

**MONTENEGRIN ENERGY EFFICIENCY
CERTIFICATION – MEEC
EPC SOFTWARE**

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MEEC: MAIN CONCEPTS



The screenshot shows the MEEC software interface with a 'New Project' dialog box open. The dialog box is divided into several sections:

- Project data:** Name of project: New project
- Project settings:** A red box highlights this section with the warning: **The project settings cannot be changed later!** It includes:
 - Type of building: Residential building, Non-residential building
 - Calculate as single zone building (simplified approach for non-residential buildings)
- HVAC wizard:** A red box highlights this section with the text: **The HVAC wizard offers an easy and effective way to define the technical systems for a building.** It includes:
 - Use of the HVAC wizard: Only the wizard, Use the wizard for the basic setup, Don't use the wizard at all
- Buttons:** OK, Load project, Load from file

Annotations with arrows point from text boxes to these sections:

- Zone approach:**
 - (i) Multi-zone approach (non-residential)
 - (ii) Single-zone approach (residential and non-residential)
- HVAC system:**
 - (i) HVAC wizard (simplified approach)
 - (ii) HVAC wizard but developing more details
 - (iii) Detailed description (no HVAC wizard use)

Instant results section (bottom left):

- Total energy need
- Total energy use
- Total primary energy

MEEC: USER INTERFACE



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show Energy need

Results as absolute values Detailed results as monthly values

English Montenegrin

Restore Layout

User manual About Technisches Handbuch

File Navigation Result options Language View Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Kancela...)

Envelope elements

Lighting

Results for this zone

Zone 2 - Toilets (Kupatla...)

Envelope elements

Lighting

Results for this zone

Zone 5 - Restaurant (Re...)

Envelope elements

Lighting

Results for this zone

HVAC wizard

HVAC

Results for the building

Variants

Navigation tree

Main

Building data DHW Constructions Windows Climate zone Energy carriers

Building description

Name of building Office building Type of building Non-residential buildin

Building is an existing building

Building category Office building

Building parameters

Thermal bridges Not in accordance w

Construction weight Heavy

Main structure

Infiltration

Location of building Moderately open

Condition of building Infiltration based on Blower-door test Infiltration based on Blower-door test

Building geometry

Number of heated/ cooled storeys 5 Total net floor area, net and gross volume are accumulated for

Building automation

Instant results

Total energy need 86.03 kWh/(m²a)

Total energy use 78.20 kWh/(m²a)

Total primary energy 136.85 kWh/(m²a)

Instant results

Primary Energy

Heating DHW Cooling Lighting Auxiliary energy

Results

Name	Name and Unit
Detailed results...	
Type of building	Non-residential building...
Is the building ...	No
Calculate as sin...	No
Thermal bridges	
Not in accorda...	0.10 W/(m²K)
Construction w...	
Heavy	100.00 Wh/(m²K)
Infiltration	
Loc...	
Co...	
Air	
Buildi...	
Net volume	9480.93 m³
Gross volume	10745.04 m³
Building Autom...	
Heating	Class C
Overall effi...	76.4%
Efficiency o...	85.9%
Efficiency o...	89.0%
Efficiency o...	100.0%
Efficiency o...	99.9%
DHW	Class C
Overall effi...	55.5%
Efficiency o...	100.0%

Help / Parameters results

Results Help

MEEC: MENU STRUCTURE



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show Energy need

Results as absolute values

Detailed results as monthly values

English Montenegrin

Restore Layout

User manual About Technisches Handbuch

File Navigation Result options Language View Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Kancela...)

Envelope elements

Lighting

Results for this zone

Zone 2 - Toilets (Kupatla...)

Envelope elements

Lighting

Results for this zone

Zone 3 - Hallways (Hodnici...)

Envelope elements

Lighting

Results for this zone

Zone 5 - Restaurant (Re...)

Envelope elements

Lighting

Results for this zone

HVAC wizard

HVAC

Results for the building

Variants

Main

Building data DHW Constructions Windows Climate zone Energy carriers

Building description

Name of Building

Type of building Non-residential buildin

Building category Office building

Building description

Building description

Building description

Infiltration

Location of building Moderately open

Condition of building Infiltration based on Blower-door test

Infiltration based on Blower-door test

Building geometry

Number of heated/ cooled storeys 5

Total net floor area, net and gross volume are accumulated for

Building automation

Instant results

Total energy need 86.03 kWh/(m²a)

Total energy use 78.20 kWh/(m²a)

Total primary energy 136.85 kWh/(m²a)

Net energy

Final energy

Primary Energy

Heating

DHW

Cooling

Lighting

Auxiliary energy

Results

Name Name and Unit

Detailed results...

Type of building Non-residential building...

Is the building ... No

Calculate as sin... No

Thermal bridges

Not in accorda... 0.10 W/(m²K)

Construction w...

Heavy 100.00 Wh/(m²K)

Infiltration

Location of buil... Moderately open

Condition of bu... Infiltration based on Bl...

Air change rate... 0.50 1/h

Building geome...

Net floor area 3160.31 m²

Heated/cooled ... 3160.31 m²

Net volume 9480.93 m³

Gross volume 10745.04 m³

Building Autom...

Heating Class C

Overall effi... 76.4%

Efficiency o... 85.9%

Efficiency o... 89.0%

Efficiency o... 100.0%

Efficiency o... 99.9%

DHW Class C

Overall effi... 55.5%

Efficiency o... 100.0%

Instant results Status

Results Help

Two modes
(i) Certification
(ii) Consultation/Energy audits

MEEC: INPUT SCREEN – PROJECT DATA



The screenshot displays the MEEC software interface for entering project data. The window title is "MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *".

Navigation Panel (Left): A tree view shows the project structure. The "Project" folder is highlighted with a red box. Below it, the "Building" folder is expanded, showing sub-folders for "Building envelope", "Zones", "HVAC wizard", and "Variants". Each zone (Zone 1 - Offices, Zone 2 - Toilets, Zone 3 - Hallways, Zone 5 - Restaurant) has sub-items for "Envelope elements", "Lighting", and "Results for this zone".

Main Panel (Center): The "Project data" tab is active. It contains several input fields and sections:

- Project data:** Name of project (New project), Address of the building, Postcode / city, Registrar number for this EPC, Date of the project (14/11/2020), Contact person, Email address of contact person.
- Additional info:** A large empty text area.
- Building owner:** Name of building owner, Address of building owner.
- Energy Auditor:** Company name, Address of energy auditor, Postcode / city, Energy auditor registration number, Date when license was issued (01/01/2016), Name of key auditor, Profession of key auditor, Contact of key auditor.
- Team members:** Contact of team member 2, Name of team member 3, Profession of team member 3, Contact of team member 3.

Visualization Window (Bottom Right): A dialog box titled "Pictures, drawings, images" is open. It has a "Description:" field containing "Visualization". The window displays two 3D architectural renderings of a modern building with a glass facade and a flat roof.

MEEC: INPUT SCREEN – BUILDING DATA



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1)*

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward

Calculation for EPC: Show Energy need, Results as absolute values, Detailed results as monthly values

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technisches Handbuch

Navigation: Project, Building (highlighted), Building envelope, Zones, Zone 1 - Offices (Kancela...), Zone 2 - Toilets (Kupatla...), Zone 3 - Hallways (Hodnici), Zone 5 - Restaurant (Re...), HVAC wizard, HVAC, Results for the building, Variants

Main: Building data, DHW, Constructions, Windows, Climate zone, Energy carriers

Building description: Name of building: Office building, Type of building: Non-residential building, Building category: Office building

Building parameters: Thermal bridges: Not in accordance with recommended solutions, Construction weight: Heavy

Infiltration: Location of building: Moderately open, Condition of building: Infiltration based on Blower-door test

Building geometry: Number of heated/cooled storeys: 5

Instant results: Total energy need: 86.03 kWh/(m²a), Total energy use: 78.20 kWh/(m²a), Total primary energy: 136.85 kWh/(m²a)

Energy breakdown chart:

Energy Type	Heating	DHW	Cooling	Lighting	Auxiliary energy
Net energy	High	Low	Low	Low	Low
Final energy	High	Low	Low	Low	Low
Primary Energy	High	Low	Low	Low	Low

Results:

Name	Name and Unit
Detailed results...	
Type of building	Non-residential building...
Is the building ...	No
Calculate as sin...	No
Thermal bridges	
Not in accorda...	0.10 W/(m²K)
struction w...	
Heavy	100.00 Wh/(m²K)
iltration	
location of bui...	Moderately open
Condition of bu...	Infiltration based on Bl...
Air change rate...	0.50 1/h
ding geome...	
Net floor area	3160.31 m²
Heated/cooled ...	3160.31 m²
Net volume	9480.93 m³
Gross volume	10745.04 m³
Building Autom...	
Heating	Class C
Overall effi...	76.4%
Efficiency o...	85.9%
Efficiency o...	89.0%
Efficiency o...	100.0%
Efficiency o...	99.9%
DHW	Class C
Overall effi...	55.5%
Efficiency o...	100.0%

Building parameters in line with Rulebook on minimum energy efficiency requirements in buildings (methodology)

MEEC: INPUT SCREEN – BUILDING DATA



MEEC Montenegro Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show Energy need

Results as absolute values
Detailed results as monthly values

English Montenegrin

Restore Layout

User manual About Technisches Handbuch

Language View Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Kancela...)

