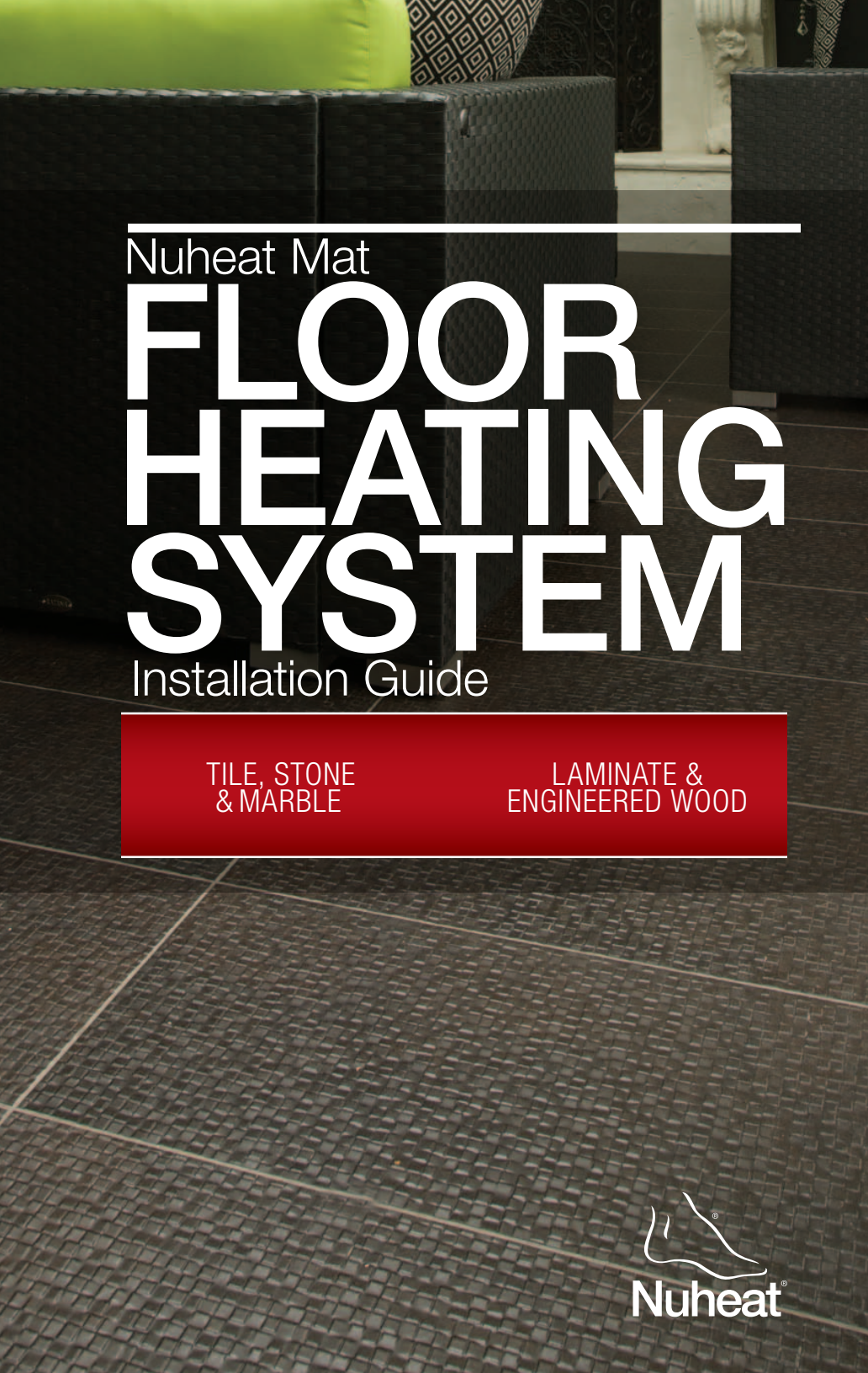

Nuheat Mat

FLOOR HEATING SYSTEM

Installation Guide

TILE, STONE & MARBLE

LAMINATE & ENGINEERED WOOD

Nuheat®

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Nuheat Mat
FLOOR HEATING SYSTEM

SECTION 1

1.1 INSTALLATION GUIDELINES

First time installers should contact Nuheat Customer Care at 1.800.778.WARM(9276).

