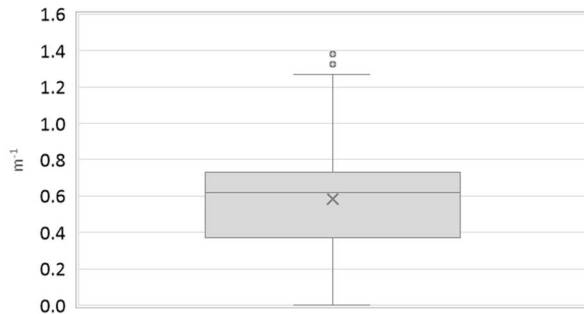


| | | | | | | | | |
|--|---|---|-----------------------|-----------------------------|--------------------|---------------------|---|---------------------|
| Region: | | Liguria | | | | | Archetype code: RES_APPBLOCK_ 1961-1970_E_LIG | |
| Building category: | | Residential buildings – Apartments in multi-family block | | | | | | |
| Period of construction: | | 1961-1970 | | | | | | |
| Climatic zone: | | E | Number of records: | | 1064 | | | |
| Description: <u>External walls</u> : no data available <u>Roof slabs</u> : no data available | | | | | | | Data sources: EPC databases (100%) | |
| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Q2 (Median value) | Q3 (third quartile) |
| BUILDING GEOMETRY | Number of floors | n_f | - | - | - | - | - | - |
| | Gross height | H_g | m | - | - | - | - | - |
| | Footprint area | $A_{\text{footprint}}$ | m ² | - | - | - | - | - |
| | Heated gross floor area | $A_{H,g}$ | m ² | - | - | - | - | - |
| | Heated net floor area | $A_{H;n}$ | m ² | - | - | - | - | - |
| | Heated gross volume | $V_{H,g}$ | m ³ | - | - | - | - | - |
| | Heated net volume | $V_{H;n}$ | m ³ | - | - | - | - | - |
| | Compactness ratio | $A_{\text{env}}/V_{H,g}$ | m ⁻¹ | 0.58 | 0.23 | 0.37 | 0.62 | 0.73 |
| | WWR – North orientation | WWR_N | - | - | - | - | - | - |
| | WWR – South orientation | WWR_S | - | - | - | - | - | - |
| | WWR – East orientation | WWR_E | - | - | - | - | - | - |
| | WWR – West orientation | WWR_W | - | - | - | - | - | - |
| | Window to useful floor area ratio | A_{wi}/A_{use} | - | 0.11 | 0.04 | 0.09 | 0.10 | 0.11 |
| ENVELOPE | Roof type | - | | | | | | |
| | U-value of the roof | $U_{fi;up}$ | W/(m ² ·K) | 1.30 | 0.69 | 0.67 | 1.55 | 1.76 |
| | External walls type | - | | | | | | |
| | U-value of the wall | U_{wl} | W/(m ² ·K) | 1.14 | 0.40 | 1.01 | 1.13 | 1.29 |
| | Slab on ground floor type | - | | | | | | |
| | U-value of the floor | $U_{fi;lw}$ | W/(m ² ·K) | 1.53 | 0.56 | 1.33 | 1.57 | 1.70 |
| | Windows type | - | | | | | | |
| | U-value of the windows | U_W | W/(m ² ·K) | 4.12 | 1.20 | 3.21 | 4.31 | 5.05 |
| Shading system type | - | | | | | | | |
| GAINS and VENTILATION | Occupancy density * | O_C | person/m ² | UNI EN 16798-1 - Table A.19 | | | | |
| | Lighting power density * | W_L | W/m ² | UNI EN 16798-1 - A.8.3 | | | | |
| | Equipment power density * | W_A | W/m ² | UNI EN 16798-1 - A.8.3 | | | | |
| | Type of ventilation | Natural: 100% | | | | | | |
| | Air exchange rate * | n | h ⁻¹ | 0.30 | 0.00 | 0.30 | 0.30 | 0.30 |
| THERMAL SYSTEMS | Heating system type | Unknown: 97%; Autonomous: 3% | | | | | | |
| | Heating generator | Unknown: 45%; Traditional boiler: 33%; Condensing boiler: 18%; Fireplace: 3%; Heat exchanger of district heating/cooling: 1% | | | | | | |
| | Daily operating time of the heating system * | t_H | h | 14 | 0 | 14 | 14 | 14 |
| | Energy carrier | Unknown: 45%; Natural gas: 31%; Electricity and natural gas: 14%; Electricity and solid biomass: 3%; Gas Oil: 2%; LPG: 2%; Electricity and gas oil: 1%; Solid biomass: 1% | | | | | | |
| | Heating emission sub-system | Radiators: 53%; Unknown: 45%; Air Ducts: 1%; Radiant panels: 1% | | | | | | |
| | Cooling system type | Unknown: 99%; Heat pump air-air: 1% | | | | | | |
| | Daily operating time of the cooling system * | t_C | h | - | - | - | - | - |
| | Cooling emission sub-system | - | | | | | | |
| | DHW system type | - | | | | | | |
| | DHW generator | Unknown: 61%; Electric boiler: 18%; Condensing boiler: 11%; Natural gas boiler: 5%; Electric heat pump: 3%; Solar thermal: 1%; Other: 1% | | | | | | |
| | * These values were not available in the considered sources, and are thus derived from UNI EN Standards | | | | | | | |

