

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.

⚠ WARNING

To prevent death, serious injury or property damage:

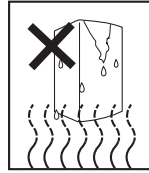
Before starting the installation, check the Rating Plate located on the side of the boiler to ensure that the boiler matches the gas type, gas pressure, water pressure, and electrical supply available in the installation location.

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.

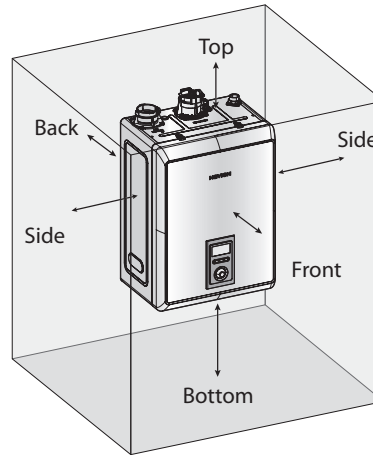
Navien Inc. is not liable for any property damage, personal injury or death resulting from improper conversions

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

STEP 2 Installing

1 Unpacking

	Navien NHB-H Boiler	User's Information Manual, Installation & Operation Manual
	Wall mounting bracket	Tapping screws and anchors
	2 in Vent Termination Caps (x2)	2 in Wall Flanges (x4)
	Propane Gas & High Altitude Conversion Kit	NG High Altitude Conversion Kit (Natural Gas Only)*
	Spare Parts	Pressure Relief Valve, Heating
		Outdoor Temperature Sensor and Cable
	Air Vent	Air Vent Bushing (3/4" to 1/2")

2 Checking the Rating Plate

Rating Plate, *Plaque Signalétique

Direct Vent Boiler *Évacuation directe chaudière
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 ÉVACUATION DIRECTE OU AVEC AIR INTÉRIEUR COMBURANT

Model No. *Numéro de modèle NHB-150H Type of Gas, *Type de gaz Natural Gas

Max. Min. Input Rating (Heating), *Entrée GPL max./min 150,000 Btu/h / 10,000 Btu/h Heating Capacity, *Capacité de chauffage 136,000 Btu/h

Category of boiler, *Catégorie de chaudière Category IV Net AHRI Rating, *Régime de AHRI 118,000 Btu/h

Max. Inlet Gas Pressure, *Pression max. de gaz d'entrée 10.5 Inches W.C., *pouces W.C. 3.5 Inches W.C., *pouces W.C.

Min. Inlet Gas Pressure, *Pression min. de gaz d'entrée -0.40 Inches W.C., *pouces W.C.

Manifold Pressure, *Pression d'admission AC *ca. 120 Volts 60Hz Use less than 15 Amp. *Utilisez moins de 15A

Electrical Rating, *Régime nominal électrique Minimum relief valve capacity, *Capacité minimum soupape: 189 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 Installation 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.

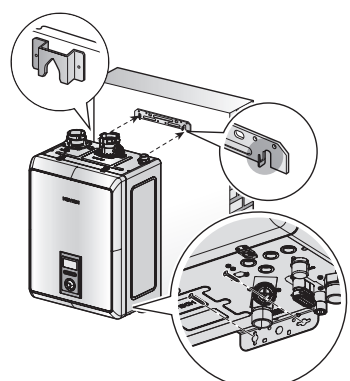
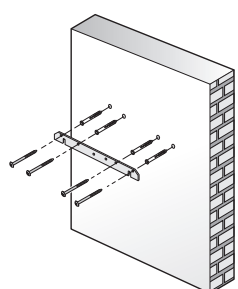
This boiler is configured for Natural Gas from the factory. If conversion to Propane Gas is required, the conversion kit supplied with the boiler must be used.

3 Mounting on the Wall

NOTICE

The mounting bracket has 16 inch (400 mm) 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.

