



K.R. MANGALAM UNIVERSITY

THE COMPLETE WORLD OF EDUCATION

7.1.2 The Institution has facilities for alternate sources of Energy and Energy Conservation Measures

7.1.2 (A) Solar Energy

The University consists of solar power generating system of 310 KW on the roof top of the academic building A, B & C as well as on the hostel building. An additional benefit comes in the form of rebate in property tax under 'Green Building' norms and uninterrupted energy is available for use during daytime all around the year. Apart from this, solar power generating system is provided in the hostels for power generation and hot water requirement.

IQAC -Data for Solar Panels						
Sr.No	Building	No. of Panels	Total no. of solar panels	Capacity	Total capacity	Rebate rate
1	A	157	984	310 Kw/day	41850 units/month	0.25
2	B	375				
3	C	204				
4	DG	120				
5	Hostel	128				


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K.R. Mangalam University (SOLAR PANEL DATA FROM YEAR 2018-2020)

Sr.No	Month	Solar Energy consumption in KWH (Year 2020)	Solar Energy consumption in KWH (Year 2019)	Solar Energy consumption in KWH (Year 2018)
1	January	25984	30390	NIL
2	February	34484	28877	NIL
3	March	32059	41233	NIL
4	April	33773	41425	20013
5	May	30546	43858	37669
6	June	21128	36766	34233
7	July	19136	25186	28081
8	August	18119	32736	28410
9	September	NIL	31637	28810
10	October	NIL	35536	30062
11	November	NIL	24634	28237
12	December	NIL	19066	28037
		215229	391344	263552

Total for 29 month = 215229+391344+263552 =870125 KWH

Note : Sanctioned load for Institution is 2000 Ampere

Yearly power Requirement : 1740262 KWH

Source: KRMU State Electricity Bills


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K.R. Mangalam University (SOLAR PANEL DATA FROM YEAR 2021-23)

Sr. No	Month	Solar Energy consumption in KWH (Year 2021)	Solar Energy consumption in KWH (Year 2022)	Solar Energy consumption in KWH (Year 2023)
1	January	7383	23992	18169
2	February	20657	35860	29464
3	March	25815	40903	33764
4	April	33501	39729	36798
5	May	25630	34145	36308
6	June	23627	33135	31117
7	July	18385	21836	22951
8	August	29952	23911	31238
9	September	27302	26479	27498
10	October	40038	28519	29577
11	November	26160	27659	19158
12	December	25997	22668	22382
		215229	358836	338424

Total for 36 months = 912489KWH

Note : Sanctioned load for Institution is 2000 Ampere

Yearly power Requirement : 1824978KWH

Source: KRMU State Electricity Bills


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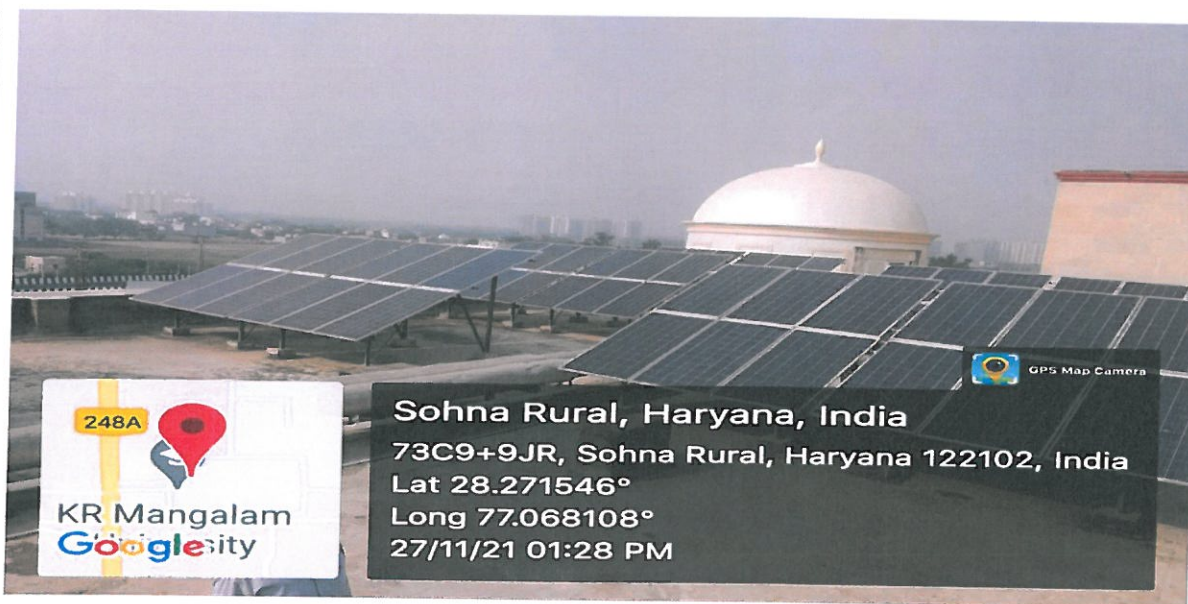
K R Mangalam University, Gurugram

