

PORTAGE COUNTY COMBINED GENERAL HEALTH DISTRICT

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Joseph J. Diorio, MPH, MS, RS
Health Commissioner

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December 13, 2016

To Portage County Registered Plumbing Contractors and Interested Parties:

Portage County Combined General Health District wishes to make Portage County registered Plumbing Contractors and Interested Parties aware of the implementation requirements of the Ohio Plumbing Code (OPC) Section 312 *Testing and Inspections* that was effective October 10, 2016. The code may be accessed at:

https://www.co.portage.oh.us/healthdept_pages/plumbingdiv.htm.

We have received numerous questions about acceptable test methods for sanitary waste and vents. Portage County Health District accepts all methods specified in the Ohio Plumbing Code. Therefore, please reference the pipe manufacturer's specifications and installation recommendations prior to testing to ensure compliance. Only test methods that meet the Ohio Plumbing Code and manufacturer's specification will be inspected and approved.

Please be advised that the overwhelming majority of pipe manufacturers **DO NOT** allow compressed gas tests. Enclosed for your convenience are several of the applicable bulletins from pipe manufacturers carried by our local suppliers:

- Northern American Pipe
- Charlotte Pipe
- Crestline
- JM Eagle Pipe

Furthermore, please note, Plastic Pipe and Fittings Association (PPFA) testing policy (<https://www.ppfahome.org/ub4.aspx>) states:

"Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems".

Please be advised that effective January 1, 2017, any requested inspection that does not meet the Ohio Plumbing Code and manufacturer's requirements will be disapproved and charged the \$50.00 reinspection fee.

Should you desire assistance to obtain or review pipe testing requirements for compliance or have additional questions, please do not hesitate to contact me at (330) 296 – 9919 ext. 104.

Respectfully,

Dan Robinson
Certified Plumbing Inspector

CHARLOTTE
PIPE AND FOUNDRY COMPANY

010/20/16

To: Whom it may concern

Re: Testing Charlotte Pipe and Foundry pipe and fittings

Charlotte Pipe and Foundry recommends hydrostatic and vacuum testing for pipe and fittings as manufactured to the ASTM D2665, ASTM F891, and/or ASTM F1488 standards. If vacuum testing is the preferred method, the system shall pull and maintain a differential of one inch water column for fifteen minutes. As a safe practice, the system shall not exceed 8.75 inches of mercury. However, Charlotte Pipe and Fittings defers approved testing methods and procedures to all local, state, and national jurisdictions and applicable codes.

Respectfully,



Brian Conner
Director, Training and Product Support
Charlotte Pipe and Foundry Company

Technical Bulletin #15811

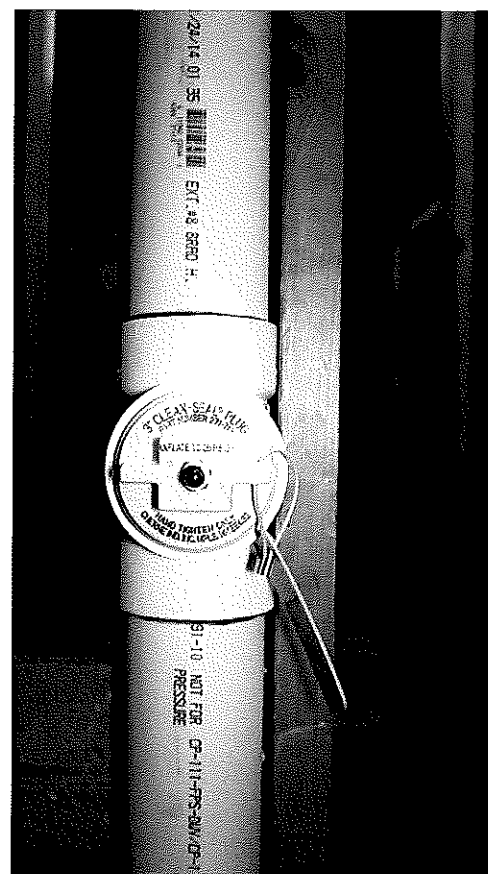
Air Testing of Plumbing Piping Systems

Once a rough-in is completed on a piping project, it is important to test and inspect all piping after installation and before its use. The purpose of testing is to check the installation for leaks and to correct these prior to putting the system into service. In all installations, installers should comply with all local codes, regulations, manufacturers' instructions and architect/engineer specifications.

