

ENERGY AUDIT

STUDY PERIOD (TWO YEARS) 2021 - 2022 & 2022 - 2023

Sustainability study

AUDIT REPORT

Studied for

Maulana Azad Education Society's

Marathwada College of Education

Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg,

Post Box No. 117, Harsul Road, Rauza Baugh,

Aurangabad – 431001 (MS), India



Disclaimer

The Audit Team has prepared this report for the **Maulana Azad Education Society's Marathwada College of Education** located at Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg, Post Box No. 117, Harsul Road, Rauza Baugh, Aurangabad – 431001 (MS), 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.

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Developing Healthy and Sustainable Environments

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Acknowledgement

The Audit Assessment Team thanks the **Maulana Azad Education Society's Marathwada College of Education, Maharashtra** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

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

Our heartfelt thanks to the Chairperson of the entire process **Prof. Naveed Us Sahar,** Principal for the valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required and special mention to **Ms. Zeenat Khan (Faculty Member).**

We highly appreciate the assistance of the **entire Teaching, Non-teaching and Admin staff** for their support while collecting the data.

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

"Marathwada college of Education has always strived to be the Centre of Excellence by providing world classs 'Teacher Education' to students from all sections of the socitey."

1.1.2 Mission

"Marathwada College of Education envisages to impart quality training with commitment to excellence. The college endorses to impart value added education with efficient and competent man power, excellent infrastructure and innovation in teacher training and research programmes in order to generate globally competitive and skilled teachers, researchers and torough prfessionsl."

1.1.3 Objectives

The objective of the Institute are:

- ➔ *To train and develop integrated and effective teachers with the highest level of excellence.*
- ➔ *To organize advanced studies and promote research in educaiton.*
- ➔ *To provide sultural, secular and ethical values and faster in student the spirit of Nationa integration.*
- ➔ *To achieve the object of secularism by promoting literacy and wisdom among studnt to carry out social services through extensive activities and hence pave the way for self empowerment and develop dignity of labour.*
- ➔ *To inculcate innovation and research aptitude amont prospective teachers and brig them into the new realm of education technology.*

1.2 Assessment of the Institute

1.2.1 Affiliation

The College is affiliated with the **Dr. Babasaheb Ambedkar Marathwada University**, a public university in Aurangabad, Maharashtra.

1.2.2 Certification

- **All India Survey of Higher Education** (AISHE) code is C-34619.
- National Council for Teacher Education, New Delhi

1.2.3 Recognitions

The courses provided by the Institute received recognition by the **section 2(f) and 12 (B) of the University Grants Council Act, 1956.**

2. Overview

2.1 Summarised Populace analysis

2.1.1 Research study for 2022-2023

Students data

The data (shared by the Institute) shows there were **591 students**.

Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	05	00	05
2	Teaching staff	10	08	18
3	Non-Teaching staff	08	01	09
Total Staff Members		23	09	32

Table 1: Staff data of the Institution for 2022-2023

The staff data shows the College premises had **32 Staff Members**.

2.1.2 Research study for 2021-2022

Students data

The data (shared by the Institute) shows there were **593 students**.

Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	05	00	05
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Total Staff Members		23	09	32

Table 2: Staff data of the Institution for 2021-2022

The staff data shows the College premises had **32 Staff Members**.

3. Research

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution sustainable and healthy premises for its inhabitants.

3.2 Analysis of the Green Building Study Audit

The procedure included detailed verification as follows:

- ➔ Investigation
- ➔ Technical
- ➔ Observations
- ➔ Inferences

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from the admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collection, and preparation of the Report.

4. Investigation



Plate 1: Induction and exit meeting with the team

5. Documentation

2.1.1 Wiring

Inference: The study suggests that:

- ⇒ The wirings are exposed and needs concealing with proper fabrication
- ⇒ Too many plug points are used at a single connection this can lead to increased load.
- ⇒ There should be a stabilizer for this space
- ⇒ Additional, UPS and power backup should be provided
- ⇒ Given the current space and its usage, a fire ball/ sand bucket should be there to avoid any fire accident.

2.1.2 Nomenclature

Inference: The study suggests that:

- ⇒ Switchboards in every space should be **numbered as SB1, SB2 etc.** (Where SB stands for switchboard and 1/ 2/ 3 stands for numbers in the particular space)
- ⇒ Similarly, the main boards or relevant boards should be demarcated appropriately as **MB1, MB2 etc. or Electrical duct, Fire duct etc.**
- ⇒ The **buttons should be named** as per usage such as lights/ fans/ appliance or any other use

2.1.3 Outdoor air conditioner units

Inference: The study suggests that:

- ⇒ **A temporary shade painted in white colour** could be placed above each unit to keep the equipment cool and reflect the heat, else during the summer there could be extra loading on the appliance due to direct sun exposure

- ➔ Some units and their (Second image) seems to have no maintenance done, these should be **cleaned on a weekly basis and wirings concealed appropriately.**
- ➔ The terrace area should have **some fire balls/ sand bucket** should be there to avoid any fire accident.
- ➔ The terrace should be demarcated as '**Danger zone**' with **signages**
- ➔ There should be **clear instruction manuals to avoid** visitors/ any student/ teaching staff members visiting the terrace rooftop
- ➔ There should be a **board on rooftop on a digital manual displaying last maintenance date** for the appliances including the outdoor air conditioners

2.1.4 Demarcation

Inference: The study suggests that:

- ➔ These areas should be demarcated as 'Danger Zone' with safety precautions such as signages, sand buckets placed nearby
- ➔ The facilities should be named as per their usage (As per reference image below)



Reference suggestions 1: Zoning the spaces/ facilities as per their usage

2.1.5 Coding

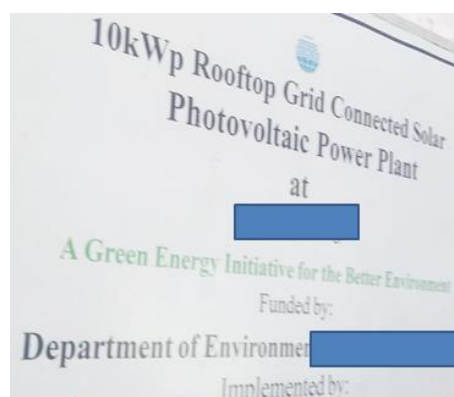
Inference: The study suggests that:

- ➔ The earthing pits should be colour coded in brown colour and numbered, a display board could mention their usage and last maintenance date
- ➔ The space should be demarcated as 'Danger zone' with avoidance of any general public in the space
- ➔ A layout map highlighting the pits and their technical information should be displayed with appropriate fire and life safety signages as well
- ➔ There should be multiple fire balls/ sand bucket should be there to avoid any fire accident
- ➔ On a similar note the water harvesting pits can be color coded as 'blue' while the service pits/ ducts as 'grey' and the fire ducts/ pits as 'red'

2.1.6 Alternate source of energy consumption

Inference: The study suggests that:

- ➔ The terrace flooring should be painted in 'Cooltop' every two years
- ➔ The area should be demarcated as 'Solar zone' with a manual about the system functioning process, its benefits etc.
- ➔ The maintenance details should be reflected digitally, physically on an annual basis
- ➔ There should be a display board (as below) in the entrance of the premises, in addition to this board the manuals etc. will help in stakeholder sensitization



Reference suggestions 2: Sample about display board

6. Compilation

The study is based on the data collected, analysed, 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 analyse and study the data collected.

- ➔ Uniform Plumbing Code – India, 2008
- ➔ IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- ➔ IGBC Green Landscape Rating system, March 2013
- ➔ BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
- ➔ Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samartham (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

