

# Environment 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 **2022-2023 and 2023-2024** to the Esteemed Institution

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

## St. Aloysius College (Autonomous)

1, Ahilya Bai Marg, Pentinaka Chowk, Sadar, Jabalpur,  
Madhya Pradesh, India 482001

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 Environment Protection and Conservation.

Issued on **31 March 2024** and valid till **28 February 2025**

  
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"Elite 100 Green Architects of India" Econaur, 2022

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# ENVIRONMENT AUDIT

STUDY PERIOD (TWO YEARS) 2022 – 2023 & 2023 - 2024

Sustainability study  
**AUDIT REPORT**

Studied for  
**St. Aloysius College  
(Autonomous)**

1, Ahilya Bai Marg, Pentinaka Chowk, Sadar,  
Jabalpur, Madhya Pradesh, India 482001

Studied in the capacity of  
Accredited and Certified GBP



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# Disclaimer

The Audit Team has prepared this report for the **St. Aloysius College (Autonomous)** located 1, Ahilya Bai Marg, Pentinaka Chowk, Sadar, Jabalpur, Madhya Pradesh, India 482001 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

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

Our heartfelt thanks are extended to the Chairperson of the entire process **Dr. Fr. G Vazhan Arasu** (Principal) for the valuable inputs.

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

- Teaching staff member – **Dr. Siby Samuel**, IQAC Coordinator and Teachers - **Dr. Poonam Pendke, Dr. Sonali Nigum, Dr. Zarin Bakesh, Dr. Laxmikant Pandey**
- Non-teaching staff member – **Mr. Rajender Prasad and Mr. Vineeth M. Menon** (Office)
- Admin staff member – **Dr. Ben Anton Rose**, Vice-Principal; **Fr. Pradeep Rodriguez**, Administrator

## Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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# 1. Introduction

## 1.1 About statements of the Institute

### 1.1.1 Vision

The Institute proposes "To qualify quality through qualitative escalation of the entire framework of the institution."

### 1.1.2 Mission

The Institute adheres and focuses:

- To provide for consistent quality up gradation of academic and administrative functioning of the institution
- To provide for a participative academic environment to decipher supreme quality education
- To lay a yardstick in the field of teaching-learning culture with quality enhancement
- To embark on qualitative research, training and consultancy

### 1.1.3 Aim

The College has formulated the following aim to achieve its mission "To facilitate use of ICT, skill-development, development of global competencies, and ultimately to make the learners enhance their potential to be of service to self and society."

## 1.2 Assessment of the Institute

### 1.2.1 Affiliations

The courses provided by the College have received their affiliation through **Rani Durgawati Vishwa Vidhyalaya**, Jabalpur, Madhya Pradesh

### 1.2.2 Certification

The College has received the following Certifications

- ⇒ **AISHE** – The All India Survey of Higher Education code is C-33354
- ⇒ **NIRF** – Participated and received rank in National Institutional Ranking Framework

### 1.2.3 Recognitions

The College has achieved the following recognitions:

- ⇒ **Autonomous Status** - The College was conferred Autonomous status by the University Grants Commission (UGC).
- ⇒ **Recognition of UGC** – The College has been recognized under section [2 \(f\) and 12\(b\) of the UGC Act, 1956](#) by University Grants Commission, New Delhi.
- ⇒ National Council for Teacher Education (NCTE), New Delhi

### 1.2.4 Accreditation

The College is accredited by National Assessment & Accreditation Council (NAAC).

## 2. Overview

### 2.1 Summarised Populace analysis for 2023-2024

#### 2.1.1 Students data

The data (shared by the Institute) shows there were **5,530 students**.

#### 2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	03	00	03
2	Teaching staff	32	83	115
3	Non-Teaching staff	32	10	42
<b>Total Staff Members</b>		<b>67</b>	<b>93</b>	<b>160</b>

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

The staff data shows the Institute premises had **160 Staff Members**.

### 2.2 Summarised Populace analysis for 2022-2023

#### 2.2.1 Students data

The data (shared by the Institute) shows there were **5,505 students**.

