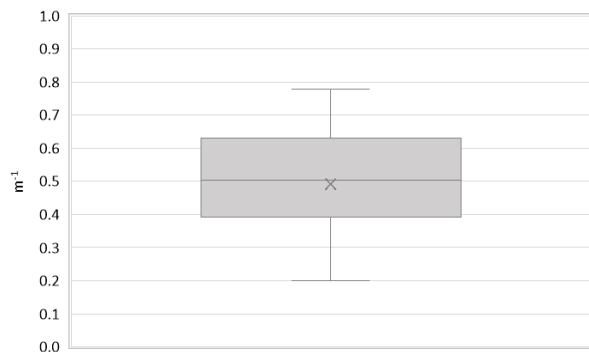


Region:	Lombardy						Archetype code: EDUC_1950-1990_E_LOM	
Building category:	Educational buildings							
Period of construction:	1950-1990							
Climatic zone:	E	Number of records:				26		
Description (the codes associated with walls and slabs refer to the structures described in UNI/TR 11552:2014): External walls: double layer of hollow bricks (8 cm + 12 cm) with insulated air gap (cod. MCV02). Roof slabs: reinforced brick-concrete slab (22 cm) plus uninsulated concrete screed (4 cm) (cod. SOL04)							Data sources: Local database (75%) Expert assumption (18%) Standards (7%)	
	Data	Symbol	Unit of measure	Mean value	Standard deviation	Q1 (first quartile)	Median value	Q3 (third quartile)
BUILDING GEOMETRY	Number of floors	n_f	-	1.85	0.78	1.00	2.00	2.25
	Gross height	H_g	m	7.49	2.77	5.95	7.00	9.08
	Footprint area	$A_{\text{footprint}}$	m ²	1324.02	806.34	763.25	1160.31	1913.38
	Heated gross floor area	$A_{H,g}$	m ²	-	-	-	-	-
	Heated net floor area	$A_{H;n}$	m ²	1673.89	1423.68	561.68	1186.27	2210.44
	Heated gross volume	$V_{H,g}$	m ³	10553.39	9040.83	3747.60	7533.50	14785.50
	Heated net volume	$V_{H;n}$	m ³	8039.47	6720.47	3476.25	6808.80	8858.75
	Compactness ratio	$A_{\text{env}}/V_{H,g}$	m ⁻¹	0.49	0.15	0.39	0.50	0.63
	WWR – North orientation	WWR_N	-	0.21	0.08	0.15	0.18	0.26
	WWR – South orientation	WWR_S	-	0.21	0.08	0.15	0.18	0.26
	WWR – East orientation	WWR_E	-	0.21	0.08	0.15	0.18	0.26
	WWR – West orientation	WWR_W	-	0.21	0.08	0.15	0.18	0.26
	Window to useful floor area ratio	A_{wi}/A_{use}	-	-	-	-	-	-
ENVELOPE	Roof type	Masonry with lists of stones and concrete: 100%						
	U-value of the roof	$U_{fi,up}$	W/(m ² ·K)	1.46	0.62	0.80	1.60	2.00
	External walls type	Hollow brick masonry, low insulation: 45%; Hollow brick masonry, medium insulation: 28%; Prefabricated panels: 27%						
	U-value of the wall	U_{wi}	W/(m ² ·K)	1.26	0.40	0.90	1.39	1.50
	Slab on ground floor type	Masonry with lists of stones and concrete: 100%						
	U-value of the floor	$U_{fi,lw}$	W/(m ² ·K)	1.34	0.27	1.27	1.30	1.50
	Windows type	Double glazing, aluminum frame, no thermal break: 38%; Double glazing, aluminum frame with thermal break: 23%; Double glazing, PVC frame: 12%; Single glazing, PVC frame: 12%; Double glazing, wooden frame: 8%; Single glazing, wooden frame: 7%						
	U-value of the windows	U_W	W/(m ² ·K)	3.36	0.95	2.80	2.90	3.69
GAINS and VENTILATION	Shading system type	Roller blinds: 100%						
	Occupancy density *	O_C	person/m ²	0.19	0.17	0.09	0.12	0.18
	Lighting power density *	W_L	W/m ²	UNI EN 16798-1				
	Equipment power density *	W_A	W/m ²	UNI EN 16798-1				
	Type of ventilation	Natural: 100%						
THERMAL SYSTEMS	Air exchange rate *	n	h ⁻¹	0.50	0.00	0.50	0.50	0.50
	Heating system type	Centralized: 100%						
	Heating generator	Traditional boiler: 100%						
	Daily operating time of the heating system *	t_H	h	14.00	0.00	14.00	14.00	14.00
	Energy carrier	Natural gas: 100%						
	Heating emission sub-system	Radiators: 100%						
	Cooling system type	-						
	Daily operating time of the cooling system *	t_C	h	-	-	-	-	-
	Cooling emission sub-system	-						
	DHW system type	Autonomous - coupled with heating: 100%						
	DHW generator	Natural gas boiler: 100%						
* These values were not available in the considered sources, and are thus derived from UNI EN Standards								

