Progress activity Report

Decision Aid Tool

**(Palestine Case – Scientific centers building
An-Najah National University)**

**Prepared by:
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2023

Project Acronym	University building
Project Name	"Mediterranean University as Catalyst for Eco-Sustainable Renovation" (Med-EcoSuRe)
Project Duration	September 2019- August 2022
Website	www.enicbcmed.eu/projects/med-ecosure
Authors	International Grants and Projects Center (IGPC)/ An-Najah National University (ANNU)
Date	Feb-2023
File Name	Decision Aid Tools (**Scientific centers building in New-Campus Building - An-Najah National University – Palestine**)

This project is part of the Mediterranean University as Catalyst for Eco-Sustainable Renovation (Med-EcoSuRe). The project aims to study the buildings load as envelope considers the unique weather and operating schedules in order to study design alternatives, energy conservation methods and details of off-design and part-load performance for equipment.

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1. Introduction

Low energy educational buildings are becoming the standard for new buildings in European and Mediterranean countries. Technical solutions are continuously developed by universities for eco-sustainable building renovation, but there is still a gap between designed models and their actual application. This is due to several barriers, such as the insufficient collaboration between key actors and the lack of efficient suitable tools from the public sector to develop solutions.

This report presents the result of energy analysis conducted for one of ANNU university building which is Scientific center building in New campus as a case study to be applied in MEDECOSURE web tool- interactive tool for the evaluation of optimal renovation measures.

2. Palestine Case – Scientific centers building
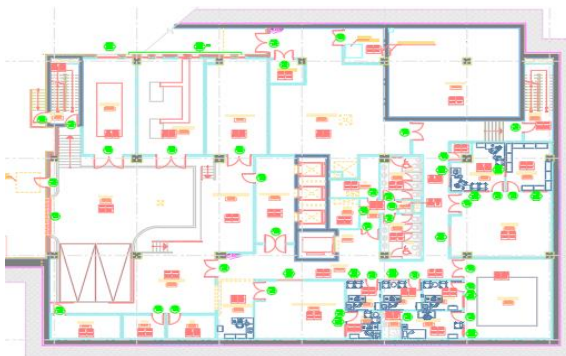
2.1. Building information:

General data		
Construction year		2016
Geographical location		Latitude: 32.228º Longitude: 35.220º
Building shape		Rectangular
surface area (m2)		5866.75
total height (m)		27 (4.5m per floor)
Floor #	**above ground**	5
	below ground	1
Category		Educational & office building (Non-Residential)

The building consisting of classroom, car parking, offices, meeting room, and commons spaces, and the building area usage was as follow:

Define Building use						
name reference	type	(%):the percentage of the building area affected	heating	cooling	domestic hot water	lightning
n1	classroom	6%	☑	☑	☐	☑
n2	offices	25%	☑	☑	☐	☑
n3	common zone	20%	☑	☑	☐	☑
n4	meeting room	4%	☑	☑	☐	☑
n5	bathroom	4%	☐	☐	☑	☑
n6	stair case	6%	☐	☐	☐	☑
n7	car parking	5%	☐	☐	☐	☑
n8	hallways	30%	☐	☐	☐	☑

The floor usage schemes as follow:

