



Nootka Saunas - Barrel Sauna Assembly Overview

Definitions:

Dados/Dado Cuts: the partial depth cuts that the front and back walls of the sauna sit into.

Staves: The boards that run front to back to make the barrel

Required Tools For Assembly:

- Drill/Electric Screwdriver (Square #2 Bit and Phillips bit)
- Wrench and/or socket set
- Mallet
- Hammer
- A level
- A small step ladder
- 20+ ft ratchet strap or strong rope (recommended)
- Reciprocating saw or jigsaw (for wood fired model)

Required Tools/Parts For Electrical Connection:

- Wire Strippers
- Small Flat Head Screwdriver
- A disconnect box
- ½" PVC pipe and connectors (to connect PVC pipe to Junction box)
- A step bit for drilling hole into junction box and connecting the disconnect
- 8 AWG wiring to connect from Disconnect box to junction box
- 1x TECK connector for 8-3 Wiring for sauna heater

The typical install takes one of our trained technicians about 5 hours. If you haven't assembled a barrel sauna before, you should budget about 7-8 hours for assembly. Although assembly can be done with one person, working with two people will make the process much faster and more enjoyable.



Step 1: Start by laying out the feet down, ensuring that they are level.

Lay a stave across the feet to measure the distance between the feet. The front and back feet should be inset from the front and back ends of the sauna by 8" and the middle foot should be centered between them.

(smaller 5ft and 6ft models only have two feet, larger units have 3 feet).

TIP: Add a stave on both sides of the feet and make sure your measurements line up on both sides to help ensure the feet are square.





Step 2: Mount the staves to the feet with one screw into each foot. As you add each stave, ensure the **dado cuts** line up properly and that the staves are snugged together (use a mallet to tap them tighter if needed).

Add 9 staves until you've made the cradle as shown in the photo.



Step 3: Now, we'll mount the front and back panels into the cradle.

Start by placing the back center panel into the dado cut groove and ensuring that it's vertically level.

Mount the front center panel and also ensure it is level.

Temporarily connect a stave between the tops of the front and back panels to secure the setup (as shown in the photo).

Now that you have the center panels mounted, we'll add the left and right panels for the front/back walls. These are labelled as follows (from the perspective of standing in front of the sauna and looking at the sauna).

F.L = Front Left

F.R = Front Right

B.L = Back Left

B.R = Back Right

TIP: If working alone, use a 2-3 ft piece of lumber with 45 degree cuts as a support stick. Simply tack two screws into it (one into the floor and one into the center of the back wall). This will ensure the panel stays secure and vertical while you mount the front center panel.



Step 4: To secure the left and right sides of the **front panel**, add a side panel and then drive screws front the door frame into the upper and lower 2x4 cross supports in the panel (as shown in by the black arrows the picture). Use two screws for each cross support (8 screws total).



Step 5: To secure the **back panel** side pieces, to the middle back panel, drive screws through the bench supports and the mid-back wall support (following the same screw pattern that the cross supports already have)



Step 6: Now that the front and back wall panels are mounted, add one stave at a time. Driving one screw per side through the stave into the front/back wall panel. Ensure each stave is snug to the previous stave and tap with a mallet if needed.

Do this until you are just past the bench supports on both sides of the sauna.



Toenail the center supports into the floor/staves

Attach the bench slats to the center slats with screws from below

Step 7: At this time, we'll want to:

-Mount the benches (5x 2x4's on each side) and a center support for each bench. For the bench's center supports, only one screw per bench slat is needed and it's recommended that you screw up through the bench support so no screw head is visible in the middle of the bench.

For attaching the bench slats to the front and back wall, add one screw per slat (*on electric heater models, you may need to remove the wiring panel cover from the front wall to add screws for the middle three bench slats*). Add these screws carefully and consider adding a pilot hole to avoid splitting the bench slat



-Mount the front benches (if you have a deck/overhang)

-Sneak the wires between two bench slats and Run the wiring under the benches.

TIP: For bench slat spacing, we recommend having the benches about 3-4mm apart. The diameter of a screw works as a good spacing guide.



Step 8: If you have a model with a porch, the front/exterior benches can now be added. Attach the bench to the front wall and the staves as shown.



