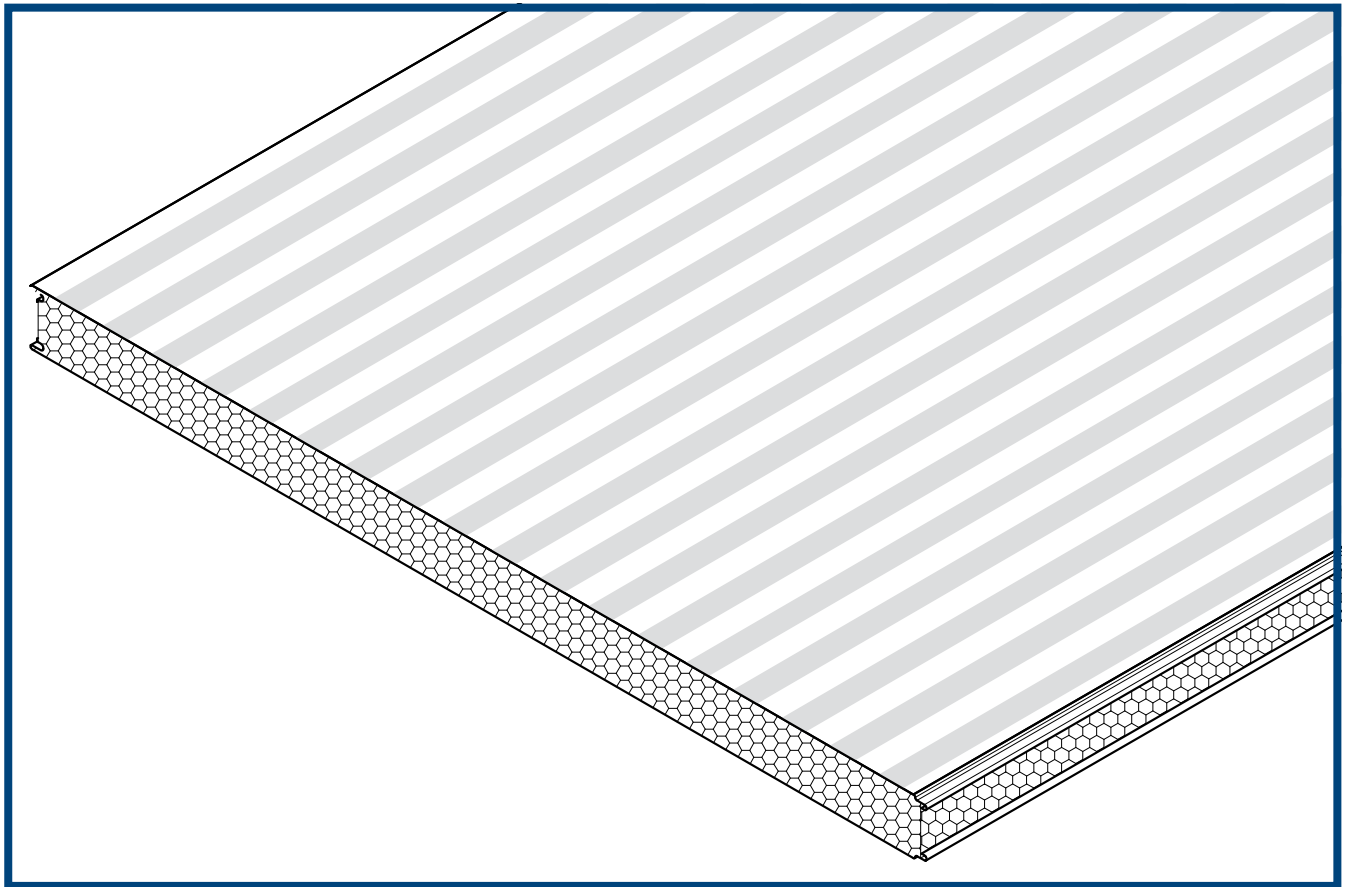


## 1.0 Construction and Applications



### Flushline MkII

Insulated wall and ceiling panels are suitable for all hygiene and temperature controlled enclosures.

