

Maine PHCC 2022



Maine Fuel Board Contacts

Catherine Carroll 624-8605
fuel.board@maine.gov

Dale Hersey, Senior Insp. 592-5864

Cecil Hafford, Inspector 592-5043

Bruce Bristow, Inspector 592-4516

The background features a dark blue-grey field on the left, transitioning into a series of overlapping, semi-transparent green and yellow-green geometric shapes on the right. These shapes are primarily triangles and polygons, creating a layered, abstract effect. A thin white line runs diagonally across the lower right portion of the image.

First Things First



First Things

The State now allows the use of
listed press fittings
to be used to connect oil tank
piping
(ie. Mega Press, Apollo)

First Things

As of today...

When installing a fuel-fired
condensing appliance that is
equipped with a cord and plug,
a duplex receptacle may be
installed by the technician

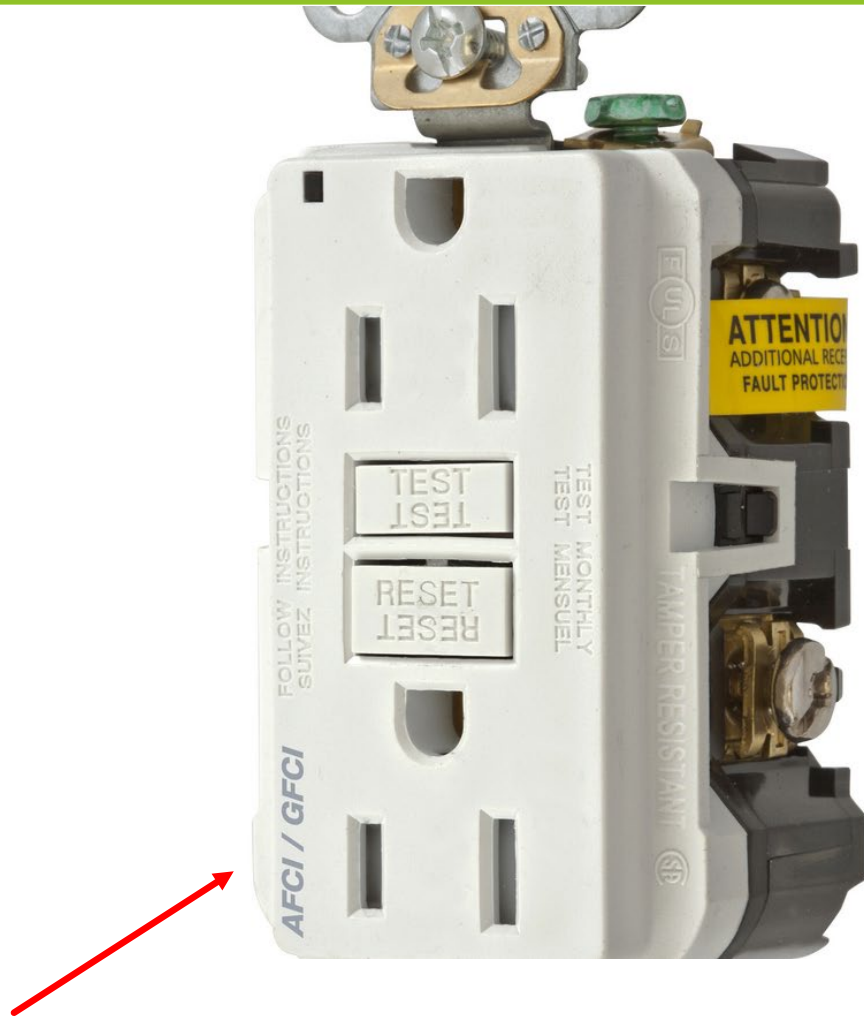
As long as...



First Things

That receptacle is installed as follows...

- MUST be arc-fault AND GFCI protected
- Must be installed in a deep box or 4"x4" with proper cover



First Things

If you use a single-yoke receptacle for a fuel-fired condensing appliance equipped with a cord and plug, the circuit must be protected by a GFCI/AFCI breaker at the panel



First Things

If the fuel-fired condensing appliance is hard wired and requires a condensate pump, a technician can install a single-yoke GFCI protected receptacle





First Things

Can someone please tell me
why we are still finding most
emergency switches in the
wrong location?

(They are not *stairwell* switches!)



First Things

Can you also tell me why a heat loss or load calculation is not being retained by the installer?



First Things

If you install a wall-hung gas boiler and decide that you can get plenty of combustion air from the basement, does anything change with how the vent is classified?

Licensing



Licensing

We know that in some cases it has been taking an extended period of time to get a response from the licensing office. We have no control over it, but will help if we can.



Licensing

Update your email address!

And remember your
password!

And check your “Junk” folder!



Licensing

If you are looking to get a propane license or add another endorsement...

You now have to pass a State exam to do so.

Licensing

If you take an exam and a
question doesn't belong or is
worded incorrectly

Please notify us at

fuel.board@maine.gov

Licensing

Now that I have my
endorsement,

What can I do?

Licensing

Appliance Connection &
Service

Pretty Self-Explanatory
Right?



Appliance Connection & Service

Install and repair all inside or outside piping, and appliances, from the outlet of the meter, second stage regulator or 2psi regulator, based upon whichever is closest to the customer's gas appliance.



Appliance Connection & Service

So, if you have a generator outside, and a tank setter has installed a 500 gallon tank with a 2 PSI regulator, can an AC&S tech install the underground line to the generator?

Tank Setter/ Outside Pipe Tech

Can install or repair
aboveground or underground
piping, risers, valves, regulators
or other fittings up to the outlet
of the meter or second stage
regulator.



Tank Setter/ Outside Pipe Tech

Same scenario as before, after setting the 500 gallon tank with a 2 psi regulator, and a Maxitrol has been installed near the generator, can a Tank Setter/Outside Pipe Tech install that same underground line to that generator?

Delivery Techs

Make certain to notify tank owner of code violations with tank(s), in writing!

Must verify current license
before delivering to a
dispensing station



Licensing

What endorsement do you need
in order to legally perform a
leak check on a system that has
encountered an interruption of
service?



Licensing

I have an AC&S endorsement. I need help installing a boiler. Can I call in a Delivery tech with no AC&S endorsement to assist me when he doesn't have a helpers license?



Licensing

As a Master oil tech, how many apprentices can I supervise?



Licensing

As a Journeyman oil tech, how
many apprentices can I
supervise?



Licensing

As a propane technician, how many helpers can I supervise?



Licensing

I have an EPA Section 608
Universal Technician
Certification.

So What?



