



Pellet Stove Test Manual

Stricter Emission Standards

Adopt stricter emission standards than the EPA.

1. Washington: 4.5 grams per hour for non-catalytic and pellet stoves; 2.5 grams per hour for catalytic and pellet stoves.
2. Montana: The tax code, Subchapter 1, 42.4.104 (2) (d) says a tax credit applies to biomass stoves and furnaces which emit less than six grams per hour.
3. Ten states require that only outdoor hydronic wood boilers qualified by an EPA voluntary program be installed: New England states, New York, Pennsylvania, Maryland and Indiana. In two states - Washington and Oregon they are banned altogether.

Forbid Sale of Exempt Stoves

1. California: Forbids sale or installation of residential indoor wood stoves that are exempt from EPA regulation.
2. Washington: Same as California, above.
3. Oregon requires all stoves sold must meet EPA standards.
4. Colorado requires all new wood stoves sold must meet EPA standards, Pellet stoves must be below 4.1, and masonry stoves must not emit more than 6 grams PM per 6 kilograms of fuel. Wood boilers and furnaces are exempt which does allow outdoor wood boilers to be installed.
5. Utah: Solid Fuel Burning Devices must be EPA certified to be installed in the following Utah counties: Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber Counties.

Forbids Sale and/or Installation of Uncertified Stove

1. Washington: Since 1992, has forbidden sale and installation of wood stoves or inserts that are not certified to the stricter Washington state emission standards.
2. Oregon: Forbids sale and installation of wood stoves or inserts that are not certified. Oregon began certifying stoves in 1986 and the EPA in 1988.
3. Denver-Metro area, Colorado: Prohibits sale and installation of new or used uncertified wood burning appliances
4. Summit County, Colorado: Forbids the installation of a non-certified wood stove in a new home or as a replacement unit for an existing non-certified stove.
5. Idaho: Several counties ban selling second-hand non-certified stoves.

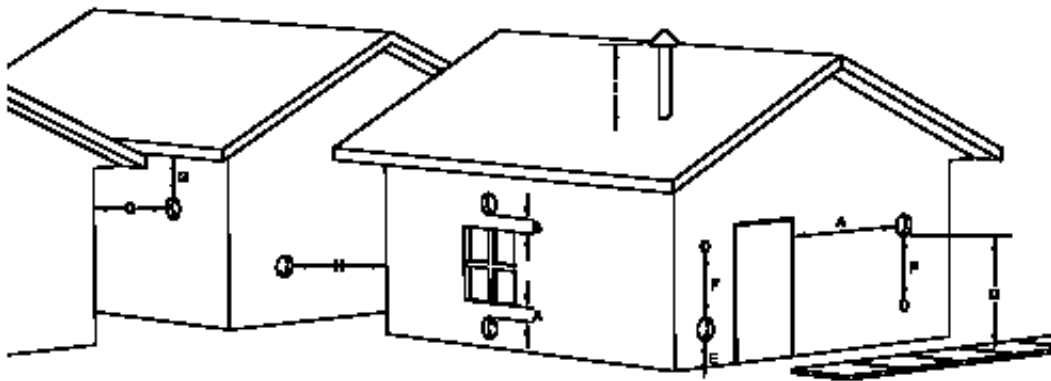
Forbids Installation of Fireplaces

Denver Metro area: Banned unless they are equipped with an EPA Phase II wood or pellet burning insert, or electric or gas log.

Installation

VENT TERMINATION CLEARANCES:

- A — Minimum 4-foot clearance below or beside any door or window that opens.
- B — Minimum 1-foot clearance above any door or window that opens.
- C — Minimum 3-foot clearance from any adjacent building.
- D — Minimum 7-foot clearance from any grade when adjacent to public walkways.
- E — Minimum 2-foot clearance above any grass, plants, or other combustible materials.
- F — Minimum 3-foot clearance from a forced air intake of any appliance.
- G — Minimum 2-foot clearance below eaves or overhang.
- H — Minimum 1-foot clearance horizontally from combustible wall.
- I — Must be a minimum of 36-inches above the roof and 24-inches above the highest point of the roof within 10-feet.



VENT TERMINATION CLEARANCES



4840

4840 Technical Specification

The Control Board on the 4840 is equipped with a PID.

What is a PID? PID stands for Proportional Integral Derivative, and in this application is a software program to regulate the feed rates of the stove.

