

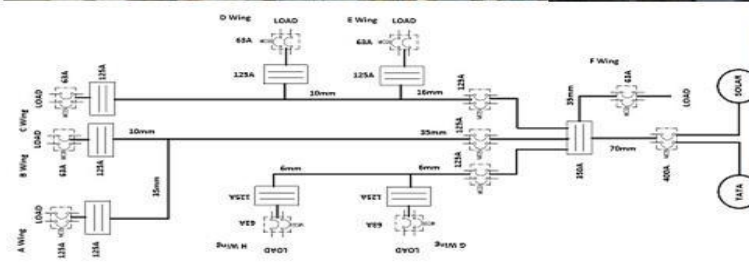
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- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

VIVA Degree College,
At & Post Virar, Palghar 401303.



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)
Substation Management | Permissions, approvals, liasoning | Electrical & Safety Audits & Assessment
Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

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Detailed Report

Energy-Green-Environment Audit

Project Beneficiary

2022-2023

VIVA COLLEGE (DEGREE)

Virar West, Near D'Mart, At &
Post VirarPalghar 401303.

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

- Dr. V. S. Adigal Principal
 - Dr. Prajakta Paranjape Vice-Principal
 - Dr. Deepa Verma Vice- Principal & IQAC Coordinator
 - Dr. Rohan Gavankar IQAC Co-coordinator
 - Dr. Vaibhav Satvi Member (Teaching)
 - Dr. Anushri Kini Member (Teaching)
 - Dr. Niyanta Dave Member (Teaching)
 - Dr. Sampada Member (Teaching)
 - Deshmukh
 - Mr. Mahendra Kajare Member (Non-Teaching)
 - Mr. Kunal Patil Member (Non-Teaching)
 - Student Representative GS & AGS
- and all other technical, teaching, non-technical staff and students of college.



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Certificate

This is to certify that Detailed Energy, Green and Environment Audits has 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. This activity is jointly executed by auditor and beneficiary to account electrical safety, energy use and conservation opportunity without sacrificing purpose of the same. We sincerely acknowledge efforts of management and other staff members of beneficiary for smooth execution of audit process. The Audit activity has been executed for beneficiary with following Details:-

Name of Beneficiary: VIVA Degree College

Address: At & Post Virar, Palghar 401305

Contact Person: Dr. Deepa Verma

Contact Number:

Date of Audit: 26/05/2022

Valid Till: 01/05/2025

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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Mumbai - 400 091.

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

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.



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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.



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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.

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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1.5. 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.

1.6. 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.

1.7. About the Premises

About Vishnu Waman Thakur Charitable Trusts’s Bhaskar Waman Thakur College of Science, Yashvant Keshav Patil of Commerce, Vidhya Dayanand Patil College of Arts (VIVA College). The college is affiliated to University of Mumbai and is fully supported financially by the Management (Self-Financed). We have many young and dynamic faculty having zeal to excel both personally and professionally. The college has been providing access to higher education to a diverse socioeconomic group of students with an objective of “EDUCATION TO ALL”. The college offers flexibility to the learners with regards to making a choice from various subjects of studies in Arts, Commerce and Science with a total number of 33 programs being offered. The college has introduced professional programmes such as BAMMC, BCAAF, BCBI, BFM, BFMG, BIMG, BEME BMS, BA in Culinary Arts, FTNMP, B.Sc.in Hospitality Studies, CS, Data Science, IT and Biotechnology at UG level and several PG courses so as to enable the learner to have a varied choice.



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2. Topography

2.1. Overview

SL No	Head	Details
1	Name of Applicant Institution	VIVA Degree College
2	Address	At & Post Virar -401305
3	Contact Number	NA
4	Registration Certificate Number	NA
5	Sector Type	College
6	Senior Management Contact	Shri. Sanjay Pingulkar
7	Contact Number	8830164534
8	Status of Institution (Pvt./Public)	Private
9	Company Turnover (Rs. In Lakhs)	Not Applicable
10	Number of Employees	385
11	Year of Establishment	2000
12	Plot Area (ft ²)	As per given Map (Approximate 400000 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)	280 – 300
18	No. of Customers (Footfall)	30,000 approx
19	Day Vs Night activity in %	Only Daytime
20	Shifts per day	1
21	Hours per shift	12 07:00 to 19:00
22	DG Set installed	Yes
23	Inverter Installed	Yes 80kva
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	VIVA Degree College	New College
2	Category	College	Educational Institute
3	Address	At & Post Virar -401303 Dist. Palghar	
4	State	Maharashtra	
5	Nearest Railway Station	Virar	Western Railway
		Vasai	Central Railway
6	Nearest Bus Station	Virar	Interstate/Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	19.342761	
9	Latitude	72.808325	

2.3. Layouts

Sitemap

File Attached

2.4. About Premises

File Attached

3. Floral Diversity

VIVA Degree College, which was established in the year 2000, has eco-friendly environment since then. It has long legacy of healthy environmental practices periodic plantation, their preservation and maintenance. Its land use is about 40 % of total area is occupied by open land and plantation that generate better campus environment. Every year various departments organize the plantation programme with the help of faculty and students. College has well maintained botanical garden enriched with Medicinal Plants. The campus maintains the biodiversity of plants. There are plenty of plants in the college campus including tree, shrubs and herbs representing different family. List of plants in college campus as follows

Name	Family
• Cassia Fistula	Fabaceae
• Jasminum Sambac	Oleaceae
• Hibicus Rosa-Sinensis	Malvaceae
• Catharanthus Roseus	Apocynaceae
• Mimusops Eleni	Sapotaceae
• Rosa	Rosaceae
• Adenium Obesum	Apocynaceae
• Crotons	Euphorbiaceae
• Manifera Indica	Anacardiaceae
• Artocarpus Interifolia	Moraceae
• Phyllanthus Emblica	Phyllanthaceae
• Carica Papaya	Caricaceae
• Cocos Nucifera	Arecaceae
• Musa Indica	Musaceae
• Ocimum Tenuiflorum	Lamiaceae
• Cymbopogon	Poaceae
• Cinnamomum Verum	Lauraceae
• Aloe	Asphodelaceae
• Cactus	Cactaceae
• Acacia	Fabaceae
• Albizia Lebbeck	Legumeceae

4. Faunal Diversity

The college campus supports an immense diversity of plants and animals including native species as well as some rare species. A many animal species were observed in the college campus including invertebrates and vertebrates (different groups like Beetle, Moth, Bug, Bird, Ant, Spider, Wasp, Millipede, Slug, Louse, Earthworm, Snail, Butterfly, Dragonfly, Grasshopper etc.). The floral diversity in the campus serves as a roosting place for the different species of the bird, it also acts as a habitat for a variety of insects, and variety of flowering plants in the botanical garden supports a wide variety of butterflies and birds. The window shades of college building serve as a resting place for the birds like rock pigeon. The college environment has rich and abundant faunal diversity enlisted as below.

Diversity of Birds

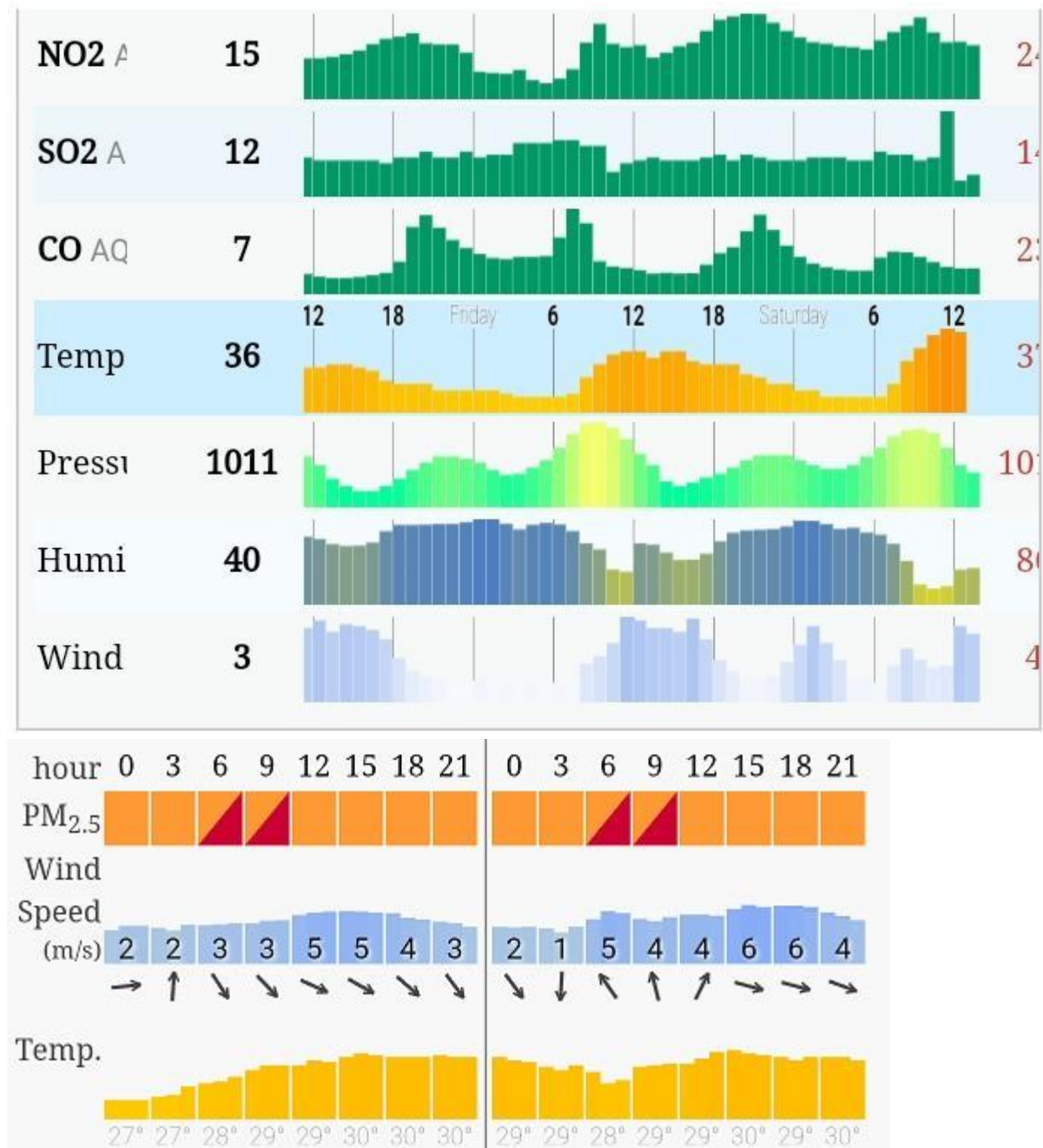
- Cattle Egret
- Feral Pigeon
- Shikra
- Greater Coucal
- Asian Koel
- Rose Ringed Parakeet
- Alexandrine Parakeet
- House Crow Oriental Magpie Robin
- Red Vented Bulbul
- Common Trailorbird
- Purple Sunbird
- Purple Rumped Sunbird
- Scaly Breasted Munia
- House Sparrow

Diversity of Butterflies

- Striped Tiger
- Plain tiger
- Tailed Jay
- Common Palmfly
- Common Jay
- Common Mormon
- Common Rose
- Common Redeye
- Rice Swift
- Blue oakleaf
- Common cerulean
- Plains cupid
- Indian sunbeam
- Tawny coaster
- Common Sailor
- Common Banded Awl
- Blue Tiger
- Grass Blue
- Zebra Blue

