**ENVIRONMENTAL PROTECTION AGENCY**

**Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces, and New Residential Masonry Heaters**

ACTION:Proposed rule.

SUMMARY:The EPA is proposing to amend the Standards of Performance for New Residential Wood Heaters and to add two new subparts: Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces and Standards of Performance for New Residential Masonry Heaters. This proposal is aimed at achieving several objectives for new residential wood heaters and other wood-burning appliances, including applying updated emission limits that reflect the current best systems of emission reduction; eliminating exemptions over a broad suite of residential wood combustion devices; strengthening test methods as appropriate; and streamlining the certification process.This proposal does not include any requirements for heaters solely fired by gas, oil or coal. In addition, it does not include any requirements associated with appliances that are already in use. The EPA continues to encourage state, local, tribal, and

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consumer efforts to changeout (replace) older heaters with newer, cleaner, more efficient heaters, but that is not part of this federal rulemaking.

Particulate pollution from wood heaters is a significant national air pollution problem and human health issue. Health benefits associated with these proposed regulations are valued to be much greater than the cost to manufacture cleaner, lower emitting appliances. These proposed regulations would significantly reduce particulate matter (PM) emissions and many other pollutants from these appliances, including carbon monoxide (CO), volatile organic compounds (VOC), and hazardous air pollutants (HAP). Emissions from wood stoves occur near ground level in residential communities across the country, and setting these new requirements for cleaner stoves into the future will result in substantial reductions in exposure and improved public health.

DATES:Comments must be received on or before [INSERT DATE 90 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of having full effect if the Office of Management and Budget (OMB) receives a copy of your comments on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

*Public Hearing*. The EPA will hold a public hearing on this proposed rule on February 26, 2014, in Boston, Massachusetts.

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[for more details on Public Hearing see page 3 of original document]

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I. General Information

*A. Executive Summary*

1. Purpose of the Regulatory Action

The purpose of this actionis to propose amendments to the Standards of Performance for New Residential Wood Heaters (40 CFR part 60, subpart AAA) and to addtwonew subparts: Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces andStandards of Performance for New Residential Masonry Heaters (40 CFR part 60, subpartsQQQQ andRRRR)**.** This proposal was developed following a Clean Air Act (CAA) section 111(b)(1)(B) periodic review of the current residential wood heaters new source performance standards (NSPS). We concur with numerous stakeholders that the current body of evidence justifies revision of the current residential wood heaters NSPS to capture the improvements in performance of such units and to expand the applicability of this NSPS to include additional wood-burning residential heating devices that are in the market. The proposed changes are aimed at achieving several objectives, including applying updated emission limits that reflect the current best systems of emission reduction (BSER); eliminating exemptions over a broad suite of residential wood combustion devices; strengthening test methods as appropriate; and streamlining the certification process. This proposal does not include any requirements for heaters solely fired by gas, oil or coal. In addition, it does not include any requirements associated with wood heaters or other wood-burning appliances that are already in use. The EPA continues to encourage state, local, tribal, and consumer efforts

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to changeout (replace) older heaters with newer, cleaner, more efficient heaters, but that is not part of this federal rulemaking.

These revisions will help reduce the health impacts of fine particle pollution, of which wood smoke is a contributing factor in many areas. Residential wood smoke contains fine particles with an aerodynamic diameter of 2.5 micrometers or less (PM2.5), CO, toxic air pollutants (*e.g.*, benzene and formaldehyde), and climate-forcing emissions (e.g., methane and black carbon). Residential wood smoke can increase PM2.5 to levels that cause significant health concerns. Populations that are at greater risk for experiencing health effects related to fine particle exposures include older adults, children and individuals with pre-existing heart or lung disease. Each year, smoke from wood heaters contributes hundreds of thousands of tons of fine particles throughout the country – mostly during the winter months. Nationally, residential wood combustion accounts for 44 percent of total stationary and mobile polycyclic organic matter (POM) emissions, nearly 25 percent of all area source air toxics cancer risks and 15 percent of noncancer respiratory effects.1 Residential wood smoke causes many counties in the U.S. to either exceed the EPA’s health-based national ambient air quality standards (NAAQS) for fine particles or places them on the cusp of exceeding those standards.2 To the degree that older, higher emitting, less efficient wood heaters are replaced by newer heaters that meet

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the requirements of this rule, or better, the emissions would be reduced, the efficiencies would be increased and fewer health impacts should occur.

This action is conducted under the authority of section 111 of the CAA, "Standards of Performance for New Stationary Sources," under which the EPA establishes federal standards of performance for new sources within source categories that cause or contribute significantly to air pollution, which may reasonably be anticipated to endanger public health or welfare. Consistent with section 111(h), if it is not feasible to prescribe or enforce a standard of performance, the Administrator may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, that reflects the best system of continuous emission reduction, which (taking into consideration the cost of achieving such emission reduction, and any non-air quality, health, and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

2. Summary of the Major Provisions of this Proposed Regulatory Action

In response to the results of the NSPS review, we are proposing to amend 40 CFR part 60, subpart AAA, Standards of Performance for New Residential Wood Heaters. The current regulation applies to affected appliances manufactured after 1988. The current emission limits would remain in effect for the heaters and model lines manufactured before the effective date of this rule until their current EPA certification expires (maximum of 5 years) or is revoked. After the certification expires or is revoked, these heaters and other new heaters would have to meet updated emission standards. We propose to broaden the applicability of the regulation beyond adjustable burn rate wood

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heaters (the focus of the original regulation), to specifically include all single burn rate wood heaters/stoves and pellet heaters/stoves. (Some pellet heaters/stoves were not affected by the 1988 regulation.) Note that this preamble uses the following terms interchangeably: heaters, stoves and heaters/stoves. Heaters/stoves and model lines manufactured after the effective date of the rule would be required to meet PM standards.

As with the 1988 regulation, the source category covered by this NSPS is fundamentally different from the typical NSPS source category in several ways. For example, most NSPS source categories focus on industrial or commercial facilities, and typically these heaters are installed and operated in residences, not industrial or commercial facilities. Also, residential wood heaters, hydronic heaters, forced-air furnaces, and most masonry heaters are mass-produced consumer items, rather than industrial processes typically regulated by NSPS. Therefore, as in 1988, we are proposing that manufacturers participate in a certification program that tests a representative heater per model line rather than requiring testing each heater. If the representative heater meets the applicable emission limits, the entire model line may be certified and the manufacturer would not be required to test every heater. Individual heaters within the model line would still be subject to all other requirements, including labeling and operational requirements. Manufacturers would be required to have quality assurance programs to ensure that all heaters within the model line conform to the certified design and meet the applicable emission limits. The EPA would continue to have the authority to conduct audits to ensure compliance. We ask for comments on all aspects of this

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approach, especially whether more than one representative heater should be tested prior to certification of the model line.

The 1988 regulation also addressed some of the specific characteristics of this source category by developing a two-step compliance approach that provided a reasonable, phased implementation of emission limits for manufacturers. We believe such an approach is prudent this time also to allow manufacturers lead time to develop, test, field evaluate and certify current technologies across their consumer product lines. In 1988, there were “logjam” concerns about the capacity of accredited laboratories to conduct certifications tests and time for the EPA to review the tests and adequately assure compliance if all the NSPS requirements were to be immediate. Those concerns have been expressed this time also. Thus, upon the effective date of this rule, new heaters/stoves would be required to meet Step 1. Five years later, new heaters/stoves would be required to meet Step 2. The rule also would require that each unit be equipped with a permanent NSPS label. The two-step approach would apply to all the heater types addressed in this rulemaking except for masonry heaters. For masonry heaters, we are not proposing a second more stringent emission limit.

Additional requirements would apply to entities other than the manufacturer. The wood heater test laboratory would be subject to quality assurance requirements. The rule would continue to require the proper burn practices that currently apply to the owner or operator of a wood heating appliance. In addition, new pellet heater/stove owners and operators would be required to use only the grade of licensed pellet fuels that are included in the heater/stove certification tests, or better. We are proposing to streamline

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the current enforcement and audit provisions of the current subpart to reflect changes in industry practices and development of new tools and procedures. We are proposing improvements to the previous test methods as well as new test methods.

We are also proposing new subpart QQQQ, which would apply to new wood- fired residential hydronic heaters and forced-air furnaces, and new subpart RRRR, which would apply to new residential masonry heaters. These new subparts are being proposed to address the remaining heater appliance types in the 1987 residential wood heater source category listing that were not regulated by the 1988 NSPS. Both subparts are designed using principles similar to those in subpart AAA, *i.e.*, certification testing of a representative unit in a model line, label requirements, associated quality assurance requirements and phased implementation. Subpart RRRR has some additional features to address very small volume manufacturers, including a proposed compliance extension and the ability to use a software certification approach rather than a laboratory emission test.

