



# INSTALLATION AND OPERATION MANUAL

FOR

## Wood Stone

WS-MS-(4,5,6,7)-(RFG, RFG-IR, RFG-W, RFG-IR-W)-  
Export Models

Natural Gas or Liquid Propane Fueled Stone Hearth Ovens

**Wood Stone Corporation**

1801 W. Bakerview Rd.

Bellingham, WA 98226 - USA

Tel. 360-650-1111 Fx. 360-650-1166

Email - [info@woodstone.net](mailto:info@woodstone.net)

Website - [www.woodstone-corp.com](http://www.woodstone-corp.com)

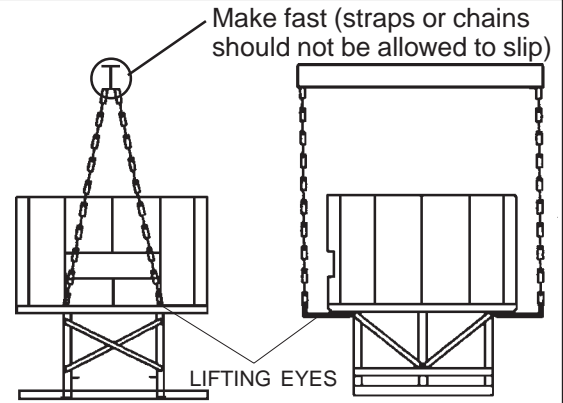
Revised Nov. 2002

### LIFTING THE OVEN

#### 1. USING A CRANE

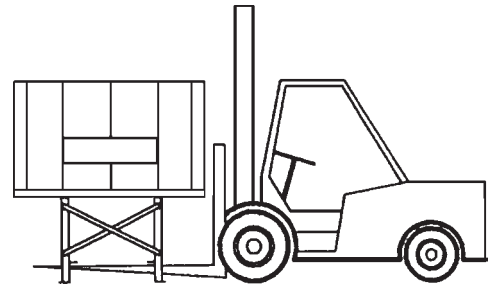
The oven arrives with four lifting eyes attached. When craning a Wood Stone oven, use a spreader bar with a two-legged sling rigged on each end. The spreader bar should be of a sufficient length to keep the sling from contacting the oven.

**NOTE:** Once lifting eyes are no longer needed, remove the lifting eyes one at a time AND **BE SURE TO REPLACE THE BOLTS** THAT ATTACH THE OVEN TO THE STAND.



#### 2. USING A FORKLIFT

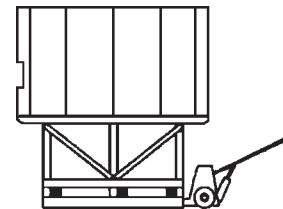
Be sure to use a forklift rated to lift more than the oven weighs. Fork length must be at least 6 feet, if not, fork extensions should be used. The oven stand is equipped with fork pockets just above the angle iron base. The oven is very top heavy so spread the forks as far apart as possible.



Model #	Oven	Approx. Weight	Req'd Forklift
WS-MS-4	Mt. Chuckanut	2,200 lbs.	5,000 lb.
WS-MS-5	Mt. Adams	3,300 lbs.	6,000 lb.
WS-MS-6	Mt. Baker	4,200 lbs.	6,000 lb.
WS-MS-7	Mt. Rainier	5,300 lbs.	9,000 lb.

#### USING A PALLET JACK TO MOVE A WOOD STONE OVEN

Once the oven has been removed from the delivery vehicle, it can easily be moved on flat surfaces using a pallet jack. To lift the oven with a pallet jack, remove the front and rear angle iron stabilizers from the base of the oven stand and place two or three stout 4x4s through the fork pockets. **THE OVEN IS VERY TOP-HEAVY, MOVING THE OVEN UP OR DOWN A RAMP ON A PALLET JACK IS NOT SAFE!**



## DO NOT TURN THE OVEN ON ITS SIDE!

Moving a Wood Stone oven can present interesting challenges to even the most experienced riggers. Take your time, use your head, secure the proper equipment and make safety your first priority. Please don't hesitate to call the factory for technical support (360-650-1111).

#### DELIVERY NOTE:

*The customer will receive an Oven Shipping Notification when the oven leaves the Wood Stone factory. This will include a PRO# and a trucking company contact number. Wood Stone recommends that you confirm the delivery date/time with the trucking company before committing to heavy equipment and/or labor. Our goal is smooth and safe delivery. Thank you.*

IF THIS OVEN IS NOT PROPERLY INSTALLED A FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THESE INSTALLATION INSTRUCTIONS. A MAJOR CAUSE OF OVEN RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS. IT IS OF UTMOST IMPORTANCE THAT THIS OVEN BE INSTALLED ONLY IN ACCORDANCE WITH THESE INSTRUCTIONS.

**WARNING:** Installation and servicing of this product could expose you to glasswool/ceramic fibers as well as Calcium Silicate dust. **ALWAYS WEAR RESPIRATORY AND EYE PROTECTION WHEN INSTALLING OR SERVICING THIS APPLIANCE.**

