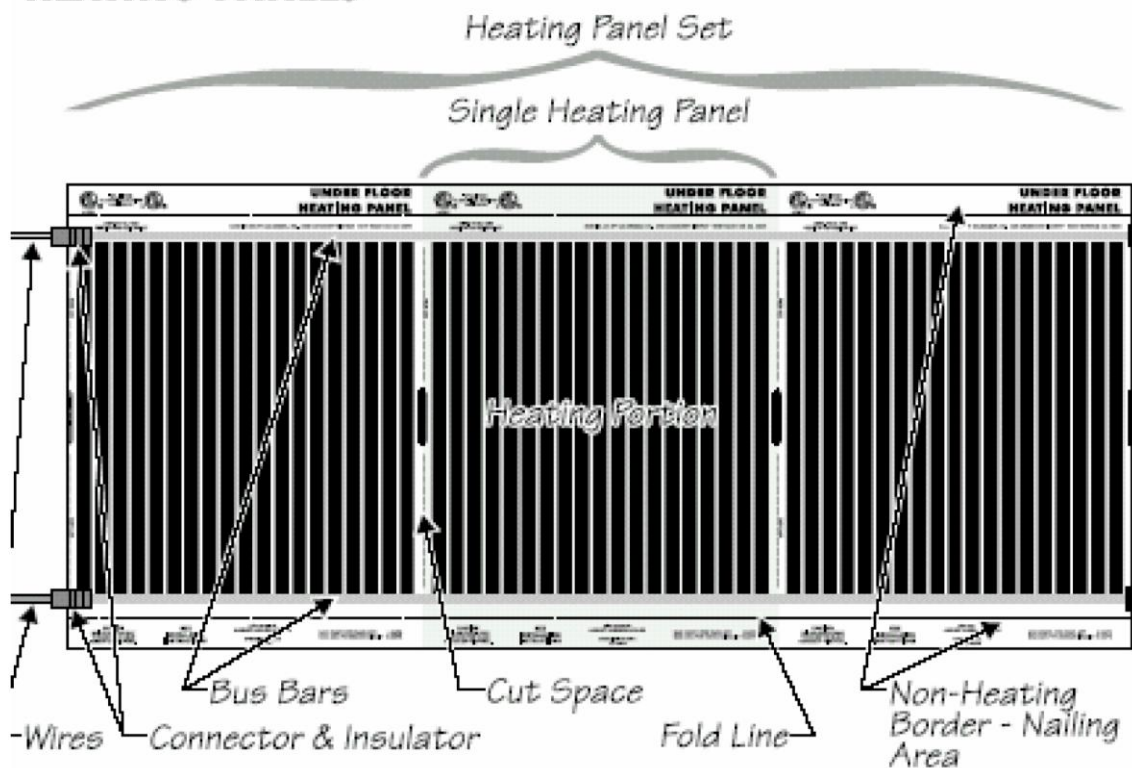


I.D.L. Heaters Thermal Products Ltd.

Roll 'n' Warm™ Installation Manual

HEATING PANELS



The Most Luxurious and Safe System For Underfloor Heating



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Important Instructions!

- Do not install the heating elements before reading carefully this installation manual. **INSTALL ONLY IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NFPA 70) ARTICLE 424- IX. And in Canada CEC section 62**
- Use this product only ON dedicated circuit protected by EGFPD (Equipment Ground Fault Protection Device, 15mA leakage current).
- Never install this product anywhere except inside buildings and cover with a permanently installed floor covering.
- All electrical connections must be performed by a fully qualified electrician
- NEVER install or use this product under walls, partitions, furniture with 0 (no) clearance toilets, sinks, or tubs. While planning the layout of the heating system consideration should be given regarding the future position of: these objects, and NEVER install the product in places where any of the above might be installed in the future.
- **If users with Roll 'n' Warm™ up to 11 W/Ft
Do not install under floor covering with an R value of more than 1.5**
- **Incorrect installation could cause damage to the heating element or connections and will immediately invalidate the Warranty.**

Safety Instructions:



INSTALLATION

- Roll 'n' Warm™ heating elements should be installed only by qualified personnel who are familiar with the construction and operation of the apparatus and the risk involved.
- The installation of this heating product shall be in accordance with the manufacturer's instructions and the regulations of the authority having jurisdiction.

