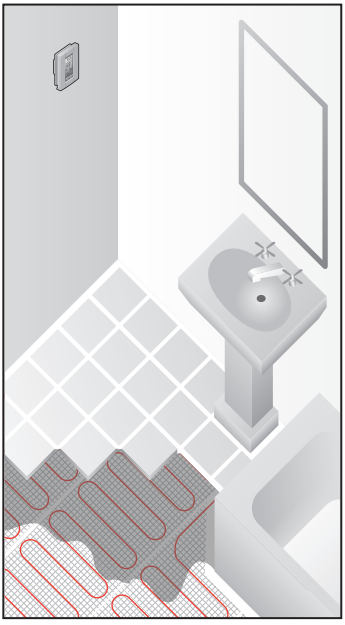
Raychem

QuickNet System Installation Manual

Manuel d'installation du système QuickNet

Manual de instalación del sistema QuickNet



Floor heating system

Système de chauffage par le plancher

Sistema de calefacción de pisos

tyco

Thermal Controls

Table of Contents

Important Safeguards and Warnings

⚠ WARNING: Fire and Shock Hazard.

The QuickNet mat must be installed correctly to ensure proper operation and to prevent shock and fire. Read these important warnings and carefully follow all the installation instructions.

- To minimize the danger of shock or fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls, agency certifications, and national electrical codes, ground-fault protection for personnel must be used. The QuickStat-TC thermostat provides the required ground-fault protection and must be used. Arcing may not be stopped by conventional circuit protection.
- The QuickNet system must be installed by qualified personnel familiar with generally accepted construction techniques and safe electrical practices. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact a licensed electrician.
- Electric wiring and the heating mat are installed in the floor. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- If the QuickNet system is damaged, it may be possible to repair it using the QuickNet Repair Kit (QuickNet-RK). Do not attempt to repair it on your own. Contact Tyco Thermal Controls for repair assistance.
- The QuickNet heating cable cannot be cut to length, crossed over itself, or installed closer than the spacing in the mat.

IMPORTANT: Installation Guidelines

- QuickNet mats can be installed beneath the following floor types: ceramic and porcelain tile, granite, marble (except cultured marble), natural stone, laminate wood flooring (floating only) and engineered wood flooring (floating and gluedown). Do not install beneath carpeted, linoleum or other types of floors not mentioned above.
- Do not cut, damage or step directly on the heating cable during installation.
- Do not install the QuickNet mat across expansion joints.
- Follow manufacturer's instructions for installing your particular floor type.
- Position the temperature sensor immediately under the tile, stone, laminate or engineered wood surface and in the middle of the space between the heating cable run.
- Be sure the subfloor is clean, rigid, flat, level and free of cracks.
- Do not allow heating cable, cold lead, or floor temperature sensor to cross over themselves or each other.

1 General Information

1.1 Use of the Manual

This manual describes the Raychem QuickNet floor heating system — how to design the room, select the product, and install the system. It is important to thoroughly review this manual and the following document prior to installation:

QuickStat-TC Thermostat Installation and Operation Manual (H58517)

For additional information regarding any aspect of the QuickNet system, contact:

Tyco Thermal Controls
7433 Harwin Drive
Houston, TX 77036
USA
Tel: 800-545-6258
Tel: 650-216-1526
Fax: 800-527-5703
Fax: 650-474-7711
info@tycothermal.com
www.tycothermal.com

Important: For the Tyco Thermal Controls warranty and agency approvals to apply, the instructions that are included in this manual and product packages must be followed.

1.2 Safety Guidelines

The safety and reliability of any floor heating system depends on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the heating cable, system components and property, and can create a risk of fire or shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the QuickNet system performs reliably.

Pay special attention to the following:

- Instructions marked Important
- Safety warnings identified as ⚠ WARNING

1 General Information

1.3 15-year Limited Warranty

The QuickNet system standard limited warranty is 2 years from the date of purchase. You can extend the limited warranty period to fifteen (15) years for the QuickNet mat only, by completing the on-line warranty form within (30) days of purchase. The complete warranty details and the on-line form can be found at www.tycothermal.com.

1.4 Optional Accessories

QuickNet-Check Continuity Monitor

This battery-operated device is used to verify the continuity of the QuickNet heating cable and the integrity of its outer jacket during the installation process. The monitor connects to the cold leads of the cable and, if the heating cable is damaged, the alarm on the monitor will sound. The monitor can also be re-used for subsequent installations and to help troubleshoot any problems that may arise.

QuickStat Relay

The QuickStat Relay can be used in larger installations when more than 200 ft^2 of heated area needs to be controlled using one QuickStat-TC thermostat.

