

# MECRAFT

## Sauna Heaters and Controls, Installation and Wiring Instructions TKEC single phase installation for CHSH 4, 5, and HSH 6 kw 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.

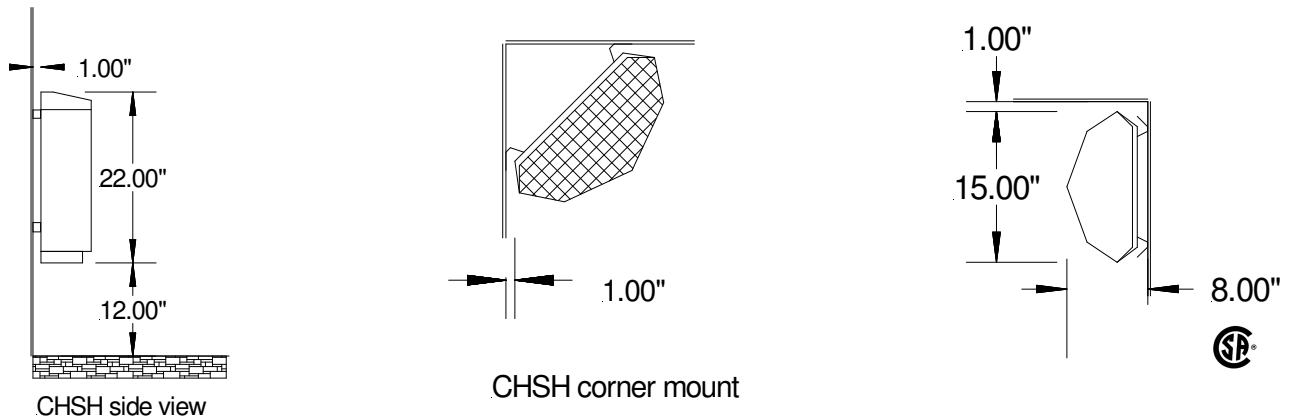
The following wire sizes and circuit breaker specifications are provided as a guide only. Your local electrical code may require different sizes and will supercede this guide.

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
CHSH 4	4000	240 / 208	1	16.7 / 19.2	30	10	TKEC
CHSH 5	5000	240 / 208	1	20.8 / 24	30	10	TKEC
HSH 6	6000	240 / 208	1	25 / 28.9	40	8	TKEC

Figure 1. CHSH clearances to wood surfaces



Model	Weight	Clearance to ceiling	Minimum room cubic footage	Maximum room cubic footage	Minimum ceiling height
CHSH 4	43 LBS	44 inches	100	150	78"
CHSH 5	43 LBS	44 inches	150	250	78"
HSH 6	66 LBS	42 inches	250	300	78"

Figure 2. HSH clearances to wood surfaces

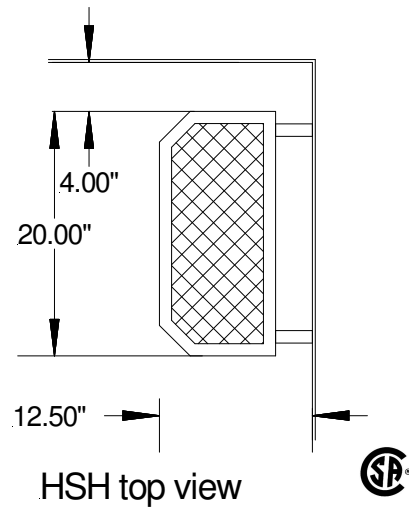
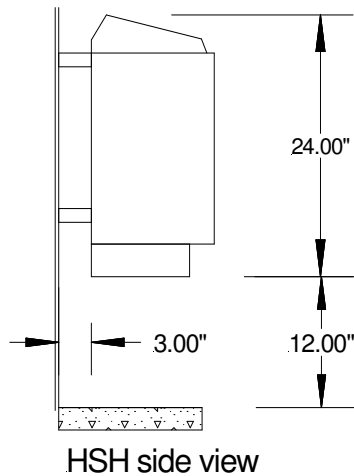


Figure 3.

