

# installation guide



# before installing

Please read these instructions thoroughly and completely prior to installation and use. Failure to follow instructions could cause property damage, serious personal injury, or death. By installing this product, you acknowledge the terms of the manufacturer's warranty included in your product. Contact us if you have any questions about the warranty or the product. Our dedicated support team is standing by, ready to assist. You can also find more information and submit a case form on our website.

 386-OPTIMAL (386-678-4625)

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## SAFETY PRECAUTIONS - MOUNTING

**DO NOT** install this product in a location where it may be subjected to freezing temperatures. If the water inside your tankless water heater freezes, it can cause severe and permanent damage that is not covered under your warranty.

**DO NOT** install the water heater in a location that is difficult to access.

**DO NOT** install product within reach of children so they are unable to tamper with the temperature controls or injure themselves by touching the hot water outlet line. The outlet water line may get extremely hot.

This product does **NOT** require venting.

Avoid installing your tankless water heater in a location prone to excessive humidity, moisture, or dust or in an area where it may be splashed with water or other liquids.

**DO NOT** install underwater pipes or air conditioning lines that might leak or condense moisture that could then drip onto the heater.

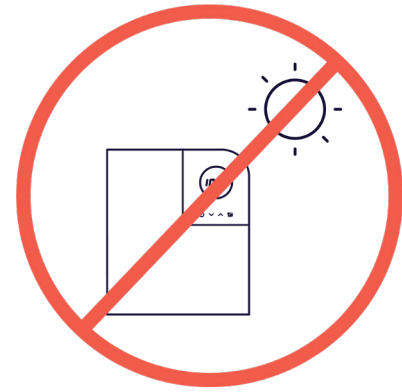
**DO NOT** install above outlets or electrical boxes.

**CAUTION – COMBUSTIBLE MATERIALS:** should be kept at least 24 inches away from your water heater and the hot water outlet line.

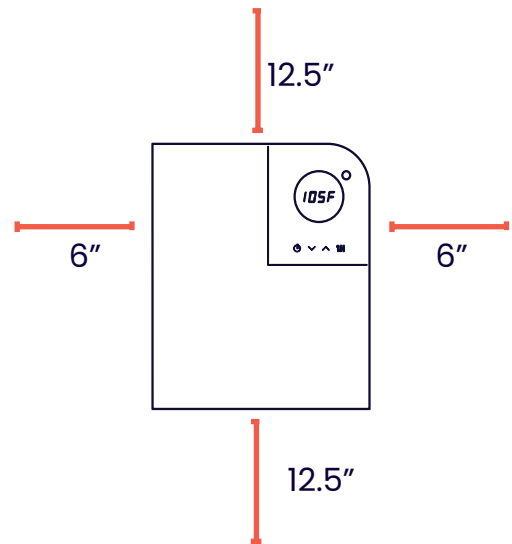
# where to install

This product is designed to be installed indoors. Mounting outside will void the warranty.

Whether you are using your water heater for whole-home distribution or point of use, the three main considerations for the install location are:

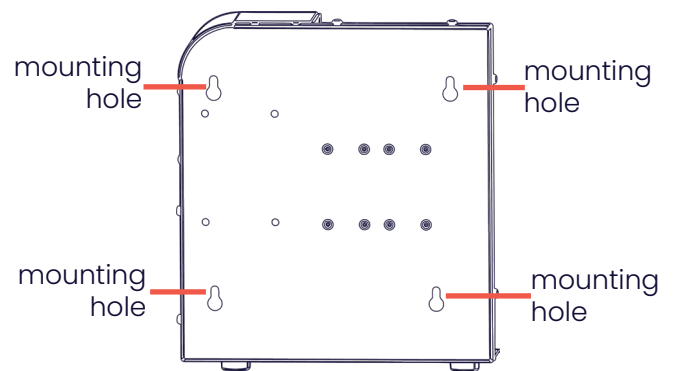


1. Access to an electrical panel
2. Access to a plumbing connection
3. Mounting surface and clearance
  - a. The mounting surface must be secure and level.
  - b. Use anchors if mounting to dry-wall.
  - c. Recommended clearances:
    - 12.5" for top and bottom
    - 6" for the sides



