



SAUNA HEATER 1108-24, 1108-46 & 1108-60 Saunatonnttu 2.4, 4.6, & 6.0 kW

Read all instructions carefully before installation.
Please leave all instructions 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

Note: Saunatonnttu users: *You have purchased the “best sauna heater in the world.” Please read “Section 6” to understand the principles around which this heater is designed, and to understand the sauna conditions it will create for you.*

These heaters are UL approved 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 local codes. See Diagram 2 for wiring and room size requirements.

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 opening gets extremely hot during operation.

Keep clear of opening while sprinkling water on the rocks. Steam is very hot and forceful.

Close heater lid after use.

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



DIAGRAM 1

DIAGRAM 1A

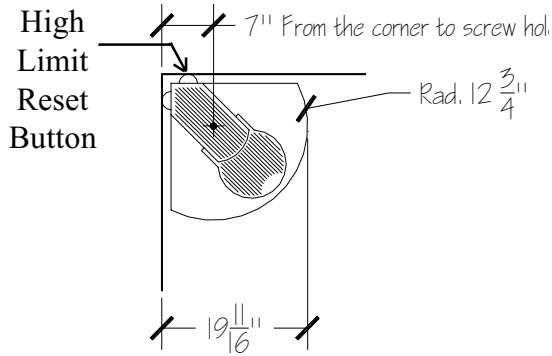


DIAGRAM 1B

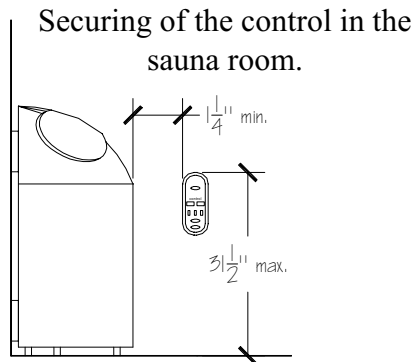


DIAGRAM 1C

Example of an installation in depression of a wall.

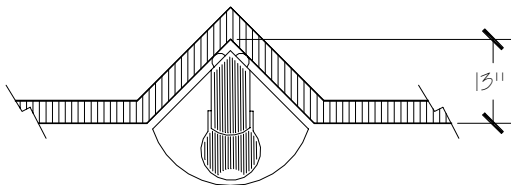


DIAGRAM 1D

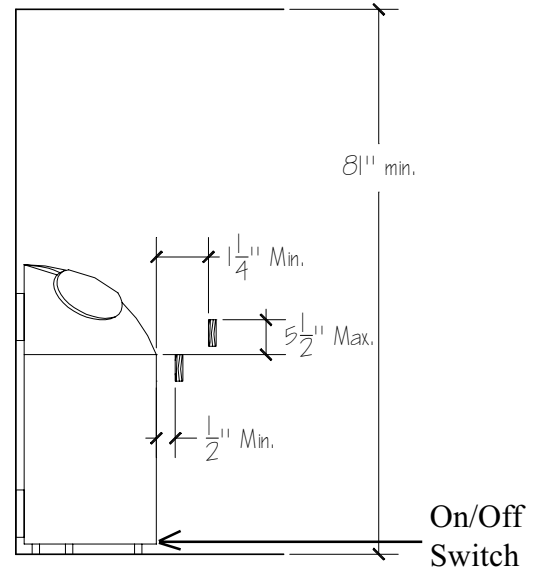
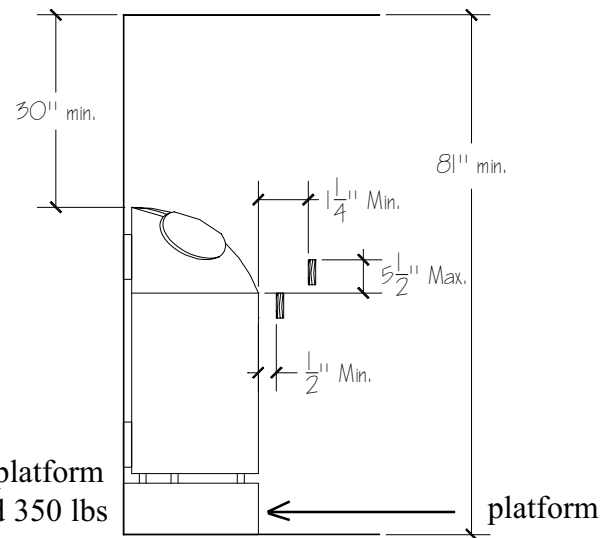


DIAGRAM 1E



Note: Raised platform must withstand 350 lbs of weight!

