

## 1 Introduction

The thermal performance calculations of the window configurations detailed below were commissioned by Nihan Karaaslan of Standart BM TRADA certification co. under Chiltern Dynamics contract MTP/F08164 (Thermal Contract MTT/F09002) on behalf of FIRAT PLASTIK VE KAUCUK A.S.

The frame profile results detailed below are provided by computer simulation using LBNL software program THERM 5.2 (Validated against proofs in Annex D (D1 to D10) of BS EN ISO 10077-2:2003) and calculated in line with EN10077-2 with whole window U-Value calculated in line with EN10077-1.

Issue Status:

Issue 01	Original report
Issue 02	Re-issue report to clarify calculation methodology

## 2 Summary of Results

Results are shown for FIRAT PLASTIK VE KAUCUK A.S. / S60 range of Extruded PVC-U window products with the Insulating Glass Unit specification as detailed below only. Report covers fully reinforced or partially reinforced windows. Details of simulated profiles and materials are shown in Appendix A. The standard sample window used for analysis is shown in Appendix B. Drawings and Specification of the profiles to be analysed are given in Appendix C. Calculation spreadsheets used in the calculation are attached in Appendix D.

### 2.1 Thermal Conductance of frame with Insulating Panel ( $L_f^{2D}$ ) (in accordance with EN10077-2)

Please refer to the Calculations in Appendix D for values.

### 2.2 Thermal Conductance of frame with Glazing Options ( $L_{\psi}^{2D}$ ) (in accordance with EN10077-2)

Please refer to the Calculations in Appendix D for values.

### 2.3 Centre pane U-Value ( $U_g$ ) of glazing options (calculated in accordance with BS EN 673, see appendix D)

Glazing unit	Centre pane U-value ( $U_g$ )
IGU Option 1 (4 – 16 - 4) External – 4mm Float Glass with or without Low Emissivity coating of $\epsilon_n$ 0.04 Gas fill – 90% Argon / 10% Air Internal – 4mm Float Glass with or without Low Emissivity coating of $\epsilon_n$ 0.04 Spacer – 15.5 mm Standard Aluminium Spacer Bar Sightline Height – 12mm Primary Edge Sealant – 0.25mm x 2 – Polyisobutylene Secondary Edge Sealant – Hot Melt Butyl	1.163 W/m <sup>2</sup> K
Note: For U-Value to apply, IGU must comply with the above specification and have a Low Emissivity coating as listed above applied to surface 2 or surface 3.	

### 2.4 The thermal performance of the window ( $U_w$ ) (in accordance with EN10077-1)

Window Configuration	Whole Window U-Value
As per appendix B with Option 1 IGU	1.6 W/m <sup>2</sup> K