

# Warm Tiles

THE FINE ART OF FLOOR WARMING™

## INSTALLATION INSTRUCTIONS FOR DFT CABLE SETS

DIRECTIVES EN FRANÇAIS À L'ENDOS



*Dual Cable: no return required!*

### 120V DFT WARM TILES® CABLE KITS

Heated Area per Design Installation		Catalog Number	Quantity & Colors of Cartons for this Area		Amps
Standard Spacing* (3" centers)	Alternating Spacing** (3"-1½" centers)				
9 - 13 SQ FT	7 - 9 SQ FT	DFT1011	1 blue/bleu		1.1
14 - 18 SQ FT	10 - 13 SQ FT	DFT1016	1 red/rouge		1.6
19 - 26 SQ FT	14 - 19 SQ FT	DFT1022	1 green/vert		2.2
27 - 34 SQ FT	20 - 26 SQ FT	DFT1030	1 yellow/jaune		3.0
35 - 42 SQ FT	27 - 33 SQ FT	DFT1039	1 purple/violet		4.0
43 - 54 SQ FT	34 - 39 SQ FT	DFT1048	1 orange		5.1
55 - 65 SQ FT	40 - 48 SQ FT	DFT1059	1 brown/marron		6.4
66 - 75 SQ FT	49 - 56 SQ FT	DFT1030 & 1039	1 YELLOW/JAUNE 1 PURPLE/VIOLET		7.0
76 - 86 SQ FT	57 - 64 SQ FT	(2) DFT1039	2 PURPLE/VIOLET		8.0
87 - 108 SQ FT	65 - 78 SQ FT	(2) DFT1048	2 ORANGE		10.2

\* Use Standard spacing on most floors.

\*\* Use Alternating spacing on concrete slab floors or in rooms with excessive heat loss such as solariums.

### 240V DFT WARM TILES® CABLE KITS

HEATED AREA PER DESIGN INSTALLATION		Catalog Number	Amps
Standard Spacing (3" centers)	Alternating Spacing (3"-1½" centers)		
18 - 25 SQ FT	13 - 19 SQ FT	DFT2021	1.1
26 - 35 SQ FT	20 - 27 SQ FT	DFT2031	1.6
48 - 55 SQ FT	35 - 44 SQ FT	DFT2053	2.6
60 - 70 SQ FT	45 - 54 SQ FT	DFT2065	3.3
71 - 83 SQ FT	55 - 63 SQ FT	DFT2078	4.0
90 - 100 SQ FT	64 - 75 SQ FT	DFT2095	5.1
110 - 130 SQ FT	84 - 94 SQ FT	DFT2118	6.3
131 - 145 SQ FT	95 - 108 SQ FT	DFT2137	7.5
146 - 165 SQ FT	109 - 125 SQ FT	DFT2157	8.4
166 - 184 SQ FT	126 - 138 SQ FT	DFT2175	8.8
185 - 204 SQ FT	139 - 153 SQ FT	DFT2195	9.6
205 - 225 SQ FT	154 - 169 SQ FT	DFT2215	10.7

### CONTROLLER & ACCESSORIES

Model	Description
FTS-1	120 VAC 16 Amp Programmable Thermostat Kit
FTS-2	240 VAC 16 Amp Programmable Thermostat Kit
ET-1	120 VAC 16 Amp NON-Programmable Thermostat Kit
ET-2	240 VAC 16 Amp NON-Programmable Thermostat Kit
CTK	Concrete Tape Kit

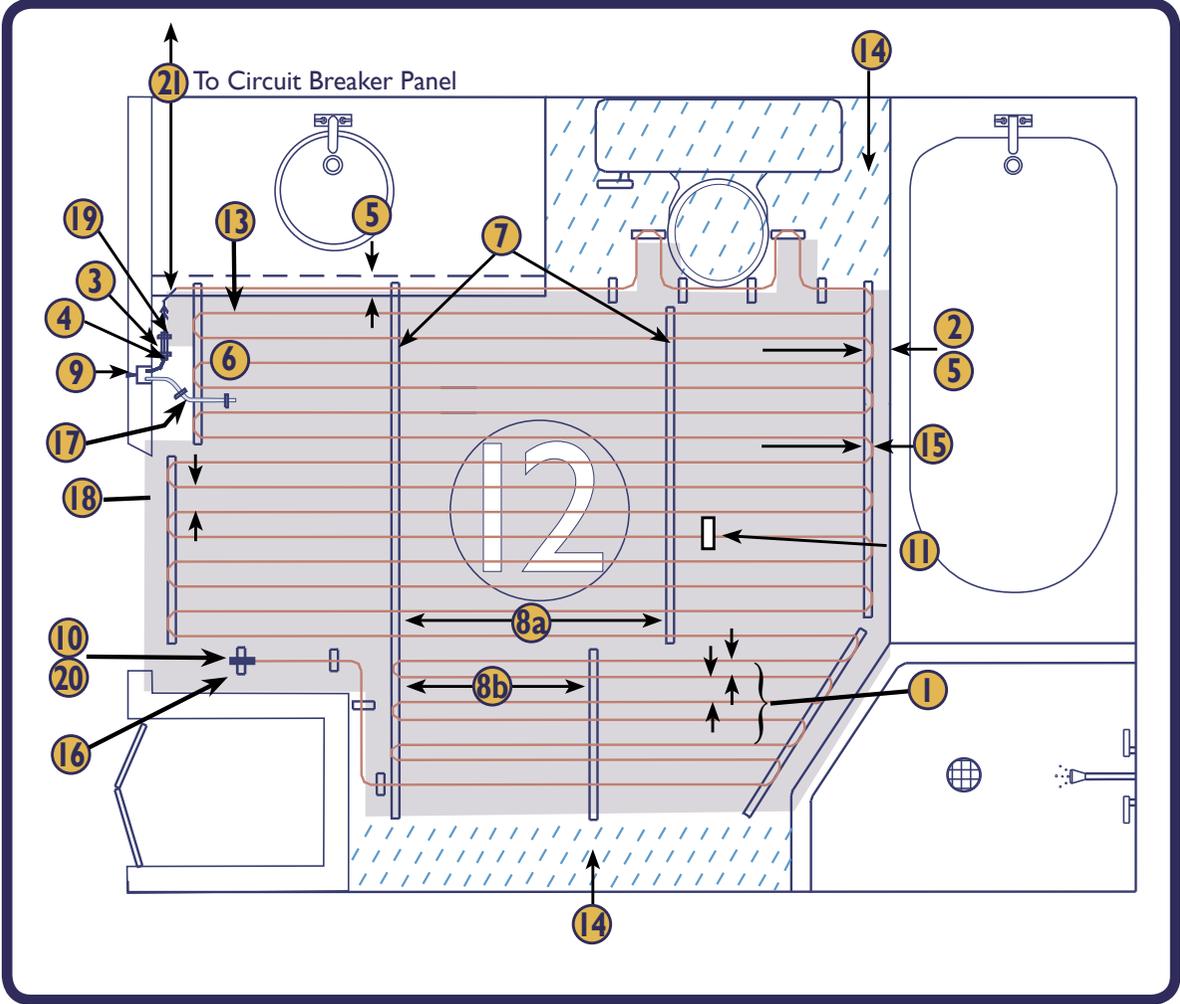
# ! WARNING!