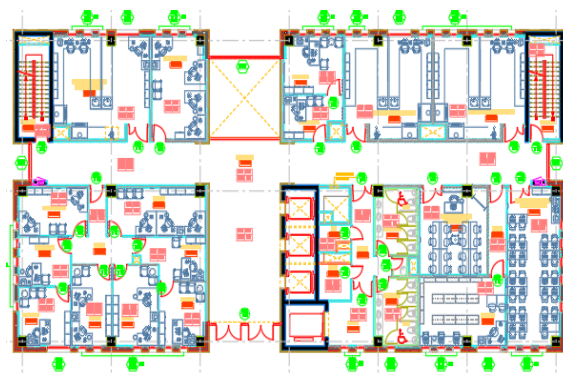
Basement

Ground Floor
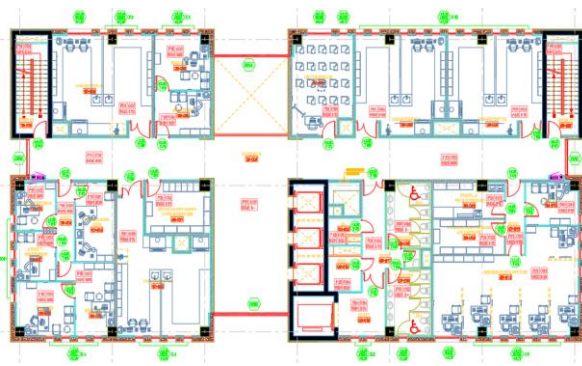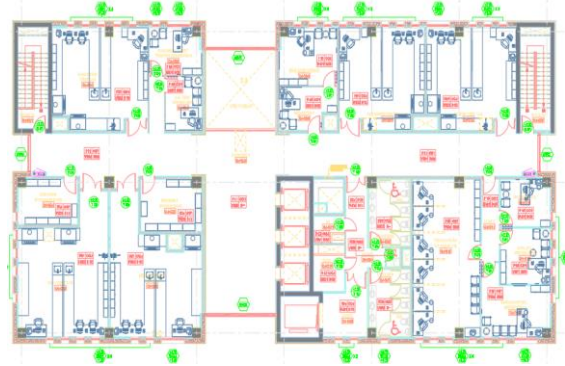

Floor-1

Floor-2

Floor-3   **Floor-4**

2.2. Climatic data

The building is located in Nablus city in Palestine, accordingly the annual climatic data was provided to developer of decision tools as Excel sheet in order to consider these information during the evaluation process of software, as follow:

month	day/year	Days/month	maximum temperature (C°)	minimum temperature (C°)	AVERAGE temperature (C°)	HUMID TEMP (C°)	DEW POINT TEMP	RELATIVE HUMIDITY %	WIND SPEED (m/s)	WIND DIRECTION (DEGREES)	Month (1-12)	Day of Month	Hour	global SlrW_Avg horizintal	direct/beam incoming solar radiation
January															
1	1	1	12.6	6.5	9.55	7.6625	6.6625	88.375	2.0125	208.375	1	1.00	1.00	0	0
2	2	2	11.4	6.9	9.15	7.1375	6.075	87.375	3.5875	114.25	1	1.00	2.00	0	0
3	3	3	10	5.5	7.75	5.3375	3.075	75.75	7.35	104.25	1	1.00	3.00	0	0
4	4	4	7	3.4	5.2	4.95	4.15	91.875	6.575	125.375	1	1.00	4.00	0	0
5	5	5	8.4	5.2	6.8	6.4875	6.1875	96.125	8.2625	183	1	1.00	5.00	0	0
6	6	6	10.8	4.7	7.75	5.425	2.2875	68.625	5.275	160.25	1	1.00	6.00	0	0
7	7	7	10.4	6.2	8.3	5.7	2.975	72	8.525	199.25	1	1.00	7.00	0	0
8	8	8	7.7	4.3	6	5.2375	4.5	91.75	11.8125	227.875	1	1.00	8.00	0	0
9	9	9	6.9	4.3	5.6	5.0375	4.975	99	5.75	231.5	1	1.00	9.00	2.859	10.29246
10	10	10	8.1	3.8	5.95	5.3125	5.225	98.875	3.5875	290.5	1	1.00	10.00	79.65	286.7444
11	11	11	11.3	4.9	8.1	6.6125	6.1375	94.25	3.7875	265.375	1	1.00	11.00	209	752.2378
12	12	12	11.8	6	8.9	7.45	6.8375	92.375	4.625	245.75	1	1.00	12.00	336.8	1212.626
13	13	13	12.3	7.4	9.85	8.575	8.4	97.75	5.2	273.875	1	1.00	13.00	407.5	1467.159
14	14	14	12.2	7.2	9.7	8.05	6.9125	86.875	3.2125	147.25	1	1.00	14.00	408.5	1470.752
15	15	15	14.2	7.8	11	7.65	4.025	63.75	3.6375	108.25	1	1.00	15.00	369.4	1329.951
16	16	16	14	9.2	11.6	7.0625	0.8125	50	4.85	77.75	1	1.00	16.00	274.3	987.3594
17	17	17	12.5	6.8	9.65	7.9	7.5	94.875	4.675	96.875	1	1.00	17.00	174.3	627.429
18	18	18	10.9	7.3	9.1	8.3125	8.3125	100	4.3375	237.75	1	1.00	18.00	132.1	475.4235
19	19	19	8	5.8	6.9	7.1625	7.1625	100	8.2125	234.125	1	1.00	19.00	20.24	72.87565
20	20	20	8	6.3	7.15	6.875	6.875	100	6.6375	252.625	1	1.00	20.00	0.021	0.07420114
21	21	21	7	1.3	4.15	3.825	3.75	99	7.8125	286.5	1	1.00	21.00	0	0
22	22	22	8.8	3.1	5.95	4.775	4.275	93.875	4.45	280.875	1	1.00	22.00	0	0
23	23	23	10.2	3.6	6.9	5.3	5.275	92.5	6.15	250.125	1	1.00	23.00	0	0
24	24	24	7.4	3.1	5.25	4.075	3.05	89.375	9.1375	289.625	1	1.00	24.00	0	0
25	25	25	9	3.1	6.05	3.1125	-0.0125	69.5	3.025	322.375	1	2.00	1.00	0	0
26	26	26	11	3.2	7.1	5.2	3.9125	85.125	1.9375	249.25	1	2.00	2.00	0	0
27	27	27	13.4	4.6	9	6.3625	4.2	78.75	3.7625	151.75	1	2.00	3.00	0	0
28	28	28	12.9	7.4	10.15	7.2	5.1125	78.875	5.625	226.875	1	2.00	4.00	0	0
29	29	29	12.6	6.4	9.5	8.4	8.275	98.25	7.025	256.125	1	2.00	5.00	0	0
30	30	30	13	6	9.5	7.8375	6.9625	89.75	3.875	197.375	1	2.00	6.00	0	0
31	31	31	10.5	5.4	7.95	6.4125	5.225	87.5	11.7125	225.75	1	2.00	7.00	0	0
February															
32	1		10	4.9	7.45	7.025	6.3375	91.625	7.875	264.375	1	2.00	8.00	0	0
33	2		11.9	6.9	9.4	8.6875	8.6875	100	2.3125	183.75	1	2.00	9.00	1.937	6.973094
34	3		14.4	7.8	11.1	8.8	7.9375	89.375	3.375	191.25	1	2.00	10.00	21.2	76.31332
35	4		12.3	6.6	9.45	8.75	8.4875	96.5	5.0625	251.25	1	2.00	11.00	36.73	132.2313
36	5		14.7	7.8	11.25	9.5125	8.3	85.375	2.75	137.5	1	2.00	12.00	103.6	373.0147
37	6		17.4	9.6	13.5	9.475	6.4875	69.625	4.6875	202.5	1	2.00	13.00	184.4	663.9257
38	7		11.4	5.8	8.6	7.075	6.75	96.125	10.375	245	1	2.00	14.00	155.5	559.9033
39	8		8.2	3.2	5.7	4.9	4.6625	97	14.25	257.5	1	2.00	15.00	86.3	310.531
40	9		4.3	1.5	2.9	2.2	1.75	94.875	6.5625	310	1	2.00	16.00	48.21	173.5527
41	10		4.6	0	2.3	1.675	1.1625	94.125	4.375	295	1	2.00	17.00	65.15	234.5413
42	11		6.4	1.1	3.75	3.875	3.6	96.5	4.7	204.875	1	2.00	18.00	51.59	185.7119
43	12		13	5.8	9.4	7.9	7.025	89.5	5.875	240	1	2.00	19.00	4.276	15.39435
44	13		15.5	7.8	11.65	9.175	7.0125	74.875	3.5	228.75	1	2.00	20.00	0	0
45	14		12.5	7.8	10.15	8.475	6.7125	79.5	4.9375	65	1	2.00	21.00	0	0
46	15		17	7.2	12.1	7.55	2.425	53.625	3.9375	132.5	1	2.00	22.00	0	0
47	16		14.2	7.8	11	8.925	7.475	83	2.5625	290	1	2.00	23.00	0	0
48	17		13.2	6.6	9.9	8.175	6.5125	81	2.25	181.25	1	2.00	24.00	0	0
49	18		15.3	7	11.15	8.8	6.9875	79.625	4.5625	131.25	1	3.00	1.00	0	0
50	19		12.6	7.1	9.85	8.3375	8.075	96.5	5.5625	248.75	1	3.00	2.00	0	0
51	20		13.3	7	10.15	8.4625	7.975	93.875	5.875	268.75	1	3.00	3.00	0	0
52	21		13.2	6.6	9.9	8.2625	7.375	88.875	6.125	153.75	1	3.00	4.00	0	0
53	22		11.4	6.5	8.95	7.6875	7.3125	95.375	7.625	222.5	1	3.00	5.00	0	0
54	23		12.9	6	9.45	7.45	5.3625	76.75	2.8125	217.5	1	3.00	6.00	0	0
55	24		13.4	6.5	9.95	8.375	7.85	93.75	4.9375	293.75	1	3.00	7.00	0	0
56	25		11.1	7.2	9.15	8.75	8.75	100	8.625	281.25	1	3.00	8.00	0	0
57	26		13.6	7.8	10.7	9.225	8.275	88.875	6.0625	252	1	3.00	9.00	3.099	11.15471
58	27		16.7	7.9	12.3	9.75	7.7125	78	2.75	141.25	1	3.00	10.00	81.6	293.8361
59	28		13.5	8	10.75	9.35	4.5125	55.75	3.125	231.25	1	3.00	11.00	211.3	760.6614
60	1		12	5	8.5	8.2125	6.75	84.5	8.6875	242.5	1	3.00	12.00	328.9	1183.944