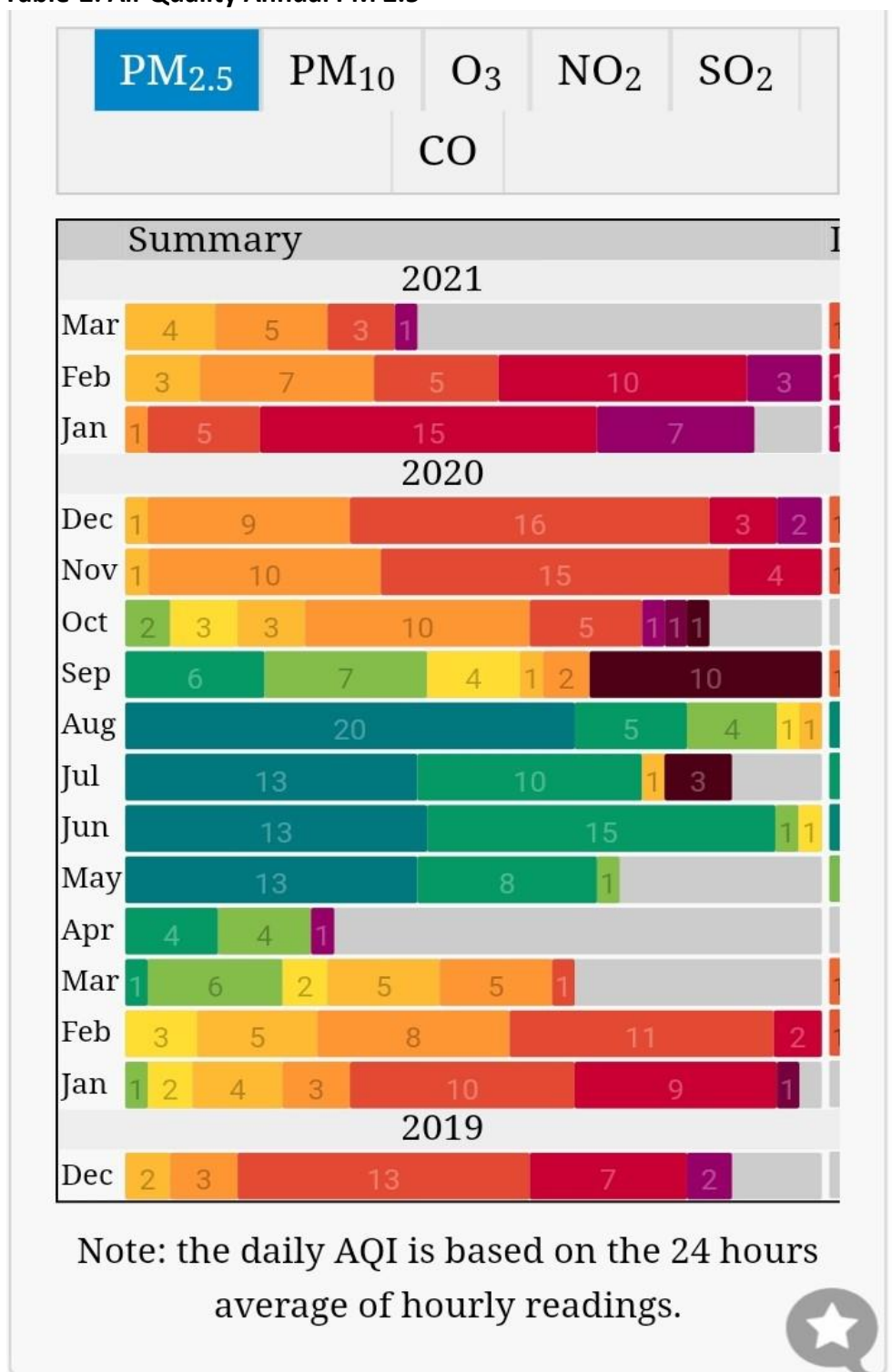
5. Air Quality

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.

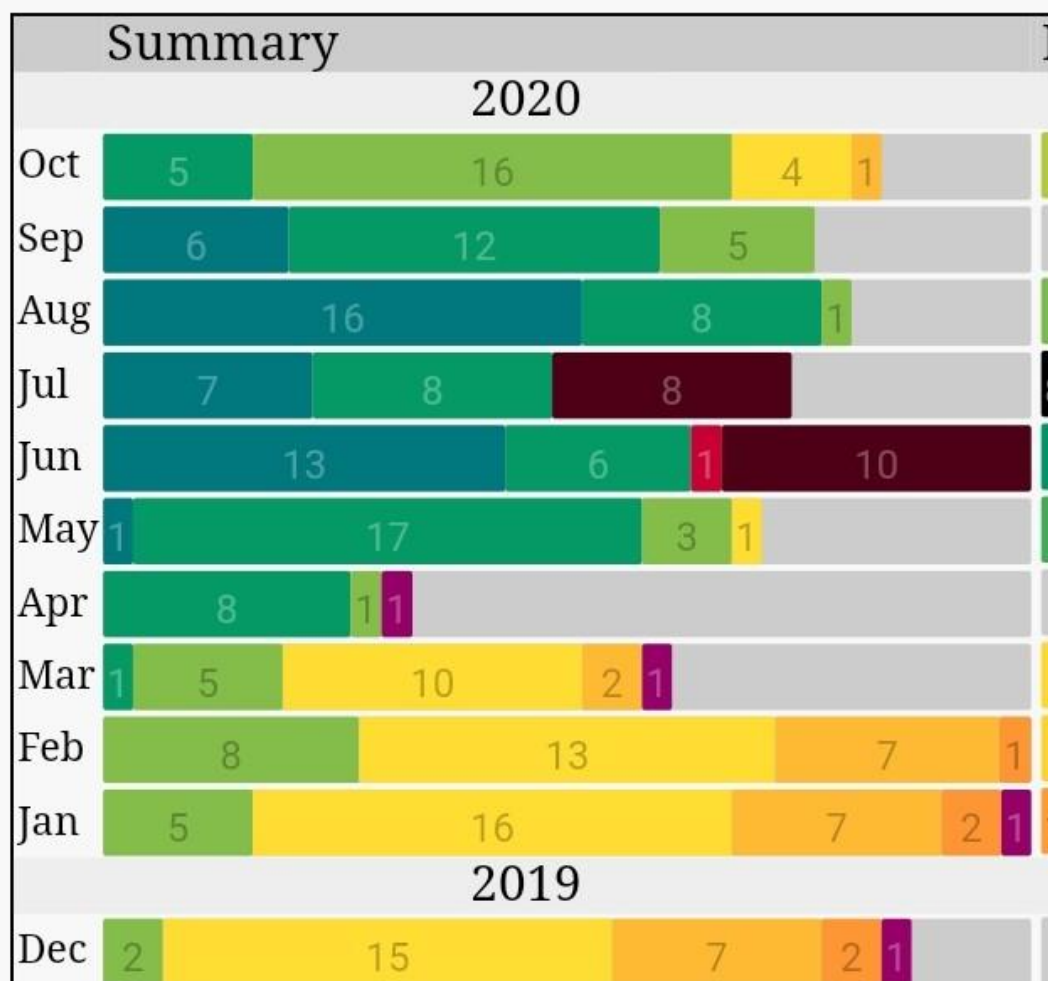
5.2. Table-2: Air Quality Annual PM 2.5



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

5.3. Table-3: Air Quality Annual PM 10

PM _{2.5}	PM ₁₀	O ₃	NO ₂	SO ₂
		CO		

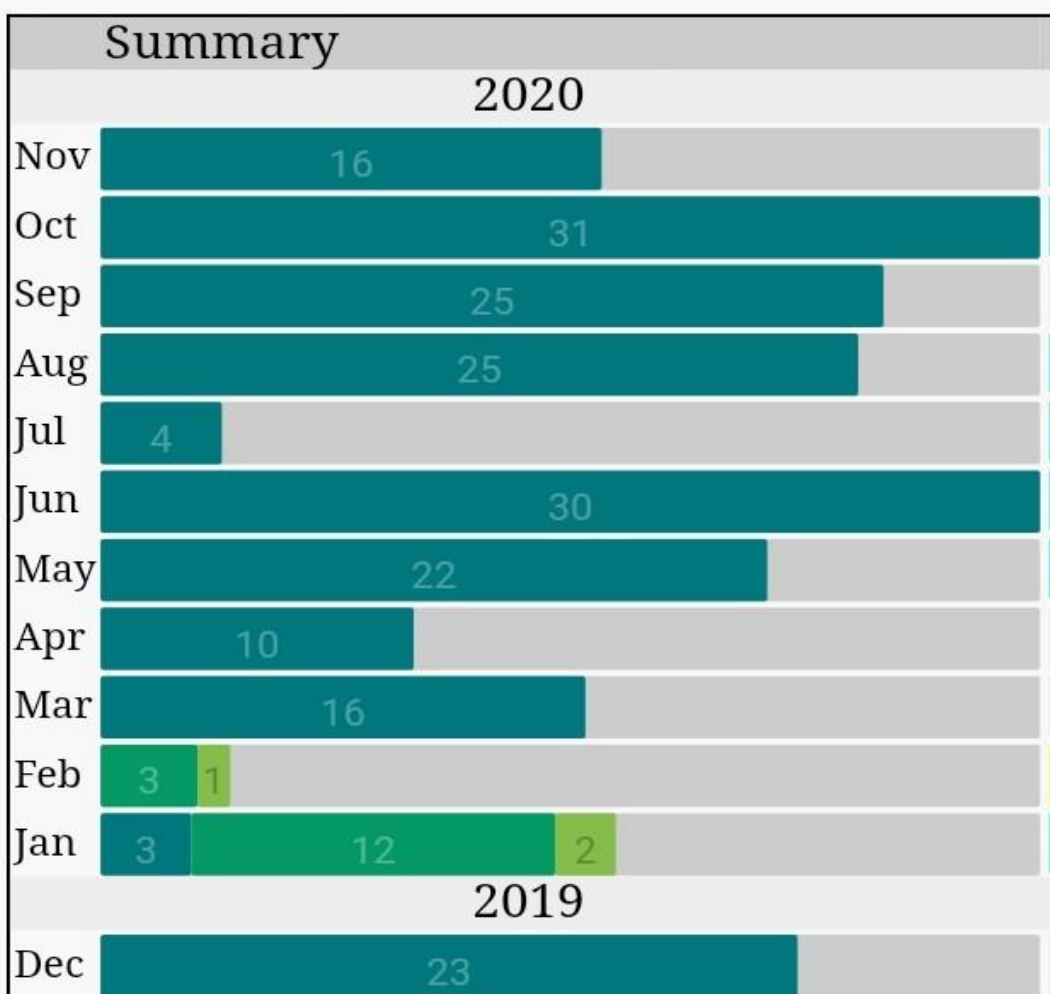


Note: the daily AQI is based on the 24 hours average of hourly readings.

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.

