



Bharatiya Shikshan Prasarak Sanstha, Ambajogai



Swa. Sawarkar Mahavidyalaya, Beed



Internal Quality Assurance Cell

Criteria 7: Institutional Values and Best Practices

Key Indicator 7.1: Institutional Values and Social Responsibilities

7.1.3: Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following.

1.GREEN AUDIT/ENVIRONMENT AUDIT

GREEN AUDIT

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



Sustainability study

AUDIT REPORT

Studied for

Bhartya Shikshan Prasarak Sanstha's

Swa. Sawarkar Mahavidyalaya

Sawarkar Nagar, Jalna Road,

Beed-431122 Maharashtra

Studied in the capacity of

Accredited and Certified

Green Building Professional



Studied by

Website: <http://www.greenenviasolutions.com/>

Email: greenenviasolutions@gmail.com

Valid till July 2024

Background reference image Sasin Tipchai on unspla

Disclaimer



The Audit Team has prepared this report for the **Bhartya Shikshan Prasarak Sanstha's Swa. Sawarkar Mahavidyalaya** located at Sawarkar Nagar, Jalna Road, Beed-431122 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 Hon'ble Management and Institute. 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


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Acknowledgement



The Audit Assessment Team thanks the **Bhartya Shikshan Prasarak Sanstha's Swa. Sawarkar Mahavidyalaya, Maharashtra** 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 **Hon. Dr. Surindra Govindrao Alurkar**, (President); **Hon. Shri. Jitesh Dullabhdas Chapasi**, (Vice President); **Hon. Dr. Hemant Vasantao Vaidya**, (Secretary); **Hon. Shri. Satyanarayan Chaganlalji Lohiya**, (Treasurer) and **everyone from the Management**.

Our heartfelt thanks are extended to the Chairperson of the entire process **Prof. Dr. Priti Diliprao Pohekar** (Principal) for the valuable inputs.

We are also thankful to Institute's Task force who have played a major role in data collection **Prof. Dr. Rajesh Marotirao Dhere** (*Special mention for the excellent coordination*).

Professor **Mr. Tahir Mansuri**; Non-teaching staff member **Mr. Patil** and admin staff member **Mr. Patil (OS)**.

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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DETAILED REPORT

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1. Introduction

1.1 About the statements of the Institute

1.1.1 Mission

The Institute focuses "Nation building through man making and character building."

1.1.2 Objectives

The objective of the Institute is:

- "To make available various courses at UG and PG level for the students.
- To equip the students by providing knowledge and required skills for global competency.
- To arrange various activities to inculcate moral values among the students.
- To create healthy atmosphere and provide facilities for all round personality development of the students.
- To foster global competencies among students.
- To bring awareness about the modern technology.

1.2 Assessment of the Institute

1.2.1 Affiliations

The Institute is affiliated to **Dr. Babasaheb Ambedkar Marathwada University**, a state University in the city of Aurangabad, State of Maharashtra in India.

1.2.2 Certification

The Institute has received the following Certifications

- **AISHE** – The All India Survey of Higher Education code is **C-34668**.
- **ISO 9001** – Quality Management Systems

1.2.3 Recognitions

The Institute is recognised in **section 2(f) and section 12 (B) of the University Grants Council Act, 1956** Govt. of India, New Delhi.

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2. Overview

2.1 Summarised Populace analysis (Academic year 2)

2.1.1 Students data

The data (shared by the Institute) shows there were a total of **559 male and 326 female students.**

2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Teaching staff	28	07	35
2	Non-Teaching staff	16	03	19
Total Staff Members		44	10	54

Table 1: Staff data of the Institution for (Academic year 2)

The staff data shows the Institute premises had a total of **54 Staff Members.**

2.2 Summarised Populace analysis (Academic year 1)

2.2.1 Students data

The data (shared by the Institute) shows there were a total of **139 male and 36 female students.**

2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Teaching staff	27	07	34
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Table 2: Staff data of the Institution for (Academic year 1)

The staff data shows the Institute premises had a total of **52 Staff Members.**

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2.3 Site area & institute building spread area

The **site area is 1.59 acres** and the **Built-up area is 26,323 sq. ft.** for an approximately **939 footfalls.**

2.4 Institute Infrastructure

2.4.1 Establishment

The Institute was established in the year **1995.**

2.4.2 Spatial Organisation

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

The Institute is located pretty close to nature and hence has a very fresh environment which is absolutely pollution free and healthy.