Nuheat Mat
FLOOR HEATING SYSTEM

SECTION 1

INSTALLATION PREPARATION

- The installation of this heating product shall be in accordance with the manufacturer's instructions and in accordance with the Canadian Electrical Code Part 1 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.
- Nuheat Mat should be connected to a dedicated electrical circuit.
- It is mandatory to install a class "A" GFCI or GFCI circuit breaker with each Nuheat Mat installation.

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 Mat System and will void the Nuheat warranty.
- Indicate on the electrical panel which circuit is used for the electric floor heating system.
- Subfloor must be prepared in accordance to ANSI specifications.
- Nuheat Mat cannot be overlapped, crossed, cut, shortened or modified.
- The ambient air temperature must be above 10˚C or 50˚F when the Nuheat Mat Floor Heating System is installed.
- For concrete slab subfloors, Nuheat recommends insulating the slab prior to installing Nuheat Mat. Insulation will improve the upward heat transfer from the mat to the flooring surface and improve heat up time.

1.21 ASSEMBLE REQUIRED TOOLS

- Multimeter/Ohmeter
- ¼" x ¼" square notched trowel
- Grouting float/lightweight roller
- Sponge
- Latex-modified thinset
- Thinset mixer
- Large bucket
- Duct tape
- Thermostat sensor probe (included with thermostat)

FIGURE 1.21: Assemble required tools

1.22 PRE-INSTALLATION GUIDELINES

Avoid the following activities that may damage Nuheat:

- Connecting the mat to power when folded
- Stapling
- Nailing
- Folding, bending overlapping mats
- Using grout scrapers or utility knives to clean grout lines may damage the mat and void Nuheat warranty.

Clean grout lines with a sponge as you go.

1.23 DRY FIT AND ROUTE COLD LEAD PATH

Position Nuheat Mat to fit contours of room. Route a path for the cold lead to the electrical box. The cold lead CANNOT cross over on top of the Nuheat Mat. Nuheat Standard Mats can be flipped in any direction to place cold leads closer to thermostat location.

1.3 INSULATION & RESISTANCE TESTS

If insulation or resistance tests do not pass the requirements at any point of the installation, halt installation immediately and contact Nuheat Customer Care at 1.800.778.WARM(9276) or email customercare@nuheat.com.

1.31 INSULATION TEST

To ensure the heating wire is fully insulated:

1. With digital multimeter, set it to measure resistance/ohms. If using an ohmeter, set it to the 200 ohm setting.
2. Place one multimeter clip on the metal braid wire (ground). Place the other multimeter clip on the white wire (red wire for 240V Nuheat Mats).
3. Confirm the reading on the multimeter/ohmeter is OL or infinity (open circuit).
4. Repeat steps 2-3 to check the reading between the metal braid wire (ground) and the other wire (black).

1.31 RESISTANCE TEST

To ensure the heating wire is fully insulated:

1. With digital multimeter, set it to measure resistance/ohms. If using an ohmeter, set it to the 200 ohm setting.
2. Place one multimeter clip on the white wire (red wire for 240V Nuheat Mats). Place the other multimeter clip on the black wire.
3. Confirm the reading on the multimeter/ohmeter is within +10% / -5% of the factory resistance listed on the white tag that is attached to the cold lead. The white tag contains information including factory resistance readings, model number, manufacture date and amperage ratings.
4. Record the resistance test readings in the table on page 7.

