

U.S. Fire Administration / National Fire Academy

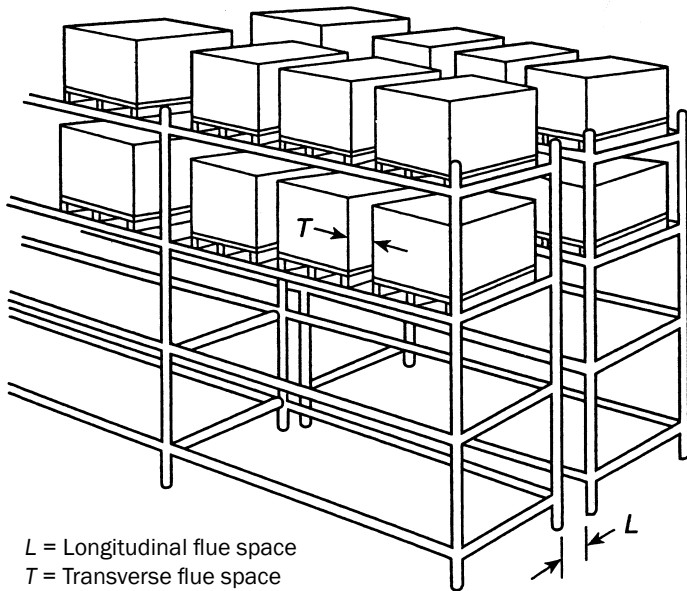
Coffee Break Training

Topic: Flue Spaces in Rack Storage Arrays

Learning objective: The student shall be able to explain the difference between transverse and longitudinal flue spaces.

Rack storage arrays provide special fire protection challenges for manual fire suppression and automatic sprinkler systems. Large fuel loads, plenty of oxygen, many channels for vertical fire travel and narrow aisles that enhance radiant heat spread combine to make rack storage a significant fire problem.

When designing sprinkler systems, the engineer must understand how the storage racks will be configured. Two terms are essential: transverse and longitudinal flue spaces.



L = Longitudinal flue space
T = Transverse flue space

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Transverse flue space. As one faces the rack storage array, it is the space between commodities on the racks and between the racks themselves.

Longitudinal flue space. If one were to walk to the end of an aisle and look along double- or multiple-row long dimension of the racks (back-to-back) this is the longitudinal flue space.

While the requirements for flue space maintenance vary depending upon the storage array height, the purpose is to allow vertical fire spread to reach ceiling sprinklers and for sprinkler discharge to reach the storage array without too many obstructions.

For additional information, refer to the *International Fire Code*[®]; NFPA 13, *Standard for the Installation of Sprinkler Systems*; or NFPA 230, *Standard for the Fire Protection of Storage*.