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Article

Construction Finishes Materials and Innovations in the Global South

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Abstract: Health resorts aim to create health sanctuaries, fostering an environment conducive to treatment, healing, and well-being. Material selection choices for health resort designers should comply with specific minimal requirements and criteria to provide a suitable atmosphere for health and wellness. Based on this assumption and some selection criteria, the study intended to analyse purposefully selected health resorts as the foundation for identifying acceptable materials to construct health resorts. This study had three main goals: to define the evaluated health resorts' physical characteristics, determine their external works specifications, and investigate the material usage utilised in the interior of three primary functional spaces. We employed a case study approach as the qualitative research method. Data was analysed using narrative and content analysis. According to the findings, natural materials, particularly those produced locally, are best suited for the outside and interior of health resort buildings. Wood is the most commonly used material, appearing in all instances studied. The findings are consistent with current worldwide trends toward environmentally friendly facilities. Adopting natural materials such as wood, stone, and soil for health resort planning would be practical, considering the health advantages of such environmentally friendly materials.

Keywords: Asia; built environment; finishing materials; health resort; interior spaces

1.0. Introduction

Building works are a composite of various material choices of their designers. Health resorts are no exception (Vagtholm et al., 2023). Given the prime function of health resorts as health sanctuaries and a place to rejuvenate one's health, the choice of materials for this building typology requires extra caution. Hence, there is a need to identify appropriate materials for use in the proposed health resort for Lagos City at its design stage.

Healthy living is considered wealthy; as the Publius Vergilius Maro's old cliché, health is wealth (Potter & Valera, 2024). According to a concise yet enduring definition provided by the World Health Organization over seventy years ago, health encompasses all aspects, representing a condition of completeness in "physical, mental, and social well-being" (Christoforou et al., 2024). Health-related travels, such as journeys to holy temples, hot springs, baths, and improved climatic conditions, are some of the earliest manifestations of tourism (Cha et al., 2024; Dahanayake et al., 2023; Meloni & Maller, 2024). There is a quest to live longer, healthier, and more profitably, as well as an increased understanding of healthy lifestyles in our contemporary society. Health and well-being have received global attention as important factors shaping people's lifestyles and consumption patterns (Li et al., 2023; Patterson & Balderas-Cejudo, 2023). As a result, in developing and developed societies, we have witnessed a proliferation of wellness services, including recreation centres, holiday tours, counselling sessions, health education, and the like. These various facilities, therefore, greatly influence current trends in individuals' quality of health experience. Based on this comprehensive understanding, this study is a part of the research and development phase for a health resort proposal for Lagos City.

Aim

This study aims to identify acceptable building materials for developing health resort designs.

Objectives

This study had three main objectives:

- Examine the physical characteristics of the evaluated health resorts;
- Investigate the material usage utilised in the interior of three primary functional spaces and exterior works.
- Assess the use of innovative solutions.

2.0. Methodology

The study employed a qualitative case study approach by comparing existing health resort facilities to analyse the materials used in critical functional areas. Three case studies were randomly selected from three countries across the global south.

3.0. Literature Review

From the earliest times, Man's daily activities have been geared towards survival and meeting a range of needs, from the very basic to more ambitious and exotic. They are evident in Abraham Maslow's hierarchy of human needs, as illustrated in *Figure 1* (Dwivedi & Badge, 2021).

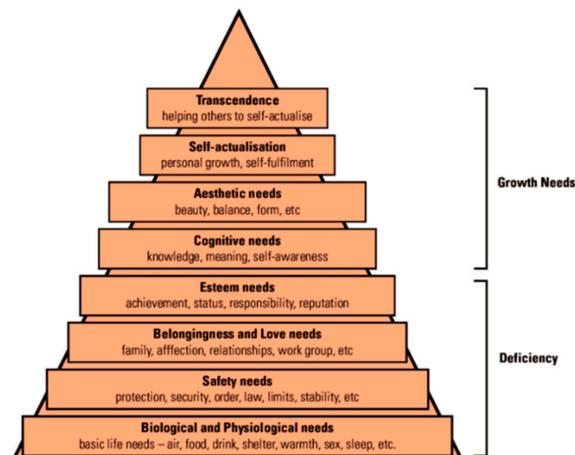


Figure 1. Showing Abraham Maslow's Hierarchy of Human Needs Source: (Dwivedi & Badge, 2021).

