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Analysis of the Planning Stage of Green Building (BGH) Criteria at the Papillon Canggu Hotel

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Green Building; Planning Stage; Papillon Canggu Hotel.

Abstract
The Green Building concept includes planning, construction project scheduling, material conservation, land use, construction waste management, material storage and protection, occupational health, creating an environmentally friendly work environment, selection and operation of construction equipment, and documentation. The Green Building criteria for the planning stage include seven main aspects based on PUPR Ministerial Regulation 21/2021. The main focus is energy efficiency, water conservation, land management, use of environmentally friendly materials, and indoor air quality. This study used the Papillon Echo beach Tropical Hotel and Villa project as an object. The data collection method used a literature study and Green Building criteria in accordance with PUPR Ministerial Regulation Number 21 of 2021. The results of the study show that at the planning stage, Papillon Echo beach Tropical Hotel and Villa are included in the BGH Pratama category with a score of 103 points out of a maximum score of 165. To achieve BGH Madya or BGH Utama, an additional 62 points are required, namely from site management, energy efficiency, water use efficiency, waste management and wastewater treatment.

INTRODUCTION

Development in Indonesia has caused high levels of environmental damage in all sectors. Environmental damage requires appropriate handling to avoid further damage. In line with the results of the 13th UN Summit on Climate Change held in Bali in December 2007, Indonesia committed to reducing CO2 concentrations in the air by 26% to 41% before the end of 2020 and agreed to a green belt map with a low-carbon development pattern for the 21st century. The concept of green construction embodies Indonesia's commitment to fulfilling its obligations under the aforementioned agreement (W.I. Ervianto, 2014). As a developing country, Indonesia has consistently strived to improve its infrastructure, as this demonstrates the country's economy is functioning effectively and striving for a better quality of life (Dwirediana & Abduh, 2021; Nogo Susilo et al., 2022). In particular, the availability and variety of infrastructure are important indicators of a country's economic development. Generally, as the level of development increases, the impact on the environment also increases. (Mogan, 2019). Regulation of the Minister of Public Works and Public Housing Number 21 of 2021 concerning the Assessment of Green Building Performance. Green Buildings are defined as structures that comply with Building Technical

Standards and demonstrate significant and measurable savings in energy, water, and other resources through the application of Green Buildings principles in accordance with their function and classification during all stages of implementation (Mattoni et al., 2018). Green Buildings performance assessment is carried out through a quantitative evaluation of compliance with Technical Standards based on established parameters and criteria (Alwisy et al., 2018; Mao et al., 2024; Tleuken et al., 2021).

Building categories subject to this assessment include new buildings with mandatory and recommended categories, existing buildings with mandatory and recommended categories, H2M with recommended categories, new Green Zones with recommended categories, and existing Green Areas with recommended categories (Abdi, 2020; Alfasfos et al., 2024; Zhang et al., 2019). Research on environmentally friendly buildings has been diverse and actively conducted from 2000–2016. Because green buildings require consideration of their life cycle, research on environmentally friendly buildings has also addressed individual phases (design, construction, and operation) of a life cycle, or the entire life cycle (Zuo 2017). Research on Green Building criteria was conducted using direct observation and interviews at buildings at the University of Pembangunan Jaya, in accordance with the standards set by Green ship Green Building Council Indonesia (GBCI) (Perceka, 2022; Pranoto, 2019). Data collected from the UPJ building were subjected to calculations against 41 green ship criteria, resulting in a total of 23 points out of a maximum of 117 points (van der Meulen, 2019). Therefore, it can be concluded that the campus buildings of the University of Pembangunan Jaya (UPJ) do not meet the Green Building criteria as determined by the Green ship-GBCI standards (Roshaunda 2019).

The novelty of this research lies in its specific focus on a hotel project in Bali, a region heavily reliant on tourism, and its application of a nationally mandated green building regulation. While several studies have examined green building assessment, few have delved into the practical application of PUPR Regulation No. 21/2021 in the context of a luxury hotel development. This research aims to bridge the gap between policy and practice by providing a detailed case study that demonstrates the assessment process and identifies the specific areas where improvements are needed to achieve a higher green building rating.

