



**WEIL-McLAIN®**

# Evergreen™

CONDENSING GAS BOILER  
220/299/300/399

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## Application Guide for Common Venting Evergreen Boilers

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### Common Venting methods and requirements for Evergreen Boilers (EVG 220, EVG 299/300, and EVG 399)

The Evergreen boiler can be common vented when the following requirements are met.

- Common venting of the Evergreen boiler can only be done in a Category II vent system. All requirements for the Evergreen boiler to be vented in a Category II configuration must be met as stated in the Evergreen Boiler Manual or all subsequent addendas.
- Evergreen boilers can only be common vented with other Evergreen Boilers.
- The maximum number of Evergreen boilers to be common vented together is eight.
- The Vent system for a Category II Evergreen boiler is considered a Designed / Engineered vent system and should be designed by a professional using accepted engineering practices.
- Vertical Vent only.
- Combustion air must come from the boiler room. See Direct Exhaust – Combustion Air opening requirements in Evergreen Vent Category II Addendum.
- Must increase venting to 6” using a 6” to 4” bell reducer at boiler vent adapter for Category II Vent Connection.
- The Vent System should be designed so that the pressure in the vertical 6” vent pipe immediately following the bell reducer is between the ranges provided in the Table 1, page 2, during all operating conditions (i.e., High Fire through Low Fire, prepurge, post purge and ignition). If a negative pressure cannot be guaranteed at prepurge and post purge, a backflow preventer is required on each boiler’s vent.

**⚠ WARNING** To prevent backflow through boiler, negative pressure must be maintained in vent system at all times including prepurge and post purge cycles.

- Flue gas temperature should not exceed 210°F; the boiler will shut down and recycle if it does. The flue gas temperature should typically be within 20°F of the return water temperature of the boiler. If there is the potential for a wide variation in return water temperatures, the lowest possible temperature should be used for any calculations.

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### Hazard definitions

The following defined terms are used throughout these Instructions to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

**⚠ WARNING** Indicates presence of hazards that can cause severe personal injury, death or substantial property damage.

**NOTICE** Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.



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- Stack / Vent Flow Rate for each individual boiler model is listed in the table below. This flow rate is based on the unit running at 9.25% CO<sub>2</sub> and the maximum flue gas temperature of 210°F. The values can vary depending on the location of the installation and operating conditions.
- A carbon monoxide detector(s) is required in the boiler room for Evergreen boilers installed in a Category II configuration. The carbon monoxide detector must be wired on the same electrical circuit as the boiler. Check your local codes for any additional requirements of carbon monoxide detectors.

**TABLE 1** Rating & Vent Data

Boiler Model	Input Btuh	Stack / Vent flow rate scfm	Negative Pressure to be maintained at Vent Connection of the boiler Inches w.c.	Evergreen Vent Adapter required for Category II
EVG 220	220,000	61	-0.001 to -0.100	6"
EVG 299	299,000	83	-0.001 to -0.100	6"
EVG 300	300,000	83	-0.001 to -0.100	6"
EVG 399	399,000	111	-0.001 to -0.100	6"

**WARNING** Improper Installation of a Category II vent system resulting in positive pressure in the vent system can result in flue gas spillage and carbon monoxide emissions, causing severe personal injury or death.

**NOTICE** Weil-McLain recommends the use of a Variable Speed Chimney Fan/ Power venter to ensure that the appropriate negative pressure is maintained for Category II venting. This is recommended because, as a result of the boiler’s efficiency, the exhaust gas temperatures can be quite low resulting in less natural draft. A flow proving switch should be wired into the Proof of Closure jumper circuit on the boiler control. See the boiler manual for additional information. The use of this device should be considered in any Engineered Vent system.

**NOTICE** Weil-McLain recommends the use of a Double Acting Barometric Damper or Modulating Damper to ensure the appropriate negative pressure range is kept for Category II venting. The use of this device should be considered in any Engineered Vent system.

**NOTICE** When using a damper of any kind, it is recommended to use a thermal spill switch to detect any exhaust flow into the boiler room. Verify the temperature range on the thermal spill switch is adequate for the Flue gas temperature from the Evergreen boiler. The use and set-point of this shall be determined by the system designer. The Auto reset input on the Boiler’s control can be used to wire in the thermal spill switch.

**NOTICE** The thermal spill switch should shut down all boilers connected to the common flue. Each boiler must be wired to its own set of dry contacts activated by the spill switch.

**NOTICE** Increasing the negative pressure in the vent pipe will slightly increase the firing rate at low fire, thus reducing the boiler’s true modulation range. Consider this factor during system design.

