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Redesign a Multi-Brand Clothing Store Focusing on Sustainable Eco-Friendly Design

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Abstract

The fashion industry contributes significantly to environmental degradation. Integrating sustainable interior design can help reduce this impact by incorporating sustainable practice including eco-friendly retail practices, energy efficiency technologies, sustainable materials. Through a case study approach, the current paper assesses the existing building layout and proposes a new design incorporates sustainable materials and biophilic elements. The use of recycled materials, biophilic design intent to improve the shopping experience, and modular layouts that cut waste and increase the store's versatility. It also examines how consumers view sustainability and how it affects brand identity, with a focus on ethical sourcing and transparency. The findings of the study will guide the architects and designers of sustainable strategies that can be employed to achieve sustainable design fashion retail while preserving practicality and aesthetic appeal.

Keywords: Sustainable, Eco-Friendly, Interior Design, Fashion Retail, Redesign

1. Introduction

The garment industry is one of the villains of environmental degradation with issues such as overwater, high energy consumption, and pollution due to irresponsible retailing and manufacturing practices. There has been an emerging demand for sustainable retail buildings, with this being one of the main objectives of Oman Vision 2040 that is most apparent. The purpose of this research proposal is to design and develop a multi-brand clothing boutique that uses sustainable eco-design to reduce the environmental impact while improving the shopping experience. The proposed research will explore new sustainable interior design options, including the use of recyclable materials, energy-efficient lighting systems, and adaptable store designs, that pace with changing retail trends. In addition, the study will evaluate how biophilic design elements, such as natural lighting, interior greens, and eco-friendly textures, can assist in attaining sustainability and customer well-being. The study also seeks to provide innovative solutions that assist in creating a pleasant shopping experience by combining sustainable aesthetic and functional elements.

The research discusses these questions

- How can sustainable environmental design principles be integrated into the interior design of a clothing store?
- What are the most sustainable materials and effective construction techniques for designing an eco-friendly multi-brand clothing store?
- What are the innovations in eco-friendly display and shelving solutions for multi-brand retail green spaces?
- What role does branding play in communicating sustainability within the retail space?

Research objectives

- The fashion industry contributes significantly to pollution and carbon emissions, so designing a sustainable store helps mitigate negative environmental impacts.
- Consumers prefer eco-friendly brands, so a redesigned store can align with their values and attract conscious shoppers.
- Using recycled materials within the store helps reduce waste and encourages responsible use of resources.
- Sustainable store design is an ethical and growing trend in the market, ensuring long-term business success while being environmentally responsible.

2. Methods

The research method for this research on the redesign of a multi-brand clothing store with a focus on sustainable design will follow a qualitative method of in-depth studies of sustainable design principles, spatial aesthetics, and user-centered design from secondary data sources. The research will begin with an extensive literature review of academic journals, design case studies, industry reports, and sustainability frameworks to form a solid theoretical framework. This review will cover topics such as green materials, low-energy lighting, space planning, and the psychological impact of sustainable design on consumer behavior. Visual analysis will cover photographic records and floor plans of existing sustainable clothing stores to be able to identify salient design measures and common factors for environmental responsibility and user satisfaction. In addition, content analysis of retail design trend reports, sustainability reports, and design blogs will also identify dominant and emerging practices within the industry. Of course, standards and certifications such as LEED, WELL, and BREEAM will also be considered through analysis in order to make sure that final outcomes are aligned with already established sustainability standards. All the data collected will be theme-wise analyzed to extract meaningful patterns and principles that can inform the redesigning process. Synthesizing research findings from multiple qualitative sources, the article attempts to theorize a chain of design prescriptions that optimize the environmental sustainability quotient and bring aesthetic and functional value addition to the apparel store interior.

