

## STEP 1 Before Installing

**⚠** Read the Installation and Operation Manual before installing. This product must be installed and serviced by a licensed plumber, a licensed gas fitter, or a professional service technician. Navien is not liable for any damages or defects resulting from improper installation.

### ⚠ WARNING

Follow all local codes and/or the most recent edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54) in the USA, or the Natural Gas and Propane Installation Code in Canada (CAN/CGA B149.1).

**Note** Installer must verify that at least one carbon monoxide detector is installed within the residential living space before placing the boiler into operation. Refer to the manufacturer's instructions and local codes as well as the Consumer Product Safety Commission (CPSC) and Environmental Protection Agency (EPA) recommendations for proper use of carbon monoxide alarms.

### Safety

Boilers come from the factory configured for use with Natural Gas (NG). If conversion to Propane Gas is required, the included Propane Gas & High Altitude Conversion kit must ALWAYS be used. Refer to the Propane Gas & High Altitude Conversion Guide for more information.

To prevent death, serious injury or property damage:

**Before starting the installation**, check the Rating Plate located on the side of the boiler to ensure that the boiler matches the gas type, gas pressure, water pressure, and electrical supply available in the installation location.

**If the boiler does not match each of these ratings, do not install the boiler.** Using a different gas type will result in abnormal combustion and malfunction of the boiler.

- ONLY a licensed professional should connect the gas supply.
- ALWAYS leak test the appliance and the gas connections before operating the appliance.
- This boiler cannot be converted from natural gas to propane without a Navien Propane Gas & High Altitude Conversion kit. NEVER attempt a field conversion of this boiler without using the Navien Propane Gas & High Altitude Conversion kit. Doing so will result in dangerous operating conditions and will void the warranty.

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

## STEP 2 Installing

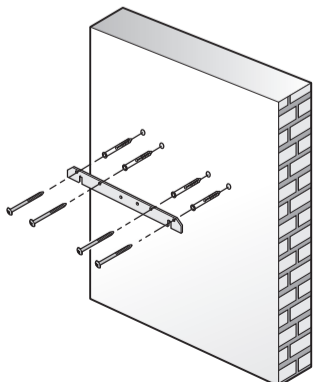
### 1 Unpacking


### 3 Mounting on the Wall

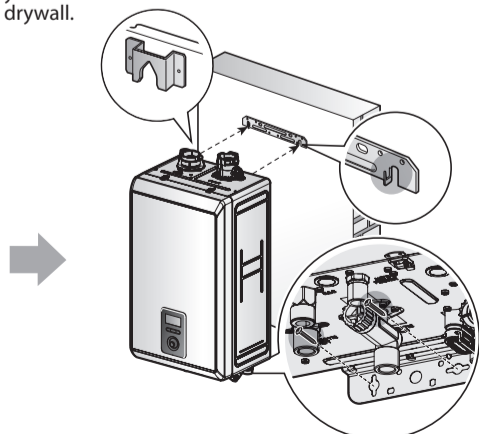
#### NOTICE

The mounting bracket has 16 inch on center holes for installation on standard wall studs. If the strength of the wall is insufficient or if the framing is non-standard or uneven, reinforce the area before installing the boiler to prevent property damage.

- 1 Drill holes into studs and drill holes into drywall for plastic anchors. Insert plastic anchors into drywall.

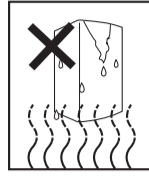


- 2 Secure one screw to hold Wall Mounting Bracket. Check bracket is level then secure the remaining three screws.



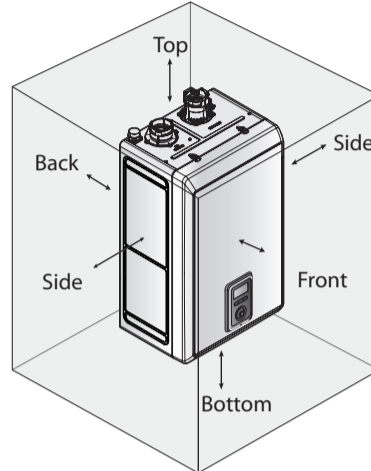
- 3 With assistance from another person, lift the boiler slightly above the hooks on the Wall Mounting Bracket. Slowly lower until the boiler is resting on the Wall Mounting Bracket hooks.

### Location Requirements



**Note** DO NOT install in locations with very high humidity. Refer to "Choosing an Installation Location" in the Installation and Operation Manual.

