URBEM

Region:	Calabria	Archetype code:
Building category:	Residential buildings – Apartments (in multifamily blocks)	RES_APPBLOCK_
Period of construction:	1991-2000	1991-2000_C_CAL
Climatic zone:	C	Number of records:	28	

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 (12 cm + 12 cm) with uninsulated air gap (cod. MCV01).

Roof slabs: *no data available*

Data sources:
Survey data (52%)
Measured data (16%)
Expert assumptions (12%)
Others (20%) #

	Data	Symbol	Unit of measure	Mean value	Standard deviation	Q1 (first quartile)	Median value	Q3 (third quartile)
BUILDING GEOMETRY	Number of floors	n_f	-	2.25	1.53	1.00	2.00	3.25
	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	0.45	0.20	0.28	0.35	0.58
	WWR – North orientation	WWR_N	-	0.16	0.09	0.11	0.15	0.20
	WWR – South orientation	WWR_S	-	0.17	0.08	0.11	0.16	0.22
	WWR – East orientation	WWR_E	-	0.18	0.17	0.08	0.17	0.21
	WWR – West orientation	WWR_W	-	0.22	0.17	0.12	0.19	0.25
	Window to useful floor area ratio	A_{wi}/A_{use}	-	0.13	0.04	0.10	0.14	0.15
ENVELOPE	Roof type			-				
	U-value of the roof	$U_{fl;up}$	W/(m²·K)	0.95	0.48	0.45	1.02	1.34
	External walls type		Hollow brick masonry: 89%, Solid brick masonry: 7%, Masonry with local stones: 4%					
	U-value of the wall	U_{wl}	W/(m²·K)	0.80	0.33	0.56	0.76	1.01
	Slab on ground floor type			-				
	U-value of the floor	$U_{fl;lw}$	W/(m²·K)	0.87	0.52	0.41	0.84	1.23
	Windows type		Double glazing, aluminum frame with thermal break: 29%, Double glazing, wooden frame: 25%, Double glazing, aluminum frame, no thermal break: 18%, Single glazing, wooden frame: 11%, Double glazing, PVC frame: 10%, Single glazing, aluminum frame: 7%,					
	U-value of the windows	U_W	W/(m²·K)	3.30	1.14	2.78	2.95	3.20
	Shading system type		Shutter: 54%, Roller blinds: 42%, Curtains: 4%					
GAINS and VENTILATION	Occupancy density	O_C	person/m²	0.033	0.011	0.023	0.034	0.041
	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		Autonomous: 100%					
	Heating generator		Traditional Boiler: 79%, Condensing Boiler: 14%, Air-source heat pump: 4%, Unknown: 3%					
	Daily operating time of the heating system *	t_H	h	8.00	0.00	8.00	8.00	8.00
	Energy carrier		Natural Gas: 79%, LPG: 7%, Electricity: 11%, Unknown: 3%					
	Heating emission sub-system		Radiators: 89%, Fan coil: 11%					
	Cooling system type		Absent: 96%, Air-cooled chiller: 4%					
	Daily operating time of the cooling system *	t_C	h	8.00	0.00	8.00	8.00	8.00
	Cooling emission sub-system		Fan coil: 100%					
	DHW system type			-				
	DHW generator			-				

Standards (8%), Municipal database (8%), EPC database (4%).
* These values were not available in the considered sources, and are thus derived from UNI EN Standards

Residential buildings – Apartment blocks – 1991/2000 – Zone C – Calabria

Region:	Calabria		Archetype code:
Building category:	Residential buildings – Apartments (in multifamily blocks)		RES_APPBLOCK_ 1991-2000_C_CAL
Period of construction:	1991-2000		
Climatic zone:	C	Number of records: 28	

