
ENVIRONMENTAL Fact Sheet



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Sale and Operation of Wood-Fired Hydronic Heaters & Forced-Air Furnaces

Wood smoke contains fine particle matter, carbon monoxide and other organic compounds, such as formaldehyde, benzene and aromatic hydrocarbons, which form incomplete combustion. The fine particulates of wood smoke, ten microns or less in diameter (a human hair is approximately 70 microns in diameter), can be inhaled deep into the lungs, collect in tiny air sacs (called alveoli) where oxygen enters the blood, and cause breathing difficulties and sometimes permanent lung damage.



Wood smoke is a particular concern in the winter, when cold air and temperature inversions limit air movement. Smoldering fires and short chimneys may cause heavy smoke to stay close to the ground causing neighborhood nuisances and adversely impacting public health and the environment.

Fortunately, recent advances in wood heater design have resulted in the manufacturing of cleaner-burning units. The use of these cleaner-burning units, in conjunction with proper operation, can reduce the adverse health and environmental impacts associated with using these devices.

STATE REGULATORY OVERVIEW

A revised state law, RSA 125-R, regarding the sale, purchase, or installation of outdoor wood hydronic heaters, commonly known as outdoor wood boilers, became effective on July 1, 2017. Specifically, RSA 125-R:2 prohibits the sale, purchase, or installation of any residential outdoor wood boiler that is not certified by the U.S. Environmental Protection Agency (EPA). EPA maintains a list of [certified outdoor wood boilers](#).

For commercial units, only those outdoor wood boilers qualified by New York State's Energy Research Development Authority may be legally bought, sold or purchased in New Hampshire. The agency maintains a [list of certified commercial units](#).

Existing outdoor wood boilers that were legally installed in prior years are not affected by the new law and may remain in place as long as they are not relocated on the existing property or sold for reinstallation elsewhere. Pellet-fueled outdoor wood boilers are exempt from this law.

Any wood boiler that has a heat output of 2 million Btu's per hour or greater requires a state permit to operate which must be obtained prior to installation of the unit.

FEDERAL REGULATORY OVERVIEW

Effective February 3, 2015, EPA signed into law [40 CFR Part 60, Subpart QQQQ, Standards of Performance for New Hydronic Heaters and Forced-Air Furnaces](#). .

This regulation specifies that manufacturers can only sell compliant residential-use hydronic heaters and forced air furnaces in the U.S. based on the schedule outlined below, and that you, as an owner, must operate the central heater in accordance with the manufacturer's requirements.

The regulation applies to these types of central heaters burning wood and pellet fuel:

- Outdoor wood boilers.
- Indoor wood boilers.
- Forced-air furnaces.

MANUFACTURERS AND RETAILER REQUIREMENTS

Outdoor Wood-Fired Hydronic Heaters

As of February 3, 2015

Manufacturers may not manufacture any unit for sale in the U.S. that does not meet the Step 1 Particulate Matter Emission Limit of 0.32 lb/MMBtu heat output (weighted average), with a cap of 18 grams/hour for each test run. In addition, after December 31, 2015, retailers could no longer sell any unit that does not meet the regulatory requirement in effect at that time.

- **As of May 2020**

Manufacturers may not manufacture any unit for sale in the U.S. that does not meet the Step 2 Particulate Matter Emission Limit of 0.10 lb/MMBtu heat output for each burn rate; or the alternate limit of 0.15 lb/MMBtu heat output, as specified by EPA.

Forced-Air Furnaces

- **As of March 2016**

Small Forced-Air Furnaces (< 65,000 Btu/hour heat output) must meet the Particulate Matter Emission Limit of 0.93 lb/MMBtu heat output (weighted average), as specified by the EPA.

- **As of March 2017**

Large Forced-Air Furnaces (>65,000 Btu/hour heat output) must meet the Particulate Matter Emission Limit of 0.93 lb/MMBtu heat output (weighted average), as specified by EPA.

- **As of March 2020**

All Forced-Air Furnaces must meet the Particulate Matter Emission Limit of 0.15 lb/MMBtu heat output, as specified by EPA.

Permanent labels

Manufacturers must affix a permanent label to the outdoor wood boiler or forced-air furnace indicating that the unit is EPA-certified to meet the required particulate matter emission limit. The label must include the month and year of manufacture, model name/number, certification test emission value with test method and standard met and serial number. This label signals to you as a consumer that the wood heater meets EPA standards.

Operator's Manuals

Manufacturers must include in their operator's manual the specific operating requirements, best practices, fuel types and conditions that will void the manufacturer's warranty.

OWNER OPERATION REQUIREMENTS

As an owner, you must follow all manufacturer requirements for operation and maintenance of the outdoor wood boiler or forced-air furnace, and burn only the recommended fuels specified in the owner's manual. The law requires manufacturers to void any warranty in cases of improper operation, maintenance and the burning of improper fuel.

Improper Fuels

Burning any of the following in a forced-air furnace is prohibited:

- Residential or commercial garbage.
- Lawn clippings or yard waste.
- Materials containing rubber, including tires.
- Materials containing plastic.
- Waste petroleum products.
- Paints or paint thinners.
- Asphalt products.
- Materials containing asbestos.
- Construction or demolition debris.
- Paper products, cardboard, plywood, or particleboard.
- Railroad ties or pressure-treated wood.
- Manure or animal remains.
- Salt water driftwood or other previously salt water saturated materials.
- Unseasoned wood (wood with a moisture content of 20% or more; or 35% or more for chip wood).
- Any materials that are not included in the warranty and owner's manual for the subject wood heater.
- Any materials that were not included in the certification tests for the subject wood heater.

Proper Cordwood Storage Example



Please note that the use of fire starters made from paper, cardboard, sawdust, wax and similar substances are allowable to kindle the fire in the unit.

COMPLIANCE ASSISTANCE AND ENFORCEMENT OF FEDERAL REGULATION

NHDES is responsible for compliance assistance and enforcement of the state statute for outdoor wood boilers in New Hampshire. In addition, NHDES assists EPA in compliance assistance and enforcement of the federal regulations for outdoor wood boilers, indoor wood boilers and forced-air furnaces in New Hampshire.

For more information on wood-fired hydronic heater or forced-air furnace and air quality, contact the NHDES Air Resources Division at (603) 271-1370 or visit the [NHDES website](#).

Other resources for information on wood stoves for residential heating are [UNH Cooperative Extension](#) at and [EPA Burnwise](#).