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NIRMALA COLLEGE OF COMMERCE

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Criteria 7.1.3



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Index Criteria 7.1.3

Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following

Report on Green, Energy and Environment Audit
--

List of Environmental Promotional Activities
--



Y. S. Desai

I/C Principal

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Rani Sati Marg, Mun. School Bldg.,
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Sr. No	Quality audits on environment and energy	
1	Green Audit	SAUR ENGINEERS & CONSULTANTS PVT. LTD
2	Energy Audit	SAUR ENGINEERS & CONSULTANTS PVT. LTD
3	Environment Audit	SAUR ENGINEERS & CONSULTANTS PVT. LTD
4	Environmental Promotional Activities	05 Activities



Gadev

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Report on Green, Energy and Environment Audit



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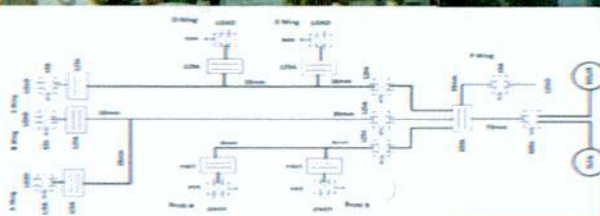
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- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

Nirmala College of Commerce,
Municipal School Bldg, Rani sati Marg, Malad, Mumbai.



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,

Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
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Detailed Report

Energy-Green-Environment Audit

Project Beneficiary 2022-2023

Nirmala College of Commerce

Municipal School Bldg,
Rani sati Marg, Malad, Mumbai.

Consultants & Auditor

SAUR Engineers & Consultants Pvt. Ltd.

REGISTRATION NO. : EA-28

D-8, Plot No. 108, Akshay, Rsc-16,
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MAHARASHTRA
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Go Yadev

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Certificate

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

Name of Beneficiary: Nirmala College of Commerce

Registration Number: F-9751

Address: Municipal School Bldg, Rani sati Marg, Malad, Mumbai.

Contact Person: Mr. U. M. Yadav

Contact Number: 8451031399

Date of Audit: 04/04/2022

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.



ENERGY AUDITOR CLASS-A No. EA-28
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Sign & Seal

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28

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



U. M. Yadav

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1. Introduction

1.1. Energy Audit

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.



Pradeep Yadev

I/C Principal

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1.2. Green Audit

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.



Ge. Chadev

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1.3. Environment Audit

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 CO₂ 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.



Gadev

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1.4. 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)

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

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

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Y. J. Jadhav
VC Principal

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1.5. Methodology

The purpose of Energy Audit 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.

1.6. 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.



Pradev

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2. Topography

2.1. Overview

Sl No	Head	Details
1	Name of Applicant Institution	Nirmala College of Commerce
2	Address	Municipal School Bldg, Rani sati Marg, Malad, Mumbai.
3	Contact Number	8451031399
4	Registration Certificate Number	F-9751
5	Sector Type	College-Education
6	Senior Management Contact	Mr. U. M. Yadav
7	Contact Number	8451031399
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	23
11	Year of Establishment	2007
12	Plot Area (ft ²)	As per given Map
13	No of Buildings	1
14	Building Type	RCC
15	Age of Building	40 Years
16	Leakages/Cracks on wall/roof	Minor
17	No. of workers (Footfall)	23 - 25
18	No. of Customers (Footfall)	1500
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	8
22	DG Set installed	No
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	Nirmala college of Commerce	Mumbai city Limit
2	Category	College	Educational Institute
3	Address	Municipal School Bldg, Rani sati Marg, Malad, Mumbai.	
4	State	Maharashtra	
5	Nearest Railway Station	Malad	Western Railway
		Malad (proposed)	Central Railway
6	Nearest Bus Station	Borivali	Interstate/Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	19.212716	
9	Latitude	72.865394	

2.3. Layouts

Sitemap

– Attached

Floor Map

– Attached

Google Map



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2.4. About Premises

Nirmala College of Commerce, a flourishing institution affiliated to the University of Mumbai made its humble genesis in 2007, 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.

The college offers a number of traditional under graduate course that are affiliated to University Of Mumbai, imparting education to about 1500 students who reside in and around this fast growing suburb. A perfect blend of dedicated and forward looking Management and committed Teaching and Non-Teaching Staff have ensured that the college is on the right trend and have steered it in the right direction.

The greatest strength of the college is that it is managed by academicians, who not only understand and respect the value of education and educationists but also believe that knowledge is power and the value of knowledge lies not in its accumulation but in its utilization.

Nirmala provides excellent infrastructure to facilitate the education process and enhance the learning ability of the students through availing amenities like:

The eight storied building includes well equipped classrooms, well planned.

Fully furnished library with large collection of books, periodicals and journals (both Indian & Foreign) and spacious reading rooms.

Air-conditioned computer labs with 80 advanced machines and licensed software.

Well organized and spacious gymkhana.

Auditorium hall.

The students' comfort common rooms for girls and boys.

State-of-art technology, in its teaching process making use of mike systems, LCD projectors.

Hygienic and nutritious canteen corner.



Signature

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3. Floral Diversity

Nirmala College of Commerce, which was established in the year 2007, has eco-friendly environment since then. It has long legacy of healthy environmental practices periodic awareness, preservation and maintenance. As very much common in Mumbai City the college campus is limited to its plot premises hence having no scope for plantation within. College practices awareness camps, seminars and trails to fulfil the backlog.

4. 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 adansonii	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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Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
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Plantation Drive and Awareness Initiatives by the Institute:



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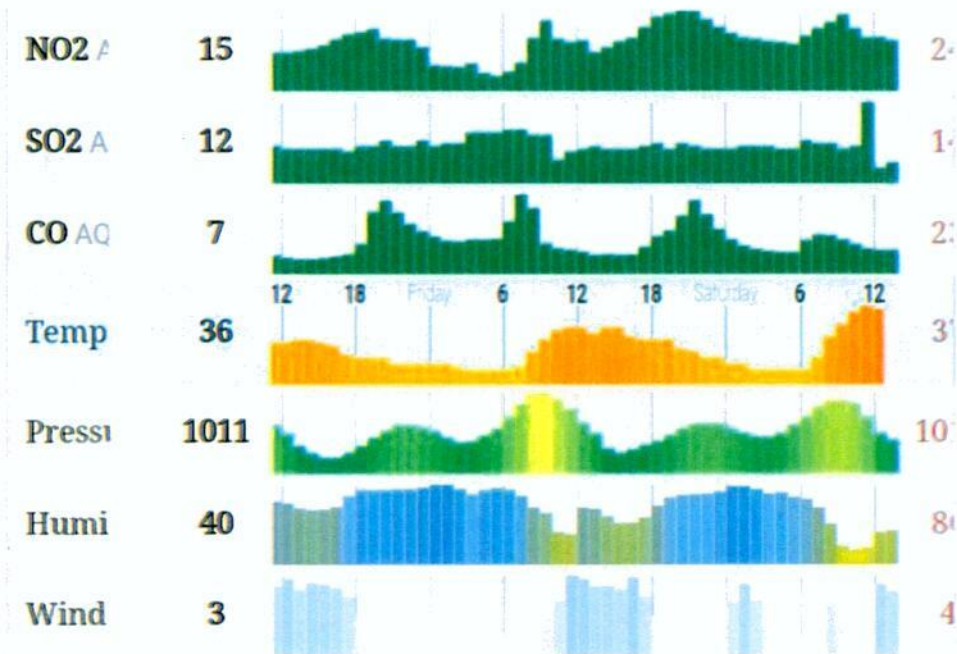


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5. Air Quality

5.1. Air Quality Index



This table indicates quality of Air available for city where site is located, Area where the site is located and at actual site.



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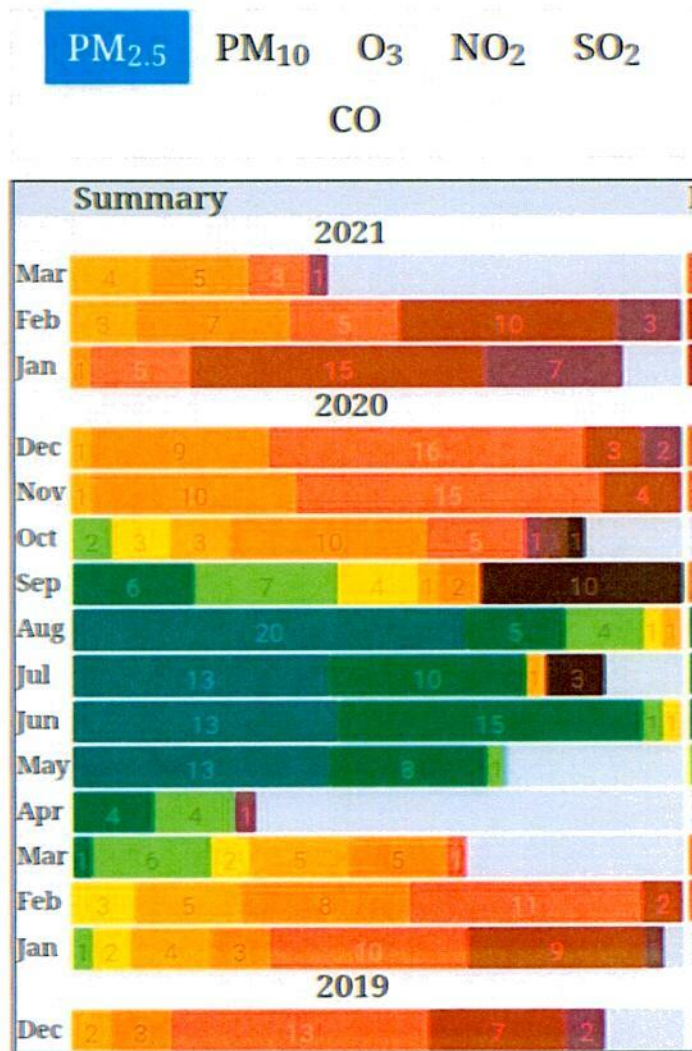
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5.2. Table-2: Air Quality Annual PM 2.5



Note: the daily AQI is based on the 24 hours average of hourly readings.

This table shows annual air quality level at PM2.5mcr. Different levels shown in different colors where numbers on colors show number of days in that situation.

