



## Fonda/Vena Heater Series Heater

Models **4.5**, **6.0**, **8.0** (Model #'s 1712-450-0206, 1712-600-0206, and 1712-800-0206)

with **T1 Control** (Model 1601-27).

Read all instructions carefully before installation. Please leave all instructions and warranty with the owner.

### WARNING

*Prolonged exposure to elevated temperatures is capable of inducing hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches several degrees above the normal body temperature of 98.6°F. The symptoms of hyperthermia include an increase in the normal temperature of the body, dizziness, lethargy, drowsiness, and fainting. The effects of the hyperthermia include failure to perceive heat, failure to recognize the need to exit the room, unawareness of impending hazard, fetal damage in pregnant women, physical inability to exit the room and unconsciousness.*

### WARNING

*The use of alcohol, drugs, or medication is capable of greatly increasing the risk of fatal hyperthermia.*

## SECTION 1: GENERAL INFORMATION

These heaters are ETL approved by Intertek for permanent installations and electrical connections. Built with splash proof construction, the conducting parts are protected against water. All wiring must be performed in accordance with national and local codes. See Diagram 2 for wire and room size requirements. These heaters are wall mounted.

### WARNING

***Do not take a sauna if using alcohol, drugs or medications.***

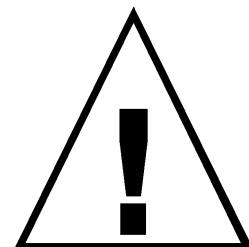
***Pregnant women or persons with poor health should consult their physician before using any sauna.***

***Caution fire hazard: Do not use the sauna room for drying clothes, bathing suits, etc. Do not hang towels above heater or place any object other than the rocks supplied on the heater. If any darkening of the wall around the heater is noticed discontinue sauna use immediately.***

***Inspect sauna regularly for required maintenance to heater, control and benches. Replace wood surfaces which show any signs of deterioration.***

***The heater gets extremely hot during operation and should not be touched or burns may result.***

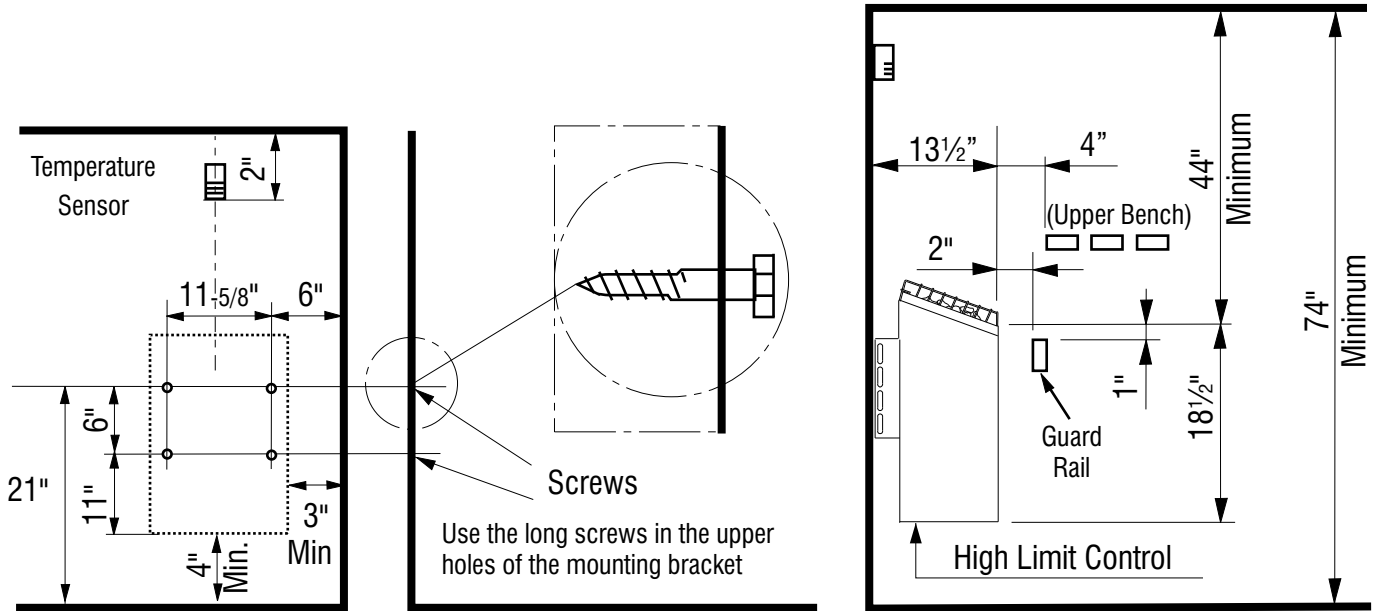
***Minors should be adequately supervised whenever near a hot or warming sauna.***



# INSTALLATION AND OPERATING INSTRUCTIONS

**DIAGRAM 1**

## MOUNTING BRACKET LOCATION AND MINIMUM DISTANCE TO COMBUSTIBLE MATERIAL



Recheck your distances from the heater to combustible materials to be sure you have the proper minimum distances.



