



Boston Fire Department

Fire Prevention Division

1010 Massachusetts Avenue – 4th Floor

Boston, MA 02118

REQUIREMENTS FOR AIR PRESSURIZED STANDPIPES

Section 1

In accordance with the Boston Fire Prevention Code Article VII a permit for construction is required for the establishment of safe access for Fire Department operations prior to the commencement of any construction, repair, alteration, or demolition of buildings or other structures. A standpipe system suitable for Fire Department use is one aspect of operations that require proper installation and maintenance. As part of the maintenance for a construction standpipe the following measures are to be taken:

Air pressurized alarm system for dry standpipe systems during construction or demolition operations.

Air pressurized alarm systems shall be provided as set forth in Items 1 through 5 below. The provisions of NFPA 14, Chapter 12, shall also apply.

1. Demolitions. In vacant buildings and structures undergoing demolition, all existing standpipes shall be maintained in a state of readiness as dry standpipes in accordance with 527 CMR1:00 section 16.4.3.3 and all work greater than 70 feet shall be provided with an air pressurized alarm system.
2. New buildings and structures. All required permanent or temporary dry standpipes shall be in a state of readiness once the work reaches a height greater than 70 feet and shall be provided with an air pressurized alarm system.
3. Submission of application. An application to install an air pressurized alarm system shall be filed by a registered design professional and a permit obtained by a licensed sprinkler contractor and a licensed electrician shall obtain all required electrical permits in accordance with 527 CMR 1:00 and 780 CMR.
4. Specifications. The following provisions shall apply to the air pressurized alarm system:
 - 4.1. Pressure. Pressure shall be maintained in the standpipe and cross connections at all times and shall not exceed 25 psig (172 kPag) by utilizing nitrogen or an air compressor with an air dryer. The supervisory pressure shall be as determined by a registered design professional.
 - 4.2. Automatic air pressurized alarm activation. The alarm shall be automatically activated when the pressure drops below the supervisory pressure or rises above the maximum pressure of 25 psig (172 kPag). When the alarm is activated, notification shall be made to a fire alarm monitoring company or 24 hr. security located on the construction site in accordance with Section 2 of this order,

all work at the site shall cease, except as provided in Item 4.2.1, and an investigation of the entire standpipe system and air compressor shall be immediately performed to determine the cause of the alarm. Unless authorized by the Fire Department, no construction or demolition work shall resume until the standpipe system is repaired and the appropriate pressure is restored, except that any repairs to the standpipe system needed to restore the required pressure shall be undertaken immediately and the standpipe system restored as soon as possible. There shall be compliance with the requirements of Section 2 of this order while the standpipe system is out of service. Upon completion of repairs to the standpipe system a full inspection of such system shall be performed, which shall include, among other things, visually tracing the standpipe, including risers, cross connections and Siamese connections to verify that no breach exists and checking all gauges of the standpipe system to ensure the standpipe system has been restored to a state of readiness.

4.2.1. Notwithstanding the provisions of Item 4.2, the activation of the alarm shall not require the cessation of work necessary for the completion of concrete pouring operations in progress at the time of alarm activation, where such cessation would cause a cold joint that would impair the structural integrity of the finished construction. The continuation of such operations shall be permitted only until an orderly termination of such operations can be effectuated. The site fire prevention program manager and or site construction supervisor manager shall record the names and locations of any employees necessary for the completion of the concrete pouring operations and provide them to the Fire Department personnel who arrive on the scene.

4.3. Air compressor. The air compressor shall be designed to automatically cut in and cut out at the supervisory pressure and shall be tied into the standpipe system between the Siamese connections and the house check valves. The air compressor shall utilize an air dryer during times when freezing conditions exist to condition the air entering the dry standpipe system.

4.4. Alarm. The standpipe alarm system shall utilize pressure switches and control equipment to annunciate a local audible alarm on site that can be heard during working and non-working hours. The audible signal of the horn or electric bell shall be at least 15 dBA above the ambient noise level but no more than 110 dBA. A yellow (amber) weatherproof beacon is to be installed immediately outside the pressure equipment location and activate upon low pressure in the standpipe.