5.4 Table-4: Air Quality Annual O₃

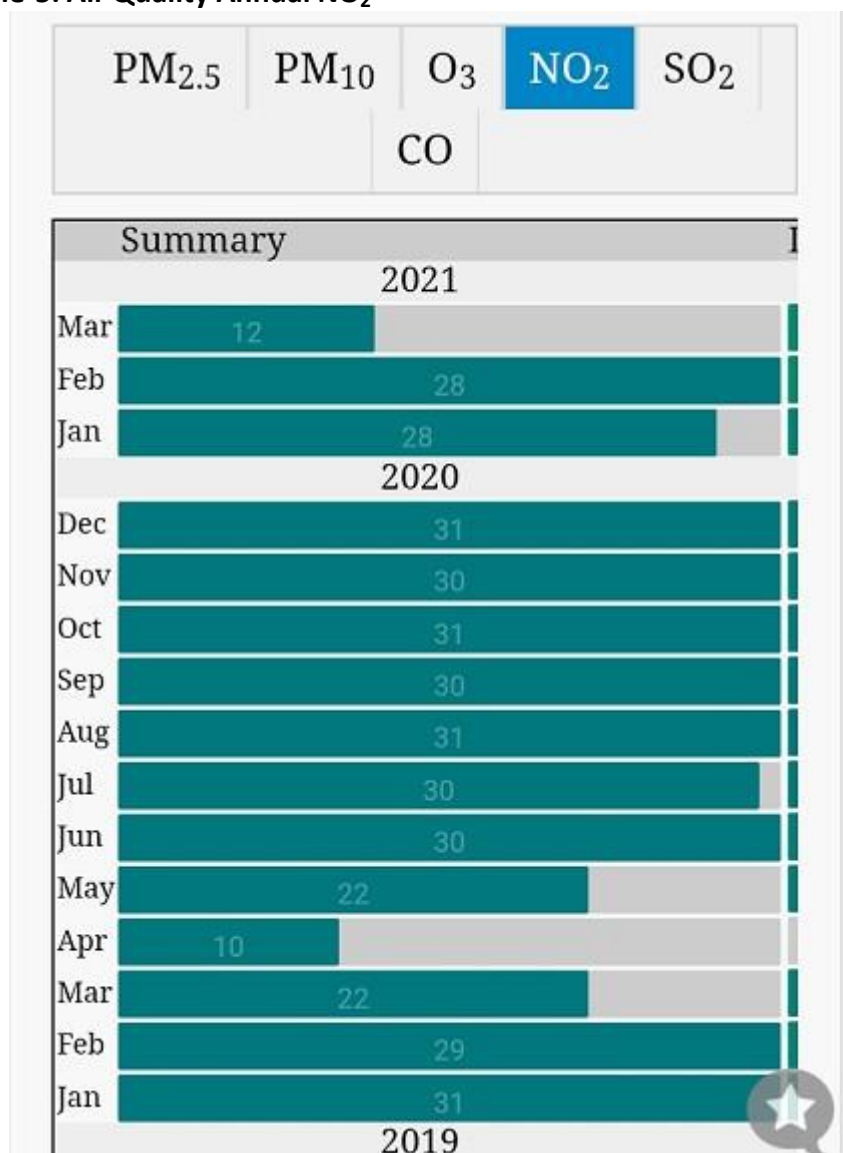
PM _{2.5}	PM ₁₀	O ₃	NO ₂	SO ₂
		CO		



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

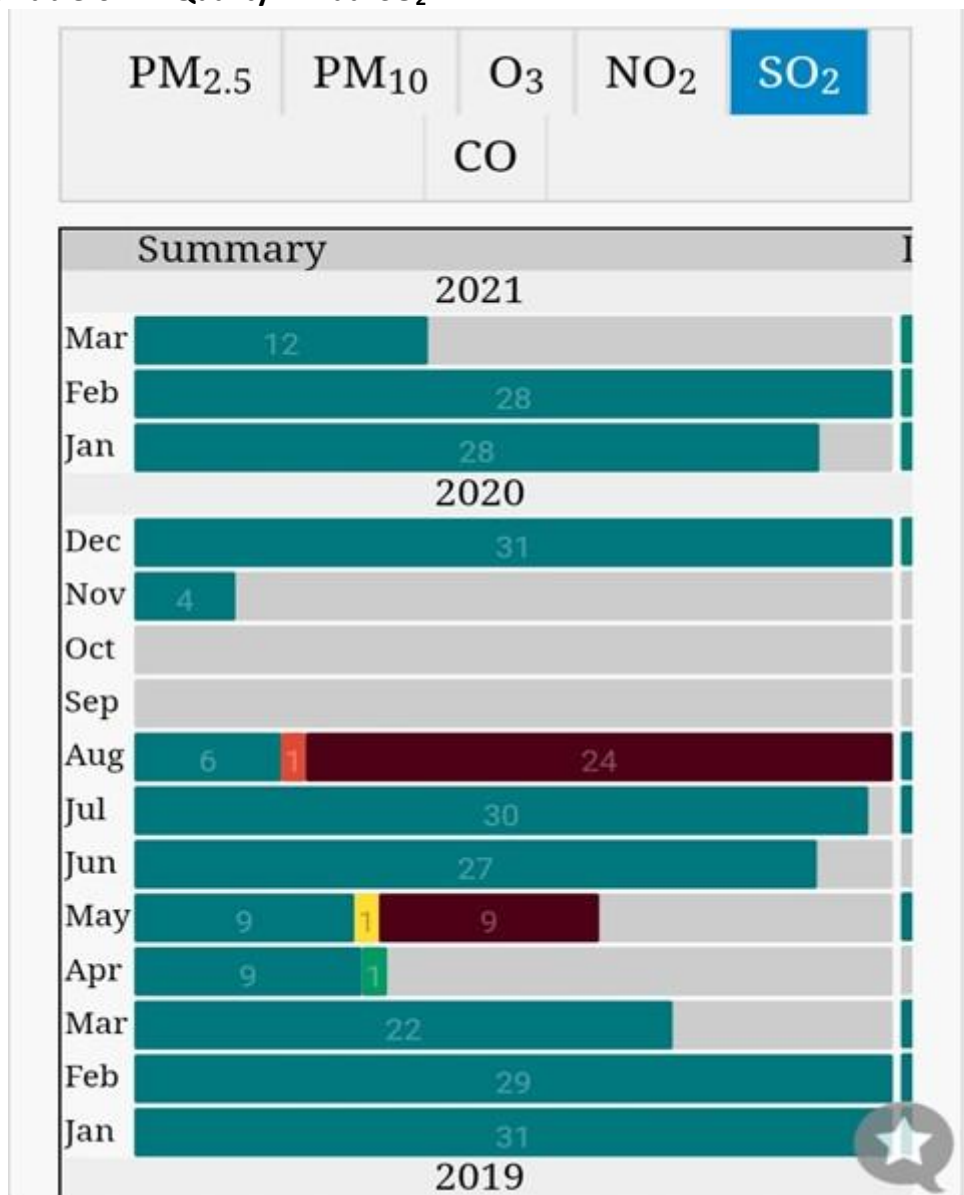
This table shows annual air quality level at O₃ (Ozone). Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.5 Table-5: Air Quality Annual NO₂



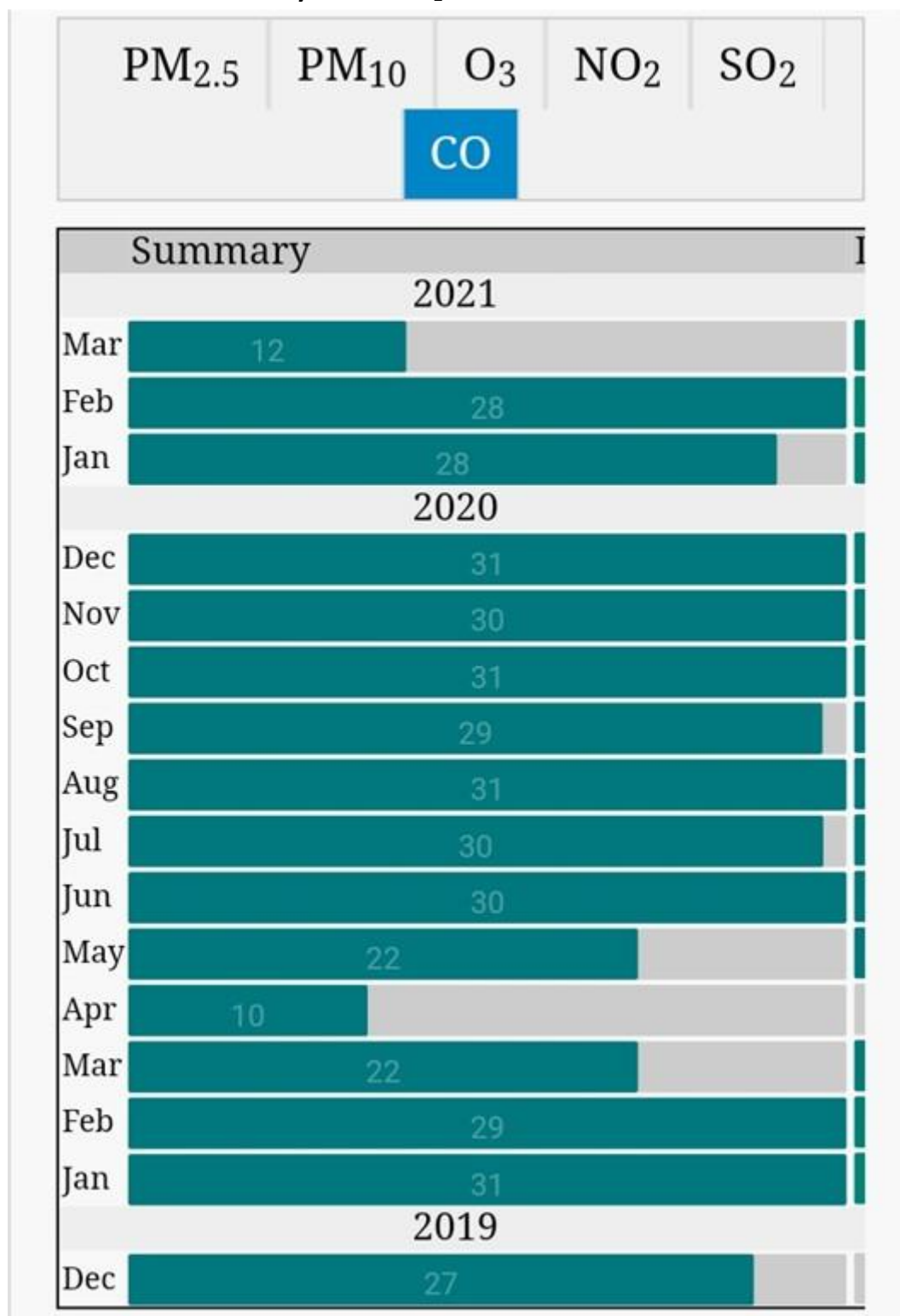
This table shows annual air quality level at NO₂ Nitrogen Di-Oxide. Different levels shown in different colors where numbers on colors show number of days with the same situation.

5.6 Table-6: Air Quality Annual SO₂



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

5.7 Table-7: Air Quality Annual CO₂



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.

