Sustainability study

GREEN AUDIT REPORT

Studied for

Karnataka Peoples Education Society's

Dr. Ambedkar College of Arts, Commerce and PG Center, Kalaburagi

Sundarnagar, Kalaburagi,

Karnataka, India

Studied by

Professor & Chairman
Department of P.G. Studies
& Research in Botany
Gulbarga University Kalaburagi-58510

Disclaimer

The Audit Team has prepared this report for the **Dr. Ambedkar College of Arts, Commerce and PG Center, Kalaburagi** located at Sundarnagar Kalaburagi, Karnataka, 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 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

Acknowledgement

The Audit Assessment Team thanks the **Dr. Ambedkar College of Arts, Commerce and PG Center, Kalaburagi** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our heartfelt thanks are extended to the Dr. Vijaykumar D Principal of the entire process 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 – **Dr. Nirmala, IQAC co-ordinator and Prof. Avinash, TPO**

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

Contents

1. Introduction

1.1 About the statements of the Institute

1.1.1 Vision

The Institute proposes

The Scheduled caste/ Scheduled Tribes and others downtrodden Community students are to be enlightened and awakened about their fundamental rights and duties by means of general education

1.1.2 Mission

The Institute adheres and focuses

- The Institutions intends to achieve the goals by keeping pace with sweeping changes at Global and National levels

- The institution intends to make a Significant contribution to general education with emphasis on spritual, moral and scientific values of life

- The institution not only inculcating the academic standards among the students but also preparing them as future model leaders with highest ideals to their profession and dedication to nation

1.1.3 Objectives

The Institute has formulated the following objectives to achieve its mission:

Promote Holistic Development:

- Foster students' spiritual, moral, and scientific values to ensure well-rounded personal growth and ethical development.

· **Enhance Academic Excellence:**

- Uphold high academic standards and rigor to provide students with a strong educational foundation that prepares them for future challenges.

· **Cultivate Leadership Skills:**

- Develop students into future leaders by instilling in them the highest ideals of professionalism, dedication, and commitment to their roles in society and the nation.

· **Adapt to Global and National Changes:**

- Stay responsive to evolving global and national trends to ensure the institution's education practices remain relevant and impactful.

1.2 Assessment of the Institute

1.2.1 Affiliations

The Institute is affiliated to **Gulbarga University Kalaburagi,** a state university located at Kalaburagi, Karnataka, India.

1.2.2 Certification

The Institute has received the following Certifications

ISO 9001 –2015 Quality Management Systems

All India Survey of Higher Education (AISHE) code which is **C-9239**

1.2.3 Approval

The College is grants in aid college and **University Grants Commission, New Delhi under 2f/12b**

1.2.4 Accreditations:

Cycle	Grade	CGPA	Year of Accrediation	Validity	
				Period From	Period To
1	A	85.50	2004	16-Sep-2004	15-Aug-2009
2	A	3.06	2011	08-Jan-2011	07-Jan-2016
3	B	2.40	2018	26-Sep-2018	25-Sep-2023

1. Overview

1.1 Summarized Populace Data (2021-22)

2.1.1 Students data

The data (shared by the Institute) shows there were a total of **886 students.**

2.1.2 Staff data

The staff data shows the Institute premises had a total of 18 Teaching **Staff Members.**

1.2 Summarised Populace Data (2022-23)

2.2.1 Students data

The data (shared by the Institute) shows there were a total of **714 Students**

2.2.2 Staff data

The staff data shows the Institute premises had a total of **25 Staff Members.**

1.3 Institute Area & Building Spread Area

The **site area is 2.69 acres** and the **Built-up area of the building is 2230 sq. mts.**

1.4 Institute Infrastructure

2.4.1 Establishment

The Institute was established in **1982**.

1.2.1 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.

1.3 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 Institute is working Monday to Saturday beginning at 10:00 hours up to 17:00 hours.

2. Research

2.1 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.

2.2 Analysis of the Green Building Study Audit

The procedure included detailed verification as follows:

Investigation

Technical discussion with team

Observations

Inferences

2.3 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.

2.4 Activities undertaken for the Green Building Study Audit

Discussion with the Institute

Allotment and Initiation by the Institute

Data collection

Submission of the files

3. Documentation

3.1 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.**

3.2 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.