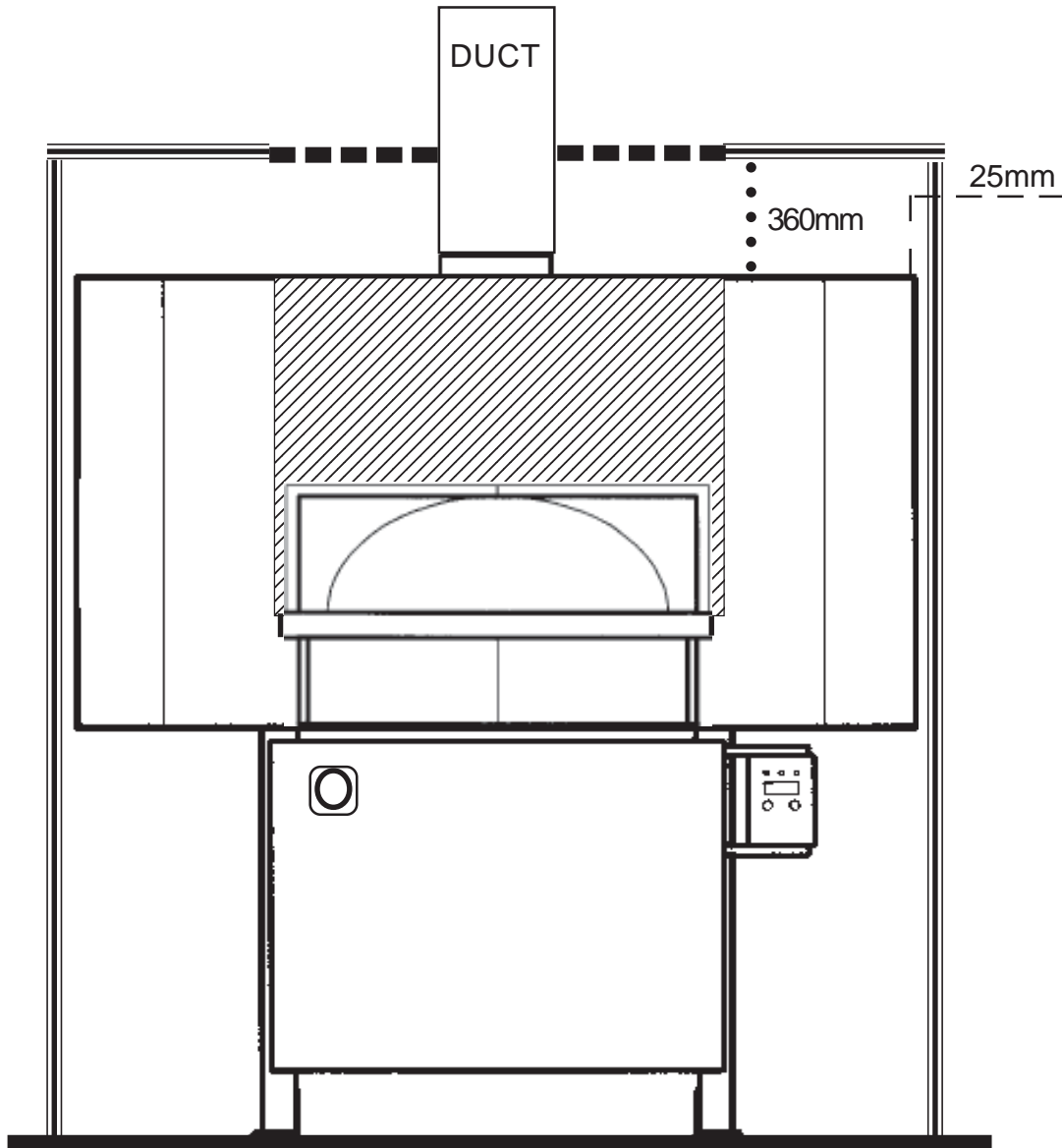
**Please read this entire manual before you install the oven. Failure to follow instructions may result in property damage, bodily injury or even death. Contact your local building or fire officials about restrictions and installation inspection in your area.**

## **CLEARANCES**

- a. The Wood Stone gas-fired oven should have a **minimum 25 mm clearance to combustibles from all sides, and 355 mm clearance to combustibles from the top** (See Figures 1a. and 1b on page 4). If building a facade that will contact the oven, use completely non-combustible materials\*. Please note that standard drywall (or sheet rock) is considered a combustible.
- b. Any facade above and/or 50 mm to either side of the oven doorway, must be constructed of noncombustible building materials. (See page 4).
- c. Install this oven only on noncombustible floors.

*\*When noncombustible building materials contact the body of the oven, the respective clearances are transferred to those non-combustibles.*

- — — Upon installation, the oven must maintain at least a 25 mm side clearance to any and all combustible building materials
- Upon installation, the oven must maintain at least a 25 mm side clearance to any and all combustible building materials
- ■ ■ Maintain proper clearances to combustible building materials as specified by pertinent codes and/or the duct manufacturer's recommendations



Install only on a non-combustible floor or provide a non-combustible floor covering under the oven, which extends 920 mm to the front of and to both sides of the oven's doorway opening.

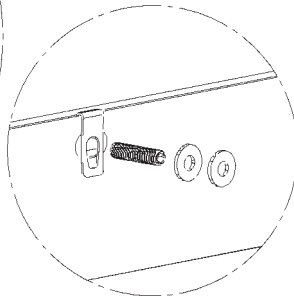
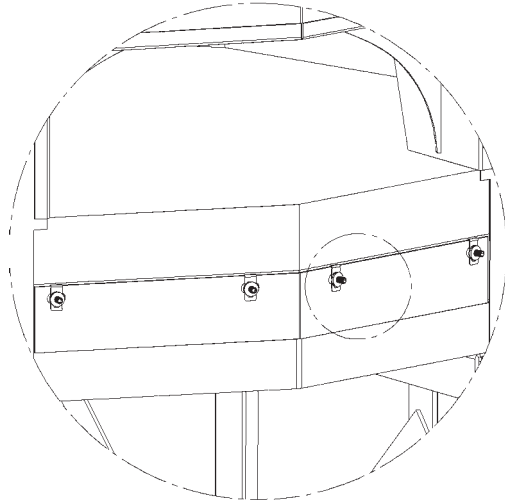
- ==== Combustible
- Noncombustible

## ASSEMBLY

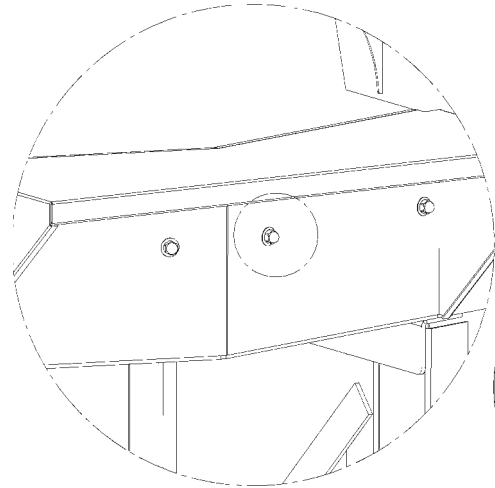
1. Mount the oven mantle (if provided) directly below the doorway and flush with the floor using the hardware provided (See page 6 for details).
2. Mount the stainless steel toe kick to the front of the oven stand, near the floor using the hardware provided (See page 7).
3. Mount the service/intake panel to the brackets on the front of the stand, directly below the doorway, using the hardware provided (See page 7).
  - a. Do not obstruct the flow of combustion and ventilation air between the toe kick and the bottom of the service/intake panel.
  - b. This panel is the only access for servicing the gas and electrical components of the oven so it must be left accessible and removable.

Whether mounting a stainless mantle or a bracket for a granite mantle, the initial steps are the same.

