nootka
saunas

barrel sauna

heater setup instructions

ATTENTION:
All electrical wiring for the sauna must be completed by a certified electrician.

Where any Nootka Saunas' instructions and the heater manufacturer's instructions contradict each other, defer to the manufacturer's instructions.

As per CSA C22.2 No.164-2018, section 1.2 and section 8.1.3, "*factory built sauna rooms where the necessary wiring and heater installation is done in the field*", require the heater assembly to carry a CSA C22.2 NO.164-2018, but the room itself is exempt from the directive. The homecraft Heaters that are included with all Nootka Sauna kits carry this label.

Having trouble? For questions, comments, or concerns, please reach out to hello@nootkasaunas.ca

PART 1: ELECTRICAL TO THE REAR WALL OF THE SAUNA

APPROX. TIME REQUIRED: DEPENDS ON SITE SETUP*

Note to Electrician: Please let the client know the estimated cost for the scope of work included in Part 1 and Part 2

PARTS REQUIRED (NOT INCLUDED WITH SAUNA)

1. BREAKER (approximate cost: <$100)

The breaker requiring for your sauna depends on the size of heater you ordered.
8ft sauna (6'5" room + porch): Standard 9kW Homecraft heater, required 50A NON GFI Breaker
or optional: 7.5kW Homecraft heater, requiring 40A NON GFI Breaker
10ft sauna (8'6" room + porch) 9kW Homecraft heater, requiring 50A NON GFI Breaker

2. WATERPROOF DISCONNECT (approximate cost <$50)

Most jurisdictions require a disconnect that is visible and within a certain distance of the sauna. A simple weatherproof, pull bar disconnect is typically suitable. Some electricians will mount these on the rear of the sauna, whereas others will mount the disconnect on a house or nearby structure.

3. WIRING AND FITTINGS (approximate cost: $20/meter + fittings and connectors)

From your breaker box to the back of the sauna, Electricians will typically run a 8-2 TECK cable (or equivalent AWCU), as this is armoured and rated for outdoor environments. Most jurisdictions require it to be trenched. For installations under covered areas, provided it's up to code for the area, electricians will sometimes run cable inside of PVC or metal conduit.

The Electrician will also need to run the wiring and supply the materials to run power from the 884 PVC junction box that's mounted on the rear of the sauna to the disconnect.

NOTE ON TRENCHING YOUR ARMOURED CABLE.

Most jurisdictions require the armoured cable to be trenched. Several customers choose to dig their own trench or have a landscaper dig the trench. In this case, it's highly recommended that you consult your Electrician first to ensure that your trench is up to code and that a sensible path for the trench is chosen.

ALWAYS CALL BEFORE YOU DIG!

Never start digging without first calling your local authorities to ensure there are no gas lines, electrical cables, data lines or other such hazards on your property. This can be a very costly and even dangerous mistake to make.

Provided below are useful resources for who to call before you start digging in Canada:

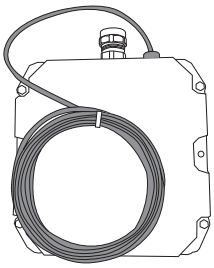
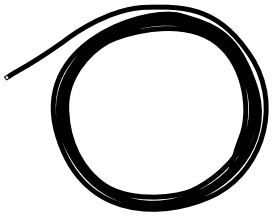
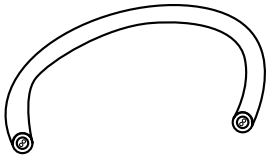
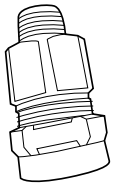
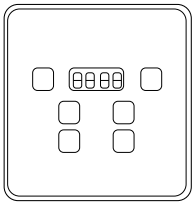
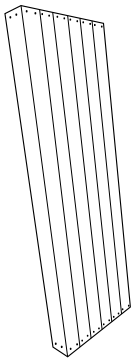
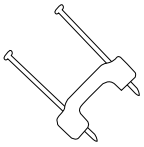
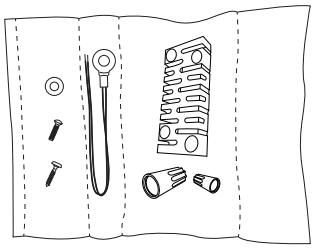
British Columbia: https://www.bc1c.ca/
Alberta: https://www.albertaonecall.com/
Manitoba: https://www.clickbeforeyoudigmb.com/
Ontario: https://www.ontarioonecall.ca/
Yukon: https://yukonenergy.ca/health-safety/electrical-safety/call-before-you-dig
Quebec: https://www.info-ex.com/en/
USA: https://call811.com/