### Installation Clearances



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

### 2 Checking the Rating Plate

**Rating Plate, \*Plaque Signalétique**

Combination Boiler \*Chaudière combinaison  
Navien, Inc.  
20 Goodyear, Irvine, CA 92618  
Tel: 1-800-519-8794

**FOR EITHER DIRECT VENT INSTALLATION OR FOR INSTALLATION USING INDOOR COMBUSTION AIR**  
\*POUR INSTALLATION AVEC EVACUATION DIRECTE OU AVEC AIR INTERIEUR COMBURANT

Model No. *Numéro de modèle NCB-250/150H	Type of Gas, *Type de gaz Natural Gas
Max. Input Rating (DHW), *Entrée GPL max. 210,000 Btu/h	Min. Input Rating, *Débit calorifique max. 14,000 Btu/h
Max. Input Rating (Heating), *Entrée GPL max. 150,000 Btu/h	Heating Capacity, *Capacité de chauffage 138,000 Btu/h
Category of boiler, *Catégorie de chaudière Category IV	Net AHRI Rating, *Régime de AHRI 120,000 Btu/h
Max. Inlet Gas Pressure, *Pression max. de gaz d'entrée 10.5 Inches W.C., *pouces W.C.	Min. Inlet Gas Pressure, *Pression min. de gaz d'entrée 3.5 Inches W.C., *pouces W.C.
Manifold Pressure, *Pression d'admission Electrical Rating, *Régime nominal électrique Minimum relief valve capacity, *Capacité minimum soupape.	AC *c.a. 120 Volts 60Hz Use less than 15 Amp, *Utilise moins de 15A 200 lbs/hr CSA/ANSI Z21.13:2022 • CSA 4.9:2022

Orifices necessary for Propane conversion are provided. \*Les injecteurs nécessaires à la conversion au propane sont fournis.  
Failure to use the correct gas can cause problems which can result in death, serious injury or property damage. \*Le fait de ne pas utiliser le bon gaz peut causer des problèmes qui peuvent mener à la mort, causer des blessures graves ou endommager la propriété.  
Consult your installation manual for more information. \*Consultez votre manuel d'installation pour plus d'information.

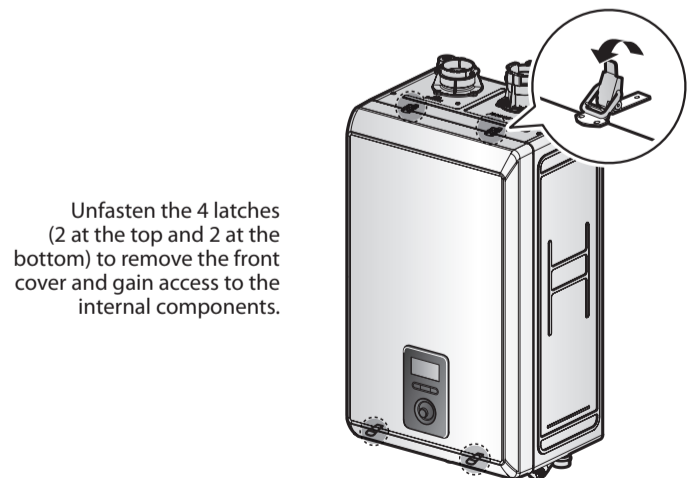
This appliance is certified for use at altitudes up to 4,500 ft (1,370 m) in accordance to the latest CAN/CGA 2.17-High Altitude Installation procedures at normal manifold pressure. This appliance has also been tested up to 10,100 ft (3,078 m).  
For installations at altitudes up to 10,100 ft (3,078 m), follow the directions provided in the High Altitude Installations sections of the Installation Manual. \*Cet appareil est certifié pour une utilisation à des altitudes de 0 à 4 500 pieds (1 370 m) conformément aux toutes les procédures d'installation à haute altitude CAN/CGA 2.17 à une pression normale. Cet appareil a été testé jusqu'à 10 100 pieds (3 078 m). Pour les instructions d'installation à une altitude supérieure à 10 100 pieds (3 078 m), suivez les instructions fournies dans la section des installations à haute altitude du manuel d'installation.

This appliance must be installed in accordance with local codes or in the absence of local codes, the most recent edition of National Fuel Gas Code, ANSI Z223.1, in Canada use CAN/CGA B149.1 or 2 installation codes for Gas Burning Appliances.  
\*Cet appareil doit être installé conformément aux codes locaux, ou s'il n'y a pas de codes locaux, la plus récente version du National Fuel Gas Code des E.-U., ANSI Z223.1, au Canada utilisez les codes d'installation CAN/CGA B149.1 ou 2 pour les appareils à gaz.

**FOR YOUR SAFETY \*POUR VOTRE SÉCURITÉ**  
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other gas appliances. \*Ne rangez pas et n'utilisez pas d'essence ou d'autres liquides ou vapeurs inflammables près de cet appareil ou de tout autre appareil électroménager.

