DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

# CITY OF PORTLAND

# BUILDING PERMIT

**This is to certify that** MADELYN TRUSTEE VICKERS **Located At** 134 LONGFELLOW ST

**Job ID:** 2012-08-4770-HVAC **CBL:** 119- D-011-001

**has permission to** Install a Prestige SOLO 110 Boiler in Basement
**provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.**

| | |
|---|---|
| Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED. | A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be |

**Fire Prevention Officer** **Code Enforcement Officer / Plan Reviewer**

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

# BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

**City of Portland, Maine - Building or Use Permit Application**
389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

| Job No: | Date Applied: | CBL: | |
|---|---|---|---|
| **2012-08-4770-HVAC** | **8/21/2012** | **119- D-011-001** | |
| Location of Construction: **134 LONGFELLOW ST** | Owner Name: **MADELYN VICKERS** | Owner Address: **304 DAWN'S EDGE LN EXTON, PA 19341** | Phone: |
| Business Name: | Contractor Name: **Gelinas HVAC Services Inc.** | Contractor Address: **2 WASHINGTON AVE SCARBOROUGH MAINE 04074** | Phone: **(207) 885-0771** |
| Lessee/Buyer's Name: | Phone: | Permit Type: **HVAC** | Zone: **R-5** |
| Past Use: **Single Family Dwelling** | Proposed Use: **Same: Single Family Dwelling – to install Triangle Tube Prestige Excellence heating system** | Cost of Work: **$10,000.00** | CEO District: |
| | | Fire Dept: ___ Approved ___ Denied ___ N/A Signature: | Inspection: Use Group: R-3 Type: 5B HVAC Signature: |
| Proposed Project Description: **Install a Prestige SOLO 110 Boiler in Basement** | | Pedestrian Activities District (P.A.D.) | |
| Permit Taken By: Lannie | | | |

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

**Zoning Approval**

| Special Zone or Reviews | Zoning Appeal | Historic Preservation |
|---|---|---|
| ___ Shoreland | ___ Variance | ✓ Not in Dist or Landmark |
| ___ Wetlands | ___ Miscellaneous | ___ Does not Require Review |
| ___ Flood Zone | ___ Conditional Use | ___ Requires Review |
| ___ Subdivision | ___ Interpretation | ___ Approved |
| ___ Site Plan | ___ Approved | ___ Approved w/Conditions |
| ___ Maj ___ Min ___ MM | ___ Denied | ___ Denied |
| Date: 8/27/12 | Date: | Date: |

**CERTIFICATION**

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

FILL IN AND SIGN WITH INK

# APPLICATION FOR PERMIT
# HEATING OR POWER EQUIPMENT

R-S 2012-8-4770 HVAC

*To the* INSPECTOR OF BUILDINGS, PORTLAND, ME.

*The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:*

Location / CBL 134 W. LONGFELLOW St. Use of Building RES. Date 8/21/12'

Name and address of owner of appliance 134 W. LONGFELLOW St. Ptld. Me. 04101

119-D-11

Installer's name and address GELINAS HVAC SERVICES INC.

2 WASHington Ave. Scarborough. Me. 04074 Telephone (207) 885-0771

**Location of appliance:**

- ☑ Basement
- ☐ Floor
- ☐ Attic
- ☐ Roof

**Type of Fuel:**

- ☑ Gas (NATural)
- ☐ Oil
- ☐ Solid

**Appliance Name:** Triangle Tube Prestige Excellence

U.L. Approved ☑ Yes ☐ No

Will appliance be installed in accordance with the manufacture's installation instructions? ☑ Yes ☐ No

IF NO Explain: _____

**The Type of License of Installer:**

- ☐ Master Plumber # _____
- ☐ Solid Fuel # _____
- ☐ Oil # _____
- ☑ Gas # PNT1078
- ☐ Other _____

**Type of Chimney:**

- ☐ Masonry Lined
  Factory built N/A
- ☐ Metal
  Factory Built U.L. Listing # N/A
- ☑ Direct Vent
  Type PVC UL# Direct vent