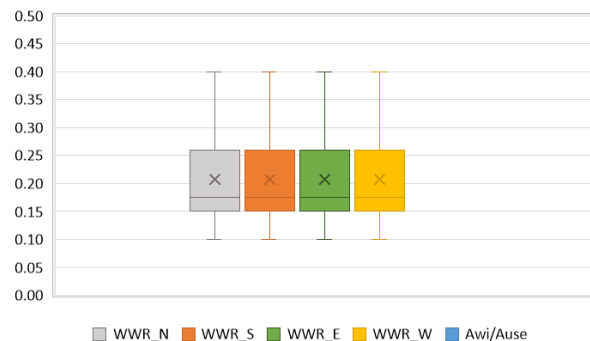
Region:	Lombardy	Archetype code: EDUC_1950-1990_E_LOM
Building category:	Educational buildings	
Period of construction:	1950-1990	
Climatic zone:	E	
Number of records:		26

Numerical variables – GEOMETRY

COMPACTNESS RATIO

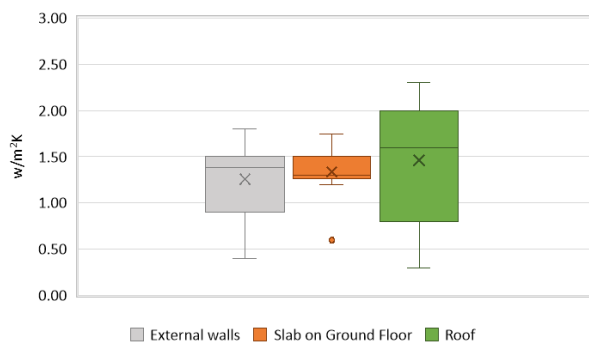


WINDOW TO WALL RATIO

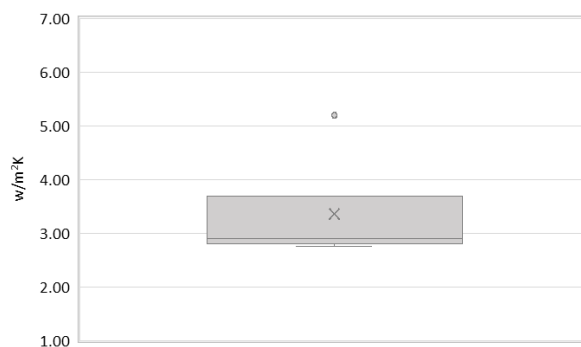


Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE

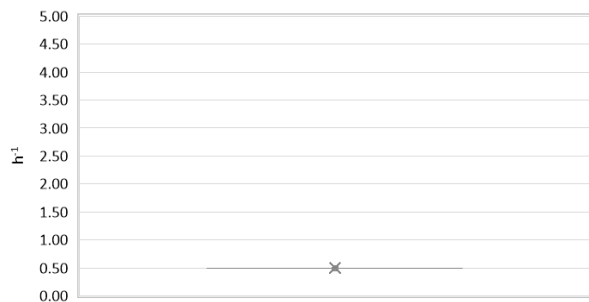


WINDOW U-VALUE

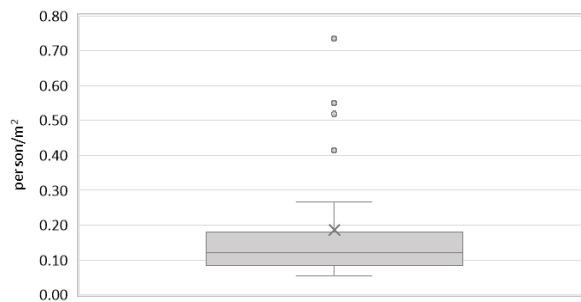


Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

AIR EXCHANGE RATE



