

## OVERVIEW OF FINAL UPDATES TO AIR EMISSIONS REQUIREMENTS FOR NEW RESIDENTIAL WOOD HEATERS

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### SUMMARY OF ACTION

- On February 3, 2015, the U.S. Environmental Protection Agency (EPA) strengthened its clean air standards for residential wood heaters to make new heaters significantly cleaner and improve air quality in communities where people burn wood for heat.
- The updates, which are based on improved wood heater technology, strengthen the emissions standards for new woodstoves, while establishing the first ever federal air standards for several types of previously unregulated new wood heaters, including outdoor and indoor wood-fired boilers (also known as hydronic heaters), and indoor wood-burning forced air furnaces. The rule will not affect existing woodstoves and other wood-burning heaters currently in use in people's homes.
- The final rule reflects a number of changes EPA made in response to public comments, including changes to provide manufacturers and retailers the time and flexibility they need to ensure a smooth transition to cleaner heaters.
- Smoke from residential wood heaters contains harmful particle pollution, also known as fine particulate matter or PM<sub>2.5</sub>, along with other pollutants including carbon monoxide, volatile organic compounds (VOCs), black carbon, and air toxics such as benzene. These heaters, which are used around the clock in some areas, can increase particle pollution to levels that pose serious health concerns. In some areas, residential wood smoke constitutes a significant portion of the particle pollution problem.
- By meeting the new requirements, manufacturers will make their wood heaters less polluting beginning this year and will produce even cleaner models by 2020. Fine particle and volatile organic compound (VOC) emissions from heaters covered by the rule are estimated to drop by nearly 70 percent (8,300 tons a year and 9,300 tons a year, respectively) compared to estimated emissions without the final rule. VOCs are a key ingredient of smog. Carbon monoxide emissions from wood heaters covered by the rule will be an estimated 46,100 tons lower – a reduction of 62 percent.
- EPA issued the existing emissions requirements for residential wood heaters in 1988. That rule applied to adjustable burn-rate woodstoves, including a type of adjustable burn-rate woodstove known as a fireplace insert. Since that time, the technology for reducing

emissions from wood heaters has significantly improved and now is available to make a range of wood heaters more efficient and less polluting.

- The final requirements, known as new source performance standards, or NSPS, update PM emissions limits for newly manufactured adjustable-rate woodstoves and set the first federal air standards for several other types of wood: pellet stoves; indoor and outdoor wood-fired hydronic heaters; wood-burning forced-air furnaces; and a type of previously unregulated woodstove known as a “single burn-rate” stove.
- EPA is phasing in requirements over five years to allow manufacturers time to adapt emission control technologies to their particular model lines.
  - For woodstoves, pellet stoves, and hydronic heaters, the final rule phases in emissions limits in two steps, with the first limit taking effect 60 days after the final rule is published in the Federal Register (this is the effective date of the rule), and the second limit taking effect five years later (in 2020).
  - For wood-fired forced air furnaces (also called warm air furnaces), the final rule requires work practice standards beginning on the effective date of the rule. EPA is phasing in emissions limits for forced air furnaces in two steps between 2016/2017 and 2020, to give manufacturers the time they need to develop cleaner models and conduct emissions testing.
- Today’s final rule does not replace state or local requirements governing wood heater use: it ensures that consumers buying wood heaters anywhere in the United States in the future will be able to choose from cleaner-burning models. Wood heaters sold at retail in the U.S. will have to have a permanent label indicating they are certified to meet emission limits in the rule. This label, currently required for adjustable burn-rate woodstoves, will signal to consumers that the heaters meet EPA standards. The rule also requires efficiency and carbon monoxide testing and reporting, which will provide consumers additional information to help them select the best wood heater for their homes.
- EPA estimates the benefits of the requirements for new residential wood heaters at \$3.4 to \$7.6 billion annually, with costs estimated at \$46 million, meaning today’s rule will yield \$74 to \$165 in benefits for every dollar spent to comply. This includes the value of avoiding asthma attacks, non-fatal heart attacks, emergency room visits for asthma, lost work days, and premature deaths, among other effects.
- The projected benefits do not include the value of the carbon monoxide, VOCs, air toxics (including formaldehyde, benzene and polycyclic organic matter), and black carbon emissions that would be reduced along with PM emissions.

### ***Heaters not covered by the rule:***

- The final rule applies to newly manufactured heaters; it does not affect existing woodstoves and other wood-burning heaters currently in use in people's homes. It also does not apply to outdoor fireplaces, pizza ovens, fire pits, barbecues or chimineas, and it does not apply to new or existing heaters that are fueled solely by oil, gas or coal. In addition, the rule does not prohibit or restrict the use of any wood-burning appliances for residential heating.
- EPA has a number of tools available to help state and local governments address particle pollution from existing heaters, including "Strategies for Reducing Residential Wood Smoke." Issued by EPA's [Burn Wise](#) program, this comprehensive document covers options for local regulations, voluntary programs, funding mechanisms and best burn practices -- all of which can help reduce particle pollution from existing wood-burning appliances.
- The final rule also does not affect new indoor fireplaces. EPA did not propose emissions limits for fireplaces, because fireplaces generally are not effective heaters and thus are not subject to the rule. Fireplaces are included in an EPA voluntary program that encourages manufacturers to make cleaner-burning fireplaces and retrofits available for consumers.
- In addition, the final rule will not apply to masonry heaters, the majority of which are custom-built on site. EPA had proposed to set emissions limits for these heaters, but is not taking final action at this time to allow additional time for the development of emissions testing methods used to determine compliance. EPA will consider whether to finalize requirements for new masonry heaters in the future.

