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IMPLICATION OF SITE FACILITY MANAGEMENT ONSITE USING GREEN BUILDING GUIDELINE FOR EXISTING BUILDING

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ABSTRACT

Usage of natural things deriving from human activities is increasing day by day acting against the quality of the environment and sustainable use of natural resources. Human interference has cause adverse effect on environment. Construction activity has cause serious impact on environment. to overcome this problem people are moving to eco friendly practices. Buildings are large entities and, as such, they impact upon the environment in various ways. Present-day designs clearly consume large quantities of physical resources such as materials, energy and money in their construction, maintenance and use; but they also can result in effects such as loss of amenity and biodiversity which are much more difficult to assess. These problems can be resolve by proper site facility management . Site facility is relation of man to land & other land & living on it.

Keywords : building rating , IGBC rating, site facility management.,

I INTRODUCTION

The Building Life Cycle defines the entire life of a building from design, through conception, occupancy and on to eventual demolition. This creates a need for long term efficient designs to be present in all buildings.[1] . Buildings are large entities and, as such, they impact upon the environment in various ways. Site facility management is very important factor in such case. Improving site environment is main objective of it. Problems like light pollution, Air pollution, waste disposal , heat effect have to control.Light pollution is one of the most rapidly increasing types of environmental degradation. Its levels have been growing exponentially over the natural nocturnal lighting levels provided by starlight and moonlight.[2] In many urban cities of India the pollution levels are much above the international and domestic safety standards. The main contributing factors to Air pollution are the overwhelming concentration of vehicles, poor transport infrastructure[3]IGBC Green Existing Building O&M is the first rating programme developed in India, exclusively for existing building stock. It is based on accepted environmental principles and strikes a balance between known established practices and emerging concepts. The system is designed to be comprehensive in scope, yet simple in operation. Green existing buildings can have tremendous benefits, both tangible and intangible. The most tangible benefits are the reduction in water & energy consumption. The operational savings through energy & water efficiency could range from 15 -30%. The consumer waste generated in the building can also be substantially reduced. Intangible benefits of green existing buildings include enhanced air quality, health & higher satisfaction levels of occupants.[4][5]IGBC Green Existing Buildings O&M Rating System is fundamentally designed to address

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national priorities of resource conservation while providing quality of life for occupants. The pilot version of IGBC Existing Buildings O&M rating system is applicable for all types of non-residential buildings including office buildings, IT Parks, BPOs, shopping malls, hotels, hospitals, airports, banks, etc. Building types such as factory and schools will be covered under respective IGBC rating programmes. Buildings which are 80% occupied (with respect to the carpet area) and operational for a minimum of 1 year are eligible for certification under IGBC Existing Buildings O&M rating. Projects already certified and operational for more than 1 year are also eligible to apply for IGBC Existing Buildings O&M certification . Campus projects having multiple buildings can be considered as one single project for registration and certification. However each building has to individually conform to the energy, water and fresh air mandatory requirements. [5]IGBC Green Existing Buildings O&M rating system addresses green features under the following categories 1.Site & Facility Management 2.Water Efficiency 3.Energy Efficiency 4.Health &Comfort 5.Innovation.This paper would study site facility norms of IGBC for existing building

II METHODOLOGY

Methodology we use for these case study is base on the IGBC norms for Site and Facility management for green buildings. First understand IGBC norms thoroughly . Visit to study area for data collection. Analysing data ding to IGBC . Next step is to accredit points to the building as per IGBC Rating and suggest to transform the building for higher ratings.

III STUDYAREA

Name Of Site- Hotel Rasika Renaissancelocation Of Site- R S NO 4/26 E Ward Opp Shahu, Market Yard Kolhapur , MaharashtraHotel Rasika Renaissance Is A 3 Star Facility Hotel With A New Concept In Hospitality. It Is Located In The Heart Of The City Of Kolhapur Just Three Minutes Away From The Central Bus Stand And Five Minutes From Railway Station. Even Being Located In The Heart Of The City It Has A Peaceful Surrounding Which Makes It An Ideal Place For Both Business And Leisure Traveler. All The Guests' Rooms Are Well Designed To Make The Guests Feel More Comfortable With All Modern Amenities Like Business Centre, Laundry & Direct Dialing From Rooms..

