

A REPORT ON

**ENERGY AUDIT
OF**

**Karnataka Sangha's
Manjunatha College of Commerce &
Jr.College of Commerce**

Thakurli East, Thane 421 201

AUDIT CONDUCTED BY;



DEEPAK K. KANCHAR (EA-9077)
CERTIFIED ENERGY AUDITORS M/s. DESIGN POWER

ISSUE-R1 Dated 30th March 2022

MONTH – March 2022



For M/s. DESIGN POWER

DESIGN POWER

(ENGINEERING CONSULTANT, ENERGY AUDITOR & PROJECTS)


Proprietor

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**KSs' MANJUNATHA COLLEGE OF COMMERCE
& JR. COLLEGE OF COMMERCE
KANCHANGAON, KHAMBALPADA. THAKURLI [E]**

ENERGY AUDIT (2021-2022)



**Report Submitted by: - MR. DEEPAK KANCHAR.
DESIGN POWER, THANE.**

Date of Submission: - 30th March 2022.

STEPS IN ENERGY AUDITS FOR EDUCATIONAL INSTITUTIONS.

Energy Audits: start with the basics

Step 1: Look for energy spikes

Step 2: Identify bad behaviour.

Step 3: Check your appliances

Step 4: Look at your lighting

Step 5: Inspect your heating and cooling system

Step 6: Call in a professional

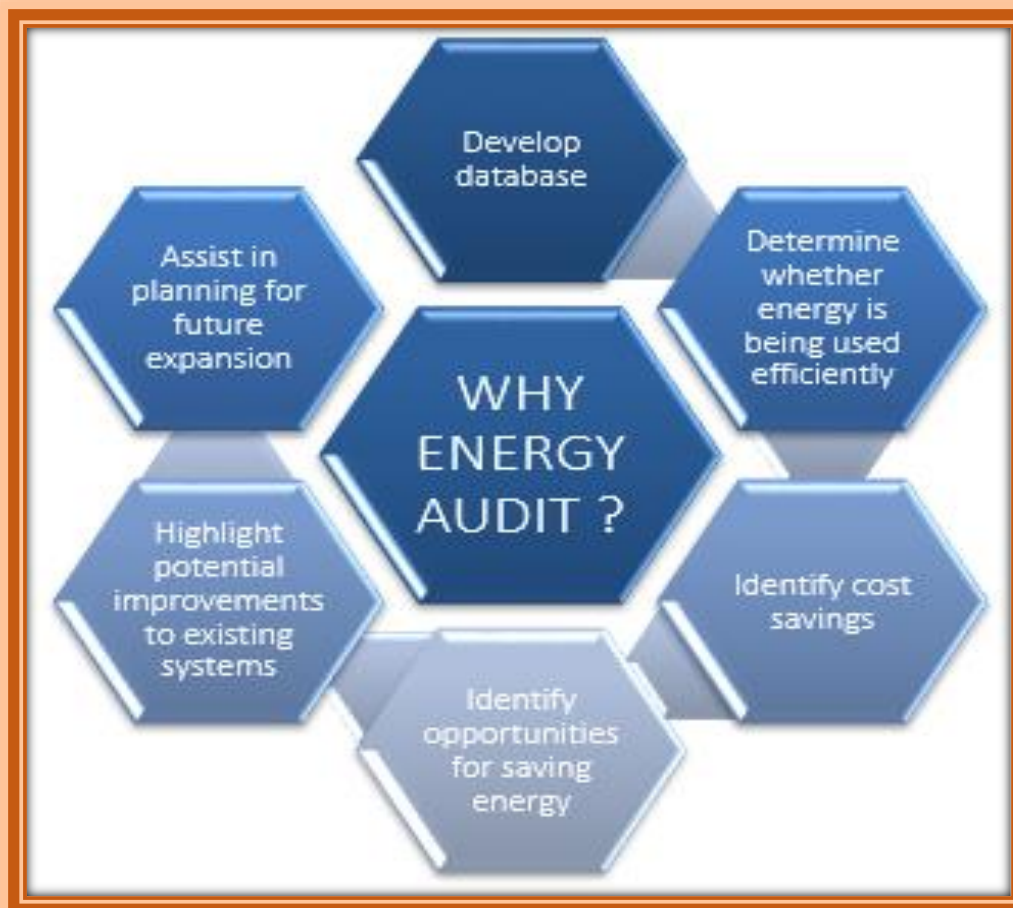
An energy audit determines the amount of energy consumption affiliated with a building and the potential savings associated with that energy consumption. Additionally, an energy audit is designed to understand the specific conditions that are impacting the performance and comfort in your facility to maximize the overall impact of energy-focused building improvements.