Envelope elements

Lighting

Results for this zone

Zone 2 - Toilets (Kupatla...)

Envelope elements

Lighting

Results for this zone

Zone 3 - Hallways (Hodnici)

Envelope elements

Lighting

Results for this zone

Zone 5 - Restaurant (Re...)

Envelope elements

Lighting

Results for this zone

HVAC wizard

HVAC

Results for the building

Variants

Main

Building data DHW Constructions Windows Climate zone Energy carriers

Heating

Class C:
Heat generation: intermittent operation
Circulation pump heating: constant operation
Radiator: 2 K / 1 K or PI control

Class D=C:
Circulation pump: uncontrolled operation

DHW

Class D=C:
Circulation pump: uncontrolled operation

Cooling

Class D=C:
Cooling generation: seasonal operation
Circulation pump: constant operation
Cooling distribution: high hydraulic resistance

Sun screen

Class C:
Control: automatic
Daylight redirection: not available

Lighting

Class D=C:
Control: manual

Ventilation

Class C:
Control: time dependent

Automation levels of building systems described in 4 classes, A to D

Instant results

Total energy need 86.03 kWh/(m²a)

Total energy use 78.20 kWh/(m²a)

Total primary energy 136.85 kWh/(m²a)

Net energy

Final energy

Primary Energy

Heating

DHW

Cooling

Lighting

Auxiliary energy

Results

Name and Unit

Non-residential building...

No

No

0.10 W/(m²K)

Heavy 100.00 Wh/(m²K)

Infiltration

Location of buil... Moderately open

Condition of bu... Infiltration based on Bl...

Air change rate... 0.50 1/h

Building geome...

Net floor area 3160.31 m²

Heated/cooled ... 3160.31 m²

Net volume 9480.93 m³

Gross volume 10745.04 m³

Building Autom...

Heating Class C

Overall effi... 76.4%

Efficiency o... 85.9%

Efficiency o... 89.0%

Efficiency o... 100.0%

Efficiency o... 99.9%

DHW Class C

Overall effi... 55.5%

Efficiency o... 100.0%

MEEC: INPUT SCREEN – BUILDING DATA



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report Back Forward Calculation for EPC

Show: Energy need

Results as absolute values

Detailed results as monthly values

English Montenegrin

Restore Layout

User manual About Technisches Handbuch

Language View Help

Navigation

Building

Building envelope

Zones

Zone 1 - Offices (Kancela...)

Envelope elements

Lighting

Results for this zone

Zone 2 - Toilets (Kupatila...)

Envelope elements

Lighting

Results for this zone

Zone 3 - Hallways (Hodnic)

Envelope elements

Lighting

Results for this zone

Zone 5 - Restaurant (Re...)

Envelope elements

Lighting

Results for this zone

HVAC wizard

HVAC

Results for the building

Variants

Main

Building data DHW Constructions Windows Climate zone Energy carriers

Energy carriers

The conversion factors are used to calculate primary energy and CO₂ emissions.

The calculation for Energy Performance Certificate rates only the non-renewable primary energy, therefore only that factor is considered in the calculation.

Name	Non renewable primary energy factor [-]	Total primary energy factor [-]	CO ₂ factor [kg/kWh]
Fuel oil	1.15	1.15	0.270
Biooil	0.40	1.40	0.190
Gas	1.15	1.15	0.200
Biogas	0.40	1.40	0.120
Lignite	1.20	1.20	0.350
Firewood	0.15	1.15	0.025
Biomass	0.10	1.10	0.005
Biomass locally used	0.20	1.20	0.028
District heating - cogeneration	0.70	0.70	0.245
District heating - heating plant	1.30	1.30	0.455

Instant results

Total energy need 86.03 kWh/(m²a)

Total energy use 78.20 kWh/(m²a)

Total primary energy 136.85 kWh/(m²a)

Net energy

Final energy

Primary Energy

Heating

DHW

Cooling

Lighting

Auxiliary energy

DHW demands

List of all user defined constructions

List of windows used in the project

Conversion factors

Climate data

Zone I

Zone II

Zone III

Instant results Status

Results Help

MEEC: INPUT SCREEN – BUILDING ENVELOPE



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report Back Forward Calculation for EPC

Show Energy need

Results as absolute values
Detailed results as monthly values

English Montenegrin Restore Layout About Technisches Handbuch

File Navigation Result options Language View Help

Navigation

Project Building

Building envelope

Zones

Zone 1 - Offices (Kancela...)
Envelope elements
Lighting
Results for this zone

Zone 2 - Toilets (Kupatila...)
Envelope elements
Lighting
Results for this zone

Zone 3 - Hallways (Hodnic)
Envelope elements
Lighting
Results for this zone

Zone 5 - Restaurant (Re...)
Envelope elements
Lighting
Results for this zone

HVAC wizard
HVAC
Results for the building

Variants

Main

Construction elements

Add external or internal wall Add roof or upper element Add floor or lower completion

Name	Area [m ²]	U value [W/(m ² K)]	Max U value [W/(m ² K)]	Orientation	Incline
SZ1 Outer wall (Spoljni zid)	374.13	0.60	0.60	East	Incline 90
SZ2 Outer wall (Spoljni zid)	516.32	0.60	0.60	East	Incline 90
SZ3 Outer wall (Spoljni zid)	34.43	0.60	0.60	East	Incline 90
RK1 Flat roof over heated space (Ravan krov...)	164.32	0.40	0.40	Horizontal	
MK1 Mezzanine k. above the outer space (Me...)	88.53	0.40	0.40		
P1 - E Windows east (Prozori ka ISTOKU)	2.02	2.00	2.00	East	Incline 90
P1 - W Windows west (Prozori ka ZAPADU)	2.02	2.00	2.00	South	Incline 90
P1 - N Windows north (Prozori ka SEVERU)	90.36	2.00	2.00	North	Incline 90
UZ1 - E Windows east (Prozori ka ISTOKU)	15.62	2.00	2.00	East	Incline 90
UZ1 - S Windows south (Prozori ka JUGU)	20.82	2.00	2.00	South	Incline 90

Instant results

Total energy need 86.03 kWh/(m²a)
Total energy use 78.20 kWh/(m²a)
Total primary energy 136.85 kWh/(m²a)

Net energy
Final energy
Primary Energy

Heating
DHW
Cooling
Lighting
Auxiliary energy

Results

Name Name and Unit

Total area per en...
External Wall 1560.86 m²
Upper completion 718.88 m²
Lower completion 718.89 m²

SZ1 Outer wall (S...
Area 374.13 m²
U-value 0.60 W/(m²K)

U-values exceeding the minimum requirements from the Rulebook are marked in red

MEEC: INPUT SCREEN – BUILDING ENVELOPE



The screenshot shows the MEEC software interface for defining building envelope elements. The main panel displays the configuration for element 'SZ4 - external wall'. The 'Construction' dropdown is set to 'Use direct Entry of U value', which is highlighted with a red box. A callout box on the right explains that this option is used for 'Opaque envelope elements' and involves 'Direct U-values entry' and 'Definition of construction layers'.

