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**From:** A.McQuatt@maxfordham.com  
**Sent:** 16 August 2012 13:16  
**To:** Bruce Sounes  
**Cc:** Grenfell  
**Subject:** Grenfell Tower - U-values  
**Attachments:** FR5000-product-datasheet-Jan-12.pdf  
  
**Categories:** 1279 Grenfell

Bruce,

I have done the following calculations to work out how much insulation that we would need to achieve 0.15 overall. The Celotex FR5000 is a solid PIR board, data sheet attached, I think this is the only type of product that will give us the required performance, Kingspan also so a version of this.

Could you comment on the Spandrel panel? I assume that they would come with the insulation bonded to the inside of the glass then we would frame it out in Plasterboard? If this is wrong let me know and I'll update my calculation.

Thanks,

Andrew

## Grenfell Tower - Insulation

### Wall Panel

Element (Outside to Inside)	Conducti vity W/(m.K)	Thickn ess mm
Zink Cladding (New Rain Screen)	160.0	3
Ventilated Cavity	n/a	50
Insulation (New, Celotex FR5000)	0.021	150
Cast Concrete (Existing)	1.400	250
Insulation (Existing)	0.035	10
Plasterboard (Existing)	0.160	12
<b>Total</b>		<b>475</b>
<b>U-value (W/m2.K)</b>		<b>0.125</b>

### Column

Element (Outside to Inside)	Conducti vity W/(m.K)	Thickn ess mm
Zink Cladding (New Rain Screen)	160.0	3
Ventilated Cavity	n/a	50
Insulation (New, Celotex FR5000)	0.021	100
Cast Concrete (Existing)	1.400	100
Insulation (Existing)	0.035	10
Plasterboard (Existing)	0.160	12
<b>Total</b>		<b>275</b>
<b>U-value (W/m2.K)</b>		<b>0.1810</b>

### Spandrel Panel

Element (Outside to Inside)	Conducti vity W/(m.K)	Thickn ess mm
Glass	1.1	6
Insulation (New, Celotex FR5000)	0.021	100
Insulation (New, Celotex FR5000)	0.021	25
Plasterboard	0.160	12
<b>Total</b>		<b>143</b>
<b>U-value (W/m2.K)</b>		<b>0.16</b>

### Total Area Weighted Average

Building Element	U-Value W/m2.k	Area
Wall Panel	0.1248	5.45
Column	0.1810	2.88
Spandrel Panel	0.1617	1.88
<b>Total Area Weighted Average</b>		<b>0.15</b>

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