Mahatma Education Society's
PILLAI HOC COLLEGE OF ARCHITECTURE
Pillai HOCL Educational Campus, HOC Colony, Rasayani, Via Panvel, Dist- Raigad, Pin: 410207
Tel: 02192- 669002
Web: www.phcoa.ac.in mail: phcoaadmin@mes.ac.in
Approved by COA, Government of Maharashtra and Affiliated to University of Mumbai **Inst. Code- AR3427**

Criteria 7 – Institutional Values and Best Practices

7.1 – Institutional Values and Social Responsibilities

7.1.3

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Criterion 7-Institutional Values and Best Practices

Key Indicator - 7.1 Institutional Values and Social Responsibilities

7.1.3. Quality audits on environment and energy regularly undertaken by the Institution. The institutional

Sr No.	Contents (Documents)
1	Green Audit Report 2023
2	Electrical Energy Audit Report 2023
3	Electrical safety Audit Report 2023
4	Green Audit Report 2021
5	Electrical Energy Audit Report 2021
6	Electrical safety Audit Report 2021

Mahatma Education Society's
Pillai HOCL Campus, Rasayani

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 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 Chatterjjee 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 unfailingly.
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:

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)

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

- 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

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)

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)

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)

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

Geographical Location of Pillai HOCL Campus, Rasayani

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.

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

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

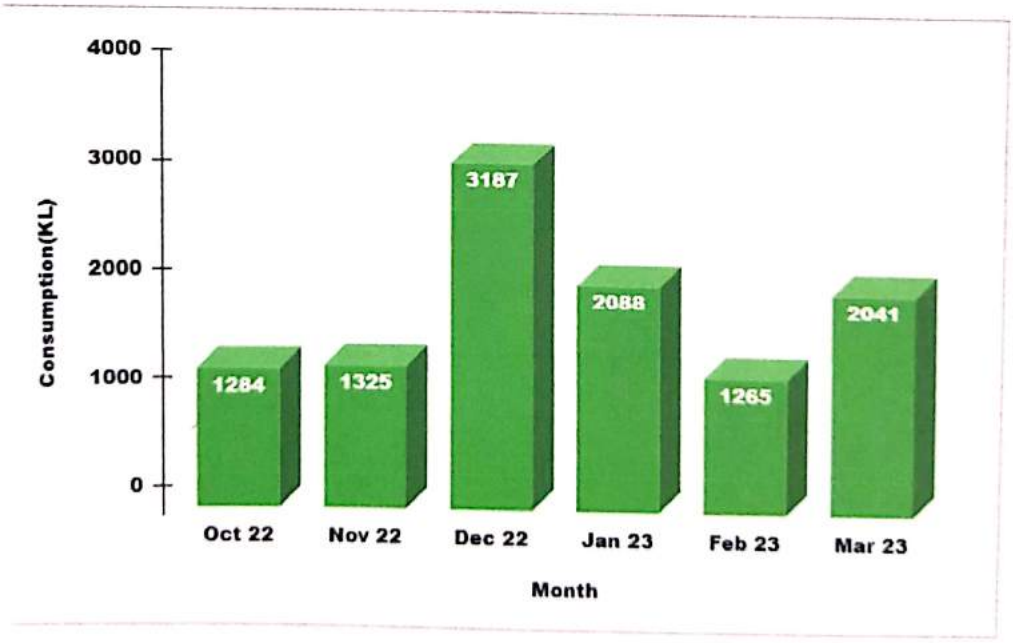
Trees around the Campus

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

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

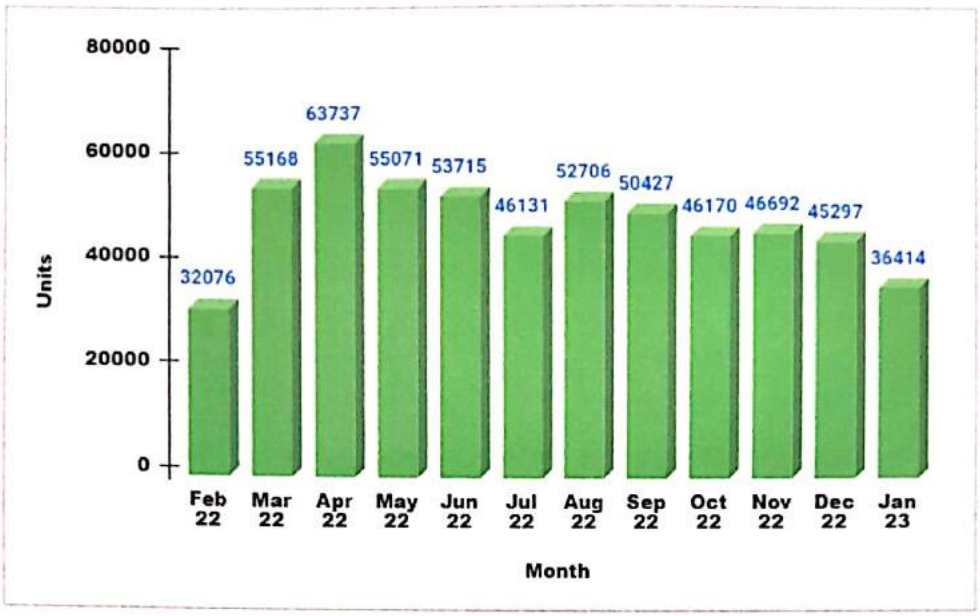
Signages near Cooler/Purifier

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

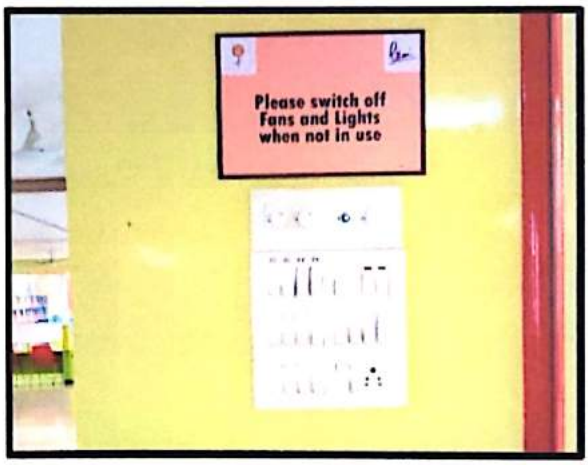
Major electricity consumption are as follows

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

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

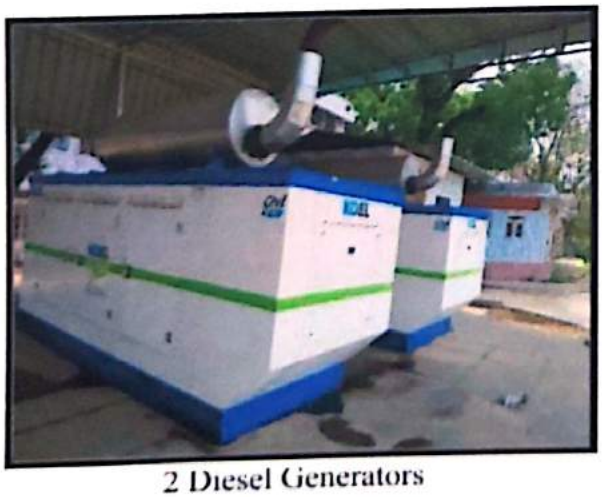
Recommendations:

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.

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.

Composting Unit

Dustbin with Signages for solid waste collection

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.

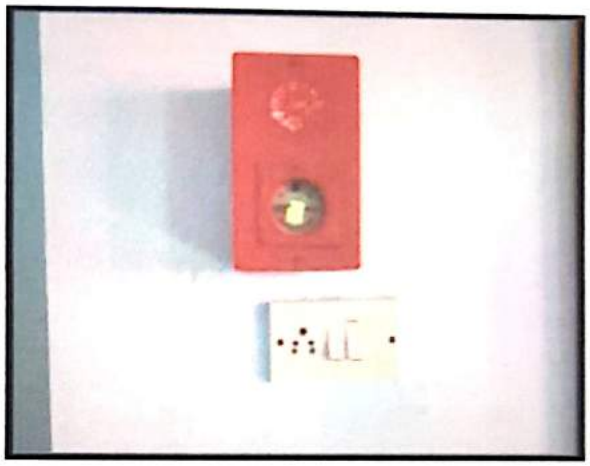
3.6 Building Maintenance

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:

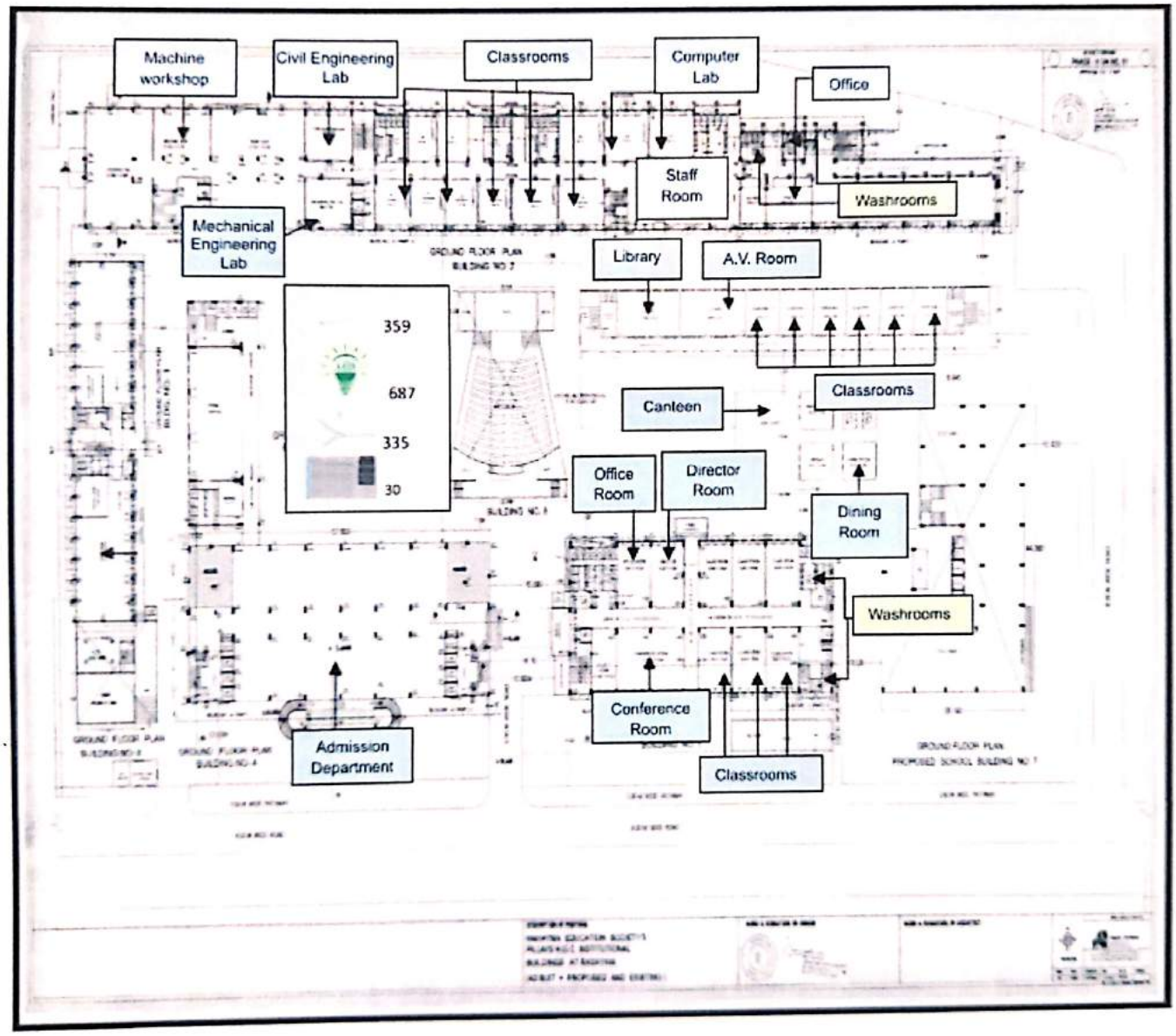
1. Campus has come up with many green initiatives.
2. Environment Management is included in the curriculum to increase awareness.
3. Nature Club organizes different events to increase green awareness among students throughout the year
4. NSS and Nature Club have started a "Know Green, Think Green" promotion.
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.

Recommendations:

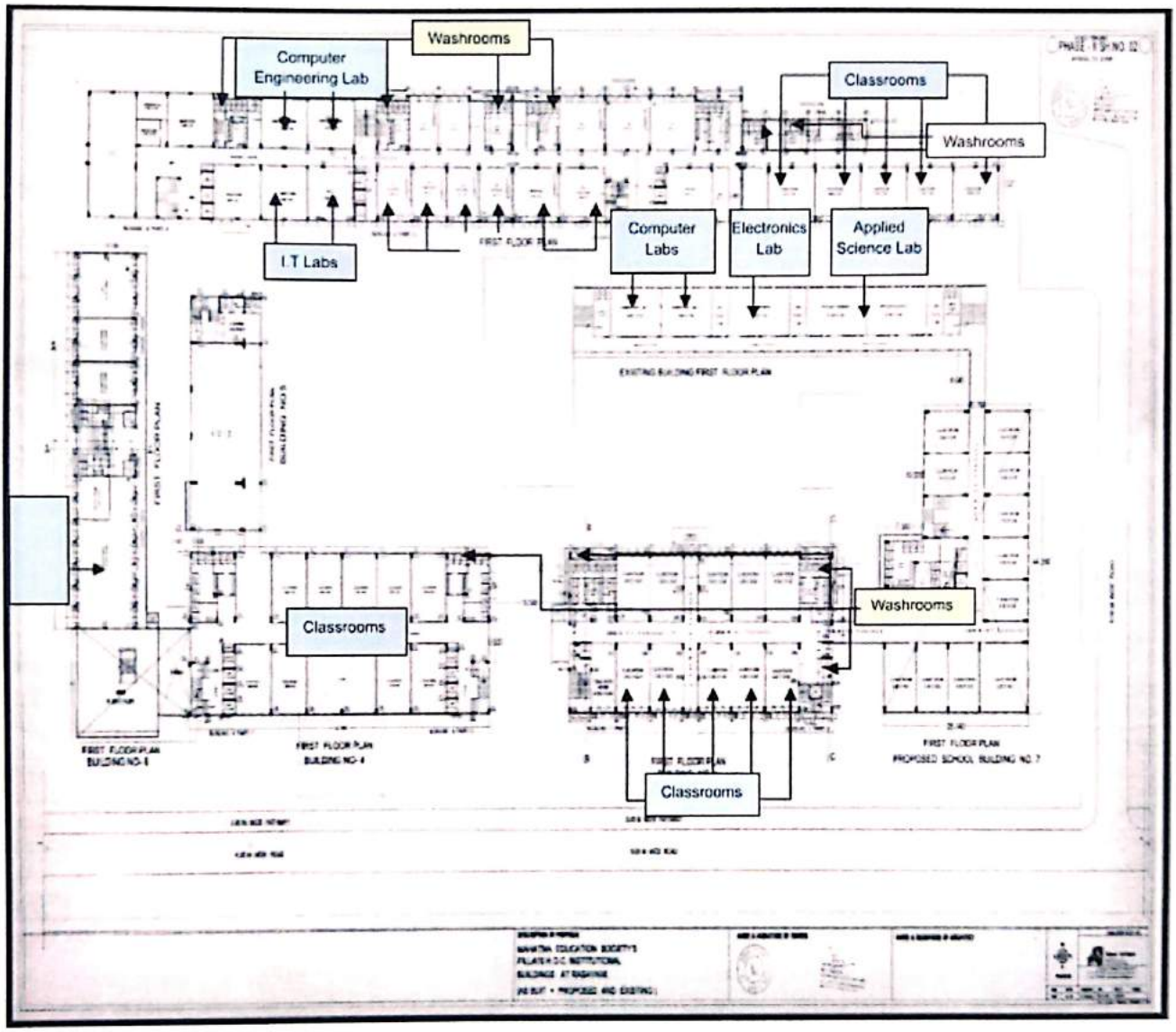
1. Vertical gardening on campus walls is recommended using indoor plants.
2. More webinars, workshops and outdoor activity can be initiated to increase the awareness.
3. Renovation of the cooking system in the canteen to save gas.
4. Establish a purchase policy that is energy saving and eco-friendly.
5. Replace incandescent and CFL lamps with LED lights.
6. Avoid plastic/thermocol 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

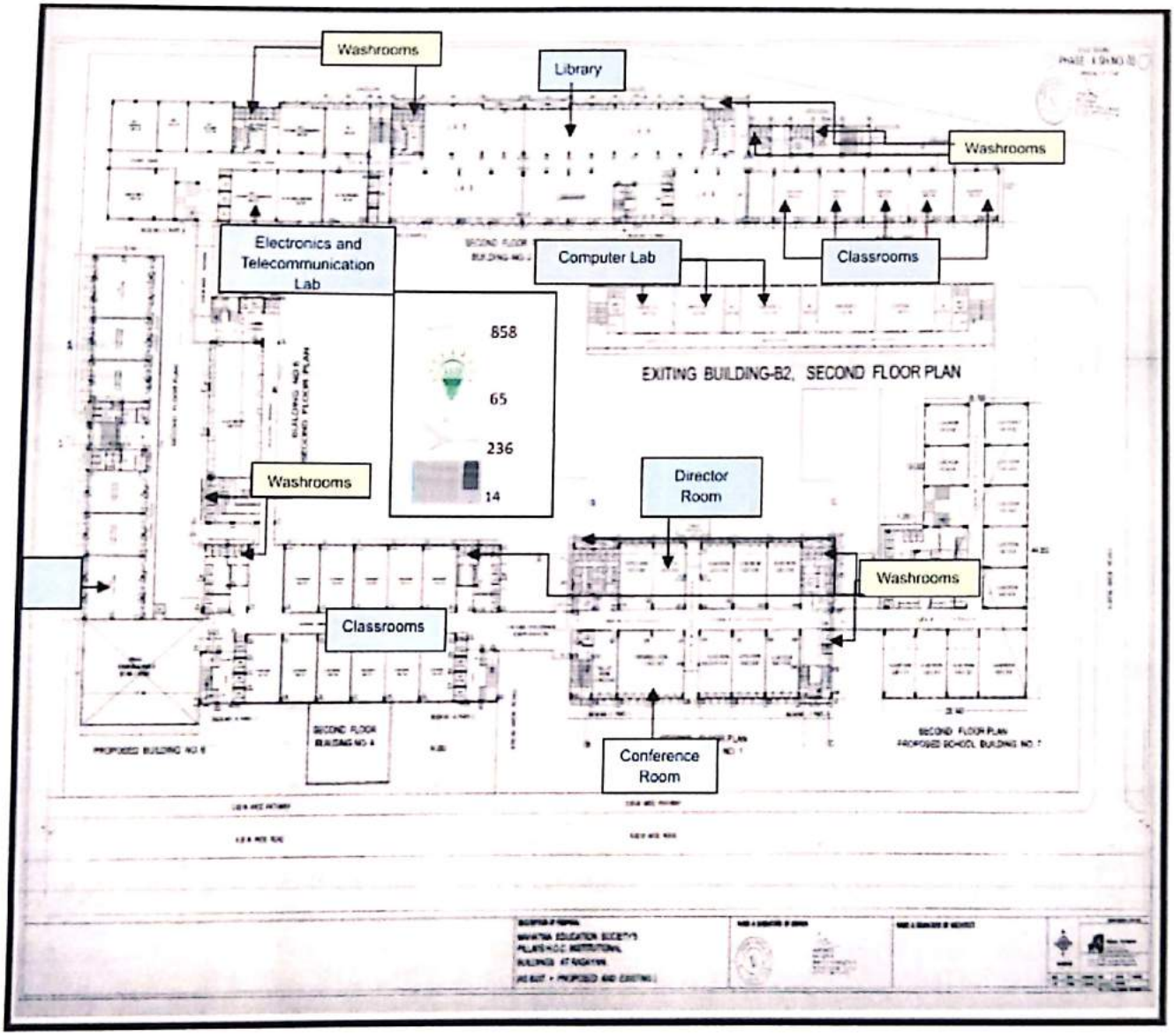
Ground Floor



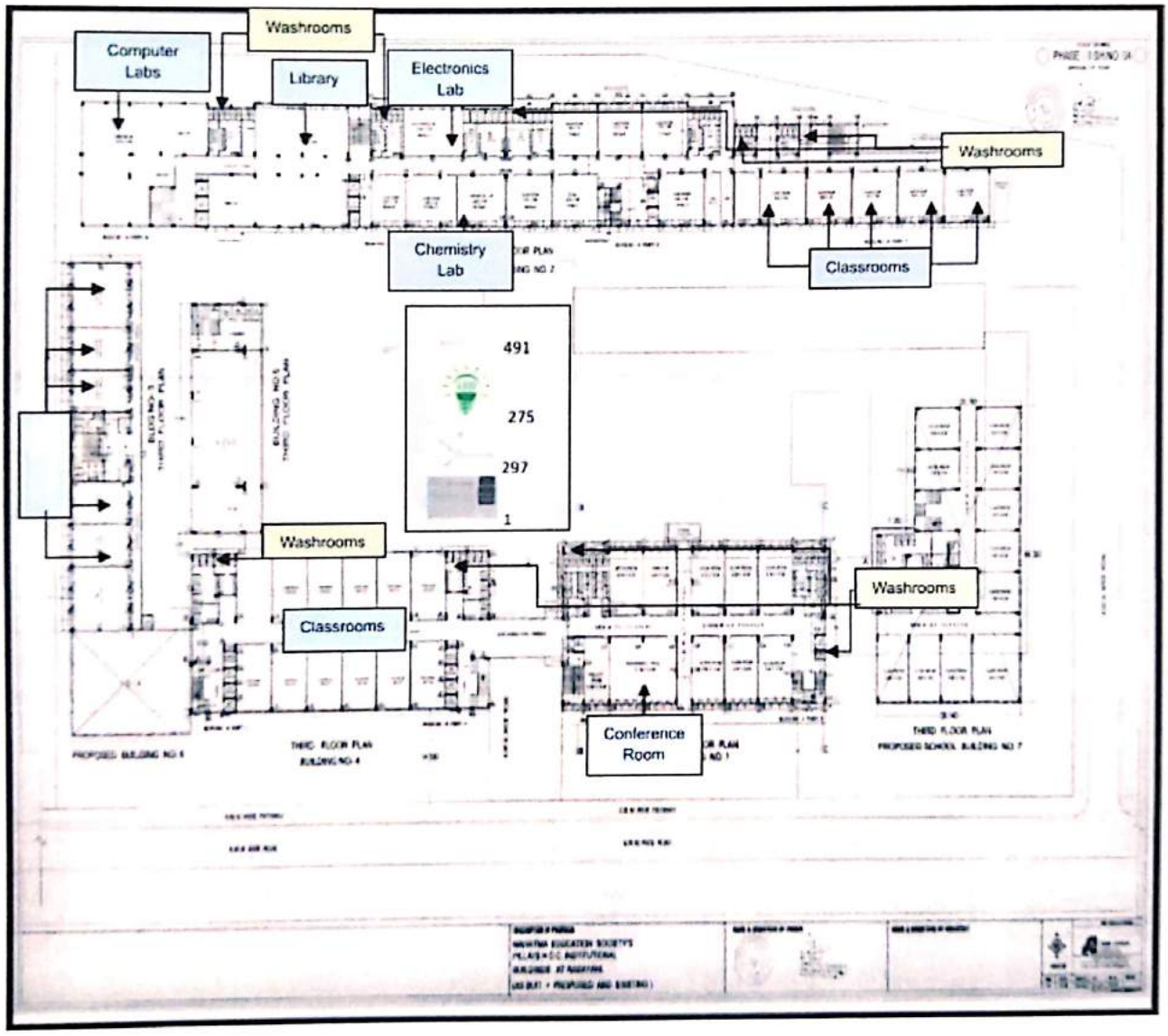
First Floor


Washrooms
Computer Engineering Lab
Classrooms
Washrooms
I.T Labs
Computer Labs
Electronics Lab
Applied Science Lab
Classrooms
Washrooms
Classrooms

