



Panchakshri Shivacharya Trust's
CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)

Kava Road, Basweshwar Chowk, Latur-413512 (Maharashtra) Tel./Fax :- (02382) 243855

DTE Code :- 2253, University Code :- 947, MSBTE Code :- 2041

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Approved by:- Govt. of Maharashtra, PCI, New Delhi, Affiliated to:- S.R.T.M. University, Nanded, MSBTE, Mumbai.

DVV Clarification

7.1.3_4 Reports of the audits.

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Green and Energy Audit Report 2018-19 to 2022-23

Sr. No.	Content	Link
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2	Green Audit Report 2021-22	View Document
3	Green Audit Report 2020-21	View Document
4	Green Audit Report 2019-20	View Document
5	Green Audit Report 2018-19	View Document
6	Energy Audit Report 2022-23	View Document
7	Energy Audit Report 2021-22	View Document
8	Energy Audit Report 2020-21	View Document
9	Energy Audit Report 2019-20	View Document
10	Energy Audit Report 2018-19	View Document



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College (Degree), Latur

1. Green Audit Report 2022-23

Green Audit Report 2022-23

Channabasweshwar Pharmacy College (Degree), Latur

Green Audit Report (2022-23)



Panchakshari Shivacharya Trust

CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)

Basweshwar Chowk, Maharashtra Latur 413512 (Maharashtra)



Green Audit report Submitted by



KEDAR KHAMITKAR & ASSOCIATES

Energy Auditor Empanelled Mahaurja, Govt. of Maharashtra

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ACKNOWLEDGEMENT

We express our sincere gratitude to the management of Channabasweshwar Pharmacy College (Degree), Latur for awarding us the assignment of Green Audit of their Latur Campus.

We are thankful to: **Honorable Principal Dr. O. G. Bhunure Sir given opportunity to conduct audit.**

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.



Kedar
Kedar Khamitkar
Energy Auditor

Certified by Bureau of Energy Efficiency, Ministry of Power, Gov. of India
Empanelled Consultant MAHAURJA (Govt. of Maharashtra Institution)

प्रतिज्ञा

हम सत्यनिष्ठा से प्रतिज्ञा करते हैं कि अपने सभी कार्यों में पेट्रोलियम उत्पादों के संरक्षण हेतु सतत प्रयासरत रहेंगे, ताकि देश की प्रगति के लिए आवश्यक इन सीमित संसाधनों की आपूर्ति अधिक समय तक सम्भव हो सके। आदर्श नागरिक होने के नाते हम लोगों को पेट्रोलियम पदार्थों के व्यर्थ उपयोग से बचने तथा पर्यावरण संरक्षण हेतु स्वच्छ ईंधन का प्रयोग करने के लिए जागरूक करेंगे।



Dr. O. G. Bhunure
Principal
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EXECUTIVE SUMMARY:

Objective	Observation	Remarks / Recommendation
Green Cover - Plantation of Trees	Plantation of trees is started in the campus and the green cover is extended every year in the campus. At Present 16% area campus is having the Green cover.	It is recommended to increase the Green Cover Further.
Use of Renewable Energy	Institute has been installed 19 KW Solar Power Plant.	Good initiative for sustainability.
Water Conservation	Recommended to Install Sign Boards. Awareness for Water Conservation.	It is recommended to install taps with reduced water flow
Rain Water harvesting	Rainwater Harvesting has been installed.	Institute has been taken good initiative for water conservation



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Avoid Misuse/ wastage of water	RO water providing safe drinking water.	Waste water can used for Gardening.
	Encourage to reduce the water usage	Recommended Water Sprinkler system to save water.
Bio Waste Management	The Bio Waste – Food Waste generated in the campus is proposed to be feed stock for Bio Gas plant	Recommended for Bio gas plant.
Non Bio Waste	Non Bio Waste – Plastic Bottles / Paper Waste Metals waste is being collected in the dust bins placed across the campus.	It is proposed to install plastic bottle crusher, which can be sold as a Feed stock for the Plastic industry.
E Waste	E Waste – All Electronic Junk is generated in the campus in the form of Used Computer key boards/ Mouse/ CPU's/ Damaged Printers etc.	An agreement is in place with local Company to pick up the E waste every six month
Carbon Foot Print	Mostly staff commute in the Mahanagar Palika Buses -	Found Awareness in the Staff
Transportation	Mostly Students commute in the ST Bus from City / rural Areas	Found Awareness in the Students
	Mostly Students & Staff using EV Vehicles	Recommended to charge EV vehicles in day time between 9am to 3pm



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Chapter No.1 Scope of Work & Green Audit Methodology

Channabasweshwar Pharmacy College (Degree) , Latur entrusted the work of conducting a detailed Green Audit of campus with the main objectives are as bellows:

Objectives of Green Audit:

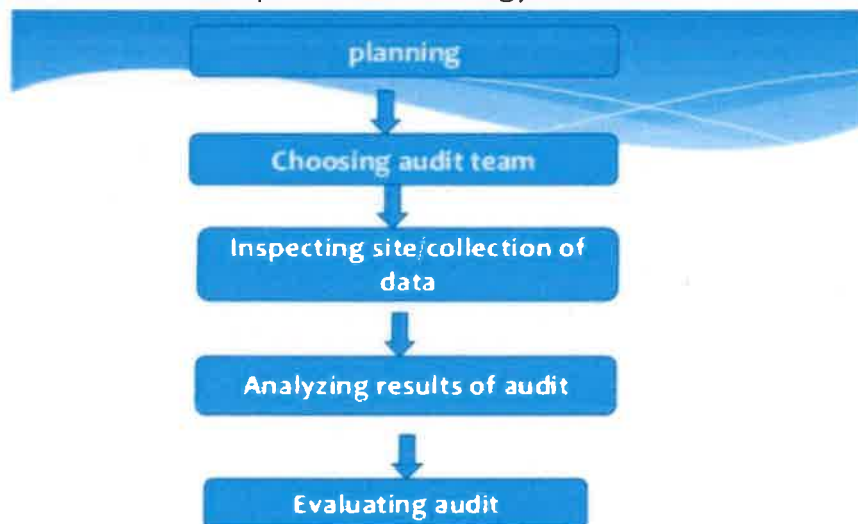
1. To examine the current practices, which can impact on environment such as of resource utilization, waste management etc.
2. To identify and analyze significant environmental issues.
3. Setup goal, vision, and mission for Green practices in campus.
4. Establish and implement Environment Management in various departments.
5. Continuous assessment for betterment in performance in green

Need of Green Audit:

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it in to green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Methodology of Green Audit:

Green Audit of Channabasweshwar Pharmacy College (Degree), Latur Campus has been conducted with specific methodology as follows:




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Goals of Green Audit:

Conducted a green audit of Channabasweshwar Pharmacy College (Degree), Latur Campus with specific goals as:

1. Identification and documentation of green practices followed by the Institute.
2. Identify strength and weakness in green practices.
3. Analyze and suggest solution for problems identified.
4. Assess facility of different types of waste management.
5. Increase environmental awareness throughout campus
6. Identify and assess environmental risk.
7. Motivates staff for optimized sustainable use of available resources.
8. The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental Issue before they become problem.




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Chapter No.2 Introduction about the Institute

Panchakshari Shivacharya Trust, Channabasweshwar Pharmacy College (Degree), Latur was established in the year 2010. "Panchakshari Shivacharya Trust" is a charitable trust registered under Bombay act 1950. It undertakes educational and social activities. This trust has started Channabashweshwar Pharmacy Polytechnic in Latur in 1980. After realizing the prospects and potential of the course in the emerging scenario of global pharmaceutical industry and education, the trust further started Channabasweshwar Pharmacy College (Degree) with Bachelor of Pharmacy in 2010. Thereafter postgraduate course M. Pharmacy (Pharmaceutics and Pharmaceutical Quality Assurance) in 2012. Since 2019 the College has recognized as Approved Ph. D Research Centre. Thereafter the Pharm D course in 2020 and other PG branches like Pharmaceutical Quality Assurance and Pharmacology in 2021. College is having its own well-structured building, well equipped laboratories, and library with number of reference books, international journals with e-library, good computing facility and research laboratory. The College is promoting green initiatives to make positive environment within the campus.

