

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 06-1050	Issue Date: <b>PERMIT ISSUED</b> JUL 28 2006	CBL: 131 G003001
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Location of Construction: 142 Pleasant Ave	Owner Name: Pappas Argyro C	Owner Address: 142 Pleasant Ave	Phone:
Business Name:	Contractor Name: Caron & Waltz	Contractor Address: 321 Lincoln Street South Portland	Phone: 2077992228
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	Zone:

Past Use: Residential 2 unit	Proposed Use: Residential 2 unit Install 2 Rinnai heaters, 2 Rinnai water heaters and Munchin Boiler	Permit Fee: \$190.00	Cost of Work: \$16,400.00	CEO District: 4
Proposed Project Description: Install 2 Rinnai heaters, 2 Rinnai water heaters and Munchin Boiler		FIRE DEPT: <input type="checkbox"/> Approved <input type="checkbox"/> Denied	INSPECTION: Use Group: HVAC Type: 7/24/06 Signature: [Signature]	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____		

Permit Taken By: dmartin	Date Applied For: 07/18/2006	<b>Zoning Approval</b>		
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1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: _____	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date: _____	Historic Preservation <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: _____
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**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

2/13/07 Inspected boiler & 1 water heater.  
Check for Rinnai installations

JMB

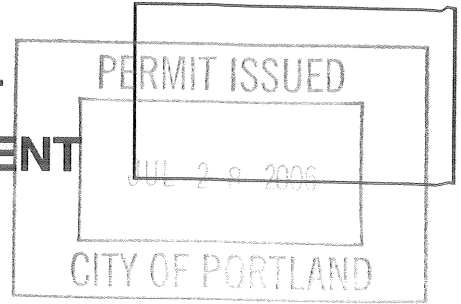
4/11/02 OK venting Rinnai



FILL IN AND SIGN WITH INK

39 9 003

# APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL \_\_\_\_\_ Use of Building APARTMENTS Date 7/12/06  
 Name and address of owner of appliance 142 PLEASANT AVIE  
GEORGE MAN JOUNES  
 Installer's name and address CARON + WALTZ 321 LINCOLN ST. SOUTH PORTLAND  
 Telephone 207-799-2228

### Location of appliance:

- Basement  Floor 1ST + 2ND  
 Attic  Roof

### Type of Fuel:

- Gas  Oil  Solid

Appliance Name: 2 RINNAI 556 HEATERS @ RINNAI 2520 CONTINUUM WATER HEATER  
1 MUNCHKIN BOILER 140 M  
 U.L. Approved  Yes  No

Will appliance be installed in accordance with the manufacture's installation instructions?  Yes  No

IF NO Explain: \_\_\_\_\_

### The Type of License of Installer:

- Master Plumber # \_\_\_\_\_  
 Solid Fuel # \_\_\_\_\_  
 Oil # \_\_\_\_\_  
 Gas # PNT 4280  
 Other \_\_\_\_\_

### Type of Chimney:

- Masonry Lined  
 Factory built \_\_\_\_\_

- Metal  
 Factory Built U.L. Listing # \_\_\_\_\_

Direct Vent  
 Type \_\_\_\_\_ UL# \_\_\_\_\_

### Type of Fuel Tank

- Oil NA  
 Gas

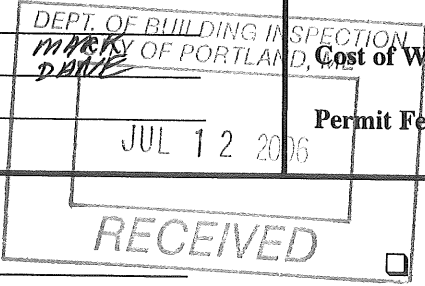
Size of Tank NA

Number of Tanks NA

Distance from Tank to Center of Flame NA feet.

Cost of Work: \$ 16,400

Permit Fee: \$ 1



Approved

Approved with Conditions

Fire: \_\_\_\_\_

Ele.: \_\_\_\_\_

Bldg.: \_\_\_\_\_

Inspector's Signature

Date Approved

Signature of Installer [Signature] for CARON + WALTZ

White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

**City of Portland, Maine - Building or Use Permit**

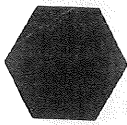
389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

<b>Permit No:</b> 06-1050	<b>Date Applied For:</b> 07/18/2006	<b>CBL:</b> 131 G003001
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<b>Location of Construction:</b> 142 Pleasant Ave	<b>Owner Name:</b> Pappas Argyro C	<b>Owner Address:</b> 142 Pleasant Ave	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Caron & Waltz	<b>Contractor Address:</b> 321 Lincoln Street South Portland	<b>Phone</b> (207) 799-2228
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> HVAC	

<b>Proposed Use:</b> Residential 2 unit Install 2 Rinnai heaters, 2 Rinnai water heaters and Munchin Boiler	<b>Proposed Project Description:</b> Install 2 Rinnai heaters, 2 Rinnai water heaters and Munchin Boiler
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<b>Dept:</b> Building	<b>Status:</b> Approved with Conditions	<b>Reviewer:</b> Mike Nugent	<b>Approval Date:</b> 07/21/2006
<b>Note:</b>	<b>Ok to Issue:</b> <input checked="" type="checkbox"/>		
1) The installation must comply with the State of Maine Gas Regulations.			



Since 1958

# The Home Team CARON & WALTZ

P.O. Box 2400, 321 Lincoln Street  
South Portland, Maine 04116-2400  
207-799-2228 1-800-339-9888  
FAX 207-799-7816

George Manjounes  
142 Pleasant Avenue  
Portland, Maine 04103

775-1104

June 26, 2006

APT # A B C

CRISTINA

Dear George:

1-800-552-3047 5/5 350

Caron & Waltz is pleased to present the following proposal for heating work to be done at your property on Pleasant Avenue in Portland. The scope of work to be done includes the following.

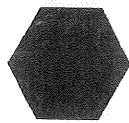
## RINNAI HEATERS

1. Furnish and install a Rinnai Model 556 natural gas space heater to be installed in the first floor front apartment, to be installed within 4' of an existing electrical outlet.
2. Furnish and install a Rinnai Model 556 natural gas space heater to be installed in the second floor apartment, to be installed within 4' of an existing electrical outlet.
3. Furnish and install Rinnai extension vent kits for the second floor installation to extend the vent termination above the roof line below the window. NOT NEEDED
4. Furnish and install black iron gas piping and fittings from two meters installed by Northern Utilities.
5. Includes all required plumbing materials, hangars and gas valve to complete the installation.

The price to complete the above work is \$3,745. ✓

## NEW HEAT SYSTEM MAIN HOUSE

1. Homeowner to be responsible for removing existing steam boiler, steam radiators and all steam piping.
2. Furnish and install a Munchkin Model 140M direct vent natural gas boiler with an efficiency rating of 92%, to be vented out the left side of the house through a window opening with a Munchkin direct vent kit.
3. Furnish and install a Super Stor SS45, 45 gallon indirect water heater.
4. Furnish and install an Amtrol expansion tank package, Hydro Level low water cutoff and Watts 911S combination feeder and backflow preventer.
5. In the basement level on a separate zone, furnish and install a Profile PS10 unit heater.



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FAX 207-799-7816

6. In the first and second floors furnish and install up to (84) feet of Slant Fin or Haydon conventional baseboard heat radiation divided into (3) zones. The sunroom will be one zone, the remaining first floor will be the second zone and the second floor will be the third floor.
7. Furnish and install Taco circulators, relays, flowcheck valves and ball valves for (4) heat zones and (1) indirect water heater zone.
8. Furnish and install (4) Honeywell T84 conventional thermostats.
9. All heat piping to be Type M copper tubing. Any vertical runs between floors will be protected with 1/2" split foam pipe insulation.
10. Furnish and install black iron gas piping, fittings and valves.
11. Includes all required plumbing materials and electrical materials to complete the installation.
12. Homeowner to be responsible for all carpentry repairs.

The price for the new heating system is **\$16,400.** ✓

## RINNAI WATER HEATERS FOR APARTMENTS

1. Furnish and install (2) Rinnai Model 2520 Continuum continuous flow water heaters, one per apartment. Water heaters to be installed in the basement and vented through the window opening with Rinnai direct vent kits.
2. Furnish and install black iron gas piping from meters installed by Northern Utilities.
3. Domestic water piping to be Type L copper and Vanguard PEX piping.
4. It is the homeowner's responsibility to repair walls opened up to separate hot water piping for each bathroom.

The price for the Rinnai water heaters is **\$3,940.** ✓

## OPTION FOR APARTMENT HOT WATER HEATING FROM OWNERS NEW BOILER

1. Upgrade indirect water heater to Super Stor SS60, 60 gallon indirect water heater.
2. Furnish and install a Sparco 101 mixing valve.
3. Includes additional piping and valves.
4. With this option all domestic hot water for the building will be heated by the owner's boiler.

The price for this option is **\$560** (added on to \$16,400 system above).

**Rinnai**  
 HEATERS | WATER HEATERS | FIREPLACES

DUCTLESS HEATING —  
 AN INTELLIGENT SOLUTION  
 FOR THE SMART HOME.



*Not Just Heat... Comfortable Heat.*

RINNAI HAS FEATURES YOU WON'T FIND

When winter sets in there are certain rooms that get used less because of cold spots. But with the consistent and even heat provided by a Rinnai Ductless Heater, you can enjoy comfortable heat anywhere all winter long. Rinnai heaters are efficient and easy to install. And the innovative cool-to-the-touch cabinet makes it safe for the whole family.

*The Benefits of Rinnai Heaters*

**UP TO 84% EFFICIENT STAINLESS STEEL HEAT EXCHANGER**

- The Rinnai direct vent heater's reputation lies in its ability to extract up to 84% AFUE efficiency through the use of a stainless steel heat exchanger, which adds many years of comfort. Just imagine, no heat loss from leaky ducts

**ADVANCED SAFETY FEATURES**

- The only "cool-to-the-touch cabinet" in America
- Child safety lock
- Electronic ignition—no pilot light
- Wind tunnel tested venting systems
- Digital, adaptive control
- Humidity management system
- On board self-diagnostics for easier maintenance
- Earthquake-proof tilt-switch
- Each heater passes a rigorous battery of factory tests

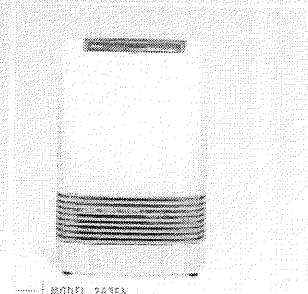
**INNOVATIVE MODULATING GAS VALVE AND BLOWER**

- Whisper quiet 7-stage fully modulating blower—no more going from on to off and hot to cold
- Automatically adjusts the heat output and blower control, delivering a stable room temperature for maximum efficiency and comfort

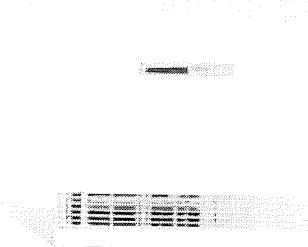
**PRODUCT APPLICATIONS**

With Rinnai Ductless Heaters, enjoy comfortable heat in any type of

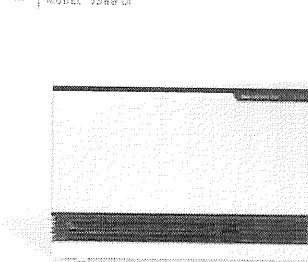
- Room Addition or Sunroom
- Multifamily Housing
- Apartment Complex
- Basement Remodel
- Condo or Loft
- Cabin, Lake or Vacation Home
- Electric-to-Gas Conversion Project
- Boiler Conversion



MODEL 243FA



MODEL 554WFA



MODEL 1114F-1104FA

*Not Just Heat... Comfortable Heat.*

## ON ANY OTHER HEATER

The innovative  
**"Cool-to-the-Touch Cabinet"**  
 makes the Rinnai Heater  
 safe for any room and  
 the whole family.



MODEL	BTU HIGH	BTU LOW	CEMS	AMPERAGE	DECIBELS	BTU HIGH	BTU LOW	DIMENSIONS
RHFE 243 FA	128.5 High 96.4 Low	47 Watts High Fire	High-314BA Low-314BA	11,000 HG 5,500 LP	11,000 HG 5,500 LP	H 26 5/8" W 18 3/4" D 9 13/16"		
RHFE 431 FAHJ & WTA	141.3 High 110.5 Low	48 Watts High Fire	High-324BA Low-324BA	16,700 HG 8,200 LP	16,700 HG 8,200 LP	H 21 13/16" W 20 1/2" D 9 7/8"		
RHFE 556 FAHJ & WTA	162.7 High 110.5 Low	55 Watts High Fire	High-414BA Low-324BA	21,500 HG 20,700 LP	21,500 HG 8,200 LP	H 21 13/16" W 20 1/2" D 9 7/8"		
RHFE 1004 FA	346.4 High 203.4 Low	121 Watts High Fire	High-474BA Low-374BA	38,400 HG 26,500 LP	38,400 HG 10,500 LP	H 26 3/8" W 26 5/8" D 12"		

### PROGRAMMABLE THERMOSTAT AND FROST PROTECTION

- Only the RHFE-431WTA and RHFE-556WTA have a 7 day/28 event programmable thermostat, which automatically heats during the times you program, or can be operated manually
- Frost protection allows the heater to set as low as 38 degrees to 60 degrees while you're away for extended periods

### INTEGRAL HUMIDIFIER

- Adds humidity to your room for just the right comfort level

### EASY INSTALLATION

- Every Rinnai direct vent heater comes with our unique through-the-wall venting kit. Just drill a 3" hole and install Rinnai's stainless steel vent kit (for 4.5" to 9.5" wall thickness). Optional kits are available for up to 31" wall thickness. It's that simple!

