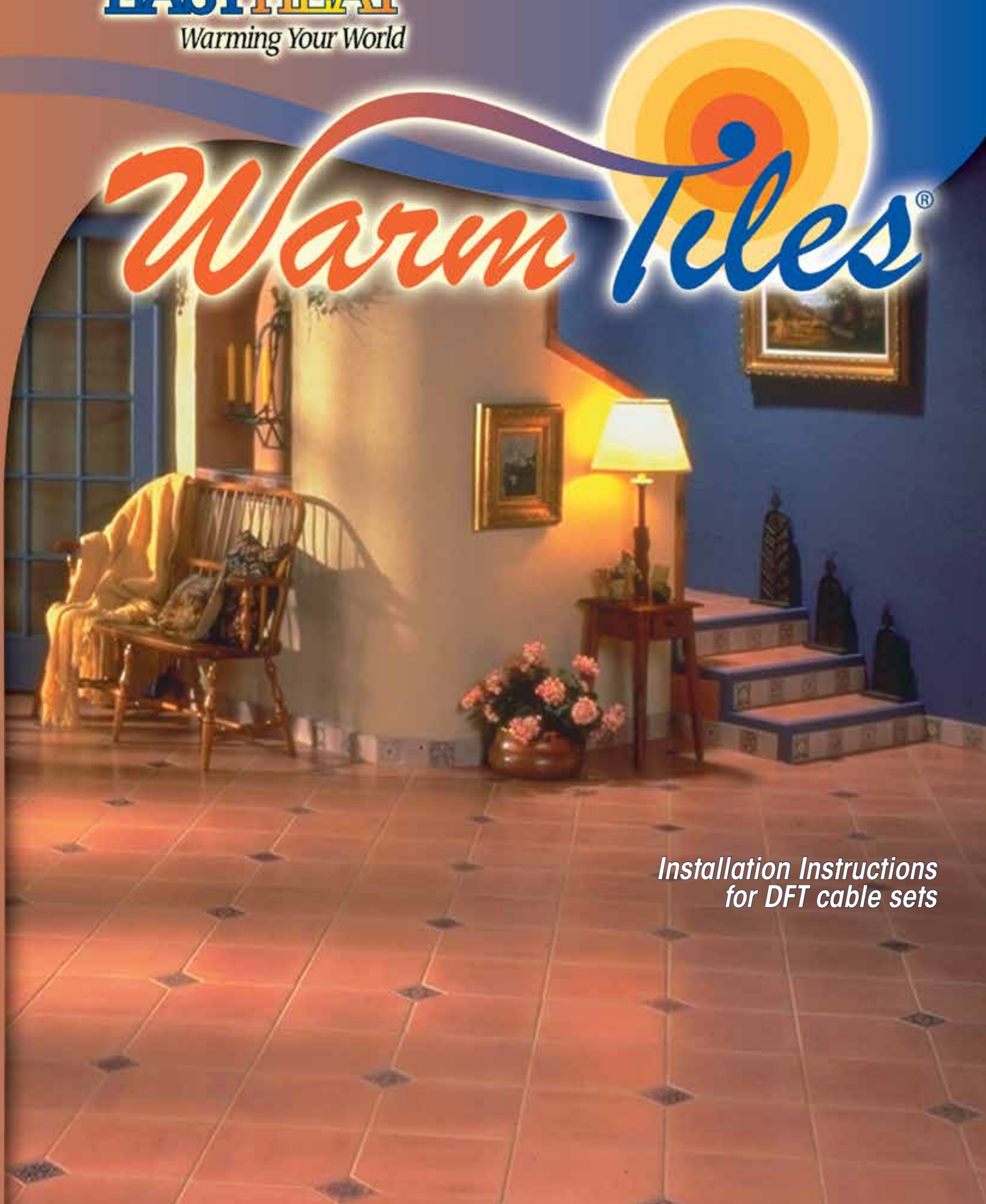
EASYHEAT®
Warming Your World

Warm Tiles®



Installation Instructions
for DFT cable sets

WARNING!

