Quick Installation Guide

Model
NFC-175/200

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.

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

Navien Condensing Boiler
Air Vent
Condensate Trap
NaviClean

Wall Flanges
Conversion Kit

Wall Mounting Bracket
Tapping Screws and Anchors
Pressure Relief Valve, Heating
Vent Termination Caps

Air Vent Bushing
Outdoor Temperature Sensor and Cable

NFC-175/200 Manifold System (for single boilers)
PRV-Air Vent Adapter (including a clip)
Valve Kit
Union

3 Mounting on the Wall

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

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

Secure the mounting bracket to the wall with the tapping screws and anchors.

Lift up the boiler, rest the unit on the hooks provided on the wall bracket on the wall.

4 Removing the Front Cover

Unclasp the 4 buckles that fix the cover to the boiler, and then remove the cover by lifting it and pulling it outward.

Location Requirements
Select the best location on “Choosing an Installation Location” in the Installation & Operation Manual.

Allowable minimum clearances

<table>
<thead>
<tr>
<th>Clearance</th>
<th>Indoor Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top</td>
<td>9 in (229 mm) minimum</td>
</tr>
<tr>
<td>Back</td>
<td>0.5 in (13 mm) minimum</td>
</tr>
<tr>
<td>Front</td>
<td>4 in (100 mm) minimum</td>
</tr>
<tr>
<td>Sides</td>
<td>3 in (76 mm) minimum</td>
</tr>
<tr>
<td>Bottom</td>
<td>12 in (300 mm) minimum</td>
</tr>
</tbody>
</table>

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.

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.
**Gas Piping Connections**

The gas meter capacity must be greater than the total gas capacity of connected appliances.

Example:

- **Gas meter** 425 CFH
- **Boiler** 195 CFH
- **Furnace** 58.8 CFH
- **Domestic gas stove** 63.7 CFH

*1 CFH=1,020 Btu/h

3/4" 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.

**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", 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).

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

**Condensate Drain Connection**

A condensate drain pipe must be connected to the 1/2" condensate trap 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" (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.
Vent Termination Options

Horizontal vent termination

Exterior view

Vertical vent termination

Sidewall vent termination

Vent Termination Length

- 3” pipe venting
  - Maximum Length: 150’
  - 90° elbow = 5 linear feet of venting
  - 45° elbow = 3 linear feet of venting

- 2” pipe venting
  - Maximum Length: 60’
  - 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).

Recommended Vent Materials

- USA
  - PVC/CPC Schedule 40 or 80 (Solid Core)
  - Approved Polypropylene (PP)
  - Approved Stainless Steel (SS)

- Canada*
  - Type BH Special Gas Vent Class IA (PVC)
  - Type BH Special Gas Vent Class IB (CPVC)
  - Type BH Special Gas Vent Class IC (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, UL1738-S636. Components of this listed system must not be interchanged with other venting 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.

Electrical Connections/High Altitude DIP Switch Settings

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.

Confimation of DIP Switch Settings

**DIP Switch 1 (6 switch unit)**

<table>
<thead>
<tr>
<th>SW</th>
<th>Function Setting</th>
<th>Normal Operation</th>
<th>1-Off, 2-Off</th>
<th>1-Off, 2-Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Operation Status</td>
<td>2-stage MAX</td>
<td>1-stage MIN</td>
<td>1-stage MAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-stage MIN</td>
<td>1-stage MAX</td>
<td>1-stage MIN</td>
</tr>
</tbody>
</table>

**DIP Switch 2 (8 switch unit)**

<table>
<thead>
<tr>
<th>SW</th>
<th>Function Setting</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gas Type</td>
<td>Natural Gas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-Off</td>
</tr>
<tr>
<td></td>
<td>0-1,999 ft (600 m)</td>
<td>2-Off</td>
</tr>
<tr>
<td></td>
<td>2,000-5,399 ft (610-1,645 m)</td>
<td>2-Off</td>
</tr>
<tr>
<td></td>
<td>1,400-1,499 ft (426-456 m)</td>
<td>2-Off</td>
</tr>
<tr>
<td></td>
<td>2,700-10,100 ft (842-3,078 m)</td>
<td>2-Off</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SW</th>
<th>Function Setting</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 &amp; 3</td>
<td>High Altitude</td>
<td>Unused 8-ON</td>
</tr>
</tbody>
</table>

Note:

- When PCB DIP switch 2 (if set to ON) is set to ON, ensure that CPVC, polypropylene, or stainless steel is used for exhaust venting.
- The unit may be installed at elevations up to 10,100 ft (3,078 m) for use with natural gas and propane. To use the unit at a specific altitude, the DIP switches should be set as described above.
- High Altitude: Above 2,000 ft (610 m), the unit will de-rate by 3% for each 1,000 ft (305 m) of altitude gain.
- For NG, if you install the unit at above 5,400 ft (1,646 m), it is required to change the Gas Orifice for high altitude. Be careful not to confuse it with the LP Gas Orifice. For detail, refer to page 163 in the Installation & Operation Manual.
### STEP 3 After Installing

#### Opening All the Valves

**Gas Valve**

**Space Heating System Valves**

Shut-off valves

#### 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 (□) is highlighted on the screen.
2. Press the Command dial (△) to select the space heating temperature.
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.

**DHW Temperature**

1. In normal operation mode, rotate the Command dial (△). The space heating temperature (□) is highlighted on the screen.
2. Press the Command dial (△) to select the DHW temperature.
3. Press the Command dial (△) to select the indirect DHW temperature (□). The highlighted section will flash.
4. Rotate the Command dial (△) to the right or left to increase or decrease the temperature.
5. Press the Command dial (△) to confirm the new temperature.
6. 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 (Menu), and then select “2. Status Information”.
2. Rotate the Command dial (△) to switch between the information items.

**Resetting the Boiler**

1. Press the Menu button (Menu), and then select “2. Status Information”.
2. Rotate the Command dial (△) to switch between the information items.

Note

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.

### Measuring the Inlet Gas Pressure

1. Shut off the manual gas valve.
2. Open a hot water faucet. The boiler should turn on and the gas in the gas supply line will be purged.
3. Leave the faucet on until the boiler shuts down due to a lack of gas supply, and then turn off the hot water faucet.
4. Repeat steps 1 through 3 until a high reading is obtained.
5. Re-open the manual gas valve and check for leaks.
6. Open multiple fixtures that have high flow rates, such as bathtub and shower faucets, to ramp the boiler up to its maximum firing rate.

**Recommended Gas Pressure Settings:**

<table>
<thead>
<tr>
<th>Gas Type</th>
<th>Pressure Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>NG</td>
<td>3.5&quot;–10.5&quot; WC</td>
</tr>
<tr>
<td>LP</td>
<td>8.0&quot;–13.5&quot; WC</td>
</tr>
</tbody>
</table>

#### Measuring the Inlet Gas Pressure

Check the inlet gas pressure reading on the manometer.

#### Ensuring 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.

#### Final Check

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