The results of the study indicate that the implementation of Green Buildings in Badung Regency, Bali Province, has a percentage level of 64.24% and is classified as a medium category of BGH. The assessment of green building criteria and the lack of government outreach regarding energy savings and the use of environmentally friendly materials were identified as the main obstacles to implementing Green Buildings (Muka, 2024). The Papillon Echo beach Tropical Hotel and Villa building is built on a 1200 m2 plot of land covering the main building, villas, and supporting facilities. This research is very useful to determine whether this building meets the criteria for a green building in accordance with the standards set out in PUPR Regulation No. 21 of 2021. The Green Building Criteria for the construction implementation phase focuses on environmental impact management, resource efficiency, and health at the project site, which includes waste management, dust/noise control, the use of environmentally friendly materials, and energy and water efficiency.

In accordance with PUPR Ministerial Regulation No. 21 of 202, the Performance Assessment of the Technical Planning Stage as referred to in Article 17 letter a consists of the following parameters: site management, energy efficiency, water efficiency, indoor air quality, use of environmentally friendly materials, waste management, wastewater management. Site management parameters as referred to in paragraph (1) letter a consist of the following criteria: Building orientation, site processing including accessibility or circulation, management of land contaminated with hazardous and toxic waste (B3), private green open space, provision of pedestrian paths, basement site management, provision of parking areas, outdoor lighting systems, construction of Buildings above and/or in land and/or water and/or public infrastructure or facilities. Energy efficiency parameters as referred to in paragraph (1) letter b consist of the following criteria: building envelope, ventilation system, air conditioning system, lighting system, transportation system in the Building, energy efficiency calculations, electrical system. Water efficiency parameters as referred to in paragraph (1) letter c consist of the following criteria: water sources, water usage, use of water-saving sanitary equipment (water fixtures). Indoor air quality parameters as referred to in paragraph (1) letter d consist of the following criteria: smoking ban, carbon dioxide (CO2) and carbon monoxide (CO) control, and refrigerant use control. Environmentally friendly material use parameters as referred to in paragraph (1) letter e consist of the following criteria: control of hazardous material use, use of environmentally friendly certified materials (eco-labeling). Waste management parameters as referred to in paragraph 1 letter f consist of the following criteria: application of the 3R principle (reduce, reuse, recycle), application of a waste handling system, application of a waste generation recording system (James & Putra, 2025; Lendra et al., 2025).

Environmentally friendly wastewater management parameters as referred to in paragraph (1) letter g consist of the following criteria: provision of wastewater treatment facilities before being discharged into city drains, recycling of water originating from domestic wastewater. In the BGH criteria assessment, a minimum value of 45% of the total maximum assessment is required based on the performance assessment checklist. Based on the results of the BGH rating assessment, the following: 1) The Main BGH Certificate is awarded to buildings that have undergone an assessment and achieved a score of more than 80%-100% of the total value, as determined by the performance assessment checklist. 2) The BGH Madya Certificate is awarded to structures that have been evaluated and have achieved a score of more than 65% -80% of the total value, according to the performance assessment checklist. 3) The BGH Pratama Certificate is awarded to buildings that have been evaluated and have achieved a score of 45% -65% of the total value, according to the performance assessment checklist.

METHOD

The research method used a comprehensive literature review to identify important factors for assessing green buildings. The study was conducted by collecting data through questionnaires administered to various groups of subjects. The following are the stages involved in data collection: collecting relevant journals and previous research, determining population size and

selecting samples from the existing population, distributing questionnaires according to the sample size, conducting interviews with respondents, collecting data from the distributed questionnaires, and processing the data. The current investigation meets the criteria outlined in PUPR Regulation No. 21 of 2021 concerning the evaluation of green buildings during the construction phase.

