HEATIZON
SYSTEMS

Heatwave

Installation/Homeowner's Manual and Warranty Registration Information

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STOP and Call 1-888-239-1232 BEFORE beginning the installation if you do not have appropriate Warranty Registration Information or Wiring Diagrams.

Heatwave General Instructions

The instructions in this manual must be followed when preparing and installing the Heatwave Mat Floor Warming System. This manual and the installation layout should be made available to all installers and the electrician working on the job. Both should then be turned over to the homeowner after the installation is complete.

FAILURE TO FOLLOW THE INSTRUCTIONS IN THIS MANUAL MAY VOID THE HOMEOWNER'S WARRANTY ON THE FLOOR-WARMING SYSTEM.

Temperature and Time Control

For optimal control of the Heatwave Floor-Warming System, one can use a Floor-Sensing Programmable Thermostat such as the Aube (TH115-F-120GA, TH115-F-120GB, TH111-F-240GA, or TH111-F-240GB). The temperature sensing is accomplished by placing a sensor in the heated area under the flooring surface. This versatile unit can be programmed to operate at varying temperatures for different time periods on a daily basis. Another beneficial feature of the Aube Programmable Thermostat is the internal GFCI. Heatwave floor-warming systems can also be regulated by one of the following: an ON/OFF switch, a programmable timer, or a manual floor-sensing thermostat. Please contact the Heatizon Sales Department at 1-888-239-1232 for further details. **Control installation guidelines are listed on pages 3 and 4 of this manual.**

Maintenance

The Heatwave floor-warming system has no moving parts and is virtually maintenance-free. The internal Aube **GFCI (Ground Fault Circuit Interrupt)**, should be tested monthly as described in the manufacturer's pamphlet to insure its continued safe operation. If an external GFCI is utilized instead, it should also be tested monthly.

Subfloors and Floor Coverings

Heatwave may be installed over any well-insulated subfloor (i.e. plywood, concrete, or underlayment material) prepared in accordance with all TCA guidelines and rated to withstand 180 degrees Fahrenheit.

SPECIAL CONSIDERATION:
Heatwave will be most effective and efficient if installed over well-insulated areas. Insulation will minimize heat loss into the subfloor (i.e. concrete slab), allowing the heat to transfer to the surface more quickly.

Heatwave will be most effective if installed under rigid floors that are naturally good conductors of heat such as ceramic tile, marble, and other stone floorings. There are limitations in applications that utilize different floor coverings. Please consult with your Heatizon Systems Marketing Representative for details on heating wall-to-wall carpeting, and parquet or engineered wood floors.

Planning the Installation

Before laying the Heatwave Floor-Warming system, review the installation layout and verify that all dimensions match the field dimensions. The installation plan should include the following:

1. Placement, direction, and dimensions of the Heatwave heating mat
2. The starting and ending points of each mat
3. The location of the thermostat or other suitable control
4. The location of the floor sensor

REMEMBER! The installation plan for each area should be attached to this manual and be provided to the homeowner when the installation is complete.

IMPORTANT INSTALLATION CONSIDERATIONS

DO

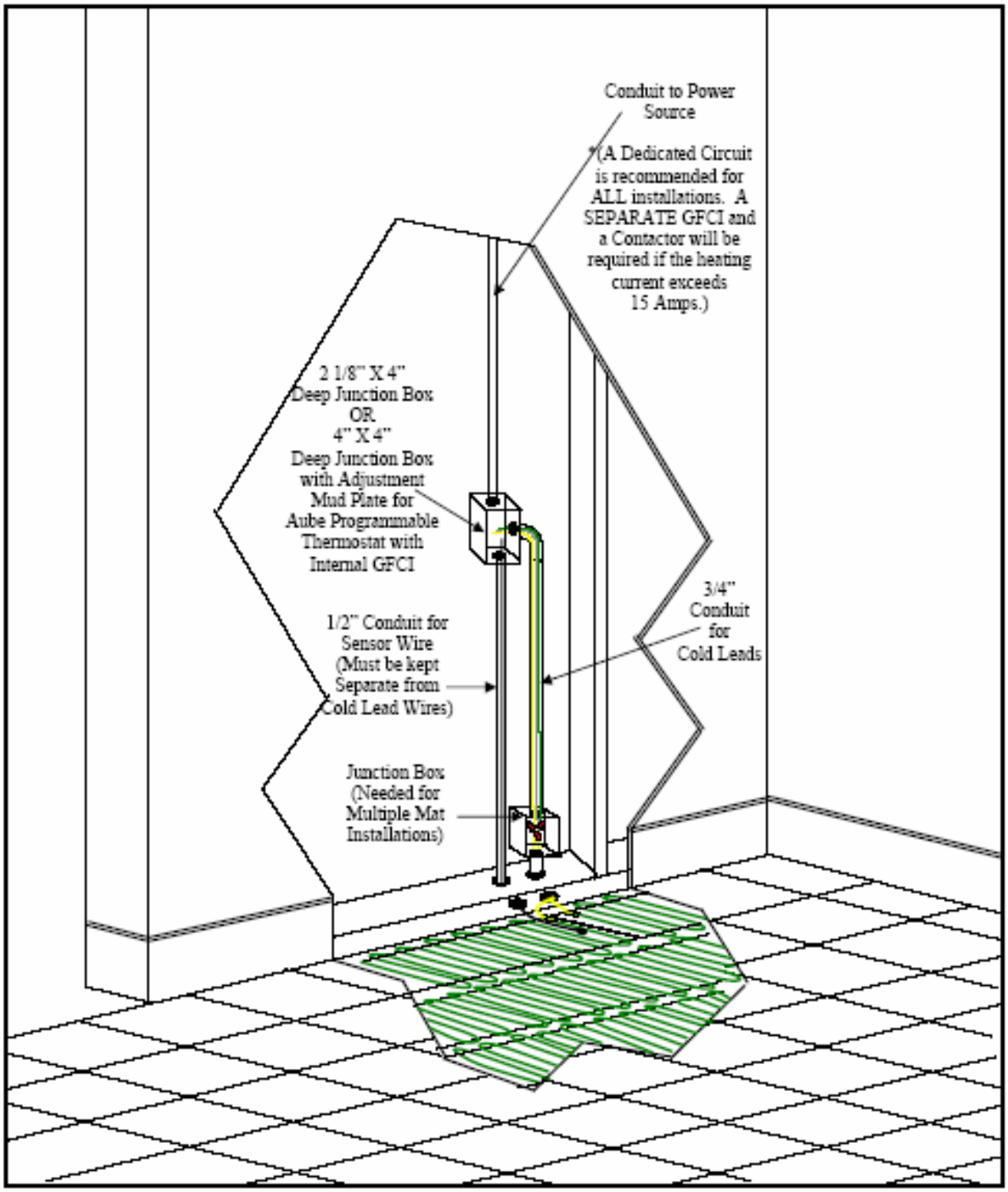
1. Clean the floor of all debris before placing the mat on the floor.
2. Make sure there are no protruding ob jects (nails, staples, etc.) on the sub floor that could damage the heating element.
3. Walk over the unprotected mat with rubber soled shoes.
4. Measure and record mat resistance as per instructions.
5. Use mats that have the same heat out put. ALL mats should be EITHER 10watts/sqft OR ALL 15 watts/sqft.
6. Make sure all components of the sys tem are rated for the same Voltage (120V OR 240V).
7. Have all electrical work completed by a professional electrician in accordance with all local and national codes.
8. Connect Heatwave to a Dedicated Cir cuit.
9. Call our Technical Support Hotline at 1-888-239-1232 if you need answers to installation questions, need help solving a problem, or believe that the mat got damaged during installation.