READ BEFORE ATTEMPTING INSTALLATION. FAILURE TO COMPLY WITH THESE WARNINGS OR FOLLOW THE INSTALLATION INSTRUCTIONS PROVIDED WILL VOID THE WARRANTY AND MAY RESULT IN INJURY OR DEATH FROM ELECTRICAL SHOCK OR FIRE. IT MAY ALSO RESULT IN CABLE FAILURE OR IMPROPER SYSTEM OPERATION.

1. *Heating Cable* must not touch, cross or overlap itself at any point. This could cause the cable to overheat, requiring replacement.
2. Do not energize coiled heating cable.
3. Do not install heating cable under carpet, vinyl composition or linoleum type floors, solid hardwood flooring or any type of nailed-down wood flooring. Floor nailing will irreparably damage the cable, void warranty and may result in physical injury or risk of fire. Do not use this system for other types of applications; contact Easy Heat for professional advice.
4. Electrical inspection may be required before, during and/or after installation of the Warm Tiles system. Contact your local electrical inspection authority for more information.
5. Do not alter the length of the heating cable to suit a floor area larger or smaller than the recommended range for that cable. Physical injury or fire may result if altered and will void the warranty. Only the *Cold Lead* (black cable connected to the heating cable) may be cut to suit the location of the *Electrical Connection Box (ECB)*.
6. The entire heating cable, the *Cold Lead Splice* and *Tail Splice* must be embedded in a cement-based underlayment.
7. In cases where the floor is routinely expected to be wet, such as tiled showers, it is recommended that a Ground Fault Circuit Interrupter (GFCI), or equivalent, be installed, in addition to a suitable water impermeable covering. Consult your local electrical and/or building authorities for more information.
8. If the system is connected to a GFCI (or equivalent) which trips during normal operation, and cannot be reset, there is likely a fault in the heating cable. No attempt should be made to re-energize the system. Under no circumstances should the GFCI be bypassed — contact Easy Heat for advice.
9. These instructions have been prepared for use with standard North American building construction practices. If your building construction differs, consult an appropriate electrical professional.
10. Do not bend the heating cable at right angles; minimum bending radius is 3/4".
11. Do not use staples to affix cold lead, heating cables or thermostat sensor wire, as this could puncture the heating cable and cause a system failure. Use only the "EasyLock" Cable Strapping, Ribbon Strapping and plastic clips provided, and only staple according to the method described in Steps 2.3, 2.4 and 2.7.
12. Do not place more than six consecutive/adjacent runs of heating cable at 1 1/2" spacing; doing so will cause the floor area to become too hot and use in this manner is not permitted by electrical codes.

# HEATING CABLE SYSTEM KEY

The DFT Cable Guide and DFT Cable Installation Instructions introduce terminology to identify and explain key DFT Cable Kit components and how they are installed. These terms are italicized each time they appear and are graphically illustrated and explained in the following Heating Cable System Terminology and Key.



# HEATING CABLE SYSTEM TERMINOLOGY

The following terms may appear frequently throughout these instructions in italicized text. Each is graphically illustrated in the key illustration above.