Solar rooftop and power plants | Solar and Electric Consumption | New Electric Connections
 Load Management and extension | Change of Name on Bills | Meters (New & Existing) Installation
 Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits

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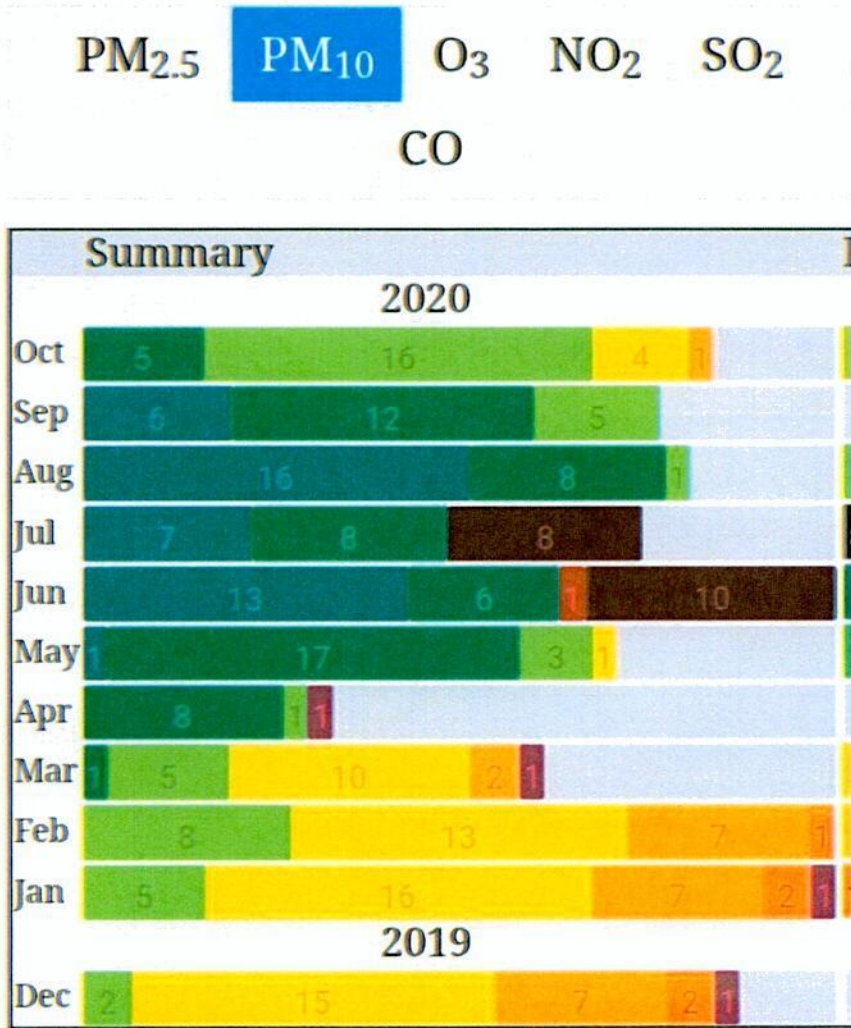
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5.3. Table-3: Air Quality Annual PM 10

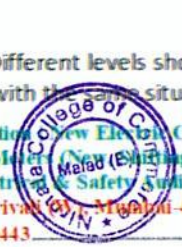


Note: the daily AQI is based on the 24 hours average of hourly readings.

This table shows annual air quality level at PM10mcr. Different levels shown in different colors where numbers on colors show number of days with the same situation.

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 Load Management and extension | Change of Name on Bills | Meter New Setting, a
 Substation Management | Permissions, approvals, liasoning | Electrical Safety, Rights & Assesment

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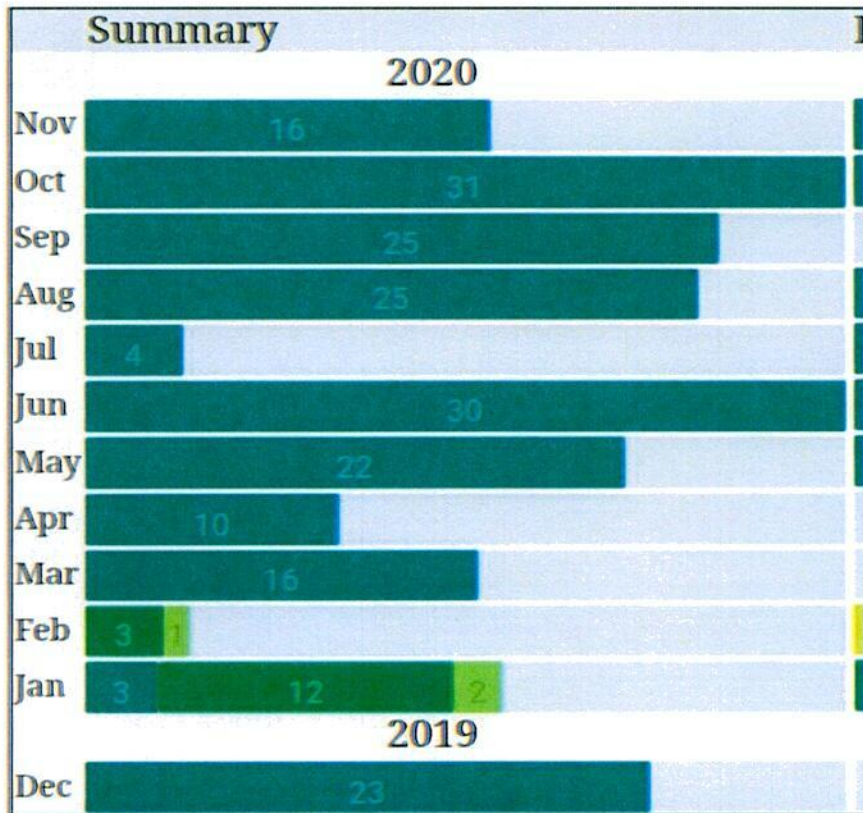


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5.4 Table-4: Air Quality Annual O₃

PM_{2.5} PM₁₀ **O₃** NO₂ SO₂
 CO



Note: the Ozone data is based on the 24 hours average of hourly readings. This is not correct - Daily Ozone concentration should be

This table shows annual air quality level at O₃ (Ozone). Different levels shown in different colors where numbers on colors show number of days with the same situation.

Solar rooftop and power plants | Solar and Electric Consumption | New Electric Connections | Load Management and extension | Change of Name on Bills | Meters (Stop shifting, additional Substation Management | Permissions, approvals, liasoning | Electrical & Mechanical Audits
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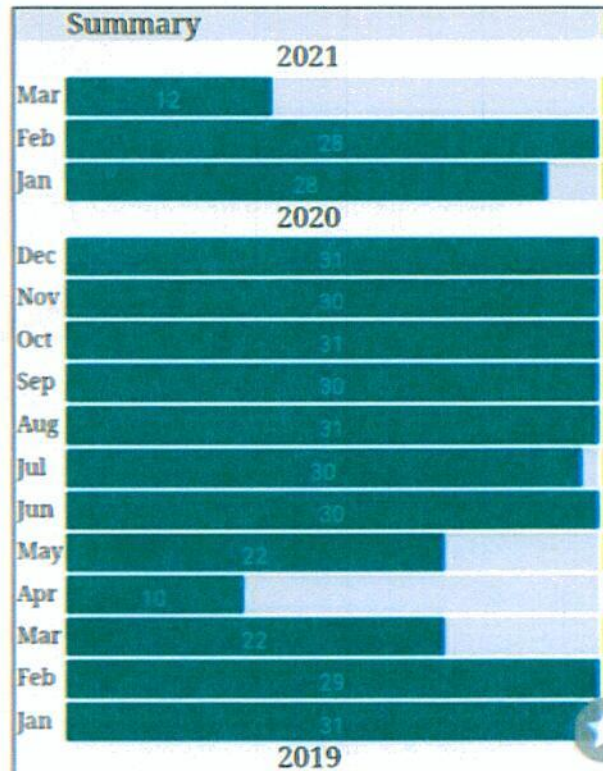


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5.5 Table-5: Air Quality Annual NO₂

PM_{2.5} PM₁₀ O₃ **NO₂** SO₂
CO



This table shows annual air quality level at NO₂ Nitrogen Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.



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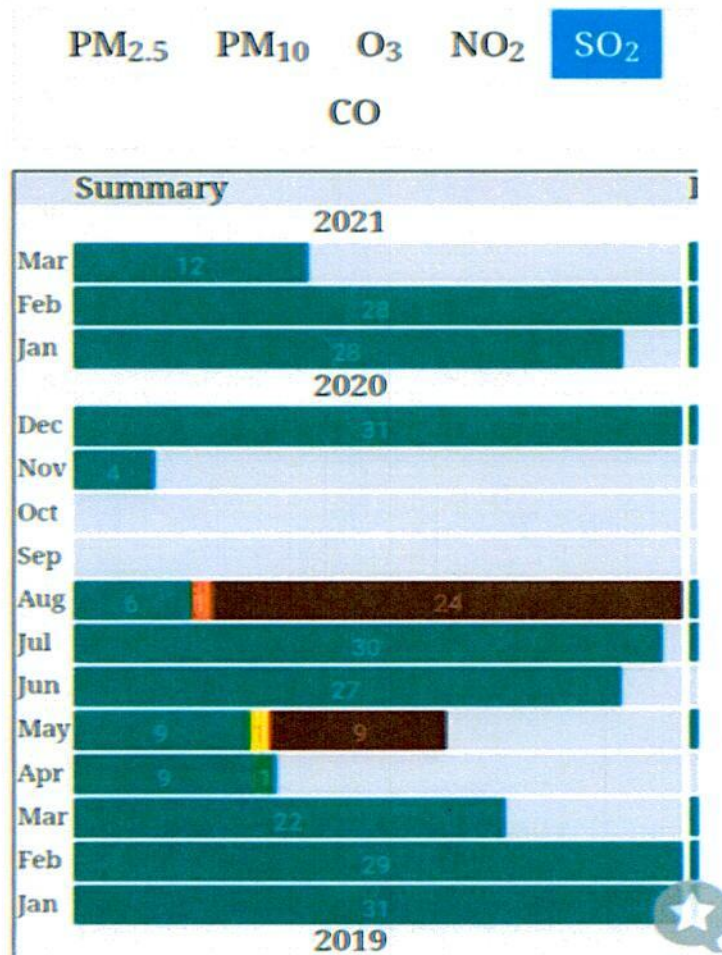
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5.6 Table-6: Air Quality Annual SO₂



This table shows annual air quality level at SO₂ Sulphar Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.



