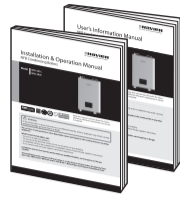


STEP 1 Before Installing

⚠ Read the Installation & Operation Manual before installing.

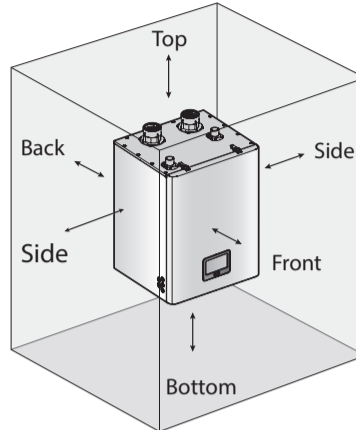
This product must be installed and serviced by a licensed plumber, a licensed gas fitter, or a professional service technician. Navien is not liable for any damages or defects resulting from improper installation.



Location Requirements

Select the best location on "Choosing an Installation Location" in the Installation & Operation Manual.

Allowable minimum clearances

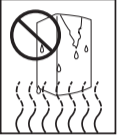


Clearance from:	Indoor Installation
Top	12 in (305 mm) minimum
Back	0.5 in (13 mm) minimum
Front	24 in (610 mm) minimum
Sides	6 in (152 mm) minimum
Bottom	24 in (610 mm) minimum

⚠ 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).

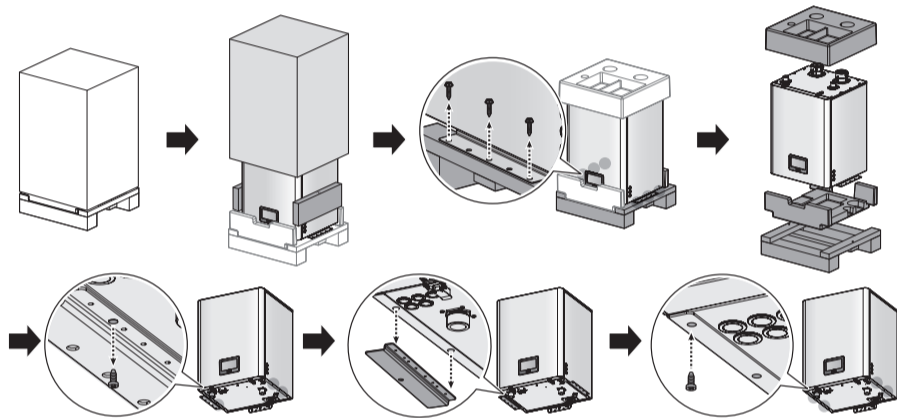
Safety



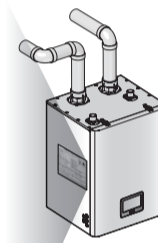
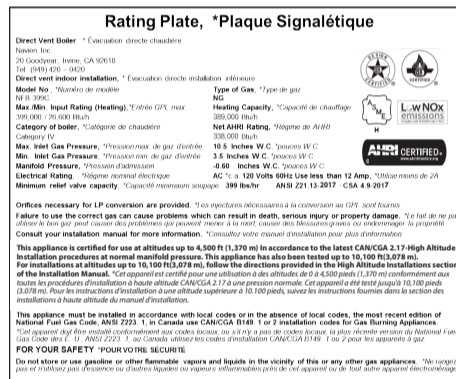
DO NOT install the boiler in areas with excessively high humidity.

STEP 2 Installing

1 Unpacking



2 Checking the Rating Plate



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.

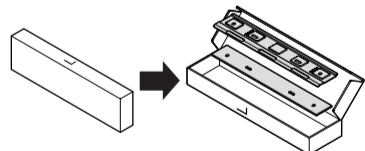
	Navien Condensing Boiler		User's Information Manual, Installation & Operation Manual		Air Vent		Condensate Trap
	Vent Termination Caps		Wall Flanges		Wall Mounting Bracket (with Anti-Vibration Rubber Pad) * Included in the L box		Tapping Screws and Anchors (x6)
	Pressure Relief Valve, Heating		Conversion Kit		Outdoor Temperature Sensor and Cable		Air Vent Bushing (1 1/2 in to 3/4 in)
	Universal Temperature Sensor (with Clip)		PRV-Air Vent Adapter (with Clip)		Caps (x2)		Double Nipple (3/4 in to 3/4 in)

3 Mounting on the Wall

⚠ CAUTION

Do not install the boiler on drywall without proper reinforcement.

