

HARVIA



FIN Heater Manual using F-1T/ F-2T/ F-2 control & FX contactor

EN Owner's/Operator's Manual

Sauna heater installation, wiring, operating instructions, trouble shooting, maintenance and guarantee.

IMPORTANT! This manual must be left with owner, manager or operator of Sauna after it is used by electrician!

MODEL

FIN-30
FIN-45
FIN-60
FIN-80

MODEL

FIN-45-3
FIN-60-3
FIN-80-3



LISTED 6J21
SAUNA HEATER

CONTROLS

F-1T
F-2T
F-2

CONTACTORS

FX402
FX303



3159549

ETL LISTED CONTROL
CONFORMS TO
UL STD 875
CERTIFIED TO
CAN/CSA STD
E60335-2-53-05

Importer:

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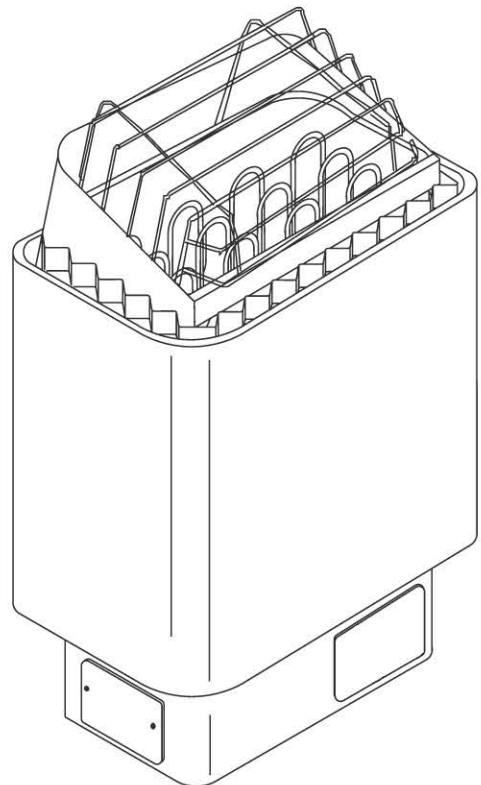


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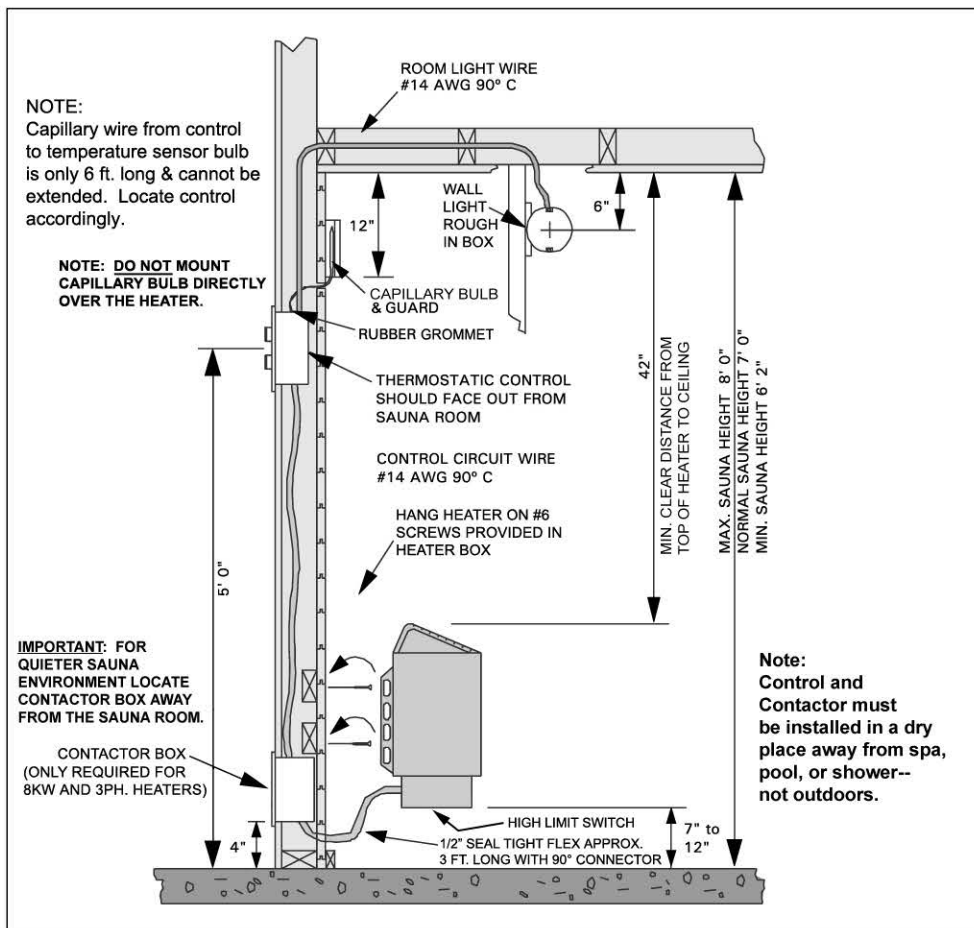


Figure 1

NOTE: DO NOT USE GROUND FAULT INTERRUPTER (GFI) ON SAUNA HEATER BREAKER!!

**INSTALLATION OF FIN MODEL HEATER, WALL CONTROL, & CONTACTOR
(contactor needed only for 8kw, 240v and all 208v heaters)**

1. Remove heater from carton and attach heater to wall with screws supplied. If wall thickness is less than 3/4", use 2"x 4" backing behind heater. Observe proper clearances as per page 4 and table 1.
2. See applicable wiring diagram fig. 5-8 for heater model. Heater must be permanently installed (no pigtails or plug allowed) and wiring must be done by a licensed electrician, who must follow wiring diagram provided and adhere to local codes. Use proper A.W.G. rated wire size and use copper wire suitable for 90°C within Sauna walls. Use grounding terminals provided in Sauna heater, control system, and contactor to properly ground the equipment as per NEC and local codes.
3. See fig. 6-8 to match control to heater model. Locate control in wall, 5' up from floor, so that panel faces outward from room. Punch out one of knockouts in roughin box and push rubber grommet (provided) into knockout hole. Bring capillary tubing with sensing bulb out through grommet and through stud wall, so that capillary bulb tip is located 6" from ceiling inside Sauna room & about 12" away from side of Sauna heater, taking care to avoid sharp bends in tubing (to prevent damage to tubing and liquid within). Extra tubing can be coiled up inside wall. Nail or screw metal bulb holder to wall and thread capillary bulb through holder to secure it.
4. Install contactor box (if required) about 4" from floor in equipment room, closet, or other dry area (must be accessible for servicing). Wires from Sauna wall to heater must be within seal tight flexible conduit. Use 1/2", 90° connector to connect to knock out at back of heater. Remove bottom plate from heater to access junction box.
5. Signs are located inside the heater carton. Mount the metal "CAUTION" sign directly above the heater. Install the metal "WARNING" sign above the heater or near sauna room entry. Place "BATHING INSTRUCTIONS" sign in a visible place.

