

# British Columbia's Experience with and Plans for Outdoor Wood Boilers

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The smoke generated by domestic wood-fired heating appliances can have a significant impact on air quality, with associated health and environmental concerns. Many communities in British Columbia, Canada, are located in valleys that are subject to inversions and periods of stagnant air that can trap smoke emissions from wood-burning appliances and other sources close to the ground. These inversions are most frequent in winter when emissions from wood heating are also greatest.

The installation and use of outdoor wood boilers in residential areas of British Columbia has generated a substantial volume of complaints to provincial and municipal government agencies from neighbors exposed to excessive quantities of smoke. A 2004 survey<sup>1</sup> of residential wood heating appliances indicates that there were approximately 20,000 outdoor wood boilers in existence in the province. It is difficult to say what the contribution of emissions from outdoor wood boilers is to the total emissions from all residential wood heating appliances, though each unit contributes approximately 10–20 times the emissions of an emission-certified wood stove.<sup>2</sup> Anecdotal evidence of the increased popularity and sales of these appliances, together with the growing number of complaints, and the number of bylaws enacted over recent years at the municipal

level, indicate the need for coordinated efforts to address outdoor wood boilers in British Columbia.<sup>3</sup>

## Regulation

Solid fuel-burning outdoor central heating appliances include outdoor wood boilers (also known as outdoor wood-fired hydronic heaters). Currently, these appliances do not have to meet any emission standards to be sold in British Columbia. However, the revised Canadian Standards Association (CSA) B415.1-10 standard includes an emission rate applicable to outdoor central heating appliances. The average emissions rate for this class of appliance must not exceed 0.137 grams per megajoule of output. The CSA B415.1-10 emissions standard for this class of appliance is substantially equivalent to the U.S. Environmental Protection Agency's (EPA)

Whistler Mountain,  
British Columbia, Canada.



voluntary Phase 2 Hydronic Heater Program (the "White Tag" program).

In British Columbia, both the provincial and local governments are dealing with outdoor wood boilers. The provincial effort, led by the Ministry of Environment, is focusing on regulating the sale and installation of new boilers. This focus is dictated by the fact the province's Environmental Management Act grants the authority to regulate new solid fuel burning appliances, while it exempts existing solid fuel burning appliances from some regulatory provisions.

The British Columbia Ministry of Environment intends to revise the provincial regulation to include a definition and standard for outdoor central heating appliances. Beginning in 2011, only outdoor central heating appliances certified to meet the CSA standard or demonstrated to meet the EPA White Tag emissions level will be legal to offer for sale in the province. If EPA adopts a formal emissions standard for outdoor central heaters (replacing the voluntary White Tag program) a provision in the British Columbia regulation could ensure that appliances meeting the EPA standard would qualify for sale in British Columbia.

In addition to the emissions standards, the Ministry is proposing to include a setback standard or a distance from the nearest property line that will limit the installation of new outdoor central heating appliances to sites on larger properties where

they are far less likely to cause nuisance or health problems to neighbors. A number of U.S. states (including Connecticut, Maine, Massachusetts, and Vermont) have adopted setback standards for new outdoor central heating appliances.

The Ministries are proposing a setback distance from the nearest property line in the range of 60–150 m for outdoor appliances that do not meet the emission standards, and 30–90 m for outdoor appliances that do meet the emission standards. Two different setbacks are required since outdoor central heating appliances not meeting the new emission standards would still be legal for sale between the effective date of the regulation and the coming into force of the emissions provisions (proposed at 12-18 months).

To promote compliance with this set-back provision, retailers of outdoor central heating appliances would be required to provide information to purchasers on these setback requirements. Purchasers of outdoor central heating appliances would be required to provide their name and address and an acknowledgement that they have received this material.

There are two potential courses of action the province can take against owners of outdoor boilers where there is evidence that the appliances are emitting excessive smoke. Section 83 of the Environmental Management Act allows for Pollution



Figure 1. British Columbia communities with bylaws that address outdoor wood boilers.