2.3. Building System Information

The primary energy source in building is depending on Electricity and gasoil to operate the building system (heating, cooling, domestic heat water, lighting), as follow:

cooling , SOURCE : electricity			
device name	Qt.	manufacture	motor power (KW)
chillers (275 Ton)	1	APSA 275-2	962.5
cooling water main pump	2	FHE4-80-250-55-P	5.5
cooling water secondary pump	1	FHE-65-125-75-P	7.5
helical fan	1	CVTT 12/12 1.5 KW-1100	1.5
	1	THGT4-1000-3-14B	14
	1	CVTT 9/9 2.5 KW-800	2.5
	1	MOD/TIPO 25/2T	0.39
	1	CVTT 12/12 1.5 KW-1102	1.5
	12	CMPT/2-160-PPEC	0.18
	2	CVTT 22/22 5.5 KW-600	5.5
Air handling units	2	PAHHC32-C4	1.5
	1	PAHHC120-C4	7.5
stand-alone air condition (11 ton)	6	Gree	38.5
stand-alone air condition (2.5ton)	1	Family	8.75

DHW , Source : electricity			
device name	Qt.	manufacture	motor power (KW)
water pump	1	MCP 158-2	0.75
water pump	2	CM10-1A-R-A-E-AVBE-B-A-N	0.6
water pump	1	CM10-3A-R-A-E-AVBE-F-A-O	2.2
Water heater	6		5

Heating , SOURCE : electricity			
device name	Qt.	manufacture	motor power (KW)
stand-alone air condition (11 ton)	6	Gree	38.5
stand-alone air condition (2.5ton)	1	Family	8.75

Heating , SOURCE : gasoil			
device name	Qt.	manufacture	motor power (KW)
boiler	1	RSW/525/12	525
boiler	1	RSW/399/12	300
Heating water main pump	2	FHE4-50-250-22-P	2.2
heating water secondary pump	2	FHE-40-125-22-c	2.2

Total energy consumption in building as follow:

Usage	Energy consumption (KWh)
cooling: electricity	194066.6
Domestic heat water: electricity	8605.8
Heating: electricity	9922.5
lighting	288322.9
Heating: gasoil	139339.2
Total (kwh/year)=	640257
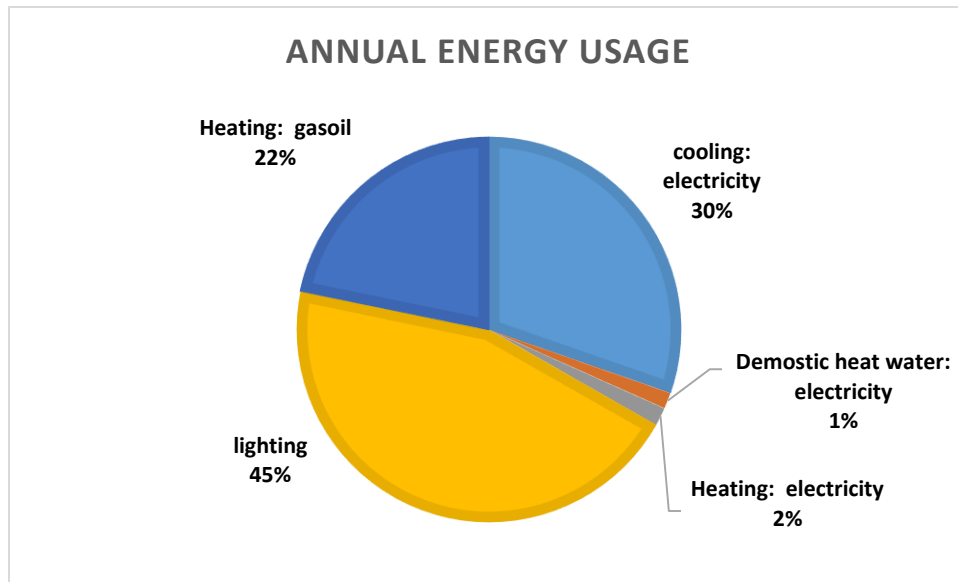
Accordingly, the economy aspects factors were included in software as follow:

