

7.2.3 a - Carbon Management and reducing carbon dioxide emission

CARBON FOOTPRINT

Carbon foot print / Capita						
Activity Data	Type	unit	GHG	Emission factor	Quantity	CO ₂ emission /year
Transportation	petrol	litres	Kg CO ₂ e	2.196	1300	2855
	diesel	litres		2.65	381461	1010872
Electricity		kWh	Kg CO ₂ e	1.2	4376492	5251791
Paper consumption		kg	Kg CO ₂ e	0.683	21900	14958
Water consumption	water supply	cum	Kg CO ₂ e	0.8	160611	128489
Solid waste		kg	Kg CO ₂ e	3.7	259560	960372
Total CO ₂ Emission Per Year		Kg	Kg CO ₂ e			7369336
Over all carbon foot print / year		Ton				7369
Total population (avg)						7000
Carbon Foot Print per capita in Ton						1.05

National average per capita **1.58 Ton/Capita/Year**

Actual CO₂ emission **1.05 Ton/Capita/Year**

% of CO₂ emission - on national avg. **66.63%**

% of CO₂ reduced from National avg. **33.37%**

CARBON OFFSETTING

Total Carbon Emission : 7369 tons/year				
Classification of Green Areas	Area	Unit	CO₂ (avg.) absorption rate t/year	Total CO₂ absorption ton/year
Area of Tree - ref Google Map	2	Acre	160	336
Lawn & plant area	14	Acre	15	211
Beema Bamboo	2.5	Acre	80	200
Total green area in acre	19	Acre		
Total CO ₂ Absorption				747
% of CO ₂ offset within the campus				10.13%
% of Green Area				37.86%

❖ 10 % of Carbon foot print is offset by the above environment - friendly measures in campus.

Calculation:

Carbon Offsetting

Total trees green area	-	19 Acres
Total CO ₂ absorption ton/year	-	747 tones
Over all carbon foot print/year (CO ₂ Emission)	-	7369 tones
% of CO ₂ → offsetting within campus (747 / 7369 X 100)	-	10.13%
Bal: 90% to be offset by planting more trees or trading		
% of Linear area (19/50 Acres - carbon foot print)	-	38%

Carbon Footprint

Total CO ₂ Emission per year: Kg	⇒	-	7369336
Over all carbon foot print / year =	$\frac{7369336}{1000}$	-	7369 tones
Total Population (Avg.)		-	7000 (students)
Carbon foot print per Capita in Ton =	$\frac{7369}{7000}$	-	1.05
National Avg. per emission		-	1.58 / ton / capita / year
Actual CO ₂ Emission		-	1.05 / ton / capita / year
% of CO ₂ Emission on National Avg. 1.05	$\frac{1.05}{1.58} \times 100$	-	66.46%
% of CO ₂ reduced from National Avg. 100 - 66.46		-	33.54%

GREEN LANDSCAPING WITH TREES AND PLANTS

The campus had 909 trees before the Vardha cyclone in December 2016. A total of 341 trees were uprooted in the cyclone. 451 trees are newly planted in the last 3 years and are being well maintained. Beema Bamboo Plants 2075 numbers has been planted in whole campus to reduce Co2. Now the total number of trees in campus is 3094 Nos. List of trees are available now in our campus and tabulated below.

List of Trees in Campus

TREE NAME	TOTAL Nos
NEEM TREE	272
PORTIA	51
TAMARIND	22
MANGO TREE	33
BRACKEN TREE	253
COCONUT TREE	48
SPIKELET	145
ASH	40
ARECA	49
CASUARINA	36
SPASMA	6
ALMONDS	18
KING TREE	3
BANYAN TREE	4
PALMYRA	4
TEAK TREE	35
BEEMA BAMBOO PLANTS	2075
TOTAL	3094

PLANTING TREES IN THE CAMPUS



Topo Plan with Newsaplings



Plan showing location of new saplings planted in campus

OXYZONE CAMPUS – BEEMA BAMBOO PLANTATION

Planted bamboo saplings for 5000 run area throughout our compound to absorb dust, CO₂ and to release more oxygen and to create pollution free environment. In future, Central bus stand will produce lot of pollution inside our campus, by planting bamboo, our campus become dust free zone with good oxygen supply. Our Institute is provided first OXYZONE inside our campus. Beema Bamboo Plants 2000 Nos Planted in whole campus for CO₂ reduction.



