

Engineering Specifications

Climate Mat[®]

PART 1 - GENERAL

1.1 SUMMARY

- 1.1.1 Viega ProRadiant Climate Mat utilizes cross-linked high density polyethylene (PEX) Barrier tubing in conjunction with Stainless Steel or Copper Manifolds and electronic and non electric controls to deliver hydronic radiant heating/cooling, floor conditioning and snow melting.

1.2 REFERENCES

- 1.2.1 ASTM F876 Standard Specification for Cross-linked Polyethylene (PEX) Tubing
- 1.2.2 ASTM F877 Standard Specification for Cross-linked Polyethylene (PEX) Plastic Hot- and Cold- Water Distribution Systems
- 1.2.3 CSA B137.5 Standard Canadian for Cross-linked Polyethylene systems for pressure application.
- 1.2.4 ANSI/NSF 61 Drinking Water System Components - Health Effects
- 1.2.5 ANSI/NSF 14 Plastics Piping System Components and Related Materials
- 1.2.6 NSF-pw Potable Water Certification Mark
- 1.2.7 IMC and UMC

1.3 QUALITY ASSURANCE

- 1.3.1 The ProRadiant Climate Mats shall be installed per the manufacturer's installation instructions and local codes. You shall utilize Viega fittings with Climate Mats along with manifolds and controls. Viega fittings, manifolds and controls shall be used with Climate Mat installations.

1.4 DELIVERY, STORAGE AND HANDLING

- 1.4.1 Special care shall be taken to protect all products during shipping and unloading.
- 1.4.2 Climate Mats shall be stored in a flat, dry, well ventilated location, protected from UV exposure.
- 1.4.3 All completed Climate Mat assemblies shall be pressure tested prior to shipment and remain under a static internal pressure of no greater than 20 psig during shipping. Upon receipt of the Climate Mat each assembly should be inspected for damage and pressure retention.

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1.5 PROJECT CONDITIONS

- 1.5.1 Manifolds shall be located in accessible locations and remain accessible by the removal of a panel or door. The manifold shall be properly protected/ insulated when subjected to below freezing temperatures. Proper support of the manifold shall be provided.
- 1.5.2 Appropriate care shall be taken to protect Climate Mats from UV exposure. UV exposure shall not exceed 90 days.

1.6 WARRANTY

- 1.6.1 Subject to the time limits below as to specific components, Viega LLC (Viega) warrants the components of its Climate Mat[®] system, properly installed by a Viega trained contractor and properly maintained, to be free from failure caused by manufacturing defects for a period of thirty years from the date of installation.
- 1.6.2 Viega PEX Press[™] couplings used as repair fittings and wrapped in insulation in accordance with manufacturer's installation manual will also be warranted to be free from failure caused by manufacturing defects for a period of thirty years from the date of installation.
- 1.6.3 Viega PEX Press fittings used as connections from the Climate Mat to Viega's copper or stainless manifold will be warranted to be free from failure caused by manufacturing defect for a period of ten years from the date of installation.
- 1.6.4 Viega electronic and non electric controls used in the Climate Mat system will be warranted to be free from failure caused by manufacturing defect for a period of two years.
- 1.6.5 During the first ten years of the warranty, the remedy under the Viega warranty shall be reimbursement for repair and replacement from a failure or leak found to be the result of a manufacturing defect as well as reimbursement for any damages to personal property.
- 1.6.6 During the remainder of the warranty, the remedy under the Viega warranty shall be repair and replacement only.

PART 2 – PRODUCTS

- 2.1 Climate Mat – Pre-engineered and prefabricated assemblies for a particular hydronic radiant heating or cooling application. Climate Mat - The materials used in the construction of the pre-fabricated thermal transfer assemblies shall be made of ViegaPEX Barrier. The tubing and fittings shall comply with the requirements of the respective component standards.