PART 2: WIRING THE SAUNA HEATER

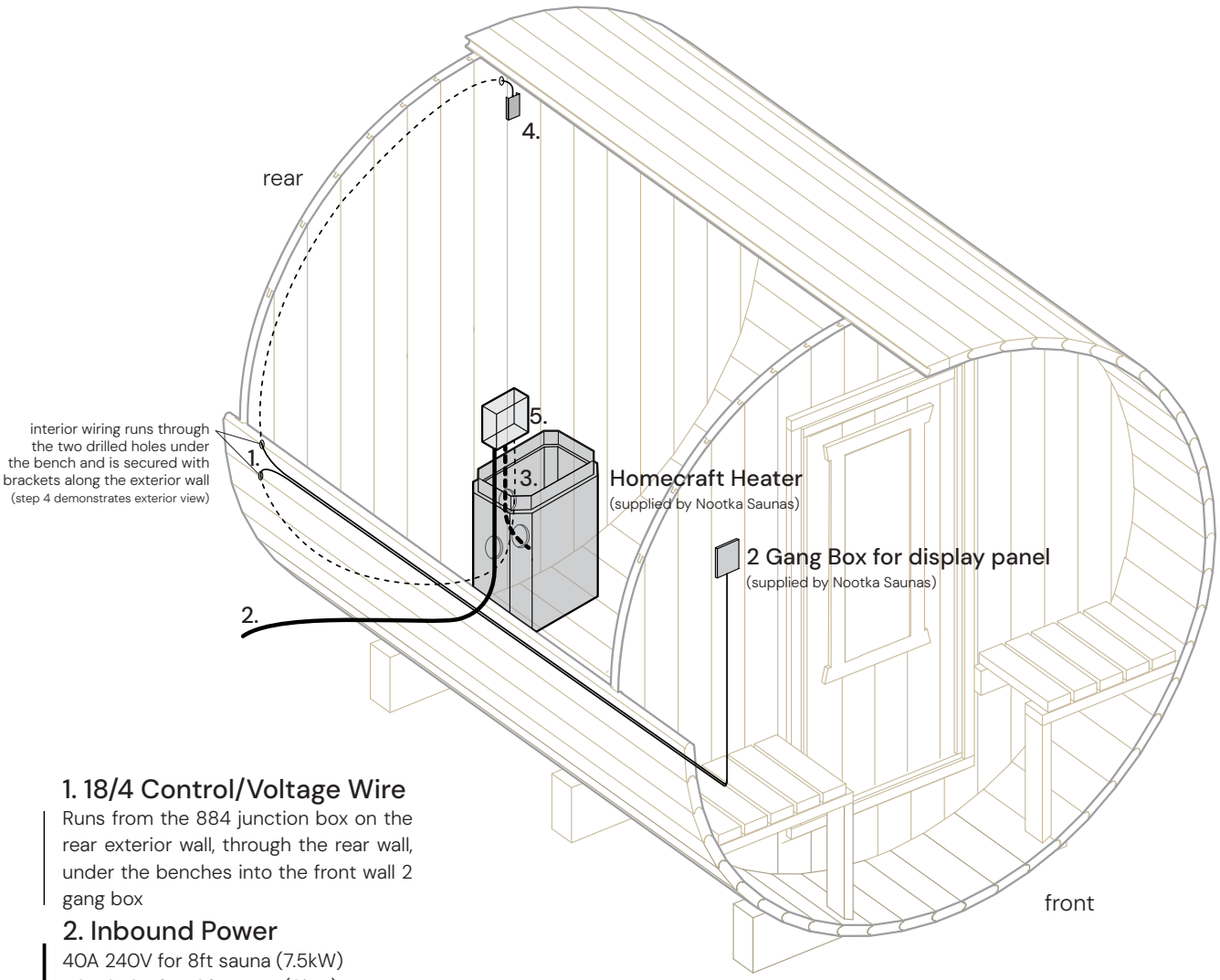
APPROX. TIME REQUIRED: 2 HOURS*

Note to Electrician: Please tell the client if you're not able to complete this work in the estimated time. All electrical components required for the below section should be supplied by the sauna

included parts list

			
Junction Box for Rear Wall with TECK connector installed with 18-4 Cable	18-2 Cable with Temp. sensor wire and cover 22ft	TECK Cable 8-2 (connecting the heater and junction box) 3ft	TECK Connector
		20pcs 	
Display Control Panel	Electrical Panel Cover	Cable Staples	Sensor Cover Kit

electric heater layout



1. 18/4 Control/Voltage Wire

Runs from the 884 junction box on the rear exterior wall, through the rear wall, under the benches into the front wall 2 gang box

2. Inbound Power

40A 240V for 8ft sauna (7.5kW)
50A 240V for 10ft sauna (9kW)
NON-GFI circuit required

3. 1 meter 8/2 TECK cable + TECK connectors