Heater Location

## 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.

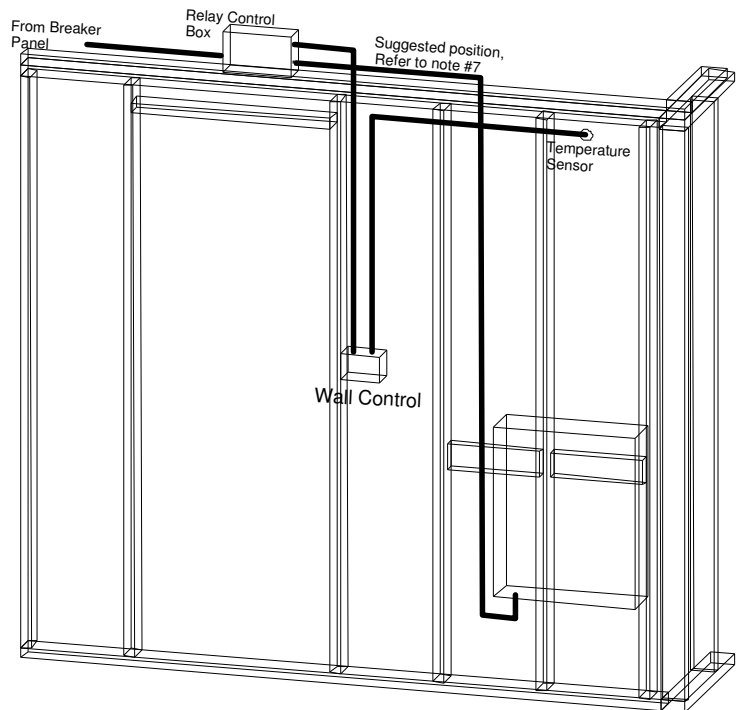
2B. Lay the heater on the floor and remove the bottom plate. Open the appropriate knock-out and install the sealtight connector. Connect the wiring as shown in the wiring guide. Replace the bottom plate.

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 above. 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.