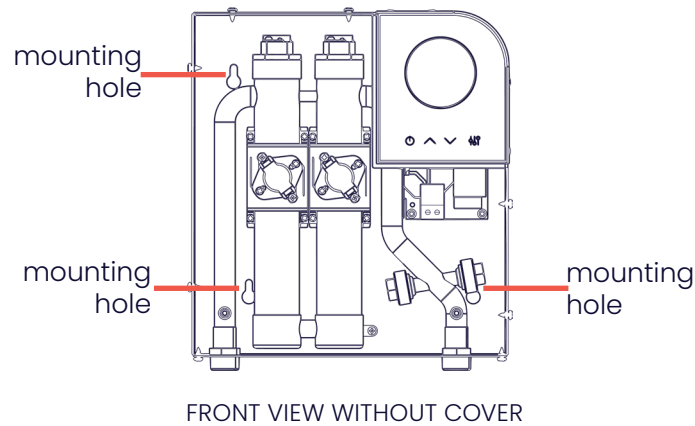
# mounting

Your Optimal<sup>®</sup> tankless water heater has four 1/2" mounting holes located on the back. For ease of installation and servicing, we recommend this product is installed in an upright position with the inlet and outlet water connections at the bottom of the product. If your install requires the product to be mounted on its side, you can do so without losing any performance.



REAR VIEW

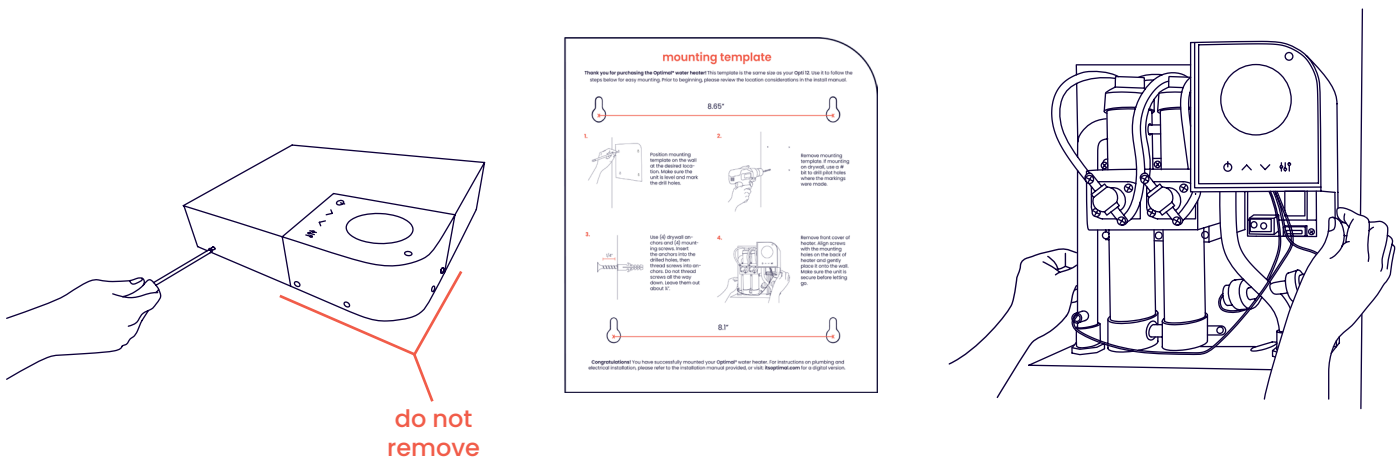
Please make sure the LED display is facing out and you are following all local building codes.



Your product may require annual maintenance. Make sure to mount your product in an area where you or your service technician can access it if necessary.

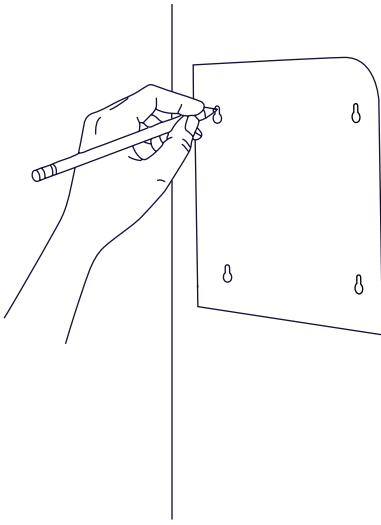
## when you are ready to mount

To mount your Optimal<sup>o</sup> water heater, remove the screws holding the front cover and carefully follow the instructions on the mounting template included in the box with your product.