2 QuickNet System

2.1 QuickNet System Description

The QuickNet floor heating system is designed for comfort heating of:

- Ceramic or porcelain tile
- Granite
- Marble (except cultured marble)
- Natural stone
- Laminate wood flooring (floating only)
- Engineered wood flooring (floating or gluedown)

The preassembled mats can be installed over wood, with or without a backer-board; or on concrete. The mat is then embedded in mortar and covered with your particular flooring type following the manufacturer's instructions. **QuickNet MUST NOT be installed beneath carpeted, linoleum or other types of floors not mentioned above.**

The QuickNet system includes the following components:

- QuickNet floor heating mat (with 10-foot cold lead)
- QuickStat-TC thermostat
- Floor temperature sensor (15-foot length)

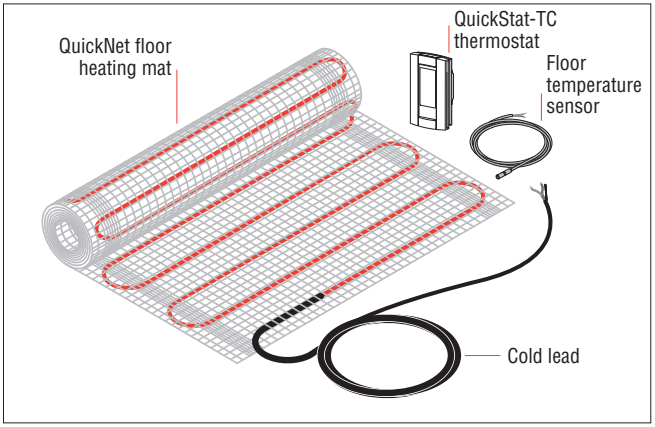


Figure 1: QuickNet system components

The **QuickNet floor heating mat** has a blue heating cable woven into an adhesive-backed red fiberglass mesh. These are manufactured for 120 V and 240 V, and in various lengths of 20-inch widths. The **cold lead** is a black non-heating cord that runs in the wall and connects the system to the thermostat. The **QuickStat-TC thermostat** has an

adaptive function that switches the system on to ensure a comfortable floor temperature when you want it. The thermostat comes with a **floor temperature sensor** that is installed under the floor covering and connected to the thermostat to detect the temperature of the floor.

2.2 System Specifications

System Approvals

Mat

Operating voltage	120 V, 208 V, and 240 V
Power output	12 W/ft^2 (130 W/m^2) ±10% at 120 V or 240 V 9 W/ft^2 (97 W/m^2) ±10% at 208 V
Minimum bending radius	1.25 in (30 mm)
Minimum cable spacing	3 in (80 mm)
Maximum ambient temperature	85°F (30°C)
Minimum installation temperature	40°F (5°C)
Heating cable	2 wire, grounded, fluoropolymer insulating jackets
Cold lead	2-wire 16 AWG plus ground braid; 10 ft (3 m) length

Thermostat

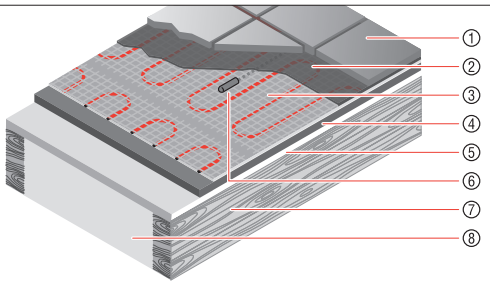
Function	On/Off control digital display, 7-day programmable; Class A, 5-mA GFCI.
Supply voltage	120 V, 208 V, 240 V, 60 Hz
Maximum switching current	15 A
Ambient setpoint range (A/AF mode)	40 to 86°F (5 to 30°C)
Floor setpoint range (F mode)*	40 to 104°F (5 to 40°C)
Floor limit setpoint range (AF mode)*	40 to 104°F (5 to 40°C)
Floor temperature sensor	2-wire, 15-foot lead wire

***For wood flooring installations, the maximum set point should be 82°F (28°C) unless specified otherwise by the wood flooring manufacturer.**

Note: QuickNet 240 V floor heating mats can be powered by a 208 V power supply. With the reduced power supply voltage, the power output will be reduced by approximately 25%.

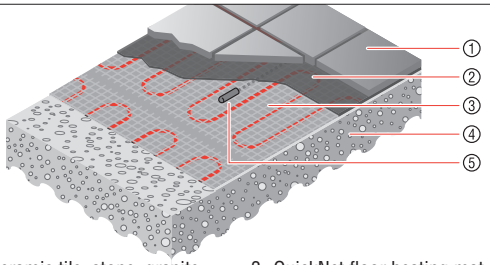
2.3 Product Use

QuickNet floor heating mats can be used on typical interior floor constructions as follows:



1 Ceramic tile, stone, granite or marble + grout
2 Thin-set mortar
3 QuickNet floor heating mat embedded in mortar
4 Cement backer-board
5 Wooden subfloor
6 Floor temperature sensor
7 Floor joist
8 Thermal insulation for use over non-heated air space

Figure 2: Typical wooden subfloor installation

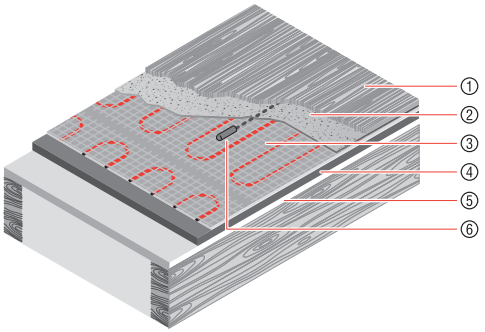


1 Ceramic tile, stone, granite or marble + grout
2 Thin-set mortar
3 QuickNet floor heating mat embedded in mortar
4 Concrete slab floor
5 Floor temperature sensor

*It is strongly recommended that a layer of insulation be put down above the concrete subfloor and underneath the QuickNet floor heating mat. The insulating layer will help to transfer a greater amount of the heat generated to the floor surface.

