Region:	Aosta Valley (Aosta, Quart, Saint-Christophe, and Sarre)			**Archetype code:** RES_APPBLOCK_1972-1981_E_VAL
Building category:	Residential buildings - Apartments (in multifamily blocks)			
Period of construction:	1972 - 1981			
Climatic zone:	E	**Number of records:**	1184	

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	$A_{footprint}$	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	0.51	0.20	0.34	0.47	0.67
	WWR – North orientation	WWR_N	-	0.14	0.04	0.11	0.13	0.16
	WWR – South orientation	WWR_S	-	0.14	0.04	0.11	0.13	0.16
	WWR – East orientation	WWR_E	-	0.14	0.04	0.11	0.13	0.16
	WWR – West orientation	WWR_W	-	0.14	0.04	0.11	0.13	0.16
	Window to useful floor area ratio	A_{wi}/A_{use}	-	0.17	0.05	0.14	0.17	0.20
ENVELOPE	Roof type	-						
	U-value of the roof **	$U_{fl;up}$	W/(m²·K)	1.16	0.39	1.03	1.32	1.39
	External walls type	Hollow brick masonry: 83%; Solid Brick masonry: 14%; Concrete wall: 2%; Unknown: 1%						
	U-value of the wall	U_{wl}	W/(m²·K)	1.06	0.30	0.93	1.13	1.24
	Slab on ground floor type	-						
	U-value of the floor **	$U_{fl;lw}$	W/(m²·K)	1.12	0.21	1.11	1.11	1.18
	Windows type	Double glazing, wooden frame: 40%; Double glazing, PVC frame: 37%; Single glazing, wooden frame: 21%; Triple glazing, wooden frame: 1%; Triple glazing, PVC frame: 1%						
	U-value of the windows	U_W	W/(m²·K)	2.93	1.12	2.35	2.80	3.14
	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: 100%						
	Air exchange rate *	*n*	h⁻¹	0.30	0.00	0.30	0.30	0.30
THERMAL SYSTEMS	Heating system type	Centralized: 83%; Autonomous: 17%						
	Heating generator	Boiler (unknown type): 58%; Traditional Boiler: 16%; Condensing Boiler: 14%; Heat exchanger of district heating/cooling: 10%; Fireplace: 1%; Air-source heat pump: 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: 63%; Gas Oil: 29%; District heating: 4%; LPG: 2%; Solid biomass: 2%						
	Heating emission sub-system	-						
	Cooling system type	Absent: 98%; Air-cooled chiller: 2%						
	Daily operating time of the cooling system *	t_C	h	-	-	-	-	-
	Cooling emission sub-system	-						
	DHW system type	Centralized, coupled with heating: 45%; Autonomous, detached from heating: 40%; Autonomous, coupled with heating: 14%; Centralized, detached from heating: 1%						
	DHW generator	Unknown: 67%; Natural gas boiler: 25%; Electric boiler: 6%; Electric Heat Pump: 2%						

* 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.)

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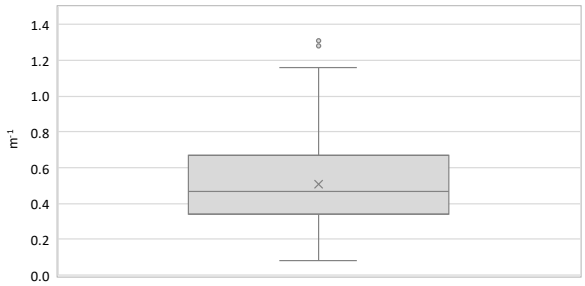
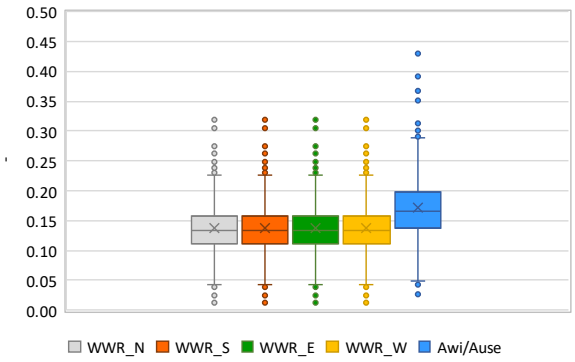
Numerical variables – GEOMETRY

