

**Penn State Office of Physical Plant
Building Services Piping Testing Requirements**

Type of Piping System	Test or Procedure Required	Test Pressure or Method	Test Duration	Leakage Permitted or Result	Code Section Reference
Drainage and Vent	Water Pressure Test	10 feet of water head	2 hours prior to inspection. 15 minute inspection.	None	2009 IPC 312.2
	Final air test (after fixtures are connected) maybe with smoke or peppermint	1 inch water column	15 minutes prior to inspection	None	2009 IPC 312.4
	Shower Liner	Plug shower drain. Fill floor/receptor to 2 inch depth	15 Minutes	None	2009 IPC 312.9
Plumbing Fixture Water Supply	Water Pressure Test	10% > working pressure	2 hours prior to inspection. 15 minute inspection.	None	2009 IPC 312.5
	Disinfection	Follow AWWA C651-14, flush with potable water until clear, fill with water/chlorine solution, stand for designated time, flush with potable water.	Standing time is 3 hours or 24 hours (depending upon water/chlorine solution concentration)	N/A	2009 IPC 610.1, AWWA C651-14
Storm Drainage	Water Pressure Test	10 feet of water head	2 hours prior to inspection. 15 minute inspection.	None	2009 IPC 312.2
Underground fire protection water supply ²	Water Flow Tests	Record static pressure on hydrant A, then open hydrant B and use pitot tube to measure flow pressure from hydrant B, measure residual pressure at hydrant A while flowing hydrant B	Until pressure stabilizes	Record residual pressure	2009 IBC 901.5, 2007 NFPA 13:A.23.2.1
	Flushing	Flow needed to achieve 10 ft/s	Until clear	N/A	2009 IBC 901.5, 2007 NFPA 13:10.10.2.1
	Hydrostatic Test (water)	200 psi or 50 psi above working pressure (whichever is larger)	2 hours (+/- 5 psi)	See NFPA 13 Table 10.10.2.4	2009 IBC 901.5, 2007 NFPA 13:10.10.2.2.1, 10.10.2.2.4
All aboveground fire protection water supply (including dry pipe systems) ²	Hydrostatic Test (water)	200 psi or 50 psi above working pressure of 150 psi (whichever is larger, do not exceed system pressure ratings)	2 hours (+/- 5 psi)	None	2009 IBC 901.5, 2007 NFPA 13:24.2.1
	Operating test (wet piping system only)	Open inspector's test connection	5 minutes	Alarm received	2009 IBC 901.5, 2007 NFPA 13:24.2.3.4.1
	Main drain test	Record static pressure, then open main drain vavle	Until pressure stabilizes	Record residual pressure	2009 IBC 901.5, 2007 NFPA 13:24.2.3.4.1

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Dry pipe fire protection water supply ²	Pneumatic Test (air)	40 psi	24 hours	1.5 psi	2009 IBC 901.5, 2007 NFPA 13:24.2.2.1
	Operating Test	Open inspector's test connection	TBD	Record elapsed time and pressure for the valve to trip and time for water to reach test outlet; ensure alarm received.	2009 IBC 901.5, 2007 NFPA 13:24.2.3.4.1
Refrigerant Piping (Field Constructed) ³	Field test of high-pressure and low-pressure sides using an inert gas such as nitrogen or carbon dioxide, never oxygen. Air is permitted only for R-717 (ammonia)	Not less than the design pressures on the compressor/condensing unit or the setting of the relief device(s).	15 minutes	None	2009 IMC 1108.1
	AND				
	Vacuum test	20 inches of mercury	15 minutes	None	
Hydronic Piping ⁴	Hydrostatic Test (water)	1.5 times the maximum system pressure but not less than 100 psi. Do not exceed fitting pressure ratings.	2 hours prior to inspection. 15 minute inspection.	None	2009 IMC 1208.1
Ground Source Heat Pump Loops	Hydrostatic Test (water)	100 psi	2 hours prior to inspection. 30 minute inspection.	None	2009 IMC 1208.1.1
Fuel Oil	Pneumatic Test (air)	110% maximum pressure, not less than 5 psi. Do not impose > 5 spsi on a connected tank	2 hours prior to inspection. 30 minute inspection.	None	2009 IMOC 1308, 2006 NFPA 31:8.9.1.5
	OR				
	Vacuum test suction lines	20 inches of mercury	15 minutes	None	2006 NFPA 31:8.9.1.6
Fuel Gas ⁵	Field test using an inert gas such as nitrogen or carbon dioxide, never oxygen.	1.5 times the maximum system pressure but not less than 3 psi. If pressure exceeds 125 psig, then test pressure shall not exceed a value that produces a hoop stress > 50% of the minimum pipe yield strength.	30 minutes for each 500 cubic feet of pipe or fraction thereof, but not more than 24 hours. If system volume < 10 cubic feet, or a single family dwelling, 10 minutes.	None	2009 IMC 301.3, 2009 IFGC 406.4
	Leakage test with fuel gas in piping.	Design pressure	N/A	None	2009 IMC 301.3, 2009 IFGC 406.6

List of Abbreviations used in this table¹

AWWA	American Waterworks Association	IBC	International Building Code
IFGC	International Fuel Gas Code	IMC	International Mechanical Code
NFPA	National Fire Protection Association	IPC	International Plumbing Code

Notes:

- Code references based on current Commonwealth of Pennsylvania codes, if a conflict in listed year and current applicable code exist, adhere to AHJ required edition.
- Technician performing test must be certified and hold current licensure for installation and testing of fire sprinkler systems.
- Technician performing test must be certified and hold current licensure for refrigeration system installation, repair and maintenance.
- Where manufacturer's installation and or warranty requirements indicate different/additional requirements, submit a request for variance through the project leader for approval. OPP Safety will provide guidance on alternate methods.