



WarmlyYours

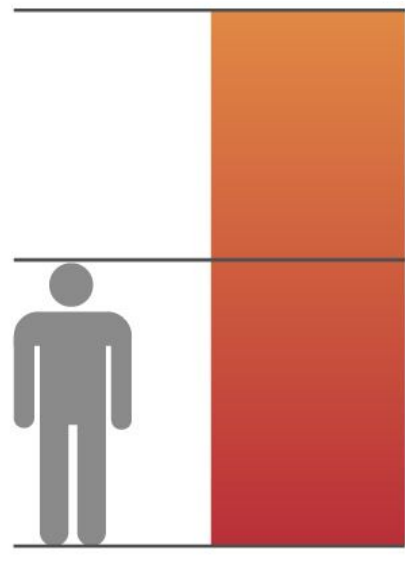
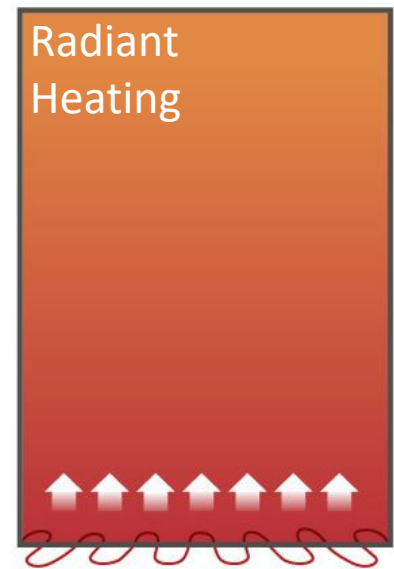
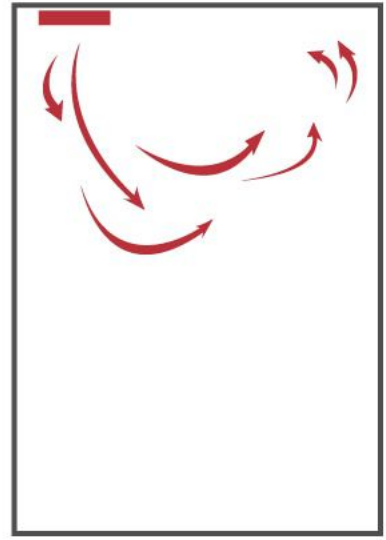
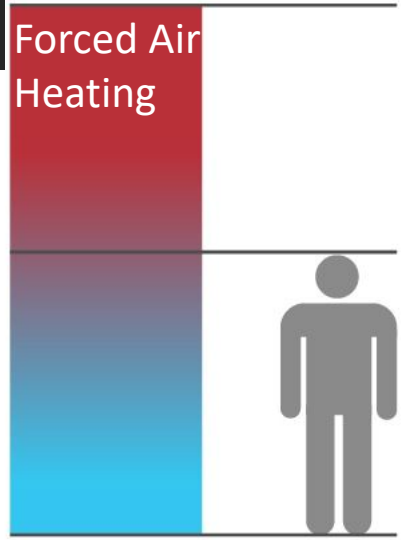
The Fundamentals of Electric Floor Heating





Electric Radiant Floor Heating

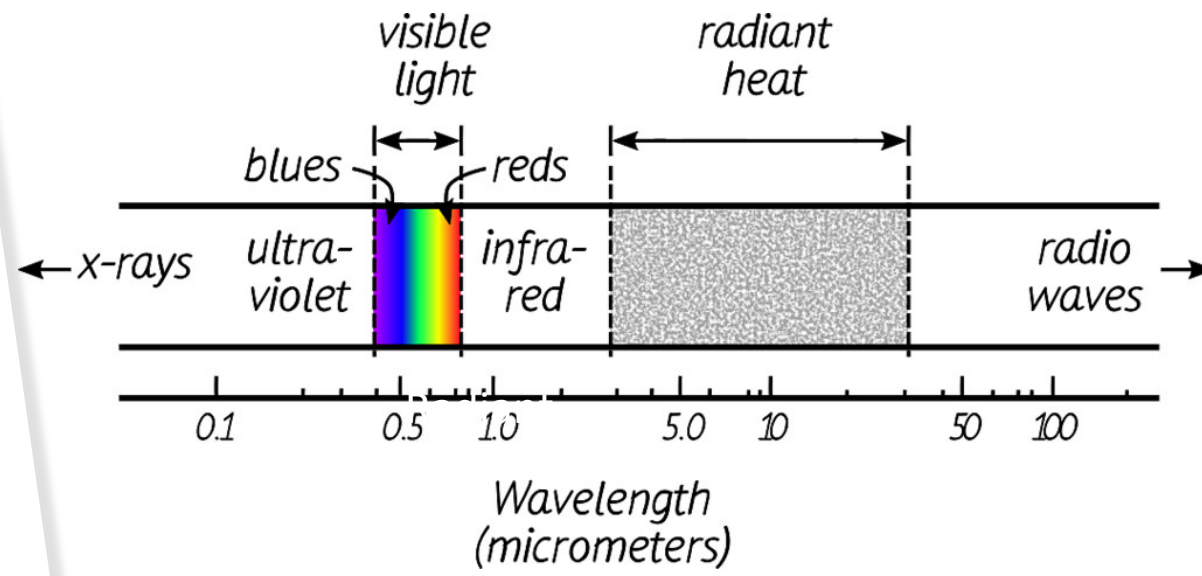
- Resistance cable that uses electricity to emit heat
- Adds minimal height to flooring surface
- Reduces allergens and dust when compared to forced-air
- Provides heat from floor to ceiling





