

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND BUILDING PERMIT

This is to certify that OFPORTLAND CITY

Located At 26 BAY

Job ID: 2011-04-807-UI

CBL: 156 - - B - 012 - 001 - - - -

has permission to Triangle Tube Boiler Basement

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes 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

SCANNED

## BUILDING PERMIT INSPECTION PROCEDURES

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

or email: [buildinginspections@portlandmaine.gov](mailto: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.



# PORTLAND MAINE

*Strengthening a Remarkable City, Building a Community for Life • [www.portlandmaine.gov](http://www.portlandmaine.gov)*

Director of Planning and Urban Development  
Penny St. Louis

Job ID: 2011-04-807-UI

Located At: 26 BAY

CBL: 156 - - B - 012 - 001 - - - -

## **Conditions of Approval:**

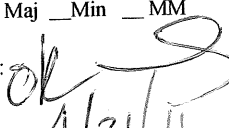
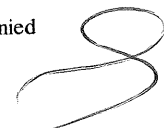
### **Building**

The installation must comply with the State of Maine gas regulations.

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

Job No: 2011-04-807-UI  #2011-2888	Date Applied: 4/19/2011	CBL: 156 - - B - 012 - 001 - - - -	
Location of Construction: 26 BAY ST	Owner Name: Bay Street Realty Trust - Andre Bellucci	Owner Address:	Phone:
Business Name:	Contractor Name: Breggy Oil & Propane	Contractor Address: 84 Congress St, PORTLAND MAINE 04102	Phone:  (207) 772-4631
Lessee/Buyer's Name:	Phone:	Permit Type: NEW - HVAC	Zone:  R-3
Past Use:  Constructing new single family dwelling	Proposed Use:  Single Family Dwelling - To install new Heating Equipment	Cost of Work:	CEO District:
		Fire Dept:  <input type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A  Signature:	Inspection: Use Group: Type:  Signature:
Proposed Project Description: 26 Bay St UI#10-0196 - New Heating Boiler		Pedestrian Activities District (P.A.D.)	
Permit Taken By:Lannie	<b>Zoning Approval</b>		

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 electrical 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.

Special Zone or Reviews	Zoning Appeal	Historic Preservation
<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM Date: 	<input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<input checked="" type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied 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
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_____ RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE	_____ DATE	_____ PHON
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4/19/11

#2011-2888

# Job Summary Report

## Job ID: 2011-04-807-UI

Report generated on Apr 21, 2011 11:04:38 AM

Page 1

<b>Job Type:</b>	UI - Building Permit	<b>Job Description:</b>	26 Bay St UI#10-0196	<b>Job Year:</b>	2011
<b>Building Job Status Code:</b>	Permit Issued	<b>Pin Value:</b>	1140	<b>Tenant Name:</b>	
<b>Job Application Date:</b>		<b>Public Building Flag:</b>	N	<b>Tenant Number:</b>	
<b>Estimated Value:</b>		<b>Square Footage:</b>			
<b>Related Parties:</b>		OF CITY		<i>Property Owner</i>	
		Construction Systems of New England - Construction		<i>GENERAL CONTRACTOR</i>	
		Systems of New England Construction Systems of New			
		England			
		Homeowner - Homeowner Homeowner		<i>GENERAL CONTRACTOR</i>	
		Breggy Oil & Propane - Breggy Oil Breggy Oil		<i>MECHANICAL CONTRACTOR</i>	

### Job Charges

Fee Code Description	Charge Amount	Permit Charge Adjustment	Net Charge Amount	Payment Date	Receipt Number	Payment Amount	Payment Adjustment Amount	Net Payment Amount	Outstanding Balance
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Location ID: 22108

### Location Details

Alternate Id	Parcel Number	Census Tract	GIS X	GIS Y	GIS Z	GIS Reference	Longitude	Latitude
G34888	156 B 012 001		M				-70.278772	43.680903

Location Type	Subdivision Code	Subdivision Sub Code	Related Persons	Address(es)
1				26 BAY STREET WEST

Location Use Code	Variance Code	Use Zone Code	Fire Zone Code	Inside Outside Code	District Code	General Location Code	Inspection Area Code	Jurisdiction Code
GOVERNMENTAL		NOT APPLICABLE					DISTRICT 5	WOODFORDS

### Structure Details

Structure: Single Family Home - UI #10-0196

Occupancy Type Code:

Structure Type Code	Structure Status Type	Square Footage	Estimated Value	Address
Single Family	0			26 BAY STREET WEST

Longitude	Latitude	GIS X	GIS Y	GIS Z	GIS Reference

User Defined Property	Value
Garages	Attached
Garages	Attached1557 sq ft Garage

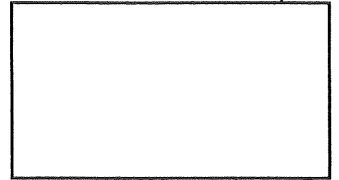
Lanne

not in Q



FILL IN AND SIGN WITH INK

# APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



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 156-B-14 Use of Building HOUSE Date 4-19-11  
Name and address of owner of appliance BAY STREET REALTY TRUST C/O ANDRE BELLUCCI  
22 OAKLEY ST PORTLAND ME 04103-34 BAY ST.  
Installer's name and address BREAGY OIL & PROPANE  
84 Congress St. PORTLAND Telephone 207-772-4631

## Location of appliance:

- ☒ Basement ☐ Floor  
☐ Attic ☐ Roof

## Type of Fuel:

- ☒ Gas ☐ Oil ☐ Solid

Appliance Name: TRIANGLE Tube

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 # PNT4546  
☐ Other \_\_\_\_\_

## Type of Chimney:

- ☐ Masonry Lined  
Factory built \_\_\_\_\_

- ☐ Metal  
Factory Built U.L. Listing # \_\_\_\_\_

- ☒ Direct Vent  
Type PVC UL# \_\_\_\_\_

## Type of Fuel Tank

- ☐ Oil  
☒ Gas

Size of Tank 100 gal

Number of Tanks 2-420

Distance from Tank to Center of Flame 20 feet.

Cost of Work: \$ 1,000.00

Permit Fee: \$ 130

**Approved**

**Approved with Conditions**

Fire: \_\_\_\_\_

Ele.: \_\_\_\_\_

Bldg.: \_\_\_\_\_

☐ See attached letter or requirement

Inspector's Signature

Date Approved

Signature of Installer

George Cochran

White - Inspection

Yellow - File

Pink - Applicant's

Gold - Assessor's Copy



FILL IN AND SIGN WITH INK

# APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT

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 156-B-14 Use of Building HOUSE Date 4-19-11  
Name and address of owner of appliance BAY STREET REALTY TRUST C/O ANDRE BELLUCCI  
29 BAY ST. PORTLAND ME 04103-34 BAY ST.  
Installer's name and address BRETAGN OIL & PROPANE  
84 Congress St. PORTLAND Telephone 207-772-4631

## Location of appliance:

- ☒ Basement ☐ Floor  
☐ Attic ☐ Roof

## Type of Fuel:

- ☒ Gas ☐ Oil ☐ Solid

Appliance Name: TRIANGLE Tube

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 # PNT4546  
☐ Other \_\_\_\_\_

## Type of Chimney:

- ☐ Masonry Lined  
Factory built \_\_\_\_\_

- ☐ Metal  
Factory Built U.L. Listing # \_\_\_\_\_

- ☒ Direct Vent  
Type PVC UL# \_\_\_\_\_

## Type of Fuel Tank

- ☐ Oil  
☒ Gas

Size of Tank Pro gas

Number of Tanks 2-420

Distance from Tank to Center of Flame 20 feet.