3. Literature search

The data collected emphasizes that sustainable interior design is no longer only an ethical imperative but a strategic means conforming to rising environmental issues and consumer values. As Kang (2009) ^[7] argues, it involves minimizing harm to the environment while improving the health and comfort of users through measures like energy efficiency and durable, green materials. This increasingly becomes a problem in retail, and specially fashion stores, considering their high use of energy, rapid design turnaround time, and use of non-renewable materials (Gretakis, 2001; Fletcher, 2008) ^[6]. Material selection is central to this change, with authors like Jones (2012) advocating the use of reclaimed wood, recycled metals, and low-VOC paints as sound alternatives. Besides, sustainability influences consumers' purchasing behavior increasingly research shows customers are more engaged with and touched by brands that openly embrace sustainable practices (Hassi, 2011; Bitner, 1992) ^[1]. More importantly, aesthetics and sustainability are not only congruent but also desirable; customers prefer environmentally friendly environments that are also aesthetically pleasing (Luchs *et al.*, 2010; Yu, 2019). Case studies of Patagonia and H&M brand store designs demonstrate real-world use of sustainable store design, but the latter is also discredited on credibility grounds as a "green washer" (WRAP, 2019; Fletcher, 2018) ^[11]. Despite proven benefits, uptake is restricted through higher initial cost, insufficient awareness, and concern for cosmetic loss (Commission, 1987; Guerin, 2009) ^[7]. Notwithstanding the obstacles, however, advances in materials, biophilic design (Kellert, 2015) ^[8], and life-cycle analysis tools now offer solutions to these problems, allowing designers to create consumer-friendly, environmentally friendly retail spaces.

According to the evidence, the potential of sustainable interior design to reduce damage to the environment, enhance the value of brands, and improve customer experience while creating significant barriers to this that must be addressed through education, innovation, and policymaking is firmly established.

4. Previous cases

This chapter focuses on eco-friendly clothing stores in different countries; we will focus on them and analyze them.

4.1 Hight clothing store

This case study examines the layout of the Hight apparel store in Rio de Janeiro's Shopping Leblon mall, which was designed by AIA Estúdio and Raphael Tepedino. Architects: AIA Estúdio. Area: 110 m² Location: Brazil - Rio de Janeiro. Retail store design has evolved significantly over the past several decades, with more emphasis being placed upon creating an interesting and sensory experience for consumers rather than functionality and simplicity. To contrast with the fabricated nature of the mall in creating an uninterrupted, organic space, the Hight store was a creative resolution to the dilemma of being situated in a closed, chilly mall setting. Strengths:

- **Robust Conceptual Identity**
The store tells a compelling and unforgettable spatial story that draws inspiration from cave formations and natural degradation. In a retail setting that frequently lacks uniqueness, especially among typical shopping malls, this idea sets the brand apart.
- **Material Expression**
To provide a tactile and sensual experience, terracotta clay, soapstone, raw stone, and brushed metals are used. The rough finishes exude genuineness and fit in nicely with Hight's minimalist and natural aesthetic as a clothing line.
- **Lighting in the Atmosphere**
An atmosphere of tranquility and immersion is produced by indirect lighting that gently bounces off textured surfaces. The cave-like atmosphere is further enhanced by shadows and gradients, which provide a feeling of peace and closeness.
- **Fluidity of Space and Layout**
The big, single entry and the removal of doors improve accessibility and the mall's visual coherence. Exploration is encouraged by the non-linear, flowing circulation channel created by the central pillar.
- **Integration of Brands**
The minimalist and body-positive swimwear brand Hight is reflected in the design, which evokes simplicity and nature.

Weaknesses

- **Limitations in Function**
Despite being sculpture, the organic shapes and central pillar can limit the adaptability of the display. Lack of direct lighting may make it difficult to see small details about products or make it more difficult to do practical retail activities like maintenance and restocking.
- **Excessive Dependence on Concept**
Seasonal or commercial changes in branding strategy may not be appropriate for the compelling tale; the materials' permanence may restrict flexibility. Despite

being unusual, the immersive cave-like experience might not be to everyone's taste (e.g., those who like well-lit or open-air retail venues).

- Material Maintenance Particularly in busy retail environments, the natural stones and clay-based terrace finish may need additional care to maintain their unpolished appearance. It is possible for soapstone and

brass to rust or patinate, which might be considered wear rather than deliberate age.

- Restricted Space for Display A curated experience is provided by the minimalist and simple layout, but the amount of stock on show is limited, which could have an impact on sales or stocking capacity.



Fig 1: Highat clothing store interior.