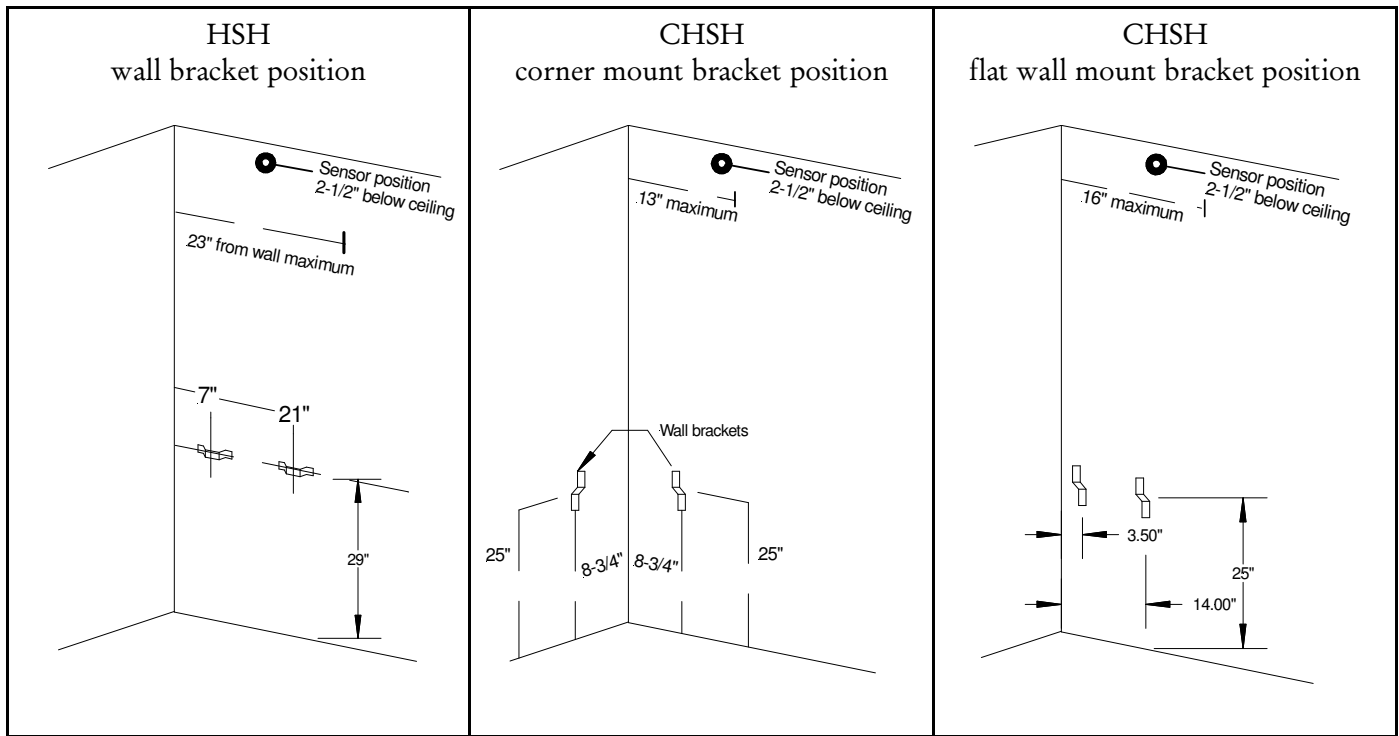


Figure 4.

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.