Heat Pumps

- ▶ Must have a Master or Journeyman oil license
- ▶ Must be 36k btu or less
- ▶ Must be in a 1 or 2 family home (or multi-family homes with existing electric heat)
- ▶ Absolutely no commercial installations

Heat Pumps

- ▶ Must have room in panel to wire it
- ▶ Must have a service receptacle within 25'



Heat Pump Water Heaters

To install a new heat pump water heater, you must have a valid master or journeyman plumbing license

And

A valid master or journeyman electrician license



Licensing

If installing a new hot water heating system in a home that falls under MUBEC rules it is not the fuel licensee's responsibility to insulate the piping



Licensing

Any additional questions on
licensing/responsibilities?



Condensate Disposal



Condensate

Prior to February 10, 2022, if you did not have a plumbing license, you were not licensed to install any part of the condensate waste system.

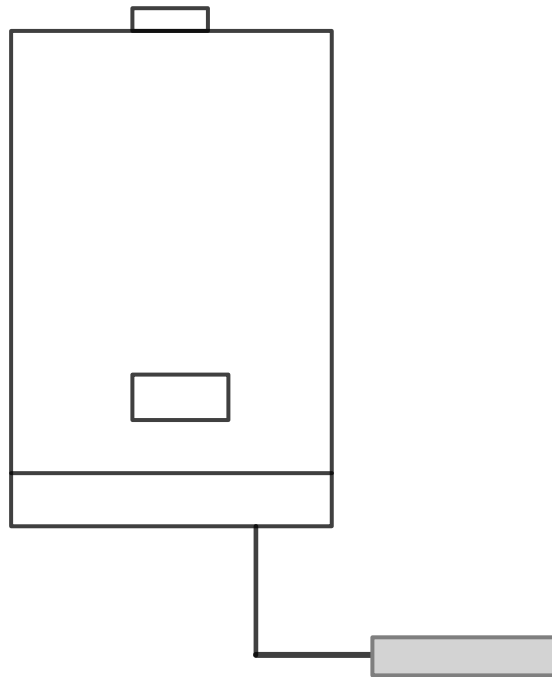


Condensate

After meeting with both the Plumbing Board and the Fuel Board, the Inspectors were able to convince them to allow fuel licensees to install condensate piping in accordance with plumbing code

Condensate

An approved and properly sized neutralizer must be installed in the drain system in order to render the condensate non-toxic



Neutralizer



**NOT
APPROVED**



Condensate

Condensate must be drained
into an open receptor that is
connected to the sanitary
(sewer) system



Condensate

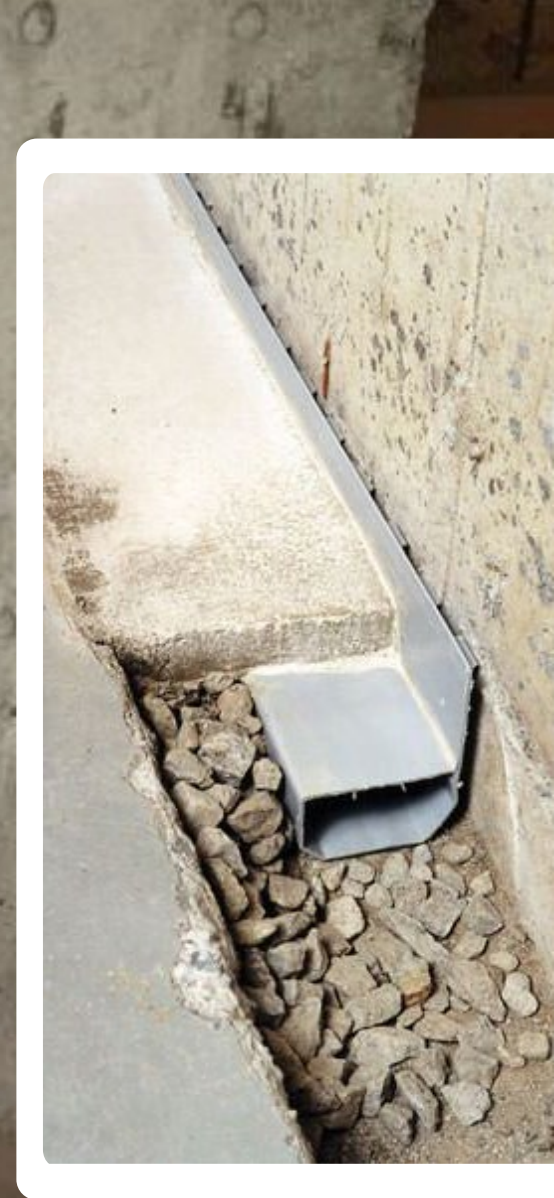
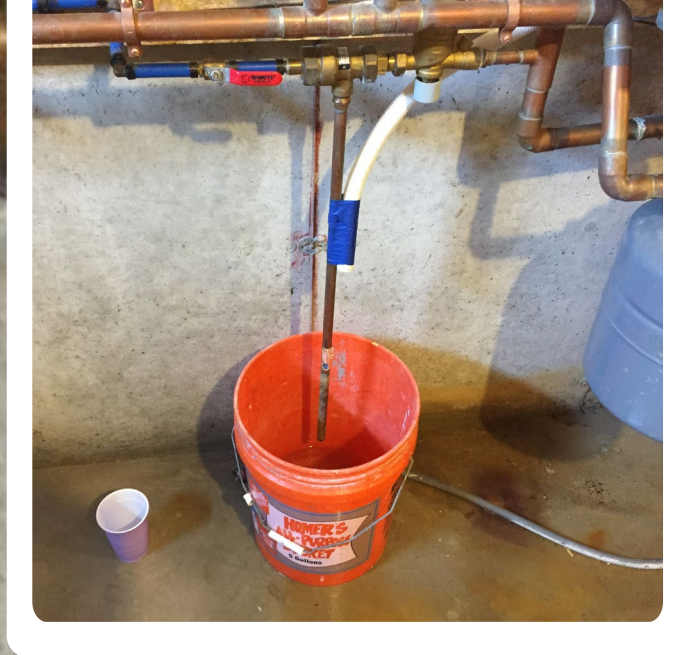
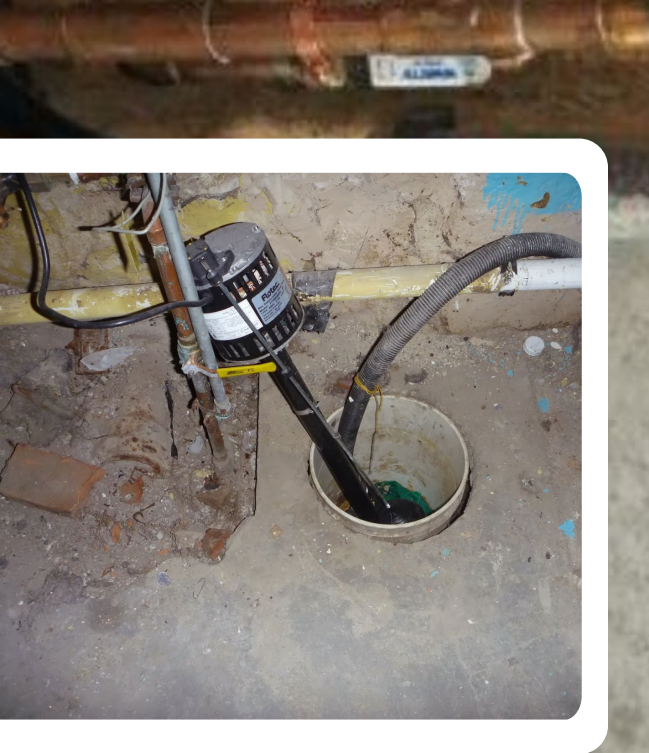
Plumbing code defines a receptor as an approved plumbing fixture or device of such material, shape, and capacity as to adequately receive the discharge from indirect waste pipes, so constructed and located as to be readily cleaned.