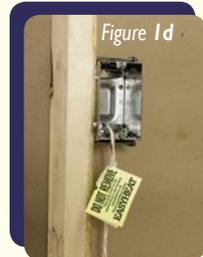
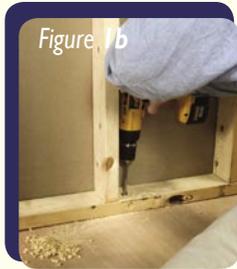
- ① **Alternating Heating Cable Spacing.** The *Heating Cable* configuration used for floors above unheated areas and concrete slabs. Cable is laced through the strapping at repeating spacing intervals of 1 1/2"-3"-1 1/2"-3", etc. using the pre-dimensioned holes of the *EasyLock Cable Strapping* (see also *Standard Heating Cable Spacing*).
- ② **Border Dimension.** Space between the outside perimeter of the *Heating Cable* and the surrounding room walls; may be set to 1 1/2" to 6" as required, to slightly alter the *Heated Area* and enable a proper fit with the selected DFT Cable.
- ③ **Cold Lead Splice.** Factory connection between the *Cold Lead* and *Heating Cable*; must be recessed 1/4" into the sub-floor, due to its slightly larger diameter.
- ④ **Cold Lead.** Non-heated section of cable that transports current to the *Heating Cable* section; has a black outer jacket, covering a copper braid and two inner color-coded conductors (black/white for 120V cables or red/black for 240V cables), and is slightly larger in diameter than the *Heating Cable* section.
- ⑤ **Dimension 1 1/2".** Minimum distance permitted between sections of *Heating Cable* or between *Heating Cable* and walls, vanity kick plates and fixtures.
- ⑥ **Dimension 6".** Minimum distance the sensor wire should extend between two adjacent runs of heating cable, measured from the arc of the *Return Loop*.
- ⑦ **"EasyLock" Cable Strapping.** Coiled plastic strapping used to harness the *Heating Cable* to the floor; may be cut to length as needed.
- ⑧ **"EasyLock" Cable Strapping Spacing.** Distance between parallel rows of the *EasyLock Cable Strapping*. To prevent contact between adjacent runs of *Heating Cable*, a minimum separation must be maintained. For *Standard Heating Cable Spacing* (see 8a in the key) the minimum separation is 30". For *Alternating Heating Cable Spacing* (see 8b in the Key) the minimum separation is 18".
- ⑨ **Electrical Connection Box (ECB).** Customer-supplied electrical enclosure that houses the heating controller for the heating cable system. *Cold Lead* is pulled through the wall cavity and into the *ECB* using the fish cords.
- ⑩ **End-of-Run.** Location where the *Tail Splice* is secured to the sub-floor. With Warm Tiles DFT Cable there is no need to route the *End-of-Run* back to the *Electrical Connection Box*.
- ⑪ **"Half of Cable" Marker.** Label attached to the *Heating Cable* at its mid-point, which should appear during installation at the 'Half-of-Heated Area' line drawn on the floor. Serves as a useful mid-installation check as to whether or not there will be a cable surplus or shortage at the *End-of-Run*.
- ⑫ **Heated Area.** Area physically covered by the *Heating Cable*; typically much smaller than the total room area since it does not include vanities, fixtures and *Low Traffic Areas*.
- ⑬ **Heating Cable.** Section of cable that warms the floor; has clear outer covering with visible underlying copper braid.
- ⑭ **Low Traffic Areas.** Sections of the floor that are seldom walked upon and do not require *Heating Cable* coverage unless it is necessary to use up surplus cable.
- ⑮ **Return Loop.** Location where the *Heating Cable* turns 180° through the *EasyLock Cable Strapping*, forming a loop that extends 3/4" (1" maximum) beyond the strapping cable slots.
- ⑯ **Ribbon Strapping.** Plastic strips, 1" wide and 12" long; may be cut to length and stapled, to fasten to the *Cold Lead Splice* and *Tail Splice* to the floor.
- ⑰ **Sensor Wire.** If a floor temperature-sensing heating controller will be used, it is necessary to install a sensor wire at the same time as the cable system. The sensor wire relays changes in floor temperature to the heating controller, which maintains the floor temperature at the desired level.
- ⑱ **Standard Heating Cable Spacing.** The *Heating Cable* configuration normally used on wood sub-floors located above heated areas. Cable is laced through the *EasyLock Cable Strapping* at a constant spacing interval of 3" between adjacent cable runs (see also **Alternating Heating Cable Spacing**).
- ⑲ **Start-of-Run.** Location of the *Cold Lead Splice*; where the heated section of cable begins.
- ⑳ **Tail Splice.** Factory connection between the *Heating Cable* conductors located at the *End-of-Run* (uncoiled from the spool last).
- ㉑ **Power Supply Wiring.** The 120V or 240V customer-supplied power cable; terminated in the circuit breaker panel and pulled into the *ECB* for connection to the heating controller.

# 1.1

## ELECTRICAL ROUGH-IN: NEW CONSTRUCTION

For new construction it is recommended that rough-in be completed before drywalling begins.

- Determine the appropriate location and height for the *Electrical Connection Box\* (ECB)*. Consider proximity to other outlet boxes, ease of routing *Cold Lead* to the *Heated Area*, and accessibility of the heating controller during normal use. Typically the cold lead enters the same wall cavity in which the ECB is located.
- Install the ECB, adjusting box projection to suit expected wall covering (**Figure 1a**).



Drywall, fixtures and vanities removed for illustrative purposes.

- Prepare a fish hole, first by drilling a horizontal  $\frac{3}{4}$ " diameter hole through the sill plate approximately  $1\frac{1}{2}$ " deep.
- Drill a second  $\frac{3}{4}$ " diameter hole vertically through the sill plate connecting to the first hole (**Figure 1b**). If installation will require two cables, a second fish hole should be drilled a minimum of 4" from the first but within the same wall cavity.
- Clear fish holes of wood chips and install cable guards over holes (drywall ledge at top, facing out) over the holes (**Figure 1c**).
- Install a fish cord through the sill plate, pull through the wall cavity, and secure in the ECB. ONE ADDITIONAL FISH CORD WILL BE REQUIRED IF THE INSTALLATION WILL INCLUDE A FLOOR TEMPERATURE SENSOR.
- Fasten "Do Not Remove" tags to fish cords at the sill plate holes (**Figure 1d**).
- Install *Power Supply Wiring*, but do NOT energize or connect to the heating controller until the finished flooring has been installed. Install conduit if required (consult with your local inspection authority).
- Drywall installation can now be completed and heating cable can be installed later.

