| Region: | Liguria | | Archetype code: |
|---|---|---|---|
| Building category: | Residential buildings – Single family houses | | RES_SINGLE_ 1971-1980_E_LIG |
| Period of construction: | 1971-1980 | | |
| Climatic zone: | E | Number of records: | 374 |

| Description: | Data sources: |
|---|---|
| External walls: no data available<br><br>Roof slabs: no data available | 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 | $A_{footprint}$ | m² | - | - | - | - | - |
| | Heated gross floor area | $A_{H;g}$ | m² | - | - | - | - | - |
| | Heated net floor area | $A_{H;n}$ | m² | - | - | - | - | - |
| | Heated gross volume | $V_{H;g}$ | m³ | - | - | - | - | - |
| | Heated net volume | $V_{H;n}$ | m³ | - | - | - | - | - |
| | Compactness ratio | $A_{env}/V_{H;g}$ | m⁻¹ | 0.70 | 0.28 | 0.46 | 0.72 | 0.89 |
| | 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 | 0.13 |
| **ENVELOPE** | Roof type | | | - | | | | |
| | U-value of the roof | $U_{fl;up}$ | W/(m²·K) | 1.41 | 0.66 | 0.82 | 1.50 | 1.83 |
| | External walls type | | | - | | | | |
| | U-value of the wall | $U_{wl}$ | W/(m²·K) | 1.27 | 0.48 | 1.05 | 1.21 | 1.51 |
| | Slab on ground floor type | | | - | | | | |
| | U-value of the floor | $U_{fl;lw}$ | W/(m²·K) | 1.34 | 0.59 | 0.92 | 1.43 | 1.63 |
| | Windows type | | | - | | | | |
| | U-value of the windows | $U_W$ | W/(m²·K) | 4.04 | 1.16 | 3.08 | 4.33 | 4.87 |
| | Shading system type | | | - | | | | |
| **GAINS and VENTILATION** | Occupancy density * | $O_C$ | person/m² | UNI EN 16798-1 - Table A.19 | | | | |
| | Lighting power density * | $W_L$ | W/m² | UNI EN 16798-1 - A.8.3 | | | | |
| | Equipment power density * | $W_A$ | W/m² | UNI EN 16798-1 - A.8.3 | | | | |
| | Type of ventilation | | | Natural: 99%; Mechanical: 1% | | | | |
| | Air exchange rate * | $n$ | h⁻¹ | 0.30 | 0.00 | 0.30 | 0.30 | 0.30 |
| **THERMAL SYSTEMS** | Heating system type | | | Unknown: 92%; Autonomous: 7%; Centralized: 1% | | | | |
| | Heating generator | | | Traditional boiler: 44%; Unknown: 37%; Condensing boiler: 9%; Fireplace: 8%; Heat exchanger of district heating/cooling: 1%; Air-source heat pump: 1% | | | | |
| | Daily operating time of the heating system * | $t_H$ | h | 14 | 0 | 14 | 14 | 14 |
| | Energy carrier | | | Unknown: 37%; Natural gas: 33%; Electricity and natural gas: 12%; Electricity and solid biomass: 6%; Gas Oil:4%; Solid biomass: 3%; LPG: 3%; Electricity: 1%; District heating: 1% | | | | |
| | Heating emission sub-system | | | Radiators: 57%; Unknown: 36%; Air Ducts: 3%; Radiant panels: 2%; Fan-coil: 1%; Convectors: 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: 68%; Electric boiler: 13%; Condensing boiler: 8%; Natural gas boiler: 6%; Electric heat pump: 4%; Solar thermal: 1% | | | | |
| | * These values were not available in the considered sources, and are thus derived from UNI EN Standards | | | | | | | |

| Region: | Liguria | | Archetype code: |
|---|---|---|---|
| Building category: | Residential buildings – Single family houses | | RES_SINGLE_1971-1980_E_LIG |
| Period of construction: | 1971-1980 | | |
| Climatic zone: | E | | |

