Biophilic Concept for Business Hotel Design in Jakarta

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Abstract. Every year the number of foreign tourists (tourists) who come to Indonesia continues to increase, so does the development of domestic tourists. This increase needs to be balanced with an increase in the supply of hotel rooms. 69.1 percent millennials are interested in opening a business, meaning 7 out of 10 millennials have an entrepreneurial spirit. Requiring based on the discussion above the millennium requires a place to express their creativity such as business hotels and facilities that support their creative activities implemented. This research was conducted with the aim to study business design with biophilic application in South Jakarta. The method that will be used in this research is observation and literature study. By implementing a biophilic design that is able to align the interests of nature and humans in the design of the hotel, it is expected to be able to create a hotel design and facilities that are comfortable and sustainable for its users.

Keywords: hotel, millennial, biophilic, architecture, design

1. Introduction
The total population of DKI Jakarta in 2019 is projected to reach 10.5 million. This figure increased by 0.73% from the projected population in 2018 of 10.4 million people [1]. The city of Jakarta is one of the most attractive tourist destinations. The thing that attracts the attention of tourists to visit is Jakarta City as the center of government, business and tourism activities. The Central Statistics Agency (BPS) reported that the number of foreign tourist arrivals to Indonesia during 2018 reached 15.81 million people, up 12.58 percent compared to the same period in 2017 which totaled 14.04 million people [2].

For Indonesia, tourism is an important sector in the economy, various tourism development programs continue to be improved through expansion and utilization of national tourism potential. Every year the number of foreign tourists coming to Indonesia continue to increase, this increase needs to be balanced with an increase in hotel room supply. According to the book Indonesia Millennial Report 2019, one level of tourism is the millennial level, according to data from the National Development Planning Agency (Bappenas) there are 63 million millennials, or residents aged 20 – 35 years. According to data from the book Indonesia Millennial Report 2019, the millennial stretch of entrepreneurship is quite high. The survey results show that 69.1 percent of millennials are interested in opening a business, meaning 7 out of 10 Millennials have an entrepreneurial spirit. Therefore, based on the discussion above, millennials need a place to express their creativity like a business hotel [3]. Biophilia is the understanding that humans have an innate tendency to seek connections with nature and other life forms. It comes from a Greek word which means “love for life” (Berman et al., 2008). The term “biophilic” was used by Erich Fromm in his book “The Anatomy of Human
Destructiveness” (Fromm, 1964) and was first defined in 1984 by Wilson (Griffin, 2004). Wilson’s hypothesis was popularized in his book “The Biophilic Hypothesis”. He proposed that humans have an innate tendency towards nature because they were created from it and like to be close to nature and natural features (Kellert & Wilson, 1995). With this design method, humans can feel that they are directly connected to the natural environment. What the built environment users expect is not only to want to work, play, eat or sleep in buildings. They expect a space that can make them more productive, creative, and healthier, in a place they like [4]. According to the book Creating Positive Spaces – WELL Building Standard ™, biophilic design can have tangible benefits in the workplace, education, hospitality, retail and the home. Using a Biophilic Design can create a greater sense of health and well-being for residents, staff, and visitors [5]. Biophilic designs describe the existence of a human and natural place. By applying biophilic design in hotel design, it is hoped that a comfortable and sustainable hotel design can be created for hotel users to be designed.

This study aims to determine the design of business hotel designs based on four-star hotel standards that can accommodate the activities of millennials with a biophilic design approach. The method that will be used in this research is observation and literature study. By implementing a biophilic design that is able to align the interests of nature and humans in the design of the hotel, it is expected to be able to create a hotel design and facilities that are comfortable and sustainable for its users.

2. Methodology
The data collected are premier and secondary data (Table 1). Primary data is data collected by conducting surveys and direct observations to see the location chosen as a design plan and to determine the condition and activity of a four-star hotel, while secondary data is data collected by finding further data about the Biophilic approach, government regulatory data for the design of four-star hotels, data on millennial behavior, and comparative study data.

| No. | Data Source | Type of Data                  | Purpose                                                     | Data Collecting Method                             |
|-----|-------------|-------------------------------|-------------------------------------------------------------|---------------------------------------------------|
| 1   | Primary     | Site data                     | Knowing the condition of the site and its surroundings      | By conducting a site survey                        |
| 2   | Primary     | Observation Data              | Knowing the conditions and activities at the hotel         | By conducting a survey on the hotel                |
| 3   | Secondary   | Data on accommodation needs   | Knowing the type of accommodation to determine research background | Perform data searches from books and the internet |
| 4   | Secondary   | Data on millennials           | Knowing the behavior and needs of millennials to be facilitated in hotel buildings | Perform data searches from books and the internet |
| 5   | Secondary   | Data on Biophilic             | Know the form of biophilic approach so that it can be analyzed and applied in hotel buildings. | Perform data searches from books and the internet |
| 6   | Secondary   | Data on Biophilic             | Knowing the opinion about the importance of nature for humans, and about the biophilic design that will be applied to hotel buildings | Do a data search from the online questionnaire results |

3. Results and Discussion
3.1. Location Selection Analysis
Site selection is an important aspect in designing Business Hotels with the Biophilic Design Approach in South Jakarta. Site location was chosen because according to Oka A. Yoeti in the book Hotel Marketing, (1999: 41-42) there are 3 factors in determining the location of hotel design. These three
factors are accessibility, visibility, and adaptability [6]. These three aspects are owned by the land chosen by the author. The following is a description of the reasons for choosing locations based in the Hotel Marketing book:

- **Accessibility**

![Figure 1. The analysis of accessibility](image)

Based on Figure 1, this land can be accessed using public transportation or private vehicles from the direction of Tb. Simatupang, Pondok Indah direction, as well as the location of the land close to the MRT station Lebak Bulus, so that the land meets the accessibility criteria.