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

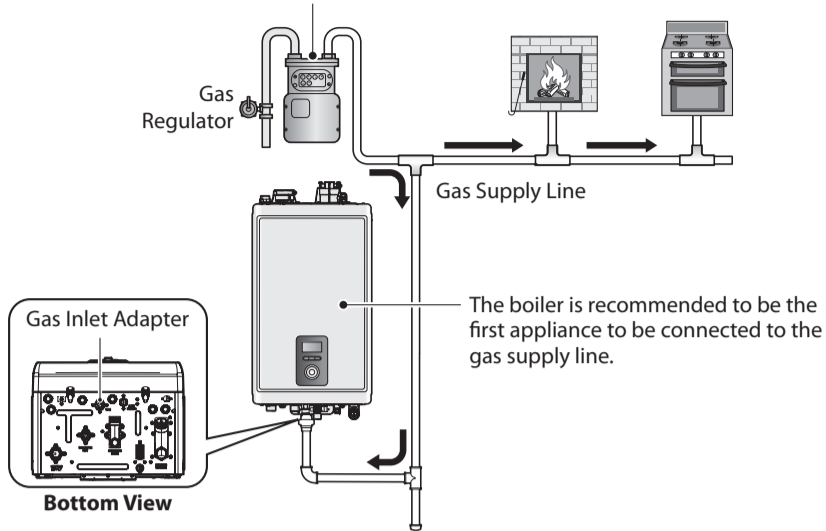
### 4 Removing the Front Cover



Unfasten the 4 latches (2 at the top and 2 at the bottom) to remove the front cover and gain access to the internal components.

## 5 Gas Piping Connections

Gas meter's capacity  $\geq$  Total gas capacity of connected appliances



Example:

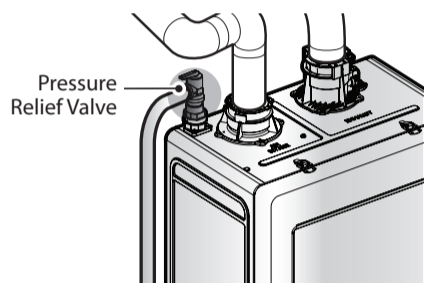
Gas meter	$\geq$	Boiler	+	Furnace	+	Domestic gas stove
425 CFH		195 CFH		58.8 CFH		63.7CFH

\* 1 CFH=1,020 Btuh

**Note** 1/2" rigid pipe can be used; refer to the sizing tables in the Installation & Operation Manual for limitations. Avoid using 1/2" corrugated connectors or tubing as noise may occur.

## 6 Water Piping Connections

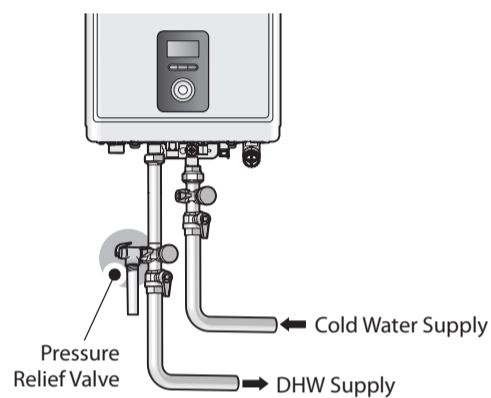
### Space Heating System



Install the included 3/4 in, maximum 30 psi pressure relief valve on the space heating supply.

An ASME approved HV pressure relief valve for space heating system is supplied with the boiler.

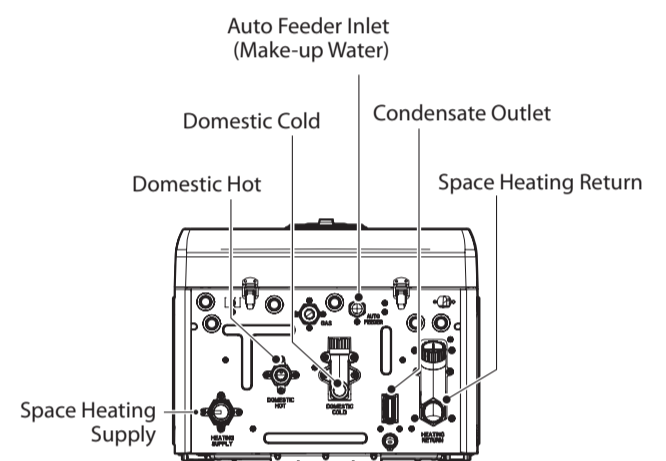
### DHW System



**The DHW pressure relief valve is not supplied, but is required.**

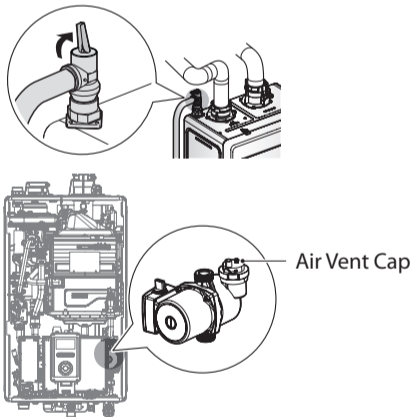
Install an approved 3/4 in, maximum 150 psi pressure relief valve on the domestic hot.

