DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND
BUILDING PERMIT

This is to certify that

FRASER ROBERT H & MICHAEL B FRASER
JTS/McKenney Plumbing & Heating LLC

Located at

210 VALLEY ST

PERMIT ID: 2013-00183

CBL: 064 F007001

has permission to **Install Viesmann heater in the 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 clsoed-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 procured prior to occupancy.

02/06/13

Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

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

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 (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.**

REQUIRED INSPECTIONS:

Close-in Plumbing/Framing
Final Inspection

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

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Date Applied For:	CBL:
2013-00183	01/29/2013	064 F007001

Location of Construction:	Owner Name:	Owner Address:	Phone:
210 VALLEY ST	FRASER ROBERT H & MICHAEL	210 VALLEY ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	McKenney Plumbing & Heating LL	15 Brookdale Road Gorham	(207) 329-6583
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		HVAC	

Proposed Use:	Proposed Project Description:
Same: Two Dwelling Units	Install Viesmann heater in the basement

Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 02/04/2013

Note: **Ok to Issue:** ☑

Dept: Building **Status:** Approved w/Conditions **Reviewer:** Jon Rioux **Approval Date:** 02/05/2013

Note: **Ok to Issue:** ☑

1) R302.4 Dwelling unit rated penetrations. Penetrations of wall or floor/ceiling assemblies required to be fire-resistance rated in accordance with Section R302.2 or R302.3 shall be protected in accordance with this section.
2) The installation must comply with UL, the Manufacturers' Listing, MUBEC (IRC, 2009), and State of Maine Gas Regulations.

Separate permits are required for any electrical: plumbing, sprinkler, fire alarm, HVAC systems, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.

Maintain proper setback(s) from property lines/buildings and proper clearances from vertical openings when direct venting

A Carbon Monoxide (CO) alarm shall be installed in each area within or giving access to bedrooms. That detection must be powered by the electrical service (plug-in or hardwired) in the building and battery.

M1804.2.5 Direct vent terminations. Vent terminals for direct-vent appliances shall be installed in accordance with the manufacturer's installation instructions.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No:	Issue Date:	CBL:
2013-00183		064 F007001

Location of Construction:	Owner Name:	Owner Address:	Phone:
210 VALLEY ST	FRASER ROBERT H & MICHAEL B FRASER JTS	210 VALLEY ST PORTLAND, ME 04102	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	McKenney Plumbing & Heating LLC	15 Brookdale Road Gorham ME 04038	(207) 329-6583
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		HVAC	B2
Past Use:	**Proposed Use:**	**Permit Fee:** / **Cost of Work:**	**CEO District:**
Two Dwelling Units	Same: Two Dwelling Units	$120.00 / $10,000.00	3

FIRE DEPT: ☐ Approved ☐ Denied ☑ N/A

Signature:

INSPECTION:
Use Group: R3 Type: 5B
IRC 2009
(MUBEC)

Signature:

Proposed Project Description:
Install Viesmann heater in the basement

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
gg	01/29/2013

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 information may invalidate a building permit and stop all work..

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☑ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: OK - 02/04/13	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 application 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

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 210 VALLEY ST Use of Building RENTAL Date 1/29/13

Name and address of owner of appliance ROBERT FRAZIER 210 VALLEY ST PORTLAND, ME 7k + HTG

Installer's name and address KURT McKENNEY 15 BROOKDALE RD GORHAM, ME 04038 Telephone 329-6583

Location of appliance:
- ☑ Basement
- ☐ Floor
- ☐ Attic
- ☐ Roof

Type of Fuel:
- ☑ Gas
- ☐ Oil
- ☐ Solid

Appliance Name: VIESMANN

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 # PMT 1794
- ☐ Other _____

Type of Chimney:
- ☐ Masonry Lined
  Factory built _____
- ☐ Metal
  Factory Built U.L. Listing # _____
- ☑ Direct Vent
  Type CPVC UL# 1738

RECEIVED
JAN 29 2013
Dept. of Building Inspections
City of Portland Maine

Type of Fuel Tank
- ☐ Oil
- ☑ Gas

Size of Tank 100

Number of Tanks 1

Distance from Tank to Center of Flame 40 **feet.**

Cost of Work: $ 10,000.00

Permit Fee: $ _____

Approved

Fire: _____

Ele.: _____

Bldg.: _____

Approved with Conditions

☐ See attached letter or requirement

_____ Inspector's Signature

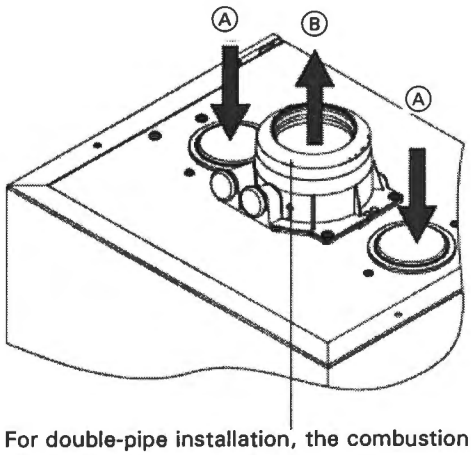
_____ Date Approved

Signature of Installer Kurt McKenney

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

Direct Venting Options (Two-pipe System)

Boiler models Vitodens 100-W WB1B 26, 35 and Vitodens 200-W WB2B 19, 26, 35



For double-pipe installation, the combustion air inlet cover must be in place.

Fig. 30 Single or double pipe installation

Legend
Ⓐ Combustion air
Ⓑ Flue gas

As opposed to coaxial venting systems, the two-pipe venting system draws combustion air Ⓐ through a separate air intake pipe from the outdoors. Flue gases Ⓑ are discharged to the outdoors via the single-pipe of the special venting system. The two-pipe system is flexible in the selection of materials offered by different manufacturers and the location of the vent/air intake termination.

Read the following exhaust vent/air intake requirements carefully before commencing with the installation.

Boiler models Vitodens 200-W WB2B 45, 60, 80, 105

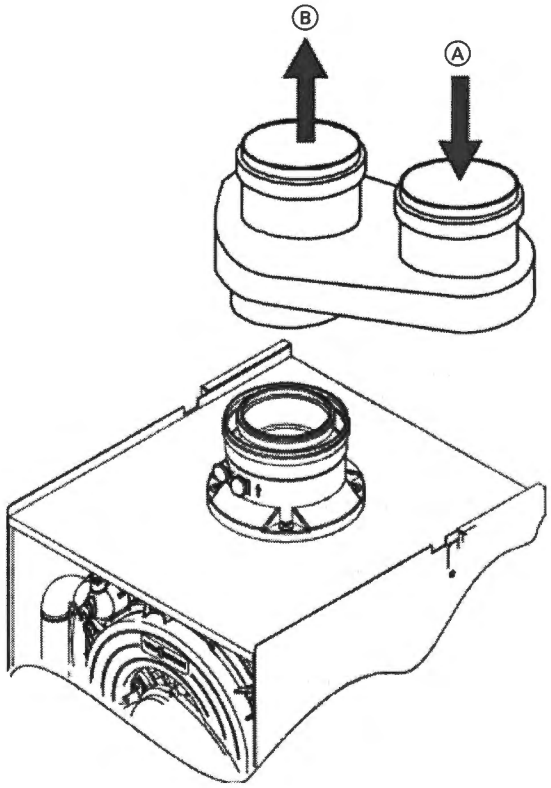


Fig. 31 Parallel adaptor

Legend
Ⓐ Combustion air
Ⓑ Flue gas

Exhaust Vent/Air Intake Requirements

Combustion Air Supply

The Vitodens boiler is suitable for sidewall, as well as vertical venting. The Vitodens 100-W and 200-W boilers are approved for both direct vent (sealed combustion), as well as direct exhaust (non-sealed combustion) operation in both horizontal and vertical arrangements. For non-sealed combustion vent systems (i.e. room-air dependent), see appropriate section under "Single Pipe Venting" starting on page 62 in this manual.

The boiler must be connected to a direct vent system in which all air for combustion is taken from the outside atmosphere and all combustion products are discharged safely to the outdoors.

The boiler must be vented and supplied with combustion air and exhaust vent as described in this section. Ensure the vent and combustion air supply comply with these instructions.

Inspect all finished exhaust vent/air intake piping to ensure:

- Vent/air intake pipe and fittings are of approved material.
- Acceptable size, length and number of elbows on combined vent/air intake system.
- Installation is in accordance with prevailing provisions of local codes.
- Installation complies with the requirements of these instructions, as well as the exhaust vent/air intake supplier's instructions.

The exhaust vent and combustion air intake system and terminations may be installed in one of the following type terminations (2-pipe system):

1. Horizontal air intake and exhaust vent pipes.
2. Vertical air intake and exhaust vent pipes.
3. Horizontal air intake pipe and vertical exhaust vent pipe.

⚠ CAUTION

Do not locate boiler in areas where high dust levels or high humidity levels are present.

⚠ CAUTION

If the boiler has been exposed to high dust levels, all burners and the heat exchanger must be cleaned prior to use.

⚠ CAUTION *

Do not install boiler during construction involving drywall or heavy dust of any kind. Dust can accumulate in the burners and cause sooting. Install boiler after all heavy dust construction is completed.

⚠ CAUTION

If above criteria are not properly observed and boiler damage results, any warranty on the complete boiler and related components will be null and void.

* Typically when the boiler is used as a temporary heat source during the building construction phase.

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Exhaust Vent/Air Intake Requirements *(continued)*

General requirements

The Vitodens 100-W and 200-W boilers must be located in such a way that the vent length is as short as possible and that the vent can be routed as directly (and with as few bends) as possible.

The minimum equivalent vent length is 3.3 ft. (1 m). See tables 24, 25 and 26 for maximum and minimum vent lengths.

All products of combustion must be safely vented to the outdoors.