\*Typically requires a 15 cubic inch box for single cable installations. Multiple cable sets may require larger boxes. Consult your local electrical authority.

# 1.2

## ELECTRICAL ROUGH-IN: REMODELING PROJECT

For a remodeling project, complete the electrical rough-in as follows:

- Determine the appropriate location and height for the *Electrical Connection Box\* (ECB)*. Consider proximity to other outlet boxes, ease of routing *Cold Lead* to the *Heated Area*, and accessibility to a planned heating controller. The cold lead should enter the same wall cavity in which the ECB is located. Contact your local electrical inspection authority.
- Remove base moldings, and drywall only as required, in areas where fish holes are to be drilled, exposing upper edge of sill plate.
- Drill a horizontal  $\frac{3}{4}$ " diameter hole through the sill plate approximately  $1\frac{1}{2}$ " deep. If installation is planned for two heating cables, a second fish hole should be drilled a minimum of 4" from the first, but within the same cavity (**Figure 1e**).
- Use a chisel to completely notch wood from the sill plate above each hole. Clear fish holes of wood chips and install cable guards (drywall ledge at top, facing out) over the holes (**Figure 1f**).
- Use ECB as template to mark outline on wall. Carefully cut out the minimum possible amount of drywall to prevent the need for wall repair after heating controller has been installed (**Figure 1g**).
- Install a fish cord through the sill plate, pull through the wall cavity and secure in the ECB. ONE ADDITIONAL FISH CORD WILL BE REQUIRED IF THE INSTALLATION WILL INCLUDE A FLOOR TEMPERATURE SENSOR (**Figure 1h**).
- Install *Power Supply Wiring* in the ECB, but do NOT energize or connect to the heating controller. Install conduit, if required (consult with your local electrical inspection authority).

\* Typically requires a 15 cubic inch box for single cable installations. Multiple cable sets may require larger boxes. Consult your local electrical authority



## 2.1 VERIFY SIZE OF HEATED AREA



Figure 2

*Drywall, fixtures and vanities removed for illustrative purposes.*

- Confirm the cable selected will provide the correct coverage by measuring your room floor and determining the square footage to be heated. This is your *Heated Area*. Areas under cabinets or fixtures (toilets, sinks, tubs, etc.) should NOT be included (**Figure 2**). Heating cables may be installed under tiled shower surfaces provided the cables are embedded in a cement-based underlayment and covered by an approved water impermeable membrane. Consult your local electrical and/or building inspection authorities for more information.
- Using the heated area, supply voltage (120V or 240V) and the choice of *Standard or Alternating Heating Cable Spacing*, verify that you have the recommended cable set for your application using Figure 2 of the DFT Cable Guide.

## 2.2 PLAN CABLE ROUTING

- Before installing cable, ensure that all surfaces on which the *Heating Cable* will lie are free of any sharp edges, debris or other restrictions that may cut or otherwise damage the heating cable.
- Carefully measure and locate the mid-point of the *Heated Area* (NOTE: This may differ from the linear mid-point from one end of the room to the other). This will be a useful reference line later, as it should coincide with the "Half of Cable Marker". Using a chalk line or a heavy-tip marker, straight edge and square, mark the 'half of heated area' line. (**Figure 3a**)
- Plan the cable layout on the floor. It may be helpful to outline the cable path on the sub-floor using a suitable marker. (**Figure 3b**)
- Carefully consider the location of *Low Traffic Areas*.
- Allow sufficient space along walls and cabinets for the heating cable *Start of Run*. Heating cable should be within 1 1/2" of any vanity kick plate. The *Border Dimension* may vary between 1 1/2" to 6" depending on the cable coverage range and the size of your room (refer to the section, "Considerations for Installation", in the DFT Cable Guide).
- To simplify mortar trowelling later, consider installing cable runs parallel to the longest wall in the room.