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




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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




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4. Documentation



4.1 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.

4.1.1 Green practices

We observed the following points during the process.

- **Fresh environment** – *The College 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 specially technical institute which 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 College which sets it apart is its coordinating, cooperative staff members; for a building the foundation plays the most important role for its future similarly for an educational institute its staff members do.*

4.1.2 Community development

The College conducts the following environmental initiatives:

S. No.	Name of the event	Date
1	Swachh Bharat Abhiyan	12.10.2022
2	Soil Enrichment Method Workshop	27.11.2022
3	A cleanliness drive	23.02.2023
4	International Nature Conservation Day: Tree Plantation	28.7.2021
5	Mazi Vasundhara Abhiyan: Tree conservation	23.8.2021
6	Speech on Controlled use of chemical fertilizers	20.3.2022
7	Tree plantation drive in Mandav Jali: Environment and Me	22.3.2022
8	Kai. Pramod Mahajan Jayanti: Swachta Abhiyaan	3.5.2022

Table 3: Details of the environmental initiatives undertaken by the Institute

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4.2 Waste Audit

Waste is an inevitable part of our lives. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted. The waste management strategies are studied and ways that can be adopted aiming to make the premise clean and sustainable are proposed.

4.2.1 Waste produced

S. No.	Type of waste	Source	Current Disposal method	Can be retreated/ recycled?	Methodology
1	Solid waste	Toilets– Biodegradable waste	Led into the storm water drains	Yes	TREATED – Biogas plant can be initiated
2	Liquid waste	Toilets, washbasins		Yes	TREATED - Sewage treatment plant can be initiated
3	Paper waste	Newspaper and other paper	Given to vendor	Yes	TREATED – A recycling plant can be initiated
4	E-waste	Computers - Non-biodegradable waste		Yes	
5	Dry waste in form of leaves	Open space & plantations, papers - Non biodegradable waste	TREATED – Composting has been undertaken	Not applicable	CONTINUE – with the same practice
6	Organic regular waste	Dust, dirt dust waste from indoor spaces			
7	Chemical waste	Laboratories	TREATED – Diluted before letting into storm water drains		

Table 4: Details of the waste management practices adopted by the team

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4.3 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.

4.3.1 Water availability and consumption

4.3.1.1 Source of Primary water supply

The College uses drinking water for daily consumption. There are facilities at various locations in the premises as documented below:

S. No	Type	Capacity (liters)	Nos.	Location
1	Overhead	6,000	3	Top of building
2	Ro Plant	300	2	Building

Table 5: Details about the water facilities in the premises

4.3.1.2 Source of Secondary water supply

The College uses the secondary sources of water supply for general usages such as watering plants, kitchen, toilets, and wash basins connected to the labs and other spaces. **At present, there are no facilities available as the secondary source.**

4.3.3.3 Source of Tertiary water supply

The tertiary source of water is the additional source of water harvesting. *The project is under practice with dedicated pits.*

4.3.3.4 Source of Reusing waste water

Green chemistry is practiced by diluting the liquid before letting into storm water drain.


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4.3.2 Areas of water usage

Based on the inventory done and data shared by the staff it was found that the premise has the following facilities:

Particulars
General toilet for students
General toilet for staff
Special Toilet for handicaps 1.5m x 2.5m
Urinals
Taps in laboratories
Taps in wash basins in toilets
Taps in kitchen sinks
Taps in Hostel mess
Taps in Canteen
Taps in the garden

Table 6: Details of the water usages in the premises

4.4 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.

4.4.1 Facilities available

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

4.4.2 Hygiene aspects

There was no major hygiene issue observed anywhere in the premises.


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5. Suggestions

Section-wise suggestions related to premises

The following suggestions are to be considered as a **first priority** for implementation. These should be executed within the next 1.5 to 2.5 years from the date of the Report submission. The Institute can execute a plan after discussion with Project Head.

5.1 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.
- **Environmental awareness** - There can be various artworks 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.