Two 4" x 10" R.O. Vents are recommended in the Sauna Room for proper air circulation.

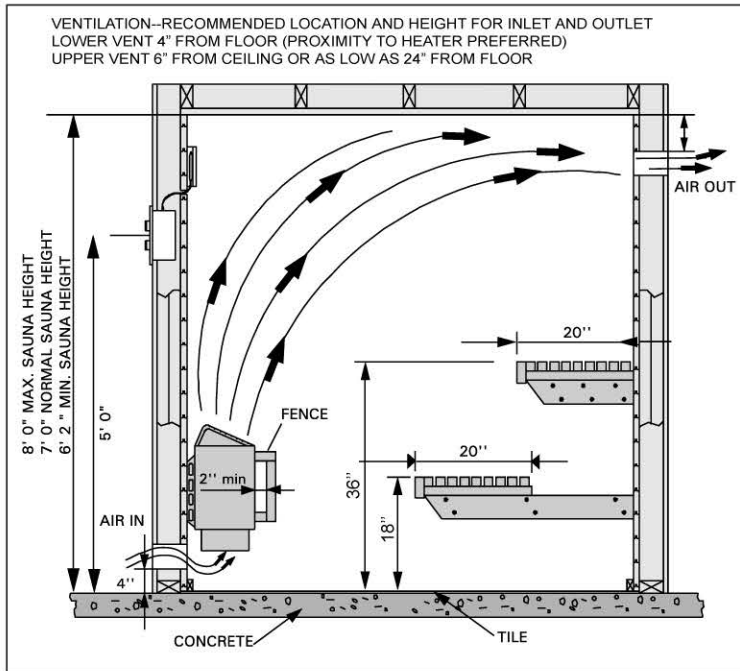


Figure 2.

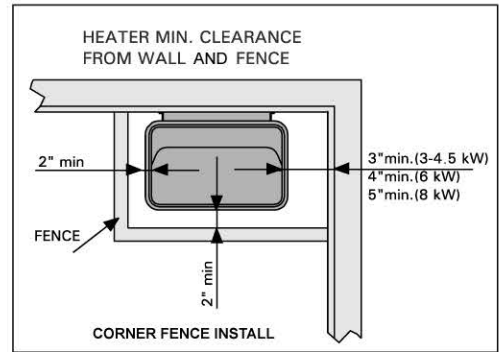


Figure 3.

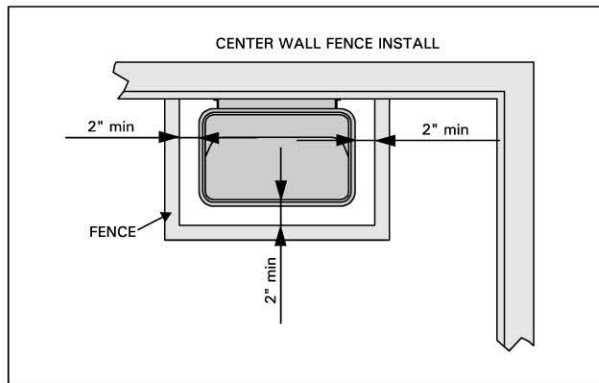


Figure 4a.

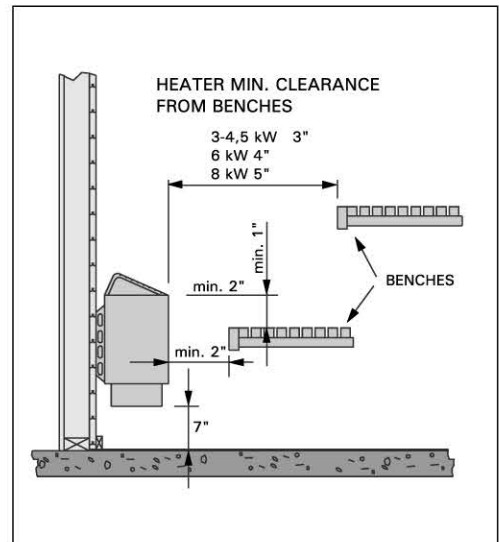


Figure 4.

Model	KW size	Min. height	Floor area		Sauna Room		Min. spacing from adjacent surfaces inches
			Min. Sq.Ft	Max. Sq.Ft	Min. Cu.Ft	Max. Cu.Ft	
FIN-30	3.0	6'2"	10	20	84	130	3"
FIN-45	4.5	6'2"	16	30	100	210	3"
FIN-60	6.0	6'2"	28	40	170	300	4"
FIN-80	8.0	6'2"	40	65	250	425	5"

Table 1.

