WARMZONE
PREMIER RADIANT HEATING

STEP® Roof Deicing Installation Manual

Low Voltage System



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STEP® ROOF DEICING SYSTEM

RoofHeat STEP® Roof Deicing is a heating solution to prevent snow buildup and ice damming on roofs, valleys, eaves, and gutters. Ice dams are formed due to the interaction between the amount of heat loss from a house, snow cover, outside temperatures, and the effects of solar energy. The water that accumulates behind an ice dam can cause moisture to seep through the roof, resulting in damaged ceilings, walls and floors, and eventually mold growth. Ice dams and their accompanying icicles are also heavy objects that can cause severe damage, injury or even death when they slide or fall off a roof.

RoofHeat STEP® Roof Deicing systems are custom designed for each individual application and consist of thin, flexible heating elements that operate at extra-low voltage (AC or DC). These durable, lightweight heating elements can be stapled or nailed through as long as the two embedded bus braids on each side of the element are not penetrated. The heating elements are also malleable to fit around various bends and creases associated with roofing.

RoofHeat STEP® Roof Deicing heating elements are powered by an extra-low voltage (24 V) EPI-LX-R power supply. The heating elements, which can be cut to size on site and are available in different widths, are protected by a chemically, inherently inert and dielectric insulation. This liner protects against physical damages and aggressive materials and allows heating elements to be installed under any rooftop and configuration - new construction, remodeling, and existing roofs.

RoofHeat STEP® Roof Deicing heating elements are made of a homogeneous, semi-conductive polymer, which by nature is self-regulating. This self-regulating, positive temperature coefficient (PTC), Nano-technology allows them to heat with maximum power in cold environments and use less electricity as their temperature increases. This minimizes power consumption and reduces operating costs by as much as 60% compared to conventional electric cable systems.

BENEFITS

- The RoofHeat STEP® Roof Deicing is a flat, flexible and thin heating element.
- The heating element can be cut to length at the job site.
- The element can be stapled/nailed without affecting the conductivity, but avoid penetrating the two conductors on each side.
- The element can easily be bent 90 degrees to fit any contour when warm.
- The element is strong and has no failure rate during installation.
- STEP® Roof Deicing has the ability to self-regulate - as the material gets warmer, less electricity passes through the plastic - therefore it is extremely energy-efficient.
- The element acts on its whole surface as a sensor and cannot overheat.
- This heating system is very versatile and can be used for residential, commercial and industrial applications.

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INSTALLATION GUIDELINES

IMPORTANT INSTALLATION GUIDLINES

- Choose qualified personnel who are familiar with the STEP® Roof Deicing heating system.
- Make sure that all materials used are approved for the specific application and have no adverse compatibility with the heating elements.
- The polymer material can be penetrated, but do not damage the two bus braids and lead wires on each side of the element.
- Use only components recommended by the manufacturer.
- Electrically check and measure the heating system before covering the heating elements.
- The power supply must be a fixed installation connected to the service panel.
- The installation shall be made in accordance with local codes, ordinances, trade practices, and manufacturers' instructions.
- Read and follow the installation instructions to assure that the calculations and the heating system installed are done according to the specified application.
- STEP® Labels shall be provided with the heating product and should be filled out and affixed in the place indicated:
    - CAUTION label is to be attached to the junction box.
    - WARNING label is to be attached to the service panel.

WARNING

- HEATING ELEMENTS SHOULD NOT TOUCH, CROSS OR OVERLAP AT ANY POINT.
- DO NOT PLACE HEATING ELEMENTS IN DIRECT CONTACT WITH ANY CONDUCTIVE MATERIAL.
- DO NOT ENERGIZE ROLLED UP HEATING ELLEMENTS.
- DO NOT NAIL OR STAPLE ANY METALLIC OBJECT THROUGH TERMINALS AND BUS BRAIDS.
- HEATING ELEMENT IS REQUIRED TO BE INSTALLED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH LOCAL AND NATIONAL CODES SUCH AS NEC IN U.S., CEC IN CANADA.
- HEATING ELEMENT SHOULD BE TESTED AND MEASURED BEFORE BEING COVERED.
- READ AND FOLLOW ALL INSTRUCTIONS.

These installation instructions assume that the STEP® Roof Deicing system being installed has been designed by Electro Plastics, Inc. or a distributor of Electro Plastics, Inc. and is being installed according to the proposed Design Specifications, all Terms & Conditions of Sale, and Limited Warranty provided with a STEP® Roof Deicing quotation.

For more information, contact the supplier that originally provided the quotation or Electro Plastics, Inc. at 877-783-7832 or visit www.warmfloor.com.

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BEFORE STARTING

DESIGN AND CALCULATIONS

- The installation shall be calculated and a layout made to determine the materials required.
- The more specific the layout the easier will be the installation. Indicate for each area:
  - Exact measurements of the areas(s) to be heated.
  - Placement and number of strips of elements.
  - Length and wattage per element strip.
  - Location of power source, including control and power supply(s).
  - If required, location of electrical box and terminal block(s).
  - Wire size and length according to load and distance to the power source.
  - Size of power supply and load distribution on the interface board.

SUPPLIED PARTS



STEP® Heating Element
MEP-30-36W-24V
MEP-23-36W-24V



STEP® AC Power Supply
EPI-LX-R-500W-24V
EPI-LX-R-1000W-24V
EPI-LX-R-1500W-24V



STEP® DC Controller
EPI-DC-M3



STEP® C&T Kit
Connectors (tinned copper)
Sealant Tape



Extension Wire
TCu12 or TCu10
Stranded tinned copper



STEP® T-BLOCK
Terminal Board
2-Bar tinned copper



STEP® TOOL-PRO
Recommended crimp
tool for connectors



Signal Wire (3-Con)
From thermostat to
AC or DC Controller



STEP® Touch
EPI-LX-TC – Thermostat
EPI-LX-TS – External Sensor

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DESIGN AND CALCULATION

ELEMENT TYPE AND WATTAGE

ELEMENT DATA at 24 VOLTS @ 32°F					INSTALLATION DATA
Element Type		Ohms	Linear	Density	Max. length @ 450W
Width	Model	/ft.	W/ft.	W/sqft.	feet
12″	**MEP-30-36W**	44	**13**	13.0	34
9″	**MEP-23-36W**	44	**13**	17.3	34
6″	**MEP-15-33W**	49	**12**	23.6	34
3″	**MEP-7-33W**	49	**12**	47.2	34

Table: Element type and wattage

ELEMENT LENGTH AND WATTAGE PER POWER SUPPLY

The EPI-LXR power supply series come with one to three 500 watts circuits.

Designed wattage is 90% or 450 watts.

1) Do not exceed the maximum length @ 450W for the selected element in table "Element type and wattage"

2) Combine element strips from the layout to optimize distribution for each 450 watt circuit in the power supply.

