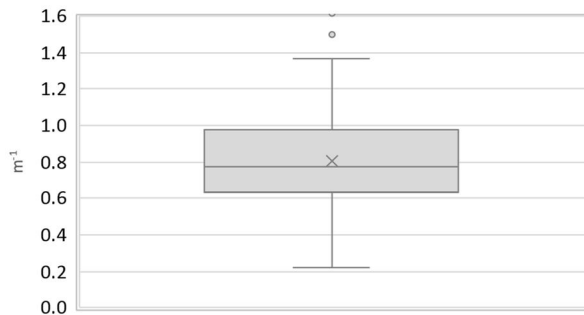


| Region: | | Liguria | | | | | Archetype code: RES_BLDGS_ 2001-_C_LIG | |
|---|--|--|-----------------------|-----------------------------|--------------------|---------------------|--|---------------------|
| Building category: | | Residential buildings – Entire multifamily blocks | | | | | | |
| Period of construction: | | 2001- | | | | | | |
| Climatic zone: | | C | Number of records: | | 279 | | | |
| Description: | | | | | | | Data sources: EPC databases (100%) | |
| External walls: no data available | | | | | | | | |
| Roof slabs: no data available | | | | | | | | |
| | 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 | 261.6 | 737.2 | 53.1 | 84.7 | 143.1 |
| | Heated gross volume | $V_{H,g}$ | m ³ | 1138.5 | 3152.5 | 229.1 | 353.9 | 656.3 |
| | Heated net volume | $V_{H,n}$ | m ³ | 818.7 | 2389.8 | 149.5 | 235.8 | 450.0 |
| | Compactness ratio | $A_{\text{env}}/V_{H,g}$ | m ⁻¹ | 0.81 | 0.33 | 0.64 | 0.78 | 0.98 |
| | 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 | 0.12 |
| ENVELOPE | Roof type | - | | | | | | |
| | U-value of the roof | $U_{fi,up}$ | W/(m ² ·K) | 0.63 | 0.62 | 0.26 | 0.35 | 0.68 |
| | External walls type | - | | | | | | |
| | U-value of the wall | U_{wl} | W/(m ² ·K) | 0.57 | 0.51 | 0.25 | 0.34 | 0.65 |
| | Slab on ground floor type | - | | | | | | |
| | U-value of the floor | $U_{fi,lw}$ | W/(m ² ·K) | 0.91 | 0.60 | 0.38 | 0.71 | 1.54 |
| | Windows type | - | | | | | | |
| | U-value of the windows | U_w | W/(m ² ·K) | 2.39 | 1.18 | 1.50 | 1.91 | 3.09 |
| | 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: 72%; Mechanical: 28% | | | | | | |
| | Air exchange rate * | n | h ⁻¹ | 0.30 | 0.00 | 0.30 | 0.30 | 0.30 |
| THERMAL SYSTEMS | Heating system type | Unknown: 91%; Autonomous: 9% | | | | | | |
| | Heating generator | Unknown: 48%; Air-source heat pump: 27%; Traditional boiler: 11%; Condensing boiler: 11%; Fireplace: 2%; Water-source heat pump: 1% | | | | | | |
| | Daily operating time of the heating system * | t_H | h | 10 | 0 | 10 | 10 | 10 |
| | Energy carrier | Unknown: 42%; Electricity: 34%; Natural gas: 13%; LPG: 4%; Electricity and natural gas: 4%; Solid biomass: 1%; Electricity and solid biomass: 1% | | | | | | |
| | Heating emission sub-system | Unknown: 41%; Radiators: 23%; Air Ducts: 14%; Radiant panels: 11%; Fan-coil: 10%; Convectors: 1% | | | | | | |
| | Cooling system type | Unknown: 55%; Heat pump air-air: 23%; Heat pump air-water: 22%; Heat pump water-air: 1% | | | | | | |
| | Daily operating time of the cooling system * | t_c | h | - | - | - | - | - |
| | Cooling emission sub-system | - | | | | | | |
| | DHW system type | - | | | | | | |
| | DHW generator | Unknown: 69%; Condensing boiler: 22%; Electric boiler: 4%; Natural gas boiler: 3%; Solar thermal: 3% | | | | | | |
| * These values were not available in the considered sources, and are thus derived from UNI EN Standards | | | | | | | | |