G. G. Gade

I/C Principal

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Malad (E)

Solar rooftop and power plants | Solar and Electric Consultancy | Electric Contracting | Electric Crane | Electric Cables | Electric Pumps | Electric Fans | Electric Motors | Electric Transformers | Electric Switchgear | Electric Control Panels | Electric Load Management and extension | Change of Name on Bills | Metering (New, Shifting, additional) | Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment

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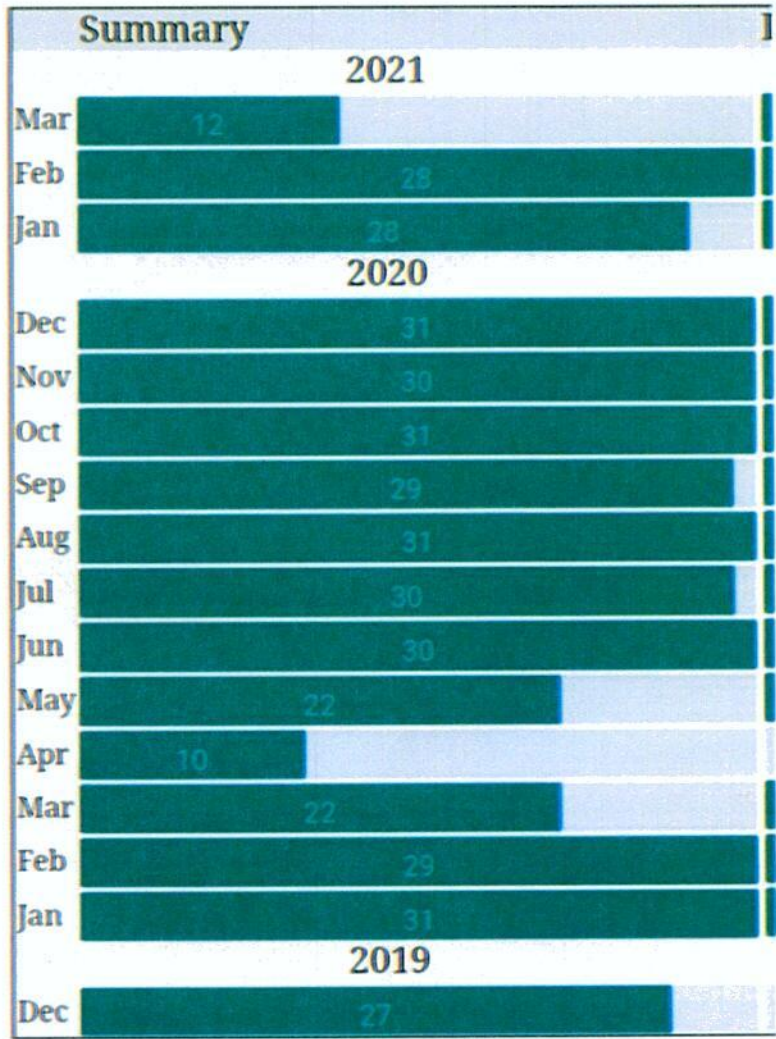
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5.7 Table-7: Air Quality Annual CO₂

PM_{2.5} PM₁₀ O₃ NO₂ SO₂

CO



This table shows annual air quality level at CO₂ Carbon Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.

Ge. Gadav
J/C-Principal

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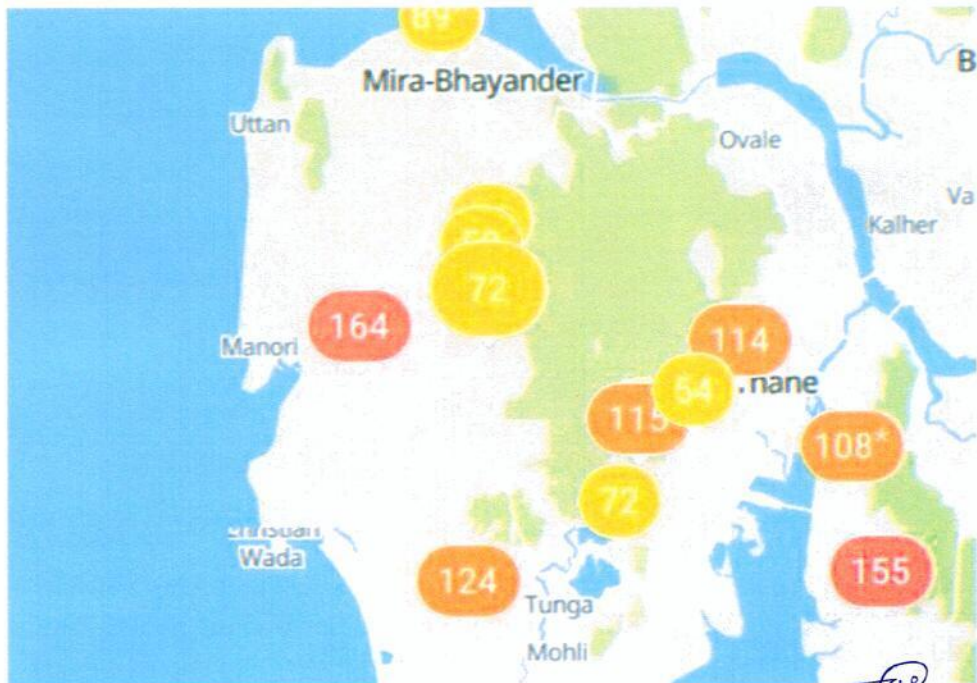
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Colour Codes of different levels of pollution are as follows

AQI Air Pollution Level

Health Implications
Cautionary Statement (for PM2.5)

0 - 50 Good Air quality is considered satisfactory, and air pollution poses little or no risk. None	101-150 Unhealthy for Sensitive Groups Members of sensitive groups may experience health effects. The general public is not likely to be affected. Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.	201-300 Very Unhealthy Health warnings of emergency conditions. The entire population is more likely to be affected. Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
51 - 100 Moderate Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution. Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.	151-200 Unhealthy Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects. Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.	300+ Hazardous Health alert: everyone may experience more serious health effects. Everyone should avoid all outdoor exertion.



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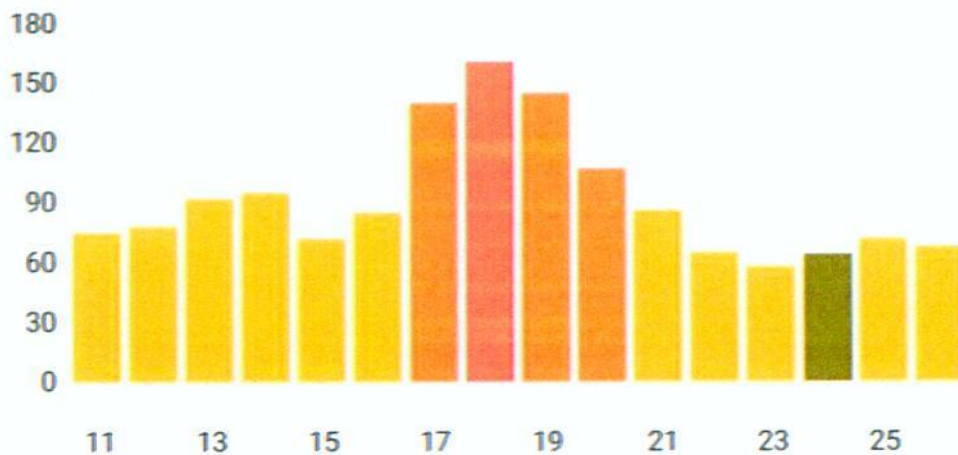
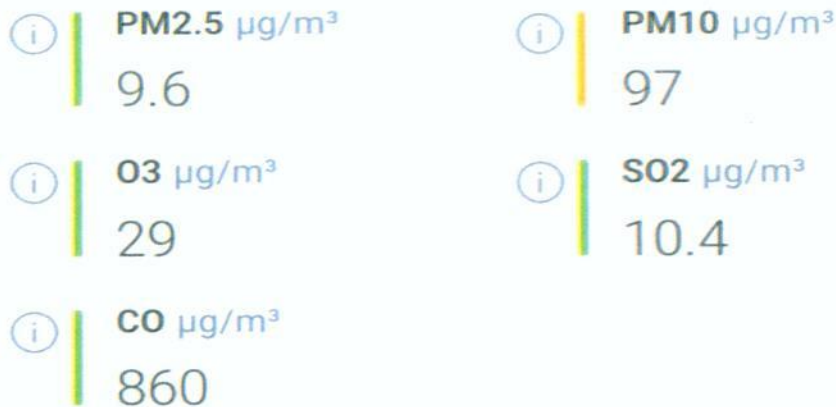
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Pollutants



USAQI

PM2.5

PM10

O3



E. G. Gade
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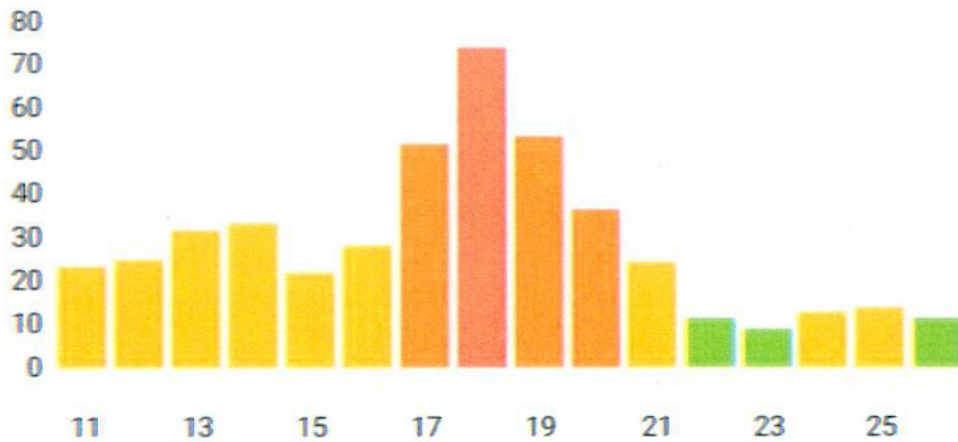
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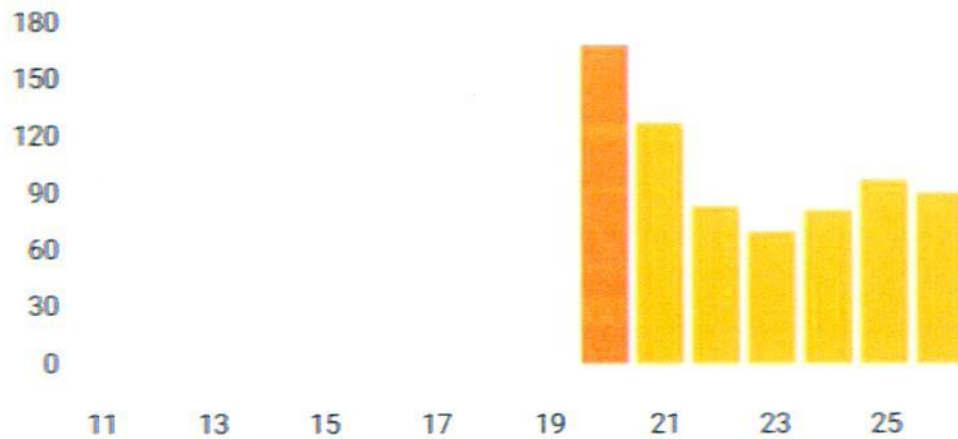