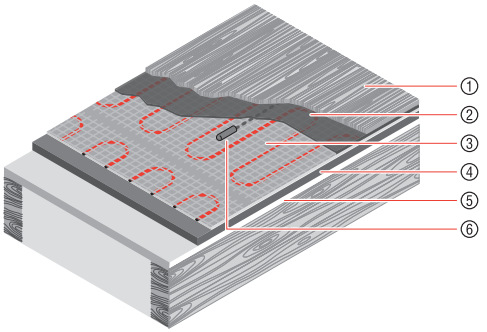
Figure 3: Typical concrete slab installation

2 QuickNet System



1 Laminate or engineered wood flooring
2 Foam underlayment
3 QuickNet floor heating mat embedded in mortar
4 Cement backer-board
5 Subfloor (wooden or concrete)
6 Floor temperature sensor

Figure 4: Typical floating installation (laminate or engineered wood floor)



1 Engineered wood flooring
2 Glue adhesive
3 QuickNet floor heating mat embedded in mortar
4 Cement backer-board
5 Subfloor (wooden or concrete)
6 Floor temperature sensor

Figure 5: Typical gluedown installation (engineered wood floor)

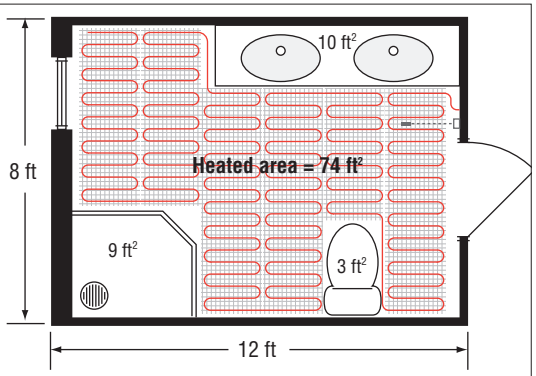
3 Floor Heating Design

3.1 Design the Installation

Step 1: Measure the heated area

Determine the area of the floor to be heated. The heated area is the area of the floor where there are no permanent fixtures or furniture such as showers, toilets, vanities, or cabinets. Measure the heated area of the floor.

For example, in Figure 6, the area of the bathroom is 96 ft^2. When you subtract the area of the vanity, shower and toilet, the total heated area is only 74 ft^2.



96 ft^2 of total area
minus 22 ft^2 of permanent fixture space
equals 74 ft^2 of heated area

Figure 6: Heated area example

Step 2: Determine the power supply voltage

The available supply voltages include 120 V, 208 V or 240 V.

3 Floor Heating Design

Step 3: Plan the design

Determine the optimum floor heating mat layout for your heated area to ensure coverage. Select a spot for the thermostat in the wall above the heated area where it can be reached by the 10-foot cold lead on the QuickNet mat, and the 15-foot floor temperature sensor.

Note: If the area of the floor is larger than the QuickNet mat you chose, lay out the mat in the areas you most want heated. The areas without a mat will not be heated and will not be warm.

Note: The predetermined QuickNet spacing must be maintained to ensure proper floor heating. Do not change the mat's uniform heating cable spacing when you lay out the mat or the floor may have cold spots.

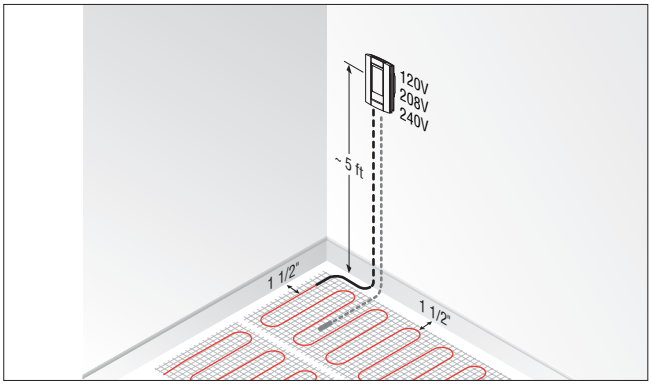


Figure 7: Typical cold lead and floor temperature sensor example

4 Product Selection

4.1 Confirm Your Product Selection

The QuickNet floor heating mats utilize constant wattage series resistant heating cables and cannot be shortened in any way. Confirm that your QuickNet mat is no larger than the heated area. Following the example from Figure 6 on page 7, if the heated area is 74 ft^2, select the 70 ft^2 mat.

