First Revision No. 8-NFPA 291-2022 [Chapter 2]

Chapter 2 Referenced Publications

2.1 General.

The documents or portions thereof listed in this chapter are referenced within this recommended practice and ~~shall~~ should be considered part of the recommendations of this document.

2.2 NFPA Publications. ~~(Reserved)~~

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems* , 2023 edition.

2.3 Other Publications.

2.3.1 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM SI10, *IEEE/ASTM SI10 American National Standard for Metric Practice,* ~~2016~~ 2017 .

2.3.2 AWWA Publications.

American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235.

ANSI/AWWA G200, *Standard for Distribution Systems Operation and Management*, 2015.

2.3.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, ~~2003~~ 2020 .

2.4 References for Extracts in Recommendations Sections.

NFPA 1, *Fire Code,* ~~2021~~ 2024 edition.

NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances,* ~~2022~~ 2025 edition.

NFPA 1141, *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas,* 2017 edition.

Supplemental Information

File Name	Description	Approved
291-2022_Chapter_2.docx	For staff use	

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 16:39:53 EDT 2022

Committee Statement

Committee Statement: Reference information updated.
Response Message: FR-8-NFPA 291-2022

First Revision No. 1-NFPA 291-2022 [Section No. 4.2.3]

4.2.3

A primary concern should be the ability to maintain sufficient residual pressure to prevent ~~developing a negative pressure at any point in the street mains, which could result in the collapse of the mains or other water system components or~~ back-siphonage of polluted water from some other interconnected source.

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 13:16:36 EDT 2022

Committee Statement

Committee Statement: Damage to or collapse of mains caused by a development of a negative pressure in the water distribution system is unsupported by evidence. The major concern is the reduction below 20psi which may result in contaminants entering the water distribution system.

Response Message: FR-1-NFPA 291-2022

Public Input No. 4-NFPA 291-2022 [Section No. 4.2.3]

First Revision No. 2-NFPA 291-2022 [Section No. 4.2.4]

4.2.4*

It should be noted that the use of residual pressures of less than 20 psi (1.4 bar) is not permitted by many ~~state~~ water authorities and health departments.

A.4.2.4

Maintaining the appropriate residual pressure helps to prevent back-siphonage of polluted water from some other source. Water companies might require a boil water notice to be sent to their customers when residual pressures of less than 20 psi (1.4 bar) occur in a water distribution system.

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 13:21:52 EDT 2022

Committee Statement

Committee Statement: Negative pressure in closed systems may result in pipe damage. The additional language added to the annex clarifies a reason as to why some health departments and water authorities have minimum residual pressure requirements.

Response Message: FR-2-NFPA 291-2022

Public Input No. 5-NFPA 291-2022 [Section No. 4.2.4]

First Revision No. 10-NFPA 291-2022 [Section No. 4.4.7]

4.4.7*

When conducting a flow test for the purpose of fire protection system design, the flow and pressure results should be adequate for the total demand of the system.

A.4.4.7

This section is not intended to imply that the manual fire flow demand for firefighting purposes should be added to the demand for a fire protection system, such as a fire sprinkler system. The model code provisions that specify minimum fire flows intend for the demands for manual fire suppression purposes and the demands for fire protection system purposes to be calculated and satisfied separately. Those demands should not be added together.

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 17 15:21:37 EDT 2022

Committee Statement

Committee Statement: Clarification is provided to clarify that fire flow is not related to water supply for the design of a

water-based fire protection system.

Response Message: FR-10-NFPA 291-2022

Public Input No. 7-NFPA 291-2022 [New Section after A.4.4]

First Revision No. 3-NFPA 291-2022 [New Section after 4.15.2]

4.15.3

Public fire hydrants should be inspected, tested, and maintained in accordance with ANSI/AWWA G200, *Standard for Distribution Systems Operation and Management* .

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 13:36:19 EDT 2022

Committee Statement

Committee Statement: This provides guidance on the testing of public fire hydrants and is helpful for providing best practice for ITM.
Response Message: FR-3-NFPA 291-2022

Public Input No. 10-NFPA 291-2022 [New Section after 4.15.2]

First Revision No. 4-NFPA 291-2022 [New Section after 4.15.2]

4.16 Private Hydrant Inspection, Testing, and Maintenance.

Private fire hydrants should be inspected, tested, and maintained in accordance with NFPA 25 .

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 13:40:21 EDT 2022

Committee Statement

Committee Statement: This provides a pointer to NFPA 25 for ITM procedures.
Response Message: FR-4-NFPA 291-2022

Public Input No. 9-NFPA 291-2022 [New Section after 4.15.2]

First Revision No. 5-NFPA 291-2022 [Section No. 5.2]

5.2 Marking of Hydrants.

5.2.1 Public Hydrants.

5.2.1.1

All barrels ~~are to~~ should be chrome yellow except in cases where another color has already been adopted.