Condensate

Condensate shall not be disposed of in a sump hole, a perimeter drain, by routing through a drilled hole through the basement floor, directly onto the ground, etc.



No



Condensate

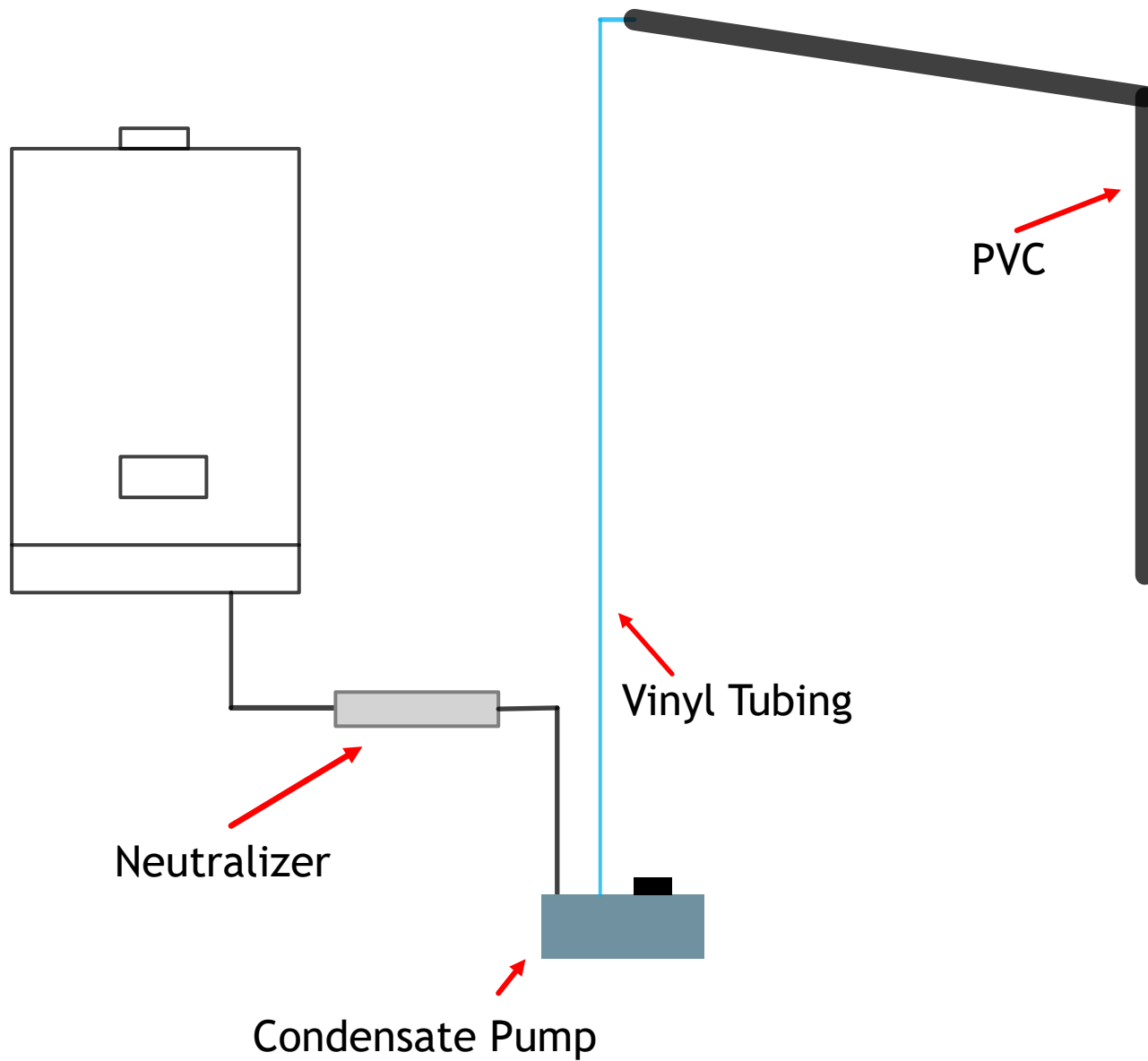
If an open receptor is not available, a Maine licensed plumber must create one

Condensate

Where a condensate pump is required, it must be installed in accordance with manufacturers instructions