The proposed PM standards for subparts QQQQ and RRRR would be implemented in two steps. For subpart QQQQ, upon the effective date of the rule, hydronic heaters would be required to meet a Step 1 PM limit of 0.32 pound per million British thermal unit (lb/MMBtu) output and forced-air furnaces would be required to meet a Step 1 PM limit of 0.93 lb/MMBtu heat output. Five years after the effective date of the rule, both hydronic heaters and forced-air furnaces would be required to meet a Step 2 PM limit of 0.06 lb/MMBtu heat output. For subpart RRRR (masonry heaters), upon the effective date of the rule, large manufacturers (defined as manufacturers

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constructing greater than or equal to 15 masonry heaters per year) would be required to meet a PM limit of 0.32 lb/MMBtu heat output. Five years after the effective date of the rule, small volume masonry heater manufacturers (defined as manufacturers constructing less than 15 masonry heaters per year) would be required to meet the 0.32 lb/MMBtu heat output PM limit.

3. Costs and Benefits

Total Annualized Cost for Masonry Heaters : $300,000

[see page 14 & 15 in original as the table comes distorted when copied]

**II. Background**

*(…)*

*D. What are the major developments since the original NSPS was published?*

*(…)*

Many stakeholders have expressed concern to the EPA about a broad range of residential wood heating appliances that do not have emission standards in the current 1988 NSPS. These include single burn rate wood heaters; pellet heaters/stoves that are not subject to the current standard via the NSPS air-to-fuel ratio; wood “boilers” (hydronic heaters); forced-air furnaces; and masonry heaters. Some stakeholders have also expressed an interest in regulating non-“heater” devices, such as indoor and outdoor fireplaces, fire pits, cook stoves and pizza ovens.

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*(…)*

The current 1988 NSPS in subpart AAA have been in effect for over 25 years and manufacturers and test laboratories have gained considerable experience in complying with the requirements of the program. As a result, many manufacturers and test laboratories have suggested changes to the certification process to better implement the program, such as developing an electronic system for submittals and approval. Many manufacturers and test laboratories have also questioned the effectiveness of some of the current audit procedures. In addition, they have participated in the development of new

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test methods and test method improvements as part of the efforts of ASTM International (formerly known as the American Society of Testing and Materials). The 1988 NSPS left a placeholder for development of an efficiency test method for use in subpart AAA. On June 1, 2007, the EPA approved the Canadian Standards Association (CSA) stack loss method in B415 as an alternative for wood heater efficiency testing in subpart AAA provided that the tests use the same burn rate categories specified in the EPA Reference Method 28. We are now proposing that the current version of this method be used for efficiency testing (CSA B415.1-10). We are also proposing EPA Method 28 WHH (wood-fired hydronic heaters) that has been used for qualification testing of hydronic heaters in the EPA voluntary partnership program and numerous state regulations. Other issues that have been identified over the years regarding test methods and emissions calculations include emissions averaging, burn rate weightings, hot start versus cold start, emission caps per burn rate, and catalyst degradation. Another issue is whether to change current requirements to conduct certification tests with “crib” wood to “cord” wood. “Crib wood” is a specified configuration and quality of dimensional lumber and spacers, which was intended to improve the repeatability of the test method in 1988. “Cord wood” is a different specified configuration and quality of wood that more closely resembles what a typical homeowner would use. We address all these issues as part of this proposal.

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III. Summary of Proposed Residential Wood Heater Appliance Amendments

*C. Masonry Heaters*

The proposed subpart RRRR would apply to new residential masonry heaters. The provisions apply to each affected unit that is manufactured on or after **[INSERT DATE 60 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER]**. We are proposing that, as of the effective date of the final rule, no person would manufacture or sell a residential masonry heater that does not meet the proposed emission limit of 0.32 lb of PM per MMBtu heat output. We are also proposing a 5-year small volume manufacturer compliance extension that would apply to companies that construct fewer than 15 masonry heaters per year. See section V.C. of this preamble for

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more discussion of compliance date related issues. We request specific comments on the degree to which these dates can be sooner. As in the case of subpart AAA and subpart QQQQ, we are proposing requirements that would apply to the operator of the masonry heater, including a provision to operate the unit in compliance with the owner’s manual; a prohibition on use of certain fuels; and a requirement to use licensed wood pellets or equivalent, if applicable. We are not proposing efficiency or CO standards for new residential masonry heaters at this time because sufficient data are not yet available to support the basis for such standards.

The EPA is proposing to rely on ASTM method E2817-11 for masonry heaters. The laboratories, some states and the masonry heater industry worked for years on drafts of this method that has its roots in earlier regulatory efforts in Colorado. The EPA has participated in the discussions from time to time over the years and has provided comments and suggestions. The current ASTM methods are ASTM E2817-11 “Standard Test Method for Test Fueling Masonry Heaters” and the draft work product ASTM WK26558 “Specification for Calculation Method for Custom Designed, Site-built Masonry Heaters.” (http://www.astm.org/DATABASE.CART/WORKITEMS/WK26558.htm.) We propose that they be used for this rulemaking. We request specific comments on these methods and any changes that should be considered and supporting data for those changes. We request specific comments and supporting emission test data on the use of “Annex A1. Cordwood Fuel” and “Annex A2. Cribwood Fueling.” ASTM is allowing public review,

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for no charge, of the ASTM test methods and draft work products relevant to this rule at www.astm.org/epa.

As an alternative to testing, we are proposing that manufacturers of masonry heaters may choose to submit a computer model simulation program, such as ASTM WK 26558 noted above, for the EPA’s review and approval. Masonry heater manufacturers and laboratories developed computer simulations as a way to encourage good designs without having to conduct emission tests for slight variations, especially because there are so few masonry heaters built every year per manufacturer. Since these units are built on-site, it is not easy to test each of them. These units are typically cleaner than pre-NSPS certified wood stoves. Considering all of these factors, we believe a simple computer simulation showing how new models would perform may be all that is necessary for many of these models.

The structure of the rest of the proposed new subpart RRRR is similar to the proposed subpart AAA certification and quality assurance process and contains similar requirements for labels, owner’s manual, etc. One difference, however, is that for small custom unit manufacturers, we are requiring less stringent quality control (QC) procedures. Specifically, we are proposing that the initial certification for these custom units is sufficient and that no further QC is necessary since each unit is a unique model and subject to certification. We request comment on changes or improvements that might be needed to address special concerns related to certification of masonry heaters.

**IV. Summary of Environmental, Cost, Economic, and Non-Air Health and Energy Impacts**

*(…)*

*A.What are the air quality impacts?*

*(…)*

Table 7 is a summary of the average emissions reductions over years 2014 through 2022 resulting from implementing the proposed NSPS compared to baseline conditions (for the years analyzed in the RIA). Note that we do not have national emission impacts from masonry heaters because they are not included in the RWC emission estimation tool. Because of the relatively high cost of emission testing versus the current small number of masonry heaters sold per manufacturer, and in total, there are few emission test data from masonry heater manufacturers and laboratories. Based on the limited data we have, we believe that nationwide emissions from masonry heaters are relatively low, given the low number of sales. Thus, we also believe that the total emission reductions from masonry heaters will be relatively low. However, the limited data we have do show that the emission reductions could be significant for some models

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that do not follow current best designs, perhaps as high as 70 percent for some designs. We do not know how many of these typically custom-made heaters already use best practice designs versus other designs and thus we do not have nationwide estimates of baseline emissions. We ask for comments and data to help us prepare emission estimates.

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*(…)*

C. *What are the cost impacts*?

In analyzing the potential cost impacts of the proposed NSPS, we considered two types of impacts. The first was the impact to the manufacturer to comply with the proposed standards. The second was the increase in price of the affected unit. In both of these cases, we considered the same input variables: R&D cost to develop and certify complying model lines, certification costs (where these are separate from R&D), reporting and recordkeeping costs, numbers of shipments of each appliance category (modified, from Frost & Sullivan report), number of manufacturers, and number of models per manufacturer. This section of the preamble contains a summary of these costs. For more detailed information, see the manufacturer cost impact memo34 and unit cost memo35 in the docket. Unless otherwise specified, all costs are in 2010 dollars.

To develop average R&D costs, we reviewed information provided by manufacturers. Based on this information, we estimated 36 average costs to develop a new model line, including testing, of $356,250 for certified wood heaters and pellet heaters/stoves. We also assumed $356,250 for single burn rate wood heaters, which may be high if currently available units can meet the standards without significant modifications as some manufacturers have suggested. We also assumed development costs for forced-air furnaces and hydronic heaters of $356,250. Finally, we also assumed development costs of $356,250 for the masonry heaters. The estimates of the cost of R&D are crucial to our estimates of overall costs and economic impacts and greatly

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influence our decisions on BSER, implementation lead times and small volume provisions. Thus, we request specific comments on these estimates, including whether they should be reduced and thus allow greater emission reductions sooner.