Humans live within an environment that combines natural and built or artificial features (Zhong et al., 2022). All our activities, ranging from sedentary to active, are engaged within varied contexts. A classroom setting would differ from an orchestra hall, a hospital ward, or a soccer locker room. Our settings differ primarily on functional levels. However, in a classroom, hospital ward or soccer locker room, one common denominator applies to all – our health and well-being are influenced. Various factors and elements contribute to the phenomenon, and we interact with them on physiological, psychological, social, and spiritual levels (Aura et al., 2023). By these tokens, health is a foremost consideration when creating any facility for human use. As such, the materials used to create such facilities are essential. To protect ourselves from inclement weather and the elements, man has had to interfere with the natural environment, modifying it to soothe varied needs and functions. The nature and extent of the natural environment's disruption, modification or culturing are proportionate to the environmental influence on our health outcomes (Jovanovi et al., 2023). Therefore, it is crucial to be aware of the nature of the materials used to develop our structures. The built environment encompasses a space's layout, interior design, and surrounding - cultured-natural environment (Roberts et al., 2021; Verderber et al., 2023). The physical surroundings and situations

created by human activities (e.g., buildings, streets, and parks) describe the built environment (Turnbull, 2021). As defined here, the built environment encompasses human-engineered and constructed physical buildings, such as locations where people work, live, play, and socialise. Meaningful relationships exist between these areas, including those formed by diverse natural elements and constructed infrastructure.

Creating hospitable surroundings is a cornerstone of health promotion (Nathan et al., 2018; Younis, 2019). We are aware of and appreciate the dynamic interplay between people and places and the relevance of context in attempts to enhance individual health and well-being (Nathan et al., 2018). It is becoming increasingly clear that location and space impact human health and well-being and that individual activities to enhance lifestyle or health status are likely to be impacted by the environmental and social context in which they occur (Gürdür Broo et al., 2021). The built environment makeup, including housing, neighbourhood conditions, and transportation routes, are all material determinants of health that determine the social, economic, and environmental factors on which good health depends.

The built environment has a direct or indirect impact on health. Those generally linked with infrastructure planning and environmental health, such as air quality (indoor and outdoor), climate, water quantity and quality, noise, and traffic-related injuries, directly affect health. And well-being. How built environment components and their design may influence the feelings and behaviour of people and populations are examples of indirect impacts on health and well-being. These impacts have been connected to physical and mental health outcomes and are primarily interlinked (Amerio et al., 2020; Mouratidis, 2021). The built environment is significant because it directs attention to what is *modifiable*. For example, aspects of the built environment can be altered to promote health and well-being, social relationships, and environmental sustainability (Engineer et al., 2021; Laddu et al., 2021; Sturge et al., 2021).

Individual beliefs, actions, and cultural influences have all proven to be influenced by the built environment, each affecting health. (Jones & Yates, 2013). Also, built-environment interventions can provide a population-wide impact and a long-term impact on behaviour modification (Hinckson et al., 2014). Emphasis on improving the citizenry's health gradually but consistently shifts from just the health care systems to developing healthier environments (Timm et al., 2018). People spend around nine-tenth (90%) of their time indoors, mainly in a home setting. Experts increasingly recognise housing (built environment) as a critical social predictor of health (Qiu et al., 2020).

Materials are the fabric of the built environment, and the built environment is a form of fabric for man, primarily in the context of shelter (Zaman et al., 2020). Hence, it is essential to investigate facilities intended to create a space for healing – such as a health resort. The following cases are facilities harnessed from the global south, given that global south nations tend a lot more towards having alternative forms of medical care typified by health resorts. Existing health resorts were studied and analysed in order to determine the physical characteristics of a health resort.

4.0. Results

4.1. Case Study 1: Seaweed Bay Health Resort

Building Information

- i. Name of Building: Seaweed Bay Health Resort.
- ii. Location: Weihai, China.
- iii. Year of Construction: 2019.
- iv. Facility Category: Health Resort.
- v. Other Data:
 - a. Architect(s)/Design Firm – Greyspace Architecture Design Studio.
 - b. Area – 1,787 Square Meters.
 - c. Client – Rongcheng Jingda Health and Wellness Co., Ltd.
 - d. Project Background/ Brief –

Located in Weihai City, Shandong Province's Shidao Management Area. Fanjia Village faces the stunning Shidao Bay Inner Lake to the east. It is a traditional village in the courtyard style of the north. In recent years, Shidao has implemented the "one hundred miles of coastline, one scenic chain" policy.

