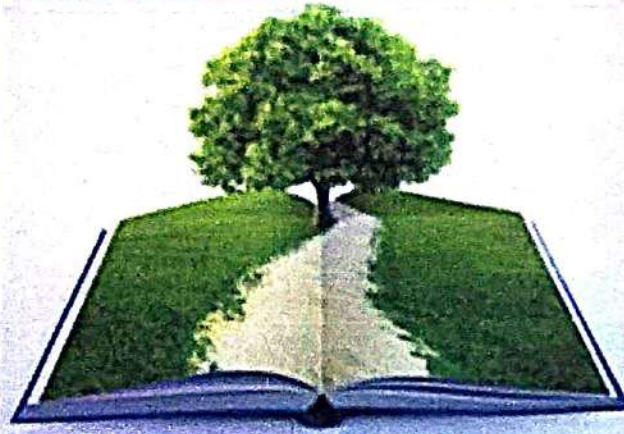




Mahatma Education Society's
Pillai HOCL Campus, Rasayani

Pillai

Green Audit Report



Presented By
RB ENERGY CONSULTANCY

Academic Year
2022-23



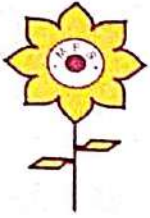
GREEN AUDIT 2022-23



Green Audit Report of Mahatma Education Society's HOCL, Rasayani campus is conducted by RB Energy Consultancy Services and its team on **29th April and 2nd May 2023.**

Green Audit report states the initiatives taken by institute towards environment





GREEN AUDIT 2022-23



Green Audit Assessment Team (Internal)

Dr. Lata Menon, PhD (Economics), SET Principal, PHCAS
Dr. J. W. Bakal, Principal. Ph.D Principal PHCET
Mr. Amar Mange MTech
Dr. Pradip P Chatterjee Ph.D. Principal PHIMSR
Ms. Suchita Sayaji B.Arch, M.Valuation Principal PHCA
Ms. Mamta A. Patil M.Com., M.Ed., NET Principal PHCER
Mr. Amrut Deshpande Professor, B.Arch, M.Arch
Ms. Sandhya Patil Associate Professor B.Arch, M.Arch
Ms. Renuka Wazalwa Associate Professor B.Arch, M.Arch
Ms. Meghana Sawant Associate Professor B.Arch, M.Arch
Mr. Binit Kumar
Ms. Remya Madan Gopal
Mr. Sujit Babu
Mr. Sumeet Mhatre
Mr. Shivraj Patil MTech Construction Management
Mr. Aniket Dumbre ME Mechanical
Mr. Jayesh Patil ME Computer
Ms. Pradnya Rane ME Construction Engineering & Management
Dr. Jaymin Shah Ph.D. (Management);
Prof. Vineet Murli MMS (Masters in Management Studies)
Prof. Sheena Nair MMS (Masters in Management Studies)
Ms. Reema Nikalje – M.A., M.Ed., NET
Ms. Angel Sunder – M.A., M.Ed.
Ms. Damanjit Kaur – M.Sc., M.Ed., NET
Dr. M.D. Nadar, Professor, Ph.D
Dr. Manvendra Vasistha, Professor, Ph.D
Dr. Gajendra Patil, Professor, Ph.D
Dr. Shilpa Kewate, Professor, Ph.D

(External)

RB Energy Consultancy
Certified Energy auditor (BEE), EA-7559 Certificate, 4541
info@electricalenergyaudit.in

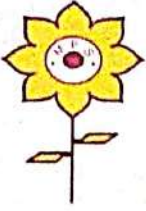


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1. Introduction

"Beyond teaching, mentoring.
Beyond career-building, character-building.
Beyond institution-building, nation-building.
Because a nation better taught, is a nation better empowered."
Dr. K. M. Vasudevan Pillai

The Mahatma Education Society embarked upon its mission of "Education for all" with the Chembur English High School in the year 1970 by Mr. M. P Pillai and Dr. K. M. Vasudevan Pillai. The vision, dedication, global outlook, tenacious struggle and undaunted spirit of the Chairman and C.E.O., Dr. K. M. Vasudevan Pillai and the forward looking, untiring energy of the Secretary, Dr. Daphne Pillai has now transformed the Mahatma Education Society in to a vast educational organization, spread over six elegant campuses at Chembur, New Panvel (Sector 7), New Panvel (Sector 8), New Panvel (Sector 16), Borivali (Gorai) and Rasayani (Raigad District).

The Society now manages a total of 48 educational institutions providing quality education from kindergarten to Postgraduate professional courses in the faculties of Engineering, Architecture, Management, Teachers Training, Arts, Science and Commerce to more than 30,000 students with 2,000 Teachers and 1,500 members of Non-Teaching Staff. All institutions managed by Mahatma Education Society have excellent Professional Faculty, World Class Infrastructure, State-of-the art laboratories, well stocked libraries, computer centers with internet connectivity, separate hostels for boys and girls, cafeteria, gymkhana and playgrounds. Excellent results, 100% placement, interaction with the corporate world and global exposure are some of the special features of the institutions run by Mahatma Education Society. Popularly known as the Pillai Group of Institutions, this education major has its own teacher training institutes, which allow it to define its own standards and to achieve 100% results unflinchingly.

This Campus has the following institutions -

- Pillai HOC College of Architecture (PHCA) (2010),
- Pillai HOC College of Engineering and Technology (PHCET) (2009),
- Pillai HOC Institute of Management Studies & Research (PHIMSR) (2009),
- Pillai HOC College of Arts, Science and Commerce (PHCACS) (2008),
- Pillai HOC College of Education and Research (PHCER) (2010).

The Campus has 4721 students enrolled and 365 teaching faculty and staff members on its payroll. The Colleges offer various courses listed below:



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Pillai HOC College of Architecture (PHCA)

- Bachelor of Architecture (B.Arch.)

Pillai HOC College of Engineering and Technology (PHCET)

- Diploma in Civil Engineering
- Diploma in Computer Engineering
- Diploma in Mechanical Engineering
- Bachelor of Civil Engineering
- Bachelor of Computer Engineering
- Bachelor of Electrical Engineering
- Bachelor of Electronics and Computer Science Engineering
- Bachelor of Information Technology
- Bachelor of Mechanical Engineering
- Master of Computer Engineering
- Master of Electronics and Telecommunication Engineering
- Master of Civil Engineering in Construction Engineering and Management
- Master of Mechanical Engineering in Machine Design
- Ph.D. in Computer Engineering
- Ph.D. in Civil Engineering

Pillai HOC Institute of Management Studies & Research (PHIMSR)

- Master of Management Studies (MMS)



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Pillai HOC Degree College of Arts, Science and Commerce (PHCACCS)

- Bachelor of Commerce (B.Com. Regular)
- Bachelor of Commerce in Accounting & Finance (B.Com. A.F.)
- Bachelor of Management Studies (B.M.S.)
- Bachelor of Mass Media and Communication (B.M.M.C)
- Bachelor of Arts (B.A) (English Ancillary, History & Economics)
- Bachelor of Science in Computer Science (B.Sc. C.S.)
- Bachelor of Science (B. Sc.) (Physics, Chemistry & Mathematics)
- Bachelor of Science in Information Technology (B.Sc. I.T.)
- Bachelor of Science in Data Science
- Bachelor of Science in Hospitality Studies
- Masters of Commerce in Accountancy (M.Com.)
- Masters of Science in Information Technology (M.Sc. I.T.)
- Master of Science in Organic Chemistry

Pillai HOC College of Education and Research

- Bachelor of Education (B.Ed.) in English Medium



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Campus Information

The Campus has interconnected buildings. Campus building has 9 floors. The floor wise layout is presented in Annexure 1.

Floor wise Facilities of Campus

PHEC " A " Building ARTS SCIENCE AND COMMERCE, MMS, B.Ed, Sports office	
Ground Floor	Gymnasium, Offices, sports room, store room classrooms, Washrooms, Water coolers (Ladies and Gents)
First Floor	Store room, xerox center, computer labs, Chemistry Lab, Physics labs, Language Lab Classrooms, Washrooms (Ladies and Gents)
Second Floor	Director Office, staff and HOD rooms, AV room, Classroom, Washroom (Ladies and Gents)
Third Floor	Library, Washroom (Ladies and Gents)
Fourth Floor	Classrooms, exam cell, washrooms (Gents and Ladies), IQAC Room, Research and Innovation Lab, Girls Common Room, Staff Room, Water Cooler
Fifth Floor	Classrooms, washrooms (Gents and Ladies), Boys Common Room, Water Cooler
Sixth Floor	Classrooms, washrooms (Gents and Ladies), Water Cooler, Staff Room (Gents and Ladies)
Seventh Floor	Staff Room, Classrooms, Washrooms (Ladies and Gents), Washrooms, water cooler (Ladies and Gents)
Eighth Floor	AV Room, Classrooms, Washrooms (Ladies and Gents), Washrooms (Ladies and Gents), Staff Room
Ninth Floor	Auditorium, Wash Rooms (Ladies and Gents)
PHEC " B " Building Central Admin, Architecture, Skill Development	
Ground Floor	RECEPTION, Chairman's Cabin, Dy CEO Cabin, Central Admin Office
First Floor	Principal Office, staff room, Computer Lab, Conference room, Washroom (Ladies and Gents)
Second Floor	Surveying Lab, Climatology Lab, Lecture Hall / Studio, Lecture Room, Washroom (Ladies and Gents)



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Third Floor	Exhibition, Jury Room, Multipurpose Hall, Library Washroom (Ladies and Gents)
Fourth Floor	Server room, Lecture room, Studio, Material Museum, Washroom (Ladies and Gents)

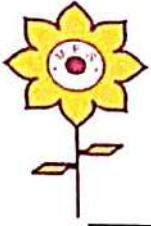
Fifth Floor	Electrical Lab, Plumbing Lab, Common room, Staff room, Studio Lecture Hall, Washroom (Ladies and Gents)
Sixth Floor	Lecture Room, Staff room, Studio Lecture Room, Washroom (Ladies and Gents)
Seventh Floor	Common room, Lecture room, Studio Lecture room, Washroom (Ladies and Gents)
Eighth Floor	Hostel Rooms, Ladies' and Gents' Toilets
Ninth Floor	Hostel Rooms, Ladies' and Gents' Toilets, and Auditorium

PHEC " C " Building Hospitality, PHP

Ground Floor	Restaurant, office washroom (Ladies and Gents)
First Floor	Kitchen, washroom Ladies and Gents
Second Floor	Eating Area
Third Floor	Classroom Staff room Washroom (Ladies and Gents)
Fourth Floor	Classroom Staff room Washroom (Ladies and Gents)
Fifth Floor	Classroom Staff room Washroom (Ladies and Gents)
Sixth Floor	Classroom Staff room Washroom (Ladies and Gents)
Seventh Floor	Library

PHEC " D " Building Polytechnic

Ground Floor	Work shop, automobile workshop, washroom (Ladies and Gents)
First Floor	Principle cabin, Chemistry lab
Second Floor	Classroom, wash rooms (Ladies and Gents)
Third Floor	Classroom, wash rooms (Ladies and Gents)
Fourth Floor	Classroom, wash rooms (Ladies and Gents)
Fifth Floor	Classroom, wash rooms (Ladies and Gents)



