

# GREEN AUDIT

STUDY PERIOD (ONE YEAR) 2023 - 2024

Sustainability study

## AUDIT REPORT

Studied for

CMR Technical Education Society's

**CMR Technical Campus**

Kandlakoya Village, Medchal Road,  
Hyderabad- 501401, Telangana, India

Studied in the capacity of

Accredited and Certified

Green Building Professional



Studied by

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# Disclaimer

The Audit Team has prepared this report for **CMR Technical Education Society's CMR Technical Campus** located at Kandlakoya Village, Medchal Road, Hyderabad- 501401, Telangana, India based on input data submitted by the Institute analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the internal team. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

The audit is a thorough study based on the inspection and investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is as an Accredited and Certified Green Building Professional-Architect. Green Building consultancy is her forte and she is one of the most sought after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted in capacity of Accredited & Certified Green Building Professional with extensive experience.

  
**Ar. Nahida Abdulla**

**Greenvio Solutions**

*Developing Healthy and Sustainable Environments*

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## Acknowledgement

The Audit Assessment Team extends its appreciation to **CMR Technical Education Society's CMR Technical Campus, Telangana** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended are due to everyone from the Management.

We are also thankful to Institute's Task force who have played a major role in data collection.

### **Sustainable Academe**

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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# 1. Introduction

## 1.1 About the Institution

### 1.1.1 Vision

The Institute proposes " To Impart quality education in serene atmosphere thus strive for excellence in Technology and Research."

### 1.1.2 Mission

The Institute adheres and focuses

- To create state of art facilities for effective teaching- learning process.
- Pursue and disseminate knowledge based research to meet the needs of industry & society.
- Infuse professional, ethical and societal values among learning community.

# 2. Overview

## 2.1 Summarised Populace analysis for 2023-24

### 2.1.1 Students data

The data (shared by Institute) shows there were 4,832 students.

### 2.1.2 Staff data

Sl. No.	Particulars	Male	Female	Total
1	Admin Staff	08	04	12
2	Teaching Staff	153	138	291
3	Non-teaching Staff	45	15	60
<b>Total</b>		<b>206</b>	<b>157</b>	<b>363</b>

*Table 1: Staff data of the Institution for 2023-2024*

Above data documents 363 staff members.

**Thus, total populace stands at 5,195 nos.**

### 3. Observation

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**Evidence documents for Site visit of external audit team**

Audit team headed by external expert - Ar. Nahida Abdulla  
Accredited & Certified Green Building Professional, ISO IA (IMS)  
Audit objective: Green Building up gradation of the premises

Audits covered: ☒ Green audit ☒ Energy audit ☒ Environment audit

Institute: CMR Technical Campus Date: 4-12-2024


**Document objective: Inferences of the Site visit**

Observations (Positive aspects)	Suggestions (Improvement aspects)
<b>Green Audit</b>	
<ul style="list-style-type: none"> <li>- Drinking water levels within norms 27.</li> <li>- NSS works actively for innumerable activities</li> </ul>	<ul style="list-style-type: none"> <li>- Healthy zone &amp; 'No Smoking &amp; No Tobacco zone' documentation &amp; reflectance</li> </ul>
<b>Energy Audit</b>	
<ul style="list-style-type: none"> <li>- Better measure for rooftop taken &amp; temperature is fair 28°C</li> <li>- 100% solar capacity fulfilled</li> </ul>	<ul style="list-style-type: none"> <li>- Safety &amp; danger zone for restricted &amp; high electrical zone</li> </ul>
<b>Environment Audit</b>	
<ul style="list-style-type: none"> <li>- AQI is 62 scope for improvement</li> </ul>	<ul style="list-style-type: none"> <li>- Oxygen zone through shade &amp; spider plants</li> <li>- IoT for smart gardening</li> </ul>

Armeddy  
Signature & round seal  
Name: Dr. A. Rajibeddy  
Designation: Director  
For the said Institute

Shankar  
Signature & round seal  
Name: Mrs. S. S. Shaikh  
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**Plate 1: Evidence files related to inferences**

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### Evidence documents for Site visit of external audit team

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Institute: CMR Technical Campus Date: 4.12.2024

**Document objective: Proof of the Site visit**




**Meeting with the core team**




**Investigation of the systems**

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**Plate 2: Evidence files related to investigation**

## 4. Investigation

The following results were carried out during visit on **04 December 2024.**

### 4.1 Micro-site study

The water test showed a level of 27 which is within requirement of 50 ppm. (K Block)

## 5. Documentation

### 5.1 Green Practices Audit

#### 5.1.1 Green practices

The practices undertaken as an awareness/ sensitization activity with stakeholder involvement have been documented below: (June 2023 to May 2024)

