GD-200K/400K
GAS HEATER SERIES

INSTALLATION GUIDE &
USER MANUAL

GAS-FIRED GLYCOL HEATER SERIES

CONTENTS

CONTACT INFORMATION & AFTER-HOURS SUPPORT

CONTACT INFORMATION

G&D Chillers, Inc.
130 E. 1st Ave
Junction City OR, 97448

1.800.555.0973
info@gdchillers.com
Office Hours: 8 AM – 5 PM (PST)

AFTERHOURS TECHNICAL SUPPORT

G&D Chillers offers 24/7 technical support. For emergency assistance after normal business hours, call the main office at 1.800.555.0973 and choose the tech support option. Your call will be directed to an on-call technician.

INSTALLATION VIDEO LINKS

Visit the following pages for installation video walk-throughs and FAQ's:

www.gdchillers.com/installation-videos/

www.gdchillers.com/installationvideos/how-to-install-a-chiller

www.gdchillers.com/installation-videos/how-to-install-a-portable-fire-ice-chiller/

www.gdchillers.com/faq

NOTICE: HEATER WARRANTY REQUIRES ACTIVATION

To activate the heater parts and labor limited warranty, complete the Warranty-Start-up Checklist and return to G&D Chillers within 30 days

GLYCOL HEATER DESCRIPTION

RINNAI RL94i WATER HEATING UNIT
A chassis mounted water heater with exhaust port. The RL94i burns natural gas or propane to produce heat.

CIRCULATION PUMP
Base mounted end suction centrifugal pump. Impeller trim is optimized for a 35% propylene glycol mixture.

RESERVOIR TANK
Constructed stainless steel, insulated with ½" closed cell foam insulation.

SUPPLY & RETURN PIPING
Constructed of type M copper. Supply and return connections NPT or ASME flange. Includes gauge for setting discharge pressure.

DYNAMIC FLUID BYPASS VALVE
Allows for balancing of discharge pressure. Over pressure design allows circuiting back to tank without damage to system or pump. Copper and bronze construction.

FRAME & HOUSING
Fully powder-coated steel frame. Durable powder-coated aluminum cover panels. Louvered access panels for easy service and maintenance. Integrated fork pockets for convenient and safe lifting.

POWER & CONTROLS
All power starting controls and safety/operating controls are mounted in a weather resistant steel NEMA 3R enclosure. Features include:

- Rinnai MCC-601-W temp display
- Ranco ETC-111000 over-temp protection
- Dwyer TSW-150 main thermostat
- Pump contactors
- Panel-mount key switches

FACTORY TESTING
All heater units are leak checked, run-tested, and verified at the factory to be in perfect working order prior to shipping.

INSTALLATION REQUIREMENTS

WARNING: OBEY ALL APPLICABLE LOCAL/ NATIONAL SAFETY CODES WHEN INSTALLING THIS HEATER

All installation work must be performed by licensed professionals with the appropriate qualifications:

1.) Unit should sit on a solid level surface – a concrete pad is recommended. Securely anchor the unit in place.

2.) Supply unit with the proper voltage and protect against power spikes. Refer to torque chart. Unit must be properly grounded.

3.) Unit must be connected to a source of gas**.** G&D Heaters can only run one type of gas (LP *or* NG) which must be specified at time of order. Notice: Ensure gas type (LP vs. NG) is correct for the G&D Heater being installed!

4.) On systems with three-phase pumps, the rotation of the pump must be checked; clockwise from back of motor. If needed, correct phasing by swapping two legs of power at the main distribution blocks in the heater electrical enclosure.

TORQUE CHART	
Gauge	**lbf · in**
1000-500	550
500-4	500
350-6	375
250-6	375
4/0-6	275
2/0-14	120
#2 - #3	50
#4 - #6	40
#10 - #14	35

NOTICE: REVIEW THE RINNAI RL94I MANUAL (APPENDIX A) PRIOR TO INSTALLING THE G&D HEATER

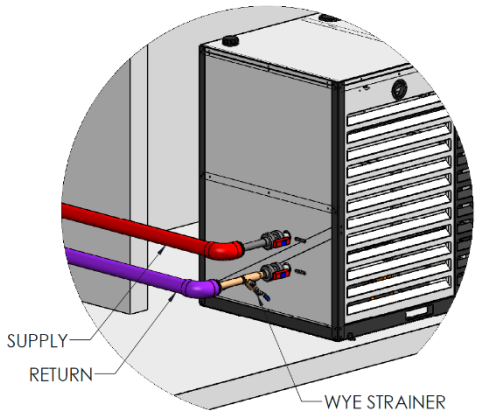
PIPING RECOMMENDATIONS

G&D Heater units are fitted with 1-½" female NPT connections for glycol supply and return. Appropriate fittings will be needed on process tanks/jackets.

Confirm tank jackets have been flushed of any debris before connecting to them for the first time. It is highly recommended that a 20-mesh wye-strainer is installed at the return connection.

Individual tank temperature control package should be installed at each vessel to maintain optimal conditions for each process being heated.

Always connect the glycol supply to the bottom fitting on the tank jacket and the return to the top. This allows any air in the jacket to be purged back to the heater reservoir and vented to the atmosphere.



G&D Heaters are typically designed to run a 35% glycol/water mixture. Confirm glycol concentration with the included refractometer prior to operation.

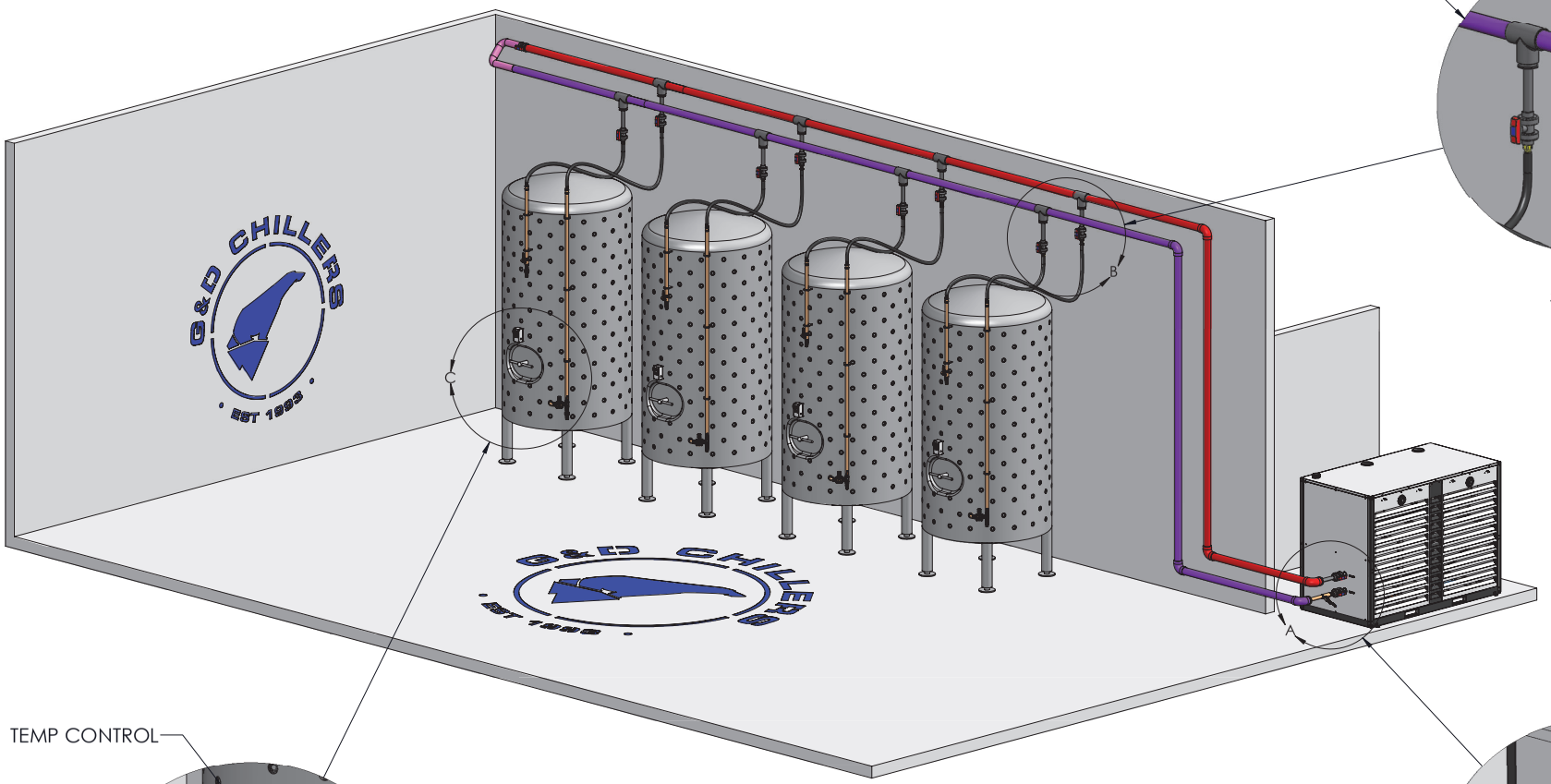
Glycol pressure is adjustable: Verify tank jacket ratings before pressurizing system (pressure is pre-set at 25 PSI). Heater contains dynamic fluid bypass valve and pressure gauge on supply line:

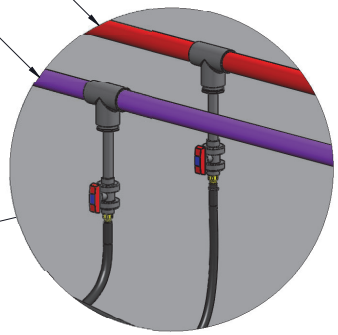
- Bypass valve: Loosen packing nut and turn handwheel to adjust supply pressure
- Re-tighten bypass valve packing nut once the pressure is set

Notice: Do not allow glycol flow to tanks until gauge shows supply pressure within tank jacket ratings!

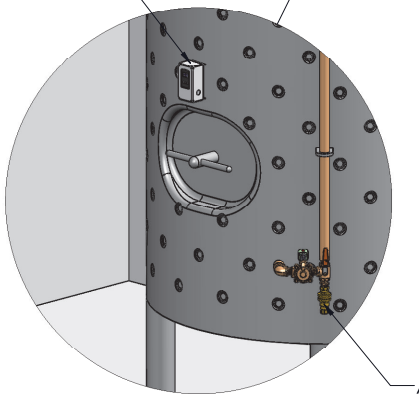
QUICK-START PROCEDURE

1.) Connect control panel to an appropriate power source.
2.) Ensure that all pump isolation valves are open!
3.) Flush the piping system with water. Do not allow debris to enter the reservoir of the heater unit.
4.) Fill reservoir with 35% propylene glycol mixture.
5.) Confirm pump rotation if using 3 phase power.
6.) Be sure the gas type connected to the heater matches the type listed on the Rinnai unit
7.) Turn door switch to the "ON" position.
8.) Adjust set point using the arrow keys on the Dwyer temperature controller, found inside the electrical enclosure
9.) Be sure to fill out the "Warranty Start-up Checklist" and send a completed copy to G&D Tech Support!

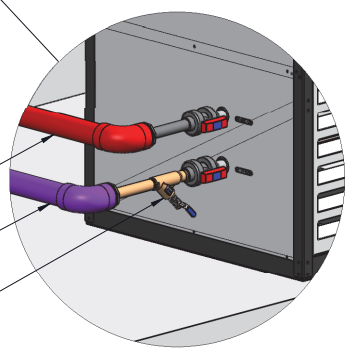




DETAIL B
SCALE 1 : 17



DETAIL C
SCALE 1 : 17

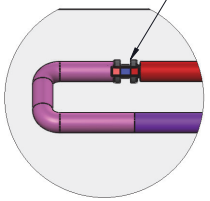


DETAIL A
SCALE 1 : 15

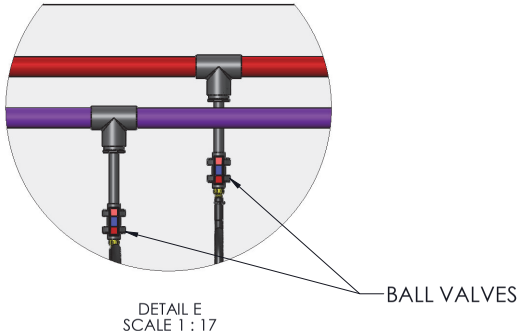
GENERAL PIPING & TANK ISOLATION

DRAWN:	AH
APPROVED:	TH
DATE:	06/07/23

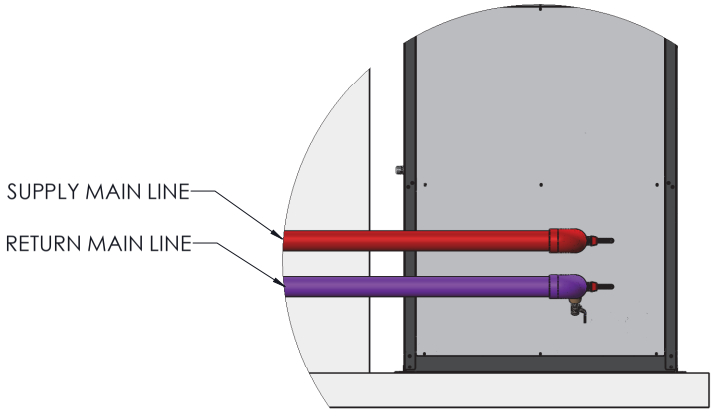
G&D CHILLERS
COMMITTED TO COLD
130 E FIRST AVE, JUNCTION CITY, OR 97448
TEL: (541) 345-3903 (800) 555-0973