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Spacer Strip – Semi-rigid 1-inch wide by approximately 5 to 6 foot long plastic strips. Used with plastic, press-in-place, u-shaped clips to secure the tube every 4 feet along the run of tube at predetermined spacing. The plastic strip shall be used to secure the Climate Mat assembly to the sub-base prior to the concrete pour. Additional fasteners shall be used as needed.

- 2.2 ViegaPEX Barrier Tubing: shall be silane cross-linked high density polyethylene per ASTM F876/F877. Tubing shall include an oxygen diffusion barrier in accordance with DIN 4726. Tubing shall also meet the requirements of ANSI/NSF 14 and 61.
- 2.3 Stainless Manifolds: shall be made of 304 Stainless Steel and appropriately sized. Appropriate flow meters, balancing valves, air bleeders, purge valves and shut off valves shall be used with selected models. Manifolds shall have 1-inch NPT removable end caps and 1-1/4-inch union connections. Select models can accept optional powerheads for individual zone control. Manifold supply and return circuit connections shall be SVC type connections.
- 2.4 Copper Manifolds: Shall be manufactured to the requirements of ASTM B 88, Type L copper tube. Manifold configurations are either valveless or fitted with Viega PEX Press shut-off or shut-off balancing valves.
- 2.5 Compression Fittings (SVC): Shall be made of bronze and used to connect ViegaPEX tubing to Stainless Manifolds.
- 2.6 Fitting Standard: Viega PEX Press fittings shall be manufactured from Bronze and meet the requirements of ASTM F877 and CSA B137.5. Threaded adapter fittings shall comply with ASTM B1.20.1.
The Viega PEX Press sleeve shall be manufactured of 304 stainless steel and have incorporated view hole(s) to identify proper ViegaPEX tubing insertion.
- 2.7 Mixing Valves: (3/4-inch through 2-inch) shall made out of DZR CW 602N brass (Dezincification Resistant Brass) with Female NPT or solder connections.
Three-way and Four-way valves shall be equipped with non-slip knobs and end stops for an operation angle of 90°.
Mixing valves shall have PPS composite shaft, bushings and EPDM O-ring sealing elements. Maximum operating temperature is 265 °F with maximum operating pressure of 150 psi.

PART 3 – EXECUTION

3.1 EXAMINATION

- 3.1.1 Prior to installation the installing contractor shall examine the tubing, manifolds, stations, fittings, and controls for any visible defects. NO defective or damaged products shall be installed.

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3.2 PREPARATION

3.2.1 Tubing shall be cut square with appropriate tubing cutters to permit proper joining with the fittings and manifolds.

3.3 INSTALLATION GENERAL

3.3.1 ProRadiant systems shall be designed and installed per Viega design and installation instructions. www.viega.com

3.4 INSTALLATION

3.4.1 Prior to concrete placement, each Climate Mat[®] shall be pressurized with 80 psi of air or purged of air, filled with water and hydrostatically pressurized to 150% of the system design operating pressure per the engineering specifications or a minimum of 80 psi or in accordance to local codes.

Under no circumstances shall the test pressure exceed the working pressure rating indicated on the header or tubing print line. All Climate Mats shall remain under hydrostatic pressure for the duration of the concrete pour.

3.4.2 Climate Mat: Proper care shall be exercised during the installation process as not to damage the Climate Mat assembly. Tubing shall not be exposed to harmful substances, excessive heat, sharp objects or excessive UV light or any other potentially harmful conditions. Climate Mat shall be secured by plastic clips, clamps or staples approved by manufacturer. NO metallic clips or straps shall be used to secure tubing.

3.4.3 Manifolds: Manifolds shall be provided by manufacturer and installed per installation instructions. Tubing shall be connected to manifolds using manufacturer recommended fittings.

3.4.4 Freeze Protection: Necessary precautions shall be taken to ensure the system does not freeze. Refer to manufacturer's installation instructions.

3.4.5 When requested, manufacturer will provide on site representative at the time of initial installation to provide information and support as to proper installation. Advanced notice should be given in a timely manner. The on site manufacturer's representative should be scheduled through Viega's Inside Sales department.