### Expanded Polystyrene (EPS)

Each panel comprises two external skins and an insulated core. Skins are pre-painted galvanised steel. They are bonded to an insulated core of expanded polystyrene (EPS) that is fire retardant treated.

For quality assurance, the EPS is manufactured to Australian Standard (AS) 1366.3 (1992).

### Applications

Building solutions include:

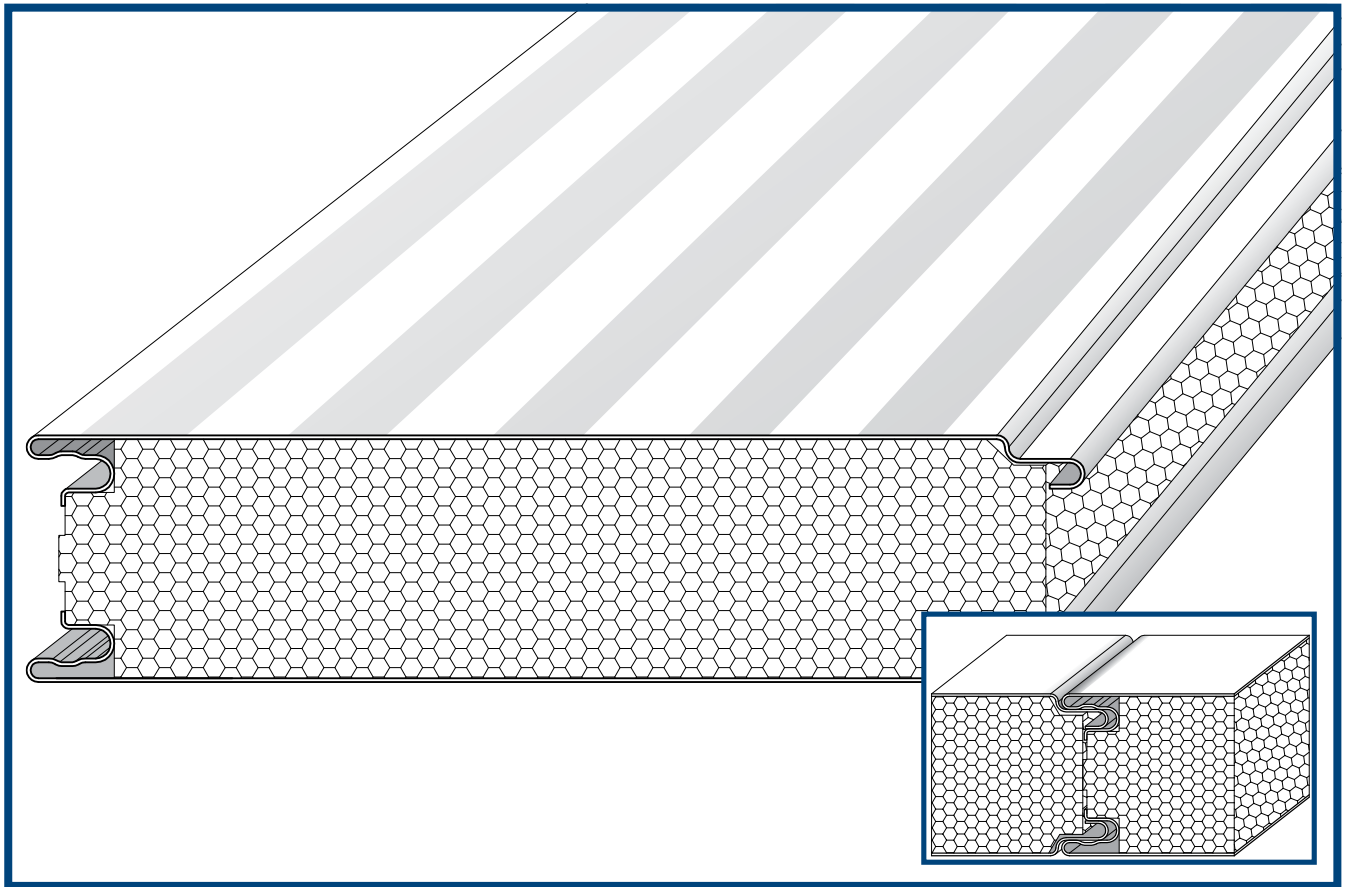
- Cold rooms and freezers
- Food processing facilities
- Clean rooms
- Argicultural growing sheds
- Portable buildings
- Suspended ceilings
- Customised truck bodies
- Offices
- Doors
- Partitions