POWER SUPPLY	DIMENSIONS			PRIMARY CIRCUIT BREAKER			SECONDAY CIRCUIT BREAKER
	Height (inch)	Width (inch)	Depth (inch)	120 VAC	208 VAC	230 VAC	24 VAC
EPI-LX-R-500	14.0	6.25	3.5	10A	5A	5A	1 x 25A
EPI-LX-R-1000	22.0	6.25	3.5	15A	10A	10A	2 x 25A
EPI-LX-R-1500	28.0	6.25	3.5	20A	15A	15A	3 x 25A

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DESIGN AND CALCULATION

WIRE GAUGE AND TERMINAL BLOCK USAGE

Minimize voltage drop by planning the wire runs as short as possible. Use larger wire gauge for more power output.

Refer to the following chart for maximum secondary wire length, both wires included, per circuit in feet.

Power Watts	Wire Gauge an Wire Length (ft.)					
	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG
60 VA	40	63	100	159	252	401
90 VA	27	42	67	106	168	268
120 VA	20	32	50	80	126	201
150 VA	16	26	40	64	101	161
180 VA	14	21	34	53	84	134
210 VA	12	18	29	46	72	115
240 VA	10	16	25	40	63	101
270 VA	9	14	23	36	56	90
300 VA	8	13	20	32	51	81
330 VA	8	12	19	29	46	73
360 VA	7	11	17	27	42	67
390 VA	7	10	16	25	39	62
420 VA	6	9	15	23	36	58
450 VA	6	9	14	22	34	54

To simplify distribution to the elements use a terminal block when you have multiple elements.

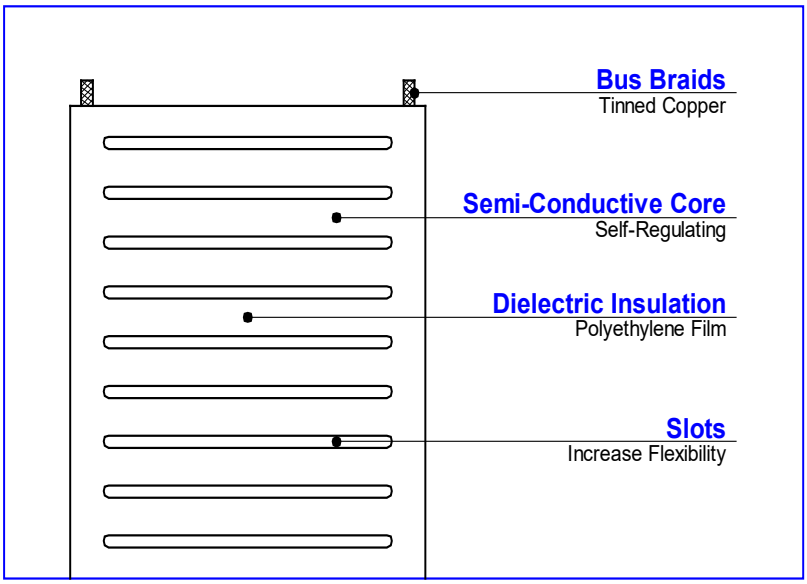
Keep each terminal block to maximum 450W and then calculate the appropriate wire size used to run to the power supply.

Refer to Wire Gauge and Length Calculator on www.warmfloor.com.

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MEP-30-36W / MEP-23-36W / MEP-15-33W / MEP-7-33W

CONSTRUCTION



The STEP® Roof Deicing elements MEP-30-36W, MEP-23-36W, MEP-15-33W and MEP-7-33W are designed to prevent ice damming on roofs. The element is constructed of two parallel bus braids embedded in semi-conductive PTC polymer.

A polymeric dielectric liner is applied at the time of manufacturing so that the liner is thermally fused to the heating element. This creates a heating element that features a solid and homogeneous construction which is chemically inert.

APPLICATIONS

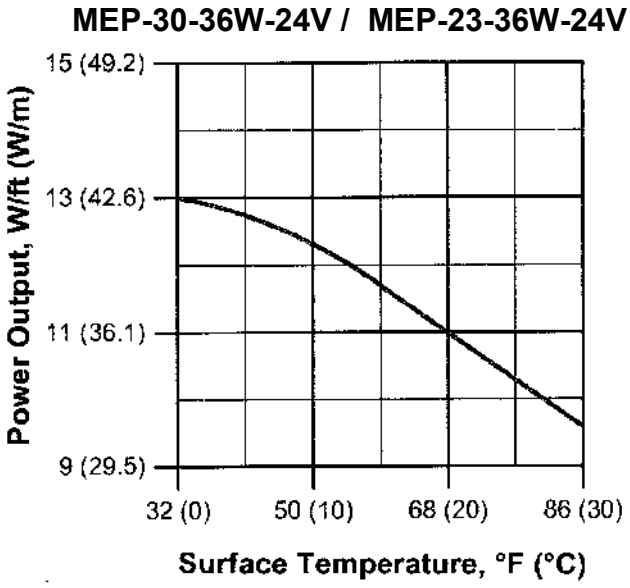
Ice Prevention System	Suitable for ice prevention on metal, vinyl and shingle roofs, commercial and residential. The element is not made to be exposed to weather.
Interior Surface Mount	Heating elements can be sandwiched between the waterproofing underlayment and roofing material.
Under Metal Roof	The heating elements cannot be in direct contact with any conductive material. Under metal roofs it is required to install STEP® Heat Retention Membrane. The membrane is water proof, improves performance and saves energy.

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PRODUCT SPECIFICATIONS

Heating element type	Positive Temperature Coefficient (PTC) semi-conductive polyethylene
Dimensions	Width: / Weight: MEP-30-36W-24V: 12" (30 cm) 0.21 lb./ft. (0.32 kg/m) MEP-23-36W-24V: 9" (23 cm) 0.17 lb./ft. (0.25 kg/m) MEP-15-33W-24V: 6" (15 cm) 0.12 lb./ft. (0.18 kg/m) MEP-7-33W-24V: 3" (7 cm) 0.08 lb./ft. (0.12 kg/m) Thickness: 3/64" (1.2 mm) Length: cut to order Shipping spool length: 174 ft. (53 m)
Supply voltage	24V AC or DC
Bus braid	15 AWG tinned copper flat braid
Dielectric liner	Thermally bonded to heating element
Minimum bending radius	3/32" (2.5mm) @ 40°F (4°C)
Maximum exposure temperature	176°F (80°C)
Chemical Compatibility	The MEP element is resistant to most chemicals and adhesives.

POWER OUTPUT CURVE



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LOW VOLTAGE ELECTRIC RADIANT HEATING EQUIPMENT

1. **Scope.** This installation instruction covers electric radiant heating equipment and associated components operating at <=30 volts rms or 42 volts peak, or direct current <=60 volts.

2. **Low Voltage Heating Equipment.**

   (A) **General.** A low voltage heating system shall consist of a low voltage isolating power supply, heating elements, and associated components that are all identified for the use. The output circuits of the power supply are rated for 25 amperes maximum and operate at 30 volts (42.4 volts peak) ac maximum or 60 volts dc maximum under all load conditions.