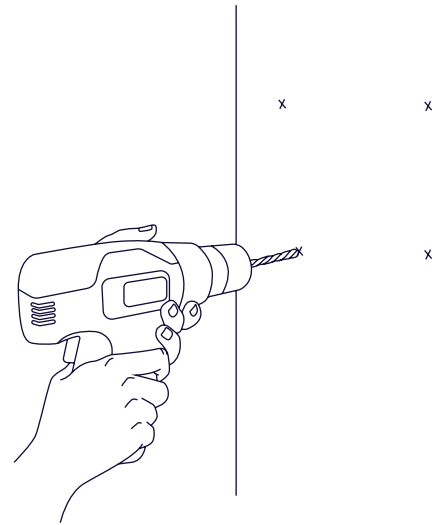
Before installing your product, please review the following instructions carefully. We recommend that your Optimal<sup>o</sup> tankless water heater be installed by a licensed and qualified professional in accordance with all applicable national, state, provincial, and local plumbing codes.

1.



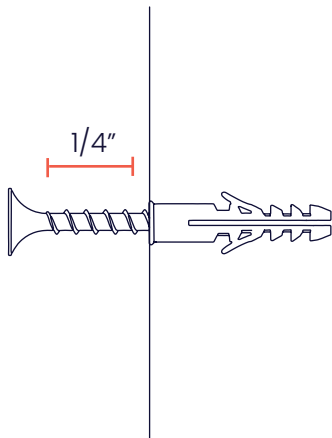
Position mounting template on the wall at the desired location. Make sure the unit is level and mark the drill holes.

2.



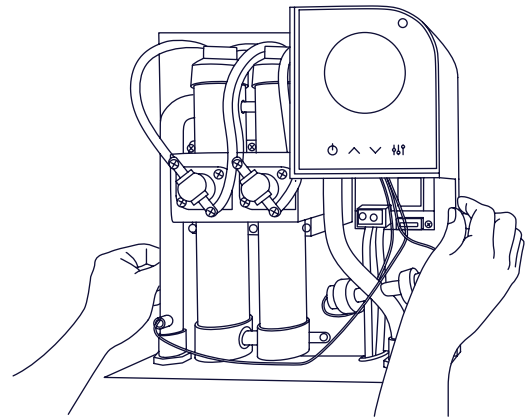
Remove mounting template. If mounting on drywall, use a 1/2" bit to drill pilot holes where the markings were made.

3.



Use (4) drywall anchors and (4) mounting screws. Insert the anchors into the drilled holes, then thread screws into anchors. Do not thread screws all the way down. Leave them out about 1/4".

4.



Remove front cover of heater. Align screws with the mounting holes on the back of heater and gently place it onto the wall. Make sure the unit is secure before letting go.

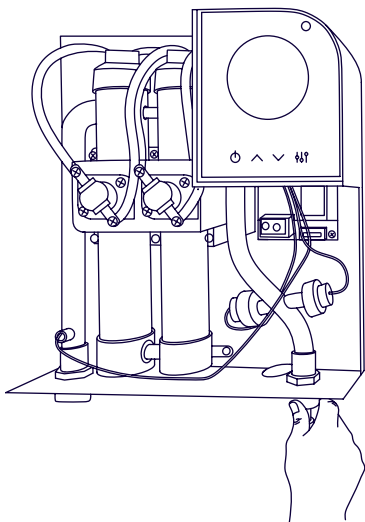
# plumbing installation

Before installing, confirm your hot water line has been shut off. Copper or appropriately rated flexible braided hose should attach directly to the inlet and outlet connectors and run for at least 12" from the heater before adjoining to other pipe material. All piping in the hot water distribution line must be appropriately rated.