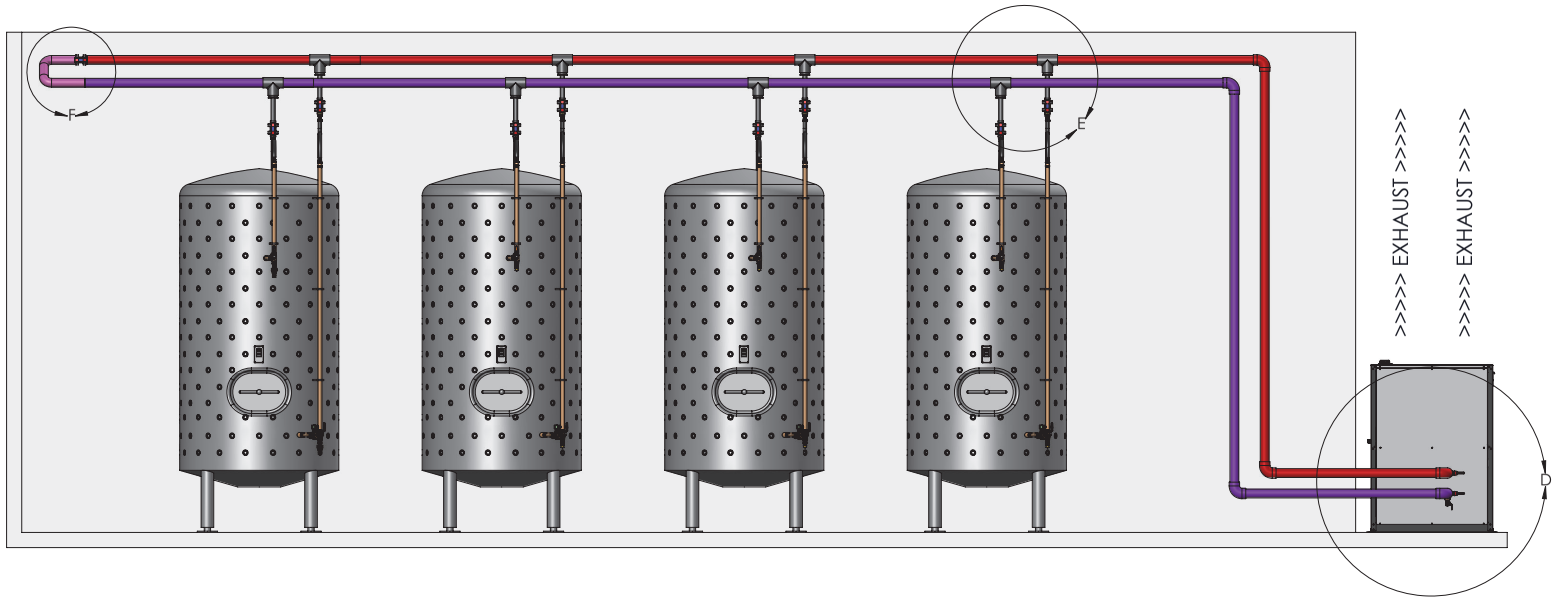
DETAIL F
SCALE 1 : 17



DETAIL E
SCALE 1 : 17



DETAIL D
SCALE 1 : 17



GENERAL PIPING & TANK ISOLATION

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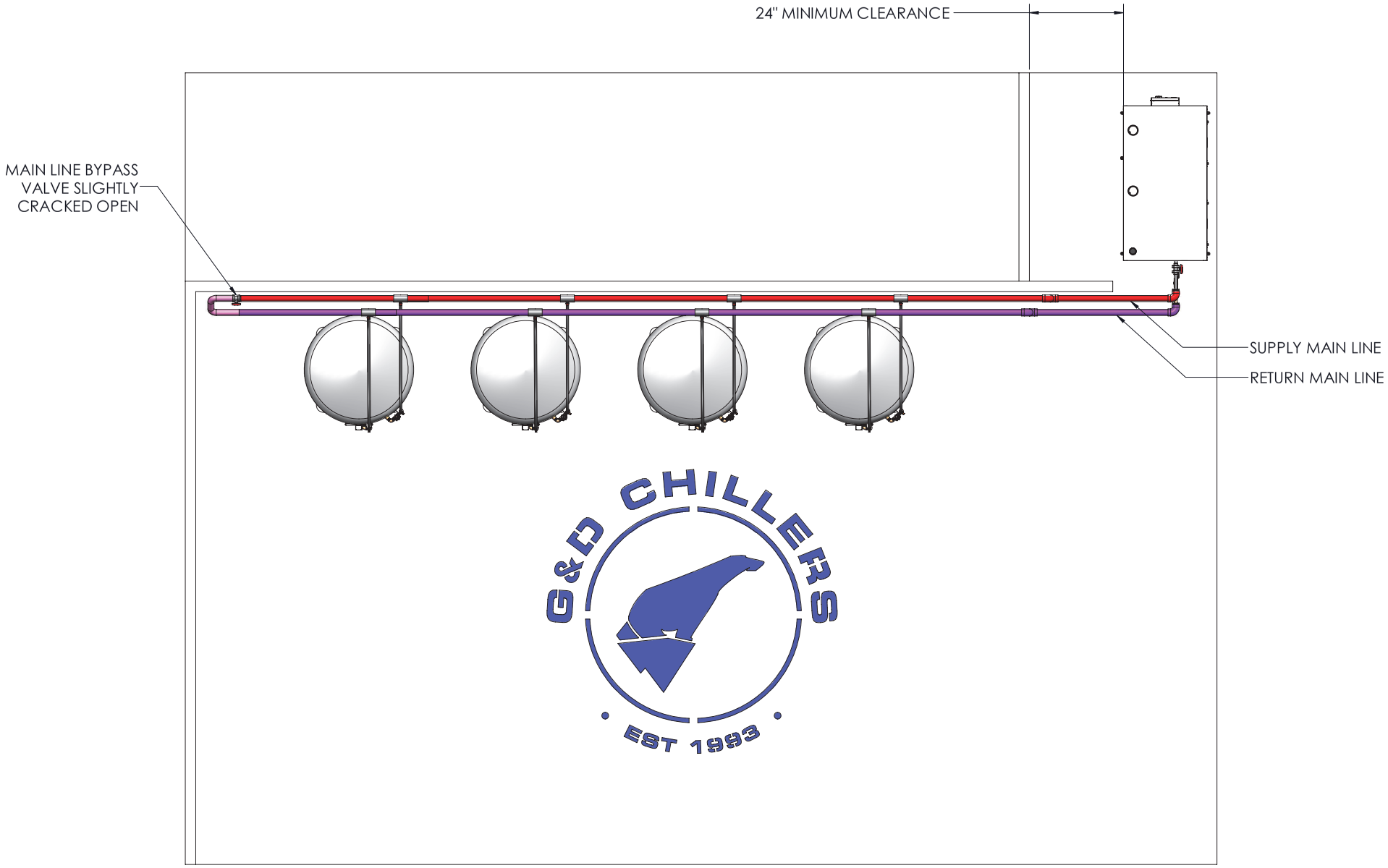


GENERAL PIPING & TANK ISOLATION

DRAWN:	AH
APPROVED:	TH
DATE:	06/07/23

G&D CHILLERS
COMMITTED TO COLD
130 E FIRST AVE, JUNCTION CITY, OR 97448
TEL: (541) 345-3903 (800) 555-0973

WARRANTY START-UP CHECKLIST

Jobsite:		Tech Company:
Heater Model:		Technician:
Heater Serial #:		Start-Up Date:

FOLLOWING START-UP OF HEATER, PLEASE SEND A COPY OF COMPLETED FORM TO G&D TECH SUPPORT

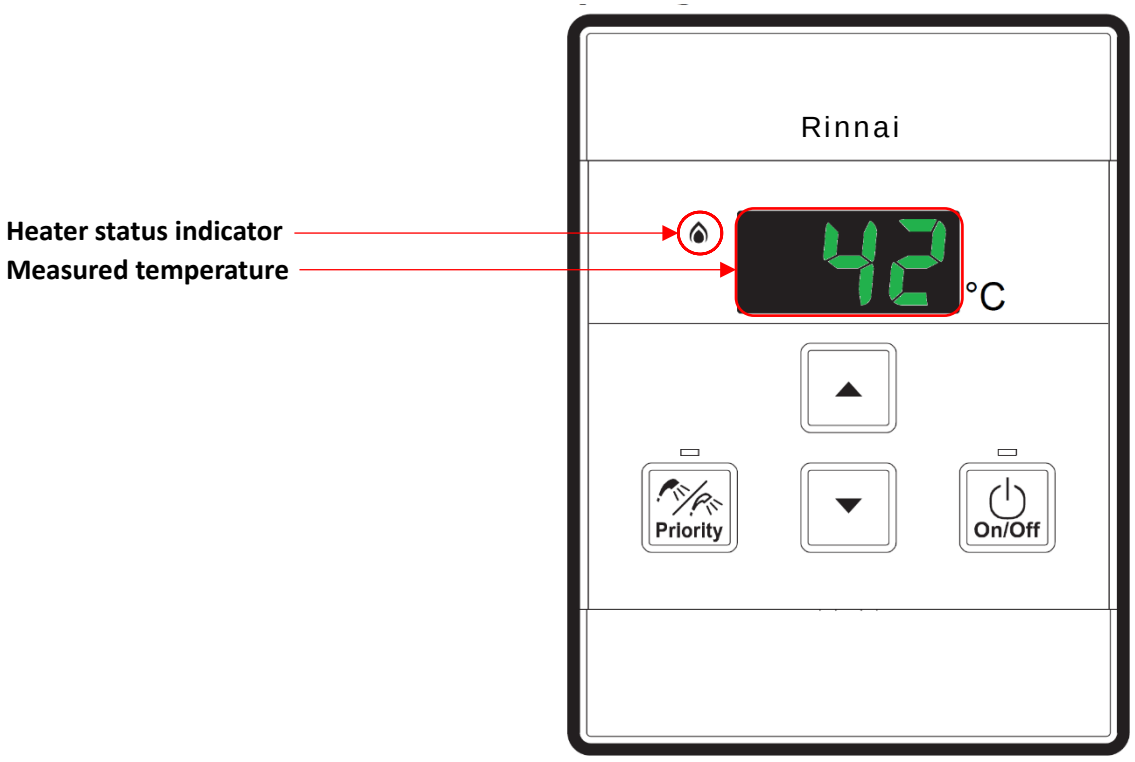
CLEARANCE AROUND HEATER (Include picture if necessary)	FRONT:	BACK:	LEFT:	RIGHT:
GLYCOL/DYNALENE MIXTURE %				
GLYCOL/DYNALENE LEVEL (Reservoir % Full)				
GLYCOL PRESSURE				
PHASE/VOLTAGE				
VOLTAGE TO GROUND (Note: High Leg to L2)	L1:	L2:	L3:	
PUMP ROTATION				
	PUMP #1	PUMP #2	PUMP #3	PUMP #4
MOTOR AMPS:	L1:	L1:	L1:	L1:
	L2:	L2:	L2:	L2:
	L3:	L3:	L3:	L3:
AMBIENT TEMP AT STARTUP (°F)				

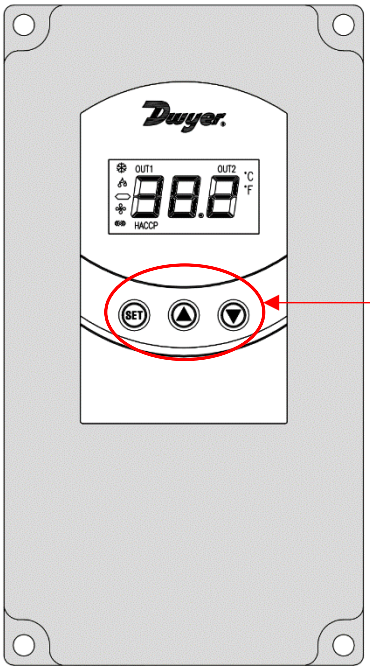
SEQUENCE OF OPERATION

1.) Turn door power switch to “ON” position.
2.) Door power switch will energize thermostat when turned on.
3.) Thermostat sends power to pump contactor coil and heater contactor.
4.) When fluid reaches desired set point, the thermostat stops sending power to the heater contactor and the heater turns off

Below is the Rinnai temperature controller located on the door panel of the electrical enclosure. It is primarily used as a display screen only, and shows the temperature of the glycol/water leaving the Rinnai gas heater(s).

Do not modify the temperature set-point here! The Rinnai controller is set at the G&D factory and should not require adjustment in the field.



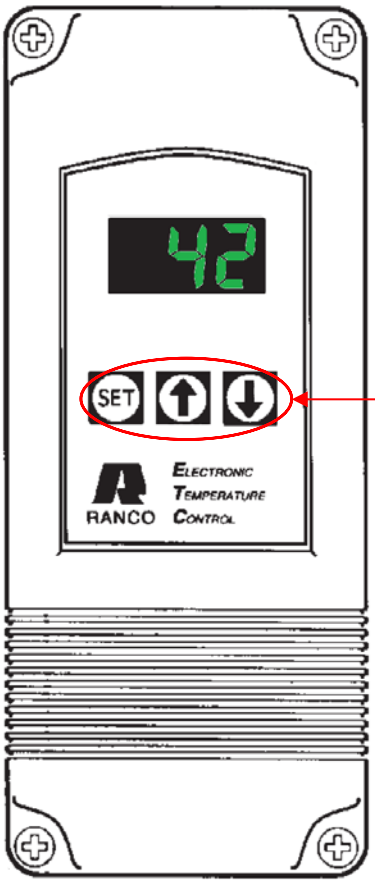


This is the **Dwyer TSW-150** main controller for the glycol temperature in the heater. It is located inside the electrical enclosure.

For safety purposes, this is factory set to 90°F. Change the target setpoint here to achieve glycol temperatures up to 140°F.

Setpoint controls

Status indicators:
Err – Memory reading error
ErP – Error of probe not shown on screen
AH1 – Maximum temperature alarm, probe 1
AL1 – Minimum temperature alarm, probe 1
AH2 – Maximum temperature alarm, probe 2
AL2 – Minimum temperature alarm, probe 2
ooo/(- - -) – open probe / shorted probe



This is the **Ranco ETC-111000**, the high temperature protection in the heater. It is located inside the electrical enclosure.

The cutoff temperature is factory set at 160°F with a differential of 10°F. It will prevent the heater from operating if glycol temperature reaches 160°F. Once the glycol temperature cools back down to 150°F or lower, the Ranco will allow the heater to operate normally.

High temp cutoff setpoint controls

Status indicators:
E1 – The (↑) or (↓) keys while not in programming mode
E2 – Control settings are not properly stored in memory
EP – The temp probe is open, shorted, or reads anomalously
EE – EEPROM data corruption error
CL – Indicates calibration mode is active

MAINTENANCE

Please contact G&D Technical Support if you have any questions or concerns regarding the performance, operation, or maintenance of your heater: **800-555-0973**

- See section below for a brief recommended list of maintenance tasks.
- Contract a licensed technician to evaluate the heater regularly. These checkups should occur annually at a minimum. Every 3-6 months is recommended.

The heater requires minimal maintenance. Always verify that the glycol reservoir is at least ¾ full prior to use, and that the level does not drop below half full while in operation.

