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**7.1.6- Quality audits on environment and energy are regularly undertaken by the institution for the Academic Year 2023-2024**

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# ENERGY AUDIT

STUDY PERIOD (ONE YEAR) 2023 - 2024

Sustainability study  
**AUDIT REPORT**

Studied for  
Viswambhara Educational Society's  
**Vaagdevi College of Pharmacy**  
2-2-457/3, Ramnagar, Hanamkonda,  
506001, Telangana, India

Studied in the capacity of  
Accredited and Certified GBP



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## Disclaimer

The Audit Team has prepared this report for the **Viswambhara Educational Society's Vaagdevi College of Pharmacy** located at 2-2-457/3, Ramnagar, Hanamkonda, 506001, Telangana, 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 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.

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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**

**Greenvio Solutions**

*Developing Healthy and Sustainable Environments*

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## Acknowledgement

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### Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208



  
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# 1. Introduction

## 1.1 Statements of the Institution

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## 2. Overview

### 2.1 Summarised Populace analysis for 2023-2024

The data (shared by the Institute) shows there were **131 boys and 495 girls thus 626 students.**



  
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### 3. Compliance

The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.

- Original report study was for 2021-2022 and 2022-2023
- Renewal study two is for 2023-2024

#### 3.1 Compliance status

The details of compliance are analysed on previous year Report depicted below:

S. No.	Recommendation	Page nos. of Report	Section nos. as per Report	Evidence (Photo or other)
1	Non-LEDS Lights to LED lights	17	6.1.1.1	<p>Completed</p> 
2	Replacement of CFL by LEDS	17	6.1.1.1	Completed



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3	5 star rating Fans & AC	7	6.1.1.2	<p style="text-align: center;"><b>Completed</b></p>

Table 1: Details of the compliance study



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## 4.2 Compliance technical study

### 4.2.1 Section 1 - Energy management

The study focuses only on those appliances that have a scope of energy reduction and preservation as the other appliances are a mandatory requirement and cannot be overlooked.

#### A. Calculated Electrical Consumption as per inventory

The electricity bills provide actual consumption data. The following is the calculated consumption. It is done to understand the percentage of energy usage in the premises by various applications. It is based on the inventory collected and interviews with the staff.

The additional data such as wattage is taken from market research. In terms of electrical consumption, the main sources are lights, fans, air conditioner, and equipment. The inventory and data collection for sources of energy consumed in the premise is summarised in the following sections.

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

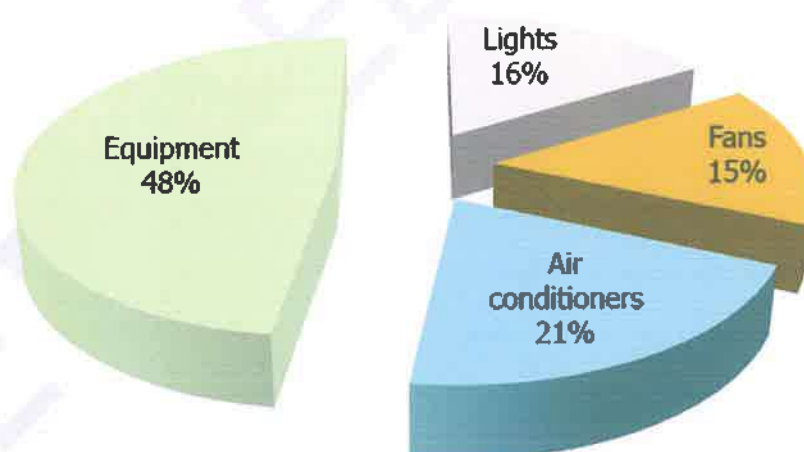


Figure 1: Summary of the calculated electrical consumption as per inventory

The above graph shows that equipment consume 48% whereas the air conditioners consume 21% and lights consume 16% while the fans consume 15% of the total calculated electrical energy.



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## B. Lights

### Types of lights based on the numbers

There are **340 lights** on the premises (Increase as compared to 222 lights in the previous study) the following table shows the various types of lights on the premises.

S. No.	Type	Nos.
1	<b>LED lights</b> (Energy efficient appliance)	320
2	<b>Non-LED lights</b> (Non-Energy efficient appliance)	20

Table 2: Summary of the types of lights on-premise

### Types of lights based on the power consumption

The energy consumption of lights is **8,465 kWh** of energy.