#### 2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	02	00	02
2	Teaching staff	32	83	115
3	Non-Teaching staff	30	10	40
<b>Total Staff Members</b>		<b>64</b>	<b>93</b>	<b>157</b>

*Table 2: Staff data of the Institution for 2022-2023*

The staff data shows the Institute premises had **157 Staff Members**.



## 3. Research

### 3.1 Campus area

The **site spread over 10.52 acres of land covering 88,387 sq. ft. of built-up area.**

### 3.2 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.

### 3.3 Analysis of the Green Building Study Audit

The procedure included detailed verification as follows:

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

### 3.4 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: Open space and green cover in the premises*



*Plate 2: Team working towards the data compilation*

## 5. Documentation

### 5.1 Open Spaces

The first hand observations are documented below:

- ➔ The campus is located in an urban area, with a good approach road surrounded by trees providing shade and cool atmosphere



*Plate 3: The green cover in and around the campus*

***The study suggests that:***

- ➔ ***The plantations should have numbering/ coding done***
- ➔ ***The site should be designed and boards identifying these spaces as 'BREAKOUT ZONE' and 'GREEN ZONE' can be displayed around the site***

## 5.2 Flora audit

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

S. No.	Plant Name	Type	Nos.	Planted By
1	<i>Azadirachta Indica (Neem)</i>	Tree	10	Students
2	<i>Nyctanthus Orbortris-Tris (Parijat)</i>	Shrub	2	Staff
3	<i>Amla</i>	Tree	1	Staff
4	<i>Kachnar</i>	Tree	4	Staff
5	<i>Adusa</i>	Shrub	2	Student
6	<i>Bottle Brush</i>	Tree	2	Staff
7	<i>Rose</i>	Shrub	58	Students
8	<i>Giloy</i>	Climber	1	Staff
9	<i>Shisham</i>	Tree	1	Staff
10	<i>Arandi</i>	Tree	1	Naturally
11	<i>Hibiscus</i>	Shrub	4	Naturally
12	<i>Custard Apple</i>	Tree	1	Staff
13	<i>Marigold</i>	Herbs	90	Staff
14	<i>Gular</i>	Tree	3	Staff
15	<i>Bhui Amla</i>	Tree	1	Naturally
16	<i>Amaltash</i>	Tree	3	Naturally
17	<i>Dubhgrass</i>	Herbs	1	Students
18	<i>Sadabahar</i>	Herbs	4	Students
19	<i>Jackfruit</i>	Tree	2	Staff
20	<i>Money Plant</i>	Climber	4	Staff
21	<i>Cactus</i>	Plant	4	Naturally
22	<i>Aloe Vera</i>	Shrub	11	Naturally
23	<i>Lemon</i>	Tree	3	Students
24	<i>Ashok</i>	Tree	40	Staff
25	<i>Bottle Palm</i>	Tree	20	Naturally
26	<i>Arrowhead Plant</i>	Creeper	22	Naturally
27	<i>Gulmohar</i>	Tree	7	Staff



28	<i>Badam</i>	Tree	2	Staff
29	<i>Curry Leaves</i>	Tree	10	Students
30	<i>Snake Plant</i>	Shrub	10	Naturally
31	<i>Kalanchoe</i>	Shrub	18	Staff
32	<i>Petunia</i>	Herbs	10	Naturally

*Table 3: Details of the Flora in the premises*

At present there are **352 numbers of plantations** in the premises confined to the campus, there are many more plantations in the entire site with other buildings as well.

**The study suggests that there is scope to document the plantations further through coding, numbering, and book.**

### 5.3 Noise Audit

On a macro level the campus is close to Indira Gandhi ground, Tagore garden, Military Hospital, Army golf course and multiple green zones.

On a micro level it is located adjacent to the Mandla – Jabalpur Road and surrounded by a number of schools, colleges, University within 2 to 3 km of the site.

This emphasizes that the noise levels here are anywhere between low to very low because of the educational campuses all over.