Step 9: Now simply continue adding **staves** to both sides of sauna until you meet in the middle at the top of the sauna. **IMPORTANT:** Once you pass the half way point on either side of the sauna, stop screwing the staves into the front/back wall panels... When the left side staves and the right side staves meet at the top, we'll need to squeeze in that final stave and the positioning of several staves will move slightly in doing so.

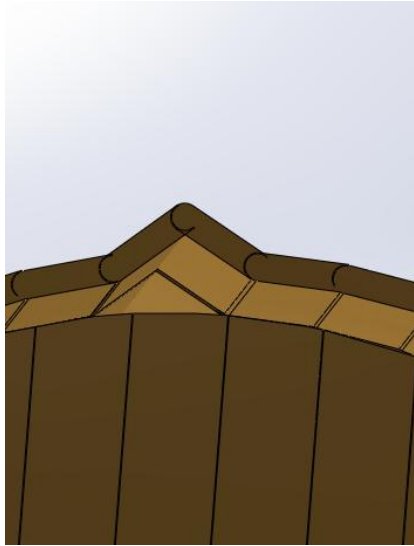


Step 10: You'll notice that among the staves you've been provided, there are two staves that are narrower in width. These can be used if the final gap where the left and right side staves meet can't accept a full width stave between them.

IMPORTANT: To get the best fit and ensure there aren't gaps between the staves which would allow hot air to escape and rain water in after install, select a final stave that creates a moderate "tent" (ie: doesn't fit immediately). Put a ratchet strap around the middle of the sauna and secure it as tight as possible. Systematically take your mallet and tap all of the unscrewed top half staves to slowly work the final stave into place.



Don't panic if it looks like the final stave won't fit at first. This process can take a bit of time but it's time worth spending to ensure you've got a very well built unit.



Once you've got the final stave pretty well in place, start screwing the unscrewed staves into the front and back panels. It's usually easiest to screw every fourth stave, then every second stave then the final staves to ensure the spacing is even and that all the staves are pulled into front and back wall panels evenly

TIP: Cedar can change dimensionally over time. It might be necessary to retension the sauna or change the final stave out for a wider one down the road (depends on if you're in a wet or dry climate)



Step 11: Take off the ratchet strap now that all the staves are screwed in. Insert the provided cotton wicking between all of the staves that make up the "top half" of the sauna. This cotton wicking expands when wet and makes a good seal between boards. Use a putty knife, caulking iron or something with a straight edge to work the wicking between the joints.

Now we can mount the 3 stainless steel bands. The front and back bands will cover the screws that go from the staves into the wall panels and the middle should be approximately centered between the front and back bands. Use the provided banding and band clamps.

TIP: Re-attach the ratchet strap around the middle of the sauna barrel while tensioning the middle banding strap. This will help get extra tension in the banding strap



Step 12: Now that everything is setup, you can:

-Hang the door using the two hinges included. Align the door as close to the top of the door frame as possible (without it rubbing on the frame). The door is designed for a tight fit, so sometimes sanding/hand planing of the door is required to stop the door from rubbing/getting caught at certain areas. A second person to hold the door really helps here. The hinges should be approximately 6-8" from the top and bottom of the door.

- Add the door handles

- Mount the trim (use finishing nails provided)

-Mount the door stopper frame (consists of 4 pieces of 1x2)... also use finishing nails for this and do this when the door is closed to ensure the door stopping frame sits flush with the door

-Mount the door catch

-Mount the junction box on the back wall of the sauna and feed the wiring through the predrilled hole

-Mount the temperature sensor to the back wall. The wiring for the temperature sensor should be 2" below the ceiling of the sauna and directly above the heater. Tampering with the location of the sauna heater can cause the heater's internal limit switch to trip off.

YOUR DONE!! NOW, JUST YOU JUST NEED TO GET YOUR HEATER HOOKED UP BY AN ELECTRICIAN. DETAILS BELOW

Electrical Sauna Heater Installation

The Homecraft sauna heater comes with a 1 year manufacturer warranty through Homecraft (not through Nootka saunas). For warranty questions/assistance, please contact: 1-800-870-7544 or stewart@saunas4less.com

The below manual shows the wiring setup for 5kW, 6kW and 7.5kW heaters. All of these heaters (including 7.5kW) can run on a 40A breaker.

A couple important things to note:

1. Most jurisdictions require a disconnect box to be installed on the sauna next to the junction box. This is a \$20-\$25 device (photo below) and allows you to safely disconnect the sauna from the power source without relying on the breaker panel.