**Type of Fuel Tank**

- ☐ Oil
- ☑ Gas – NATURAL

**Size of Tank** N/A

**Number of Tanks** N/A

**Distance from Tank to Center of Flame** N/A **feet.**

**Cost of Work:** $ 9,812 –

**Permit Fee:** $ 120

RECEIVED
AUG 21 2012
Dept. of Building Inspections
City of Portland Maine

20055

**Approved**

Fire: _____

Ele.: _____

Bldg.: _____

**Approved with Conditions**

☐ See attached letter or requirement

_____ Inspector's Signature

_____ Date Approved

**Signature of Installer** William W. Gelinas 8/21/12'

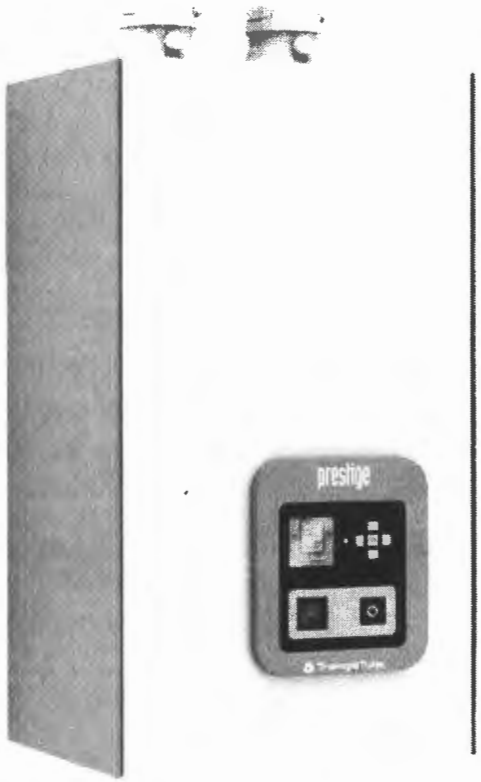
White - Inspection Yellow - File Pink - Applicant's Gold - Assessor's Copy

TriangleTube

# prestige

# Solo 110

# Water Boiler




## *INSTALLATION AND MAINTENANCE*
## MANUAL

**NOTICE**

Warranty Registration Card must be filled out by the customer and mailed within thirty (30) days of installation in order to gain warranty coverage.

When receiving the PRESTIGE Solo unit, any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

Leave all documentation received with appliance with owner for future reference.

**⚠ WARNING** **If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.**

**FOR YOUR SAFETY**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- WHAT TO DO IF YOU SMELL GAS
  - Do not try to light any appliance
  - Do not touch any electrical switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

**⚠ DANGER**

**Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system which has been under water.**

**⚠ WARNING**

**WHAT TO DO IF YOU SMELL GAS**

- **Do not try to light any appliance**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

**Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

**⚠ WARNING**

**Should overheating occur or the gas supply fails to shut off, turn OFF the manual gas control valve external to the appliance.**

**⚠ WARNING**

**DO NOT add cold make up water when the boiler is hot. Thermal shock can cause potential cracks in the heat exchanger.**

**⚠ CAUTION**

**When servicing the boiler:**

- **Avoid electrical shock by disconnecting the electrical supply prior to performing maintenance.**

**⚠ WARNING**

**Qualified Installer:**

Prior to installing this product read all instructions included in this manual and all accompanying manuals/documents with this appliance. Perform all installation steps required in these manuals in the proper order given. Failure to adhere to the guidelines within these manuals can result in severe personal injury, death or substantial property damage.

**Homeowner:**

- This product should be maintained / serviced and inspected annually by a qualified service technician.
- This manual is intended for use by a qualified Installer/Service Technician.