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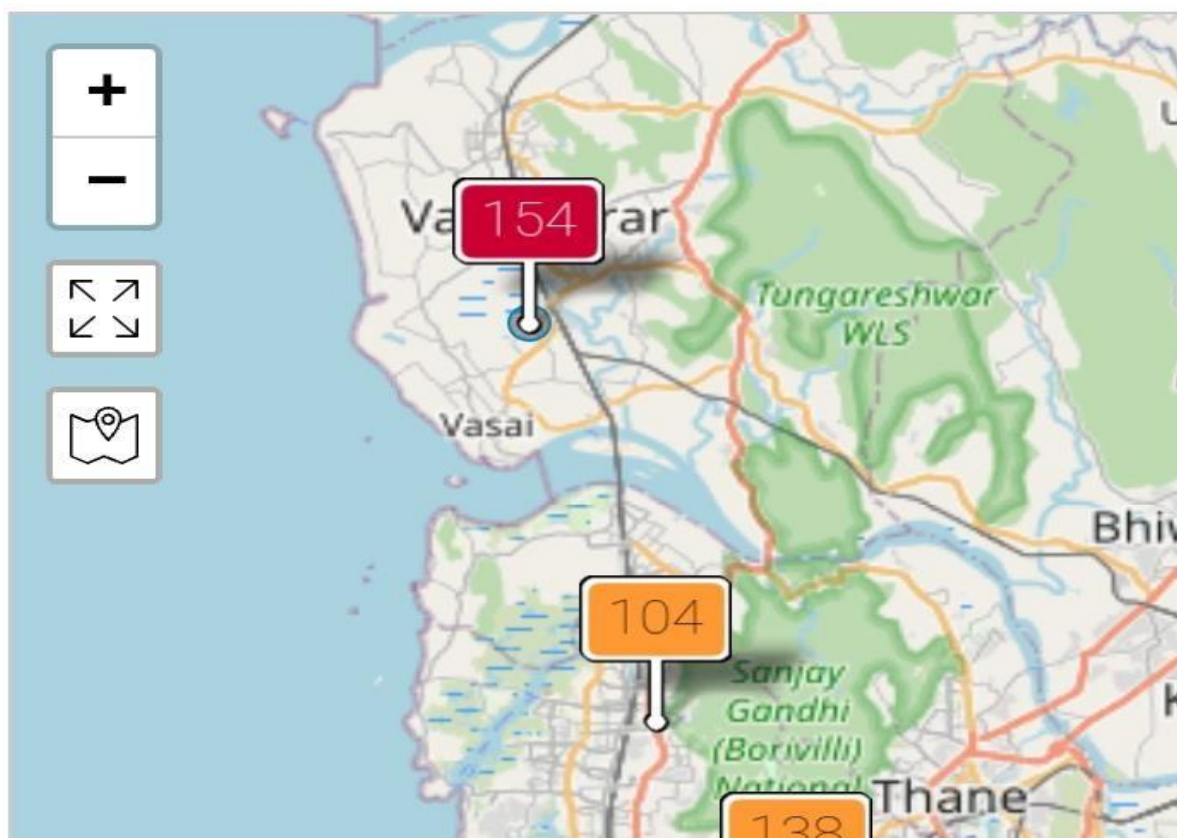
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Colour Codes of different levels of pollution are as follows

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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11:32

VoLTE 4G 88%

 **AirVisual**



Environments

Exposure

Today's PM2.5 exposure



2 May | Last update: 08:30

Home	12* µg/m³
Outdoor	20* µg/m³

Recommended health guideline: 5 µg/m³



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11:32

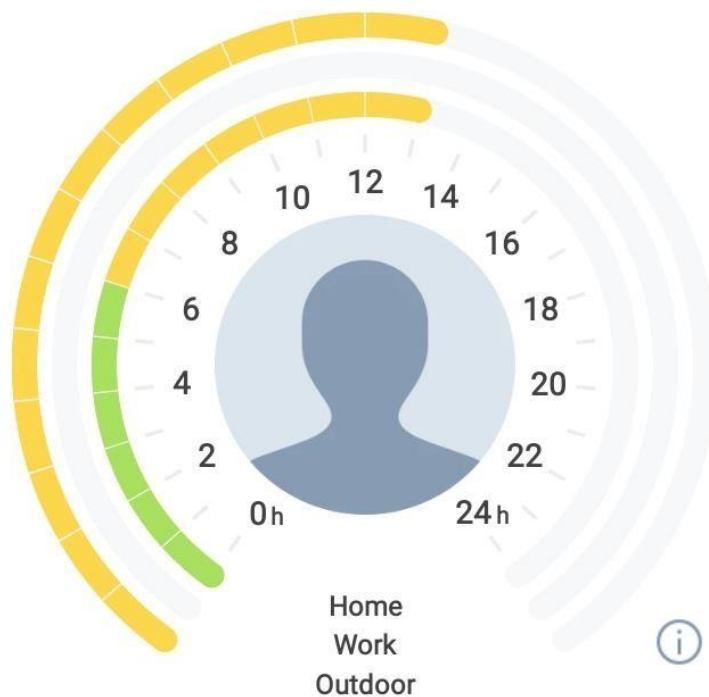
VoLTE 4G 88%

IQAir
AirVisual

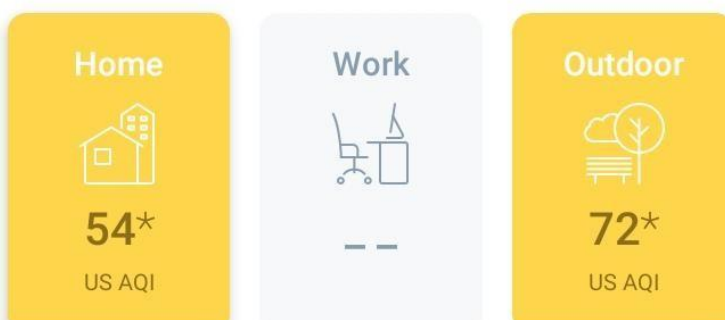


Environments

Exposure



2 May 2023



My Air



Map



Statistics



News & Ranking



Shop

Solar roof

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- 1, Borivali (W), Mumbai-400092.

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11:31



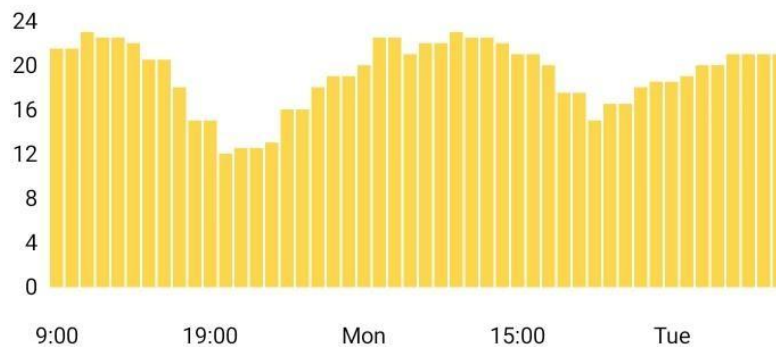
Virar



History

Hourly

Daily



USAQI

PM2.5



15.29K



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11:31

4G 88%

Places

Devices

11:00	12:00	13:00	14:00	15:00
51-100	51-100	51-100	51-100	51-100
30°	30°	30°	30°	30°
10.8 km/h	14.4 km/h	18 km/h	18 km/h	21.6 km/h

Tuesday 51-100 30° 27° 21.6 km/h

Wednesday 51-100 31° 26° 25.2 km/h

Thursday 51-100 31° 26° 21.6 km/h

Friday 51-100 31° 27° 25.2 km/h

Saturday 51-100 31° 27° 21.6 km/h

Sunday 51-100 31° 27° 21.6 km/h

Monday 51-100 31° 26° 18 km/h



My Air



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6 Meteorology

1. Weather/Meteorology Data:-

Virar, Palghar 401305

The following are the site co-ordinates.

Latitude: 19. 342761

Longitude: 72.808325

Average Altitude: 57 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.

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual</u>
 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	10:59	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

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.

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual</u>
 + 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