The 'Material selection' dialog is open, showing a list of materials. The 'Filter Materials' dropdown is set to 'Plaster, screed'. The following table shows the materials listed in the dialog:

Name	Density ρ kg/m ³	Thermal conductivity λ
acrylic based plaster	1700	0.90
anhydrite screed	2100	1.20
cement plaster	2000	1.60

MEEC: INPUT SCREEN – BUILDING ENVELOPE



Transparent envelope elements

- (i) Direct U-value entry (and corresponding g and tau values)
- (ii) Definition of window elements (glazing, frame, spacer)

+ definition of sun protection system

Name	Area [m ²]
SZ1 Outer wall (Spoljni zid)	374
SZ2 Outer wall (Spoljni zid)	516
SZ3 Outer wall (Spoljni zid)	34
RK1 Flat roof over heated space (Ravan krov...)	164
MK1 Mezzanine k. above the outer space (Me...)	88
P1 - E Windows east (Prozori ka ISTOKU)	2
P1 - W Windows west (Prozori ka ZAPADU)	2
P1 - N Windows north (Prozori ka SEVERU)	90
UZ1 - E Windows east (Prozori ka ISTOKU)	15
UZ1 - S Windows south (Prozori ka JUGU)	20

U, g and tau value			
U-value window	4.96	W/(m ² K)	
g perpendicular	0.87		Light transmission tau,d,65 0.90
g tot winter	0.00		tau,eff,Sa winter 0.00
g tot summer	0.00		tau,eff,Sa summer 0.00

Name of element: UZ1 - N Windows north (Prozori ka SEVERU) Incline: Incline 90
Total area (carcass opening): 20.82 m² Orientation: North
Type of element: UZ1

MEEC: INPUT SCREEN – ZONES



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward

Calculation for EPC: Show Energy need, Results as absolute values, Detallergebnisse als Monatswerte

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technical manual

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Kancelarije)

Envelope elements

Lighting

Results for this zone

Zone 2 - Toilets (Kupa...)

Envelope elements

Lighting

Results for this zone

Zone 3 - Hallways (Ho...)

Envelope elements

Lighting

Results for this zone

Zone 5 - Restaurant (...)

Envelope elements

Lighting

Results for this zone

HVAC wizard

HVAC

Results for the building

Main

Zones

List of zones

Add zone Add residential zone

H	C	V	Name	User profile	Net floor area
●	●		Zone 1 - Offices (Kancelarije)	Office area	
●			Zone 2 - Toilets (Kupatila i ostave)	WC and sanitary rooms	
●			Zone 3 - Hallways (Hodnici)	Passageways (heated)	
●	●		Zone 5 - Restaurant (Restoran)	Restaurant / cafa / cafeteria	

Instant results

Total energy need 87.74 kWh/(m²a)

Total energy use 92.73 kWh/(m²a)

Total primary energy 162.27 kWh/(m²a)

Net energy

Final energy

Primary Energy

Heating

DHW

Cooling

Lighting

Auxiliary energy

Results

Name Name and Unit

MEEC Monte... 0.8.191.189

Instant results Status

Results Help

MEEC: INPUT SCREEN – ZONE DATA



The screenshot shows the MEEC software interface for 'Typical Building C3_MinRequirements_Cooling (1)'. The main window is titled 'MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *'. The interface is divided into several sections:

- Navigation:** A tree view on the left showing the project structure. 'Zone 1 - Offices (Kancelarije)' is selected and highlighted with a red box.
- Main:** The central area for entering zone data. It includes fields for 'Name of zone' (Zone 1 - Offices (Kancelarije)), 'User Profile' (Office area), and 'Zone geometry' (Net floor area: 1672.18 m²). It also has sections for 'Mechanical ventilation' (Natural ventilation selected) and 'Conditioning in air handling unit' (No additional heating and/or cooling of supply air selected).
- Results:** A panel on the right showing a table of results. The table has columns for 'Name' and 'Name and Unit'. The 'Detailed res...' section shows 'Zone 1 - Offices (K...' and 'Office area'.

A red box highlights the 'Office area' user profile selection in the 'User profile' field.

Single zone approach:
13 user profiles defined for building types specified in the Rulebook

Multi zone approach:
36 user profiles defined for different zones (consistent with profiles for building types)

MEEC: INPUT SCREEN – ZONE DATA



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward, Calculation for EPC

Show: Energy need

Results as absolute values
 Detaileergebnisse als Monatswerte

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technical manual

Navigation: Project, Building, Building envelope, Zones, Zone 1 - Offices (Kan...), Envelope elements, Lighting, Results for this zo..., Zone 2 - Toilets (Kupa...), Envelope elements, Lighting, Results for this zo..., Zone 3 - Hallways (Ho...), Envelope elements, Lighting, Results for this zo..., Zone 5 - Restaurant (...), Envelope elements, Lighting, Results for this zo..., HVAC wizard, HVAC, Results for the building

Main: Zone data, User profile

User profile

Name: Office area

Description: Individual office, group office, open-plan office

Usage times

Daily usage times: from 06:00 to 18:00 12.00 h/d

Annual usage days: 260.00 d/a

Daily operating hours of heating system: from 06:00 to 18:00 12.00 h/d

Daily operating hours of AC and cooling systems: from 06:00 to 18:00 12.00 h/d

Annual operating days of HVAC systems: 260.00 d/a

Indoor space conditions

Set-point temperature heating: 20.00 °C

Setpoint temperature for cooling: 26.00 °C

Minimum temperature heating for design rating: 19.00 °C

Maximum temperature cooling for design rating: 26.00 °C

Temperature reduction for set-back operation: 3.00 K

Humidity requirement for the AC system control: [EditValue is null]

Minimum outdoor-air volume flow

Area-related minimum air volume flow (usually from hygienic aspects): 4.00 m³/s

Minimum air volume flow for the building (building-related)

Relative absence ventilation systems (for presence detection)

Partial operating factor for ventilation systems (presence detection)

Lighting

Maintained illuminance

Height of the work plane

Reduction factor for area that needs to have the full illumination

Relative absence (within operating time): 0.30 -

Room index (dimensionless geometric value used in split flux method): 1.25 -

Reduction factor for lighting related to the building usage: 0.70 -

Internal heat sources

Occupancy density: 15.00 m²/person

Full operating hours persons: 12.00 h/d

Heat flux of one person: 80.00 W/person

Full operating hours equipment and devices: 7.00 h/d

Simultaneous power: 11.00 W/m²

Building automation

	Class D	Class C	Class B	Class A
Summand for consideration of building automation	K 0.00	0.00	-0.50	-1.00
Factor for adaptive temperature control	- 1.00	1.00	1.35	1.35

Certification mode: User profile data are "locked".

Consumption/energy audit mode: User profile data can be modified.

MEEC: INPUT SCREEN – ZONE DATA



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show Energy need

Results as absolute values

Detalje rezultate kao mesecne vrednosti

English Montenegrin

Restore Layout

User manual About Technical manual

Language View Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Kan...)

Envelope elements

Lighting

Results for this zo...

Zone 2 - Toilets (Kupa...)

Envelope elements

Lighting

Results for this zo...

Zone 3 - Hallways (Ho...)

Envelope elements

Lighting

Results for this zo...

Zone 5 - Restaurant (...)

Envelope elements

Lighting

Results for this zo...

HVAC wizard

HVAC

Results for the building

Main

Which envelope elements contribute to transmission losses and/or gains in this zone?

Select for each building envelope element if it contributes to the transmission losses/gains in this zone.

The following options are available:

- No contribution. The envelope does not contribute to transmission losses/gains in this zone.
- Automatic. The envelope element does contribute to transmission losses/gains in this zone. The calculation uses a fraction of the element' area depending on the share net floor zones on the total net floor area of zones with automatic assigning for this element. The shares can be different for the several types of elements.
- Detailed areas. Specify which area of the element shall be used in the calculation of this zone.