Cost of Work: \$ 11,000.00

Permit Fee: \$ -130-

## Approved

Fire: \_\_\_\_\_

Ele.: \_\_\_\_\_

Bldg.: \_\_\_\_\_

## Approved with Conditions

- ☐ See attached letter or requirement

Inspector's Signature \_\_\_\_\_

Date Approved \_\_\_\_\_

Signature of Installer George Cochran

White - Inspection

Yellow - File

Pink - Applicant's

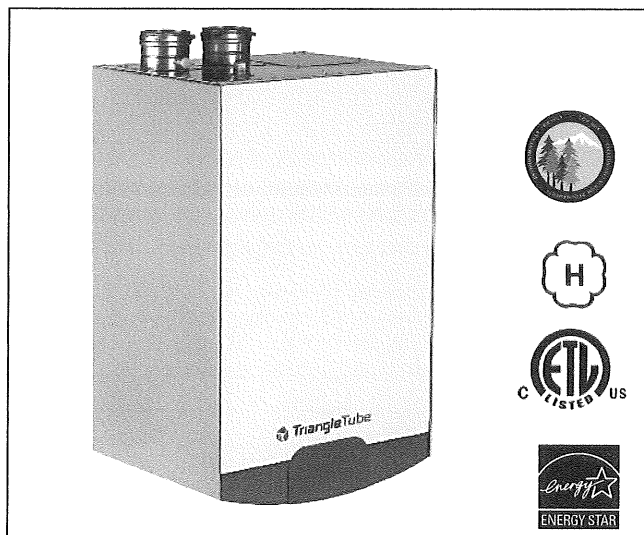
Gold - Assessor's Copy

# prestige

## Fully Condensing Water Boiler

# TriangleTube

## Engineering Submittal Solo 60



### Engineering Submittal Data

- ASME Boiler Certification - ASME "H" Stamp
- ENERGY STAR Qualified
- Unit complies with ANSI Z21.13 and CSA 4.9 Boiler standards
- Fully condensing – 95% AFUE Efficiency
- Full modulation capability from 25% to rated input
- Modulation allows fewer and longer cycles leading to lower operating cost and longer component life
- Low pressure drop heat exchanger
- Control interface and logic for indirect hot water storage tank with priority
- Approved for zero clearance to combustibles (excluding vent and boiler piping)
- Automatic boiler freeze protection
- Anti-freeze allowed when used per manufacturer's specifications.
- Superior grade stainless steel heat exchanger construction - 439 Grade
- Self cleaning flue ways in heat exchanger
- Low NOx operation exceeding SCAQMD 2012 regulations

- Digital display control panel
- Use of 3" PVC, CPVC or AL29-4C pipe for vent and air up to 60 equivalent feet each or 4" up to 100 equivalent feet each (total length and fittings – each 90° elbow equals 5 feet and each 45° elbow equals 3 feet )
- Limited 10 year warranty
- Boost feature for low temperature startup
- Light weight construction for wall mounting
- Standard equipment:
  - ASME 30 psi pressure relief valve
  - pressure and temperature gauge
  - high limit temperature safety control
  - outdoor temperature reset control
  - air vent
  - 24 volt terminal strip with removable jumpers for manual reset or automatic reset
  - automatic low water cutoff feature
  - variable speed blower
- Microprocessor electronic gas and air controller
- Stainless steel premix burner
- Reliable spark ignition
- Unique geometry – 3 consecutive baffles guide water flow through the heat exchanger and around the combustion chamber
- High water content – stable temperature control and less sensitive to water flow
- Electronic controls with easy to read menus, performance and trouble shooting codes
- Swing out control panel for easy access and servicing.
- Attractive appliance design for installation in high visibility areas.
- Boiler water supply temperature can be maintained by the Prestige, eliminating the need for a mix system to achieve the desired temperature with high limit protection