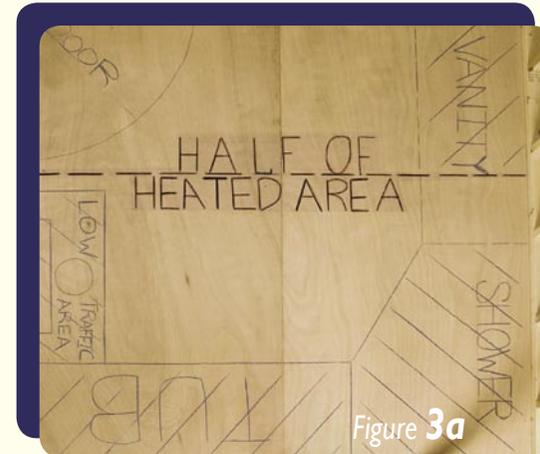


Figure 3a



Figure 3b

## 2.3 INSTALL PLASTIC STRAPPING

30" distance between adjacent rows of strapping

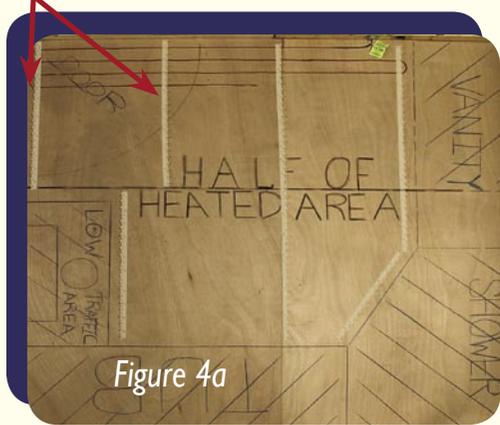


Figure 4a

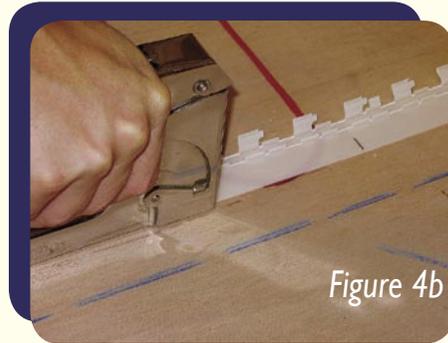


Figure 4b



Figure 4c

- Each cable kit contains a suitable number of rolls of “EasyLock” Cable Strapping, the unique cable strapping system developed by Easy Heat for enabling fast, problem-free heating cable installation.
- Install the cable strapping at 30" to 36" intervals for *Standard Heating Cable Spacing* or at 18" to 24" intervals for *Alternating Heating Cable Spacing* (Figure 4a).
- Staple the strapping to the floor such that the hinged clips will close toward the outside of the cable hairpin turns. The clips should remain open initially, facing upwards at 90° to the floor (Figure 4b).
- On wood sub-floors strapping may be fastened with 3/8" staples (serrated type is preferred), applied at 6" (maximum) intervals. Slide the stapler along the length of the strapping taking care to position staples mid-way between the cable slots in the strapping. Avoid placing staples directly in-line of the cable slots to reduce the possibility of cable contact with a raised or damaged staple.
- On concrete surfaces the plastic strapping may be attached by means of self-tapping concrete anchors or equivalent (Figure 4c). Alternatively, Easy Heat offers a low profile adhesive tape CKT-25 (1 1/4" wide and 25 feet in length), effective for bonding the plastic strapping to clean and smooth concrete surfaces. Please Contact Easy Heat (800/537-4732) for more information.

## 2.4 PULL COLD LEAD AND OPTIONAL SENSOR WIRE INTO ECB; SECURE THE COLD LEAD SPLICE

- It is important to properly de-coil the cable to prevent twisting. Insert a rod (such as a broom handle) through the cable spool hub and support on a ladder or equivalent (Figure 5a).
- Pull the *Cold Lead* from the spool, and using fish cords, pull it through the 3/4" hole in the sill plate, up through the wall cavity and into the ECB. The cable should be pulled until the factory *Cold Lead Splice* on the floor is approximately 12" from the sill plate hole. Allow at least 6" of cold lead to project from the ECB (Figure 5b).
- If you are using a floor temperature controller, such as Easy Heat's FTS-1 or FTS-2, use the fish cords to pull the *Sensor Wire* through the 3/4" sill plate hole, up the wall cavity and into the ECB. Allow at least 6" of sensor wire to project from the ECB. Refer to Step 8 for fastening the sensor wire to the floor.
- Due to the larger cable diameter of the cold lead splice, remove approximately 1/4" of sub-floor material where the splice will be fastened, to eliminate any possible interference with the tile. For wood sub-floors use a utility knife or chisel; for concrete, use an appropriate masonry chisel (Figure 5c). Remove all debris after this step to avoid cable damage.
- Secure the cold lead splice and cold lead to the floor using 2" lengths of flat Ribbon Strapping. Place the ribbon directly over splice and cold lead and staple it to the floor (Figure 5d). ENSURE THAT STAPLES DO NOT PENETRATE THE CABLE!
- Secure any loose Heating Cable between the *Start of Run* and location where heating cable is first laced through strapping, using the the clips provided or by stapling 2" lengths of the “EasyLock” Cable Strapping to the floor.



Figure 5a



Figure 5b

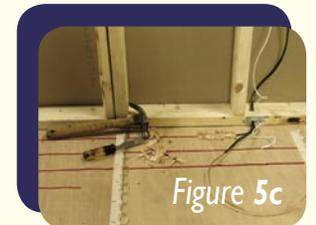


Figure 5c

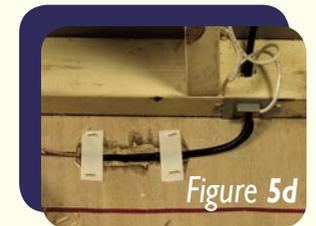


Figure 5d

## 2.5 LACE CABLE THROUGH STRAPPING

- Snap *Heating Cable* (section with clear outer covering and visible underlying copper braid) into the “EasyLock” *Cable Strapping* holes at appropriate intervals (at 3" or every second hole for *Standard Heating Cable Spacing*, and every 3"-1 1/2"-3"-1 1/2" alternating hole for *Alternating Heating Cable Spacing*), and proceed with cable installation following the layout outlined on the floor earlier.
- Carefully pull the *Return Loops* into the hairpin turn ensuring that the cable does not pop out of the slot on either side of the loop. Pulling too firmly or suddenly may cause the cables to disengage from the strapping (**Figure 6a**). The loop should not extend beyond the outside edge of the strapping.
- NOTE: HEATING CABLE MUST BE LACED THROUGH THE STRAPPING IN THE MANNER DESCRIBED. FAILURE TO DO SO MAY RESULT IN IMPROPER SYSTEM OPERATION.
- It is recommended to install the cable without closing the clips until you reach the *End of Run* of the cable layout. If any adjustment in cable spacing is required, it is easier done without having to unlock each of the locking clips. Once the cable layout is complete, close all of the hinged clips. When you hear the locking feature “click”, the cable will be firmly held under the “EasyLock” positive locking system (**Figure 6b**).

