

Dry Pipe Trip Test (60 second rule) History: by D. Thomas 6-24-10 – Updated 4-7-14 by J. Yost

Summary Table for Inspection/Test Purposes

Dry System Size	Date of dry system installation	60-Second trip rule	Code
Over 750 gallons (over 500 gallons if gridded after 1980)	1970-1991	Yes	NFPA 13
Any size	1991- 2003	Yes	USBC/BOCA
Over 750 gallons	2003-2008	Yes	NFPA 13-99
500 gallons or less without a quick opening device	May, 2008 – now	No	NFPA 13-07
750 gallons or less with a quick opening device	May, 2008 – now	No	NFPA 13-07
More than 750 gallons	May, 2008 – now	Yes – Table 7.2.3.6.1	NFPA 13-07

Historical Data:

1965 BOCA (FXCO adopted) NFPA 13 1964 edition

1970 BOCA (FXCO adopted) NFPA 13 1968 edition

1975 BOCA (State adoption) NFPA 13 1974 edition

1978 BOCA (State adoption) NFPA 13 1976 edition

In 1973, NFPA 13, 5-2.3.1.2: Where the piping volume exceeds 750 gallons the system shall deliver water to the inspector’s test pipe in not more than 60 seconds, starting at the normal air pressure on the system.

In 1975, NFPA 13, 5-2.3.1.2 stated the same as 1973 edition.

In 1978 NFPA 13, 5-2.3.1.2 stated the same as 1973 edition.

In 1980 NFPA 13, 5-2.3.1, Volume Limitations, Exception 2 stated: Piping volume may exceed 500 gallons for gridded systems or exceed 750 gallons for non-gridded systems if the system design is such that water is delivered to the inspector’s test pipe in not more than 60 seconds, starting at the normal air pressure on the system.

In 1985 NFPA 13, 5-2.3.1 Volume limitations, exception 2, stated: Piping volume may exceed 500 gallons for gridded systems or exceed 750 gallons for non-gridded systems if the system design is such that water is delivered to the system test pipe in not more than 60 seconds, starting at the normal air pressure on the system and at the time of fully opened test connection.

Subsequent adoptions:

USBC –BOCA 1981 (effective 1981-86)	13-1978, 13-1980
USBC-BOCA 1984 (eff. 1986 – 1988)	13-1985 (see above)
USBC-BOCA 1987 (eff. 1988 – 1990)	13-1985 (see above)

USBC –BOCA 1990 stated at 1004.9.5: Flow test. All systems shall be tested at the test pipe to determine that water-flow detecting devices, including the associated alarm circuits, are in proper working order. Dry pipe systems shall deliver water to the inspector’s test pipe in not more than 60 seconds.

USBC-BOCA 1993 section 906.9.5 stated the same as 1990 BOCA section 1004.9.5.

USBC-BOCA 1996 Section 906.9.5 stated the same as 1990 BOCA section 1004.9.5.

1996 BOCA was in force in Virginia until 2000 IBC adoption, which meant until Oct. 1, 2003.

Under USBC-IBC adoptions, Oct, 2003 to present:

USBC 2000 adopted NFPA 13-99 (See USBC 2000, Section 124.1.1, item 13a.). 13-99 said: 4-2.3.1 exception: Piping volume shall be permitted to exceed 750 gallons for non-gridded systems if the system design is such that water is delivered to the system test connection in not more than 60 seconds, starting at the normal air pressure on the system and at the time of fully opened inspection test connection.

USBC 2006 adopted NFPA 13-07 (effective May 1, 2008), which stated:
7.2.3.2: System size shall be such that initial water is discharged from the system test connection in not more than 60 seconds, starting at the normal air pressure on the system and at the time of fully opened inspection test connection.

7.2.3.3: System size of not more than 500 gal (1893 L) shall be permitted without a quick opening device and shall not be required to meet any specific water delivery requirement to the inspection test connection.

7.2.3.4: A system size of not more than 750 gal (2839 L) shall be permitted with a quick opening device and shall not be required to meet any specific water delivery requirement to the inspection test connection.

Where the system volume exceeds 750 gal (2839L), water delivery must be evaluated using one of the two methods that follow.