### CERTAIN MODELS AVAILABLE WITH COLOR OPTIONS

- Have the heater blend in or match the appliance color theme of your home.

NOTE: Please visit local dealer showroom to view actual color representation of product.

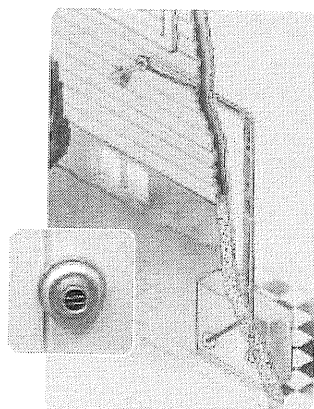
Silver & White available only with these models: RHFE-1004FA & RHFE-556WTA



Beige Silver White

### UNBREATHABLE WARRANTY

- 10 years on the heat exchanger
- 5 years on the parts
- 2 years on labor (additional 3 years labor warranty is available for only \$75)



TO FIND A RINNAI DEALER NEAR YOU CALL 1-866-RINNAI-1

Please visit [www.rinnai.us](http://www.rinnai.us) for more product information

### VENT SIZES

VENT	EXTENDED		HOLE DIAMETER FOR 1004	HOLE DIAMETER FOR 430/556	APPLICATION
	FROM	TO			
FOT-150	3" (75mm)	4 1/2" (115mm)	3" (76mm)	3" (76mm)	Thin Walls, Mobile Homes
FOT-151*	4 1/2" (115mm)	9 1/2" (240mm)	3" (76mm)	3" (76mm)	Wood Walls
FOT-152	9 1/2" (240mm)	15 3/4" (400mm)	3" (76mm)	3" (76mm)	Wood / Brick
FOT-153	15 3/4" (400mm)	22 5/8" (580mm)	3" (76mm)	3" (76mm)	Brick / Block
FOT-154	22 5/8" (580mm)	31 1/2" (800mm)	3" (76mm)	3" (76mm)	Special

\*Standard vent kit shipped with heater.

### SPECIFICATIONS

MODEL	CEMS	AMPERAGE	DECIBELS	BTU HIGH	BTU LOW	DIMENSIONS
RHFE 243 FA	128.5 High 96.4 Low	47 Watts High Fire	High-314BA Low-314BA	11,000 HG 5,500 LP	11,000 HG 5,500 LP	H 26 5/8" W 18 3/4" D 9 13/16"
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Rinnai is continually updating and improving products. Therefore, specifications are subject to change without prior notice. Local, state, provincial and federal codes must be adhered to when installing. See owner manual for complete specifications.

### ACCESSORIES

ENERGYSAVERS SERIES EXTENSION KITS FOR 243, 431 & 556 MODELS	ENERGYSAVERS SERIES EXTENSION FOR 1004 MODELS
FOT-155 Extension (11.4" - 20.3")	FOT-102 Extension (11.4" - 20.3")
FOT-156 Extension (21.0" - 39.6")	FOT-103 Extension (21.0" - 39.6")
FOT-157 Extension (61.0" - 79.6")	FOT-114 Extension (60.0" - 80.0")
FOT-150 Elbow plus 1 pipe stopper "A"	FOT-115 Elbow 90°
FOT-159 Extension (24" flexible exhaust pipe)	



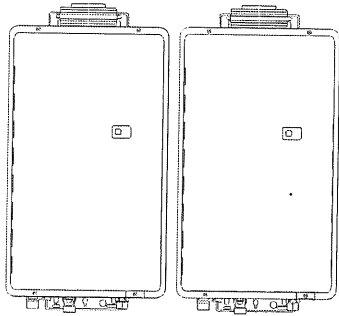
RHFE 2004.1

**Rinnai**  
 HEATERS | WATER HEATERS | FIREPLACES



# Rinnai

## Operation / Installation Manual



### To Suit Models:

REU-V2520FFU..... R53  
 REU-V2520FFUC... C53  
 REU-V2532FFU..... R85  
 REU-V2532FFUC... C85



*(Residential and Commercial indoor unit)*

ANS Z21.10.3 • CSA 4.3

**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 qualified installer, service agency or the gas supplier.

## SPECIFICATIONS

Model	V2532FFU	V2532FFUC	V2520FFU	V2520FFUC
Minimum Gas Consumption Btu/h	15,000			
Maximum Gas Consumption Btu/h	180,000			
Hot water capacity, (50°F rise)	0.6 to 6.5 GPM		0.6 to 5.3 GPM	
Hot water capacity, (35°F rise)	0.6 to 8.5 GPM		0.6 to 5.3 GPM	
Factory Temperature Setting	104°F	140°F	104°F	140°F
Maximum Temperature Setting	140°F	185°F	140°F	185°F
Minimum Temperature Setting	98°F		120°F	
Weight	49 Lbs.			
Efficiency Rating	87%			
Noise level	49 dB (A)			
Electrical Consumption	Normal	75 watts		
	Standby	5.5 watts		
	Anti-frost Protection	100 watts		
By-Pass Control	Electronic		Fixed	None
Minimum Gas Supply Pressure	Natural Gas	6" W.C.		
	Propane	10" W.C.		
Maximum Gas Supply Pressure	Natural Gas	10.5" W.C.		
	Propane	13.5" W.C.		
Type of Appliance	Temperature controlled continuous flow gas hot water system.			
Operation	With or without remote controls, mounted in kitchen, bathroom, ect.			
Exhaust System	Direct Vent - Forced Combustion			
Approved Gas Type	Natural Gas or Propane - Ensure unit matches gas type it's being installed on.			
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. Remote Control: 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			
Remote Control Cable	Non-Polarized Two Core Cable			
Safety Devices	Flame Failure - Flame Rod			
	Boiling Protection - 210°F			
	Remaining Flame (OHS) 207°F BI-Metal Switch			
	Thermal Fuse 264°F			
	Automatic Frost Protection - BI-Metal Sensor & Anti-Frost Heaters			
	Combustion Fan RPM Check - Integrated Circuit			
	Over Current - Glass Fuse (3 amp)			
<small>If remote fails or becomes disconnected unit defaults to 100°F with water flowing, this is an anti-scald feature.</small>				



Rinnai is continually updating and improving products, therefore, specifications are subject to change without prior notice. Local, state, provincial and federal codes must be adhered to prior to installation.

**LIMITED WARRANTY**  
Rinnai Water Heater

Warranty031705COMM-V2

**WHAT IS COVERED?**

This Warranty covers any defects in materials or workmanship when the product is installed and operated according to Rinnai written installation instructions, subject to the terms within this limited warranty document. This Warranty applies only to products that are installed by a state qualified or licensed contractor. Improper installation may void this Warranty. Rinnai strongly suggests that you use an installer who has attended a Rinnai product knowledge class before installing this water heater. This Warranty extends to the original purchaser and subsequent owners, but only while the product remains at the site of the original installation. This Warranty only extends through the first installation of the product and terminates if the product is moved or reinstalled at a new location.

**HOW LONG DOES COVERAGE LAST?**

Item	Period of Coverage	
	Commercial	Residential
Heat Exchanger	5 Years	10 Years*
All other Parts and Components	5 Years	5 Years*
Reasonable Labor	1 Year	

\*Important

Period of coverage is 3 years from date of purchase when used as a circulating water heater within a hot water circulation loop, when the water heater is in series with a circulation system and all circulating water flows through the water heater.

**WHAT WILL RINNAI DO?**

Rinnai will repair or replace the product or any part or component that is defective in materials or workmanship, except as set forth below: Rinnai will pay reasonable labor and shipping costs to repair the product. All repairs must be performed using genuine Rinnai parts. All repairs or replacements must be performed by an individual or servicing company that is properly trained, state qualified or licensed to do this type of repair.

Replacement of the product or replacement of the heat exchanger may be authorized by Rinnai only. Rinnai does not authorize any person or company to assume for it any obligation or liability in connection with the replacement of a product or heat exchanger. If Rinnai determines that repair of a product is not possible, Rinnai will replace the product with a comparable product, at Rinnai's discretion. If a component or product returned to Rinnai is found to be free of defects in material or workmanship, or damaged by improper installation or damaged during return shipping, the warranty claim for product, parts and labor may be denied.

**LIMITED WARRANTY**  
Rinnai Water Heater

Warranty031705COMM-V2

**HOW DO I GET SERVICE?**

Simply contact a qualified Service Dealer or Installer for the repair of products under this Warranty. **Failure to use a qualified Service Dealer or Installer to provide repair service may void the Warranty.** For the name of the qualified Service Dealer or Installer nearest you, please contact the company that installed the water heater, or;

- Your local HVAC/plumbing dealer, gas service technician or place of purchase
- Visit the Rinnai website [www.rinnai.us](http://www.rinnai.us)
- Call Rinnai at 1-800-621-9419 or write to Rinnai, 103 International Drive, Peachtree City, Georgia 30269

Proof of purchase is required to obtain warranty service. You can show proof of purchase with a dated sales receipt, by completing and mailing the enclosed Warranty registration card within 30 days of purchasing the product or by registering online at [www.rinnai.us](http://www.rinnai.us). Please complete the Warranty registration either online or mail it to Rinnai at the address shown on the card.

Receipt of warranty registration by Rinnai will constitute proof-of-purchase for this product. However, Warranty registration is not necessary in order to validate this Warranty.

**WHAT IS NOT COVERED?**

This Warranty does not cover any failures or operating difficulties due to accident, abuse, misuse, alteration, misapplication, acts of God, improper installation, improper maintenance or service, inadequate water quality, scale buildup, freeze damage or for any other causes other than defects in materials or workmanship. This warranty does not apply to any product whose serial number or manufacture date has been defaced. This Warranty does not cover any product when used as a pool or spa heater.

This Warranty does not apply if the water supply to the water heater does not meet the National Secondary Drinking Water Regulations, as set forth in the U.S. Code of Federal Regulations, 40 CFR, Chapter 1, Part 143 or the water supply exceeds chemistry or impurity limits as shown in the chart below:

Description	pH	TDS (Total Dissolved Solids)	Total Hardness	Aluminum	Chlorides	Copper	Iron	Manganese	Zinc
<b>Maximum Levels</b>	6.5 to 8.5	Up to 500 mg/L	Up to 11.7 gpg	Up to 0.2 mg/L	Up to 250 mg/L	Up to 1.0 mg/L	Up to 0.3 mg/L	Up to 0.05 mg/L	Up to 5 mg/L

Rinnai is not liable for any special, incidental, indirect or consequential damages that may arise, including damage to person or property, loss of use, failure to install drain pan under unit, or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

**LIMITATION ON IMPLIED WARRANTIES**

Any implied warranties of merchantability and fitness arising under state law are limited in duration to the period of coverage provided by this limited Warranty, unless the period provided by state law is less. Some states do not allow limitations on how long an implied Warranty lasts, so the above limitation 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.

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## OWNER'S INSTALLATION INFORMATION

*All Rinnai water heater(s) **MUST** be installed by a state qualified or licensed contractor. Failure to comply with state and local codes pertaining to water heater installations may void the warranty on your new water heater(s). It is the responsibility of the person having the water heater installed to ensure the installing contractor has proper licences and permits for installing water heater(s) in your location. In addition to licensing and permits, Rinnai encourages all installing contractors to attend a product knowledge class before installing any of our water heaters to help insure maximum customer satisfaction and maximum warranty coverage. Failure to comply with state and local codes may result in non-compliance and may void the warranty of the water heater(s).*

*This appliance must be installed in accordance with local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or the CSA B149.1, Natural Gas and Propane Installation Code.*

*Install this product indoors **ONLY**, **DO NOT** install outdoors.*

*Do Not use this appliance if any part has been underwater. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been underwater.*

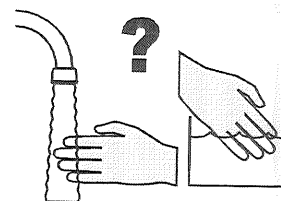
*Detailed instructions on the proper installation practices to follow for the installation of your new hot water heater(s) are included at the back of this manual.*

## FEATURES OF YOUR NEW WATER HEATER

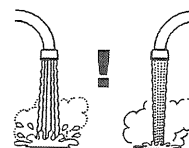
- ☞ The Rinnai Water Heater is one of the most advanced water heaters available. It supplies hot water continuously at the temperature preset in the unit or at the temperature set on the optional remote controller(s). Installation of remote controller(s) are recommended for optimum performance.
- ☞ The Rinnai Water Heater never runs out of hot water. While electricity, water and gas supplies are connected, the Rinnai Water Heater produces hot water whenever the hot tap is open.
- ☞ The gas burner lights automatically when the hot water tap is opened, and goes out when the tap is closed. Ignition is electronic, there is no pilot light. When the hot water tap is off, no gas is used. You save energy and money with the Rinnai Water Heater.
- ☞ The temperature of the outgoing hot water is constantly monitored by a built in sensor. If the temperature of the outgoing water rises to more than 6 degrees above the selected temperature (shown on the digital remote control) the gas burner will automatically go out. The gas burner will re-ignite once the outgoing hot water temperature falls below the selected temperature.
- ☞ Built into the microprocessor of the Rinnai Water Heater is the ability to **LIMIT THE MAXIMUM TEMPERATURE** of the hot water supplied by the Rinnai Water Heaters. Without the connection of a remote controller(s), the Rinnai Water Heater is preset to deliver water at 104°F (Residential) and 140°F (Commercial).
- ☞ Residential Unit: With the remote controller(s) the water temperature is adjustable from 98 to 140°F. **The water temperature cannot be set to a temperature other than 120°F without the use of a remote controller unit.**
- ☞ Commercial Unit: With the remote controller the water temperature is adjustable up to 185°F. **The water temperature cannot be set to a temperature other than 140°F without the use of a remote controller unit.**
- ☞ Error messages are displayed on the optional remote controller(s), simplifying service calls.
- ☞ The Rinnai Water Heater incorporates a device to minimize temperature fluctuations (cold water sandwich effect) when the water is off, then on again. This effect can be eliminated by installing the Rinnai Water Heaters with a circulation loop with a small storage tank.
- ☞ The sound (noise) level from the Rinnai Water Heaters is very low.
- ☞ The Rinnai Water Heater is a very compact direct vented device. It saves valuable floor and wall space.

