

## JXi™ Gas-Fired Pool and Spa Heater

Model Size 200, 260, 400

Essential installation and startup instructions are included in this manual. Additional operation and troubleshooting information is available online by scanning the QR code with your phone or visiting [jandy.com](http://jandy.com)



### ▲ 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

- **Immediately switch off main gas supply.**
- **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.**

**⚠ WARNING**

**FOR YOUR SAFETY:** This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exists. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation can create carbon monoxide gas and flue gases which can cause serious injury, property damage, or death. For indoor installations, as an additional measure of safety, Zodiac Pool Systems LLC strongly recommends installation of suitable carbon monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces. Improper installation and/or operation may void the warranty.

**EQUIPMENT INFORMATION RECORD**

Date of Installation \_\_\_\_\_

Installer Information \_\_\_\_\_

Initial Pressure Gauge Reading (with Clean Filter) \_\_\_\_\_

Pump Model \_\_\_\_\_ Horsepower \_\_\_\_\_

Notes \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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## Section 1. General Information

# READ AND FOLLOW ALL INSTRUCTIONS

### 1.1 Introduction

This manual provides installation and operation instructions for the Jandy JXi pool and spa gas heater product line. Read these installation and operation instructions completely before proceeding with the installation. Consult Zodiac Pool Systems LLC ("Zodiac") with any questions regarding this equipment. To obtain additional copies of this manual contact us at 1.800.822.7933.

Zodiac Pool Systems LLC  
2882 Whiptail Loop #100  
Carlsbad, CA 92010 USA

The blower draws air and fuel through specially designed orifices, delivering a precise mixture to the burner, located inside the sealed combustion chamber. Water flows through the heat exchanger, which surrounds the burner transferring the heat to the water. Exhaust gases are then directed through a duct where it is vented to the atmosphere.

### 1.2 Safety Instructions

The heater is designed and manufactured to provide many years of safe and reliable service when installed, operated, and maintained according to the information in this manual and the installation codes referred to throughout. Be sure to read and comply with all warnings and cautions.

## WARNING

Improper installation or maintenance can cause nausea or asphyxiation from carbon monoxide in flue gases which could result in severe injury, or death. For indoor installations, as an additional measure of safety, Zodiac Pool Systems LLC strongly recommends the installation of suitable Carbon Monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces.

**The following "Safety Rules for Hot Tubs", recommended by the U.S. Consumer Product Safety Commission, should be observed when using the spa:**

- Spa or hot tub water temperature should never exceed 104°F (40°C). One hundred degrees Fahrenheit (100°F [38°C]) is considered safe for a healthy adult. Special caution is recommended for young children.
- The drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness which could lead to unconsciousness, and subsequently result in drowning.
- **Pregnant women take note!** Soaking in water above 102°F (38,5°C) can cause fetal damage during the first three (3) months of pregnancy (which could result in the birth of a brain-damaged or deformed child). If pregnant women are going to use a spa or hot tub, they should make sure the water temperature is below 100°F (38°C) maximum.
- The water temperature should always be checked with an accurate thermometer before entering a spa or hot tub. Temperature controls may vary by as much as 1°F (1°C).
- Persons with a medical history of heart disease, diabetes, circulatory or blood pressure problems should consult their physician before using a hot tub or spa.
- Persons taking any medication which induces drowsiness (e.g., tranquilizers, antihistamines, or anticoagulants) should not use spas or hot tubs.

**Prolonged immersion in hot water can induce hyperthermia.**

Hyperthermia occurs when the internal body temperature reaches a level several degrees above the normal body temperature of 98,6°F (37°C). Symptoms include dizziness, fainting, drowsiness, lethargy, and an increase in the internal body temperature. The effects of hyperthermia include:

- Lack of awareness of impending hazard
- Failure to perceive heat
- Failure to recognize need to leave spa
- Physical inability to leave spa
- Fetal damage in pregnant women
- Unconsciousness resulting in a danger of drowning

## SAVE THESE INSTRUCTIONS

**1.3 Warranty**

The Jandy JXI heater is sold with a limited factory warranty.

Make all warranty claims to your Jandy dealer or directly to Jandy. Claims must include the heater serial number and model (this information can be found on the rating plate), installation date, and name of the installer. Shipping costs are not included in the warranty coverage.

The warranty does not cover damage caused by improper assembly, installation, operation, winterizing, field modification, or failure to earth bond and properly ground the unit. Also, damage to the heat exchanger by corrosive water is NOT covered by the warranty.

**1.4 Technical Assistance**

Consult the Jandy technical support department or your local Jandy dealer with any questions or problems involving your Jandy equipment. An experienced technical support staff is ready to assist you in assuring the proper performance and application of Jandy products. For technical support call the Jandy technical support department at 1.800.822.7933.

**1.5 Specifications**

Supply Gas		
INSTALLATION LOCATION*	NATURAL GAS (NG)	CERTIFIED INDOOR, OUTDOOR / COVERED SHELTER
	LIQUID PROPANE (LP)	OUTDOOR / COVERED SHELTER
OUTDOOR OPERATION AMBIENT AIR	ANY	OUTDOOR OPERATION IN AMBIENT AIR DOWN TO 40°F (4°C)
GAS PIPE HEATER GAS VALVE CONNECTION†	NATURAL GAS (NG)	3/4 in NPT
	LIQUID PROPANE (LP)	
Inlet Gas Supply Pressure ‡		Min
		4.0 in WC
Water Pipe/Heater Connection	NATURAL GAS (NG)	<ul style="list-style-type: none"> <li>• PVC/CPVC 2 in unthreaded</li> <li>• Jandy threaded union</li> </ul>
	LIQUID PROPANE (LP)	
Water Flow Rate		Min
		30 gpm (76 lpm)
Working Water Pressure	NATURAL GAS (NG)	2 psi**
	LIQUID PROPANE (LP)	
Exhaust Vent Connection Size (Category I)§ See Section 3.3.5, Exhaust Venting.	NATURAL GAS (NG)	<ul style="list-style-type: none"> <li>• Model 200: 6 in</li> <li>• Model 260: 7 in</li> <li>• Model 400: 8 in</li> </ul>
	LIQUID PROPANE (LP)	
Exhaust Vent Connection Size (Category III)§ See Section 3.3.5, Exhaust Venting.	NATURAL GAS (NG)	<ul style="list-style-type: none"> <li>• All Models: 4 in</li> </ul>
	LIQUID PROPANE (LP)	
Electrical Supply	NATURAL GAS (NG)	<ul style="list-style-type: none"> <li>• 120 VAC@&lt;5amps</li> <li>• 240 VAC@&lt;2.5amps</li> </ul>
	LIQUID PROPANE (LP)	

