

# Process Boilers

# FACT SHEET

The 2022 Building Energy Efficiency Standards (Energy Code) defines a process boiler as:

“A type of boiler with a capacity (rated maximum input) of 300,000 Btu per hour (Btu/h) or more that serves a process.”

Process boilers do not produce hot water or steam for use in space heating or service water heating applications.

The Energy Code has requirements for process boilers with any of the following characteristics:

- Process boilers with input capacity of 2.5 MMBtu/h (2,500,000 Btu/h) and above with non-positive vent static pressure.
- Process boilers where one stack serves two or more boilers that have a combined input capacity of 2.5 MMBtu/h (2,500,000 Btu/h).
- Process boilers with input capacity greater than 5 MMBtu/h (5,000,000 Btu/h).
- Process boilers with combustion air fan motors that are 10 horsepower or larger.

Mandatory requirements for process boilers can be found in Section 120.6(d) of Title 24, Part 6.

## What is Covered in Process Boilers?

The Energy Code has requirements for combustion air positive shut-off, combustion air fan motor efficiency, and control of excess oxygen in the exhaust stack.

### Combustion Air Positive Shutoff

Combustion air positive shutoff is required for the following:

- All process boilers with an input capacity of 2.5 MMBtu/h (2,500,000 Btu/h) and above, in which the boiler is designed to operate with a nonpositive vent static pressure.
- All process boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h (2,500,000 Btu/h).

### Combustion Air Fan Motors

Process boiler combustion air fans with motors 10 horsepower or larger must meet one of the following for newly installed boilers:

- The fan motor must be driven by a variable speed drive; or
- The fan motor must include controls that limit the fan motor demand to no more than 30 percent of the total design wattage at 50 percent of design air volume.

## Excess Oxygen Control

Newly installed process boilers must meet stack oxygen concentration levels with one of the allowed control requirements shown in Table 1 for the applicable input capacities. Allowed concentration levels are percent by volume on a dry basis over a firing range of 20 to 100 percent. Use of a common gas and combustion air control linkage or jack shaft is not allowed.

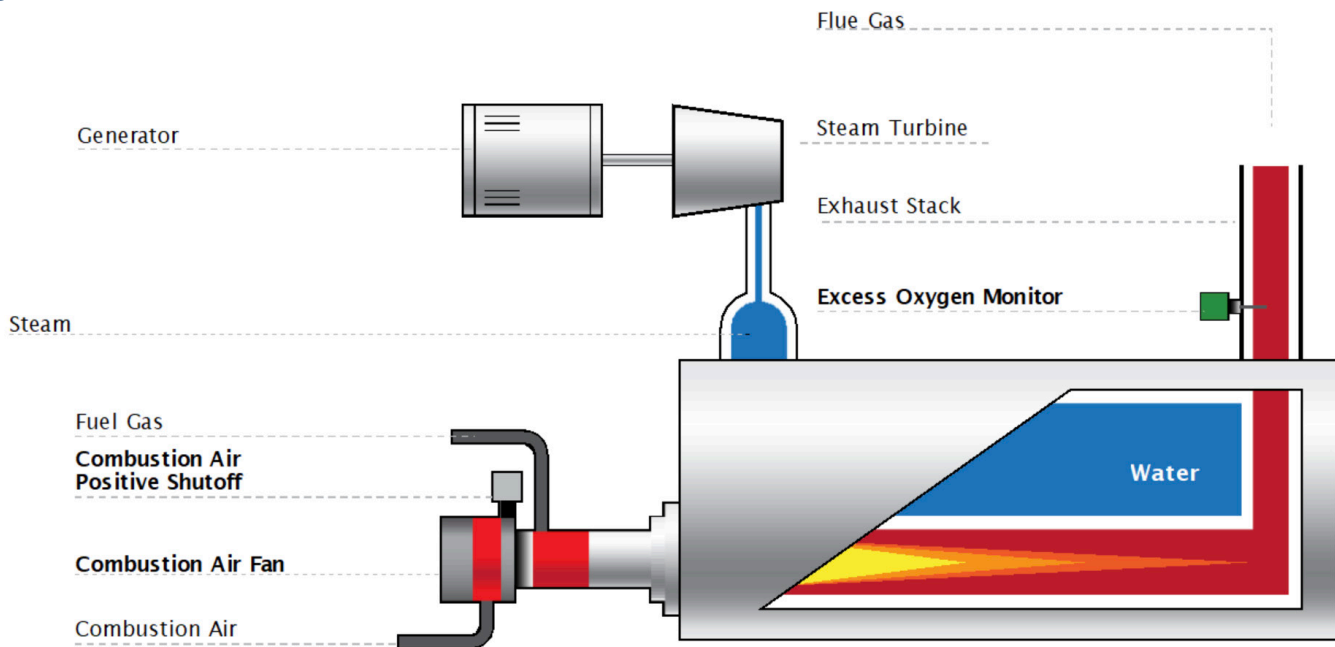
### Exception

Boilers with steady state full-load combustion efficiency 90 percent or higher are exempted.

**TABLE 1: Exhaust Stack Oxygen Concentration Controls**

<b>Input Rate MMBtu/h</b> (million Btu/h)	> 5
<b>Maximum Allowed Stack Oxygen Concentration</b> (percent by volume)	≤ 3.0
<b>Firing Rate Control Allowed</b>	Yes
<b>Measured Flue Gas Control Allowed</b>	Yes

**Figure 1: Process Boiler**



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