### Water Piping Connections



### Filling the System

Before filling the boiler, open the pressure relief valve by lifting the lever on top, and loosen the air vent cap to allow the system to fill properly. Close the pressure relief valve when the system is full.

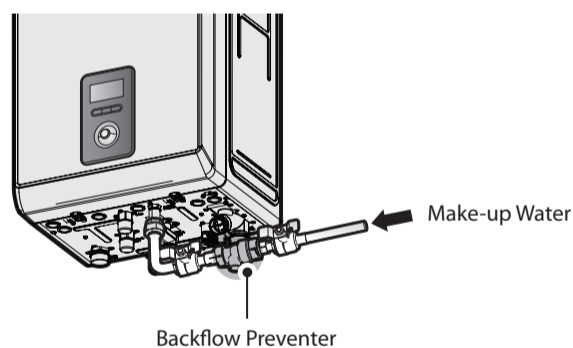


### NOTICE

Ensure that the pressure relief valve is closed before testing or operating the system.

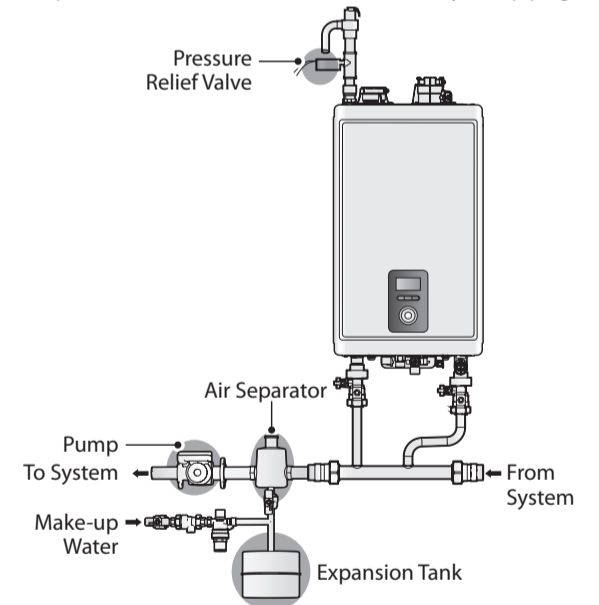
### Built-in Water Fill Connection

The Navien NCB-H boiler is equipped with an auto-feeding water connection and motorized feeding valve. Therefore, installation of additional system water fill connection is not necessary in most cases. See the following figure for an example of a water fill installation using the built-in connection.



### External Water Fill Connection

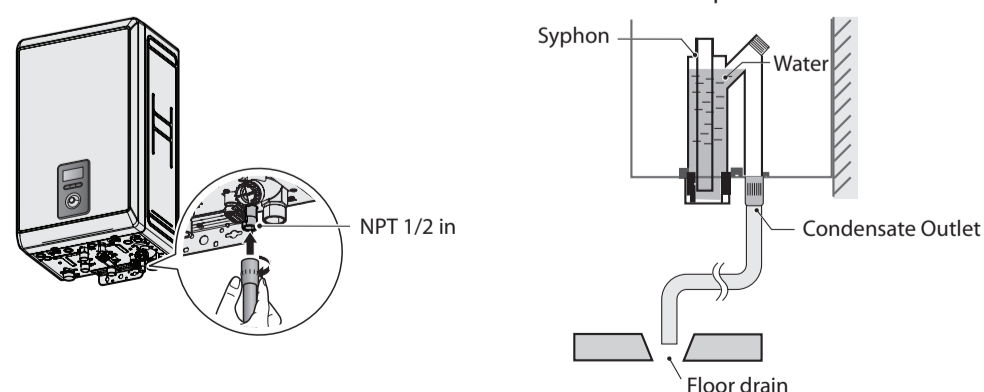
External water fill connection may be installed on the system piping if it is required for specific applications. See the following figure for an example of external water fill installation on the system piping.



