SNO MELTER® by EASYHEAT®

THE COST-EFFECTIVE WAY TO REMOVE ICE AND SNOW

UL® LISTED

Sno*Melter® electric mats are designed to be embedded in concrete or asphalt, either as part of a new installation or when repaving.

Because the snow melting mats operate for relatively short periods each winter, operating costs are less that most other snow and ice removal methods.

Operating costs for your area will depend upon the total hours of snowfall and upon the heating capacity you specify. Our recommended heat density of 50 watts (nominal) per square foot provides quick response time, especially when used with automatic control. In most cases, snow will melt at a rate that keeps up with average snowfall, minimizing accumulation of snow on the heated surface. In a heavy snowfall, when snow accumulates at a faster rate, extra heating time will be required for complete removal. An automatic control, set to allow additional running time after snowfall stops, ensures dry pavement and minimizes icy spots.

Electric snow melting systems are a practical, economical way of preventing the buildup of ice and snow on steps, walkways, driveways, parking areas, loading docks and even roads.

Compare electric mats with traditional snow removal methods:

1. No damage to concrete or asphalt from salt or other chemicals.
2. No messy buildup of sand.
3. No waiting for snow-clearing service personnel.
4. No investment in snowblowers, shovels, plows, and other expensive equipment.
5. No labor costs.

Sno*Melter® electric mats are more effective than traditional methods. Just turn on to create a heated surface that melts snow as it falls. There are no moving parts. Properly installed, mats normally provide trouble-free service as long as the pavement or concrete in which they are embedded is not disturbed or damaged. Electric mats provide reliable, convenient snow melting.

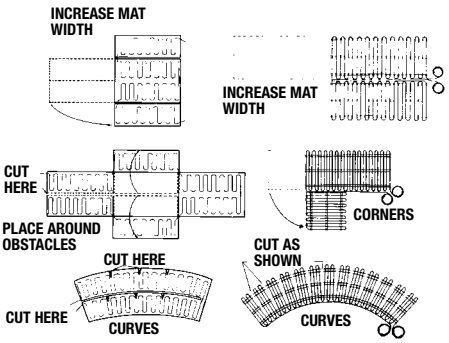
INSTALLING ELECTRIC HEATING MATS

Both Sno*Melter® and Custom Sno*Melter® mats are easily installed. Sno*Melter® mats can be reshaped on the job site to protect areas which would be normally left unheated or require special sizes or additional connecting splices. The advantages are simplified installation, fewer electrical splices, uniform heat pattern and lower material and labor costs.

NOTE: Sealed heating cable must not be cut or altered, and cable loops must be at least 1 inch (2.5 cm) apart.

The following drawings illustrate some of the possibilities.

MAT DESIGNS



ARCHITECTS' & ENGINEERS' SPECS

The following description is provided to assist architects and engineers wishing to specify the installation of Easy Heat heating mats.

Supply and install (quantity _____) Easy Heat electric heating mats for use on _____ volts.

Heating mats shall consist of an insulated resistance wire, spaced on a predetermined pattern and bonded to form a mat. The heating cable shall be a resistance wire core, insulated with .032 inch (.8mm) of 90°C thermoplastic compound with a nylon jacket. A No. 18 AWG copper mesh shall be braided over the nylon jacket to provide a means for grounding the heater. An additional jacket of .020 inch (.5mm) polyvinyl chloride insulation shall be extruded over the copper braid.

The heating cables shall be complete with minimum 10 feet (3m) of cold lead at each end as standard. Heater wire and cold lead must be factory-assembled with a waterproof molded splice connection.

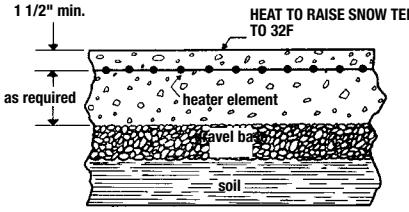
The cold leads shall be stranded copper conductor insulated with .032 inch (.8mm) PVC and nylon jacket. No. 18 AWG copper mesh shall be braided over the conductor to provide a means for grounding the heater, and an additional PVC jacket shall be extruded over the braid. The cold lead shall be No. _____ AWG (as determined by maximum allowable amperage).

Each unit shall dissipate approximately _____ watts per square foot when energized with _____ volts.

The complete unit shall conform to standards specified by UL. Installation shall be in accordance with the NEC (National Electrical Code) and the manufacturer's specifications as listed by UL. Failure to follow these specifications could result in a hazardous condition arising.