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PHEC " E " Building CONCLAVES / PHP	
Ground Floor	Stage with lawn
First Floor	Conclave, Washrooms (Ladies and Gents)
Second Floor	Conclave, Washrooms (Ladies and Gents)
Fourth Floor	Classrooms, Wash rooms (Ladies and Gents)
Fifth Floor	Staff room, Beauty parlor room, office, classroom, washroom (Ladies and Gents)
Sixth Floor	Classrooms, Wash rooms (Ladies and Gents)
Seventh Floor	Classrooms, Wash rooms (Ladies and Gents)



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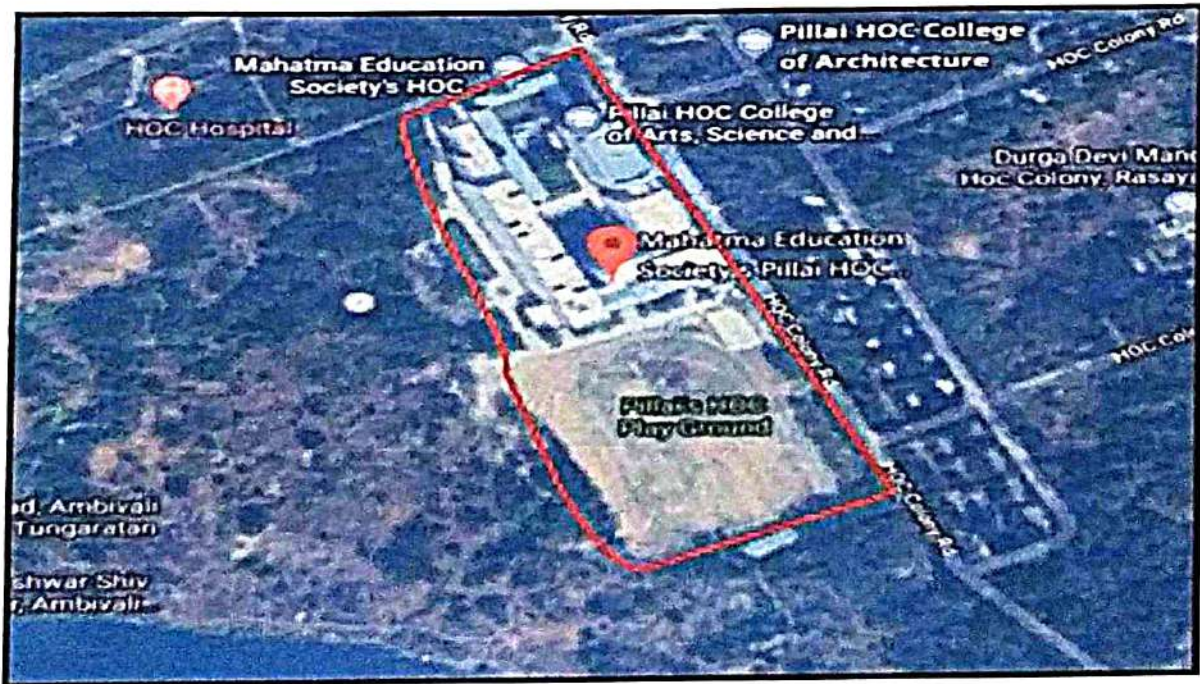


Eighth Floor	Classrooms, Wash rooms (Ladies and Gents)
Floor PHCET / PHP	
Ground Floor	Workshops, Civil Engineering Labs, Mechanical Engineering Labs, Classrooms, Offices, Conference Room, Generator Shed (Power Station), Meter Room, Library, Audio Visual (AV) Room, Electrical Room, Dining Room, Canteen, Director's Cabin, Ladies' and Gents' Toilets, Machine Shops, Meter Room, Staff Room, and Enquiry Department
First Floor	Conference Hall, Director Cabin, Administrative Office, Ladies' and Gents' Toilets, Computer Engineering Lab, Faculty Room, IT Lab, ED Lab, Classrooms, Workshops, Computer Labs, Electronics Lab, Applied Science Lab, and Staff Room
Second Floor	Electronic Labs, Electronic & Telecommunication Labs, IT Labs, Library, Computer Centre, Mechanical Engineering Labs, Civil Engineering Lab, Classrooms, Computer Labs, Staff Rooms, HoD Room, and Ladies' and Gents' Toilets
Third Floor	Computer Labs, Library, Ladies' and Gents' Toilets, Electronics Lab, Classroom, Chemistry Lab, Physics Lab, HoD Room, and Staff Room
Fourth Floor	Classrooms, Store Room, Ladies' and Gents' Toilets, Seminar Room,
	Electronics Labs, Office Room, HOD Room, and Faculty Room
Fifth Floor	Seminar Rooms, Ladies' and Gents' Toilets, Electronics Lab, Classroom, Chemistry Lab, Staff Room, Office Room, and HoD Room
Sixth Floor	Classrooms, Ladies' and Gents' Toilets, Seminar Room, Conference Room, Electronic Labs, Staff Room, and Rooms of HoDs
Seventh Floor	Classrooms, Ladies' and Gents' Toilets, Seminar Room, Conference Room, Electronic Lab, Chemistry Lab, Staff Rooms
Eighth Floor	Hostel Rooms, Ladies' and Gents' Toilets
Ninth Floor	Hostel Rooms, Ladies' and Gents' Toilets, and Auditorium



2. GEOGRAPHICAL LOCATION

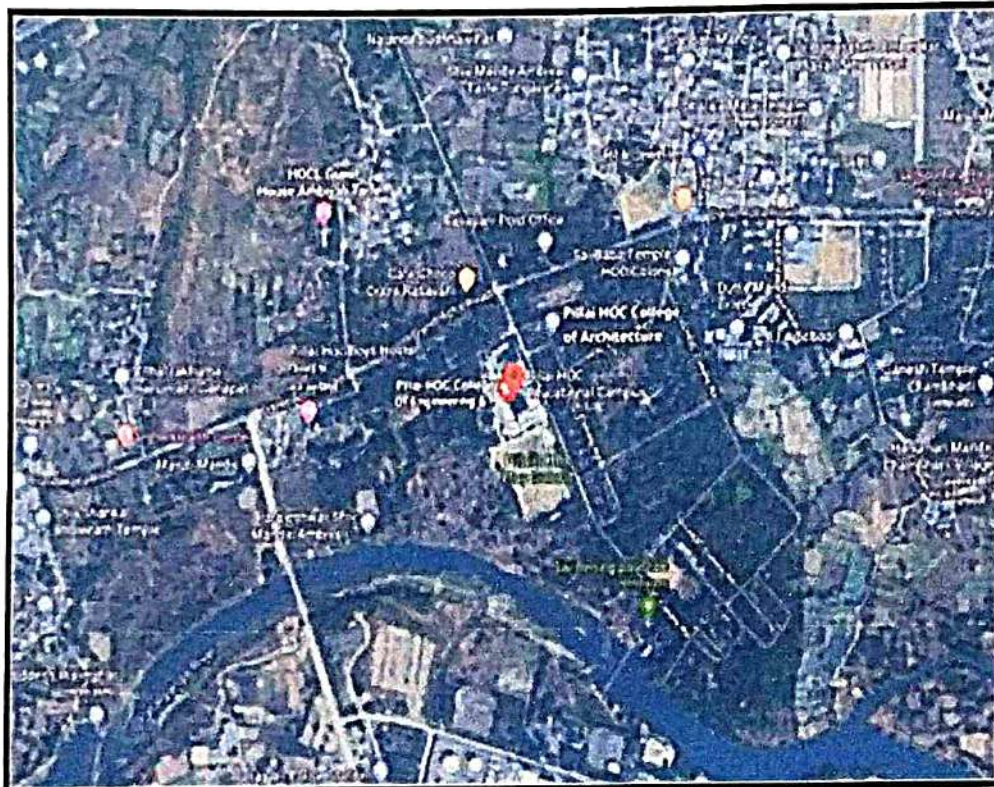
Campus is established on 14.23 acres of lush green campus with more than 10,00,000 sq. ft of built-up area comprising spacious classrooms, well-equipped laboratories and workshops, new age computer facilities and a well-stocked library which provide a stimulating educational environment within the college. It is situated at a distance of about 4 kms from Rasayani Railway station. About 150m away from campus is Patalganga river which is situated at the back of the campus.



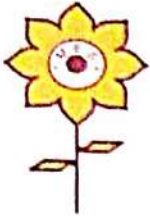
Pillai HOC Campus, Rasayani



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Geographical Location of Pillai HOCL Campus, Rasayani



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3. GREEN AUDIT

OBJECTIVES OF GREEN AUDIT

The main objectives of this green audit is to assess the environmental quality and the management strategies being implemented in Pillai HOC Campus Rasayani.

The specific objectives are:

1. To assess the quality of the water and air in Pillai HOC campus
2. To monitor the energy consumption pattern of the college
3. To quantify the liquid and solid waste generation and management plans in the campus.
4. To assess whether the measures implemented by Pillai HOC College have helped to reduce the Waste
5. To impart environment management plans to the college Green Audit
6. Providing suggestions for corrective actions and future plans.
7. To assess whether extracurricular activities of the Institution support the collection, recovery, reuse and recycling of solid wastes.
8. To identify the gap areas and suggest recommendations to improve the Green Campus status of the Pillai HOC Campus

METHODOLOGY

The audit was conducted in the campus with physical inspection of the campus, observations, review of documents and interviews with stakeholders.

Locations on the panels and other areas in the common areas of the building were visited and observations were made and images were clicked as a matter of proof. This report includes suggestions to improve upon the faulty areas and a guide to improve the systems further.

3.1 Natural Light Design

Observations:

Every area in the campus receives a good portion of daylight.

1. The open corridors with high ceilings receive good adequate daylight.



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2. The library, classrooms and laboratory have high ceilings, large doors and windows for flow of air and light
3. Curtains are used for few windows to reduce glare
4. Staircase also receives a good amount of daylight.



Daylight at Staircase



Good Day Light in Library

Recommendations:

1. Few curtains need to be replaced

3.2 Ventilation and Air Quality Design

Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. Trees contribute to their environment by providing oxygen, improving air quality, and climate amelioration. In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen released by the trees of the campus is good for the people in the campus. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner.

Observations:

1. The classrooms, laboratory, corridors are large enough to get adequate ventilation.
2. The classrooms and laboratory and library have large doors and windows for proper



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ventilation.

