

**ICC-ES PMG Listing****PMG-1050***Effective Date: July 1, 2009**This listing is subject to re-examination in one year.***www.icc-es.org/pmg | (800) 423-6587 | (562) 699-0543***A Subsidiary of the International Code Council®*

CSI: DIVISION: 15—MECHANICAL  
Section: 15150—Sanitary Waste and Vent Piping  
Section: 15430—Plumbing Specialties

Product: MaxLiner® Cured-in-place Pipe (CIPP) System

Listee: MaxLiner LLC  
450 College Drive  
Martinsville, Virginia 24112  
[www.maxlinerusa.com](http://www.maxlinerusa.com)

Compliance with the following codes:

2009 *International Plumbing Code*® (IPC)  
2009 *International Residential Code*® (IRC)

Compliance with the following standards:

ASTM F 1216, Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of Resin-Impregnated Tube, ASTM International.  
NSF 14, Plastic Piping System Components and Related Materials, National Sanitation Foundation.  
LC1011, ICC-ES PMG Listing Criteria for the Rehabilitation of Existing Building Drains and Building Sewers by the Inversion and Curing of Resin-impregnated Tube.

Identification:

At a maximum distance of 20 feet (6096 mm), aboveground, along the resin-impregnated lined pipe or tube and at each fixture connection, a label is attached indicating the listing holder's name (MaxLiner LLC), the words "Attention, resin impregnated tube liner", and the ICC-ES PMG listing mark. The ICC-ES PMG listing number (PMG-1050) is optional. The label must include a warning against using flame or heat when repairing any part of the piping system. (See Figure 1)

MaxPox Resin: Each container bears a label with the product name, the manufacturer's name (MaxLiner LLC), the NSF listing mark and the ICC-ES PMG listing mark. The ICC-ES PMG listing number (PMG-1050) is optional.

MaxPox Hardener: Each container bears a label with the product name, the manufacturer's name (MaxLiner LLC), the NSF listing mark and the ICC-ES PMG listing mark. The ICC-ES PMG listing number (PMG-1050) is optional.

MaxWovoLiner: Each container or package bears a label with the product name, the manufacturer's name (MaxLiner LLC), the NSF listing mark and the ICC-ES PMG listing mark. The ICC-ES PMG listing number (PMG-1050) is optional.

Installation:

Installation must comply with the manufacturer's published installation instructions and the applicable codes.

*Listings are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the listing or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this listing, or as to any product covered by the listing.*



The MaxLiner<sup>®</sup> Cured-in-place Pipe (CIPP) System must be applied by installers trained and certified by MaxLiner LLC.

**Inspection and Cleaning:** The pipe must be clean of all debris, roots and other obstructions that would block proper inversion of the CIPP. The cleaning must be done with a high-velocity jetter or with mechanically powered cleaning equipment.

Inspection of the pipe must be done using a closed circuit television (CCTV) camera and performed by experienced personnel trained in locating breaks, obstacles and service connections. The interior of the pipe must be carefully inspected to determine the location of any conditions that may prevent proper installation of the CIPP liner into the pipe. Conditions such as protruding service taps, collapsed or crushed pipe, reductions in the cross-sectional area of more than 40 percent, or other obstructions must be corrected.

If inspection reveals a condition that cannot be removed by conventional sewer cleaning equipment, then a point repair excavation should be made to uncover and remove or repair the obstruction.

**Preparation, Installation and Curing of the Liner:** The quantity of the specified MaxPox Resin and MaxPox Hardener required must be calculated in accordance with the manufacturer's formula based on pipe diameter, length and liner thickness. The quantity should be adjusted by adding 5 to 10 percent more than calculated to allow for migration into the cracks and joints of the original pipe.

The MaxPox Resin and MaxPox Hardener must be mixed in accordance with the manufacturer's recommendations.

The installer must remove all air from the liner tube, using equipment approved by the manufacturer, prior to filling the liner with the epoxy mix.

Once the liner tube has been "wetted out" with the epoxy mix, the installer must evenly distribute the mix in the liner tube using equipment approved by the manufacturer to ensure thorough saturation.

The "wetted out" liner tube must be inverted into the pipe, cured and inspected in accordance with the manufacturer's published installation instructions, using equipment approved by the manufacturer.

**Models:** **MaxLiner<sup>®</sup> Cured-in-place Pipe (CIPP) System:** The system consists of components tested and listed to NSF 14 and ASTM F 1216. These products are listed in the Identification section of this listing.