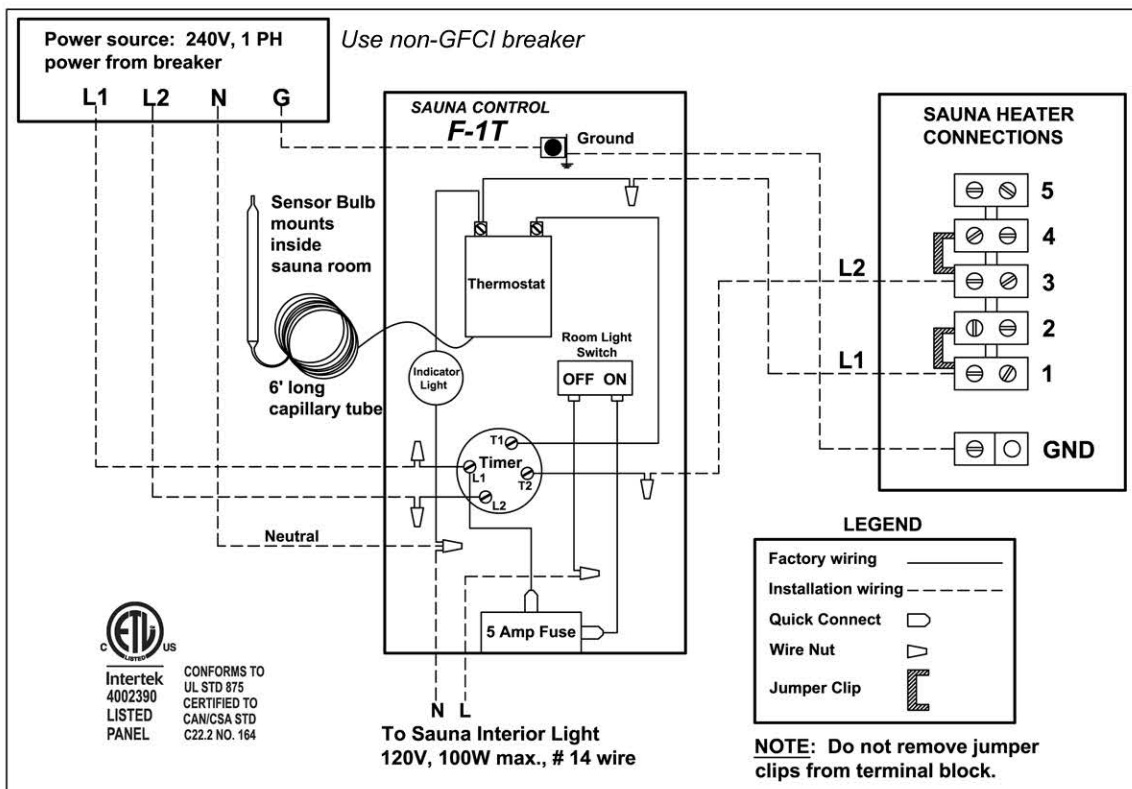


Figure 6. Use this diagram for wiring and hookup.

FIN Heater (240V) with Wall Control							
HEATER MODEL	WATTS	VOLTS & PHASE	AMP DRAW	BREAKER SIZE	WIRE SIZE breaker to control box	WIRE SIZE control box to heater	CONTROL 3.75" w x 3.5" d x 9.25h
FIN-30	3,000	240/1	12.5	20	(2) #12 + N + G	(2) #12 + G	F-1T
FIN-45	4,500	240/1	18.8	30	(2) #10 + N + G	(2) #10 + G	F-1T
FIN-60	6,000	240/1	25	30	(2) #10 + N + G	(2) #10 + G	F-1T

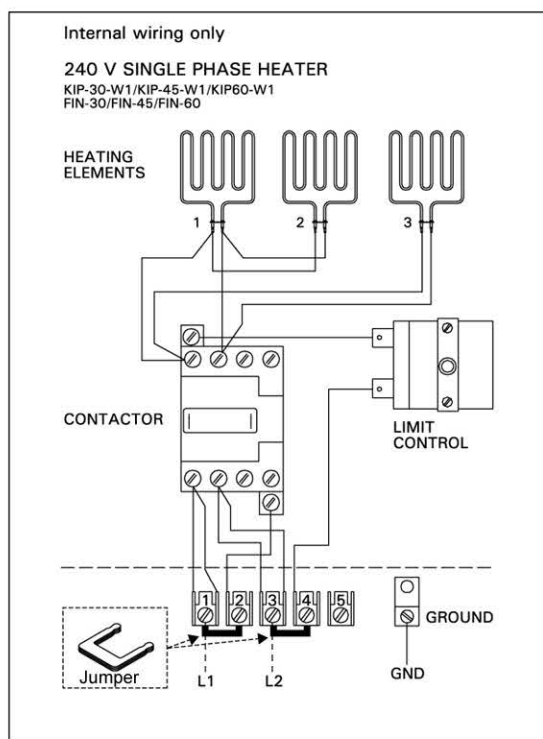


Figure 6a.

SAUNA HEATER WIRING AND HOOKUP – ALSO REFER TO FIGURE 1

Refer to chart above for proper wire size and amperage. See page 4 for required clearances. Use copper wire from breaker to wall-mounted control, which should face outward from Sauna, 5' from floor to center of box. Note! Neutral wire must also be brought to control to provide power for light switch. (Circuit breaker is built into control to provide protection for light.) From control to heater, provide seal tight flex conduit for wire, and connect to knockout at back of heater with 90° connector. Connect to terminals 1 and 3 and connect ground wire to lug marked ground. (Cover plate under heater must be removed first.)

Note! If connection to heater will be made at a later time, bring flex into Sauna room 4–6" from floor, and leave 3' of flex for hookup (can be cut to right length later).

Before testing heater, fill rock cavity with igneous stones provided with heater and fasten metal rock guard at top of heater. (See gen. info concerning placement of stones.)

