

# A GREEN AUDIT REPORT FOR METHODIST COLLEGE OF ENGINEERING AND TECHNOLOGY (2022-2023)

## 1. INTRODUCTION

Green practices in the existing buildings can help address national issues like water efficiency, energy efficiency, and reduction in fossil fuel use in commuting, handling of waste and conserving natural resources. Most importantly, these concepts can enhance occupant health, happiness and well-being.

In this audit report, the college campus of Methodist College of Engineering and Technology is evaluated for green practices, against the guidelines of Indian Green Building Council's (IGBC) rating system. The Rating system considered for reference is the IGBC Existing Buildings O & M rating system.

1.1 The Rating System levels as recommended by IGBC are:

<b>Certification Level</b>	<b>New Campus</b>	<b>Existing Campus</b>	<b>Recognition</b>
Certified	40–49	36–44	Best Practices
Silver	50–59	45–53	Outstanding Performance
Gold	60–74	54–66	National Excellence
Platinum	75–100	67–90	Global Leadership

## 1.2 Methodist College Campus: Salient Features

Methodist College of Engineering & Technology is a Non-Minority Educational institution, established in the year 2008, over 5.03 acre sprawling campus, situated at Abids, in the heart of the city of pearls, Hyderabad (Capital city of Telangana state). The college is well connected by public transport from every corner of the city. Total Campus Area and College Build-up Area.

The MCET is approved by AICTE, New Delhi and affiliated to Osmania University, Hyderabad. The College is accredited by NAAC with A+ Grade and all eligible Under Graduate-B.E Programmes are accredited by National Board of Accreditation (NBA). The

UGC has granted autonomy to the college for ten years with effect from the Academic Year 2021-2022.

**Total Campus area = 5.03 ACRES OR 24345.2 SQ.YDS OR 20355.68 SQ MTS.**

**Built up area = 14128.4 SQ MTS**

**Areas of Individual blocks:**

- 1) A BLOCK: 2378.45 SQ.MTS
- 2) B BLOCK: 1413.77 SQ.MTS
- 3) C BLOCK: 4103.29 SQ.MTS
- 4) D BLOCK: 1490.63 SQ.MTS
- 5) E BLOCK: 4698.00 SQ.MTS
- 6) F BLOCK: 422.20 SQ.MTS
- 7) G BLOCK: 405.06 SQ.MTS

**Need for this Audit**

The construction sector for the last 10 years has done extremely well in embracing the green concepts. Though initially it started with individual buildings, green is now penetrating into other forms of environment such as administrative campuses. The green concepts and techniques in campuses can help address National issues like water efficiency, energy efficiency, reduction in fossil fuel use in commuting, handling of consumer waste and conserving natural resources. Most importantly, these concepts can enhance occupant health, happiness, and well-being.

**A) CRITERIA 1: SITE & FACILITY MANAGEMENT FOR MCET**

For Methodist College

Minimum number of Tree Saplings per Acre (Including Existing and Transplanted Trees)	Points
20	2

Percentage of Site Area with Green Cover/ Vegetation	Points
≥20%	2

**B) CRITERIA 2: SUSTAINABLE TRANSPORTATION FOR MCET**

Educational	1 for every 25occupants
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**C) CRITERIA 3: WATER CONSERVATION FOR MCET**

For Methodist college

No. of rainwater harvesting pits	Points
>4	2

**D) CRITERIA 4: ENERGY EFFICIENCY FOR MCET**

Energy Simulation method: for Methodist College of Engineering and technology

Percentage energy savings over ECBC	No of points
15%	6
17.5%	8

The current regulations indicate that to illuminate classrooms, for example, we recommend about 300-400 lumens per square meter of surface.