**Conditions of Listing:**

1. Installation must be performed by installers trained and certified by MaxLiner LLC.
2. The MaxLiner<sup>®</sup> CIPP System may be used to line pipe with a minimum diameter of 4 inches (102 mm) up to a maximum diameter of 10 inches (254 mm).
3. The minimum thickness of the liner must be 0.178 inch (4.5 mm).
4. The pipe must be inspected and cleaned in accordance with the Inspection and Cleaning section of this listing and the manufacturer's published installation instructions.
5. Samples of the MaxLiner<sup>®</sup> CIPP System taken in accordance with ASTM F 1216, Sections 8.1.1, 8.1.2 and 8.1.3, must be tested in accordance with ASTM D 790 for short-term flexural strength and flexural modulus. The minimum flexural strength must be 4500 psi (31 MPa) and the minimum flexural modulus must be 250,000 psi (1724 MPa). The testing must be conducted by an accredited laboratory acceptable to ICC Evaluation Service, Inc..
6. Final video inspection in accordance with ASTM F 1216 must be performed and witnessed by the code official or his designated representative. The final inspection must verify that the liner is continuous over the entire length of the inversion and is free of dry spots, lifts, and delaminations.
7. Leakage verification testing must be performed and witnessed by a representative of an accredited laboratory. A test assembly must be set up utilizing a 4-inch-diameter (102 mm) pipe that is a minimum of 50 feet (15.24 m) in length, with fittings used to simulate an actual installation. The test assembly must be lined and cured in accordance with the manufacturer's installation instructions. The completed test assembly must be tested for leakage in accordance with ASTM 1216 Section 8.2. Maximum leakage with the maximum pressure of 4.3 pounds per square inch (psi) (29.7 kPa) at the lowest point should be 50 gallons per inch of pipe diameter per mile per day with all air bled from the system.
8. MaxLiner<sup>®</sup> CIPP System materials are manufactured by MaxLiner LLC in Martinsville, Virginia, under a quality control program with inspections by SGS U.S. Testing Company, Inc. (AA-692). (Surveillance inspections must be conducted semiannually.)

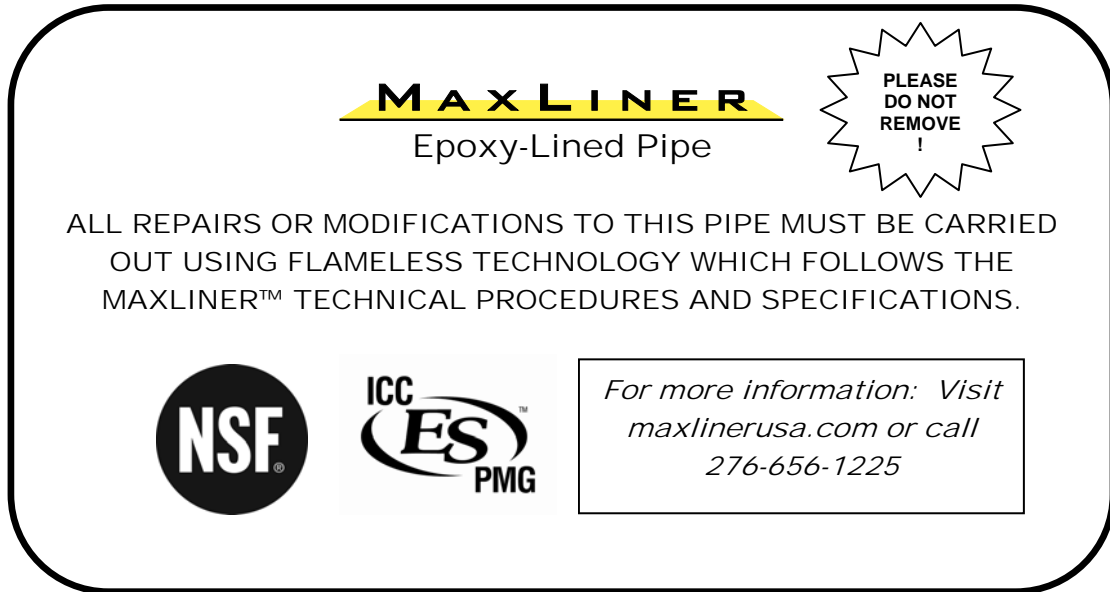


FIGURE 1—CAUTION LABEL