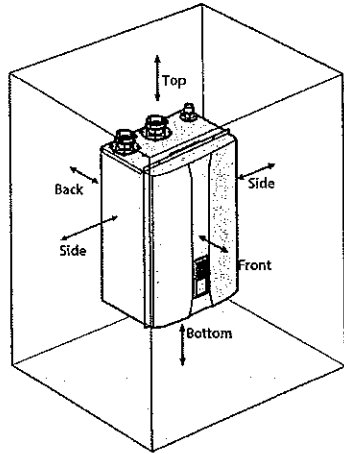


ber, a licensed gas fitter, or a professional service technician. Navien is not liable for any damages or defects resulting from improper installation.



### Allowable minimum clearances



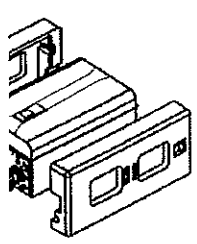
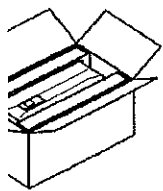
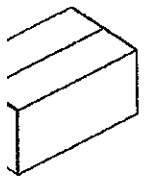
Clearance	Indoor Install
Top	9 in (229 mm)
Back	0.5 in (13 mm)
Front	4 in (100 mm)
Sides	3 in (76 mm)
Bottom	12 in (300 mm)

**WARNING**  
 Local codes and/or the most recent edition of the National Fuel Gas Code (NFPA 54) in the USA, or the Natural Gas and Propane Installation Code in Canada (CGA B149.1).

**DO NOT** install the boiler in areas with excessively high humidity.

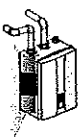
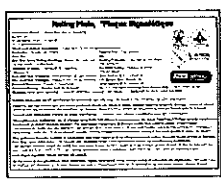
## 2 Installing

### Unpacking



- Installation & Operation Manual  
User's Information Manual
- Vent terminators
- Wall flanges
- Spare Parts
- Tapping screws and anchors
- Wall mounting bracket
- Air vent
- Conversion Kit
- Pressure Relief Valve (Heating)
- Outdoor Temperature Sensor and Cable
- Air Vent Bushing (3/4" to 1/2")

### 2 Checking the Rating Plate



This boiler is configured from the factory for Natural Gas. If conversion to Propane is required, the conversion kit with the boiler must be used.

#### **WARNING**

- Before connecting the gas supply, determine the gas type and pressure for the boiler by referring to the rating plate. Use the same gas type indicated on the rating plate. Using a different gas type will result in abnormal combustion and malfunction of the boiler. Gas supplies should be connected by a licensed professional only.
- The appliance and its gas connection must be leak tested before placing the appliance in operation.
- This boiler cannot be converted from natural gas to propane or vice versa without a Navien gas conversion kit. Do not attempt conversion of this boiler without a Navien gas conversion kit, as this will result in dangerous operating conditions and will void the warranty.

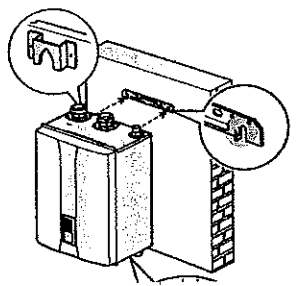
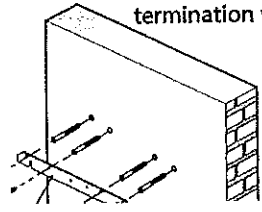
Navien America Inc. is not liable for any property damage or personal injury resulting from improper conversions.

### Mounting on the Wall

#### **CAUTION**

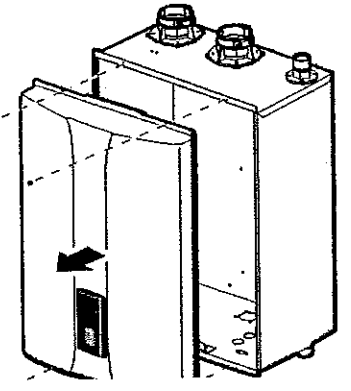
Do not install the boiler on dry walls without proper reinforcement.

