WEIL-McLAIN®

Ultra Commercial

Gas-fired water boilers

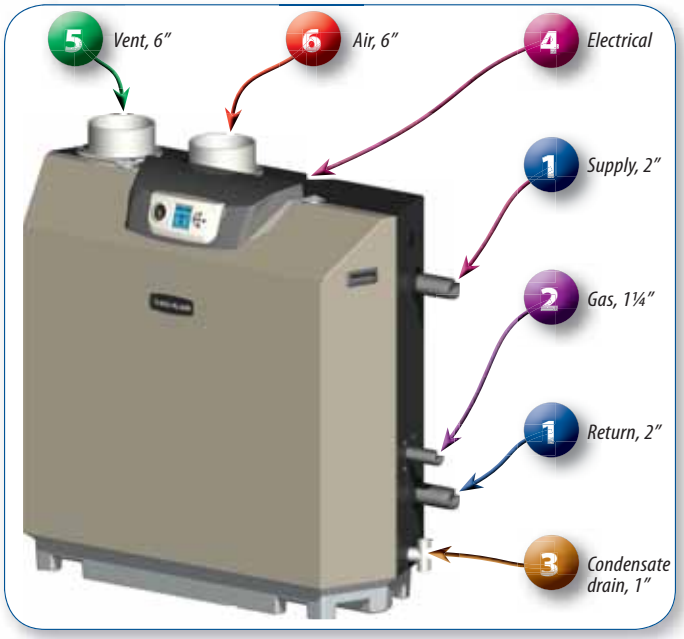
Featuring UControl® *Flexibility*

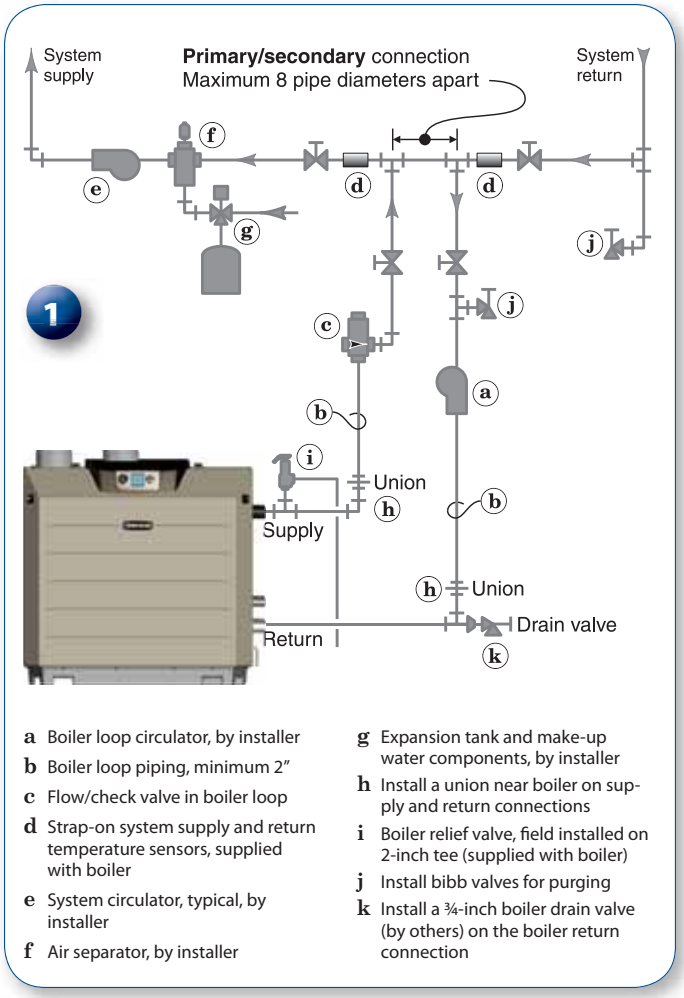
INSTALLATION GUIDE
& MATERIAL CHECKLISTS

JOB NAME		

INSTALLATION GUIDE

Material checklist — piping and other 1 2 3 4





a Boiler loop circulator, by installer
b Boiler loop piping, minimum 2″
c Flow/check valve in boiler loop
d Strap-on system supply and return temperature sensors, supplied with boiler
e System circulator, typical, by installer
f Air separator, by installer
g Expansion tank and make-up water components, by installer
h Install a union near boiler on supply and return connections
i Boiler relief valve, field installed on 2-inch tee (supplied with boiler)
j Install bibb valves for purging
k Install a ¾-inch boiler drain valve (by others) on the boiler return connection

