

# **Report**

**On**

## **GREEN, ENERGY & ENVIRONMENT AUDIT**

**For**

**Ramanand Arya D A V College**  
**Bhandup**

**Prepared**

**By**

**Senergy Consultants Pvt Ltd**  
**Mumbai**

**April - 2025**

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# I Introduction

Green & Energy Audit was undertaken at Ramanand Arya D A V College, Bhandup Station Road, Bhandup C G S Colony, Bhandup East, Mumbai 400042, during the month of April 2025.

The organization is very keen to promote green culture wherever possible, as a commitment towards a better environment and conservation of energy. A lot of effort has already been put up to bring down the carbon footprint. To further optimize consumption and identify saving opportunities, M/s Senergy Consultants was assigned to carry out Green & Energy Audit of the premises.

This Audit Report presents the analysis of the data collected, observations made at the facility and is governed by the objectives, scope of work, methodology etc. discussed in the ensuing paragraphs.

## **Team:**

The team members of the audit study.

- Mr. Ravindra Datar
- Mr. Nitesh Kharche
- Mr. Chaitanya Rakh
- Mr. Vivek Pawar

## **Acknowledgment:**

We wish to express our gratitude towards CA. Dr. Ravindra Naik (Principal) and Mr. Padmakar Mane (Administrator) for having given us the opportunity for conducting the study and the support provided during the study.

We are also thankful to Mr. R Kathiresan (Assistant Professor) and Ms. Shraddha Ghorpade (Assistant Professor) for extending necessary help and co-operation from their side.

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## II

# Executive Summary

The premises were evaluated against the various criterions laid down by the National Assessment and Accreditation Council (NAAC). The major observations are.

### Air Quality & Ventilation

- The classrooms and other areas are well ventilated to ensure proper air quality.
- The fans are appropriately installed to ensure proper air circulation.
- Indoor as well as outdoor plants have also been provided to improve the environment.
- The air-conditioned rooms are provided with proper ventilation and fresh air.

### Lighting System

- The usage of natural light is optimized through well designed structure and windows.
- The sensor-based automation may be provided for the lamps in the washroom and common areas.
- Most of the light fittings are provided with high efficiency LED lamps.
- The conventional tube lights operating for longer periods should be replaced with energy-efficient LED lamps.

### Green Campus Initiative

- There are restrictions on vehicle movement on campus.
- The usage of plastic is completely banned inside the campus.
- The campus is surrounded by a lot of greenery, trees, and proper landscaping.
- Bicycles are allowed in campus movement as required.

### Environment & Energy Initiative

- The college has formed internal committees and the Green Club for promoting environmental and conservation activities.
- On June 23, 2024, in Bhandup, and July 17, 2024, at Jite, the Green Club organized a tree planting drive to promote environmental sustainability
- The Green Club also organized a beach clean-up activity at Mahim and Dadar Beach on October 2, 2024, and September 21, 2024.
- The Green Club regularly organizes clean-up drives outside the campus such as a beach clean-up activity at Mahim and Dadar Beach in 2024.
- To improve soil health, the college students create seed balls from compost and organize seed ball bombing events off-campus.
- Green Consumerism, Pollution control & Green Entrepreneurship workshops are conducted to create awareness related to the environment.

### Water Quality & Conservation

- The water is supplied by the Municipal Corporation, which is a common practice in Mumbai, Thane & Navi Mumbai.
- Water purifiers & coolers are provided at convenient locations and on each floor.
- The distribution network and piping are satisfactory and adequate.
- The rainwater harvesting pit is provided for ground water recharge.

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**Waste Management**

- The sewage / effluent water is discharged in the common municipal drain, which is a common practice in and around Mumbai & Navi Mumbai.
- The organic waste is segregated and converted into manure in the composting pits.
- General solid waste is disposed of through municipal corporation system.
- The electronic gadgets / waste may be donated if useful or handed over to BMC authorized E-Waste Collection Vendor.

**Air Conditioning System**

- The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
- The room temperature is maintained at 24 to 25 °C, which is well within the recommended values.
- The Air Conditioners are serviced regularly and properly maintained.
- Most of the Air Conditioners units are energy efficient with star rating of 3 and above.