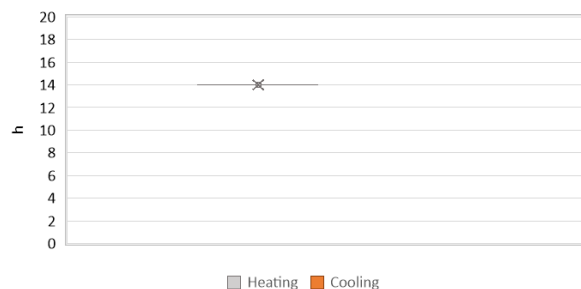
OCCUPANCY DENSITY



INTERNAL GAINS POWER DENSITY

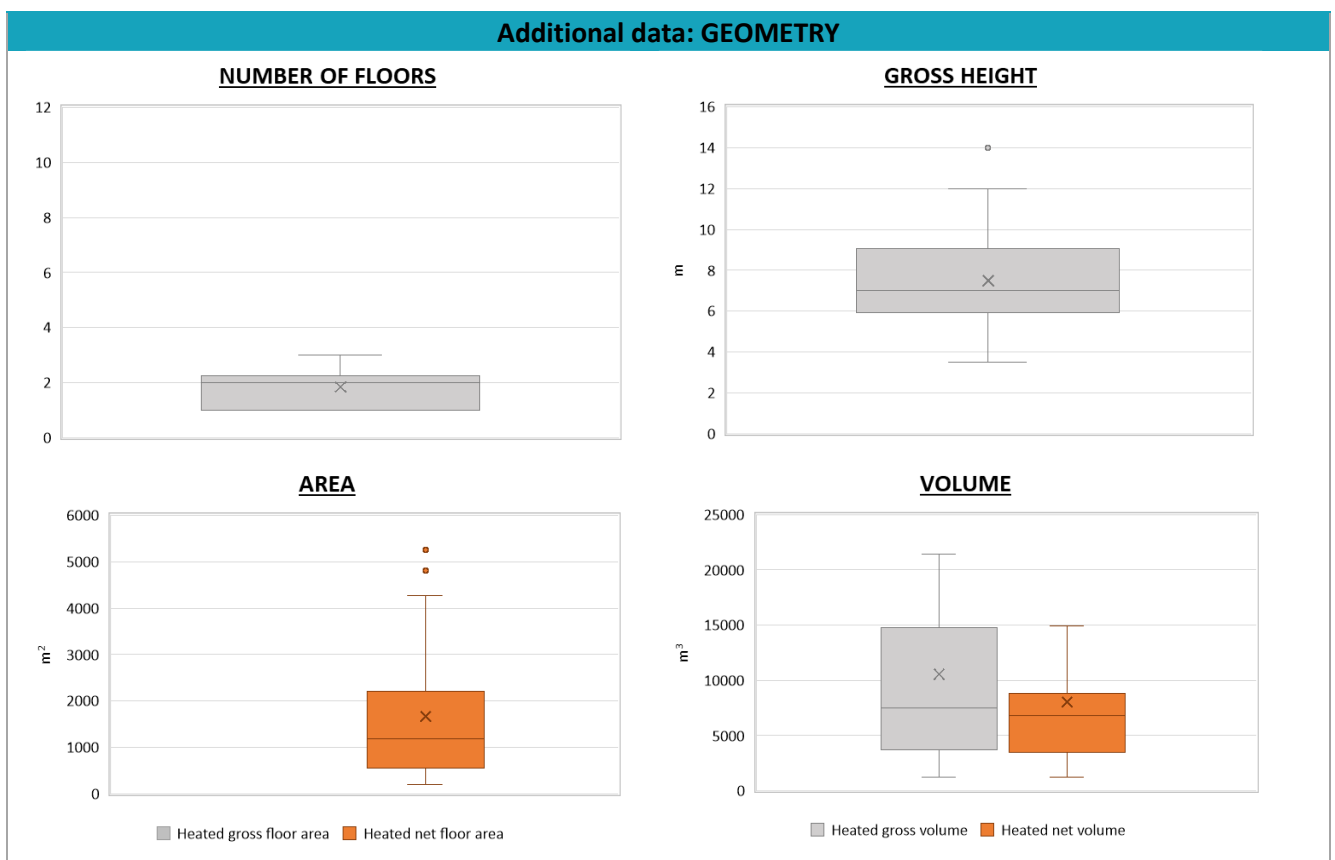


DAILY OPERATING TIME



Region:	Lombardy	Archetype code: EDUC_1950-1990_E_LOM
Building category:	Educational buildings	
Period of construction:	1950-1990	
Climatic zone:	E	
Number of records:		26

ADDITIONAL DATA								
	Data	Symbol	Unit of measure	Mean value	Standard deviation	Q1 (first quartile)	Median value	Q3 (third quartile)
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	511.57	408.03	232.00	400.33	606.50