1 Remove the wall bracket from the L box.



2 Mount the wall bracket and the boiler following the instructions below for your installation type.

Note The anti-vibration rubber pad must be mounted with its arrow mark (↑) facing outward.

Mounting to a wood stud wall:

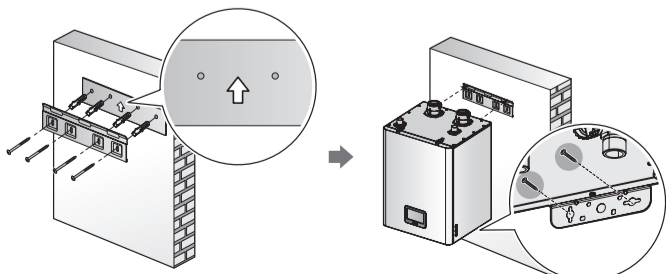
Mount the wall bracket using the lag bolts provided.

Mounting to a concrete wall:

Mount the wall bracket using the anchor bolts provided. To mount the anchor bolts, drill a 3/8" diameter hole 3-1/2" deep and insert anchor.

Mounting to a metal stud wall:

Mount the wall bracket using field supplied toggle bolts capable of supporting 100 pounds each.



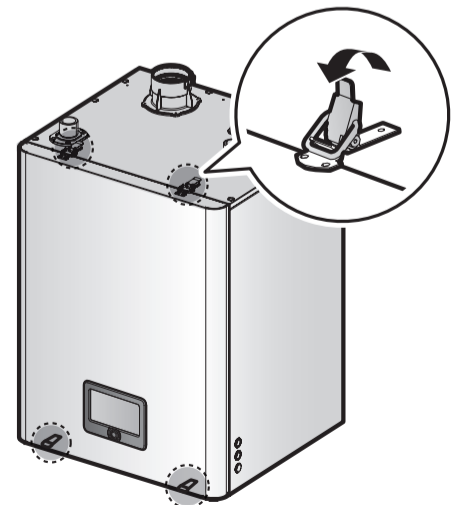
4 Removing the Front Cover

⚠ WARNING

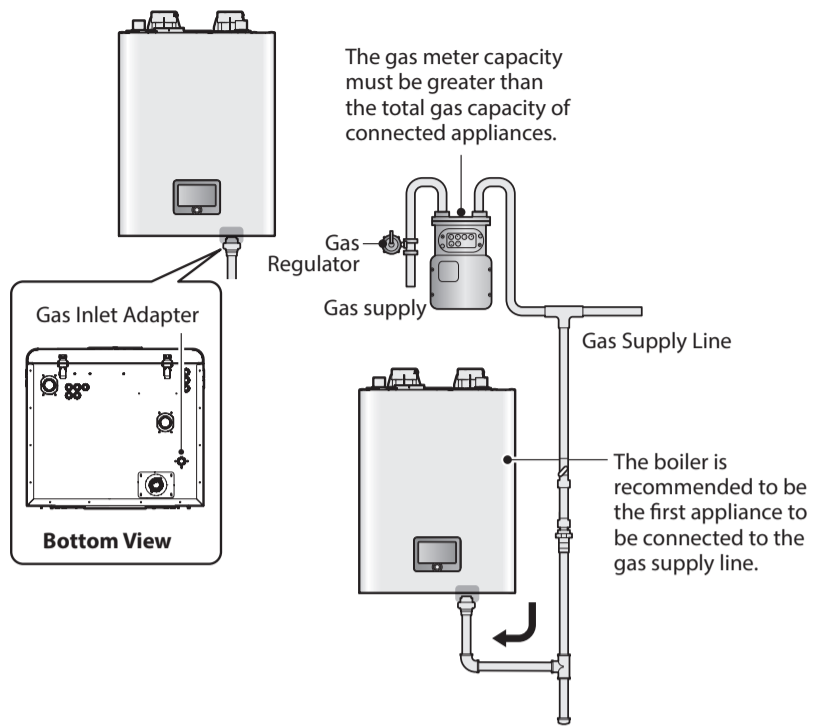
- Before connecting the gas supply, determine the gas type and pressure for the boiler by referring to the rating plate. Use only the same gas type indicated on the rating plate. Using a different gas type will result in abnormal combustion and malfunction of the boiler. Gas supplies should be connected 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 a field conversion of this boiler without a Navien gas conversion kit. Doing so will result in dangerous operating conditions and will void the warranty.