***NOTICE***

**Please reference the unit's model number and the serial number from the rating label, on the backside of the control panel when inquiring about service or troubleshooting.**

***NOTICE***

**Triangle Tube accepts no liability for any damage resulting from incorrect installation or from the use of components or fittings not specified by Triangle Tube.**

# SECTION I - Pre-Installation Items

## Code Compliance

This product must be installed in accordance to the following:

- All applicable local, state, national and provincial codes, ordinances, regulations and laws.
- For installations in Massachusetts, code requires the boiler to be installed by a licensed plumber or gas fitter, and if antifreeze is utilized, the installation of a reduced pressure backflow preventer device is required in the boiler's cold water fill or make up water supply line.
- For installation in Massachusetts all direct vented appliances must comply with the guidelines as outlined on page 11.
- The National Fuel Gas Code NFPA54/ ANSI Z 223.1 - Latest edition.
- National Electric Code ANSI/NFPA 70.
- For installations in Canada -"Installation Code for Gas Burning Equipment" CGA/B149.1 or B149.2 Canadian Electrical Code Part 1 CSA C22.1.
- Standards for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, when required.

***NOTICE***

**The PRESTIGE Solo boiler gas manifold and gas controls meet the safe lighting and other performance requirements as specified in ANSI Z21.13 latest edition.**

## Determining Product Location

Before locating the PRESTIGE SOLO check for convenient locations to:

- Heating system piping
- Venting
- Gas supply piping
- Electrical service

Ensure the boiler location allows the combustion air/vent piping to be routed directly through the building and terminate properly outside with a minimum amount of length and bends.

Ensure the area chosen for the installation of the PRESTIGE Solo is free of any combustible materials, gasoline and other flammable liquids.

**⚠ WARNING**

**Failure to remove or maintain the area free of combustible materials, gasoline and other flammable liquids or vapors can result in severe personal injury, death or substantial property damage.**

Ensure the PRESTIGE Solo and its controls are protected from dripping or spraying water during normal operation or service.

The PRESTIGE Solo should be installed in a location so that any water leaking from the boiler or piping connections or relief valve will not cause damage to the area surrounding the unit or any lower floors in the structure.

## Boiler Replacement

If the PRESTIGE Solo is replacing an existing boiler, the following items should be checked and corrected prior to installation:

- Boiler piping leaks and corrosion.
- Improper location and sizing of the expansion tank on the boiler heating loop.
- If applicable, level and quality of freeze protection within the boiler system.

## Recommended Clearances

The PRESTIGE Solo is approved for zero clearance to combustibles, excluding vent and boiler piping.

- Boiler Piping - 1/4 inch from combustible materials.

- Reference the appropriate vent supplement for clearance requirements.

**BEST PRACTICE**

**To provide serviceability to the unit it is recommended that the following clearances be maintained:**

**Top boiler jacket - 24 inches [610 mm].**

**Front - 24 inches [610 mm].**

**Bottom boiler piping - 24 inches [610 mm].**

**Rear - 0 inches**

**Sides - 6 inches [153 mm]**

**⚠ WARNING**

**If the clearances listed above cannot be maintained or the enclosure in which the boiler is installed is less than 85 cubic feet, the space must be ventilated. See page 6 for ventilation requirements.**

***NOTICE***

**When maintaining zero clearance or less than recommended clearances, some product labeling may become hidden and unreadable.**

**⚠ WARNING**

**When installing the PRESTIGE Solo in a confined space, sufficient air must be provided for proper combustion and venting and to allow, under normal operating conditions, proper air flow around the product to maintain ambient temperatures within safe limits to comply with the National Fuel Gas Code NFPA 54 - latest edition.**

**Residential Garage Installations**

When installing the PRESTIGE Solo in a residential garage, the following special precautions per NFPA 54/ANSI Z223.1 must be taken:

- Mount the unit a minimum 18 inches [458 mm] above the floor level of the garage. Ensure the burner and ignition devices / controls are no less than 18 inches [458 mm] above the floor level.
- Locate or protect the unit in a manner so it cannot be damaged by a moving vehicle.