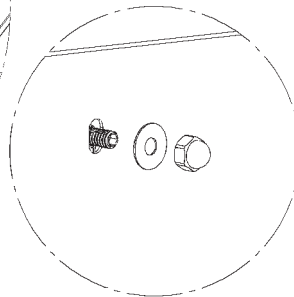
1. Begin by installing the threaded studs into the clip nuts below the oven doorway (3 or 4 turns is sufficient).



2. Next, place two spacer washers on each stud.



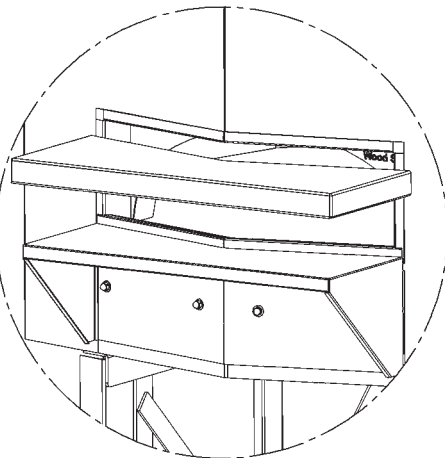
3. Position the mantle (or bracket) on the oven, making sure that the rear flange rests on the floor of the oven (you may need an extra pair of hands at this point).



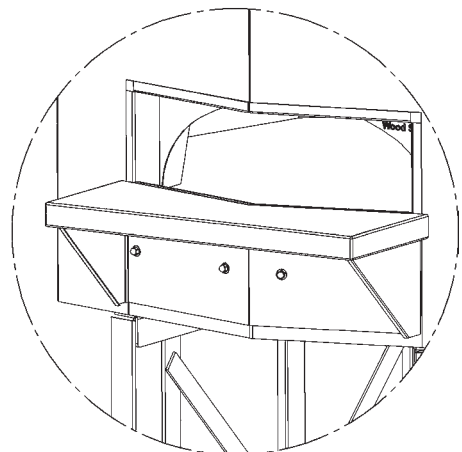
4. Lastly, place one final washer (stainless steel) and a cap nut on each stud. Tighten the cap nuts so that the mantle is securely held in place.

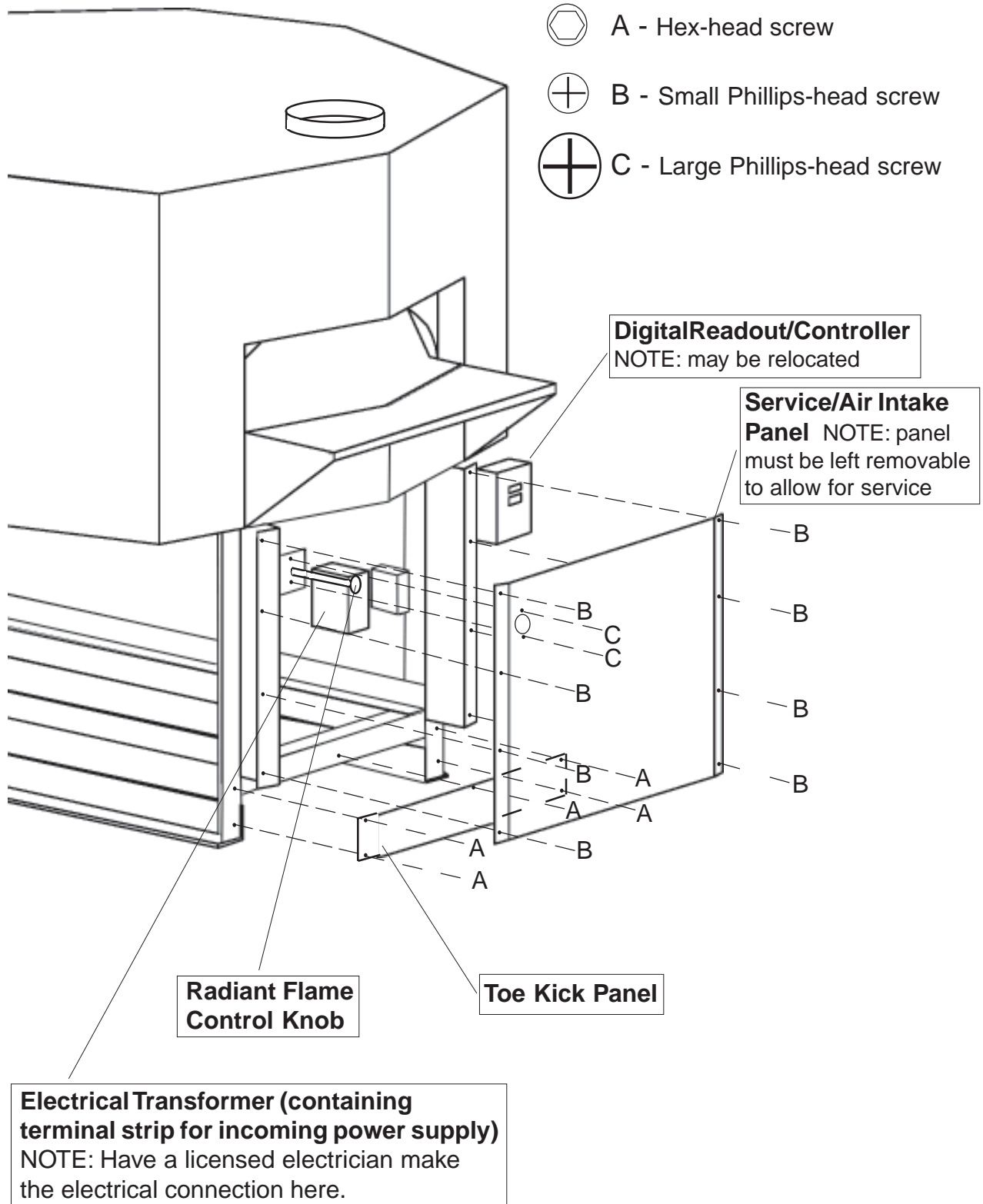
5. Using the high temperature silicone compound (provided), fill any gaps between the oven hearth and the mantle flange. Gaps between the mantle flange and the stainless steel doorway frame may also need to be filled with a small amount of the silicone compound.

**INSTALLATION OF GRANITE** - After completing the steps outlined above, apply a generous amount of stone adhesive (provided) to the top of the steel mantle bracket.



