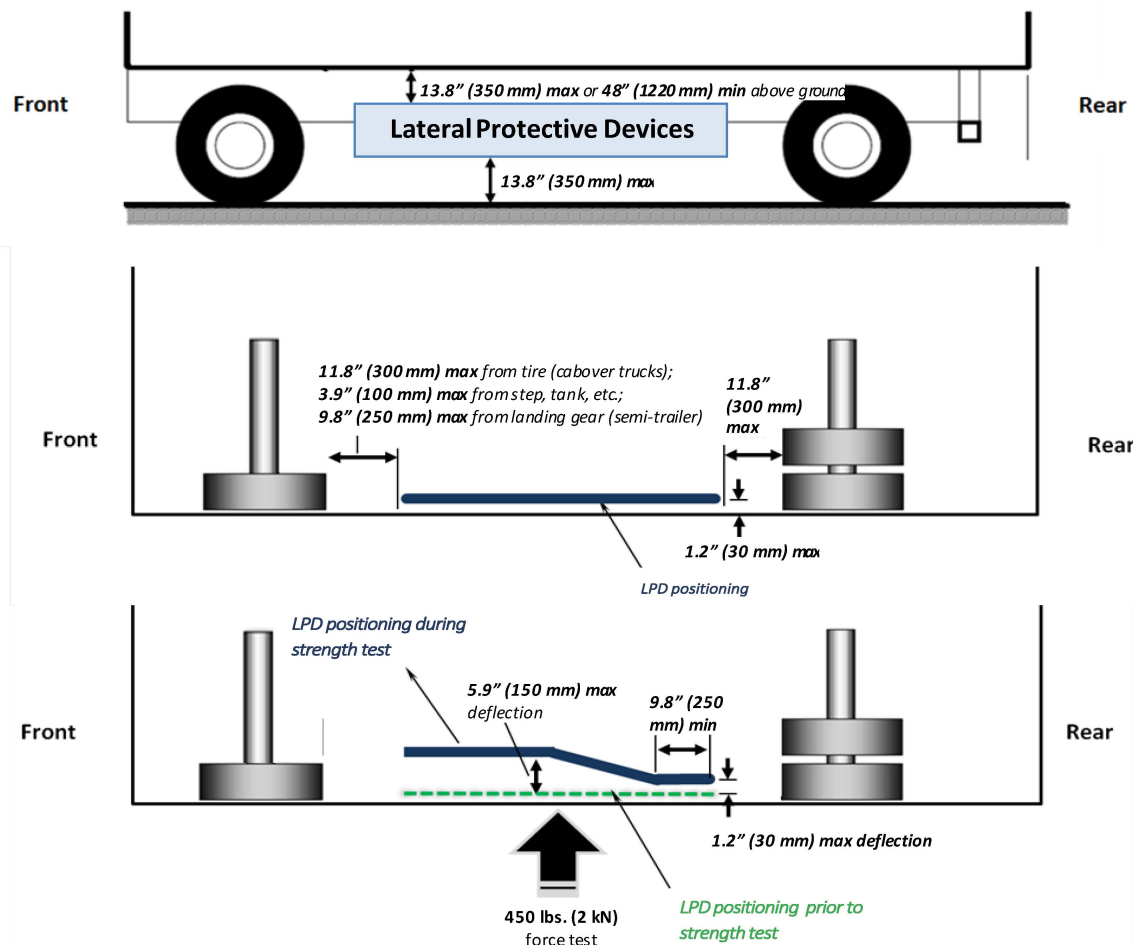


Lateral Protective Device Best Practice Specification

DOT-VNTSC-OSTR-16-05

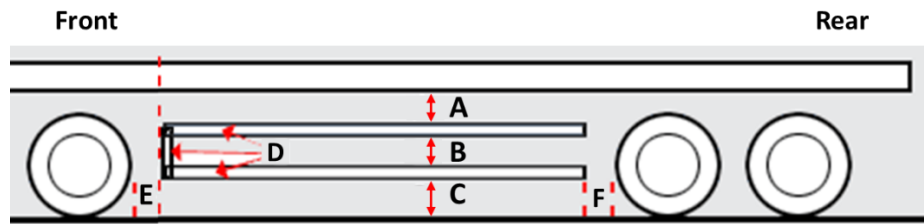
This document is intended to be used by (1) public or private medium/heavy-duty truck fleets considering adding lateral protective devices (LPDs), also known as side guards; (2) jurisdictions or customers that require LPDs through policy or procurement; (3) manufacturers of LPDs; and (4) truck manufacturers and dealers.¹ The best practice specifications below are based on previously published Volpe reports (Reports [DOT-VNTSC-DCAS-14-01](#) and [DOT-VNTSC-SFMTA-16-01](#)) and may be referred to as the “Volpe LPD best practice specification.” This document can be used as a basis for design, production, testing, review, and procurement of LPDs and LPD-equipped vehicles.

I. Dimensional and strength criteria



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.

Class 3 - 10,001 to 14,000 lbs			
Walk-in	Box Truck	City Delivery	Heavy-Duty Pickup
Class 4 - 14,001 to 16,000 lbs			
Large Walk-in	Box Truck	City Delivery	
Class 5 - 16,001 to 19,500 lbs			
Bucket Truck	Large Walk-in	City Delivery	
Class 6 - 19,501 to 26,000 lbs			
Beverage Truck	Single-Axle	School Bus	Rack Truck
Class 7 - 26,001 to 33,000 lbs			
Refuse	Furniture	City Transit Bus	Truck Tractor
Class 8 - 33,001 lbs & Over			
Cement Truck	Truck Tractor	Dump Truck	Sleeper

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.