We annualized the R&D costs over 6 years, applied the NSPS implementation assumptions, and estimated the average manufacturing cost per model line per manufacturer. Under the proposed rules, pellet heaters/stoves will only face certification (testing) costs (no R&D should be required), so we estimated certification costs of $10,000 per model line. Similarly, many masonry heater model lines that would comply with the proposed standards have already been developed. These manufacturers would also face certification costs of $10,000 per model line. We estimated post R&D period certification costs for hydronic heaters and forced-air furnaces at $20,000 per model line.

The masonry heater compliance costs included implementation of a software package based on a European masonry heater design standard. This software has been verified in the laboratory and under field conditions to produce masonry heaters that would meet the proposed NSPS emission limits. The cost of this software to the user is approximately $1,500 for the package with an approximately $450 annual fee that commences in the second year following purchase. In addition, we believe that some manufacturers will use this approach to demonstrate that “similar” model designs meet the proposed emissions standards.

The estimate of the number of model types was derived from information provided by HPBA, individual manufacturers, and Internet searches of product offerings. For numbers of manufacturers, we started with HPBA data and modified the dataset based on Internet searches of manufacturers of the major appliance types. Table 9 is a

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summary of the nationwide average annual NSPS-related cost increases to manufacturers. The average annual cost increases are presented over the 2014 to 2022 period consistent with the years analyzed in the RIA,37 as well as over the 2013 to 2038 period. The 2013 to 2038 period encompasses the first year of estimated NSPS-related costs (2013 since some companies have already started in anticipation of the NSPS) through the life span of models designed to meet the NSPS, as explained further below and in our background analyses.38

Table 9. Summary of Nationwide Average Annual Cost Increases (2010$)

Appliance Type 2014-2022 Period 2013-2038 Period

Wood Heaters $4,212,303 $1,749,726

Single Burn Rate Heaters $901,732 $456,316

Pellet Heaters/Stoves $3,460,489 $1,702,796

Forced-Air Furnaces $2,252,284 $1,171,222

Hydronic Heating Systems $4,554,152 $2,221,551

Masonry Heaters $307,511 $228,896

Total Average Annual Cost $15,688,471 $7,530,507

To develop estimates of potential unit cost increases, we used major variables including the estimated number of units shipped per year, the costs to develop new models, baseline costs of models, and the schedule by which the proposed revised NSPS would be implemented. Both the number of shipped units and the baseline costs of models were based on data from the Frost & Sullivan report with modifications to address additional appliances or subsets of appliances. The 20-year model design life

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span and 20-year use/emitting appliance life span are based on actual historical design certification and heater use data. That is, the data show that many models developed for the current 1988 NSPS are still being sold (after 25 years), many “new” models still have the same internal working parts with merely exterior cosmetic changes, and most residential wood heaters in consumer homes emit for at least 20 years and often much longer. Therefore, our analysis tracks shipments and costs through year 2038 (*i.e.*, 19 years after a model designed to meet the NSPS Step 2 emission limits expected to be implemented in 2020 has completed development and is shipped). Finally, we also estimated the potential additional manufacturing costs to make NSPS complying models. These expenses result from the use of more expensive structural materials, components to enhance good combustion, etc. We estimated the following additional manufacturer price increases per unit based on appliance type:

 Certified wood heaters and pellet heaters/stoves represent a well-developed technology, and we could not identify price differences between models due solely to lower emission levels compared to models with higher emission levels. Rather, price differences are more closely related to cosmetic differences and output. Therefore, we have assumed no additional manufacturing costs.

 One manufacturer estimated that it will cost an average of $100 more to manufacture a lower emitting single burn rate product.

 We have seen a range of estimates for additional price increases for manufacture of a cleaner hydronic heater, with an average being approximately $3,000 (as compared to a typical pre-regulation sales price of $7,500).

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 We estimate that the additional price increases to manufacture a certified forced-air furnace will be comparable to the price increases for manufacturing certified hydronic heaters, *i.e.*, $3,000 (as compared to a typical pre-regulation price of $900).

Our next step was to develop the following incremental cost formula: Cost of R&D multiplied by number of units shipped per year divided by number of models multiplied by model life equals the incremental cost of developing a new unit, spread over the number of units expected to be sold during the model life. In developing this calculation, we included the concept that the R&D costs per model line are recovered in the sales price of future models, which means that the more units that are sold or the longer the model life, the lower the incremental cost per unit. For our unit cost analysis, we assumed a flat growth rate in shipments – that is, we assumed future shipments over the 20 years of model design life would be equal to the shipments estimated in the first NSPS compliance year. We did not assume lower sales due to market competition with other wood heaters or non-wood heaters. We did not assume lower projected sales for increased prices because of the uncertainty of other demand factors. Where there are additional manufacturing costs as discussed above, we added these to the unit cost number. Table 10 is a summary of the baseline unit costs, NSPS unit costs, and incremental cost increase.

Table 10. Summary of Unit Cost Impacts (2010 $)

Appliance Type Baseline Post-NSPS Incremental Increase

Certified Wood Heaters $859 $883 $24

Single Burn Rate Heaters $253 $479 $226

Pellet Heaters/Stoves $1,295 $1,319 $24

Forced-Air Furnaces $912 $4,174 $3,262

Masonry Heaters $9,157 $9,245 - $9,997 $88 - $840

Hydronic Heating Systems $7,528 $13,986 $6,458

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We request specific comments on these estimates, which significantly affect the estimates of costs per model lines and per unit sold and potential changes in sales and, thus, affect decisions on the affordability of candidate BSER. For example, if the number of model lines was less and the number of heaters per model line was greater, then the cost per unit sold would be less and more stringent options for BSER could potentially be implemented sooner.

**V. Rationale for Proposed Amendments**

*A. Why are we proposing to expand the scope of appliances subject to the NSPS?*

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As described in section II, the EPA has had ongoing discussions with many stakeholders regarding the need to expand the scope of the current residential wood heater regulation. Stakeholders described adverse health and environmental impacts arising from the increasing use of some appliances, actions taken at the state and local levels to address such concerns, and growth in types and numbers of appliances that are currently on the market. Numerous states (*e.g.,* Vermont, New York, Maine, Michigan, Minnesota) have indicated to us that individuals’ concerns about smoke from residential wood burning, particularly by hydronic heaters, are the top source of environmental complaints. In the case of masonry heaters, we believe EPA certification of these typically cleaner devices, would allow them to be excellent emission reduction alternatives to replace pre-NSPS wood heaters and be a good consumer alternative in parts of the country that currently ban uncertified appliances (contingent upon approval by the local jurisdiction). We also saw a need to address the residential heating market in a way that recognizes that some heaters and fuels are substitutes for each other. Regulating only one type of heater may result in unintended incentives for consumers to favor purchase and use of unregulated and potentially higher emitting devices. We felt a comprehensive assessment was needed. Therefore, as part of the NSPS review process, we evaluated a wide range of residential biomass heating devices and non-heating devices (such as cook stoves and fireplaces) to determine what expansions in scope might be needed.39

*(…)*

*B. How did we determine BSER and the proposed emission standards?*

As discussed earlier in this preamble, the proposed subparts AAA, QQQQ, and RRRR recognize that the sources covered by these subparts are fundamentally different from the typical NSPS source category in that residential wood heaters are mass- produced residential consumer products whereas most NSPS regulate industrial processes. Discussions in sections V.B.1 through V.B.4 of this preamble focus on the analysis of PM emission reductions under our proposed two-step phased-in standards for each appliance type affected by this proposal. In general, for this rulemaking, we have determined that the proposed first step represents the emission levels that almost all models can readily achieve now using today’s designs and technology. Further, we have determined that the proposed second step represents stronger emission levels achievable for all appliance types at reasonable cost, but allows appropriate lead times for manufacturers to redesign their model lines to accommodate the improved technology across multiple model lines and test, field evaluate, and certify the new model lines. See section V.B.5 for a discussion of the Alternative Approach we considered to reduce PM

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emissions based on three-step phased-in standards, under which the strongest emission standard would be 8 years after the effective date of the final rule rather than the proposed 5 years. Section V.B.6 discusses other provisions we considered and for which we request additional data and information from commenters.