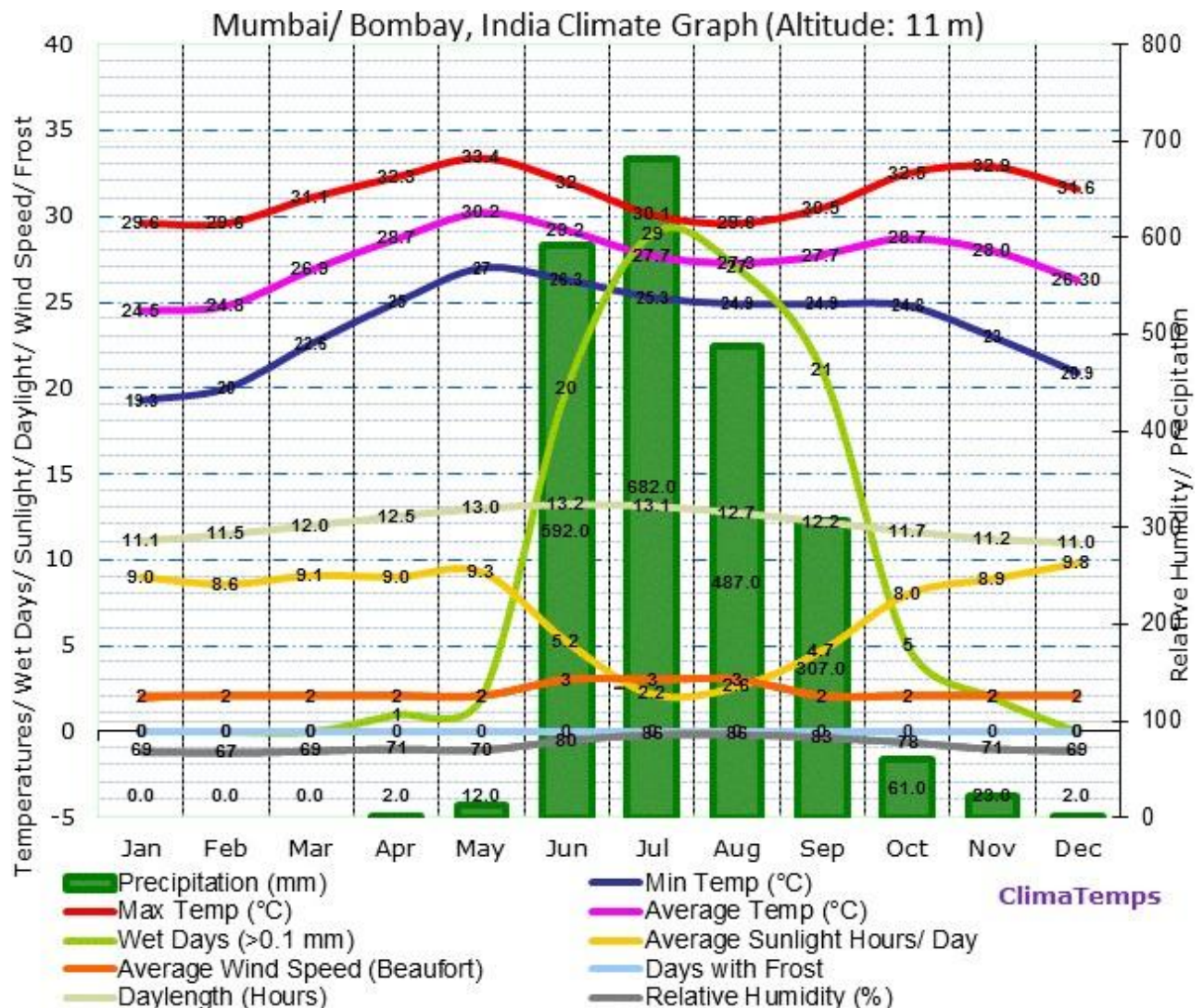
Relative Humidity

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

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Avg</u>
 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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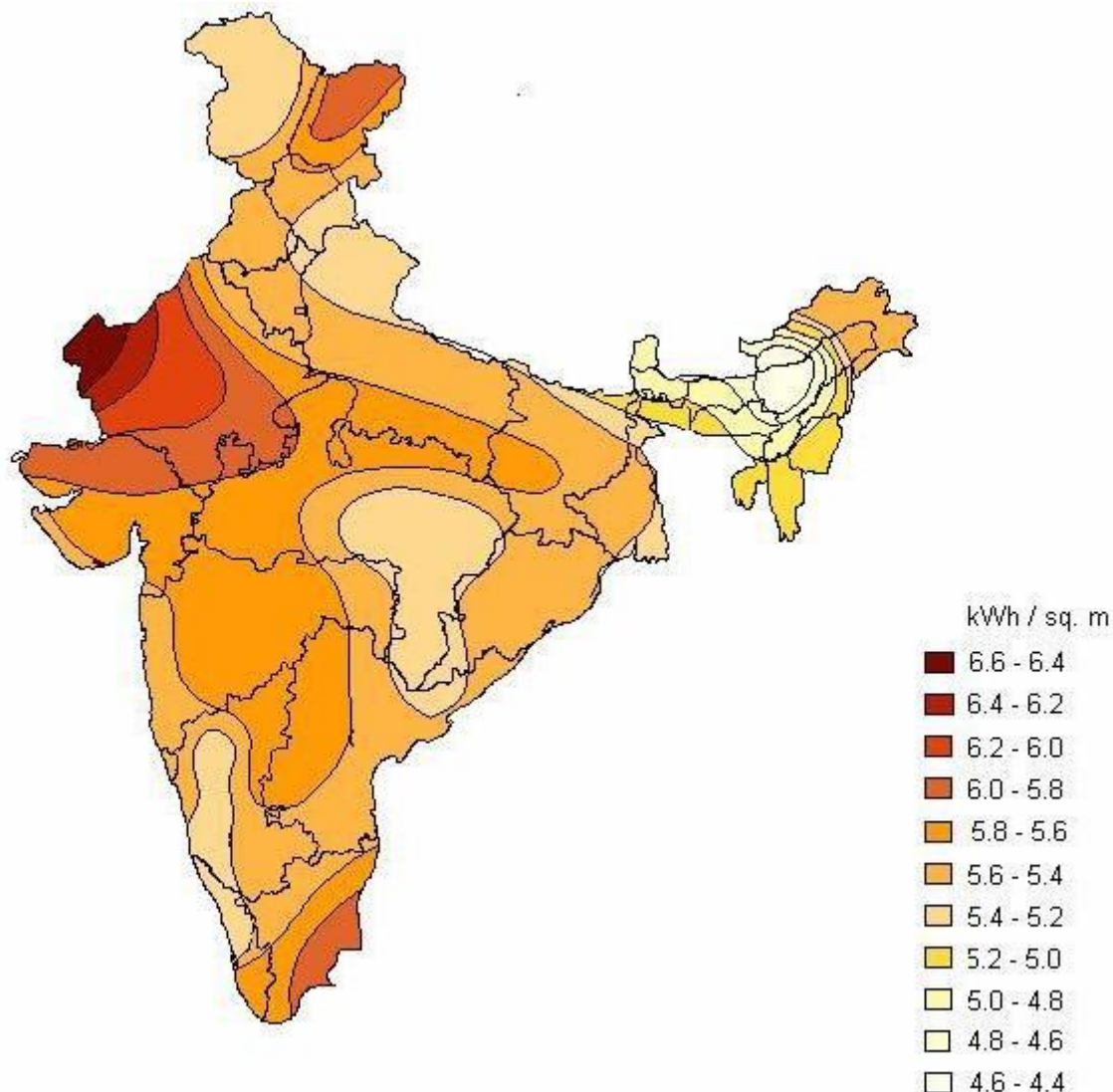
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Radiation Data



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

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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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

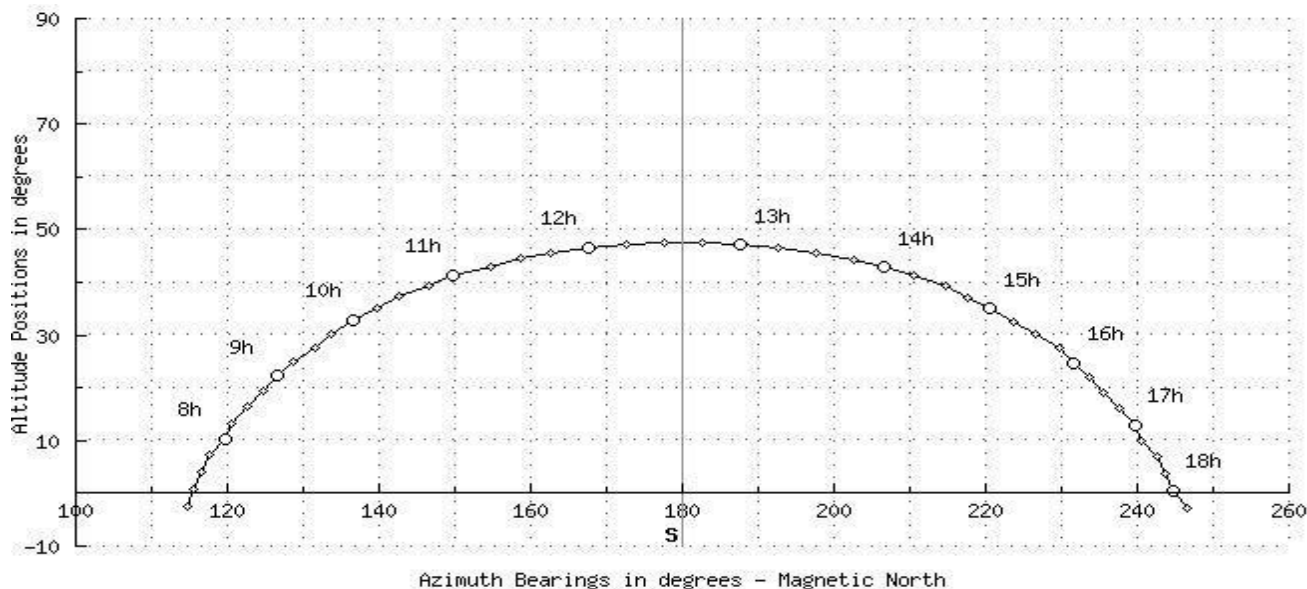
Thursday, 21st December 2020

	Az'	Alt'	*Shadow		Az'	Alt'	*Shadow		Az'	Alt'	*Shadow		Az'	Alt'	*Shadow
07:00	115°	-2°	-	10:00	137°	33°	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		198°	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°	41°	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°

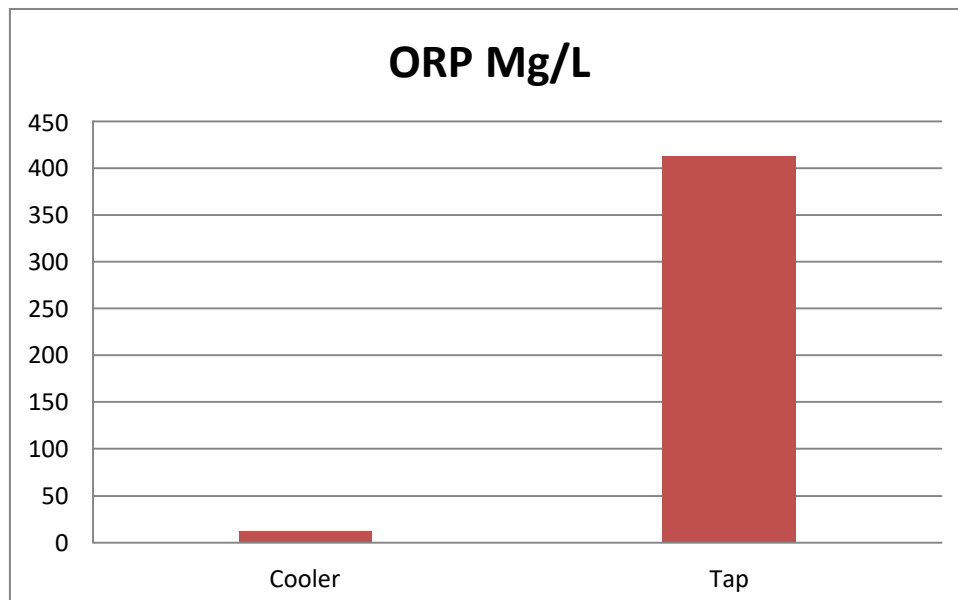
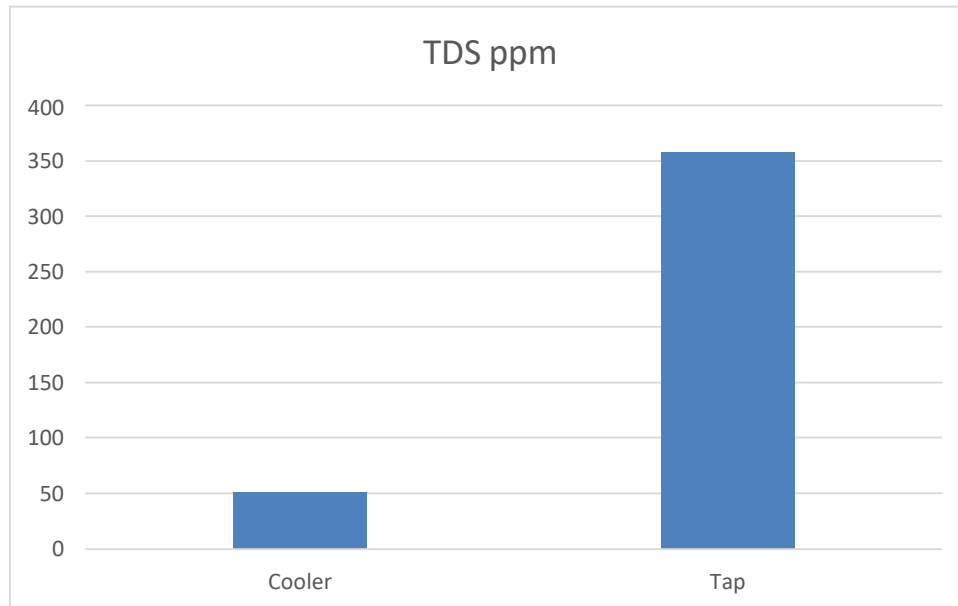
Sunset: 18:05 - Az' 245.6°