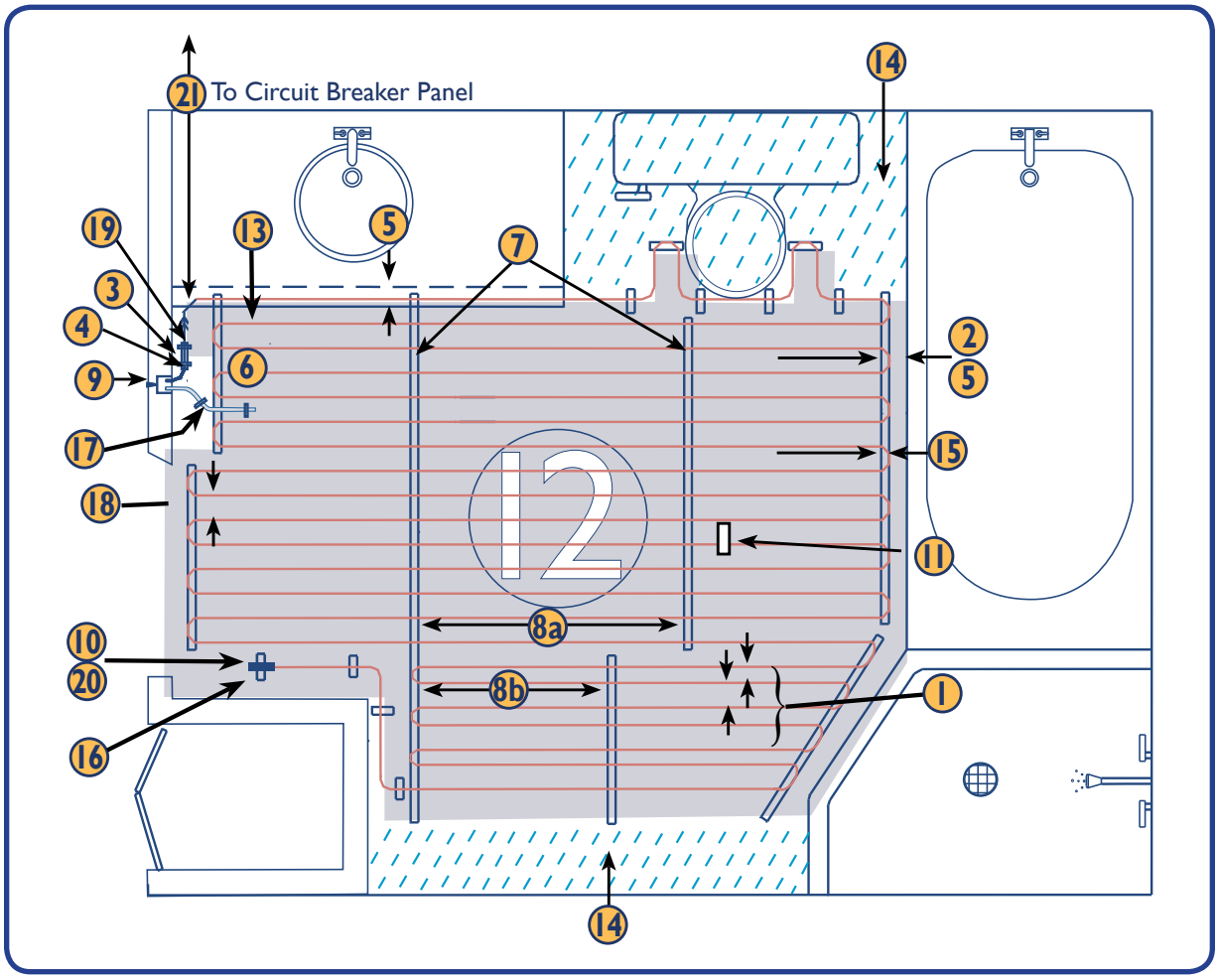
ELECTRIC SHOCK/FIRE HAZARD

READ THE FOLLOWING WARNINGS AND INSTRUCTIONS PROVIDED BEFORE ATTEMPTING INSTALLATION. FAILURE TO DO SO COULD RESULT IN CABLE FAILURE, IMPROPER SYSTEM OPERATION, PROPERTY DAMAGE, BODILY INJURY OR DEATH. FAILURE TO FOLLOW THE WARNINGS AND INSTRUCTIONS WILL ALSO VOID THE WARRANTY.