The following tasks can be performed without the need for specialized equipment or training:

- Check glycol level and glycol/water ratio monthly. Use glycol refractometer to confirm 35% glycol mixture.
- Verify pump function quarterly. Confirm glycol supply pressure. Listen for abnormal sounds from the pump.
- If not in use for long periods of time, the pumps should be started occasionally and fluid circulated to maintain proper seal lubrication.
- Verify thermostat function quarterly. Check displayed temperature against a thermometer measurement.
- Periodically inspect the control panel for any signs of failure (scorched or frayed wiring, moisture…). Damaged wiring, insulation, or electrical components should be replaced immediately.
- See warning below. With power to the unit disconnected, inspect control panel contacts on pump contactors. Contact an electrician for assistance or if replacement contactors are needed.

WARNING:

DO NOT ATTEMPT TO SERVICE ELECTRICAL COMPONENTS OR MAKE ADJUSTMENTS IN ELECTRICAL PANEL WITHOUT PROPER TRAINING AND IMPLEMENTATION OF LOCKOUT/TAG-OUT SAFETY PROCEDURES

TROUBLESHOOTING

G&D Heaters are robust and easy to use. The number of potential failure modes has been minimized by the simple design and few moving parts. If you notice any of the following mechanical issues, contact G&D Technical Support as soon as possible:

- Excessive or unusual vibration
- Abnormally low pump pressure or unusual noise from pump

CONTROLLER ERRORS

Occasionally you may see and error message displayed on controllers (See pages 8 - 9). Below is a list of errors you may encounter, as well as a recommended solution.

Dwyer TSW-150

Symptom/Error code	Explanation	Solution
Err	Memory reading error	Try cycling power to the heater and reprogramming setpoint. If problem persists, replace unit
ErP	Error of probe not shown on screen	Check that probe is correctly connected, and is not shorted or open
AH1	Probe 1 maximum temperature alarm	Ensure that heater is connected to an appropriate thermal load. Clean wye-strainer.
AL1	Probe 1 minimum temperature alarm	Ensure that heater is connected to an appropriate thermal load. Check gas heater is functioning
AH2	Probe 2 maximum temperature alarm	Same as AH1
AL2	Probe 2 minimum temperature alarm	Same as AL1
ooo/- - -	Open probe/shorted probe	Verify thermocouples are not shorted or open. Replace/reseat damaged thermocouple(s).

PROPYLENE GLYCOL PROPERTIES

Percent by volume	Percent by weight	Freezing point °F	Degrees Brix °Bx
32.4	33.0	5.3	24.4
32.8	33.4	4.8	24.8
33.1	33.7	4.4	25.0
33.5	34.0	3.9	25.3
34.0	34.6	3.1	25.8
34.4	35.0	2.4	26.1
35.0	**35.6**	**1.5**	**26.5**
35.5	36.0	0.8	26.9
36.5	37.0	-0.8	27.5
37.5	38.0	-2.4	28.0
38.2	38.7	-3.7	28.4
38.5	39.0	-4.2	28.5

For most applications, G&D Chillers recommends no less than and no more than 35% propylene glycol/water mixture.

The volume percentages in this table apply for pure propylene glycol; inhibited propylene glycol solutions will require higher volume percentages. For example, a solution of 36.6%vol DOWFROST contains 35%vol pure propylene glycol.

Use the refractometer included with the chiller to verify proper glycol concentration.

PRESSURE RELIEF VALVE WARNING

WARNING: HIGH TEMPERATURE FLUIDS ARE DANGEROUS! SEVERE INJURY OR DEATH COULD OCCUR.

DO NOT ALLOW THE PRESSURE RELIEF DEVICE TO VENT FLUID DIRECTLY ONTO PERSONNEL. DO NOT OPERATE THE HEATER UNIT UNLESS THE PRESSURE RELIEF DEVICE IS INSTALLED AND DRAINS PROPERLY

SAFETY NOTICE:
G&D's heater units, including Fire and Ice packaged chiller/heaters, may include a pressure relief valve (PRV) installed on the piping. Under normal operating circumstances this safety device will remain closed; however, **in the event of a system/controls failure, the PRV could open and vent a high-pressure stream of boiling hot glycol.** Fig. 1 shows the Cash Acme brand PRV, model FWL-2, installed on a G&D heater unit.

While this situation is unlikely, there is a small risk that the heater piping could become "valved off," with the pipe filled with glycol/water mixture that has nowhere to flow. In this condition, if the burner is accidentally activated, pressure in the pipe could reach dangerously high levels. To prevent a possible pipe rupture/explosion, the aforementioned PRV is installed near the Rinnai heater unit.

The existing outlet location may be adequate as-is; however, **it is the responsibility of the end-user to confirm the outlet of the PRV is in a safe location, so that it cannot spray hot glycol/water mixture onto nearby personnel.**

Extending the PRV outlet to a nearby floor drain is strongly recommended.

If the PRV outlet needs to be extended beyond the factory-installed location, contract a licensed plumber to perform the work. Ensure the plumber understands the purpose of the PRV, and that they avoid creating any obstructions in the drain line that could prevent the safety device from operating properly.

For additional information, refer to the specification sheet for the Cash Acme FWL-2 pressure relief valve. A copy available online at the following address:

https://www.cashacme.com/sites/default/files/files/FWL2_Spec.pdf

Figure 1. Cash Acme FWL-2 pressure relief valve installed on copper pipe near electric heating element

****TO ACTIVATE WARRANTY, FILL OUT STARTUP CHECKLIST AND RETURN WITHIN 30 DAYS****

WARRANTY STATEMENT

TWO-YEAR LIMITED WARRANTY ON PARTS, ONE-YEAR LIMITED WARRANTY ON LABOR

G&D CHILLERS, INC. provides a limited warranty to the original purchaser of new products against defects in materials and workmanship for a period of one (1) year of normal commercial usage. For the subsequent period of one (1) year of normal commercial usage immediately following the first, this warranty is extended to cover parts only. This warranty is not transferable. If a product covered by this warranty is determined to be defective within the applicable warranty periods, G&D CHILLERS, INC. will, unless otherwise required by applicable law, either repair or exchange the product at its sole option and discretion.

EXCHANGE

Should G&D CHILLERS, INC. elect to exchange a product due to a covered defect during the warranty period, the replacement unit may, at G&D CHILLERS, INC.'s sole option and discretion, be new or one which has been recertified, reconditioned, refurbished or otherwise remanufactured from new or used parts and is functionally equivalent to the original product.

REPAIR: PARTS AND LABOR

There will be no charge for parts or labor to repair a product for a covered defect during the applicable warranty periods. Replacement parts may, at G&D CHILLERS, INC.'s sole option and discretion, be new, used, reconditioned, refurbished or otherwise remanufactured or recertified as functionally equivalent replacement parts.

REMAINING WARRANTY

Repaired or exchanged products are warranted for the remaining portion of the product's original warranty or for ninety (90) days from warranty service or exchange, whichever is longer. Any upgrade to the original product will be covered only for the duration of the original warranty period.

EXCLUSIONS

This warranty does not cover, for example: abuse, accident, acts of God, consumable parts such as batteries, cosmetic damage (e.g. scratches, dents, cracks), damage caused by use with non-G&D CHILLERS, INC. products (e.g. accessories, housing, parts, etc.), damages from shipping, improper installation or operation, improper voltage supply or power surges, lack of reasonable use, misuse, modifications or alterations, normal wear and tear or aging, as well as installation and set-up issues or any tampering or repairs attempted by anyone other than by a G&D CHILLERS, INC. authorized repair technician. This limited warranty does not cover products sold "AS IS", "FACTORY RECERTIFIED", or by a non-authorized reseller.

ASSIGNMENT OF WARRANTIES

G&D CHILLERS, INC. assigns to product purchasers any and all warranties of manufacturers and suppliers of component parts that are assignable, but G&D CHILLERS, INC. makes no representations as to the effectiveness or extent of such warranties and assumes no liability or responsibility for any third-party manufacturer or supplier's products or component parts that are sold by G&D CHILLERS, INC.

DISCLAIMER OF WARRANTY

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE LISTED OR DESCRIBED ABOVE. EXCEPT AS SPECIFIED IN THIS WARRANTY SECTION, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, LAW, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW AND ARE EXPRESSLY DISCLAIMED BY G&D CHILLERS, INC. TO THE EXTENT THAT ANY OF THE SAME CANNOT BE EXCLUDED, SUCH IMPLIED CONDITION, REPRESENTATION

AND/OR WARRANTY IS LIMITED IN DURATION TO THE EXPRESS WARRANTY PERIOD REFERRED TO IN THE "LIMITED WARRANTY" SECTION ABOVE. BECAUSE SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, THE ABOVE LIMITATION MAY NOT APPLY IN SUCH STATES. THIS WARRANTY GIVES THE CUSTOMER SPECIFIC LEGAL RIGHTS, AND THE CUSTOMER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.

DISCLAIMER OF LIABILITY

G&D CHILLERS, INC.'S TOTAL LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER INCLUDING G&D CHILLERS, INC.'S NEGLIGENCE, ALLEGED DAMAGE, OR DEFECTIVE GOODS, WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCT. G&D CHILLERS, INC. SHALL NOT BE RESPONSIBLE FOR LOSS OF USE, WORK STOPPAGE, FAILURE OF OTHER EQUIPMENT TO WHICH THE PRODUCT IS CONNECTED, COMMERCIAL LOSS, LOST REVENUE OR LOST PROFITS, LOSS OF GOODWILL, LOSS OF REPUTATION, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. NO ORAL OR WRITTEN REPRESENTATIONS MADE BY G&D CHILLERS, INC. SHALL CREATE ANY ADDITIONAL WARRANTY OBLIGATIONS, INCREASE THE SCOPE, OR OTHERWISE MODIFY IN ANY MANNER THE TERMS OF THIS LIMITED WARRANTY. TO THE EXTENT PERMITTED BY APPLICABLE LAW, G&D CHILLERS, INC. DOES NOT WARRANT THAT THE OPERATION OF ANY PRODUCTS COVERED UNDER THIS LIMITED WARRANTY WILL MEET YOUR REQUIREMENTS, OR THIRD-PARTY SERVICES, BE UNINTERRUPTED, ERROR-FREE, OR THAT DEFECTS IN THE PRODUCTS WILL BE CORRECTED. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE. THIS LIMITED WARRANTY IS SUBJECT TO CHANGE WITHOUT NOTICE. CHECK www.gdchillers.com FOR THE MOST CURRENT VERSION OF THIS WARRANTY.

SEVERABILITY

In the event that any term or provision contained in this limited warranty is found to be invalid, illegal or unenforceable by a court of competent jurisdiction, then such provision shall be deemed modified to the extent necessary to make such provision enforceable by such court, taking into account the intent of the parties. The invalidity in whole or in part of any portion of this limited warranty shall not impair or affect the validity or enforceability of the remaining provisions of this limited warranty.

HOW TO OBTAIN WARRANTY SERVICE (PRE-AUTHORIZATION REQUIRED)

To obtain warranty service, contact G&D CHILLERS, INC.:

1. Email: info@gdchillers.com
2. Phone: (800) 555-0973 from 9:00AM to 5:00PM PST (Monday – Friday)
3. By mail: G&D Chillers, Inc.
   130 E. 1st Ave
   Junction City, OR 97448

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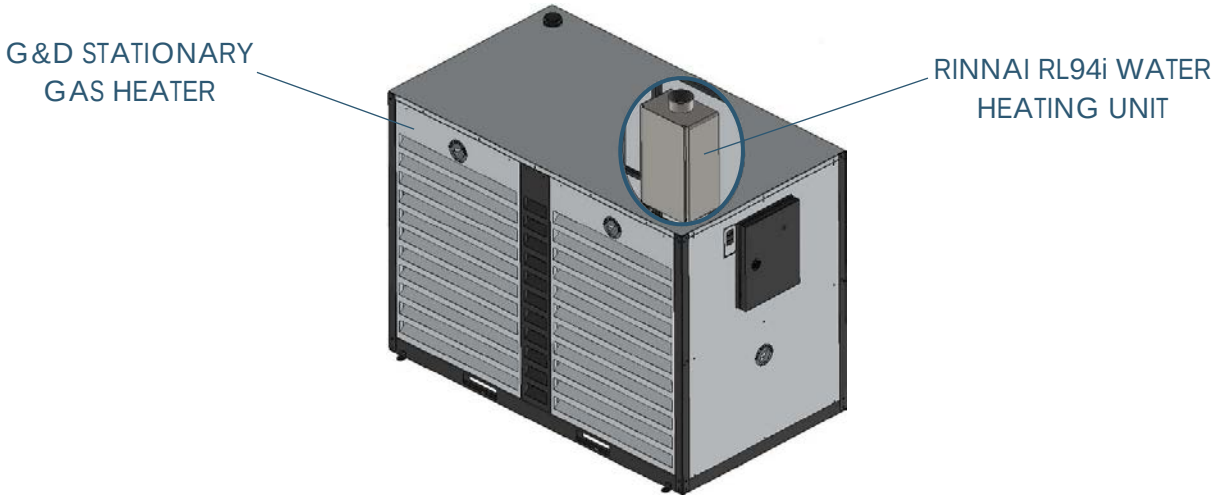
APPENDIX A: RINNAI RL94i INSTALLATION MANUAL

CONTEXT: RINNAI WATER HEATING UNIT

The G&D stationary gas heater package ("G&D Heater") contains a water heating unit, model RL94i, manufactured by Rinnai Corporation. The RL94i unit burns gas to produce heat, which is transferred to the glycol/water mixture contained in the reservoir of the G&D Heater via an internal recirculation pump. A separate process pump sends the hot glycol mixture from the reservoir out to the process. The RL94i unit has been preinstalled in the G&D Heater skid, with all wiring and plumbing completed at G&D'S factory:



G&D HEATERS: INDOOR INSTALLATIONS

G&D Heaters are designed for outdoor placement; however, locating a G&D Heater indoors is possible as long as all of Rinnai's installation requirements are satisfied. Refer to the "VC Series Manual" for details.

RINNAI RL94i "VC SERIES MANUAL"

A copy of the RL94i installation instructions, from Rinnai's "VC Series Manual," is provided on the following pages. Although the water heating unit comes pre-installed in the G&D Heater, some of the details contained in the Rinnai RL94i install manual are still pertinent; for example, it provides guidance on sizing and installing the external gas supply line.

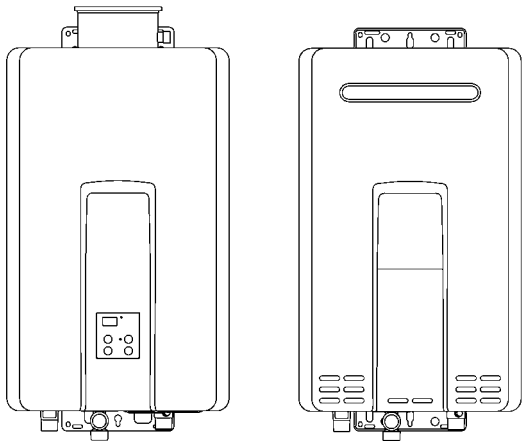
REVIEW THE FOLLOWING RINNAI "VC SERIES MANUAL" BEFORE INSTALLING G&D HEATER

Ensure a licensed professional with appropriate qualifications installs the G&D Heater in accordance with all applicable codes at the facility. If you have any questions or concerns, don't hesitate to contact G&D at 1-800-555-0973 or info@gdchillers.com. Thank you for choosing a G&D Chillers product!