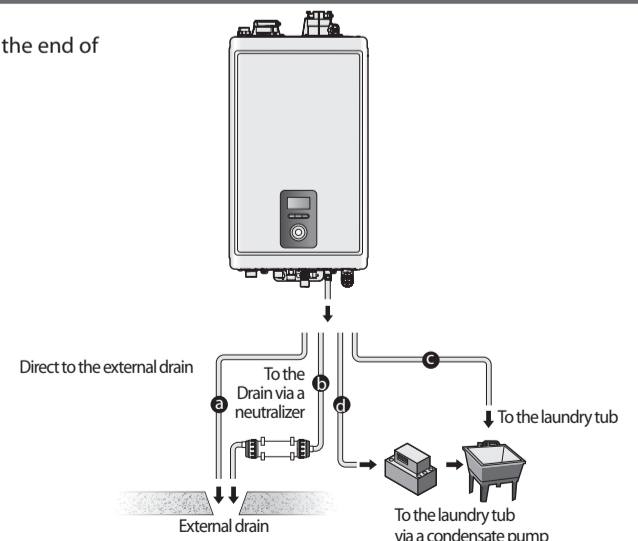
## 7 Condensate Drain Connection

Connect condensate drain pipe to the 1/2" condensate fitting on the bottom of the unit. Route the 1/2" (NPT) plastic tubing to an external drain or laundry tub. You may need a condensate pump if the condensate outlet is higher than the drain location.

Pour water into the exhaust connection to fill the condensate trap.



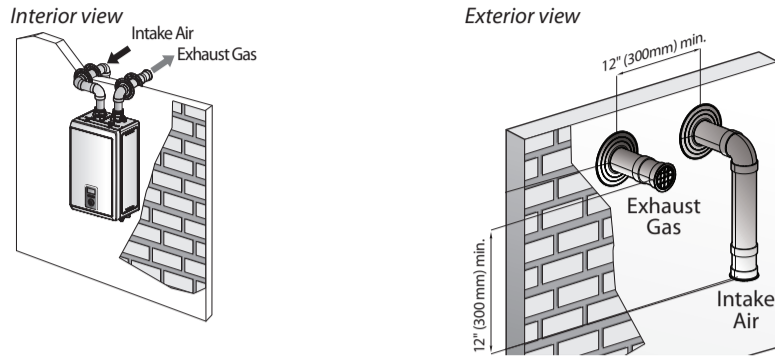
**Note** Do not submerge the end of the pipe in water.