3. Chemical laboratory in the campus has exhaust to remove pollutants, allergens, fumes, odors and unwanted moisture. Campus Canteen also has exhaust.
4. Air Conditioners are installed in few labs and auditorium
5. Campus has Green belts within the campus.
6. Fire alarm is installed on each floor.
7. Few indoor plants are planted within the campus. The details of these plants are given in **Annexure III**



Exhaust Fan in Chemical Laboratory and good ceiling height



Good Daylight in the Classroom



Trees around the Campus



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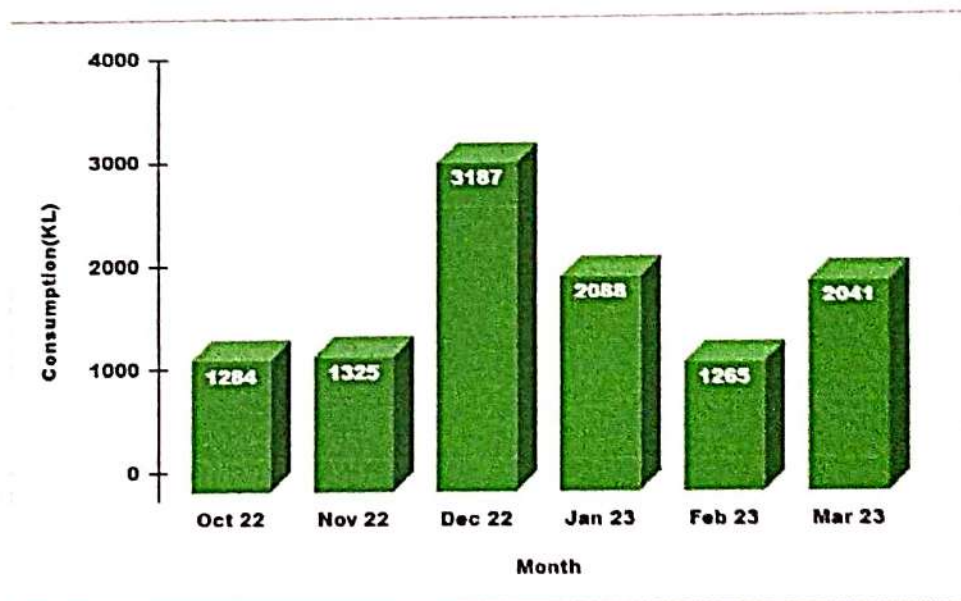


Recommendations:

1. Exhaust to be cleaned and maintained.
2. Exhaust fans are installed only in the chemistry lab. More exhaust needs to be installed.
3. Only a few indoor plants were observed within the campus. Few artificial plants were observed in the campus that could be replaced by indoor plants.
4. Smoke detectors need to be installed.

3.3 Water Conservation and Management

Campus uses water supplied by MIDC-Maharashtra Industrial Development Corporation. Campus also uses bore well water and has sufficient water supply. The water quality is tested and approved by MIDC. Average consumption of water in the campus is 1865 KL/day. Total water consumption for 6 months October 2022 to March 2023 is 11190 KL. The figure below shows the consumption of water for 6 months.



Water Consumption in Campus from Oct 2022 to March 2023



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Observations:

1. There are enough water storage facilities in the campus. MIDC water is stored underground and in overhead tanks.

Storage type	Storage Quantity	Total Capacity
Underground	07	810 KL
Overhead	23	1050 KL

2. The water is distributed from these tanks to various parts of campus. The distribution of water within the campus is diagrammatically represented in Annexure II.
3. Rainwater harvesting installation is the major step taken by college for water management. The water collected from the roof during the rainy season is collected in recharge pits and is used to recharge fire aquifers and tube wells. Part of water collected from rain harvesting is stored in underground storage tanks.
4. Water collected from tube wells and rainwater harvesting is used for flushing in toilets, gardening and fire water makeup.
5. Rainwater harvested by campus is approximately 18700 cm.
6. Drinking water facility is found to be efficient in the campus. Purifiers and water coolers are installed at every drinking water point.
7. Campus floors are cleaned and well maintained. Floors are cleaned and mopped daily.
8. Water saver faucets are installed in few washrooms
9. Water leakages are attended and maintained on time by inhouse team.
10. Signages are provided at a few water points.



Rainwater Harvesting System- Recharge Pit



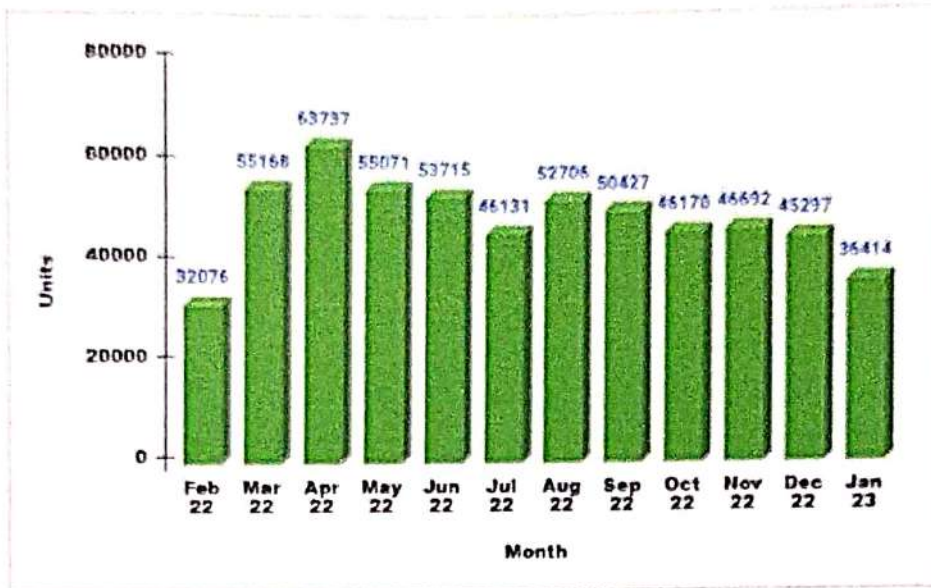
Signages near Cooler/Purifier

Recommendations:

1. Water saver faucets need to be installed in every washroom.
2. Dual flushing should be provided in the washrooms to reduce 20% of water wastage.
3. Signages at every water supply point and washrooms required to emphasize on water conservation.
4. Water coolers which are not working need to be repaired
5. Water meters can be installed to quantify water consumption, depending on which proper measures can be taken to conserve more water.
6. Grey water or sewage recycled water should be used in toilets for flushing. This can reduce fresh water usage.
7. Awareness among students to conserve water campaigns has to be conducted.

3.4 Energy Use and Conservation

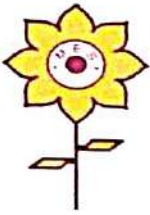
This audit deals with conservation of energy and methods to reduce the amount of use of energy. Major electric consumption is through electricity used, provided by MSEDCL-Maharashtra State Electricity Distribution Co.Ltd. The monthly average consumption of electricity from Feb 2022 to Jan 2023 is around 48634 KWh(units).



Monthly Energy Consumption from Feb 2022 to Jan 2023

Major electricity consumption are as follows

Sl. No.	Equipments	Quantities
1	CFL and Tube lights	3895
2	Light Emitting Diode-LEDs	2148
3	Fans	2174
4	Computers	1259
5	Air Conditioners	125
6	CCTV	213
7	Printers	110
8	Projectors	48
9	1 phase machines	21
10	3 phase machines	54
11	Refrigerators and deep freezer	4
12	Television	6



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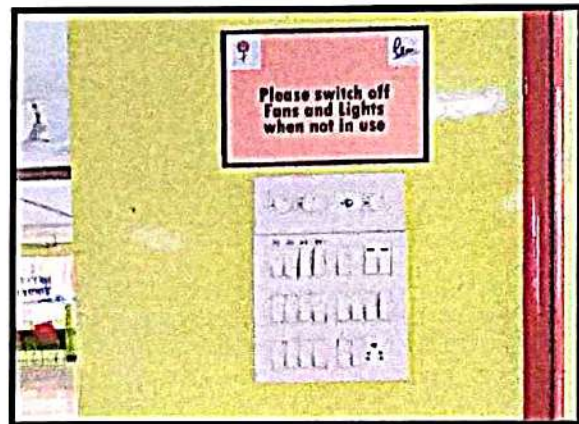


Observations:

1. Every classroom and lab has a sufficient number of tube lights, LEDs and fans.
2. Air Conditioners used in campus are 1 star or 3 star. Few old ones have no stars.
3. UPS systems are provided to all computer equipped labs to prevent unexpected disruptions due to power cut.
4. All computers have LED screens. Signages are put on the wall to shut down PCs when not in use.
5. Signages are also provided beside switch boards to switch OFF lights and fans when not in use to encourage users to save electricity.
6. Many of the conventional tube lights are replaced with LEDs.



Air Conditioners Installed in Lab



Signages near switch boards



First Aid Box



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Recommendations:

1. Diagrams are recommended at every switch board to point the correct tube light and fan.
2. Old Air Conditioners without stars need to be replaced.
3. New electronic devices while purchasing should have star ratings as per BEE (Bureau of Energy Efficiency).
4. Light reflectors should be used so that the light is spread to large area and also reduces electricity consumption
5. Control sensors can be used to dim the light automatically when people are not around.
6. Emergency Exit Signage is required

3.4.1 Use of LPG and Natural Gas-Onsite Energy Generation:

Observations:

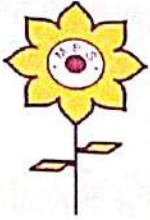
1. LPG gas are used in canteen for cooking
2. 2 diesel generators of 250 KVA for backup have been installed for emergency power failure.
3. Renewable energy is used by Solar panels of 10 KWP installed on rooftops. This energy is used for street lights within the campus.



2 Diesel Generators



Solar Panels



3.4.2 Temperature and Acoustic Management

1. Since the campus is in the midst of the HOC colony, it is far from noise pollution.
2. The trees planted in the campus helps in reducing temperature and also reduces noise pollution.
3. Maintenance free tiles used on the walls of the building not only reduces the cost of the building but also reduces the temperature within the building.
4. Conclaves and auditoriums have acoustic control walls.



Green Belt within the campus



Maintenance Free tiles on the building

3.5 Waste Management

Human activities create a lot of hazardous wastes. Waste management audit checks the ways these wastes are dealt with. Wastes paper wastes, solid wastes, plastic wastes and also e-wastes.

3.5.1 Sewage Water Management

Waste water is generally generated from toilets, washrooms and canteen. There are 146 washrooms in the campus.

Observations

1. Waste water generated from toilets, canteen and laboratories are connected to sewerage system provided by MIDC



Recommendations:

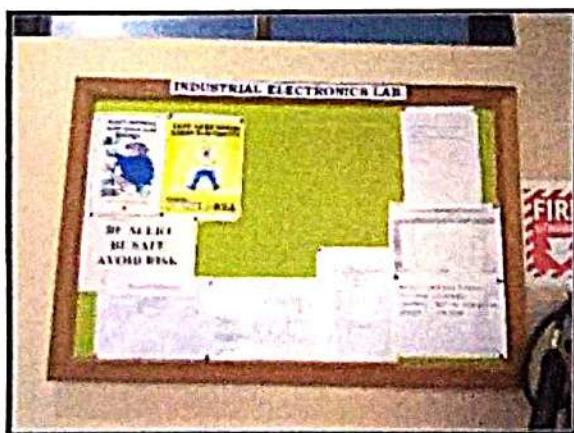
1. Sewage treatment plant to be installed in the campus.

3.5.2 Paper Scrap Management

Waste paper is the main waste generated since it is an academic institution. Campus has taken many steps to reduce these wastes.

Observations:

1. Most of the documents are maintained online.
2. Both sides of the paper are used while printing and taking photocopies.
3. There are more than 7000 e-books made available online for students and staff.
4. Notices are made available on the websites and also put on the notice board.
5. Internal communications are done through intercoms, mails, messages and whatsapp.
6. Old submissions, papers after 3-4 years as per University norms are archived stored in the storage room at the ground floor.
7. The old papers are exchanged with new papers from scrap dealers.



