Frequently Asked Questions about Outdoor Wood Boilers

(updated May 2008)

What is an Outdoor Wood Boiler (OWB)/Furnace (OWF)/Hydronic Heater (OWHH)?

A typical outdoor wood-fired hydronic heater (OWHH, also known as an "Outdoor Wood Heater," "Outdoor Wood Boiler," or "Outdoor Wood Furnace") burns wood to heat water that is piped underground to a nearby structure (usually a home) resulting in heat for the building. An OWHH resembles a small shed with a smokestack, typically located on the outside of the building to be heated.

Source(s): www.epa.gov/owhh

What exactly is the problem with Outdoor Wood Boilers (OWBs)?

Outdoor wood-fired hydronic heaters can be substantially dirtier and less efficient than most other home heating technologies. With their smoldering fires and short smokestacks (usually no more than six to ten feet tall), OWHHs create heavy smoke and release it close to the ground, where it often lingers and exposes people in the area to nuisance conditions and health risks.

Although these units are designed to burn dry, seasoned wood, some people use them to burn green wood, which generates much more smoke. Others burn household trash or construction debris, which not only release harmful chemicals and pollution, but can be against state law.

Outdoor wood-fired hydronic heater emissions are a significant concern in many local areas. Numerous scientific studies report potentially serious adverse health effects from breathing smoke emitted by residential wood combustion. Residential wood smoke contains fine particles, which can affect both the lungs and the heart. In some areas, residential wood smoke can be a significant source of exposure to fine particle pollution.

Source(s): www.epa.gov/owhh

Does the release of smoke from an OWB have an effect on a person's health?

Yes! If someone claims that the smoke from an OWB does not affect a person's health, they are ignoring the facts:

Outdoor wood-fired hydronic heaters (OWHHs) produce smoke when wood does not burn completely. Most current OWHHs smoke even when operated according to the manufacturer's instructions. Even new generation OWHHs that meet EPA's voluntary program performance specifications can produce smoke if operated improperly.

Smoke from OWHHs contains a complex mixture of gases and particles. The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and can aggravate existing diseases, such as coronary artery disease, heart failure, asthma or chronic obstructive pulmonary disease (COPD).

Source(s): www.epa.gov/owhh

Are there any research studies showing wood smoke effects on health?

Yes. To view a collection of studies and research: PLEASE CLICK HERE

If you have any more studies to add, please let us know.

How much pollution does an OWB create compared to other heating sources?

One OWB emits as much pollution as:

** 12 EPA-certified indoor wood stoves*

** 1,000 homes with oil heat*

** 1,800 homes with natural gas heat*

OWB's create on average 72 g/hr of PM 2.5 particulates.

Source: New York Attorney General's Report (2008): CLICK HERE

How much PM 2.5 is created by OWBs compared to other heating methods?

OWB = 72 g/hr

Conventional Wood Stove = 18 g/hr

EPA Certified Stove = 6 g/hr

Oil Furnace = 0.07 g/hr

Gas Furnace = 0.04 g/hr

Source: New York Attorney General's Report (2008): CLICK HERE

What is an OWB's Efficiency?

According the New York Attorney General's Office an average for OWBs is 43% efficiency.

Source: New York Attorney General's Report (2008): CLICK HERE

How long have OWBs existed? Is this a new trend to heat homes?

United States Patent 4724798 was filed in January of 1987 and was published in February of 1988.

Source(s): U.S. Patents Office

How long has the U.S. Environmental Protection Agency known OWBs were problematic?

Our research indicates that the U.S. EPA has known about the dangerous emissions that OWBs create since the early 1990s. If this is incorrect and anyone knows of an earlier or later date, please let us know.

Source(s): Various

How many OWB's are in use? Are there more on the way?

NESCAUM predicts that by the year 2010 nearly 500,000 units may be in use at the rate they are being used.

Source(s): www.nescaum.org

Has the U.S. EPA done anything about this what are they doing now?

The U.S. EPA has entrusted OWB Manufacturers to self-regulate the industry, instead of forcing a ruling. To answer this question more fully, please click here: http://www.epa.gov/owhh/what_epa_doing.htm

Source(s): www.epa.gov/owhh

If OWBs are so "bad," why aren't they against the law?

Unfortunately, the U.S. EPA only *recommends* certain operational standards for OWBs. Because of this recommendation and not regulation, OWBs do not have a standard for who should "enforce" them. Therefore, many state, county, township, and municipal governments have enacted ordinances either regulating or banning the use of OWBs.

Commonly, OWBs can be enforced under nuisance and property laws, however often smaller municipalities and counties do not have the functionality to carry out and uphold these laws. The local municipalities then rely on state departments to handle the situation, however some states don't (won't) address the issue as a state problem and rely on local municipalities to handle the issue.

Do people save money using Outdoor Wood Boilers?

When factoring in costs of purchasing an OWB ($5,000 - $7,000) then installation costs between $2,000 - $4,000 The math is pretty easy to add up. Even if someone pays $50 a month to heat the intial investment outweighs the benefit. To read an analytical approach to this PLEASE CLICK HERE

Are OWBs fire hazards?

When not used or cleaned properly, OWBs can cause a fire. Carelessness and neglect of the units can create soot and creosote buildup that may cause a serious fire and damage property as well as the unit itself.

Source(s): Various

What are the OWBs that pass the EPAs Standards with an "orange tag"?

Currently there are only 3 models of OWBs on the market that pass the U.S. EPA's emission standards. That means that the estimated 500,000 other units already in operation do not pass the emission standards and **NEVER** will, simply because of their design.

The models are:

1) **Central Boiler E-Classic 2300 Model**

2) **Heatmor Response** (not on the market as of May 2008)

3) **Greenwood Furnace Model 100**

Source(s): Central Boiler, Inc., Heatmor, Inc., and Greenwood Technologies, Inc.

So what about older model OWBs?

Unless the burner is one of the newer models it does NOT pass emission standards set forth by the U.S. EPA. OWB manufacturers have admitted their older models are not efficient. NESCAUM believes these standards are still not enough.

Source(s): www.nescaum.org

What is the "orange tag" program?

This orange tag identifies outdoor wood-fired hydronic heaters that meet EPA's Phase I emissions levels for the voluntary program. Models that carry this tag have been tested by an EPA-accredited laboratory and are cleaner than other models.

To read more about the Orange Tag Program http://www.epa.gov/owhh/guide.htm

Source(s): www.epa.gov/owhh

What are the emission standards set by the U.S. EPA?

The Phase 1 emission standards for OWBs as of March 2008 is 0.44 Ib/mmBtu (heat input)

The Phase 2 emission limit of 0.32 Ib/mmBtu (heat output) with no test run to exceed 15 g/hr for residential units effective 3/31/10

Source(s): www.epa.gov/owhh

Are there any groups that are for restricting or banning Outdoor Wood Boilers?

Yes, the following groups have voiced their opposition on OWBs. Please visit their sites

The Clean Air Revival:

http://burningissues.org

Northeast States for Coordinated Air Use Management:

www.nescaum.org

Western States Air Resources Council:

www.westar.org