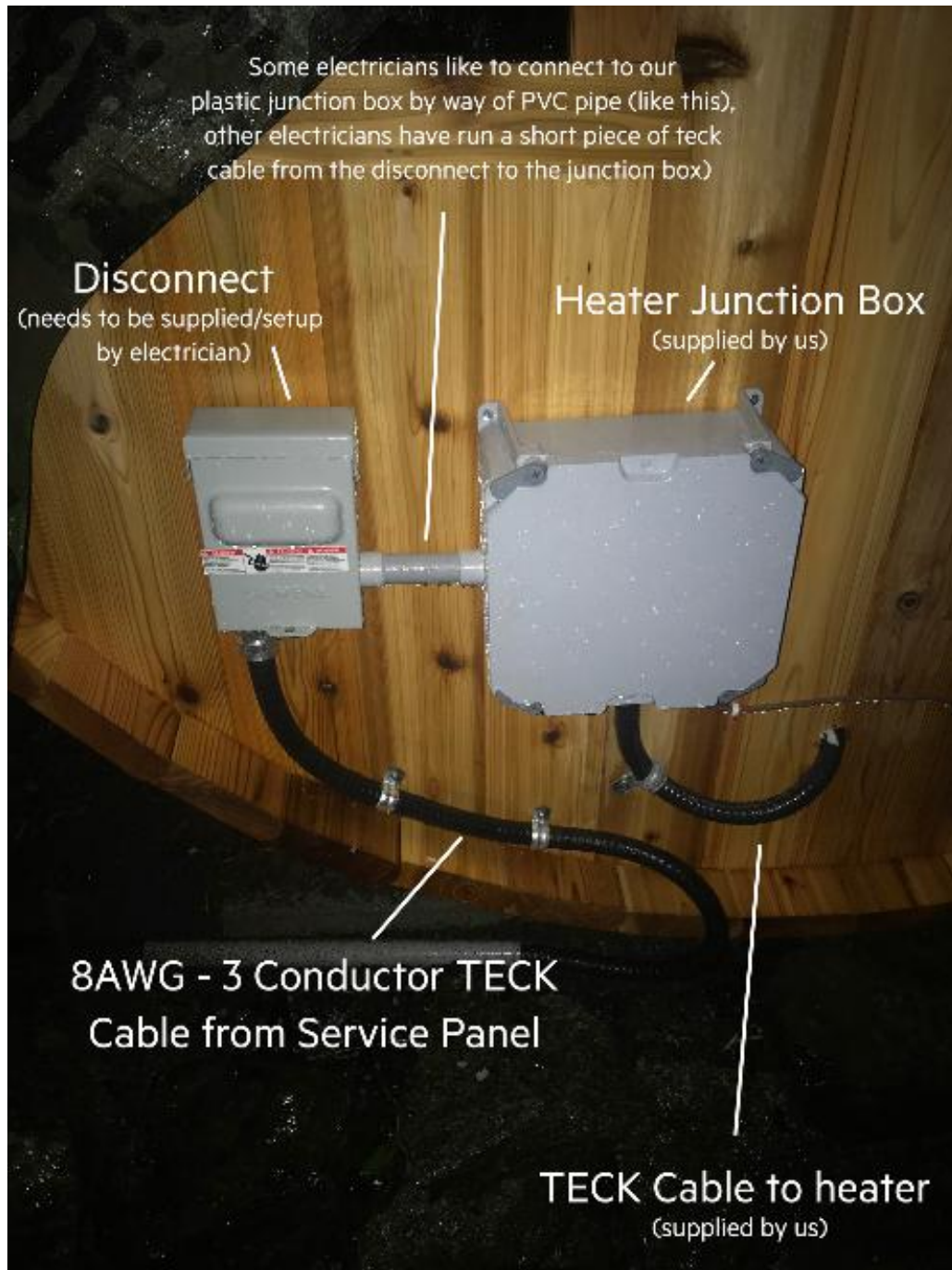


2. Wiring must be done by a certified electrician and in accordance to the manual. Use the below reference table for connecting the 4 conductor and 2 conductor cables to the junction box and the temp sensor respectively.

