



Engineers » Contractors

Deals in : Electrical Installation , Commercial, Residential Wirings, Industrial (HT/LT) Erections

Ashoka Shopping Complex, Shop No. 213, 1st Floor, G.T. Hospital, L.T. Marg,
Mumbai 400 001. • PH.: 22633899/9820082806/ 9833506688

E-mail :- sadaf.electricals@rediffmail.com/sadaf.electricals1985@gmail.com

31st August 2023

ENERGY AUDIT REPORT

Introduction: An energy audit is a study of a Building or facility to determine how and where energy is used and to identify methods for energy savings.

Objective: The Energy Audit was conducted to inspect all the installation which consume energy and submit the report. To recommend energy conservation proposals with cost benefit analysis.

Energy Audit Methodology

Data collection for energy audit of the Akbar Peerbhoy College of Commerce & Economics building was conducted on 10th August 2023. Data for the Audit was collected from each classroom, computer Labs, Library, admin office, staff room, girls' common room, canteen, Gymkhana etc. 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.

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.

SADAF ELECTRICALS
M. C. LIC. No. 24955
9/3, Municipal Transit Camp,
Byculla Stn. Rd., Mumbai - 400 011.





Engineers » Contractors

Deals in : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001
 Ph. 22633899 / 65110320 / 9820082806 / 9833506688 • E-mail sadaf_electricals@rediffmail.com
 Website: www.sadafelectricals.com

Observations during Audit

Sr no.	Location	Fans	Tube lights	A/C	Projector	Electrical point	Audio system
1	Computer Lab A 1 st floor	3	6	2	1	154	0
2	Principal Chamber	2	6	1	0	18	0
3	Office 1 st floor	7	10	2	0	88	0
4	Staff Room	2	5	2	0	24	0
5	Conference Room	2	4	1	1	19	0
6	Exam Room	2	5	1	0	22	0
7	2 nd Flr Rm.No.10	7	7	0	0	13	0
8	Rm.No11	7	6	0	0	13	0
9	Rm.No12	7	5	0	0	13	0
10	Rm.No13	7	7	0	1	19	1
11	3 rd Flr Rm.No.14	7	7			13	0
12	Rm.No15	7	7	0	0	13	0
13	Rm.No16	7	7	0	0	13	0
14	Rm.No17	6	6	0	1	15	0
15	4 th Flr Rm.No19	7	5	0	0	13	0
16	Rm.No20	5	6	0	0	13	0
17	Rm.No21	7	6	0	0	13	0
18	Rm.No22	7	6	0	0	13	0
19	Rm.No25	5	5	2	1	17	1
20	Rm.No26	5	5	2	1	17	1
21	Rm.No27	5	5	2	1	17	1
22	Rm.No28	5	5	2	1	17	1
23	Rm.No29	5	5	2	1	17	1
24	Computer Lab B	0	28	4	1	60	0
25	Computer Lab C	2	4	2	1	50	0
26	Electronic Lab	2	3	1	0	25	0
27	Coordinator Cabin	1	10	2	0	27	0
28	Office 4 th Flr	1	6	1	0	13	0
29	Library	51	80	8	0	262	0
30	Hall Rm.No1	14	36	6	0	66	1

INSTALLATION WHICH CONSUMES ELECTRICITY

SADAF ELECTRICALS
 M. C. LIC. No. 24955
 9/3, Municipal Transit Camp,
 Byculla Str. Rd., Mumbai - 400 011.





Engineers » Contractors

Deals In : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001.
Ph.: 22633899 / 65110320 / 9820082806 / 9833506688 • E-mail:sadaf.electricals@rediffmail.com
Website : www.sadafelectricals.com

Source of Energy:

- Institute receives Electricity from Electricity Distribution Company: Brihanmumbai Electric Supply and Transport(BEST)
- Number of Electrical Meters installed in the Campus: 02 Nos
- Consumer No: 102-000-573& 102030987

Number of Electrical Meters installed in the Campus: 02Nos.