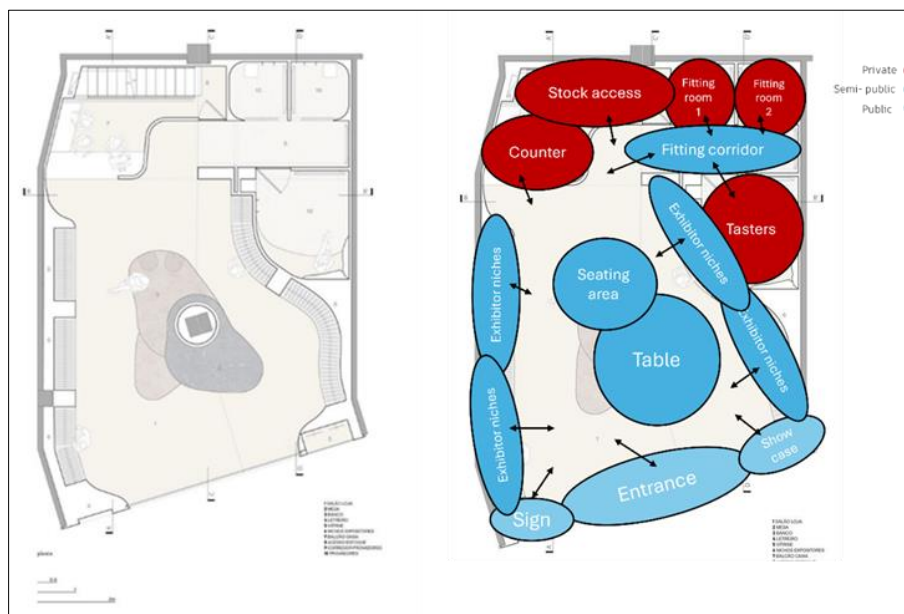


Fig 2: The plan & bubble diagram of the store.



Fig 3: Store mood board.

4.2 Vase Store

Japan-based Vase Store is a modern fashion and lifestyle brand run by Kii Inc. It has been recognized for its thoughtfully curated fashion pieces, minimalistic style, and bold combination of local and international influences. Vase Store is both a shop and cultural hub, featuring not only clothing but also lifestyle goods, art, and design. Architects: Kii inc., Location: Meguro City- Japan, Area: 47 m². The Japanese fashion and lifestyle company Vase Store owned by Kii Inc. is renowned for its luxury curation of fashion and design products and minimalist ideology. Vase Store has established a distinct niche where fashion, architecture, and cultural design converge, underpinned by the slow fashion philosophy and spatial narrative. Its carefully crafted design identity, conveyed through its materiality, product range, and physical spaces, is the key to its success. This case study examines Vase Store's central design idea and the materials it uses to generate its unique look and customers.

Strengths:

- Robust Brand Recognition Vase Store's distinct look is based on slow fashion, Japanese design philosophy, and minimalism. Its carefully considered strategy appeals to design-conscious customers and fosters emotional loyalty.
- Ethical and Sustainable Positioning Small batch

collections, low-impact manufacturing, and an emphasis on natural fabrics all meet the growing demands of consumers for transparency and sustainability.

- Credibility in Culture situated in Japan, a nation renowned for its attention to detail and design culture, which enhances authenticity and appeals to a worldwide audience. It has credibility in the fashion and design circles because it is frequently linked to other specialized high-design firms.

Weaknesses

- 1- Limited Scalability Because the brand is handpicked and small-batch, it is challenging to scale rapidly or achieve wide consumers without sacrificing its unique identity. Premium design expectations and exclusive sourcing may cramp growth and raise overhead.
- 2- Appeal to Niche Even with high brand loyalty, the brand can be too specialized or minimalist for mass fashion consumers who seek assortment, fashion that keeps up with trends, or cheaper prices.
- 3- Expensive Point Limited manufacturing, ethical sourcing, and natural materials usually translate into premium prices, which may turn off budget-conscious buyers.



Fig 4: Vase store.