Alternative resources of Energy Facilities

Solar Power Plant and Solar Water Heater

Location

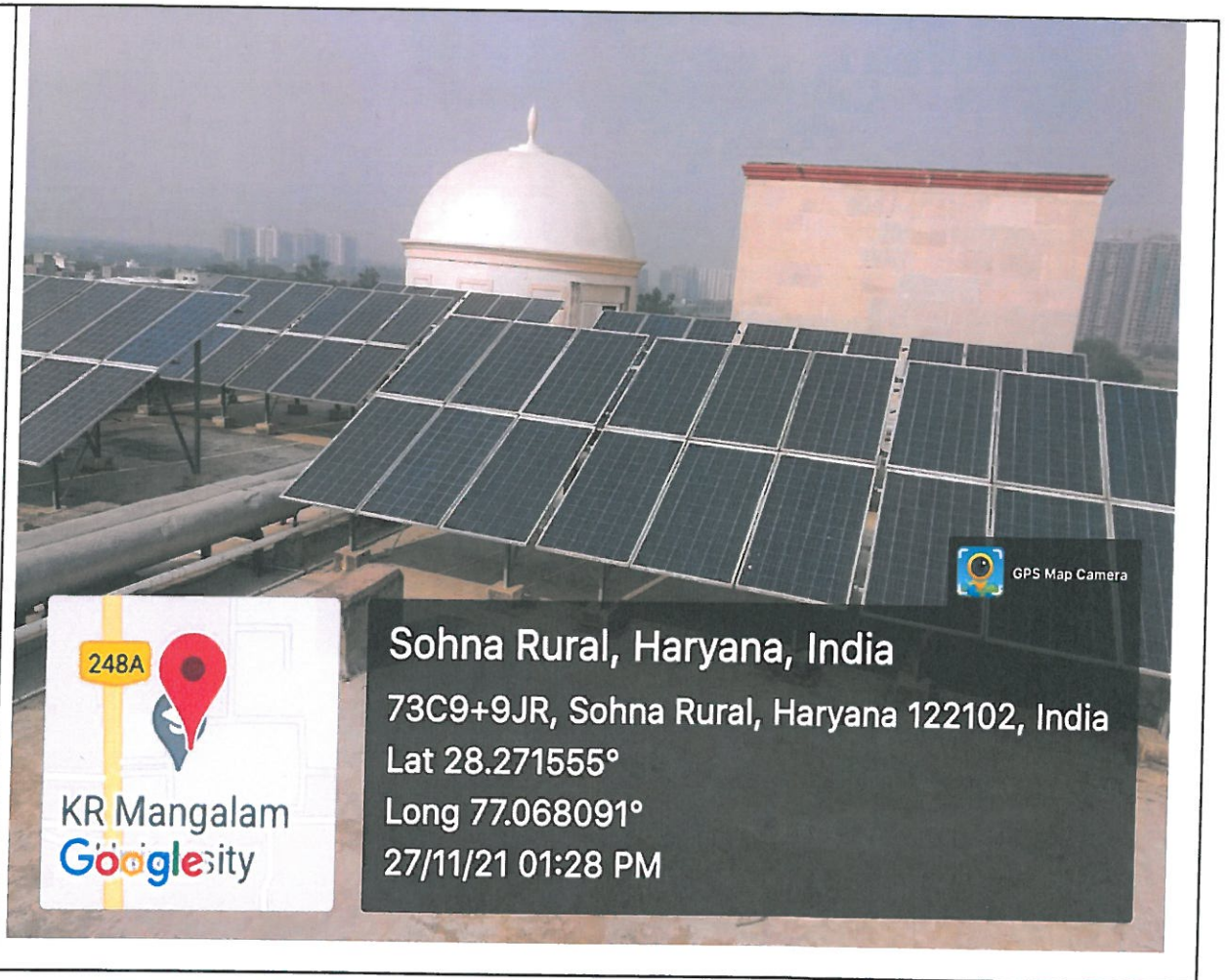
**A-Block
(Roof
top)**




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Location

A-Block
(Roof
top)

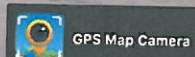
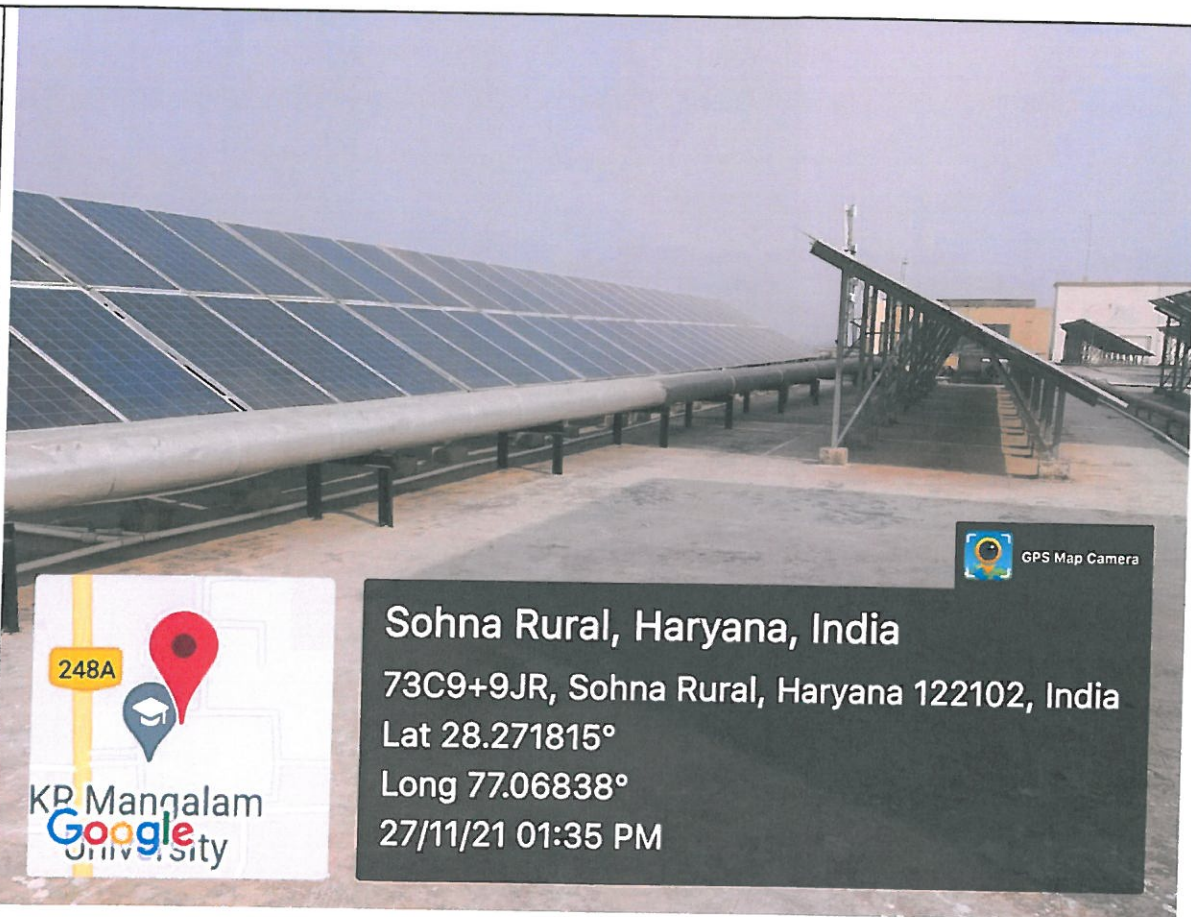