## SAFETY ISSUES

Always check water temperature by hand before entering the shower or bath. The temperature may have been changed.

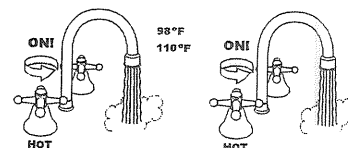


The Rinnai Water Heater controls the water temperature automatically. To do this, it sometimes needs to change the water flow accordingly. The water flow from the hot water tap may vary after the selected temperature at the remote controller(s) is altered. The water flow may also vary from summer to winter, as incoming water temperatures differ.

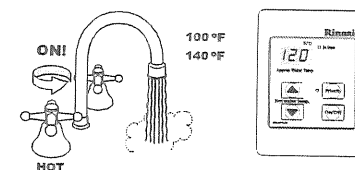


Summer 60°F Incoming water      Winter 40°F Incoming water

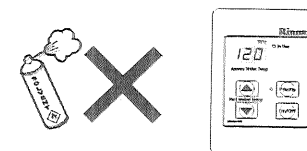
The water temperature can only be adjusted between 98°F and 110°F when the hot water tap is open, and hot water is flowing.



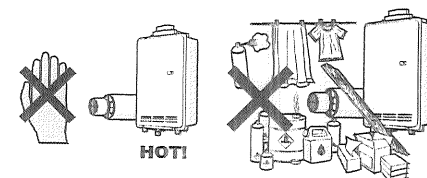
Depending on the weather conditions and the length of the pipe between the Rinnai Water Heater and the tap in use, there may be a variation between the temperatures displayed at the remote controller(s) and the temperature of the water at the tap.



Do not clean remote controller(s) with solvents. Use a soft damp cloth.



The vent/air intake should be positioned away from flammable materials, trees, shrubs, etc.



Do not connect vent to natural draft vents or fireplaces, this unit can only be used with an approved Rinnai/Ubbink vent kit and components. Do not vent unit into other rooms. Vent terminal must be outside.

## BASIC OPERATION

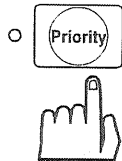
### 1 Adjusting Temperature

The outlet water temperature of the Rinnai Water Heater can only be adjusted by the user using the remote controller(s). To adjust the setpoint temperature of the Rinnai Water Heater, all hot water taps must be closed, and all circulating pumps turned off (where applicable). The temperature displayed on this remote controller will also be displayed on all other remote controller(s).



**TEMPERATURE CANNOT BE ADJUSTED EXCEPT BETWEEN 98 °F AND 110°F WHEN ANY HOT WATER TAP IS OPEN.**

- 2** To take control of the Rinnai Water Heater all hot water taps must be closed. Press the "Priority button" on the Controller you want to set the temperature with, and the green "Priority" indicator light will



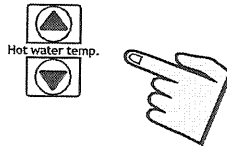
glow. This indicates that the Rinnai Water Heater is ready to supply hot water at the set temperature as soon as a tap is opened.

Note: Rinnai Water Heater will not provide hot water instantly at the hot water fixtures. Any cold water existing in the hot water lines must be purged first.



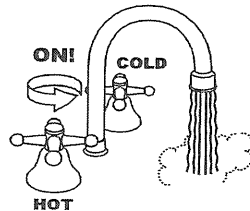
**CHECK WATER TEMPERATURE BEFORE ENTERING SHOWER OR BATH.**

- 3** Simply press the ▲ or ▼ button until the required temperature is displayed on the Digital Monitor. There is a hot water scald potential if the thermostat is set to high.



**CHECK LOCAL CODES FOR THE MAXIMUM WATER TEMPERATURE SETTING ALLOWED WHEN USED IN NURSING HOMES, SCHOOL, DAY CARE CENTERS, AND ALL OTHER PUBLIC APPLICATIONS.**

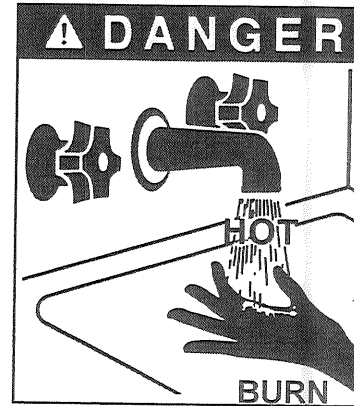
### 4



To operate the Rinnai Water Heater simply turn any hot water tap on. This will automatically light the burner providing hot water at the preset temperature. If the optional remote controller(s) have been installed, the red "IN USE" indicator will glow on all remote controller(s).

## ABOUT HOT WATER

Hot Water Is Dangerous, especially for the young and the elderly or the infirm. The Rinnai Water Heater allows you to precisely control the temperature of your hot water, ensuring safe hot water temperatures.



Water Temperatures over 125°F can cause severe burns instantly or death from scalds.

Hot Water can cause first degree burns with exposure for as little as:

3 seconds at 140 °F  
20 seconds at 130 °F  
8 minutes at 120 °F

Test the temperature of the water with your elbow before placing a child in the bath or shower.

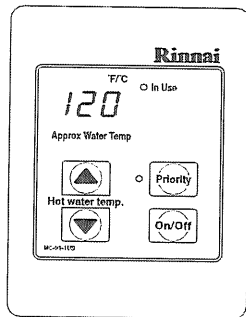
Do not leave a child or an infirm person in the bath unsupervised.

## Scalds-First Aid

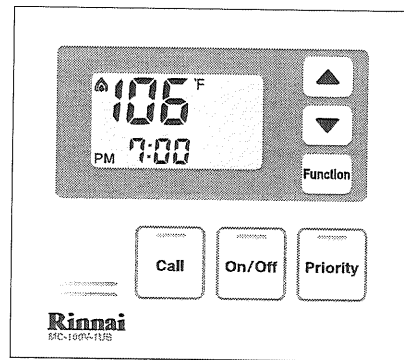
- 1) **Remove clothing;** Remove all wet clothing, quickly. Wet clothing retains the heat.
- 2) **Apply cold water for 30 minutes;** Immediately submerge the burnt area in cold water for 30 minutes to reduce the heat in the skin, preventing deeper burning. Never use butter, oils or ointment to cover the burn. They may retain the heat.
- 3) **Keep the scalded person warm;** Place a blanket around the person.
- 4) **Seek Medical Advice;** Call your medical advice hotline and describe the scald, follow their directions.

## GENERAL CONTROLLER INFORMATION

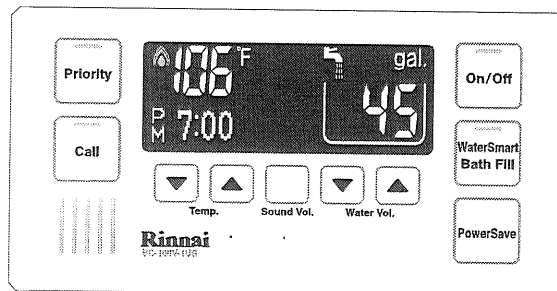
### REMOTE CONTROLLERS IDENTIFICATION



**MC-91-1US (comes with the unit)**



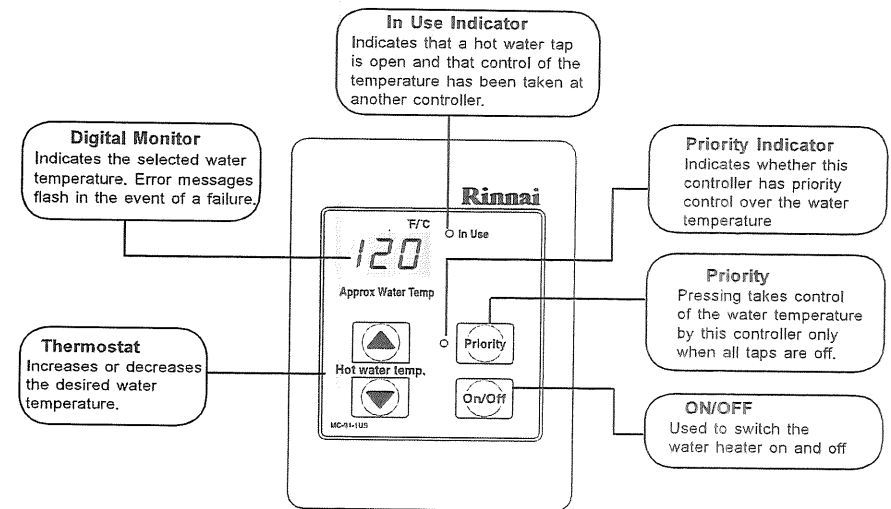
**MC-100V-1US (optional)**



**BC-100V-1US (optional)**

The controller(s) for the Rinnai Water Heater allow the customer to control the functions of the water heater and to diagnose certain fault conditions

## REMOTE CONTROLLER OPERATION



### DIAGNOSTIC USE OF CONTROLLER

1. **To Display Maintenance Codes:** Press 'On/Off' button. To sequence through stored maintenance codes, press 'On/Off' followed by the ▲ thermostat button.
2. **To Display Water Flow through water heater:** Press ▲ thermostat button, hold for 2 seconds and simultaneously press 'On/Off' button.
3. **To display Outlet Water Temperature:** Press ▼ 'thermostat button', hold for 2 seconds and simultaneously press 'On/Off' button.

### TO CHANGE TEMPERATURES FROM °F to °C

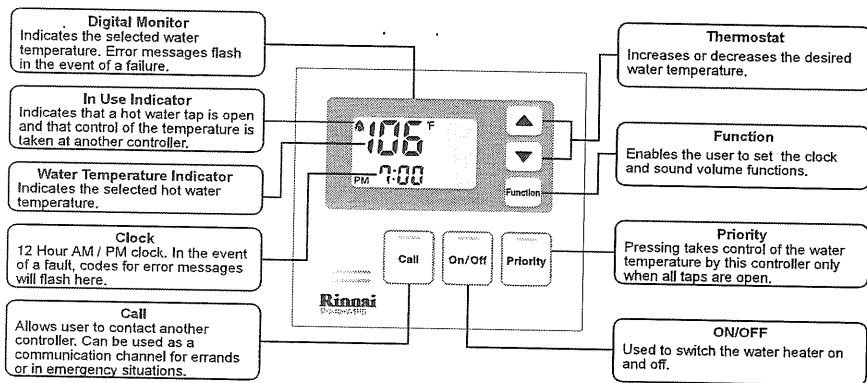
1. Press and hold 'On/Off' button for 5 seconds while water heater is OFF.
2. To change back from °C to °F, please repeat step 1.

### MUTE

To eliminate the beeping sound, press and hold ▲ and ▼ button simultaneously until a 'beep' is heard (approximately 5 seconds).

## DELUXE CONTROLLER

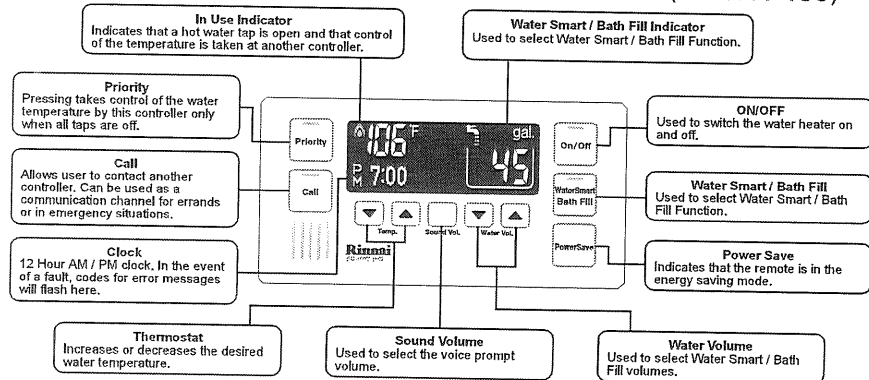
### ABOUT THE DELUXE CONTROLLER (MC-100V-1US)



With power interruption, water heater will automatically default to the ON position to provide hot water.

## DELUXE BATHROOM CONTROLLER

### ABOUT THE THE DELUXE BATHROOM CONTROLLER (BC-100V-1US)



## DELUXE CONTROLLER

### Setting The Sound Volume

To do this, press the 'Function' Button, the default voice prompt sound volume is medium, each subsequent press of the ▲ and ▼ Button will cycle through the available volume settings in the following order: High Voice - Off Voice (beep) - Off Sound (no beep) - Low Voice - Medium Voice.