Put the stone in place and apply light pressure to seat it properly. Make sure that the angle in the granite lines up with the angle in the bracket. Allow the adhesive to set for several hours before filling any gap between the stone slab and the metal bracket with the silicone compound (provided). Clean up any adhesive and/or silicone before it dries!





## GAS

Wood Stone Gas ovens are equipped with a 3/4" NPT gas connection. **Have a licensed gas installer provide the hookup and test all fittings and pipe connections for leaks.** Use approved gas leak detectors (soap solutions or equivalent) over and around the fittings and pipe connections. **DO NOT USE FLAME TO TEST FOR LEAKS!**

SV-1 and SV-2 are the gas control valves that operate under floor infrared burner and the interior radiant burner, respectively. **NOTE: RFG and RFGW models are only equipped with the SV-2 valve.** SV-1 is located directly behind the service/ intake panel and in front of the under floor infrared burner. SV-2 is located under the oven to the rear left.

**The manifold pressure test port for the infrared under floor burner (served by SV-1) is a 1/8" NPT plugged tapping located near the left end of the burner manifold. The manifold pressure test port for the radiant burner (served by SV-2) is a 1/8" NPT plugged tapping located at the base of the T-junction between the SV-2 and the radiant/interior burner.**

The burner manifold pressures have been adjusted and tested at the factory. A variety of factors can influence these pressures, so be sure to test the individual burner manifold pressures and adjust the valves as necessary to achieve the required pressures. **Note: The gas valves are shipped in the on position.**

Factory specified individual burner manifold pressure(s) (*expressed in Inches of water*) for **RFG-IR, RFG, RFG-IR-W and RFGW models** equipped to burn Natural Gas (NG).

MODEL	SV-1	SV-2
WS-MS-4	3.5"	5"
WS-MS-5	3.5"	4.75"
WS-MS-6	3.5"	4.75"
WS-MS-7	3.5"	4.6"

NOTE: RFG and RFGW models contain only the SV-2 valve

Factory specified individual burner manifold pressure(s) (*expressed in Inches of water*) for **RFG-IR, RFG, RFG-IR-W and RFGW models** equipped to burn Propane (LP).

MODEL	SV-1	SV-2
WS-MS 4	9"	7"
WS-MS-5	9"	8"
WS-MS-6	9"	8"
WS-MS-7	9.2"	9.5"

NOTE: RFG and RFGW models contain only the SV-2 valve

Hourly Natural Gas BTU input rates for Wood Stone gas ovens

Model	GG and GGW Natural Gas Hourly BTU Input Rate	RFG and RFGW Natural Gas Hourly BTU Input Rate
WS-MS-4	115,000	68,000
WS-MS-5	188,000	105,000
WS-MS-6	188,000	105,000
WS-MS-7	220,000	123,000

*The maximum Natural Gas orifice size (at sea level) for the radiant/interior burner (served by SV-2) is # 55 (0.0520)*

*The maximum Natural Gas orifice size (at sea level) for the infrared/underfloor burner(served by SV-1) is #42 (0.0935)*

Hourly Propane BTU input rates for Wood Stone gas ovens

Model	GG and GGW Propane Hourly BTU Input Rate	RFG and RFGW Propane Hourly BTU Input Rate
WS-MS-4	102,000	60,000
WS-MS-5	159,000	94,000
WS-MS-6	159,000	94,000
WS-MS-7	227,000	123,000

*The maximum Propane (LP) orifice size (at sea level) for the radiant/interior burner (served by SV-2) is # 65 (0.0350)*

*The maximum Propane (LP) orifice size (at sea level) for the infrared/underfloor burner (served by SV-1) is #53 (0.0595)*

Wood Stone recommends that the oven be equipped with an individual shutoff valve and that this individual shutoff valve (supplied by others) be left easily accessible. Wood Stone also recommends that inspection and maintenance of the burners and gas piping connections of this appliance be performed at regularly scheduled intervals and only by professional gas appliance service agencies.

### Gas Code Limitations

The installation of this appliance must conform with local codes. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve (supplied by others) during any pressure testing of the gas supply piping system at test pressure, equal to or less than 1/2 psi (3.45 kPa).

## ELECTRICAL

**Have a licensed electrician wire the transformer terminal strip with a power supply consistent with that specified on the equipment dataplate.** Electrical diagrams are located on the back of the removable service/air intake panel of the appliance and also on page of this manual. See page 7 of this manual for location of the transformer enclosure.

**ELECTRICAL GROUNDING:** This appliance must be electrically grounded in accordance with local codes.

Wood Stone ovens should be vented in accordance with pertinent national, regional and local codes concerning such appliances; check venting plans with the authority having jurisdiction *before* proceeding with installation.

The above statement taking precedence, Wood Stone Corporation recommends the following:

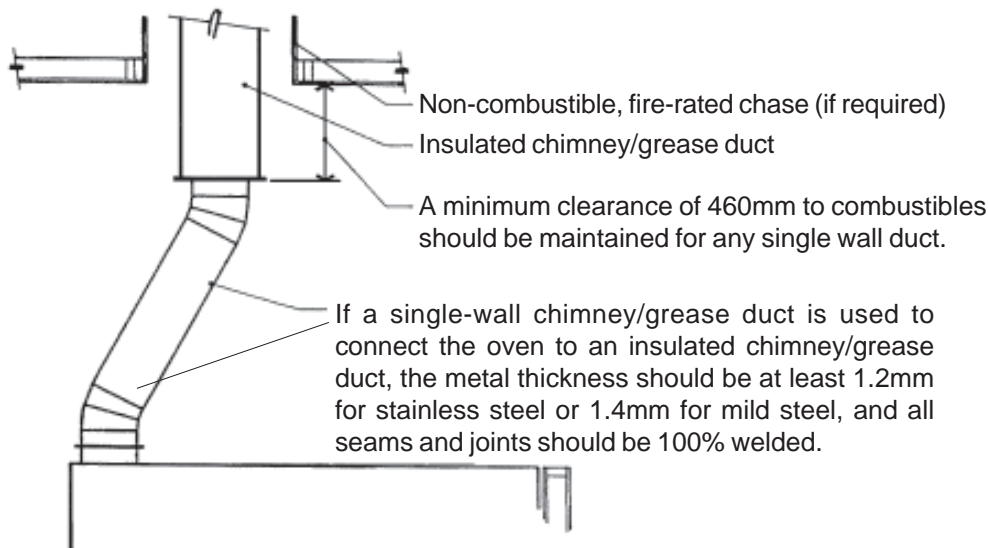
- Wood Stone ovens can either be vented through a direct chimney connection (equipped with a power ventilator) or through an exhaust hood.