USAQI

PM2.5

PM10

03



USAQI

PM2.5

PM10

03

Pradeep Gadev

I/C Principal

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 Load Management and extension | Change of Name on Bills | Meter New, Shift, Repair
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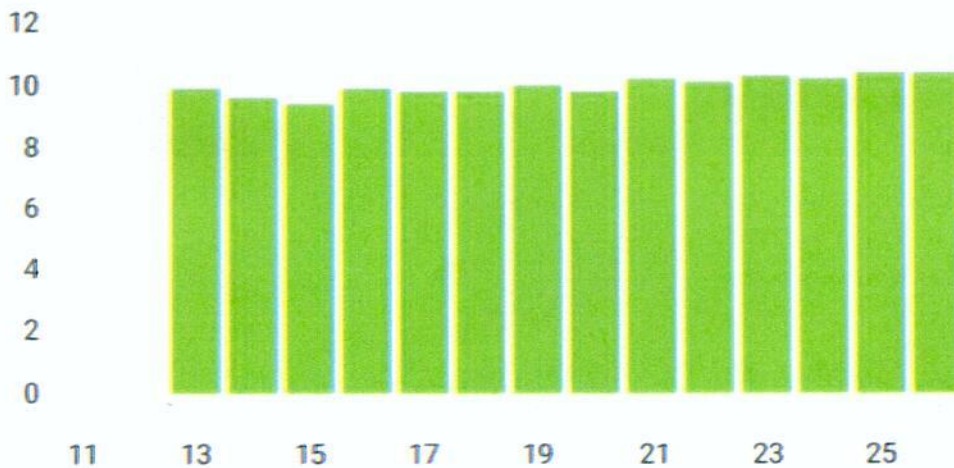


PM10

03

SO2

CO



PM10

03

SO2

CO

Eve Godav

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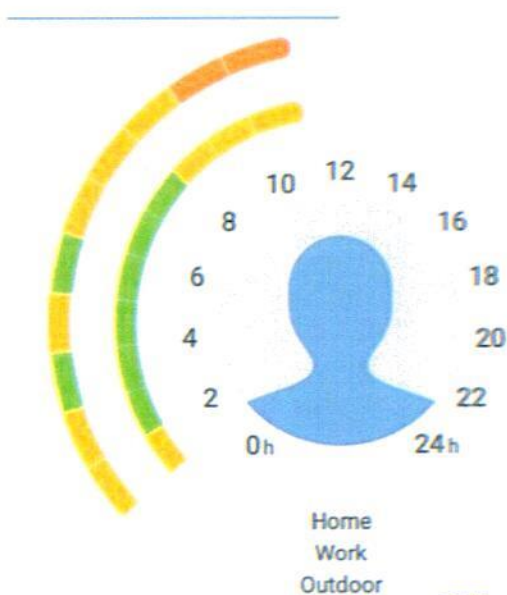
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6 Meteorology

1. Weather/Meteorology Data:-

Malad (East), Mumbai

The following are the site co-ordinates.

Latitude: 19.212716

Longitude: 72.865394

Average Altitude: 50 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	09:04	09:05	09:08	09:07	05:24	02:11	02:03	04:05	08:00	09:01	09:48	07:20
Average Daylight Hours & Minutes / Day	11:06	11:09	12:00	12:03	13:00	13:04	13:07	12:04	12:02	11:04	11:02	10:59	12:00
Sunny & (Cloudy) Daylight Hours (%)	82 (18)	83 (97)	77 (23)	75 (25)	72 (28)	41 (59)	17 (83)	21 (79)	40 (60)	69 (31)	83 (17)	90 (10)	61 (34)
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	26	21	22	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

Gadgil

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Load Management and extension | Change of Name on Bills | Meters (Exchange) Shifting
Substation Management | Permissions, approvals, liasoning | Electrical Safety Audits & Assessment
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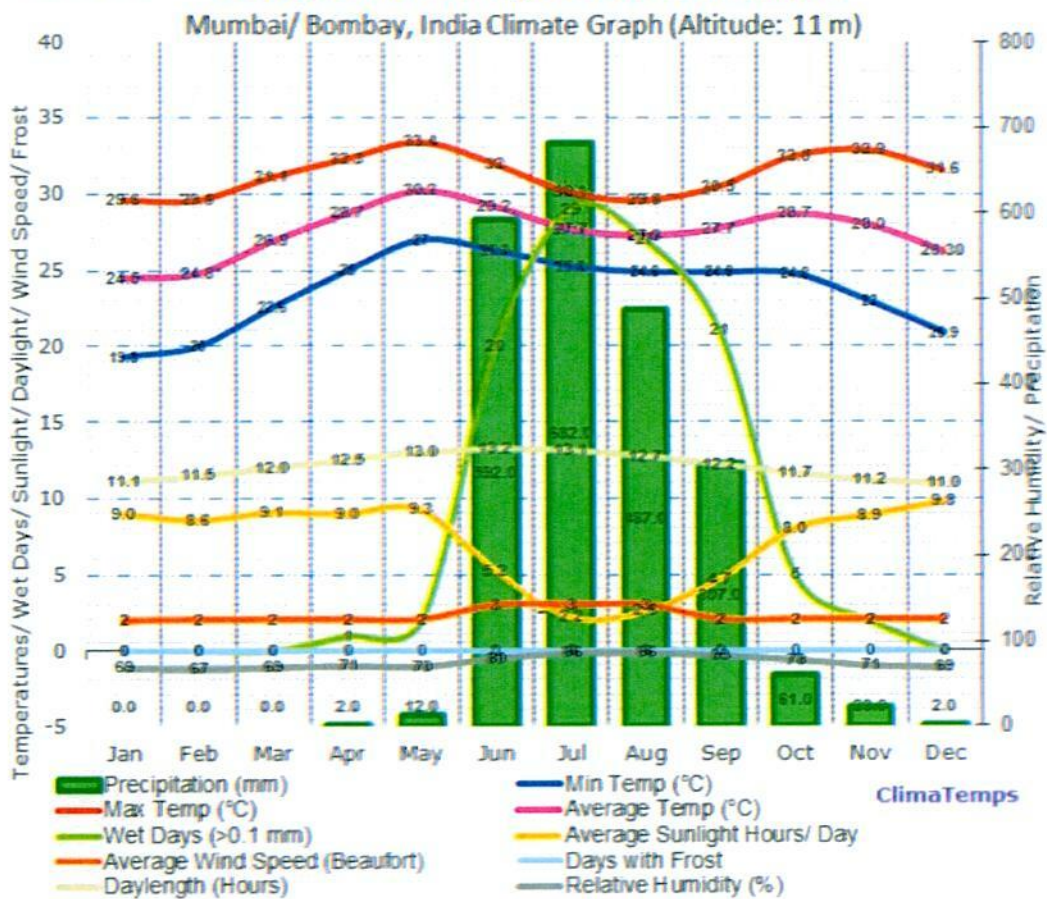
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 Load Management and extension | Change of Name on Bills | Meters (Type Shifting, Installation)
 Substation Management | Permissions, approvals, liasoning | Electrical Safety Auditing
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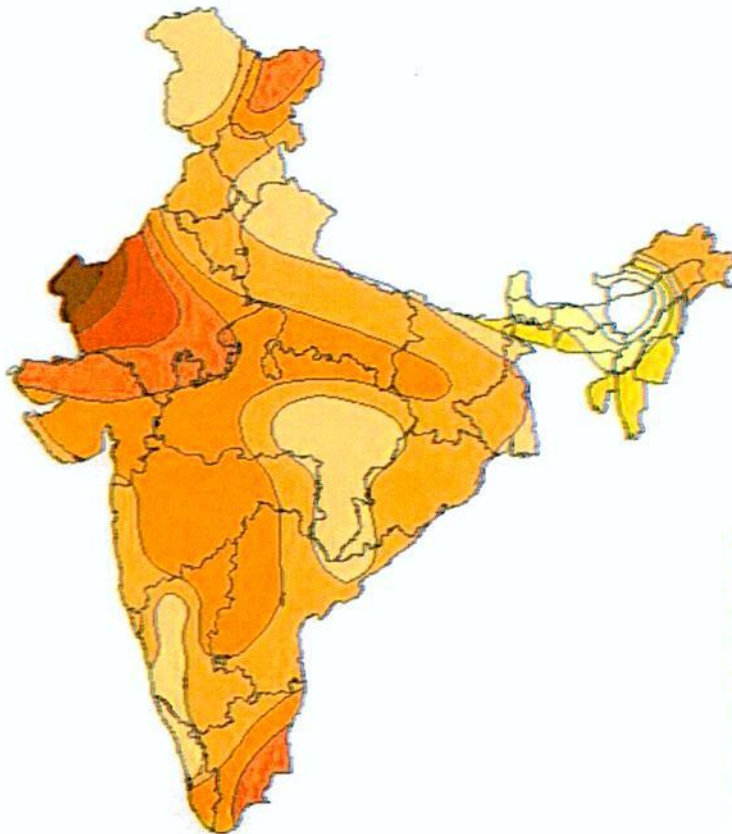
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Radiation Data



kWh / sq. m

- 6.6 - 6.4
- 6.4 - 6.2
- 6.2 - 6.0
- 6.0 - 5.8
- 5.8 - 5.6
- 5.6 - 5.4
- 5.4 - 5.2
- 5.2 - 5.0
- 5.0 - 4.8
- 4.8 - 4.6
- 4.6 - 4.4

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
Nov	5
Dec	5



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Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment

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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	10:40	18:05	245.6°	18:29
Fri 22/12/2020	06:43	114.6°	07:06	10:40	18:05	245.6°	18:29
Sat 23/12/2020	06:43	114.6°	07:07	10:39	18:06	245.6°	18:30
Sun 24/12/2020	06:44	114.6°	07:07	10:40	18:06	245.6°	18:30
Mon 25/12/2020	06:44	114.6°	07:08	10:40	18:07	245.6°	18:31
Tue 26/12/2020	06:45	114.6°	07:08	10:40	18:08	245.6°	18:31
Wed 27/12/2020	06:45	114.6°	07:09	10:40	18:08	245.6°	18:32

