Region:	Piedmont			**Archetype code:** RES_APPBLOCK_2011-_E_PIE
Building category:	Residential buildings - Apartments (in multifamily blocks)			
Period of construction:	> 2010			
Climatic zone:	E	**Number of records:**	13162	

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).
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	0.42	0.61	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_{use}	-	0.18	0.07	0.14	0.17	0.21
ENVELOPE	Roof type	-						
	U-value of the roof	$U_{fl;up}$	$W/(m^2 \cdot K)$	-	-	-	-	-
	External walls type	Hollow brick masonry: 76%; Solid Brick masonry: 19%; Unknown: 4%; Prefabricated panels: 1%						
	U-value of the wall	U_{wl}	$W/(m^2 \cdot K)$	-	-	-	-	-
	Slab on ground floor type	-						
	U-value of the floor	$U_{fl;lw}$	$W/(m^2 \cdot K)$	-	-	-	-	-
	Windows type	-						
	U-value of the windows	U_W	$W/(m^2 \cdot K)$	1.75	0.69	1.33	1.57	1.96
	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: 57%; Centralized: 43%						
	Heating generator	-						
	Daily operating time of the heating system *	t_H	h	14.00	0.00	14.00	14.00	14.00
	Energy carrier	Natural Gas: 80%; Electricity: 6%; District heating: 6%; Solid biomass: 4%; LPG: 2%; Gas Oil: 2%						
	Heating emission sub-system	-						
	Cooling system type	-						
	Daily operating time of the cooling system *	t_C	h	-	-	-	-	-
	Cooling emission sub-system	-						
	DHW system type	Autonomous, coupled with heating: 47%; Centralized, coupled with heating: 32%; Autonomous, detached from heating: 13%; Centralized, detached from heating: 8%						
	DHW generator	-						

* These values are derived from UNI EN ISO Standards

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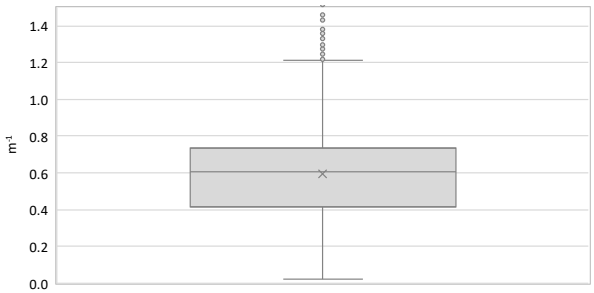
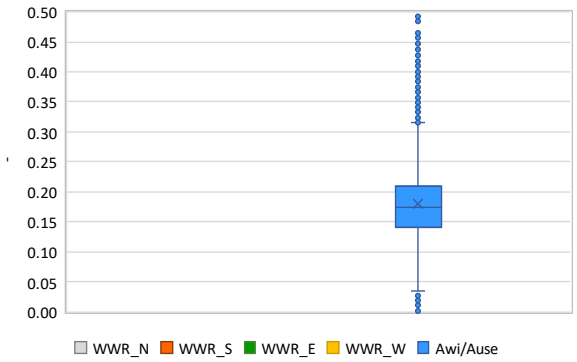
Building category:	Residential buildings - Apartments (in multifamily blocks)			RES_APPBLOCK_2011-_E_PIE
Period of construction:	> 2010			
Climatic zone:	E	**Number of records:**	13162	

