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Implementation of Green Building Concept and How to Manage it at SMAN 3 Jember

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Abstract. The concept of green building is a practice that is focused on minimizing the environmental impact that arises with reference to the concept of ecological, social, and economic. In Indonesia, this concept is still not well implemented, especially in several government-owned school buildings. The purpose of this study was to evaluate the government-owned educational institutions whether they had met the green building criteria based on the GreenShip-GBCI standard, as well as how the efforts of policymakers in the school were managed. This study uses a quantitative research design with an evaluative approach. While the evaluation model used is the CIPP model, the data presented comes from the results of observations and interviews. Primary data is obtained by direct observation in schools using GBCI parameters and interviews with policymakers in schools. Based on the results of the study, it was found that according to the criteria in each category the results were 27 points (23%) and had not reached the minimum eligibility limit of 41 points. The management of school buildings is supported by the government through the active role of schools and school committees in the form of submitting assistance through the Special Allocation Fund (DAK) and community participation. Recommendations for schools need to be improved in several buildings to conform to the principles of green building.

1. Introduction

Energy and Environmental Saving and Sustainable Development are important issues in the world that have overcome the changing world today. In an international seminar on the Low Carbon District in Indonesia held by the Faculty of Engineering, University of Cokroaminoto Yogyakarta, it was revealed that Indonesia became the most populous country that produced the largest green building gas emissions in the world [14]. Following the agreement signed in the Paris agreement (2015), Indonesia has agreed to a commitment to reduce green building gas emissions by 29% or 41% with international assistance in 2030.[14]

Global green building gas (GBG) emissions according to sectors in Indonesia include Industry (29%), Housing (11%), Offices (7%), Transportation (15%), Agriculture (7%), Energy supply (13%), Use and change of forest land (15%), and Waste (3%) [1]. Emission levels are projected to increase by 2.7% this year, according to three studies released by the Global Carbon Project [1]. School buildings as educational facilities are part of the office sector which also contributes to green building gas emissions. As a place to study as a school building can be a pioneer in reducing green building gas emissions in addition to the convenience of learning can also be an effort to learn to students about the importance of protecting the environment.

For this effort, the concept of green building can be used as a solution. The concept of green building is a practice that is focused on efforts to minimize environmental impacts that arise by referring to ecological, social and economic concepts [6]. By implementing the green building concept in schools it is expected to help efforts to reduce green building gas emissions, as well as learning efforts for students about the importance of protecting the environment by starting from what is around us. Besides, there is a need for school management efforts to create healthy and educational learning tools for students [7].



2. Theory

2.1 Definition of environmentally friendly buildings (green building)

According to the regulation of the Minister of Environment no. 8 of 2010 concerning Environmental Friendly Building Criteria and Certification Chapter 1 article 1, green building is a building that applies environmental principles in the design, construction, operation and management and important aspects of handling the effects of climate change. The principle in environmentally friendly buildings is to prioritize and pay attention to the element of preservation of environmental functions[8]

According to the Green Building Council Indonesia / GBCI [5], the concept of green building is a building wherein planning, building, operating and in its maintenance pay attention to aspects in protecting, saving, reducing the use of natural resources, maintaining good quality of buildings and quality of air quality in the room, and pay attention to the health of its inhabitants who are all based on the rules of sustainable development.[5]

2.2 Basic Principles of Green Building

Some of the principles used as the basis for preparing environmentally friendly buildings based on the Green Building Council Indonesia (GBCI) are:[3]

2.2.1 Simple (simplicity)

2.2.2 Can and easy to implement (applicable)

2.2.3 Available technology (available technology)

2.2.4 Use local standard criteria

2.3 Aspects of Green Building Assessment

The six aspects that are guidelines in the Green Building evaluation according to the GBCI (Green Building Council Indonesia) are:[3] [4]