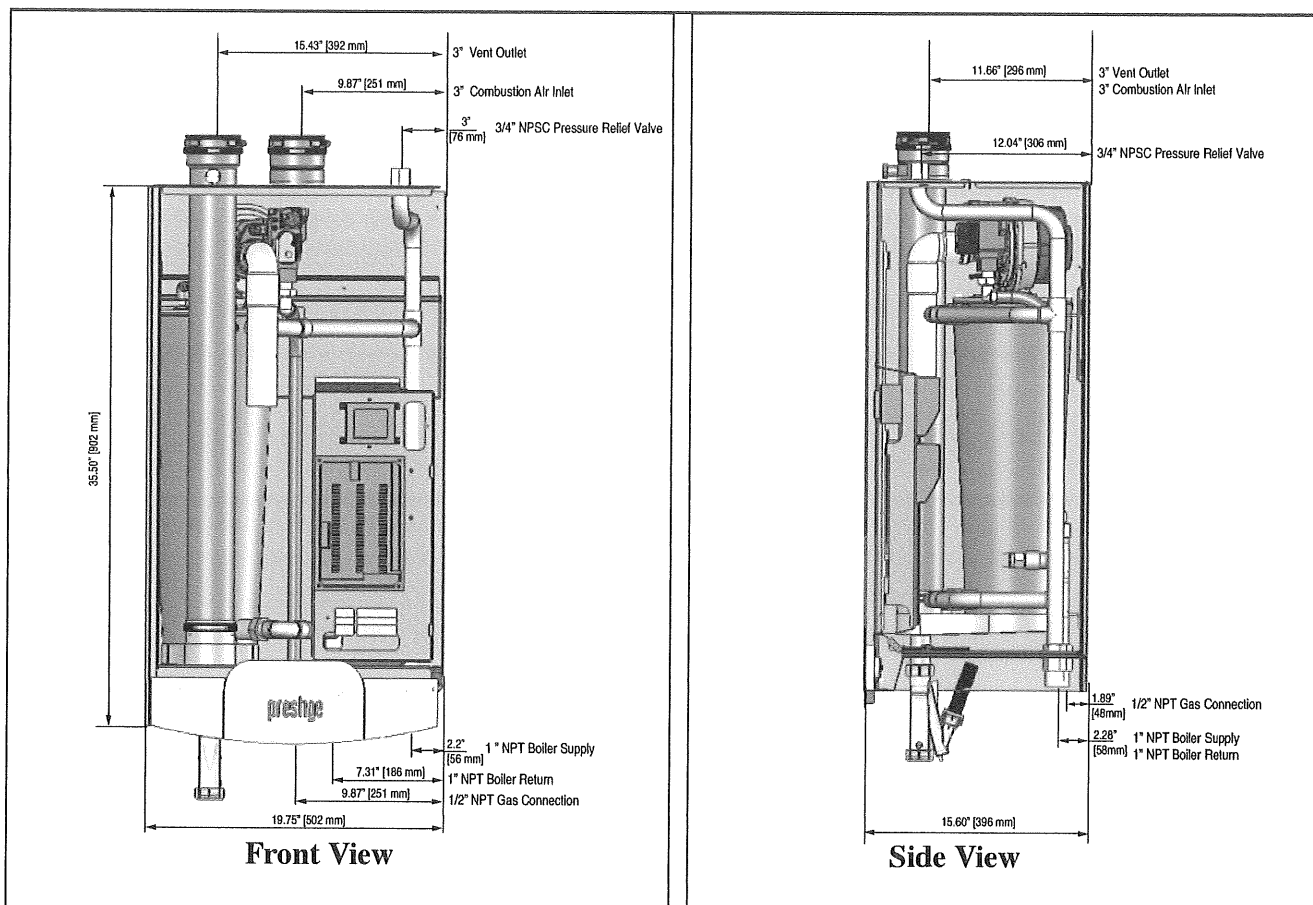
Project / Location: 156-B-14 By St. Date: 4-18-11

Consulting Engineer / Architect: \_\_\_\_\_

Mechanical Contractor: Breggy and Proctor

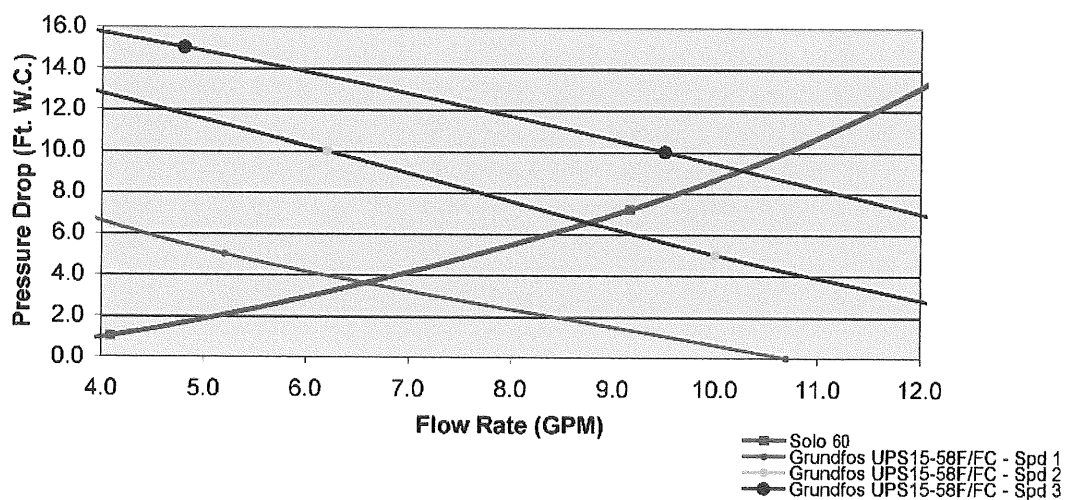
Notes: \_\_\_\_\_





Model	Fuel	Input Modulation MBH	AFUE %	DOE Heating Capacity MBH	Net I=B=R MBH	Water Volume Gal.	Supply/Return Connections	Gas Connection	Vent/Air Diam.	Weight Lbs
Solo 60	Natural or Propane	16 - 60	95	54	47	2.5	1"	1/2"	3"	95

