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Consumer Energy Information: EREC Reference Briefs

Masonry Heaters

Masonry heaters are also known as "Russian," "Siberian," and "Finnish" fireplaces. They are well known for style, efficiency, clean combustion, safety, and the ability to store heat and release it slowly. They are common in Europe, and are gaining popularity in the United States.

A wide variety of masonry heater designs and styles are available. Larger models resemble conventional fireplaces and may cover an entire wall. Smaller models take up about as much space as a wood or pellet stove. They can be custom-built or purchased as prefabricated units. All designs have three basic components: a firebox, a large masonry mass, and long and convoluted smoke channels that run through the masonry mass. Their fireboxes are lined with firebrick, refractory concrete, or similar materials that can handle temperatures of over 2,000° F (1,093° C).

Most are intended for burning wood, but they were historically designed to burn almost any type of solid fuel. There are also several companies that make units that use natural gas or propane. The solid fuel (wood) burning types use a small, intense fire that is lit once or twice a day, depending on heating requirements. For all types, as the hot combustion gases from the fire pass through the network of smoke channels, the masonry absorbs much of the heat, which then is radiated slowly and steadily into the home over the next 12 to 20 hours.

Wood burning masonry heaters are much more efficient and clean burning than conventional wood burning fireplaces. A combustion efficiency of close to 90% is common (as opposed to 60% for a regular woodstove and 10% for a regular fireplace.) The relatively small, but intense fire also results in very little air pollution and very little creosote buildup in the chimney. Because most of the heat from the fuel is transferred to the masonry and slowly released into the room over the day, this type of heater does not need to be loaded with fuel as often as other types of wood heating appliances. In addition, if the masonry heater is built where sunlight can directly shine on it in the winter, the heater will absorb the sun's heat and release it slowly into the room.

Although masonry heaters are efficient and clean burning, they have some disadvantages. Unlike conventional wood stoves and fireplaces, they cannot provide heat quickly from a "cold start." They are also relatively expensive. Some large designs may cost \$5,000 or more. Plans and kits are available, but they are not easy do-it-yourself projects and require experience in working with masonry.

For more information on masonry heaters contact the:

Masonry Heater Association of North America (MHA)

1252 Stock Farm Road
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World Wide Web: <http://mha-net.org>

The MHA provides information on masonry heaters, and will help you locate sources of masonry heaters and installers in specific regions of the country. Its Web site has a large amount of information on this subject.

The following books and articles provide additional information on masonry heaters. This list was updated in August 2002.

Books

Finnish Fireplace Construction Manual (With Core Kit Update), A. Barden, Maine Wood Heat Company, Inc., 1988. Available from Maine Wood Heat Company, 254 Fr. Rasle Road, Norridgewock, ME 04957; Phone: (207) 696-5442; Fax: (207) 696-5856; Email: mwhcoinc@prexar.net; World Wide Web: www.mainewoodheat.com. \$20.00 plus \$3.70 for shipping and handling.

Finnish Fireplaces-Heart of the Home, A. Barden and H. Hyytiainen, Finnish Building Center, Ltd., 1993. Available from Maine Wood Heat Company (see above), 103 pp., \$30.00 plus \$3.70 for shipping and handling.

The Book of Masonry Stoves, D. Lyle, Brick House Publishing, Inc., 1984. arden, Maine Wood Heat Company (see above), 103 pp., \$24.95 plus \$370 for shipping and handling.

Articles

"Building a Tiled Masonry Heater," V. Popovac, *Fine Homebuilding*, (No. 71) pp. 50-54, January 1992.

"Gas Opens New Market: Masonry Heaters Start Offering a Gas Switch," D. Johnston, *Alternative Energy Retailer*, (16:5) pp. 1, 14-15, April 1996.

"A New Generation of Fireplaces," J. Vivian, *Mother Earth News*, (No. 146) pp. 39-45, 84, 98, October/November 1994.

"Masonry-Heater Emissions and the EPA," N. Senf, *Fine Homebuilding*, (No. 71) p. 54, January 1992.

"Masonry Stoves," M. Klein, et al., *Home Power*, (No. 51) pp. 42-47, February/March 1996. This article contains information on 10 different stoves available in the United States and Canada.

"Prefab Masonry Fireplaces," G. Menia, *Journal of Light Construction*, (11:12) p. 38, September 1993.

"Small House, Big Heater," A. Barden, *Fine Homebuilding*, (No. 71) pp. 76-79, September

1992.

"A Stove in the Forest, Heating the Russian Way" J. Chastain, *Mother Earth News*, (No. 164) pp. 57-62, October/November 1997.

"The Siberian Fireplace," *Mother Earth News*, (No. 84) pp. 134-35, November/December 1983.

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