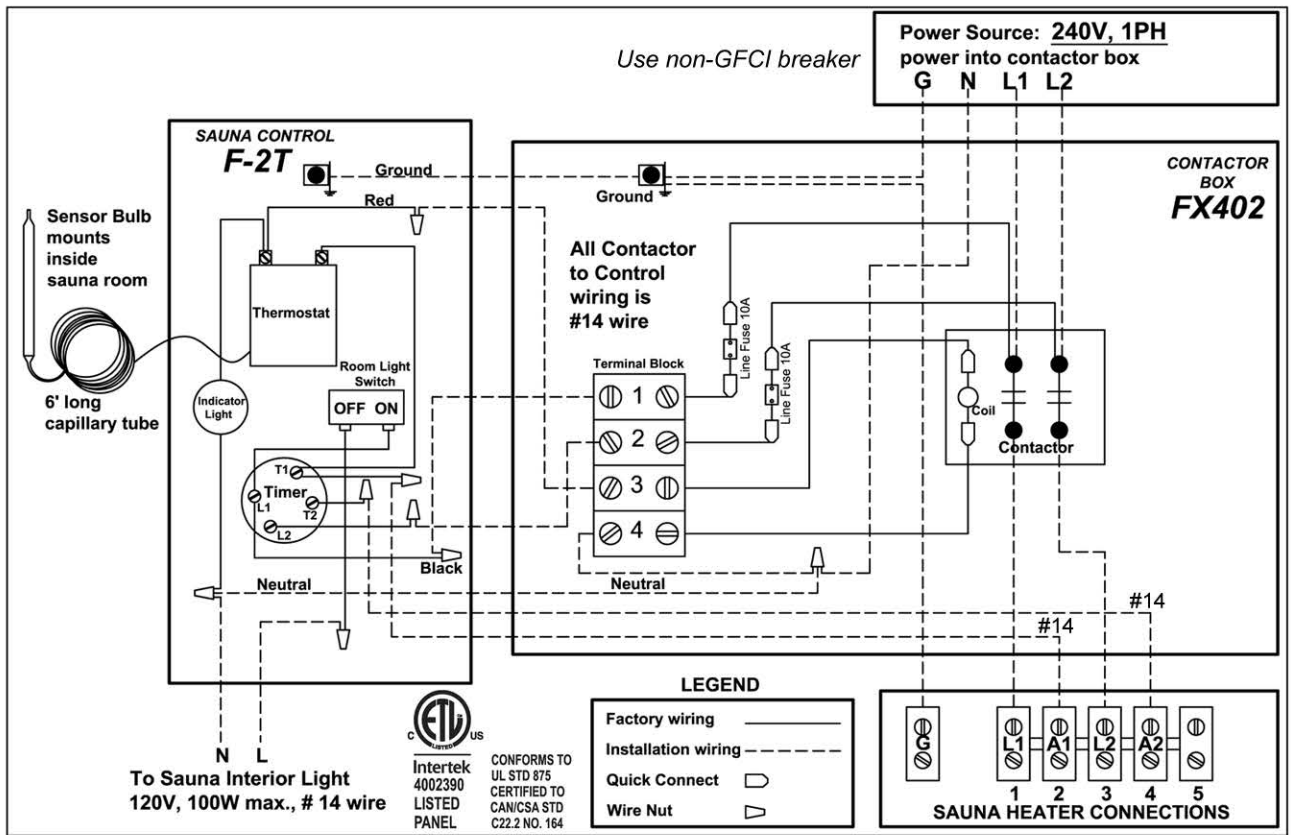


Figure 7. Use this diagram for wiring and hookup

NOTE: Remove any jumper clips from terminal block

FIN Heater (240V) with Wall Control								
HEATER MODEL	WATTS	VOLTS & PHASE	AMP DRAW	BREAKER SIZE	WIRE SIZE breaker to contactor box	WIRE SIZE contactor to heater	CONTROL 3.75"w x 2.5"d x 9.25h	CONTACTOR 6"w x 4"d x 8"h
FIN-80	8,000	240/1	33.3	40	(2) #8 + N + G	(2) #8 + (2) #14 + G	F-2T	FX402

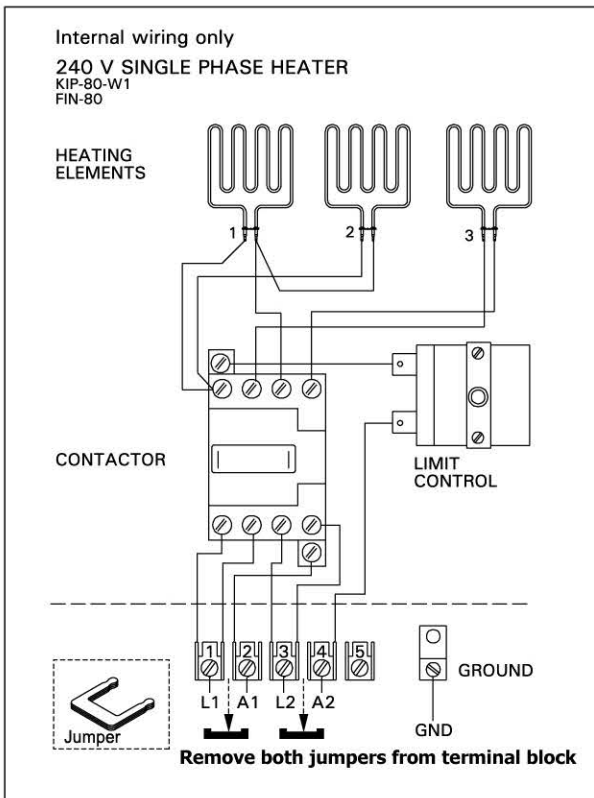


Figure 7a.

Electrician: Remove metal jumpers from heater terminal block if they are present.

SAUNA HEATER WIRING AND HOOKUP – ALSO REFER TO FIGURE 1

Refer to chart above for proper wire size and amperage. See page 4 for required clearances. Use copper wire from breaker to wall-mounted contactor. Use 90°C copper wire from contactor to control and from control to room light. Also use 90°C wire from contactor to Sauna heater (within seal tight flex conduit) and connect flex to knockout at back of heater with 90° connector. Connect to terminals 1 to 4 and connect ground wire to lug marked ground. (Cover plate under heater must be removed first).

Important! Follow wiring instructions carefully to prevent shorting of glass fuses in contactor box. Be sure there are no bare wires or shorts. The contactor has been factory tested, and if something is shorted out it will be the responsibility of the electrical contractor to replace any damaged parts.

Note! If connection to heater will be made at a later time, bring flex into Sauna room 4–6" from floor, and leave 3' of flex for hookup (can be cut to right length later). Before testing heater, fill rock cavity with igneous stones provided with heater and fasten metal rock guard at top of heater. (See gen. info concerning washing and placing of stones.)

Notice that insulated neutral wire (same A.W.G. gauge as supply wire) is also brought from breaker to contactor!