1. 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 BEFORE BEGINNING INSTALLATION.
2. Do not energize coiled heating cable – the cable will overheat.
3. Heating Cable must not touch, cross or overlap itself at any point and cable must not be closer than 1½" to adjacent cable. This could cause the cable to overheat.
4. Do not install heating cable under any type of nailed-down or stapled flooring. Floor nails and staples can damage the cable resulting in exposed live electrical parts and/or result in the cable overheating.
5. Do not drill or otherwise cut into floors that have Warm Tiles cables – this could result in contact with live electrical parts or could damage the cable causing it to overheat.
6. Do not use the Warm Tiles system for other types of applications, such as snow melting or roof de-icing – the cable is not rated for these types of applications. Contact EasyHeat for professional advice for recommendations on other products for these applications.
7. Do not alter the length of the heating cable to suit a floor area larger or smaller than the recommended range for that cable. Only the Cold Lead (black cable connected to the heating cable) may be cut to suit hook-up in the Electrical Connection Box (ECB). To facilitate product identification and inspection, ensure that a minimum 150mm (6") of cold lead with the factory identification tag is retained within the junction box.
8. The entire heating cable, the Cold Lead Splice and Tail Splice must be embedded in a cement-based underlayment. The heating cable could overheat if not entirely embedded in cement-based underlayment. Never coil unused cable and place in a wall cavity – the cable will overheat.
9. Use caution when trowelling mortar/cement over heating cables – trowels can become sharp and may cut heating cable which could damage the ground braid, electrical insulation and/or expose live heating element.
10. Cables must be at least 0.25" below floor surface; if cables are exposed, they could be damaged which would expose live parts and/or cause the cable to overheat.
11. When installing cable in floors that are routinely expected to be wet, such as tile showers, a waterproofing membrane must be installed ABOVE the cables to keep them dry. The cables are not rated for wet locations, and water could seep into the cable.
12. It is recommended that the circuit supplying the heating cable have ground fault protection; this is mandatory by electrical code for some applications in many regions. In cases where the floor is routinely expected to be wet, such as tiled showers, a Ground Fault Circuit Interrupter (GFCI), or equivalent, must be installed. Additionally, per US National Electrical Code, installation in some rooms, such as bathrooms and kitchens, may require that this product be installed on a circuit protected by a separate Ground Fault Circuit Interrupter (GFCI). Consult your local electrical and/or building authorities to determine the specific ground fault requirements for your application prior to installation. If you are unsure that your circuit has ground fault protection, consult an electrician.
13. If the system is connected to a ground fault protection circuit that 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 ground fault protection be bypassed – contact EasyHeat for advice.
14. Do not bend the heating cable at right angles – this could damage the electrical insulation; minimum bending radius is ¾."
15. Do not use staples to affix cold lead, heating cables or thermostat sensor wire, as this could puncture the heating cable resulting in short circuit or exposed live electrical parts. Use only the cable strapping provided with the system, and only staple according to the instructions.
16. Do not place more than six consecutive/adjacent runs of heating cable at 1 ½" spacing; doing so will cause the floor area to overheat.
17. Only connect cables to the rated voltage – do not use higher voltages as the increased current will cause cable to overheat.
18. Ensure that all electrical control devices, such as thermostats, are properly rated for the heating cable load. Do not overload these devices as they will overheat or otherwise fail.
19. Ensure that copper grounding braid material is directly connected to electrical ground – do not cut the ground braid. If the ground braid is not connected to ground, the heating cable will not be grounded and may not provide the required protection against short circuits or electrical shocks.
20. These instructions have been prepared for use with standard North American building construction practices. If your building construction differs, consult an appropriate electrical professional.

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 tabs of the *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. ***Cable Strapping.*** Coiled strapping used to harness the *Heating Cable* to the floor; may be cut to length as needed.
8. ***Cable Strapping Spacing.*** Distance between parallel rows of the *Cable Strapping.* To prevent contact between adjacent runs of *Heating Cable,* a maximum strapping separation must be maintained. See Section 2.3 for strapping spacing.
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 *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 *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.

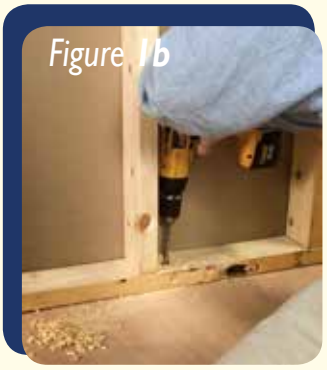
Phase 1 — Power is brought to the electrical control box
Phase 2 — The cable is installed using accessories and instructions provided
Phase 3 — The flooring is finished in the usual manner
Phase 4 — Controller is installed using its included accessories and instructions

1.1 ELECTRICAL ROUGH-IN : NEW CONSTRUCTION

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

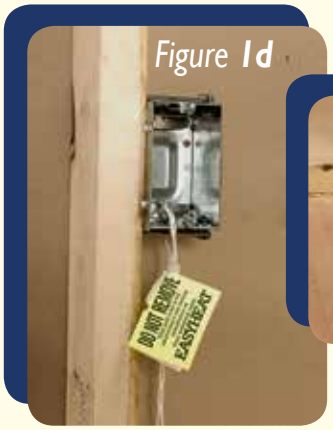
- Determine the appropriate location and height for the *Electrical Connection Box* (ECB)*. Consider proximity to other outlet boxes, ease of routing *Cold Lead* to the *Heated Area*, and accessibility of the heating controller during normal use. Typically the cold lead enters the same wall cavity in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


Figure *1a*


Figure *1b*


conduit


Figure *1c*


Figure *1d*



Drywall, fixtures and vanities removed for illustrative purposes.