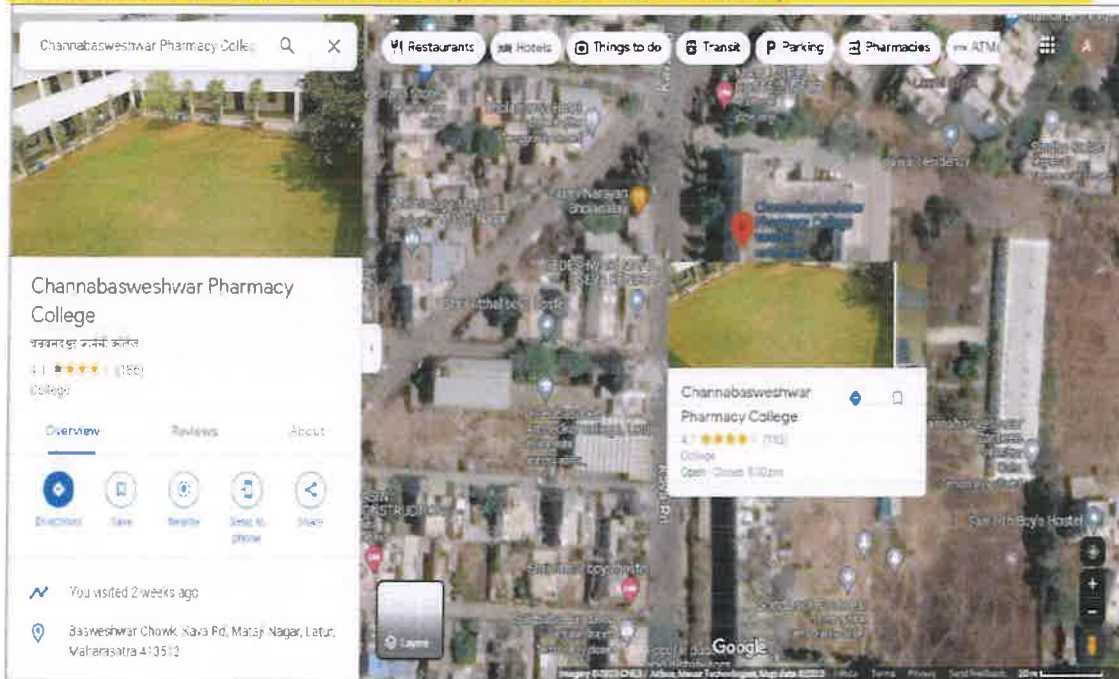
Sr.	Head	Particulars
1.	Name	Channabasweshwar Pharmacy College (Degree)
2.	Address	Basweshwar Chowk, Kava Road, Latur (M.S.)
3.	Degree Courses Offered	B. Pharm. M. Pharm, Pharm D. & PhD

Location: The College is situated at kava road, in most beautiful and spacious campus, 50 meters away from Basweshwar Chowk, 1.0 km from bus stand and 5.0 km from railway station.




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ARIAL VIEW OF COLLEGE CAMPUS (SOURCE GOOGLE EARTH)



Address: Kava Road, Latur 413531 (Maharashtra)



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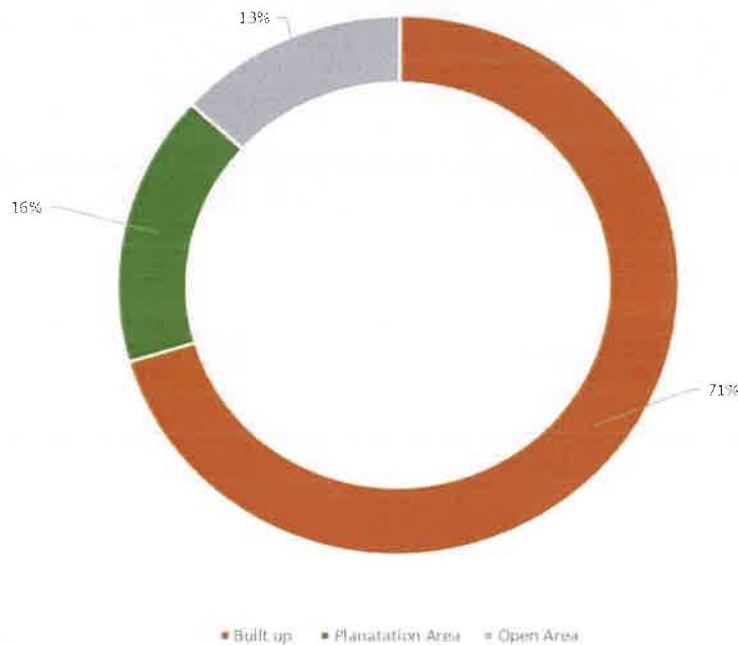
Chapter No.3 **CATEGORIES OF LAND USE**

Plantation of trees is started in the campus and the green cover is extended every year in the campus. At Present **16%** area campus is having the Green cover.

Audit Framework and detailed findings of the Audit:

Built up	6438.76	SQM
Plantation Area	1496.66	SQM
Open Area	1214.18	SQM
Total campus area	9510	SQM

Use of Land (2022-23)



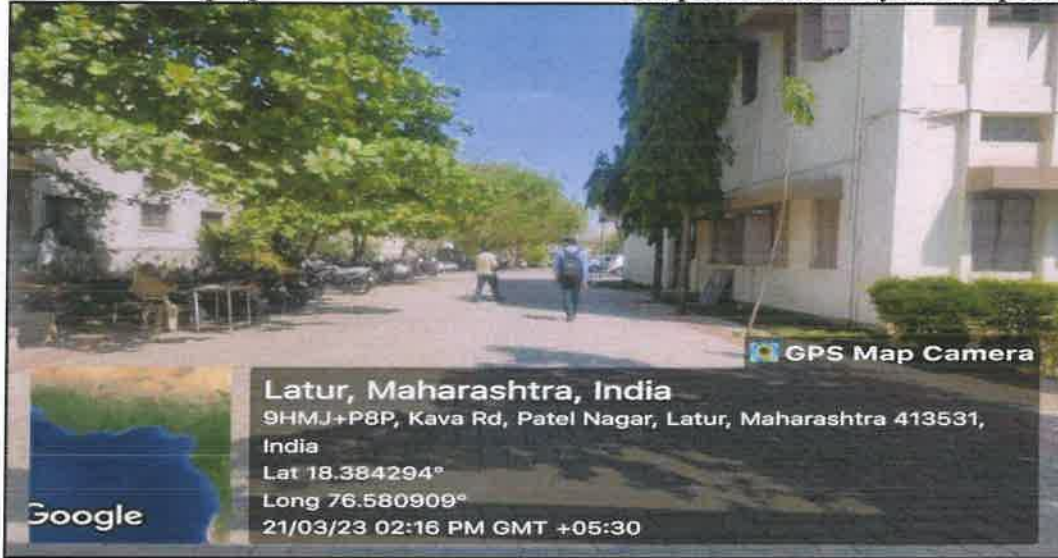
Observations : Plantation area 16%



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Chapter No. 4 Green Cover - Plantation of Trees

Green Landscaping with Trees and Plants – the campus is beautifully landscaped.



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List of Plants in the Campus:

Sr	Botanical Name	Family	Common Name	Total
1	Aloe barbadensis miller	Liliaceae	Aloe	01
2	Ocimum sanctum Linn	Lamiaceae	Tulsi	01
3	Asparagus racemosus	Liliaceae	Shatavari	01
4	Tinospora cordifolia	Menispermaceae	Gulvel	01
5	Santalum album	Santalaceae	Chandan	01
6	Prunus amygdalus	Rosaceae	Almond	01
7	Azadirachta indica	Meliaceae	Neem	05
8	Mangifera indica	Anacardiaceae	Mango	03
9	Emblica Officinalis	Euphorbiaceae	Amla	01
10	Momordica charantia	Cucurbitaceae	Karala	01
11	Eugenia jambolana	Myrtaceae	Jambul	01
12	Curcuma longa Linn	Zingiberaceae	Turmeric	01
13	Gymnema sylvestre	Asclepidaceae	Gymnema	01
14	Withania somnifera	Solanaceae	Ashwandha	01
15	Datura metal var	Solanaceae	Datura	08
16	Adhathoda vasica Nees	Acanthaceae	Vasaka	01
17	Catharanthus roseus	Apocyanaceae	Vinca	04
18	Capsicum annum	Solanaceae	Capsicum	01
19	Foeniculum vulgare Mill	Umbelliferae	Fennel	01
20	Coriandrum sativum	Umbelliferae	Coriander	01
21	Eugenia caryophyllus	Myrtaceae	Clove	01
22	Eucalyptus globulus	Myrtaceae	Nilgiri	01
23	Saraca INDICA	Leguminosae	Ashoka	05
24	Aegle marmelos	Rutaceae	Bael	01
25	Tamarindus indica	Leguminosae	Tamarind	02
26	Citrus lemonis	Rutaceae	Lemon	01
27	Allium sativum	Liliaceae	Garlic	01
28	Cocos nucifera	Palmae	Coconut	03
29	Brassica nigra	Cruciferae	Black Mustard	01
30	Solanum tuberosum	Solanaceae	Potato	01




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31	Urginea indica	Liliaceae	Squill	01
32	Rosa sericea	Rosaceae	Rose	01
33	Cymbopogon citratus	Graminae	Lemon grass	01
34	Mentha spicata	Labiatae	Spearmint	01
35	Hibiscus rosasinensis	Malvaceae	Chinarose	01
36	Annona squamosa	Annonaceae	Custard	01
37	Strobilanthes callosus	Acanthaceae	Kanheri	01
38	Murraya koenigii	Rutaceae	Curry tree	01
39	Plumeria alba linn	Apocynaceae	Plumeria	01
40	Delonix regia	Fabaceae	Gulmohar	08
41	Terminalia catappa	Combretaceae	Badam	06
42	Ficus religiosa	Moraceae	Peepal	01
43	Ficus benghalensis	Moraceae	Wad	01
44	Annona reticulata	Annonaceae	Ramfal	01
45	Plumeria alba	Rauvolfioideae	Chafa	03
46	Nerium oleander	Apocynaceae	Kanheri	04
47	Pithecellobium dulce	Leguminosae	Manila Tamarind	02
48	Sesbania bispinosa	Fabaceae	Shevari	04
49	Calotropis gigantea	Apocynaceae	Ruchik	04
50	Ziziphus mauritiana,	Rhamnaceae	Bori	01
51	Jasminum sambac	Oleaceae	Mogara	01
52	Murraya koenigii	Rutaceae	Kadipatta	01
53	Syzygium cumini	Myrtaceae	Jambhul	01
54	Clitoria tornata	Fabaceae	Gokarni	02
55	Ficus elastica	Moraceae	Rubber	01
56	Plumeria pidice	Apocynaceae	Nagchampa	17
57	Santalum alum	Santalaceae	Chandan	01
58	Moringa oleifera	Moringaceae	Shevga	01
Total number of plants				122




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Chapter No. 5: Use of Clean & Green Energy

Institute has been taken good initiative for energy conservation.

