Thermal Bridging report
Enviroform Solutions Ltd - Wind posts

Document information:

Prepared for:
Liam Brown
Enviroform Solutions Ltd
Unit 16, Milltown Industrial Estate
Upper Dromore Road
Warrenpoint
Co Down
BT34 3PN

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Assessment information:

Prepared by: George Higgs

Signature: George Higgs

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Introduction & Method

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Introduction:	Enviroform Solutions Ltd have supplied constructional drawings of a wind post wrapped in Spaceloft aerogel, to be used in a corner construction adjacent to two window/door jambs. The purpose of this project is to establish the linear heat loss of the insulated wind post via thermal bridging analysis.
Methodology:	The thermal bridging analysis of insulated wind posts has been undertaken in accordance with EN 10211 : 2007 and BR497, using Physibel's 3D heat flow program, TRISCO v13, to obtain the linear thermal transmittance, ψ-value. This value may then be used as a SAP entry for dwellings.

Assumptions

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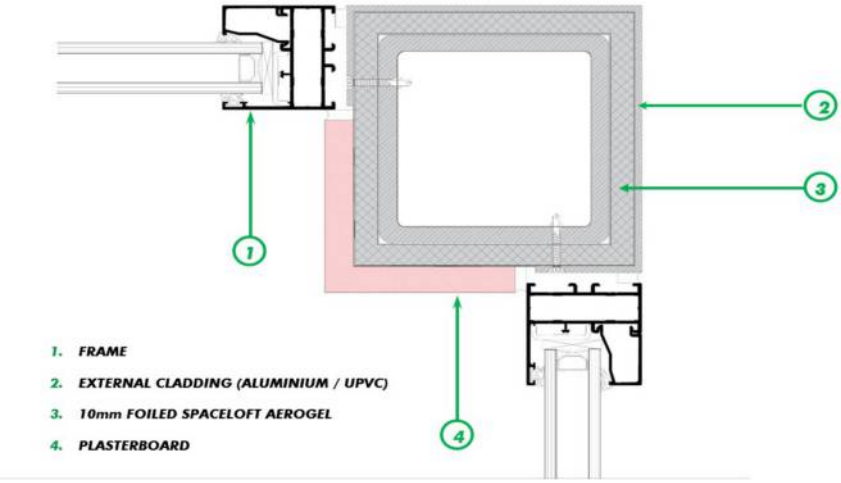
Model inputs and assumptions:

Original drawings: 'img-170927141307.pdf' dated 27 September 2017

Wind post description: The wind post considered is a galvanised steel post, 80mm x 80mm with a 6mm gauge. The panel is wrapped in 10mm foil-faced Spaceloft Aerogel. The post is then finished externally with 3mm aluminium cladding and internally with 12.5mm plasterboard.

Construction: The post is assumed to form a corner within a dwelling and be flanked by windows/door jambs on either side, as shown in Figure 1 below.

Figure 1: Indicative insulated wind post construction



The wind post was built within TRISCO v13 with the details given in table 1 below.

Table 1 – THERM model material & boundary properties

Material	**Thermal conductivity, λ ($Wm^{-1}K^{-1}$)**	**Information source**	**Colour code**
10mm Spaceloft aerogel	0.015	Aspen Aerogels CE marking DoP No SL2013-01	
12.5mm plasterboard	0.21	Value supplied by client	
Unventilated airspace within post	0.235	Calculated in accordance with EN ISO 6946 : 2007	
80x80mm, 6mm Steel wind post	50.0	EN ISO 10456 : 2007	
3mm Aluminium cladding	160	EN ISO 10456 : 2007	
Boundaries	**Resistance, R (m^2K/W) / Temp, T (^oC)**	**Information source**	**Colour code**
Internal (horizontal)	0.13 / 20	EN ISO 6946 : 2007	
External	0.04 / 0	EN ISO 6946 : 2007	

Current findings

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Results:

The linear thermal transmittance of the insulated wind post, when constructed as a corner and with jambs either side, is given in table 2 below.

Table 2: Linear thermal transmittance, ψ-value

Wind post option	80 x 80mm, 6mm gauge
Insulation option	10mm Spaceloft aerogel
Ψ-value ($Wm^{-1}K^{-1}$)	**0.078[1][2]**
Temperature factor, f_{Rsi} (-)	**0.89**

[1] – Value to be entered as an corner junction in SAP (SAP ref E16). Heat loss also includes interfacing jambs (see note [2])
[2] – ψ-value for jambs (SAP ref E4) interfacing the wind post should be set to 0.00$Wm^{-1}K^{-1}$ (see note [1])

Disclaimer: The results and conclusions drawn in this report are based upon the information provided. BEPC accepts no responsibility for the accuracy or validity of information provided.

Limitations of use: The results identified in this report may not be used in support of Agrement certification via the BBA.

Appendix
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Further Information:

Figure A.1: 80x80mm 6mm gauge wind post, insulated with 10mm Spaceloft aerogel