DON'T

1. DON'T shorten the heating mat.
2. DON'T cut the heating wire.
3. DON'T drop or bang any tools (i.e. trowel) on or hit the heating wires with any sharp objects.
4. DON'T install any fasteners such as nails, screws, etc. through any area covered by the Heatwave mat.
5. DON'T install Heatwave under cabinets, built-in appliances, etc. to avoid excessive heat from building up in those areas.
6. DON'T install mats over expansion joints.
7. DON'T install Heatwave in walls.
8. DON'T install Heatwave in showers.
9. DON'T overlap mats or allow any wires to cross or touch each other.
10. DON'T crimp the heating wire while customizing the mat.
11. DON'T place area or throw rugs thicker that ½" over the heated area to avoid ex cessive build-up of heat in these areas.
12. DON'T attempt to repair the heating wire without the proper instructions and repair kit (obtained from your distributor or Heatizon Systems).
13. DON'T forget to install the floor-sensor if you are installing a thermostat.
14. DON'T install Heatwave in glues other than cement-based tile-setting mortars.

Heatwave Floor-Warming System Electrical Rough-In for

Aube Programmable T-Stat



Electrical Preparation - Aube Programmable T-Stat

All Electrical Connections for the Heatwave Floor-Warming System and Controls should be done by a Professional Electrician in accordance with all Local and National Electrical Codes.

Rough-In Electrical: Requires a Dedicated Circuit

1. A deep, 2 1/8" X 4" single-gang junction box (OR a "roomier" 4" X 4" double-gang box with a mud plate) should be provided by the electrician for the thermostat connections. (See Rough-In Electrical Preparation Diagram on page 3.)
2. Two conduits should be run down from the junction box.
    a. The first conduit, intended for the cold leads from the mat(s), should be ¾" and must be run from the junction box down to floor level. A plastic bushing should be used where the cold leads enter the conduit to protect the wires.
    b. The second conduit, intended for the Aube floor-sensor, can be a ½"conduit. This ½" conduit should be run from the junction box down to floor level. THE SENSOR WIRE SHOULD NOT BE PLACED IN THE SAME CONDUIT AS THE COLD LEADS.

Aube Sensor Placement

The Aube floor sensor should be installed after the heating mat has been secured to the underlayment, but BEFORE it is covered with any mortar. Make sure to place the sensor between the heating element wires without crossing or touching any of the element wires as described in the "Step-By-Step Installation Procedures" of this manual.

Extending The Leads

The cold leads extend approximately 12'-13' from the mat. Since the cold lead(s) cannot be spliced in the floor, the mat should be laid in a pattern that allows the cold lead(s) to run directly to the junction box without crossing or touching any element wires. However, if the cold lead(s) need to be extended, an additional accessible junction box should be set just above floor level. The Gage of the extension wire(s) used should be determined by the electrician to accommodate the amperage of the mat(s) being installed. ***REMEMBER! Inaccessible extensions or splices are not permitted.***

Multiple Mat Installations

If the project requires more than one Heatwave mat to be connected to the same control, the cold leads from the mats should be connected IN PARALLEL (NOT IN SERIES) through an additional junction box and extended through the conduit to the thermostat junction box. The Gage of the extension wires used should be determined by the electrician to accommodate the amperage of the mats being installed. (See Section below labeled "Use of a Contactor and Separate GFCI" for further details.)

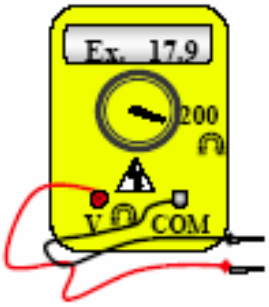
Use of a Contactor and Separate GFCI (for Multiple Mat Installations)

IMPORTANT! The Aube T-stat is rated for 15 Amps and is equipped with an Internal GFCI. If the total amperage of a multiple mat system exceeds 15 Amps:
1. The Heatwave mats and controls should be connected through a Contactor in accordance with all NEC and local electrical codes.
2. The heating elements must be protected by a separate GFCI. The Aube T-stat will no longer be providing the fault protection due to the use of the contactor.
3. Use a GFCI Breaker capable of handling the total load in accordance with NEC and local codes.

OPTIONAL: The installation layout may be designed to split the area into different zones. Separate controls may then be used for each zone. This would eliminate the need for a contactor. However, the Total Amperage for EACH control should NOT exceed 15 Amps.

Resistance Testing and Warranty Documentation Procedures

Follow the Resistance Documentation Procedures outlined below and record ALL Ohm Readings on the corresponding Installation Registration Form and the Installation Plan. ***IMPORTANT!*** **IN ORDER FOR THE HEATWAVE LIMITED WARRANTY TO BE VALIDATED, THE INSTALLATION REGISTRATION FORM MUST BE COMPLETED IN FULL AND RETURNED TO DK HEATING SYSTEMS, INC. It is also essential that a copy of the final installation plan (marked with any changes made in the layout of the system or it's electrical connections) be included with the Installation Registration Form.** This information will be kept on file with our Technical Department so that we are better able to answer questions raised by the distributor who purchased the product(s), the installers, the electricians, and the homeowner.



Heatwave uses electrical resistance to generate heat. Resistance is measured in units known as Ohms. The Digital Ohmmeter or Multimeter used must have a scale capable of reading resistance in the range of 0-200 Ohms.

1. Verify that materials shipped match materials ordered BEFORE unwrapping mats**.**
2. **Measure and record the initial resistance** of each element.
   a. 120 Volts: Test between the HOT (Yellow or Black) and NEUTRAL (White).
   b. 240 Volts: Test between the LINE 1 (Red) and the LINE 2 (Black).

Compare the reading(s) with the Theoretical Ohm Reading(s) provided on the chart in this manual. If there is **more than a +/- 10%** difference between the Actual Reading taken and the Theoretical Reading, **STOP and CALL** our Technical Department at 1-888-239-1232 BEFORE CONTINUING with the installation.

COMPARE EACH OHM READING TAKEN IN STEPS 3, 5, 7, & 9 WITH THE INITIAL OHM READINGS TAKEN IN STEP 2. IF THERE IS A SIGNIFICANT CHANGE AT ANY POINT DURING OR AFTER THE INSTALLATION, STOP AND CALL OUR TECHNICAL DEPARTMENT.

3. **Measure and record** the resistance of each element (See Step 2) again after customizing the mat(s).
4. Verify that there is no short by checking the resistance between the Hot (Line) and Ground. There should be no continuity. **If there is continuity, STOP and CALL our Technical Department at 1-888-239-1232 BEFORE CONTINUING with the installation.**
   a. 120 Volt product: Test between the HOT (Yellow or Black) and Ground (Green) and also between the NEUTRAL (White) and Ground (Green).
   b. 240 Volt product: Test between LINE 1 (Red) and Ground (Green) and also between the LINE 2 (Black) and Ground (Green).
5. **Measure** the resistance of each element (See Step 2) again after the heating mat has been secured in place.
6. Repeat Step 4.
7. **Measure and record** the resistance of each element (See Step 2) again after the mat(s) is embedded in the thin set mortar or self-leveling cement.
8. Repeat Step 4.
9. **Measure the resistance** of each element (See Step 2) again after the flooring has been installed. **Record the final resistance** on the Installation Registration Form, the Installation Plan, the White Output Label, and the Silver Output Sticker.
10. Repeat Step 4.
11. Attach the White Output Label(s) to the end of the corresponding lead wire(s).
12. Place each Silver Output Sticker in an easily accessible place on the Circuit Breaker Box to label the circuit(s) with the electrical description of each mat.

