

Residential Wood Combustion Frequently Asked Questions

Prepared by Pechan on October 23, 2003

WHAT IS RESIDENTIAL WOOD COMBUSTION?

Residential wood combustion (RWC) means burning wood for heating, cooking, and aesthetic purposes both inside and outside the home. Burning wood helps some homeowners to control their heating costs; others simply enjoy the beauty of a wood fire.

WHAT TYPES OF RESIDENTIAL APPLIANCES BURN WOOD?

Residential wood burning appliances include fireplaces and fireplace inserts, wood stoves, pellet stoves, masonry heaters, wood furnaces, and outdoor wood burning equipment such as fire pits, wood-fired barbecues, outdoor fireplaces, and chimineas. The Hearth, Patio, and Barbecue Association web site at www.hpba.org contains detailed information about many of these appliances.

Fireplaces are the most common type of residential wood burning appliance. Wood burning fireplaces are available in three types: Traditional, Clean Burning and EPA Certified. Traditional fireplaces are designed primarily for aesthetics rather than heating efficiency. Clean Burning and EPA-certified fireplaces are high-efficiency fireplaces that provide a substantial amount of heat.

Fireplace inserts are heating units that retrofit into an existing traditional fireplace. They can be used to change an existing non-efficient fireplace into an efficient wood burning, heat-producing unit;

Wood stoves are enclosed freestanding wood burning units used to heat a specific room or zone of a house;

Pellet stoves are heat-producing units fueled with pellets of sawdust pressed into manageable shapes and sizes. Pellet stoves are specifically designed to accommodate this type of fuel. They are the lowest emission solid-fuel burning appliances available. Consult the Pellet Fuels Institute at <http://pelletheat.org/> for additional information on pellet stoves and pellet fuel;

Masonry heaters are wood burning units that produce small, hot fires. The heat from the fire is absorbed by a high mass of masonry that radiates warmth as the heat is slowly released. The Masonry Heaters Association at <http://mha-net.org> provides more information on this type of heating appliance;

Wood furnaces are insulated outdoor wood burning units that provide heat and hot water for an entire house or building.

Firepits burn wood in an open container or enclosure to produce heat for cooking, warmth, or aesthetic purposes in an outdoor setting;

Wood-fired barbecues are freestanding outdoor grills that use wood or wood pellets as fuel to cook food;

Outdoor fireplaces burn wood for warmth and aesthetics in a backyard

setting. Outdoor fireplaces come in a range of configurations from site-built masonry to small portable units;

Chimineas are freestanding, outdoor patio stoves, often constructed of terra cotta. They burn wood for warmth and aesthetic purposes.

IS BURNING WOOD HARMFUL?

Yes, burning wood produces wood smoke, a source of pollution that affects the air we breathe and the environment we live in. Wood smoke can contribute up to 80% of the air pollution in neighborhoods during the wintertime. Wood smoke contains high levels of harmful chemicals such as carbon monoxide, sulfur oxides, nitrogen oxides, and volatile organic compounds, as well as some cancer-causing chemicals.

Burning wood also produces a lot of dust and soot (particulate matter) in the form of tiny particles. These particles get inhaled deep into our lungs and can increase cardiovascular problems, irritate lungs and eyes, trigger headaches, and worsen respiratory diseases such as asthma, emphysema, and bronchitis. While wood smoke is harmful to all of us, it is especially harmful to babies, children, pregnant women, and the elderly. More information on the health effects of wood smoke can be found in this report by the Washington State Department of Ecology: www.ecy.wa.gov/pubs/92046.pdf.

In addition to impacting our health, wood smoke contributes to the unpleasant smell and brown haze we often experience on winter mornings. Wood smoke is a contributor to regional haze, which reduces visibility and obscures our view and enjoyment of scenic vistas in our national parks and wilderness areas. More information about haze is provided below.

HOW CAN I BURN WOOD MORE RESPONSIBLY?

There are ways to reduce the amount of smoke produced by wood burning equipment. One important way is to use low emission wood burning appliances. Be sure that your wood stove is certified to meet federal standards to protect air quality. Certified wood stoves are very efficient and release much less wood smoke than non-certified stoves. If your home contains a traditional fireplace you can upgrade it by installing a certified fireplace insert. Certified clean burning fireplaces are also available. They look much like traditional fireplaces, but produce just as little smoke as other certified appliances. Always use your wood burning appliances correctly and perform service regularly. To obtain more information on clean wood burning equipment visit the Hearth, Patio, and Barbecue Association's web site at www.hpba.org.

The condition and type of firewood you burn and the fire you build also affects the amount of wood smoke produced. Use only seasoned firewood that has been stacked and dried for at least six months. Hardwoods such as oak, hickory, and elm tend to produce a longer-lasting fire. Manufactured firelogs are designed to be low emission alternatives to burning firewood. There are two types of firelogs: sawdust and

wax/sawdust blend. Either type of firelog is a good choice for use in traditional and clean burning fireplaces to reduce smoke. Only sawdust firelogs are recommended for use in certified wood stoves and fireplace inserts. Build small hot fires and start a fire with fire starter; do not use gasoline, kerosene or charcoal starter. In addition, never burn trash in a wood burning appliance. For tips on burning wood wisely go to the Burn it Smart website at www.burnitsmart.org.

Inefficient wood burning means your wood is being wasted, producing not only pollution, but also hazardous creosote. Creosote is a highly-flammable crusty deposit that sticks to the inside walls of your chimney and provides the perfect fuel for chimney fires. Creosote is also carcinogenic. Information about chimney fires and creosote is available from the Chimney Safety Institute of America at www.csia.org.

WHAT ARE MARAMA AND MANE-VU?

MARAMA is the Mid-Atlantic Regional Air Management Association, a nonprofit association organized to promote cooperation and coordination among state and local air pollution control agencies. MARAMA's mission is to strengthen the skills and capabilities of its member agencies and help them work together to prevent and reduce air pollution in the Mid-Atlantic Region. More information about MARAMA is available at www.marama.org.

MANE-VU is the Mid-Atlantic/Northeast Visibility Union. MANE-VU was formed by the Mid-Atlantic and Northeastern states and tribes, and federal agencies to coordinate regional haze planning activities for the region. Regional haze is impairment to visibility caused by air pollution including soot produced by burning wood. Haze limits the distance we can see and obscures the color and clarity of objects and vistas. In 1999, the EPA implemented a program to decrease haze and improve visibility at national parks and wilderness areas across the U.S.; MANE-VU is addressing haze in the Mid-Atlantic and Northeastern states. To do this work effectively, MANE-VU must learn about the sources and causes of haze. To find out more about MANE-VU and haze go to www.mane-vu.org.

Visit www.hazecam.net to view real time air pollution conditions and visibility at other locations.

WHAT IS THE RESIDENTIAL WOOD COMBUSTION EMISSION INVENTORY PROJECT?

MARAMA has hired a contractor to conduct the Residential Wood Combustion (RWC) Emission Inventory Project. An emission inventory is a listing of the amount of air pollutants discharged into the atmosphere of a community. As part of the Emission Inventory Project, MARAMA is conducting a residential wood combustion survey to gather information about how residents in the Mid-Atlantic and Northeast use their wood burning equipment. MARAMA will use the survey information to develop an emission inventory. One of the initial uses of the emission inventory will be for computer

modeling of regional haze in the MANE-VU region.

E.H. Pechan & Associates, Inc. is an environmental engineering consulting firm specializing in air pollution and information technology. Population Research Systems, LLC specializes in technical survey research and consulting. More information about these companies is available at www.pechan.com and www.populationresearchsystems.com.