For these source categories, our BSER determination rests on: (1) the achievability of the proposed emission levels (*i.e.*, the fact that top-performing models for each appliance type are already achieving the proposed emission levels); and (2) the cost effectiveness of the proposed standards when considering the design life span and the emitting life span of the appliances in residences. The net monetized benefits of the proposal far exceed the costs for all options considered. Realistic model design and appliance emitting life span assumptions are essential components for a meaningful cost effectiveness analysis. As explained above in section IV.C. and in our background documentation,40 a model design life span of 20 years is supported by the historical data that show that the non-cosmetic aspects of wood heaters designed to meet the 1988 NSPS are still being used today in some model lines. While some manufacturers may choose to make more frequent cosmetic changes to their models, the internal design changes a manufacturer must make to a wood heater model line to comply with the NSPS are longer lasting. Furthermore, once installed in consumer homes, wood heaters emit for at least 20 years and many are operated in residences for much longer time periods (a key fact motivating wood heater/stove changeout programs). Once purchased, consumers tend to only replace appliances when they no longer serve their functional purpose. Wood heaters tend to serve the basic function of producing heat for well over 20 years. Table 11

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presents our estimated cumulative costs, PM2.5 emission reductions, and associated cost per ton for our proposed limits, based on a model design life span of 20 years and an appliance emitting life span of 20 years.

For all of the standards proposed in this *Federal Register* notice, the EPA invites specific comments on the data and analyses on which we base the proposed standards. Moreover, the EPA invites specific comments that provide additional data and analyses that would support a different standard. Interested persons should note that the EPA will consider promulgating a more stringent or less stringent standard than what we are proposing for any of these categories, if the record contains data or analyses that support a different standard.

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Table 11. Cost Effectiveness of PM2.5 Emission Reductions of Proposed Standards and Emission Co-Reductions based on Cumulative Analysis (2013-2057)4

See table in original document

\*Note: Masonry Heaters are not included in this analysis because representative

emission tons per appliance could not be determined.

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3. Masonry Heaters

We are proposing subpart RRRR for new masonry heaters. With a few exceptions, masonry heater emissions are not subject to specific PM emission limits in North America or Europe. Some states and local areas do not allow any residential wood heaters that are not certified to meet the current residential wood heater NSPS. The states of Colorado and Washington have set 6 grams of particles emitted per kilogram of wood burned (g/kg) and 7.3 g/kg limits, respectively (each of which is based on different test

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methods), and a small number of appliances have been tested and certified for those states. (The BSER level we are proposing below uses a different format but is commonly accepted to be only slightly more stringent than the Colorado and Washington limits.) We considered various forms for a masonry heater standard, and we believe that an appropriate format could be a daily average g/hr limit for the heating cycle coupled with a limit for emissions per heat output (lb/MMBtu output). The daily average over the heating cycle format seems to be well adapted to the nature of the technology of masonry heater operation, which involves one or two short high burn rate cycles where hot gases are generated during combustion of a fuel load in the firebox and then pass through the channels, saturating the masonry mass with heat. The masonry mass then radiates heat into the area around the masonry heater for 12 to 24 hours. Unfortunately, we lack sufficient data to set the level of a daily average data approach, so we are proposing instead a heat output format. The heat output format has the advantage of providing a good metric for consumers and regulatory agencies to compare emissions of competing residential heating appliances for an equivalent heat output. We ask for specific comments on whether a g/kg format would be better.

We had numerous discussions with states, masonry heater manufacturers, and laboratories on heater designs, test methods and heater emissions and performance. The best performing improved combustion technology masonry heaters have well-engineered designs with long channels to maximize complete combustion and heat transfer. The manufacturers provided all available current emissions data. For example, one manufacturer provided an archive of available data. The data set included results from 31 tests (measuring emissions per heat output) that ranged from 0.07 g/MJ to 0.51 g/MJ

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(~0.17 to 1.22 lb/MMBtu), with an average rate of 0.26 g/MJ (0.621 lb/MMBtu). As we discussed earlier in this preamble, we do not have good information on how many heaters emit at each of these levels and thus have not developed a good estimate of baseline emissions and we ask for data that would help inform us. However, looking at this data set in more detail, we can see that the best “improved combustion” systems have an emission level of 0.13 g/MJ (0.32 lb/MMBtu) heat output. We note that this level is consistent with the proposed Step 1 BSER for hydronic heaters.

As discussed earlier in this preamble, the source categories to be regulated by the proposed subparts AAA, QQQQ, and RRRR are fundamentally different from the typical NSPS source category in that most NSPS regulate industrial processes whereas the source categories in subparts AAA, QQQQ, and RRRR include mass-produced residential consumer products. Thus, additional factors are included in the analyses presented today as compared to typical NSPS. For example, we considered whether we should allow longer lead time over which small manufacturers/builders could spread their R&D costs in order to stay in business. The Small Business Regulatory Enforcement Act Panel strongly recommended that we consider allowing more time. See section V.C of this preamble for discussion of this topic.

We estimated proposed Step 1 improved combustion BSER emissions and cost and economic impacts based on four groups of costs. The first group of costs consisted of the two large manufacturers that we know have already developed potentially complying models and would only face the costs of certification tests. For the second group of costs, we estimated the costs incurred by an additional two large manufacturers that conduct R&D to develop a total of four new model lines. For the third group of costs, we

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estimated the cost of one of the manufacturers using the computer simulation approach to certify additional model lines. Finally, for the fourth group of costs, we estimated the cost for all of the small, custom-built manufacturers using the computer simulation approach to certify their model lines. We do not anticipate a large nationwide emission reduction resulting from requiring the proposed Step 1 BSER versus what most manufacturers would have done in the absence of a rule; however we believe there are some masonry heaters that do not use current best designs and for those heaters there can be an emission reduction of 70 percent or more. We believe it is important to ensure that all new models achieve the BSER emission levels and avoid backsliding.

The nationwide annualized total costs are based on the cost assumptions explained in section IV.C and in the background documentation.62 The average annual cost increase to manufacturers of masonry heaters during the 2014 through 2022 period analyzed in the RIA is approximately $294,000. The estimated cost-to-sales ratio is 4.8 percent. If one were to spread the costs over the much longer typical lifetimes of masonry heaters (over 40 years), the average annual costs would be much lower. We concluded that the proposed Step 1 BSER level of 0.32 lb/MMBtu heat output is appropriate for these appliances.

For masonry heaters, we are proposing that large manufacturers of masonry heaters (defined as those manufacturers constructing 15 or more masonry heaters per year) would be required to comply with these standards upon the effective date of the final rule. We are proposing that small manufacturers (defined as those manufacturers of less than 15 masonry heaters per year) would be required to comply with these standards

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5 years after the effective date of the final rule. We are requesting specific comments on the proposed BSER option and data that might support alternative findings and enhance our impact analyses. For example, if we were to develop a g/hr average format in addition to the lb/MMBtu heat output format, are there products that might meet a daily average over the heating period versus the averaging only over the combustion period, and if so, how would this affect levels of performance and impacts on the environment? Further, we are seeking comment on the degree to which these dates could be sooner.

4. Alternative Approach for Comment

As noted in section III, in addition to the proposed two-step standards described above for appliances regulated as “room heaters” under subpart AAA (currently catalytic and noncatalytic adjustable burn rate wood heaters, single burn rate wood heaters, and pellet heaters/stoves) and for appliances regulated as “central heaters” under subpart QQQQ (currently hydronic heaters and forced-air furnaces), we also considered a different approach, an “alternative three-step approach” for subparts AAA and QQQQ. We seek comments on whether the final rule should be our (preferred) proposed two-step approach or whether the final rule should be this alternative three-step approach. We do not intend for the final rule to allow a choice between the two approaches. We did not develop a three-step approach for masonry heaters under subpart RRRR, since it is a one- emission-level standard, but we are seeking comments on our proposed 5-year compliance extension for small volume masonry heater manufacturers.

*C. How did we establish the proposed compliance timelines?*

The following table summarizes the proposed compliance timelines for the appliances covered by the three subparts.

Table 13. Summary of Proposed Compliance Dates

Appliance Type Compliance Date

*(…)*

Masonry Heaters Large manufacturers: Upon the effective date of the final rule for large manufacturers

Small manufacturers: 5 years after the effective date of the final rule

*(…)*

We allowed small producers of masonry heaters that do not have a history of federal or extensive state regulation, or experience with voluntary partnership programs, 5 years after the effective date of the final rule to come into compliance with the same emission standards as larger masonry heater manufacturers in order to ensure a reasonable lead-time.

Finally, we think our proposal for a 6-year lead time before the Step 2 BSER limits (*i.e.*, 5 years after the effective date of the final rule) would allow manufacturers a reasonable time to develop complying models, access the necessary capital to develop them, and complete the certification process.

We are proposing a 6-month “sold at retail” provision for adjustable burn rate wood heaters, single burn rate heaters/stoves, and pellet heaters/stoves that were manufactured prior to the effective date of the final rule, but not yet sold. This “sold at retail” provision is similar to that provided in the current subpart AAA, and provides a reasonable transition for manufacturers to recoup their investment in their stock on hand. We believe this provision would have a nominal impact on air quality, because the majority of these appliances are already expected to achieve the Step 1 emission limits. For small producers of masonry heaters, we are proposing an additional 5-year lead-time. We are not proposing to apply these extensions to other sources regulated by this proposal. We do not believe that an additional “sold at retail” provision is needed for outdoor and indoor hydronic heaters and forced-air furnaces. In the case of hydronic

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heaters, we believe that any delay of the compliance deadline for sales would also result in the sale and long-term use of non-complying units, with a potentially adverse quality impact. We request specific comments on whether there are other factors we should consider regarding this “sold at retail” window and what length of time might be considered appropriate in specific circumstances.