Direct Vent Tankless Water Heater Installation and Operation Manual

FOR INDOOR APPLICATIONS ONLY	
RL75i	**REU-VC2528FFUD-US**
	REU-VC2528FFUD-US(A)
RLX94i	**REU-VC2737FFUD-US**
RL94i	**REU-VC2837FFUD-US**

FOR OUTDOOR APPLICATIONS ONLY	
RL75e	**REU-VC2528WD-US**
	REU-VC2528FFUD-US(A)
RL94e	**REU-VC2837WD-US**



C US
Low Lead Content
NSF/ANSI 372

SANITATION

CERTIFIED

DESIGN CERTIFIED

ANS Z21.10.3 ● CSA 4.3

READ ALL OF THE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR OPERATING THIS WATER HEATER.

This manual provides information on the installation, operation, and maintenance of the water heater. For proper operation and **safety**, it is important to follow the instructions and adhere to the safety precautions.

A licensed professional must install the water heater according to the exact instructions on pages 4-30.

The consumer must read the entire manual to properly operate the water heater and to have regular maintenance performed.

⚠ WARNING **If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury, or death.**

— **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

— **WHAT TO DO IF YOU SMELL GAS**

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

— **Installation and service must be performed by a licensed professional.**

This entire manual must be left for the consumer. The consumer must read and refer to this manual for proper operation and to maintain the water heater.

Table of Contents

NOTICE: Rinnai sometimes shares customer contact information with businesses that we believe provide products or services that may be useful to you. By providing this information, you agree that we can share your contact information for this purpose. If you prefer not to have your information shared with these businesses, please contact customer service and ask not to have your information shared. We will however, continue to contact you with information relevant to the product(s) you registered and/or your account with us.

If you have any questions or feel that the manual is incomplete contact Rinnai at 1-800-621-9419.

Important Safety Information

Safety Definitions

This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

Safety Behaviors and Practices for the Consumer and Installer

⚠ WARNING

- Before operating, smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- Keep the area around the appliance clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- Combustible construction refers to adjacent walls and ceiling and should not be confused with combustible or flammable products and materials. Combustible and/or flammable products and materials should never be stored in the vicinity of this or any gas appliance.
- Always check the water temperature before entering a shower or bath.
- To protect yourself from harm, before performing maintenance:
  - ◊ Turn off the electrical power supply by unplugging the power cord or by turning off the electricity at the circuit breaker. (The temperature controller does not control the electrical power.)
  - ◊ Turn off the gas at the manual gas valve, usually located immediately below the water heater.
  - ◊ Turn off the incoming water supply. This can be done at the isolation valve immediately below the water heater or by turning off the water supply to the building.
- Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, do not try to repair it; call a licensed professional. Force or attempted repair may result in a fire or explosion.
- Do not use this appliance if any part has been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.
- Do not use substitute materials. Use only parts certified for the appliance.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Do not adjust the DIP switch unless specifically instructed to do so.
- Do not use an extension cord or an adapter plug with this appliance.
- Any alteration to the appliance or its controls can be dangerous and will void the warranty.

⚠ CAUTION

- BURN HAZARD. Hot exhaust and vent may cause serious burns. Keep away from water heater unit. Keep small children and animals away from the unit.
- Hot water outlet pipes leaving the unit can be hot to touch. In residential applications, insulation must be used for hot water pipes below 36” due to burn risk to children.

⚠ WARNING

California law requires this notice to be provided:

California Proposition 65:
This product contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

Installation Instructions

Installer Qualifications

It is recommended that a licensed professional install the appliance, inspect it, and leak test it before use. The warranty may be voided due to any improper installation.

The installer should have skills such as:

- Gas sizing.
- Connecting gas lines, water lines, valves, and electricity.
- Knowledge of applicable national, state, and local codes.
- Installing venting through a wall or roof.
- Training in installation of tankless water heaters. (Training can be accessed on-line at www.trainingevents.rinnai.us)

Type of installation

- For installation in residential and commercial applications.
- Certified for installation in manufactured (mobile) homes.

Installation Steps

General Instructions

DO NOT

- Do not install the RL75i, RL94i, or the RLX94i outdoors.
- Do not install the RL75e or the RL94e indoors.
- Do not install the appliance in an area where water leakage of the unit or connections will result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance. The pan must not restrict combustion air flow.
- Do not obstruct the flow of combustion and ventilation air. Combustion air shall not be supplied from occupied spaces.
- Do not use this appliance in an application such as a pool or spa heater that uses chemically treated water . (This appliance is suitable for filling large or whirlpool spa tubs with potable water.)
- Do not use substitute parts that are not authorized for this appliance.

MUST DO

- The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.
- The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electrical Code, ANSI/NFPA 70*, or the *Canadian Electrical Code, CSA C22.1.*
- The appliance and its appliance main gas valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5 kPa) (13.84 in W.C.).

General Instructions (continued)

- The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa) (13.84 in W.C.).
- You must follow the installation instructions and those in *Care and Maintenance* for adequate combustion air intake and exhaust.

INFORMATION

- If a water heater is installed in a closed water supply system, such as one having a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact the water supplier or local plumbing inspector on how to control thermal expansion.
- Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the appliance.
- Keep the air intake location free of chemicals such as chlorine or bleach that produce fumes. These fumes can damage components and reduce the life of your appliance.

Prepare for installation

Parts included

- Tankless water heater
- Color coded cold (blue) and hot (red) isolation valves
- Pressure relief valve
- MC-91-2 temperature controller (integrated into indoor models; provided with outdoor models)

Tools needed

- Pipe wrenches (2)
- Adjustable pliers
- Screwdrivers (2)
- Wire cutters
- Gloves
- Safety glasses
- Level

Tools that might be needed

- Hammer drill with concrete bits
- Saw
- Threading machine with heads and oiler
- Core drill with diamond head
- Torch set
- Copper tubing cutter
- Steel pipe cutter

Materials needed

- Soap or gas leak detector solution
- Approved venting
- Teflon tape (recommended) or pipe compound

Materials that may be needed

- Heat tape
- Pipe insulation
- Electrical wire and conduit per local code
- Concrete wall anchors
- Optional pipe cover
- Optional temperature controller
- 5/8” ID PVC flexible tubing
- 2 conductor 22 AWG wire for controller
- Single gang electrical box
- Wire nuts
- Unions and drain valves

Determine Installation Location

You must ensure that clearances will be met and that the vent length will be within required limits. Consider the installation environment, water quality, and need for freeze protection. Requirements for the gas line, water lines, electrical connection, and condensate disposal can be found in their respective installation sections of this manual.

Water Quality

Consideration of care for your water heater should include evaluation of water quality.

The water must be potable, free of corrosive chemicals, sand, dirt, or other contaminates. It is up to the installer to ensure the water does not contain corrosive chemicals, or elements that can affect or damage the heat exchanger. Water that contains chemicals exceeding the levels below affect and damage the heat exchanger. Replacement of the heat exchanger due to water quality damage is not covered by the warranty.

	Maximum Level
Total Hardness	Up to 200 mg / L
Aluminum *	Up to 0.2 mg / L
Chlorides *	Up to 250 mg / L
Copper *	Up to 1.0 mg / L
Dissolved Carbon Dioxide (CO_2)	Up to 15.0 mg / L or PPM
Iron *	Up to 0.3 mg / L
Manganese *	Up to 0.05 mg / L
pH *	6.5 to 8.5
TDS (Total Dissolved Solids) *	Up to 500 mg / L
Zinc *	Up to 5 mg / L

* Source: Part 143 National Secondary Drinking Water Regulations

If you install this water heater in an area that is known to have hard water or that causes scale build-up the water must be treated and/or the heat exchanger flushed regularly.

When scale build-up in the heat exchanger begins to affect the performance of the water heater, a diagnostic code “LC#” will display. Flush the heat exchanger to prevent damage to it. Scale build up is caused by hard water set at a high temperature.

Rinnai offers Southeastern Filtration’s “ScaleCutter Water Conditioning System” that offers superior lime scale prevention and corrosion control by feeding a blend of control compounds into the cold water supply.

Part Number	Description
103000038	Southeastern Filtratrion ScaleCutter System 3/4” Feed
103000039	ScaleCutter Refill

Environment

Air surrounding the water heater, venting, and vent termination(s) is used for combustion and must be free of any compounds that cause corrosion of internal components. These include corrosive compounds that are found in aerosol sprays, detergents, bleaches, cleaning solvents, oil based paints/ varnishes, and refrigerants. The air in beauty shops, dry cleaning stores, photo processing labs, and storage areas for pool supplies often contains these compounds. Therefore it is recommended that outdoor models be used for these locations where possible.

The water heater, venting, and vent termination(s) should not be installed in any areas where the air may contain these corrosive compounds. If it is necessary for a water heater to be located in areas which may contain corrosive compounds, the following instructions are strongly recommended.

IMPORTANT CONSIDERATIONS FOR:

Indoor/Internal Water Heaters

- DO NOT Install in areas where air for combustion can be contaminated with chemicals.
- Before installation, consider where air has the ability to travel within the building to the water heater.
- Where possible, install the water heater in a sealed closet so that it is protected from the potential of contaminated indoor air.
- Chemicals that are corrosive in nature should not be stored or used near the water heater.

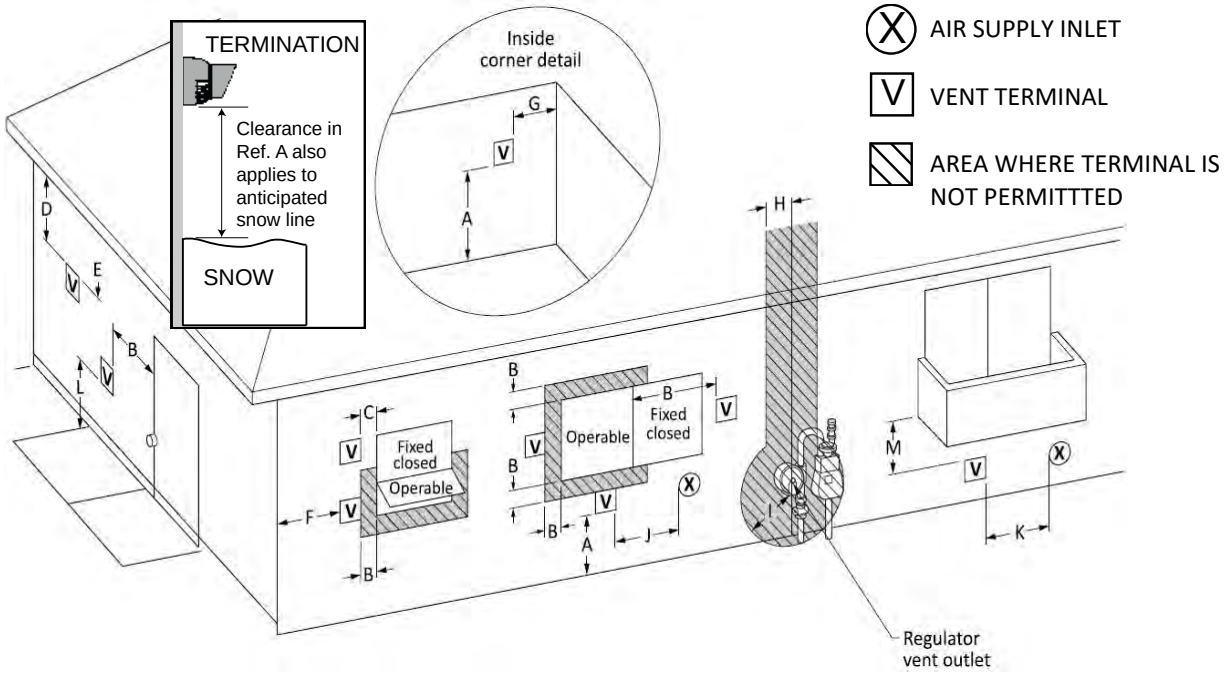
Outdoor/External Water Heaters and Vent Terminations of Indoor/Internal Water Heaters

- Install the water heater as far away as possible from exhaust vent hoods.
- Install as far away as possible from air inlet vents. Corrosive fumes may be released through these vents when air is not being brought in through them.
- Chemicals that are corrosive in nature should not be stored or used near the water heater or vent termination.

Damage and repair due to corrosive compounds in the air is not covered by warranty.

Terminal Clearances

For indoor models, you must install a vent termination to bring in combustion air and expel exhaust.



		Direct Vent (Indoor Unit)		Other than direct vent (Outdoor unit)	
Ref	**Description**	**Canadian Installations (CSA B149.1)**	**US Installations (ANSI Z223.1 / NFPA 54)**	**Canadian Installations (CSA B149.1)**	**US Installations (ANSI Z223.1 / NFPA 54)**
A	Clearance above grade, veranda, porch, deck, or balcony	12 inches (30 cm)	12 inches (30 cm)	12 inches (30 cm)	12 inches (30 cm)
B	Clearance to window or door that may be opened	36 inches (91 cm)	12 inches (30 cm)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 12 in (30 cm) for appliances > 10,000 Btuh (3 kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances >100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) above opening
C	Clearance to permanently closed window	*	*	*	*
D	Vertical clearance to ventilated soffit, located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*	*	*
E	Clearance to unventilated soffit	*	*	*	*
F	Clearance to outside corner	*	*	*	*
G	Clearance to inside corner	*	*	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	*	*	*	*
I	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	36 inches (91 cm)	12 inches (30 cm)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 12 in (30 cm) for appliances > 10,000 Btuh (3 kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances >100,000 Btuh (30 kW)	4 ft (1.2 m) below or to side of opening; 1 ft (300 mm) above opening
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally	6 ft (1.83 m)	3 ft (91 cm) above if within 10 feet (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m) ①	*	7 ft (2.13 m) [1]	7 ft. (2.13 m)
M	Clearance under veranda, porch, deck, or balcony	12 inches (30 cm) ②	*	12 inches (30 cm) [2]	*

[1] A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

[2] Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

* For clearances not specified in *ANSI Z223.1/NFPA 54*, clearances are in accordance with local installation codes and the requirements of the gas supplier. Clearance to opposite wall is 24 inches (60 cm).