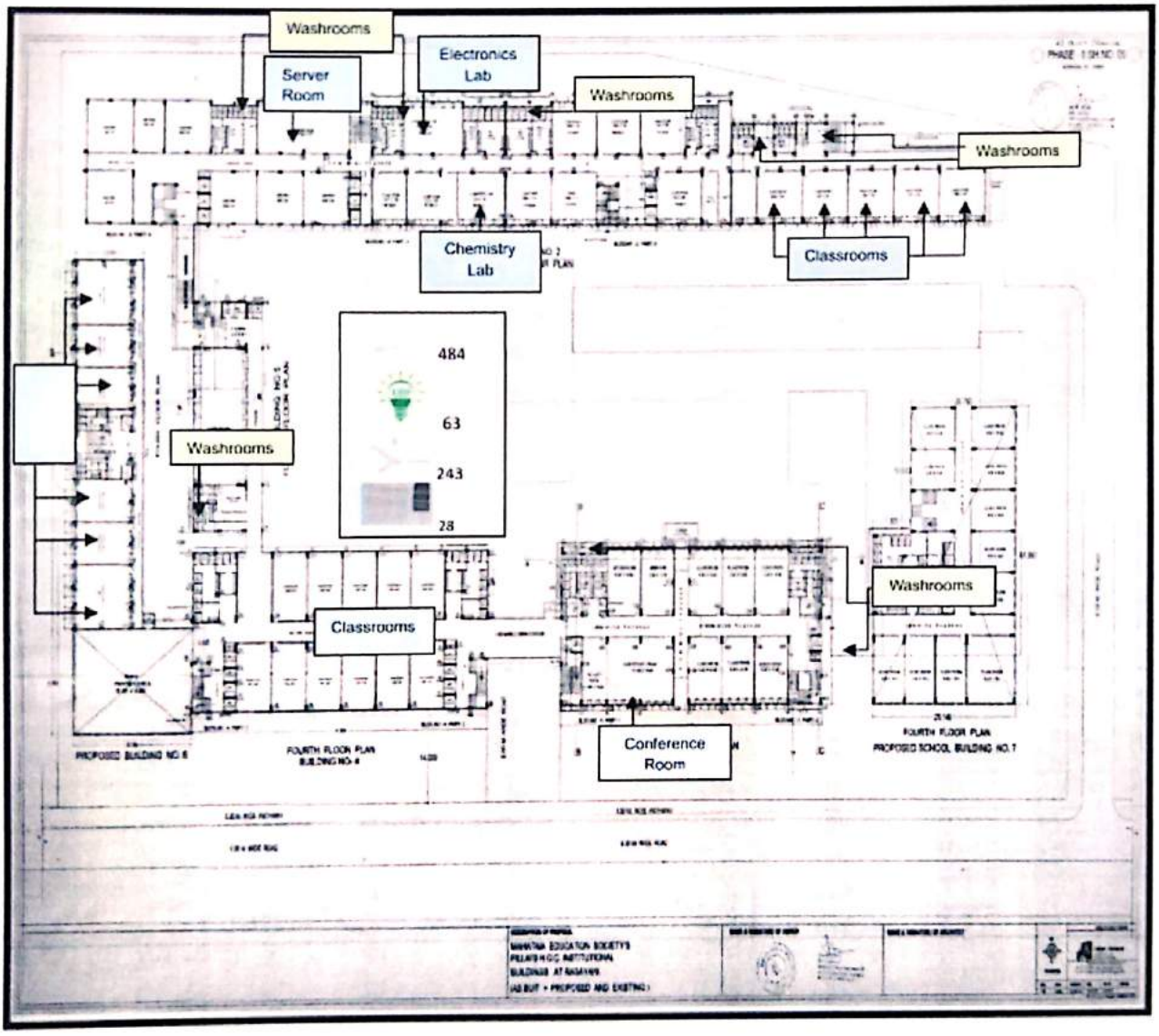
Second Floor



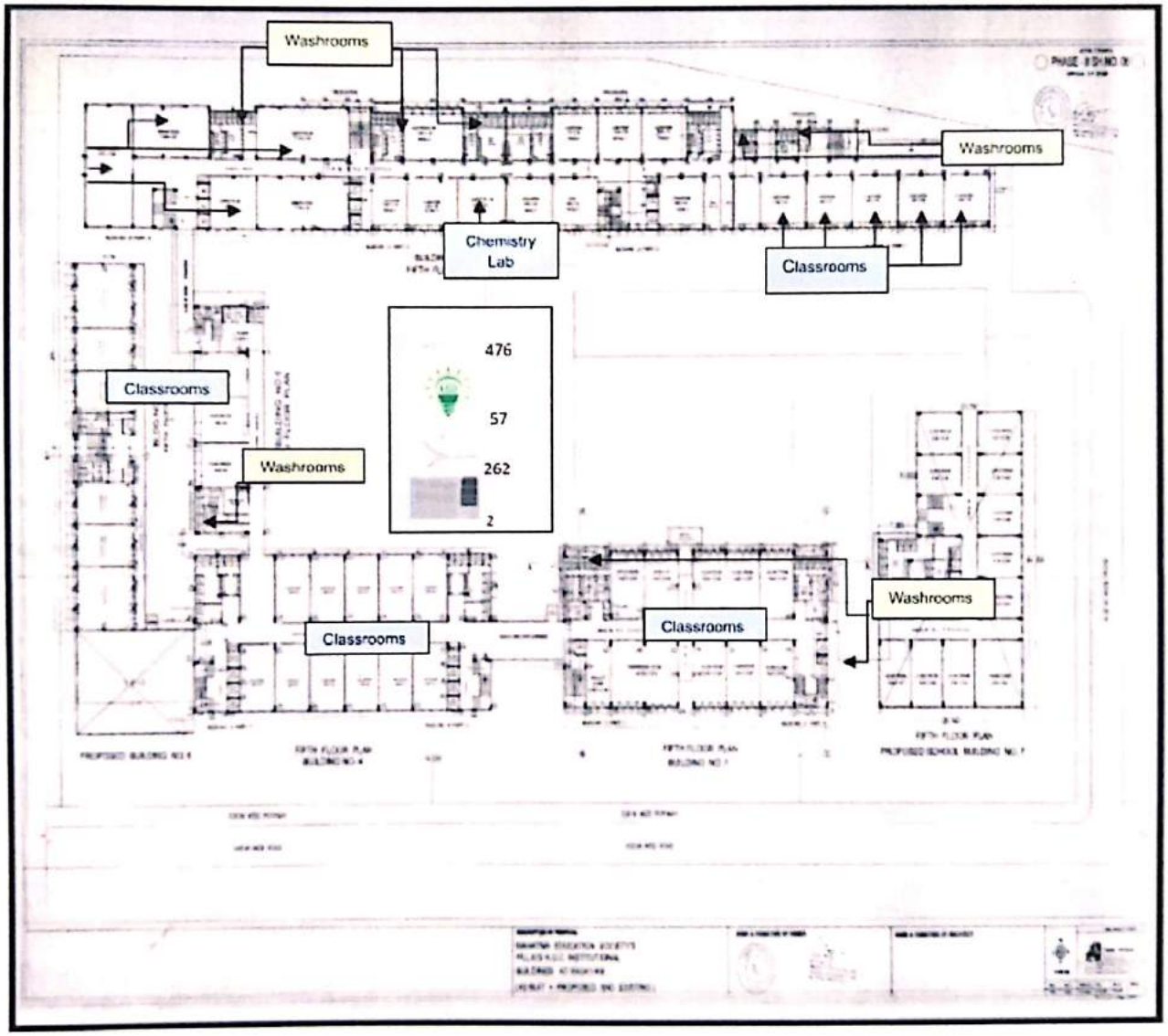
Third Floor


Washrooms
Computer Labs
Library
Electronics Lab
Washrooms
Chemistry Lab
Classrooms
491
275
297
1
Washrooms
Classrooms
Washrooms
Conference Room

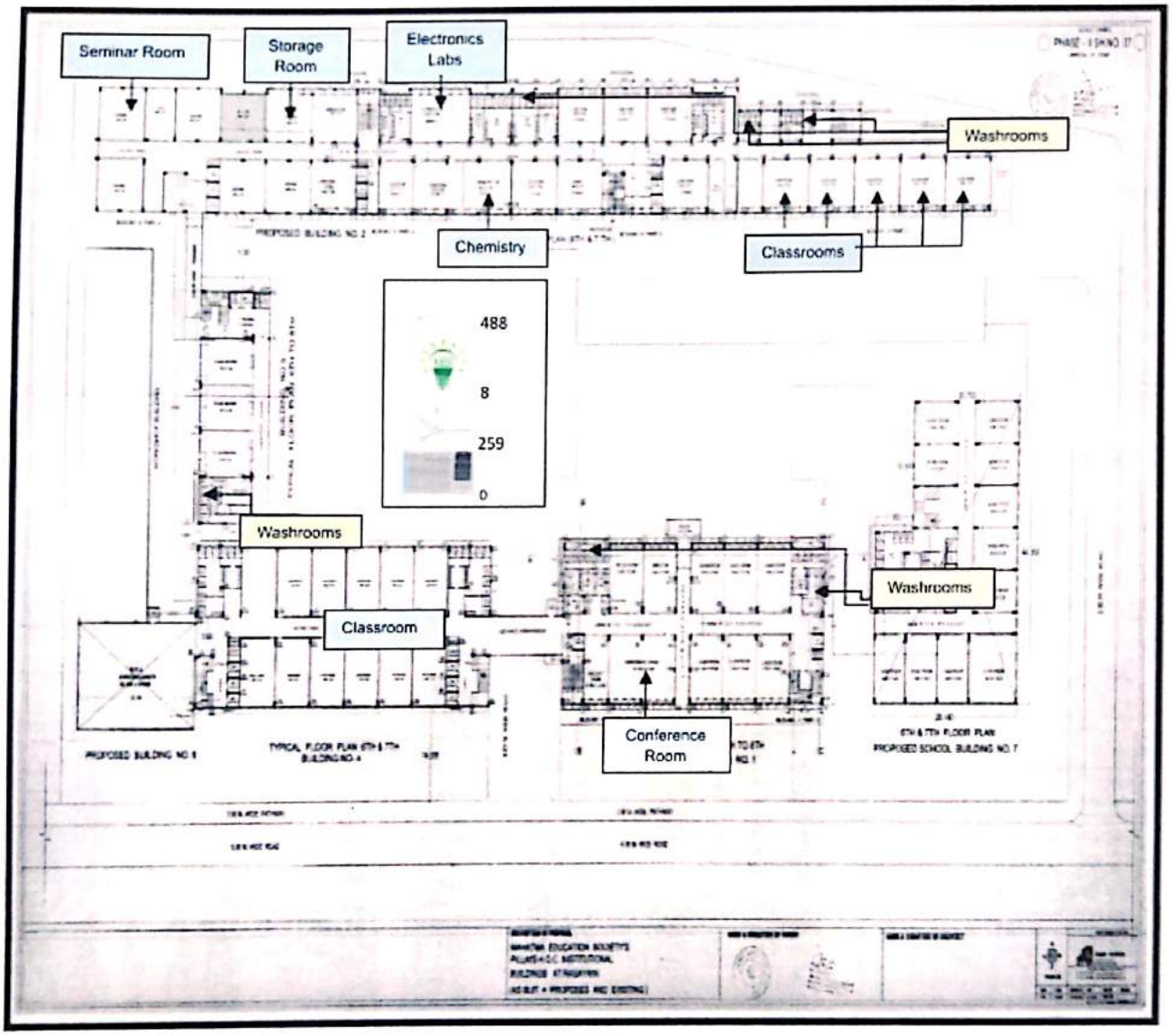
Fourth Floor



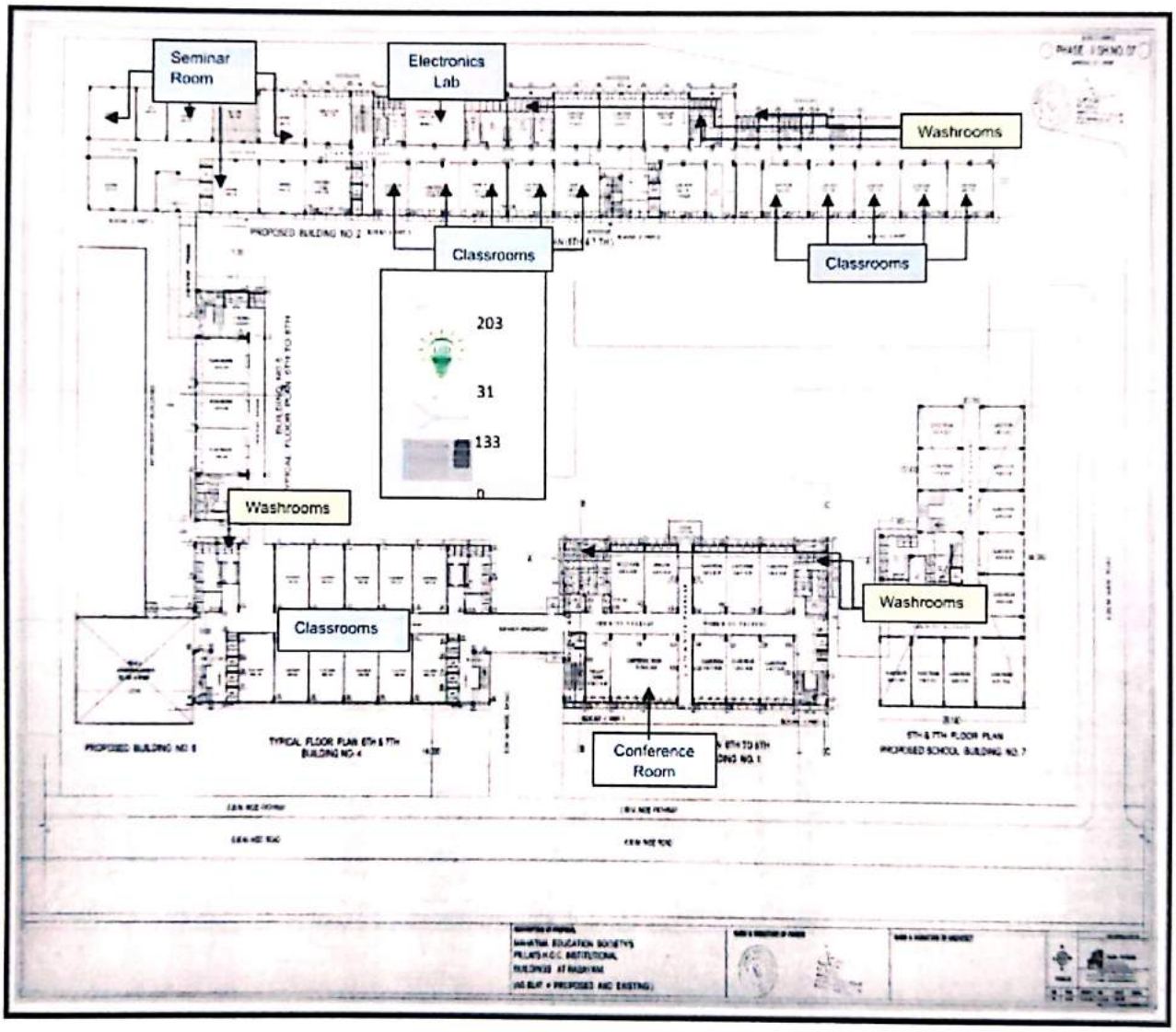
Fifth Floor


Washrooms
Washrooms
Chemistry Lab
Classrooms
476
57
262
2
Classrooms
Washrooms
Classrooms
Classrooms
Washrooms

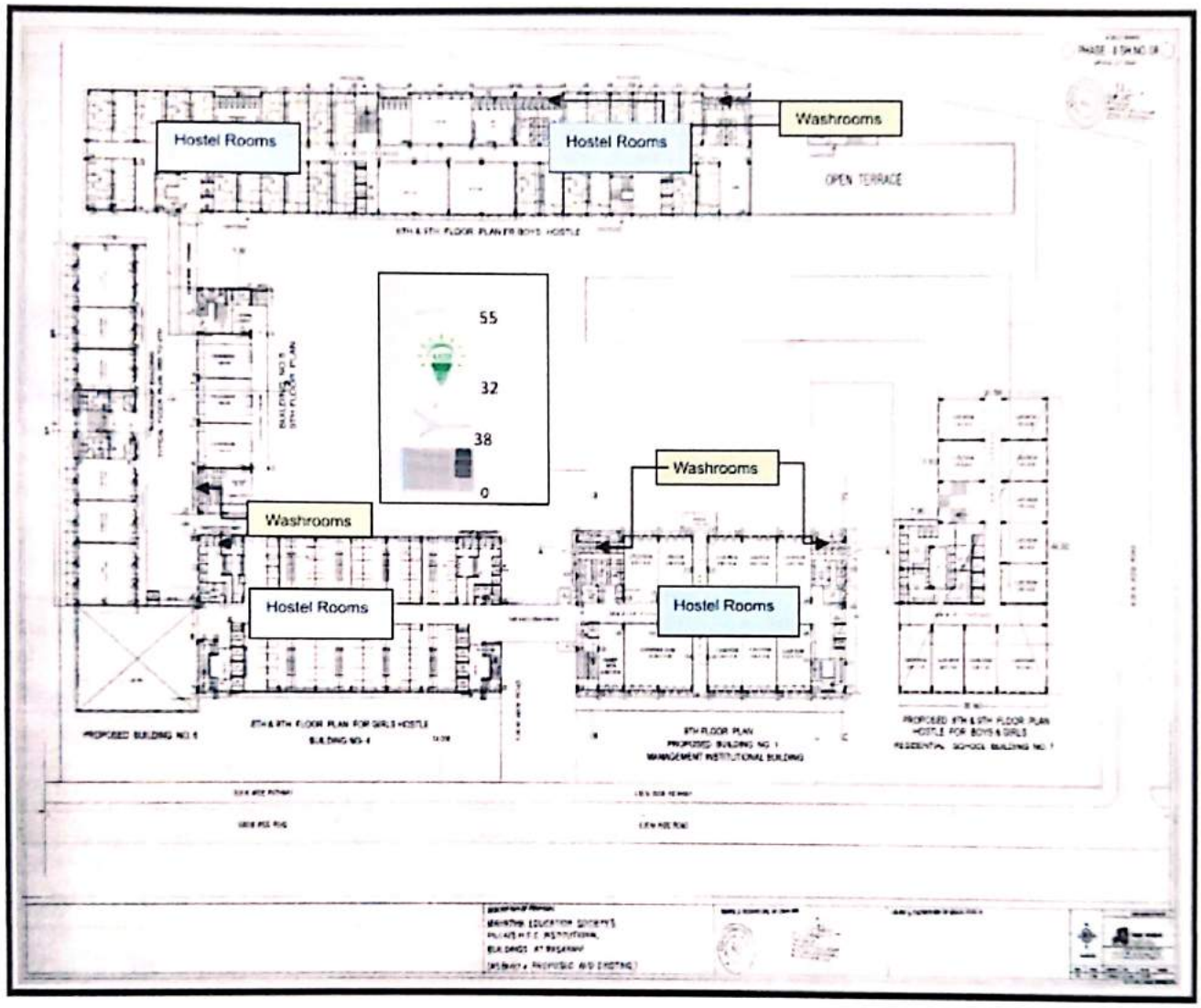
Sixth Floor


Seminar Room
Storage Room
Electronics Labs
Washrooms
Chemistry
Classrooms
488
8
259
0
Washrooms
Classroom
Washrooms
Conference Room