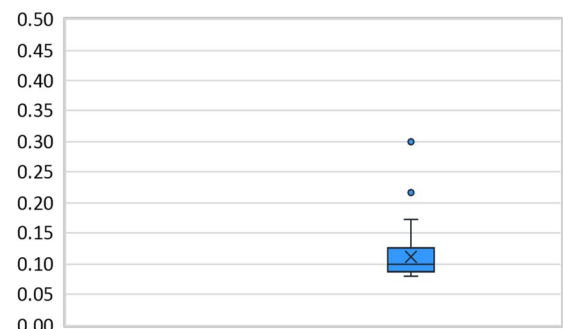
| | | |
|--------------------------------|---|---|
| Region: | Liguria | Archetype code: RES_BLDGS_ 2001-_C_LIG |
| Building category: | Residential buildings – Entire multifamily blocks | |
| Period of construction: | 2001- | |
| Climatic zone: | C | |
| Number of records: 279 | | |

Numerical variables – GEOMETRY

COMPACTNESS RATIO



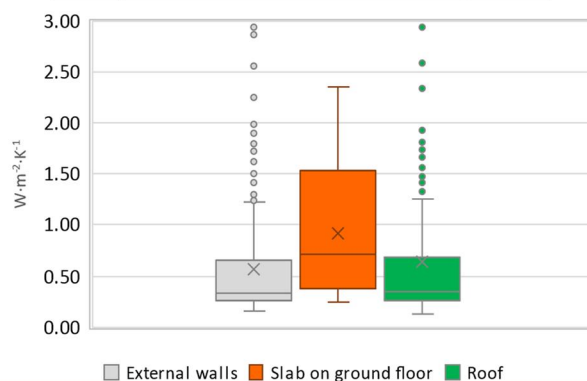
WINDOWS TO WALL RATIO



■ WWR_N ■ WWR_S ■ WWR_E ■ WWR_W ■ Awi/Ause

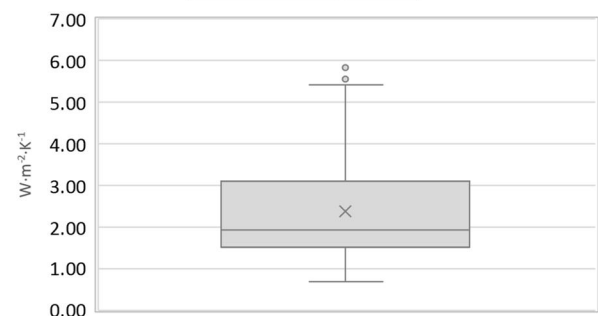
Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE



■ External walls ■ Slab on ground floor ■ Roof

WINDOWS U-VALUE



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

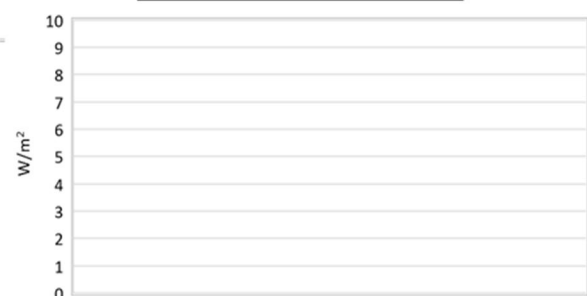
AIR EXCHANGE RATE



OCCUPANCY DENSITY



INTERNAL GAINS POWER DENSITY



DAILY OPERATING TIME



■ Heating ■ Cooling



The data can be used for analysis, modeling, and research purposes, as long as it remains unaltered in its original form. Users are free to publish results based on the data, provided they credit the original source.