Supply Gas		
High Altitude	NATURAL GAS (NG)	Appliances are normally derated when installed at high elevation. This is not necessary with the JXi heater because it has a special venturi-type combustion system which self-compensates for changes in barometric pressure. Air flow through the blower inlet pulls the correct flow of gas into the burner regardless of air density. JXi heaters are CSA certified for elevations of up to 4,500 feet above sea level. At elevations above 4,500 ft., the heater BTU output can be expected to be reduced by 4% for every 1,000 feet over 4,500 feet above sea level.
	LIQUID PROPANE (LP)	
* Indoor installation is not recommended for liquid propane heaters. **Adjustable water pressure switch factory set to 7 psi. See Section 5.3, <i>Water Pressure Switch Adjustment</i> for adjustment instructions. Review Special Precautions for liquid propane heaters (see Section 4.3, <i>Special Precautions for LP Gas</i> )		Any changes to the heater, gas controls, gas valve, air orifice, gas orifices, wiring, or improper installation may void the warranty. If change is required to any of the above; contact your local Jandy distributor, visit <a href="http://www.jandy.com">www.jandy.com</a> or call technical support at 1.800.822.7933.
†For gas pipe size requirements see Section 4, <i>Gas Connections</i>		
‡Value displayed is for operating (fired) pressure not static.		
§ Use type B double-wall gas vent, per table 13.1(a) NFPA 54		

1.6 Dimensions

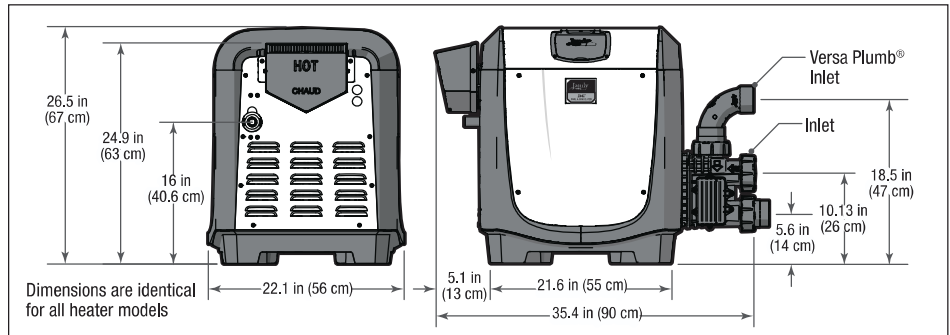


Figure 1. General Dimensions

For ASME heater models JXi400NC, JXi400PC, JXi260NC and JXi260PC please go to Section 13, Appendix A. ASME Header.

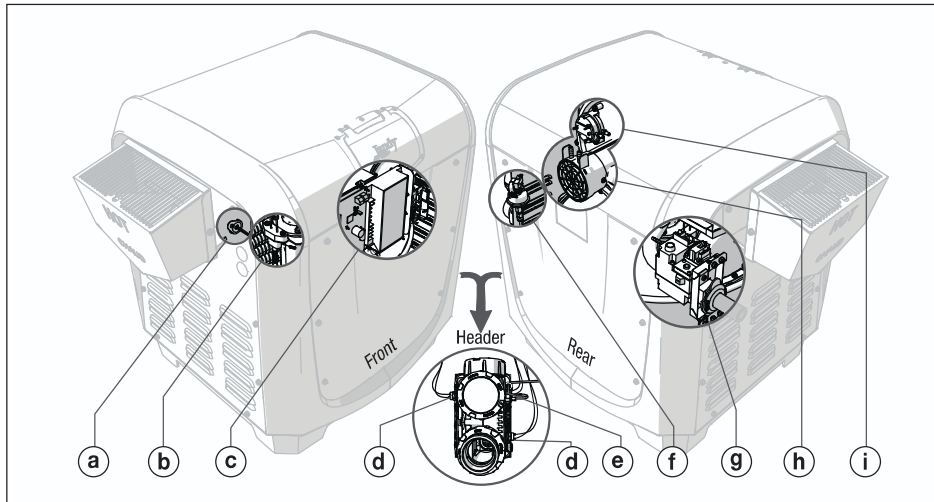
1.7 Certification Codes and Standards





	USA	CANADA
Design Certified	<b>CSA (Canadian Standards Association)</b>	
Compliant	ANSI® Z21.56 California South Coast Air Quality Management District's (SCAQMD) Rule 1146.2	CSA 4.7
National Codes	National Fuel Gas Code <b>NFPA® 54/ANSI Z223.1</b>	Natural Gas and Propane Installation Code <b>CAN/CSA-B149.1</b>
	Pay particular attention to the chapter addressing Venting of Equipment	Minimum combustion air requirements MUST be followed for proper and safe operation. Failures may occur when only the minimum combustion air openings are used.

All Jandy heaters must be installed in accordance with the local building and installation codes as per the utility or Authority Having Jurisdiction (AHJ). In the absence of local codes, please refer to the latest edition of the national codes for installation.

JXi pool and spa heaters meet or exceed the requirements of energy conservation regulations such as those in states that have disallowed the use of continuously lit pilot type ignition sources.

## 1.8 Heater Components



- a. **Flue Temperature Sensor:** Monitors temperature at the exhaust flue. If excessive temperatures are detected, combustion will stop and a fault will be displayed.
- b. **Hot Surface Igniter:** When current is passed through the ceramic material of the igniter it will achieve temperatures great enough to initiate combustion of the air/fuel mixture.
- c.  **Ignition Control:** Provides energy for ignition, monitors flame quality and controls the gas valve. Upon call for heat, the blower is activated to purge the combustion chamber. Electrical power is then applied to the hot surface igniter. When ignition temperature is attained, the gas valve opens and ignition occurs. If stable flame is detected the igniter will power down. If stable flame is not detected the control system will close the valve to prevent further gas release. If a total of 3 ignition attempts fail an ignition fault is displayed.
- d. **High Limit Switches:** Prevent water of excessive temperatures from being discharged from the heater. If either switch, one at the heat exchanger first pass 135°F (57°C) and one at the heat exchanger outlet 150°F (65°C), senses excessive temperature, the gas valve will close and combustion will stop.
- e.  **Pool/Spa Water Temperature Control:** Senses water temperature by means of a thermistor. Heater will operate to attain and maintain the water temperature according to the heater settings. Two separate thermostat settings are supported, typically used to set pool and spa temperatures.
- f.  **Water Pressure Switch:** Senses whether or not water is available to the heater by measuring back pressure at the header inlet. If insufficient pressure is detected, the display will indicate a “Check Flow” fault and combustion will stop.
- g. **Gas Valve:** Controls gas flow into the burner. Enables flow when the temperature control calls for heat and all safety controls enable operation. It also regulates gas pressure to -0.2" WC (Water Column) below the air pressure at the blower inlet. Necessary pressure regulation cannot be accomplished with common (positive pressure) gas valves.
- h. **Combustion Blower and Air Orifice:** Draws in air and fuel gas creating an air/fuel mixture that is passed through the burner for combustion. The fan will operate for several seconds before flame initiation and after the flame is extinguished to purge the combustion chamber for a clean burn and to expel any residual exhaust gas.
- i.  **Air Pressure Switch:** Monitors the vacuum (negative pressure) within the blower housing. This switch verifies that air is flowing through the combustion system by sensing pressure. If air flow is inadequate, combustion will stop and a fault will be displayed.

 Indicates a safety control equipped to protect internal components and extend the life of the heater.

## Section 2. Getting Started

Install the JXi in accordance with the procedures in this manual, local codes and ordinances, and in accordance with the latest edition of the appropriate national code. See *Section 1.7, Certification Codes and Standards*.

If the heater is to be operated in below freezing conditions it should be installed in a protected outdoor shelter. See *Section 3.3, Indoor and Outdoor Shelter Installation*.

All gas-fired products require correct installation to ensure safe operation.