While the original subpart AAA created a 1-year compliance extension for wood heater manufacturers producing less than 2,000 heaters per year, this proposed rule does not include a compliance extension provision for single burn rate heaters. The purpose of the original NSPS compliance date extension was to reduce the potential for a testing logjam and to provide small manufacturers additional time to conduct R&D, obtain financing, or purchase complying designs likely to meet the proposed standards. We believe that manufacturers and testing facilities have now had sufficient time and have gained the expertise necessary to meet these standards as proposed and that meeting the proposed compliance dates will impose no undue imposition on manufacturers or testing facilities. We request comment on the need for such a compliance extension and the number of models that might qualify as a small single burn rate heater manufacturer.

As stated above, we are proposing a 5-year compliance date extension for masonry heater manufacturers that sell fewer than 15 units per year. We also seek comments on whether we should have a cap on the total units sold in the 5 years, perhaps 50 units. Most of these manufacturers are very small companies. There are only a few major producers. According to one manufacturer, the Finnish firm, Tulikivi, manufactures and supplies about one-half of the U.S. masonry heater units installed yearly through its network of installing distributors. The second largest producer is a

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Canadian firm, Temp-Cast, which manufactures and exports a large percentage of the remainder as internal core components only to U.S. dealer/installers and homeowners. This manufacturer states that the remainder of the industry is dozens of small producers and installers who produce only a few units, most of which are custom and individually designed. This manufacturer also stated that over 80 percent of U.S. masonry heater installations use manufactured core product installation and are not custom site built (brick-by-brick).

Because of the resources required to develop, test, and certify masonry heaters (estimated by industry to be approximately $250,000 per model, although our cost analysis used a larger estimate), we have concluded that a manufacturer of a small number of custom site-built model(s) of masonry heaters would likely be unable to recover the total cost of R&D and certification testing costs in a reasonable timeframe. Similarly, a company that makes core components or sells design kits would be unable to recover total costs if only a few such components or kits are sold per year. We estimated that the annualized cost for developing, testing and certifying a single model is approximately $60,000, most of which is the cost of R&D. If a seller makes $5,000 of profit on each model sold, he or she would need to sell 12 units per year to break even. The masonry heater industry recognized concerns about these costs, and it has developed an alternative compliance method based on computer simulations. The industry expects that this alternative will allow sharing licensing of cleaner designs such that the initial software purchase would cost approximately $1,500 but ongoing annual licensing cost will be approximately $450 per manufacturer. We believe the 5-year compliance date extension discussed above for masonry heater manufacturers that sell fewer than 15 units

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per year will allow sufficient time for manufacturers to become comfortable with this alternative, and use it to demonstrate compliance**.**

**We considered proposing a compliance exemption for small manufacturers of masonry heaters because of the overall small size of the market. However, we were concerned that this might encourage installation of cheaper, low-performing models, which would place complying models at a potential disadvantage**. We request comment on the need for either a compliance date extension or a compliance date exemption for masonry heaters and the length of time that we should allow.

*(…)*

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As discussed above, we recognize there is some concern, as there was with the initial NSPS compliance dates, that testing laboratories capacity may not be able to meet the demand for certification tests in the first few years. However, we believe that the steps we have already proposed, the availability of additional ISO-accredited labs, the advance notice that industry has had concerning the NSPS prior to this proposal, and the time between this proposal and the proposed compliance date of the final rule, should ensure that adequate compliance certification resources are available. The logjam provisions of the current 1988 NSPS were never invoked, and we do not think they are needed at this time. However, we are taking comment on this issue. We also request comment on whether these compliance timelines strike the right balance between avoiding undue economic burdens and the need to get better performing models on the market as soon as possible to reduce emissions, and whether other compliance dates would be appropriate.

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**Subpart RRRR – Standards of Performance for New Residential Masonry Heaters**

**Everything below concerns masonry heaters**

Sec.

60.5484 Am I subject to this subpart?

60.5485 What definitions must I know?

60.5486 What standards and requirements must I meet and by when?

60.5487 What compliance and certification requirements must I meet and by when? 60.5488 What test methods and procedures must I use to determine compliance with the standards and requirements for certification?

60.5489 What procedures must I use for laboratory accreditation?

60.5490 What requirements must I meet for permanent labels and owner's manuals? 60.5491 What records must I keep and what reports must I submit?

60.5492 What activities are prohibited under this subpart?

60.5493 What Petition for Review procedures apply to me?

60.5494 Who implements and enforces this subpart?

60.5495 What parts of the General Provisions do not apply to me?

**Subpart RRRR – Standards of Performance for New Residential Masonry Heaters**

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**§ 60.5484 Am I subject to this subpart?**

(a) You are subject to this subpart if you operate, manufacture, sell, offer for sale, import for sale, distribute, offer to distribute, introduce, or deliver for introduction, into commerce in the United States, a residential masonry heater manufactured on or after **[EFFECTIVE DATE OF FINAL RULE]**.

(b) Each affected masonry heater must comply with the provisions of this subpart unless exempted under paragraphs (b)(1) through (b)(3) of this section.

(1) Affected masonry heaters manufactured in the United States for export are exempt from the applicable emission limits of § 60.5486 and the requirements of § 60.5487.

(2) Affected masonry heaters used for research and development purposes that are never offered for sale or sold and that are not used to provide heat are exempt from the applicable emission limits of § 60.5486 and the requirements of § 60.5487. No more than six affected masonry heaters manufactured per model line may be exempted for this purpose.

(3) Affected masonry heaters that do not burn wood or wood pellets (such as coal- only heaters that meet the definition in § 60.5485 or corn-only heaters) are exempt from the applicable emission limits of § 60.5486 and the requirements of § 60.5487.

(c) The following are not affected masonry heaters and are not subject to this subpart:

(1) Residential wood heaters subject to subpart AAA of this part.

(2) Residential hydronic heaters and forced-air furnaces subject to subpart QQQQ of this part.

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**§ 60.5485 What definitions must I know?**

As used in this subpart, all terms not defined herein have the same meaning given them in the Clean Air Act and subpart A of this part.

*Accredited test laboratory* means a test laboratory that is accredited for masonry heater certification testing under § 60.5489 or is an independent third party test laboratory that is accredited by a nationally recognized accrediting entity under ISO-IEC Standard 17025 to perform testing using the test methods specified in § 60.5488 and approved by the EPA for conducting certification tests under this subpart.

*At retail* means the sale by a commercial owner of a residential masonry heater to the ultimate purchaser.

*Certifying entity* means an independent third party that is accredited by a nationally recognized accrediting entity under ISO-IEC Standard 17020 to perform certifications and inspections under ISO-IEC Guide 17065 and approved by the EPA for conducting certifications, inspections and audits under this subpart.

*Coal-only heater* means an enclosed, coal-burning appliance capable of space heating or domestic water heating which has all of the following characteristics:

(1) Installation instructions that state that the use of wood in the heater, except for coal ignition purposes, is prohibited by law; and

(2) The model is listed by a nationally recognized safety-testing laboratory for coal use only, except for coal ignition purposes.

*Commercial owner* means any person who owns or controls a residential masonry heater in the course of the business of the manufacture, importation, distribution, or sale of the unit.

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*Manufactured* means completed and ready for shipment (whether or not packaged) or installed in a residence in the case of custom-built masonry heaters for purposes of determining the date of manufacture.

*Manufacturer* means any person who constructs or imports into the United States a residential masonry heater.

*Model line* means all residential masonry heaters offered for sale by a single manufacturer that are similar in all material respects as defined in this section.

*Particulate matter (PM)* means total particulate matter including PM10 and PM2.5.

*Pellet fuel* means refined and densified wood shaped into small pellets or briquettes that are uniform in size, shape, moisture, density and energy content.

*Representative affected masonry heater* means an individual residential masonry heater that is similar in all material respects as defined in this section to other residential masonry heaters within the model line it represents.

