



Designing of Tuktuk Siadong Lakeside Resort (Tropical Architecture)

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Abstract. Lodging in the form of resort hotels are needed in tourist areas such as Lake Toba, to provide a place to rest as well as recreational areas, Tuktuk Siadong Village is one of the villages in Simanindo District which has many recreational areas. The design of resort hotels in the area of Lake Toba must consider the characteristics of traditional buildings around, responsive to tourism potential, and responsive to the climate. These considerations are used to create a resort hotel that has it has characteristics and attracts tourists to visit and stay overnight. The method used in this design is the glass box method by collecting data related to design. The data obtained is then analyzed to find the right hotel resort concept for the design area, namely the concept of Tropical Architecture. They are designing resort hotels in this area as a form of support for government programs in advancing Lake Toba Tourism and advancing the regional economic sector.

Keywords: hotel, lake, resort, tourism

1. Introduction

Lake Toba was formed in 73.000-75.000 years ago from the explosion of the super-volcano that formed the caldera and then filled with water as it is now, the pressure of magma that has not yet been released causes the formation of Samosir Island. Lake Toba is in the category of the largest lake in Indonesia and even Southeast Asia.

According to Law no. 10 of 2009, tourism is a variety of tourist activities and supported by various facilities and services provided by the community, entrepreneurs, government, and local governments. The Minister of Tourism, Arief Yahya, said, "Lake Toba has been included in 10 Strategic Areas of National Tourism because it has great tourism potential". Lake Toba was developed as Monaco of Asia. To support the acceleration of development, each district elevates tourism in the form of culture by holding cultural events that raise local wisdom around the Lake Toba area. This tourism sector has a significant share in improving the country's economy and plays a significant role in the development of a region.

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Samosir Regency is one of the selected destinations for domestic and foreign tourists because there are destinations for vacationing and learning the culture. *Horas Samosir Fiesta 2018*, is an annual activity held in Samosir Regency since 2014 as a booster of Lake Toba tourism. Along with the procurement of the annual event, the sub-districts in the regency are competing to develop the tourism, transportation, and lodging sectors.

Development in the transportation and lodging sector is significant for Simanindo District because it is one of the districts that have the most tourism objects in the form of historical, natural, and cultural attractions. In Simanindo District, there are 23 hotel accommodations; 3-star hotels and 20 non-star hotels. The potential of large tourism objects and the lack of lodging facilities is the reason for designing a new inn in this district.

2. Literature Review

Hotel

Hotels are highly complex real-estate projects involving high risk and often consuming a prodigious amount of time, energy and, the capital. A combination of extreme uncertainty, an extensive and ever-shifting array of market segments, and high expectations from the parties involved frequently makes hotel development a more exciting challenging than other kinds of real estate development. A hotel is, in fact, an unusual type of business formula combining a form of real estate with an ongoing service orientated business. The successful developer would understand this essential 'duality' as both real estate and business [1], while a Resort is a planned area, not just for staying but also for rest and recreation [2].

Theme

Tropical is a word derived from Greek, namely 'tropicos', which means the backlines that cover about 40% of the entire surface of the earth. These backlines are latitude 23°27' North and South. The tropics are defined as areas located between the 20° isotherm line on the north and south earth. The characteristics of a humid tropical climate and its effects on common problems regarding the building are as follows; An overview of the landscape is a lowland rainforest area.; Ground level: green landscape; The soil is usually red or brown.; Vegetation: dense, vibrant, and varied throughout the year.; Season: small season difference. The hottest month, hot humid to wet. The coldest month, medium heat and humid to wet.; Cloud conditions: cloudy and foggy throughout the year.; Precipitation: annual rainfall of 500-1250 mm. During the dry season, there is no or little rain. During the rainy season, it varies from place to place.; Humidity: absolute humidity (vapor pressure) is quite high, up to 15 mm during the dry season, in the rainy season to 20 mm. Relative humidity ranges from 20 - 85%, depends on the season.;

Air movement: strong and constant winds. In the jungle area is slower, it gets faster when it rains. Usually, there are one or two main wind directions [3].

In general, tropical architecture is defined as a design concept that adapts to the environment or tropical climate. Tropical architecture retains the aesthetic side of the building. The most critical thing in tropical architecture is a positive response from the effects of the tropical climate itself, or it can also be said to use positive things in a tropical climate [4].

The form of tropical architecture is more directed to solve the problems posed by the tropical climate, such as the sun, high temperatures, rain, and high humidity. Buildings can be stylish or any color. But with terms, the design of the building can change the outside climatic conditions that are not comfortable into conditions that are comfortable for humans. The criteria have fluctuated in room temperature, humidity, light intensity, flow or air velocity, was their rainwater entering the building, and was there a blazing sun disturbing occupants in buildings [5].