4 Conductor 18AWG Cable		
Cable Conductor Color	Connection on Front wall Control Panel (pre-wired)	Connection in Plastic Junction Box (terminal strip)
Red	24V AC	RED
Black	24V AC	RED
White	CONTROL	YELLOW
Grey	CONTROL	YELLOW

2 Conductor 18AWG Cable		
Cable Conductor Color	Connection on Front wall Control Panel (pre-wired)	Connection to
White	PROBE	Connect with twist on cap/connector to temp sensor.
Black	PROBE	Connect with twist on cap/connector to temp sensor.

3. Below is a reference of what a typical wiring setup looks like for a Nootka sauna with an electric heater.



HOMECRAFT

Sauna Heaters and Controls, Installation and Wiring Instructions For single phase installation for HSH 7.5 and 9kw heaters

1. General Specifications

IT IS UNLAWFUL TO INSTALL THIS UNIT WITHOUT FIRST OBTAINING A PERMIT FROM YOUR LOCAL ELECTRICAL INSPECTION AUTHORITY. Electrical wiring and hook-up should be done only by a certified electrician. Electrical connection by a non-certified person voids the warranty. Never install electrical wiring such that it could be exposed to heat radiating from the sauna heater. The control box must be installed on the outside of the sauna room. Do not install any electrical receptacles inside the sauna room.

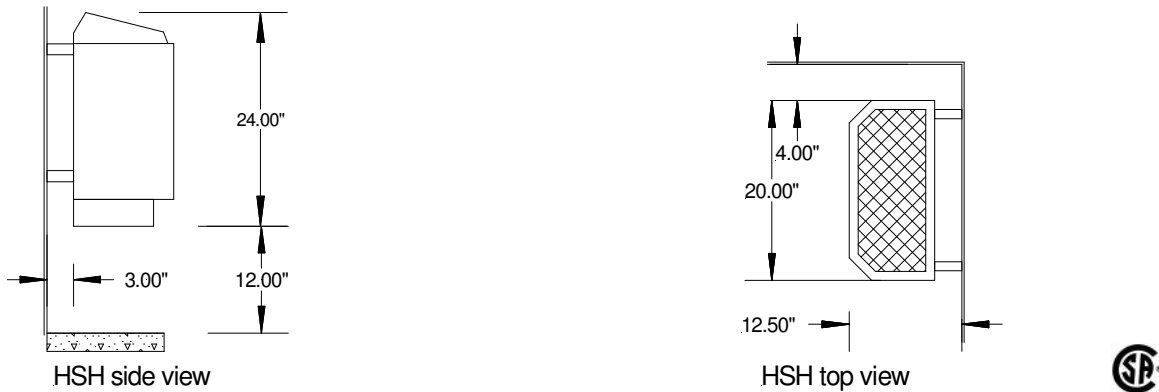
The following wire sizes and circuit breaker specifications are provided as a guide only. Your local electrical code may require different sizes and will supercede this guide.

Note: **no combustible materials are permitted under the heater.** Examples: duckboard flooring, towels, paper towels, etc.

Sauna Heater Specifications

Model	Watts	Voltage	Phase	Amps	Circuit Breaker	Wire 90° C Copper	Digital Control
HSH 7.5	7500	240 / 208	1	31.3 / 36.1	50	8	TKE1
HSH 9	9000	240 / 208	1	37.5 / 43.3	50/60	8 / 6	TKE2

Figure 2. HSH clearances to wood surfaces



Model	Weight	Clearance to ceiling	Minimum room cubic footage	Maximum room cubic footage	Minimum ceiling height
HSH 7.5	67 LBS	42 inches	300	370	78"
HSH 9	67 LBS	42 inches	360	450	78"

Figure 3. Heater Location

2. **Sauna Heater Installation**

Note: remove plastic protective coating on outside of heater after complete installation but before start-up.

Homecraft sauna heaters come fully assembled. Mounting hardware is in the heater carton.

Installation Steps:

2A. Screw the wall mounting brackets to the wall as show in Figure 3.

2B. Lay the heater on the floor and remove the bottom plate. Open the appropriate knock-out and install the sealtight connector. Connect the wiring as shown in the wiring guide. Replace the bottom plate.

2C. Hang the heater in place on the wall mounting brackets and secure the lower heater support bracket to the wall with the screws supplied. Fill the heater rock basket with the sauna rocks provided.

Note: the sauna heater should not be operated without the recommended quantity of rocks.
ENSURE PROPER AIRFLOW AROUND THE ROCKS.

