

ENERGY AUDIT CERTIFICATE

This is to certify that Energy Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

Uran Education Society's College of Management & Technology
Palak Maidan, Bori, Uran Maharashtra

Date of Audit: 20/05/2023

Assessment Period: 2021-2023 Valid till: 19/05/2024




ANUP A. SAMANT
TECHNICAL DIRECTOR




ASHUTOSH V. THAKUR
MANAGING DIRECTOR

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

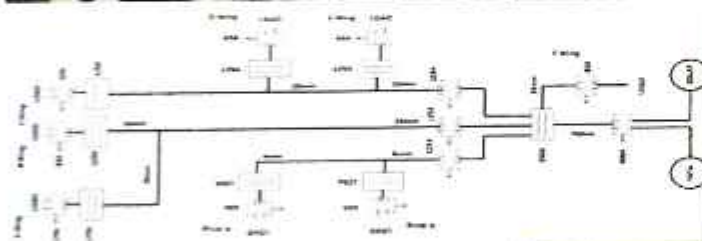


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- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects



- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections | Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance | Permissions, approvals, liasoning
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Detailed Report

Energy Audit

Project Beneficiary

2021-2023

Uran Education Society's

College of Management & Technology

Palak Maidan, Bori
Uran Maharashtra

Consultants & Auditor

SAUR

Engineers & Consultants

Pvt. Ltd.

REGISTRATION NO. : EA-28

D-8, Plot No. 108, Akshay, Rsc-16,
Gorai-1, Borivali (west), Mumbai-400092
MAHARASHTRA
+919867499812/+919168402909



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Acknowledgement

This is to certify that Detailed Energy Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company.

This activity is jointly executed by auditor and beneficiary to account energy use and conservation opportunity without sacrificing it's purpose. The main object was to assess the existing system for Energy saving opportunities, High quality professional and sustainable power quality management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards energy saving. The management and staff are keen on saving energy on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

Mrs. Sonali Mhatre, Principal and Team Head
Dr. Minakshi Gupta, Team Member, Teaching
Ms. Manali Haldankar, Team Member, Teaching
Ms. Neha Varma, Team Member, Non-Teaching
Mr. Sairam Pradhan, Team Member, Student
Mr. Anil Mhatre, Team Member, Electrician
Mr. Ajay Kumar Yadav, Team Member, Helper
Mr. Kishor Shama, Team Member, External expert
and all other technical, teaching, non-technical staff and students of college.



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Name of Beneficiary: Uran Education Society's College of Management & Technology

Registration Number: F-173 COLABA

Address: Palak Maidan, Bori, Uran Maharashtra

Contact Person: Dr. Minakshi Gupta

Contact Number: 8108214659

Date of Audit: 20/05/2023

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ENERGY AUDITOR "CLASS-A" No. EA-28
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Number - 490 891.

Sign & Seal

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28

Empanelled Energy Auditor-CLASS A,
MEDA, Government of Maharashtra

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1. Introduction

Energy Audit is a Basic essential activity to be done for saving in electrical billing and also allied with any energy saving projects like renewable energy project and solar projects. Energy Audit is an assessment of usage, consumption and pattern of energy used in the premises based on all above parameters along with conditions and benchmarks as resource and Building Envelope Analysis, working, operational and Maintenance Procedure Analysis, Utility Data Analysis, Load Data Analysis, Analysis of Energy Consumption, Load Evaluation, consumption pattern and billing history, back-up systems and also the administrative requirements, assessment of safety concerns, assessment of operating and occupancy schedules for Equipment, Power Quality and Environmental Parameters Analysis, Efficiency and Wastage Analysis and assessment of potential risk factors.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of energy usage properties of institute. It aims to analyze within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Energy audit is a valuable means for an Institution related to educational area to determine how and where they are connected with Energy conservation drive of nation. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an eco-friendly view of life while making changes and planning for savings. It provides better understanding of impact of energy consumption on working conditions to staff and visitors. As the Energy availability is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to Energy availability and quality crisis. On this background it becomes essential to adopt the system of Energy efficient and safe Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. Moreover, it is social responsibility of a High energy consuming institution to ensure that they contribute towards the saving of Energy and thus making it available who are destitute in term of energy availability.



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1. Objective

The Energy audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing Energy availability and quality. The institution has been putting efforts to keep reducing and standardizing energy usage since its inception. Therefore the purpose of present Energy audit is to identification, quantification, recording, reporting and analysis of components of Energy utilization and electrical safety properties of institute framework of energy conservation in compliance with the applicable regulations, policies and standards. The main objectives to carrying out the energy audit are:-

- To have overview of premises
- To record and document Utility data
- To record and document Load profile data
- To record and document basic Electrical Safety observations data
- To record and document Energy Conservations (if any)

2. Methodology

The purpose of Energy Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (International standards) with meters, Celsius degrees, Etc.

3. Audit Statement

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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2. Topography

1. Overview

SL No	Head	Details
1	Name of Applicant Institution	Uran Education Society's College of Management & Technology
2	Address	Palak Maidan, Bori, Uran Maharashtra
3	Contact Number	8108214659
4	Registration Certificate Number	F-173 COLABA
5	Sector Type	Education
6	Senior Management Contact	Dr. Minakshi Gupta
7	Contact Number	8108214659
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	13-15
11	Year of Establishment	2008
12	Plot Area (ft ²)	Approximate 5700 ft ²
13	No of Buildings	1
14	Building Type	RCC
15	Age of Building	20 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	15 – 16
18	No. of Customers (Footfall)	300-350
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	Yes common for all premises
23	Inverter Installed	No
24	Renewable Energy System installed	No
25	(Solar/Wind/Biomass/Biofuel/Etc.)	No

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)

Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

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2. Location

SL No	Head	Details	Remark
1	Name of Institute	UESCMT	
2	Category	College	Educational Institute
3	Address	Palak Maidan, Bori, Uran	
4	State	Maharashtra	
5	Nearest Railway Station	Panvel	Outstation
		Uran (proposed)	Local
6	Nearest Bus Station	Panvel	Interstate
		Uran	Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	18.882513	
9	Latitude	72.934656	

3. Layouts

Floor Map

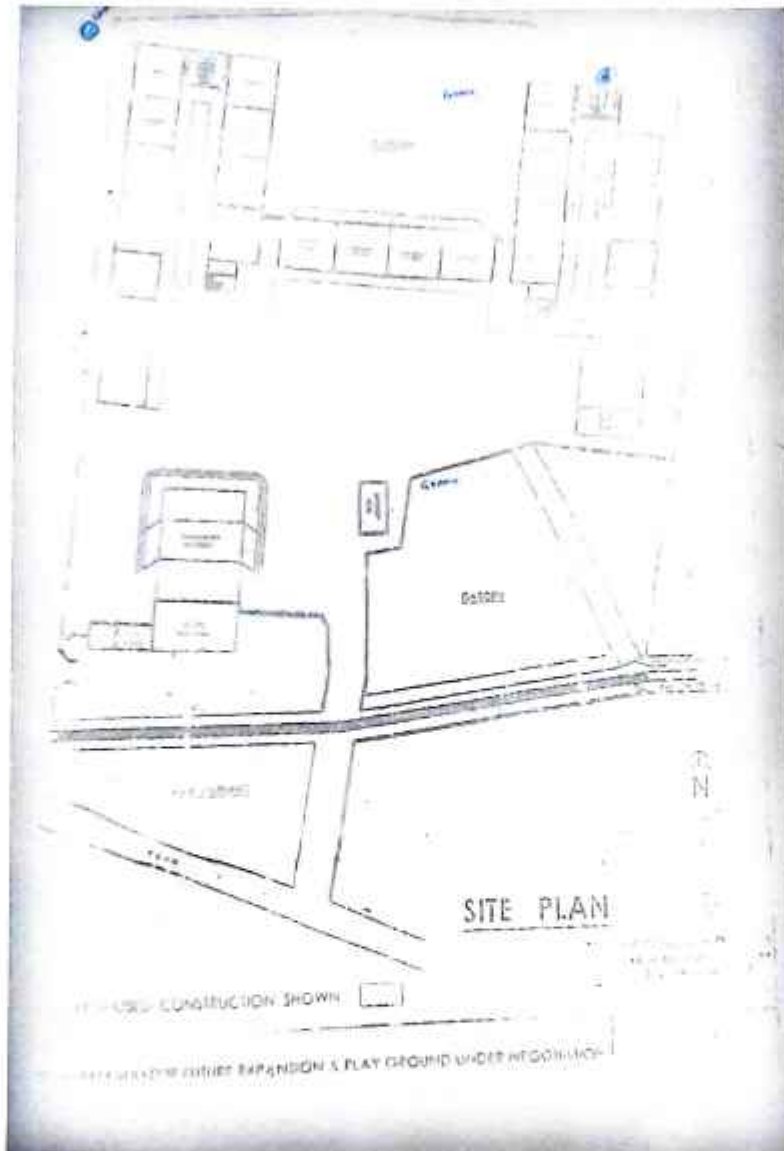




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Site Map



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Google Map



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3. Electric System

SL No	Specification	Value
1	Customer Account Number	025510197812
2	Meter No	078D0214818
3	Sanctioned Load (KW)	20
4	Contract Demand (KVA)	NA
5	DISCOM	MSEDCL
6	PHASE	THREE
7	BILLING UNIT	0337/URAN S/DN./PANVEL URBAN
8	POWER FACTOR	NA
9	PENALTY	NO

4. Billing Analysis

2021-22			
MONTH	UNITS	AMOUNT	RATE
APRIL	1708	11048	6.5
MAY	1903	12268	6.4
JUNE	2336	14974	6.4
JULY	2336	14974	6.4
AUGUST	2210	14187	6.4
SEPTEMBER	2487	15918	6.4
OCTOBER	2338	14987	6.4
NOVEMBER	2869	18305	6.4
DECEMBER	2644	16940	6.4
JANUARY	2438	15612	6.4
FEBRUARY	2347	15043	6.4
MARCH	3357	21726	6.5

2022-23			
MONTH	UNITS	AMOUNT	RATE
APRIL	2891	18483	6.4
MAY	1893	12235	6.5
JUNE	3120	22256	7.1
JULY	2955	21100	7.1
AUGUST	2449	17553	7.2
SEPTEMBER	3776	26855	7.1
OCTOBER	2782	19887	7.1
NOVEMBER	3260	23238	7.1
DECEMBER	3023	21576	7.1
JANUARY	2631	18828	7.2
FEBRUARY	2681	19179	7.2
MARCH	2855	20399	7.1

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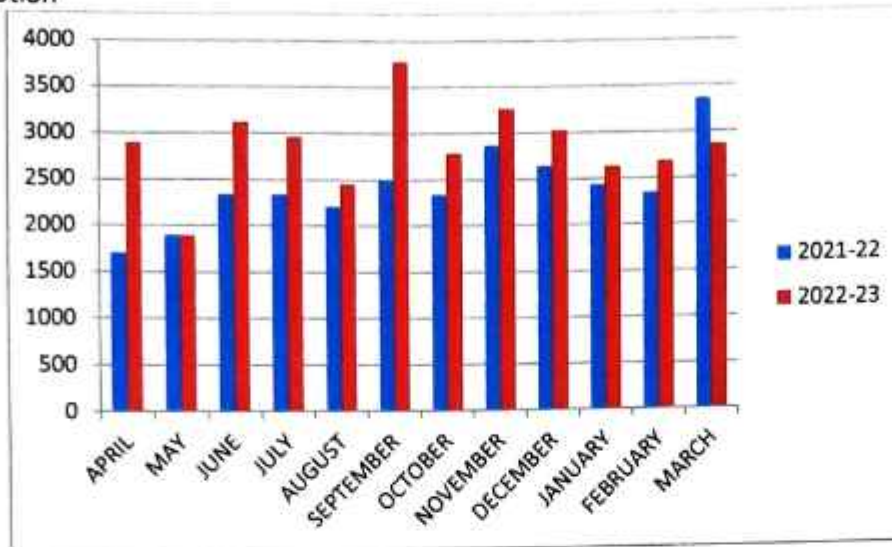
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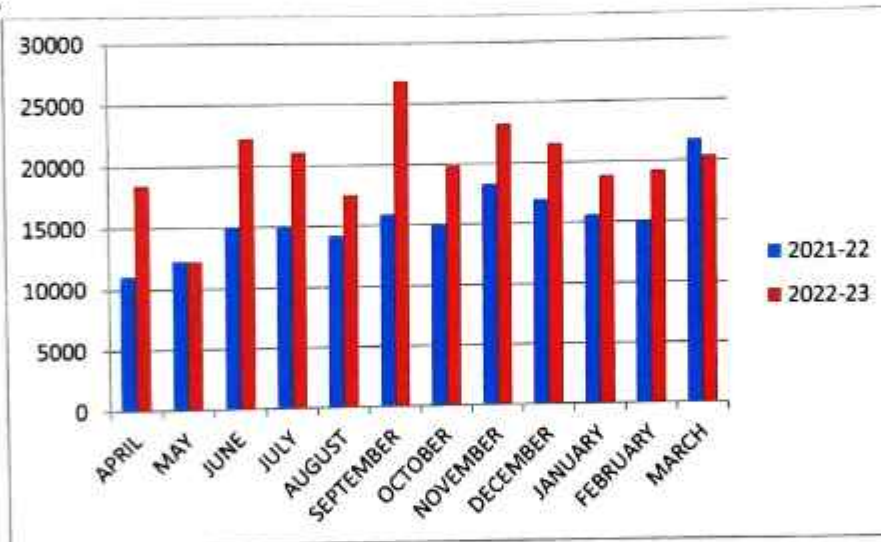
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Consumption



Expenses



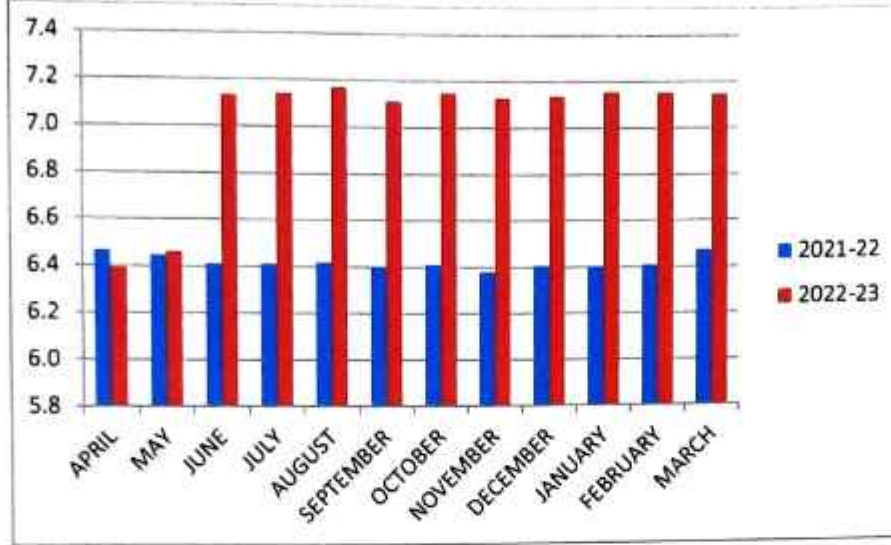
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Unit Rate