### Pressure Drop Curve vs Grundfos UPS 15-58F-FC



**Note:** Minimum allowable flow rate at full input: 3 gpm SOLO 60

- 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 boiler control 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 Boiler circulator is ON
- 38°F Boiler circulator is ON and burner operates at low fire
- 50°F Burner OFF and boiler circulator operates for approximately 10 minutes

### CAUTION

The boiler freeze protection feature is disabled during a hard lockout, however the CH circulator 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 IX for antifreeze guides.

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**PRESTIGE Solo 60/175/250 Stud Walls - Installation**

1. Locate the studs in the general area of the boiler placement.
2. Place the wall-mounting bracket on the wall centering the mounting slots with the stud centers and ensuring the upper edge of the bracket is away from the wall.
3. Level the bracket, while maintaining it's centering with the studs and use a pencil to mark the location of the mounting slots.
4. Remove the bracket from the wall and drill 1/4" diameter hole by 3" deep positioned in the center of each mark. For applications using metal studs and 3/16" toggle bolts, drill the required clearance hole.
5. Reposition the bracket onto the wall and align mounting slots/holes. Insert the two lag screws provided (or toggle bolts for metal studs) through the mounting slots/holes and loosely tighten.
6. Level bracket and tighten screws (bolts for metal studs) securely making sure not to over-tighten to avoid damaging drywall or plaster.

**PRESTIGE Solo 399 Stud Walls - Installation**

1. To distribute the weight of the boiler evenly when mounting onto a stud wall it is recommended to use the PRESTIGE Solo Wall Frame kit.
2. When using the wall frame to mount the boiler reference the kit installation instructions and ensure the frame is securely fastened to the wall.
3. If the structure of wall is questionable, in supporting a minimum weight of 250 pounds [115 kg.], it is recommended to use the optional floor stand.

**Wall Bracket Installation - Solid Walls**

1. Locate the general area of the boiler placement.
2. Place the wall-mounting bracket on the wall ensuring the upper edge of the bracket is away from the wall.
3. Level the bracket and use a pencil to mark the location of the mounting slots on the wall.
4. Remove the bracket from the wall and drill a 5/8" diameter hole by 1-3/8" deep positioned in the center of each mark.
5. Install the anchors (provided) flush or slightly recessed in the drilled holes with threaded side facing down.
6. Reposition the bracket on the wall and align mounting slots/holes. Insert the two bolts (provided) through the mounting slots/holes and loosely tighten.
7. Level bracket and tighten bolts securely.

**Boiler Mounting**

1. Obtain assistance in lifting the boiler onto the wall bracket.
2. Install the boiler making sure the boiler mounting lip located along the upper edge of the rear jacket panel engages the wall-mounting bracket. Ensure the boiler is seated properly and is secure.

### Ventilation and Combustion Air Requirements - Direct Vent

A Direct Vent appliance utilizes uncontaminated 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 contaminants (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