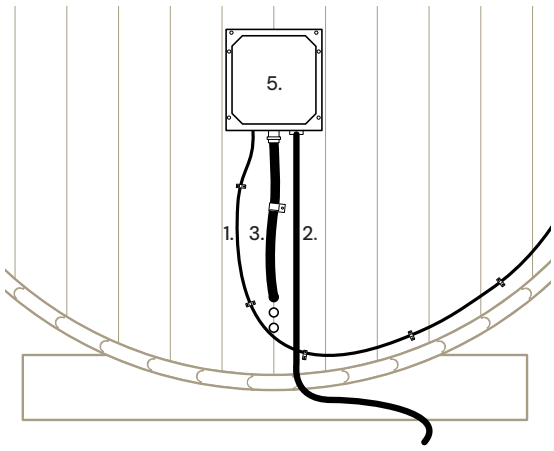
To be run between heater and 884 Junction Box by the electrician (supplied by Nootka Saunas)

4. 18/2 Temp. Sensor Wire

Temperature probe is mounted on rear wall of the sauna above the heater. Wiring runs along the back wall then into the sauna, then continues next to the 18/4 cable under the bench and into the front wall 2 gang box (supplied by Nootka Saunas)

5. Junction Box

To be mounted by electrician to exterior wall (supplied by Nootka Saunas)



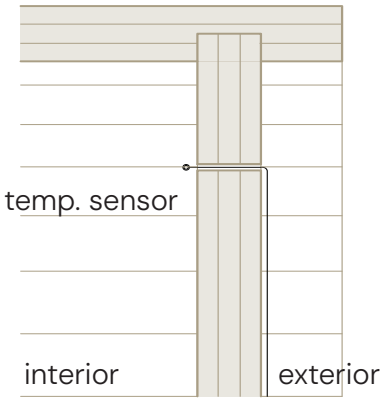
exterior rear view

1 mount the temperature sensor

Approximately 2" down from the ceiling on the rear wall (above the heater), there is pre-drilled hole. Feed the 18/2 wire with the soldered temperature sensor through the hole from the INSIDE of the sauna to the EXTERIOR of the sauna.

Mount the temperature sensor to the rear wall with one screw (leave about 1/8" play between the screw and the temperature sensor).