The Vitodens boiler is not approved for common-venting applications. Do not common-vent with any other appliance. The Vitodens boiler vents under positive pressure and is a Category IV boiler.

⚠ WARNING

Failure to ensure that all flue gases have been safely vented to the outdoors can cause property damage, severe personal injury, or loss of life. Flue gases may contain deadly carbon monoxide.

Viessmann recommends that the entire vent system be checked by a licensed professional heating contractor at least once each year following initial installation.

The stainless steel special venting system is completely sealed when fully assembled. Locking bands or other method of joining are used to reinforce the joints between pipe and fittings.

⚠ WARNING

Different manufacturers offer a number of different joint systems and adhesives. Do not mix pipes, fittings and/or joining methods from different manufacturers. Failure to comply could result in leakage, potentially causing personal injury or death.

Do not install vent pipe in a way that flue gases flow downwards. The direction of flue gas flow must be vertically upwards or horizontal with an upward slope.

Ensure there is no flue gas leakage into the area in which the boiler is installed.

Check joints for leaks with the gas supply turned off and the fan running. Use a soapy solution to check for vent leaks.

Condensate must drain from the flue pipe to the boiler. Ensure a suitable gradient of at least 3° [approx. 2 in. per 3.3 ft. (50 mm per 1 m)].

No condensate trap is required in the vent pipe system.

If exhaust vent pipe system passes through an unheated space, such as an attic, it must be insulated. The insulation must have an R value sufficient to prevent freezing of the condensate. Armaflex insulation with ½ in. thickness and higher can be used.

General Installation Information

Installation steps (outline)

Exhaust and combustion air piping material

Use only the materials listed in table 16 entitled "Approved materials for two-pipe system" on page 37 for exhaust, combustion air intake pipe and fittings.

- Cut the pipe end square and remove all burrs and debris from joints and fittings.
- If using CPVC special vent material for exhaust vent pipe and ABS / PVC / CPVC for combustion air intake pipe, all joints must be properly cleaned, primed and cemented. Use only cement and primer approved for the use with the pipe material. See table 16 entitled "Approved materials for two-pipe system" on page 37 for approved solvent cement material.

⚠ CAUTION

For solvent cement and primer:
- **Use only in well ventilated areas**
- **Do not use near flame or open fire**
- **Use only the solvent cement and primer appropriate for the venting material being used**
- **Solvent cements for plastic pipe are flammable liquids and must be kept away from all sources of ignition**

- For rigid PP(s) venting system only; Venting material must be ULC S636 or UL 1738 listed, manufactured by M&G (Muelink & Grol b.v.) / DuraVent, or Centrotherm/ InnoFlue.
- No low point is allowed in the exhaust vent pipe system, unless a proper drain pipe is used to allow condensate to drain.

⚠ WARNING

Ensure that the entire venting system is protected from physical damages. A damaged venting system may cause unsafe conditions.

⚠ WARNING

The venting system is approved for indoor installations only.
Do not install the venting system outdoors.

- Route vent pipe as directly as possible and with as few bends as possible to the boiler.
- Condensate must drain from the flue pipe to the boiler. Ensure a suitable gradient of at least 3° [approx. 2 in. per 3.3 ft. (50 mm per 1 m)].
- Use a hacksaw or sheet metal snips (for stainless steel) to cut pipes to length (if necessary). Use a file to smooth rough edges. Pipe must be round and not bent into an oval shape.
- Check proper location of gaskets in rigid PP(s) pipe collars. (Only use supplied parts with the polypropylene venting system.)
  Apply water to lubricate the joint ends of the vent pipe collar and if used, the air intake pipe collar.
- Slide pipes into each other with a gentle twisting motion.

IMPORTANT

When cutting pipes to length, debur and clean pipes. In conjunction with these instructions, follow the installation instructions supplied by the special venting manufacturer.

- All piping must be fully supported. Use pipe hangers at intervals specified by manufacturers to prevent sagging of the pipe.
- The exhaust vent/air intake pipe and fittings must be securely supported by a support system suitable for the weight and design of the material employed. Contact your local vent material supplier for more information specific to your installation(s).

IMPORTANT

Ensure that the exhaust vent/air intake pipes are properly supported. The Vitodens boiler is not designed to support the weight of the exhaust vent/air intake pipe system.

- Field supplied increaser fittings (transition) should always be inserted in vertical sections of pipe to prevent accumulation of condensate in the vent pipe.
- The total equivalent length specified for a two-pipe system is the total of the combined length of the exhaust vent/air intake pipe system. Do not exceed these maximum lengths.

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General Installation Information *(continued)*

Table 16. Approved materials for two-pipe system

Part	Material	Certified to Standards	Applicability
Exhaust pipe and fitting	Stainless steel	UL1738 "Venting systems for gas-burning appliances, Categories II, III, IV"	U.S.A./Canada
		ULC S636 "Standard for Type BH gas venting systems"	
	CPVC	UL1738 "Venting systems for gas-burning appliances, Categories II, III, IV"	
		ULC S636 "Standard for Type BH gas venting systems" Class IIB 90° C	
	Polypropylene PP(s)	UL1738 "Venting systems for gas-burning appliances, Categories II, III, IV"	
		ULC S636 "Standard for Type BH gas venting systems" Class IIC 110° C	
Combustion air pipe and fitting	Stainless steel	n.a.	
	PVC-DWV Schedule 40	ANSI/ASTM D2661 CSA B181.1 ULC S102.2 ANSI/ASTM D2665, D1785 CSA B137.3, B181.2 ANSI/ASTM F441	
	CPVC Schedule 40	ANSI/ASTM D2661 CSA B181.1 ULC S102.2 ANSI/ASTM D2665, D1785 CSA B137.3, B181.2 ANSI/ASTM F441	
	ABS-DWV Schedule 40	ANSI/ASTM D2661 CSA B181.1 ULC S102.2 ANSI/ASTM D2665, D1785 CSA B137.3, B181.2 ANSI/ASTM F441	
	Polypropylene PP(s)	UL1738 "Venting systems for gas-burning appliances, Categories II, III, IV"	
		ULC S636 "Standard for Type BH gas venting systems" Class IIC 110°C	
Pipe cement, primer (for combustion air intake pipe)	PVC	ANSI/ASTM D2564 CSA B137.3	
	CPVC	ANSI/ASTM F493 CSA B137.6	
	ABS	ANSI/ASTM D2235 CSA B181.1/B182.1	
Pipe cement, primer (for exhaust pipe and fitting)	CPVC	ULC S636 "Standard for Type BH gas venting systems" Class IIB 90°C	

⚠ CAUTION

Do not use cellular (foam) core pipe material to vent this Vitodens boiler.

⚠ CAUTION

Do not use PVC material in exhaust system.

⚠ CAUTION

On the job site, ensure that non-listed combustion air pipe materials are not inadvertently used instead of listed vent pipe material.

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General Installation Information *(continued)*

Vent termination location requirements (for installation in Canada)

The vent must be installed observing local regulations in addition to National Codes, CAN/CSA-B149.1 or 2.

A vent must NOT terminate...

1...directly above a paved sidewalk or paved driveway which is located between two single-family dwellings and serves both dwellings.

2...less than 7 ft. (2.13 m) above a paved sidewalk or a paved driveway located on public property.

3...within 6 ft. (1.83) m of a mechanical air supply inlet*1 to any building (dryer vents, non-sealed combustion furnace and hot water heater vents are considered to be mechanical air inlets).

*1 *Including heat recovery units.*

4...above a meter/regulator assembly within 3 ft. (0.9 m) horizontally of the vertical centerline of the regulator vent outlet and to a maximum vertical distance of 15 ft. (4.5 m).

5...within 3 ft. (0.9 m) of any gas service regulator vent outlet.

6...less than 1 ft. (0.3 m) above grade level or anticipated snow level (consult local building authorities or local weather office). Locate the vent termination in such a way that it cannot be blocked by snow.

7...within the following distances of a window or door which can be opened in any building, any non-mechanical air supply inlet to any building or the combustion air inlet of any other appliance:

- 1 ft. (0.3 m) for inputs up to and including 100 000 Btu/h (30 kW).
- 3 ft. (0.9 m) for input exceeding 100 000 Btu/h (30 kW).

8...underneath a veranda, porch or deck, unless:

- the veranda, porch, or deck is fully open on a minimum of two sides beneath the floor, and
- the distance between the top of the vent termination and the underside of the veranda, porch, or deck is greater than 1 ft. (0.3 m).

9...in areas where condensation may cause problems, such as above planters, patios, or adjacent to windows where flue gases may cause fogging.

10...within 3 ft. (0.9 m) to the property line (advisable, not mandatory; please check with local building authorities and municipal bylaws).

11...at a location where ice formation on the ground can present a hazard.

12...so that the flue gases are directed toward brickwork, siding, or other construction, in such a manner that may cause damage from heat or condensate from the flue gases.

13...where discharging hot flue gases may cause property damage or personal injury.

14...within 3 ft. (0.9 m) from an inside corner of outside walls.

Vent termination location requirements (for installation in the U.S.A.)

The vent must be installed observing local regulations in addition to National Codes, ANSI-Z223.1 or NFPA 54.

A vent must NOT terminate...

1...less than 7 ft. (2.13 m) above a paved sidewalk or a paved driveway located on public property.

2...within 4 ft. (1.2 m) horizontally from service regulator vents, electric and gas meters as well as relief equipment.

3...at least 3 ft. (0.9 m) above any forced air inlet located within 10 ft. (3 m).

4...less than 1 ft. (0.3 m) above grade level or anticipated snow level (consult local building authorities or local weather office). Locate the vent termination in such a way that it cannot be blocked by snow.

5...within 1 ft. (0.3 m) of a window or door which can be opened in any building, any non-mechanical air supply inlet to any building or the combustion inlet of any other appliance.

6...in areas where condensation may cause problems, such as above planters, patios, or adjacent to windows where flue gases may cause fogging.

