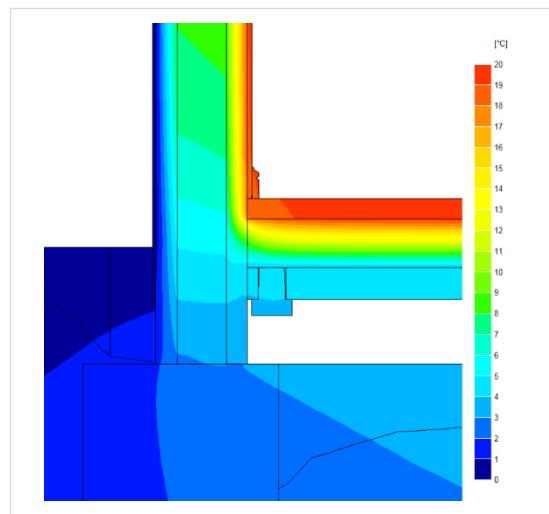
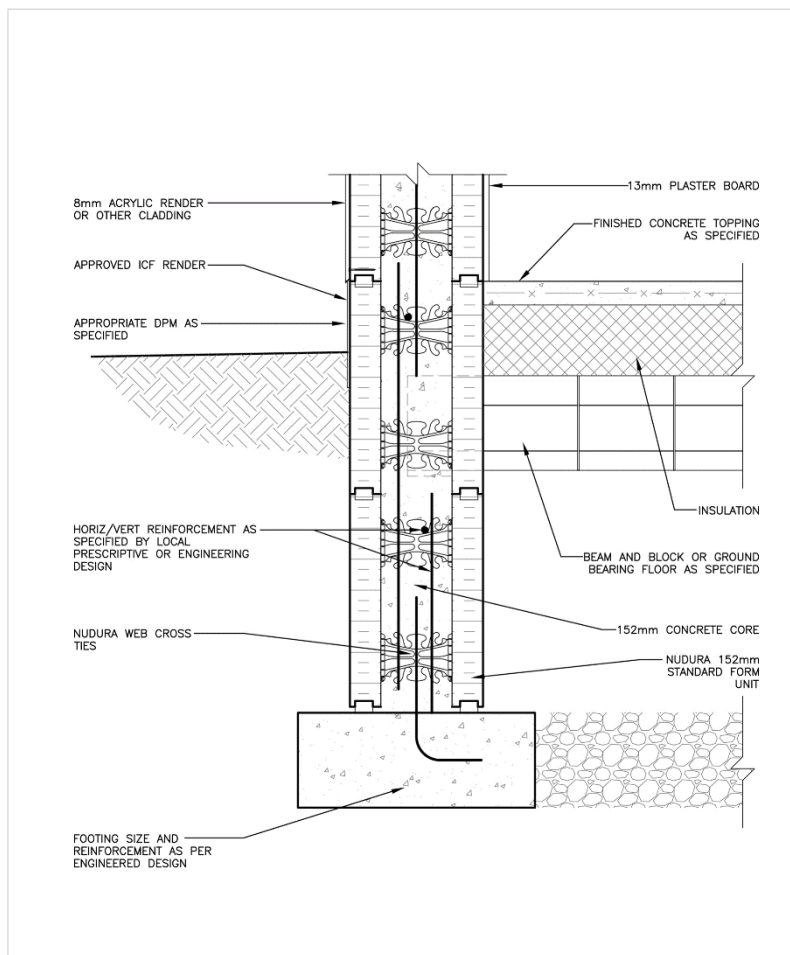


# Linear Thermal Transmittance ( $\Psi$ ) and Temperature Factor ( $f$ )



Certificate :		WRTM – 778 CPG E5 vs. 0		Issued:		22 February 2024	
<div>Issued to: Stuart Sadler</div> <div>Tremco CPG UK</div> <div>Tel: +44 1942 251400</div> <div>Email: stuart.sadler@tremcocpg.com</div> <div>Web: www.tremcocpg.com</div>		General Construction Specification: (see detail below for full construction)	Main/Load-bearing:		152mm (nominal) Dense Concrete Core, $\lambda \leq 2.00$		
			Insulation:		2x 67mm layers of EPS, $\lambda = 0.036$		
			Ground Floor:		Beam and Block, 150mm PUR/PIR		
			Cladding:		9mm of Render OR 102mm Brick OR other Cladding		
		Description:		ICF Wall, Gnd Floor, Beam and Block or Ground			
Reference:		E5	Ground Floor, Standard Wall				



Temperature Distribution

**Linear Thermal Transmittance**  
**W/m.K**

**$\Psi = 0.076$**

**Temperature Factor<sup>3</sup> for Humidity  
and Mould**

**$f = 0.921$**

Calculation prepared by: Matthew Wright MA Physics (Oxon) PGCE

Notes: Calculation based upon internal heat loss areas, applicable in UK Building Regulations and SAP calculations.

- $\Psi$  and  $f$  are only valid for the detail drawn and described above.
- The  $\Psi$  and  $f$  quoted are considered valid for U-value(s) Wall  $\leq 0.248$  Ground Floor  $\geq 0.115$  W/m<sup>2</sup>.K, (allowance of +/- 20%, following the present guidance from B. Anderson, BRE, correspondence dated 24/02/2012, for the UK market). The use of different claddings may affect the U-value slightly, but will have no material impact on the calculated values used here, in this case.
- In dwellings UK regulations indicate that a temperature factor  $f$  that is  $>0.75$  would avoid the risk of mould. For other nations, jurisdictions and climates, other standards may apply. E.g. 0.65; Switzerland: 0.75; Belgium: 0.7; Germany: 0.7; Finland: 0.87. French, German and other standards often do not indicate a single number for acceptable risk, but are dependent on circumstances.
- Calculations have been performed in accordance with:
  - EN ISO 10211: 2017 Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations
  - IP 1/06 & BR 497 : 2016 (2<sup>nd</sup> Edition) Conventions for calculating linear thermal transmittance and temperature factors
 and with reference to the following publications:
  - BS EN ISO 6946 : 2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods
  - BR 443 (2019 Edition) Convention for U-value calculations