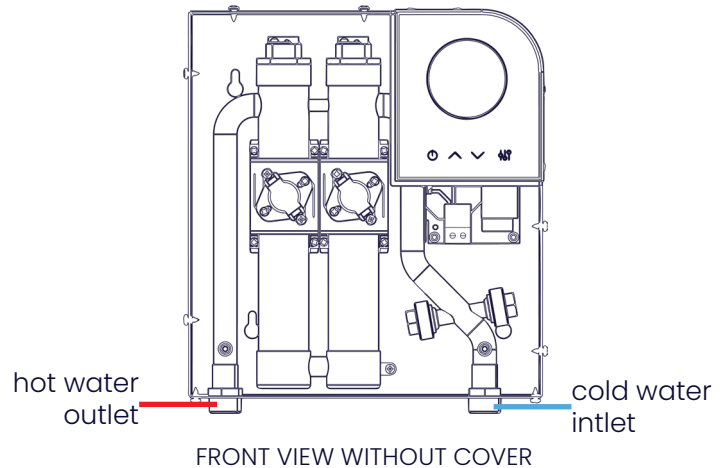
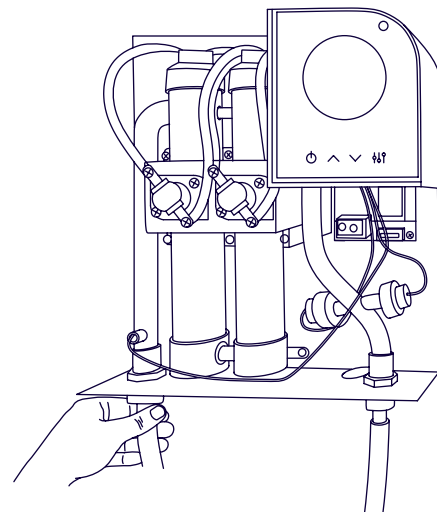
Your product is supplied with two 3/4" NPT male connectors. If you are facing the product, the **cold water** line is connected to the bottom right side, and the **hot water** line is connected to the bottom left side.

If you are replacing an existing electric tankless, you may have a 1/2" connection which will require an adapter or converter to connect to 3/4".

**1.** Connect the COLD WATER line to the 3/4" male connector on the COLD WATER INLET. If needed, use plumber's tape or putty to prevent leaks.



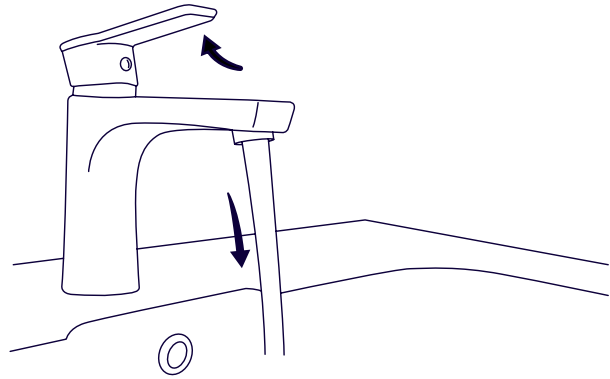
**2.** Connect the HOT WATER line to the 3/4" male connector on the HOT WATER OUTLET. If needed, use plumber's tape or putty to prevent leaks.



It is recommended to have a manual shut off valve installed within 5 ft of the product's inlet line for ease of maintenance or service.

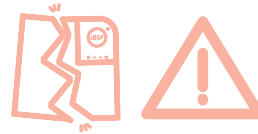
**3.** All air must be purged from the line before starting the heater. After making the plumbing connections, open at least three hot water faucets and allow them to run for at least three minutes **WITHOUT THE POWER ON.**

**4.** While running the water to purge the air, carefully inspect all connections, unions, and the pressure relief valve (if installed) for leaks.



#### **SAFETY PRECAUTIONS – PLUMBING**

- All plumbing work must comply with national and applicable state and local plumbing codes. A pressure-reducing valve must be installed if the cold-water supply pressure exceeds 150 psi. Make certain that the cold-water supply line has been flushed to remove any scale and dirt.
- Do not solder any pipes connected to the product. The heat may damage the flow sensor. Doing so will void the warranty.
- UL Standard 499 does NOT require that a pressure relief valve be used. However, a T&P valve may be required to meet installation codes in your area. If one is required, install the pressure relief valve in accordance with local codes and ensure that it operates correctly, and that air is purged from the valve prior to installing the water heater.