Numerical variables – GEOMETRY

COMPACTNESS RATIO

WINDOWS TO WALL RATIO

☐ WWR_N ☐ WWR_S ☐ WWR_E ☐ WWR_W ☐ Awi/Ause
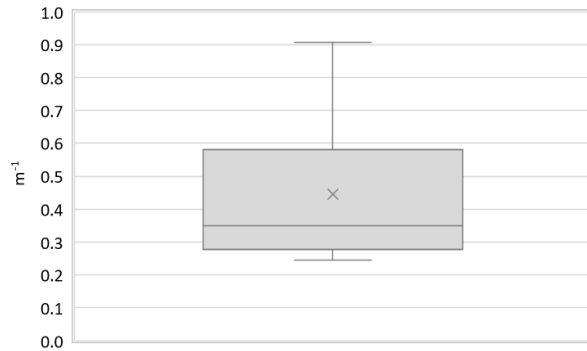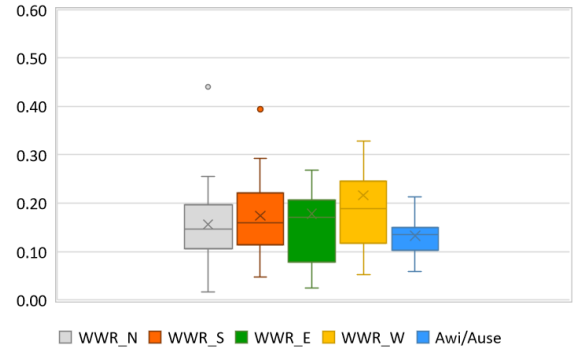
Numerical variables – ENVELOPE

OPAQUE BUILDING COMPONENTS U-VALUE

☐ External Walls ☐ Slab on Ground Floor ☐ Roof
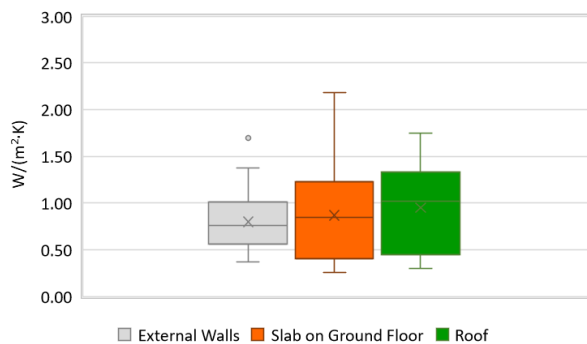
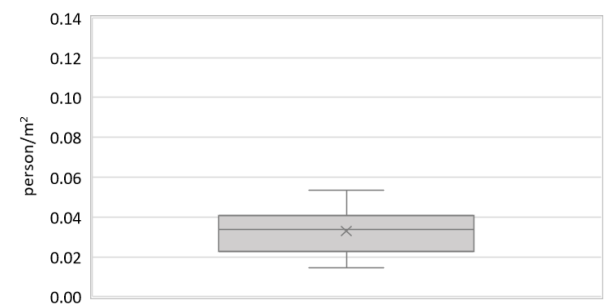### WINDOWS U-VALUE
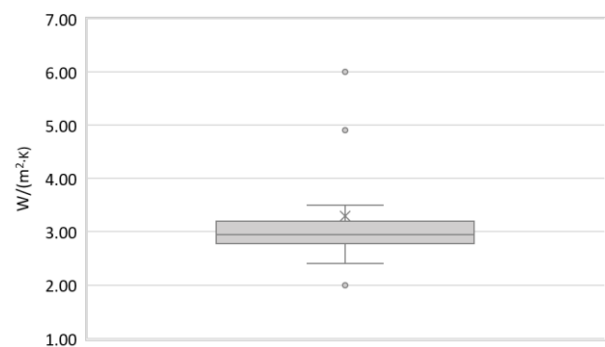
Numerical variables – GAINS, VENTILATION and SYSTEMS USAGE