An energy audit is a systematic review of the energy consuming installations in a building or premises to ensure that energy is being used sensibly and efficiently or not. An energy audit usually commences with the collection and analysis of all information that may affect the energy consumption of the building or premises, then follows with reviewing and analysing the condition and performance of various building services installations and building management, with an aim at identifying areas of inefficiency and suggesting means for improvement.

Through implementation of the suggested improvement measures, building owners can get the immediate benefit for paying less for energy bills. On the other hand, lowering of energy consumption in buildings will lead to the chain effect that less fossil fuel will be burnt for electricity generation by the power supply companies and relatively less pollutants and greenhouse gases will be introduced into the atmosphere, thus contributing to conserve the environment and to enhance sustainable development.

NEED FOR ENERGY AUDIT FOR EDUCATIONAL INSTITUTE: -

Energy Audit is **the key to a systematic approach for decision-making in the area of energy management**. It attempts to balance the total energy inputs with its use, and serves to identify all the energy streams in a facility. It quantifies energy usage according to its discrete functions.



1. ACKNOWLEDGEMENT

We are sincerely grateful to the **Principal Sir**, for entrusting the work of Energy audit and conservation to us and valuable inputs given for completing the audit, site inspection and report preparation. We express our sincere thanks to Mrs. Nisha Deodhar for extending utmost cooperation and help to make study successful.

2. Areas of Investigation:

2.1 Have done the survey of the entire college building and campus.

3. Energy Audit Team:

M/s DESIGN POWER – Certified Energy Auditor – Mumbai conducted the energy audit. The audit team considered of certified energy auditors from BEE:

1. Mr. Deepak K Kanchar
2. Mr. Parshuram Nade
3. Prajakta Sawant

4. Energy Use and Areas:

Refer The Annexure I.

5. Conclusion:

Refer annexure -II. Energy saving can be obtained as per below

- a. Priority -I : Average saving 4.7 %
- b. Priority -II : Average Saving 18.5 %
- c. Priority -III : Average Saving 90 %

6. Enclosure:

- a. Annexure -I
- b. Annexure -II

ANNEXURE - I
ENERGY CONSUMPTION

Date	30.03.2022
Rev	RO

Sr No.	Equipment	Qty	Kw	Total Kw	Running time Hrs	Consumtion Kw/Day	Total Consumption Kw /Month	Percentage Energy Use	Percentage Connected Load Kw	
1	Air Conditioners									
a	Split AC 2.0 TR	0	2.25	0	0	0	0			
b	Split AC 1.0 TR	0	6	0	0	0	0			
c	Split AC 1.5 TR	18	2.25	40.5	4	162	4050			
	Sub Total			40.5			4050	33.07	40.53	
2	Computers									
a	PC	69	0.15	10.35	4	41.4	1035			
b	Printers	16	0.2	3.2	2	6.4	160			
c	SCANNER / Lamination Machine	6	0.15	0.9	2	1.8	45			
	Sub Total			14.45			1240	10.12	14.46	
3	XEROX MACHINE	1	0.5	0.5	1	0.5	3	0.02	0.50	
4	PROJECTOR	9	0.8	7.2	4	28.8	172.8	2.94	1.00	
5	Refrigerators									
a	242 Ltrs	2	0.5	1	12	12	360	2.94	1.00	
6	BIOMETRIC MACHINE	1	0.15	0.15	4	0.6	18	0.15	0.15	
7	WIFI ROUTERS /WEB CAMERA/JIO MACHINE	25	0.05	1.25	18	22.5	675	5.51	1.25	
8	MIXER &									
a	Mircowave Oven	2	1.5	3	2	6	150			
	Mixer and Grinder	2	1	2	2	4	100			
	Sub Total			5			250	2.04	5.00	
9	Water Pumps									
a	1 HP Water Pump	2	1	2	2	4	100			
b										
	Sub Total			2.0			100	0.82	2.00	
10	FANS									
a	Table Fans	3	0.1	0.3	5	1.5	37.5			
b	Ceilling Fans	170	0.1	17	5	85	2125			
	Sub Total			17.3			2162.5	17.66	17.31	
11	Aquaguard (BIG-2 / SMALL -2)	4	0.15	0.6	5	3	75	0.61	0.60	
12	Lighting									
	Tube Light	248	0.04	9.92	12	119.04	2976			
	LED Light	28	0.02	0.56	12	6.72	168			
	Sub Total			10.48			3144	25.67	10.49	
	TOTAL			99.9			12247.3	101.55		
	Total Consumption KWH ,Per Month Considering Diversity 55 %						6736.02			