5.2 Waste Audit

- **Signages** - Messages about avoiding wastage should be placed at appropriate locations.
- **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.

5.3 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.
- **Waterless urinals** - There can be the provision of waterless urinals as a Green Building initiative in the premise, either the existing ones can be replaced with such a facility or new toilets can be constructed in this manner.


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- **Rain water bunds** – There should be landscape beautification project undertaken to appropriate channelize the rain water through bunds and similar facilities.

5.4 Health and Hygiene Audit

- **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'




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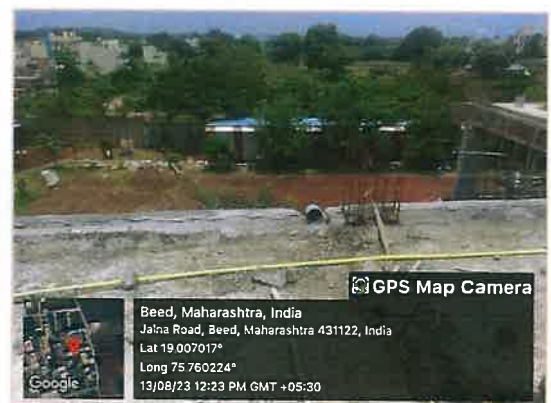
Investigation Evidences collected during data documentation



Investigative parameters – Energy Management – Solar panels in the premises



Investigative parameters – Ecological Management – Green cover and universally accessible premises



Investigative parameters – Water Management – Water sources and rain water harvesting system



Investigative parameters – Waste Management through compost pit and waste water treatment

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 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
- ➔ Images on site by Coordinators of the both teams
- ➔ Icon images used by <https://www.vecteezy.com/free-vector/security-camera-icon> and <https://www.vecteezy.com/free-vector/electric-car-icon>


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Green Audit Certificate (As per Green Building Parameters)

GV/GA/08-23/ 206

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)



Bhartya Shikshan Prasarak Sanstha's

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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 Efficient Management of Premise.

Valid till **31 July 2024**

Ar. Nahida Abdulla Shaikh

"Elite 100 Green Architects of India" Econaur, 2022
Registered Architect, P.G.D.R.D, ISO Certified I. A. (IMS)
Indian Green Building Council Accredited Professional (IGBC AP)

ASSOCHAM GEM Green Building Council Certified Professional (Registration. No. 22/718)



Project Head and Green Building Professional-Consultant

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An environment Design and Consultancy developing Healthy and Sustainable Environments
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ENVIRONMENTAL AUDIT

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

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4. Documentation

4.1 Open Spaces

There is an open space used by students at present for sports and cultural gatherings.

There are provisions for natural plantations enhancing the beauty of the space.

4.2 Flora audit

A flora survey was carried out to identify the total numbers of plants and trees. The flora survey is common for the entire campus as documented below.

S. No.	Plant name	Type	Nos.	Planted by
1	<i>Quisqualis Indica</i>	Tree Climber	1	HOD Botany
2	<i>Java Plum Or Indian Blackberry</i>	Tree	2	HOD Botany
3	<i>Terminalia Catappa / Indian Almond</i>	Tree	3	HOD Botany
4	<i>Ficus Religiosa</i>	Tree	3	HOD Botany
5	<i>Azadirachta Indica</i>	Tree	2	Staff
6	<i>Tecoma Stans</i>	Tree	11	HOD Botany
7	<i>Terminalia Catappa</i>	Tree	1	HOD Botany
8	<i>Vinca Rosea</i>	Shrub	30	HOD Botany
9	<i>Nerium Indicum</i>	Tree	10	HOD Botany
10	<i>Thevetia Peruviana</i>	Tree	1	HOD Botany
11	<i>Callistemon</i>	Tree	2	HOD Botany
12	<i>Jasminum Officinale</i>	Tree Climber	3	HOD Botany
13	<i>Jasminum</i>	Tree Climber	3	HOD Botany
14	<i>Jasminum Sambac</i>	Shrub	2	HOD Botany
15	<i>Michelia Champaca</i>	Tree	2	HOD Botany
16	<i>Polianthus Tuberosa</i>	Tree	1	HOD Botany
17	<i>Chrysanthemum</i>	Shrub	1	HOD Botany
18	<i>Hibiscus</i>	Tree	5	HOD Botany
19	<i>Aloe Vera</i>	Shrub	200	HOD Botany
20	<i>Rosa Species</i>	Shrub	3	HOD Botany
21	<i>Ocimum Sanctum</i>	Shrub	25	HOD Botany
22	<i>Aboli</i>	Tree	3	HOD Botany