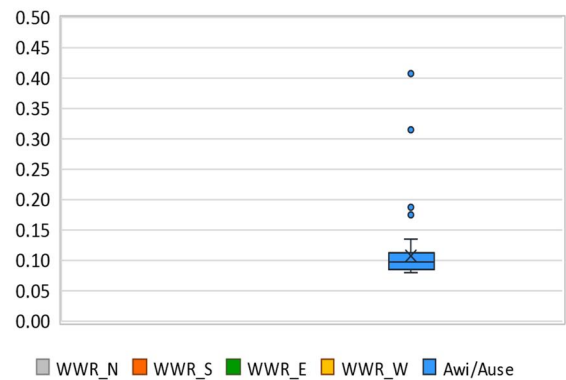
| | | |
|--------------------------------|--|--|
| Region: | Liguria | Archetype code: RES_APPBLOCK_ 1961-1970_E_LIG |
| Building category: | Residential buildings – Apartments in multi-family block | |
| Period of construction: | 1961-1970 | |
| Climatic zone: | E | |
| Number of records: | | 1064 |

Numerical variables – GEOMETRY

COMPACTNESS RATIO

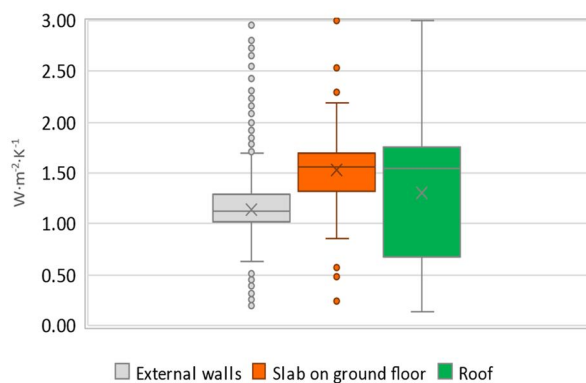


WINDOWS TO WALL RATIO

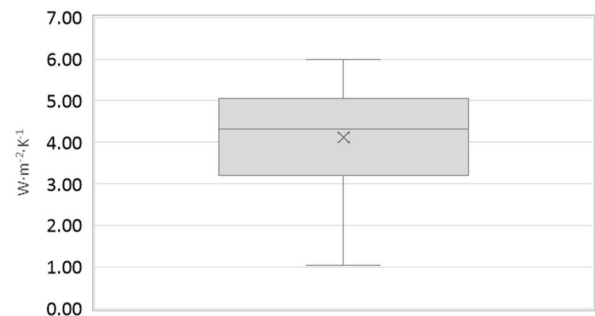


Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE



WINDOWS U-VALUE



Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE (Standard Values)

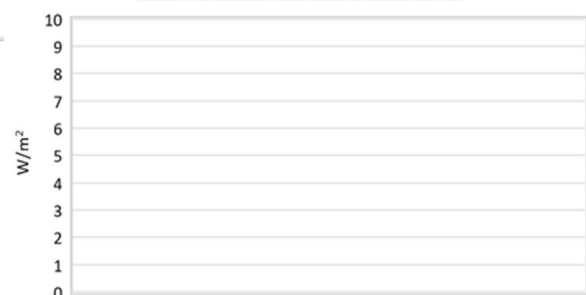
AIR EXCHANGE RATE



OCCUPANCY DENSITY



INTERNAL GAINS POWER DENSITY



DAILY OPERATING TIME



| | | |
|-------------------------|--|---|
| Region: | Liguria | Archetype code: RES_APPBLOCK_ 1961-1970_E_LIG |
| Building category: | Residential buildings – Apartments in multi-family block | |
| Period of construction: | 1961-1970 | |
| Climatic zone: | E | |
| Number of records: | | 1064 |