For heated areas greater than 100 ft^2, select a 240 V QuickNet product and an Extension Kit. Up to 200 ft^2 of 240 V product may be used with one QuickStat-TC thermostat. Multiple systems may be used for areas larger than 200 ft^2.

Table 1: Product Selection

Catalog Number	Heated Area ft^2 (m^2)		Mat Dimensions	Power output (W)			Current (A)	Resistance (Ohms)
120 V QuickNet Standard Kit (with thermostat)				**120 V**	**208 V**	**240 V**		
QUICKNET-010-1	10	(0.9)	20 in x 6.2 ft	120			1	120
QUICKNET-020-1	20	(1.9)	20 in x 12.1 ft	240			2	60
QUICKNET-030-1	30	(2.8)	20 in x 18.4 ft	360			3	40
QUICKNET-040-1	40	(3.7)	20 in x 24.3 ft	480			4	30
QUICKNET-050-1	50	(4.6)	20 in x 30.5 ft	600			5	24
QUICKNET-060-1	60	(5.6)	20 in x 36.4 ft	720			6	20
QUICKNET-070-1	70	(6.5)	20 in x 42.7 ft	840			7	17
QUICKNET-080-1	80	(7.4)	20 in x 48.9 ft	960			8	15
QUICKNET-090-1	90	(8.4)	20 in x 55.0 ft	1080			9	13
QUICKNET-100-1	100	(9.3)	20 in x 61.0 ft	1200			10	12
208 V or 240 V QuickNet Standard Kit (with thermostat)				**120 V**	**208 V**	**240 V**		
QUICKNET-050-2	50	(4.6)	20 in x 30.5 ft		450	600	2.5	96
QUICKNET-060-2	60	(5.6)	20 in x 36.4 ft		540	720	3	80
QUICKNET-080-2	80	(7.4)	20 in x 48.9 ft		720	960	4	60
QUICKNET-100-2	100	(9.3)	20 in x 61.0 ft		900	1200	5	48
208 V or 240 V Extension Kit (without thermostat)								
QUICKNET-050X-2	50	(4.6)	20 in x 30.5 ft		450	600	2.5	96
QUICKNET-060X-2	60	(5.6)	20 in x 36.4 ft		540	720	3	80
QUICKNET-080X-2	80	(7.4)	20 in x 48.9 ft		720	960	4	60
QUICKNET-100X-2	100	(9.3)	20 in x 61.0 ft		900	1200	5	48

5 Electrical Rough-In

5.1 Heating Cable Handling

⚠ WARNING: The electrical rough-in must be done by qualified personnel familiar with generally accepted construction techniques and safe electrical practices. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact a licensed electrician.

Step 1: Confirm power supply is appropriate

Confirm that the power supply is either 120 V, 208 V or 240 V depending on the mat you chose. The floor heating system must be connected to an appropriately sized electrical circuit. Refer to the Product Selection Table on pages 10–11 for individual mat current levels.

Step 2: Install electrical junction box

Install the junction box for the thermostat at a convenient height—typically 5 feet above the floor and within reach of the cold lead and the floor temperature sensor.

6 Installation

6.1 Laying Out the QuickNet Mat

Tools and materials required

You will require the following items to install and test the floor heating system:

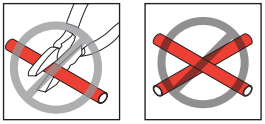
- Scissors
- Utility knife
- Wire strippers
- Tape measure
- Screwdriver
- Multimeter

You will also need the appropriate tools and materials to install your particular floor. For tile or stone floors, these may include product such as: self-leveling mortar, thin-set mortar, backer board, tile or stone, a notched trowel, and any other specific tools that may be required. For laminate or engineered wood floors, you may need products such as self-leveling mortar, thin-set mortar, backer board, foam underlayment, glue adhesive and any other specific tools that may be required.

Follow these steps to ensure a successful QuickNet installation.

Important: Do not cut the heating cable.

Important: To prevent damage to the QuickNet system, do not overlap the heating cables.



Step 1: Prepare the subfloor

Make sure the floor area to be heated is clean, flat, and free of debris that can damage the mat, such as nails, staples or protruding objects.

When installing the QuickNet floor heating system over a concrete subfloor, it is strongly recommended that a layer of insulation be put down above the subfloor and underneath the QuickNet heating mat. The insulating layer will help to transfer a greater amount of the heat generated to the floor surface.

Drill or cut a hole through the wall sill plate under the electrical junction box location. You will use this hole to route the cold lead and the floor temperature sensor wire to the electrical junction box.

Step 2: Orient the QuickNet floor heating mat

Lay out the mat according to your design, using as few turns as possible and ensuring that the cold lead is near the electrical junction box. Remove the clear plastic lining and roll out the mat with the adhesive side down to temporarily hold it in place. See Figure 6. If it is necessary to change direction, see step 3.

