

ENVIRONMENT AUDIT

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

Sustainability study RENEWAL AUDIT REPORT

**Studied for
Rama University**

Rama City, G.T. Road Mandhana,
Kanpur,
Uttar Pradesh, Pin- 209217

Studied in the capacity of

**Accredited and Certified
Green Building Professional**



Studied by

**Greenvio
Solutions**

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Valid till **31 December 2024**

Disclaimer

The Audit Team has prepared this report for **Rama University** located at Rama City, GT Road Mandhana, Kanpur, Uttar Pradesh, Pin- 209217 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 a 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 while 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 an Accredited and Certified Green Building Professional. 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 an Accredited & Certified Green Building Professional with extensive experience.

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Acknowledgment

The Audit Assessment Team thanks the **Rama University, Uttar Pradesh** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

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

We are also thankful for **Institute Taskforce** who have collected the data required.

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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RENEWAL REPORT

1. Introduction

1.1 Statements of the Institution

1.1.1 Vision

To emerge as a Global Premier University in imparting education of international standards, to build superior professionals with strong work ethics and to empower the world with futuristic minds, through excellence in research and innovation.

1.1.2 Mission

- To promote national and international collaboration for industry academia integration to achieve top most position in global hierarchy
- To create a scientific, challenging, transparent and sustainable environment/curriculum ideal for research, innovation, entrepreneurship and consultancy
- To nurture talent and creativity, committed to serve people, society and nation at large
- To inculcate strong morals, values & ethics to build socially committed and spiritually inspired personalities
- To empower and uplift each section of society through education and to contribute back to the environment by adapting and promoting eco-friendly practices

1.2 Timeline of activities for research

As the Institute had undergone a renewal for Academic year 2022-2023, process was:

- Allotment and Initiation by the Institute
- Process discussion with team
- Data submitted by Institute
- Submission of the files

2. Compliance

The compliance study was carried out through investigative ways. This was done to understand the **extent of suggestions and their implementations based on previous report of Academic years 2019-2020 and 2021-2022.**

2.1 Compliance study

The compliance study is focused on photographic documentation done during the site visit on 11 January 2024



Plate 1: On-site investigation of the premises

The spaces documented for the compliance study include the following:

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2.1.1 Organic farm (Green cover)



Plate 2: Organic farm as a green cover

Observation: Organic farm as a 'Green House' in the campus

Inference: *The study suggests that:*

- Each of this space could be named as a **specific type of green zone/ garden**
- **Scientific name plates and QR coding** of plantations could be undertaken, once done a display board as follows could be developed for stakeholder sensitization

1 अडुक्सा	2 नागकेशर	3 रामनांबूट	4 रुई	5 सदाफुली	6	7	8 रक्तचंदन	9	10	11 मिर्ची	12 कवट
Justicia adhatoda	Ceylon ironwood	Hildegardia	French Cotton	Periwinkle	vacant	vacant	Red Sandal Wood	vacant	vacant	Black Pepper	Limonia Acidissima
13 गवती चहा	14 बिलींबी	15 जायफळ	16 गेळ	17 एरंड	18 बिंबा	19 ककोळ	20 कांडवेल	21 करवंद	22 वाघाटी	23 गुळवेल	24 चापा
Lemon Grass	Carrabolla	Myristica	Catunaregam	Ricinus	Semecarpus	Pimenta	Cissus	Bengal	Capparis	Giloy	Plumeria Rubra
25 कोकम	26 धोत्रा	27 सागरगोटा	28 केखंड	29 पुन्नांग	30 गुंज	31 आरु	32 लसंग	33 कोकम	34 तमालपत्र	35	36 वेल्दोडे
GarciniaIndica	DaturaStramonium	Sagargota	Sweet Flag	Calophyllum	Abrusprecatorius	Ginger	Syzygium	Garcinia	Cinnamomum	vacant	Cardamom
37 कोरफड	38 अश्वगंधा	39	40 दालघिनी	41 तरार	42 चक्र फुल	43	44 शतावरी	45	46	47 नाशपती	48
Aloevera	Winter Cherry	vacant	Cinnamomum	Tabernaemontana	Star Anise	vacant	Asparagus	vacant	vacant	Persea Americana	vacant
49 आवळा	50 चित्रक	51 कडीपत्ता	52 हळद	53 सतराणी	54 तुळस	55 ओडोमास	56 अगस्ता	57 तमालपत्र	58 लाजातू	59 आवळा	60 नागालिंगम
Phyllanthus Emblica	Plumbago	Curry Leaves	Turmeric	Cestrum Nocturnum	OcimumTenuiflorum	Citronella Plant	SesbaniaGrandiflora	Cinnamomum	Mimosa Pudica	Phyllanthus Emblica	NoranteaGuianensis