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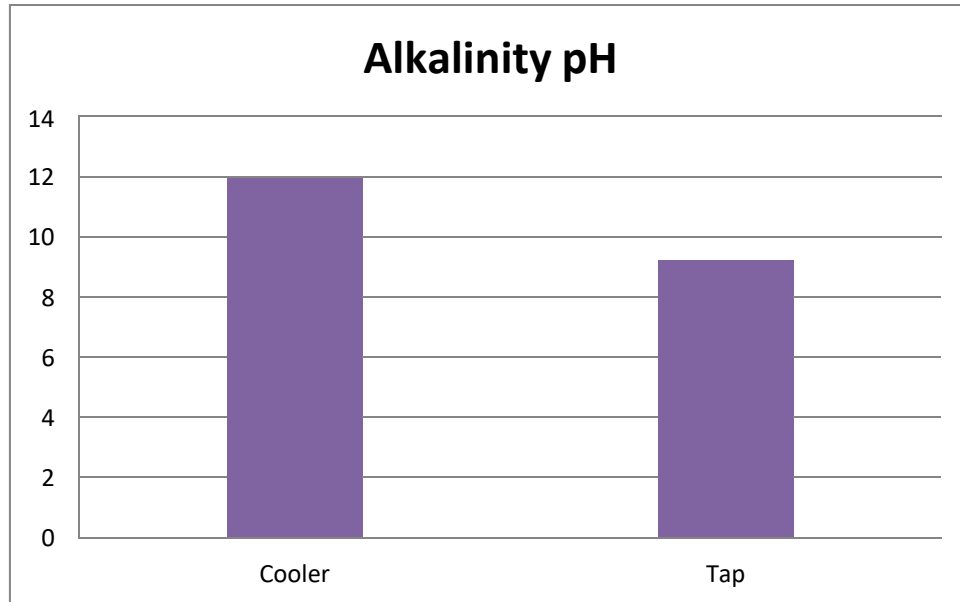
7 Water

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



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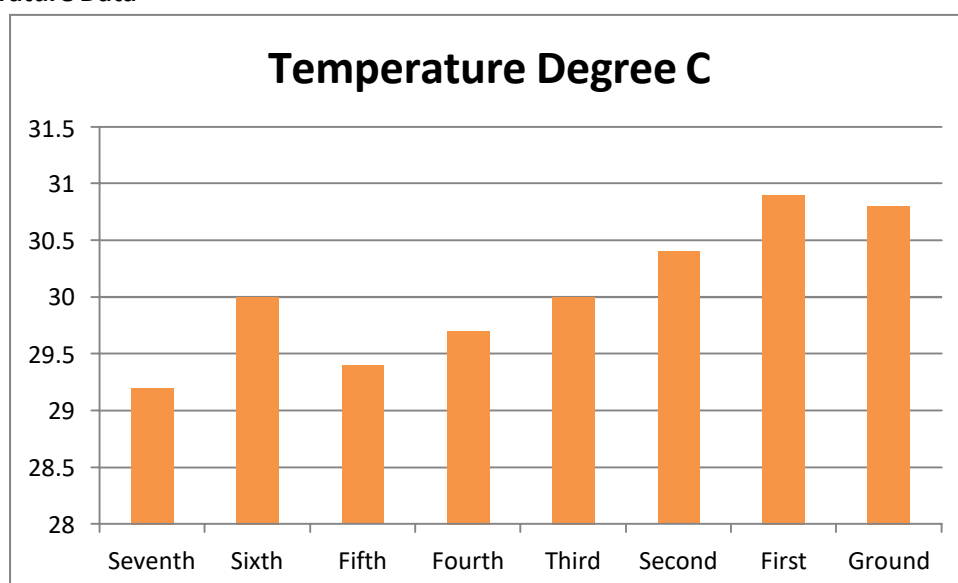


8 Atmosphere (Temperature, Humidity and Noise)

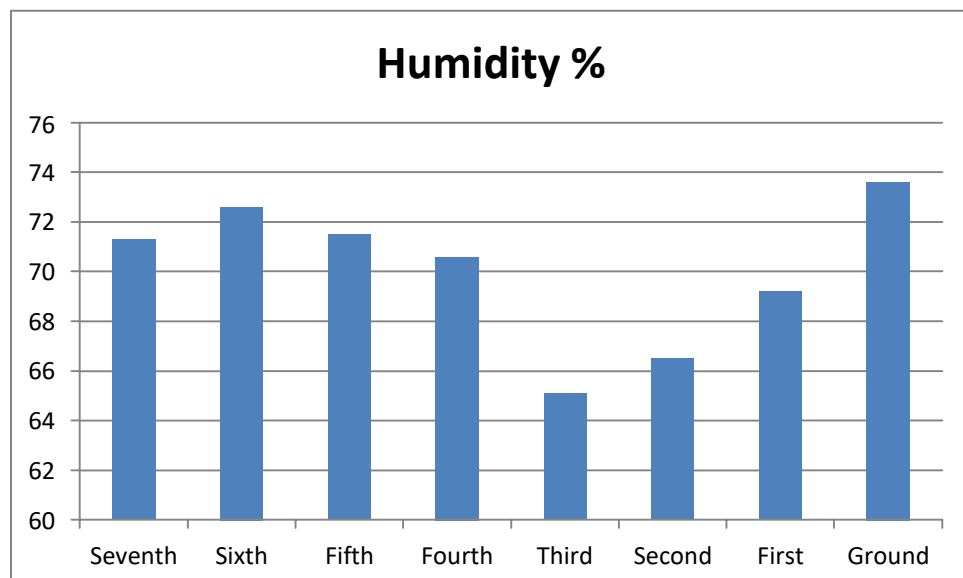
Building	Floor	Temperature	Humidity	Noise
		Degree C	%	dB
One	Seventh	29.2	71.3	58
One	Sixth	30	72.6	59
One	Fifth	29.4	71.5	59
One	Fourth	29.7	70.6	67
One	Third	30	65.1	49
One	Second	30.4	66.5	49
One	First	30.9	69.2	47
One	Ground	30.8	73.6	57

Charts

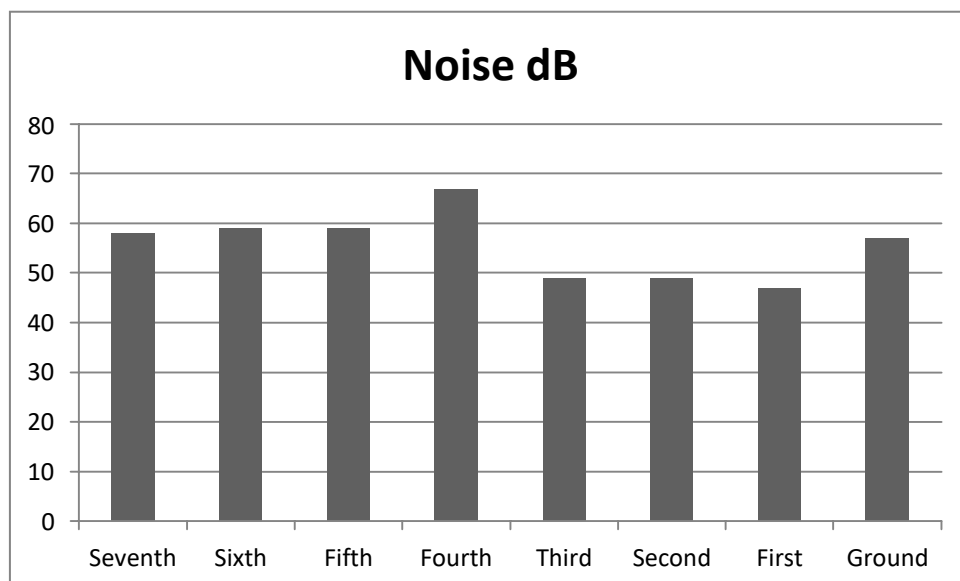
Temperature Data



Humidity Data

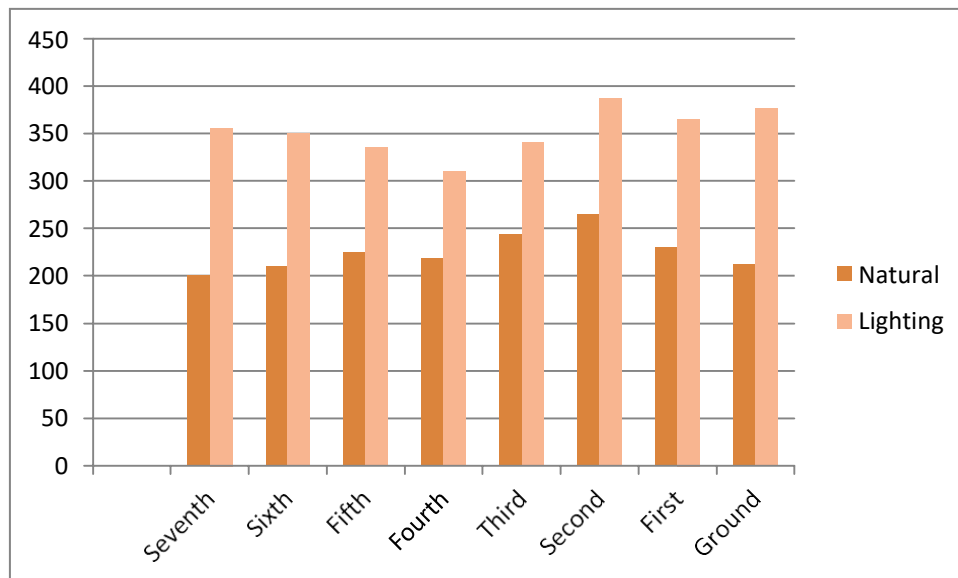


Noise Data



9 Illumination

Building	Floor	Natural	Lighting
One	Seventh	200	356
One	Sixth	210	350
One	Fifth	225	335
One	Fourth	218	310
One	Third	244	340
One	Second	265	387
One	First	230	365
One	Ground	212	376



10 Energy Audit

10.4 Electrical Energy System

CA No	Meter No	Sanctioned Load	DISCOM	Phase
001521417435	055-MHD07133	68 KW	MSEDCL	Three

10.5 Electrical Bill Analysis

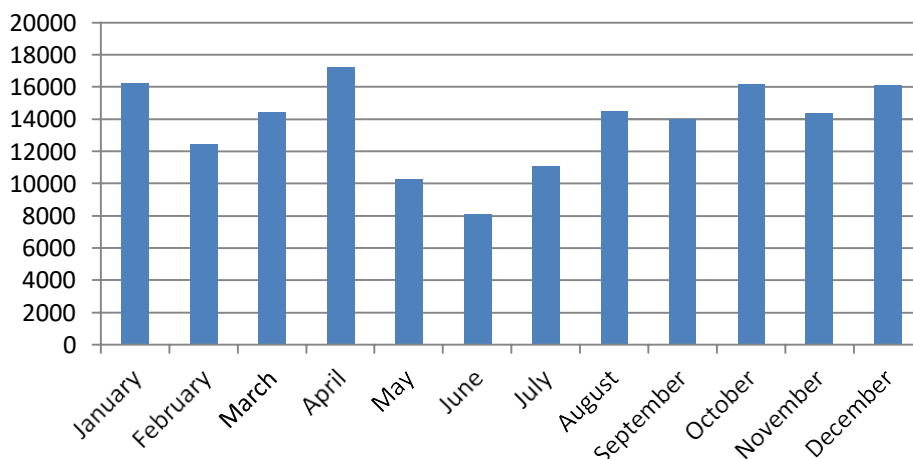
Billing Summary			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	16271	234977	14.44
February	12442	167033	13.42
March	14440	204780	14.18
April	17255	238403	13.82
May	10273	129994	12.65
June	8100	100835	12.45
July	11056	156312	14.14
August	14478	196323	13.56
September	14009	195949	13.99
October	16174	230732	14.27
November	14400	232703	16.16
December	16100	226470	14.07

