



M/s. Deepak Kumar Patel



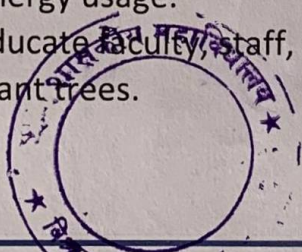
Conducted a comprehensive energy audit of the college building of Government college Bishrampur, District Surajpur (C.G.) to identify areas of energy inefficiency. This should include an assessment of the building envelope, lighting, HVAC systems, and other energy-consuming systems.

1. Wiring diagram of college building found as per standard and all the appliances installed in this building are as per IS standard.
2. Standard safety measures applied during installation of electrical wiring, Terminals and equipment's.
3. Earthing arrangement for equipment's found as per IS standard to avoid electrical hazards.
4. No area was found where energy is wasted and reduced with affecting outlets and appliances.
5. Load of building managed as per requirement during working hours.
6. Summary of annual energy consumption by all type of load in approximate Energy in kwh are as follows.

Sr. No.	Session	Kwh	Rate/kwh	Amount Per year	Remarks
1	2017-18	5109	3.65	18647.85	
2	2018-19	5213	3.65	19027.45	
3	2019-20	6067	3.65	22144.55	
4	2020-21	2001	4.50	9004.50	
5	2021-22	5179	4.50	23305.50	

Recommendations:

- Install energy-efficient lighting fixtures and controls, such as occupancy sensors and dimmers, to reduce energy consumption.
- Install energy-efficient windows and doors to reduce air leakage and improve insulation.
- Install solar panels to generate renewable energy and reduce the college's reliance on the grid
- Implement a comprehensive energy management system to monitor and control energy usage.
- Educate faculty, staff, and students on energy conservation and efficiency.
- Plant trees.



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Total load on various appliances used in college building as per specification, capacity and market price
Energy Consumption as per actual sevice load Year 2017-18
Govt. College Bishrampur, District Surajpur (C.G.)

Sr. No.	Name of appliance	Capacity of appliance in watts	Connecte d Qty	Qty in service	Total watts (W)	Hrs/d ay	Wh
1	Ceiling fans	60	128	65	4225	2.5	10562.5
2	Tube light	40	79	45	2025	2.5	5062.5
3	Cooler	250	2	2	4	4	16
4	Water Cooler	600	2	1	1	4	4
5	Exhaust Fan	120	7	5	25	3	75
6	Computer	150	10	8	64	6	384
7	Printer	1000	2	2	4	1	4
8	Water Pump	650	1	1	1	4	4
9	Sound system	50	1	1	1		0
10	Photocopy matchine	1700	2	2	4	1	4

Total	16116	wh
Total	16.116	kwh

Energy consumption per year = no. of day X kwh
 = 317 X 16.116
 = 5108.772 KWH/ year

Cost of Energy =
 = 5108.772 X 3.65
 = 18647.02
 = 18647.02 Rs per year(approx)
 = 1553.918 Rs per month



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Total load on various appliances used in college building as per specification, capacity and market price
Energy Consumption as per actual sevice load Year 2018-19
Govt. College Bishrampur, District Surajpur (C.G.)

Sr. No.	Name of appliance	Capacity of appliance in watts	Connecte d Qty	Qty in service	Total watts (W)	Hrs/day	Wh
1	Ceiling fans	60	128	40	2400	2	4800
2	CFL Bulb	12	10	6	72	2	144
3	Tube light	40	79	20	800	1	800
4	Cooler	250	2	1	250	2	500
5	Water Cooler	600	2	3	1800	2	3600
6	Exhaust Fan	120	7	3	360	1.5	540
7	Computer	150	10	6	900	3	2700
8	Printer	1000	3	2	2000	0.5	1000
9	Water Pump	650	1	1	650	1	650
10	sound system	250	1	1	250	0.05	12.5
11	photocopy matchine	1700	2	1	1700	1	1700

Total 16446.5 wh
 Total 16.4465 kwh

$$\begin{aligned} \text{Energy consumption per year} &= \text{no. of day} \times \text{kwh} \\ &= 317 \times 16.4465 \\ &= 5213.54 \text{ KWH/year} \end{aligned}$$

$$\begin{aligned} \text{Cost of Energy} &= 5213.5405 \times 3.65 \\ &= 19029.4 \\ &= 19029.4 \text{ Rs per year (approx)} \\ &= 1585.79 \text{ Rs per month} \end{aligned}$$



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Total load on various appliances used in college building as per specification, capacity and market price
Energy Consumption as per actual sevice load Year 2019-20
Govt. College Bishrampur, District Surajpur (C.G.)

