



# nootka

## saunas

### BARREL SAUNA HEATER SETUP INSTRUCTIONS

#### SECTIONS

- 1 - RUNNING ELECTRICAL TO THE SAUNA
- 2 - WIRING THE SAUNA HEATER
- 3 - TROUBLESHOOTING
- 4 - HOMECRAFT HEATER MANUAL

(APPROX. TIME: DEPENDS ON SETUP)

(APPROX. TIME: 1.5 – 2 HOURS)

#### **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.

## **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 OF RUNNING THE ELECTRICAL FROM THEIR PANEL TO THE REAR WALL OF THE SAUNA.

### **PARTS REQUIRED (NOT INCLUDED WITH SAUNA)**

1. **BREAKER** (approximate cost: <\$100)

The breaker required for your sauna depends on the size of sauna you ordered.

**8ft sauna (6'5" room + porch):** 7.5kW Homecraft heater, requiring 40A NON GFI Breaker

**10ft sauna (8'5" room + porch):** 9kW Homecraft heater, requiring 50A NON GFI Breaker

2. **WEATHERPROOF 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 wall of the sauna, whereas others will mount the disconnect on a house or nearby structure.

3. **WIRING AND FITTINGS** (approximate cost: \$15/meter + fittings and connectors)

Typically, electricians will run an 8-2 TECK cable (or equivalent AWCU), as this is armoured and rated for outdoor environments. It can also be trenched if necessary. 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. Since every customer's requirements are different, the electrician will need to supply this cable as well as bracing and connectors (ie: 050-466 TECK connectors) for the panel and the disconnect.

### **NOTE ON RUNNING ARMoured CABLE**

Most jurisdictions require the top of a trenched cable to be 18" below ground level. Several customers elect to dig their own trench or have a landscaper dig the trench to where the back wall of the sauna will go. 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. Here are some useful resources for who to call before you start digging in Canada:

BC: <https://www.bc1c.ca/>

Alberta: <http://albertaonecall.com/>

Manitoba: <http://clickbeforeyoudigmb.com/>

Ontario: <https://www.ontarioonecall.ca/>

Quebec: <https://www.info-ex.com/en/>

Yukon: <https://yukonenergy.ca/health-safety/electrical-safety/call-before-you-dig>