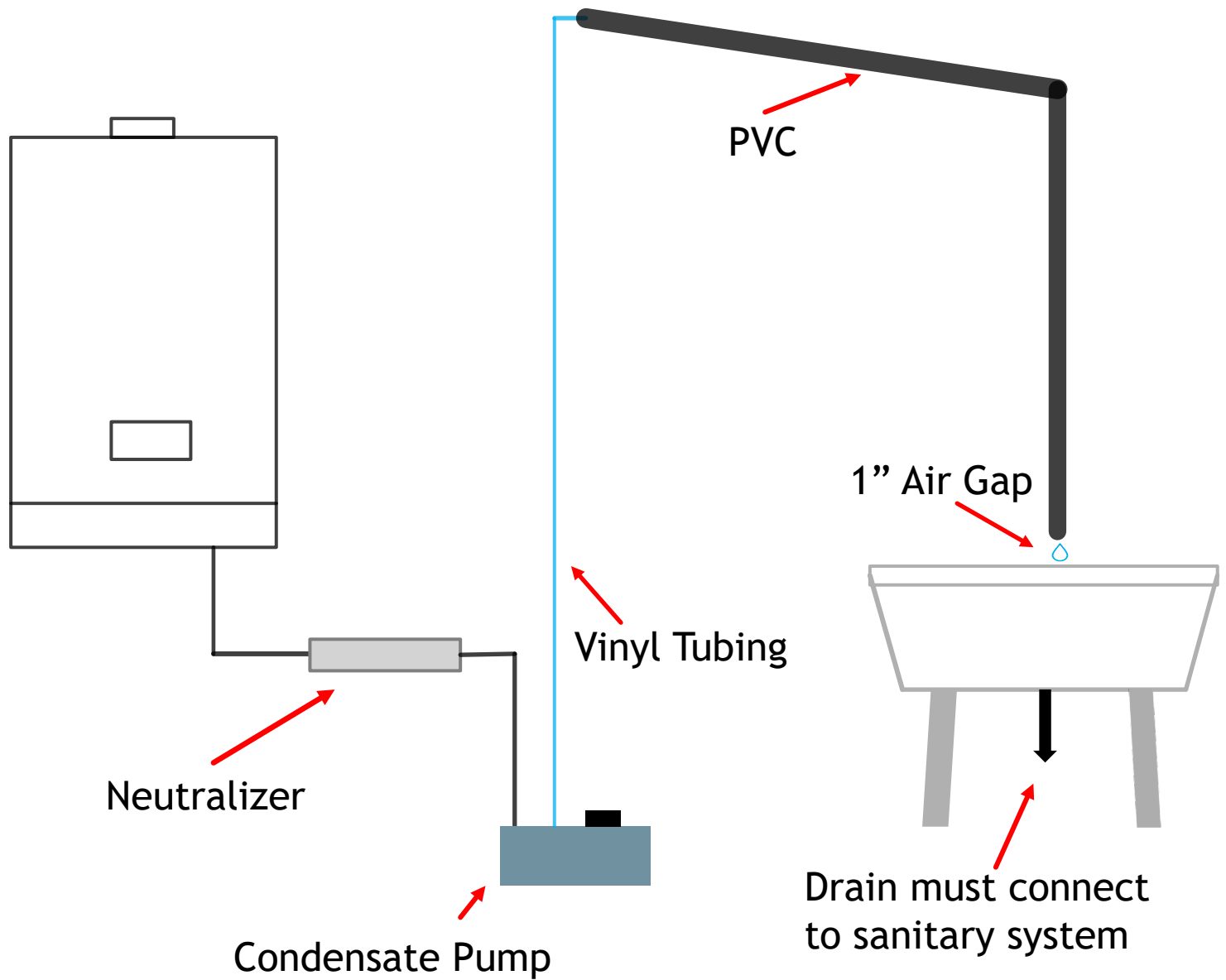
Condensate

Vinyl tubing pump discharge piping must only be installed vertically to a point where it can connect to $\frac{3}{4}$ " PVC that leads to the open receptor



Condensate

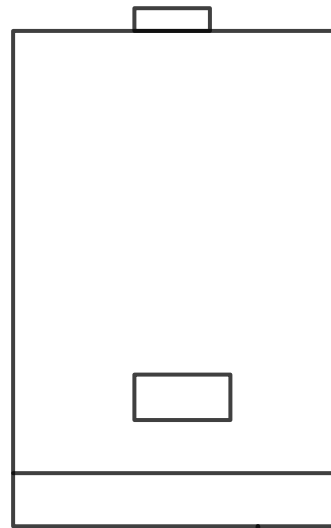
Horizontal PVC piping that runs to open receptor must be sloped towards receptor $\frac{1}{4}$ " per foot and must terminate 1" above the flood level of the receptor



Condensate

Horizontal PVC piping must be provided with a means to clear any obstructions that may occur within the piping
(cleanout)

Install cleanout here



Neutralizer

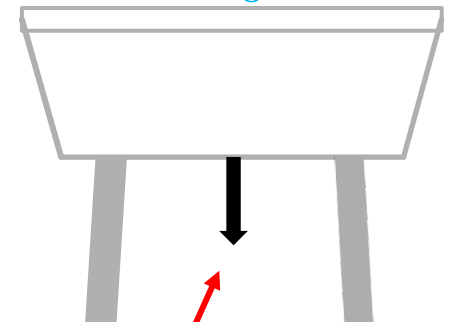
Condensate Pump

Vinyl Tubing

PVC

1" Air Gap

Drain must connect
to sanitary system



Condensate

Condensate pumps must be interlocked with the appliance in such a manner as to shut down appliance in the event of condensate pump failure

Condensate

Each condensing appliance in a multi-appliance installation requires its own condensate pump



Manufacturers Instructions

Instructions

You MUST follow manufacturers instructions!!

This will require you to do some reading!



Instructions

Ductwork

WARNING

The duct system must be properly sized to obtain the correct airflow for the furnace size that is being installed.

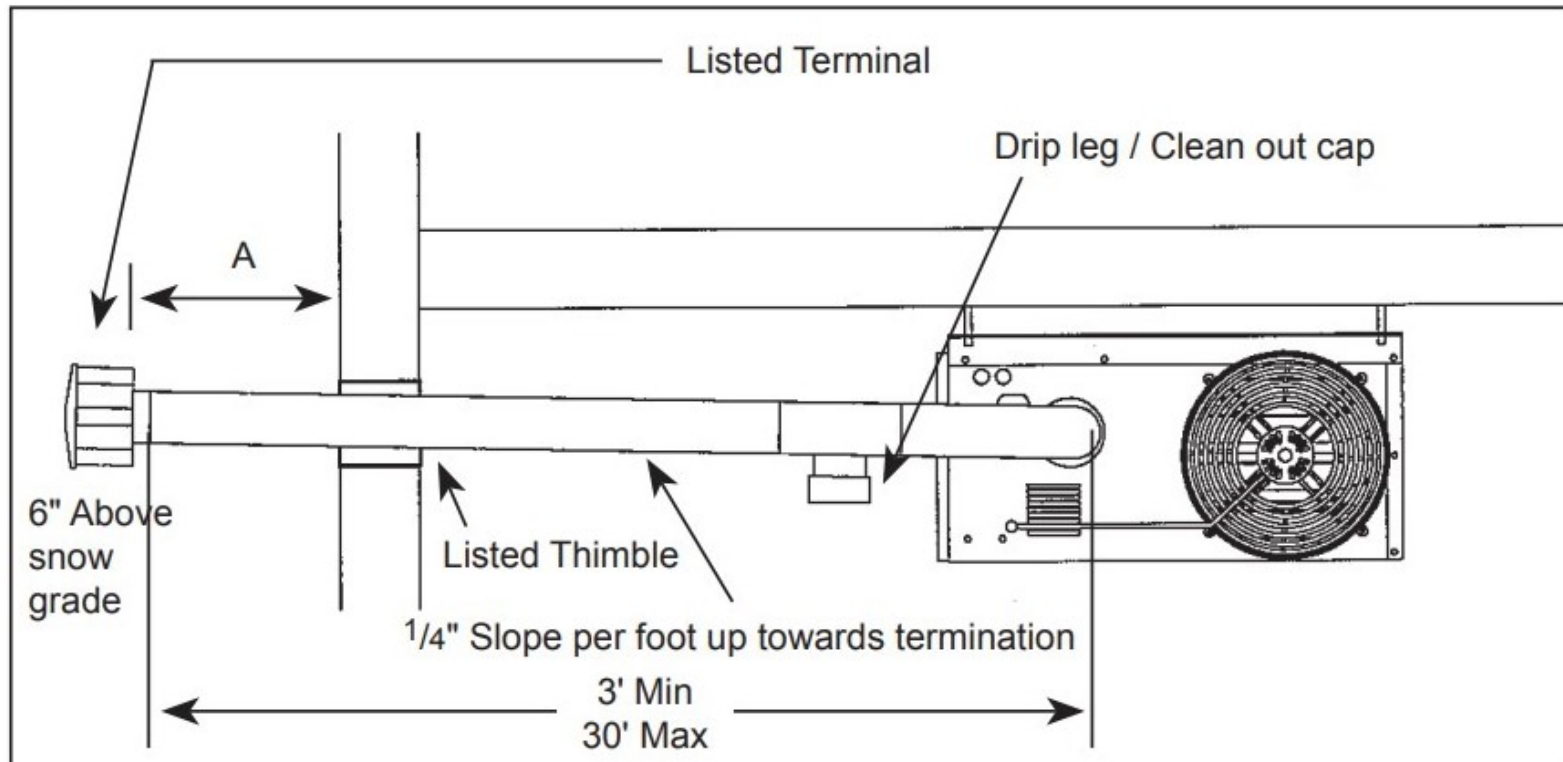
Refer to Table 6 or the furnace rating plate for the correct rise range and static pressures.

