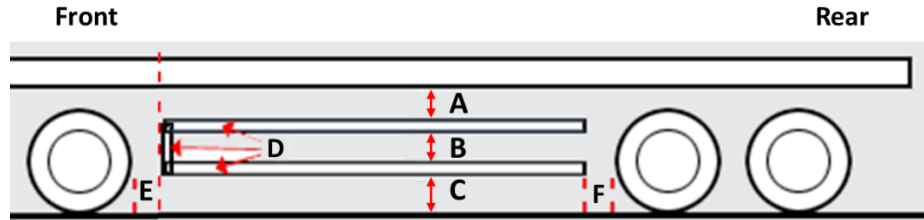


An LPD meets the strength requirement if it is capable of withstanding **450 pounds (2 kilonewtons)** of force applied perpendicularly to any part of its surface by the center of a flat, circular plate of diameter no greater than **8.7 inches (220 mm)**, such that the deflection of the loaded side guard measured at the center of the plate does not exceed (1) **5.9 inches (150 mm)** anywhere, or (2) **1.2 inches (30 mm)** in the rearmost **9.8 inches (250 mm)**. A manufacturer may also demonstrate compliance using a valid engineering calculation, such as finite element analysis.²

2. Additional dimensional criteria for rail-style LPDs



A	13.8 inches (350 mm) max
B	11.8 inches (300 mm) max
C	13.8 inches (350 mm) max
D	3.9 inches (100 mm) min
E	11.8/3.9 inches (300/100 mm) max*
F	11.8 inches (300 mm) max

*The gap between the LPD's leading edge and the wheel, wheel arch, or other permanent vehicle structure should not exceed **11.8 inches (300 mm)**. A **turned-in vertical bar** connecting the forward ends of the horizontal rails should be incorporated if the forward gap exceeds **3.9 inches (100 mm)**. The bar need not be turned in or can be omitted if the distance is less than 3.9 inches (100 mm).

3. Vehicle weight threshold and flexibility of design

LPDs can be installed on **Class 3** and above vehicles, which have a gross vehicle weight rating (GVWR) of **10,000 pounds (4,536 kg)** and higher.

Acceptable LPD protection can be provided by **any combination** of vehicle body, fuel tanks, tag axles, tool boxes, or purpose-built side guards comprising a smooth surface flush with the vehicle sidewall, meeting the dimensional and strength specifications set forth above.



Graphic adapted from U.S. Department of Energy

¹ This document was prepared for the Office of the Assistant Secretary of Research and Technology.

² A third option for demonstrating strength compliance may be type approval by the United Kingdom Department for Transport [Vehicle Certification Agency](#) or other recognized side guard homologation with equal or greater stringency. An LPD with such type approval that also meets the Volpe dimensional criteria may be considered to meet the Volpe best practice specification.