Region:	Piedmont			**Archetype code:**
Building category:	Non-residential buildings – Educational buildings			EDUC_1991-2000_E_PIE
Period of construction:	1991-2000			
Climatic zone:	E	**Number of records:**	32	

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: insulated reinforced concrete floor slab for walkable flat roof (cod. COP03), for pitched roof (cod. CIN03) or insulated wooden floor slab for pitched roof (cod. CIN02).

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	1162.4	775.2	656.7	973.3	1584.1
	Heated gross volume	$V_{H;g}$	m³	5709.9	4155.4	2638.2	4393.7	7913.4
	Heated net volume	$V_{H;n}$	m³	-	-	-	-	-
	Compactness ratio	$A_{env}/V_{H;g}$	m⁻¹	0.58	0.16	0.47	0.58	0.70
	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}	-	0.19	0.08	0.14	0.18	0.22
ENVELOPE	Roof type	-						
	U-value of the roof	$U_{fl;up}$	W/(m²·K)	-	-	-	-	-
	External walls type	Hollow brick masonry: 78%; Unknown: 13%; Solid Brick masonry: 6%; Prefabricated panels: 3%						
	U-value of the wall	U_{wl}	W/(m²·K)	-	-	-	-	-
	Slab on ground floor type	-						
	U-value of the floor	$U_{fl;lw}$	W/(m²·K)	-	-	-	-	-
	Windows type	-						
	U-value of the windows	U_W	W/(m²·K)	3.07	1.10	2.75	2.91	3.34
	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	-						
	Air exchange rate *	n	h⁻¹	-	-	-	-	-
THERMAL SYSTEMS	Heating system type	Autonomous: 100%						
	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: 82%; Electricity: 12%; Solid biomass: 6%						
	Heating emission sub-system	-						
	Cooling system type	-						
	Daily operating time of the cooling system *	t_C	h	-	-	-	-	-
	Cooling emission sub-system	-						
	DHW system type	Centralized, coupled with heating: 50%; Autonomous, detached from heating: 38%; Autonomous, coupled with heating: 6%; Centralized, detached from heating: 6%						
	DHW generator	-						

* These values are derived from UNI EN ISO Standards

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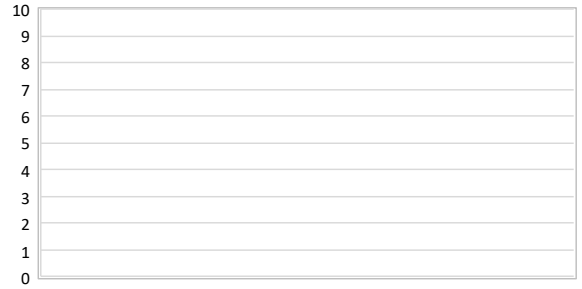
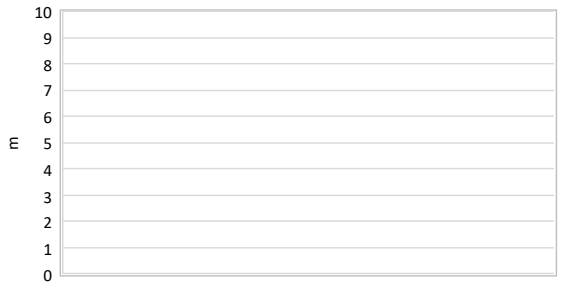
Numerical variables – GEOMETRY