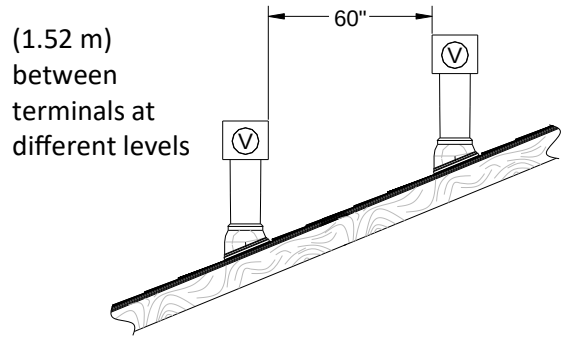
Additional clearances - RL75i, RL94i, RLX94i

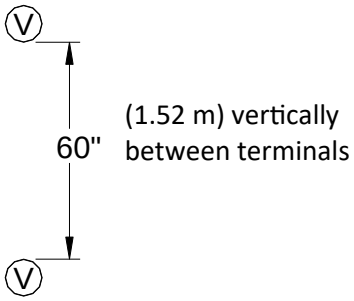
Check to determine whether local codes supersede these clearances.

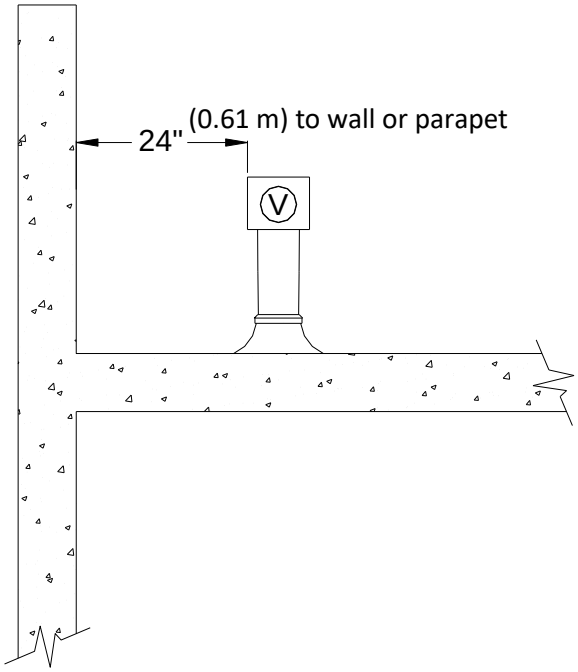
- Avoid termination locations near a dryer vent.
- Avoid termination locations near commercial cooking exhaust.
- You must install a vent termination at least 12 inches above the ground.

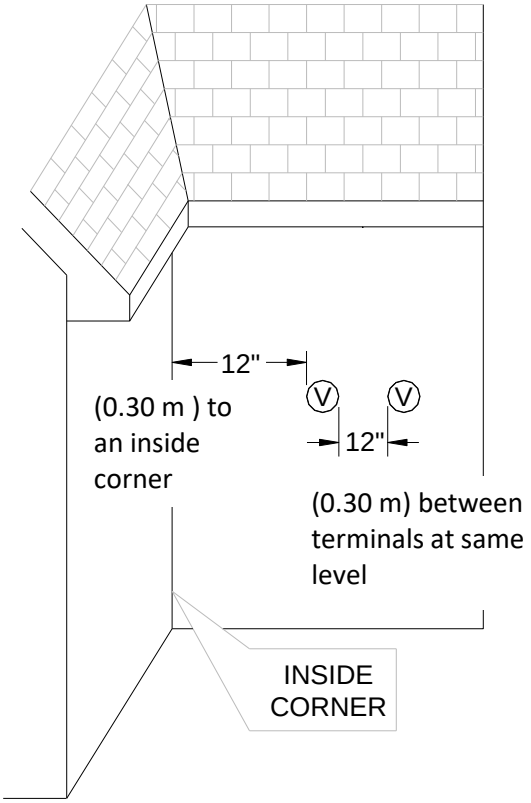
Important considerations for locating vent termination under a soffit (ventilated or unventilated or eave vent; or to a deck or porch)

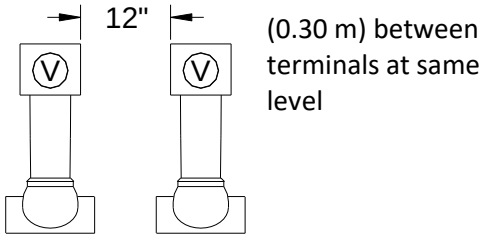
- Do not install vent termination under a soffit vent such that exhaust can enter the soffit vent
- Install vent termination such that exhaust and rising moisture will not collect under eaves. Discoloration to the exterior of the building could occur if installed too close.
- Do not install the vent termination too close under the soffit where it could present recirculation of exhaust gases back into the combustion air intake part of the termination.







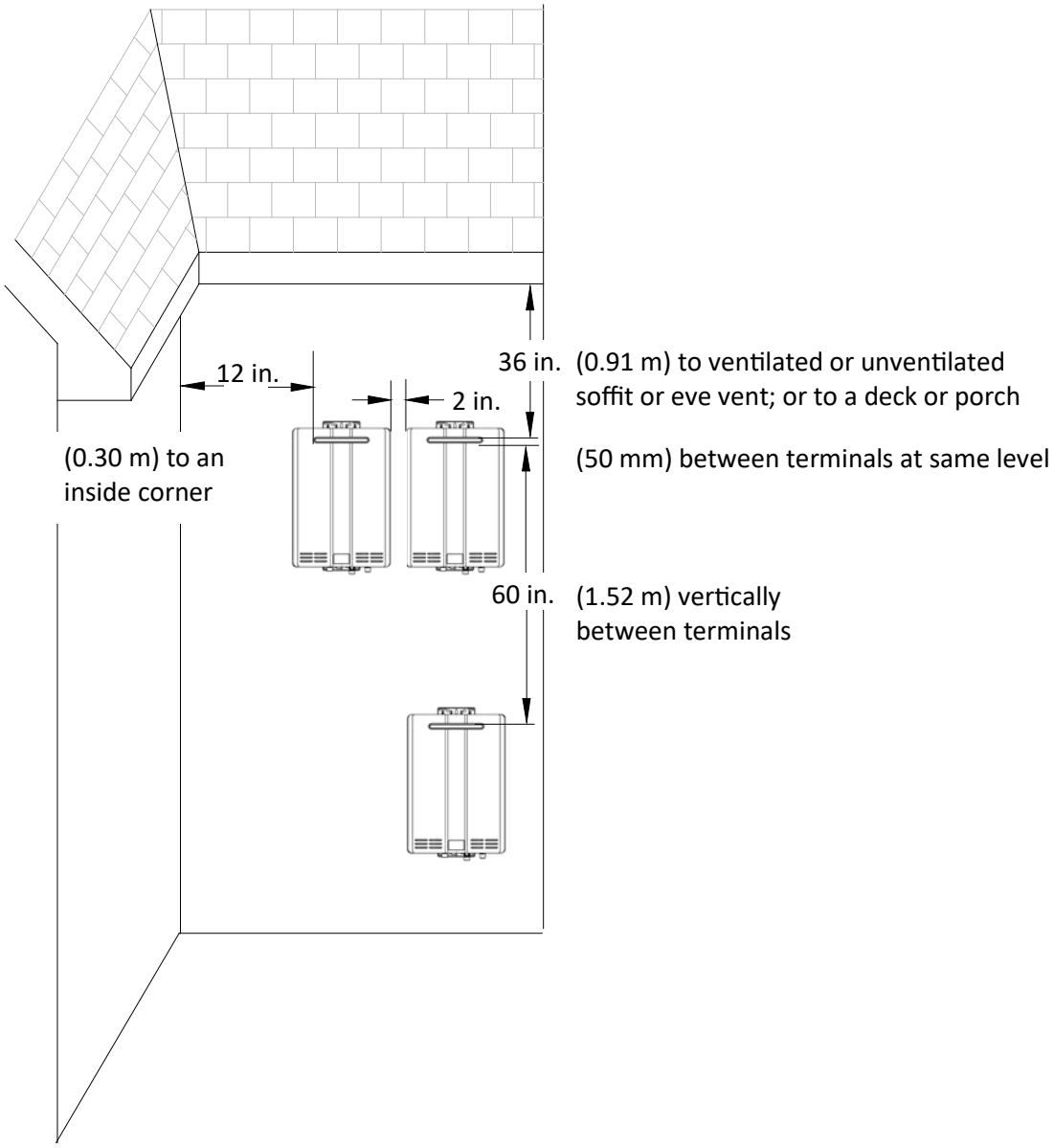




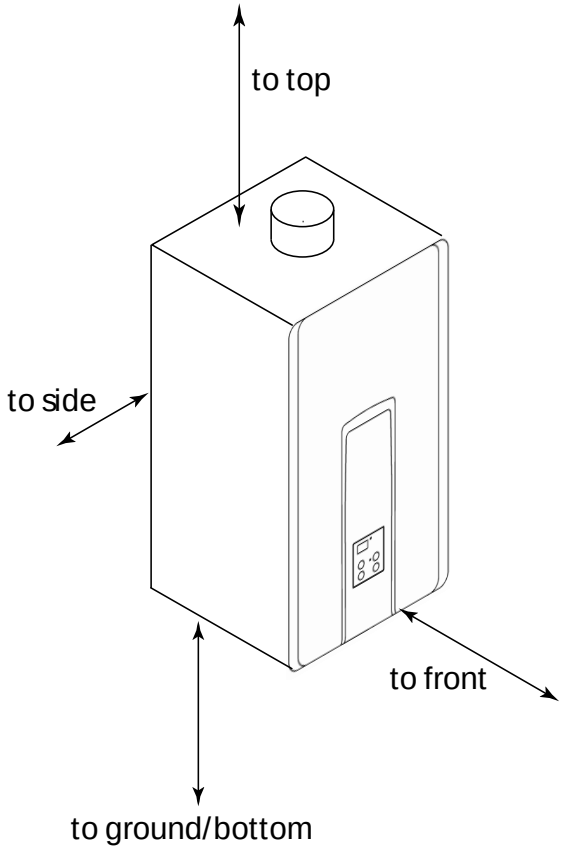
Additional clearances
RL75e, RL94e

Local codes supersede these clearances.

- Avoid termination locations near a dryer vent.
- Avoid termination locations near commercial cooking exhaust.
- Avoid termination locations near any air inlets.



Unit clearances



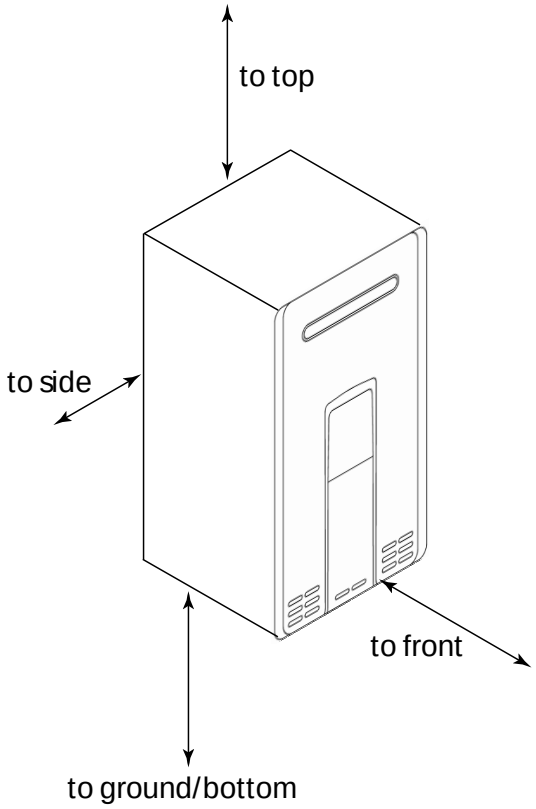
Indoor models: RL75i, RL94i, RLX94i

	to Combustibles inches (mm)	to Non-Combustibles inches (mm)
Top of Heater	6 * (152)	2 *(51)
Back of Heater	0 (zero)	0 (zero)
Front of Heater	6 (152)	6 (152)
Sides of Heater	2 (51)	1/2 (13)
Ground/Bottom	12 (305)	12 (305)
Vent	0 (zero)	0 (zero)

* 0 inches from vent components and condensate drain line.

The clearance for servicing is 24 inches in front of the water heater.

For closet installation, clearance is 6 inches (152 mm) from the front of the water heater.



Outdoor models: RL75e, RL94e

	to Combustibles inches (mm)	to Non-Combustibles inches (mm)
Top of Heater	12 (305)	2 (51)
Back of Heater	0 (zero)	0 (zero)
Front (Panel)	24 (610)	0 (zero)
Front (Exhaust)	24 (610)	24 (610)
Sides of Heater	6 (152)	1/8 (3.2)
Ground/Bottom	12 (305)	2 (51)

The clearance for servicing is 24 inches in front of the water heater.

Maximum vent length (indoor models only)

1. Determine the number of 90 degree elbows in the vent system. (Two 45 degree elbows count as one 90 degree elbow.)
2. Refer to the table to find the maximum vent length based on the number of elbows.

Number of 90° Elbows	Maximum vent length
0	41 ft (12.5 m) ①
1	35 ft (10.7 m) ②
2	29 ft (8.8 m) ③
3	23 ft (7.0 m) ④
4	17 ft (5.2 m) ④
5	11 ft (3.4 m) ④
6	5 ft (1.5 m) ④

3. Adjust switch No. 1 in the SW1 DIP switch (tan switches) if required by the applicable note.

① If the length is greater than 21 ft (6.4 m) then move switch No. 1 (SW1) to OFF.

② If the length is greater than 15 ft (4.6 m) then move switch No. 1 (SW1) to OFF.

③ If the length is greater than 9 ft (2.7 m) then move switch No. 1 (SW1) to OFF.

④ Move switch No. 1 (SW1) to OFF.

Example: If you have one elbow then your maximum vent length is 35 feet (10.7 m). If your actual length is greater than 15 ft (4.6 m) then move switch no. 1 (SW1) to OFF.

NOTICE

If you have a longer vent length (see number 3 regarding max. vent length), switch No. 1 is required to be in the OFF position. This ensures the water heater will run properly. Blocked flue diagnostic codes and shutdowns may result if switch No. 1 is not in the correct position.

Freeze Protection

Make sure that in case of freezing weather that the water heater and its water lines are protected to prevent freezing. Damage due to freezing is not covered by the warranty.

With electrical power and gas supplied, the water heater will not freeze when the outside air temperature is as cold as –22°F (-30°C) for indoor models or is as cold as –4°F (-20°C) for outdoor models, when protected from direct wind exposure. Because of the "wind-chill" effect, any wind or circulation of the air on the unit will reduce its ability to protect itself from freezing.