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Location

**B-Block
(Roof
top)**



Sohna Rural, Haryana, India

73C9+9JR, Sohnā Rural, Haryana 122102, India

Lat 28.271815°

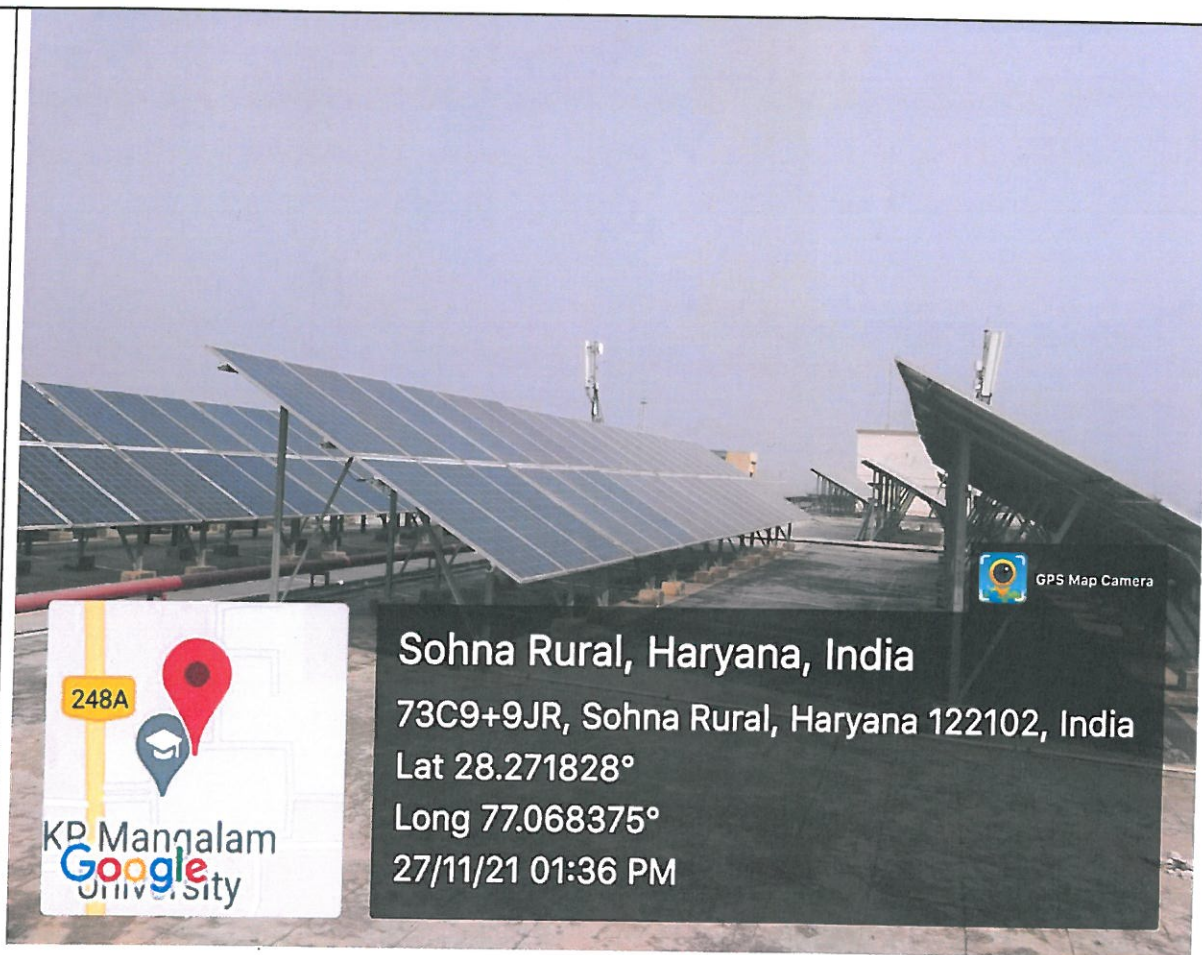
Long 77.06838°

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Location

**B-Block
(Roof
top)**




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Location

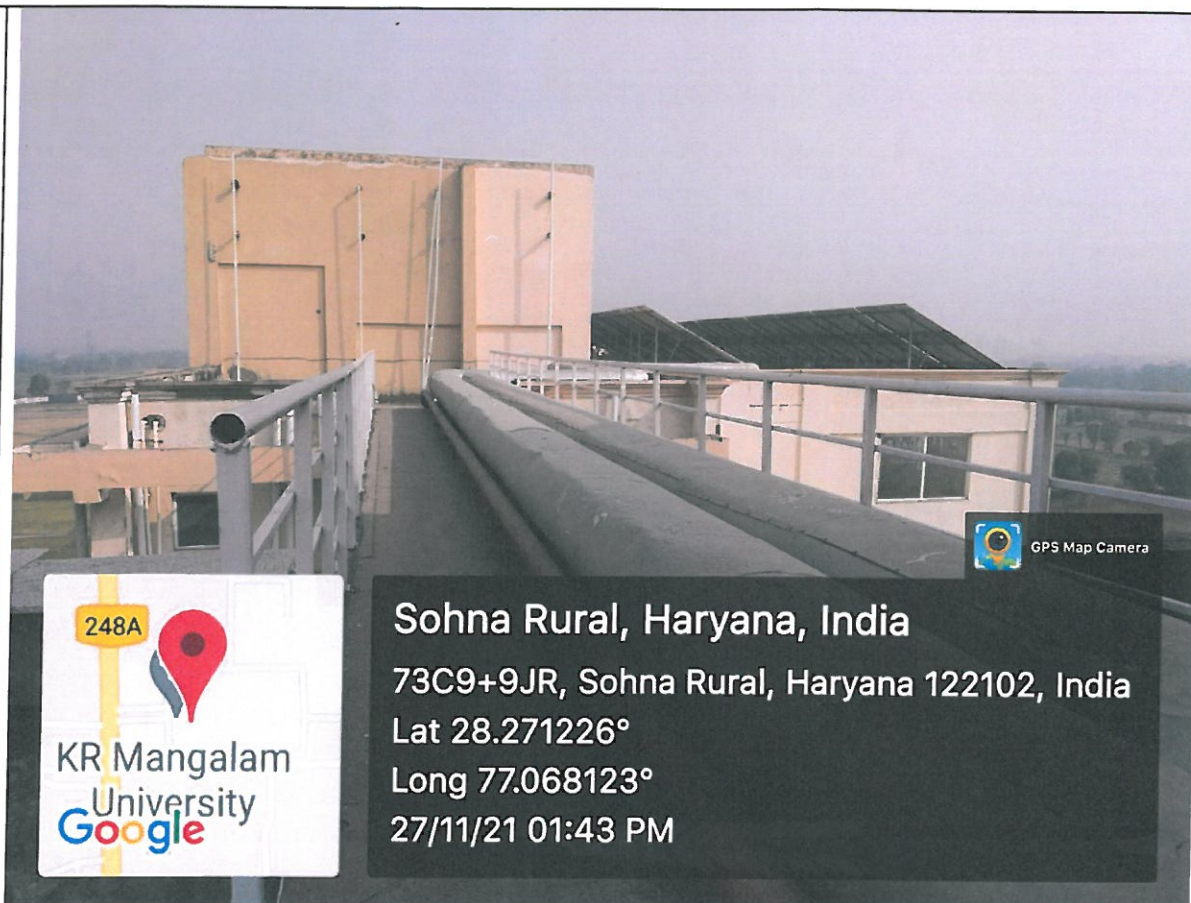
B-Block
(Roof
top)




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Location

C-Block
(Roof
top)