1 Boiler loop piping and components

The piping ***must be installed as primary/secondary***, with the boiler on its own loop as shown in the Ultra boiler manual and in this guide. Use the pipe sizes listed below.

Pipe, valves, (2) unions and other fittings: (include flow/check valve)	**Ultra-550** **Ultra-750**	**2″ or larger**	☐
Boiler loop circulator (by installer) — Recommended sizing is for a 30°F temperature rise (= **35 GPM for Ultra-550 or 45 GPM for Ultra-750**) — Allow **11 feet** w. c. head loss through boiler at recommended flow rates (Taco 1400-50 or equivalent)			☐
Boiler drain valve, ¾″			☐

System, DHW and zone piping and other piping

System circulator and zone circulators (or zone valves)	☐
DHW circulator	☐
Pipe, valves and fittings for system, DHW and zone piping	☐
Air separator and expansion tank	☐
Fresh water make-up piping and components	☐
2 **Gas piping**, valves and fittings; union & manual valve for boiler connection	☐
Install a **lock-up regulator** if gas pressure can exceed 14″ w.c.	☐
Relief valve — ¾″ pipe and elbows for discharge piping	☐
3 Pipe or tubing for **condensate line** — 1″ PVC pipe connection	☐
Condensate neutralizing kit when req'd (W-M part # 383-500-076)	☐
Condensate pump (required if condensate cannot drain by gravity)	☐

Other

Antifreeze, when required — Use only antifreeze listed in Ultra boiler manual as suitable for use with Ultra Gas boilers — Ask your Weil-McLain distributor for information or visit us online at www.weil-mclain.com to review Ultra literature.	☐

Special applications

Propane — Propane conversion kit is supplied with the boiler. See boiler manual.	
High altitude — High altitude (over 5,500 feet) requires only changing the altitude setting on the U-Control.	

4 Electrical connections

Wiring materials, fuses/breakers and shut-off switches **Boiler line voltage power** — Boiler load is 18 amps. Provide a fused disconnect or service switch (25- or 30-ampere rated recommended) as required by codes. **Boiler circulator line voltage power** — Provide and install a fused disconnect or service switch (15-ampere rated recommended) as required by codes for circulator with maximum load of 10 amps.)	☐
Zone valves and other system control devices, as required	☐
Carbon monoxide detector, when required	☐

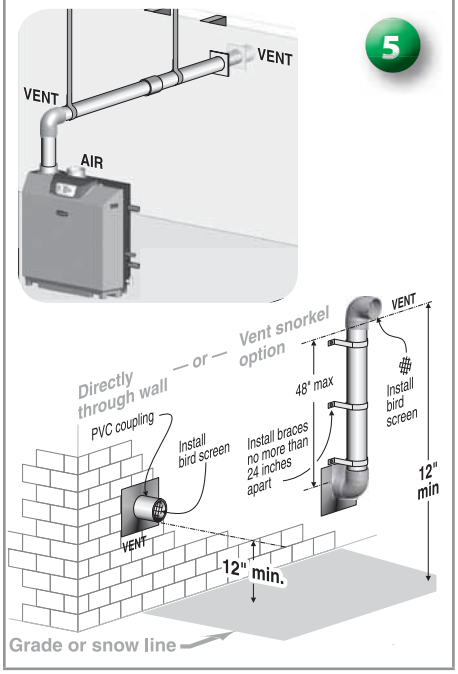
Recommended equipment

Use a **combustion analyzer** to verify boiler operation, see the Ultra boiler manual.	☐
U-tube manometer for checking gas line pressure	☐
Volt-ohmmeter may be required for troubleshooting	☐