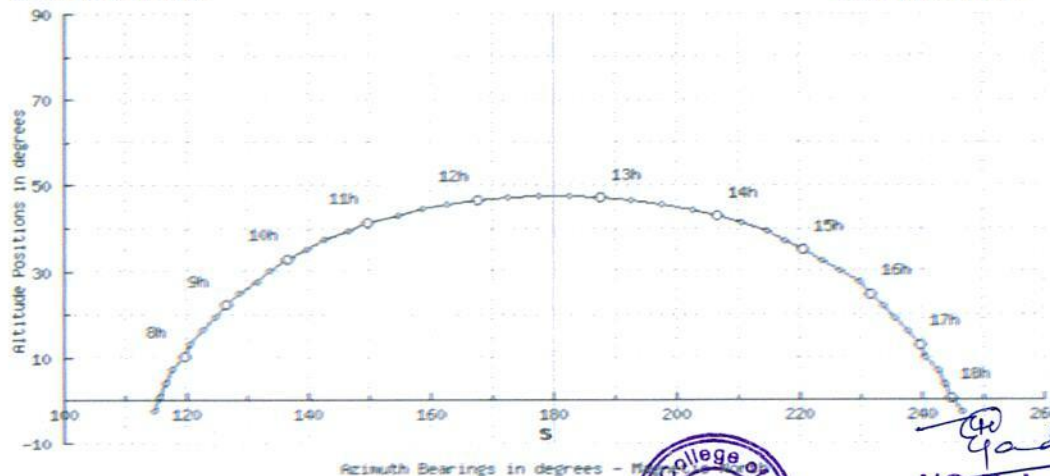
Thursday, 21st December 2020

	Az'	Alt'	*Shadow		Az'	Alt'	*Shadow		Az'	Alt'	*Shadow		Az'	Alt'	*Shadow
07:00	115°	-2°	-	10:00	137°	33°	1.54	13:00	188°	47°	0.93	16:00	232°	25°	2.14
	116°	1°	57.29		140°	35°	1.43		193°	46°	0.97		234°	22°	2.48
	117°	4°	14.3		143°	37°	1.33		196°	46°	0.97		236°	19°	2.9
	118°	7°	8.14		147°	40°	1.19		203°	44°	1.04		238°	16°	3.49
08:00	120°	10°	5.67	11:00	150°	43°	1.15	14:00	207°	43°	1.07	17:00	240°	13°	4.33
	121°	13°	4.33		155°	43°	1.07		211°	41°	1.15		241°	10°	5.67
	123°	16°	3.49		159°	44°	1.04		215°	39°	1.23		243°	7°	8.14
	125°	19°	2.9		163°	46°	0.97		218°	37°	1.33		244°	4°	14.3
09:00	127°	22°	2.48	12:00	168°	47°	0.93	15:00	221°	35°	1.43	18:00	245°	0°	-
	129°	25°	2.14		173°	47°	0.93		224°	33°	1.54		247°	-3°	-
	132°	28°	1.88		178°	47°	0.93		227°	30°	1.73				
	134°	30°	1.73		183°	47°	0.93		230°	27°	1.96				

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

Sunrise: 07:06 - Az' 114.6°

Sunset: 18:05 - Az' 245.6°



G. Gadev
I/C Principal

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Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment

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Latitude: 19.212716 Altitude: 0

Longitude: 72.865394 Accuracy: 500

Get Location **Calculate**



Longitude / Latitude :	72.865395 / 19.212715
Location:	Late Datta Ji Salvi Marg, Asha Nagar, Thakur Complex, Kandivali East, Mumbai, Maharashtra. Pin-400101 (India)
DayLength (Min / Max):	10.84 / 13.16 hours
Avg Temp. (Min / Max):	23.0 °C / 31.0 °C
Tilt Angle for Solar PV:	17°
Annual Global Insolation:	1859 (kWh/m ² /year)
Power Production of PV:	371.8 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 3718.0 units per year.
	or
	10.2 units per day.

Gadav

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9:53 📶 🔋

Solar Calculator SAC 📍 🔍 ⋮

Latitude: 19.212716 Altitude: 0

Longitude: 72.865394 Accuracy: 500

Get Location
Calculate

Summary

Table

Charts

Maps

Forecast

Long Term Monthly Temperature (°C)													
Months	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	23	19	20	22	25	27	26	25	25	25	24	22	20
Max	31	29	29	31	32	33	32	30	29	30	32	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	1514	110	135	151	180	165	92	77	132	112	122	119	119
Max	2180	137	153	186	196	214	207	225	223	198	165	142	134
Avg	1859	131	144	179	190	204	147	136	168	153	150	130	127

Monthly Solar Insolation (2009 -2022)(kWh/m ²)													
Years	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	641	133	145	174	189								
2021	1707	130	139	182	184	165	130	119	133	120	160	122	123

Solar rooftop and power plants | Solar and Electric Consultation | Electrical Design & Planning | Load Management and extension | Change of Name on Bills | Meters & Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment

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Y. Gade
I/C Principal

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Latitude: 19.212716 Altitude: 0

Longitude: 72.865394 Accuracy: 500

Get Location
Calculate



Year	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
2021	1707	1787	1689	1860	1890	1865	1837	1805	1723	2033	2050	2071	1850
2020	1787	129	142	174	180	201	137	140	137	156	149	121	121
2019	1689	110	139	151	180	205	154	107	160	112	122	130	119
2018	1860	133	135	170	193	199	133	116	198	175	152	134	122
2017	1890	133	144	181	193	204	142	148	169	168	153	132	123
2016	1865	133	149	182	190	205	149	121	186	141	149	132	128
2015	1837	135	142	177	194	210	129	144	145	152	151	128	130
2014	1805	131	139	186	195	199	170	100	132	147	146	129	131
2013	1723	136	147	183	192	211	92	77	141	126	142	142	134
2012	2033	133	153	186	190	214	166	135	223	194	164	142	133
2011	2050	137	144	184	196	212	207	217	171	155	156	139	132
2010	2071	136	148	183	194	214	132	225	221	198	165	125	130
2009	1850	132	147	184	189	208	165	121	166	145	145	119	129

Eyo Gadev

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Load Management and extension | Change of Name on Bills | Metering & Billing (additional)
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9:53 95% 100% 100%

Solar Calculator SAG

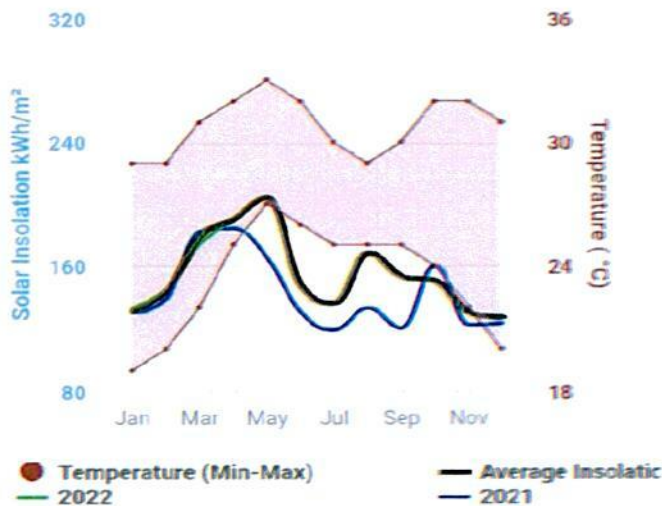
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Longitude: 72.865394 Accuracy: 500

Get Location Calculate

Summary Table Charts Maps Forecast

Insolation and Temperature



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HC Principal

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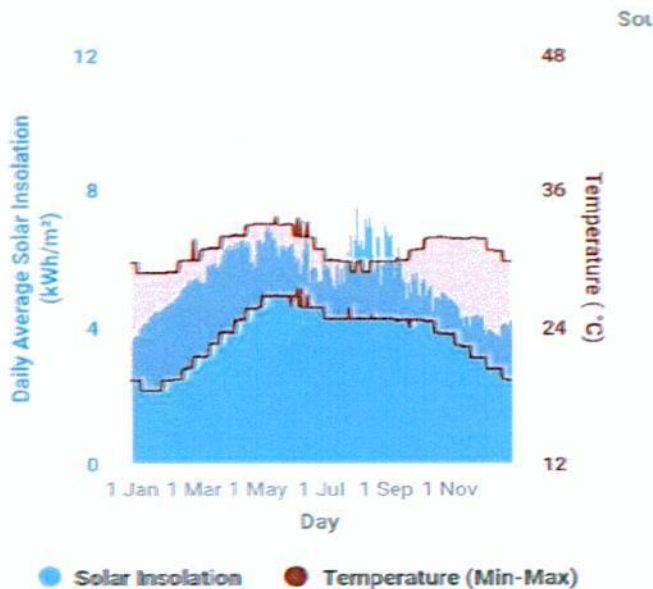
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Longitude: 72.865394 Accuracy: 500

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Daily Average Solar Insolation (2014-17) & Temperature



E. J. Jadhav
H/C Principal

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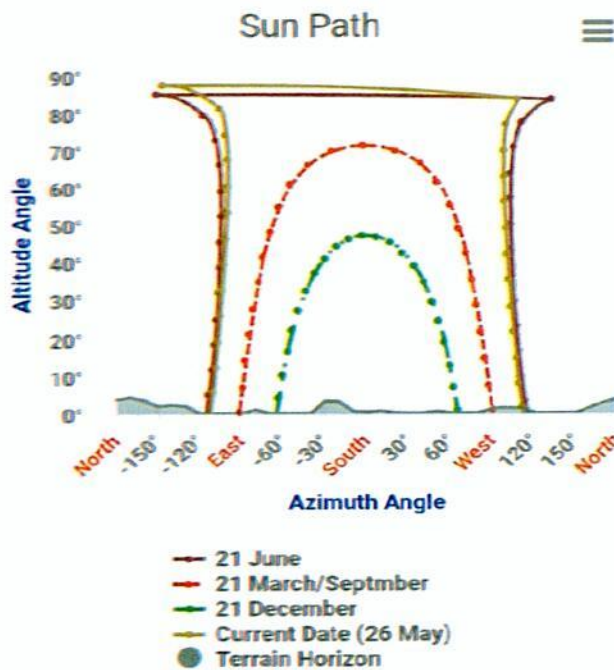
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9:53 95%
 Solar Calculator SAG
 Latitude: 19.212716 Altitude: 0
 Longitude: 72.865394 Accuracy: 500
 Get Location Calculate
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9:54 [Icons] [Icons]

Solar Calculator **SAC** [Location Icon] [Search Icon] [Menu Icon]

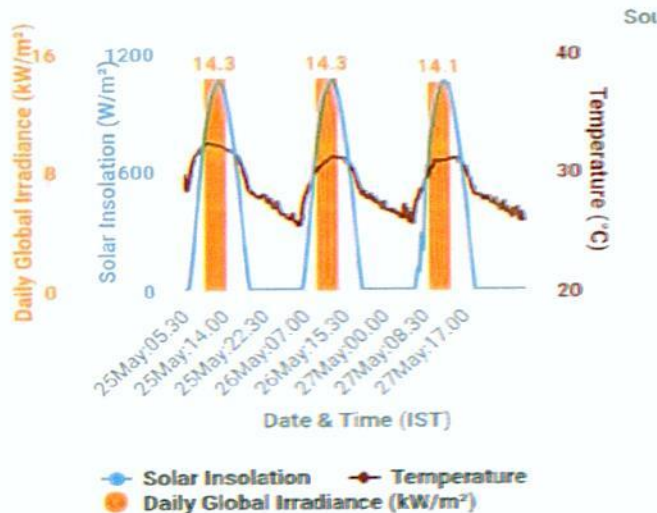
Latitude: 19.212716 Altitude: 0

Longitude: 72.865394 Accuracy: 500

[Get Location] [Calculate]

[Summary] [Table] [Charts] [Maps] [Forecast]

72 hrs Forecast of Solar Insolation and Temperature (with 15 minutes Interval) from 25-05-2022



