

Energy Audit Certificate (As per Green Building Parameters)

The study is conducted as per Indian and International Green Building Standards initiated in the capacity of an Accredited & Certified Green Building Professional

It is awarded for **2021-2022 and 2022-2023** to the Esteemed Institution

(Analysed for 2 years and extended validity for 1 year, thus total 3 years)

Gondia Education Society's

Punjabhai Patel College of Education, Gondia

Dr. Ambedkar Ward, Singletoli, Gondia (M.S.) – 441601

As part of the Institution's initiatives for a Healthy & Sustainable Institute the audit was conducted.
We appreciate the immense efforts taken by Staff and students towards the Energy Management and Conservation.

Issued on **17 January 2024** and valid till **31 December 2024**


Ar. Nahida Abdulla Shaikh

"Elite 100 Green Architects of India" Eonaur, 2022

Certified G.B.P. (Registration. No. 22/718)

Project Head and Green Building Professional-Consultant

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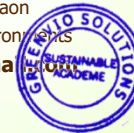
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ENERGY AUDIT

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

Sustainability study
AUDIT REPORT

Studied for
Gondia Education Society's
Punjabhai Patel College of Education, Gondia
Dr. Ambedkar Ward, Singletoli,
Gondia (M.S.) - 441601

Studied in the capacity of
Accredited and Certified GBP



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Disclaimer

The Audit Team has prepared this report for the **Gondia Education Society's Punjabhai Patel College of Education, Gondia** located at Dr. Ambedkar Ward, Singletoli, Gondia (M.S.) - 441601 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.

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

Introduction

About the Institute

The Punjabhai Patel College of Education was established in July, 1963 by Gondia Education Society Gondia, popularly known as P. P. College is the only institute in Gondia district which imparts instruction leading to the degree of Bachelor of Education (B.Ed.). The institution is fully aided by Government of Maharashtra.

About the Energy audit

The following documentation is based on the consumption practice of the premises on a regular working day.

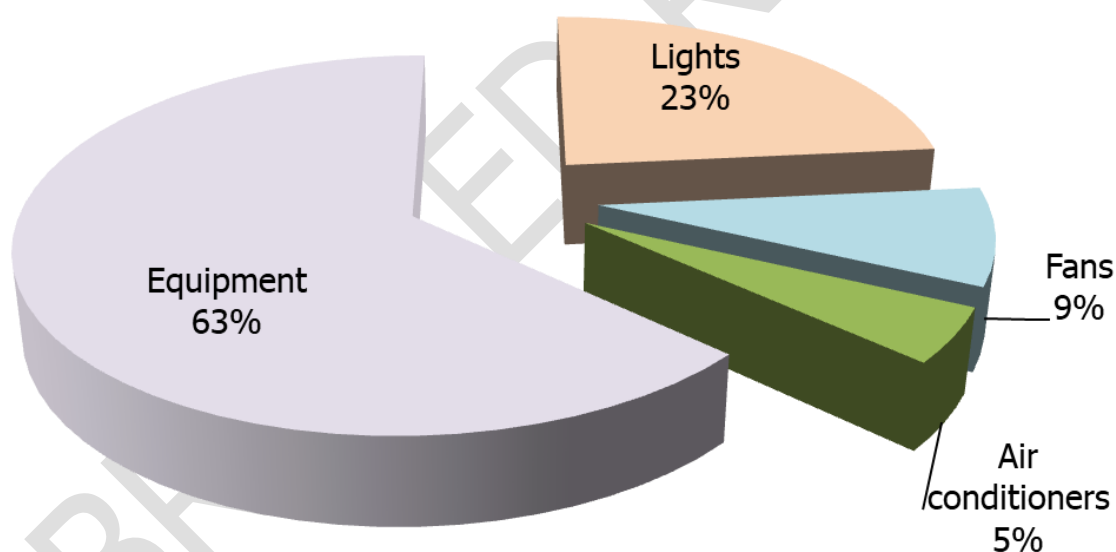


Figure 1: Summary of the calculated electrical consumption as per inventory

The above graph shows that equipment consume 63% whereas the lights consume 23% while the fans consume 9% and the air conditioners consume 5% of the total calculated electrical energy.

ENVIRONMENT AUDIT

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

Sustainability study
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About the Environment audit

A flora survey to identify the total numbers of plants and trees by internal team as documented below displays the varieties of the plantations.