2.3.1 Appropriate Land (Appropriate Site Development / ASD)

2.3.2 Energy Efficiency and Conservation (Energy Efficiency and Conservation / EEC)

2.3.3 Water conservation (Water Conservation / WAC)

2.3.4 Material Resources and Cycles (Material Resource and Cycle / MRC)

2.3.5 Air Quality and Room Comfort (Indoor Air Health And Comfort / IHC)

2.3.6 Environmental Management Building (Building And Environment Management / BEM)

Predicate assessment of each building is classified by Green Building Council Indonesia (GBCI) in bent ratings as Table 1:[4]

Table 1. Predicate building valuation based on the *Green Building Council Indonesia* (GBCI)

predicate	value	percentage
platinum	83<	73
gold	66 - 82	57
silver	53 - 65	46
bronze	41 - 52	35

Source: GBCI

2.4 Concept of Green Building Development

The concept of green buildings according to GBCI should meet four criteria, including:[4]

2.4.1 Material The material must be obtained from nature and is a renewable energy source that is managed sustainably. The durability of building materials is tested and can be recycled and reduce waste production.

2.4.2 Energy.

In principle green buildings should have windows to save energy, especially lamps and air conditioners. Green buildings must also use energy saving lamps, as well as renewable energy technologies such as wind turbines and solar panels. Lighting from solar panels is believed to reduce electricity cost. So actually saving energy has an impact on saving the cost of routine expenses [9] [10] [11]

2.4.3 Water.

The principle of water use in the green building concept applies the principle of reuse and saving. Water saving can be done by creating a rainwater catchment system that can be used to water plants or clean other building facilities. The equipment used is water-saving equipment such as low-pressure water showers, using a small water reservoir [9] [11]

2.4.4 Health.

The principle can be done with using building materials and furniture that are non-toxic or safe for health and emission-free. In addition it is also needed material non VOC (volatile organic compounds) and waterproof to prevent the arrival of germs and other microbes. Indoor air quality either through a ventilation system or a good window to regulate air humidity [12] [13]

2.5 Rating System [4]

The Rating System was prepared by the Green Building Council in countries that have followed the movement of environmentally friendly buildings (Green building). Every country has a rating system tailored to the local conditions of each country such as America has LEED, Singapore has GreenMark, Australia GreenStar while Indonesia Greens. GreenShip is organized jointly by the government, professionals, industry, academics and other related organizations.

According to GBCI, there are 3 different types of criteria found in the GreenShip, namely:

2.5.1 Prerequisite Criteria.

Criteria that exist in each category and must be fulfilled before further evaluation based on credit criteria and bonus criteria. If one of the preconditions is not met, the credit criteria and bonus criteria in the same category of the building cannot be assessed. Prerequisite criteria do not have values like other values [12] [13]

2.5.2 Credit Criteria.

Criteria that exist in each category and do not have to be fulfilled. Fulfillment of these criteria is adapted to the capabilities of the building. If this criterion is fulfilled the building gets a value, and if it is not fulfilled the building does not get value [12] [13]

2.5.3 Bonus Criteria. Criteria that only exist in certain categories that allow the provision of added value. This is because in addition to these criteria it does not have to be fulfilled, its achievement in taste is quite difficult and is rarely found in the field [12] [13]

3. Research Methodology

This study uses a quantitative research design with an evaluative approach. While the evaluation model used is the CIPP model (Context, Input, Process, and Product). Context evaluation includes the Green Building concept, input evaluation includes the high school building 3 Jember, process evaluation includes the management of school buildings, and product evaluation includes the results of building suitability analysis of the concept of Green building. Data collection techniques in this study include questionnaires, interviews, and documentation. Data analysis techniques using comparison [15], namely by comparing the results of research data with parameters from green building council Indonesia (GBCI)

4. Research Result

4.1 Existing Conditions and Management of Public High School 3 Jember

SMAN 3 Jember located on Jalan Basuki Rahmat no. 26 Jember, the location of the school entered from the main main road adjacent to the school building of Jember 8th Middle School. The location is convenient for learning because it is far from vehicle noise from the main line . The buildings included in the category of building woke up (*existing building*)[2] [8] because it has existed for more than 5 years and have had a second floor on the East side of the building with total area of 16 472 m² is dire smikan by nnnnn on 22 November 1985 . The status of this building is government property because it is a public school building.