Eto Gadev
I/C Principal

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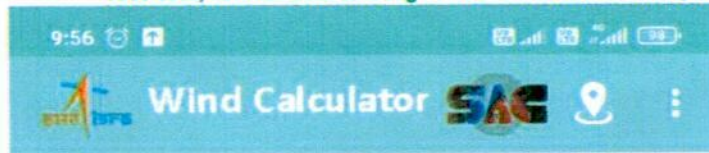
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Latitude: 19.2136368

Get Location

Longitude: 72.8654452

Calculate



Latitude : 19.2136368

Longitude : 72.8654452

Month	Wind Speed (m/s)	Wind Direction(°)
January	2.4	221 ↙
February	1.9	212 ↙
March	1.8	208 ↙
April	1.3	254 ←
May	1.2	70 →
June	2.7	28 ↗
July	3.7	56 ↗
August	2.8	70 →
September	1.9	297 ←
October	1.8	241 ↙
November	2.0	241 ↙
December	2.2	237 ↙

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9:56

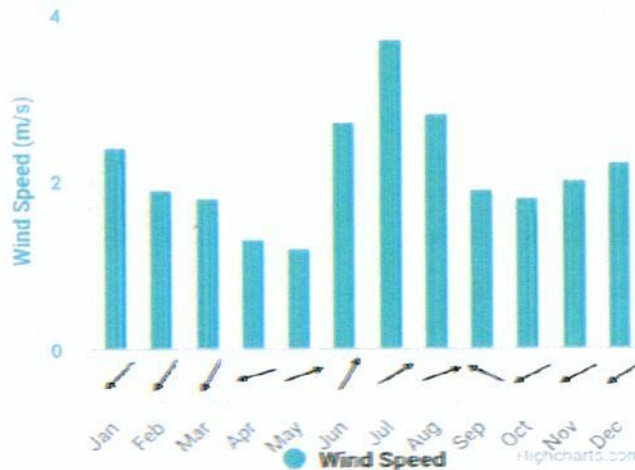
Wind Calculator

Latitude: 19.2136368 **Get Location**

Longitude: 72.8654452 **Calculate**

Table Chart Forecast

Wind Chart



Solar rooftop and power plants | Solar and Electric Consultation | Electric connection
 Load Management and extension | Change of Name on Bills | Meter Shift (Additional)
 Substation Management | Permissions, approvals, liasoning | Electrical Safety & Assessment

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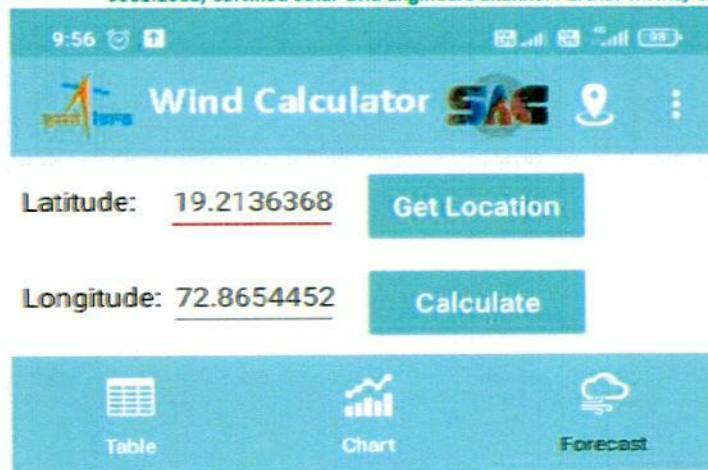
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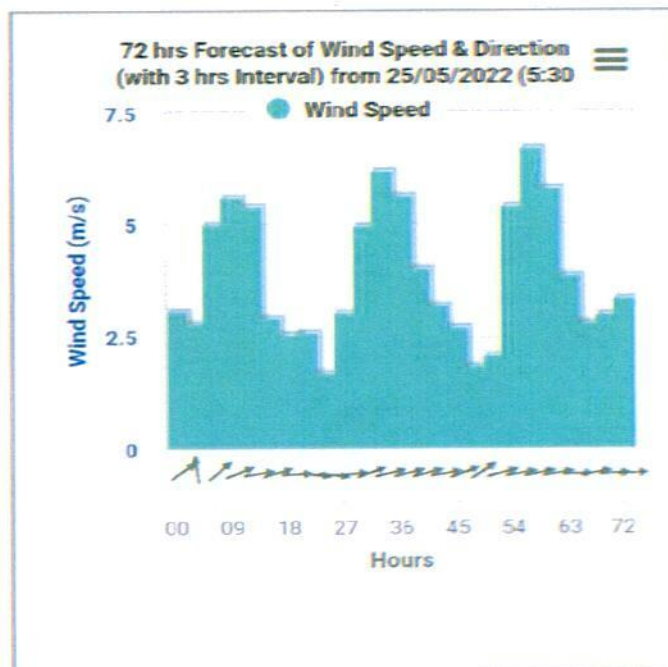


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Height (hPa): Surface



G. Gadev

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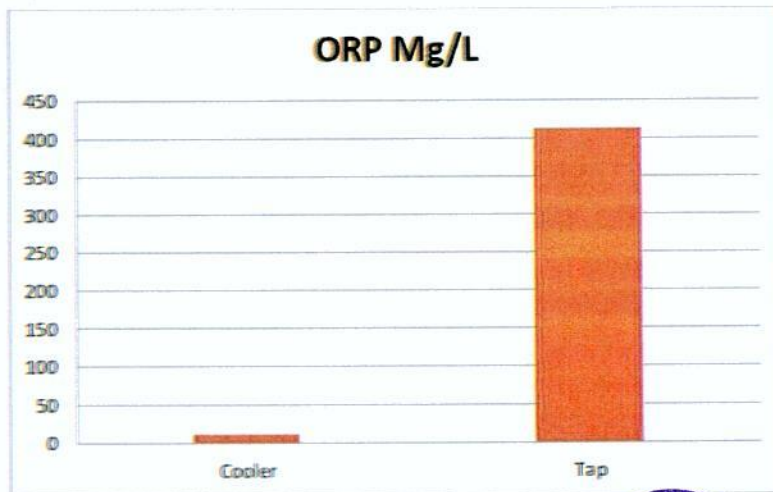
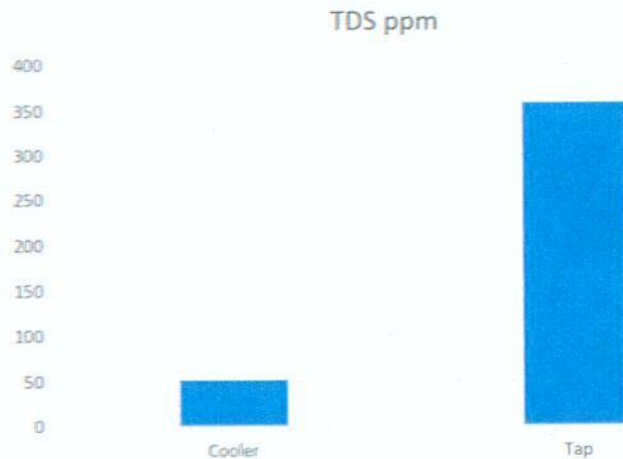


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7 Water

SL No	Use	TDS	ORP	Alkalinity
No	Activity	ppm	Mg/L	pH
1	Cooler	50	11	10.8
2	Tap	355	412	9.1



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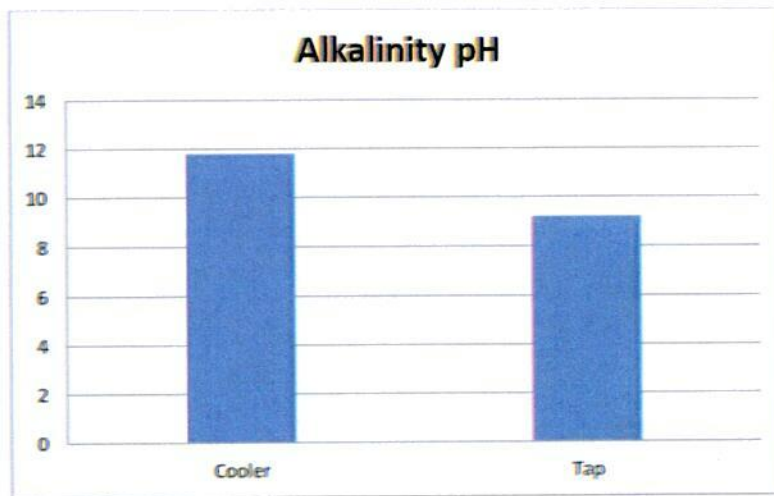
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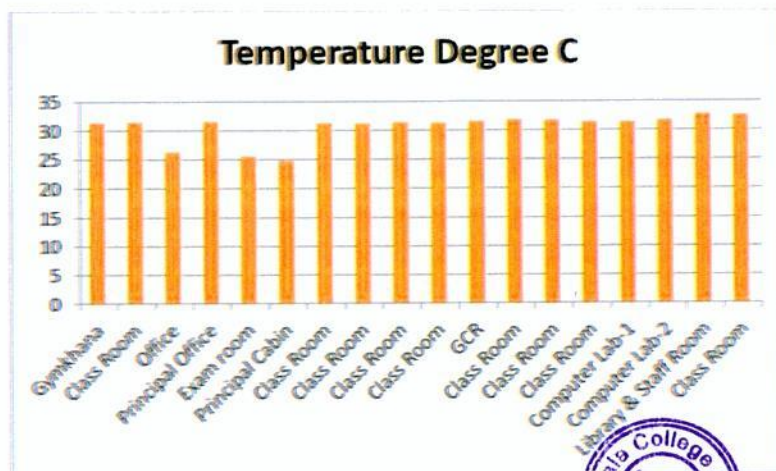


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8 Atmosphere (Temperature, Humidity and Noise)

Floor	Room	Temperature	Humidity	Noise
		Degree C	%	dB
Ground	Gymkhana	31.4	77.5	49
Ground	Class Room	31.5	77.6	48
Ground	Office	26.3	62.5	51
Ground	Principal Office	31.6	77.2	48
Ground	Exam room	25.6	67.9	48
Ground	Principal Cabin	24.8	66.8	50
Second	Class Room	31.3	76.3	49
Second	Class Room	31.2	76.4	49
Second	Class Room	31.4	76.8	48
Second	Class Room	31.3	77.1	50
Second	GCR	31.6	76.1	46
Third	Class Room	31.9	76	46
Third	Class Room	31.8	76.3	48
Third	Class Room	31.4	77.9	45
Third	Computer Lab-1	31.4	75.8	46
Third	Computer Lab-2	31.8	76.3	45
Fourth	Library & Staff Room	32.8	72.7	46
Fourth	Class Room	32.6	74.7	47