## **PART 2: WIRING THE SAUNA HEATER**




**APPROX. TIME REQUIRED: 2 HOURS\***

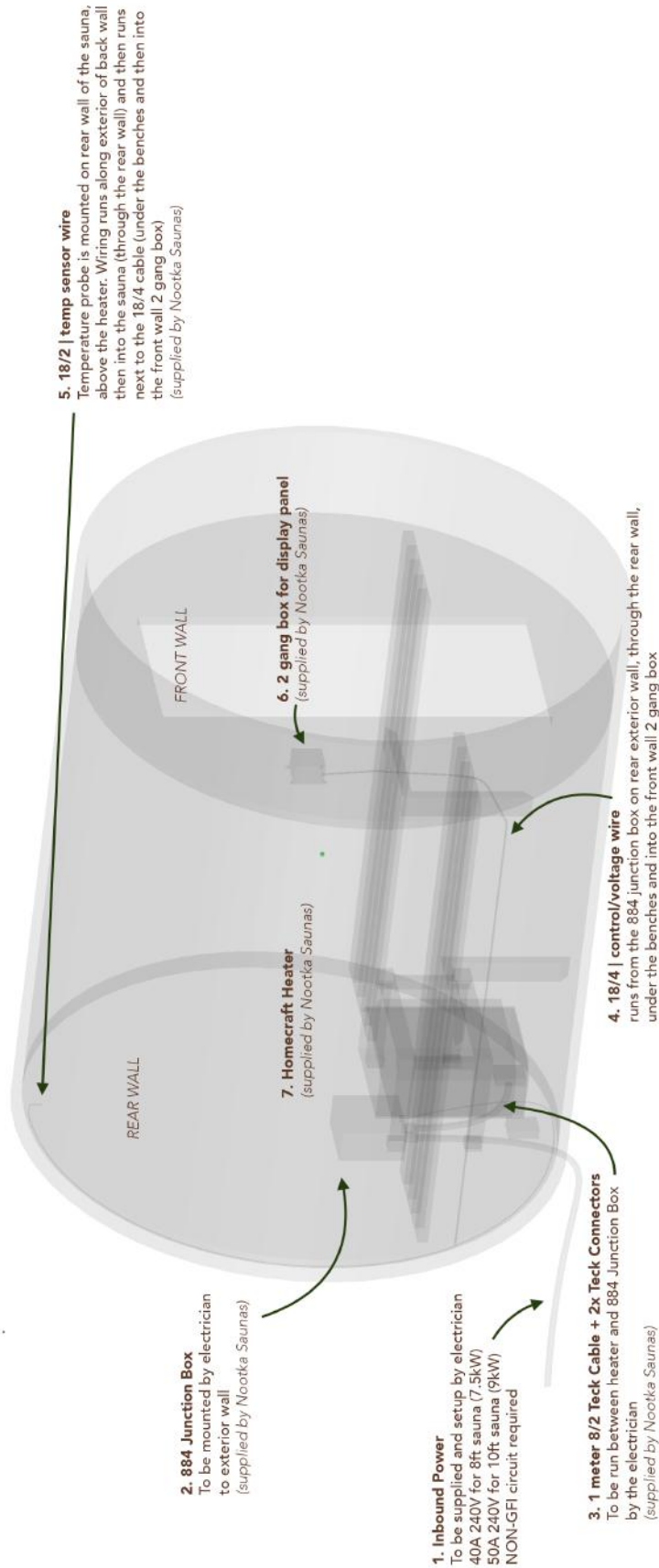
**NOTES TO ELECTRICIAN:**

- PLEASE TELL THE CLIENT IF YOU'RE NOT ABLE TO COMPLETE THIS WORK IN THE ESTIMATED TIME
- ALL COMPONENTS REQUIRED FOR THE BELOW SECTION SHOULD BE SUPPLIED WITH THE SAUNA

**REQUIRED TOOLS:**

- CABLE STRIPPERS**
- WRENCH** (FOR TIGHTENING CABLE GLANDS AND TECK CONNECTORS)
- SCREWDRIVERS:** PHILIPS, ROBERTSON #2, SLOT,
- HAMMER** (FOR CABLE STAPLES)
- MULTIMETER** (FOR TROUBLESHOOTING)

1. Electrical Parts List	
Junction Box for Rear Wall with TECK Connector installed	
18-2 Cable with Temperature sensor wire and cover	
TECK Cable 8-2 (To be connected between the heater and the junction box)	
TECK Connector	
Display Control Panel	
Electrical Panel Cover	
Marettes and Cable Staples	



## PART 2: WIRING THE SAUNA HEATER (CONTINUED)

### 1. Mount the Temperature Sensor

Approximately 2" down from the ceiling on the rear wall (above the heater), there is a predrilled 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).

Mount the safety cover over the temperature sensor being careful not to pinch any of the wiring.

If not already pre-drilled, drill 2x 3/8" holes into the rear of the sauna, just under where benches are located (on the same side of the sauna as the front electrical panel). Feed the 18/2 wire back inside the sauna through the TOP hole and run it under the bench. When it reaches the front wall, feed it between two of the center bench slats and through the nylon cable gland on the front wall's 2-gang box.

*Figure 1 - Approximate hole placement for Temp Sensor.*



## PART 2: WIRING THE SAUNA HEATER (CONTINUED)

### 2. Mount the Front Display Panel Sensor

First strip, then feed the 18/4 wire through the 2-gang box on the 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)

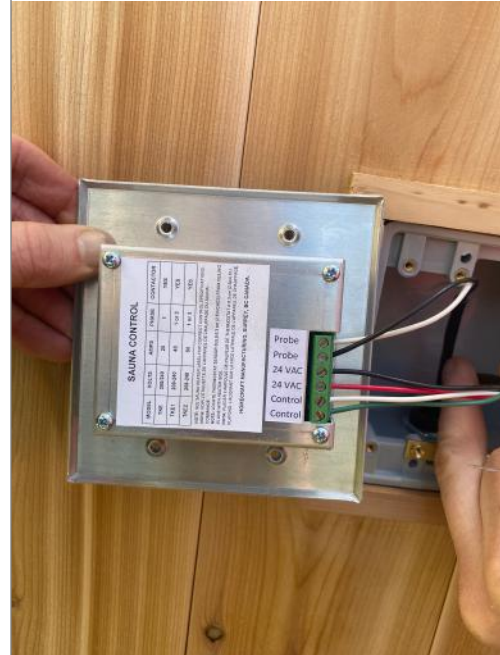
Two of the **18/4** conductors (usually red/black) connect to the **24VAC** ports on the controller (bipolar).

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.

Using the 4x 6/32 screws to mount the control screen to the 2-gang box.

