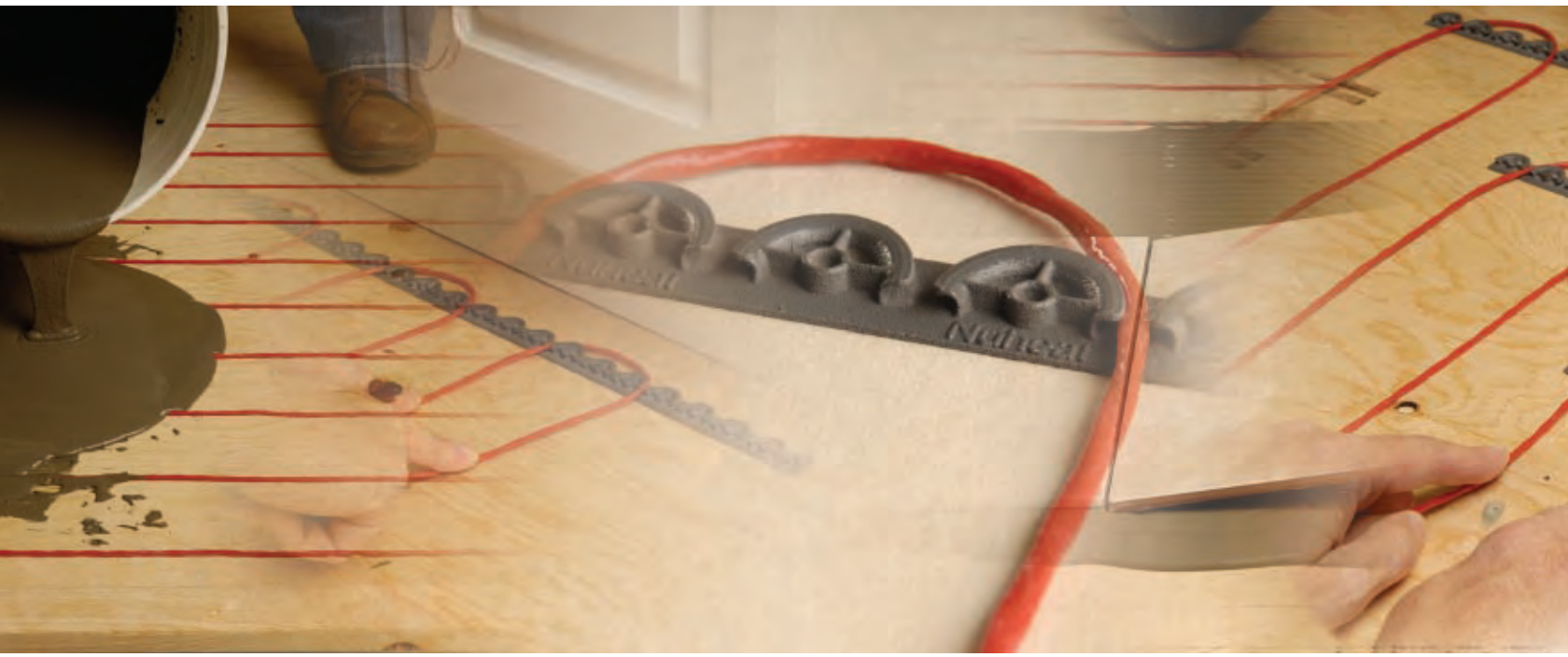


# Nuheat Cable Installation Manual

Nuheat Electric Floor Warming Systems

Nuheat® Warmth for the sole®

Includes installation guidelines for installing the Nuheat Cable floor warming system under tile, laminate and engineered wood surfaces.

For French and Spanish installation instructions, visit www.nuheat.com/cable.

Nuheat® Warmth for the sole®

Important Installation Guidelines

First time installers should contact Nuheat's First Time Installer Line for Nuheat Cable at 1-800-778-WARM (9276) with assistance on installation.

- THE INSTALLATION OF THIS HEATING PRODUCT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE PART I OR THE NATIONAL ELECTRICAL CODE (US) WHICHEVER IS APPLICABLE.
- THIS EQUIPMENT SHALL BE INSTALLED ONLY BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE APPARATUS AND RISKS INVOLVED.
- CAUTION SHOULD BE TAKEN TO GUARD AGAINST RISK OF ELECTRIC SHOCK, FIRE, AND BODILY INJURY DURING THE INSTALLATION OF THIS EQUIPMENT.
- The Nuheat Cable should be connected to a dedicated electrical circuit.
- It is mandatory to install a Class "A" GFCI or GFCI circuit breaker with each Nuheat installation. NOTE: All Nuheat thermostats come equipped with a built-in Class "A" GFCI.
- DO NOT USE sharp tools or power tools to clean grout lines. Cleaning grout lines with sharp tools or power tools may damage the Nuheat Cable System and WILL VOID THE NUHEAT WARRANTY.
- Nuheat's Cable Guides are the only devices that are approved to be used to secure the Nuheat Cable onto the sub-floor. The use of any other method to secure the Nuheat Cable onto the sub-floor (e.g. staples or nails) WILL VOID THE NUHEAT WARRANTY.
- Indicate on the electrical panel which circuit is used for the electric floor warming system.
- Sub-floor must be prepared in accordance to ANSI specifications.
- The Nuheat Cable cannot be overlapped, crossed, cut, shortened or modified.
- The spacing between the cable runs (3") should remain unchanged throughout the installation.
- The entire heating portion of the Nuheat Cable and the mechanical joint must be secured to the floor and covered with self-leveling compound or thinset mortar. The Nuheat Cable should never be installed in/on/under walls under any circumstance.
- The Nuheat Cable System should never be installed over an expansion joint.
- The ambient air temperature must be above 0 C or 32 F when the Nuheat Cable floor warming system is installed.