Notice Board



Library

Recommendations:

1. Campus can opt for a student portal for putting up notices, submission of write ups and assignments.



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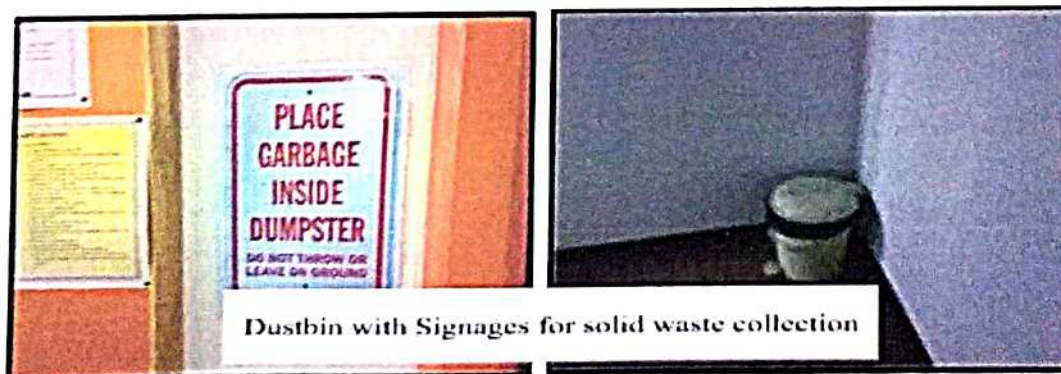


2. Paper usage should be monitored, depending on which some digitization can be brought up to reduce paper wastages.
3. Separate waste collection bins required at every corner which are found placed only in the canteen.

3.5.3 Solid Waste Management

Observations:

1. Separate bins for wet and dry waste are found in the canteen.
2. Almost 50 kgs of dry and wet waste is generated by the canteen.
3. Campus has installed a composting unit to deal with these wastes.
4. In other areas like classrooms, staff rooms or offices mostly paper waste or plastic wastes are generated.
5. Dust bins are found in every corner of every classroom.
6. Signages were found near a few dustbins.





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Recommendations:

1. Separate bins to segregate waste should be provided as provided in the canteen.
2. Plastic bottles should be given for recycling
3. Signages should be provided at every point of collection.

3.5.4 Toxic waste Management

Observations:

1. The campus is almost digitized to a large extent. It has computer enabled classrooms, AV rooms, biometric attendance system, students and staff portal. All these facilities lead to reduction in wastage.
2. Old electronic devices are given to dealers under a buy back policy.
3. Campus has a component library where the old systems are dismantled and the usable parts are stored in the library, which can be used by students if required for their project.

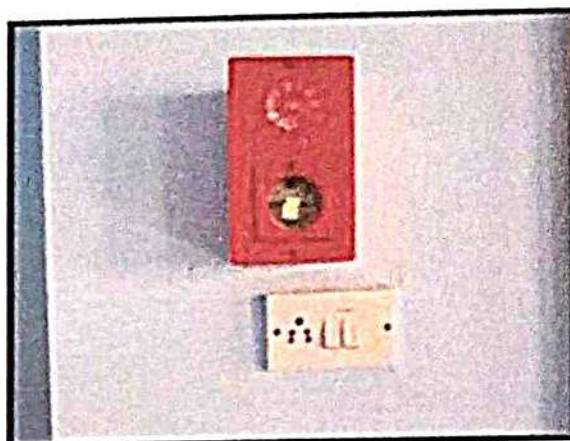
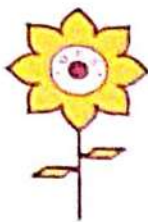
3.6 Building Maintenance

Observations:

1. Building is covered with maintenance free tiles. No leakages were found and were maintained.
2. Campus is easily accessible from the main road.
3. Campus has 11 staircases and 13 elevators.
4. Staircases are 2 feet wide and uncluttered, so can be used for emergency exit during an emergency
5. Fire extinguishers and fire hydrants are provided near the staircase and elevators.

Recommendations:

1. Signages required near every emergency fire exit point, required during an emergency.
2. Hand rails should be provided to every staircase to avoid falling during an emergency.
3. Few fire extinguishers required to be serviced.
4. Fire safety management training programs should be conducted annually.



3.7 Initiatives by Institute for Green Management

Observations:

1. Campus has come up with many green initiatives.
2. Environment Management is included in the curriculum to increase awareness.
3. Nature Club organizes different events to increase green awareness among students throughout the year
4. NSS and Nature Club have started a "Know Green, Think Green" promotion.
5. Campus has installed rain water harvesting system
6. Campus has installed 2 composting units for solid waste management.
7. Campus has solar panels to reduce energy consumed
8. Campus has taken a great initiative of component library under e-waste management
9. Awareness programs for canteen staff are conducted to keep the dry and wet waste separated.
10. Sprinklers and drip systems are used to water the garden area which saves water.
11. "Zero Garbage Initiative" program was started in the campus to increase awareness about solid waste.



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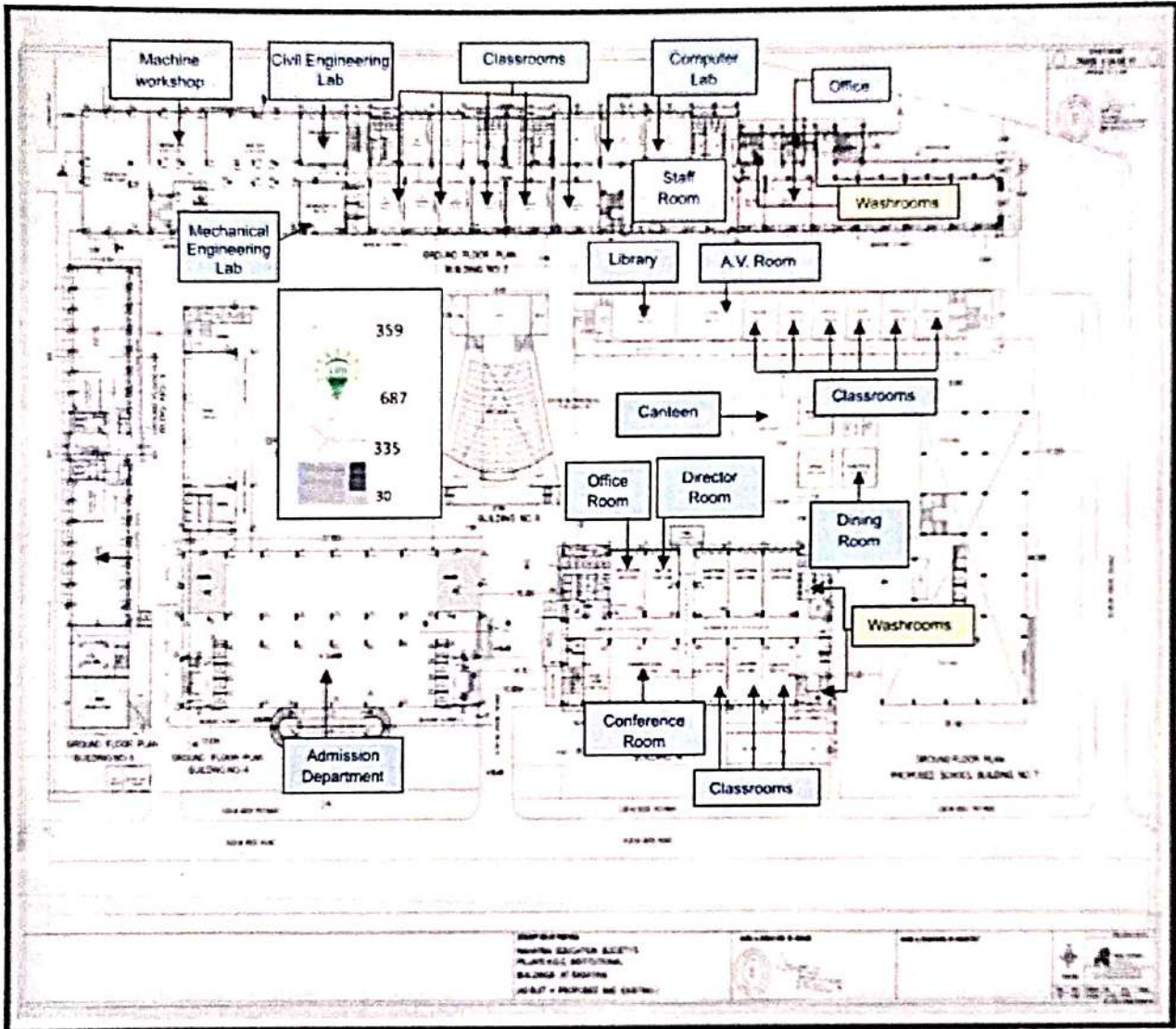
Recommendations:

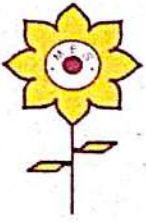
1. Vertical gardening on campus walls is recommended using indoor plants.
2. More webinars, workshops and outdoor activity can be initiated to increase the awareness.
3. Renovation of the cooking system in the canteen to save gas.
4. Establish a purchase policy that is energy saving and eco-friendly.
5. Replace incandescent and CFL lamps with LED lights.
6. Avoid plastic/thermocool plates and cups in the college level or department level functions.
7. Introduce add-on courses eco-friendly income generating to all interested students.