7. WHITE OUTPUT LABEL (for Lead Wire)

MANUFACTURED BY: CODE: 9804
D.K.HEATING SYSTEMS, LTD.
RADIANT HEATING EQUIPMENT
TYPE: THERMOFLOOR 2000S
110V ~60 Hz
OUTPUT PER UNIT: 575 W
WIDTH FT 1 IN 0 sqft 45.0
LENGTH FT 45 IN 0
MAX TEMPERATURE 175° LISTED
Final Resistance = 17.6 Circuit 1

8. SILVER OUTPUT STICKER (for Circuit Panel)

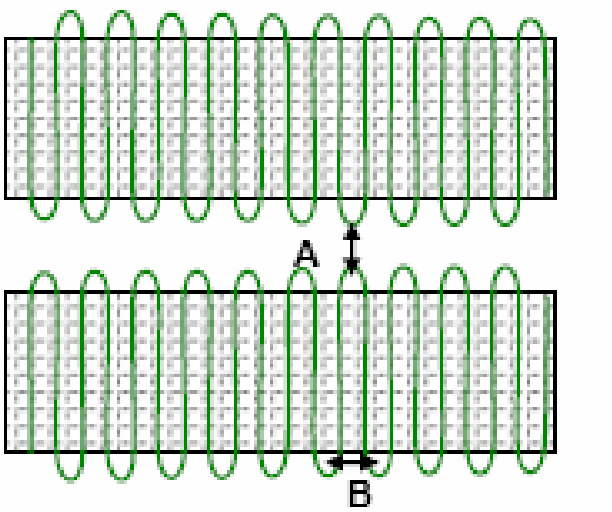
MANUFACTURED BY: CODE: 9804
D.K.HEATING SYSTEMS, LTD.
RADIANT HEATING EQUIPMENT
TYPE: THERMOFLOOR 2000S
110V ~60 Hz
OUTPUT PER UNIT : 575 W
WIDTH FT 1 IN 0 sqft 45.0
LENGTH FT 45 IN 0
MAX TEMPERATURE 175 ° LISTED
Final Resistance = 17.6 Circuit 1

Subfloor Preparation

Clean and inspect the subfloor or underlayment surface carefully before laying the Heatwave. Remove any sharp edges or pointed objects that might damage the heating element. Repair all loose boards and fill gaps as needed to assure that the mat will be installed over a smooth, solid surface. (Prepare the subfloor as you would for any conventional tile installation following all TCA Guidelines.)

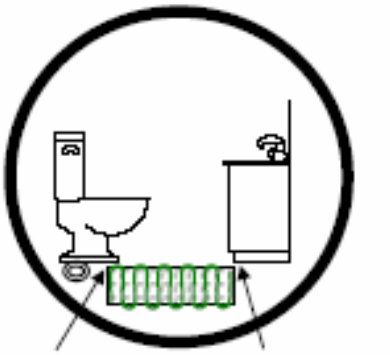
Element Spacing & Coverage Recommendations

Dimension A and B should be equal when possible. Dimension A should never be less than 60% of B**. DO NOT ALLOW ANY HEATING ELEMENT WIRES TO OVERLAP OR ANY COLD LEAD WIRES TO CROSS, TOUCH, OR OVERLAP THE ELEMENT WIRES AT ANY POINT.**



DO NOT HEAT UNDER ITEMS THAT ARE FIXED TO OR FLUSH WITH THE FLOOR (i.e. toilet, cabinetry, etc.)

DO PLACE THE MAT IN OPEN AREAS AND DIRECTLY IN FRONT OF KEY AREAS (i.e. toilet, cabinetry, etc.)



Mat can run slightly under the base of the toilet if need be. It should NEVER be placed any closer than 4"-6" from the flange.

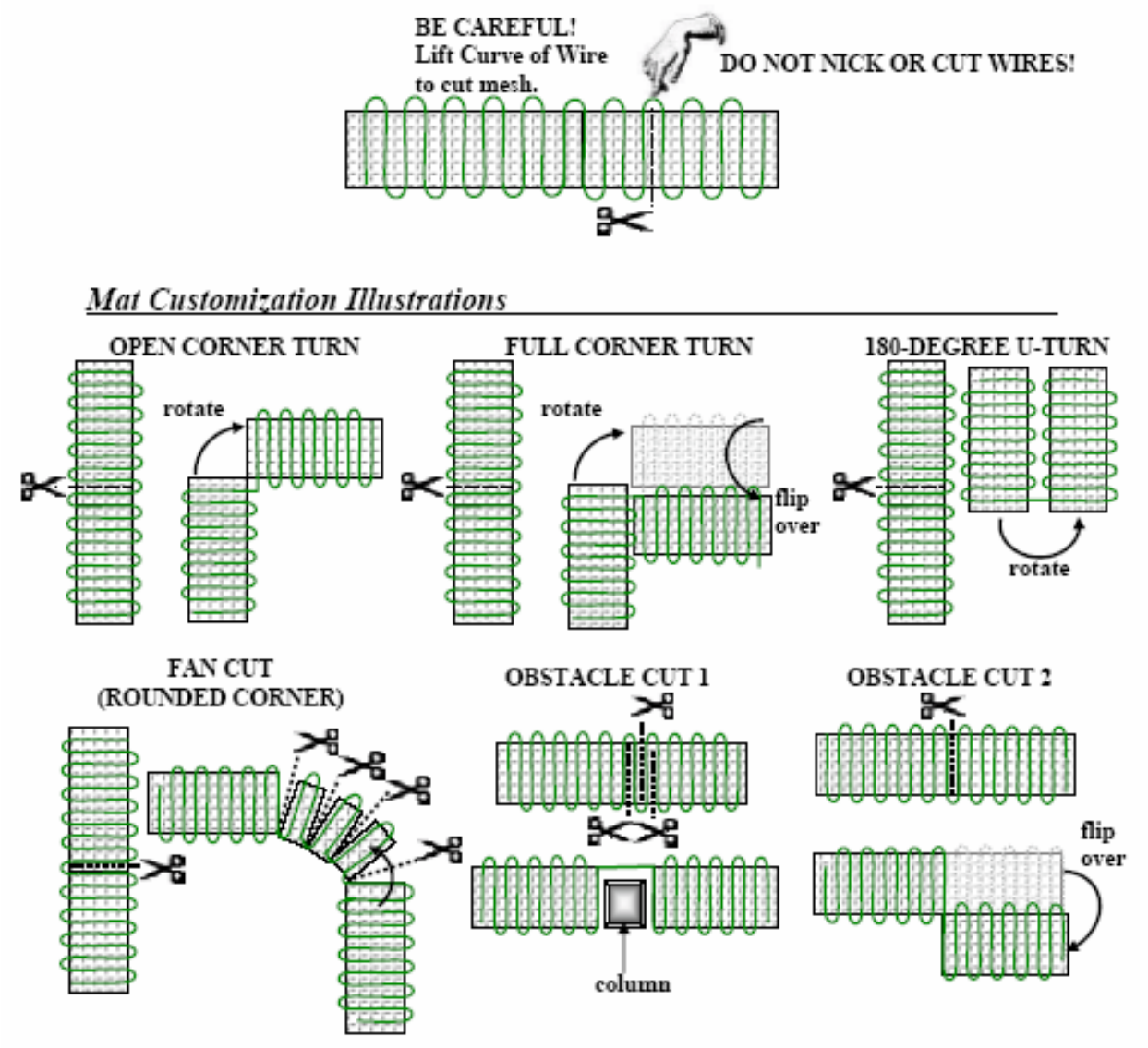
Mat should run directly in front of the base of the vanity to heat the toe kick area properly.

Customizing the Heatwave Heating Mat

Cut the fabric mesh between the heating element wires according to the installation layout provided by your distributor. Fabric cutting lines are always **below and between** the heating element wires.