COMPACTNESS RATIO

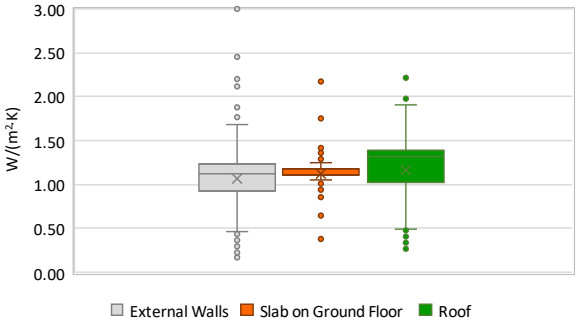


WINDOWS TO WALL RATIO

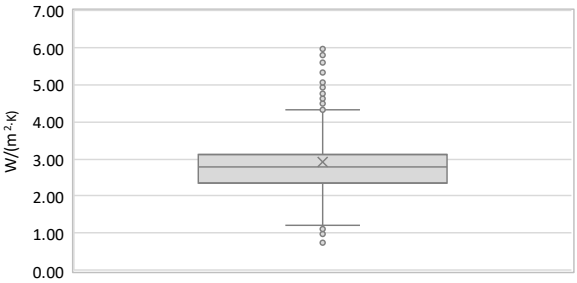


Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE



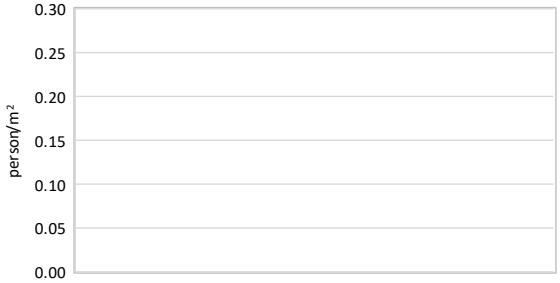
WINDOWS U-VALUE



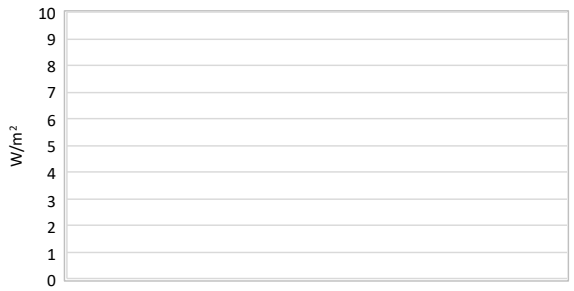
Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

AIR EXCHANGE RATE

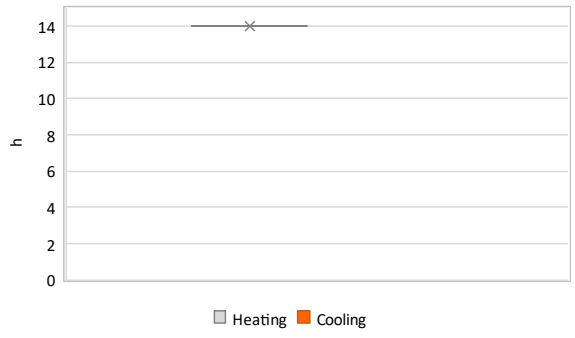
OCCUPACY DENSITY



INTERNAL GAINS POWER DENSITY



DAILY OPERATING TIME



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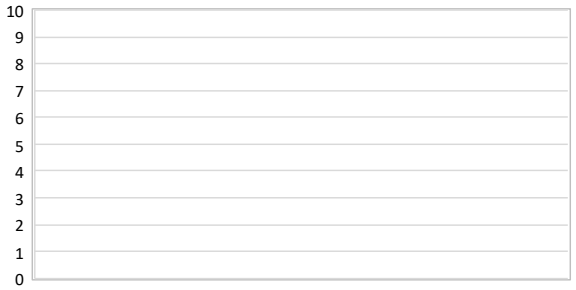
ADDITIONAL DATA

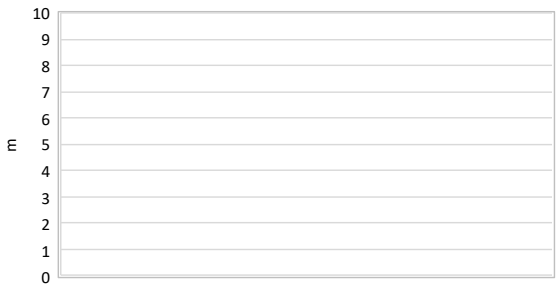
	Data	Symbol	Unit of measure	Mean value	Standard deviation	Q1 (first quartile)	Median value	Q3 (third quartile)
GEOMETRY: apartments	Inter-storey height	H_n	m	2.7	0.1	2.7	2.7	2.7
	Heated gross floor area	$A_{H;g}$	m^2	-	-	-	-	-
	Heated net floor area	$A_{H;n}$	m^2	71.0	31.1	50.0	69.0	84.9
	Heated gross volume	$V_{H;g}$	m^3	266.0	145.9	186.6	252.4	314.2
	Heated net volume	$V_{H;n}$	m^3	181.8	64.4	134.2	182.0	224.0
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	22.4	7.8	18.0	24.0	28.0
	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	7.0	7.4	2.9	3.6	8.1
	Temperature of DHW	ϑ_W	°C	40.0	0.0	40.0	40.0	40.0
	DHW system power *	$P_{W;gen}$	kW	9.1	10.8	1.2	2.0	20.0
	* These values refer to the apartment scale							