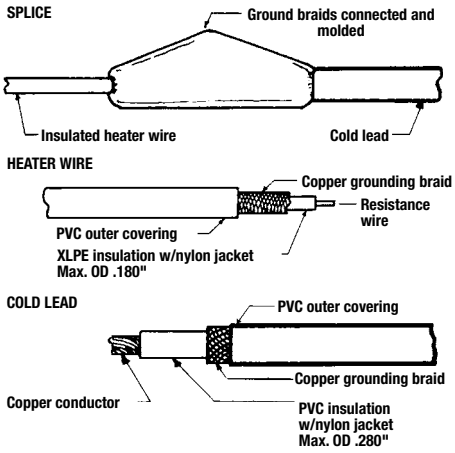
HOW THEY WORK

The drawing below shows how heating mats operate within a poured concrete or asphalt slab. Close-spaced, low-temperature, mat-formed heating wire effectively heats asphalt and concrete; provides fast, economical installation; and assures an even distribution of low-temperature heat over the entire surface. This eliminates strips of snow or ice often left by cable systems with a heating pattern which is too wide.



DEPENDABLE PERFORMANCE FROM QUALITY MATERIALS

Electric heating mats are manufactured from quality materials to provide maximum performance under extreme weather conditions. Resistance wire and copper grounding braid are separated by XLPE insultion with a rugged PVC outer covering protecting the entire assembly.



CAUTION

Mats installed in poured concrete must not cross expansion or control joints.

Note: Completed project registration form required. Form is included with each mat.

EASYHEAT®

SNO*MELTER® STANDARD SIZE SPECIFICATIONS

Specify Voltage Code: (8) 208V, (2) 240V, (7) 277V, (4) 480V.

Part No.	Length (ft.)	Area (Sq. Ft.)	Total Watts	208 (8) Amps	240 (2) Amps	277 (7) Amps	480 (4) Amps
18 Inches Wide							
G 05 × 18-( )-50	5	7.5	375	1.8	1.6	1.4	.8
G 06 × 18-( )-50	6	9.0	450	2.2	1.9	1.6	.9
G 07 × 18-( )-50	7	10.5	525	2.5	2.2	1.9	1.1
G 08 × 18-( )-50	8	12.0	600	2.9	2.5	2.2	1.3
G 09 × 18-( )-50	9	13.5	675	3.2	2.8	2.4	1.4
G 10 × 18-( )-50	10	15.0	750	3.6	3.1	2.7	1.6
G 15 × 18-( )-50	15	22.5	1,125	5.4	4.7	4.1	2.3
G 20 × 18-( )-50	20	30.0	1,500	7.2	6.3	5.4	3.1
G 30 × 18-( )-50	30	45.0	2,250	10.8	9.4	8.1	4.7
36 Inches Wide							
G 04 × 36-( )-50	4	12.0	600	2.9	2.5	2.2	1.3
G 05 × 36-( )-50	5	15.0	750	3.6	3.1	2.7	1.6
G 10 × 36-( )-50	10	30.0	1,500	7.2	6.3	5.4	3.1
G 15 × 36-( )-50	15	45.0	2,250	10.8	9.4	8.1	4.7
G 20 × 36-( )-50	20	60.0	3,000	14.4	12.5	10.8	6.3
G 30 × 36-( )-50	30	90.0	4,500	21.6	18.8	16.2	9.4

SNO*MELTER® STEP MAT STANDARD SIZE SPECIFICATIONS

Specify Voltage Code: (8) 208V, (2) 240V, (7) 277V, (4) 480V.

				208V (8)			240V (2)			277V (7)			480V (4)		
Catalog No.	Tread Size	No. Steps	Lbs. Ea.	W/Sq. Ft.	Watts	Amps	W/Sq. Ft.	Watts	Amps	W/Sq. Ft.	Watts	Amps	W/Sq. Ft.	Watts	Amps
2M( )-3-0 × 8	3′ × 8″	2	3	50	200	1.0	50	200	.8	50	200	.7	NOT AVAILABLE		
3M( )-3-0 × 8	3′ × 8″	3	4	50	300	1.4	50	300	1.3	50	300	1.1	NOT AVAILABLE		
2M( )-6-0 × 8	6′ × 8″	2	3	50	400	1.9	50	400	1.7	50	400	1.4	NOT AVAILABLE		
3M( )-6-0 × 8	6′ × 8″	3	4	50	600	2.9	50	600	2.5	50	600	2.2	NOT AVAILABLE		

Mats are shipped with standard 20-foot cold leads. Additional cold lead is available in increments of 5 feet.