Figure 2 - Rear of display panel



### 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 every 12" or so.



Ensure you peel off the plastic film on the temperature sensor guard prior to affixing to the wall.



Mount the supplied, wooden electrical panel cover to hide the 2-gang box.



On the rear EXTERIOR of the sauna, secure the cabling to the circumference of the sauna's rear wall.



## PART 2: WIRING THE SAUNA HEATER (CONTINUED)

### 4. Wire the TECK Cable To the Heater

Remove the heater from the rear wall of the sauna (lift it up and 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.

**VERY IMPORTANT:** MAKE SURE THE MARRETTE CONNECTIONS FOR L1 AND L2 ARE VERY SECURE FOR AND ALSO ENSURE 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.





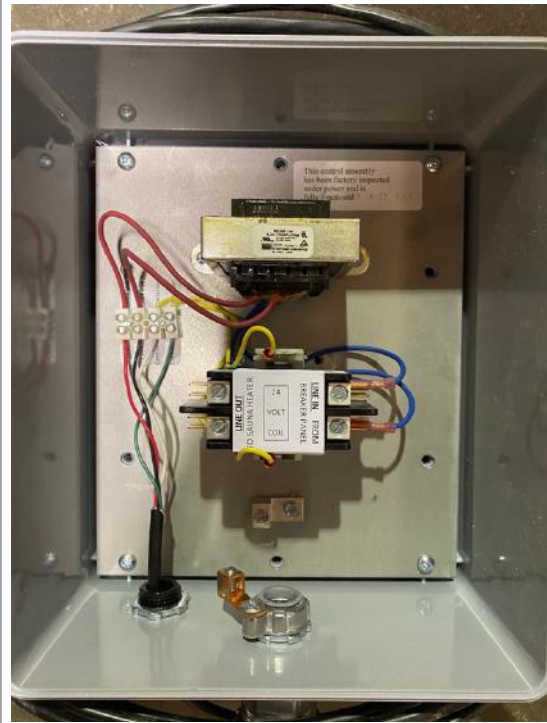
## 5. Mount the 884 Junction Box To the Rear Wall

Using the supplied 4x 1-1/4" screws, Secure the 884 Junction Box to the rear wall, ensuring it's in a position that both the TECK cable and the 18/4 wiring can reach.

Secure the GND from the "Infeed" side as well as the "TO HEATER" side to the lug in the junction box. Secure the L1 and L2 connections on the "TO HEATER" side of the Contactor.

Feed the 18/4 cable through the nylon cable gland on the 884 box, strip and secure the conductors in the same order that you followed in STEP 2.

Secure the TECK cable and the 18/4 cable to the wall with the supplied bracket and cable staples, respectively.



## 6. Mount the Heater Guard and Add the Rocks

The wiring is now complete. Place the rocks gently onto the heater, ensuring there is some room for air to flow (packing the rocks too tightly can cause the heater to overheat).

Finally, mount the Heater guard to the rear wall with the supplied 2.5" wood screws



## PART 3: TROUBLESHOOTING

### TROUBLESHOOTING CHECKLIST

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

#### Initial Checks:

1. 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).
2. Is the power leaving the transformer in the rear wall junction box 24VAC (use a multimeter to check)?
3. 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 display?

**YES:** Move to 2.

**NO:** 24VAC isn't getting to the controller. Check the incoming power and make sure the 24VAC labelled 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 on 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. When you hit ON/OFF do you hear a dull thud from the back wall junction box?

**YES:** That's good, it's the contactor being pulled in, move to Step 4.

**NO:** The contactor isn't getting pulled in. It's very unlikely to have a faulty contactor, more likely that the "Control wires" that go back to the contactor 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 contactor to see if you're getting 24VAC.

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

**YES:** You're good to go then

**NO:**

a) the thermal temperature limit switch at the base of the heater might be tripped. Look at the black base of the heater and you'll see a hole with an arrow that says RESET. Press that in with a screwdriver or similar thin object. You'll hear it click if it reset.

b) The heater wiring might be loose or not connected properly. Dismount the 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.

# PART 4: SAUNA HEATER MANUAL

## 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.

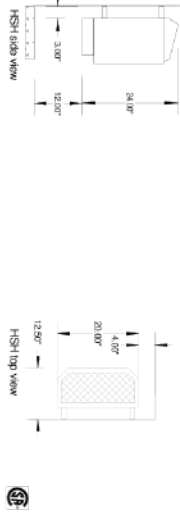
The following wire sizes and circuit breaker specifications are provided as a guide only. Your local electrical code may require different sizes and will supersede this guide.

