

Certificate

This is to certify that Green Audit was carried out by us at Nagindas Khandwala College of Commerce, Arts & Mgmt. Studies and Sshantaben Nagindas Khandwala College of Science, Bhavishya Bharat Campus, S.V. Road, Malad (West), Mumbai -400 064 during the month of December 2019.

The scope, coverage, findings, and recommendations are submitted vide our report NKC – GA – 2019 dated December 4, 2019.

For **SENERGY CONSULTANTS PVT LTD**



Tushar Kamble
(Project coordinator)

Certificate

This is to certify that Energy Audit was carried out by us at Nagindas Khandwala College of Commerce, Arts & Mgmt. Studies and Shantaben Nagindas Khandwala College of Science, Bhavishya Bharat Campus, S.V. Road, Malad (West), Mumbai -400 064 during the month of December 2019.

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For **SENERGY CONSULTANTS PVT LTD**



Tushar Kamble
(Project coordinator)

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For **SENERGY CONSULTANTS PVT LTD**



Tushar Kamble
(Project coordinator)

Green Audit Report
NK College of Commerce, Arts & Mgmt. Studies and SNK College of Science

Report

On

GREEN AUDIT

For

**Nagindas Khandwala College of Commerce, Arts & Mgmt.
Studies and Shantaben Nagindas Khandwala College of
Science
Malad**

Prepared

By

Senergy Consultants Pvt Ltd
Mumbai

December – 2019

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Green Audit Report
NK College of Commerce, Arts & Mgmt. Studies and SNK College of Science

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I Introduction

Green & Environment Audit was undertaken at Nagindas Khandwala College of Commerce, Arts & Mgmt. Studies and Shantaben Nagindas Khandwala College of Science, Bhavishya Bharat Campus , S.V. Road, Malad (West), Mumbai -400 064 during the month of December 2019.

The organization is very keen to promote green culture wherever possible, as a commitment towards better environment and conservation of energy. A lot of efforts have 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 & Environment 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. Umesh Phatakare

Acknowledgment:

We wish to express our gratitude towards Principal, Dr. Ancy Jose and Vice Principal, Dr. Moushumi Datta for having given us the opportunity for conducting the study and the support provided during the study.

We are also thankful to Mr. Ashish Jain for extending the necessary help and co-operation from their side.

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II

Executive Summary

The premises were evaluated against the various criteria laid down by the National Assessment and Accreditation Council (NAAC).

The major observations are

1. Air Quality & Ventilation
 - a. The air ventilation is adequate.
 - b. The campus is well covered with green plants to improve air quality.

2. Water Quality & Conservation
 - a. The water supplied by the Municipal Corporation is used for drinking after purification; which is a common practice in and around Mumbai.
 - b. A borewell water is used for other applications like toilets flushing, washing of utensils, etc.
 - c. Water fountains / coolers are provided at convenient locations.
 - d. The various water conservation measures are initiated; The water consumption is generally within the norms.

3. Waste Management
 - a. The generation of waste is minimized through use of electronic communication and effective water management system.
 - b. The waste water is disposed of through common drainage system, which is usual practice in Mumbai.
 - c. The solid waste is segregated; while organic waste is converted in to manure in a composting pit, the non-organic waste is disposed through common system.

4. Infrastructure usage
 - a. Movement on-campus is distributed with multiple entrances as well as staircases.
 - b. There is limited parking space for vehicles/four wheelers due to space constraints. Nonetheless, parking space has been provided for faculty. 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.
 - c. There are adequate fire extinguishers located at key areas. The college has initiated appropriate measures to meet the safety requirement.
 - d. The draining system for washrooms is efficient and effective.
 - e. No seepages were observed in the building premises.

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5. Green IT culture
 - a. Energy efficient computers and laptops have been procured.
 - b. In most of the cases, the computers are switched off, when not in use.
 - c. Electronic communication is encouraged to minimize usage of papers.
 - d. Most of the papers are reused for doubled sided printing.

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III

Electrical System

Gadget List:**Lamps**

| Location | Type of Light | No. of Lights |
|-----------------------|---------------|---------------|
| Aided Building | | |
| Ground Floor | TFL | 22 |
| | LED | 89 |
| First Floor | TFL | 43 |
| | LED | 46 |
| Second Floor | TFL | 41 |
| | LED | 31 |
| Third Floor | TFL | 37 |
| | LED | 46 |
| Fourth Floor | TFL | 77 |
| | LED | 9 |
| Fifth Floor | TFL | 18 |
| | LED | 2 |
| Sixth Floor | TFL | 18 |
| | LED | 1 |
| Seventh Floor | LED | 18 |
| Self Finance | | |
| Fourth Floor | TFL | 33 |
| Fifth Floor | TFL | 36 |

Abbreviations:

