



**City of  
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Bureau of Development Services**

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**To: Erica and Ernie Wisner**

**From: Alternative Technology Advisory Committee:**

Edward Vranizan (chair)	Samir Mokashi (vice-chair)
Aron Faegre	Joshua Klyber
Ron Hays	Kathy Bash
Peter Dusicka	

**RE: Application #09-002 (Wisner) – Additional Items Required**

**Date: July 13, 2009**

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The Alternative Technology Advisory Committee held the preliminary meeting to review your application on July 2, 2009. The following outlines the additional information required for the Committee to make a recommendation on your proposal, and instructions on how to submit the information.

**Summary of Proposal:** The applicants have requested that the committee review a general proposal for “rocket” mass heaters which are site-built, high-efficiency, wood-burning heaters constructed out of thermal cob. The applicants would like to help those interested in constructing rocket mass heaters in their homes do so in a way that is legally permitted. These heaters are becoming increasingly popular and have previously been constructed without permits.

**Applicable Building Code Section(s):** R1002 Masonry Heaters

**Summary of Committee Review To-date:** The Committee was generally supportive of the technology, but found that the application lacked specific information about the design of the heaters. The applicant indicated that the heaters are uniquely designed for the room in which they are located, and therefore providing one standardized design is problematic.

The residential building code requires the heaters to comply with the standards of ASTM E 1602 for Masonry Heaters, which differs from the typical rocket heater in several ways. The committee has requested that the applicant provide some specific parameters for a well-designed rocket heater, and then will form a sub-committee to review the design against the ASTM standards and determine which items will need to be appealed. ASTM standards preliminarily identified as potential issues included:

1. Metal flue vs. masonry flue
2. Required clearances to walls
3. Capping slab requirements (both mass and clearance)
4. Differences between earthen mortar (cob) and factory cement
5. Dampers required on the flue
6. Horizontal exit flue vs. vertical exit flue

The committee also reviewed the Oregon DEQ air quality regulations concerning wood burning devices. The DEQ exempts from the air quality regulations “woodstoves” weighing more than 800 kg (1,763 lbs), which is the same weight limit cited in the definition of Masonry Heaters in the ASTM requirements. A typical rocket heater would exceed this weight limit. Following the meeting it was confirmed with Rachel Sakota with the DEQ that the air quality regulations are meant to specifically exempt masonry heaters, and therefore rocket heaters (which meet the ASTM definition of Masonry Heaters) should also not need to meet the air quality requirements. A letter to this effect could be provided by the DEQ if specific plans of the rocket heater were provided.

**Additional Information Required:**

*Please note that some of this information was provided by the applicant verbally at the meeting but is also necessary to be documented in writing/drawing form in the application.*

1. Detailed illustration/specifications for a rocket heater with a 6" and 8" flue showing the following:
  - a. Acceptable size ranges for the heater components and clearances based on best design practices.
  - b. Anticipated range of maximum temperatures for the burn barrel and the surface.
  - c. Anticipated weight per square foot for the burn barrel and bench portions of the heater.
  - d. Total weight range in pounds and kgs for the entire heater unit.
2. Specifications for the earthen mortar mix based on best practices for heat and longevity (i.e. percentage of sand vs. earth).
3. Information addressing the anticipated service life of a typical rocket heater, any periodic maintenance that would need to be performed on the unit over time and where failure of the system is likely to occur.

**Instruction for submitting this information:**

Once you have gathered the additional information listed above, please submit it electronically to Paige Postma at [paige.postma@ci.portland.or.us](mailto:paige.postma@ci.portland.or.us).

Once the information has been submitted it will be routed to the committee to review. You will be notified when the committee will be holding another meeting to review the information. In some instances the committee may review the information via e-mail or conference call, so an additional meeting may not be necessary.

You are encouraged to submit this information as quickly as possible to proceed with this review. However, all additional information must be submitted within a year from the date of this letter. If there is more than six months of inactivity past this due date the application will be considered withdrawn and no fees will be refunded.

Following the committee's recommendation, a building code appeal must be applied for and approved to be able to use this technology in a site-specific project. See <http://www.portlandonline.com/bds/index.cfm?c=34196> for information on the building code appeal process.

If you have any additional questions please contact Paige Postma at 823-7301.