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

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



5 Gas Piping Connections



Example:

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

* 1 CFH=1,020 Btuh

3/4" rigid pipe can be used; refer to the sizing tables in the Installation & Operation Manual for limitations. Avoid using 3/4" corrugated connectors or tubing as noise may occur.

6 Water Piping Connections

Space Heating System

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

Install the included 3/4 in, maximum 50 psi pressure relief valve on the space heating supply.

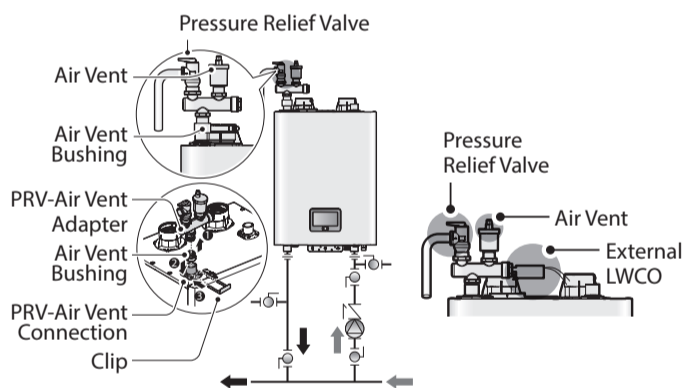
An ASME approved HV pressure relief valve for space heating system is supplied with the boiler.

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).

CAUTION

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

System Fill Connection



The Navien NFB boiler comes with an air vent and an adapter bushing that must be connected to the air vent connection. The vent efficiently removes the air from the space heating system.

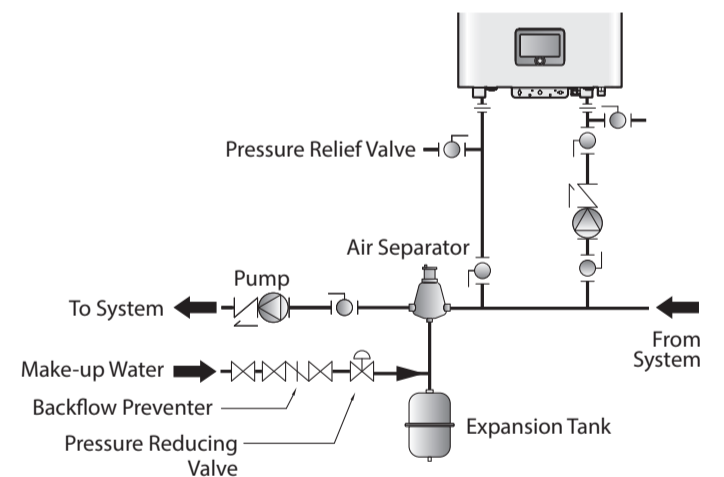
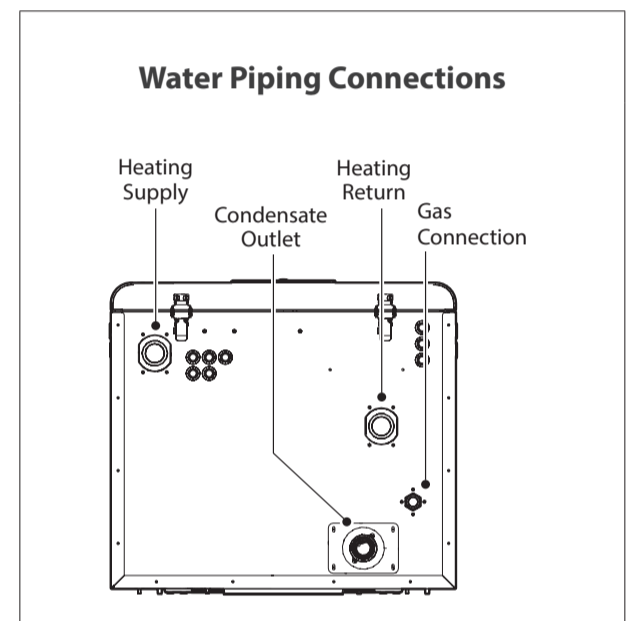
To secure the adapter to the fitting, install the provided clip after inserting the PRV-air vent adapter into the connection on top of the unit.

