| | | | |
|---|---|---|---|
| **Region:** | Aosta Valley (Aosta, Quart, Saint-Christophe, and Sarre) | | **Archetype code:** RES_APPBLOCK_1992-2005_E_VAL |
| **Building category:** | Residential buildings - Apartments (in multifamily blocks) | | |
| **Period of construction:** | 1992 - 2005 | | |
| **Climatic zone:** | E | **Number of records:** 534 | |

**Description** (the codes associated with walls and slabs refer to the structures described in UNI/TR 11552:2014):

External walls: hollow brick masonry with thermal insulation (cod. MCV02) or solid brick masonry with thermal insulation (cod. MCV04).
Roof slabs: reinforced concrete floor slab (cod. SOL04).

**Data sources:** EPC databases (100%)

| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Median value | Q3 (third quartile) |
|---|---|---|---|---|---|---|---|---|
| BUILDING GEOMETRY | Number of floors | $n_f$ | - | - | - | - | - | - |
| | Gross height | $H_g$ | m | - | - | - | - | - |
| | Footprint area | $A_{footprint}$ | $m^2$ | - | - | - | - | - |
| | 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 | $A_{env}/V_{H;g}$ | $m^{-1}$ | 0.60 | 0.23 | 0.40 | 0.61 | 0.75 |
| | *WWR* – North orientation | $WWR_N$ | - | 0.14 | 0.05 | 0.11 | 0.14 | 0.16 |
| | *WWR* – South orientation | $WWR_S$ | - | 0.14 | 0.05 | 0.11 | 0.14 | 0.16 |
| | *WWR* – East orientation | $WWR_E$ | - | 0.14 | 0.05 | 0.11 | 0.14 | 0.16 |
| | *WWR* – West orientation | $WWR_W$ | - | 0.14 | 0.05 | 0.11 | 0.14 | 0.16 |
| | Window to useful floor area ratio | $A_{wi}/A_{use}$ | - | 0.17 | 0.05 | 0.14 | 0.16 | 0.20 |
| ENVELOPE | Roof type | - | | | | | | |
| | *U*-value of the roof ** | $U_{fl;up}$ | $W/(m^2 \cdot K)$ | 1.08 | 0.52 | 0.72 | 1.17 | 1.42 |
| | External walls type | Hollow brick masonry: 67%; Solid Brick masonry: 29%; Unknown: 2%; Concrete wall: 1%; Masonry with local stones: 1% | | | | | | |
| | *U*-value of the wall | $U_{wl}$ | $W/(m^2 \cdot K)$ | 0.60 | 0.32 | 0.41 | 0.49 | 0.72 |
| | Slab on ground floor type | - | | | | | | |
| | *U*-value of the floor ** | $U_{fl;lw}$ | $W/(m^2 \cdot K)$ | 0.84 | 0.38 | 0.51 | 0.83 | 1.13 |
| | Windows type | Double glazing, wooden frame: 67%; Double glazing, PVC frame: 31%; Single glazing, wooden frame: 1%; Triple glazing, PVC frame: 1% | | | | | | |
| | *U*-value of the windows | $U_W$ | $W/(m^2 \cdot K)$ | 2.47 | 0.62 | 2.08 | 2.52 | 2.72 |
| | 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 | Autonomous: 55%; Centralized: 45% | | | | | | |
| | Heating generator | Heat exchanger of district heating/cooling: 30%; Boiler (unknown type): 29%; Traditional Boiler: 25%; Condensing Boiler: 14%; Unknown: 1%; Fireplace: 1% | | | | | | |
| | Daily operating time of the heating system * | $t_H$ | h | 14.0 | 0.0 | 14.0 | 14.0 | 14.0 |
| | Energy carrier | Natural Gas: 46%; District heating: 28%; LPG: 13%; Gas Oil: 10%; Solid biomass: 3% | | | | | | |
| | Heating emission sub-system | - | | | | | | |
| | Cooling system type | Absent: 99%; Air-cooled chiller: 1% | | | | | | |
| | Daily operating time of the cooling system * | $t_C$ | h | - | - | - | - | - |
| | Cooling emission sub-system | - | | | | | | |
| | DHW system type | Autonomous, coupled with heating: 53%; Autonomous, detached from heating: 36%; Centralized, coupled with heating: 10%; Centralized, detached from heating: 1% | | | | | | |
| | DHW generator | Natural gas boiler: 44%; Unknown: 33%; Electric boiler: 22%; Electric Heat Pump: 1% | | | | | | |

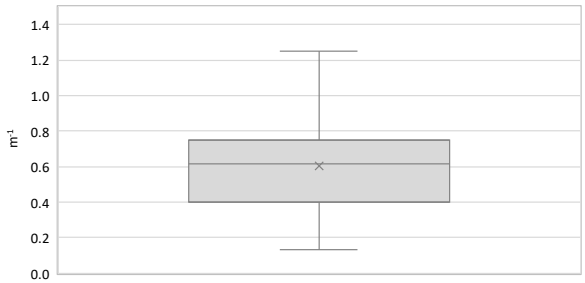
* These values are derived from UNI EN ISO Standards; ** *U*-values of the upper and lower slabs face unconditioned spaces (i.e., attic, basement, etc.)