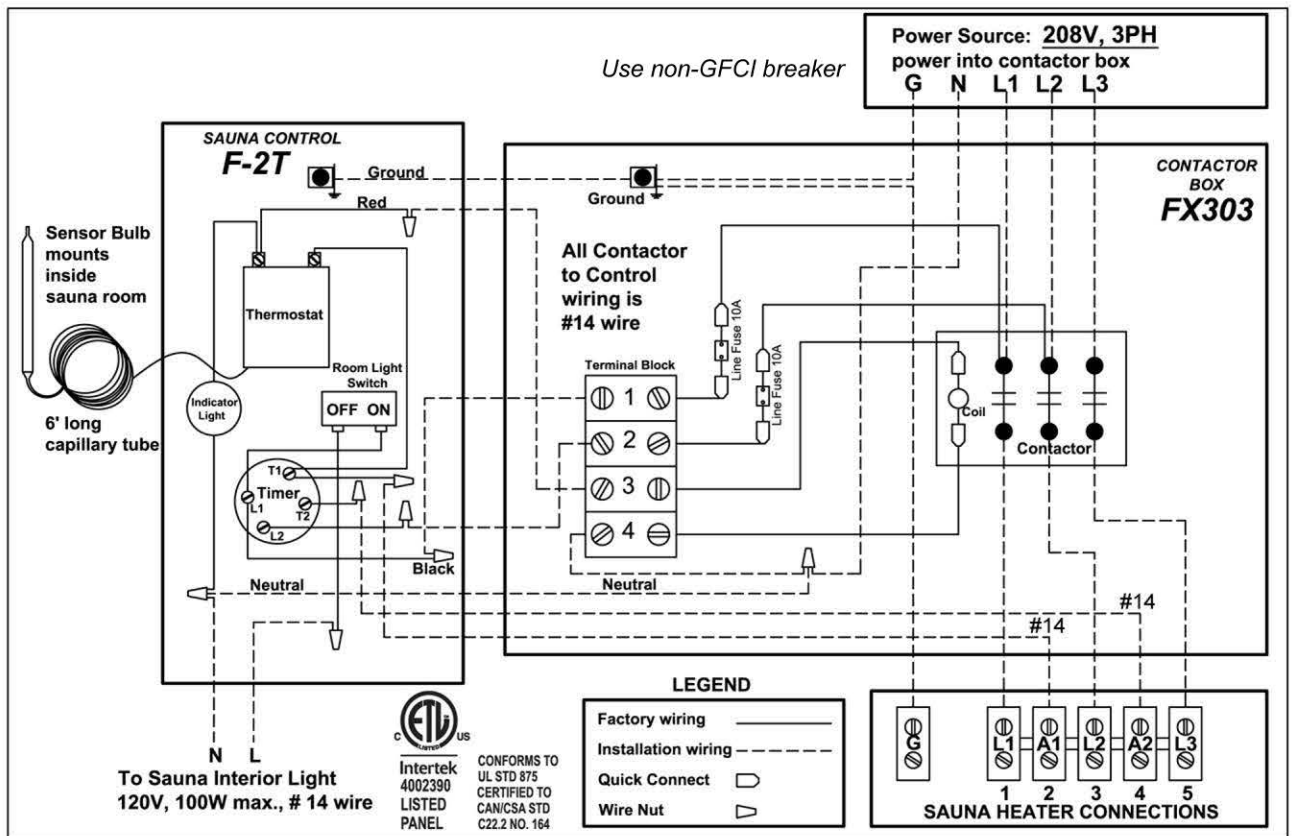


Figure 8. Use this diagram for wiring and hookup

NOTE: Remove any jumper clips from terminal block

FIN Heater (208V) with Wall Control

HEATER MODEL	WATTS	VOLTS & PHASE	AMP DRAW	BREAKER SIZE	WIRE SIZE breaker to contactor box	WIRE SIZE contactor to heater	CONTROL	CONTACTOR
FIN-45-3	4,500	208/3	12.5	20	(3) #14 + N + G	(5) #14 + G	3.75"w x 2.5"d x 9.25h	6"w x 4"d x 8"h
FIN-60-3	6,000	208/3	16.7	20	(3) #12 + N + G	(3) #12 + (2) #14 + G	F-2T	FX303
FIN-80-3	8,000	208/3	22.2	30	(3) #10 + N + G	(3) #10 + (2) #14 + G	F-2T	FX303

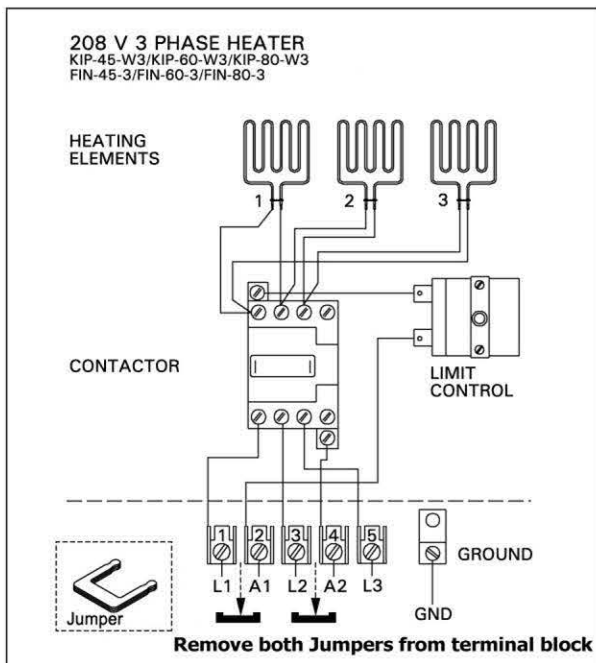


Figure 8a.

Electrician: Remove metal jumpers from heater terminal block if they are present.

SAUNA HEATER WIRING AND HOOKUP – ALSO REFER TO FIGURE 1

Refer to chart above for proper wire size and amperage. See page 4 for required clearances. Use copper wire from breaker to wall-mounted contactor. Supply cable must have 5 wires including insulated neutral and separate ground. Use 90°C copper wire from contactor to control and from control to room light. Also use 90°C copper wire from contactor to Sauna heater (within seal tight flex conduit), and connect flex to knockout at back of heater, with 90° connector. Connect to terminals 1 to 5 and connect ground wire to lug marked ground. (Cover plate under of heater must be removed first).

Important! Follow wiring instructions carefully to prevent shorting of glass fuses in contactor box. Be sure there are no bare wires or shorts. The contactor has been factory tested, and if something is shorted out it will be the responsibility of the electrical contractor to replace any damaged parts.

If connection to heater will be made at a later time, bring flex into Sauna room 4–6" from floor, and leave 3' of flex for hookup (can be cut to right length later). Before testing heater, fill rock cavity with igneous stones provided with heater and fasten metal rock guard at top of heater. (See gen. info concerning placement of stones.)

