

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

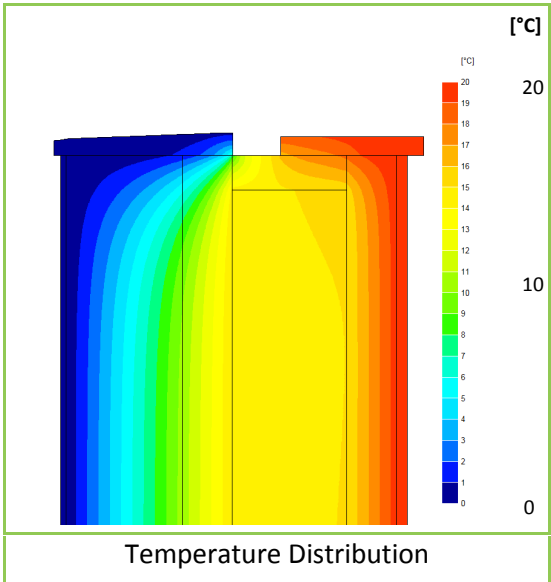
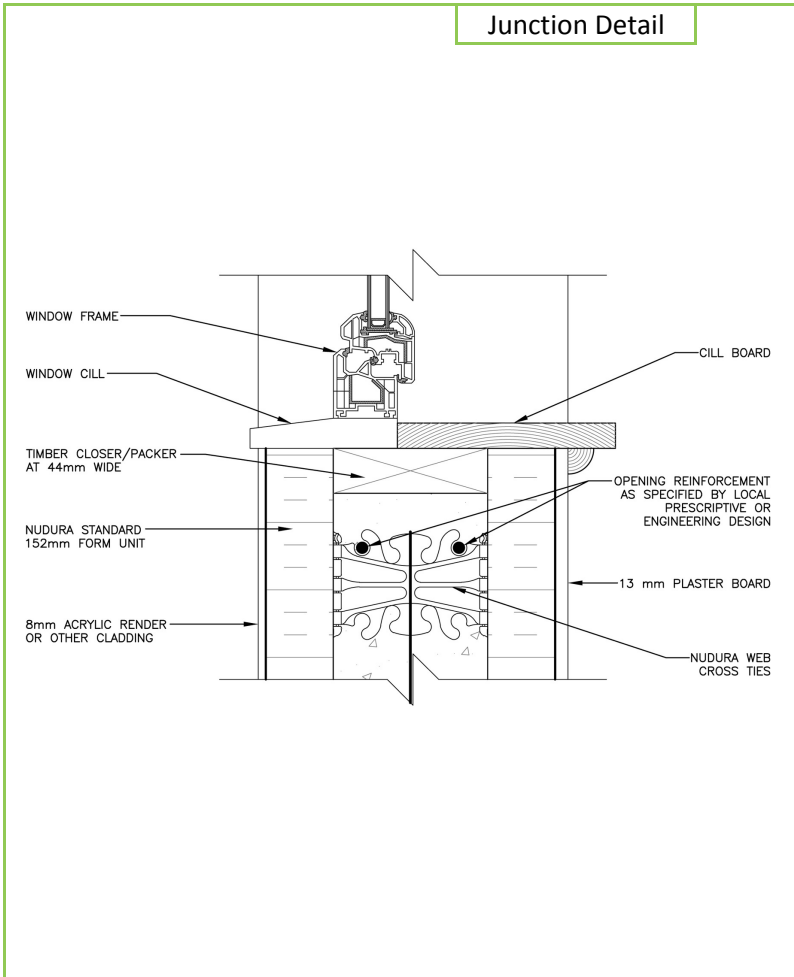
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<b>General Construction Specification:</b> (see detail below for full construction)	Main/Load Bearing::	152mm (nominal) Dense Concrete Core, $\lambda \leq 2.00$
	Insulation:	2x 67mm layers of EPS + exterior extra 25mm, $\lambda = 0.036$
	Cavity:	15mm Cavity behind Brick if present
	Cladding:	9mm of Render OR 102mm Brick OR other Cladding
<b>Description:</b>	<b>ICF Wall, Cill, timber reveal closure</b>	
<b>Reference:</b>	<b>E3</b>	<b>Cill + 152mm extra EPS</b>



Linear Thermal Transmittance W/m.K	
<b><math>\Psi =</math></b>	<b>0.040</b>

Temperature Factor <sup>3</sup> for Humidity and Mould	
<b><math>f =</math></b>	<b>0.938</b>

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  $\leq 0.12$  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 stipulate that a temperature factor  $f$  that is  $>0.75$  would avoid the risk of mould growth. For other nations, jurisdictions and climates, please consult the local building regulations that apply for avoiding mould and condensation. (For example, typical requirements may be: Netherlands: 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\_2007 (British Standards)
  - IP 1/06 & BR497 (BRE Press)
 and with reference to the following publications:  
**EN ISO 6946 (British Standards)**  
**BR443 (BRE Press)**