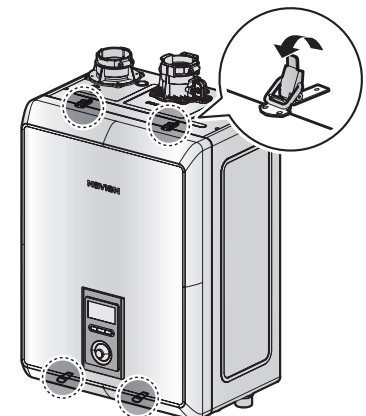


- 2 Secure one screw to hold Wall Mounting Bracket. Check if the bracket is level and secure the remaining three screws.

- 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.

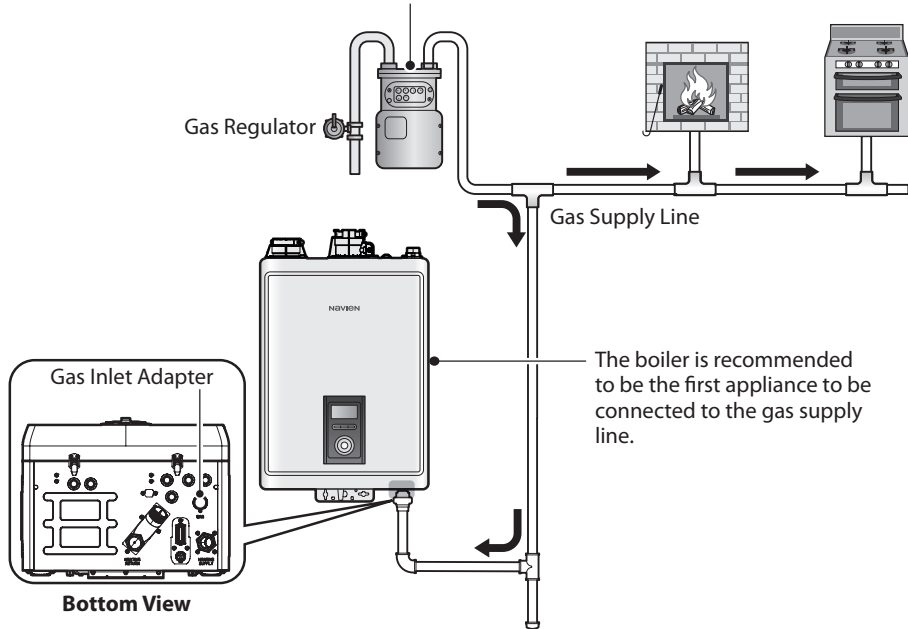
4 Removing the Front Cover

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

* 1 CFH=1,020 Btuh

Note 1/2" rigid pipe can be used; refer to "Gas Pipe Sizing Tables" in the Installation and Operation Manual for limitations. Do not use 1/2" corrugated connectors or tubing as noise may occur.

6 Water Piping Connections

Space Heating System

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

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

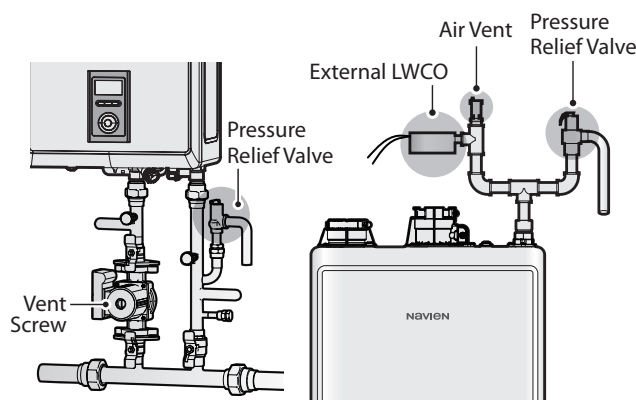
An ASME approved HV pressure relief valve for space heating system is supplied with the boiler.