   (B) **Alternate Energy Sources.** Listed low voltage heating equipment shall be permitted to be supplied directly from an alternate energy source such as solar photovoltaic (PV) or wind power. When supplied from such a source, the source and any power conversion equipment between the source and the heating equipment and its supply, shall be listed and comply with the applicable section of the NEC for the source used.

3. **Listing Required.** Low voltage heating systems shall comply with (A) and (B).

   (A) **Listed System.** Low voltage heating systems shall be listed as a complete system. The heating portion of the product, power supply, interconnecting wiring, and fittings shall be listed for the use as part of the same identified heating system.

   (B) **Assembly of Listed Parts**. The listed system and approved system components shall be installed in accordance with the low voltage heating product manufacturer's instructions.

4. **Low Voltage Circuits.**

   (A) **Ground.** Secondary circuits shall not be grounded.

   (B) **Isolation.** The secondary circuit shall be insulated from the branch circuit by an isolating transformer, provided as part of the listed assembly.

5. **Provisions.**

   (A) **Fixed Electric Space Heating Equipment.** Installation shall be made in accordance with NEC Article 424, Chapter V, Electric Space Heating Cables, or Chapter IX, Electric Radiant Heating Panels and Heating Panel Sets, except as noted in 425.100.

   (B) **Fixed Outdoor Electric Deicing and Snow Melting Equipment.** Installation shall be made in accordance with NEC Article 426, except as noted in 424.100.

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ROOF DEICING INSTALLATION OPTIONS

INSTALLATION UNDER SHINGLES



INSTALLATION UNDER A METAL ROOF

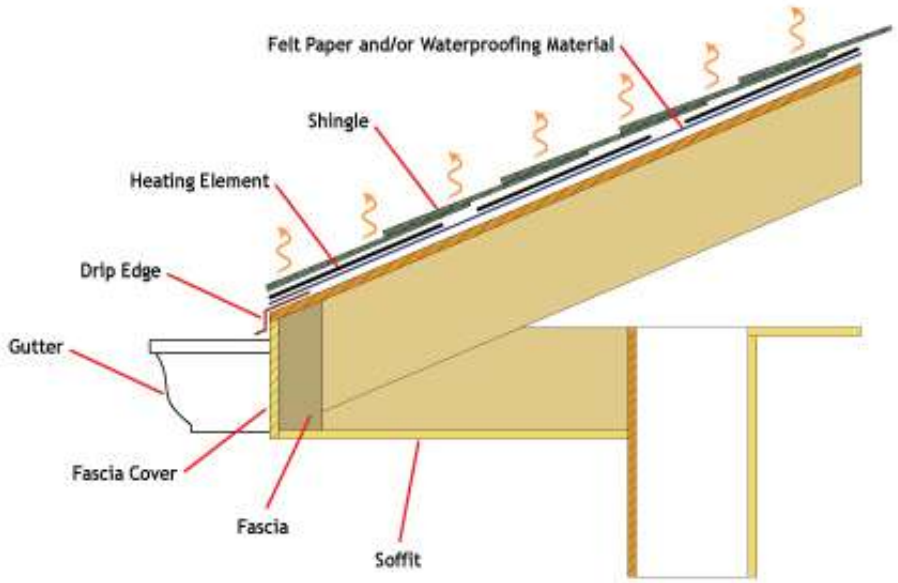


NOTE: The STEP® Heat Retention Membrane is required under all conductive materials.

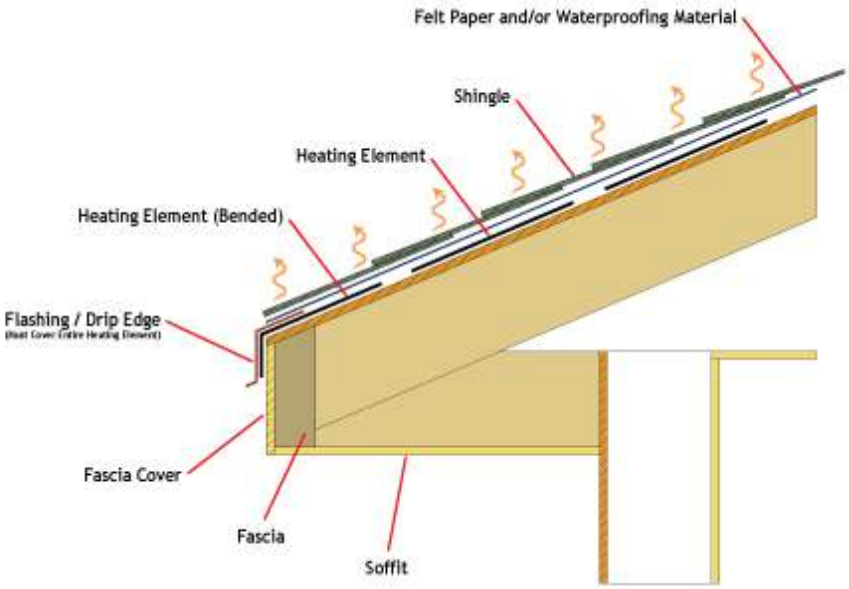
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ROOF DEICING INSTALLATION OPTIONS

EAVE INSTALLATION UNDER SHINGLES (WITH GUTTER)



EAVE INSTALLATION UNDER SHINGLES (WITHOUT GUTTER)



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INSTALLATION

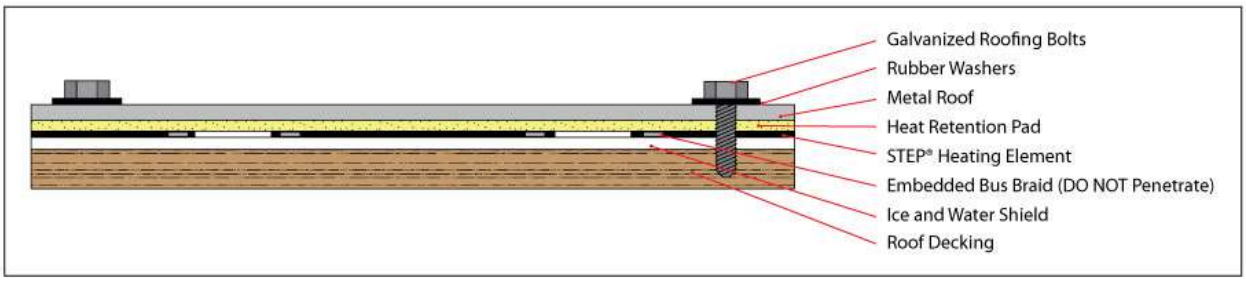
1. PLAN

- Design system, and make a layout. For guidance, see attached layout and wiring diagram.
- Heating elements should be placed on top of the ice and water shield. Placement between the felt and waterproofing underlayment is also acceptable if there is sufficient insulation below (i.e. higher thermal insulation under than over the elements).
- In the valley, start 3/4 of the way up, and place elements to the edge of the eave. On large roofs, use three strips of heating elements – two on each side and one under the flashing.
- On the overhang, the heating elements are placed horizontally on the roof. The lowest element may be bent 3 to 4 inches over the eave to avoid formation of icicles, if required. Nail through the element 4 to 5 inches up from the edge and 1 to 2 inches below. Avoid nailing through the bus braids. Place elements with about 3 inches of spacing until vertically aligned with the exterior wall of the structure. Cover the elements with roofing material, including the bend of the roof drip edge. This is important as the elements are not designed to be exposed to weather.
- For metal roofing, use the STEP® Heat Retention Membrane over the heating elements. The membrane will protect the elements and greatly improves performance and operating cost.
- Installation should conform to local building codes, ordinances, and trade practices.