**OBSERVING MINIMUM DISTANCES IS REQUIRED TO REDUCE THE RISK OF FIRE**

**DIAGRAM 2**

HEATER MODEL / Product Number	KW	MINIMUM ROOM			MAXIMUM ROOM		PHASE	VAC	AMPS	WIRE SIZE	Light Circuit Supply
		Floor Area	Wall Height	Volume Cu.Ft.	Wall Height	Volume Cu.Ft.				Power Supply to Heater	
<b>4.5 kW Heater</b> 1712-450-0206	4.5	12 sq. ft.	74"	100	96"	210	1	208	21.6	2 #10AWG+GR	S e e  N o t e  1  B e l o w
							1	240	18.8	2 #10AWG+GR	
							3	208	12.5	3 #12AWG+GR	
							3	240	10.8	3 #12AWG+GR	
<b>6.0 kW Heater</b> 1712-600-0206	6	21 sq. ft.	74"	175	96"	310	1	208	28.8	2 #8AWG+GR	
							1	240	25	2 #10AWG+GR	
							3	208	16.7	3 #12AWG+GR	
							3	240	14.4	3 #12AWG+GR	
<b>8.0 kW Heater</b> 1712-800-0206	8	31 sq. ft.	74"	250	96"	425	1	208	38.5	2 #8AWG+GR	
							1	240	33.3	2 #8AWG+GR	
							3	208	22.2	3 #10AWG+GR	
							3	240	19.2	3 #10AWG+GR	

NOTE 1: Use separate 120 volt branch circuit protected for 15 amps if control switch is to be used for lighting.

## SECTION 2: MOUNTING OF SAUNA HEATER

**HANGING THE HEATER** Using the template provided, drill four 9/64" holes to fasten the heater to the wall. Install two 1/4" x 1 1/2" hex head lag screws (supplied with the heater) into the upper two holes. Tighten these screws until their heads are about 1/8" from the wall surface. The screws must be threaded through the wall into a framing member or backing board to support the heater weight. Hang the heater on the two upper screws. Locate the two 1/4" x 1" hex head lag screws (supplied with the heater) then install them into the two lower mounting holes. Tighten to lock the heater in place. See Diagram 1 for the heater location details and the necessary clearances to combustible materials.

## SECTION 3: PLACING OF ROCKS (SEE DIAGRAM #10)

The rocks supplied with the heater have been chosen to provide the best heater performance. Use of any other type of rock may void the heaters warranty. Never operate the heater without rocks in place! Rinse the rocks with water before placing in the heater. Carefully place the rocks loosely so that the air can circulate through the heater. Packing the rocks too tightly may cause the heater high limit switch to trip. The rocks must fully cover the heating elements. Attach the guard with the screws provided.

## SECTION 4: ELECTRICAL HOOK-UP

Electrical installation must be made by a licensed electrician in accordance with the National Electrical Code and local regulations.

Remove the screws from the left and right sides of the electrical box. Remove the painted trim piece from the front of the box. Route the feed wires through the holes provided in the bottom of the heater and connect the wires to the terminal block. To determine the correct wire size, refer to Diagram 2. Use copper supply wire only, suitable for minimum 90 degrees C. The heater must be grounded! See Diagram 6 for proper connections.

## SECTION 5: TEMPERATURE SENSOR

Feed the "low voltage" sensor wire from the sensor to the T1 control location. Sensor wire must be routed completely separate (as per low voltage electrical wiring codes) from any wiring carrying over 50 volts. It may be necessary to drill holes to string the wire through the studs or ceiling joists. Route the wire to T1 controller and connect to the control connection. Mount sensor to finished wall 2" from the ceiling directly above the heater using two (2) screws (provided) as shown in diagrams 1, 3 & 5.

## SECTION 6: HEATER SCREEN (GUARD RAIL)

Install a wooden heater guard to prevent the sauna bather from accidentally touching the sauna heater. Install the heater guard rail with the dimensions shown in Diagram 1 & 8.

## WARNING

***Fire sprinkler systems used inside any sauna room should be properly rated for sauna room temperatures.***

***Do not pour chlorinated pool or spa water on heater. Excessive water use on heater may cause damage and void warranty.***

***Electric Shock Hazard - High voltage exists within this equipment. There are no user serviceable parts in this equipment. All installation and service to this equipment should be performed by qualified licensed personnel in accordance with local and national codes.***

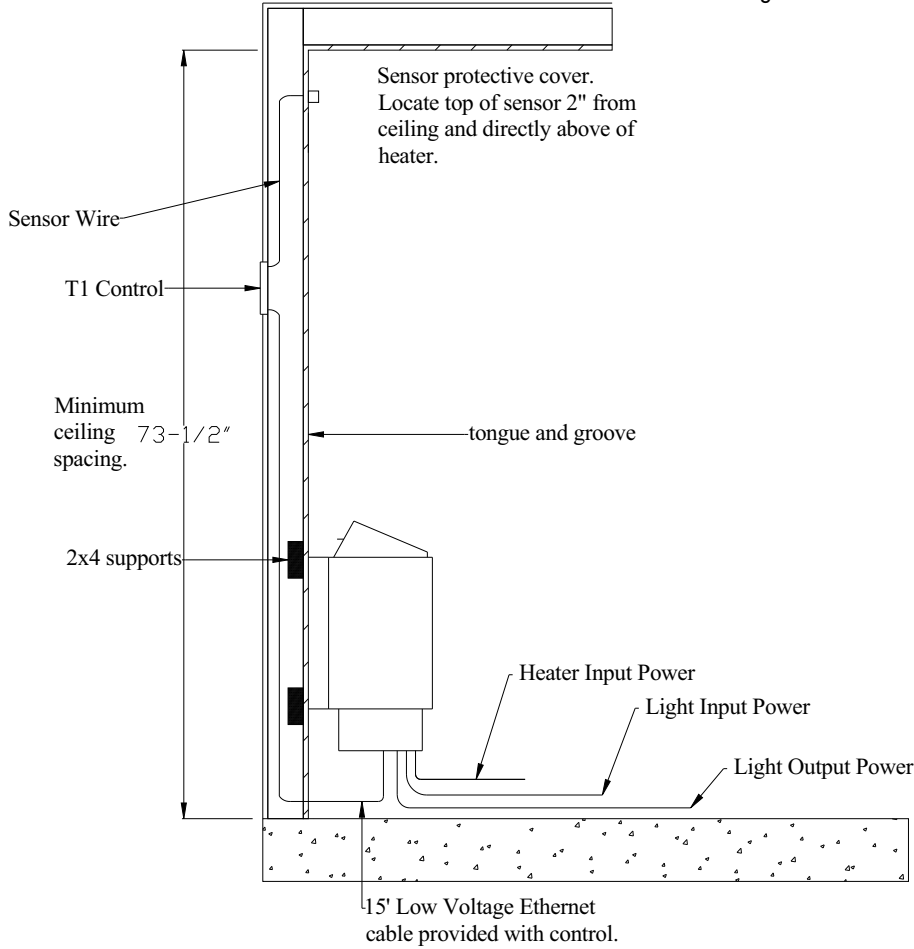
***Do not construct sauna room so as to restrict air flow through the bottom of the heater.***