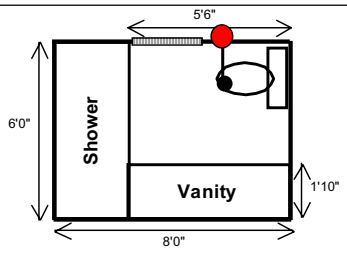
IMPORTANT! AVOID CUTTING OR NICKING ANY OF THE HEATING ELEMENT WIRES OR THE INSULATION AROUND THEM. After cutting the desired fabric mesh, carefully and gently bend the wire (avoiding sharp kinks) to run the next mat length in the planned direction.

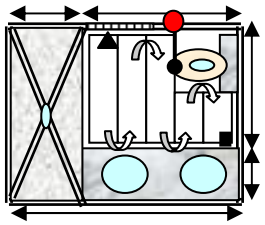
DO NOT ALLOW ANY HEATING ELEMENT WIRES TO OVERLAP OR ANY COLD LEAD WIRES TO CROSS, TOUCH, OR OVERLAP THE ELEMENT WIRES AT ANY POINT.



STEP-BY-STEP INSTALLATION PROCEDURES

STEP 1A: PLAN THE INSTALLATION
Prepare a detailed installation plan or obtain one from your dealer/distributor.



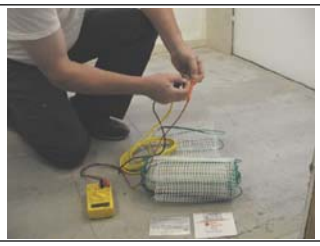


STEP 1B: OBTAIN MATERIALS
Broom & Dustpan; Heatwave Mat(s); Digital OHM Meter; Tape Measure; Staple Gun OR Double-Sided Tape OR Thin set; Scissors; Hot Glue Gun with Glue; Marker; Smooth-sided Trowel OR Rubber Float; Knotched Trowel (for tile installation).

STEP 1C: PREPARE THE FLOOR
Inspect and clean the subfloor or underlayment surface carefully making sure to remove any sharp edges or pointed objects that might damage the heating element.

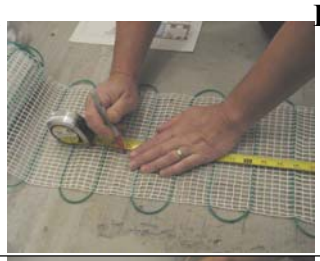
STEP 2: KEEP THE LABELS
Remove the White Output Label and the Silver Output Sticker (the electrical description label and sticker provided on each roll of Heatwave) and keep them with the installation information. These will be used to label the leads and the system at the Circuit Panel after the installation is complete.

STEP 3: TEST THE SYSTEM RESISTANCE
Test and <u>record</u> element resistance of each mat as described in the documentation procedures outlined on page 5.
Failure to do so will void the warranty.



STEP 4: CUSTOMIZE THE MAT(S)
To assure proper installation and coverage, **DRY CUT** the heating mat to custom fit the room (according to the provided layout) <u>before</u> any thin set mortar is applied. <u>DO NOT NICK OR CUT THE WIRES!</u> **(See page 9 & <u>EXAMPLE</u> STEPS A-N.)**

A



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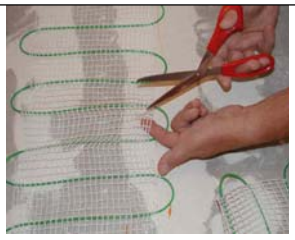

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STEP 4: CUSTOMIZE MAT (EXAMPLE Cont.)

G 

H 

I 

J 

K 

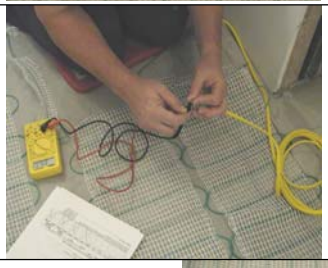
L 

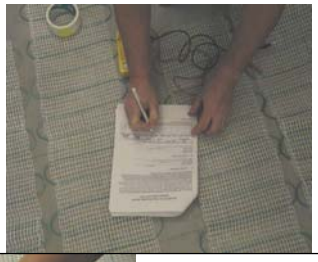
M 

N 

STEP 5: TEST THE SYSTEM RESISTANCE

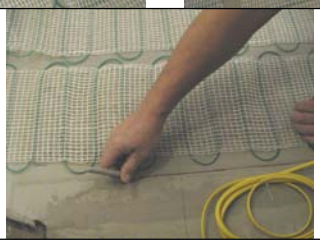
Test and record element resistance of each mat. Don't forget to check for shorts between the Ground and each of the other wires before proceeding. (See documentation procedures outlined on page 5.)





STEP 6: MARK THE LEAD PATHS

While the mat is laid dry in place, mark the desired sensor location, the sensor lead path, and the cold lead path back to the control location on the underlayment and on the installation layout.



STEP 7: REMOVE MAT FROM WORK SPACE

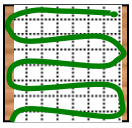
TO AVOID THE RISK OF DAMAGING THE MAT, DO NOT LEAVE THE MAT IN THE AREA WHERE THE GROOVE(S) NEED TO BE KNOTCHED. COMPLETELY REMOVE THE MAT FROM THE WORKING AREA MARKED FOR THE SENSOR, THE SENSOR LEAD PATH, AND THE COLD LEAD PATH.

STEP 8: PREPARE GROOVE(S) FOR LEAD(S)

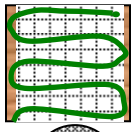
Prepare a groove in the subfloor or the underlayment for the Cold Lead Wire(s) or Cold Lead Conduit (per your local codes). Clean groove thoroughly.

STEP 9: SECURE THE MAT IN 1 OF 3 WAYS

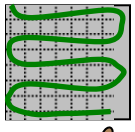
After the area is cleaned and prepared, the mat(s) can be secured in one of 3 ways:



Use Staples Over Mesh (NOT Cables)



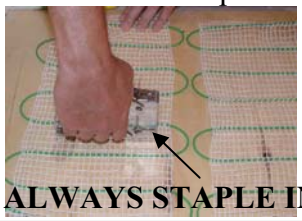
Use Double-Sided Tape

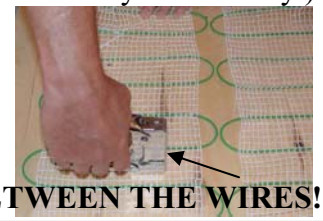


Use Thinset Mortar

OPTION 1 = SECURE MESH WITH STAPLES

Make sure that each section of the mat is kept taut before stapling it in place. ONLY staple OVER the MESH IN BETWEEN THE HEATING ELEMENT WIRES. NEVER staple OVER element WIRES. (**Tip**: Use a minimal number of staples when initially positioning the mat in order to reposition it more easily if necessary.)





ALWAYS STAPLE IN BETWEEN THE WIRES!

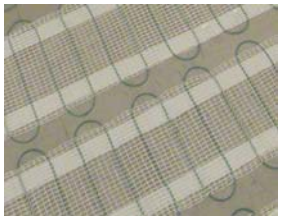
OPTION 2 = SECURE W/DOUBLE-SIDED TAPE

Make sure that the subfloor is clean of all debris to assure a strong bond. Apply strips of double-sided tape to the floor perpendicular to the direction of the mat. Peel the paper tape backing, unroll each mat section, pull it taut, and press it firmly into place.

A

B

C

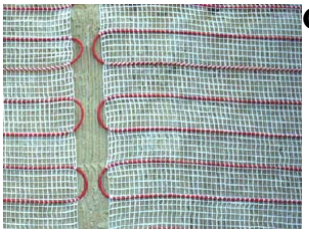


OPTION 3 = SECURE WITH THINSET

Apply a thin layer of thin set mortar to the subfloor using ¼" trowel. Unroll and firmly press each section of the precut mat into the thin set mortar.