In the event of a power failure and/or gas interruption at temperatures below freezing the water heater should be drained of all water to prevent freezing damage. In addition, drain the condensate trap and drain line.

Loss of freeze protection may result in water damage from a burst heat exchanger or water lines.

The unit may be drained manually. However, it is highly recommended to:

- drain down solenoid valves be purchased and installed that will automatically drain the unit if power is lost. These are available in a kit, 104000059. (The condensate trap is not affected by the auto drain down solenoid valves and will have to be manually drained.)
- a surge protector with terminals be purchased and installed which allows the solenoid valves to operate if the unit is disabled due to a diagnostic code. This is available as 104000057.

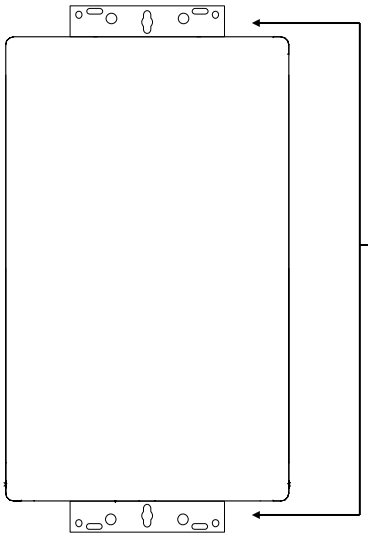
In addition, the solenoid valves should be connected electrically to a surge protector with terminals. This allows the solenoid valves to operate if the water heater is disabled due to a diagnostic code.

The freeze protection features will not prevent the external piping from freezing. It is recommended that hot and cold water pipes be insulated. Pipe cover enclosures may be packed with insulation for added freeze protection.

Checklist to Determine Installation Location

- ☐ The water heater is not exposed to corrosive compounds in the air.
- ☐ The water heater location complies with the clearances.
- ☐ For indoor models, the planned venting will not exceed the maximum length for the number of elbows used.
- ☐ The planned venting termination/air intake location meets the clearances.
- ☐ Indoor air is not being used for combustion.
- ☐ The water supply does not contain chemicals or exceed total hardness that will damage the heat exchanger.
- ☐ A standard 3 prong 120 VAC, 60 Hz properly grounded wall outlet (for indoor models) or other 120 VAC, 60 Hz source is available.
- ☐ The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.
- ☐ **Leave the entire manual taped to the water heater (indoor models), temperature controller (outdoor models), or give the entire manual directly to the consumer.**

Mount to Wall



1. Identify the installation location and confirm that the installation will meet all required clearances.
2. Securely attach the water heater to the wall using any of the holes in the wall installation brackets which are at the top and bottom of the water heater. Ensure that the attachment strength is sufficient to support the weight. Refer to the weight of the water heater in the Specifications section.
   Use a leveling tool to ensure that the water heater is level. Proper operation requires that the water heater be level.

NOTE: The water heater must be installed in an upright position. Do not install upside down or on its side.

Remove the Front Panel

Slide the plastic trim pieces on each side of the water heater to expose the screws.

Remove the 4 screws and pull off the front panel.

Installation of venting (indoor models only)

Install the correct venting for your model according to the venting manufacturer's instructions and the guidelines below.

Refer to the manufacturer's technical literature for specific part numbers and instructions.

Manufacturer	Listed and Tested Vent Products for RL75i, RL94i, and RLX94i	Telephone	Fax	Contact
Ubbink	Rolux Vent System	800-621-9419	678-829-1666	www.rinnai.us
Heat-Fab	Saf-T Vent SC system	800-772-0739	413-863-4803	custsvc@heat-fab.com, www.heatfab.com
Metal-Fab	Corr/Guard Vent/Air Intake System	800-835-2830	316-943-2717	info@mtlfab.com, www.metal-fabinc.com

Venting Guidelines

DO NOT

- Do not use PVC, CPVC, ABS or galvanized material to vent this appliance.
- Do not combine vent components from different manufacturers.
- Vent diameter must not be reduced.
- Do not connect the venting system with an existing vent or chimney.
- Do not common vent with the vent pipe of any other water heater or appliance.

MUST DO

- This water heater is a direct vent water heater and therefore is certified and listed with the vent system. You must use vent components that are certified and listed with the water heater model.
- The vent system must vent directly to the outside of the building and use outside air for combustion.
- Avoid dips or sags in horizontal vent runs by installing supports per the vent manufacturer's instructions.
- Support horizontal vent runs every four feet and all vertical vent runs every six feet or in accordance with local codes.
- Venting should be as direct as possible with a minimum number of pipe fittings.
- Vent connections must be firmly pressed together so that the gaskets form an air tight seal.
- The vent piece connected to the water heater must be secured with one self-tapping screw.

INFORMATION

- Refer to the instructions of the vent system manufacturer for component assembly instructions.
- If the vent system is to be enclosed, it is suggested that the design of the enclosure shall permit inspection of the vent system. The design of such enclosure shall be deemed acceptable by the installer or the local inspector.

NOTICE

If it becomes necessary to access an enclosed vent system for service or repairs, Rinnai is not responsible for any costs or difficulties in accessing the vent system. The warranty does not cover obtaining access to a vent system in an enclosed environment.

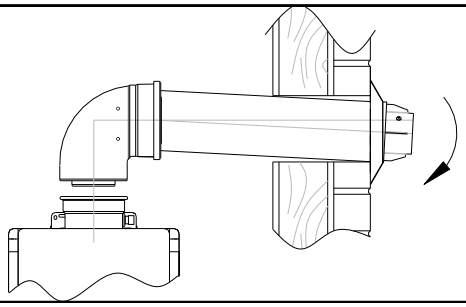
Flue Installation (indoor models only)

Install the venting termination according to the diagrams and instructions below.

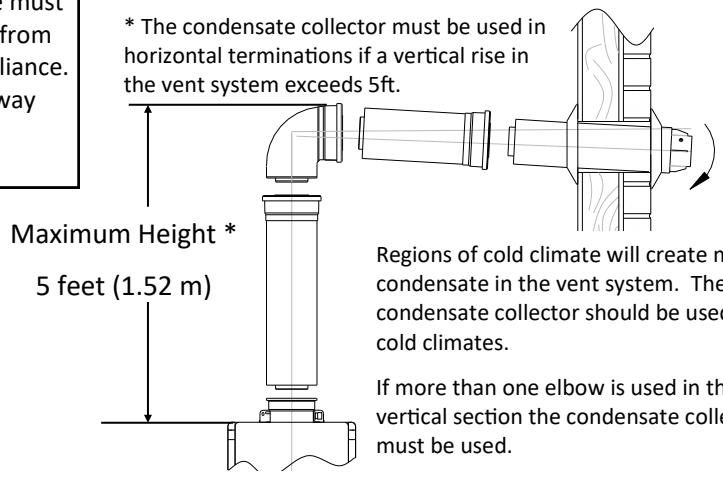
Horizontal Termination without using the Condensate Collector

⚠ WARNING

If the condensate collector is not used, the drain pipe must be capped to prevent exhaust gases and condensate from entering the building. The cap is supplied on the appliance. In such an instance slope the venting 1/4" per foot away from appliance according to vent manufacturer's installation instructions.



* The condensate collector must be used in horizontal terminations if a vertical rise in the vent system exceeds 5ft.

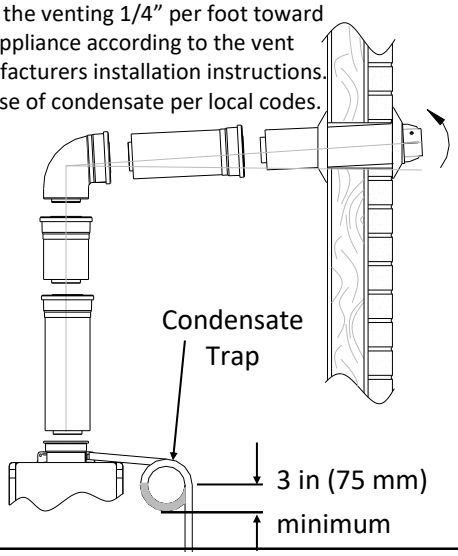


Regions of cold climate will create more condensate in the vent system. The condensate collector should be used in cold climates.

If more than one elbow is used in the vertical section the condensate collector must be used.

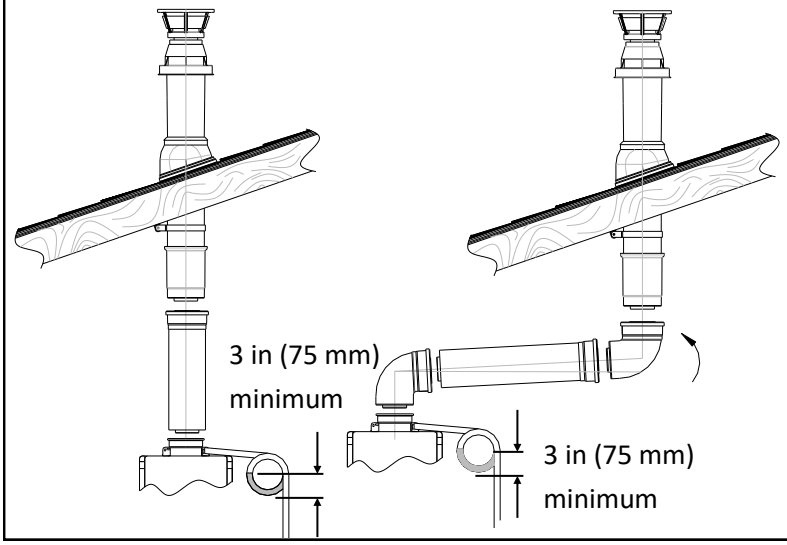
Horizontal Termination using Condensate Collector

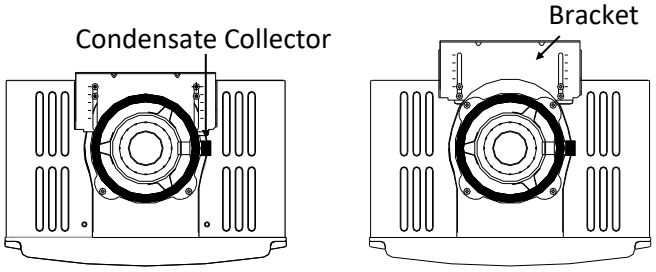
Slope the venting 1/4" per foot toward the appliance according to the vent manufacturers installation instructions. Dispose of condensate per local codes.



Vertical Termination

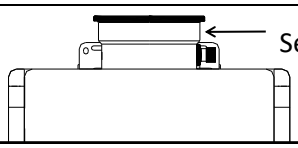
(condensate collector must be used in all installations)





To adjust the condensate collector position or to replace the female vent top with a male vent top:

1. Loosen the 4 screws at the rear bracket
2. Slide the bracket away from the female vent top.
3. Remove the 4 screws attaching the female vent top to the water heater.
4. Lift up the female vent top and reposition as desired (or replace with a male vent top).
5. Install the 4 screws at the vent top and tighten the 4 screws at the bracket.



Secure the first vent component to the water heater with one self-tapping screw at the hole located above the condensate collector.

Condensate
(indoor models only)

Condensate can form in the vent of high efficiency direct vent appliances. Without proper drainage, condensate will damage the heat exchanger.

To prevent condensate damage, follow these instructions.

DO NOT

- Do not allow condensate to enter the water heater.
- Do not connect the condensate drain pipe directly to the rain sewer.
- Do not connect the condensate drain line with an air conditioning evaporator coil drain or.
- Do not connect the condensate drain line to the pressure relief valve/line of the appliance.

MUST DO

- Use only venting that is approved and identified as acceptable for your particular model.
- For vertical terminations, install a condensate drain and trap as close as possible to the appliance.
- Slope the venting toward the appliance according to the vent manufacturer's installation instructions.
- All condensate must drain and be disposed of according to local codes.
- Use only corrosion resistant materials for the condensate drain lines such as PVC pipe or plastic hose.
- The condensate drain pipe (along its entire length) must be at least the same diameter as the drain line, (5/8 inch NPT).
- The end of the condensate drain pipe should be open to the atmosphere. The end should not be under water or other substances.
- To minimize freezing of the condensate, run the condensate drain line through an interior wall or between insulation and an interior wall.
- The condensate collector should be used for all combination domestic/hydronic heating applications.

INFORMATION

- A condensate trap is available, P/N 222053.
- Regions of cold climate will create more condensate in the vent system. The condensate collector should be used in cold climates.
- The condensate drain pipe should be as short as possible and have a downward pitch.

Checklist for Venting and Condensate (indoor models only)

☐ Verify proper clearances around the vent terminations and air intakes.

☐ Ensure you have used the correct venting products for the model installed and that you have completely followed the venting manufacturer's installation instructions and these installation instructions.

☐ Verify that the vent pipe has a downward slope or grade to the outside of 1/4 inch per foot (1.2°) OR if the vent pipe is sloped toward the water heater (as some local codes require), that a condensate collector is installed to allow condensation to drain away from the water heater to a proper drain source.

☐ Verify that condensate will not be allowed to drain back into the water heater.

☐ Verify that the vent system does not exceed the maximum length for the number of elbows used.

Installation of Plumbing

Pressure Relief Valve Requirements

Install the pressure relief valve according to these instructions.

An approved pressure relief valve is required by the *American National Standard (ANSI Z21.10.3)* for all water heating systems and shall be accessible for servicing.

DO NOT

- Do not plug the relief valve and do not install any reducing fittings or other restrictions in the relief line. The relief line should allow for complete drainage of the valve and the line.
- Do not place any other type valve or shutoff device between the relief valve and the water heater.

MUST DO

- The relief valve must comply with the standard for *Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems ANSI Z21.22* and /or the standard *Temperature, Pressure, Temperature and Pressure Relief Valves and Vacuum Relief Valves, CAN1-4.4*.
- The relief valve must be rated up to 150 psi and to at least the maximum BTU/hr of the appliance.
- The discharge from the pressure relief valve should be piped to the ground or into a drain system per local codes.
- The pressure relief valve must be manually operated once a year to check for correct operation.

⚠WARNING

Water discharged from the pressure relief valve could cause severe burns instantly or death from scalds.

- The relief valve should be added to the hot water outlet line and near the hot water outlet according to the manufacturer's instructions. DO NOT place any other type valve or shut off device between the relief valve and the water heater.

INFORMATION

- If a relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.
- The *American National Standard (ANSI Z21.10.3)* does not require a combination temperature and pressure relief valve for this appliance. However, local codes may require a combination temperature and pressure relief valve.