### Key features

- Effective, proven thermal control
- Simple installation
- Flexible modular application



## 1.1 Specification



### Specification

- **Width of module:**  
1200mm

- **Thickness**  
50mm, 75mm,  
100mm, 150mm,  
200mm, 250mm

- **Length:**  
Minimum:  
1,800mm  
Maximum:  
18,000mm  
Subject to transport  
and handling  
consideration.

- **Core:**  
SL grade Expanded  
Polystyrene (EPS)  
AS 1366.3 (1992)

- **Optional core  
grades:**  
*S, M, H, VH*

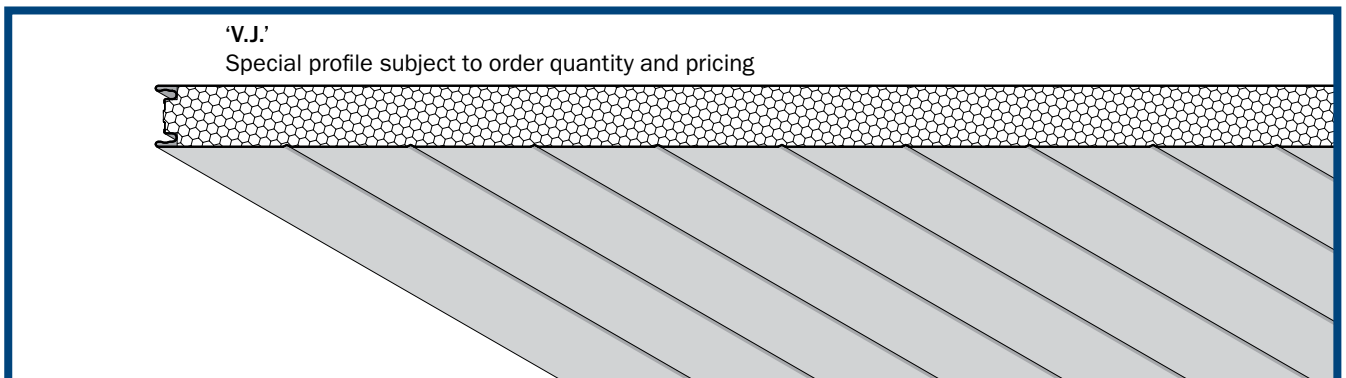
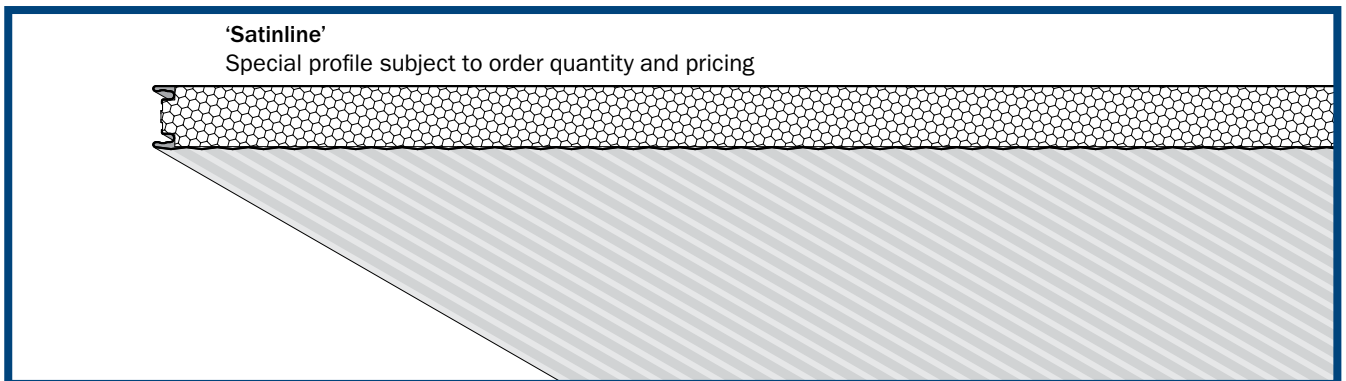
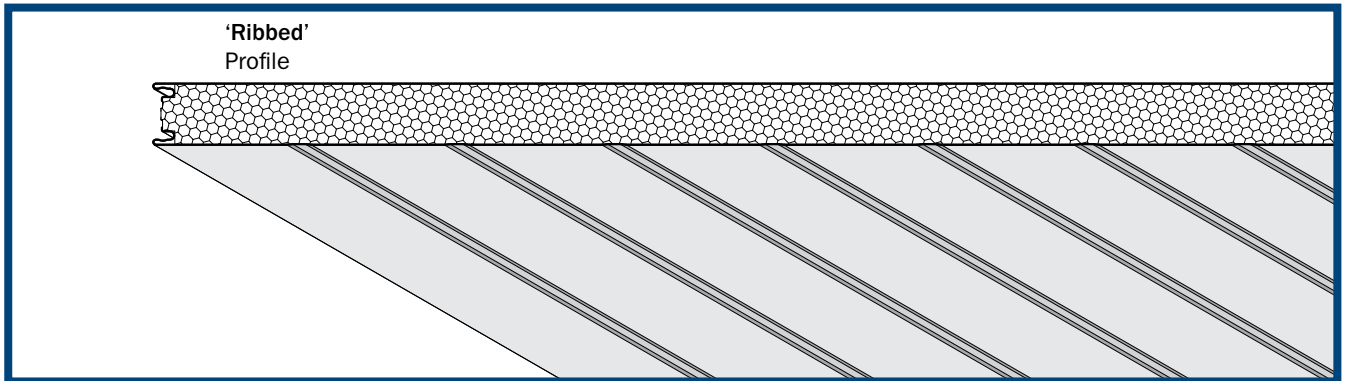
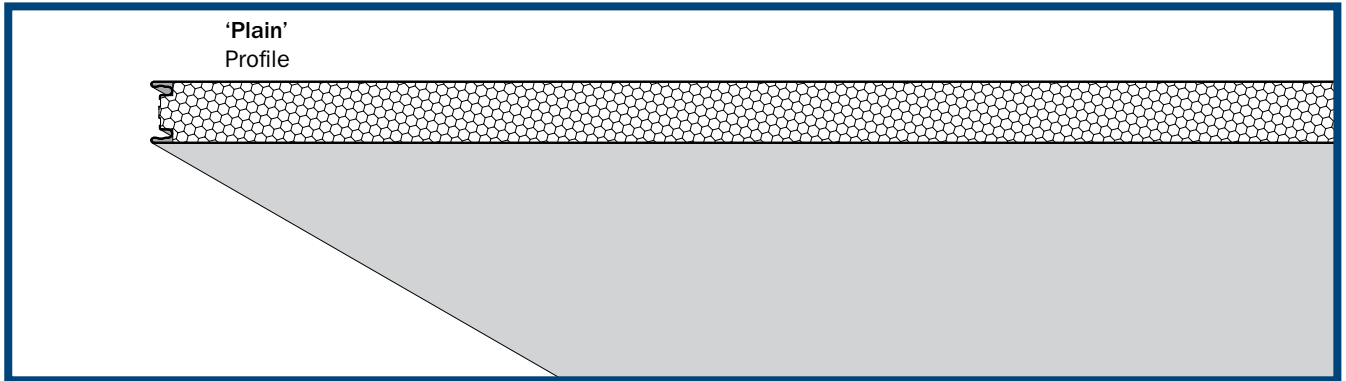
- **BCA Materials  
Group  
Classification:**  
Group 1, 2 or 3  
depending on  
fixings. Certificate  
available on request.