Note: When installing a 240 V QuickNet mat with an Extension mat to accommodate a floor over 100 ft^2, align the mats so that the red mesh is edge to edge, the heating cable spacing is no less than 3 inches, and both cold leads can reach the electrical junction box. See Figure 8.

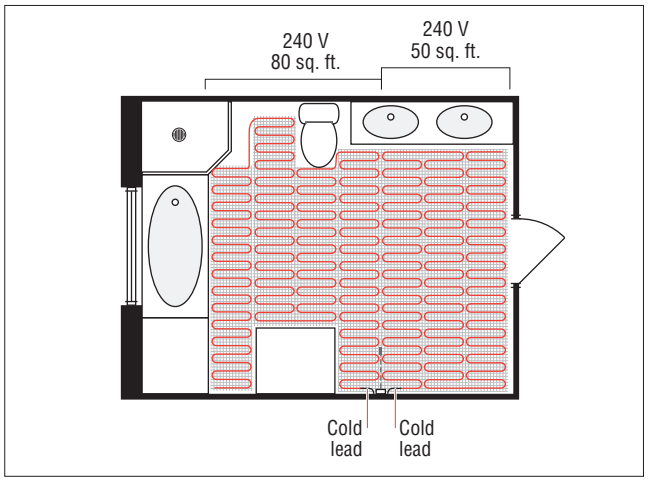


Figure 8: Laying out floor over 100 ft^2

If it is necessary to remove the heating cable from the mesh to route around an obstacle, be sure to maintain at least 3 inches of separation between the heating cables.

Step 3: Change the direction of the mat to fit floor design

To make a turn in the direction the mat is being installed, cut the mesh with scissors being careful not to damage the heating cable.

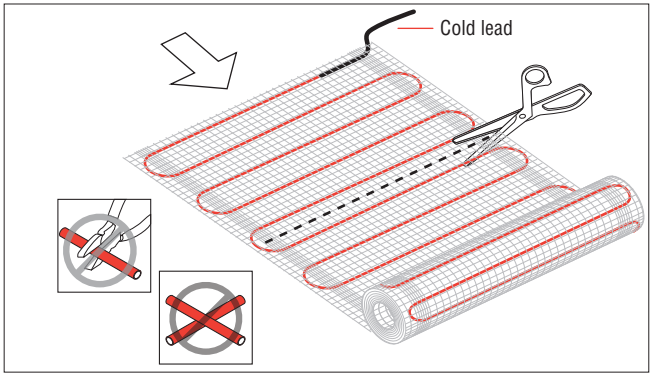


Figure 9: Cutting the mesh

Then align the mat in the desired direction ensuring that the adhesive side of the mat is down and continue to roll it into position.

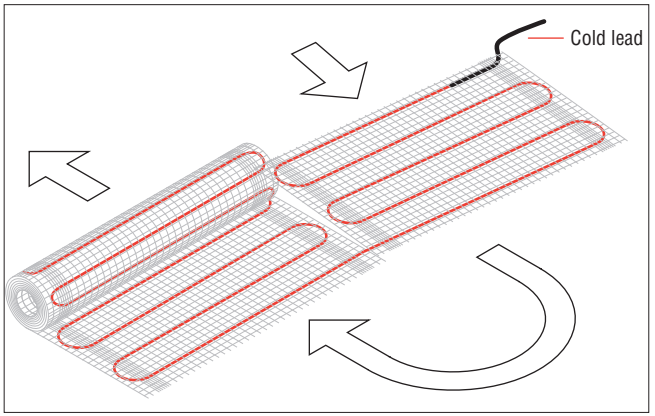


Figure 10: Changing direction

Step 4: Route the cold lead

Position the cold lead of the mat as close as possible to the wall near the electrical junction box. The cold lead must be routed outside of the heating mat, never under or over the heating cable and must not protrude higher than the heating mat.

If the splice is higher than the mat, you must gouge out the subfloor to allow the splice to lay flat under the floor surface.

Run the cold lead inside the wall to the electrical junction box location.

Important: Position the cord label on the cold lead inside the electrical junction box. If it is necessary to shorten the cold lead, be sure to store the cord label in the junction box.

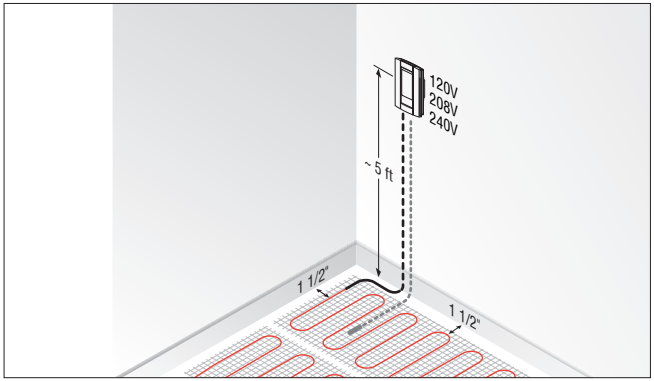


Figure 11: Routing the cold lead

Next install your floor covering.