RESULTS AND DISCUSSION

Planning Overview Papillon Echo beach Tropical Hotel and Villas

Papillon Echo beach Tropical Hotel and Villa is located on Jalan Pantai Batu Mejan, Canggu Village, North Kuta District, Badung Regency, Bali Province.

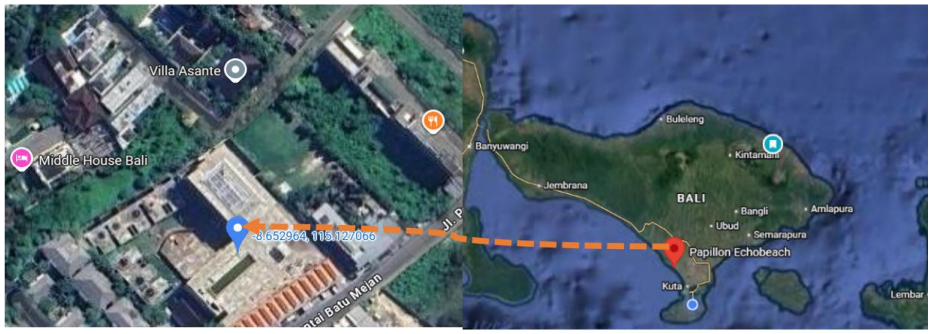

Figure 1. Location Papillon Canggu Hotel

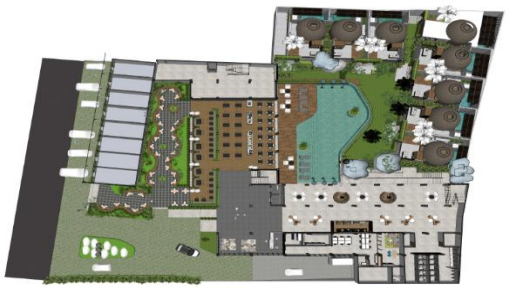

Figure 2. Site Plan

Figure 3. Upper Footing

Figure 4. Upper Tread

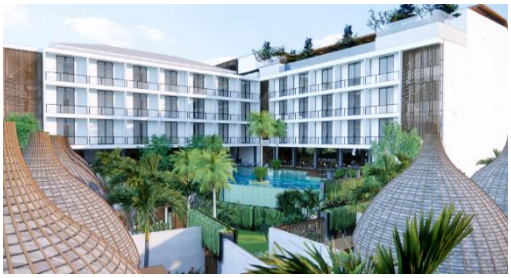

Figure 5. Front Tread

Building Information Data

Location	: Jalan Batu Mejan, Canggu, North Kuta, Badung, Bali
Building Function	: Hotel/Villa
Site Area	:18,475 m2

Gross Floor Area	: 9,327 m2
Net Lettable Area	: 6,528 m2
Service Area Size	: 4.967 m2
Density	: 10m2/people
Number of Occupants	: 653 people
Building Height	: 4 Floors, and 1 Basement Floor, 15 meters
Rainfall	: 66.02%
Clean Water System	: PDAM and Water Processed Rain
Electricity	: PLN, GENSET
Zone	: KT (Office Zone)
Sub-Zone	: KT (Office)
KDB	: 60%
KTB	: 60%
KDH	: 20%
TPZ	: There isn't any

BGH Criteria in the Planning Stage

The green building assessment system uses the benchmark of PUPR Ministerial Regulation No. 21 of 2021, which contains assessment aspects and categories, each with a value. The assessment system is divided into seven aspects: Site Management, Energy Efficiency, Water Efficiency, Indoor Air Quality, Environmentally Friendly Materials, Waste Management, and Wastewater Management.

BGH Assessment Results

The assessment of the Green Building (GGB) criteria of the Papillon Hotel was conducted through a Focus Group Discussion (FGD) involving GGB experts. The assessment results are as shown in Table 1.

