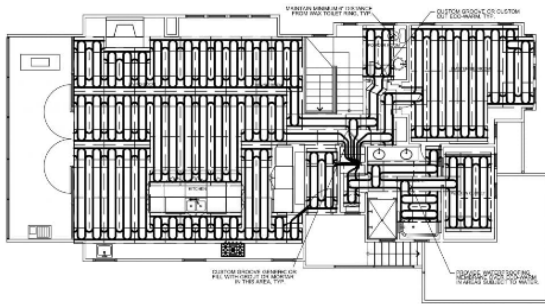


## PART 1 – GENERAL

### 1.01 General

- A. Provide all labor, materials, transportation, equipment and services to install an Ecowarm™ Radiant Board non-structural modular board system, as indicated by the contract documents and these specifications
- B. Examine all contract documents for instructions, terms and conditions related to the installation of Ecowarm™ Radiant Board non-structural system. Provide all work as described and required and support and accommodation of related work.
- C. Manufacturer shall supply project shop CAD drawings that show the location of RadiantBoards, PEX tubing and manifolds.

#### Sample:



### 1.02 References

- [Ecowarm RadiantBoard Installation Manual](#)
- Radiant Professionals Alliance Guidelines for the Design and Installation of Radiant Heating Systems, applicable portions of sections 16.2 and 19.3
- B. SFI (Sustainable Forestry Initiative Inc.) certification (substrata board supplier used in the manufacture of Ecowarm)
- C. American Society For Testing Materials (ASTM) Standard Specification For Cross Linked Polyethylene (PEX) Tubing
- D. International Building Code (IBC)
- E. Uniform Building Code (UBC)
- F. Uniform Mechanical Code (UMC)
- G. Applicable local modifications and codes that apply in a project's jurisdiction

### 1.03 Submittals

- A. Verification of SFI certification substrata board supplier used in manufacture of Ecowarm™ Radiant Board
- B. Verification of compliance with RPA Standard Guidelines or local code requirements for heating system design sufficient to supply heating needs of the structure or portion of heating needs as specified by contract documents.
- C. Installation plan showing modular board and tubing layout, manifold locations,

installation notes and other system components shall be submitted for approval as specified under the terms and conditions of the Contract Documents. No installation work shall be initiated before such approval is obtained.

#### **.04 Delivery, Storage, Handling and Quality Control**

- A. The General Contractor and, if different, the receiving sub-contractor shall ensure that the Ecowarm modular boards are received in good condition and installed without damage and installed in accordance with construction documents, the then current Ecowarm Installation Manual and applicable code.
- B. The Ecowarm board shall be stored indoors in a temperate (40°F-90°F), dry location. Avoid prolonged exposure to sunlight. Do not store in a damp location. Be sure to follow all instructions in the Ecowarm™ Installation Manual on protecting the board from prolonged moisture contact.
- C. PEX tubing before and after installation shall be protected from prolonged exposure to UV light, according to the tubing manufacturer's requirements.

#### **1.05 Site Conditions Required for Installation of Ecowarm™ Radiant Board**

- A. Ecowarm shall only be installed on a subfloor, indoors, in enclosed dry structures.
- B. The surface of the subfloor must be flat: The requirement for flatness is defined as the maximum difference between two adjacent high points and the intermediate low point. The maximum acceptable difference in level is 3/16 of an inch in a 10-ft. radius.
- C. Wood subfloors must have a stable moisture content, between 6 – 10%. Creaking subfloors must be repaired before installation.
- D. When installing Ecowarm™ Radiant Board over concrete, it is the contractor's – as well as the installer's – responsibility to test all concrete substrates, both new and old, for moisture content to determine whether they are sufficiently dry to install Ecowarm Radiant Board™. Moisture in the concrete should be tested according to ASTM F 1869 (Calcium Chloride Moisture Test using the Quantitative Method). With a calcium chloride test, the maximum acceptable reading is 3 lbs. / 4 hours / 1,000 sq.ft. New concrete slabs and basements must be cured for a minimum of 60 days prior to installation.

#### **1.06 Limited Warranty**

Ecowarm warrants that its non-structural modular board products are free from defects in material and workmanship in the manufacturing process when shipped from the factory. For a period of 1 year after shipment from the factory, any boards determined to have been defective when they left the factory will be replaced by a like number of boards as the exclusive remedy.

To qualify for warranty, goods must be inspected upon receipt by customer for defects, stored and installed according to the most current Ecowarm Installation Manual, and used in conformity with the written specifications in the Manual. Assertions of defect must be presented to Ecowarm in the form of return of goods or other documentation acceptable to Ecowarm. If Ecowarm agrees that the defect is covered by the Ecowarm warranty, then Ecowarm shall, at its expense, ship replacement boards as the sole remedy. Ecowarm specifically disclaims any incidental, consequential or other claims of

damage beyond the replacement of defective product. In no event shall damages exceed the cost of the goods provided. Any product that has been removed and reinstalled is excluded from warranty coverage. Ecowarm is a construction board product and many aspects of its storage, transport and installation are beyond the control of Ecowarm.