DIAGRAM 2

HEATER		kW	MINIMUM ROOM			MAXIMUM ROOM		Phase	VAC	AMPS	Wire Size
MODEL	TYPE		Floor Area	Ceiling Height	Volume Cu.Ft.	Ceiling Height	Volume Cu.Ft.				
Saunatonnttu 2.4	1108-24	2.4	12 sq. ft.	81"	100	96"	210	1	240	10.0	12-2 W/G
Saunatonnttu 4.6	1108-46	4.6	21 sq. ft.	81"	175	96"	310	1	240	19.2	10-2 W/G
Saunatonnttu 6.0	1108-60	6.0	31 sq. ft.	81"	250	96"	425	1	240	25.0	10-2 W/G

SECTION 2: MOUNTING SAUNA HEATER AND CONTROL

Carefully locate the heater according to the dimensions shown in Diagram 1.

The supplied **mounting block and control must be located and mounted according to Diagram 1B.** (This is to prevent the control from being placed in an unsafe location.)



SECTION 3: PLACING OF ROCKS

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 heater's warranty. Never operate the heater without rocks in place! Rinse the rocks with water before placing in the heater. Place the rocks loosely to keep the elements vertical and so 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.

SECTION 4: ELECTRICAL HOOK-UP

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

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 the heater wiring diagrams for proper connections.

Remove screws from the back cover to gain electrical access. Refer to Diagram 10.

SECTION 5: GUARD RAIL

To reduce the risk of injury (hot surface of sauna heater opening) install the heater guard rail with the clearances and dimensions shown in Diagram 1.

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.

Do not install a shower in the sauna room.

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.

SECTION 6: THEORY of OPERATION

This unit is an “EverReady” heater and is designed to keep the rocks in the rock chamber hot at all times using a “Continuous Power” setting of 100 Watts, 200 Watts or 300 Watts. This amount of energy is stored and accumulates in the rocks while the lid is closed.

First time use or with rocks cold:

With the lid closed, turn the system on by pressing the Reset button on the control. Next press the upper “>” right arrow until the 60 minute indicator glows. The sauna heater will be close to operational temperatures in 1 hour. Refer to **Diagram 4** for Control Description.

Normal Use:

Rocks are hot and lid is closed. Open the lid to allow the energy to transfer into the room. Leave room and return in 5-10 minutes. The room temperature should be 125 F - 135 F. Now the sauna is ready to use.

Sprinkle the water on as desired to personal preferences of temperature and humidity. Wait a few seconds and add another ladle of water on rocks. The humidity in the air will rise and make the room feel hot. Continue to add water as desired. The room temperature will also rise. If air becomes uncomfortable, close the lid and this will remove the heat source.

This heater is designed to have the lid open for a maximum of 60 minutes for any sauna bath.

The steam is very hot and forceful Please stay clear of opening while sprinkling water on the rocks.

After sauna bath, the lid should be closed to allow the Continuous Power to replenish the rock temperatures.

Tips: Continuous Power settings vs. time to replenish rock temperatures:

Use sauna 4 - 5 times a week, set on 300 W

Use sauna 2 - 3 times a week, set on 200 W

Use sauna 1 time a week, set on 100 W

Turn on Boost Power if lid will be open longer than 30 minutes during 1 session. This will keep rocks hot to create steam.

Note: Sauna temperatures are typically measured one foot from the ceiling. The Saunatonnttu is designed to operate between 130 and 150 degrees F, although it can achieve higher temperatures if allowed to heat with the lid open for an hour.

Safety Locking Lid:

On the right hand side of the lid, there is pin with a wood knob. To release the lock, pull out on wood pin. This will allow the lid to be moved. There are two locking positions, full open or closed.

Warning

Minimum clearance from heater to wooden surfaces (benches, side walls, heater fence etc.) is shown in diagram 1.

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 receptacles must not be installed in a sauna room.

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

Safety Locking Lid



SECTION 6: THEORY of OPERATION CONT.

Sauna Temperature and Humidity Theory:

The worldwide trend in sauna bathing is “lower temperatures and higher humidity”—much like ancient woodburning saunas. Old woodburning saunas (ancient “smoke saunas” or more recent saunas with woodburning stoves) had massive amounts of rocks, heated by burning wood, which in turn created a soft radiating heat, and very pleasant steam when water was sprinkled on the rocks. The Saunatonnttu captures the essence of those wonderful saunas of old.