7...within 3 ft. (0.9 m) to the property line (advisable, not mandatory; please check with local building authorities and municipal bylaws).

8...at a location where ice formation on the ground can present a hazard.

9...so that the flue gases are directed toward brickwork, siding, or other construction, in such a manner that may cause damage from heat or condensate from the flue gases.

10...where discharging hot flue gases may cause property damage or personal injury.

11...within 3 ft. (0.9 m) from an inside corner of outside walls.

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Requirements for UL/ULC Listed Rigid PP(s) Vent Pipe Material

IMPORTANT

When replacing parts, use manufacturer's original replacement parts.

The venting system must be installed by a licensed professional heating contractor familiar with the operation and maintenance of heating appliances and venting. Before installing this product, ensure that the complete installation literature has been read. Failure to follow proper installation procedures as stated in these instructions, including vent pitch and proper appliance connections, may violate local, provincial/state, or national codes and cause unsafe conditions which may lead to severe property damage or personal injury.

Prior to installation, check that the correct single-pipe vent parts were ordered and supplied.

The venting system must be installed in accordance with local building code requirements as well as national codes. For installations in Canada use CAN/CSA-B149.1 Natural Gas Installation Code or CAN/CSA-B149.2 Propane Installation Code as applicable; in the U.S. use the National Fuel Gas Code ANSI Z223.1 or NFPA Standard 54.

To ensure safe operation of the appliance, Viessmann recommends that the system be inspected once a year by a qualified service technician.

Every venting system must be planned and installed for optimum performance and safety. These Installation Instructions are designed to help you determine venting requirements and limitations with respect to installation. Please read and follow these instructions carefully.

It is the responsibility of the installer to contact local building and fire officials concerning any installation restrictions and/or inspection requirements that may apply. Permits may be required before commencement of the installation.

Vent System Manufacturers

The following Coaxial and PP(s) vent system manufacturers may be contacted for assistance in designing the appropriate venting system for Vitodens 100 and Vitodens 200 boilers.

Both manufacturers deliver PP(s) rigid and flexible vents in three sizes.

M&G / Duravent Tel. 800-835-4429 Fax. 518-649-9700 Fax: 518-463-5271 sales@duravent.com www.duravent.com	**Centrotherm InnoFlue** Eco Systems. LLC 418 South Pearl St. Albany, New York 12202 Tel. (518) 434-3400 Fax. (518) 618-3166 info@centrotherm.us.com www.centrotherm.us.com
2 in. (60 mm)	2 in. (60 mm)
3 in. (80 mm)	3 in. (80 mm)
4 in. (100 mm)	4.3 in. (110 mm)

Both manufacturers deliver PP(s) concentric vents in three sizes.

M&G / Duravent	Centrotherm InnoFlue
2 - 4 in. (60 - 100 mm)	2 in. (60 mm)
3 - 5 in. (80 - 125 mm)	3 in. (80 mm)
4 - 6 in. (100 - 150 mm)	4.3 - 6.3 in. (110 - 160 mm)

For Vitodens WB2B 80, 105 (with boiler flue adaptor 110 - 150) the vent manufacturers developed special transition adaptors.

The air intake termination for side wall air intake installations should be located on a wall that is least affected by prevailing winds. High winds may affect boiler operation.

Because of its sealed combustion chamber, the Vitodens gas-fired condensing boiler is suitable for operation with balanced flue.

The Vitodens boiler, flue gas adaptor and parallel adaptor (if used) are approved together under CSA 4.9. ANSI Z21.13 - 2010 Standard.

The venting system components are tested and listed to ULC S636 or UL 1738 by Intertek and are marked and labelled on each component.

C Intertek
Listed/liste
59762
ULC S636 (1995)
Gas Vent BH
Class II 110°C max.

IMPORTANT

DO NOT mix pipe, fittings, or joining methods from different vent system manufacturers.
DO NOT use adhesives of any kind with this venting system.

The vent length requirements stated in this manual (starting on page 21 for side wall vent installations and page 28 for vertical vent installations) must be observed.

Flue gases are discharged via rigid PP(s) vent components to the outdoors. This vent system is constructed from flame-retardant plastic [polypropylene rated for a maximum temperature of 230° F (110° C)].

Vent and Air Intake Pipe Starter Adaptors - CPVC

Vent pipe starter adaptors for WB1B 26, 35 / WB2B 19, 26, 35

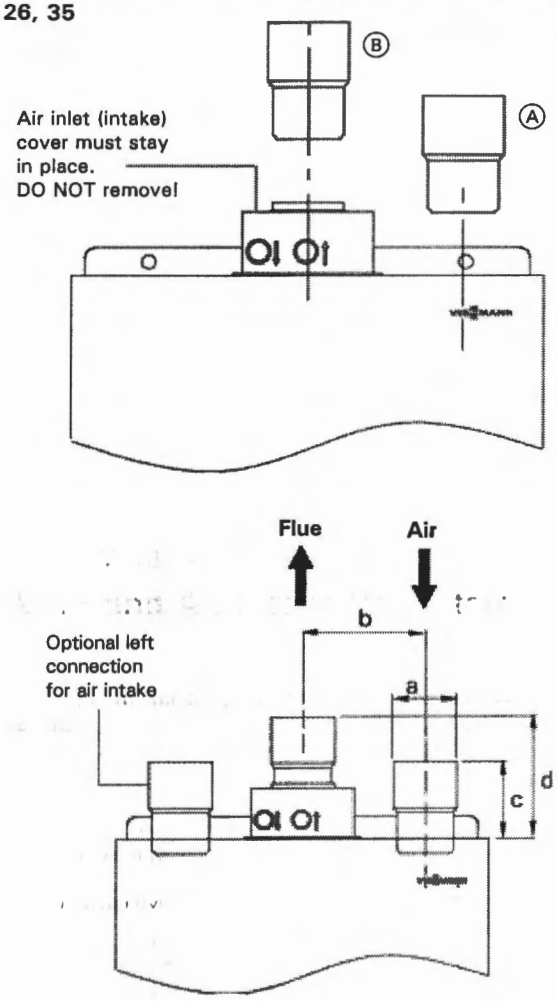


Fig. 41

⚠ WARNING

(For this type of installation only:)
Boiler comes with pre-installed combustion air cover mounted on the concentric vent pipe adaptor. Do not remove combustion air intake cover. Removing this cover may cause unintended room air dependent operation (non-direct vent). Room air dependent operation requires provision of combustion and ventilation air (as per section "Single Pipe Venting", page 62).

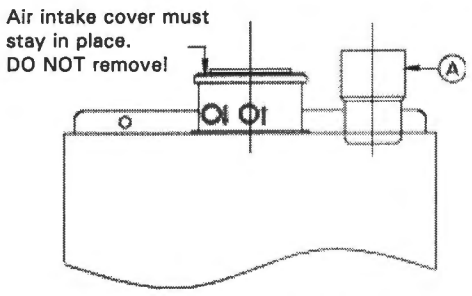
Legend

Ⓐ Air intake starter adaptor, 60 mm to 2 in.
Ⓑ CPVC slip joint starter adaptor, 60 mm to 2 in.
a 2 in. (51 mm)
b 4¾ in. (120 mm)
c 3 in. (76 mm)
d 4¾ in. (120 mm)

Vent and Air Intake Pipe Starter Adaptors - PP(s)

Vent pipe starter adaptors for WB1B 26, 35 / WB2B 19, 26, 35

Vent starter adaptor is not required if using PP(s) system.



When using PP(s) material for combustion air supply pipes, CPVC adaptors are not required.

⚠ WARNING

(For this type of installation only:)
Boiler comes with pre-installed combustion air cover mounted on the concentric vent pipe adaptor.
Do not remove combustion air intake cover. Removing this cover may cause unintended room air dependent operation (non-direct vent). Room air dependent operation requires provision of combustion and ventilation air (as per section "Single Pipe Venting", page 62).

Legend

Ⓐ Air intake starter adaptor,for PVC, CPVC and ABS only - 60 mm to 2 in. (if using PP(s) for air intake system, an adaptor is not required).

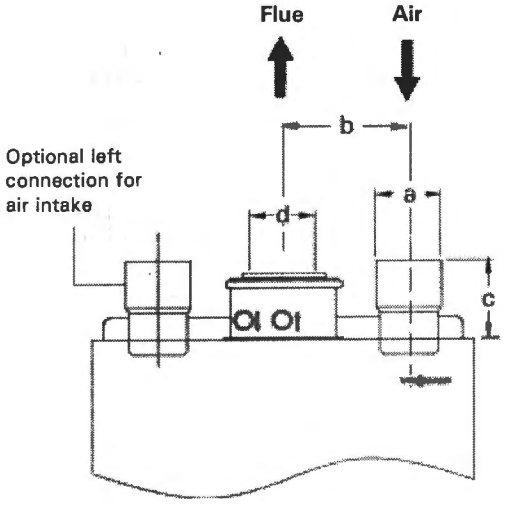


Fig. 44

Legend

a 2 in. (51 mm)
b 4¾ in. (120 mm)
c 3 in. (76 mm)
d 60 mm

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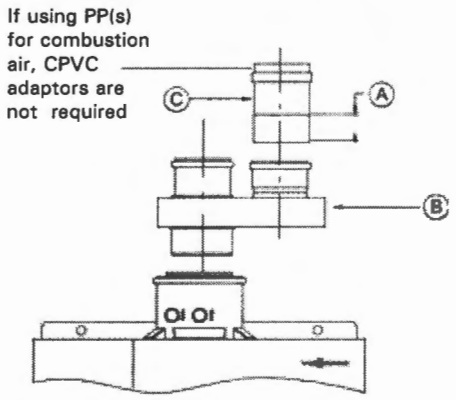
Vent Pipe Starter Adaptors - PP(s) *(continued)*

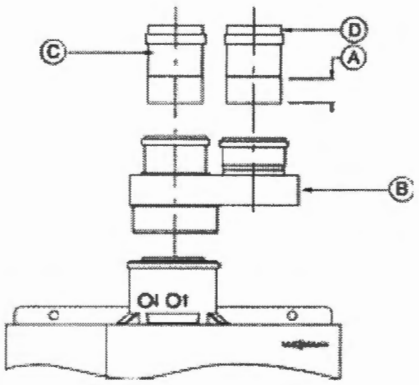
Parallel vent pipe starter adaptors for WB2B 45, 60



Legend

Ⓐ Air intake, max. insertion 2½ in. (64 mm)
Ⓑ Viessmann parallel adaptor or Centrotherm parallel adaptor
Ⓒ Air intake starter adaptor for PVC, CPVC and ABS only. 80 mm to 3 in. (if using PP(s) for combustion air intake system, an adaptor is not required).

