

Chapter 150: CONTROL OF EMISSIONS FROM OUTDOOR WOOD BOILERS

SUMMARY: This regulation establishes particulate emission standards, siting criteria and labeling requirements for outdoor wood boilers.

1. Applicability.

- A. This regulation applies statewide.
- B. This regulation applies to any manufacturer, supplier, distributor or person intending to sell, lease, distribute, or market, an outdoor wood boiler in the State of Maine that meets the definition of an outdoor wood boiler and to any person who installs, operates or owns an outdoor wood boiler.
- C. This regulation applies to outdoor wood boilers with a rated thermal input of less than 3 MMBtu/hr. Boilers with a rated thermal heat input of 3 MMBtu/hr or greater are subject to Chapter 103 Fuel Burning Equipment Particulate Emission Standard of the Department's Regulations.

2. Definitions.

The following terms, as used in this Chapter, have the following meanings:

- A. **Clean wood.** "Clean wood" means wood that has no paint, stain, or other types of coatings, and wood that has not been treated with, including but not limited to, copper chromium arsenate, creosote, or pentachlorophenol.
- B. **Commercial outdoor wood boiler.** "Commercial outdoor wood boiler" means any outdoor wood boiler used to service a commercial establishment.
- C. **Distribute or sell.** "Distribute or sell" means to distribute, sell, advertise for sale, offer for sale, lease, ship, deliver for shipment, release for shipment, or receive and (having so received) deliver or offer to deliver. This term does not include the distribution or sale by a manufacturer of an outdoor wood boiler that is installed outside the State of Maine.
- D. **Manufacturer.** "Manufacturer" means any person who constructs or imports for the distribution or sale into the United States an outdoor wood boiler.
- E. **New outdoor wood boiler.** "New outdoor wood boiler" means an outdoor wood boiler that is not installed and/or operational at the intended location of use as of the effective date of this Chapter.
- F. **Nuisance.** "Nuisance" means emission of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration that may be injurious to human, plant or animal life or to property, or that unreasonably interferes with the comfortable enjoyment of life or property.
- G. **Opacity.** "Opacity" means the degree to which emissions other than water reduce the transmission of light and obscure the view of an object in the background.

H. Outdoor wood boiler. "Outdoor wood boiler" (also known as outdoor wood-fired hydronic heater, water stove or outdoor wood furnace) means a fuel burning device designed to (1) burn wood or other approved solid fuels; (2) that the manufacturer specifies for outdoor installation or installation in structures not normally occupied by humans (e.g., garages); and (3) heats building space and/or water via the distribution, typically through pipes, of a fluid heated in the device, typically water or a water/antifreeze mixture.

I. Particulate matter or PM. "Particulate matter or PM" means particulate matter PM₁₀ and PM_{2.5} including the condensable fraction.

J. Sale. "Sale" means the transfer of ownership or control.

3. Requirements for the Sale, Installation and Operation of New Outdoor Wood Boilers.

A. Particulate Matter Emission Standards for Outdoor Wood Boilers.

(1) Phase I Particulate Emission Standard. No person shall distribute or sell, lease, import, supply or install an outdoor wood boiler after April 1, 2008 unless it has been certified under Section 3(E) to meet a particulate matter emission limit of 0.60 lbs/MMBtu heat input. Outdoor wood boilers meeting the Phase I limit must be installed according to the applicable setback and stack height requirements as defined in Section 3(B) and 3(C) of this Chapter.

(2) Phase II Particulate Emission Standard. No person shall distribute or sell, lease, import, supply or install an outdoor wood boiler after April 1, 2010 unless it has been certified under Section 3(E) to meet a particulate matter emission limit of 0.32 lbs/MMBtu heat output. Outdoor wood boilers meeting the Phase II limit must be installed according to the applicable setback and stack height requirements as defined in Section 3(B) and 3(C) of this Chapter.