#### **DAMAGE WARNING**

**Step 3 is mandatory. DO NOT SKIP!**

**Failure to follow can cause permanent damage to the heating elements, which is not covered by the warranty.**

If any maintenance is performed on the water heater or the home's plumbing system that may introduce air into the plumbing pipes, **YOU MUST** turn the power off to the water heater and purge the air out of the lines before allowing the product to power up.

If any leaks are detected in step 4, immediately turn off water to the product and contact **Optimal®** support.



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# electrical installation

## about the wiring

The Opti 12 requires two 6 AWG wires (normally 1 red and 1 black). They connect to the 60 amp double pole breaker in the electrical panel and run to the terminal block on the power board. One ground wire (normally green) is included in the run and attaches to the ground lug on the heat exchanger. Using 6/2 Romex or its equivalent is recommended.

Please refer to the technical data table on Page 6 for electrical specifications.

## running the wire

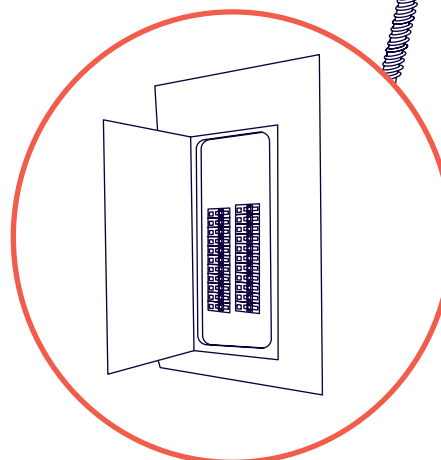
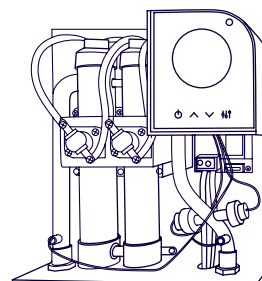
The front cover of your Optimal<sup>o</sup> water heater should already be removed from mounting. If not, remove the front cover as previously shown. There is a 3/4" punchout hole with supplied Romex connector at the bottom of the product.

5. Pass the electrical wire coming from the breakers through this punchout hole and run it behind the copper exchanger to meet the terminal block.

It is important that both wires come from the same 60 amp double pole breaker.



3/4" punchout with Romex connector







### **SAFETY PRECAUTIONS – ELECTRICAL**

**DANGER – ELECTROCUTION:** Before beginning any work on the electric installation, be sure that the main breaker panel switches are "OFF" to avoid any danger of electric shock.

- All mounting and plumbing must be completed before proceeding with electrical hook-up.
- Where required by local, state or national electrical codes the circuits should be equipped with a "ground fault interrupter."
- The product must be properly grounded in accordance with state and local codes, or in absence of such codes, in accordance with national electric code or the Canadian electric code. Failure to electrically ground the product could result in serious personal injury or death.
- All wiring (wire gauge) and circuit protection (breakers) must comply with the U.S. National Electrical Code (NEC) in the USA, or the Canadian Electrical Code (CEC) in Canada. Failure to do so could result in property damage and/or personal injury, and void your warranty.
- Note: The Canadian Electrical Code generally requires that all supply wires and corresponding circuit protection used for domestic hot water heating and hydronic heating applications be sized to a minimum of 125% of the maximum current rating of the heater.
- Before installing this product, ensure that the home has sufficient electrical power available to handle the maximum amperage load of the applicable model.