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Location

C-Block
(Roof
top)



Sohna Rural, Haryana, India

73C9+9JR, Sohnā Rural, Haryana 122102, India

Lat 28.270993°

Long 77.068691°

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A handwritten signature in purple ink, likely belonging to the Registrar of K.R. Mangalam University.

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Location:

Boys
Hostel
(Roof
top)

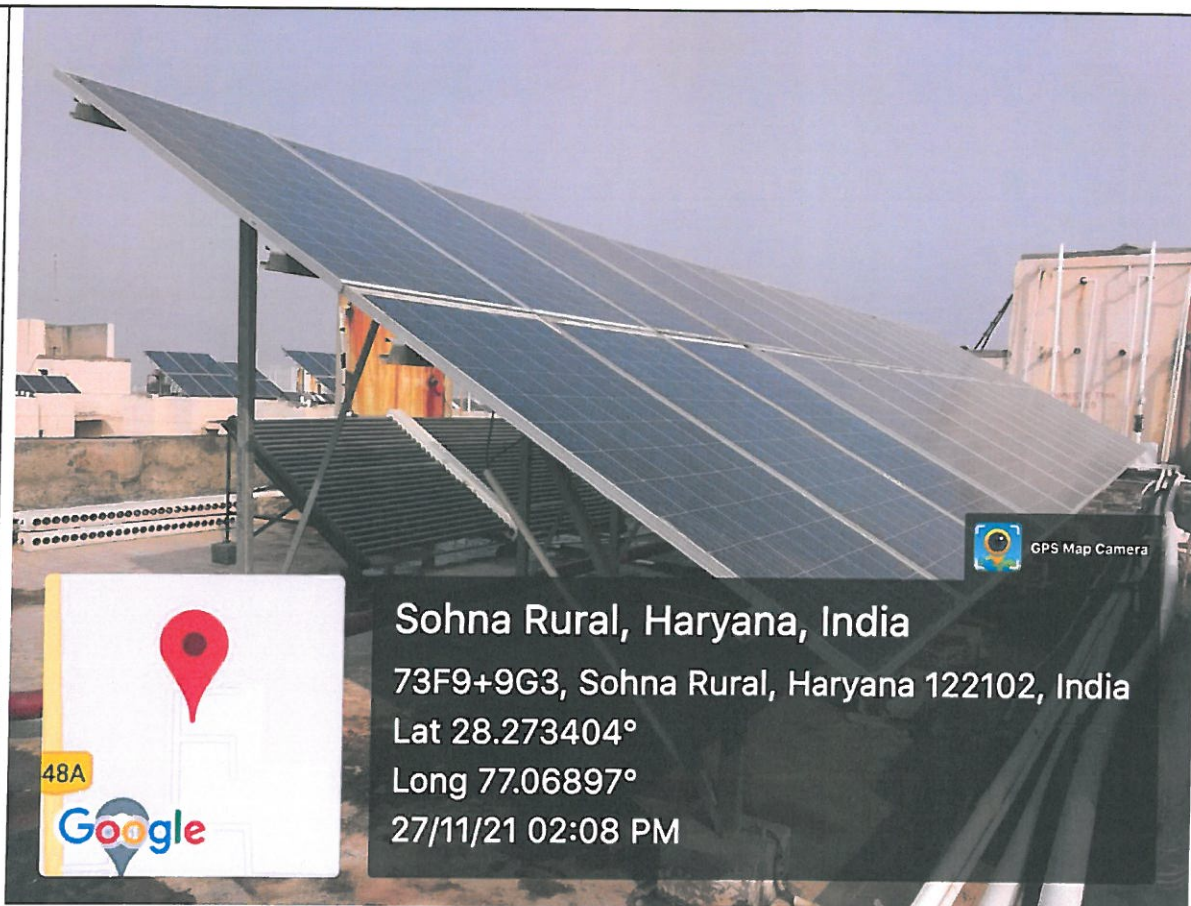


Jed
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Location:

Girls
Hostel

(Roof
top)




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Solar
Water
Heater:

Girls and
Boys
Hostel

(Roof
top)



Sohna Rural, Haryana, India

73F9+CHQ, Sohna Rural, Haryana 122102, India

Lat 28.27359°

Long 77.06883°

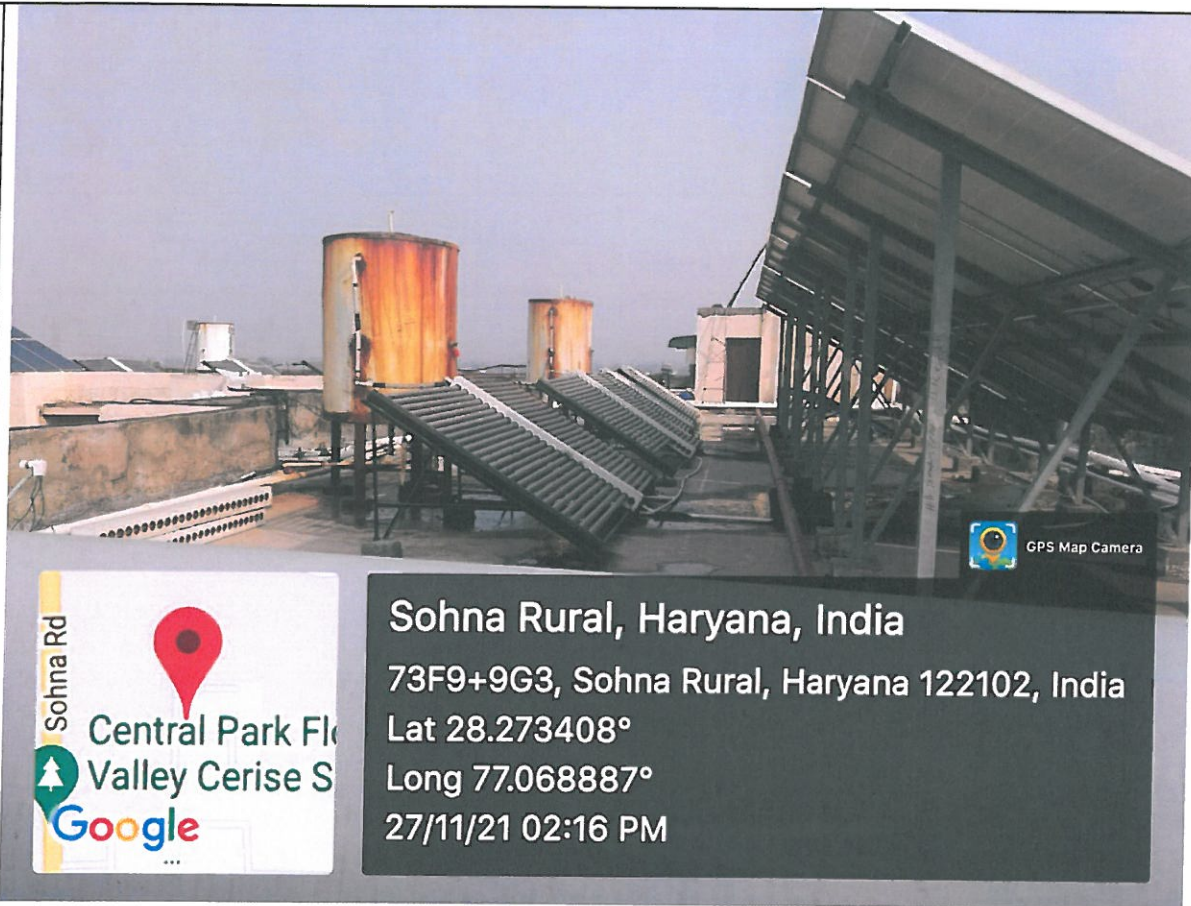
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Solar
Water
Heater:

Girls and
Boys
Hostel

(Roof
top)




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Wheeling to the Grid


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7.1.2(B) LED lights

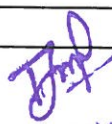
Replacement of energy-consuming lights with energy-saving LED bulbs in the University lowers CO2 emission; energy consumption, decreases maintenance costs and less wear on heating and cooling systems. LED lighting is an excellent & easy way to go green & save the environment.

Annual lighting power requirement met through LED bulbs (in KWH) required "17384".

