

ICC-ES PMG Listing**PMG-1050***Reissued: August 1, 2010**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: 22 00 00—PLUMBING
Section: 22 13 16—Sanitary Waste and Vent Piping

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

Listee: MaxLiner LLC
450 College Drive
Martinsville, Virginia 24112
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.

Code Alternate:

LC1011 was approved by the ICC-ES PMG listing committee based on several factors which included the following: (1) ASTM F 1216 is a consensus standard but not referenced in the code; (2) the code prohibits drainage line size reduction in the direction of flow. MaxLiner installation does not constitute a reduction to a smaller nominal pipe size, further the resulting surface affords less friction loss which provides equivalent flow capacity despite the small reduction in diameter; (3) the use of this system restores the treated pipe capacity to minimum requirements in the code. Note this analysis only applies to systems evaluated by ICC-ES in accordance with LC1011.

Identification:

Treated Drainage Piping: 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 ICC-ES PMG listing mark. The ICC-ES PMG listing number is optional (PMG-1050). 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), NSF listing mark and the ICC-ES PMG listing mark. The ICC-ES PMG listing number is optional (PMG-1050).

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

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, LLC, express or implied, as to any finding or other matter in this listing, or as to any product covered by the listing.



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

Installation:

Installation must be applied by installers trained and certified by MaxLiner LLC and comply with the manufacturer's published installation instructions.

The installation is summarized below in two steps: Cleaning and Inspection then Preparation Installation and Curing of the Liner.

Cleaning and Inspection: 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.

After cleaning, inspection of the pipe must be done using a closed circuit television (CCTV) camera and performed by MaxLiner trained personnel proficient in locating breaks, obstacles and service connections. The CCTV is used 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%, or other obstructions must be corrected. A video recording of the pipe shall be made during the inspection.

Note: If inspection reveals a condition that cannot be removed by conventional sewer cleaning equipment, then a point repair excavation must 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% 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 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 insure thorough saturation.

The "wetted out" liner tube must be inverted into the pipe. A bladder, referred to as a calibration hose, is installed the length of the liner. The bladder is filled with water pressurized to between 5 and 7 PSI. The bladder is connected to a heater and circulation pump which circulates the water in the bladder and raises the water temperature between 125-135°F. This water temperature and pressure are maintained for a minimum of 2 hours. This forces the liner against the inside diameter of the piping during curing. The bladder is then removed. Cured piping is then inspected in accordance with the manufacturer's published installation instructions using equipment approved by the manufacturer. A final CCTV inspection is performed and recorded in accordance with Conditions of Listing section of this listing.

Models: **MaxLiner® 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® CIPP System may be used to line pipe with minimum diameter of 4 inches (102 mm) to maximum diameter of 10 inches (254 mm).
3. The minimum thickness of the installed cured 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. 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.

6. MaxLiner® 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 semi-annually.)

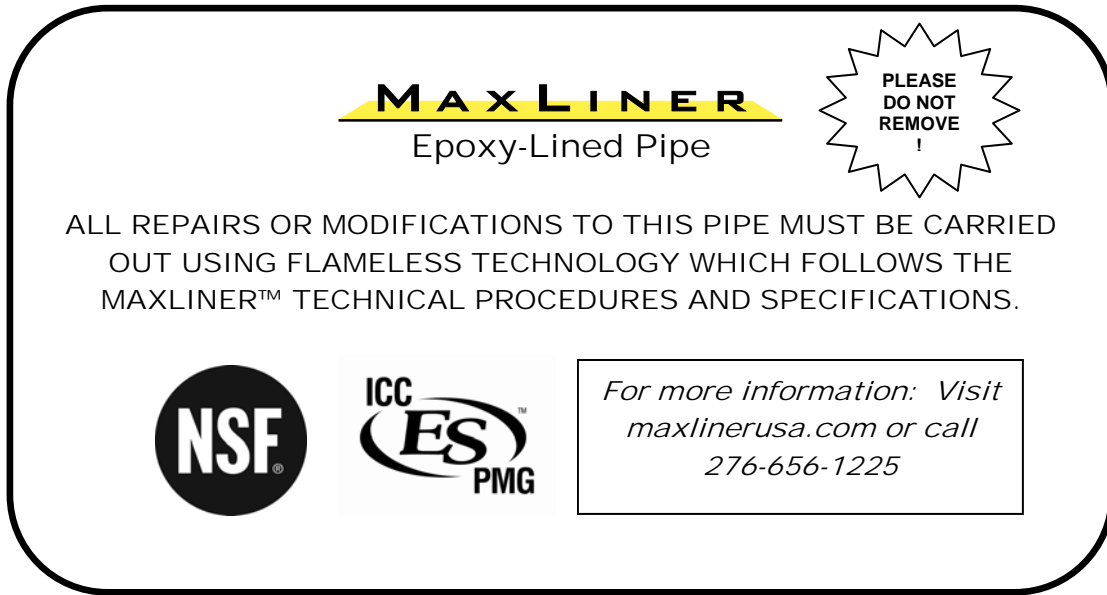


FIGURE 1—CAUTION LABEL