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23	<i>Cestrum Noctrunum</i>	Tree	1	HOD Botany
24	<i>Nycthanthes Arborescens</i>	Shrub	2	HOD Botany
25	<i>Grevillea Robusta</i>	Tree	1	HOD Botany
26	<i>Zizipus Zuzuba</i>	Tree	2	HOD Botany
27	<i>Annona Squamosa</i>	Tree	8	HOD Botany
28	<i>Psidium Guajava L.</i>	Tree	3	HOD Botany
29	<i>Manikara Zapota</i>	Tree	2	HOD Botany
30	<i>Mangifera Indica</i>	Tree	4	HOD Botany
31	<i>Pithecellobium Duice (Roxb)</i>	Tree	1	HOD Botany
32	<i>Alstonia Sclaris</i>	Tree	1	HOD Botany
33	<i>Plumeria Rubra</i>	Tree	1	HOD Botany
34	<i>Tecoma Stans</i>	Tree	10	HOD Botany
35	<i>Clitoria Ternatea</i>	Shrub	2	HOD Botany
36	<i>Bougainvillea Glabra</i>	Tree Climber	2	HOD Botany
37	<i>Euphorbia Pulcherima</i>	Tree	5	HOD Botany
38	<i>Ixora</i>	Shrub	3	HOD Botany
39	<i>Prunus Avium</i>	Tree	2	HOD Botany
40	<i>Thuja Orientalis</i>	Tree	2	HOD Botany
41	<i>Arucaria Heterophylla</i>	Tree	1	Staff
42	<i>Casurina Equisetifolia</i>	Tree	3	HOD Botany
43	<i>Saraca Indica</i>	Tree	4	Staff
44	<i>Detonix Regia</i>	Tree	1	Staff
45	<i>Annona Reticulate</i>	Tree	2	HOD Botany
46	<i>Pongamia Pinnata</i>	Tree	1	Staff
47	<i>Cassia Auriculata</i>	Tree	1	Staff
48	<i>Acacia Nilotica</i>	Tree	1	Naturally Grown
49	<i>Palm Tree</i>	Tree	4	Staff
50	<i>Lantana Camera</i>	Shrub	5	Naturally Grown
51	<i>Tradescantia</i>	Shrub	11	HOD Botany
52	<i>Dendrocalamus Strictus</i>	Tree	3	Staff
53	<i>Phyllanthus Emblica</i>	Tree	1	Staff
54	<i>Ficus Religiosa L.</i>	Tree	3	Staff
55	<i>Jasminum Multiflorum</i>	Tree Climber	1	HOD Botany
56	<i>Bauhinia Racemosa</i>	Shrub	1	HOD Botany