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.

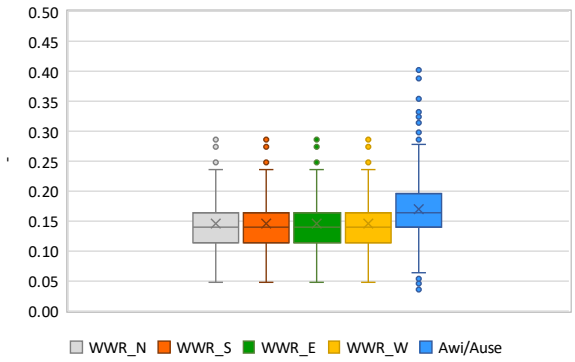
| | | | | |
|---|---|---|---|---|
| **Region:** | Aosta Valley (Aosta, Quart, Saint-Christophe, and Sarre) | | | **Archetype code:** |
| **Building category:** | Residential buildings - Apartments (in multifamily blocks) | | | RES_APPBLOCK_1992-2005_E_VAL |
| **Period of construction:** | 1992 - 2005 | | | |
| **Climatic zone:** | E | **Number of records:** | 534 | |

## Numerical variables – GEOMETRY

### COMPACTNESS RATIO

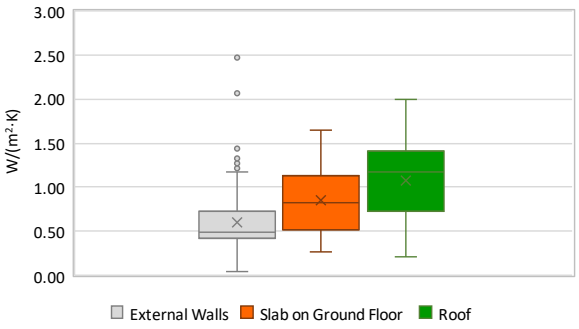



### WINDOWS TO WALL RATIO

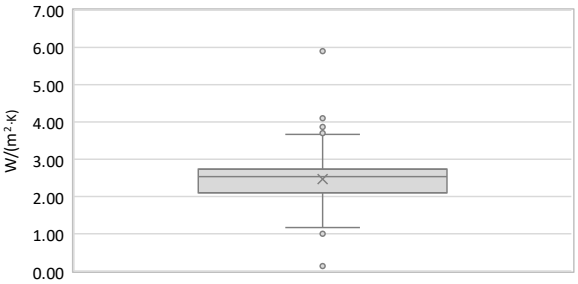



## Numerical variables – ENVELOPE

### OPAQUE BUILDING COMPONENTS U-VALUE



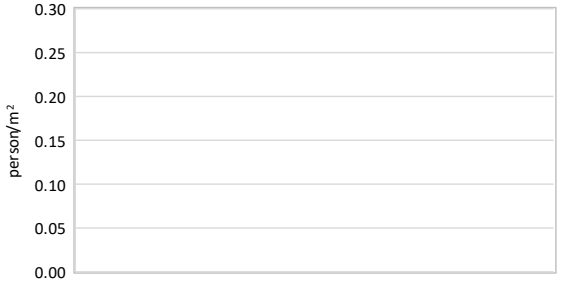

### WINDOWS U-VALUE



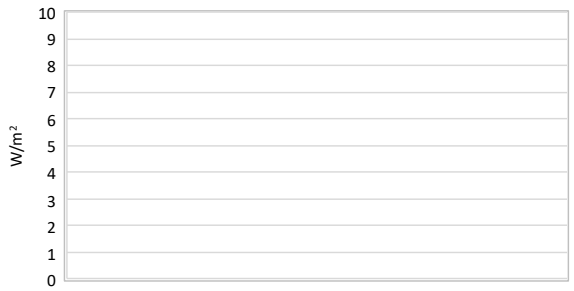

## Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

### AIR EXCHANGE RATE

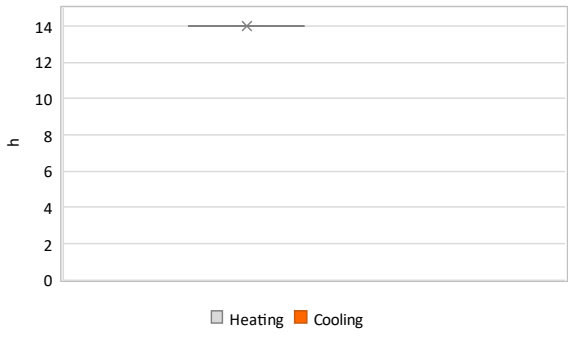
### OCCUPACY DENSITY




### INTERNAL GAINS POWER DENSITY




### DAILY OPERATING TIME




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.

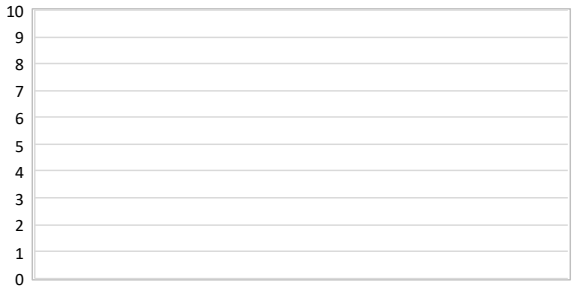
| | | | | |
|---|---|---|---|---|
| **Region:** | Aosta Valley (Aosta, Quart, Saint-Christophe, and Sarre) | | | **Archetype code:** |