### ***Other changes since proposal***

- EPA received nearly 8,000 comments on the proposed rule and held a public hearing. Based on public input and additional data, the agency has made several changes in the final rule that will provide manufacturers time to transition to cleaner heaters, and allow retailers time to sell existing inventory. Many wood heater manufacturers are small businesses.
- For example, to allow manufacturers time to transition their model lines to cleaner wood heating technology and have emissions tested (a step required for certification), EPA is making the following changes in the final rule:
  - To give manufacturers of wood-burning **forced air furnaces** the time they need to develop cleaner models and have emissions tested, EPA is requiring work practice standards beginning on the effective date of the rule and is phasing in emissions limits in two steps based on furnace size between 2016 and 2020. Small furnaces will

have to meet the Step 1 emissions limit by 2016; large furnaces will have to meet it by 2017. All furnaces must meet the Step 2 emissions limit by 2020.

- EPA changed the Step 1 emissions cap (part of testing requirements) for **hydronic heaters** in the final rule to match the current requirements of the agency's voluntary Hydronic Heaters Program. This change will allow most models that are "Phase 2 qualified" under the voluntary program to be automatically certified as meeting the first emissions limit in the final rule, further reducing the potential for testing delays. This certification will be good until 2020, when the Step 2 emissions limit takes effect.
- To reduce potential certification delays, EPA will allow a conditional certification for up to one year for woodstoves, pellet stoves and forced air furnaces if a manufacturer submits a complete certification application that includes a full emissions test report by an EPA-accredited laboratory and that meets other application requirements.
- While woodstoves and hydronic heaters that are manufactured after the final rule becomes effective must meet the new emissions limits, today's final rule allows time for existing inventory to be sold. Woodstoves meeting requirements of EPA's 1988 rule and hydronic heaters may be sold through December 31, 2015.
- Based on public comment on the proposed rule and additional review, EPA has determined that the agency does not yet have sufficient data to require that emissions from woodstoves and hydronic heaters be tested using fires that burn cordwood (split wood). Instead, manufacturers will be required to test emissions using "cribs" – the same type of testing used for the 1988 wood stove standards. A crib consists of lumber assembled in a standardized configuration that is based on the type of heater being tested.
- EPA believes development of wood heaters that perform well in cordwood testing is important, because cordwood is what consumers use. The agency will allow cordwood testing for woodstoves and hydronic heaters with prior approval. In addition, to encourage further development of cordwood test methods, EPA is including an alternative Step 2 emissions limit based on cordwood testing for woodstoves and hydronic heaters. Based on data available to EPA at this time, the agency anticipates this alternative limit would be at least as stringent as the emissions limit for crib testing.
- Manufacturers may test using either cribs or cordwood in Step 2, and must meet the limit corresponding to the type of test they choose. (Manufacturers testing with cordwood for Step 1 must meet the same emissions limit as those testing using cribs.)

- Manufacturers choosing to test woodstoves or hydronic heaters with cordwood will be required to have EPA approval of the test method before they can use the alternative limit. Any manufacturer that tests wood heaters using cordwood will be allowed to use a special EPA label that will recognize that emissions from cordwood testing more closely reflect emissions from in-home use. Use of this label is voluntary.

***Cleaner, more efficient heaters will save fuel, improve public health protection***

- Wood smoke is made up of a mixture of gases and fine particles that are produced when wood and other organic matter burns. The particles in smoke – also called particle pollution or PM – can get deep into the lungs, harming the lungs, blood vessels and heart. People with heart, vascular or lung disease, older adults and children are the most at risk.
- In addition to the health benefits provided by the rule, wood heaters meeting the standards generally will be more efficient than older ones, meaning homeowners will be able to heat their homes using less wood.
- Homeowners will play an important role in ensuring new stoves and other heaters are as efficient and clean as possible, by operating heaters according to the manufacturer’s instructions. In many cases, not doing so could void the heater’s warranty.
- EPA’s Burn Wise program provides a wealth of information to help consumers ensure wood heaters burn as cleanly and efficiently as possible. For more information, visit: <http://www.epa.gov/burnwise/bestburn.html>

**BACKGROUND**

- The Clean Air Act requires EPA to set new source performance standards (NSPS) for categories of stationary sources of pollution that cause, or significantly contribute to, air pollution that may endanger public health or welfare. The law requires EPA to review these standards every eight years.
- EPA issued the first NSPS for residential wood heaters in 1988. The agency amended the standards once – in 1998 – to prohibit the sale of wood heaters to consumers if the manufacturer had used an invalid test to obtain EPA certification that the heater met NSPS requirements. The 1998 amendments did not change the emission limits in the original rule.
- EPA conducted extensive public outreach as it developed the 2013 proposed rule, seeking input from numerous wood heater manufacturers, state, local and tribal governments,

regional air quality agencies, and citizen and environmental groups. The agency also participated in a Small Business Advocacy Review Panel to seek input and advice as it developed the proposed rule.

- EPA issued the proposed rule January 3, 2014. On April 28, 2014, the agency finalized a consent agreement with a group of states and environmental organizations that required EPA to sign a final rule by February 3, 2015.
- On July 14, 2014, the agency issued a Notice of Data Availability seeking comment on additional information regarding residential wood heater testing using cordwood and emissions by burn rate excerpted from EPA certification test reports.

#### **FOR MORE INFORMATION**

- Today's proposed rule and additional background information is available at: <http://www2.epa.gov/residential-wood-heaters> .