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

Note Prior to connecting piping to the boiler, flush the entire system to ensure it is free of sediment, flux, 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.

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.

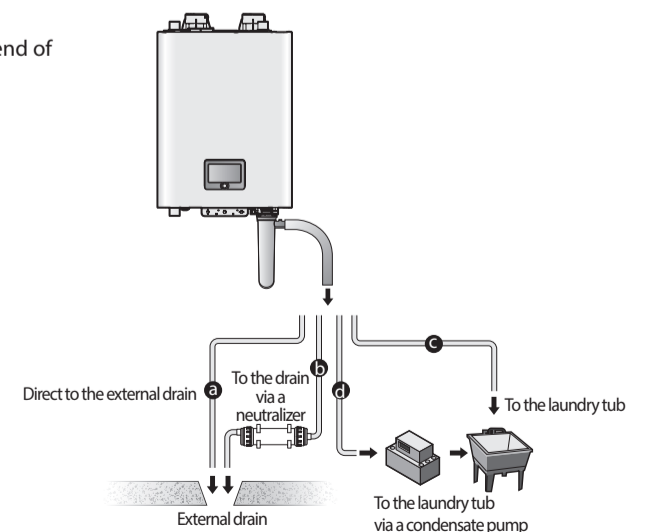
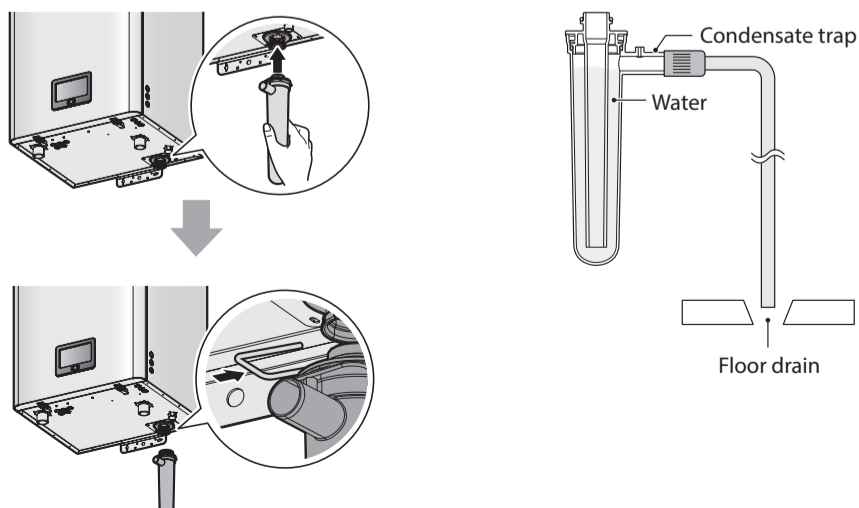


7 Condensate Drain Connection

A condensate drain pipe must be connected to the 3/4" 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 3/4" (NPT) plastic piping should drain into a laundry tub or into a floor drain.

