



Template for Evidence(s) UI GreenMetric Questionnaire

University : Maharakham University
 Country : Thailand
 Web Address : green.msu.ac.th

[2] Energy and Climate Change (EC)

[2.3] Smart Building Implementation

No.	Name	Place	automation		safety				energy		water		indoor environment				lighting				Building Area (m ²)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
1	Maharakham University Building Chalernprakit Convention Center	Thailand		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	18,583	
2	Maharakham University Building Suthavej Hospital	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	17,430	
3	Maharakham University Building Medical service center and the Chaloe Phrakiat Research Center	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	29,069	
4	Maharakham University Building Office of Academic Resources	Thailand		x	x	x	x		x	x	x	x	x		x	x		x	x	26,000	
5	Class room and Laboratory, Faculty of Informatics	Thailand		x	x	x	x		x	x	x	x	x		x			x	x	14,226	
6	Residential Staff for the Faculty of MEDicine	Thailand		x	x	x	x		x		x	x	x		x			x	x	7,352	
7	Arts and Cultures Building (old building)	Thailand			x	x	x		x		x	x			x			x	x	7,202	
8	Boromratchakumari Building (President's Building), Maharakham University	Thailand		x	x	x	x		x		x	x		x	x			x	x	6,000	
9	The Research Institute of Northeastern Art and Culture Building	Thailand		x	x	x	x		x		x	x		x	x			x	x	5,760	



No.	Name	Place	automation		safety				energy		water		Indoor environment				lighting				Building Area (m ²)	
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10	Wit Pattana Building, Faculty of Education	Thailand		x	x	x	x		x	x	x	x			x	x	x		x	x	x	7,392
11	Class rooms and Lab. Room, Faculty of Tourism and Hotel Management	Thailand		x	x	x	x		x	x	x	x			x	x			x	x	x	11,980
12	Animal Hospital for learning and teaching Building	Thailand		x		x			x		x	x	x	x	x	x	x		x		x	1600
13	Class room for dissection and pathology room	Thailand		x	x		x		x		x	x	x	x	x	x	x		x		x	1120
14	Drug and herbal product manufacturing building	Thailand			x	x	x		x	x	x	x	x	x	x	x			x		x	720
15	Pathomvet Dormitory	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	1200
16	Chaiyapruak Dormitory	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	1200
17	Ratchapruak Dormitory (Male)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	600
18	Chunchom Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	600
19	Benjamas Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	600
20	Parichat Dormitory (Male)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	600
21	Karakad Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	912
22	Chongkho Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	912
23	Pudtharaksa Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	912
24	Karawek Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	912
25	Inthanin Dormitory (Female)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	912
26	Demonstration School of Mahasarakham University (Primary School)	Thailand		x	x		x		x		x	x	x	x	x	x			x		x	3450
27	President's Building	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	15034
28	Class room of Faculty of Science (SC1)	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	13500
29	Biological Building (SC2)	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	11000
30	Faculty of Fine Applied Arts and Cultural Science Building	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	12000
31	Faculty of Nurse Building	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	12400
32	Lab Building for Faculty of Technology and Faculty of Engineering	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	15000
33	Faculty of Environment and Resource Studies Building	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	5000
34	Mahasarakham Business School Building	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	4100
35	Lab Building of Mahasarakham Business School	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	11520
36	Informatics and Network Services Center Building (D Building)	Thailand		x	x	x	x		x	x	x	x	x	x	x	x			x		x	11000



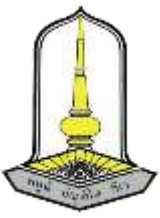
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37	Faculty of Architecture, Urban, and Creative Arts Building	Thailand		x	x	x	x	x	x	x	x	x	x	x		x	x		x		14,000
38	Self Learning and Network Lab. Building (C Building)	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	11,000
39	Agro-Industrial Technology Building	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	9,000
40	Science and Medical Science Building	Thailand		x	x	x	x		x	x	x	x	x		x	x	x	x	x	x	32,485
41	Lab Building for Faculty of Humanities and Social Sciences	Thailand	x			x	x	x	x		x	x	x	x		x	x	x	x	x	14,400
42	Sport and Recreation Center	Thailand			x	x	x		x		x	x	x		x	x	x	x	x	x	10,928
43	Animal Hospital and Lab. Building	Thailand			x	x	x		x		x	x	x		x	x	x	x	x	x	16,435.2
44	Agriculture Industry, Nasinuan Building 1	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	6,621
45	Agriculture Industry, Nasinuan Building 2	Thailand	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	1,298
Total																					407,173