Management of the infrastructure of the building of SMAN 3 Jember was carried out by authorized *stakeholders* , especially for the school building under the responsibility of the deputy principal of the affairs of facilities and infrastructure (Ms. Teripena EC, S.Pd) who was directly responsible for the head of the Senior High School 3 Jember Dr. H. Rosyid, S.Pd, M.Sc, MP. Infrastructure facilities in the form of buildings that are the management of public high school 3 Jember facilities include: classes, libraries, biological laboratories, physics laboratories, chemical boratorium, computer laboratories , prayer rooms, canteens, UKS, teacher rooms, TU rooms, Principal rooms, Principal rooms, rooms vice principal, and school lobby. Repair of school infrastructure is divided into 2:

4.1.1 *Small and medium-sized rehabilitation can be programmed in the form of spending on School Operational Assistance (BOS) and community participation.*

4.1.2 *Large rehabilitation and the creation of new spaces, the school and the school committee proposed to the relevant government to get assistance in major repairs and procurement of new space in the form of Special Allocation Funds (DAK) or Blockgrand.*

4.2 Ana l isis Prerequisites Assessment Tool For Building Built Greenship[4]

Prerequisites in the *Green Building* assessment are criteria that must be fulfilled and applied in a building. There are 9 prerequisites in the *Greenship* for buildings built to represent 6 categories. The following is a matrix of interviews with Teripena EC , S.Pd, as Deputy Principal for Infrastructure Affairs related to the prerequisites for the *Greenship* assessment for buildings constructed at SMAN 3 Jember (Table 2)

Table.2. Matrix of Prerequisites for the *Greenship* Assessment Tool for Building Built

No.	Category	Precondition	Meet	
			Yes	Not
1	ASD	P1 A statement containing the commitment of top management regarding the maintenance of the exterior of the building, integrated pest management (IPM), and weeds and management of habitat around the site using non- referral materials .		√
		P2 The statement letter contains the commitment of top management to carry out various actions in order to achieve a reduction in the use of private motorized vehicles, for example car pooling, feeder buses, public vehicle vouchers and discrimination on parking fees .		√
		The existence of a campaign in order to encourage a reduction in the use of private		√

2	EEC	P1	<p>motorized vehicles with a minimum installation of campaigns written permanently on each floor, including in the form of: stickers, posters, e-mails</p> <p>The existence of a statement letter containing commitment from top management which includes: the existence of an energy audit, austerity targets and a certain periodic action plan by the energy team.</p>	√
		P2	<p>The existence of a campaign in order to encourage energy savings with a minimum installation of campaigns written permanently on each floor, including in the form of: stickers, posters, e-mail.</p> <p>Shows IKE electricity for the last 6 months to be smaller than the IKE IKE reference standard specified by GBC INDONESIA (Offices 250 kWh / m2 year, Mall 450 kWh / m2. years and Hotels or Apartment 350 kWh / m2. Year) Shows that there is an energy savings of 5% or more in the last 6 months</p>	√
3	WAC	P1	<p>A statement containing the commitment from top management includes: the existence of a water audit, a savings target and a certain time-bound action plan by the water conservation team.</p> <p>There is a campaign in order to encourage water conservation with a minimum installation of campaigns permanently written on each floor, including: stickers, posters, e-mail.</p>	√
4	MRC	P1	<p>Using non-CFC Refrigerants and Cleaning Materials that have a small Ozone Depleting Potential (ODP) value, <1</p> <p>If you still use CFC as a refrigerant, an Audit and a phase out plan are needed in the use of CFCs as refrigerants in the next 3 years and reduce CFC consumption from leakage and damage to cooling machines stated in the Refrigerant Management System Plan or RMS Plan.</p>	√
		P2	<p>There is a statement containing the top management policies that prioritize spending on all environmentally friendly materials in the list below:</p> <ol style="list-style-type: none"> a. Regional production b. Certified SNI / ISO / ecolabel c. Recyclable material d. Used material (reuse) e. Renewable Material (renewable) f. Modular or Pre fabricated material g. Certified wood 	√