S. No.	Plant name	Type
1	Sonchampha	Plant
2	Jack Froot	Plant
3	Bakool	Plant
4	Kadunim	Plant
5	Gulmohar	Plant
6	Kadamb	Plant
7	Coconut	Plant
8	Ashok	Plant
9	Royal Palm	Plant
10	Jamun	Plant
11	Mohfool	Plant
12	Mango	Plant
13	Leman	Plant
14	Shriram	Plant
15	Champa	Plant
16	Parijatak	Plant
17	Piple	Plant
18	Indian Cork	Plant
19	Katesavar	Plant
20	badam	Plant
21	Teloma	Plant
22	Boganvel	Shrub
23	Mogra	Shrub
24	Rose & Others Flowing Plants	Shrub

Table 1: Details of the Flora in the premises

At present there are 133 plantations in the premises confined to the campus.

GREEN AUDIT

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

Sustainability study
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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
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Acknowledgement

The Audit Assessment Team extends its appreciation to the **Gondia Education Society's Punjabhai Patel College of Education, Maharashtra** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our heartfelt thanks extended to the Chairperson of the entire process **Dr. R. L. Nikose**, (Principal) for the valuable inputs.

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

- ⇒ Teaching members – **Mr. S. V. Padhye**, Librarian
- ⇒ Non-teaching staff members – **Mr. K. B. Dahake**, Office Clerk
- ⇒ Admin staff member – **Mr. S. N. Gupta**, Senior Clerk

We appreciate the cooperation 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 Institute

The Punjabhai Patel College of Education was established in July, 1963 by Gondia Education Society Gondia, popularly known as P. P. College is the only institute in Gondia district which imparts instruction leading to the degree of Bachelor of Education (B.Ed.). The institution is fully aided by Government of Maharashtra.

1.2 Assessment of the Institute

1.2.1 Affiliation

The B.Ed. (Regular) course is affiliated to **R.T.M. University**, a state university located in Nagpur, Maharashtra and D.El.Ed. Course is affiliated to **Maharashtra State Council of Educational Research and Training (MSCERT)**, Pune.

1.2.2 Certification

The College has received the code under **All India Survey of Higher Education (AISHE)** wherein the code is C-18789.

1.2.3 Recognitions

The College has achieved:

- '**Recognition under Section of UGC**' by being recognized under section [2 \(f\) and 12 \(B\) of the UGC Act, 1956](#) by University Grants Commission, New Delhi
- National Council for Teacher Education, New Delhi
- Upgraded to **College of Teacher Education (CTE)** under Ministry of Human Resource Development, Government of India with effect from 2012

1.2.4 Accreditation

The College has received **B+ Grade in 2004 during the First Cycle** of accreditation awarded by the National Assessment & Accreditation Council (NAAC) to the College.

2. Overview

2.1 Summarised Populace analysis for 2022-2023

2.1.1 Students data

The data (shared by the Institute) shows there were **100 students**.

2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	02	00	02
2	Teaching staff	05	01	06
3	Non-Teaching staff	03	00	03
Total Staff Members		10	1	11

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

The staff data shows the Institute premises had **11 Staff Members**.

2.2 Summarised Populace analysis for 2021-2022

2.2.1 Students data

The data (shared by the Institute) shows there were **100 students**.

2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	02	00	02
2	Teaching staff	05	01	06
3	Non-Teaching staff	04	00	04
Total Staff Members		11	01	12

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

The staff data shows the Institute premises had **12 Staff Members**.

2.3 Site & Institute Building Spread Area

The Institute spreads over **0.918 acres** with a built-up area of **32,291.73 sq. ft.**

2.4 Establishment

The Institute established and began its operations in **1963.**

2.5 Operation and Maintenance of the premises

The interview session was held with the staff regarding the operation and working hours. The Institution is open from Monday to Saturday with the timings being 10:30 am to 17:30 hours.