- All ducting (whether insulated or not) used in exhaust systems venting Wood Stone ovens should meet the construction requirements of a GREASE DUCT. Take care to maintain proper clearances from the duct to combustible construction.

- Due to the danger of sparks entering the exhaust system, all wood burning ovens (GGW and RFGW models) should be vented independently of all other appliances

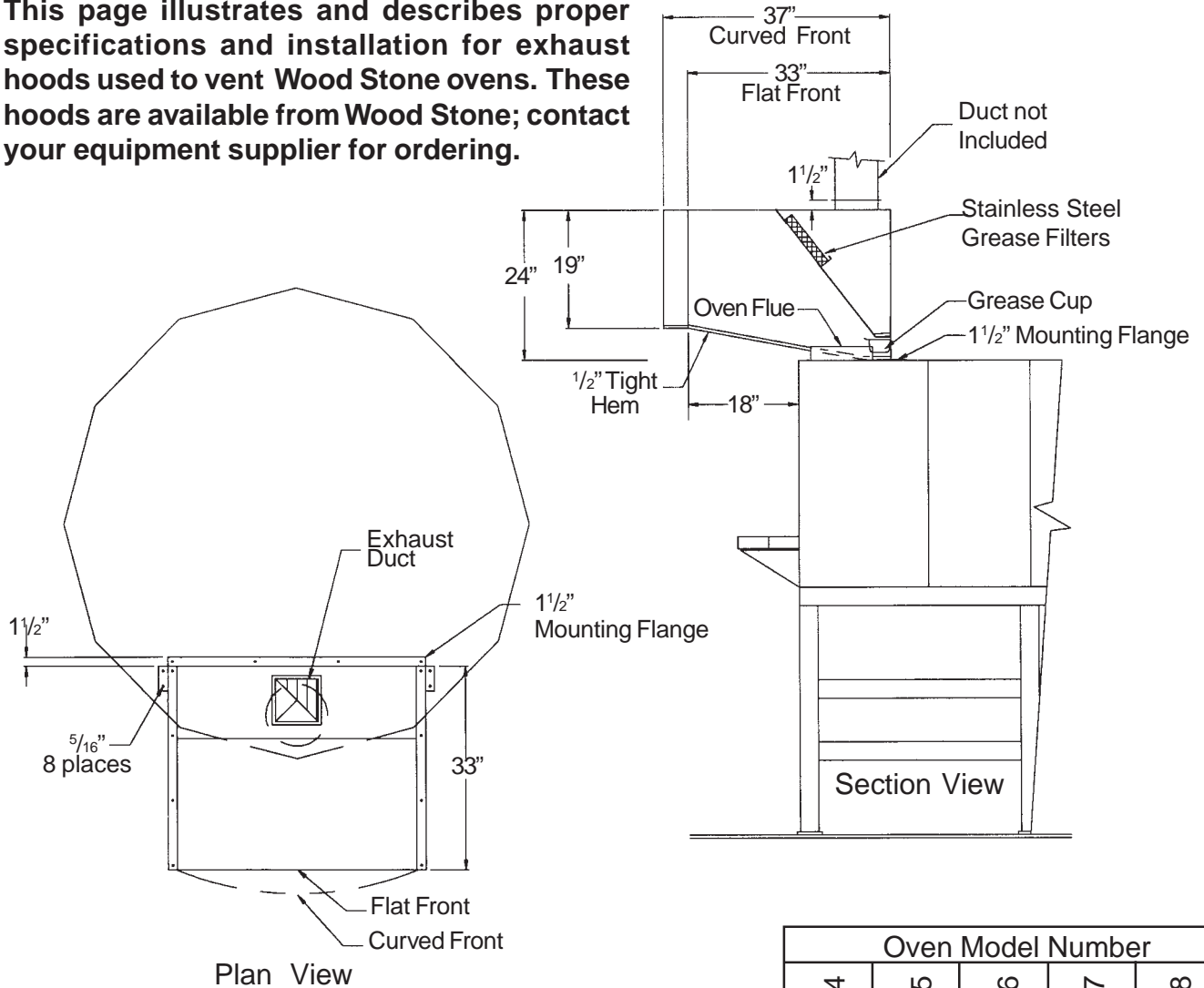
**RFG-IR and RFG** - If a direct chimney connection is used, the power ventilator used should have a minimum temperature rating of 150 degrees Celsius and should be sized to create a -0.1 Inch Water Column draught at the flue collar of the oven.

**RFG-IR-W and RFG-W** - If a direct chimney connection is used, the power ventilator used should have a minimum temperature rating of 230 degrees Celsius and should be sized to create a -0.14 Inch Water Column draught at the flue collar of the oven.



Oven Model Series	Flue Collar
Mt. Chuckanut WS-MS-4	8 inch I.D.
Mt. Adams WS-MS-5	10 inch I.D.
Mt. Baker WS-MS-6	10 inch I.D.
Mt Rainier WS-MS-7	10 inch I.D.
Sumas Mtn. WS-MS-8	10 inch I.D.

This page illustrates and describes proper specifications and installation for exhaust hoods used to vent Wood Stone ovens. These hoods are available from Wood Stone; contact your equipment supplier for ordering.



		Oven Model Number				
		WS-MS-4	WS-MS-5	WS-MS-6	WS-MS-7	WS-MS-8
	Width	30"	42"	42"	48"	63"
Depth	Flat Front	33"	33"	33"	33"	33"
	Curved Front	37"	37"	37"	37"	37"
	Required CFM	450	625	625	700	920
	Duct Size	6"x 6"	7"x 7"	7"x 7"	7.5"x7.5"	8.5"x8.5"
	Static Pressure	0.80"	0.80"	0.80"	0.80"	0.80"
	Weight in Lbs.	125	175	175	200	300

## INITIAL OVEN STARTUP (RFG-IR and RFG-IR-W)

see page 16 for RFG and RFGW models

### FIRST DAY

1. Make sure main gas supply is on (valve parallel with gas line).
2. Make sure the switch on each Honeywell gas valve (SV-1 and SV-2) is in the on position.
3. **Push I/O button on controller.** It may take a while for the gas to purge all the air from the gas lines.
4. Allow oven to operate at **FACTORY SETTINGS** for 1 hour (thermostat set at **100 degrees**, radiant flame at its lowest setting).
5. After one hour, raise dome flame to 25% (~6 inch flame), hold this setting for 4 hours.
6. After 4 hours @ 25% flame, raise to 50% flame and hold for at least another 4 hours.  
The oven can be left at this setting all night.