AIR EXCHANGE RATE

OCCUPANCY DENSITY
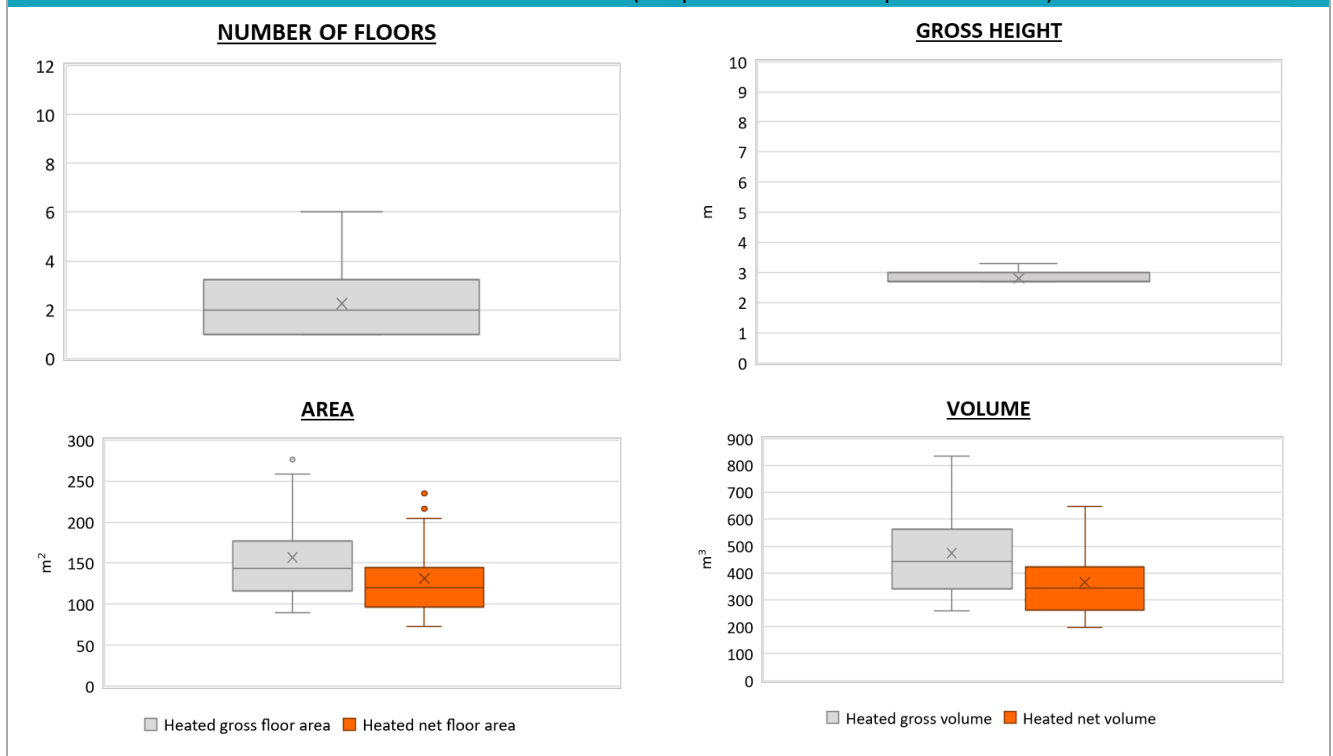

INTERNAL GAINS POWER DENSITY

☐ Lighting ☐ Equipment

DAILY OPERATING TIME

☐ Heating ☐ Cooling

Region:	Calabria		Archetype code:
Building category:	Residential buildings – Apartments (in multifamily blocks)		RES_APPBLOCK_ 1991-2000_C_CAL
Period of construction:	1991-2000		
Climatic zone:	C	Number of records: 28	

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	2.81	0.16	2.70	2.70	3.00
	Heated gross floor area	$A_{H;g}$	m^2	157.08	51.73	115.93	143.28	177.06
	Heated net floor area	$A_{H;n}$	m^2	131.49	43.83	96.46	120.00	144.20
	Heated gross volume	$V_{H;g}$	m^3	474.06	157.92	342.40	442.48	561.73
	Heated net volume	$V_{H;n}$	m^3	365.92	121.50	262.64	344.89	421.97
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	25.67	4.36	24.00	25.00	28.00
	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	-	-	-	-	-
	Temperature of DHW	θ_W	°C	40.00	0.00	40.00	40.00	40.00
	DHW system power *	$P_{W;gen}$	kW	-	-	-	-	-
	* These values refer to the apartment scale							