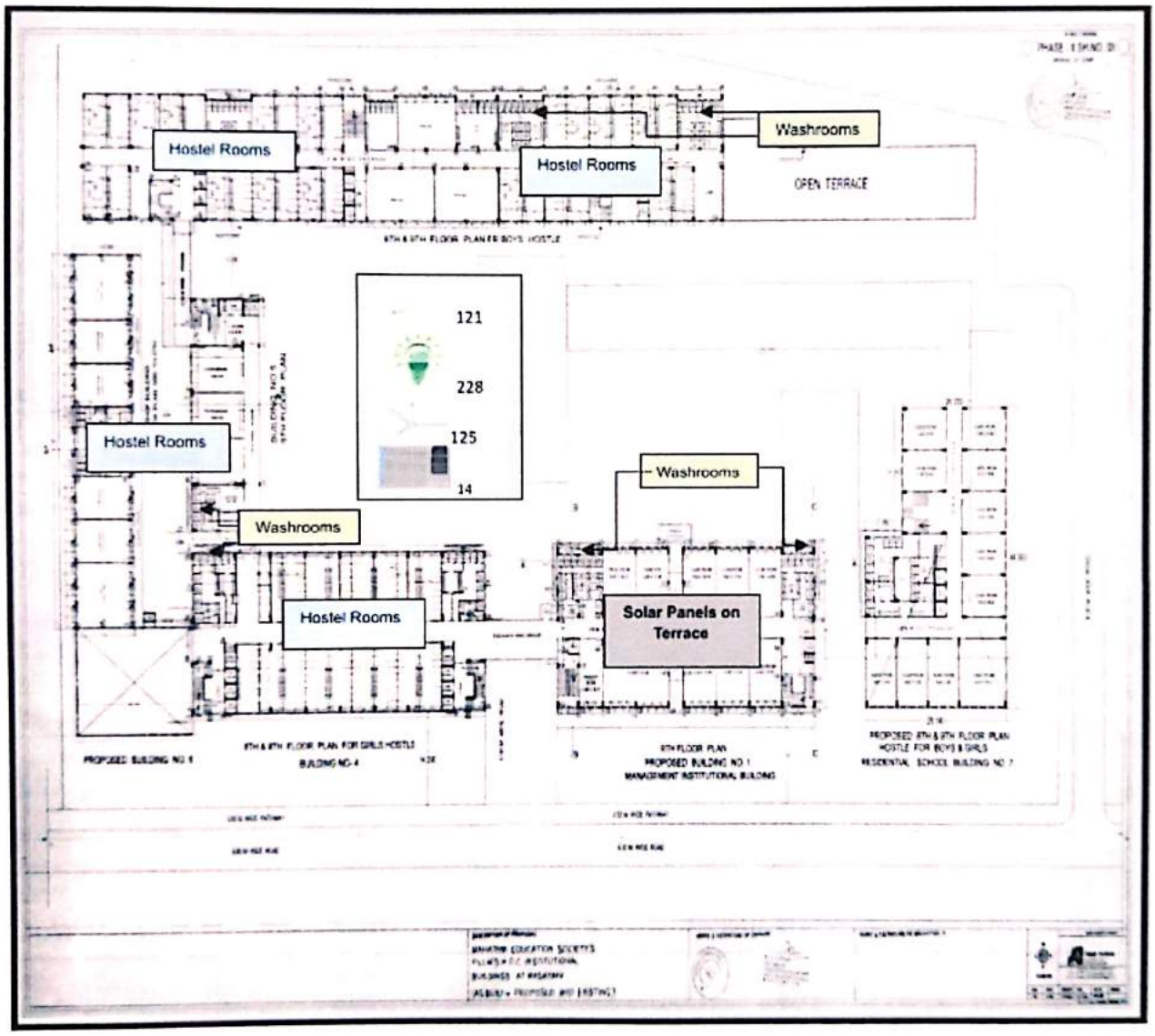
Seventh Floor



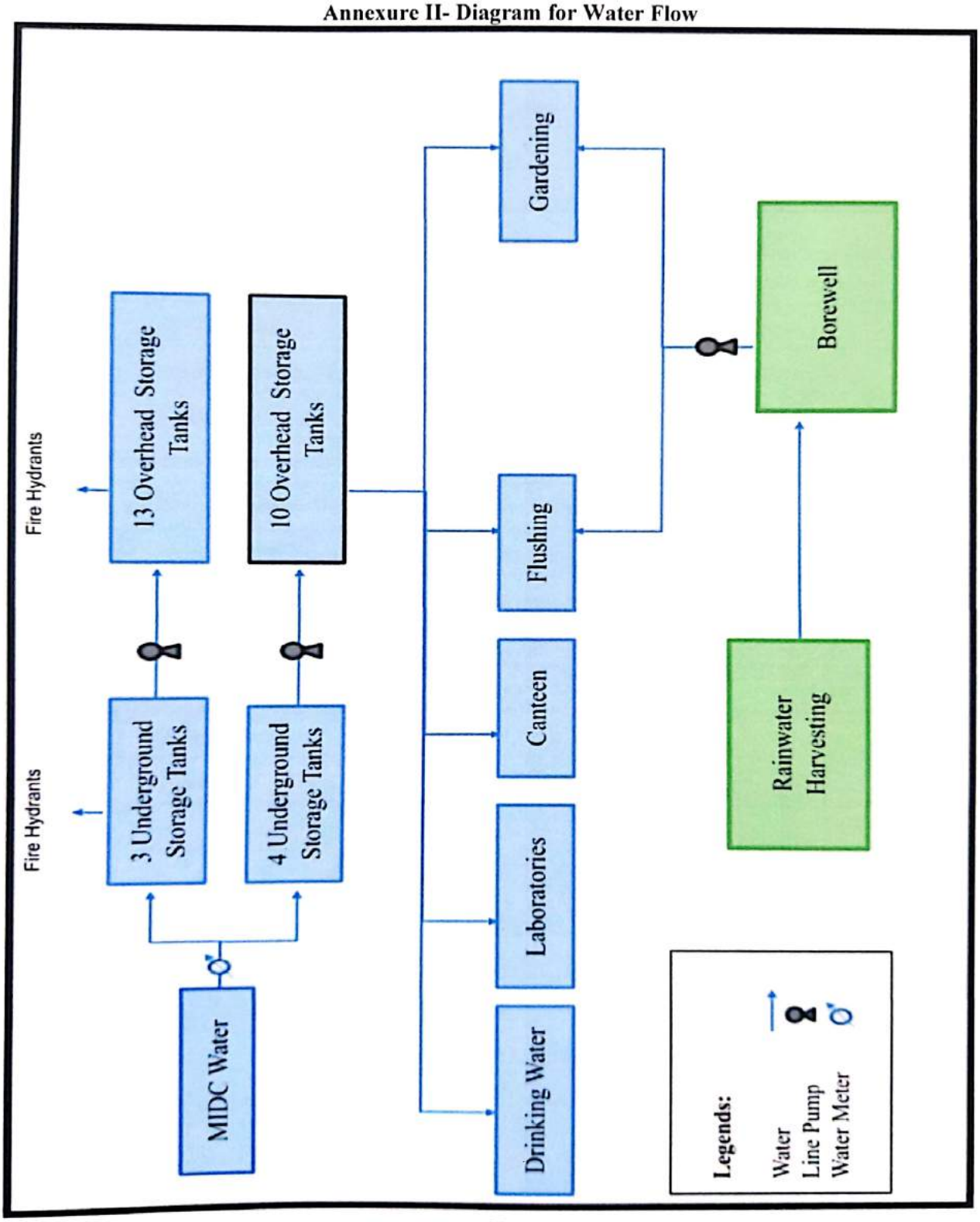
Eighth Floor



Ninth Floor


Hostel Rooms
Hostel Rooms
Washrooms
OPEN TERRACE
121
228
125
14
Hostel Rooms
Washrooms
Washrooms
Hostel Rooms
Solar Panels on Terrace

Annexure II- Diagram for Water Flow



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 elegan	Arecaceae

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

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**

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

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	✔

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

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	✔

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	✔

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	✔

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)	✔

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.

This report does not claim to set forth all existing hazards or to indicate that other hazards do not exist. The inspection and report are performed and prepared for the use of the client. RB Energy Consultancy Services accepts no responsibility for use or misinterpretation by third parties. Our inspection of the property and the accompanying report are in no way intended to be a guarantee or warranty of any kind.

RB Energy Consultancy Services and its employees assume no liability whatsoever for any damage or loss arising from or connected with this inspection and report, including discovering, or failing to inspect or discover any condition.

We reserve the right to refuse to open or access any equipment in cases where there is insufficient PPE (personal protective equipment) available or an insufficient protective boundary for nearby personnel.

Electrical Energy Audit Report
For
MAHATMA EDUCATION SOCIETY
RASAYANY - HOC

Presented By

NEW RB ENERGY CONSULTANCY

Conducted on – 28 APRIL -2023

ACKNOWLEDGEMENT

RB Energy Consultancy Electrical Safety Audit Team acknowledges with thanks the co-operation and support extended to the team members during the Electrical Safety Audit at MAHATMA EDUCATION SOCIETY (RASAYANY).
We deeply appreciate the interest, enthusiasm and commitment of MAHATMA EDUCATION SOCIETY (RASAYANY). team towards the Electrical Safety Audit activity. We would also like to place on record our sincere thanks and appreciation to all other members who helped in the Electrical Safety Audit.

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TABLE OF CONTENTS

1. INSPECTION IDENTIFICATION

Client Name	MAHATMA EDUCATION SOCIETY
Site Location	MAHATMA EDUCATION SOCIETY (RASAYANY)
Performed By	NEW RB ENERGY CONSULTANCY
Scope of Work	ELECTRICAL ENERGY AUDIT

2. SPECIFICATIONS Of INSTRUMENTS USED

The following equipment's were used to perform this study

Sr. No	Instrument	Make	Range of Instruments
1	Thermal Imager	Testo	Temperature range - 40°C to 500°C
2	Load Manager	Trinity Energy System-(Oracle)	RMS AC Voltage -230 /415 V RMS AC Current Up to 1000A
3	Digital Clamp meter	Meco	400A AC / DC,

3. INTRODUCTION

This report details the Electrical Safety Audit activity conducted for HOC MAHATMA EDUCATION SOCIETY (RASAYANY). The audit was carried out with the assistance of a member of staff whose role was to identify and locate equipment to be inspected together with opening Electrical Panel doors.

The aim of this report is to highlight the areas that do not comply with the statutory electrical safety rules. Recommendations are provided for the issues observed as per the priority of High, Medium and Low basis which will help the client to take appropriate action on the same.

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.

4. RECOMMENDATIONS

The recommendations given in this report are intended as a guide only and should be used in conjunction with advice from the maintenance services provider. The priorities are not intended to be prescriptive; recommendations will depend on individual equipment's.

The recommendation priority will very much depend on the type of components being inspected and their environment. As an example, the following priority classification that will be applied for taking action on the respective areas

Priority	Recommendations
1	Immediate action should be taken
2	Remedial action should be undertaken at the earliest opportunity
3	Remedial action should be taken at the next planned maintenance activity

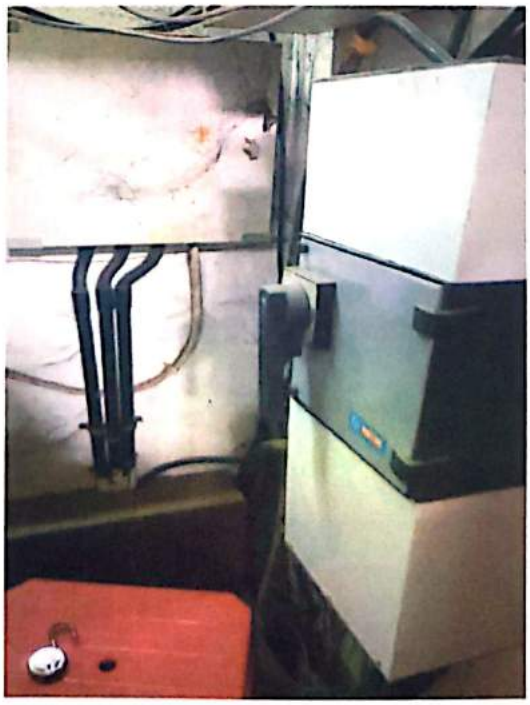
The actions to be taken are completely on the client and the audit company shall not be responsible for it.

Note: Please note that the below mentioned pending/snags are recorded during our visit at sites. There can be cases where these pending snags were addressed by client in due course of time.

5. REPORT SUMMARY

Panel Name	Equipment / Item	Observation	Recommended Action	Priority
COMMON OBSERVATIONS	First Aid / Shock Treatment Charts	Shock treatment charts not displayed in panel room	individual panel rooms to have a pictorial and explanatory shock treatment chart	1
	Fire Schematic	Fire schematic not mentioned at the entry of panel rooms	Fire schematic needs to be provided at every panel room	1

Note: - Following are a list of common observations made. These are very HIGH priority observations and are needed to be complied with as soon as possible.



The following is a list of detailed observations found during the Electrical Safety and Energy Audit activity. The recommendations for the observed issues are also mentioned in the report below.

5.1 MAIN POWER PANELS

Panel Name	Equipment / Item	Observation	Recommended Action	Priority
A & B	Electrical Single line diagram	Electrical single diagram is not found in electrical room	In case of emergency Electrical single diagram will be useful to understand existing connection.	2
	Fire Extinguishers	Fire extinguisher are provided but not 5ft on wall mounted	They should be wall mounted for ease in operation during fire hazards	2

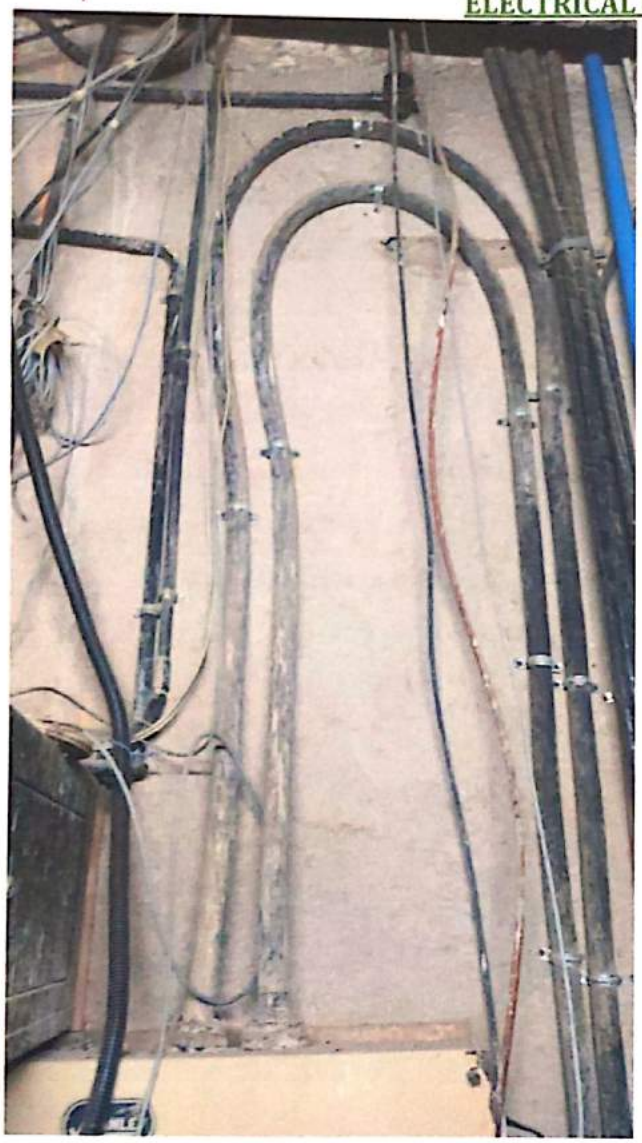
Panel Name	Image No.	Observation	Recommended Action	Priority
Distribution board & Sub Distribution board	A, B,C,D, E,F,G,H I,J,K,L	O/G cable tagging is required & cable entry need to be closed. so that lizard will not enter into panel. Without lug wire conductor is connected to MCB.	Kindly get the tag installed for proper identification of cables. Cable openings need to be closed. Panel cleaning is required by blower. Proper straight pin lug is required.	2
		Glanding is not done to cable. Incoming wire openings need to be closed. So that lizard will not enter into panel.	Kindly get proper glanding done.	2
		Enclosure not provided on sub distribution panel.	Kindly provide enclosure.	2
		Electrical Insulating mat is not founding on flooring	Electrical Insulating mat is provided on flooring	

Main Electric panel

1. Electrical single diagram is not found,
2. Emergency Contact Details,
3. Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry".
4. 5Kgs, CO2 type fire extinguisher is providing.

Kindly get the tag installed for proper identification of cables.
Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"Electrical Insulating mat is provided on flooring.

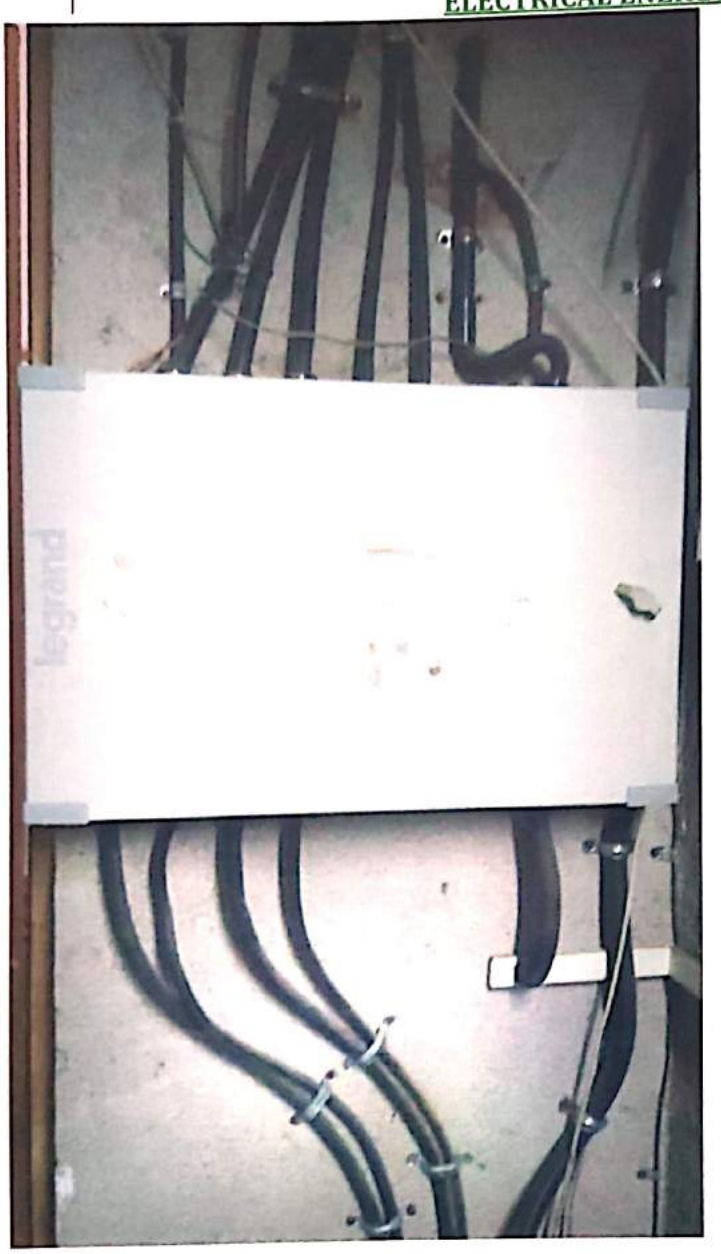
5Kgs, CO2 type fire extinguisher is providing.



Kindly get the tag installed for proper identification of cables.

Kindly get the tag installed for proper identification of cables.
Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"Electrical Insulating mat is provided on flooring.

Need to covered properly.
Unwanted material found in panel.



Kindly get the tag installed for proper identification of cables.
Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"

Kindly get the tag installed for proper identification of cables.
Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"

Electrical Insulating mat is provided on flooring.

Unwanted material found in panel room.
Earthing bolts was Rusted.

Location : Office are		
Parameters	Observations	Remarks
Fire Extinguisher		- Need to hang on wall at 5 feet
MCP/BGU	√	Found ok
Observation on Fire Extinguisher	√	Not renewed
Signage's	√	Found okay
Emergency Contact Details	×	Must be required
Fire related Training	√	Found ok
Responsibility Matrix availability	X	Must Required
Escape routes (hurdles in path, signage's, illumination)	X	Must Required
Sprinkler system catering all areas	√	----
Smoke/Heat detector active / inactive catering all areas	√	----
PA system working	X	Found okay
Healthiness of System	√	Found ok
Emergency Lighting	X	Must Required
First Aid Kit	√	Found ok
Electric Shock Treatment Chart	×	Found okay

7. General Observations & Recommendations

No's	Particulars	Comment
1	Proper entry/access is provided for electrical room	Yes
2	Proper door (lock arrangement) is provided	Yes
3	Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"	No
4	Electrical Insulating mat is provided on flooring	Yes
5	Proper illumination is provided near distribution boards and main isolation switches	Yes
6	Proper ventilation is provided for electrical panels and switchgears	Yes
7	Space is sufficient to provide proper access to the switchgear for maintenance work	Yes
8	5Kgs, CO2 type fire extinguisher (1 no.) is provided and is within the periodic test life	No
9	Any abnormal overheating of cable, terminations and switchgear	No
10	Switchgears are enclosed from	No
A	Front	Found ok
B	Top cable entry	Gland & cable sport required try required
c	Bottom cable entry	Ok
11	Electrical panels, switchgears and distribution boards are clean and free from dust and moisture.	Yes (Unwanted material)
12	Cables are glanded properly at terminations.	No
13	Cables are laid/ routed in safe manner	Yes
14	Handles are provided to the switchgears and are in good working condition	Yes
15	Proper earthing is provided to electrical installations (panels/switchgears/DBs etc.)	Yes
16	There are no live conductors/ busbars in open condition	No
17	Up to date Single Line Diagram (as laid) is displayed inside the electric room	No

18	Electric supply board cutouts (Fuse Holder of ESCO) are properly enclosed	Yes
19	Electrical feeders are identified with the load they will be operating and marked accordingly.	No
20	Electrical room is maintained clean and no unwanted material is stored in electrical room	No
21	The room has proper roof and there is no possibility for water leakage/seepage.	Found Ok
22	Test reports of electrical installations like earthing test reports are valid anddated.	Yes

Parameter	Observation	Recommendations	Priority
Personal Protective Equipment's used by Technicians	It is observed that the technicians operated sans Hand Gloves while working on electrical installations	Strongly recommended to provide the technicians with safety gloves even for LT side	1
Tools used by Technicians	Tools and Equipment's are not found	Kindly get the measuring instruments calibrated on a quarterly basis to maintain its accuracy	3

8. GENERAL SUGGESTIONS

Following are the best practices that shall be implemented to achieve better safety standards and enhance quality of work:

1) **Handover format and follow-up: (refer below Table-1)**
   - Kindly maintain the following format for the Handover format which is a standardized format.
   - This will help in better handover to the next shift personnel and also maintain a proper record of the issues addressed and actions taken against the same.

2) **Tools storage room: (refer below Figure-1)**
   - Tools used by the Facility team i.e. by technicians / supervisors are to be stored in the manner depicted in Figure-1 below.
   - Tools need to be protected from damage either physical or atmospheric conditions and hence need to be stored carefully.

3) **Yearly calibration**:
   - Calibration of the Energy meters on the main power panels is of utmost importance to ensure that the readings that are being taken are appropriate and accurate.