ANNEXURE 1: CAMPUS FLOOR PLAN

Ground Floor

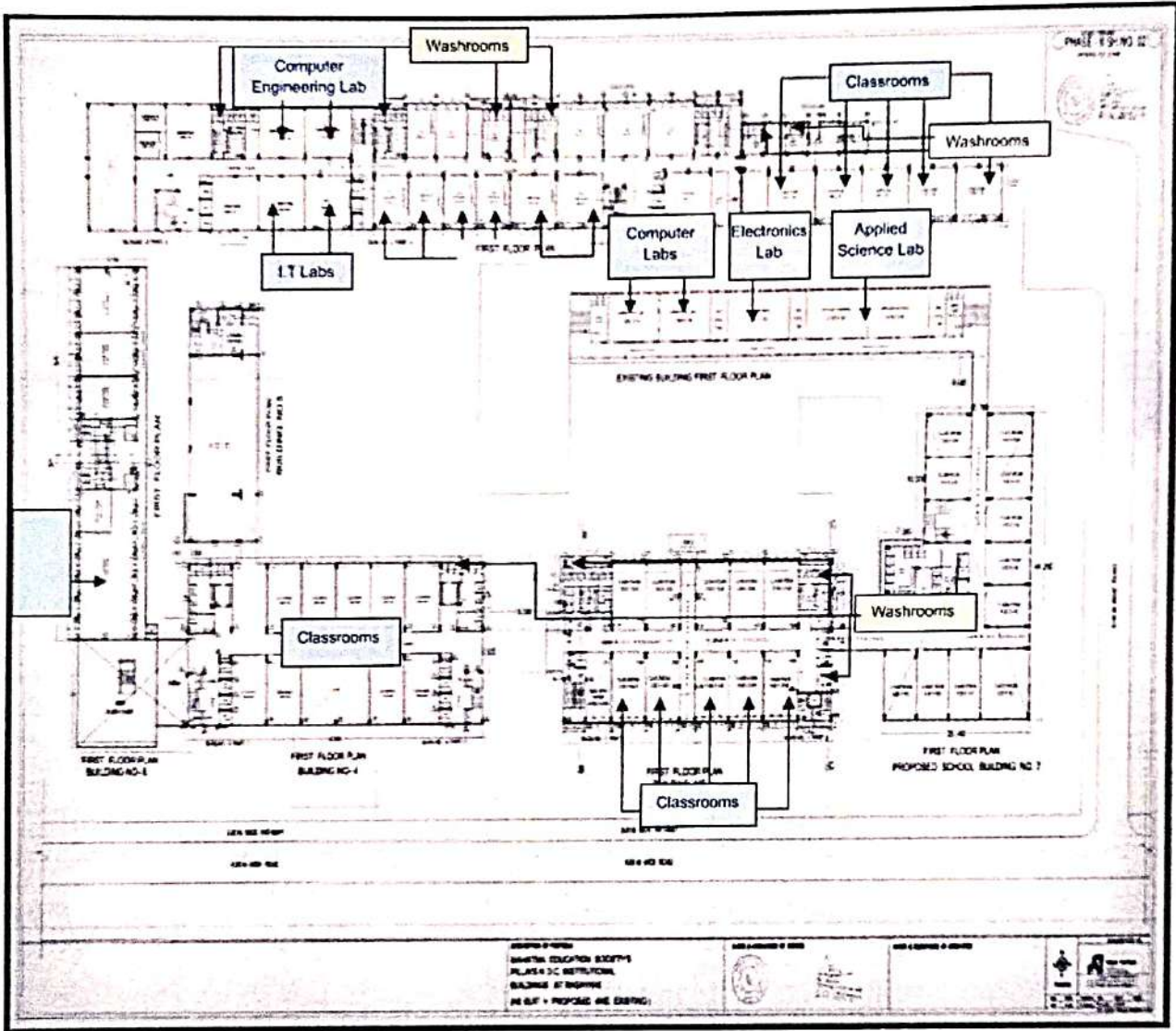


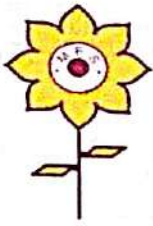


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First Floor

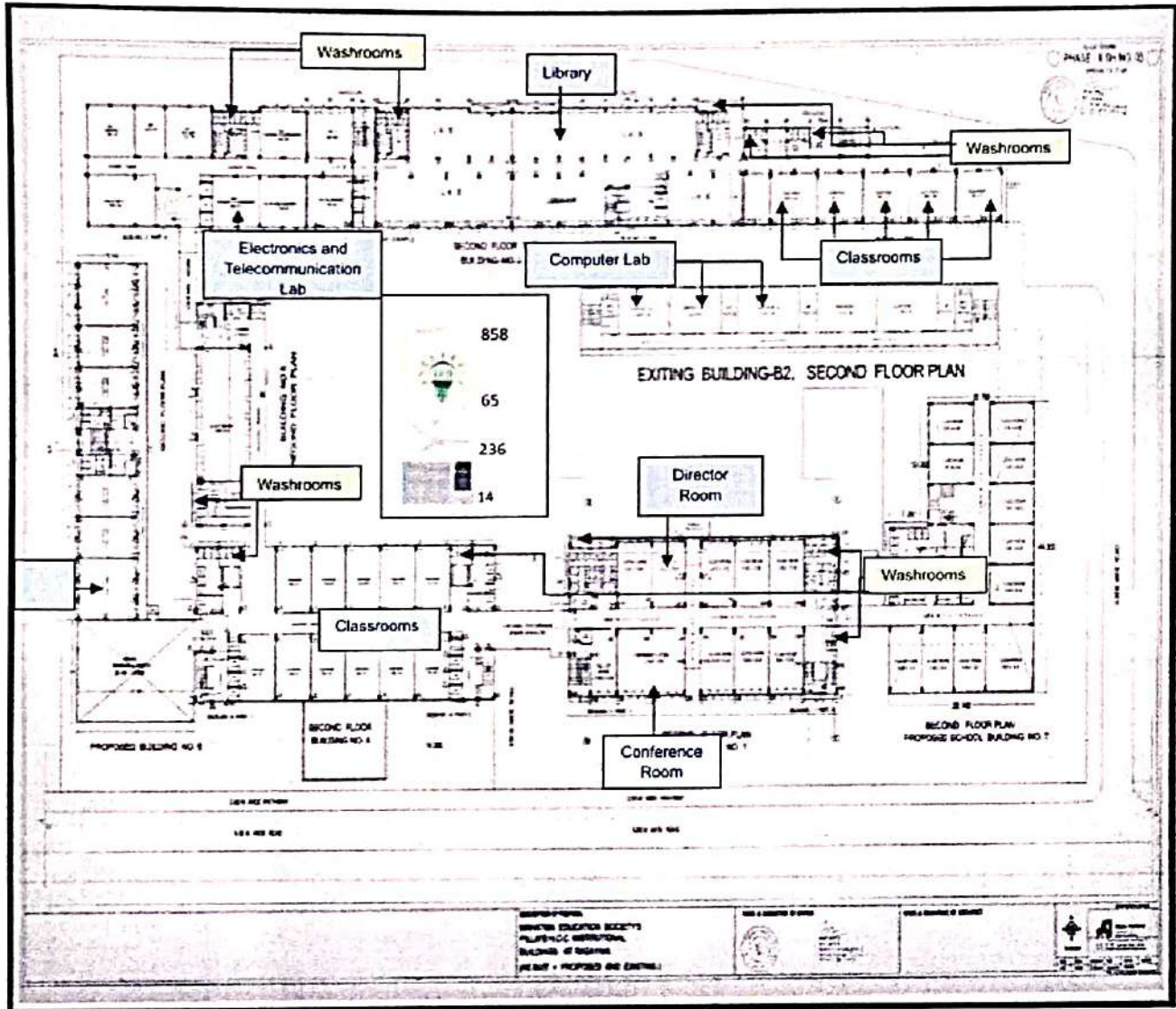


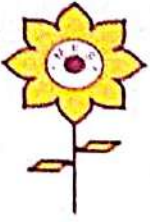


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Second Floor

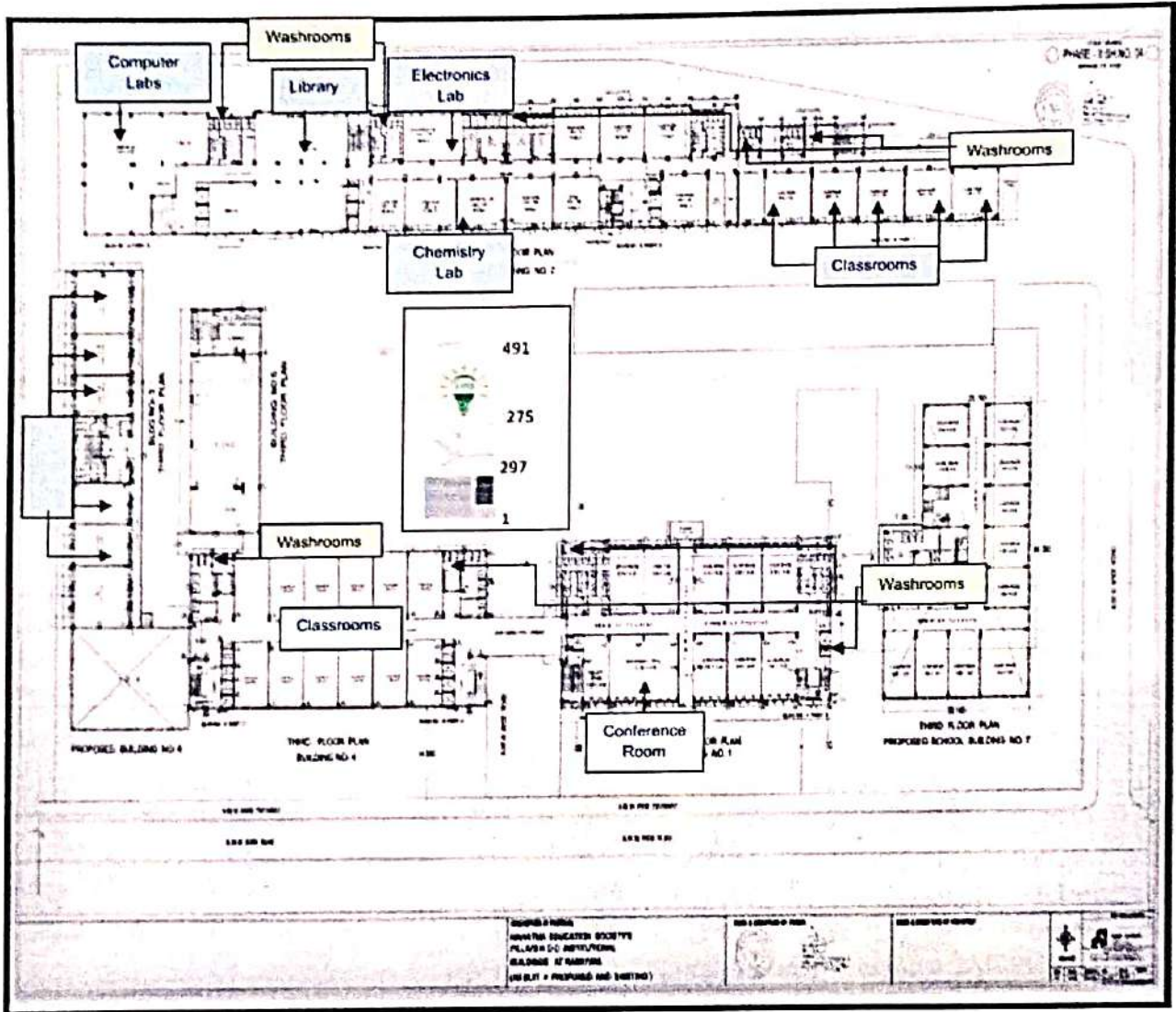




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Third Floor

