

**Report in Accordance with
BS EN ISO 10077-1:2006**

**Thermal Performance of
Windows, Doors & Shutters**

**Calculation of Thermal Transmittance
Part 1: Simplified Method**

CONFIDENTIAL

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Project: 54mm Halspan Blank with Softwood Frame

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1 Introduction

This document details the thermal performance calculation of the doorset configuration as detailed below.

The frame profile results detailed below are provided by computer simulation using LBL software program THERM 5.2 and validated against proofs in Annex D (D1 to D10) of BS EN ISO 10077-2:2012. The frame profile results detailed below are provided from methods contained in BS EN ISO 10077-1:2006 and in accordance with thermal transmittance requirements detailed in BS EN 14351-1:2006 +A1:2010.

2 Summary of Results

2.1 Frame thermal transmittance (in accordance with BS EN ISO 10077-1:2006)

Frame Profile	Frame Thermal Transmittance (U_f)
Threshold	2.0 W/m ² K
Left jamb	1.3 W/m ² K
Right Jamb	1.3 W/m ² K
Head	1.3 W/m ² K

2.2 Linear thermal transmittance (in accordance with BS EN ISO 10077-1:2006)

Frame Profile	Linear Thermal Transmittance (ψ)
Threshold	0.0056 W/m.K
Left jamb	0.0041 W/m.K
Right Jamb	0.0041 W/m.K
Head	0.0041 W/m.K

2.3 Centre pane U-Value of glazing calculated in accordance with BS EN 673: 2011

Opaque Panel	Centre pane U-value (U_g)
Nominal dimensions 9mm plywood 500kg/m ³ - 36mm 450kg/m ³ - 9mm plywood 500kg/m ³	1.6 W/m ² K

2.4 U-Value



The thermal performance of the doorset (U_w) in accordance with EN ISO 10077-1:2006 is:

1.6 W/m²K

All profile calculations based on BS EN ISO 10077-2:2012

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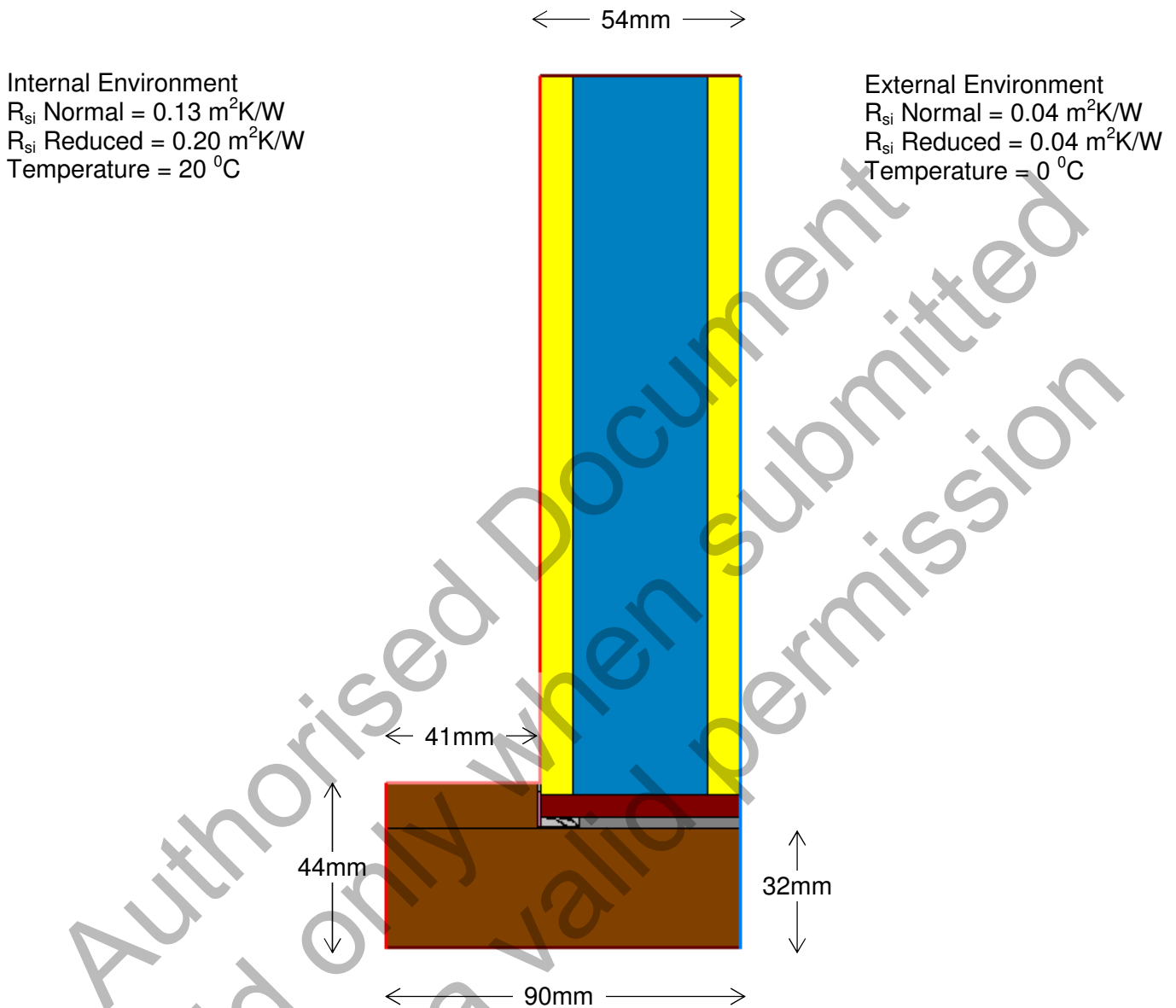
3 Authorisation

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Figure 1. Technical drawing of Head and Jamb profile.

