

# SmartRooms™

Thermal Comfort System  
By Therma-Ray

*Whether you're a contractor, architect, builder or homeowner, creating the perfect indoor environment has always been an ultimate challenge. Therma-Ray, the world's #1 name in thermal comfort systems introduces you to the ultimate solution, **SmartRooms**. Please take the time to read this installation guide carefully before you begin. Remember, accurate measurements are the key to success for a proper installation!*

## FLOOR WARMING SYSTEM Installation Guide

### FLOOR SURFACE VERIFICATION

- Therma-Ray's Floor Warming System can be installed on plywood, concrete, existing tiles, or any compatible floor surface.
- Therma-Ray's Floor Warming System is ideal under almost any floor covering, like natural stone, ceramic, marble, granite, or any other considered cold surface. It can also be installed under a floating floor, or an engineered wood floor.
- Your floor surface should be clean, free of protruding nails, screw heads, grease, plastering dust, or any other materials that may damage the cable and/or affect the floor adhesive.
- Please refer to the adhesive manufacturer's directions for any other necessary preparations of the floor surface.

### NECESSARY TOOLS

Measuring tape, snipper, hot glue gun, ohmmeter, and/or megohmmeter (to verify the integrity of the cable).

### PLANNING

In order to minimize time and error, measure the real surface of the floor to be heated, then compare your measurement with the selected cable. The selected cable should be 5% smaller in surface area than the total area of the floor to be heated. This will create a buffer zone which can be used to accept any excess cable if necessary.

**Note:** Therma-Ray's warming cable is an electrical product and should be installed according to the electrical code. The installation should be done by a duly qualified person where required by law.

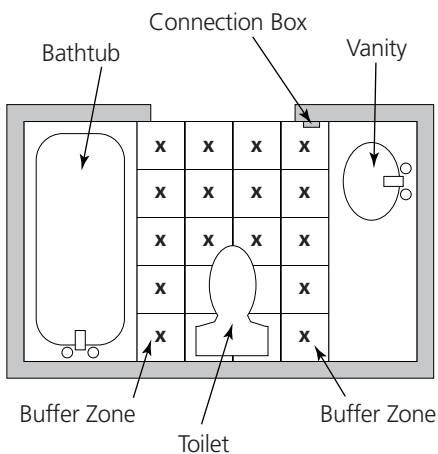
The use of **SmartRooms** Comfort Controller is required. It has a ground fault circuit interrupter (GFCI) and is designed to provide maximum benefit from your floor warming system. Use of another thermostat may void your warranty.

### IMPORTANT

The cable cannot be cut, overlapped, crossed, modified, nor can the spacing between the cables be altered other than that determined by the selected Therma-Ray spacing strip i.e., 50 mm (2"), 75 mm (3") or 100 mm (4").

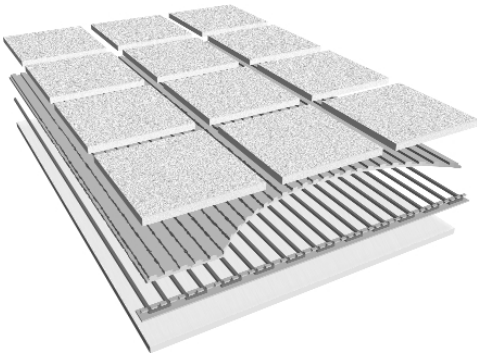
**Note:** cable cannot be at 25 mm (1") spacing.

Surface to be heated



**Example:** 16 sq. ft. use Model FW12

*The difference between heat and comfort.*



Only certain floor coverings may be used with your Therma-Ray floor warming system. Such as hard surface tile, marble, ceramic, and stone. To ensure the flooring material you are using is compatible, please contact a Therma-Ray representative.

- 1 Floor covering
- 2 Adhesive
- 3 Therma-Ray heating system with Spacing Strip
- 4 Sub-floor

**Note:** Use of Mapei's Kerabond/Keralastick, Flexible Grani/Rapid and Ultrafloor/Keraply or equivalent is recommended.

**IMPORTANT**

Therma-Ray's warming cable can be installed at:

- 13 to 25 mm (1/2 to 1 inch) from any underside of a counter, steps, fixed furniture, patio doors, baths, or showers.
- 5 cm (2 inches) from any walls.
- 15 cm (6 inches) from toilet faucets.
- 20 cm (8 inches) from any other heating system installed at the base of the wall or in the floor.