Sl,N	Tree Name	Scientific Name	Number
1	Teakwood	Tectona grandis	18
2	Neem	Azadirachta indica	45
3	Ashok	Saraca asoca	26
4	Banyan	Ficus benghalensis	4
5	Gulmohar	Delonix regia	26
6	Tamarind	Tamarindus indica	2
7	Almond	Prunus dulcis	4
8	Coconut	Cocos nucifera	4
9	Peepal	Ficusreligiosa	2
10	Curry leaves	Murraya koenigii	2
11	Shrubs	-	244
12	Herbs	-	489
Total			866

Details of the Flora in the premises

At present there are Total – Trees 133, Shrubs 244, Herbs –489 are observed in

campus with Lawn area comprising –Length -80 meters, width –44 meters, total – 3520 sq. Meter. Timely maintenance has resulted in positive benefits for the surroundings such as reduction of noise pollution as these trees are on boarder of main road which adjacent to college boundary.

3.3 Fauna audit

There is lack of biodiversity available as fauna in the premises.

3.4 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.**

3.5 Carbon Footprint Audit

3.5.1 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.

3.5.2 Heat Island Reduction

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

3.5.3 Outdoor Light Pollution Study

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

3.6 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 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

3.7 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. At present, the following are available in the premises.

Fire extinguisher and sand buckets.

Open staircase without any barriers and free of storage or combustible material.

4. 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.

4.1 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.

4.2 Heat island reduction

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

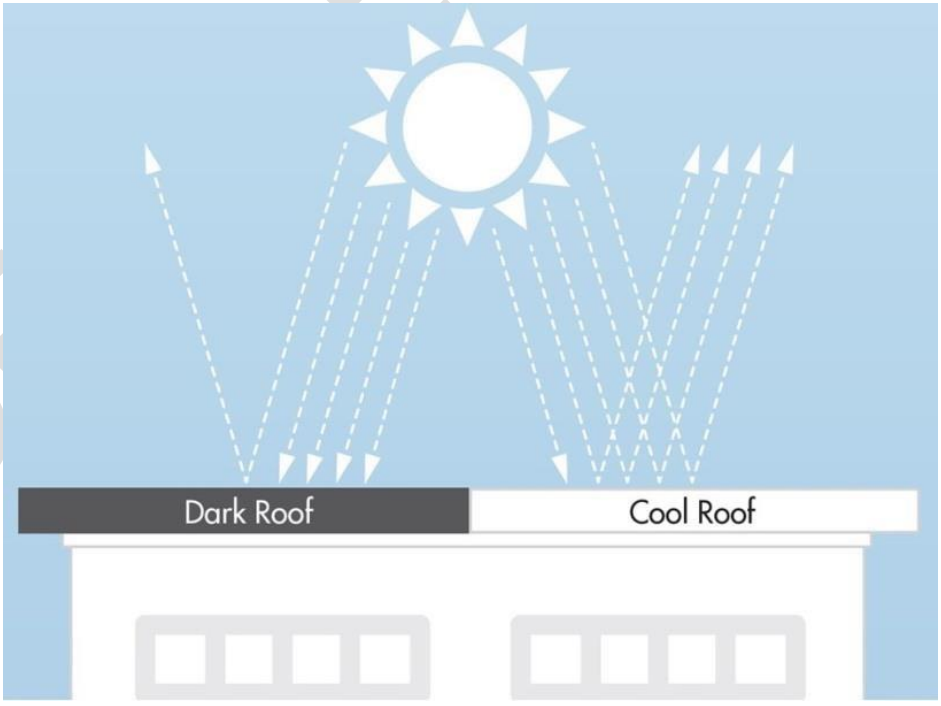

Plate 1: Cool roof comparative analysis (For reference purpose only)

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

Water bodies – Lily gardens in small water ponds could be developed in the outdoor areas to reduce the heat, upgrade rain water harvesting and beautify exterior areas.

Plate 2: Lily pond (For reference purpose only)

Source: Image by Author and the team

4.3 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.

4.4 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.

4.5 Pollution Control

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

5. 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.

5.1 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

5.2 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

5.3 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/