

Loadings

Tables 04 and 05 give the allowable unfactored roof and wall loads for AS35 panels with 0.5mm weather sheet

and 0.4mm liner. Load tables for other steel thicknesses are available from Steadmans.

Table 04: Unfactored roof loads for AS35 panels - medium and light coloured panels (kN/m²)

	T (mm)	Span (m)	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00
Single span	40	Downward	2.24	1.92	1.67	1.47	1.30	1.16	1.04	0.85
		Suction	-2.62	-2.24	-1.94	-1.70	-1.50	-1.33	-1.19	-1.02
	60	Downward	3.26	2.85	2.51	2.23	1.99	1.78	1.61	1.46
		Suction	-3.80	-3.32	-2.92	-2.58	-2.30	-1.94	-1.65	-1.41
	80	Downward	4.34	3.84	3.42	3.05	2.74	2.46	2.23	2.02
		Suction	-5.06	-4.47	-3.97	-3.54	-2.94	-2.47	-2.11	-1.82
100	Downward	5.47	4.88	4.36	3.91	3.52	3.18	2.88	2.62	
	Suction	-6.37	-5.67	-5.07	-4.30	-3.57	-3.01	-2.57	-2.22	
Double span	40	Downward	2.24	1.92	1.67	1.47	1.30	1.16	1.04	0.85
		Suction	-2.62	-2.24	-1.94	-1.70	-1.50	-1.33	-1.19	-1.02
	60	Downward	2.79	2.46	2.20	1.99	1.81	1.66	1.53	1.42
		Suction	-3.80	-3.32	-2.92	-2.58	-2.30	-1.94	-1.65	-1.41
	80	Downward	3.11	2.74	2.45	2.21	2.01	1.84	1.70	1.58
		Suction	-5.06	-4.47	-3.97	-3.54	-2.94	-2.47	-2.11	-1.82
	100	Downward	3.44	3.03	2.70	2.44	2.21	2.03	1.87	1.73
		Suction	-6.37	-5.67	-5.07	-4.30	-3.57	-3.01	-2.57	-2.22

Calculated to ECCS document 115: 2001 with deflection limits: downward L/200, suction L/150 and tolerance of L/600 between purlin bearing planes (where L = purlin spacing). Temperature range: summer – external 65°C, internal 25°C; winter – external 0°C, internal 20°C

Table 05: Unfactored wall loads for AS35 panels - dark coloured panels (kN/m²)

	T (mm)	Span (m)	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00
Single span	40	Pressure	1.94	1.65	1.42	1.23	1.08	0.95	0.84	0.75
		Suction	-2.35	-2.00	-1.72	-1.49	-1.31	-1.15	-1.02	-0.91
	60	Pressure	2.93	2.55	2.23	1.96	1.74	1.55	1.38	1.24
		Suction	-3.51	-3.05	-2.67	-2.35	-2.08	-1.86	-1.66	-1.49
	80	Pressure	4.00	3.52	3.12	2.77	2.47	2.21	1.99	1.76
		Suction	-4.75	-4.19	-3.71	-3.29	-2.94	-2.55	-2.19	-1.90
100	Pressure	5.11	4.54	4.05	3.62	3.24	2.92	2.63	2.38	
	Suction	-6.04	-5.37	-4.79	-4.28	-3.65	-3.10	-2.66	2.31	
Double span	40	Pressure	1.94	1.65	1.42	1.23	1.08	0.95	0.84	0.75
		Suction	-2.35	-2.00	-1.72	-1.49	-1.31	-1.15	-1.02	-0.91
	60	Pressure	2.80	2.49	2.23	1.96	1.74	1.55	1.38	1.24
		Suction	-3.51	-3.05	-2.67	-2.35	-2.08	-1.86	-1.66	-1.49
	80	Pressure	3.11	2.76	2.48	2.25	2.07	1.91	1.77	1.65
		Suction	-4.75	-4.19	-3.71	-3.29	-2.94	-2.55	-2.19	-1.90
	100	Pressure	3.44	3.04	2.73	2.47	2.26	2.09	1.94	1.81
		Suction	-6.04	-5.37	-4.79	-4.28	-3.65	-3.10	-2.66	-2.31