Numerical variables – GEOMETRY

COMPACTNESS RATIO

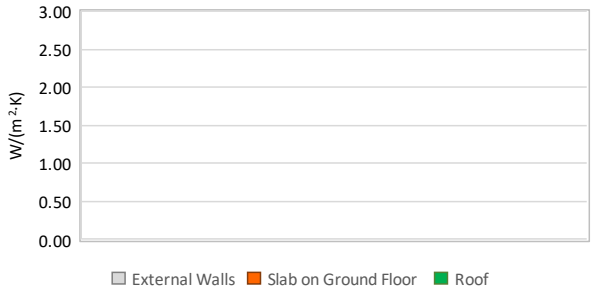


WINDOWS TO WALL RATIO

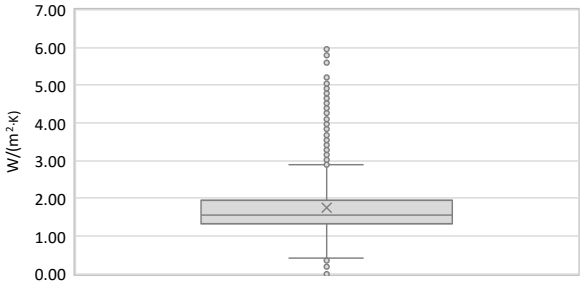


Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE



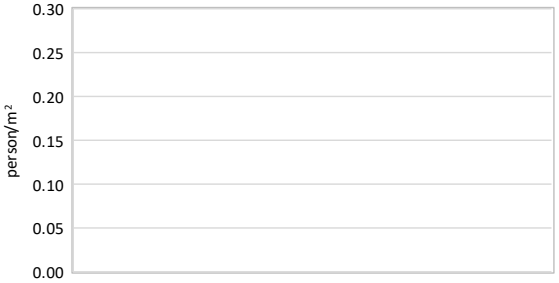
WINDOWS U-VALUE



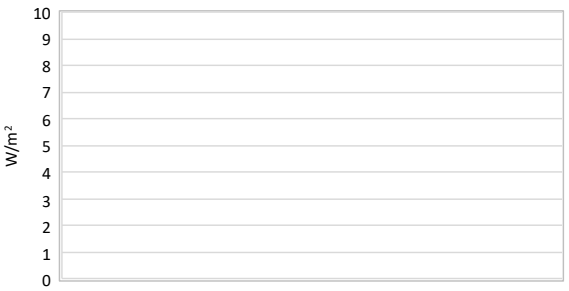
Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

AIR EXCHANGE RATE

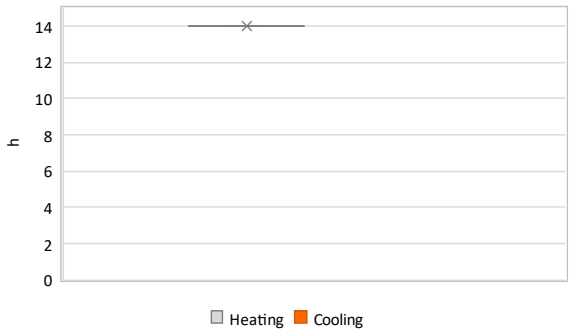
OCCUPACY DENSITY



INTERNAL GAINS POWER DENSITY



DAILY OPERATING TIME



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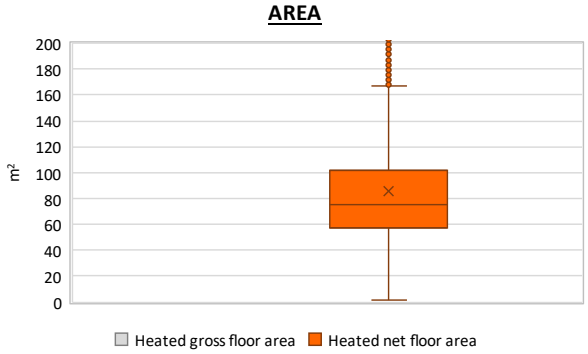
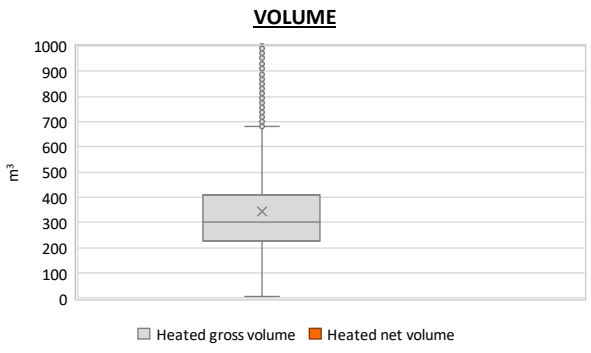
Building category:	Residential buildings - Apartments (in multifamily blocks)			RES_APPBLOCK_2011-_E_PIE
Period of construction:	> 2010			
Climatic zone:	E	**Number of records:**	13162	