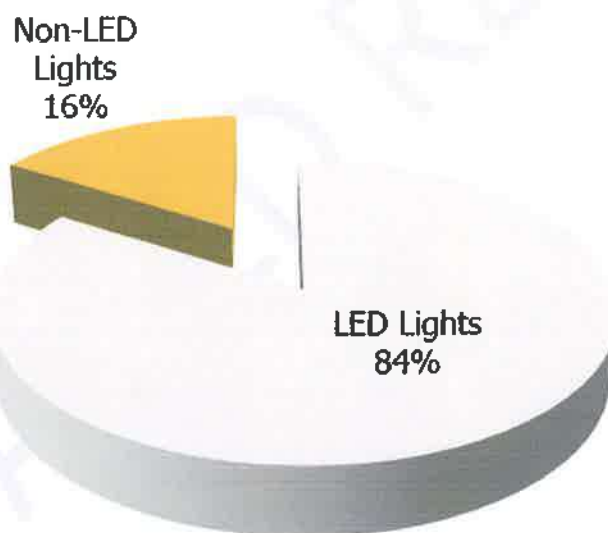


Figure 2: Energy consumed by types of lights in the premise based on the usage study

The analysis of the types of Lights on-premises shows **LED lights consume 84%** while the **Non-LED lights consume 16%** of the total power consumed by lights.

*It should be noted that the nos. of lights shows a significant change of 84% as compared to Original study; however in previous study the LED lights consumed 21%.*



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### C. Fans

#### Types of fans based on the numbers

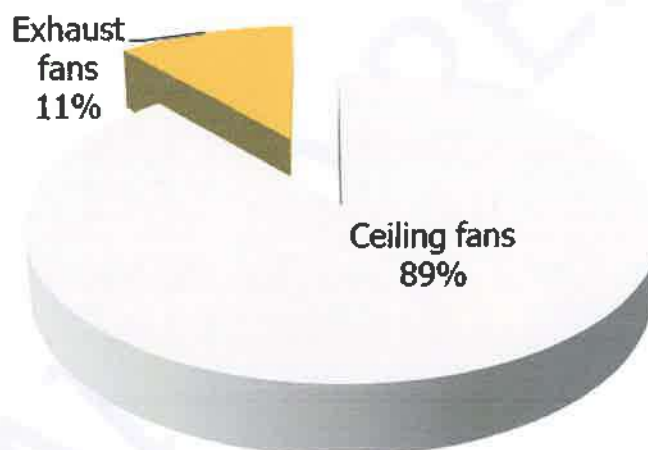
There are a total of **88 fans** (Reduced as compared to 221 fans in the original study) on the premises as follows:

S. No.	Type	Nos.
1	Ceiling fans	80
2	Exhaust fans	08

*Table 3: Summary of the types of fans in the premises*

#### Types of fans based on the power consumption

The energy consumption of fans is **7,871 kWh** of the energy.



*Figure 3: Types of fans based on power consumption*

The above analysis shows the **Ceiling fans consume 89%** whereas the **Exhaust fans consume 11%** of the total power.



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#### D. Air conditioners

##### Types of air conditioners based on the numbers

There are **ten nos. of air conditioners** (Increase as compared to three air conditioners in the Original study) on the entire premises.

##### Building-wise consumption analysis

The energy consumption of air conditioners is **10,640 kWh** of energy.

#### E. Equipment

##### Types of Equipment

There are **125 nos. of desktop computers** (Increase as compared to 90 desktop computers in the previous study) in the Educational sector.

##### Types of equipment as per their energy contribution

The energy consumption of equipment (considering only desktop computer) is **24,750 kWh** of energy.