### 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 5. CHSH heater guard clearances

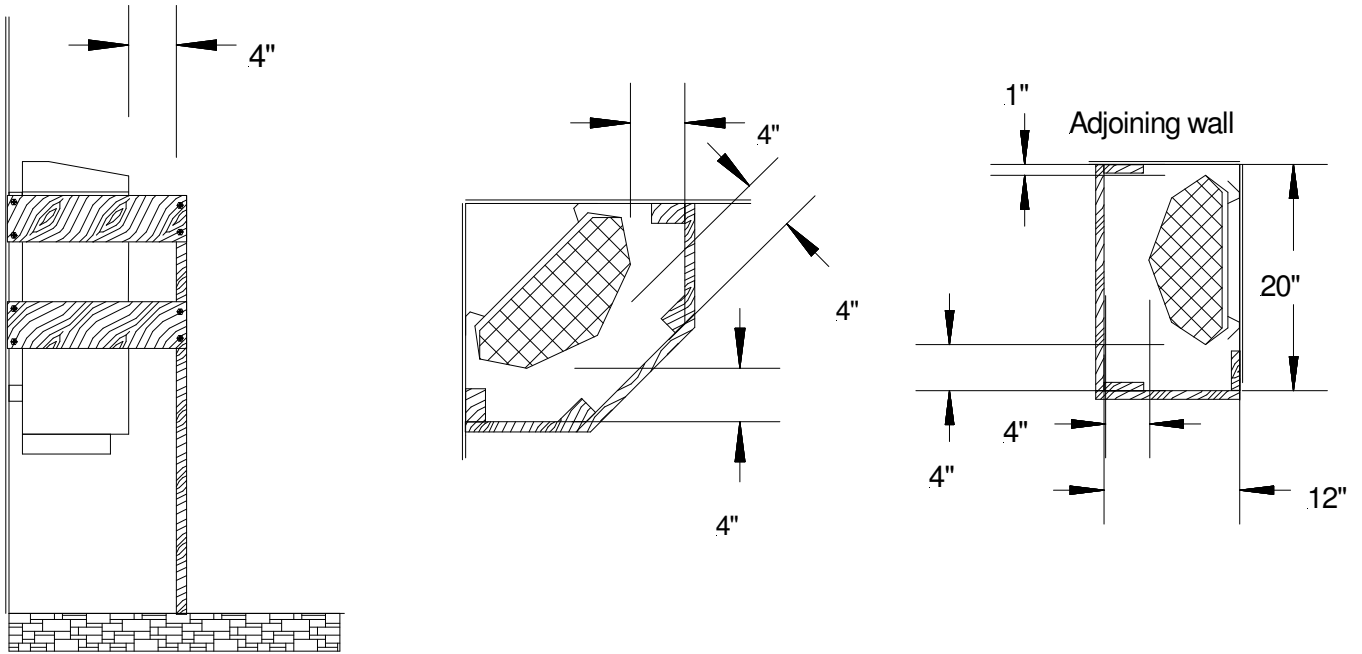
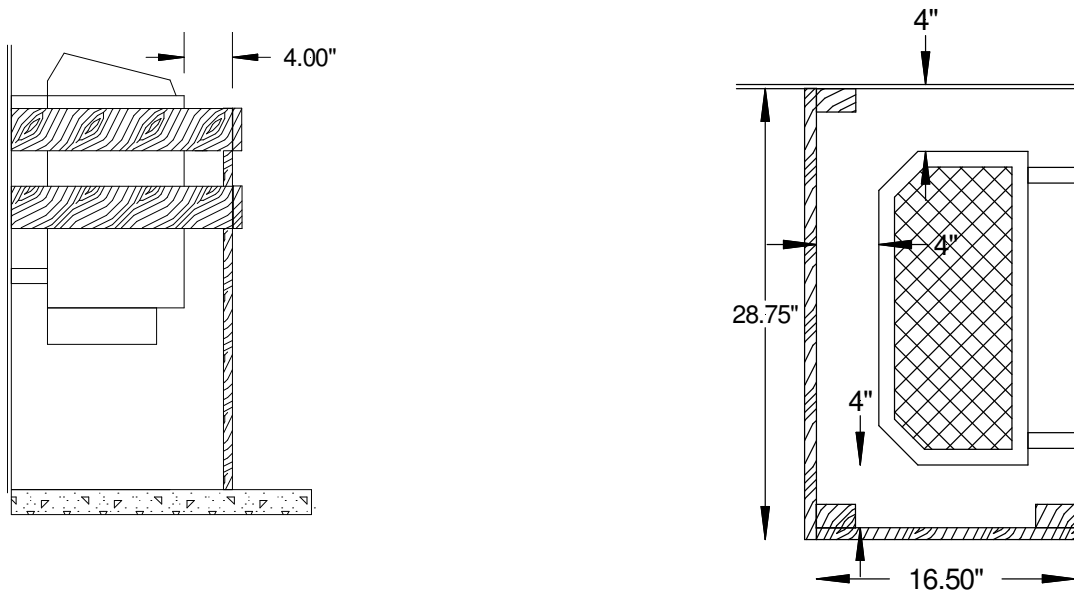


Figure 6. HSH heater guard clearances



## 7. Electrical Instructions

**For digital control for CHSH 4, CHSH 5 and CHSH 6kw 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 #6 wood screw and flat washer, 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.

### \* 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 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.

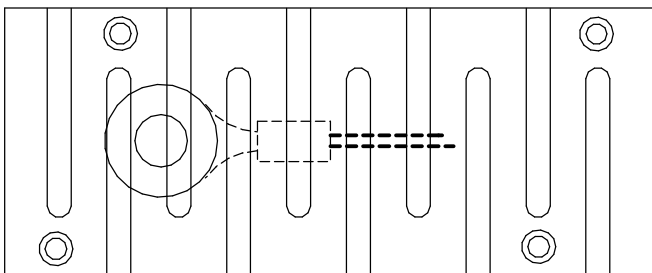


Figure 7.

