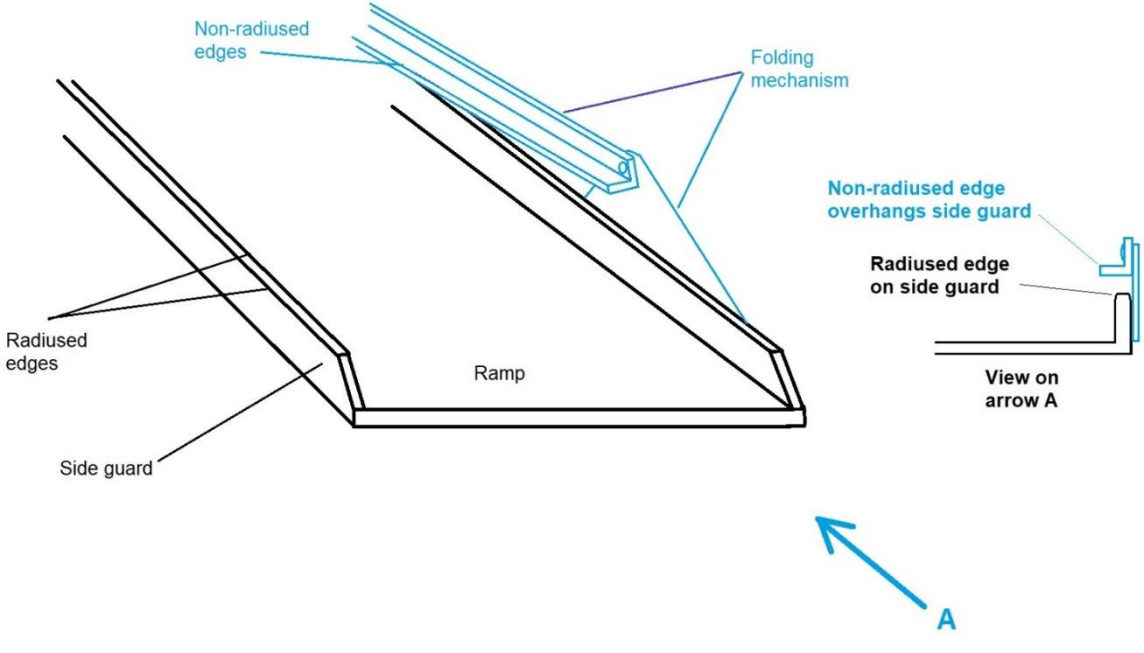


PAS Technical Interpretation	2012	Interpretation number	033
Title	PAS 2012 TI 033 Side Guards		
PAS Version	2012 - 1 : 2019		
Clause(s)	5.3.2 Side guards NOTE Side guards on ramps are also known as upstands. 5.3.2.1 When deployed, the ramp shall be provided with side guards along either side of its surface. e) have an edge radius of ≥ 0.5 mm on all edges contactable with a sphere of diameter (100 ± 5) mm;		
Enquiry	Clause 5.3.2.2 e) requires an edge radius of at least 0.5mm on the side guards. The side guards do have this radius on their contactable edges. However, along part of the length of the ramp, the external mechanism's linkage overhang the side guards, and this linkage does not feature the required radius. A wheelchair ascending or descending the ramp, would contact this linkage before it contacted the side guard on the right hand side of the ramp. It isn't clear how much strength the linkage has, but I'd imagine some deflection may occur if it were contacted with some force. The linkage is not intended to function as a side guard and the side guards themselves are compliant, but as the first point of contact with the wheelchair, should the linkage be classed as a side guard and therefore, require the radius? It seems to me that the 'spirit' of the PAS requiring the side guards to have a radius is to reduce the probability of wheel/tyre damage when boarding and alighting – so there is an argument that anything which fulfils some sort of role in preventing the wheelchair from coming off the ramp should also have a radius.  The diagram illustrates a ramp with side guards. The main ramp surface is labeled 'Ramp'. On either side, there are 'Side guard' components. The edges of the ramp and side guards are labeled 'Radiused edges'. A 'Folding mechanism' is shown on the right side of the ramp. A 'Non-radiused edge' is shown overhanging the side guard. A 'View on arrow A' is shown, indicating a cross-section of the side guard and the folding mechanism. The side guard has a 'Radiused edge on side guard' and the folding mechanism has a 'Non-radiused edge overhangs side guard'.		

Decision	Any item that overhangs the side guard and restricts the ramp's available width, and which might therefore potentially perform the function of a side guard becomes part of the side guard in those affected areas and therefore must comply with all the requirements relating to side guards.	
Rationale	From 5.3.2.1 we know that the surface of the ramp shall have side guards along either side of its intended surface, and from 5.3.4.1 we know that the ramp width must be measured between the side guards. From the NOTE we know that side guards can be part of the ramp structure or bodywork, and not necessarily items that a manufacturer has designated as a side guard. Therefore we can see that any item that bounds the available width of the ramp surface becomes a side guard. References NOTE Side guards are necessary to reduce the risk of the wheelchair falling off the side of the platform. Side guards may be an integral part of the ramp structure or a part of the surrounding WAV bodywork or a combination of the two. For example, the WAV rear bumper in the area towards the top of the ramp could be used as a side guard. 5.3.2.1 When deployed, the ramp shall be provided with side guards along either side of its surface. 5.3.4.1 The width of a ramp measured between the side guards at any point along its length shall be ≥ 500 mm. The width shall be determined in accordance with B.3.9 From 5.3.2.1 we know that Side Guards must be along either side edge of the ramp surface, and 5.3.4.1 Additional note: B.3.9 of PAS 2012-1 : 2025 will be re-worded to require the ramp width measurement to take into account any intrusion other than the side guards, that reduces the available width of the working surface.	
Effective date	22 nd April 2025	Signed off by: IN and SP