Spectrum of Heating

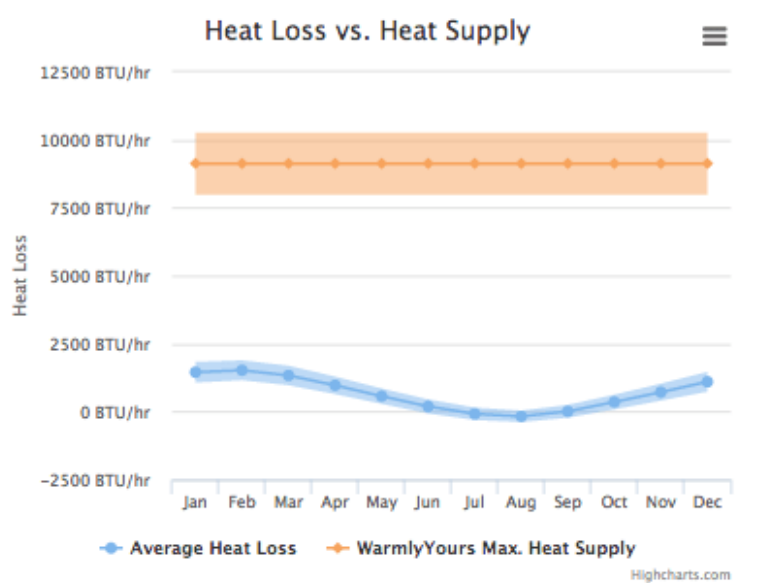
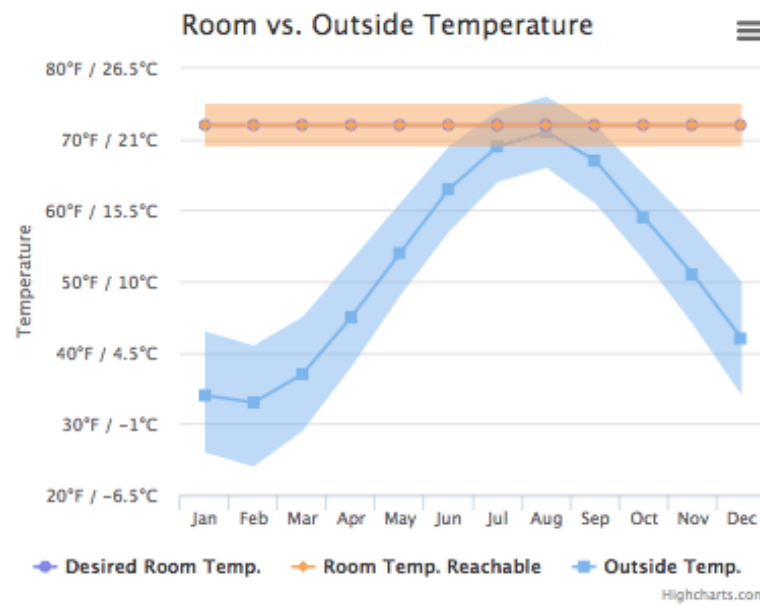
- Radiant heating falls under the “far infrared” wavelength between 9.5 & 10 μm
- Energy is converted to heat when it hits a solid object of a cooler temperature
- Heat retention and not heat absorption that creates feeling of warmth





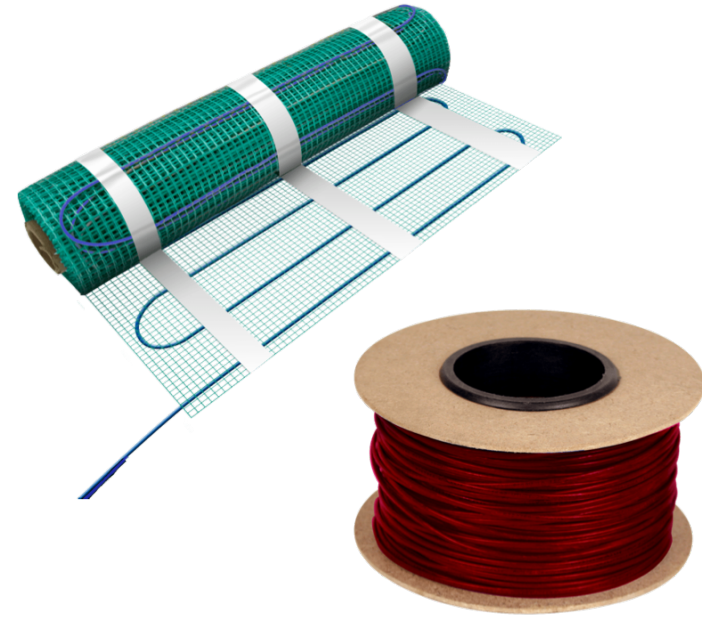
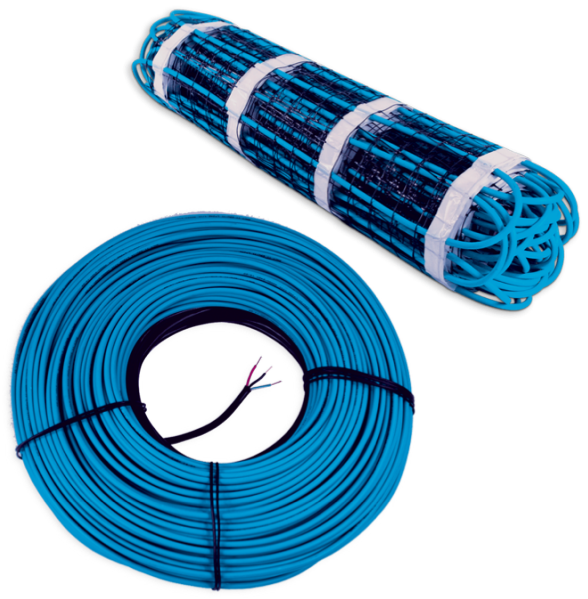
Sole Source Heat vs Comfort

- Sole-source heat provides enough BTU's to heat a space to a sufficient comfort level
- A heat loss calculation should be done for every space in the house, especially larger areas
- Have room insulation information handy before doing your calculation at <https://www.warmlyyours.com/tools/heatloss-calculator>
- Calculation will yield number of BTU's required to heat the space and help determine whether floor heating will provide enough BTU's





Electric Floor Heating Products



Slab Heating

For use under indoor concrete floors (embedded within concrete)

Environ

For use under carpet*, laminate and floating wood

(*In the U.S. only)