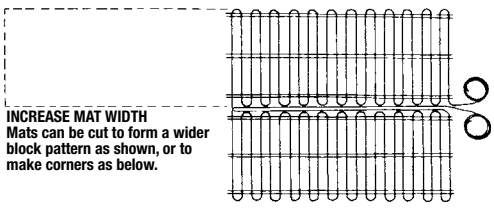
CUSTOM SNO*MELTER® MATS

CUSTOM HEATING MATS

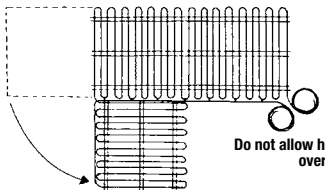
Mats can be custom designed to your specifications to fit any location or unusual shape. These versatile units are completely pre-assembled using high grade heater wire protected by XLPE and nylon inner jackets, then covered with a copper grounding overbraid and enclosed in a PVC outer jacket.

The mats have PVC bonding cords which can be cut to conform to curves, corners and various odd shapes. They can be adapted to fit around such objects as drains, columns and other permanent fixtures.

Heater wires are closely spaced for even heat distribution to keep surfaces clear. Mats come in various widths and lengths, and are available in voltages up to 480VAC. Contact Easy Heat for details.



INCREASE MAT WIDTH
Mats can be cut to form a wider block pattern as shown, or to make corners as below.

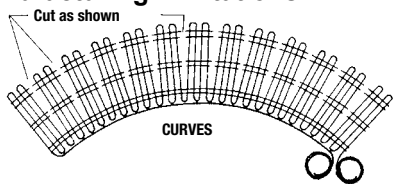


CORNERS
Do not allow heater wire to overlap or touch.

SHAPE MATS AROUND CURVES AND OBSTACLES

Mats may be tailored to follow contours of curves and around objects by making a series of cuts as shown in the following drawings. Extreme care should be exercised to prevent cutting the heater wire during this operation. To form mat to curve, cut and shape as shown. Number of cuts required will depend upon length of mat and radius of curve.

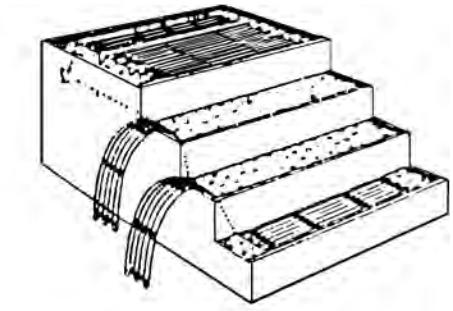
Manufacturing Limitations



Maximum amperage per mat – 20 amps.
Maximum wattage per mat – Multiply amerage (20) by operating voltage.
Example:
20 Amps x 120 Volts = 2400 Watts
Maximum length – 45 ft.
Maximum width – 72 inches.
Maximum mat size – Divide total wattage by watts/sq. ft.:
Example:
2400 = 60 square feet
40 w/sq. ft.
For widths over 72 inches up to 144 inches, order mats twice as long, half as wide, cut and double-back.
Voltages – 120, 128, 240, 277 and 480 volts.
Wattages – Up to 72 watts per square foot.
Mats are supplied with 10 foot cold leads as standard.

SNO*MELTER® STEP MATS

Embedded mats with 10-foot cold leads. All section mats will melt snow and ice from 12-inch wide treads. For wider treads, order Customized Mats for exact requirements.



Manufacturing Limitations

Minimum area per set – 6 sq. ft.
Maximum amperage per mat – 20 amps.
Maximum number of steps – 8
(Risers are 8" unless otherwise specified.)
Voltages – 120, 208, 240, 277 and 480 volts.
Wattages – Up to 72 watts per square foot.
Minimum billable square footage is 6 sq. feet.
Mats are supplied with 10' cold leads as standard.

UNIT SELECTION

Selection of snow melting mats is accomplished by determining the size of the area to be heated and the voltage available. Mats should be sized within the limitations shown below.