The requirements for pool heaters include the following:

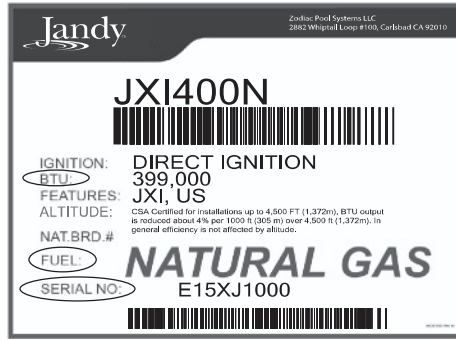
- Field assembly (if required)
- Appropriate site location, clearances and flooring. See *Section 3, Location Requirements*
- Sufficient combustion and ventilation air
- Properly sized gas meter and piping
- Proper electrical wiring
- Sufficient water flow

This manual provides the information needed to meet these requirements. Review all applications and installation procedures before continuing the installation.

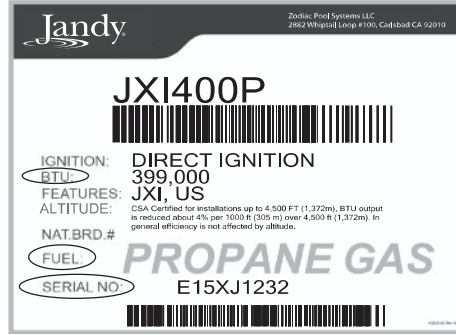
### 2.1 Package Contents

For ASME heater models JXi400NC, JXi400PC, JXi260NC and JXi260PC please see *Section 13, Appendix A. ASME Header*.

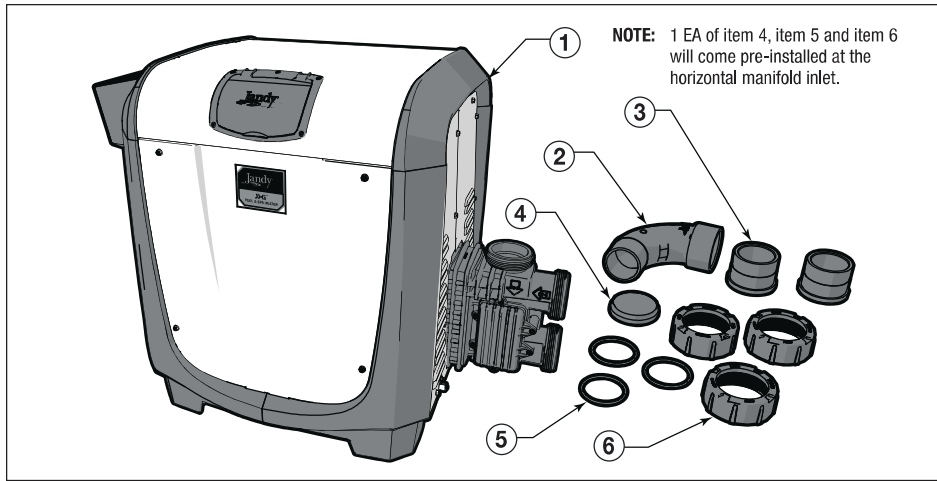
Before completely unpacking the unit please inspect carton for damage. In addition, please check the carton label to ensure that you have the correct fuel type and BTU rating for your application.



OR



Item	Description	Qty.
1	JXi Heater	1
2	Versa Plumb® Sweep Elbow	1
3	2 in Universal Union Tailpiece	2
4	2 in Universal Union Cap	1
5	2 in Universal Union O-ring	3
6	2 in Universal Union Nut	3



## 2.2 Required Equipment

Please ensure that the following equipment is available to the installer at the time of installation.

### 2.2.1 Tools



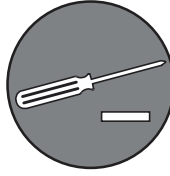
Safety Eyewear



Gloves



Phillips Screwdriver



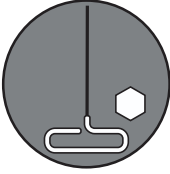
Flathead Screwdriver



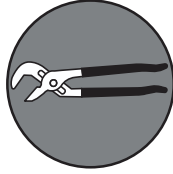
Pipe Wrench



Adjustable Wrench



3/16 in Hex Key



Channel Locks



Digital Differential Manometer



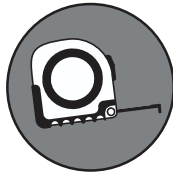
Voltage Meter



PVC Pipe Cutter



Power Drill



Tape Measure

### 2.2.2 Materials Supplied by Installer

Please ensure that all materials used during the installation are in accordance with local codes or the authority having jurisdiction (AHJ) requirements. If you have any questions regarding the materials that need to be used during this installation please call the Zodiac customer service center at 1.800.822.7933.

Indoor installations will require additional venting and exhaust conversion materials which are outlined in detail in Section 3.3, *Indoor and Outdoor Shelter Installation*.

**NOTE:** Required materials may differ from the materials listed. Be sure to confirm with all local and national codes before beginning the installation.

Gas Supplies	Electrical Supplies	Plumbing Supplies
Appropriately sized Gas Piping (see Section 4.1, <i>Supply Gas Requirements</i> )	120 or 240 VAC	PVC Piping
Manual Gas Shut Off Valve	Conduit Elbow/ Conduit connector.	PVC Cement
Gas Union	Flexible Conduit	PTFE (Teflon™) Tape
Gas Pipe Cap	Wire Nuts (3 ea.)	
Leak Solution		
1/16 in Hose "T"		
1/8 in - 1/16 in Barbed Adapter		
1/16 in Flexible Hose		

### Section 3. Location Requirements

The JXi heater is shipped from the factory with an exhaust vent configured for outdoor installation. The heater is also design-certified for indoor installations, see *Section 3.3, Indoor and Outdoor Shelter Installation* for details. In Canada indoor installation must use a two pipe direct vent (combustion air and vent piping), see *Section 3.3.2, Direct Venting* for details.

Location of the heater below or above the pool water level affects operation of its water pressure switch. See *Section 5.3, Water Pressure Switch Adjustment* for more information.

Equipment must be installed on a firm, solid, non-absorbent level surface; and per the requirements of local codes and Authority Having Jurisdiction (AHJ). Equipment can weigh up to 156 lbs. (57 kg). Use suitably rated mounting surface materials to avoid risk of settlement, and never use sand to level the equipment as the sand will wash away. Check local building codes for additional requirements.

**NOTE:** If the heater is to be operated in below freezing conditions it should be installed in a protected outdoor shelter.

### 3.1 Clearances

The heater must be installed in a location that allows clearances for maintenance and inspection. Minimum distances from combustibles surfaces must also be maintained. All criteria given in the following sections reflect minimum clearances as stated in the national standards. However, each installation must also be evaluated, taking into account prevailing local conditions such as wind speed and direction, proximity and height of obstructions that may block ventilation, and proximity to public access areas.

**Service Clearance:** 36 inches (92 cm) from top of heater for removal of top panel.

18 inches in the US and 24 inches (61 cm) in Canada from the front panel of the heater. One exception to this is if the top panel is reversed such that the water plumbing is now on the left hand side of the heater and the exhaust is on the right hand side. In this case, you will need the service clearance (18" US/24" Can) from the rear panel of the heater.