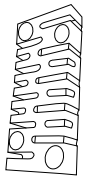
Run both wires under the benches to connect with the 2-gang box.



section view of rear wall

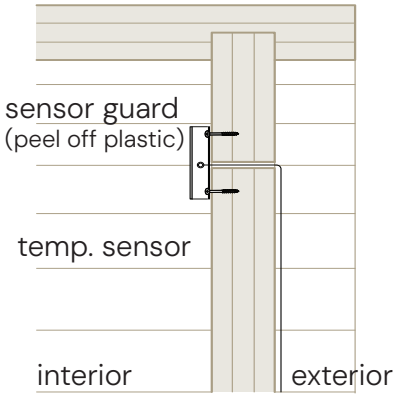
2 mount temperature sensor guard

There should be at least 1/8" play between the screw and the temperature sensor



IMPORTANT

Ensure the air vent hole behind the heater remains open
Ensure rocks are loosely packed allowing gaps for heat to escape
Do NOT fully tighten the temp. sensor against the wall.
Allow air to pass sensor on both side of it's resting position.
Mount temp. sensor directly above the heater 2" from the ceiling.

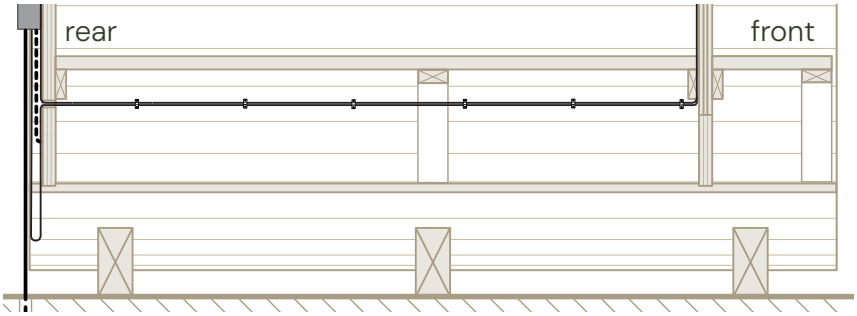


section view of rear wall

3 clean up the 18/4 and 18/2 wiring

Using the supplied cable staples, discretely run the two cables under the benches, securing them with cable staples.

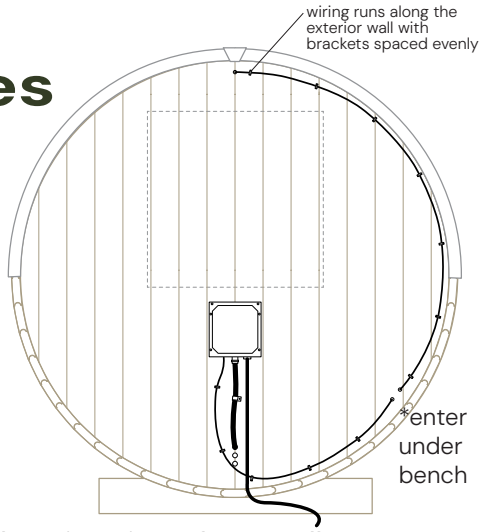
NOTE: There will be extra length to the wiring, either trim off the excess length.



section view of the under bench cables

4 clean up exterior wires

Secure the cabling to the circumference of the sauna's rear wall with the supplied cable staples.



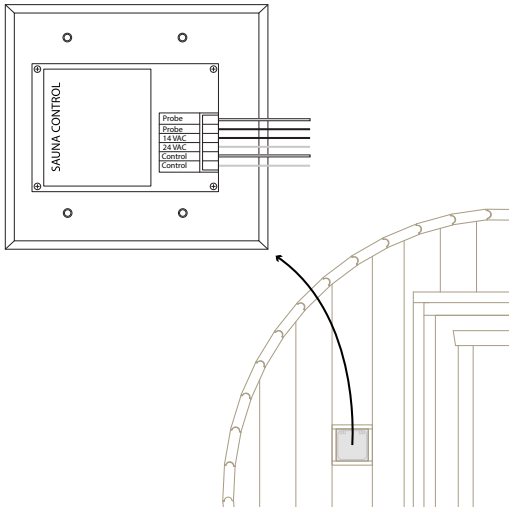
elevation view of rear wall

5 temperature sensor guard

First strip, then feed the 18/4 wire through the 2-gang box on this front wall, between two bench slats and then under the bench (this will get stapled in step 3). Run the remaining part of the wire out of the bottom hole from step 1.