For tile installations proceed to Section 6.2, page 17.

For floating wood floor installations proceed to Section 6.3, page 19.

For gluedown wood floor installations proceed to Section 6.4, page 21.

6.2 Tile Installations

Step 1: Place the floor temperature sensor

Center the floor temperature sensor between two runs of the heating cable, 4 inches from the end of the heating cable loop (see Figure 12). Run the floor temperature sensor inside the wall to the electrical junction box location.

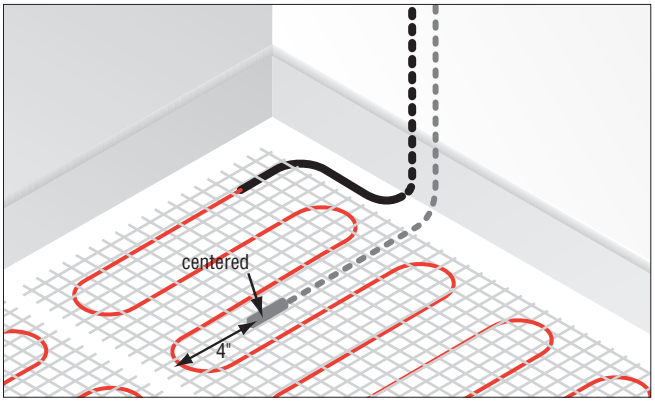


Figure 12: Placing the floor temperature sensor

Important: Do not allow heating cable, cold lead, or floor temperature sensor to cross over themselves or each other.

Note: When installing a 240 V QuickNet mat with an Extension mat to accommodate a floor over 100 ft^2, use only one floor temperature sensor and one thermostat to control both mats.

Step 2: Perform Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (before embedding in mortar).

Important: You must perform the insulation resistance test, heating cable resistance test, and the sensor resistance test before you embed the mat in mortar to confirm that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Important: After layout is complete and before mortar and tile are installed, take a picture of the layout for future reference.

Step 3: Embed the floor heating mat in mortar

After laying out the floor heating mat and routing the cold lead and the floor temperature sensor to the electrical junction box, apply a thin coat of self-leveling mortar or acrylic or latex modified thin-set over the mat. Be sure to use the flat side of the trowel to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all voids between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to cure to a hard surface before installing the flooring material.

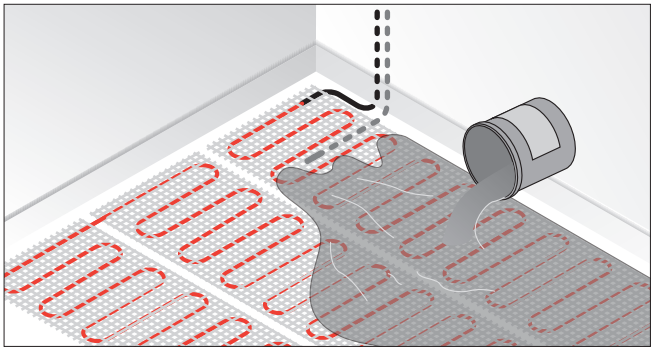


Figure 13: Applying self-leveling mortar or acrylic or latex modified thin-set

Step 4: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after embedding in mortar).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Step 5: Install the tile/stone

To install the tile or stone, apply a layer of acrylic or latex modified thin-set using the ridged side of your trowel. Tile

and grout the floor using best industry practices and in accordance with instructions provided by the manufacturer of the tile setting materials.

Do not power the QuickNet heating mat until the thin-set and grout are fully cured.

Step 6: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after floor covering).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

6.3 Floating Wood Floor Installations

Important: Only species that are approved by the wood flooring manufacturer for use over radiant heating systems may be used. Refer to your flooring manufacturer for recommendations.

Step 1: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (before embedding in mortar).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Important: After layout is complete and before mat is embedded, take a picture of the layout for future reference.

Step 2: Embed the floor heating mat in mortar

After laying out the floor heating mat and routing the cold lead and the floor temperature sensor to the electrical junction box, apply a thin coat (at least 1/4 in) of self-leveling mortar or acrylic or latex modified thin-set over the mat (Figure 13). Be sure to use the flat side of the trowel to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all voids between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to cure to a hard surface before installing the flooring material.

Step 3: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after embedding in mortar).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Step 4: Install foam underlayment

Install the foam underlayment as per manufacturer's instruction. If necessary, also install a vapor barrier. Place the floor temperature sensor above the foam underlayment and at least 12 inches from the edge of the heated area. Tape the floor temperature sensor in place and run the floor temperature sensor inside the wall to the electrical junction box location.

Step 5: Perform Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test.

Important: You must perform the insulation resistance test, heating cable resistance test, and the sensor resistance test before you embed the mat in mortar to confirm that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Step 6: Install laminate or engineered wood flooring

Important: Nail down installations of the wood flooring is not permitted.