2. INSTALL

- Roll element out, and cut to length according to layout.
- The element can be attached to the roof using the following alternatives:
    - Nail or screw at least 2 inches from edge of element using galvanized steel roof products; do not penetrate bus braids located on each side. Should this occur, cut element, splice and seal properly.
    - Fasten element using weatherproof poly-tape and/or STEP two-sided adhesive tape.

INSTALLATION UNDER METAL ROOF



NOTE: Avoid overlap or contact between heating elements. **DO NOT puncture the bus braids.**

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3. CONNECT

- Connect extension wires to the heating element according to the drawing and electrical diagram. If fail safe wiring is required, refer to "Fail Safe Wiring".
- Determine wire gauge versus load and length of wire from the element to the power supply. If the distance is longer than 8 feet, connect the extension wires to a terminal block and then route to the power supply using higher gauge wires as shown in the sample wiring diagram.
- Route the wires flat on the roof and down through the deck in a conduit, if required by code. Connect wires in parallel to the 24 volt, EPI-LX-R power supply. Use only stranded tinned copper wires, and do not twist wire ends when connecting to the interface board in the power supply.
- Distribute the load evenly; the maximum load per circuit is 450 watts or 34 feet (10 m) of roof heating element (MEP-30-36W-24V).
- The power supply must be installed in a well-ventilated area and wired in accordance with the National Electrical Code. Place the power supply vertically using rubber bumpers between the back plate and wall for better cooling and quiet operation.
- The power supply must be permanently connected to the service panel.
- Connect the line voltage to a two-pole on/off switch. Use stranded wires from the switch to the power supply.
- To make the system operational, connect two signal wires to the TRG and ~24V terminals on top of the power supply. The system will start when a switch makes contact between the two wires.
- The heating elements should be measured and the amperage noted on the caution labels before being covered. The warning label must be placed in the service panel and the caution label on the electrical box, or on the low-voltage power supply.

NOTE: This system is a Safety Extra Low Voltage (SELV) system and the heating elements must NOT be grounded.

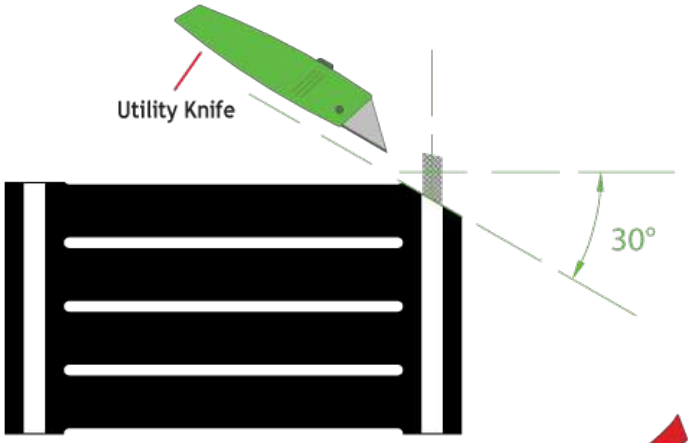
4. COVER

- To be efficient, there should be no air gap between the heating elements and the roofing material.
- Do not install the heating elements in direct contact with any conductive material. Use the heat retainer pad wherever necessary under metal roofs.
- When nailing through the metal sheet or other roofing materials, mark the position of the heating elements to avoid penetrating the bus braids.

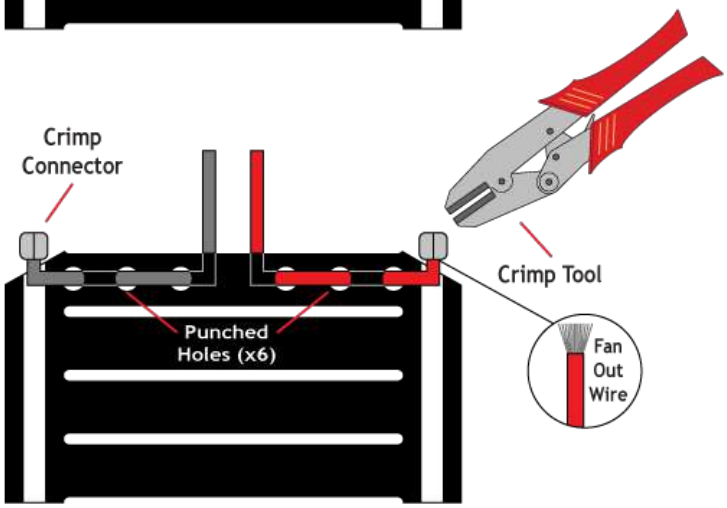
NOTE: These installation guidelines are general in nature. Specific project information is provided by the distributor.

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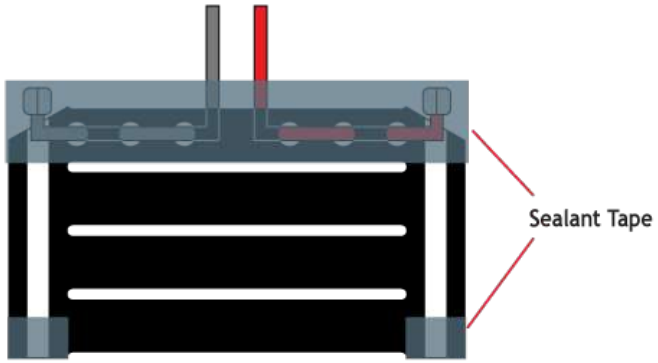
ATTACHING EXTENTION WIRES



• **Expose the bus braid** by making an angled score in the plastic, front and back, and along the bus braid above the angled score with a utility knife. Bend the element where the cuts are made and pull off the corners to remove the surplus of plastic. **Make sure that the bus braid is not cut or damaged**. Should this occur, re-cut the element and re-strip the bus braid. Repeat on the other side.