**Infrastructure usage**

- The special toilet is available to address the needs of specially abled people.
- Ramps are provided on the ground floor to address the needs of specially abled people.
- There were no seepages observed in the building premises.
- The on-campus movement is distributed with multiple entrances as well as staircases.
- There is adequate fire extinguishers located at key areas.
- The draining system for washrooms is efficient and effective.

**Green IT culture**

- Energy efficient computers and laptops have been procured.
- Electronic communication is encouraged to minimize usage of papers.
- Most of the papers are reused for doubled sided printing to further minimize usage of paper.

**Renewable Energy**

- A 20 KWp Solar Photovoltaic System with net metering facility has been installed to generate clean and renewable power.
- There is no application of solar thermal and it is not found attractive in this case.
- The quantity of plate waste (organic waste with higher starch contents) is negligible, consequently, there is no potential for biogas generation.

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## III Electrical Gadget

### Gadget List

#### Lamps:

Location	LED			TL
	15 W	22 W	27 W	36 W
Ground Floor	35	109	55	100
First Floor	13	0	0	78
Second Floor	0	0	0	88
Third Floor	0	0	0	69
Fourth Floor	0	0	0	57
<b>Total</b>	<b>48</b>	<b>109</b>	<b>55</b>	<b>425</b>

Abbreviations:

LED: Light Emitting Diode Lamp CFL: Compact Florescent Lamps TFL: Tubular Fluorescent Lamp

#### Observations and Recommendations:

- The illumination level is generally as per the norms; the illumination level is higher mainly due to usage of daylight.
- Most of lamps are replaced with LED, the remaining are being replaced expediently.
- The lamps are strategically located to optimize usage of daylight.
- The practice of switching off the lamps in the unoccupied areas has been followed.

#### Ceiling Fans:

Location	Rating (W)	Quantity
<b>Ground Floor</b>		
Hall	50	12
MSEB Meter Room	50	1
Corridor 1	50	1
Conference Room	50	1
V.P Room	50	2
Office	50	14
Server Room	50	1
Staff Room	50	11
NSS Room	50	1
MSEB Cabon	50	2
Conference Room	50	4

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Location	Rating (W)	Quantity
Principal Cabin	50	1
Corridor 2	50	1
ICT Room No. 7	50	6
ICT Room No. 8	50	10
ICT Room No. 9	50	7
ICT Room No. 10	50	9
<b>First Floor</b>		
Room No. 101	50	9
Room No. 102	50	9
Room No. 103	50	9
Room No. 104	50	2
Room No. 105	50	8
Room No. 106	50	9
Room No. 107	50	6
Room No. 108	50	2
Room No. 110	50	26
Corridor	50	2
<b>Second Floor</b>		
Room No. 202	50	9
Room No. 204	50	6
Room No. 205	50	6
Room No. 206	50	6
Room No. 207	50	3
Room No. 211	50	2
Room No. 212	50	28
Washroom	50	2
<b>Third Floor</b>		
Room No. 301	50	2
Room No. 302	50	9
Room No. 303	50	9
Room No. 304	50	9
Room No. 305	50	5
Room No. 306	50	5
Room No. 307	50	5
Room No. 308	50	5
Room No. 309	50	5
Room No. 310	50	1
Room No. 311	50	1
Room No. 312	50	3
Room No. 313	50	9
<b>Fourth Floor</b>		
Room No. 401	50	9
Room No. 402	50	9
Room No. 403	50	9

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Location	Rating (W)	Quantity
Room No. 404	50	9
Room No. 405	50	6
Room No. 406	50	6
Room No. 407	50	6
Room No. 408	50	6
Room No. 409	50	6
Room No. 410	50	2
Room No. 411	50	1
Room No. 412	50	2
Room No. 413	50	2
<b>Total</b>		<b>369</b>

**Observations:**

- The fans are switched off, when not in use.
- It is suggested to procure energy efficient fans with High Efficiency Fans with BLDS Motors / or fans with 5-star rating while making new purchases.

**Air Conditioners:**

Location	Type	Quantity
Ground Floor	Split	16
	Window	6
First Floor	Split	1
Second Floor	Split	4
Third Floor	Split	1
Fourth Floor	Split	4
<b>Total</b>		<b>32</b>

**Observations:**

- The air conditioners are switched off, when not in use.
- The temperature is maintained at 24 to 25 °C for air conditioning spaces, which is within the recommended values.
- The Air Conditioners are operated as required with manual control.
- The overall condition of indoor as well as outdoor units is satisfactory.
- The Air Conditioning Units have a star rating of 3 & above, which intrinsically operate at high energy efficiency.
- It is suggested to procure energy efficient machines of 5-star rating while making new purchases.