| | | Number of records: | 374 |

## Numerical variables – GEOMETRY

### COMPACTNESS RATIO



### WINDOWS TO WALL RATIO



■ WWR_N  ■ WWR_S  ■ WWR_E  ■ WWR_W  ■ Awi/Ause
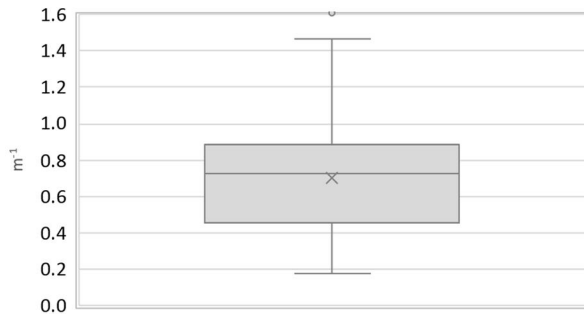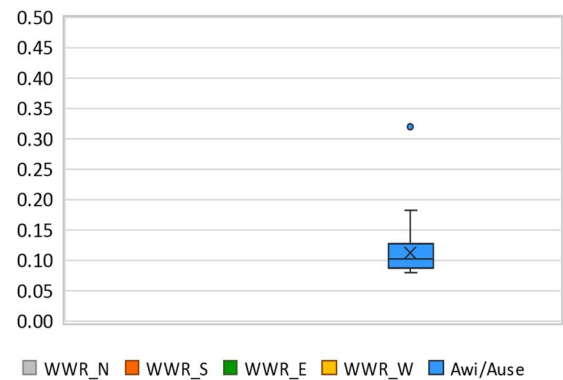
## Numerical variables – ENVELOPE

### OPAQUE BUILDING COMPONENTS U-VALUE



□ External walls  ■ Slab on ground floor  ■ Roof
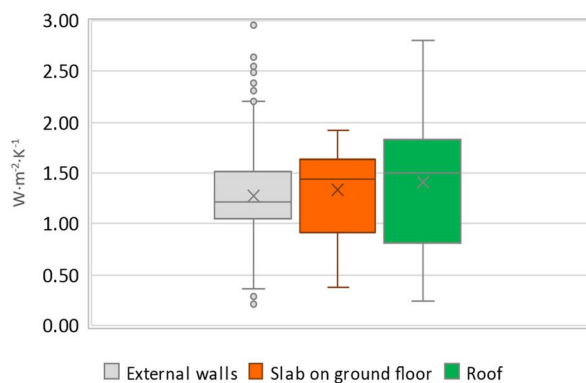
### WINDOWS U-VALUE
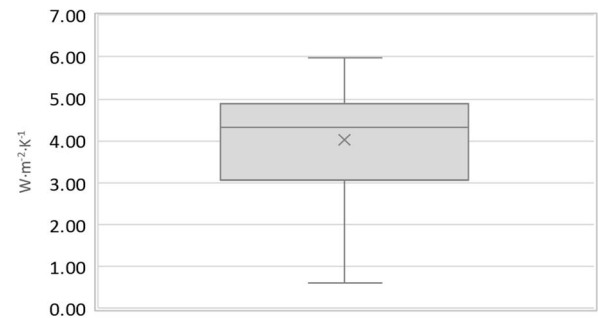


## Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE (Standard Values)