A

B



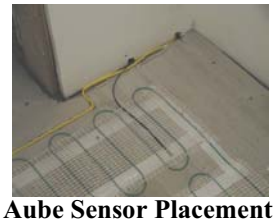
C

STEP 10: SECURE THE COLD LEADS

Secure the cold leads in the groove(s) with hot glue. **Be sure that the cold leads will not cross, touch, or overlap the heating element wires.**

STEP 11: INSTALL THE AUBE SENSOR

Run the Aube Sensor down the wall in a ½" conduit and weave it in the meshing of the mat so that it runs in between and/or parallel to the heating wires from an open side of the mat. REMEMBER! THE SENSOR WIRE MUST NOT CROSS, TOUCH, OR OVERLAP ANY HEATING ELEMENT WIRES.



Aube Sensor Placement

STEP 12: TEST THE SYSTEM RESISTANCE

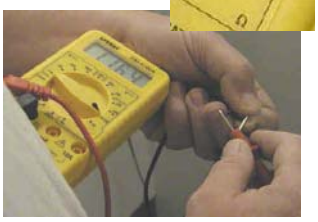
Test and record element resistance of each mat. Don't forget to check for shorts between the Ground and each of the other wires before proceeding. (See documentation procedures outlined on page 5.)

STEP 13: TEST THE SENSOR RESISTANCE

Test and record SENSOR resistance using an OHM Meter setting of 20K. The Sensor reading should register between 8K-12K.

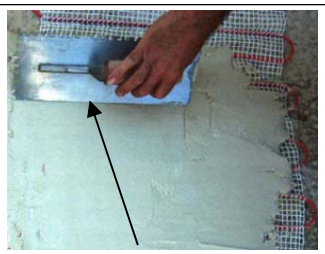
Set your meter to a 200 Ohm setting to test the mats!

Switch to a 20K Scale setting to test the sensor!

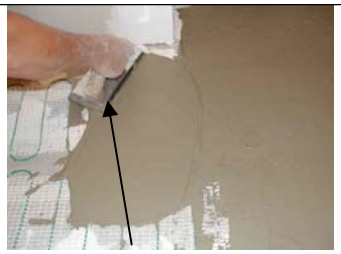


STEP 14: APPLY SKIM COAT OVER MAT

Use the **flat side of a trowel OR a rubber float** to apply a smooth skim-coat of thin set mortar over the mat. Make sure to use enough mortar to cover and protect the heating element wire in its entirety. Then allow the protective layer of mortar to set. **Alternate method:** Apply a thin coat (1/4"-1/2") self-leveling cement. Allow to cure per the cement instructions.



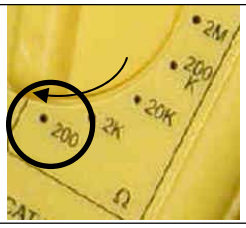
Flat Side of a Trowel



Rubber Float

STEP 15: TEST THE SYSTEM RESISTANCE
Test and record element resistance of each mat. Don't forget to check for shorts between the Ground and each of the other wires before proceeding. (See documentation procedures outlined on page 5.)

Don't Forget to Switch the meter back to a 200 Scale Setting!



STEP 16: INSTALL TILE
Proceed with the tile installation, making sure to follow all TCA Guidelines and the manufacturer's recommendations for the tile being installed. (BE CAREFUL not to snag the heating element when applying the thin set with the knotched trowel.)
NOTE: It is highly recommended that several OHM readings be taken during the tile installation process to assure that the mat has not been damaged.

STEP 17: TEST THE SYSTEM RESISTANCE
After the tile installation is complete, test and record the FINAL element resistance of each mat. Don't forget to check for shorts between the Ground and each of the other wires before proceeding.

STEP 18: MAKE A PARALLEL CONNECTION
If multiple mats are going to be connected to the same control, connect the cold leads IN PARALLEL through an additional/accessible junction box. Then run the appropriate gage wiring (to accommodate the Total Amperage) through a conduit to the control.

STEP 19: CONNECT THE CONTROL(S)
A qualified electrician should make all connections to the control(s) and the power source. (See attached wiring diagram.) **Don't forget!** The sensor wires must be connected for the t-stat to function. The system should also be connected to a dedicated circuit and must be GFCI protected. **NOTE:** The AUBE brand thermostat comes equipped with an INTERNAL GFCI to accommodate a load <15Amps. Lastly, **let floor cure completely BEFORE operating system.**

A
Mat Line (Black or Yellow) to Load (Black) on T-stat

B
Power Source Line (Black) to T-stat Line (Black)

C
Power Source Neutral (White) to T-stat Neutral (White) **OR** Power Source Line (Red) to T-stat Line (Red)

D
Mat Neutral (White) to T-stat Load Neutral (White) **OR** Mat Line (Red) to Load (Red) on T-stat

Basic Trouble-Shooting Guide

The following are basic trouble-shooting steps that can be taken if there are problems with the Heatwave Floor-Warming System. A professional electrician should be called in to trouble-shoot the system.

1. If the Heatwave Floor-Warming System fails to heat, make sure there is power delivered to the system and the GFCI (Ground Fault Circuit Interrupter) has not been tripped. If it has, find the fault and rectify.

2. Check all of the wiring connections for the thermostat and/or timer to insure that all are connected tightly and
in accordance with the provided wiring diagram. If all connections have been done properly and the system still does not heat, proceed to Step #3.

3. Disconnect the Heatwave cold leads from the thermostat to check the resistance of each element.
   a. **120-Volt Product:** Test between the HOT (Yellow or Black) and NEUTRAL (White).
   b. **240-Volt Product:** Test between LINE 1 (Red) and LINE 2 (Black).

The attached chart lists the proper Ohm Readings that should be obtained for each mat size available. Use an Ohmmeter set to read resistance readings below 200 Ohms to verify that all Ohm Readings taken are within (+/ –) 10% of the Theoretical Ohm Readings listed.

• **If the resistance/ Ohm Reading is zero or if it falls significantly outside of the 10% variance from the Theoretical reading** it is likely that the heating wire was damaged. This may have been caused by damage to one of the heating elements during the installation process or by changes that were made in the floor structure (condition) after the flooring was laid. The change, no matter how slight (i.e. putting a doorstop in place, etc.) may have damaged the heating element. After locating the possible problem area(s), please contact our Technical Department at 1-888-239-1232 for further instructions.	• **If the resistance/ Ohm Reading of the element(s) is found to be acceptable, but the GFCI is tripping:** Verify that that there is no short between the Hot (Line) and the ground. There should be no continuity. If there is continuity it is likely that the heating element is damaged and is causing a short in the system. **STOP and CALL our Technical Dept. at 1-888-239-1232 for further assistance.** a. **120-Volt Product:** Test between the HOT (Yellow or Black) and Ground (Green) and also between the NEUTRAL (White) and Ground (Green). b. **240-Volt Product:** Test between LINE 1 (Red) and Ground (Green) and also between the LINE 2 (Black) and Ground (Green).	• **If the resistance/ Ohm Readings of the element(s) are found to be acceptable and the GFCI is NOT tripping, but the floor still does not heat**, one of the controls may be defective. Proceed to Step #4.

4. In order to isolate the problem (to the heating element or the controls), connect the lead wires from the heating element (including the ground wiring), directly to power source/ GFCI. Wait approximately 60 minutes for the floor to warm.

• If the floor temperature does not rise despite the appropriate Ohm Readings, please contact our Technical Department at 1-888-239-1232 so that we can further assist you in investigating the problem.	• If the floor warms when connected directly to the power source/ GFCI, but does not warm when it is connected through the controls the following may be possible: A. One of the controls may be faulty. C. The floor sensor is not installed. B. A connection may be faulty. D. The floor sensor is not connected. • Proceed to step #5.