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5. Connected Load Analysis

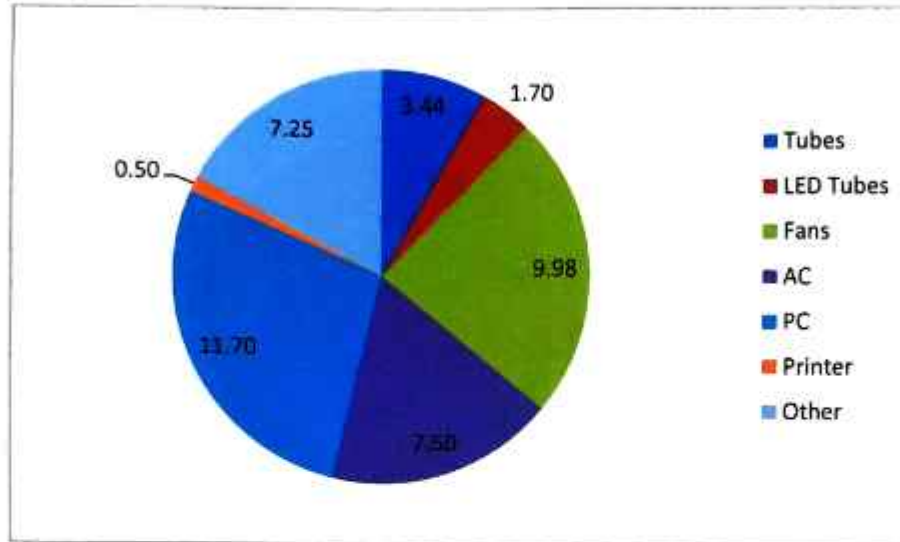
SL No	Floor	Room	Tubes	LED Tubes	Fans	AC	PC	Printer	Other
1	Ground	R-1	3	3	8	0	0	0	200
2	Ground	R-2	5	3	6	0	0	0	200
3	Ground	R-3	4	2	5	0	0	0	200
4	Ground	R-4	4	2	5	0	0	0	200
5	Ground	R-5	4	2	5	0	0	0	200
6	Ground	R-6	3	3	5	0	0	0	200
7	Ground	R-7	2	4	5	0	0	0	200
8	Ground	PC LAB-1	0	9	6	0	10	2	200
9	Ground	PC LAB-2	0	14	0	3	61	1	200
10	Ground	RECEPTION	8	3	6	0	4	0	200
11	Ground	PASSAGE	8	6	7	0	0	0	200
12	FIRST	R-1	4	2	9	0	0	0	200
13	FIRST	R-2	4	2	9	0	0	0	200
14	FIRST	R-3	1	3	7	0	0	0	200
15	FIRST	R-4	3	3	8	0	0	0	200
16	FIRST	R-5	2	2	5	0	0	0	200
17	FIRST	CHEM LAB	2	2	5	0	0	0	200
18	FIRST	PHY LAB	1	3	5	0	0	0	200
19	FIRST	BIO LAB	1	3	5	0	0	0	200
20	FIRST	OFFICE	26	10	15	2	2	2	3200
21	SECOND	LIBRARY	1	4	7	0	1	0	250



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Load	Tubes	LED Tubes	Fans	AC	PC	Printer	Other
Nos	86	85	133	5	78	5	7250
Load	3440	1700	9975	7500	11700	500	7250
Kw	3.44	1.70	9.98	7.50	11.70	0.50	7.25



6. Consumption Analysis

2021-22	Usage (Kwh)	Payment (Rs)	Duration
Total	28973	185982	Annual
Min	1708	11048	APRIL
Max	3357	21726	March
Average	2414	15499	Annual

2022-23	Usage (Kwh)	Payment (Rs)	Duration
Total	34316	241589	Annual
Min	1893	12235	MAY
Max	3776	26855	SEPTEMBER
Average	2860	20132	Annual

- 6.1.1. Average Consumption is increased
- 6.1.2. Maximum consumption month has been changed.
- 6.1.3. IOT based remote monitoring is recommended.

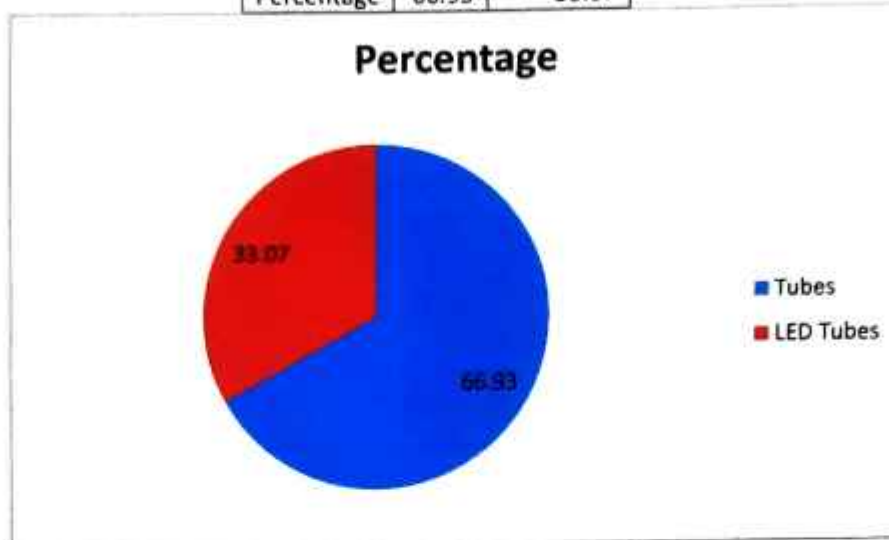


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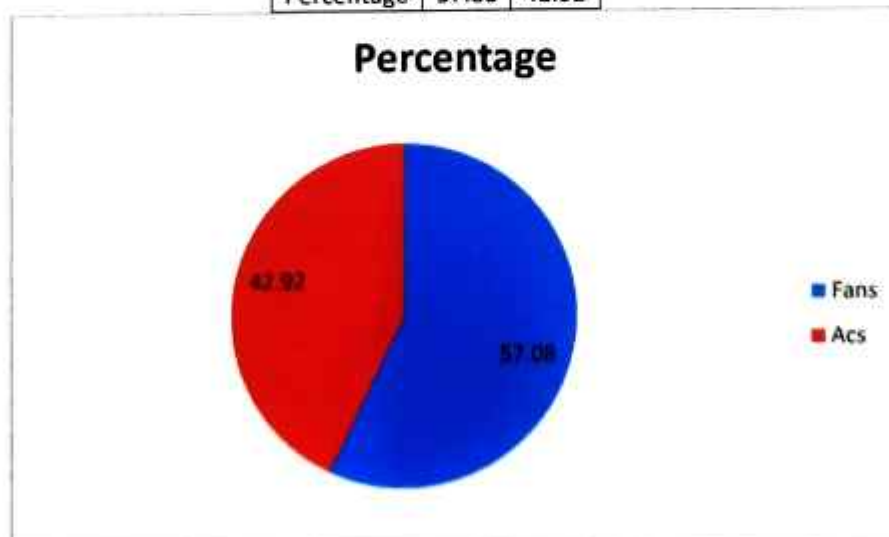
7. Lighting System Analysis

Load	Tubes	LED Tubes
Nos	86	85
Load	3.44	1.70
Percentage	66.93	33.07



8. Cooling System Analysis

Load	Fans	Acs
Nos	133	5
Load	9.98	7.50
Percentage	57.08	42.92



9. Renewable System Analysis

Proposed 50Kwp SPV GCRT Plant

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10. Conservation Analysis

1. Lights

Approximate Saving In Traditional Light Fitting			
No	Particular	Value	Unit
1	Present Quantity of Service	100	Nos
2	Existing Energy Demand	40	W/Unit
3	Total Energy Demand	4000	Watts
4	Energy Demand of Solution	20	W/Unit
5	Reduction in Demand	2000	W/Unit
6	Average Daily Usage	8	Hrs/Day
7	Daily Saving in Energy	16000	Kwh/Day
8	Annual Working Days	225	Nos
9	Annual Energy Saving Possible	3600	Kwh/Annum
10	Rate of Electricity	7.2	Rs/Kwh
11	Annual Monetary Saving	25920	Rs/Annum
12	Price of Solution	800	Rs/Unit
13	Units Required	100	Nos
14	Investment Required	80000	Rs Lump Sum
15	Simple Payback Period	37.0	Months

2. Fans

Approximate Saving In Traditional Fans Fitting			
No	Particular	Value	Unit
1	Present Quantity of Service	133	Nos
2	Existing Energy Demand	75	W/Unit
3	Total Energy Demand	9975	Watts
4	Energy Demand of Solution	35	W/Unit
5	Reduction in Demand	4655	W/Unit
6	Average Daily Usage	8	Hrs/Day
7	Daily Saving in Energy	42560	Kwh/Day
8	Annual Working Days	225	Nos
9	Annual Energy Saving Possible	9576	Kwh/Annum
10	Rate of Electricity	7.2	Rs/Kwh
11	Annual Monetary Saving	68947.2	Rs/Annum
12	Price of Solution	4000	Rs/Unit
13	Units Required	133	Nos
14	Investment Required	532000	Rs Lump Sum
15	Simple Payback Period	92.6	Months



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11. Suggestions:

1. Install IOT based Energy monitoring system.
2. Replace Traditional Lights with LED Tubes.
3. Replace Traditional Fans with BLDC Fans.
4. Put "SWITCH OFF" boards on back side of Doors.
5. Keep AC temperature to 26^o C.
6. Clean Luminaries, Fans, ACs regularly to increase efficiency.
7. Prepare and observe SOPs for maintenance of equipments.

Sl No	ENCON	Investment	Saving	Payback
	Suggestion	Rs	Rs/Year	Months
1	Replace TL with 20W LED Tubes	80,000	25,900	37
2	Replace Conventional Fans with BLDC Fans	5,32,000	69,000	93

12. Disclaimer

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

13. Conclusion

We hereby conclude report for "Energy Audit" of the institute has been done under scope of work for "Uran Education Society's College of Management & Technology, Palak Maidan, Bori, Uran Maharashtra". Please study it thoroughly and implement recommendations and suggestions at earliest.



Sonali
I/C Principal
Uran Education Society's College of
Management and Technology

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GREEN AUDIT CERTIFICATE

This is to certify that Green Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

**Uran Education Society's College of Management & Technology
Palak Maidan, Bori, Uran Maharashtra**

Date of Audit: 20/05/2023

Assessment Period: 2021-2023 Valid till: 19/05/2024




ANUP A. SAMANT
TECHNICAL DIRECTOR




ASHUTOSH V. THAKUR
MANAGING DIRECTOR

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

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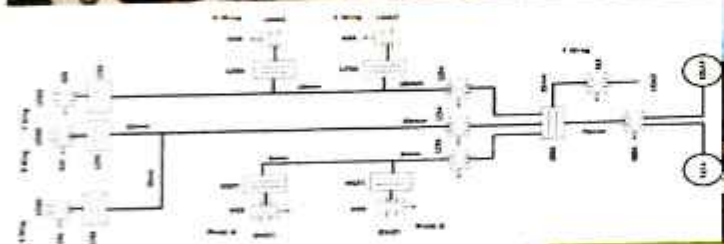


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- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects



Report By

M/s. Saur Engineers & Consultants Pvt. Ltd.,
Mumbai.

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor.

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Detailed Report

Green Audit

Project Beneficiary

2021-2023

Uran Education Society's

College of Management & Technology

Palak Maidan, Bori
Uran Maharashtra

Consultants & Auditor

SAUR

Engineers & Consultants

Pvt. Ltd.

REGISTRATION NO. : EA-28

D-8, Plot No. 108, Akshay, Rsc-16,
Gorai-1, Borivali (west), Mumbai-400092
MAHARASHTRA
+919867499812/+919168402909



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Acknowledgement

This is to certify that Detailed Green Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company.

This activity is jointly executed by auditor and beneficiary to account greenery conservation opportunity without sacrificing it's purpose. The main object was to assess the existing system for greenery diversity, High quality, professional and sustainable green management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards energy saving. The management and staff are keen on saving greenery on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

Mrs. Sonali Mhatre, Principal and Team Head
Dr. Minakshi Gupta, Team Member, Teaching
Ms. Manali Haldankar, Team Member, Teaching
Ms. Neha Varma, Team Member, Non-Teaching
Mr. Sairam Pradhan, Team Member, Student
Mr. Anil Mhatre, Team Member, Electrician
Mr. Ajay Kumar Yadav, Team Member, Helper
Mr. Kishor Shama, Team Member, External expert
and all other technical, teaching, non-technical staff and students of college.



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Certificate

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Name of Beneficiary: Uran Education Society's College of Management & Technology
Registration Number: F-173 COLABA
Address: Palak Maidan, Bori, Uran Maharashtra
Contact Person: Dr. Minakshi Gupta
Contact Number: 8108214659
Date of Audit: 20/05/2023

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.



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Member - 480 881

Sign & Seal

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Registration No: EA-28
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1. Introduction

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute. It aims to analyse within and surrounding the place concerned, in purview of relationship with natural diversity around. Green audit is a valuable means for an Institution related to educational area to determine how and what natural resources or diversity of nature they are surrounded with or they are living with. Green Audit report includes assessment of premises which refers to nature friendly environment with lesser carbon emission in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during green audit along with conditions and benchmarks as Air Quality, Water Quality, Noise Data, Weather Data, Tree Diversity, Faunal Diversity as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as a nature-friendly view of life while making changes and planning for savings.

It can create consciousness and awareness about natural diversities around and helps to standardize practices for working with observation of nature friendly work style. It provides better understanding of green diversity available surrounding conditions to staff and students. As the vanishing diversity of nature is becoming an increasingly important issue for the nation as well as the world, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to several greenery and ecological crisis. On this background it becomes essential to adopt the system of Green Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. The National Assessment & Accreditation Council, New Delhi (NAAC) has made it mandatory to all Higher educational institutions should submit a Green Audit Report. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of Green areas and maintaining good levels of qualities for natural resources available such as Air, water, atmosphere, flora, faunal, Etc.



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1.1. Objective

The green audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing greenery and natural resources depletion. The institution has been putting efforts to keep clean and green atmosphere since its inception. Therefore the purpose of present green audit is to identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute framework of Green atmosphere sustainability. The main objectives to carrying out the green audit are:-

- To record and document Air quality data
- To record and document Water quality data
- To record and document Weather/Meteorology data
- To record and document Noise Level data
- To record and document Tree Diversity data
- To record and document Faunal diversity data

1.2. Methodology

The purpose of Energy Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (international standards) with meters, Celsius degrees, Etc.