**Combustible Surfaces:** Each heater face requires a 6 inch (15 cm) clearance from combustible surfaces. Although it is not advisable, the heater base can be placed on a combustible surface for operation. However, **do not install the heater on carpet.**

#### CAUTION

When pool equipment is located below the pool surface, a leak from any component can cause large scale water loss or flooding. Zodiac Pool Systems LLC cannot be responsible for such water loss or flooding or resulting damage.

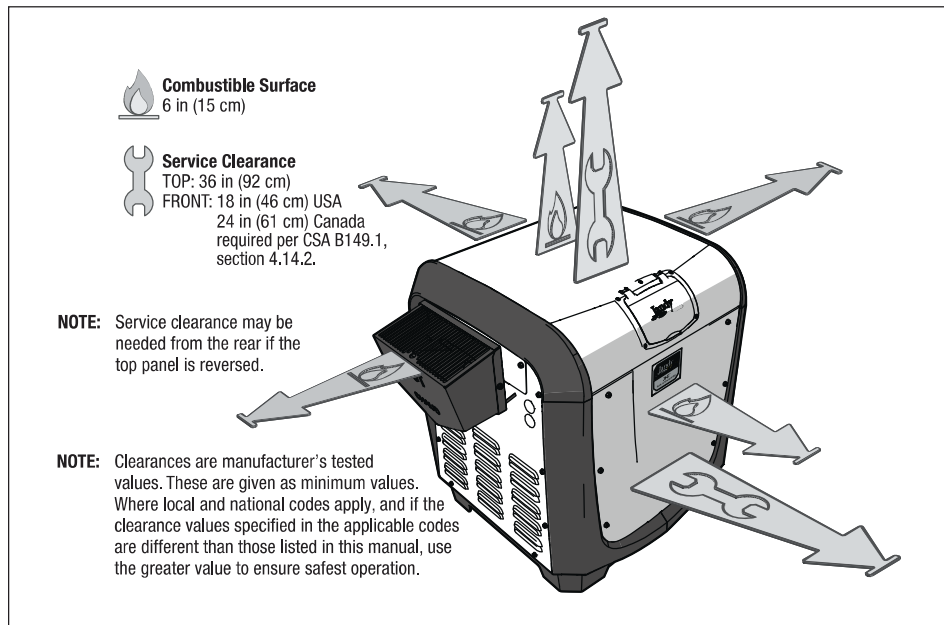


Figure 2. Clearances

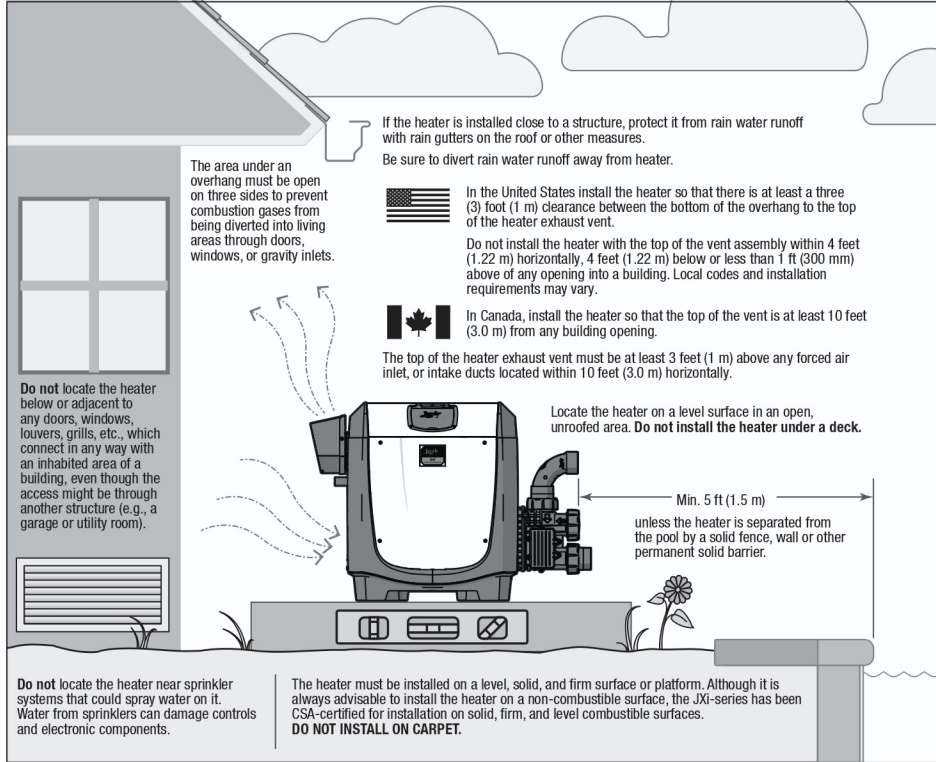
**3.2 Outdoor Installations**

**Locate the heater:**

- On a level solid surface
- 5 ft (1.5 m) from inner pool edge unless separated by a permanent solid barrier, i.e. a wall or fence
- In an open area, not under a deck or other structure
- Away from doors windows or louvers that connect in any way to occupied or inhabited areas of the building

- Away from rainwater runoff
- Away from potential sprinkler water intrusion
- So that the top of the heater is at least 3 feet (1 m) below any overhang
- So that the top surface of the heater is at least 3 feet (1 m) above any forced air inlet within 10 feet (3 m)
- This heater is approved for use outdoors without additional venting attachments. If there are concerns over extreme weather conditions, we do provide the option to add up to 25 feet (7.5 m) of Category III venting material with an approved vent termination cap. Refer to *Section 3.3.8, Outdoor Heater Install with Venting for Extreme Weather Conditions* for details.

**NOTE:** In Canada the top of the exhaust vent must be at least 10 feet (3 m) from any building opening.



**Figure 3. Location Requirements**

<b>⚠ WARNING</b>	
United States	Canada
Do not install the heater with the top of the vent assembly within 4 feet (1.22 m) horizontally, 4 feet (1.22 m) below or less than 1 ft (300 mm) above of any opening into a building. Local codes and installation requirements may vary.	Do not install the heater with the top of the vent assembly within 10 feet (3.0 m) of any opening into a building. Local codes and installation requirements may vary.