Strip and carefully connect both the 18/2 and the 18/4 cables to the front display panel. The 18/2 conductors connect to the sensor port (bipolar)

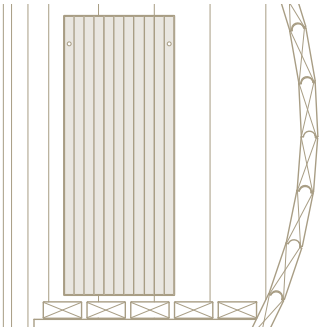
Two of the 18/4 conductors (usually red/black) connect to the 24VAC ports on the controller (bipolar). The remaining two (usually white/grey) conductors on the 18/4 cable connect to the control port. Secure the nylon cable gland that both the 18/2 and 18/4 wires run through.



exterior view of the front wall control panel

6 wooden electrical panel cover

Mount the supplied, wooden electrical panel cover to hide the 2-gang box from the inside of the sauna. Use two wood screws to secure the cover to the wall.



interior view of wooden cover

7 wire the TECK cable to the heater

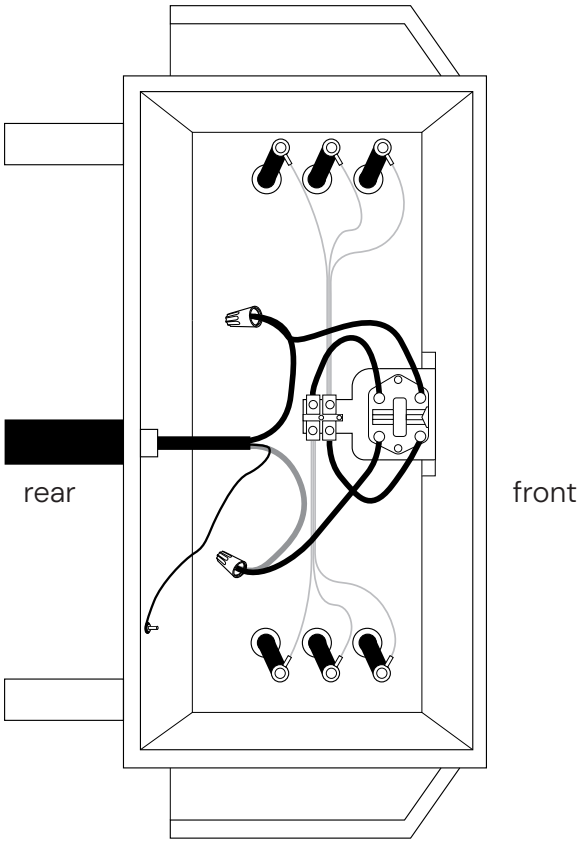
Remove the heater from the rear wall of the sauna (loft it up ans it will slide off the two hooks it sits on. Flip the heater upside down and remove the 4x self-tapping screws from the bottom of the heater.

Use the center rear knockout and mount the supplied TECK connector. Then feed in one end of the supplied 18/2 TECK cable and secure the L1, L2, and GND wires. Use the supplied marrettes for the L1 and L2 connectors and for the GND, use the welded lug.

IMPORTANT

MAKE SURE THE MARRETTE CONNECTIONS FOR L1 AND L2 ARE VERY SECURE WHILE ENSURING THAT THE WIRES AREN'T TOUCHING THE WALLS OF THE ENCLOSURE WHEN YOU CLOSE THE BOX BACK UP.

Flip the heater to be right-side-up and feed the TECK cable through the hole on the center of the back of the wall through to the exterior.



bottom view of heater

MOUNTING ELECTRIC HEATER

IF THE HEATER HAS NOT BEEN MOUNTED PRIOR TO ELECTRICAL INSTALLATION/WIRING, IT WILL HAVE TO BE MOUNTED BY THE ELECTRICIAN.

To mount your stove, fasten the two wall-mount brackets (taped to the stove for shipping) to the back wall of the sauna. The stove will slit into these.