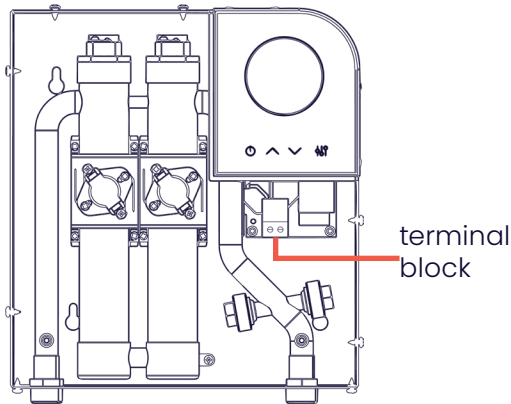
### **DAMAGE WARNING**

All air must be purged from the line before starting the product. After making the plumbing connections, open at least three hot water faucets and allow them to run for at least three minutes **WITHOUT THE POWER ON.**

**This step is mandatory. DO NOT SKIP! Failure to follow can cause permanent damage to the heating elements, which is not covered by the warranty.**

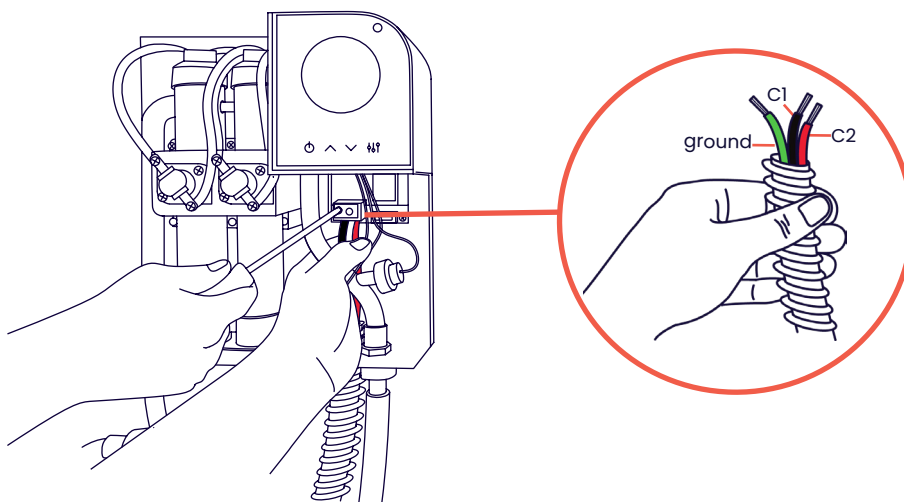
# connecting the wire

The terminal block is attached to the bottom of the power board, just under the plastic control board housing. There are two wire connectors (C1 and C2) at the bottom of the terminal block.



FRONT VIEW WITHOUT COVER

**6.** Bring the two 6 AWG wires to the connectors, insert the leads, and secure them by tightening the screws on the terminal block using a flathead screwdriver. It does not matter which wire (red or black) goes into which circuit as long as they are both coming from the same breaker.