Isolation Valves

Isolation valves are included with this water heater. Rinnai strongly recommends the installation of isolation valves on the cold and hot water lines because they provide the ability to isolate the water heater from the structure's plumbing and allow quick access to flush the heat exchanger. Flushing the heat exchanger regularly is required as part of the proper maintenance for this water heater.

Piping Requirements

A manual water control valve must be placed in the water inlet connection to the water heater before it is connected to the water line. Unions may be used on both the hot and cold water lines for future servicing and disconnection of the unit.

DO NOT

- Do not introduce toxic chemicals such as those used for boiler water treatment to the potable water used for space heating.

MUST DO

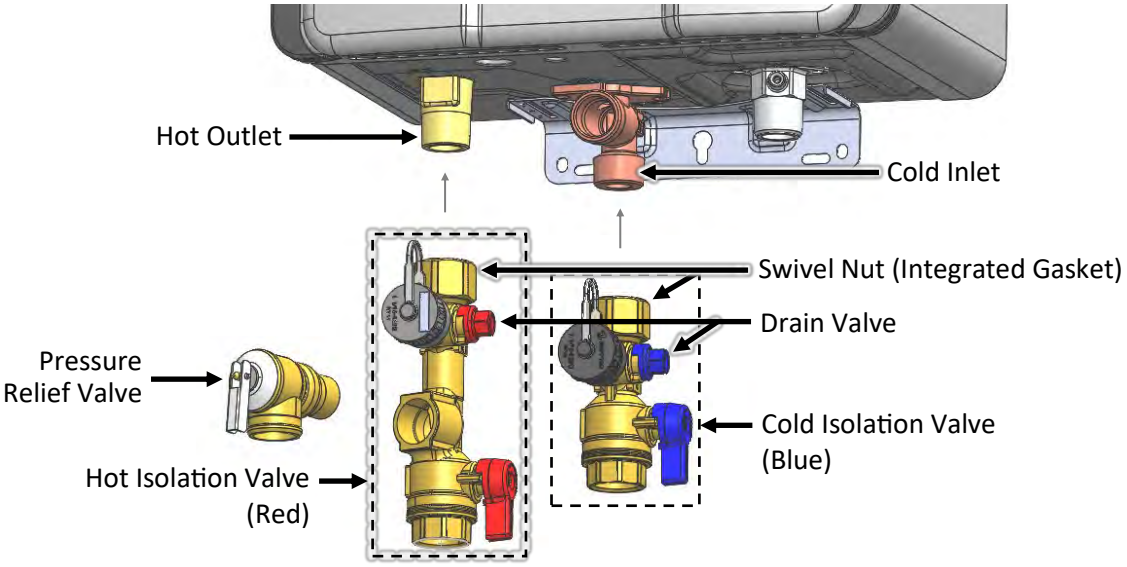
- The piping (including soldering materials) and components connected to this appliance must be approved for use in potable water systems.
- Purge the water line to remove all debris and air. Debris will damage the water heater.
- If the appliance will be used as a potable water source, it must not be connected to a system that was previously used with a nonpotable water heating appliance.
- Ensure that the water filter on the water heater is clean and installed.

Isolation Valves and Pressure Relief Valve

The isolation valves provide the ability to isolate the water heater from the structure's plumbing and allow quick access to flush the heat exchanger. Check with local codes to determine if a pressure and temperature relief valve is required. The included valves meet *American National Standard (ANSI Z21.10.3) / Canadian Standard (CSA 4.3)* and are ANSI/NSF 61 approved for potable water.

Isolation Valves Installation Instructions:

1. Wrap the threaded end of the approved pressure relief valve with a minimum of 5 wraps of Teflon® tape.
2. Install the pressure relief valve to the 3/4" threaded port on the HOT (RED) water service valve (will be adjacent to or above the cut off, never below). See Pressure Relief Valve Section for proper installation requirements.
3. Position the Hot Isolation Valve (Red) below the Hot Outlet side of the water heater.
4. Hand tighten the Swivel Nut of the Hot Isolation Valve (Red) to the Hot Outlet side of the water heater.
5. Rotate the Drain Valve to an accessible position. With a wrench, tighten the Swivel Nut to the water heater.
6. Repeat steps 3-5 for the Cold Isolation Valve (Blue).
7. Connect the Cold Isolation Valve (Blue) to the Cold Water Supply Line.
8. Connect the Hot Isolation Valve (Red) to the Hot Water Supply Line.
9. Ensure that both Drain Valves are in the closed position before turning on water supply.



Pressure Relief Valve (PRV) Installation Instructions:

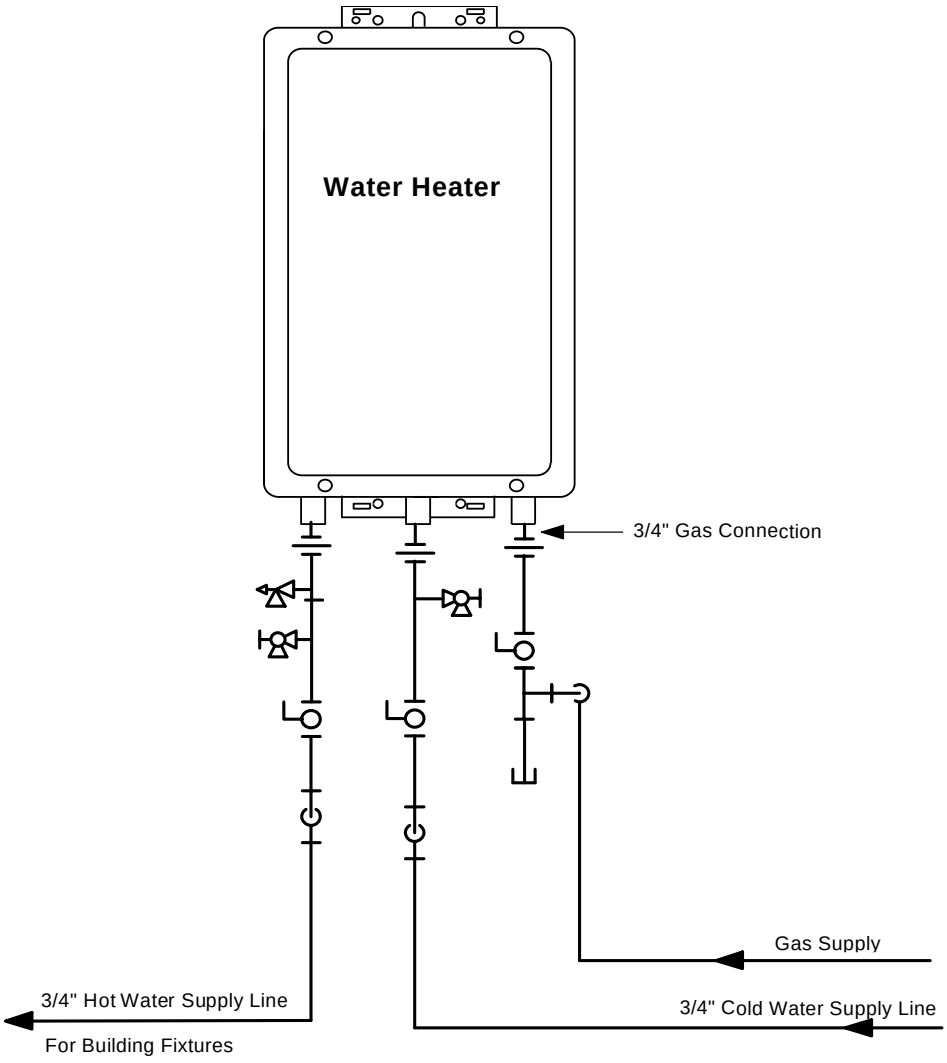
The PRV must be connected to the 3/4" threaded port on the HOT (RED) water service valve (will be adjacent to or above the shut off, never below). Installation must maintain a ¾" port size with no shut off valve or line restriction in-between the appliance and the PRV. The discharge line from the PRV should pitch downward and terminate 6" above drains where discharge will be clearly visible. The discharge end of the line shall be plain (*unthreaded*) and a minimum of ¾" in diameter. The discharge line material must be suitable for water at least 180° Fahrenheit. No valve of any type may be installed in the discharge line of the pressure relief valve.

Pressure Relief Valve Maintenance:

For proper care of this approved pressure relief valve, it is recommended that the valve is manually operated once a year. In doing so, it will be necessary to take precautions with regard to the discharge of potentially scalding hot water under pressure. Ensure discharge water has a safe place to flow. Contact with your body or other property may cause damage or harm.

Please note that only the PRV in this package is certified by CSA International as an approved item.

Piping Diagram for Basic Installation



KEY	
3/4" Ball Valve	Pressure Regulator
3/4" Union	Circulating Pump
Check Valve	Boiler Drain Valve
Pressure Relief Valve	Solenoid Valve

This is not an engineered drawing. It is intended only as a guide and not as a replacement for professionally engineered project drawings. This drawing is not intended to describe a complete system. It is up to the contractor/engineer to determine the necessary components and configuration of the particular system being installed. This drawing does not imply compliance with local building code requirements. It is the responsibility of the contractor/engineer to ensure installation is in accordance with all local building codes. Confer with local building officials before installation.

Connect Water Heater to Water Supply

Water connections to the tankless water heater should follow all state and local plumbing codes.

If this is a standard installation, refer to the Piping Diagram for Basic Installation.

1. Plumb water supply to the tankless water heater on the 3/4" MNPT connection at the bottom of the unit marked "Water Inlet", which is the cold water supply.
2. Plumb the building hot water supply to the 3/4" MSPT connection marked "Water Outlet", which is the hot water supply.

If a pipe cover will be installed, make sure water lines to the water heater fit.

Checklist for Plumbing

☐ Purge the water line of all debris and air by closing the hot isolation valve and opening the cold isolation valve and its drain. **Debris will damage the water heater.** Use a bucket or hose if necessary.

☐ Ensure that hot and cold water lines are not crossed to the unit and are leak free.

☐ Ensure that a pressure relief valve is installed with a rating that exceeds the BTU input of the water heater model. Refer to the rating plate on the side of the water heater for BTU input.

☐ Clean the inlet water filter by closing the cold and hot water inlet isolation (shut-off) valves. Put a bucket under the filter at the bottom of the water heater to catch any water that is contained inside the unit. Unscrew the water filter. Rinse the filter to remove any debris. Install the filter and open the isolation valves.

☐ Check for proper water pressure to the water heater. Minimum/Maximum water pressure is 20-150 psi. Rinnai recommends 30-80 psi for maximum performance.

Installation of Gas Supply

⚠ WARNING

1. A licensed professional must install the gas supply.
2. Turn off 120v power supply.
3. Turn off the gas.
4. Gas is flammable. Do not smoke or provide other ignition sources while working with gas.
5. Do not turn on the water heater or gas until all fumes are gone.

General Instructions

MUST DO

- A manual gas control valve must be placed in the gas supply line to the water heater. A union can be used on the connection above the shut off valve for the future servicing or disconnection of the unit.
- Check the type of gas and the gas inlet pressure before connecting the water heater. If the water heater is not of the gas type that the building is supplied with, DO NOT connect the water heater. Contact the dealer for the proper unit to match the gas type.
- Check the gas supply pressure immediately upstream at a location provided by the gas company. Supplied gas pressure must be within the limits shown in the Specifications section of this manual with all gas appliances operating.
- Before placing the appliance in operation, all joints including the heater must be checked for gas tightness by means of leak detector solution, soap and water, or an equivalent nonflammable solution, as applicable. (Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping shall be rinsed with water after testing, unless it has been determined that the leak test solution is non-corrosive.)
- Use approved connectors to connect the unit to the gas line. Purge the gas line of any debris before connection to the water heater.

- Any compound used on the threaded joint of the gas piping shall be a type that resists the action of liquefied petroleum gas (propane / LPG).
- The gas supply line shall be gas tight, sized, and so installed as to provide a supply of gas sufficient to meet the maximum demand of the heater and all other gas consuming appliances at the location without loss of pressure.

INFORMATION

- Refer to an approved pipe sizing chart if in doubt about the size of the gas line.

Size the gas pipe

The gas supply must be capable of handling the entire gas load required at the location. Gas line sizing is based on gas type, the pressure drop in the system, the gas pressure supplied, and gas line type. For gas pipe sizing in the United States, refer to the *National Fuel Gas Code, NFPA 54*. The below information is provided as an example. The appropriate table from the applicable code must be used.

1. For some tables, you will need to determine the cubic feet per hour of gas required by dividing the gas input by the heating value of the gas (available from the local gas company). The gas input needs to include all gas products at the location and the maximum BTU usage at full load when all gas products are in use.
2. Use the table for your gas type and pipe type to find the pipe size required. The pipe size must be able to provide the required cubic feet per hour of gas or the required BTU/hour.

$$\text{Cubic Feet per Hour (CFH)} = \frac{\text{Gas Input of all gas products (BTU / HR)}}{\text{Heating Value of Gas (BTU / FT}^3\text{)}}$$

Example:

The heating value of natural gas for your location is 1000 BTU/FT^3. The gas input of the RL94i is 199,000 BTU/HR. Additional appliances at the location require 65,000 BTU/hr. Therefore the cubic feet per hour = (199,000 + 65,000) / 1000 = 264 FT^3/HR. If the pipe length is 10 feet then the 3/4 inch pipe size is capable of supplying 264 FT^3/HR of natural gas.

Pipe Sizing Table - Natural Gas

Schedule 40 Metallic Pipe

Inlet Pressure: less than 2 psi (55 inches W.C.)
Pressure Drop: 0.3 inches W.C.
Specific Gravity: 0.60

cubic feet per hour

Length	Pipe Size (inches)			
	3/4	1	1 1/4	1 1/2
10	273	514	1060	1580
20	188	353	726	1090
30	151	284	583	873
40	129	243	499	747
50	114	215	442	662
60	104	195	400	600
70	95	179	368	552
80	89	167	343	514
90	83	157	322	482
100	79	148	304	455

Pipe Sizing Table - Propane Gas

Schedule 40 Metallic Pipe

Inlet Pressure: 11.0 inches W.C.
Pressure Drop: 0.5 inches W.C.
Specific Gravity: 1.50

Capacity in Thousands of BTU per Hour

Length	Pipe Size (inches)			
	1/2	3/4	1	1 1/4
10	291	608	1150	2350
20	200	418	787	1620
30	160	336	632	1300
40	137	287	541	1110
50	122	255	480	985
60	110	231	434	892
80	101	212	400	821
100	94	197	372	763

Connect Electricity

⚠ WARNING

Do not use an extension cord or an adapter plug with this appliance.