***Packing the rocks too tightly may cause the heater high limit switch to trip.***

**DIAGRAM 3**

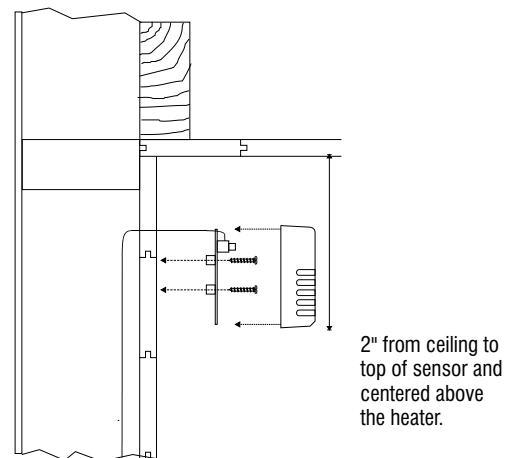
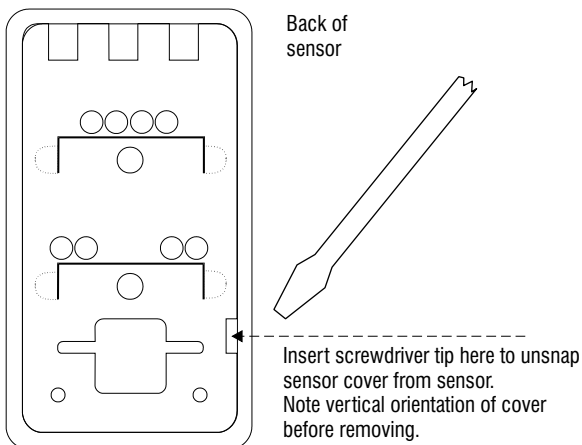
**DIAGRAM 4**

Diagram 4 was intentionally left blank.