C US Heating Cable Series Type 1B and 2D Canada, Type C USA

This cable is an electrical appliance and should be installed in accordance with the Canadian Electrical Code Part I or the National Electrical Code (US) whichever is applicable. Its installation should be entrusted to trained and experienced installers and electricians.

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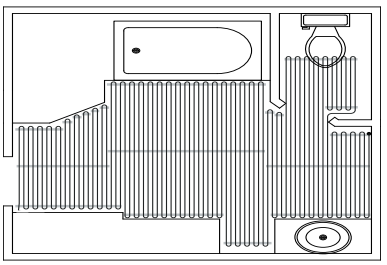
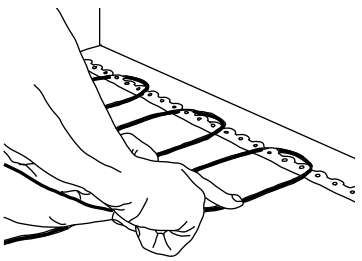
# Quick Reference

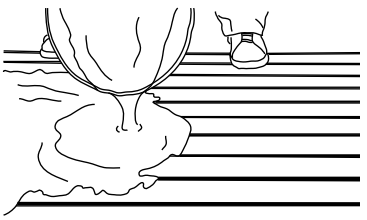
## Nuheat Cable Installation at a Glance



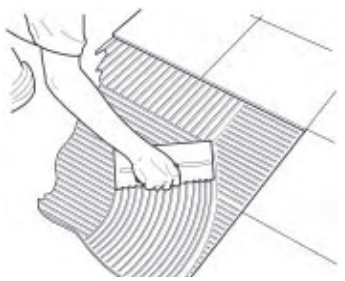
Plan layout



Install Nuheat Cable Guides and Nuheat Cable



Apply self-leveling compound and allow time to set



Install flooring

Make final connections

If you are unfamiliar with the installation of the Nuheat Cable, please read the detailed installation instructions on pages 10-19 of this installation manual.

# Fast Facts

- Easy installation with a single-point lead
- Low profile - 3/16” thick
- On-site flexibility
- Energy-efficient (12 watts per sq ft)
- Zero EMF
- Applicable under tile, stone, marble, and laminate/engineered wood floors
- Suitable for shower and sauna applications
- 25-year warranty
- A manufacturer’s direct sales and support team

# Compatible Sub-floors
## Overview

### Sub-floors
All sub-floors must be prepared in accordance to ANSI specifications.

1) *Plywood and Cement Board*

2) *Smooth Concrete Slab* - Nuheat recommends that the concrete slab be insulated to avoid heat and energy loss

3) *Scratch Coat* - Apply a smooth layer of thinset mortar on top of the scratch coat before installing the Nuheat Cable

4) *Anti-fracture Membrane* - Refer to manufacturer's installation instructions

5) *Acoustic Membrane* - Refer to manufacturer's installation instructions

6) *Ceramic* - Refer to self-leveling compound or thinset mortar manufacturer's instructions

7) *Mortar Bed/Dry Pack* (for shower bed applications)

# Selecting a Kit

## Calculating Square Footage and Selecting a Kit

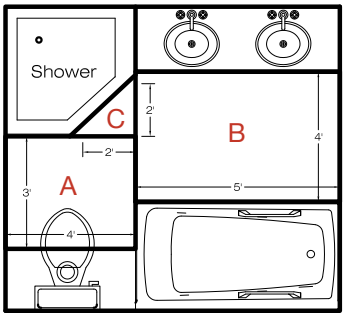
### Calculating Square Footage

Use the following tips to calculate the square footage of the heated area and to select the proper Nuheat Cable Kit:

- Calculate the square footage of the heated area. The ***heated*** area of the room should ***exclude*** areas beneath counters, fixed furniture, or any other areas where the Nuheat Cable System cannot be installed under.

Tips to calculate square footage:

- Square footage is calculated by multiplying the length (in feet) by the width (in feet) of an area.
- Triangles are squares/rectangles split diagonally in half. To calculate the square footage of a triangle, multiply the length (in feet) by the width (in feet) of the triangle and divide by two.
- If needed, break up the heated area into smaller squares, rectangles, and/or triangles to help calculate the square footage of the entire area. Calculate the square footage of each individual area and add the square footages together.




| | | |
|---|---|---|
| Area A = 3' x 4' | | = 12 sq ft |
| Area B = 4' x 5' | | = 20 sq ft |
| Area C = 2' x 2' ÷ 2 | | = 2 sq ft |
| | **Total** | **34 sq ft** |