Name	Total area [m ²]	No assigning	Automatic assigning	Detailed assigning	Area in this zone	Share in this
External Wall	1560.86	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	825.88	
Upper completion	718.88	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	380.37	
Lower completion	718.89	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	380.38	
Windows north	111.18	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	58.83	
Windows east	52.93	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	28.01	
Windows south	127.25	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	67.33	
Windows west	124.85	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	66.06	

List of elements in this zone

Name	Net area [m ²]	Orientation	Incline	U-Value [W/(m ² K)]
ZZ1 - W Curtain wall - Transp...	35.18	West	Incline 90	2.00
P1 - N Windows north (Prozo...	47.81	North	Incline 90	2.00
P1 - W Windows west (Prozo...	1.07	South	Incline 90	2.00
SZ3 Outer wall (Spoljni zid)	18.22	East	Incline 90	0.60
MK2 Mezzanine k. below the ...	241.24	South	Incline 30	0.40
ZZ1 - S Curtain wall - Transp...	55.25	South	Incline 90	2.00
PNT Floor on the ground (Po...	333.54	Horizontal	Horizontal	0.50
ZZ2 Curtain wall - Non-transp...	139.98	East	Incline 90	0.60
V1 Exterior door (Spoljna vra...	6.89	East	Incline 90	2.90

Results

Name	Name and Unit
Net floor ar...	
Area of t...	1672.18 m ²
Share in t...	52.91 %
External Wall	
Area assi...	825.88 m ²
Share of ...	52.91 %
Upper com...	
Area assi...	380.37 m ²
Share of ...	52.91 %
Lower com...	
Area assi...	380.38 m ²
Share of ...	52.91 %
Windows n...	
Area assi...	58.83 m ²
Share of ...	52.91 %
Windows n...	
Area assi...	0.00 m ²
Share of ...	0.00 %
Windows e...	
Area assi...	28.01 m ²
Share of ...	52.91 %
Windows s...	
Area assi...	0.00 m ²
Share of ...	0.00 %
Windows s...	
Area assi...	67.33 m ²
Share of ...	52.91 %

Results Help

MEEC: INPUT SCREEN – ZONE DATA



The screenshot displays the MEEC software interface for energy efficiency certification. The main window is titled "MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1)". The interface includes a navigation pane on the left, a main workspace, and a results pane on the right.

Navigation Pane: Shows a tree view of the project structure. The "Lighting" element under "Zone 1 - Offices (Kan...)" is highlighted with a red box.

Main Workspace: Contains a "List of lighting domains" and "Details of lighting domain" for "Lighting domain 1". The details include:

- Name of lighting domain: Lighting domain 1
- Description: (empty)
- Area of this lighting domain: 1672.18 (with "Automatic" checked)
- Type of lighting: Direct
- Luminaire: Fluorescent Tube CB
- Installed power: 19.68 (with "User defined" checked)

Results Pane: Shows a table of results for "Lighting do...":

Name	Name and Unit
Net floor ar...	1672.18 m ²
Installed po...	19.68 W/m ²
Total area	1672.18 m ²
Area lit by ...	0.00 m ²
Area not lit ...	1672.18 m ²
Nighttime o...	2543.00 h
Daytime op...	250.00 t_Nacht
Maintained ...	500.00 lux
Correctiona...	0.92
Relative ab...	0.30
Correction ...	0.84

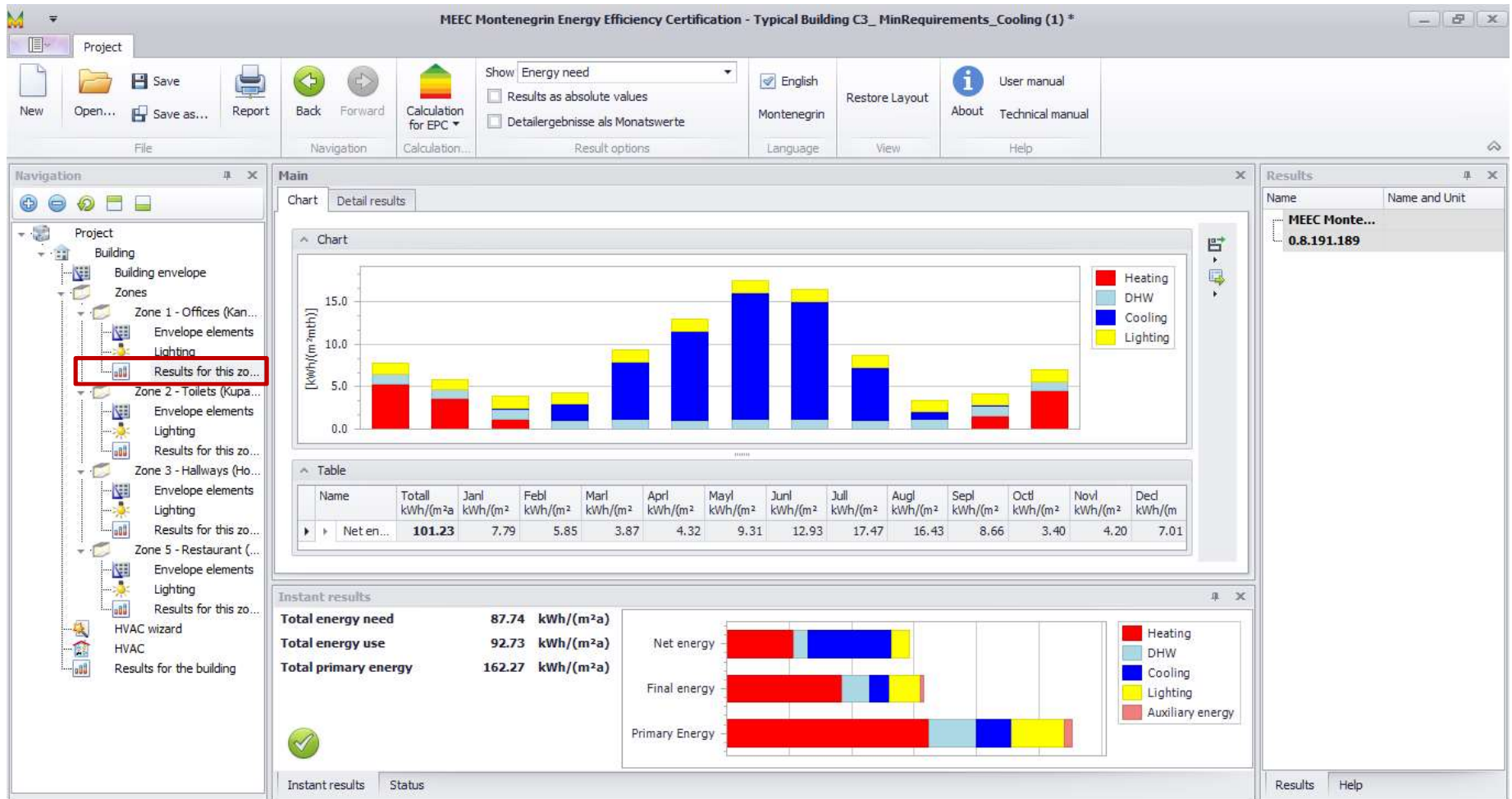
Instant results: Shows energy consumption metrics:

- Total energy need: 89.36 kWh/(m²a)
- Total energy use: 96.00 kWh/(m²a)
- Total primary energy: 168.01 kWh/(m²a)

Energy Bar Chart: A horizontal stacked bar chart showing the breakdown of energy consumption. The legend indicates: Heating (red), DHW (light blue), Cooling (dark blue), Lighting (yellow), and Auxiliary energy (pink). The chart shows that Heating is the largest component, followed by Cooling, DHW, and Lighting.

Callout Box: A white box with a black border contains the text: "Lighting is not considered for residential buildings".

MEEC: RESULTS FOR THE ZONE



MEEC: RESULTS FOR THE ZONE



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward

Calculation for EPC

Show: Energy need

Results as absolute values

Detailergebnisse als Monatswerte

English

Montenegrin

Restore Layout

User manual

About

Technical manual

Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Ka...)

Envelope elements

Lighting

Results for this z...

Zone 2 - Toilets (Kup...)

Envelope elements

Lighting

Results for this z...

Zone 3 - Hallways (H...)

Envelope elements

Lighting

Results for this z...

Zone 5 - Restaurant...

Envelope elements

Lighting

Results for this z...

HVAC wizard

HVAC

Results for the building

Main

Chart

Detail results

Detailed results

Name

Detailed results for the zone

Name

User profile

Geometry

Net floor area

Net volume

Gross volume

Energy need heating

Energy need heating on operating days

Heat sinks

Heat sinks due to transmission

Heat sinks due to transmissio...

