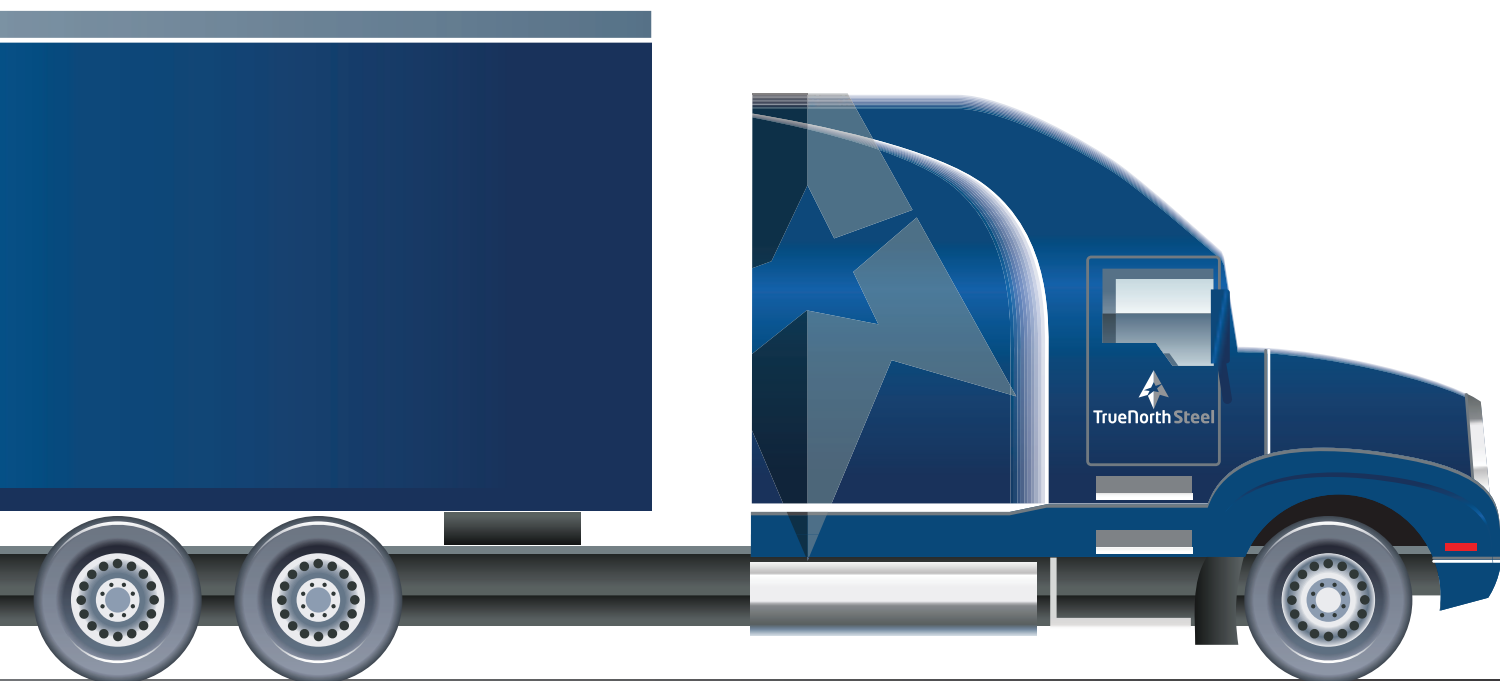


Bridge Live Load Guide



TRUENORTH STEEL BRIDGE LIVE LOAD GUIDE

TrueNorth Steel has provided this basic guide to AASHTO (American Association of State Highway and Transportation Officials) Bridge Live Loads to assist with understanding the different loading conditions created by different truck configurations. For more complete guidance refer to AASHTO LRFD (Load and Resistance Factor Design) Bridge Design Specifications.

H20, HS20, H25, HS25 – AASHTO Standard Specification for Highway Bridges

An “H” series truck designates a two-axle truck, while an “HS” series truck is comprised of multiple loaded axles (i.e. a semi-trailer vehicle). See diagrams. The number following the “H” is the gross tonnage of the design vehicle. To determine the total tonnage of the “HS” vehicle you will have to add one additional trailer axle load.

An “H20” or an “HS20” series truck features an 8,000-pound axle load for the drive axle and a 32,000-pound axle load for the axle(s) under the trailer. The only difference in these two vehicles is that the “HS20” truck has an additional 32,000-pound axle located under the trailer, which is separated by a minimum distance of 14’ – for a total load of 72,000 pounds. An “H20” truck only has one axle under the trailer and a total load of 40,000 pounds.