Head	Value	Remark
Sanctioned Demand	68KVA	Benchmark
Recorded Maximum Demand	82KVA	Over Limit
Power Factor	0.990	Low

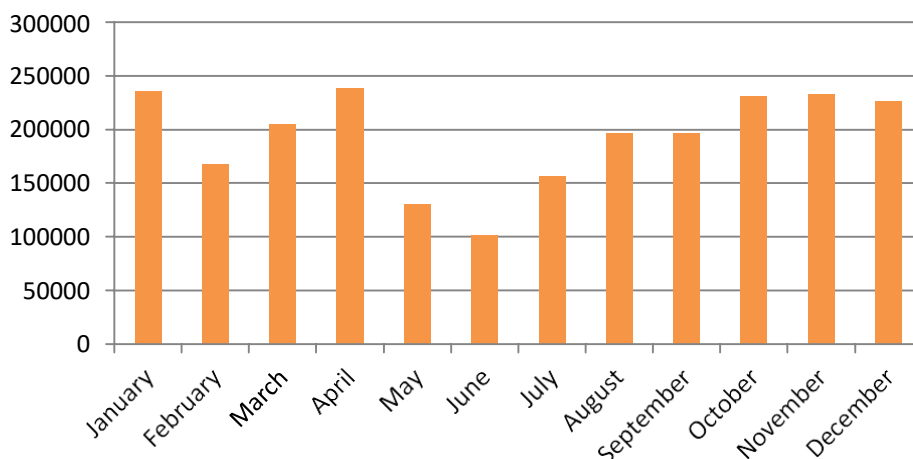
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Billing Summary Consumption



Billing Summary Expenses



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10.6 Consumption Scenario

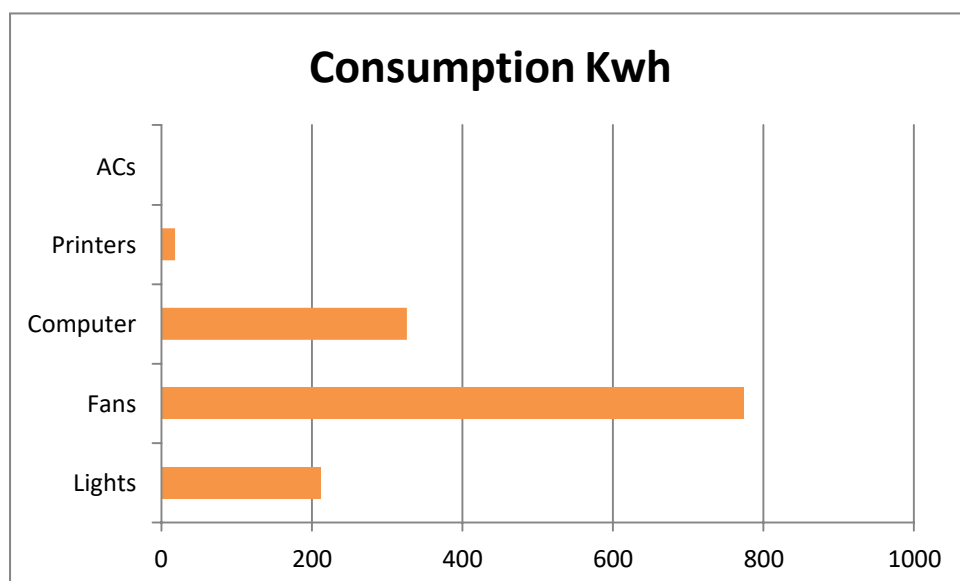
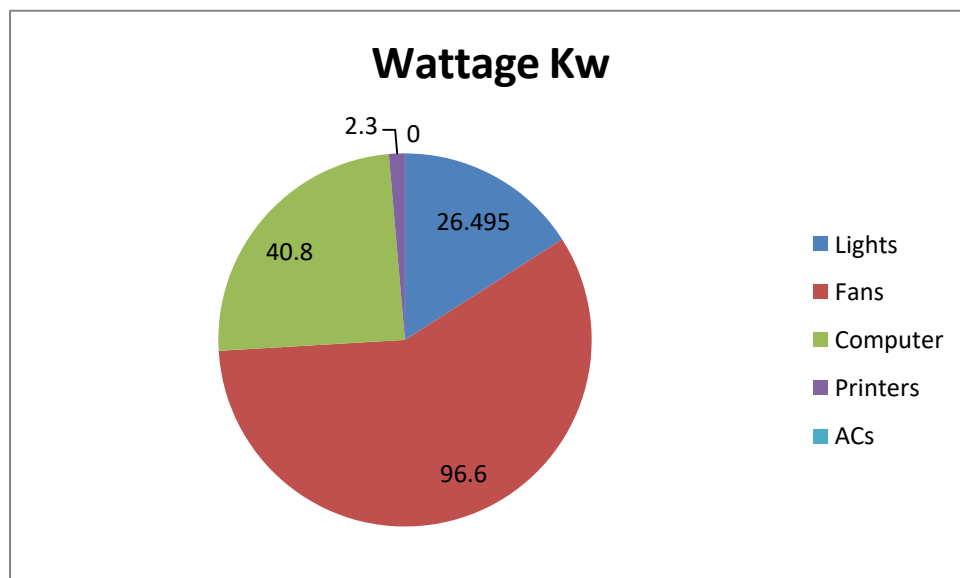
Summary	Usage (Kwh)	Payment (Rs)	Duration
Total	164998	2314511	Annual
Min	8100	100835	June
Max	17255	238403	April
Average	13750	192875.9	Annual

10.7 Assessment of Major Loads

SL No	Floor	Room No	Room Name	Lights	Fans	Computer	Printers	ACs	Daily working hours
1	Ground	13	Class rooms/ Labs	110	111	272	23	0	8
2	First	26	Class rooms/ Labs	96	119				
3	Second	22	Class rooms/ Labs	118	224				
4	Third	22	Class rooms/ Labs	98	156				
5	Fourth	22	Class rooms/ Labs	122	240				
6	Fifth	6	Class rooms/ Labs	120	232				
6	Sixth	6	Class rooms/ Labs	48	104				
7	Seventh	6	Class rooms/ Labs	45	102				

Loads	Measures	Lights	Fans	Computer	Printers	ACs
Quantity	Nos	757	1288	272	23	0
Wattage	Kw	26.495	96.6	40.8	2.3	0
Consumption	Kwh	211.96	772.8	326.4	18.4	0

Percentage Share



10.8 Use of Renewable Energy System

Not Available

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?	Yes	
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	Yes	
9)	Existence of non standardized tube lights/CFLs/Bulbs and TL starters and chokes	Yes	CFL
10)	Dampness in walls and ceiling	Yes	
11)	Loose switches/plugs	Yes	
12)	Naked wiring or connections	Yes	
13)	All Electrical cables/wiring are in conduits and are protected by a fire proof insulation	No	
14)	Seepage /Leakage of water in walls or on and around electrical installations	Yes	
15)	Whether connection to each AC is provided through an individual MCB of appropriate rating & of standard make and ISI approved.	NA	
16)	Whether there are frequent tripping due to overloads ?	No	

11.2 Safety Survey:

- 11.2.1 Actual Cable Size (at meter): 3.5X185 Sqmm
- 11.2.2 Year of Installation: 2000
- 11.2.3 Actual Available Cut-out Size: 400A
- 11.2.4 Year of Installation: 2009
- 11.2.5 Actual Required ELCB Size: **Present at Branches but many bypassed**
- 11.2.6 Meter Cabin Condition: **Bad**
- 11.2.7 Availability of Fire extinguisher/ Sand Buckets: **NO Sand Buckets**
- 11.2.8 Water proofing/Seepage: Minor seepage
- 11.2.9 Damages/Tampering: **YES**
- 11.2.10 Adequacy in connections/Termination/Joints: **NO**
- 11.2.11 Ease of accessibility: **NO**
- 11.2.12 Danger Signs: **NO**
- 11.2.13 Smoke detectors : **NO**
- 11.2.14 Alarm system: Yes
- 11.2.15 Emergency Entry/Exit door: **NO**
- 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: **Bad Condition**
 - 11.2.21.1 Leakage: **YES**
 - 11.2.21.2 Damaged/tempered/cracks: **YES**
 - 11.2.21.3 Name plate: **No**
 - 11.2.21.4 Water logging possibility: **YES**
- 11.2.22 Physical Inspection of Power source : Average Condition
 - 11.2.22.1 Adequacy as per standards **No**
 - 11.2.22.2 Rusting of panel **Yes**
 - 11.2.22.3 Visible scaling **Yes**
 - 11.2.22.4 Scaled/ Unclean wires breakers **Yes**
 - 11.2.22.5 Wet / Dampness **NO**

11.3 IE/CEA Regulations compatibility

- ☐ Regulation-3 : Registers of Designated Persons made: **NO**
- ☐ Regulation-12:
 - a. Visible sign of overload: **NO**
 - b. Unauthorized/temporary connection: **NO (work in progress)**
 - c. Supply Lines & Equipments installed properly: **YES**
 - d. General remark: **Satisfactory**
- ☐ Regulation-13: Condition of Service line, cable, wires, Etc.: **Satisfactory**
- ☐ Regulation-14: Suitable Cut-outs/MCBs Provided: **YES**
- ☐ Regulation-15:
 - a. Switches on live conductor: **YES**
 - b. Color code: **YES**
 - c. Direct Line of Neutral: **YES**
- ☐ Regulation-16:
 - a. Earth Terminal By Supplier: **Satisfactory**
 - b. General Condition of Earthing: **Satisfactory**
- ☐ Regulation-17:
 - a. Inaccessible Bare wire/cable: **NO**
 - b. Readily accessible switches : **YES**
- ☐ Regulation-18: Danger Notices in Hindi & Local language: **NO**
- ☐ Regulation-19:
 - a. Availability of Floor mats: **NO**
 - b. Identification of Panel Front & Back: **NO**
- ☐ Regulation-21: Cables heavily insulated & mechanically protected for portable instruments: **NO**
- ☐ Regulation-22: Condition of Mechanical covering: **Not Satisfactory**
- ☐ Regulation-24: Permanent Voltage level indication for different levels: **NO**
- ☐ Regulation-26: Accidental Charging possibility beyond level: **NO**
- ☐ Regulation-27:
 - a. Fire Buckets: **NO**
 - b. First Aid Box: **NO**
 - c. First Aid Training: **NO**
- ☐ Regulation-28:
 - a. Electrical Shock Notices in Hindi & Local language: **NO**
 - b. Designated Person for resuscitation from Shock: **NO**
- ☐ Regulation-34: Insulation Resistance: **NA**
- ☐ Regulation-35:
 - a. Breaker at Point of Supply to Isolate the supply: **YES**
 - b. Every Circuit is Protected with suitable Breaker: **YES**
 - c. Breaker at Point of Supply for motor: **YES**
 - d. Precautions taken to ensure no live part exposed: **YES**
- ☐ Regulation-37:
 - a. 100cm Space in front of Panel: **YES**
 - b. 20cm to 75cm Space behind Panel: **YES**



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c. Passage way from either end of 1.8 Meter height: **YES**