1.3. Audit Statement

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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2. Topography

2.1. Overview

SL No	Head	Details
1	Name of Applicant Institution	Uran Education Society's College of Management & Technology
2	Address	Palak Maidan, Bori, Uran Maharashtra
3	Contact Number	8108214659
4	Registration Certificate Number	F-173 COLABA
5	Sector Type	Education
6	Senior Management Contact	Dr. Minakshi Gupta
7	Contact Number	8108214659
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	13-15
11	Year of Establishment	2008
12	Plot Area (ft ²)	Approximate 5700 ft ²
13	No of Buildings	1
14	Building Type	RCC
15	Age of Building	20 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	15 - 16
18	No. of Customers (Footfall)	300-350
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	Yes common for all premises
23	Inverter Installed	No
24	Renewable Energy System installed	No
25	(Solar/Wind/Biomass/Biofuel/Etc.)	No

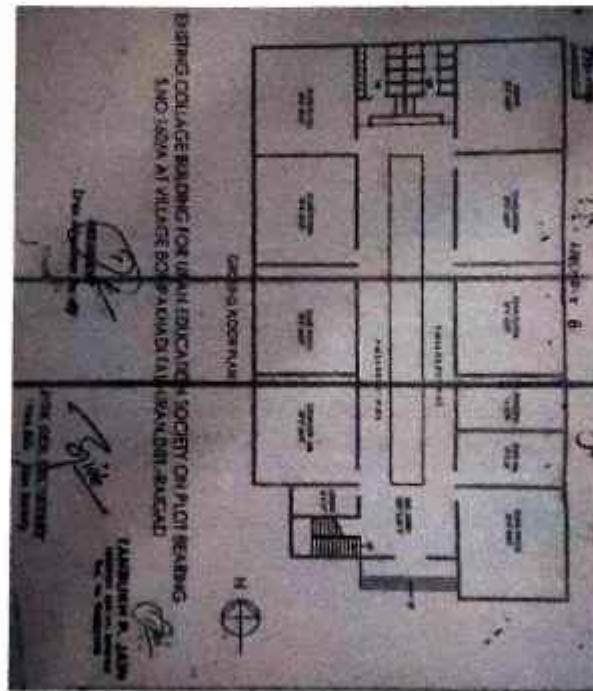
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2.2. Location

SL No	Head	Details	Remark
1	Name of Institute	UESCMT	
2	Category	College	Educational Institute
3	Address	Palak Maidan, Bori, Uran	
4	State	Maharashtra	
5	Nearest Railway Station	Panvel	Outstation
		Uran (proposed)	Local
6	Nearest Bus Station	Panvel	Interstate
		Uran	Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	18.882513	
9	Latitude	72.934656	

2.3. Layouts

Floor Map

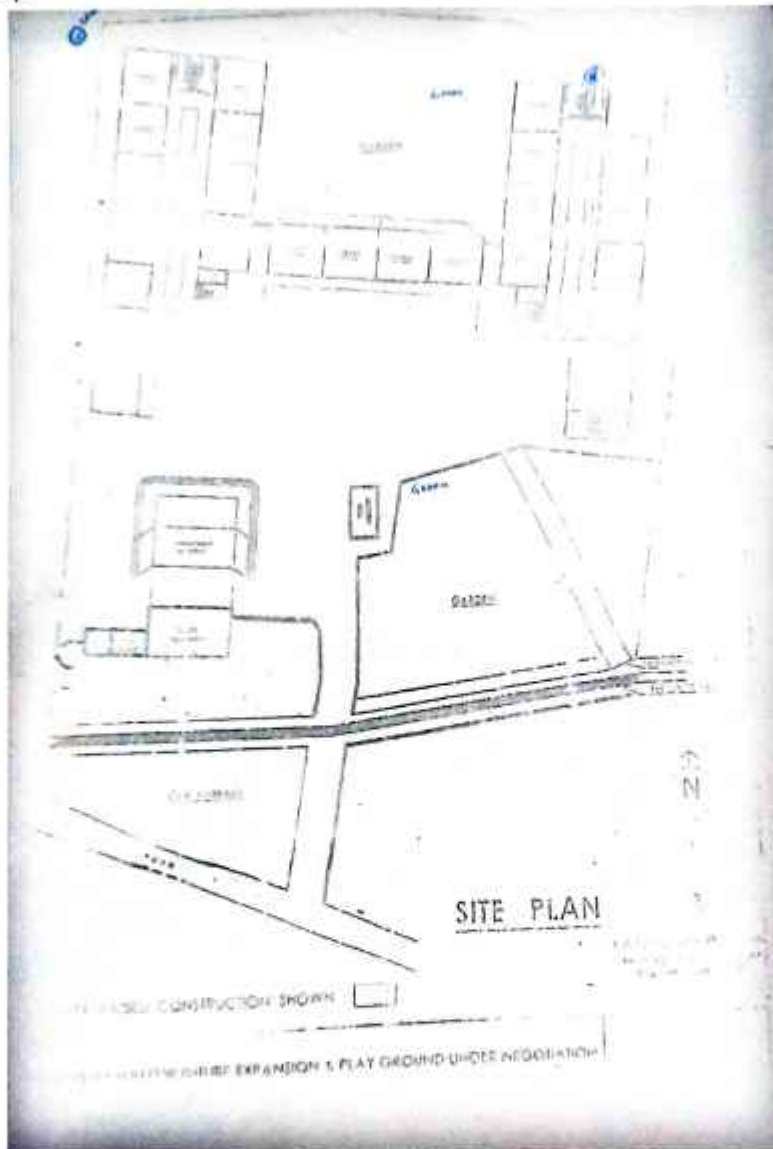




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Site Map



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Google Map



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3. Premises and Utilization

Nirmala Memorial Foundation College of Commerce and Science, a flourishing institution affiliated to the University of Mumbai made its humble genesis in 2003, through the enlightened vision and guidance of Mr. Thakurbhai Desai.

As an institution its purpose is to impart quality education to students of all creeds in general and the Gujarati Linguistic Minority in particular. The college strives to develop the intellectual powers of students and all concerned, continuously and consistently through methods that are participative, interactive and facilitative in a measurable manner; also to train them to be responsible and worthy citizens by adopting change in its path.

Uran Education Society's College of Management and Technology was thus started under the able guidance and initiative taken by then President Late Mr. Umesh Pradhan along with his able team. In the academic year 2008-2009, the college introduced three years degree programme of B.Sc. (Information Technology) which is affiliated to the very prestigious University of Mumbai.

Subsequently, three years degree programme of B.Com. was introduced in the academic year 2011- 12 to satiate the rising demand from learners interested in higher studies in the subject of Commerce.

The college has an excellent infrastructure and accessibility from various parts of the city. The college has a well-designed administrative block and various other rooms and facilities for the students such as girls' common room. College has well equipped computer lab. Each section of students has separate classrooms. Class rooms are well furnished and ventilated. Audio visual Room is provided with all teaching aids, OHP, Slide Projector, Video Player, LCD Projector, Video Camera, Multimedia Computer etc., in order to ensure overall development of students. The students have all the facilities for games and sports. Adequate infrastructure is provided for indoor and outdoor games and extra-curricular activities. Canteen is available for students in college campus.

Infrastructure:



SENIOR COLLEGE BUILDING



KNOWLEDGE RESOURCE CENTRE [LIBRARY]

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PLAYGROUND



COMPUTER LABORATORY



UMESH PRADHAN SIR AUDITORIUM



ADMINISTRATIVE OFFICE



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LECTURE HALL

Class Rooms			
floor	no. of class rooms	Area (Each)	length x breath in meters (Each)
ground floor	6	70.752sq meters	8.04 x 8.80
1st floor	8	70.752sq meters	8.04 x 8.80

Toilets			
floor	no. of toilets	Area (Each)	length x breath in meters (Each)
ground floor	2	21 sqm	5.88 x 3.74
1st floor	2	21 sqm	5.88 x 3.74
1st floor	1 staff toilet	3.06 sqm	1.75 x 1.75

Library			
floor	no. of library	Area	length x breath in meters (Each)
2nd floor	1	82.76 sqm	13.59 x 6.09

Staff Room			
floor	no. of staff rooms	Area	length x breath in meters (Each)
ground floor	1	22.82 sq meters	7.98 x 2.86
1st floor	1	70.752sq meters	8.04 x 8.80

Computer lab			
floor	no. of computer labs	Area (Each)	length x breath in meters (Each)
ground floor	2	70.752sq meters	8.04 x 8.80

Principals cabin & office			
floor	office	Area	length x breath in meters (Each)
ground floor	1	70.752sq meters	8.04 x 8.80

Exam Room			
floor	Exam room	Area	length x breath in meters (Each)
ground floor	1	12.40 sq meters	4.08 x 3.04

Girls Common Room			
floor	Girls Common Room	Area	length x breath in meters (Each)
ground floor	1	9 sq meters	3 x 3
		525.85QM	
		5659.6641 SQF	

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4. Floral Diversity

UESCMT College, which was established in the year 2008, has eco-friendly environment since then. It has long legacy of healthy environmental practices periodic awareness, preservation and maintenance. As very much common in City area the college campus is limited to its plot premises hence having less scope for plantation within. College practices awareness camps, seminars and trails to fulfil the backlog.

Details of Trees

Year	No. of Trees
2021-22	298
2022-23	60
Total	358

Area Wise Trees Details

Area 1: School Building			
Sr. No.	Common Name	Botanical Name	Quantity
1.	Rollinia	Annoma Mucosa	1
2.	Chacruna	Psychotria Viridis	2
3.	Strangler Figs	Ficus Nymphaefolia	4
4.	Pinwheel flower	Crape jasmine	1
5.	Three Kings	Pennantia Baylisiana	1
6.	Coconut	Cocos nucifera	41
7.	Palmyra palm	Borassus aethiopum	8
8.	Mango	Mangifera indica	5
9.	Jamun	Syzygium cumini	5
10.	Jackfruit	Artocarpus heterophyllus	6
11.	Guava	Psidium guajava	8
12.	Chickoo	Manilkara zapota	6
13.	Jam	Syzygium jambos	5
14.	Lemon	Citrus limon	7
15.	Aawla (Big)	Phyllanthus emblica	8
16.	Aawla (Small)	Phyllanthus emblica	2
17.	Custard Apple	Annonaceae	5
18.	Sonchafa	Magnolia champaca	2
19.	Parijat	Nyctanthes arbor-tristis	1
20.	Neem	Azadirachta indica	3
Total			121

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Area 2: Ground			
Sr. No.	Common Name	Botanical Name	Quantity
1.	Kasaka	Corynocarpus laevigatus	1
2.	Rambutan	Nehellium Lappaceum	2
3.	Neem	Azadirachta Indica	3
4.	Aapta	Bauhinia racemosa	1
5.	Oleander	Nerium Oleander	2
6.	Blackboard Tree	Alstonia Scholaris	1
7.	Betel Palm	Areca Catechu	1
8.	Perilla	Perilla Frutescens	1
9.	Palm Tree	Arecaceae	1
10.	Garden Croton	Codiacum Variegatum	2
11.	Spineless Yucca	Yucca Gigantea	1
12.	Rose	Rosa Indica	2
13.	Tiplant	Cordyline Fruticosa	2
14.	Oriental arborvital	Platydadus Orientails	1
15.	Mogra	Fasminum Sambac	1
16.	Hibiscus	Hibiscus Rosa- sinesis	1
17.	Snake Plant	Dracaena Trifasciata	1
18.	Boxleaf	Buxus	1
19.	Sobbed Fig	Ficus elastica	2
20.	Ficus	Ficus variegata	1
Total			28

Area 3: Kho-Kho Ground			
Sr. No.	Common Name	Botanical Name	Quantity
1.	Moringa Plant	Moringa Oleifera	4
2.	Neem	Azadirachta Indica	2
3.	Amla	Phyllanthus Emblica	1
4.	Hibiscus	Hibiscus Rosa- Sinesis	1
5.	Poison Ivy	Toxicodendron Radican	1
6.	Wild Tamarind	Cojoba Arborea	3
7.	Gale of the wind	Phyllanthus Niruri	10
8.	Cluster Fig	Ficus Racemosa	6
9.	Rare White Maiden's Feather Cypress Wine	Ipomoea Quamoclit White Feather	1
Total			29

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Area 4: Administrative Building			
Sr. No.	Common Name	Botanical Name	Quantity
1.	Coconut Tree	Cocos Nucifera	7
2.	Guava	Psidium	1
3.	Naselerry	Marikara Zapota	1
4.	Mango	Mangifera indica	7
5.	Holy Basil	Ocimum Tenuiflorum	7
6.	Gul-e-Abbas	Mirabilis Jalapa	2
7.	Small Leaf spiderwart	Tradescantia Fluminensis	21
8.	Rose	Rosa	2
9.	Pardarus Vetichii	Pardanus Tectorius	10
10.	Alovera	Aloe Barbadensis miller	5
11.	Onilanensis	Dypsis Onilahensis	2
12.	Rubber	Hevea brasiliensis	1
13.	Polyscias Foruticosa	Mingaralia	3
14.	Artabotrys	Manoranjitham	2
15.	Green Ashoka Tree	Saraca Asoca	1
16.	Jasmin	Jasminum	5
17.	Hibiscus	Hibiscus	5
18.	Garden Craton	Codiaeum Veriegatum	4
19.	Yucca Aloilolia	Yucca Filamentosa	5
20.	Java Plum	Syzygium Cumini	1
21.	Curry Leaves	Murrucya koenigii	2
22.	Cactus	Cactaceae	1
23.	Sared Fig	Ficus Religiosa	1
24.	Common Box	Buxus Sempervirems	1
Total			97

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Area 5: Main Gate			
Sr. No.	Common Name	Botanical Name	Quantity
1.	Hairy fig	Ficus hirta	3
2.	Garden Craton	Gossipium herbaceum	2
3.	Areca Palm	Dypsis lutescens	2
4.	Devils Ivy	Epipremnum avreum	2
5.	Golden Trumpet vine	Allamanda Cathartica	1
6.	Ming Aralia	Polycias Fruticosa	1
7.	Birds Nest Fern	Asplenium nidus	1
8.	Heart of Jesus	Caladium Bicolor	1
9.	Craton Plant	Codiaeum Variegatum	1
10.	Noni	Morinda Citrifolia	2
11.	Jackfruit	Artocarpus heterophyllus	2
12.	Rangoon Creeper	Combratum Indicum	2
13.	Bay tree	Bay laurd	3
14.	Hinoki cypress	Chamaecyparis obtusa	3
15.	Night Jasmine	Cestrum Nocturnum	1
Total			27

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Area 6: Parking Area			
Sr. No.	Common Name	Botanical Name	Quantity
1.	The false ashoka	Polyalthia Longifolla	1
2.	Papaya Plant	Carica Papaya	2
3.	Coconut Tree	Cocos Nucifera	1
4.	Hairy Fig	Ficus Hirta	1
5.	Thunder God Vine	Tripterygium Wilfordii	1
6.	Malvaceae	Cola Acuminata	1
7.	Rubiaceae (Noni)	Morinda Cilrifolia (Noni)	11
8.	Indian Almond	Terminalia Catappa	6
9.	Clustering Fishtail palm	Caryota Mitis	4
10.	Cedre Macho Plant	Hierdntma Clusioides	1
11.	Acacia Tree	Vachellia Nilotica	1
12.	Horse Radish Tree	Moringa Oleifera	1
13.	Mongoose Palm Tree	Dypsis Ovobontsira	1
14.	Blackboard tree	Aistonia Scholaris	1
15.	Leea Plant	Vitaceae	5
16.	Monkey Pod Tree	Samanea Saman	1
17.	Joint Fir Plant	Gnetum	3
18.	Weeping Fig	Ficus	3
19.	Tamarind Tree	Tamarindus Indica	2
20.	Mango Tree	Mangifera Indica	1
21.	Indian Hog plum Tree	Spondias Mombin	6
22.	Neem Tree	Azadirachta Indica	1
23.	Mountain Sweet Thorn	Flacourtia Montana	1
Total			56

Summary

Sr. No.	Area	Total Trees
1.	School Building	121
2.	Ground	28
3.	Kho-Kho Ground	29
4.	Administrative Building	97
5.	Main Gate	27
6.	Parking Area	56
Total		358

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5. Faunal Diversity

The college campus as very much common in Mumbai City the college is limited to its plot premises hence having no scope for plantation within. Since there is negligible plantation within and surrounding of College campus there are very less animal species were observed in including invertebrates and vertebrates (different groups like Beetle, Moth, Bug, Bird, Ant, Spider, Wasp, Millipede, Slug, Louse, Earthworm, Snail, Butterfly, Dragonfly, Grasshopper etc.).

SL No	Scientific Name	Common Name	Family	Category
1	Copelatus haemorrhoidalis	Diving beetle	Dytiscidae	BEETLE
2	Spodoptera exigua	Beet armyworm	Noctuidae	MOTH
3	Dysdercus cingulatus	Red cotton bug	Pyrrhocoridae	BUG
4	Columba livia	Rock pigeon	Columidae	BIRD
5	Streptopelia senegalensis	Laughing Dove	Columidae	BIRD
6	Pycnonotus cafer	Red vented bulbul	Pycnonotidae	BIRD
7	Passer domesticus	House sparrow	Passeridae	BIRD
8	Corvus splendens	Crow	Corvidae	BIRD
9	Phaethontidae psittaciformes	Parrot	Sturnidae	BIRD
10	Camponotus consobrinus	Banded sugar ant	Formicidae	ANTS
11	Eratigena atrica	Giant house spider	Theridiidae	SPIDER
12	Hasarius adansoni	Jumping Spider	Salticidae	SPIDER
13	Acheta domesticus	House cricket	Gryllidae	INSECT
14	Planorbarius corneus	Great ramshorn	Planorbidae	SNAIL
15	Acrida conica	Giant green slantface	Acrididae	GRASSHOPPER
16	Calotes versicolor	Indian garden lizard	Agamidae	REPTILE
17	Ratus ratus	Rat	Muridae	MAMMAL
18	Funambulus palmarum	Indian palm squirrel	Sciuridae	MAMMAL

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6. Green Approach:

Plantation Drive by the Institute:



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Cleanliness of College Campus

Venue: Sr. College Campus

No. of Participants: 57

The NSS volunteers had done campus cleaning from 09:00 am to 11:00 am. They cleaned main building area, playground, parking area etc. Maintaining a clean college campus sets a good example to students. All other students will be inspired by this act. They will avoid littering in campus and will also share it with their friends.