Transmission to adjacent...

Transmission to adjacent...

Reference

	January	February	March	April	May	June	July	August
Energy need heating	8861.56	6006.79	1922.38	0.00	0.00	0.00	0.00	0.00
Energy need heating on operating days	8056.01	5697.07	1922.38	0.00	0.00	0.00	0.00	0.00
Heat sinks	21271.57	17571.52	13454.14	6471.55	0.00	0.00	0.00	0.00
Heat sinks due to transmission	9702.49	7934.56	6227.95	3299.02	0.00	0.00	0.00	0.00
Heat sinks due to transmissio...	6638.11	5428.55	4260.95	2257.07	0.00	0.00	0.00	0.00
Transmission to adjacent...	699.65	572.16	449.10	237.89	0.00	0.00	0.00	0.00
Transmission to adjacent...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Instant results

Total energy need: 87.74 kWh/(m²a)

Total energy use: 92.73 kWh/(m²a)

Total primary energy: 162.27 kWh/(m²a)

Net energy

Final energy

Primary Energy

Heating

DHW

Cooling

Lighting

Auxiliary energy

Results

Name and Unit

MEEC Monte...

0.8.191.189

Instant results

Status

Results

Help

MEEC: INPUT SCREEN – HVAC WIZARD



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show: Energy need

Results as absolute values

Detailergebnisse als Monatswerte

English

Montenegrin

Restore Layout

User manual

About Technical manual

File Navigation Result options Language View Help

Navigation

Project

Building

Building envelope

Zones

Zone 1 - Offices (Ka...)

Envelope elements

Lighting

Results for this z...

Zone 2 - Toilets (Kup...)

Envelope elements

Lighting

Results for this z...

Zone 3 - Hallways (H...)

Envelope elements

Lighting

Results for this z...

Zone 5 - Restaurant...

Envelope elements

Lighting

Results for this z...

HVAC wizard

HVAC

Results for the building

Main

Operation mode of the wizard for the technical systems

The wizard for technical systems can set up generators, units, distributions, pipes, pumps, storages etc. for heating, cooling, hot water and/or ventilation.

Only the wizard is used to define the technical systems. No details are shown.

The wizard is used to start and a refinement is possible or even required

The wizard is not used

System selection

Select the heating generation: Condensing boiler

Select the heating emission: Radiators

Select the DHW system: Central, in Combination with space heating

Select the energy carrier: Gas

Select the solar thermal system: None

Select the cooling system: Cold water 16/18°C, i.e. cooling ceiling

Select the cooling generation: Water cooled, compressor, standard

Select PV: No PV system

System description

Improved condensing electricity boiler.
Radiators on the outer wall with 70/55°C flow/return temperature
Connected to space heating system
No solar thermal support.

No zones are mechanically ventilated.
Indirect systemCentral generation and water based distribution in the building.
Water cooled compressorStandard efficiency
No PV system.

Results

Name	Name and Unit
Detail result...	
Heating	
Efficien...	85.93 %
Efficien...	88.93 %
Efficien...	100.00 %
Efficien...	99.94 %
DHW	
Efficien...	100.00 %
Efficien...	55.78 %
Efficien...	98.90 %
Efficien...	98.64 %
Cooling	
Efficien...	100.00 %
Efficien...	100.00 %
Efficien...	100.00 %
Efficien...	465.52 %

If only HVAC wizard is used no entries in the navigation tree are shown (default values for the selected systems)

Results Help

MEEC: INPUT SCREEN – HVAC WIZARD



Navigation

- Project
 - Building
 - Building envelope
 - Zones
 - HVAC wizard
 - HVAC
 - Heating
 - Heating circuit f...
 - Heating emis...
 - Unit heating 1
 - DHW
 - Boiler
 - DHW circuit for n...
 - Unit DHW 1
 - DHW Storage
 - Cooling
 - Circuit cooling 1
 - Cooling emis...
 - Unit cooling 1
 - Ventilation
 - Renewable Power
 - Results for the building

Main

Operation mode of the wizard for the technical systems

The wizard for technical systems can set up generators, units, distributions, pipes, pumps, storages etc. for heating, cooling, hot water and/or ventilation.

- Only the wizard is used to define the technical systems. No details are shown.
- The wizard is used to start and a refinement is possible or even required
- The wizard is not used.

System selection

- Select the heating generation: Condensing boiler
- Select the heating emission: Radiators
- Select the DHW system: Central, in Combination with space heating
- Select the energy carrier: Gas
- Select the solar thermal system: None
- Select the cooling system: Cold water 16/18°C, i.e. cooling ceiling
- Select the cooling generation: Water cooled, compressor, standard
- Select PV: No PV system

System description

Improved condensing electricity boiler.
Radiators on the outer wall with 70/55°C flow/return temperature
Connected to space heating system
No solar thermal support.

No zones are mechanically ventilated.
Indirect system
Central generation and water based distribution in the building.
Water cooled
No PV system

Results

Name	Name and Unit
Detail result...	
Heating	
Efficien...	85.93 %
Efficien...	88.93 %
Efficien...	100.00 %
Efficien...	99.94 %
DHW	
Efficien...	100.00 %
Efficien...	55.78 %
Efficien...	98.90 %
Efficien...	98.64 %
Cooling	
Efficien...	100.00 %
Efficien...	100.00 %
Efficien...	100.00 %
Efficien...	465.52 %

If HVAC wizard is used to start but with refinement possibilities, the details of the HVAC systems can be seen in the navigation tree and changes can be made

MEEC: INPUT SCREEN – HVAC: HEATING



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward, Calculation for EPC

Result options: Show Energy need, Results as absolute values, Detaillerggebnisse als Monatswerte

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technical manual

Navigation

- Project
 - Building
 - Building envelope
 - Zones
 - HVAC wizard
 - HVAC
 - Heating
 - Heating circuit for non residential
 - Heating emission
 - Unit heating 1
 - Boiler
 - DHW
 - DHW circuit for non residential
 - Unit DHW 1
 - DHW Storage
 - Cooling
 - Circuit cooling 1
 - Cooling emission
 - Unit cooling 1
 - Ventilation
 - Renewable Power
 - Results for the building

Main

Heating circuits

Heating units

Instant results

Total energy need	87.74 kWh/(m ² a)
Total energy use	92.73 kWh/(m ² a)
Total primary energy	162.27 kWh/(m ² a)

Generic settings

Year of construction: 2020

Boilertyp: Condensing Boiler

Boiler blower type: Forced drought burner

Integriertes Pumpenmanagement: No Integrated Pump Management

Energy source: Fuel oil

Subtype: Gas

Elektrisch betriebene Kesselregelung:

Detail parameters

- Default nominal power
- Default full load efficiency
- Default part load efficiency
- Default full load auxiliary power
- Default part load power input
- Default standby power input
- Default standby losses

Ambient

Location: Outside heated area

Results

Name	Name and Unit
Units	
Unit heat...	
Efficien...	100.00 %
Efficien...	99.94 %
Total e...	132852.60 kWh/a
Final en...	132933.90 kWh/a

MEEC: INPUT SCREEN – HVAC: HEATING



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward, Calculation for EPC

Show: Energy need

Results options: Results as absolute values, Detaillergebnisse als Monatswerte

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technical manual

Navigation

- Project
 - Building
 - Building envelope
 - Zones
 - HVAC wizard
 - HVAC
 - Heating**
 - Heating circuit for Heating emissi...
 - Unit heating 1
 - Boiler
 - DHW
 - DHW circuit for no...
 - Unit DHW 1
 - DHW Storage
 - Cooling
 - Circuit cooling 1
 - Cooling emissi...
 - Unit cooling 1
 - Ventilation
 - Renewable Power
 - Results for the building

Circuit

Connection pipe | Riser pipe | Distribution pipe | Pump | Heating Emissions | Detail results

Circuit settings

Circuit type: Central (with distribution pipes) | Heating unit: Unit heating 1

Heating distribution

Network topology: Storey ring | Network type: Double pipe network

Hydraulic balance: No hydraulic balance | Building group: Use building type

Has connection pipe

Has riser pipe

Has distribution pipe

Results

Name	Name and Unit
Units	
Unit heat...	
Efficien...	100.00 %
Efficien...	99.94 %
Total e...	132852.60 kWh/a
Final en...	132933.90 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	516.93 kWh/a
Circuits	
Heating c...	
Efficien...	85.93 %
Efficien...	88.93 %
Net ene...	101522.30 kWh/a
Total e...	62660.56 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	1338.70 kWh/a