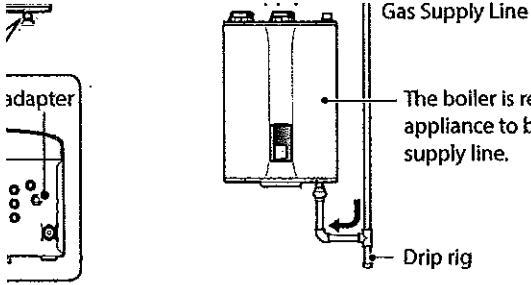
1 Drill in the supplied anchor bolts after considering where the vent termination will be located.



### 4 Removing the Front Cover

Remove the 4 screws





- 1/2 in rigid pipe can be used; refer to the sizing tables in the Install Manual for limitations. Avoid using 1/2" corrugated connectors or noise may occur.

## Water Piping Connections

### Space Heating System

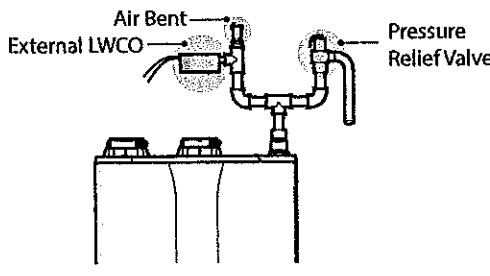
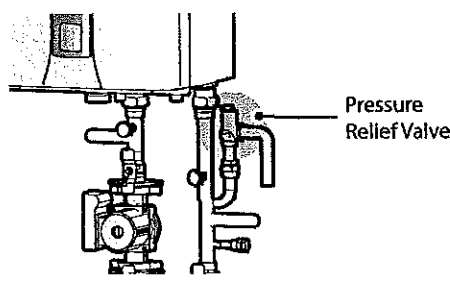
A pressure relief valve must be installed when installing a space heating system.

The boiler includes a 3/4 in, maximum 30 psi pressure relief valve on the space heating supply.

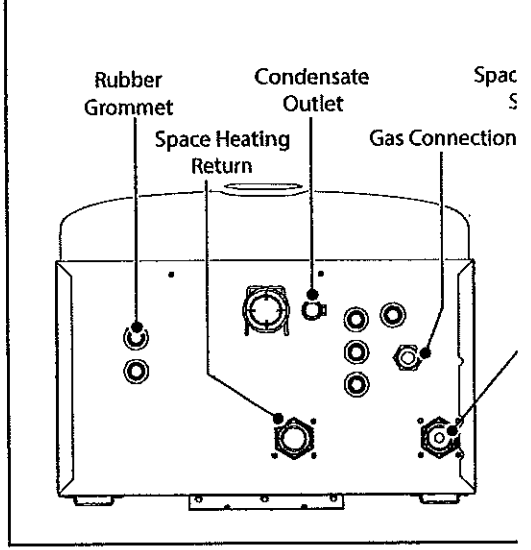
Use an approved HV pressure relief valve for space heating system if the boiler is supplied with the boiler.

Install the pressure relief valve on the space heating supply of the Navien Manifold System, or on the connection along with the air vent (and an LWCO, if required).

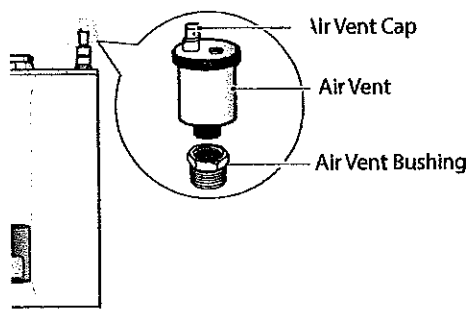
Do not solder piping directly onto the water connections, as the heat may cause damage to internal components. Use threaded water connections only.