Note: Refers to US and Canada: The installation shall be made in accordance with Article 424, Part J, of the National Electrical Code, ANSI/NFPA 70 and the applicable sections of Canadian Electrical Code, C22.1. Section 62



HIGH VOLTAGE

Disconnect the heating elements from the power line before any adjustment. Maintenance should be done only while heating mats are disconnected from the power source, and should only be performed by qualified personnel.



LINE VOLTAGE

Before connecting the product to the power supply, make sure that the voltage of the power source matches the requirements of the product, as marked on the Roll 'n' Warm™.



WIRING

- All electrical connections must be performed by a fully qualified electrician and in accordance with each jurisdiction electrical and building code. in the USA, NEC (National Electrical Code). Make sure that all conductor sizes are at least 16AWG Style 1672.
- The connection of the cold leads must be made inside the electrical connection box. Connect all units in parallel making sure not to exceed the current handling capacity of the supply line.
- The heating system should be connected to its own circuit of the power supply.



IMPORTANT!

WARNING!, RISK OF ELECTRIC SHOCK AND FIRE. DAMAGE TO SUPPLY CONDUCTOR INSULATION MAY OCCUR IF CONDUCTORS ARE ROUTED LESS THAN 50 MM (2 INCHES) FROM THIS HEATING PRODUCT. REFER TO INSTALLATION INSTRUCTIONS FOR RECOMMENDED MEANS OF ROUTING SUPPLY CONDUCTORS.



Before Starting:

Before installing the heating element, make sure that you have the following additional parts:

- **Electrical junction box:** To be used as the connecting junction for the cold leads of The Heating element.
- **Control thermostat:** Allows controlling the room temperature.
The control thermostat must also have a two terminal manual on/off switch.
Use a UL listed thermostat only.
Control thermostats have two sensors:
 1. Ambient air temperature safety sensor.
 2. Floor temperature safety sensor.

Note: Ideal Heat recommends the use of fully programmable digital thermostats that enable you maximum saving and flexibility in planning and programming your heating plans.

- **Ground Fault Circuit Interrupter or Residual Current Device:**
Consult your local distributor / supplier or Ideal Heat local representative for additional details regarding the applicable EGFPD
(Equipment Ground Fault Protection Device, 15mA leakage current).
- Installation shall be made in accordance with National Electrical Code, NFPA-70.
Final acceptance is to be determined by authorities having jurisdiction.

Always Remember to Take the Following Precautions During the Installation Process:

- **Ensure that:** the electric circuit that supplies electricity to the heating elements is equipped with a type A ground fault current interrupter EGFPD (Equipment Ground Fault Protection Device, 15mA leakage current).
- **Ensure that:** the total current needed for all the heating elements connected in parallel is not more than 80% of the listed amperage capacity of the relevant electrical junction box, and of its power supply line and breaker. If you need advice consult your installer / supplier.
- **Ensure that:** you have provided each room equipped with the heating elements with its own electrical junction box and its own control thermostat. Each thermostat has a maximum capacity of 16 Amps. If the amount of Amps in the room is greater than 16 Amps, divide the amperage over several thermostats.
- **Ensure that:** all cold wires leads of the heating elements should be connected in parallel into a connectors and electrical junction box or boxes.



NEVER:

- **NEVER** fold or wrinkle the heating elements.
- **NEVER** overlap heating on top of each other.
- **NEVER** place heavy or sharp tools, or other potentially damaging objects on top of the heating elements.
- **NEVER** install or use this product under walls or partitions.
- **NEVER** install electrical cables or pipes in the floor together with the heating system.
- **NEVER** use insulation layer which contains cellulose.
- **NEVER** connect any other electrical appliance on the same electric fused branch or fault detector unit of the heating system.
- **NEVER** install elements when the room temperature is below 0°C (32°F).
- **NEVER** install elements within 2 inches of any other heat conductor in the apartment or in the building.
- **NEVER** install elements within 2 inches of one another, 4 inches of any wall, or 6 inches of a fireplace, chimney or hot water pipes.
- **NEVER** install heating elements under wooden floor if the wooden floor is thicker than 3/4 inch.
- **NEVER** use any type of insulation material on top of the heating mats.
- **NEVER** step unnecessarily on the heating elements even when they are not connected to the electricity.