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Disaster Management training

Venue: Saraswati Mandap

No. of Participants: 70

Resource Person: Mrs. Rajeshwari Kori, Deputy Controller, CDC, Uran-Raigad

A mock fire and evacuation Drill involving the student and teachers, was conducted in college premises to create awareness among students about firefighting techniques and ways to respond swiftly in times of such emergency situation. It was organized to check the readiness of the school to face any such emergency during such disaster and also to make the students and staff aware about its rescue operation and its procedure.



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Swachh Bharat Campaign

Venue: Zilla Parishad School

No. of Participants: 70

College have organized Swachh Bharat Campaign in Kegaon with the motto 'ONE STEP TOWARDS CLEANLINESS'. Many volunteers took initiative towards the cleanliness of the village and also creating awareness among the village. Many villages took the forward step in keeping their village clean and hygienic. For awareness of villagers students had done paintings on walls.



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7. Suggestions:

- 7.1. Arrange Exhibitions and identification programs for students and locals to understand medicinal plants.
- 7.2. Start a planting drive with students outside campus.
- 7.3. Gift small plants or seeds/seed-balls to students leaving or going to native place and encourage them to plant at their own premises.
- 7.4. There should be display of emergency telephone number of nearest fire station, hospital and key person.
- 7.5. Generate awareness among user about environment conservation.

8. Disclaimer

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

9. Conclusion

We hereby conclude report for "Green Audit" of the institute has been done under scope of work for "Uran Education Society's College of Management & Technology, Palak Maidan, Bori, Uran Maharashtra". Please study it thoroughly and implement recommendations and suggestions at earliest.



Sonali
I/C Principal
Uran Education Society's College of
Management and Technology

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ENVIRONMENT AUDIT CERTIFICATE

This is to certify that Environment Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

Uran Education Society's College of Management & Technology
Palak Maidan, Bori, Uran Maharashtra

Date of Audit: 20/05/2023

Assessment Period: 2021-2023 Valid till: 19/05/2024




ANUP A. SAMANT
TECHNICAL DIRECTOR




ASHUTOSH V. THAKUR
MANAGING DIRECTOR

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

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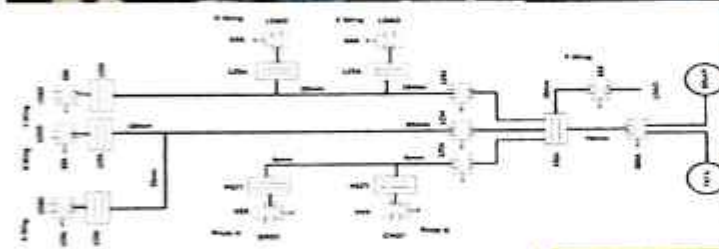


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UES's College of Management & Technology Palak Maidan, Bori, Uran Maharashtra



Report By

M/s. Saur Engineers &
Consultants Pvt. Ltd.,
Mumbai.

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
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Detailed Report Environment Audit

Project Beneficiary 2021-2023

Uran Education Society's College of Management & Technology

Palak Maidan, Bori
Uran Maharashtra

Consultants & Auditor

SAUR Engineers & Consultants Pvt. Ltd.

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Acknowledgement

This is to certify that Detailed Environment Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company.

This activity is jointly executed by auditor and beneficiary to account Environmental diversities and development opportunity without sacrificing it's purpose. The main object was to assess the existing system for Environment concerns, High quality, professional and sustainable Environment management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards Environment saving. The management and staff are keen on saving greenery and energy on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

Mrs. Sonali Mhatre, Principal and Team Head
Dr. Minakshi Gupta, Team Member, Teaching
Ms. Manali Haldankar, Team Member, Teaching
Ms. Neha Varma, Team Member, Non-Teaching
Mr. Sairam Pradhan, Team Member, Student
Mr. Anil Mhatre, Team Member, Electrician
Mr. Ajay Kumar Yadav, Team Member, Helper
Mr. Kishor Shama, Team Member, External expert
and all other technical, teaching, non-technical staff and students of college.



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Certificate

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Name of Beneficiary: Uran Education Society's College of Management & Technology

Registration Number: F-173 COLABA

Address: Palak Maidan, Bori, Uran Maharashtra

Contact Person: Dr. Minakshi Gupta

Contact Number: 8108214659

Date of Audit: 20/05/2023

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Mumbai - 400 092.

Sign & Seal

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28

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1. Introduction

Environmental Audit is a process of systematic identification, quantification, recording, reporting and analysis of impact on components of environmental diversity properties of institute. It aims to analyse within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Environmental audit is a valuable means for an Institution related to educational area to determine how and where they are impacting on natural resources or diversity of nature. Environmental audit report includes assessment of premises which refers to impact on environment with carbon emission, wastages in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during Environmental audit along with conditions and benchmarks as Wastage types, recycling, Greenery, effect of impact, Carbon footprints as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an environment-friendly view of life while making changes and planning for savings.

It can create health consciousness, environmental awareness, practice green values and ethics. It provides better understanding of impact on surrounding conditions to staff and students. If self-enquiry is natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the institution evaluates its own contributions towards a sustainable future. As the pollution and CO_2 is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to several greenery and ecological crisis. On this background it becomes essential to adopt the system of Green Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. The National Assessment & Accreditation Council, New Delhi (NAAC) has made it mandatory to all Higher educational institutions should submit a *Environmental audit Report*. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of environment and reduce level of quantity for impact on natural resources available.



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1. Objective

The Environmental audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing greenery and natural resources depletion. The institution has been putting efforts to keep clean and green atmosphere since its inception. Therefore the purpose of present Environmental audit is to identification, quantification, recording, reporting and analysis of components of surrounding environmental properties of institute framework as a part of global environment sustainability. The main objectives to carrying out the Environmental audit are:-

- To record and document Wastage type and management
- To record and document Recycling Procedures
- To record and document Impact on environment
- To record and document Carbon footprints
-

2. Methodology

The purpose of Environment Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (international standards) with meters, Celsius degrees, Etc.

3. Audit Statement

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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2. Topography

1. Overview

SL No	Head	Details
1	Name of Applicant Institution	Uran Education Society's College of Management & Technology
2	Address	Palak Maidan, Bori, Uran Maharashtra
3	Contact Number	8108214659
4	Registration Certificate Number	F-173 COLABA
5	Sector Type	Education
6	Senior Management Contact	Ms. Minaxi Gupta
7	Contact Number	8108214659
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	13-15
11	Year of Establishment	2008
12	Plot Area (ft ²)	Approximate 5700 ft ²
13	No of Buildings	1
14	Building Type	RCC
15	Age of Building	20 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	15 – 16
18	No. of Customers (Footfall)	300-350
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	Yes common for all premises
23	Inverter Installed	No
24	Renewable Energy System installed	No
25	(Solar/Wind/Biomass/Biofuel/Etc.)	No



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2. Location

SL No	Head	Details	Remark
1	Name of Institute	UESCMT	
2	Category	College	Educational Institute
3	Address	Palak Maidan, Bori, Uran Maharashtra	
4	State	Maharashtra	
5	Nearest Railway Station	Panvel	Outstation
		Uran (proposed)	Local
6	Nearest Bus Station	Panvel	Interstate
		Uran	Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	18.882513	
9	Latitude	72.934656	

3. Layouts Floor Map



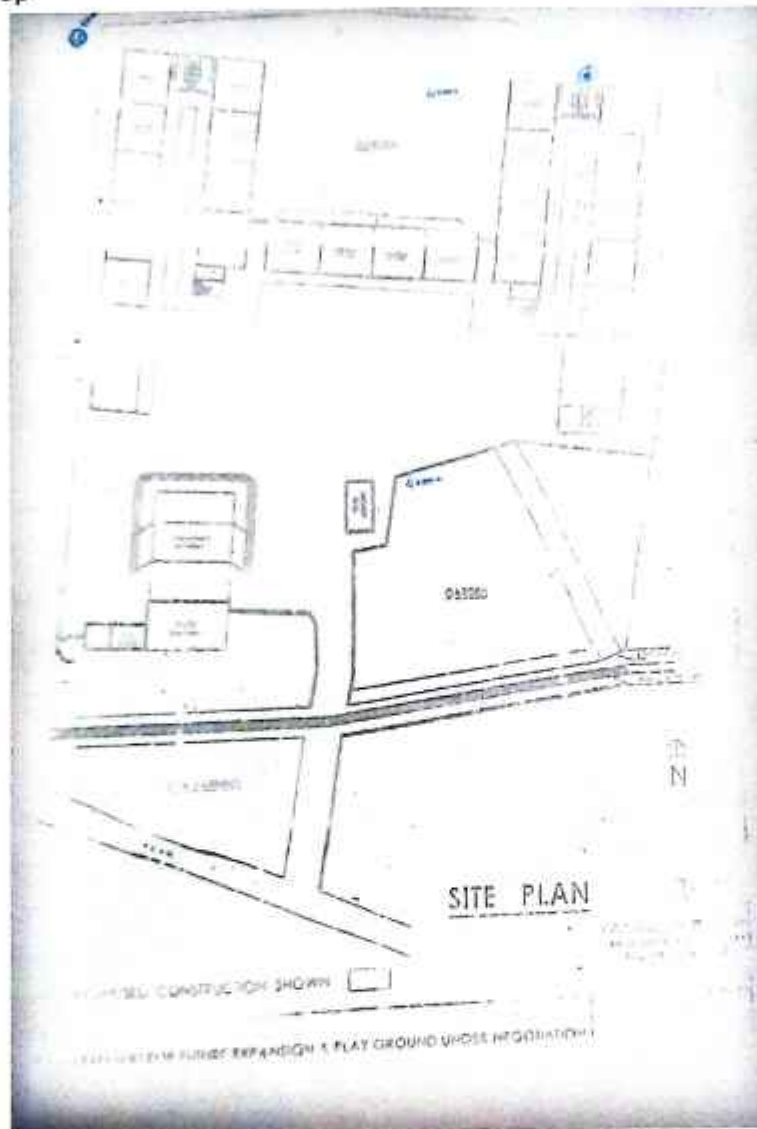
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Site Map



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Google Map



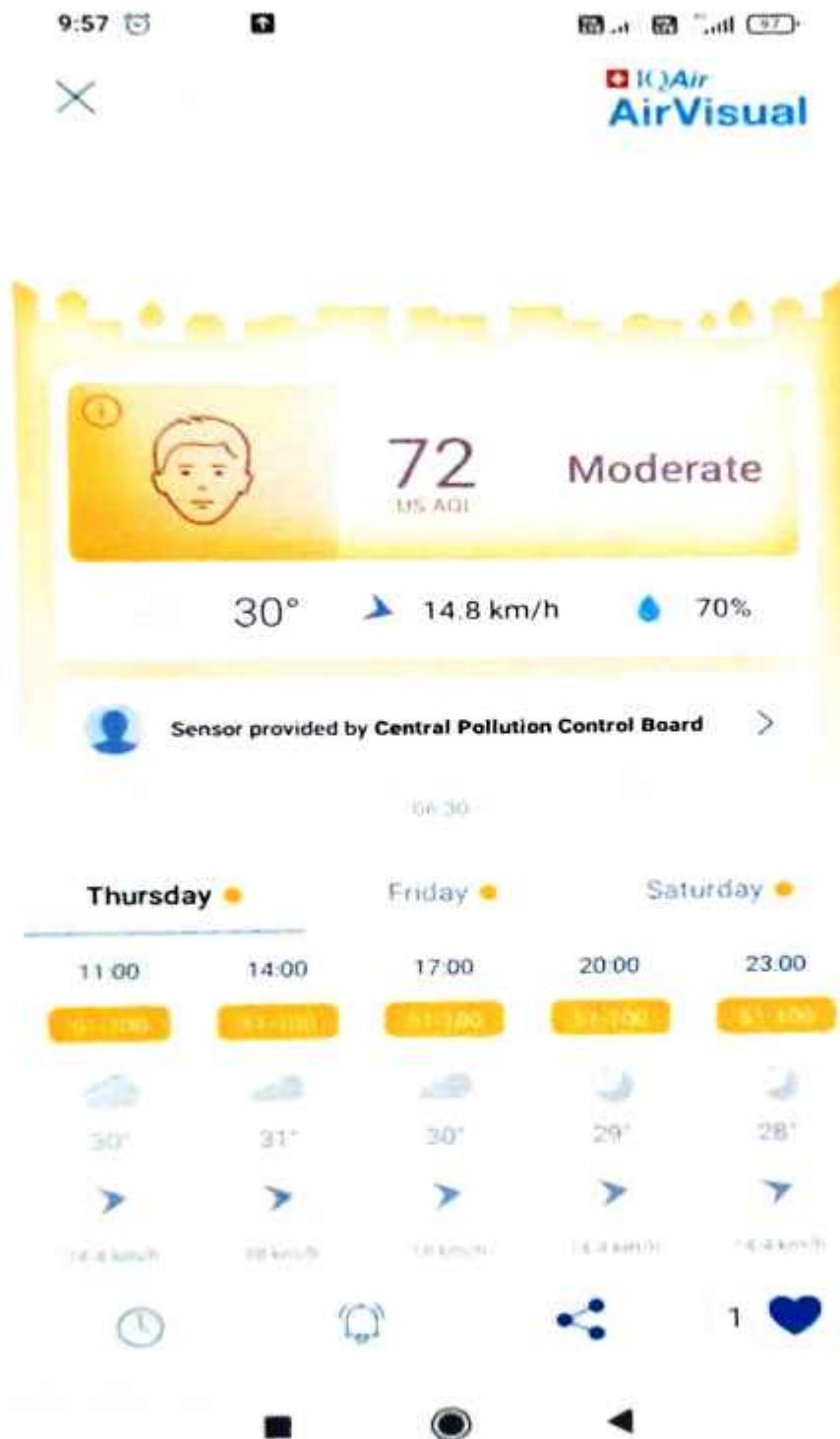
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3. Air Quality Analysis



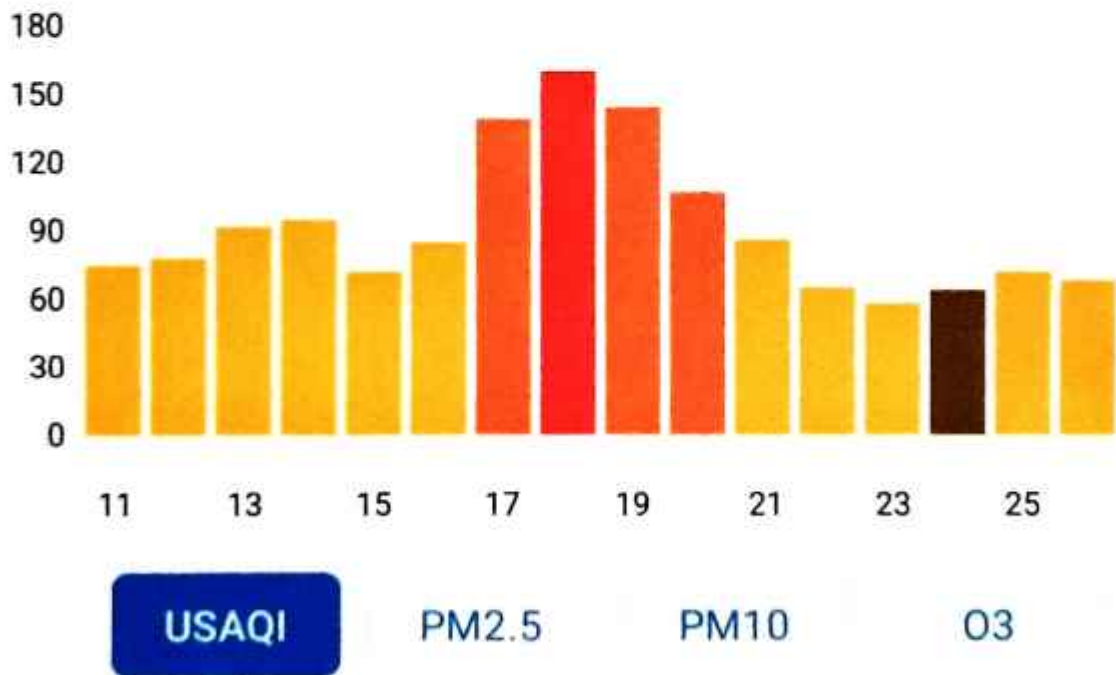
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Pollutants