If the ducts are undersized, the result will be high duct static pressures and/or high temperature rises which can result in a heat exchanger OVERHEATING CONDITION. This condition can result in premature heat exchanger failure, which can result in personal injury, property damage, or death.


Instructions

Hot Dawg Heaters

Figure 10.2 - Horizontal Category III Venting with Upward Pitch



Section C – Horizontal, Category III Vent System Installation



C1. This section applies to horizontally vented Category III vent systems and is in addition to “Section A – General Instructions – All Units”. Category III vent systems listed by a nationally recognized agency and matching the diameters specified may be used. Different brands of vent pipe materials may not be intermixed. Under no circumstances should two sections of double wall vent pipe be joined together within one horizontal vent system due to the inability to verify complete seal of inner pipes.

- C2. All heaters that are horizontally vented perform as a Category III appliance. Category III venting has special venting requirements as follows.
- All **residential**, horizontally vented Category III heaters must be vented with an **agency certified (UL1738) Category III venting system**. Agency certified Category III venting systems are available from your local vent pipe distributor. Follow the agency certified Category III vent manufacturer's instructions for installation.

Section C – Horizontal, Category III Vent System Installation

C1. This section applies to horizontally vented Category III vent systems and is in addition to “Section A – General Instructions – All Units”. Category III vent systems listed by a nationally recognized agency and matching the diameters specified may be used. Different brands of vent pipe materials may not be intermixed. Under no circumstances should two sections of double wall vent pipe be joined together within one horizontal vent system due to the inability to verify complete seal of inner pipes.

C2. All heaters that are horizontally vented perform as a Category III appliance. Category III venting has special venting requirements as follows.

- All **residential**, horizontally vented Category III heaters must be vented with an **agency certified (UL1738) Category III venting system**. Agency certified Category III venting systems are available from your local vent pipe distributor. Follow the agency certified Category III vent manufacturer's instructions for installation.

Section C – Horizontal, Category III Vent System Installation

C1. This section applies to horizontally vented Category III vent systems and is in addition to “Section A – General Instructions – All Units”. Category III vent systems listed by a nationally recognized agency and matching the diameters specified may be used. Different brands of vent pipe materials may not be intermixed. Under no circumstances should two sections of double wall vent pipe be joined together within one horizontal vent system due to the inability to verify complete seal of inner pipes.

C2. All heaters that are horizontally vented perform as a Category III appliance. Category III venting has special venting requirements as follows.

- All **residential**, horizontally vented Category III heaters must be vented with an **agency certified (UL1738) Category III venting system**. Agency certified Category III venting systems are available from your local vent pipe distributor. Follow the agency certified Category III vent manufacturer's instructions for installation.

Hot Dawg Heater

Guess what isn't Category 3
vent material?

Section C – Horizontal, Category III Vent System Installation

C1. This section applies to horizontally vented Category III vent systems and is in addition to “Section A – General Instructions – All Units”. Category III vent systems listed by a nationally recognized agency and matching the diameters specified may be used. Different brands of vent pipe

materials may not be intermixed. Under no circumstances should two sections of double wall vent pipe be joined together within one horizontal vent system due to the inability to verify complete seal of inner pipes.


C2. All heaters that are horizontally vented perform as a Category III appliance. Category III venting has special venting requirements as follows.

- All **residential**, horizontally vented Category III heaters must be vented with an **agency certified (UL1738) Category III venting system**. Agency certified Category III venting systems are available from your local vent pipe distributor. Follow the agency certified Category III vent manufacturer's instructions for installation.

Instructions

NTI Trinity Venting

Vent/Air-inlet Pipe Material**Table 4-4 Acceptable Vent and Air-inlet Pipe Material**

Items ¹	Materials ^{2,3}	Installation Standards		 WARNING
		United States	Canada ⁴	
Vent Piping and Fittings	PVC - DWV	ANSI/ASTM D2265	All venting material in Canada must be ULC S636 approved . See Note 4 below for appropriate temperature applications.	All Vent and Air-inlet materials installed on gas fired appliances in CAN/US must meet the Standards listed in Table 4-4. Failure to comply could result in fire, serious injury or death.
	PVC Schedule 40	ANSI/ASTM D1785		
	CPVC Schedule 40	ANSI/ASTM F441		
	AL29-4C	UL-1738		
	Polypropylene (PP)	-		
Pipe Cement	PVC	ANSI/ASTM D2564		
	CPVC	ANSI/ASTM F493		
Primers	PVC / CPVC	ANSI/ASTM F656		

Notes:

¹ Refer to Table 4-5 for Allowable Vent and Air-inlet Pipe Sizes and Lengths.


² PVC venting (exhaust and air-intake) is not permitted within the Closet/alcove of a Closet/alcove installation.

³ The Air-Intake does not require high temperature pipe material. Check applicable local codes for acceptable materials.

⁴ ULC S636 PVC is approved for flue gas temperatures up to 149°F (65°C) and must only be used for low temperature applications. High temperature applications requiring boiler supply water temperatures greater than 140°F (60°C) must use ULC S636 CPVC, PP or AL29-4C.

