

KANDI RAJ COLLEGE



ENERGY AUDIT 2021-'22



KANDI RAJ COLLEGE

(Govt. Sponsored)

Kandi, Murshidabad, West Bengal- 742137

☎ 03484 255230

✉ principalkrc.krc@gmail.com

principal@krc.edu.in

🌐 www.krc.edu.in

Ref No. : 90/KRC/23

Date: 31.05.23

To

M/S DELTA TRADING ENTERPRISE ENGINEERS & CONTRACTORS (Regn. No. 9784, Licence Board, Electrical, Kolkata)

VILLAGE & P.O : EROALI, P.S - KHARGRAM, DISTRICT : MURSHIDABAD (W.B) PHONE : 7001997365

Subject.- A request for providing certificate for Energy Audit of Kandi Raj College.

Respected Sir

With due respect I would like to inform you that we have to submit Energy Audit report to our concerned authority and it is very much essential as well as vital.

Hence, I would earnestly request you to conduct Energy Audit in our College premises

and submit the report at the earliest so that we may submit your report to our concerned authority.

Awaiting your earliest positive response .

With regards,

[Signature]
31/5/2023

Dr. Soma Datta

Principal,

Kandi Raj College

Kandi, Murshidabad.

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Kandi, Murshidabad





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DECLARATION

The Energy Audit conducted and prepared by our college are completely based on self-inquiry & data collected by energy audit team. The perception about the audit was conducted on various electrical equipments used daily.

Signature of Members

Ablipit Datta
Atanu Kumar Das.
Bolai Chatterjee

Countersigned by

Soma
Principal,
Kandi Raj College
Kandi, Murshidabad.



Dr. Soma Datta
Principal
Kandi Raj College
Kandi, Murshidabad

M/S DELTA TRADING ENTERPRISE

ENGINEERS & CONTRACTORS (Regn. No. 9784, Licence Board, Electrical, Kolkata)

VILLAGE & P.O : EROALI, P.S - KHARGRAM, DISTRICT : MURSHIDABAD (W.B) PHONE : 7001997365

Ref no. Er. 32 / 2023

Date: 02.06.2023

TO WHOM IT MAY CONCERN

With reference to your letter No. 90/KRC/23 dated 31.05.2023, regarding the ENERGY AUDIT, inside the campus of Kandi Raj College, Kandi, Murshidabad, we have physically checked the entire campus which revealed that the Energy audit status in respect of different electrical equipments effectively managed the energy consumption at minimum cost and eco-friendly. Kindly find enclosed energy audit report of Kandi Raj College, Kandi, Murshidabad.

Name of National Supervisor : CHANCHAL KAR

SCC No - 11351

Parts - 1.2.4,6A,6B,7A,7B,11&12 only

02/06/2023



Energy Audit, Kandi Raj College

Energy Audit team

1. Mr. Abhijit Dutta (Assistant Professor in Physics)
2. Dr. Atanu Kumar Das (Assistant Professor in Physics)
3. Mr. Balai Chatterjee (Casual Staff working in Dept. of Physics)
4. Mr. Dilip Majhi (Casual Staff working as Electrician in College)

Preface

Data collection for Energy Audit of Campus was conceded by a team mentioned before for the period of January 2021 to December 2021. This audit was undertaken as a convenience to know progress of the college regarding energy competence. To minimize energy utilization, this audit required to recognize mainly energy efficient appliances. The data was collected from each Classroom, Laboratories, Library, Administrative office and Departmental staff rooms. In this data, total number of Tube Light, Computers, LED Bulbs, Fan, ACs, Air-Conditioner, electric instruments in laboratories, etc. was taken into consideration.

Objective of Energy Audit

When the object of study is an occupied building then reducing energy consumption while maintaining or improving Students and Staff comfort, health and safety are of primary concern. Beyond simply identifying the sources of energy use, an energy audit seeks to prioritize the energy uses according to the greatest to least cost-effective opportunities for energy savings.

Introduction

Energy auditing applies the law of conservation of energy. It simply means that we can account for energy because it is neither created nor destroyed in the facilities and systems we operate.