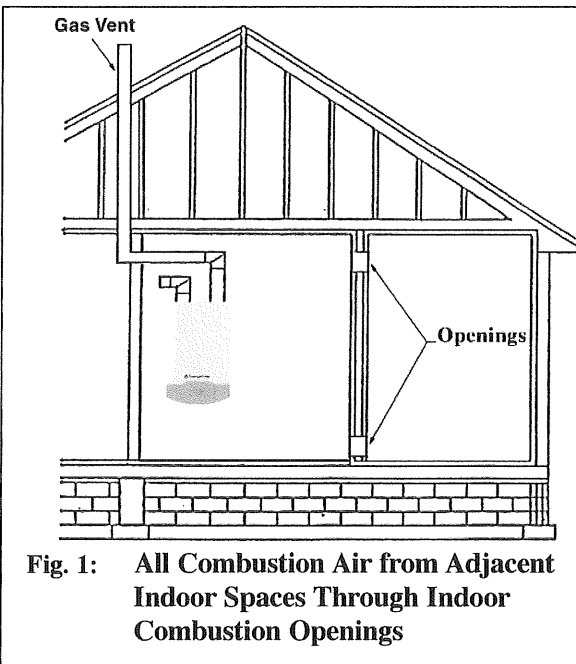
#### Indoor Combustion Air

##### **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

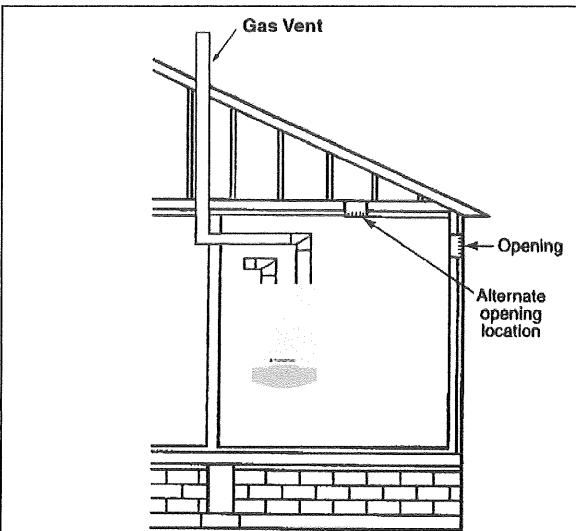
The minimum dimension of air openings shall be not less than 3 inches

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



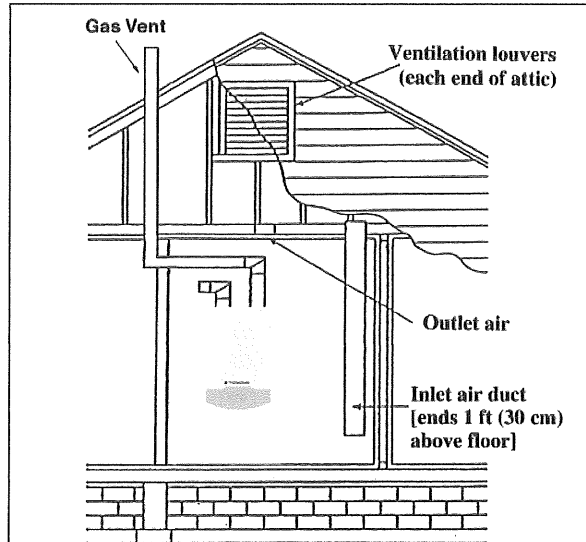
**Fig. 2: All Combustion Air from Outdoors Through One Permanent Air Opening**

- Not less than the sum of the areas of all vent connectors in the space.

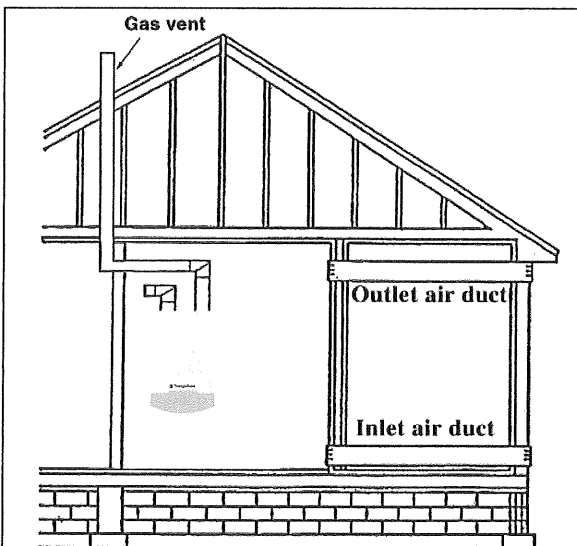
## Two Permanent Openings Method.

Two permanent openings, one commencing within 12 in. of the top and one commencing within 12 in. of the bottom of the enclosure, shall be provided. The openings shall communicate directly, or by ducts, with the outdoors or spaces that freely communicate with the outdoors, as follows:

- Where directly communicating with the outdoors or where communication to the outdoors is through vertical ducts, each opening shall have a minimum free area of 1 sq. in./4000 Btu/hr of total input rating of all equipment in the enclosure. See Fig.3.
- Where communicating with the outdoors is through horizontal ducts, each opening shall have a minimum free area of not less than 1 sq.in./2000 Btu/hr of total input rating of all equipment in the enclosure. See Fig. 4.



**Fig. 3: All Combustion Air from Outdoors Through Ventilated Attic**



**Fig. 4: All Combustion Air from Outdoors Through Horizontal Ducts**

## Combination of Indoor and Outdoor Combustion Air

**Indoor Openings:** Where used, openings connecting the interior spaces shall comply with the Indoor Combustion Air section on page 7.