For Methodist

Renewable energy as a percentage of total energy consumption	Points
7.5%	6

Percentage of On-site Renewable Energy generated to the Total Annual Energy Consumption of the Campus Infrastructural Equipment/ Systems, excluding Buildings	Points
>50%	5

### E) CRITERIA 5: MATERIAL AND RESOURCE MANAGEMENT FOR MCET

In Methodist College of Engineering and technology there is no need to provide dustbins for organic waste because in that college have no hostel for students

No of blocks	Dry waste bins	Capacity dry bin /year Kg	Wet waste bins	Capacity wet bin/year kg	Cost of each bin of wet and dry rs/-	Total cost of both bins
A	16	2	12	8	240	5760
B	12	4	10	6	240	5280
C	12	4	10	6	240	4320
D	8	3	8	5	240	1440
E	34	2	25	9	240	14,160
F	5	3	3	5	240	1920
G	2	3	1	5	240	720
<b>Total</b>	<b>89</b>	<b>20</b>	<b>69</b>	<b>44</b>	<b>-</b>	<b>33,600/-</b>

Total waste of both wet waste and dry waste in Methodist College of Engineering and technology =  $20+44=64$  kgs

For Methodist

Waste	Percentage of waste	Points
Wet waste	<25 %	1
Dry waste	> 75%	3

### 2.0 CONCLUSION

- This report tells the technical and also the economic aspects related to green buildings for the existing campus of Methodist college of Engg and technology.
- The conclusion for the studies suggests different categories' i.e., definitions and scope of green building, benefits and cost so
- Green building and ways to achieve green building and to turn an existing building campus into green building.
- Awareness among the people should be spread about the green building concepts and its long-term profits.
- Provisions of educating and training people or the occupants will help to regulate their behavior of using the green building.

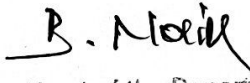
- It is also worth noticing that all the leading green building assessment tools are designed according to their local climatic and geographic conditions
- The points are given according to IGBC rating system. Different point for different levels given to the campus by calculating the necessary requirements required for green building.

For Methodist College campus according to the suggested consideration points given in every field the certification level and recognitions given below

Certification Level	Existing Campus	Recognition
Silver	45-53	Outstanding Performance


### 3.0 INTERNAL AUDIT TEAM

**1. Dr. Bandita Naik**  
Associate Professor and Head,  
Department of Civil Engineering

  
Head of the Department  
Department of Civil Engineering  
METHODIST COLLEGE OF ENGG. & TECH.  
King Koti Road, Abids, Hyderabad

**2. Dr. K. Santosh Kumar**  
Associate Professor,  
Department of Humanities and Sciences  
Empaneled Functional Area Expert  
(Approved by NABET) Land Use (LU).



  
PRINCIPAL  
METHODIST COLLEGE OF ENGG. & TECH.  
King Koti Road, Abids, Hyderabad



**METHODIST**  
COLLEGE OF ENGINEERING & TECHNOLOGY  
(An UGC-AUTONOMOUS INSTITUTION)

Estd : 2008

Accredited by NAAC with A+ and NBA  
Affiliated to Osmania University & Approved by AICTE



## Energy Audit Report, AY: 2022-23

### Use of solar PV System for Power Generation:

The department of Electrical and Electronics Engineering in Methodist college of Engineering and Technology has a PV plant, which has solar energy capacity of 3.5KW and acts as an alternate energy to cater the need of the department with lighting and fan load at I&II floor-B-block.

Solar plant is generating almost 3020 units annually, which results in reduction of 4.64 Tons of CO<sub>2</sub> emissions.

*J. Reddy*

I/C Solar Plant

*[Signature]*  
09/11/2022

HOD-EEE



Head of Department  
Department of EEE  
Methodist College of Engg & Tech.  
Abids, Hyderabad-500 001.



# ENVIRONMENTAL AUDIT REPORT

## FOR

### METHODIST COLLEGE OF ENGINEERING AND TECHNOLOGY

(2022-2023)

#### 1. CONTEXT

We are committed as a component of Corporate Social Responsibility of the Higher Education Institutions to ascertain that they contribute towards the minimization of ecological warming through Carbon Footprint abbreviation measures.