⚠ **Nuheat Mat must be tested before, during and after installation to validate the warranty.**

MAT RESISTANCE LOG

1.41 MAT RESISTANCE LOG

For warranty and troubleshooting purposes, the mat resistance log must be completed and remain with the end user.

MAT RESISTANCE LOG	
MAT MODEL NUMBER	
FACTORY MEASURED RESISTANCE	
RESISTANCE TEST OHMS READING (BEFORE INSTALLATION)	
RESISTANCE TEST OHMS READING (DURING INSTALLATION)	
RESISTANCE TEST OHMS READING (AFTER INSTALLATION)	

Failure to record resistance tests in the above table will void the Nuheat warranty. To submit your warranty, visit www.nuheat.com and fill out the online warranty card.

1.42 FLOOR SENSOR PROBE TEST

To ensure the floor sensor probe is not damaged:

1. With a digital multimeter (or ohmmeter), set the device to the 20KΩ (Kilohms) setting.
2. Place a multimeter clip on each of the wires. It does not matter which clip is attached to which wire. Some multimeters do not have the 20KΩ (Kilohms) setting. Find a suitable multimeter that has this setting.
3. Confirm the reading on the device is between 8-12KΩ (Kilohms) at room temperature.
4. If test readings do not pass requirements at any point of the installation, halt installation immediately and contact Nuheat Customer Care at 1.800.778.WARM(9276) or email customercare@nuheat.com.

2.11 SECURING MAT TO THE SUBFLOOR

1. Prepare thinset mixture
2. Spread thinset onto subfloor

Use ¼" x ¼" square notched trowel to spread ¼" layer of acrylic/latex modified thinset onto subfloor. Work on one manageable section at a time.

FIGURE 2.12: Spread thinset onto subfloor

3. Place mat onto fresh thinset

FIGURE 2.13: Place mat onto fresh thinset

4. Press mat into thinset

Press Nuheat Mat firmly into thinset with grout float or lightweight roller. Create 100% contact between Nuheat Mat, thinset and subfloor. Press out air bubbles underneath mat. Route cold lead(s) to electrical box.

2.11 SECURING MAT TO THE SUBFLOOR (CONTINUED)

5. Perform insulation and resistance test on page 6
6. Secure floor sensor probe

Duct tape the floor sensor probe on top of the Nuheat Mat. The probe's tip should be between the heating wires. Ensure probe is away from other heat sources (e.g. heat ducts). The probe's wire can cross on top of the heating wire.

FIGURE 2.16: Secure floor sensor probe

2.21 INSTALL FLOORING - TILE & STONE

1. Apply thin layer of thinset

Use ¼" x ¼" square notched trowel to spread minimum ¼" layer of acrylic/latex modified thinset on top of Nuheat Mat as per manufacturer's instructions.

FIGURE 2.21: Install tie/stone flooring

2. Install tile/stone as per manufacturer's instructions.
3. Clean grout lines

Do not use sharp tools or power tools to clean grout lines; doing so may damage Nuheat Mat.

FIGURE 2.23: Clean grout lines

4. Perform insulation and resistance test on page 6
5. Make electrical connections

Before activating Nuheat Mat, ensure setting compound has fully cured. Refer to setting compound manufacturer's specifications for cure times. Installation of Nuheat Mat is now complete.

INSTALL FLOORING - LAMINATE/ ENGINEERED WOOD

2.31 INSTALL FLOORING - LAMINATE/ENGINEERED WOOD

1. Apply smooth layer of thinset

   Use smooth trowel to spread minimum ¼" layer of acrylic/latex modified thinset on top of Nuheat Mat. Ensure thinset layer is level and smooth. Self-leveling compounds may also be used. Allow thinset or self-leveller to cure as per manufacturer's instructions.

2. Perform insulation and resistance test on page 6
3. Install laminate/engineered wood flooring

   Install vapor barrier, if applicable, and underlay as per manufacturer's instructions. Install laminate/engineered wood floor as per manufacturer's instructions.

