

ENVIRONMENT AUDIT

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

Sustainability study

AUDIT REPORT

Studied for

Jogeshwari Education Society's

College of Commerce, Science & Information Technology

JES Education Complex, Caves Road, Arvind Gandbhir Campus,
Jogeshwari(East), Mumbai - 400060, Maharashtra

Studied in the capacity of

Accredited and Certified

Green Building Professional



Studied by

Website: <https://thegreenviosolutions.co.in/>

Email: greenviosolutions@gmail.com

Valid till **June 2024**

Disclaimer

The Audit Team has prepared this report for the **Jogeshwari Education Society's College of Commerce, Science & Information Technology** located at JES Education Complex, Caves Road, Arvind Gandbhir Campus, Jogeshwari(East), Mumbai - 400060, Maharashtra 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.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgement

The Audit Assessment Team extends its appreciation to the **Jogeshwari Education Society's College of Commerce, Science & Information Technology, Maharashtra** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended are due to **Mr. Kiran Kamat (Jt. Secretary)** and everyone from the Management.

Our heartfelt thanks are extended to the Chairperson of the entire process **Dr. Prashant Shelar**, Principal for the valuable inputs.

We are also thankful to Institute's Task force the faculty members who have played a major role in data collection *Mrs. Vaishali Trivedi, Faculty and Mrs. Sunita Sharma, IQAC Coordinator.*

We highly appreciate the assistance of *Mr. Rishi Shinde & Mr. Laxman Shetty, Mrs. Jasmin Jadhav* and 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

Contents

Disclaimer	1
Acknowledgement	2
Contents.....	3
1. Introduction.....	4
2. Overview	6
3. Research	8
4. Documentation	9
5. Suggestion	11
6. Compilation.....	13

DETAILED REPORT

Evidence documents for Site visit of external audit team

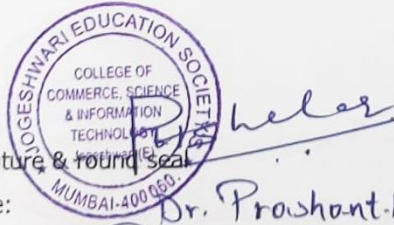
Audit team headed by external expert - Ar. Nahida Abdulla
 Accredited & Certified Green Building Professional, ISO IA (IMS)
 Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: Jogeshwari Education Society's College of Commerce & IT Date: 15/07/2023

Document objective: Inferences of the Site visit

Observations (Positive aspects)	Suggestions (Improvement aspects)
Green Audit	
- Fire, life safety measures are undertaken	- Water & waste management could be improved
Energy Audit	
- An 100% LED [Energy efficient appliance] premises	- Alternate sources of energy can be explored
Environment Audit	
- Sufficient green cover in premises	- Documentation & reflectance should be done


 Signature & round seal
 Name: Dr. Prashant H. Shelar
 Designation: Principal
For the said Institute


 Signature & round seal
 Name: Mrs. F. A. Shaikh
 Designation: Project Coordinator
For The Greenvio Solutions

1. Introduction

1.1 Statements of the Institution

1.1.1 Vision

The Institute proposes "To channelize young minds not only towards academic goals but also towards their social responsibilities, to provide ample opportunities to nurture and sustain creative talents and multiple intelligences for the service to humanity at large."

1.1.2 Mission

The Institute adheres and focuses "To promote academic excellence & create humane, self-reliant citizens to meet the local and global challenges of the society."

1.1.3 Objectives

The objective of the Institute is:

- To ensure a high standard of education.
- To enrich the students "personality by encouraging their participation in curricular and extracurricular activities.
- To promote sports culture.
- To promote learning opportunities that are flexible and support alternative learning styles.
- To promote positive ways of social interaction, self-confidence enabling to exchange ideas and opinions with others.
- To cultivate organisational skills in dealing with academic and emotional problems of students.
- To nurture the thirst for knowledge and skill in the latest innovations and technologies in education.
- To sensitize the students towards the threatening environmental issues.
- To inspire student to meet the challenges of dynamic society and to fulfil their role as nation builders.

1.2 Assessment of the Institute

1.2.1 Affiliation

The Institute is affiliated to **Mumbai University**, a collegiate state-owned public university in Mumbai and one of the largest university systems in the world.

1.2.2 Certification

The College has received the code under **All India Survey of Higher Education (AISHE)** wherein the code is C-33763.

1.3 Facilities

Some of the key facilities are listed below.

- Well stocked library
- Computer laboratory with latest softwares
- Conference hall
- Hygienic canteen

2. Overview

2.1 Summarised Populace analysis for 2022-2023

2.1.1 Students data

The data (shared by the Institute) shows there were a total of **1,033 students**.

