



*Ultra*

Gas-fired water boilers – Series 3



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# Manual Addendum – Venting

This Addendum needs to be used in conjunction with the Ultra Series 3 Boiler Manual P/N 550-100-090\_1113.

**ATTENTION to installers and homeowners of Ultra boilers.**

**KEEP THIS ADDENDUM WITH BOILER MANUAL**

## Polypropylene Vent Systems Approval



This addendum must only be used by a qualified heating installer/service technician. Read all instructions, including the Ultra boiler manual and all other information shipped with the boiler, before installing. Perform steps in the order given. Failure to comply could result in severe personal injury, death or substantial property damage.



# Venting & air piping — general

REPLACES MANUAL PAGE 17

**⚠ DANGER** Ultra Boilers must be vented and supplied with combustion and ventilation air using piping and methods described in this manual.

Every boiler must have its own vent. DO NOT common vent with any other appliance. See page 16.

Inspect finished vent and air piping thoroughly to ensure all are airtight and comply with the instructions provided and with all requirements of applicable codes.

Failure to provide a properly-installed vent and air system will cause severe personal injury or death.

**⚠ WARNING** Installations must comply with local requirements and with the National Fuel Gas Code, ANSI Z223.1 for U.S. installations or CSA B149.1 or B149.2 for Canadian installations.

**⚠ WARNING** Use only the materials listed in this manual for vent and air pipe and fittings. Failure to comply could result in severe personal injury, death or substantial property damage.

**⚠ WARNING** If used, a masonry chimney can ONLY be used as a PIPE CHASE for vent and air pipes — The vent and air piping must be installed as instructed in this manual and all joints must be sealed. The chimney must be used only for Ultra boilers. NO OTHER appliance or fireplace can be connected to the chimney.

The chimney must be straight, with no offsets, and the vent and air piping materials must comply with this instruction manual.

The chimney must be fitted with a sealed access opening, through which the interior of the chimney can be inspected.

The chimney and liner must be inspected at least once annually to verify condition.

Failure to comply could result in severe personal injury, death or substantial property damage.

## Combustion air piping

1. Combustion air must be piped from outside to the boiler, following the instructions in this manual, and compliant with all applicable codes. Read the warning in Figure 11, page 16, and ensure the air intake will not be likely to draw in contaminated air.
2. Combustion air can be piped individually for each boiler, or it can be manifolded as shown in Figure 59, page 55. Air piping must always terminate on the same side (or roof) of the building as the vent.

## Vent piping

1. Boiler flue gases must be piped from the boiler to outside, following the instructions in this manual, and compliant with all applicable codes. The vent pipe must terminate either through the sidewall or through the roof, located with the correct separation from the air termination. See Figure 14, page 18, and the associated instructions referenced.
2. Each Ultra boiler requires a separate vent. Do not common vent.

## Vent and air piping materials

1. See Figure 5 for approved vent and air piping materials.

**Figure 12** Use only the materials listed below, ensuring that all materials meet local codes

Item	Material	Standards for installations in:	
		United States	Canada
<b>Plastic piping materials</b>			
<b>Vent or air pipe &amp; fittings</b>	PVC schedule 40	ANSI/ASTM D1785	Plastic vent pipe must be certified to UL S636 when required.
	PVC-DWV	ANSI/ASTM D2665	
	CPVC schedule 40	ANSI/ASTM F441	
	ABS-DWV schedule 40	ANSI/ASTM D2661	
<b>PVC &amp; ABS pipe cement &amp; primer</b>	PVC	ANSI/ASTM D2564 & F656	Air pipe can be any of those listed at left if acceptable for local codes.
	CPVC	ANSI/ASTM F493	
	ABS	ANSI/ASTM D2235	
<b>Polypropylene vent pipe, fittings, terminations and cement</b>	<b>Simpson-Duravent</b> — Obtain all materials from M&G Simpson-Duravent <b>Centrotherm Eco Systems</b> <b>InnoFlue® Single-wall</b> — Obtain all materials from Centrotherm	See manufacturer's literature for detailed information <b>MUST USE LOCKING COLLAR ON EVERY JOINT</b>	ULC S636
<b>AL29-4C piping materials</b>			
<b>Vent pipe AL29-4C stainless steel</b>	Heat Fab, Inc. Saf-T-Vent® Z-Flex, Inc. Z-Vent II Protech Systems FasNSeal™	Certified for Category IV and direct vent appliance venting	Certified for Category IV and direct vent appliance venting
<b>⚠ WARNING</b>	AL29-4C vent piping — Install a PVC-to-stainless adapter supplied by the vent pipe manufacturer at the boiler vent connection and at the termination (when using Weil-McLain plate or concentric PVC termination). DO NOT mix piping from different vent pipe manufacturers unless using adapters specifically designed for the purpose by the manufacturer.		
<b>⚠ WARNING</b>	Plastic piping — Do not attempt to connect different types of plastic piping together.		
<b>⚠ WARNING</b>	DO NOT use cellular core PVC (ASTM F891), cellular core CPVC, or Radel (polyphenolsulfone) in venting systems.		
<b>⚠ WARNING</b>	DO NOT cover non-metallic vent pipe and fittings with thermal insulation.		



# Venting & air piping— options

REPLACES MANUAL PAGE 62

## Vent and air pipe termination options

- Vent and air piping must terminate out the sidewall or through the roof of the building, using only one of the methods described in this manual.
- Sidewall options (see Figure 4, left side):
  - TOP: Weil-McLain termination cap (kit included with boiler) — see page 4 for instructions.
  - MIDDLE: Concentric PVC pipe (requires special kit, page 113).
  - BOTTOM: Separate air pipe and vent pipe.
- Vertical options (Figure 4, right side):
  - TOP: Concentric PVC pipe (requires special kit, page 113).
  - BOTTOM: Separate air pipe and vent pipe.