Installed 19KW Capacity Off-grid solar power plant.



Observations :

1. Percentage of Annual Power requirements met through renewable energy Sources is **55%**
2. Electricity Generation from Solar Power Plant **24320** Units/Year
3. Electricity Imported from Mahavitran **19772** Units / Year

Suggestions :

1. Install Occupancy Sensors to minimize electricity unknown losses.
2. Install Solar Street Lights to Minimize Electricity Import during Night.



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Chapter No. 6: Study of Waste Management

Environmental consciousness and sustainability friendly initiatives

Observations : Institute has been done Good Management of the various types of degradable and non-degradable waste

1. Solid waste management

- The college is taking utmost care of cleanliness and hygiene. Daily waste is collected by the cleaning staff and segregated into degradable and non-degradable waste.
- The leaves, all non-toxic and biodegradable waste, are collected and used to make compost through the composting process, for which 14 x 4.5 x 3 pit was made in the campus.
- Solid waste is generated in the form of plastic, glass, metal, newspapers, lab manuals, etc. is stored at one place and scrapped periodically for recycling.
- Non degradable waste (Dry and wet) is collected separately empty bottles, cartons are collected regularly at one place and handed over to the municipal vehicle for collection and proper disposal.
- College is using number of software's Vmedulife, Tally, ERP, SOUL, etc for digitalization concept that made steps towards way to less paper use.
- Use of paper printed on one side is encouraged for printing drafts before final document, meeting minutes, and institute level notices in office practices reducing paper based waste.
- Sanitary incineration machine is available in the girl's common room for the management of sanitary pads.



Handing over the solid waste to Muncipal Corporation vehicle



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2. Liquid Waste Management

Liquid waste is generated in the form of solvents, solutions, reaction mixtures, preparations, etc. It is scientifically disposed as per waste management norms. The liquid waste generated during practical is disposed through well-constructed drainage system which is flushed with water from wash basins.



Liquid waste disposal soak pit



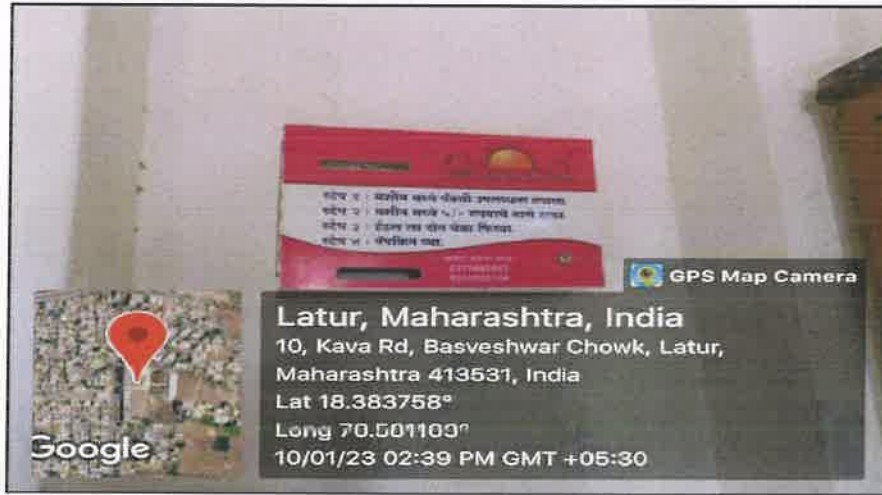
Drainage system for liquid waste disposal



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3. Biomedical waste management

Biomedical waste is generated in the form of animal experimentation, bioassays, micro biological cultures, fluid and blood at the institute. Waste like cotton gauze, bandage, textiles, syringes, needles, blades and lancets are disposed along with degradable waste. Sanitary incineration machine is available in the girl's common room for the management of sanitary pads.



Incineration machine available at college



Sanitary Napkin burning incinerator unit



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4. E-waste management

The college is having facility to collect and disposed off periodically the e-waste from institutes, E-wastes such as old computers, printers, laptops, scanner, CD's etc. batteries are collected centrally. E-waste is given to authorized vendors for possible recycling. We have put the collection box in the institute, where e-waste is collected. Students are also made aware of E-waste issues and its safe disposal.

5. E. Hazardous chemicals and radioactive waste management

Campus is free from any kind of radioactive waste. Hazardous chemicals like strong acids, strong alkalis and oxidizing agents are used in restricted and small quantities during practical's and research. Separate space is provided for storage of hazardous chemicals with highly visible sign. Chemicals are diluted sufficiently and then released into soak pits. Use of hazardous liquid chemicals generating hazardous fumes is carried out strictly in fuming cupboard to avoid spread of fumes. Inorganic waste is disposed off with water, while organic waste is burned out.



Waste Collection Tank



6. Compost Prepared in College Campus

The leaves, all non-toxic and biodegradable waste, are collected and used to make compost through the microbial composting process, for which 4.36M x 1.31M x 1.13M pits was made in the campus. Vermicomposting is the process of turning organic debris into worm castings. The content of the earthworm castings, along with the natural tillage by the worms burrowing action, enhances the permeability of water in the soil. Worm castings can hold close to nine times their weight in water “Vermiconversion,” or using earthworms to convert waste into soil additives.



Observations : Compost prepared in college campus



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7. Water Management

An irrigation sprinkler (also known as a water sprinkler or simply a sprinkler) is a device used to irrigate (water) agricultural crops, lawns, landscapes, golf courses, and other areas.



Institute has been taken good initiative for water conservation.



RAINWATER HARVESTING

The Future of Water Conservation

Water scarcity is serious problem throughout the world for both urban & rural community. Urbanization, industrial development & increase in agricultural field & production has resulted in overexploitation of groundwater & surface water resources and resultant deterioration in water quality. The conventional water sources namely well, river and reservoirs, etc. are inadequate to fulfill water demand due to unbalanced rainfall. While the rainwater harvesting system investigate a new water source.



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Rainwater Harvesting Recharge Points:



Observations: Institute has been taken good initiative for water conservation. Rainwater percolation pits were built in the campus to recharge bore well and help the water infiltration.

Rain Water Harvesting Filter Bed (Shosh Khadda)



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Chapter No. 7 : CARBON FOOTPRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various forms of Energy used by the College for performing its day to day activities. The College Imports Electrical Energy during Night for various Electrical gadgets.

Basis for computation of CO2 Emissions:

The basis of Calculation for CO2 emissions due to Electrical Energy are as under
1 Unit (kWh) of Electrical Energy releases **0.8 Kg of CO2** into atmosphere

Based on the above Data we compute the CO2 emissions which are being released in to the atmosphere by the College due to its Day to Day operations

Month wise Electricity Import details:

Month	Consumer No. 610557505868	Consumer No. 610550188492	Consumer No. 610550207241	Total
April 2022	1189	919	94	2202
May 2022	1070	601	201	1872
June 2022	1168	774	242	2184
July 2022	1142	611	137	1890
August 2022	1143	526	232	1901
September 2022	550	479	252	1281
October 2022	752	573	241	1566
November 2022	644	502	265	1411
December 2022	630	583	205	1418
January 2023	736	487	228	1451
February 2023	675	533	156	1364
March 2023	712	597	123	1432
			Total	19972

Observations: The College Imports Electrical Energy during Night for various Electrical gadgets. Annual Electricity Import = **19972** KWH/year

Calculations:

Electricity: **Input value (in KWh/Yr) X 0.85 (Emission Factor)**

= Output value in (Kg of CO₂)

Calculation for CO2 emissions due to Electrical Energy = 16976 Kg of CO₂ /year

Suggestions:

1. Reduce the Electricity Import during Night install Solar Streetlights.
2. Install Occupancy Sensors to minimize losses in Lighting System



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Chapter No. 8 : Best Practices & Activities

Institute has been declared their Environment Policy

Policy Document On Environment and Energy Usage

- To install LED bulbs in the complete campus to save energy
- To operate institute building in most efficient energy manner.
- Maximum use of Renewable Energy.
- Encourage a culture of Energy conservation on campus.
- To take additional measures to continuously improve our energy consumption.
- To develop and maintain Energy Management System based on ISO: 50001.
- To encourage use of advanced technology to minimize energy consumption.
- To engage in dialogue with the government agencies, and actively work with the local organizations in the areas of environment, energy efficiency and sustainable development.
- To strengthen our employees' and students' environmental knowledge and skills in order to improve our own environmental performance.
- To provide information and training opportunities on energy saving measures.
- To train our employees and students through our Enviro Club to make them 'Go Green Specialists' and partners to plant trees each year.