OXY PARK

Oxy Park created in the campus opposite to Convention Centre



Oxy Park

GREEN BUILDING IN CONSTRUCTION

Sustainable and eco-friendly campus development has been adopted with following materials

- ❖ Grass Crete: Method of laying Grass paver flooring, walkways, sidewalks and driveways to improve storm water absorption and drainage
- ❖ Ash Crete: Fly ash (recycled) content with cement is being used for all Reinforced Cement concrete works.
- ❖ Low - VOC paints: Painting with low VOC less than 50gm/liter is using for all painting works - Nippon and Berger
- ❖ Engineered wood: MDF (Medium Densified Fibre) wood used for interior partition, doors and furniture's.
- ❖ Structural Insulated Panels (SIP): Foam board wall panels are used for prefab structures such as class room and indoor game space.
- ❖ Insulated Concrete Forms: GFRP Technology being adopted to construct parent waiting guest rooms and essential staff quarters.
- ❖ Steel: Steel roof panels (recyclable) used for workshop roofing.
- ❖ Composites: Roof panels made of composite materials such as foam sandwiched between two metal sheets used for prefab class room ceiling.
- ❖ Fibreglass: Fibreglass is also used in insulation in the form of Fibreglass batts for interior partition works.
- ❖ AAC Blocks: Autoclaved Aerated Concrete blocks (non- toxic product) are used for the construction of all buildings to reduce low environmental impact.
- ❖ Thermatek Roof tile: Heat Resistant Terrace tiles are used for all buildings.
- ❖ VAV system: Variable air volume HVAC system is adopted to reduce energy consumption



Grass crete



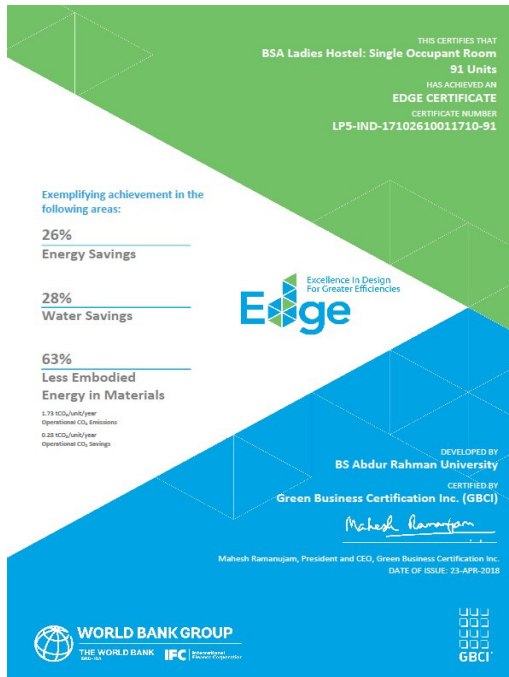
30% Roof top with Heat Resistant Tiles & Solar reflective Index (SRI) value : 97