### AIR EXCHANGE RATE



### OCCUPANCY DENSITY



### INTERNAL GAINS POWER DENSITY
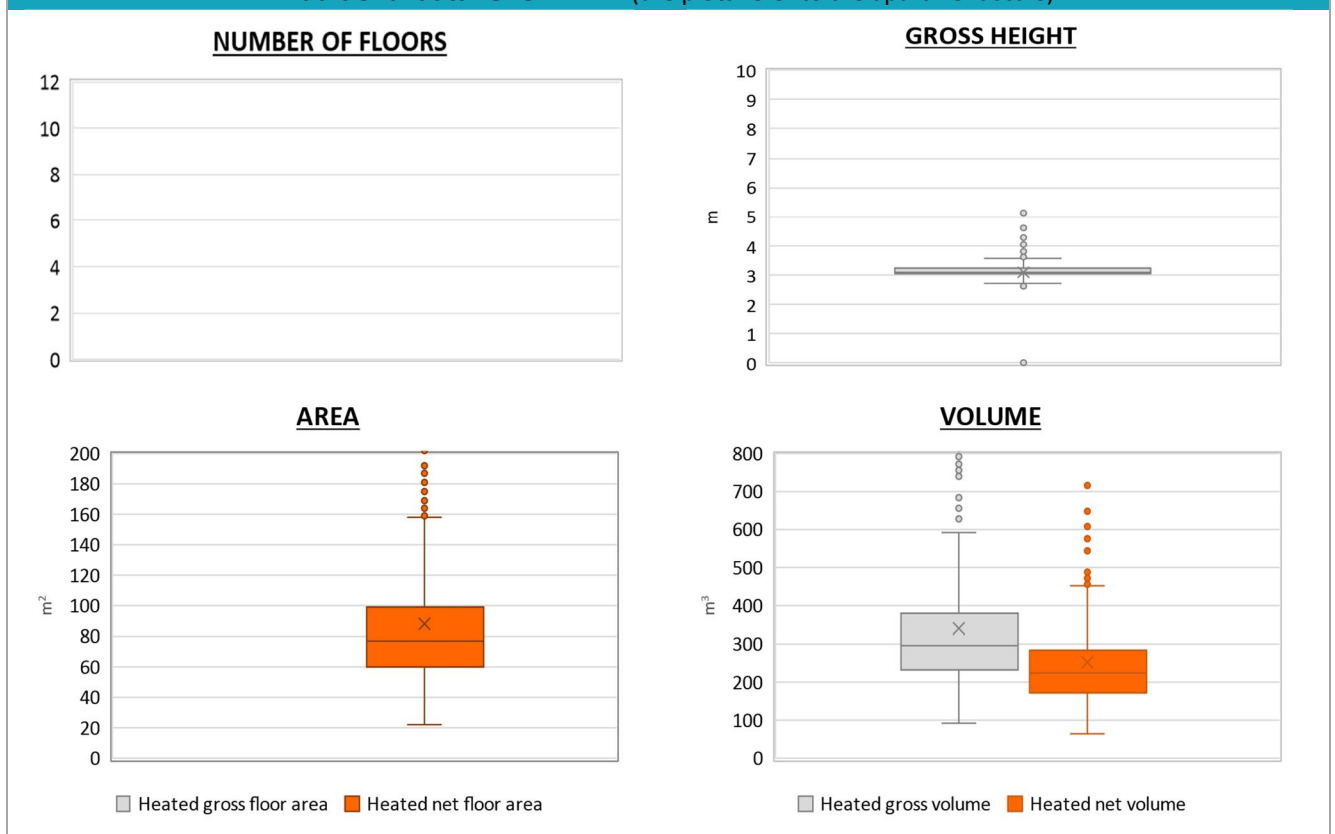


### DAILY OPERATING TIME



■ Heating  ■ Cooling

| Region: | Liguria | | Archetype code: |
|---|---|---|---|
| Building category: | Residential buildings – Single family houses | | RES_SINGLE_ |
| Period of construction: | 1971-1980 | | 1971-1980_E_LIG |
| Climatic zone: | E | Number of records: 374 | |

