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Design of Dance Floor Power at Eco-Nightclub in Kuta- Bali

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Abstract

Tourism is the backbone of the economy and also the pulse of Balinese life, especially Kuta. The increased power of foreign tourist visits to the island of Bali, especially Kuta, has resulted in many entrepreneurs or investors wishing to open up business opportunities in the sector. Evidenced by the increasing contribution to employment and increasing the fulfillment of tourism needs, especially facilities that contain elements of western culture such as discotheques, pubs and beach clubs. Unfortunately, the needs of these tourism facilities, making natureland the environment become victims. The desire of investors to meet market competition and achieve maximum profits does not pay attention to the impact caused by the surrounding environment. Energy, material and natural resource consumption, maximum land use, and the use of technologies that are not environmentally friendly weaken environmental conditions. Discotheque as one of the most attractive entertainment facilities for investors and tourists, needs special attention in its design and development in the tourism sector. This facility needs to be directed in a sustainable manner through green architecture, namely through energy efficiency approaches, use of alternative energy (dance floor power) that can replace energy from PLN, reduce-reuse-recycle in water use, limit built up land, material efficiency, use of friendly materials and local materials and domestic waste treatment.

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1. Introduction

The history of nightclub development is inseparable from the history of the development of bars. Given that a nightclub is a type of bar that opens at night and is usually equipped with a stage show and has a schedule of shows on certain days or even every day. Currently, nightclubs have become a source of moral decay and crime in this country. A place that is currently often a place of exploitation and demeaning of women. In fact, it is not uncommon for underage women to be exploited. A place that has also become a very strategic arena for carrying out transactions of illicit goods that end up destroying the morale of the younger generation. The biggest impact that arises from the existence of night entertainment venues is that religious values, culture, customs, and decency will be dissolved (Anggraini et al., 2019). Bars were originally developed by Americans in the 16th century which only consisted of a divider made of strong wood called a "barrier" (Hendrawan, 2018). Nightlife is a special attraction for tourists who fill their holidays in Bali by just listening to music or enjoying drinks available at cafes, bars or discotheques and with the construction of quite complete facilities and infrastructure, Bali has become a magnet for foreign tourists and local tourists. . The infrastructure development that has been carried out has made Bali a paradise for travelers and at the same time there are existing problems. Of course this cannot be separated from the interaction between local communities (Panjaitan & Ariwangsa, 2018).

2. Literature Review

Principles of Eco-Nightclub

Design can be said to be environmentally friendly if it applies basic environmentally friendly principles with an ecological and sustainable approach (H & Mulyani, 2006) such as: Energy saving, this means designs that are environmentally conscious and energy saving concepted, both in terms of construction and maintenance. Sensitive to nature; the design is required to be more sensitive to nature in order to maintain the balance of nature, highly consider to functions and connects to the nature, such as the sun, wind direction, rain direction, underground water flow, etc. Saving of new energy sources, this can be done by using renewable materials, such as forest resources and its products. Sensitive to users; environmentally conscious designs that also pay attention to the needs and demands of users. Sensitive to the environment; this means environmental conditions must be a fundamental aspect of the designs created in order to achieve the environmental conformity. Holism means considering many factors, apply a lot of knowledge so that it can be viewed from many aspects in order to cooperate with other scientific fields in design (FX & Suskiyanto, 1998)

3. Comprehension Dance Floor Power

The source of electricity used comes from National Electrical Company of Indonesia/PLN and reserves from generators and dance floor power. Dance Floor Power is a dance floor that utilizes the motion generated by eco-nightclub visitors to generate electrical energy (How It Works Team, 2018). The energy generated by this dance floor can meet 50% of the building's electricity needs. The main components of this Dance Floor Power are a dance floor unit (energy floor module) and an energy meter/energy tower module.