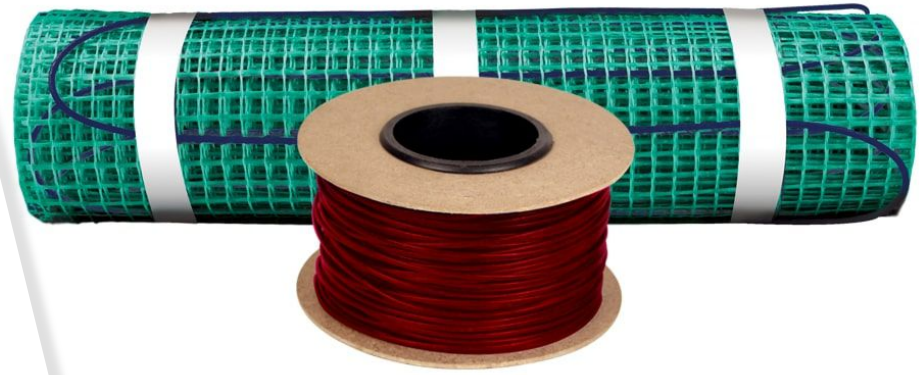
TempZone

For underneath ceramic tile, natural stone, hardwood, wood, and other popular flooring materials



Mats vs Cable

- Cable can be spaced according to desired output of heat
- The wider the spacing, the lower the wattage per square foot
- TempZone Mats have 3" pre-spaced cable attached to a mesh backing
- Wet location listed



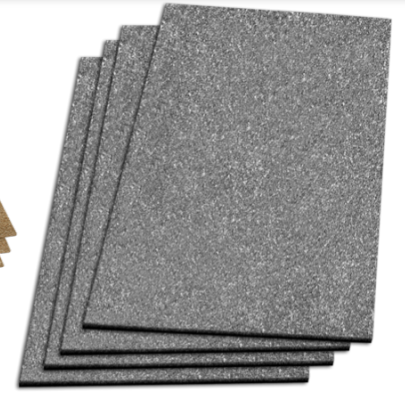


Insulating Heating Wires

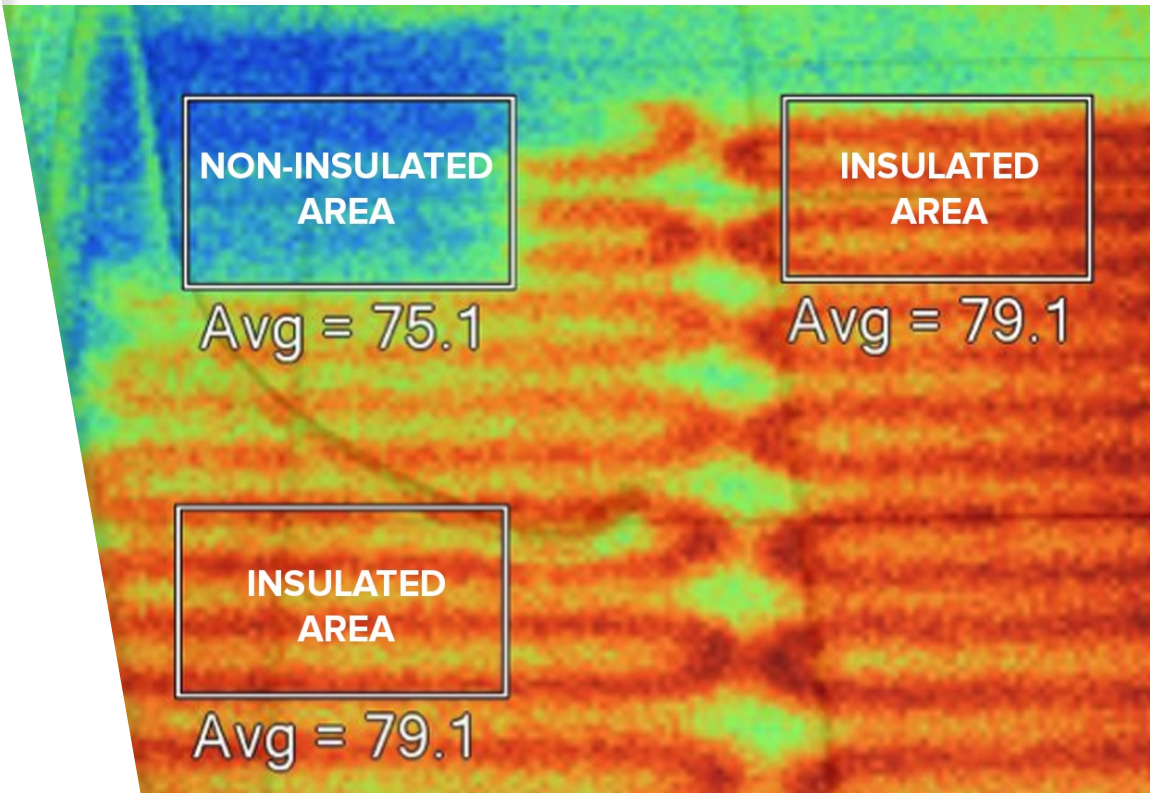
- Concrete slabs are naturally cold and will absorb any heat
- You will need to use insulating underlayments to direct the heat up through the floor
- CeraZorb is especially useful in high moisture areas such as basements



Cork



CeraZorb





Embedded Heat

- Check installation instructions for acceptable radiant heat types
- If “embedded” heat is required, we quote our TempZone heating products EMBEDDED in 3/8” of self leveling underlayment
- See the video on our website which shows this process of heating a nailed-down hardwood floor