- **Visibility**

![Figure 2. The analysis of visibility](image)

Based on Figure 2, the position of the land is near the junction. It is on Metro pondok indah street, so that the land is quite visible from the front of the road, so that the land meets the criteria of visibility.
Adaptability

Figure 3. The analysis of adaptability

As shown in Figure 3, the land has an area of more or less. The area is very possible to be filled with parking lots, jogging tracks, and other hotel facilities, so that the land meets the adaptability criteria.

3.2. User Analysis
Users of Business Hotels are Visitors, Employees, Administrative Staff and Building Technicians. Here is a description of the activities of building users (Boutique Hotel, 2011). The main users are Visitors, staff administration, technical staff and officers.

3.3 Millennial Analysis
Based on millennial books on millennial behavior from how to work to the desire to open their own businesses (entrepreneurs), they prefer to become entrepreneurs who can work with freedom, flexible work time, work with teams, work without pressure from superiors, work with tight targets and deadlines, the response received from the workings of millennials and meeting their needs to work by providing co-working space in the design of this four star hotel that serves as one of the facilities that can be used as work space, social space and meeting activities.[7]

3.4 The Importance of Nature to Humans, And Hotel Buildings:
The result form the data taken from an online questionnaire regarding the importance of nature to human life was that nature is very important in human life, and they agreed with hotel buildings that applied a concept that could unite them with nature, namely the biophilic concept.

3.5 Analysis of Biophilic Approval
The approach used in this study is to reunite the life of urban communities with nature due to air pollution which is commonly found to cause physical and psychological health problems, based on the results of a comparative study analysis and the book Human Spaces: Biophilic In Hospitality, there are 7 aspects of 14 biophilic patterns (listed in Table 2) which are generally used in hotel buildings, including: (a) Visual Connection with Nature, (b) Non-Visual Connection with Nature, (c) Thermal & Airflow Variability, (d) Presence of Water, (e) Dynamic & Diffuse Light, (f) Biomorphic Forms & Patterns, (g) Material Connection with Nature.
| Aspects                        | Oasia Hotel Downtown | Oasia Hotel Downtown | Analysis                                                                                                                                 |
|-------------------------------|----------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| **Visual Connection with Nature.** |                      |                      | Presents a natural view on the inside of buildings that responds to visual connections with nature.                                          |
|                               | ![Image](image1)     | ![Image](image2)     | integrating water and plants in a swimming pool that responds to visual connections with nature.                                            |
|                               |                      |                      | There is a vertical garden in the interior of the building that functions as a visual connection with nature.                               |
| **Non-Visual Connection with Nature.** |                      | ![Image](image3)     | Giving the sound of water that gives the impression like in the open.                                                                     |
|                               |                      |                      | There is a non-visual connection to the public areas within the building by presenting sounds from the movement of water that gives the impression of being in the open.|
| **Thermal & Airflow Variability.** | ![Image](image4)     | ![Image](image5)     | There are facilities at the hotel that use openings on one or two sides that are utilized as the entry of air and produce natural air flow in the room. |
|                               |                      |                      | In one room the facility has a large opening on the side that leads to the park, which optimizes the air flow in the room                  |
|                               |                      |                      | In one of the room facilities, there are openings from two sides that can drain the air in the room.                                      |
| **Presence of Water.**        | ![Image](image6)     | ![Image](image7)     | The presence of water can be applied to public areas, which can enhance the experience of a place and function as a reflection pool.    |
|                               |                      |                      | The presence of water at this hotel is in the swimming pool facility which can also be a reflection of sunlight into the building.         |
|                               |                      |                      | Guests are welcomed by the presence of water in the hotel entrance area.                                                                 |
### Aspects

| Aspects                        | Oasia Hotel Downtown | Oasia Hotel Downtown | Analysis                                                                 |
|-------------------------------|----------------------|----------------------|---------------------------------------------------------------------------|
| **Dynamic & Diffuse Light.**  | ![Image](image)      | ![Image](image)      | The average room in a building uses natural lighting which is aided by artificial insights. |
|                               | In the lounge area there are openings on the sides that lead to the pool | Lighting in restaurant facilities is natural lighting that is reduced by plants. |
| **Biomorphic Forms & Patterns.** | ![Image](image) | ![Image](image) | The average material used on the exterior is glass, concrete, and steel frames, and plants that form patterns. |
|                               | There is natural lighting in the meeting room | Lighting in restaurant facilities is natural lighting that is reduced by plants. |
|                               | A pattern on the facade with iron plate material in combination with vines. | In the building facade there is a patterned cantilever that functions as a skygarden |
| **Material Connection with Nature.** | ![Image](image) | ![Image](image) | Most of the materials used in buildings are natural materials. |
|                               | In the interior the materials used are natural, such as wood & stone. | In the section presents natural materials such as stone. |

### 4. Concluding Remarks

Meanwhile, based on the analysis that has been carried out regarding aspects of biophilic design applied to the design of a 4-star hotel are as follows:

- Visual Connection with Nature.
- Non-Visual Connection with Nature.
- Thermal & Airflow Variability.
- Presence of Water.
- Dynamic & Diffuse Light.
• Biomorphic Forms & Patterns.
• Material Connection with Nature.

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