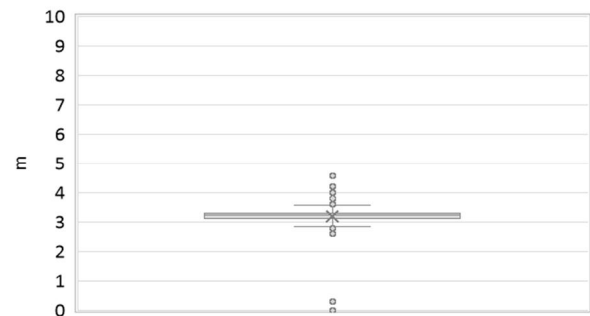
| ADDITIONAL DATA | | | | | | | | |
|---|----------------------------------|---------------------------------|-----------------|---|--------------------|---------------------|--------------|---------------------|
| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Median value | Q3 (third quartile) |
| GEOMETRY: apartments | Inter-storey height | H_n | m | 3.2 | 0.3 | 3.1 | 3.3 | 3.3 |
| | Heated gross floor area | $A_{H,g}$ | m ² | - | - | - | - | - |
| | Heated net floor area | $A_{H,n}$ | m ² | 80.3 | 34 | 63.5 | 77.2 | 90.8 |
| | Heated gross volume | $V_{H,g}$ | m ³ | 317.2 | 157.8 | 246.1 | 296.9 | 353.6 |
| | Heated net volume | $V_{H,n}$ | m ³ | 237.8 | 122.8 | 185.1 | 226.4 | 265.3 |
| THERMAL SYSTEMS | Heating efficiency or <i>COP</i> | $\eta_{H,gen}$ or $COP_{H,gen}$ | - | This value has to be retrieved from suitable datasheets | | | | |
| | Total heating power * | $P_{H,gen}$ | kW | 22.3 | 6.5 | 22.0 | 24.0 | 25.0 |
| | Cooling efficiency or <i>EER</i> | $\eta_{C,gen}$ or $EER_{C,gen}$ | - | This value has to be retrieved from suitable datasheets | | | | |
| | Total cooling power * | $P_{C,gen}$ | kW | - | - | - | - | - |
| | Temperature of DHW | θ_w | °C | - | - | - | - | - |
| | DHW system power * | $P_{W,gen}$ | kW | 16.2 | 11.0 | 1.5 | 23.1 | 24.0 |
| * These values refer to the apartment scale | | | | | | | | |

Additional data: GEOMETRY (the plots refer to the apartment scale)