2D. The thermostat temperature sensor should be mounted inside the sauna at the appropriate location shown. If the sensor bulb is not positioned correctly, tripping of the high limit switch inside the heater will occur.

2E. **Remove the plastic protective cover off the heater.** The guard rail shown in Figure 6 can now be installed.

2F. After the heater and control have been installed, the heater should be turned on high for one hour to “settle” in the heater and the rocks. During this time any protective coating remaining on the elements will burn off as well. This is normal. Do not enter the sauna room during this initial start-up.

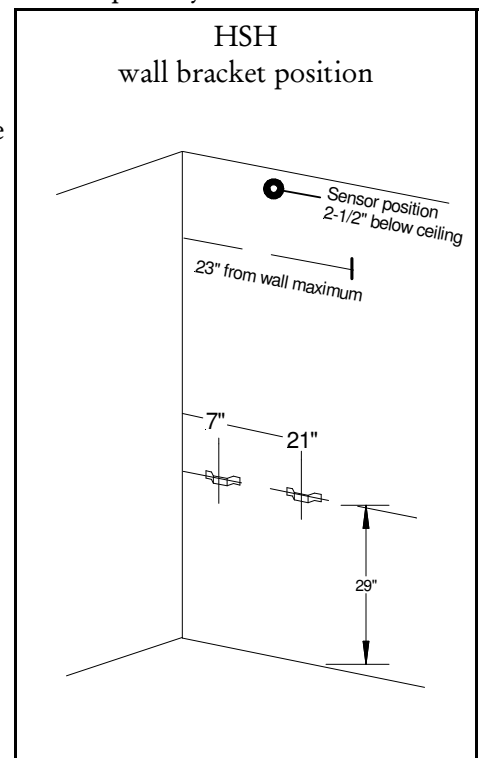
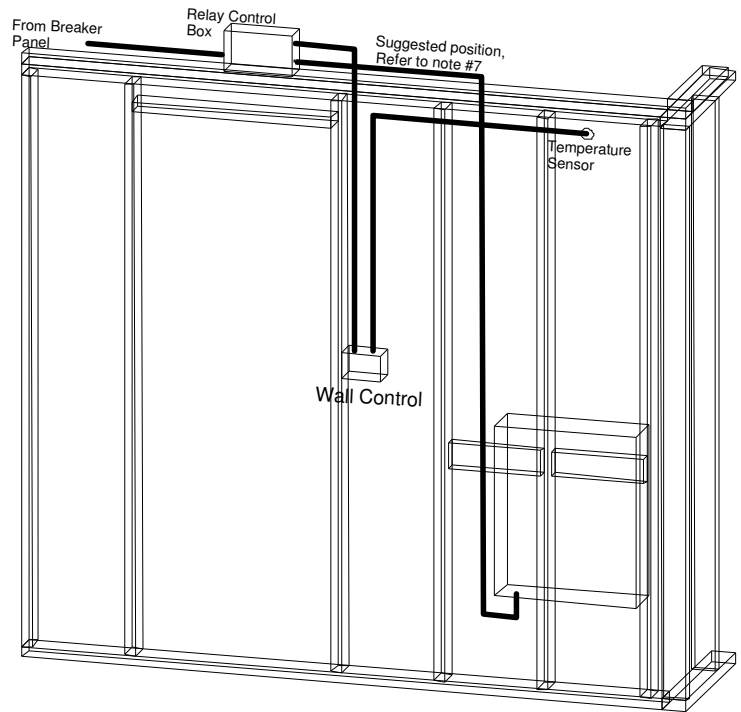


Figure 4.

3. Sauna Lights

Sauna lights should be approved for this use and in a sealtight vapor-proof housing. Sauna lights must be at least 12 inches distance horizontally from the edge of the sauna heater. Switches for sauna lights must be located and operated from outside the sauna room. Do not install lights over the sauna heater. Optionally a separate dimmer switch for each light can be used to control the intensity of each light in the sauna room. The electrical supply for the lights is 120 volts and is separate from the heater electrical supply.

4. Manual Safety Switch

All Homecraft sauna heaters have a thermal safety switch to prevent overheating located in the front of the element box just below the front shroud. If the sauna heater switches off due to some abnormal condition, let the heater cool down and then reset the safety switch by pressing the safety switch stem located in the small hole on the front face of the heater, down near the bottom of the heater. If the "reset safety switch" trips frequently, please contact either a qualified serviceman or contact Homecraft directly.