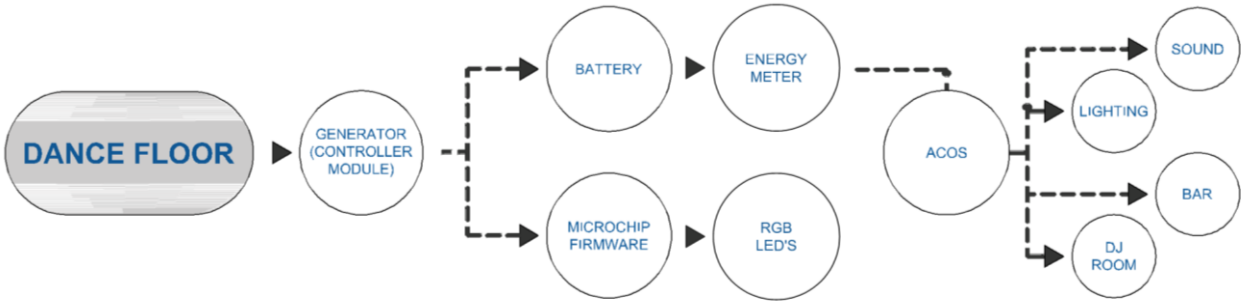


Figure 1. Dance Floor Power Energy Distribution Process Scheme
Source: Prabujana, 2018:159

4. Comprehension the Principles of Eco-Nightclub

The site is located in Kuta tourism area, specifically in Kuta District, Legian Village. The site is applied between tourism supporting facilities such as Padma Hotel, Melasti Hotel, etc. It is directed along Double Six Beach, which is a beach with wide shoreline and high waves. The position of the site is very strategic as it is placed in an exclusive tourism area. The procurement of this discotheque is designed so that it can function effectively for at least the next 10 years. The development possibility of functions and areas around the site in the next 10 years is connected to the development of business and commercial buildings that support tourism businesses as well as the surroundings. This rapid growth trigger traffic and circulation problem as result until local government decided to provide parking pockets and opened central parking space to avoid future.

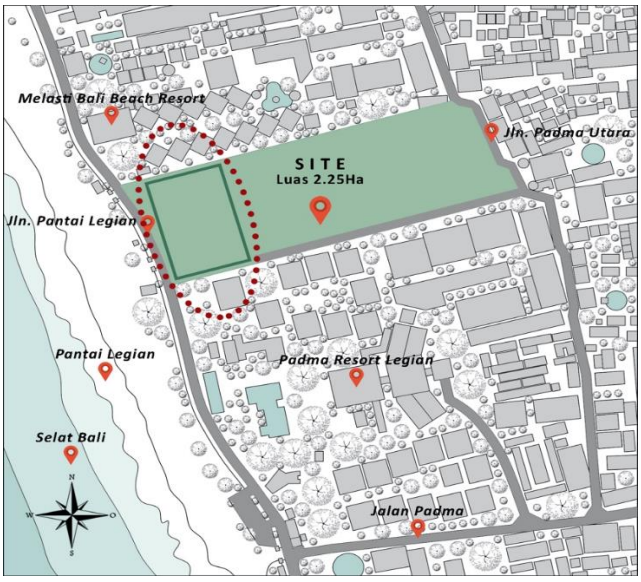
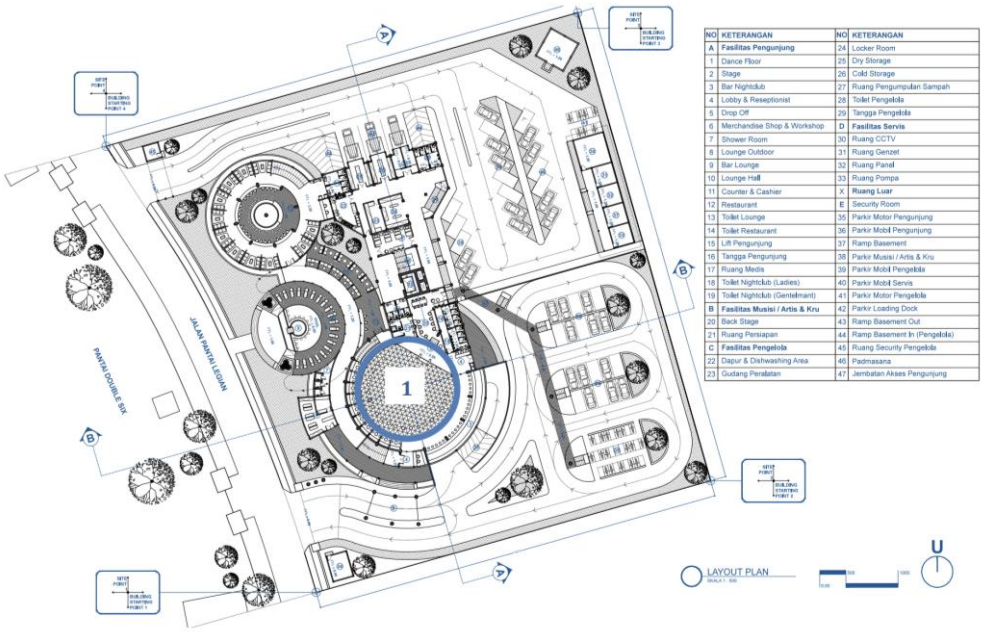