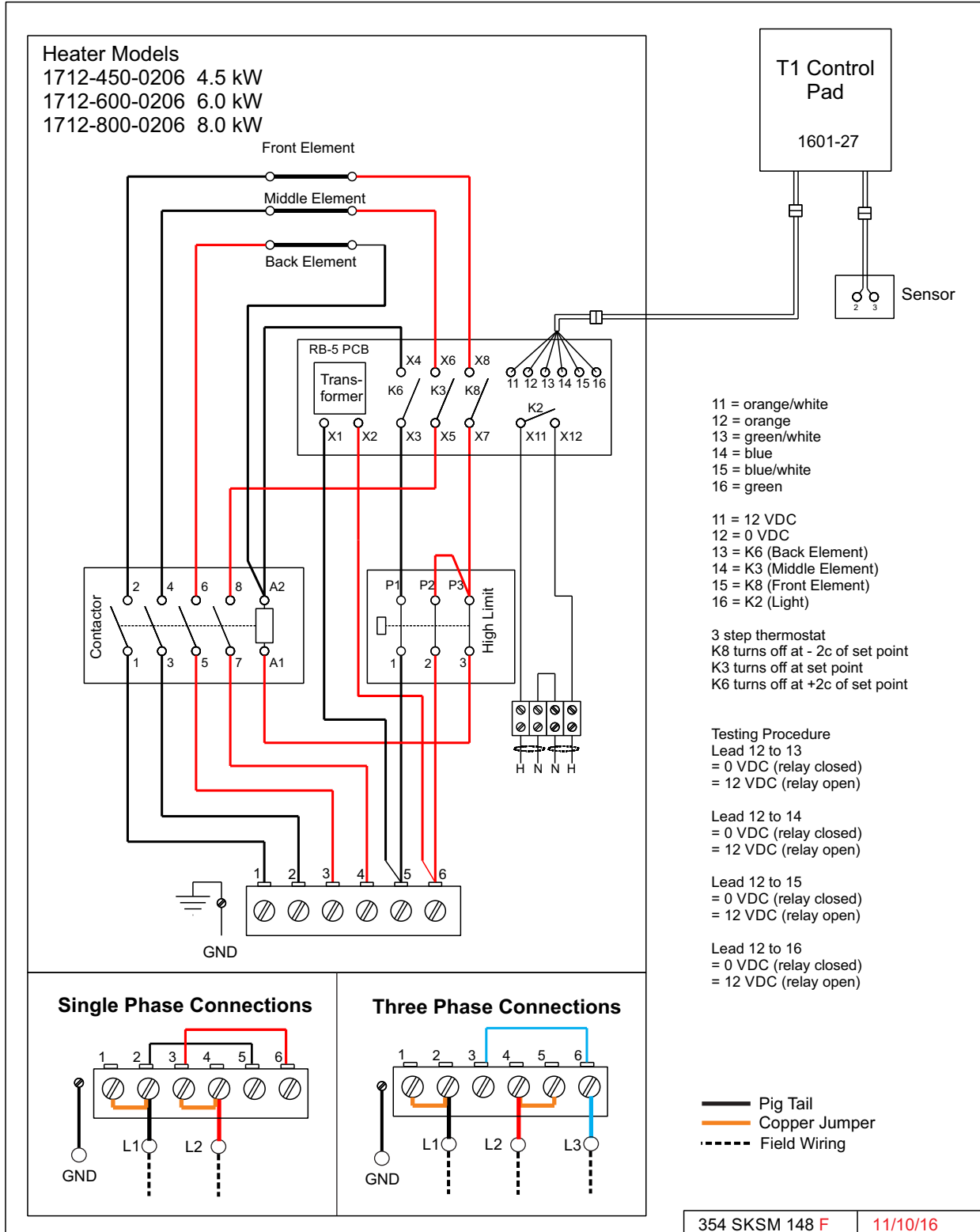
**DIAGRAM 5**

**DIAGRAM 5, continued**



## DIAGRAM 6

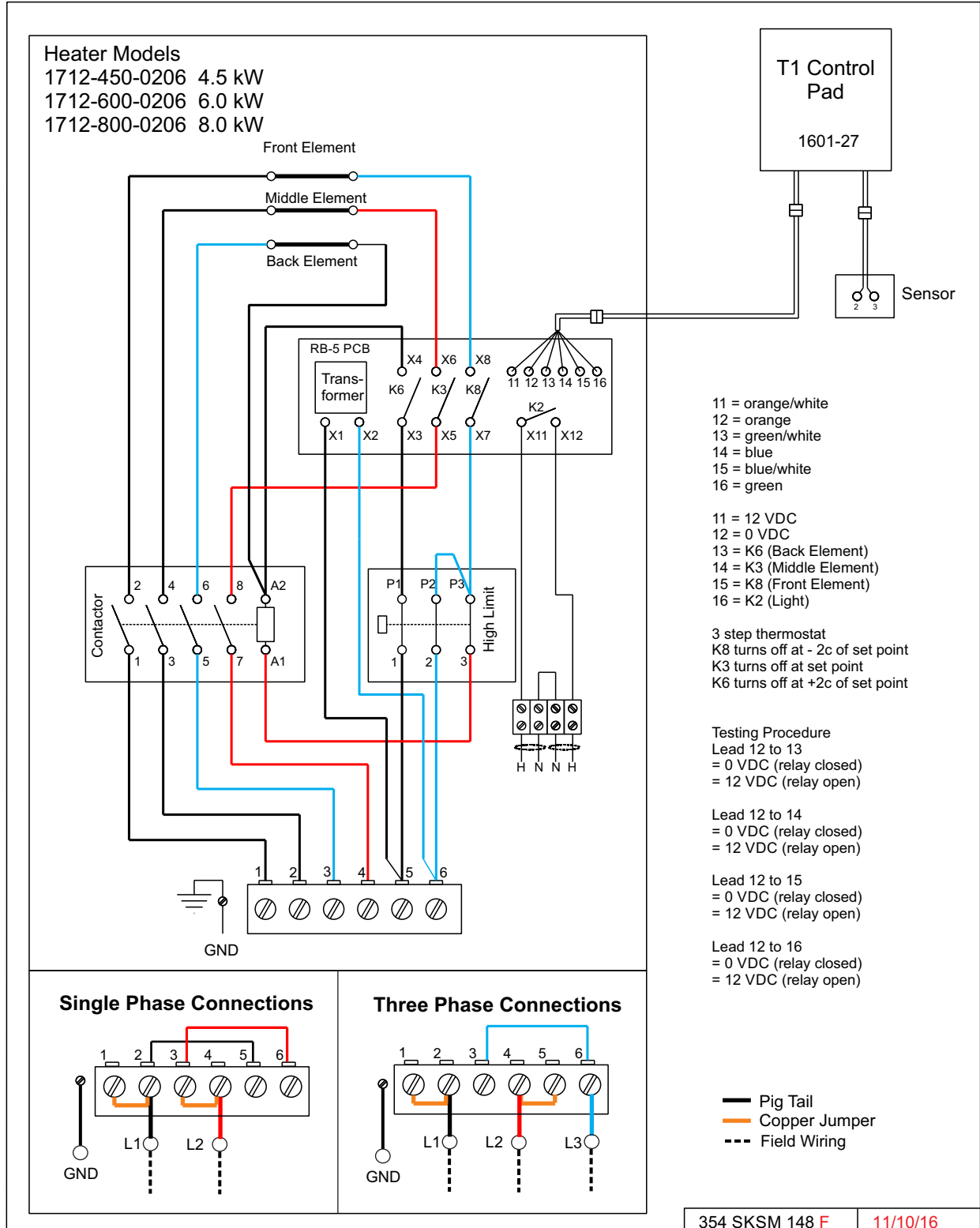
### Single Phase Wiring Diagram Color Code



Note - Heating elements are voltage specific for 208 volts or 240 volts.