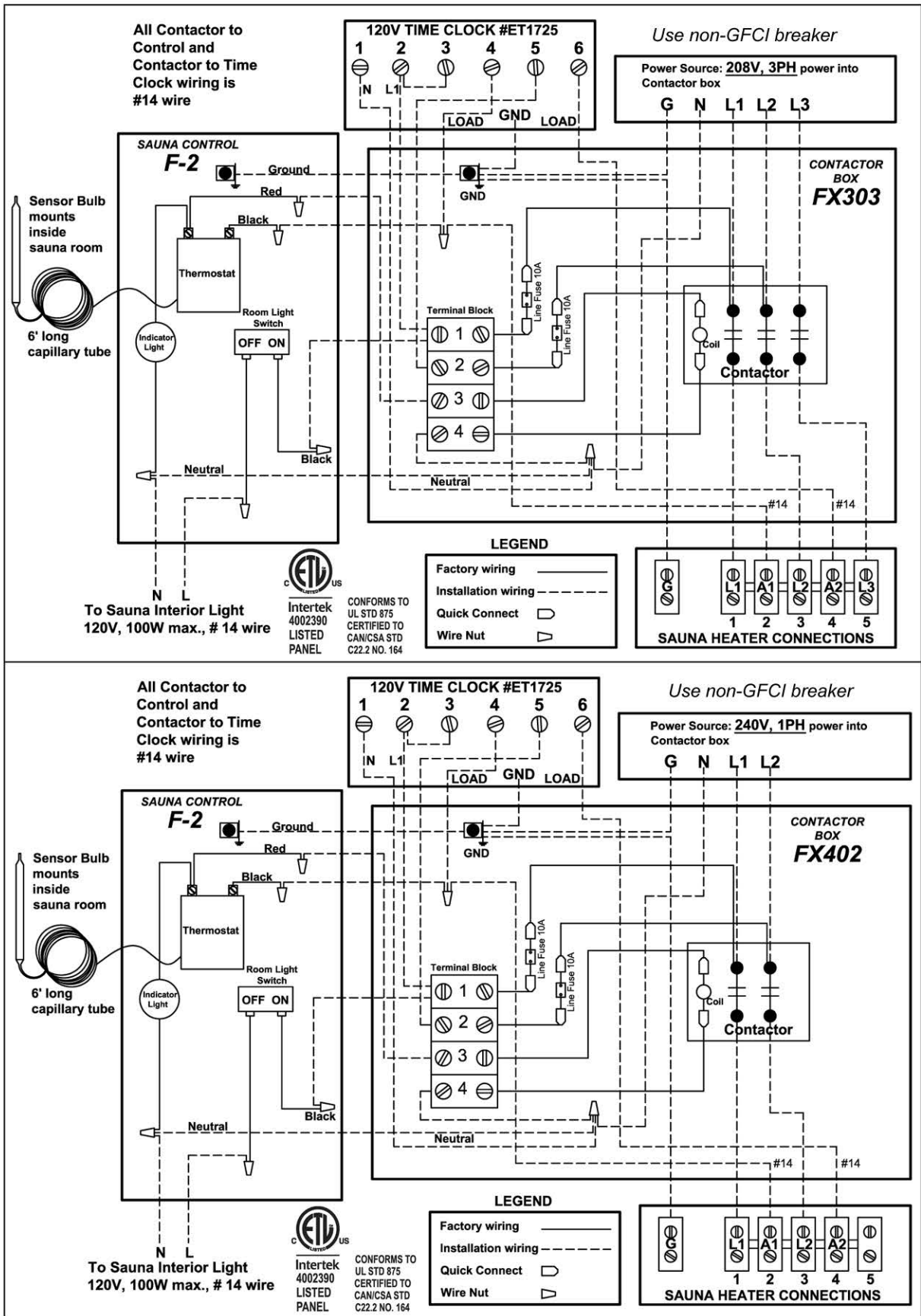


Figure 9.

NOTE: Remove any jumper clips from terminal block

F-2 SAUNA CONTROL (commercial use only)

This control can be used with any FIN heater, proper FX Contactor box, and 24 hour time clock. This is for continuous sauna operation during set hours. See chart for specific contactor model.

NOTE: This control can be used only when an attendant is on duty during hours of operation.

SAUNA – GENERAL INFORMATION

Rock placement – do not operate heater without stones!

Use only the stones which are supplied with the Sauna heater.

Place them inside heater so that rocks are between and around heating elements. However, do not force rocks between elements.

Use smaller stones first, and continue to fill heater with larger stones until they are about 2" below rock guard. You may not need all of the stones.

Stones should be placed loosely within heater so that there is good heat circulation around and through them. Stones should completely cover the heating elements, however!

Pouring water over exposed elements could cause heater damage!

TESTING OF SAUNA HEATER

1. After Sauna heater has been properly wired, according to appropriate wiring diagram and local codes, turn Sauna breaker on in the main breaker panel. (Note! Electrician must label "Sauna" breaker.)
2. Turn thermostatic (heat) control to on position (this is located either on your heater or on your remote wall control. If you have a wall control, the indicator light will come on to show that the Sauna is heating). Set timer to 10 or 15 minutes.
3. Within 5 minutes, you should be able to feel heat from heater elements when holding your hand over heater.
4. If Sauna does not heat, refer to troubleshooting information.
5. It is normal for smoke to appear during the first heating, as protective element coating needs to burn off. **Turn sauna on for 1 hour before using the first time, to eliminate smoking.**

TROUBLESHOOTING

A. If sauna does not operate after initial installation and wiring:

1. Check breaker to be sure that it is on. Also, breaker should be correct size.
2. Make sure that a neutral wire has been included (necessary for all heaters except model with built-in control).
3. Check circuit breaker in contactor to be sure that it has not been shorted out.
4. Be sure that thermostat and timer are both in on position.
5. Be sure that timer winds down. If timer has been shorted out, heater will not operate.

B. If sauna has been in operation, but heater ceases to operate:

1. Check breaker to make sure it is on.
2. Check timer to see if it winds down.
3. Check high limit reset button in heater (reset is located under the heater).
Push button up to reset. Make sure breaker is on and heater is in the "on" position when pressing.
4. Call your electrician or service person for further help.

NOTE! A ground fault interrupter (GFI) should not be installed in and does not belong in a Sauna. If used, the breaker will trip, and damage could result.

C. If sauna heater operates, but sauna room does not come up to normal sauna temperature (160–185°F) when thermostat is at max.

1. You must allow at least 30 minutes for Sauna heat-up time.
2. Is Sauna thermometer located 6" from ceiling, and is it above or close to Sauna heater? (This is proper location for Sauna temperature reading.) Thermometer readings vary with room heights and location. Eg. 180°F above Sauna heater = 165 on opposite wall = 120 at upper bench level = 100 at lower bench level = 80 at floor level.
3. Check for proper wire size, amp size, and proper wiring (according to diagrams and information) also necessary copper wiring.
4. Check for placement of stones to make sure they are loosely spaced around elements, to insure good air flow. Stones packed too tightly will restrict air flow and reduce heating capacity.
5. Check for heat loss (around or under door, around ceiling light or fan – we do not recommend ceiling light and a fan does not belong in the Sauna.
6. Is room properly insulated?
7. Is ceiling higher than 7'?

CAUTION! ELECTRICIAN OR SERVICE PERSON!

1. **Before servicing heater, control, or contactor, turn power off at breaker!**
2. Remove bottom plate of heater to access heater wires. Make sure wires are tightly secured with no loose connections and that wire is all copper.
3. Check for burned timer or thermostat or corroded wires in heater.
4. After checking all the above, remove rocks and check heater elements for holes or any breaks. (Only if heater has been in use for some time.)