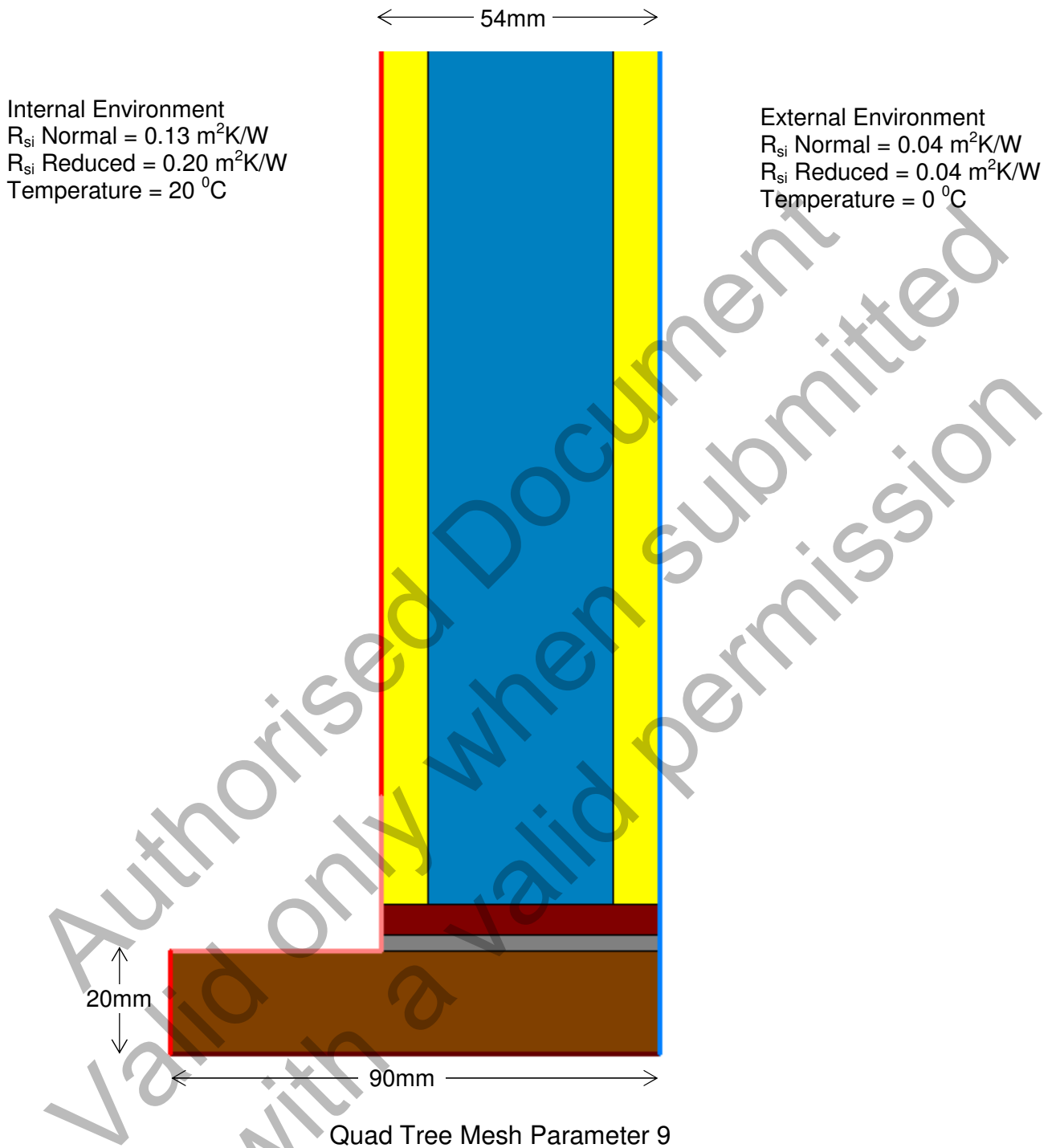


Quad Tree Mesh Parameter 9

	Material	Thermal Conductivity W/(m.K)
	Softwood, Annex A of BS 10077-2 500 kg/m ³	0.13
	PVC Flexible, Annex A of BS 10077-2	0.14
	Timber, BS EN 10456 450 kg/m ³	0.12
	Plywood, BS EN 10456 500 kg/m ³	0.13
	Plywood, BS EN 10456 700 kg/m ³	0.17

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Figure 2. Technical drawing of Sill profile.



	Material	Thermal Conductivity W/(m.K)
	Hardwood, Annex A of BS 10077-2 700 kg/m ³	0.18
	PVC Flexible, Annex A of BS 10077-2	0.14
	Timber, BS EN 10456 450 kg/m ³	0.12
	Plywood, BS EN 10456 500 kg/m ³	0.13
	Plywood, BS EN 10456 700 kg/m ³	0.17

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Figure 3. Drawing of the doorset configuration and overall dimensions (from the internal face)



Internal projected frame area ($A_{f,i}$)	0.265 m ²
External projected frame area ($A_{f,e}$)	0.200 m ²
Opaque panel area of configuration (A_p)	2.416 m ²
Frame area of configuration (A_f)	0.265 m ²
Perimeter length of the panel (l_p)	6.588 m

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