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## 4.2.2 Section 2 - Energy generation

Sr. No.	Month	Year	Amount	(A) Total units consumed	(B) Solar units generated	(C = A-B) Gross units consumed after deduction
<b>Academic year between 2023-2024</b>						
1	June	2023	45,135	7,852	2,723	5,129
2	July	2023	1,49,723	18,031	1,017	17,014
3	August	2023	1,04,808	12,495	585	11,910
4	September	2023	91,344	11,228	848	10,380
5	October	2023	97,398	11,798	731	11,068
6	November	2023	1,00,029	13,264	1,898	11,367
7	December	2023	1,17,585	13,886	524	1,17,585
8	January	2024	45,205	6,672	1,535	5,137
9	February	2024	39,661	6,025	1,518	4,507
10	March	2024	58,731	7,562	888	6,674
11	April	2024	1,00,522	12,235	812	1,00,522
12	May	2024	82,614	11,827	2,439	82,614

Table 4: Details of the electrical consumption

### The observation related to above information states:

- The **total amount** spent in past one year is **Rs. 10,32,755/-**
- The **average amount** spent every month is **Rs. 86,063/-**
- The **total units** consumed in past one year **~ 1,32,875 units (Electrical + solar)**
- The **average units** consumed every month is **~ 11,073 units (Electrical + solar)**
- The **total units** consumed in past one year is **~ 15,518 units (Only solar)**
- The **average units** consumed every month is **~ 1,293 units (Only solar)**
- **Alternate source of energy is available in form of rooftop solar panels**
- **Percentage of energy met by alternate (solar (renewable)) source is 11.67% however there is scope to improve the renewable energy sources as there is still major expense spent every month.**



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### 4.2.3 Section 3 - Life safety management

The details of refilled fire extinguishers were shared as follows:



Plate 1: Fire extinguishers in the premises



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## 4. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner. The same has been identified in two phases for a total duration of three years.

### ➔ Phase 1

- Duration: One year from the date of Report submission – Shared currently
- These are first hand suggestions
- They are easy and quick to implement
- They involve close very less or almost no expenses
- They can serve as a foundation for the entire plan of action

### Section 1 – Energy management

#### ➔ General practice

- The stakeholders should be educated to
  - i. Keep the lights on in the class room only when needed and unplug electrical devices when not in use.
  - ii. Electrical appliances consume energy even when you are not using them hence plugging something in only when needed can save electrical energy usage.
  - iii. At the time of locking the departments all fans, lights should be switched off.
  - iv. The students should be trained to switch off fans and lights when there is no need of them.
  - v. Staff should be trained to switch of lights and fans in their rooms when they leave the room.

#### ➔ Awareness and vigilance

- Strict instructions for avoiding wastage of energy including rules such as if anyone is found putting on the switch unnecessary may be a punishable offence or fine



- Seminars/ Webinars/ Workshops o stakeholders on energy preservation, use of e-vehicles
- Conduct visits and monitoring by authority for check of appliances/ their working conditions/ energy usage etc. every fifteen to twenty days

#### ➔ Facilities intervention to reduce electrical load

- Use white colored interiors and exterior façade to reflect light and\_
- Avoid dark colored interior and exterior façade, especially exterior façade
- Cover the inverters/ solar meters on the rooftop areas
- Demarcate the areas as 'DANGER' and do not allow any other stakeholder except the skilled or expertise staff member
- Cover the rooftop of outdoor air conditioner units to avoid any direct sun exposure on the top area as this may lead to increased electrical consumption and reduce the duration of quick cooling

#### ➔ Display information about the technical facilities

- Any space that has any source of renewable energy in the block certain information as follows should be displayed on a board near the entrance or foyer area of the block for sensitization
  - i. 'DANGER ZONE' and 'NO SMOKING ZONE' boards
  - ii. Do and Don't for the specific type of plant
  - iii. Plant name
  - iv. Capacity
  - v. Location
  - vi. Type of renewable energy system
  - vii. Nos. of units
  - viii. Installation date, month and year
  - ix. Energy generated per day and annually
  - x. Energy consumption actual requirement per day and annually
  - xi. Energy saved per day and annually
  - xii. Last maintenance date and vendor
  - xiii. Revenue generation (if any) per day and annually
  - xiv. Institute name and logo



## Section 2 – Energy generation

No recommendations proposed for this section

## Section 3 – Life safety management

### ➤ Display boards for awareness

- All fire and life safety exit signages as per NBC norms should be displayed at every nook and corner including assembly point, exit points
- A RACE Board at the location of extreme populace/ footfalls.
- There should be a PASS Board alongside every fire extinguisher