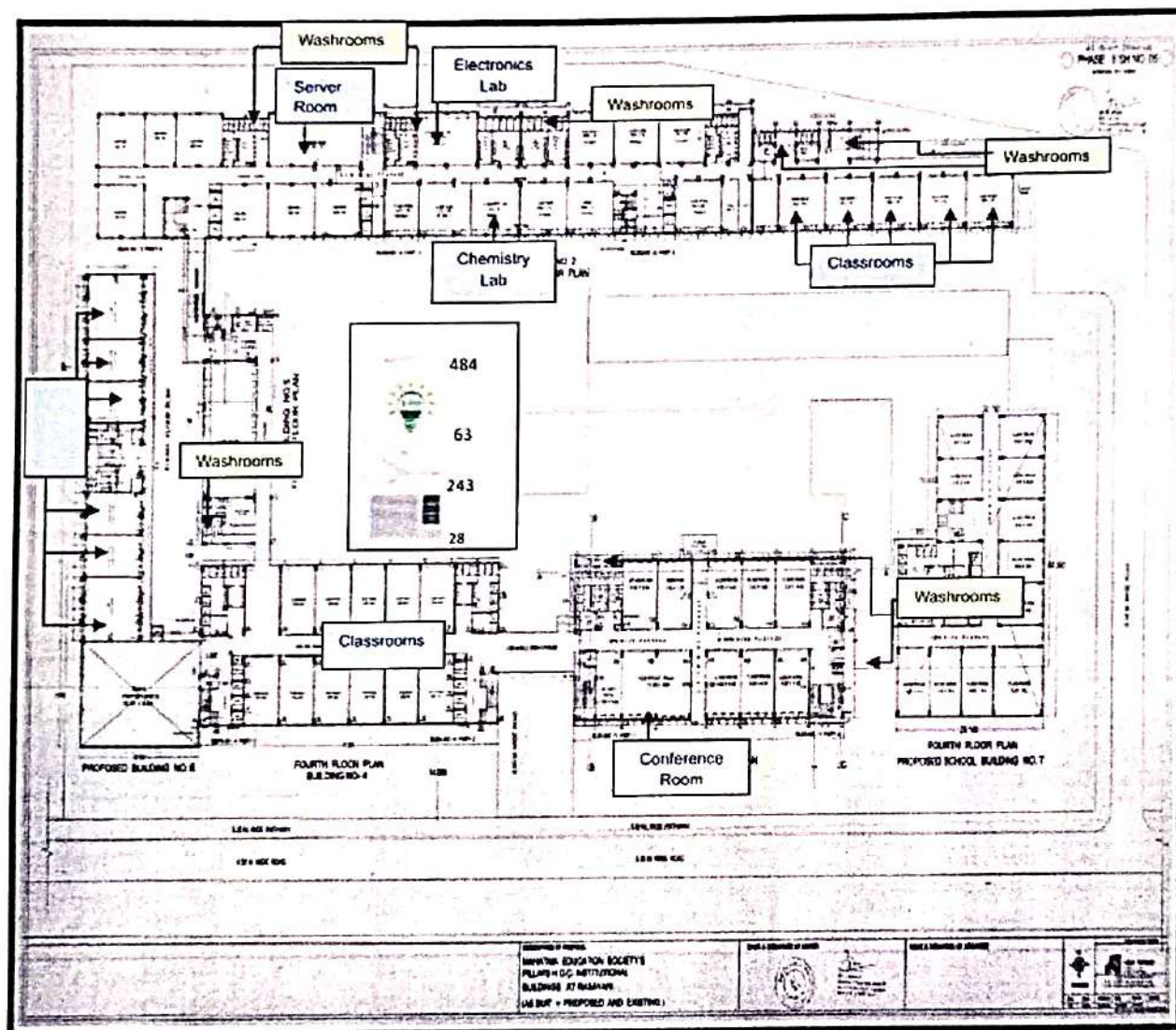




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Fourth Floor

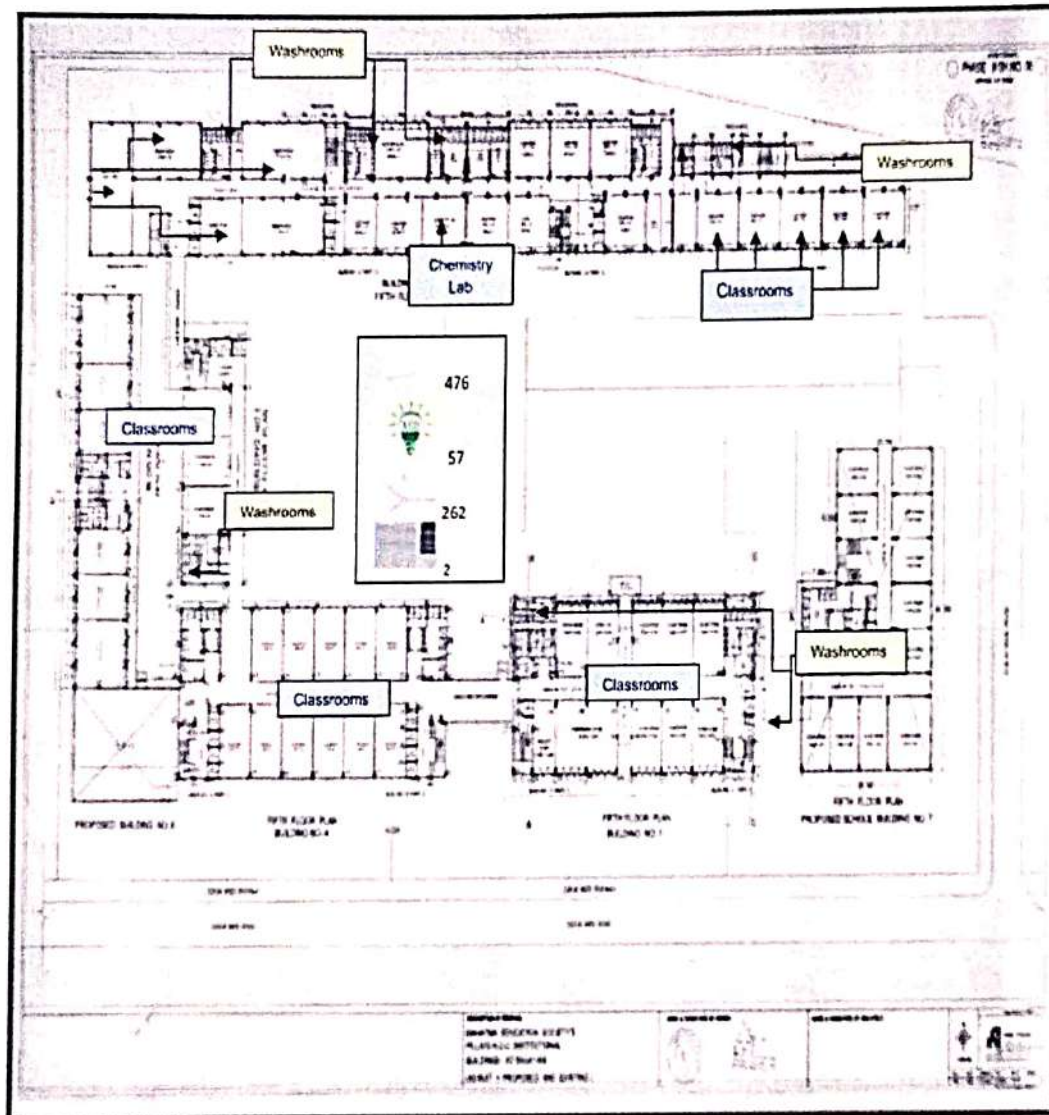




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Fifth Floor

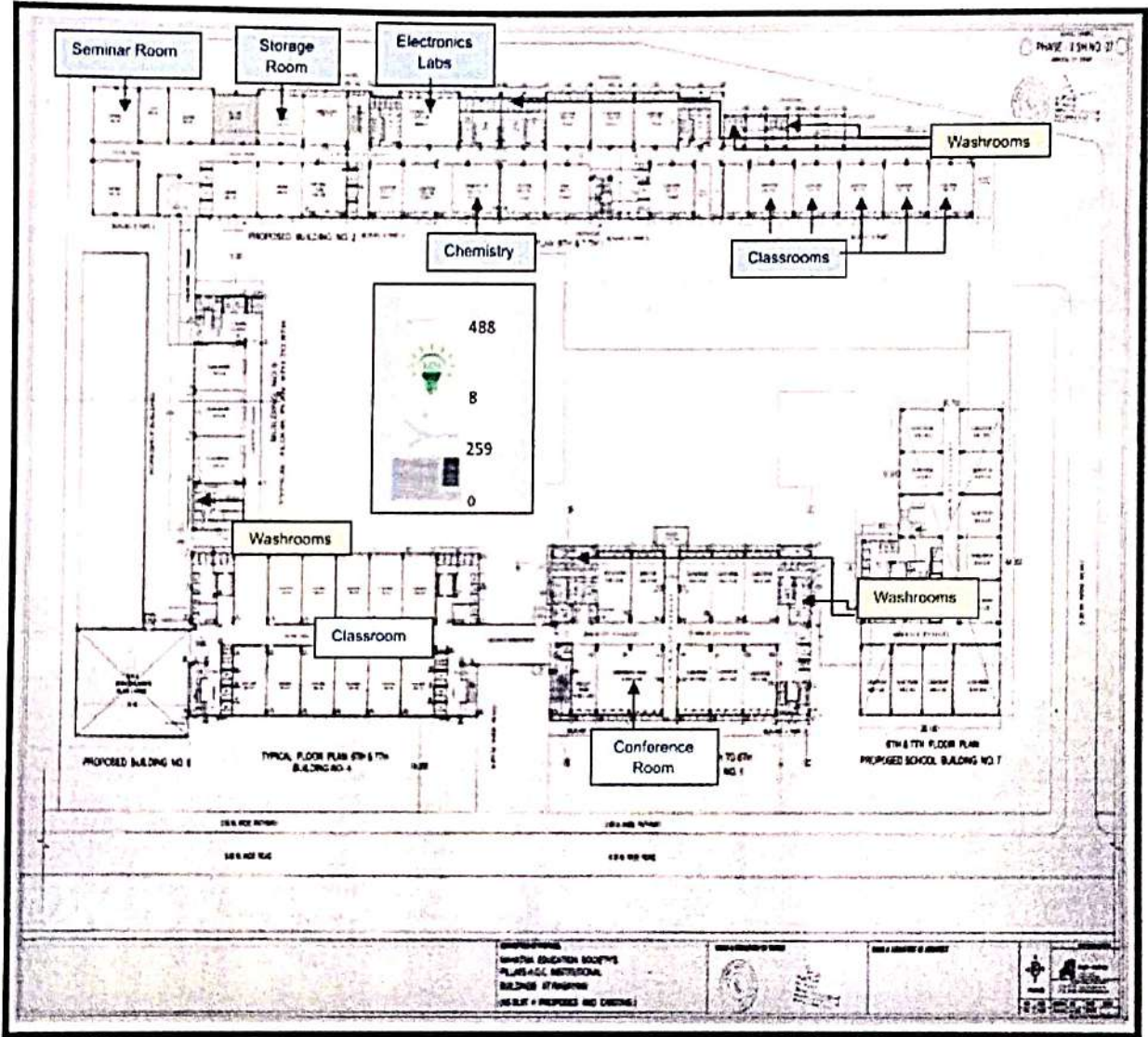


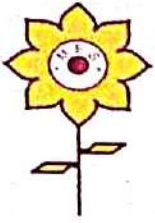


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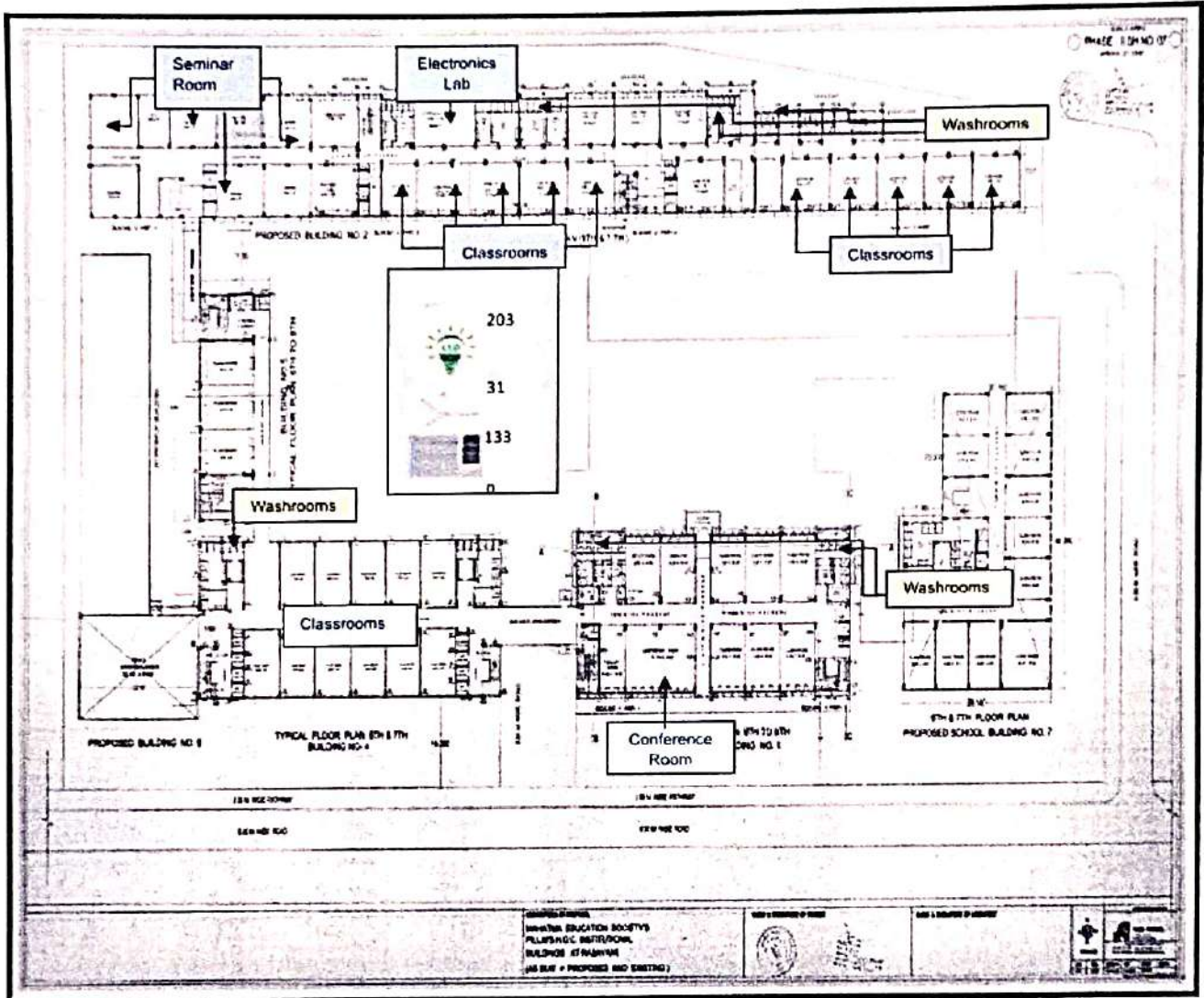
Sixth Floor