2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	01	01	02
2	Teaching staff	08	11	19
3	Non-Teaching staff	02	01	03
Total Staff Members		11	13	24

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

The staff data shows the Institute premises had a total of **24 Staff Members**.

2.2 Summarised Populace analysis for 2021-2022

2.2.1 Students data

The data (shared by the Institute) shows there were a total of **1,014 students**.

2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	01	02	03
2	Teaching staff	08	13	21
3	Non-Teaching staff	02	01	03
Total Staff Members		11	16	27

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

The staff data shows the Institute premises had a total of **27 Staff Members**.

2.3 Site Area & Institute Building Spread Area

The **site area is 1.60 acres and the built-up area is 35,000 sq. ft.**

2.4 Institute Infrastructure

2.4.1 Establishment

The Institute was established in **2009**.

2.4.2 Spatial Organisation

The Institute is located in a pollution free and healthy environment.

The Building is a Reinforced Cement Concrete (RCC) framework building.

There are provisions for staircase for accessibility on the premises, whereas there are amenities such as CCTV, a first aid room, etc.

2.5 Operation and Maintenance of the premises

The interview session and data collection session was held with the staff regarding the operation and working hours. The schedule shared by the team shows that the College is working for Monday to Saturday beginning at 07:30 hours up to 13:00 hours.

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 discussion with team
- 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.

3.4 Activities undertaken for the Green Building Study Audit

- Discussion with the Institute
- Allotment and Initiation by the Institute
- Data collection
- Submission of the files

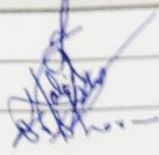
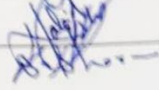

Evidence documents for Site visit of external audit team

Audit team headed by external expert - Ar. Nahida Abdulla
 Accredited & Certified Green Building Professional, ISO 1A (IMS)
 Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: Jogeshwari Education Society's Date: 15/07/23
College of Commerce and IT

Document objective: Induction Meeting attendance sheet

S. No.	Name	Committee	Designation	Signature
1.	Mrs. F. A. Shaikh	External	Project Coordinator	
2.	Ar. Nahida Abdulla	External	Project Head	
3.	Prof. Sunita Sharma	Internal	IQAC Head	
4.	Ass. Prof. Vaishali Trivedi	Internal	Nature Club Head.	

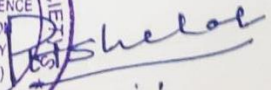
Signature & round seal

Name:

Designation:

For the said Institute




 Prashant H Shelar
 Principal



Signature & round seal

Name: Mrs. F. A. Shaikh

Designation: Project Coordinator

For The Greenvio Solutions

4. Documentation

4.1 Open Spaces

There is an open space in the premises used by students at present for sports and cultural gatherings. **There are provisions for natural plantations which have enhanced the beauty of the space.**

4.2 Flora audit

A flora survey was carried out to identify the total numbers of plants and trees. Some of the common plantations include the following:

S. No.	Plant name	Type	Nos.	Planted by
1	<i>General Trees</i>	Tree	48	Grown Naturally
2	<i>General Shrubs</i>	Shrub	73	Grown by staff and students
3	<i>Coconut Trees</i>	tree	18	Grown by staff
4	<i>Papaya tree</i>	tree	3	Grown by staff and students
5	<i>Michelia Champaca</i>	tree	3	Grown by staff and students
6	<i>Mango</i>	tree	3	Grown by staff and students
7	<i>Banyan</i>	tree	2	Grown by staff and students
8	<i>Guava</i>	tree	2	Grown by staff and students
9	<i>Curry</i>	tree	1	Grown by staff and students
10	<i>Neem</i>	tree	2	Grown by staff and students
11	<i>Bael</i>	tree	1	Grown by staff
12	<i>Awalan</i>	tree	1	Grown by staff and students
13	<i>Custard apple</i>	tree	1	Grown by staff and students
14	<i>Black plum</i>	tree	1	Grown by staff and students

Table 3: Details of the Flora in the premises

At present there are 159 numbers of plantations in the premises.

4.3 Noise Audit

On a macro level the College is surrounded by huge educational and residential blocks **thus there is a peaceful and noise free arena observed within the premises.**

4.4 Carbon Footprint Audit

4.4.1 Eco-friendly Commuting Practices

- The site is located in an urban locality.
- Overall, the carbon footprint is well under control.
- Students and staff members commute using public transport.
- There are no major fossil fuels used inside the premises.