Reference suggestions 1: Display board

2.1.2 Natural green cover



Plate 3: Natural green cover in the premises

Observation: The plantations are maintained well, some are painted as a specification

Inference: *The study suggests that:*

- *A display board specifying this area as '**Green zone**' or '**Oxygen zone**' (Since there are more oxygen emitting plantations) could be displayed at ground floor for sensitization and terrace where the plants are located*
- *This is a unique feature and has possibility to become a Best practice, thus these plantations could be documented to undertake the **carbon sequestrations study***
- *Furthermore, the details about these should be **displayed on the digital portfolio** that is the website of campus*

2.1.3 Fire and life safety measures



Plate 4: Fire and life safety measures

Observation: The measures include Warning signages, display boards, hose reel, fire station, fire pump

Inference: *The study suggests that:*

- *Since this is a good practice, there are no suggestions, however first image in second row (Let hand side) could be demarcated as a 'Fire Zone'*
- *The **Fire Hose Reel Cabinets can be numbered and records** about the same can be documented in the record rooms*
- *The general public can be made aware about **Fire Station through signages***
- *On every floor there should be a '**Fire Escape route plan**' highlighting the passageways for an emergency exit*
- *Outside the lift should be 'Fire balls/ sand buckets' and a warning board that '**In case of fire do not use lift**'*

2.1.4 Fire extinguishers



Plate 5: Fire extinguishers

Observation: The fire extinguishers are available in sufficient numbers all over premises

Inference: *The study suggests that:*

- The **fire and life safety signages (Including exit signages)** should be increased and displayed.
- There should be a **PASS Board** alongside every fire extinguisher and a **RACE Board** at the location of extreme populace/ footfalls.



Reference suggestions 2: PASS Board display

2.1.5 Commuting practice



Plate 6: Commuting practice

Observation: The stakeholders (students and staff) use buses majorly for commuting back and forth to the premises, this highlights eco-friendly practice

Inference: *The study suggests that:*

- *There should **be awareness sessions to switch to battery operated vehicles/ bicycles** for commuting*
- *An **'Eco-vehicle zone'** should be demarcated in the premises with a battery charging point for sensitization purposes*
- *A **'No vehicle zone'** should be developed and displayed as follows*



Reference suggestions 3: Sample about display board

3. Observations

3.1 Investigative suggestions

The following suggestions can be implemented **in next 1.5 years** from the date of the Report submission.

➤ Extra care for the rooftop areas

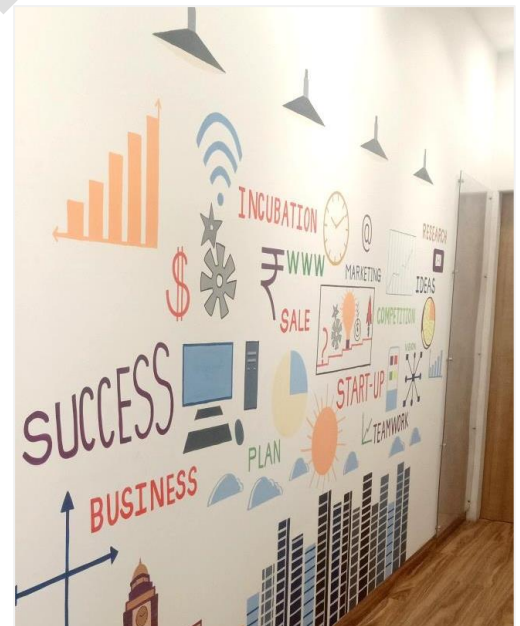
- Introduce the signboards about 'No students are allowed to enter this area'
- Increase the height of parapet walls
- Upgrade the space as cool roof by painting it with cooltop material.
- Undertake feasibility study of before and after temperature reading.
- Take precautions to keep terrace areas free of any kind of storage materials

➤ Messages on the beam area

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

➤ Inspirational timelines on the blank interior facades

Include quotes, messages, timelines, details about specific subject or career prospects in the interior areas for inspiration and beautification.