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

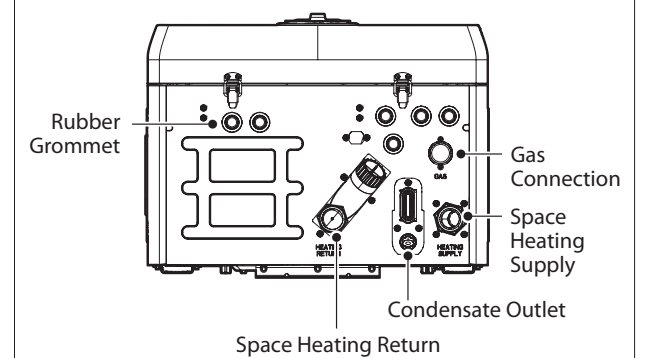
NOTICE

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

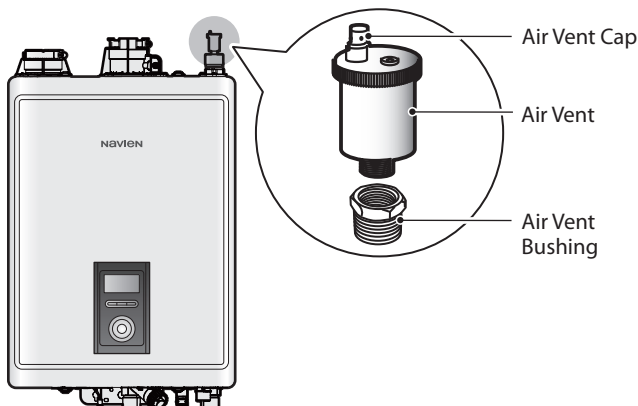
Note Prior to connecting piping to the boiler, flush the entire system to ensure it is free of sediment, flux, solder, scale, debris or other impurities that may be harmful to the system and boiler. During the assembly of the heating system, it is important to keep the inside of the piping free of any debris including construction dust, copper burr, sand and dirt.



Water Piping Connections



System Fill Connection

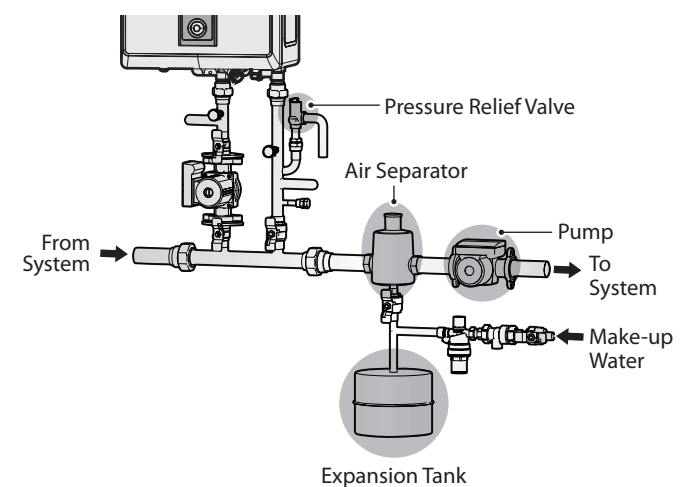


The Navien NHB-H boilers have a top connection for an air vent. An air vent must be installed to purge air from the boiler system.

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

Before filling the boiler, completely unscrew and remove the air vent cap to enable the system to fill properly. Replace the air vent cap and tighten the vent screws on the pumps when the system is full.

Note Ensure that the vent cap is re-installed and the vent screws on the system and boiler pumps are properly tightened before testing or operating the system.