Creating four sections could open up an entire area dedicated to beautiful countryside tourism demonstration belts, including the "most beautiful fishing village" folklore display area, the "ten miles of the ancient township" cultural tourism combination area, the "mountain residence sea rhyme" style experience area, and the "quality agriculture" leisure and sightseeing area. The demonstration segment's centre section is where Fanjia Village is situated. The construction of the overall scenic area and infrastructure along the coastline has gradually destroyed the traditional village and the area surrounding Fanjia Village. As of May 2020, the village has largely vanished and in its place were ranks and columns of boarded-up residential buildings and villa areas. The houses in Fanjia Village also stand deserted, with some in a run-down state and requiring renovation (ArchDaily, 2021; Svensson, 2021).

Retaining nostalgia and allowing historical memories to coexist with modern life is the starting point of this design. On the one hand, the existing house layout system is a functional, barracks-style layout, and the site lacks recognition, land conservation, and the hierarchy of the courtyard space. How to adapt the space to meet the operational functions of the hotel while preserving the village fabric, courtyard space, and the pattern of the original village houses; at the same time, preserving and extending the openness of the public space and the continuity of the overall space while protecting the privacy of the hotel, was a significant challenge for this design (ArchDaily, 2021).

vi. List of Facilities –

- a. Accommodation (Ensuite Bedrooms and Non-ensuite bedrooms)
- b. Restaurant
- c. Tea Room
- d. Book Bar
- e. Shared Dining Room
- f. Shared Living Room
- g. Shared/Public Toilets
- h. Courtyards
- i. Artificial Ponds



Plate 1: Aerial View of Site Showing Surrounding Features including water bodies, vegetation and circulation channels.

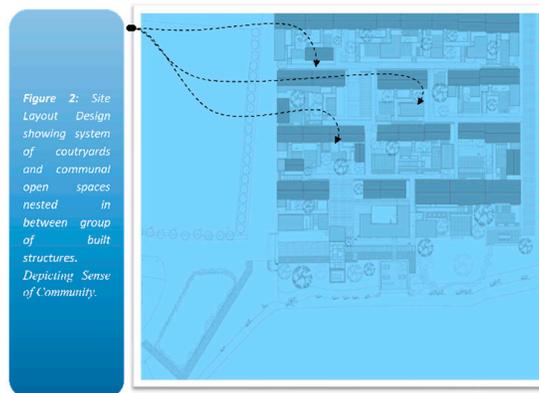


Figure 2: Site Layout Design showing system of courtyards and communal open spaces nested in between group of built structures. Depicting Sense of Community.

Observations

Table 1. Showing Observations from Seaweed Bay Health Resort.

Facility Name: Seaweed Bay Health Resort		Facility Location: Weihai, China		
Facility Category	Features			
	Construction Method	Components and Materiality	Natural Features	Facilities
CASE STUDY ONE	Use of raft foundation.	Ceiling Ganache Board	Indoors No natural entities except for walling materials, which were all made out of natural materials, including – Brick; Stone; and Clay.	Private Features Ensuite Bedrooms
		Floor Stone Flooring		
		Wall Brick walling; Stone Walling; and Clay Plastering		
		Roof Seagrass Pitch Roofing; and Flat Masonry Roofing		
	The overarching building plan centred around establishing a rational connection between the construction process and the final form.	Fixtures Wall-hung Water fountains	Outdoors Landscaping Rocks/Stones; Trees; Hedges; Lawns; Stone benches.	Public features Landscape Stone Benches; Swimming Pool; Courtyards; Book Bar; and Restaurant.
		Fittings The nature of the fittings used is not available.		
		Green Innovation Technology Use of naturally occurring materials for construction and finishes		
		Retrofitted seagrass roofs of old buildings to reflect the regional character while the new buildings with their flat roof highlight a pure masonry volume character.		
Fusing the old and new buildings is achieved by utilising the same building materials and maintaining similar				

		proportional relationships.	<p>Biomimicry</p> <p>While natural materials constitute most of the facility's development, they do not qualify as biomimetic.</p>		
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Source: Compiled from Authors' Content Analysis.