### Setting The Clock (MC-100V Deluxe Controller ONLY)

The clock is a 12 hour AM/PM style display. To set the time, press the 'Function' Button twice within 10 seconds. Press the ▲ and ▼ Buttons to adjust the time. When you get close to the time you wish to set, press the button intermittently to avoid going further than the desired time.

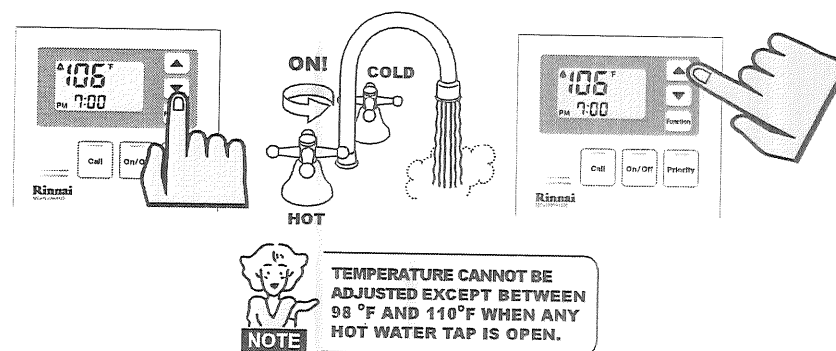
Press the 'Function' Button again to complete setting the clock and return to normal operation.

### Adjusting Temperature

Simply press the ▲ or ▼ buttons until the required temperature is displayed on the Digital Monitor.

To Operate the hot water unit, open any hot water tap. This will automatically light the burner providing hot water. The red flame of the water heater 'In Use Indicator' will illuminate on the Controller.

Once the hot water is running, if the set temperature is either too hot or cold, press the ▲ or ▼ buttons until the desired temperature is reached.

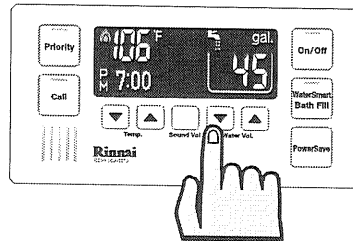


## DELUXE BATHROOM CONTROLLER

### Setting the Sound Volume

The voice prompt sound volume for all Deluxe Controller(s) can be set individually. To do this, press the 'Sound Vol.' button. The default voice prompt sound volume is medium, each subsequent press of the 'Sound Vol.' will cycle through the available volume settings in the following order: High Voice - Off Voice (beep) - Off Sound (no beep) - Low Voice - Medium Voice.

Press the 'Sound Vol.' again to complete setting of the sound volume and return to normal operation.

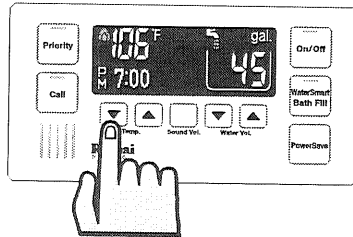


### Adjusting Temperature

Simply press the 'Hot water temp.' ▲ or ▼ buttons until the required temperature is displayed on the Digital Monitor.

To Operate the hot water unit, open any hot water tap. This will automatically light the burner providing hot water. The red flame of the water heater 'In Use Indicator' 🔥 will illuminate on the Temperature Controller.

Once the hot water is running, if the set temperature is either too hot or cold, press the 'hot water temp.' ▲ or ▼ buttons until the desired temperature is reached.



**TEMPERATURE CANNOT BE ADJUSTED EXCEPT BETWEEN 98°F AND 110°F WHEN ANY HOT WATER TAP IS OPEN.**



#### CHECK WATER TEMPERATURE BEFORE USE.

A parent should always check the temperature before a child is placed in contact with hot water.



Each time a button is pressed, a 'beep' will sound. The 'beep' sound and the 'bath fill complete' buzzer can be muted by pressing the Temperature Controller Up and Down buttons simultaneously for more than 3 seconds. To return to original settings, repeat this step.

Avoid getting water in the speaker as this may cause damage.

## DELUXE BATHROOM CONTROLLER



IT IS THE CUSTOMERS RESPONSIBILITY TO MONITOR THE BATH FILL REMOTE CONTROLLER FUNCTIONS.

### OPERATING THE WATER SMART / BATH FILL BUTTON

The 'Water Smart / Bath Fill' button allows a preset water volume and temperature to be selected and run automatically.

#### Initial Settings

When you press the 'Water Smart / Bath Fill' button, a Shower / Bath Volume will appear on the indicator. When a deluxe bathroom controller(s) is first turned on, the default shower / bath fill volume is set to 25 gallons. The shower / bath volume can be lowered to a minimum of 10 gallons or raised to a maximum of 120 gallons.



#### Programming shower / Bath Volume and Temperature

With the system on, select a Deluxe Bathroom controller(s) and ensure that it currently has priority. If it does not have priority, press the 'Priority' button once and the 'Priority' button will

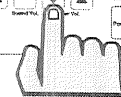
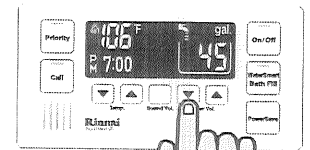
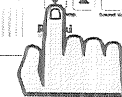
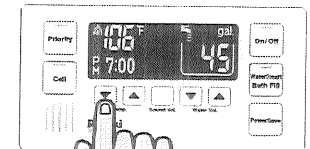
To select the desired delivery temperature, use the 'Temp.' ▲ or ▼ buttons.

The selected temperature will be displayed on the bathroom controller monitor and will remain as the default temperature until it is changed.

To select the volume of water to be used by the shower / bath, use the 'Water Vol.' ▲ or ▼ buttons.

The selected volume is displayed at the Right of the controller monitor numerically.

When filling a bath for the first time, it is recommended that a low bath fill volume such as 25 gallons or lower (if available) be used. During any subsequent bath fills, the volume can then be adjusted to suit your known bath volume and / or desired fill level.



Be careful not to overfill the bath, an average bath volume is 60 gallons. It is recommended that when filling a bath for the first time you should:

- Remain by the bath during the filling process.
- Use a low bath fill volume such as 25 gallons or less.

'Water Smart / Bath Fill' button is unavailable with the MSA Controller System.




## DELUXE BATHROOM CONTROLLER

### Using Water Smart/ Bath Fill

Press 'Water Smart / Bath Fill' button once. The 'Water Smart / Bath Fill' button will illuminate and a tone will sound. The 'Bath' indicator will also be displayed in the kitchen Controller monitor (Deluxe Models ONLY).

The voice prompt will say "The hot water system is ready. Open the hot water tap".

Open the hot water tap for the relevant shower or bath.

The 'In Use' indicator  will illuminate at all Deluxe Temperature Controller(s) and the shower will run or the bath will start to fill.

### To Stop Water Smart / Bath Fill Operation

If you wish to stop the water flow whilst the 'Water Smart / Bath Fill' button is in operation, simply press the 'Water Smart / Bath Fill' button. The 'Water Smart / Bath Fill' button will flash and the voice prompt will say "Hot water is not available. Turn off all hot water taps, and push the Bath Fill button". Follow the voice prompt instructions.

### When Water Smart / Bath Fill Operations Finishes

Once the Water Smart / Bath fill operation finishes, the following events will occur:

1. The flow from the shower / bath hot water tap will cease.
2. The 'Water Smart / Bath Fill' button will flash.
3. The Kitchen Controller 'Bath' indicator will flash (Deluxe Models)
4. A tone will sound.
5. The voice prompt will say "Bath fill is complete. Turn off the bath hot water tap, and push the Bath fill button."

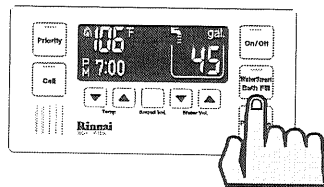
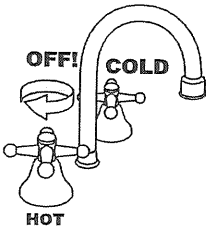
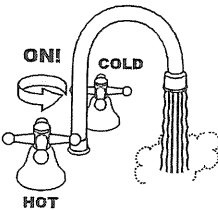
Follow the voice prompts instructions. Note that the hot water unit will not allow hot water to flow from any fixture until the 'Water Smart / Bath Fill' button has been changed.

6. The 'Water Smart / Bath Fill' button light on the Bathroom Controller and the 'Bath' indicator on the Kitchen Controller monitor will go out.

### COMBINING CONTROLLERS AND DELUXE CONTROLLERS

Controller and Deluxe Controller can be combined and will function as described in other sections of this manual. Refer to the table on page 18

▲ 106°F Bath  
PM 7:00



## CONTROLLERS SET PATTERN/TEMPERATURE TABLES

Temperature controllers allows precise temperature control by the user. When used correctly, the hot water unit will deliver the selected temperature, even when the water flow is varied, or more than one tap is in use. Each Temperature Controller can be individually programmed, however the water heater unit can only deliver one set temperature at any time. The available temperatures (°F) are as follows:

### Temperature Table by Models

model	temperature															
REU-V2532FFU	98	100	102	104	106	108	110	115	120	125	130	135	140	—	—	—
REU-V2520FFU	—	—	—	—	—	—	—	—	120	125	130	135	140	150	160	185
REU-V2532FFUC	98	100	102	104	106	108	110	115	120	125	130	135	140	150	160	185
Approx. temperature (°C)	37	38	39	40	41	42	43	46	49	52	54	57	60	66	71	85

### Suggested temperatures are:

Kitchen 120°F - 130°F, Shower 98°F - 110°F, Bath fill 102°F - 114°F

These temperatures are suggestions only. You may find higher or lower temperatures more comfortable. Maintaining lower temperatures helps save energy. To obtain water temperatures lower than 98°F, simply add cold water.

Deluxe Controllers are an optional extra. 'Controller' and 'Deluxe' Controllers can be installed together. Controllers allow temperature selection only. 'Deluxe' Controllers have temperature selection, bath fill and clock functions.

Controllers allow the water temperature to be set from the various locations where they are installed. The temperature selected will be available to all outlets. Below are the combination of Controllers that are offered by Rinnai:

### Controllers Combination Pattern

Remote and Deluxe Controllers					
1	MC-91-1US	+	—	+	—
2	MC-91-1US	+	MC-91-1US	+	—
3	MC-91-1US	+	MC-91-1US	+	MC-91-1US
4	MC-91-1US	+	MC-91-1US	+	MC-91-1US
5	MC-91-1US	+	BC-100V	+	**MC-91-1US
6	MC-91-1US	+	MC-91-1US	+	BC-100V

\*\*See controller manual in controller carton box for more information detail.

### Water Smart / Bath Fill Temperature Table

water smart/ bath fill temperature	temperature													
Approx. temperature (°C)	98	100	102	104	106	108	110	112	114	116	118	120	—	—
	37	38	39	40	41	42	43	44	46	47	48	49	—	—

Water Smart / Bath Fill temperature cannot exceed 120 °F for the following commercial models with no by-pass: REU-V2520FFUC.

## ERROR MESSAGES

The Rinnai Water Heater has the ability to check its own operation continuously. If a fault occurs, an Error Message will flash on the Digital Monitor of the Remote Controllers. This assists with diagnosing the fault, and may enable you to overcome a problem without a service call. Please quote the code displayed when inquiring about service.

**NOTE:** Failure to remedy faults may result in severe burns, scalds, and/or death.

Code Displayed	Fault	Remedy
03	Power interruption during Bath fill (Water will not flow on power reinstatement).	Turn off all hot water taps. Press ON/OFF twice.
10	Air Supply or Exhaust Blockage	Check that nothing is blocking the air intake or exhaust.
11	No Ignition	Check that the gas is turned on at the water heater, gas meter or cylinder.
12	Flame Failure Earthing Failure	Check that the gas is turned on at the water heater and gas meter. Check for obstructions in flue outlet.
14	Thermal Fuse	Service Call
16	Over Temperature Warning	Service Call
32	Outgoing Water Temperature Sensor Faulty	Service Call
33	Heat Exchanger Outgoing Water Temperature Sensor Faulty	Service Call
34	Combustion Air Temperature Sensor Faulty	Service Call
52	Mod. Solenoid Valve Answer Abnormal	Service Call
61	Combustion Fan Failure	Service Call
65	Water Flow Control Faulty (Does not stop flow properly).	Service Call
71	Solenoid Valve Driving Circuit Faulty	Service Call
72	Flame Sensing Device Faulty	Service Call
LC	Scale build-up in Heat Exchanger	Service Call
(00)	(When checking maintenance code history, "00" is substituted for "LC")	

## MAINTENANCE & SERVICE INFORMATION

**Warning:** Always turn off the electrical power supply, the manual gas valve and the manual water control valve whenever servicing the unit.

*The Rinnai Water Heater should be checked by a Properly Trained Technician once a year. A Properly Trained Rinnai Technician should perform any repairs that may be necessary.*

The following items should be checked each inspection:

- 1) The area around the Rinnai unit should be free from combustible materials such as cloth, vegetation and building materials. (see page 8)
- 2) Check burners for presence of foreign debris, insects or bugs. These items are not covered by the unit's warranty.
- 3) Remove and clean the inlet water filter.
- 4) Keep the appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
- 5) Do not obstruct flow of combustion and ventilation air.

**In the case of any fault or error message from the Rinnai Water Heater,** first turn all hot water taps off. Wait for 5 seconds. Turn the hot water tap back on. If the error message still remains, call your Rinnai Authorized Service Representative or Rinnai at 800-621-9419.