### Water Piping Connections



### Air Vent Connection

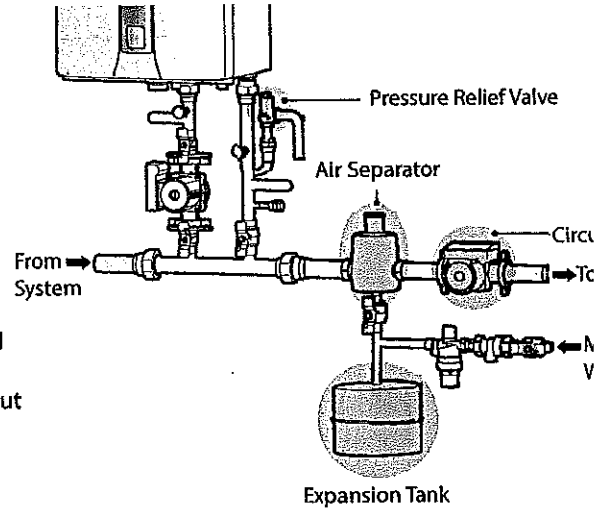


Before filling the boiler, remove the air vent cap to allow the system to fill properly. Replace the cap when the system is full.

Even NHB boilers have a top connection for an air vent. An air vent must be installed to purge air from the boiler.

When installing the air vent, install the air vent bushing between the air vent and the boiler connection.

**Warning** Ensure that the Air Vent Cap is removed before filling the system. System will not be properly filled without the air vent cap removed. Air in the system may cause malfunctions and system overheating.



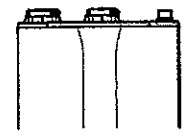
### Condensate Drain Connection

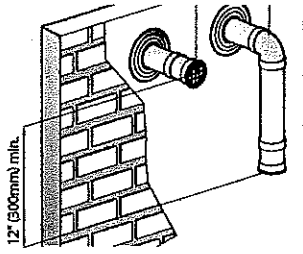
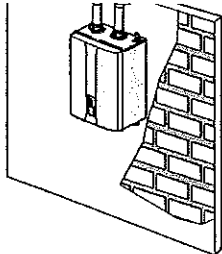
The drain pipe must be connected to the 1/2 in condensate outlet fitting at the bottom of the unit and water must be poured into the exhaust connection to fill the condensate trap.

The end of the 1/2 in (NPT) plastic piping should drain into a laundry tub or floor drain.



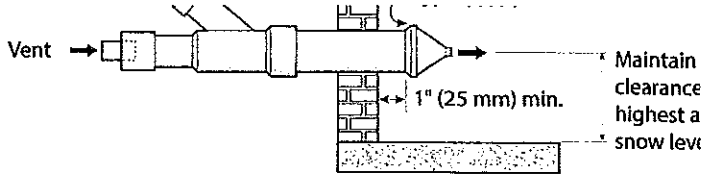
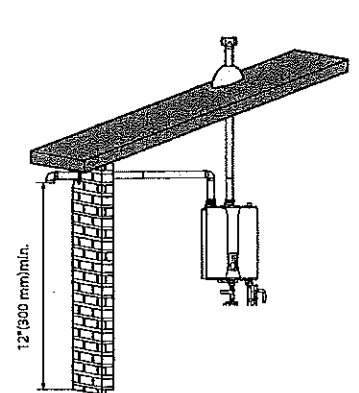
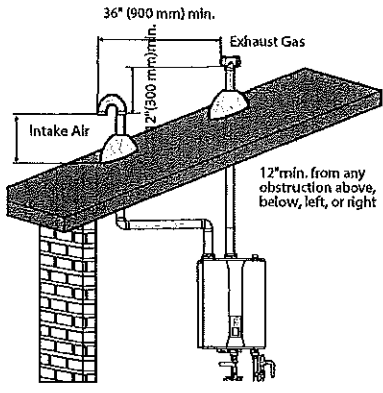
**Note** Do not submerge the end of the pipe in water.



