

ICC-ES Evaluation Report

ESR-1894

Effective Date: August 1, 2011

This report is subject to re-examination in one year.

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DIVISION: 22 00 00—PLUMBING
Section: 22 11 16—Domestic Water Piping
**DIVISION: 23 00 00—HEATING, VENTILATING AND AIR
CONDITIONING (HVAC)**
Section: 23 21 13—Hydronic Piping
REPORT HOLDER:
HEATLINK GROUP
 3615 - 32 STREET NE
 CALGARY, ALBERTA T1Y 5Y9
 CANADA
 (403) 717-3820
www.heatlink.ca
lleinweber@pexcor.com
EVALUATION SUBJECT:
**PURELINK PLUS, SURELINK AND HEATLINK CROSS-
LINKED POLYETHYLENE (PEX) TUBE**
ADDITIONAL LISTEES:
PEXCOR MANUFACTURING CO. INC.
 3615 - 32 STREET NE
 CALGARY, ALBERTA T1Y 5Y9
 CANADA

1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2012, 2009 and 2006 *International Plumbing Code*® (IPC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)
- 2012, 2009 and 2006 *International Mechanical Code*® (IMC)
- 1997 ICBO *Uniform Mechanical Code* (ICBO UMC)
- 1997 *Standard Plumbing Code*® (SPC)
- 2009 IAPMO *Uniform Plumbing Code** (IAPMO UPC)*
- 2009 IAPMO *Uniform Mechanical Code** (IAPMO UMC)*

**Uniform Plumbing Code* and *Uniform Mechanical Code* are copyrighted publications of the International Association of Plumbing and Mechanical Officials

Properties evaluated:

- Temperature and pressure ratings
- Physical properties
- Drinking water system component—health effects

2.0 USES

PureLink Plus, and SureLink are trade names for cross-linked polyethylene (PEX) hydronic piping for use in radiant heating systems and for hot- and cold-water distribution. HeatLink cross-linked polyethylene (PEX) hydronic piping is for use in radiant heating systems only.

3.0 DESCRIPTION
3.1 Tubing:

The PEX tubing is produced from polyethylene compound with cell classification 356400 complying with NSF 61 and with ASTM F 876. The HeatLink tubing is coated and is blue-, red-, black- or natural-colored for use in radiant floor heating. The PureLink Plus and SureLink tubings are uncoated and red or natural-colored for use in hot- and cold-water distribution systems. The tubing is available in ³/₈-, ¹/₂-, ⁵/₈-, ³/₄- 1- and 1 ¼ -inch (10, 13, 16, 19 25 and 32 mm) nominal diameter sizes and coils of various lengths. The PureLink Plus tubing is identical to the SureLink tubing.

All of the tubings are pressure-rated for 100 psi (689 kPa) at 180F (82C), for a standard dimension ratio of 9. Standard dimension ratio is the ratio of tube outside diameter to wall thickness, and is constant for all tube sizes.

3.2 Fittings:

Fittings for the PEX tubing must be brass compression fittings, complying with ASTM F 1807, ASTM F 1960, ASTM F 2080, or ASTM F 2159 and must be recognized in a current ICC-ES evaluation report.

4.0 INSTALLATION
4.1 General:

Purelink Plus, SureLink and HeatLink tubing must be installed, using mounting brackets and hardware provided by the manufacturer, in accordance with the manufacturer's published installation instructions, the applicable code and this report. Installation is subject to approval by the code official.

4.2 Water Distribution:

PureLink Plus and SureLink horizontally laid pipe must be secured in such a manner that temperature-induced expansion and contraction are accommodated.