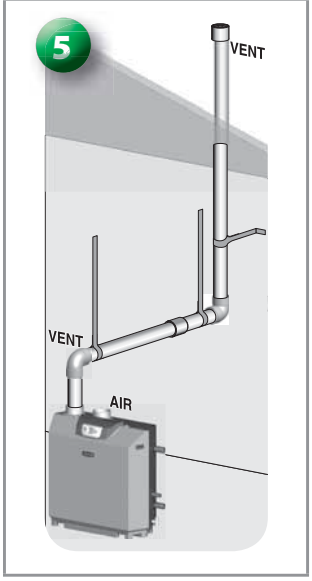
INSTALLATION GUIDE

Material checklist — vent and air piping 5 6

DIRECT EXHAUST SIDEWALL

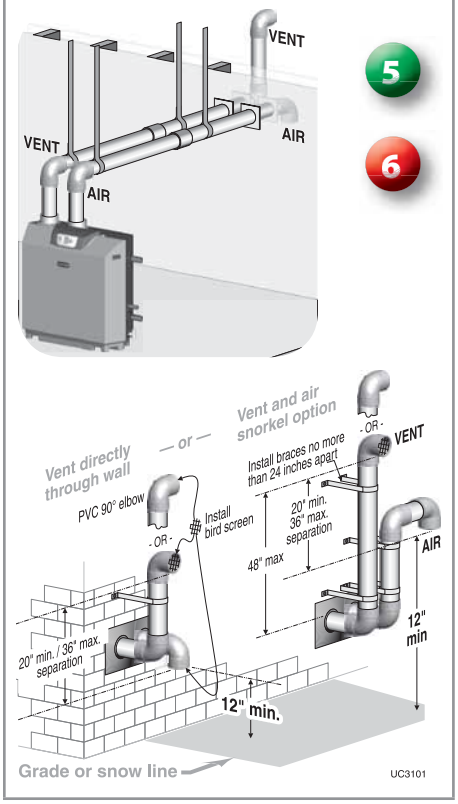


DIRECT EXHAUST VERTICAL

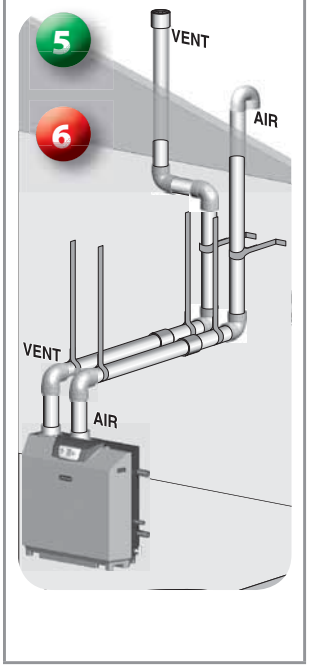


SNORKELING OPTION — Vent pipe can be extended up as shown at left. See manual for details.

DIRECT VENT SIDEWALL



DIRECT VENT VERTICAL



SNORKELING OPTION — Vent pipe can be extended up as shown at left. See manual for details.

Venting options:		Direct exhaust (use inside air), sidewall or vertical Direct vent (pipe air to boiler), sidewall or vertical			
Ultra model	Vent or air pipe size	• Allowable pipe sizes of vent/air piping — applies to all applications, whether direct exhaust or direct vent • Maximum equivalent feet of each • Number of elbows allowed at these lengths (All applications include allowance for the termination.)			
		Sidewall with separate pipes		Vertical with separate pipes	
		Length	Ells *	Length	Ells *
550	6"	100	2	100	2
750	6"	30	2	30	2
	8" **	100	2	100	2

* Equivalent feet for elbows — Deduct 7 feet for each additional 6-inch or 8-inch elbow (90° or 45°) from maximum equivalent length of piping.

** Install a pipe reducer to adapt from 8" PVC to the 6" PVC pipe size required at the boiler. You do not have to reduce allowable pipe length for the reducer. Install reducer directly at the boiler, oriented vertically.