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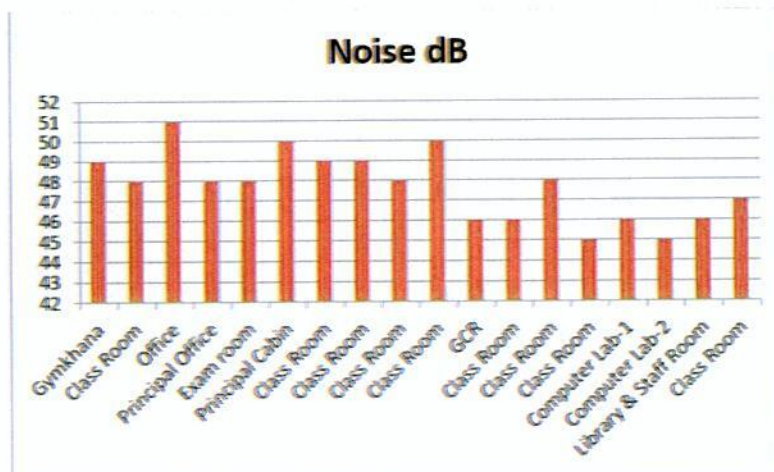
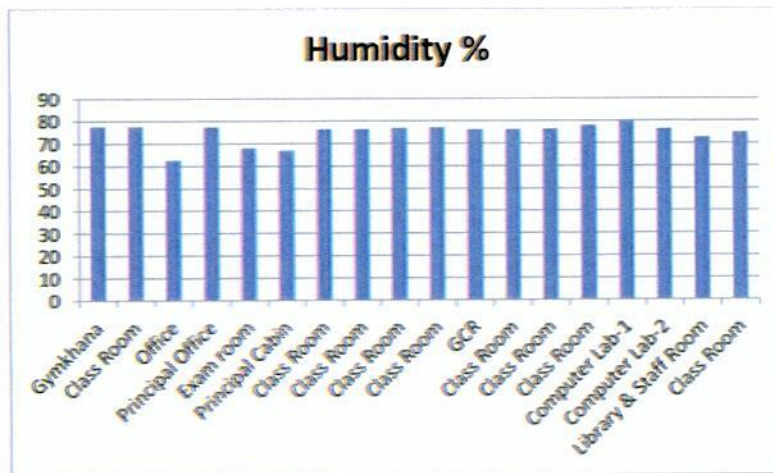
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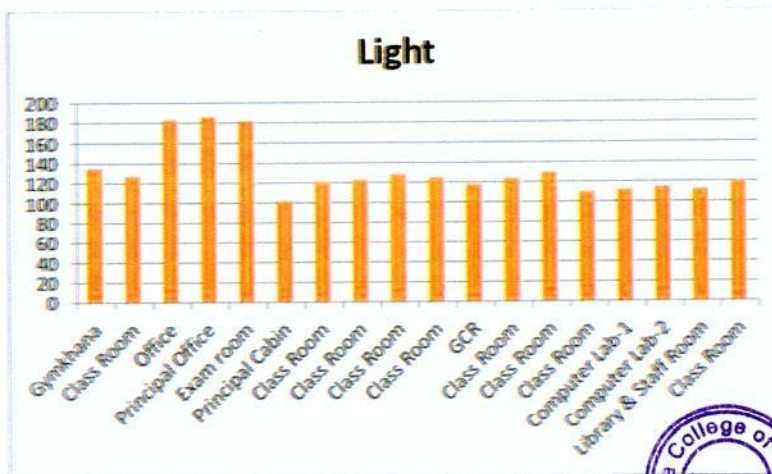


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9 Illumination

Floor	Room	Light
Ground	Gymkhana	135
Ground	Class Room	127
Ground	Office	183
Ground	Principal Office	186
Ground	Exam room	182
Ground	Principal Cabin	102
Second	Class Room	121
Second	Class Room	123
Second	Class Room	128
Second	Class Room	125
Second	GCR	118
Third	Class Room	124
Third	Class Room	130
Third	Class Room	130
Third	Computer Lab-1	112
Third	Computer Lab-2	115
Fourth	Library & Staff Room	112
Fourth	Class Room	120



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10 Energy Audit

10.1 Electrical Energy System

SL No	CA No	Meter No	Sanctioned Load	DISCOM	Phase
1	101420992	4919670	1.36	AECL	Single
2	101424003	8798700	1.36	AECL	Single
3	101424013	10023004	1.36	AECL	Single
4	101424024	10023565	1.36	AECL	Single

10.2 Electrical Bill Analysis

Billing Summary-101420992			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	279	2052	7.35
February	307	2077	6.77
March	451	3746	8.31
April	182	1318	7.24
May	195	1419	7.28
June	278	2063	7.42
July	308	2311	7.50
August	353	2746	7.78
September	375	2959	7.89
October	362	2833	7.83
November	334	2541	7.61
December	338	2622	7.76



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Billing Summary-101424003			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/kwh)
January	33	271	8.21
February	101	651	6.45
March	263	1963	7.46
April	31	257	8.29
May	15	169	11.27
June	26	230	8.85
July	14	164	11.71
August	18	186	10.33
September	20	197	9.85
October	34	274	8.06
November	25	227	9.08
December	42	315	7.50

Billing Summary-101424013			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/kwh)
January	43	326	7.58
February	153	1083	7.08
March	203	1497	7.37
April	24	219	9.13
May	32	263	8.22
June	29	246	8.48
July	35	279	7.97
August	23	213	9.26
September	25	224	8.96
October	69	466	6.75
November	40	310	7.75
December	62	425	6.85

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Billing Summary-101424024			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	125	874	6.99
February	155	1098	7.08
March	435	3591	8.26
April	63	433	6.87
May	82	537	6.55
June	169	1218	7.21
July	116	807	6.96
August	168	1210	7.20
September	167	1202	7.20
October	238	1753	7.37
November	184	1332	7.24
December	159	1143	7.19

Billing Summary-TOTAL			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	480	3523	7.34
February	716	4909	6.86
March	1352	10797	7.99
April	300	2227	7.42
May	324	2388	7.37
June	502	3757	7.48
July	473	3561	7.53
August	562	4355	7.75
September	587	4582	7.81
October	703	5326	7.58
November	583	4410	7.56
December	601	4505	7.50



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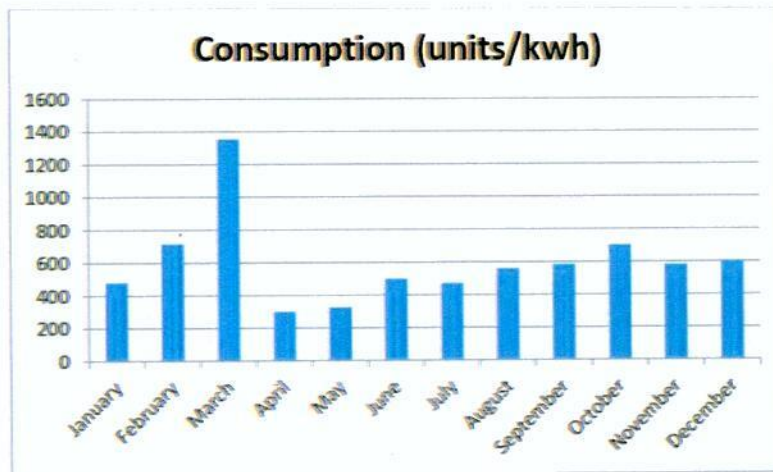
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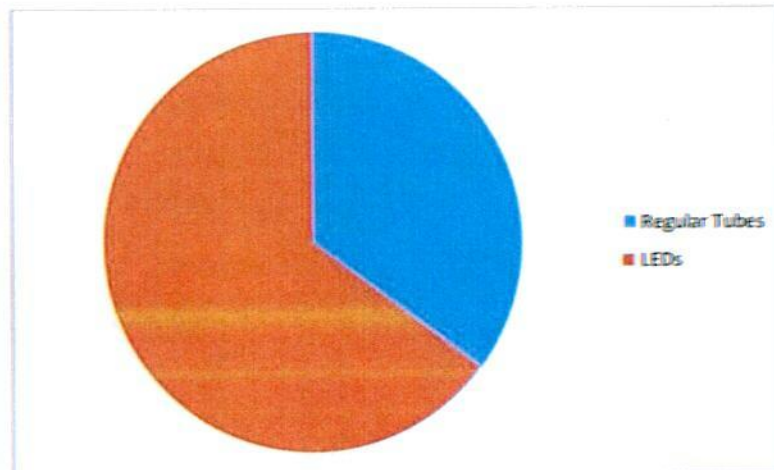
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10.3 Consumption Scenario

	Usage (Kwh)	Payment (Rs)	Duration
Total	7483	56567	Annual
Min	300	2227	April
Max	1352	10797	March
Average	598.6	4528.3	Annual

10.4 Assessment of Lighting System

Lights	Regular Tubes	LEDs
Nos	50	92
Load(Kw)	2.0	1.84
Percentage	52.08	47.92



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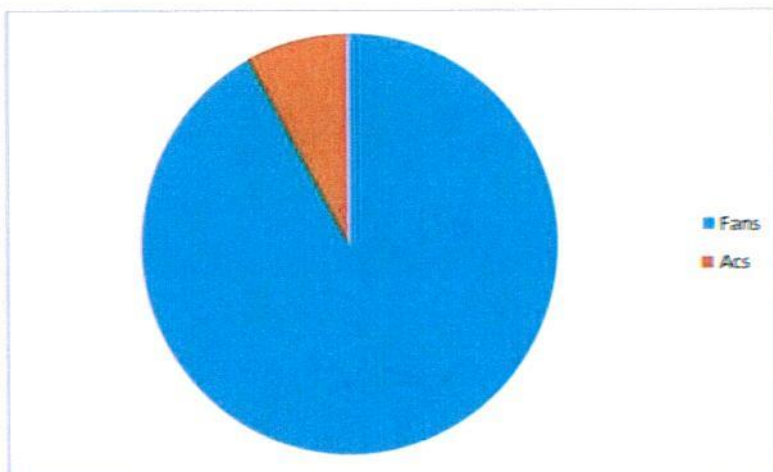
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10.5 Assessment of Cooling System

Cooling	Fans	Acs
Numbers	93	8
Load(Kw)	6.98	8
Percentage	46.58	53.42



10.6 Use of Renewable Energy System Not Available



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11 Safety Assessment

11.1 Status of presence of electrical safety hazards:

Sl No	Safety Hazard Yes/No Remarks	Yes/No	Remarks
1)	Existence of non ISI/standardized appliances	No	
2)	Whether the existing wiring is more than 20 years old.(Wiring more than 20 years old must be recommended for replacement)	No	
3)	Whether Fire detection and Alarm system is installed?	NA	
4)	Whether sufficient number of fire extinguishers is installed?	Yes	
5)	Segregated UPS room with proper ventilation/exhaust is provided?	NA	
6)	Is their display of emergency telephone number of nearest fire station, hospital and key person?	No	
7)	Whether frequent sparking at certain place(s) reported	No	
8)	Whether switches found with burnt marks	No	
9)	Existence of non standardized tube lights/CFLs/Bulbs and TL starters and chokes	No	
10)	Dampness in walls and ceiling	No	
11)	Loose switches/plugs	No	
12)	Naked wiring or connections	No	
13)	All Electrical cables/wiring are in conduits and are protected by a fire proof insulation	Yes	
14)	Seepage /Leakage of water in walls or on and around electrical installations	No	
15)	Whether connection to each AC is provided through an individual MCB of appropriate rating & of standard make and ISI approved.	Yes	
16)	Whether there are frequent tripping due to overloads ?	No	