3.4 GENERAL OBSERVATIONS

Sr. No	Equipment / Item	Observation	Recommended Action	Priority
1	Manual Call Points (MCP)	MCPs are not covered	MCPs needed to be covered by a normal cover to avoid needless tripping leading to havoc conditions.	1
2	PA System	PA system is installed in office area.	Not Found	1
3	Entrance door	Door is enable to open automatic freely when fire alarm device activated during emergency	Kindly ensure the opening of the door in case of fire emergency	1
4	Exit Route Signage	Exit route signage were not installed	Kindly ensure 24x7 illumination of exit route signage to facilitate easy escape in case of emergency	1

Year	Month	Day	2nd shift Engineer	2nd shift Technicians	Sr. no.	Time	Location	Details of complainant		Details of complaint	Action taken / Details of Regular activities	Status (Job done/ pending)	Attended by
								Name	Contact Details				

Table-1: Standardized Handover format

Figure-1

Figure-2

4) **Work Permit Format:**

- Kindly follow the following format that indicates a standardized Work Permit Format.

Electrical Work Permit

Date: WP NO:

Block Ref :
Area :
Details of work :
Work suggested by :
(Company Name)

PRECAUTION OR SPECIFIC REQUIREMENTS					
	Y	N		Y	N
Availability of LOTO procedure			Usage of 3 pin sockets in all Electrical appliances		
Qualified Electricians			Availability of Electrical safety gloves		
No physical damage in wires			Electrical insulation mats in the area of work		
Area of work is free of water			Usage of proper PPEs		
Follow up of earthing practices			Warning Signage		
Usage of insulated tools					

Start Time: Expected time of completion:
Time of completion:

The safety requirement need to be followed have been explained to me and I understood the safety requirements. We will follow the same while executing the work.

Signature of person requesting permit
Name: Date:

The safety requirement should be followed without deviation till completion of the scheduled activity. Any deviation will lead to cancellation of this Permit. This permit is valid for the stipulated period only. Same should be renewed after the stipulated period.

Signature of (respective agency)

Signature of person authorizing the Permit

Name: Date:
Designation:

---

9. CONCLUSION

The Electrical Safety Audit carried out, has brought to light a few critical areas that need to be rectified or replaced in order for a safer future.

The observations and recommendations are suggested in a HIGH, MEDIUM and LOW priority of compliance time required.

It is up to the client to implement the recommendations suggested by New RB Energy Consultancy

Electrical safety Audit Report

For

MAHATMA EDUCATION SOCIETY
RASAYANY - HOC

Presented By

NEW RB ENERGY CONSULTANCY

Conducted on – 28 APRIL-2023

ACKNOWLEDGEMENT

RB Energy Consultancy Electrical Safety Audit Team acknowledges with thanks the co-operation and support extended to the team members during the Electrical Safety Audit at MAHATMA EDUCATION SOCIETY – RASANANY HOC. We deeply appreciate the interest, enthusiasm and commitment of MAHATMA EDUCATION SOCIETY – RASANANY HOC team towards the Electrical Safety Audit activity. We would also like to place on record our sincere thanks and appreciation to all other members who helped in the Electrical Safety 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 Electrical Safety Audit Team and any item with an action level should be investigated and repaired by a qualified and licensed electrician.

This report does not claim to set forth all existing hazards or to indicate that other hazards do not exist. The inspection and report are performed and prepared for the use of the client. RB Energy Consultancy Services accepts no responsibility for use or misinterpretation by third parties. Our inspection of the property and the accompanying report are in no way intended to be a guarantee or warranty of any kind.

RB Energy Consultancy Services and its employees assume no liability whatsoever for any damage or loss arising from or connected with this inspection and report, including discovering, or failing to inspect or discover any condition.

We reserve the right to refuse to open or access any equipment in cases where there is insufficient PPE (personnel protective equipment) available or an insufficient protective boundary for nearby personnel.

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1. INSPECTION IDENTIFICATION

Client Name	MAHATMA EDUCATION SOCIETY - HOC
Site Location	MAHATMA EDUCATION SOCIETY - RASANANY
Performed By	New RB Energy Consultancy
Scope of Work	Electrical Safety Audit

2. SPECIFICATIONS Of INSTRUMENTS USED

The following equipment's were used to perform this study

Sr. No	Instrument	Make	Range of Instruments
1	Thermal Imager	Testo	Temperature range - 40°C to 500°C
2	Load Manager	Trinity Energy System-(Oracle)	RMS AC Voltage -230 /415 V RMS AC Current Up to 1000A
3	Digital Clamp meter	Meco	400A AC / DC,

3. INTRODUCTION

This report details the Electrical Safety Audit activity conducted for MAHATMA EDUCATION SOCIETY – RASANANY HOC. The audit was carried out with the assistance of a member of staff whose role was to identifyand locate equipment to be inspected together with opening Electrical Panel doors.

The aim of this report is to highlight the areas that do not comply with the statutory electrical safety rules. Recommendations are provided for the issues observed as per the priority of High, Medium and Low basis which will help the client to take appropriate action on the same.

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.

4. RECOMMENDATIONS

The recommendations given in this report are intended as a guide only and should be used in conjunction with advice from the maintenance services provider. The priorities are not intended to be prescriptive; recommendations will depend on individual equipment's.

The recommendation priority will very much depend on the type of components being inspected and their environment. As an example, the following priority classification that will be applied for taking action on the respective areas

Priority	Recommendations
1	Immediate action should be taken
2	Remedial action should be undertaken at the earliest opportunity
3	Remedial action should be taken at the next planned maintenance activity

The actions to be taken are completely on the client and the audit company shall not be responsible for it.

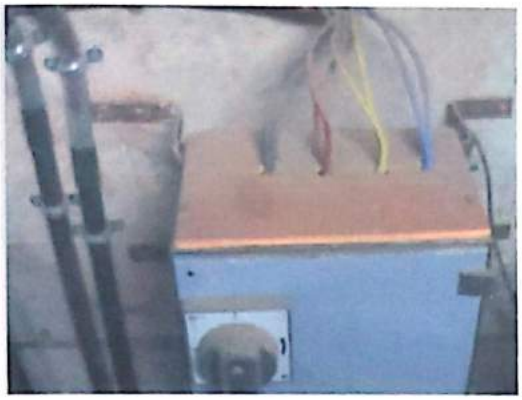
Note: Please note that the below mentioned pending/snags are recorded during our visit at sites. There can be cases where these pending snags were addressed by client in due course of time.

6. Thermography study

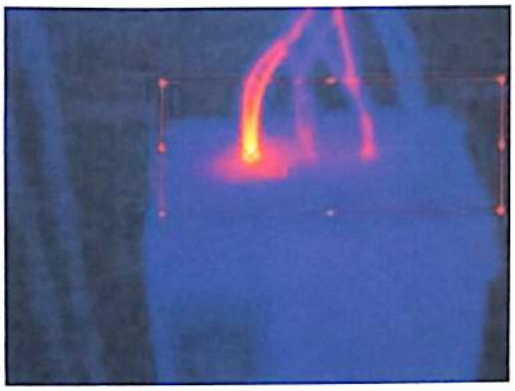
Temperatures	Recommendations
Above 70°C	Urgent action should be taken
Between 55°C and 70°C	Corrective action should be undertaken at the earliest occasion
Between 40°C and 55°C	Corrective action should be taken at the next planned maintenance activity
20°C to 40°C	Found okay

Image No: - 01

Visual Image



Thermal Image



Location	MMS B-Wing
Equipment	Changeover
Fault Location	N - Phase
Area Temperature	26.4

Object Parameters	Value
Image File Name	00198
Emissivity	1
Max Hot Spot Temperature	68.4
Fault Rating	Priority 1

ANALYSIS & OBSERVATIONS

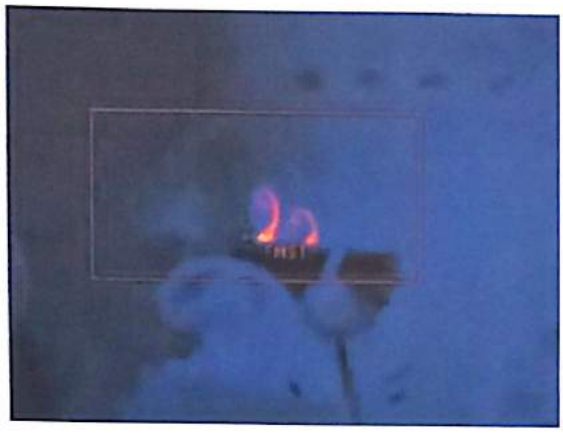
Found hit on N – Phase

Corrective action should be taken at the next planned maintenance activity

Image No: - 02

Visual Image

Thermal Image



Location	Main Electric room
Equipment	Capacitor
Fault Location	Normal
Area Temperature	26.4

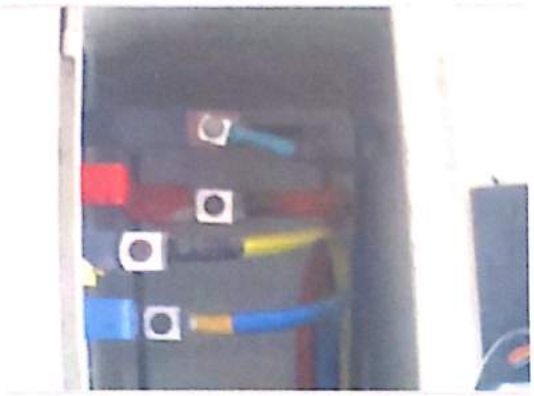
Object Parameters	Value
Image File Name	00195
Emissivity	1
Max Hot Spot Temperature	82.9
Fault Rating	Priority 1

ANALYSIS & OBSERVATIONS

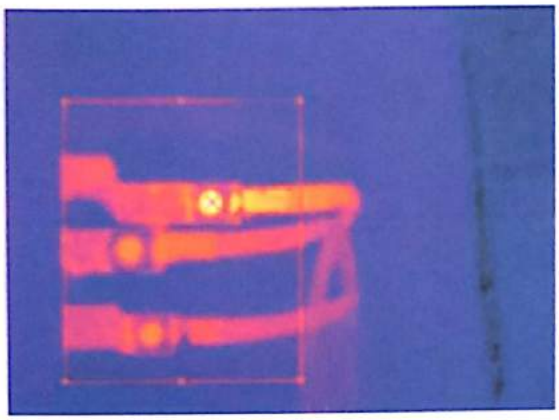
Found hit on capacitor terminal due to lose connection.

Image No: - 03

Visual Image



Thermal Image



Location	Main panel room
Equipment	Engg. Main
Fault Location	R - Phase
Area Temperature	26.4

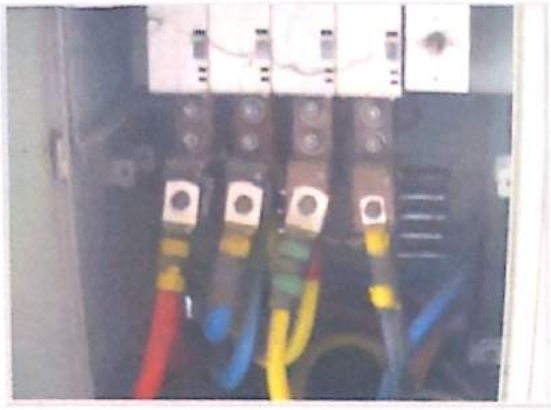
Object Parameters	Value
Image File Name	00191
Emissivity	1
Max Hot Spot Temperature	37.3
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

Found Normal

Image No: - 04

Visual Image



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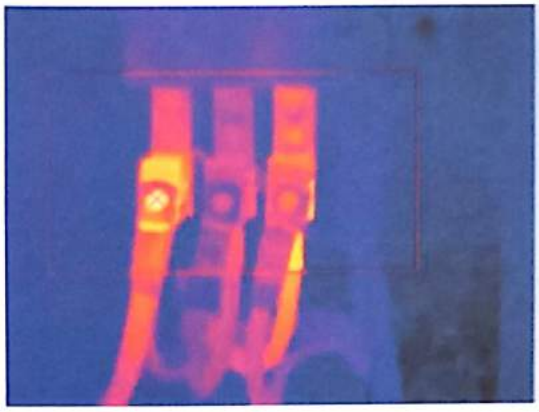


Location	Main Electric room
Equipment	Main Switch
Fault Location	R- phase
Area Temperature	26.4

Object Parameters	Value
Image File Name	00186
Emissivity	1
Max Hot Spot Temperature	58.1
Fault Rating	Priority 2

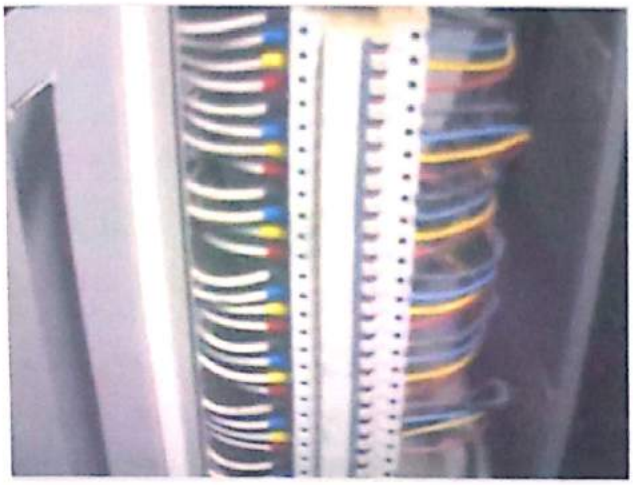
ANALYSIS & OBSERVATIONS

Found loose connection on R-phase

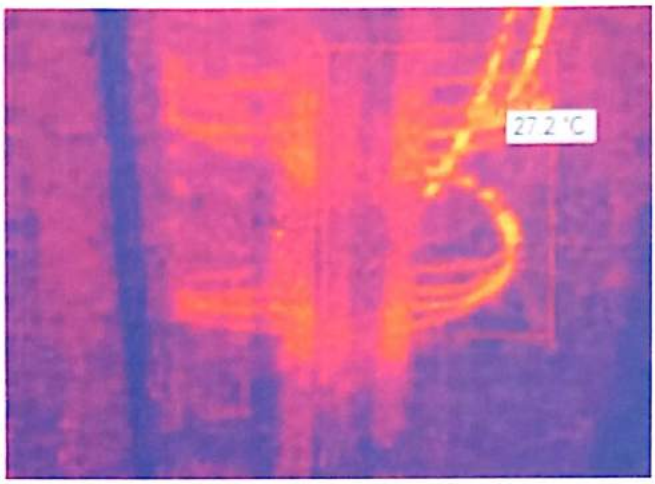
Corrective action should be taken at the next planned maintenance activity

Image No: - 05

Visual Image



Thermal Image



Location	Architecture B-wing
Equipment	Panel room 5th floor
Fault Location	Normal
Area Temperature	26.4

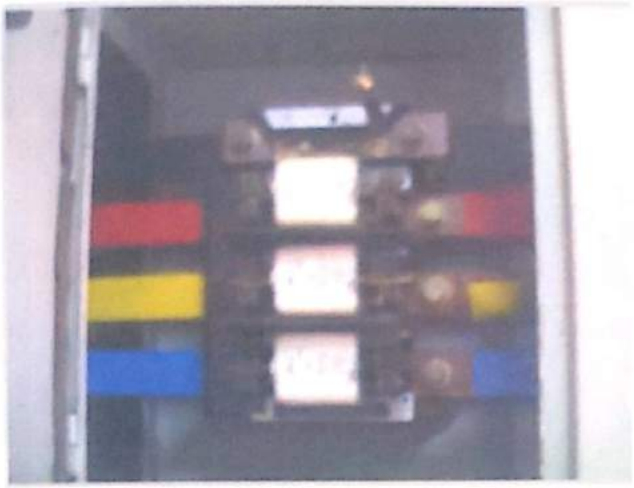
Object Parameters	Value
Image File Name	00196
Emissivity	1
Max Hot Spot Temperature	27.2
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

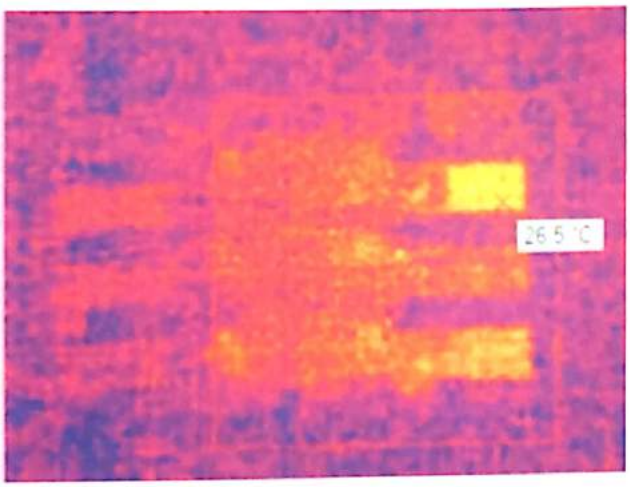
Found Normal

Image No: - 06

Visual Image



Thermal Image



Location	Main panel room
Equipment	Fuse location Eng. main
Fault Location	Normal
Area Temperature	26.4

Object Parameters	Value
Image File Name	00197
Emissivity	1
Max Hot Spot Temperature	26.5
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

Found ok

Its Normal

RB ENERGY CONSULTANCY Sign.....

Mahatma Education Society's
Pillai HOCL Campus, Rasayani

Green Audit Report

Presented By
RB ENERGY CONSULTANCY

Academic Year 2021-22

GREEN AUDIT 2021

Green Audit Report of Mahatma Education Society's HOCL, Rasayani campus is conducted by RB Energy Consultancy Services and its team on **19th and 20th August 2021.**

Green Audit report states the initiatives taken by institute towards environment sustainability

Team RB Energy Consultancy

Green Audit Assessment Team

(Internal)

Dr. Lata Menon, Dy CEo and Principal, PHCASC

Prof. Amar Mange, PHCET

Dr. Pradeep Chaterjee, Principal, PHIMSR

Prof. Suchita Sayangi, Principal PHCA

Prof. Mamta Patil, Incharge Principal PHCER

(External)

Umesh Patil

Amit Gupta

Vivek Gaikwad

Sailesh Shrivastva

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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 unfailingly.

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 5561 students enrolled and 379 teaching faculty and staff members on its payroll. The Colleges offer various courses listed below:

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)

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

- 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

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, classrooms, Washrooms (Ladies and Gents)
First Floor	Store room, xerox center, computer labs, Chemistry Lab, Physics labs, 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)
Fifth Floor	Classrooms, washrooms (Gents and Ladies)
Sixth Floor	Classrooms, washrooms (Gents and Ladies)
Seventh Floor	Staff Room, Classrooms, Washrooms (Ladies and Gents)
Eighth Floor	AV Room, Classrooms, Washrooms (Ladies and Gents)
Ninth Floor	Auditorium

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)
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)

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 parlour room , office, classroom , washroom (Ladies and Gents)
Sixth Floor	Classrooms , Wash rooms (Ladies and Gents)
Seventh Floor	Classrooms , Wash rooms (Ladies and Gents)

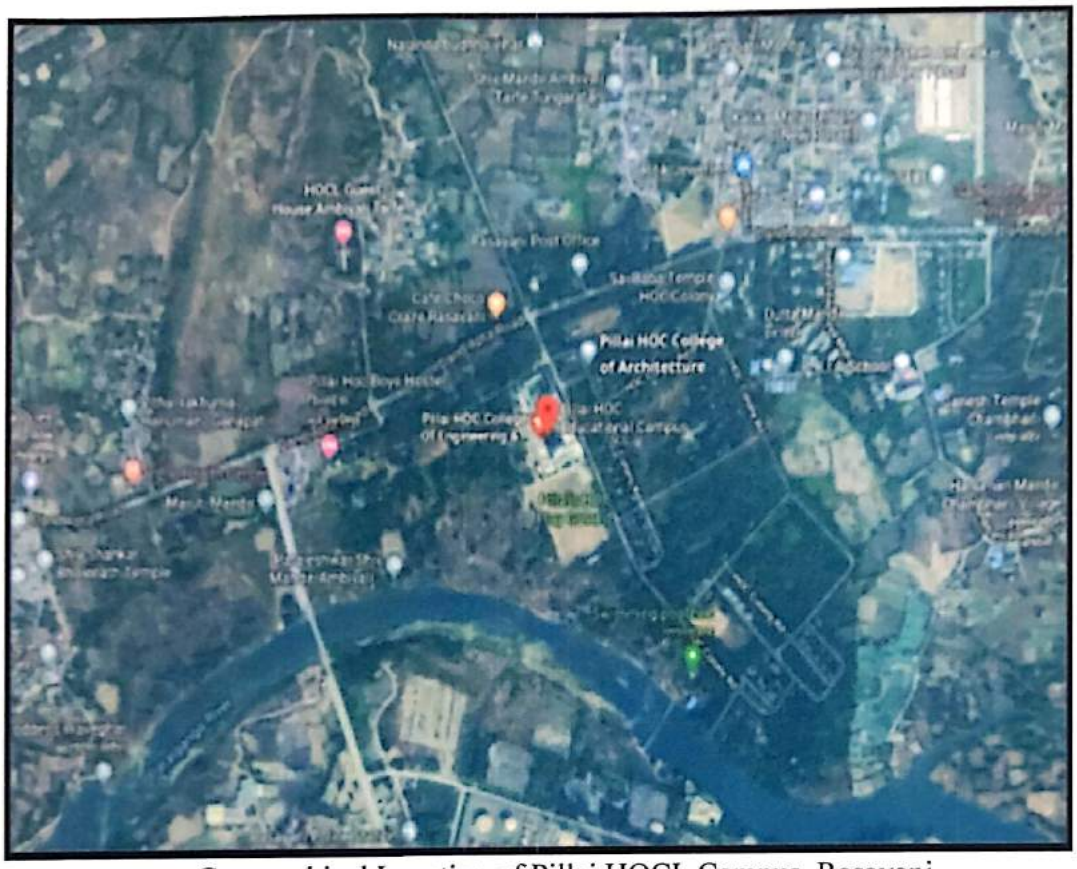
Eighth Floor	Classrooms , Wash rooms (Ladies and Gents)

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 a 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



Geographical Location of Pillai HOCL Campus, Rasayani

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.