An “H25” or an “HS25” series truck will be almost identical – except the drive axle will be 10,000 pounds and the axle(s) under the trailer will be 40,000 pounds each.

HL-93 - Design Vehicular loading per the AASHTO LRFD Bridge Design Specifications.

AASHTO introduced a new design vehicle in 1993 with its updated AASHTO LRFD Specifications. HL-93 live loading was established as part of the new LRFD methodology. This live load case is broken down in AASHTO LRFD Section 3.6.1.2 which states:

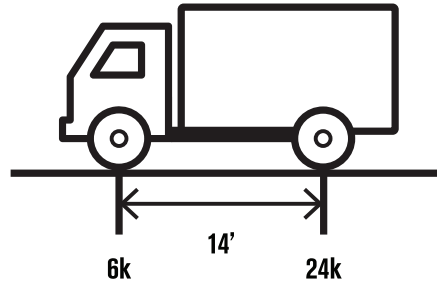
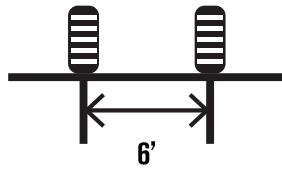
Vehicular live loading on the roadways of bridges or incidental structures, designated HL-93, shall consist of a combination of the:

- Design truck (HS20) or design tandem, and
- Design lane load (0.64 KLF uniformly distributed in the longitudinal direction)

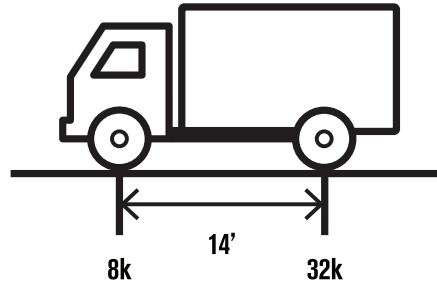
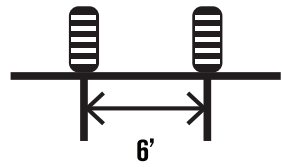
The result is that there are two live loads that should be checked. HL-93 loading is representative of the worst case between these two loading scenarios.

1. The “design truck” is the same as the HS20 truck from the previous version of AASHTO (described above). The HS20 vehicle is shown in the figure on the next page.
2. The design tandem load shall consist of a pair of 25-kip axles spaced 4 feet apart.
3. Lane loading consists of a uniform load placed longitudinally combined with either the truck or tandem load located on the span to produce the most critical situation in the structure. The lane load is 0.64 kips per linear foot longitudinally and it is distributed uniformly over a 10 foot width in the transverse direction.

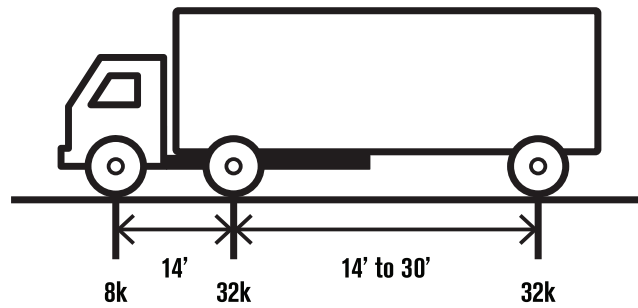
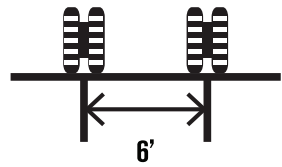
**H15-44
GVW 15 TONS**



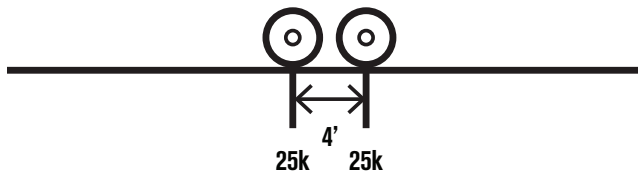
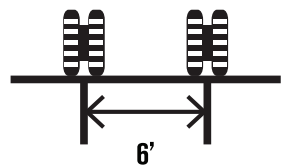
**H20-44
GVW 20 TONS**