Reference suggestions 1: PASS Board display

### ➤ Fire and life safety measures

- Every space that has a gas cylinder/ air conditioner/ combustible appliance/ more than ten electrical or electronic appliance and Server rooms there should be EITHER sand bucket/ fire ball/ fire extinguisher

### ➤ Laboratory safety measures

- There should be additional provisions in the LABORATORIES including:
  - i. Eye washers
  - ii. First aid box
  - iii. Concealing of exposed wiring
  - iv. Display chart about the 'dos and don'ts, a workshop for stakeholders about fire and life safety
  - v. Rubber flooring as an electrical safety measure





# LABORATORY SAFETY

### LABORATORY DRESS

**Splash Goggles**

**Gloves**

**Laboratory coat**  
Also wear shoes that are closed from all sides

**Face Shield**

### HOUSEKEEPING

Keep the laboratory clean and organized

A place for everything and everything in its place

### CHEMICAL SPILLS

- Wear gloves covering front & sides while cleaning chemical spills.
- Do not just sweep spilled chemicals with a broom.
- Use agents that neutralize chemical spills or neutralize them.
- Do not dump the cloth soaked in spilled chemical in a waste bin. That cloth then becomes hazardous.
- Ventilate the room.

### TRANSFERRING LIQUIDS

Pour the liquid down a stirring rod to avoid splashing

Never aspirate by mouth

Always add acid to water

Use fume hood wearing flared wide mouth container to a small mouth container

### LABELING CHEMICALS

**CAUTION** CHEMICAL STORAGE ONLY

Always store chemicals in a rack and place at caution sign.

Do not use unlabeled containers

### HEATING CHEMICALS

Wear safety glasses while heating in a laboratory.

Keep the direction of the mouth of the test tube away from yourself and others.

Do not gently heat, avoid splashing

Settle boiling, leave the stirring rod in the beaker

### EYE WASH

Let water go directly into the eyes. Keep your hands free to hold your eyes open. Rinse eyeballs and interior of the eye gently for about 15 minutes.

### WATER REACTIVE METALS

- Water reactive metals react violently with water.
- Handle them with extreme caution. Direct contact with them causes burns.
- Store Sodium, Lithium and Potassium under dry mineral oil or dry kerosene.
- Store metals in tight containers.
- Do not store Potassium for very long periods.

Potassium and dry mineral oil

Absorbent material

Metal cans provide durable storage, are fire resistant and break resistant for several hazardous chemicals

### FIRE EXTINGUISHERS

CAUSE OF FIRE	TYPE OF FIRE EXTINGUISHER				
	HALON	DRY CHEMICAL	CARBON DIOXIDE	POWDER CLASS	SAND BUCKET
A. Grease, cooking oil, wood and wax	YES	YES	NO	NO	NO
B. Automotive fluids like petrol	YES	YES	YES	NO	NO
C. Electrical equipment	YES	YES	YES	NO	NO
D. Water reactive chemicals	NO	NO	NO	YES	YES

### HARMFUL VAPOURS

Ventilate the room. Open all doors and windows.

Use respirator

Use fume hood

### WASTE CONTAINERS

- Sort your laboratory waste.
- Dispose hazardous and non-hazardous waste in separate bins and bags.
- Maintain separate bins for chemicals, broken glasses, and general waste.
- Identify all bins by marking them or by different colours.

### SAFETY RULES

- Do not perform unauthorized experiments.
- Never work alone in the laboratory.
- Report all accidents immediately to the teacher or the laboratory in-charge.
- If toxic vapours are generated, use fume hood.
- Wear a chemical splash goggles and resistant gloves.
- Wear a chemical resistant apron or coat.
- The back being hair.
- Do not wear loose sleeves.
- Do not wear shorts.
- Do not wear sandals.
- Do not wear contact lenses.
- No food or beverage inside the laboratory.
- Do not leave experiments unattended.
- Keep knowledge of the exits, safety showers, eye wash, fire blankets and extinguishers.
- Do not run around in the laboratory.
- Keep the working shelf and the laboratory clean.
- Extinguish burners when away from desk.

Plate 2: Lab safety manual in the premises





**➔ Earth pit zones**

- Add signboard about 'Outdoor Electrical area'
- Code the earthing pits in the courtyard.