**Do not:**

- Install under fixed furniture or where the air does not flow freely.
- Use rubber mat (rubber is an insulator and will affect the efficiency of the system).
- Fix anything to the floor (i.e., door stopper).

**INSTALLATION**

Now that you have checked your floor and have determined that your heated cable matches your floor dimensions, you are ready for the installation.

**Step 1:**

Determine where the connection box will be installed. At the end of each cable is a 1.8 metre (6-foot) cold lead to make the appropriate electrical connections.

**Step 2:**

Fix the cable joint to the floor using the spacing strip below the connection box **(See Diagram 1)**.

**Note:** Therma-Ray's spacing strip is the only approved anchoring method for the warming cable. Install the spacing strip to the floor as the installation progresses.

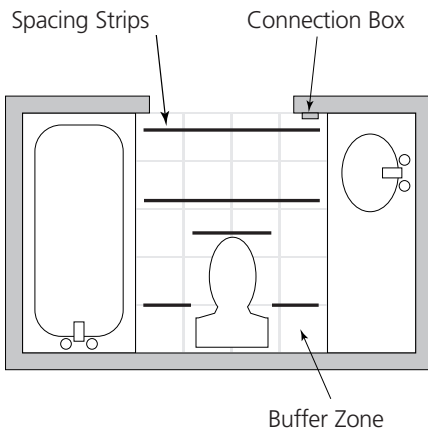
If necessary, to secure the spacing strip, you can use small nails, screws, or staples.

**Step 3:**

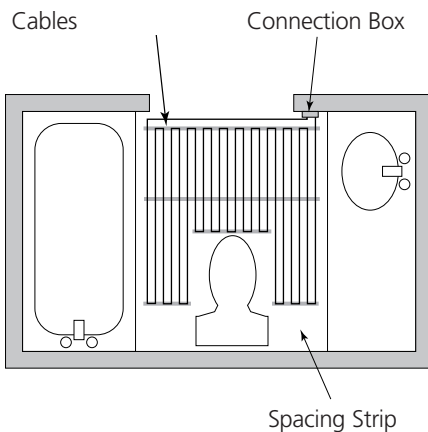
Respect the distance between cables and apply a slight tension to the cable to ensure that the cable is always parallel **(See Diagram 2)**.

**Step 4:**

All heating portions of the cable must be installed on the floor. Once you see colored tape, you have reached the half way point of your installation.



**Diagram 1.**



**Diagram 2.**

**Step 5:**

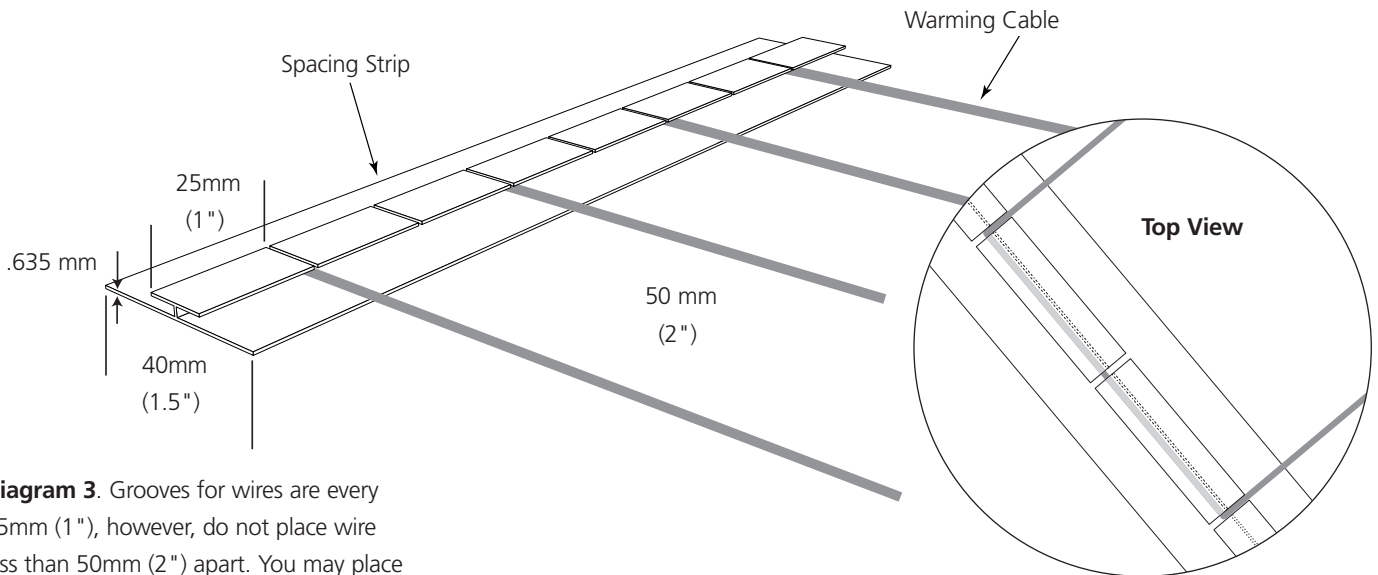
Allow sufficient space for the cable return. The cable starts and ends at the connection box.