**3.2.1 Anchor Bracket Installation**

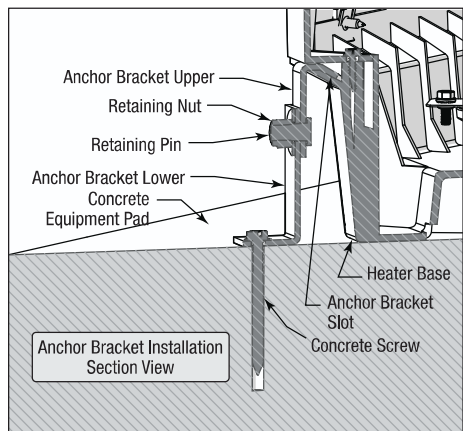
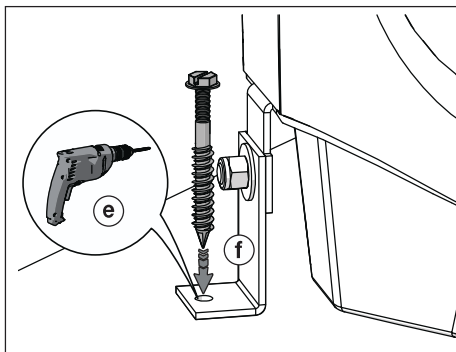
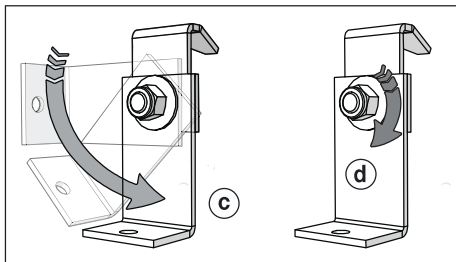
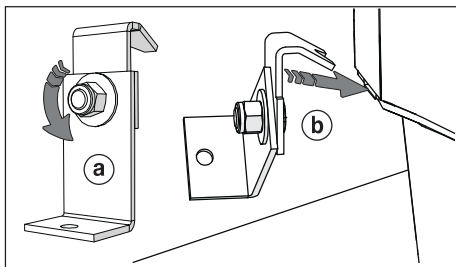
Anchor brackets do not come standard with the JXi. If you require the anchor brackets for your installation please order kit #R0593400.

Anchor brackets should be installed in any circumstance where the heater may be subject to natural risks such as extreme weather or earthquake. In Florida, the heater is required to be securely fastened to the equipment pad to meet the applicable requirements of the Florida Building Code. Other jurisdictions may have similar requirements for extreme weather or other natural hazards. Check your local codes for details.

- a. Using an adjustable wrench or equivalent tool loosen (DO NOT REMOVE) the retaining nut on the bracket. The upper and lower anchor bracket should be able to rotate freely about the retaining pin.
- b. Slide the bracket into the slot located at the lower corner of the heater base.
- c. Rotate lower anchor bracket into final position. Ensure that the lower anchor bracket is flush with the equipment pad surface and level.
- d. Tighten the retaining nut so that the anchor bracket assembly is secure.
- e. Drill a hole in the concrete using the lower anchor bracket hole as a guide. It is advised that a hammer drill with an appropriate concrete drill bit be used.
- f. Place a screw in the hole and tighten to fasten the anchor bracket to the concrete pad. Do not over torque the screws.

**NOTE:** Depending on the location of and access to the bracket, it may be necessary to mark the drill location using the lower anchor bracket hole as a guide. Remove the bracket from the heater, drill the hole and then reattach the bracket to the heater base.

**NOTE:** Concrete screws are not provided in the anchor bracket kit. Use size 1/4 in x 2-1/4 in galvanized or plated concrete screws and washers.



**3.3 Indoor and Outdoor Shelter Installation**

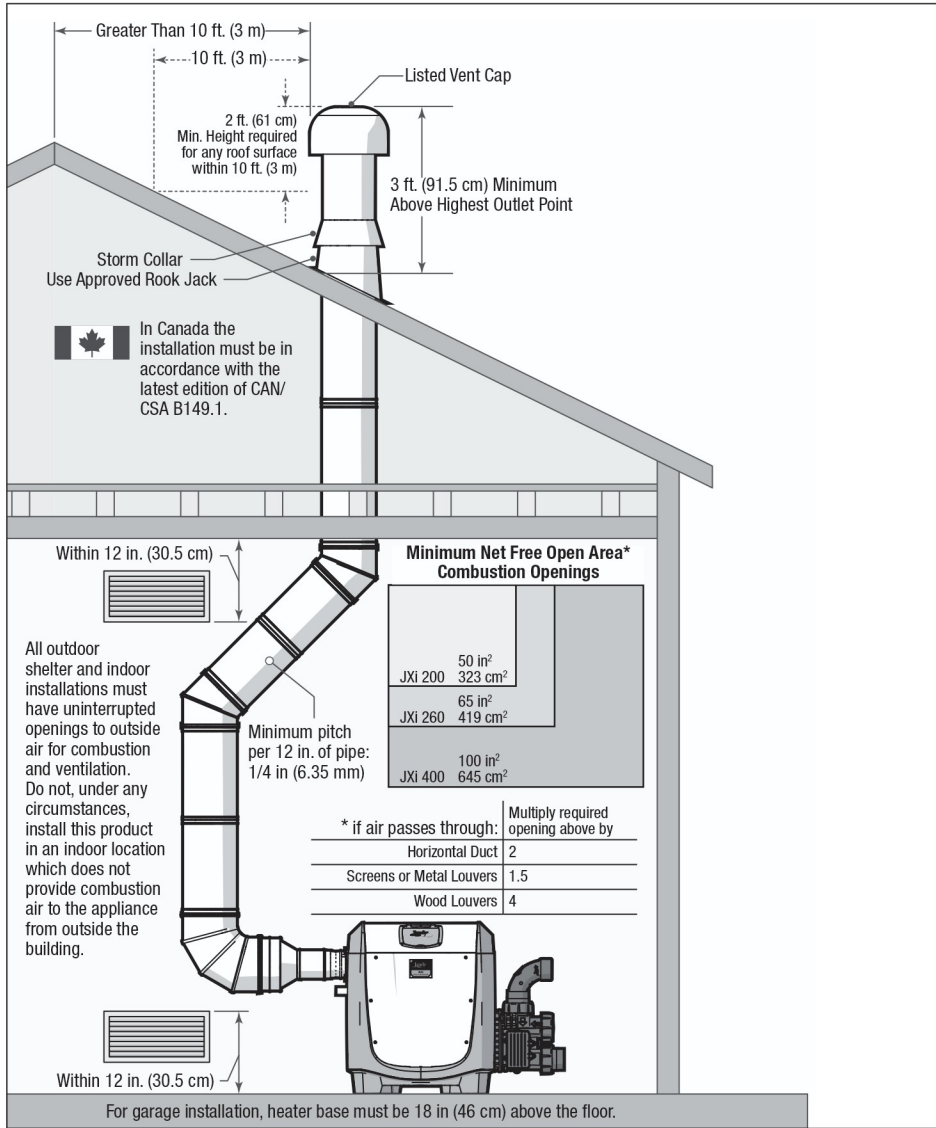
Due to the higher risks and hazards of liquid propane (LP) gas, Zodiac® does not encourage installation of LP gas heaters indoors, refer to Section 4.3, *Special Precautions for LP Gas*.

The heater is CSA design-certified for indoor installations. In Canada indoor installation must use a two pipe direct vent (combustion air and vent piping), see Section 3.3.2, *Direct Venting* for details. Please keep in mind the service and combustible surface clearances from Section 3.1, *Clearances* when selecting an installation location. You will also need to make considerations for intake combustion air see Section 3.3.1, *Combustion Intake Air Supply* and exhaust venting see Section 3.3.5, *Exhaust Venting*. In addition, when pool equipment is installed indoors, appropriate containment measures and drains should be considered for the prevention of property damage in the event of a water leak.

**NOTE:** An outdoor shelter is an unoccupied enclosure which does not communicate directly with occupied areas.

If the outdoor shelter is a completely closed structure, air openings in accordance with the size recommendations described in *Section 3.3.1, Combustion Intake Air Supply* must be maintained. If the structure does not have outside air openings then air must be provided for combustion by using our fresh air vent kit.