- Retracom Flushline MkII panel is manufactured in white pre-painted galvanized steel skins bonded both sides to a core of fire retardant treated polystyrene foam by a two part heat polymerizing adhesive.

- **Flushline MkII** panel is the highest standard for use in food preparation and processing areas.
- Impervious smooth skins manufactured with a Microban® anti-bacterial paint technology – proven

- to inhibit the growth of surface bacteria that cause odours, food poisoning, allergies and staining – this technology also:
  - helps to protect difficult-to-clean areas,
  - reduces the risk of cross contamination between cleaning, and does not wash off.
- This product is HACCP endorsed.
- Microban® is tested effective against Staphylococcus aureus and Escherichia coli 0157.
- Available thickness as per Colour and Profiles table.

## 1.2 Profile Types



## 1.3 Colours, Profiles and Flatness

### Colour and Profile

Metal Thickness	Colours		Profile	
	Prime Side	Reverse Side	Prime Side	Reverse Side
0.4mm	Surfmist®	Surfmist®	Plain Rib	Plain Rib
0.6mm	Surfmist®	Surfmist®	Plain Rib Satinline VJ	Plain Rib Plain Plain/VJ
0.6mm	Classic Cream™	Classic Cream™	Plain Satinline VJ	Plain Plain Plain/VJ
0.6mm	Gypsum®	Gypsum®	Plain Satinline VJ	Plain Plain Plain/VJ
0.6mm & 0.7mm	Other light colours*	Other light colours*	Plain Satinline VJ	Plain Plain Plain/VJ

\* Other colours are available. Subject to lead times and minimum quantities. These include metallic and other light thermally efficient colours.

### 1.3.1 Flatness Standards (based on visual perspective)

Flatness Standards	Description	Metal Thickness	Profiles
Industrial	Surface deformations are apparent to the eye when observed in natural and artificial light. Not suitable for critical applications.	0.4	Plain
Commercial	Surface deformations are faintly detectable to the eye when observed in artificial direct natural light, and are apparent to the eye when observed in low incident light. Suits many applications.	0.4	Rib
Commercial	Surface deformations are faintly detectable to the eye when observed in artificial direct natural light, and are apparent to the eye when observed in low incident light. Suits many applications.	0.6	Plain (only for Surfmist colour)
Architectural	Surface deformations are difficult to detect and are faintly detectable to the eye when observed in low incident light. The best flatness offered.	0.6	Satinline, VJ
Commercial	Surface deformations are faintly detectable to the eye when observed in artificial direct natural light, and are apparent to the eye when observed in low incident light. Suits many applications.	0.7	Plain
Architectural	Surface deformations are difficult to detect and are faintly detectable to the eye when observed in low incident light. The best flatness offered.	0.7	Satinline, VJ