Air testing – of any piping system – is not a system capability issue; it is a life-safety issue. A pipe segment withstands air pressure in exactly the same manner as it withstands hydrostatic pressure; the physics don't change. What is different is the failure mode should the pipe rupture for any reason including impact from a tool, concrete block, scissor lift or, as in one unfortunate case, an inexperienced workman cutting into a pressurized line.

Air Testing vs. Water Testing

Water is not compressible and cannot store energy through compression, so under these scenarios nothing threatening will occur. Air is compressible and will store energy under compression which will release explosively, possibly throwing shards of pipe, test plugs, fittings or debris. These explosive events have caused serious injury and death. A major manufacturer of test equipment reported on an incident where, due to a faulty test gauge, a test ball was ejected and struck a young man, killing him. The system was being tested at 3.5 psi. For these reasons OSHA has published a series of bulletins warning of the dangers of air testing which can be found here, https://www.osha.gov/dts/hib/hib_data/hib19880520.html.



Safety First

Charlotte Pipe has great respect for the workmen of this country and for this reason we vigorously warn against air testing with any piping product we manufacture. We think it unfortunate that any manufacturer would compromise worker safety for a competitive advantage – we will not.

For the reasons stated above, air testing of piping systems has been disapproved in plumbing codes at the State and model code level.

"You can't beat the system" is a registered trademark of Charlotte Pipe and Foundry Company.
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You can't beat the system.

Charlotte Pipe and Foundry Company

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HOW TO INSTALL FLEXIBLE PIPE

FOUR EASY STEPS

1. CUT IT
2. JOIN IT
3. CLAMP IT
4. LAY IT

HOW TO INSTALL SOLVENT CEMENTED PIPE

1. CUTTING THE PIPE: Use a fine tooth saw and make sure the pipe is cut square. Use a knife or abrasive paper to remove all burrs.
2. CLEAN THE PIPE AND FITTING: Use a clean dry cloth to clean the pipe surface and fitting socket to be joined.
3. DRY TEST THE FIT: The pipe should enter the fitting or bell to 1/3 - 1/2 of the socket depth.
4. APPLICATION OF PRIMER: Remove the gloss from pipe and fittings by wiping with primer.

(OVER)

NOTE: SOLVENT CEMENTS ARE HIGHLY VOLATILE AND HYGROSCOPIC. THE COVER SHOULD BE KEPT TIGHTLY ON THE CAN WHEN THE SOLVENT IS NOT BEING USED. INSPECTION OF THE SOLVENT CEMENT FROM TIME TO TIME FOR THE PRESENCE OF WATER AND/OR EXCESS THICKENING SHOULD BE MADE. IF EITHER CONDITION IS EVIDENT, THE SOLVENT CEMENT SHOULD NO LONGER BE USED.

CRESLINE PLASTIC PIPE CO., INC.

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Council Bluffs, IA 51501
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712-322-2294
903-872-8475

Fax 812-428-9353
Fax 717-697-2371
Fax 712-322-6673
Fax 903-872-7732

5. **APPLICATION OF CEMENT:** Use a natural bristle brush with a width of at least 1/2 the nominal pipe size. Daubers may be used with pipe sizes through 1-1/4" only. Cresline solvent cements are **NOT** interchangeable. Be sure to use the solvent cement intended for the type of pipe being joined. Solvent cement is fast drying and must be applied as quickly as possible. Apply a uniform **LIGHT** coat of cement to the inside of the fitting. Extra caution is required when applying solvent cement to belled end pressure pipe because too much cement in the bell portion of the pipe will cause puddling and could result in a leak when the system is pressurized. Apply a **LIBERAL** coat of cement to the outside of the pipe and immediately stab the pipe into the fitting. A slight rotating motion (1/4 turn) is used during assembly. The joint should be held together for several minutes to keep the pipe from backing out of the fitting or bell. Excess cement should be wiped from the joint.
6. **SET TIME:** Allow the newly assembled joints to carefully set before pressure testing:

30 Minutes at 60-100° F.
1 Hour at 40-60° F.
2 Hours at 20-40° F.
4 Hours at 1-20° F.
7. **CURE TIME:** It requires approximately 24 hours for the solvent cement joints to thoroughly cure. The system should not be put under working or test pressures until 24 hours has elapsed. If the joints have been carefully made, there will be no leaks, as properly made joints are as strong and reliable as the pipe itself.
8. **STORAGE:** Solvent cements should be stored in a cool place except when actually in use at the job site. These cements have a limited shelf life and inventories must be constantly rotated.