**3.3.1 Combustion Intake Air Supply**



**Figure 4. Indoor and Outdoor Shelter Installation**

As outlined in the latest edition of ANSI® standard Z223.1 (NFPA® 54), the heater location must be properly vented to provide sufficient air supply for proper combustion.

When combustion air is supplied directly through an outside wall, each opening should have a minimum free area of 1 square inch per 4,000 BTU/h (1.2 kW) input of the total input rating of all appliances in the enclosed area. If combustion air must pass through horizontal ducts, each opening should have a minimum free area of 1 square inch per 2,000 BTU/h (1.2 kW) input of the total input rating of all appliances in the enclosed area. Details can be found in *Figure 4*.

The “Minimum Net Free Open Area” information from *Figure 4* is not applicable in installations where exhaust fans or blowers of any type are used. Any equipment which exhausts air from the room where the heater is installed can deplete the combustion air supply which could lead to poor combustion, decreased heater efficiency and reliability and increased emissions. This could cause flue products to accumulate in the room. Additional air must be supplied to compensate for such exhaust. Consult a professional engineer to ensure that installations where exhaust fans or blowers are used are designed and installed in accordance with all applicable local and national installation codes.

In addition, the heater must be completely isolated and protected from any source of corrosive chemical fumes or corrosive vapors (i.e. chlorine or hydrochloric acid).

**WARNING**

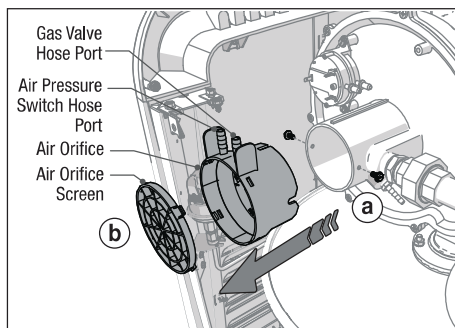
Do not store any chemicals, cleaners, or other corrosive material near combustion air openings or in the room. Avoid locating appliance vents in the vicinity of combustion air openings. Failure to prevent corrosive materials from mixing with combustion air can result in reduced heater life and unsafe heater operation.

**3.3.2 Direct Venting**

If you plan to supply the intake air directly to the heater, refer to *Section 3.3.3, Direct Air Intake* and *Section 3.3.4, Exterior Venting and Air Intake*.

**3.3.3 Direct Air Intake**

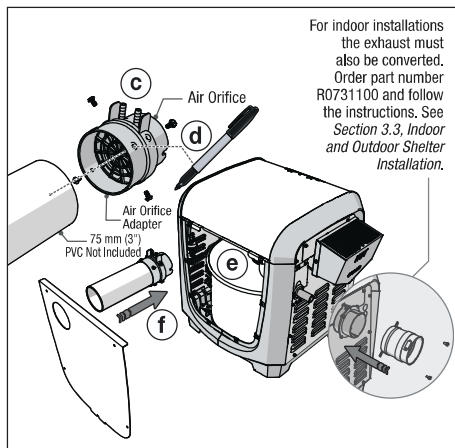
In certain applications it may be necessary to supply intake air directly to the heater. You will need to order and install the direct air conversion R-Kit R0724600. A total equivalent length of 65 ft (20 m) of 3 in (75 mm) PVC tubing can be used on the JXi200 and JXi 260 models. A total equivalent length of 65 ft (20 m) of 6 in (152 mm) PVC tubing can be used on the JXi400 models. Please be aware that each elbow used will account for 12 ft (3.6 m) of length.



**TIP:** When removing the air hoses from the air orifice, mark the hoses with tape or a marker to help with reassembly.

For ease of access, remove the rear and top panels.

- a. Loosen the two screws securing the air orifice and screen in place. Remove the air pressure switch and gas valve hose from the air orifice.
- b. Remove the air orifice, separate and dispose of the orifice screen.
- c. Align the orifice adapter with the orifice tabs and secure with four screws.



- d. Dry fit the 3 in (75 mm) PVC tubing into the orifice adapter. Mark screw hole locations with a pen. Remove and drill pilot holes in the PVC. Fit the PVC into the orifice adapter, align the holes and secure with four screws. In the case of the JXi400 (399,000 BTU models), up to a 6 in (152 mm) length of 3 in (75 mm) PVC can be used before increasing it to 6 in (152 mm) diameter PVC pipe.
- e. Reinstall the air orifice and air hoses.
- f. Install the new rear panel over the PVC and secure with four screws.

**3.3.4 Exterior Venting and Air Intake**

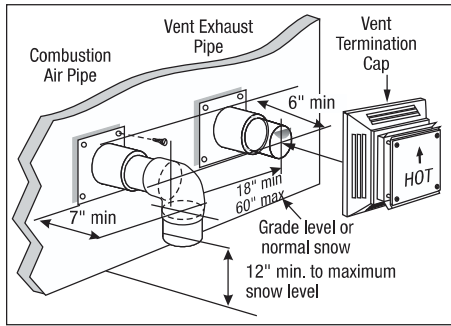
The JXi must be vented to the outdoors. It must not be vented in common with any other appliance, even if that appliance is of the condensing type. Common venting can result in severe corrosion of the JXi or of the other appliances or their venting, or escape of combustion product gases through such appliances or vents. Do not vent the JXi to a fireplace chimney or building chase.

Combustion air ducting, when provided, must not be shared with any other appliance or with another JXi. Doing so may result in flow of air through the other appliances instead of directly from the outdoors.

The combustion air intake and vent outlet must be located exterior to the building and in the same pressure zone - i.e. both through the roof or both through a side wall. The vent terminal must be located in accordance with local codes, as applicable, and in accordance with the following:

- Locate the vent terminal so that it will not be damaged by pedestrians and other traffic, and so that the discharge is not offensive. The National Fuel Gas Code requires a through-wall vent terminal be at least 7 feet (2.13 m) above grade if located at a public walkway.
- Locate the vent terminal so the vent exhaust does not settle on building surfaces and other nearby objects. Vent products may corrode such surfaces or objects.
- Locate the vent terminal at a sufficient horizontal distance from any gas or electric metering, regulating or relief equipment. In the United States, this distance must be at least 4 feet (1.22 m). In Canada, it must be at least 10 feet (3.05 m).
- Locate the vent terminal at a sufficient horizontal distance from any building opening. Take special care to assure that combustion products do not enter a building through windows, doors, ventilation inlets, etc. In the United States, this distance must be at least 4 feet (1.21 m). In Canada, it must be at least 10 feet (3.04 m).

As shown in Figure 5 and Figure 6, the combustion air intake and the vent outlet must be installed no closer together than 18 in (45.7cm) and no farther apart than 60 in (1.5m). The combustion air inlet opening must face downward to prevent entry of rain or snow. The vent outlet must discharge away from the combustion air inlet - normally in a horizontal direction when on a wall and vertically upward when on a roof. Both should terminate at least 12 in (30.5cm) above the snow accumulation level. In locations with freezing climate, extension of the vent pipe outside of the building should be minimized.