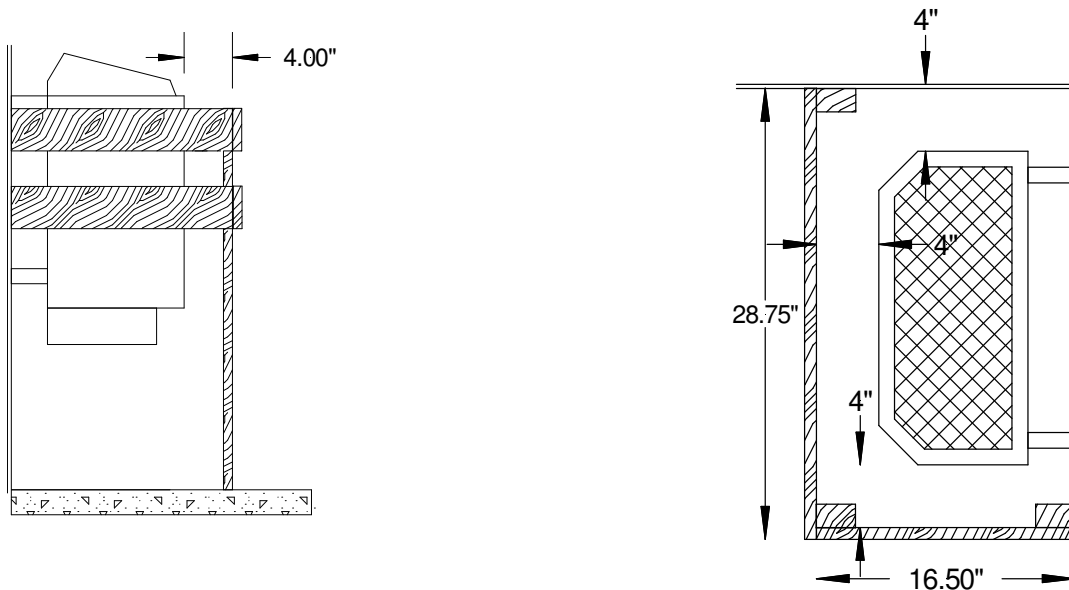
5. Shower Heads

Never install shower heads or water spray equipment above a sauna heater. Always use a sauna bucket and ladle to put water on the sauna rocks.

6. Heater Guard Rail

A wooden guard rail made of Western Red Cedar should be installed around your sauna heater. This guard rail is meant to prevent anyone brushing up against the side of the heater. Specified clearances between the heater and the guard rail is 4" minimum on all sides (except for one side of the CHSH heater). You should use either 1" X 4" or 2" X 4" material ensuring the guard is securely anchored to the wall and cannot be inadvertently moved.

Figure 6. HSH heater guard clearances



7. Electrical Instructions

For digital control for HSH 7.5kw and HSH 9kw heaters, 208 / 240 volt single phase.

We have supplied an electronic digital wall-mount control panel for your sauna heater. This electronic control is precise and offers more features than any other sauna control currently on the market. The wall control is a Class II 24 volt circuit and should not require a GFI breaker. Be sure to check with your local inspection authority.

Please note the following:

-It is unlawful to install this unit without first obtaining a permit from the local electrical inspection authority.

-Electrical wiring and hook-up should only be done by a certified electrician. Electrical connection by a non-certified person voids the heater warranty.

You will require a 2-gang electrical box to house the digital wall-mount control panel. This box should be mounted in the outside wall of the sauna. All sauna controls and room light switches must be operated from outside the sauna.

This control consists of these components: 1) a “relay control box” containing a 24 volt Class II transformer and relays, and 2) a digital “wall-mount control panel” that mounts to a 2-gang electrical box (owner supplied) by which you set your time and temperature, and 3) a package containing wire, temperature sensor, electrical connectors, tie strap, rubber grommet, and 4 faceplate screws required for installation.

Please refer to the enclosed wiring schematic that clearly shows the path of the wiring.