**Should overheating occur or the gas supply fail to shutoff,** turn off the manual gas control valve to the appliance.



**DO NOT ATTEMPT TO SERVICE YOUR Rinnai YOURSELF.**

Call a Rinnai Authorized Service Technician or call your installer.

## MAINTENANCE & SERVICE INFORMATION

### MAINTENANCE SUGGESTIONS

This water heater has been designed and constructed for a long performance life when installed and operated properly under normal conditions. Regular inspections, as outlined in this section, are strongly recommended as a means of keeping your heater operating efficiently.

#### 1. Cleaning

The water heater must be cleaned annually. Keep the water heater clear of dust and debris especially in and around burner.

Cleaning procedures for the Rinnai Water Heater are as follows:

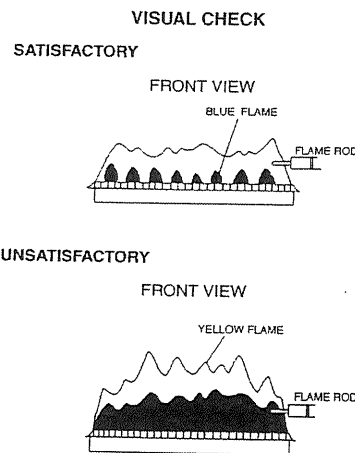
- 1) Turn off and disconnect electrical power. Allow to cool for one hour.
- 2) Remove the Front Panel by removing screws. See parts breakdown on panels.
- 3) Use pressurized air to remove dust from around main burner.
- 4) Use soft dry cloth to wipe cabinet.

**DO NOT DAMAGE OR DISTORT ANY PARTS OF HEATER.**

**DO NOT USE WET CLOTH OR SPRAY CLEANERS ON BURNER.**

#### 2. Visual check of main burner flames.

The burner must flame evenly over the entire surface when operating correctly. The flame must burn with a clear, blue, stable flame. See the parts breakdown of the burner for the location of view ports. Any and all parts removed for inspection or service must be replaced before operating the unit. The flame pattern should be as shown in the following Figures.



#### \* VENT MAINTENANCE

#### \* VENT SYSTEM

Must be checked annually for blockage or deterioration. See vent installation instructions.

#### \* MAINTENANCE-ELECTRIC MOTORS

Motors are permanently lubricated and need no lubrication. Keep fan and motor free of dust and dirt, clean annually.

## TROUBLE SHOOTING AND COMMON QUESTIONS

**Q** - I don't have any hot water when I open the tap!

**A** - Make sure there is gas, water and electricity to the Rinnai Water Heater (the power is turned on and the gas is turned on)

**Q** - When I was using the hot water, the water got cold!

**A** - If you adjusted the flow from the tap to lessen it, you may have gone below the minimum flow required. The Rinnai Water Heater requires a minimum flow rate to operate (see specification page for flow rate of your unit). If you mix the water with a tap and attempt to get a temperature well below the temperature being controlled by the unit, it may drop the flow below the desired minimum flow rate. Decrease the temperature supplied by the Rinnai Water Heater at the remote control or increase your total flow.

**Q** - White smoke comes out of the exhaust!

**A** - During colder weather when the exhaust temperature is hotter than the air, the exhaust fumes condense producing white steam.

**Q** - When I open a hot tap, I do not immediately get hot water!

**A** - Hot water must travel through your plumbing from the Rinnai Water Heater to the faucet. The time period for hot water to reach your fixture is determined by the amount of water in your plumbing system between your water heater and the fixture, water pressure, flow rate of fixture in use, etc.

**Q** - After I turn off the hot water tap, the fan on the Rinnai Water Heaters continues to run!


**A** - The fan is designed to be on for 65 seconds after the flow of water stops. This is to ensure constant water temperatures during rapid starting and stopping, as well as exhausting any residual gas flue products from the unit.

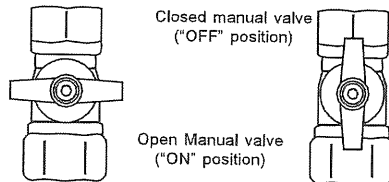
## FOR YOUR SAFETY READ BEFORE OPERATING

**Warning:** If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- A. This appliance does not have a pilot. It is equipped with a direct ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. 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.
- WHAT TO DO IF YOU SMELL GAS**
- Do not try to light any appliance.
  - Do not touch any electric 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.
- C. Use only your hand to operate remote control keypad. Never use tools. If the remote keypad doesn't work, do not try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.


## OPERATING INSTRUCTIONS

- 1) STOP! Read the safety information above before proceeding.
- 2) Set the thermostat to lowest setting.
- 3) Turn off all electric power to the appliance.
- 4) This appliance does not have a pilot. It is equipped with a direct ignition device which automatically lights the burner. Do not try to light the burner by hand.
- 5) Turn the manual valve located at gas inlet of the appliance clockwise  to "OFF".




- 6) Wait (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.

## OPERATING INSTRUCTIONS

- 7) Turn the manual valve located at the gas inlet of appliance counterclockwise  to "ON".
- 8) Turn on all electric power to the appliance.
- 9) Set thermostat to desired setting.
- 10) If the appliance will not operate, Follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

### To Turn Off Gas To Appliance

- 1) Set the thermostat to lowest setting.
- 2) Turn off all electric power to the appliance if service is to be performed.
- 3) Turn the manual valve at gas inlet of appliance clockwise  to "OFF"

## CARE & LIME CONDITION WARNING

### Care of Unit's Exterior:

Keep the exterior cabinet clean. Use a soft cloth and warm water when cleaning the cabinet. **Do Not** use volatile substances such as benzene and thinners, as they may ignite, or cause fading of the paint.

### Lime Condition Warning Signal:

If you notice "LC" flashing on the remote key pad, this means the unit is beginning to lime up, and **MUST** be flushed. Contact a qualified Rinnai service technician to flush the appliance. Failure to flush the appliance when "LC" is flashing, will cause damage to the heat exchanger. Damage caused by lime build up is not covered by the unit's warranty. To reset the LC Fault Code, turn the power off to the unit. Once power is restored, the LC code will be reset.



## Installer's Instructions

This section is for the Qualified Installer only. **If you are not properly trained, you should not install this unit.** The warranty may be voided due to installation by a non-qualified installer. For information on Rinnai Training Courses, call 1-800-621-9419.

### Contents of Installer's Manual

Warnings.....	26,27
Locating the Vent Terminal.....	28,29
Performance Data.....	30
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**Rinnai**  
www.rinnai.us  
800-621-9419

## INSTALLER'S INSTALLATION INSTRUCTIONS -Warnings- (Residential Unit)

### This manual must be followed exactly.

- 1) Read the safety issues completely before installing the Rinnai Water Heater.
- 2) This water heater is suitable for residential water (potable) heating ONLY. DO NOT use this water heater for space heating, combination space heating/ domestic water heating, or commercial water heating applications.
- 3) The Rinnai Water Heater is not suitable for use in pool or spa applications.
- 4) This unit is designed to be installed indoors using the proper vent piping to exhaust by-products of combustion to the outside environment. Contact your dealer or Rinnai for proper vent kits. DO NOT operate this unit without vent piping connected. Exhaust gasses must be expelled outside the home. All pipe joints shall be taped to help prevent leakage around joints. (Aluminum tape is recommended.)
- 5) Maintain proper space around the unit for proper servicing and operation. Minimum clearances from combustible materials are listed below.

Top of Heater	6 inches
Back of Heater	0 inch
Front of Heater	6 inches
Sides of Heater	2 inches
Floor	12 inches
Vent/Air Intake	0 inches

- 6) Installer must install a Pressure relief valve. Pipe pressure relief discharge to a drain or outside environment (see page 41 for pressure relief valve rating).
- 7) The appliance should be located in an area where leakage of the unit or connections will not 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.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### -Warnings- (Commercial Unit)

**This manual must be followed exactly.**

- 1) Read the safety issues completely before installing the Rinnai Water Heater.
- 2) This water heater is suitable for water (potable) heating or space heating.
  - The piping and components connected to the Rinnai Water Heater must approved for use in portable water systems.
  - Toxic chemicals such as those used for boiler water treatment are NOT to be introduced to the potable water used for space heating.
  - The Rinnai Water Heater, if it will be used as a potable water source, must not be connected to a system that was previously used with a nonpotable water heating appliance.
  - When the system requires water for space heating at temperatures higher than required for other uses, a means such as mixing valve shall be installed to temper the water for other uses in order to reduce the scald hazard potential.
- 3) The Rinnai Water Heater is not suitable for use in pool or spa applications
- 4) This unit is designed to be installed indoors using the proper vent piping to exhaust by-products of combustion to the outside environment. Contact your dealer or Rinnai for proper vent kits. **DO NOT** operate this unit without vent piping connected. Exhaust gasses must be expelled outside the home. All pipe joints shall be taped to help prevent leakage around joints. (Aluminum tape is recommended.)
- 5) Maintain proper space around the unit for proper servicing and operation. Minimum clearances from combustible materials are listed below.

Top of Heater	6	inches
Back of Heater	0	inch
Front of Heater	6	inches
Sides of Heater	2	inches
Floor	12	inches
Vent/Air Intake	0	inches

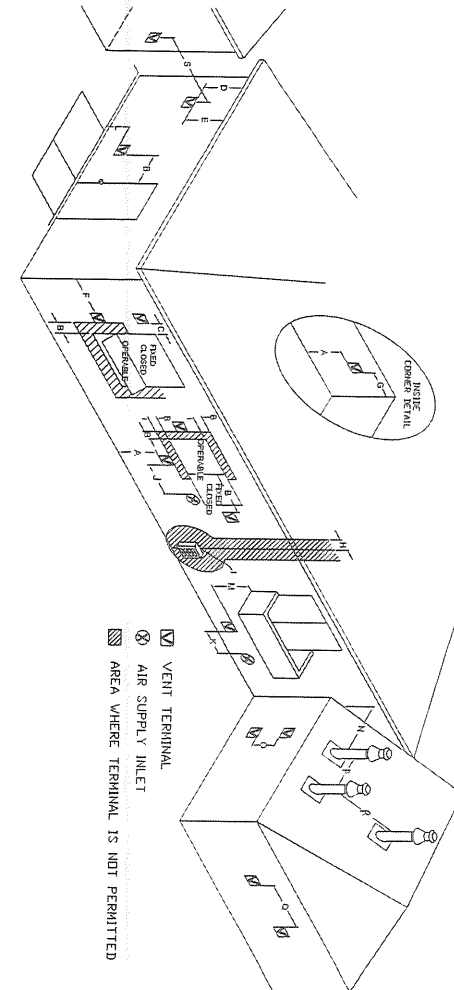
- 7) The appliance should be located in an area where leakage of the unit or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, adequately drained, be installed under the appliance.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Locating the vent terminal

**NOTE**

Maintain 12" of clearance above the highest anticipated snow level or grade, or whichever is greater. Please refer to your local codes for the snow level in your area.



## INSTALLER'S INSTALLATION INSTRUCTIONS

### Locating the vent terminal



PLEASE CONSULT WITH LOCAL CODES BEFORE INSTALLING THIS UNIT

REF	DESCRIPTION	U.S. Installations	Canadian Installations
A	Clearance above grade, veranda, porch, deck, or balcony	1 foot	1 foot
B	Clearance to window or door that may be opened	**1 foot	1 foot
C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit, eaves or overhang	3 feet	3 feet
E	Clearance to unventilated soffit, eaves or overhang	3 feet	3 feet
F	Clearance to outside corner	1 foot	1 foot
G	Clearance to inside corner	2 feet	2 feet
H	Clearance to each side of center line extended above meter/regulator assembly	*	3 feet within a height 15 feet, above the meter/regulator assembly
I	Clearance to service regulator vent outlet	*	3 feet
J	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	**1 foot	1 foot
K	Clearance to a forced air inlet into a building	3 feet	6 feet
L	Clearance above paved sidewalk or paved driveway located on public property	*	7 feet
M	Clearance under deck, veranda, porch, or balcony (open on 3 sides)	3 feet	3 feet
N	Vent Flue from wall (Flat or Pitched Roof)	2 feet	2 feet
O	Vertical between two terminals on the same wall above each other	5 feet	5 feet
P	Clearance between two vertical flue on the same plane	1 foot	1 foot
Q	Horizontal between two terminals on the same wall	1 foot	1 foot
R	Clearance between two Vertical flue on pitched roof above each other	5 feet	5 feet
S	Clearance from terminal facing a terminal	4 feet	4 feet

\* For clearances not specified in ANSI Z223.1 / NFPA 54 or CAN/CGA-B149, please use clearances in accordance with local installation codes and the requirement of the gas supplier.

\*\* 4 feet for units other than Direct-Vent Appliance.

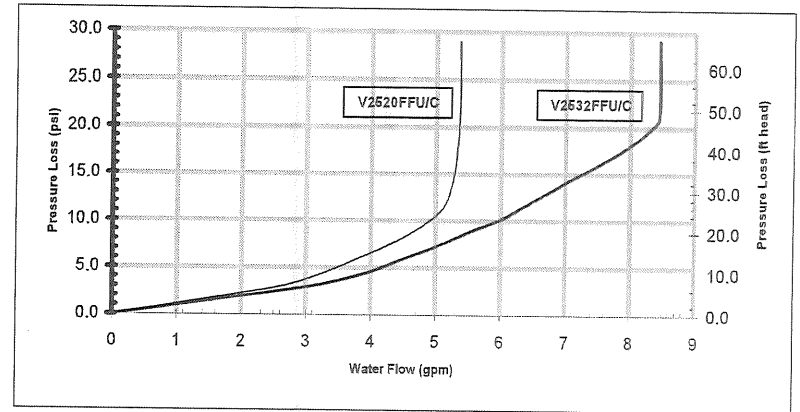


ONLY Rinnai Approved vent materials and components can be used to vent the water heaters.