## **PART 2 - ORIGINATING MANUFACTURER AND RELATED PRODUCTS**

### **2.01 Approved Board Manufacturer**

- A. Ecowarm™ Radiant Board shall be manufactured solely by Ecowarm™ or by Ecowarm's approved manufacturer. No other modular radiant boards may be substituted.

### **2.02 Tubing**

- A. Tubing Installed in Ecowarm™ Radiant Board non structural modular boards shall be third party certified to and manufactured to ASTM F-876 and F-877.
- B. The PEX tubing shall have PPI issued design and pressure ratings of 200°F @ 80 PSI, 180°F @100 PSI and 73.4°F at 160 PSI.
- C. The PEX tubing shall be nominal 1/2" ID in accordance with ASTM F-876 and F-877, and shall never have loops longer than 350'.
- D. Tubing shall be pressurized with air or water, in accordance with codes, or to a minimum of 60PSI, and maintained through completion of any and all stages of construction that might damage tubing.
- E. Contractor must follow all manufacturer requirements for the care and handling of the tubing.

### **3.04 Subsequent to Tubing Installation**

- A. Care shall be taken to protect tubing from damage, debris and prolonged exposure to UV light until covered by flooring goods. Tubing shall be vacuumed before cover.
- B. Flooring goods shall be installed with care to avoid damaging tubing. Particular care must be taken where tubing goes under sills, door jams or radius into walls for manifolds. Inform the other trades of the location of tubing, and protect tubing from damage, with metal plates if necessary.
- C. Pressure test tubing: Check tubing pressure frequently, and keep it under test during any stages of installation and construction that might damage the tubing.
- D. Finish installation and connect to mechanical components as required by construction documents, all codes and good practices.

## **RECOMMENDED ASSOCIATED PRODUCTS**

## TUBING AND GLUES

### 1.0 Recommended Tubing for use with Ecowarm™ RadiantBoard

1.1 Tubing Installed in Ecowarm™ Radiant Board nonstructural modular boards shall be third party certified to and manufactured to ASTM F-876 and F-877.

1.2 The PEX tubing shall have PPI issued design and pressure ratings of 200°F @ 80 PSI, 180°F @100 PSI and 73.4°F at 160 PSI

1.3 The PEX tubing shall be nominal 1/2" ID in accordance with ASTM F-876 and F-877 and shall never have loops longer than 300' and shorter loops shall be used in circumstances as recommended in this Manual.

1.4 DO NOT use PEXALPEX (Pex Aluminum Pex). Ecowarm™ Radiant Board has a slightly undercut groove. Regular PEX will oval then rebound into the undercut, and be retained, whereas PEX-ALPEX will oval and will not expand into the slight undercut. The result is that PEXALPEX will not be as well retained as regular PEX in the groove – it may stand tall of the board.

1.5 We recommend these brands of regular 1/2" PEX: *Uponor, Zurn, Watts, Mr. PEX, Rehau.*

1.6 Use of Barrier Pex is recommended in most systems to reduce any potential corrosion of metallic components.

### 2.0 Recommended Glues for use with Ecowarm™ RadiantBoard [Flooring Goods Over Ecowarm](#)

2.1 We recommend using one of the 3 glues listed below when adhering any wood flooring, backerboard or underlayment wood material to Ecowarm™ Radiant Board. All 3 may also be used to glue Ecowarm Radiant Board to clean dry concrete. Sika T-35 and Bostik Greenforce also provide a degree of protection from vapor intrusion from a slab. Be sure to reference the instructions of both the glue manufacturer and any products being adhered.

*Sikabond T-35*

*Product Data Sheet Link*

<https://ecowarmradiantheat.com/wp-content/uploads/2017/02/pds-cpd-SikaBondT35-us.pdf>

*Sell Sheet Link*

<https://ecowarmradiantheat.com/wp-content/uploads/2017/02/Sell-Sheet-SikaBond-T35.pdf>

*Mapei Ultrabond Eco-980*

*Brochure*

[https://ecowarmradiantheat.com/wp-content/uploads/2017/02/Ultrabond\\_ECO\\_980-EN\\_lr.pdf](https://ecowarmradiantheat.com/wp-content/uploads/2017/02/Ultrabond_ECO_980-EN_lr.pdf)

*Bostik Greenforce*

*Product Data Sheet Link*

[https://www.bostik.com/globalassets/tdsdocuments/greenforce\\_united\\_states\\_en/technical-](https://www.bostik.com/globalassets/tdsdocuments/greenforce_united_states_en/technical-)

### 3.0 Avoid Tubing When Screwing Backboard or Underlayment Plywood to Ecowarm™

3.1 Take a photograph as a reference, snap chalk lines where the tubing runs are, and avoid screwing to those areas. Remember, tubing runs are 11.75" apart. Take a thick clear sheet of plastic, cut it to size, and lay it out over the Ecowarm™ once tubing has been installed, then mark with a permanent marking pen the location of the tubing. This may be rolled up and later unrolled and used as a reference to avoid tubing when screwing other products to Ecowarm.