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

NUMBER OF FLOORS

GROSS HEIGHT

AREA

Heated gross floor area Heated net floor area

VOLUME

Heated gross volume Heated net volume

Region:	Calabria	Archetype code:
Building category:	Residential buildings – Apartments (in multifamily blocks)	RES_APPBLOCK_
Period of construction:	1991-2000	1991-2000_C_CAL
Climatic zone:	C	Number of records:	28

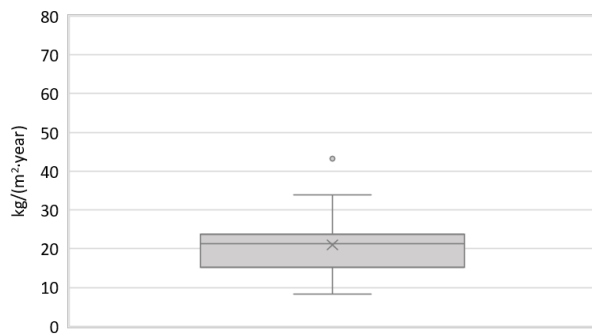## Additional data: other numerical variables that are not included in the archetype
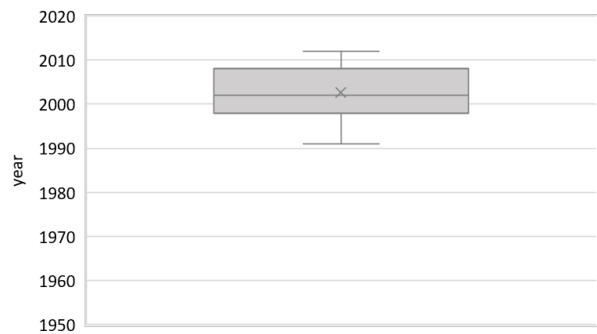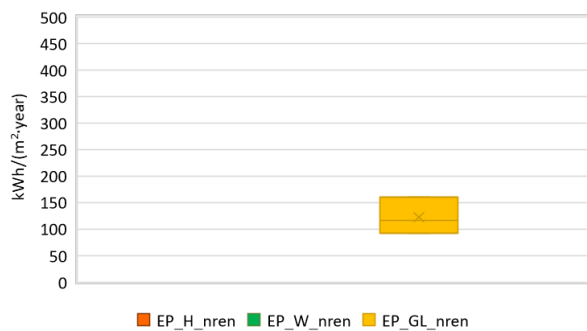
DHW SUPPLY TEMPERATURE

SYSTEM POWER

Heating ■ DHW ■ Cooling
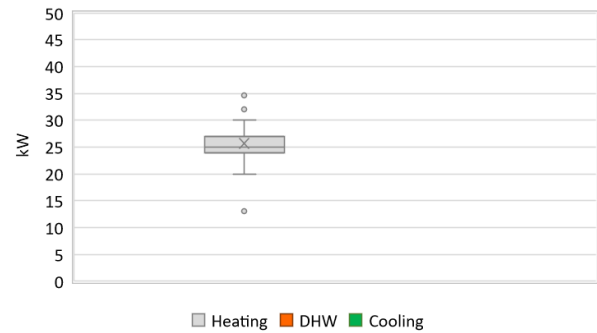
CO₂ EMISSION

HEATING SYSTEM INSTALLATION YEAR

NON-RENEWABLE PRIMARY ENERGY USE

■ EP_H_nren ■ EP_W_nren ■ EP_GL_nren

RENEWABLE PRIMARY ENERGY USE

■ EP_H_ren ■ EP_W_ren

Residential buildings – Apartment blocks – 1991/2000 – Zone C – Calabria