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**Electricity Bill:**

<b>Consumer Name:</b> Ramanand Arya DAV College					<b>Consumer No.-</b> 000055045445			
<b>Tariff Category:</b> 89LT VII B I		<b>Maharashtra State Electricity Distribution Board</b>						
<b>Meter No.:</b> 055-X2152024		<b>Contract Demand:</b> 51 KW						
Description	Unit	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Average
Energy Consumption	KWH	2852	1767	1826	3098	2221	3141	2484.1
Bill	Rs	52140.7	36760.0	37884.1	54994.2	42055.7	54674.1	46418.1
Cost	Rs/KWH	18.28	20.80	20.75	17.75	18.94	17.41	18.69

<b>Consumer Name:</b> Ramanand Arya Junior College					<b>Consumer No.-</b> 10000002024			
<b>Tariff Category:</b> 88LT VII B I		<b>Maharashtra State Electricity Distribution Board</b>						
<b>Meter No.:</b> 055-X2118649		<b>Contract Demand:</b> 15 KW						
Description	Unit	Sep-24	Oct-24	Nov-24	Dec-24	Feb-25	Mar-25	Average
Energy Consumption	KWH	9360	8081	6875	8678	6943	7754	7948.5
Bill	Rs	197106.8	160339.9	146152.7	158981.7	140210.0	132622.5	155902.2
Cost	Rs/KWH	21.06	19.84	21.26	18.32	20.19	17.10	19.61

**Observations:**

- The average cost of power and power consumption is generally within the normal range.

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## IV Environmental System

### Ventilation & Air Quality:

- The air ventilation is adequate.
- Several indoor & outdoor plants have been planted to improve air quality.



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- Almost all the lamps are replaced with LED, especially those working for longer periods.

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- Natural light has been used for maximum illumination during daytime.
- It is general practice to switch off the fans & lights in an occupied area.

**Indoor & Outdoor Plants:**

Sr No	Description	Type	Height	Quantity
			M	Nos
<b>Indoor Plants</b>				
1	Christmas Tree	Exotic	1.5	2
2	Dracaena	Exotic	2	2
<b>Outdoor Plants</b>				
3	False Ashoka	Local	20	10
4	Neem	Local	15	1
5	Mango	Local	15	1
6	Banyan	Local	30	1
7	Tamarind	Local	24	2
8	Eucalyptus	Exotic	45	2
9	Fig	Exotic	3	10
10	Coconut	Local	25	4
11	Drumstick	Local	12	1
12	Indian Almond	Local	35	2
13	Papaya	Local	8	4
14	Kanchan	Local	10	2
15	Trema Orientals	Exotic	15	1
16	Guava	Local	3	15
17	Palm	Local	10	2
18	Peepal	Local	30	1

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## V Water Management

### Water Source:

The water supplied by the municipal corporation is used for drinking and other applications like toilets, washing of utensils and other requirements.

The incoming water from the municipal corporation is metered.



The consumption pattern was analyzed by the water bills. The details are as under.

Period	Days	Consumption	Bill Amount	Cost	Total No. of Person	Water Consumption
		KL	Rs	Rs/KL		L/Person/Day
<b>Connection No: SX@0382574</b>						
08-05-2024 To 07-06-2024	30	533	11543	21.66	5832	3.05
07-06-2024 To 08-07-2024	31	551	11934	21.66	5832	3.05
08-07-2024 To 09-08-2024	32	569	12323	21.66	5832	3.05
09-08-2024 To 09-09-2024	31	551	11934	21.66	5832	3.05
09-09-2024 To 09-10-2024	30	533	11543	21.66	5832	3.05
09-10-2024 To 08-11-2024	30	533	11543	21.66	5832	3.05
08-11-2024 To 09-12-2024	31	551	11934	21.66	5832	3.05
09-12-2024 To 09-01-2025	31	551	11934	21.66	5832	3.05
09-01-2025 To 07-02-2025	29	516	11176	21.66	5832	3.05

### Observations:

- The average water consumption is generally within the norms.

