

PROPOSED CHANGE TO THE 2015 ONTARIO FIRE CODE

(O. Reg. 213/07, as amended current to January 1, 2015)

CHANGE NUMBER: N/A

CODE REFERENCE: Division B, Subsection 6.4.3.

DESCRIPTION OF PROPOSED CHANGE: Subsection 6.4.3. is revised to add requirements for inspection and testing of fire department pumper connection lines for hose standpipe systems. This includes new annual inspection requirements to fire department pumper connection lines on hose standpipe systems. In addition, the piping between the fire department pumper connection and the check valve is to be hydrostatically tested every 5 years where the fire department pumper connection has been in service for more than 30 years.

- Add a new requirement**
 - Making a technical change to an existing requirement**
 - Making an editorial/administrative change to an existing requirement**
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EXISTING OFC PROVISIONS

Subsection 6.4.3. Checking and Testing

Standpipe systems

6.4.3.1. (1) Standpipe systems that have been modified, extended or are being restored to service after a period of disuse exceeding one year shall be **tested** in conformance with Articles 6.4.3.2. to 6.4.3.5.

(2) Where standpipe connections are built in walls or **partitions**, the **tests** shall be made before the standpipes are concealed.

Hydrostatic test

6.4.3.2. Standpipe system piping shall be hydrostatically **tested** at a pressure of not less than 1400 kPa (gauge) for 2 h, or at 350 kPa (gauge) in excess of the normal hydrostatic pressure when the normal hydrostatic pressure is in excess of 1050 kPa (gauge).

Fire department connections

6.4.3.3. Piping between the **fire department** connection and the check valve in the inlet pipe to the standpipe shall be **tested** in the same manner as the remainder of the system.

Underground mains

6.4.3.4. (1) Underground mains and connections shall be **tested** for 2 h at a hydrostatic pressure of 350 kPa (gauge) in excess of the maximum hydrostatic pressure in service, but not less than 1400 kPa (gauge).

(2) Leakage during the **test** shall not exceed 2 L/h per 100 joints for pipe laid with rubber gasketed joints, and 30 mL/h per 25 mm of pipe diameter per joint for pipe laid with caulked lead or lead substitute joints.

Flow and pressure tests

6.4.3.5. Flow and pressure **tests** shall be conducted at the highest and most remote hose valve or hose connection to ensure that the water supply for standpipes is provided as originally designed.

Dry standpipes

6.4.3.6. (1) Standpipe system piping which normally remains dry shall be **tested** in accordance with Article 6.4.3.2. at intervals of not more than five years.

(2) Water supply pressure and system air pressure for automatic dry standpipe systems shall be **checked** weekly by using gauges to ensure that the system is maintained at the required operating pressure.

Hotels

6.4.3.7. In **buildings** containing a **hotel**, flow and pressure **tests** shall be conducted annually at the highest and most remote hose valve or hose connection to verify that the water supply for the standpipe system is provided as originally designed.

PROBLEM

Current requirements for the inspection and testing of fire department pumper connection lines for hose standpipes may not adequately identify the presence of excessive corrosion or other conditions that could result in either the obstruction or failure of these lines. Failure of these lines could compromise the availability of water for firefighting operations and during a fire emergency, would place the safety of both firefighters and building occupants at risk.

PROPOSED OFC CHANGE

Subsection 6.4.3. Checking, Inspections and Testing

Standpipe systems

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(2) Where standpipe connections are built in walls or **partitions**, the **tests** shall be made before the standpipes are concealed.

Hydrostatic test

6.4.3.2. Standpipe system piping shall be hydrostatically **tested** at a pressure of not less than 1400 kPa (gauge) for 2 h, or at 350 kPa (gauge) in excess of the normal hydrostatic pressure when the normal hydrostatic pressure is in excess of 1050 kPa (gauge).

Fire department connections

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Underground mains

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Flow and pressure tests

6.4.3.5. Flow and pressure **tests** shall be conducted at the highest and most remote hose valve or hose connection to ensure that the water supply for standpipes is provided as originally designed.

Dry standpipes

6.4.3.6. (1) Standpipe system piping which normally remains dry shall be **tested** in accordance with Article 6.4.3.2. at intervals of not more than five years.

(2) Water supply pressure and system air pressure for automatic dry standpipe systems shall be **checked** weekly by using gauges to ensure that the system is maintained at the required operating pressure.