## DIAGRAM 6

### Three Phase Wiring Diagram Color Code



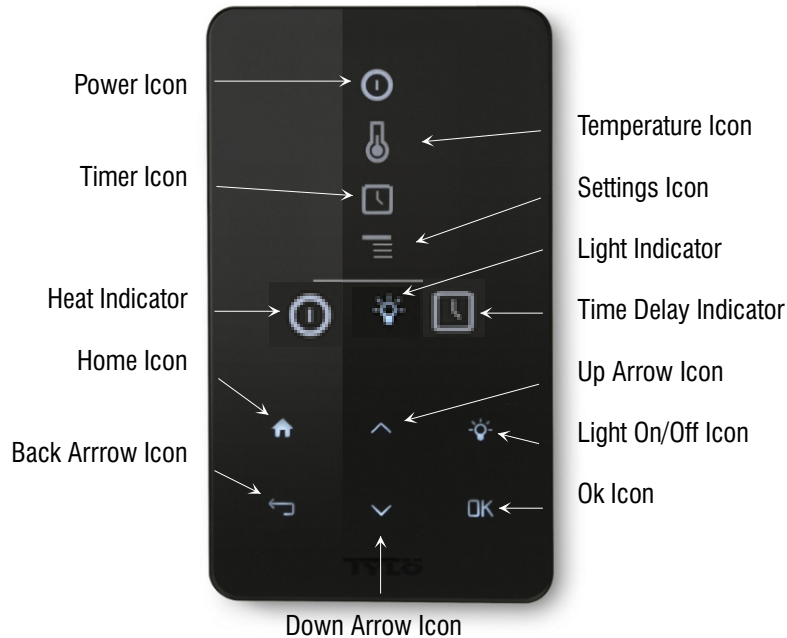
Note - Heating elements are voltage specific for 208 volts or 240 volts.

## SECTION 7: T1 CONTROL INSTALLATION & OPERATION

**INSTALLATION ROUGH IN:** Place T1 inside or outside the sauna room. If T1 control is installed inside a sauna room, the top of the unit cannot be higher than 35 inches above floor.

String low voltage cable through 1" holes in the wall studs or ceiling joists from the switch location to the heater. Do not use staples to secure the low voltage cable it may damage the cable! Connect the control wires to the wires in the wall with the quick couplers. Insert the extra length of wire in the wall.

Remove the adhesive tape from the back of the the T1 Control, place the control so the hole for the retainer screw is facing downwards, insert control into the wall and press the control to the mounting surface.



### CONTROL OPERATION:

**HOME SCREEN:** Allows the user to access to time, temperature and other settings.

**BACK ARROW:** Allows the user to go back on level in the program.

**TURN ON LIGHT:** Press the "light bulb" icon once to turn on and press again to turn off. (Usage of light control is optional)

**SET CLOCK:** Move your hand in front of the screen. Press "Home" icon and down" arrow until "SETTINGS" is on screen, press OK. Press "down" arrow until "SET TIME" is on screen, press OK.

**SET TEMPERATURE:** Move your hand in front of the screen. Press "down" arrow until "TEMPERATURE" is on screen, press OK. Press and hold the up or down arrow until the desired temperature is on screen, press OK.

## WARNING

***Do not locate benches over heater. Minimum clearance of ceiling above heater 44".***

***Minimum clearance from heater to wooden surfaces (benches, side walls, heater fence etc.) 2 inches. Mounting brackets supplied. Provides proper clearance from wall behind heater.***

***Use only copper wire of the size and type indicated in the Heater Specification Chart and the temperature rating indicated on the heater junction box.***

***All heaters and controls must be grounded per NEC to prevent electrical shock in case of unit failure.***

***Electrical outlets or receptacle must not be installed in a sauna room.***

***A guardrail or fence is required around the heater to prevent burns from accidental contact.***

## SECTION 7: OPERATION, Continued

**SET TIME OF BATH:** (Defaulted to the maximum of 1 hour) Move your hand in front of the screen. Press "down" arrow until "TIMER" is on screen, press OK. "BATH TIME LIMIT" will appear and press OK. Press up or down arrow to set correct number, press "OK" to advance to next number for desired time to start to heat the sauna. Press "OK" to accept bath time and press "HOME" icon.

**START HEAT IMMEDIATELY:** Ensure the "clock" icon is not displayed on screen. Press "Home" icon and press "OK". System will start immediately. The "ON/OFF" icon will display indicating the system is heating. After 10 seconds the control will display program settings with the room temperature or press the "BACK ARROW" to display program settings.

**TIME DELAY START TIME:** Move your hand in front of the screen. Press "down" arrow until "TIMER" is on screen, press OK. Press "down" arrow until "START TIME" is on screen, press OK. Press up or down arrow to set correct number, press "OK" to advance to next number for desired time to start to heat the sauna. Press "OK" to accept time and a clock will display on screen.

**TIME DELAY DEACTIVATE:** Move your hand in front of the screen. Press "down" arrow until "TIMER" is on screen, press OK. Press "down" arrow until "DEACTIVATE" is on screen, press OK. A clock will disappear from the screen.

## SECTION 8: HIGH LIMIT CONTROL (RESET BUTTON)

The sauna heater has a built-in high limit control, which automatically turns off the heater if the temperature inside in the sauna room rises to an abnormally high level.

To restart the heater, let the heater cool, then push the reset button on the bottom of the heater, see Diagram 1. If the high limit continually shuts off the heater, refer to Section 14 for Troubleshooting.

## SECTION 9: HOW TO TAKE A SAUNA

- When taking a sauna, allow time to relax completely.
- Remove clothing and jewelry...if required, wear a towel loosely.
- After 10 minutes or when perspiration begins, leave sauna and relax in dressing area...follow with a cool shower.
- Cooling time should equal time spent in sauna. Enter sauna room again and stay 5 or 10 minutes.
- Repeat the cycle 2 or 3 times; end with a brisk shower...rinse in cool water.
- Dress when completely dry and perspiration has stopped.
- Some sauna bathers enjoy the soothing effect of steam by splashing water on the heated sauna rocks. Use only one dipper full (approx. ½ cup) at a time and keep clear of the steam as it rises off the rocks.
- Do not smoke, exercise or drink alcoholic beverages in the sauna room.
- Do not pour chlorinated pool or spa water on the heater or corrosion damage may result.