B. Setback Requirements for New Outdoor Wood Boilers.

(1) Outdoor wood boilers with particulate emissions limits greater than 0.60 lbs/MMBtu heat input or with no certification. No person shall install or allow the installation of any outdoor wood boiler that has been certified to meet a particulate emission limit greater than 0.60 lbs/MMBtu heat input or has no certification, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler is installed at least 250 feet from the nearest property line.

(2) Outdoor wood boilers certified to meet particulate emission limits of 0.60 lbs/MMBtu heat input. No person shall install or allow the installation of any outdoor wood boiler that has been certified to meet a particulate matter emission limit of 0.60 lbs/MMBtu heat input, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler is installed at least 100 feet from the nearest property line.

(3) Outdoor wood boilers certified to meet particulate emission limits of 0.32 lbs/MMBtu heat output. No person shall install or allow the installation of any

outdoor wood boiler that has been certified to meet a particulate matter emission limit of 0.32 lbs/MMBtu heat output, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler is installed at least 50 feet from the nearest property line.

- (4) No person shall install or allow the installation of any outdoor wood boiler, regardless of the particulate emission rate of the unit, closer than 500 feet from the property line of a state licensed school, daycare or healthcare facility.

C. Stack Height Requirements for New Outdoor Wood Boilers.

- (1) Outdoor wood boilers certified to meet particulate emissions limits of greater than 0.60 lbs/MMBtu heat input or with no certification.
 - (a) No person shall install or allow the installation of any outdoor wood boiler that has been certified to meet a particulate emission limit of greater than 0.60 lbs/MMBtu heat input or has no certification, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler:
 - (1) has an attached stack with a minimum stack height of 10 feet above ground level; or
 - (2) has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler, if an abutting residence is located less than 500 feet from the outdoor wood boiler.
 - (b) No person shall operate any outdoor wood boiler, installed after the effective date of this Chapter, that has been certified to meet a particulate emission limit of greater than 0.60 lbs/MMBtu heat input or with no certification, determined in accordance with Section 3(E) of this Chapter, if an abutting residence is located less than 500 feet from the outdoor wood boiler, unless the outdoor wood boiler has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler.
- (2) Outdoor wood boilers certified to meet particulate emission limits of 0.60 lbs/MMBtu heat input.
 - (a) No person shall install or allow the installation of any outdoor wood boiler that has been certified to meet a particulate matter emission limit of 0.60 lbs/MMBtu heat input, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler:
 - (1) has an attached stack with a minimum stack height of 10 feet above ground level; or
 - (2) has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler, if an abutting residence is located less than 300 feet from the outdoor wood boiler.
 - (b) No person shall operate any outdoor wood boiler, installed after the effective date of this Chapter, that has been certified to meet a particulate emission limit of 0.60

lbs/MMBtu heat input, determined in accordance with Section 3(E) of this Chapter, if an abutting residence is located less than 300 feet from the outdoor wood boiler, unless the outdoor wood boiler has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler.

- (3) Outdoor wood boilers certified to meet particulate emission limits of 0.32 lbs/MMBtu heat output.
 - (a) No person shall install or allow the installation of any outdoor wood boiler that has been certified to meet a particulate matter emission limit of 0.32 lbs/MMBtu heat output, determined in accordance with Section 3(E) of this Chapter, unless the outdoor wood boiler:
 - (1) has an attached stack with a minimum stack height of 10 feet above ground level; or
 - (2) has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler, if an abutting residence is located less than 300 feet from the outdoor wood boiler.
 - (b) No person shall operate any outdoor wood boiler, installed after the effective date of this Chapter, that has been certified to meet a particulate emission of 0.32 lbs/MMBtu heat output, determined in accordance with Section 3(E) of this Chapter, if an abutting residence is located less than 300 feet from the outdoor wood boiler, unless the outdoor wood boiler has an attached stack extending two feet higher than the peak of the roof of the structure being served by the outdoor wood boiler.
- (4) In the case that there is no structure (e.g. swimming pool or hot tub) being served by an outdoor wood boiler subject to Section 3(C), the owner or operator of the outdoor wood boiler shall extend the stack two feet higher than the peak of the roof of the nearest building to the outdoor wood boiler.