Vent/Air-inlet Pipe Material

Table 4-4 Acceptable Vent and Air-inlet Pipe Material

Items ¹	Materials ^{2,3}	Installation Standards		 WARNING All Vent and Air-inlet materials installed on gas fired appliances in CAN/US must meet the Standards listed in Table 4-4. Failure to comply could result in fire, serious injury or death.
		United States	Canada ⁴	
Vent Piping and Fittings	PVC - DWV	ANSI/ASTM D2265	All venting material in Canada must be ULC S636 approved . See Note 4 below for appropriate temperature applications.	
	PVC Schedule 40	ANSI/ASTM D1785		
	CPVC Schedule 40	ANSI/ASTM F441		
	AL29-4C	UL-1738		
	Polypropylene (PP)	-		
Pipe Cement	PVC	ANSI/ASTM D2564		
	CPVC	ANSI/ASTM F493		
Primers	PVC / CPVC	ANSI/ASTM F656		

Notes:

¹ Refer to Table 4-5 for Allowable Vent and Air-inlet Pipe Sizes and Lengths.

² PVC venting (exhaust and air-intake) is not permitted within the Closet/alcove of a Closet/alcove installation.

³ The Air-Intake does not require high temperature pipe material. Check applicable local codes for acceptable materials.

⁴ ULC S636 PVC is approved for flue gas temperatures up to 149°F (65°C) and must only be used for low temperature applications. High temperature applications requiring boiler supply water temperatures greater than 140°F (60°C) must use ULC S636 CPVC, PP or AL29-4C.

Instructions

Weil-McLain Commercial Boiler

15

Wiring and fuel piping

⚠ WARNING

Electric shock hazard. Can cause severe personal injury or death if power source is not disconnected before installing or servicing boiler and burner.

To wire burner and boiler controls:

1. Install all wiring in compliance with:
 - National Electrical Code ANSI/NFPA 70.
 - Any additional national, state, or local codes.
2. Follow burner manual and wiring diagram found in burner information packet.
3. Use 14 ga. wire for operating and safety circuit wiring.
4. Where burner motor voltage differs from control voltage, supply proper voltage to each. Size fused disconnect(s) and conductors per National Electrical Code ANSI/NFPA 70.

To install

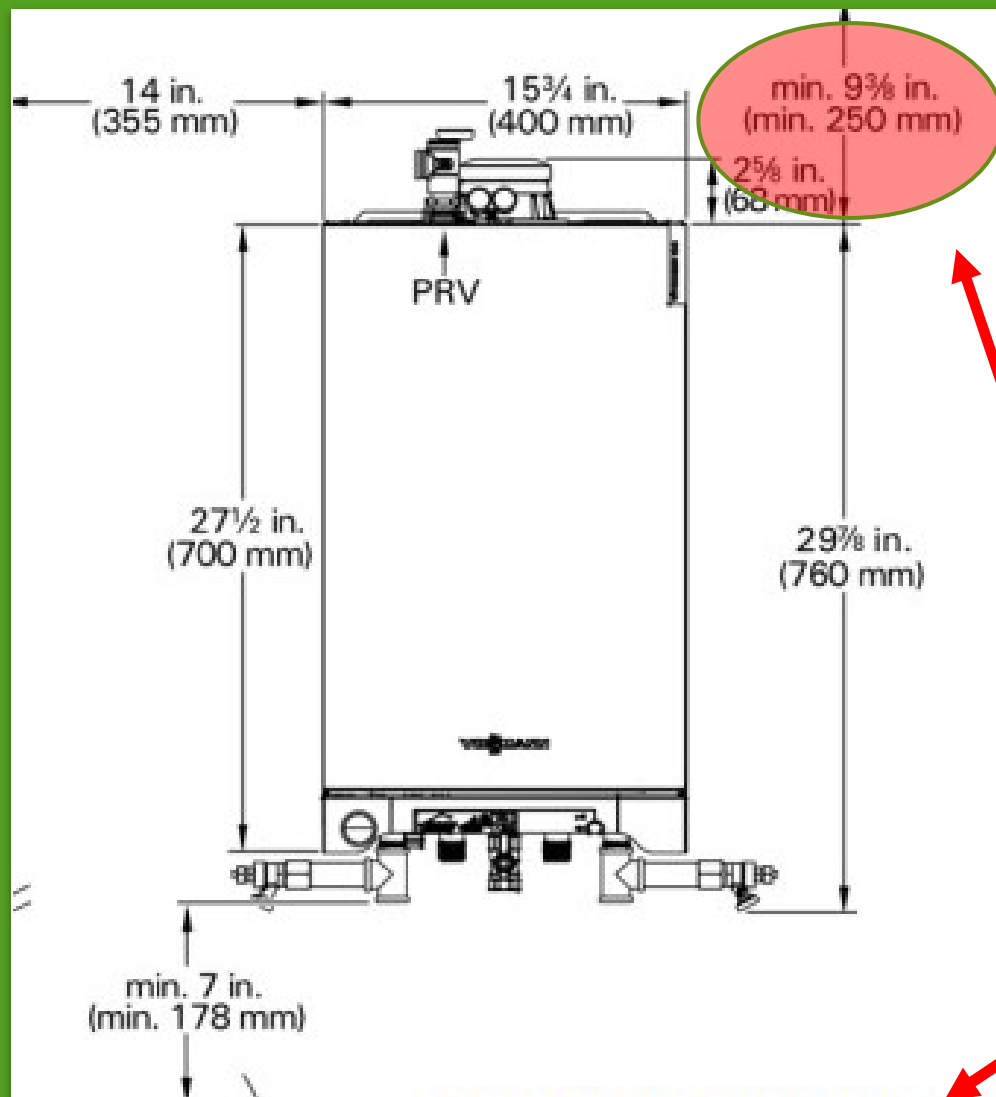
1. Install all
 - Local
 - Seper
2. Use pipe j
of fuel oi
threads o
3. Oil pipin

⚠ DANGER

⚠ WARNING

Instructions

**Viessmann
Vitodens 100**



Note: Prior to installing the boiler verify that the minimum mounting clearances are met.

Installation Examples

General

The schematics on the following pages are to be seen as guidelines only. They further do not display all system varieties, safety devices, or concepts possible. Specific system layouts may be further discussed with the local Viessmann sales representative office.

Clearances

A minimum of 2 in. (51 mm) circumferential clearance from non-insulated hot water pipes to combustible construction must be maintained. In cases where the pipes are insulated with pipe insulation of appropriate and sufficient thickness and insulation values, the above clearance may be reduced to 0" (refer to local gas codes).