S. No.	Name of the event	Details	Type	Date
1	National Pollution Prevention Day	National Pollution Prevention Day was observed on December 2, 2024, at the CMR Technical Campus playground, organized by the NSS unit of CMRTC. The event aimed to promote environmental awareness and inspire action against pollution.	Physical	12-02-2024
2	World Earth Day	World Earth Day is celebrated on April 22nd to promote environmental awareness and action to protect our planet	Physical	22-04-2024
4	National Energy Conservation Day	The primary goal of the energy conservation campaign is to encourage students to turn off fans and lights and fostering a culture of energy efficiency within the campus community.	Physical	14-12-2023
5	National Pollution Control Day	"A Selfie with Your Sapling" program has been initiated to plant as many as possible by every volunteer.	Virtual	12-02-2023

*Table 2: Details of the environmental initiatives undertaken by Institute*

#### 5.1.2 Community development

The details of **extension initiatives** under various heads in Institute are documented below:

S. No.	Type	Since	Coordinator name
1	National Service Scheme (NSS)	2018	M.Saahul
2	National Cadet Corps (NCC)	2020	Mrs.Dilshad
3	Unnat Bharat Abhiyan	2018	J. Prasad Reddy

*Table 3: Details of the extension initiatives by the Institute*



## 5.2 Waste Audit

### 5.2.1 Waste management (Parameters adopted)

The following practices are common to entire campus.

S. No.	Type	Details
1.	Solid waste (Toilets)	Used for agriculture
2.	Organic waste (Regular)	Kandlakoya Municipality
3.	Liquid waste (Toilets, wash basins)	Deep septic tanks
4.	Chemical waste from laboratories	MOU with a local agency
5.	Toxic waste from laboratories	MOU with a local agency
6.	Bio-waste (Sanitary)	Planning to arrange disposal machines
7.	Medical waste (Pharmacy etc.)	No Medical waste
8.	Construction waste and reuse (Only if applicable)	No information
9.	Plastic	No plastic usage in campus
10.	E-waste	MOU with an agency
11.	Furniture	Donation
12.	Paper	Donation
13.	Laboratory waste	Government Colleges

*Table 4: Details of the waste management practices*

### 5.2.2 Dustbins study

There are 398 dustbins in the indoor and 47 in outdoor areas.

## 5.3 Water Audit

### 5.3.1 Water availability and consumption

#### 5.3.1.1 Source of Primary water supply

The facilities are noted below:

S. No.	Type	Nos.	Location	Capacity (litres)	Last cleaning date
1	Underground	Nil			
2	Overhead	6	A,B,C,D,K- Blocks, Girls Hostel	35,000	24-06-2024
3	Fire tank	3	A,K,B	10,000	26-06-2024
4	Rain water harvesting	2	OPP A-Block,Beside C-Block	1,000	29-06-2024
5	RO Plant	3	A,D-blocks, Girls Hostel	5,000	10-12-2024

*Table 5: Water tanks in the premises*

#### 5.3.1.2 Source of Secondary water supply

The Institute uses water supply for secondary usages such as watering plants, toilets, and wash basins and other spaces. There are six drilled wells with a capacity of 1,00,000 litres.

#### 5.3.1.3 Source of Tertiary water supply

The tertiary source of water is the source of water harvesting; information not provided in detail.

#### 5.3.1.4 Source of Reusing waste water

This initiative is 'NOT' practiced.

#### 5.3.1.5 Sensitization initiatives

There are no dedicated related to water conservation that have been undertaken.

#### 5.3.1.6 Water proportion study

This section studies the total consumption of water and its proportion with the water recharged and saved on the premises.

- ➞ As per the Chapter 2 of the Report, total footfalls in premises were **5,195 nos.**
- ➞ As per NBC norms for Educational buildings with boarding facilities the water requirement is **90 litres per head for drinking water and 45 litres per head for**

**flushing** (secondary) purposes thus making it 135 litres/ per day.

- ➔ However, in practical usage a stakeholder can use minimum of **0.25 or 0.5 to 1 litres for drinking and 6 to 8 litres for secondary purposes**, thus reframing the norm to actual requirement of  $0.25 + 6 = 6.25$  litres

➔ Thus,  $6.25 \text{ litres} \times 5,195 \text{ populace} \times 215 \text{ (Min. working nos. of days)} = \mathbf{69,80,781 \text{ litres is the total water requirement}}$  (Average assuming certain nos.)

➔ Bifurcating this study further we can assume  **$0.25 \text{ litres} \times 5,195 \text{ populace} \times 215 \text{ days} = 2,79,231 \text{ litres for drinking}$**  and primary purposes

- ➔ For primary and secondary purposes the water tanks have a capacity of 51,000 litres and wells have a combined capacity of 1,00,000 litres making a total of 1,51,000 litres

- ➔ However, team did not inform any kind of deficiency in availability of water supply.