D. Commercial Outdoor Wood Boiler or Outdoor Wood Boiler with a rated thermal output greater than 350,000 Btu/hr Analysis Requirement.

- (1) Any person intending to install or operate a commercial outdoor wood boiler or an outdoor wood boiler with a rated thermal output greater than 350,000 Btu/hr shall obtain an evaluation, report and installation recommendations performed by a licensed professional engineer that includes the following information:
 - (a) What type of application will the outdoor wood boiler be used for;
 - (b) A determination of the heat load requirements of the facility as compared to the available heat supply of the outdoor wood boiler to ensure the unit is properly sized;
 - (c) The stack location relative to the property lines and building locations within 400 feet of the outdoor wood boiler;

- (d) The stack height; and
 - (e) Recommendations for the proper outdoor wood boiler installation, including but not limited to, hook-up, auxiliary fuel, properly sized outdoor wood boiler, stack height and stack location.
- (2) No person shall install or operate a commercial outdoor wood boiler or outdoor wood boiler with a rated thermal output greater than 350,000 Btu/hr unless it is installed according to the recommendations of the evaluation report in Section 3(D)(1). In any case, no person shall install or operate a commercial outdoor wood boiler or an outdoor wood boiler with a rated thermal output greater than 350,000 Btu/hr unless it meets the minimum setback and stack height requirements stated in Section 3(B) and 3(C) of this Chapter.
- E. Certification of Outdoor Wood Boilers.** No person shall supply, distribute, sell, lease, offer for sale, or allow the installation of an outdoor wood boiler in the State of Maine unless the outdoor wood boiler has received certification pursuant to the EPA Outdoor Wood-Fired Hydronic Heater Program. The certification shall demonstrate that the outdoor wood boiler meets the applicable particulate emission standard in Section 3(A) of this Chapter. The manufacturer of any such outdoor wood boiler shall conduct testing via the EPA Outdoor Wood-Fired Hydronic Heater Phase I Program until EPA replaces the EPA Outdoor Wood-Fired Hydronic Heater Phase I Program with the Environmental Technology Verification Program. The Department may approve an alternative certification program.
- F. Sell-through exemption.** No person shall sell or offer for sale any outdoor wood boiler with a particulate emission rate greater than 0.60 lbs/MMBtu heat input as certified in accordance with Section 3(E) of this Chapter unless the outdoor wood boiler was received in the State of Maine before April 1, 2008 and the outdoor wood boiler meets all of the applicable requirements of this Chapter. Compliance with this Section must be demonstrated by keeping records of the purchase date and receipt date of their inventory as of the effective date of this Chapter. These records shall be kept for at least 5 years and shall be made available to the Department upon request. This exemption is effective until April 1, 2009.
- G. Labeling Requirements.** New outdoor wood boilers shall be labeled in accordance with the labeling requirements of the U.S. Environmental Protection Agency Outdoor Wood-Fired Hydronic Heater Program. Requirements of this program are located at www.epa.gov/woodheaters/index.htm.
- H. Rain Cap Prohibition.** No person shall operate a new outdoor wood boiler using a rain cap unless this device is required by the manufacturer specifications.
- 4. General Provisions and Requirements For All Outdoor Wood Boilers.**
- A. Prohibited fuels.** No person shall burn any of the following items in an outdoor wood boiler:
- (1) any wood that does not meet the definition of clean wood;
 - (2) garbage;
 - (3) tires;

- (4) lawn clippings or yard waste;
- (5) materials containing plastic;
- (6) materials containing rubber;
- (7) waste petroleum products;
- (8) paints and paint thinners;
- (9) chemicals;
- (10) glossy or colored papers;
- (11) construction and demolition debris;
- (12) plywood;
- (13) particleboard;
- (14) salt water driftwood and other previously salt-water saturated materials;
- (15) manure;
- (16) animal carcasses;
- (17) asphalt products;
- (18) materials containing asbestos;
- (19) materials containing lead, mercury, or other heavy or toxic metals; and
- (20) coal, unless the outdoor wood boiler is specifically designed to burn coal.