### Selecting a Kit

Select the kit based on the square footage of the ***heated*** area and the correct voltage of the electrical connection (120V or 240V). A complete product listing table for Nuheat Cable is located on the back cover of this installation manual. Alternatively, visit www.nuheat.com/cable for assistance with selecting the proper Nuheat Cable kit.

| | | | | |
|---|---|---|---|---|
| N1C020022 | 20-22 | 74 | 1.8 | 220 |
| N1C023028 | 23-28 | 87 | 2.2 | 260 |
| N1C029036 | 29-36 | 110 | 2.8 | 331 |
| N1C037045 | 37-45 | 142 | 3.6 | 426 |
| N1C046049 | 46-49 | 176 | 4.4 | 529 |

# Required Materials and Tools

## Materials and Components

### Before You Start

The following tools/materials are required for a successful Nuheat Cable installation:

- Ohmmeter (or multimeter)
- Tools to create a groove in the sub-floor
- Protective nail plate
- Duct tape
- Materials to secure Nuheat Cable Guides and mechanical joint* to the sub-floor:
    - Screws (1/2" long)*
    - Industrial-grade hot glue*
    - Nails
    - Staples

*The mechanical joint should be secured to the sub-floor using screws (1/2" long) or industrial-grade hot glue only.

NOTE: If your installation layout plan requires excess cold lead to run on the sub-floor, secure the excess cold lead to the sub-floor using industrial-grade hot glue.

### The Nuheat Cable

The Nuheat Cable is comprised of:
*Heating cable (red)* – the longest portion of the Nuheat Cable. This segment of the Nuheat Cable is strung onto the sub-floor and generates the heat underneath your surface covering.

*Cold lead (black)* – the non-heating segment of the Nuheat Cable that will run inside the wall cavity to connect to the thermostat. The cold lead is 11-feet long.

*Mechanical joint (red)* – the connection joint between the heating cable and the cold lead. The mechanical joint is thicker than the cold lead and has two "ears" that is used to secure the mechanical joint to the sub-floor.

# Conducting Insulation and Resistance Tests

## Testing the Nuheat Cable

The Nuheat Cable has been factory tested. The seal on the cable spool warrants the integrity of the cable.

### Insulation Test

To ensure the Nuheat Cable is fully insulated:

- Acquire a digital ohmmeter (or multimeter) with alligator clips or equivalent testing device. Set the ohmmeter to the appropriate setting.
- Place one probe clip on the green wire (ground) and the other probe clip on the yellow wire (red wire for 240V).
- Confirm that the reading is OL or infinity (open circuit).
- Repeat these steps to check the reading between the green wire (ground) and the black wire.

### Resistance Test

To ensure continuity in the Nuheat Cable:

- Acquire a digital ohmmeter (or multimeter) with alligator clips or equivalent testing device. Set the ohmmeter to the appropriate setting.
- Place one probe clip on the black wire and the other probe clip on the yellow wire (red wire for 240V).
- Confirm that your ohm reading is within +10% / -5% of the factory reading listed on the cable tag.
- If installing a Nuheat Floor-Sensing Thermostat, test the sensor probe as well. Put the resistance range to 20KΩ. Probe wires should read between 8K – 12K ohms.

If the reading on the insulation or resistance test does not pass the requirements at any point of the installation, halt installation immediately and contact Nuheat Technical Services at 1-800-778-WARM (9276).

**Note: The Nuheat Cable(s) must be tested before, during, and after the installation to validate the warranty.**

# Nuheat Cable Installation

## Plan Installation Layout

### Step 1

It is **VERY IMPORTANT** to plan the installation before securing any part of the floor warming system to the sub-floor.

Follow these steps to assist in planning the installation:

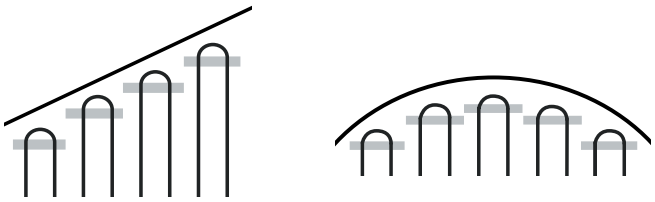
1. Start by drawing the dimensions of the room on a piece of paper (grid paper recommended).
2. Draw the dimensions of any counters, fixed furniture, or any other areas where the Nuheat Cable cannot be installed under.
3. Mark the locations of any toilet drains, heating vents or any other heating appliance. Indicate on the drawing that the Nuheat Cable should be installed at a minimum distance of:
    a. 6” from the center of the toilet drains
    b. 8” from heating vents or any other heating appliance
4. Mark the location of the thermostat [T] on the drawing. This is where the mechanical joint of the Nuheat Cable should be secured to the sub-floor and hence where the heating cable will start.