Total LED's Intalled in Campus as on 2-6-2023-2111

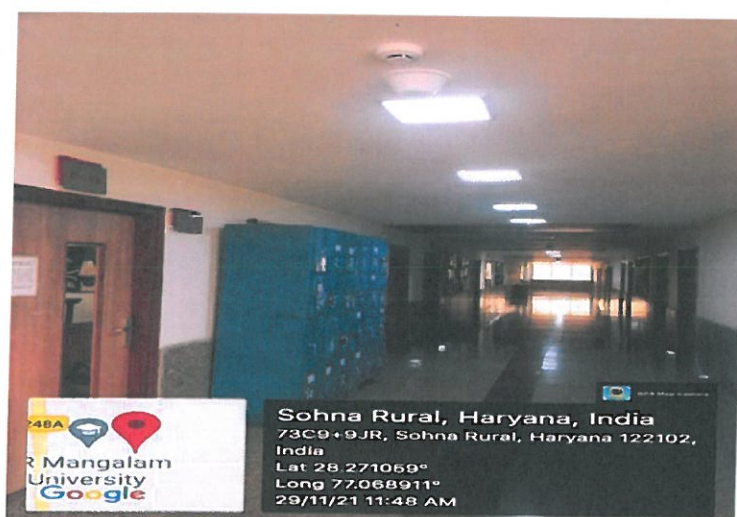
DETAILS OF LEDs FITMENT

A Block		
Location	Capacity In Watt	Total
Canteen	20 Watt	26
Library	15 Watt	36
Ground Floor (Admission area)	20 Watt	25
Wash room	18 Watt	26
Moot court	15 Watt	52
Class Rooms	20 Watt	186
Corridor 1 st Floor	20 Watt	24
B Block		
Class Rooms	20 Watt	111
C Block		
Basement	24 Watt	92
Basement	14 Watt	24
Basement	36 Watt	36
Class Rooms/Corridor	20 Watt	509
Wash room	24 Watt	44
Hostel		
Boys Gym	40 Watt	19
Ground Floor corridor	24 Watt	31
1 st Floor corridor	24 Watt	29
3 rd Floor Washrooms & Toilets	08 Watt	112
3 rd Floor Study Light	9 Watt	54
3 rd Floor Washbasin	5 Watt	54
4 th Floor Washrooms & Toilets	08 Watt	112
4 th Floor Study Light	9 Watt	54
4 th Floor Washbasin	5 Watt	54
Girls Mess	20 Watt	35
Boys Mess	20 watt	26

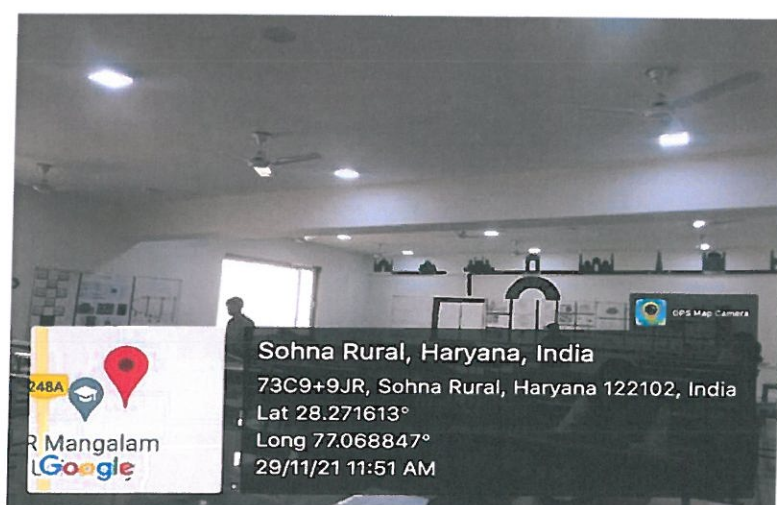
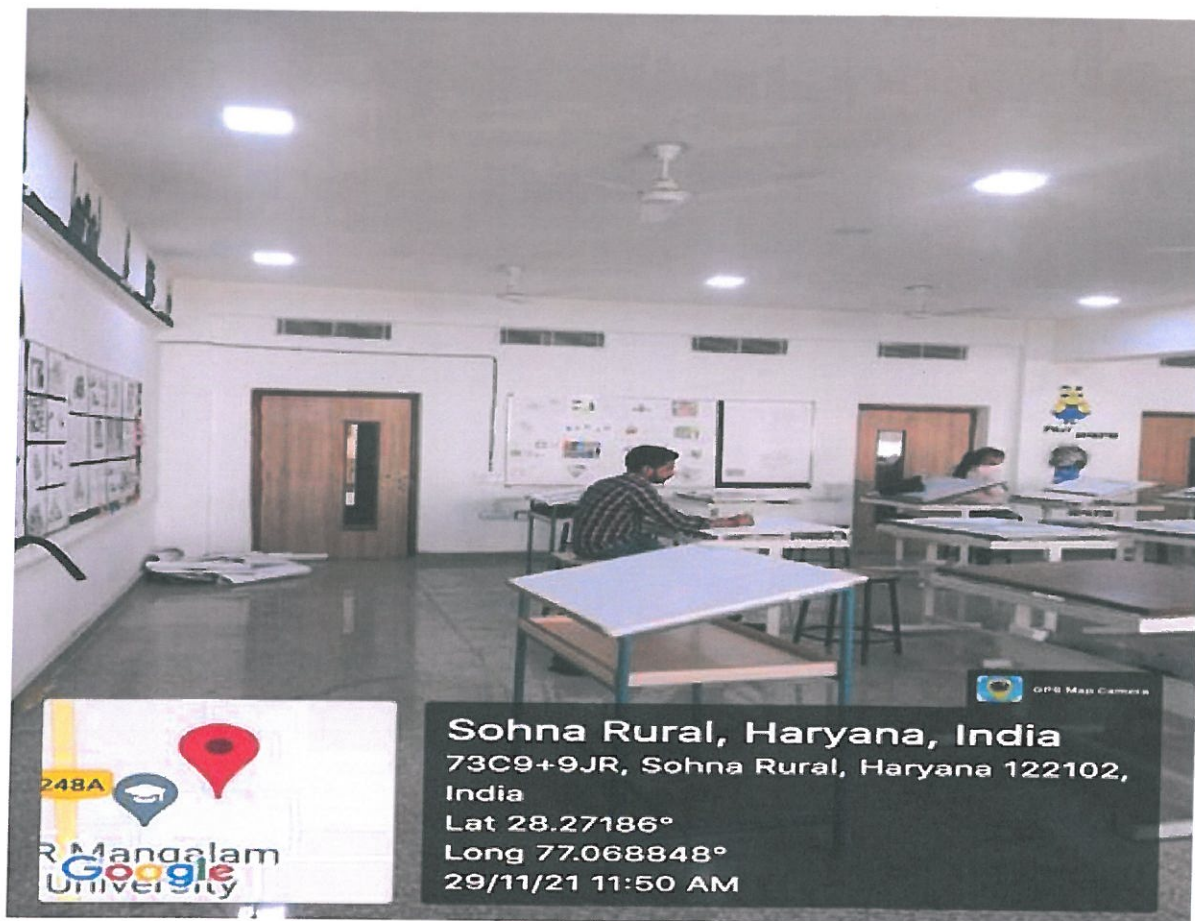