Planning the Installation:

Before installation, draw an installation plan. Remember to include in your plan: the placement of the elements, the floor sensor, the placement of the thermostat and junction box (optional) (See example on page 8).

The heating elements should cover at least 75%-80% of the floor area of your room to be used as a primary heat source; Roll 'n' Warm™ heating elements are available in several convenient width sizes. Choose the combination of heating elements that best enables you to cover the recommended area of your room. Plan to use the larger heating elements as much as possible and to use smaller elements only as gap fillers. The more coverage the less time needed to heat the area (but never under walls, heavy cabinets, closets, or fixtures such as toilets, sinks or tubs).

Laying Out the Cold Leads

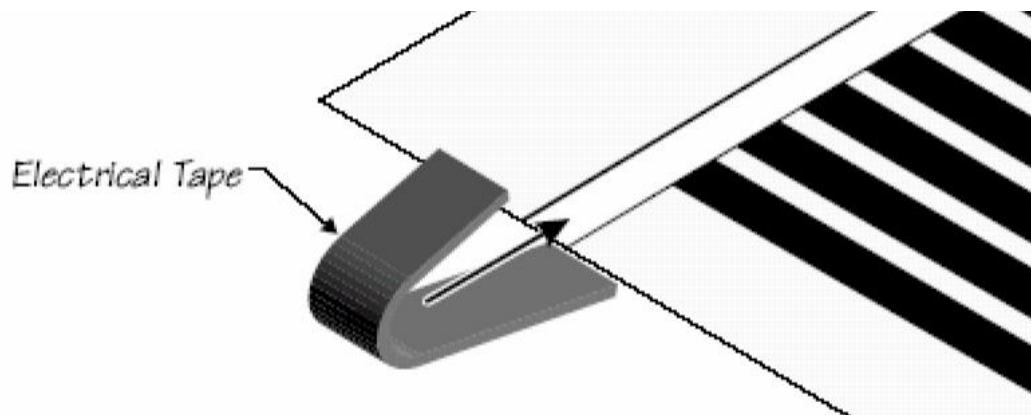
- 1. Floor Base:** Make sure that the floor base is completely clean of all debris or any other materials.
- 2. Insulation Layer:** Installing the Insulation Layer on top the tiles or thickset.
- 3. Laying the Elements:** Open the heating elements, Roll them on top of the insulating material. It is recommended to leave a gap of approximately 4 inches from the wall to the heating elements, and a gap of about 2 inches between each elements.
Ensure that each heating elements is completely flat.
Ensure that the cold leads of the elements are on the closer side of the mat to the electrical junction box location.
- 4. Cold Leads:** Place the cold leads of the elements near the elements toward the junction box. Place the cold leads so that they do not cross each other. Since the cold lead connector is slightly thicker than the rest of the element, create a slight groove in the insulation board under the connector to ensure that the heating element lays flat.

IMPORTANT! Ensure that the cold leads do not cross over the mat.

Always restrict to trimming the blank ends

(where there are no cold tails or feed wires)

1. Foils can be shortened, by cutting along the space between the Carbon Elements.
2. Tape over the exposed ends of the copper bus bars.
3. The thinner polyester tape is used to tape over the cut edge of the element, followed by the thicker mastic tape over the bus bar ends, these must be cut to be at least 4mm larger in all directions than areas that have already been protected by polyester tape.
4. Measure resistance of element, this can be checked again after installation and compared with original reading (Must be to the same standard).