4.4.2 Heat Island Reduction

The external temperature is well under control owing to shaded walkways and huge nos. of plantations all over the premises.

4.5 Universally accessible premises

As per World Report on Disability, 2011 there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.

The following facilities are available on the premises for the specially-abled as part of universally accessible premises initiatives.

- Low height risers in the staircases
- Non-slippery floor surfaces
- Handrails for support

4.6 Fire Safety

Fire and life safety are an important consideration of the National Building Code 2016. This aspect is touched upon as part of this study in the capacity of an Architect registered with the Council of Architecture. As part of the research, fire safety audit was considered from the 'Building systems' perspective. **Only fire extinguisher is available.**

5. Suggestion

The following suggestions are to be considered as a **second priority** for implementation. These **should be executed within the next 3.5 years from the date of the Report submission**. The Institute can execute a plan after discussion with Project Head.

5.1 Site beautification

Bird house/ Feeders - At appropriate locations there can be provisions for drinking water and some grains for birds as they visit the site much frequently.

5.2 Heat island reduction

Cool rooftops - The Terrace rooftops should be painted with Cooltop – reflective materials to reflect the harsh sun rays and reduce the heat absorption in the top most floor and surrounding areas of the building.

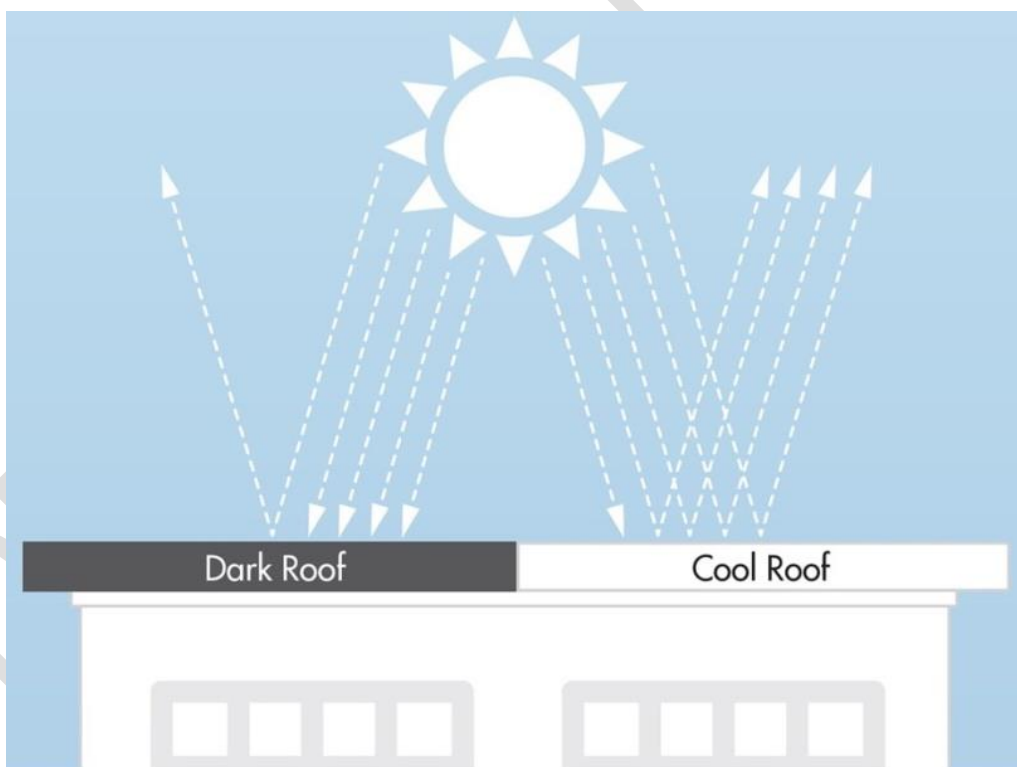


Plate 1: Cool roof comparative analysis (For reference purpose only)

Source: Image by <https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>

5.3 Universally accessible premises

- ➔ **Universal Toilet** - There should be a minimum of 1 toilet in every block for the specially-abled people as per guidelines prescribed by the National Building Code 2016.
- ➔ **Resting places** - There should be increased provision for resting places on-premises outdoor and indoors.
- ➔ **Provisions for visually impaired - Audio Visual Section** – There should be dedicated section for their visually impaired students to listen to the audio books; A braille audio book reader should be available.