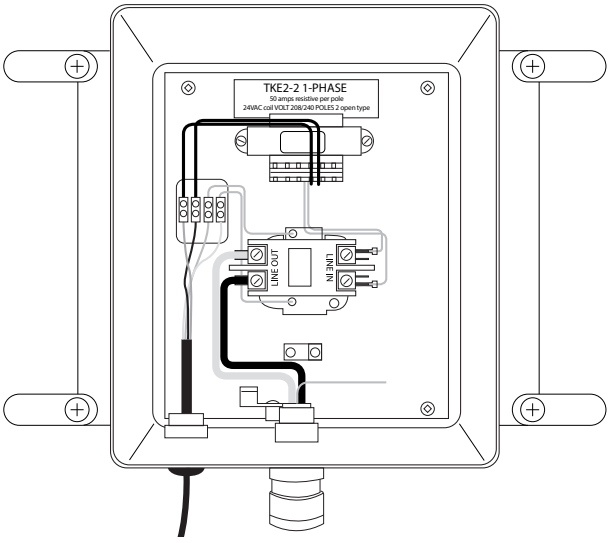
To determine the exact positioning for the brackets, position the stove such that the circular punch out on the bottom rear of the stove lines up with the upper hole on the back wall of the sauna. Use a level in the basket of the stove to ensure the stove is level before marking the bracket positioning with a pencil.

NOTE: Due to slight variations in the stoves and saunas, we recommend following the above method for positioning the brackets; however, they are generally screwed into the back wall approximately 23 3/4″ above the floor and 10 3/8″ apart.

NOTE: The barrel sauna design, including the above-mentioned heater positioning has been approved by the Homecraft Heaters under their CSA certification (see final page of this package).

8 mount the junction box to rear wall

Ensure that all existing wiring is tight before closing the junction box.



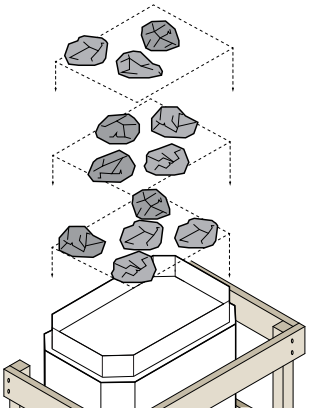
inside view of junction box

9 mount heater guard and add rocks

When installing the rocks, place the first layer scattered over the screen leaving approximately 50% of the screen exposed. Place each additional layer of rocks across the gaps so there will be good airflow. Stack the rocks loose and high NOT tight and low.

We send you more rocks than needed, please do not overload the screen. Keep in mind bad rock placement is the number one cause for the heater to malfunction.

Note: Rinse the rocks with water before installing onto the heater screen.



view of layered rock placement

IMPORTANT

BEFORE LEAVING THE SITE, THE ELECTRICIAN SHOULD RUN THE HEATER FOR A FULL CYCLE TO ENSURE THE SAUNA IS FUNCTIONING AS IT PROPERLY SHOULD.

- Once turned on, the unit should reach temperature (90C) within 15-20 minutes.
- Once the room reaches temperature, the heater should naturally cycle off for a few minutes
- After a few minutes the heater will cycle back on

This cycle allows the heater to keep the sauna hot, without over-heating the heater components. If the unit doesn't reach temperature in the expected time, or if the heater "trips" (shuts off and won't turn back on), see the troubleshooting instructions below.

troubleshooting checklist

Troubleshooting must be completed by a certified electrician and in accordance with the manufacturer's recommendations.

INITIAL CHECKS

Is the incoming power actually 240VAC?
We've seen issues before where only ~190V is coming in (one of the legs is compromised) and this ends up giving enough power to sometimes show life on the front control power but not enough power to pull in the contractor).

Is the power leaving the transformer in the rear wall junction box 23VAC?
(use a multimeter to check)

Check that all the 18AWG wires in the rear wall terminal block are secured.
Also check that the 18AWG wires in the front control panel are connected and secure.

TROUBLESHOOTING CHECKLIST

1

Do you see numbers/display on the front wall control panel?