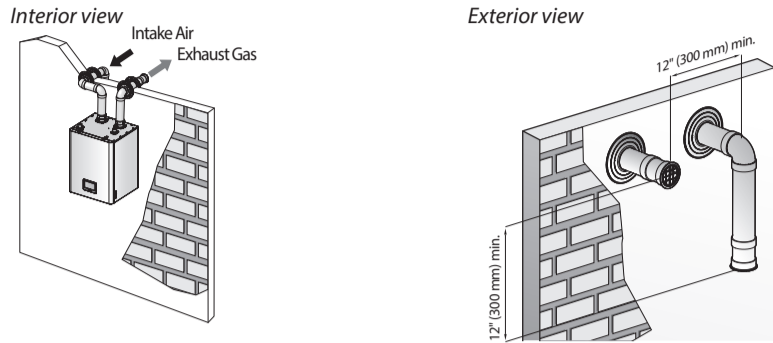
Note Do not submerge the end of the pipe in water.



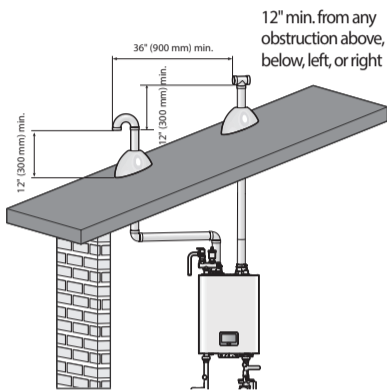
8 Venting

Vent Termination Options

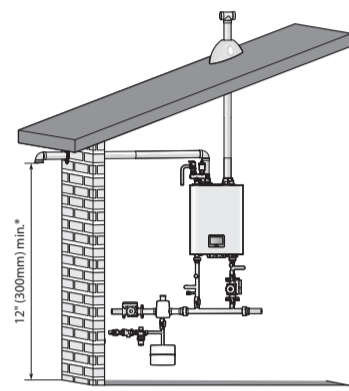
Horizontal vent termination



Vertical vent termination

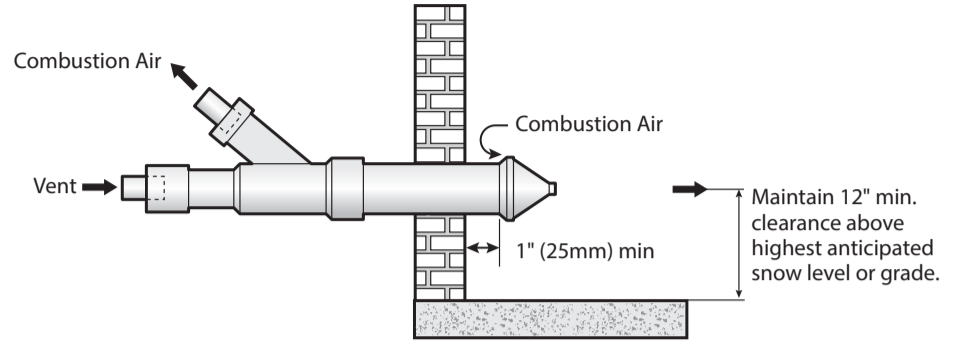


Sidewall vent termination

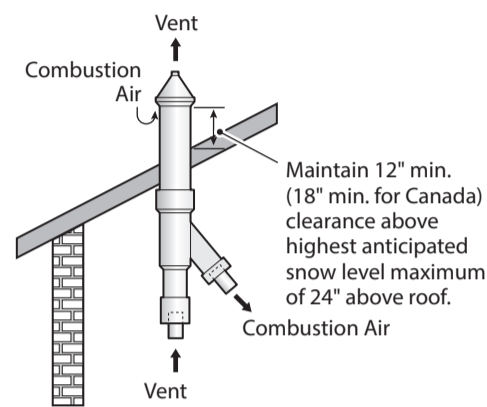


Concentric Vent Termination

Sidewall installation

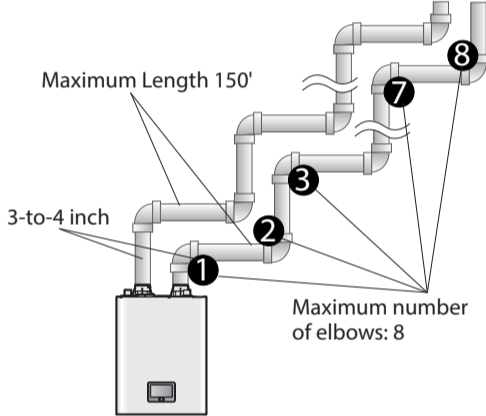


Roof installation



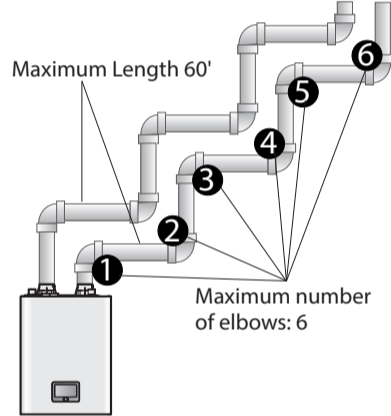
Venting Length

4" pipe venting



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

3" pipe venting



- 90° elbow = 5 linear feet of venting
- 45° elbow = 3 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/CPVC Schedule 40 or 80 (Solid Core) • Approved Polypropylene (PP)** • Approved Stainless Steel (SS)***
Canada*	<ul style="list-style-type: none"> • Type BH Special Gas Vent Class IIA (PVC) • Type BH Special Gas Vent Class IIB (CPVC) • Type BH Special Gas Vent Class IIC (Polypropylene/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.

** Approved Polypropylene Systems include:

DuraVent PolyPro® SW (Rigid): 3PPS-xxx (3") or 4PPS-xxx(4")