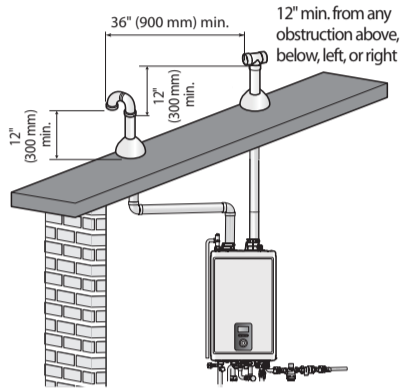
## 8 Venting

### Vent Termination Options

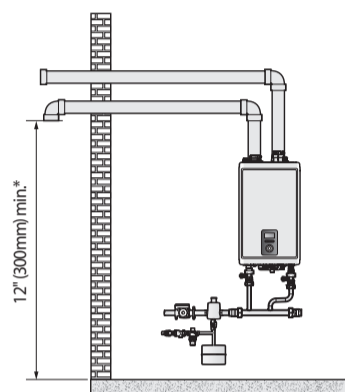
#### Horizontal vent termination



#### Vertical vent termination

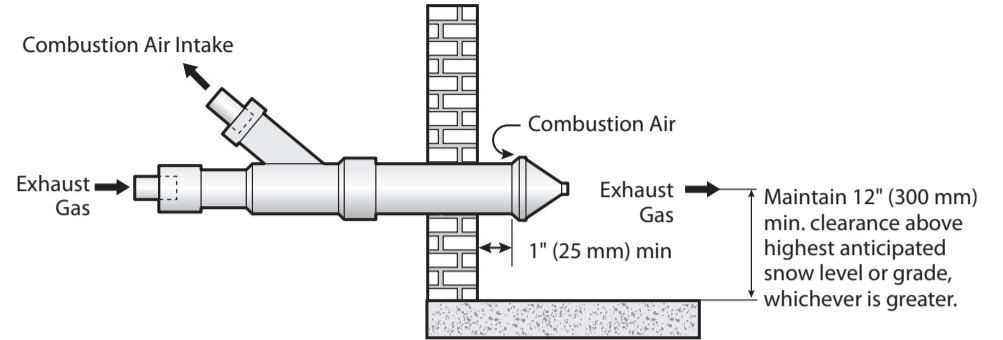


#### Sidewall vent termination

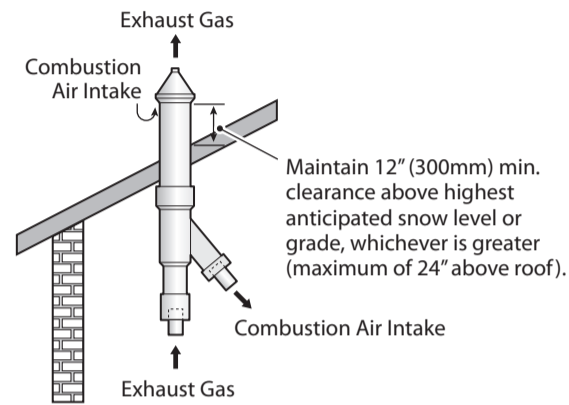


### Concentric Vent Termination

#### Sidewall installation

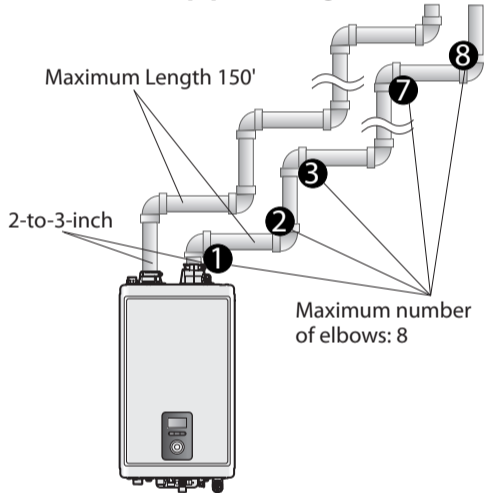


#### Roof installation



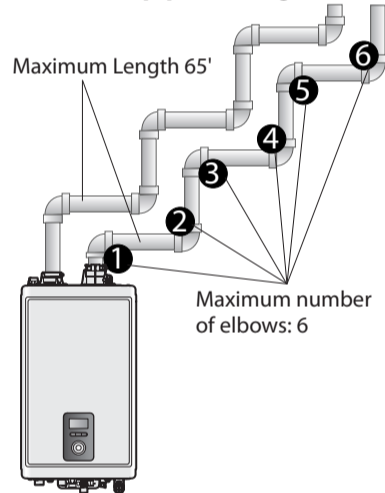
### Venting Length

#### 3" pipe venting



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

#### 2" pipe 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 (typically Type BH Special Gas Vent approved by UL 1738-S636).
- Venting requirements in the USA and Canada are different (see below).

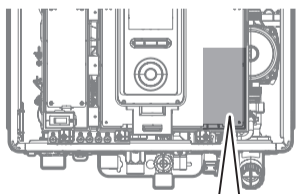
#### Navien recommended venting materials

Locale	Recommended Vent Materials
USA	<ul style="list-style-type: none"> <li>• PVC/CPVC Schedule 40 or 80 (Solid Core)</li> <li>• UL1738 Certified PVC or CPVC</li> <li>• Approved Polypropylene (PP)</li> <li>• Approved Stainless Steel (SS)</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 Vent Class IIC (Polypropylene/Stainless Steel)</li> </ul>

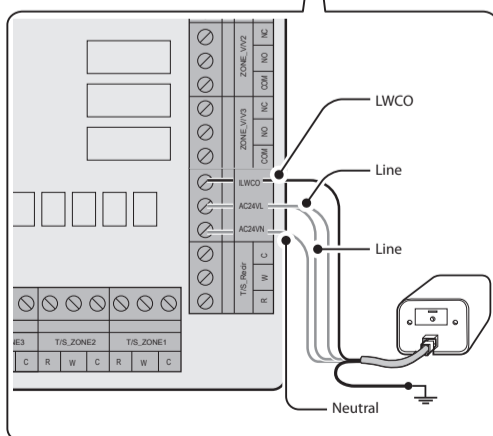
\* For installation in Canada, field-supplied plastic vent piping must comply with CAN/CGA B149.1 (latest edition) and be certified to the Standard For Type BH Gas Venting Systems, ULC-S636. Components of this listed system must not be interchanged with other vent systems or unlisted pipes or fittings. All plastic components and specified primers and glues 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 connector and vent termination are certified as part of the boiler.

## 9 Electrical Connections

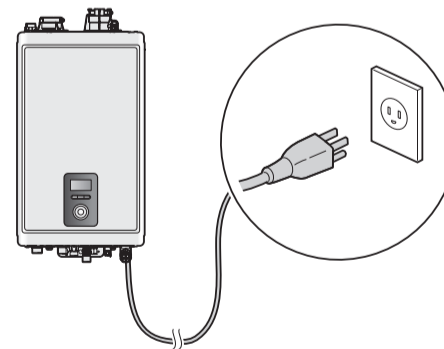
### External LWCO Connection (if required by local codes)



Refer to your local codes to determine if an LWCO device is required for your system and ensure that the built-in device meets the requirements.