Fig.1 view of hotel from Front

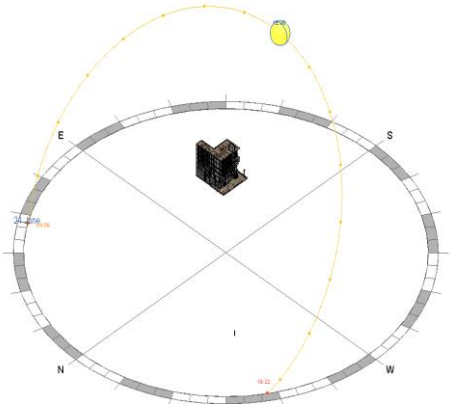

Fig 1.1 Sun Path at study area

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IV. RESULTS AND DISCUSSION

4.1 Site Facility (SF) A Mandatory Requirement,Green Policy

To adopt green practices as and when the buildings go for retrofitting and renovation, thereby reducing the environmental impacts. mandatory requirement are given in Table 1 which shows how many points has been fulfilled under this credit. in this hotel Fly ash bricks are used. All wood/ply material used is of GREENPLY which has FSC certification. Paint used are Asian Paints having low VOC value i.e. upto 100 Workmen nvolved in construction were provided with Restroom and safe water. All appliances purchased in building have 3and above BEE rating. Ref Fig.2 for BEE ratings.

Fig.2. BEE rating of equipments

Table 1. Table For mandatory requirement of green policy

Building materials including interior materials to have at least 10% recycled content, by cost	Fulfilled
50% of the wood materials to have Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification(PEFC) or equivalent certification	Fulfilled
50% of waste generated (by weight or volume) on site do not go to a landfill	Nil
Paints and adhesives to have low volatile organic compound (VOC)	Fulfilled
Workmen involved in the construction to be provided with restrooms and safe drinking water facility.	Fulfilled
All appliances purchased to have BEE 3 star or above rating. This applies to appliances for which the BEE star labelling program is in place.	Fulfilled

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4.2 Waste Collection & Disposal

Segregate building waste at source and facilitate proper disposal for recycling, thereby avoiding such waste is being sent to landfills .basic requirement are given in table.2

Table 2. For mandatory requirement of Green Policy

Demonstrate an ongoing solid waste collection and disposal system to include both hazardous & non-hazardous waste.	nil
Have provision to segregate atleast food, e-waste, metals, plastic and paper in the central waste collection area	Fulfilled

B. SF credits

4.2 SF1 Eco-Friendly Commuting Practices

Reduce air pollution and land development impacts from personal automobile use.

Out of 50 Permanent occupants 45 livens inside hotel itself and remaining 5are provided with shuttle service. Refer Fig.3 room for permanent occupants . This study area involves 50 permanent occupant out of which 45 are lives inside hotel building which reduce transportation cost and reduce air pollution.

Table 3.Eco-friendly Commuting requirement

Requirement	Baseline	Fulfilled	Points awarded
Provide shuttle services to nearest public transportation facility (OR) Provide bus pool / van pool facilities to pick and drop permanent occupants to their residential places.	25%-2pt 50%-4pt	90 % Exemplary performance	4
Exemplary performance According to Innovation Category (part V of IGBC) INN Credit 1.1-1.5, if exemplary performance is shown then 2 points are awarded. Perform of building is beyond threshold limits specified in credit categories of rating system.	>75%- Exemplary Performance	90 % Exemplary performance	2

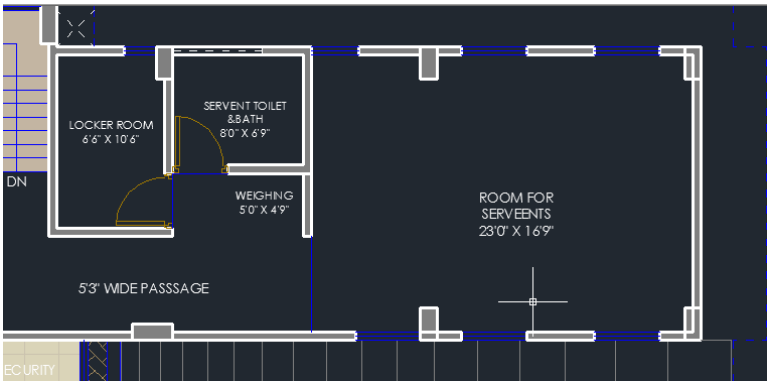

Fig.3 Plan for room for Permanent occupant

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ii) SF2 Eco-Friendly Landscaping Practices

Adopt eco-friendly landscaping practices to minimize the impact of chemicals on ecology. This case study have 52% landscape (Ref Table.4 & 5)Increase the landscape area with locally adaptive plant and prefer use of organic fertilizer

Table 4. Eco friendly Landscaping

Requirement	Baseline	Fulfilled	Points awarded
Have in place; eco-friendly landscaping practices , locally Adaptive plants	50%	52%	1

Site Observation: In Hotel Rasika Renaissance, there are mainly three types of plants are adopted in landscaping. Table 5 and Fig.5.0, Fig.5.1, Fig.5.2 for the observations on study area.