| | | |
|-------------------------|---|--|
| Region: | Liguria | Archetype code: RES_BLDGS_ 2001-_C_LIG |
| Building category: | Residential buildings – Entire multifamily blocks | |
| Period of construction: | 2001- | |
| Climatic zone: | C | |
| Number of records: | | 279 |

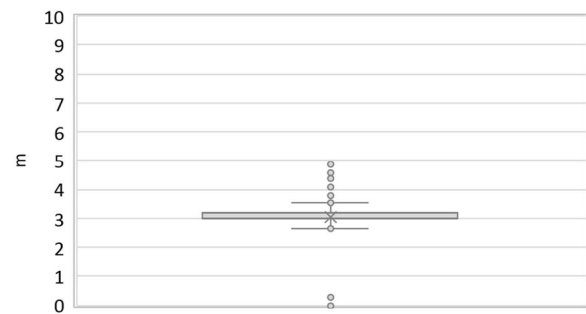
| ADDITIONAL DATA | | | | | | | | |
|---|----------------------------------|---------------------------------|-----------------|---|--------------------|---------------------|--------------|---------------------|
| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Median value | Q3 (third quartile) |
| GEOMETRY: apartments | Inter-storey height | H_n | m | 3.1 | 0.4 | 3.0 | 3.0 | 3.2 |
| | 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 | - | - | - | - | - |
| 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 | 17.0 | 9.8 | 8.3 | 16.0 | 24.0 |
| | 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 | 15.5 | 10.6 | 4.4 | 16.0 | 24.0 |
| * These values refer to the apartment scale | | | | | | | | |