5.2.1.2

The tops and nozzle caps should be painted with the capacity-indicating color scheme shown in Table 5.1 to provide simplicity and consistency with colors used in signal work for safety, danger, and intermediate condition.

5.2.1.3

For rapid identification at night, it is recommended that the capacity colors be of a reflective-type paint.

5.2.1.4

Hydrants rated at less than 20 psi (1.4 bar) should have the rated pressure stenciled in black on the hydrant top.

5.2.1.5

In addition to the painted top and nozzle caps, it can be advantageous to stencil the rated capacity of high-volume hydrants on the top.

5.2.1.6

The classification and marking of hydrants provided for in this chapter anticipate determination based on individual flow test.

5.2.1.7

Where a group of hydrants can be used at the time of a fire, some special marking designating group-flow capacity could be desirable.

5.2.2 Permanently Inoperative Hydrants.

Fire hydrants that are permanently inoperative or unusable should be removed.

5.2.3 Temporarily Inoperative Hydrants.

Fire hydrants that are temporarily inoperative or unusable should be wrapped or otherwise provided with temporary indication of their condition.

5.2.4 Flush Hydrants.

Location markers for flush hydrants should carry the same background color as stated above for class indication, with such other data stenciled thereon as deemed necessary.

5.2.5 Private Hydrants.

5.2.5.1

All barrels should be red except in cases where another color has already been adopted.

5.2.5.2

The tops and nozzle caps should be painted with the following capacity-indicating color scheme to provide simplicity and consistency with colors used in signal work for safety, danger, and intermediate condition:

(1) Class AA — Light blue

(2) Class A — Green

(3) Class B — Orange

(4) Class C — Red

5.2.5.3

For rapid identification at night, it is recommended that the capacity colors be of a reflective-type paint.

5.2.5.4

Hydrants rated at less than 20 psi (1.4 bar) should have the rated pressure stenciled in black on the hydrant top.

5.2.5.5

In addition to the painted top and nozzle caps, it can be advantageous to stencil the rated capacity of the high-volume hydrants on the top.

5.2.5.6

The classification and marking of hydrants provided for in this chapter anticipate determination based on individual flow test.

5.2.5.7

Where a group of hydrants can be used at a time of a fire, some special marking designating group-flow capacity could be desirable.

~~**5.2.5.1**~~

~~Marking on private hydrants within private enclosures is to be at the owner's discretion.~~

~~**5.2.5.2**~~

~~When private hydrants are located on public streets, they should be painted red or some other color to distinguish them from public hydrants.~~

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 13:52:46 EDT 2022

Committee Statement

Committee Statement: Color coding private hydrants provides first responders with immediate knowledge of the flow characteristics of these hydrants.
Response Message: FR-5-NFPA 291-2022

Public Input No. 3-NFPA 291-2022 [Section No. 5.2]

Public Input No. 2-NFPA 291-2022 [Section No. 5.2.1.1]

First Revision No. 7-NFPA 291-2022 [Section No. A.4.15.1]

A.4.15.1

When flow test data are needed, such data should not be more than 5 years old since conditions in the piping and system demands can change. In many situations, flow test data can become invalid much sooner than at the 5-year interval. Typically, this occurs when added demands have been placed on the water distribution system due to an increase in the number or type of customers. In those situations, conducting a recent flow test is necessary for valid data.

It is not the intent of 4.15.1 to require routine 5-year testing of each hydrant if there is no immediate need for flow test data or if test data less than 5 years old are available from an adjacent hydrant on the same grid.

Submitter Information Verification

Committee: AUT-PRI

Submittal Date: Wed Aug 03 14:04:45 EDT 2022

Committee Statement

Committee Statement: It is important to understand that more frequent testing is recommended at times when the water distribution system compensates for urban growth or other issues.

Response Message: FR-7-NFPA 291-2022

Public Input No. 11-NFPA 291-2022 [Section No. A.4.15.1]

First Revision No. 9-NFPA 291-2022 [Chapter B]

Annex B Informational References

B.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this recommended practice and are not part of the recommendations of this document unless also listed in Chapter 2 for other reasons.

B.1.1 NFPA Publications. (Reserved)

B.1.2 Other Publications. (Reserved)

B.2 Informational References. (Reserved)

B.3 References for Extracts in Informational Sections.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* ~~2020~~ 2023 edition.

Submitter Information Verification

Committee: AUT-PRI
Submittal Date: Wed Aug 03 16:44:26 EDT 2022

Committee Statement

Committee Statement: Updated reference information.
Response Message: FR-9-NFPA 291-2022