DuraVent PolyPro® (Flexible): 3PPS-FLEXxx (3"), 3PPS-FAM (3" Rigid-to-Flex Male Adapter)

Centrotherm InnoFlue® SW (Rigid): ISxx03xx (3") or ISxx04xx (4")

Hart & Cooley Polyflue™ SW (Rigid): 3PF-xx (3") or 4PF-xx (4")

Z-Flex Z-DENS SW (Rigid): 2ZDP_(3" or 4")

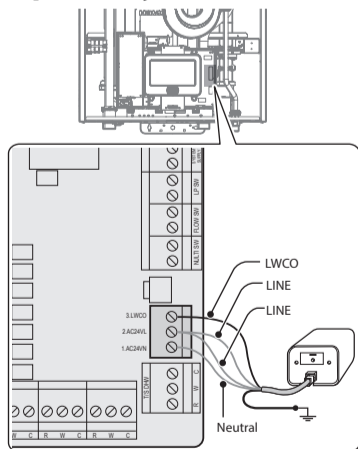
*** Approved Stainless Steel Systems include:

DuraVent FasNSeal® (Rigid): FSA-PVC3 or FSA-PVC4 (3" or 4" PVC to FasN Seal Appliance Adapter), FSxxxx03 or FSxxxx04 (3" or 4")

Heat Fab Saf-T Vent® EZ Seal: 9301PVC or 9401PVC (3" or 4" PVC/CPVC Outlet Boiler Adapter), 93xx or 94xx (3" or 4")

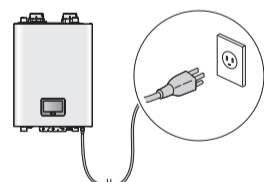
9 Electrical Connections

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 V AC 60 Hz
Min. 2 Amp current with proper grounding**

CAUTION

Using abnormally high or low AC voltage may cause abnormal operation, thereby causing fire which reduces the life expectancy of this product.

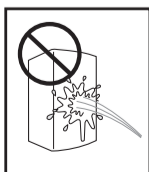
CAUTION

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.

Confirmation of DIP Switch Settings

DIP Switch 1 (6 switch unit)

SW	Function	Setting	
1 & 2	Operation Status	Normal Operation	1-OFF, 2-OFF
		2Step MAX	1-ON, 2-OFF
		1Step MIN	1-OFF, 2-ON
		1Step MAX	1-ON, 2-ON

DIP Switch 2 (8 switch unit)