5.4 Life safety

- ➔ **Mandate fire extinguisher in spaces** - One fire extinguisher should mandatorily be there in every space which has an air conditioner/ gas cylinder.
- ➔ **Awareness** - Fire layouts in immediate spaces outside the lift, on the staircase landing, signages mentioning 'Do not use lift in case of fire' additionally fire exit signages, boards should be put up at all possible locations.
- ➔ **Sensitization programs** - Regular seminars/ webinars by experts such as Architects, Govt. Fire department on subjects related to fire and life safety should be organized and the outputs should be adopted and documented.

5.5 Pollution Control

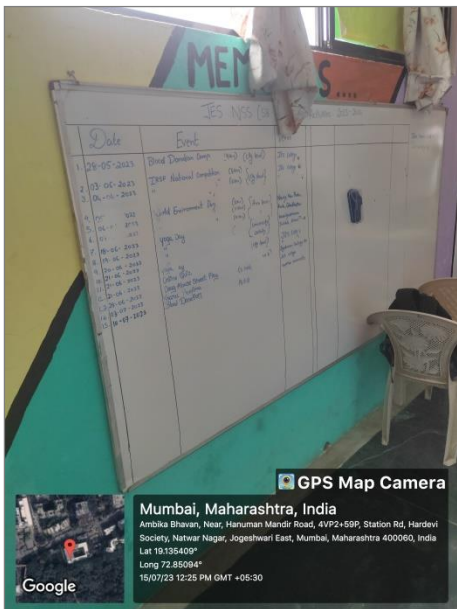
- ➔ **Promote the use of Eco-friendly vehicles** - There can be student and staff sensitization program on eco-friendly and battery-operated vehicles/ low emission vehicles for daily use.
- ➔ **Bicycles as a gift** - As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.

On-site investigation and physical verification

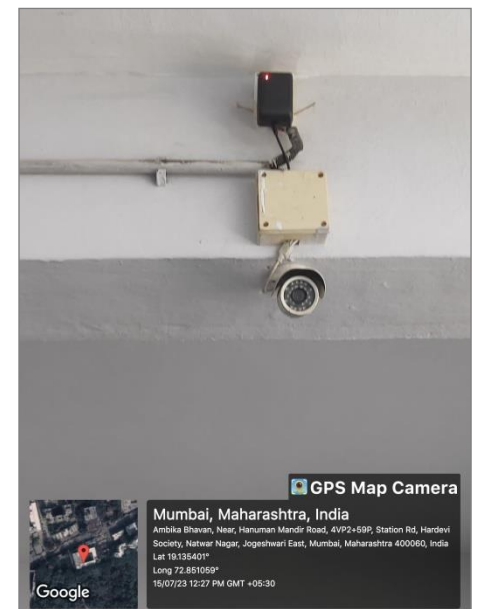
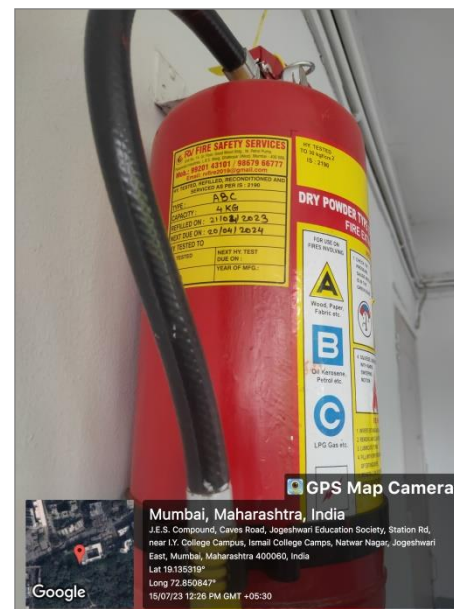
Audit Team during the visit and other photos collected during data documentation



Induction, exit meeting and group photo with the team



On site investigation with the team in NSS area and entrance space



On site investigation with the team about the water cooler, fire extinguisher and CCTV camera areas

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.

6.1 National references

- ⇒ 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

6.2 International references

- ⇒ Form, Space and Order by Francis D. K. Ching
- ⇒ 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 Samarthyam (National center for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation and www.umassd.edu
- ⇒ The city of Cheyenne, Streetscape/ Urban Design elements - Wyoming Planning Association, Gillette, Wyoming, United States
- ⇒ Streetscape elements – Chapter 6 on San Francisco
- ⇒ American lung association <https://www.lung.org/>
- ⇒ Study related to air pollution <https://www.airgle.com/>
- ⇒ Exploring the light pollution <https://education.nationalgeographic.org/>
- ⇒ Accessibility study <https://www.washington.edu/>
- ⇒ Urban heat island effect <https://www.epa.gov/heatislands/what-you-can-do-reduce-heat-islands>

6.3 Reference images for suggestions:

<https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>