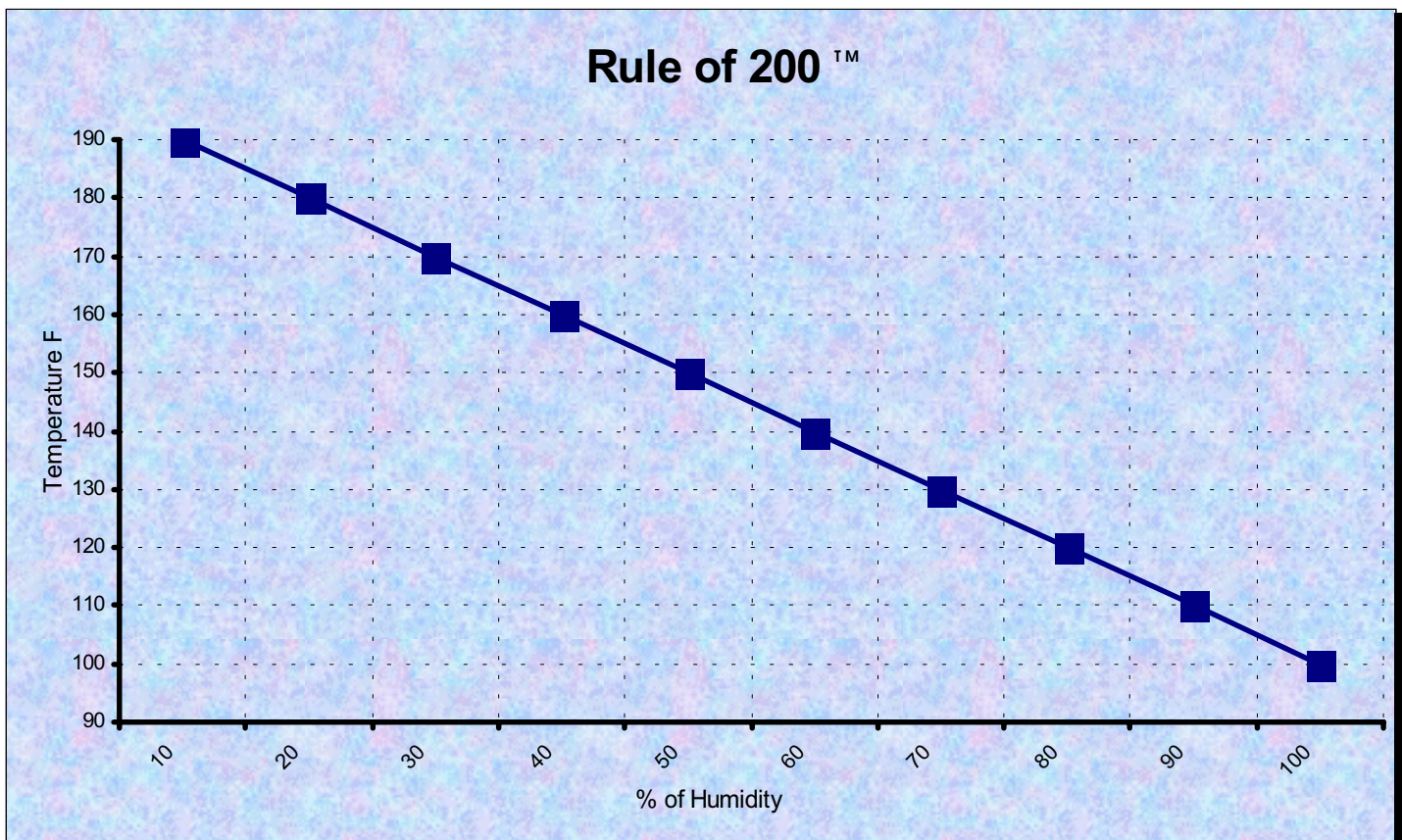
A large rock mass is the essential feature to create lower temperature/higher humidity saunas. The Saunatonnttu’s combination of 200 pounds of rocks surrounded by high-tech super-insulation makes it possible. The large rock mass, superheated with minimal energy, is ready for sauna with the simple opening of the lid. Soft heat and wonderful steam are immediate.

