

Recommended Specification
Freezer Frost Heave Prevention

Specifier: Please Select One of The Titles Below:

SECTION 16855 HEATING CABLES

SECTION 15773 ELECTRIC HEATING CABLES, MATS, MODULES, PANELS, AND CONTROLS

SECTION 15770 FLOOR HEATING AND SNOW MELTING EQUIPMENT

This section includes electric heating cables.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Heating cable.
- B. Slab sensing temperature sensors.
- C. Control System.

1.02 RELATED SECTIONS

- A. Building Insulation.

1.03 PERFORMANCE REQUIREMENTS

- A. The design will be for self-regulating heating cable sets in conduit with the conduits spaced 4 ft apart and located under the floor insulation, a central control panel and temperature sensors.
- B. The manufacturers shall provide complete design drawings.

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of heating cable, temperature sensors and branch circuit connections.

1.05 QUALIFICATIONS

- A. Manufacturer: company specializing in supplying the products specified in this section with minimum 20 years experience with electric heating systems.
- B. All self-regulating heating cable equipment furnished under this section shall be supplied by a single manufacturer.
- C. Self-regulating heating cable and temperature controllers shall be approved by a Nationally Recognized Agency (UL, CSA, etc.).
- D. Constant wattage cable is not acceptable for this application.

1.06 COORDINATION

- A. Coordinate installation of heating cable with electrical contractor, concrete contractor and general contractor.
- B. Coordinate installation of conduit for the heating cable and the temperature sensors with installation of concrete framework and concrete placement.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. System including heating cable sets, control panel and temperature sensors shall be as supplied by Bylin Engineered Systems, 4800 Golden Foothill Pkwy, El Dorado Hills, CA 95762
Phone (916) 933-5666, Fax (916) 933-5959.
- B. Substitutions: No Substitutions allowed.

2.02 HEATING CABLE

A. Heating Cable:

1. The self-regulating heating cables shall consist of two (2) nickel-plated copper bus wires embedded in parallel in a radiation-cross linked polymer core that varies its power output in response to temperature all along its length, allowing the heating cable to be installed in conduit without overheating.
2. The heating cable shall be covered with a radiation cross-linked polyolefin dielectric jacket and protected by a tinned-copper braid and a polyolefin outer jacket.
3. Termination components shall be UL Listed.
4. Constant wattage cable is not acceptable.
5. The heating cable shall be WFP-622 or WFP-822 as manufactured by Bylin Engineered Systems.
6. Pre-cut and terminated heating cable sets shall be provided from manufacturer.
7. Each cable set shall be factory tested at 2500 VDC from power connection to braid. Resistance readings shall be 10 megohms to infinity.
8. Each branch circuit shall be protected by a 30 mA ground-fault protection device.

B. Rating: [208] [240] [277] V.

2.03 ACCESSORIES

A. Bylin control panel:

1. Slab temperature sensors (RTDs, up to three).
2. 1-phase or 3-phase load center with branch circuit breakers and ground fault protection.
3. Branch circuit solid-state relays (zero volt crossover).
4. Temperature controller.
5. On-Off-Auto switch to allow for:
 - a. Manual on mode.
 - b. Manual off mode.
 - c. Auto mode.
6. Alarm lights for circuit fault and low-temperature conditions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer to verify that concrete framework and conduits are ready to receive work.
- B. Installer to verify that field measurements are as shown on drawings.
- C. Installer to verify that required utilities are available, in proper location, and ready for use.
- D. Beginning of installation means installer accepts conditions.

3.02 INSTALLATION

- A. Complete installation shall conform to appropriate local codes and shall also be in accordance with manufacturer's specifications.
- B. Heating cable sets shall be installed in conduit per manufacturer's instructions.
- C. Temperature sensors shall be installed in conduit per manufacturer's instructions.
- D. Control panel with power wiring and branch circuit wiring shall be installed per manufacturer's instructions.

3.03 FIELD QUALITY CONTROL

- A. After installation in conduit, the heating cable shall be insulation tested at 1000 VDC from conductor to braid. Resistance readings shall be 10 megohms to infinity.
- B. Submit written test report to manufacturer showing values measured on each test for each cable.

END OF SECTION