5. Check for proper Voltage (120V or 240V) at the input and output connection of each control. When testing the voltage, make sure that the controls are set to be ON. If voltage is not found in one/either of the points of connection on the control, it may be faulty. If you suspect that the thermostat or timer is faulty, please contact us at 1-888-239-1232 so that we can further assist you in trouble-shooting, if necessary, or arrange for exchange of the faulty product.

Floor Temperature Control (F)
15 min. cycles

TH115 Series

This stylish programmable thermostat with a large LCD provides precise control of floor temperature

Programmable

MODELS & RATINGS

TH115-F-120GA	1800 W @ 120 V	15 A resistive	GFCI- 5mA	60 Hz
TH115-F-120GB	1800 W @ 120 V	15 A resistive	GFCI-30mA	60 Hz
TH115-F-240GA	3600 W @ 240 V	15 A resistive	GFCI- 5mA	60 Hz
TH115-F-240GB	3600 W @ 240 V	15 A resistive	GFCI-30mA	60 Hz

All above models are equipped with 4 wires / DPST and feature full double-pole disconnect

aube

FEATURES

F mode with easily accessible floor sensor connector enables precise control of floor temperature

Ground Fault Circuit Interrupter (GFCI) included - no need to buy separate safety cutoff

GFCI test light verifies safety cutoff is functioning properly

Advanced temperature control ensures total comfort by minimizing temperature variations

ON/STANDBY switch enables thermostat shutdown at the end of heating season for added security

Remote input works with phone or alarm system (telephone controller required)

Temporary bypass enables temperature override without changing programming

Battery-free backup means no re-programming your schedule after power outage

Aube's Ground Fault Circuit Interrupter (GFCI)

- GA models meet UL and CSA standards for Class A GFCIs
- GA models cut power to the heating system when a 5 mA leak is detected; GB models cut power when a 30 mA leak is detected

SPECIFICATIONS

TEMPERATURE CONTROL
Microprocessor-optimized PIA*
Heating cycles: 15 minutes
Accuracy: ± 0.5°C / 0.9°F

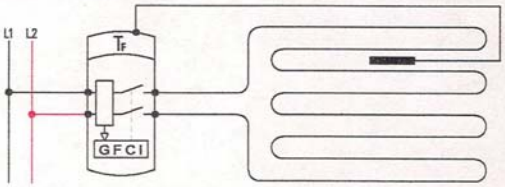
SWITCHING ACTION
Epoxy-soundproofed relay: Quiet operation

PROGRAMMING
7-day independent programming, 4 settings/day
Pre-programmed or personalized schedule**
Early Start function**
Selectable 12- or 24-hour format / °C or °F

DIMENSIONS (H•W•D)
124 x 70 x 23 mm / 4.89 x 2.76 x 0.91 inches
Floor sensor: 4.6 m / 15 feet

* See Q & A section, p. 56 ** See p. 57

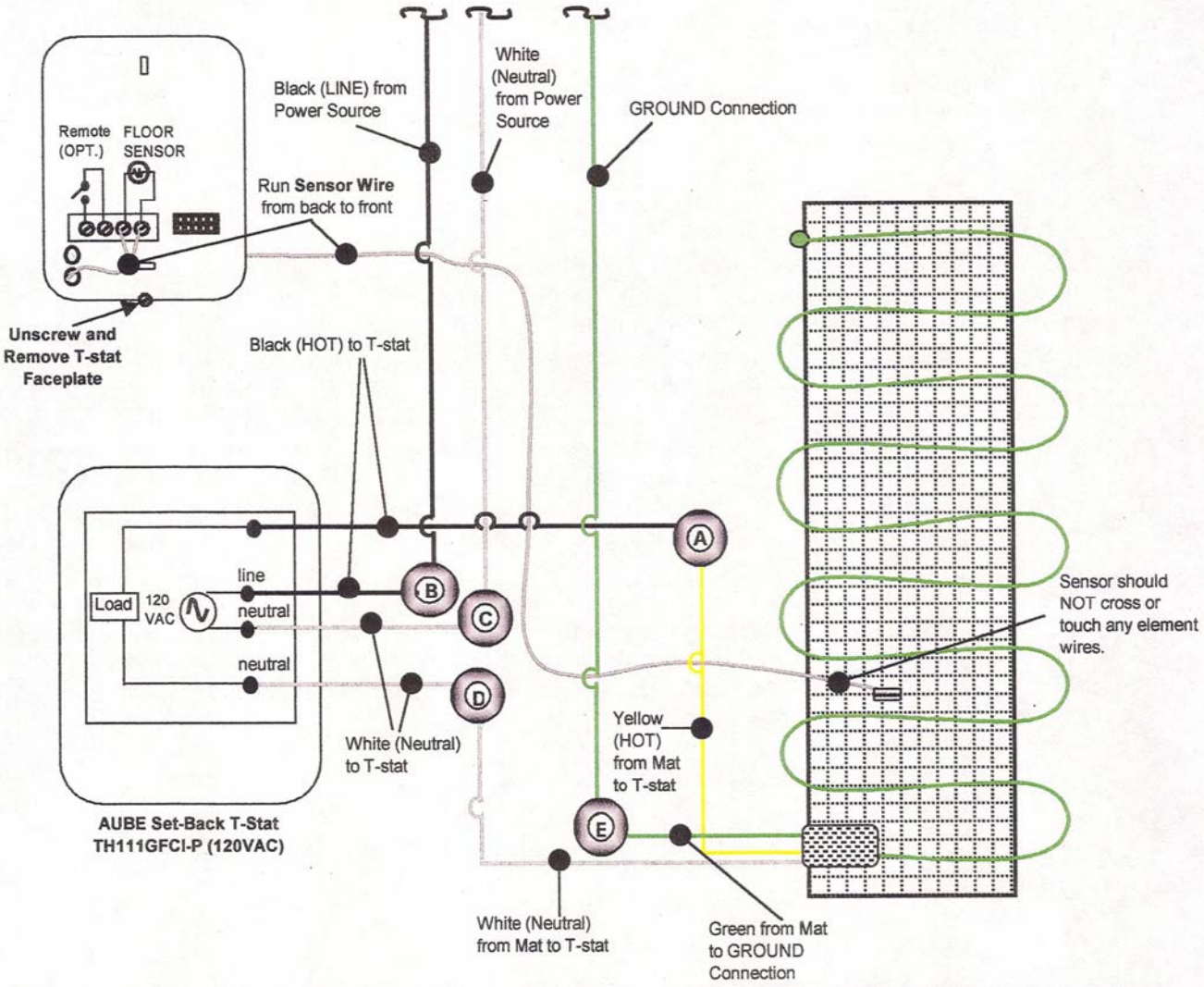
INSTALLATION



T_F = Floor Temperature

1 year warranty

120 Volt Aube Floor-Sensing Set-Back T-Stat Wiring Diagram for Heatwave N10/3L Mats



Use Wire Nut (A) to connect the Yellow (HOT) from the Mat to the Black (Load) from the T-stat.

Use Wire Nut (B) to connect the Black (120V LINE) from the Power Source to the Black (120V) from the T-stat.

