



Land Development Services – Building Division

# Technical Bulletin

**Subject:** Cured-In-Place Pipe (CIPP) Installation

**Date:** 10/7/21

**No.:** 21-10

**Summary:** The Virginia Uniform Statewide Building Code (USBC) contains provisions for the installation of Cured-In-Place Pipe (CIPP) as a method of rehabilitating existing building drains and building sewers. These provisions can be found in Chapter 7 of the Virginia Plumbing Code (VPC) and Chapter 30 of the Virginia Residential Code (VRC).

**Effective Date:** Immediately.

**Background:** Trenchless technology is available for the rehabilitation of existing building drains and building sewers through a method identified as Cured-In-Place Pipe (CIPP). The CIPP lining system consists of a resin impregnated tube made of polyester, fiberglass cloth, or other resin-impregnable substance that is installed either through an inversion method (ASTM F1216) or a pull-in-place method (ASTM F1743). Once the resin cures, the lining system forms a tight-fitting, smooth and corrosion resistant interior for the existing building drain or building sewer with a slightly reduced interior diameter. The installation of these products must comply with applicable codes, applicable standards, and the manufacturer's installation instructions. Based on the complexity of these variables, Land Development Services has provided criteria within this Technical Bulletin that applies to all proposed CIPP installations.

**Policy:** Information contained herein is a culmination of requirements taken from VPC/VRC and ICC-ES LC1011. The following criteria will be required for the installation of CIPP in residential and commercial building drains and building sewers:

- In accordance with USBC 106.2 and 113.7, a county-approved third-party inspections firm, as outlined in the county's [Third-Party Inspections Program](#), will conduct all required inspections and collect all required documentation for inclusion to the report submittal to the county.
- The proposed CIPP product shall have a current PMG listing issued by the International Code Council Evaluation Service (ICC-ES). This listing shall be provided to the third-party inspections firm prior to commencement of work.
- The proposed CIPP manufacturer's installation instructions shall be provided to the third-party inspections firm prior to commencement of work.
- A pre-installation video camera survey shall be performed by personnel trained and certified by the manufacturer in locating breaks, obstacles, and service connections. Verification of this training and certification shall be provided to the third-party inspections firm along with the pre-installation video camera survey. The third-party inspections firm shall review and evaluate this video to determine if the piping system is capable to be relined in accordance with the proposed lining system manufacturer's

installation requirements and applicable referenced standards. The installation of the CIPP shall not be conducted until written approval of the pre-installation video camera survey has been provided by the third-party inspections firm.

- The minimum thickness of the CIPP liner shall be determined by a Virginia Registered Design Professional in accordance with Section X1.2 of ASTM F1216 for each individual application. Sealed calculations shall be submitted to the third-party inspections firm.
- The contractor installing the CIPP must be trained and certified by the lining manufacturer. Verification of this training and certification shall be provided to the third-party inspections firm.
- The installer shall record the data as required by the relining material manufacturer and applicable standards. The recorded data shall include the location of the project, relining material type, amount of product installed, and conditions of the installation. A copy of the data report shall be provided to the third-party inspections firm.
- Samples of each installation shall be taken per Sections 8.1.1, 8.1.2 and 8.1.3 of ASTM F1216/F1743 and tested by an accredited laboratory acceptable to the code official. The results of these tests shall be submitted to the third-party inspections firm. Testing shall include:
  - Short-term flexural strength and flexural modulus in accordance with ASTM D790 minimum flexural strength shall be 4,500 psi (31 MPa) and minimum flexural modulus shall be 250,000 psi (1724 MPa).
  - Delamination in accordance with Section 8.4 of ASTM F1216/F1743.
- The completed system shall be inspected and tested as follows. The inspection and testing shall be witnessed by the third-party inspections firm.
  - After curing in accordance with the manufacturer's instructions, a final video inspection in accordance with Section 8.6 of ASTM F1216/F1743 shall be performed. The final inspection shall verify that the liner is continuous over the entire length of the inversion and is free of dry spots, lifts, and delaminations.
  - Leakage testing in accordance with Section 8.2 of ASTM F1216/F1743.

#### Reference Documents:

2018 Virginia Uniform Statewide Building Code

2018 Virginia Plumbing Code

2018 Virginia Residential Code

ICC-ES-LC1011 - *Proposed PMG Listing Criteria for the Rehabilitation of Existing Building Drains and Building Sewers by the Inversion or Pulled-In-Place Method and Curing of Resin-Impregnated Tube*

If you have any questions, please contact Richard Grace in the Building Division at **703-324-1687, TTY 711**.

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