Table 1. List of Performance Assessments for the BGH Technical Planning Stage for New Building Construction

No	Performance Assessment Parameters	Points	Information
A.	**SITE MANAGEMENT**	**22**	
1.	**Building Orientation**		
	Adaptive to solar orbit patterns: Select one		
a.	A building whose longest wall faces North-South with a maximum slope angle of 15° to the North-South axis	1	In accordance
b.	A building whose longest wall faces East-West with a ratio of more than 2× the length of the North-South direction, and which has been engineered to the building envelope (facade) and/or openings in the East-West direction.	0	It is not in accordance with
2.	**Site Management Including Accessibility or Circulation**		
a.	Roof coverings and pavements that have a solar reflectance value (albedo) minimum 0.3	1	In accordance
b.	Rainwater captured in the entire site and building area (100%) must be able to be managed for at least 2 hours using absorption wells and/or retention/detention ponds that refer to the average rainfall daily for the last 10 years	2	In accordance

No	Performance Assessment Parameters	Points	Information
c.	The value of the number of vegetation canopies compared to the area footprint of at least 20%	1	Vegetation canopy value compared to footprint area 10%
3.	**Management of Waste Contaminated Land Hazardous & Toxic Materials (B3)**		
	If a BGH is built on land contaminated with B3 waste, it is mandatory to first carry out land restoration in accordance with statutory provisions and is given a score of 3 points. If the BGH is built on land not contaminated with B3 waste, it is not given value.	0	The land is not contaminated with B3 waste
4.	**Private Green Open Space (RTH) Plan**		
a.	Green area size: Select one:		
1)	Green area 10–20%	1	Green area 15%
2)	Green area 20–50%	0	
3)	Green area >50%	0	
b.	It is planned that the green area will be accessible by the public	1	Green areas are accessible to the public
c.	It is planned to plant vegetation that functions as shade, sound dampeners, odor filters, or dust filter: Select one:		
1)	Vegetation has one of the functions as shade, sound dampener, odor filter, or dust filter	0	
2)	Vegetation has more than one function as shade, sound dampener, odor filter, and/or dust filter	2	In accordance
5.	**Provision of Pedestrian Paths**		
a.	Has a pedestrian path with access between the outside of the building and the building entrance that meets the convenience requirements.	3	Has a pedestrian access route from the hotel to the main road
b.	Have pedestrian facilities that are connected or connect to public facilities, for example public transportation, pedestrian bridges, public spaces, and to surrounding plots/plots with a maximum limit of 400 meters.	1	Has pedestrian facilities connecting public facilities within a distance of 20 meters
6.	**Basement Site Management**		
	In the case of a basement, it does not violate the Basement Footprint Coefficient (KTB) rules and still takes into account the ease of rainwater absorption (basement layer depth 4 meters from the ground surface)	1	The depth of the basement layer is 3.8 meters and takes into account the ease of water absorption.
7.	**Provision of Parking Space**		
a.	The building is planned to have a parking area of ≤ 20% of the permitted Gross Floor Area (GFA) or have a mechanical parking system ≤ 10% of GFA.	1	This building has a parking area of less than 10% GFA
	Additional Points		
1)	In terms of parking in the form of a basement maximum 2 layers	1	Basement parking only 1 layer
2)	Provision of parking space in the form of vertical parking space to reduce land use or damage (e.g. mechanical parking building). Mechanical parking may not be inside the building provided it is protected from heat and rain.	0	Does not have vertical parking space
b.	Provide facilities for bicycle users, including bicycle parking and dedicated bicycle lanes. The bicycle parking ratio should be at least 1% of the total number of occupants. Each additional 1% is worth 1 point, with maximum value of 3 points.	0	Does not have dedicated bicycle lane parking
c.	Has shower facilities for users bicycles with a ratio of 2 shower units for 25 bicycle parking spaces.	0	There are no shower facilities for bicycle users.