## 5.4 Health and Hygiene Audit

There are facilities such as dustbin & information boards available.



*Plate 3: Awareness posters in premises*


## 6. Compliance

The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.


- ➔ Original report study was for June 2021 to May 2022 and June 2022 to May 2023
- ➔ Renewal study currently done is for June 2023 to May 2024

### 6.1 Compliance status in form of Action taken report

The inputs are documented below.



ESTD: 2009  
**CMR TECHNICAL CAMPUS**  
 UGC AUTONOMOUS  
 Accredited by NBA & NAAC with 'A' Grade  
 Approved by AICTE, New Delhi and JNTU Hyderabad



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#### Green Audit Action Taken Report

#### 6. Suggestion

##### 6.1 Section-wise suggestions

- Water tanks in all areas
  - Include the information about size, capacity and usage  
**Action Taken:** provided at Main tank and same thing will be done for other tanks
  - Paint the tank in light blue colour.  
**Action Taken:** Tank are colored with other light color however as per your suggestion the color will be changed
  - Add signboards about the usage such as Drinking or Secondary.  
**Action Taken:** Signboards about the usage such as Drinking are placed where ever it required
  - Add signboard and map about the process/ system in practice.  
**Action Taken:** As per the suggestions signboard and map about the process/ system in practice is placed.

##### Carpets

- Green carpets could be placed outside drinking water and toilet blocks. This will add to hygiene areas and keep the water spillage under control.  
**Action Taken:** Green carpets will be placed outside the drinking water and toilet blocks to enhance aesthetics and promote a cleaner environment

##### Awareness displays

- E-waste management chart can be displayed in spaces that have computers such as offices and laboratories.
- Going paperless, print less etc. awareness boards could be displayed.

**Action Taken:** E-waste management charts have been displayed in offices and laboratories to promote proper disposal practices. Additionally, awareness boards encouraging a paperless approach and reduced printing have been installed in key areas



## 6.2 General suggestions

### 6.2.1 Green practices audit

- **Plant as a gift** - As a kind gesture, the guests visiting the premise can be asked to plant a small plant on the premise itself and they can be even given plants/bouquets from the flowers of the plants on the premise as a gift.

**Action taken:** CMRTC has been following the practice of gifting plants to guests for a long period, encouraging them to plant a small tree on the premises. Guests are also given flowers or plants as gifts from those grown on the campus.

- **Environmental awareness** - There can be various slogans in local and national language on the compound wall giving the message of saving the environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizens.

**Action Taken:** CMRTC's NSS wing continuously conducts environmental awareness programs, and slogans in both local and national languages have been placed on prominent compound walls. These initiatives aim to encourage students and staff to join efforts in saving the environment and fostering socially responsible citizens.

- **Increase the green awareness practice** – This should be in terms of the physical and virtual events which will be beneficial for all stakeholders in the shared premises. (Basically, the frequency of the lectures should be increased).

**Action Taken:** The NSS wing of CMRTC has a well-planned event calendar that includes a series of physical and virtual events focused on increasing green awareness.

### 6.2.2 Waste Audit

- Material of dustbin - The plastic dustbins should be replaced with eco-friendly material.
- Include better plastic/ E-waste management measures - The Institute can celebrate one day of every month as a Plastic/ E-waste awareness day. The stakeholders (Students and staff members) can be asked to bring plastic/ E-waste which can be further given to an NGO for recycling or better purpose.
- Plastic management for localities – The can be frequent cloth/ paper bags distribution in local schools, slums, Institutes, medical, police stations.
- Organic compost pit maintenance methodology - The Institute can recheck the current methodology as it can yield better results in terms of quantity if it is well

maintained with the following strategies:

- The sanitary pad incineration dust can be sent to the compost pit
- There should be a balance of brown and green waste material
- Shred the materials before adding them to pit
- Add twigs
- Stir occasionally
- Add water in less quantity to avoid the smell
- Keep ample air circulation to avoid the smell
- Regular monitoring and maintenance.

#### Action Taken:

- The existing plastic dustbins have been replaced phase-wise.
- Under the NSS wing of CMRTC, the Institute celebrates one day every month as Plastic/E-waste Awareness Day.
- The NSS wing of CMRTC has been practicing plastic management for localities for a long period.
- CMRTC uses a solid waste boiler that converts solid waste into ash, which can be utilized as a fertilizer for plants

#### 6.2.4 Health and Hygiene Audit

- Avoid burning waste - The waste produced on the premises should not be burned as it is dangerous to the health of students and staff
- Signboards – The Institute should have multiple signboards about No smoking and Healthy premises at every nook and corner of the Institute.
- Compound wall – The compound wall should have awareness messages about No Smoking and No Tobacco.
- Toilet hygiene – There should be facilities such as potpourri, camphor tablets in the toilet to avoid smell and health related issues.