Environment Audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the College Management.

#### 2. ENVIRONMENTAL AUDIT - QUESTIONNAIRE

The eco/environmental/green auditing to be followed/practiced by the Institution:

1. Waste Minimization and Recycling
2. Greening
3. Energy Conservation
4. Water Conservation
5. Clean Air
6. Animal Welfare
7. Environmental Legislative
8. General Practices

**(i) Where is the campus located?**

The campus is Located in King Koti, Hyderabad.

**(ii) Which of the following are available in your institute?**

1	Garden area	Available
2	Play ground	Available
3	Kitchen	Available
4	Toilets	Available
5	Garbage Or Waste Store Yard	Available
6	Laboratory	Available
7	Canteen	Available
8	Hostel Facility (numbers)	Not Available
9	Guest House	Not Available

**(iii) Which of the following are found near your institute?**

1	Municipal dump yard	Not in vicinity of institute
2	Garbage heap	A small heap backside the campus
3	Public convenience	Yes
4	Sewer line	Yes
5	Stagnant water	No
6	Open drainage	No
7	Industry – (Mention the type)	No
8	Bus / Railway station	Near from campus
9	Public halls	Yes

## 2.1. WASTE MINIMIZATION AND RECYCLING

1.	Does your institute generate any waste? If so, what are they?	Yes, Solid waste, Canteen waste, paper waste, plastic waste, toiletry waste, Horticulture Waste, etc.			
2.	What is the approximate amount of waste generated per day? (in Kilograms/month) (approx.)	Bio Degradable	Non-Biodegradable	Hazardous	others
		44kg	6kg	3kg	<6kg
3.	How is the waste generated in the Institute managed? By 1 Composting 2 Recycling 3 Reusing 4 Others (specify)	2 composting pits are there in campus, Reuse of one side printed Paper for internal communication. Sewage water is discharged to public Sewer. Domestic Waste is given to Municipal Corporation. Two types of Waste bins are provided at campus for biodegradable and non-biodegradable waste. Horticulture waste is also given to Municipal Corporation. Incinerator is used for managing sanitary waste.			
4.	Do you use recycled paper in institute?	Yes, in academic evaluation works			
5.	Do you use reused paper in institute?	Yes			
6.	How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.	Yes, Green Society carried out numerous activities. Recycling campaigns, e-waste management, Anti-plastic campaigns, sustainable goal awareness programme.			
7.	Can you achieve zero garbage in your institute? If yes, how?	Yes, as per new waste management rules all kind of waste is managed in an adequate manner without any deviation.			

## 2.2. GREENING THE CAMPUS

8.	Is there a garden in your institute?	Yes, about 1.5 Acre is the Green Area.	
9.	Do students spend time in the garden?	2-4 Hours during winters	
10.	Total number of Plants in Campus	Plant type	Approx. number
		Trees	More than 200
		Shrubs	More than 1000
		Grass Cover	1.5 Acre
11.	Suggest plants for your campus. (Trees, vegetables, herbs, etc.)	Ashoka, Ficus Religiosa, Boganvella, Alovera, Azadirachta indica, and many more as per geographical regime.	
12.	Is the College campus have any Horticulture Department	Yes	
	Number of Staff working in Horticulture Department	Five Gardeners	
13.	Number of Tree Plantation Drives organized by College per annum. (If Any)	Yes, Three Tree Plantation Drives are Organized Annually. 50+ trees and 100+ shrubs planted in this financial year.	
14.	Number of Trees Planted in Last FY.	100	
	Survival Rate	90%	
15.	Plant Distribution Program for Students and Community	Yes, Seed Bank is developed and, Saplings are distributed to Students and visitors at various Occasions.	