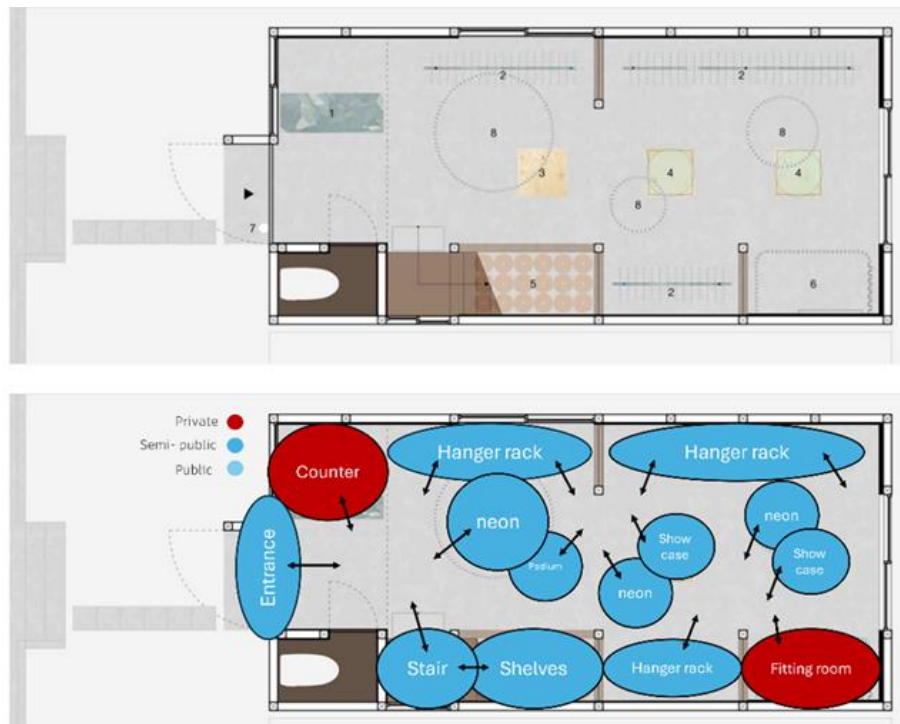


Fig 5: Vase store First floor plan & bubble diagram.

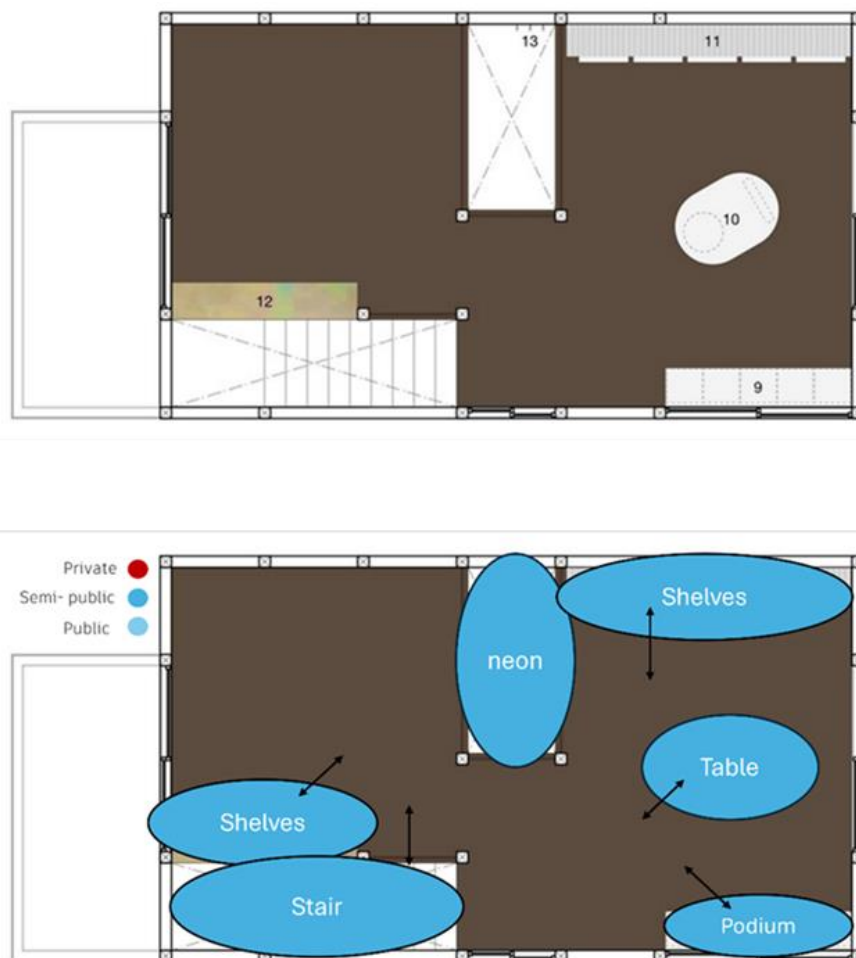


Fig 6: Vase store second floor plan & bubble diagram.