**Boiler Freeze Protection Feature**

The TriMax boiler management system has a freeze protection feature built in. This feature monitors the boiler temperature and responds as follows when no call for heat is present:

- 46°F [8°C] CH (1) & Auxiliary Boiler Pumps ON
- 42°F [6°C] CH (1), Auxiliary Boiler & System Pumps ON, Burner operates at low fire
- 60°F [15°C] Freeze protection ends. Burner & all pumps OFF after completing CH Post Pump Time.

**⚠ CAUTION**

**The boiler freeze protection feature is disabled during a hard lockout, however the circulators will operate.**

**⚠ CAUTION**

**The boiler freeze protection feature is designed to protect the boiler. The boiler should be installed in a primary/secondary piping arrangement if it is installed in an unheated space or exposed to water temperatures of 46°F or less. See Section IV for primary/secondary piping examples. See Section X for antifreeze guides.**

## SECTION XVII - MAINTENANCE PROCEDURES



## REPLACEMENT PARTS



## PRODUCT SPECIFICATIONS

## Definitions

The following terms are used throughout this manual to bring attention to the presence of potential hazards or important information concerning the product.

**⚠ DANGER**

**Indicates the presence of a hazardous situation which, if ignored, will result in death, serious injury or substantial property damage.**

**⚠ WARNING**

**Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.**

**⚠ CAUTION**

**Indicates a potentially hazardous situation which, if ignored, may result in minor injury or property damage.**

***NOTICE***

**Indicates special instructions on installation, operation or maintenance, which are important to equipment but not related to personal injury hazards.**

**BEST PRACTICE**

**Indicates recommendations made by Triangle Tube for the installers which will help to ensure optimum operation and longevity of the equipment**

***NOTICE***

**Triangle Tube reserves the right to modify the technical specifications and components of its products without prior notice.**

**⚠ DANGER**

**Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system which has been under water.**

**⚠ WARNING**

**WHAT TO DO IF YOU SMELL GAS**

- **Do not try to light any appliance**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

**Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

**⚠ WARNING**

**Should overheating occur or the gas supply fails to shut off, turn OFF the manual gas control valve external to the appliance.**

**⚠ WARNING**

**DO NOT add cold make up water when the boiler is hot. Thermal shock can cause potential cracks in the heat exchanger.**

**⚠ CAUTION**

**When servicing the boiler:**

- **Avoid electrical shock by disconnecting the electrical supply prior to performing maintenance.**

**⚠ WARNING**

**Qualified Installer:**

Prior to installing this product read all instructions included in this manual and all accompanying manuals/documents with this appliance. Perform all installation steps required in these manuals in the proper order given. Failure to adhere to the guidelines within these manuals can result in severe personal injury, death or substantial property damage.

**Homeowner:**

- This product should be maintained / serviced and inspected annually by a qualified service technician.
- This manual is intended for use by a qualified Installer/Service Technician.

***NOTICE***

**Please reference the unit's model number and the serial number from the rating label, on the backside of the control panel when inquiring about service or troubleshooting.**

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## Code Compliance

This product must be installed in accordance to the following:

- All applicable local, state, national and provincial codes, ordinances, regulations and laws.
- For installations in Massachusetts, code requires the boiler to be installed by a licensed plumber or gas fitter, and if antifreeze is utilized, the installation of a reduced pressure backflow preventer device is required in the boiler's cold water fill or make up water supply line.
- For installation in Massachusetts all direct vented appliances must comply with the guidelines as outlined on page 11.
- The National Fuel Gas Code NFPA54/ ANSI Z 223.1 - Latest edition.
- National Electric Code ANSI/NFPA 70.
- For installations in Canada -"Installation Code for Gas Burning Equipment" CGA/B149.1 or B149.2 Canadian Electrical Code Part 1 CSA C22.1.
- Standards for Controls and Safety Devices for Automatically Fired Boilers, ANSI/ASME CSD-1, when required.