3. Methodology

The method in the architectural design stage can be divided into two, the black box method, which is the traditional method, and the glass box method which is rational. The *glass box* method was chosen for use in the design of the Siadong Lakeside Resort Tuktuk. The stages and processes carried out in the design will be described below. This design uses two types of data, primary data, and secondary data; these data are obtained through two stages; Observation, is a method of data collection by direct observation of the object to be studied; Study of literature, is a method of data collection by taking data from existing literature without having to make direct observations.

Location Selection Method

Site selection uses a method that begins with data collection by determining the function of the building that is going to be designed and looking for related data. The building function data that has been obtained previously is continued by determining the location that matches the function. Location determination is carried out with several considerations; those are the extent, accessibility, achievement, site functions, ambiance, and consideration of the local RDTR.

The site that has been selected and has matched the criteria then observes the site directly to obtain the physical data of the site and the image of the site condition.

Method/Settlement Approach

Analysis of research data is the next stage after obtaining data from the physical data collection stage of the site. In this stage, the data previously collected was compiled in the form of descriptive narratives to be developed to the next stage of the design. The following are the stages of the data analysis process; Analyze the physical condition of the site in the form of data on climatic conditions, circulation, utility, view, noise, vegetation, etc.; Analyze space requirements and the amount of space.; Create design concepts related to the chosen theme.; Make the concept of an appropriate building.; Make working drawings of the designed building.

4. Result and Discussion

Tuktuk Siadong Lakeside Resort project location in Tuktuk Siadong Village, Simanindo Subdistrict, Samosir Regency of North Sumatra Province. This subdistrict is located at $2^{\circ} 32' - 20 45'$ North Latitude and $98^{\circ} 44' - 980 50'$ East Longitude and is at an altitude of 1539-1630 Meters above sea level. It has an average rainfall of 92,58 mm/year with an average of 13,41 days/month. There is some tourism potential that is close to the design area (Figure 1).