4.5. Power supply. The standpipe alarm system shall be connected to an active dedicated power supply at all times.

4.6. Check valves. Check valves shall be installed to prevent water from entering the air compressor.

4.7. Locks and caps. All control valves shall be maintained in the appropriate position and shall be provided with capped outlets. All hose valves shall also be provided with capped outlets. Tamper resistant security cuffs are to be placed on valves that are exposed to potential derelict action / vandalism.

4.8. Fire Department connections. A capped 2.5- inch Fire Department Siamese connection shall be provided.

4.9. Drainage. Provisions shall be made to drain water in any trapped sections of the dry standpipe system that are subject to freezing.

4.10. Manual air release connection. A minimum 2.5-inch connection located immediately downstream of the Fire Department Siamese connection check valve shall be provided and piped to a location immediately adjacent to the Siamese connections. This line shall be fitted with a 2.5-inch hose valve and shall allow for release of the pressurized air from the dry standpipe system. The number of air release valves provided shall be such that the air pressure shall be released in no more than 3 minutes, which shall be verifiable by an actual air release test performed at the time of the initial installation,

4.11. Construction documents. Plans shall identify all standpipe risers, cross connections, Siamese connections, any intermediate check valves that have to be removed, proposed location of the air release connections, designation of the supervisory pressure, complete information regarding the alarm system, and procedures for the safe pressurization and depressurization of the system.

4.12. Signage. Signage (weather resistant placard type) shall be provided at all Siamese connections indicating that the dry standpipe system is pressurized and showing the location of the manual air release.

5. Planned removal from service of standpipe system and standpipe air pressurized alarm. Whenever the standpipe system is to be placed out of service for the addition of a new section to the system, removal of an existing section as demolition operations progress, or other planned event, the standpipe alarm may be temporarily deactivated subject to compliance with the requirements of Section 2 of this order. Where a site fire prevention program manager is required by 527 CMR 1.00 section 16.3.2, all alarm activations, inspections, and repairs shall be logged into the log book maintained by such site fire prevention program manager or impairment coordinator. If the standpipe system is not returned to a state of readiness and the alarm reactivated within 4 hours of such planned removal from service, all construction or demolition work at the site shall cease, unless otherwise approved by the Fire Department.

Out of service standpipe systems at construction sites. The owner's fire prevention program manager / site construction supervisor manager and/or impairment coordinator shall take the following actions whenever a standpipe system at a construction site is out of service:

1. Immediately notify the Fire Department through its fire Alarm Division at 617-343-2880 of any unplanned out of service condition, and otherwise comply with the requirements of Section 2.
2. Notify the Fire Department through its Fire Alarm Division at least 24 hours prior to any planned removal of the standpipe system from service and otherwise comply with the requirements of Section 2.
3. Ensure that a fire watch is continuously maintained in compliance with the requirements of the Boston Fire Prevention Code while the standpipe system is out of service.
4. Repair the standpipe system and return it to service in compliance with the requirements of Section 3311 of 780 CMR, 527 CMR 1:00 Section 16.4.3.3, and NFPA 241 Section 8.7.4. The construction site may continue to be occupied, and construction, demolition or alteration activities may continue, pending such repair and restoration to service, except:
 - 4.1. As otherwise provided in Section 1 or 2 of this order; and/or
 - 4.2. As otherwise directed by the Boston Fire Department upon a determination that, in the absence of an operable standpipe system, the conduct of certain construction, demolition or alteration activities would be imminently perilous to life or property; and
 - 4.3 That in no circumstance shall hot work be conducted on the construction site until such time as the standpipe system is restored to service and the standpipe alarm reactivated.

These Construction Fire Safety Permit requirements for air pressurized standpipes shall take effect August 15, 2015.

Referenced standards: Boston Fire Prevention Code, 1979; 527 CMR 1:00 Massachusetts Comprehensive Fire Safety Code; 780 CMR 8th Edition; NFPA 14, 2013 Edition; NFPA 241, 2013 Edition