

H-20 & HS-20 LOADING AND ASPIRE PERMEABLE PAVERS

SUMMARY

This bulletin outlines the H-20 and HS-20 load requirements for different vehicles and explains how Aspire Permeable Pavers meet and surpass these standards. It discusses the specific weight requirements for various axle loads, details the installation process of Aspire Pavers, and highlights their ability to support heavy vehicles, including fire trucks.

CONTENTS

- H-20 & HS-20 Loading
- H-20 Load Requirement
- HS-20 Load Requirement
- Aspire Permeable Pavers meet H-20 and HS-20 Requirements
- Aspire Permeable Pavers & Fire Trucks
- Aspire Permeable Paver System Installation
- Resources
- Questions

H-20 & HS-20 LOADING

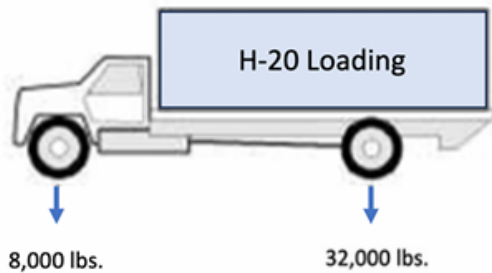
H-20 and HS-20 are AASHTO designations for load requirements on suspended surfaces such as bridges, concrete vaults, and manhole covers.

H-20 is the standard load rating for a single-unit, two-axle truck that weighs up to 40,000 lbs. with a maximum rear axle load of 32,000 lbs.

HS-20 is the standard load rating for a two-unit, three-axle semi-trailer with a tractor weight of 40,000 lbs. plus the rear axle weight of 32,000 lbs.

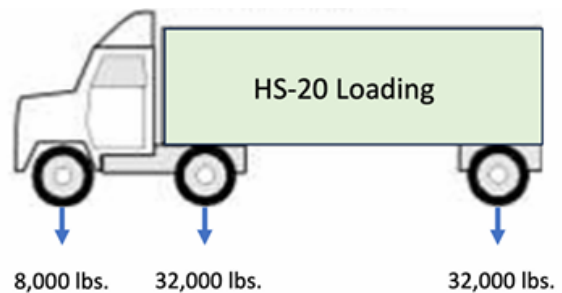
H-20 LOAD REQUIREMENT

The weight requirement for H-20 for the front axle is 8,000 lbs. and 32,000 lbs. for the rear axle.



HS-20 LOAD REQUIREMENT

The weight requirement for HS-20 is 8,000 lbs. for the tractor front axle, 32,000 lbs. for the tractor rear axle, and 32,000 lbs. for the rear trailer axle.



ASPIRE PERMEABLE PAVERS MEET H-20 AND HS-20 REQUIREMENTS

Aspire Pavers have a Compression Rating of 3521 psi using ASTM C140-9 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units. This rating exceeds the minimum needed to support H-20 and HS-20 loads.

- The maximum individual axle load for H-20 and HS-20 is 32,000 lbs.
- Maximum wheel load is 16,000 lbs. ($32,000 \text{ lbs} / 2 = 16,000$)
- AASHTO defines tire contact area as 200 square inches. ($10'' \times 20'' = 200 \text{ sq in}$) • The calculated maximum pressure on the paver system is 80 psi. ($16,000 \text{ lbs.} / 200 \text{ sq in} = 80 \text{ psi}$)
- The Aspire Paver has a compression rating of 3521 psi, far exceeding the maximum 80 psi pressure requirement.

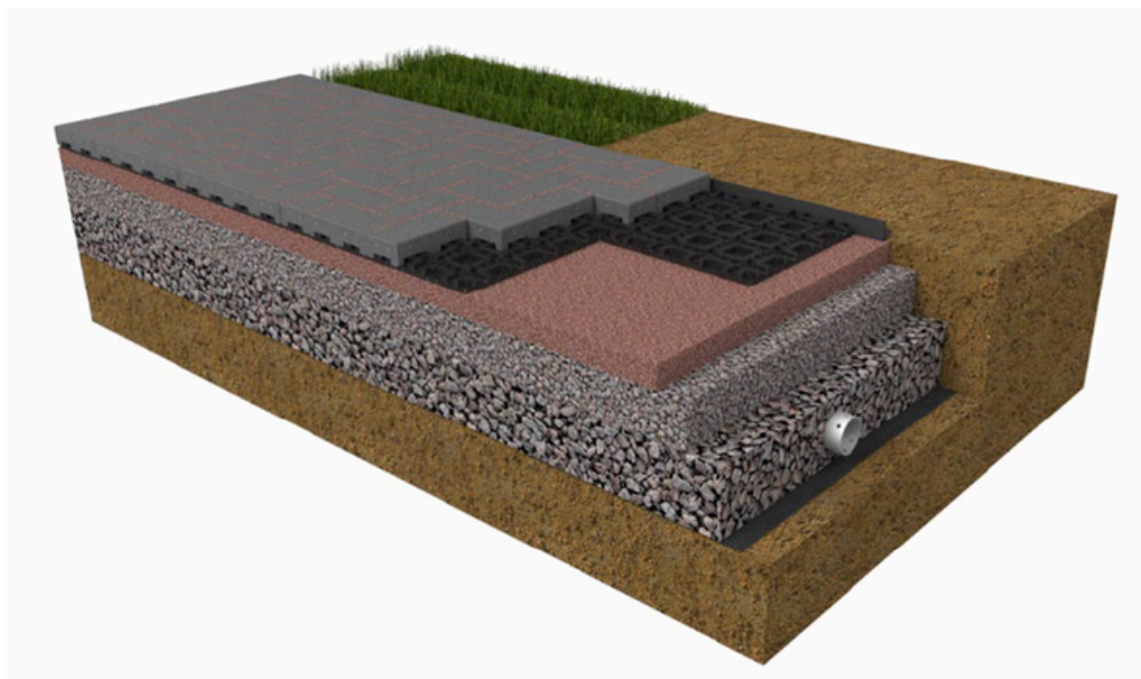
ASPIRE PERMEABLE PAVERS CAN SUPPORT FIRE TRUCKS

To support the weight of a fire truck, we need to consider both the axles and the outriggers. Fire truck axle loads typically do not exceed 31,000 lbs. and 50,000 lbs. for tandem axles. Using the same wheel size as above, a 50,000 lb. axel weight translates to 125 psi ($50,000/2 = 25,000/200 = 125$ psi.)

NFPA 1901 limits the pressure exerted by outriggers to 75 psi. Therefore, the Aspire Paver with a Compression Rating of 3521 psi exceeds the maximum fire truck axle or outrigger pressure exerted.

ASPIRE PERMEABLE PAVER SYSTEM STRUCTURE

Aspire Permeable Pavers sit on a flat base consisting of layers of aggregate to allow water to permeate through the system and back into the ground. The base forms a solid surface for the Aspire Paver System and, therefore, is not subject to bending or shear and will not collapse under applied loads. Review the Aspire Paver Installation Guide for installation specifics.



RESOURCES

Check for updates to this and other [Technical Bulletins](#) on our [Resources Page](#).

Complete Installation Training, View Resources, and Contact Technical Support by visiting our [Website](#) or our [Frequently Asked Questions page](#).

Training before any installation can improve project outcomes.

QUESTIONS

If you have any questions regarding Aspire products and accessories, call 844-290-4196 and ask for Aspire Paver Technical Support. Or contact us through the [Website](#).

