SECTION 23 83 16.16 - RADIANT HEATING HYDRONIC REMODEL PANEL UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Conductive aluminum overlay on oriented strand board (OSB) remodel panels, grooved to accept polyethylene tubing for hydronic heating system.
2. Polyethylene (PEX) tubing.

B. Related Requirements:

1. Coordination of system connection to hydronic heating system.
2. Coordination of finish flooring installation requirements.

1.2 REFERENCES

A. Engineered Wood Association; Testing and Rating procedures for OSB sheathing.

B. Moisture Testing of Concrete Slabs: ASTM D4263.

C. ASTM D3498 -Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems.

D. ASTM F876-Standard Specification for Crosslinked Polyethylene (PEX) tubing.

E. ASTM F1281 - Standard Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe.

F. Applicable Plumbing Codes: Construction codes applicable to radiant heating systems.

[Edit selections below for project conditions]

1. UPC – Uniform Plumbing Code.
2. IBC – International Plumbing Code.
3. State and local plumbing codes.

1.3 SUBMITTALS

A. Submit manufacturer's data sheets on each product to be used, including;

1. Preparation instructions and recommendations
2. Storage and handling requirements and recommendations
3. Installation methods

B. Submit manufacturer's layout drawings detailing the location, layout and pattern of panel and tubing installation.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide materials and installation patterns from manufacturer specializing in radiant panels. Approve radiant tubing, fasteners, and secondary materials to be installed in conjunction with the radiant floor system.

B. Installer Qualifications

1. Related plumbing connections required by the work listed in this section shall be performed by a contractor or subcontractor licensed or otherwise authorized to install radiant heating systems by Authorities Having Jurisdiction

C. Mock-Up: Provide a mock-up for evaluation of substrate preparation, system coordination, fabrication, installation, and application of finishes.

1. Indicate how finishes are applied.
2. Rework mock-up to produce acceptable work.
3. Mock-up may remain in place.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Ensure that panels remain dry before and during installation.

1.6 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results.

B. Install panels only when environmental conditions comply with manufacturer's requirements.

C. Panels and substrate must be dry prior to installation.

1.7 WARRANTY

A. Provide panel manufacturer's limited warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Warmboard, Inc.
8035 Soquel Dr. Suite 41A,
Aptos CA 95003
877.338.5493
831.685.9276
831.685.9278 FAX
info@warmboard.com
www.warmboard.com

2.2 DESCRIPTION

A. Warmboard-R OSB panels for installation on existing subfloors, concrete slab, and walls.

B. PEX tubing installed in panels.

2.3 MATERIALS

A. Radiant Panels: Nominal 13/16-inch, (20.6mm) thick, aluminum clad, OSB panels with pre-routed channels for installation of radiant heat tubing.
1. Panel Dimensions: 24x48 inches (610mm x 1219mm).
2. Panel Base: 25/32 inch (20mm) OSB panel.
3. Radiant Barrier Overlay: 0.025 inch (0.6mm) glare resistant light green aluminum sheet bonded to plywood and conforming to channels.
4. Channel size: Nominal 21/32 inch (16.7mm) diameter.
5. Channel spacing: 12 inches (305mm) o.c. parallel to panel's long dimension.

B. Radiant Heat Tubing: Cross-linked Polyethylene (PEX) based tubing designed for transmission of hot water.
1. Tubing size: ASTM F876 or F1281; 1/2-inch (13mm) inside diameter.
2. Hydrostatic design and pressure ratings per Plastic Pipe Institute (PPI).
a. 200 F degrees F at 80 psi (93.3 C at 552 KPa).
b. 180 F degrees F at 100 psi (82.2 C at 689 KPa).
c. 73.4 F degrees F at 160 psi (23 C at 1103 KPa).

3. Maximum Loop Length: 300 feet (91440mm).

C. Vapor Retarder at concrete subfloor: 10-mil polyethylene sheet.

2.4 FASTENERS AND ADHESIVES

A. Nails: 6 penny nails with twist, ring or otherwise deformed shank. Adjust nail length to penetrate panel and existing substrate.

B. Screws: #9 x 1-3/4 inch GRK Uber Grade multi-purpose type.

C. Concrete Fasteners: 2-1/2 or 2-1/4 by 1/4 inch Tapcon concrete fasteners or Split Drive Anchors.

D. Construction Adhesive: Elastomeric resin adhesive meeting or exceeding the requirements of ASTM D3498.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing substrate is acceptable to receive panels.

B. Inspect substrate before beginning Installation.

C. Notify Architect of unsatisfactory conditions before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best results for the substrate under the project conditions.

C. Remove dust, debris and dirt from substrate. Remove or set flush elements that may interfere with the installation.

3.3 VAPOR RETARDER INSTALLATION

A. Install vapor retarder at concrete slab.

B. Lap seams 24-inches (610mm).

C. Patch tears and holes prior to panel installation.

3.4 PANEL INSTALLATION

A. Install panels in accordance with manufacturer's current printed instructions.

B. Locate panels as shown on reviewed shop drawings.

[Edit Note: Selection installation methods required below.]

C. Nail and Glue Method: At wood subfloors apply 1/4-inch wide beads of construction adhesive to panels at 12-inches o.c. (13mm) following the adhesive manufacturer's recommendations for use and open time. Apply nails in 3 rows of 4 fasteners. Set fastener heads flush. Protruding fastener heads not acceptable.

D. Concrete Substrate: Fasten panels with concrete fasteners. Minimum 9 fasteners per panels. Set fastener heads flush. Protruding fastener heads not acceptable.

E. Screw Method: Install panels with screws in 3 rows of 4 fasteners. Set fastener heads flush. Protruding fastener heads not acceptable.

F. Where unusual architectural features require custom grooves to be created, follow the manufacturer's instructions on shaping and finishing grooves.

3.5 RADIANT TUBING INSTALLATION

A. Do not install radiant tubing until the panels have been installed over the entire floor.

B. Individual tubing runs shall not exceed 300 feet (91.44m).

C. Install tubing approved by panel manufacturer.

D. Carefully position and lock into place the tubing, avoiding sharp bends which may kink or otherwise damage tubing.

E. Roll tubing into place using a weighted roller. Ensure that tubing is flush with top surface of subfloor.

F. Repair and replace damaged tubing using tubing manufacturer's repair components.

3.6 PLUMBING CONNECTIONS

A. Coordinate connection of hydronic tubing assembly to heating system. Ensure that manifold tubing matches panel tubing.

B. Ensure that hydronic heating system is correctly connected.

C. Observe pressure testing of complete hydronic system.

D. Repair and replace damaged or leaking tubing.

3.7 FINISHED FLOORING APPLICATION

A. Coordinate installation of finish flooring to prevent damage to tubing.

B. Provide panel manufacturer's installation requirements for the finish flooring being installed to finish flooring installer.

3.8 PROTECTION

A. Protect installed panels until finished flooring installation is completed.

END OF SECTION

Compliant with CSI Formats & Guidelines