ThermaRay-USA
Electric Radiant Heating

Floor Heat (Under Concrete)

Features & Benefits

- **Lifetime Warranty**
- **Energy Efficient**
- **Maintenance Free**
- **Superior Comfort Gentle even temperature from floor to ceiling**
- **Affordable and easy to install**
- **Healthy - No blowing dust, allergens or airborne contaminants**
- **Safe - No open flames, high surface temps or risk of carbon monoxide poisoning**
- **Quiet - No Moving Parts, fans or pumps**
- **Zoning - Precisely controlled in each room**
- **Aesthetic - Completely concealed for more decorating freedom**
- **Resale Value - Increases due to low operating costs, superior comfort and no Maintenance**
- **ThermaRays Radiant Heating course is Approved by the US Green Building Council (USGBC) and the American Institute of Architects (AIA)**

USGBC EDUCATION PROVIDER

CONTINUING EDUCATION AIA

Thermal Mass ! Thermal Mass! Thermal Mass !

For over 30 Yrs. ThermaRay, Inc. has been manufacturing the only true Deep Heat Thermal Mass Floor Heating System. Thermal Mass is the key to low operating costs.

Most floor heating systems place insulation below the heat source limiting the thermal mass. ThermaRay Floor Heating systems do Not require or recommend insulation below the heating panels and create a 24" - 30" deep thermal mass. The larger the Thermal Mass the lower the operating costs.

Systems that limit the thermal mass claim that if you don't insulate, you will lose heat to the earth. The actual physics is that the heat will only go down a certain amount before the thermo-stat is satisfied. The heat is stored and is released into the space above it when it is needed.

The system is also protected from other trades, mechanical harm, corrosive chemicals and natural disasters. Hazardous areas can also be safely heated because there is no exposed flame or heating element. No Emissions and No Carbon Dioxide. Available in all voltages

Perfect for: Basements, Homes, Garages, Shops, Sunrooms, Warehouses, Shops, Churches, Schools, Commercial / Industrial, Shops, Aircraft Hangars, Etc.

Industrial / Commercial

Residential Installation

Garages & Shops

How Radiant Heat Works

If you step from the shade to the sun on a cool day you experience how Radiant Heat warms our world. If you take an object like a rock and set it in the sun, it will absorb that warmth and then in turn help warm the space around it.

A ThermaRay Radiant Heating System accomplishes exactly that same effect. Whether the heating system is in the floor or the ceiling, the radiant rays travel in straight lines and warm all the objects in the space.

Silent, Invisible and Motionless Warmth is gently radiated to all the objects in the room. The walls, floor, ceiling, windows, furniture and essentially everything in the room become part of the heating system. This stored thermal mass keeps operating costs low, but Most Importantly the Radiant Rays Warm **"You".**

Lifetime WARRANTY

www.thermaray-usa.com

(800) 506-7973

ThermaRay-USA
Electric Radiant Heating

INSTALLATION PROCESS

Ground Preparation

Grade must be level and free of debris. 1"-2" of fill or screen sand is recommended as a base for the heating panels.

It is also recommended that the rough-in plumbing be completed prior to installation.

Heating Panel Placement

A heat loss calculation must be completed to determine the amount of heating panels required.

The Heating panels are placed evenly throughout the entire area, beginning approximately 12" from inside walls.

Wiring

Wiring should be done by a certified electrician and in accordance with NEC code requirements. Heating panels are wired in parallel with 12 Ga. direct bury wire and 3M-567 connectors. 5-8 panels are wired together on a circuit depending upon the wattage.

Testing

Each circuit should be resistance tested to verify that all the panels are wired correctly and working properly. The ohm readings of each circuit should be recorded on the Load Check form to comply with warranty requirements.

Connection Enclosure

PC-3 Gel Caps are factory and UL listed and approved for protecting the connections against moisture and corrosion.

Connectors are completely enclosed in the Gel cap after testing the circuits for continuity.

Circuits & Sensors

The 10 Ga. or 12 Ga. Circuits are brought back to the service entrance through plastic pvc or steel conduit.

The floor can be controlled with a Radiant Ambient thermostat or a thermostat with a floor sensor.

Placing Sand Over Panels

4" - 8" of Fill or screen sand with no debris is recommended for placing on top of heating panels. Placement of sand can be done in a number of ways including a skidsteer. Special care should taken when using this method to ensure no damage is done to the panels.

Ready For Concrete

The sand can be tamped and a vapor barrier placed. (if required by building code)

An Ohm reading should be taken on all circuits after the sand has been placed and once again after the concrete has been poured.

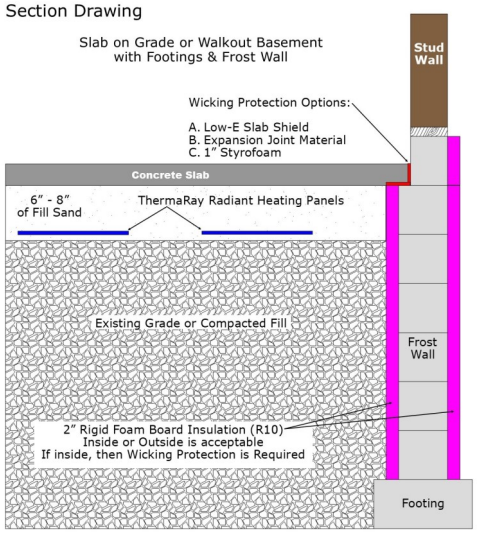
Controls

The heating panels are wired to the relay control box and then to the 240v -20 Amp circuit breakers in the service panel. Typically, the ETS system is run on an the Off-Peak or Dual Fuel program offered by the electric provider.

Comfort & Efficiency

ThermaRay Radiant systems create a healthier, more comfortable space with no maintenance, repair or replacement for the life of your building.

Section Drawing



For More Information:

ThermaRay-USA (800) 506-7973

info@thermaray-usa.com

www.thermaray-usa.com