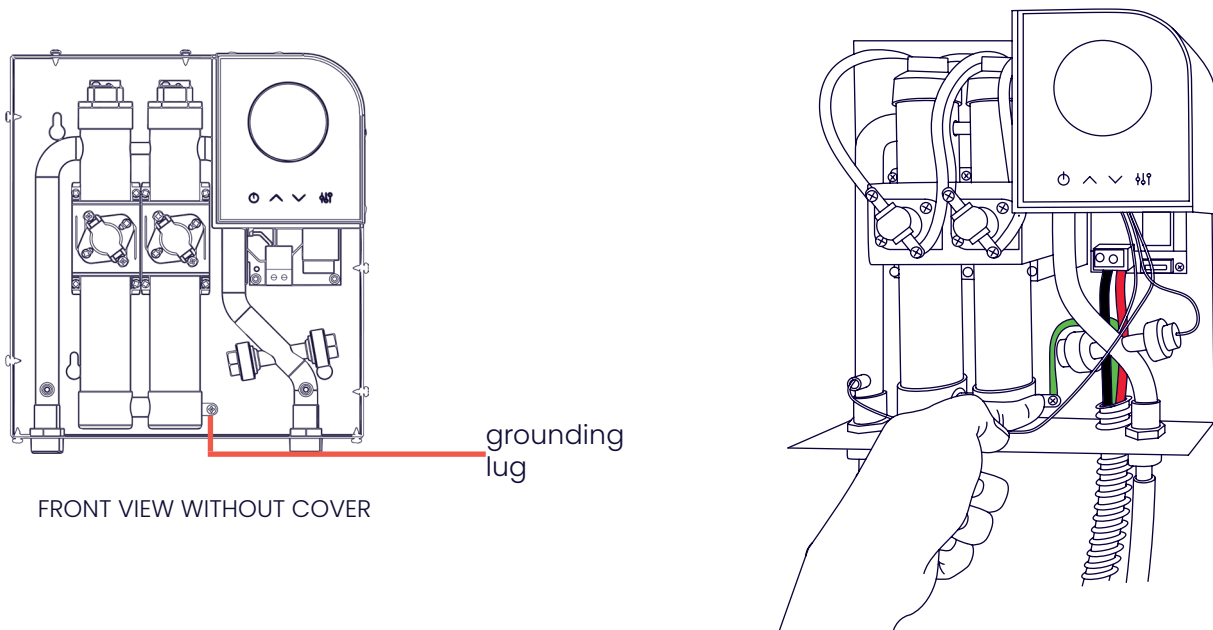


**7.** Once the leads are secured, tighten the Romex connector at the 3/4" punchout on the bottom of the unit. Make sure to secure tightly with enough slack so the wire is not weighing down the terminal block.

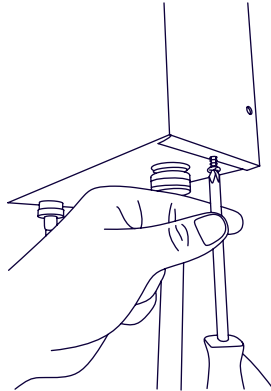
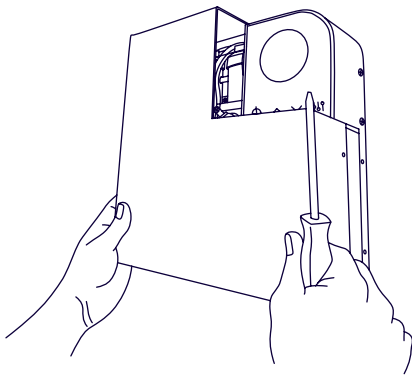
# grounding the wire

All Optimal<sup>®</sup> water heaters are supplied with a grounding lug and screw.

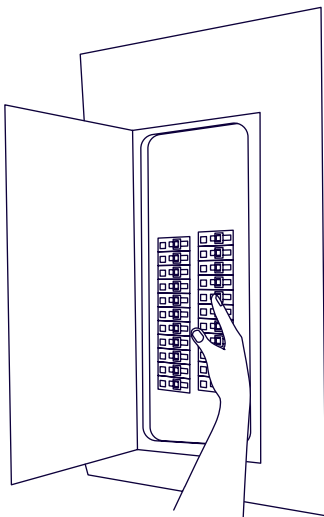
**8.** Loosen the screw on the ground lug enough to wrap the ground wire around it. Then tighten the screw back down. If you are using a ring terminal on the ground wire then remove the screw completely and reattach with the ring terminal secured to lug.



# powering up



9. Once all wires have been connected and air has been flushed from the plumbing line, secure the front cover back on the product. And if you have not done so already, close any running faucets.



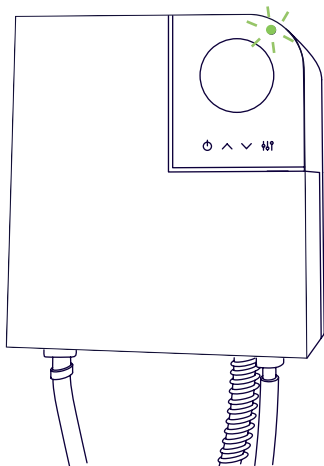
10. Turn on the breaker.

The power indicator on the top right of the control panel will illuminate with various colors when first powered up and then hold a steady green when it is ready to heat.



## DANGER – ELECTROCUTION

At this point, the unit is live. **DO NOT** remove the cover without again turning off the breaker.



The power indicator will turn white when hot water is flowing and the product is heating.

If the product is not powering on please contact Optimal® support by giving us a call or submitting a case form online.



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