### SECOND DAY

1. Set the floor temperature to 500 degrees.
2. Turn the radiant flame to 75% height.  
*The floor temperature should reach 500 degrees within about an hour. The oven is now ready for cooking, go to it!!*

## General Daily Oven Operation

### END OF THE DAY

1. Push I/O button, all gas will go off, *even the pilots.*
2. Put oven door in place to retain heat.

### BEGINNING OF THE DAY

1. Remove oven door
2. Push I/O button, set controller to desired floor temperature and turn the radiant flame to its highest setting. *Oven should be stabilized at or above the set point within an hour.*

### CLEANING THE OVEN

1. As needed (twice per hour), use the floor brush to sweep stray food debris to the doorway, where it can be easily removed with a dough cutter or spatula.
2. As needed, swab the deck using an damp (not wet) rag wrapped around the floor brush.

**NEVER PLACE ANYTHING IN OR ABOVE THE RADIANT FLAME**

### HOW TO READ FLOOR TEMPERATURE

The floor temperature is continuously displayed by the controller in the window labelled "hearth temperature". This reading is being taken by a thermocouple about an inch below the floor surface, so the actual surface temperature may be somewhat different, and is best measured using a non-contact (IR) thermometer.

### HOW TO ADJUST THE FLOOR TEMPERATURE (SET POINT)

To adjust the oven's thermostatic floor temperature setting, simply press the arrow button corresponding to the direction in which you would like the setting to go. If the thermostatic set point is raised above the actual hearth temperature, the underfloor burner should activate (the red indicator labelled "Hearth Heat" will light).

## **DETAILED DAILY OVEN OPERATION** **for (RFG-IR and RFG-IR-W) only**

***See page 17 for RFG and RFGW models***

***IMPORTANT: If at any time you feel that either or both of the burners are not operating properly, TURN THE OVEN OFF and call for service. Before servicing, disconnect the electrical supply at the breaker and turn off the gas supply at the appliance's individual gas shutoff valve. In the event of a power failure, no attempt should be made to operate the oven.***

### **1. DAILY STARTUP**

**Press the I/O button to start the oven.**

The Radiant Flame will ignite. The infrared under floor burner will ignite if the actual floor temperature is below the set point temperature to which the controller is adjusted.

**GREEN LIGHT:** indicates the system is energized.

**AMBER LIGHT:** indicates the pilot flame for the radiant burner is lit.

**RED LIGHT:** indicates that the pilot flame for the infrared (under-floor) burner is lit. This light will go off whenever the actual floor temperature is above the thermostatic set point.

### **2. TURNING OFF THE OVEN**

**Push the I/O button on the controller to turn the oven off.**

Both burners will go out and the digital readout on the controller will go out.

***Always wait 5 minutes before relighting the oven.***

### **3. ADJUSTING THE RADIANT (dome) FLAME**

**To adjust the radiant flame:** The radiant flame is always on (when the oven is operating) and can be adjusted to any flame intensity between its highest and lowest setting. Simply turn the knob located to the lower left of the doorway, beneath the mantle.

This burner is the primary heat source for the oven. The infrared under floor burner will act as an assist, to maintain desired floor temperatures during periods of high food production.

### **4. ADJUSTING THE FLOOR SET-POINT**

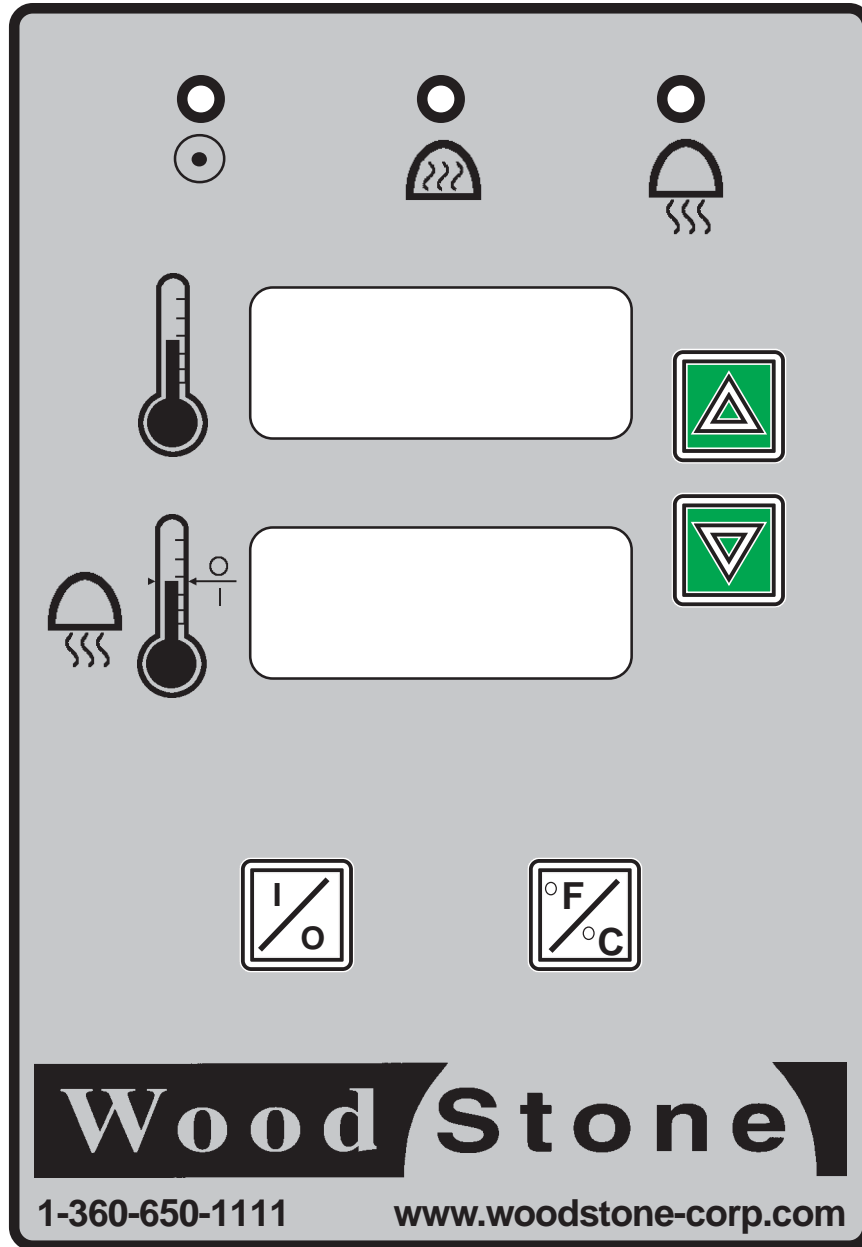


To adjust the oven's thermostatic floor temperature setting, simply press the arrow button corresponding to the direction in which you would like the setting to go. If the thermostatic set point is raised above the actual hearth temperature, the underfloor burner should activate (the red indicator labelled "Hearth Heat" will light).