PIPE HANDLING AND INSTALLATION

1. **STORING:** Pipe should be stored so as to support the pipe for its full length.
2. **HANDLING AND TRANSPORTATION:** Plastic pipe should not be subjected to rough handling or abuse because it is susceptible to damage by abrasion and gouging. Practices of dragging the pipe should be avoided. The pipe should be transported on flat-bed trucks and supported so as not to cause undue strain or damage during transportation. Damaged portions of pipe should be cut out and destroyed.
3. **TRENCHING:** The pipe should be buried deep enough to protect it from freezing and mechanical damage. Water lines should be buried at least 12" below the maximum expected frost penetration and a minimum of 24 inch cover should be maintained for lines subject to traffic or live loads. The trench width should be wide enough to allow for snaking, if necessary, and the trench bottom should be flat, smooth and free of rocks. It is advisable to pad the trench with sand or compacted fine soils.
4. **INSTALLATION:** Allow for the proper solvent cement "set time" before handling the pipe. The pipe should be snaked in the trench to allow for expansion and contraction. It should be supported continuously with fine (particle size of 1/2" or less), firm (compacted), layers of stable backfill.
5. **TESTING:** After the proper "cure time," it is recommended that the piping system be subjected to a hydrostatic test at normal working conditions **BEFORE** backfilling. In testing, a pressure gage, shut-off valve and safety valve should be installed between the source and new line. Before pressure is applied, **ALL AIR MUST BE REMOVED FROM THE LINE.** Damaged or defective pipe should be repaired before backfilling.
6. **FINAL HOOK-UP:** The line should be flushed free of sand, dirt or other foreign material that may have entered the pipe during installation. The line should be equipped with a pressure regulator to protect it from working pressures and surges that would exceed the recommended working pressures of the piping system. The piping should be cooled to ground temperatures before making the final connection and backfilling.
7. **BACKFILLING:** Should be done during the coolest part of the day. Use clean backfill with particle sizes of 1/2" or less to surround the pipe. Layer and compact the backfill to sufficiently develop uniform soil forces. It may be advisable to have the system under pressure during backfilling.

If the above precautions are followed, you will find plastic pipe will give many years of corrosion-free service.



Solvent Welded PVC Pipe – Aboveground Applications

INTRODUCTION

The PVC pipe industry has published consensus standards that represent the most comprehensive documents for installation requirements and best practices. For PVC pipe used in aboveground pressure or non-pressure applications, North American Pipe Corporation promotes the use of the following standards as the primary sources of installation guidelines:

- ASTM D2855-15, *Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings*
- IAPMO UPC 1, *Uniform Plumbing Code*

For more detailed technical information, refer to the PVC Pipe Association's *Handbook of PVC Pipe Design and Construction*.

When necessary, we have presented additional information specific to our product offering.

The statements contained in this installation guide are those of North American Pipe Corporation and are not warranties, nor are they intended to be warranties.

RECEIVING, HANDLING, & STORAGE

Despite the piping being used in aboveground applications, follow ASTM F1668, *Standard Guide for Construction Procedures for Buried Plastic Pipe*, Section 5.

UV PROTECTION

AWWA M23, *PVC Pipe – Design and Installation*, pg. 7 states, "UV degradation of PVC pipe formulated for buried use will not have significant adverse effect with up to two full years of outdoor weathering and direct exposure to sunlight."

When PVC pipe is properly covered and not exposed to sunlight, the allowable storage time is unlimited. The two year criteria is a cumulative value of the time the pipe is in exposed storage and is not based on the date of manufacture.

TEMPERATURE CONSIDERATIONS

PVC will display a variation in physical properties with changes in temperature. Colder temperatures result in increases in pipe stiffness and tensile strength and decreases in impact strength. The decrease in impact strength requires care in handling during installation in cold temperatures.

The actual rate of expansion/contraction for PVC is 0.36 inch per 100 feet of pipe per 10°F temperature change. Thermal expansion/contraction causes stress in the pipe walls for solvent welded PVC pipe and must be mitigated by the use of expansion joints or other thermal stress management techniques.

Follow IAPMO UPC, Section IS 8-2006.2.4.3 for pressure pipe and Section IS 9-2006.2.3.2 for non-pressure pipe.