B. Fuel Requirements. No person that operates an outdoor wood boiler shall use a fuel other than the following:

- (1) Clean wood;
- (2) Wood pellets made from clean wood;
- (3) Home heating oil in compliance with the applicable sulfur content limit, propane or natural gas may be used as starter or supplemental fuels for dual-fired outdoor wood boilers; and
- (4) Other fuels as approved by the Department.

C. Visible Emission Standard. No person shall cause or allow the emission of a smoke plume from any outdoor wood boiler to exceed an average of 30 percent opacity on a six minute block average basis, except for no more than two six minute block averages in a 3-hour period. Opacity under this subsection shall be determined pursuant to EPA Method 9 Visual Determination of the Opacity of Emissions from Stationary Sources (40CFR60, Appendix A).

D. Enforcement and Preemption. This rule is subject to enforcement pursuant to 38 MRSA §347-A. Nothing in Chapter 150 may be construed as pre-empting any otherwise applicable, statute, regulation, local ordinance or otherwise applicable private common law cause of action.

E. Notice to Buyers.

- (1) No outdoor wood boiler subject to the requirements of this Chapter shall be offered, sold, offered for retail sale, or leased within the State of Maine unless prior to any sales or lease agreement, the seller or dealer provides the prospective buyer or lessee with a copy of this Chapter and a written notice that:

- (a) It is unlawful to burn garbage, treated or painted wood, plastic and plastic products, rubber products, yard waste, lawn clippings, glossy or colored papers, construction and demolition debris, materials containing asbestos, materials containing lead, mercury, or other heavy or toxic metals, plywood, particleboard, salt water driftwood and other previously salt water saturated materials, manure, animal carcasses, asphalt products, coal, unless the outdoor wood boiler is specifically designed to burn coal, waste petroleum products, paints, chemicals or any substance that normally emits dense smoke or obnoxious odors;
 - (b) Installation of an outdoor wood boiler may be subject to other applicable State and local stack height and setback requirements;
 - (c) The applicable distance and stack height requirements provided in Section 3(B) and 3(C) of this Chapter may not be adequate in some areas due to terrain that could render the operation of an outdoor wood boiler to be a nuisance or public health hazard; and
 - (d) States the specific results of the average and maximum emission rates of particulate matter for the outdoor wood boiler in grams per hour per the testing determined in accordance with Section 3(E) of this Chapter and the average delivered heating efficiency as found in the test reports that were used for certification of the units or a statement that the outdoor wood boiler has not been tested or certified.
- (2) The written notice specified above shall be signed by the buyer or lessee at the time of purchase or lease to indicate receipt of notice. Said notice shall contain the names; addresses; telephone number of both the seller or dealer and the buyer or lessee; the location where the outdoor wood boiler will be installed; and the make and model of the outdoor wood boiler. The dealer shall keep these records for 5 years and provide them to the Department upon request.
- F. Owner's Manual.** Each outdoor wood boiler offered for sale or lease must be accompanied by an owner's manual that shall contain all the information listed below:
- (1) Thermal output capacity;
 - (2) Proper installation information;
 - (3) Operation and maintenance information to minimize emissions;
 - (4) Wood loading procedures, recommendations on wood selection, and warnings on improper fuels;
 - (5) Fire starting procedures;
 - (6) Proper use of air flow devices, if applicable;
 - (7) Ash removal procedures;

- (8) For catalytic models, information pertaining to maintaining catalyst performance, maintenance procedures, procedures for determining catalyst failure or deterioration, procedures replacement, and information on warranty rights.
- (9) Language stating: Improper use or failure to maintain the outdoor wood boiler may cause nuisance conditions. Persons operating this outdoor wood boiler are responsible for operation of the outdoor wood boiler so as not to cause a nuisance condition. Even proper use and maintenance of the outdoor wood boiler, and meeting the distance and stack height recommendations and requirements in State and local regulations may not always be adequate to prevent nuisance conditions in some areas due to terrain or other factors.