*Residential masonry heater* means a factory-built or site-built wood-burning device that has the following characteristics:

(1) The device has a core constructed primarily of manufacturer-built, supplied, or specified masonry materials (such as stone, cemented aggregate, clay, tile, or other non- combustible, non-metallic solid materials) that weighs at least 1700 pounds;

(2) The firebox effluent of the masonry heater travels horizontally and/or downward through one or more heat absorbing masonry duct(s) for a distance at least the length of the largest single internal firebox dimension before leaving the masonry heater. These parameters are determined as follows:

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(i) Horizontal or downward travel distance is defined as the net horizontal and/or downward internal duct length, measured from the top of the uppermost firebox door opening(s) to the exit of the masonry heater as traveled by any effluent on a single pathway through duct channel(s) within the heater (or average of net internal duct lengths for multiple pathways of different lengths, if applicable). Net internal duct length is measured from the center of the internal side or top surface of a duct, horizontally or vertically to the center of the opposite side or the bottom surface of the same duct, and summed for multiple ducts or directions on a single pathway, if applicable. For duct channel(s) traversing horizontal angles of less than ninety degrees from vertical, only the net actual horizontal distance traveled is included in the total duct length; and

(ii) The largest single internal firebox dimensions is defined as the longest of either the length or the width of the firebox hearth and the height of the firebox, measured from the hearth to the top of the uppermost firebox door opening(s);

(3) The device has one or more air-controlling doors for fuel-loading that are designed to be closed during the combustion of fuel loads, and that control the entry of combustion air (beyond simple spark arresting screens) to one or more inlets as prescribed by the masonry heater manufacturer; and

(4) The device is assembled in conformance with Underwriters Laboratories’ and/or manufacturer’s specifications for its assembly and, if the core is constructed with a substantial portion of materials not supplied by the manufacturer, is certified by a representative of the manufacturer to be substantially in conformance with those specifications.

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*Sale* means the transfer of ownership or control, except that a transfer of control of an affected heater for research and development purposes within the scope of § 60.5484(b)(2) is not a sale.

*Seasoned wood* means wood with a moisture content of 20 percent or less.

*Similar in all material respects* means that the construction materials, exhaust and inlet air system, and other design features are within the allowed tolerances for components identified in § 60.533(k).

*Valid certification test* means a test that meets the following criteria: (1) The Administrator was notified about the test in accordance with § 60.5488(d) (2) The test was conducted by an accredited test laboratory as defined in this

section; (3) The test was conducted on a residential masonry heater similar in all material

respects as defined in this section to other residential masonry heaters of the model line that is to be certified; and

(4) The test was conducted in accordance with the test methods and procedures specified in § 60.5488.

**§ 60.5486 What standards and requirements must I meet and by when?**

(a) *Particulate Matter Standard*. Unless exempted under § 60.5484:

(1) On or after **[EFFECTIVE DATE OF FINAL RULE]**, no person is permitted to manufacture and, on or after **[6 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE]**, no person is permitted to sell at retail a residential masonry heater unless the heater has been certified to meet the particulate matter emission limit in paragraph (b) of

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this section or the manufacturer is a small manufacturer as defined in paragraph (a)(2) of this section.

(2) On or after **[5 YEARS AFTER EFFECTIVE DATE OF FINAL RULE]**, no small manufacturer is permitted to manufacture a residential masonry heater unless it has been certified to meet the particulate matter emission limit in paragraph (b) of this section. For the purposes of this subpart, a small manufacturer is defined as a manufacturer that constructs less than 15 residential masonry heaters per year. A small manufacturer may elect to comply with the emission limit in paragraph (b) of this section earlier than specified in this paragraph.

(b) Residential masonry heater particulate matter emission limit: 0.32 lb/million Btu (0.137 g/megajoule) heat output as determined by the test methods and procedures in § 60.5488.

(c) *Pellet Fuel Requirements*. Operators of masonry heaters that are certified to burn pellet fuels may only burn pellets that have been produced under a licensing agreement with the Pellet Fuel Institute or an equivalent organization approved by EPA. The pellet fuel must meet the following minimum requirements:

(1) Density: consistent hardness and energy content with a minimum density of 38 pounds/cubic foot;

(2) Dimensions: maximum length of 1.5 inches and diameter between 0.230 and 0.285 inches;

(3) Inorganic fines: less than or equal to 1 percent; (4) Chlorides: less than or equal to 300 parts per million by weight; and (5) Ash content: no more than 2 percent.

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(6) A quality assurance process licensed by the Pellet Fuel Institute or equivalent organization approved by the EPA.

(d) *Prohibited Fuel Types*. No person is permitted to burn any of the following materials in a residential masonry heater:

(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. The prohibition against

burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in an affected masonry heater;

(9) Railroad ties or pressure treated wood; (10) Manure or animal remains; or (11) Salt water driftwood or other previously salt water saturated materials. (e) *Owner’s Manual*. A person must not operate a residential masonry heater in a

manner inconsistent with the owner’s manual. The owner’s manual must clearly specify that operation in a manner inconsistent with the owner’s manual would violate the warranty.

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**§ 60.5487 What compliance and certification requirements must I meet and by when?**

(a)(1) *Certification Requirement*. Each affected residential masonry heater must be certified to be in compliance with the applicable emission standards and other requirements of this subpart. For each model line manufactured or sold by a single entity, *e.g.*, company or manufacturer, compliance with applicable emission standards of § 60.5486(b) must be determined based on testing of representative affected appliances within the model line. If one entity licenses a model line to another entity, each entity’s model line must be certified. If an entity changes the name of the entity or the name of the model, the manufacturer must apply for a new certification.

(2) The manufacturer of each model line must submit to the EPA the information required in paragraph (b) of this section and follow the certification procedure specified in § 60.533(f) except that, for the purposes of this paragraph, the reference in § 60.533(f) to the emission limits in § 60.532 must be understood to refer to the emission limits in § 60.5486(b) and the associated test methods are those specified in this subpart.

(3) As an alternative to the certification process described in paragraph (a)(2) of this section, an applicant may choose to submit a computer model simulation program for review and certification by the certifying entity and subsequent review and approval by the Administrator for use as a surrogate for emissions testing. The Administrator will post the certified model on the EPA Burnwise website.

(b) *Waiver from Submitting Test Results*.

(1) An applicant for certification may apply for a potential waiver of the requirements to submit the results of a certification test pursuant to the certification

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procedures specified in § 60.533(f) according to the procedure specified in § 60.533(g)(1).

(2) Alternatively, an applicant may submit results using a validated computer model simulation program that demonstrates the masonry heater design meets the emission limit in § 60.5486(b).

(c) *Certification Period*.

(1) Unless revoked sooner by the Administrator, a certificate of compliance will be valid for 5 years from the date of issuance.

(2) If the manufacturer qualifies as a small manufacturer as defined in § 60.5486(a)(2) and the model was certified using the procedure defined in paragraph (a)(3) of this section, the certificate of compliance will be valid for the life of the model line unless it is revoked by the Administrator.

(d) *Renewal of Certification*.

(1) Any manufacturer of an affected masonry heater may apply to the Administrator for potential renewal of a certificate of compliance by submitting the material specified in § 60.533(b) and following the process specified in § 60.533(f).

(2) A certificate issued pursuant to paragraph (c)(1) of this section must be recertified or renewed every 5 years or the manufacture may choose to no longer manufacture or sell that model. If the manufacturer chooses to no longer manufacture or sell that model, then the manufacturer must submit a statement to EPA for that model. A manufacturer may apply to the Administrator for potential renewal of their certificate by submitting certification information in accordance with § 60.533(b) or by affirming in

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writing that the wood heater has been subject to no changes that would impact emissions and request a potential waiver from certification testing.

(3) If the Administrator waives certification testing under paragraph (c)(2) of this section, the Administrator will give written notice to the manufacturer setting forth the basis for the determination and issue a certification.

(4) If the Administrator denies the request, the Administrator will give written notice to the manufacturer setting forth the basis for the determination.

(e) *Recertification*.

(1) The procedure specified in § 60.533(k) must be used to determine when a model line must be recertified.

(2) If the manufacturer qualifies as a small manufacturer as defined in § 60.5486(a)(2) and the model line was certified using the procedure defined in paragraph (a)(3) of this section, the recertification provisions of paragraph (e)(1) of this section do not apply.

(f) *Criteria for Revocation of Certification.*

(1) The Administrator may revoke certification of a model line if it is determined that the residential masonry heaters produced in that model line do not comply with the requirements of this subpart. Such a determination will be based on all available evidence, including but not limited to:

(i) Test data from retesting of the original unit on which the certification was conducted or a similar unit;

(ii) A finding that the certification test or model simulation was not valid;

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(iii) A finding that the labeling of the residential masonry heater model line or the associated owner’s manual or marketing information does not comply with the requirements of § 60.5490;

(iv) Failure by the manufacturer to comply with the reporting and recordkeeping requirements of § 60.5491;

(v) Physical examination showing that an inspected production unit is not similar in all material respects as defined in this subpart to the representative affected masonry heater submitted for testing; or

(vi) Failure of the manufacturer to conduct a quality assurance program in conformity with paragraph (f) of this section.