Instructions

WardFlex
CSST

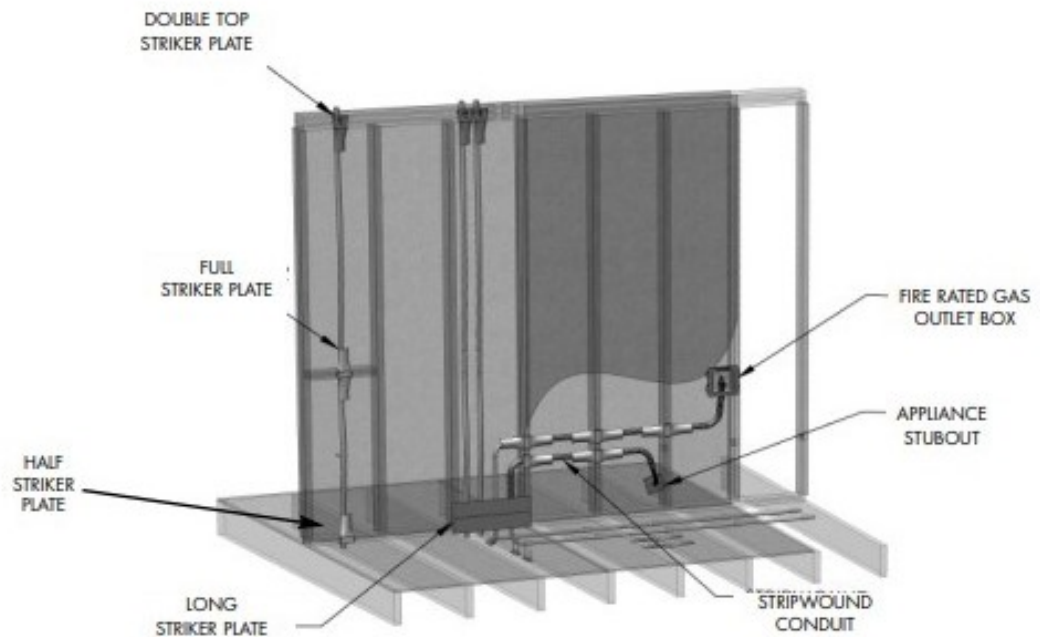


Figure 4.5

4.4.2 STRIKER PLATES

Striker plates are used to prevent tubing damage in areas where potential penetration threats exist through studs, joists, plates, and other similar structural members. Only striker plates supplied by Ward Manufacturing are permitted for use with WARDFLEX®/WARDFLEX® II. For installations where all three above criteria apply the following striker plate protection must be applied.

- A. At concealed support points and points of penetration less than 2 inches from any edge of a stud, joist, plate, etc. **shielding is required at the area of support and extending 5 inches in one or both directions** (if appropriate).
- B. At concealed support points and points of penetration within 2 to 3 inches from any stud, joist, plate, etc., listed quarter striker plates are required at the area of support. Figure 4.7 and Figure 4.8 show proper means of protection for this type of installation.

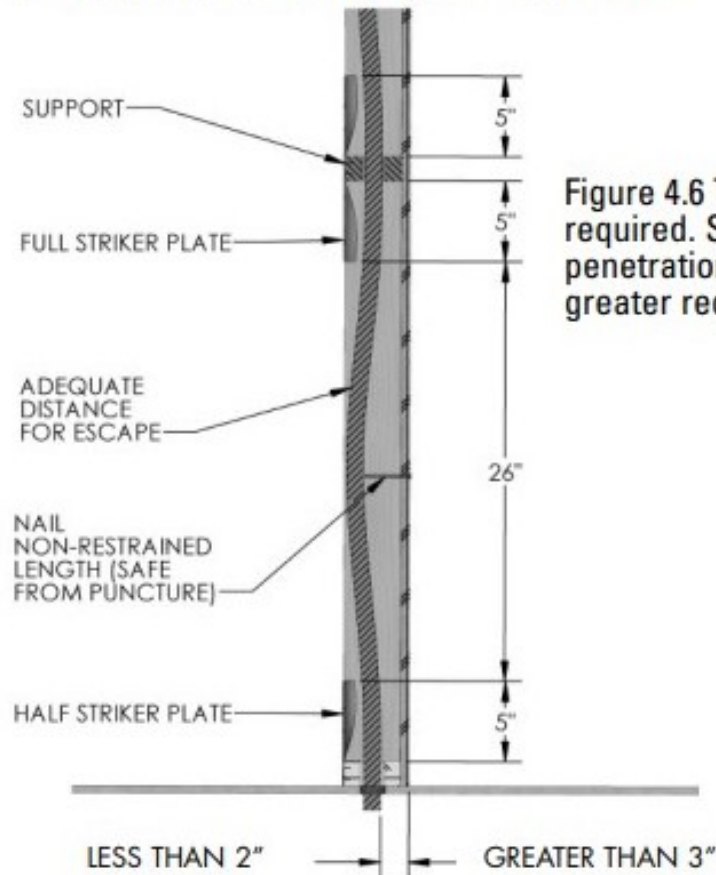


Figure 4.6 Typical locations where striker plates are required. Striker plates are installed at both horizontal penetrations unrestrained vertical runs of 26 inches or greater require no additional protection.

Figure 4.6

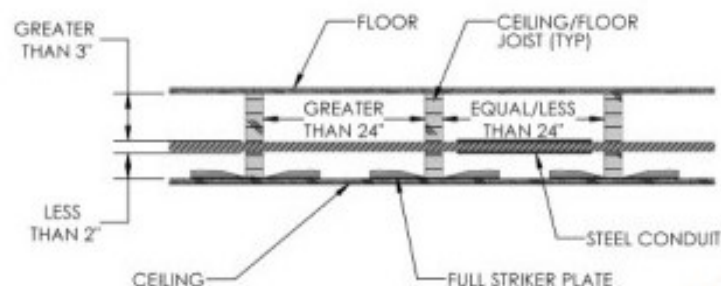


Figure 4.7

STRIPWOUND METAL CONDUIT

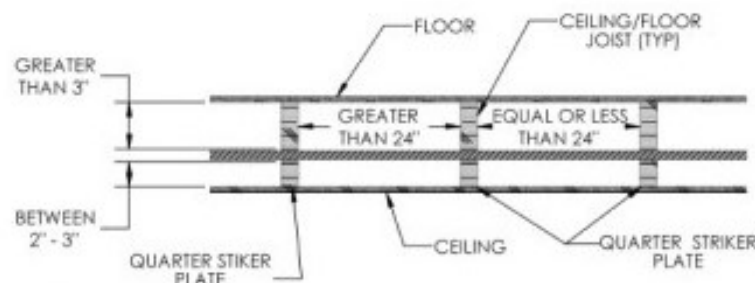


Figure 4.8

- C. Tubing routed horizontally through structural members shall be protected from puncture threats with the appropriate shielding material. At penetration joints, listed striker plates of the appropriate size shall be utilized. **Tubing between constraints that are less than 24 inches apart and meeting the criteria requiring full striker plates, shall be additionally protected by stripwound metal-conduit, or schedule 40 pipe.**
- D. CSST greater than 1" nominal diameter installed within a concealed hollow wall cavity of 2" x 4" construction shall be protected along the entire concealed run length with stripwound metal conduit, or schedule 40 pipe.
- E. Should an unfinished ceiling (i.e. basement) be covered at a later date, the quarter striker plates, shown in figure 4.9 and 4.10, should be replaced with appropriate protection devices that provide adequate protection for potential penetration threats.
- F. Although figures 4.9 and 4.10 are acceptable, installation method 4.11 is preferred.