| **Building category:** | Residential buildings - Apartments (in multifamily blocks) | | | RES_APPBLOCK_1992-2005_E_VAL |
| **Period of construction:** | 1992 - 2005 | | | |
| **Climatic zone:** | E | **Number of records:** | 534 | |

## ADDITIONAL DATA

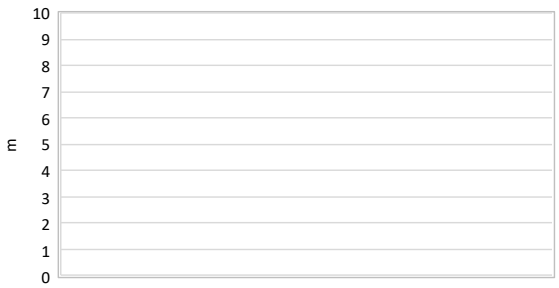
| | Data | Symbol | Unit of measure | Mean value | Standard deviation | Q1 (first quartile) | Median value | Q3 (third quartile) |
|---|---|---|---|---|---|---|---|---|
| GEOMETRY: apartments | Inter-storey height | $H_n$ | m | 2.7 | 0.2 | 2.6 | 2.7 | 2.7 |
| | Heated gross floor area | $A_{H;g}$ | $m^2$ | - | - | - | - | - |
| | Heated net floor area | $A_{H;n}$ | $m^2$ | 73.3 | 39.2 | 47.2 | 65.1 | 88.4 |
| | Heated gross volume | $V_{H;g}$ | $m^3$ | 273.4 | 145.7 | 179.7 | 244.6 | 326.4 |
| | Heated net volume | $V_{H;n}$ | $m^3$ | 195.0 | 81.2 | 134.5 | 188.4 | 252.3 |
| 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 | 25.3 | 4.5 | 23.5 | 24.4 | 27.9 |
| | 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 | 3.9 | 1.3 | 3.3 | 3.5 | 5.0 |
| | Temperature of DHW | $\vartheta_W$ | °C | 40.0 | 0.0 | 40.0 | 40.0 | 40.0 |
| | DHW system power * | $P_{W;gen}$ | kW | 18.2 | 11.4 | 1.5 | 23.6 | 26.0 |
| | * These values refer to the apartment scale | | | | | | | |