Electrical Connections

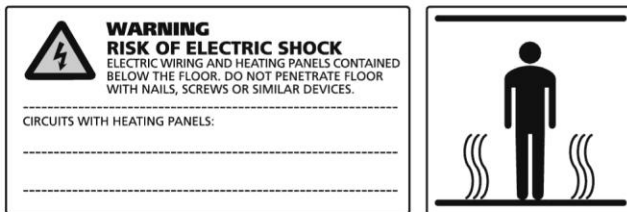
Note: All electrical connections must be performed by a fully qualified electrician and in accordance with each country's NEC (National Electrical Code).

Note: Make sure that all conductor sizes are at least 16AWG Style 1672.

Note: Make sure that a readily accessible circuit breaker or emergency switch on which the ON (I) and OFF (O) positions are clearly marked, and that is suitably rated and approved, is installed in the building installation. The switch must disconnect both poles simultaneously.

IMPORTANT! Tightly screw all connections to ensure good electrical contacts.

1. Install the electrical junction box or boxes, above floor level according to the local safety and building regulations and codes. Place the following label or similar on the electrical junction box or boxes and in the electrical cabinet indicating that an under floor heating system is installed in the room.



2. Install the control thermostat as far as possible from any heat sources or heat sinks such as fireplaces, chimneys, direct sunlight, windows, doors, or anything that could possibly affect proper temperature readings. The suggested height for placement is 1.5m (5 feet) above floor level.

3. Install an electric conduit to the junction box and thermostat as shown on the diagram.
 1. Thermostat
 2. Junction box (optional)

4. Connect the floor temperature safety sensor to the thermostat through the UL listed conduit, and install the sensor between two heating mats, at least 20 inches from the wall.



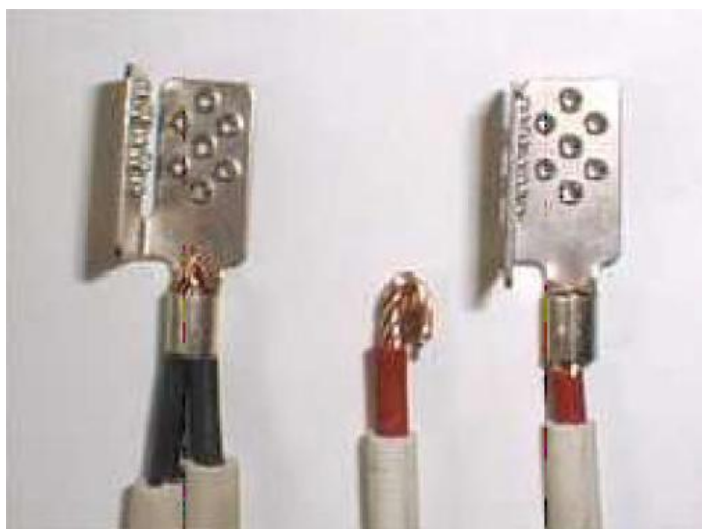
IMPORTANT! Make sure that the sensor does Not touch any of the heating elements.

5. Measure the resistance of the heating system and record the value (See page 15).
6. Measure the insulation values with a Megger (Insulation Resistance Meter) tester and record the value (see page 15). Make sure there is no insulation problem.

7. Make a floor plan diagram that includes all the installed heating elements.
8. Switch ON the heating system (see the directions in your thermostat manual) for half an hour to ensure that the system is working properly. It is important to check each circuit system to ensure that each element is heating.
9. Switch OFF the heating system (see the directions in your thermostat manual).
10. When the film are cool, lay down your floor covering.

ATTACH COLD TAILS

1. Bare connecting leads and insert singly or in pairs into the cylindrical ferrule of the crimp connector.
2. Cold tails from elements to thermostat positions must not come into contact with any part of the element.
3. Using Safe-t-FLEX Pliers, complete the crimp connection with the tool so that the "W" form of the die is to the seamed side of the cylindrical female of the crimp.
4. Re-check the flat parallel jaw gap with a feeler gauge.