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3 rd Floor inside Room (surface Light)	20 Watt	28
3 rd Floor Inside Room (Tube Light)	20 Watt	54
3 rd Floor Corridor	20 Watt	60
4 th Floor inside Room (surface Light)	20 Watt	28
4 th Floor Inside Room (Tube Light)	20 Watt	54
4 th Floor Corridor	20 Watt	60
Outer Area		
A Block Terrace	400 Watt	8
B Block Terrace	400 Watt	1
C Block Terrace	400 Watt	1
Hostel Terrace	200 Watt	8
Sports Club	250 Watt	36
DG Room Terrace	200 Watt	2

2111



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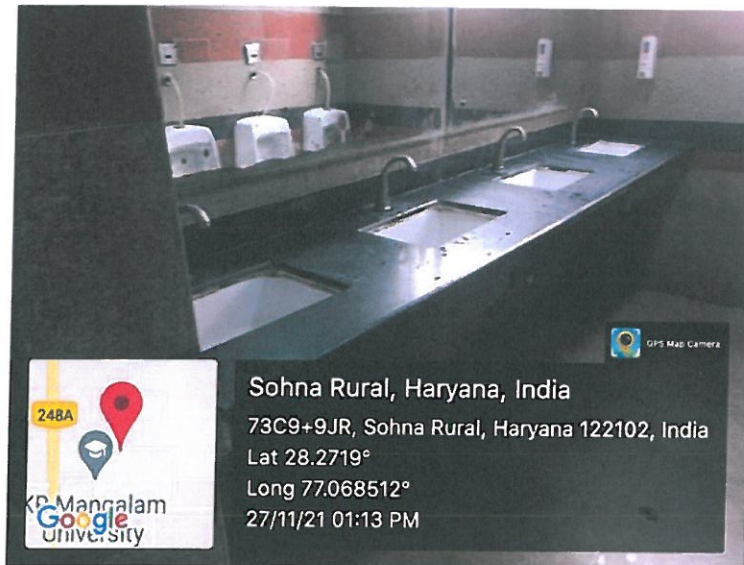


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7.1.2(c) Sensor-based energy conservation

Energy efficiency is a key strategy for the sustainable growth of the planet. The University with this objective has sensor-based water conservation system installed in all the washrooms. Further, the optimization of energy resources is ensured with the installation of sensor-based entry gates at every building within the University premises.

There are two circuits: sensor module and controller module. PIR sensor module is used here to detect the Human body movement, whenever there is any body movement the voltage at output pin changes. Basically it detects the change in Heat, and produce output whenever such detection occurs. In controller module Relay is an electromagnetic switch, which is controlled by small current, and used to switch ON and OFF relatively much larger current. By applying small current we can switch ON the relay which allow much larger current to flow

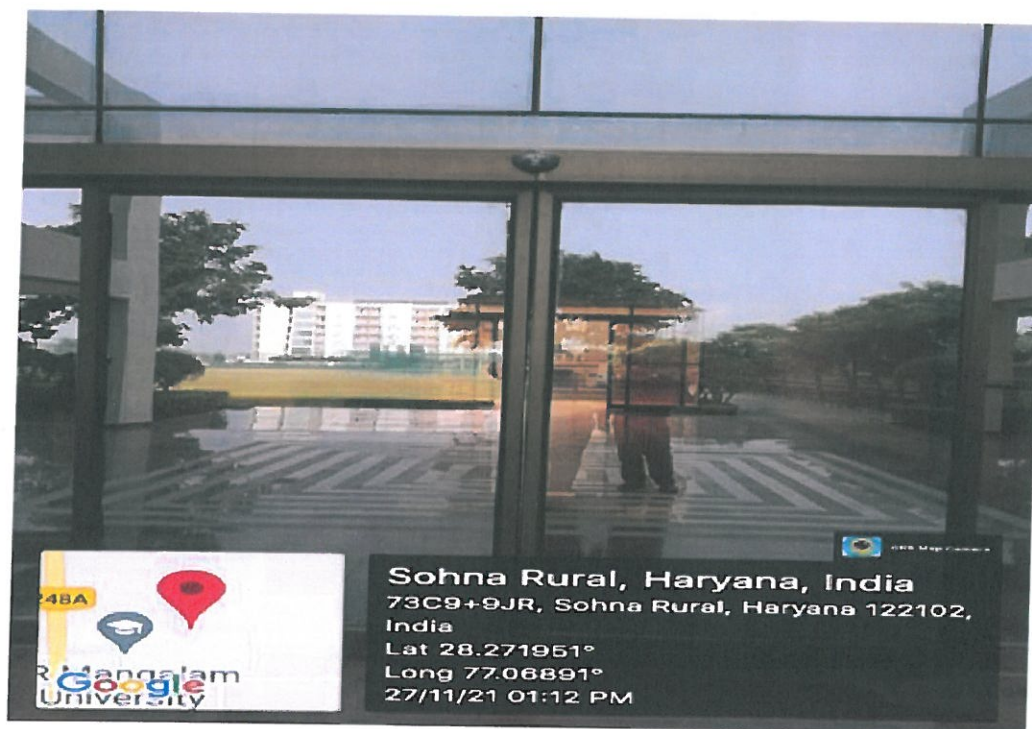


Motion detection and optical sensors

Nowadays, most automatic doors operate with motion-detecting sensors. The majority of motion detectors use either microwave pulses or **passive infrared** (PIR) sensors to detect movement. Microwave beam motion detectors send out pulses of microwaves that measure the reflections of moving objects. In contrast, passive infrared sensors measure temperature changes to detect body heat. Sensors with microwave technology are usually more expensive than infrared sensors because they can cover a larger area. However, they are also at risk of electrical interference.