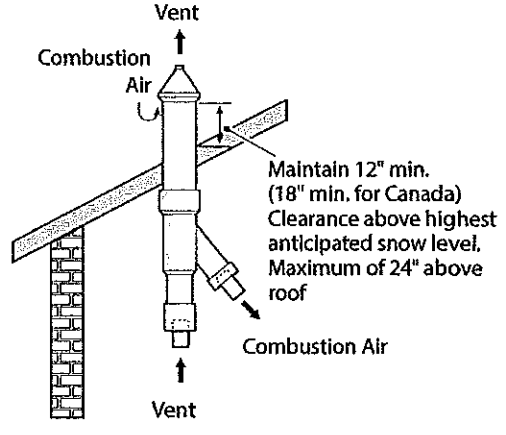


### Vertical Vent Termination

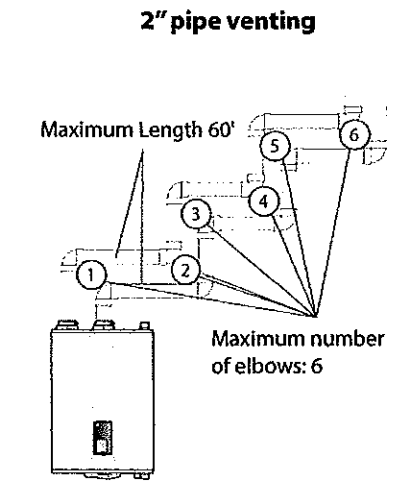
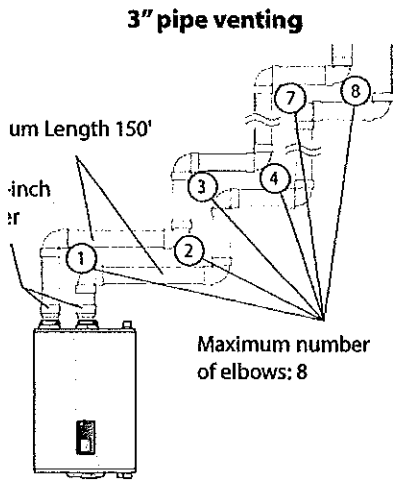
### Sidewall Vent Termination



### Roof installation



### venting Length



- 90° elbow = 5 linear feet of venting
- 45° elbow = 3 linear feet of venting

- 90° elbow = 8 linear feet of venting
- 45° elbow = 4 linear feet of venting

### Exhaust Vent Piping Materials

- All Navien boilers are Category IV appliances.
- The venting system should be approved for use with Category IV appliances (Type BH Special Gas Vent approved by UL 1738-S636).
- Venting requirements in the USA and Canada are different (see below).

#### Navien recommended venting materials

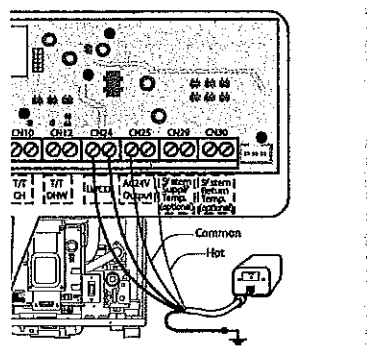
Locale	Recommended Vent Materials
USA	<ul style="list-style-type: none"> <li>• PVC Schedule 40(Solid core)</li> <li>• CPVC Schedule 40 or 80(Solid core)</li> <li>• Approved Polypropylene</li> </ul>
Canada*	<ul style="list-style-type: none"> <li>• Type BH Special Gas Vent Class IIA (PVC)</li> <li>• Type BH Special Gas Vent Class IIB (CPVC)</li> <li>• Type BH Special Gas Class IIC (Polypropylene)</li> </ul>

\* For installation in Canada, field-supplied plastic vent piping must comply with B149.1 (latest edition) and be certified to the Standard For Type BH Gas Venting ULC-S636. Components of this listed system must not be interchanged with other systems or unlisted pipes or fittings. All plastic components and specified primer of the certified vent system must be from a single system manufacturer and must not be intermixed with another system manufacturer's parts. The supplied vent connection and termination are certified as part of the boiler.