Manjunath College of Commerce & Jr. College of Commerce, Thakurli
ANNEXURE-II

ENERGY SAVING OPPORTUNITIES

Date	30.03.2022
Rev	RO

Sr No.	Equipment	Consumption Kw /Month	Priority I	Saving Kwh/M	Priority II	Saving Kwh/M	Priority III	Saving Kwh/M
1	Air Conditioner Split AC s total 27 TR	2025	Maintenance , Filter cleaning , Greasing and Oiling , and Setting Room Temperature 26 deg This leads to energy saving 5 %	101.25	System is very old and inefficient Replace it by energy efficient Inverter AC system Average saving can be 20%	405	System is very old and inefficient Replace it by energy efficient VRF system System TR with diversity will be 27 TR Part load efficiency is very good up to 0.8 Kw per TR Average saving can be 30% Connected Load 40.5 KW will get reduced to 33 Kw.	607.5
2	Refrigerators	360					Old refrigerator to be replaced by Inverter type Refrigerator saving 30%	252
3	Fans	1081	Manual Switch off whenever not required Regular Maintenance can save at least 5%	54.05	Occupancy Sensor control of Fans can save 20%	216.2		
4	Water Pumps	100	Need to do proper maintenance . Complete overhauling Regular maintenance , Changing Faulty Bearing, Cleaning Strainer etc. saving 5% energy.	5				
5	Lighting	3144	Manual control of lighting can save 5%	157.2	Occupancy Sensor control of lighting can save 20%	628.8	Use LED Lighting Saving 70%	2083.2
Total				317.5		1250	Average saving 43 %	2942.7
TOTAL CONSUMPTION PER MONTH KWH		6736.02					Use of Solar roof top Power Plant of Capacity 50 Kw. Approx project cost Rs. 33,60,000/- and Payback will be 40 month i.e. 3.3 Yrs.	6000
TOTAL PROPOSED UNITS (Kwh) SAVED			PRIORITY - I		PRIORITY - II		PRIORITY - III	
			Average saving 4.7 %	317.5	Average Saving 18.5 %	1250	Average saving 90 %-Approching Net Zero	6000

For M/S. DESIGN POWER

Proprietor

Authorized Signatory

DEEPAK K. KANCHAR (EA-9077)

CERTIFIED ENERGY AUDITORS M/s. DESIGN POWER



KARNATAKA SANGHA'S

MANJUNATHA COLLEGE OF COMMERCE
&
JUNIOR COLLEGE OF COMMERCE

Nisha madam
mailed 02/03/2022



Dr. V. S. ADIGAL

M. A. Ph. D.
Principal

NAAC Accredited 'B' Grade with CGPA
score of 2.70

Kanchangaon, Khambhalpada,
Thakurli (East), Dist. Thane - 421 201.

Tel. : 2439952/2803974/2803975 Fax : 2441826
Website : www.ksmanjunathacollege.edu.in
E-mail ID : mcac_college@rediffmail.com
principal@ksmanjunathacollege.edu.in
LBT No. KDMC/LBT-TIN/H/12001824

MCC/1-28/263

2 March 2022

Mr. Deepak Kanchar
Design Power
Thane.

Subject: Conduct of Audits

Sir

This is with reference to your email dated 17 February 2022, regarding conduct of Fire Safety Audit, Electrical Safety Audit and Energy Audit in our College.