# Nuheat Cable Installation

## Plan Installation Layout

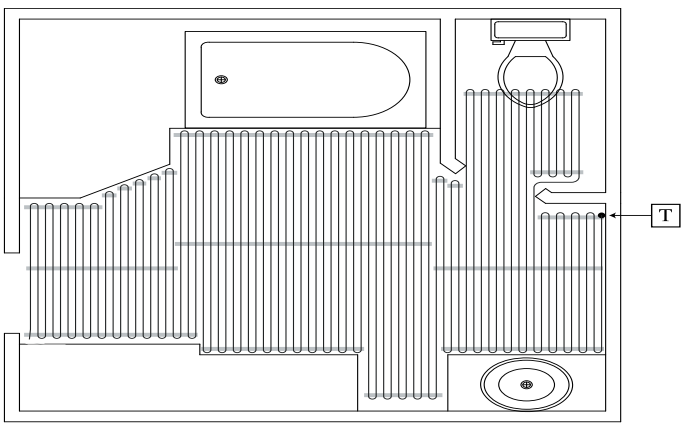
### Step 1 (continued)

5. Determine the location of the Nuheat Cable Guides and draw them on the sketch. In general, the Nuheat Cable Guides should be installed along the walls that are perpendicular to the wall on which the thermostat is located.
6. For walls with angles or curves, refer to the diagrams below and draw in the Nuheat Cable Guides accordingly:



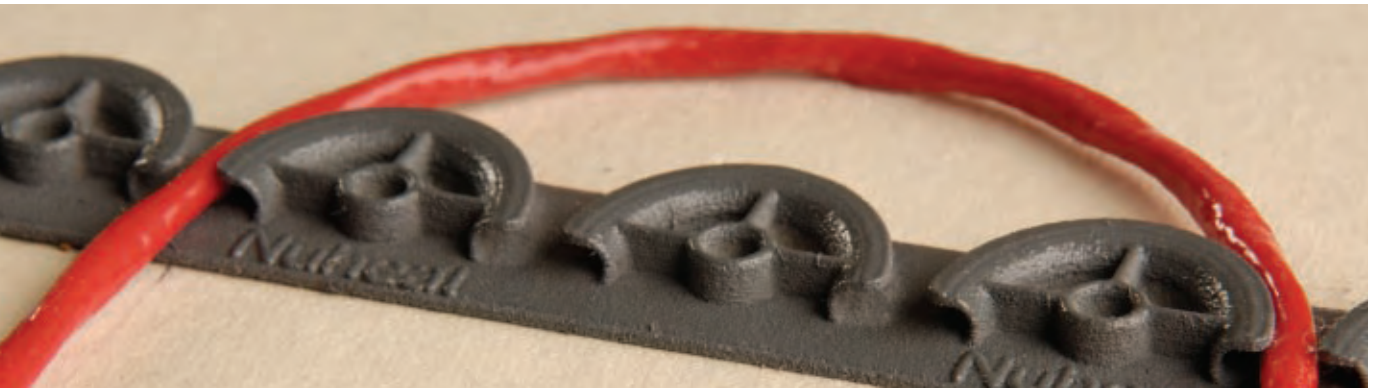
The Nuheat Cable Guides can be cut into smaller pieces before being secured to the sub-floor. Using this method to accommodate for walls with angles or curves will ensure consistent 3” spacing between the cable runs.

7. Determine the direction of the cable runs and draw them on the sketch. It is generally recommended that the direction of the cable runs is parallel to the wall on which the thermostat is located. Each run of the Nuheat Cable should be spaced 3” apart.
8. During the actual installation, additional Nuheat Cable Guides must be inserted perpendicular to the cable at 3-4 feet intervals. These additional Nuheat Cable Guides will stabilize the runs of the cable. Determine the location of these additional Nuheat Cable Guides and draw them on the sketch.



# Nuheat Cable Installation

## Plan Installation Layout



### Step 1 (continued)

9. During the actual installation, the Nuheat Cable must be installed 1” to 6” from any walls and/or fixed furniture depending on the square footage of the heated area. To help determine what this distance should be, visit www.nuheat.com/cable and select Layout Assistant. The Layout Assistant is also available in the installation manual that comes with each Nuheat Cable kit.
   Enter the model number of the Nuheat Cable kit and the square footage of the heated area and the Layout Assistant will determine the approximate distance the Nuheat Cable must be installed from the walls. Indicate this distance on the drawing. Note this distance during the actual installation and install the Nuheat Cable Guides accordingly.
10. During the actual installation, each run of the Nuheat Cable must not exceed 10 feet. Divide the room into smaller sections if the dimensions of the heated area are longer than 10 feet.
11. As it is difficult to predict exactly where the Nuheat Cable will end, it is important to include a buffer zone in the installation plan, especially in larger installations. A buffer zone is an area where heating is not essential (e.g. behind the toilet, behind a door, or any other low traffic area). This area can be used to accommodate any excess cable or can be an area that remains unheated.

**Note: The Nuheat Cable must not extend beyond the room or area in which it originates.**

**Note: Conduct insulation and resistance tests.**

# Nuheat Cable Installation

## Install the Nuheat Cable

### Step 2

1. Create a hole/notch in the wall sill plate below the electrical connection box where the thermostat will be housed. This hole is created to allow the cold lead to be passed to the electrical connection box.
2. With the appropriate tools, make a groove on the sub-floor that is deep enough to accommodate the mechanical joint (approximately 3/8” deep). The location of the groove/mechanical joint should be as close to the sill plate hole as possible. The direction of the groove/mechanical joint should allow the cold lead to run straight to the sill plate hole. Avoid having to make a turn with the cold lead.
3. Using screws (1/2” long) or hot glue, secure the mechanical joint into the groove.
4. If the installation layout plan requires excess cold lead to run on the sub-floor, secure the excess cold lead to the sub-floor using industrial-grade hot glue.