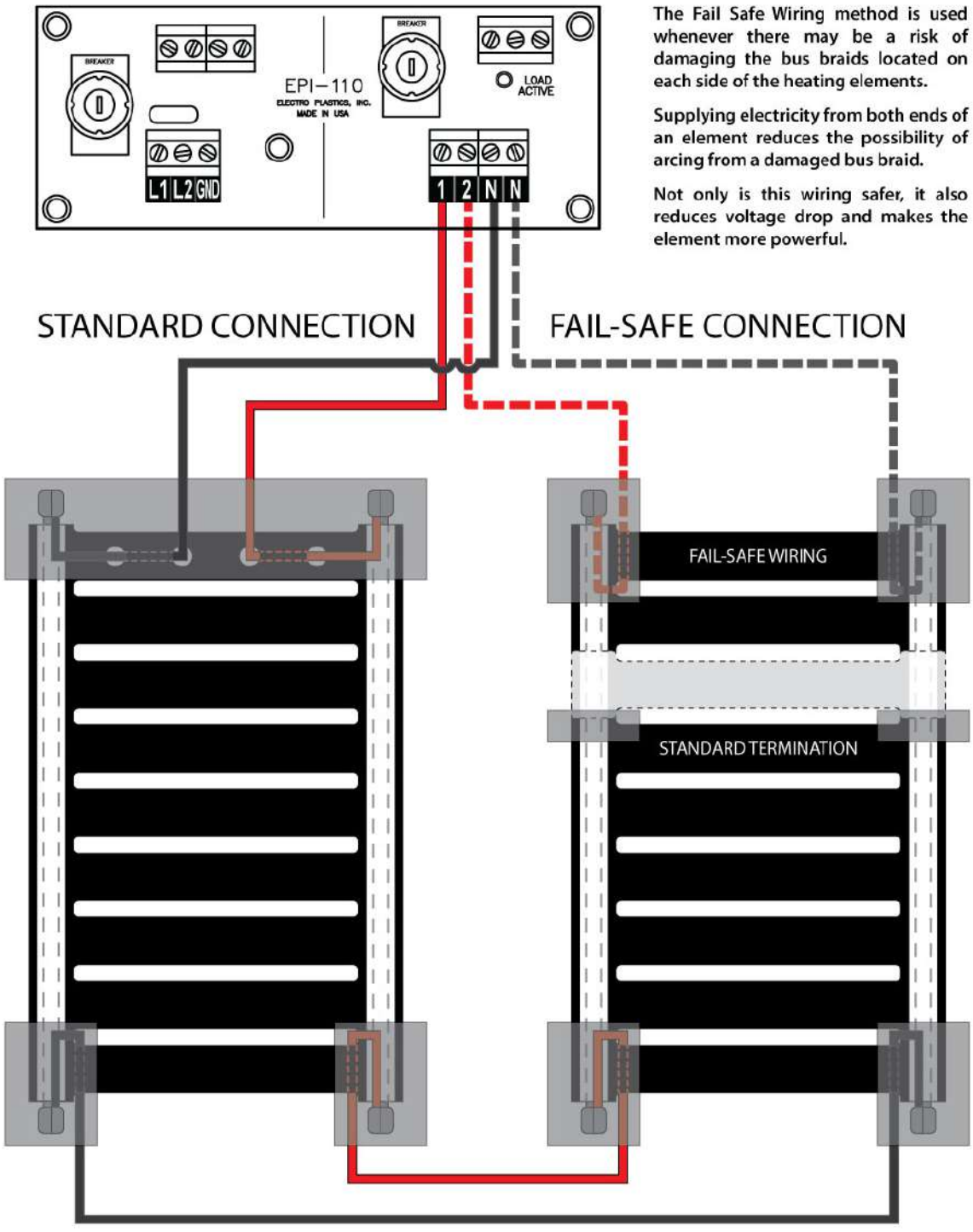
• **Make a strain relief connection** by punching three holes with a hand drill or punch tool. Weave a 12AWG, PVC insulated, stranded tinned copper extension wire in the holes. Strip and fan the wire end, then crimp the wire with the bus braid in the STEP® tinned copper crimp connector, using the recommended crimp tool. Using components not recommended by the manufacturer will void the warranty.



• **Seal all connections** by using the recommended sealant tape on the connector side of the element. Cut two pieces of tape slightly longer than the width of the element. Enclose the wire joints and strain relief connections with the two pieces of tape and firmly press the pieces together while overlapping the element to form a flat and smooth splice. Also use the recommended sealant tape to cover the bus braids at opposite end of the element. Refer to wiring diagram.

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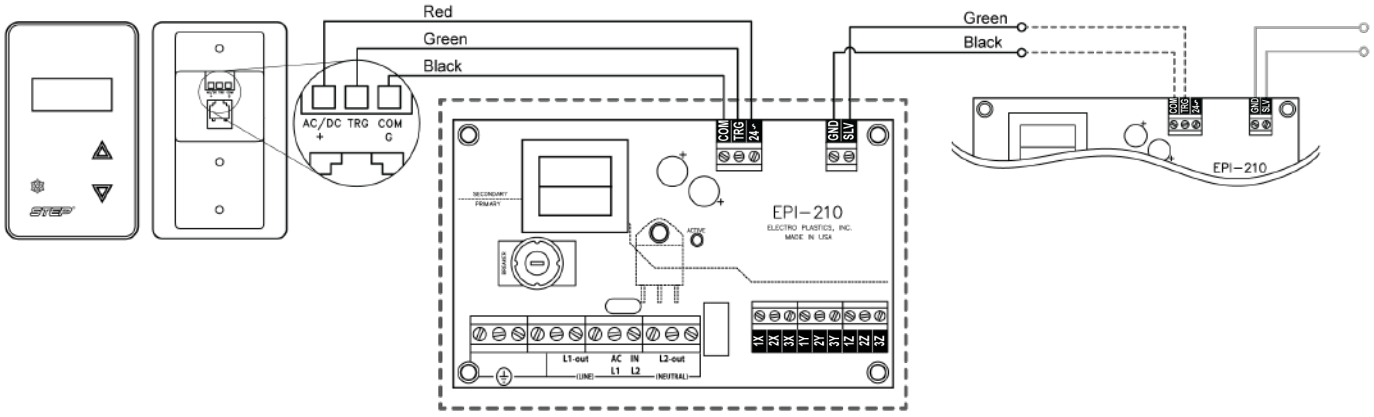
ROOF DEICING WIRING DIAGRAM



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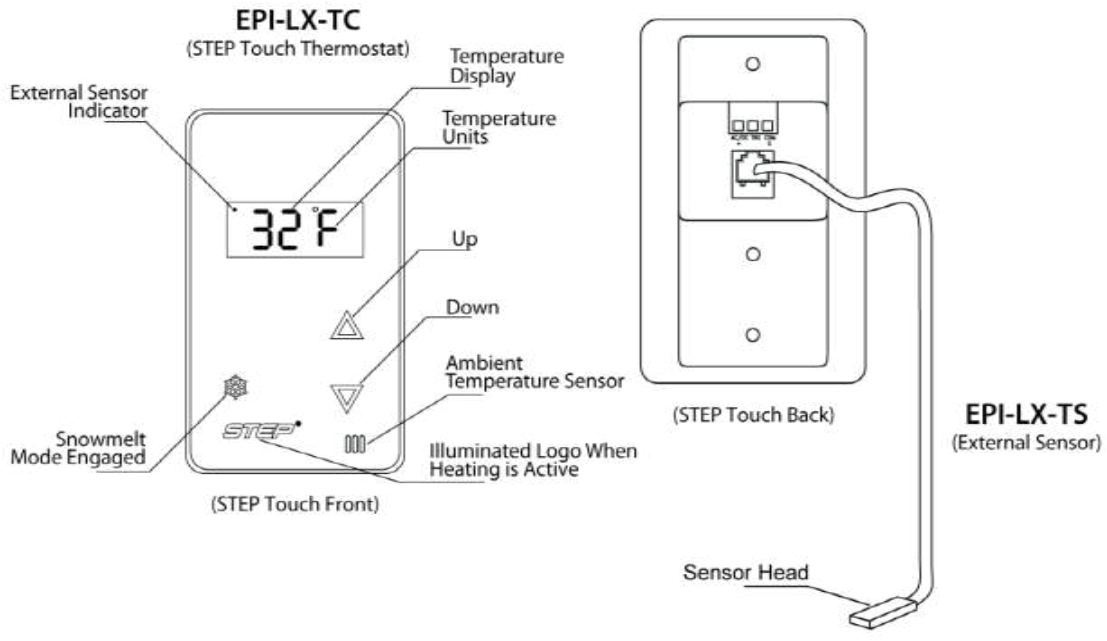
CONTROLS