Floating Heat

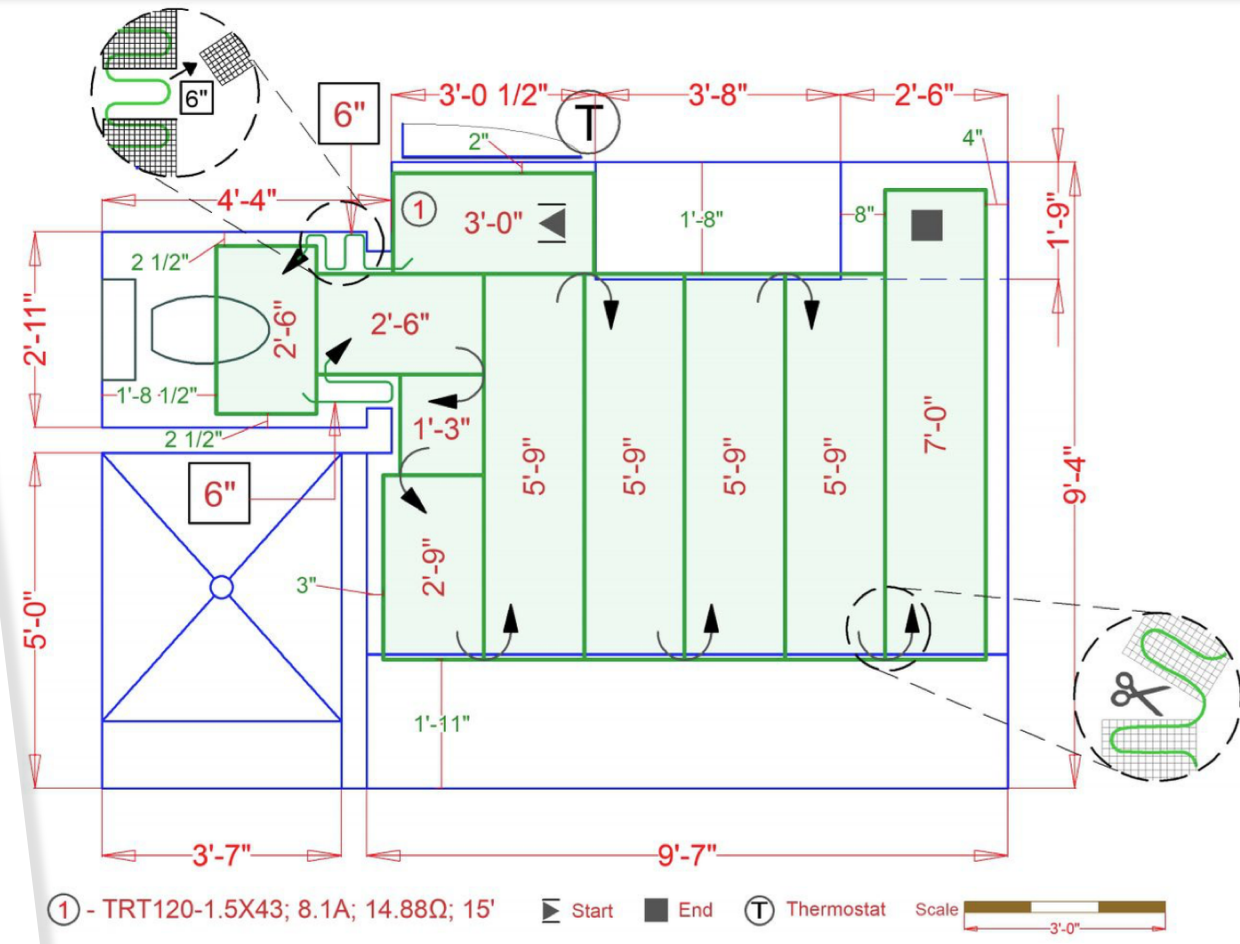
- Again, check installation instructions for limitations of applying radiant heating
- Rigidity of flooring will help you determine if Environ will work underneath
- See our past webinar on our website which shows the process of heating a floating laminate floor





SmartPlan

- All of our systems come with a customized SmartPlan with full installation instructions
- When at the jobsite, always measure and verify dimensions before installing
- Electrical specs of the system are included with the SmartPlan

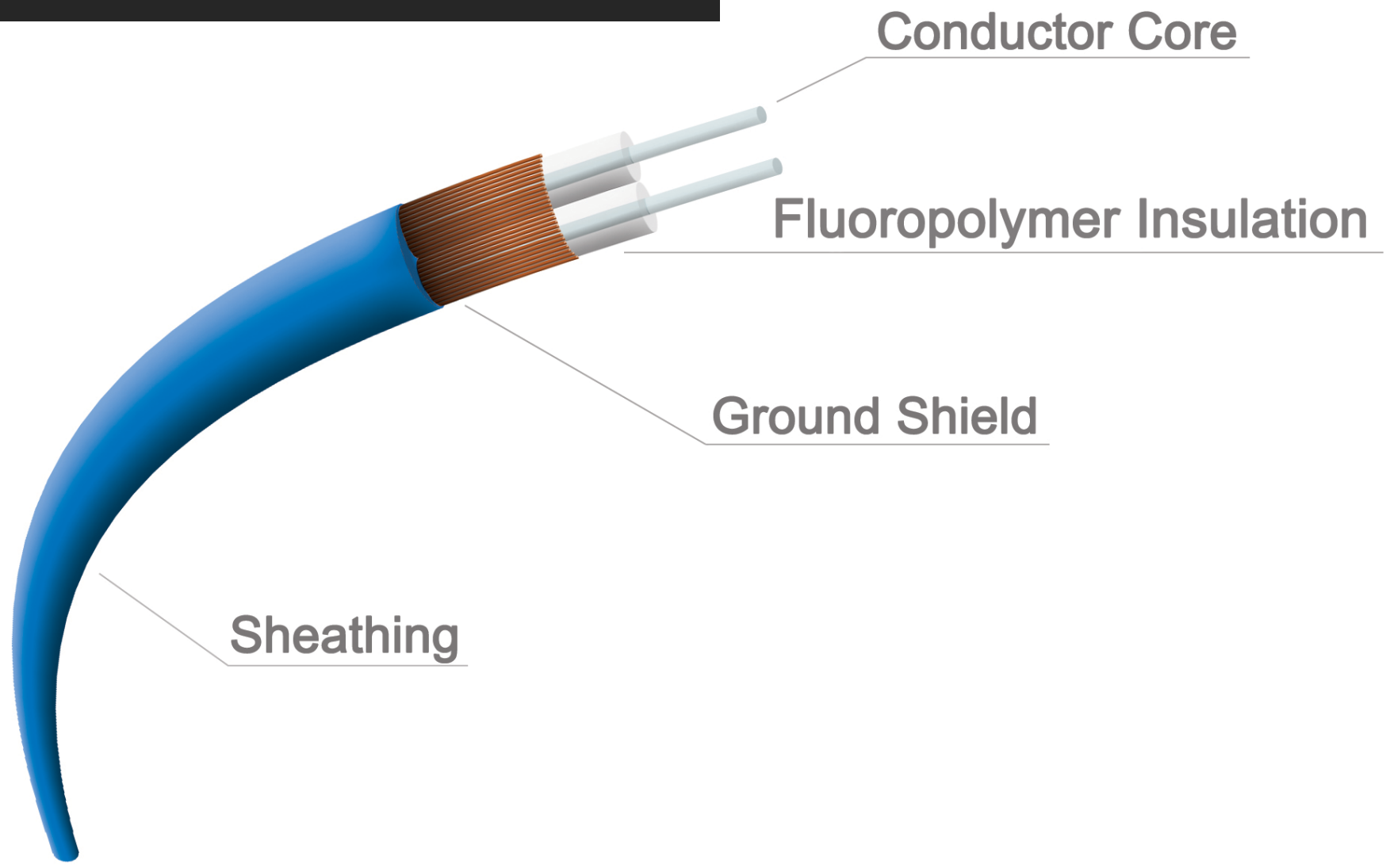


Heating Product: TempZone Flex Roll 120V
Wattage: 15 W/Sq.ft.
Breaker(s): 1 x 15 Amp 120V Non-GFI Circuit