To determine proper mats:

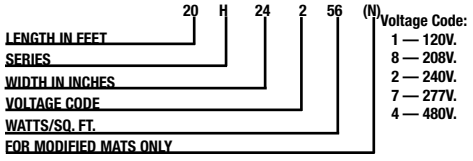
1. Determine size of mats, allowing for expansion and construction joints, obstructions, etc. **DO NOT USE MATS OVER 20 FEET LONG IN CONCRETE OR CARRY THROUGH JOINTS.**

2. Assign a part number for all mats as shown below. Use 1-inch increments for all dimensions.

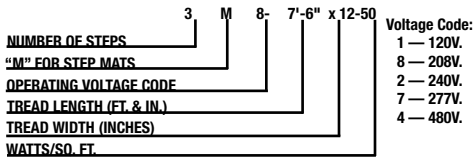
3. Orders for modified mats must include scale drawings showing exact shape, size and point where leads exit.

Operating Voltage	Max. Watts Per mat	Min. sq. ft.	Max. sq. ft.
208	4160	3 1/2	83
240	4800	4	96
277	5540	4 1/2	111
480	9600	8	192

TYPICAL SNO*MELTER® PART NUMBER



TYPICAL SNO*MELTER® STEP MAT PART NUMBER



PLANNING INSTRUCTIONS

1. **GENERAL.** Measure and plan area to be protected by snow melting mats and allow for obstructions such as light poles, etc. For total snow removal, select mats to cover the entire area—See Section (A), Figure 1. For large installations, it may be desirable to melt snow and ice only from most frequently used areas such as tracks for trucks and autos and for walkways—Section (B) Figure 1. Also consider the possibility of planning for separate circuits so that areas within the system can be heated independently as required.
2. *FOR CONCRETE:* Determine location for expansion joints which must be placed wherever the slab changes size or direction and at **no more than twenty feet maximum between joints**—Section (C), Figure 1. **MATS MUST NOT BE RUN THROUGH EXPANSION JOINTS, CONSTRUCTION JOINTS OR CONTROL JOINTS.** Concrete forms may be inaccurate, so allow 2 to 4 inches on each side of the mats for clearance. Allow approximately 4 inches between adjacent mats at expansion joints.
   FOR ASPHALT: Select the largest units which can be used on the straight runs. Place mats at least 12 inches in from the pavement edge. Adjacent mats must not overlap.
3. **JUNCTION BOXES.** In most cases, the ideal location for junction boxes is indoors with at least 18 inches of accessible mat leads. When planning the location of the junction boxes, it is important that at least one foot of mat lead remains embedded in the concrete.
   If it is necessary to locate junction boxes outdoors; it is recommended that they be located above grade. The junction boxes shall be listed with UL for raintight applications.
   Where it is absolutely necessary to place junction boxes below grade or in the pavement, use only watertight junction boxes recommended by the box manufacturer.
   All below-grade junction boxes must be filled with a potting compound suitable for the application.
4. **WIRING.** All wiring must conform to Local and National Electrical Codes. The National Electrical Code (NEC) requires the use of ground fault protection with fixed outdoor deicing. (Section 426-53). Be sure all wiring complies with this requirement. Junction boxes should be located so that the maximum number of mats can be accommodated by each box. **A BUSHING MUST BE PROVIDED TO PROTECT THE WIRE FROM ABRASION WHERE IT EXITS FROM CONDUIT.**
   Double pole, single throw switches, or tandem circuit breakers to open both sides of line should be used, except where cables are common phase to neutral. Locate switch gear in any protected, convenient location. It is also advisable to include a pilot lamp on the load side of each switch so that there is a visual indication when the mats are energized.
   The use of a high limit temperature control is suggested to prevent the snow melting system from being energized during warm weather. An interlock, set at 45°F-50°F (7°C-10°C) can be connected in series with the main contactor coil allowing the system to operate only when needed.
   Consider automatic control of snow mats. Automatic control can lower operating cost and improve snow melting efficiency. The system turns on at the start of snowfall and melts snow as it falls, reducing operating time to clear pavement. Easy Heat makes a complete selection of controls for Sno*Melter® electric heat mats. Contact your sales representative for information.
5. **GENERAL CHECK LIST.** The heated area should be planned with the following in mind:
   CONCRETE:
   A. Well prepared base.
   B. Adequate drainage to prevent accumulation of water and resultant heaving (frost damage.)
   C. Sufficient concrete slab thickness, 4-inch minimum. Crushed rock aggregate recommended.
   D. Suitable reinforcing.
   E. Sufficient number of expansion joints. On sloping ground, the expansion joints must be closer together.
   F. Mats must be placed at least 1.5 inches but no more than 3.5 inches below the finished surface, per national Electrical Code Article 426-20.