Fig 7: Mood board.

4.3 Bankara Store.

Located in Ōmiya-ku, Saitama, Japan, the Bankara Store is an exemplary example of adaptive reuse architecture by studio201architects. The 2014 project converted a 1940s wooden house into a vintage goods shop. The design offers a striking combination of nostalgia and modern functionality while maintaining the building's historical integrity and incorporating modern spatiality. This case study discusses how studio201architects utilized the combination of sustainability, retail store design, and conservation to provide an experience to remember. The main objective was to recycle the old wood building from the 1940s for contemporary retail use while enhancing and celebrating its beauty. To create a welcoming retail experience that resonates with the retro nature of the merchandise, the design emphasizes natural light, spatial openness, and the introduction of flora.

Strengths:

- Effective Adaptive Reuse, adapts a 1940s wooden house for contemporary retail while maintaining its beauty. uses pre-existing materials and reduces destruction to demonstrate sustainability.
- Design of Atmospheric Space, the natural lighting and open-plan design make the room feel cozy and welcoming. Seasonal variations provide emotional and experiential significance, particularly through the core

maple tree.

- Harmony of Materials, the authenticity and connection to the brand's identity (old fashion) are improved by the careful use of wood, plywood, and vintage furniture powerful expression of the brand, the architecture and interior design go hand in hand with the idea of antique apparel. Like the items on show, the room itself has a carefully chosen vibe.

Weaknesses

- Restricted flexibility, Future alterations or reconfigurations for different retail demands may be limited by the open structure and maintained layout. Although useful, plywood barriers might not be able to handle more demanding display requirements.
- Space Limitations, the store's 94 square meters may seem small during busy times, with little room for multiple customers to move around at once.
- Challenges with Accessibility Barrier-free access for people with impairments may be limited, depending on how the original structure was modified upkeep, Regular maintenance may be necessary for older wooden constructions, particularly given Japan's humid environment. Despite its aesthetic appeal, the indoor tree may need constant maintenance and eventually damage the flooring.



Fig 8: Bankara store.

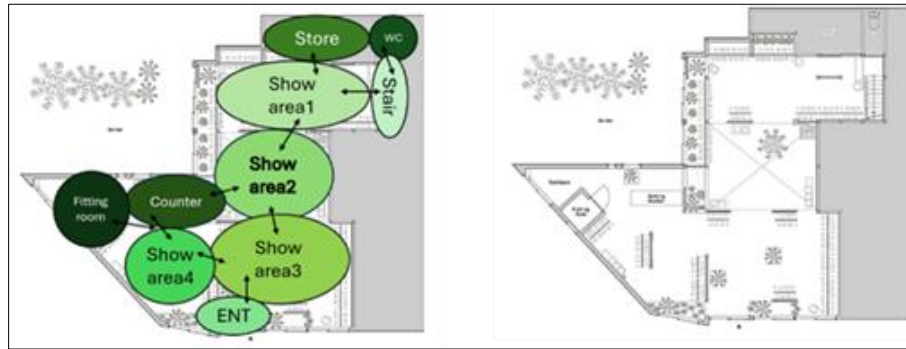


Fig 9: Floor plan & bubble diagram.



Fig 10: Store concept.

5. Case study (Designers club store).

5.1 Location

Al Khoudh - Seeb - Muscat Governorate

The store is located on the first floor with an area of 480 m² of a building consisting of 6 floors.