When installing your Rinnai vent system, you MUST follow Rinnai's Venting Instructions found in each vent terminal box. These instructions provide the maximum allowable vent heights for both horizontal and vertical venting, how to cut the vent components, and pipe installations.

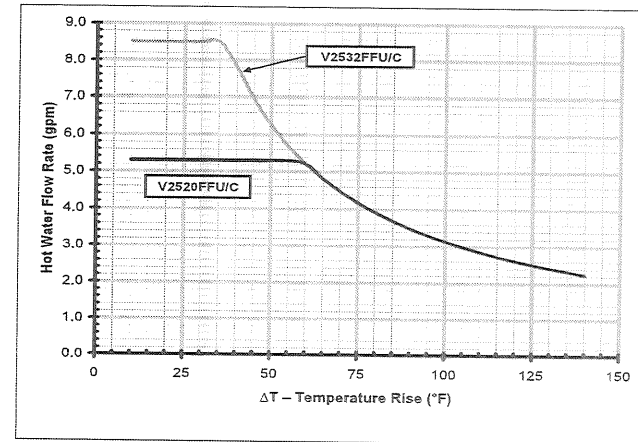
## INSTALLER'S INSTALLATION INSTRUCTIONS

### PRESSURE DROP CURVE



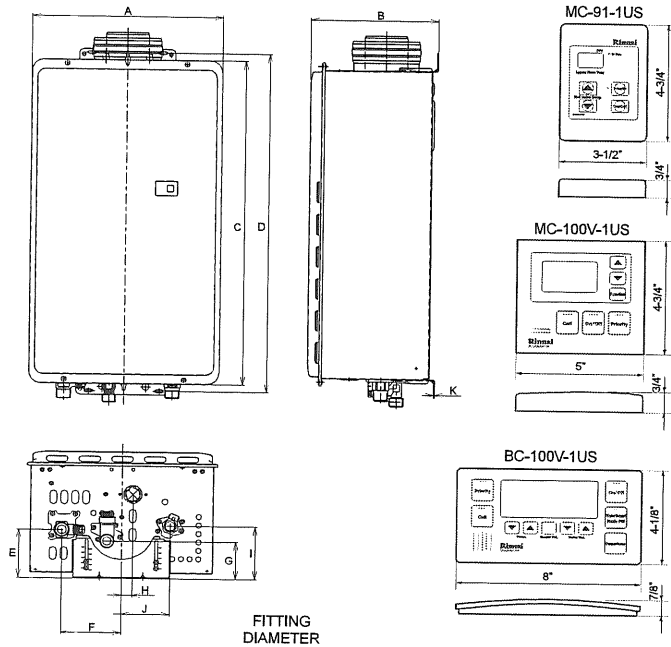
## INSTALLER'S INSTALLATION INSTRUCTIONS

### OUTLET FLOW DATA



## INSTALLER'S INSTALLATION INSTRUCTIONS

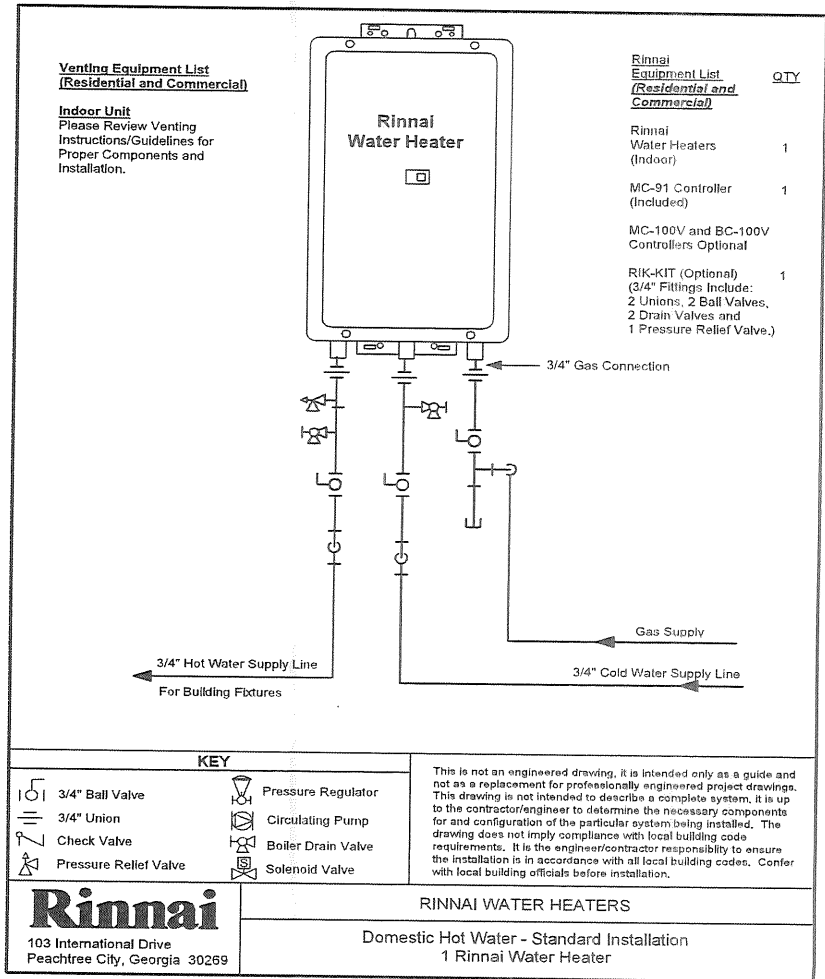
### Dimensions



DIM	DESCRIPTION	REU-V2532FFU REU-V2532FFUC	REU-V2520FFU REU-V2520FFUC
A	Width	13.8"	
B	Depth	9.2" - 10.8"	
C	Height - Unit	23.6"	
D	Height - Including Brackets	24.7"	
E	Hot Water Outlet (from wall)	3.6" - 5.1"	
F	Hot Water Outlet (from center)	4.3"	
G	Cold Water Outlet (from wall)	2.8" - 4.3"	
H	Cold Water Outlet (from center)	1"	
I	Gas Connection (from wall)	3.9" - 5.5"	
J	Gas Connection (from center)	3.5"	
K	Gas: Length to Connection (from base)	1.6"	
	Cold: Length to Connection (from base)	2"	
	Hot: Length to Connection (from base)	1.6"	
L	Gas: Fitting Diameter	3/4"NPT	
	Cold: Fitting Diameter	3/4"NPT	
	Hot: Fitting Diameter	3/4"NPT	

## INSTALLER'S INSTALLATION INSTRUCTIONS

### RECOMMENDED PIPING FOR BASIC INSTALLATION





## INSTALLER'S INSTALLATION INSTRUCTIONS RECOMMENDED PIPING FOR CIRCULATION SYSTEMS

**Notes:**

**PLEASE NOTE FOR RESIDENTIAL APPLICATIONS, THIS PIPING ARRANGEMENT MAINTAINS FULL WARRANTY:**

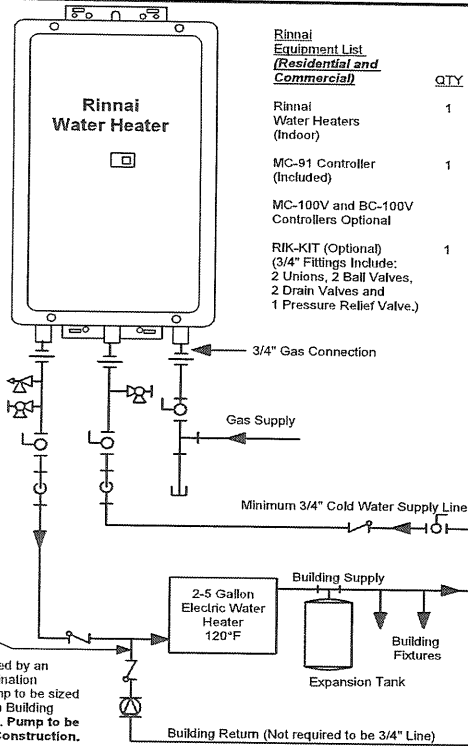
**10 Years On Heat Exchanger  
5 Years On Parts**

**Commercial Application Warranty:**

**5 Years On Heat Exchanger  
5 Years On Parts**

**Venting Equipment List  
(Commercial and Residential)**

**Indoor Unit**  
Please Review Venting Instructions/Guidelines for Proper Components and Installation.



Rinnai Equipment List (Residential and Commercial)	QTY
Rinnai Water Heaters (Indoor)	1
MC-91 Controller (Included)	1
MC-100V and BC-100V Controllers Optional	
RIK-KIT (Optional) (3/4" Fittings Include: 2 Unions, 2 Ball Valves, 2 Drain Valves and 1 Pressure Relief Valve.)	1

**Important:** Install building return line to the hot supply as close as possible to the Rinnai Water Heater.

Pump Should be Controlled by an Aquastat, Timer or Combination Aquastat and Timer. Pump to be sized for Pressure Drop through Building Supply and Return Piping. Pump to be of Bronze or Stainless Construction.

**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 for and configuration of the particular system being installed. The drawing does not imply compliance with local building code requirements. It is the engineer/contractor responsibility to ensure the installation is in accordance with all local building codes. Confer with local building officials before installation.

**Rinnai**

103 International Drive  
Peachtree City, Georgia 30269

**RINNAI WATER HEATERS**

Domestic Hot Water - Circulation Systems  
1 Rinnai Water Heater with Electric Storage Tank

## INSTALLER'S INSTALLATION INSTRUCTIONS OPTIONAL PIPING FOR CIRCULATION SYSTEMS

**Note:**

**PLEASE NOTE FOR RESIDENTIAL APPLICATIONS, THIS PIPING ARRANGEMENT REDUCES WARRANTY TO THE FOLLOWING:**

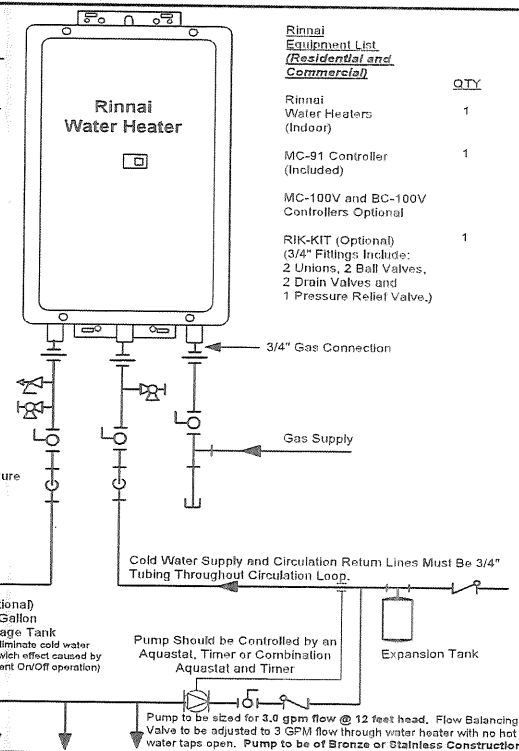
**3 Years On Heat Exchanger  
3 Years On Parts**

**Commercial Application Warranty:**

**5 Years On Heat Exchanger  
5 Years On Parts**

**Venting Equipment List  
(Residential and Commercial)**

**Indoor Unit**  
Please Review Venting Instructions/Guidelines for Proper Components and Installation.



Rinnai Equipment List (Residential and Commercial)	QTY
Rinnai Water Heaters (Indoor)	1
MC-91 Controller (Included)	1
MC-100V and BC-100V Controllers Optional	
RIK-KIT (Optional) (3/4" Fittings Include: 2 Unions, 2 Ball Valves, 2 Drain Valves and 1 Pressure Relief Valve.)	1

**Note:**

Water heater outlet temperature cannot be adjusted when circulation pump is running.

Minimum 3/4" Hot Water Supply Line

Cold Water Supply and Circulation Return Lines Must Be 3/4" Tubing Throughout Circulation Loop.

(Optional) 2-6 Gallon Storage Tank  
(To eliminate cold water sandwich effect caused by frequent On/Off operation)

Pump Should be Controlled by an Aquastat, Timer or Combination Aquastat and Timer

Pump to be sized for 3.0 gpm flow @ 12 feet head, Flow Balancing Valve to be adjusted to 3 GPM flow through water heater with no hot water taps open. Pump to be of Bronze or Stainless Construction.