### Power Connection



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

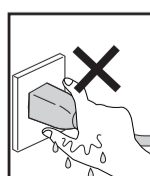
### NOTICE

Using abnormally high or low AC voltage may cause abnormal operation, and may reduce the life expectancy of this product.

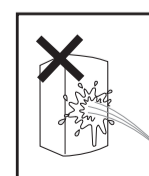
### WARNING

Disconnect the power to the boiler before installing any wire connections on the main PCB.

### Safety



DO NOT touch the power cord with wet hands.

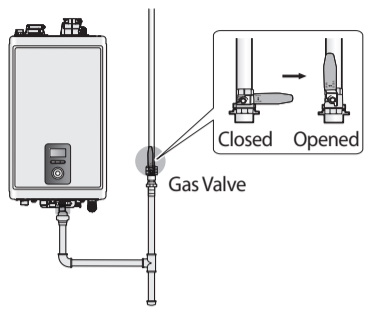


DO NOT allow the boiler to be exposed to excessive amounts of water.

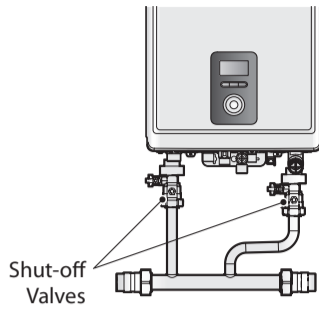
## STEP 3 After Installing

### 1 Opening All the Valves

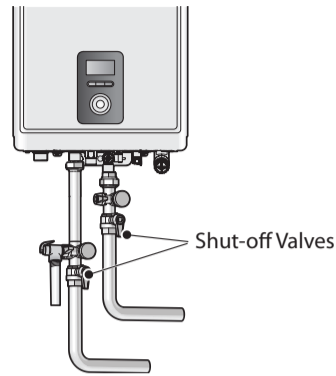
#### Gas Valve



#### Space Heating System Valves



#### DHW System Valves

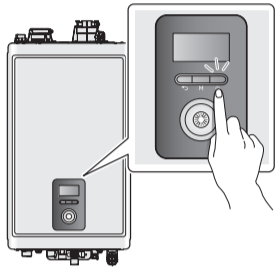


**Navien**

Navien, Inc.  
20 Goodyear, Irvine, CA 92618  
Tel: 1-800-519-8794, Fax: 1-949-420-0430  
www.NavienInc.com

### 2 Operating the Boiler

#### Power ON

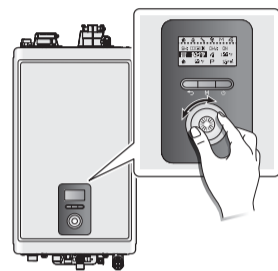


To turn the boiler on, press the Power button (⏻).

When the power is on, the boiler automatically enters normal operation mode, and the boiler's operating conditions are displayed on the screen.

#### Adjust Temperatures

##### Space Heating Temperature



- In normal operation mode, rotate the Command dial (⊙). The space heating temperature (III) is highlighted on the screen.
- Press the Command dial (⊙) to select the space heating temperature. The highlighted section will flash.
- Rotate the Command dial (⊙) to the right or left to increase or decrease the temperature.
- Press the Command dial (⊙) to confirm the new temperature.
- Press the Back button (⏪) to return to normal operation mode, or rotate the Command dial (⊙) to adjust other operation conditions.

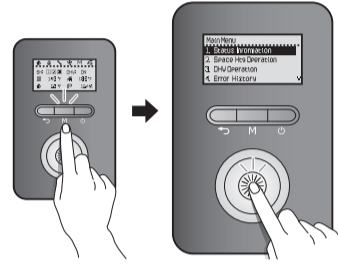
##### DHW Temperature

- In normal operation mode, rotate the Command dial (⊙). The space heating temperature (III) is highlighted on the screen.
- Rotate the Command dial (⊙) to the right to select the DHW temperature.
- Press the Command dial (⊙) to select the indirect DHW temperature (IV). The highlighted section will flash.
- Rotate the Command dial (⊙) to the right or left to increase or decrease the temperature.
- Press the Command dial (⊙) to confirm the new temperature.
- Press the Back button (⏪) to return to normal operation mode, or rotate the Command dial (⊙) to adjust other operation conditions.