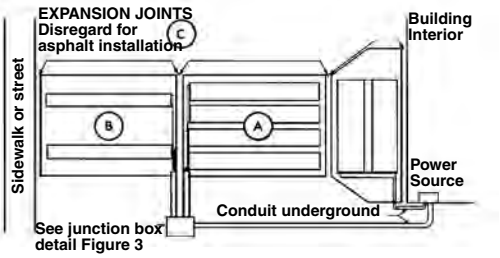


FIGURE 1

ASPHALT:

A. Well prepared base.

B. Adequate drainage to prevent accumulation of water and resultant heaving (frost damage.)

C. When placing mats on existing pavement, either concrete or asphalt, it is important to remember that heating wires are to be surrounded by fresh (new) paving material. Covering must be 1.5 inches to 3.5 inches of concrete or compacted asphalt. If signs of cracking or heaving are apparent, the pavement should be replaced. Do not place mats over existing expansion or construction joints.

D. Use as fine a grade of asphalt as possible for top course;no stone should exceed 3/8-inch diameter.

GENERAL INSTALLATION INSTRUCTIONS

1. Locate raintight junction boxes above ground per plan. Run power supply conduit underground, outside the slab, or in prepared base as described in item **3** of **PLANNING INSTRUCTIONS**. See Figure 1. For concrete, this should be done prior to placement of reinforcing mesh.
2. Connect a megger between the copper grounding braid and the inner conductor on one lead of the mat. Set the megger at 500V (minimum) and measure the resistance. The resistance should be greater than 10 megohms. This test asssures that the mats have not been damaged during shipment or subsequent handling.
   Next, connect an ohmmeter between the inner conductors of both mat leads. Measure the resistance of the mat. Using the chart, be

certain that the mat resistance is appropriate for the marked wattage and voltage. Repeat the above test for each mat used in the installation.

3. Thread mat lead wires through conduit stubs and bushing into junction box. Diameter of lead wire for conduit sizing is approximately .280 inches. Lay mats in position to check original layout and spacing. Leave sufficient slack in lead wires to permit handling units; lay mats temporarily out of the way for initial portion of pour.
4. When the slab can be walked on, splices of the junction boxes can be made and feeder lines installed if not done earlier. Twist together a length of the copper grounding braid from all leads and positively connect to a continuous No. 14 AWG, or larger, insulated copper wire extending to the distribution panel ground. (Figures 3 and 5).
5. Secure all splices with approved pressure-crimped connectors or set-screw type wiring clamps. Thoroughly tape all power splices with plastic electrical tape. All connections in below-grade junction boxes **must** be protected by a suitable potting compound.
6. **Care should be taken not to exert undue force when pulling cold leads.**

Approximate resistance (Ohms) and Ameperage

Total	Ohms				Amperage			
Watts	208V.	240V.	277V.	480V.	208V.	240V.	277V.	480V.
300	144	192	256	768	1.44	1.25	1.08	.63
400	108	144	192	576	1.92	1.67	1.44	.83
500	87	115	153	460	2.40	2.08	1.18	1.04
750	58	77	102	308	3.61	3.13	2.71	1.56
1000	43	58	77	232	4.81	4.17	3.61	2.08
1500	29	38	51	152	7.21	6.25	5.42	3.13
2000	22	29	38	116	9.62	8.33	7.22	4.17
2500	17	23	31	92	12.01	10.42	9.03	5.21
3000	14	19	26	77	14.42	12.50	10.83	6.25
4000	11	14	19	58	19.23	16.67	14.44	8.33
5000	9	12	15	46	24.04	20.83	18.05	10.41
6000	7	10	13	38	28.85	25.00	21.66	12.50
7000	6	8	11	33	33.65	29.17	25.27	14.58