5.2 site analysis

The building selected to be remodeled is a multi-brand clothes store located on Al Mazoon Street. The building consists of a commercial ground floor on which the store is established, and the rest of the floors are occupied by residential apartments and offices. The store is located along side streets that offshoot from the main Al Mazoon Street. These side streets are usually filled between the hours of 5:00 PM and 12:00 AM, which has a significant impact on both the accessibility and auditory atmosphere of the store. The building enjoys the benefit of double-frontage, with both the front and back fades overlooking these busy side streets. Due to the high level of noise during rush hour, it is necessary to

incorporate soundproofing features such as sound-insulated windows to mitigate the noise and enhance the level of comfort inside the store. The structure also has other buildings standing on its west and east sides, which provide extensive shading throughout the day. The sun rises in the east and travels increasingly towards the north; by about 9:30 AM, the rear facade is in the sun, and by about 3:00 PM, the front facade is struck by the sun's most intense rays. The afternoon sun exposure results in excessive heat gain, which necessitates the application of reflective or low emissivity glazing to minimize solar absorption and improve thermal performance. The site's prevailing wind patterns are also relevant, with easterly winds prevailing for most of the year at rates of between 2 km/h and 17 km/h. During the period between June and September, however, the prevailing winds are from the west. All these climatic and environmental factors constitute essential considerations in the redesign of the store, particularly regarding facade treatment, natural ventilation, and overall user comfort.

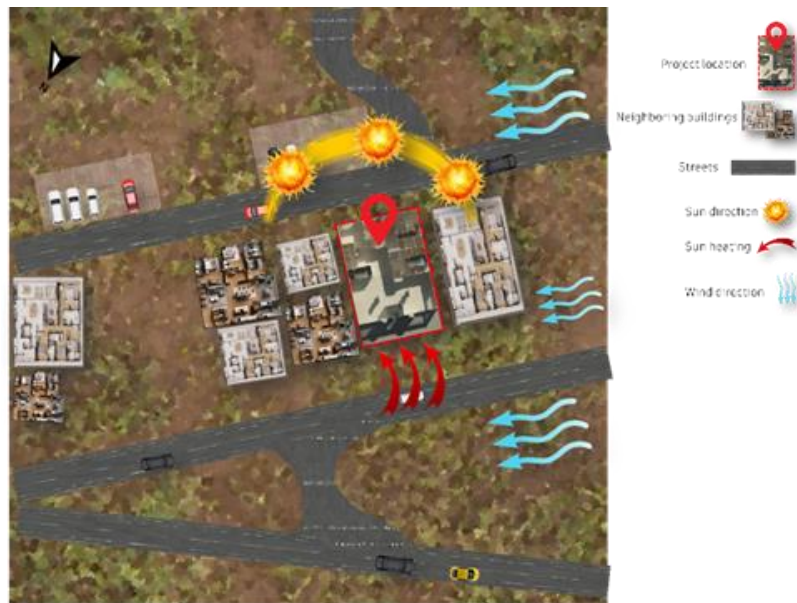


Fig 11: Site analysis of designers club store.



Fig 12: Designers club store.

6. Suggested design

6.1 Design program

The interior design proposed for the clothing store adopts a sustainable, eco-conscious approach and offers a distinctive sensory experience inspired by the natural shapes and texture of a cave. The design intent is to immerse visitors in an atmosphere both natural and soothing, departing from traditional retail spaces towards one that values environmental harmony and material honesty. Walls and ceilings will be finished with clay plaster, a natural, air-permeable material that does more than offer a luxurious, tactile appearance; it improves indoor air quality and moisture regulation as well. The gentle, earthy tones of the clay and textured surface enhance the cave-like look while keeping synthetic coating usage to a minimum. Product display solutions will feature carved, semi-circular shelves fashioned of cherry wood, a tough, sustainable material famous for its rich color and tight grain. The curved, sculptural shelves will appear to erupt from the walls, giving the impression of natural alcoves carved from stone. This organic shelving approach adds both to the visual narrative of

the cave and the environmentally sustainable procurement of materials as cherry wood is available from sustainably grown forests. Additional softening of the space and enhancing the overall sense of tranquility will be achieved by incorporating greenery strategically throughout the store. Trailing vines and potted plants will introduce natural texture and air quality, closing gaps between nature and architecture and subtly guiding customer flow. Lighting will reinforce the cave concept by employing low-energy LED lighting fixtures to provide low-key, ambient light that throws soft, diffused shadows across the curved surfaces. This operating strategy not only conserves energy but also creates an intimate, relaxed shopping environment that stands in contrast to the glare-dominated, overstimulated lighting that is common in shopping spaces. Overall material palette, together with considered lighting and biophilic elements, aligns with sustainable design by adopting low-energy strategies, natural finishes, and responsibly sourced materials. It is an environment that encourages exploration, invites comfort, and demonstrates a deliberate care for the environment.



