainable hospitality and resort environments.

## References

1. Bringslimark, T., Hartig, T., & Patil, G. G. (2009). The psychological benefits of indoor plants: A critical review of the experimental literature. *Journal of Environmental Psychology*, 29(4), 422–433. <https://doi.org/10.1016/j.jenvp.2009.05.001>
2. Deng, L., & Deng, Q. (2018). The basic roles of indoor plants in human health and comfort. *Environmental Science and Pollution Research*, 25(36), 36087–36101. <https://doi.org/10.1007/s11356-018-3554-1>
3. Han, K. T., Ruan, L. W., & Zhang, X. (2022). Interior plants: Trends, species, and their benefits. *Building and Environment*, 222, 109325. <https://doi.org/10.1016/j.buildenv.2022.109325>

4. Kellert, S. R., Heerwagen, J., & Mador, M. (2011). *Biophilic design: The theory, science and practice of bringing buildings to life*. John Wiley & Sons.
5. Kisku, N. G., Patel, D., & Verma, A. (2024). A review on interiorscaping: Naturalizing interiors. *Journal of Scientific Research and Reports*, 30(6), 531–541.
6. Llewellyn, D., & Dixon, M. (2011). Can plants really improve indoor air quality? *Proceedings of the International Conference on Indoor Air Quality and Climate*, 249–255.
7. Persiani, S. G. L. (2021). Benefits of using plants in indoor environments: Exploring common research gaps. *Architecture*, 1(2), 83–98. <https://doi.org/10.3390/architecture1020008>
8. Ramesh, T., Prakash, R., & Shukla, K. K. (2010). Life cycle energy analysis of buildings: An overview. *Energy and Buildings*, 42(10), 1592–1600. <https://doi.org/10.1016/j.enbuild.2010.05.007>
9. Robertson, M. (2017). *Sustainability principles and practice* (2nd ed.). Routledge.
10. Zuo, J., & Zhao, Z. Y. (2014). Green building research—current status and future agenda: A review. *Renewable and Sustainable Energy Reviews*, 30, 271–281. <https://doi.org/10.1016/j.rser.2013.10.021>