Smart building implementation

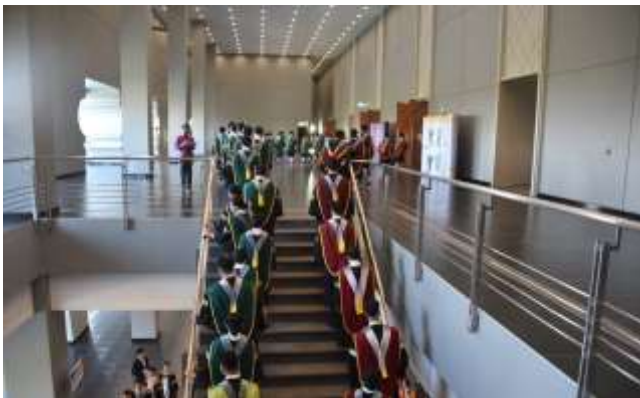
$$\frac{\text{total smart building area}}{\text{total building area}} \times 100\%$$

***Total Building Area: 407,173 m²**

$$\frac{407,173 \text{ m}^2}{652,018 \text{ m}^2} \times 100 = 62.44 \%$$



Chalermphrakiat Building on the Auspicious Occasion of Her Royal Highness Princess Maha Chakri Sirindhorn's 60th Birthday (2 April 2015)



<https://campus.campus-star.com/variety/141113.html/gallery>

<https://campus.campus-star.com/variety/144779.html>

The university carried out the design and installation of indoor lighting systems, has an automatic control system using a computer, controls the opening and closing of the sky lamps inside the building, the amount of blue lamps used in the project.



Lighting and Sound Control Room in the Convention Center, 3rd Floor

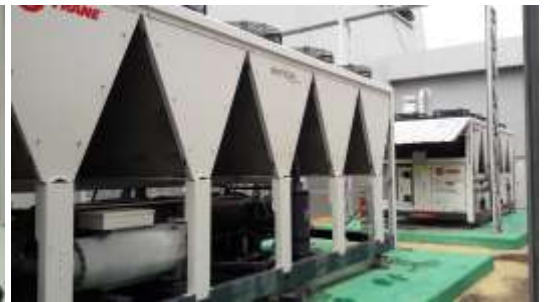


Power Supply Generator at Chalermphrakiat Building





Outdoor lighting is equipped with the following lighting fixtures:



Air Condition Control at Chalermphrakiat Building



Automatic Fire Alarm System of Chalermphrakiat Building



Residential Staff of the Faculty of Medicine, Mahasarakham University



The Faculty of Medicine housing building is designed to control lighting with LED lights, air-conditioned inverter system, electricity certified by the Department of Electricity Generating (EGAT). Electrical control cabinet: external automatic lighting control system by solar circuit, internet system, CCTV camera, fire alarm, all electrical appliances are recorded about electricity consumption. The volume of installation electrical equipment, 2,458 sets of LED electric lamps and 12 volt 2x20W NON-Maintain LED emergency lamps with 2 hours backup battery are listed as follows:



Faculty of Medicine and Sudhavej Hospital



The Faculty of Medicine, Maharakham University was designed and install LED lamps to illuminate the school buildings and hospitals, control the lighting and power systems with the power management program with the program, and the operation of the air conditioner, the VRF air conditioning system management program both of the building of the Faculty of Medicine and Sudhavej Hospital.



Control System of the Faculty of Medicine and Sudhavej Hospital



The Faculty of Medicine, Maharakham University was designed and install LED lamps to illuminate the school buildings and hospitals, control the lighting and power systems with the power management program with the program, and the operation of the air conditioner, the VRF air conditioning system management program both of the building of the Faculty of Medicine and Sudhavej Hospital.