LED: Light Emitting Diode Lamp

TFL: Tubular Fluorescent Lamp

Fans

| Location | Number of Ceiling Fans |
|-----------------------|------------------------|
| Aided Building | |
| Ground Floor | 23 |
| First Floor | 39 |
| Second Floor | 33 |
| Third Floor | 28 |
| Fourth Floor | 28 |
| Fifth Floor | 12 |
| Sixth Floor | 12 |
| Seventh Floor | 12 |

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| Location | Number of Ceiling Fans |
|---------------------|------------------------|
| Self Finance | |
| Fourth Floor | 21 |
| Fifth Floor | 22 |
| Total | 230 |

Air Conditioners:

| Location | Quantity |
|-----------------------|----------|
| Aided Building | |
| Ground Floor | 16 |
| First Floor | 21 |
| Second Floor | 20 |
| Third Floor | 20 |
| Fourth Floor | 10 |
| Fifth Floor | 6 |
| Sixth Floor | 6 |
| Seventh Floor | 4 |
| Self Finance | |
| Fourth Floor | 13 |
| Fifth Floor | 14 |

Other Gadgets:

| Description | Quantity |
|----------------|----------|
| CCTV Cameras | 189 |
| LCD Projectors | 57 |
| LCD Computers | 350 |
| Laptops | 59 |
| Printer | 39 |
| Scanners | 4 |
| UPS | 40 |

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IV Environmental System

Ventilation & Air Quality:

- The air ventilation is adequate. It is suggested to provide additional fresh air through windows, fresh air / exhaust fans, whatever is feasible.
- It has been a general practice to switch off the fans & lights in an occupied area.
- The campus is well covered with green plants to improve air quality. There are total 68 plants of different categories within the campus.



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V

Water Management

Consumption Pattern:

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

The incoming water from the municipal corporation is metered.



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Water Purifiers:

The water purifiers & coolers are installed on each floor and bottled water is not used in the campus.



Rain Water Harvesting:

The rain water from the terrace area is being rained through the pipes. There is a provision to store the water in well after filtration by rain water harvesting.

Rain water harvesting is implemented.



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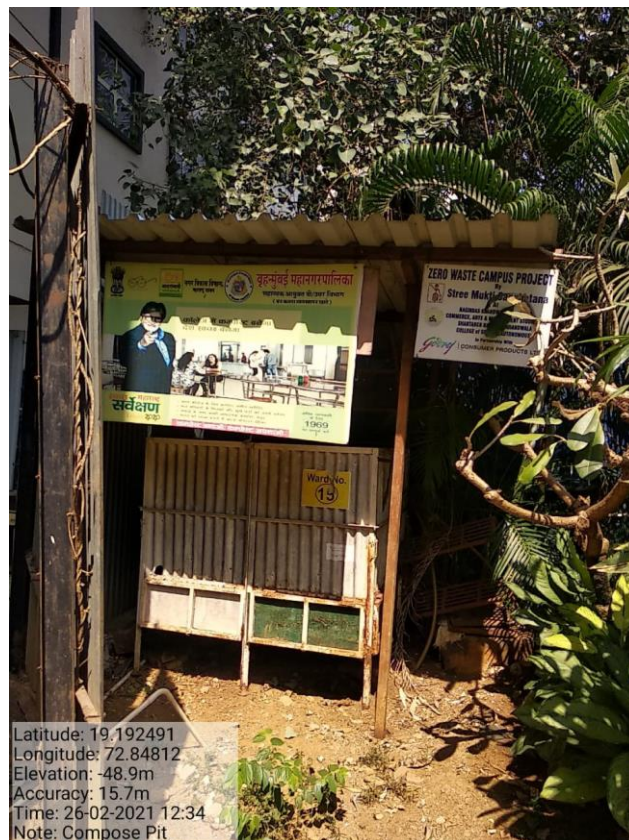
VI Waste Generation & Management

Sewage & Waste Water:

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

Solid Waste:

The organic as well as inorganic waste is segregated in the college premises. The organic waste is used to generate manure by composting.



The non-organic waste is collected in garbage bins and disposed of through common system.

Electronic waste collected is handed over to scrap collector/ Environmental Consultant.

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VII Infrastructure & Safety

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

The premises are provided with single staircase with necessary entrance to ensure quick and effective movement in normal conditions.

Parking space:

There is less parking space for vehicles/four wheelers due to space constraints. Nonetheless, parking space has been provided for faculty.

Almost all the students and most of the faculty members avail public transport system which is very convenient due to efficient bus services.

Fire-fighting & fire escape system:

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



The premises are provided with single staircase with necessary entrance to ensure quick and effective movement in normal conditions and for emergency the assembly point is provided at first floor.

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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.

It is neither feasible nor practical to segregate the drains, install a sewage treatment plant and recycle the treated water for toilet flushing and / or gardening.

Seepage in the building:

The premise was visually inspected for seepages.

No seepages were observed in any of the places.

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VIII

Green Culture

Computers/Laptops:

1. The LCD monitors & Laptops has 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.

Recommendations:

The following steps may be initiated to further enhance 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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