Parallel vent pipe starter adaptors for WB2B 80, 105



Legend

Ⓐ Air intake, max. insertion 2½ in. (64 mm)
Ⓑ Viessmann parallel adaptor
Ⓒ PP(s) slip joint transition adaptor (110 mm to 100 mm) only required if M&G system is used
Ⓓ Air intake starter adaptor for PVC, CPVC and ABS, when using PP(s) system 110 mm to 100 mm, a transition adaptor is required.

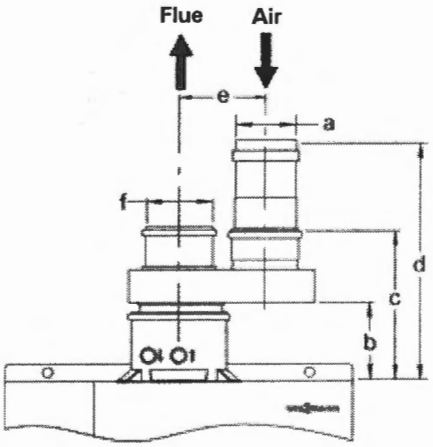


Fig. 45

Legend

a 3 in. (76 mm)
b 2¾ in. (70 mm)
c 7 in. (178 mm)
d approx. 10¾ in. (271 mm)
e 4¾ in. (120 mm)
f 80 mm *

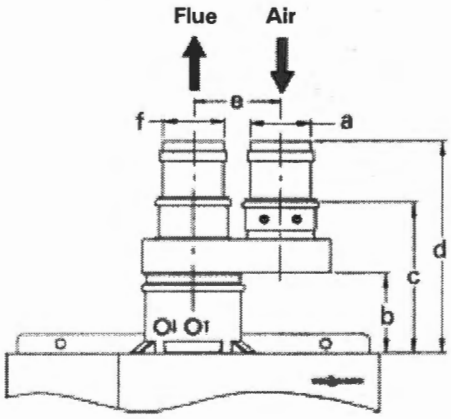


Fig. 46

Legend

a 4 in. (100 mm)
b 5⅛ in. (130 mm)
c 9⅜ in. (237 m)
d approx. 12⅞ in. (327 mm)
e 5½ in. (140 mm)
f 100 mm

* For exhaust system Ø of 4 in. (100 mm), an increaser adaptor 3 in. to 4 in. (80 mm to 100 mm) must be used.

Table 23 Parallel adaptor for two-pipe system

Supplier	Boiler Model	Ø in. (mm)	Quantity
Viessmann	■ WB2B 45, 60	3 (80)	1
	■ WB2B 80, 105	4 (110)	1

Side Wall Vent Termination - Stainless Steel, CPVC or PP(s)

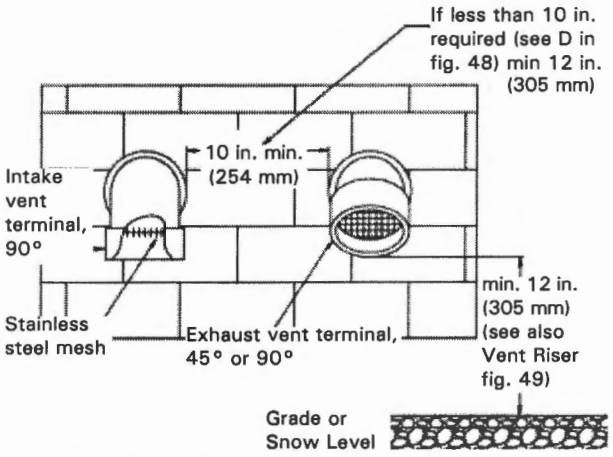


Fig. 47 Side wall vent termination (front view)

IMPORTANT

The exhaust vent/air intake system must terminate so that proper clearances are maintained as cited in local codes or the latest edition of the "Natural Gas and Propane Installation Code" CAN/CSA-B149.1 (Canada), or the "National Fuel Gas Code" ANSI Z223.1 (NFPA 54) (U.S.A.). See page 20.

⚠ WARNING

Vent termination must be at least 12 in. (300 mm) above the anticipated snow level (consult your local building authorities or local weather office). Locate vent termination in such a way that it cannot be blocked by snow.

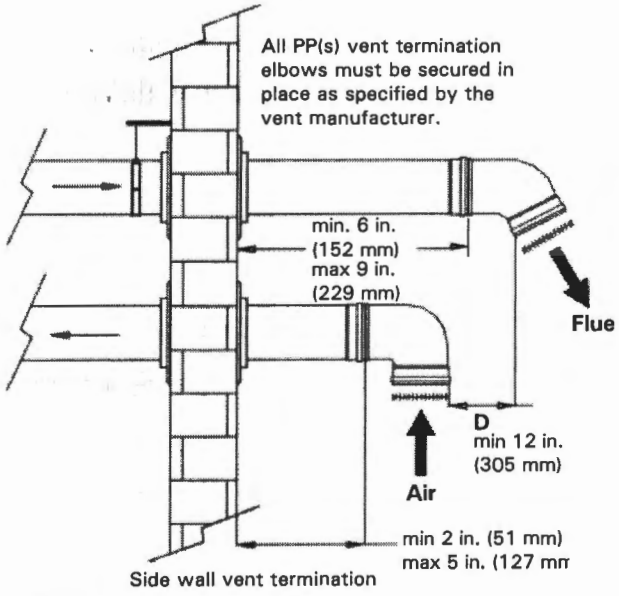


Fig. 48 Side wall vent termination (side view)

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

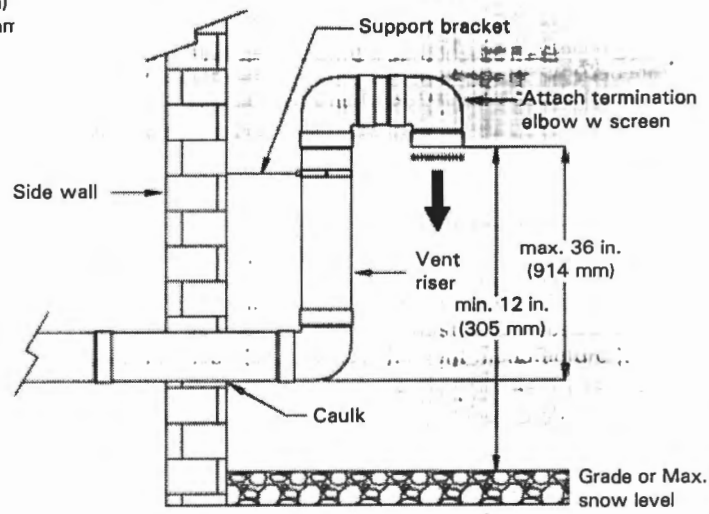


Fig. 49 Installation of field fabricated vent riser

5368 815 v3.4

Vent Length Requirements

Maximum vent/air intake pipe length - horizontal

IMPORTANT

Always include vent termination length in calculations.

The total equivalent length specified for a two pipe system is the total **combined** length of the exhaust vent and air intake pipe system.

Do not exceed these maximum lengths.

See table 24 and fig. 50 and 51 for reference.

All PP(s) vent material and air intake (if PP(s) used) must be ULC S636 or UL1738 listed, manufactured by M&G (Muelink & Grol b.v.) / DuraVent, or Centrotherm.

Table 24 Maximum allowable equivalent length - horizontal

Boiler Model	System Ø See note below	Max. combined equivalent vent length (a+b)*2
■ WB1B 26, 35	2 in. (51 mm) 3 in. (76 mm 4 in. (102 mm)*1	86 ft. (31) 164 ft. (50 m) 200 ft. (61 m)
■ WB2B 19, 26, 35	2 in. (51 mm) 3 in. (76 mm)*1 4 in. (102 mm)*1	115 ft. (35 m) 148 ft. (45 m) 180 ft. (55 m)
■ WB2B 45, 60	3 in. (76 mm) 4 in. (102 mm)*1	98 ft. (30 m) 148 ft. (45 m)
■ WB2B 80, 105	4 in. (102 mm)	131 ft. (40 m)

*1 2 in. to 3 in. or 2 in. to 4 in. increaser field supplied.
*2 See figure 50 and 51.

Note: For combination of different vent/air intake pipe diameters, such as Ø 3 in. stainless steel vent with Ø 2 in. (CVPC, PVC, ABS) air intake pipe, the total equivalent length must be used for the smaller pipe diameter.

Minimum vent length is 3.3 ft. (1 m).