Table 5. Landscape area calculation

TYPE OF PLANT (Locally Adopted)	AREA COVERED
Palms trees	120 sq.ft
Lantana camara	65 sq.ft
Spider Lily	66 sq.ft
Total landscape area	251 sq.ft
Total area locally Adoptive Species	131 sq.ft
%(area locally Adoptive Species/ Total landscape area)	52%

Fig.5.0 Plants on Site

Fig.5.1 Landscape Planning

Fig.5.2 0 Plants on Site

iii) SF3.1Heat Island Reduction, Non Roof

Minimize heat island effect to reduce impact on microclimate. Refer Table.6 for the observation and result on study area. Study area do not consist Shade from the existing tree canopy ,Open grid pavers, including grass pavers ,Shade from solar panels , Structured surface parking so the requirement do not fulfill . Provision of one of the above facility can improve performance.Refer table 6 for site observation.

Table 6.Heat Island reduction in non-roof area

Requirement	Baseline	Fulfilled	Points Awarded
For exposed non roof hardscape areas (such as footpaths, pathways, roads, uncovered surface parking and other hardscape areas) within the project site, have at least one or combination of the following	50%	Nil	0

iv) SF3.2 Heat Island Reduction, Roof

Minimize heat island effect to reduce impact on microclimate. The area does not consist of roof areas covered with vegetated garden or high reflective coating or tiles. Providing china mosaic or material having SRI value more than 80% can gian Refer Table. 7

Table 7 Heat Island reduction in roof area

Requirement	Baseline	Fulfilled	Point Awarded
For exposed roof areas, have vegetation OR materials with high Solar Reflective Index (SRI) value (such as white colored tiles or high reflective coatings or other high reflective materials).Reflective materials shall have a minimum SRI value 78	50%	Nil	0

v) SF 4 Outdoor light Pollution Reduction

Reduce light pollution from exterior and facade lighting to increase night sky access and enhance nocturnal environment. Refer Table 8 & table 9 for LPD calculation. Fig no 6 &6.1 has shown the outdoor lightning of building. Install energy efficient internal and external lighting luminaries (as applicable) which are at least three star rated under BEE labeling programme or luminaries which are more efficient.

Table 8 Outdoor light Pollution Reduction

Requirement	Baseline	Fulfilled	Point Awarded
xtenal light should be upward looking. The lighting power intensities uld not exceed 80% for exterior areas (parking, landscape, roads, ays etc) and 50% for building facades as indicated in ECBC section 7.3.5	80%	Fulfilled	2

LPD calculation for study area is given in Table. 9

Name	Area	Description	Watt per Fixture	Quantity	Cantrol	total watt	lighting wattage for space	LPD(W/Ft sq)
Front Parking &Entrance	111ft X 28 ft=3108sq ft	12 watt incandescent light bulb	12	5	Timer	60	3108	0.0193
Parking	55ft X 18 ft=990sq ft	12 watt incandescent light bulb	12	2	Timer	24	990	2

Fig.6.0 Outdoor Lighting

Fig.6.1 Outdoor Lighting

vi) SF 5 Building Operating and Maintenance

Ensure sustained performance of the building systems, so as to achieve benefits during the lifetime of the building system & facility

Table. 10 Building Operating and Maintenance

Requirement	Fulfilled	Points Awarded
Have in place an operation & maintenance plan for the following, as applicable .Lighting systems,HVAC systems (including chillers, cooling towers etc)Power back up Systems (Generator sets, gas turbines etc), lifts	Fulfilled	**1**

V. CONCLUSION

IGBC concern with wide range of area to improve buildings site performance .. Maintaining site can reduce the impact of construction on environment . This site has wide range of scope in improvement in waste generated which do not go do landfills and heat island reduction in roofed and non roof area by applying given suggestions. site has shown good performance in eco-friendly commuting practices and i reduction of outdoor light pollution. Overall the case study, that has been done, shows that these building is 56% fulfilling the green

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building terms , and has capacity to improve its performance. IGBC rating system for existing building proves very useful for rating which is focused on sustained performance of buildings with respect to the green features.

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