Fire department connections

6.4.3.7.(1) The dry portion of the **fire department** connection line of a standpipe shall be hydrostatically **tested** to 1050 kPa (gauge) for 2 hours every 5 years if

(a) the **fire department** connection line has been in service for more than thirty years,
or

(b) the age of the **fire department** connection line cannot be determined.

(2) The first hydrostatic **test** in Sentence (1) shall be completed by January 1, 2019 unless the **fire department** connection line has been hydrostatically **tested** within the previous five years.

(3) In addition to Article 6.4.1.3., an annual **inspection of fire department** connection lines shall ensure that

(a) the **fire department** connection is physically unobstructed and readily accessible.

(b) the **fire department** connection identification sign is in place and visible,

(c) couplings or swivels are not damaged and rotate smoothly,

(d) gaskets are in place and in good condition,

(e) the check valve is not leaking,

(f) the automatic drain valve is in place and operating properly, and

(g) **fire department** connection clappers are in place and operating properly.

(4) Sentence (3) applies to annual **inspections** conducted on or after July 1, 2018.

(5) The annual inspection referenced in Sentence (3) shall be recorded and the records retained at the **building** in conformance with Sentence 1.1.2.2.(1).

Hotels

6.4.3.87. In **buildings** containing a **hotel**, flow and pressure **tests** shall be conducted annually at the highest and most remote hose valve or hose connection to verify that the water supply for the standpipe system is provided as originally designed.

RATIONALE FOR CHANGE

Recent incidents have highlighted that current Fire Code requirements may not sufficiently allow for deficiencies in standpipe systems to be proactively detected. As a result, the inspection requirements on fire department pumper connections on standpipe systems as well as the hydrostatic testing of pumper connections on older standpipe systems (which are more prone to failure) are being strengthened to reduce the likelihood of hose standpipe failures during fire department use. These changes will further align inspection and testing requirements with the National Fire Code, which references the 2014 edition of NFPA 25.

IMPACT

Enhanced annual inspections and 5 year hydrostatic testing of fire department connections for older standpipe systems will result in additional cost to building owners. However, this additional inspection/testing helps to ensure standpipe systems will operate reliably during a fire while under fire department pressure boost.

It is estimated that there are thousands of standpipe systems in buildings in Ontario. Existing provisions in the Fire Code currently mandate annual inspections that must occur for these standpipe systems. Building owners are currently performing these inspections and incurring the associated cost, ensuring compliance with the Fire Code and meeting their fire safety responsibilities.

The proposed enhanced annual inspections and 5-year hydrostatic testing of fire department pumper connections for older standpipe systems will result in additional cost to building owners.

For the enhanced annual inspection, the additional cost is negligible when added to the already mandated inspections. The enhancements are additional activities that can be readily performed without the need for specialized equipment, and are not expected to be time or labour intensive when compared with the activities that are already undertaken as part of the current mandated inspections.

For the 5-year hydrostatic testing of fire department pumper connections, the additional cost is estimated to be \$500 to \$1000 per hose standpipe. This cost can likely be mitigated if done in conjunction with the currently mandated annual inspection. Note that this testing would not apply to dry standpipe systems that are already required to be hydrostatically tested every 5 years.

The cost of the enhanced annual inspection is anticipated to be insignificant when added to the currently mandated annual inspection, and the cost of the hydrostatic testing will only be incurred every 5 years. Further, if the fire department pumper connection line is replaced this testing would not need to be conducted until the line is 30 years old, and as such there would be no cost for 30 years after the line is replaced.

The enhanced inspection and hydrostatic test help to ensure that standpipe systems will operate reliably during a fire while under fire department pressure boost. The additional cost annually is expected to be negligible, and the additional cost every 5 years is expected to be relatively minor. The benefits to these costs incurred by owners by conducting proactive inspections and tests significantly outweigh the severe risk to life safety and consequence of property damage if a pumper connection were to fail during a fire incident.

The proposed amendments would be phased in as follows:

- Enhanced annual inspection requirements would be applicable for all inspections conducted after July 1, 2018.
- The first hydrostatic test for systems must be completed by January 1, 2019; unless the system was already tested within the past 5 years.

OBJECTIVE BASED ANALYSIS OF THE CHANGE OR NEW PROVISION

N/A

FUNCTIONAL STATEMENT(S) AND LINK(S) TO OBJECTIVE(S)

- 6.4.3.7.(1) - [F82-OS1.4, OP1.4]
- (2) – Note1
- (3) - [F82-OS1.4, OP1.4]
- (4) - Note1
- (5) – Note1