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7.1.2(d) Biogas Plant

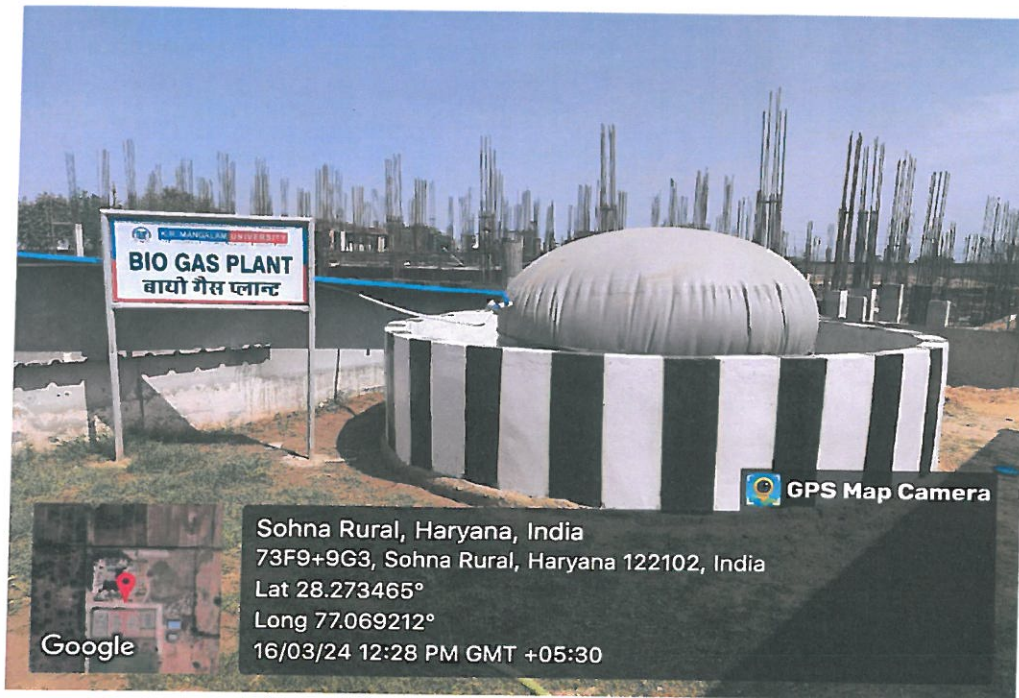


Figure: Bio-gas plant



Figure: Inlet-side of Biogas plant


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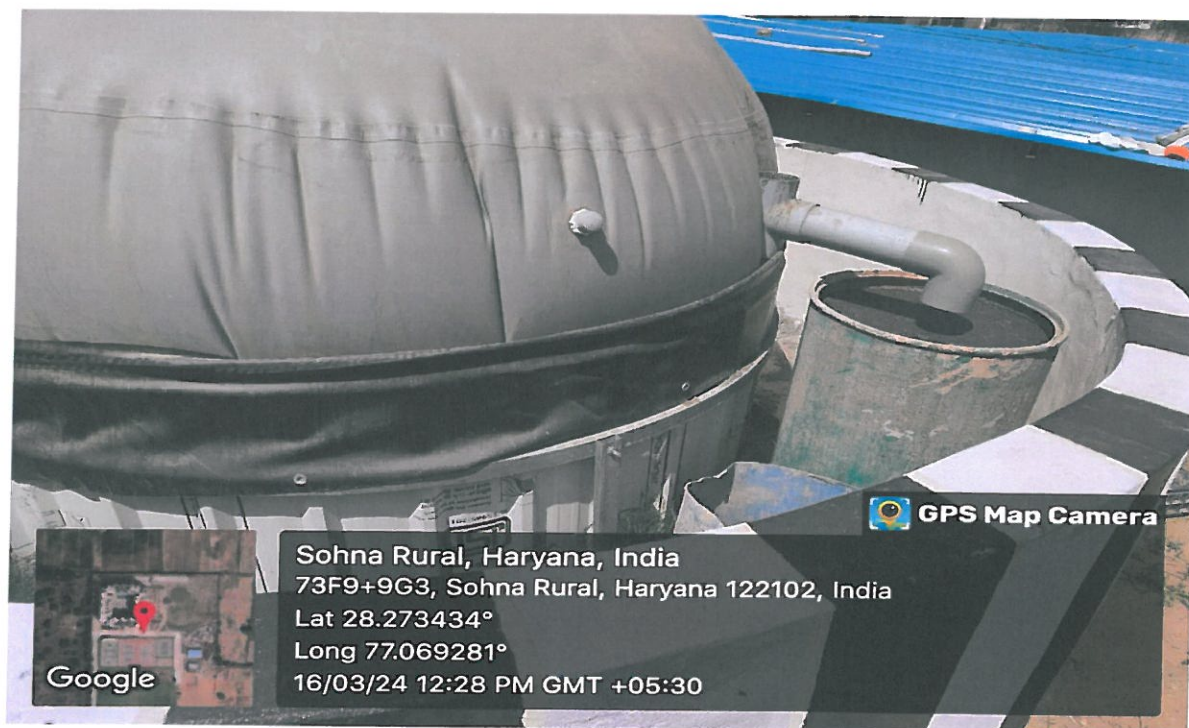


Figure: Exit of Biogas Plant

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