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

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

Recommendations:

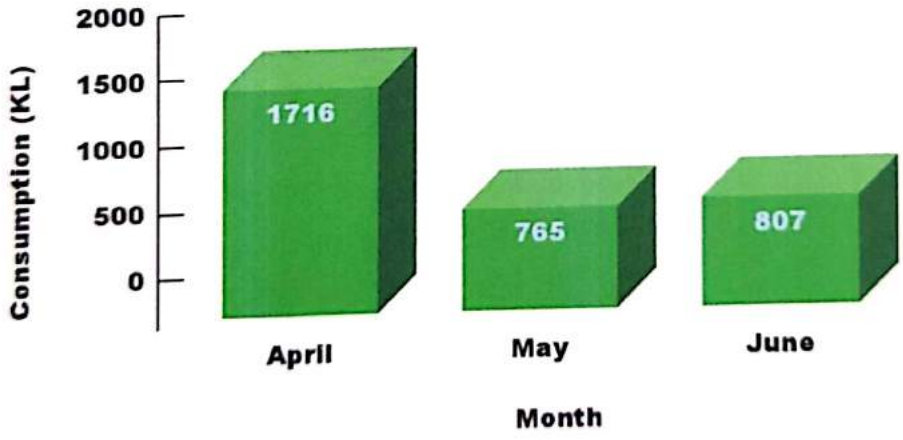
1. Exhaust to be cleaned and maintained.
2. Exhaust fans are installed only in the chemistry lab. More exhaust needs to be installed.
3. Only a few indoor plants were observed within the campus. Few artificial plants were observed in the campus that could be replaced by indoor plants.
4. Smoke detectors 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 4 KL/day. Total water consumption for 3 months April 2021 to June 2021 is 1096 KL/month. This calculates to approximately 5.6 L/Person/Day which is far below the standard norms.

The figure below shows the consumption of water for 3 months.

This low water consumption is due to lockdown in the pandemic. Referring and verifying to previous water receipts and audit report the water consumption was found 3739 KL/month (29 L/Person/day)



Water Consumption in Campus from April 2021 to June 2021

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

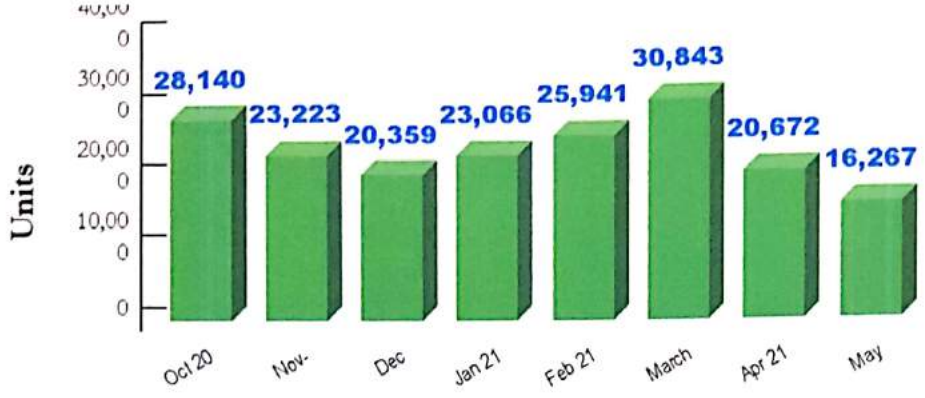
Signages near Cooler/Purifier

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 October 2020 to May 2021 is around 23563 KWh(units).



Monthly Energy Consumption from Oct 2020 to May 2021

The consumption is found to be too low because of lockdown in this pandemic. Going through the previous report and bills it is found that the average energy consumption is 53,220 KWh(units).

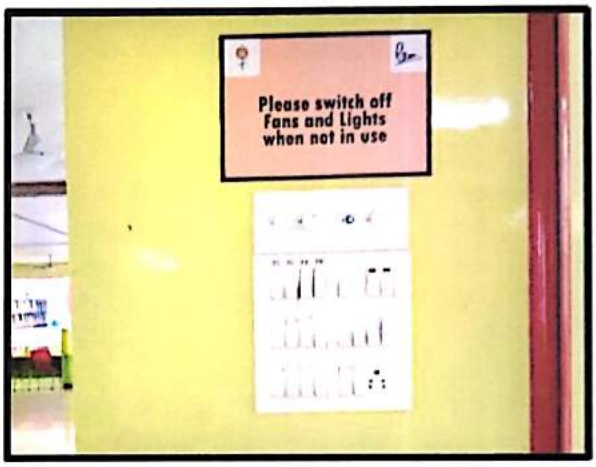
Major electricity consumption are as follows

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

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

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 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 rooftop. 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.

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.

Composting Unit

Dustbin with Signages for solid waste collection

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.

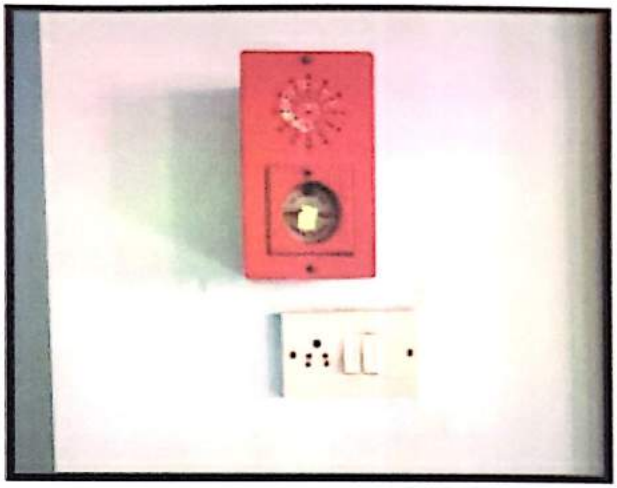
3.6 Building Maintenance

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 program should be conducted annually.



3.7 Initiatives by Institute for Green Management

Observations:

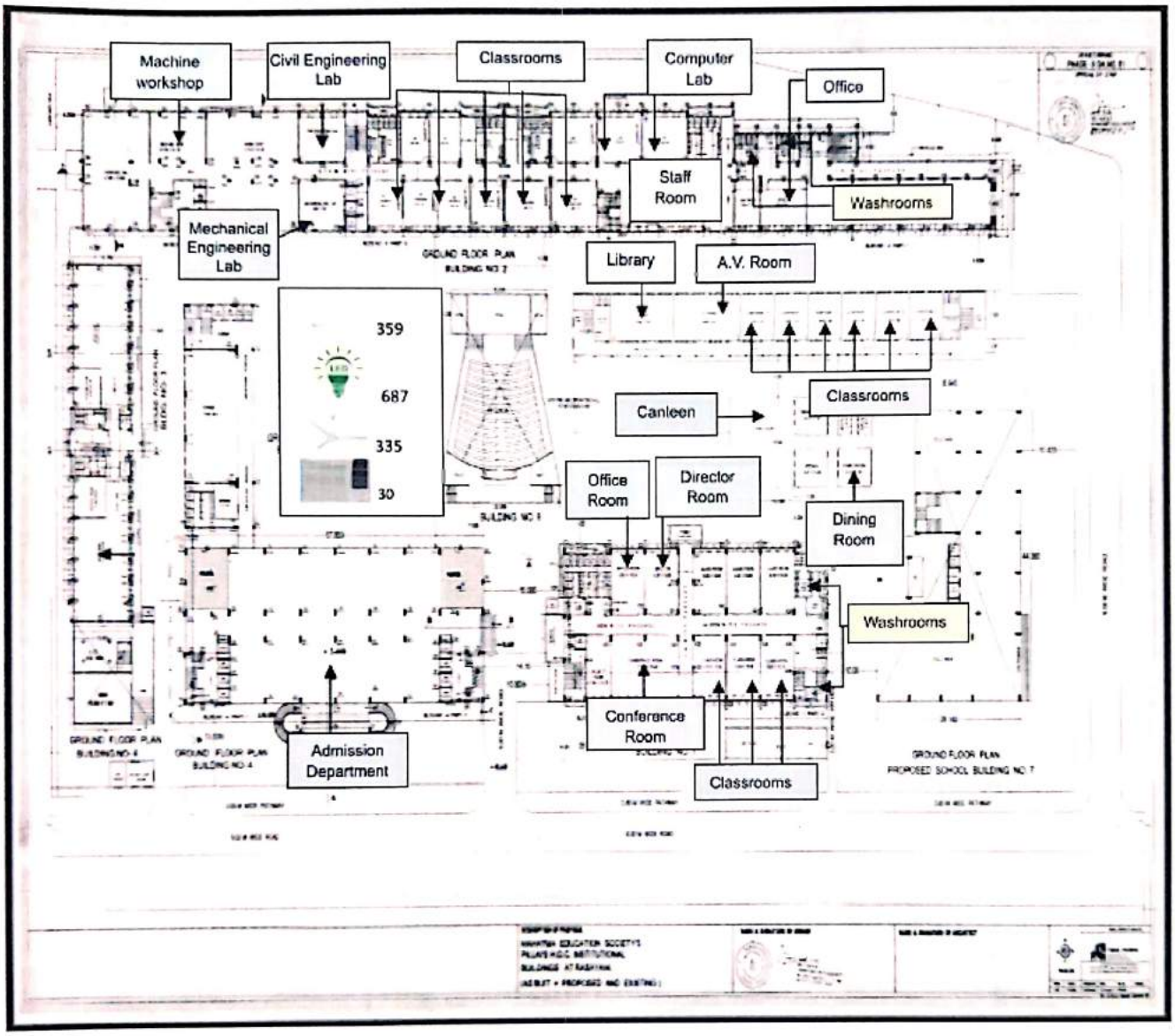
1. Campus has come up with many green initiatives.
2. Environment Management is included in the curriculum to increase awareness.
3. Nature Club organizes different events to increase green awareness among students throughout the year
4. NSS and Nature Club have started a "Know Green, Think Green" promotion.
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.

Recommendations:

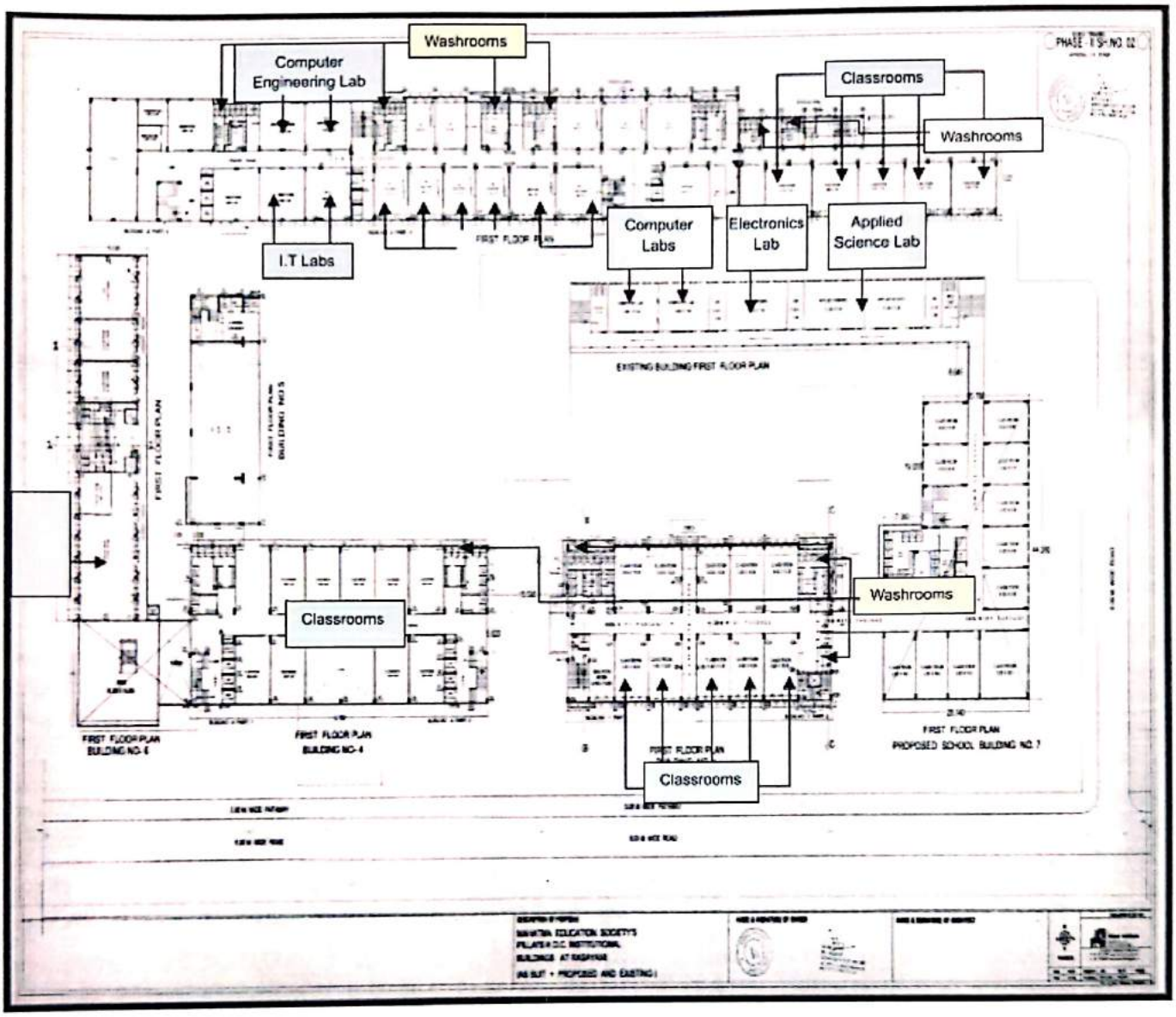
1. Vertical gardening on campus walls is recommended using indoor plants.
2. More webinars, workshops and outdoor activity can be initiated to increase the awareness.
3. Renovation of the cooking system in the canteen to save gas.
4. Establish a purchase policy that is energy saving and eco-friendly.
5. Replace incandescent and CFL lamps with LED lights.
6. Avoid plastic/thermocol 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

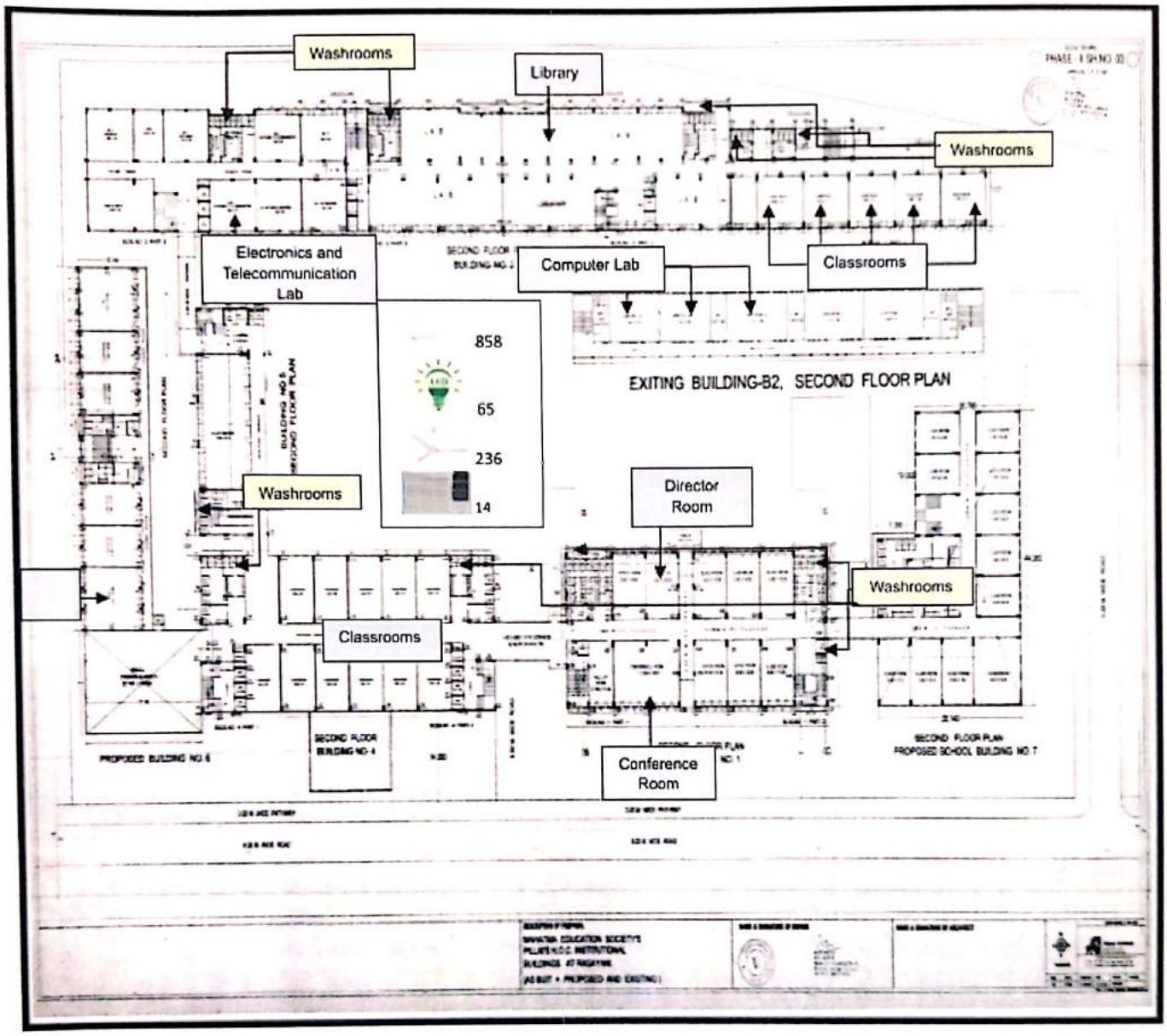
Ground Floor



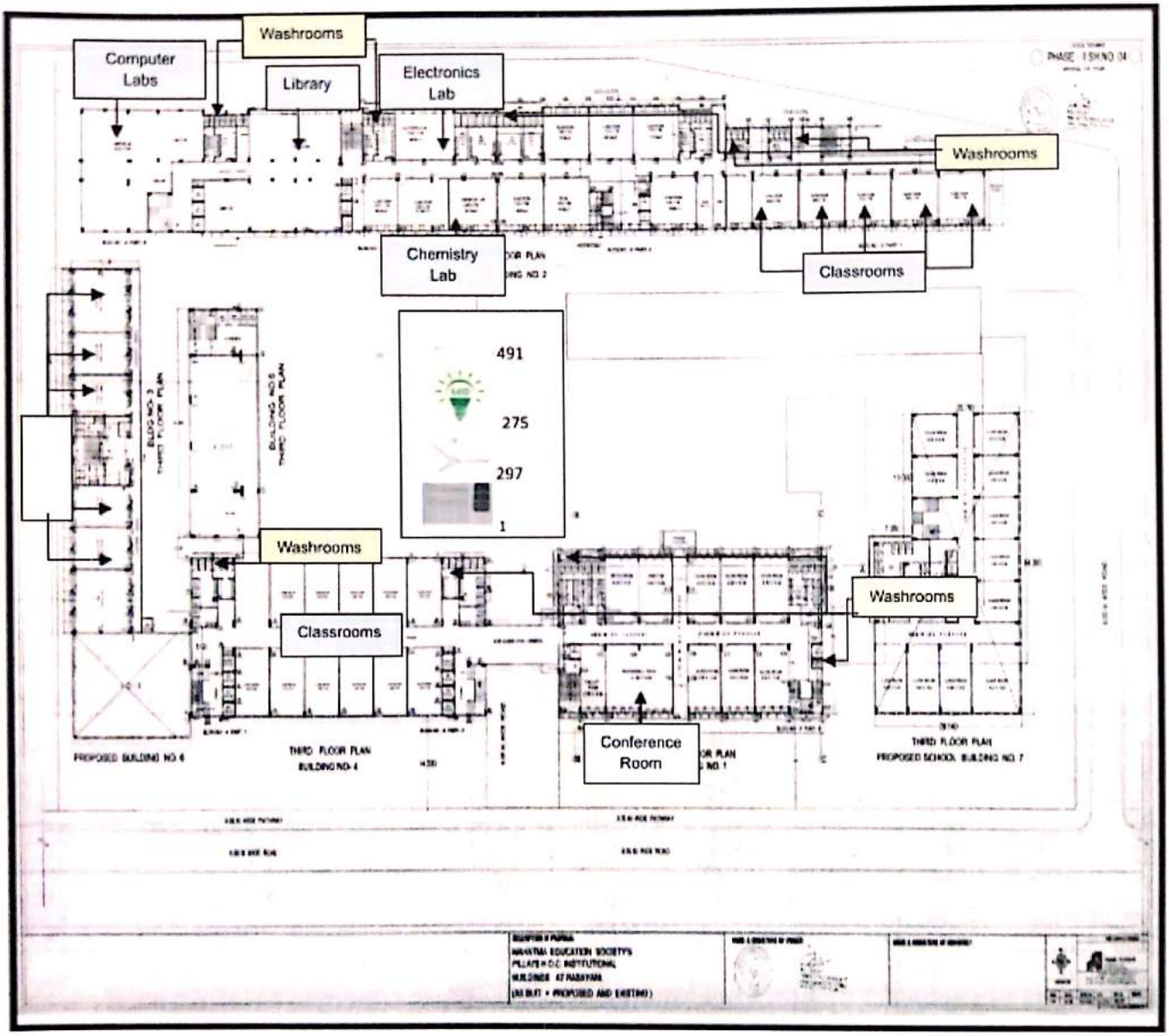
First Floor


Washrooms
Computer Engineering Lab
Classrooms
Washrooms
I.T Labs
Computer Labs
Electronics Lab
Applied Science Lab
Classrooms
Washrooms
Classrooms