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**Water Coolers & Purifiers:**

Water purifiers & coolers are provided on individual floors and in convenient locations.



The details are as under,

<b>Sr No</b>	<b>Location</b>	<b>Purifier</b>	<b>Coolers</b>
1	Ground Floor	2	2
2	First Floor	1	1
3	Second Floor	1	1
4	Third Floor	1	1
5	Fourth Floor	1	1
<b>Total</b>		<b>6</b>	<b>6</b>

**Water Distribution System:**

The distribution network and piping are more or less satisfactory and adequate.

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**Rainwater Harvesting:**

The rainwater is harvested in a pit & harvested rainwater is used for gardening, flushing & cleaning purposes.



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## VI Waste Generation & Management

### Sewage & Wastewater:

The sewage is fed into the municipal drainage. This is a common practice and the municipal corporation which charges towards the sewage charges.

### Solid Waste:

- The waste is segregated and disposed of through the municipal disposal system.
- Organic as well as inorganic waste is segregated in the college premises.
- The dustbins for Recyclable waste and Non-Recyclable Waste have been provided at appropriate locations.



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- Organic as well as inorganic waste is segregated in the college premises.
- Organic waste is used to generate manure by composting in a compost pit.



**Electronic Waste:**

- The College has taken steps for proper disposal of all kinds of electronic waste, such as batteries, cells, obsolete electronic devices, computers, monitors and printers, UPS etc.
- The electronic gadgets / waste may be donated if useful or handed over to BMC authorized E-Waste Collection Vendor.

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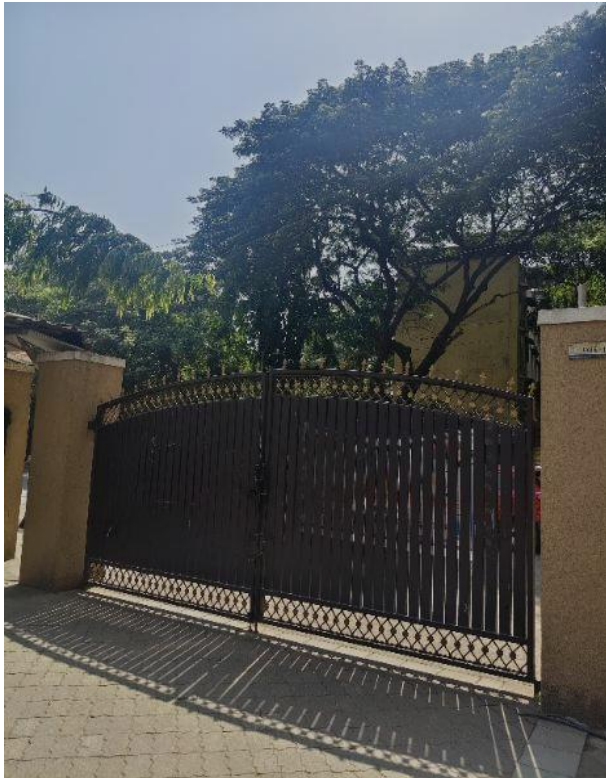
## VII Infrastructure & Safety



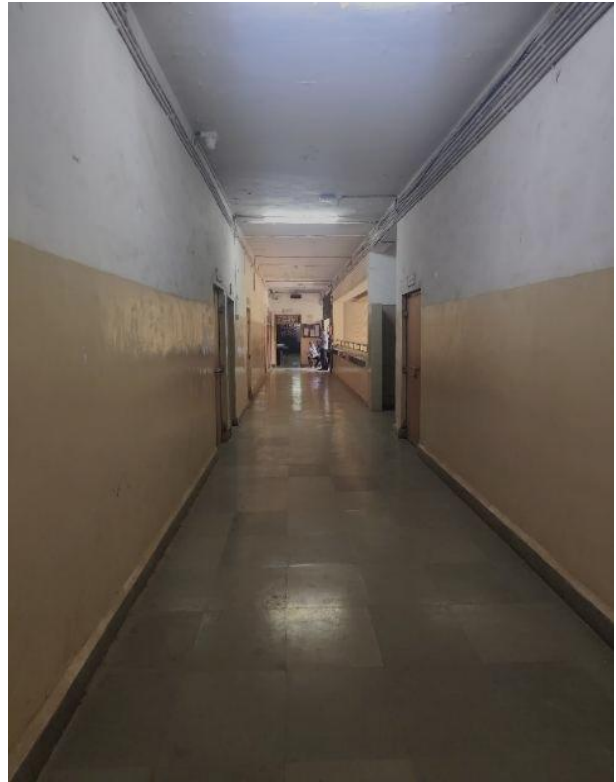
### Movement on-campus (Distributed / non-distributed leading to crowds)

