

Standard Specifications

Ecowarm Modular Non Structural Radiant Board System

Part 1 General

1.01 General

A. Provide all labor, materials, transportation, equipment and services to install Ecowarm 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 Non Structural Radiant Board System. Provide all work as described and required and support and accommodation of related work.

1.02 References

A. Radiant Panel Association Guidelines for the Design and Installation of Radiant Heating Systems, applicable sections of sections 16.2 and 19.3

B. SFI (Sustainable Forestry Initiative Inc.) certification (substrata board supplier used in manufacture of Ecowarm)

C. American Society For Testing Materials (ASTM) Standard Specification For Cross Linked Polyethylene (PEX) Tubing

D. International Building Code (ICC) E. Uniform Building Code (UBC)

F. Uniform Mechanical Code (UMC)

G. Applicable local modifications and codes that apply in project jurisdiction

1.03 Submittals

A. Verification of SFI certification substrata board supplier used in manufacture of Ecowarm

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.

1.04 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. should always be stored in a temperate, dry place (40°F-90°F).

Avoid prolonged exposure to sunlight. Do not store in a damp location. Be sure to follow all instructions in the Ecowarm Installation Manual regarding 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

- 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 PLUS™ 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 PLUS™. 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 Square. ft. New concrete slabs and basements must be cured for a minimum of 60 days prior to installation.

1.06 Limited Warranty

- A. 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 that are 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 and 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 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 non structural modular boards shall be third party certified to and manufactured to ASTM F-876
- 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 shall never have loops longer than 350'

Part 3 Job Execution And Sequencing

3.01 Preparation

A. The Ecowarm non structural modular board shall be installed according to the contract documents and the then current Ecowarm Installation Manual.

3.02 Modular Board Installation

A. Using a layout plan, install the Ecowarm boards to the subfloor as required by the contract documents and the then current Ecowarm Installation Manual. Follow recommended floor assemblies, gluing and attachment patterns contained in Ecowarm Installation Manual.

B. Reference planned direction of any wood flooring before installation and align straight boards at 90° from direction of wood flooring. If this is a change from the submitted and C. Perform custom routing and drilling before installation of tubing

3.03 Tubing Installation

A. Channels shall be dry, clean and free of any debris before tubing is installed.

B. The tubing shall be pressed into the channels until it is flush with the top of the board.

C. Installation shall follow construction documents, and approved plan for tubing layout, manifolds controls and mechanical room.

D. Tubing shall be pressurized with air or water in accordance with codes or to a minimum of 60PSI and maintained through completion of 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 sill, door jams and radius into walls for manifolds. Inform the other trades of location of tubing and protect tubing from damage with metal plates if necessary

C. Check tubing pressure test frequently and keep under test during any stages of installation and construction that might damage tubing.

D. Finish installation and connect to mechanical components as required by construction documents, all codes and good practice.