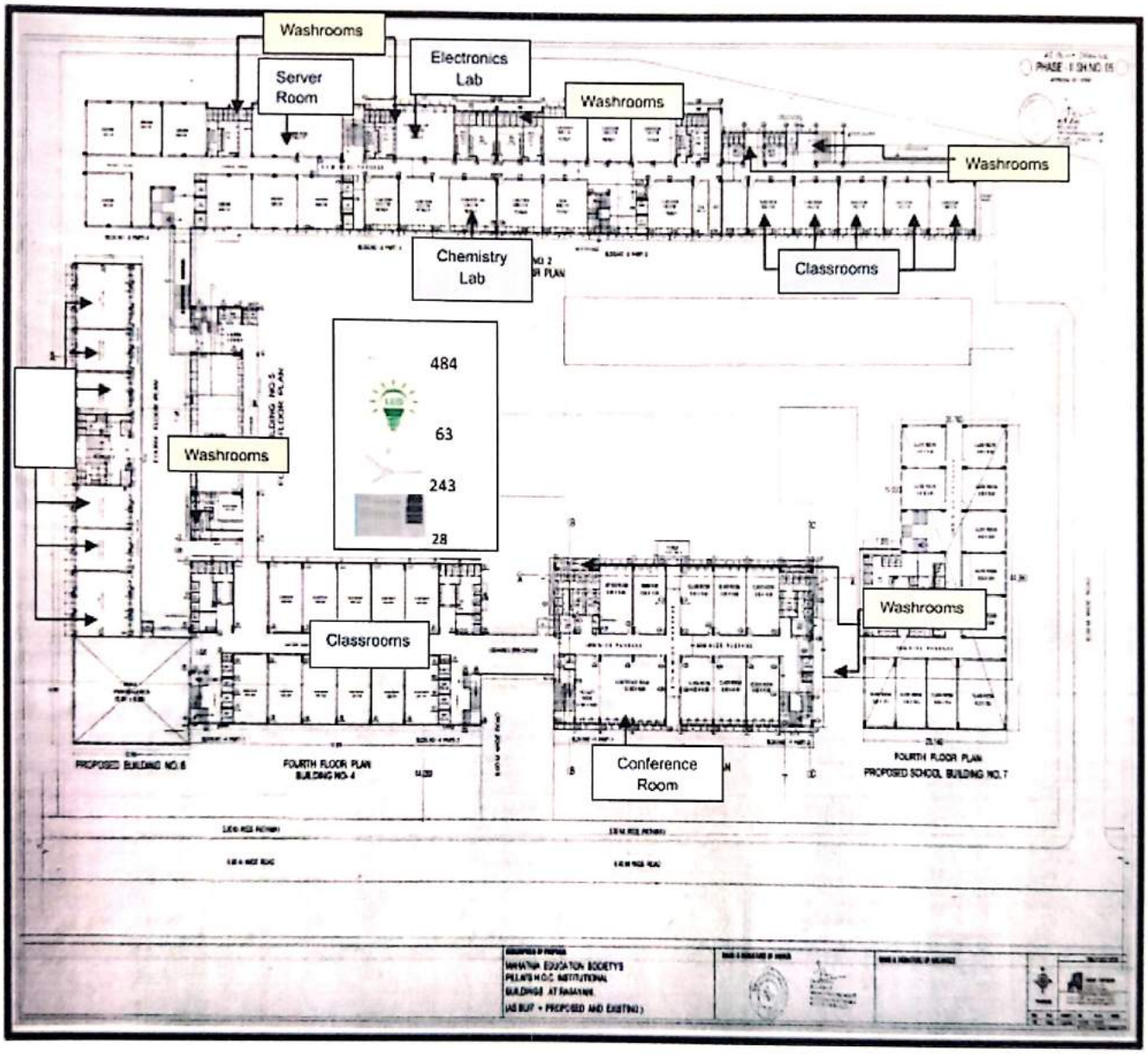
Second Floor



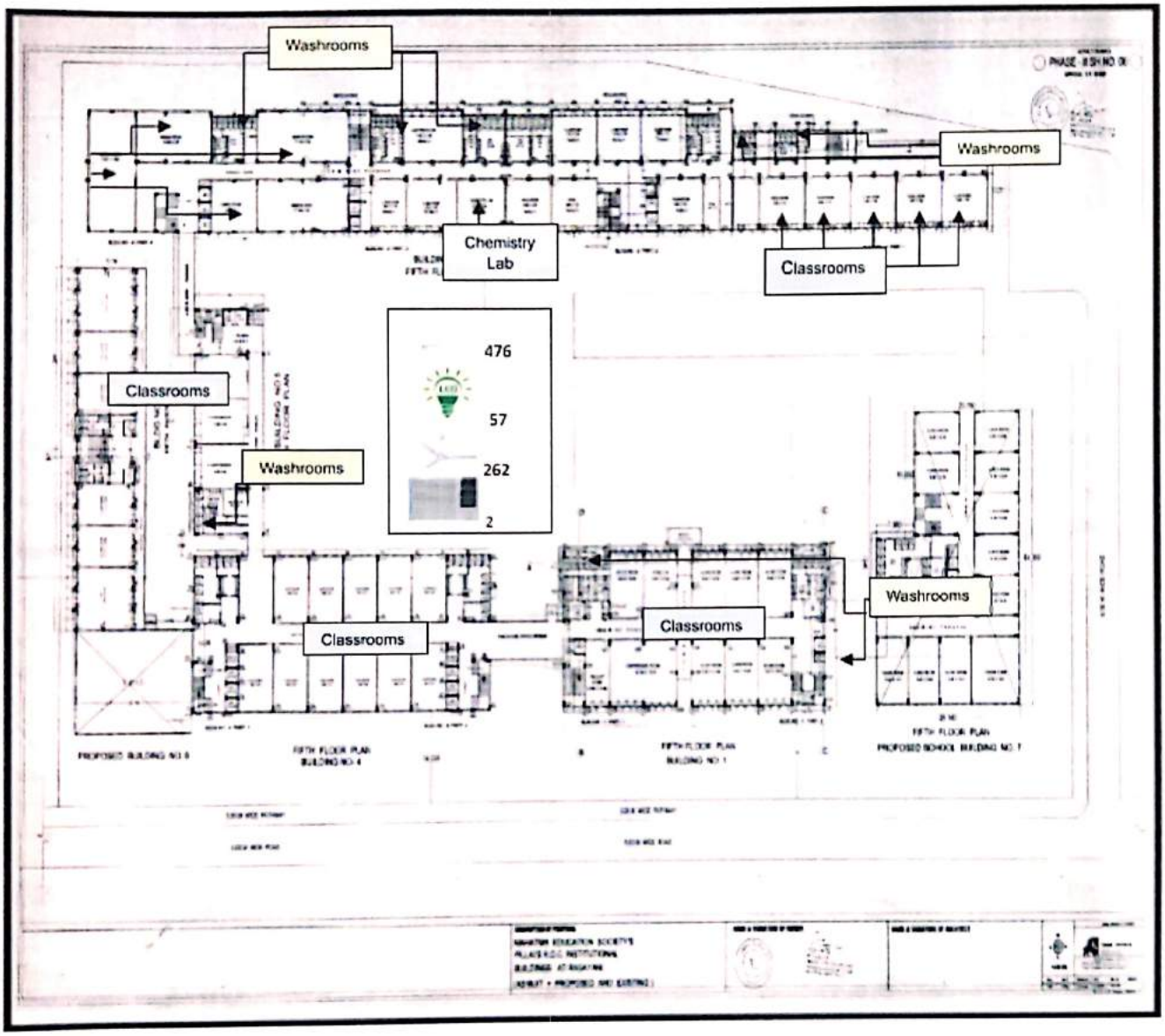
Third Floor


Washrooms
Computer Labs
Library
Electronics Lab
Washrooms
Chemistry Lab
Classrooms
491
275
297
1
Washrooms
Classrooms
Washrooms
Conference Room
THIRD FLOOR PLAN
BUILDING NO-4
THIRD FLOOR PLAN
PROPOSED SCHOOL BUILDING NO. 7

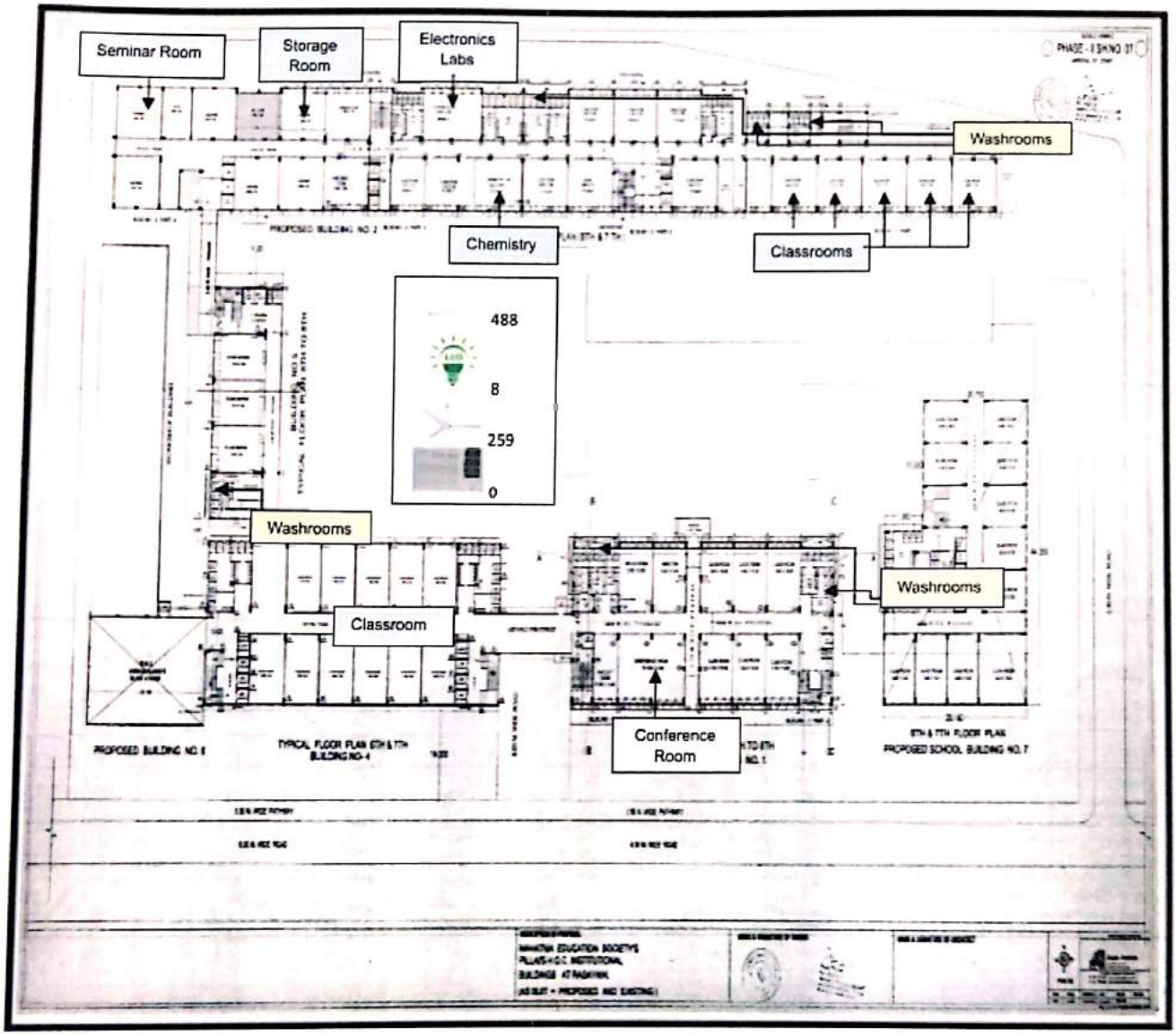
Fourth Floor



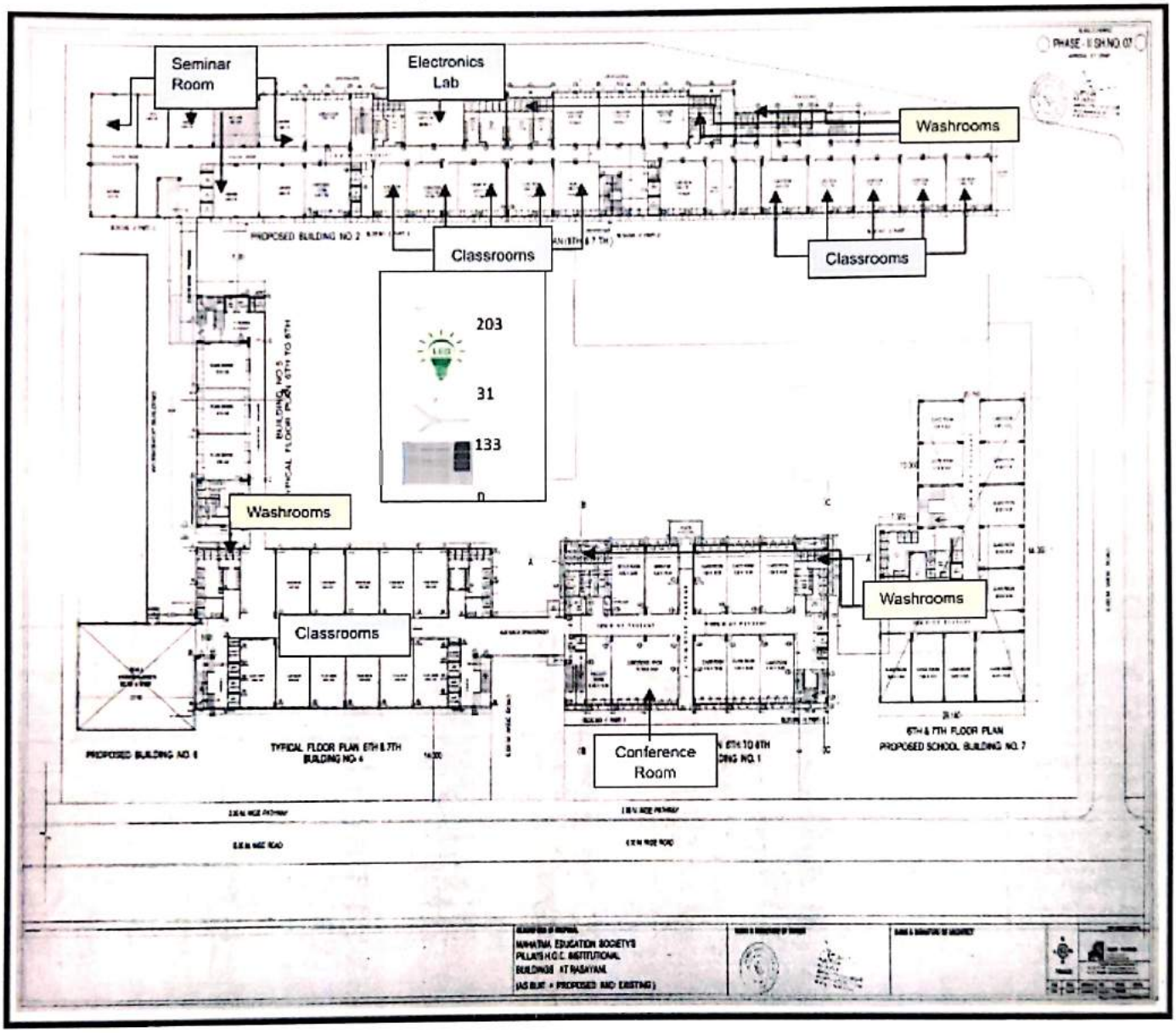
Fifth Floor


Washrooms
Washrooms
Chemistry Lab
Classrooms
476
57
262
2
Classrooms
Washrooms
Classrooms
Classrooms
Washrooms

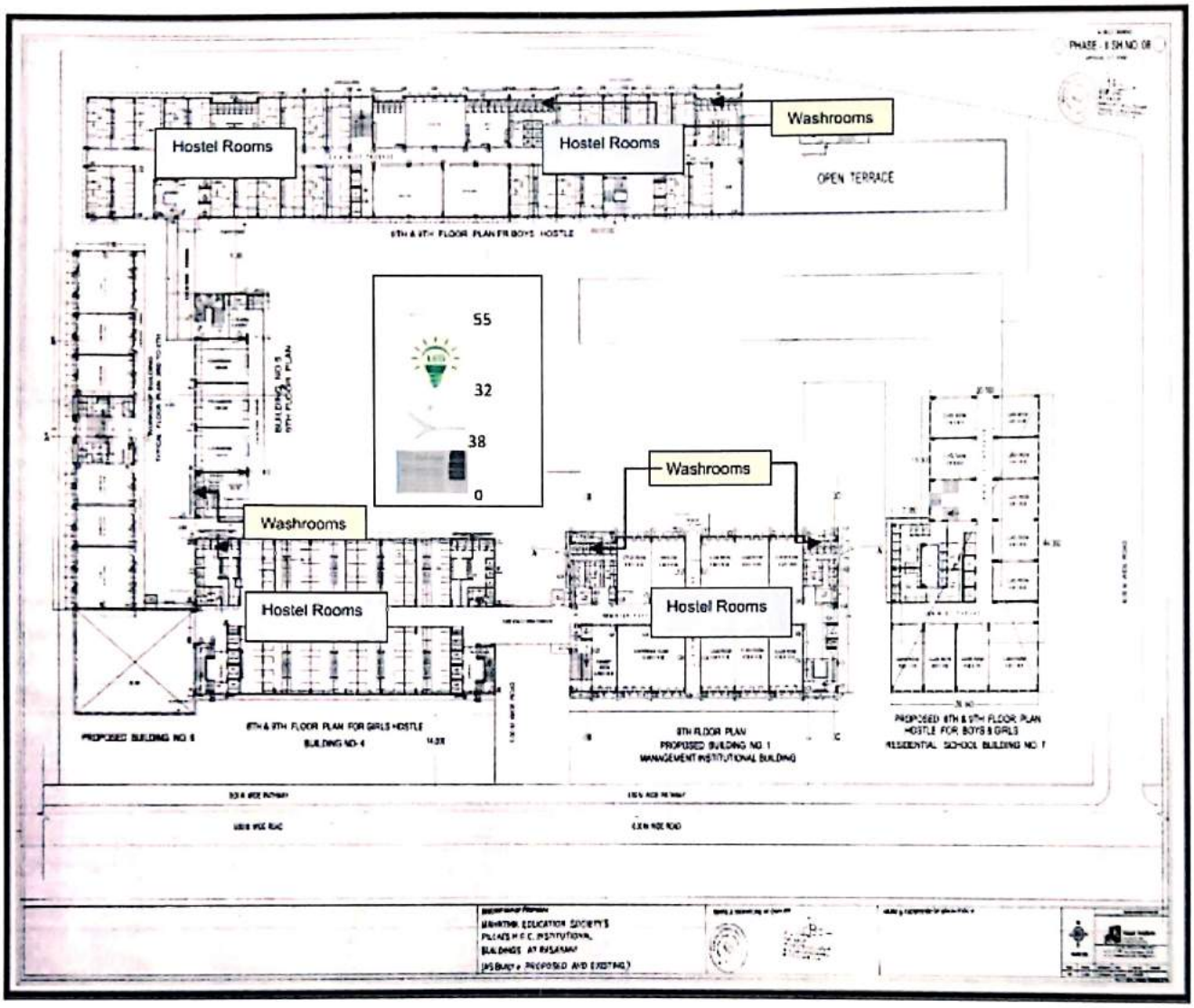
Sixth Floor


Seminar Room
Storage Room
Electronics Labs
Washrooms
Chemistry
Classrooms
488
8
259
0
Washrooms
Classroom
Washrooms
Conference Room