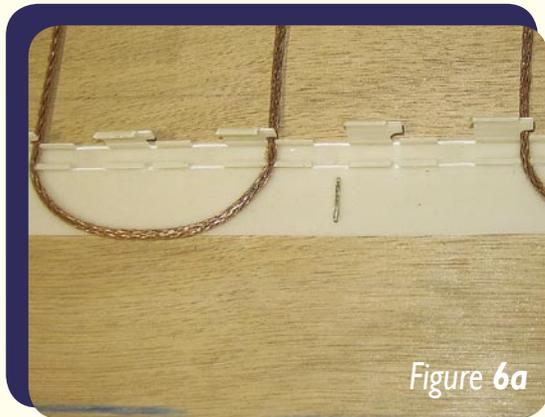


Figure 6a

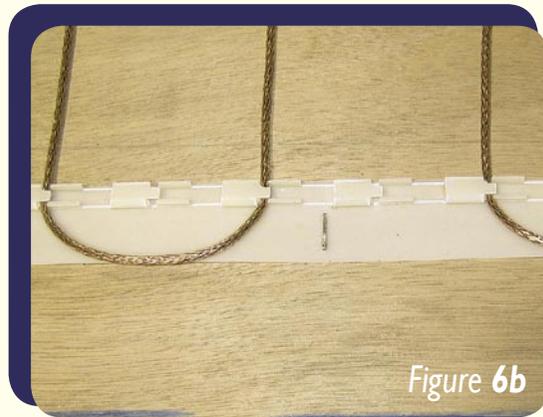


Figure 6b

## 2.6 IF “HALF OF CABLE” MARKER DOES NOT MEET AT “HALF HEATED AREA”

When you reach the “Half of Cable” Marker, pause to evaluate the remaining area.

- If the *Half of Cable Marker* appears **BEFORE** the *Half-of-Area-Line* previously marked on the floor, there will likely be a cable shortage at the planned end of run, the amount of which depends on how far before the line the marker appears.
- For a cable shortage, consider the low traffic areas and *Border Dimension*. Cable can be conserved by avoiding placement in low traffic areas or by increasing the border dimension. The border may be increased to a maximum of 6". To do this, carefully unlace the cable from the strapping and move the strapping away, but no further than 6" from the wall; this will reduce cable usage. (**Figure 7b**). Re-lace the cable according to the method outlined in Step 6. Do NOT increase cable spacing by more than 3" as this will result in a cold floor!
- Once the cable layout is complete, close ALL remaining locking clips on the strapping to ensure maximum wire holding strength and to prevent interference during mortar troweling.
- If the “Half of Cable” Marker appears **AFTER** the *Half-of-Heated-Area-Line* previously marked on the floor, there will likely be a cable surplus at the planned *End of Run*, the amount of which depends on how far past the line the marker appears.
- Surplus cable may be used up by routing it into *Low Traffic Areas*. You may also reduce the cable spacing to 1 1/2" between adjacent runs, provided there are not more than 6 consecutive runs at this compressed spacing (**Figure 7a**). Both methods will help to consume the surplus cable.
- Once the cable layout is complete, close ALL remaining locking clips on the strapping to ensure maximum wire holding strength and to prevent interference during mortar troweling.

