

ICC-ES Marketing Claim Verification

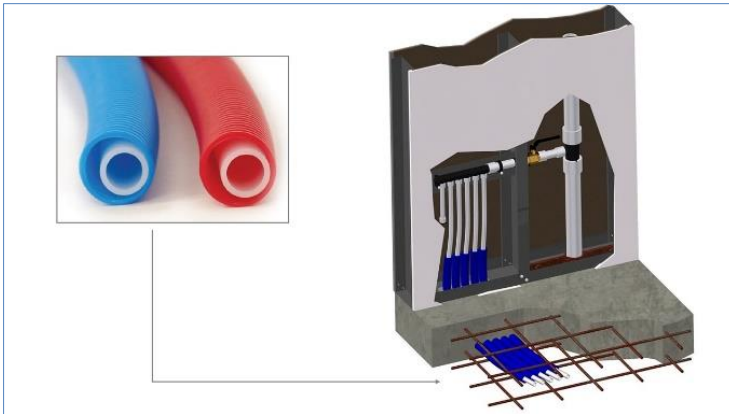
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ESV-1012

(Valid May 1, 2023 – May 1, 2024)

Marketing Claim Report Holder

Uponor, Inc.
5925 148th Street West
Apple Valley, Minnesota 55124
www.uponor-usa.com



Product Type:

Pre-Sleeved PEX Piping System

Model:

Pre-Sleeved Uponor AquaPEX – ½” or ¾” tubing sizes in coils

Product Description:

Pre-Sleeved Uponor AquaPEX features high-density polyethylene (HDPE) corrugated sleeves over crosslinked polyethylene (PEX-a) tubing for use in hot and cold-water distribution. Uponor AquaPEX is listed to ASTM F876 and CSA B137.5 (See ICC-ES Report PMG-1006 for complete compliance information). The sleeve provides a shield for installations embedded in concrete slabs, in soil or below and outside of slabs.

ICC-ES Verification Criteria:

ICC-ES Verification Criteria VC-01



Verification Synopsis:

The purpose of this report is to verify that the overall energy consumption (heat and pressure losses) of a Pre-Sleeved UPONOR AquaPEX piping in-slab installation is less overall than the overall energy consumption of an overhead insulated copper pipe in optimized conditions.

The parameters that have high impact on the Pre-Sleeved UPONOR AquaPEX overall energy consumption are:

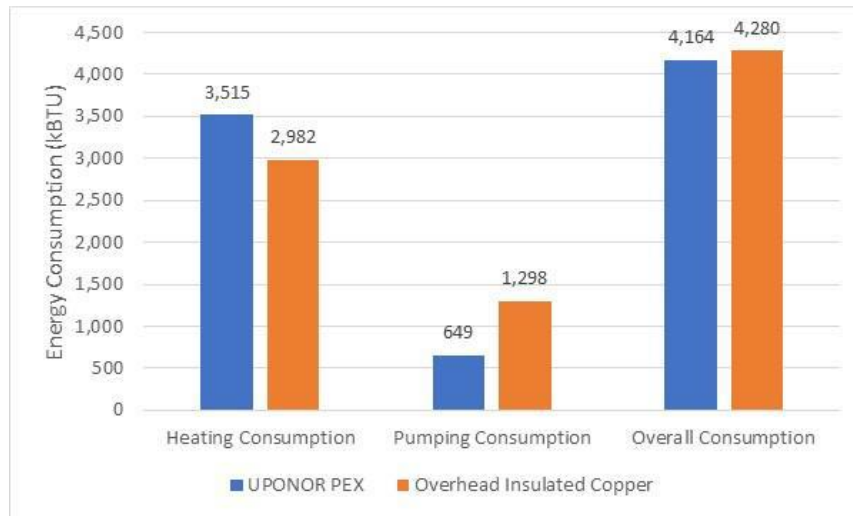
- PEX/Cu length ratio
- Concrete slab thermal conductivity
- Air gap thickness of the pre-sleeved UPONOR AquaPEX configuration

This table presents the parameters for the thermal and pressure analysis using TRNSYS software for a one-year simulation.

Parameters Simulated for the Acceptable Configuration UPONOR PEX and Reference Overhead Insulated Copper

	Pipe Diameter (inch)	Pipe Length (ft)	Air Gap Thickness (inch)	Sleeve Thickness (inch)	Slab Thickness (inch)	Slab Conductivity (BTU/(hr.ft.°F))	Hot Water Temperature (°F)	Fluid velocity (ft/s)	Head loss (ft/100ft)	Friction Factor	Insulation Thickness (inch)
UPONOR PEX	½	52	0.110	0.114	9	0.173	120	8	4	0.03	--
Overhead Insulated Copper	½	105	--	--	--	--	120	8	4	0.03	1½

Note: Thickness of insulation based on IECC and BEES requirements



Consumption for a year in kBtu for UPONOR PEX and Overhead Insulated Copper Case

Optimized Condition:

- PEX/Cu length ratio equal or lower than 0.5
- Light concrete slab with thermal conductivity lower than 0.173 (BTU/hr.ft.°F)
- Maximum air gap thickness of 0.110 in.

Results show that for these optimized conditions, the overall energy consumption of a Pre-Sleeved UPONOR AquaPEX piping in-slab installation is less overall than the overall energy consumption of an overhead insulated copper pipe.