Our Management has given approval for the conduct of above Audits under the following conditions:

1. Audits will be conducted during working days between 8 am and 4 pm.
2. You will submit the copy of PAN card and Contact No. of two representatives who will visit the College for conduct of Audits.
3. You will report to Mrs. Nisha Deodhar, whenever you visit our College to conduct the Audits.
4. You will complete the Audit for years 2020-2021 & 2021-2022 within 15 days and submit the written report duly signed by your firm.
5. As discussed with Mrs. Nisha Deodhar (and since we are an Educational Institution), an amount of Rs. 20000/- will be paid to you as remuneration for conducting the above mentioned Audits.

We look forward to your cooperation.

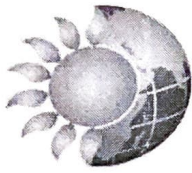
Thank you



Yours faithfully

(Signature)

Dr. V.S. Adigal
Principal & IQAC Chairperson



DESIGN POWER

Smart by Design

February 17, 2022

To,
The Principal,
Karnataka Sangha's
Manjunatha College of Commerce &
Jr.Collegeof Commerce
Kanchangaon, Khambalpada,
Thakurli (East) Dist: Thane
State: Maharashtra
Pin code: 42120
Contact No.: 0251-2439952

Subject: Proposal for Conducting Fire Safety Audit, Electrical Safety Audit and Energy Audit for Manjunatha College of Commerce & Jr.Collegeof Commerce at Thakurli.

Dear Sir,

As per discussion had with you and site visit of your college, we would like to place our offer for above mentioned subject as mentioned below.

Following documents are required for conducting audit,


1. All soft copies of Electrical as built drawings i.e Electrical system, Lift, Meter room, Substation details etc. All electrical SLD's, Cable schedule, Cable selection, and sizing calculations, Earthing layout and earthing calculations and earth test reports.
2. Technical submittals and commissioning report / Handing over systems and equipment's.
3. NOC's etc.
4. All testing report and test certificates for Electrical system.

SCOPE OF WORK:

Scope:

1. Conducting Energy audit of Facility.
2. Measurement of Power / Amp of equipment.
3. Checking all electrical drawing and SLD.
4. Inspection of Electrical Installations.
5. Inspection of all fire equipments.
6. Preparation of detailed Energy Audit report.
7. Electrical Panels, Substation, Transformer and distribution.
8. Meter room and metering panel.

DESIGN POWER

Unit No-121, Lodha Supremus-II, Road No- 22, Wagle Estate, Thane (W). 400604. Maharashtra
Ph: 9702703432 Email: designpower777@gmail.com  www.designpower.in

rediffmail

Mailbox of mcac_college

Subject: Fees proposal for conducting energy audit - Manjunath Collage

From: Deepak Kanchar <deepakkanchar@gmail.com> on Thu, 17 Feb 2022 18:25:19

To: mcac_college@rediffmail.com

1 attachment(s) - FEES_FOR_MEP_AUDIT.pdf (151.26KB)

Dear Sir / Madam,

Please find attached fees proposal for conducting Energy audit, fire safety Audit and Electrical Safety audit of Manjunath college located at Thakurli.

Thanks & regards,

Deepak Kanchar
Design Power

Professional Fees:

A) Part 1. Pre-Audit:

Rs. 30,000/- (Rupees Thirty Thousand only.)

B) Part 2. Post Audit:

1. First Three Months actual energy saving amount will be charged to you resulted because of energy saving measures suggested by us.
2. Energy saving measures work shall be carried out by us i.e. Design Power.

TERMS AND CONDITIONS:

1. Taxes which will be paid separately as per prevailing rates.
2. Payment Schedule:
 - a. 20% advance along with work order.
 - b. 60% after submission preliminary audit report.
 - c. 20% at the time of after final submission of audit report.
3. Completion Time:
 - a. Audit 15 days.
 - b. Extra fees will be charged for any work after one Month.

The necessary drawings and documents required for us shall be provided by you including hard & soft copies.

Kindly acknowledge the receipt & let us know if you need any further clarifications.

Yours truly,

Thanks & Regards,

Design Power
Deepak Kanchar
9702703432