- Prepare a fish hole, first by drilling a horizontal ¾" diameter hole through the sill plate approximately 1½" deep.
- Drill a second ¾" 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 (if not supplied with thermostat, needs to be sourced separately) (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 SINCE THE INSTALLATION MUST 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 ***(Figure 1e)*** 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 for electrical code requirements.
- 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 ¾" diameter hole through the sill plate approximately 1½" 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 1f).***
- 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 1g).***
- 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 1h).***


Figure 1f


Figure 1g


Figure 1h





Figure 1i

- 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 SINCE THE INSTALLATION MUST INCLUDE A FLOOR TEMPERATURE SENSOR ***(Figure 1i).***
- 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



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 $1\frac{1}{2}$" of any vanity kick plate. The *Border Dimension* may vary between $1\frac{1}{2}$" 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.

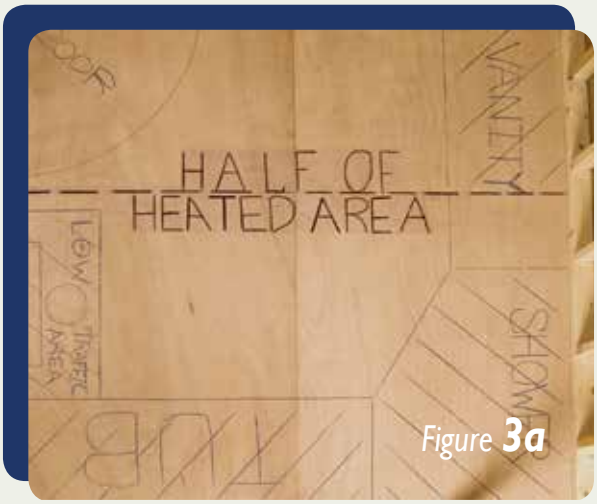


Figure **3a**

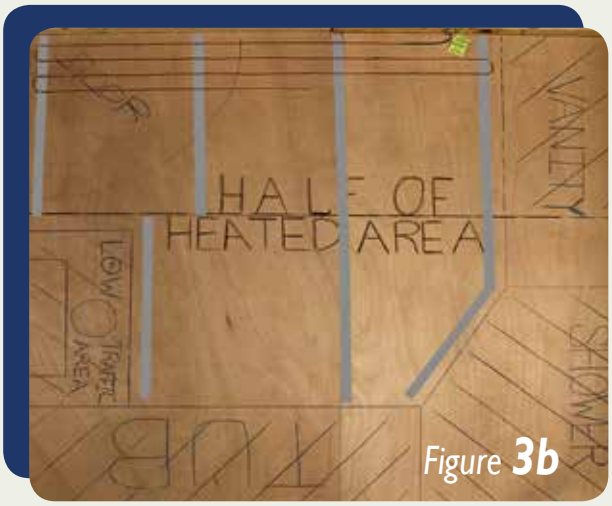


Figure **3b**

2.3 INSTALL METAL STRAPPING

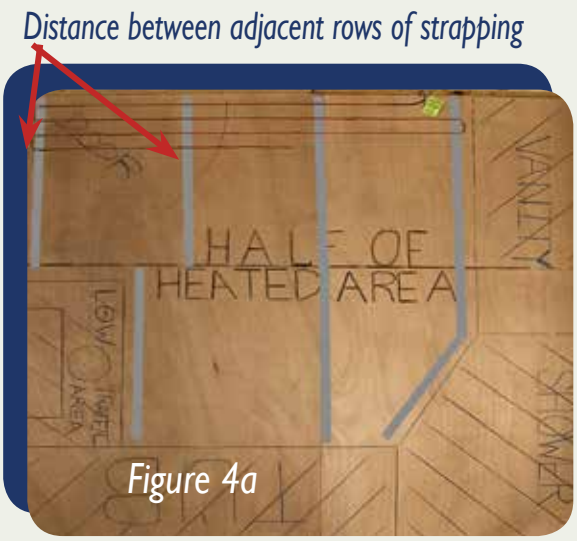
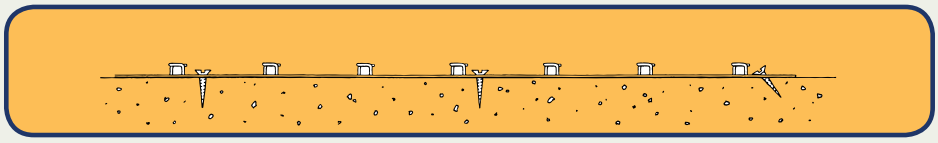