YES: MOVE TO 2

NO: 24VAC isn't getting to the controller. Check the incoming power and make sure the 24VAC labeled 18AWG wires are properly seated/connected into the display and into the terminal blocks on the back wall junction box. Also, ensure that the low voltage wiring hasn't been punctured or damaged during the sauna assembly. For example, a screw through the 18/4 wire will short circuit the output side of the transformer.

2

When you hit ON, does the display show a temperature read out? (the current ambient temperature)

YES: MOVE TO 3

NO: It reads OPEN. The temperature sensor wires are disconnected (either where they go into the front wall display panel, or near the ceiling above the heater where they are soldered to the thermistor that's mounted to the wall. Check both for good connection.

3

3. When you hit ON/OFF do you hear a dull thud from the back wall junction box?

YES: MOVE TO 4

NO: The contractor isn't getting pulled in. It's very unlikely to have a faulty contractor, more likely that the "control wires" that go back to the contractor from the display control panel are not connected well or are damaged. With a multimeter, check the control wires at various points all the way back to the contractor to see if you're getting 24VAC.

4

Is there any heat being produced in the sauna after a minute?

YES: THAT'S GREAT! YOU'RE GOOD TO GO

NO: a) The heater wiring might be loose or not connected properly. Dismount the heater guard, remove the rocks and flip over the heater to inspect the wiring and ensure a good connection between L1, L2 and GND.

b) When your sauna heater is overworked the high-limit switch will automatically shut the heater down as a safety measure.

On the bottom of every Homecraft Sauna heater you will find CSA approved sticker with our heater information. In the very middle of the aluminum sticker is a hole where the high limit switch is located.

Steps to reset the heater:

1. Insert a safe (wooden) object in the hole and push to re-engage the high limit	2. You should hear the sounds of the switch re-engaging	3. Go to your control panel and turn the sauna heater on once again

Over-heating at the base will most commonly be caused by the following reasons:

1. There needs to be two un-blocked vent holes on the rear wall near the base of the heater	2. Remove a few rocks to allow more air flow through the system	3. Ensure the temp. sensor is mounted in the correct place, max 2" from the ceiling

If the high limit switch continues to trip in your sauna, then there is most likely an issue with your installation. Please advise us at orders@nootkasaunas.com and we will help determine the source of the problem.

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 be 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"

Last edited January 6, 2005

Figure 3. Heater Location

2. Sauna Heater Installation

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

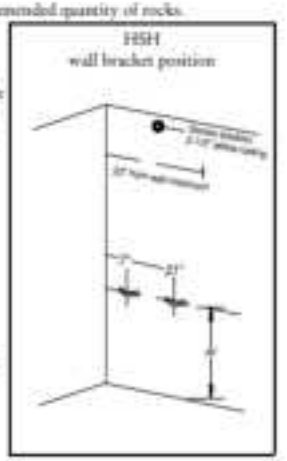
Homecraft sauna heaters come fully assembled. Mounting hardware is in the heater carton.

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 4 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

Last edited January 6, 2005

3. Sauna Lights

Sauna lights should be approved for this use and in a watlight 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.

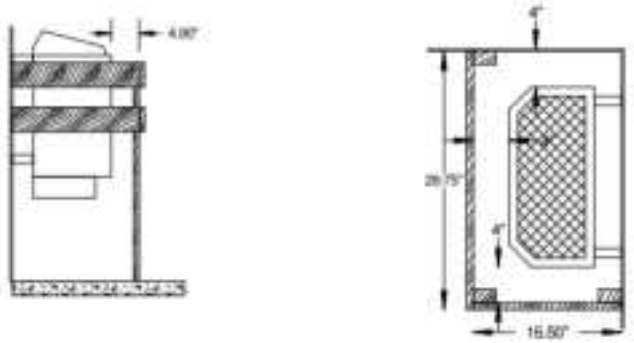
5. Shower Heads

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 many 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 (92 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.

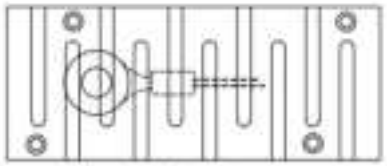


Figure 7.

* 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.

