



## TESTING

### TESTING PVC PRESSURE PIPE

The testing procedures and requirements are usually stated in the project specifications. The following are Northern Pipe Products Inc. recommendations for testing PVC pressure pipe:

- 1) The testing connection location should be at the lowest point of the line to be tested.
- 2) Be sure all blocking is in place (if concrete is used it must be cured to the necessary strength to withstand the pressure).
- 3) Pipe must be back-filled properly before testing.
- 4) The ends must be capped and blocked.
- 5) Absolutely do not use air pressure for testing. Only hydrostatic testing is recommended.
- 6) Flush lines thoroughly to remove as much existing air as possible. If air pockets remain, it will be very difficult to complete testing.
- 7) Pipe should not be tested beyond 100% of the pressure rating of the pipe.
- 8) The leakage allowance can be calculated from the chart on the next page.
- 9) If the quantity of pipe to be tested is large, the test should be done in sections.
- 10) If the pipe is to be tested before it is tied to a final water source, an alternate water source may be needed. The quantity of water to fill the line can be determined from the chart on the next page.

### VOLUME OF WATER REQUIRED IN GALLONS PER 100 FEET OF PIPE

Pipe Size	US Gallons Per 100 Feet
1 1/2"	13 gallons
2"	20 gallons
2 1/2"	29 gallons
3"	43 gallons
4"	70 gallons
6"	153 gallons
8"	259 gallons
10"	405 gallons
12"	573 gallons

### ALLOWABLE LEAKAGE FOR PVC PLASTIC PIPE WITH ELASTOMERIC JOINTS IN US GALLONS PER HOUR PER 50 JOINTS

Pipe Size	Average 50	Test 100	Pressure 150	(PSI) 200
1 1/2"	.07	.10	.12	.14
2"	.10	.14	.17	.19
2 1/2"	.12	.17	.21	.24
3"	.14	.20	.25	.29
4"	.19	.27	.33	.38
6"	.29	.41	.50	.57
8"	.38	.54	.66	.76
10"	.478	.68	.83	.96
12"	.57	.81	.99	1.15



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## TESTING (CONTINUED)

### TESTING PVC SEWER PIPE

The testing requirements for testing PVC sewer pipe are stated in the project specifications. Each Engineer will specify the type of tests required. The test could vary from a ball and cleaning test, a visual test, a leakage test, a low-pressure air test, infiltration or exfiltration test, or a pipe deflection test. Each test has its own specific methods. Testing is generally done between two consecutive manholes.

When testing, it is very important to make sure that the lines are clean. The ball test will usually accomplish this by flushing an appropriate size cleaning ball through the line.

Simple visual lamping with mirrors and lights can be used for visual tests, or a closed circuit television can also be used.

Leakage tests, whether for air or water leakage, may be taken. It is extremely important that all branch connections be capped and secured before this type of test is attempted. Air testing sewer line can be done with very low pressure. At no time should the air pressure exceed 5 PSI.

When using infiltration and exfiltration testing, generally applied requirements show that leakage should not exceed fifty gallons per inch of external pipe diameter per mile of pipe per day. Other requirements regarding level of water must be met to accomplish this kind of testing.

In deflection testing, the maximum allowable pipe deflection (which is reducing the vertical inside diameter) is 7 1/2%.

Proper placement and compaction of the backfill material in the embedment zone of the pipe in the installation process is the key to maintaining minimum deflection.

Deflection tests are taken with a proper size mandrel or sewer ball that is put through the pipe on a go or no-go basis. Again it must be emphasized that to ensure accurate testing, the lines must be thoroughly cleaned previous to testing.

Other specific testing details may be found in the ASTM D-2321 Specification on the Standard Recommended Practice for Underground Installations of PVC Sewer Pipe, or in the PVC pipe installation chapter of the Handbook of PVC Pipe Design and Construction Manual published by the Uni-Bell Plastic Pipe Association.

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*The  
Benchmark  
of Quality*



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**TESTING (CONTINUED)**

**SERVICE LINES ON PVC SEWER PIPE**

Service lines running from the main sewer line to the unit being serviced are installed in the same manner as the main line using proper installation procedures. If main line full wyes have been installed, put the correct bend into the outlet of the wye and lay the service line to the unit, making the connection at that point.

It is extremely important when making the connection to the main that proper bedding and compaction is done at the point of connection to prevent any movement, collapse, or deflection. If the full wye has not been installed in the line, a saddle type wye must be installed on the pipe to gain entry for the service line. Care must be exercised when preparing the main line for this saddle. Northern Pipe Products Inc. recommends the use of the GPK Products, Inc. saddle wyes on the pipe. The saddle wye has a unique centering ring feature. A template is provided which is placed on the main line and a hole cut to the exact size. When the hole is completed, use care to clean, making sure that no rough edges remain. Stainless steel galvanized straps should be used to secure the wye in position after the solvent has been applied to the saddle and the pipe. The fitting or bend needed to make the correct position of the service line can then be placed and the service line laid to the unit. The same method of carefully trenching, placing, and backfilling done on the main lines should be in practice on the service lines.