

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Aisle Widths in Rack Storage Arrays

Learning objective: The student shall be able to identify the minimum aisle widths required in rack storage arrays, and explain why aisle maintenance is important.

Aisles in rack storage arrays provide an important fire protection role. Not only do they provide emergency egress and firefighter access, they enable discharging sprinkler water to reach the face of the stored commodities, and provide a spatial break so radiant heat spread from one rack array to another is minimized. There should be no storage in the aisles.

In sprinklered buildings, the aisle width between storage arrays generally is 48 or 96 inches. Rack configurations with the narrower aisles usually require higher sprinkler discharge densities than similar storage with 96-inch aisles. The International Fire Code® allows 44-inch wide aisles in some situations.



There should be no storage in this aisle.

During manual restocking operations, a minimum 24-inch unobstructed width should be maintained in 48-inch or smaller aisles and at least one-half the required aisle width should be maintained at all times in aisles more than 48 inches wide. Thus, a 96-inch wide aisle would require 48 inches of clear width during restocking.

During mechanical restocking, using powered industrial trucks, the minimum clear aisle width should be 44 inches.

For additional information, refer to International Fire Code®, Chapter 23; NFPA 1, Uniform Fire Code™, Chapter 20; NFPA 13, Standard for the Installation of Sprinkler Systems, and NFPA 230, Standard for the Fire Protection of Storage.