The water heater must be electrically grounded in accordance with local codes and ordinances or, in the absence of local codes, in accordance with the National Electrical Code, ANSI/NFPA No. 70.

Indoor water heaters are equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding terminal from this plug.

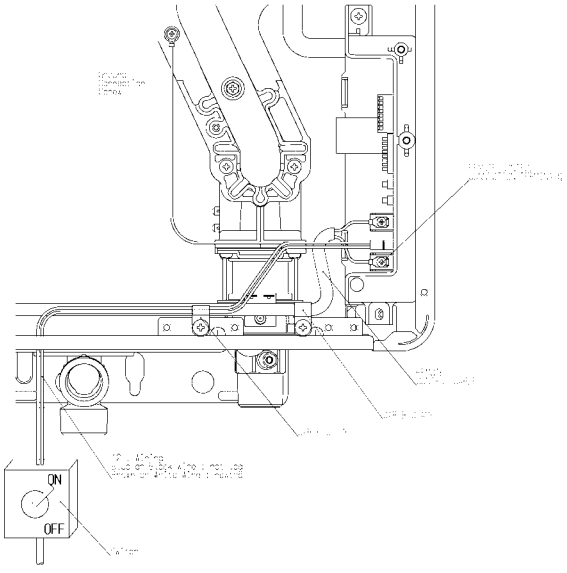
Do not rely on the gas or water piping to ground the water heater. A screw is provided in the junction box for the grounding connection.

The water heater requires 120 VAC, 60 Hz power from a properly grounded circuit.

If using the 5 foot long power cord, plug it into a standard 3 prong 120 VAC, 60 Hz properly grounded wall outlet.

On outdoor models, a disconnect switch must be provided and installed for the incoming 120 VAC power. It should be a type that is suitable for outdoor use. Check the National Electrical Code, ANSI/NFPA 70 and your local codes for a proper switch type to use in your area.

The wiring diagram is located on the Technical Sheet attached to the inside of the front cover.



Adjustment for High Altitude Installations

On the SW1 DIP switch (tan switches), set switches 2 and 3 to the values shown in table below for your altitude. The default setting for the appliance is 0-2000 ft (0-610 m) with switches No. 2 and No. 3 in the OFF position.

When the DIP switch is adjusted, it is not necessary to adjust the gas pressure setting for high altitude.

Altitude	SW1 Switch No. 2	SW1 Switch No. 3
0-2000 ft (0-610 m)	OFF	OFF
2001-5200 ft (610-1585 m)	OFF	ON
5201-7700 ft (1585-2347 m)	ON	OFF
7701-10200 ft (2347-3109 m)	ON	ON

Adjustment for Vent Length
(Indoor models only)

Adjust switch No. 1 in the SW1 DIP switch (tan switches) if required. Refer to the section “Maximum vent length”.

Checklist for Gas and Electricity

- ☐ A manual gas control valve is placed in the gas line to the water heater.
- ☐ Check the gas lines and connections for leaks.
- ☐ Confirm that the gas inlet pressure is within limits.
- ☐ Confirm that the water heater is rated for the gas type supplied.
- ☐ Confirm that the electricity is supplied from 120 VAC, 60 Hz power source and is in a properly grounded circuit.
- ☐ Confirm an extension cord or an adapter plug has not been used with the water heater.
- ☐ For indoor models verify that switch No. 1 in the SW1 DIP switch (tan switches) has been adjusted for vent length if necessary. Refer to the section on Maximum Vent Length.

Installation of Temperature Controller

⚠ WARNING

Turn the power off. Do not attempt to connect the temperature controller(s) with the power on. Although the controller is a low voltage device, there is 120 volt potential next to the temperature controller connections inside the unit.

Do not connect the temperature controller to the 120VAC terminals provided for the optional solenoid drain valves.

Indoor models have their controller built into the front panel. Additional controllers can be installed.

Controller Location

- The controller should be out of reach of small children.
- Avoid locations where the controller may become hot (near an oven or radiant heater).
- Avoid locations in direct sunlight. The digital display may be difficult to read in direct sunlight.
- Avoid locations where the temperature controller could be splashed with liquids.
- Do not install in locations where the controller can be adjusted by the public.

Cable Lengths and Sizes

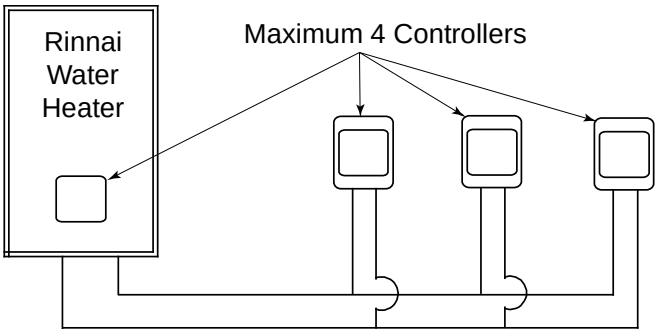
The cable for the temperature controller should be a non-polarized two-core cable with a minimum gauge of 22 AWG. The maximum cable length from each controller to the water heater depends on the total number of wired controllers connected to the water heater.

Number of Wired Controllers	Maximum Cable Length for each Controller to Water Heater
1	328 ft (100 m)
2	164 ft (50 m)
3 or 4*	65 ft (20 m)

* Only 3 additional controllers can be wired to the indoor water heater.

Configurations

A maximum of 4 temperature controllers can be installed for a water heater or bank of water heaters. This includes the controller built into an indoor water heater. Controllers can only be wired in parallel. Controllers cannot be wired in series.



Wire controllers in parallel

The 4 temperature controllers can consist of multiple MC-91-2 or MCC-91-2 but only one BC-100V and only one MC-100V.

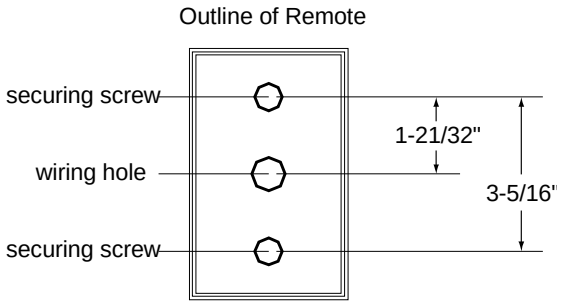
(MC-91-1 should not be installed on a unit that already has an MC-91-2 connected)

The clock function on the BC-100V will only be available if an MC-100V is also connected.

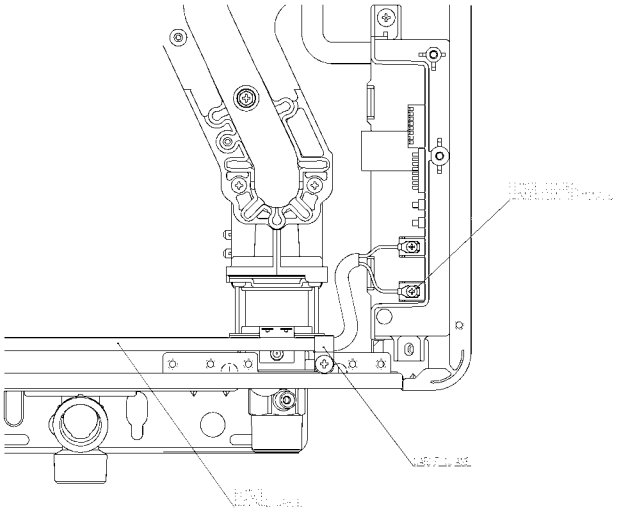
If 4 MC-91-2's are installed, simultaneously press the Priority and On/Off buttons on the fourth controller until a beep sounds.

Mounting the controller

1. Make three holes in the wall as shown.



2. Run the cable between the controller and the water heater or the controller and another controller.
3. Remove the face plate from the temperature controller using a screwdriver.
4. Connect the cable to the temperature controller.
5. Mount the controller to the wall using the holes drilled in step 1.
6. Disconnect the power from the water heater.
7. Remove the plastic cover from the PCB and electrical connections.
8. Thread the cable through the access hole at the base of the unit and connect the wires to the controller terminals on the right hand side bottom of the PCB.
9. Secure the controller cable using the clamp provided.
10. Replace plastic cover over PCB and then replace the cover of the water heater.



Final Checklist

- ☐ The water heater is not subject to corrosive compounds in the air.
- ☐ The water supply does not contain chemicals or exceed total hardness that will damage the heat exchanger.
- ☐ Clearances from the water heater unit are met.
- ☐ Clearances from the vent termination / air intake are met.
- ☐ For indoor models, ensure you have used the correct venting products for the model installed and that you have completely followed the venting manufacturer's installation instructions and these installation instructions.
- ☐ For indoor models, verify that the vent system does not exceed the maximum length for the number of elbows used.
- ☐ For indoor models verify that switch No. 1 in the SW1 DIP switch (tan switches) has been adjusted for vent length if necessary. Refer to the section on Maximum Vent Length.
- ☐ For indoor models, verify that the vent pipe has a downward slope or grade to the outside of 1/4 inch per foot (1.2°) OR, if the vent pipe is sloped toward the water heater (as some local codes require), that a condensate collector is installed to allow condensation to drain away from the water heater to a proper drain source.
- ☐ For indoor models, verify that condensate will not be allowed to drain back into the water heater.
- ☐ Purge the water line of all debris and air by closing the hot isolation valve and opening the cold isolation valve and its drain. **Debris will damage the water heater.** Use a bucket or hose if necessary.
- ☐ Ensure that hot and cold water lines are not crossed to the unit and are leak free.
- ☐ Clean the inlet water filter by closing the cold and hot water inlet isolation (shut-off) valves. Put a bucket under the filter at the bottom of the water heater to catch any water that is contained inside the unit. Unscrew the water filter. Rinse the filter to remove any debris. Install the filter and open the isolation valves.
- ☐ Ensure that a pressure relief valve is installed with a rating that exceeds the BTU input of the water heater model. Refer to the rating plate on the side of the water heater for BTU input.
- ☐ A manual gas control valve has been placed in the gas line to the water heater.
- ☐ Check the gas lines and connections for leaks.
- ☐ Confirm that the gas inlet pressure is within limits.
- ☐ Confirm that the water heater is rated for the gas type supplied.
- ☐ Confirm that the electricity is supplied from a 120 VAC, 60 Hz power source, is in a properly grounded circuit, and turned on.
- ☐ Verify the temperature controller is functioning properly.
- ☐ Verify that switches No. 2 and No. 3 in the SW1 DIP switch (tan switches) is set correctly for your altitude.
- ☐ Verify the system is functioning correctly by connecting your manometer to the gas pressure test port on the water heater. Operate all gas appliances in the home or facility at high fire. The inlet gas pressure at the water heater must not drop below that listed on the rating plate.
- ☐ **DO NOT** introduce toxic chemicals such as those used for boiler water treatment to the potable water used for space heating.
- ☐ If the water heater is not needed for immediate use, then drain the water from the heat exchanger.
- ☐ Install the front panel.
- ☐ Explain to the customer the importance of not blocking the vent termination or air intake.
- ☐ Explain to the customer the operation of the water heater, safety guidelines, maintenance, and warranty.
- ☐ The installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54*, or the *Natural Gas and Propane Installation Code, CSA B149.1*. If installed in a manufactured home, the installation must conform with the *Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280* and/or *CAN/SCA Z240 MH Series, Mobile Homes*.
- ☐ Inform the consumer if the isolation valves are not installed or if a water softening system is not installed.
- ☐ **Leave the entire manual taped to the water heater (indoor models), temperature controller (outdoor models), or give the entire manual directly to the consumer.**

Technical Data

Specifications

		RL75i	*RLX94i*	*RL94i*	*RL75e*	*RL94e*
Minimum Gas Consumption Btu/h		10,300				
Maximum Gas Consumption Btu/h		180,000	192,000	199,000	180,000	199,000
Hot water capacity (Min - Max) *		0.26 - 7.5 GPM (1.0 - 28.5 L/min)	0.26 - 9.8 GPM (1.0 - 37.0 L/min)	0.26 - 9.8 GPM (1.0 - 37.0 L/min)	0.26 - 7.5 GPM (1.0 - 28.5 L/min)	0.26 - 9.8 GPM (1.0 - 37.0 L/min)
Temperature Setting (no controller)		120° F (49° C) or 140° F (60° C)				
Maximum Temp Setting (residential)		Selectable at 120° F (49° C) or at 140° F (60° C)				
Maximum Temp Setting (MCC-91 controller)		160° F (71° C)	185° F (85° C)	185° F (85° C)	160° F (71° C)	185° F (85° C)
Minimum Temperature Setting		98° F (37° C)				
Weight		45.6 lb (20.7 kg)	46.3 lb (21.0 kg)	46.3 lb (21.0 kg)	43.6 lb (19.8 kg)	44.3 lb (20.1 kg)
Noise level		49 dB (excluding start up or shutdown)				
Electrical Data	Normal	76 W	97 W	97 W	57 W	65 W
	Standby	2 W				
	Anti-frost Protection	120 W			104 W	
	Max Current	Without recirculation pump: 4 A With recirculation pump: 8 A (exact value depends on the pump)				
	Fuse	10 A				
By-Pass Control		Fixed	Electronic	Electronic	Fixed	Electronic
Gas Supply Pressure	Natural Gas	4.0 - 10.5 inch W.C.				
	Propane	8.0 - 13.5 inch W.C.				
Type of Appliance		Direct Vent, Tankless, Temperature controlled continuous flow gas hot water system				
Connections		Gas Supply: 3/4" MNPT, Cold Water Inlet: 3/4" MNPT, Hot Water Outlet: 3/4" MNPT				
Ignition System		Direct Electronic Ignition				
Electric Connections		Appliance: AC 120 Volts, 60Hz. Temperature Controller: DC 12 Volts (Digital)				
Water Temperature Control		Simulation Feedforward and Feedback				
Water Supply Pressure		Minimum Water Pressure: 20 PSI (Recommended 30-80 PSI for maximum performance)				
Maximum Water Supply Pressure		150 PSI				
Temperature Control Cable		Non-Polarized Two Core Cable (Minimum 22 AWG)				
Certified for installation in manufactured (mobile) homes		Yes				
Complies with South Coast Air Quality Management District 14 ng/J or 20 ppm NOx emission levels		Yes	Yes	No	Yes	Yes

* Minimum flow may vary slightly depending on the temperature setting and the inlet water temperature.
  Minimum activation flow is 0.4 GPM (1.5 L/min).

Our products are continually being updated and improved; therefore, specifications are subject to change without prior notice.

The maximum inlet gas pressure must not exceed the value specified by the manufacturer. The minimum value listed is for the purpose of input adjustment.

G&D Chillers welcomes any and all questions or concerns
We can be reached at 800-555-0973 or 541-345-3903