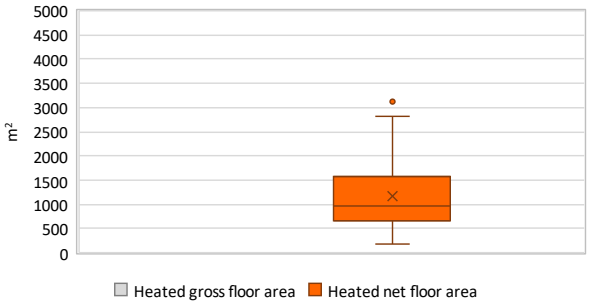
NUMBER OF FLOORS



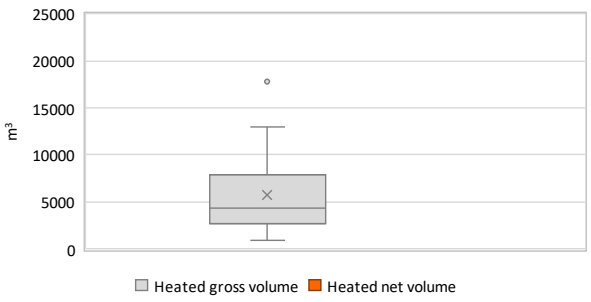
GROSS HEIGHT



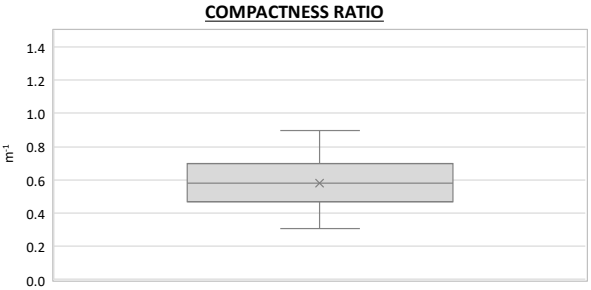
AREA



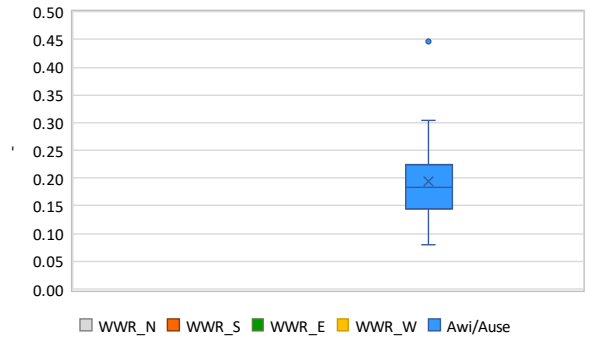
VOLUME



COMPACTNESS RATIO

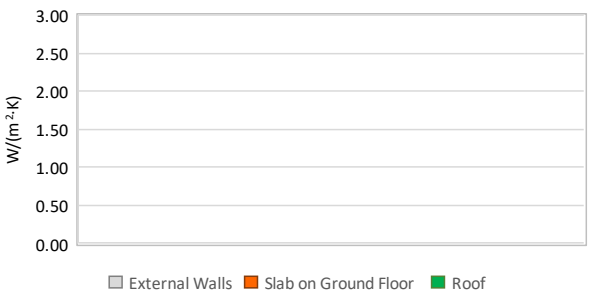


WINDOWS TO WALL RATIO

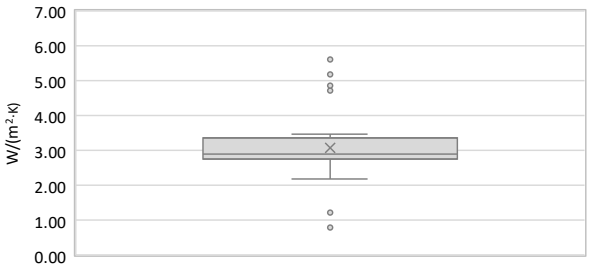


Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE



WINDOWS U-VALUE



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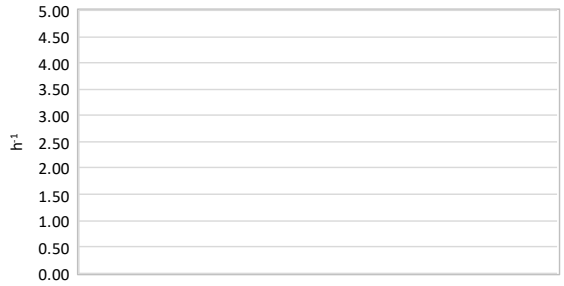
Period of construction:	1991-2000			
Climatic zone:	E	**Number of records:**	32	

ADDITIONAL DATA

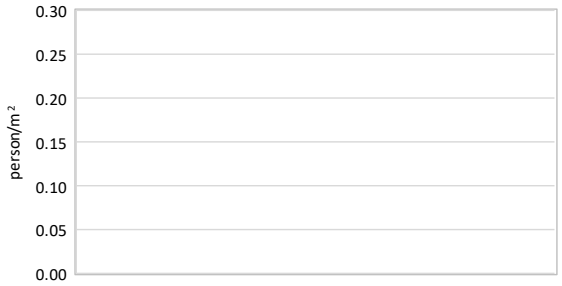
	Data	Symbol	Unit of measure	Mean value	Standard deviation	Q1 (first quartile)	Median value	Q3 (third quartile)
THERMAL SYSTEMS	Heating efficiency or *COP*	$\eta_{H;gen}$ or $COP_{H;gen}$	-	This value has to be retrieved from suitable datasheets				
	Total heating power	$P_{H;gen}$	kW	176.5	163.8	64.5	109.3	214.8
	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	1050.7	2426.0	4.8	41.0	180.1
	Temperature of DHW	ϑ_W	°C	40.0	0.0	40.0	40.0	40.0
	DHW system power	$P_{W;gen}$	kW	98.1	130.6	2.0	58.9	155.8

Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

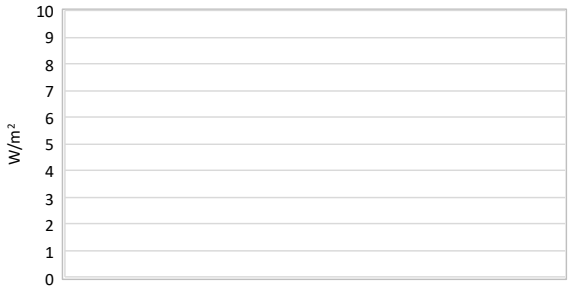
AIR CHANGE RATE



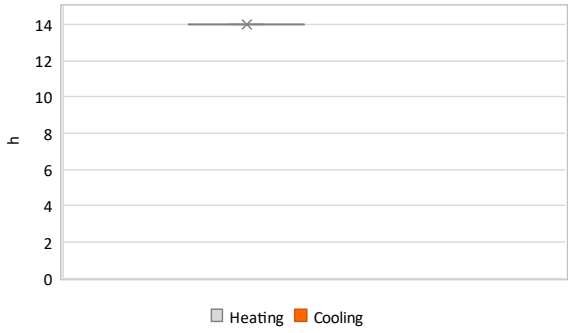
OCCUPACY DENSITY



INTERNAL GAINS POWER DENSITY



DAILY OPERATING TIME



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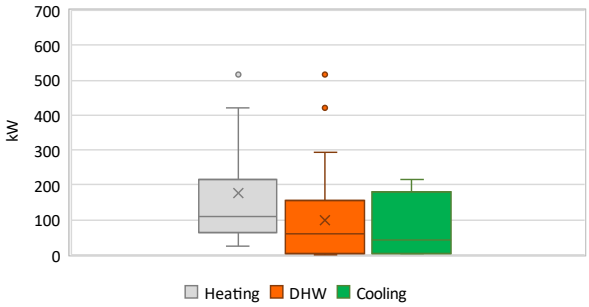
Period of construction:	1991-2000			
Climatic zone:	E	**Number of records:**	32	

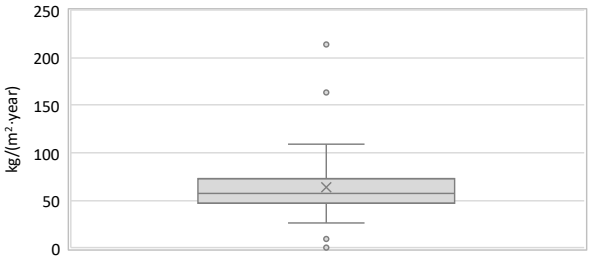
Additional data: other numerical variables that are not included in the archetype

DHW SUPPLY TEMPERATURE

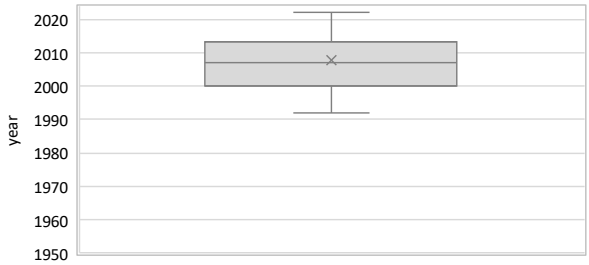
SYSTEM POWER



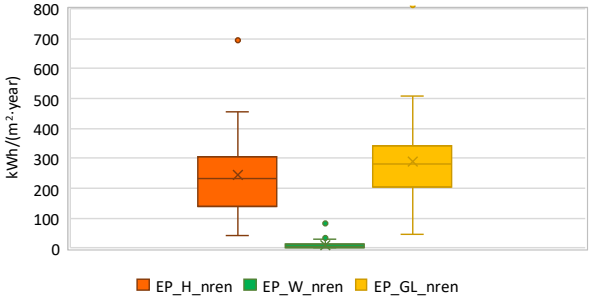
CO_2 EMISSION



HEATING SYSTEM INSTALLATION YEAR



NON-RENEWABLE PRIMARY ENERGY USE



RENEWABLE PRIMARY ENERGY USE