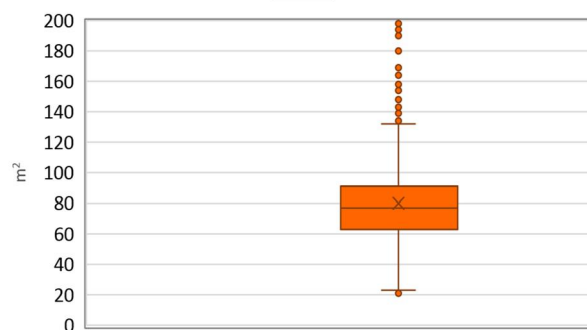
NUMBER OF FLOORS



GROSS HEIGHT

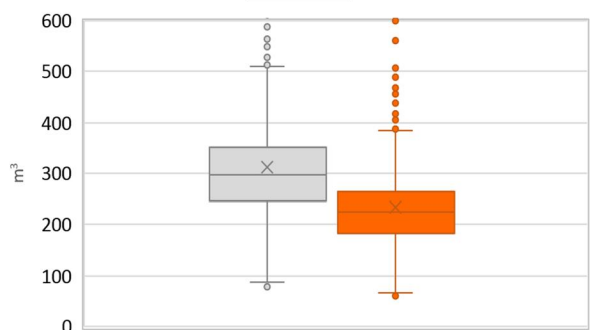


AREA



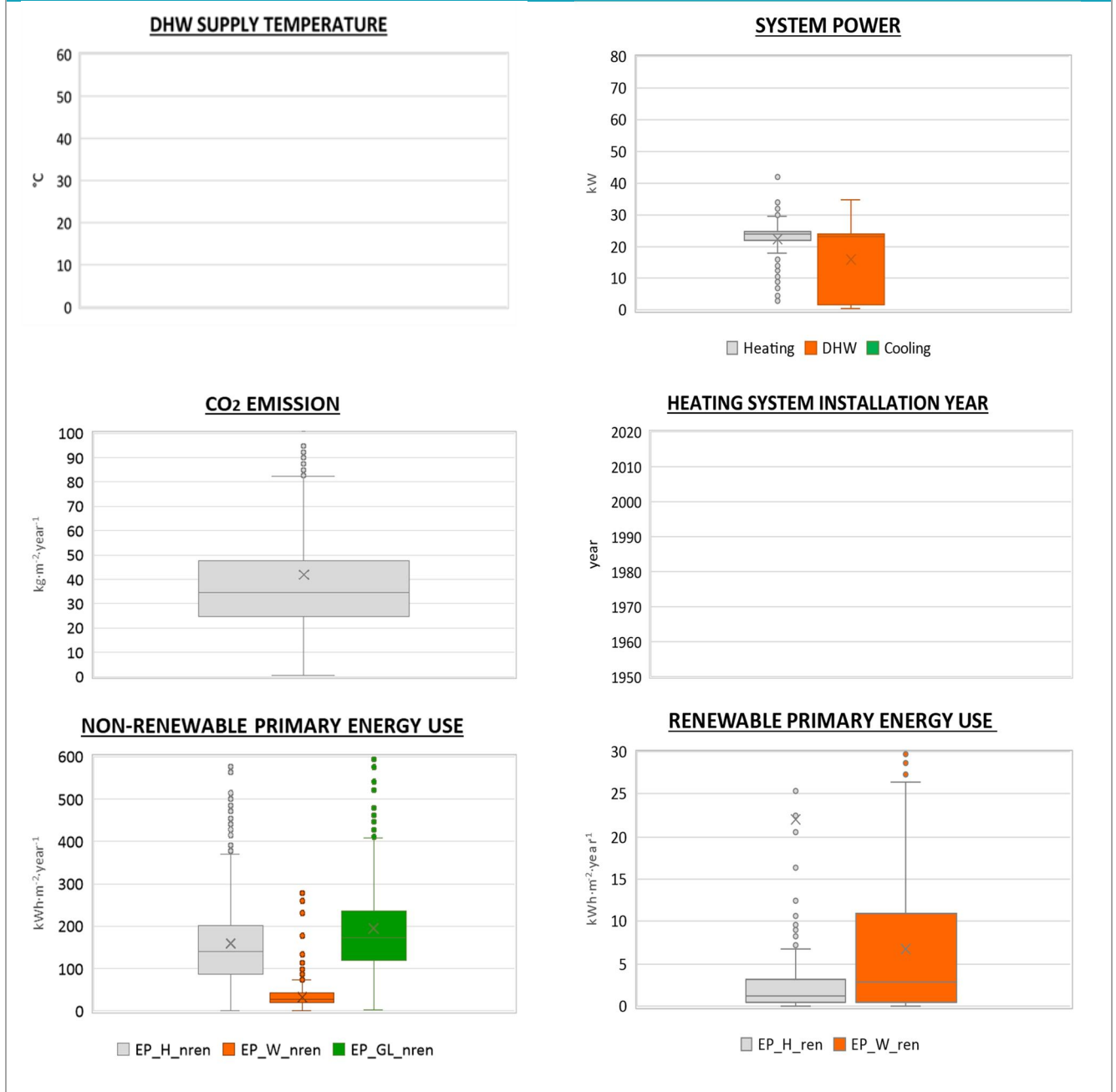
Heated gross floor area Heated net floor area

VOLUME



Heated gross volume Heated net volume

| | | |
|--------------------------------|--|--|
| Region: | Liguria | Archetype code: RES_APPBLOCK_ 1961-1970_E_LIG |
| Building category: | Residential buildings – Apartments in multi-family block | |
| Period of construction: | 1961-1970 | |
| Climatic zone: | E | |
| Number of records: | | 1064 |

Additional data: other numerical variables that are not included in the archetype


NOTE: Sample size of the analysed data.

Compactness ratio: 1057; Window to useful floor area ratio: 93; U-value of the roof: 108; U-value of the wall: 911; U-value of the floor: 67; U-value of the windows: 1064; Inter-storey height: 1060; Heated net floor area: 1060; Heated gross volume: 1053; Heated net volume: 1054; Total heating power: 341; DHW system power: 705; CO₂ Emission: 1024; EP_H_nren: 1056; EP_W_nren: 1020; EP_GL_nren: 1053; EP_H_ren: 787; EP_W_ren: 709