Figure 2. Site Location Map
Source: Prabujana, 2018: 108



Figure 3. Eco-Nightclub Exterior Perspective
Source: (Prabujana, 2018)

The placement of dance floor power is located in the main facility area, which set on the dance floor. Dance floor power is made of springs and a series of power generating blocks that produce an electric current when pounded/pressed, the process is called piezoelectricity (Suputra, 2012). When visitors move up and down, the floor will be depressed, electricity will be channeled to the nearest battery. The battery will charge constantly along with the movement that occurs on the dance floor. The energy generated in each dance floor unit will be channeled to the controller module (inside the dance floor), then the energy is used to turn on the LED lights on the dance floor and part of it will be channeled to the energy meter. Can be used as a source of energy for the needs of sound systems, lighting, bars, etc. The dance floor power spot is in the figure 4 below, marked number 1 with a blue circle.



NO	KETERANGAN	NO	KETERANGAN
A	**Fasilitas Pengunjung**	24	Locker Room
1	Dance Floor	25	Dry Storage
2	Stage	26	Cold Storage
3	Bar Nightclub	27	Ruang Pengumpulan Sampah
4	Lobby & Resepsionist	28	Toilet Pengelola
5	Drop Off	29	Tangga Pengelola
6	Merchandise Shop & Workshop	D	**Fasilitas Servis**
7	Shower Room	30	Ruang CCTV
8	Lounge Outdoor	31	Ruang Genzet
9	Bar Lounge	32	Ruang Panel
10	Lounge Hall	33	Ruang Pompa
11	Counter & Cashier	X	**Ruang Luar**
12	Restaurant	E	Security Room
13	Toilet Lounge	35	Parkir Motor Pengunjung
14	Toilet Restaurant	36	Parkir Mobil Pengunjung
15	Lift Pengunjung	37	Ramp Basement
16	Tangga Pengunjung	38	Parkir Musisi / Artis & Kru
17	Ruang Media	39	Parkir Mobil Pengelola
18	Toilet Nightclub (Ladies)	40	Parkir Mobil Servis
19	Toilet Nightclub (Gentelmant)	41	Parkir Motor Pengelola
B	**Fasilitas Musisi / Artis & Kru**	42	Parkir Loading Dock
20	Back Stage	43	Ramp Basement Out
21	Ruang Persiapan	44	Ramp Basement In (Pengelola)
C	**Fasilitas Pengelola**	45	Ruang Security Pengelola
22	Dapur & Dishwashing Area	46	Padmasana
23	Gudang Peralatan	47	Jembatan Akses Pengunjung

Figure 4. Dance Floor Power Spot
Source: Prabujana, 2018

Dance Floor Power specifications, the maximum number of dance floors that can be used is 66 floor blocks. The energy assumptions generated by this dance floor are: The energy produced is 10 watts (dancing) – 20 watts (dancing while jumping) per floor block. Operating time 8 hours (3 hours dancing, 5 hours dancing while jumping). Assume that you are charging every 20 minutes (dancing) and every 10 minutes (5 hours dancing while jumping).

$$= \frac{[66 \times 10 \text{ watts} \times 3 \text{ hours} \times 60 \text{ min}]}{15 \text{ minutes}} + \frac{[66 \times 20 \text{ watts} \times 5 \text{ hours} \times 60 \text{ minutes}]}{6 \text{ minutes}}$$

= 7,920 watts + 66,000 watts = 73,920 watts or 73.92 Kw.