Sr. No.	Name of appliance	Capacity of appliance in watts	Connect ed Qty	Qty in service	Total watts (W)	Hrs/day	Wh
1	Ceiling fans	60	128	25	1500	2.5	3750
2	LED Bulb	12	10	6	72	6	432
3	Tube light	40	79	16	640	2.5	1600
4	Cooler	250	2	1	250	4	1000
5	Water Cooler	600	2	1	600	4	2400
6	Exhaust Fan	120	7	2	240	3	720
7	Computer	150	10	3	450	6	2700
8	Printer	1000	3	2	2000	1	2000
9	Water Pump	650	1	1	650	4	2600
10	sound system	250	1	0	0		0
11	CCTV camera systam	50	1	1	50	6	300
12	Photocopy matchine	1700	2	1	1700	1	1700

Total 19202 wh
 Total 19.202 kwh

$$\begin{aligned}
 \text{Energy consumption per year} &= \text{no. of da} \times \text{kwh} \\
 &= 317 \times 19.202 \\
 &= 6087 \text{ KWH/ year} \\
 \text{Cost of Energy} &= 6087 \times 3.65 \\
 &= 22217.7 \\
 &= 22217.7 \text{ Rs per year (approx)} \\
 &= 1851.47 \text{ Rs per month}
 \end{aligned}$$



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Total load on various appliances used in college building as per specification, capacity and market price
Energy Consumption as per actual sevice load Year 2020-21
Govt. College Bishrampur, District Surajpur (C.G.)

Sr. No	Name of appliance	Capacity of appliance	Connect ed Qty	Qty in service	Total watts (W)	Hrs/day	Wh
1	Ceiling fans	60	128	5	300	2	600
2	LED Bulb	12	10	2	24	2	48
3	Tube light	25	79	10	250	1.5	375
4	Cooler	250	2	1	250	2	500
5	water Freeze	600	2	1	600	1	600
6	Exhaust Fan	120	7	2	240	1	240
7	Computer	150	11	2	300	2	600
8	Printer	1000	3	1	1000	0.5	500
9	Water Pump	650	1	1	650	1	650
10	induction	600	1	0	0	1	0
11	projector	300	1	0	0	0.5	0
12	slide projector	150	1	0	0	0.5	0
13	invertor	400	1	1	400	0.5	200
14	sound system	250	1	0	0		0
15	cctv camera system	50	1	1	50	6	300
16	Venting Pad machine	1000	1	0	0	0	0
17	Disposhj machine	800	1	0	0	0	0
18	photocopy matchine	1700	2	1	1700	1	1700

Total 6313 wh
 Total 6.313 kwh

Energy consumption per year = no. of day X kwh
 = 317 X 6.313
 = 2001.22 KWH/year
 Cost of Energy = 2001.22 X 4.5
 = 9005.49
 = 9005.49 Rs per year(approx)
 = 750.458 Rs per month



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Total load on various appliances used in college building as per specification, capacity and market price
Energy Consumption as per actual sevice load Year 2021-22

Govt. College Bishrampur, District Surajpur (C.G.)

Sr. No	Name of appliance	Capacity of appliance in watts	Connecte d Qty	Qty in service	Total watts (W)	Hrs/day	Wh
1	Ceiling fans	60	128	30	1800	1.5	2700
2	LED Bulb	12	10	8	96	2	192
3	Tube light	25	79	20	500	1.5	750
4	Cooler	250	2	1	250	2	500
5	water Freeze	600	2	1	600	2	1200
6	Exhaust Fan	120	7	3	360	2	720
7	Computer	150	11	6	900	3	2700
8	Printer	1000	3	3	3000	1	3000
9	Water Pump	650	1	1	650	1	650
10	induction	600	1	1	600	1	600
11	projector	300	1	1	300	0.5	150
12	slide projector	150	1	1	150	0.5	75
13	invertor	400	1	1	400	0.5	200
14	sound system	250	1	1	250	0	0
15	cctv camera system	50	1	1	50	6	300
16	Venting Pad machine	1000	1	1	1000	0.5	500
17	Disposhj machine	800	1	1	800	0.5	400
18	photocopy matchine	1700	2	1	1700	1	1700

Total 16337 wh
 Total 16.34 kwh

Energy consumption per year = no. of day X kwh
 = 317 X 16.337
 = 5178.829 KWH/ year
 Cost of Energy = 5178.829 X 4.5
 = 23304.73
 = 23304.73 Rs per year (approx)
 = 1942.061 Rs per month



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