This large rock mass concept is based on the “Rule of 200” (see Diagram 3) which illustrates how humidity and temperature interact. The “Rule of 200” suggests: **“To the typical sauna bather, a sauna is most comfortable when the combination of degrees Fahrenheit plus Relative Humidity is 200 or less”.**

Example: Room temperature is 145 F. $200 - 145 = 55$

There could be up to **55% humidity** in the room before it becomes uncomfortable for the user. If temperature goes up the humidity level will need to come down to be comfortable for the user.

DIAGRAM 3



SECTION 7: OPERATION

For health and fire safety, never attempt to alter or bypass the controls. This heater has a 60 minutes timer built into the programming. The rock temperature is preset by the manufacture.

Turning system on:

Position the O - I (On/Off) rocker switch on the lower front of heater to the “Up” position. This switch can remain in the “I or On” position indefinitely. The “I” position puts the hand held control in the standby mode.

Control button names are listed in Diagram 4.

Initializing System: Press the “Reset” two or three times to cycle the control until the “0” is the only thing glowing in the Boost Power Time Indicator Lights. This means that the “Boost Power” is set for “0” minutes and the “Continuous Power” is “Off”. Press the “Reset” button again and the control will be in the Standby mode.

To activate “Continuous Power” press the Continuous Power Arrow “>” on lower half of control. Pressing this button will cycle through the Continuous Power settings from 100 Watts to 200 Watts and then to 300 Watts. Press the button again and it will turn them off.

The “Continuous Power” is used to replenish the rock temperatures during non sauna use. The lid should be closed and the heater would use the chosen Continuous Power setting to heat the rocks to normal operating temperature and the internal thermostat would regulate the temperature. The higher the Continuous Power setting, the quicker the rocks would regain temperature and be ready to be used again. Refer to “*Tips*” in **Section 6** for more information.

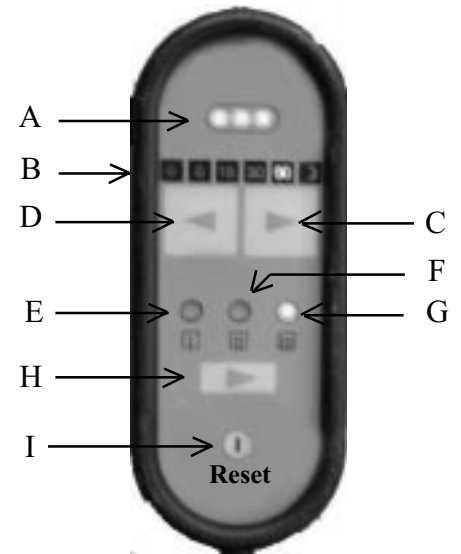
To activate the “Boost Power” press the arrow keys at the top of control to activate the Boost Power timer. As the arrow “>” key is pressed the time will increase to a maximum of 60 minutes. Press the “<” arrow key and the time will decrease until 0 minutes.

To activate the “Closed Lid Power” press the “<” arrow key at the top of the control until the green light is glowing. This mode will reduce maximum power to continuous power after 3 to 10 minutes when the lid is closed. When the lid is open, the maximum power will turn back on after 3 to 10 minutes.

The “Boost Power or Closed Lid Power” provide maximum power to the rocks with a maximum time of 60 minutes.

Note: No control functions will be glowing in the Standby mode.

Diagram 4



- A Boost Power On Lights
- B Boost Power Time Indicator Lights
- C Increase Boost Power Time Arrow
- D Decrease Boost Power Time Arrow
- E 100 Watt Indicator Light
- F 200 Watt Indicator Light
- G 300 Watt Indicator Light
- H Continuous Power Arrow
- I Reset Button