Figure 4a


Figure 4b



- Each cable kit contains a suitable number of rolls of *Cable Strapping*, the unique cable strapping system developed by EasyHeat 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).***
- On wood sub-floors, strapping may be fastened with 3/8" staples (serrated type preferred), applied at 6" (maximum) intervals. Take care to place staples in an alternating top and bottom (at openings) pattern to ensure stability ***(Figure 4b)***. Strapping openings also allow fastening with nails (1/4" head diameter) or screws (size #10), applied at 12" to 14" intervals. For all installation methods it is recommended that you place anchors / screws at the start and end of each run. Angle the end anchor / screw to provide tension along the run of strapping. ***(See Figure 4c)***.
- In sections where the heating cable makes a return loop more anchors / screws may be needed.
- On concrete surfaces, the metal strapping may be attached by means of self-tapping concrete anchors or equivalent ***(Figure 4c)***. Alternatively, EasyHeat offers a low profile adhesive tape CKT (1 ¼" wide and 25 feet in length), effective for bonding the metal strapping to clean and smooth concrete surfaces. Please contact EasyHeat for more information.

2.4 VERIFY RESISTANCE OF HEATING CABLE AND SENSOR WIRE

- Before proceeding with cable installation, measure the resistance of the heating cable and sensor wire to ensure that no damage has occurred to either cable during shipment and subsequent handling. To measure heating cable resistance, connect the two ohmmeter leads to each of the cold lead conductors (***Figure 5a***). Record the reading in the Warm Tiles Cable Resistance Log provided in the DFT Cable Guide. Verify that the ohm reading is within -5% / +10% of the factory listing appearing on the cold lead tag. To measure sensor wire resistance, connect the two ohmmeter leads to each of sensor wire conductors. Record the reading in the resistance log and verify that the reading is between 7,000 and 14,000 ohms.
- To make sure there is no contact between the copper ground braid and heating conductors, connect one ohmmeter lead to the copper ground braid and the other lead to the two cold lead conductors connected together (***Figure 5b***). The ohmmeter will display either "1" for infinity or "OL" for over load or open circuit.
- Finish up your testing by conducting an insulation resistance test: Connect a mega ohmmeter between the copper ground braid and the two cold lead conductors connected together. Set the tester at 500 V (minimum) and measure the insulation resistance. The resistance must be 10 Mega Ohms minimum. This test is designed to detect minute breaks throughout the cable insulation.
- The verification steps as explained above should be repeated after completing step 3.1 or 3.2 (after cable installation) and before final power connection in step 4 (after floor covering). Record all readings in the resistance log provided in DFT Cable Guide.
- If the resistance of either cable does not fall within the specified range, please contact EasyHeat toll free at 1-800-537-4732.