In the first method, the volume limitation can be exceeded if initial water discharge to the inspector’s test connection can be achieved in 60-seconds or less, as specified in 7.2.3.2.

In the second method, the volume limitation can be exceeded where water delivery is calculated with a listed calculation method (see 7.2.3.5) or initial discharge is verified by an appropriately sized test manifold (see 7.2.3.7).

7.2.3.5: System size shall be based on dry systems being calculated for water delivery in accordance with 7.2.3.6.

7.2.3.6 Dry System Water Delivery.

7.2.3.6.1: Calculations for dry system water delivery shall be based on the hazard shown in Table 7.2.3.6.1.

7.2.3.6.2: The calculation program and method shall be listed by a nationally recognized testing laboratory.

Table 7.2.3.6.1 Dry System Water Delivery

Hazard	Number of Most Remote Sprinklers Initially Open	Maximum Time of Water Delivery
Residential	1	15 Seconds
Light	1	60 Seconds
Ordinary I	2	50 seconds
Ordinary II	2	50 Seconds
Extra I	4	45 seconds
Extra II	4	45 seconds
High-Piled	4	45 seconds

7.2.3.7*: System size shall be such that initial water discharge at system test valve or manifold outlet is not more than those in Table 7.2.3.6.1, starting at normal air pressure on the system and at the time of fully opened test connection. When flow is from four sprinklers, the test manifold shall be arranged to simulate two sprinklers on each of two sprinkler branch lines. A system meeting the

requirements of this section shall not be required to also meet the requirements of 7.2.3.2 or 7.2.3.5.

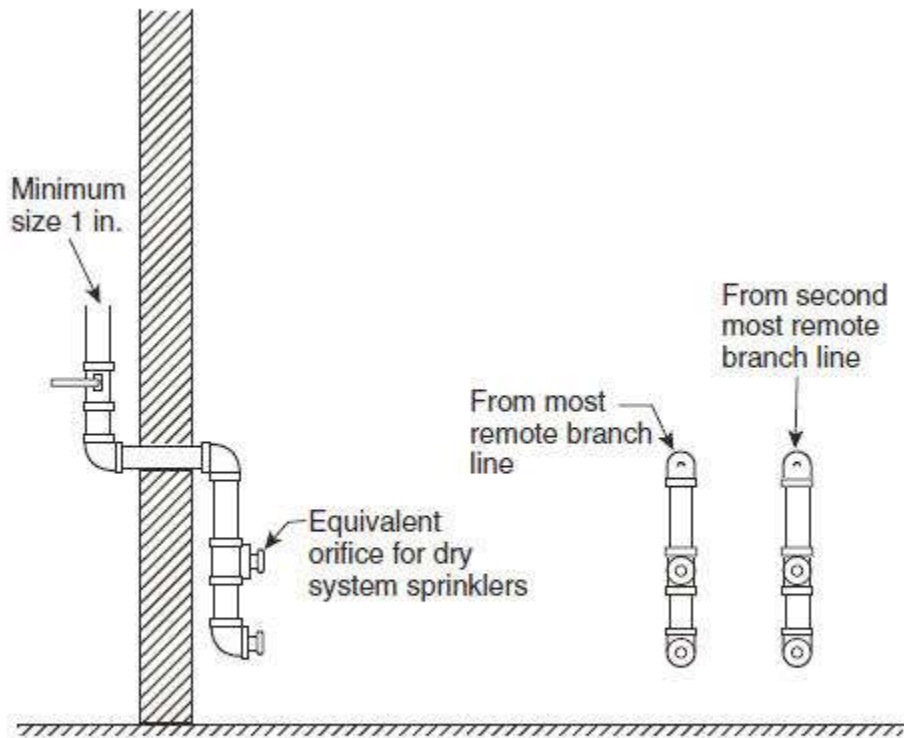


FIGURE A.7.2.3.7 Example Manifold Arrangement (Four Sprinklers).

7.2.3.8: Dry pipe systems with water delivery times other than 7.2.3.2, 7.2.3.5, and 7.2.3.7 shall be acceptable where listed by a nationally recognized testing laboratory.

7.2.3.9: Check valves shall not be used to subdivide the dry pipe systems.

7.2.3.10 Gridded dry pipe systems shall not be installed.

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