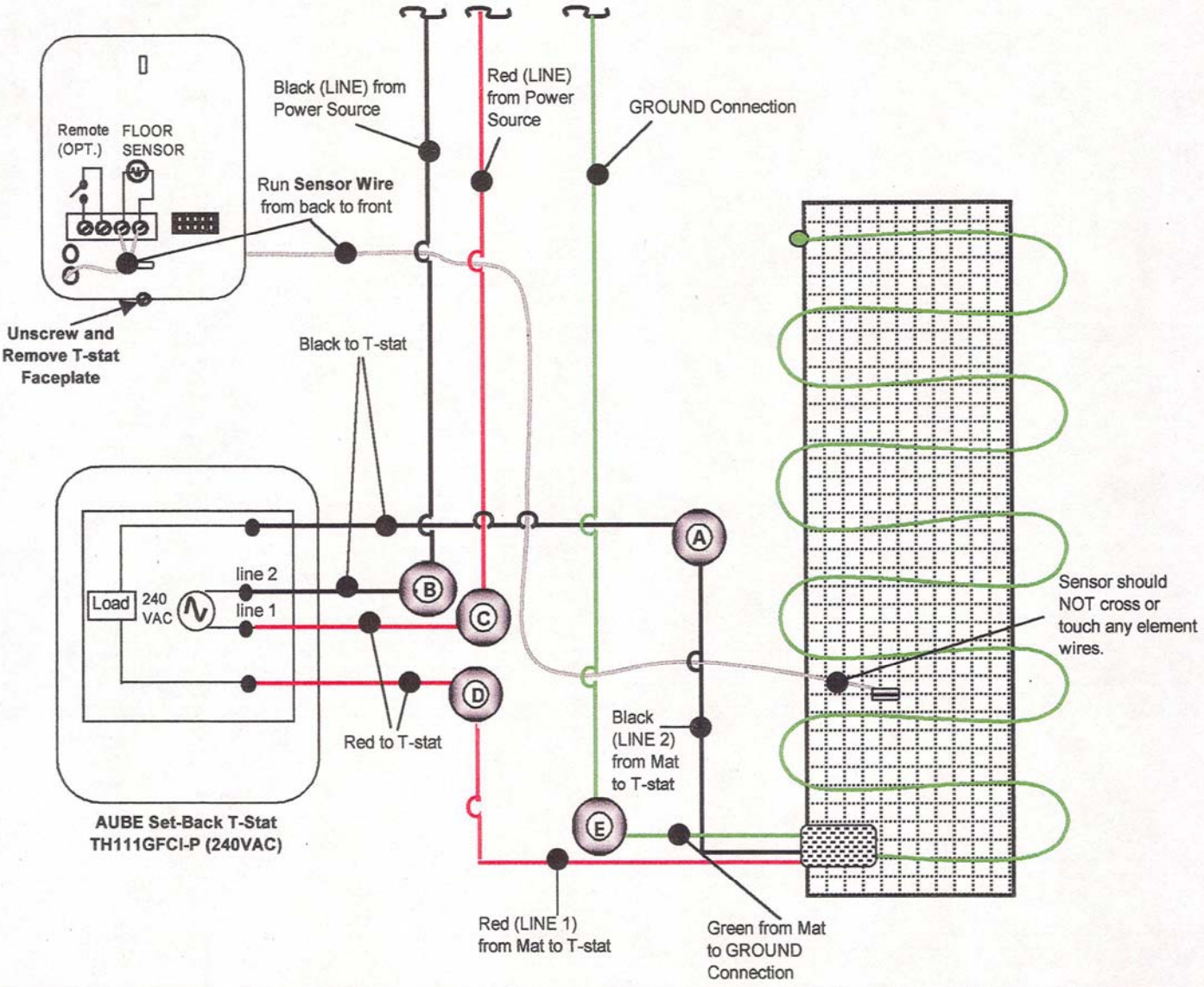
Use Wire Nut (C) to connect the White (Neutral) from the Power Source to the White (Neutral) from the T-stat.

Use Wire Nut (D) to connect the White (Neutral) from the Mat to the White (Neutral) from the T-stat.

Use Wire Nut (E) to connect the GREEN from the Mat to the GROUND Connection.

SENSOR CONNECTION:
Unscrew & remove the t-stat faceplate. Run the sensor lead wire from the back of the t-stat thru one of the 2 smalll holes at the bottom left of the unit. Connect the sensor wire to terminals 3 and 4 labeled Floor Sensor.

240 Volt Aube Floor-Sensing Set-Back T-Stat Wiring Diagram for Heatwave N10/3L Mats



Use Wire Nut (A) to connect the Black (LINE 2) from the Mat to the Black (Load) from the T-stat.

Use Wire Nut (B) to connect the Black (240V LINE) from the Power Source to the Black (240V) from the T-stat.

Use Wire Nut (C) to connect the Red (240V LINE) from the Power Source to the Red (240V) from the T-stat.

Use Wire Nut (D) to connect the Red (LINE 1) from the Mat to the Red (Load) from the T-stat.

Use Wire Nut (E) to connect the GREEN from the Mat to the GROUND Connection.

SENSOR CONNECTION:
Unscrew & remove the t-stat faceplate. Run the sensor lead wire from the back of the t-stat thru one of the 2 small holes at the bottom left of the unit. Connect the sensor wire to terminals 3 and 4 labeled Floor Sensor.

Heatwave LimitedWarranty

Heatizon Systems warrants the Heatwave product to be free of defects in materials and workmanship for 10 years from the date of installation while in possession of the original owner, provided:

1. The product is installed and tested in accordance with the Installation/ Homeowners Manual and Heatwave Resistance Documentation Procedures.

2. The installation is registered with Heatizon Systems within 10 days of the installation date. This registration is accomplished by the installer and/or homeowner, who must complete and return the Installation Registration Form to Heatizon Systems (at the address given below).

3. The product was not damaged or misused by the homeowner or any tradesman/agent of the owner. Heatizon Systems takes no responsibility under this warranty for damage caused by the homeowner or tradesman retained by the homeowner to install the Heatwave product. Heatizon Systems staff will be available to provide advice and consultation to the installers of the Heatwave product to assure that they are informed concerning the procedures required to complete a proper installation. Controls used to operate the Heatwave product are warranted by their manufacturers according to their warranty policies. Under this Limited Warranty, Heatizon Systems will, at its option, provide either or both of the following:

A. Technical support (by phone) to assist the installer(s) in isolating the problem area. If deemed repairable, the appropriate repair kit shall be provided. In such a case, ALL OTHER MATERIALS AND LABOR necessary to complete the repair of the effected area must be supplied by the homeowner.

B. Credit for the faulty Heatwave product up to the limit of the original price of the Heatwave product used in the installation, as Heatizon Systems' sole obligation under this LIMITED warranty.

This LIMITED Warranty is null and void if the owner does not inform Heatizon Systems of the problem within thirty (30) days of it's discovery OR if the homeowner or any tradesman retained by the homeowner attempts to repair the problem without informing and consulting with a staff member of Heatizon Systems regarding the appropriate testing and/or repair procedures.

HEATIZON SYSTEMS DISCLAIMS ANY WARRANTY NOT PROVIDED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTIBILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. HEATIZON SYSTEMS FURTHER DISCLAIMS ANY RESPONSIBILITY FOR LOSSES, EXPENSES, INCONVENIENCES, SPECIAL, INDIRECT, SECONDARY, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM OWNERSHIP OR USE OF THE PRODUCT. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE FACE HEREOF.

Heatizon Systems

4137 South 500 West
Murray, UT 84123
Phone (801) 293-1232 Fax (801) 293-3077
www.heatizon.com

Heatwave Floor Warming System
120V Installation Registration Form

Instructions: ***THIS FORM MUST BE COMPLETED AND RETURNED FOR EACH INSTALLATION (A* copy should be retained by the homeowner.)** An installation is defined as each individual space or room in which Heatwave is installed such as a bathroom, kitchen, sunroom, etc. Each Heatwave shipment includes the following information essential to the proper installation of the products: Installation/Homeowners Manual, Wiring Diagrams, and Theoretical Ohm Readings necessary to test the products. If any of this information is missing from the shipment, please call your dealer or our service department at 1-888-239-1232.