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

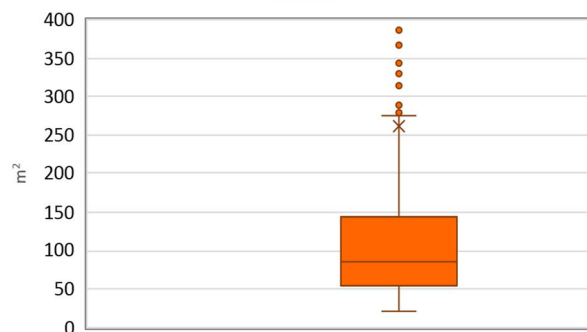
NUMBER OF FLOORS



GROSS HEIGHT

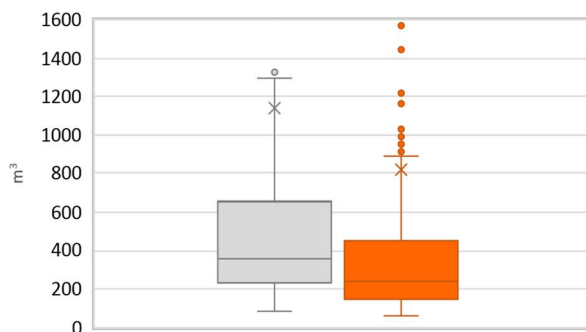


AREA



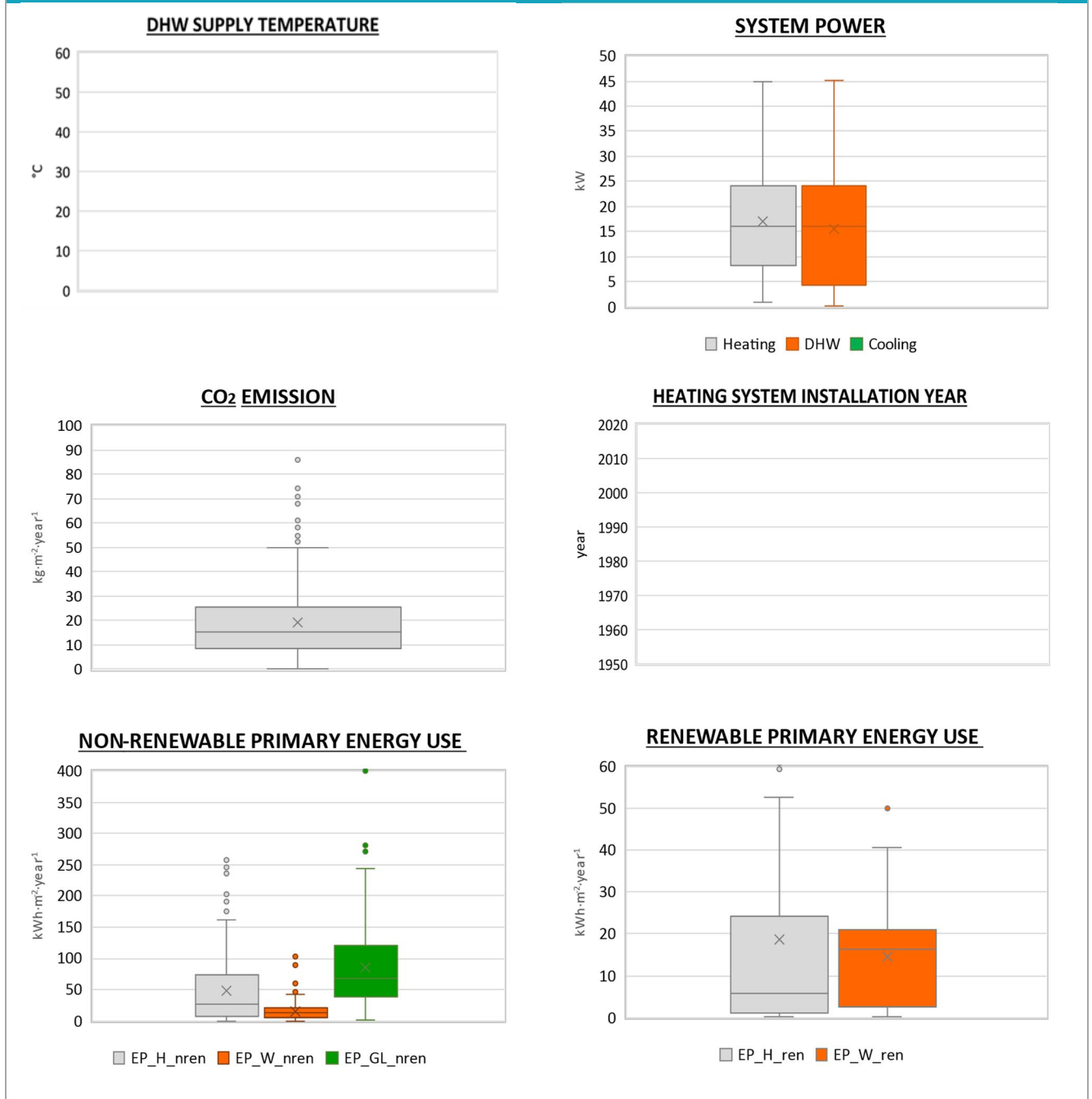
Heated gross floor area Heated net floor area

VOLUME



Heated gross volume Heated net volume

| | | |
|--------------------------------|---|---|
| Region: | Liguria | Archetype code: RES_BLDGS_ 2001-_C_LIG |
| Building category: | Residential buildings – Entire multifamily blocks | |
| Period of construction: | 2001- | |
| Climatic zone: | C | |
| Number of records: | | 279 |

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


NOTE: Sample size of the analysed data.

Compactness ratio: 269; Window to useful floor area ratio: 47; U-value of the roof: 168; U-value of the wall: 262; U-value of the floor: 48; U-value of the windows: 280; Inter-storey height: 276; Heated net floor area: 276; Heated gross volume: 269; Heated net volume: 269; Total heating power: 114; DHW system power: 206; CO₂ Emission: 272; EP_H_nren: 273; EP_W_nren: 262; EP_GL_nren: 268; EP_H_ren: 248; EP_W_ren: 210



The data can be used for analysis, modeling, and research purposes, as long as it remains unaltered in its original form. Users are free to publish results based on the data, provided they credit the original source.