			h. Lights that do not contain mercury	
			i. Insulations that do not contain styrene	
			j. Ceiling or partition that does not contain asbestos	
			k. Composite wood products and low formaldehyde emission agrifiber	
			l. Paint and carpet products with low VOC emissions	
		P3	A statement containing the commitment of top management to regulate waste management based on the separation between: (a). Organic trash; (b). Inorganic Waste, and (c). The trash	√
			Contains B3	
			There is a campaign in order to encourage separate waste sorting behavior with a minimum installation of campaigns written permanently on each floor, including: stickers, posters, emails	√
5	IHC	P1	The existence of a statement letter containing top management to encourage minimization of smoking activities in the building.	√
			The existence of a no-smoking campaign that includes the negative impact of smoking on yourself and the environment with a minimum of installation of campaigns written permanently on each floor, between	√
			others are: stickers, posters, e-mail	
6	BEM	P1	Their Plan of operation and maintenance that support the goal of achieving the rating – The rating <i>GREENSHIP</i> EB, dititik emphasis on: the stem mechanical & electrical, plumbing system and water quality, the maintenance of the exterior and interior, purchasing and waste management	√
			Includes: organizational structure, standard operating procedures and training , program	
			work , budget, periodic reports minimum every 3 months.	

Source: GBCI, the data is processed by the author

4.3 Criteria Suitability Analysis in Greenship at SMAN 3 Jember Building[4]

Suitability analysis is obtained by way of comparing the results of your check (checklist) with green conditions that exist in Greenship are used. After adjustments are made, points will be obtained for each of the criteria and then the results will be added to the total points and rank categories will be obtained in the Greenship.

4.3.1 Land Use Category

For the land use category there are 8 criteria with a maximum total value of 16 points

Table 3. Categories of Land Use (ASD)

No.	Criteria	Meet		Point
		Yes	Not	
ASD 1	There are at least 5 types of public facilities within reach of the main road as far as 1500 m from the site.	√		1
	Providing pedestrian facilities that are safe, comfortable and free from intersections of motorized vehicle access to connect at least 3 public facilities above and / or with mass transportation stations	√		1
	There is a stop or station in the public transportation range of 300 m from the gate of the building location with a calculation outside the pedestrian bridge and ramp		√	0
ASD 2	A reduction in the use of private vehicles motorized with the implementation of one of the options: car pooling, feeder bus, public vehicle voucher, or parking tariff discrimination		√	0
ASD 3	There is a secure bicycle parking as many as 1 parking unit per 30 permanent building users.	√		1
	If it fulfills point 1 above and provides 2 special changing rooms and special bathrooms for bicycle users for every 25 bicycle parking lots.		√	0
ASD 4	The existence of a landscape area in the form of vegetation (softscape) which is free of garden buildings (hardscape) which is located above the surface of the land with a minimum of 30% of the total land area	√		1
	Value addition of 1 point for each addition of 10% of the site area for use in the landscape area	√		1
	Use of local plants originating from local nurseries with a maximum distance of 1000 km and productive plants	√		1
ASD 5	Using materials that mean albedo value - average a minimum of 0, 3 in accordance with the calculation in the roof area of the building were covered pavement.		√	0
	Using materials that mean albedo value - average a minimum of 0, 3 according to the calculation of non-roof area covered pavement.		√	0
ASD 6	Reducing the burden of rainwater runoff volume from the land area to the city drainage network is 50% of the total daily rain volume calculated based on the calculation of rainwater discharge in the wet month.	√		1
ASD	Own and implement SPO controls for pest and		√	0

7	plant weeds using non - toxic materials.		
	Provision of non-pet habitat for at least 5% of the total building area, based on the animal activity area (home range).	√	0
ASD	Improving the quality of life of the community around the building by doing one of the following actions: improvement of sanitation, provision of places of worship, public toilets , street vendors and community development training	√	1
8	Open pedestrian access to at least 2 orientations to neighboring buildings without having to go through public areas.	√	0

Source: GBCI the data is processed by the author

4.3.2 Categories of Energy Efficiency and Conservation[4]

The Energy Efficiency and Conservation category has 7 categories with a maximum value of 36 points.