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## Combustion Air Venting



**Outdoor Opening(s) Location.** Outdoor opening(s) shall be located in accordance with the Outdoor Combustion Air section.

**Outdoor Opening(s) Size.** Outdoor opening(s) shall be calculated in accordance with the following:

- The ratio of the interior spaces shall be the available volume of all communicating spaces divided by the required volume.
- The outdoor size reduction factor shall be 1 minus the ratio of interior spaces.
- The minimum size of outdoor opening(s) calculated in accordance with the above outdoor air section multiplied by the reduction factor. The minimum dimension of air openings shall not be less than 3 in.



**Do not install the PRESTIGE Solo into a common vent with other gas or oil appliances. This may cause flue gas spillage or appliance malfunction, resulting in possible severe personal injury, death or substantial property damage.**

### Combustion Air and Vent Piping

The PRESTIGE Solo requires a Category IV venting system, which is designed for pressurized venting and condensate.

The PRESTIGE Solo is certified per ANSI Z21.13 as a Category IV or Direct Vent (sealed combustion) appliance. A Category IV appliance utilizes uncontaminated indoor or outdoor air (surrounding the appliance) for combustion. A Direct Vent appliance utilizes uncontaminated outdoor air (piped directly to the appliance) for combustion.

### BEST PRACTICE

**In order to reduce the potential risks associated with indoor contaminants (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.**

### NOTICE

**Install combustion air and vent pipe as detailed in the PRESTIGE Solo Vent Supplement included in the boiler installation envelope. Refer to optional vent kit instructions for addition vent installation instructions.**



**Verify installed combustion air and vent piping are sealed gas tight and meet all provided instructions and applicable codes, failure to comply will result in severe personal injury or death.**

### Removal of an Existing Boiler from a Common Vent System

#### BEST PRACTICE

When an existing boiler is removed from a common venting system, the common venting system is likely to be too large for proper venting of the remaining appliances. At the time of removal of an existing boiler, the following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while the other appliances remaining connected to the common venting system are not in operation.

1. Seal any unused openings in the common venting system.
2. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliance not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
4. Place in operation the appliance being inspected. Follow the lighting instructions. Adjust thermostat so appliance will operate continuously.

5. Test for spillage at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar or pipe.
6. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers, and any other gas-burning appliance to their previous condition of use.
7. Any improper operation of the common venting system should be corrected so the installation conforms with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CAN/CGA B149, Installation codes. When resizing any portion of the common venting system, the common venting system should be resized to approach the minimum size as determined using the appropriate tables in Part II of the National Fuel Gas Code ANSI Z223.1/NFPA 54 and/or CAN/CGA B149, Installation codes.

#### DANGER

**Do not install the PRESTIGE Solo into a common vent with other gas or oil appliances. This may cause flue gas spillage or appliance malfunction, resulting in possible severe personal injury, death or substantial property damage.**



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**Commonwealth of Massachusetts Installations Only**

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For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment, where the bottom of the vent terminal and the air intake is installed below four feet above grade the following requirements must be satisfied:

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).
2. A carbon monoxide detector shall also be located in the room that houses the appliance or equipment and shall:
  - a. Be powered by the same electrical circuit as the appliance or equipment such that only one service switch services both the appliance and the carbon monoxide detector;
  - b. Have battery back-up power;
  - c. Meet ANSI/UL 2034 Standards and comply with NFPA 720 (2005 Edition); and
  - d. Have been approved and listed by the Nationally Recognized Testing Laboratory as recognized under 527 CMR.
3. A Product-approved vent terminal must be used, and if applicable, a Product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.

4. A metal or plastic identification plate shall be mounted at the exterior of the building, four feet directly above the location of vent terminal. The plate shall be of sufficient size to be easily read from a distance of eight feet away, and read "**Gas Vent Directly Below**".

**NOTICE**

**Installer must provide tag identification plate and ensure the lettering meets code requirements.**

For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment, where the bottom of the vent terminal and the air intake are installed above four feet above grade the following requirements must be satisfied:

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).
2. A carbon monoxide detector shall:
  - a. Be located in the room that houses the appliances or equipment;
  - b. Be either hard wired or battery powered or both; and
  - c. Shall comply with NFPA 720 (2005 Edition)
3. A Product-approved vent terminal must be used, and if applicable, a Product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.