**Caution** In systems with 2 in. vents, if the exhaust temperature exceeds 149°F (field supplied) pipe must be used for the first 3 feet of equivalent length. In systems with 3 in. vents, if the exhaust temperature exceeds 149°F (field supplied) pipe must be used for the first 5 in. of equivalent length.

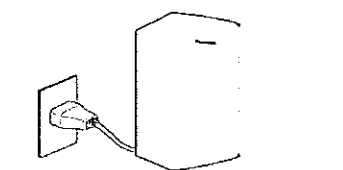
### Electrical Connections

#### Local LECO Connection (determined by local codes)



Refer to your local codes to determine if an

#### Power Connection

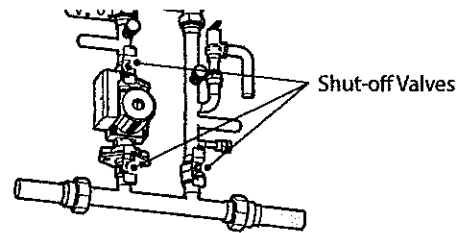
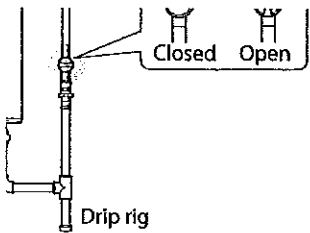


120 VAC 60 Hz  
Min. 2 Amp current with proper grounding

**CAUTION**  
Using abnormally high or low AC voltage may cause abnormal operation, thereby

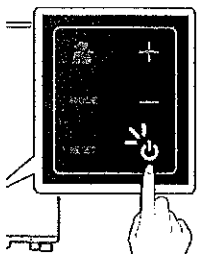
### Confirmation of Panel DIP Switch Settings

PCB Dip Switch 1 (6 switch unit)				PCB Dip Switch 2 (8 switch unit)		
SW	Function	Setting		SW	Function	Set
1&2	Operation Status	Normal Operation	1-OFF 2-OFF	1&2	Space Heating Temperature Control	Sup Temp
		2-stage MAX	1-ON 2-OFF			Ret Temp
		1-stage MIN	1-OFF 2-ON			Syst Temp opt1
		1-stage MAX	1-ON 2-ON			Syst Temp opt2
<b>Front Panel Dip Switch 1 (10 switch unit)</b>						
SW	Function	Setting		3	DHW Tank Temperature Control	DHW Temp
2	Temperature Unit	°C (Celsius) °F (Fahrenheit)	2-ON 2-OFF			



## Preparing the Boiler

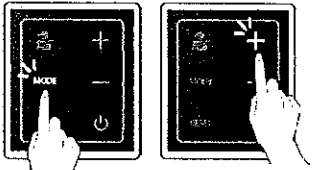
### Check Power



When power is on, the boiler will display the water pressure at intervals.

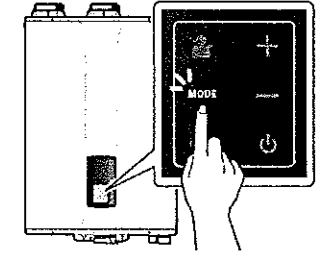
### Adjust Temperatures

#### Space Heating Temperature



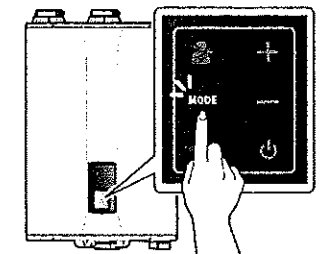
1. Press the Mode button once. The space heating icon turns on.
2. Press the + (Up) or - (Down) buttons until the desired temperature appears on the display.