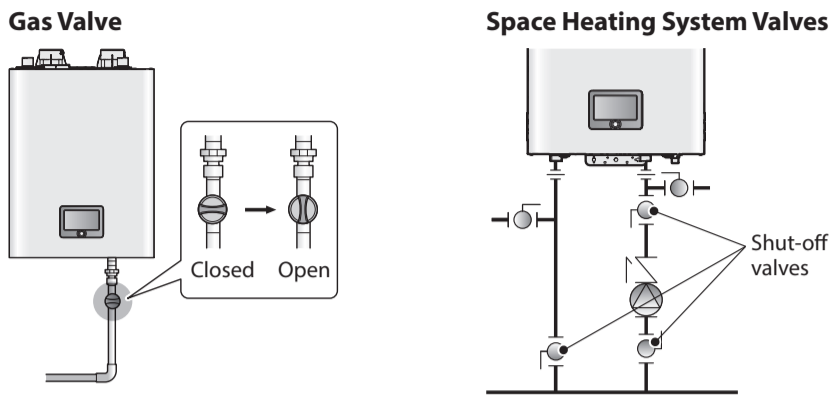
SW	Function	Setting	
1	Gas Type	Natural Gas	1-OFF
		Propane Gas	1-ON
2 & 3	High Altitude	0-1,999 ft (0-609 m)	2-OFF, 3-OFF
		2,000-5,399 ft (610-1,645 m)	2-ON, 3-OFF
		5,400-7,699 ft (1,646-2,346 m)	2-OFF, 3-ON
		7,700-10,100 ft (2,347-3,078 m)	2-ON, 3-ON
4	Reserved	-	
5 & 6	Country	US/Canada	5-OFF, 6-OFF
7	Space Heating Thermostat	Used	7-OFF
		Unused	7-ON
8	Exhaust Temperature Control	Used	8-OFF
		Unused	8-ON

Note

When PCB DIP switch 2 #8 is set to On, ensure that CPVC, polypropylene, or stainless steel is used for exhaust venting.

STEP 3 After Installing

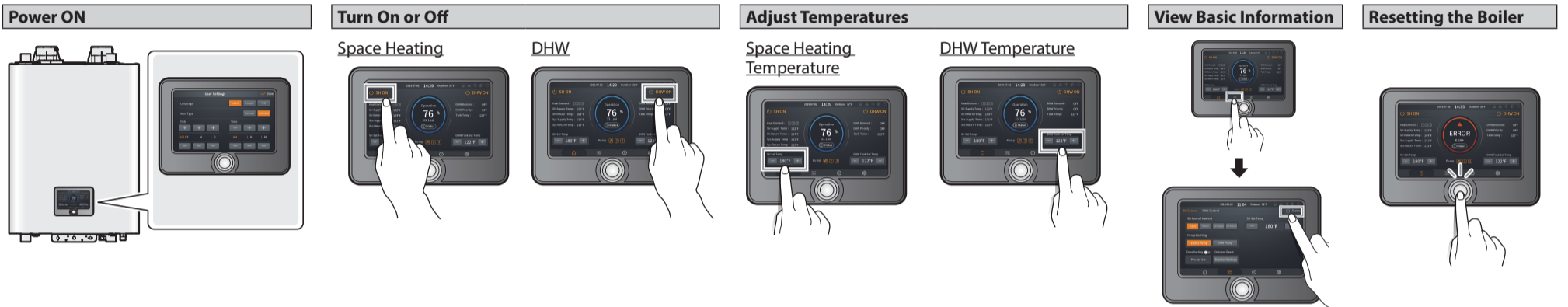
1 Opening All the Valves



KD NAVIEN

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

2 Operating the Boiler



To turn the boiler on:

1. Connect the power cord. When the power is on, the User Settings screen is displayed.
2. Select the language you want to use and set the vent type, current date, and time by tapping your selections on the screen.
3. Tap **Done** on the top right of the screen to complete the settings.

To turn the Space Heating on or off, tap **SH ON** on the top left of the screen.

To turn the DHW on or off, tap **DHW ON** on the top right of the screen.

To adjust the heating temperature on the screen, tap **-** or **+** to select the space heating temperature in the SH Set Temp menu. The current temperature setting is displayed in the menu.