No	Performance Assessment Parameters	Points	Information
d.	The parking lot has a Public Electric Vehicle Charging Station (SPKLU) or Electric Vehicle Charging Station (EVCS) facility with the provision of at least 1 SPKLU unit for every 25 4-Wheeled Parking Space Units and 1 SPKLU unit for every 50 2-Wheel Parking Space Units.	0	The land does not yet have public electric vehicle charging station (SPKLU) facilities
8.	**Outdoor Lighting Systems**		
	Outdoor lighting facilities are planned to use automatic switches or light sensors.	1	Outdoor lighting facilities use automatic switches and light sensors.
9.	**Construction of the above building and/or underground, water and/or public infrastructure/facilities**		
	Building structures above and/or below ground, water and/or infrastructure/facilities must comply with the provisions of laws and regulations:		Building construction on land/plot
a.	Clarity of access and road facilities means of egress	1	Have access to the entrance and exit
b.	Engineering to introduce air and light natural into the building	1	Have air engineering in and out of the room
c.	Engineering that enables views outside the building	1	Engineering has a view out of the building
d.	Implementation of efficient water use and energy	1	This building implements efficient water use.
e.	Have waste processing and wastewater treatment	1	It is planned to have independent waste processing and wastewater management.
	What is not included in building structures above and/or below ground, water and/or infrastructure/facilities are not given a value.		
B.	**ENERGY USE EFFICIENCY**	**29**	
1.	**Building Envelope**		
a.	The building envelope has an accumulated Overall Thermal Transfer Value (OTTV) and Roof Thermal Transfer Value (RTTV) of a maximum of 35 Watt/m². Notes: If the building is planned not to use an air conditioning system, it will get full marks.	3	This building envelope has an accumulated OTTV and RTTV value of 27.5 Watt/m².
b.	The comparison value of the transparent building envelope with the solid building envelope or Window to Wall Ratio (WWR) is less than 30%. Notes: If the building is planned not to use an air conditioning system, then get full marks.	2	Comparison value of transparent building envelope with WWR 32% massive building envelope
2.	**Ventilation System**		
	Buildings whose rooms are equipped with air conditioning systems, but are planned not to condition some or all of the passive spaces (corridors, lift lobbies, toilets, etc.) and are equipped with natural ventilation or mechanical ventilation so that they still meet the requirements of thermal comfort.	3	The building is equipped with an air conditioning system and some (corridors) are not equipped with an air conditioning system.
3.	**Air Conditioning System**		
a.	It is planned to use Air Conditioning (AC) with a minimum room temperature of 25°C±1°C and a room relative humidity of 60%±10%. Notes: If the building is planned not to use an air conditioning system, it will get full marks.	2	This building is planned to use air conditioning with a minimum room temperature of 25 degrees.
b.	kW/TR or COP of air conditioning equipment according to SNI 6390:2020 or the latest edition. Notes: If the building is planned not to use an air conditioning system, it will get full marks.	4	KW/TR or COP of air conditioning equipment according to SNI 6390:2020