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	-	-	-	-	-
	Heated gross floor area	$A_{H;g}$	m^2	-	-	-	-	-
	Heated net floor area	$A_{H;n}$	m^2	85.6	46.7	57.2	75.5	101.4
	Heated gross volume	$V_{H;g}$	m^3	345.1	196.0	227.2	301.5	408.5
	Heated net volume	$V_{H;n}$	m^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	18.0	10.1	7.7	20.6	25.0
	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	8.5	7.4	4.1	6.0	8.7
	Temperature of DHW	ϑ_W	°C	40.0	0.0	40.0	40.0	40.0
	DHW system power *	$P_{W;gen}$	kW	17.0	10.9	6.7	19.0	25.0
	* These values refer to the apartment scale							

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





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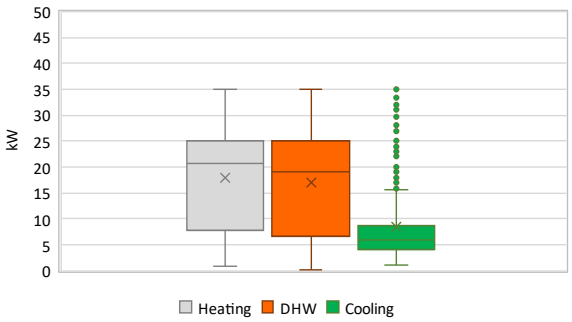
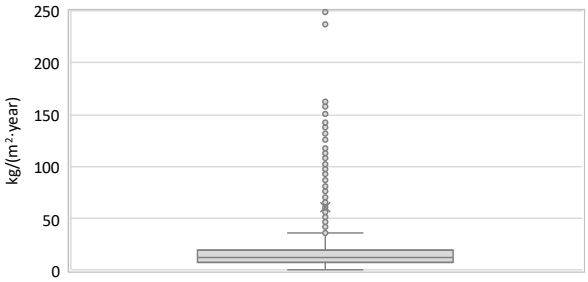
Additional data: other numerical variables that are not included in the archetype

DHW SUPPLY TEMPERATURE

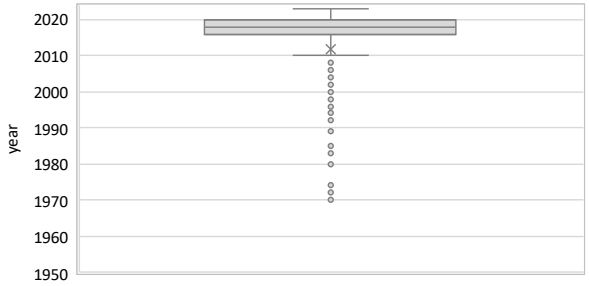
SYSTEM POWER



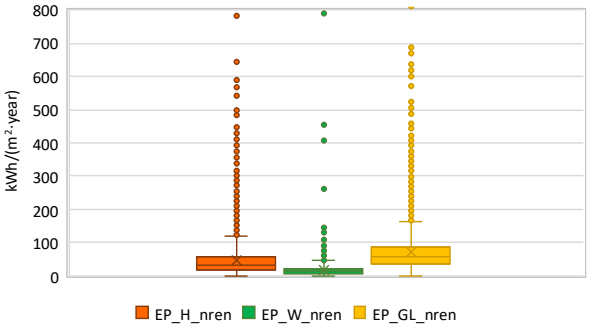
CO_2 EMISSION



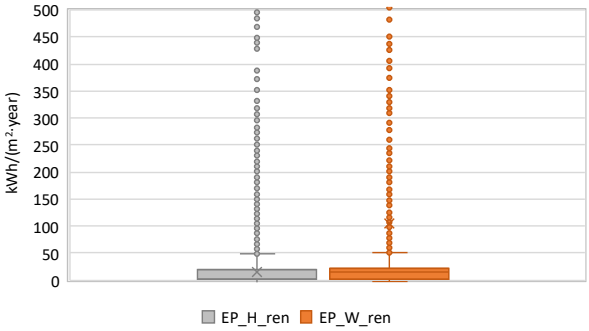
HEATING SYSTEM INSTALLATION YEAR



NON-RENEWABLE PRIMARY ENERGY USE



RENEWABLE PRIMARY ENERGY USE



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