***The study suggests that outside the campus a signboard could be displayed that highlights 'Silent zone' and 'No honking zone' being an Educational Institute.***

### 5.4 Carbon Footprint Audit - Heat Island Reduction

The heat island effect refers to the study of micro climatic feature within a site. There are multiple factors that add on to the feature such as external temperature, internal temperatures, site context including available and site adjacent facilities. The following features add to low heat island effects of the campus:

- Light colored facades
- Shaded areas (Due to the built space and green cover)

***The study suggests the current practices are fine and should be continued.***



## 6. Inferences

The following suggestions are to be considered as a ***first priority*** to be executed within the next 1.5 to 2.5 years from the date of the Report submission.

### Section 1 – Ecological aspects as (Restoration Landscape perspective for outdoors)

#### ➔ Feeders

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

#### ➔ Numbering the plantations in the premises

- Make a list of all the plantations in the premises
- Secondly, start numbering the plantations in either of the ways:
  - i. Painting the nos. on iron plates and nailing the same
  - ii. Printing the nos. on paper, laminating and pasting the same
  - iii. Painting the nos. with letters and nos. directly
- Care should be taken that the display should be visible
- Uniform color palette should be identified and used
- Measures should be taken to avoid withering during monsoon
- This could be undertaken as a student activity



Reference suggestions 1: Numbering the plantations

## ➔ Improve the ecological footprint of the premises

- Undertake the landscape ecological redesign to increase green cover
- Opportunity can be explored to have a dedicated:
  - i. Nursery
  - ii. Greenhouse
  - iii. Organic farm
  - iv. Kitchen garden in backyard
- The following plantations can be planted for Carbon neutralisation as an additional measure, even though they might be existing in premises
  - i. Pine – Known for its ability to sequester carbon  
 (<https://www.single.earth/blog/which-trees-absorb-the-most-carbon#:~:text=Pine%20trees%20as%20carbon%20sinks,their%20ability%20to%20sequester%20carbon.&text=These%20trees%20are%20found%20in,also%20make%20good%20landscape%20plants>)
  - ii. Neem – Helps reduce greenhouse gases through photosynthesis absorbing large quantities of CO<sub>2</sub> producing oxygen  
 (<https://neemfoundation.org/greening-india-with-neem/#:~:text=The%20planting%20of%20Neem%20trees,of%20CO2%20and%20producing%20oxygen>)
  - iii. Peepal – Can uptake CO<sub>2</sub> during the night as well because of its ability to perform a type of photosynthesis called Crassulacean Acid Metabolism (CAM)  
 ([https://nurserylive.com/blogs/sustainable-living/do-you-know-plants-that-give-oxygen-24-hours#:~:text=2.-,Peepal,Crassulacean%20Acid%20Metabolism%20\(CAM\)\)](https://nurserylive.com/blogs/sustainable-living/do-you-know-plants-that-give-oxygen-24-hours#:~:text=2.-,Peepal,Crassulacean%20Acid%20Metabolism%20(CAM))))
  - iv. Bamboo - Can absorb as much as 12 tonnes of carbon dioxide per hectare per year, giving the plant a potentially crucial role in stabilising our planet's atmosphere.  
 (<https://www.theguardian.com/environment/2003/mar/20/research.science#:~:text=Research%20in%20Japan%20and%20elsewhere,in%20stabilising%20our%20planet's%20atmosphere>) and <https://www.nelda.org.in/15-indian-trees-that-produce-the-most-oxygen>)
  - v. Teak – The highest capacity for carbon sequestration among trees in India. This is the finding of a study conducted by the Gujarat Ecological Education and Research (GEER).  
 (<https://timesofindia.indiatimes.com/city/ahmedabad/teak-absorbs-max-co2-from-air-helps-check-global-warming/articleshow/51721842.cms>)

### ➔ Plant as an extension of 'Green motto'

- External resource persons visiting the premises can share the goal of green environment in the following ways:
  - i. Plant a sapling within the premises
  - ii. Handover a sapling as a gesture

### ➔ Nutrition pits

- Certain pits (mound of earth covered in green grass/ shrubs) can be demarcated as 'Nutrition pits' where the organic food from the kitchen and Canteen fruit peels and fruits or vegetables can be degraded for making nutrition-rich soil.

