

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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Drainage and Vent Water Test – Rough Plumbing

Code: 2018 NC Plumbing Code
Section: 312.2

Date: September 24, 2020

Question 1:

Does the water test described in 312.2 pertain only to the drainage system, or to the drainage and the vent system?

Answer:

It pertains to the drainage and the vent system.

Section 312.1ⁱ is the scoping paragraph for the tests required of a plumbing system, and it requires “...**All plumbing system piping shall be tested with either water or air...**”. Then, further wording describes the water test procedure in Section 312.2ⁱⁱ, and then another acceptable method using air pressure in Section 312.3. It is the permit holder’s choice to use either of these for the test. There is no intent, however, to have the water test procedure test only a subset of the piping and fittings that the air test procedure would test.

Although the first sentence of section 312.2 refers to the drainage system, the scoping of 312.1, the titles of the two allowed methods for testing--312.2 Drainage and vent **water test** and 312.3 Drainage and vent **air test**--plus the remainder of the test description in 312.2 signify the test pertains to both the drainage and the vent systemⁱⁱⁱ.

Question 2:

Does the NC-Specific Exception to the water test of NCPC 312.2 apply to all residential occupancies, or only detached one-and-two family dwellings and townhouses?

Answer:

The NC-specific Exception to NCPC 312.2 only applies to detached one-and-two family dwellings and townhouses constructed under the NC Residential Code, and not to residential occupancies built under the NC Building (commercial) Code. In the exception, “...3 feet above the highest drain fitting...” is specifically referring to a drain fitting, so you will have limited lengths of vent piping 3 feet above the highest drain fitting, but under the roof, that is not exposed to the water test.

Question 3:

To what does the NC-specific phrase “...within the building..” in Section 312.2 pertain?

Answer:

This language is meaning to exclude drainage systems that are outside the shell of the building, such as the leaders of storm gutters or roof drains that may be located outside the shell of the building. Drainage systems, including storm drains within the building, are subject to the test.

Likewise, a vent extender may be added to a vent that goes through the roof, and that joint above the roofline would not be subject to the test.

Question 4:

In 312.2, is the phrase “..except the highest opening..” referring to the highest point of the plumbing system, such as where the vents terminate above the roof, or to the highest fixture and its flood level?

Answer:

It is referring to the highest point of the plumbing system, such as where the vents terminate above the roof. Section 312.2 is for the plumbing piping, and the fixtures typically are not yet set. Section 312.4 addresses testing after fixtures are set and traps filled with water. If done in sections, see note below for note on test Tee’s.

Note on test Tee’s: When testing in sections allowed by 312.2, the use of test Tee’s is commonly used to accomplish an underslab test, and then subsequent test(s) for levels above that. Test Tee’s can be configured to allow filling of the piping system from a lower level via a garden hose vs. having to climb to the very top of the building to fill the piping being tested.

Keywords: None

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.10 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and the permit holder shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code

official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

ii 312.2 Drainage and vent water test. A water test shall be applied to the drainage system within the building either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the entire system shall be filled with water to the point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest openings under test, and each section shall be filled with water, but no section shall be tested with less than a 10-foot head of water. In testing successive sections, at least the upper 10 feet of the next preceding section shall be tested so that no joint or pipe in the building, except the uppermost 10 feet of the system, shall have been submitted to a test of less than a 10-foot head of water. This pressure shall be held for not less than 15 minutes. The system shall then be tight at all points.

Exception: Rough plumbing testing for one-and-two family dwellings shall be as specified as above except the water level shall be a minimum of 3 feet above the highest drain fitting. Under slab piping systems shall be tested with a minimum of 10 feet of head.

iii Although manufacturing defects in the piping lengths themselves are not common, they do occur as do holes caused by other trades during the assembly of a building. Likewise, joints do get inadvertently missed for cementing, (or tightening in the case of galvanized or cast iron) and finding a vent leak after gypsum is installed and the building occupied can be difficult, time consuming, and expensive. The test procedures in 312.1 are designed to catch leaks in piping that is not only exposed to liquids but also piping that needs to be air tight so as to not leak small amounts of sewer gas into the building and become a nuisance.