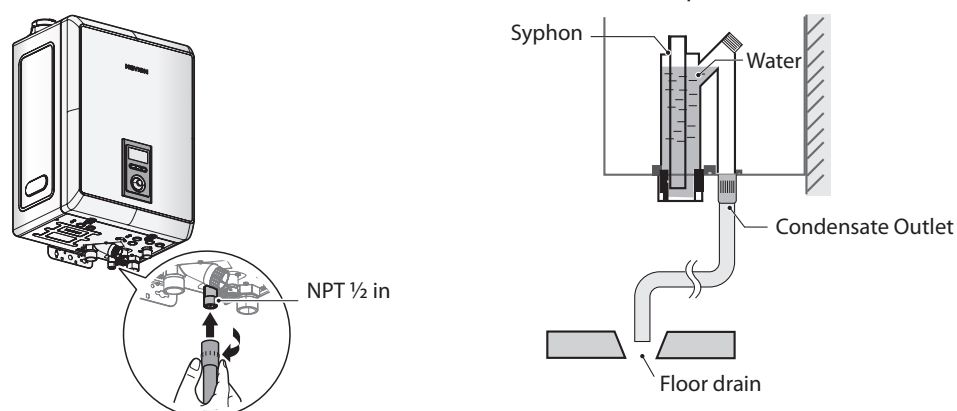


7 Condensate Drain Connection

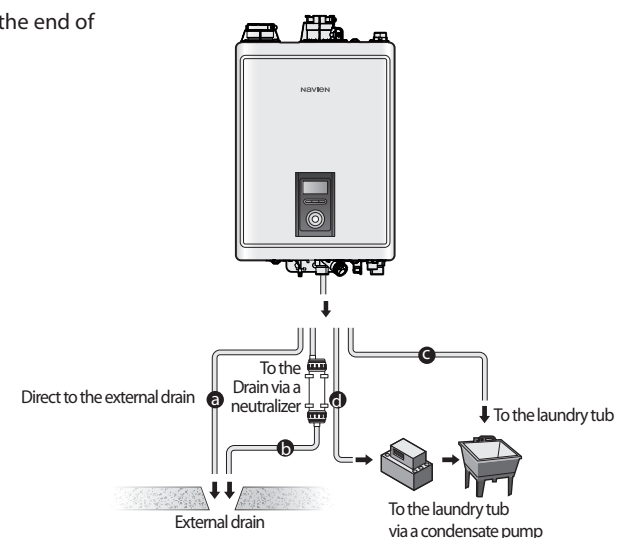
Connect a drain line to the 1/2" condensate fitting at the bottom of the boiler.

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.