#### Action Taken:

- CMRTC uses a solid waste boiler that converts solid waste into ash, which is then used as a fertilizer for plants.
- CMRTC is a No Tobacco Campus, and information regarding this policy is circulated among stakeholders. A No Tobacco Day is included in the activity calendar.
- The Institute follows standard procedures for maintenance.



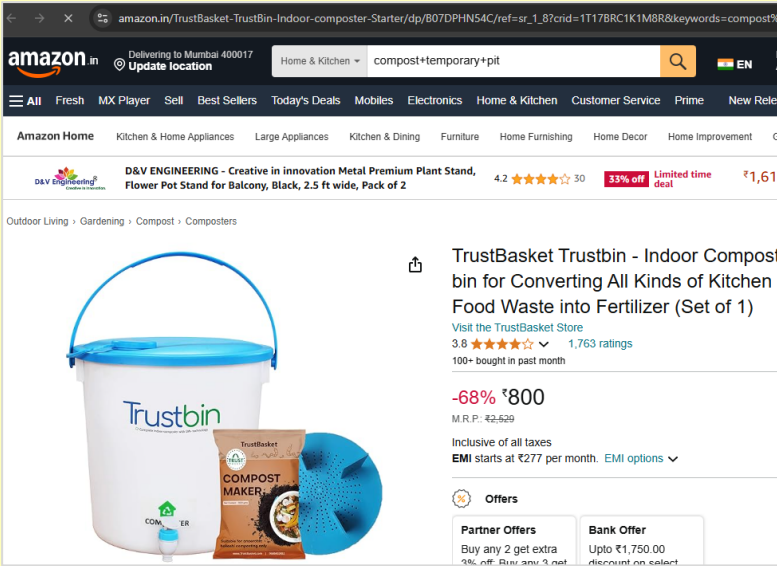
## 7. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner.

- ➔ Conduct the 'Before' and 'After' study with photos
- ➔ Document the same in 'Action taken report'

S. No.	Aspect with evidence if any	Suggestion
1.	Green practices aspect	Suggestions excluded
2.	Water aspect <u>Aspect area:</u> <b>Information display</b>	<p>Every water tank/ external pit/ water cooler should be painted with information as follows:</p> <ul style="list-style-type: none"> <li>➔ Nos.</li> <li>➔ Size (Diameter or L X B X H/ D)</li> <li>➔ Capacity in cu. Litres or litres</li> <li>➔ Usage – Primary (Drinking); Tertiary (Rain water) and Secondary (Cleaning, washing, flushing, watering etc.)</li> <li>➔ Last cleaning maintenance date and by whom</li> <li>➔ Name and logo of the Institute</li> </ul> 



3.	<p>Water aspect</p> <p><u>Aspect area:</u></p> <p><b>Color coding =</b></p>	<p>Paint the pipes/ pits with following color coding</p> <ul style="list-style-type: none"> <li>➔ Red – Fire</li> <li>➔ Cobalt blue – Rain Water harvesting</li> <li>➔ Sky blue - Drinking water</li> <li>➔ Grey – Electrical</li> <li>➔ Brown – Sewage/ waste water</li> </ul> <p>The space referred for this activity include all areas; certain are mentioned below:</p> <div style="display: flex; justify-content: space-around;">   </div>
4.	<p>Water aspect</p> <p><u>Aspect area:</u></p> <p><b>Measures for organic waste</b></p>	<p>Undertake composting on Institute level using Biocomposter</p> 
5.	<p>Water aspect</p> <p><u>Aspect area:</u></p> <p><b>Display board</b></p>	<ul style="list-style-type: none"> <li>➔ Wherever taps supply regular/ non-potable water introduce a board stating '<b>Not suitable for drinking</b>'</li> <li>➔ Similarly, introduce '<b>Drinking water don't wash here</b>' board on or above every drinking water cooler/ filter</li> </ul>

6.	Health & Hygiene aspect <b>Aspect area:</b> <b>Cleanliness</b>	Introduce a display ' <b>Keep the foot off the wall</b> ' in every room of the premises including passage areas and improve hygiene in canteen, building backyards etc.
7.	Health & Hygiene aspect <b>Aspect area:</b> <b>Zone demarcation through signages</b>	<p>Introduce zone boards (Optional through mention of state/ central govt. acts) at entrance of the premises in an enlarged A1 poster</p> <div data-bbox="563 528 1031 1232"> </div> <div data-bbox="1042 528 1497 1232"> </div> <p><i>Sample images for zones</i></p> <p>Image source: Compliance signs</p>

**Table 6: Observation based suggestion study of the campus**

## 8. Compilation

The study is based on the data collected, analyzed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyze and study the data collected.

- ➔ IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- ➔ IGBC Green Landscape Rating system, March 2013