8. Relay Control Box

The “relay control box” holding the 24 volt Class II transformer and relays are supplied in a metal box. The relay control box can be surface mounted or flush wall mounted. This box needs to be mounted in a location that you can access should servicing be required. **Suggestion;** if your home has a suspended ceiling you can mount the relay control box on the top plate (2x4) of the wall. This way you can simply lift a ceiling panel and gain access to the relay control box in the future. Another suggestion is to mount the relay control box in the stud space in the sauna wall and provide access through a panel on the outside wall that can be opened for possible servicing in the future.

Note that 12 feet of 18/4 wire is supplied with this control for connecting the relay control box to the wall control panel so be sure to keep within this distance. Install the rubber grommet in the 3/8” hole on the side of the metal relay control box. Then be sure to run the 18/4 wire through the rubber grommet in the side of the box. After connecting the 18/4 wire to the appropriate connections, secure the wire by using the enclosed tie strap, running the strap through the two loops on the inside of the box. Pull the strap tight so the wire connections are not subject to tension if pulled from outside the box.

If more than 12 feet is needed for your installation, you can order additional wire from Homecraft or purchase 18/4 wire locally. Do not splice on to the 12 foot length of 18/4 wire. Be sure to connect colored wires consistently between the relay control box and the wall control panel as per wiring diagram.

9. Wall Control Panel

The “wall control panel” has been designed for simple operation by means of gentle finger pressure on the square switches. The control panel must not be installed inside the sauna.

-“I/O” turns the unit on or off

-“F/C” switches between Fahrenheit and Celsius temperature readouts up to an allowed maximum temperature of 194 F (90 C) as permitted by national code.

- time and temperature are easily adjusted by pressing the appropriate button for 3 seconds. Time can be set up the maximum allowed, 60 minutes.
- touching any button will display the current status.

Cleaning: use a damp cloth. Do not use “Windex” or ammonia based cleaners. A mild soap should be sufficient.

10. Temperature Sensor

The temperature sensor is attached with the supplied connectors to the length (12 feet) of 18/2 wire. If you require a longer distance between the sensor and the wall control panel buy a new continuous length of 18/2 wire and attach the sensor to it. Do NOT splice onto the 12 foot length of wire. Be sure to run the 18/2 inside the insulated stud space in the sauna wall. * Be sure to leave a little slack in the 18/2 wire in the stud wall. Strip about 6” from the **outer casing** of the 18/2 pair, leaving the protective casing on the individual leads. This will make it easier to attach the 18/2 wires to the sensor leads, and gives more flexibility when pushing any excess wire back into the wall. The sensor wire should come out of the wall into the sauna room through a 5/8” diameter hole so the sensor is positioned over the heater according to the heater instructions (see figure 4).

Do not hide or bury the sensor behind a cover other than the one supplied with this control. Incorrect installation of the sensor will negatively impact the heater operation, cause nuisance high limit tripping (safety device in the heater), and compromise personal and fire safety.

11. Sensor Cover

Using the supplied #8 wood screw, fasten the sensor to the sauna wall over the sauna heater in the prescribed position 2-1/2” below the ceiling. Be sure to remove the protective plastic film from the stainless steel sensor cover (Figure 7) . Next, fasten the sensor cover to the wall using the supplied 4 - #6 wood screws, covering the sensor and taking care not to nick or cut the wires leading to the sensor. The sensor cover is designed to allow for adequate airflow. It adds a nice finished look to the sensor and also protects the sensor from tampering.

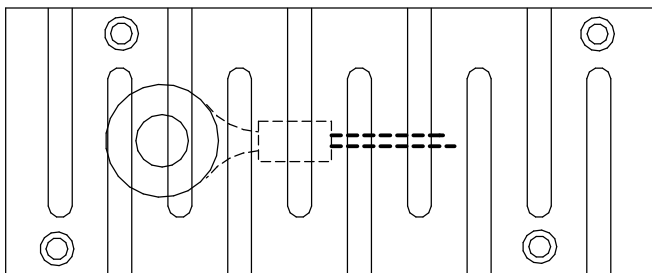


Figure 7.

* NOTE ON INSTALLATION IN A PUBLIC SAUNA.

Some facilities have experienced vandalism of the control sensor. The Homecraft sensor cover is designed to give maximum security against vandalism. If the sensor needs to be replaced, it may be necessary to “fish” the 18/2 wire back through the hole. This is why we suggest leaving at least 6 inches of slack on the lead wire on the 18/2 cable. Be sure when mounting the 18/2 wire in the sauna wall that the cable will not fall down and away from the hole and that there is enough slack to pull the leads through.