Historical Energy Consumption Data Analysis

Con. Number	102-000-573	102-030-987-1	TOTAL
May-23	3666	4135	7801
Apr-23	4746	5908	10654
Mar-23	3088	4267	7355
Feb-23	2927	4478	7405
Jan-23	3724	5406	9130
Dec-22	3714	5393	9107
Nov-22	3986	5301	9287
Oct-22	4977	6436	11413
Sep-22	4528	5805	10333
Aug-22	3474	5554	9028
July-22	3283	4730	8013
Jun-22	2177	2627	4804
May-22	3897	3762	7649

SADAF ELECTRICALS
M. C. L.I.C. No. 24955
9/3, Municipal Transit Camp,
Byculla Stn. Rd., Mumbai - 400 011.





Engineers » Contractors

Deals in : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001.

Ph.: 22633899 / 65110320 / 9820082806 / 9833506688 • E-mail:sadaf.electricals@rediffmail.com

Website : www.sadafelectricals.com

Following are the major consumers of electricity in the facility:

Sr.	Appliance	Watt	Qty.	Total
1	Ceiling fans	70	195	15050
2	Exhaust Fan	50	4	1700
3	Air Conditioner	2000	71	142000
4	LED Tube	20	280	5600
5	CFL	52	26	1352
6	Streetlight	75	25	1875
7	Refrigerator	250	6	1500
8	Computers	150	157	23550
9	Laptop	45	13	585
10	Miscellaneous			10000
			Total	203212

1. Total monthly average energy consumption of the college is more than 5500 units.
2. Total monthly billing is INR 50, 000 /-
3. No Solar Photovoltaic system is installed in the college for energy generation.

Finding:

- No major electric city leakages or Malfunctioning
- Most of the tube lights are LED tube lights which reduces energy consumption
- It was observed during the Audit that some split ACs fitted in the carries 5 star, which is good from energy efficiency point of view.
- No leakages in electric wiring.
- Even computer monitors are LED.
- No major voltage fluctuations was observed during Audit period

SADAF ELECTRICALS
M. C. LIC. No. 24955
9/3, Municipal Transit Camp,
Byculia Stn. Rd., Mumbai - 400 011.





Engineers » Contractors

Deals in : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001.
Ph. 22633899 / 65110320 / 9820082806 / 9833506688 • E-mail sadaf.electricals@rediffmail.com
Website : www.sadafelectricals.com

- College has an infrastructure committee which keeps track of the energy consumption Parameters of the various departments, class rooms, halls, areas, meters, etc.
- Filters of AC package units were also checked during study which was found very clean

Recommendation

Create Awareness:

1. 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.
2. 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.

Suggestions:

LIGHTING:

- Reduce excessive illumination levels to standard levels using switching;
- Aggressively control lighting with clock timers
- Consider lowering the fixtures to enable using less of them.
- Consider day lighting, sky lights, etc.
- Use task lighting and reduce background illumination.

AC

- It is recommended that whenever new split/ window ACs are being installed, it should be 5 stars rated.

Regular Maintenance and Cleaning

- **Clean or Replace Air Filters:** One of the most straightforward methods to maintain the efficient operation of your air conditioner is to regularly clean or replace its air filters. Dirty filters impede air flow, causing the unit to operate with increased effort and consume more electricity. Depending on usage, it is recommended to clean or replace filters every one to three months.
- **Check and Clean Coils and Fins:** Over time, the evaporator and condenser coils in your AC can accumulate dust and debris, reducing their ability to absorb and release heat. Clean the coils

SADAF ELECTRICALS
M. C. LIC. No. 24955
9/3, Municipal Transit Camp,
Byculla Str. Rd., Mumbai - 400 011.

Imran





Engineers » Contractors

Deals in : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001
Ph : 226338899 / 65110320 / 9820082806 / 9833506688 • E-mail sadaf_electricals@rediffmail.com
Website : www.sadafelectricals.com

at least once a year to maintain optimal efficiency. Similarly, check the fins on the coils and straighten any bent ones to improve airflow.

