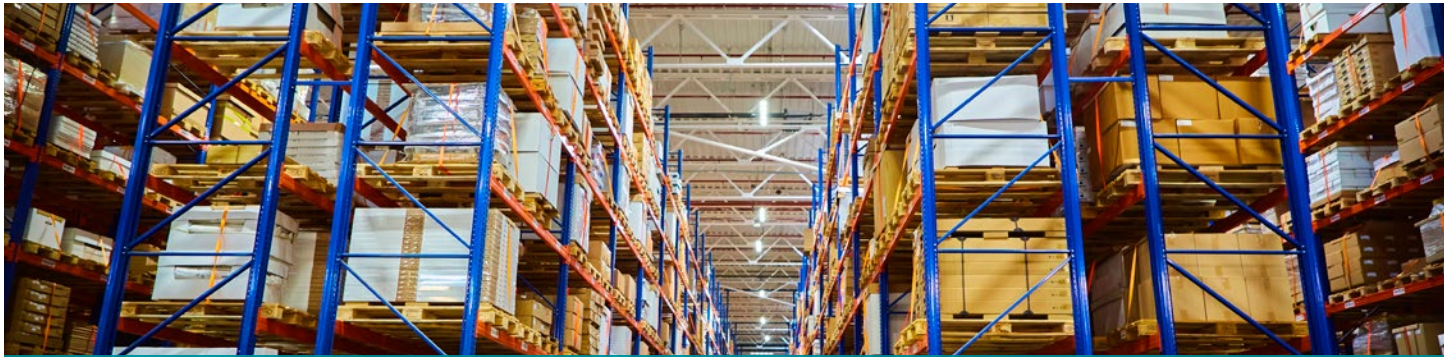


NOVEMBER 2023



## From Experience

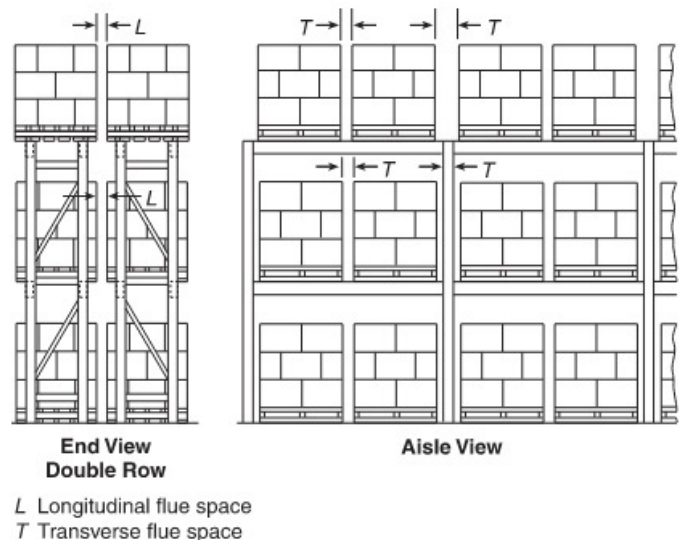
### Understanding Flues in Storage Racks

The National Fire Protection Association (NFPA) defines flues as the space between rows and pallet positions in storage applications that provide a vertical line of sight from the floor to the ceiling. Flues allow the heat from fires to vent vertically, so that in-rack sprinklers and ceiling sprinklers can activate in timely manner. They also allow the water to flow down through the rack to slow down the fire from spreading horizontally.

As shown in the image of a conventional pallet rack to the right, there are two types of flues, longitudinal (L) and transverse (T):

- The longitudinal flue is the space between rows of storage that are perpendicular to the direction of loading.
- The transverse flue is the space between rows or storage parallel to the direction of loading.

As outlined in the 2022 update to NFPA 13 (NFPA 13-22), the standard governing the installation of sprinkler systems, multiple-row open racks of 25 ft. high or less are now limited to a maximum depth of 20 ft to avoid having longitudinal flues.



*Continued on next page. >*

#### EXPERIENCE IN BRIEF

The following formula can be used to calculate flowrate through a sprinkler head:

$$Q = k\sqrt{p}$$

where...

**Q = Flowrate (gpm)**

**k = Sprinkler K-value**

**p = pressure at sprinkler discharge**

What does this mean for your facility? If your warehouse was previously using multiple-row racks deeper than 20 ft. and is being renovated, or if you are building a new warehouse, keep in mind that the new space will have reduced storage density. Those facilities with racks deeper than 20 ft. will have to maintain a 6" longitudinal flue space between each pallet load.

For more information on NFPA 13-22, contact Hixson.



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