**➔ DG and Transformer area**

- Add safety signages such as 'Danger-do not touch' etc.
- Add signboards about the usage such as 'Transformer areas' and 'Diesel Generator area' etc.
- Every user in this space should compulsorily jacket, helmet, gloves, boots while working and being a part of this space.
- Code the earthing pits in the courtyard.
- Add additional fire extinguishers



  
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## 5. 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.

### Specific references for study related to energy

- ➔ <https://www.energy.gov/eere/buildings/zero-energy-buildings>
- ➔ <https://www.dsaarch.com/zero-net-positive-energy>
- ➔ U.S. Energy Information Administration
- ➔ <https://www.happysprout.com/inspiration/what-is-smart-gardening/>
- ➔ <https://ieeexplore.ieee.org/document/6779316>
- ➔ <https://www.murata.com/en-global/apps/industry/security/entranceandexitsystem>
- ➔ <https://www.energuide.be/en/questions-answers/what-are-the-alternatives-to-air-conditioning/2121/>
- ➔ IGBC Green Campus rating system Abridged Reference Guide
- ➔ GEM Sustainability Certification Rating Program
- ➔ Inference study reference images
  - [https://seors.unfccc.int/applications/seors/attachments/get\\_attachment?code=NG125PFE4WHMWSYAK8TCAKIHMWX0F4QD](https://seors.unfccc.int/applications/seors/attachments/get_attachment?code=NG125PFE4WHMWSYAK8TCAKIHMWX0F4QD)
  - <https://housing.com/news/smart-gardening/>
  - <https://solarpowerproject.in/solar-panels-for-parking-lots.php>



  
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1	Beatification of the entrance pathways	14	5.1.1	Completed 
2	Garden Development	15	5.1.5	Completed 



3	Child Area	14	5.1.1	Completed
4	Resting places	14	5.1.3	
5	Mandate Fire extinguisher in spaces	14	5.1.4	<p>Completed</p> 
6	Promote the use of eco-friendly vehicles	15	5.1.5	<p>Completed</p> 



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7.	Plants more carbon dioxide absorbing plants	15	5.1.5	
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Table 1: Details of the compliance study

### 3.2 Compliance technical study

There are five e-vehicles and ten cycles used by students and staff.



Plate 1: E-vehicles used by the stakeholders



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## 4. Suggestion

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### ➤ Phase 1

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### Section 1 – Eco-restoration of outdoors (Landscape perspective)

➤ It should be noted that the landscape beautification and ecological restoration of backyard and front yard, courtyard should be undertaken.

#### ➤ 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



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*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. Organic farm
  - ii. 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. **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>)

- ii. **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.nekda.org.in/15-indian-trees-that-produce-the-most-oxygen>

- iii. **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/artideshow/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.

## 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



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## 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.