- **Inspect Ductwork and Seal Leaks:** Leaky ducts can waste a significant amount of cool air, reducing the efficiency of your air conditioner. Inspect your ductwork for leaks and seal them with duct tape or mastic. A professional can also perform a thorough inspection and repair.

Optimal Temperature Setting and Thermostat Placement

- **Choose the Right Temperature:** The selection of an appropriate temperature setting greatly impacts the performance of your AC system. Opting for a temperature that is too low can strain the system, leading to increased energy consumption and potential wear and tear. On the other hand, selecting a temperature that is too high may result in inadequate cooling and reduced comfort. Therefore, choosing the right temperature setting is essential.
- **Proper Thermostat Placement:** The location of your thermostat can affect the performance of your AC. As per the Department of Energy, a thermostat should be installed on an interior wall, away from direct sunlight, drafts, doorways, and windows. This helps to ensure accurate temperature readings and prevents your AC from overcooling or under cooling your classroom or office.

Utilizing Energy-efficient Modes and Features

- **Use Sleep Mode or Timer:** Many AC units come with a sleep mode or timer feature, allowing you to set a specific duration for the AC to run before shutting off automatically. According to the International Energy Agency, using these features can save up to 30% of the energy consumed by an air conditioner. Use these features to save electricity, especially when you're asleep or away from home.

Motors

- Provide proper ventilation
- For every 10°C increase in motor operating temperature over recommended peak, the motor life is estimated to be halved
- Check for under-voltage and over-voltage conditions.
- Balance the three-phase power supply.

SADAF ELECTRICALS
M. C. LIC. No. 24955
9/3, Municipal Transit Camp,
Byeulla Stn. Rd., Mumbai - 400 011.





Engineers » Contractors

Deals in : Electrical Installations, Commercial, Residential Wirings, Industrial (HT/LT) ERECTIONS

Ashoka Shopping Complex, Shop No. 213, 1st Floor, GT Hospital, L.T. Road, Mumbai - 400 001.
Ph : 22633899 / 65110320 / 9820082806 / 9833506688 • E-mail:sadaf.electricals@rediffmail.com
Website : www.sadafelectricals.com

Fan:

- **Perfect positioning:** A ceiling fan won't work effectively if it is not fixed at its ideal position in relation to the ceiling as well as the ground and thus, you will need to run it at a higher speed. Ceiling fans also work best when the blades are 7-8 feet from the ground. Adjusting the ceiling fan to its ideal position will improve efficiency and thus save energy in the long run.
- **The right size:** This is one of the biggest reasons for increased energy consumption due to the ceiling fan. Ceiling fans come in multiple sizes and based on the dimensions and setting of classrooms or office or Labs you may need a different size. For instance, if your Class room is longer than 18 feet, one big fan may not be enough, but for a smaller class room or office, a large fan will be overkill and waste energy. For a office size under 160 sq ft, a 1200mm fan should be enough, but for 160-250 sq ft, you may need a 1,400mm fan.
- **Switching it off:** Unlike other cooling appliances such as a cooler or an air conditioner, a ceiling fan can't cool down a room and is effective only in your presence. Hence, make it a point to switch off the fan when leaving a room. Inculcating the habit of turning off electrical that are not in use will result in a lot of energy savings and as a result will significantly reduce your electricity bill.
- **Maintenance:** With use, dust and dirt gets accumulated not just on the surface of the blades but on vital parts such as the capacitor and motor resulting in a gradual decline in efficiency. You should clean your blades and other exposed bits regularly to keep your fan performing at its peak. This will also extend the life cycle of the fan. If you need help with cleaning your fan you may also refer to the owner's manual that came with it.

SADAF ELECTRICALS
M. C. LIC. No. 24955
9/3, Municipal Transit Camp,
Byculla Stn. Rd., Mumbai - 400 011.