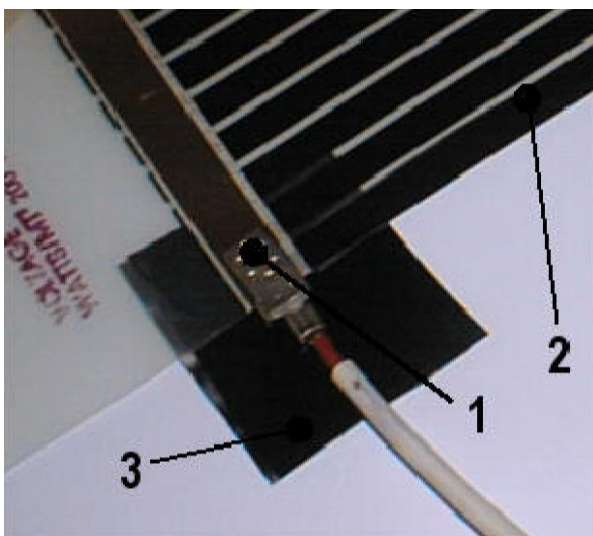
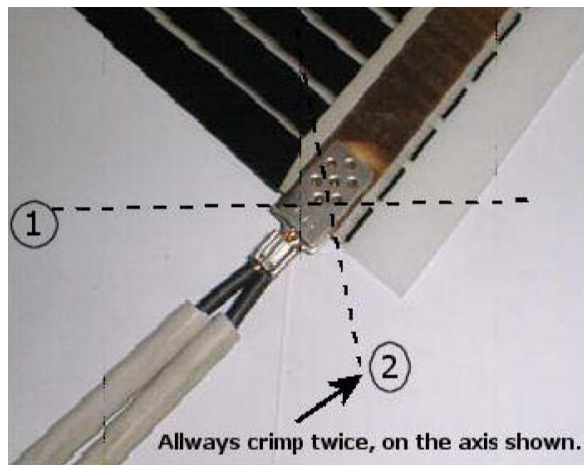


Maintenance Safe-t-FLEX of Pliers

Check fully closed gap 1.25-1.4mm

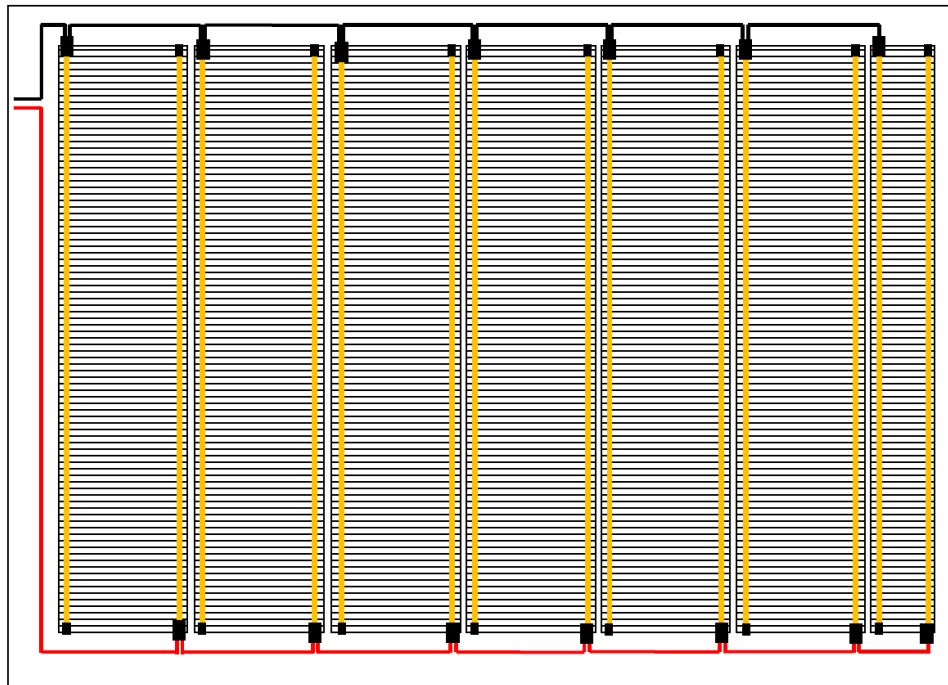
Seal ends and connection

1. After fixing cold tails, tape both sides of Safe-t-FLEX, with 20mm wide polyester tape.
2. Cover cut edges with narrow mastic tape; take this right up the first layer of tape covering the connection points.
3. Finally, place large mastic pads either side of the connection points, making sure that this covers the cut areas of mastic end tape. Carry this at least 30mm down the connection wires. Knead the mastic round the cables and all contours. Make absolutely sure that a good effective seal is produced.