57	<i>Citrus Aurantifolia</i>	Tree	1	HOD Botany
58	<i>Polyalthia Longifolia</i>	Tree	1	HOD Botany
59	<i>Jasminum Auriculatum</i>	Shrub	2	HOD Botany
60	<i>Nephrolepis</i>	Shrub	1	HOD Botany
61	<i>Tabernamontana Divaricata</i>	Tree	1	HOD Botany
62	<i>Pithecellobium Dulce</i>	Tree	1	HOD Botany
63	<i>Ficus Benjamina</i>	Tree	2	HOD Botany
64	<i>Hydrangea Macrophylla</i>	Shrub	1	HOD Botany
65	<i>Ficus Carica</i>	Tree	1	HOD Botany
66	<i>Bauhinia Veriegata</i>	Tree	2	HOD Botany
67	<i>Psidium Gujava</i>	Tree	3	HOD Botany
68	<i>Ixora Coccinia</i>	Shrub	3	HOD Botany
69	<i>Madhuca Indica</i>	Tree	1	HOD Botany
70	<i>Nerium Indicum</i>	Tree	4	HOD Botany
71	<i>Calotropis Procera</i>	Tree	1	Grown Naturally
72	<i>Adhatoda Vesica</i>	Tree	3	HOD Botany
73	<i>Vitex Negundo</i>	Tree	1	HOD Botany
74	<i>Vanda Parviflora</i>	Shrub	1	HOD Botany
75	<i>Neolamarckia Cadamba</i>	Tree	3	Staff
76	<i>Ficus Racemosa</i>	Tree	1	HOD Botany
77	<i>Cocos Nucifera</i>	Tree	8	Staff
78	<i>Cactus</i>	Shrub	2	HOD Botany
79	<i>Tectona Grandis</i>	Tree	3	Staff
80	<i>Cherry</i>	Tree	2	HOD Botany
81	<i>Banyan</i>	Tree	1	Staff
82	<i>Ficus Racemosa</i>	Tree	1	Grown Naturally
83	<i>Millettia Pinnata</i>	Tree	2	Staff
84	<i>Leucaena Leucocephala</i>	Tree	5	Grown Naturally
85	<i>Kadi Patta</i>	Tree	2	HOD Botany
86	<i>Canna Lilly Indian</i>	Shrub	50	Staff
87	<i>Delonix Regia</i>	Tree	3	HOD Botany
88	<i>Magnolia Champaca</i>	Tree	1	Staff
89	<i>Begonia</i>	Tree	1	HOD Botany
90	<i>Bougainvillea</i>	Tree	2	HOD Botany


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91	<i>Manilkara Zapota</i>	Tree	1	HOD Botany
92	<i>Mulberry Tuti</i>	Tree	3	HOD Botany
93	<i>Custard Apple</i>	Tree	2	HOD Botany
94	<i>Citrus</i>	Tree	1	HOD Botany
95	<i>Indian Gooseberry, Malacca Tree</i>	Tree	1	HOD Botany
96	<i>Moringa Oleifera</i>	Tree	1	HOD Botany
97	<i>Withania Somnifera</i>	Tree	3	Grown Naturally
98	<i>Aegle Marmelos / Bael</i>	Tree	1	HOD Botany
99	<i>Silver Oak</i>	Tree	2	HOD Botany
100	<i>Ashwagandha,</i>	shrub	5	HOD Botany
101	<i>Swastik</i>	Tree	1	HOD Botany
102	<i>Mogra</i>	Tree climber	5	HOD Botany
103	<i>Lal Patta</i>	Tree	5	HOD Botany
104	<i>Morpankhi</i>	Tree	2	HOD Botany
105	<i>Ratrani</i>	Tree	1	HOD Botany
106	<i>Cestrum Diurnum</i>	Tree	2	HOD Botany
107	<i>Butea Monosperma</i>	Tree	1	HOD Botany
108	<i>Achyranthes Aspera</i>	Shrub	20	Grown Naturally
109	<i>Ziziphus Mauritiana</i>	Tree	2	HOD Botany
110	<i>Nyctanthes Arbor-Tristis</i>	Tree	2	HOD Botany

Table 3: Details of the Flora in the premises

At present there are 587 numbers of plantations comprising of plants, trees, shrubs. Timely maintenance and care has resulted in positive benefits for the surroundings.

4.3 Fauna audit

There are varieties of biodiversity available as fauna in the premises as documented below:

- *Birds* - Sparrow
- *Insects* - Butterfly
- *Invertebrates* - Snails
- *Reptiles* - Pit Viper, Cobra, Rat Snake
- *Amphibians* - Frog, Tree Frog


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4.4 Noise Audit

On a macro level the Institute is surrounded by public buildings and minimal residential blocks **thus there is a peaceful and noise free arena observed inside the premises.**

4.5 Carbon Footprint Audit

4.5.1 Eco-friendly Commuting Practices

- The site is located in a rural 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.

4.5.2 Heat Island Reduction

Certain measures have to be taken to keep outdoor temperatures under control.

4.5.3 Outdoor Light Pollution Study

The Institute compound lights are not upward looking thus, these do not cause light pollution.

4.6 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 insufficient and require up gradation in following context - Low height risers in the staircases, Non-slippery floor surfaces, Handrails for support and Ramps at the entrance.

4.7 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.

The current facilities include only fire extinguishers.


