

# 70 - Steadmans Roofing & Cladding Systems

## AS35 Insulated Panels

### Description

AS35 Panels consist of 0.5 and 0.4mm sheets of hot-dip galvanised or Aluzinc coated steel, which can be finished with Plastisol, Nova or other polymeric coating. The weather sheet and liner are autobonded to a core of polyisocyanurate insulation to produce strong, rigid panels.

### Thermal Performance

When installed, AS35 Panels provide a warm construction, with the whole building enclosed within the insulation envelope, so minimising thermal stress on structural elements. As there are no metal spacers or rails between the cladding sheets the panels provide continuity of insulation without repeating thermal bridging.

The polyisocyanurate insulation core has low thermal conductivity therefore U-values can be achieved with thinner panel depths than those containing less effective insulants: alternatively, depth for depth, AS35 Panels may be used to give substantially lower U-values and so improve the overall thermal performance of the building.

### Long Term Performance

Long-term thermal performance depends on components retaining their design performance without any significant deterioration in the thermal resistance of the insulant.

**Ageing:** One of the key contributors to the high performance of Steadmans AS35 Panels is the zero-ozone depletion blowing agent which is embodied within the insulant's closed cell structure. The migration of the blowing agent from the insulant could, over time, result in a loss of performance: however, the metal faces of the panels prevent the diffusion of the blowing agent and ensure its retention within the insulation, so maintaining its thermal performance. The choice of blowing agent used in the manufacturing process maintain the panels' performance at all working temperatures.

**Edge Effects:** unsealed cut edges to panels can also cause a small amount of blowing agent loss: however, Steadmans' use of edge seals at panel junctions minimises the area of open edges.

**Differential Movement:** Rigorous quality control during manufacture ensures the insulation core is fully bonded to the metal facing panels and prevents delamination occurring as a result of differential expansion between the weather sheet or liner and the insulation. The thermal insulation core also reduces temperature fluctuations of the weather sheet. However, where high solar loads are anticipated the specification of a light coloured finish is advised.

Overall, the quoted U-values for Steadmans' panels make an appropriate allowance for ageing, ensuring the building will continue to benefit from the panel's excellent thermal performance.

Panel Dimensions of AS35 Panels	
Cover	1m
Standard lengths	1.8 - 12m (others on request)
Thickness	40, 60, 70, 80, 90, 105, 115, 120 & 137mm
Standard cutbacks	25 - 250mm (also available without cutbacks)

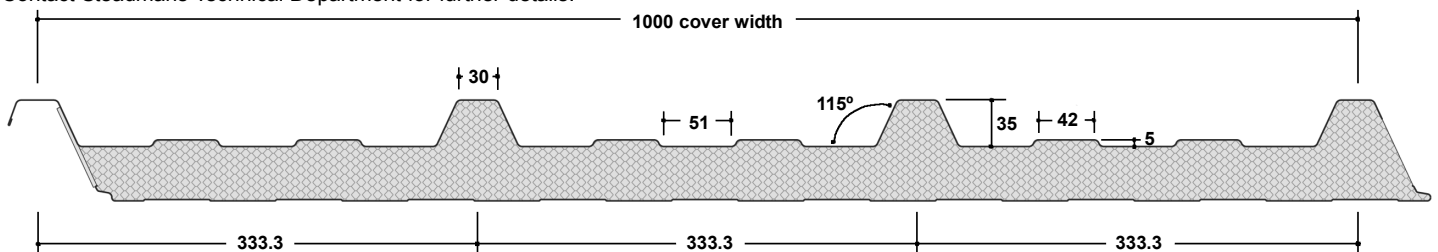
U-values of AS35 Panels	
Panel thickness	U-value* (W/m <sup>2</sup> K)
40	0.50
60	0.35
70	0.30
80	0.26
90	0.23
105	0.20
115	0.18
120	0.17
137	0.15

U-values determined using finite element analysis to BS EN ISO 10211:2007. Due to changing regulatory requirements details and panels thicknesses available may change. Contact Steadman Technical Service for further details.

### Fire Resistance Results to LPS 1181:2005

LPCB ref. no	Panel	Thickness (mm)	Fire resistance (minutes) integrity (BS 476-22:1987)	Fire resistance (minutes) insulation (BS 476-22:1987)	Grade	Core
635a/04	AS35/1000 Roof panels	40, 60, 70, 80, 90, 105, 115 & 120	n/a	n/a	EXT-B	HCFC-free PIR
635a/04	AS35/1000 Wall panels	40, 60, 70, 80, 90, 105, 115 & 120	n/a	n/a	EXT-B	HCFC-free PIR
635a/05	AS35/1000 Firefighter wall panels	60, 70, 80, 90, 105, 115 & 120	120	15	EXT-A15	HCFC-free PIR
635a/06	AS35/1000 Firefighter Plus wall panels	105, 115 & 120	120	30	EXT-A30	HCFC-free PIR

Wall panels covered by LPCB reference 635a/04, 635a/05 and 635a/06 must be laid vertically. Wall panels require external side lap stitching at 300mm centres. Roof panels require external side lap stitching at 450mm centres. Roof and walls panels covered by LPCB certificates 635a/04, 635a/05 and 635a/06 require a 6mm x 5mm NFRC Class A butyl tape to be used in the side lap joints. Firefighter Plus panels requires site applied graphite tape. Contact Steadmans Technical Department for further details.



**A. Steadman & Son**  
 Warnell Welton  
 Carlisle Cumbria CA5 7HH  
 Tel : 01697 478 277  
 Fax : 01697 478 530  
 Email : info@steadmans.co.uk

**A. Steadman & Son - Ireland**  
 Tel : 02840 660 516  
 Fax : 02840 660 517  
**A. Steadman & Son - Scotland**  
 Tel : 01506 437 753  
 Fax : 01506 440 716



Quality since 1911

www.steadmans.co.uk