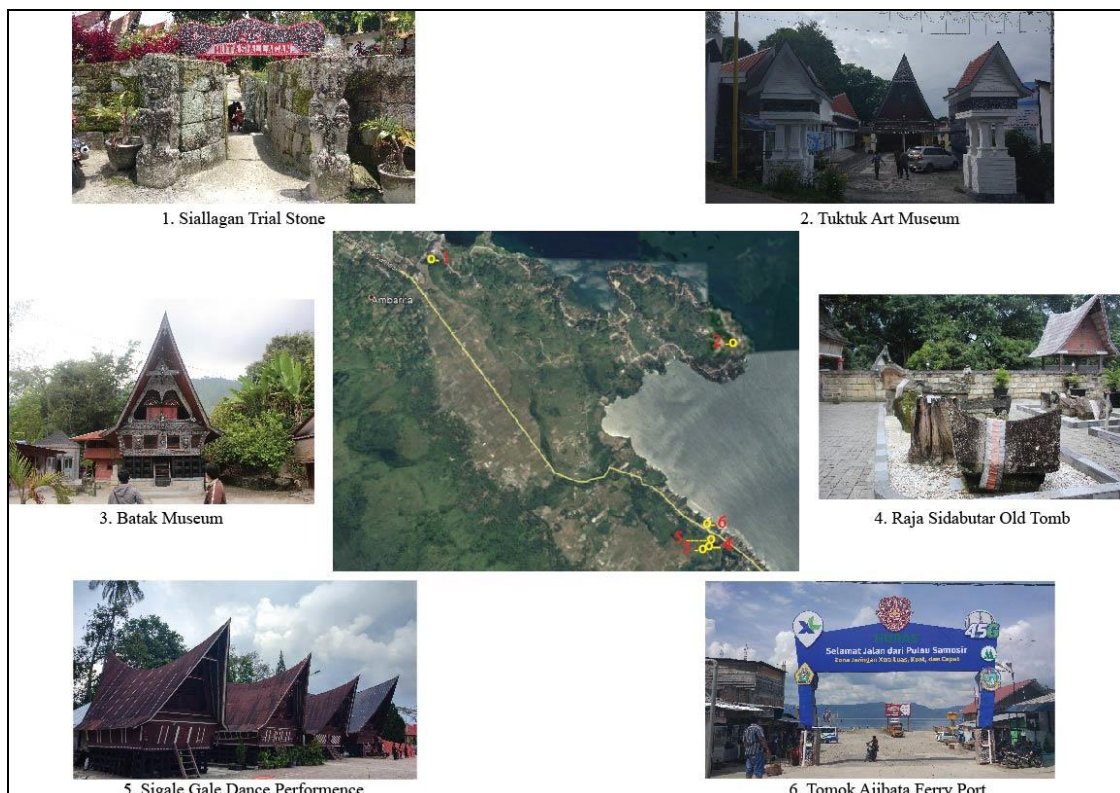


Figure 1. Photo Mapping of Tour Potential

The basic concept of designing Tuktuk Lakeside Resort applies the concept of Tropical Architecture. The application of this concept was taken by combining several elements, including; Imagery with secondary skin, planting shade vegetation, gable roof with a roof that is adjusted to the shape of the roof of the *Bolon's* house, eavesdrop, building ground floor height \pm

1 meter from ground level, natural stone material on the outer walls of buildings, and windows that can be opened and closed. The application of the concept of Tropical Architecture in this building is added by incorporating elements of local wisdom around the design area, such as the philosophy of *Huta Bolon*, carving *Gorga*, the belief in odd numbers as lucky numbers.

The zoning from the design area; Public areas are designed as RTH and waterfront, semi-public areas designed for hotel, restaurant, and parking areas; private areas are designed for cottages as a complement to lodging (Figure 2). The mass of the building is divided into three parts, which are the mass of the hotel, restaurant and cottage area. The form of hotel mass comes from the form of the fortress/entrance gate of the *Huta Bolon* with functionally change in shape, which is intended as a gateway to the resort area as well as a combination of the roof shape of the *Bolon's* house. The restaurant mass took the *Sopo* concept commonly used for young people to gather. The cottage area is a concept of the *Huta* pattern in which houses are built facing each other.

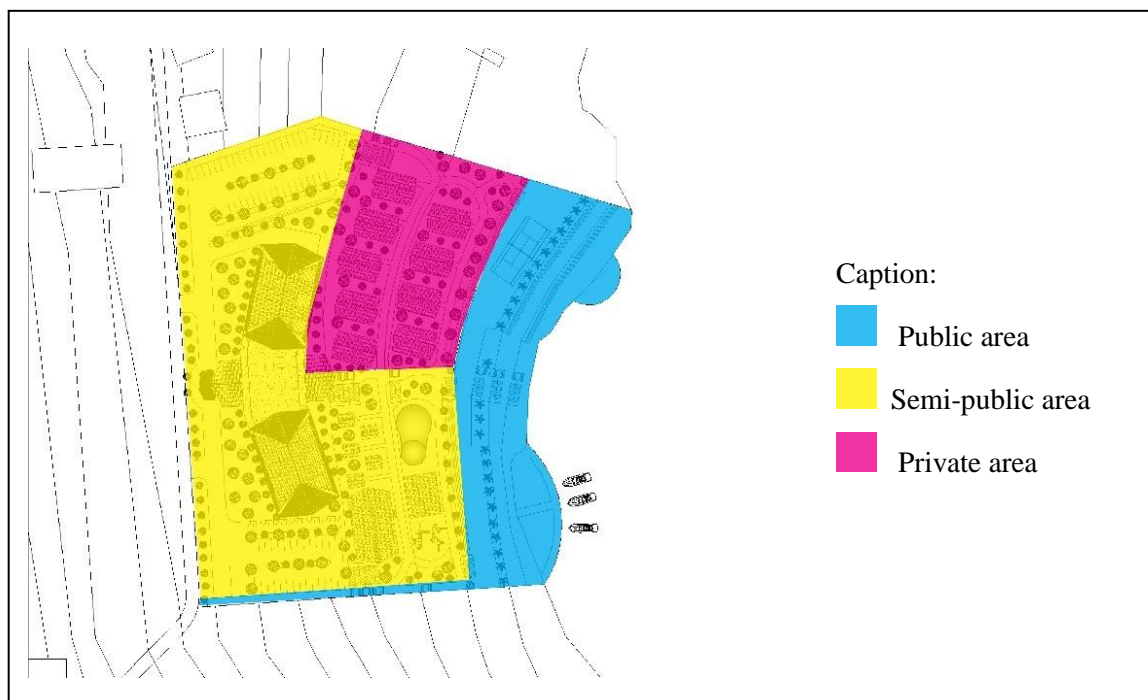


Figure 2. The Concept of Outdoor Zoning

The service lines are specially designed without disturbing the visitor's path so as not to disturb the circulation. The parking area of the driver and the manager are on the left of the entrance to the destination of the cottage, and the manager doesn't need to pass the main entrance of the hotel, but can still drop off at the entrance of the hotel because there is a roundabout in the area (Figure 3).