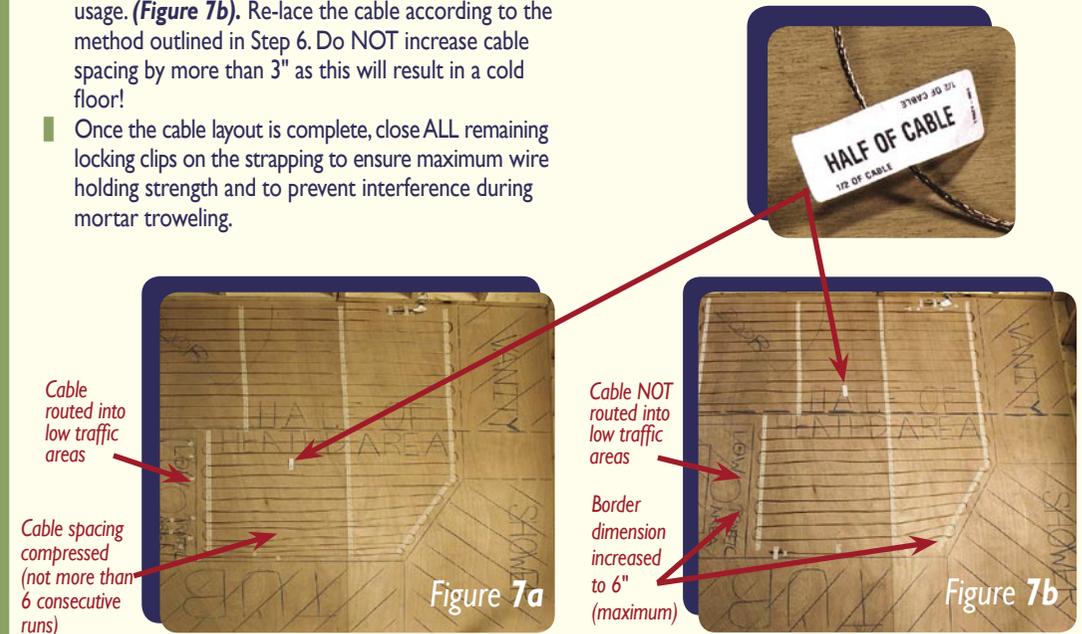


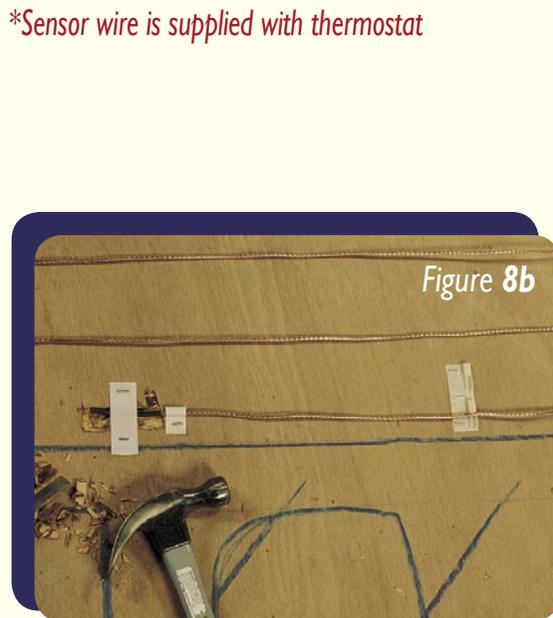
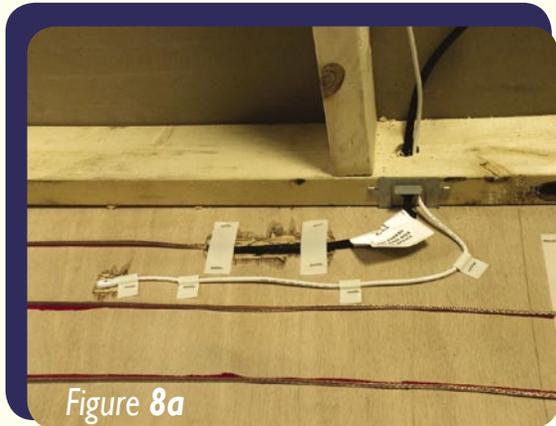
Figure 7a

Figure 7b

## 2.7

### SECURE SENSOR WIRE\*, TAIL SPLICE AND ANY LOOSE HEATING CABLE

- If a floor temperature sensor will be used, position the *Sensor Wire* midway between two adjacent *Heating Cable* runs that are spaced 3" apart. The end of the sensor wire should extend at least 6" in from the *Return Loop* and lay not closer than 1 1/2" to a heating cable.
- Due to the slightly larger diameter of the *Tail Splice* and the bulb of the sensor wire, remove approximately 1/4" of sub-floor material below the splice connection and sensor bulb and secure with *Ribbon Strapping* and/or plastic clips in the same manner described in Step 5 for the *Cold Lead Splice*. Remove all debris after this step to avoid cable damage (**Figure 8a and 8b**).
- Secure heating cable near the *End-of-Run* with the clips provided or by stapling 2" lengths of *EasyLock Cable Strapping* to the floor. ENSURE THAT STAPLES DO NOT PENETRATE THE CABLE OR SENSOR WIRE!

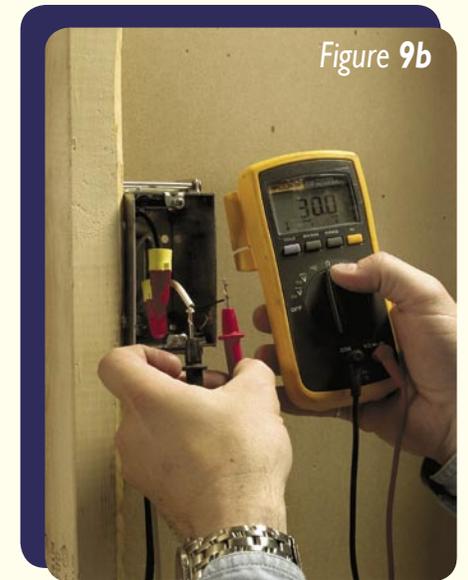


\*Sensor wire is supplied with thermostat

## 2.8

### VERIFY RESISTANCE OF HEATING CABLE & SENSOR WIRE

- Before proceeding with final floor finishing, measure the resistance of the *Heating Cable* and optional *Sensor Wire* to ensure that no damage has occurred to either cable during installation. To measure heating cable resistance, connect the two ohm meter leads to each of the *Cold Lead* conductors (**Figure 9a**). The resistance will be between 10 and 250 ohms. To measure sensor resistance, again connect the two ohm meter leads to each of the sensor wire conductors (**Figure 9b**). The resistance will be between 7 and 14 k-ohms.
- If the resistance of either cable does not fall within the specified range, please contact Easy Heat toll free at (800/537-4732) and DO NOT energize the heating cables.
- If each resistance reading is within the specified range, you may be ready to proceed with floor finishing. NOTE: Your system installation may require an electrical inspection at this time (prior to proceeding with floor finishing). Consult with your local electrical and/or building inspection authorities.