## 1.4 Span Tables – 0.4mm

Ultimate Load Capacity/Deflection Load Table (kPa) 0.4mm EPS

Span (m)	Panel Thickness (mm)					
	50	75	100	150	200	250
1						
1.5						
2	<b>2.99</b> (1.69)					
2.5	<b>1.91</b> (1.18)	<b>2.87</b> (2.23)	<b>3.82</b> (3.20)			
3	<b>1.33</b> (0.84)	<b>1.99</b> (1.66)	<b>2.66</b> (2.43)	<b>3.15</b> (3.15)		
3.5	<b>0.98</b> (0.62)	<b>1.46</b> (1.26)	<b>1.95</b> (1.88)	<b>2.31</b> (2.31)	<b>3.08</b> (3.08)	
4	<b>0.75</b> (0.47)	<b>1.12</b> (0.97)	<b>1.49</b> (1.48)	<b>1.77</b> (1.77)	<b>2.36</b> (2.36)	<b>2.95</b> (2.95)
4.5	<b>0.59</b> (0.36)	<b>0.89</b> (0.76)	<b>1.18</b> (1.18)	<b>1.40</b> (1.40)	<b>1.86</b> (1.86)	<b>2.33</b> (2.33)
5	<b>0.48</b> (0.28)	<b>0.72</b> (0.61)	<b>0.96</b> (0.96)	<b>1.13</b> (1.13)	<b>1.51</b> (1.51)	<b>1.89</b> (1.89)
5.5	<b>0.40</b> (0.22)	<b>0.59</b> (0.49)	<b>0.79</b> (0.78)	<b>0.94</b> (0.94)	<b>1.25</b> (1.25)	<b>1.56</b> (1.56)
6	<b>0.33</b> (0.18)	<b>0.50</b> (0.40)	<b>0.66</b> (0.65)	<b>0.79</b> (0.79)	<b>1.05</b> (1.05)	<b>1.31</b> (1.31)
6.5		<b>0.42</b> (0.33)	<b>0.57</b> (0.54)	<b>0.67</b> (0.67)	<b>0.89</b> (0.89)	<b>1.12</b> (1.12)
7		<b>0.37</b> (0.28)	<b>0.49</b> (0.45)	<b>0.58</b> (0.58)	<b>0.77</b> (0.77)	<b>0.96</b> (0.96)
7.5			<b>0.42</b> (0.38)	<b>0.50</b> (0.50)	<b>0.67</b> (0.67)	<b>0.84</b> (0.84)
8			<b>0.37</b> (0.33)	<b>0.44</b> (0.44)	<b>0.59</b> (0.59)	<b>0.74</b> (0.74)
8.5				<b>0.39</b> (0.39)	<b>0.52</b> (0.52)	<b>0.65</b> (0.65)
9					<b>0.47</b> (0.47)	<b>0.58</b> (0.58)

The above table lists the ultimate wind load pressure for the strength design and the pressure corresponding to a Span/150 single span deflection ratio for panels with 0.4mm thick G300 steel skins bonded to 'SL' grade expanded polystyrene core. The designer shall determine if the Span/150 deflections ratio is appropriate for the intended use. Loads for a more stringent deflections ratio can be determined by linearly proportioning the loads provided. Differential thermal effects are NOT incorporated in the loads provided.

### Notes

- Capacity Reduction Factor: 0.9
- Results compiled from tests by: Retracom
- Date Tested: Jan 2010
- Reference: 09098-2