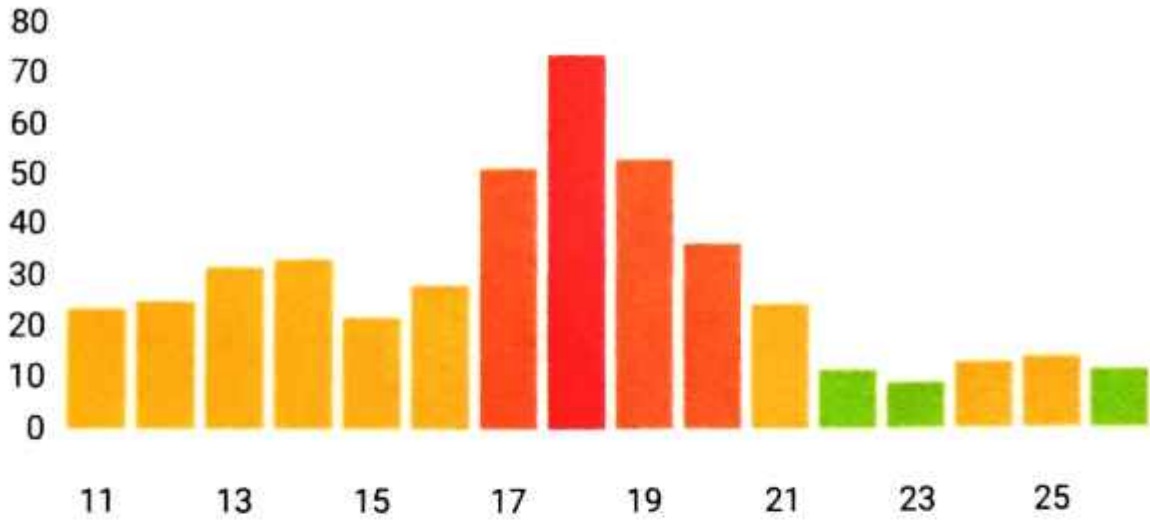


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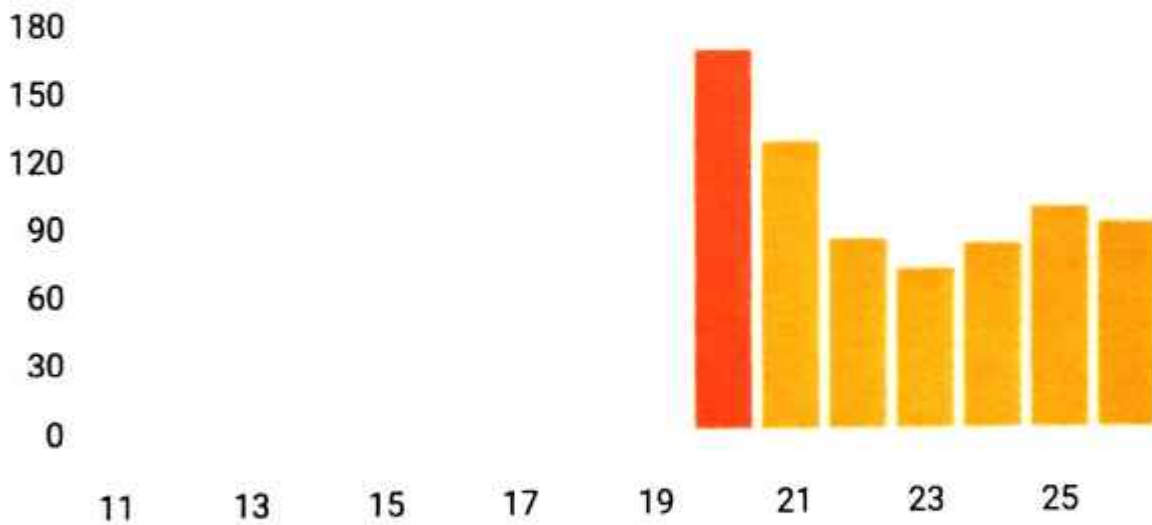


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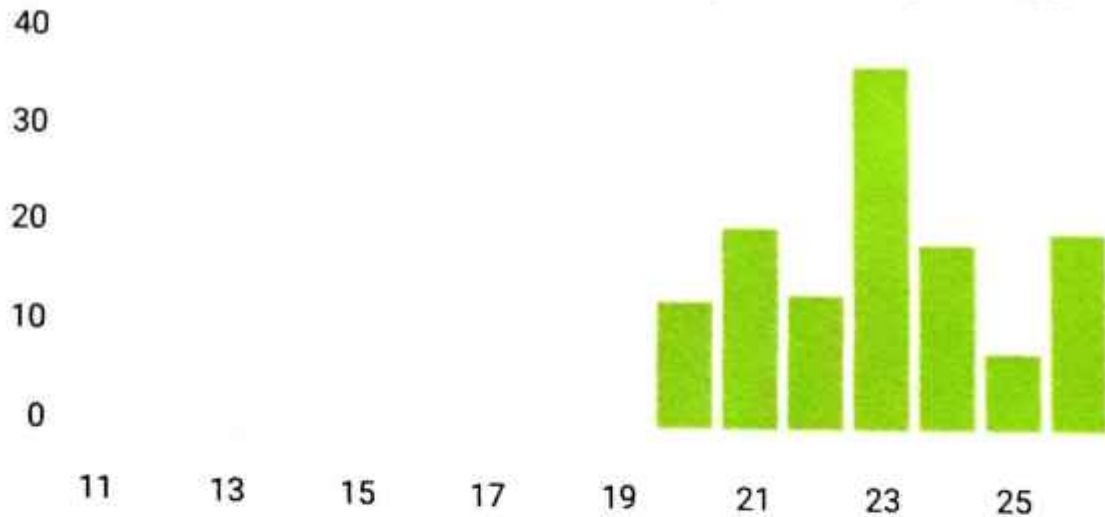
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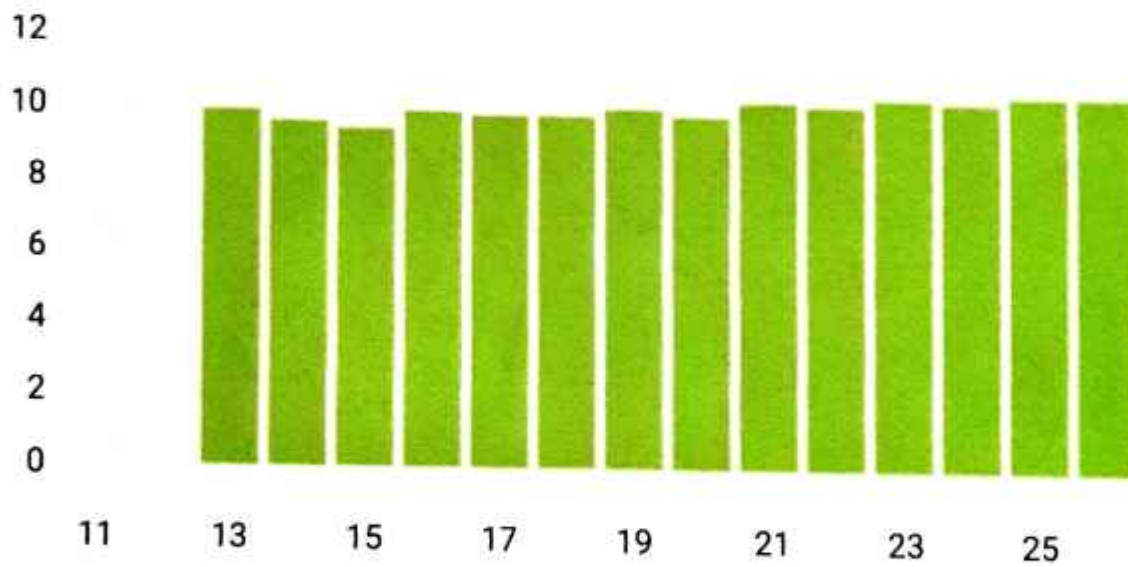


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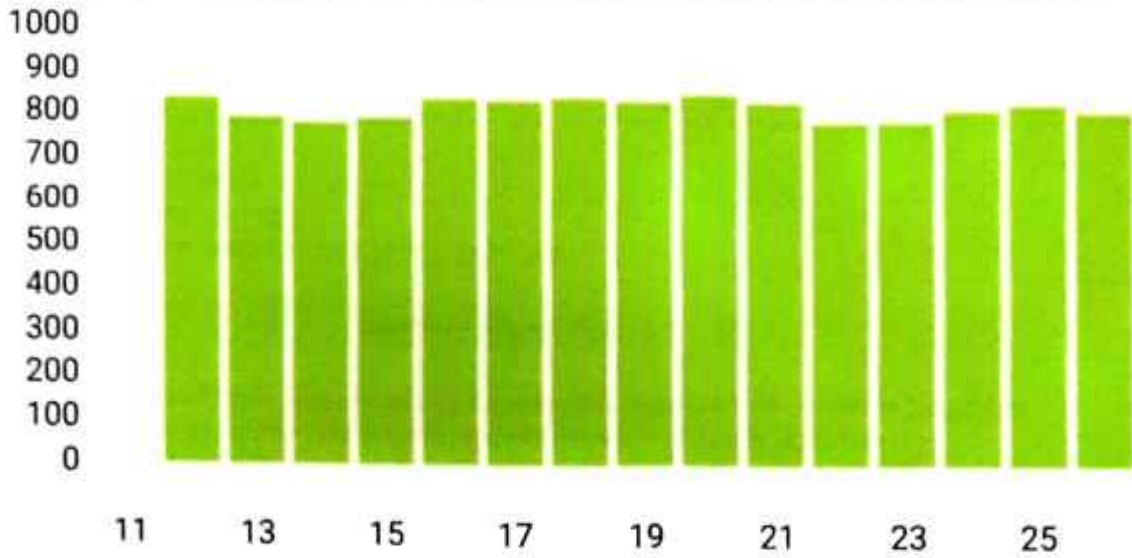
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Weather/Meteorology Data:-

Uran, Maharashtra

The following are the site co-ordinates.

Latitude: 18.88




Longitude: 72.93

Average Altitude: 43 m

Annual Solar radiation: 369.2 kWh/ Sq.m/year

Sunshine & Daylight Hours

- Hours of sunshine in range from 2:11 for every day in July to 9:48 per day in December
- The longest day of the year is 13:08 long and the shortest day is 10:51 long.
- The longest day is 2:16 longer than the shortest day.
- There is an average of 2680 hours of sunlight per year (of a possible 4383) with an average of 7:20 of sunlight per day.
- It is sunny 61.1% of daylight hours. The remaining 38.9% of daylight hours are likely cloudy or with shade, haze or low sun intensity.
- At midday the sun is on average 70.1° above the horizon at Mumbai/ Bombay.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
 Average Sunlight Hours/Day	09:00	09:24	09:05	09:18	09:17	05:24	02:11	02:36	04:54	08:00	09:12	09:48	07:20
 Average Daylight Hours & Minutes / Day	11:06	11:29	12:00	12:33	13:00	13:14	13:07	12:44	12:12	11:40	11:12	10:51	12:00
 Sunny & (Cloudy) Daylight Hours (%)	82 (18)	83 (17)	77 (23)	75 (25)	72 (28)	41 (59)	17 (83)	21 (79)	40 (60)	69 (31)	83 (17)	90 (10)	61 (39)
 Sun altitude at solar noon on the 21st day (°).	51.1	60.4	71.3	83	88.5	85.4	87.8	83.2	71.7	60.2	51	47.7	70.1

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Rainfall/ Precipitation

- It receives on balance 2168 mm (85.4 in) of rainfall per year, or 180.7 mm (7.1 in) per month.
- On average there are 107 days per year with more than 0.1 mm (0.004 in) of rainfall (precipitation) or 8.9 days with a quantity of rain, sleet, snow etc. per month.
- The driest weather is in January, February & March when an average of 0 mm (0 in) of rainfall (precipitation) occurs.
- The wettest weather is in July when an average of 682 mm (26.9 in) of rainfall (precipitation) occurs.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annua
 Average Mm	0	0	0	2	12	592	682	487	307	61	23	2	2168
 Liters/m ²	0	0	0	2	12	592	682	487	307	61	23	2	2168
 Number of Wet Days	0	0	0	1	2	20	29	27	21	5	2	0	107
 Percentage of Sunny (Cloudy) Daylight Hours	82 (18)	75 (25)	77 (23)	72 (28)	72 (28)	40 (60)	17 (83)	21 (79)	39 (61)	69 (31)	80 (20)	90 (10)	61 (39)

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Average Temperatures

- The average temperature is hot at 27.5 Degree Celsius.
- Mean monthly temperatures have a variation of 5.7 Degree Celsius.
- Mean daily temperatures have a variation of 7.6 Degree Celsius.
- The hottest month (May) having mean temperature of 30.2 Degree Celsius.
- The coolest month (January) having mean temperature of 24.5 Degree Celsius.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max Temp °C	29.6	29.6	31.1	32.3	33.4	32	30.1	29.6	30.5	32.5	32.9	31.6	31.3
Average Temp °C	24.5	24.8	26.9	28.7	30.2	29.2	27.7	27.3	27.7	28.7	28	26.3	27.5
Average Min Temp °C	19.3	20	22.6	25	27	26.3	25.3	24.9	24.9	24.8	23	20.9	23.7

