

COMMENTS OF MASONRY HEATER ASSOCIATION ON EPA'S ADVANCED NOTICE OF PROPOSED RULEMAKING, "STANDARDS OF PERFORMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES"

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The Masonry Heater Association of North America (MHA) appreciates the opportunity to comment on the EPA's Proposed New Source Performance Standards (NSPS) for wood fired heating appliances. Though this current Advanced Notice of Proposed Ruling (ANPR) is not focused directly on masonry heaters, the EPA's attention on testing and listing clean, solid fuel burning devices is of particular interest to the masonry heater industry.

What is MHA?

MHA was founded in 1984 as an association of builders, manufacturers and retailers of masonry heaters. Its purpose is to promote the industry, sponsor Research & Development, shape regulations, educate the public and further the expertise and professionalism of its membership. R&D is carried out through Lopez Labs, a network of private labs supported by MHA members. They are equipped with combustion analyzers and Condar portable dilution tunnels. The association currently counts over 130 full voting members.

Masonry heaters differ in many ways from the other appliances covered by the NSPS

A masonry heater is high mass, slow heat release appliance intermittently fired by solid fuel, constructed mainly of masonry materials. Its main distinguishing feature is its large thermal storage mass. Similar to optimized boiler systems, thermal storage allows firing to be done at an optimized burn rate at all times, without overheating the house. This is the most effective and proven way to burn cordwood reliably with low PM emissions. PM emissions are in the same range as pellet stoves.

They are large and heavy (8,000 pounds for a large heater), require their own foundations and become part of the structure of a building. For these reasons, their design must be site specific.

From a construction point of view, masonry heaters have more in common with masonry fireplaces than with any other classes regulated by this NSPS. Wood stoves, pellet stoves, hydronic heaters and warm-air furnaces are all appliances that are mass-produced in factory settings, with short product ranges being duplicated in large numbers.

Unlike the appliances regulated by the NSPS, masonry heaters are not finished products that can be rolled into a residence and installed in less than a day. Masonry

heaters come as kits consisting of hundreds of parts that must be assembled on site, which is a multi-day process. In the case of hand-built units, most of these parts even have to be shaped on site.

Masonry Heater Kit: Before and After



From an emissions point of view, masonry heaters have always been clean burning. This is not due to elaborate firebox designs but rather to the way combustion is conducted: at a high burn rate, typically 10 times higher than in a wood stove. Smoldering never occurs.

The large thermal mass allows a high burn rate to be sustained without overheating the building. In masonry heaters, clean burns also come with limited operator input which helps to assure good real-life emission numbers. Since a daily fire commonly only last two hours, there is often no fuel reloading and no air adjustment to be done. Proper firewood sizing and loading are the main requirements for a clean burn and can be carefully planned before the fire starts.

Examples of Masonry Heaters



Although the MHA has submitted numerous comments, data research, and proposals, the EPA has not moved forward to consider the implications of adding masonry heaters to the EPA Certified List of Products. The consideration of Masonry Heaters is a concern for other entities as well. The Hearth, Patio, and Barbecue Association (HPBA) has also done an immense amount of work in conjunction with MHA to show the

benefits of Masonry Heaters. In 2008, the HPBA produced a “Report on the Particulate Emissions Performance of Masonry Heaters” (see attachments). There has been much collaboration in the past decades to work towards this goal of seeing Masonry Heaters added to the EPA Certified List.

Since this ANPR is focused on continuing the objective “...to help ensure that in the future consumers buying wood heaters anywhere in the United States will be able to choose from cleaner-burning models,”¹ as well as addressing emissions testing, it is appropriate that we propose that EPA considers working with MHA on editing subpart RRRR (as per the 2014 Proposed Rule, pages 246 to 271) so it better takes into account the unique characteristics of Masonry Heaters and creates a regulatory environment viable for all industry members.

The Benefit for the EPA:

- Certifying masonry heaters offers a strong benefit for the EPA to easily further their current policy goals to continue to provide wood-burning options while ensuring compliance with the Clean Air Act.
- By leaving masonry heaters out of the EPA Certified Products List, the EPA is drastically limiting clean burning heating choices for American consumers, which is against the EPA’s purpose that “all parts of society...have access to accurate information sufficient to effectively participate in managing human health and environmental risks” and that “environmental protection contributes to making our communities and ecosystems diverse, sustainable and economically productive.”²

The Benefit for American Small Businesses:

- Certifying masonry heaters allows the masonry heater industry, which is majorly comprised of small masonry construction businesses and small manufacturers of masonry heater kits, core systems and turnkey manufactured masonry heaters to provide clean burning alternatives for customers who want to benefit from the many unique masonry heating systems available in today’s marketplace. The inclusion of masonry heaters in the NSPS would allow a cottage industry to grow into an industry that could encompass masonry contractors and hearth retailers throughout North America and promote the replacement of inefficient masonry fireplaces into safe, clean burning hearth systems. MHA research is “open source” and MHA intends to continue to share test data and assist state and federal agencies to promote clean burning options for customers who want the benefits of radiant heat and single batch burning appliances.
- If the EPA continues to leave masonry heaters out of the EPA Certified Products list, the EPA is essentially limiting sales for American small businesses in the masonry heater industry as jurisdictions at local, state, and national levels move towards tighter restrictions on emissions output, naming the EPA Certified Product List as their guiding principal for acceptable heating appliances.

¹ https://www.epa.gov/sites/production/files/2018-11/documents/overview_fs_2018_wood_heaters_nsps_proposal.pdf

² https://19january2017snapshot.epa.gov/aboutepa/our-mission-and-what-we-do_.html

To summarize, the benefits of working towards writing Standards of Performance rules that take into account the unique nature of masonry heaters will increase the EPA’s offerings of clean-burning heating appliances to American consumers, and support the health and growth of American small businesses.

**Objective for including masonry heaters in the next revision of the NSPS:
Keep costs low while encouraging innovation and customization.**

- **Certification and testing requirements need to be revised so that masonry heaters don’t have to be certified on an individual basis.** One of the many benefits of masonry heaters is their customization, which is appealing to American consumers. As it currently stands, the “K” List rules make it impossible for masonry heaters to be considered for certification, as the parameters do not allow for the design changes greater than ¼” (which would require recertification, adding to the expense). **ADD SOMETHING ABOUT QUAD R also being a barrier???**
- **Certification for Model Lines and Representative Affected Masonry Heaters:** Emissions, in a masonry heater, are affected by the way the firebox is designed and built. If a firebox is tested and approved, the emissions result is likely the same regardless of the cosmetic design of the heater if the heat exchange channels stay within accepted norms. If the parameters of the “k” list’s “design changes” were adjusted to focus on the firebox only, then that would allow for customization and innovation to continue without the extra cost of retesting every individual design.

Model Line TU2200: Same Firebox, Different Exterior Veneer



TU2200

TU2200/51

TU2200/1

TU2200/50 Grafia

- **Certification based on software simulation instead of performance testing:** European countries continue to allow masonry heaters as a viable option and have developed testing protocols to verify their emissions and efficiency. ASTM 2817E can serve as a test method for masonry heaters in North America. The MHA is currently working with Damien Lehmann, a French engineer who is

developing an open source masonry heater software simulator based on the European standard EN15544, which is a calculation method to ensure proper draft function. The MHA is working to adapt this calculation method software to North American market conditions. This is a work in progress that the EPA has acknowledged. From the Final Rule in 2015: “ The EPA is not finalizing, at this time, the proposed Standards of Performance for New Residential Masonry Heaters in order to allow additional time for the Masonry Heater Association to finish their efforts to develop revised test methods, an emissions calculation program and an alternative dimensioning standard.”³ This software simulation is a low cost solution to testing and certifying wood burning appliances versus the time-consuming and costly practice of performance testing. This is ideal for the unique nature of masonry heaters.

- **Ease the compliance process to take into account the small size of most industry members. WRITE SOMETHING ABOUT HOW 3rd party testing is okay here? What do we need to “ease the compliance process?”**

The MHA has submitted to the EPA numerous comments, research data, and proposals in previous ANPR sessions. This data serves as the basis for the proposal we submit today. Please see attached documentation for further information.

Attachments:

- 1) NSPS: Comments – Masonry Heater Association of North America (May 5, 2014). Comments on EPA’s proposed Standards of Performance for New Residential Wood heaters, New Residential Hydronic Heaters, and Forced-Air Furnaces, and for New Residential Masonry Heaters. Docket ID no. EPA-HQ-OAR-2009-0734.
- 2) MHA Testing Document
- 3) EN 15544 Overview
- 4) Calculator verification Austria – “Report about the test of the guideline,, Kachelofen (Tiled stove) with standard combustion chamber.”
- 5) 2008 02 13 HPBA-MHA-EPA White Paper: “A Report on the Particulate Emissions Performance of Masonry Heaters – Definition, Data, Analysis, and Recommendations”

Signed Christopher C. Purn Date 2/6/19
Title PRESIDENT MHA

³ <https://www.federalregister.gov/documents/2015/03/16/2015-03733/standards-of-performance-for-new-residential-wood-heaters-new-residential-hydronic-heaters-and>