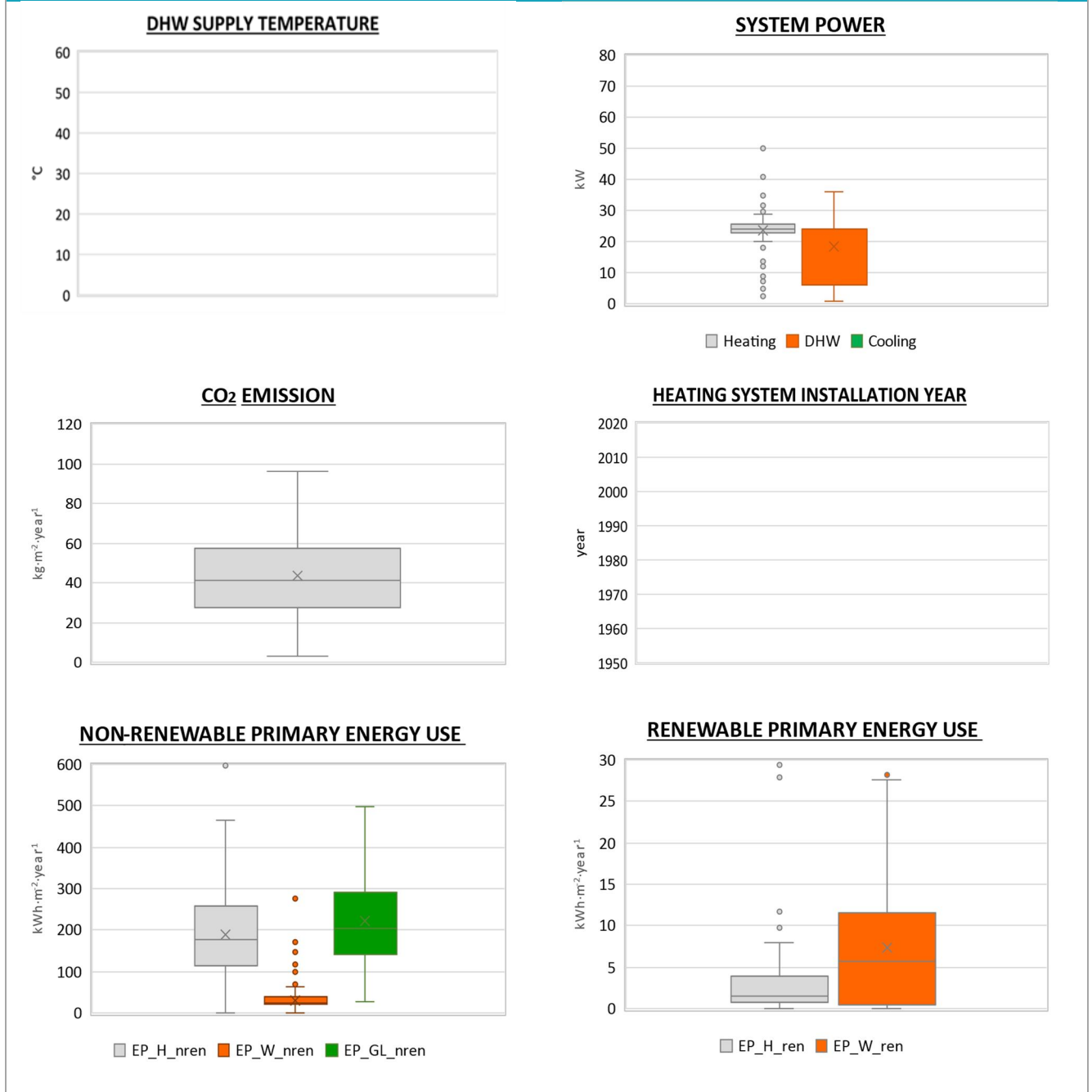| | ADDITIONAL DATA | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Median value | Q3 (third quartile) |
| **GEOMETRY: apartments** | Inter-storey height | $H_n$ | m | 3.2 | 0.3 | 3.0 | 3.1 | 3.3 |
| | Heated gross floor area | $A_{H;g}$ | m² | - | - | - | - | - |
| | Heated net floor area | $A_{H;n}$ | m² | 88.5 | 48.2 | 60.0 | 77.5 | 99.5 |
| | Heated gross volume | $V_{H;g}$ | m³ | 340.1 | 182.1 | 232.1 | 295.3 | 381.3 |
| | Heated net volume | $V_{H;n}$ | m³ | 252.8 | 135.3 | 171.1 | 223.6 | 284.8 |
| **THERMAL SYSTEMS** | Heating efficiency or *COP* | $\eta_{H;gen}$ or $COP_{H;gen}$ | - | This value has to be retrieved from suitable datasheets | | | | |
| | Total heating power * | $P_{H;gen}$ | kW | 23.5 | 6.8 | 23.0 | 24.0 | 25.6 |
| | Cooling efficiency or *EER* | $\eta_{C;gen}$ or $EER_{C;gen}$ | - | This value has to be retrieved from suitable datasheets | | | | |
| | Total cooling power * | $P_{C;gen}$ | kW | - | - | - | - | - |
| | Temperature of DHW | $\theta_W$ | °C | - | - | - | - | - |
| | DHW system power * | $P_{W;gen}$ | kW | 18.4 | 10.6 | 6.0 | 24.0 | 24.2 |
| | * 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

*Residential buildings – Single family houses – 1971-1980 – Zone E – Italy*

| Region: | Liguria | | Archetype code: |
|---|---|---|---|
| Building category: | Residential buildings – Single family houses | | RES_SINGLE_ |
| Period of construction: | 1971-1980 | | 1971-1980_E_LIG |
| Climatic zone: | E | Number of records: 374 | |

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

### DHW SUPPLY TEMPERATURE

### SYSTEM POWER

### CO₂ EMISSION

### HEATING SYSTEM INSTALLATION YEAR

### NON-RENEWABLE PRIMARY ENERGY USE

### RENEWABLE PRIMARY ENERGY USE



NOTE: Sample size of the analysed data.

Compactness ratio: 374; Window to useful floor area ratio: 33; U-value of the roof: 77; U-value of the wall: 328; U-value of the floor: 31; U-value of the windows: 374; Inter-storey height: 366; Heated net floor area: 366; Heated gross volume: 366; Heated net volume: 366; Total heating power: 154; DHW system power: 266; CO2 Emission: 354; EP_H_nren: 373; EP_W_nren: 360; EP_GL_nren: 372; EP_H_ren: 228; EP_W_ren: 192