In the last several decades, energy audits have exploded as the demand to lower increasingly expensive energy costs and move towards a sustainable future have made energy audits greatly important. Their importance is magnified since energy



Energy Audit, Kandi Raj College

spending is a major expense everywhere. Audits performed externally tend to focus on energy-saving technologies and capital improvements. It also reveals energy-saving opportunities that are less capital intensive and focus more on operations. Organizations that conduct an energy audit internally gain considerable experience in how to manage their energy consumption and costs. By going through the auditing process, one can understand that energy is a manageable expense. The people become able to analyze use of energy and are more aware of how their day-to-day actions affect energy consumption.

An energy audit is the key to developing an energy management program. Although energy audits have various degrees of complexity; the audit is designed to determine how energy is being used. This information can then be used to identify opportunities to improve efficiency, decrease energy costs and reduce greenhouse gas emissions that contribute to climate change. Energy audits can also verify the effectiveness of energy management Programs that have been implemented. Energy audits can be done using internal resources.

In the present study, Institutional electricity audit has been done. Practical laboratory instruments, Fans, air conditioners, Computers etc. are considered. Exact contribution of bulb, fans, computer, instruments etc. in the total requirement of electricity. We studied all these mentioned things by collecting exactly data form survey.

Electric Connections

We have three meters for college campus and Staff Quarters. One meter is dedicatedly used for Air-Conditioner, One for others electrical equipment and one for Staff Quarter. Following three are the meters no.

- P1053933
- B2557041
- P1053934





Energy Audit, Kandi Raj College

Data Collection

All required data is collected by the team for the survey of the college. In all Buildings, in Every Class rooms and Departments, how many Fans, Tube lights CFL Bulbs, Computer, Printer, A.C. and instrument on electricity etc were measured. According to survey following data is collected.

Dept.	No. of Tube Light	No. of Led	No. of Fan	No. of Computer	No. of Printer	No. of Exhaust Fan	No. of Projector	No. of Fridge	Instruments	Total Watt
Chemistry	34	13	16	3	2	4	2	2	Potentiometer Weighing balance pH meter SpectrophotometerUV Polari meter Colorimeter Ice Making Machine Furnace Magnetic Stirrer Double Distillation Assembly	8980
Physics	16	16	19	07	1	1	2	1	Optics lab Electrical Lab Electronics Lab Thermal Physics Lab Solid State Lab Mechanics Lab Modern Physics	9465
Physical Education (Dept.)	5	4	6	0	0	0	0	0		630
Computer Science (Dept.)	6	2	5	6	1	2	0	0		2685
Geography (Dept.)	22	8	8	3	2	0	0	0		3230
Zoology (Dept. + Lab.)	8	0	4	0	0	0	0	1		1080
Science Building Staircase	0	6	0	0	0	0	0	0		60



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Physiology (Dept.+ Lab.)	7	6	6	0	0	0	0	0	Kymograph Sphygmomanometer Anthropometric measurements kit	730
Botany (Dept.+ Lab.)	14	0	7	1	1	0	1	1	Autoclave Centrifuge Laminar flow Water Bath	2515
Education Class Room 1	3	0	6	0	0	0	0	0		510
Education Class Room 2	2	3	4	0	0	0	0	0		370
Mathematics	14	9	13	5	1	1	2	0		3795
Economics (Dept.)	3	2	2	0	0	0	0	0		270
Sanskrit (Dept.)	2	2	1	1	1	0	0	0		915
Bengali (Dept.)	2	1	2	1	0	0	0	0		470
Philosophy (Dept.)	2	2	2	1	1	1	0	0		1030
English (Dept.)	1	1	2	1	1	0	0	0		930
History Dept.	1	2	2	1	1	0	0	0		940
Education Dept.	2	1	1	1	0	0	0	0		405
Pol. Sc. Dept.	1	1	1	0	0	0	0	0		115
Staff Room and Surrounding	0	24	8	0	0	2	0	0		6860
Library office	16	15	18	3	1	2	1	0		3560
Multi Gym	3	7	6	0	0	0	0	0		580
Guard Room	0	1	1	0	0	0	0	0		75
Principal Room	0	8	4	1	1	0	0	0		5090
Head Clerk Room	5	2	4	2	2	0	0	0		1980
Office Computer Room	2	1	1	2	1	0	0	0		1155
Student Section	3	2	6	1	1	0	0	0		1280
Scholarship Section	2	0	2	0	0	0	0	0		210
Cash Room	2	2	2	0	0	0	0	0		230
Account Section	3	4	3	1	1	1	0	0		1155
Canteen	2	1	3	0	0	0	0	1		785