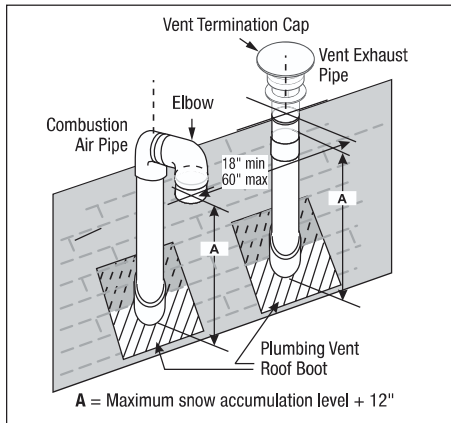
**Figure 5. Vent and combustion air terminals at exterior wall**

Connect the vent pipe to the heater vent collar with an air-tight corrosion-resistant clamp. The connection must not allow leakage of combustion products into the space but should be removable for service.

Install vent piping with a continuous rise of at least 1/4 in per foot (20 mm per meter) away from the heater. This will assure that any condensate forming in the vent pipe will flow back to the heater where it can be disposed of properly.

Support vent piping with suitable hangers so its weight does not bear on the heater or building penetration and so that piping joints are not strained. Support horizontal runs at intervals no greater than 6 feet (1.82 meters), and closer if necessary to avoid sagging. Sagging can trap condensate water and block the vent.

**NOTE:** Both combustion air and vent piping joints must be sealed appropriately. Connection of combustion air and vent piping to the heater should be serviceable - i.e. removable for heater service.



**Figure 6. Vent and combustion air terminals at roof**

### 3.3.5 Exhaust Venting

When the JXi heater is installed indoors (US only) or in an outdoor shelter it can be vented as a Category I or Category III appliance. In either case, the vent pipe sizing must be in accordance with the specifications listed in *Table 1*. Category III is required for indoor installation in Canada.

For cases when the heater is installed outdoors and there is concern over extreme weather conditions, we also provide the option of adding Category III venting per the specifications listed in *Table 1*.

It is recommended that all venting be engineered by a licensed mechanical contractor.

- **Category I:** Appliance operates with a negative vent static pressure, a vent gas temperature that avoids excessive condensate production and will vent vertically terminating at the roof. Venting materials for Category I must be Type B double wall vent. Category I is not approved for indoor installation in Canada.
- **Category III:** Appliance operates with a positive vent static pressure, a vent gas temperature that avoids excessive condensate production and can be vented horizontally terminating at a side wall.
- **Do not** terminate heater vents near air conditioning or air supply fans which could pick up exhaust flue products, such as carbon monoxide and other hazardous effluent, and return them inside the building.
- Vent pipe type and material must be carefully selected and depends on the type of installation.
- **Do not** locate the vent terminal where exhaust flue products could strike against building materials and cause degradation.
- Vent opening should be well away from landscaping or other obstructions that would prevent free air flow to and from vent terminal.
- **Do not** terminate vent under decks, stairs, or car ports.
- **Do not** use the appliance to support the vent pipe.
- Vent piping must be supported with no low spots or sagging which could allow condensate to collect.
- Horizontal runs must be sloped upwards away from the heater to a vent terminal at a minimum of 1/4 in per horizontal foot (2 cm/m). See *Figure 4*.
- Install the vent pipe so it can expand and contract freely with temperature changes.
- **Do not** run the heater vent into a common vent with any other appliance.
- It is recommended that vent runs over 18 feet be insulated to reduce condensation and use a condensate trap in the vent run close to the heater, especially in cold climate installations.
- When using Category III vent material, it is acceptable to use a larger diameter pipe size if needed. ‡



- For heaters installed outdoors where there is concern over extreme weather conditions, Category III venting with approved vent termination cap can be installed as noted in *Table 1* and *Section 3.3.8, Outdoor Heater Install with Venting for Extreme Weather Conditions.* ‡

## ⚠ WARNING

Vent pipe materials, sizing, and installation must be as required by the National Fuel Gas Code NFPA 54/ANSI® Z223.1 or the Canadian Installation Codes for Gas Appliances CAN/CSA-B149.1. Undersized pipe can result in inadequate venting and oversize pipe can result in vent condensation. Improper selection of vent pipe material, incorrect sizing of the pipe, and incorrect installation of vent piping can result in release of combustion products to the indoors. This can cause serious injury or death by Carbon Monoxide poisoning or asphyxiation.

Improper installation or maintenance can cause nausea or asphyxiation from carbon monoxide in flue gases which could result in severe injury or death. For indoor installations, as an added measure of safety, Zodiac Pool Systems LLC strongly recommends installation of suitable carbon monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces.

Incorrect design and installation of heater vents and ducts can result in personal injury, damage to property, or death. To avoid such hazards, the heater must be installed only by a qualified professional service technician.

It is recommended that all venting be engineered by a licensed mechanical contractor							
Codes*	 US	National Fuel Gas code ANSI® Z223.1 (NFPA® 54)					
	 CA	CAN/CSA-B149.1					
Category	Static Press.	Stack Temp.	Condensate	Termination Location	Pipe Sizing		
					Model	Pipe Size	Special Gas Vent Length† (Vertical or horizontal)
I	Negative	High	Minimal	Roof	200	6 in (15 cm)	N/A
					260	7 in (18 cm)	N/A
					400	8 in (20 cm)	N/A
III	Positive	High	Minimal	Roof or Side Wall	200	4 in (10 cm) or larger	65 ft (20 m)
					260	4 in (10 cm) or larger	65 ft (20 m)
					400	4 in (10 cm) or larger	65 ft (20 m)
III	Positive	High	Minimal	Outdoor‡	200	4 in (10 cm) or larger	25 ft (7.5 m)
					260	4 in (10 cm) or larger	25 ft (7.5 m)
					400	4 in (10 cm) or larger	25 ft (7.5 m)

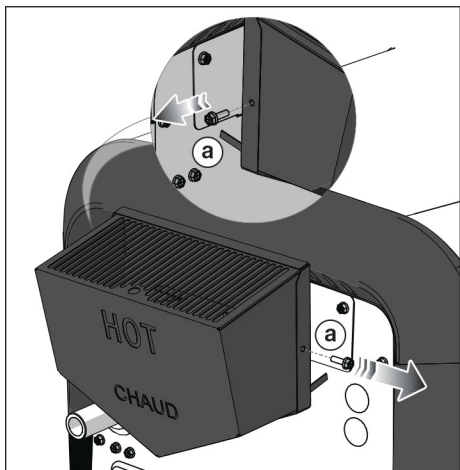
\*Ensure that you are referencing the latest edition and pay special attention to the chapter addressing "Venting of Equipment".  
 †For each elbow installed, reduce the run length by 12 feet (3.7 m)  
 ‡ Applies to outdoor installed heater with concerns over extreme weather conditions.

Table 1. Vent Pipe Sizing Requirements

3.3.6 Indoor and Outdoor Shelter Exhaust Conversion

For both Category I and Category III vent types the heater must first be converted to an indoor exhaust type. In order to complete the conversion you will need to order exhaust conversion R-Kit R0731100.

- a. Remove two screws securing the exhaust grill to the exhaust grill backplate.
- b. Remove exhaust grill.
- c. Remove the two screws securing the rain shield to the exhaust backplate.
- d. Remove the rain shield.



- e. Remove the remaining two screws securing the exhaust backplate to the exhaust outlet.
- f. Remove the exhaust grill backplate.
- g. Using two #10 thread cutting screws secure the vent adapter from R-Kit R0731100 to the exhaust outlet.
- h. If venting for Category I, install an appropriate vent pipe increaser to accommodate the correct pipe size from *Table 1*. Secure to the vent adapter using the screw clamp.