Install the laminate or engineered wood flooring in accordance with instructions provided by the manufacturer of the flooring materials.

Do not power the QuickNet heating mat until the thin-set and grout are fully cured.

Step 7: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after floor covering).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

6.4 Gluedown Wood Floor Installations

Important: Only species that are approved by the wood flooring manufacturer for use over radiant heating systems may be used. Refer to your flooring manufacturer for recommendations.

Step 1: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (before embedding in mortar).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Important: After layout is complete and before mat is embedded, take a picture of the layout for future reference.

Step 2: Embed the floor heating mat in mortar

After laying out the floor heating mat and routing the cold lead and the floor temperature sensor to the electrical junction box, apply a thin coat (at least 1/4 in) of self-leveling mortar or acrylic or latex modified thin-set over the mat (Figure 13). Be sure to use the flat side of the trowel to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all voids between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to cure to a hard surface before installing the flooring material.

Step 3: Place the floor temperature sensor

Place the floor temperature sensor at least 12 inches from the edge of the heated area. Tape the floor temperature sensor in place and run the floor temperature sensor inside the wall to the electrical junction box location.

Step 4: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after embedding in mortar).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

Step 5: Install engineered wood flooring

Important: Nail down installations of the wood flooring is not permitted.

Use an adhesive that is approved for use with radiant floor heating systems. Using a notched trowel, apply a layer of adhesive following adhesive manufacturer's instructions Install the engineered wood flooring in accordance with manufacturer's instructions.

Do not power the QuickNet heating mat until the thin-set and grout are fully cured.

Step 6: Repeat the Insulation Resistance Test, Heating Cable Resistance Test, and the Sensor Resistance Test (after floor covering).

Important: You must repeat the insulation resistance test, heating cable resistance test, and the sensor resistance test to ensure that the heating cable and floor sensor have not been damaged. For information on how to perform these tests, see Section 7, Commissioning. Record the results in the Commissioning Record in Section 9.

6.5 Installing the QuickStat-TC Thermostat

Step 1: Install the QuickStat-TC thermostat

Refer to the document *QuickStat-TC Thermostat Installation and Operation Manual* (H58517), included in the thermostat box for instructions on how to install the thermostat.

WARNING: Fire and Shock Hazard. To minimize the danger of shock or fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls, agency certifications, and national electrical codes, ground-fault protection for personnel must be used. The QuickStat-TC thermostat provides the required ground-fault protection and must be used. Arcing may not be stopped by conventional circuit protection.

Step 2: Program the QuickStat-TC thermostat

Refer to the document *QuickStat-TC Thermostat Installation and Operation Manual* (H58517) included in the thermostat box for instructions on how to program the thermostat.

7.1 Commissioning Tests

Note: For the extended 15-year limited warranty to apply, you must perform these tests, record the results on the Commissioning Record, and retain a copy of the record.

You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, and the Sensor Resistance Test three times during the installation process:

1. Before you embed the QuickNet mat in mortar.
2. After you embed the QuickNet mat in mortar but before you install the flooring material.
3. After the flooring material has been installed.

Insulation Resistance Test

This test ensures that the insulating jackets of the mat are not damaged. A low value indicates the mat has been damaged and must be replaced.

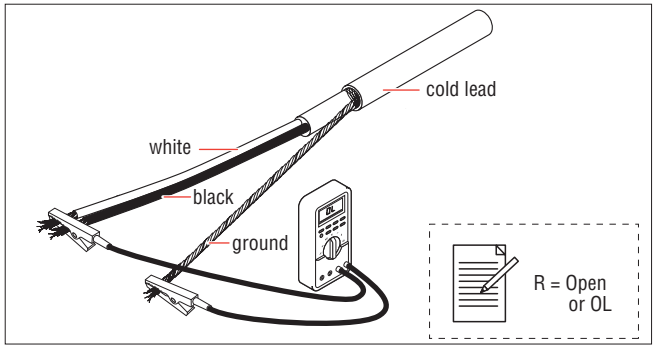


Figure 14: Insulation Resistance test

1. Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
2. Make sure the meter reads “Open” or “OL.”
3. Record these readings on the Commissioning Record.

Heating Cable Resistance Test

This test measures the resistance of the mat and is used to determine circuit integrity.

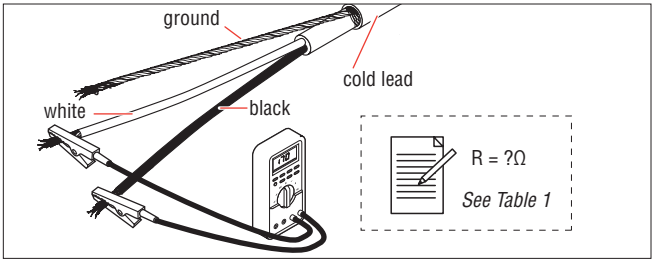


Figure 15: Heating Cable Resistance test

1. Set your multimeter to the 200 ohm range.
2. Connect the multimeter leads to the black and white cold lead wires.
3. Compare this resistance reading to the resistance specified in the Product Selection Table, on pages 10–11. The value should be within ±10%. If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
4. Record these readings on the Commissioning Record.

