Case Study

2 types of wall configuration (fig. 501.01(3)) were provided to the design team for selection. One was a thermal block with insulation and the other was solid block. Which type should the design team select?

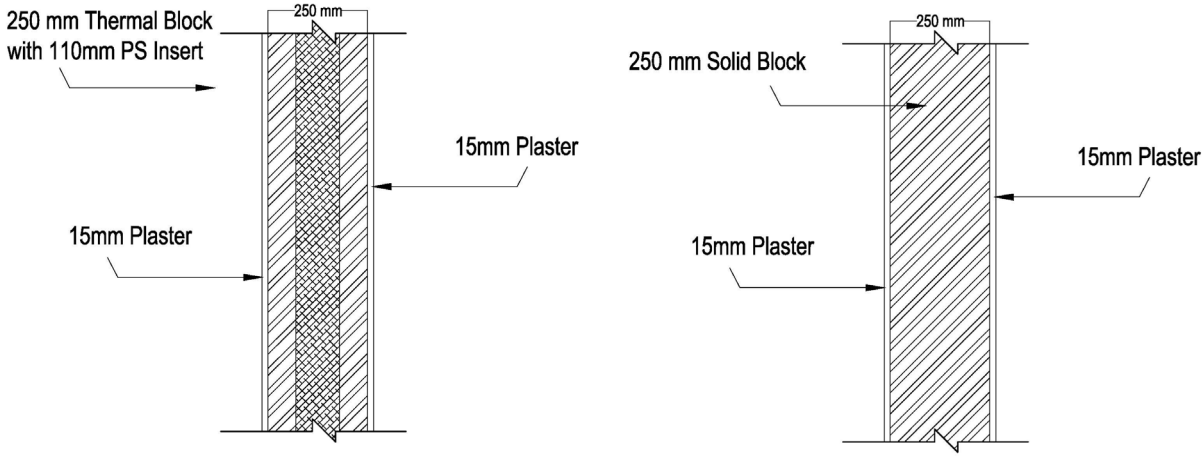

Fig. 501.01(3): Sample Wall Sections with Thermal and Solid Blocks

To determine which wall type to be selected, U-value calculation for each wall type needs to be carried out. Table 501.01(8) and 501.01(9) illustrates the U-value calculation for 2 wall types. It can be observed that U-value for the solid block does not meet minimum DM requirements, whereas the U-value for the thermal block is in conformance to DM requirements.

Table 501.01 (8): DM U-value Calculator for Thermal Block

Layer No.	Thickness mm	External Wall Max.U = 0.57 W/m²K	Density Kg/m³	Resistance m²K/W	Mass Kg/ m²
00.000.01	0.00	Inside Surface Film Resistance for Walls	0	0.120	0
00.000.30	15.00	Plaster (Cement / Sand)	1860	0.021	279
04.022.10	250.00	Thermo Block Solid Normal Weight (Sandwich)	1250	3.378	3125
00.000.30	15.00	Plaster (Cement / Sand)	1860	0.021	279
00.000.02	0.00	Outside Surface Film Resistance for Walls	0	0.044	0
	280 mm	Thermal Transmittance U-value: 0.28 W/m²K 0.05 Btu / °F ft² h		3.584 m²K/W	