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5. Suggestion

The following suggestions **should be executed within the next 1.5 to 2.5 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.
- **Garden development** - The existing open space should be designed as an Architectural landscape. Scientific name plates and QR codes – The team should undertake a project to have name plates with QR codes on every plant of the premises.

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.

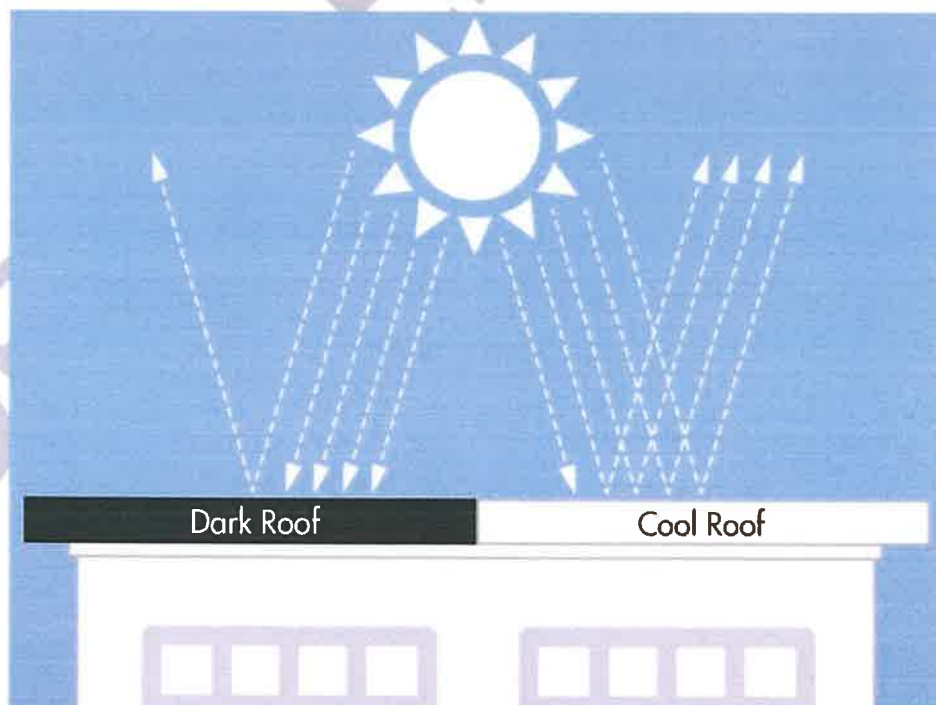


Plate 1: Cool roof comparative analysis (For reference purpose only)

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



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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; Abrar the 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.
- **Combustible equipment** - Every space which has a gas cylinder or combustible equipment should have a provision for the barricade around the gas cylinders, appropriate safety board's mentioning 'danger sign' and 'Do not touch' with an additional small fire extinguisher close by.

5.5 Pollution Control

Bicycles as a gift - As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.


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Investigation
Evidences collected during data documentation



Investigative parameters – Energy Management – Solar panels in the premises



Investigative parameters – Ecological Management – Green cover and universally accessible premises



Investigative parameters – Water Management – Water sources and rain water harvesting system



Investigative parameters – Waste Management through compost pit and waste water treatment



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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>


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6.3 Reference images for suggestions:

- <https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>
- <https://coolroofs.org/resources/what-is-a-solar-reflective-wall>
- <https://earthbound.report/2021/07/14/5-ways-to-reduce-the-urban-heat-island-effect/>
- <https://www.dutchiesstonewor>

DETAILED REPORT




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Environment Audit Certificate

(As per Green Building Parameters)

GV/ENVT/08-23/206

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)



Bhartya Shikshan Prasarak Sanstha's

Swa. Sawarkar Mahavidyalaya

Sawarkar Nagar, Jalna Road,
Beed-431122 Maharashtra

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.

Valid till **31 July 2024**

Ar. Nahida Abdulla Shaikh

"Elite 100 Green Architects of India" Eonaur, 2022

Registered Architect, P.G.D.R.D, ISO Certified I. A. (IMS)

Indian Green Building Council Accredited Professional (IGBC AP)

ASSOCHAM GEM Green Building Council Certified Professional (Registration. No. 22/718)



Project Head and Green Building Professional-Consultant

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