

**Blowdown**

As steam is produced, unwanted solids are left behind in the water and become concentrated within the vessel. If these constituents are allowed to adhere to the heat transfer surfaces they will impede the flow of energy. Their removal requires proper blowdown - either bottom, surface, or both. Table B7-15 shows the recommended blowdown tank requirements for bottom blowdown. The surface blowdown requirement is relative to the water quality and to the level of TDS control desired by the water treatment specialist. Local codes will dictate the manner of treating blowdown affluent.

Some local codes require blowdown tanks to be constructed in accordance with recommendations of the National Board of Boiler and Pressure Vessel Inspectors. The National Board's recommendations base the size of the blowdown tank on the removal of at least 4 inches of water from the boiler.

*Table B7-15. Model CFV Blowdown Tank Sizing Information*

BOILER HP	WATER (GAL)
10	3
15	3
20	6
25	6
30	8
40	8
50	12
60	12

NOTE: Quantity of water removed from boiler by lowering normal water line 2".

**Stack/Breeching Criteria**

**General** - The ClearFire Model CFV is a Category III Boiler according to ANSI Z21.13. This code defines a Category III boiler as one that operates with a positive vent pressure and a vent gas temperature that is non-condensing. Therefore the stack must be a positive pressure design.

Proper design and installation of the flue gas venting is critical to efficient and safe operation of the boiler. The vent should be designed with proper supports and clearances from combustible materials. Use insulated vent pipe spacers where the vent passes through combustible roofs and walls.

The design of the stack and breeching must provide the required draft at each boiler stack connection as proper draft is critical to safe and efficient burner performance.

Although constant pressure at the flue gas outlet is not required, it is necessary to size the breeching and stack to limit flue gas pressure variations. Consideration of the draft must be given whenever direct combustion air ducting is utilized and lengthy runs of breeching are employed. Please note: The allowable pressure range for design of the stack and breeching is negative 0.25" w.c. (-62 Pa) to a positive 0.25" w.c. (+62 Pa) for proper light offs and combustion. **NOTE:** This pressure range does not pertain to the boiler room; that is, the boiler room must be neutral or slightly positive, never negative when using air from the boiler room for combustion.

Whenever two or more CFV boilers are connected to a common breeching/stack, a