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Best Practices & Activities

Several significant and fruitful awareness programs both students and staff of the Campus are arranged every year in the campus. Reflections from students are Evident how effective such awareness programs conducted in the campus. Major programs conducted in the campus during the last Five years.

Campaigns: Nature camps, field trips and some of these activities are year round programs and others are regular year wiser semester wise or any other stipulated time bound programs.

Environmental education through systematic environmental management approach.

Conducted ITP By PCRA, Ministry of Petroleum & Natural Gas GOI



Institutional Training Program Joint Initiative
 Channabasweshwar Pharmacy College (Degree) with PCRA,
 Ministry of Petroleum & Natural Gas Government of India

Resource Person:

Kedar Khamitkar Energy Auditor & Faculty PCRA GOI



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Workshop Topic : Lifestyle for Environment

लोकमत



आय वित्तनेस

पर्यावरण जीवनशैलीविषयी कार्यशाळा...



लातुरातील चन्नबसवेश्वर फार्मसी कॉलेजमध्ये पर्यावरण जीवनशैली विषयावर कार्यशाळा घेण्यात येऊन विद्यार्थ्यांना मार्गदर्शन करण्यात आले. यावेळी केदार खमितकर, डॉ. पंचभाई, प्रा. मानके, प्रा. ठवरे, प्रा. मठपती.



**CHANNABASWESHWAR PHARMACY
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Project under G20 Energy Transitions Working Group

**Workshop On
Lifestyle for Environment**



(Handwritten Signature)

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The plastic bottles, polythene bags etc. collected by students to hand over to scrap



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Tree Plantation Campaign

Tree plantation was done at Channabasweshwar Pharmacy College (Degree), Latur On the occasion of NSS day.

Mr. Bhimashankar Devnikar, Secretary , Panchakshari Shivacharya Trust, Dr. O.G. Bhushnure, Principal and teachers, non-teaching staff and students were present.



सोलापूर प्रखर राष्ट्रीय विचारांचे दैनिक

तरुण भारत

राजधानीकरण, आकार, संरक्षण, व्यवस्थापन, पावसाचे, नदी, पावसाचे, पावसाचे, विद्युत्, उद्योग व वीर्य संयुक्त प्रकल्पित

चन्नबसवेश्वर फार्मसी महाविद्यालयाचा जिल्हाधिकाऱ्यांच्या हस्ते गौरव

नमा शुभसेवा
लामूर दि. १ ऑगस्ट -
मांजरा नदीच्या काठी लातूर जिल्हा प्रशासनाच्या वतीने मानवी साखळीच्या माध्यमातून राबविले लया वृक्षरोपण मोहिमेत चन्नबसवेश्वर फार्मसी महाविद्यालयातील विद्यार्थ्यांनी उत्कृष्ट सहभाग नोंदविला. याबद्दल लातूरचे जिल्हाधिकारी श्री. पी. पुष्पोराज यांच्या हस्ते महाविद्यालयाचा गौरव करण्यात आला. मांजरा नदीकाठी दुतर्फा १४ गावांमध्ये १० कि.मी. मानव साखळीच्या माध्यमातून ३८ हजार वृक्ष लागवडीचा अभिनव प्रयोग जिल्हाधिकारी श्री. पी. पुष्पोराज यांच्या मार्गदर्शनाखाली राबविण्यात आला. यामध्ये चन्नबसवेश्वर फार्मसी महाविद्यालयातील

रा. सं. यो. विभागाच्या उत्कृष्ट सहभाग नोंदवून सलगरा (शु.) येथील मांजरा नदीकाठी ४ हजार १०० वृक्ष लागवड केले. याबद्दल जिल्हाधिकारी कार्यालयात जिल्हाधिकारी श्री पी. पुष्पोराज यांच्या हस्ते चन्नबसवेश्वर फार्मसी महाविद्यालयाचा स्मृती चिन्ह प्रशस्ती प्रमाणपत्र देऊन गौरव करण्यात आला. या अभियानाच्या यशस्वी नेमाठी महाविद्यालयातील रा. सं. यो. समन्वयक महेश पानक, प्रतिभा ठावर, शिवकुमार लंबे, अविनाश स्वामी, प्रशांत बनमोडे, आरती जयशेट्टे,

स्नेहल बोंगर्डे, आकाश स्वामी, शुभम माखरे आदींनी सहभाग नोंदविला. याबद्दी जिल्हा परिषदेचे मुख्य कार्यकारी अधिकारी अभिनव गोयल, माजी आमदार पाशा पटेल, उपजिल्हाधिकारी नितिन वाघमारे, जिल्हा माहिती अधिकारी युवराज फाटोल यांचा यावेळी उपस्थिती होती. याबद्दल संस्थेचे सचिव भीमाशंकर देवणीकर, संवाताक विजयकुमार भटपती, लिप्येक्षक हवलकूडे, मिष्टया स्वामी, डॉ. अशोक सांगवीकर, अनुप देवणीकर, महाविद्यालयाचे प्राचार्य डॉ. विजेन्द्र स्वामी, प्राचार्य डॉ. सजय शेंडे यांच्यासह सर्वशिक्षक, शिक्षकत्वर कर्मचारी आदींनी अभिनंदन केले.




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The District Collector office of the Latur City appreciated for the efforts of the College towards environment sensitization.



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2. Energy Audit Report 2022-23

Energy Audit Report 2022-23

Channabasweshwar Pharmacy College (Degree), Latur

Energy Audit Report (2022-23)



Panchakshari Shivacharya Trust's

CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)

Basweshwar Chowk, Latur 413512 (Maharashtra)



Energy Audit Conducted by



Kedar Khamitkar & Associates

Energy Auditor (Empanelled Mahaurja, Govt. of Maharashtra)

M: 9850244701 Email : urjabachar@gmail.com

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Requirements for the NAAC

CEA Team has been Conducted Detailed Energy Audit of Channabasweshwar Pharmacy College (Degree), Latur Building Located at Latur- District Maharashtra During Energy Audit We have found Environmental Consciousness and Sustainability initiatives in their Campus.

1. Percentage of Annual Lighting power requirement met through LED Bulbs

(Current Year Data) = 74 %

2. Percentage of Annual Power requirements met through Renewable Energy

Sources Current year data is 55%



Kedar Khamitkar
Kedar Khamitkar

Energy Auditor

(Certified by Bureau of Energy Efficiency, Ministry of Power, Gov. of India)

Empanelled Energy Auditor MAHAURJA, Govt. of Maharashtra Institution

EE Measures for Buildings



[Signature]

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ENERGY AUDITS



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Executive Summary

The objective of the audit was to study the energy consumption pattern of the facility, identify the areas where potential for energy/cost saving exists and prepare proposals for energy/cost saving along with investment and payback periods. The salient observations and recommendations are given below.

Sr	Recommendations	Savings / year	Investment	Payback
1.	Replace Existing Inefficient Ceiling Fans with Efficient BLDC fans	7560 KWH	Rs. 2.55/- Lakhs	3.37 Yrs.
2.	Improve Power Quality : Install Voltage Servo Stabilizer of 25 KVA Capacity	2000 KWH	75000/-	3.75 yrs.
3.	Install occupancy Sensors in Campus Energy Consumption Monitoring & Security purpose (100 Sensors)	1000 KWH	50000/-	5 Yrs.
4.	Conduct Awareness Training Program (Install Sign Boards)	-	NA	Immediate




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Preface

An energy audit is a study of a plant or facility to determine how and where energy is used and to identify methods for energy savings. There is now a universal recognition of the fact that new technologies and much greater use of some that already exist provide the most hopeful prospects for the future.

Data collection for energy audit of the Channabasweshwar Pharmacy College (Degree), Latur was conceded by EA Team on 24th March 2023. This audit was over sighted to inquire about convenience to progress the energy competence of the campus.

All data collected from each classroom, Laboratory, Library & every room. The work is completed by considering how many Tubes, Fan, A.Cs, Electronic instruments, etc. in each room. How much was participation of each component in total electricity consumption.




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Acknowledgement

We express our sincere gratitude to the Principal Sir & authorities of Channabasweshwar Pharmacy College for entrusting and offering the opportunity of energy performance assessment assignment. We are thankful to Institute for their positive support in undertaking the task of system mapping and energy efficiency assessment of all electrical system, utilities and other workshop equipment. The field studies would not have been completed on time without their interaction and guidance. We are grateful to their cooperation during field studies and providing necessary data for the study.