STEP TOUCH®



- The microprocessor on the controller of the STEP® Power Supply has a "soft" start electronic relay which serves as an intelligent switch to enable/disable the line voltage in such a way that switching/pulsing does not harm the electrical components.
- Used with the external sensor on "Snow Melt" mode, the pulsing operation of the controller provides the maximum level of energy efficiency.

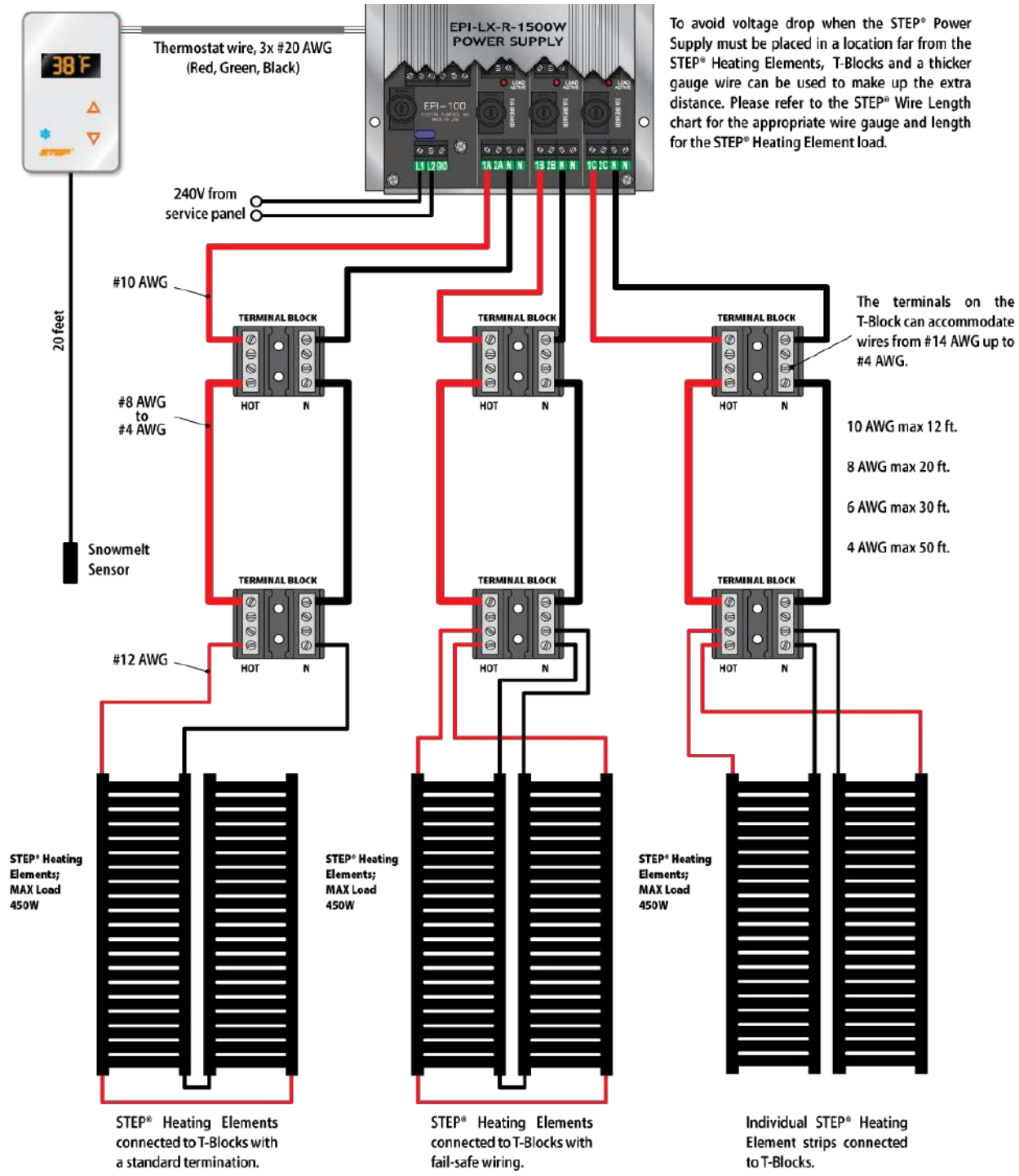
THERMOSTAT AND SENSOR



EPI-LX-TC: Thermostat (black or white) and EPI-LX-TS: External sensor

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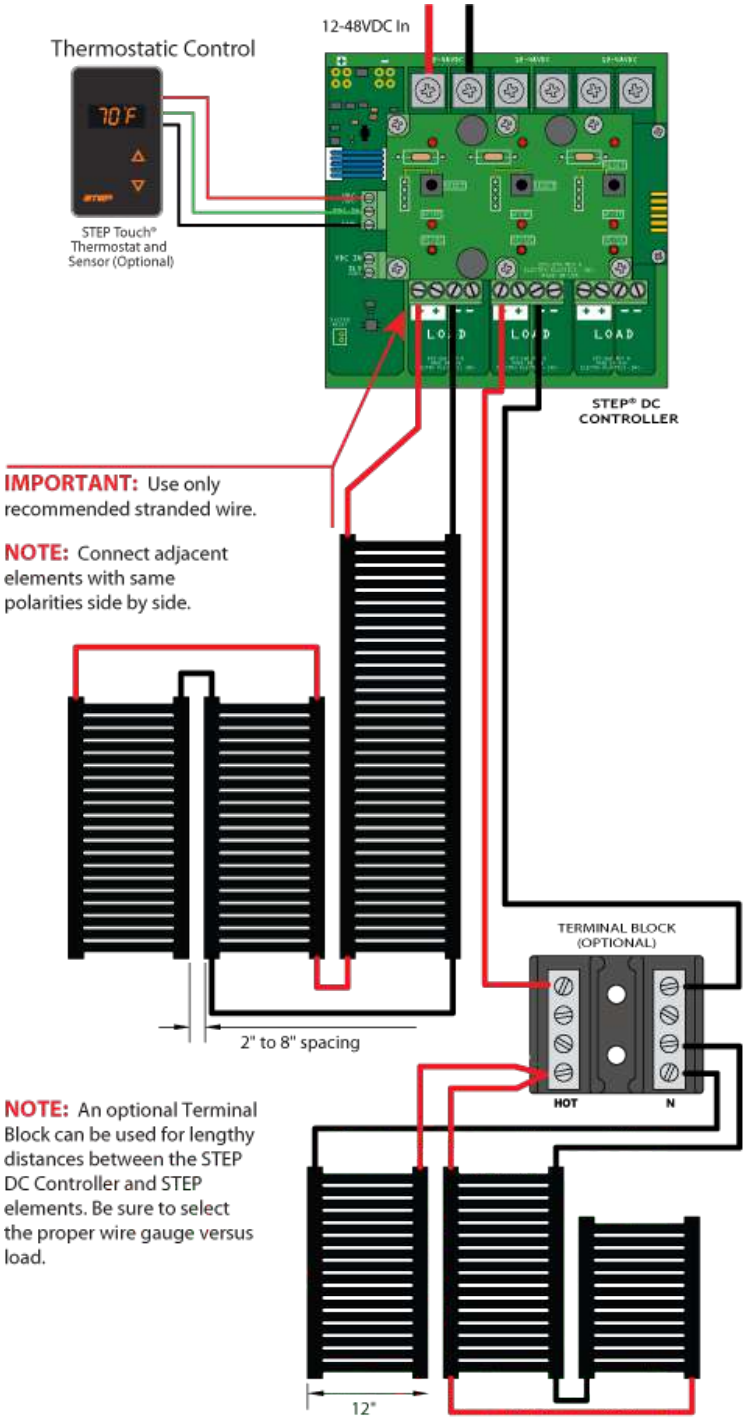
T-BLOCK WIRING GUIDE



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DC CONTROLLER

DC CONROLLER WIRING DIAGRAM



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DC CONTROLLER





Picture of the DC Controller with one Main PCB and 3 channels.

Each channel in the system is designed to provide power to the attached load in a gentle and controlled manner taking approximately 1 second to softly apply or remove power to the loads.

SPECIFICATION	FUNCTION
Supply Voltage 1	12-24VDC
Supply Voltage 2	25-48VDC
Max Quiescent Current Draw	One channel 20mA, two channels 30mA, three channels, 40mA
Max Load Current	20A per channel
Channel Delay	1 second per channel
Intelligent Breaker Trip Point	25A (two stage) per channel

A version of the DC Controller may also be used to automatically switch between sources such as solar panels and generator or grid for continuous operations. Examples are PV panels during the day and grid power at night.

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WARRANTY REGISTRATION AND COVERAGE

LIMITED WARRANTY:

Electro Plastics' limited warranty is valid from date of original purchase, as follows (not included in this warranty are OEM and specialty products):

- 20 years for the STEP Warmfloor® Heating Elements.
- 10 years for the STEP® Snowmelt and STEP® Roof Deicing Heating Elements.
- 10 years for the STEP® Transformer Coils in the Power Supplies.
- 2 years for the Interface Electronics in the Power Supplies.
- 2 years for the STEP® Controls

Electro Plastics sole obligation under its warranty shall be, at its option, to either issue a credit for the purchase price, or repair or replace any article or part thereof, which is proved to be other than as warranted. For this warranty to be valid, a copy of the STEP® Labels shall be delivered to ELECTRO PLASTICS, INC., with a diagram indicating to which branch circuit the system is connected, the location of the element strips, the routing of the wires and their different measurements, voltage, amperage, elements and wire length. Electro Plastics warrants the products to be free from defects in material or manufacturing and to perform under normal use. For the warranty to be valid, qualified personnel who are familiar with the construction and operation of the system must install the equipment and a certified electrician has to verify and measure the STEP® elements BEFORE they are covered.

Exclusions

Electro Plastics shall not be responsible for any loss or damage that may arise due to:

- Non-compliance with installation and/or usage of the STEP® elements and accessories as recommended. It shall be Buyer's and End User's duty to read and follow carefully the STEP Installation Manual™. Technical assistance services, e.g. design and layout are to be used as GUIDELINES ONLY, as each application is specific to local conditions and construction
- Dissatisfaction due to improper installation of the roofing materials. All roofing materials shall be installed in conformance with the manufacturer's instructions and shall conform to all applicable trade practices, local codes and manufacturer's specifications.
- Usage of inadequate or non-specified materials with the STEP® heating system or products.
- Any and all defects, deficiencies or failures resulting from improper handling of the product; e.g., cuts made to the STEP® elements, or the wires, etc.
- Tampering with the STEP® heating system or products; e.g., removing, altering or overloading the circuit breakers, overcurrent protectors, etc.
- Installation of merchandise with obvious visible defects.

How to claim this warranty

In order to obtain warranty service, Buyer shall return the unit to the dealer from whom the unit was originally purchased, with a dated sales receipt. The dealer will forward the unit to Electro Plastics. Upon receipt of the defective unit, paperwork and explanation of application, Electro Plastics will inspect and test the unit in order to determine the reason for the alleged failure. If it is determined that the unit was properly installed and failed during normal use, as a result of a manufacturing defect, Electro Plastic will repair or replace the unit, or issue a credit or refund of the purchase price, at its sole discretion. The warranty period for any replacement unit will fulfill the warranty of the original unit and will not be extended.

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WARRANTY REGISTRATION AND COVERAGE

Limitations

Under no circumstances will Electro Plastics be liable for labor or other charges related to the installation and use of the STEP® heating system or products. This warranty does not cover labor or removal or reinstallation of the product and is void on any product installed improperly, or in an improper environment, overloaded, misused, abused or altered in any manner. THE WARRANTIES STATED HEREIN ARE EXCLUSIVE OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, NONE OF WHICH SHALL APPLY TO THE SALE OF THE COMPANY'S PRODUCTS HEREUNDER. THIS WARRANTY ALSO EXCLUDES INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY WARRANTY ON THE PRODUCTS. Products which are replaced by Electro Plastics in accordance with the foregoing shall become the property of Electro Plastics and shall be returned to it by the purchaser f.o.b. point of shipment. The maximum liability of this warranty is limited to the replacement or repair or purchase price of the defective unit. If a unit is returned and found that no defect exists, or that the user misused the unit, Electro Plastics will inform the user. If the user chooses to have the unit repaired (if possible), labor and shipping charges will apply.