No	Performance Assessment Parameters	Points	Information
4.	**Lighting System**		
a.	Artificial lighting is sufficient condition:		
1)	The artificial lighting system for the room is planned to have maximum power and lighting levels in accordance with SNI 6197:2020 or latest edition	0	No artificial lighting is planned.
2)	There is one switch in the room which is smaller than 30 m².	2	There is a 15 m² room with one switch
3)	Use of occupancy sensors/lighting controllers in rooms with specific functions as required in SNI 6197:2020 or latest edition.	0	There is no use of occupancy sensors/lighting controllers in the room.
b.	Natural lighting fills condition:		
1)	Areas that receive natural lighting according to standards have separate lamp groups from areas that do not receive natural light	3	Standard natural lighting, has separate light groupings with areas that do not receive natural light.
2)	Areas that receive natural lighting according to standards are equipped with light intensity sensors (lux) that can regulate the lighting according to the lighting level according to standards.	0	Not equipped with a light intensity sensor (lux)
5.	**In-Building Transportation System**		
a.	Lift traffic analysis calculations according to SNI 03-6573-2001 or the latest edition. Notes: If the building is planned not to use an elevator, it will get full points.	1	Lift traffic analysis calculations according to SNI 03-6573-2001 or the latest edition.
b.	Using a vertical transportation system which has energy saving features:		
1)	For vertical elevator transportation using Variable Voltage Variable Frequency (VVVF) technology. Note: If the building is planned not to use an elevator, then get full points.	0	This building is not planned to use transformation using VVVF technology.
2)	For vertical transportation, escalators use slow motion or automatic on/off technology. Notes: If the building is planned not to use an elevator, it will get full points.	0	It is planned not to use vertical escalators.
6.	**Energy Efficiency Calculation**		
	There is a plan to save electricity consumption by calculating lower electricity consumption compared to the baseline. For every 2% saving in electricity consumption, a score of 1 point is given, with a maximum score of 5 points. *) Baseline is a reference value for energy efficiency calculated based on SNI and laws and regulations on energy conservation. The SNI referred to include: a. SNI 6197:2020 (Energy conservation in lighting systems); b. SNI 6389:2020 (Energy conservation of building envelopes in buildings); c. SNI 6390:2020 (Energy conservation of air conditioning systems in buildings); — or the latest edition.	3	There is a plan to save energy consumption, lower than the baseline.
7.	**Electrical System**		
a.	The building is planned to have a grouping of electrical loads and each has a kWh meter, and an electrical energy submeter is available for the power source main greater than 100 kVa.	2	Buildings are planned to have their own electrical loads.
b.	Buildings with a centralized air conditioning system must use a Building Management System (BMS) to control electricity consumption of the building.	2	Buildings using Building Management System (BMS)
c.	There are plans to utilize electrical energy sources from renewable energy sources.	2	There is a plan to utilize energy sources
C.	**EFFICIENCY OF WATER USE**	**6**	
1.	**Water Sources**		
a.	PDAM water or drinking water from another company	1	Planned to use PDAM water

No	Performance Assessment Parameters	Points	Information
b.	Surface water (river water, lake water, sea water) which is processed with a permit	0	Do not use surface water
c.	Treated rainwater	0	Untreated rainwater
d.	Recycled water:		
1)	Recycled water from used water (grey water)	0	Used water is not recycled
	If equipped with a water meter, this is provided additional value 1	0	Not equipped with a water meter
2)	Recycled water from dirty water (black water)	0	Dirty water is not recycled
	If equipped with a water meter, this is provided additional value 1	0	Not equipped with a water meter
2.	**Water Usage**		
a.	It is planned that water meters will be installed in every groundwater outlet system	2	It is planned that there will be a water meter in each groundwater output system.
b.	There is a calculation of water consumption saving plans in the form of water balance	0	There is no calculation of water consumption saving plan
3.	**Use of Water-Saving Sanitary Equipment (Water Fixture)**		
	Select one:		
a.	It is planned that the building will use at least 25% of water-saving fixture products from the total plan procurement of fixture products	3	The building is planned to use at least 25% of fixture products.
b.	At least 50% of the total procurement fixture products	0	
c.	At least 75% of total procurement fixture products	0	
D.	**INDOOR AIR QUALITY**	**14**	
1.	**Smoking Ban**		
a.	There is a commitment from the Building Management to make the building smoke-free	2	There is a commitment from the building management to make the building smoke-free.
b.	There are warnings and signs prohibiting smoking throughout the building. If a smoking area is available, it is set aside from the building.	2	There are no smoking signs in the building area.
2.	**Carbon dioxide (CO_2) and Carbon monoxide (CO) control**		
a.	Every room, including rooms equipped with air conditioning systems, must be designed to have a ventilation system and provided with a fresh air supply according to the requirements of SNI 03-6572-2001 or the latest edition, taking into account CO_2 and/or CO content.	2	Equipped with an air conditioning system, designed to have a ventilation system
b.	Every enclosed space in a building that has a high density and/or has the potential to cause CO_2 accumulation must be equipped with a CO_2 sensor with an alarm and a mechanical ventilation system that operates automatically to maintain the threshold comfort CO_2 concentration (1000 ppm) is not exceeded.	2	Equipped with an alarm as a CO_2 sensor and a mechanical ventilation system that operates automatically.
c.	Every enclosed parking area with wall openings on less than 3 sides must be equipped with a CO sensor with alarm and a mechanical ventilation system that operates automatically when the CO gas concentration to maintain the comfort threshold concentration CO (25 ppm) is not exceeded.	2	Each covered parking area is equipped with a CO sensor with alarm and mechanical ventilation system.
3.	**Control of the Use of Freezing Agents (Refrigerant)**		
	Select one:		
a.	The room is designed not to use air conditioning that uses refrigerant.	0	The room is designed using a refrigerant cooling device
b.	In the building construction planned to use a cooling device:		