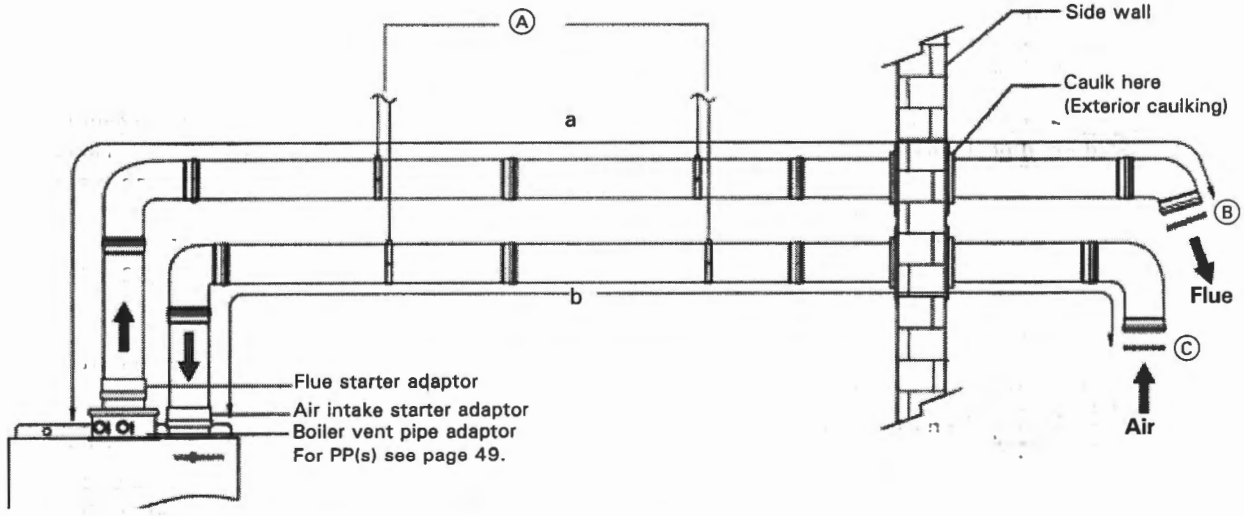


Fig. 50 Vitodens 100-W and 200-W WB2B 19, 26, 35

Legend
Ⓐ Support system
Ⓑ Exhaust pipe termination with screen
Ⓒ Combustion air intake with screen
a Equivalent vent length (exhaust)
b Equivalent vent length (air intake)

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

Vent Length Requirements *(continued)*

Maximum vent/air intake pipe length - vertical *(continued)*

Note: For combination of different vent/air intake pipe diameters, such as Ø 3 in. stainless steel vent with Ø 2 in. (PP(s), CVPC, PVC, ABS) air intake pipe, the total equivalent length must be used for the smaller pipe diameter.

Minimum vent length is 3.3 ft. (1 m).

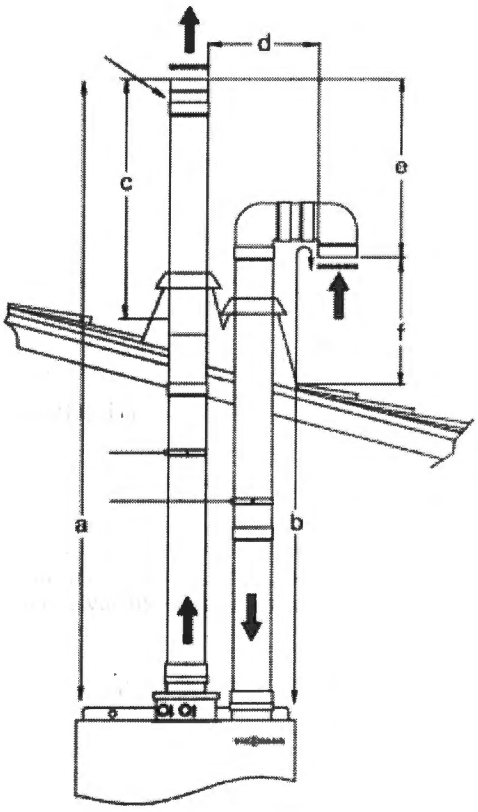


Fig. 52 Vertical Vent Installation Vitodens 100-W and 200-W WB2B 19, 26, 35

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

IMPORTANT

All PP(s) vent termination elbows, must be secured in place as specified by manufacturer.

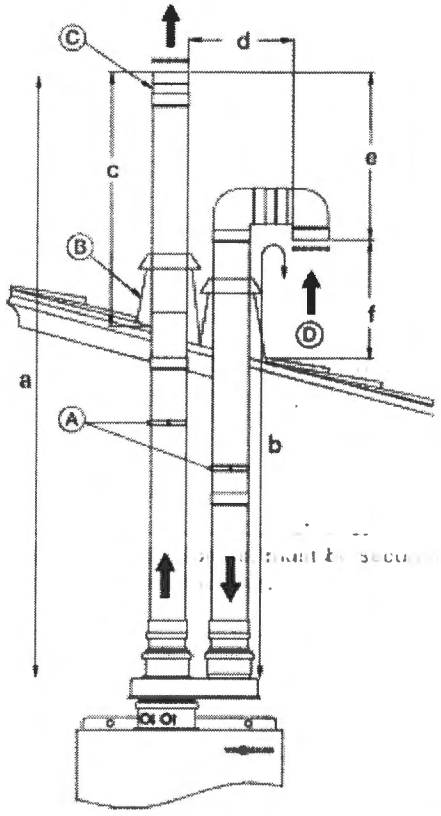


Fig. 53 Vertical Vent Installation Vitodens 200-W WB2B 45, 60, 80, 105

Legend

Ⓐ Support system
Ⓑ Flashings
Ⓒ Exhaust (straight coupling) with screen
Ⓓ Combustion air intake with screen
a Equivalent length (exhaust)
b Equivalent length (air intake)
c min. 18 in. / max. 48 in.
d min. 12 in.
e min. 12 in.
f 6 in. over max. local snow level (check with your local weather office for details)

Vent Length Requirements *(continued)*

Multiple boiler installations (vertical termination with multiple boilers)

When terminating the vent pipes of multiple Vitodens boilers, a minimum clearance of 4 inches (100 mm) is required between the outside edges of each vent pipe.

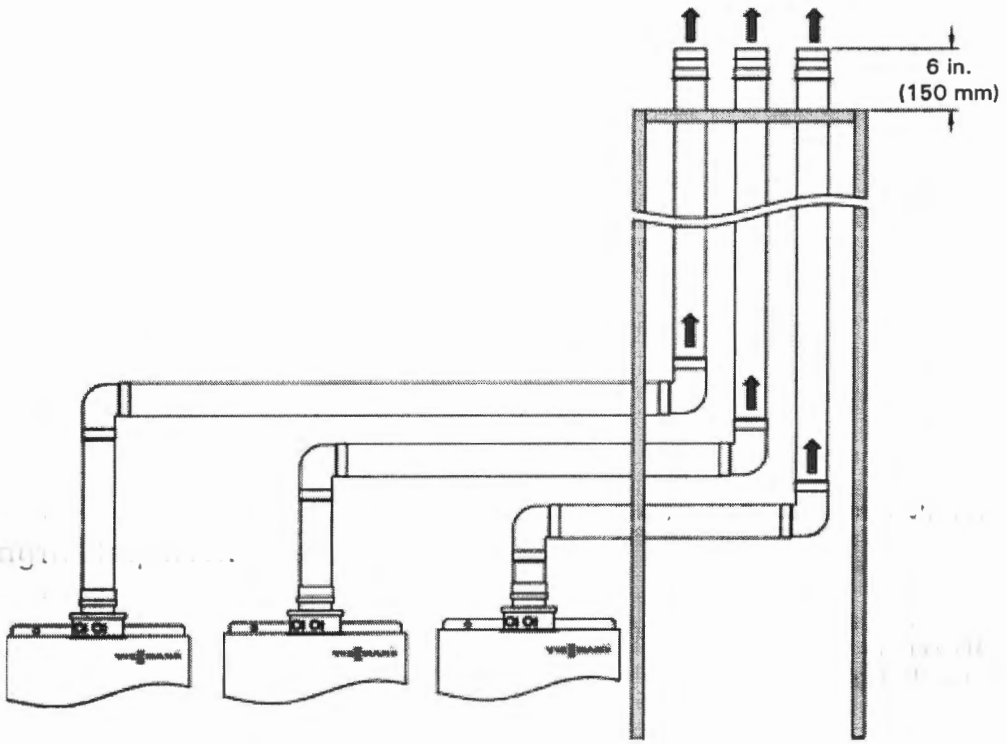


Fig. 54

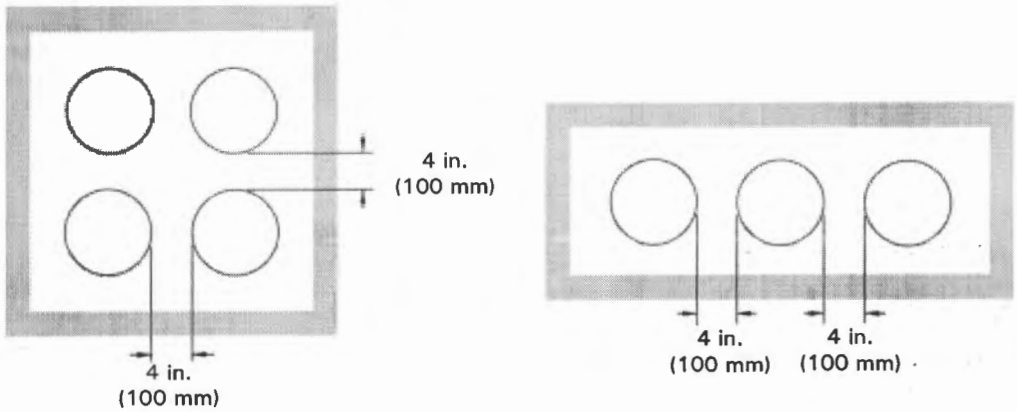


Fig. 55

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Vent Length Requirements *(continued)*

Maximum vent/air intake pipe length - horizontal/vertical (hybrid system)

All PP(s) vent material and air intake (if PP(s) used) must be ULC S636 or UL1738 listed, manufactured by M&G (Muelink & Grol b.v.) / DuraVent, or Centrotherm.

The total equivalent length specified for a two pipe system is the total **combined** length of the exhaust vent and air intake pipe system. Do not exceed these maximum lengths. See table 26, as well as fig 56 and 57 for reference.