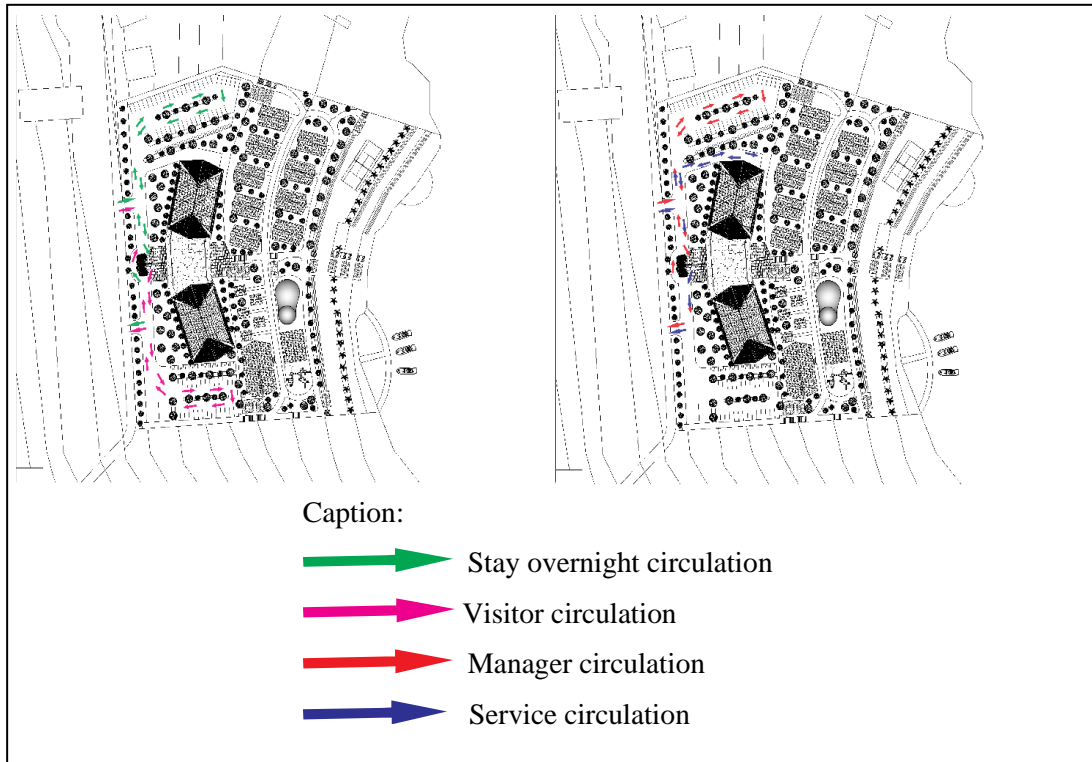


Figure 3. The Concept of Circulations and Parking

The green open space area is used for shade vegetation, directors and also vegetation intended to add to the aesthetics of the building. The tread contour is arranged by adjusting the function of the designed building (Figure 4).



Figure 4. The Concept of Green Open Space

The zoning on the 1st floor is used as service areas, on the 2-3 floor as a private area in the form of hotel bedrooms, and on the 4th floor is used as a semi-public area in the form of bars, spas & saunas, fitness centers and indoor pools (Figure 5).