# Nuheat Cable Installation

## Install the Nuheat Cable

### Step 2 (continued)

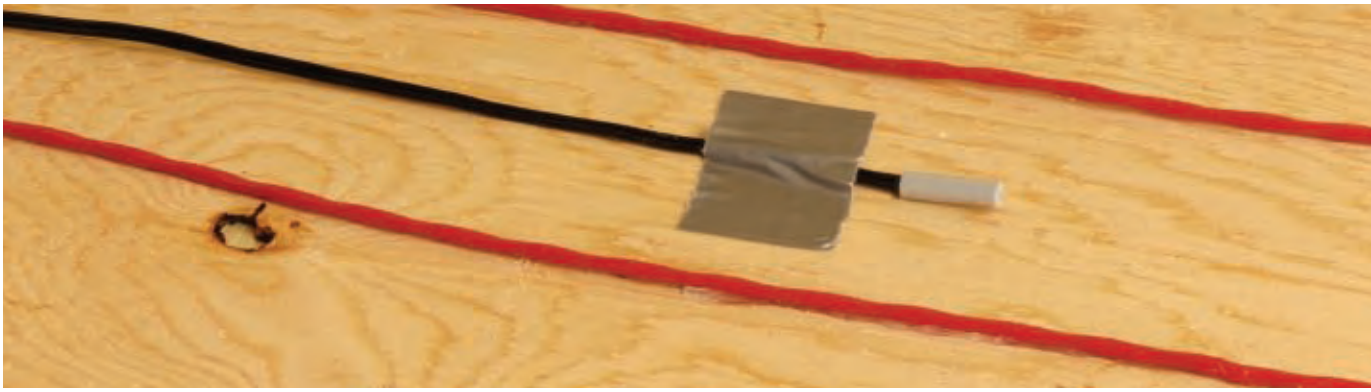
5. Install/Secure the Nuheat Cable Guides to the sub-floor according to the installation layout plan. The Nuheat Cable Guides are designed to snap together and can be secured to the sub-floor using screws (1/2" long), nails, staples, or industrial-grade hot glue. If using screws, nails, or staples, use 3-4 screws/nails/staples for each Nuheat Cable Guide.
6. Install the Nuheat Cable according to the installation layout plan. Each run of the Nuheat Cable should be spaced 3" apart. This spacing should remain unchanged throughout the installation.
7. Ensure that each run of the Nuheat Cable maintains a moderate tension. This will prevent the Nuheat Cable from floating on top of the self-leveler during the self-leveling process. Ensure that the Nuheat Cable maintains a minimum bending radius of 1".
8. Once the end of the Nuheat Cable is reached, use duct tape or a Nuheat Cable Guide to secure the end tip of the cable to the sub-floor.
9. To stabilize the runs of the cable, insert additional Nuheat Cable Guides perpendicular to the cable at 3-4 feet intervals. Press down on the Nuheat Cable in between two half-wheels of the Nuheat Cable Guides to stabilize the runs of the cable. Secure these additional Nuheat Cable Guides to the sub-floor.

**Note: Conduct insulation and resistance tests.**

**Note: Each Nuheat Cable Guide is 12" long. Each semi-circle on the Nuheat Guide is 1" in diameter for easy measuring.**

# Nuheat Cable Installation

## Install the Floor-Sensor Probe



### Step 3

If installing a Nuheat Floor-Sensing Thermostat, ensure that the sensor probe is installed at this point*. The sensor probe must be:

- Routed to the thermostat outside the electrical box. The sensor probe can run up the wall with the cold lead but must not go through the electrical box to connect to the thermostat.
- Installed in an area that will not be affected by another source of heat/cold (sunlight, draft, area covered by rug or fixed furniture).
- Installed a minimum of 12” from the edge of the heated area.
- Centered in between two cables without touching any heating cable(s).

Use duct tape to secure the sensor probe to the sub-floor. (See the Nuheat Floor-Sensing Thermostat installation instructions for proper connection of the sensor probe to the thermostat.)

* For floating laminate/engineered wood applications, install the sensor probe between the underlay and the laminate/engineered wood floor.

# Nuheat Cable Installation

## Prepare Floor and Install Floor Covering

### Step 4

There are three (3) floor preparation methods:

- Self-leveling Method (recommended)
  - o May be used for all types of flooring
  - o Recommended for Nuheat Combination Installations (refer to page 18)

- Thinset Mortar Method
  - o May be used for all types of flooring

- Direct Method
  - o Used for tile and stone flooring only

# Nuheat Cable Installation
## Floor Preparation Methods

### Self-leveling Method (recommended)

1. Prepare the self-leveling compound as per manufacturer's instructions.
2. Using a scraper or a flat trowel, spread a layer of the self-leveling compound until the Nuheat Cable and Nuheat Cable Guides are completely covered.
3. Allow the self-leveling compound to set as per manufacturer's instructions.
4. Conduct insulation and resistance tests.
5. Proceed with laying the floor covering as per the manufacturer's instructions.