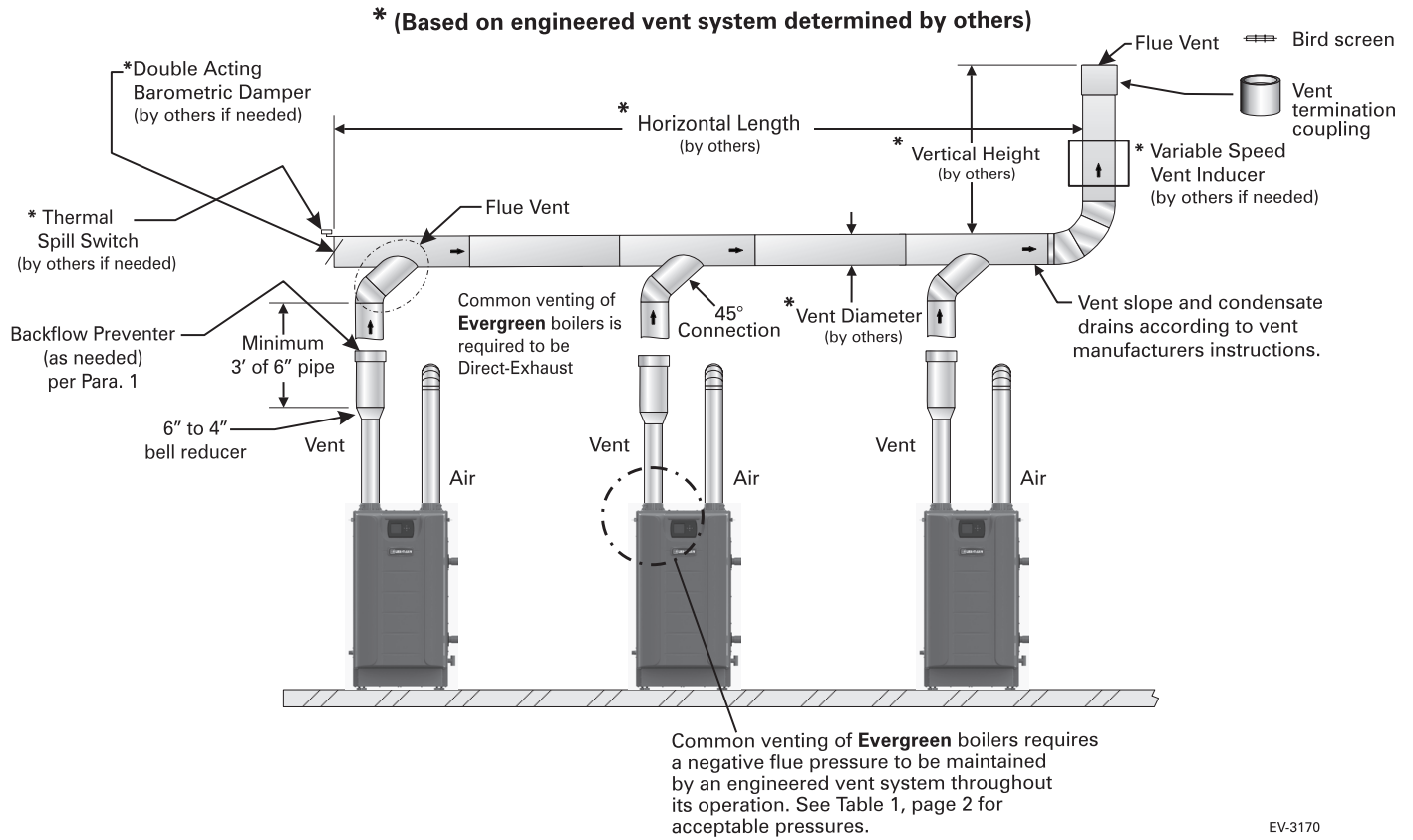
## Code Compliance

**WARNING** Venting / Combustion air piping – Installations must provide provisions for combustion and ventilation air in accordance with the section “Venting of Equipment”, of the National Fuel Gas Code, ANSI Z223.1 / NFPA 54, or “Venting Systems and Air Supply for appliances” of the Natural Gas and Propane Installation Code, CAN/CSA B149.1, or applicable provisions of the local building codes.



The figure below represents a general common venting approach. The Vent system for a Category II Evergreen boiler is considered a Designed / Engineered vent system and should be designed by a professional using accepted engineering practices.

Figure 1 Common vent





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