Instructions

Gas Valves & Lock-Up Regulators

Lock-Up

“Lockup pressure” is the pressure above the set-point that is required to completely shut the regulator valve off and ensure that there is no flow.

INSTALLATION - GAS CONNECTIONS

GAS CONNECTIONS

WARNING

1. Installation must conform with local building codes or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1 (NFPA 54) - latest edition. In Canada installation must be in accordance with CSA B149.1.
2. All field gas piping must be pressure/leak tested prior to operation. Never use an open flame. Use a soap solution or equivalent for testing.
3. Gas pressure to appliance controls must never exceed 14" W.C. (1/2 psi).
4. To reduce the opportunity for condensation, the minimum sea level input to the appliance, as indicated on the serial plate, must not be less than 5% below the rated input, or 5% below the minimum rated input of dual rated units.

HOT SURFACE / DIRECT SPARK / PROVEN PILOT

FURNACE GAS VALVES



36H32-423

36H SERIES HSI / DSI / INTERMITTENT / PROVEN PILOT

Universal electronic ignition gas valves. Our highest capacity multi-function combination control covering a wide range of gas heating applications.

FEATURES

- Pilot port plugged for Hot Surface and Direct Spark Ignition systems, remove plug for Intermittent / Proven Pilot systems
- Fast open, slow open, single and two stage models
- Electric on-off switch and convenient quick connect coil terminals
- Tamper resistant screws and controlled gasket compression to withstand high inlet pressures
- Mounting position upright, or 0° to 90° from upright in any direction

SPECIFICATIONS

Operating Voltage.....	24 VAC 50/60 Hz
Electrical Rating - Single Stage.....	0.41 amps
Electrical Rating - Two Stage.....	0.54 amps
Ambient Operating Range.....	-40 to 175°F (-40 to 79°C)
Maximum Pressure Rating.....	1/2" PSI (14.0" WC)
CSA/CUS Certificate Number.....	1636373

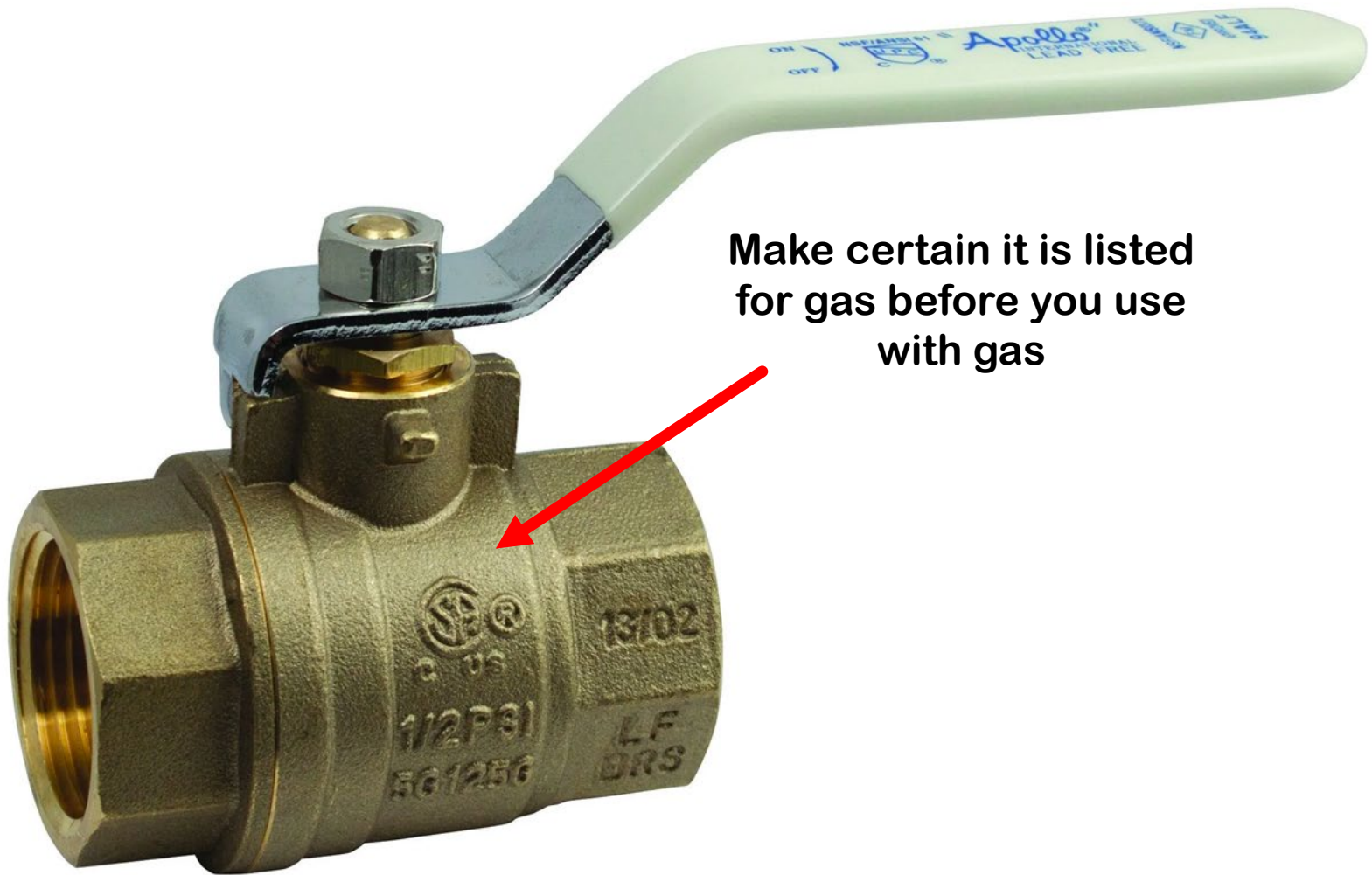






Instructions

Apollo Shut-Off Valves



**Make certain it is listed
for gas before you use
with gas**



Questions?