**KEY**

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

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**Rinnai**

103 International Drive  
Peachtree City, Georgia 30269

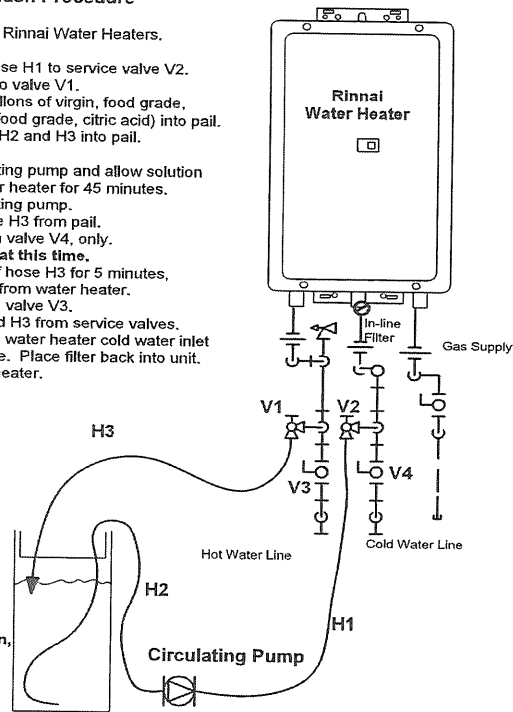
**RINNAI WATER HEATERS**

Domestic Hot Water with Circulation  
1 Rinnai Water Heater

**INSTALLER'S INSTALLATION INSTRUCTIONS  
RECOMMENDED SCALE FLUSH PROCEDURE**

**RINNAI Water Heater Flush Procedure**

1. Disconnect power to the Rinnai Water Heaters.
2. Close valves V3 and V4.
3. Connect pump outlet hose H1 to service valve V2.
4. Connect drain hose H3 to valve V1.
5. Pour approximately 4 gallons of virgin, food grade, white vinegar (or virgin, food grade, citric acid) into pail.
6. Place free ends of hose H2 and H3 into pail.
7. Open valves V1 and V2.
8. Turn on power to circulating pump and allow solution to circulate through water heater for 45 minutes.
9. Turn off power to circulating pump.
10. Remove free end of hose H3 from pail.
11. Close valve V2 and open valve V4, only.  
**Do NOT open valve V3 at this time.**
12. Allow water to flow out of hose H3 for 5 minutes, rinsing cleaning solution from water heater.
13. Close valve V1 and open valve V3.
14. Disconnect hoses H1 and H3 from service valves.
15. Remove in-line filter from water heater cold water inlet and clean out any residue. Place filter back into unit.
16. Restore power to water heater.



5 gallon pail of virgin, food grade, white vinegar (or virgin, food grade, citric acid).

**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 for and configuration of the particular system being installed. The drawing does not imply compliance with local building code requirements. It is the engineer/contractor responsibility to ensure the installation is in accordance with all local building codes. Confer with local building officials before installation.



103 International Drive  
Peachtree City, Georgia 30269

**RINNAI WATER HEATERS**

Domestic Hot Water - Scale Flush Procedure  
1 Rinnai Water Heater

**INSTALLER'S INSTALLATION INSTRUCTIONS  
Venting**

The maximum allowable "Equivalent Length (D)" of vent pipe for the Rinnai water heater is 41 feet (as determined using the formula below). If "D" is greater than 41, the vent/air intake piping is too long or there are too many elbows, redesign the vent pipe run.

$$D = L + (B_{90} \times 6) + (B_{45} \times 1.5)$$

- D = Total Equivalent Length of vent system.
- L = Length of vent/air intake in feet.
- B<sub>90</sub> = Number of 90° elbows.
- B<sub>45</sub> = Number of 45° elbows.

To help prevent condensation in the vent/air intake piping, the combustion fan has two dip switch settings. Dip switch number 1 is shipped from the factory set to the "OFF" position; this is suitable for the maximum vent/air intake length.

Depending upon the vent/air intake length, Dip switch No. 1 may need to be adjusted to compensate fan speed. Read the following instructions, to determine which position this switch should be placed in.

When the Equivalent Length of vent pipe, D, is more than 22 feet, leave dip switch number 1 in the "OFF" position.

When the Equivalent Length of vent pipe, D, is 22 feet or less, dip switch number 1 must be moved to the "ON" position.

Dip switch # 1 is located in the top row of dip switches, 1 through 8 on the PC board. See the diagram below to identify the proper switch. If you do not understand the following information, contact your installer or dealer for assistance.

Do not alter dip switch number 1 before using formula, to determine the proper setting.

Example #1:

You have 6 feet of vent pipe, and two 90° elbows.

$$D = 6 + (2 \times 6) + (0 \times 1.5)$$

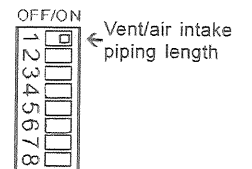
D = 18 Dip switch number 1 should be "ON"

Example #2:

You have 15 foot of vent pipe, one 90° elbow and two 45° elbows.

$$D = 15 + (1 \times 6) + (2 \times 1.5)$$

D = 24 Dip switch number 1 should be "OFF"



**Warning:** All other dip switches with the exception of dip switch No.1, shown in the diagram above, **MUST NOT** be altered. Unauthorized adjustments can cause property damage, personal injury, scalding, or death.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Venting

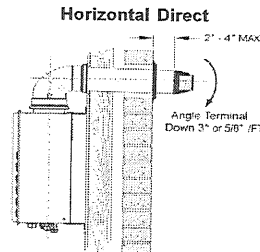
#### Vent/Air Intake for Internal "FFU" model Hot Water Systems

The only vent/air intake system approved for use with this appliance by CSA is the Rinnai/ Ubbink vent system or the Heatfab Saf-T Vent SC vent system. The vent system must vent directly to the outside of a building and use outside air for combustion as indicated in the diagrams below. The minimum and maximum wall thickness for sidewall venting are: Minimum = 4" and Maximum = 20".

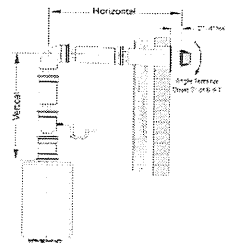
#### Horizontal Direct Vent Installation

The Rinnai tankless water heater may be installed on the internal surface of an external wall using a standard vent system kit. A typical installation is shown in the diagram to the right. The standard vent system kit consists of:

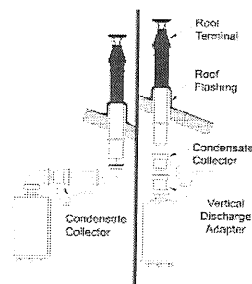
- One discharge adapter
- One discharge terminal



#### Horizontal Extension Installation



#### Vertical Direct Installation



#### Horizontal Extension Installation

The Rinnai Tankless water heater may also be installed on an internal wall which is near to an external wall. This can be done using a combination of extension tube(s), 90° or 45° elbow(s).

The maximum "HORIZONTAL EQUIVALENT LENGTH" of the vent/air intake system is 41 feet, as calculated using the formula on previous page (i.e. an installation with 23 feet of extension tubes, and three 90° elbows). An approved condensation collar must be installed on any vent/air intake system exceeding 5 feet horizontally or vertically.

#### Vertical Direct Vent Installation

The Rinnai tankless water heater can also be installed on flat or pitched roofs. Vertical Venting can be achieved using a combination of vent accessories. The maximum length of a vertical vent/air intake system is 21 linear feet with a maximum of 3 bends. An approved condensation collar must be installed on any vent/air intake system exceeding 5 feet.

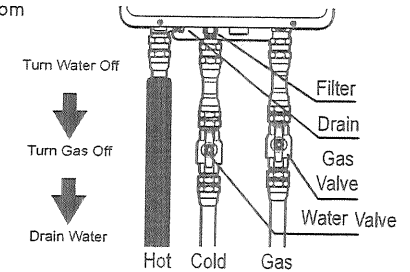


Position the condensate collector as close to the water heater as possible.  
When using a condensate collector always pitch the vent back to the collector  
Condensate must drain per local codes.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Freeze Protection

If the Rinnai water heater is disconnected from either the electrical supply or gas supply, or if there is an error that prevents the water heater from functioning normally, there is **NO FREEZE PROTECTION**. Freeze protection of the water heater is only possible when electricity, gas supply and normal water heater functions are enabled. If you expect freezing conditions while either electricity or gas supply is interrupted, water must be completely drained from water heater.



This water heater and venting system is designed to withstand temperatures to as low as -30°F, so long as electricity and gas are supplied to the product and normal water heater functions are enabled. If either gas or electricity is interrupted **NO FREEZE PROTECTION** is available.

In climates with below freezing temperatures, you must install an Auto-Drain-Down Solenoid Valve system in your plumbing system. This is the only way you can prevent freeze damage in the event of a power failure, interruption of gas supply or other functional failure within the water heater.

There is no warranty on freeze damaged water heater components.



Rinnai is continually updating and improving products, therefore, specifications are subject to change without prior notice. Local, state, provincial and federal codes must be adhered to prior to installation.

Climate conditions can dictate special applications. Please refer to local codes before installing product.

**INSTALLER'S INSTALLATION INSTRUCTIONS**  
Gas Piping Sizing Chart

Capacity Table for Natural Gas  
cubic feet / hour

(table assumes .3 inch pressure drop, specific gravity of .60)

Nominal Iron Pipe Size Inches	Length of Pipe in Feet													
	10	20	30	40	50	60	70	80	90	100	125	150	175	200
3/4	278	190	152	130	115	105	96	90	84	79	72	64	59	55
1	520	350	285	245	215	195	180	170	160	150	130	120	110	100
1-1/4	1050	730	590	500	440	400	370	350	320	305	275	250	225	210
1-1/2	1600	1100	890	760	670	610	560	530	490	460	410	380	350	320

After determining the length of pipe required select the pipe size that will supply the cubic feet per hour of gas required for the input rating of the Rinnai Water Heaters. The formula for figuring the cubic feet per hour required is:

$$CFH = \frac{\text{Gas Input of Rinnai water heater (BTU/HR)}}{\text{Heating Value of Gas(BTU/FT}^3\text{)}}$$

\*Gas input requirement is on the water heater data plate

\*The heating value of the gas can be obtained from the local Natural Gas Utility

Capacity Table for LP Gas  
BTUH of undiluted liquified petroleum gases  
(table assumes 11 inches of water column pressure at the inlet, .5 inch drop)

Nominal Iron Pipe Size Inches	Length of Pipe in Feet													
	10	20	30	40	50	60	70	80	90	100	125	150		
1/2	275	189	152	129										
3/4	567	393	315	267	237	217	196	185	173	162	146			
1	1071	732	590	504	448	409	378	346	322	307	275	252		
1-1/4	2205	1496	1212	1039	913	834	771	724	677	630	567	511		

**INSTALLER'S INSTALLATION INSTRUCTIONS**  
Gas Piping Notes

- 1) A manual gas control valve must be placed upon the gas supply line to the Rinnai Water Heater. A union can be used on the connection above the shut off valve for the future servicing or disconnection of the unit.
- 2) Check the type of gas and the gas inlet pressure before connecting the Rinnai Water Heater if the Rinnai 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.
- 3) Minimum and Maximum Gas pressures are listed below:  
\* Minimum value is for input adjustment

**Natural Gas:** Minimum 6" WC  
Maximum 10.5" WC

**Propane Gas:** Minimum 10"WC  
Maximum 13.5" WC

**WARNING:** Conversion of this unit from natural gas to propane or propane to natural gas CANNOT be done in the field.

- 4) After completion of gas pipe connections, 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. **Caution:** Since some leak test solutions, including soap and water, may cause corrosion or stress cracking, the piping must be rinsed with water after testing, unless it has been determined that the leak solution is non-corrosive.
- 5) The Rinnai Water Heater must be leak tested before it is placed into operation.
- 6) The Rinnai Water Heater and its individual shut-off valve must be disconnected from the gas supply piping system when pressure testing of the gas supply piping system at test pressures greater than 1/2 psi (3.5 kPa).
- 7) Always use approved connectors to connect the unit to the gas line. Always purge the gas line of any debris before connection to the water heater.
- 8) The Rinnai Water Heater must be isolated from the gas supply piping system by closing it's 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).
- 9) The Rinnai Water Heater Installation location must provide adequate Combustion and Ventilation airflow.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Water Piping Notes

- 1) A manual water control valve must be placed upon the water inlet connection to the Rinnai Water Heater before it is connected to the water line. Unions may be used on both the hot/cold water supply lines, for the future servicing or disconnection of the unit.
- 2) All soldering materials and piping must be compatible with potable water.
- 3) Purge the water line to remove from it all debris and air. Debris will damage the Rinnai Water Heaters.
- 4) There is a wire mesh strainer on the Rinnai Water Heater's inlet to discourage the introduction of debris to the unit. It will need to be cleaned periodically. **DO NOT** operate unit without filter in place. Clean this filter before leaving the job site.
- 5) It is recommended that auto drain down solenoids are installed in all applications below freezing.

**WARNING: DO NOT reverse the inlet and outlet (cold and hot water) connections on the unit. This would cause the Rinnai Water Heater to operate dangerously or not at all.**

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Pressure Relief Valve

- 1) ANSI code calls for the addition of an approved pressure relief valve to all water heating systems.
- 2) The pressure relief valve must meet the following criteria: 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 CAN1-4.4 Temperature, Pressure, Temperature and Pressure Relief Valves and Vacuum Relief Valves. This relief valve must be rated up to 150 PSI of pressure.
- 3) The relief valve should be added to the hot water outlet line per manufacturer's instructions. **DO NOT** place any other type valve or shut off device between the relief valve and the hot water heater.
- 4) The discharge from the pressure relief valve should be piped to the ground or into a drain system to prevent exposure or possible burn hazards to humans or other plant or animal life. Water discharged from the relief valve could cause severe burns instantly, scalds and/or death.
- 5) 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.
- 6) 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.
- 7) Pressure relief valve must be manually operated once a year to check for correct operation. Caution: See Item 4 before manually operating relief valve.
- 8) Should overheating occur or the gas supply fail to shut off, turn off the manual gas valve on the Rinnai.