Scotch® Professional Grade Vinyl Mastic Sealing Tapes 2210

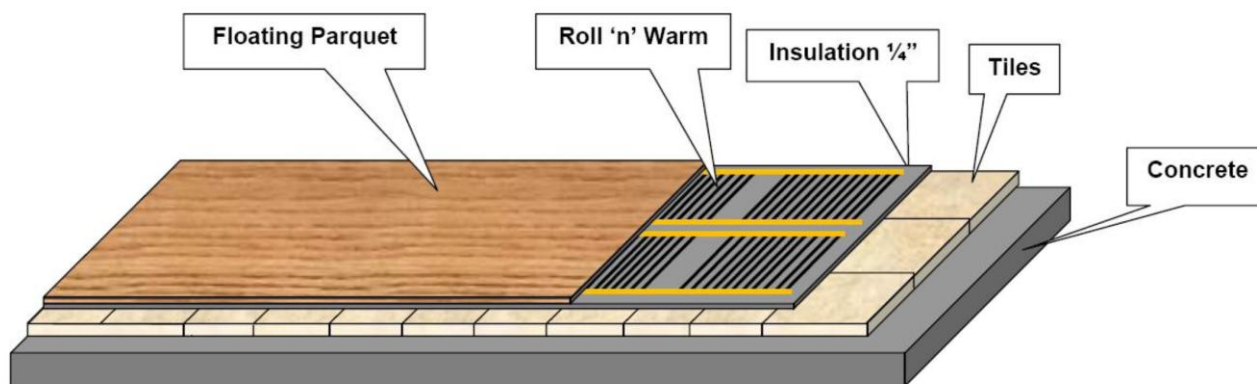
Layout Example



Installation Example

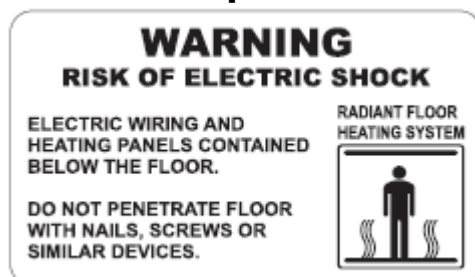
IMPORTANT!

Check your local building codes and regulations and act accordingly, if they contradict any of the following examples or instructions.



Labels and Markings

1. To be placed on control unit (thermostat or timer)



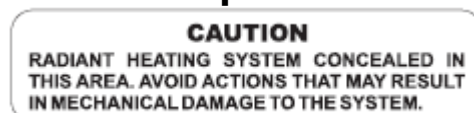
2. To be placed on entrance to crawl space or area below floor



3. To be placed in electrical panel adjacent to dedicated breaker



4. To be placed in area that might be accessible



Warranty

Thank you for purchasing Roll 'n' Warm™ – a heating mat manufactured by **I.D.L. Heaters Thermal Products Ltd.** ("Ideal Heat" or "the Company").

Roll 'n' Warm™ requires a thermostat and electrical cables that connect the heating mat to the electricity according to the National Electric Code.

Ideal Heat will do its utmost to provide the purchaser professional and friendly service, and is committed to serve the needs of each customer when a need might arise.