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

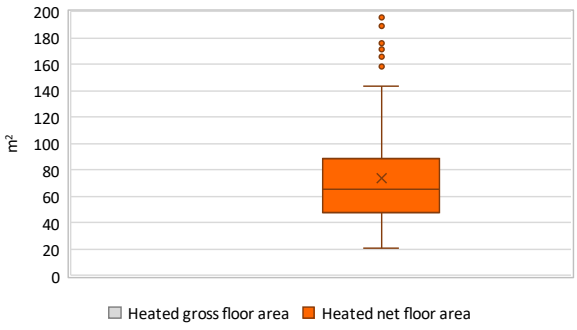
**NUMBER OF FLOORS**



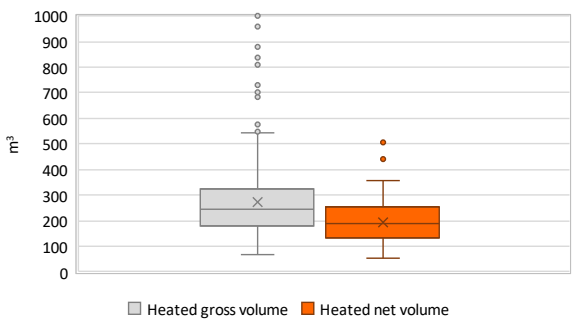

**GROSS HEIGHT**




**AREA**




**VOLUME**



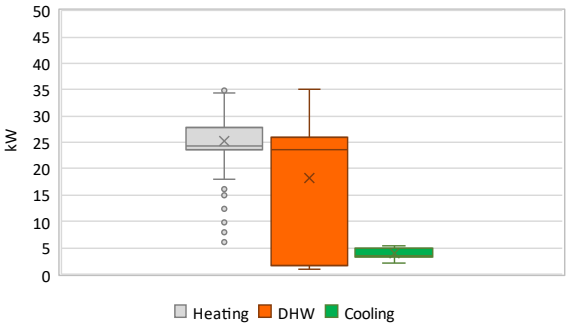

The data can be used for analysis, modeling, and research purposes, as long as it remains unaltered in its original form. Users are free to publish results based on the data, provided they credit the original source.

| | | | | |
|---|---|---|---|---|
| **Region:** | Aosta Valley (Aosta, Quart, Saint-Christophe, and Sarre) | | | **Archetype code:** |
| **Building category:** | Residential buildings - Apartments (in multifamily blocks) | | | RES_APPBLOCK_1992-2005_E_VAL |
| **Period of construction:** | 1992 - 2005 | | | |
| **Climatic zone:** | E | **Number of records:** | 534 | |

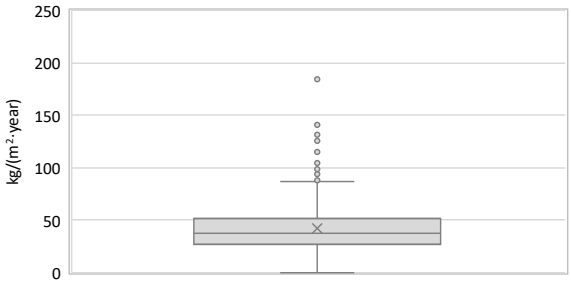
## Additional data: other numerical variables that are not included in the archetype

### DHW SUPPLY TEMPERATURE

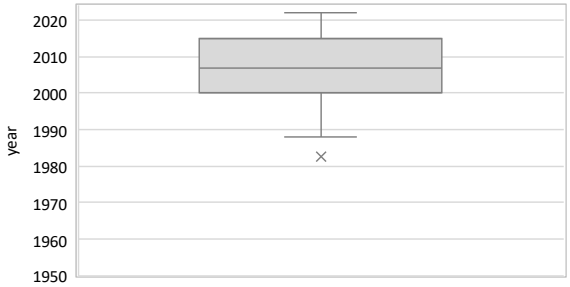
### SYSTEM POWER



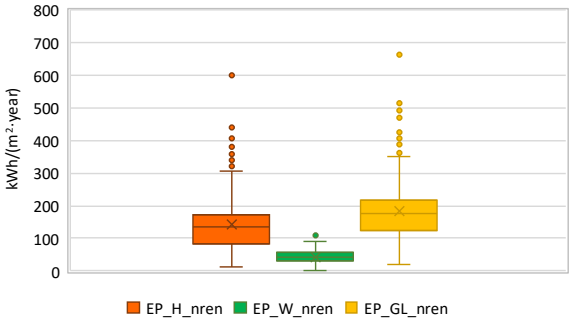

### $CO_2$ EMISSION



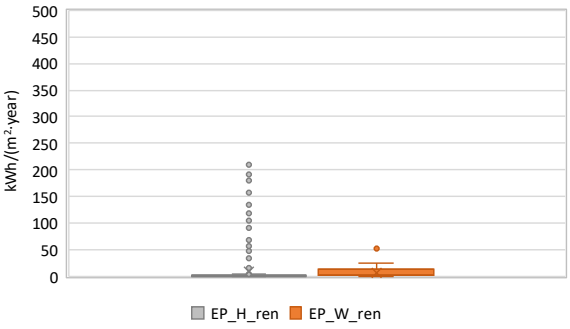

### HEATING SYSTEM INSTALLATION YEAR




### NON-RENEWABLE PRIMARY ENERGY USE




### RENEWABLE PRIMARY ENERGY USE




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.