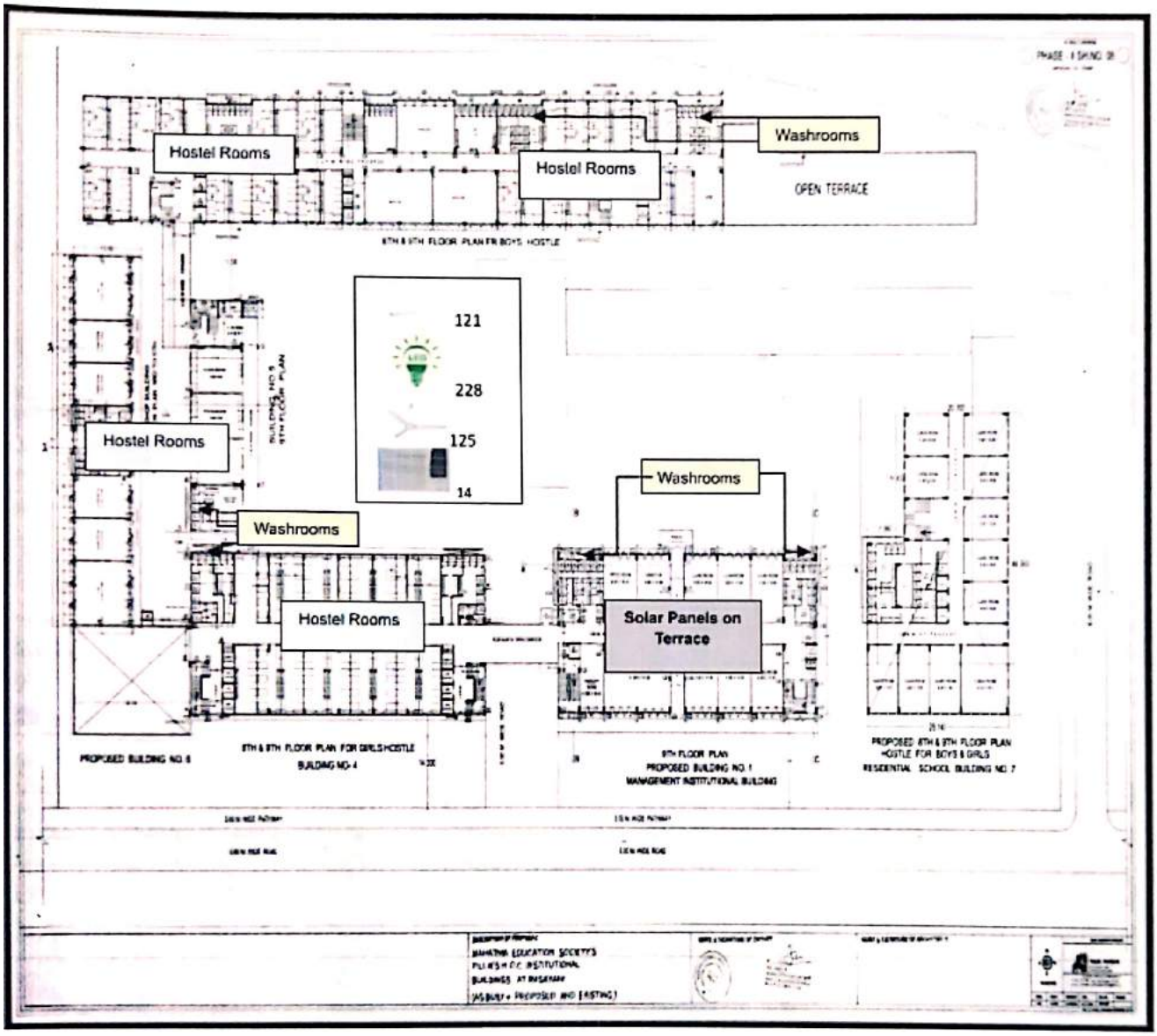
Seventh Floor



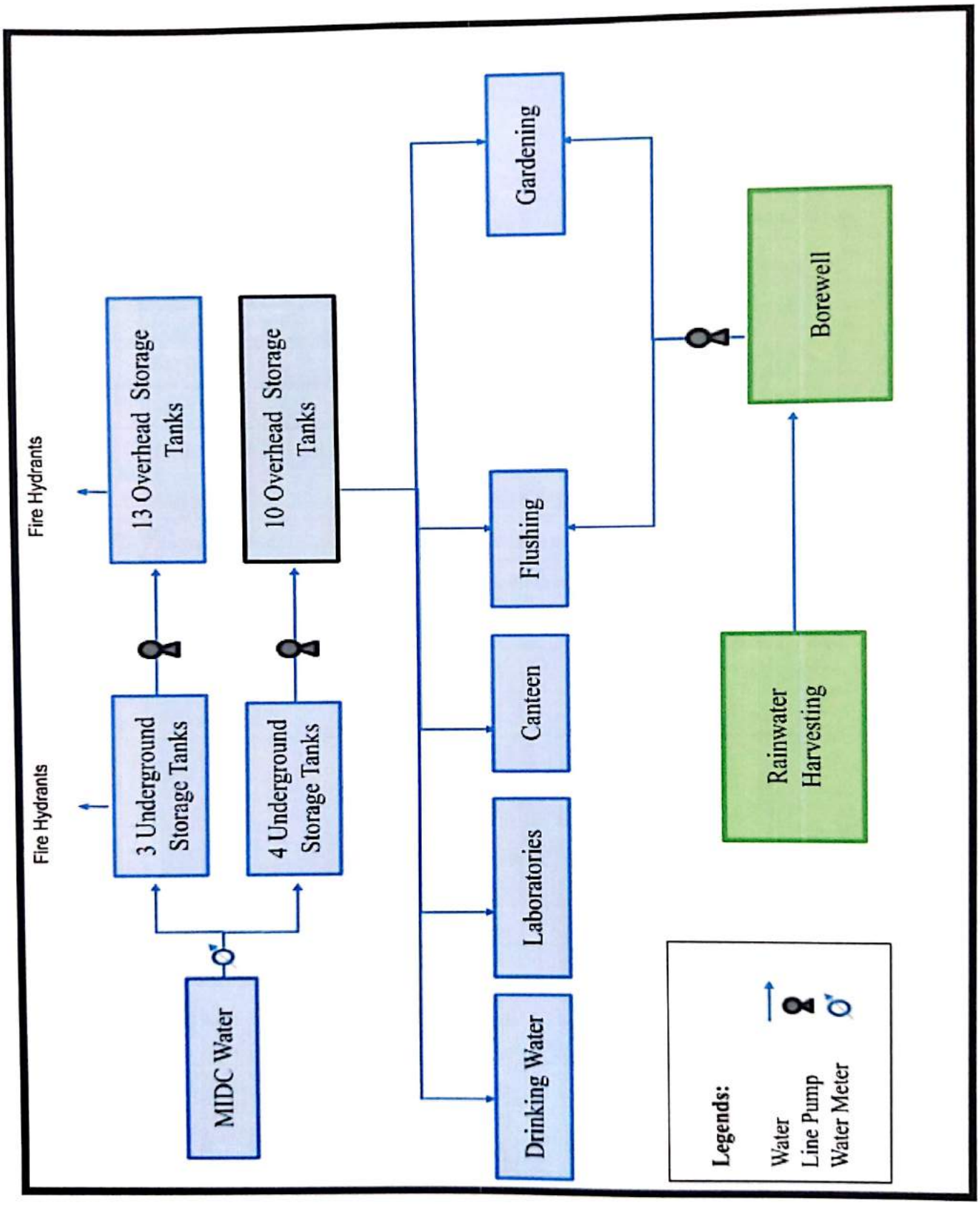
Eighth Floor



Ninth Floor


Hostel Rooms
Hostel Rooms
Washrooms
OPEN TERRACE
121
228
125
14
Hostel Rooms
Washrooms
Washrooms
Hostel Rooms
Solar Panels on Terrace

Annexure II- Diagram for Water Flow



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 elegan	Arecaceae

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

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	1	1	1
17	PHCACS Exam Cell	1	1	1
18	PHCACS Faculty	2	8	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**

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

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	✔

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

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	x
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	✔

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	x

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	✔

7. Checklist for Green Management

Sr. No.	Green program	Availability
1	Availability of e-books/ magazines and online resource	x
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)	✔

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.

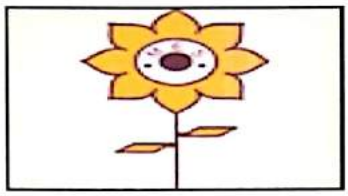
This report does not claim to set forth all existing hazards or to indicate that other hazards do not exist. The inspection and report are performed and prepared for the use of the client. RB Energy Consultancy Services accepts no responsibility for use or misinterpretation by third parties. Our inspection of the property and the accompanying report are in no way intended to be a guarantee or warranty of any kind.

RB Energy Consultancy Services and its employees assume no liability whatsoever for any damage or loss arising from or connected with this inspection and report, including discovering, or failing to inspect or discover any condition.

We reserve the right to refuse to open or access any equipment in cases where there is insufficient PPE (personal protective equipment) available or an insufficient protective boundary for nearby personnel.

Electrical Energy Audit Report

For
MAHATMA EDUCATION SOCIETY
RASAYANI-HOC



Presented By
RB ENERGY CONSULTANCY

Conducted on – 16 AUGUST-2021

ACKNOWLEDGEMENT

RB Energy Consultancy Electrical Safety Audit Team acknowledges with thanks the co-operation and support extended to the team members during the Electrical Safety Audit at MAHATMA EDUCATION SOCIETY (RASAYANY).
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TABLE OF CONTENTS

1. INSPECTION IDENTIFICATION

Client Name	MAHATMA EDUCATION SOCIETY
Site Location	MAHATMA EDUCATION SOCIETY (RASAYANY)
Performed By	RB ENERGY CONSULTANCY
Scope of Work	ELECTRICAL ENERGY AUDIT

2. SPECIFICATIONS Of INSTRUMENTS USED

The following equipment's were used to perform this study

Sr. No	Instrument	Make	Range of Instruments
1	Thermal Imager	Testo	Temperature range - 40°C to 500°C
2	Load Manager	Trinity Energy System- (Oracle)	RMS AC Voltage -230 /415 V RMS AC Current Up to 1000A
3	Digital Clamp meter	Meco	400A AC / DC,

3. INTRODUCTION

This report details the Electrical Safety Audit activity conducted for MAHATMA EDUCATION SOCIETY (RASAYANY). The audit was carried out with the assistance of a member of staff whose role was to identify and locate equipment to be inspected together with opening Electrical Panel doors.

The aim of this report is to highlight the areas that do not comply with the statutory electrical safety rules. Recommendations are provided for the issues observed as per the priority of High, Medium and Low basis which will help the client to take appropriate action on the same.

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.

4. RECOMMENDATIONS

The recommendations given in this report are intended as a guide only and should be used in conjunction with advice from the maintenance services provider. The priorities are not intended to be prescriptive; recommendations will depend on individual equipment's.

The recommendation priority will very much depend on the type of components being inspected and their environment. As an example, the following priority classification that will be applied for taking action on the respective areas

Priority	Recommendations
1	Immediate action should be taken
2	Remedial action should be undertaken at the earliest opportunity
3	Remedial action should be taken at the next planned maintenance activity

The actions to be taken are completely on the client and the audit company shall not be responsible for it.

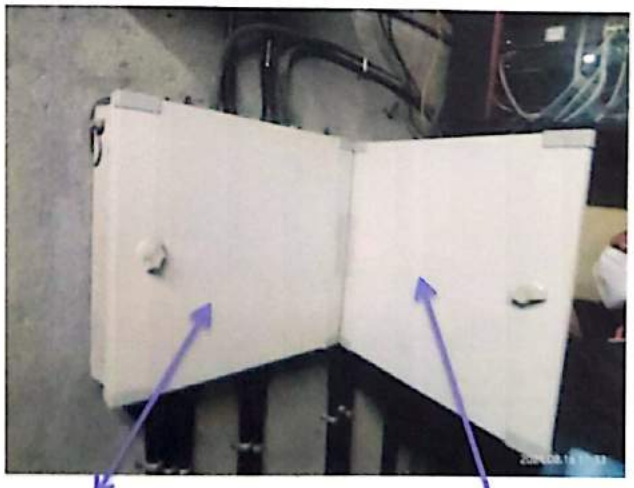
Note: Please note that the below mentioned pending/snags are recorded during our visit at sites. There can be cases where these pending snags were addressed by client in due course of time.

5. REPORT SUMMARY

Note: - Following are a list of common observations made. These are very HIGH priority observations and are needed to be complied with as soon as possible.

Panel Name	Equipment / Item	Observation	Recommended Action	Priority
COMMON OBSERVATIONS	First Aid / Shock Treatment Charts	Shock treatment charts not displayed in panel room	individual panel rooms to have a pictorial and explanatory shock treatment chart	1
	Fire Schematic	Fire schematic not mentioned at the entry of panel rooms	Fire schematic needs to be provided at every panel room	1

Shock treatment charts not displayed in panel room,



Fire schematic not mentioned at of DB

Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"

The following is a list of detailed observations found during the Electrical Safety and Energy Audit activity. The recommendations for the observed issues are also mentioned in the report below.

5.1 MAIN POWER PANELS

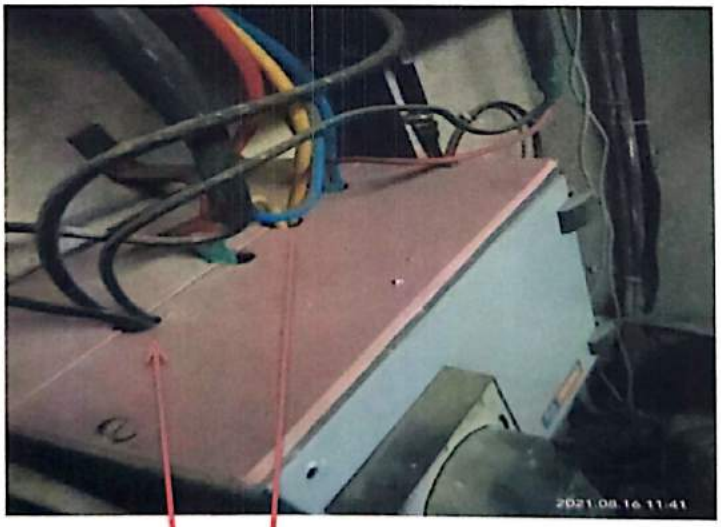
Panel Name	Equipment / Item	Observation	Recommended Action	Priority
A & B	Electrical Single line diagram	Electrical single diagram is not found in electrical room	In case of emergency Electrical single diagram will be useful to understand existing connection.	2
	Fire Extinguishers	Fire extinguisher are provided but not 5ft on wall mounted	They should be wall mounted for ease in operation during fire hazards	2

1. Electrical single diagram is not found,

Fire extinguisher are provided but 5 ft. on wall mounted

2. Emergency Contact Details

Panel Name	Image No.	Observation	Recommended Action	Priority
Distribution board & Sub Distribution board	A, B,C,D, E,F,G,H I,J,K,L	O/G cable tagging is required & cable entry need to be closed. so that lizard will not enter into panel. Without lug wire conductor is connected to MCB.	Kindly get the tag installed for proper identification of cables. Cable openings need to be closed. Panel cleaning is required by blower. Proper straight pin lug is required.	2
		Glanding is not done to cable. Incoming wire openings need to be closed. So that lizard will not enter into panel.	Kindly get proper glanding done.	2
		Enclosure not provided on sub distribution panel.	Kindly provide enclosure.	2
		Electrical Insulating mat is not founding on flooring	Electrical Insulating mat is provided on flooring	



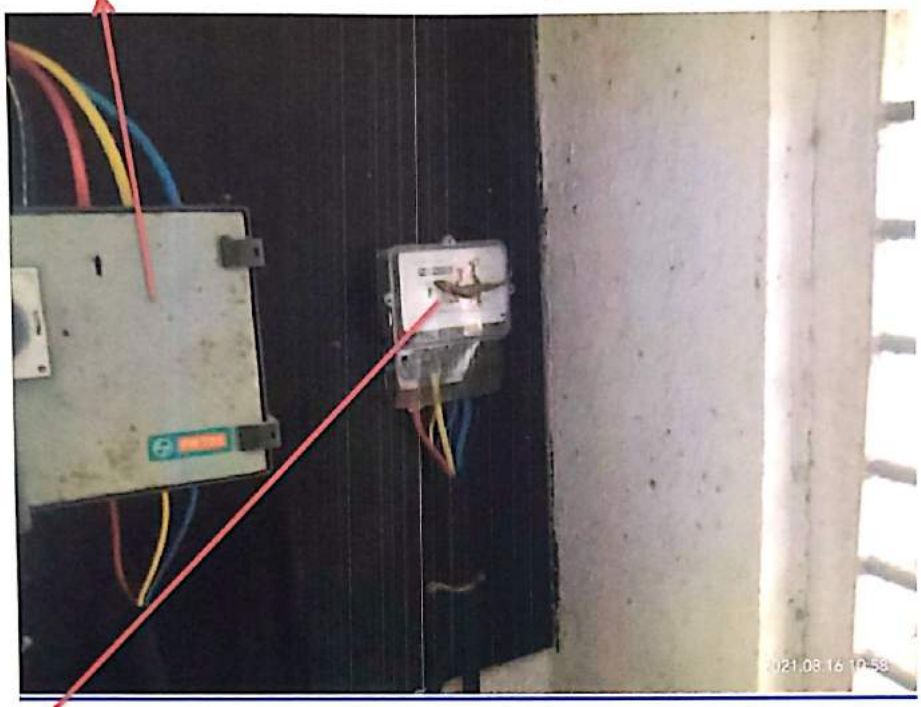
Cables are gland properly at terminations.

O/G cable tagging is required

1- Electrical Insulating mat is not founding on flooring.

2- Fire extinguisher are provided but 5 ft. on wall mounted

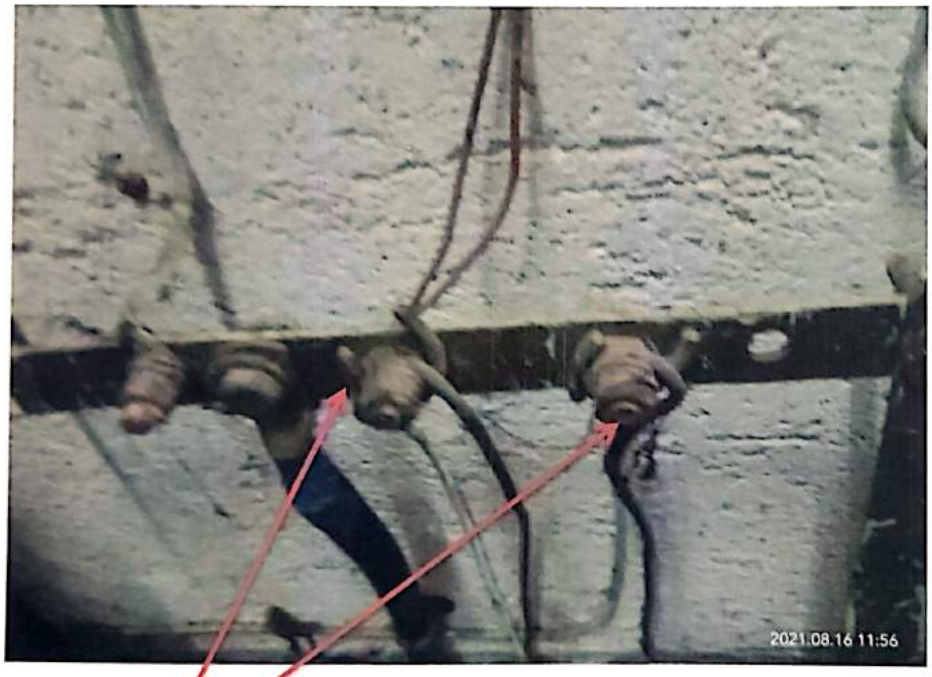
1- Electric DB is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"



2- Live lizard found on main electric meter

Fire extinguisher was not renewing

Unwanted material is stored in electrical & fire panel area



Rusted earthing bolts

Location : Office are		
Parameters	Observations	Remarks
Fire Extinguisher		- Need to hang on wall at 5 feet (only 1)
MCP/BGU	√	Found ok
Observation on Fire Extinguisher	√	Not renewed
Signage's	√	Not Found
Emergency Contact Details	×	Must be required
Fire related Training	√	Found ok
Responsibility Matrix availability	X	Must Required
Escape routes (hurdles in path, signage's, illumination)	X	Must Required
Sprinkler system catering all areas	√	----
Smoke/Heat detector active / inactive catering all areas	√	----
PA system working	X	Must Required
Healthiness of System	√	Found ok
Emergency Lighting	X	Must Required
First Aid Kit	√	Found ok
Electric Shock Treatment Chart	×	Must Required

7. General Observations & Recommendations

No's	Particulars	Comment
1	Proper entry/access is provided for electrical room	Yes
2	Proper door (lock arrangement) is provided	Yes
3	Electric room is labeled with "Electric Room" "Danger 440 Volts" "Restricted Entry"	No
4	Electrical Insulating mat is provided on flooring	Yes
5	Proper illumination is provided near distribution boards and main isolation switches	Yes
6	Proper ventilation is provided for electrical panels and switchgears	Yes
7	Space is sufficient to provide proper access to the switchgear for maintenance work	Yes
8	5Kgs, CO2 type fire extinguisher (1 no.) is provided and is within the periodic test life	No
9	Any abnormal overheating of cable, terminations and switchgear	No
10	Switchgears are enclosed from	No
A	Front	Found ok
B	Top cable entry	Gland & cable sport required try required
c	Bottom cable entry	Ok
11	Electrical panels, switchgears and distribution boards are clean and free from dust and moisture.	Yes (Unwanted material)
12	Cables are glanded properly at terminations.	No
13	Cables are laid/ routed in safe manner	Yes
14	Handles are provided to the switchgears and are in good working condition	Yes
15	Proper earthing is provided to electrical installations (panels/switchgears/DBs etc.)	Yes
16	There are no live conductors/ busbars in open condition	No
17	Up to date Single Line Diagram (as laid) is displayed inside the electric room	No
18	Electric supply board cutouts (Fuse Holder of ESCO) are properly enclosed	Yes
19	Electrical feeders are identified with the load they will be operating and marked accordingly.	No

20	Electrical room is maintained clean and no unwanted material is stored in electrical room	No
21	The room has proper roof and there is no possibility for water leakage/seepage.	Found Ok
22	Test reports of electrical installations like earthing test reports are valid anddated.	Yes

Parameter	Observation	Recommendations	Priority
Personal Protective Equipment's used by Technicians	It is observed that the technicians operated sans Hand Gloves while working on electrical installations	Strongly recommended to provide the technicians with safety gloves even for LT side	1
Tools used by Technicians	Tools and Equipment's are not found	Kindly get the measuring instruments calibrated on a quarterly basis to maintain its accuracy	3

8. GENERAL SUGGESTIONS

Following are the best practices that shall be implemented to achieve better safety standards and enhance quality of work:

1) **Handover format and follow-up: (refer below Table-1)**
   - Kindly maintain the following format for the Handover format which is a standardized format.
   - This will help in better handover to the next shift personnel and also maintain a proper record of the issues addressed and actions taken against the same.

2) **Tools storage room: (refer below Figure-1)**
   - Tools used by the Facility team i.e. by technicians / supervisors are to be stored in the manner depicted in Figure-1 below.
   - Tools need to be protected from damage either physical or atmospheric conditions and hence need to be stored carefully.

3) **Yearly calibration**:
   - Calibration of the Energy meters on the main power panels is of utmost importance to ensure that the readings that are being taken are appropriate and accurate.

3.4 GENERAL OBSERVATIONS

Sr. No	Equipment / Item	Observation	Recommended Action	Priority
1	Manual Call Points (MCP)	MCPs are not covered	MCPs needed to be covered by a normal cover to avoid needless tripping leading to havoc conditions.	1
2	PA System	PA system is installed in office area.	Not Found	1
3	Entrance door	Door is enable to open automatic freely when fire alarm device activated during emergency	Kindly ensure the opening of the door in case of fire emergency	1
4	Exit Route Signage	Exit route signage were not installed	Kindly ensure 24x7 illumination of exit route signage to facilitate easy escape in case of emergency	1

Year	Month	Day	2nd shift Engineer	2nd shift Technicians	Sr. no.	Time	Location	Details of complainant		Details of complaint	Action taken / Details of Regular activities	Status (Job done/ pending)	Attended by
								Name	Contact Details				

Table-1: Standardized Handover format

Figure-1

Figure-2

4) **Work Permit Format:**

- Kindly follow the following format that indicates a standardized Work Permit Format.

Electrical Work Permit

Date: WP NO:

Block Ref :
Area :
Details of work :
Work suggested by :
(Company Name)

PRECAUTION OR SPECIFIC REQUIREMENTS					
	Y	N		Y	N
Availability of LOTO procedure			Usage of 3 pin sockets in all Electrical appliances		
Qualified Electricians			Availability of Electrical safety gloves		
No physical damage in wires			Electrical insulation mats in the area of work		
Area of work is free of water			Usage of proper PPEs		
Follow up of earthing practices			Warning Signage		
Usage of insulated tools					

Start Time: Expected time of completion:
Time of completion:

The safety requirement need to be followed have been explained to me and I understood the safety requirements. We will follow the same while executing the work.

Signature of person requesting permit
Name: Date:

The safety requirement should be followed without deviation till completion of the scheduled activity. Any deviation will lead to cancellation of this Permit. This permit is valid for the stipulated period only. Same should be renewed after the stipulated period.

Signature of (respective agency)

Signature of person authorizing the Permit

Name:
Designation:

Date:

9. CONCLUSION

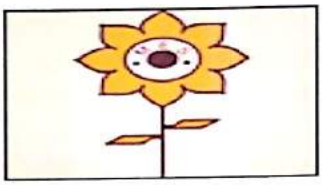
The Electrical Safety Audit carried out, has brought to light a few critical areas that need to be rectified or replaced in order for a safer future.

The observations and recommendations are suggested in a HIGH, MEDIUM and LOW priority of compliance time required.