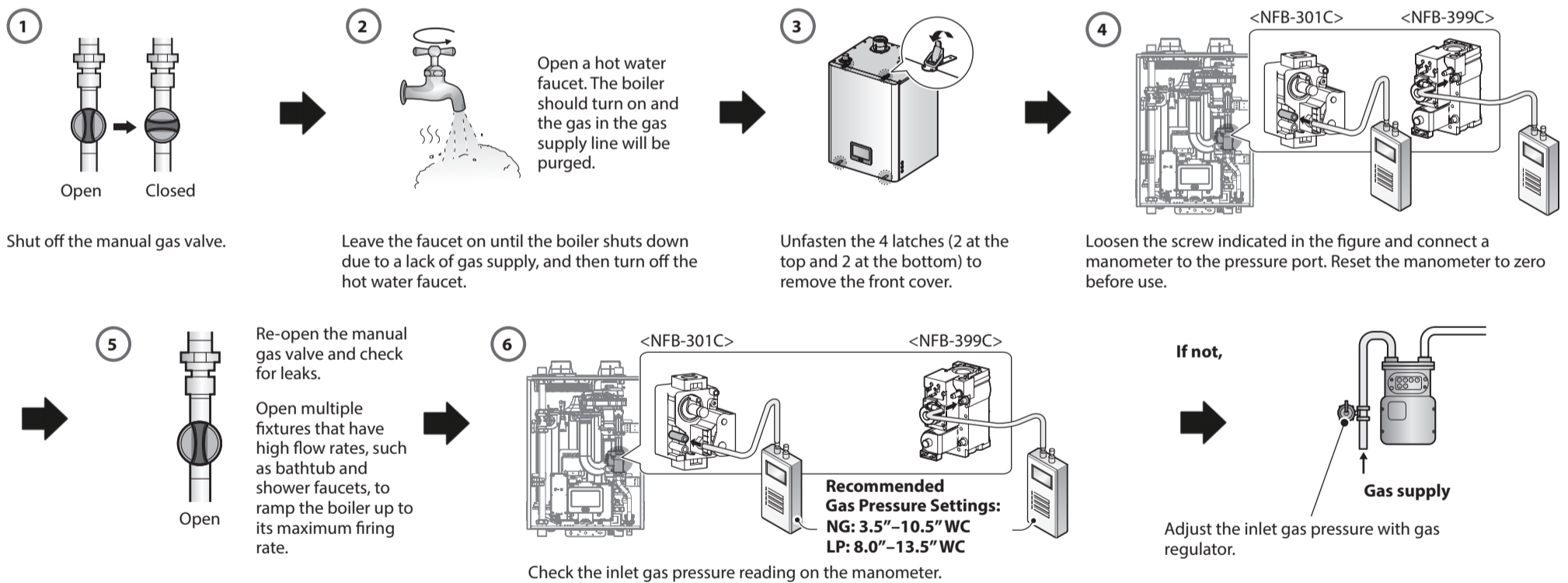
To adjust the heating temperature on the screen, tap **-** or **+** to select the DHW Indirect Supply temperature in the DHW Set Temp menu. The current temperature setting is displayed in the menu.

1. To view information about the boiler, tap the Control button **☰** > **Status** on the screen.
2. Tap an item to view the information.

If an error message appears during boiler operation, reset the boiler to resolve the problem. Press and hold the Reset 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



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.

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.

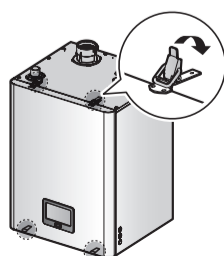
Recommended Gas Pressure Settings:
NG: 3.5"–10.5" WC
LP: 8.0"–13.5" WC

If not,
Adjust the inlet gas pressure with gas regulator.

CAUTION

The boiler cannot function properly without sufficient inlet gas pressure. **Measuring the inlet gas pressure should be performed by a licensed professional only.**

4 Installing the Front Cover



5 Ensure Maximum Water Flow

After running the boiler for the first 10 minutes, turn it off and clean the cold water filter and the space heating return strainer to remove any trapped debris.

6 Final Check

A trial run should be performed in accordance with the Installation checklist listed in the boiler's Installation & Operation Manual.