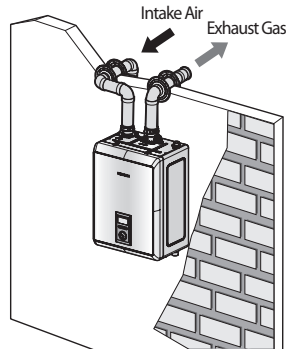


8 Venting

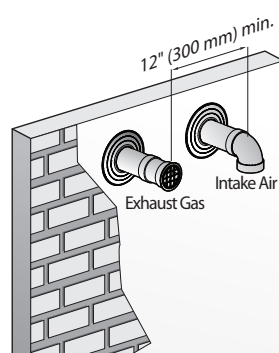
Vent Termination Options

Horizontal vent termination

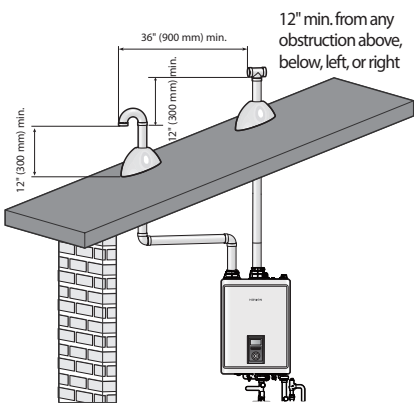
Interior view



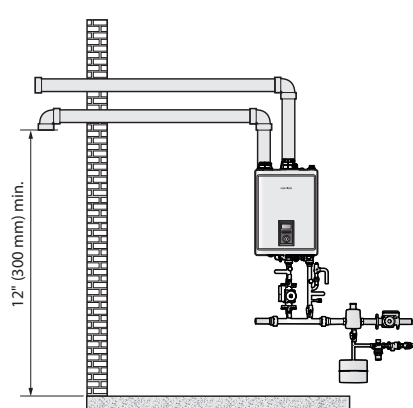
Exterior view



Vertical vent termination

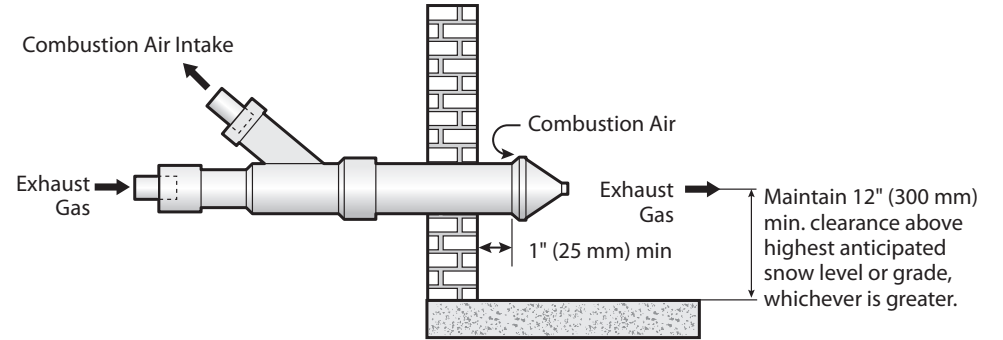


Sidewall vent termination

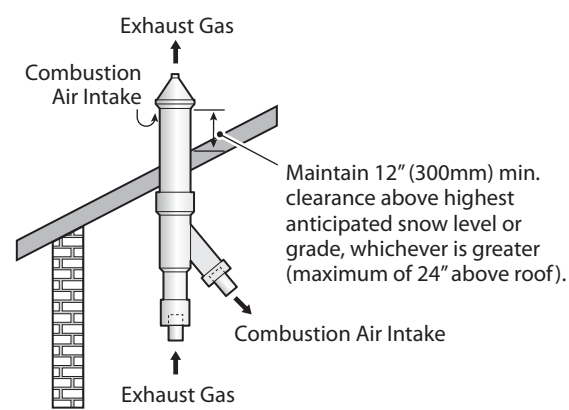


Concentric Vent Termination

Sidewall installation

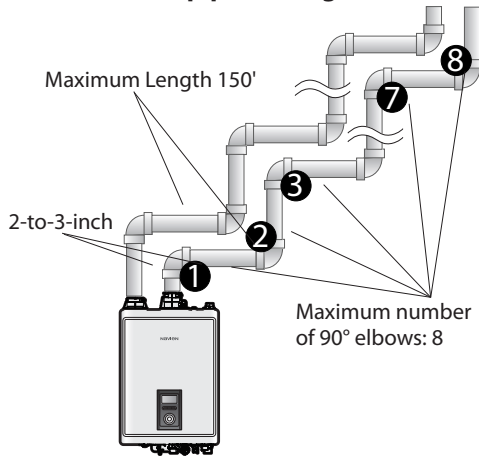


Roof installation



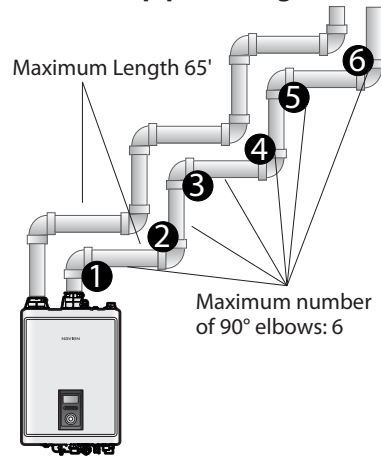
Venting Length

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).

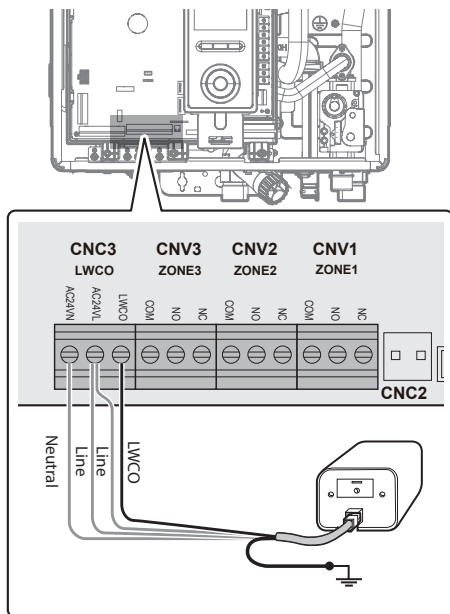
Navien recommended venting materials

Locale	Recommended Vent Materials
USA	<ul style="list-style-type: none"> • PVC Schedule 40 (Solid Core) • CPVC Schedule 40 or 80 (Solid Core) • Approved Polypropylene (Centrotherm Innoflue)
Canada*	ULC-S636 Type BH Special Gas Vent <ul style="list-style-type: none"> • Class IIA (PVC) • Class IIB (CPVC) • Class IIC (Centrotherm Innoflue/Approved Stainless Steel)

* 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.