***NOTICE***

**The PRESTIGE Solo boiler gas manifold and gas controls meet the safe lighting and other performance requirements as specified in ANSI Z21.13 latest edition.**

## Determining Product Location

Before locating the PRESTIGE SOLO check for convenient locations to:

- Heating system piping
- Venting
- Gas supply piping
- Electrical service

Ensure the boiler location allows the combustion air/vent piping to be routed directly through the building and terminate properly outside with a minimum amount of length and bends.

Ensure the area chosen for the installation of the PRESTIGE Solo is free of any combustible materials, gasoline and other flammable liquids.

**⚠ WARNING**

**Failure to remove or maintain the area free of combustible materials, gasoline and other flammable liquids or vapors can result in severe personal injury, death or substantial property damage.**

Ensure the PRESTIGE Solo and its controls are protected from dripping or spraying water during normal operation or service.

The PRESTIGE Solo should be installed in a location so that any water leaking from the boiler or piping connections or relief valve will not cause damage to the area surrounding the unit or any lower floors in the structure.

## Boiler Replacement

If the PRESTIGE Solo is replacing an existing boiler, the following items should be checked and corrected prior to installation:

- Boiler piping leaks and corrosion.
- Improper location and sizing of the expansion tank on the boiler heating loop.
- If applicable, level and quality of freeze protection within the boiler system.

## Recommended Clearances

The PRESTIGE Solo is approved for zero clearance to combustibles, excluding vent and boiler piping.

- Boiler Piping - 1/4 inch from combustible materials.

- Reference the appropriate vent supplement for clearance requirements.

**BEST PRACTICE**

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**Bottom boiler piping - 24 inches [610 mm].**

**Rear - 0 inches**

**Sides - 6 inches [153 mm]**

**⚠ WARNING**

**If the clearances listed above cannot be maintained or the enclosure in which the boiler is installed is less than 85 cubic feet, the space must be ventilated. See page 6 for ventilation requirements.**

***NOTICE***

**When maintaining zero clearance or less than recommended clearances, some product labeling may become hidden and unreadable.**

**⚠ WARNING**

**When installing the PRESTIGE Solo in a confined space, sufficient air must be provided for proper combustion and venting and to allow, under normal operating conditions, proper air flow around the product to maintain ambient temperatures within safe limits to comply with the National Fuel Gas Code NFPA 54 - latest edition.**

### Residential Garage Installations

When installing the PRESTIGE Solo in a residential garage, the following special precautions per NFPA 54/ANSI Z223.1 must be taken:

- Mount the unit a minimum 18 inches [458 mm] above the floor level of the garage. Ensure the burner and ignition devices / controls are no less than 18 inches [458 mm] above the floor level.
- Locate or protect the unit in a manner so it cannot be damaged by a moving vehicle.

### Boiler Freeze Protection Feature

The TriMax boiler management system has a freeze protection feature built in. This feature monitors the boiler temperature and responds as follows when no call for heat is present:

- 46°F [8°C] CH (1) & Auxiliary Boiler Pumps ON
- 42°F [6°C] CH (1), Auxiliary Boiler & System Pumps ON, Burner operates at low fire
- 60°F [15°C] Freeze protection ends. Burner & all pumps OFF after completing CH Post Pump Time.

**⚠ CAUTION**

**The boiler freeze protection feature is disabled during a hard lockout, however the circulators will operate.**

**⚠ CAUTION**

**The boiler freeze protection feature is designed to protect the boiler. The boiler should be installed in a primary/secondary piping arrangement if it is installed in an unheated space or exposed to water temperatures of 46°F or less. See Section IV for primary/secondary piping examples. See Section X for antifreeze guides.**

## SECTION II - Combustion Air and Venting

### Combustion Air Contamination

**⚠ WARNING**

**If the PRESTIGE Solo combustion air inlet is located in any area likely to cause or contain contamination, or if products, which would contaminate the air cannot be removed, the combustion air must be repiped and terminated to another location. Contaminated combustion air will damage the unit and its burner system, resulting in possible severe personal injury, death or substantial property damage.**