DIAGRAM 5

SINGLE PHASE WIRING DIAGRAM: Saunatonnttu 6.0 kW heater
Heater Type: 1108-60

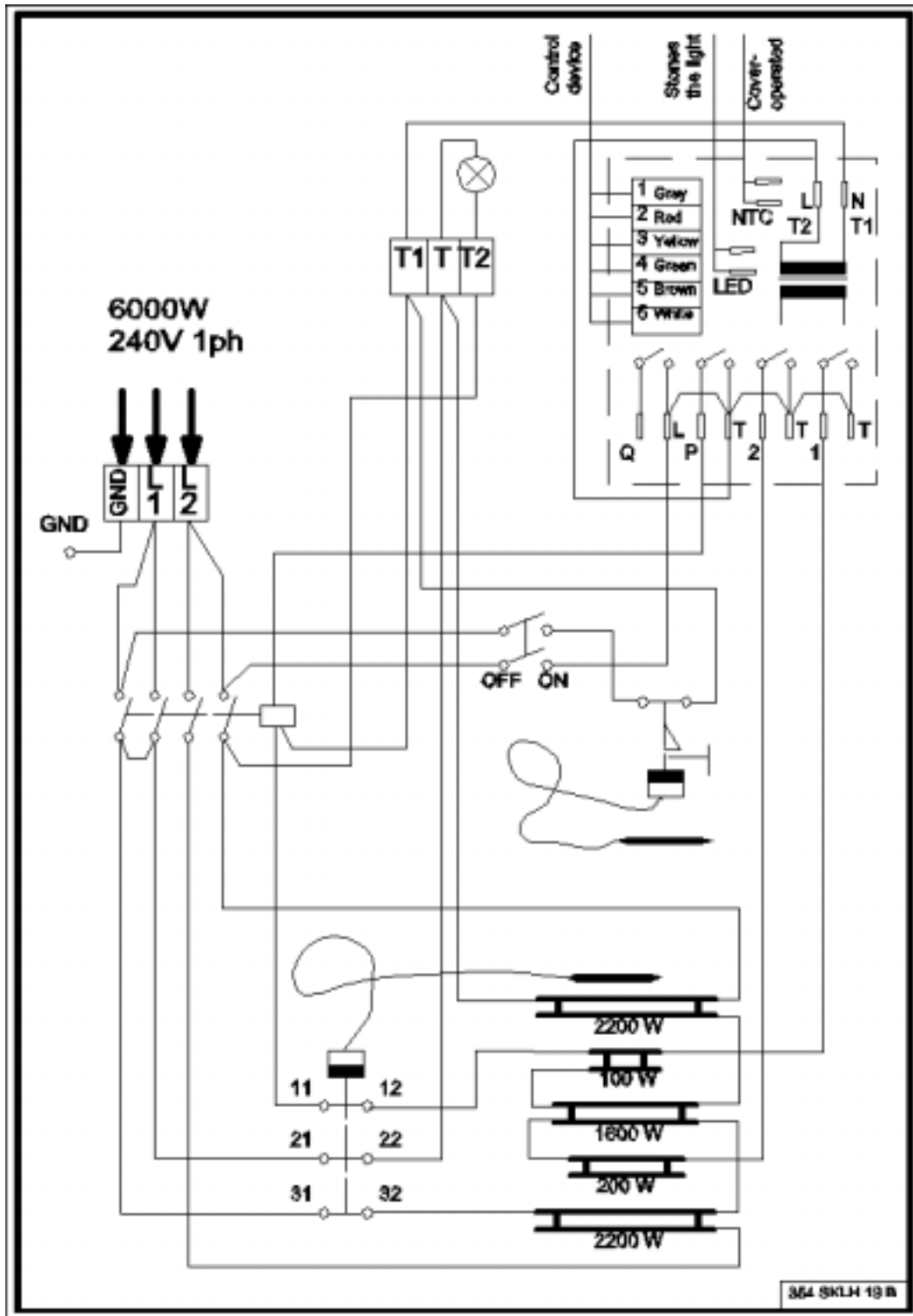


DIAGRAM 6

SINGLE PHASE WIRING DIAGRAM: Saunatonntu 4.6 kW heater
Heater Type: 1108-46

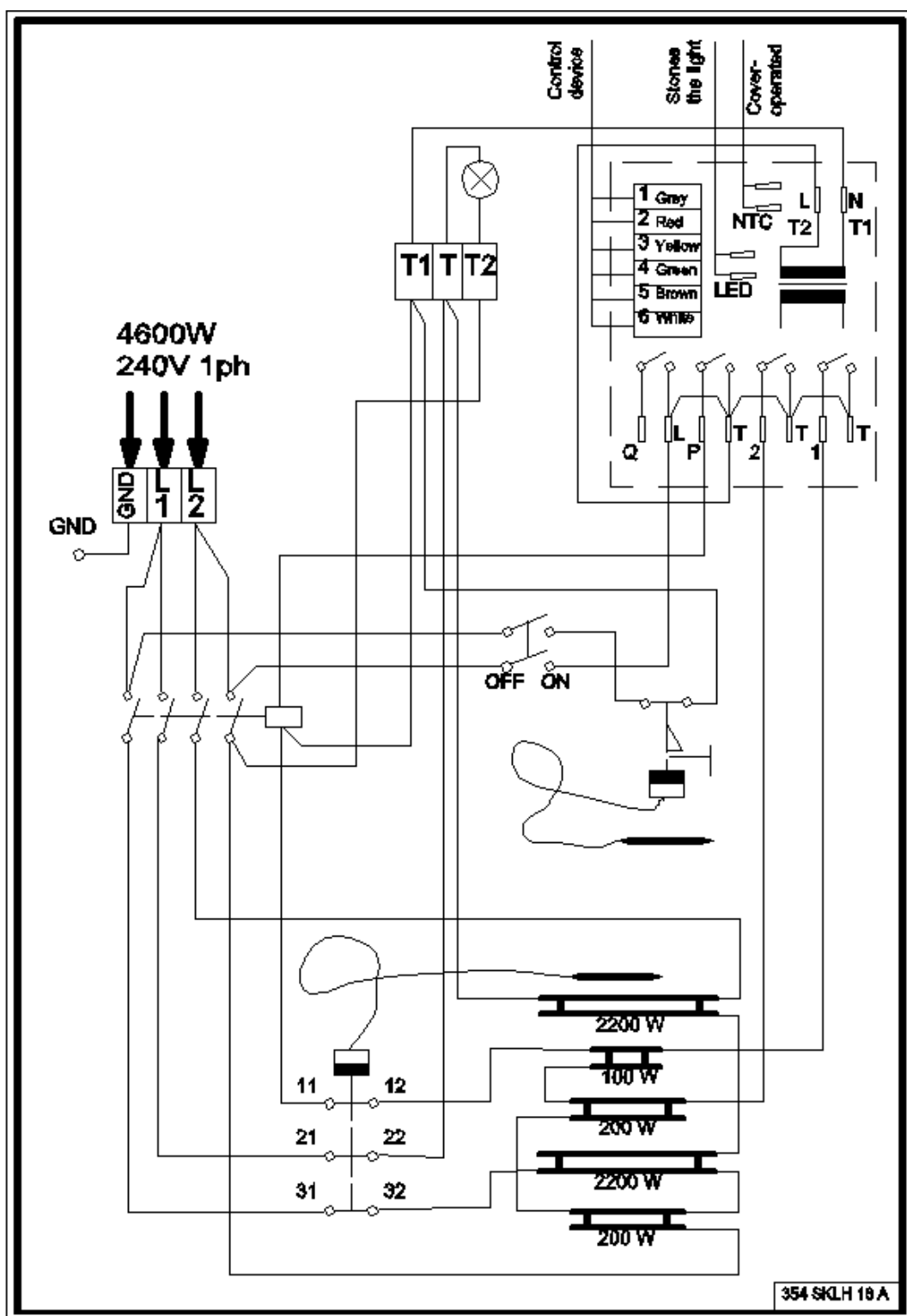


DIAGRAM 7

SINGLE PHASE WIRING DIAGRAM: Saunatonnttu 2.4 kW heater
Heater Type: 1108-24

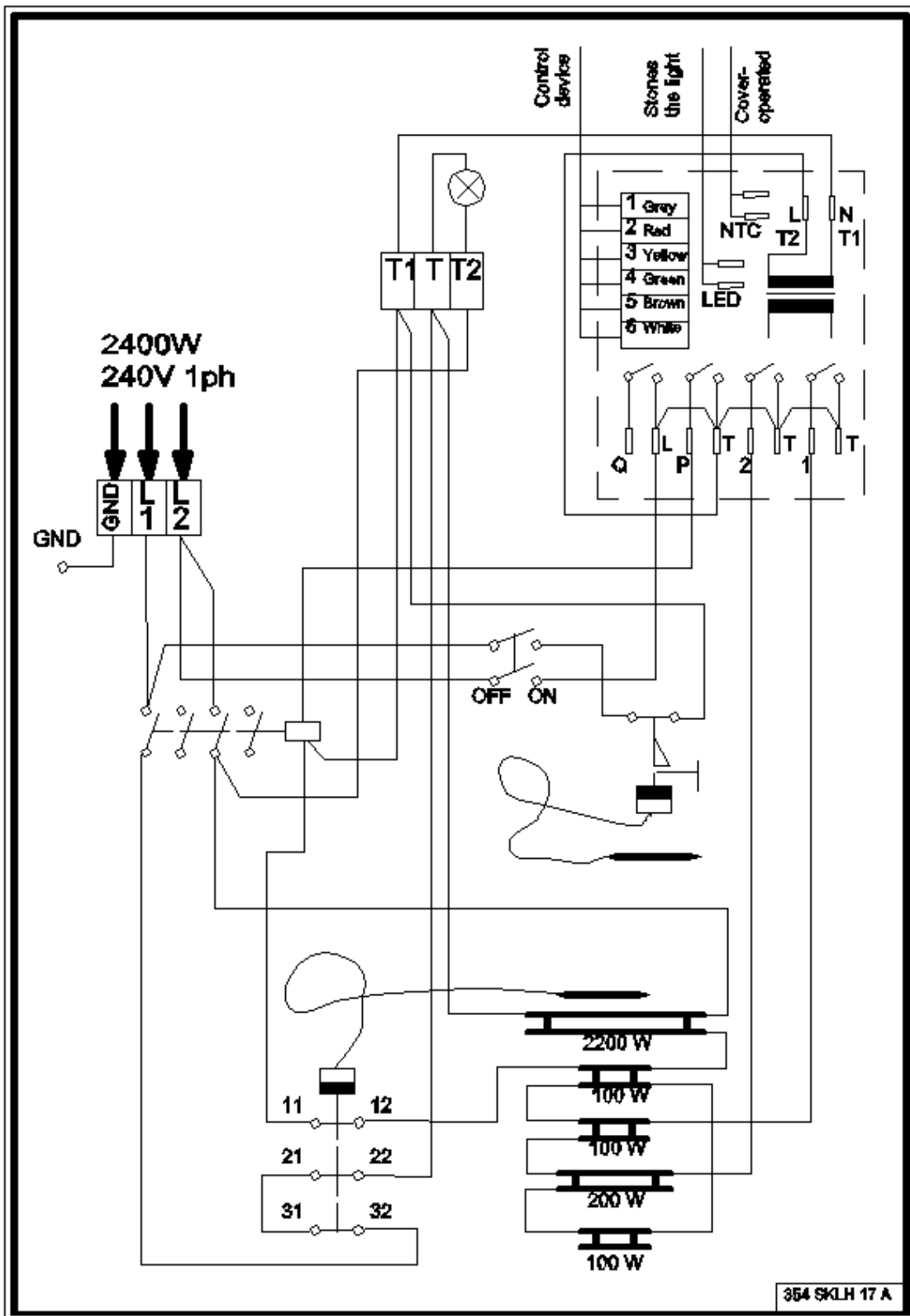


DIAGRAM 8

TYPICAL PRE-CUT WALL CONSTRUCTION

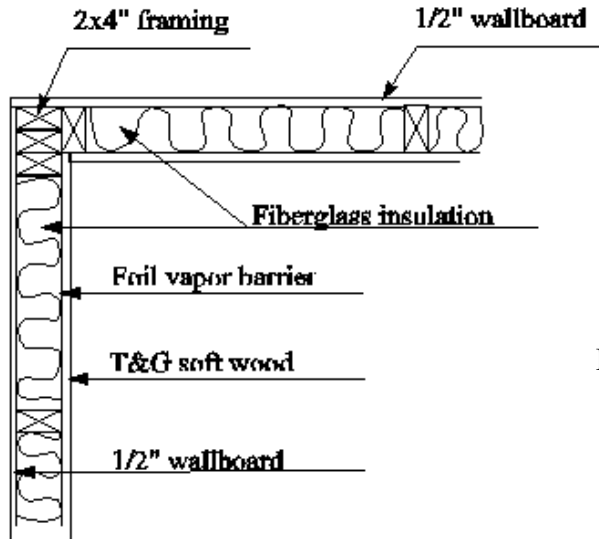


DIAGRAM 9

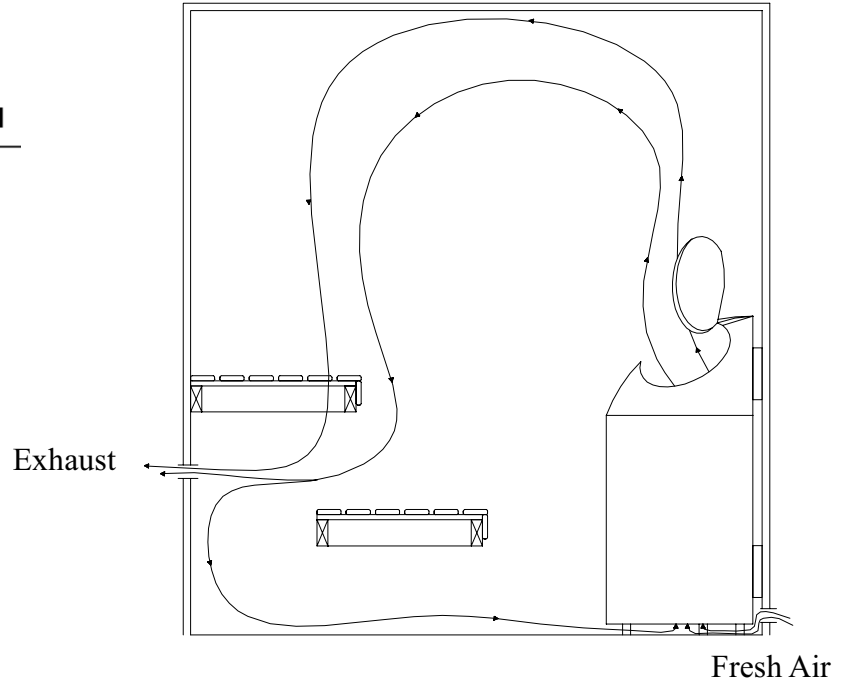


DIAGRAM 10



Electrical access for the heater is on the back of the heater.

SECTION 8 : WARNING PLACARDS

Three metal placards are included in the Installation Instruction Envelope packaged with the Saunatonnttu 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.

The placard for lid closer must be attached just below the "Caution" placard in the room above the heater.

SECTION 9 : ROOM CONSTRUCTION

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

- No permanent locking or latch system can 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 can be installed in a sauna room.