With Best Wishes,
Kedar Khamitkar



- Energy Auditor, Certified by Bureau of Energy Efficiency, Ministry of Power, Govt. of India
- Empanelled Consultant MAHAURJA , Govt. of Maharashtra

प्रतिज्ञा

हम सत्यनिष्ठा से प्रतिज्ञा करते हैं कि अपने सभी कार्यों में पेट्रोलियम उत्पादों के संरक्षण हेतु सतत प्रयासरत रहेंगे, ताकि देश की प्रगति के लिए आवश्यक इन सीमित संसाधनों की आपूर्ति अधिक समय तक सम्भव हो सके। आदर्श नागरिक होने के नाते हम लोगों को पेट्रोलियम पदार्थों के व्यर्थ उपयोग से बचने तथा पर्यावरण संरक्षण हेतु स्वच्छ ईंधन का प्रयोग करने के लिए जागरूक करेंगे।



(Signature)

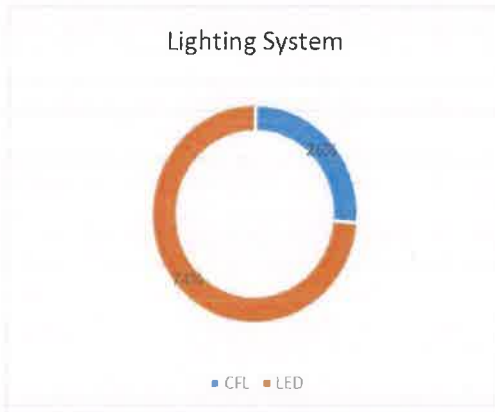
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Requirements for NAAC

1. Percentage of use LED Lighting

Type	Total
LED Lights Connected Load	4863
CFL Bulb Connected Load	1723
Total Lighting Load	6586



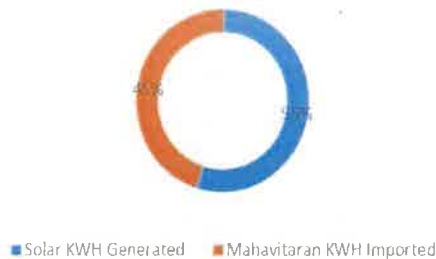
Observations: Percentage of Annual Power requirements met through LED Bulb/Tube Current year data is 74%

Suggestions: Replace 26% Inefficient CFL lighting with Efficient LED Lighting

2. Percentage of Renewable Energy use

Average Renewable Energy units generated	35800	KWH
Nonrenewable Energy (Mahavitaran) imported	19972	KWH
Annual Total Power Requirement	24320	KWH

Percentage of Annual Power requirements



Observations:

Percentage of Annual Power requirements met through Renewable Energy Sources Current year data is 55%

Suggestions: Install Motion sensors.




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Energy Performance Index (EPI)

Channabasweshwar Pharmacy College (Degree), Latur Uses Electrical Energy from MSEDCL Maharashtra State Electricity Distribution Company Limited.

The Specific Energy Consumption (SEC) is the ratio of energy required per square meter.

Total Electricity Consumption 19972 KWH /Year

Total Built-up Area 6438.76 Sq. Meter

In this case the SEC is evaluated as electrical units consumed per square meter of area.

Observations:

EPI calculated as under (for **Electricity**): **3.10 KWH/Sq. Meter**

As per BEE Star Rating Guidelines Existing Channabasweshwar Pharmacy College, Building may be considered as 5 Star.

EPI KWH/Sq. Meter/Year	Star Label
80-70	1 Star
70-60	2 Star
60-50	3 Star
50-40	4 Star
Below 40	5 Star



**Energy Conservation
Building Codes**



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Chapter: I Introduction

“Panchakshari Shivacharya Trust” is a charitable trust registered under Bombay act 1950. It undertakes educational and social activities. This trust started Channabasweshwar Pharmacy (polytechnic), Latur in 1980. After realizing the prospects and potential of the course in the emerging scenario of global pharmaceutical industry and education, Channabasweshwar Pharmacy College (Degree) was started Bachelor of Pharmacy course in 2010. Thereafter, postgraduate course M. Pharmacy (Pharmaceutics and Pharmaceutical Quality Assurance) in 2012. Since 2019 the College has been recognized as Approved Ph. D Research Centre. Thereafter the Pharm D. course in 2020 and other PG branches like Pharmaceutical Chemistry and Pharmacology in 2021. The college is affiliated to Swami Ramanand Teerth Marathwada University, Nanded. It is approved by Pharmacy Council of India, New Delhi and Directorate of Technical Education, Mumbai. Further it is recognized by University Grant Commission under section 2[f] and ISO 9001:2015 certified. College has its own well-structured building, well equipped laboratories, and library with a number of reference books, international journals with e-library, good computing facility and research laboratory.



Latur, Maharashtra, India

10, Kava Rd, Basveshwar Chowk, Latur, Maharashtra

413531, India

Lat 18.383805°

Long 76.581084°

24/11/22 10:17 AM GMT +05:30




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Chapter 2: Energy Audit Objectives

Channabasweshwar Pharmacy College (Degree), Latur entrusted the work of conducting a detailed Energy Audit of campus with the main objectives given below:

- ❑ To study the present pattern of energy consumption
- ❑ To identify potential areas for energy optimization
- ❑ To recommend energy conservation proposals with cost benefit analysis.

Scope of Work, Methodology and Approach:

Scope of work and methodology were as per the proposal. While undertaking data Collection, field trials and their analysis, due care was always taken to avoid abnormal situations so as to generate normal/representative pattern of energy consumption at the facility.

Approach to Energy Audit:

We focused our attention on energy management and optimization of energy efficiency of the systems, sub systems and equipment's. The key to such performance evaluation lies in the Sound knowledge of performance of equipment's and system as a whole.

Energy Audit:

The objective of Energy Audit is to balance the total energy inputs with its use and to identify the energy conservation opportunities in the stream. Energy Audit also gives focused Attention to energy cost and cost involved in achieving higher performance with technical and financial analysis. The best alternative is selected on financial analysis basis.



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Chapter: 3 Energy Audit Methodology

Energy Audit Study is divided into following steps

1. Historical data analysis:

The historical data analysis involves establishment of energy consumption pattern to the established base line data on energy consumption and its variation with change in production volumes.

2. Actual measurement and data analysis:

This step involves actual site measurement and field trials using various portable Measurement instruments. It also involves input to output analysis to establish actual operating Equipment efficiency and finding out losses in the system.

3. Identification and evaluation of Energy Conservation Opportunities:

This step involves evaluation of energy conservation opportunities identified during the energy audit. It gives potential of energy saving and investment required to implement the Proposed modifications with payback period.

4. Energy Audit Instruments used

- a) Power Quality Analyser HIOKI – 3197



- b) Thermal Imager Fluke – PTI I20



- c) Earth Tester MECO



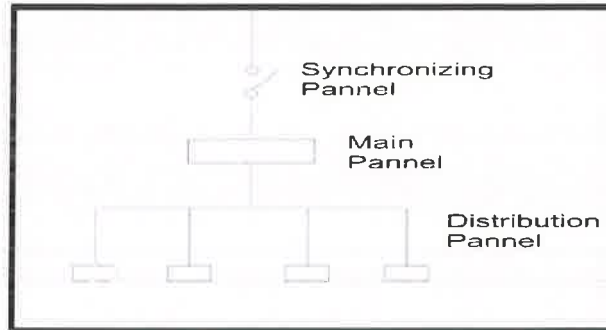
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Chapter: 4. Study of Electrical Systems

Electrical Energy Sources:

1. The electrical supply to the Institute comes from MSEDCL LT supply.
2. Solar Power Plant Capacity: 19 KW



MSEDCL LT supply: Mahavitaran has been installed three meters in Campus.
The details of meter are as under

Meter - A Consumer No. 610557505868

Meter - B Consumer No. 610550188492

Meter - C Consumer No. 610550207241



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MSEDCL Supply

The electrical bills from MSEDCL for 12 months from April 2022 to March 2023 have been studied.

Meter 'A' Details:

		Consumer No.	610557505868
SN	Details of Electricity Demand	Tariff	073 /LT-X B I 0-20KW Pub Ser oth
I	Sanctioned Load	6.9I	KW

Meter 'B' Details:

		Consumer No.	610550188492
SN	Details of Electricity Demand	Tariff	73 LT-VII B I
I	Sanctioned Load	3.73	KW
2	Contract Demand	4	kVA
3	Recorded Maximum Demand	5	kVA

Meter 'C' Details:

		Consumer No.	61055020724I
SN	Details of Electricity Demand	Tariff	052 / LT II Comm 3Ph < 20KW
I	Sanctioned Load	4	KW



[Handwritten Signature]

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Solar Power Plant :

Institute has been taken good initiative for energy conservation.
Installed 19KW Capacity Off-grid solar power plant.



Observations :

1. Percentage of Annual Power requirements met through renewable energy Sources is **55%**
2. Electricity Generation from Solar Power Plant **24320** Units/Year
3. Electricity Imported from Mahavitrans **19772** Units / Year

Suggestions :

1. Install Occupancy Sensors to minimize electricity unknown losses.
2. Install Solar Street Lights to Minimize Electricity Import during Night.



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Connected Load Details

Major Energy use and Areas: In the College Campus Electrical energy is used for various applications like: Computers, Printers, Xerox machines, LCD Projector, Router System, Lighting, Fans, Flood light, Pumping Motor, Air-Conditioning & Other Laboratory Equipment etc.