**⚠ WARNING**

**Do not operate a PRESTIGE Solo if its combustion air inlet is located near a laundry room or pool facility. These areas will always contain hazardous contaminants.**

**Pool and laundry products and common household and hobby products often contain fluorine or chlorine compounds. When these chemicals pass through the burner and vent system, they can form strong acids. These acids can create corrosion of the heat exchanger, burner components and vent system, causing serious damage and presenting a possible threat of flue gas spillage or water leakage into the surrounding area.**

**Please read the information listed below. If contaminating chemicals are located near the area of the combustion air inlet, the installer should pipe the combustion air inlet to an outside area free of these chemicals per SECTION V of this installation manual.**

Potential contaminating products

- Spray cans containing chloro/fluorocarbons
- Permanent Wave Solutions
- Chlorinated wax
- Chlorine - based swimming pool chemicals / cleaners
- Calcium Chloride used for thawing ice
- Sodium Chloride used for water softening
- Refrigerant leaks
- Paint or varnish removers
- Hydrochloric acid / muriatic acid
- Cements and glues
- Antistatic fabric softeners used in clothes dryers
- Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
- Adhesives used to fasten building products and other similar products

Areas likely to contain these products

- Dry cleaning / laundry areas and establishments
- Beauty salons
- Metal fabrication shops
- Swimming pools and health spas
- Refrigeration Repair shops
- Photo processing plants
- Auto body shops
- Plastic manufacturing plants
- Furniture refinishing areas and establishments
- New building construction
- Remodeling areas
- Garages with workshops

## Ventilation and Combustion Air Requirements - Direct Vent

A Direct Vent appliance utilizes uncontamined outdoor air (piped directly to the appliance) for combustion.

For Direct Vent installations, involving only the PRESTIGE Solo, in which the minimum service clearances are maintained as listed on page 4, no ventilation openings are required.

For Direct Vent, zero clearance installations involving only the PRESTIGE Solo, the space / enclosure must provide two openings for ventilation. The openings must be sized to provide 1 square inch of free area per 1,000 BTUH of boiler input. The openings shall be placed 12 inches from the top of the space and 12 inches from the floor of the space.

For installations in which the PRESTIGE Solo shares the space with air movers (exhaust fan, clothes dryers, fireplaces, etc.) and other combustion equipment (gas or oil) the space must be provided with adequate air openings to provide ventilation and combustion air to the equipment. To properly size the ventilation / combustion air openings, the installer must comply with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations in the U.S or CSA B149.1 and B149.2 for installations in Canada.

**⚠ WARNING**

**The space must be provided with ventilation / combustion air openings properly sized for all make-up air requirements (exhaust fans, clothes dryers, fireplaces, etc.) and the total input of all appliances located in the same space as the PRESTIGE Solo, excluding the input of a Direct Vent PRESTIGE Solo which uses combustion air directly from the outside, thus additional free area for the openings is not required. Failure to provide or properly size the openings could result in severe personal injury, death or substantial property damage.**

## Ventilation and Combustion Air Requirements - Category IV

A Category IV appliance utilizes uncontaminated indoor or outdoor air (surrounding the appliance) for combustion.

**BEST PRACTICE**

**In order to reduce the potential risks associated with indoor contaminates (listed on page 5), flammable vapors and tight housing construction (little or no infiltration air), it is recommended to pipe uncontaminated combustion air directly from the outdoors to the appliance. This practice also promotes higher system efficiency by reducing heated indoor air from being exhausted from the house and replaced by cold infiltration air into the house.**

For installations in which the PRESTIGE Solo shares the space with air movers (exhaust fan, clothes dryers, fireplaces, etc.) and other combustion equipment (gas or oil) the space must be provided with adequate air openings to provide ventilation and combustion air to the equipment. To properly size the ventilation / combustion air openings, the installer must comply with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations in the U.S or CSA B149.1 and B149.2 for installations in Canada, as referenced in this section of the manual and titled Methods of Accessing Combustion Air into a Space.