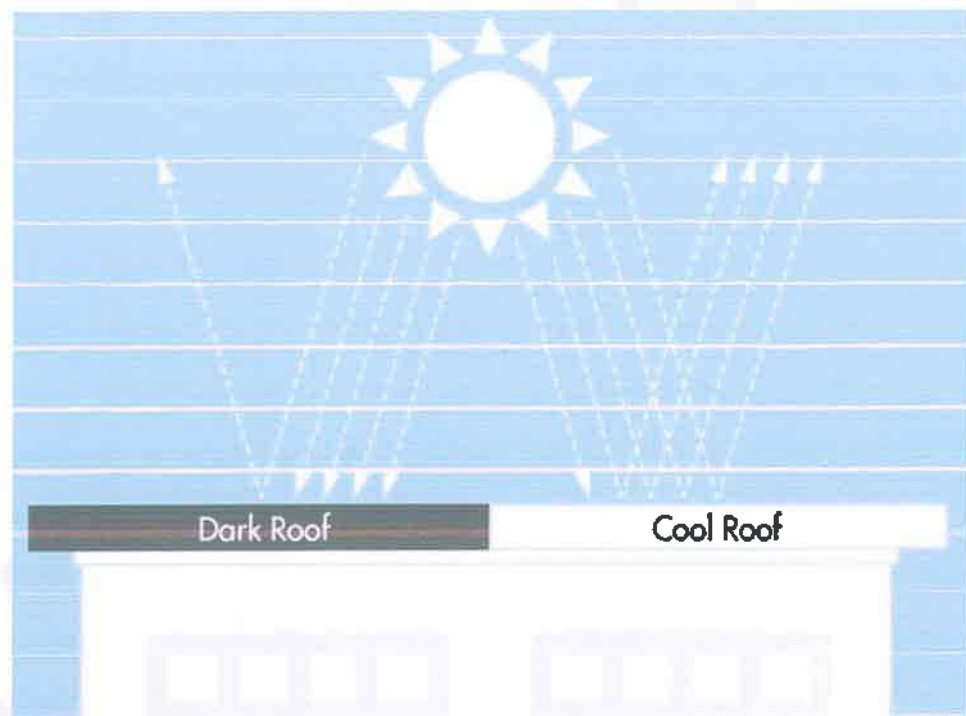


Plate 2: Cool roof comparative analysis (For reference purpose only)

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



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## 5. 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/heatislands/what-you-can-do-reduce-heat-islands>



  
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# GREEN AUDIT

STUDY PERIOD (ONE YEAR) 2023 - 2024

Sustainability study

## AUDIT REPORT

Studied for

Viswambhara Educational Society's

**Vaagdevi College of Pharmacy**

2-2-457/3, Ramnagar, Hanamkonda,  
506001, Telangana, India

Studied in the capacity of

Accredited and Certified GBP



Studied by

**Greenvio**  
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Background reference image: Sasin Tjochai on unsplash

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## Disclaimer

The Audit Team has prepared this report for the **Viswambhara Educational Society's Vaagdevi College of Pharmacy** located at 2-2-457/3, Ramnagar, Hanamkonda, 506001, Telangana, 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 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**

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## Acknowledgement

The Audit Assessment Team extends its appreciation to **Viswambhara Educational Society's Vaagdevi College of Pharmacy, Telangana** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our heartfelt thanks are extended to the Chairperson of the entire **Dr. Challa Srinivas Reddy, Principal** for the valuable inputs.

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

- ⇒ **Dr. B. S. Sharvana Bhava**, Head, Department of Clinical Pharmacy and Pharm.D,IQAC-Coordinator
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# 1. Introduction

## 1.1 Statements of the Institution

The Institute envisions

- Equipping students with the critical thinking skills, global perspective and respect for the core values of loyalty, honesty and compassion.
- Helping students acquire these abilities is the cornerstone of the education.
- Offering students will be successful now and will be prepared for the future.
- Generating young people who will lead the nation to a brighter future by becoming engaged, smart, appreciated citizens and professionals.

## 2. Overview

### 2.1 Summarised Populace analysis for 2023-2024

The data (shared by the Institute) shows there were **131 boys and 495 girls thus 626 students.**



  
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### 3. Compliance

The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.

- Original report study was for 2021-2022 and 2022-2023
- Renewal study two is for 2023-2024

#### 3.1 Compliance status

The details of compliance are analysed on previous year Report depicted below:

S. No.	Recommendation	Page nos. of Report	Section nos. as per Report	Evidence (Photo or other)
1	Increase the plantation in premises	11	4.3	Completed 
2	Plant as a gift	11	4.3	Completed





				 
3	Signages on the plants mentioning scientific names	12	4.4	Completed
				
4	Dustbins at every 100 meter	13	5.3	Completed



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				 <p>Hanamkonda, Telangana, India 2H64+J96, Ramnagar, Hanamkonda, Telangana 506001, India Lat 18.01154° Long 79.555921° 06/08/24 09:39 AM GMT +05:30</p>
5	Signage Boards	13	5.3	<p>Completed</p>  <p>Hanamkonda, Telangana, India 2H64+J96, Ramnagar, Hanamkonda, Telangana 506001, India Lat 18.01154° Long 79.555921° 06/08/24 02:25 PM GMT +05:30</p>
6	Signage Boards	15	6.3	 <p>Hanamkonda, Telangana, India 2H64+J96, Ramnagar, Hanamkonda, Telangana 506001, India Lat 18.011419° Long 79.555894° 06/08/24 02:06 PM GMT +05:30</p>



7.	Awareness messages	16	7.3	
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Table 1: Details of the compliance study

### 3.2 Compliance technical study

The initiatives undertaken by the Institute are documented below:



Plate 1: Social programs by the Institute stakeholders



  
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### 3.3 Water proportion study

This section studies the total consumption of water and its proportion with the water recharged and saved on the premises.