Figure 3: 1) Seaweed (Top 400mm, Bottom 250mm); 2) Seagrass filling; 3)Wheat grain glue mud; 4) SBS water proof layer 4mm; 5) 50mm ganache board 6) Wood mold strips; 7) Wooden Beams; 8) Wooden tickets; 9) Ecological Mud Smeared Surface.

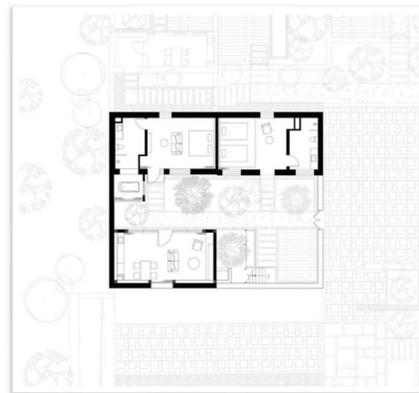


Figure 4: Showing floor plan of different bedroom typologies in the accommodation unit of the facility. Also, combined with communal open space and landscaping.

Figure 5: Showing floor plan of a bedroom typology and shared dining in the accommodation unit of the facility. As well as communal open space and landscaping.

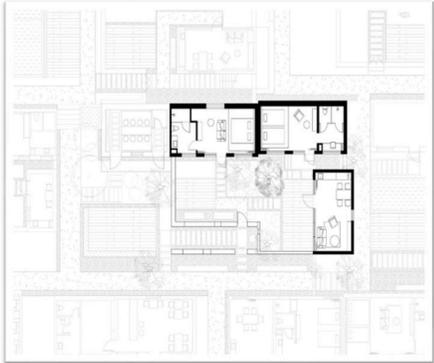
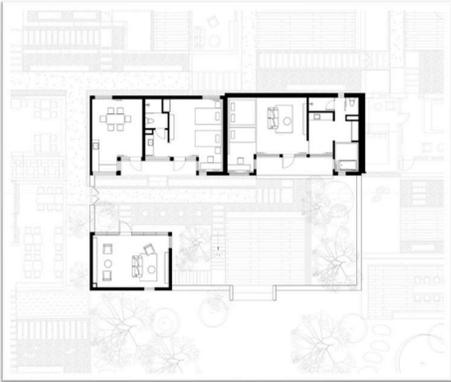


Figure 6: Showing floor plan of an accommodation unit and communal facilities.

Figure 7: Showing floor plan of restaurant and dining functions with outdoor communal spaces.

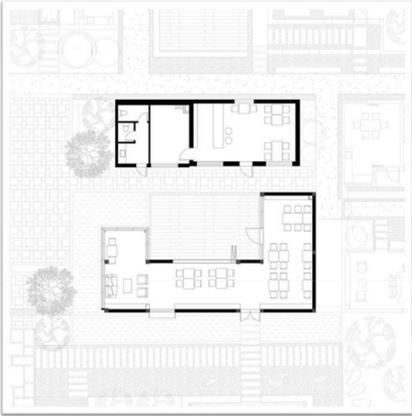


Plate 2: Showing Natural features and site fittings used including: Stone, sea grass, clay finishes, and hedges.



Plate 3: Showing Natural features and site fittings used including: Stone, sea grass, clay finishes, stone slirings.



Plate 4: Showing site fixtures along site circulation paths. Clay pots and wooden pergola.

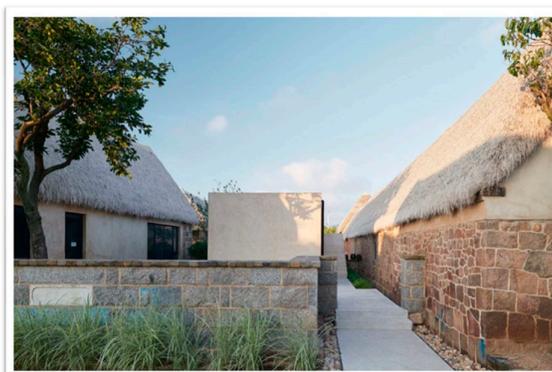


Plate 5: Showing internal site fences creating niches of privacy and forming small clusters of living functions.