Operating Cost: \$0.05/hour @ \$0.11/kWh
Total Amperage: 8.1 Amps
Total Wattage: 967 Watts
Control: UDG4-4999
Floor Load: 1.0 kW*
 * used during thermostat setup



Cross-Section of Cable



Conductor Core

Fluoropolymer Insulation

Ground Shield

Sheathing



Constant Wattage

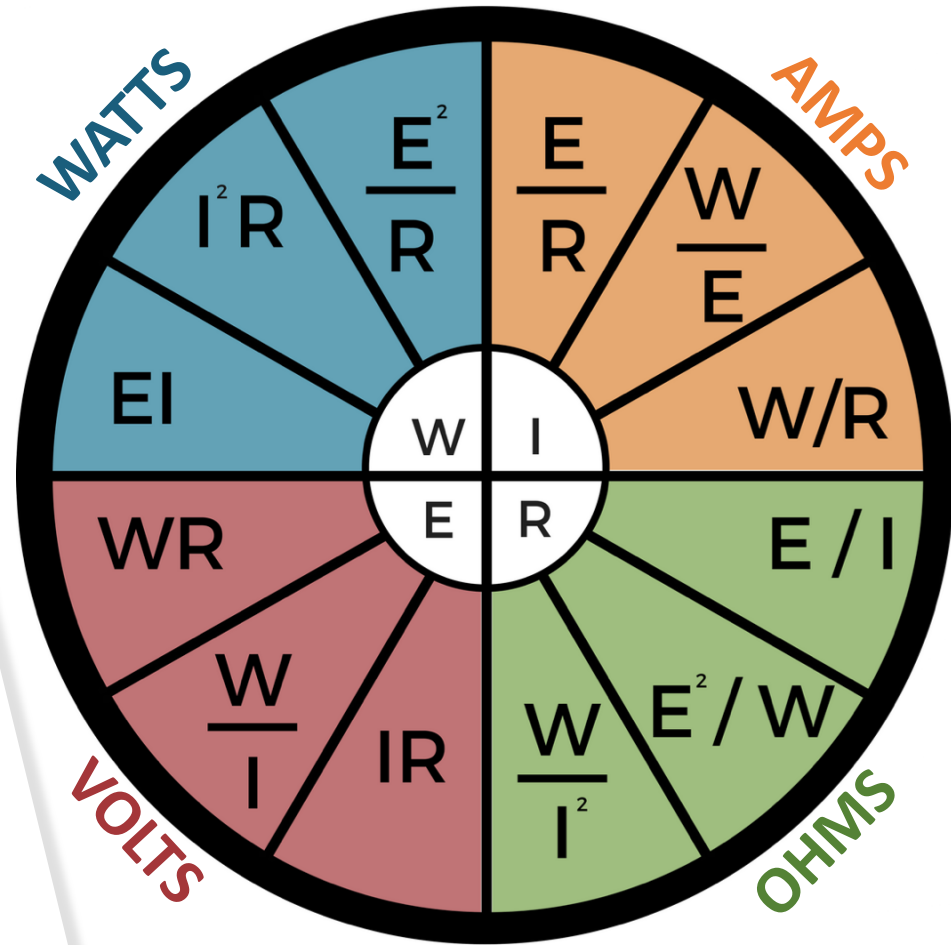
- Same wattage per linear foot – consistent power output
- Not affected by environmental conditions, making it ideal for generating effective heat for many years
- All of our floor heating products as well as our Snow Melt systems are constant wattage cables