☐ Regulation-41:

a. Generator Earthing (2 Nos): **NO**

b. Metallic Frames Earthing: **NO**

c. Consumer Electrode Test: **Not Satisfactory**

d. Mechanical damage to Earth conductor: **NO**

e. Record of Earth resistance Maintained: **NO**

☐ Regulation-42: ELCB/RCCB Provision: **NO**

Critical safety Parameters:



Old Conduit and Hanging wire



Improper Earthing



Damaged Equipment

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Rusted & Burned Risky Installations



In-accessible switchgear



Old Risky Installations

12 Wastage Types and Management

SL No	Wastage Type	Quantity	Action
1	Biomass	8-10Kg per day (as discussed)	ZERO WASTE
2	Paper	10-20Kg approx. per month	ZERO WASTE
3	Water	100-500Ltrs approx. per year due to leakage	Not considered
4	E-Waste	Un-quantified	ZERO WASTE
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	ZERO WASTE
10	Man-Hours	NIL	NIL

Best Practices

1. College runs ZERO WASTE with Municipal corporation (Certificate attached)
2. College Implemented Solar Water Heater system for captive consumption.
3. College Implemented Rain Water Harvesting system for captive consumption.
4. Fix all taps, replace old pipelines, use Teflon tapes on ties, and use sealants for joints to avoid leakage (point no.3).
5. 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).
6. Update SOP of cleaning with statement "Switch OFF Fans after 5 Minutes once room is cleaned". (point no.6)
7. Fix a Notice on Back-side of Exit Door of Room-"SWITCH OFF all electrical equipments and Taps". (point no.8 and 6)
8. In present scenario observed there is no any recycling procedure is thought, documented or observed in premises.
9. Recycling of one side used papers to be observed.
10. Prepare and observed a Generalized SOP having attributes specialize on each type of wastage and it's re-usage and/or recycling.

13 Environment Impact on Natural resources

13.1 Table-1: Overall

Environmental Impact Analysis Report		
Annual Consumption	164998	KWh
Annual Green- Impact		
Co2 Generated	905304	Kg
Coal Burned	822880.8	Kg
Diesel Burned	436099.8	Ltr
Natural Gas Burned	16638902	Cub Ft
Trees Cut	41211.6	Nos
Water Consumed	2968361.2	Ltr
Life Time Green- Impact		
Co2 Generated	16483514	Kg
Coal Burned	47318461	Kg
Diesel Burned	7941340.2	Ltr
Natural Gas Burned	302994439	Cub Ft
Trees Cut	750479	Nos
Water Consumed	54053855.2	Ltr

13.2 Table-2: Occupational Area Based

Environmental Impact Analysis Report		
Annual Consumption	164998	KWh
Annual Green- Impact		
Co2 Generated	9.43	Kg
Coal Burned	8.57	Kg
Diesel Burned	4.54	Ltr
Natural Gas Burned	173.32	Cub Ft
Trees Cut	0.43	Nos
Water Consumed	30.92	Ltr
Life Time Green- Impact		
Co2 Generated	171.70	Kg
Coal Burned	492.90	Kg
Diesel Burned	82.72	Ltr
Natural Gas Burned	3156.19	Cub Ft
Trees Cut	7.82	Nos
Water Consumed	563.06	Ltr

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13.3 Table-3: Footfall Based

Environmental Impact Analysis Report		
Annual Consumption	164998	KWh
Annual Green- Impact		
Co2 Generated	226.33	Kg
Coal Burned	205.72	Kg
Diesel Burned	109.02	Ltr
Natural Gas Burned	4159.73	Cub Ft
Trees Cut	10.30	Nos
Water Consumed	742.09	Ltr
Life Time Green- Impact		
Co2 Generated	4120.88	Kg
Coal Burned	11829.62	Kg
Diesel Burned	1985.34	Ltr
Natural Gas Burned	75748.61	Cub Ft
Trees Cut	187.62	Nos
Water Consumed	13513.46	Ltr

13.4 Table-4: Carbon Footprints

Head	General	Per Square Foot	Per Person
Per Year	905304	9.43	226.33
Lifetime (20Years)	16483514	171.70	4120.88

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)

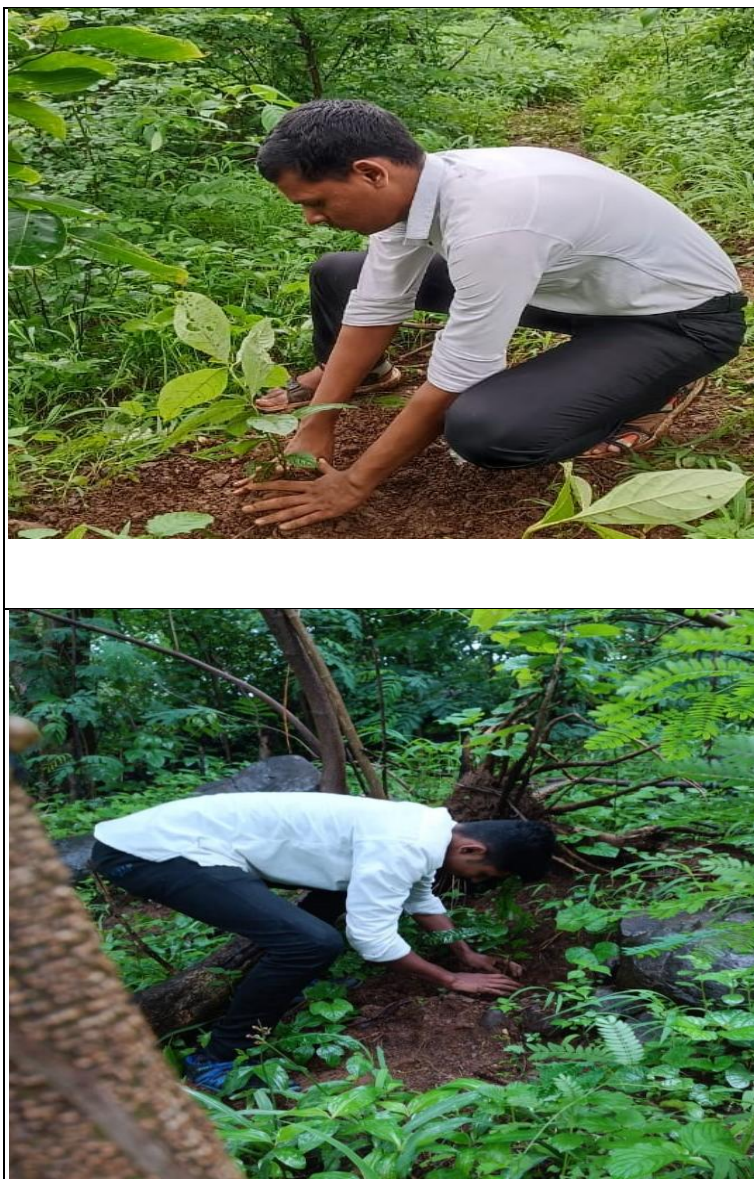
Carbon Footprint found best category.



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Plantation Drive:



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Safe and Waste Free Environment Drive:





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Greenery in Campus



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

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

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Facilities and Infrastructure



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IT LAB



LABORATORY



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PHYSICS LAB



LIBRARY





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Solar System



Rain water Harvesting



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Fire Safety



FIRE EXTINGUISHER



GENERATOR



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Waste Management Excellence

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ता. वसई, जि. पालघर, पिन ४०१ ३०५.

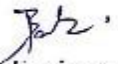


दूरध्वनी : ०२५०-२५२५१०१/०२/०३/०४/०५/०६
फॅक्स : ०२५०-२५२५१०७
ई-मेल : vasaivirarcorporation@yahoo.com

जा.क्र. : वसई/वि.म./०३८८/२०२३
दिनांक :- १६/०३/२०२३

TO WHOMSOEVER IT MAY CONCERN

This is to Certify that Late Shri Vishnu Waman Thakur Charitable Trust's Bhaskar Waman Thakur College of Science, Yashwant Keshav Patil College of Commerce, Vidhya Dayanand Patil College of Arts (Wings A & B) Situated on land bearing S.No.88A, S.No.369B H.No.3 & 4, Village Bolinj, Virar (w) Tal. Vasai, Dist. Palghar, has sewage disposal system in the campus.


Dy. Engineer
VVCMC


Executive Engineer
VVCMC

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ता. वसई, जि. पालघर - ४०१ ३०५.



दफ्तरी : ०२५० - २५२५१०९ / ०२/०३/०४/०५/०६

फैक्स : ०२५० - २५२५१०९

ई-मेल : vasavirarcorporation@yahoo.com

जाचक क्र. : व.वि.श.प./अको/१२२/२३-२४

दिनांक : १२/०२/१८

Zero Waste certificate

This is to certify that Viva College, located in Virar, has demonstrated exemplary commitment and efforts towards achieving zero waste within its campus premises. Viva College has established a sustainable waste management system in collaboration with the Vasai Virar Municipal Corporation for waste recycling.

The partnership between Viva College and the Vasai Virar Municipal Corporation has facilitated the efficient collection and recycling of waste generated within the college premises. Through dedicated initiatives and conscientious practices, Viva College has successfully minimized its environmental footprint and contributed significantly to the promotion of sustainable living.

Viva College has consistently adhered to the principles of reduce, reuse, and recycle, thereby ensuring that waste materials are managed in an environmentally responsible manner. By fostering a culture of waste segregation, recycling, and resource conservation, Viva College has set a commendable example for other educational institutions and the community at large.

In recognition of these commendable efforts and achievements, the Vasai Virar Municipal Corporation hereby awards this Zero Waste Certificate to Viva College, affirming its status as a leader in sustainable waste management practices.



(Signature)
(Shashikant Patil)

Assistant Municipal Commissioner
Ward A

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 is 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. To maintain green and eco-friendly college campus, more trees need to be planted. A thick green belt development along the fence is strongly recommended. The plant diversity shall be maintained. The plant species that are found suitable are suggested for plantation and greenbelt development. In addition to above, some flowering plants, shrubs, herbs and climber plant species suggested for beautification in the college campus.
8. Arrange Exhibitions and identification programs for students and locals to understand medicinal plants.
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. Emergency evacuation plan to be prepared and displayed at centre place.
11. Generate awareness among user about environment conservation.
12. Prepare and observe SOPs for the same.
13. Use energy efficient Lighting.
14. Use Energy efficient fans.
15. Keep AC temperature to 26⁰ C.
16. Clean Luminaries, Fans, ACs regularly to increase efficiency.
17. Prepare and observe SOPs for maintenance of equipments.
18. Avoid Draft printing, use email/Whatsapp maximum.
19. Following tests are to be conducted at-least annually
 - Earthing
 - Lightning Arrestor



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

20. Safety Precautions

- a. Prepare and Display SLD of Installation
- b. Install New Earth pits and conductors.
- c. Replace all DBs and Feeders
- d. Install Sand Buckets, Insulation Mats in meter cabin and panel room
- e. Install IOT based Energy Monitoring system

21. 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. Rs. 40,000 per month.
- C. Manage Power Factor to appropriate limit will save approximately Rs. 5,000 per month.
- D. 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).
- E. Manage Power Demand to appropriate limit will save approximately Rs. 15,000 per month.



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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 “VIVA Degree College, Virar East, At & Post Virar, Dist. Palghar 401305”. Please study it thoroughly and implement recommendations and suggestions at earliest.