Finlandia Sauna's warranty on parts is void if installer/electrician fails to follow necessary wiring information provided or fails to follow code for proper wire size, amperage, etc.

HIGH LIMIT CONTROL

Each heater is equipped with a high limit control which is a safety device. If an abnormal heating condition should occur, the heater will automatically shut off, and it will not come on again until it cools.

To reset the high limit, locate the reset button (bottom front on wall models and push upward until contactor kicks in. If reset button continues to trip, contact a qualified service person. Be sure that a GFI breaker has not been installed.

Receptacles or PLUGS are not allowed in a Sauna room. If a speaker is installed in a Sauna room, it should not be installed higher than 3' from floor, away from the Sauna heater (consult manufacturer for ratings).

ROOM LIGHT should be a vapor proof, wall-mounted type, with rough-in box mounted flush with inside paneling. It should mount 6'6" from floor, not directly over Sauna heater, and not over upper benches; light bulb should not exceed 100 watts.

HEATER FENCE is necessary for safety and should be constructed of 2" x 4" or 2" x 2" softwood to match Sauna interior. See figures 2–4 for clearances from Sauna heater. Fence should attach to wall and should not be placed higher than top of heater below rock line.

ROOM CONSTRUCTION – GENERAL INFORMATION

A. FRAMING

- 2" x 4" dry Douglas Fir, 16" o.c.

B. CEILING HEIGHT

- no higher than 7'0".

C. INSULATION

- R13 Fiberglass in walls and ceiling.

D. DRYWALL

- See local codes. Is not required in most residences. See local codes commercial. If drywall is used, apply 1" x 2" nailers so that wall and ceiling boards can be attached to solid wood.

E. PANELING

- Use kiln-dried, clear, T & G softwood such as Western Red Cedar, California Redwood, Alaska Yellow Cedar, with moisture content not exceeding 11 %.

F. BENCHES

- Use matching wood of vertical grain with 2" x 2" tops – 3/8" spacing – and 2" x 4" facing, fastening from bottom to prevent burning of bathers.

G. HEATER GUARDRAIL

- Use matching softwood of 2" x 4" or 2" x 2".

H. DOOR

- Must open out and should not have a lock. Size – 2'0" x 6' 8" with fir rails and double sealed, tempered glass. ADA - 3' 0" x 6' 8".

I. FLOORING

- concrete, ceramic tile, or heavyduty Vinyl with walking area of removeable SuperDek.

J. VENTILATION

- should be provided by lower vent close to heater, 4" from floor, and upper vent on opposite wall (if possible) 6" from ceiling or as low as 24" from floor. Vents should be adjustable and should allow air to exchange.

K. LIGHT

- should be wall-mounted, vapor proof type, located 6" from ceiling.

L. ACCESSORIES

- bucket, dipper and thermometer are essential. Thermometer should be placed over the Sauna heater, 6" from ceiling, for correct temperature reading. Other accessories such as hygrometer, sand timer, brushes, etc. are available.

M. MAINTENANCE INSTRUCTIONS

- are included at the end of this manual.

N. WARNING SIGNS

- are furnished with Sauna heater. The metal "CAUTION" sign should be fastened to wall, close to heater, in a visible place. The metal "WARNING" sign should be fastened above heater or in another visible place.

WARNINGS!

Do not smoke, use alcohol, or exercise in the sauna!

Do not exceed 30 min. in the sauna at one time, as excessive exposure can be harmful to health. The sauna should not be used as an endurance test!

Persons with poor health should consult their physicians before using the sauna!

Do not place any combustible material over the sauna heater (towels, bathing suits, wooden bucket or dipper)! at any time.

Use only clean tap water on the stones – do not use pool or spa water, as chlorine gas can be produced and the heating elements can be damaged!

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98,6°F. The symptoms of hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness, and fainting.

The effects of hyperthermia include:

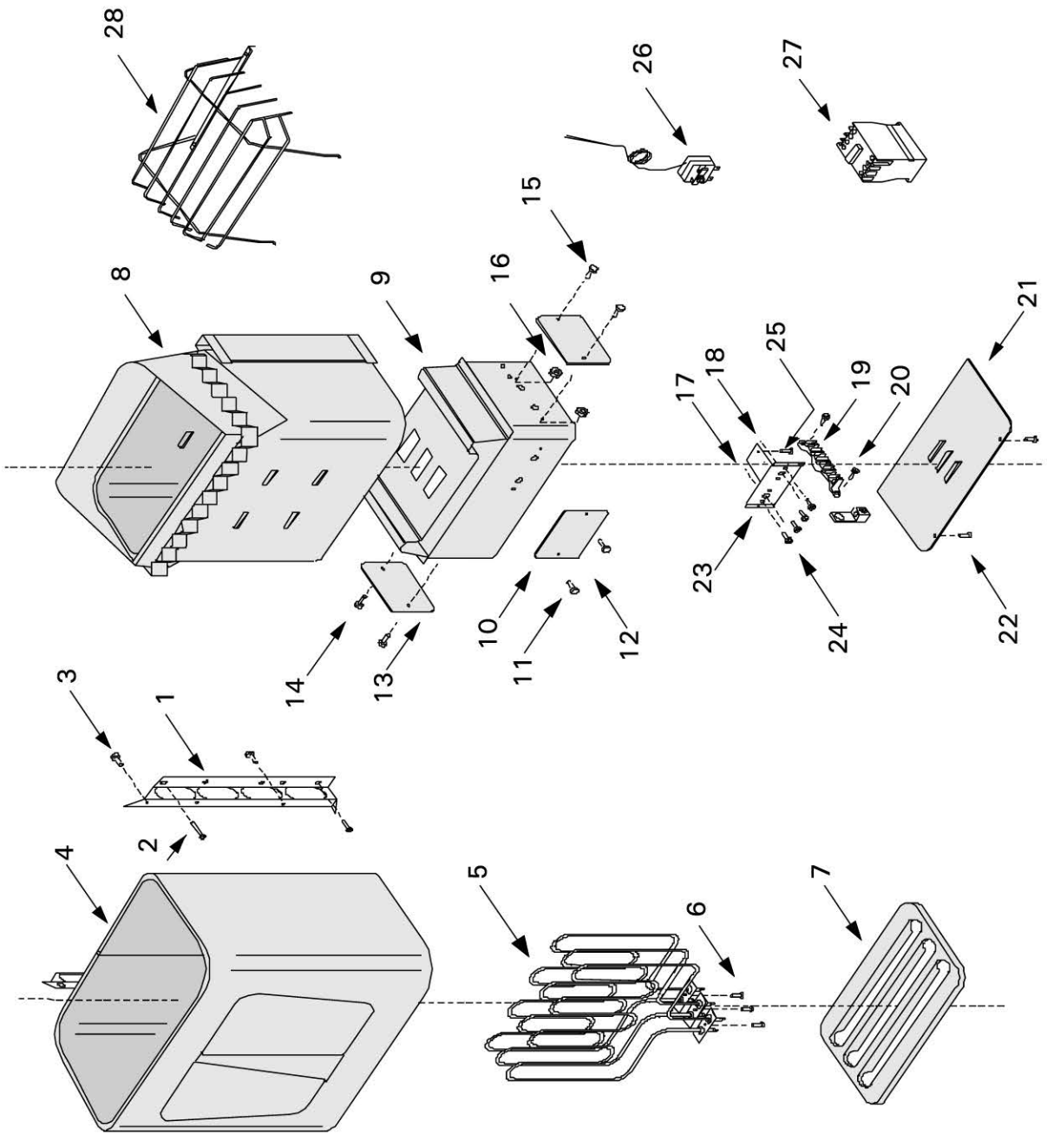
- A) Failure to perceive heat**
- B) Failure to recognize the need to exit the room**
- C) Unawareness of impending hazard**
- D) Fetal damage in pregnant women**
- E) Physical inability to exit the room**
- F) Unconsciousness**