Environment and Campus

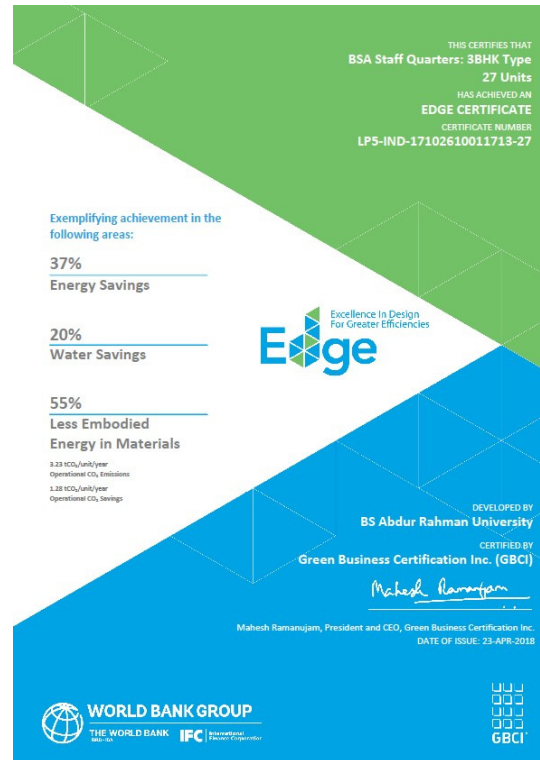
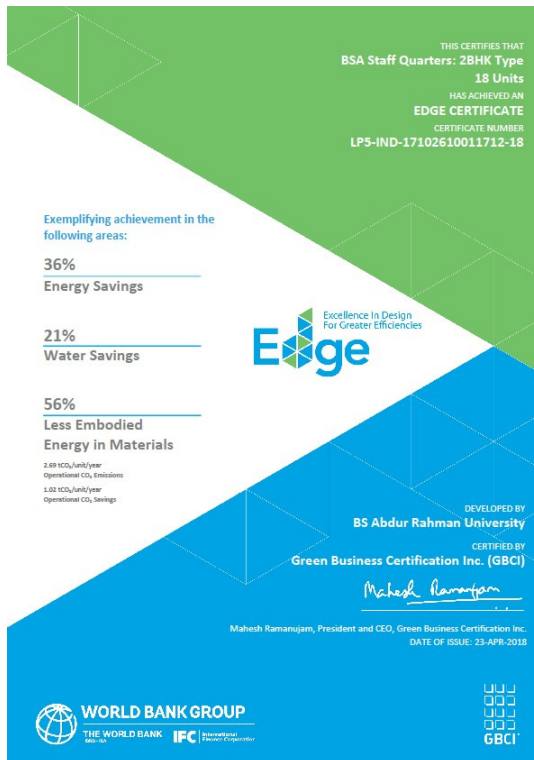
- ❖ 1.Green open space and Landscape
- ❖ 2. Preservation of Eco - system
- ❖ 3.Public space for students and staffs - Cafe, Lounge, Square Garden
- ❖ 4.Recycling based campus
- ❖ 5.Enhancing sustainable consumption of available resources i.e water & Energy.
- ❖ 6.Promoting low - carbon practices among campus community.
- ❖ 7.Minimizing waste and pollution through effective waste management.
- ❖ 8.Innovation in building Design with improved daylight and natural ventilation

GREEN BUILDING AND CERTIFICATION

GBCI-EDGE GREEN BUILDING CERTIFICATION FOR LADIES HOSTEL



GBCI- EDGE CERTIFICATE FOR STAFF QUARTERS



CRESCENT SCHOOL OF ARCHITECTURE BLOCK, IS DESIGNED AS A NET ZERO ENERGY BUILDING AND REGISTERED UNDER USGBC-LEED GOLD CERTIFICATION

New Crescent School of Architecture block, is designed as a Net Zero Energy building and registered under USGBC-LEED Gold certification.

ARCHITECTURAL BLOCK - DESIGNED AND BEING CONSTRUCTED AS A "NET ZERO ENERGY GREEN BUILDING" ONE OF THE FIRST ACADEMIC BUILDING IN SOUTH INDIA TO BE A NZEB

Define Net Zero Building

A **zero-energy building**, also known as a **zero net energy (ZNE) building**, **net-zero energy building (NZE)**, or **net zero building**, is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site.



Weblink: <https://crescent.education/wp-content/uploads/2020/10/Crescent-Green-Initiatives-July-2020.pdf>