TO INSURE WARRANTY PROTECTION FOR THE INSTALLATION(S), THE HOMEOWNER OR INSTALLER MUST COMPLETE ALL THE INFORMATION BELOW FOR EACH INSTALLATION AND RETURN THIS FORM TO DK HEATING SYSTEMS, INC. AT THE ADDRESS LISTED BELOW WITHIN 10 DAYS OF THE COMPLETED INSTALLATION.

I. Installer Information:

Installer's Name: _____Installation Date: ___-___-___
Business Address _____
Phone Number: _____-_____-_____ Fax Number (if available): _____-_____-_____
Name of Company (from which Heatwave was purchased) _____

II. Owner Information:

Owner's Name: _____
Home Address: _____
Phone Number: _____-_____-_____ Fax Number (if available): _____-_____-_____
Name of Space and Location in Structure where installed: _____

III. Products Used in Installation: (List EACH Product)

Mat #	Size	Total Watts	Volts	RESISTANCE (IN OHMS)											
				Received			Mat Cut			Bound to Subfloor			After Tile Installation		
				Hot to Neutral	Hot to Ground	Neutral to Ground	Hot to Neutral	Hot to Ground	Neutral to Ground	Hot to Neutral	Hot to Ground	Neutral to Ground	Hot to Neutral	Hot to Ground	Neutral to Ground
Ex.	1X50	750	120	19.2	None	None	19.2	None	None	19.2	None	None	19.2	None	None

Confirmation: The above information was measured and recorded correctly as indicated on the measuring instrument, and the enclosed drawing shows the final layout of the products and the electrical connections.

Installer's Signature: _____

Heatizon Systems
4137 South 500 West
Murray, UT 84123
Phone 1-888-239-1232
Fax 1-801-293-3077

120 VOLT THEORETICAL RESISTANCE CHART

Heatizon Systems

Heatwave N103L			*15 Watts per square foot (Tile & Stone Warming)*		*120Volts*
Width	*Length*	*Sq.Ft.*	*Ohm Reading/ Element*	*Ohm Reading/ Sheath*	*Amps/ Unit*
1	6	6	160	none	0.8
1	10	10	96	none	1.3
1	12	12	80	none	1.5
1	15	15	64	none	1.9
1	20	20	48	none	2.5
1	23	23	41.7	none	2.9
1	25	25	38.4	none	3.1
1	30	30	32	none	3.8
1	35	35	27.4	none	4.4
1	40	40	24	none	5
1	45	45	21.3	none	5.6
1	50	50	19.2	none	6.3

Heatwave N103L			*10 Watts per square foot (Tile & Stone Warming)*		*120Volts*
Width	*Length*	*Sq.Ft.*	*Ohm Reading/ Element*	*Ohm Reading/ Sheath*	*Amps/ Unit*
1.5	25	37.5	38.4	none	3.1
1.5	30	45	32	none	3.8
1.5	35	52.5	27.4	none	4.4
1.5	40	60	24	none	5
1.5	45	67.5	21.3	none	5.6
1.5	50	75	19.2	none	6.3

Heatwave N103L Fixed Sizes 15Watts/sqft (Tile & Stone Warming)					*120 Volts*
Width	*Length*	*Sq.Ft.*	*Ohm Reading/ Element*	*Ohm Reading/ Sheath*	*Amps/ Unit*
3	2	6	160	none	0.8
3	4	12	80	none	1.5
3	5	15	64	none	1.9
3	6	18	53.3	none	2.3
3	7	21	45.7	none	2.6
3	8	24	40	none	3
3	9	27	35.6	none	3.4
3	10	30	32	none	3.8
3	11	33	29.1	none	4.1
3	15	45	21.3	none	5.6
3	16	48	20	none	6
3	20	60	16	none	7.5

Heatwave Floor Warming System
240V Installation Registration Form

Instructions: ***THIS FORM MUST BE COMPLETED AND RETURNED FOR EACH INSTALLATION (A* copy should be retained by the homeowner.)** An installation is defined as each individual space or room in which Heatwave is installed such as a bathroom, kitchen, sunroom, etc. Each Heatwave shipment includes the following information essential to the proper installation of the products: Installation/Homeowners Manual, Wiring Diagrams, and Theoretical Ohm Readings necessary to test the products. If any of this information is missing from the shipment, please call your dealer or our service department at 1-888-239-1232.

TO INSURE WARRANTY PROTECTION FOR THE INSTALLATION(S), THE HOMEOWNER OR INSTALLER MUST COMPLETE ALL THE INFORMATION BELOW FOR EACH INSTALLATION AND RETURN THIS FORM TO DK HEATING SYSTEMS, INC. AT THE ADDRESS LISTED BELOW WITHIN 10 DAYS OF THE COMPLETED INSTALLATION.

I. Installer Information:

Installer's Name: _____Installation Date: ___-___-___
Business Address _____
Phone Number: _____-_____-_____ Fax Number (if available): _____-_____-_____
Name of Company (from which Heatwave was purchased) _____

II. Owner Information:

Owner's Name: _____
Home Address: _____
Phone Number: _____-_____-_____ Fax Number (if available): _____-_____-_____
Name of Space and Location in Structure where installed: _____

III. Products Used in Installation: (List EACH Product)

Mat #	Size	Total Watts	Volts	RESISTANCE (IN OHMS)											
				Received			Mat Cut			Bound to Subfloor			After Tile Installation		
				Line 1 to Line 2	Line 1 to Ground	Line 2 to Ground	Line 1 to Line 2	Line 1 to Ground	Line 2 to Ground	Line 1 to Line 2	Line 1 to Ground	Line 2 to Ground	Line 1 to Line 2	Line 1 to Ground	Line 2 to Ground
Ex.	1X50	750	240	76.8	None	None	76.8	None	None	76.8	None	None	76.8	None	None

Confirmation: The above information was measured and recorded correctly as indicated on the measuring instrument, and the enclosed drawing shows the final layout of the products and the electrical connections.

Intaller's Signature: _____

Heatizon Systems
4137 South 500 West
Murray, UT 84123
Phone: 1-888-239-1232
Fax: 1-801-293-3077

240 VOLT THEORETICAL RESISTANCE CHART

Heatizon Systems

Heatwave N103L			*15 Watts per square foot (Tile & Stone Warming)*		*240 Volts*
Width	*Length*	*Sq.Ft.*	*Ohm Reading/ Element*	*Ohm Reading/ Sheath*	*Amps/ Unit*
1	20	20	192.0	none	1.3
1	25	25	153.6	none	1.6
1	30	30	128.0	none	1.9
1	35	35	109.7	none	2.2
1	40	40	96.0	none	2.5
1	45	45	85.3	none	2.8
1	50	50	76.8	none	3.1

Heatwave N103L			*15 Watts per square foot (Tile & Stone Warming)*		*240 Volts*
Width	*Length*	*Sq.Ft.*	*Ohm Reading/ Element*	*Ohm Reading/ Sheath*	*Amps/ Unit*
1.5	25	37.5	102.4	none	2.3
1.5	30	45	85.3	none	2.8
1.5	35	52.5	73.1	none	3.3
1.5	40	60	64.0	none	3.8
1.5	45	67.5	56.9	none	4.2
1.5	50	75	51.2	none	4.7

THEORETICAL RESISTANCE CHART

Heatizon Systems

Heatwave N103L			***12 Watts per square foot***		***120Volts***
Width	***Length***	***Sq.Ft.***	***Ohm Reading/ Element***	***Ohm Reading/ Sheath***	***Amps/ Unit***
1.5	25	37.5	32	none	3.8
1.5	30	45	26.7	none	4.5
1.5	35	52.5	22.9	none	5.2
1.5	40	60	20	none	6