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Seventh Floor

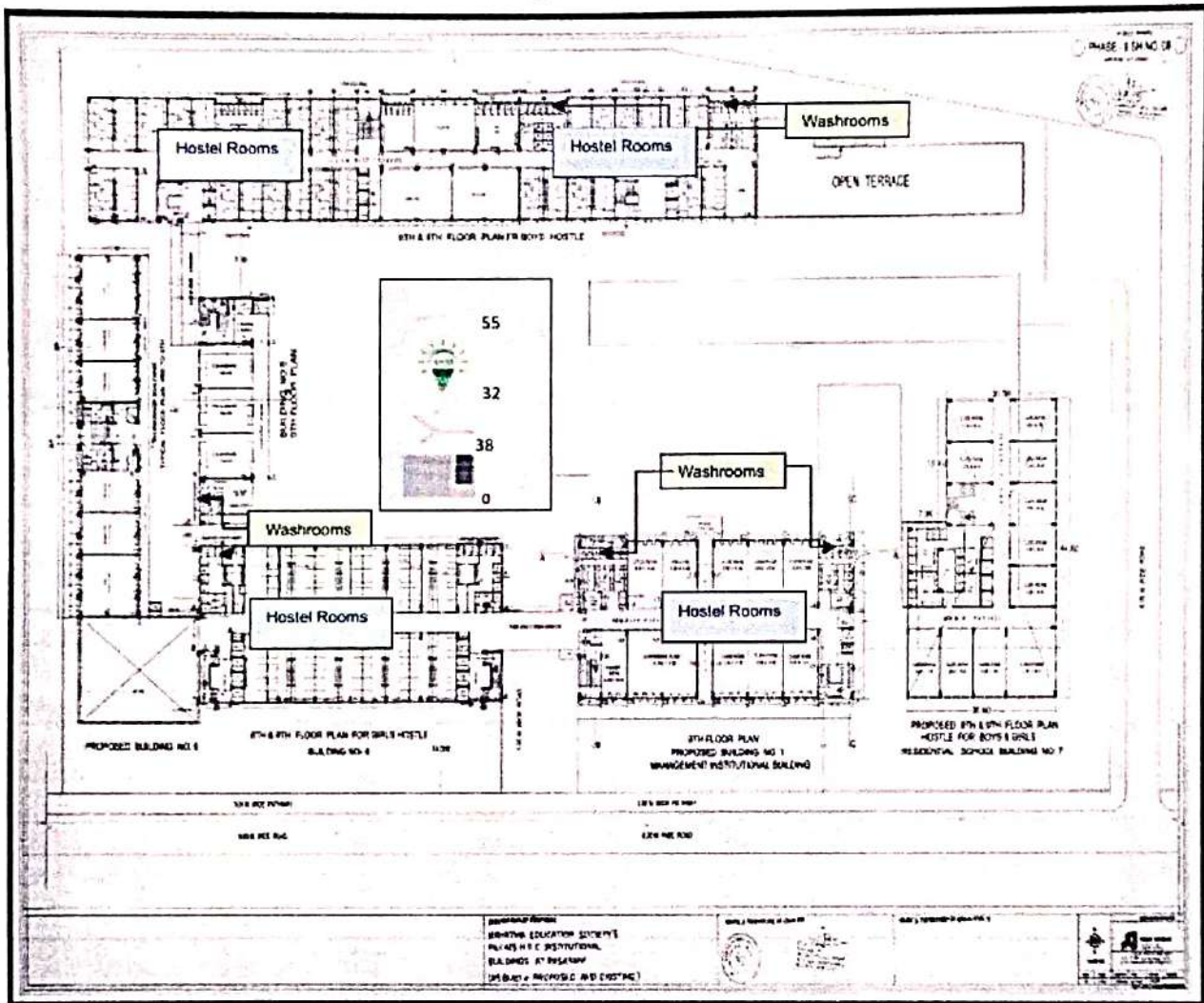


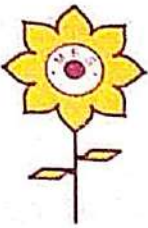


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Eighth Floor

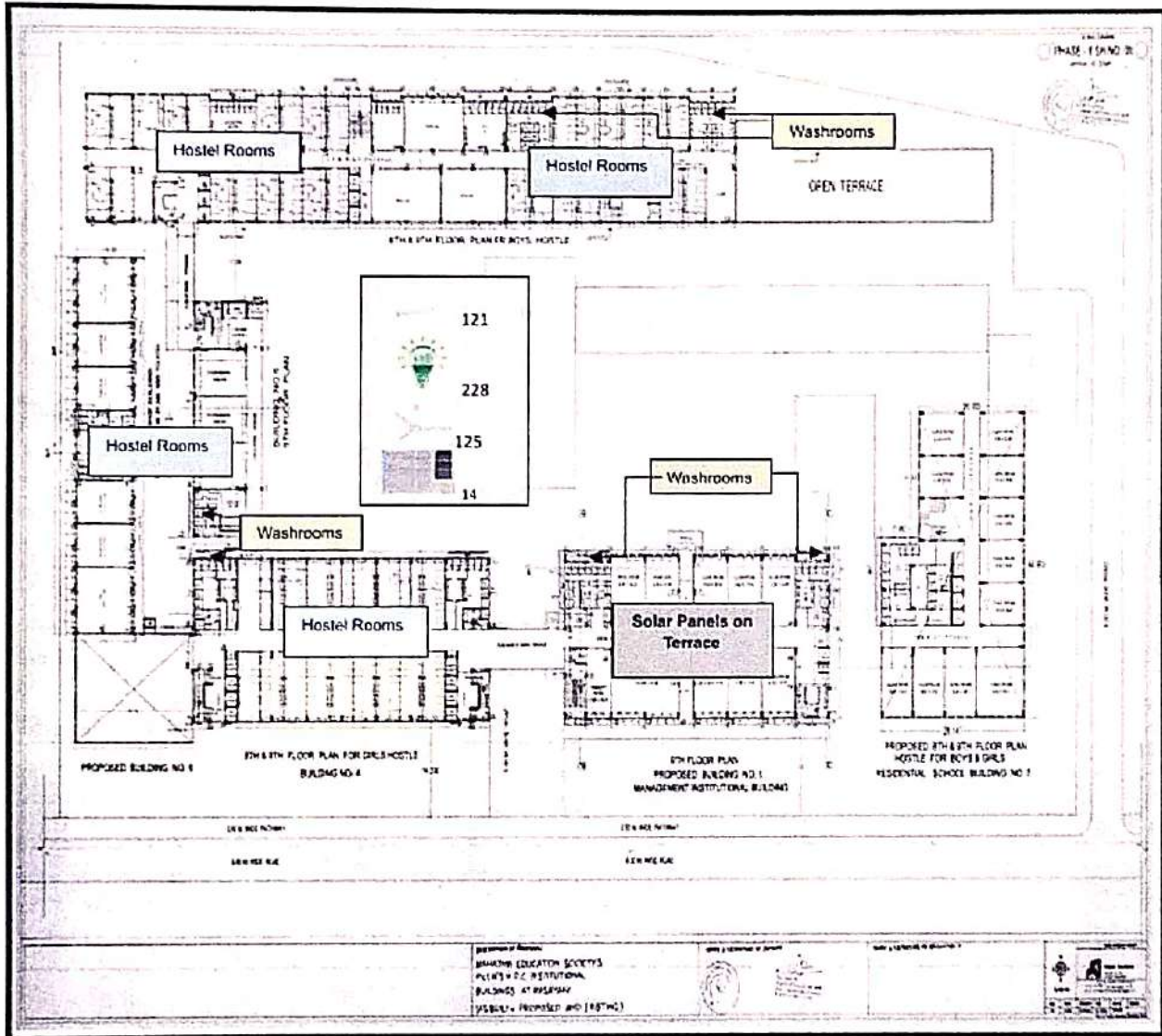




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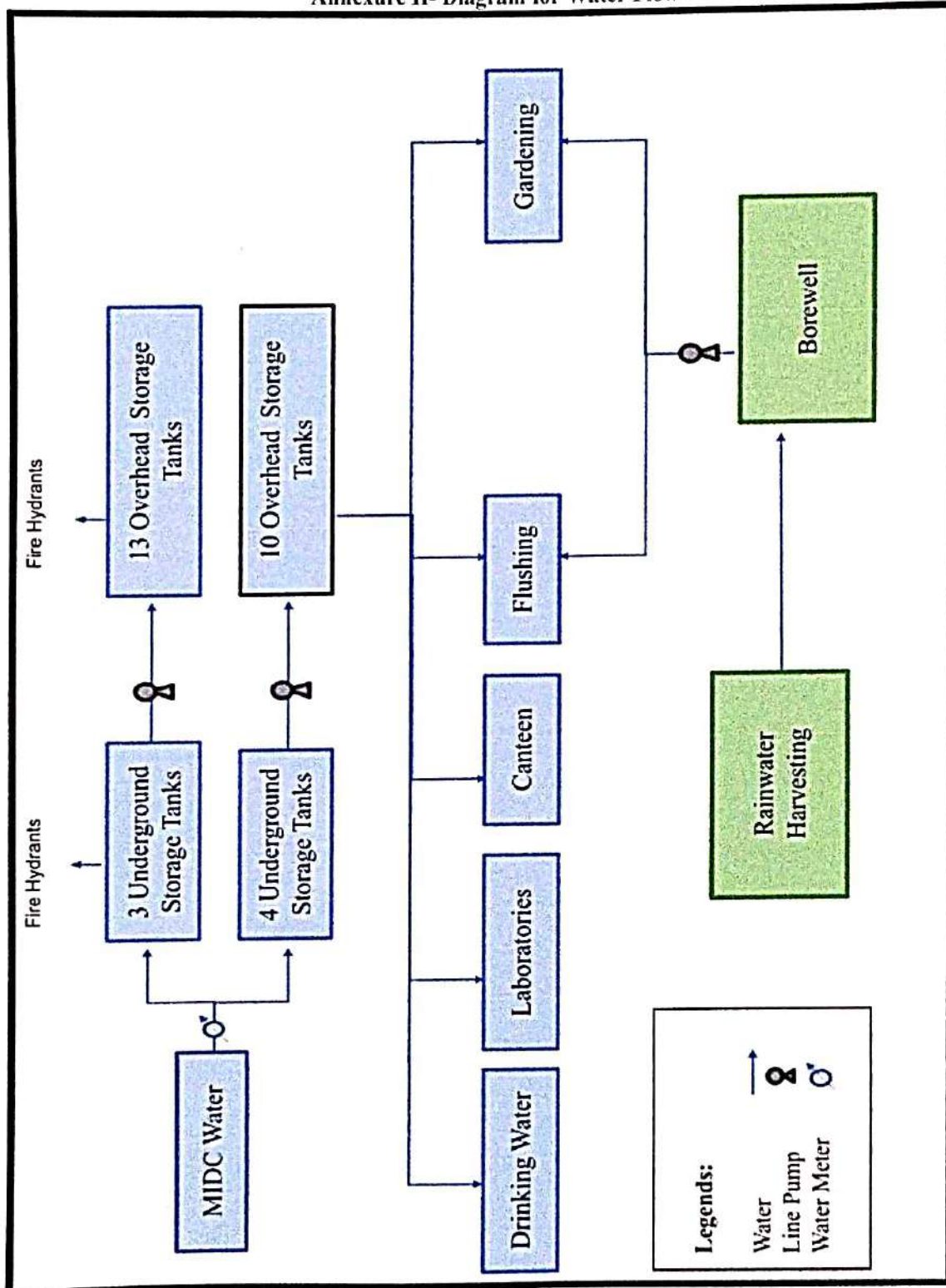


Ninth Floor





Annexure II- Diagram for Water Flow





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Annexure III-Details of Indoor Gardening

The indoor plants are very beneficial. It purifies the air pollution.

Few plant species identified in the campus-

Sl. No.	Species/Scientific name	Common Name	Family
1	Aloe	Aloe Vera	Asphodelaceae
2	Bamboo plant	Bambusa vulgaris	Poaceae
3	Chinese Evergreen	Aglaonema	Araceae
4	English Ivy	Hedera helix	Araliaceae
5	Janet Craig	Dracaena fragrans	Asparagaceae
6	Golden Pothos or Devils Ivy	Epipremnum aureum	Araceae
7	Mass Cane	Dracaena fragrans	Asparagaceae
8	Snake plant	Sansevieria trifasciata	Asparagaceae
9	Peace Lily	Spathiphyllum	Araceae
10	Red-edged Dracaena	Dracena marginata	Asparagaceae
11	Spider Plant	Chlorophytum comosum	Asparagaceae
12	Parlor Palm	Chamaedorea elegans	Arecaceae

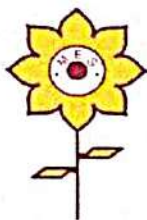


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ANNEXURE IV- List of Electrical Instruments in Energy intensive areas

Sr. No.	Facility	Details of Provisions
1	Accounts Department	Computers, Scanners, Projector, CCTV, Cash machines
2	Administration office	Computers, Cash machine, Printers
3	Administration offices - 6	Computers, Printers, Scanners, Air Conditioners
4	Classrooms - 165	Projectors, Speakers
5	Computer Laboratories	Computers, Air conditioners, Printers, Scanners
6	Director's room and Principal's room – 6	Computers, Air conditioners, Printers, Scanners
7	Electronics and Telecommunication lab	Computers, Printers, Machinery
8	Library - 4	Computers, CCTV, Printers-5, Scanners
9	Lobbies -15	CCTV
10	Mechanical Laboratories	3-Phase machines 54, 1-phase machines-21
11	Server Room	Computers, Printers, Air conditioners
12	Sports room, NSS office, Psychology Laboratory, Counseling room, Audition room	CCTV, Projector
13	Staff Rooms and Faculty Rooms - 21	Computers, Printers, Scanners
14	Workshops - 4	Machinery



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ANNEXURE-V Distribution of Computers and Printers

Sr. No.	Facility	Number of facility	Computer	Printer
1	AICTE Office	1	5	2
2	PHCET	1	13	5
3	PHCET Principal	1	1	1
4	Accounts/ Central Office	2	10	3
5	Placement	1	4	1
6	Computer Lab	12	850	20
7	PHCET Library	1	6	2
8	AV Room	25	45	0
9	Physics Department	1	2	1
10	Chemistry Department	1	1	0
11	Mechanical	1	1	0
12	Classroom	8	50	4
13	Digital Computer Lab	3	30	3
14	Language Lab	1	20	2
15	Staff Room	8	15	5
16	PHCACS Office, IQAC Room and Staff room	9	24	9
17	PHCACS Exam Cell and CAP Cell	2	15	3
18	PHCACS - Labs and Library	7	237	3
19	Admission Cell	1	3	1
20	PHCET Staff	1	1	1
21	PHIMSR LIB	1	13	1
22	PHP LIB	1	7	2
23	PHP LAB	1	60	2
24	PHIMSR LAB	1	60	2
25	PHIMSR Office	1	4	2
26	PHIMSR Principal	1	1	1
27	AV Room	1	3	0
29	PHIMSR Exam cell	1	3	1
30	PHIMSR AV Room	1	8	0
31	PHIMSR Staff Room	1	4	1
32	In Stock	1	30	5
TOTAL			1259	73



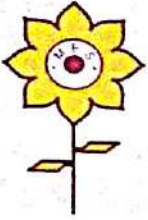
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ANNEXURE-VI-Checklist of Green Audit

1. Checklist for DayLight

Sr. No.	Feature	Availability
1	Curtains for window covering	✓
2	Glazing on windows	x
3	Height windows	✓
4	Openings to East or South to maximize air and sunlight entry	✓
5	Overall structure of building such that sunlight reaches all areas	✓
6	Sufficient illumination	✓
7	Use of glass as facilitator of natural light	✓
8	Use of Sunshade	x
9	Wider doors	x
10	Windows Operation	✓
11	Windows with UV filtering	x



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2. Checklist for Ventilation and Air Quality

Sr. No.	Feature	Availability
1	Air Roof Ventilators	x
2	Cooling System	x
3	Exhaust fans	✓
4	Height of the Ceiling	✓
5	Spacious Corridors	✓
6	Windows Operating in Condition	✓



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3. Checklist for Water Management

Sr. No.	Measures	Availability
1	Drip Irrigation	✓
2	Dual flush toilet with cistern	x
3	Flow control water equipments	x
4	Flow Regulators to water taps	x
