



Building physical parameters for four typologies

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Summary of the parameters used in the modelling and simulation of the building stock:

<i>Parameters</i>		<i>Office building</i>	<i>School building</i>	<i>Elderly home</i>	<i>Multi-family</i>	
Window to wall ratio	<i>Lower value</i>	20% ¹	20%	20%	20%	
	<i>Average value</i>	40%	40%	35%	35%	
	<i>Upper value</i>	60%	60%	50%	50%	
Orientation (large facade)	<i>Lower value</i>	South	South	South	South	
	<i>Upper value</i>	West	West	West	West	
Shading System	<i>Lower value</i>	No-Shading	No-Shading	No-Shading	No-Shading	
	<i>Upper value</i>	External screen is on at 150 (W/m ²)	External screen is on at 150 (W/m ²)	External screen is on at 150 (W/m ²)	External screen is on at 150 (W/m ²)	
Envelope performance	<i>lower value</i>	Envelope U-value	0.5 (w/m ² .k)	0.5 (w/m ² .k)	0.5 (w/m ² .k)	0.5 (w/m ² .k)
		Window U-value	2.5(w/m ² .k)	2.5(w/m ² .k)	2.5(w/m ² .k)	2.5(w/m ² .k)
		Glass g-value	0.6	0.6	0.6	0.6
		air-tightness n50	5.0 (h ⁻¹)	5.0 (h ⁻¹)	5.0 (h ⁻¹)	5.0 (h ⁻¹)
	<i>Average value</i>	Envelope U-value	0.27 (w/m ² .k)	0.27 (w/m ² .k)	0.27 (w/m ² .k)	0.27 (w/m ² .k)
		Window U-value	1.5 (w/m ² .k)	1.5 (w/m ² .k)	1.5 (w/m ² .k)	1.5 (w/m ² .k)
		Glass g-value	0.56	0.56	0.56	0.56
		air-tightness n50	2.0 (h ⁻¹)	2.0 (h ⁻¹)	2.0 (h ⁻¹)	2.0 (h ⁻¹)
	<i>Upper value</i>	Envelope U-value	0.15 (w/m ² .k)	0.15 (w/m ² .k)	0.15 (w/m ² .k)	0.15 (w/m ² .k)
Window U-value		0.8 (w/m ² .k)	0.8 (w/m ² .k)	0.8 (w/m ² .k)	0.8 (w/m ² .k)	
Glass g-value		0.4	0.4	0.4	0.4	
air-tightness n50		0.6 (h ⁻¹)	0.6 (h ⁻¹)	0.6 (h ⁻¹)	0.6 (h ⁻¹)	
Building mass	Lower value	390 (kg/m ²)	391 (kg/m ²)	392 (kg/m ²)	207 (kg/m ²)	
	Upper value	630 (kg/m ²)	630 (kg/m ²)	630 (kg/m ²)	661 (kg/m ²)	
Internal heat gains			Office zone	Classroom zone	Elderly room zone	Apartments zone
	<i>Lower value</i>	Density	1Person/20m ²	1Student/3.5m ²	—	1 person / dwelling
		Occupancy	5.0 (W/m ²)	21.0 (W/m ²)	0	1.2 (W/m ²)
		Lighting	8.0 (W/m ²)	8.0 (W/m ²)	0	1.5 (W/m ²)
		Appliances	5.5 (W/m ²)	4.0 (W/m ²)	0	4.8 (W/m ²)
		Total	18.5 (W/m ²)	33.0 (W/m ²)	0	7.5 (W/m ²)
	<i>Upper value</i>	Density	1Person/10m ²	1Student/2.5m ²	1Elderly/24m ²	3 persons / dwelling
		Occupancy	10.0 (W/m ²)	30.0 (W/m ²)	3.0 (W/m ²)	3.6 (W/m ²)
		Lighting	8.0 (W/m ²)	8.0 (W/m ²)	3.75 (W/m ²)	2.0 (W/m ²)
		Appliances	15.0 (W/m ²)	4.0 (W/m ²)	4.0 (W/m ²)	23.0 (W/m ²)
Total		33.0 (W/m ²)	42.0 (W/m ²)	10.7 (W/m ²)	28.6 (W/m ²)	
Ventilation flow rate	<i>Constant</i>	36 (m ³ /h)	36 (m ³ /h)	50 (m ³ /h)	1 (m ³ /m ² /h) per dwelling 0.2 (m ³ /m ² /h) for staircases	
	<i>Constant</i>	23 (°C)	24 (°C)	24 (°C)	23 (°C)	

¹ The values of the window to wall ratio for the office's typology are approximated into three discrete values for simplification. The input values of the simulations for this typology have a minimum of 5% and a maximum of 70 % and a median of 30 %.