Limitation of Liability

ELECTRO PLASTICS SHALL NOT BE LIABLE FOR ANY LOSS, CLAIM, EXPENSE OR DAMAGE CAUSED BY, CONTRIBUTED TO OR ARISING OUT OF THE ACTS OR OMISSIONS OF BUYER OR THIRD PARTIES, WHETHER NEGLIGENT OR OTHERWISE, IN NO EVENT SHALL ELECTRO PLASTICS' LIABILITY FOR ANY CAUSE OF ACTION WHATSOEVER EXCEED THE COST OF THE PRODUCT GIVING RISE TO THE CLAIM, WHETHER BASED IN CONTRACT, WARRANTY, INDEMNITY OR TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHERWISE. IN NO EVENT SHALL ELECTRO PLASTICS BE LIABLE OR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER SUCH INDIRECT DAMAGES (INCLUDING, WITH-OUT LIMITATION, LOSS OF REVENUES, PROFITS OR OPPORTUNITIES), WHETHER ARISING OUT OF OR AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE.

WARRANTY REGISTRATION CARD

Ref. No. .....

CUSTOMER INFORMATION

_____
Owner's Name

_____
Address

_____
City / State / Zip

_____
Phone

_____
Email

PURCHASE AND PROJECT INFORMATION

_____ _____
Purchased From Date

_____
Address

Product Purchased: ☐ Snowmelt ☐ Deicing

Heating Elements Installed on : ☐ Roof ☐ Driveway ☐ Pathway ☐ Gutter ☐ Eave ☐ Other

Heating Elements Installed under: ☐ Tile ☐ Shingle ☐ Metal ☐ Concrete ☐ Stone ☐ Other

Type of Project: ☐ New Construction ☐ Renovation Project

To activate warranty complete and return this warranty registration card signed with a complete checklist and layout showing element distribution as installed to: 11147 Dorsett Road, Maryland Heights, MO 63043, U.S.A.

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WARRANTY REGISTRATION AND COVERAGE

CHECK LIST

Ref. No. ..... **Page** ..... of .....

Control : ☐ Air ☐ External ☐ Moisture ☐ On/Off

STEP® Element Model No. :

MEP-.....-.....W-24V

Total Length Installed :

..... Linear Feet

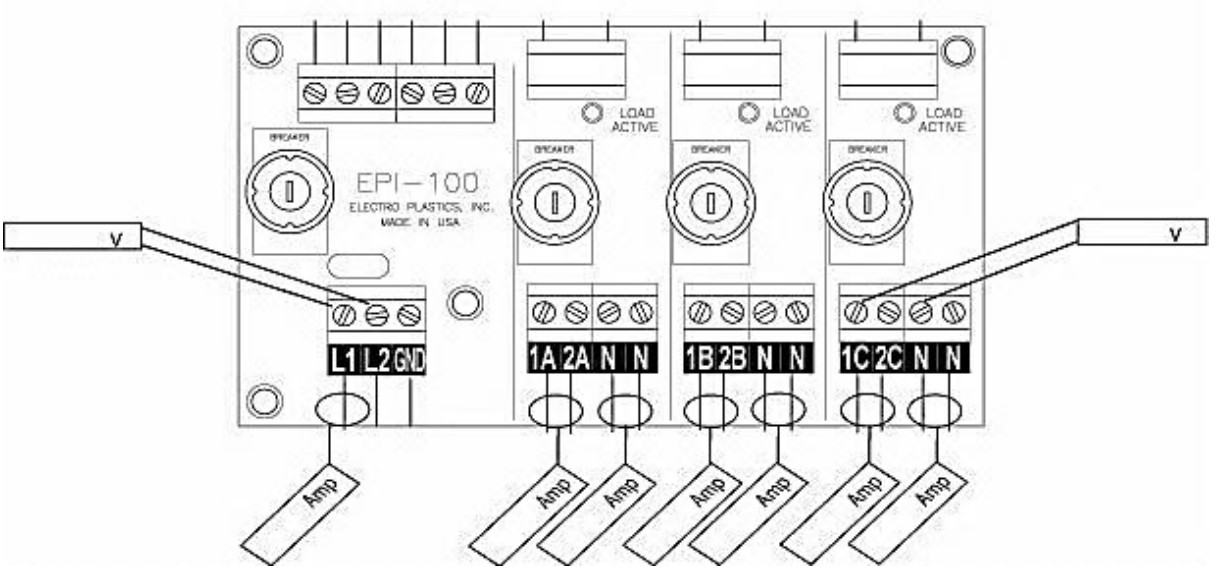
Transformer Model No. :

EPI-LX-.....-.....W

☐ 120V
☐ 208V
☐ 230V

MEASUREMENT INSTRUCTIONS

Measure primary and secondary volts and amps at the transformer terminals. One sheet per transformer.



Installed / measured by:

Date:

_____

Name

_____

Signature

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If the following procedures do not solve and relieve the problems encountered, please check with our Technical Service Department.

POWER SUPPLY

Problem:	**Solution:**
1. Power Supply/DC Controller will not start:	
a) No current	• Reset circuit breaker in service panel and switch on line voltage branch circuit.
b) Current is present	• Reset mini circuit breaker in power supply, push plunger in until it stays in.
c) PC board in AC Power Supply / DC Controller has current	• Make sure the thermostat settings are correct and that the thermostat calls for heat. Set the temperature to maximum and wait a couple of minutes for the system to turn on. • If this does not work, eliminate thermostat; disconnect thermostat cable from PCB (printed circuit board) and put a jump wire from terminal TRG to 24. The load active should now be lit and the system is on. The fault is in the thermostat cable or its connections.
2. Power Supply becomes hot:	
a) Poor ventilation	• Power Supply should be mounted vertical for the cooling fins to extract heat from the enclosure and it must be placed in a well-ventilated area.
b) High voltage conditions	• A service technician can rewire Power Supply to accept higher voltage. Call customer service for guidance.
c) High ambient temperature	• Power supply must be de-rated; decrease load.

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HEATING ELEMENTS

Problem:	Solution:
1. Insufficient temperature:	
a) Thermostat setting	• The thermostat is connected to an external sensor which is normally placed between the heating elements in the roof. Set temperature between 32°F and 40°F. If snow is not melting increase the temperature and adjust to local conditions. It may take some snowfalls to find the minimum temperature at which snow is melting.
b) A section is not melting snow	• Reset circuit breaker for this section.
c) A strip is not melting snow	• Measure the volts and amps for this element at the terminal. • If the voltage is correct and there is no amps the connection between the power supply and heating element is broken. • If the voltage is correct and the amp reading is low the heating element has been damaged by chemicals or salt etc. • If the element strip is partly melting snow while other parts on the same element length is cold the element is mechanically damaged. • If electricity is not available at the time of trouble shooting disconnect the strip from the terminal and measure the resistance. • Then call customer service for evaluation of the measurements.
d) Low supply voltage	• Some regions or locations may have a low supply voltage and some may take electricity from sub-panels with reduced voltage. This results in a proportionally lower heat output. It is possible to boost up the voltage so the elements can pull more amps but this requires engineering.

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APPROVALS AND CERTIFICATIONS

UL 1693 3rd Edition CSA-C22.2 No. 130-16 UL 5085-1 & 2 CSA-C22.2 No. 66.1 & 2-06	UL 823 ANSI.ISA 12.12.01-2000
EN 60355-2-96-2009 EN 61558-2-2:2007	

WARMZONE PREMIER RADIANT HEATING
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