4.3 Radiant Heating Systems:

Details of the design and installation of the radiant heating system must be submitted to the code official for approval. All circuits must be formed from continuous lengths of tubing, from manifold supply to return. No splices are allowed. The system may be installed in either concrete or wood floors. When the system is embedded in concrete floors, a moisture barrier must be laid over a concrete base slab a minimum of 3¹/₂ inches (88.9 mm) thick. Under-floor insulation and reinforcing mesh must then be placed on the slab. The tubing must be uncoiled and attached to the mesh using soft steel wire. A concrete topping is then laid over the tubing. When embedment is in concrete, installation, including minimum concrete cover, must comply with IBC Chapter 19 or UBC Chapter 19, as applicable. When the tubing is installed over polystyrene boards, the boards must comply with Chapter 26 of the IBC, Chapter 3 of the IRC or Chapter 26 of the UBC.

Horizontally laid pipe must be secured in such a way that temperature-induced expansion and contraction are accommodated.

Joints between tubings and fittings must be in accordance with IMC Chapter 12 or item 6 of Section M 2103 of IRC.

4.4 Inspection:

4.4.1 Water Distribution and Water Service Piping: Installed tubing must be pressure-tested and inspected as required by Chapter 6 of the IPC.

4.4.2 Radiant Heat Piping: The tubing must be pressure-tested for leaks before installation of covering, as noted in Chapter 12 of the IMC, Chapter of the ICBO UMC or Section Chapter 21 of the IRC, as applicable. The leak test must be witnessed by the code official or the code official's designated representative.

5.0 CONDITIONS OF USE

The PureLink Plus, SureLink and HeatLink, PEX tubing systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The tubing must be manufactured, identified and installed in accordance with this report, the applicable code and the manufacturer's published installation instructions. Manufacturer's published installation instructions must be furnished to the code official. In the event of a conflict between the manufacturer's instructions and this report, this report governs.
- 5.2 When installation is in fire-resistance-rated assemblies, evidence of compliance with IBC Chapter 7 (penetrations), UBC Chapter 7 (walls and partitions) and UBC Chapter 7 (floor/ceiling or roof/ceiling), as applicable, must be provided to the code official for approval.

- 5.3 The tubing must be protected from exposure to direct sunlight. Tubing and fittings must be protected from physical damage with an oversized flexible corrugated sleeve at structural mass penetrations and when the tube is uncovered. Annular spaces between sleeves and pipes must be filled or tightly caulked in an approved manner.
- 5.4 During placement of cover over the tubing, the tube must be maintained at the greater of 1¹/₂ times the working pressure or 100 psi (689.4 kPa).
- 5.5 Each installation must be pressure-tested for leaks in the presence of the code official or the code official's designated representative.
- 5.6 Clearances from heat-producing equipment must be in accordance with Chapter 5 of the *International Fuel Gas Code*[®], Chapter 13 of the IRC or Chapter 8 of the IAPMO *Uniform Mechanical Code*, as applicable.
- 5.7 The minimum cold bending radius must be six times the outside tube diameter for cold-bent tube and three times the outside diameter for hot-bent tube. The outside diameter is the nominal diameter plus 1/8 inch (3.2 mm).
- 5.8 The use of the tubing in hydronic systems must be limited to applications using potable water as the transfer fluid.
- 5.9 PureLink Plus, SureLink and HeatLink, cross-linked polyethylene (PEX) tubing is manufactured by PexCor Manufacturing Co. at Calgary, Alberta, Canada, under a quality control program with inspections by NSF International (AA-633).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for PEX, PB, AND PEX-AL-PEX Tube and Fittings Used in Radiant Heating and Water Distribution Systems (AC122), dated October 2007.

7.0 IDENTIFICATION

7.1 Tubing:

The tubing is be marked at maximum intervals of 5 feet (1524 mm) with the company name (HeatLink Group or PexCor Manufacturing or Slant/Fin), the product name, nominal tube size, material designation (PEX), standard dimension ratio (SDR 9), temperature and pressure ratings [180F/100 psi (82C/689 kPa)], ASTM F 876/F 877 designation, production code, potable water designation (PureLink Plus and SureLink only), name of the inspection agency (NSF International), and the evaluation report number (ESR-1894).

7.2 Fittings:

Packages of fittings must be identified in accordance with their current ICC-ES evaluation report.