Sensor Resistance Test

This test measures the resistance of the floor sensor and is used to verify the sensor integrity.

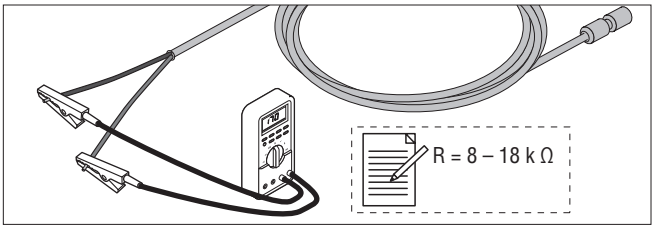


Figure 16: Sensor Resistance Test

1. Set your multimeter to the **200 K** ohm range.
2. Connect the multimeter leads to the red and green lead wires.
3. Make sure the meter reads between 8–18 KΩ. If you get a different reading, contact Tyco Thermal Controls at 800-545-6258.
4. Record these readings on the Commissioning Record.

Note: The range used in the Sensor Resistance Test (K ohm) is different from the one used in the other two commissioning tests.

8 Troubleshooting

Symptom	Probable Causes	Corrective Action
Floor doesn't heat	No voltage.	Check circuit breaker.
	Circuit breaker tripped.	Ensure that there are not too many mats or other appliances connected on the same circuit. The QuickNet mat may require a dedicated circuit. See the Product Selection table in Section 4 of this manual.
	Ground-fault tripped in the thermostat.	Refer to *QuickStat-TC Thermostat Installation and Operation Manual*, page 3.
	Thermostat not turned on.	Refer to Section 6 of this manual, and the *QuickStat-TC Thermostat Installation and Operation Manual*, pages 2–3.
	Mat not connected to QuickStat-TC thermostat.	Refer to *QuickStat-TC Thermostat Installation and Operation Manual*, pages 2–3.
	Floor temperature sensor not connected.	Refer to *QuickStat-TC Thermostat Installation and Operation Manual*, page 2.
	Faulty sensor.	Contact Tyco Thermal Controls at 800-545-6258.
Floor warm all the time	Clock not set correctly.	Refer to *QuickStat-TC Thermostat Installation and Operation Manual*, pages 3–5.
Floor not warm enough	QuickStat-TC thermostat setting not set correctly.	Refer to *QuickStat-TC Thermostat Installation and Operation Manual*, pages 3–5.
QuickStat-TC thermostat has no display	Incorrect wiring.	Ensure that the wiring of the QuickStat-TC thermostat is in accordance to the *QuickStat-TC Thermostat Installation and Operation Manual,* page 2.
QuickStat-TC display is on but is not responsive	Incorrect wiring of the floor sensor.	If the QuickStat-TC is powered (display is on) but is unresponsive to any user input, the floor sensor may be mis-wired. Refer to the *QuickStat-TC Thermostat Installation and Operation Manual*, page 2, and verify that the floor sensor is wired to the correct terminals.
Installation Instructions not available		Download the latest version of *QuickNet Installation Instructions* and the *QuickStat-TC Thermostat Installation and Operation Manual* from www.raychemquicknet.com.

9 Commissioning Record

QuickNet Commissioning Record (retain this record)

Installer

Date of commissioning	Company
Name of Installer	
Street	
City	Postal Code
Phone (office)	Phone (mobile)
Fax	Email
Website	

Project Data

Customer Name

Address

Subfloor type (Circle one) Wood Concrete

Floor covering (Circle one) Ceramic Tile Natural Stone Laminate Engineered Wood

Wood flooring installation method (Circle one) Floating Gluedown

Room type (Circle one) Kitchen Bathroom Entryway Other

Rated voltage (Circle one) 120 V 208 V 240 V

	Number	Mat 1	Mat 2
QuickNet Mat	Catalog Number		
	Batch Date (from box or cord label)		
Insulation Resistance (see page 24, Figure 14)	Before embedding in mortar (see pages 17, 19 & 21)		
	After embedding in mortar (see pages 18, 20 & 22)		
	After floor covering (see pages 19, 21 & 23)		
Heating Cable Resistance (see page 25, Figure 15)	Before embedding in mortar (see pages 17, 19 & 21)		
	After embedding in mortar (see pages 18, 20 & 22)		
	After floor covering (see pages 19, 21 & 23)		
Sensor Resistance (see page 25, Figure 16)	Before embedding in mortar (see pages 17, 19 & 21)		
	After embedding in mortar (see pages 18, 20 & 22)		
	After floor covering (see pages 19, 21 & 23)		

Installer: please leave this record with homeowner.
Homeowner: you must keep a copy of the completed Commissioning Record in order for the 15-year limited warranty extension to apply.

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Thermal Controls

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