Abatement Orders to be issued when an investigation concludes that the appliances are causing pollution. Section 63 of the Health Act provides the ability for medical health officers to determine that excessive smoke is causing a health hazard, and issue an Order. In both cases, the end result could mean that the appliance in question is required to be shut down. To date, there have been only a handful of Pollution Abatement Orders or Orders of a Medical Health Officer issued for outdoor boilers due to the extensive investigation required and the difficulty in proving pollution or health hazards.

At the local level, municipal governments are being encouraged by the provincial government to enact local bylaws since they can provide proactive and timely protection until a modified provincial approach can be approved. Bylaws can also complement provincial legislation by dealing directly with local issues. These include addressing nuisances from existing units, ensuring outdoor wood boilers are not installed or used in situations for which they weren't designed (i.e., in populated urban areas), and restricting resale of older units.

## References

1. *Residential Wood-Burning Emissions in British Columbia, 2004*; British Columbia Ministry of Environment; available at [www.bc.airquality.ca/reports/pdfs/wood\\_emissions.pdf](http://www.bc.airquality.ca/reports/pdfs/wood_emissions.pdf).
2. *Assessment of Outdoor Wood-fired Boilers*; Northeast States for Coordinated Air Use Management, March 2006; available at [www.nescaum.org/documents/assessment-of-outdoor-wood-fired-boilers/2006-1031-owb-report\\_revised-june2006-appendix.pdf](http://www.nescaum.org/documents/assessment-of-outdoor-wood-fired-boilers/2006-1031-owb-report_revised-june2006-appendix.pdf).
3. *Solid Fuel Burning Domestic Appliance Regulation Intentions Paper*, May 2010; British Columbia Ministry of Environment; available at [www.env.gov.bc.ca/epd/codes/solid-fuel/pdf/intentions-paper.pdf](http://www.env.gov.bc.ca/epd/codes/solid-fuel/pdf/intentions-paper.pdf).

Bylaws in British Columbia municipalities can include the following options:

- Prohibiting the installation of appliances that do not meet the CSA emission standards (which effectively bans existing outdoor wood boilers);
- Establishing timelines for removal of existing units;
- Establishing fuel requirements, including what not to burn;
- Requiring mandatory removal prior to the sale or transfer of property;
- Establishing nuisance and opacity rules;
- Setting zoning regulations; and
- Establishing a minimum lot size, setbacks, and chimney height requirements.

More information can be found in Environment Canada's Model Bylaw for Regulating Wood-Burning Appliances ([www.ec.gc.ca/air/975A1778-B583-4E2A-9369-81800C3AC8C2/Model\\_By-Law.pdf](http://www.ec.gc.ca/air/975A1778-B583-4E2A-9369-81800C3AC8C2/Model_By-Law.pdf)) and the Inventory of Air Quality Bylaws in British Columbia, which provides details of what provisions each community has included in their bylaw ([www.bc.airquality.ca/reports/pdfs/aq\\_bylaws\\_bc.pdf](http://www.bc.airquality.ca/reports/pdfs/aq_bylaws_bc.pdf)).

British Columbia communities with bylaws that address outdoor wood boilers include Quesnel, Williams Lake, Central Okanagan, Prince George, Golden, Powell River, Smithers, Houston, Burns Lake, Saanich and North Saanich, Cranbrook, Port Alberni, Squamish, and Vernon (see Figure 1).

## Next Steps

During summer 2010, public comments were received from all sectors about the proposed provincial regulation and the overall mood of the responses has been very positive regarding the direction and scope of the new regulation. While there is support for establishing emission standards for outdoor appliances and requiring setbacks for the installation of these units, there is also strong feedback that the units should be outright banned and that older units be phased out over time. The next steps will be to draft the language of the regulation and present it to the provincial legislature for passage as a regulation under the British Columbia Environmental Management Act. **em**