Table 26 Maximum allowable equivalent length - vertical exhaust / horizontal air intake (hybrid)

Boiler Model	System Ø See note below	Max. combined equivalent vent length (a+b)*2
■ WB1B 26, 35	2 in. (51 mm) 3 in. (76 mm)*1 4 in. (102 mm)*1	86 ft. (31 m) 164 ft. (50 m) 200 ft. (61 m)
■ WB2B 19, 26, 35	2 in. (51 mm) 3 in. (76 mm)*1 4 in. (102 mm)*1	115 ft. (35 m) 148 ft. (45 m) 180 ft. (55 m)
■ WB2B 45, 60	3 in. (76 mm) 4 in. (102 mm)*1	98 ft. (30 m) 148 ft. (45 m)
■ WB2B 80, 105	4 in. (102 mm)	131 ft. (40 m)

**1 2 in. to 3 in. or 2 in. to 4 in. increaser field supplied.*
**2 See figure 56 and 57.*

Note: For combination of different vent/air intake pipe diameters, such as Ø 3 in. stainless steel vent with Ø 2 in. (CVPC, PVC, ABS) air intake pipe, the total equivalent length must be used for the smaller pipe diameter.

Minimum vent length is 3.3 ft. (1 m).

Legend
Ⓐ Support system
Ⓑ Flashings
Ⓒ Exhaust (straight coupling) with screen
Ⓓ Combustion air intake with screen
a Equivalent length (exhaust)
b Equivalent length (air intake)
c min. 18 in. (max. 48 in.)

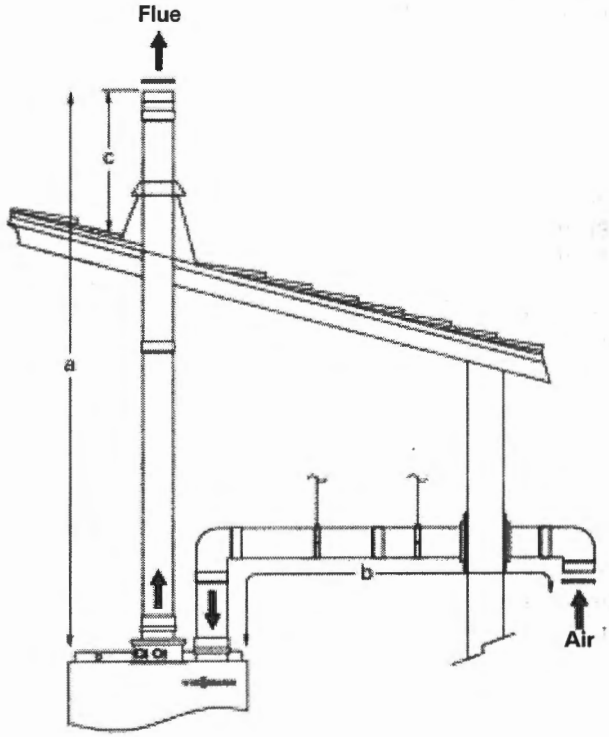


Fig. 56 Vitodens 100-W and 200-W WB2B 19, 26, 35

Vent Length Requirements *(continued)*

Maximum vent/air intake pipe length - horizontal/vertical (hybrid system) ***(continued)***

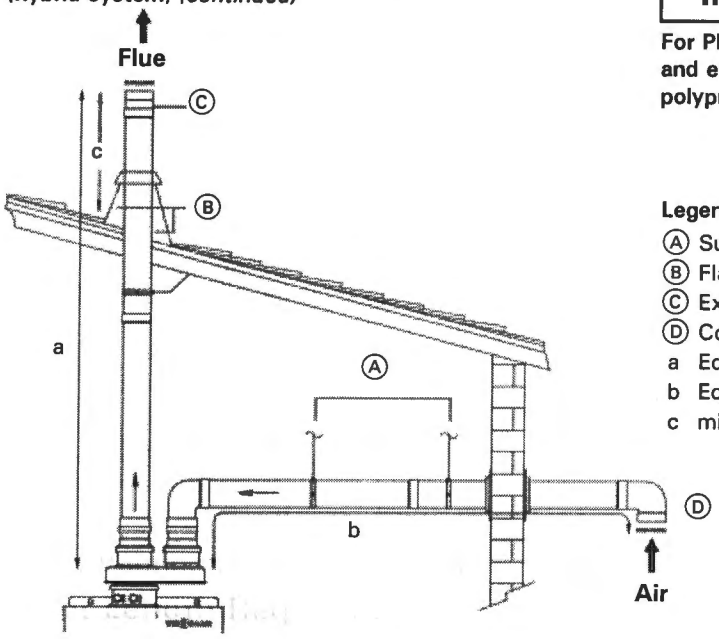


Fig. 57 Vitodens 200-W WB2B 45, 60, 80, 105

IMPORTANT

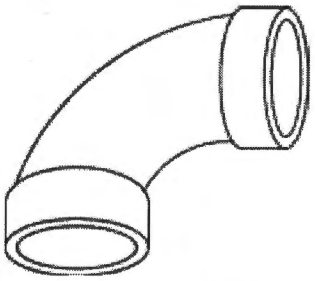
For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

Legend

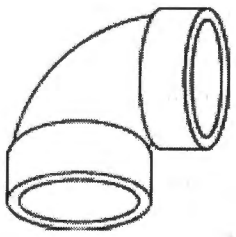
Ⓐ Support system
Ⓑ Flashings
Ⓒ Exhaust (straight coupling) with screen
Ⓓ Combustion air intake with screen
a Equivalent length (exhaust)
b Equivalent length (air intake)
c min. 18 in. (max. 48 in.)

Standard long sweep elbows (for CPVC pipe only)

For plastic pipe only



90° long sweep elbow equivalent to 5 ft. (1.5 m)



90° short sweep elbow equivalent to 8 ft. (2.4 m) (if used)

Fig. 58

Note: If standard sweep elbows are used the allowable vent lengths are reduced.
One standard 90° elbow is equivalent to 8 ft. (2.4 m) of straight pipe.

Table 27 Standard long sweep elbows

Material	90° elbow equivalent length ft. (m)	45° elbow equivalent length ft. (m)	87° elbow / 87° inspection tee ft. (m)
Stainless steel	3 (0.91)	2 (0.61)	-
CPVC plastic pipe	5 (1.52)	3 (0.91)	-
PP(s)	-	1 (0.30)	1.6 (0.50)

Vent Length Requirements *(continued)*

Equivalent vent length calculation example - CPVC system

Table 29

Type of fitting	Equivalent length ft. (m)
90° long sweep elbow (CPVC)	5 (1.52)
45° long sweep elbow (CPVC)	3 (0.91)

Equivalent vent length calculation example (Vitodens WB1B system diameter 2 in.)

Maximum allowable equivalent length is 86 ft. (31 m) (see table 24 on page 51 and fig. 59 below)

2 x 90° elbow.....10 ft. (3.05 m)
4 x 45° elbow.....12 ft. (3.66 m)
Exhaust vent pipe.....10 ft. (3.05 m)
Air intake pipe.....10 ft. (3.05 m)
Combined total equivalent vent length
(a+b).....42 ft. (12.81 m)

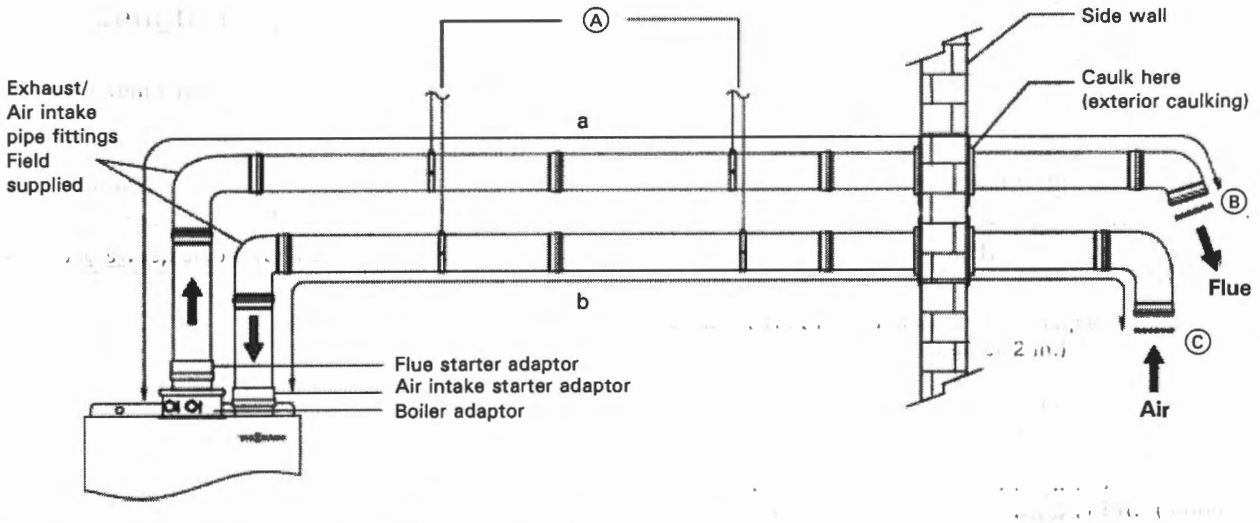


Fig. 59 Vitodens 100-W and 200-W, WB2B-19, 26, 35

Legend
Ⓐ Support system
Ⓑ Exhaust pipe termination with screen
Ⓒ Combustion air intake with screen
a Equivalent vent length (exhaust)
b Equivalent vent length (air intake)

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Vent Length Requirements *(continued)*