In the event the sensor is vandalized the safety feature of the control will disable the heater from operating.

CAUTION: In a public sauna the sensor should be visually inspected every day to ensure there are no obstructions and that air flows freely around the sensor.

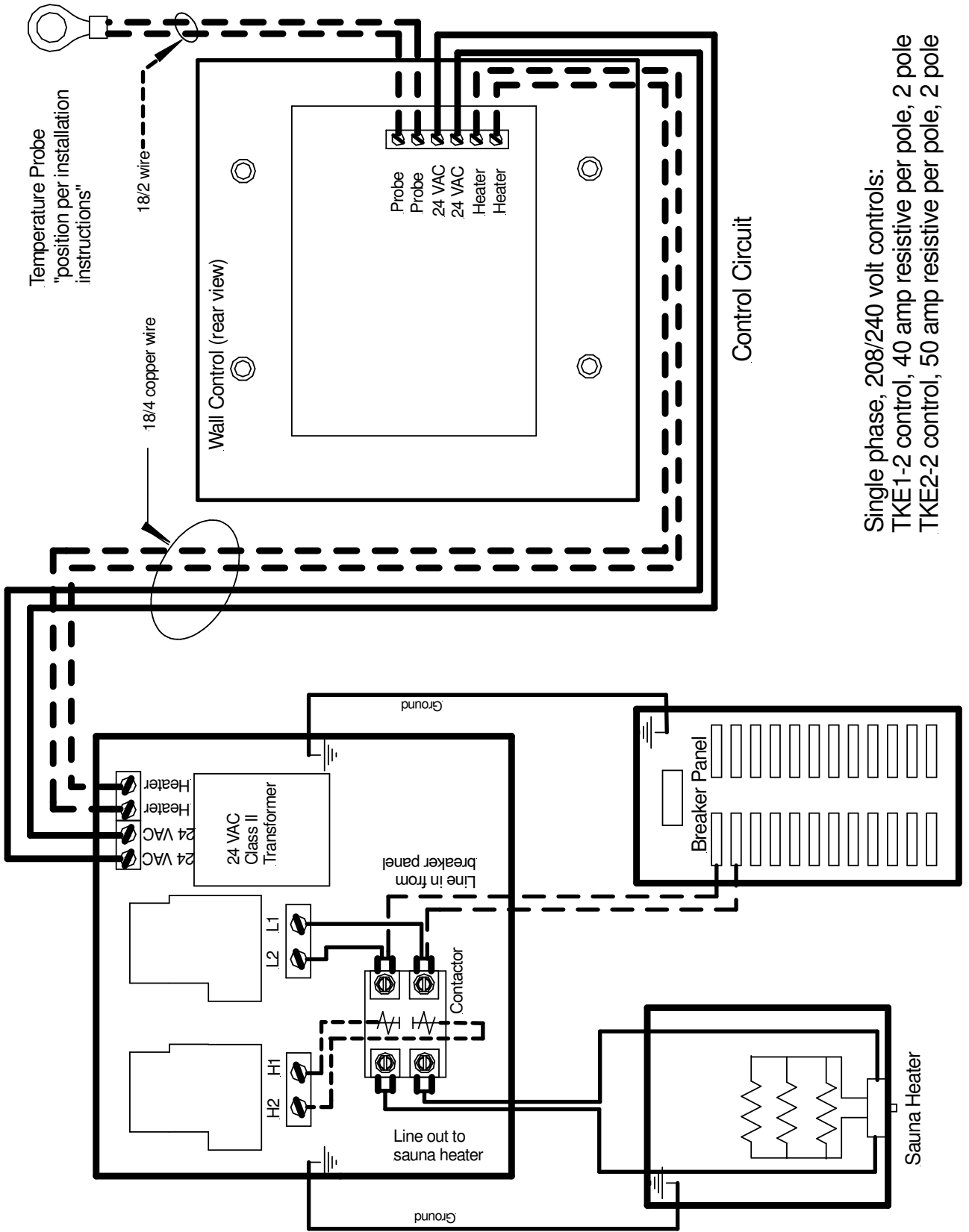
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Single phase, 208/240 volt controls:
 TKE1-2 control, 40 amp resistive per pole, 2 pole
 TKE2-2 control, 50 amp resistive per pole, 2 pole