#### DHW Indirect Supply Temperature



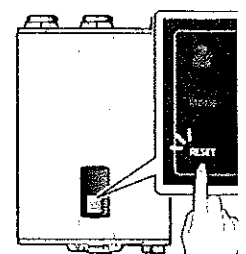
3. Press the Mode button twice. The DHW heating icon turns on.
4. Press the + (Up) or - (Down) buttons until the desired temperature appears on the display.

### View Basic Information



1. Press the Mode button three times. "INFO" will appear on the display.
2. Press the + (Up) or - (Down) buttons to switch between the information types.

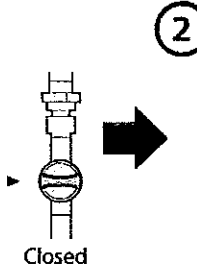
### Resetting the Boiler



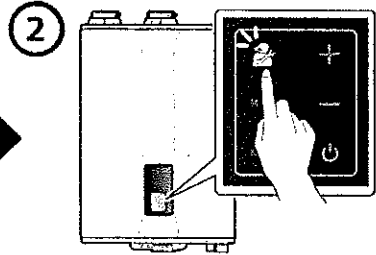
If an error message appears, you can try resetting the boiler to resolve the problem.

**Note** If resetting does not resolve the problem, consult the User's Instruction Manual or contact your service center.

## Measuring the Inlet Gas Pressure

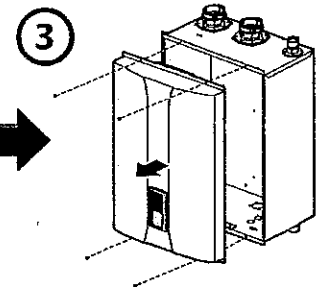


Close the manual gas

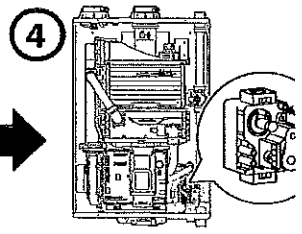


1. Turn on the boiler. On the Front Panel press the Diagnostics button for over 5 seconds until "1.PAR" is displayed.
2. Press the + (Up) button two times to change the display to "3.OPR".
3. Press the + (Up) button until "MAX2" is displayed.

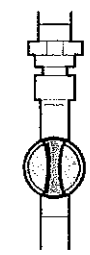
4. Press the Reset button twice to return to normal operation mode.
5. Run space heating. The gas in the gas supply line will be purged.
6. Leave the boiler on until the boiler shuts down due to a lack of gas supply, and then turn off the boiler.



Remove the front cover by loosening the 4 screws.

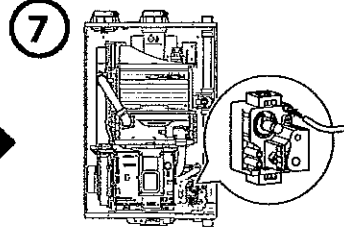


Loosen the screw in the figure and connect the manometer to the pressure port. Set the manometer to zero before use.



Open

Re-open the manual gas valve and check for leaks. Operate multiple zones that to ramp the boiler up to its maximum firing rate.

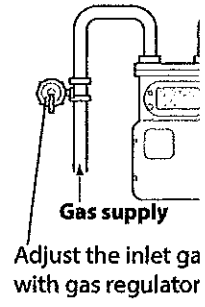


Check the inlet gas pressure reading on the manometer.

#### Recommended Gas Pressure Settings:

NG: 3.5" ~ 10.5" WC  
 LP: 8.0" ~ 13.5" WC

If it is out of the range,



Adjust the inlet gas with gas regulator

## Removing the Front Cover

## 5 Final Check

A trial run should be performed in accordance with the Installation checklist.