Results Help

MEEC: INPUT SCREEN – HVAC: HEATING



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward

Calculation for EPC

Show: Energy need

Results as absolute values
Detailergebnisse als Monatswerte

English, Montenegrin

Restore Layout

User manual, Technical manual, About, Help

Navigation

Project

- Building
 - Building envelope
 - Zones
 - HVAC wizard
 - HVAC
 - Heating**
 - Heating circuit for non residential
 - Heating emissi...
 - Unit heating 1
 - Boiler
 - DHW
 - DHW circuit for no...
 - Unit DHW 1
 - DHW Storage
 - Cooling
 - Circuit cooling 1
 - Cooling emissi...
 - Unit cooling 1
 - Ventilation
 - Renewable Power
 - Results for the building

Heating circuits

Heating units

Unit heating 1

Main

Emission settings

Type of emission: Radiator

Radiator location: Exterior Wall

Default temperatures (flow/return):

Temperatures (flow/return): 55 °C, 45 °C

Electronic controls: 0, Electrical control syste...

Connect circuit to zones

Select zone	Contribution [%]
Zone 1 - Offices (Kancelarije)	100.00%
Zone 2 - Toilets (Kupatila i ostave)	100.00%
Zone 3 - Hallways (hodnici)	100.00%
Zone 5 - Restaurant (Restoran)	100.00%

Instant results

Total energy need

Total energy use

Total primary energy

Results

Name	Name and Unit
Units	
Unit heat...	
Efficien...	100.00 %
Efficien...	99.94 %
Total e...	132852.60 kWh/a
Final en...	132933.90 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	516.93 kWh/a
Circuits	
Heating c...	
Efficien...	85.93 %
Efficien...	88.93 %
Net ene...	101522.30 kWh/a
Total e...	62660.56 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	1338.70 kWh/a

Instant results Status

Results Help

MEEC: INPUT SCREEN – HVAC: DHW



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report

Back Forward Calculation for EPC

Show Energy need

Results as absolute values
Detailergebnisse als Monatswerte

English Montenegrin

Restore Layout

User manual About Technical manual Help

Navigation

Project

- Building
 - Building envelope
 - Zones
 - HVAC wizard
 - HVAC
 - Heating
 - Heating circuit for ...
 - Heating emissi...
 - Unit heating 1
 - Boiler
 - DHW**
 - DHW circuit for no...**
 - Unit DHW 1
 - DHW Storage
 - Cooling
 - Circuit cooling 1
 - Cooling emissi...
 - Unit cooling 1
 - Ventilation
 - Renewable Power
 - Results for the building

Main

Circuit Connection pipe Riser pipe Distribution pipe Pump DHW Emission Detail results

Circuit settings

Circuit type Central (with distribution pipes) DHW unit Unit DHW 1

DHW circuit

Network topology Riserpipes Building group Use building type

Has connection pipe
 Has riser pipe
 Has distribution pipe

Circulation

Results

Name	Name and Unit
Units	
Unit heat...	
Efficien...	100.00 %
Efficien...	99.94 %
Total e...	132852.60 kWh/a
Final en...	132933.90 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	516.93 kWh/a
Circuits	
Heating c...	
Efficien...	85.93 %
Efficien...	88.93 %
Net ene...	101522.30 kWh/a
Total e...	62660.56 kWh/a
Auxiliar...	0.00 kWh/a
Auxiliar...	1338.70 kWh/a

Results Help

MEEC: INPUT SCREEN – HVAC: COOLING



MEEC Montenegro Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1) *

Project

New Open... Save Save as... Report Back Forward Calculation for EPC

Show Energy need
 Results as absolute values
 Detailergebnisse als Monatswerte

English Montenegrin Restore Layout About Technical manual

Navigation

Project
Building
Building envelope
Zones
HVAC wizard
HVAC
Heating
Heating circuit for ...
Heating emissi...
Unit heating 1
Boiler
DHW
DHW circuit for no...
Unit DHW 1
DHW Storage
Cooling
Circuit cooling 1
Cooling emissi...
Unit cooling 1
Ventilation
Renewable Power
Results for the building

Main

Cooling circuits
Add circuit Remove selected
Circuit cooling 1

Cooling units
Add unit Rem
Unit cooling 1

Results

Name	Name and Unit
MEEC Monte...	0.8.191.189

Main
Cooling Cooling Generation Detail results

Compression chiller

Generator age 2020

Energy carrier Electricity

System type Watercooled System is a multi generator system

Type Piston/scroll compressor

Control Two point control (on/off)

Cooling medium R134a

Water inlet Constant

Default part load factor PLV Default energy efficiency ratio EER

Recooling settings for water based compression chiller

Recooling system Evaporation Default recooling factor

Free Recooling system No free recooling

Instant results
Total energy need
Total energy use
Total primary energy

Instant results Status Results Help

MEEC: INPUT SCREEN – HVAC: VENTILATION



The screenshot displays the MEEC software interface for a project titled "MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1)". The interface is divided into several panels:

- Navigation Panel (Left):** A tree view showing the project structure. The "Ventilation" folder is highlighted with a red box, and its sub-item "Unit AC 1" is also highlighted with a red box.
- Main Panel (Center):** The primary workspace for inputting data. It contains sections for "AC circuits" (with "Circuit AC 1" listed) and "AC units" (with "Unit AC 1" listed). A detailed input form for "Unit AC 1" is open, showing settings for:
 - Ventilation:** Type of ventilation system control is set to "Constant Volume Flow". A checkbox for "Ventilation operates in non usage times" is checked. Air temperatures are set to 20 °C for Summer and 22 °C for Winter.
 - Heat recovery:** Type of heat recovery is set to "No heat recovery". A checkbox for "Indirect sorption cooling" is unchecked.
 - Air transport:** A checkbox for "Use default values for air transport" is checked.
 - Air humidification:** Humidification requirements are set to "No Requirements".
- Instant results Panel (Bottom Left):** Displays calculated values:
 - Total energy need
 - Total energy use
 - Total primary energy
- Results Panel (Right):** A table for "Detail results" with columns for "Name" and "Name and Unit".

The top toolbar includes options for File (New, Open, Save, Save as, Report), Navigation (Back, Forward), Calculation for EPC, Result options (Show: Energy need, Results as absolute values, Detaillergbenisse als Monatswerte), Language (English, Montenegrin), View (Restore Layout), and Help (User manual, About, Technical manual).

MEEC: INPUT SCREEN – HVAC: RENEWABLES



The screenshot displays the MEEC software interface for 'Typical Building C3_MinRequirements_Cooling (1)'. The main window is titled 'Renewable Power' and contains the following elements:

- Navigation Panel (Left):** A tree view showing the project structure. The 'Renewable Power' folder is highlighted with a red box, containing 'New PV system 1' and 'New Wind turbine 1'.
- Main Panel (Center):**
 - Renewable Power Section:** Includes 'PV generator' and 'Wind energy plants' sections with 'Add' and 'Remove' buttons.
 - Form Fields:**
 - Total area of PV modules without frame: 0.00 m²
 - Orientation: South
 - Type of module: Mono Crystalline Silicium
 - Ventilation: Unventilated
 - Year of construction: 2018
 - Neigung: 0 °
 - Standard peak power:
 - Hub Height: 0 m
 - Rotor area: 0 m²
 - Default Windspeed:
- Results Panel (Right):** A table with columns 'Name' and 'Name and Unit'. It contains one entry: 'MEEC Montenegri...' with a value of '0.8.272.270'.
- Energy Summary (Bottom):** A bar chart showing 'Primary Energy' (red) and 'Auxiliary energy' (yellow). The 'Instant results' section shows 'Total energy' and 'Total prima'.