Shower



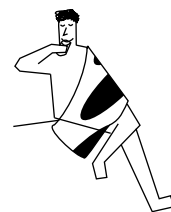
Sauna (10 - 15 min.)



Shower or swim



Rest (10 - 15 min.)



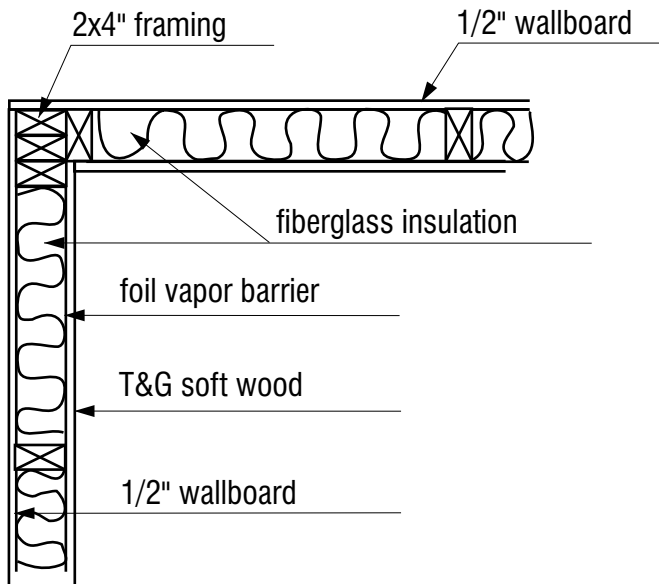
Relax with juice or water

You liked it?  
Do it once again and  
you will feel great.



**DIAGRAM 7**

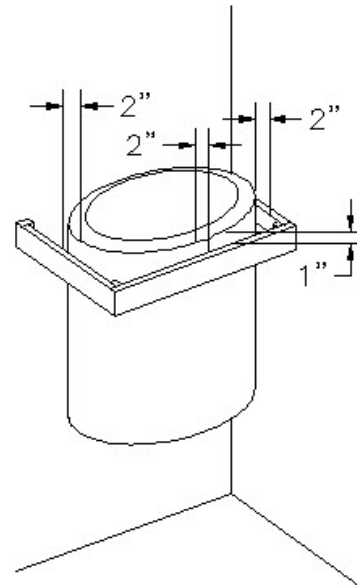
**TYPICAL PRE-CUT WALL CONSTRUCTION**



**DIAGRAM 8**

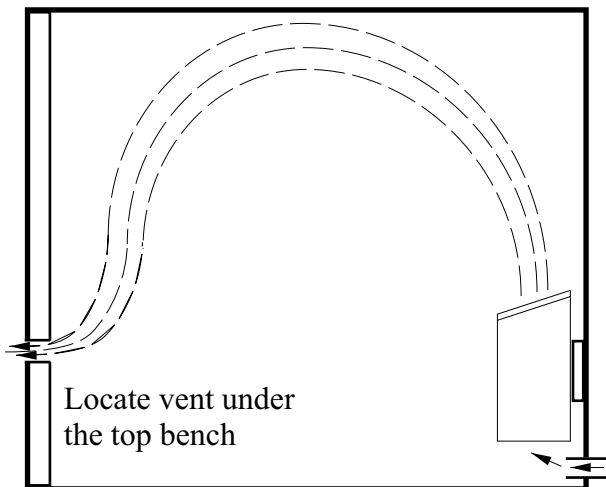
**HEATER SCREEN (GUARD RAIL)**

Minimum Dimensions

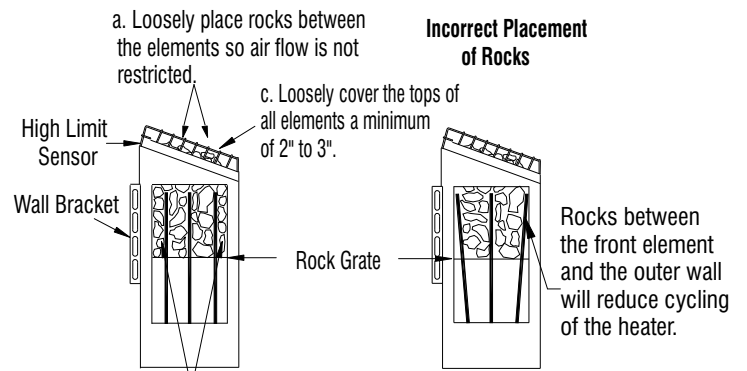


**DIAGRAM 9**

**VENTILATION**



**DIAGRAM 10**



1. Put smaller rocks in first around the outer perimeter of the heating chamber.
2. Completely fill all four sections (front, 2 center sections between elements, and back).
3. In the outer sections, use smaller rocks placed more tightly (see note b).
4. Place rocks loosely in the center 2 sections (see note a).
5. Be sure rocks completely cover the elements (see note c).
6. Loosely cover the tops of all elements a minimum of 2" to 3".

## SECTION 10: WARNING PLACARDS

Two metal placards are included in the Installation Instruction Envelope packaged with every Sauna Heater. The CAUTION placard must be attached to the interior wall of the sauna room directly above the heater where it is visible to the bather. The WARNING placard must be attached to the door of the sauna room.

## SECTION 11: ROOM CONSTRUCTION

For safety and reliability, the following rules must be addressed.