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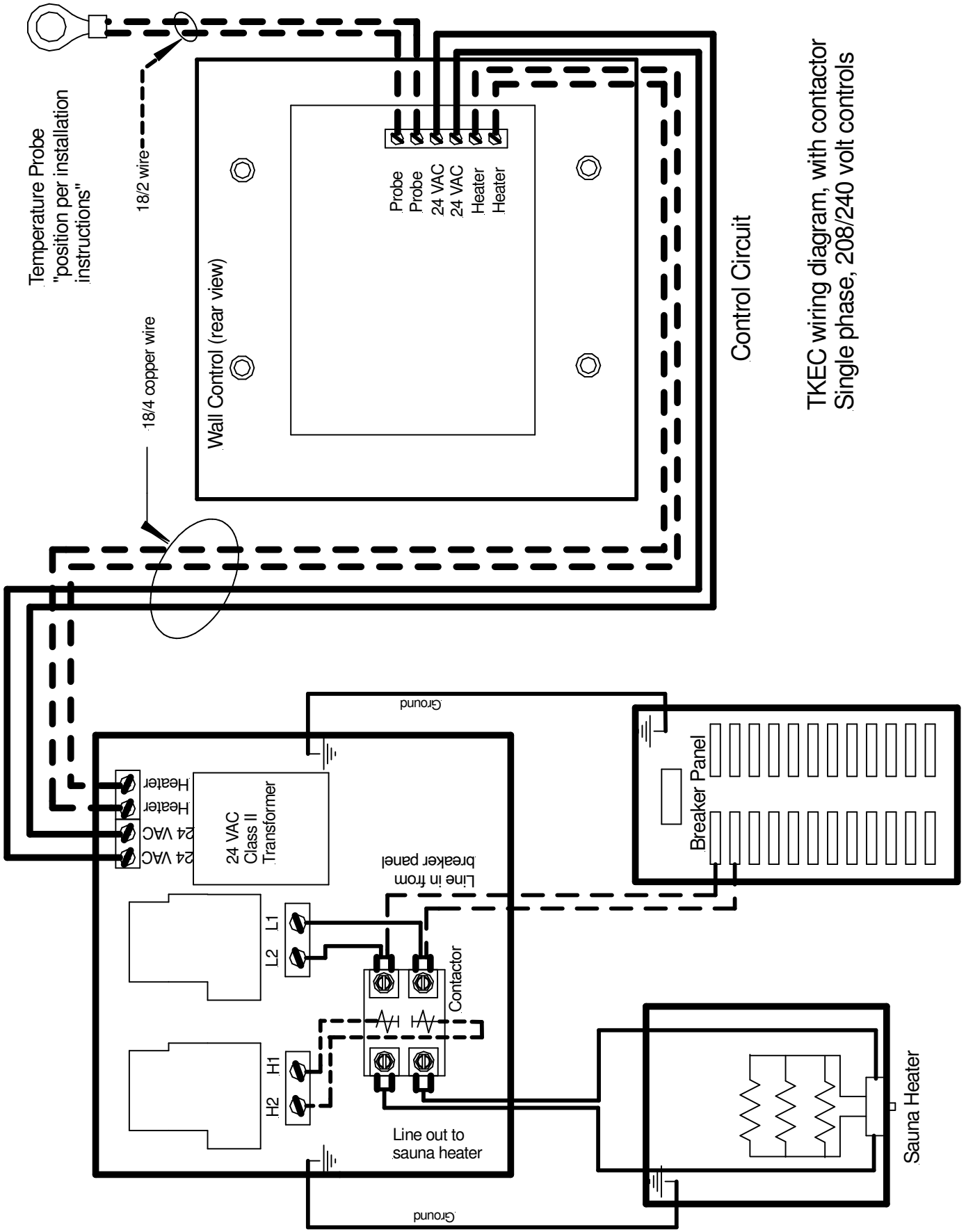
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Control Circuit

TKEC wiring diagram, with contactor  
Single phase, 208/240 volt controls