Relative Humidity

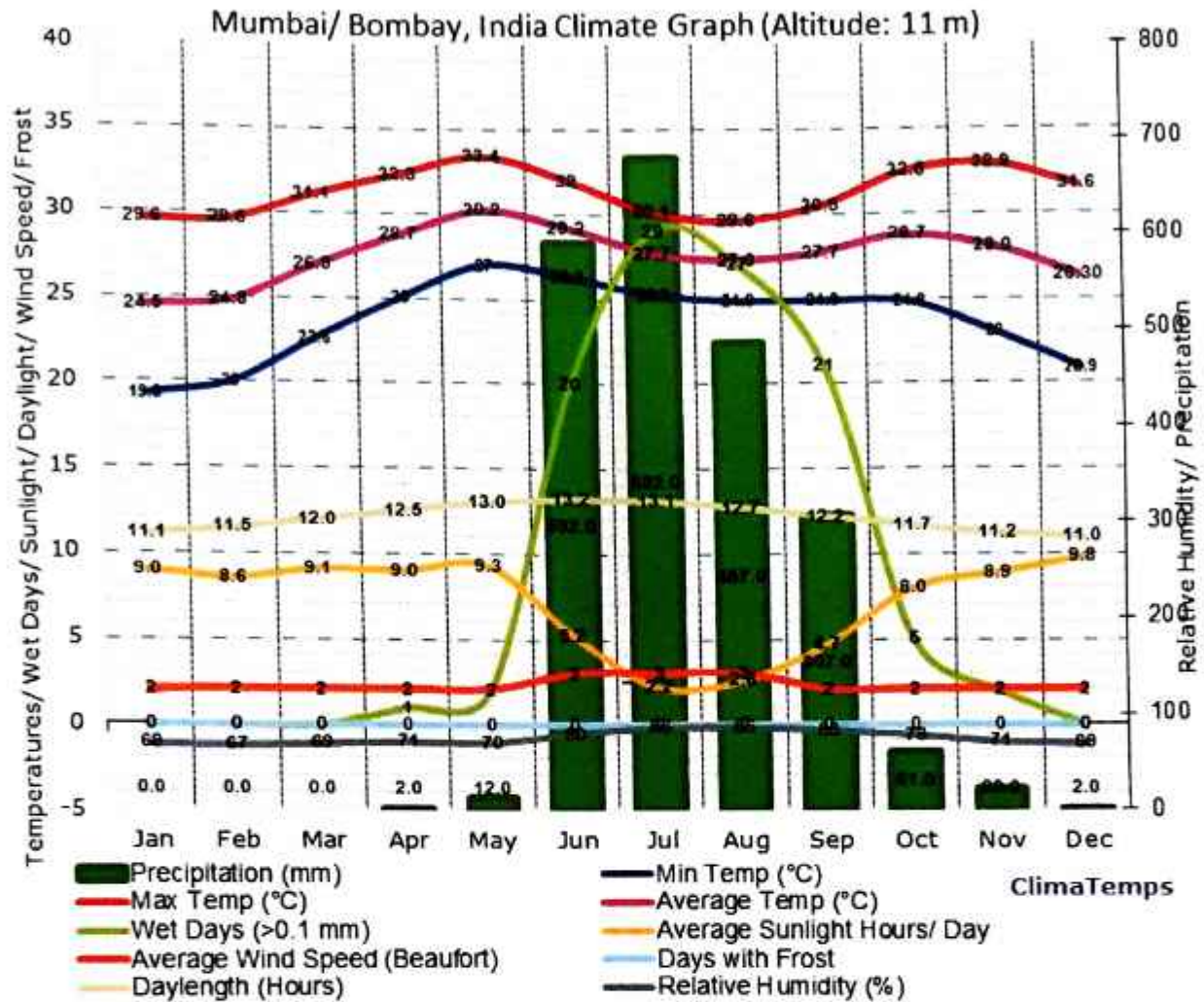
- The average annual relative humidity is 74.9% and average monthly relative humidity ranges from 67% in February to 86% in July.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Relative Humidity (%)	69	67	69	71	70	80	86	86	83	78	71	69	74.9
Average Dew Point Temp °C	18.4	18.3	20.7	22.9	24.1	25.4	25.1	24.7	24.5	24.5	22.2	20.2	22.6



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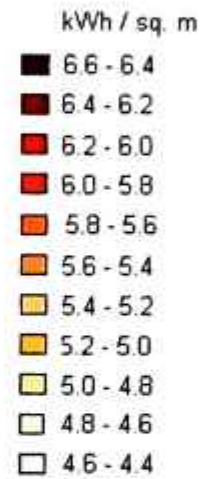
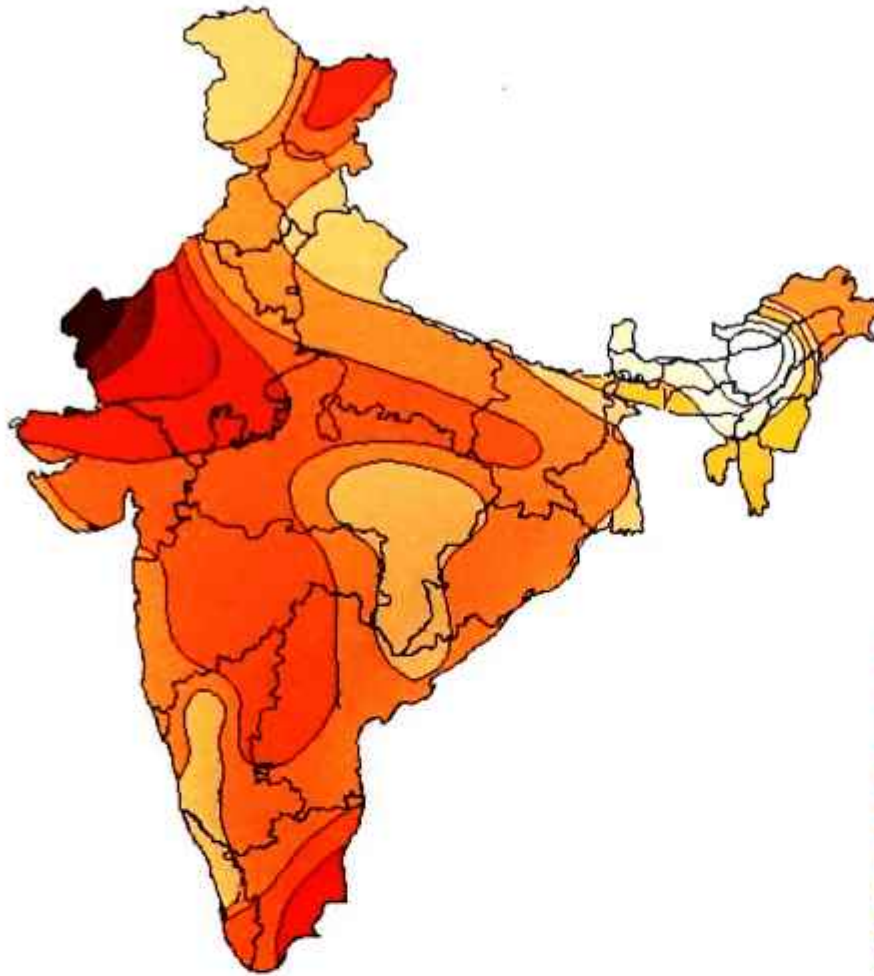
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Radiation Data

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Month	Irradiation(KWh)
Jan	5.32
Feb	6.25
Mar	7.05
Apr	7.38
May	7.33
Jun	5.64
Jul	5
Aug	5.12
Sep	5.65
Oct	5.72
Nov	5.38
Dec	5

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Sun Position Report

Values obtained as:

Sun Position

Latitude:	19.5° N	Time zone:	UTC +5.5
Longitude:	72.51° E		No DST
Magnetic declination:	0.37° W		

Magnetic North was used for this calculation.
Do not correct compasses for Magnetic declination, this has been accounted for in the calculations.

Daily Summary	C Dawn	Az'	Sunrise	Day Length	Sunset	Az'	C Dusk
Thu 21/12/2020	06:42	114.6°	07:06	10:60	18:05	245.6°	18:29
Fri 22/12/2020	06:43	114.6°	07:06	10:60	18:05	245.6°	18:29
Sat 23/12/2020	06:43	114.6°	07:07	10:59	18:06	245.6°	18:30
Sun 24/12/2020	06:44	114.6°	07:07	10:60	18:06	245.6°	18:30
Mon 25/12/2020	06:44	114.6°	07:08	10:60	18:07	245.6°	18:31
Tue 26/12/2020	06:45	114.6°	07:08	10:60	18:08	245.6°	18:31
Wed 27/12/2020	06:45	114.6°	07:09	10:60	18:08	245.6°	18:32

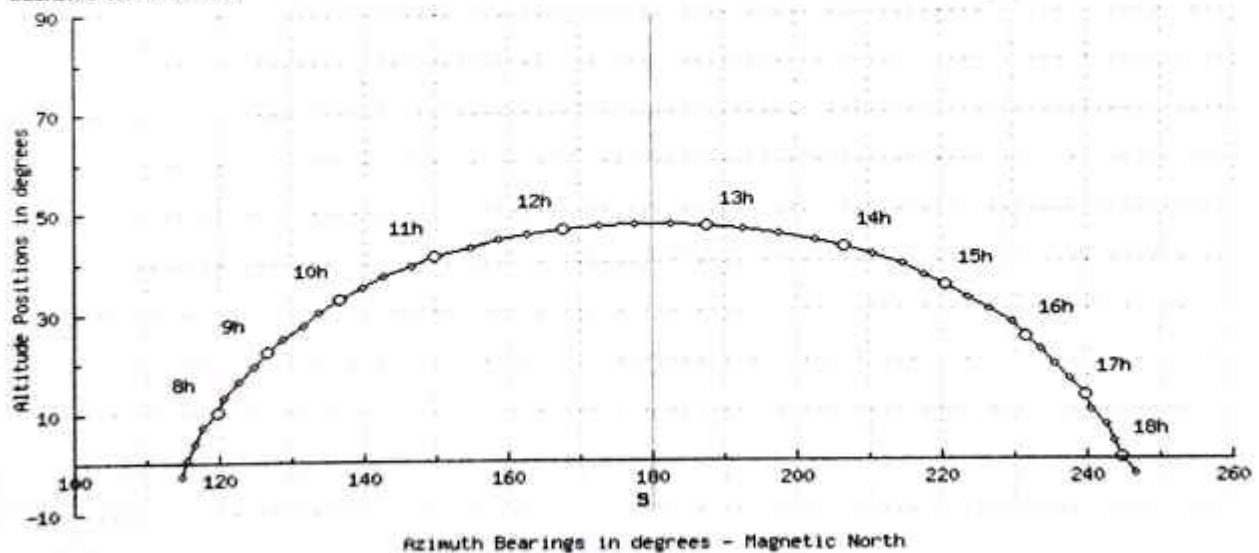
Thursday, 21st December 2020

Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow	Az'	Alt'	*Shadow
07:00	115°	-2°	10:00	137°	33°	13:00	188°	47°	16:00	232°	25°
	116°	1°		140°	35°		193°	46°		234°	22°
	117°	4°		143°	37°		198°	46°		236°	19°
	118°	7°		147°	40°		203°	44°		238°	16°
08:00	120°	10°	11:00	150°	41°	14:00	207°	43°	17:00	240°	13°
	121°	13°		155°	43°		211°	41°		241°	10°
	123°	16°		159°	44°		215°	39°		243°	7°
	125°	19°		163°	46°		218°	37°		244°	4°
09:00	127°	22°	12:00	168°	47°	15:00	221°	35°	18:00	245°	0°
	129°	25°		173°	47°		224°	33°		247°	-3°
	132°	28°		178°	47°		227°	30°			
	134°	30°		183°	47°		230°	27°			

Calculation intervals: Every 15 minutes :: Shadow length = (*Shadow x Object height)

Sunrise: 07:06 - Az' 114.6°

Sunset: 18:05 - Az' 245.6°



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Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location

Calculate



Longitude / Latitude :	72.934654 / 18.882544
Location:	Karanja Road, Boripakhadi, Navi Mumbai, Maharashtra. Pin-400702 (India)
DayLength (Min / Max):	10.86 / 13.14 hours
Avg Temp. (Min / Max):	23.0 °C / 31.0 °C
Tilt Angle for Solar PV:	16°
Annual Global Insolation:	1884 (kWh/m ² /year)
Power Production of PV:	376.8 kWh/m ² /year considering <input type="text" value="20"/> % efficiency and energy loss.
	<input type="text" value="10"/> m ² of PV will generate 3768.0 units per year.
	or
	10.3 units per day.

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Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning
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Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location **Calculate**



Long Term Monthly Temperature (°C)													
Months	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	23	19	20	22	24	26	26	25	25	25	24	22	20
Max	31	29	29	31	32	33	32	30	29	30	31	32	31

Long Term Monthly Solar Insolation (2009-2021)(kWh/m ²)													
Months	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	1542	113	137	152	182	169	98	83	129	113	122	123	121
Max	2215	139	154	188	199	216	208	239	226	199	167	144	136
Avg	1884	134	145	180	192	204	148	145	169	153	150	134	130

Monthly Solar Insolation (2009 -2023)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	1094	138	146	175	182	205	159	89					
2022	1771	136	147	175	193	187	126	108	161	135	138	137	128

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Longitude: 72.934656 Accuracy: 20



Monthly Solar Insolation (2009 -2023)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	1094	138	146	175	182	205	159	89					
2022	1771	136	147	175	193	187	126	108	161	135	138	137	128
2021	1730	133	140	184	188	169	126	124	129	127	162	123	125
2020	1827	131	144	176	182	202	144	153	143	153	149	125	125
2019	1735	113	140	152	182	206	163	121	166	113	122	136	121
2018	1888	135	137	172	194	201	140	127	193	172	152	138	127
2017	1947	135	146	183	194	208	158	167	175	167	153	135	126
2016	1899	136	151	184	191	208	151	130	182	151	147	136	132
2015	1873	136	144	180	197	210	129	160	142	155	154	133	133
2014	1831	132	141	186	195	197	173	113	138	146	147	132	131
2013	1764	137	147	185	194	213	98	83	149	130	151	143	134

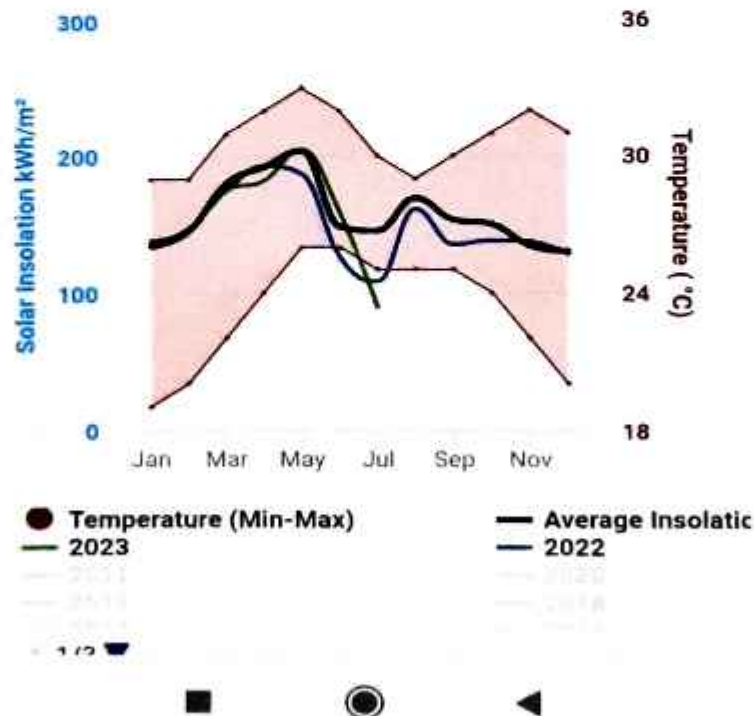
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Insolation and Temperature



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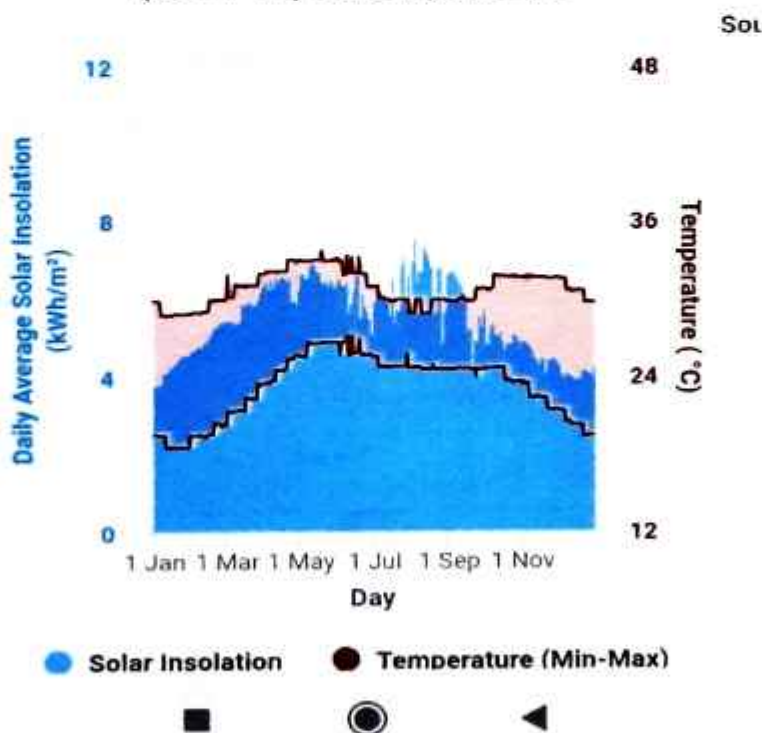


Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20



Daily Average Solar Insolation (2014-17) & Temperature



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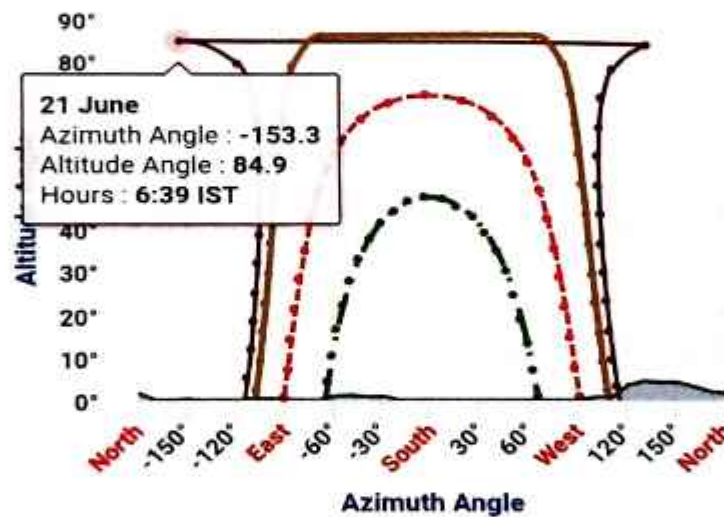
Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location **Calculate**



Sun Path



- 21 June
- 21 March/September
- 21 December
- Current Date (04 Aug)
- Terrain Horizon

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Latitude: 18.882543 Altitude: -43

Longitude: 72.934656 Accuracy: 20

Get Location

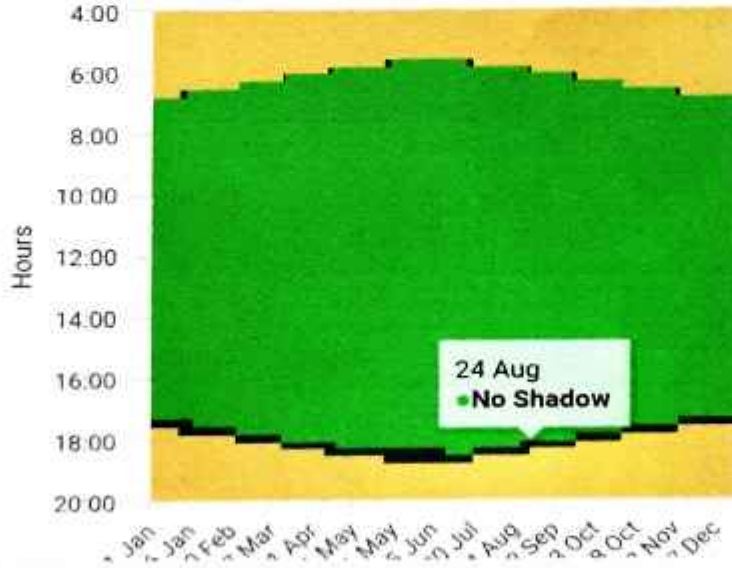
Calculate



— Day Length (Hours)

Solar Heat Map For Shadow Analysis ☰

Shadow variation by day and hour for latitude 18.882543 longitude 72.934656



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Latitude: 18.8825431

Get Location

Longitude: 72.9346562

Calculate



Latitude : 18.8825431

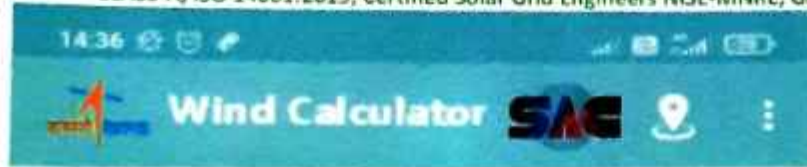
Longitude : 72.9346562

Month	Wind Speed (m/s)	Wind Direction(°)
January	2.0	227 ↙
February	1.7	217 ↙
March	1.6	217 ↙
April	1.3	256 ←
May	1.2	291 ←
June	2.4	12 ↑
July	3.3	46 ↗
August	2.6	56 ↗
September	1.8	289 ←
October	1.6	249 ←
November	1.9	242 ←
December	2.0	240 ←



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Latitude: 18.8825431

Get Location

Longitude: 72.9346562

Calculate

Table	Chart	Forecast
June	2.4	12 ↑
July	3.3	46 ↗
August	2.6	56 ↗
September	1.8	289 ←
October	1.6	249 ←
November	1.9	242 ←
December	2.0	240 ←

NOTE:

* The wind data over oceans has been generated using QUIKSCAT (1999-2010) and OSCAT (2010-2014) scatterometer products at 10 m height above the sea surface.

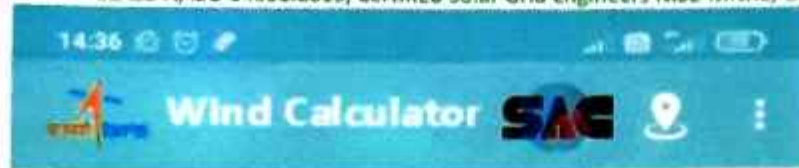
*The wind data over land are Surface winds forecast at 5 km spatial resolution from WRF model.





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Latitude: 18.8825431

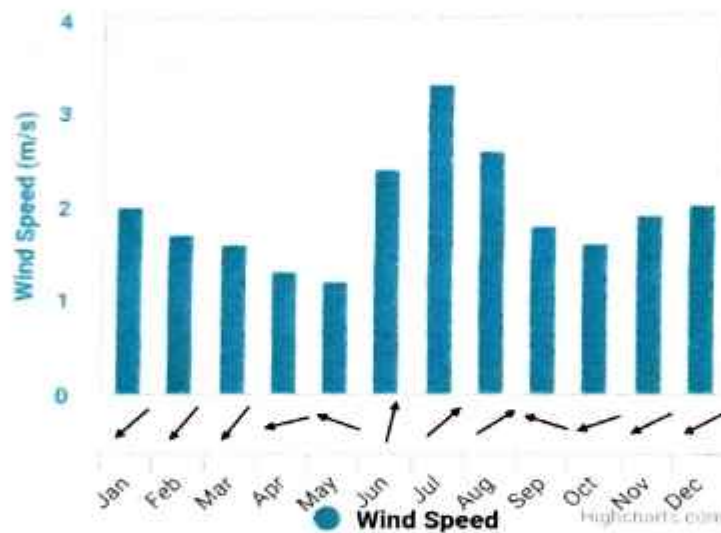
Get Location

Longitude: 72.9346562

Calculate



Wind Chart





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4. Water Quality Analysis

Water Resource

- 1. Municipal Water**
- 2. Bore well**



3. Open Well



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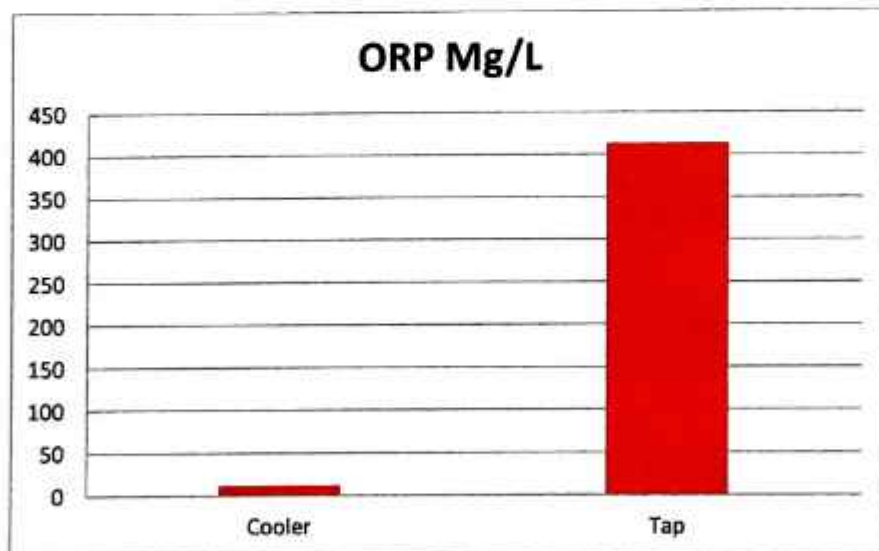
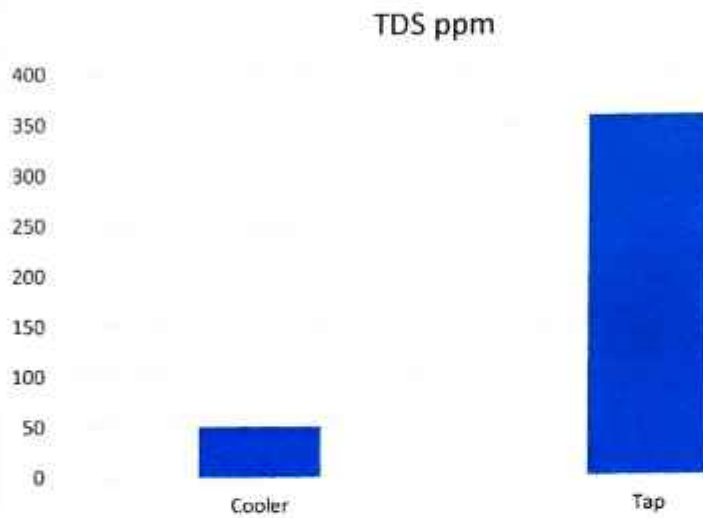


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Water Quality

SL No	Use	TDS	ORP	Alkalinity
No	Activity	ppm	Mg/L	pH
1	Drinking	51	12	11.8
2	Tap	358	413	9.2

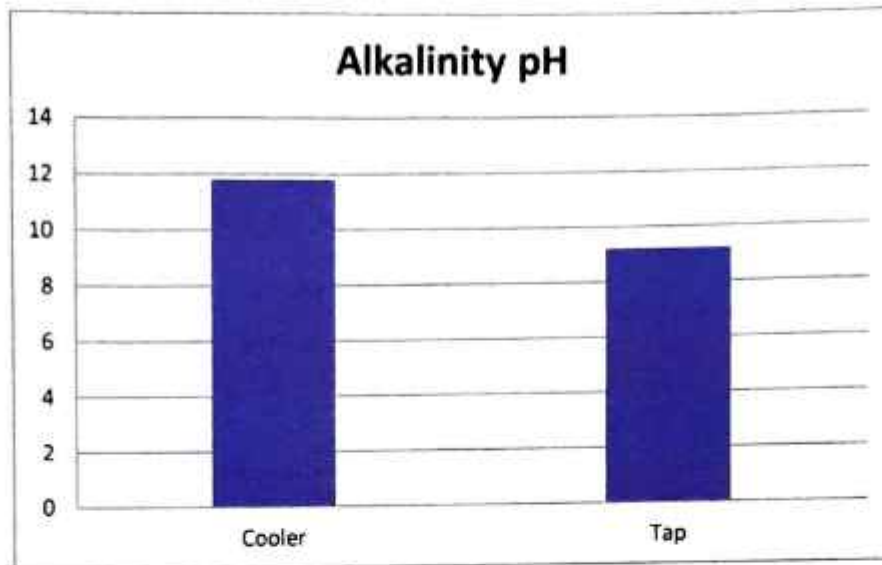


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5. Atmosphere Analysis

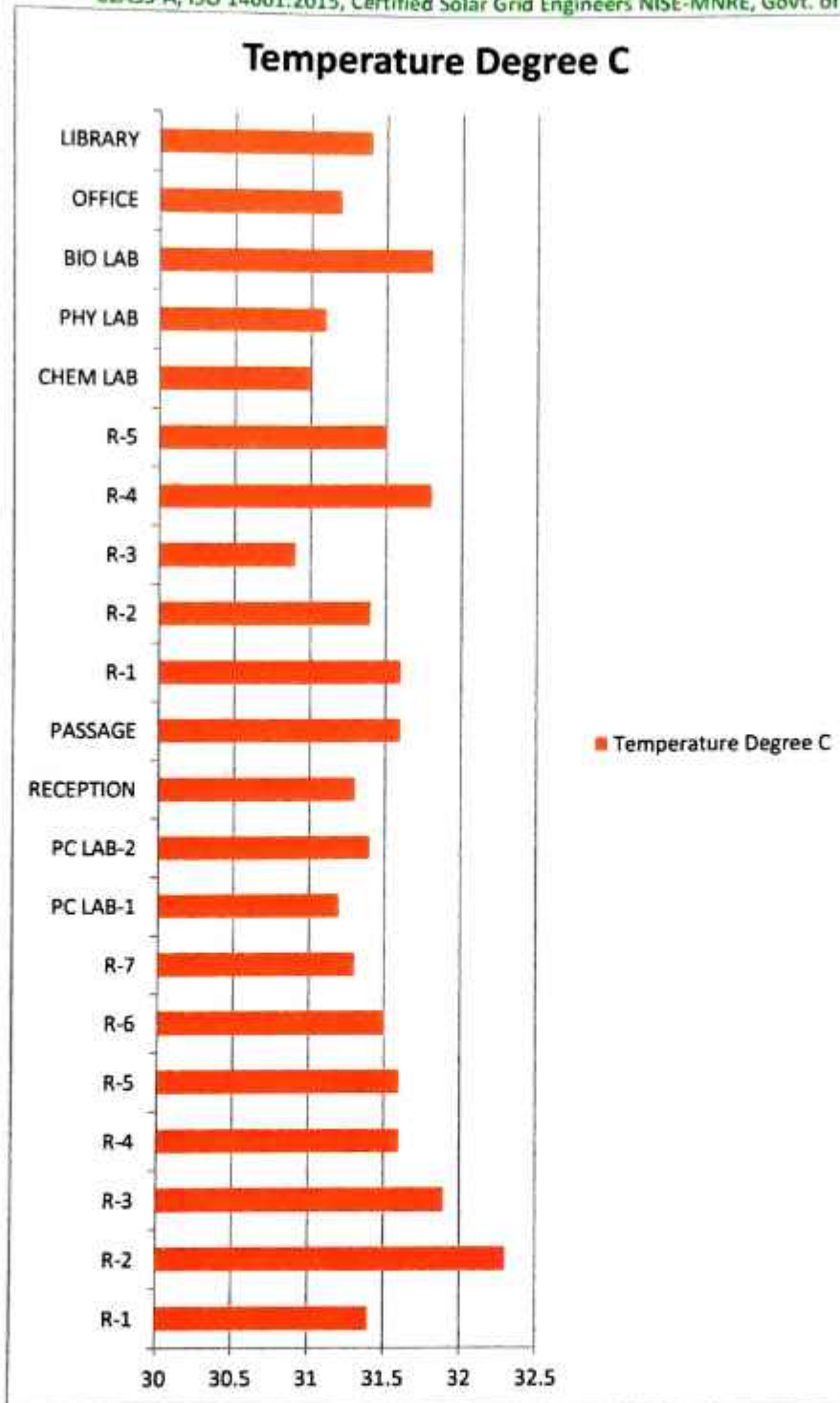
Floor	Room	Temperature	Humidity	Noise
		Degree C	%	dB
Ground	R-1	31.4	65.6	49
Ground	R-2	32.3	66.1	48
Ground	R-3	31.9	65.8	48
Ground	R-4	31.6	66.2	48
Ground	R-5	31.6	65.4	48
Ground	R-6	31.5	65.4	48
Ground	R-7	31.3	69.2	49
Ground	PC LAB-1	31.2	68.4	49
Ground	PC LAB-2	31.4	66.2	48
Ground	RECEPTION	31.3	66.5	50
Ground	PASSAGE	31.5	65.4	46
FIRST	R-1	31.6	65.3	46
FIRST	R-2	31.4	70.2	48
FIRST	R-3	30.9	67.2	45
FIRST	R-4	31.8	67.5	45
FIRST	R-5	31.5	67.5	45
FIRST	CHEM LAB	31	67.5	45
FIRST	PHY LAB	31.1	67.5	45
FIRST	BIO LAB	31.8	70.5	45
FIRST	OFFICE	31.2	71.2	48
SECOND	LIBRARY	31.4	70.9	48