Economic Data		
nominal interest	8	%
inflation	1.5	%
period of exploitation CCV	30	years
maintenance cost	9000	€/year
subsides cost	12	€/year
tax reduction	112	€/year
Energy cost		
natural gas cost	0.1	€/kwh
electricity cost	0.19	€/kwh
biomass cost	0	€/kwh
gasoil cost	0.35	€/kwh

usage	Capacity (KW)	Auxiliary consumption (%)	Seasonal Energy Performance Ratio (%)	Cover (%)
Heating-Gasoil	580.58	0%	92%	70%
heating	33.075	0%	92%	30%
cooling	746.4	0%	88% COP=3.5	100%
domestic heat water	24	0%	90%	100%
	Average illuminance at working level [lux]		Energy Efficiency Lighting	Cover (%)
Lighting	318.7		90%	100%

2.4. Building Material Information

- Windows: -

The building consists three type of glass for windows as follow:

1- double glazed window:26 mm thickness:

- ✓ 8mm tempered tinted blue glass –outside
- ✓ 12mm air gap
- ✓ 6mm clear tempered glass-inside
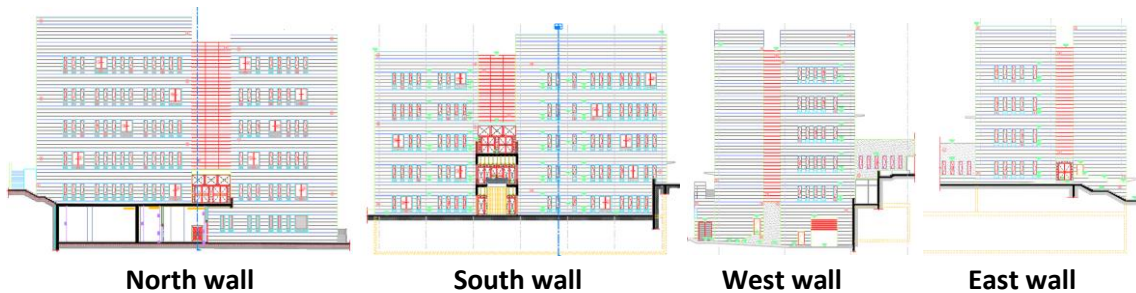
2- Single glazed window-fixed over door

3- louvered window

According to geometry data of building the % area of windows were as follow:

orientation	surface (m2)	% windows
North	1302.7	19%
south	1065.3	16%
East	475	12%
West	704	12%
basement	1287.15	0
Roof	915.92	0

| **North wall** | **South wall** | **West wall** | **East wall** |

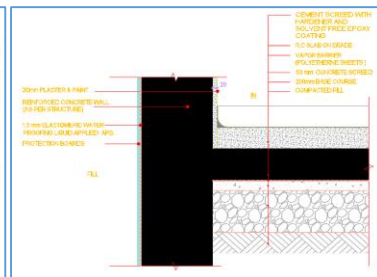|	U windows w/m2k
Double glazed window	2.78
Single glazed window	5.79
louvered window	1.27

- Wall:-

The walls specifications are shown in follow:

	material	THICKNESS (m)	CONDUCTIVITY W/m.k	U wall- W/m2.k
roof	400X400X40mm CEMENT TILES APS	0.04	1.4	0.586
	30mm MORTAR	0.03	1.5	
	50mm SAND FILL	0.05	1.68	
	1.5 mm ELASTOMERIC WATER PROOFING LIQUID APPLIED	0.004	0.05	
	30 mm CEMENT SCREED	0.03	1.6	
	(50-200mm) FOAM CONCRETE SLOPE TO DRAIN	0.05	0.04	
	50mm THICK THERMAL INSULATION (EXTRUDED POLYSTYRENE)	0.05	2.3	
	RC SLAB	0.25	1.6	
wall	50mm RIGID INSULATION APS.	0.05	0.035	0.55
	100mm HOLLOW BLOCK WALL	0.1	0.81	
	SLAB	0.2	0.04	
	20mm PLASTER & PAINT	0.02	0.57	
	40mm THICK JAMAEEN STONE	0.04	0.77	
	MORTAR	0.06	0.94	
soil/ BASEMENT	CEMENT SCREED WITH HARDENER AND SOLVENT FREE EPOXY COATING	0.1	1.6	1.11
	R.C SLAB ON GRADE	0.152	1.6	
	VAPOR BARRIER (POLYETHERNE SHEETS)	0.045	2.3	
	50 mm CONCRETE SCREED	0.05	1.6	
	200mm BASE COURSE	0.2	1.68	
	COMPACTED FILL	0.1	1.4	
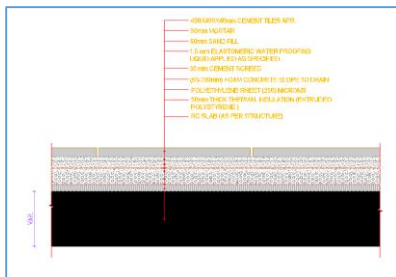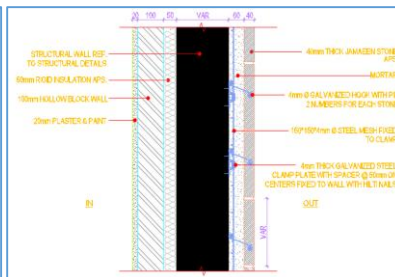
Cement tile roof   Wall   ground