### Thinset Mortar Method

1. Prepare the thinset mortar as per manufacturer's instructions.
2. Using a flat trowel, pull the trowel at a 45-degree angle (following the same direction as the Nuheat Cable) and spread a thin layer of thinset mortar over the Nuheat Cable. The Nuheat Cable must be completely covered and only the very top of the Nuheat Cable Guides should be visible.
3. Allow the thinset mortar to set as per manufacturer's instructions.
4. Conduct insulation and resistance tests.
5. Proceed with laying the floor covering as per manufacturer's instructions.

### Direct Method

1. Prepare the thinset mortar as per manufacturer's instructions.
2. Using a minimum 3/8" x 3/8" square-notched trowel, spread a thin layer of thinset mortar over the Nuheat Cable (following the same direction as the Nuheat Cable).
3. Conduct insulation and resistance tests.
4. To ensure that each tile has adequate adherence to the sub-floor, apply a layer of thinset mortar to the backside of the tile (back-buttering). Lay the tile directly on the thinset mortar and firmly press down on the tile. This technique has a high level of difficulty and is not recommended for inexperienced tile installers.

**Note: Before activating Nuheat, allow setting material (self-leveling/thinset mortar compound and grout) to cure according to manufacturer's instructions (usually 72 hours to one week).**

# Nuheat Installation

## Combining the Nuheat Cable with Nuheat Mat

### Combination Installations

The Nuheat Cable may be installed in combination with the Nuheat Mat system. However, the following additional precautions must be taken:

- The Nuheat Mat leads and the Nuheat Cable leads must be wired in parallel to the thermostat.
- Combined amps of the Nuheat Mat and the Nuheat Cable must not exceed 15 amps on a single thermostat. **Maximum load per thermostat is 15 amps.**
- To ensure consistent heat, the Nuheat Cable should not be more than 3” from the outside wires of the Nuheat Mat.
- Under no circumstances should the Nuheat Cable Guides be secured on top or underneath the Nuheat Mat.
- Under no circumstances should the Nuheat Cable and the Nuheat Mat overlap each other.
- Be cautious of differences in the floor height as the Nuheat Cable product has a slightly higher profile than the mat product. Nuheat recommends using a self-leveling compound be used to cover the entire heated area after the Nuheat Cable and Nuheat Mat has been secured to the sub-floor.

**Note: There may be a noticeable temperature difference between the area heated by the Nuheat Mat system and the area heated by the Nuheat Cable system. Nuheat recommends using Nuheat custom mats as the optimal solution for custom area coverage.**

# Nuheat Cable Installation
## Wet Environment Installations

### Wet Environment Installations

The Nuheat Cable may be installed in wet environments such as a shower bed or sauna*. The Nuheat Cable must be installed on top of the mortar bed/dry pack before the installation of the tile/stone.

Follow these steps to install the Nuheat Cable in a wet environment:

1. Flatten the mortar bed/dry pack using a flat trowel.
2. Use hot glue to secure the Nuheat Cable Guides onto the mortar bed.
3. Install the Nuheat Cable and use the Thinset Mortar Method (refer to page 17) to prepare the floor.
4. Install flooring as per manufacturer's instructions.

The following additional precautions must be taken:

- The thermostat must be located at least 4 feet away from the wet zone.
- It is recommended that a shower bed or sauna use a separate floor warming cable than the cable used for the rest of the room.

* Installations must be in accordance to the Canadian Electrical Code Part I or the National Electrical Code (US) whichever is applicable.

# Electrical Connections

## Connect the Electrical and Thermostat

### Electrical Connections

ELECTRICAL CONNECTIONS MUST BE MADE BY A CERTIFIED ELECTRICIAN TO VALIDATE THE WARRANTY.

All wiring must follow specifications set out in the Canadian Electrical Code Part 1 or the National Electrical Code (US) whichever is applicable and local electrical inspection regulations and authorities. The Nuheat Cable must be connected to the electrical service through a Class “A” Ground Fault Circuit Interrupter (GFCI) or a GFCI circuit breaker. All Nuheat thermostats come equipped with a built-in Class “A” GFCI.

1. Pull the lead wires into the electrical connection box.
   NOTE: FOR INSTALLATIONS REQUIRING A COLD LEAD TRIM OR SPLICE, THE ELECTRICAL RATINGS LABEL SHALL BE FIXED TO THE COLD LEAD AND VISIBLE AT THE TERMINAL JUNCTION BOX. REMOVING THE LABEL WILL AUTOMATICALLY VOID THE WARRANTY.
2. Secure the Nuheat Cable to the box connector hub and install a protective nail plate to cover the sill plate hole.
3. Connect the green wire (ground) to the electrical box ground screw or ground copper conductor wire.
4. Attach the corresponding lead wires to the junction box using CSA Certified/UL Listed cable fittings. The Nuheat system must be connected using minimum 14AWG supply conductors. Supply conductors shall be suitable for residential wiring according to local and national electrical codes.

### Thermostat Connections

Refer to the thermostat installation instructions (included with thermostat) for proper wiring instructions. Thermostats should be installed at an appropriate height and in an accessible location in the same room that the thermostat is controlling.

# Nuheat Controls
## Programmable Floor-Sensing Thermostats
## The Harmony

### Programmable Floor-Sensing Thermostats

Programmable floor-sensing thermostats offer the best control over floor temperature and maximize energy savings. Complete with a built-in GFCI, users can program the specific days and times they want their system turned on or off. Most users find that programmable thermostats saves them money on their energy bill.