(2) Revocation of certification under this paragraph will not take effect until the manufacturer concerned has been given written notice by the Administrator setting forth the basis for the proposed determination and an opportunity to request a Petition for Review under § 60.5493.

(g) *Quality Assurance Program*. For each certified model line, except for any model line at small manufacturers as defined in § 60.5486(a)(2) and where the model line was certified using the procedure defined in paragraph (a)(3) of this section, the manufacturer must conduct a quality assurance program according to the requirements of § 60.533(m).

(h) *EPA Compliance Audit Testing*. The Administrator may conduct compliance audit testing according to the requirements of § 60.533(n). For the purposes of this paragraph, references in § 60.533(p) to § § 60.532 through 60.535 must be understood to refer to the comparable paragraphs in § § 60.5486 through 60.5489, respectively. The

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requirements of this paragraph do not apply to small manufacturers as defined in § 60.5486(a)(2) and where the model line was certified using the procedure defined in paragraph (a)(3) of this section.

**§ 60.5488 What test methods and procedures must I use to determine compliance with the standards and requirements for certification?**

Test methods and procedures specified in this section or in appendix A of this part, except as provided under § 60.8(b), must be used to determine compliance with the standards and requirements for certification under § § 60.5486 and 60.5487 as follows:

(a) ASTM E2817-11, Standard Test Method for Test Fueling Masonry Heaters, must be used to measure the heat output (million Btu/hr) of residential masonry heaters.

(b) ASTM E2515-10 must be used in conjunction with ASTM E2817-11 to measure the particulate emission rate (lb/million BTU heat output) of residential masonry heaters.

(c)(1) ASTM WK26558, New Specification for Calculation Method for Custom Designed, Site Built Masonry Heaters may be used as an alternative to certification testing as specified in paragraphs (a), (b) and (d) of this section.

(2) If the Administrator approves an alternative computer model simulation program pursuant to §60.5487(a)(3), the approved simulation program also may be used as an alternative to certification testing as specified in paragraphs (a) and (b) of this section.

(d) Method 10 in appendix A-4 of this part must be used to measure CO emissions of residential masonry heaters.

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(e) The manufacturer of an affected masonry heater must notify the Administrator of the date that certification testing is to begin, by email, to Wood Heater NSPS Compliance Program at www.epa.gov/Wood\_Heater\_NSPS\_Compliance\_Program. This notice must be received at least 30 days before the start of testing. The notification of testing must include the manufacturer’s name and address, the accredited test laboratory’s name and address, certifying entity name, the model name and number (or, if unavailable, some other way to distinguish between models), and the dates of testing.

(f) The accredited test laboratory must allow the manufacturer, the EPA and delegated states to observe certification testing. However, manufacturers must not involve themselves in the conduct of the test after the pretest burn (as defined by ASTM E2817-11) has begun. Communications between the manufacturer and laboratory or certifying entity personnel regarding operation of the masonry heater must be limited to written communications transmitted prior to the first pretest burn of the certification series. Written communications between the manufacturer and laboratory personnel may be exchanged during the certification test only if deviations from the test procedures are observed that constitute improper conduct of the test. All communications must be included in the test documentation required to be submitted pursuant to § 60.533(b)(3) and must be consistent with instructions provided in the owner's manual required under § 60.5490(g), except to the extent that they address details of the certification tests that would not be relevant to owners.

**§ 60.5489 What procedures must I use for laboratory accreditation?**

The accreditation procedure specified in § 60.535 must be used to certify test laboratories under this subpart.

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**§ 60.5490 What requirements must I meet for permanent labels and owner's manuals?**

(a) *Permanent Label Requirements*.

(1) Each affected masonry heater manufactured on or after the date the applicable standards come into effect as specified in § 60.5486, must have a permanent label affixed to it that meets the requirements of this section.

(2) The permanent label must contain the following information: (i) Month and year of manufacture of the individual unit; (ii) Model name or number; and (iii) Serial number.

(3) The permanent label must:

(i) Be affixed in a readily visible or accessible location in such a manner that it can be easily viewed before and after the appliance is installed;

(ii) Be at least 8.9 cm long and 5.1 cm wide (3 1/2 inches long and 2 inches wide); (iii) Be made of a material expected to last the lifetime of the residential masonry

heater;

(iv) Present required information in a manner so that it is likely to remain legible for the lifetime of the residential masonry heater; and

(v) Be affixed in such a manner that it cannot be removed without damage to the

label.

(4) The permanent label may be combined with any other label, as long as the required information is displayed, the integrity of the permanent label is not compromised, and the requirements of § 60.5490(3) are still met.

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(b)(1) If the residential masonry heater belongs to a model line certified under § 60.5487, and it has been found to meet the applicable emission limits or tolerances through quality assurance testing, the following statement must appear on the permanent label: U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2015 particulate emissions standards.

(2) If the masonry heater belongs to a model line owned by a manufacturer that qualifies for the small volume manufacturer delay as specified in § 60.5486(a)(2), the following statement must appear on the permanent label: U.S. ENVIRONMENTAL PROTECTION AGENCY This masonry heater was produced by a small volume manufacturer that manufactures or exports to the United States fewer than 15 masonry heaters per year. This appliance cannot be sold after **[5 YEARS AFTER EFFECTIVE DATE OF FINAL RULE]**.

(c) The label under paragraph (b) of this section must also contain the following statement on the permanent label: “This appliance needs periodic inspection and repair for proper operation. Consult owner’s manual for further information. It is against the law to operate this appliance in a manner inconsistent with operating instructions in the owner’s manual.”

(d) Any label statement under paragraph (b) of this section constitutes a representation by the manufacturer as to any residential masonry heater that bears it:

(1) That the certification was in effect at the time the residential masonry heater left the possession of the manufacturer;

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(2) That the manufacturer was, at the time the label was affixed, conducting a quality assurance program in conformity with the manufacturer’s quality assurance program; and

(3) That as to any residential masonry heater individually tested for emissions by the manufacturer under § 60.5487(f), it met the applicable emission limit.

(e)(1) If an affected masonry heater is manufactured in the United States for export as provide in § 60.5484(b)(1), the following statement must appear on the permanent label: U.S. ENVIRONMENTAL PROTECTION AGENCY Export unit. May not be operated in the United States.

(2) If an affected masonry heater is manufactured for research and development purposes as provided in § 60.5484(b)(2), the following statement must appear on the permanent label: U.S. ENVIRONMENTAL PROTECTION AGENCY Not certified. Research unit. Not approved for sale.

(3) If an affected masonry heater is a non wood-burning masonry heater exclusively as provided § 60.5484(b)(3) the following statement must appear on the permanent label: U.S. ENVIRONMENTAL PROTECTION AGENCY This appliance is not certified for wood burning. Use of any wood fuel is a violation of federal law.

(f) *Owner’s Manual*.

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(1) Each affected masonry heater offered for sale by a commercial owner must be accompanied by an owner's manual that must contain the information listed in paragraph (f)(2) of this section (pertaining to installation), and paragraph (f)(3) of this section (pertaining to operation and maintenance). Such information must be adequate to enable consumers to achieve optimal emissions performance. Such information must be consistent with the operating instructions provided by the manufacturer to the accredited test laboratory for operating the residential masonry heater, except for details of the certification test that would not be relevant to the ultimate purchaser. The commercial owner must also make current and historical owner’s manuals available on the company website.

(2) Installation information: Requirements for achieving proper draft. (3) Operation and maintenance information: (i) Fuel loading procedures, recommendations on fuel selection, and warnings on

what fuels not to use, such as treated wood, colored paper, cardboard, solvents, trash and garbage.

(ii) Fire starting procedures (iii) Proper use of air controls (iv) Ash removal procedures (v) Instructions for replacement of gasket and other parts that are critical to the

emissions performance of the unit and other maintenance and repair instructions (vi) The following statement: “This wood heating appliance needs periodic

inspection and repair for proper operation. It is against federal law to operate this wood heating appliance in a manner inconsistent with operating instructions in the manual.”

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(4) Any manufacturer using the EPA model language contained in appendix I of this part to satisfy any requirement of this paragraph (f) will be considered to be in compliance with that requirement, provided that the particular model language is printed in full, with only such changes as are necessary to ensure accuracy for the particular model line.

(g) Residential masonry heaters that are affected by this subpart but have been operated by a noncommercial owner are not subject to paragraph (f) of this section when offered for resale.

**§ 60.5491 What records must I keep and what reports must I submit?**

(a) Each manufacturer who holds a certificate of compliance pursuant to § 60.5487(a)(2) for a model line must maintain records containing the information required by this paragraph (a) with respect to that model line.

(1) All documentation pertaining to the certification test or computer simulation used to obtain certification.

(i) For certification tests, this includes the full test report and raw data sheets, laboratory technician notes, calculations, and the test results for all test runs.

