

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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Vertical Exit Enclosures in a Mixed Occupancy Building

Code: 2012 North Carolina Building Code
Section: 1009.6.3, 1022.1

Date: September 1, 2011

Question:

A mixed use occupancy (business/assembly), type IIIB, sprinklered, two story building has an interior stairway. Under the landing of the first floor stairway, the designer indicates a sprinkler riser (not a standpipe) and electrical equipment such as a light, a wall heater, a compressor for a dry system sprinkler, and sprinkler flow switches. This space is of 1 hour fire rated construction.

Access to this space is not from within the exit enclosure. Should this design be changed based on the following:

- 1) **1022.1 Enclosure required** - ...Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. ...An exit enclosure shall not be used for any purpose other than means of egress. Exit enclosures shall be constructed per section 706.
- 2) **708.5 Continuity** – Shaft enclosures shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both, and shall have continuity in accordance with Section 707.5 for fire barriers or Section 712.4 for horizontal assemblies as applicable.
- 3) **708.8.1 Penetrations** - Penetrations other than those necessary for the purpose of the shaft shall not be permitted in the shaft enclosure.
- 4) **1022.4 Penetrations** – Penetrations into and openings through an exit enclosure are prohibited except for required exit doors, equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication systems and electrical raceway serving the exit enclosure and terminating at a steel box not exceeding 16 square inches.

However, section 1009.6.3 gives requirements for usable space under stairs. Does section 1009.6.3 contradict the previous mentioned sections?

Answer:

No. The base requirements in Sections 708.5 and 708.8.1 are for shaft enclosures to extend from floor to roof. Sections 708.11 and 708.12 tell how to enclose the bottom and top of the shaft enclosure, respectively, if it does not extend fully to the floor and roof. The shaft enclosure must be supported on construction rated the same as the shaft enclosure and the separation between the exit and the space below must be 1-hour or the same as the rating of the shaft enclosure, whichever is greater, as noted in Section 1009.6.3. The penetrations between the exit and the space below (and other adjacent spaces) are limited by Section 708.8.1. The usable space below the stairway is not part of the shaft enclosure if it is properly separated.

Keywords:

Storage, stairs