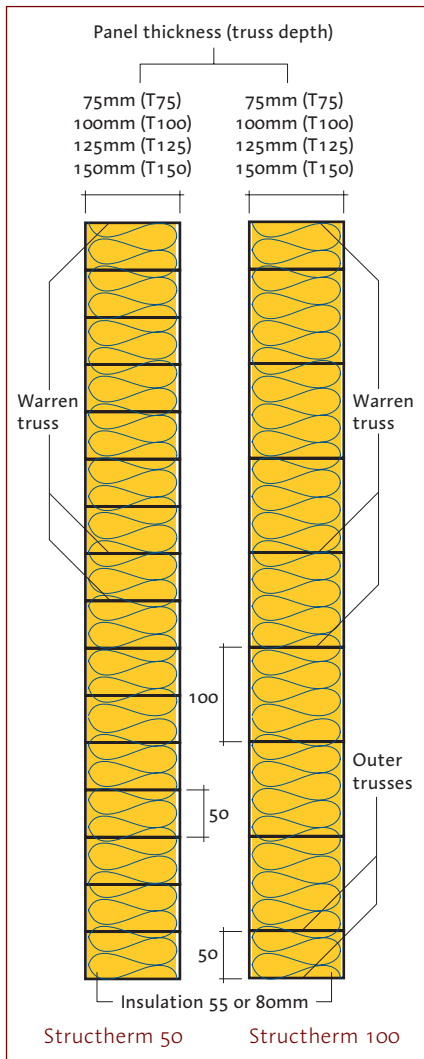


Uniclass	G251:JB1:L6815		
CI/SfB	(21.9)	Jn7	(M2)

STRUCTURAL PERFORMANCE



A structure using any of the three applications of the Structural Insulated Cladding System is able to meet the most rigorous performance requirements for load bearing capacity.



The spacing and depth of the steel wire space frame and the wire diameters determine structural performance. The welded space frame consists of warren trusses interconnected by horizontal and vertical wires. Standard wire diameters are 2mm, although other wire diameters up to 4mm can be used.

The structural characteristics of each panel may therefore be varied considerably because of the permutations possible with the spacing and size of steel reinforcement.

The structural performance of each panel is intimately connected to the thickness of insulation required. See Datasheet 4 on thermal performance.

Table 1 indicates the four panel types, T75, T100, T125 and T150 and the thicknesses and overall dimensions available.

The four panel types are grouped into two series, Structherm 50 and Structherm 100. The grouping into two series is based on the **spacing of the warren trusses** within the space frame, i.e. 50mm and 100mm. Note that in Structherm 100, the two outer trusses are 50mm apart.

Table 2 indicates the variations available for both series and how the panel coding is generated when based only on the type of insulant and reinforcement required.

TABLE 1 - PANEL TYPES

Panel Code	Thickness (mm) (also equals warren truss depth)	Max Overall Dimensions (mm)
T75	75	All panel types are available up to 3600 long (in 50mm increments) and 1000-1500 wide (in 50mm increments)
T100	100	
T125	125	
T150	150	

The standard cladding panel is 2500 x 1200 x 75mm

TABLE 2 - PANEL SERIES

Core Type	Structherm 50 Series			Structherm 100 Series			
	Wire type/grade/weight	G/Steel G	S/Steel S	kg/m ³ (75mm panel)	G/Steel G	S/Steel S	kg/m ³ (75mm panel)
Insulation type	Combined coding			Combined coding			
Expanded polystyrene	E	GE 50	SE 50	4.1	GE 100	SE 100	3.2
Mineral fibre	R	GR 50	SR 50	8.7	GR 100	SR 100	7.8
EXPS	EX	GEX 50	SEX 50	4.9	GEX 100	SEX 100	4.0
Phenolic	PH	GPH 50	SPH 50	5.4	GPH 100	SPH 100	4.5

Panel types T75, T100, T125 and T150 are available as Structherm 50 series or Structherm 100 series



Structural performance

The cladding in each system is effectively monolithic, and applied forces are distributed in two directions across the linked panels, and resolved through the existing structural frame, simultaneously utilising and enhancing its structural capacity.

Flexural capacity: loading and wind resistance

The results contained in table 3 are based on full scale structural testing conducted at universities within the UK and abroad, and demonstrate the flexural capacities of the Structural Insulated Cladding Panel series 50 and 100.

The table contains the data for the T75 panel and illustrates the high levels of performance attainable.

The 100, 125, and 150mm thick panels have greater flexural capacity.

Typical local suction wind loads on structures that are likely to be experienced within the UK will usually range from 0.40 kN/m² to 2.40 kN/m².

Fixing loads

A variety of proprietary fixings are used, designed to suit a specific structural problem. Typically, 2 fixings per m² are used, giving the maximum pull out load per fixing as 2.4 x 0.5 = 1.2 kN.

Typical safe working loads for the anchors used are in excess of 5 kN, therefore giving a factor of safety of 4.2. On-site pull out tests are always undertaken to verify the adequacy of the proposed fixing.

TABLE 3 - FLEXURAL CAPACITY OF THE T75 50 SERIES & T75 100 SERIES PANELS

Span of Panel (m)	Max Allowable Un-factored Wind Load (kN/m ²) (rendered one face only) T75 50 Series	Max Allowable Un-factored Wind Load (kN/m ²) (rendered one face only) T75 100 Series
1.0	6.3	3.1
1.2	4.4	2.2
1.5	2.8	1.4