Ohms Law

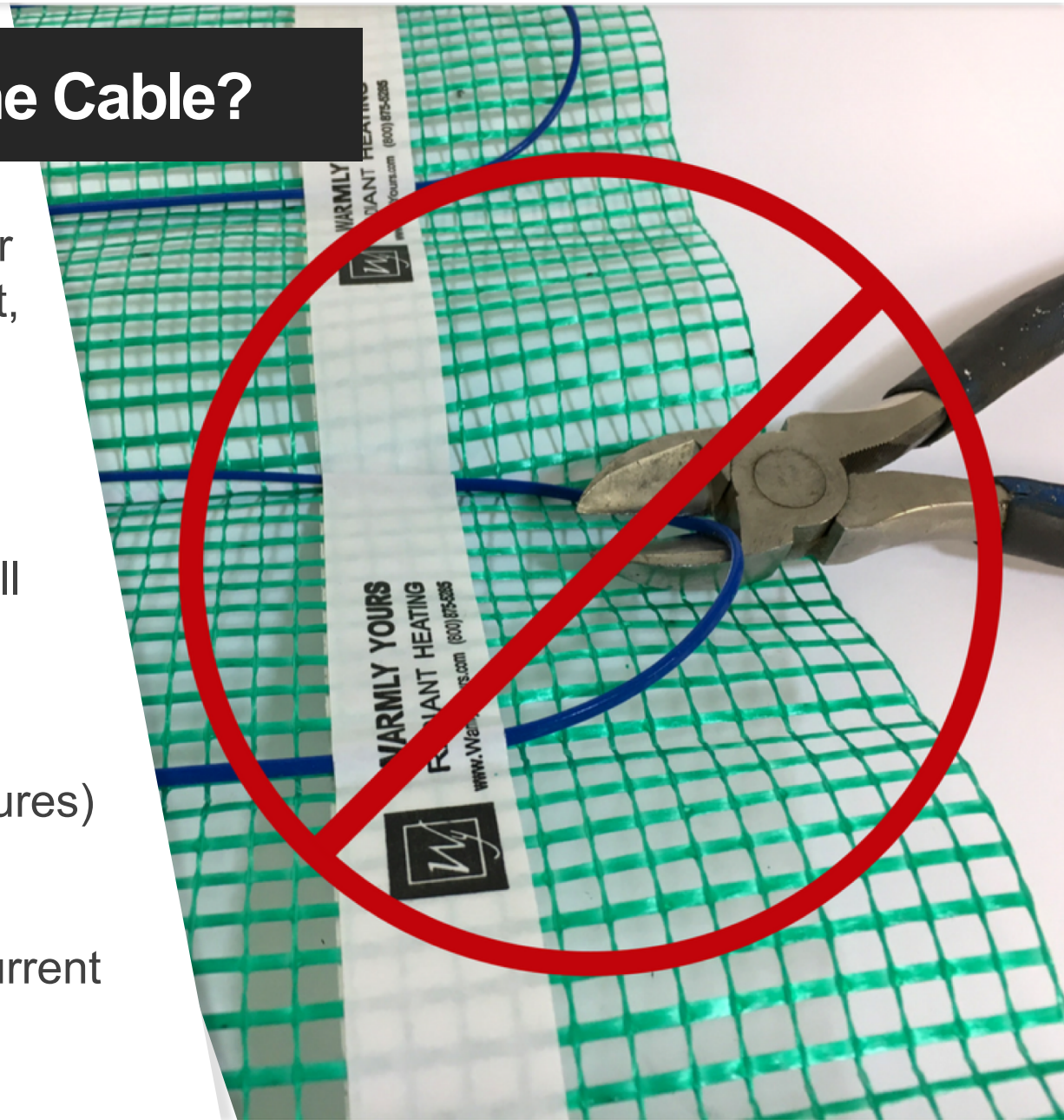
- Demonstrates the relationship between voltage, amperage and a circuit's resistance
- When voltage is applied to a resistant cable, it will create amperage
- Multiplying voltage by amperage creates wattage – Heat
- If the cable is shortened or lengthened, the resistance will change, resulting in a change in the watts per square foot





Why Can't I Cut the Cable?

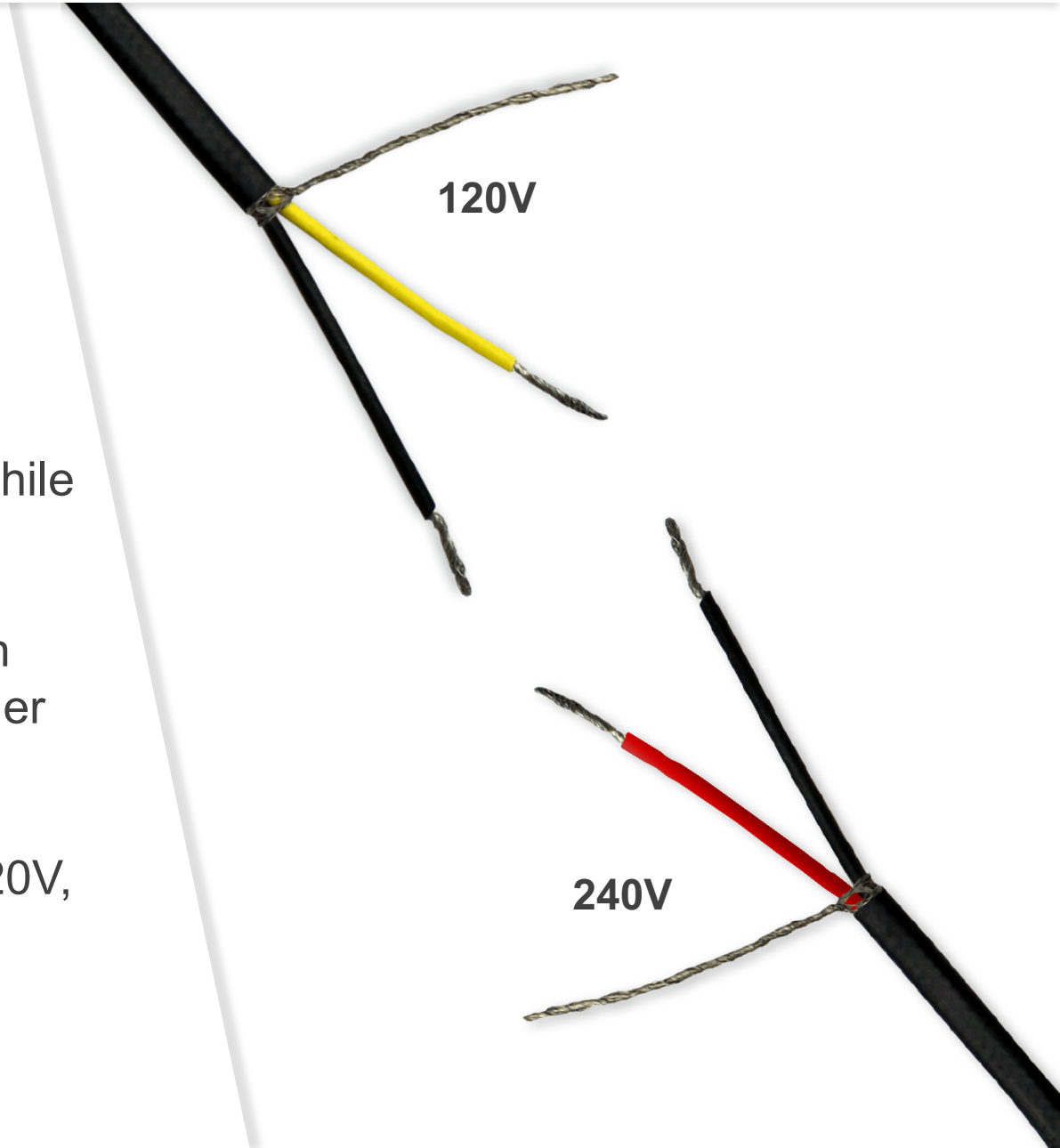
- Increases the wattage per square foot of the product, possibly leading to overheating
- Product will no longer be under warranty and will not meet NEC code
- Less resistance = more current (higher temperatures)
- More resistance = less current (lower temperatures)