Equivalent vent length calculation example - CPVC system *(continued)*

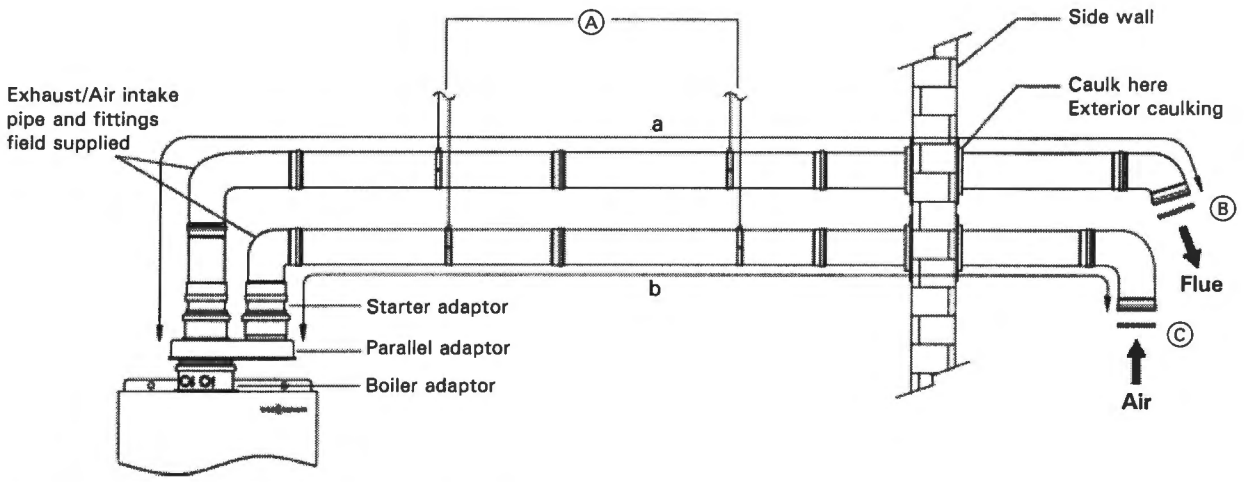


Fig. 60 Vitodens 200-W WB2B 45, 60, 80, 105

Legend

Ⓐ Support system
Ⓑ Exhaust pipe termination with screen
Ⓒ Combustion air intake with screen
a Equivalent vent length (exhaust)
b Equivalent vent length (air intake)

Flashing and Storm Collar Installation

Flashings and storm collars are field supplied. Flashings and storm collars suitable for Type B vent materials (or better) may be used.

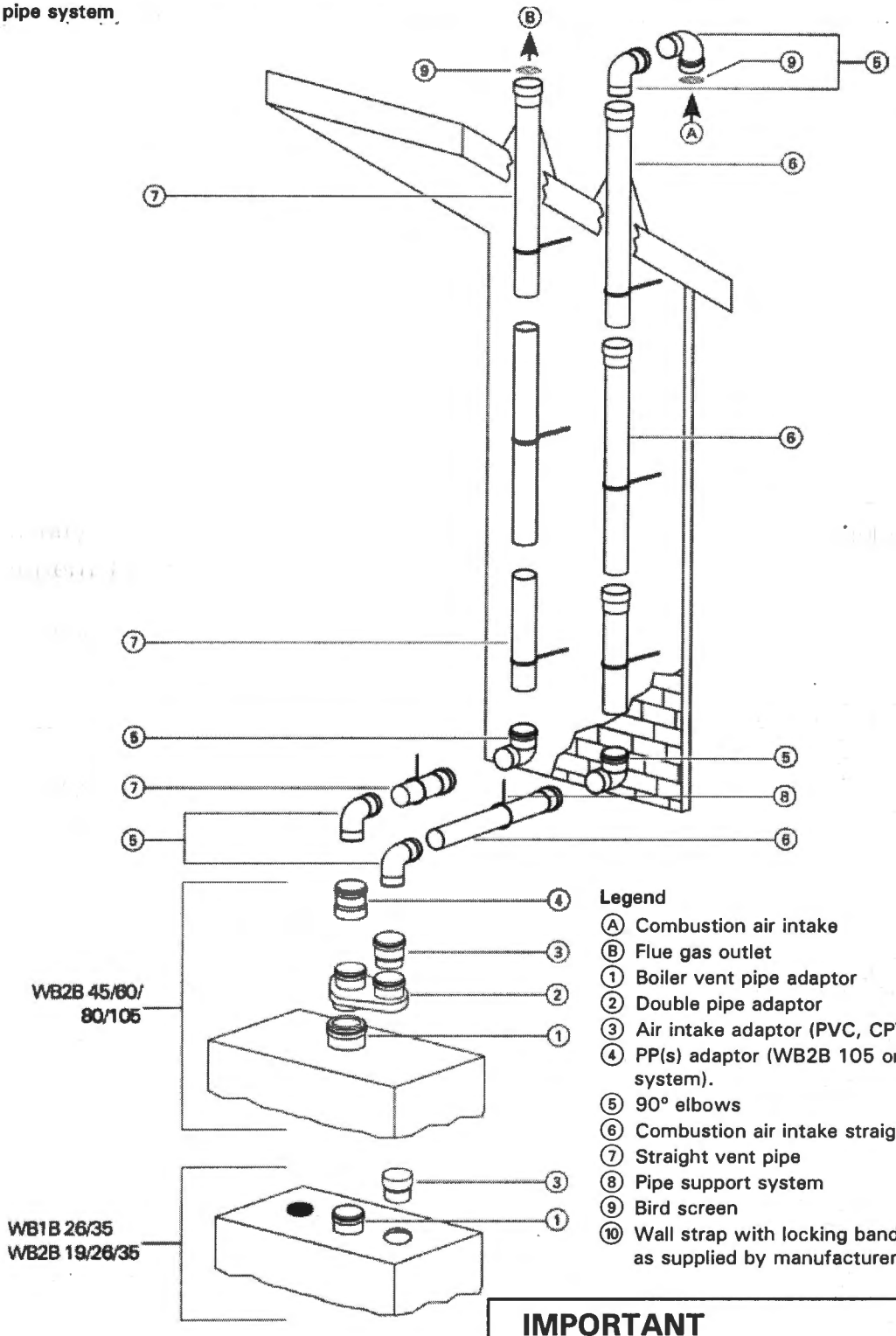
To obtain flashings and storm collars, please contact your local vent material supplier. Follow the installation instructions supplied by the special venting manufacturer.

Follow local codes to properly isolate the exhaust vent pipe when passing through floors, ceiling and roof.

Always check the marking on the pipe to make sure you are using the correct material.

Component Parts of the PP(s) Venting System

Vertical pipe system



Legend

- Ⓐ Combustion air intake
- Ⓑ Flue gas outlet
- ① Boiler vent pipe adaptor
- ② Double pipe adaptor
- ③ Air intake adaptor (PVC, CPVC, ABS)
- ④ PP(s) adaptor (WB2B 105 only with M&G system).
- ⑤ 90° elbows
- ⑥ Combustion air intake straight pipe
- ⑦ Straight vent pipe
- ⑧ Pipe support system
- ⑨ Bird screen
- ⑩ Wall strap with locking band at each joint, as supplied by manufacturer.

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

Fig. 61

Gas Condensing Technology

VITODENS 100-W

with optional Combi*PLUS* Kit for on-demand DHW

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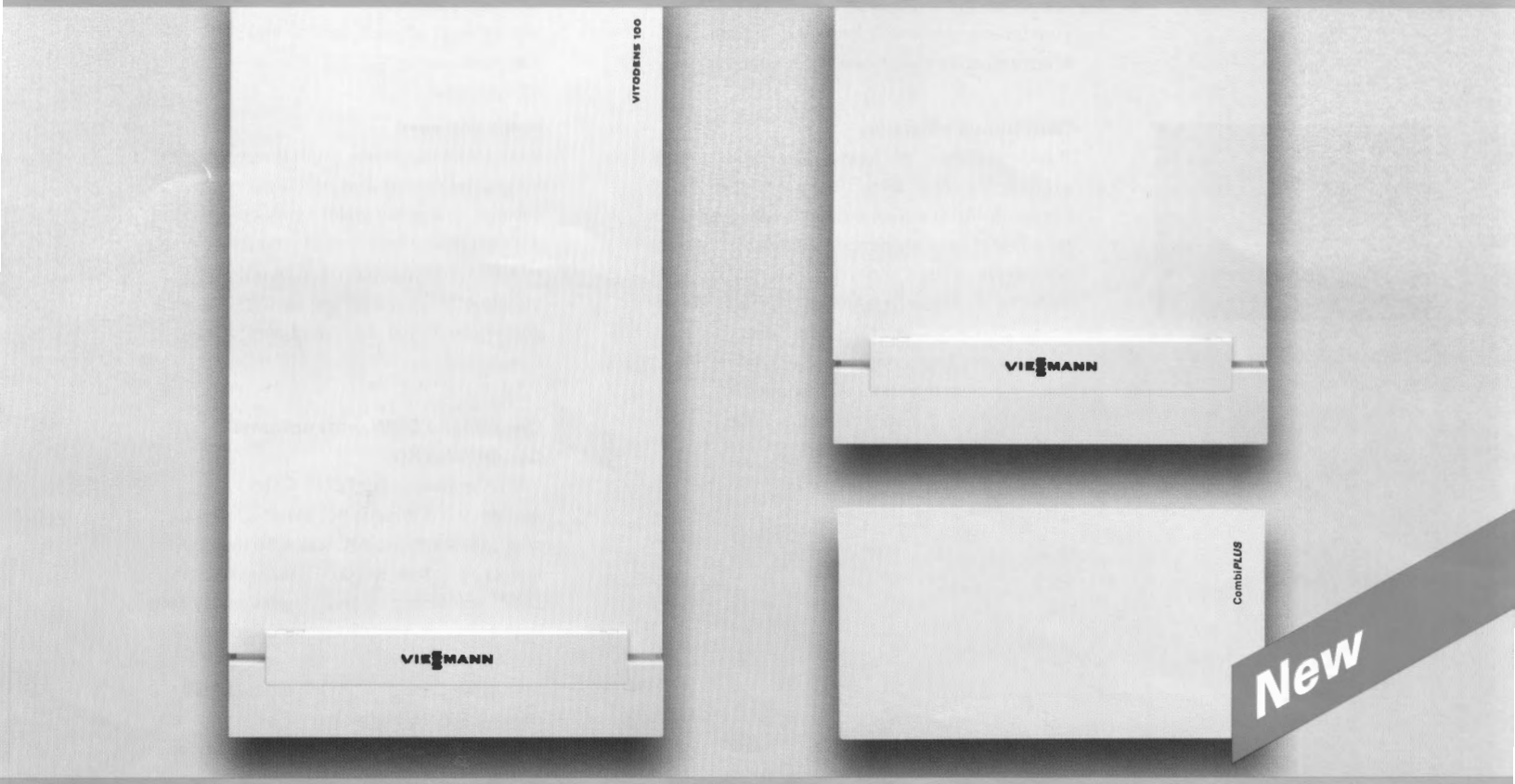
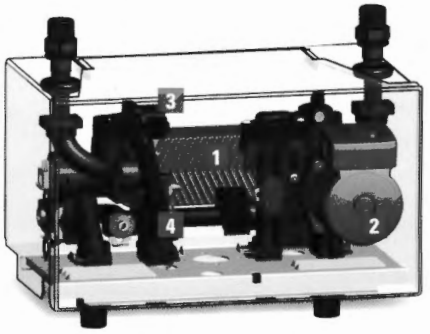