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 clearance 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	372	7'8"
HSH 9	67 LBS	42 inches	360	450	7'8"

Last edited January 6, 2005

#### 2. Sauna Heater Installation

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

Homcraft 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 scelight 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. 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.

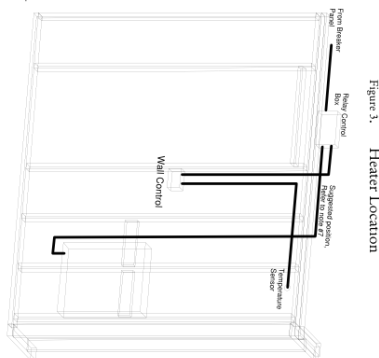
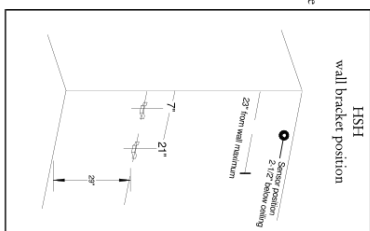


Figure 3. Heater Location



Last edited January 6, 2005

Figure 4.

3. **Sauna Lights**  
Sauna lights should be approved for this use and in a sealight 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 Homcraft 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 Homcraft 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.

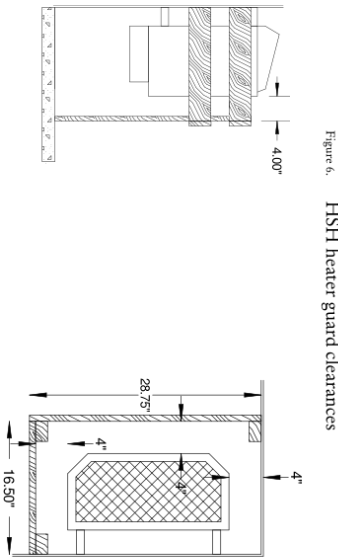


Figure 6.

### 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, the strap, rubber grommet, and 4 hexcap 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 the 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 Homcraft 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 # - #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.

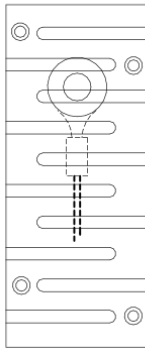


Figure 7.

**\* 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.

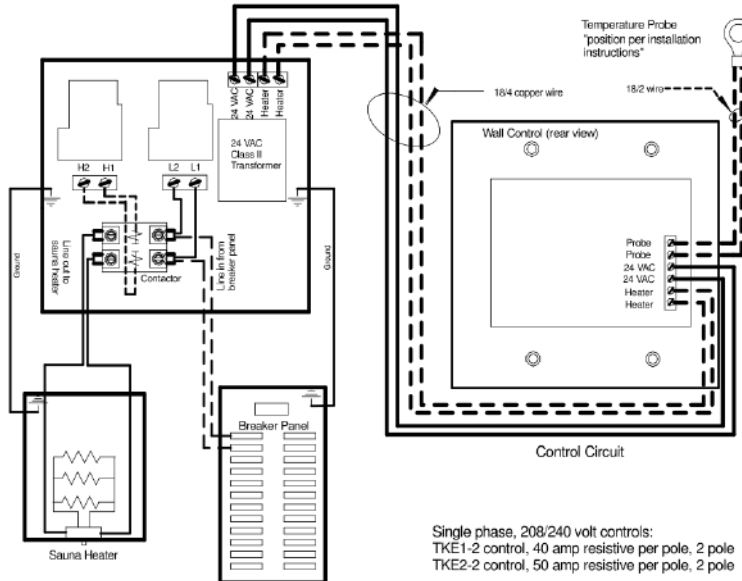
**HOMECRAFT Manufacturing Corporation**

#216-9654-192nd Street  
 Surrey, B.C., Canada, V4N 4C6  
 toll free: 1-800-870-7544  
 email: [sauunas@celus.net](mailto:sauunas@celus.net)

phone: 604-888-3403

website: [www.homecraftlbc.ca](http://www.homecraftlbc.ca)

Last edited January 6, 2005



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

Last edited January 6, 2005

August 29, 2023

Homecraft Manufacturing

9654 192 St Unit 216,  
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<sup>2</sup> to 7.9m<sup>2</sup> and an R-Value below 12, provided all other mounting instructions, safe setbacks and clearances are followed.

Regards,

A handwritten signature in black ink, appearing to read 'Kyle Wilson', is written over a horizontal line.

Kyle Wilson  
Owner – Homecraft Manufacturing