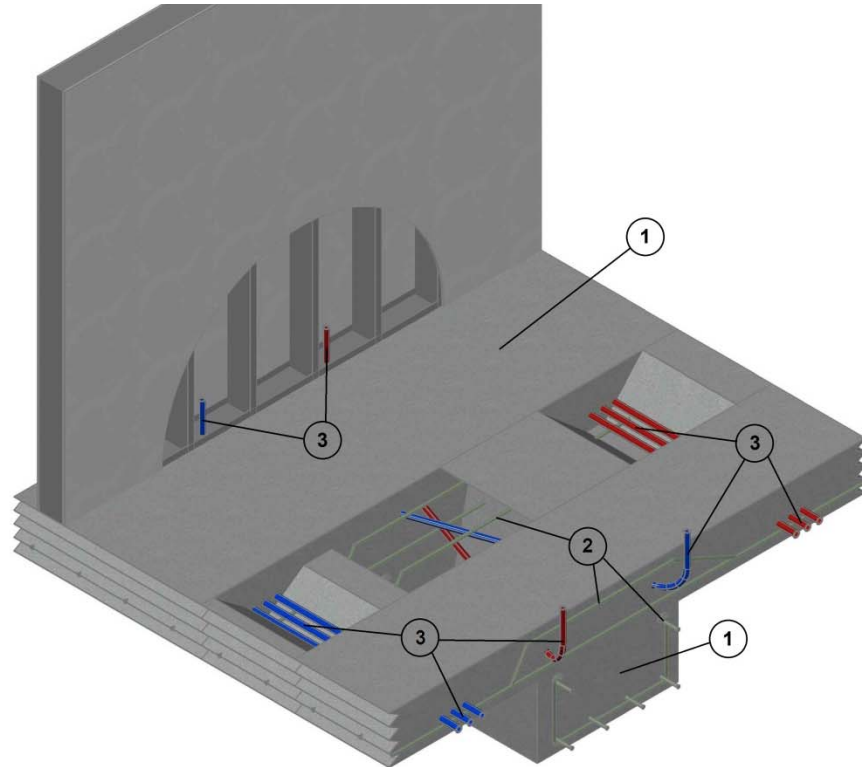


**QAI Listing P321-1D Uponor PEX Filled Floor/Ceiling Assembly
 UL 263, ASTM E119, CAN/ULC S101
 1-1/2 or 2 Hour Fire Resistance Rated Unrestrained Floor/Ceiling Assembly
 Restricted-Load Bearing**



No.	COMPONENT	DESCRIPTION
1	Concrete	Normal weight reinforced concrete slab and beam designed in accordance with ACI-318-89. Carbonate aggregate was used, min. compressive strength of 3500 psi, and unit weight of 145 +/- 5 pcf. Minimum slab thickness of 6-1/2 in. with the below requirements. <ul style="list-style-type: none"> • 1 in. min. concrete cover over the positive reinforcement for a 1-1/2 hour rating • 1-1/2 in. min. concrete cover over the positive reinforcement for a 2 hour rating
2	Steel Reinforcement	Various sized grade 40 and 60 deformed steel bars located as required by ACI 318-89 design for positive and negative reinforcement. Min. concrete cover to be placed over positive reinforcement as described in item 1.

No.	COMPONENT	DESCRIPTION
3	Non-Metallic Tubing	Uponor Inc. AquaPEX (natural, red, blue) nominal 1/2 in. to 2 in. tubing; Pre-Insulated AquaPEX nominal 1/2 in. to 1 in. tubing; hePEX (natural) nominal 1/2 in. to 2 in. tubing; RCW PEX nominal 1/2 in. to 1 in. tubing. Installed perpendicular to and on the top side of the positive reinforcing bars. The tubing may be placed inside a flexible or rigid polyethylene or rigid PVC sleeve. The tubing may penetrate the floor membrane through a sill plate and into a stud cavity of a wall as necessary. Tubes may be supported by 1-1/2 in. wide by 3/8 in. thick PVC or steel brackets. The max. density of tubing shall be 14 in. ³ per ft. ³ of concrete.

*Restricted-Load Bearing – Load rating for this assembly was calculated in accordance with the building code requirements for Reinforced Concrete of the American Concrete Institute (ACI 318-89). For jurisdictions employing the Limit States Design Method such as Canada, a load restriction factor shall be used.

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