

Table 4.1: Technical characteristic of the examined walls

Wall Assembly	Central/North Eur. (Figure 4.1a)	South Eur. (Figure 4.1b)	ELISSA (Figure 4.1c)
Type	Conventional brick wall ⁽¹⁾	Conventional brick wall ^(a)	Lightweight steel-framed drywall system
U-value (W/m ² K)	0.14-0.15	0.35-0.42	0.14
Total Thickness (mm)	530	295	295
Weight per area (kg/m ²)	426-532	350-441	109
Cost per area (€/m ²)	139.74	104.89	230.88 (199.58) ⁽²⁾
Embodied Energy (MJ/m ²)	1354.19	1036.13	2001.1
GHG emissions ⁽³⁾ (kg _{CO2-eq} /m ²)	120.3	96.3	115.5
Fire Resistance Rating (min)	>360 ⁽⁴⁾	>360 ^(d)	120 ⁽⁵⁾
Seismic Energy Dissipation (kNm)	0.561	0.80	-1.117
Seismic Energy Dissipation per weight [kNm/(kg/m ²)]	0.0021	0.0053	-0.0153

^[1]The load bearing part of the wall is made of reinforced concrete covering 24% of the wall area.

^[2] Assuming the cost of the VIPs to be 40 €/m².

^[3] The values refer to the total mass of each material per m² of the wall configuration. LCA analysis from cradle to gate.

^[4] Estimated according to **NBS BMS 92** [2] "*Fire-Resistance Classifications of Building Construction*".

^[5] Measured according to **BS EN 1363-1** [3] "*Fire-resistance tests – General Requirements*". A fire resistance rating of 120 min satisfies the most stringent fire design requirements for typical multi-storey buildings.