FIGURE 2.33: Install laminate/engineered wood flooring

4. Make electrical connections

   Before activating Nuheat Mat, ensure setting compound has fully cured. Refer to setting compound manufacturer's specifications for cure times. Installation of Nuheat Mat is now complete.

3.1 ELECTRICAL CONNECTIONS

3.11 ELECTRICAL CONNECTIONS

1. Connect the tin plated copper ground braid/wire of the Nuheat Mat to the ground screw or ground conductor inside the electrical box using approved wire connectors.
2. Attach corresponding lead wires to electrical box using CSA Certified/ UL Listed cable fittings. Make electrical connection only after flooring is complete.
3. Nuheat Mat must be connected to minimum 14AWG supply conductors. Supply conductors shall be suitable for residential wiring according to local and national electrical code.

When controlling multiple mats with one thermostat, all mats may be connected directly to the thermostat provided the total amperage does not exceed the 15-amp maximum load of the Nuheat Thermostat. Alternatively, the mat cold leads can be run to a separate electrical box and connected to the Nuheat Thermostat using suitable electrical house wiring. Consult with your electrician to determine the best method for your installation. In all cases, ensure the electrical box can easily fit all of the connections.

⚠ **Risk of electric shock and fire. Damage to supply conductor insulation may occur if conductors are routed less than 2" (51mm) from heating wire. Refer to installation instructions for recommended means of routing supply conductors.**

4. Affix supplied orange label to panel board beside appropriate circuit indicating branch circuit supplying power to Nuheat Mat.
5. Affix the supplied "Concealed Area Warning" label to adjacent points of access to concealed areas in which installed heating products are accessible.
6. Affix the supplied "Radiant Floor Heating" sticker to the room control for the Nuheat Floor Heating System.

All wiring must follow specifications set out in Part 1 of Canadian Electrical Code, or Article 424 of the National Electrical Code ANSI/ NFPA 70, or whichever is applicable to local electrical inspection regulations and authorities. All Nuheat thermostats are equipped with built-in Class "A" GFCI protection. If Nuheat Mat is connected directly to a Nuheat thermostat, a non-GFCI equipped breaker should be used. If the Nuheat Mat is controlling an external relay for a separate circuit, it is mandatory to install a Class "A" GFCI or GFCI circuit breaker for the external/separate circuit.

3.11 ELECTRICAL CONNECTIONS (CONTINUED)

The cold leads of Nuheat Mat may need to be routed inside suitable conduit according to local electrical codes. Check with the local authority having jurisdiction to determine requirements.

⚠ **NEC/CEC rules state that the cold lead tag must remain on the cold lead. The tag contains critical information necessary for testing, warranty and troubleshooting purposes. Do not remove the tag for any reason.**

3.2 ELECTRICAL GUIDELINES

3.21 ELECTRICAL GUIDELINES

- The installation of this heating product shall be in accordance with the manufacturer's instructions and in accordance with the Canadian Electrical Code Part 1 or the National Electrical Code (USA), 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 electric shock, fire and bodily injury during the installation of this equipment.
- De-energize power circuits before installation or servicing.
- Nuheat Mat should not be connected to power until the Nuheat Mat is fully installed and covered by flooring material.
- Subfloor must be prepared in accordance with ANSI specifications.
- The heating portion of the Nuheat Mat shall not touch, cross over, or overlap itself.
- Do not install Nuheat Mat in direct contact with or within 0.256" (6.5mm) of any combustible surfaces or materials.
- Nuheat Mat should be installed a minimum of 2" (51mm) away from walls.
- The minimum bending radius of the cold lead is 2" (51mm) and heating wire is 0.625" (16mm).
- The ambient temperature must be above 10°C or 50°F when Nuheat Mat is installed.
- As per National Electrical Code (US) and Canadian Electrical Code (CAN), Nuheat Mat must be installed on a dedicated circuit for heating appliances/ devices (additional Nuheat Mats, baseboard heaters, electric fireplaces, etc.).
- Nuheat Mat is designed for indoor floor heating applications in general use (-X) in US and Canada and in wet (-W) areas in Canada.
- Minimum distance of 1.5" (38.1mm) between adjacent heating devices.
- Total combined R-values of all floor coverings must not exceed R-2.5.
- Nuheat Mat should not be altered.