DETAILED REPORT

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 by the Institute
- Initiation by the Institute
- Submission of the files

4. Evidence



Plate 1: Entrance of the premises

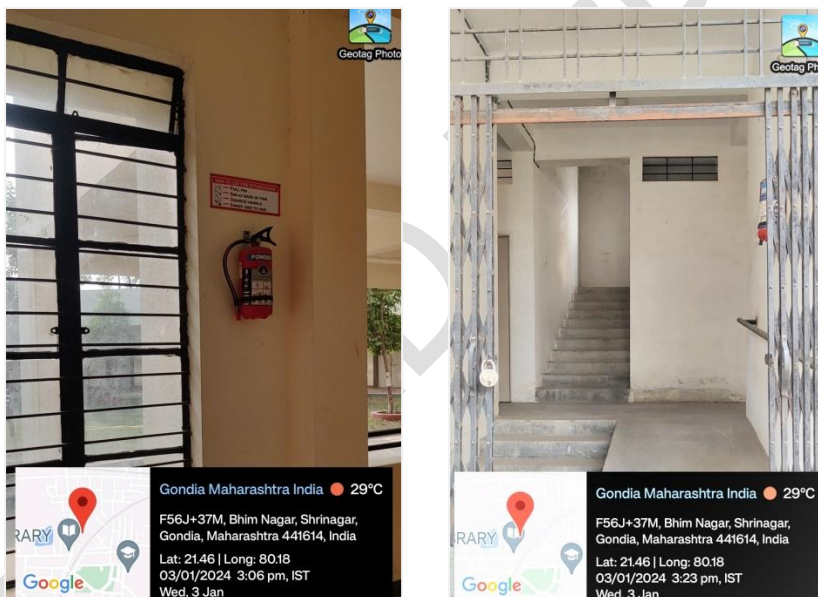


Plate 2: Fire extinguisher and ramp in the premises

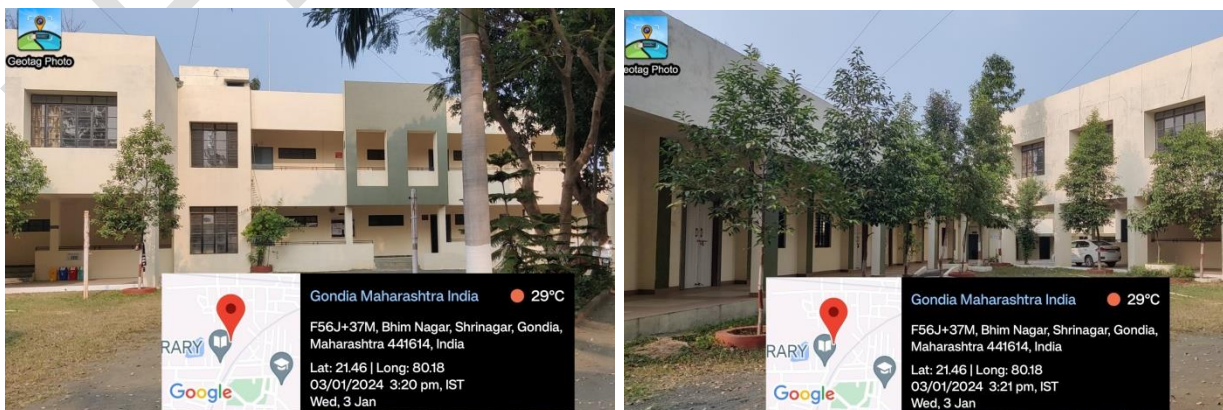


Plate 3: The Campus surrounded by trees in the premises

Note: Photos were shared by the team

5. Documentation

5.1 Green Practices Audit

The increasing global warming and climate change have made us realise that apart from the enormous strategies the individual small efforts need to be taken by individuals and Educational Institutes as the younger generations are the future of the world and once they are taught about these practices only then can we assume a better future.

5.1.1 Green practices

We observed the following points during the Site investigation and data verification of the premises; these are common for all the Buildings in the premises.

- **Cleanliness Campaign** - *The Swachha Bharat Abhiyan is carried out on Institute premises as well as off-premises.*
- **Fresh environment** – *The Institute provides an eco-friendly ambience with fresh air and soothing environment which helps to maintain a physical and mental balance. This kind of a space it a must for an educational institute is inviting and gives the stakeholders an opportunity to explore indoor and outdoor learning to a great extent.*
- **Team work** – *The best quality of the Institute which sets it apart from other institutes is its coordinating and cooperative staff members, as for a building the foundation plays the most important role for its future similarly for an educational institute its staff members do.*

5.1.2 Community development

The study states that the nos. of awareness practices should be documented and reflected on the website and increased.

5.2 Waste Audit

Waste is an inevitable part of our lives. Over the years the awareness about waste management techniques has given a rise to rethink how the waste can be avoided being sent to the landfills. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted, and waste management strategies that are implemented in addition to the newer ways that can be adopted aiming to make the premise clean and sustainable.