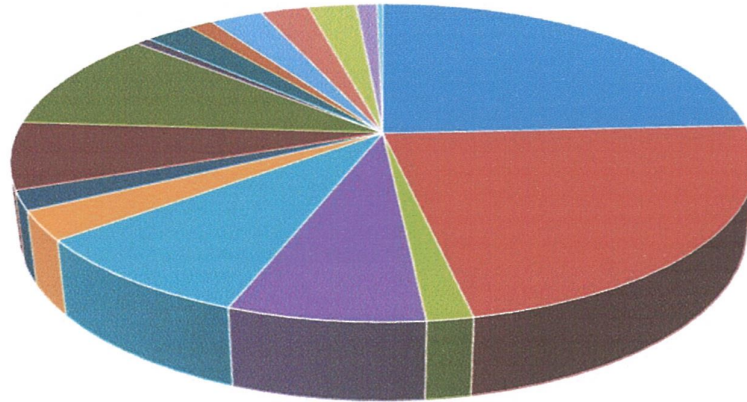
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Night Guard Room	1	0	1	0	0	0	0	0	105
Staff Room Toilet (Male)	2	0	0	0	0	1	0	0	150
Staff Room Toilet (Female)	2	0	0	0	0	1	0	0	150
Room 1	0	5	9	0	0	0	0	0	635
Room 2	0	2	4	0	0	0	0	0	280
Room 3	0	5	7	0	0	0	0	0	505
Room S3	4	0	4	0	0	0	0	0	420
Room 5/6	0	3	2	0	0	0	0	0	160
Room S4	4	0	7	0	0	0	0	0	615
Room S5	6	1	6	0	0	0	0	0	640
Room S6	6	0	6	0	0	0	0	0	630
Room 8	4	2	9	0	0	0	0	0	765
Room 9	0	5	10	0	0	0	0	0	700
Room 10	0	4	7	0	0	0	0	0	495
Room 11	0	4	4	0	0	0	0	0	300
Room 12	0	1	1	0	0	0	0	0	75
Room 13	0	2	3	0	0	0	0	0	215
Room NH	10	0	11	0	0	0	1	0	1365
Girls' Common Room	2	2	2	0	0	0	0	0	230
Boys' Common Room	2	0	3	0	0	0	0	0	275
Male Toilet	0	7	0	0	0	0	0	0	70



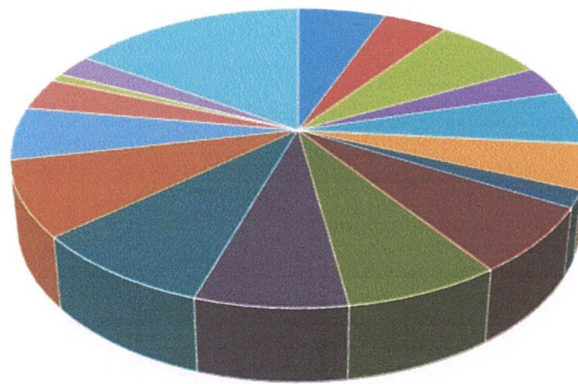
Energy Audit, Kandi Raj College

Academic Departments Distribution



- | | | | |
|-------------------|-----------------|--------------------------|------------------------|
| Chemistry Dept. | Physics Dept. | Physical Education Dept. | Computer Science Dept. |
| Geography Dept. | Zoology Dept. | Physiology Dept. | Botany Dept. |
| Mathematics Dept. | Economics Dept. | Sanskrit Dept. | Bengali Dept. |
| Philosophy Dept. | English Dept. | History Dept. | Education Dept. |
| Pol. Sc. Dept. | | | |