- The premises are provided with multiple staircases with necessary entrances to ensure quick and effective movement in normal as well as emergency conditions.
- Bicycles are allowed for students inside the campus movement as per the requirement.
- The usage of plastic is almost (90%) banned inside the campus.
- There are pedestrian friendly pathways for in-campus movement.
- Ramps are provided on the ground floor to address the needs of specially abled people.

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**Firefighting & fire escape system:**



There are efficient fire extinguishers in the premises, which are checked / refilled as per the stipulated frequency.

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The fire extinguishers are provided at individual locations / floor, the details are under,

<b>Sr No</b>	<b>Location</b>	<b>Type</b>	<b>Quantity</b>
1	Ground Floor	Powder	4
2	First Floor	Powder	4
3	Second Floor	Powder	4
4	Third Floor	Powder	4
5	Fourth Floor	Powder	4
6	Terrace	Powder	2
<b>Total</b>			<b>22</b>

**Parking Area:**

There is no parking space for vehicles/four wheelers. However, almost all the students and many of the faculty members avail public transport system which is very convenient due to proximity to railway station and bus services.

**Draining system:**

The drains from the washrooms are connected to the municipal drainage, which is a common practice in the colleges in and around Mumbai.

The municipal corporation charges for water disposal.

**Seepage in the building:**

The premise was visually inspected for seepages.

No seepage was observed in any of the places.

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## **VIII**

# **Green Culture**

### **Computers/Laptops:**

1. The LED / LCD monitors & Laptops have been procured, which are energy efficient.
2. These monitors are not only energy efficient but also generate minimal heat and cut down on air conditioning load.



The following steps may be initiated to further enhance the efficiency of the systems.

1. An efficient power management system may be incorporated to
  - a. Switch off the display if not in use.
  - b. Put the computer in Sleep mode / switching off the machines, if not used for prolonged period.
2. Optimize brightness of the screen.
3. Discourage use of screen savers, which has similar power consumption.

### **Paper-less communication:**

The major internal as well as external communication is through electronic medium.

### **Re-using one sided paper for printing:**

It was observed that two side printing / printing on the back side of used paper in more than 80% of the cases.

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**Green Initiative:**

1. On June 23, 2024, in Bhandup, and July 17, 2024, at Jite, the campus Green Club organized a tree planting drive to promote environmental sustainability.



2. The Green Club organized a beach clean-up activity at Mahim and Dadar Beach on October 2, 2024, and September 21, 2024.



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- 3. In order to preserve ecosystems and increase public awareness of environmental issues, the Green Club regularly organizes clean-up drives outside of campus.



- 4. To improve soil health, the college students create seed balls from compost and organize seed ball bombing events off-campus.



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- 5. Plastic Waste Collection:
  - a. The Green Club collected and handed over 24000 used milk bags to an NGO for recycling.



- b. The NSS Unit collected and sent 21000 multilayered plastic (MLP) wrappers for recycling.



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## **IX**

# **Renewable Energy**

### **Solar Photovoltaic:**

A 20 KWp roof top Solar Photovoltaic System with a net metering facility has been installed to generate clean and renewable power.



### **Solar Thermal:**

There is no application for a solar thermal system, and it is not found attractive in this case.

### **Biogas Plant:**

There is no possibility of installing a biogas plant for cooking as the quantity of plate waste is negligible.

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## Certificate

This is to certify that Green Audit was carried out at Ramanand Arya D A V College, Bhandup Station Road, Bhandup C G S Colony, Bhandup East, Mumbai 400042, during the month of April 2025

The scope, coverage, findings and recommendations are submitted vide our report SCPL-PR-2504-210425 dated April 21, 2025.

For **SENERGY CONSULTANTS PVT LTD**



**Tushar Kamble**  
(Project coordinator)

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