5	Maintenance through efficient Plumbing System	✓
6	Rainwater harvesting	✓
7	Regular maintenance for leakage free plumbing system	✓
8	Toilet Stopcock	x
9	Water free urinals System to save water	x



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4. Checklist for Energy Use and Conservation

Sr. No.	Measures	Availability
1	Automatic electrical system monitoring	x
2	Automatic light control	x
3	Controlled Lighting	x
4	Energy efficient equipment	x
5	Energy saving design	✓
6	Natural light Usage	✓
7	On-site energy generation	✓
8	Regular maintenance of electrical system	✓
9	Solar panel installed	✓
10	Use of CFL and LEDs	✓
11	First Aid Box	✓
12	Fire Extinguisher	✓
13	Fire Alarm	✓
14	Earthing test reports found clear	✓
15	Signage near Power House	✓



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5. Waste Management

Sr. No.	Feature	Availability
1	Bins at ideal location to collect garbage	✓
2	Coloured bins with signage to collect garbage	✓
3	Compost management	✓
4	Donation of computers to NGOs and needy people	✓
5	Efficient Disposal	✓
6	Efficient E- waste management by collecting it in specific place	✓
7	Outsourcing of garbage to agency for recycling	x
8	Printing on both sides of paper	✓
9	Purchase of electronic products from company's with buyback policy	✓
10	Rainwater harvesting	✓
11	Recycling project or program	x
12	Reuse of printed paper/ envelopes	✓
13	Reusing	x
14	Sale of books to its user for minimal charges	✓
15	Segregation of dry and wet waste	✓



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6. Building Maintenance

Sr. No.	Feature	Availability
1	Audio guidance for specially abled	x
2	Availability of wheelchair	✓
3	Braille assistance for specially abled	x
4	Easy access to the main entrance of the building	✓
5	Elevator	✓
6	Follow standard procedures for commissioning of electrical/plumbing system	x
7	Personalized services by staff for differently abled	x
8	Preferred car park spaces for specially abled	✓
9	Purchase of standardized and quality material for repair	✓
10	Ramp/ stairs with handrails on at least one side	✓
11	Regular maintenance of building	✓
12	Signage in common and exterior areas	✓
13	Toilets in common areas	✓
14	Uniformity in floor level	✓
15	Use of chemical free products for cleaning	x
16	User awareness program to minimize damage of property	✓



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7. Checklist for Green Management

Sr. No.	Green program	Availability
1	Availability of e-books/ magazines and online resource	✓
2	Buying recycled material	x
3	Campus conduct environmental aware program	✓
4	Contribute library information on sustainability resources to Campus publication, blog or website	✓
5	Creation of "Green Team" in the institution/library	x
6	Outreach relationships with local groups interested in environmental concern and satisfy their information needs	✓
7	Recycling of Papers, aluminum, plastic, e-waste	✓
8	Reduce, Reuse and recycle of the products (At the time of disposal of library material)	✓



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ACKNOWLEDGEMENT

RB Energy Consultancy Green Audit Team acknowledges with thanks the cooperation and support extended to the team members during the Green Audit at MAHATMA EDUCATION SOCIETY's Pillai HOCL Campus, Rasayani.

We deeply appreciate the interest, enthusiasm and commitment of MAHATMA EDUCATION SOCIETY, Rasayani Campus team towards the Green Audit activity. We would also like to place on record our sincere thanks and appreciation to all other members who helped in the Audit.

We appreciate your business and take it seriously when you place your trust in us. We use calibrated instruments and also have our own Thermography camera. Since the condition of buildings and equipment changes over time, we can only report the conditions that existed at the time of our inspection.

We recommend that you have mission critical equipment re-inspected on an annual basis and that you keep previous inspection reports to help with establishing baseline conditions for any items in question. The conditions and recommended actions reported herein are merely the opinion of the Audit Team and any item with an action level should be investigated and repaired by a qualified and licensed person.

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