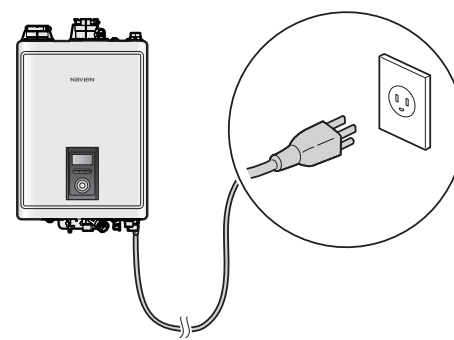
9 Electrical Connections

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

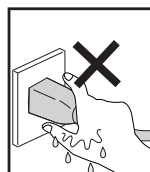
NOTICE

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

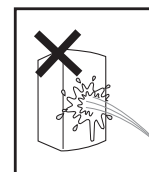
WARNING

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.

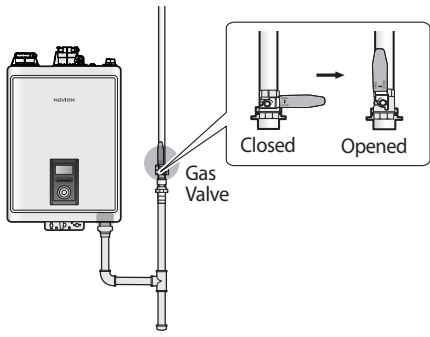


DO NOT allow the boiler to be exposed to excessive amounts of water.

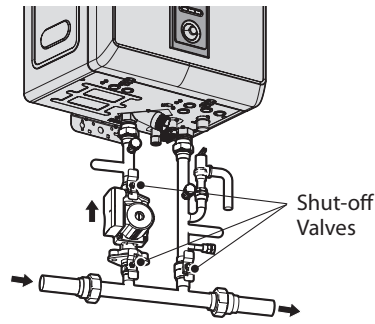
STEP 3 After Installing

1 Opening All the Valves

Gas Valve



Space Heating System Valves

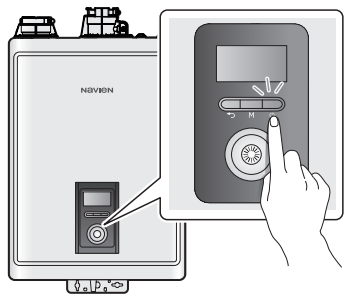


Navien

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

2 Operating the Boiler

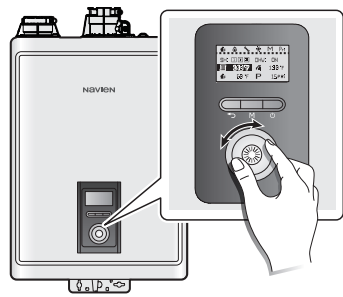
Power ON



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

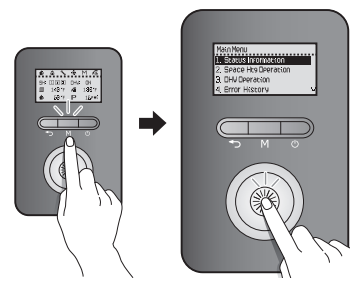
When the power is on, the boiler automatically enters normal operation mode, and the boiler's operating conditions are displayed on the screen.

Adjust Temperatures



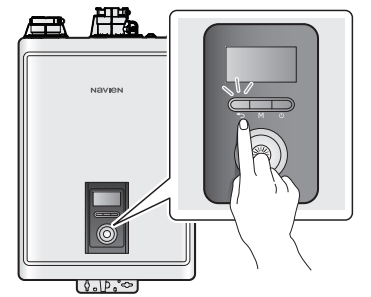
1. In normal operation mode, rotate the Command dial (⌚). The space heating temperature (III) is highlighted on the screen.
2. Press the Command dial (⌚) to select the space heating temperature. The highlighted section will flash.
3. Rotate the Command dial (⌚) to the right or left to increase or decrease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

View Basic Information



1. Press the Menu button (M), and then select "1. Status Information".
2. Rotate the Command dial (⌚) to switch between the information items.
3. Press the Command dial (⌚) to select an item and view the information.