120V vs 240v

- 240V is no more efficient than 120V
- Using 240V lets one cover twice the square footage while still using one controller
- Our thermostats can switch loads up to 15 amps in either 120 or 240 volts
- If the heating element is 120V, the power supplied to the thermostat must be 120V





Adding a Power Module

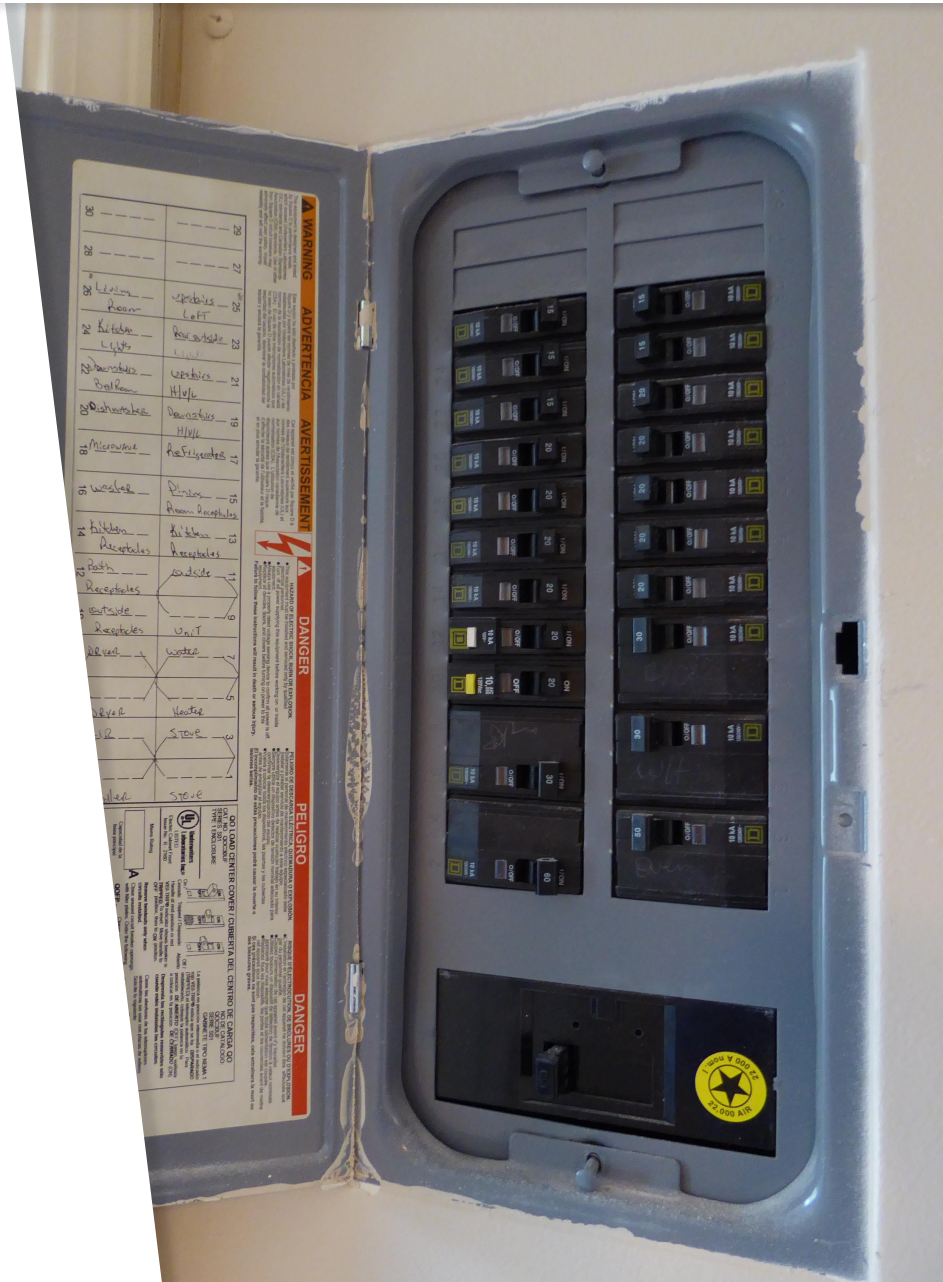
- Our power modules can be hooked up to any of our thermostats to help provide additional power
- Electrical output can be increased in 15 amp Increments
- Power modules are connected to each other and to the thermostat in a “daisy-chain” using low voltage thermostat wire





80/20 Rule

- When wiring a circuit, only 80% of that circuit rating can be used
- Our thermostats can switch up to 15 amps, but 14 amps of load cannot be placed on a 15 amp breaker
- For a 20 amp circuit, you could load only 16amps
- For a 15 amp breaker, only 12 amps should be loaded
- Always comply with all local codes



30			
29			
28	Living Room	15	15
27	LOFT		
26	Kitchen	15	15
25	Receptacles		
24	Light	15	15
23	Receptacles		
22	Receptacles	15	15
21	Hall		
20	Receptacles	15	15
19	Hall		
18	Receptacles	15	15
17	Receptacles		
16	Water	15	15
15	Receptacles		
14	Receptacles	15	15
13	Receptacles		
12	Receptacles	15	15
11	Receptacles		
10	Receptacles	15	15
9	Receptacles		
8	Receptacles	15	15
7	Receptacles		
6	Receptacles	15	15
5	Receptacles		
4	Receptacles	15	15
3	Receptacles		
2	Receptacles	15	15
1	Receptacles		



Operating Cost

- Adjusting the spacing can help control the electrical costs for a system
- We also offer an Operating Cost Calculator on our website
- Our tool shows you the hourly, daily and yearly electrical costs



Operating Cost Calculator

Estimated Cost

\$0.22 per day


\$6.60 per month

\$80.30 per year

🕒 8 hours per day


Heating System

TempZone™ Heating System




✓ Tile	✓ Stone
✓ Marble	✓ Nailed Hardwood

Environ™ Heating System



✓ Laminate	✓ Carpet
✓ Floating Hardwood	

Slab Heating System



✓ Concrete

Room Size


Bathroom



Kitchen



Basement



Square Footage

35 sq. ft.