Calculated to ECCS document 115: 2001 with deflection limits: pressure L/150, suction L/150 and tolerance of L/600 between purlin bearing planes (where L = purlin spacing). Temperature range: summer – external 80°C, internal 25°C; winter – external -10°C, internal 20°C



Fire

AS35 panels have been tested by LPCB to LPS 1181:2003. Standard AS35 panels achieve grade EXT-B; AS35 Firefighter wall panels achieve grade EXT-A15; AS35 Firefighter Plus wall panels achieve grade EXT-A30. Table 06 shows the test results.

When tested to BS 476:7 1987 AS35 panels achieve Class 1 surface spread of flame (Euro Class B), equivalent to Class 0 surface spread of flame as described in Approved Document B. When tested to BS 476:3 1975 AS35 panels achieve an FAA/SAA rating.

Table 06: Fire resistance results to LPS 1181:2003

LPCB ref. no	Panel	Thickness (mm)	Fire resistance (minutes) BS 476:22	Integrity of insulation (mins.) BS 476:22	Grade	Core
635a/01	AS35/1000 PIR (roof and wall panels)	40, 60, 80, 100	N/A	N/A	EXT-B	HCFC-free PIR
635a/02	AS35/1000 Firefighter (wall panels)	60, 80, 100	125	20	EXT-A15	HCFC-free PIR
635a/03	AS35/1000 Firefighter Plus (wall panels)	100	125	46	EXT-A30	HCFC-free PIR

Wall panels covered by LPCB reference 635a/01, 635a/02 and 635a/03 must be laid vertically
 Wall panels require external stitching at side laps at 300mm centres
 Roof panels require external stitching at side laps at 450mm centres
 Firefighter Plus panel requires site applied graphite tape, contact Steadmans Technical Department for further details

Thermal

The PIR insulation within AS35 panels has a thermal conductivity of 0.019W/mK; that gives the panels their good thermal performance (Table 07). The large panel dimensions and the edge lap seals give AS35 panel systems good resistance to air leakage.

Biological

AS35 panels are unaffected by mould, fungi or mildew. They do not support vermin.

Table 07: U-values of AS35 panels

Panel thickness	U-value* (W/m²K)
40	0.43
60	0.30
80	0.23
100	0.19

U-values determined using finite element analysis to BS EN ISO 10211-1:1996 'Thermal bridging in building construction - Heat flows and surface temperatures Part 1. General calculation methods' and following the methods and conventions in BR 443 'Conventions for U-value calculations'.



Durability

AS35 panels have a predicted service life of 40 years. Time to first maintenance depends upon the finish and the environmental conditions but can be as high as 30 years. Coatings will degrade more rapidly in industrial or marine air conditions and dark finishes will fade more rapidly than light ones. Table 08 gives the time to first repainting for panels finished with standard Plastisol colours.

Service life can be increased by treating cut edges with site applied touch up paint at the time of cutting and by following the guidance on inspection and maintenance on page 34 of the Steadmans AS35 technical brochure.

Colours

To view standard colours see page 7 of the Steadmans AS35 technical brochure or go to the colour chart on our website at: www.steadmans.co.uk/products/colour.htm

Table 08: Life to first full repainting for plastisol coated profiles

Colours	Wall profiles		Roof profiles	Table based on data from Dobel. Steel from other producers may have different durability values.
	Inland	Coastal*		
Group 1	30	25	25	
Group 2	25	20	20	

*within 1.5 miles from lake or sea shoreline

- Group 1: Bamboo, Buttermilk, Goosewing Grey, Ivory, Merlin Grey, Moorland Green, Mushroom, New Grey, Olive Green, Pigeon Grey, Wedgwood Blue, White, Willow.
- Group 2: Black, Cornflower Blue, Country Green, Golden Glow, Golden Yellow, Forest Green, Jade, Juniper Green, Linden Green, New Red, Ocean Blue, Pacific Blue, Poppy Red, Saffron, Sage Green, Slate Blue, Tangerine Orange, Terracotta, Vandyke Brown.

