

# WER: Window Energy Performance Certificate

WER Window Energy Rating - In accordance with Approved Document L 2013

Company

**Three Spires Glass**

Project

**Alitherm 800**

Date

**13 Nov 2018**

**A**

**B**

**C**

**D**

**E**

**F**

**G**



**WER:** Window Energy Rating:  
196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL)) **-14.6 kWh/m<sup>2</sup>/Year**

**Thermal Transmittance:** WER U Value of window calculated using the methods and conventions set out in BR443  
Whole window U Value with frame, glazing and glass spacer bar combined.  
Standard window configuration set out by BR443  
U Window: 0.479+0.796+0.205 **1.5 W/m<sup>2</sup>K**

**Frame:** Supplier: Smart Architectual Aluminium  
System: Alitherm 800 Flush  
Outer Frame: ETC819 (1.607)  
Vent Frame: ETC8250 (2.206)  
Transom Mullion: ETC839 (2.090)  
Heat Transfer: 2.005 W/m<sup>2</sup>K x (23.9% Frame) **0.479 W/m<sup>2</sup>K**

**Glazing:** Supplier: Pilkingtons  
Specification: 4/16/4 Optitherm S1 Plus #3/Optiwhite Argon 90%  
Centre Pane, g Value: 1.046 W/m<sup>2</sup>K, 0.58  
Heat Transfer: 1.046 W/m<sup>2</sup>K x (76.1% Glass) **0.796 W/m<sup>2</sup>K**

**Spacer:** Supplier: Ensinger  
Spacer Bar: Thermix TX.N plus  
Heat Transfer: 0.050 W/m<sup>2</sup>K x (4.105m/m<sup>2</sup>) **0.205 W/m<sup>2</sup>K**

**U Value:** Window U Value:  
Calculation to BS EN 14351-1 **1.4 W/m<sup>2</sup>K**