



## **File 7: Appendix B, 36 CFR 1234 (formally numbered as 36 CFR 1228 subpart K)**

### **Alternative Certified Fire-safety Detection and Suppression System(s)** (version 2.0 issued May 15, 2014)

[This is an appendix to 36 CFR 1234]

1. *General.* This Appendix B contains information on the Fire-safety Detection and Suppression System(s) tested by NARA through independent live fire testing that are certified to meet the requirement in §1234.12(s) for storage of Federal Records. Use of a system specified in this appendix is optional. A facility may choose to have an alternate fire-safety detection and suppression system approved under §1234.32.

2. *Specifications for NARA facilities using 15 foot high records storage.* NARA fire-safety systems that incorporate all components specified in paragraphs 2.a. through n. of this appendix have been tested and certified to meet the requirements in §1234.12(s) for an acceptable fire-safety detection and suppression system for storage of Federal records.

a. The records storage height must not exceed the nominal 15 feet (+/-3 inches) records storage height.

b. All records storage and adjoining areas must be protected by automatic wet-pipe sprinklers. Automatic sprinklers are specified herein because they provide the most effective fire protection for high piled storage of paper records on open type shelving.

c. The sprinkler system must be rated at no higher than 285 degrees Fahrenheit utilizing quick response (QR) fire sprinkler heads and designed by a licensed fire protection engineer to provide the specified density for the most remote 1,500 square feet of floor area at the most remote sprinkler head in accordance with NFPA 13 (1996), Standard for the Installation of Sprinkler Systems. For facilities with roofs rated at 15 minutes or greater, provide 1/2" QR sprinklers rated at no higher than 285 degrees Fahrenheit designed to deliver a density of 0.30 gpm per square foot. For unrated roofs, provide 0.64" QR "large drop" sprinklers rated at no higher than 285 degrees Fahrenheit. For facilities using 7 or 8 shelf track files, use QR sprinklers rated at no higher than 285 degrees Fahrenheit. For new construction and replacement sprinklers, NARA recommends that the sprinklers be rated at 165 degrees Fahrenheit. Installation of the sprinkler system must be in accordance with NFPA 13 (1996), Standard for the Installation of Sprinkler Systems.

d. Maximum spacing of the sprinkler heads must be on a 10-foot grid and the positioning of the heads must provide complete, unobstructed coverage, with a clearance of not less than 18 inches from the top of the highest stored materials.

e. The sprinkler system must be equipped with a water-flow alarm connected to an audible alarm within the facility and to a continuously staffed fire department or an Underwriters Laboratory approved central monitoring station (see UL 827, Central-Station Alarm Services (April 23, 1999)) with responsibility for immediate response.

f. A manual fire alarm system must be provided with a Underwriters Laboratory approved (grade A) central monitoring station service or other automatic means of notifying the municipal fire department. A manual alarm pull station must be located adjacent to each exit. Supplemental manual alarm stations are permitted within the records storage areas.



g. All water cutoff valves in the sprinkler system must be equipped with automatic closure alarm (tamper alarm) connected to a continuously staffed station, with responsibility for immediate response. If the sprinkler water cutoff valve is located in an area used by the public, in addition to the tamper alarm, the valves must be provided with frangible (easily broken) padlocks.

h. A dependable water supply free of interruption must be provided including a continuous site fire loop connected to the water main and sized to support the facility with only one portion of the fire loop operational. This normally requires a backup supply system having sufficient pressure and capacity to meet both fire hose and sprinkler requirements for 2-hours. A fire pump connected to an emergency power source must be provided in accordance with NFPA 20 (1996), Standard for the Installation of Centrifugal Fire Pumps, when adequate water pressure is not assured. In the event that public water mains are not able to supply adequate volumes of water to the site, on-site water storage must be provided.

i. Interior fire hose stations equipped with a 1-1/2 inch diameter hose may be provided in the records storage areas if required by the local fire department, enabling any point in the records storage area to be reached by a 50-foot hose stream from a 100-foot hose lay. If provided, these cabinets must be marked "For Fire Department Use Only."

j. Where fire hose cabinets are not required, fire department hose outlets must be provided at each floor landing in the building core or stair shaft. Hose outlets must have an easily removable adapter and cap. Threads and valves must be compatible with the local fire department's equipment. Spacing must be so that any point in the record storage area can be reached with a 50-foot hose stream from a 100-foot hose lay.

k. In addition to the designed sprinkler flow demand, 500 gpm must be provided for hose stream demand. The hose stream demand must be calculated into the system at the base of the main sprinkler riser.

l. Fire hydrants must be located within 250 feet of each exterior entrance or other access to the records storage facility that could be used by firefighters. Each required hydrant must provide a minimum flow capacity of 500 gpm at 20 psi. All hydrants must be at least 50 feet away from the building walls and adjacent to a roadway usable by fire apparatus. Fire hydrants must have at least two, 2-1/2 inch hose outlets and a pumper connection. All threads must be compatible with local standards.

m. Portable water-type fire extinguishers (2-1/2 gallon stored pressure type) must be provided at each fire alarm striking station. The minimum number and locations of fire extinguishers must be as required by NFPA 10 (1994), Standard for Portable Fire Extinguishers.

n. Single level catwalks without automatic sprinklers installed underneath may be provided in the service aisles if the edges of all files in the front boxes above the catwalks are stored perpendicular to the aisle (to minimize files exfoliation in a fire). Where provided, the walking surface of the catwalks must be of expanded metal at least .09-inch thickness with a 2-inch mesh length. The surface opening ratio must be equal or greater than 0.75. The sprinkler water demand for protection over bays with catwalks where records above the catwalks are not perpendicular to the aisles must be calculated hydraulically to give .30 gpm per square foot for the most remote 2,000 square feet.

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