## Section 2 – Documentation

### ➔ Messages on the beam area

- Include quotes and messages from eminent personalities all over the premises on beam for inspiration and beautification.

### ➔ Awareness

- Introduce zone wise display boards at relevant locations

## Section 3 – Amenities

### ➔ Facilities

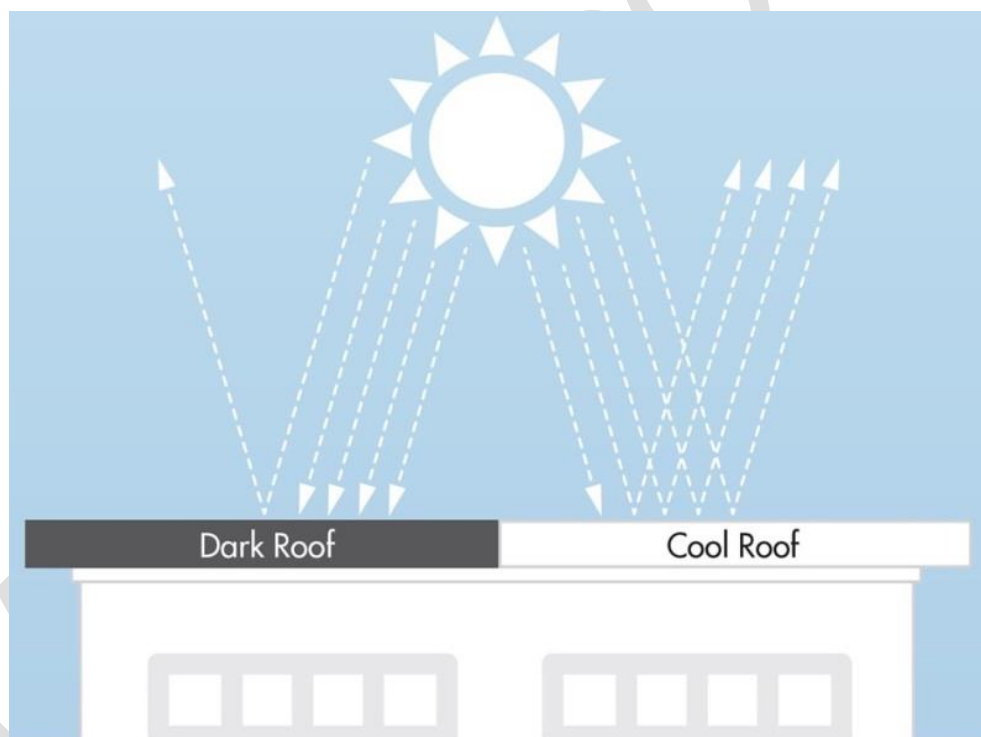
- Speed limit signage
- Speed breakers
- Zebra crossing
- First aid box near the administrative area
- Suggestion box every floor of the premises

## Section 4 – Environmental management systems

### ➔ Heat island control measures

#### ○ Cool rooftops

- i. Keep terrace areas free of any kind of storage materials
- ii. Terrace rooftops can be painted with Cooltop (Reflective material) to reflect the harsh sun rays and reduce the heat absorption in the top most floor and surrounding areas of the building.
- iii. Introduce signboards about 'No students are allowed to enter'
- iv. Undertake feasibility study of before - after temperature reading.



**Plate 4: Cool roof comparative analysis (For reference purpose only)**

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

### ➔ Pollution control measures

- Vehicle usage - Restricting the speed limit of vehicles on the premises to 10 km per hour, not honking on the premises will help in maintaining the sound in control and emphasis on a silent zone.
- Avoid burning waste - The waste produced on the premises should not be burned as it is dangerous to the health of students and staff

## 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

- ➔ 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

- ➔ 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/>
- ➔ Urban heat island effect <https://www.epa.gov/heat-islands/what-you-can-do-reduce-heat-islands>