- No permanent locking or latch system is to be used on the sauna door. • Acceptable door fittings are: magnetic catches, friction catches, spring or gravity loaded closures. The door must always open outwards.
- No shower may be installed in a sauna room.
- No electrical receptacle shall be installed inside the sauna room.
- The enclosed WARNING: Reduce the risk of overheating ... warning plate must be mounted on or alongside the door outside the sauna room at about eye level.
- The enclosed CAUTION: Reduce the risk of fire ... caution plate must be mounted on the interior wall above the heater.
- The heater should not be operated without its container properly filled with rocks and the rock guard in place.
- If an intercom speaker is installed, it should be away from the heater and as close to the floor as possible.
- If a room light is installed, it should be a surface mounted bracket type. Wall mounted lights should be about 70" above the floor. Ceiling mounted lights should be of an approved type with a junction box that is remote to the fixture itself. Use only a fixture that uses A.F. or fixture type internal wiring. A 60 watt bulb should provide sufficient lighting.
- Fire sprinkler systems installed inside any sauna room should be properly rated for sauna room temperatures.
- Always mount the heater according to these installation instructions.

## SECTION 12: VENTILATION

**VENTILATION** In a sauna, the air should be changed about 6 times an hour. This can be achieved by making a vent opening (fresh air inlet) in the sauna wall directly below the heater. The air outlet must be lower than the upper benches, as far as possible from the heater and about two feet higher than the fresh air inlet vent, See Diagram 9. It is recommended that ventilation openings meet the requirements of UL Specification 875. The minimum opening should be determined using one of the following formulas:

$$\text{For } R < 31, V \geq 9.3, \quad \text{For } R \geq 31, V \geq 0.3R$$

where  $R$  = the floor area of the room in square feet and  
 $V$  = the minimum vent size in square inches

## WARNING

***The "CAUTION" and "WARNING" placards must be mounted in accordance with Section 10.***



**WARNING**  
REDUCE THE RISK OF OVERHEATING

- \* Exit immediately if uncomfortable, dizzy, or sleepy. Staying too long in a sauna is capable of causing overheating.
- \* Supervise children at all times.
- \* Check with a doctor before use if pregnant, in poor health, or under medical care.
- \* Breathing heated air in conjunction with consumption of alcohol, drugs, or medication is capable of causing unconsciousness.



**CAUTION**  
REDUCE THE RISK OF FIRE

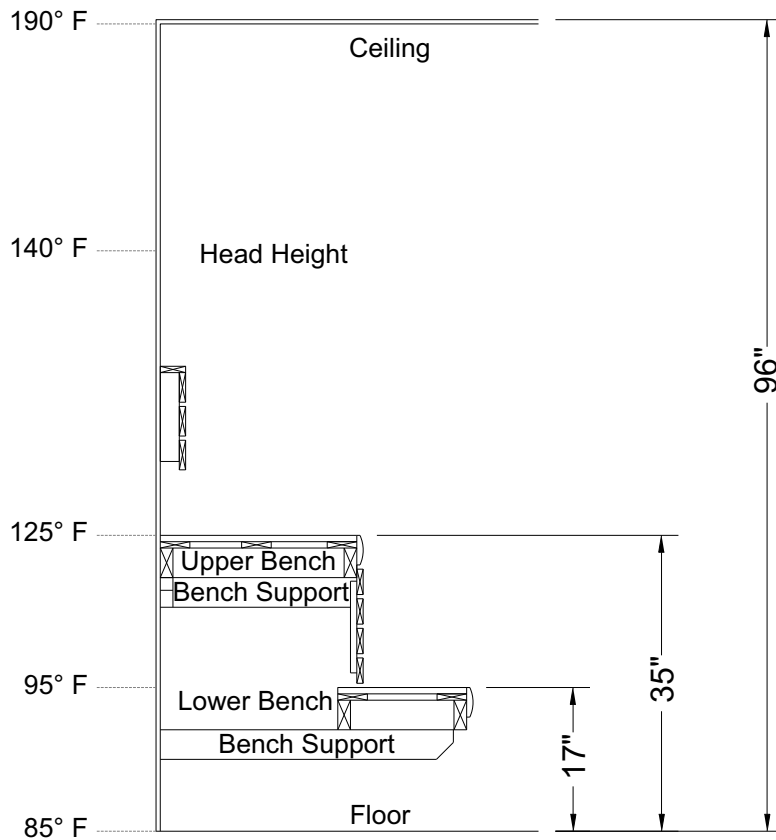
Do Not Place Combustible Material On The Heater At Any Time.