Fig 13: The area I will design it.

6.2 Criteria matrix

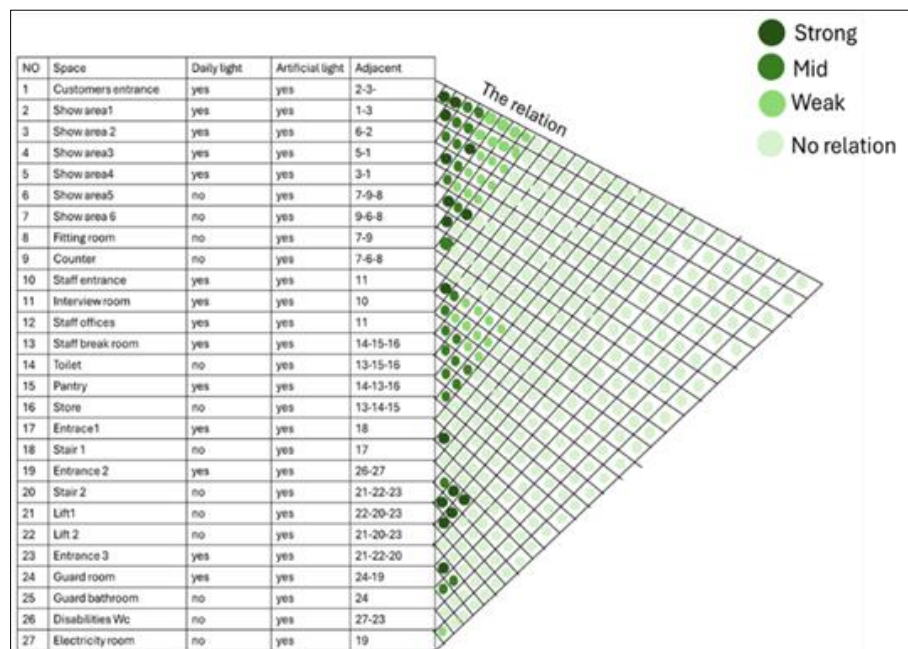


Fig 14: Criteria matrix.

6.3 Bubble and zoning diagrams



Fig 15: Zoning diagram.

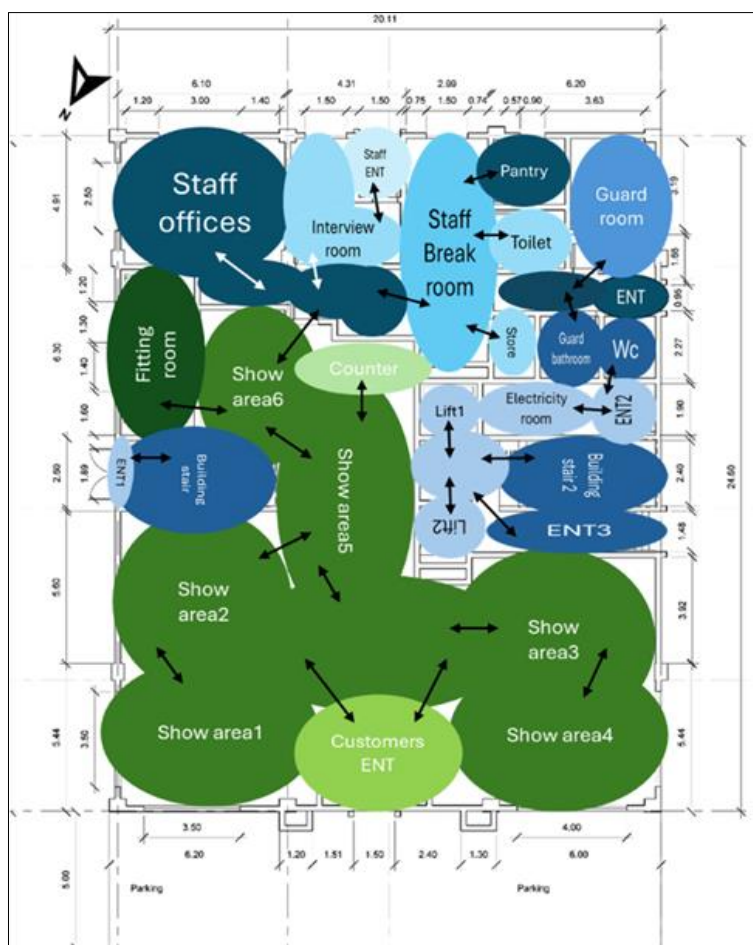


Fig 16: Bubble diagram.