**⚠ WARNING**

**The space must be provided with ventilation / combustion air openings properly sized for all make-up air requirements (exhaust fans, clothes dryers, fireplaces, etc.) and the total input of all appliances, including the PRESTIGE Solo when located in the same space. Failure to provide or properly size the openings could result in severe personal injury, death or substantial property damage.**

## Methods of Accessing Combustion Air Into A Space - Category IV

### Indoor Combustion Air

**NOTICE**

**The methods listed in this section for accessing Indoor Combustion Air assume that the infiltration rate is adequate and not less than .40 ACH. For infiltration rates less than .40 ACH, reference the NFPA 54 National Fuel Gas Code for additional guidance.**

Opening Size and Location

Openings used to connect indoor spaces shall be sized and located in accordance with the following see Fig. 1:

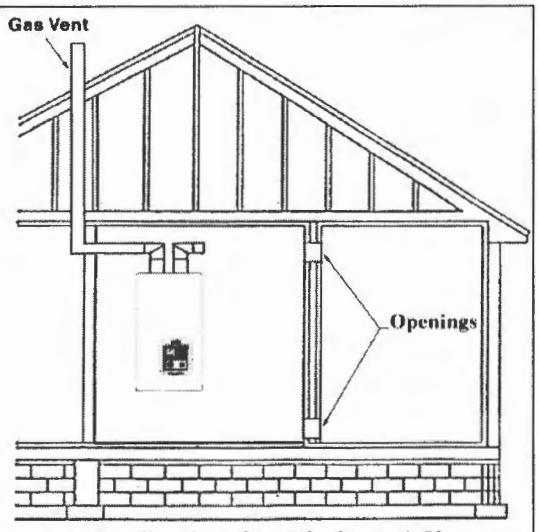


**Fig. 1: All Combustion Air from Adjacent Indoor Spaces Through Indoor Combustion Openings**

- Combining spaces on the same story. Each opening shall have a minimum free area of 1 sq. in./1000 Btu/hr of the total input rating of all gas utilization equipment in the space, but not less than 100 sq. inches. One opening shall commence within 12 inches of the top, and one opening shall commence within 12 inches of the bottom of the enclosure. The minimum dimension of air openings shall be not less than 3 inches.
- Combining spaces in different stories. The volumes of spaces in different stories shall be considered as communicating spaces where such spaces are connected by one or more openings in doors or floors having a total minimum free area of 2 sq. in./1000 Btu/hr of total input rating of all gas utilization equipment.

### Outdoor Combustion Air

**BEST PRACTICE**

**Isolating the combustion appliance room from the rest of the building and bringing in uncontaminated outside air for combustion and ventilation is always preferred.**

Opening Size and Location

The minimum dimension of air openings shall be not less than 3 inches

Openings used to supply combustion and ventilation air shall be sized and located in accordance with the following:

One Permanent Opening Method. See Fig. 2

One permanent opening, commencing within 12 in. of the top of the enclosure, shall be provided. The equipment shall have clearances of at least 1 inch from the sides and 6 in. from the front of the appliance. The opening shall directly communicate with the outdoors or shall communicate through a vertical or horizontal duct to the outdoors or spaces that freely communicate with the outdoors and shall have a minimum free area of the following:

- 1sq. in./3000 Btu/hr of the total input rating of all equipment located in the enclosures, and

## SECTION V - Installing Vent / Combustion Air & Condensate Drain

### Installing Vent and Combustion Air

**⚠ DANGER**

**The PRESTIGE Solo must be vented and supplied with combustion air as shown in the PRESTIGE Solo Vent Supplement, included in the boiler installation envelope. Refer to optional vent kit instructions for additional vent installation instructions. Once installation is completed, inspect the vent and combustion air system thoroughly to ensure systems are airtight and comply with the instructions given in the venting supplement and are within all requirements of applicable codes. Failure to comply with the installation requirements on the venting and combustion air piping will cause severe personal injury or death.**