USE OF PVC PIPE IN EXHAUST SYSTEMS

WARNING: Failure to follow these instructions exactly could result in serious injury, death, or property damage.

WARNING: Flue gas temperature should not exceed 140° Fahrenheit. PVC pipe exposed to temperatures higher than 140° Fahrenheit may melt or change shape, resulting in leakage of exhaust fumes and property damage.

WARNING CARBON MONOXIDE POISONING HAZARD:

Vent pipe must be properly installed in accordance with all local and national plumbing and HVAC installation standards and codes.

North American Pipe Corporation assumes no responsibility for equipment installed in violation of any code or regulation.

BELL & SPIGOT ORIENTATION

NAPCO recommends that the pipe's bell end points direction of work progress. When joining pipe, it is easier to insert the spigot into the bell than it is to push the bell over the spigot.

The direction of the pipe bell relative to the flow direction does not affect the performance of the pipe joint or system hydraulics.

CLEANERS, PRIMERS & SOLVENT CEMENTS

Follow ASTM D2855-15, Section 6.2, 6.3, and 6.4.

PIPE CUTTING & JOINT PREPARATION

Follow ASTM D2855-15, Section 7.1 through 7.6.

APPLICATION OF PRIMER AND CEMENT

Follow the procedure detailed in ASTM D2855-15, Section 7.7.

COLD & HOT WEATHER NOTES

Follow ASTM D2855-15, Section 8.4 and 8.5.



Solvent Welded PVC Pipe – Aboveground Applications

CONNECTING PIPE TO APPURTENANCES & FITTINGS

Follow the instructions of the appurtenance or fitting manufacturer including pipe trimming, pipe insertion, and bolt tightening guidelines. Appurtenances & fittings must be compatible with the pipe size.

Follow IAPMO UPC, Section 605.13 for pressure pipe applications and Section 705.7 for non-pressure pipe applications.

Mechanical restraint rings typically have grooved pads that bite into the pipe. These grooved pads place acceptable indentations into the pipe. In the event of removing the restraint ring from the pipe, the section of PVC pipe with the indentations should be cut-off and discarded. The same area of PVC pipe should not be re-indented as the strength of the pipe will be compromised.

FIELD CUTTING

Pipe can be easily cut with a power saw using an abrasive disc. Other cutting tools may be appropriate, depending on the size of the pipe. It is recommended that the pipe be marked around its entire circumference prior to cutting to ensure a square cut. Both portions of the pipe on either side of the cut line should be supported from below such that neither portion of pipe pulls at the other while it is being cut.

PIPE SUPPORTS

Follow IAPMO UPC, Section 313.

CHANGES IN PIPELINE DIRECTION

Per IAPMO UPC, Section IS 8-2006.2.4.2 and IS 9-2006.2.2.1, pipe and fittings should be aligned properly without strain. Changes in direction to exposed plumbing piping should be made with fittings, not through flexing or bending the pipe.

See IAPMO UPC, Section 706 & 708 for more information for non-pressure pipe applications.

ACCEPTANCE TESTING

Per the Plastic Pipe and Fittings Association (PPFA) User Bulletin 4-13, *Policy on Testing Plastic pipe and Fittings Installations with Compressed Gas*, "compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems." There is an exception for trap seal testing on DWV systems where a vacuum of 1-2 in H₂O is applied to water-filled traps.

Test pressures anywhere in the line must never exceed the temperature-corrected working pressure rating of the pipe.

Follow IAPMO UPC, Section 609.4 for pressure pipe applications and Section 712 or 1109.2 for non-pressure pipe applications.

DISINFECTION OF POTABLE WATER LINES

Follow IAPMO UPC, Section 609.9.

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PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS

Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

EXCEPTIONS:

1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.

2.) For plastic piping systems specifically designed for use with compressed air or gasses;

- Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,

(and)

- Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific system should be tested.

News

- Silver-Line Plastics™ Certifies Another Facility to PPFA's SM-CAP
- Lasco Fittings is the First Fittings Producer to be Certified to PPFA's SM-CAP
- U.S. Green Building Council and the American Chemistry Council to Work Together to Advance LEED
- Silver-Line Plastics™ First to be Certified to PPFA's SM-CAP
- Building and Construction Industry Leaders Announce Formation of the American High-Performance Buildings Coalition