HOMECRAFT Manufacturing Corporation

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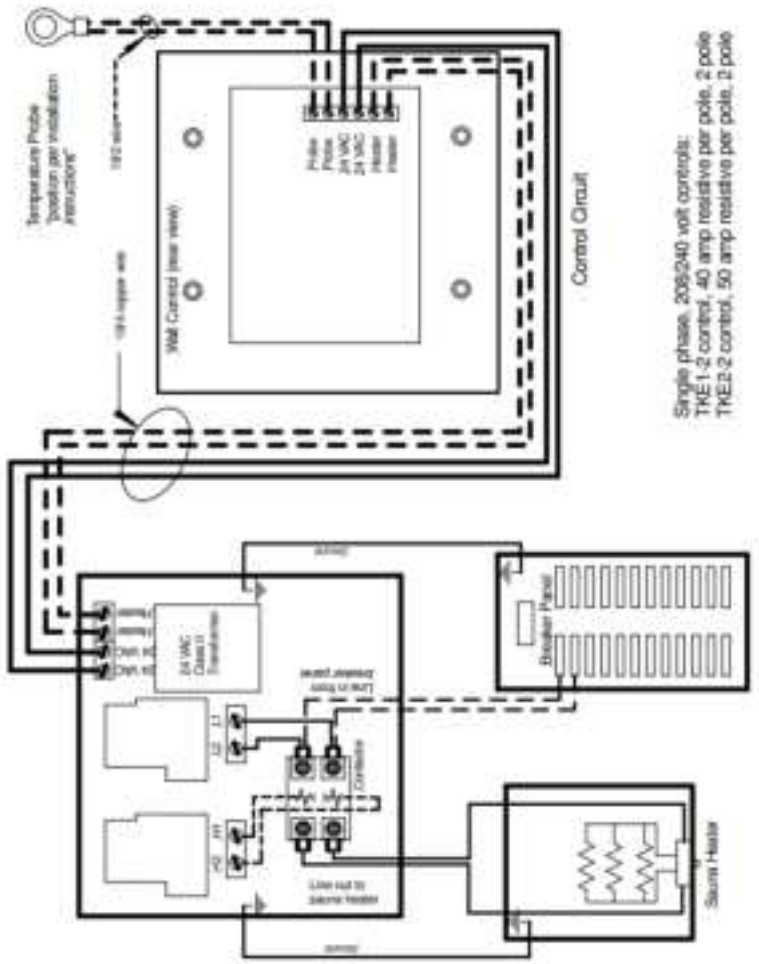

Last edited January 6, 2005

August 29, 2023

Homecraft Manufacturing

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Surrey, BC
V4N 4C6

Re: The R-Value of Nootka Saunas' Barrel Saunas and Use of HSH Heaters

To Whom It May Concern,

Homecraft Manufacturing is a Canadian sauna heater manufacturer responsible for the production of the HSH 7.5kW and 9kW electric sauna heaters. These heaters are tested & certified under CSA C22.2 NO. 164:18 (R2022).

The recommended sauna room volumes in our instruction manual are for sauna rooms with an R-Value of 12 or higher. We also offer a floor surface area recommendation for our heaters, but realize that this is an ambiguous number for a barrel shaped sauna. Sauna rooms that are built with a lower R-Value will need to adjust the size of the Sauna heater for best performance and safety.

HSH heaters have a bimetal thermal switch built into the heater, which ensures the sauna heater is automatically disconnected from power if the heater reaches 250 ° F or 121°C. This safety mechanism ensures our Sauna heaters will not overheat the sauna room.

We recognize that Nootka Saunas' barrel saunas have an R-Value less than 12. As the manufacturer of the Homecraft HSH series heaters, we have no concerns with Nootka Saunas using our 7.5kw and 9kW HSH heaters in their barrel saunas of volumes ranging from 5.0m^3 to 7.9m^3 and an R-Value below 12, provided all other mounting instructions, safe setbacks and clearances are followed.

Regards,

Kyle Wilson
Owner – Homecraft Manufacturing

nootka
saunas

still have questions

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