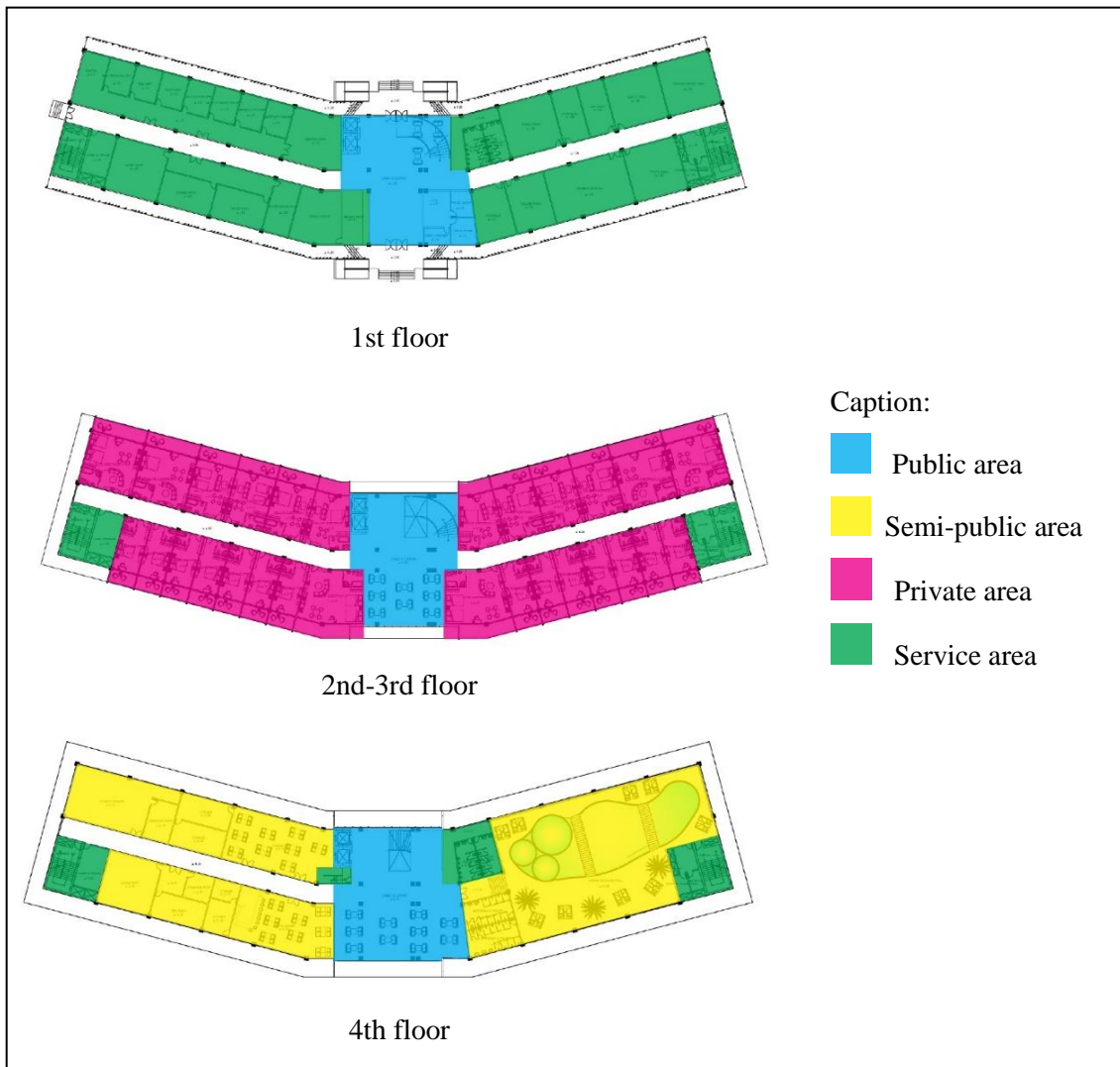


Figure 5. The Concept of Indoor Zoning

The roof of the hotel which is a form of the roof of the *Bolon's* house, which is a large traditional building around the site. Traditional forms of house roofs are also generally responsive to climate. The mass form of the hotel is a form of the *Huta Bolon's* gate and the roof presents the shape of the *Bolon's* house facing each other (Figure 6).



Figure 6. The Concept of Hotel Form

The masses of cottages are lined up, facing the concept of *Bolon's* house. The Masses of cottages consist of two types. The concept of the house on stilts is also applied as a concept of climate considerations in which the soil is useful for absorbing rainwater (Figure 7).



Figure 7. The Concept of Cottage Form

The masses of the restaurant is taken from the concept of the *Bolon's* house and *Sopo* facing each other. The *Bolon's* house is a form of the central building mass of the restaurant and the gazebo as a form of *Sopo* (Figure 8).



Figure 8. The Concept of Restaurant Form

5. Conclusion

The design of Tuktuk Siadong Lakeside Resort which is located at Lingkar Tuktuk Street, Tuktuk Siadong Village, Simanindo District, Samosir Regency, is accommodation for domestic and foreign tourists who travel to Samosir Regency. Travelers who stay or just visit are treated by views of Lake Toba and a very thick recreational impression.

The design location is in Simanindo District which is proclaimed for tourism by the government. The atmosphere that is still thick with the Toba Batak customs and close to many other tourist objects is the main attraction of this area.

The concept applied to the design of Siadong Lakeside Resort Tuktuk is the concept of Tropical Architecture. The application of this concept can be seen with the use of gable, natural stone material, elevated floor elevation, use of secondary skin, the use of windows that can be opened or closed and the provision of shade vegetation, as well as some adjustments to the surrounding environment which is thick with Batak culture and customs Toba, such as the use of Gorga carvings, the philosophy of *Bolon's* house, the trust of the people and the formation of the roof, resembles the roof of the *Bolon's* house.

Acknowledgment

The results of this study are expected to be useful as a reference for the Samosir Regency Government to develop the Lake Toba tourism sector and its surroundings in increasing regional income.

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