Items	Material	Standards for installations in: United States	Standards for installations in: Canada
5 6 **Plastic vent/air piping material options**			
Vent or air pipe & fittings	PVC schedule 40	ANSI/ASTM D1785	Plastic vent pipe must be certified to UL S636 when required. Air pipe can be any of those listed at left if acceptable for local codes.
	PVC-DWV	ANSI/ASTM D2665	
	CPVC schedule 40	ANSI/ASTM F441	
	ABS-DWV schedule 40	ANSI/ASTM D2661	
PVC & ABS pipe cement & primer	PVC	ANSI/ASTM D2564	
	CPVC	ANSI/ASTM F493	
	ABS	ANSI/ASTM D2235	
DO NOT use cellular core pipe for vent or air piping.			

5 6 **Pipe and fittings for vent and air**		
Material — PVC ☐ CPVC ☐ ABS ☐ 6" ☐ 8" ☐		
Straight pipe	feet	☐
Elbows, 90-degree (include termination elbows as needed)		☐
Couplings (include termination, used for vertical vent or sidewall vent if no external upwards extension)		☐
Return bend, 180-degree (vertical air-pipe termination)	1	☐
Reducers, 8"x6" (for Ultra-750 only when using 8-inch vent and/or air piping)	1 (direct exhaust) 2 (direct vent)	☐

Combustion air/ventilation openings	
Louvers for ventilation openings, when specified in boiler manual (required for all direct exhaust applications)	☐

Residential Gas Boilers

EG
Water or Steam, Natural Draft
NAT'L or LP
MBH: 75-300
Avg. Eff.: 83%

GV
Water, Sealed Combustion
NAT'L or LP
MBH: 70-175
Avg. Efficiency: 87%

ULTRA GAS
Water, Sealed Combustion
NAT'L or LP
MBH: 80-399
Avg. Efficiency: 95%

CGs
Water, Sealed Combustion
NAT'L or LP
MBH: 67-167
Avg. Efficiency: 84%

CGt
Water with Tankless Heater
Induced Draft
NAT'L or LP
MBH: 133
Efficiency: 81%

CGi
Water, Induced Draft
NAT'L or LP
MBH: 50-233
Avg. Efficiency: 83.5%

CGa
Water, Natural Draft
NAT'L or LP
MBH: 52-245
Avg. Efficiency: 83%

Residential Oil Boilers

SGO
Steam with Tankless Heater Option
MBH: 114-295
Avg. Efficiency: 84%

ULTRA OIL
Water, Chimney and Direct Vent
MBH: 98-172
Avg. Efficiency: 88%

WGO
Water without Tankless Heater
MBH: 86-295
Avg. Efficiency: 85%

WTGO
Water with Tankless Heater
MBH: 115-295
Avg. Efficiency: 85%

Accessories

System Controls and Zone Controllers

Finned-Tube and Cast Iron Baseboard

WMBP, WMB
Brazed Plate Heat Exchangers
Forced Air Heat Exchangers

Maxi-Flo® Pool Heaters

Indirect-Fired Water Heaters

PLUS
100, 110, 119

GOLD Plus
30, 40, 60, 80

ULTRA Plus
40, 60, 80

Commercial Boilers

94
Gas, Oil & Gas/Oil
Water or Steam
MBH: 2,540-8,660
Combustion Eff.: 84%

88
Gas, Oil & Gas/Oil
Water or Steam
MBH: 996-5,845
Combustion Eff.: 85.7%

Ultra 550 & 750
Gas
Water
MBH: 550-750
Combustion Eff.: 93+%

EGH
Gas
Water or Steam
MBH:349-550
Combustion Eff.: 80%

PFG
Gas
Water
MBH: 244-427
Combustion Eff.: 81%

LGB
Gas
Water or Steam
MBH: 400-2,860
Combustion Eff.: 81%

80
Gas, Oil & Gas/Oil
Water or Steam
MBH: 346-1,674
Combustion Eff.: 83%

Other Quality Products from Weil-McLain
www.weil-mclain.com

WEIL-McLAIN®

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