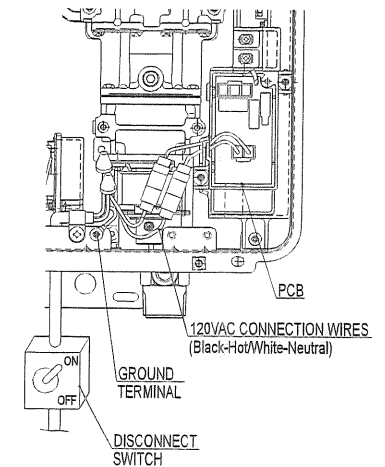
## INSTALLER'S INSTALLATION INSTRUCTIONS

### Electrical Connection Notes

**WARNING:** The Rinnai Water Heaters must be electrically grounded in accordance with local codes or in the absence of local codes with the most recent edition of the National Electrical Code, ANSI/NFPA 70. In Canada, all electrical wiring to the Rinnai Water Heaters should be in accordance with local codes and the Canadian Electrical Code, CSA C22.1 Part 1. Do not rely on the gas or water piping to ground the metal parts of the water heater.

**CAUTION:** Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

- 1 The Rinnai Water Heater requires 120VAC/60 HZ. Power from a properly grounded circuit.
- 2 An on/off switch must be provided and installed for the incoming 120VAC power.
- 3 Wire the Rinnai Water Heater exactly as shown on the inside of the cover panel. The black wire is the hot leg wire; the white wire is the neutral wire.
- 4 A green screw is provided in the junction box for the grounding connection.



Your disconnect switch should be a type that is suitable for outdoor use. Check National Electrical Codes for proper type switch to use in your area.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Lighting the Unit

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

- 1) This water heater does not have a pilot. It is equipped with a direct ignition device which automatically lights the burner. DO NOT TRY TO LIGHT THE BURNER BY HAND.
- 2) Before operating the Rinnai Water Heater smell all around the unit for gas. Be sure to smell near the ground as leaking gas may settle there.
- 3) Turn the manual gas control valve on.

#### STOP!! READ THE SAFETY ISSUES ON PAGES 8

- 4) Turn on any hot water tap. The Rinnai Water Heater should light and begin heating your water.

#### If the Rinnai Water Heater fails to light

- 1) DO NOT ATTEMPT TO LIGHT BY HAND.
- 2) Turn off the electrical power to the unit.
- 3) Turn off the manual gas control.
- 4) Wait 5 minutes, if you smell gas, go to a neighbor's house and call the gas company or the fire department. If you do not smell gas, go to the next step.
- 5) Turn the manual gas control valve on.
- 6) Turn the electrical power to the unit on.
- 7) Turn on any hot water tap.
- 8) If the unit still fails to light, turn off the electricity and gas to the unit and call Rinnai 1-800-621-9419.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Remote Controllers- General

The remote controls for the Rinnai Water Heater allow the customer to control the functions of the water heater and to diagnose certain fault conditions.

Before installing the remote controllers, determine the most convenient location(s). When deciding on the best location for the remote controllers, please consider the following items:

- 1) Place the controllers out of reach of small children.
- 2) Avoid locations where remote controller(s) will become hot. (over the stove, near the oven or a radiant heater.
- 3) Avoid direct sunlight. (The digital monitor can be difficult to read in direct sunlight)
- 4) Avoid areas where remote controller(s) can be splashed with cooking water, oil or sauce.
- 5) Remote controller(s) cables carry low voltage, 12VDC digital.

#### Every installation is different



Remote controller(s) can be wired in series or in parallel depending on the distance from the Rinnai Water Heaters to the controllers.



When the Temperature Controller(s) is used in public applications, it should be installed where it can not be adjusted by the public (i.e. a maintenance room or manager's office).

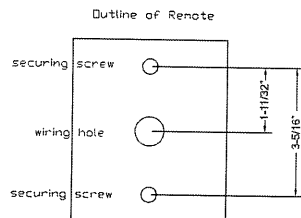


The Temperature Controller(s) have default temperature settings for The Rinnai Water Heater models. See page 18 for details.

## INSTALLER'S INSTALLATION INSTRUCTIONS

### Remote Controllers - Installation

- 1) Determine a suitable location for the controller.
- 2) Make three holes on the wall as shown.
- 3) Run the cable between the controller and the Rinnai Water Heater or the controller and the other controller.
- 4) Remove the face plate from the remote controller(s), using a screw driver.
- 5) Connect the cable to the remote controller(s).
- 6) Mount the controller to the wall using the holes drilled in step 2.

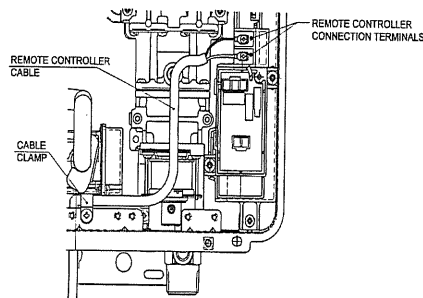


Note: If the cable cannot be run in the wall cavity, the plastic knockout should be removed from the top or bottom of the controller to allow flush mounting with the wall

- 7) Disconnect the power from the Rinnai Water Heater.
- 8) Remove the cover of the Rinnai Water Heater.
- 9) Remove the plastic cover from the PCB and electrical connections.

DO NOT ATTEMPT TO CONNECT THE REMOTE CONTROLLERS WITH THE POWER ON, THERE'S 120 VOLT POTENTIAL, NEXT TO THE REMOTE CONTROLLER CONNECTIONS INSIDE THE UNIT. All service and wiring should be performed by a certified installer.

- 10) 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.
- 11) Secure the controller cable using the clamp provided.
- 12) Replace plastic cover over PCB and then replace the cover of the Rinnai Water Heaters.



## INSTALLER'S INSTALLATION INSTRUCTIONS

### Testing

- 1) Turn on the gas and water.
- 2) Check for water and gas leaks. Use soapy water to test for gas leaks.
- 3) Remove pressure test point screw, attach pressure gauge to test point.
- 4) Turn Power on.
- 5) Open any hot water tap fully.
- 6) Check test point or supply pressure in water columns per inch.

Natural Gas Inlet and Manifold Gas Pressure by Model			
REU2520FFU Series	6" - 10.5"	0.77"	3.7"
REU2532FFU Series	6" - 10.5"	0.77"	3.7"

Propane Gas Inlet and Manifold Gas Pressure by Model			
REU2520FFU Series	10" - 13.5"	0.93"	4.2"
REU2532FFU Series	10" - 13.5"	0.93"	4.2"

NOTE: The pressure may be low due to too little flow, too high an incoming temperature, and/or undersized gas piping. Examine these areas before determining that the pressure needs to be adjusted. Contact Rinnai before adjusting manifold pressures at 1-800-621-9419. Failure to contact Rinnai, could void unit's warranty.

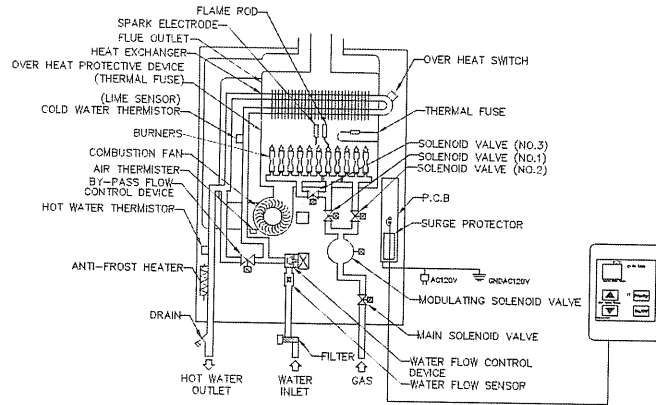
- 7) If it is determined that the gas pressure needs adjusting, first check the incoming pressure at the test point on the gas inlet. If it is correct follow the adjusting procedure contained in the pouch of the unit EXACTLY.

The regulator is pre-set at the factory, it should not need resetting.

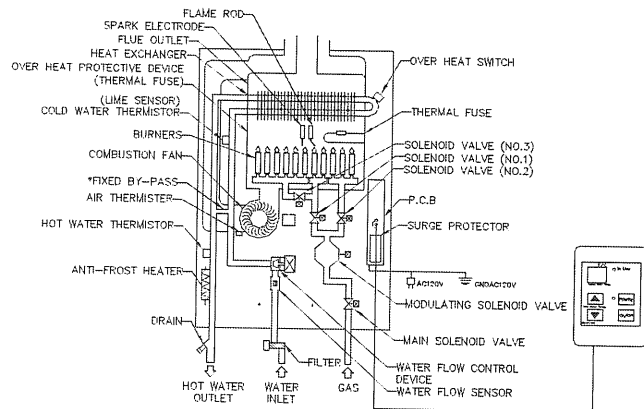
- 8) Turn the hot water off. Turn the power off. Remove the pressure gauge and replace the test point screw. Check for a gas leak around the test point screw.
- 9) Replace the front cover.
- 10) Turn the power back on.
- 11) Check the operation of the unit. Check the operation of each of the remote controller(s). Check the operation of the Power failure protection system.
- 12) Explain the proper operation of the Rinnai Water Heaters to the customer.

**INSTALLER'S INSTALLATION INSTRUCTIONS**  
Schematic Diagram

**2532FFU (R85) & 2532FFUC (C85)**



**2520FFU (R53) - (Fixed By-Pass)**  
**\*2520FFUC (C53) - (No By-Pass)**



Ask about

WWW.RINNAI.US OR 800-621-9419

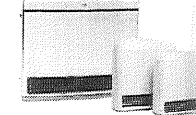
Rinnai's other fine products.

**Direct Vent Heaters**



- "Cool-to-the-Touch" cabinet
- Easily Installed and Safe for Any Room
- Up to 84% Efficient
- Electronic Ignition - No Pilot Light
- Propane or Natural Gas
- Earthquake Proof-Tilt Switch
- Whisper Quiet Blower
- Primary Heat Source

**Vent-Free Zone Heaters**



- Programmable Thermostat
- 99.9% Efficient, Vent-free
- No Visible Flame
- Oxygen Depletion Sensor
- Secondary Heat Source

**Free-Standing and In-Built Fireplaces**



- Standard Dimensions
- Thermostat Control
- State-of-the-Art Three Gas Burner System
- Electronic Push Button Ignition
- Remote/Keypad Control
- Programmable Timers

**Infrared Heaters**



- Wall-mountable or Free-standing
- Works in Power Outages
- 99.9% Energy Efficient
- Natural or Propane Gas
- ODS Safety Sensor
- Ideal for Emergency Heating

**Rinnai**  
HEATERS | WATER HEATERS | FIREPLACES

Rinnai America Corporation  
103 International Drive  
Peachtree City, GA 30269



060 00012 30775 7  
U245-2502(01)  
Printed in Japan\_05/05



This data is provided by the Assessor's Office and is current as of February 11, 2007 Fees  New  Scheduling

CBL  Acct No

R5 LCI:

Owner Name 1

Property Address

[View Complaint](#) [Close](#)

Name 2

Property Type  Dist#:

[View Inspection](#) [Print](#)

Mailing Address

Description

[View Site Plan](#) [View Permit](#)

City, State, Zip

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- [Inspections](#)
- [Site Plans](#)
- [Permits](#)
- [Complaints](#)
- [Food/Water Cmpl.](#)
- [Documents](#)
- [Letters](#)
- [Property Mgmt](#)
- [Fees](#)
- [Taxe](#)

App Type	Permit No	App Date	Iss Date	Status	PastUse	ProposedUse
Electrical Permit Residential	20074111	02/12/2007	02/12/2007	Pending		
Building Permit	061050	07/18/2006	07/21/2006	Open	Residential 2 unit	Residential 2 unit Install 2 Rinnai heaters, 2 Rinnai water heaters and Munchin Boiler
Electrical Permit Residential	20054669	07/26/2005	07/26/2005	Open		

This data is provided by the Assessor's Office and is current as of February 11, 2007 Fees  New  Scheduling

CBL	131 G003001	Acct No	19170	Property Address	142 PLEASANT AVE	<input type="checkbox"/>	<input type="checkbox"/>
Owner Name 1	PAPPAS ARGYRO C		Property Type	RESIDENTIAL	Dist#:	4	<input type="checkbox"/>
Name 2			Description	131-G-3 PLEASANT AVE 140-142 LAWN AVE 101-111 7980 SF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mailing Address	142 PLEASANT AVE		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City, State, Zip	PORTLAND	ME	04103	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prop Info	Inspections	Site Plans	Permits	Complaints	Food/Water Cmpl.	Documents	Letters	Property Mgmt	Fees	Tax
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Date/Time	Staff/Contact	Street	Parcel ID	Appl ID	Appl Type	Type
02/13/07	Jeanie Bourke	142 PLEASANT AVE	131 G003001	20074111	ElcPe	Electrical Only
						Call Shawn @ 761-2446 req am inspection
07/20/06	Michael Collins	142 PLEASANT AVE	131 G003001	20054669	ElcPe	Electrical Service
12:30 PM	LaPlante Electric					OH service upgrade.
01/24/06	Jonathan Reed	142 PLEASANT AVE	131 G003001	6817	Complaint	Inspection
6:00 AM						2 Junk cars, Trash and garbage not in blue bags, stuff not taken by city been ther
01/18/06	Jonathan Reed	142 PLEASANT AVE	131 G003001	6793	Complaint	Housing Inspection
	Ian Smith					windows are broken in all rooms, the effect is a draft coming through, landlord ha
08/24/05	Michael Collins	142 PLEASANT AVE	131 G003001	20054669	ElcPe	Non Compliance
6:00 AM	Owner					Code violations.