No	Performance Assessment Parameters	Points	Information
1)	If the room must use an air conditioning machine, choose a machine that uses a refrigerant with an Ozone Depletion Potential (ODP) value equal to zero.	2	The room does not use an air conditioner
2)	Air conditioners use refrigerants with a Global Warming Potential (GWP) value of at least 700.	2	GWP value less than 700 GWP
E.	**USE OF ENVIRONMENTALLY FRIENDLY MATERIALS**	**19**	
1.	**Control of Hazardous Materials Use**		
a.	In the RKS it is planned to use paint materials according to regulations that do not contain hazardous pollutants.	2	Use appropriate paint materials that do not contain harmful pollutants.
b.	Wood/bamboo/renewable materials usage plan does not contain adhesives and/or coatings that contain hazardous and toxic materials (B3).	2	The use of wood does not contain dangerous and toxic materials (B3)
c.	Metal materials use a rust-resistant paint coating that does not contain hazardous and toxic materials (B3).	2	Metal materials use rust-resistant paint coatings that do not contain hazardous and toxic materials (B3).
2.	**Use of Certified Environmentally Friendly Materials (Eco-Labelling)**		
a.	Concrete materials use raw materials originating from local sources with a maximum distance of 1000 km or originating from the source/factory closest to the project location.	1	Local materials used in this building are 100 km away.
b.	Concrete materials using cement have provisions for plans to use cement from factories that implement ISO 14001 environmental management system	3	Cement material uses ISO 14001 standards
c.	There are provisions for wall covering materials that must come from local sources with a maximum distance of 1000 km or come from the closest source/factory to the project location.	1	Citicon lightweight brick wall covering material from 600 km
d.	The wood usage plan has legal provisions	2	The use of wood has legal force
e.	Plan to use recycled wood/bamboo/other renewable materials for at least 50% of component costs of ceiling and/or walls of the building.	0	Do not use wood for the ceiling
f.	In the RKS it is planned to use paint materials with the provision of selecting from factories that implement the ISO 14001 environmental management system.	2	Using Cat implements the ISO 14001 system
g.	The roof covering is planned to use environmentally friendly materials, namely those that do not contain toxic and hazardous materials (B3), including asbestos and/or have an ecolabel.	1	Bitumen roof covering material is an environmentally friendly material that has a green certificate.
h.	Material usage plan based on waste/by-products as aggregates, filler, cement substitution, and finishing materials has met the requirements.	1	Waste-based material usage plan
i.	Use of materials with Domestic Component Level (TKDN) at least 40%.	2	Use of materials with a TKDN level of 43%
F.	**WASTE MANAGEMENT**	**7**	
1.	**Application of the 3R Principle (Reduce, Reuse, Recycle)**		
	The waste management in the building is planned to commit to waste management based on the 3R principle (reduce, reuse, recycle) at the source. The business plan is to reduce and reuse plastic bags and paper.	1	Waste management with the 3R principle
2.	**Implementation of Waste Management System**		