*Plate 6:
Showing
landscaping
stones, wood
paving,
pebbles and
wallhung lily
bay fountain*



*Plate 7:
Showing pitch
and flat roofs
used.*

*Plate 8:
Showing ponds
and
landscaping
pots other
landscaping
features.*



4.2. Case Study 2: Atmantan, Wellness Centre

Building Information

- i. Name of Building: Atmantan, Wellness Centre.
- ii. Location: Mulshi, Pune – 412108, Maharashtra, India.
- iii. Year of Construction: N/A.
- iv. Facility Category: Health Resort.
- v. Other Data:

Architect(s)/Design Firm – N/A.

Area – 169,967.97 Square Meters.

Clients – Sharmilee Agrawal Kapur (Creative strategist & a Pranic healing practitioner); Nikhil Kapur (Methodical Entrepreneur & Ironman Tri-athlete)

Project Background/ Brief –

The name Atmantan comes from a holistic amalgamation of atma (soul), mana (mind) and tann (body) (Atmantan Wellness Centre, 2021).

The project's clients were inspired by their observations of their weakening lifestyles and those of people around them (including family and friends). Inspired by their observations, they decided to be a part of the solution to develop self-aware and receptive individuals by creating a unique way of enabling people to achieve their desired healthy lifestyle and maintain such conditions throughout their lifetime (Atmantan Wellness Centre, 2021).

Observations

Table 2. Showing Observations from Atmantan, Wellness Centre.

Facility Name: Atmantan, Wellness Centre		Facility Location: Mulshi, Pune – 412108, Maharashtra, India.		
Facility Category	Features			
	Construction Method	Components and Materiality	Natural Features	Facilities
CASE STUDY TWO Health Resort	Strip foundation construction The site's undulating and rocky terrain influences a high stone wall foundation serving as a plinth.	Ceiling Plaster of Paris (POP) ceiling	Indoors There were no natural elements, but big window openings and individual balconies gave every interior room a clear visual connection to the outside world.	Private Features Ensuite Bedrooms; Private Balconies
		Floor Tile finish and carpets		
		Wall Concrete masonry unit walling; Stone Walling; and White and beige wall paint.		
	The entire design scheme employed a minimalistic architectural style.	Roof Pitch and gable roof composed of roof tiles and wooden eaves.	Outdoors Lily ponds; Trees; Shrubs; Adjoining lake and valley	Public features Landscape Lakeside Benches; Swimming Pools; Dining areas Fitness studios; Gymnasiums
		Fixtures Wall-hung Water fountains		
		Fittings The nature of the fittings used is not available.		
	Green Innovation Technology The facility's design did not primarily rely on natural materials. Instead, we intentionally integrated the entire scheme with both cultured and naturally occurring green and blue scapes to condition the environment and enhance the overall quality of the facility usage experience.			
	Biomimicry			

			The design of the facility is not biomimetic. However, the resort seamlessly converges into the foliated landscape.		
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Source: Compiled from Authors' Content Analysis .

They identified a requirement to create a destination that helps individuals be mindful of themselves, takes them away from their hectic lives, and provides opportunities to connect with others. Their mantra is *that life is one per cent inspiration and ninety-nine per cent perspiration, so let Atmantan be the perspiration* (Atmantan Wellness Centre, 2021).

List of Facilities –

Accommodation: (Resort Houses – 106 luxurious guest rooms and villas with attached balconies or private sit-out gardens).

Dining Venues: (The main dining – Vistra, The Barbecue Lounge – Chantara; and The Juice Bar – Te'-jus).

Fitness Facilities: (High-tech gymnasium and a separate physiotherapy wing, functional studio, indoor spinning studio, expansive yoga studio, pilates and dance studio, indoor temperature-controlled chemical-free saltwater pool).

Spa Treatment Rooms, Organic Farms, and Naturally Occurring Rivers (Google Maps, 2021)

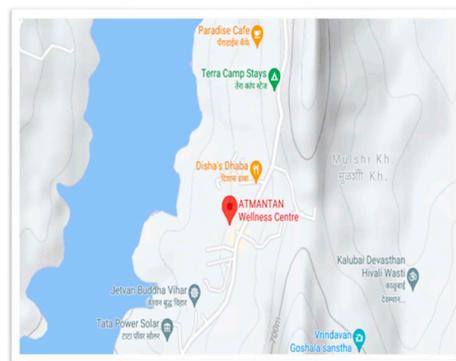


Figure 2. Site location map showing proximity to natural water body.
Source: Google Map (2021)



Plate 1: Showing reception with connection to the exterior through large windows and exterior view of reception .