	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	ϑ_W	°C	40.00	0.00	40.00	40.00	40.00
	DHW system power	$P_{W,gen}$	kW	-	-	-	-	-



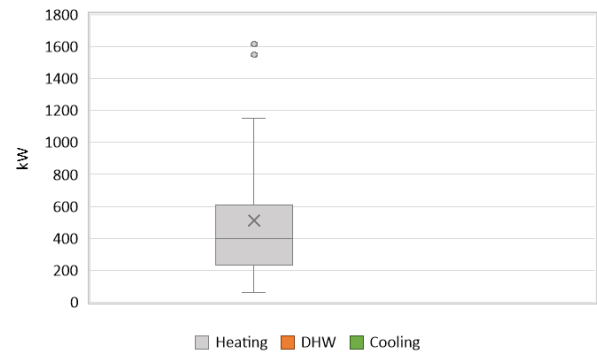
Region:	Lombardy	Archetype code: EDUC_1950-1990_E_LOM	
Building category:	Educational buildings		
Period of construction:	1950-1990		
Climatic zone:	E	Number of records:	26

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

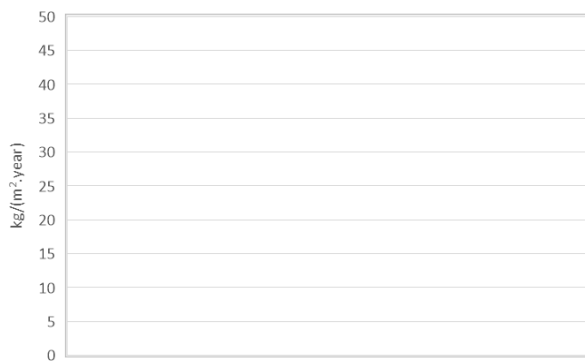
DHW SUPPLY TEMPERATURE



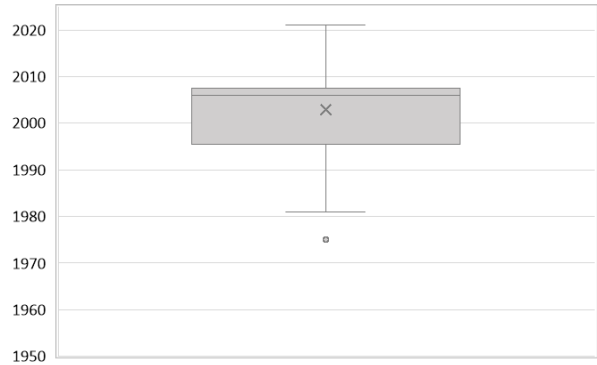
SYSTEM POWER



CO₂ EMISSION



HEATING SYSTEM INSTALLATION YEAR



NON-RENEWABLE PRIMARY ENERGY USE



RENEWABLE PRIMARY ENERGY USE