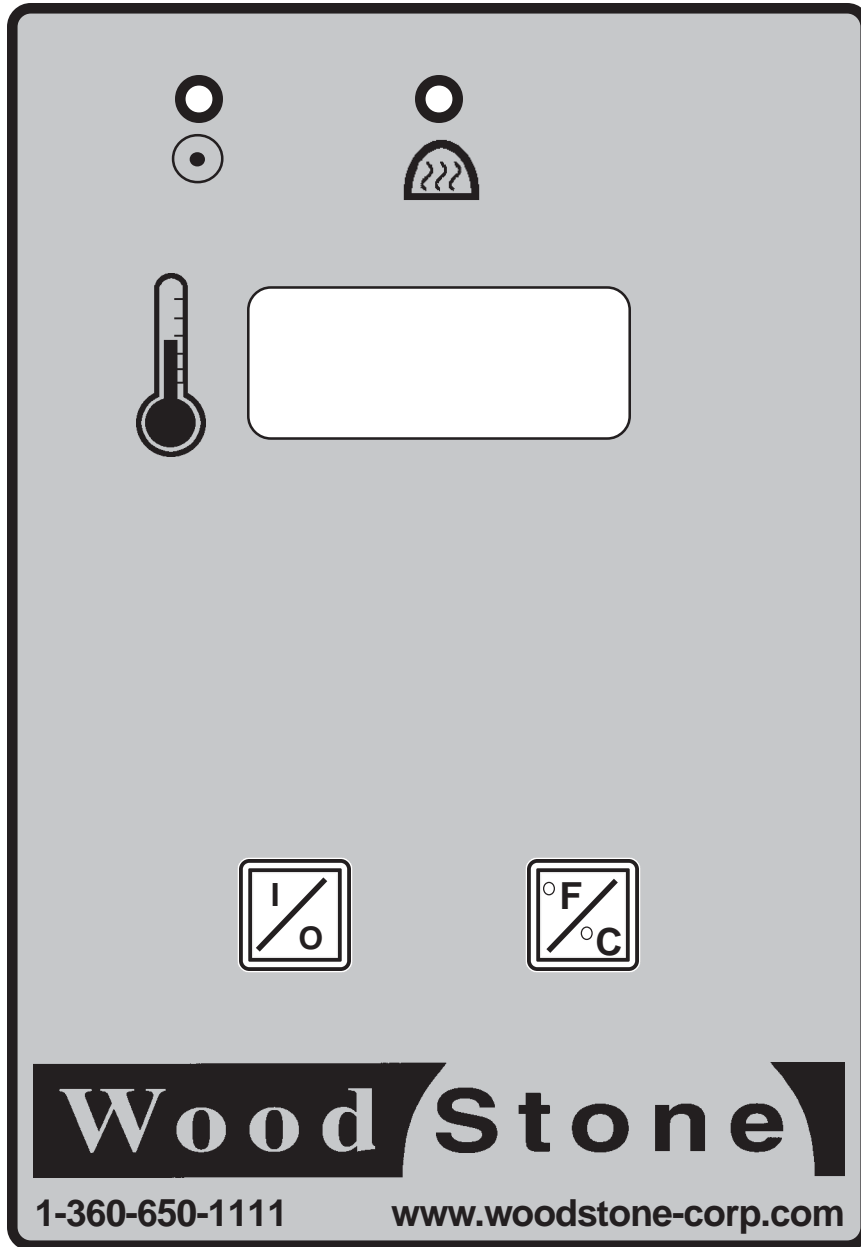
*\* It is only possible to program the floor's thermostatic hearth set point to temperatures from 200 to 600 degrees F. Once proper temperatures for your application have been established, there should be little or no need to change the hearth set point.*

**STAINLESS STEEL DOORS:** The door(s) are used for nighttime heat retention. ***Do not operate the oven with doors in place.***

**DAILY MAINTENANCE:**



NOTE: see page 15 for RFG and RFGW controller



NOTE: see page 14 for RFG-IR and RFG-IR-W controller

## INITIAL OVEN STARTUP for RFG and RFGW models

see page 12 for RFG-IR and RFG-IR-W models

### **FIRST DAY**

1. Make sure main gas supply is on (valve parallel with gas line).
2. Make sure the switch on the Honeywell gas valve (SV-2) is in the on position.
3. **Push the I/O button on the controller.** It may take a while for the gas to purge all the air from the gas lines.
4. Allow oven to operate for 1 hour with the radiant flame at its lowest setting.
5. After one hour, raise the flame to 25% (~6 inch flame), hold this setting for 4 hours.
6. After 4 hours @ 25% flame, raise to 50% flame and hold for at least another 4 hours.  
The oven can be left at this setting all night.

### **SECOND DAY**

Turn the radiant flame to 75% height.

*The floor temperature should reach 500 degrees within about an hour. The oven is now ready for cooking; go to it!!*

## **General Daily Oven Operation**

### **END OF THE DAY**

1. Push the I/O button, all gas will go off, *even the pilot.*
2. Put oven door in place to retain heat.

### **BEGINNING OF THE DAY**

1. Remove oven door
2. Push the I/O button and turn the radiant flame to its highest setting. When the oven reaches the desired temperature, reduce flame height so that the desired temperature is maintained

### **CLEANING THE OVEN**

1. As needed (twice per hour), use the floor brush to sweep stray food debris to the doorway, where it can be easily removed with a dough cutter or spatula.
2. As needed, swab the deck using a damp (not wet) rag wrapped around the floor brush.