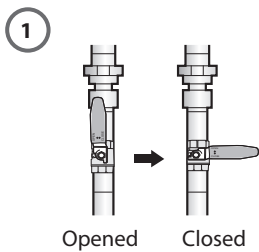
Resetting the Boiler



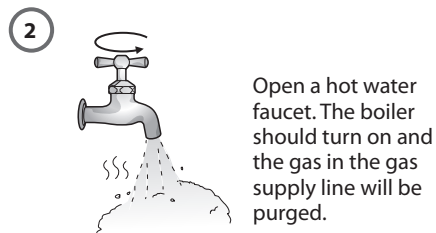
If an error message appears during boiler operation, reset the boiler to resolve the problem. Press the Back button (⏪) on the front panel to reset the boiler.

Note If resetting the boiler does not solve the problem, refer to the troubleshooting section of the Installation and Operation Manual or contact the service center.

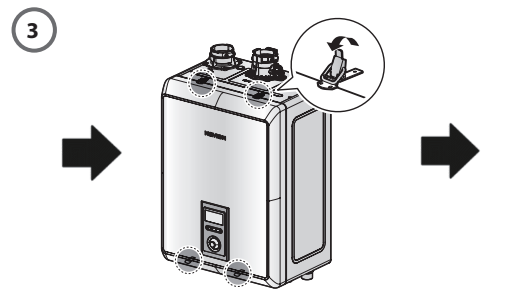
3 Measuring the Inlet Gas Pressure (LICENSED PROFESSIONALS ONLY)



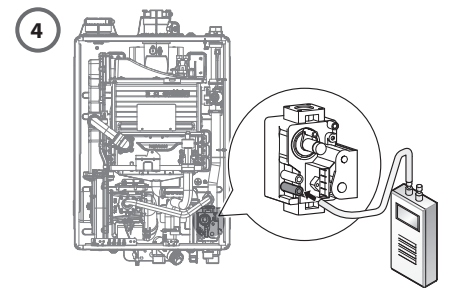
Shut off the manual gas valve.



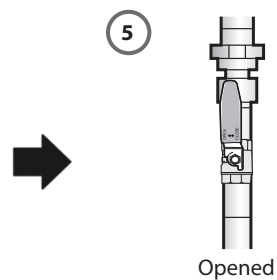
Leave the faucet on until the boiler shuts down due to a lack of gas supply, and then turn off the hot water faucet.



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.

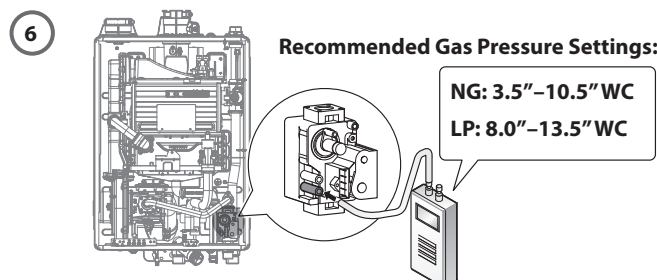


Loosen the screw indicated in the figure and connect a manometer to the pressure port. Reset the manometer to zero before use.

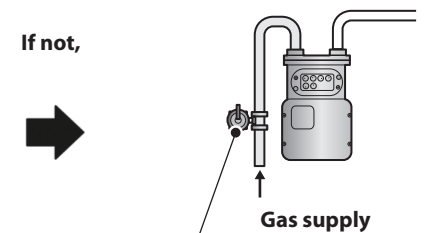


Re-open the manual gas valve and check for leaks.

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.



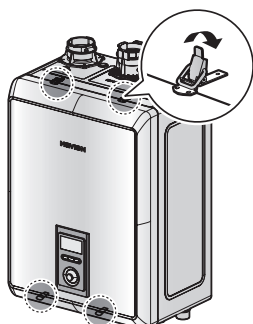
If not,

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 and Operation Manual.

4 Installing the Front Cover



5 Final Check

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