Sr.	Building	Type	Quantity	Watt	Total
1	Ground Floor	LED Panel	121	15W	1815
		LED Panel	24	12W	288
		LED Panel	12	9W	108
		CFL lamp	6	18W	108
		CFL lamp	9	23W	207
		LED Tube	38	20W	760
		LED Tube	1	20W	20
		Ceiling Fan	29	70W	2030
		Wall Fan	2	55W	110
		AC	5	975W	4875
		Florescent Tube light	7	52W	364
		Exhaust Fan	7	40W	280
		Refrigerator	3	130W	390
		2	First Floor	LED Tube	15
CFL lamp	12			23W	276
Ceiling Fan	42			70W	2940
Wall Fan	1			55W	55
Florescent Tube light	33			20W	660
Exhaust Fan	1			40W	40
AC	1			975W	975
Focus	2			50W	100
Freeze	2			130W	260
3	Second Floor			LED Tube	60
		LED Panel	31	12W	372
		CFL lamp	2	23W	46
		CFL lamp	1	22W	22
		Ceiling Fan	44	70W	3080
		Florescent Tube light	1	40W	40
		Exhaust Fan	3	40W	120
		AC	12	975W	11700
		Refrigerator	2	130W	260
		Deep Freezer	1	290W	290
4	Miscellaneous Load				34091

Observations: Ceiling Fan (70Watt) contributes @8136 Watts Load

Suggestion: Minimize Connected load Install BEE Star rated Energy efficient BLDC Fans.



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Annual Electricity Consumption Historical Electricity Bill:

Month	Consumer No. 610557505868	Consumer No. 610550188492	Consumer No. 610550207241	Total
April 2022	1189	919	94	2202
May 2022	1070	601	201	1872
June 2022	1168	774	242	2184
July 2022	1142	611	137	1890
August 2022	1143	526	232	1901
September 2022	550	479	252	1281
October 2022	752	573	241	1566
November 2022	644	502	265	1411
December 2022	630	583	205	1418
January 2023	736	487	228	1451
February 2023	675	533	156	1364
March 2023	712	597	123	1432
			Total KWH	19972

Annual Electricity Consumption (KWH/year)

**General Observations based on Electricity Bill:**

Total Annual Electricity Imported from Mahavitrans **19972 KWH/year**

Max KWH consumption found in the month of April 2022 and Minimum Consumption found in the month of September 2022



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Chapter: 5 Performance Evaluation

5.1 Fan System:

Total number of fans used in the campus = **115** No's

Consider @200 days Working 6 Hrs.

- Number of fans to be replace = **115** Nos.
- The Total Current Consumption = **9660** kWh
- The Expected fan Consumption = **3864** kWh
- Expected Saving per year = **5790** kWh/year

Suggestions: Replace existing Inefficient Fan System (75W) with Five Star BLDC (28W)



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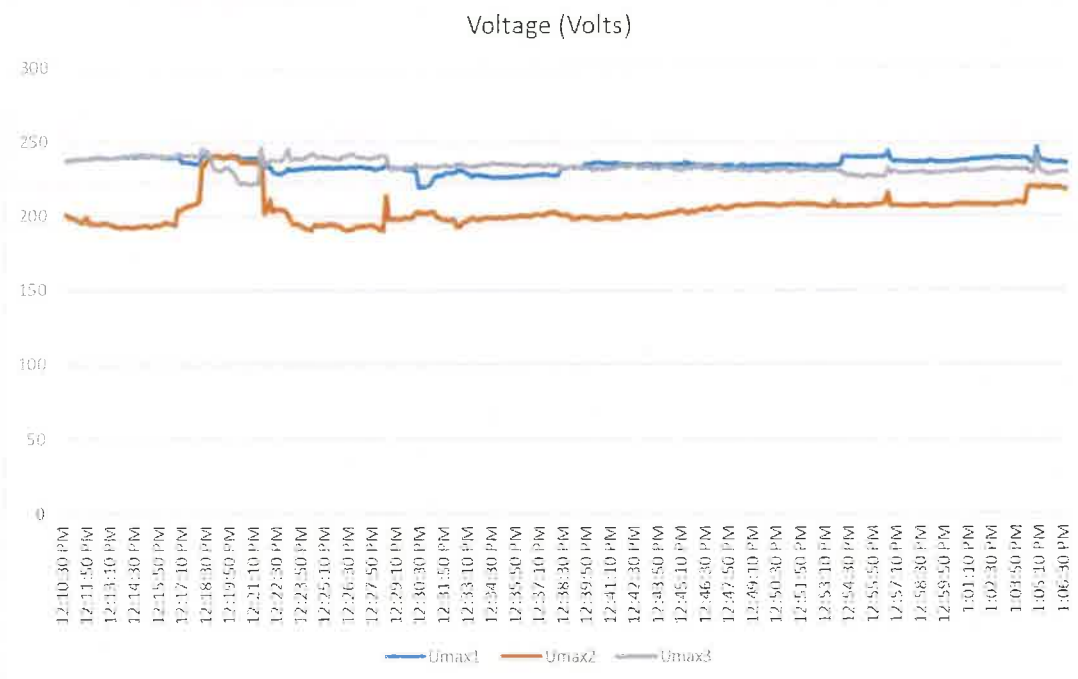
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5.2 Power Quality Analysis (PQA)

Power quality issues can affect the operation of critical loads and can have the negative impact on operation. This power quality analyser can monitor the cost of energy wasted due to poor power quality. The wider range of measurement function and measurement method in this analyser is the ideal tool and for the calculation of errors.



Supply Voltage level Overview



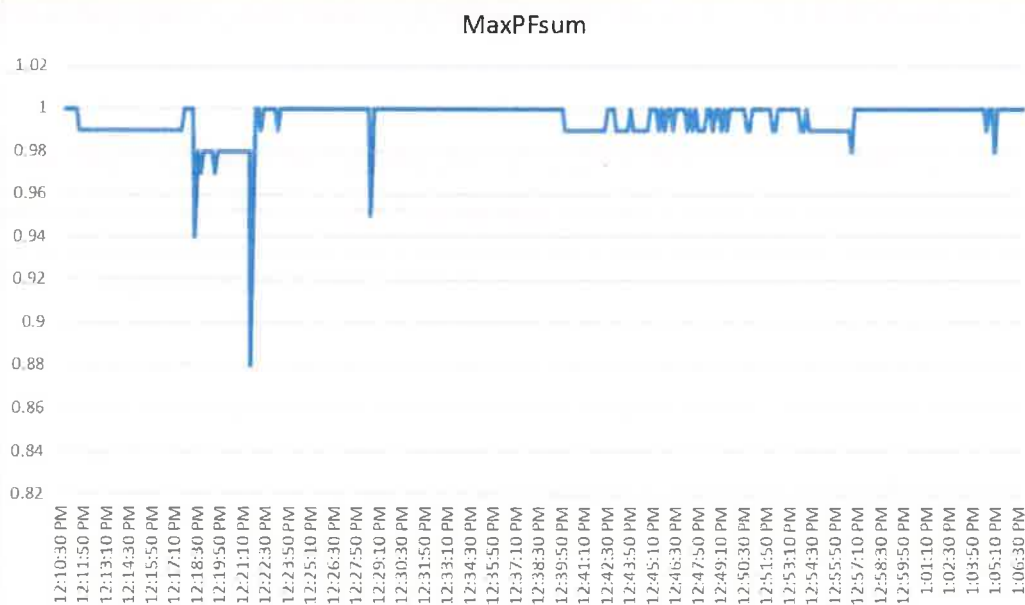

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Observations: Found Poor Power Quality supply from Mahavitrans Electricity Distribution Company to the Institute.

Suggestions: Install Three Phase 25 kVA Air Cooled Servo Stabilizer.



5.3 Power Factor:



Suggestions: Install APFC Automatic Power Factor Controller.




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5.4 Lighting System:

Observations: Measured Lux Level Max 113 Min 95 & Average 108

Existing LED Tube are installed without reflectors.

Lux Light Meter		
min	avg	max
95	108	113

Suggestions: Improve effectiveness of Lighting System

Increase Lighting Efficiency by using reflectors.

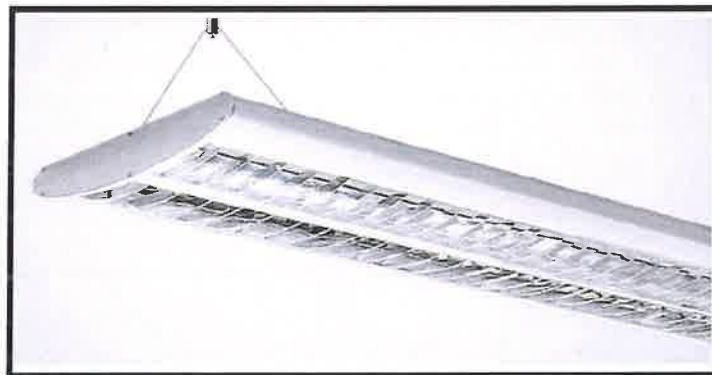
Light globes generally disperse light in all directions from the source. If a ceiling mounted light does not direct the light back down to the working plane, more fittings will be required to achieve the required lux levels. So the effectiveness of the reflectors (or minimizing losses due to poor reflectors) is important. Reflectors should be both reflective as well as carefully designed to disperse light effectively on the working plane at the design height of the fitting (e.g., light should not be concentrated in one area, providing too much light, whilst falling short of required levels in another area).