Ideal Heat hereby grants the following warranty for the Roll 'n' Warm™ heating elementst:

1. Ideal Heat guarantees that the Roll 'n' Warm™ is free of defects due to faulty material or workmanship.
2. If the mat is correctly installed, is in regular use and maintained according to Ideal Heat recommendations and instructions, the warranty provided hereunder will be valid for a period of ten (10) years from the date of delivery (the "**Warranty Period**").
3. Should, during the Warranty Period, any part of the Roll 'n' Warm™ be found faulty due to defective material or workmanship and the customer immediately informs Ideal Heat of the discovery of such fault, Ideal Heat shall repair or replace the heating mat at no additional cost to the customer. The option to repair or to replace shall belong solely to Ideal Heat and thus be depending on the company's decision.
The above shall be in force only if the customer has installed and serviced the mat according to the instructions provided in writing by Ideal Heat.
4. For goods or essential components manufactured by a third party and supplied or installed by Ideal Heat, or by the customer, Ideal Heat warranty shall not extend beyond the warranty provided by said third party to Ideal Heat.
5. Ideal Heat's responsibilities and liabilities under this warranty are legally binding only when all the instructions described in the installation manual and all the measurements in the table have been completely and properly filled and signed by an authorized and professional electrician, and only when the Roll 'n' Warm™ in which a defect has been found, has been inspected by an authorized representative of Ideal Heat and found by him to be out of order due to a problem with a component or defective material.
6. Any claim under this warranty must be made in writing and posted to IDEAL HEAT directly or through an authorized representative within thirty (30) days from the date of the discovery of the defect in the heating mat, and it must reach IDEAL HEAT not later than thirty (30) days from the end of the Warranty Period. The defective heating mat must be retained until receiving further instructions from Ideal HEAT.

7. This warranty does not cover and IDEAL HEAT shall not be held liable for any of the following damages:
 - a)** Damages resulting from normal wear, damages caused wholly or partially, due to abuse, misuse, negligence, inadequate storage, wrong installation, application and/or maintenance as recommended by IDEAL HEAT from time to time and/or unauthorized repairs or alterations of the Roll 'n' Warm™ and other reasons beyond IDEAL HEAT 's control;
 - b)** Damages caused by unfortunate accidents, natural disasters (such as fire, floods, lightning, etc.), force major, acts of war, sabotage or any unforeseen circumstances;
 - c)** Damages caused during shipment In any case it is on the customer part to submit any claim or demand to the freight carrier at the earliest time of shipment or immediately after, and claims for such damages must be filed with the insurer).
 - d)** Indirect, incidental, consequential or any other damages of any nature arising out of use of the Roll 'n' Warm™ M or inability to use it, including, inter alia, damages due to late delivery or non-delivery, damages to property, loss of profits, costs of installation or removal, injury to goodwill, inconvenience, etc., and whether such damages are claimed to arise from breach of contract, in tort, the theory of product liability or otherwise; reservation is solely being made for IDEAL HEAT's statutory liability due to material breach of an essential contractual obligation, express representations, wrongful intent or product liability acts.
8. In cases where IDEAL HEAT personnel or any authorized IDEAL HEAT agent repairs and Roll 'n' Warm™ due to a claim by a customer, and at the end the fault is found to be such that it will not be covered by this warranty, all costs caused by the possible repairs shall be covered by the customer .
9. This certificate and the warranty provided hereunder are issued only for the benefit of the customer and shall not apply for the benefit of any other person or entity, including, without limitation, any client of the customer. This warranty is not transferable without a prior and written consent of IDEAL HEAT.
10. The warranty provided hereunder constitutes the exclusive warranty made by IDEAL HEAT for the Roll 'n' Warm™ and is in lieu of any other warranties, commitments and/or agreements made, or allegedly made, by IDEAL HEAT or any of its employees, agents, representatives or dealers.
11. In no case shall liabilities of IDEAL HEAT exceed the amount which the customer has paid IDEAL HEAT in consideration for the Roll 'n' Warm™ due to which the claim/responsibility has been raised.
12. The remedies hereby provided shall be the exclusive and sole remedies of the Purchaser.
13. All matters relating to this warranty shall be governed by the laws of the State of Israel, regardless of any rules relating to the conflict of laws which may apply; and the competent courts in Tel Aviv, Israel shall have sole and exclusive jurisdiction with regard to any dispute related to this warranty.

Please fill in and keep record of the installation details:

Date of purchasing:	Date of installation:
Voltage:	Wattage:
Measured resistance value:	Measured insulation value:
Thermostat model:	Type and insulation:
Comments:	
Floor scheme: please draw the heating mats location , Thermostat and temperature sensor placement:	



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