Table.4. Categories of Energy Efficiency and Conservation

No.	Criteria	Meet		Point
		Yes	Not	
EEC 1	IKE electricity building shows a value below the IKE electricity standard reference in the last 6 months, so every 3% decrease will get 1 additional point up to a maximum of 16 points. (Offices 250 kWh / m ² . Year)	√		3
EEC 2	Have re-commissioned or retrocuted with performance improvement targets (KW / TR) on MVAC main equipment in the previous 1 year		√	0
	There is ongoing continuous commissioning for a maximum of 3 years.		√	0
	If the above points are met, there are additional points for testing, re-commissioning or retro commissioning with a performance improvement target (KW / TR) on the MVAC System (AHU, pump, cooling tower) as a whole.		√	0
EEC 3	Making savings with lights that have the power for lighting saves 20% more than the lighting power listed in SNI.	√		1
	Uses a minimum of 50% high frequency ballasts (electronics) in the general workspace.		√	0
	Efficient equipment that uses electrically operated AC systems	√		1
EEC 4	Provision of kWh meters which include: air conditioning systems , lighting systems and contact boxes, other load systems, and spaces that are not excluded or conditioned.		√	0
	There is a routine monthly record of monitoring and data collection on the kWh meter. Recording	√	0	1

	is done for a minimum of the last 6 months.		
	Appreciate the use of energy in the form of <i>Display Energy</i> placed in public areas.	√	0
	Implement technology support for monitoring and controlling building equipment through EMS technology	√	0
EEC 5	Guide to operation and maintenance of all air conditioning systems (chiller, Air Handling Unit, cooling tower)	√	1
	If point 1 has been fulfilled, it is added to the regular operation and maintenance guidelines for all other equipment systems (in-building transportation systems, clean and dirty water distribution systems (pumps) and backup power plants	√	1
	There is a monthly report for the last 6 months minimum for the operation and maintenance of building systems in an orderly manner according to the format stated in the operation and maintenance guidelines	√	1
EEC 6	If 0.25% of the maximum power demand is generated by renewable energy or 2 kWp of renewable energy installed	√	0
EEC 7	0.25% reduction in CO2 Emission Reduction Measures from original emission.	√	0

Source: GBCI, the data is processed by the author

4.3.3 Categories of Water Conservation[4]

In the water conservation category there are 8 criteria with a maximum total value of 20 points

Table 5. Categories of Water Conservation

No.	Criteria	Meet		Point
		Yes	Not	
WAC 1	The presence of water consumption sub - meters in public area systems, commercial areas and building utilities	√		0
WAC 2	There are standard operating procedures and their implementation regarding periodic maintenance and inspection of plumbing systems to prevent leakage and waste of water by showing the water balance in the last 6 months for initial certification	√		0
WAC 3	For buildings with 20% water consumption above SNI, every 10% decrease gets 1 point.	√		0
WAC 4	Shows laboratory evidence for the last 6 months from primary source water in accordance with the criteria for clean water	√		0
WAC 5	Use recycled water with sufficient capacity for make up water cooling tower needs. This Benchmark only applies to buildings that use	√		0

	cooling towers on their cooling systems		
	100% of irrigation needs are not sourced from the building's primary water source (PDAM and ground water).	√	1
	Using recycled water with sufficient capacity for toilet flushing needs, in accordance with WHO standards for medium contact (<100 Fecal Coliform / 100 ml).	√	0
	Having a water recycling system output equivalent to the standard of clean water as Permenkes 416 year 1990 on terms - terms and Water Quality Monitoring to meet water needs	√	0
WAC 6	Using a filtration system that produces drinking water in accordance with Permenkes No. 492 of 2010 concerning Drinking Water Quality Requirements at a minimum in each kitchen or pantry	√	1
WAC 7	Consumption of water that uses deep well is a maximum of ≤20% of overall water consumption	√	1
WAC 8	≥50% of the total water tap units in public areas use the auto stop feature.	√	1