1. Stainless steel plate-type heat exchanger
2. 3-speed DHW and space heating pump
3. 3-way diverting valve
4. Water hammer arrestor



Optional Combi*PLUS* Kit

Benefits at a glance — Vitodens 100-W

- Fits any home and budget with high performance at an attractive price.
- Outstanding efficiency of 95.2% A.F.U.E. on all models. Fully-modulating input eliminates energy waste.
- Lasting performance with proven Viessmann SA240 316 Ti stainless steel Inox-Radial heat exchanger constructed to CSA B51 and ASME Section IV.
- Low-emission combustion with fully-modulating Viessmann stainless steel MatriX cylinder burner for natural gas or propane. Factory calibrated.
- Versatile on-board boiler control interfaces with most external controls. Integrated OpenTherm® communication ability. Energy-saving outdoor temperature sensor standard.
- Greater venting flexibility with vent length up to 200' and multiple venting options. New rigid and flexible PP(s) vent options.
- Suitable for altitude levels of up to 10,000 ft. / 3,000 m.
- Easy installation and service with pipe connections located at the bottom and serviceable components accessible from the front.
- Extremely quiet operation; quieter than most refrigerators.
- Limited lifetime warranty in residential applications.
- New — Expandable with Combi*PLUS* Kit for energy-efficient on-demand DHW.

New **Benefits — Vitodens 100-W with Combi*PLUS* Kit**

- All the benefits of a Vitodens 100 boiler, plus on-demand domestic hot water (DHW) with Combi*PLUS* Kit.
- DHW at the snap of your fingers all day long! Up to 3.6 GPM.†
- Energy-efficient and low-cost due to on-demand indirect-fired DHW production.
- Reduced energy waste with fully-modulating input from boiler.
- Space-saving and lightweight wall-mount design. More compact than any other hot water heater.
- Virtually silent DHW production.
- Easy installation with all piping and electrical connections included.
- Quality you can count on! Stainless steel heat exchanger, built-in pressure bypass and 150 psig working pressure rating.
- Reliable and even DHW supply with built-in DHW temperature and flow sensors.
- Complete space / DHW heating management by boiler control, powerful built-in 3-speed pump and diverting valve.
- Great fit for apartments, condos, cottages, single-family homes, or installs where space is at a premium.

†At a 63 °F maximum temperature rise with Vitodens 100, WB1B-35.
‡Certified to NSF/ANSI 372 for Low Lead Content.

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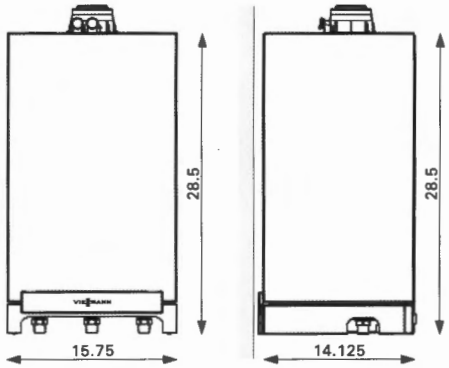
www.viessmann.ca

Viessmann Manufacturing
Company (U.S.) Inc.
Warwick, RI U.S.A.
1-800-288-0667
www.viessmann.us

Technical Data

Vitodens 100 wall-mounted condensing boiler

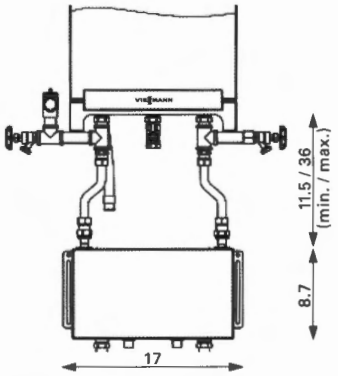
Model	WB1B	**26**	**35**
Rated input	MBH	37-91	37-118
Efficiency	% A.F.U.E.	95.2%	95.2%
Altitude Levels	ft.	up to 10,000 ft.	up to 10,000 ft.
Dimensions (inches)	Depth	14 ⅛	14 ⅛
	Width	15 ¾	15 ¾
	Height	28 ½	28 ½
Weight	lbs	78	78



Optional **Combi*PLUS* Kit** for on-demand DHW

Connected to Model	WB1B	**26**	**35**
DHW Supply Temperature	°F / °C	140 / 60	140 / 60
Continuous Draw Rate	USG/h	156†	216†
Dimensions (inches)	Depth	9.8	9.8
	Width	17	17
	Height	8.7	8.7
Weight	lbs	25	25
Min. / Max. distance between boiler and Combi*PLUS* Kit	inches	11.5 / 36	11.5 / 36

† At 63 °F maximum temperature rise.



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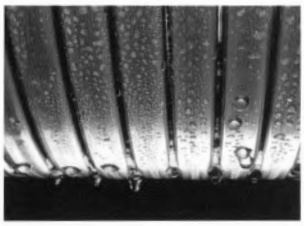
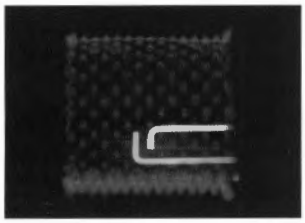
Gas Condensing Technology

Vitodens 100-W – 37 to 118 MBH
Space Heating Boiler with Optional Combi***PLUS*** Kit for On-Demand DHW



Stainless steel Inox-Radial heat exchanger



Low-emission MatriX cylinder burner

Every home. Every budget.
With its excellent efficiency and outstanding price/performance ratio, the Vitodens 100 is the perfect mix of performance and value. Its compact design, zero clearance to combustibles and extremely quiet operation make the Vitodens 100 an ideal choice even in the smallest spaces. Plus, with a limited residential lifetime warranty you can be sure your investment will deliver long-lasting, efficient performance year after year.

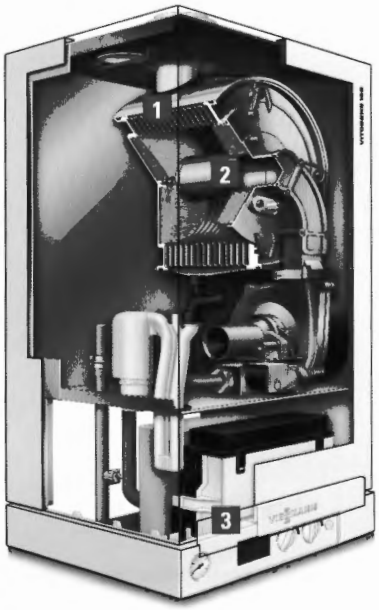
Continuous efficiency
Stainless steel is the best choice for long-term efficiency and reliability. That's why the Vitodens 100 is equipped with a stainless steel Inox-Radial heat exchanger and MatriX cylinder burner. Developed and manufactured by Viessmann, these high-quality stainless steel components deliver continuous reliability and permanently high condensing efficiency. Plus, the "self-cleaning" heat exchanger contributes to the boiler's long service life and reliable performance.

Outstanding versatility
The Vitodens 100 offers the right solution for every demand – from multiple venting options to fuel flexibility (NG or LP) right out of the box. Plus, installation, service and maintenance are designed to be fast and easy with all pipe connections located at the bottom and serviceable components easily accessible from the front. You'll save time and money with fast service and maintenance calls.

Helps you save
Select an easy-to-use room thermostat, or, for greater control and additional energy savings, utilize the boiler's on-board control, which automatically adjusts the boiler water to outdoor temperatures. This not only boosts efficiency and fuel savings, but also keeps your home warm and comfortable at all times.

New

On-demand DHW with optional Combi*PLUS* Kit
With the new Combi***PLUS*** Kit add on-demand domestic hot water (DHW) to your new Vitodens 100 space heating boiler and say goodbye to your DHW tank. Enjoy DHW at the snap of your fingers all day long with an outstanding flow rate of up to 3.6 GPM†, plus added cost savings with the energy-efficient on-demand indirect-fired design. Slightly bigger than a large shoe box, the Combi***PLUS*** Kit installs underneath or beside the boiler and requires only minimal piping and electrical connections. Featuring stainless steel heat exchanger, pressure bypass valve, DHW temperature and flow sensors, 3-speed pump, 3-way diverting valve, and Low Lead Content Certification‡, get reliable, high-quality DHW day after day.



Vitodens 100-W

1. Inox-Radial heat exchanger
2. Modulating MatriX cylinder burner
3. On-board boiler control