5.2.1 Waste produced

There are 12 dustbins in indoor areas.

S. No.	Type	Proposed disposal
1	Solid waste (Toilets)	<i>Biogas plant can be designed</i>
2	Organic waste (Regular)	Compost is available, continue with current practice
3	Liquid waste (Toilets, wash basins)	<i>Water treatment plant can be designed and practiced, however this is not a compulsion</i>
4	Chemical waste from laboratories	Not applicable
5	Toxic waste from laboratories	
6	E-waste	<i>Sign an MoU and undertaken programs, workshops for recycle</i>
7	Plastic waste	
8	Paper waste	
9	Bio-waste (Sanitary)	Not applicable
10	Medical waste (Pharmacy)	
11	Construction waste and reuse	

Table 3: Details of the waste management practices

The study suggests that the following measures should be adopted:

- ⇒ ***Separate waste bins each for paper/ plastic/ e-waste should be collected on a monthly basis for awareness drive for further recycling and sensitization purposes***



Plate 4: Comost pit in the premises



Plate 5: color coded dustbins in the premises

5.3 Water Audit

Water is one of the basic needs. Pure drinking water is a resource that needs to be preserved efficiently. A water audit helps to identify the sources of water consumption, and the water requirement by the premises is met by these sources. The effective usage of water without any wastage should be a mandatory practice. Understanding the techniques as per site context to increase water conservation in terms of awareness and practice can be identified and executed as part of this exercise.

5.3.1 Water availability and consumption

5.3.1.1 Source of Primary water supply

The Institute requires water from the Local Municipality for drinking water purposes. The details are documented below:

S. No.	Type	Size	Capacity (litres)	Nos.
1	Overhead	3.6x4 ft.	5,000	5

Plate 6: Water tanks available in the premises

The study suggests that the space requires of tanks can be documented with mention of size, capacity usage, Institute name, colour coding and last maintenance date mentioned on each facility.

5.3.1.2 Source of Secondary water supply

The Institute uses the following sources of water supply for secondary usages such as watering plants, kitchen, toilets, and wash basins and other spaces. There is one well and one bore well.

5.3.1.3 Source of Tertiary water supply

The tertiary source of water is source of water harvesting is practiced at present having a capacity of 6,00,000 litres.

5.3.1.4 Source of Reusing waste water

This initiative is not practiced.

5.3.2 Areas of water usage

Based on the inventory done and data shared by the staff we found that the premise has the facilities such as:

- ➔ General toilets for male, female
- ➔ Taps for general and garden use

The study suggests that daily documentation of water supply should be undertaken.

5.4 Health and Hygiene Audit

The hygiene is a part and parcel of our daily life. It is extremely essential to keep the surroundings clean in the same manner as we would want our houses to be.

Educational Institutes have a bigger role to play in order to affect the young minds in the positive manner through better hygienic practices.

The Institution has washroom facility, hand wash, drinking water and dustbin facilities.

6. Suggestion

6.1 Section-wise suggestions

The following suggestions are to be considered as a ***first priority*** for implementation. These **should be executed within the next 2.5 years from the date of Report submission.**

6.2.1 Green practices audit

- ➔ **Increase the plantations on the premise** - There can be provision for more plantations on the premise maybe even a Kitchen garden facility.
- ➔ **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.
- ➔ **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.

6.2.2 Waste Audit

- ➔ **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.
- ➔ Tie up with **Bisleri International regarding their 'Bottles for change program'** also with **'Thereco'** for their waste management.
- ➔ Invite companies such as **'Thaely'** and **'Recharkha'** to undertake skill development workshops.

6.2.3 Water Audit

- ➔ **Water flow stopper** - The water flow stopper should be installed to avoid overflow and smart use of the system. Install water-saving showerheads or flow restrictors. No leakage anywhere on-premises. Water lawn only when it needs it.
- ➔ **Rain water bunds** – There should be landscape beautification project undertaken to appropriate channelize the rain water through bunds and similar facilities.

6.2.4 Health and Hygiene Audit

- ➔ **Programmes** - As part of cleanliness programme the initiative of Swachh Bharat Abhiyan of Govt. of India is undertaken during various occasions.
- ➔ **Pest control program** - The Institute should practice pest control programs with appropriate sanitation facilities through an appropriate agency.
- ➔ **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'

7. 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.

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

International references

- ➔ 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>