MEEC: RESULTS FOR THE BUILDING



MEEC: RESULTS FOR THE BUILDING



MEEC Montenegrin Energy Efficiency Certification - Typical Building C3_MinRequirements_Cooling (1)

Project

File: New, Open..., Save, Save as..., Report

Navigation: Back, Forward

Calculation for EPC

Show: Energy need

Result options:

- Results as absolute values
- Detailed results as monthly values

Language: English, Montenegrin

View: Restore Layout

Help: User manual, About, Technisches Handbuch

Navigation

- Project
 - Building
 - Building envelope
 - Zones
 - Zone 1 - Offices (Kancela...
 - Envelope elements
 - Lighting
 - Results for this zone
 - Zone 2 - Toilets (Kupatila...
 - Envelope elements
 - Lighting
 - Results for this zone
 - Zone 3 - Hallways (Hodnic)
 - Envelope elements
 - Lighting
 - Results for this zone
 - Zone 5 - Restaurant (Re...
 - Envelope elements
 - Lighting
 - Results for this zone
 - HVAC wizard
 - HVAC
 - Results for the building**
 - variants

Main

Energy | Detail results | Transmission Heat Losses | Heat Balance | Emissions

Detailed results: Energy need heating

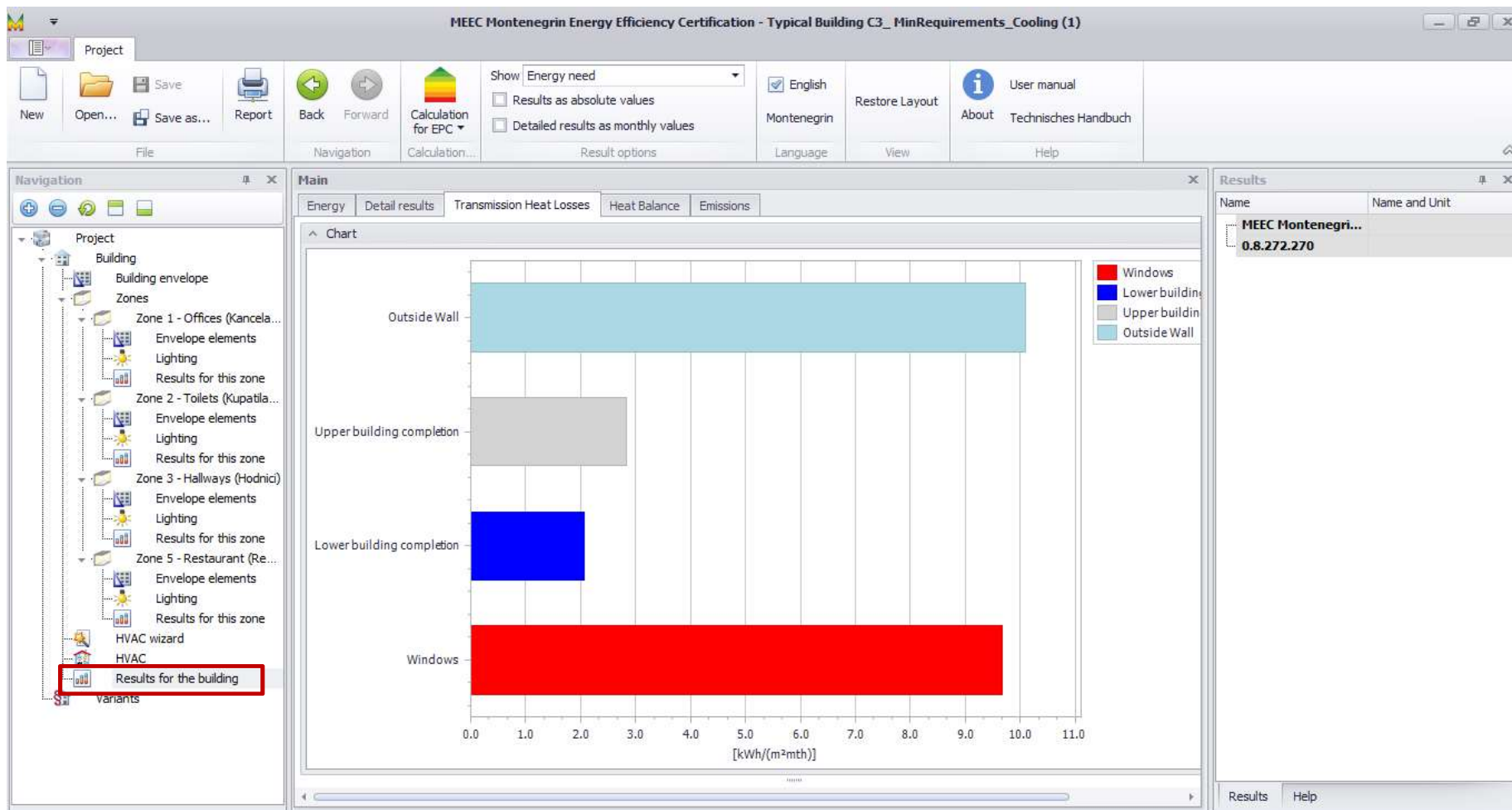
Name	Einheit	Total	Unit Mon...	January	February	March	April	May	June	July
Detailed results for the zone										
Name										
User profile										
Geometry										
Net floor area		1672.18								
Net volume		5685.41								
Gross volume		5685.41								
Energy need heating		28485.96	kWh/mth	9223.57	6344.90	2134.26	70.12	0.00	0.00	
Energy need heating on operating days		26749.62	kWh/mth	8413.25	6032.35	2134.26	70.12	0.00	0.00	
Heat sinks										
Heat sinks due to transmission										
Heat sinks due to transmission		30466.13	kWh/mth	6638.11	5428.55	4260.95	2257.07	0.00	0.00	
Transmission to adjacent...										
Transmission to adjacent...		3211.09	kWh/mth	699.65	572.16	449.10	237.89	0.00	0.00	
Transmission to adjacent...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	
Transmission to the soil		4674.08	kWh/mth	1018.41	832.84	653.71	346.28	0.00	0.00	
Ventilation heat sinks										
Ventilation heat sinks due to ...		42823.10	kWh/mth	9330.50	7630.35	5989.17	3172.53	0.00	0.00	
Ventilation heat sinks due to ...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	
Heat sinks due to mechanical...										
Heat sinks due to mechanical...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	
Ventilation heat sinks due to ...		40781.59	kWh/mth	8885.69	7266.59	5703.65	3021.29	0.00	0.00	
Ventilation heat sinks due to ...		2041.51	kWh/mth	444.81	363.76	285.52	151.24	0.00	0.00	
Internal heat sinks										
Heat sinks due to cooling sys...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	
Uncontrolled heat input d...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	
Uncontrolled cold input d...		0.00	kWh/mth	0.00	0.00	0.00	0.00	0.00	0.00	