(ii) For computer simulations, this includes all data input into the simulation program and all computer-generated output.

(2) Results of the quality assurance program inspections required pursuant to § 60.5487(f).

(3) For emissions tests conducted pursuant to the quality assurance program required by § 60.5487(f), all test reports, data sheets, laboratory technician notes,

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calculations, and test results for all test runs, the remedial actions taken, if any, and any follow-up actions such as additional testing.

(4) If a masonry heater manufacturer qualifies as a small volume manufacturer as specified in § 60.5486(a)(2) and elects to defer compliance as allowed by that paragraph, records of the number of masonry heaters produced or constructed per year during the deferral period.

(b) Each accredited test laboratory must maintain records consisting of all documentation pertaining to each certification test, audit test, or computer simulation, including the full test report and raw data sheets, laboratory technician notes, calculations, and the test results for all test runs. Each accredited test laboratory must submit initial and biennial proficiency test results to the Administrator.

(c) Each manufacturer must retain each residential masonry heater upon which certification tests were performed and certification granted pursuant to § 60.5487(a)(2) at the manufacturer’s facility for as long as the model line is manufactured. Each masonry heater must remain sealed and unaltered. Any such residential masonry heater must be made available upon request to the Administrator for inspection and testing.

(d)(1) Each manufacturer of an affected masonry heater certified pursuant to § 60.5487 must submit a report to the Administrator every 2 years following issuance of a certificate of compliance for each model line. This report must include the sales for each model by state and certify that no changes in the design or manufacture of the model line have been made that require recertification pursuant to § 60.5487(d).

(2) If the manufacturer qualifies as a small manufacturer as defined in § 60.5486(b)(2) and the model line was certified using the procedure defined in paragraph

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(a)(3) of this section, the reporting provision of paragraph (d)(1) of this section does not apply.

(e)(1) Unless otherwise specified, all records required under this section must be maintained by the manufacturer, commercial owner of the affected masonry heater, accredited test laboratory or certifying entity for a period of no less than 5 years.

(2) Unless otherwise specified, all reports to the Administrator required under this subpart must be made to: Wood Heater NSPS Compliance Program at www.epa.gov/Wood\_Heater\_NSPS\_Compliance\_Program.

(f) Within 60 days after the date of completing each performance test, each manufacturer or accredited test laboratory or certifying entity must submit performance test data, except opacity data, electronically to the EPA’s Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (http://www.epa.gov/ttn/chief/ert/index.html). Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically to the EPA’s CDX. Manufacturers may submit compliance reports to the EPA via regular mail at the address listed below if the test methods they use are not compatible with ERT or if ERT is not available to accept reports at the time the final rule is published. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a completed ERT file, including information claimed to be CBI, on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives), to the EPA, and the same ERT file, with the CBI omitted, to the EPA via CDX as described earlier in this paragraph. The compact disk must be clearly marked as CBI and mailed to U.S.

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EPA/OAQPS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. Emission data and all information necessary to determine compliance, except sensitive engineering drawings and sensitive detailed **material specifications, may not be claimed as CBI.**

**§ 60.5492 What activities are prohibited under this subpart?**

(a) No person is permitted to operate an affected masonry heater manufactured after **[EFFECTIVE DATE OF FINAL RULE]** or sold at retail after **[6 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE]** that does not have affixed to it a permanent label pursuant to § 60.5490.

(b)(1) No manufacturer or commercial owner is permitted to advertise for sale, offer for sale, or sell an affected masonry heater manufactured after **[EFFECTIVE DATE OF FINAL RULE]** or sold at retail after **[6 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE]** that does not have affixed to it a permanent label pursuant to § 60.5490.

(2) No manufacturer or commercial owner is permitted to advertise for sale, offer for sale, or sell an affected masonry heater manufactured after **[EFFECTIVE DATE OF FINAL RULE]** or sold at retail after **[6 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE]** labeled under § 60.5490(d)(1) except for export.

(c)(1) No commercial owner is permitted to advertise for sale, offer for sale or sell an affected masonry heater permanently labeled under § 60.5490(b) unless:

(i) The affected appliance regulated under this subpart was previously owned and operated by a noncommercial owner;

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(ii) The commercial owner provides any purchaser or transferee with an owner's manual that meets the requirements of § 60.5490(g), a copy of the warranty and a moisture meter.

(2) A commercial owner other than a manufacturer complies with the requirements of paragraph (c) of this section if the commercial owner:

(i) Receives the required documentation from the manufacturer or a previous commercial owner; and

(ii) Provides that documentation unaltered to any person to whom the residential masonry heater that it covers is sold or transferred.

(d)(1) In any case in which the Administrator revokes a certificate of compliance either for the knowing submission of false or inaccurate information or other fraudulent acts, or based on a finding under § 60.5487(e)(1)(ii) that the certification test was not valid, the Administrator may give notice of that revocation and the grounds for it to all commercial owners.

(2) On and after the date of receipt of the notice given under paragraph (d)(1) of this section, no commercial owner is permitted to sell any residential masonry heater covered by the revoked certificate (other than to the manufacturer) unless the model line has been recertified in accordance with this subpart.

(e) No person is permitted to install or operate an affected masonry heater except in a manner consistent with the instructions on its permanent label and in the owner's manual pursuant to § 60.5490(g), including only using fuels for which the unit is certified.

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(f) No person is permitted to operate an affected masonry heater that has been physically altered to exceed the tolerance limits of its certificate of compliance.

(g) No person is permitted to alter, deface, or remove any permanent label required to be affixed pursuant to § 60.5490.

(h) No certifying entity is permitted to certify its own certification test report.

**§ 60.5493 What Petition for Review procedures apply to me?**

(a) In any case where the Administrator: (1) Denies an application under § 60.5487(a)(2); (2) Issues a notice of revocation of certification under § 60.5487(e); (3) Denies an application for laboratory accreditation pursuant to § 60.5489; or (4) Issues a notice of revocation of laboratory accreditation pursuant to § 60.5489,

the manufacturer or laboratory affected may submit to the EPA a Petition for Review request under this section pursuant to the procedures specified in § 60.593 within 30 days following receipt of the required notification of the action in question.

(b) In any case where the Administrator issues a notice of revocation under § 60.5487(e), the manufacturer may submit to the EPA a Petition for Review request under this section pursuant to the procedures specified in § 60.5493 with the time limits set out in § 60.533(p)(4).

**§ 60.5494 Who implements and enforces this subpart?**

(a) In delegating implementation and enforcement authority to a state under section 111(c) of the Clean Air Act, the authorities contained in paragraph (b) of this section must be retained by the Administrator and not transferred to a state.

(b) Authorities that must not be delegated to states:

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(1) Section 60.5473, Definitions; (2) Section 60.5475, Compliance and certification; (3) Section 60.5476, Test methods and procedures; and (4) Section 60.5477, Laboratory accreditation.

**§ 60.5495 What parts of the General Provisions do not apply to me?**

The following provisions of subpart A of part 60 do not apply to this subpart:

(a) Section 60.7;

(b) Section 60.8(a), (c), (d), (e), and (f); and

(c) Section 60.15(d).

6. Part 60 Appendix A-8 is amended by adding Method 28R to follow Method 28A to read as follows:

**Test Method 28R for Certification and Auditing of Wood Heaters 1.0 Scope and Application**

1.1 This test method applies to certification and auditing of wood-fired room heaters and fireplace inserts.

1.2 The test method covers the fueling and operating protocol for measuring particulate emissions, as well as determining burn rates, heat output and efficiency.

1.3 Particulate emissions are measured by the dilution tunnel method as specified in ASTM E2515-10 Standard Test Method for Determination of Particulate Matter Emissions Collected in a Dilution Tunnel.

**2.0 Procedures**

2.1 This method incorporates the provisions of ASTM E2780-10 except as follows:

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2.1.1 The burn rate categories, low burn rate requirement, and weightings in Method 28 shall be used.

2.1.2 The startup procedures shall be the same as in Method 28.

2.1.3 The equation for converting the emission test values between the EPA Reference Method 5G “Determination of Particulate Emissions From Wood Heaters From a Dilution Tunnel Sampling Location” and EPA Reference Method 5H “Determination of Particulate Emissions From Wood Heaters From a Stack Location” shall be the same as in Method 28.

2.1.4 Manufacturers shall not specify a smaller volume of the firebox for testing than the full usable firebox.

2.1.5 The test fuel moisture content, fuel load, and coal bed depth shall be as follows: (a) The fuel load dry-basis moisture content shall be within a range of 22.5

percent +/- 1 percent; (b) The fuel load weight shall be 7 lb/ft**3** +/- 1 percent (or 7 lb +/-0.07 lb) of the

fuel load weight, calculated in accordance with Method 28; and (c) The range for the test-initiation coal-bed weight shall be 22 percent +/- 1

percent of the fuel load weight.