- No electrical receptacle shall be installed inside the sauna room.
- The enclosed WARNING: Reduce the risk of overheating ... the 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 ... the caution plate must be mounted on the interior wall above the heater.
- The heater must 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 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.

Warning

The "CAUTION" and "WARNING" placards must be mounted in accordance with Section 8.



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.

**CLOSE SAUNA
HEATER LID
AFTER USE.**

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.

SECTION 10 : 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 the sauna room rises to an abnormally high level.

To reset the high limit control, let the heater cool and then push the button. The reset button is on the back top right corner of the heater. The button is protected by a soft rubber grommet. See **Diagram 1A**.

If the High Limit continues to shut off the heater, contact a service representative.

SECTION 11 : HOW TO TAKE A SAUNA

- When taking a sauna, allow time to relax completely.
- Remove clothing and jewelry.
- Some sauna bathers enjoy the soothing effect of steam by splashing water on the heated sauna rocks. Use only one dipper full (approx. $\frac{1}{2}$ cup) at a time and take care to keep clear of the steam as it rises off the rocks.
- After 10 minutes or when perspiring freely, leave sauna and relax in the dressing area, followed with a warm shower.
- Enter sauna room again when ready and stay 5 or 10 minutes.
- Repeat the cycle 2 or 3 times; end with a warm shower and rinse in cool water.
- Dress when completely dry and perspiration has stopped.
- 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)



Rest (10-15 min)



Relax with juice or water



Like it?
Do it again and feel great.

SECTION 12 : VENTILATION

VENTILATION Ventilation shall be provided 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.

The minimum opening should be determined using one of the following formulas:

$$\begin{aligned} \text{For } R < 31, \quad V &\geq 9.4 \\ \text{For } R \geq 31, \quad V &\geq 0.3R \end{aligned}$$

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

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 deterioration should be replaced immediately to avoid possible injury.

SECTION 14 : TROUBLESHOOTING

For troubleshooting or service questions call 1-888-780-4427 and ask to speak with service. Also contact the following e-mail addresses for sales or technical support.

sales@saunatec.com
techsupport@saunatec.com

Date	Initials	Page	Changes
4/2/2002	TF	14	Added this box for editing.
4/2/2002	TF	9	Found the diagram numbers were used twice. Fix that and the references.
4/4/2002	TF	3	added text in the Electrical section to include how to get access to wire connections.
4/4/2002	TF	10	Added photo for diagram 10 for electrical access.
4/4/2002	TF	7	Changed drawing to new version 354 SKLH 19B per Reijo Perralla
4/10/2002	TF	1	Added warning about steam being forceful and hot.
4/25/2002	LM	All	Added the Part #05-4211-86 to document.