



The difference between heat and comfort.

EARTH THERMAL STORAGE SYSTEM (ETS)

Features & Benefits

1. Superior heating comfort — gentle even temperature from floor to ceiling
2. 100% energy efficient
3. Energy Savings - considerably lower operating costs vs. traditional convection systems
4. Maintenance free and easy to install
5. Motionless, Invisible, silent
6. Completely concealed for decorating freedom.
7. Healthy — Greatly reduces airborne contaminants and dust
8. Precisely controlled in each room.
9. Less ex-filtration of air and heat lost at the ceiling
10. Warms people and objects first.
11. Increases property and resale values
12. Safe & Clean — No combustible materials
13. Creates more livable space
14. Affordable installation cost. Typically a fraction of the cost of tubing (hydronic) systems

For over twenty years, Therma-Ray has been manufacturing an Earth Thermal Storage (ETS) System with a stellar track record, boasting no manufacturing defects. The **SmartRooms** ETS system consists of a Tefzel insulated conductor wire embedded in a gypsum board and then installed in the ground underneath a concrete floor, creating one of the most comfortable and economical heating systems available.

The ground and the concrete slab become an efficient, thermal mass of energy. The principle is the along the same lines as the earth and it's core. The ETS system is charged (energized) when less expensive off-peak or dual fuel rates are in effect. Heat transfers from hot to cold, so the stored energy is only released when the area above it becomes cooler than the thermal mass. Otherwise, the heat remains where it is so there is no wasted energy.

The system is protected from mechanical harm, corrosive chemicals and moisture. Even the most hazardous areas can be safely and economically heated.

The Smart Rooms Earth Storage Heating Panels are available in 240v, 208v and 277v models.



Perfect for: Basements, Homes, Garages, Sunrooms, Warehouses, Churches, Schools, Commercial / Industrial Buildings, Malls, Aircraft Hangars, — And Many More.....

HOW RADIANT HEAT WORKS

As sure as the sun shines, radiant heat is something with which we are all familiar. Think of the way the world is warmed — a direct transference of heat from object to object, without fans, pumps or hoses — silent, motionless and invisible.

A **Smart Rooms** environment works exactly the same way. Unlike conventional heating, our system automatically warms people and objects first, not the air. Just as the sun does, and that's what makes **Smart Rooms** so smart. Radiant rays, like light rays travel in straight lines and radiant rays travel naturally from warmer objects to cooler objects. The cooler surfaces act like magnets to the warmth. **Smart Rooms** ETS Systems generate this type of heat and comfort. Warmth is gently radiated to the objects in the room like walls, floor, furniture and most importantly — "You".

SmartRooms combines the most natural form of heating known to mankind with the latest in comfort technology.













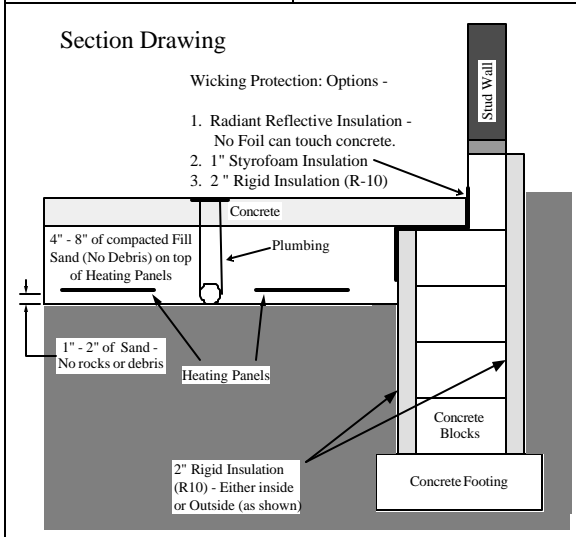
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INSTALLATION PROCESS

Ground Preparation	Heating Panel Placement	Wiring	Testing	Connection Enclosure
 <p>Grade must be level and free of debris. 1"-2" of fill or screen sand is recommended as a base for the heating panels.</p> <p>It is also recommended that the rough-in plumbing be completed prior to installation.</p>	 <p>A heat loss calculation must be completed to determine the amount of heating panels required.</p> <p>The Heating panels are placed evenly throughout the entire area, beginning approximately 12" from inside walls.</p>	 <p>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</p>	 <p>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.</p>	 <p>PC-3 Gel Caps are factory and UL listed and approved for protecting the connections against moisture and corrosion.</p> <p>Connectors are completely enclosed in the Gel cap after testing the circuits for continuity.</p>
Circuits & Sensors	Placing Sand Over Panels	Ready For Concrete	Controls	Comfort & Efficiency
 <p>The 12 Ga. Circuits are brought back to the service entrance and through pvc or steel conduit.</p> <p>The face sensor on the SmartRooms controller or a floor sensor can be used to regulate a room.</p>	 <p>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.</p>	 <p>The sand can be tamped and a vapor barrier placed. (if required by building code)</p> <p>An Ohm reading should be taken on all circuits after the sand has been placed and once again after the concrete has been poured.</p>	 <p>The heating panels are wired to the SmartRooms 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 power company.</p>	 <p>Compared to the more expensive Hydronic (Tubing) systems that require continued maintenance and repair, the SmartRooms system is worry and maintenance free, creating the most comfortable and energy efficient heating system</p>



Manufactured By

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