Classroom Distribution

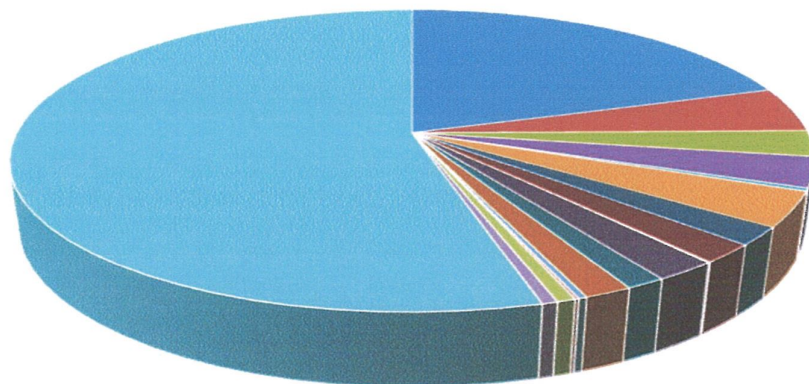


- | | | | |
|------------------------|------------------------|----------|---------|
| Education Class Room 1 | Education Class Room 2 | Room 1 | Room 2 |
| Room 3 | Room S3 | Room 5/6 | Room S4 |
| Room S5 | Room S6 | Room 8 | Room 9 |
| Room 10 | Room 11 | Room 12 | Room 13 |
| Room NH | | | |



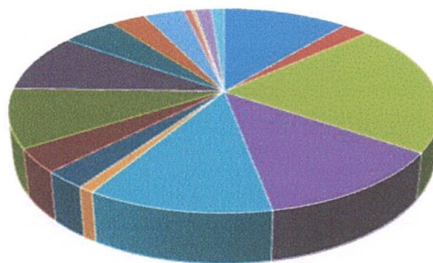
Energy Audit, Kandi Raj College

Activity Wise Distribution



- | | | |
|-------------------------|-------------------|---------------------------------|
| ■ All Departments | ■ All Classrooms | ■ Principal Office |
| ■ Administartive Office | ■ Multi Gym | ■ Staff Room |
| ■ Library | ■ IQAC | ■ Security Room |
| ■ Photocopy Machine | ■ water purifier | ■ Submarshibale |
| ■ Sound System | ■ Router | ■ Campus and Surroundings Light |
| ■ CCTV Camera | ■ Air Conditioner | |

Equipments wise Distribution



- | | | |
|-----------------|---------------------|-------------------|
| ■ Tube Light | ■ Led Bulb | ■ Fan |
| ■ Computers | ■ Printers | ■ Exhaust Fan |
| ■ Projector | ■ Fridge | ■ Air Conditioner |
| ■ Lab Instrmnt | ■ Photocopy Machine | ■ water purifier |
| ■ Submarshibale | ■ Sound System | ■ Router |



Energy Audit, Kandi Raj College

Observation

Electricity is the main energy source for the college. Besides this, we are going to install photovoltaic cell of 2 KW/hrs. in the campus as an alternate renewable source of energy. Computers are run in power saving mode. Unnecessary consumption of power is not allowed and all switches are carefully operated.

Conclusion

Energy audit is an effective tool in identifying and perusing a comprehensive energy management program. A careful audit of any type will give the organization a plan with which it can effectively manage the energy consumption at minimum cost. Through this analysis, suggestion/ recommendations has been made to reduce the electrical power consumption in the college campus.

Energy Audit Committee:

1. Mr. Abhijit Dutta *Abhijit Dutta*
2. Dr. Atanu Kumar Das *Atanu Kumar Das*
3. Mr. Balai Chatterjee *Balai Chatterjee*
4. Mr. Dilip Majhi *Dilip Majhi*

Checked and Signed by External Expert

Name : *CHANCHAL KAR.*

Signature: *Chanchal Kar*

Designation : *Electrical Supervisor & Contractor.*



Dr. Soma Datta

Dr. Soma Datta
Principal
Kandi Raj College
Kandi, Murshidabad

Principal

Kandi Raj College, Murshidabad

* CHANCHAL KAR, E.E.E.E.E.
Govt. Supervisor (Elect.)
* G.O. No-11381, Para-1, 2, 4
Valid upto 26.02.20