### Harmony Thermostat

The Harmony thermostat is a new thermostat exclusive to Nuheat. Combining style and function, the Harmony thermostat is the only flush mounted designer inspired thermostat in the floor warming category. It fits seamlessly behind any double-gang faceplate allowing homeowners the ability to integrate both style and warmth into their room decor. It may also be mounted beside your other controls if you choose to use a faceplate larger than two-gang.

*faceplate not included

### Harmony benefits:

- Manufacturer's limited one (1) year warranty
- Built-in Class A GFCI
- Available in 110V and 220V
- For tile, stone, laminate and engineered wood floors
- On/off switch
- Backlit display
- Energy efficient
- Programmable 7-day settings
- Designed to mount behind a decorator style faceplate
- Exclusively designed for Nuheat floor warming systems
- Manufacturer's limited one (1) year warranty

C US

**110 volt specifications**

Model: HMY 110
Supply: 120 VAC
Load: 15 A max. (resistive load)
Power: 1800 W max. @ 120 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA / C, US
Display range: 32 to 140 ° F (0 to 60 ° C)
Setting range: 40 to 104 ° F (5 to 40 ° C)
Econo default setting: 64 ° F (18 ° C)
Storage: -4 to 120 ° F (-20 to 50 ° C)

**220 volt specifications**

Model: HMY 220V
Supply: 240 VAC
Load: 15 A max. (resistive load)
Power: 3600 W max. @ 240 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA / C, US
Display range: 32 to 140 ° F (0 to 60 ° C)
Setting range: 40 to 82 ° F (5 to 40 ° C)
Econo default setting: 64 ° F (18 ° C)
Storage: -4 to 120 ° F (-20 to 50 ° C)

*the Harmony thermostat requires a two gang deep box

# Nuheat Controls

## Programmable Floor-Sensing Thermostats

## MatComfort and MatComfort 82F

### MatComfort (NTG) benefits:

- Programmable 7-day settings
- For tile and stone
- ENERGY STAR qualified
- Pre-programmed settings including early start
- Back lit display
- On/off switch
- Available in 110V and 220V
- Built-in Class A GFCI
- Manufacturer's limited one (1) year warranty

### MatComfort 82 F benefits:

- For laminate and engineered wood floors
- The only thermostat that will protect your laminate/engineered wood flooring investment
- Will not heat floors above 82° F

ENERGY STAR

C US

#### 110 volt specifications

MatComfort Model: NTG5110 (120 VAC)
MatComfort Supply: 110 VAC, 50/60 Hz
MatComfort 82F Model: 82F 110V
MatComfort 82F Supply: 120 VAC

Load: 15 A max. (resistive load)
Power: 1800 W max. @ 120 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA/C, US
Display range: 32 to 140°F (0 to 60°C)
Setting range: 40 to 104°F (5 to 40°C)
Econo default setting: 64°F (18°C)

Storage: -4 to 120°F (-20 to 50°C)

#### 220 volt specifications

MatComfort Model: NTG5220 (240 VAC)
MatComfort Supply: 220 VAC, 50/60Hz
MatComfort 82F Model: 82F 220V
MatComfort 82F Supply: 240 VAC

Load: 15 A max. (resistive load)
Power: 3600 W max. @ 240 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA/C, US
Display range: 32 to 140°F (0 to 60°C)
Setting range: 40 to 104°F (5 to 40°C)
Econo default setting: 64°F (18°C)
Storage: -4 to 120°F (-20 to 50°C)

# Nuheat Controls

## Non-Programmable Thermostats

## MatComfort Regulator

### MatComfort Regulator

No floor-sensing probe is required for installation.

### MatComfort Regulator benefits:

- Contractor grade control unit
- Heating indicator light
- Power selection dial
- On/off switch
- Available in 110V and 220V
- Built-in Class A GFCI
- Manufacturer's limited one (1) year warranty

#### 110 volt specifications

Model: NDG6110
Supply: 110 VAC, 50/60 Hz
Load: 15 A max. (resistive load)
Power: 1800 W max. @ 120 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA / C, US

#### 220 volt specifications

Model: NDG6220
Supply: 220 VAC, 50/60 Hz
Load: 15 A max. (resistive load)
Power: 3600 W max. @ 240 VAC
GFCI: Class A (5 mA TRIP LEVEL)
Approvals: CSA / C, US

C US

# Nuheat MatSense Pro Electrical Fault Indicator

## MatSense Pro

Our electrical fault indicator is a device that simultaneously monitors the hot, neutral and ground wires during your Nuheat installation. Use an electric fault indicator to ensure a correct Nuheat installation every time.

The MatSense Pro will set off a distinct alarm when:

- the sensor finds an open circuit
- the sensor detects a short circuit

The MatSense Pro is the installer's safeguard to ensure homeowners that their Nuheat floor warming system is installed correctly every time.

Simply connect the conductor wires and ground wires to the MatSense Pro and turn it on.

The MatSense Pro is available for sale at all Nuheat Authorized Distributor locations. For a location near you, please log onto www.nuheat.com and click the "Where to Purchase" section or simply call 1-800-778-WARM (9276).