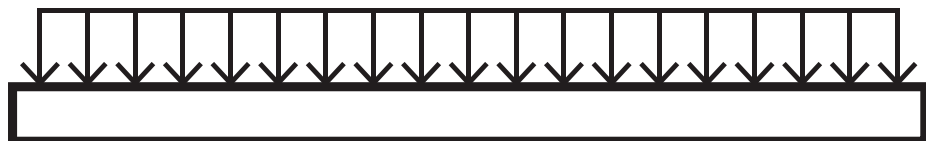
**HL93
DESIGN
TRUCK**



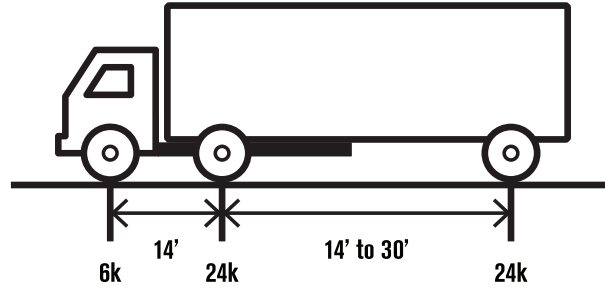
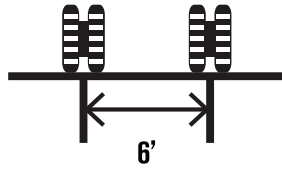
**HL93
DESIGN
TANDEM**



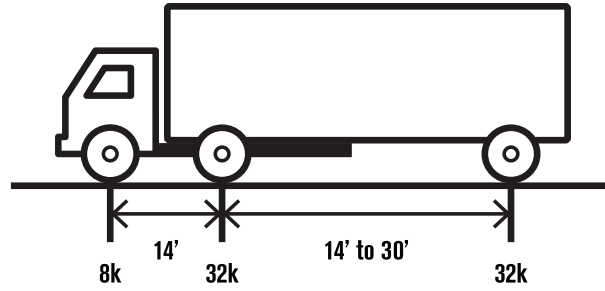
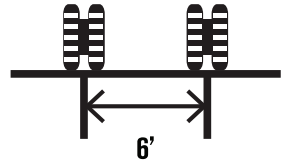
**UNIFORM LOAD
OF 640 LBS. PER
LINEAR FOOT**



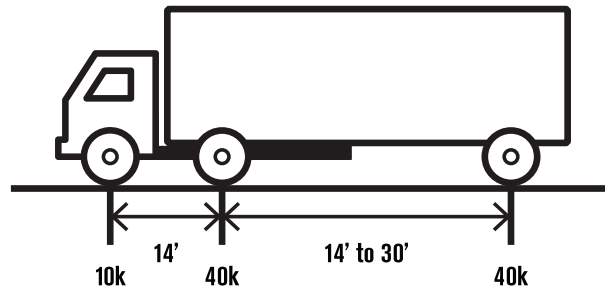
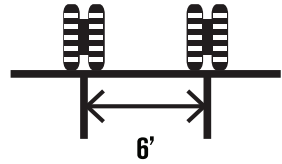
HS15-44
GVW 27 TONS



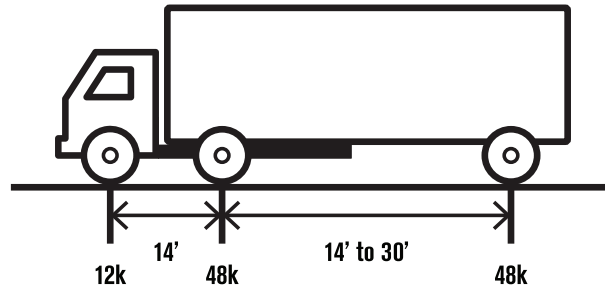
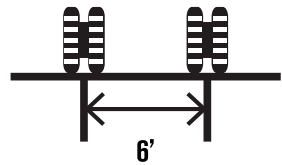
HS20-44
GVW 36 TONS



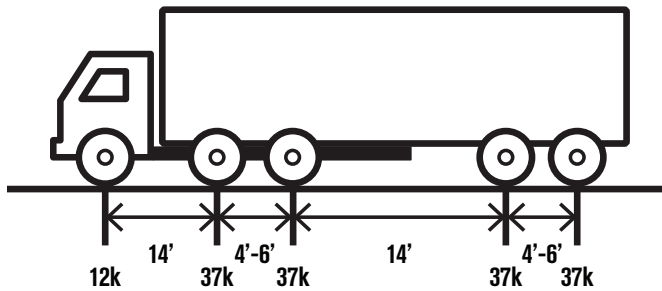
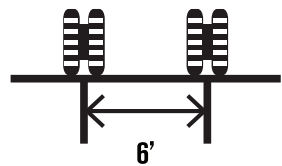
HS25-44
GVW 45 TONS



HS30-44
GVW 54 TONS



U80 OFF HWY.
GVW 80 TONS



U102 OFF HWY.
GVW 102.5 TONS