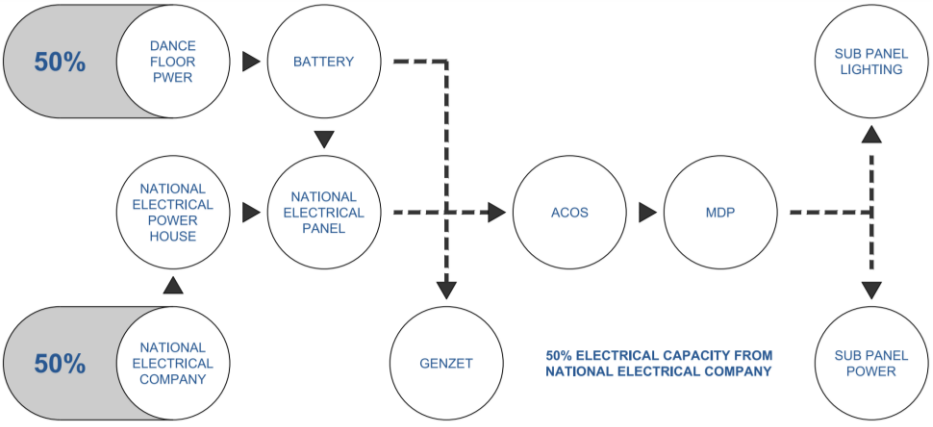


Figure 5. Dance Floor Power Scheme
Source: Prabujana, 2018:157

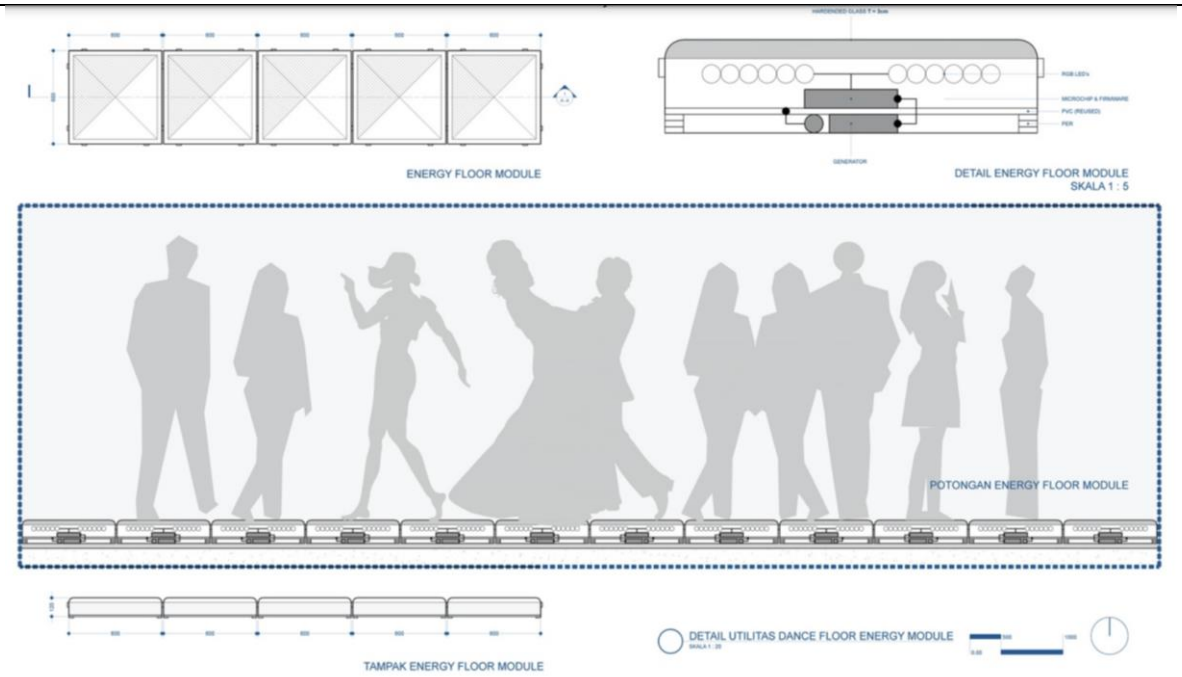


Figure 5. Dance Floor Power Architectural Design
Source: Prabujana, 2018:157

5. Conclusion

Kuta is one of the most favorite touristic destinations. Foreigners from around the world visit Bali and seek for leisure facilities including Kuta nightlife. Nightclub is one of the most visited venues. This encourage and attract investors to develop the nightlife business in Kuta. Kuta Nightclub design must be attractive, on the other hand the dance floor power technology is very helpful in minimizing electrical energy usage whose main source is from government, National Electrical Company of Indonesia/PLN. Not only minimize electrical energy use but also gives impact to the economic perspective including ecological or enviromental friendly principles, the use of kinetic energy that produces electricity distributed to sound systems, bars, lighting and DJ rooms.

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