Silver Reflectors. This is the reflector that reflects the most light.

White Reflectors. More flexible between indoor and outdoor use.

1. Gold Reflectors 2. Black Reflectors 3. White Reflectors

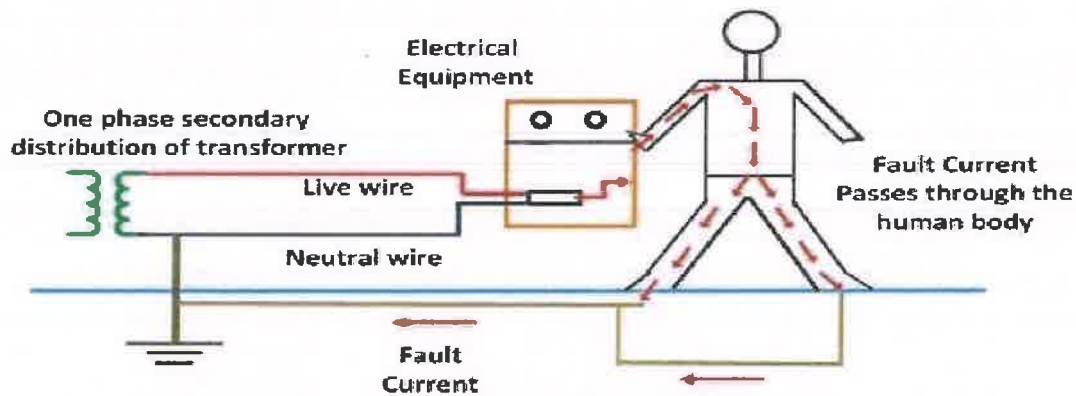
Proposed:-



Chapter: 6 Electrical Safety:

I. Earth Resistance Measurement

Ideally a ground should be of zero ohms resistance. There is not one standard ground resistance threshold that is recognized by all agencies. However, the NFPA and IEEE have recommended a ground resistance value of 5.0 ohms or less. The use of chemical elements around the electrode of earthing systems reduces the earth resistance which improves the efficiency of these systems.



Electrical System Without Earthing

Circuit Globe



Observations: Earth Resistance Testing done by digital earth resistance tester. Earth resistance found 0.42 Ohm & its o.k.



Principal

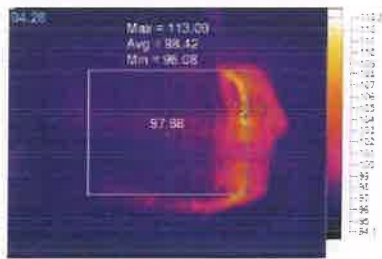
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Thermography:

Thermography or thermal imaging detects heating concentrations or heat leak sources in electrical equipment. Thus, thermography detects infrared energy emitted by an electrical circuit or an electrical part through which an electrical current passes (wire, cable, transformer, contactor, electrical motor, breaker, etc.)

Inspected By: Energy Auditor Kedar Khamitkar

Inspection Date:	24-March-23 12:24:30 PM	Location	Main Supply Board
Equipment		Equipment Name:	Circuit Panel
Emissivity:	0.98	Reflected Temperature:	93.20 °F
Camera Manufacturer	Fluke	Camera:	PTi120HT-21120397

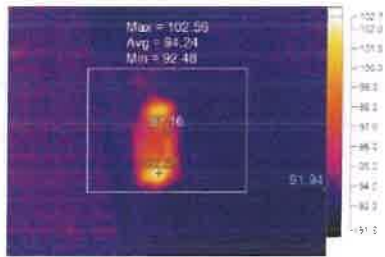


IR_00434.IS2



Visible Light Image

Inspection Date:	24-March-23 12:27:48 PM	Location	Main Supply Board
Equipment		Equipment Name:	Circuit Panel
Emissivity:	0.98	Reflected Temperature:	93.20 °F
Camera Manufacturer	Fluke	Camera:	PTi120HT-21120397



IR_00438.IS2



Visible Light Image

Observations: Overloaded Circuits. Hot Spots found -

Suggestions:

1. Use the correct wire suitable for the operation and the electrical load to work on. Use the correct extension cord designed for heavy-duty use. Also, do not overload an outlet and use proper circuit breakers.
2. Install Smoke Detector.
3. Perform regular fire risk assessments to identify areas at risk of bad wiring and circuits.



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INSTALL ELECTRICAL SAFETY SIGN BOARD

Electrical panels should also have secure covers to ensure no wires are exposed that could cause electrical shock. This also prevents the internal mechanisms from being exposed to dust, dirt, and moisture. Electrical panel boxes in College buildings should be secured and accessible by trained personnel only.



SAFETY RULES

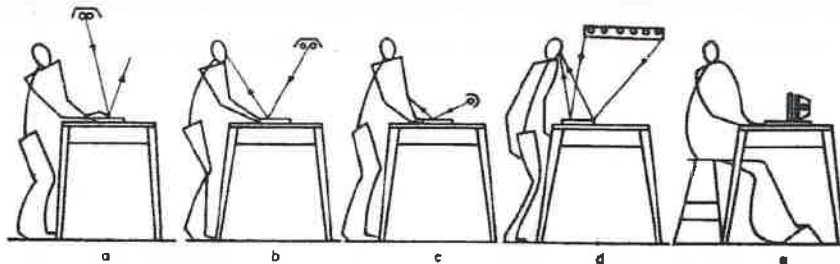
- 1 You are responsible for your own safety and safety of others.
- 2 Wear personal protective equipment necessary for the job.
- 3 Always use equipment/tools/machinery safely and properly.
- 4 Lift properly using your legs and not your back.
- 5 Keep your work area clean.
- 6 Wear appropriate and safe work clothing and footwear.
- 7 Report any unsafe conditions.
- 8 Clean up spills immediately.
- 9 Report all injuries.




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Chapter: 7 Guidelines for Identified Energy Saving Opportunities

- Use as much natural day light as possible by use of translucent roofing sheets.
- Use day lighting effectively by locating work stations requiring good illuminance near the windows.
- Minimise illuminance in non- task areas by reducing the wattage of lamps or number of fittings
- Avoid use of incandescent/tungsten filament lamps. The power consumed by these lamps is 80% more than the fluorescent lamps (discharge) for same lumen output.
- Use electronic ballasts in place of conventional ballast for fluorescent lamps.
- Task lighting saves energy, utilize it whenever possible.
- All surfaces absorb light to some degree and lower their reflectance. Light colored surfaces are more efficient and need to be regularly painted or washed in order to ensure economical use of light.
- Maintenance is very important factor. Evaluate present lighting maintenance program and revise it as necessary to provide the most efficient use of lighting system.
- Clean luminaires, ceilings, walls, lamps etc. on a regular basis.
- Controls are very effective for reducing lighting cost. Provide separate controls for large ratings.
- Install switching or dimmer controls to provide flexibility when spaces are used for multiple purpose and require different amounts of illumination for various activities.
- Switching arrangements should permit luminaires or rows of luminaires near natural light sources like windows or roof lights to be controlled separately.
- Separate lighting feeder and maintain the feeder at permissible voltages by using transformers.
- Install occupancy sensors for indoor cabin light controls



- a — Luminaire located to prevent reflected glare; reflected light does not coincide with angle of view.
 b — Reflected light coincides with angle of view.
 c — Low-angle lighting to emphasize surface irregularities.
 d — Large-area surface source and pattern are reflected toward the eye.
 e — Transillumination from diffuse source.

FIG. 2 EXAMPLES OF PLACEMENT OF SUPPLEMENTED LUMINAIRES




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Measures to improve ILER:

1. Provide mirror optics luminaires for lamps. Many lamps do not have reflectors
2. Replace existing 36 W lamps and electromagnetic ballast by more efficient T5 tube lights having electronic ballasts.
3. Reduce mounting height of lamps to 1.5 meters from the working plane. This can increase illuminance on work place without spending more power. This helps in improving ILER.
4. Improve reflectance of walls & ceiling by providing light colored, preferably white, painted surface. Lighting is provided in commercial buildings, indoor and outdoor for providing comfortable working environment.


The primary objective is to provide the required lighting effect for the lowest installed load i.e. highest lighting at lowest power consumption.

Measures to improve task lighting effectiveness:

1. Proper relocation of light sources to improve task lighting and increase diversity ratio to 3:1.
2. Reduce the mounting height up to 1.5 meter

Activity	Illumination (lux, lumen/m ²)
Public areas with dark surroundings	20 - 50
Simple orientation for short visits	50 - 100
Working areas where visual tasks are only occasionally performed	100 - 150
Warehouses, Homes, Theaters, Archives	150
Easy Office Work, Classes	250
Normal Office Work, PC Work, Study Library, Groceries, Show Rooms, Laboratories	500
Supermarkets, Mechanical Workshops, Office Landscapes	750
Normal Drawing Work, Detailed Mechanical Workshops, Operation Theatres	1,000
Detailed Drawing Work, Very Detailed Mechanical Works	1500 - 2000
Performance of visual tasks of low contrast and very small size for prolonged periods of time	2000 - 5000
Performance of very prolonged and exacting visual tasks	5000 - 10000
Performance of very special visual tasks of extremely low contrast and small size	10000 - 20000




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Conduct Institutional Training / Awareness Program 14th December 'National Energy Conservation day'

The National Energy Conservation Day is organised on 14th December every year by the Bureau of Energy Efficiency (BEE) with an aim to showcase India's achievements in energy efficiency and conservation. BEE - Ministry of Power celebrate every year Energy Conservation Week from 14th December – 20th December.