Increment U-value due to thermal bridges: 0.013-2.5 W/m2K

In summary the U-Value of building wall as follow:-

Orientation	U-value (W/m2k)
North	0.15
south	0.15
East	0.15
West	0.15
basement	2.51
Roof	0.656

So, the geometry and construction of building information was summaries in table below:

item #	elemental/ orientation (roof, soil, south ..)	surface of element (m2)	window percentage (%)	U Opaque wall [W/m2K]	U Window or Skylight [W/m2K]	Solar Factor Window or Skylight	Solar Factor with Mobile Shadow Element
WALL	North	1302.7	11%	0.15	2.78	0.73	0.27
WALL	North	1302.7	1%	0.15	1.27	0	0
WALL	North	1302.7	8%	0.15	5.79	0.75	0
WALL	south	1065.3	11%	0.15	2.78	0.73	0.27
WALL	south	1065.3	5%	0.15	5.79	0.75	0
WALL	East	475	12%	0.15	2.78	0.73	0.27
WALL	West	704	12%	0.15	2.78	0.73	0.27
basement	basement	1287.15	0%	2.51	0	0	0
Roof	Roof	915.92	0%	0.656	0	0	0

2.5. Operational condition

The building operated hours from 8:00 AM to 3:30 PM and sometimes may extend for some worker to 5:00 PM, so the workhours range between (7h to 9h) from Sunday to Thursday

Accordingly, the max occupation rate is 0.86 and the occupation time fraction was as follow:

Occupation time fraction																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	0	0	0	0	9	90.7	36	87.3	36	94	36	49.3	49.3	2	0	0	0	0	0	0	0	0

Also, max lighting and power system rates (W/m2) were 17.16 & 16.83 respectively.

And the hourly fraction for lighting and system was as follow:

hourly fraction for lighting and system																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0	0	0	0	0	0	30	85	95	95	95	80	80	80	70	0	0	0	0	0	0	0	0

Regarding the DHW, there is no default values for the DHW consumption, except for the reference temperature was set to 50C.

*** regarding season use variation button to insert %values in term monthly for: occupancy, lighting/systems, domestic heat water: -
the value will not be saved after inserting, just it will be saved for January and the rest will be return to 100% value

3. Solve: Initial situation

3.1. Baseline Results

*** when pressing the button "Solve: initial situation" and icon " Solve-Initial situation: terminated" is appeared, and press "Baseline Results", then a message will appear say: "Warning: No Data available" but after several attempts, the result will appear.

Solve – Initial situation: terminated

Thus mean,
the definition of the building in its actual situation has been finished, and then the calculation of the hourly values of net energy demand and energy consumptions adapted to the meters introduced by the user were initiated and The green icon was obtained when the calculation was finished.
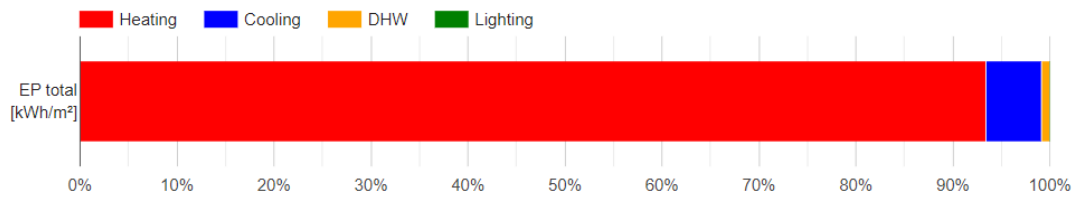
The baseline results were shown in two categories:

1- Load energy needs result
2- Energy consumption KPI
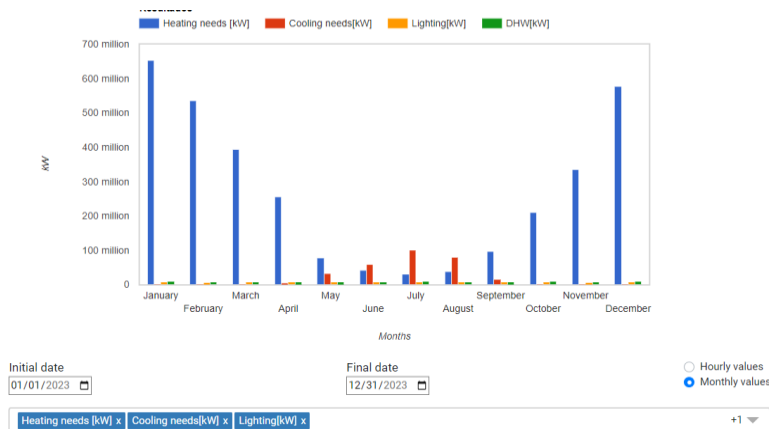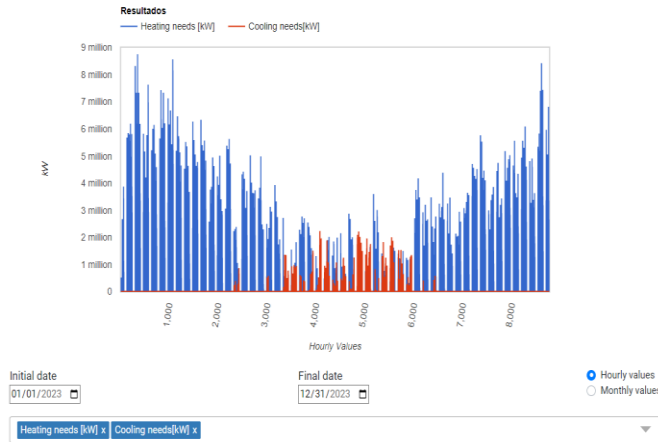
Total primary energy

	Heating	Cooling	DHW	Lighting
Energy needs [kWh/m²·year]	552.640	49.565	14.192	17.141
Final energy consumption [kWh/m²·year]	2402.800	112.650	15.769	0.190
Seasonal coefficient of performance [-]	3.680	1.760	0.900	90.000
Total primary energy [kWh/m²·year]	3826.400	236.790	33.146	0.400
Non-renewable primary energy [kWh/m²·year]	3826.400	236.790	33.146	0.400
Renewable primary energy [kWh/m²·year]	0.000	0.000	0.000	0.000
Renewable energy ratio [-]	0.000	0.000	0.000	0.000
CO2 emissions [kg CO2/m²·year]	737.650	39.427	5.519	0.067

*** regarding the baseline result
There is overlap of the curves between heating and cooling which may have solved when the season use variation problem is solved to determine the operation source by month.

3.2. Medecosure catalogue

Then using Med-EcoSuRe catalogue, we insert different conservation measures to see the impact. These are classified in the groups shown below:

- Opaque envelope
- Windows
- Ventilation
- Solar protection
- Building system

3.2.1 Opaque envelope

Opaque wall: the following table will appear to choose the wall to make the analysis for new U value

Opaque envelope

ppt1 ⌄   Add   Delete

	Orientation	Surface [m²]	Initial Value U[W/m²K]	Modified U [W/m²K]	Cost [€/m²]
☐	North	1302.7	2.78	0.3	0
☐	North	1302.7	1.27	0	0
☐	North	1302.7	5.79	0	0
☐	South	1065.3	2.78	0	0
☐	South	1065.3	5.79	0.3	0
☐	East	475	2.78	0.3	0
☐	West	704	2.78	0.3	0
☐	Floor	1287.15	0	0	0
☑	Roof	915.92	0	0.3	1

Features

Name	Orientations	Total Surface [m²]
ppt1	Roof	915.92

*** There is error in the initial value U [W/m2k], where the appeared values were for window, and it was supposed to appear the U values for wall.

Value of φ·L due to thermal bridges

ppt2 ⌄   Add   Delete

Initial value: 446.19

New value of φ·L [W/K]:

183.2

Cost [€/m²]:

1

3.2.2 Windows

Windows

w1 ⌄   Add   Delete

	Orientation	Surface [m²]	Initial Value U[W/m²K]	Solar factor winter	Solar factor summer	New value of U [W/m²K]	New value of solar factor	Cost [€/m²]
☑	North	1302.7	2.78	0.73	0.73	1.2	0.5	1
☐	North	1302.7	1.27	0	0	0	0	0
☑	North	1302.7	5.79	0.75	0.75	3.5	0.5	1
☐	South	1065.3	2.78	0.73	0.73	0	0	0
☐	South	1065.3	5.79	0.75	0.75	0	0	0
☐	East	475	2.78	0.73	0.73	1.2	0.5	1
☐	West	704	2.78	0.73	0.73	1.2	0.5	1
☐	Floor	1287.15	0	0	0	0	0	0
☐	Roof	915.92	0	0	0	0	0	0