**Using the MatSense Pro DOES NOT replace the need to conduct insulation or resistance tests of the Nuheat Cable(s) prior, during and after the installation. For more information on installation please visit www.nuheat.com.**

**Note: The Nuheat Cable is repairable if damaged. If the Nuheat Cable is damaged, please contact Nuheat Technical Services at 1-800-778-WARM (9276).**

# Solving Problems

## Error Messages and Heating Issues

| Problem | Cause | Solution |
|---|---|---|
| Thermostat screen is blank | Thermostat is not turned on | Open left hand door and turn On/Standby switch to ON |
| | No voltage to thermostat | Call your electrician |
| | Problem with the thermostat | Call Nuheat at 1-800-778-9276 |
| GFCI light is on | Unit needs to be reset | Switch On/Standby to “Standby” then back to ON |
| | Breaker needs to be reset | At the electrical panel, flip the breaker that powers |
| | | Check to ensure breaker feeding this thermostat is not GFCI protected. If so, replace with standard breaker |
| | | If GFCI light is still on, call your electrician |
| | Nuheat Cable system has been damaged | Call Nuheat at 1-800-778-9276 |
| | Problem with the control | Call Nuheat at 1-800-778-9276 |
| GFCI light comes on occasionally | Problem with thermostat | Call Nuheat at 1-800-778-9276 |
| “LO” reading on the screen | Floor sensing probe is damaged, missing, loose, or wires touching at connection on thermostat | Call your electrician |
| “HI” reading on the screen | Floor sensing probe is reading a temperature of over 104˚F Probe is likely too close or is touching a heating wire inside the Nuheat Cable | Call your tile setter to reposition the probe |

# Solving Problems

## Error Messages and Heating Issues

| Problem | Cause | Solution |
|---|---|---|
| “HI” reading on the screen (cont’d) | Probe is damaged or cut | Confirm with electrician and have tile installer install new probe under tile |
| Thermostat will not hold a program | Thermostat programs are not set properly | Download programming instructions www.nuheat.com/support |
| | Problem with thermostat | Call Nuheat at 1-800-778-9276 |
| | | Return thermostat to place of purchase |
| Thermostat enters “ON” mode too soon | Early start function turning on too soon | Disable early start function on back of face plate |
| Cable does not heat up | System not on | |
| | Thermostat not programmed properly | Refer to instructions and re-program |
| | Bad connections in junction box | Call your electrician |
| | No voltage to control | Call your electrician |
| | No voltage out of control | Call your electrician - return thermostat to place of purchase for replacement |
| | Probe placed on cable wire | Call your tile setter to reposition probe |
| | Cable wire is damaged | Have electrician check for correct cable readings. If incorrect, contact Nuheat at 1-800-778-9276 |
| | Incorrect probe placement | Call your tile setter to reposition probe |
| Control showing much higher temperature than set | Problem with thermostat | Return thermostat to place of purchase |

# Contact Information

## Corporate and Regional Offices


### Nuheat Corporate Office/ Northwest Regional Office

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## Nuheat Cable - Complete Product Listing

120V

| Model No. | Sq ft coverage | Length (ft) | Amps | Watts |
|---|---|---|---|---|
| N1C004008 | 4-8 | 17 | 0.4 | 51 |
| N1C009012 | 9-12 | 35 | 0.9 | 104 |
| N1C013019 | 13-19 | 49 | 1.2 | 147 |
| N1C020022 | 20-22 | 74 | 1.8 | 220 |
| N1C023028 | 23-28 | 87 | 2.2 | 260 |
| N1C029036 | 29-36 | 110 | 2.8 | 331 |
| N1C037045 | 37-45 | 142 | 3.6 | 426 |
| N1C046049 | 46-49 | 176 | 4.4 | 529 |
| N1C050058 | 50-58 | 194 | 4.8 | 581 |
| N1C059073 | 59-73 | 230 | 5.7 | 689 |
| N1C074088 | 74-88 | 304 | 7.6 | 912 |
| N1C089100 | 89-100 | 347 | 8.7 | 1042 |

240V

| Model No. | Sq ft coverage | Length (ft) | Amps | Watts |
|---|---|---|---|---|
| N2C009014 | 9-14 | 34 | 0.4 | 103 |
| N2C015022 | 15-22 | 69 | 0.9 | 207 |
| N2C023031 | 23-31 | 98 | 1.2 | 293 |
| N2C032037 | 32-37 | 122 | 1.5 | 366 |
| N2C038044 | 38-44 | 147 | 1.8 | 441 |
| N2C045050 | 45-50 | 173 | 2.2 | 518 |
| N2C051062 | 51-62 | 195 | 2.4 | 586 |
| N2C063072 | 63-72 | 244 | 3.1 | 733 |
| N2C073081 | 73-81 | 283 | 3.5 | 850 |
| N2C082089 | 82-89 | 320 | 4.0 | 959 |
| N2C090098 | 90-98 | 351 | 4.4 | 1054 |
| N2C099116 | 99-116 | 387 | 4.8 | 1161 |
| N2C117134 | 117-134 | 459 | 5.7 | 1378 |
| N2C135154 | 135-154 | 528 | 6.6 | 1583 |
| N2C155175 | 155-175 | 608 | 7.6 | 1823 |
| N2C176200 | 176-200 | 695 | 8.7 | 2084 |