***NEVER PLACE ANYTHING IN OR ABOVE THE RADIANT FLAME***

## **DETAILED DAILY OVEN OPERATION** **for RFG and RFGW models;**

**see page 13 for RFG-IR and RFG-IR-W models**

***IMPORTANT: If at any time you feel that the burner is not operating properly, TURN THE OVEN OFF and call for service. Before servicing, disconnect the electrical supply at the breaker and turn off the gas supply at the appliance's individual gas shutoff valve. In the event of a power failure, no attempt should be made to operate the oven.***

*See page 15 for an illustration of the RFG and RFGW oven controller.*

### **1. DAILY STARTUP**

**Press the I/O button to start the oven; the radiant flame will ignite.**

**GREEN LIGHT:** indicates the system is energized.

**AMBER LIGHT:** indicates the pilot flame for the radiant burner is lit.

### **2. TURNING OFF THE OVEN**

**Push the I/O button on the controller to turn the oven off.**

The burner will go out and the digital readout will go blank

**Always wait 5 minutes before relighting the oven.**

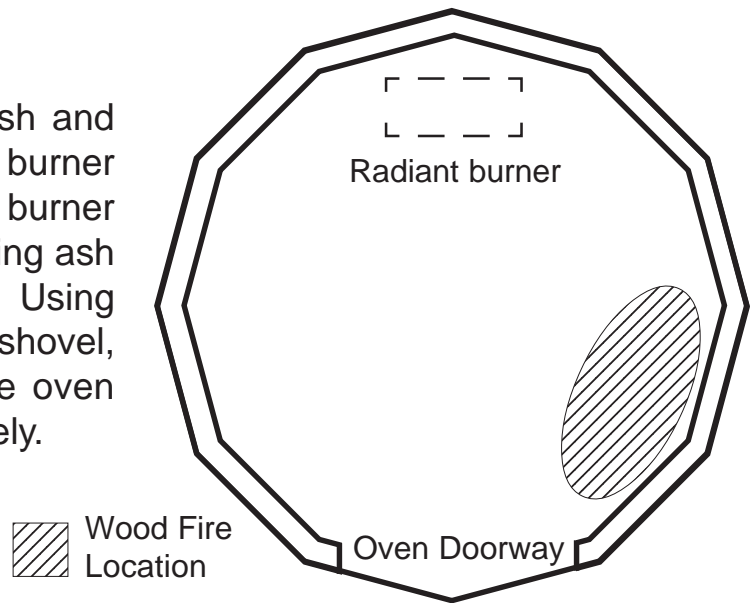
### **3. ADJUSTING THE RADIANT (dome) FLAME**

**To adjust the radiant flame:** The radiant flame is always on (when oven is operating) and can be adjusted to any flame intensity between its highest and lowest setting. Simply turn the knob located to the lower left of the doorway, beneath the mantle.

**STAINLESS STEEL DOORS:** The door(s) are used for nighttime heat retention. ***NEVER operate the oven with door(s) in place.***

When burning wood in a Wood Stone **RFG-IR-W** or **RFGW** model oven, the fire should be placed to one side of the oven chamber, as close to the door opening as is possible (this is often described as the 8 o'clock or 4 o'clock position). *Burn a maximum of 15 Lbs. of wood per hour.*

Make every effort to keep ash and other debris out of the radiant burner well. Do not use the radiant burner as a "backstop" when shoveling ash and/or coals out of the oven. Using the oven floor brush and ash shovel, move debris only toward the oven doorway and dispose of safely.



***DO NOT USE THE RADIANT BURNER TO IGNITE WOOD OR SUPPORT THE WOOD FIRE.***

If at any time, you feel the gas components of the oven are not operating properly, *turn the oven off, shut off the gas supply and call Wood Stone at 360-650-1111 to arrange servicing of the oven.*

**Oven Interior**

Wood Stone recommends the use of a long-handled, brass bristled brush for sweeping aside excess food particles that will accumulate on the floor of the oven during use. **The oven floor can be cleaned with a damp rag. DO NOT USE ICE OR EXCESSIVE WATER ON THE FLOOR; THIS IS TO PREVENT THERMAL SHOCKING OF THE STONE.**

There is a stainless steel curb to prevent food from falling on and thereby obstructing the gas orifices of the radiant flame. ***If food gets into the radiant flame well and the flame is visibly obstructed, turn the oven off immediately, and call for service.***

**Oven Exterior**

All painted and stainless steel surfaces should be cleaned as necessary using an approved mild detergent, hot water and a soft cloth or sponge. Stubborn residues may be removed using a nonmetallic scouring pad. **When scouring stainless steel surfaces, scrub with the grain of the metal to prevent scratching.**

**IMPORTANT: DO NOT USE EXCESSIVE AMOUNTS OF LIQUID WHEN WIPING ON OR AROUND THE CONTROL BOX.**

**ALSO**

**DO NOT USE THE RADIANT BURNER WELL AS A DUMP FOR DEBRIS OR TRASH INCINERATION; MAKE EVERY ATTEMPT TO KEEP DEBRIS FROM DROPPING INTO THE WELL.**

**ESTABLISHING A THERMAL CLEANING SCHEDULE**

Wood Stone ovens are typically operated at temperatures which preclude the need for cleaning of the interior walls and ceiling (the dome) of the oven. If however, you routinely operate the oven at floor temperatures lower than 450 degrees Fahrenheit, you may notice a buildup on the interior walls and/or ceiling of the oven. If this is the case, use the following procedure to periodically clean the oven. The frequency of thermal cleaning will be determined by the amount of buildup experienced. The amount and rate of buildup will largely be determined by the type of wood burned to fuel the oven, and by how long the oven is operated at temperatures low enough to allow buildup to occur.

**THERMAL CLEANING**

**Wood-fired Oven** Starting from an existing fire, increase the fire's intensity (by adding wood) so that the floor temperature goes above 600 degrees Fahrenheit. Maintain this temperature for approximately 1 hour or until all visible signs of soiling are gone from the walls and ceiling of the oven. It should not be necessary to physically remove any material from the walls and ceiling with a brush or otherwise. Once the oven dome appears clean, allow the oven to return to the normal operating temperature and continue normal operation.

**Gas-fired Oven** If a Wood Stone gas-fired oven is operated at low temperatures (below 400 degrees Fahrenheit), it is possible that grease from food could condense on the walls and ceiling of the oven. To remove the grease that has accumulated on the walls and ceiling of the oven, simply turn the radiant flame to its highest setting. Monitor the floor temperature displayed on the controller. When the floor reaches 600 degrees Fahrenheit, lower the flame slightly; maintain the oven floor temperature near 600 degrees for about an hour. Once the oven dome appears clean, allow the oven to return to its normal operating temperature and continue normal operation.