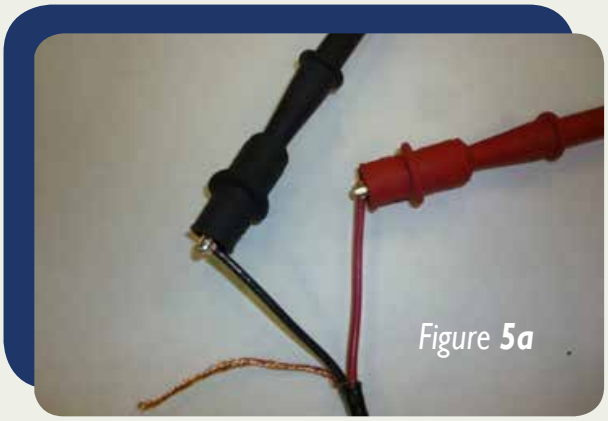


*Figure **5a***

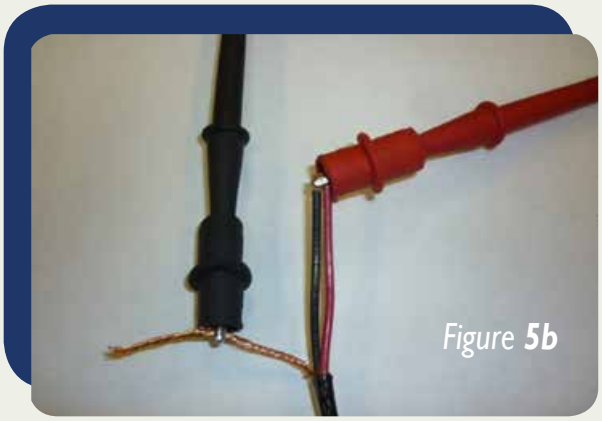


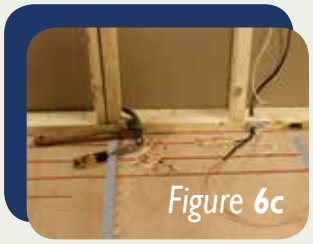
*Figure **5b***

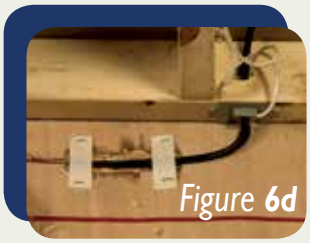
2.5 PULL COLD LEAD AND SENSOR WIRE INTO ECB; SECURE THE COLD LEAD SPLICE

- 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 6a).***
- Pull the *Cold Lead* from the spool, and using fish cords, pull it through the ¾" 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 6b).***
- If you are using a floor temperature controller, such as EasyHeat's GTS-1 or GTS-2, use the fish cords to pull the *Sensor Wire* through the ¾" 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 2.7 for fastening the sensor wire to the floor
- Due to the larger cable diameter of the cold lead splice, remove approximately ¼" 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 6c).*** 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 6d).*** 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 clips provided or by stapling 2" lengths of the *Cable Strapping* to the floor.


Figure **6a**


Figure **6b**


Figure **6c**


Figure **6d**

2.6 LACE CABLE THROUGH STRAPPING

- Place Heating Cable (section with clear outer covering and visible underlying copper braid) at and angle between the tabs and straighten to secure in place ***(Fig. 8a & b)***. Proceed with cable installation following the layout outlined on the floor earlier, space at appropriate intervals (at 3" or every second slot for Standard Heating Cable Spacing, ***[Fig. 7a]*** and every 3" - 1 1/2" - 3" - 1 1/2" alternating slot for Alternating Heating Cable Spacing ***[Fig. 7b]***.
- 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.
- The cable loop should not extend beyond 1" from the outside edge of the strapping.
- NOTE: HEATING CABLE MUST BE INSTALLED IN THE STRAPPING IN THE MANNER DESCRIBED. FAILURE TO DO SO MAY RESULT IN IMPROPER SYSTEM OPERATION.
- If any adjustment in the cable spacing is required, carefully pull out heating cable at a 45° angle and reposition. If necessary, slightly bend tabs over heating cable to tighten hold.