Results

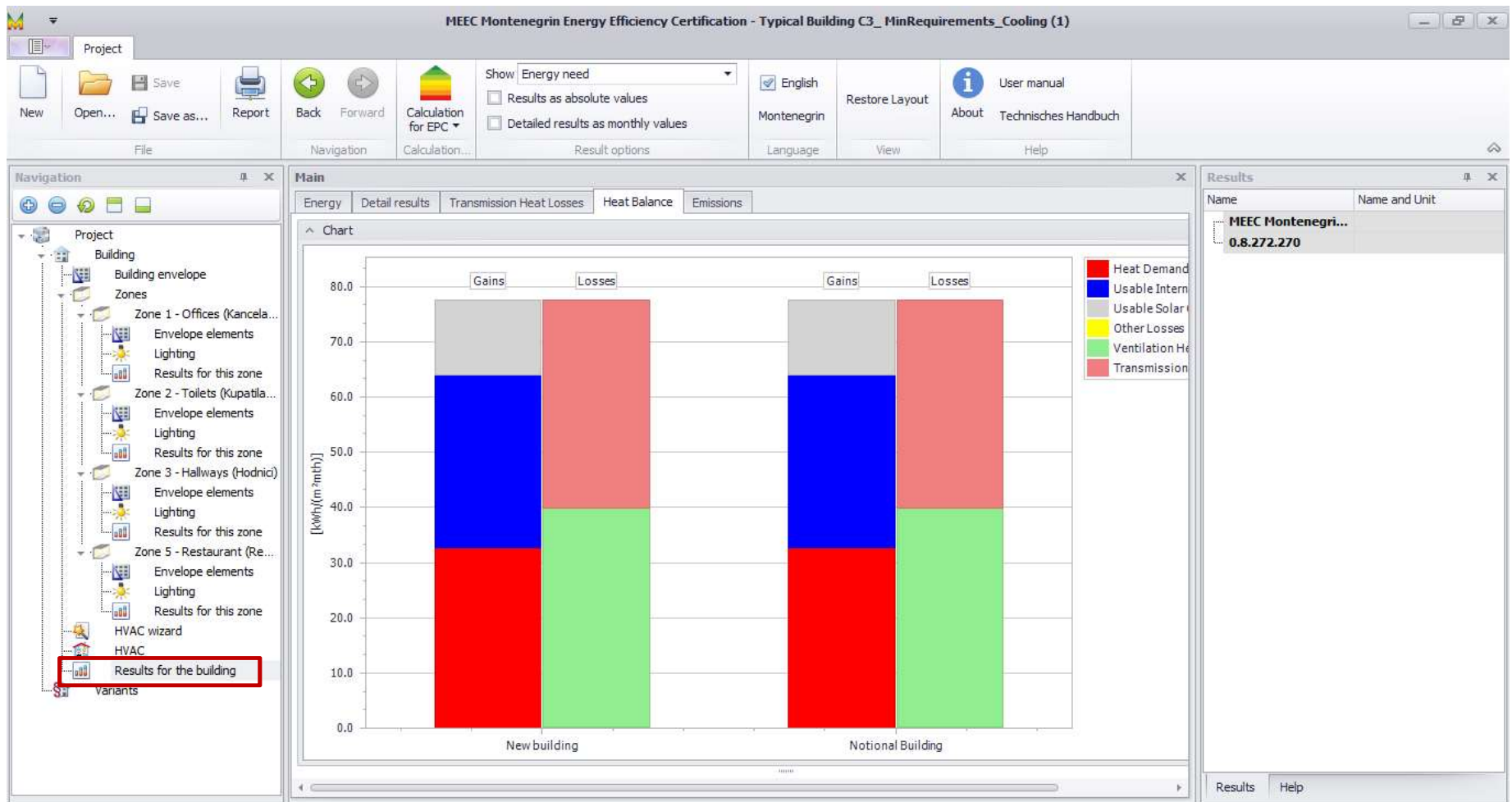
Name	Name and Unit
MEEC Montenegr...	
0.8.272.270	

Results Help

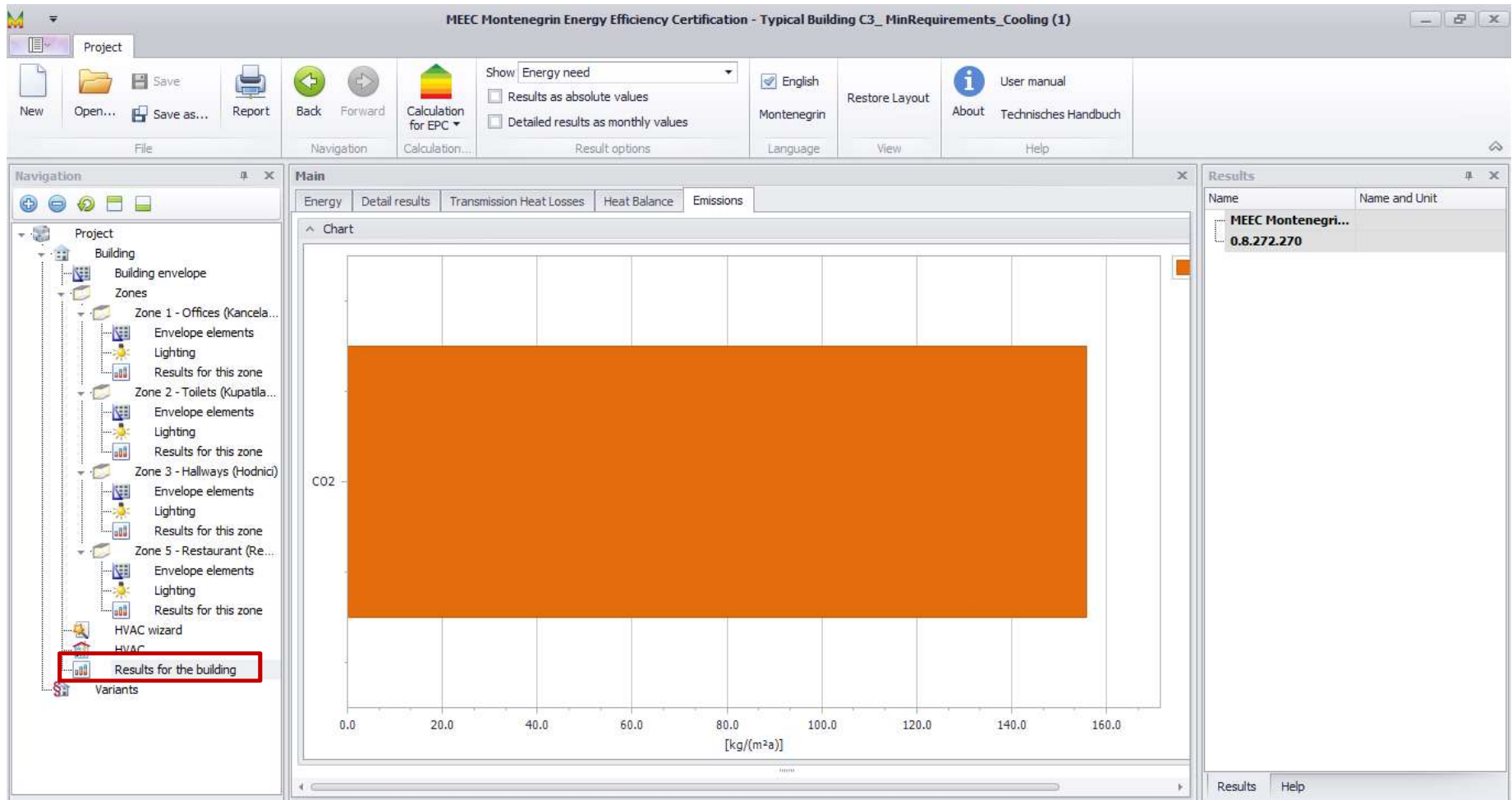
MEEC: RESULTS FOR THE BUILDING



MEEC: RESULTS FOR THE BUILDING



MEEC: RESULTS FOR THE BUILDING



MEEC: VARIANTS/PACKAGE OF MEASURES



The screenshot displays the MEEC software interface for 'Typical Building C3_MinRequirements_Cooling (1)'. The interface includes a navigation tree on the left, a main workspace with tabs for 'Variants', 'Energy consumption costs', and 'Variants Results', and a 'Details of measure' panel on the right. A 'Variants' window is open, showing a list of measures under the 'Envelope' category. A text box lists the following categories: EE measures: Envelope, Lighting, HVAC – Heating, HVAC – DHW, HVAC – Cooling, HVAC – Ventilation, Power generation, Power system, and General measures. The 'Details of measure' panel shows the configuration for 'Thermal insulation of external/internal wall', including material selection (mineral wool), costs, and a list of applicable measures such as 'S21 Outer wall (Spoljni zid)'. A warning icon indicates that the software does not check if the insulation is actually applicable to the construction or if it already has an insulation.

EE measures:
Envelope
Lighting
HVAC – Heating
HVAC – DHW
HVAC – Cooling
HVAC – Ventilation
Power generation
Power system
General measures

Details of measure:
Name of measure: Thermal insulation of external/internal wall
Description: The software does not check, if the thermal insulation is actually applicable to the construction or if it already has an insulation.
Material of additional insulation and thickness: mineral wool (MW) (260 kg/m³) 0.00 cm
Invest costs for this measure: 0.00 €/m²
Price increase for this measure: 0.00 %
Annual savings in operating costs: 0.00 €/a
Lifespan for this measure: 25.00 a
Measure is applied to:
 S21 Outer wall (Spoljni zid)
 S22 Outer wall (Spoljni zid)
 S23 Outer wall (Spoljni zid)
 V1 Exterior door (Spoljna vrata)
 S24 Wall to ground (Zid u tlu)
 ZZ2 Curtain wall - Non-transparent part (Zid zavesa)

THANK YOU FOR ATTENTION!