## Vent and air pipe diameters

- Vent and air pipe diameters can be as specified in Figure 66.

Figure 66 Vent and air pipe options — summary

Ultra model	Vent or air pipe size	• Maximum equivalent feet of piping • Number of elbows allowed at these lengths (All applications include allowance for the termination.)							
		Sidewall with Mfg. Cap		Sidewall with separate pipes		3" PVC Concentric Sidewall or Vertical (Use only PVC pipe DO NOT use CPVC or ABS)		Vertical with separate pipes	
		Length	Ells	Length	Ells	Length	Ells	Length	Ells
80/105	2" *	100 (ab)	2	100	2	100 (ab)	1	100	1
	3"	100	2	100	2	100	1	100	1
155	3"	100	2	100	2	100	1	100	1
230	3"	30 (c)	2	30 (c)	2	30 (c)	1	30 (c)	1
	4"	100 (d)	2	100	2	70 (d)	1	100	1
299	4"	100	2	100	2	70 (d)	1	100	1
399	4"	100	2	100	2	NA		100	1

Equivalent feet for pvc elbows — deduct from maximum equivalent length of piping:

- 7 feet per for each 4-inch elbow & 2 or 3-inch 90° long-radius or 45° elbow
- 16 feet for each 2- or 3-inch short-radius elbow

Centrotherm 3" = 6'    4" = 20'    Duravent 3" = 17'    4" = 22'

<b>a</b> — Use 3"x2" reducer at boiler	<b>b</b> — Use 3"x2" PVC reducers at termination
<b>c</b> — Use 4"x3" reducer at boiler	<b>d</b> — Use 4"x3" PVC reducers at termination

**Stainless (AL29-4C) vent pipe** — install an adapter at the boiler for all applications. Also install an adapter at the termination unless using separate-pipe termination.

\* Ultra-80 and 105 boilers installed with 2-inch vent piping automatically derate due to the pressure loss in the vent and air piping. The derate ranges up to 10% for the Ultra-80 at 100 feet or 15% for the Ultra-105 at 100 feet.

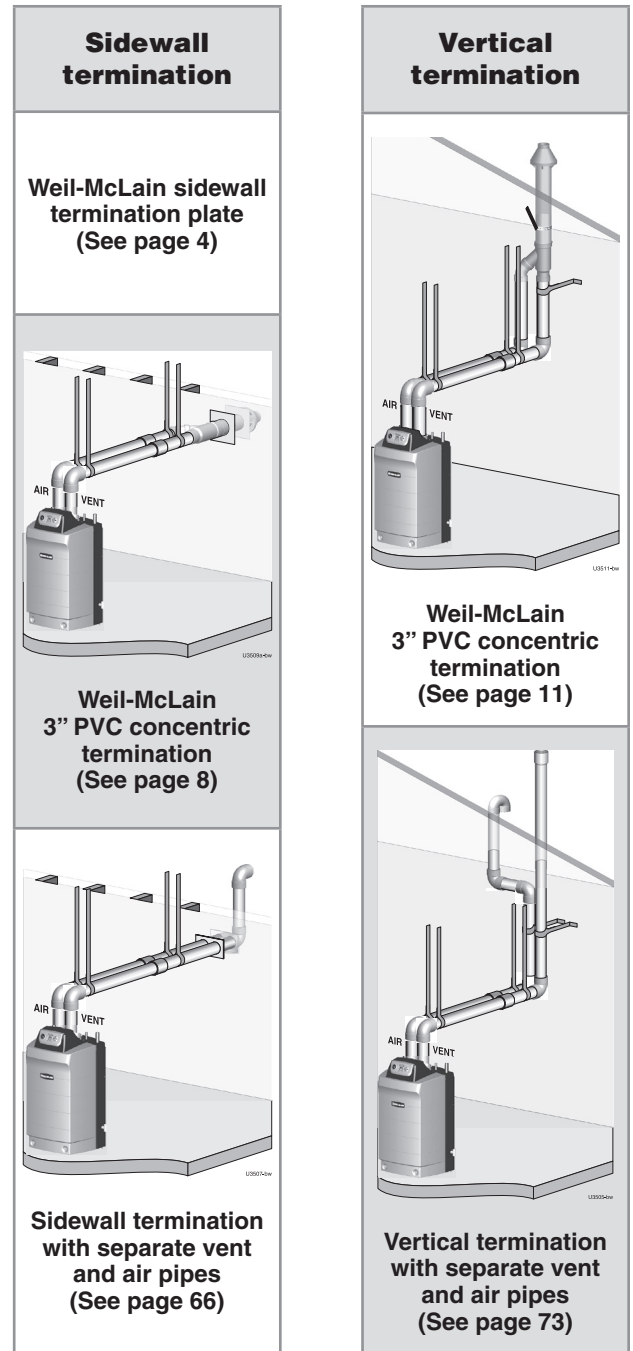
## Vent and air pipe minimum length

- Vent pipe and air pipe must each be **at least 2 feet long**, with 2 elbows if sidewall venting or 1 elbow if vertical venting.

## Vent and air pipe installation sequence

- Install the boiler.
- Determine the termination method — sidewall or vertical, concentric or separate pipes, etc.

Figure 67 Vent and air terminations options



- Determine proper location for wall or roof penetration for each termination.
- Install termination assembly as described in this manual.
- Install air and vent piping from boiler to termination.
- Install pipe supports and brackets as required.



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