Reference suggestions 4: Sample about display board

➤ General aspects

- Introduce zone wise details at relevant locations
- Introduce information boards everywhere
- Placards and manuals for awareness
- Upgrade the website w.r.t. green initiatives

4. Inferences

4.1 Section-wise suggestions

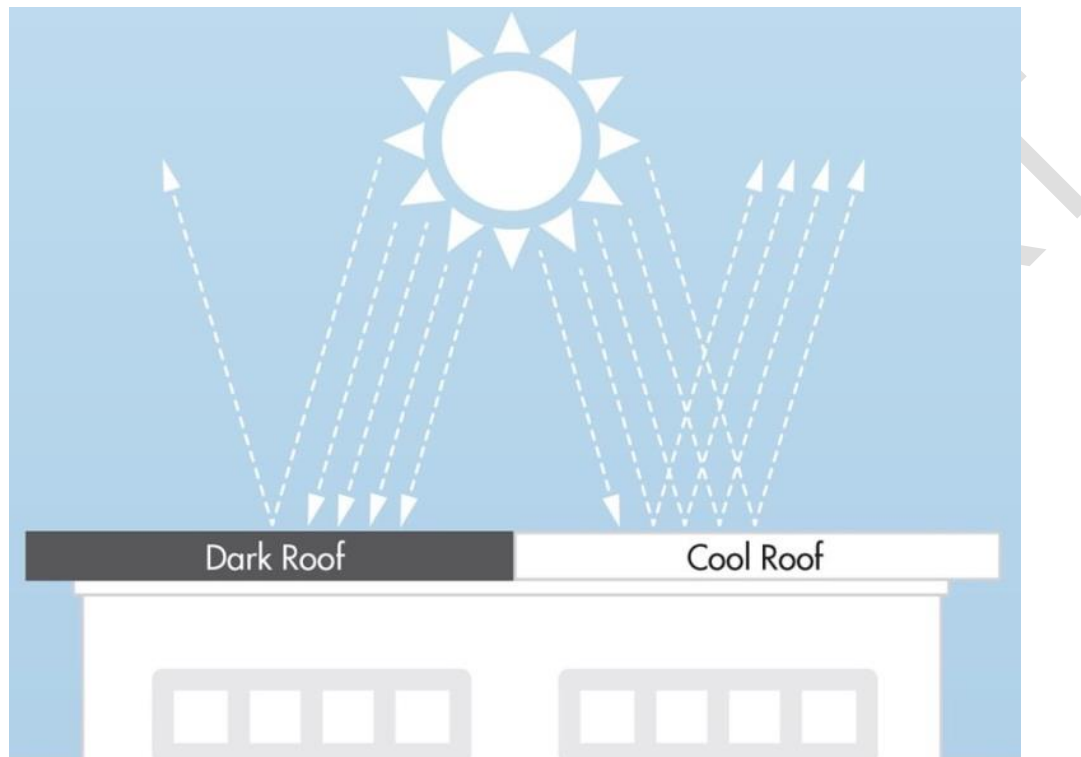
The following suggestions can be implemented **in next 2.5 years** from the date of the Report submission.

4.1.1 Site beautification

- ➔ **Beautification of the entrance pathway** - The existing bricks (waste from the existing new construction going on) can be used or upgraded the pathway through an appropriate Landscape Architecture design.
- ➔ **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.
 - Nursery documentation, expansion and beautification – The premises should have a nursery, details can be decided as per the landscape beautification.
 - 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.
- ➔ **Architectural landscape and streetscape features such as:**
 - Speed breakers
 - Parking mirror
 - Bollards with lighting for safety and landscape
 - Speed breakers and zebra crossing
 - No parking signboards at dedicated locations
 - Direction sign board
 - Post box

4.1.2 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.



Reference suggestions 5: Cool roof comparative analysis (For reference purpose only)

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

4.1.3 Life safety

- ➔ **Mandate fire extinguisher in spaces** - One fire extinguisher should mandatorily be there in every space which has an air conditioner/ gas cylinder.
- ➔ **Safety for scientific laboratory** – These areas should have sand buckets, ventilators, fire extinguisher as per required grade, fire and life safety notice board.
- ➔ **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.

4.1.4 Pollution Control

- ➔ **Specific area designated for E-vehicles** – There should be designated area dedicated to E-vehicles parking and charging and this zone should be demarcated as 'Eco-Zone'
- ➔ **Internal circulation** – (applicable only to large campuses) – There could be an e-vehicle for public transportation that can be used by the stakeholders for internal circulation.
- ➔ **Battery charging points for Eco-friendly vehicles** - There can be provision for battery charge points, this would inspire students to change their mode of transportation and adopt sustainable practices.
- ➔ **Avoid burning waste** - The waste produced on the premises should not be burned as it is dangerous to the health of students and staff
- ➔ **Bicycles as a gift** - As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.
- ➔ **Avoid using plastic in premise** - There should be a provision for a ban on the use of plastic bags or products on the Premise.

4.1.5 Responsible environment systems

Community gardening - There can be provisions for community gardening in addition to allowing the general public to use the parks on the premises for walks and jogging.

4.1.6 Additional Facilities

- ➔ Strong chemicals and cleaners for washing toilets
- ➔ Avoid heavy traffic, two main gates should be open with sufficient security personnel
- ➔ Route maps for all places on the premises.
- ➔ Post office

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.

- ➔ 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 centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