No	Performance Assessment Parameters	Points	Information
a.	Plans for providing individual and communal waste bins/containers. Waste bins/containers are designed to group and separate waste based on type. Separate waste bins/containers in buildings accommodate at least three types of waste: organic, inorganic, and hazardous waste, with capacities appropriate to the quantity/volume of waste generation.	1	It is planned that there will be communal/individual waste facilities (organic, inorganic and B3) with a capacity according to the amount of waste generated.
b.	Plans to build a Temporary Waste Storage Place (TPS) with sufficient capacity in the building environment, as well as collecting and transferring waste from the waste source to the TPS on a scheduled basis or every day using waste collection equipment separated/separated.	2	Planned to build a polling station
c.	Planning organic and/or inorganic waste processing facilities independently and/or involving third parties who have organic and/or inorganic waste management facilities outside BGH to increase the value of benefits and reduce environmental impact.	2	Planning independent waste management
3.	**Implementation of the Production Recording System for Waste**		
	Planning weight/volume recording of waste generation to be managed	1	There is no plan to record the weight of waste generation
G.	**WASTE WATER MANAGEMENT**	**6**	
1.	**Provision of Wastewater Treatment Facilities Before Discharge into City Drains**		
a.	Buildings located in the service area of the city or communal wastewater network system can utilize the network: Select one:		
1)	Directly connected pipe network without pre-processing	0	The pipeline network is not directly connected to the pre-processing
2)	Equipped with pre-processing (control tank, grease trap, screen, etc.)	2	Equipped with pre-processing (control tank etc.)
b.	The building has facilities for wastewater treatment:		
1)	Processing Type: Select one:		
a)	Pre-processing only	0	Pre-processing and primary processing
b)	Pre-processing and primary processing	2	Planned
c)	Complete processing (pre-processing, wastewater treatment, and sludge processing/handling)	0	Only pre-processing and primary processing
2)	The processed water quality plan meets quality standards in accordance with statutory regulations	2	The quality of processed water is planned to meet quality standards.
2.	**Recycling Water from Domestic Wastewater**		
a.	Using recycled water for more than one function: Select one:		
1)	Use for two functions only	0	Used water is not recycled
2)	Use of more than two functions	0	Used water is not recycled
b.	The recycled water quality plan for cooling tower or flushing functions meets the quality standards according to the provisions of legislation	0	Used water is not recycled
	TOTAL POINTS FOR TECHNICAL PLANNING STAGE – NEW BUILDING CONSTRUCTION	**103**	

Table 2. BGH Predicate

No	Condition	POINTS	BGH Pratma	BGH Madya	BGH Utama
a	Site Management	22	45% to 65% Performance achievement according to SLF	More than 65% to 80% According to the parameters of the PUPR Minister's Regulation on BGH Performance Assessment	**More than 80% to 100% According to the parameters of the PUPR Minister's Regulation on BGH Performance Assessment**
b	Energy Efficiency	29			
c	Efficient water use	6			
d	Indoor air quality	14			
e	Use of environmentally friendly materials	19			
f	Waste management	7			
g	Wastewater treatment	6			
	Total	**103**			

Source: PUPR Ministerial Regulation No. 21 of 2021

In accordance with table 2, the achievement of the Green Building Criteria value at the planning stage of the Papillon Canggu Hotel Building with a total value of 103 including BGH Pratama.

CONCLUSION

Identification of the application of Green Building Criteria (BGH) at the planning stage based on PUPR Ministerial Regulation no. 21 of 2021. The assessment was carried out in two stages, namely conducting a building site survey, examining planning documents and holding a focus group discussion (FGD) with BGH experts. In accordance with the BGH assessment criteria for the planning stage, it is known that the value of the site management parameter is 22 points, the energy efficiency parameter is 29 points, the water efficiency parameter is 6 points, the indoor air quality parameter is 14 points, the use of environmentally friendly materials is 19 points, the waste management parameter is 7 points, the wastewater treatment parameter is 6 points. Based on the 7 parameters assessed, it is known that the application of the BGH criteria at the planning stage of the Papillon Canggu Hotel building is 103 points. Based on the total assessment, it is concluded that the planning of the Papillon Canggu Hotel Building is included in the BGH Pratama criteria.

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