#### A) Water requirement/ consumption

- As per the Chapter 2 of the Report, the total footfalls in premises were 626 students.
- As per NBC norms for Educational buildings with boarding facilities the water requirement is 90 litres per head for drinking water and 45 litres per head for flushing (secondary) purposes thus making it 135 litres/ per day.
- Thus,  $626 \times 135 \times 265$  (Min. working nos. of days) = 2,23,95,150 litres is the total water requirement (Average assuming certain nos.)



  
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## 4. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner. The same has been identified in two phases for a total duration of three years.

### ➤ Phase 1

- Duration: One year from the date of Report submission – Shared currently
- These are first hand suggestions
- They are easy and quick to implement
- They involve close very less or almost no expenses
- They can serve as a foundation for the entire plan of action

### Section 1 – Green practices audit

#### ➤ 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.

#### ➤ Government initiatives

- Undertake initiatives such as Swachh Bharat Abhiyan, cleanliness drives in the Institute and surrounding villages also activities such as the capacity building of locals in surrounding villages by Institute students.

#### ➤ Increase the green awareness practice

- This should be in terms of the physical and virtual events, which will be beneficial for all stakeholders in the shared premises. (Basically the frequency of the lectures should be increased)

#### ➤ Mandatory programs should be conducted on following days

- January
  - i. Wd. Braille Day
- February



- i. Wd. Wetland day
  - ii. Wd. Pulses day
  - iii. Intd. Polar Bear Day
  - iv. NI. Science day
- March
  - i. Wd. Wildlife day
  - ii. Intd. Action for Rivers
  - iii. Global Recycling Day
  - iv. Wd. Sparrow day
  - v. World forest day/ Intl. day of happiness
  - vi. Wd. Water day
  - vii. Wd. Meteorological & resources day
- April
  - i. Intd. Mine awareness day
  - ii. World health day
  - iii. Wd Atmosphere Day
  - iv. Intd. Earth day
  - v. Intd girl in ict/ Wd. Safety, health
- May
  - i. Wd Migratory Bird Day
  - ii. Intd. Of plant health
  - iii. Wd. Bee day
  - iv. Intd. Biological diversity
  - v. Wd. No tobacco day
- June
  - i. Wd. Bicycle day
  - ii. Wd. Env't day
  - iii. World Oceans Day
  - iv. Global Wind Day
  - v. Wd. Combat drought
  - vi. Sustn. Gastronomy day
  - vii. Intd. Of the tropics
- July
  - i. Intd. Of cooperatives & World Day Free of Plastic Bags
  - ii. Soil conservation



- iii. Wd. Population day
  - iv. Mangrove Ecosystem
- August
  - i. Intd. Indigenous day
- September
  - i. Intd. Clean blue sky
  - ii. Intd. Literacy/ Clean-up Day
  - iii. World ozone day
  - iv. Intd. Of peace/ Zero Emission Day
  - v. Intd. Aware food loss
- October
  - i. Wd. Nature day
  - ii. Wd. Habitat day
  - iii. Wd. Wildlife day
  - iv. Wd. Cotton day
  - v. Wd. Migratory bird
  - vi. Intd. Rural women
  - vii. Wd. Food day
  - viii. Climate Action
  - ix. Wd. Cities day
- November
  - i. Wd. Tsunami awareness
  - ii. Int. Birds day
  - iii. Wd. Energy/ Diabetes
  - iv. Wd. Toilet day
- December
  - i. Intd. Person with disability day
  - ii. Wd. Soil day

**Note:**

- ➔ Wd. Stands for World
- ➔ Intd. Stands for International Day



  
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## Section 2 - Waste audit

### ➤ Awareness

- Educate the housekeeping staff through monthly or quarterly programs related to waste management
- Generate awareness among student and staff stakeholders about products that generate waste through display boards about 'Do not litter' with messages about waste management, its importance and process

