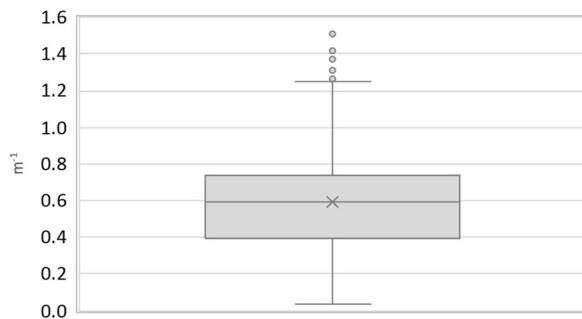


Region:	Liguria		Archetype code: RES_APPBLOCK_ 2001-_D_LIG						
Building category:	Residential buildings – Apartments in multi-family block								
Period of construction:	2001-								
Climatic zone:	D	Number of records:					3958		
Description: <u>External walls</u> : no data available <u>Roof slabs</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 <sup>2</sup>	-	-	-	-	-	
	Heated gross floor area	$A_{H,g}$	m <sup>2</sup>	-	-	-	-	-	
	Heated net floor area	$A_{H,n}$	m <sup>2</sup>	-	-	-	-	-	
	Heated gross volume	$V_{H,g}$	m <sup>3</sup>	-	-	-	-	-	
	Heated net volume	$V_{H,n}$	m <sup>3</sup>	-	-	-	-	-	
	Compactness ratio	$A_{\text{env}}/V_{H,g}$	m <sup>-1</sup>	0.59	0.27	0.39	0.59	0.74	
	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	$A_{wi}/A_{\text{use}}$	-	0.14	0.14	0.09	0.10	0.13	
ENVELOPE	Roof type	-							
	U-value of the roof	$U_{fi,up}$	W/(m <sup>2</sup> ·K)	0.62	0.56	0.27	0.35	0.71	
	External walls type	-							
	U-value of the wall	$U_{wl}$	W/(m <sup>2</sup> ·K)	0.64	0.54	0.26	0.40	0.93	
	Slab on ground floor type	-							
	U-value of the floor	$U_{fi,lw}$	W/(m <sup>2</sup> ·K)	0.73	0.60	0.29	0.41	1.23	
	Windows type	-							
	U-value of the windows	$U_w$	W/(m <sup>2</sup> ·K)	2.66	1.22	1.64	2.46	3.41	
	Shading system type	-							
GAINS and VENTILATION	Occupancy density *	$O_c$	person/m <sup>2</sup>	UNI EN 16798-1 - Table A.19					
	Lighting power density *	$W_L$	W/m <sup>2</sup>	UNI EN 16798-1 - A.8.3					
	Equipment power density *	$W_A$	W/m <sup>2</sup>	UNI EN 16798-1 - A.8.3					
	Type of ventilation	Natural: 95%; Mechanical: 5%							
	Air exchange rate *	$n$	h <sup>-1</sup>	0.30	0.00	0.30	0.30	0.30	
THERMAL SYSTEMS	Heating system type	Unknown: 95%; Autonomous: 5%							
	Heating generator	Unknown: 40%; Traditional boiler: 25%; Condensing boiler: 17%; Air-source heat pump: 14%; Solar thermal system: 2%; Heat exchanger of district heating/cooling: 1%; Water-source heat pump: 1%							
	Daily operating time of the heating system *	$t_H$	h	12	0	12	12	12	
	Energy carrier	Unknown: 38%; Natural gas: 28%; Electricity: 15%; Electricity and natural gas: 15%; Thermal energy from solar collectors: 2%; LPG: 2%							
	Heating emission sub-system	Unknown: 39%; Radiators: 38%; Radiant panels: 14%; Fan-coil: 4%; Air Ducts: 4%; Convectors: 1%							
	Cooling system type	Unknown: 78%; Heat pump air-air: 13%; Heat pump air-water: 7%; Heat pump water-water: 2%							
	Daily operating time of the cooling system *	$t_C$	h	-	-	-	-	-	
	Cooling emission sub-system	-							
	DHW system type	-							
	DHW generator	Unknown: 68%; Condensing boiler: 21%; Solar thermal: 5%; Electric boiler: 4%; Natural gas boiler: 1%; Electric heat pump: 1%							
	* These values were not available in the considered sources, and are thus derived from UNI EN Standards								

