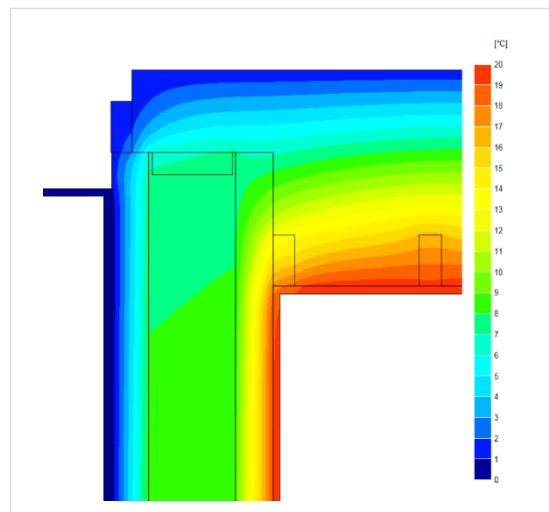
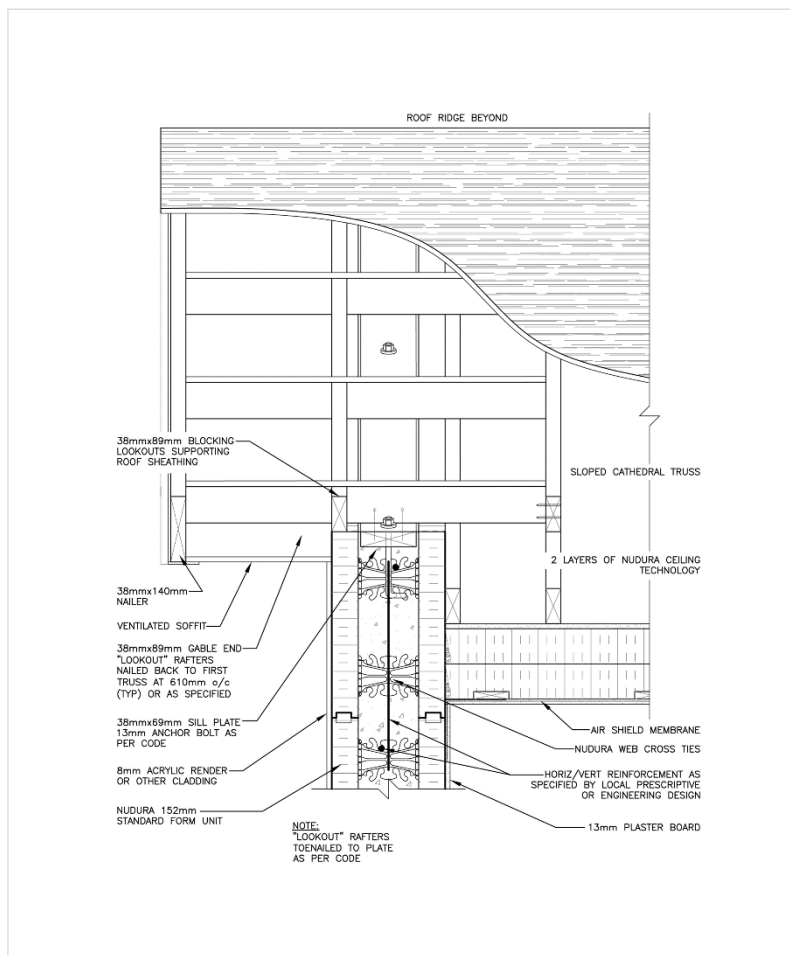


# Linear Thermal Transmittance ( $\Psi$ ) and Temperature Factor ( $f$ )



<b>Certificate :</b>	<b>WRTM – 778 CPG E13 vs. 0</b>	<b>Issued:</b>	<b>22 February 2024</b>
Issued to: Stuart Sadler	<b>General Construction Specification:</b> (see detail below for full construction)	<b>Main/Load-bearing:</b>	152mm (nominal) Dense Concrete Core, $\lambda \leq 2.00$
<b>Tremco CPG UK</b>		<b>Insulation:</b>	2x 67mm layers of EPS, $\lambda = 0.036$
Tel: +44 1942 251400		<b>Roof:</b>	375mm MW @ joists
Email: stuart.sadler@tremcocpg.com		<b>Cladding:</b>	9mm of Render OR 102mm Brick OR other Cladding
Web: www.tremcocpg.com	<b>Description:</b>	<b>ICF Wall, Gable @ Rafters, Minimum Roof U-value 0.1</b>	
	<b>Reference:</b>	<b>E13</b>	<b>Gable @ Rafters, Standard Wall</b>



Temperature Distribution

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

**$\Psi = 0.074$**

**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. conductivity tables.

- $\Psi$  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  $\leq 0.248$ , Roof  $\geq 0.11$  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