Faculty of Fine Applied Arts and Cultural Sciences, Maharakham University





The Faculty of Fine Applied Arts and Cultural Science, Maharakham University was designed and renovate the electricity system to used LED lamps in the building and control the lighting system external by solar circuits. Internet system, and Air condition system was improved all appliances that used more 10 years [..\\..\\UIVA, B, C..xlsx](#)

Faculty of Science (Scientific Laboratory Center)



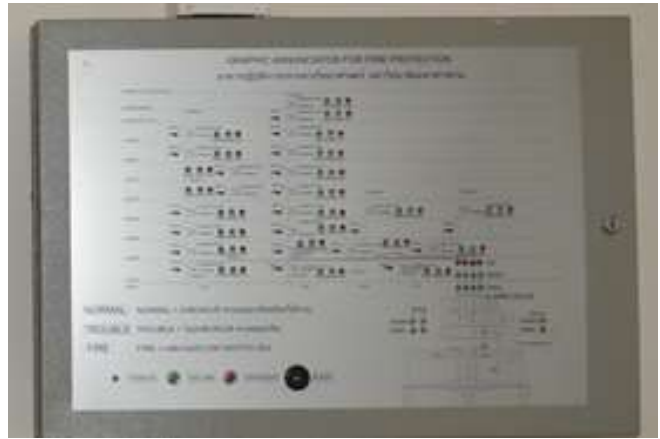
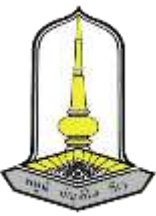


Faculty of Science was designed the LED lamps and VRF air condition system
(<https://science.msu.ac.th/?p=4037>) (<https://science.msu.ac.th/?p=4325>)



(<https://science.msu.ac.th/?p=4155>)





[Faculty of Science had the energy consumed measurement, the fire alarm system, Variable Refrigerant Flow ; VRF certified by ISO 9001-2015, ISO 14001-2015.

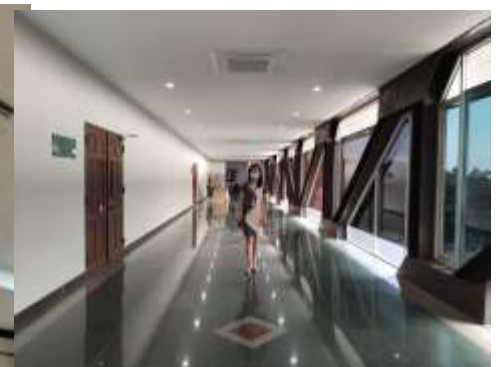




Faculty of Science had the energy consumed measurement, the fire alarm system, Variable Refrigerant Flow ; VRF certified by ISO 9001-2015, ISO 14001-2015...\\.\.\New folder\ข้อมูลโหลด2565\คณะวิทยาศาสตร์ SC3.xlsx



Boromratchakumari Building (President Building)



Improved air conditioning control system (VARIABLE REFRIGERANT FLOW VRF), LED lamps and energy consumption measurements.



The building of Academic Resource Center, A, B,C, and D Building



Mahasarakham University Guidelines for the design of lighting systems and the installation of LED lamps for lighting All section in this building were automatic controlled, LED lamp control.

[..\..\New folder\ข้อมูลโหนด2565\รายงานพลังงาน 2564-2565\The building of Academic Resource Center, A, B,C, and D Building.xlsx](#)



The Building of Academic Resource Center, A, B, C, and D





Faculty of Informatics, Maharakham University





Renovate Canteen Lighting at the city campus, Mahasarakham University



Automatic Lighting Control by timer setting



Faculty of Education, Mahasarakham University





Electrical System from solar cell and provincial authority with 22KV 50 HZ

(<http://edu.msu.ac.th/TH/>)

(<http://www.web.msu.ac.th/msucont.php?mn=mfac&paction=FACEDU>)

Faculty of Pharmacy, Mahasarakham University

(<http://pharmacy.msu.ac.th/home/?p=499895>)



(<http://pharmacy.msu.ac.th/home/?p=499895>)

Faculty of Pharmacy was changed the lamp from Fluorescent to LED T8, air condition convertor, and the energy consumed measurement.