

To: Board of Supervisors
From: Environmental Management Council
Date: October 26, 2009
Subject: Outdoor Wood Boilers

Introduction

The use of outdoor wood boilers (OWB) is increasing in our county. In several communities within our county the use of OWB's has created concern and controversy. Many communities throughout Upstate New York have adopted local laws regulating OWB's, and moratoriums or outright bans on their installation.

In light of this background, the Environmental Management Council (Council) examined available information on OWBs and their potential impacts on air quality. The Council examined information compiled and reported by the New York State Attorney General Environmental Protection Bureau,¹ the New York State Department of State (NYS DOS),² the New York State Department of Environmental Conservation (NYS DEC)³ and the United States Environmental Protection Agency (US EPA).⁴ Based on our review of that information, we have prepared this summary and a recommendation for local laws communities can adopt to address OWB's, whether to deal with issues currently facing them or to forestall issues arising in the future.

Background

An outdoor wood fired boiler (OWB), also called a hydronic heater, is a freestanding unit adjacent to a home or facility. It provides heat and/or hot water to the home or business by burning wood and circulating the heated water to the main structure. The burning of wood – even well seasoned hardwood – at a low temperature or with reduced oxygen available, results in incomplete combustion of the fuel. This incomplete combustion creates dense smoke consisting of fine and course particulate matter, much of which is smaller than 2.5 microns. In addition, emissions from these units frequently contain sulfur oxides, nitrogen oxides, carbon monoxide, and potentially cancer causing compounds, including polycyclic hydrocarbons, benzene, formaldehyde, and chlorinated dioxins.

Concerns over the environmental and safety hazards concerning the use of OWBs to heat homes and hot water has prompted the New York Attorney General's Environmental Protection Bureau, the New York Department of State and the US Environmental Protection Agency to research and publish information on the hazards posed by the use of OWBs. According to the Environmental Protection Bureau, "Even when used properly, OWBs emit on average, about four times as much fine particulate matter as conventional woodstoves, about 12 times as much fine particle pollution as EPA-certified woodstoves, and 1000 times more than oil furnaces, and 1800 times more than gas furnaces. Such emissions are significant because fine particulate matter has both short-term and long-term [negative] health effects on respiratory and cardiac health."⁵

The U.S. Environmental Protection Agency (US EPA) states that the following potential health hazards are caused by their use: "Most unqualified hydronic heaters smoke even when operated according to the manufacturer's

¹ *Smoke Gets in Your Lungs: Outdoor Wood Boilers in New York State*; State of New York Office of the Attorney General Environmental Protection Bureau, Revised 2008.

² NYS DOS "Regulation of Outdoor Wood Boilers"

³ NYS DEC www.dec.ny.gov/chemical/51986.html

⁴ US EPA www.epa.gov/owhh

⁵ *Smoke Gets in Your Lungs: Outdoor Wood Boilers in New York State*; State of New York Office of the Attorney General Environmental Protection Bureau, Revised 2008.

instructions. Even new generation hydronic heaters that qualify for EPA's voluntary standards program can produce smoke if operated improperly."

"Smoke from hydronic heaters contains a complex mixture of gases and particles. The size of particles is directly linked to their potential for causing health problems. The US EPA is concerned about particles that are 10 micrometers in diameter or smaller because these 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)."

The US EPA has developed a voluntary program with OWB manufacturers pursuant to which cleaner OWBs are tested and labeled (with an Orange Tag – 70% cleaner than earlier models – or White Tag – 90% cleaner). In late 2008, the US EPA reported that six OWB models qualified for the White Tag. Several New England states, including Vermont, New Hampshire and Maine have adopted regulations limiting emissions from OWBs.

The Challenge

In spite of the known hazards, there are presently no federal or New York State regulations governing in the construction, installation, or use of OWBs. Although NYS DEC has prepared draft rules to govern OWB's, those rules have been pending at the Governor's Office of Regulatory Reform since December 2008.⁶ While DEC and the AG do attempt to respond to individual complaints about nuisance smoke and fumes, their ability to respond is hampered by lack of resources. In the absence of federal or state rules, addressing problems caused by OWB's is relegated to a case-by-case process, which inevitably leaves many problems unaddressed.

Many municipalities and some counties in New York, however, do regulate such matters as: stack height, proximity of OWB's to property lines, period of use and other parameters. Others have adopted outright bans on the installation of OWB's. As of June 2009, more than 70 local governments in New York have adopted local laws dealing with OWB's.⁷

Recommendation

Because OWB's present both concerns about the quality of our air generally, and a significant potential for creating local nuisance, conditions municipalities in our county may want to take steps now to control the use of OWB's. The Council recommends that Columbia County municipalities adopt local laws concerning the following:

1. Prohibit the sale and installation of OWB's unless they carry the US EPA White Tag.
2. Limit the installation of OWB's to larger residential/agricultural districts, for example, of two-acres or greater.
3. Mandate minimum setbacks from abutting properties of 100-200 feet.
4. Mandate minimum chimney heights of not less than 18 feet.
5. Prohibit the burning in OWB's of anything but seasoned firewood.
6. Prohibit the operation of OWB's between May 1 and September 30.
7. Make provisions for phasing out non-conforming OWB's.

There are numerous illustrative local laws that address this subject. The Council would be happy to compile samples and make them available upon request.

⁶ The Council has reviewed the draft regulations and believes that their adoption would be a welcome alternative to local regulation.

⁷ Compilation provided by Judith Schreiber, Chief Scientist, Office of the Attorney General.