5. Nuisance Conditions.

- A. Standard.** No person shall operate an outdoor wood boiler that produces visible emissions, measured as any opacity totaling twelve minutes in any hour, that cross onto any land or buildings immediately adjacent to a dwelling or commercial building not owned by the owner of the outdoor wood boiler. Opacity under this subsection shall be determined pursuant to EPA Method 22 Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares (40CFR60, Appendix A).
- B. Prohibition.** No person shall operate an outdoor wood boiler in such a manner as to create a nuisance.

6. Third Party Sales.

As of the effective date of this Chapter, an outdoor wood boiler that has been owned by an individual and was in use in Maine prior to the effective date of this Chapter may be distributed or sold to another individual for his or her own personal use. The outdoor wood boiler shall be subject to the applicable setback and stack height requirements specified in Section 3(B) and 3(C). If the particulate emission limit is not known, the outdoor wood boiler must meet the setback and stack height requirements of Section 3(B)(1) and 3(C)(1).

7. Effective date.

Unless otherwise noted, compliance with all applicable provisions of this Chapter is the effective date of the regulation.

8. Severability.

Each Section of this Chapter shall be deemed severable, and in the event that any Section of this Chapter is held invalid, the remainder shall continue in full force and effect.

AUTHORITY: 38 M.R.S.A., §585-A, §610-B

EFFECTIVE DATE: November 9, 2007

BASIS STATEMENT

In 1988 EPA established particulate emission standards for residential wood stoves sold in the United States after 1992. However, outdoor wood boilers (OWB), also known as outdoor wood-fired hydronic heaters (OWHH) were not included in the EPA residential wood stove regulations and have not been regulated by EPA or the Department. OWB, which burn wood to heat water that is piped underground to a nearby structure (usually a home) for space heating, are available in a wide variety of sizes and efficiencies. OWB, on an average per hour basis, emit about four times as much fine particulate matter as conventional wood stoves, about 12 times as much fine particulate matter as an EPA-certified wood stove, and 1000 times more than an oil furnace.

In addition to fine particulates, wood combustion emissions contain sulfur oxides, nitrogen oxides, carbon monoxide and potentially cancer-causing compounds including formaldehyde, polycyclic aromatic hydrocarbons, benzene and dioxins. Fine particulates can aggravate lung diseases such as asthma, emphysema and bronchitis. Children, the elderly and those with respiratory problems are most at risk from exposure to wood smoke.

In June 2007, the Maine Legislature enacted LD 1824, An Act To Regulate Outdoor Wood Boilers. This legislation established emission standards for new outdoor wood boilers starting in 2008 and also directed the Department to adopt rules related to outdoor wood boilers. "The rules must include provisions relating to siting, operation and labeling requirements, stack heights, dealer and manufacturer reporting, public notification of emission standards and operation and siting requirements, code enforcement officer training, nuisance conditions and existing inventory issues." Section 610-B was adopted as emergency major substantive rules pursuant to Title 5, section 8073 and must be submitted to the Legislature for review by January 15, 2008.

Chapter 150 establishes requirements for the sale and installation of new outdoor wood boilers, including particulate emission standards and requirements for setback and stack height, certification, sell-through of existing inventory, and labeling. The rule also contains general provisions which apply to all OWB. These provisions include prohibited and allowed fuels, visible emissions standards, notice to buyers, and owner manual requirements. In addition, pursuant to the new legislation, for the purpose of this rule, the Department included a definition of "nuisance" and a method by which a nuisance condition can be identified.