### ➤ Measures towards waste management

- Check cutlery practice in canteen area to inculcate healthy habits
  - i. Steel/ paper/ *bagasses* (sugarcane waste) plates for food
  - ii. Paper cups/ *Kulhad* or mud containers for tea
  - iii. Food served on leaf and further used for composting
  - iv. Spoons or straws made of disposable or edible material
  - v. Stakeholders can be guided to bring their own tiffin's for material management
  - vi. Possibilities of waste paper reused including newspaper for cutlery replacement can be explored
- Waste management for every type of waste
  - i. Increase the manpower for campus management
  - ii. Avoid any kind of waste burning as it is hazardous
  - iii. Green organic waste – Dust, dry leaves, twigs, branches – Converted into organic compost/ bio fertilizer
  - iv. Brown organic waste – Non-vegetarian food waste along with green organic waste converted into vermin compost
  - v. Scrap materials – Generated through furniture or old products should be recycled 100% through workshops for stakeholders
  - vi. Go paperless – Use online medium to transfer notes and all information which save paper waste



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### ➤ Regular checks

- Food wastage - Check the quantity of food wastage in canteen/ hostel mess and device a plan of action with the staff accordingly
- Dustbins overflow – Location of the dustbins, whether they are over flowing, whether the waste is dumped anywhere within or in backyard of premises – Take a check and collect the waste appropriately

### ➤ Facilities

- Install twin litter dustbins on every floor, outdoors specifically canteen - Provision of coloured specific dustbins for different waste, instruction boards at multiple locations 'OR' Blue dustbin for degradable or red dustbin for household waste or green dustbin for recyclable
- Install Sani bins with display of 'Sanitary pads icon' in washrooms of every department and toilets



  
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## Section 3 - Water audit

### ➤ Awareness

- Remind every stakeholder about water conservation/ avoid water wastage by displaying board at every wash room, laboratories, outdoor ground and canteen areas
- Literate employees about water conservation and educate the staff members about the measures and action that can be taken

### ➤ Measures towards water conservation

- Put a container below the outdoor unit pipe of every air conditioner and reuse the same for secondary purposes such as washing cars, cleaning campus outdoor areas etc. avoid using the same for plantation.
  - i. Maintain a record of the nos. of containers and water recycled on a daily basis, further prepare a monthly or quarterly report about the same

### ➤ Regular checks

- Check taps/ faucets of toilets, wash basins, laboratories and outdoor areas for non-working conditions and leakages on a daily basis after 5 pm or once Institute's working hours are over
- If there is hostel facility there should be a regular check once students go to the Institute for any open taps or any type of water wastage; additionally replace all showers with bucket and tap system within hostel premises
- Lock the outdoor taps when they are not in use and check pipelines for damage to avoid any non-maintenance
- Use buckets for floor cleaning to save water and recycle the waste water
- Any kind of water wastage in any area indoor/ outdoor in every department of the Institute and report about the same to authorities
- Cover any open drain/ open water area (except farm/ water pond) that can be prone to become a mosquito breeding spot



  
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## Section 4 - Health and Hygiene Audit

### ➤ Awareness

- Prepare specific instructions for cleaning and sanitizing and display the instructions all over premises
- Display signages/ posters about 'Do not spit' and 'Keep surrounding clean' 'No smoking' and 'Healthy premises' for healthy habits
- Undertake every Saturday 'Campus Cleanliness program' once in a week by the students and staff members

### ➤ Neat and clean premises practices

- Daily one times cleaning of all floors passage areas through sweeping dusting in indoor areas collection of dry fallen leaves and access ways; watering of plants in outdoor areas
- Daily three times cleaning, disinfecting washroom areas and check to avoid any garbage burning all around campus
- Weekly deep cleaning of building spaces including individual areas, open grounds and grass cutting

### ➤ Stakeholder intervention

- Practice pest control programs with through external stakeholders such that 'Once in every 15 days for Library' whereas 'Once in a month for outdoor areas such as open drains, mosquito breeding spots etc.' and 'Once in every six months or annually for entire campus'

### ➤ Hygiene Facilities - Availability of Sanitizing Equipment

- Water dispenser (Non-mechanic/ electric), hand wash on every floor
- There should be facilities such as potpourri, camphor tablets in the toilet to avoid smell and health related issues in toilet areas
- Install sanitary vending machine or make the sanitary pads available through a female representative, the information about the same should be displayed in foyer areas
- Green carpets could be placed outside drinking water and toilet blocks. This will add to hygiene areas and keep the water spillage under control.



## 5. 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.

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- 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



  
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