***For safety purpose sauna door must open out and not lock.***

***Never use a wood stain, seal or preservative on the inside of your sauna room.***

***Light fixtures get very hot during operation. Locate light fixture where it will not be a burn hazard.***

**DIAGRAM 11: ROOM TEMPERATURES**



Non-Typical Ceiling Height

**Notes:**

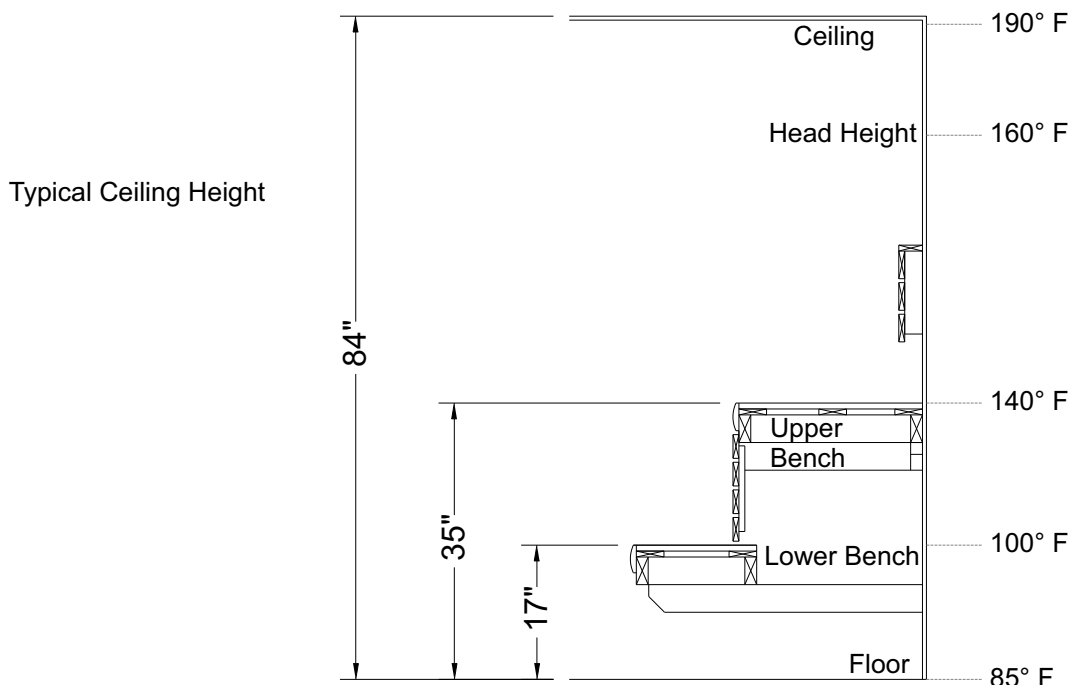
Temperatures vary in a sauna room by height and distance from heater.

Ventilation will help reduce it but will not eliminate temperature variations.

The hottest part of the room is always at the ceiling directly above the sauna heater and should not exceed 194°F (90°C).

Air temperature will be 15°F to 25°F lower on the opposite side of the room from the heater close to the ceiling.

The temperatures in the elevated view are general numbers. Each sauna room is different due to construction variations and ventilation.



## SECTION 13: MAINTENANCE

The sauna, like a bathroom, should be kept clean and odor free.

Towels or mats should always be used on benches and floor as perspiration otherwise penetrates the soft wood.

Air out the sauna often by keeping the door and vents open when the sauna is not in use. Saunas that are in daily use should be washed down at least once a week to keep them clean and the air fresh. Duckboard should be removed from the sauna, the sauna floor mopped and dried in a conventional manner, and the duckboard thoroughly scrubbed and dried before returning to the sauna room. The sauna heater should be wiped down occasionally with a damp cloth to remove lint and dust. The rocks should be removed once a year for cleaning and small or crumbled rocks replaced.

To clean and remove perspiration stains, use soap or detergent in warm water, best applied with a scrub brush. Badly soiled surfaces may require sanding. Sand paper wrapped around a wooden block works well.

Benches and supporting structure must be inspected annually for potential deterioration due to age, dry rot or abuse. Any boards with signs of deteriorations should be replaced immediately to avoid possible injury.

## SECTION 14: TROUBLESHOOTING

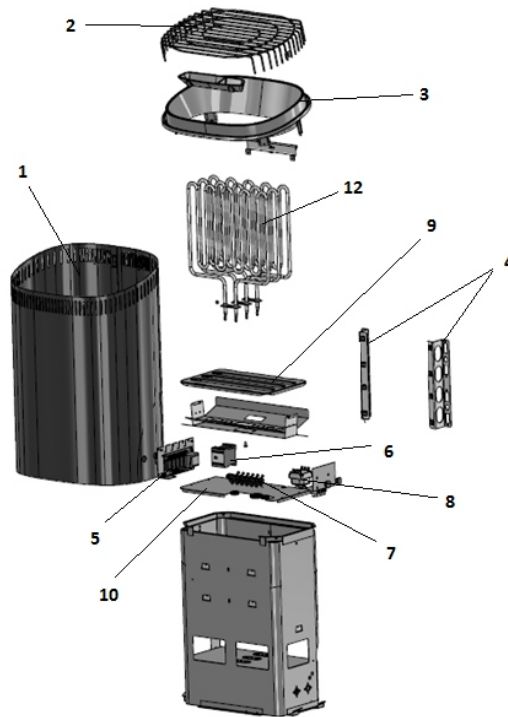
Control will Run but No Heat - Press (reset) the high limit switch on the bottom of heater.

Slow Heat Time or High Limit Tripping - Check rock placement, they will break down over time and reduce the air flow in the heater. Refer to Diagram 10 for proper rock installation. Discard all rocks under the size of 2" peices. Call the number below to order more rocks if needed.

For troubleshooting or service questions call 1-888-780-4427 and ask to speak with service. Prior to calling, please have the Model and Type number available. You may also email us at

[techsupport@tyloheloinc.com](mailto:techsupport@tyloheloinc.com)

## SECTION 14: REPLACEMENT PARTS



Number	Part #	Description	Qty
1	8012-511	Shroud: Red	1
2	8019-515	Rock Guard	1
3	8012-448	Top: Oval black	1
4	8250-085	Wall Bracket	1
	801-114	Bracket: High limit holder	1
5	3210-602	PCA: RB-5 circuit board	1
6	3131-517	Contactor	1
7	2100-550	Terminal Block	1
8	3119-509	High Limit Switch	1
9	8019-209	Rock Grate	1
10	8012-452	Electrical access panel	1
11	2138-08	Plug: for control holes	2
12	3001-702	Element 208V/ 1500W (45) 28.8 ohms	3
12	3001-704	Element 208V/2000W (60) 21.6 ohms	3
12	3001-706	Element 208V/2670W (80) 16.2 ohms	3
12	3001-701	Element 240V/1500W (45) 38.4 ohms	3
12	3001-703	Element 240V/2000W (60) 28.8 ohms	3
12	3001-705	Element 240V/2670W (80) 21.6 ohms	3
	5304-031	Cable 25Ft. 8 Cond.	1
	9301-155	Sensor	1
	1021-110	Element screw	