**Step 6:**

When you have approximately 3 metres (10 feet) of warming cable remaining on your spool, unwind and install the cable joint to the floor below the connection box and continue the installation of the cable from the opposite side and install the excess cable in the buffer zone.

**Step 7:**

If the installation requires many cables, each run of the cable should be carefully planned to ensure that the spacing between the cables is always respected (**See Diagram 3**).



**Diagram 3.** Grooves for wires are every 25mm (1"), however, do not place wire less than 50mm (2") apart. You may place wire every 75mm (3") or 100mm (4") apart depending on heat design.

**Step 8:**

Install the probe wire of the Comfort Controller between the warming cables at a distance of 30 to 60 cm (1 to 2 feet) within the heating zone (**See Diagram 4**).

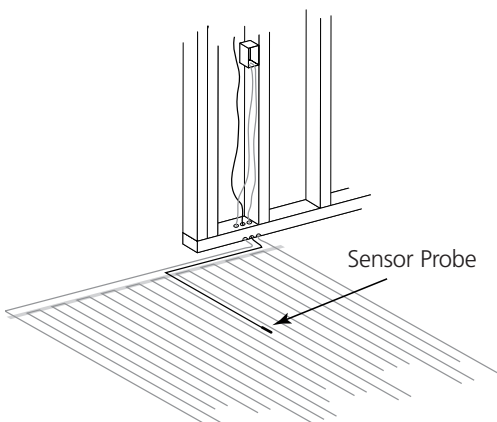
**Note:** Do not cross the probe wire over the warming cable. The probe should be placed in a neutral zone, not near any heating or cooling source.

**Step 9:**

Once the installation is completed, verify the integrity of the cable with an ohmmeter and a megohmmeter. You can now proceed with the electrical connection by following the connection diagram included in the **SmartRooms** Comfort Controller.

**Step 10:**

Between the application of the adhesive and the laying of the floor covering, protect the cables with cardboard and restrict access to the area.



**Diagram 4.**

## FLOOR WARMING SYSTEM

CATALOGUE #	VOLTAGE	WATTS	LENGTH	COVERAGE (FT <sup>2</sup> )	
				2"	3"
FW12-120	120	140	69	12	17
FW18-120	120	215	108	18	27
FW23-120	120	275	137	23	34
FW36-120	120	440	220	36	55
FW41-120	120	500	245	41	61
FW52-121	120	625	311	52	78
FW65-120	120	784	392	65	98
FW11-208	208	125	63	11	16
FW20-208	208	240	120	20	30
FW31-208	208	375	186	31	46
FW40-208	208	475	239	40	60
FW56-208	208	680	338	56	85
FW71-208	208	855	427	71	107
FW90-208	208	1080	540	90	135
FW101-208	208	1215	606	101	152
FW12-240	240	150	73	12	18
FW23-240	240	280	138	23	35
FW36-240	240	430	215	36	54
FW46-240	240	550	276	46	69
FW65-240	240	780	390	65	98
FW82-240	240	990	493	82	123
FW104-240	240	1250	622	104	156
FW117-240	240	1400	700	117	175

### ACCESSORIES

- Spacing Strip 7.6 metres (25' length)
- SR-GFI-120 **SmartRooms** Comfort Controller for Floor Warming  
120 volt complete with ground fault circuit interrupter (GFI)
- SR-GFI-240 **SmartRooms** Comfort Controller for Floor Warming  
240 volt complete with ground fault circuit interrupter (GFI)



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