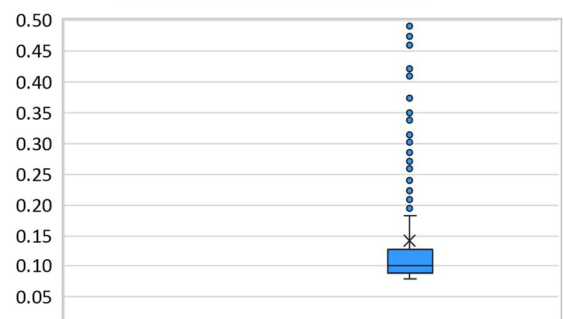
<b>Region:</b>	Liguria	<b>Archetype code:</b> RES_APPBLOCK_ 2001-_D_LIG
<b>Building category:</b>	Residential buildings – Apartments in multi-family block	
<b>Period of construction:</b>	2001-	
<b>Climatic zone:</b>	D	
<b>Number of records:</b>		3958

### Numerical variables – GEOMETRY

**COMPACTNESS RATIO**



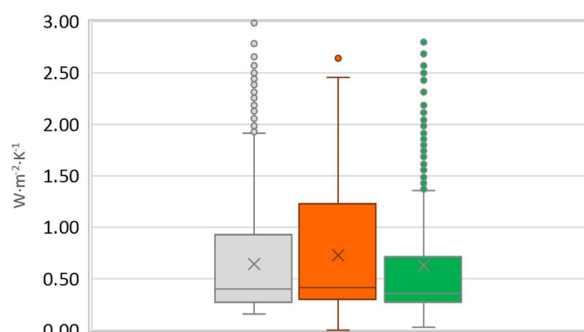
**WINDOWS TO WALL RATIO**



■ WWR\_N ■ WWR\_S ■ WWR\_E ■ WWR\_W ■ Awi/Ause

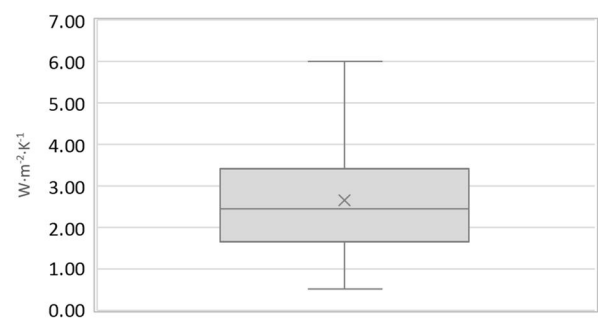
### Numerical variables – ENVELOPE

**OPAQUE BUILDING COMPONENTS U-VALUE**



■ External walls ■ Slab on ground floor ■ Roof

**WINDOWS U-VALUE**



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

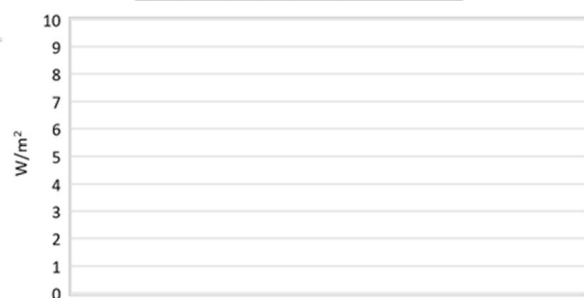
**AIR EXCHANGE RATE**



**OCCUPANCY DENSITY**



**INTERNAL GAINS POWER DENSITY**



**DAILY OPERATING TIME**



■ Heating ■ Cooling

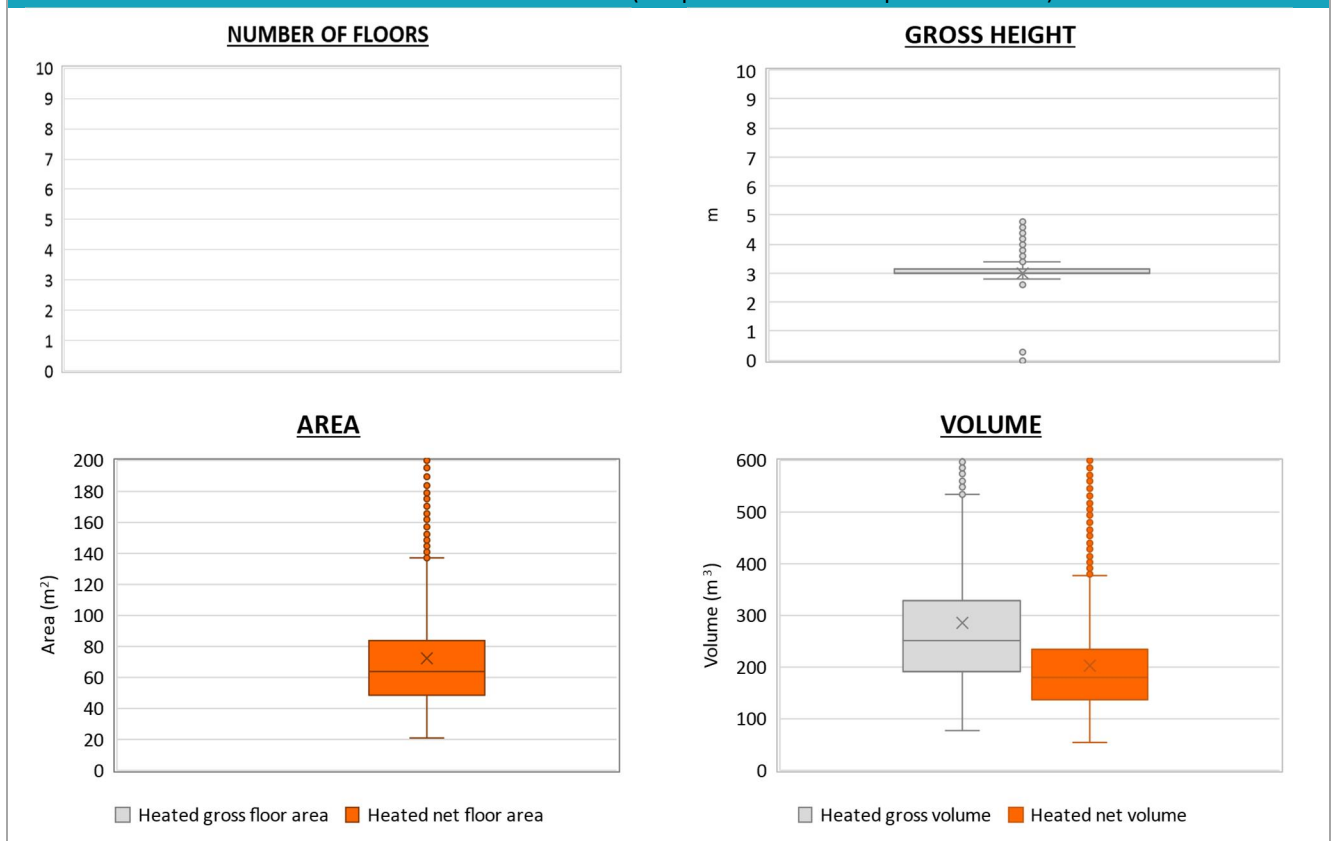


The data can be used for analysis, modeling, and research purposes, as long as it remains unaltered in its original form. Users are free to publish results based on the data, provided they credit the original source.

Region:	Liguria	Archetype code: RES_APPBLOCK_ 2001-_D_LIG
Building category:	Residential buildings – Apartments in multi-family block	
Period of construction:	2001-	
Climatic zone:	D	
Number of records:		3958

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	0.3	3.0	3.0	3.2
	Heated gross floor area	$A_{H,g}$	m <sup>2</sup>	-	-	-	-	-
	Heated net floor area	$A_{H,n}$	m <sup>2</sup>	72.3	37.1	48.7	64.0	84.0
	Heated gross volume	$V_{H,g}$	m <sup>3</sup>	284.2	159.5	189.4	250.7	327.1
	Heated net volume	$V_{H,n}$	m <sup>3</sup>	201.7	109.1	135.2	178.8	232.6
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	21.5	7.2	23.2	24.0	24.2
	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	$\theta_w$	°C	-	-	-	-	-
	DHW system power *	$P_{W,gen}$	kW	19.3	9.4	13.9	24.0	24.3
* These values refer to the apartment scale								