Plate 2: Showing bedrooms and a bathroom with visual connections to the exterior and natural infusions.



Plate 3: Showing Dining functions – indoors and outdoor areas with nature infusions.



Plate 4: Showing Spa reception with wood materials and special fixtures

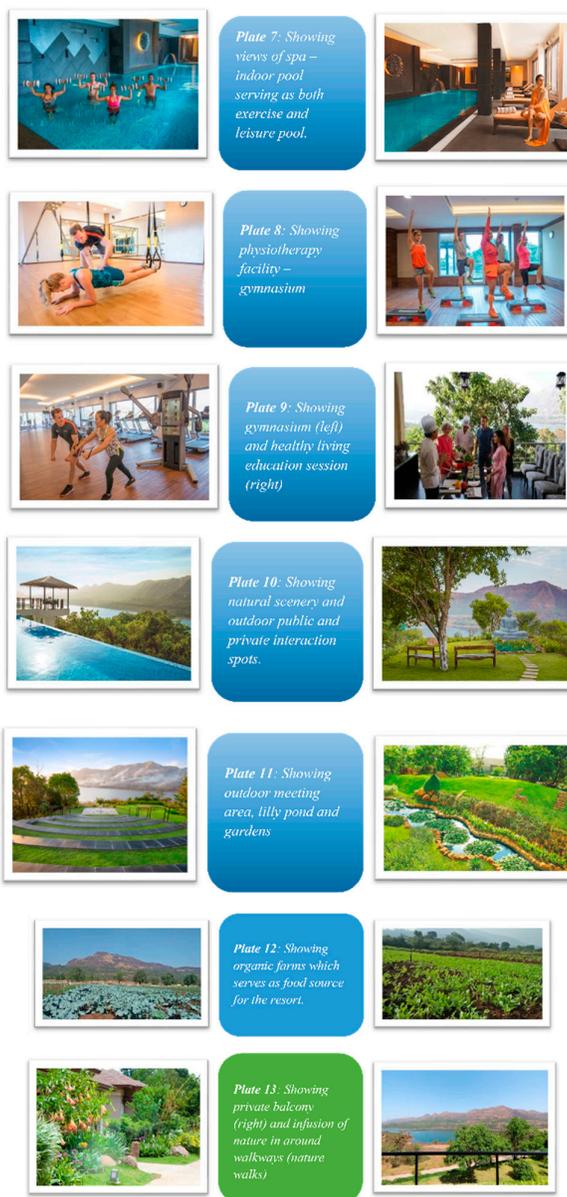


Plate 5: Showing views of spa – massage and bathing areas



Plate 6: Showing views of spa – couple bathing and special wellness therapy





4.3. Case Study 3: Salinas Maragogi All-Inclusive Resort

Building Information

- i. Name of Building: Salinas Maragogi All-Inclusive Resort.
 - ii. Location: Rod. AL-101 Norte, Km 124 - S/N, Maragogi - AL - Brasil.
 - iii. Year of Construction: N/A.
 - iv. Facility Category: Health Resort.
 - v. Other Data:
 - Architect(s)/Design Firm – N/A.
 - Area – Over 66,000 Square Meters.
 - Client – Amarante Hospitalidade.
 - Project Background/ Brief –
- It is an all-inclusive resort with facilities for all age groups, allowing various user groups to use it. Amarante (the client) is an organisation that participates in and manages leisure tourism products

and services in northeastern Brazil. The client seeks to promote user experiences for relaxation and well-being that are balanced and in sync with nature.

List of Facilities –

Accommodation (Ensuite Bedrooms), Private balconies

Dining Venues (4 bars – including sports and pool bars; and three restaurants)