## 1.5 Span Tables – 0.6mm

Ultimate Load Capacity/Deflection Load Table (kPa) 0.6mm EPS

Span (m)	Panel Thickness (mm)					
	50	75	100	150	200	250
1						
1.5						
2	4.35 (1.86)					
2.5	2.78 (1.34)	4.17 (2.46)	5.56 (3.45)			
3	1.93 (0.99)	2.90 (1.88)	3.86 (2.69)	5.63 (4.35)		
3.5	1.42 (0.76)	2.13 (1.47)	2.84 (2.14)	4.14 (3.53)	5.52 (4.95)	
4	1.09 (0.58)	1.63 (1.17)	2.17 (1.73)	3.17 (2.91)	4.23 (4.13)	5.28 (5.28)
4.5	0.86 (0.46)	1.29 (0.94)	1.72 (1.41)	2.50 (2.43)	3.34 (3.34)	4.17 (4.17)
5	0.70 (0.37)	1.04 (0.76)	1.39 (1.16)	2.03 (2.03)	2.70 (2.70)	3.38 (3.38)
5.5	0.57 (0.29)	0.86 (0.63)	1.15 (0.97)	1.68 (1.68)	2.24 (2.24)	2.79 (2.79)
6	0.48 (0.24)	0.72 (0.52)	0.97 (0.82)	1.41 (1.41)	1.88 (1.88)	2.35 (2.35)
6.5		0.62 (0.44)	0.82 (0.69)	1.20 (1.20)	1.60 (1.60)	2.00 (2.00)
7		0.53 (0.37)	0.71 (0.59)	1.03 (1.03)	1.38 (1.38)	1.72 (1.72)
7.5			0.62 (0.50)	0.90 (0.90)	1.20 (1.20)	1.50 (1.50)
8			0.54 (0.43)	0.79 (0.79)	1.06 (1.06)	1.32 (1.32)
8.5				0.70 (0.70)	0.94 (0.94)	1.17 (1.17)
9				0.63 (0.63)	0.83 (0.83)	1.04 (1.04)

The above table lists the ultimate wind load pressure for the strength design and the pressure corresponding to a Span/150 single span deflection ratio for panels with 0.6mm thick G300 steel skins bonded to 'SL' grade expanded polystyrene core. The designer shall determine if the Span/150 deflections ratio is appropriate for the intended use. Loads for a more stringent deflections ratio can be determined by linearly proportioning the loads provided. Differential thermal effects are NOT incorporated in the loads provided.

### Notes

- Capacity Reduction Factor: 0.9
- Results compiled from tests by: Retracom
- Date Tested: Jan 2010
- Reference: 09098-2

## 1.6 Panel Weights

Skin Thickness (mm)	Panel Thickness (mm)					
	50	75	100	150	200	250
0.4	8.3	8.7	9.0	9.7	10.4	11.1
0.6	11.6	12.0	12.3	13.0	13.7	14.4
0.7	13.4	13.7	14.1	14.8	15.5	16.2

All dimensions are in kg/m<sup>2</sup> unless otherwise stated.

## 1.7 Panel Spans – Internal Applications

0.6mm Skin Thickness	Panel Thickness (mm)					
	50	75	100	150	200	250

### WALLS

Supporting Ceilings Doors etc (1 kPa UL)	4000	5000	5500	7000	8000	9000
Non Load Bearing	5400	6500	7500	9500	10500	11000

### CEILINGS

Light Duty Maintenance Traffic	3600	4500	5000	6000	7000	7500
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This table is for “typical” use of panel walls and ceilings within a larger fully enclosed building. Applications exposed to wind loads, should be design by an Engineer. Retracom has additional engineering data available for this purpose. An engineering assessment may optimise the design further. All dimensions are in mm unless otherwise stated.

## 1.8 U-Vaule (Overall Heat Transfer Co efficient)

Thermal Conductivity

K-Value Class SL = 0.038 W/mK

Thickness (mm)	50	75	100	150	200	250
U-Value (W/m <sup>2</sup> K)	0.76	0.51	0.38	0.25	0.19	0.15

## 1.9 BCA Part J Energy Efficiency

Total R-Values Included Air Films

Thickness (mm)	50	75	100	150	200	250
R-Value (m <sup>2</sup> K/W)	1.5	2.22	2.8	4.2	5.5	6.8

For additional information refer to Retracom Flushline MkII data sheets.

## 1.10 BCA C1.10a Materials Group to Test Standards ISO 9705 (Fire Test)

Panel Thickness (m)	Aluminium Trims and Fixings	Steel Trims and Fixings	Steel Trims, Fixing and Ceiling Stitch @ 1200c+s
Up to 150	2	2	1
175 to 200	3	2	1

Fire test certificates are available upon request.