16	Plant Ownership Program	No
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### 2.3. ENERGY

17.	List few ways that you use energy in your institute. (Electricity, LPG, firewood, others). Using this list, try to think of ways that you could use less energy every day.	Electricity is saved by use of LED bulbs for illumination, LPG is saved by use of Pressure cookers for cooking food. Alternate source of energy i.e. Solar Panel Installed.
18.	Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some	Yes, Renewable source of energy through solar plant (910 KW) in commissioning phase. 320 Watt is operational. Messages will be displayed at various locations to aware the People about Energy Savings. Use of Natural Lights and Natural Ventilation are promoted.
19.	How many CFL/LED bulbs has your institute installed?	95 % of Total Conventional bulbs are replaced by LED Lights.
20.	Are any alternative energy sources employed / installed in your institute? (photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.,) Specify.	Yes, photovoltaic cells for solar energy, energy efficient stoves
21.	Do you run "switch off" drills at institute?	Yes
22.	Are your computers and other equipment's put on power-saving mode?	Yes, In Practice
23.	Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?	No

### 2.4. WATER CONSERVATION

24.	List uses of water in your institute	Basic usage of water in campus are; Drinking, Gardening, Kitchen & Toilets, and Others. And total consumption is 510.55 KL/month
25.	How does your institute store water? Are there any water saving techniques followed in your institute?	Underground Water tank installed for storage of water. Avoid overflow of water controlled valves are provided in water supply system.
26.	If there is water wastage, specify why and How can the wastage be prevented / stopped?	No
27.	Locate the point of entry of water and point of exit of waste water in your institute.	Entry- Water comes from MCG water supply at campus Exit- From Water Drainage System to the back gate of campus
28.	Write down few ways that could reduce the amount of water used in your institute	By Following ways: 1. RWH, Close the taps after usage 2. Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage 3. Water Conservation awareness for new students

29.	Record water use from the institute water meter for six months (record at the same time of each day). At the end of the period, compile a table to show how many litres of water have been used.	Calculation on the basis of Water Bill is shown below.
30.	Does your institute harvest rain water?	Six number of Modern rain water harvesting system are available.
31.	Is there any water recycling System.	Yes, RO waste water is stored in tank and is attached to toilet supply

### 2.5. CLEAN AIR

32	Are the Rooms in Campus are Well Ventilated?	Yes				
33	Window Floor ratio of the Rooms	Very Good				
34	Provide details of school-owned motorized vehicles?	Buses	Cars	Vans	Other	Total
	No. of vehicles	1	-	-	--	--
		Operational	-	-		
	No. of vehicles more than five years old	--	-	-	--	--
			-	-		
	No. of Air conditioned vehicles	--	-	-	--	-
	PUC done	--	-	-	--	--
35	Specify the type of fuel used by your school's vehicles:	Total				
	Diesel	--				
	Petrol					
	CNG	--				
	LPG					
	Electric	--				
36	Air Quality Monitoring Program (If Any)	No monitoring is being done				
37	Students suffer from respiratory ailments? (If Any)	No				
38	Details of Genset	Yes				

### 2.6. ANIMAL WELFARE

1	List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)	No
2	How many dogs in your area have undergone Animal Birth Control - Anti Rabies (ABC - AR)?	Not required
3	Does your institute have a Biodiversity Programme or a KARUNA CLUB?	No

### 3. CONCLUSION

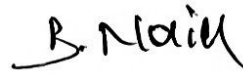
This audit involved extensive consultation with all the campus team, interactions with key personnel on wide range of issues related to Environmental aspects. The Methodist College has Environmental Committee for sustainable use of resources. Overall 60% of university campus is for landscaping. The audit has identified several observations for making the campus premise more environmental friendly.

The team opines that the overall site is maintained well from environmental perspective. There is no major observations but few things are important to initiate urgently are waste management records by monthly inventory of hazardous waste, rainwater harvesting recharge; water balance cycle and periodic inspection of buildings housekeeping and environment policy.

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