Features

Name	Orientations	Total Surface [m²]
w1	North, North	2605.4

3.2.3 Ventilation

○ Ventilation and infiltrations   ○ Night ventilation

Winter ACH [1/h]:

| 3.57 |

Summer ACH [1/h]:

| 3.57 |

Cost [€/year]:

| 0 |

- Select -   Add   Delete

Features

Name	ACH Winter	ACH summer	Operational cost [€/year]	Cost [€]
ven	1.5	1.5	1200	500

○ Ventilation and infiltrations   ● Night ventilation

nven   Add   Delete

Start month:

| June |

End Month:

| September |

Time period:

| 00:00 - 08:00 |

ACH [1/h]:

| 3.57 |

Cost [€]:

| 500 |

Maintenance operation cost [€/year]:

| 1500 |

3.2.4 Solar protection

Solar protections

- Select -   Add   Delete

Features

Name	Orientations	Total Surface [m²]	Solar factor	Cost [€/m²]
solar	North	1302.7	0.25	1200

3.2.5 Building system

Heating:

● Heating   ○ Cooling   ○ DHW   ○ Lighting

- Select -   Add   Delete

Name	Energy meter	Cover [%]	Seasonal energy performance ratio [%]	Operational and maintenance cost [€/year]	Initial cost [€]
heat	Electricity	50	95	1500	3000

Cooling:

○ Heating   ◉ Cooling   ○ DHW   ○ Lighting

- Select - ⌄   Add   Delete

Name	Energy meter	Cover [%]	Seasonal energy performance ratio [%]	Operational and maintenance cost [€/year]	Initial cost [€]
cool	Electricity	50	350	1200	4500

DHW:

○ Heating   ○ Cooling   ◉ DHW   ○ Lighting

- Select - ⌄   Add   Delete

Name	Energy meter	Cover [%]	Seasonal energy performance ratio [%]	Operational and maintenance cost [€/year]	Initial cost [€]
dhw	Electricity	100	95	1500	1000

Lighting:

○ Heating   ○ Cooling   ○ DHW   ◉ Lighting

- Select - ⌄   Add   Delete

| Name	Energy Meter	Cover[%]	Energy Efficiency Lighting [-]	Operational and maintenance cost [€/year]	Initial cost [€]
lighting	Electricity	100	3	1500	1000

4. Solve: LCC analysis

Then the calculation engine makes the LCC calculation for all of the combinations obtained from the different groups of changes introduced.

Solve – LCC Analysis: terminated.

*** when pressing the button "Solve: LCC analysis" and icon " Solve - LCC analysis: terminated" is appeared, and press "LCC Results", then a message will appear say: "Warning: No Data available" and so no value in "LCC result" and "Medecosure proposal".

tmt2.us.es says

Warning: No data available

OK
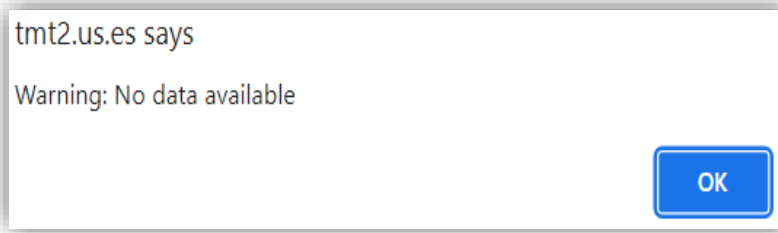
5. Conclusion

The developed program was tested by the project team at An-Najah University; the information was collected, the necessary calculations were made, and the data of the building chosen for the study was entered on the program.

The results and observations on the program work were as follows:

- Regarding operational condition/initial situation: the "season use variation" button to insert %values in term monthly for: occupancy, lighting/systems, domestic heat water: -
After trying to enter the % value in the table, the entered percentages are not saved except for the January value and the rest will return to the value of 100%.
- when pressing the button "Solve: initial situation" and icon " Solve- Initial situation: terminated" is appeared, and press "Baseline Results", then a message will appear say: "Warning: No Data available" but after several attempts (pressing "Solve: initial situation" button), the result will appear.
- regarding the baseline result: There is overlap of the curves between heating and cooling which may have solved when the season use variation problem is solved to determine the operation source by month
- regarding Opaque Envelope/ Medecosure catalogue: There is error in the initial value U [W/m2k], where the appeared values were for window, and it was supposed to appear the U values for wall.
- when pressing the button "Solve: LCC analysis" and icon " Solve - LCC analysis: terminated" is appeared, and press "LCC Results", then a message will appear say: "Warning: No Data available", and so no value in "LCC result" and "Medecosure proposal".