It is up to the client to implement the recommendations suggested by RB Energy Consultancy

Electrical Safety Audit Report

For
MAHATMA EDUCATION SOCIETY
RASAYANI-HOC



Presented By
RB ENERGY CONSULTANCY

Conducted on – 16 AUGUST-2021

ACKNOWLEDGEMENT

RB Energy Consultancy Electrical Safety Audit Team acknowledges with thanks the co-operation and support extended to the team members during the Electrical Safety Audit at MAHATMA EDUCATION SOCIETY – RASANANY. We deeply appreciate the interest, enthusiasm and commitment of MAHATMA EDUCATION SOCIETY - RASANANY team towards the Electrical Safety Audit activity. We would also like to place on record our sincere thanks and appreciation to all other members who helped in the Electrical Safety 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 Electrical Safety Audit Team and any item with an action level should be investigated and repaired by a qualified and licensed electrician.

This report does not claim to set forth all existing hazards or to indicate that other hazards do not exist. The inspection and report are performed and prepared for the use of the client. RB Energy Consultancy Services accepts no responsibility for use or misinterpretation by third parties. Our inspection of the property and the accompanying report are in no way intended to be a guarantee or warranty of any kind.

RB Energy Consultancy Services and its employees assume no liability whatsoever for any damage or loss arising from or connected with this inspection and report, including discovering, or failing to inspect or discover any condition.

We reserve the right to refuse to open or access any equipment in cases where there is insufficient PPE (personnel protective equipment) available or an insufficient protective boundary for nearby personnel.

TABLE OF CONTENTS

1. INSPECTION IDENTIFICATION

Client Name	MAHATMA EDUCATION SOCIETY
Site Location	MAHATMA EDUCATION SOCIETY - RASANANY
Performed By	RB Energy Consultancy
Scope of Work	Electrical Safety Audit

2. SPECIFICATIONS Of INSTRUMENTS USED

The following equipment's were used to perform this study

Sr. No	Instrument	Make	Range of Instruments
1	Thermal Imager	Testo	Temperature range - 40°C to 500°C
2	Load Manager	Trinity Energy System- (Oracle)	RMS AC Voltage -230 /415 V RMS AC Current Up to 1000A
3	Digital Clamp meter	Meco	400A AC / DC,

3. INTRODUCTION

This report details the Electrical Safety Audit activity conducted for MAHATMA EDUCATION SOCIETY – RASANANY. The audit was carried out with the assistance of a member of staff whose role was to identify and locate equipment to be inspected together with opening Electrical Panel doors.

The aim of this report is to highlight the areas that do not comply with the statutory electrical safety rules. Recommendations are provided for the issues observed as per the priority of High, Medium and Low basis which will help the client to take appropriate action on the same.

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.

4. RECOMMENDATIONS

The recommendations given in this report are intended as a guide only and should be used in conjunction with advice from the maintenance services provider. The priorities are not intended to be prescriptive; recommendations will depend on individual equipment's.

The recommendation priority will very much depend on the type of components being inspected and their environment. As an example, the following priority classification that will be applied for taking action on the respective areas

Priority	Recommendations
1	Immediate action should be taken
2	Remedial action should be undertaken at the earliest opportunity
3	Remedial action should be taken at the next planned maintenance activity

The actions to be taken are completely on the client and the audit company shall not be responsible for it.

Note: Please note that the below mentioned pending/snags are recorded during our visit at sites. There can be cases where these pending snags were addressed by client in due course of time.

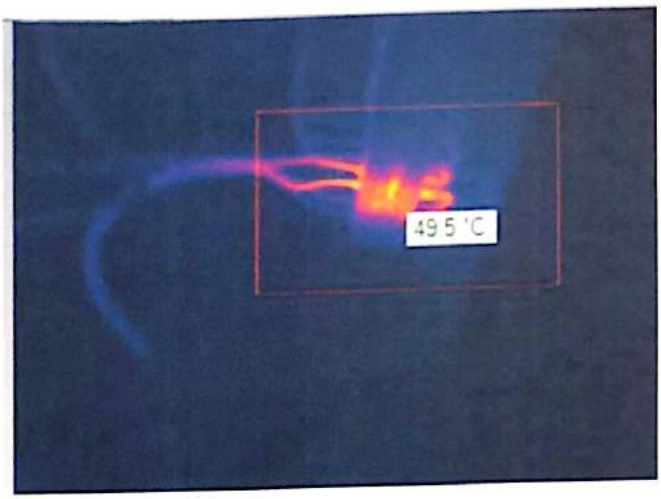
6. Thermography study

Temperatures	Recommendations
Above 70°C	Urgent action should be taken
Between 55°C and 70°C	Corrective action should be undertaken at the earliest occasion
Between 40°C and 55°C	Corrective action should be taken at the next planned maintenance activity
20°C to 40°C	Found okay

Image No: - 01

Visual Image

Thermal Image



Location	MMS B-Wing
Equipment	Panel room
Fault Location	MCB
Area Temperature	26.4

Object Parameters	Value
Image File Name	7140
Emissivity	1
Max Hot Spot Temperature	49.5
Fault Rating	Priority 3

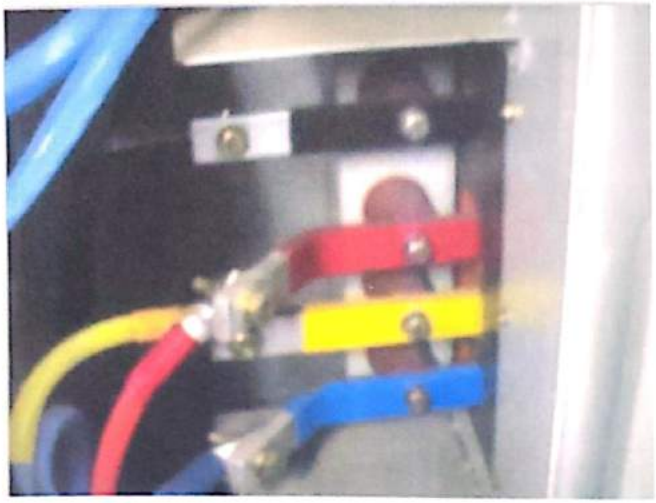
ANALYSIS & OBSERVATIONS

Found hit on MCB

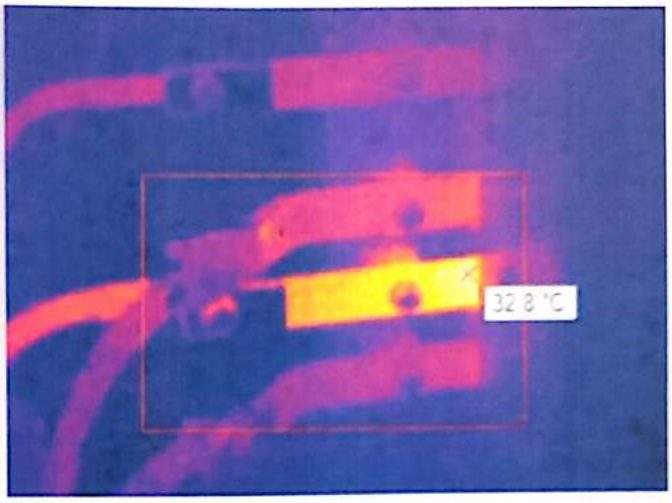
Corrective action should be taken at the next planned maintenance activity

Image No: - 02

Visual Image



Thermal Image



Location	Eng. Collage B-wing
Equipment	Panel Room
Fault Location	Normal
Area Temperature	26.4

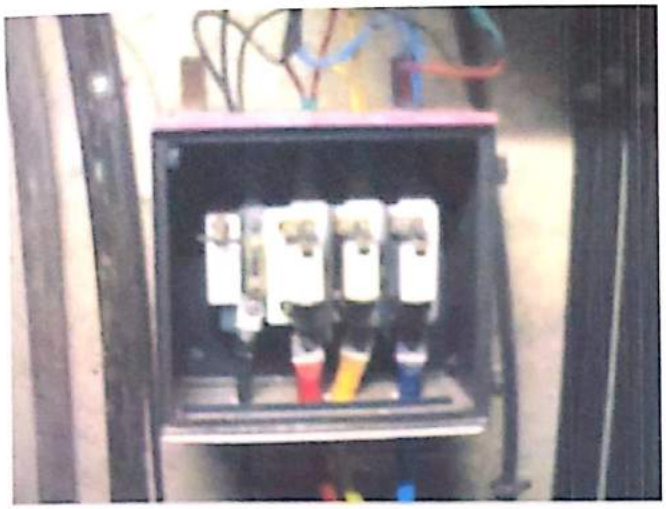
Object Parameters	Value
Image File Name	7139
Emissivity	1
Max Hot Spot Temperature	32.8
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

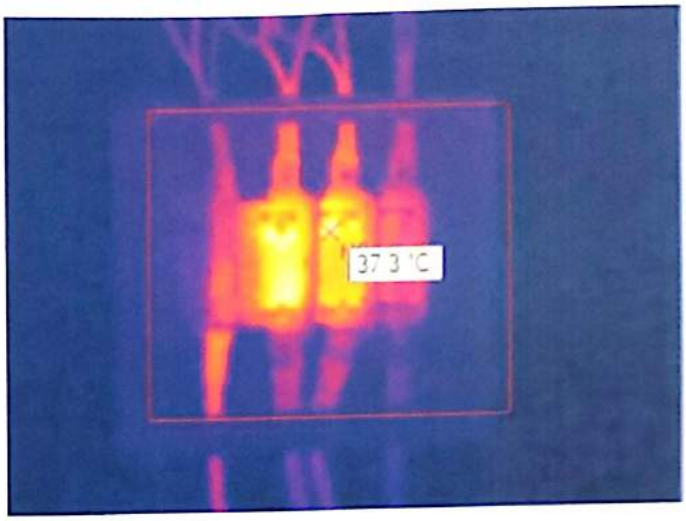
Found ok
Its Normal

Image No: - 03

Visual Image



Thermal Image



Location	Main panel room
Equipment	Fuse location
Fault Location	R - Phase
Area Temperature	26.4

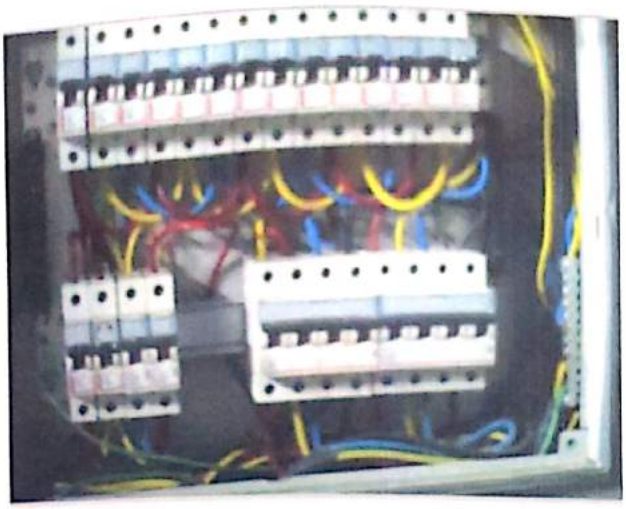
Object Parameters	Value
Image File Name	7138
Emissivity	1
Max Hot Spot Temperature	37.3
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

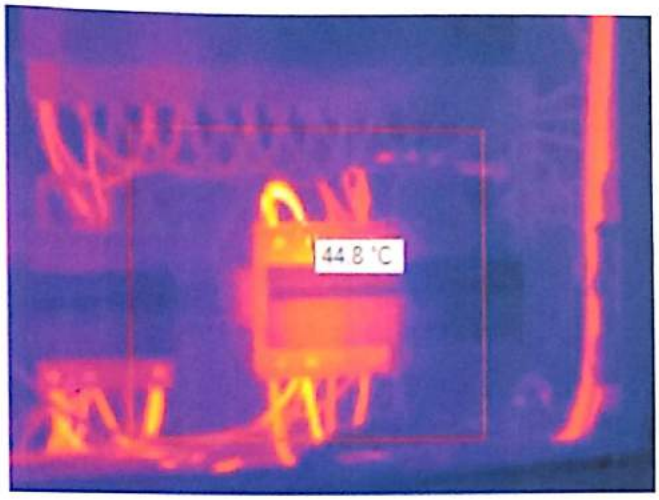
Found Normal

Image No: - 04

Visual Image



Thermal Image



Location	Ground floor A/C main office
Equipment	63amp. MCB
Fault Location	R- phase
Area Temperature	26.4

Object Parameters	Value
Image File Name	7137
Emissivity	1
Max Hot Spot Temperature	44.8
Fault Rating	3

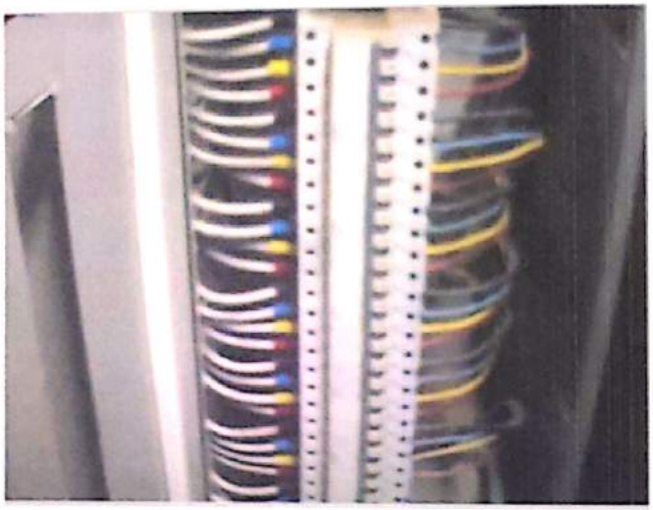
ANALYSIS & OBSERVATIONS

Found loose connection on R-phase

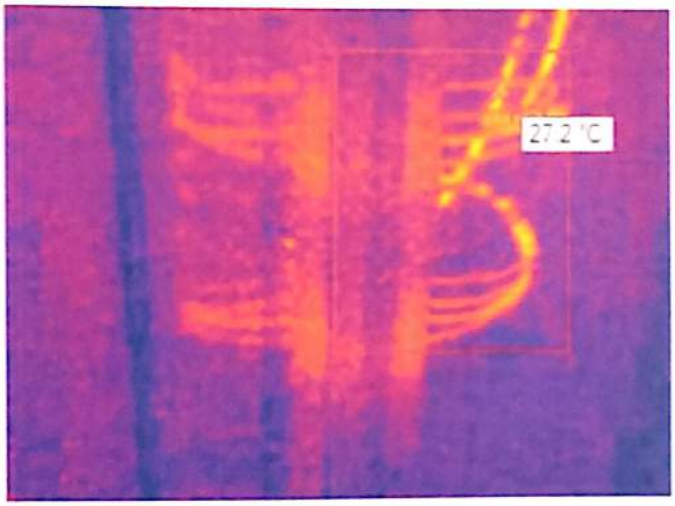
Corrective action should be taken at the next planned maintenance activity

Image No: - 05

Visual Image



Thermal Image



Location	Architecture B-wing
Equipment	Panel room 5th floor
Fault Location	Normal
Area Temperature	26.4

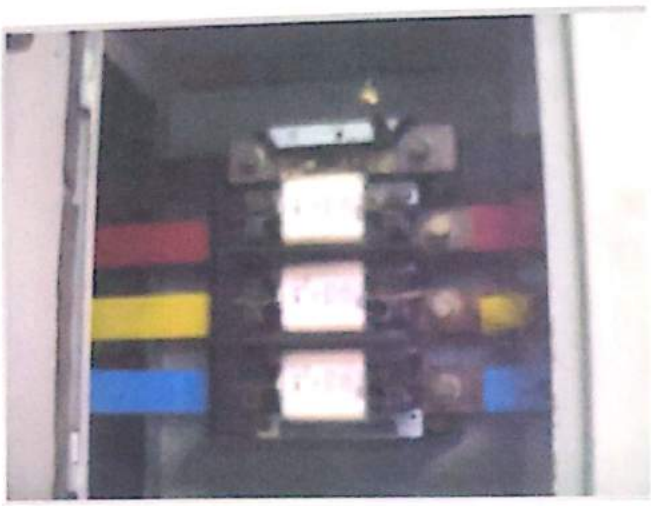
Object Parameters	Value
Image File Name	7136
Emissivity	1
Max Hot Spot Temperature	27.2
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

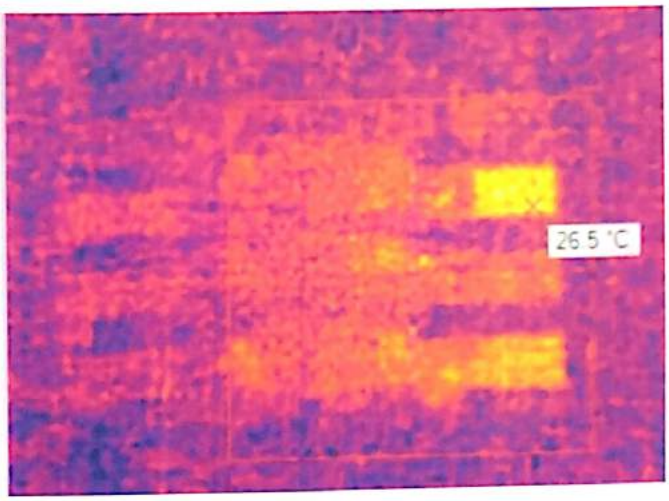
Found Normal

Image No: - 06

Visual Image



Thermal Image



Location	Main panel room
Equipment	Fuse location Eng. main
Fault Location	Normal
Area Temperature	26.4

Object Parameters	Value
Image File Name	7134
Emissivity	1
Max Hot Spot Temperature	26.5
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

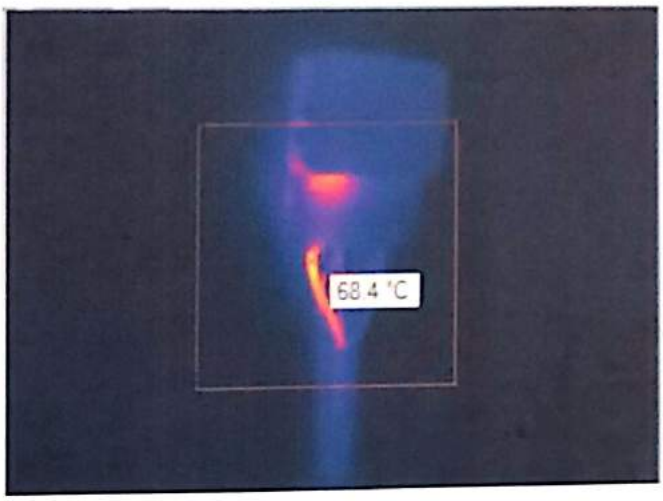
Found ok

Its Normal

Image No: - 07

Visual Image

Thermal Image



Location	Main panel room
Equipment	Meter
Fault Location	R-Phase
Area Temperature	26.4

Object Parameters	Value
Image File Name	7132
Emissivity	1
Max Hot Spot Temperature	68.4
Fault Rating	2

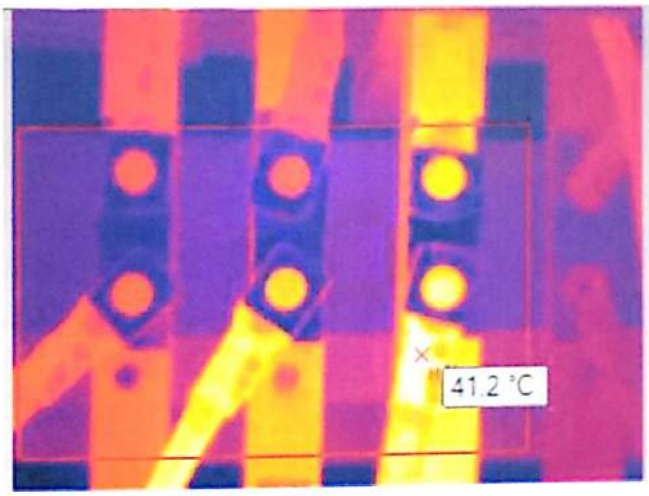
ANALYSIS & OBSERVATIONS

Corrective action should be undertaken at the earliest occasion

Image No: - 08

Visual Image

Thermal Image



Location	Main panel room
Equipment	Incomer
Fault Location	R-Phase
Area Temperature	26.4

Object Parameters	Value
Image File Name	7121
Emissivity	1
Max Hot Spot Temperature	41.2
Fault Rating	3

ANALYSIS & OBSERVATIONS

Found hit on R-Phase
Corrective action should be taken at the next planned maintenance activity

Image No: - 09

Visual Image

Thermal Image

Location	Main panel room
Equipment	2nd incomer panel
Fault Location	Normal
Area Temperature	26.4

Object Parameters	Value
Image File Name	7122
Emissivity	1
Max Hot Spot Temperature	34.5
Fault Rating	Normal

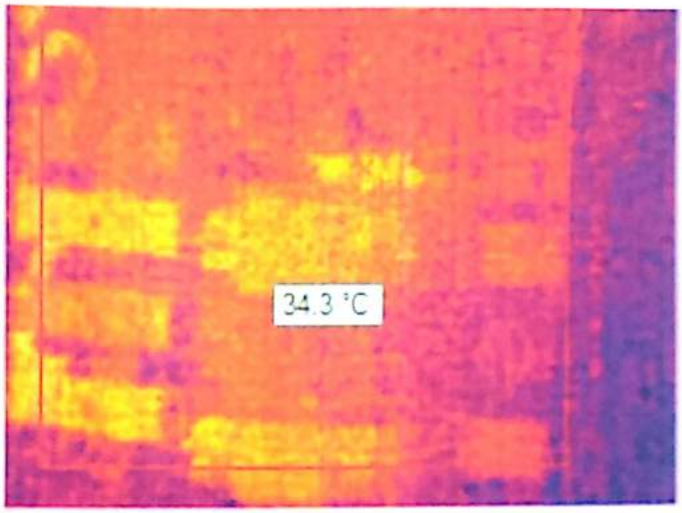
ANALYSIS & OBSERVATIONS

Found Normal

Image No: - 10

Visual Image

Thermal Image



Location	Main panel room
Equipment	Diploma building panel
Fault Location	Normal
Area Temperature	26.4

Object Parameters	Value
Image File Name	7126
Emissivity	1
Max Hot Spot Temperature	34.3
Fault Rating	Normal

ANALYSIS & OBSERVATIONS

Found Normal

8. GENERAL SUGGESTIONS

Following are the best practices that shall be implemented to achieve better safety standards and enhance quality of work:

1) **Handover format and follow-up: (refer below Table-1)**
   - Kindly maintain the following format for the Handover format which is a standardized format.
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   - Tools used by the Facility team i.e. by technicians / supervisors are to be stored in the manner depicted in Figure-1 below.
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