Warning – the use of alcohol, drugs or medication is capable of greatly increasing the risk of fatal hyperthermia!

FIN HEATER PARTS

Sauna heaters type FIN, FIN-3 without parts 12, 17, and 18

1.	Wall bracket
2.	Tapping screw
3.	Sheet screw
4.	Casing
5.	Heating element
6.	Slothead screw
7.	Bottom grille
8.	Stone compartment, assembled (frame)
9.	Electrical casing, assembled
10.	Plate
11.	Screw
12.	Tapping screw
13.	Rating plate
14.	Slothead screw
15.	Slothead screw
16.	Hexagon nut
17.	Thermostat
18.	Timer
19.	Terminal strip
20.	Strip fixing screw
21.	Base plate
22.	Screw
23.	Bracket
24.	Slothead screw
25.	Slothead screw
26.	Overheating limiter/switch
27.	Contact
28.	Protective grill



HARVIA



MAINTENANCE INSTRUCTIONS

1. Use only clean water on Sauna stones. **Do not** use spa or pool water as it will destroy your heater.
2. Clean water should always be used in Sauna buckets and water should be dumped out after every use. Scour buckets and dippers occasionally when film collects from usage. Use plastic bucket liner in bucket to prevent water leakage.
3. Scrub benches with a soft brush, using soap and water or a mild disinfectant, when needed—about once a week in commercial Saunas, or depending upon Sauna usage. For sanitation, each bather should sit or lie on a towel (this will prolong bench life).
4. Remove Super Dek and wash waterproof floor with disinfectant (e.g. Pine Sol) about once a week or as often as needed. Hose off Super Dek to clean.
5. To maintain beautiful appearance of Sauna heater, remove water stains by wiping with a damp cloth occasionally.
6. Finlandia/Harvia Sauna Heaters require no special maintenance when properly installed by a qualified electrical contractor. After 5 years of usage, the rocks may need replacing if they have crumbled or powdered.
7. Finlandia/Harvia Sauna strongly recommends a floor that can be easily cleaned (concrete, ceramic tile, or a poured type of flooring). When this is provided, the Sauna can be easily cleaned and kept in a sanitary condition with little effort. A carpet is NOT recommended for a Sauna! A carpet becomes a perfect breeding ground for bacteria in the moist conditions of a Sauna; and a carpet promotes the spread of foot diseases such as athlete's foot. For the same reasons, wooden duckboard should not be used for flooring.
8. In new construction, a floor drain should also be provided, especially in commercial Saunas for sanitary cleaning and maintenance.
9. Seal wood around glass in door—inside and outside—with *Thompson's Water Seal*, *Olympic Water Guard #55548*, or similar product.
10. When Sauna wood becomes stained from perspiration, the wood may be lightly sanded with fine sandpaper to restore beautiful appearance. We do not recommend stains or sealers as toxic vapors may appear when heated. However, 2 coats of *Thompson's Water Seal* may be used on the wood benches in a commercial Sauna, so that the wood may be more easily cleaned and kept sanitary—the wood will not absorb perspiration.
11. The Sauna room will heat faster if the higher vent is kept in a closed position when heating. The lower vent may always be kept in an open position.
12. Required warning signs should be posted according to the instructions.

Guarantee

This FINLANDIA HARVIA SAUNA heater is guaranteed for 1 year from date of purchase, and includes all heater parts such as heating elements, controls, contactors, etc.

This guarantee covers faults in manufacture and material only, and includes the exchange of new parts supplied by the manufacturer or importer, after the faulty parts have been returned to same. The replacement of parts under warranty does not extend the warranty period beyond the original one year.

The guarantee does not cover defects caused by normal wear and tear, defects caused by improper installation, poor maintenance, or failure to follow the manufacturer's instructions for installation, use and care, or alterations made to the Sauna product.

This guarantee is void if the heater is used improperly. Pool or spa water should not be poured over the Sauna stones, as chemicals are harmful to the heater. Only one or two dippers full of water should

be poured over the hot stones at one time. This guarantee will be void if a shower has been installed in the Sauna room.

The guarantee does not cover delivery costs of the faulty part or costs of the person carrying out the repair in the field. If the Sauna heater is returned to the manufacturer or importer within five years after date of purchase, the importer will provide free labor for repair, but will charge for parts if date of purchase is past one year.

This guarantee will be void if installation and wiring is not carried out by a certified electrician or authorized and qualified service representative, who must sign below.

This guarantee will be void if information below is not filled out and returned within 15 days of purchase, and it applies only to original installation of product and to original purchaser.

FINLANDIA

HARVIA SAUNA HEATER

MODEL NUMBER

DATE OF PURCHASE

ORIGINAL OWNER

ADDRESS

PURCHASED FROM

ELECTRICAL CONTRACTOR

MUST SIGN HERE

DATE OF ELECTRICAL

WIRING & HOOKUP

Importer:

Finlandia Sauna Products, Inc.
14010-B S.W. 72nd Ave.,
Portland, OR 97224-0088
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