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

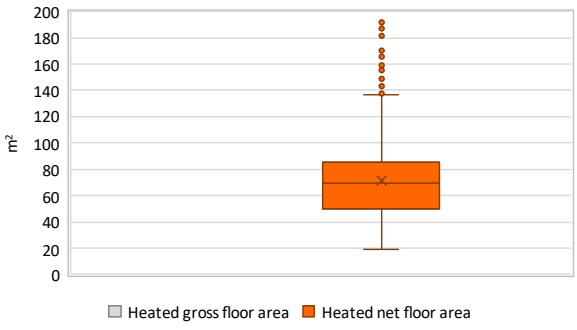
NUMBER OF FLOORS



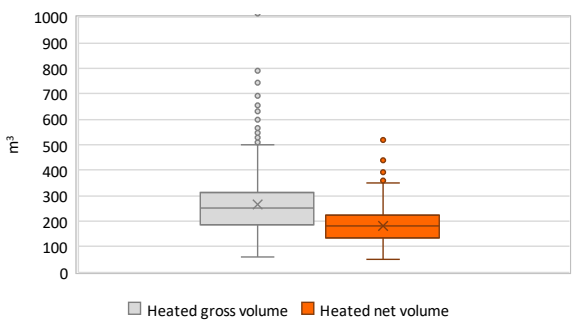
GROSS HEIGHT



AREA



VOLUME



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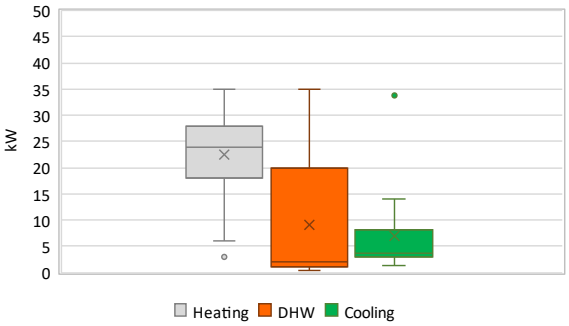
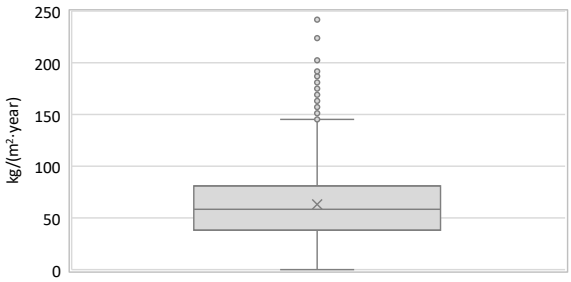
Additional data: other numerical variables that are not included in the archetype

DHW SUPPLY TEMPERATURE

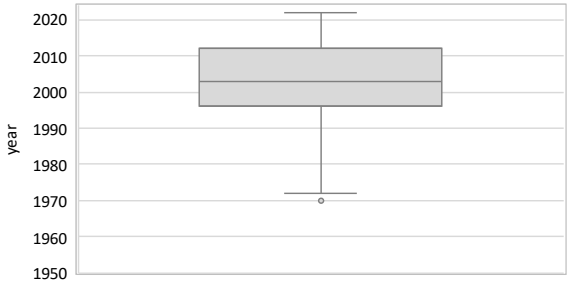
SYSTEM POWER



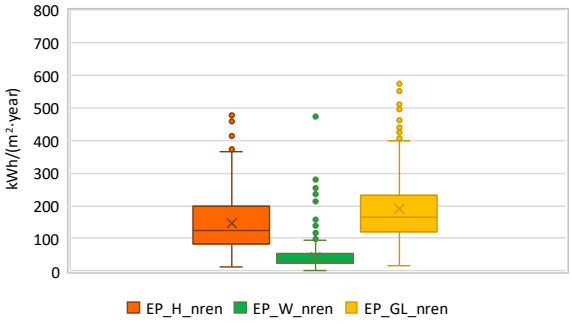
CO_2 EMISSION



HEATING SYSTEM INSTALLATION YEAR



NON-RENEWABLE PRIMARY ENERGY USE



RENEWABLE PRIMARY ENERGY USE