CONCRETE SLAB

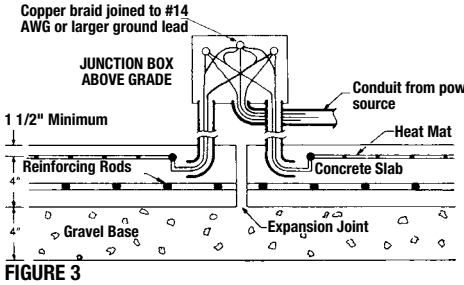


FIGURE 3

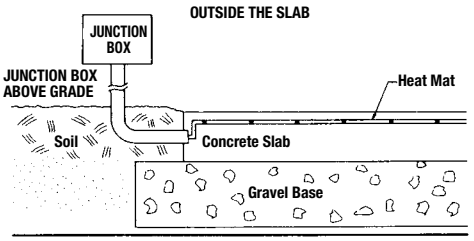


FIGURE 4

ASPHALT SLAB

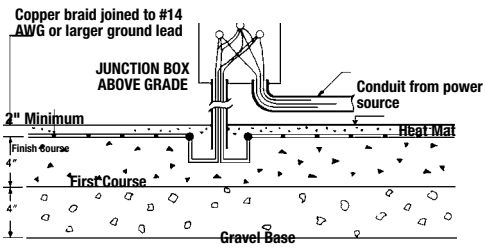


FIGURE 5

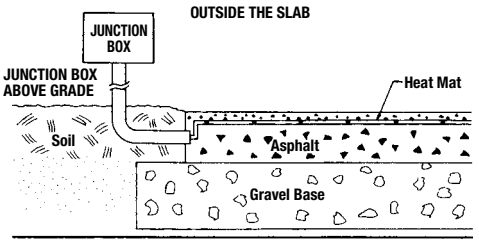


FIGURE 6

INSTALLATION IN CONCRETE

1. Concrete can now be poured. Pour concrete to within 2 inches of finished grade level and roughly level off. As an area to be heated is poured and leveled, reposition unit. Bury excess lead wire in the concrete.
2. Again check units with ohmmeter and megger to determine that no damage has occurred during installation. Continue by covering units with final 2 inches of concrete and finish off.
3. Proceed with pouring of successive areas. Pour to within 2 inches of finish level; position and check the units. Pour the balance of concrete and finish the surface. It is recommended that each slab area within expansion joints be poured and finished individually.

INSTALLATION IN ASPHALT

1. Pour and roll the base course. If units are placed on any existing surface, make sure it is swept well to remove any sharp material that could puncture wire during the installation.
   NOTE: On "resurfacing" jobs where frost heaving or cracking has occurred, apply a full first course, then the heat mats, then a finish course. When installing heat mats on EXISTING asphalt, use an asphalt TACK COAT for a good bond.
2. Apply a coat of bituminous binder to the first course surface. Place the mat and apply a coating of binder over the mat. Proceed with the 2-inch topcoat. It is advisable to cover the entire mat in one continuous slab.
   NOTE: DO NOT run rollers or trucks over uncovered mats. If necessary, mats may be moved aside and later repositioned by the electrical contractor.
   AVOID ALLOWING CHUNKS OF MIX UNDER MATS, WHICH WOULD PREVENT MATS FROM LYING FLAT. TAKE CARE NOT TO DAMAGE MATS OR DISTURB THEIR POSITIONS WHILE RAKING AND SPREADING. Use shovels with extreme care as they can cut cables. Paved area may be rolled with any size power roller. NEVER stop roller on a grade while compacting second course, as this will cause asphalt to slide, damaging mats. Hand tamp around junction boxes.
3. Again check the units with ohmmeter and megger after the final course to be sure no damage has occurred during installation.
4. Proceed with paving of successive areas. Pave to within 2 inches of finished level; position and check the units. Lay the balance of paving material and finish the surface.

CAUTION

1. Do not pour concrete or asphalt in freezing weather. Freezing will cause concrete to be of poor quality or cause poor bonding of asphalt, necessitating early replacement and resultant loss of embedded mats.
2. Units must remain approximately 2 inches below the finished level. Caution workers not to walk on units and not to strike units with shovels or other tools.
3. Concrete must be continuous pour; i.e., pour concrete to within 2 inches of final grade level; position and check mats and continue pour. This will result in a monolithic slab.
4. For asphalt installations, be sure bituminous binder is placed on both the base course under the mat and over the mat before placing the final course.
5. When using a brick paver top, mats should be placed no less than 1.5 inches and no more than 3 inches below paver top. Mats must be embedded in concrete or asphalt base. Pavers must not be placed in contact with mats.
6. Do not energize mats until concrete has thoroughly cured or asphalt has hardened.
7. Units are UL listed for use in wet locations. Therefore, it is important that all field connections must be waterproof. The use of approved exterior type junction boxes, fittings and snug bushings, plus care in taping the connections, will assure a safe and trouble-free electric heating mat installation.
8. It is required that all products listed by UL be properly identified. Therefore, if the leads on these mats are shortened, be sure that a minimum 6 inches of cold lead with the identification tag is retained within the junction box.

EGS Electrical Group

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