### Installing Condensate Drain Assembly

1. Locate the condensate drain assembly and install as shown in Fig. 14 page 25.

***NOTICE***

**The installer may want to fill the condensate trap with water prior to assembling on the unit.**

2. Remove the retaining nut, metal washer and rubber seals from the condensate drain assembly and slide over the heat exchanger condensate drain nipple. Make sure to place the metal washer on top of the rubber seals. Connect the condensate drain assembly to the retaining nut and tighten. **Hand tight only!**

**⚠ WARNING**

**Ensure the condensate drain assembly contains the plastic seated ball. Do not install the condensate drain assembly if the ball is lost or missing, replace the entire assembly.**

3. Remove the compression nut and rubber seal from the drain outlet.
4. Using 3/4" x 2' flexible PVC tube provided, slide the compression nut and rubber seal over the pipe

***NOTICE***

**The use of 3/4" PVC or CPVC pipe is also acceptable. If 3/4" pipe is used deburr and chamfer pipe to allow mating onto the drain assembly.**

5. Thread the rubber seal into the compression nut to ease installation of the pipe to the drain assembly.
6. Seat the pipe onto the drain assembly and tighten the compression nut. **Hand tight only!**

***NOTICE***

**The installer may opt to using 13/16" ID tubing in lieu of rigid piping.**

***NOTICE***

**The drain line materials must be an approved material by the authority having jurisdiction. In absence of such authority, PVC and CPVC piping must comply with ASTM D1785 or D2845. The cement and primer used on the piping must comply with ASME D2564 or F493. For installations in Canada, use CSA or ULC certified PVC or CPVC pipe, fittings and cement/primer.**

7. Continue the pipe from the drain assembly to a floor drain or condensate pump.

## NATURAL GAS

### Pipe Sizing - Natural Gas

Refer to Table 1 for schedule 40 metallic pipe length and diameter requirements for natural gas, based on rated PRESTIGE Solo input (divide by 1,000 to obtain cubic feet per hour).

- Table 1 is based on Natural Gas with a specific gravity of 0.60 and a pressure drop through the gas piping of 0.30"w.c..
- For additional gas piping sizing information, refer to ANSI Z223.1. For Canadian installations refer to B149.1 or B149.2.

### Natural Gas Supply Pressure Requirements

1. Pressure required at the gas valve inlet supply pressure port:
   - Maximum 13"w.c. at flow or no flow conditions to the burner.
   - Minimum 5"w.c. during flow conditions to the burner. Must be verified during start up and with all other gas appliances operating within the building.
2. Install 100% lockup gas pressure regulator in the gas supply line if inlet pressure can exceed 13"w.c at any time. Adjust the lockup pressure regulator for 13"w.c maximum.

**⚠ WARNING**

**DO NOT adjust or attempt to measure gas valve outlet pressure. The gas valve is factory-set for the correct outlet pressure. This setting is suitable for natural gas and propane and requires no field adjustment. Attempts by the installer to adjust or measure the gas valve outlet pressure could result in damage to the valve, causing potential severe personal injury, death or substantial property damage.**

**Table 1: Gas Piping Sizing - Natural Gas**

| Length of Pipe in Feet | Capacity of Schedule 40 Metallic Pipe in Cubic Feet of Natural Gas Per Hour (based on 0.60 specific gravity, 0.30" w.c. pressure drop) | | | | |
|---|---|---|---|---|---|
| **SCH 40** | **1/2"** | **3/4"** | **1"** | **1-1/4"** | **1-1/2"** |
| 10 | 132 | 278 | 520 | 1050 | 1600 |
| 20 | 92 | 190 | 350 | 730 | 1100 |
| 30 | 73 | 152 | 285 | 590 | 890 |
| 40 | 63 | 130 | 245 | 500 | 760 |
| 50 | 56 | 115 | 215 | 440 | 670 |
| 75 | 45 | 93 | 175 | 360 | 545 |
| 100 | 38 | 79 | 150 | 305 | 460 |
| 150 | 31 | 64 | 120 | 250 | 380 |

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