3.22 TROUBLESHOOTING

Should you have any questions or difficulties installing or controlling your Nuheat Mat, please consult our comprehensive troubleshooting FAQ section at www.nuheat.com or contact Nuheat directly at 1.800.778.WARM(9276) or email customercare@nuheat.com.

3.23 HOW TO SUBMIT YOUR WARRANTY

Nuheat Mat is eligible for a 25-year warranty provided the online warranty form (available at www.nuheat.com) is fully completed and registered within sixty (60) days from the date of the installation. The 25-year warranty warrants the product against manufacturer's defects and does not warranty the installation of Nuheat Mat or thermostat. Warranty for the installation must be covered by the contractor(s) installing the Nuheat Mat.

SIGNATURE THERMOSTAT

- Programmable WiFi-enabled floor heating thermostat
- Control thermostat via iOS/Android devices and MyNuheat.com
- 3.5” color touchscreen
- 7-day programmability
- For use under tile, stone, marble and laminate/engineered wood applications
- Energy use monitor
- Dual voltage compatibility (120V or 240V)
- Floor sensing and ambient air sensing
- Built-in G.F.C.I. (Class A)
- Manufacturer’s limited three (3) year warranty

HOME THERMOSTAT (AVAILABLE FALL 2014)

- Programmable floor heating thermostat
- 3.5” color touchscreen
- 7-day programmability
- For use under tile, stone, marble and laminate/engineered wood applications
- Energy use monitor
- Dual voltage compatibility (120V or 240V)
- Floor sensing and ambient air sensing
- Built-in G.F.C.I. (Class A)
- Manufacturer’s limited three (3) year warranty

ELEMENT THERMOSTAT (AVAILABLE WINTER 2014)

- Non-programmable floor heating thermostat
- For use under tile, stone, marble and laminate/ engineered wood applications
- Energy efficient
- Dual voltage compatibility (120V or 240V)
- Floor sensing and ambient air sensing
- Built-in G.F.C.I. (Class A)
- Manufacturer's limited three (3) year warranty

HARMONY THERMOSTAT

- Energy efficient
- 7-day programmability
- Flush mounts behind any double-gang wall plate
- For use under tile, stone, marble and laminate/engineered wood applications
- Dual voltage compatibility (120V or 240V)
- Built-in G.F.C.I. (Class A)
- Manufacturer's limited three (3) year warranty

4.1 CONTROLS & ACCESSORIES

SOLO THERMOSTAT

- Energy efficient
- 7-day programmability
- For use under tile, stone, marble and laminate/ engineered wood applications
- Dual voltage compatibility (120V or 240V)
- Full menu screen for easy programming
- Floor sensing and ambient air sensing
- Built-in G.F.C.I. (Class A)
- Manufacturer's limited three (3) year warranty

TEMPO THERMOSTAT

- Non-programmable floor heating thermostat
- For use under tile, stone, marble and laminate/engineered wood applications
- Energy efficient
- Dual voltage compatibility (120V or 240V)
- Backlit display
- "Up" or "Down" temperature control buttons
- Built-in G.F.C.I. (Class A)
- Manufacturer's limited three (3) year warranty

MATSENSE PRO ELECTRIC FAULT INDICATOR

The Mat Sense Pro is an electrical fault indicator that simultaneously monitors the hot, neutral and ground wires during your Nuheat Mat or Nuheat Cable installation. Use an electric fault indicator to ensure a correct Nuheat installation every time.

Nuheat®

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