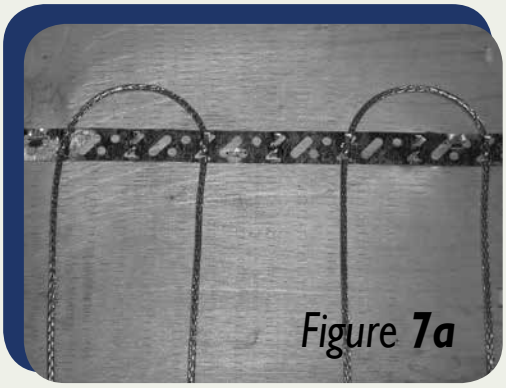


Figure ***7a***

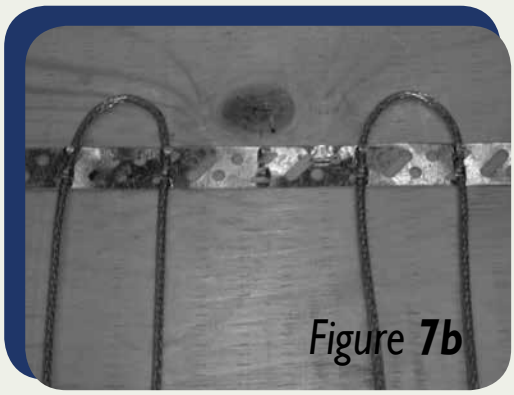


Figure ***7b***

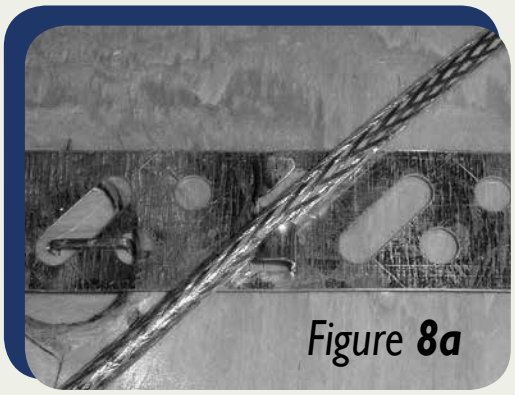


Figure ***8a***

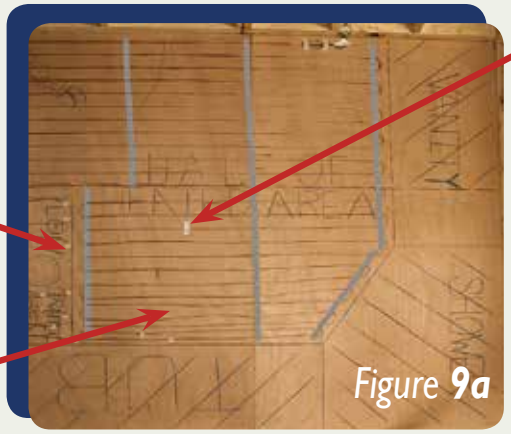


Figure ***8b***

2.7 IF "HALF OF CABLE" MARKER DOES NOT MEET AT "HALF HEATED 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 increase 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 9b).*** 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, ensure all cable runs are sufficiently tight to prevent interference during mortar trowelling.
- 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 9a).*** Both methods will help to consume the surplus cable.
- Once the cable layout is complete, ensure all cable runs are sufficiently tight to prevent interference during mortar trowelling.

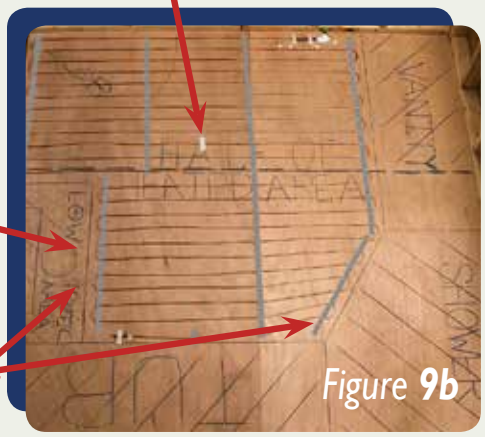




Cable routed into low traffic areas

Cable spacing compressed (not more than 6 consecutive runs)

Figure ***9a***



Cable NOT routed into low traffic areas

Border dimension increased to 6" (maximum)

Figure ***9b***

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

- Since a floor temperature sensor must be used, position the *Sensor Wire* midway between two adjacent *Heating Cable* runs that are spaced 3" apart. The sensor (bulb) 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 ¼" 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 10a and 10b).***
- Secure heating cable near the *End-of-Run* with the clips provided or by stapling 2" lengths of *Cable Strapping* to the floor. ENSURE THAT STAPLES DO NOT PENETRATE THE CABLE OR SENSOR WIRE!
- After the cable is secured, repeat test of the system as per section 2.4.