Energy Rates

Your location helps us find the average energy rate in your area to ensure our calculation is accurate.

📍 Use My Current Location

Zip/Postal Code

60066

Cents per kWh

12 cents per kWh

Daily Usage

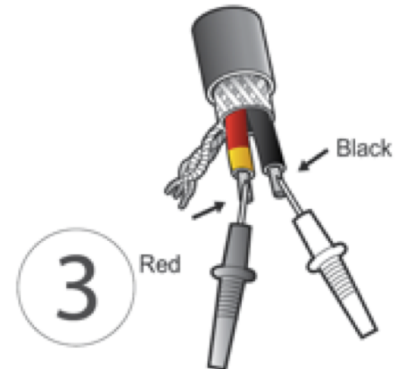
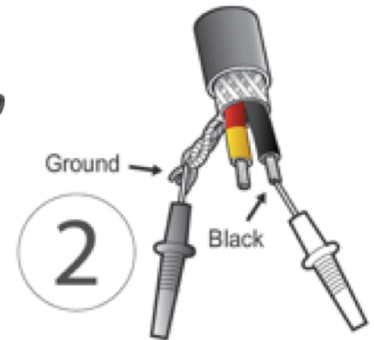
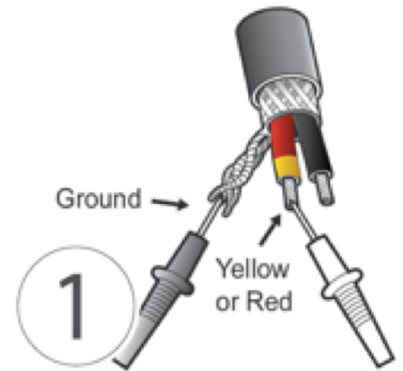
Consider your room type and if this will be a supplemental or primary heat source.





Testing Your System

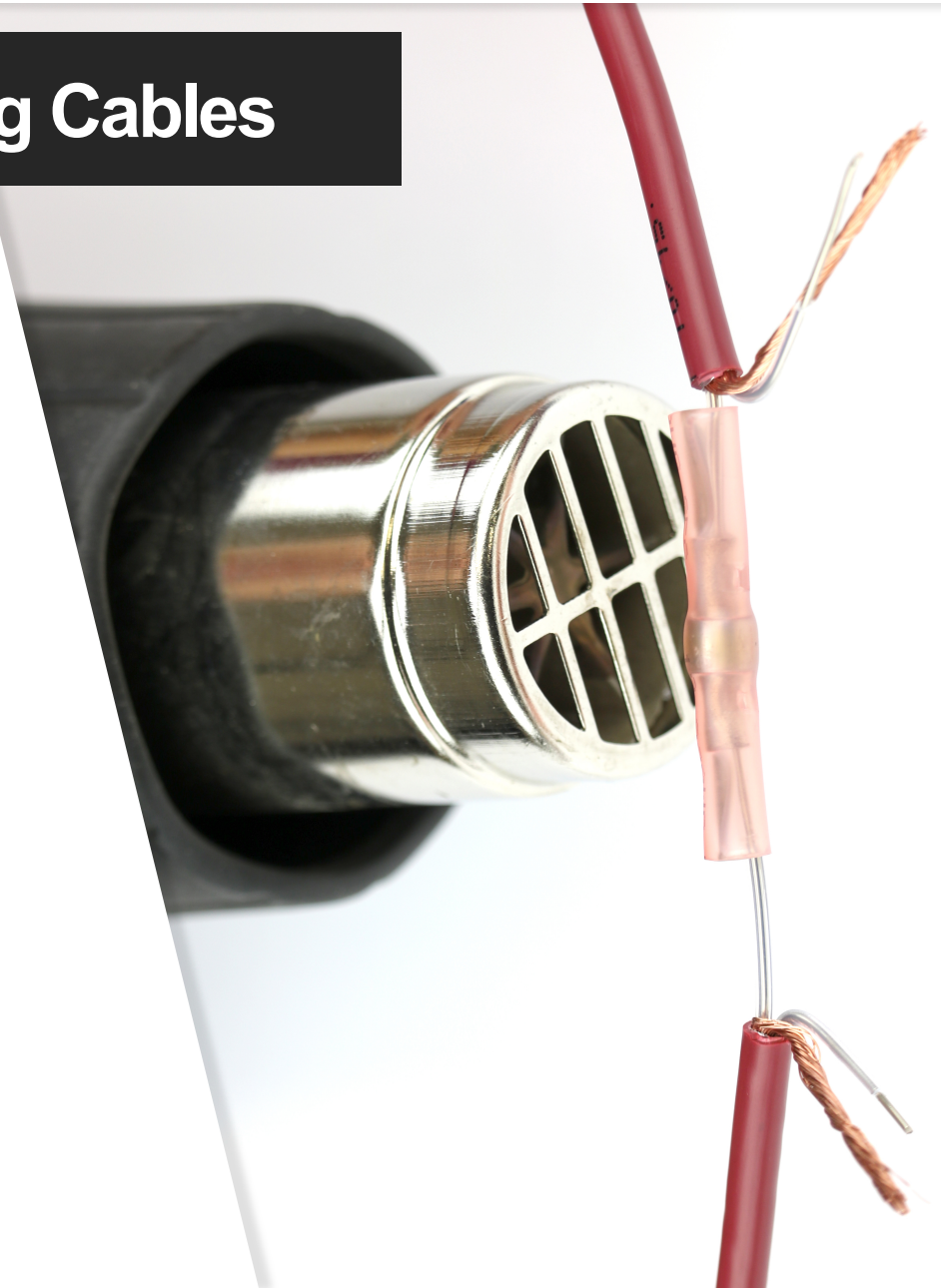
- Test when you receive the heating products
- Test your system once you have your mats/cable laid out correctly
- Test after you've finished installing your flooring





Repairing Floor Heating Cables

- Repairs can be done without ripping up the entire floor
- Specialized tools can identify any damaged areas in a floor heating system
- Splice repair kits are offered on our website
- Contact our Tech Support team for details on how to rent the tools you'd need





WarmlyYours

Contact Us

We're here if you have any questions.

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Web

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www.facebook.com/WarmlyYours





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**Until next time,
Stay Warm and Be Radiant**