Source: GBCI the data is processed by the author

4.3.4 Category Cycles and Material Resources .Material Cycle and Resource Categories have 5 criteria with a maximum value of 12 points[4]

Table.6. Category Cycles and Material Resources

No.	Criteria	Meet		Point
		Yes	Not	
MRC 1	Use the entire air conditioning system with refrigerants that have ODP = 0 (non CFC and non HCFC).	√		1
MRC 2	List of Environmentally Friendly Materials a. 80% Regional production based on total material expenditure . b . 30% SNI / ISO / ecolabel Certified based on total expenditure on overall material . c. 5 % of recyclable material based on total material expenditure. d. 10 % reuse based on total material spending in total. e. 2 % Renewable Material based on total material expenditure. f. 30% Modular or Pre fabricated material based on total material spending		√	0
	There is a document that explains material spending in accordance with the above policy (minimum 3)		√	0

MRC 3	There are Standard Operating Procedures, Training and Reports to collect and sort waste based on organic and inorganic types in the last 6 months for initial certification.	√	0
	If you have done organic and inorganic sorting, you can process organic waste independently or work together with an official body for processing organic waste	√	0
	If you have done organic and inorganic sorting, do processing inorganic waste independently or work with an official body of inorganic waste processing that has the principle of 3R (Reduce, Reuse, Recycle).	√	0
MRC 4	Efforts to reduce packaging waste made from styrofoam and non - food grade plastic	√	1
	Efforts to handle waste from third party renovation activities at least 10% of the total renovation budget in the last 6 months for initial certification *	√	0
MRC 5	The standards for B3 waste management operations, training and management reports include: lamps, batteries, printer ink and used cleaning materials in the last 6 months for initial certification.	√	0
MRC 5	The existence of Standard Operating Procedures and reports on the distribution of used goods that can still be reused in the form of furniture, electronics and spare parts through donations or markets for used goods in the last 6 months for initial certification *.	√	0

Source: GBCI the data is processed by the author

4.3.5 *Categories of Comfort and Health in Space*. Comfort and health categories in space have 8 criteria with a maximum total value of 20 points [4]

Table 7. Categories of Comfort and Health in Space

No.	Criteria	Meet		Point
		Yes	Not	
IHC 1	Indoor air quality showed the presence of the introduction of air outside the minimum in accordance with ISO 03 - 6572 - 2001	√		1
IHC 2	Installing a "D -Smoking sign in all building areas " and not providing special buildings / areas inside the building to smoke.	√		1
IHC 3	The room - the room with high density (such as ballroom / function room , public meeting room, general workspace) equipped with carbon dioxide (CO2) gas sensor installation		√	0
	Closed parking spaces inside the building are equipped with the installation of carbon monoxide gas sensors (CO) which have a mechanism to regulate the amount of outside air vents		√	0
	CO concentration in the room is not more than 23 ppm. The sensor is placed 50 cm above the floor		√	0