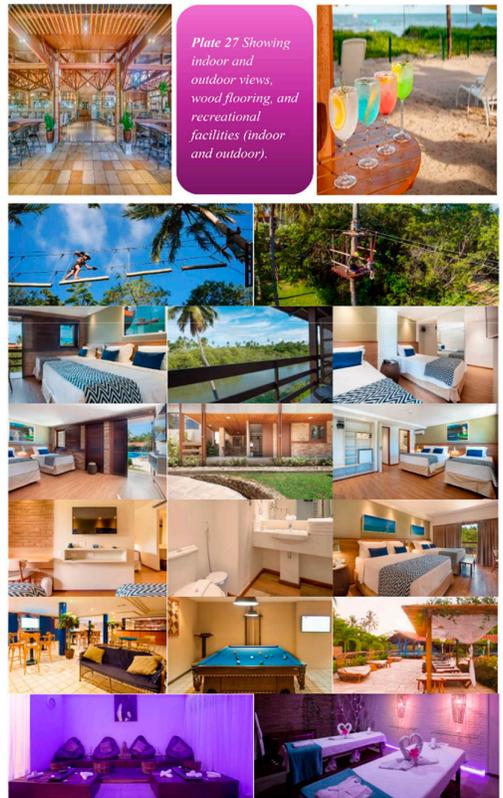
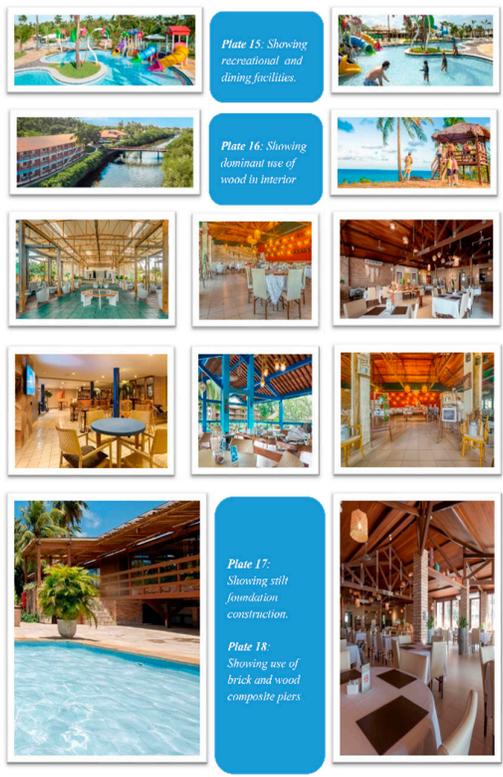
Spa and Recreation facilities (tennis courts, volleyball and soccer fields, games rooms, a complete pool complex with more than

1,500 m² and a fully equipped water sports and diving centre; kayaking and stand-up paddle boarding; tree climbing and zip-lining; mini golf.



Plate 14:
Showing resorts'
layout, aerial
views of site and
recreational
facilities.





Observations

Table 3. Showing Observations from Salinas Maragogi All-Inclusive Resort.

Facility Name: Salinas Maragogi All-Inclusive **Facility Location:** Rod. AL-101 Norte, Km 124 - S/N, Maragogi - AL - Brasil
Resort

	Facility Category	Features			
		Construction Method	Components and Materiality	Natural Features	Facilities
CASE STUDY THREE	Health Resort	Use of raft and stilt foundation types.	Ceiling Plaster of Paris (POP) ceiling	Indoors Natural elements are employed, such as brick walls and wooden floor boarding tiles.	Private Features Ensuite Bedrooms The residences feature private balconies that overlook the garden or swimming pool.
			Floor Ceramic tile flooring; Wood-board tile flooring		
		The construction of the facilities was typically post and beam construction.	Wall Brick walling; Matte paint finish	Visual connections exist between outdoor blue, green, and brown landscapes and interior settings.	
			Roof Raffia Pitch roofing; Roof tile pitch roofing		
		Fixtures Wall-hung wooden desk; The bedsides have Bedside cone downlights fitted onto wooden bedhead boards.	Outdoors Landscaping Rocks/Stones; Trees; Hedges; Lawns; Pool fountains.	Public features Poolside sitting; Swimming Pool; Natural Pools; Kids Pools; Tree Climbing; Sea bathing; Bars; Eco-friendly hiking; Pavilion; Spa;	
		Fittings Wall paintings; Furniture is dominantly			

			made out of wood and naturally occurring rope.		Minigolf Course; Diving Centre.
			Green Innovation Technology Use of naturally occurring materials for construction and finishes		
			Biomimicry Using natural materials for most of the facility's development is not biomimetic.		

Source: Compiled from Author's Content Analysis.

5.0. Conclusions

The comparative analysis shows that the materials used were natural, with users' health-beneficial outcome indicators. Some natural materials used include – stone, earth, and wood. Wood is, however, the most predominant among all materials used. It is important to note that this would be a beneficial material but requires less involvement in planting many trees to replenish the use of wood as a primary building material.

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