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



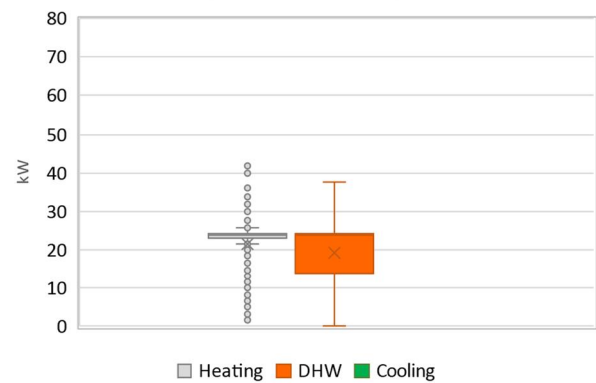
<b>Region:</b>	Liguria	<b>Archetype code:</b> RES_APPBLOCK_ 2001-_D_LIG
<b>Building category:</b>	Residential buildings – Apartments in multi-family block	
<b>Period of construction:</b>	2001-	
<b>Climatic zone:</b>	D	
<b>Number of records:</b>		3958

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

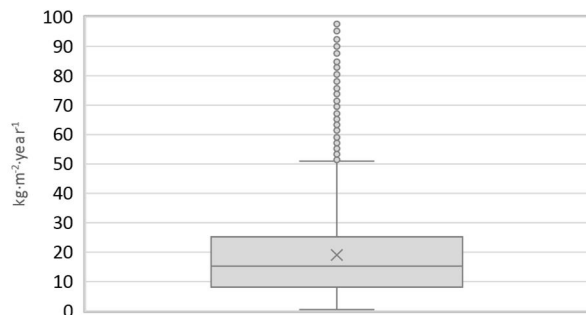
**DHW SUPPLY TEMPERATURE**



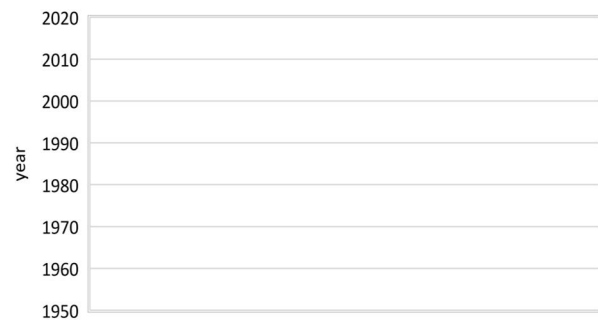
**SYSTEM POWER**



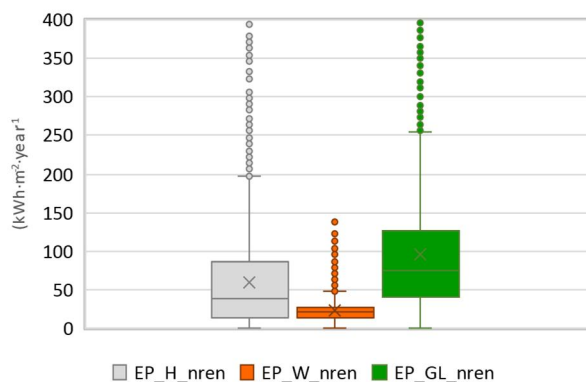
**CO<sub>2</sub> EMISSION**



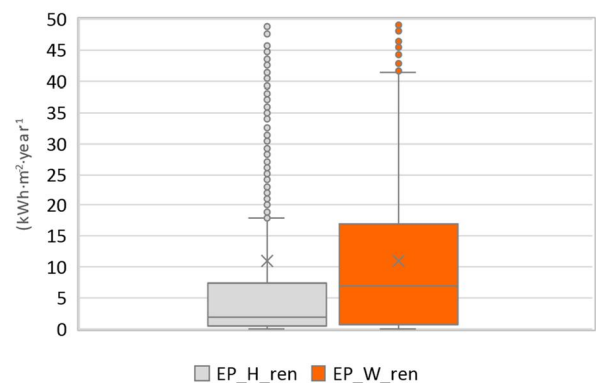
**HEATING SYSTEM INSTALLATION YEAR**



**NON-RENEWABLE PRIMARY ENERGY USE**



**RENEWABLE PRIMARY ENERGY USE**



NOTE: Sample size of the analysed data.

Compactness ratio: 3796; Window to useful floor area ratio: 506; U-value of the roof: 1299; U-value of the wall: 3623; U-value of the floor: 380; U-value of the windows: 3958; Inter-storey height: 3866; Heated net floor area: 3866; Heated gross volume: 3796; Heated net volume: 3796; Total heating power: 1430; DHW system power: 2339; CO<sub>2</sub> Emission: 3870; EP\_H\_nren: 3770; EP\_W\_nren: 3781; EP\_GL\_nren: 3901; EP\_H\_ren: 3079; EP\_W\_ren: 2793



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