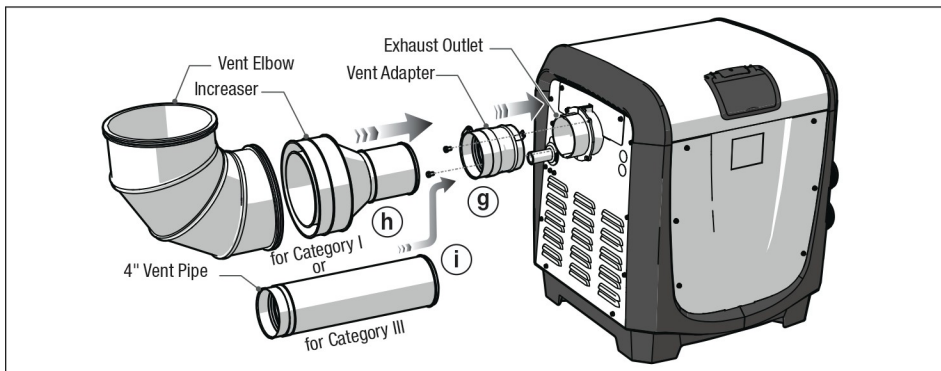
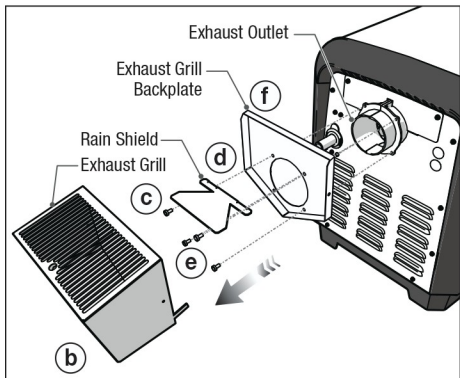
When the installation requires horizontal venting in excess of what is allowed for Category I installations or calls for horizontal discharge, the JXi may be installed with a Category III venting system.

Vent the heater either vertically or horizontally using A129-4C stainless steel components. Consult manufacturers such as Z-Flex® or Heat Fab® to obtain approved components. Venting materials must comply with UL® 1738 for Category III, Special Gas Vent. Based on the normally expected flue temperatures of this appliance. **PLASTIC VENTING MUST NOT BE USED.**

- i. If venting for Category III, install appropriate vent pipe from *Table 1*. Secure to the vent adapter using the screw clamp to ensure a proper seal.

Double check that there are no possible leak paths between joints. If a leak path is identified or suspected it can be sealed using red RTV 600° F rated silicone adhesive.

When using parts or materials from other manufacturers please be sure to follow the manufacturers instructions completely to ensure harmonious function.



**IMPORTANT NOTE:** In the Commonwealth of Massachusetts, additional requirements, covered in document CMR 248 5.00, which supersede some of the requirements of ANSI Z223.1 (NFPA 54) apply to Side Wall Horizontally Vented appliances. If installing this product using an approved side-wall horizontal vent system in the Commonwealth of Massachusetts, be sure to adhere to these additional requirements.

These requirements include verbiage that says that the property owner is to ensure that Carbon Monoxide Detectors are installed in the vicinity of the appliance and also on all levels of the dwelling in which the appliance is installed. For further instructions, contact Technical Support at 1.800.822.7933.

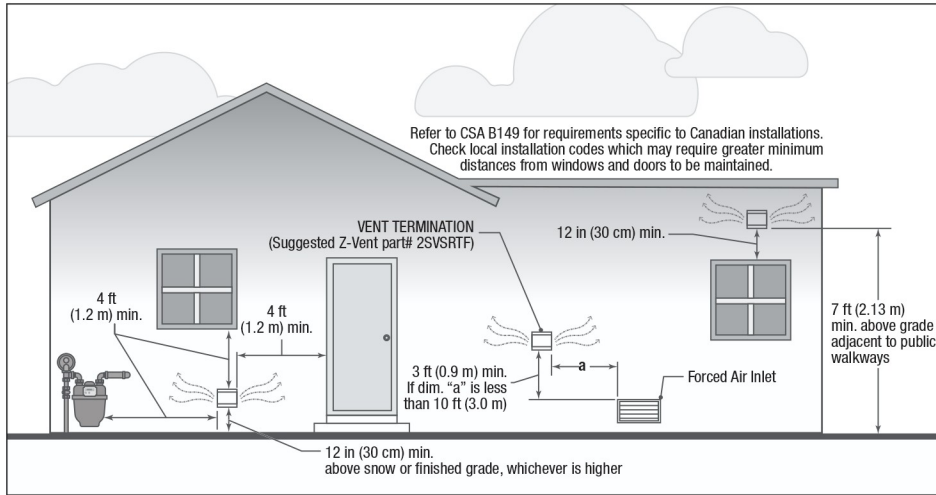


Figure 7. Side Wall Vent Termination

**3.3.7 Indoor and Outdoor Shelter Exhaust Termination**

**Category I:** Appliance must be vented vertically and terminate at the roof. Vent must terminate at least 2 feet (610 mm) above any objects within 10 feet (3.05 m). Termination must pass through a properly installed and approved roof jack, a properly sized storm collar and an listed vent cap. See Figure 4.

**Category III:** Appliance can be vented vertically to terminate at the roof or vented horizontally to terminate at a side wall. Side wall vents must be installed and located in accordance with the National Fuel Gas Code NFPA® 54 / ANSI® Z223.1 or the Canadian Natural Gas and Propane Installation Code CAN/CSA-B149.1. In addition some local installation codes may have requirements that exceed those of the national codes. The product must be installed in accordance with the codes being enforced by the local Authority Having Jurisdiction (AHJ).

**3.3.8 Outdoor Heater Install with Venting for Extreme Weather Conditions**

In the event that the heater is installed outdoors and there are concerns over extreme weather conditions, the heater exhaust can be converted using Category III vent material as shown in this section. An approved Category III vent termination cap needs to be installed vertically. We recommend using a vent termination cap from Z-flex (part #: 2SVSRFC04). The vent adapter is also required and can be ordered as R-Kit R0731100.

- a. Remove two screws securing the exhaust grill to the exhaust grill backplate.
- b. Remove exhaust grill.
- c. Remove the two screws securing the rain shield to the exhaust backplate.
- d. Remove the rain shield.
- e. Remove the remaining two screws securing the exhaust backplate to the exhaust outlet.
- f. Remove the exhaust grill backplate.
- g. Using two #10 thread cutting screws secure the vent adapter from R-Kit R0731100 to the exhaust outlet.
- h. Install 4" elbow to the vent adapter using the screw clamp to ensure a proper seal.  
Vent the heater vertically using A129-4C stainless steel components. Consult manufacturers such as Z-Flex® or Heat Fab® to obtain approved components. Venting materials must comply with UL® 1738 for Category III, Special Gas Vent. Based on the normally expected flue temperatures of this appliance. PLASTIC VENTING MUST NOT BE USED.
- i. Install vent cap to the vent elbow. Double check that there are no possible leak paths between joints. If a leak path is identified or suspected it can be sealed using red RTV 600° F rated silicone adhesive.

When using parts or materials from other manufacturers please be sure to follow the manufacturers instructions completely to ensure harmonious function.

