

Wood-fired Hydronic Heaters

HPBA Expo Workshop 03/2018



Front View of Typical Unit









§ 60.532 and 5474:What standards and requirements must I meet and by when?

- PM Emission limits
- Wood chip and pellet fuel minimum requirements
- Prohibited fuel types
- Owner's manual must specify that operation inconsistent with owner's manual will void the warranty

§ 60.532(f) and 60.5474(f) *Prohibited fuel types.* No person is permitted to burn any of the following:

- (1) Residential or commercial garbage;
- (2) Lawn clippings or yard waste;
- (3) Materials containing rubber, including tires;
- (4) Materials containing plastic;
- (5) Waste petroleum products, paints or paint thinners, or asphalt products;
- (6) Materials containing asbestos;
- (7) Construction or demolition debris;
- (8) Paper products; cardboard, plywood or particleboard. (ok for start-up)
- (9) Railroad ties or pressure treated lumber;
- (10) Manure or animal remains;
- (11) Salt water driftwood or previously salt water saturated materials;
- (12) Unseasoned wood;
- (13) Any materials not included in the warranty and owner's manual;
- (14) Any materials that were not included in the certification tests

Owner's Manuals Must Address:

§ 60.536 & 60.5478(f) and Appendix I:

- (a) Wood heater description and compliance status;
- (b) Tamper warnings;
- (c) Heater warranty and catalyst warranty (if equipped);
- (d) Fuel selection;
- (e) - (h) Detailed catalyst information
- (i) Wood heater proper operation and maintenance, including minimizing visible emissions;
- (j) Wood heater proper installation, including location, stack height and achieving proper draft;
- (k) Use of smoke detectors and carbon monoxide monitors;
- (l) Efficiency.

Hydronic heaters and FAFs

- HH and FAF manufacturers must supply a moisture meter with heaters. § 60.5480(c)(1)(ii)
- NSPS Small Entity Compliance Guide:
<https://www.epa.gov/residential-wood-heaters/small-entity-compliance-guide-residential-wood-heaters>
- EPA Burnwise site:
<https://www.epa.gov/burnwise>



Burn Wise

Program of U.S. EPA

This wood-burning appliance meets 2020 U.S. Environmental Protection Agency clean air standards.

Heating Area

Heats Up To 2500 sq. ft.

Efficiency

83%

Smoke Emissions

EPA Maximum Allowed
2.5 g/hr

This model
xx g/hr

MANUFACTURER
Wood Stove Inc.

MODEL NO.
1850M

FUEL TESTED

- Pellets: ground wood or biomass that is compressed into a pellet.
- Crib wood: cut 2"x4" or 4"x4" lumber that is stapled together.
- Cord wood: typical firewood, and a better measure of how a heater will perform in homes.

For more information, refer to the Owner's Manual and www.epa.gov/burnwise.

Efficiency and emissions are provided by an EPA-approved third party lab. Heating area is estimated by the manufacturer.



Final Rule – Summary of Standards

Wood-Fired Heating Device	Step	Effective Date *after F.R. Notice	Particulate Matter Emission Standard	Test Fuel
Wood stoves & Pellet Stoves (both adjustable and single burn rate) (both catalytic & non-catalytic)	1	60 days (May 15, 2015)	4.5 g/hr	Cribwood <u>or</u> Cordwood
	2	5 years (May 15, 2020)	2.0 g/hr	Cribwood
			2.5 g/hr	Cordwood
Hydronic Heaters - all wood fuels	1	60 days (May 15, 2015)	0.32 lbs/MBtu weighted average <u>AND</u> 18.0 g/hr individual test run cap <u>OR</u> EPA "Phase 2" Qualified	Cribwood <u>or</u> Cordwood
	2	5 years (May 15,2020)	0.10 lbs/MBtu for each burn rate	Cribwood
			0.15 lbs/MBtu for each burn rate	Cordwood
Forced Air Furnaces – all wood fuels		60 days (May 15, 2015)	New work practice and operational standards, including providing information on best operating practices in owner's manuals	N/A
	1	Small: 1 year (May 16, 2016) Large: 2 years (May 15, 2017)	0.93 lbs/MBtu weighted average	Cordwood
	2	All: 5 years (May 15, 2020)	0.15 lbs/MBtu for each burn rate	Cordwood