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11.2 Safety Survey:

- 11.2.1 Actual Cable Size (at meter): 35 Sqmm
- 11.2.2 Year of Installation: 2018
- 11.2.3 Actual Available Cut-out Size: 100A
- 11.2.4 Year of Installation: 2018
- 11.2.5 Actual Required ELCB Size: Present at Branches
- 11.2.6 Meter Cabin Condition: Average
- 11.2.7 Availability of Fire extinguisher/ Sand Buckets: **No (In Meter cabin)**
- 11.2.8 Water proofing/Seepage: No
- 11.2.9 Damages/Tampering: No
- 11.2.10 Adequacy in connections/Termination/Joints: Good
- 11.2.11 Ease of accessibility: Good
- 11.2.12 Danger Signs: **NO**
- 11.2.13 Smoke detectors : Good
- 11.2.14 Alarm system: Yes
- 11.2.15 Emergency Entry/Exit door: Yes
- 11.2.16 Emergency evacuation plan: **NO**
- 11.2.17 Fire extinguishers: Yes
- 11.2.18 Public Address system : YES
- 11.2.19 Rodent arrester: **NO**
- 11.2.20 CCTV: Yes
- 11.2.21 Meter cabin: Average Condition
 - 11.2.21.1 Leakage: **NO**
 - 11.2.21.2 Damaged/tempered/cracks: **NO**
 - 11.2.21.3 Name plate: **No**
 - 11.2.21.4 Water logging possibility: **No**
- 11.2.22 Physical Inspection of Power source : Average Condition
 - 11.2.22.1 Adequacy as per standards **OK**
 - 11.2.22.2 Rusting of panel **OK**
 - 11.2.22.3 Visible scaling **OK**
 - 11.2.22.4 Scaled/ Unclean wires breakers **OK**
 - 11.2.22.5 Wet / Dampness **NO**



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113 Following Regulations have been breached by electric connections present

1. Regulation 3: Registers of designated persons

No registers maintained

2. Regulation 16: Separate Earthing

Not provided

3. Regulation 18: Danger Notice

Not provided

4. Regulation 27: Generation station Fire Bucket with clean Dry sand

No

Additional Fire Extinguisher nearby

No

Training of staff

No

5. Regulation 28: Precautions and response to electric Shock

No

6. Regulation 41: Earth Resistance

No

Record of Registered value

No



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12 Wastage Types and Management

Sl No	Wastage Type	Quantity	Action
1	Biomass	NA	NA
2	Paper	1-5Kg approx. per month	Cleaned by housekeeping and sent to municipal wastage
3	Water	100-500ltrs approx. per year due to leakage	Not considered
4	E-Waste	Un-quantified	Cleaned by housekeeping and sent to municipal wastage
5	Bio-Hazardous	NIL	NIL
6	Fuel	Electricity Wastage by running fans and lights for uncounted time after room cleaning	NIL
7	Production	NIL	NIL
8	Process	Occasional electricity wastage by room user/s accidentally keeping equipments switched On while leaving the room.	NIL
9	Food	Occasionally wastage in very low quantity	Cleaned by housekeeping and sent to municipal wastage
10	Man-Hours	NIL	NIL

Best Practices

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)
6. Fix a Notice on Back-side of Exit Door of Room-"SWITCH OFF all electrical equipments and Taps". (point no.8 and 6)
7. In present scenario observed there is no any recycling procedure is thought, documented or observed in premises.
8. Recycling of one side used papers to be observed.
9. Prepare and observed a Generalized SOP having attributes specialize on each type of wastage and it's re-usage and/or recycling.



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13 Environment Impact on Natural resources

13.1 Table-1: Overall

Environmental Impact Analysis Report		
Annual Consumption	7483	KWh
Annual Green- Impact		
Co2 Generated	4824	Kg
Coal Burned	4384.8	Kg
Diesel Burned	2323.8	Ltr
Natural Gas Burned	88662	Cub Ft
Trees Cut	219.6	Nos
Water Consumed	15817.2	Ltr
Life Time Green- Impact		
Co2 Generated	87834	Kg
Coal Burned	252141	Kg
Diesel Burned	42316.2	Ltr
Natural Gas Burned	1614535.2	Cub Ft
Trees Cut	3999	Nos
Water Consumed	288031.2	Ltr

13.2 Table-2: Occupational Area Based

Environmental Impact Analysis Report		
Annual Consumption	7483	KWh
Annual Green- Impact		
Co2 Generated	0.50	Kg
Coal Burned	0.46	Kg
Diesel Burned	0.24	Ltr
Natural Gas Burned	9.24	Cub Ft
Trees Cut	0.02	Nos
Water Consumed	1.65	Ltr
Life Time Green- Impact		
Co2 Generated	9.15	Kg
Coal Burned	26.26	Kg
Diesel Burned	4.41	Ltr
Natural Gas Burned	168.18	Cub Ft
Trees Cut	0.42	Nos
Water Consumed	30.00	Ltr



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13.3 Table-3: Footfall Based

Environmental Impact Analysis Report		
Annual Consumption	7483	KWh
Annual Green- Impact		
Co2 Generated	3.22	Kg
Coal Burned	2.92	Kg
Diesel Burned	1.55	Ltr
Natural Gas Burned	59.11	Cub Ft
Trees Cut	0.15	Nos
Water Consumed	10.54	Ltr
Life Time Green- Impact		
Co2 Generated	58.56	Kg
Coal Burned	168.09	Kg
Diesel Burned	28.21	Ltr
Natural Gas Burned	1076.36	Cub Ft
Trees Cut	2.67	Nos
Water Consumed	192.02	Ltr

13.4 Table-4: Carbon Footprints

Head	General	Per Square Foot	Per Person
Per Year	4824	0.50	3.22
Lifetime (20Years)	87834	9.15	58.56

Ranges:

Best: (Below 1800/Per Person per year)

Average: (Below 3000 and Above 1800/Per Person per year)

Bad: (Above 3000/Per Person per year)

Carbon Footprint found best category.



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14 Suggestions

1. Air quality is found moderate. There is scope to increase in Tree diversity; Plants like Tulsi, Camphora, Etc. can be planted for getting more pollution-free atmosphere. Also to increase the quality more greenery can be implemented. This can be done through gardening in empty places, terrace gardening and Green walls.
2. Water quality if found average. Quality is observed from RO output. To maintain the quality, water testing has to be done in every season (after every four months). A standard operating process has to be defined, documented and observed for tank and pipeline cleaning and maintenance.
3. Noise level is appropriate.
4. Illumination level found good. To maintain accurate level, windows to be cleaned regularly, obstacles on windows to be moved, Proper capacity and efficiency of luminaries to be used and luminaries also to be cleaned once in a week. For details refer illumination section.
5. The climatic conditions are hot and humid. This increases fan consumption.
6. The site has excellent solar irradiation which can be utilized for electricity generation.
7. Arrange Exhibitions and identification programs for students and locals to understand medicinal plants.
8. Start a planting drive with students outside campus.
9. Gift small plants or seeds/seed-balls to students leaving or going to native place and encourage them to plant at their own premises.
10. There should be display of emergency telephone number of nearest fire station, hospital and key person.
11. ELCBs found faulty or bypassed, those need to be replaced immediately.
12. Fire extinguisher/ Sand Buckets to be installed in meter cabin.
13. Danger Signs to be installed in meter cabin and near electrical boards.
14. Emergency evacuation plan to be prepared and displayed at centre place.
15. Earthing pits and lightning arrestor to be installed.
16. Generate awareness among user about environment conservation.
17. Prepare and observe SOPs for the same.
18. Put "SWITCH OFF" boards on back side of Doors.
19. Use energy efficient Lighting.
20. Use Energy efficient fans.
21. Keep AC temperature to 26° C.
22. Clean Luminaries, Fans, ACs regularly to increase efficiency.
23. Prepare and observe SOPs for maintenance of equipment.
24. Avoid Draft printing, use email/Whatsapp maximum.

Solar rooftop and power plants | Solar and Electric Consultation | New Solar Connections
Load Management and extension | Change of Name on Bills | Meters (New, Shifting, additional)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai - I, Borivali (W), Mumbai - 400092.
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25. Following tests are to be conducted at-least annually

- Earthing
- Lightning Arrestor
- Grounding Continuity
- Voltage
- Polarity
- Neutral Current
- Load Unbalance
- Earth Resistance
- Insulation Resistance
- Illumination
- Power Quality
- Thermography

26. Saving Opportunities (considering current average rate and six hours daily usage)

- A. Replacing Regular Tube lights with LED will save approximately Rs. 15,000 per month.
- B. Replacing Regular Fans with BLDC Energy saving Fans will save approximately Rs. 25,000 per month.
- C. Installation of SPVGCRT (Solar Photovoltaic Grid Connected Roof Top) System with Net Metering facility can save 80% of Electricity bill. (Solar Resource Analysis is required).

15 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.

16 Conclusion

We hereby conclude report for "Energy Audit, Green Audit and Environment Audit" of the Work done under scope of work for "Nirmala College of Commerce, Municipal School Bldg, Rani sati Marg, Malad, Mumbai.". Please study it thoroughly and implement recommendations and suggestions at earliest.

Solar rooftop and power plants | Solar and Electric Consultation | New Electric Connections
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List of Environmental Promotional Activities



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List of Environmental Promotional Activities

Sr. No	Date	List of Activities	Department
1	04/02/2022	Best out of Waste	NSS
2	16/02/2022	Mask Distribution	NSS
3	21/02/2022	Swachh Bharat Abhiyan	NSS
4	25/02/2022	Tree plantation	NSS
5	26/02/2022	Paper bag Distribution	NSS

Additional Information

4th February 2022

Best Out of Waste Competition:

● With the aim to develop the ability to think and organize the thinking to create something useful, to indulge the students into an extracurricular activity with exclusive tool, Best Out Of Waste Competition was organized on 4th February 2022 through Google Form. 17 N.S.S. Volunteers participated in the competition.



16th February 2022

“MASK DISTRIBUTION”.

GIRLS VOLUNTEERS: 22

BOYS VOLUNTEERS: 17



21st February 2022

Swachh Bharat Abhiyan

● **GIRLS VOLUNTEERS: 26**

● **BOYS VOLUNTEERS: 17**



25th February 2022

Tree Plantation

● **GIRLS VOLUNTEERS: 29**

● **BOYS VOLUNTEERS: 24**



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26th February 2022

Paper Bag Distribution

- **GIRLS VOLUNTEERS:** 14
- **BOYS VOLUNTEERS:** 16



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