	near the exhaust grille.		
IHC 4	Measurement of indoor air quality is carried out randomly with sample points in the main lobby, workspace or room rented by tenants. Measurements are made at least 1 sample point per 1000 m ² or the maximum number of sample evaluations is 25 points for one building.	√	1
IHC 5	Cleaning filters, cooling coils and VAC (Ventilation and Air Conditioning) tools according to a regular maintenance schedule to prevent the formation of moss and fungi as a place for microorganisms to develop. Maintenance schedules are in accordance with factory guide standards	√	0
	Measuring the number of bacteria with a maximum number of bacteria of 700 colonies / m ³ air and pathogenic germ free in the room specified by the Indonesian GBC (based on Decree of the Minister of Health of the Republic of Indonesia No.1405 / Menkes / SK / XI / 2002 concerning Health Requirements for Office and Industrial Work Environment)	√	0
IHC 6	The measurement results show the level of lighting (illumination) in each workspace in accordance with ISO 03 - 6197 - 2000 on Energy Conservation in Lighting Systems	√	1
IHC 7	The measurement results show the sound level in the workspace in accordance with SNI 03 - 6386 - 2000 concerning Specifications for Sound Levels and Reverberation Times in Building and Housing	√	1
IHC 8	Conducting a survey of building user comfort includes air temperature, room lighting levels, sound comfort, building cleanliness and the presence of pest control. Respondents are at least 30% of the total permanent building users	√	0

Source: GBCI, the data is processed by the author

4.3.6 *Environmental Management Category*. The environmental management category has 5 criteria with a maximum total value of 13 points.[4]

Table .8. Environmental Management Category

No.	Criteria	Meet		Point
		Yes	Not	
BEM 1	Application of innovation by improving building quality quantitatively, for example: ASD 4, EEC 1, WAC 3, and IHC4 so that an increase in efficiency exceeds the maximum limit specified in the rating concerned		√	0
	Application of innovation by taking a		√	0

	management approach such as encouraging behavior change, for example ASD 2 and ASD 8 and MRC 2, 3 and 4, resulting in increased efficiency at other ratings		
BEM	Availability of documents Design Intent and the Owner's Project Requirements The following changes - changes his occur during mas a revitalization and operational.	√	0
2	Availability of As Built Drawing documents, technical specifications and manuals for the operation and maintenance of equipment (generators, transportation in buildings, air conditioners and cooling towers) along with changes that occur during the revitalization and operational period	√	0
BEM	There is a structure that is integrated in the structure of operations and maintenance of buildings which is tasked with maintaining the application of the principles of sustainability / green building.	√	0
3	Minimum involvement of a Greenship Professional in operational & maintenance work full time (full time)	√	0
BEM	For buildings that are used alone, have the SPO and Training which included efforts - efforts to meet the criteria - criteria in GREENSHIP for Building Waking minimum 1 ratings in each category of ASD, EEC, WAC, IHC and MRC	√	0
4	There is a minimum periodic schedule every 6 months and a training program in operation and maintenance for sites, energy, water, materials and HSES (Health Safety Environmental and Security).	√	0
BEM	There is evidence of the implementation of training for sites, energy, water, materials and HSES programs along with the evaluation of the training.	√	0
5			

Source: GBCI, the data is processed by the author

The results of the evaluation of the learning facility building in SMAN 3 Jember can be summarized in the table below.

Table .9. Summary of evaluation results

parameter	results
ASD	8
EEC	8
WAC	4
MRC	2
IHC	5
BEM	0

Totally
27

From this table we can find out the total assessment of the Jember 3 Public High School building based on the green building parameters issued by the Green Building Council Indonesia (GBCI) 27 point. This means that the building of SMAN 3 Jember is in the bronze category according to the parameters GREENSHIP.

5. Conclusions

Based on the results of the evaluation of the high school 3 Jember's redundancy, it can be concluded: Existing SMAN 3 Jember school buildings include buildings that are representative of learning activities because they are located off the main road so that they are far from the noise of motorized vehicles, easy road access and adjacent to the school building of Jember 8th Middle School.

SMAN 3 Jember Building is a government-owned building whose management is under the responsibility of the Principal and is assisted by the deputy head of the school for facilities and infrastructure. The cost of building management is directly supported by the government with the help of community participation.. Based on the results of the study, it was found that according to the criteria in each category the results were 27 points (23%) and had not reached the minimum eligibility limit of 41 points.

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