Create Awareness:

All Class Rooms and labs to have Display Messages regarding optimum use of electrical appliances in the room like, lights, fans, computers and projectors. Save electricity.

1. There has to be Institute level student community that keeps track of the energy consumption Parameters of the various departments, class rooms, halls, areas, meters, etc
2. Energy auditing inside the campus has to be done on a regular basis and report should be made public to generate awareness.
3. Need to create energy efficiency/ renewable energy awareness among the college campus i.e. solar, wind, Biogas energy. College should take initiative to arrange seminars, lectures, paper presentation competition among students and staff for general awareness.

Display the stickers of save electricity

Save nature everywhere in the campus. So that all stakeholders encouraged to save the electricity.

- Most of the time, all the tube lights in a class room are kept ON, even though, there is sufficient light level near the window opening. In such cases, the light row near the window may be kept OFF.
- All projectors to be kept OFF or in idle mode if there will be no presentation slides.
- All computers to have power saving settings to turn off monitors and hard discs, say after 10 minutes/30 minutes.
- The comfort/Default air conditioning temperature to be set between 24°C to 26°C.

USE OF ELECTRICITY DURING PEAK HOUR AND OFF PEAK HOUR

The applicable electricity tariff is not also based on timing of the day but it may not be applicable in case of domestic LT/ HT type connection. This will also helpful in maintaining the demand graph. It is recommended to avoid use of electrical gadget for cleaning, watering etc. during the peak hours. This type of work should be operational during the off peak hour.



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Chapter 8: Conclusion

A total Investment of Rs. 3.80/- (Approx. Three Lakhs & Eighty Thousand) amount is estimated for the energy efficiency improvement projects)

Energy Savings expected around 10560 KWH/year.

Energy Efficiency in Buildings

Checking Energy Efficiency at the Designing Stage by following Energy Conservation Building Code (ECBC)

BEE, Ministry of Power, Govt. of India launched Energy Conservation Building Code (ECBC) in 2007. The main features of ECBC are:

- To provide minimum requirements for the energy efficient design and construction of buildings.
- It considers five climatic zones in India, sets minimum energy performance standards for large commercial buildings or building complexes that have a connected load of 500 kW or greater.
- The code is also applicable to all buildings with a conditioned floor area of 1,000 m² (10,000 ft²) or greater, and is recommended for all other buildings also.
- The provisions of this code apply to:
 - (a) Building envelopes, except for unconditioned storage spaces or warehouses
 - (b) Mechanical systems and equipment, including heating, ventilating, and air conditioning
 - (c) Service hot water heating
 - (d) Interior and exterior lighting
 - (e) Electrical power and motors.



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[Handwritten Signature]

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प्रतिज्ञा

हम सत्यनिष्ठा से प्रतिज्ञा करते हैं कि अपने सभी कार्यों में पेट्रोलियम उत्पादों के संरक्षण हेतु सतत प्रयासरत रहेंगे, ताकि देश की प्रगति के लिए आवश्यक इन सीमित संसाधनों की आपूर्ति अधिक समय तक सम्भव हो सके। आदर्श नागरिक होने के नाते हम लोगों को पेट्रोलियम पदार्थों के व्यर्थ उपयोग से बचने तथा पर्यावरण संरक्षण हेतु स्वच्छ ईंधन का प्रयोग करने के लिए जागरूक करेंगे।



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3. Work order of Green Audit and Energy Audit



Empowered with
महाऊर्जा
Maharashtra Energy Development Agency
(MEDA)



Kedar Khamitkar
Energy Auditor
Certified by BEE Bureau of Energy Efficiency, Ministry of Power

Mobile :
9850244701
9370701021

Kedar Khamitkar & Associates

Reg. no. MEDA/ECN/CR-14/2020-21/EA-17 Maharashtra Energy Development Agency (MEDA) (Govt. of Maharashtra Institution)

• **Office** : 'Vardani Bhawan', Beside Govt. Ladies ITI College, Barshi Road, Harangul Road, **Latur**

• **Aurangabad** : Varun Lotus, Plot No.18, Flat No 9, Karichannagar, Nakshtrawadi, Paithan Road Mobile : 9370701021

• **Mobile** : **9850244701** • **Email** : urjabachat@gmail.com

Date : 02.08.2022

To
Principal

Channabasweshwar pharmacy college,
Latur

Subject : Energy Audit 2021-22 for NAAC Assessment as per NAAC SOP.

7.1.3 Quality audits on Energy regularly undertaken by the Institution.

1. Energy audit
2. Green audit / Environment audit
3. Promotion activities - Awareness Program
4. MoU

महोदय,

केदार खामितकर अँड असोसिएट्स महाऊर्जा नोंदणीकृत आस्थापना असुन ऊर्जेचे परिक्षणाचे काम करीत आहे. महाराष्ट्र ऊर्जा विकास आभिकरण महाऊर्जा यांचे सेक्रेटरी एनर्जी प्रोग्राम अंतर्गत राज्यातील इमारतीमध्ये ऊर्जा संवर्धनाचा कार्यक्रम राबवण्यासाठी इमारतींना ऊर्जा लेखापरोक्षण करून घेण्यासाठी महाऊर्जा यांचे तांत्रिक व आर्थिक सहाय्य आहे. सध्या वापरात असलेल्या ऊर्जेच्या उपकरणांची कार्यक्षमता ही कमी असल्याने ऊर्जेचा अपव्यय होतो. ऊर्जा बचत हा ऊर्जेचा कार्यप्रस्थरूपी स्रोत म्हणून अस्तित्वात राहणार आहे. ऊर्जा संवर्धनासाठी उपलब्ध नवनवीन तंत्रज्ञान वापरून प्रोत्साहन देणे गरजेचे आहे.

आपल्या महाविद्यालय इमारतीचे Energy Audit / Green Audit 2021-22 ऊर्जेचे परिक्षण करण्याची संधी द्यावी.

धन्यवाद...!

आपला विश्वासू

केदार खामितकर
एनर्जी ऑडिटर



ऊर्जा
संवर्धन
संवर्धन ऊर्जे ... साधन विकास



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Kava Road, LATUR

Panchakshel Shivacharya Trust's Est :- 1973

Channabasweshwar Pharmacy College (Degree)
Kava Road, Basweshwar Chowk, Latur-413512 (Maharashtra)
Phone No. (02382) 240192, Fax-(02382) 243855
Email- channabasweshwar@gmail.com Website- www.cdphl.org

Approved by:- Govt. Of Maharashtra, AICTE & PCI New Delhi, Affiliated to :- S.R.E.M. University Nanded,
DTE Code :- 2253, University Code :- 947

Ref No. CBPCI/2022-23/ Green-Energy/ MOU/ 6/ 512.

Date: 02/01/2023

WORK ORDER

To,
Kedar Khamitkar & Associates
Latur - 413531

Subject : Work order for Energy Audit - Green Audit

Dear Sir,

As per above mentioned subject we authorize to your firm to conduct detail energy audit.

Name of Work:

Carrying Energy Audit-Green Audit of Channabasweshwar Pharmacy College (Degree), Latur Building

Your EA fees applicable as follows:-

Energy Audit and Green Audit total annual fees applicable....Twenty ThousandRs....20000/-

Kindly Conduct details Energy Audit and Green Audit and submit report at your earliest.

Yours faithfully



Principal



Principal
Channabasweshwar Pharmacy
College (Degree), Latur

Received into. Thanking



Principal
Channabasweshwar Pharmacy College (Degree)
Kava Road, LATUR

Bills of Green and Energy Audit Report:

 Kedar Khamitkar & Associates		Reg. no. MEDA/FCN/CR-14/2022-23/EA-07
Office : 'Vardani Bhawan', Beside Govt. Ladies ITI College, Barshi Road, Harangul Road, Latur Mobile : 9850244701 Email : urjabachat@gmail.com		
Invoice		
		No. : 28 Date : 24/03/2023
To Principal Channabasweshwar Pharmacy College, Latur Ref. : CBPCI/2022-23/Green-Energy/MOU/6912 Date - 02/01/2023		
Fees for professional services rendered as under		
Sr. No.	Particulars	Amount
01.	Energy / Green Audit Fees	Rs. 20000/-
<p>PASSED FOR PAYMENT</p> <p>Rs. 20000/-</p> <p>In Words Rs. <u>Twenty thousand only</u></p> <p>on Dated <u>31/3/2023</u> by Cash/D.D./Cheque</p> <p style="text-align: center;"><i>[Signature]</i> Principal Channabasweshwar Pharmacy College LATUR</p> <p style="text-align: center;"><i>[Signature]</i> CH. No. 578751 Dtd. 31/3/2023.</p>		
Total		Rs. 20000/-
(In words Twenty Thousand only)		
 For - Kedar Khamitkar & Associates, Latur		




Principal
 Channabasweshwar Pharmacy College (Degree)
 Kava Road, Latur