# 3.1

## APPLY SCRATCH COAT OF MORTAR & COMPLETE FLOORING TILE

- Once the cables have been installed on the floor, apply a 'scratch coat of cement-based mortar uniformly over the entire floor area, such that the heating cables are completely embedded. Self-leveling cement-based mortar compounds may be most appropriate for this procedure, but consult with your flooring supplier for advice.
- Follow the compound manufacturer's instructions for preparing the mix.
- Using a straight edge trowel, cover the entire floor area, including areas without cable, to maintain a uniform floor height. Only apply mortar in the direction of the straight cable runs to minimize lateral movement between adjacent cable runs (Figure 10a).



Figure 10a

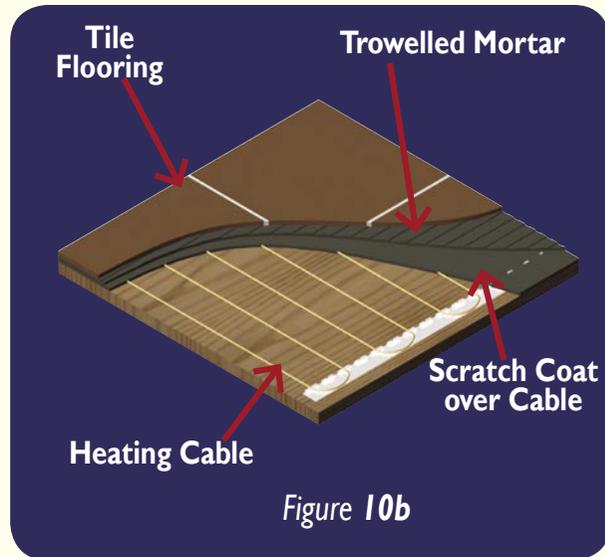


Figure 10b

# 3.2

## APPLY SCRATCH COAT OF MORTAR & COMPLETE FLOORING LAMINATE

- Once the cables have been installed on the floor, apply a 'scratch coat of cement-based mortar uniformly over the entire floor area, such that the heating cables are completely embedded. Self-leveling cement-based mortar compounds may be most appropriate for this procedure, but consult with your flooring supplier for advice.
- Follow the compound manufacturer's instructions for preparing the mix.
- After the mortar is dry, the tile can be set in the usual manner. Floors with heating cables installed are typically  $\frac{3}{16}$ " higher than those without heating cables. Figures 10b and 10c illustrate each of the sub-layers of a finished floor when tile and laminate/engineered wood are used as the floor finishing materials.



Figure 10a

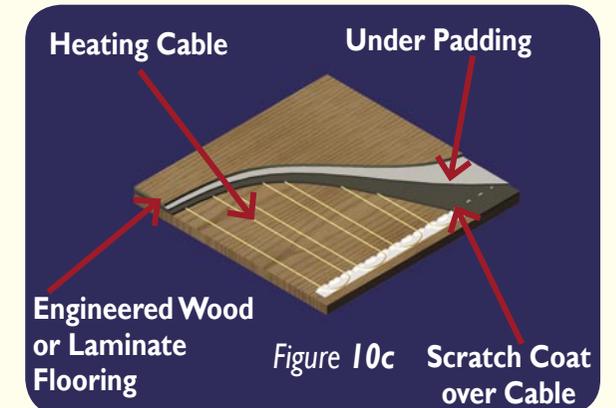


Figure 10c

## 4. CONNECT POWER SUPPLY WIRING & COLD LEAD CONDUCTORS TO HEATING CONTROLLER

*Installation of any heating controller and associated wiring must be in accordance with the manufacturer's instructions and all applicable national and local electrical codes and ordinances.*

Prepare for power supply wiring connections as follows:

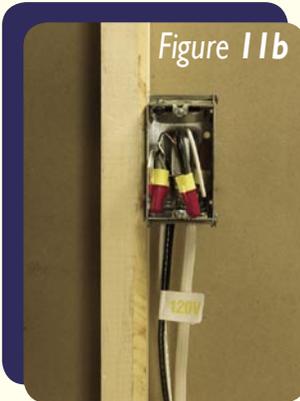
- Ensure the power supply branch circuit has been disconnected and de-energized.
- Prepare the *Cold Lead* for connection to the heating controller: carefully remove 6" of the black outer jacket. AVOID DAMAGING THE UNDERLYING COPPER BRAID! Separate braid wires from the cold lead conductors and tightly twist braid strands together into a single stranded conductor (**Figure 11a**). Connect the ground wire to the ECB.
- Strip ½" of insulation from each of the cold lead conductors.
- Trim excess length from the power supply wiring as necessary, allowing minimum of 6" to project from the ECB. Remove ½" of insulation from each of the power supply conductors. **Figure 11b** shows a 120V application. In 240V applications, the cold lead has red and black insulated conductors.
- Connect *Power Supply Wiring* to the heating controller following the associated manufacturer's instructions.
- Do not energize the system until the mortar/grout materials of the finished floor have fully cured. This will ensure that the setting of the mortar/grout will not be compromised by the heat from the cables – refer to the mortar/grout manufacturers' instructions for cure times.

NOTE: Your system installation may require an electrical inspection at this time. Consult your local electrical and/or building inspection authorities. When you are ready to energize your system, consult the operating instructions associated with the specific heating controller, such as those provided with Easy Heat's FTS-1 and FTS-2 Programmable Controllers or DK-1 Voltage Regulator.

Figure 11a



Figure 11b



*The DFT Cable Guide offers some useful hints on how to configure your system to operate with optimal comfort and efficiency (refer to the section entitled, "Operating Tips").*

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Should you have further questions, comments or concerns regarding Warm Tiles DFT Cable, please call Easy Heat's Technical Department toll-free:

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