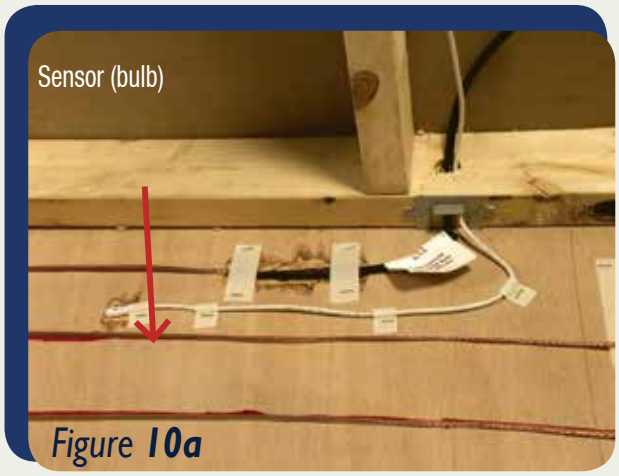


*Figure **10a***

**Sensor wire is supplied with thermostat*

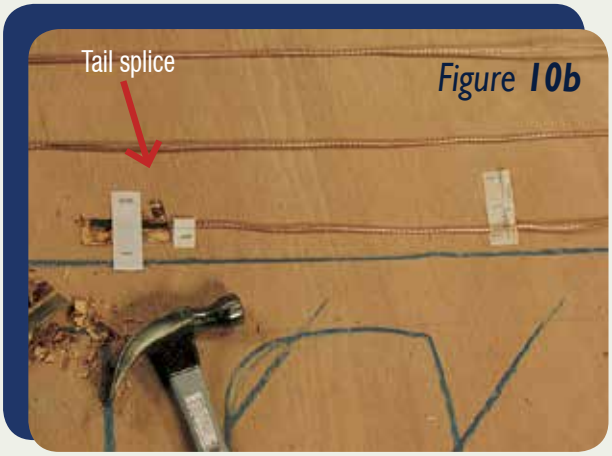


*Figure **10b***

3.1 APPLY SCRATCH COAT OF MORTAR AND 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 11a).***
- After the mortar is dry, repeat test of the system as per 2.4. The tile can be set in the usual manner. Floors with heating cables installed are typically 3/16" higher than those without heating cables. ***Figures 11a and 11b*** illustrate each of the sub-layers of a finished floor when tile and laminate/engineered wood are used as the floor finishing materials.



*Figure **11a***

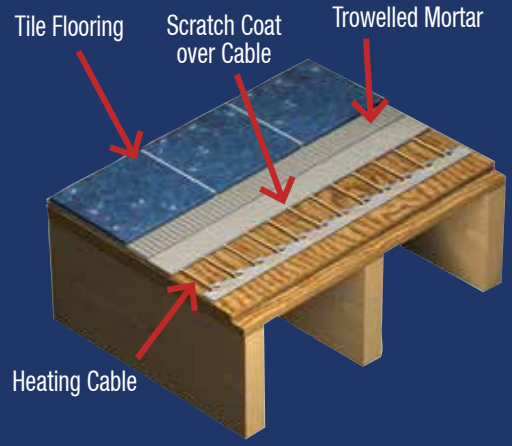


*Figure **11b***

3.2 APPLY SCRATCH COAT OF MORTAR AND 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, repeat test of the system as per 2.4. The laminate can be set in the usual manner. Floors with heating cables installed are typically $^{3}/_{16}$" higher than those without heating cables. ***Figures 11a*** and ***11c*** illustrate each of the sub-layers of a finished floor when tile and laminate/engineered wood are used as the floor finishing materials.



*Figure **11a***

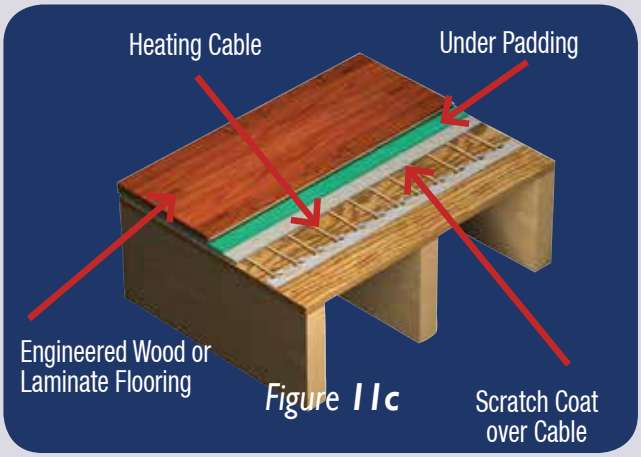


*Figure **11c***

4. CONNECT POWER SUPPLY WIRING AND 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.

Before proceeding with final power connection, repeat test of the system as per 2.4.

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 GROUND BRAID! Separate braid wires from the cold lead conductors and tightly twist braid strands together into a single stranded conductor ***(Figure 12a).*** 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 12b*** 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 EasyHeat's Warm Tiles Controllers.

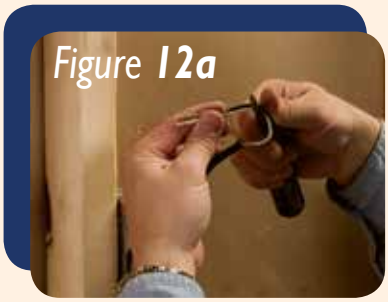

Figure 12a


Figure 12b

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").



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

- In the United States, 800/523-7636
- In Canada, 800/794-3766.

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