#### ⚠ WARNING

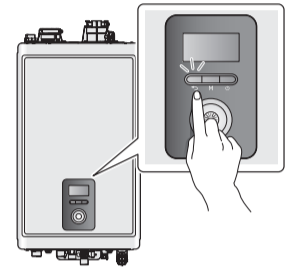
To prevent scald injuries from hot water, do not increase the temperature. The boiler was set to 120°F at the factory.

#### View Basic Information



- Press the Menu button (M), and then select "1. Status Information".
- Rotate the Command dial (⊙) to switch between the information items.

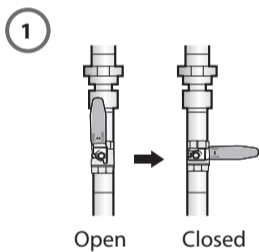
#### Resetting the Boiler



If an error message appears during boiler operation, reset the boiler to resolve the problem. Press the Back button (⏪) on the front panel to reset the boiler.

**Note** If resetting does not solve the problem, refer to the troubleshooting section of the User's Information Manual or contact the service center.

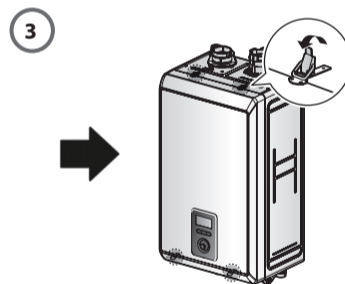
### 3 Measuring the Inlet Gas Pressure (LICENSED PROFESSIONALS ONLY)



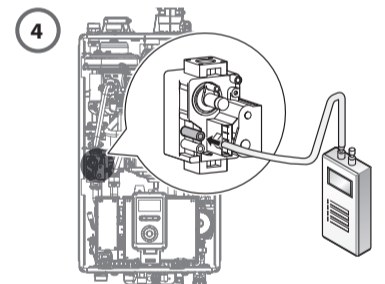
Shut off the manual gas valve.



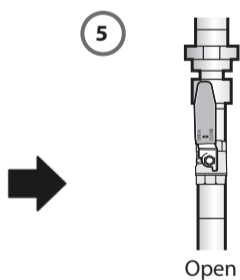
Leave the faucet on until the boiler shuts down due to a lack of gas supply, and then turn off the hot water faucet.



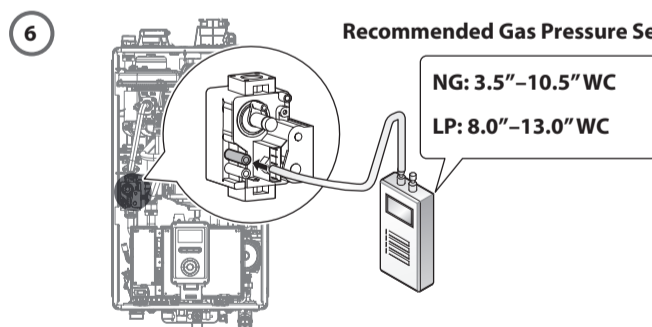
Unfasten the 4 latches (2 at the top and 2 at the bottom) to remove the front cover and gain access to the internal components.



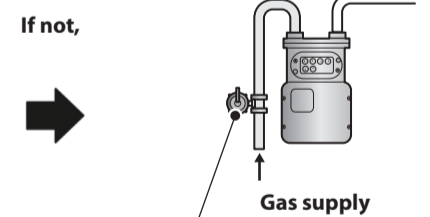
Loosen the screw indicated in the figure and connect a manometer to the pressure port. Reset the manometer to zero before use.



Re-open the manual gas valve and check for leaks. Open multiple fixtures that have high flow rates, such as bathtub and shower faucets, to ramp the boiler up to its maximum firing rate.



Check the inlet gas pressure reading on the manometer.



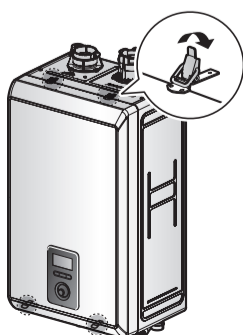
If not,

Adjust the inlet gas pressure with gas regulator.

#### ⚠ CAUTION

ONLY A LICENSED PROFESSIONAL should measure the inlet gas pressure. For more information, refer to "Measuring the Inlet Gas Pressure" in the Installation & Operation Manual.

### 4 Installing the Front Cover



### 5 Ensure Maximum Water Flow

Run water through a boiler for 10 minutes, then turn off the water to flush out the system. Clean the cold water filter and space heating return strainer to remove any debris.

### 6 Final Check

Preliminary operation of the boiler should be performed in accordance with the Installation checklist listed in the boiler's Installation Manual.