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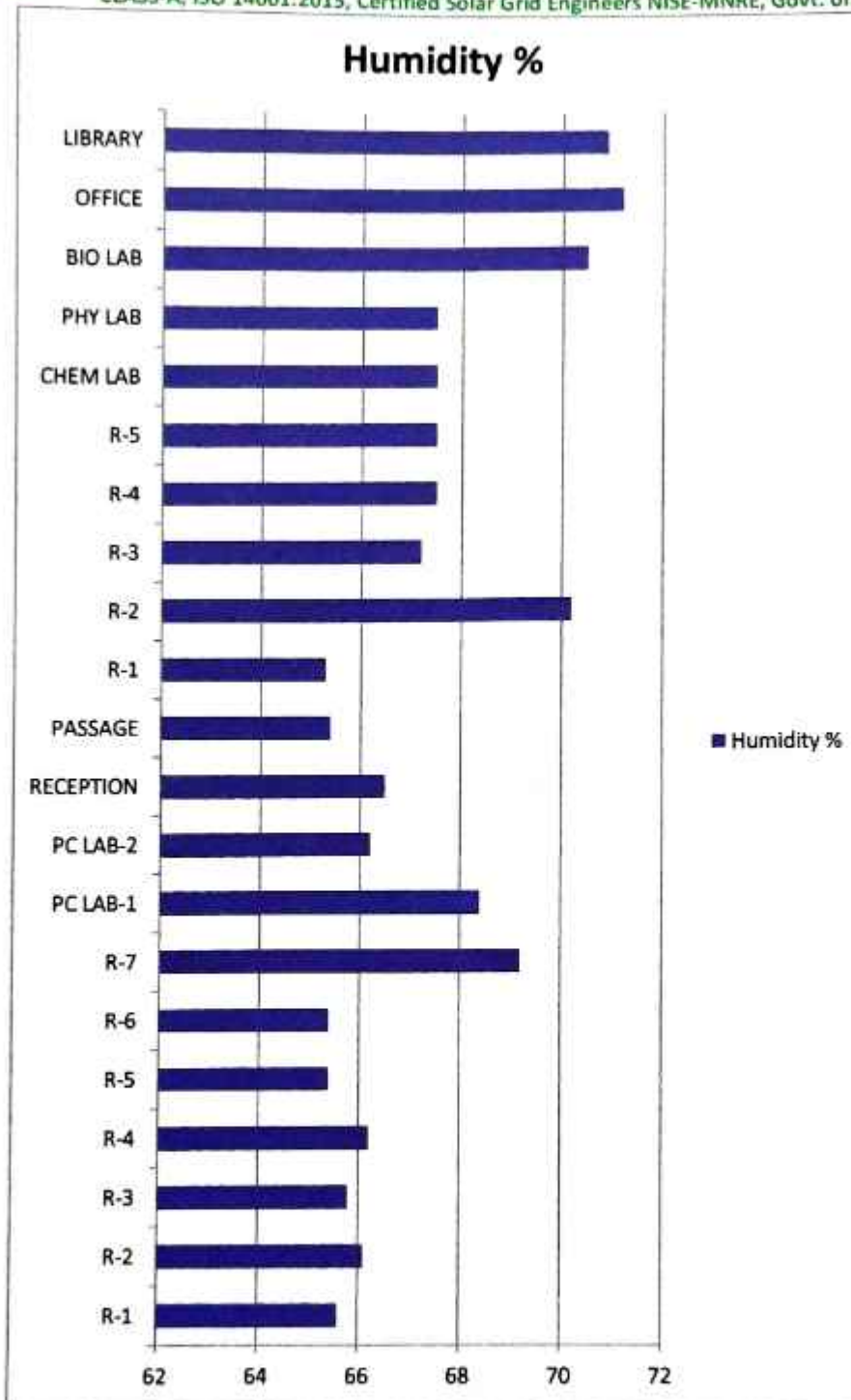


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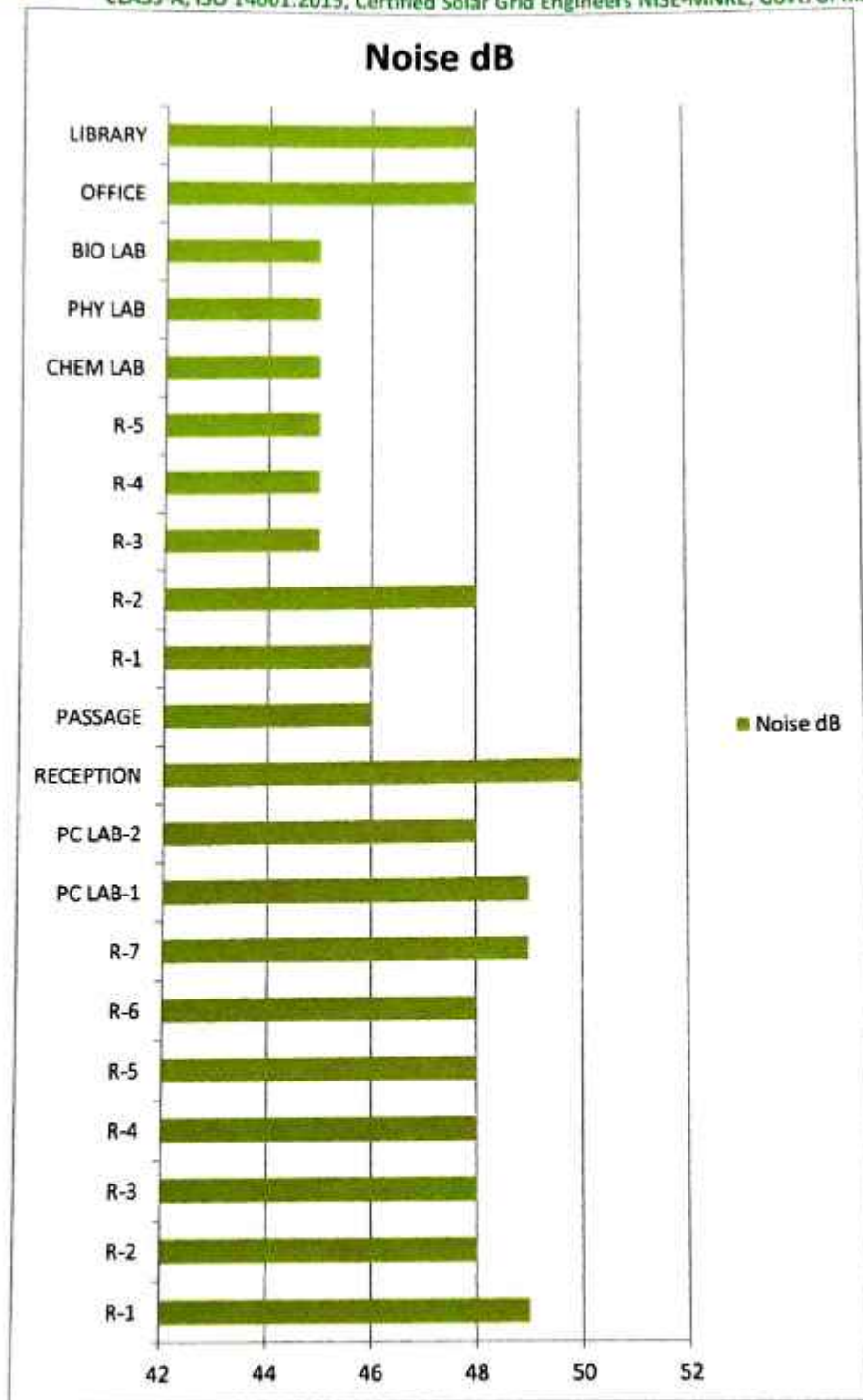
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6. Wastage Management Analysis

1. Do the premises generate wastage?

Yes-Very Low

2. What type of wastage and quantity is generated? What are actions taken on it?

SL No	Wastage Type	Quantity	Action
1	Biomass	1-2Kg per day (as observed)	Put near tree roots
		500-600Kg approx. tree, grass and other cuttings	Dumped in new place
2	Paper	2691Kg approx.	Cleaned by housekeeping and sent to Recycling through external agency
3	Water	100-200Ltrs approx. per year due to leakage	Not considered
4	E-Waste	608 kg	Cleaned by housekeeping and sent to Recycling through external agency
5	Bio-Hazardous	Not Applicable	NA
6	Fuel	Electricity Wastage by running fans and lights for uncounted time after room cleaning	NIL
7	Production	NIL	NIL
8	Process	Process analysis can be done under detailed energy Audit	NIL
9	Food	Occasionally wastage in very low quantity	Cleaned by canteen staff and sent to municipal wastage
10	Man-Hours	NIL	NIL

Notes:

- Paper wastage is picked up after 5 to 6 years (as per availability and size of quantum) by external agency for recycling. Certificate is attached for last pick up.
- E-waste is picked up after 5 to 6 years (as per availability and size of quantum) by external agency for recycling. Certificate is attached for last pick up.
- Solar rooftop plant (SPV-GCRT) is under installation process. Work order is attached.

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3. Recycling Procedures

1. Does Premises users aware about Recycle or Re-use of resources used?
YES Paper and E-waste
2. Does institute run wastage and recycling awareness campaign for users?
YES
3. Does institute have SOP for wastage and recycling procedures?
Under preparation
4. Does Premises Recycle or Re-use resources used?
NO

4. Wastage Recovery & Conservation:

1. Any Energy conservation method applied?
YES 50% of Total lights are replaced with LEDs
2. Any SOP on operation and maintenance is defined?
NO
3. Any Energy conservation devices installed?
YES LED Lights
4. Any alternative Energy source is installed?
NO SPV GCRT (solar) project is under development
5. Does the SWITCH OFF Drills conducted regularly?
NO
6. Are electronic and smart devices run on power saving mode? (computers, Etc)
NO
7. Does electronic & other equipment run standby mode? How many hours?
NO
8. Does institute perform Water quality monitoring?
NO
9. Have you installed rain water harvesting system?
NO
10. Any SOP on operation and maintenance of plumbing system is defined?
NO
11. Any SOP on Water utilization is defined?
NO
12. Does institute record water usage?
NO
13. Are rooms well ventilated?
NO
14. Does institute perform Air quality monitoring?
NO
15. Any vehicles used? Type of Fuel? Quantity of fuel consumed?
NO



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7. Carbon Emission and Footprint Analysis

Table-1: Overall

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	22512	Kg
Coal Burned	20462.4	Kg
Diesel Burned	10844.4	Ltr
Natural Gas Burned	413756	Cub Ft
Trees Cut	1024.8	Nos
Water Consumed	73813.6	Ltr
Life Time Green- Impact		
Co2 Generated	409892	Kg
Coal Burned	1176658	Kg
Diesel Burned	197475.6	Ltr
Natural Gas Burned	7534497.6	Cub Ft
Trees Cut	18662	Nos
Water Consumed	1344145.6	Ltr

Table-2: Area per Ft²

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	3.75	Kg
Coal Burned	3.41	Kg
Diesel Burned	1.81	Ltr
Natural Gas Burned	68.96	Cub Ft
Trees Cut	0.17	Nos
Water Consumed	12.30	Ltr
Life Time Green- Impact		
Co2 Generated	68.32	Kg
Coal Burned	196.11	Kg
Diesel Burned	32.91	Ltr
Natural Gas Burned	1255.75	Cub Ft
Trees Cut	3.11	Nos
Water Consumed	224.02	Ltr

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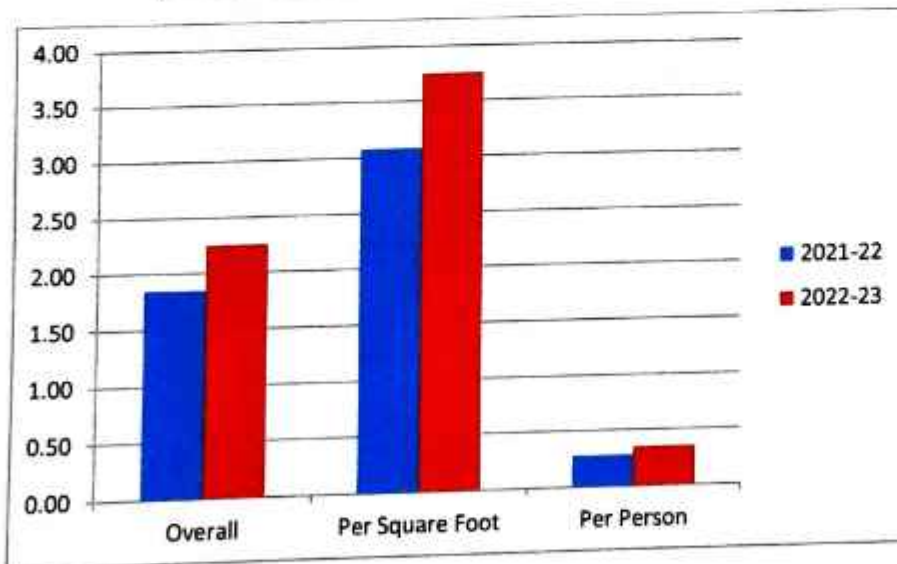
Registered Energy Auditor "CLASS-A" -MEDA, Govt. of Maharashtra, Licensed Electrical Contractor - IE&L Govt. of Maharashtra, Registered Electrical Contractor CLASS-A, ISO 14001:2015, Certified Solar Grid Engineers NISE-MNRE, Govt. of India.

Table-3: Per Person

Environmental Impact Analysis Report		
Annual Consumption	34316	KWh
Annual Green- Impact		
Co2 Generated	0.35	Kg
Coal Burned	0.31	Kg
Diesel Burned	0.17	Ltr
Natural Gas Burned	6.37	Cub Ft
Trees Cut	0.02	Nos
Water Consumed	1.14	Ltr
Life Time Green- Impact		
Co2 Generated	6.31	Kg
Coal Burned	18.10	Kg
Diesel Burned	3.04	Ltr
Natural Gas Burned	115.92	Cub Ft
Trees Cut	0.29	Nos
Water Consumed	20.68	Ltr

Table-4: Carbon Footprints

Year	Overall	Per Square Foot	Per Person
2021-22	18492	3.08	0.28
2022-23	22512	3.75	0.35



Notes:

1. It is found that Co₂ Footprints are increased; implementation of Energy conservation methods to be taken immediately.

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
 Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
 Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning
 Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.
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8. Suggestions

Suggestions Waste management:

1. Install a vermin-compost plant for Biomass and food wastage (point no.1 and 9).
2. Install a Bin in reception area to collect paper wastage (point no.2).
3. Fix all taps, replace old pipelines, use Teflon tapes on ties, and use sealants for joints to avoid leakage (point no.3).
4. Install a Bin in reception area to collect E- wastage like damaged or dead luminaries, mobiles, computer or spare-parts, Etc. hand over it to proper scrap vendor once bin is full (point no.4).
5. Update SOP of cleaning with statement "Switch OFF Fans after 5 Minutes once room is cleaned". (point no.6 and 8)
6. Fix a Notice on Back-side of Exit Door of Room-"SWITCH OFF all electrical equipments and Taps". (point no.8 and 6)

Suggestions Recycling:

1. Prepare and observed a Generalized SOP having attributes specialize on each type of wastage and it's re-usage and/or recycling.

Suggestions Wastage Recovery & Conservation::

1. Generate awareness among user about environment conservation.
2. Prepare and observe SOPs for the same.
3. Put "SWITCH OFF" boards on back side of Doors.
4. Use energy efficient Lighting.
5. Use Energy efficient fans.
6. Keep AC temperature to 26^o C.
7. Clean Luminaries, Fans, ACs regularly to increase efficiency.
8. Prepare and observe SOPs for maintenance of equipments.
9. Avoid Draft printing, use email/Whatsapp maximum



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