What does that mean in the case of a pellet stove? This simply means that the control board is essentially able to “learn” the fuel feed rates needed to sustain a certain predetermined temperature set point. Control boards that have the PID do not have a “feed rate” like boards of the past. Each heat range does not have a certain setting for pounds per hour feed rate, but instead it is preprogrammed to run at a certain temperature and the PID adjusts the feed rate to maintain that set point temperature +/- 5 degrees. The control board will increase or decrease the feed rate as needed throughout the run time to maintain the proper temperature for the heat range.

Given the predetermined temperature for each heat range, the control board is constantly reading the temperature of the room RTD and taking those samples to establish and maintain the feed rate necessary for the given heat range. Over time the control board is able to “learn” the appropriate feed rate needed to maintain the desired temperature

Heat Range	Temp
1(low)	120°
2	140°
3	160°
4	180°
5(high)	200°

Cold Stove Set Point Temps

Room Blower RTD 80°
Exhaust Blower RTD 100°

Over Temp Set Points

Room Blower RTD 275°
Exhaust Blower RTD 450°

Control board indicators:

ON light flashing
OFF light is lit
Error 1 (flashing 1)
Error 2 (flashing 2)
Error 3 (flashing 3)
Error 4 (flashing 4)
Error 5 (flashing 5)

Reason:

Stove is in startup mode
Stove is OFF
Cold Stove Shutdown
Exhaust Over temp/Open Circuit
Room Over-temp/Open Circuit
Shorted Exhaust blower RTD
Shorted Room Blower RTD
(E light is currently inactive on this control board)

Startup Cycle

Press the ON button (the ON light will blink indicating that the igniter is on) igniter stays on for 14 minutes
Exhaust blower and igniter come on immediately
Igniter preheats for 2 minutes
At the 2 minute mark, the auger begins to feed pellets continuously for 3 minutes and 55 seconds

To go into run mode:

There must be a 25° rise in exhaust temperature from the ambient temperature when the ON button was pushed

Exhaust temp must also be greater than 105° (this can be met before the 3min and 55 sec time frame for auger feed is met. If so, the stove will go into run mode once temperatures are reached and the timer is canceled)

If this is not achieved in 15 minutes the stove will go into the Cold Stove Shutdown Error (Error 1)

Shutdown Cycle:

Press OFF
Bump cycle on Auger drops to "on" 1 second out of every 45 seconds
Continues until Cold Stove set point is reached
Error Codes Explained:

Error Codes

Flashing 1: This means that the stove reached its Cold Stove set point during normal operation.

Possible causes:

- Hopper is out of Fuel
- Auger Jam, sheared auger pin, or auger motor failure
- Vacuum problem or defective pressure switch
- Main door or hopper open or defective switch

NOTE: If vacuum problem or door/hopper, this error code will also be accompanied by a flashing PS or DS light

Flashing 2: This means that the exhaust RTD exceeded its over temp set point of 450° or there is an open circuit in RTD

Possible causes:

- Stove over heated and went into its over temp shutdown mode
- Exhaust RTD could have come loose (disconnected)

Flashing 3: This means that the Room RTD has exceeded its over temp set point of 275° or there is an open circuit in RTD

Possible Causes:

- Stove over heated and went into its over temp shutdown mode
- Room RTD could have come loose (disconnected)

Flashing 4: This means that the Exhaust RTD is bad.

Possible Causes:

- Exhaust RTD is defective

Flashing 5: This means that the Room RTD is bad.

Possible Causes:

- Room RTD is defective.

PRESSING THE OFF BUTTON SHOULD CLEAR ALL ERROR CODES

If multiple errors are reached, it is possible to have multiple flashing indicators

Example:

Stove over temps with an Error 2 due to excessive exhaust temperatures and goes into shut down mode, the stove will also reach its cold stove set point. This would leave you with a flashing 1 and 2 lights.

If both RTDs reach their over temp set point, it is possible that you get a flashing 1, 2, and 3 light

If stove shuts down due to vacuum problem or door/hopper switch you will have a flashing 1 and the corresponding indicator letting you know if the door/hopper switch or the pressure switch caused the stove to go into shutdown

Notes for operation:

- The exhaust blower does not pulsate

- Room and exhaust blowers are constant throughout all heat ranges and do not increase or decrease in speeds

- If vacuum switch or door switch is tripped the auger stops feeding immediately

Auger duty cycle is set out of 5 second intervals:

Maximum duty cycle: 50% or 2.5 seconds on out of every 5 second interval

Minimum duty cycle: 2.5% or 1/8 of a second on out of every 5 second interval