6.4 Concept

The interior of the store will draw inspiration from the caves, with soft lighting, integration of natural sand and rocks and stone texture within the cave, and the semi-circular cutouts through the walls that lend character to the cave. Leveraging the use of the cave as a source of inspiration for the store is a source of a one-of-a-kind and memorable

character, and a distinct impression in consumers' minds that makes them go back again. It also keeps the customer from the outside world, making him unaware of time and extending the time that is spent shopping and impulse purchasing, as well as increasing the feeling of comfort and luxury for the customer, making him/she spends more time within the store.

6.5 Mood board



Fig 17: Mood board.

7. Discussion

This project demonstrated that integration of green, sustainable interior design features within a multi-brand retail apparel store can reduce the carbon footprint of the store as well as enhance its aesthetic and business attractiveness. Through the incorporation of energy-efficient technology and green materials, the redesigned store aggressively promotes sustainability initiatives without compromising on aesthetics or user experience. The findings validate the growing body of literature by attesting that green design is not only viable in fulfilling environmental objectives but also answers the values of modern consumers. The sensory-laden and ecologically friendly store environment appears to fulfill the sustainable consumer's expectations, validating the importance of associating interior design with broader ecological as well as social currents. Further, the redesign positively affected the store's brand image, clearly defining it as an environmental-friendly store. This is in accordance with findings that indicate sustainability-focused branding increases brand credibility and customer trust. The interior redesign helped communicate the values of the store more effectively, leading to a stronger emotional bond and loyalty for customers. One major business advantage of the redesign is the increased capability of the store to attract both eco-

friendly brands and consumers. This aligns with current market trends whereby environmentally responsible business practices are not just ethical imperatives but also competitive advantages. In an increasingly aware consumer population about climate and environmental issues, interior spaces that clearly reflect sustainable values can be utilized as strategic differentiation mediums in a saturated retail market. Yet, the project has some limitations. Although the design prioritized sustainable materials and energy-efficient systems, the complete environmental impact e.g., life cycle analysis of the materials was not quantified. Furthermore, responses from consumers were hypothetical or based on estimated perceptions instead of post-occupancy evaluation. In the future, long-term experiments of real-life consumer behavior and usage of energy after redesign could be done to test the expected outcomes. In short, the project verifies sustainable interior design to not only be an environmentally friendly approach but also a powerful tool for maintaining brand image and customer loyalty in the retail industry. Since customers' concern about sustainability grows increasingly important, store environments must adapt themselves in accordance with these values meaningfully and practically.

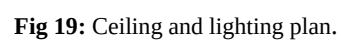
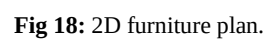




Fig 20: Section A-A and B-B.



Fig 21: 3D render display area.



Fig 22: 3D render display area.



Fig 23: 3D render counter area.



Fig 24: 3D render display area.



Fig 25: Staff offices.

8. Conclusion

This research highlights the significant contribution of green interior design in reshaping the environmental and business landscape of apparel retail stores. Using green materials, energy-efficient technology, and long-lasting design approaches, the newly constructed store not only reduces its ecological impact but also enhances customer satisfaction and brand loyalty. With heightened consumer sensitivity to sustainability, retail spaces that mirror ethical and environmental compliance are more and more in demand and competitive. The project demonstrates that sustainable interior design is a matter of more than ethical or aesthetic choice, but a strategic option that joins environmental stewardship with consumer appetite and business goals. Although concerns such as expense and unawareness still pose obstacles to broad adoption, innovation in material technology and software design is slowly lowering these obstacles. In the years to come, the clothing retail business has a unique mission and an opportunity to lead the way in making sustainability mainstream and designing store atmospheres that are both green and profitable.

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