



Cold Climate Housing Research Center

CCHRC

February 23, 2009

Re: Proposed woodstove ban in the City of Montréal, QC

Montréal City Mayor, City Council and other concerned parties:

Please allow me to introduce the Cold Climate Housing Research Center (CCHRC) based in Fairbanks, Alaska. CCHRC is a private non-profit organization whose mission is to "promote and advance the development of healthy, durable, and sustainable shelter for Alaskans and other circumpolar people through applied research." I should mention that CCHRC maintains an active affiliation with the Canada Mortgage and Housing Corporation (CMHC.) With the current high price of energy, Alaska is in a unique situation and is thought to be on an accelerated schedule to develop sustainable renewable energy resources and solutions for our region. We feel that some of these solutions may, in fact, extend to areas outside of our circumpolar area.

CCHRC has been engaged by the Fairbanks North Star Borough (an area approximately the size of the State of New Jersey) to study, research and make policy recommendations to reduce residential PM2.5 particulate emissions in the Fairbanks area. Fairbanks is currently designated as an EPA "non-attainment" area for wintertime PM2.5 particulate concentrations.

Without knowing the specific details of the current situation in Montréal, I would like to at least share with you a summary of the recommendations that are being made for Fairbanks, Alaska that were concluded from research, testing, and formulating a residential emissions model based on current EPA information and locally acquired data. The effects of different policy options were evaluated with this model and the following recommendations formulated:

First and foremost, we've determined that a moratorium on future sales of wood-burning appliances would not affect our existing problem of being out of compliance with EPA's standards for wintertime PM2.5 particulate levels due to the continued use of existing appliances.

Further, we have fashioned a comprehensive policy recommendations set that reflects a substantial overall reduction in residential emissions but which also remains sensitive to the market and consumer choices.

To summarize, the first recommendation is to enact a "Uniform Emission Limit" (UEL) for all solid fuel burning appliances. We have recommended this limit be the same as EPA's certified wood stove limit of 7.5 g/hr. In our model, this single step results in a 61% reduction in all emissions from residential heating, other fuels beside wood included. We have also compared this reduction with a more stringent limit of 4.5 g/hr, corresponding to Washington State's current limit. This lower limit results in a 67% reduction, which we feel

CCHRC <http://www.cchrc.org>

1000 Fairbanks Street, Fairbanks, AK 99709 Phone: (907) 457-3454 Fax: (907) 457-3456

is only a marginal improvement but much higher economic impact, restriction to the market and consumer choices.

With the concept of the UEL, consumers remain free to choose their desired appliance class. Many wood-fired hydronic heaters, wood stoves, pellet stoves, pellet boilers and masonry heaters, etc., are commercially available that meet the 7.5 g/hr limit. Just for clarification on this point, we are recommending an "exempt" status for masonry heaters designed to parallel current EPA language based on inherent low emissions.

The adaptation to the new standard would begin by establishing a change-out program with incentives to allow residents time and financial assistance necessary to come into compliance. Any appliance meeting the new emissions limit would be eligible as a replacement unit for a non-complying existing appliance or for new installation.

Another necessary step would be to place an immediate moratorium on sale of appliances that do not meet the new UEL and also require decommissioning of existing solid fuel burning appliances that do not meet the new standard by some future effective date.

Additionally, developing and implementing a method to forecast exceedance conditions that can be used to trigger an episodic burning restriction would further reduce emissions from solid fuel burning appliances at critical periods.

A sustained wood-burning educational program is also an important part of our comprehensive policy recommendations. It would include an effort to educate the public on clean burning practices, appliance change-out program details, exceedance forecasts and provide general information about the UEL requirements for solid fuel burning appliances. The EPA has stated that an effective educational program can reduce residential emissions by up to 10%.

The estimate of the total effect of our comprehensive policy recommendations, assuming 100% compliance, is a 71% reduction in total residential particulate emissions.

Another important aspect of our policy recommendations is to include the establishment of a standard to address nuisance emissions. This standard would seek to address locally high or harmful emissions from residential heating sources and provide a means to restrict the use of nuisance devices on a case-by-case basis for the protection of public and individual health. This policy has been recommended on its own merit regardless of any positive effect it may have on PM_{2.5} concentration levels. Correspondingly, no emissions reduction from this policy action has been included in the above stated overall emissions reduction.

Again, this is only a summary of our findings and recommendations for our specific issues here in the Fairbanks area. Obviously, Montréal's local conditions and factors may be different, if not unique. But it logically follows that the actual conditions and potential methods of reducing particulate emissions from solid fuel burning appliances should be considered in a careful and systematic way in order to support sound policy decisions.

I respectfully offer the following considerations, which I hope may assist you in enacting policy for Montréal; they are based on my assessment of topics that may be relevant:

- Heating with wood is considered nearly CO₂ neutral and is a renewable source of energy.
- The technology of wood burning is currently at a high level and is constantly improving. It is possible to reach a compromise by allowing the best wood-burning technologies to be utilized, capping emissions to less than harmful levels and also allowing the replacement of a portion of non-renewable energy with renewable sources.
- The largest percentage of particulate emissions from wood burning appliances is considered to be caused by the use of older devices that do not possess any of the currently available technologies for emissions reduction found on newer appliances. This is also confirmed in our study of the Fairbanks area; changing from older devices to newer devices results in a large emissions reduction.
- Changing woodstoves to oil fired heating appliances may reduce some constituent emissions but can change the overall residential emissions profile when also including the emission of greenhouse gases and acid impacts for consideration as other harmful elements.
- When considering allowing the continued use of wood-burning appliances that have a low emissions rate, i.e. pellet stoves, it logically follows that other technologies that have a similarly low emissions rate also be allowed. Masonry heaters have existed for some time that possess, as a class of appliance, similar low emissions characteristics. For this reason, they have been specifically exempted from EPA certification requirements. Additionally, a review of the newest technologies reveals that wood-fired hydronic heaters now exist that produce less emissions per heat output than most pellet stoves. Restricting devices that are considered to have equivalent or less emissions than allowed devices only serves to unfairly restrict the market and limit consumer choices.
- Economics could play a large role when considering policy options. For example, decommissioning 50,000 woodstoves at a low approximated purchase price of \$1,000 per unit would result in a direct cumulative economic loss of \$50,000,000 to consumers who purchased them. Correspondingly, offering buy-backs or rebates for the appliances can place all or a portion of that economic burden upon governmental agencies.

Please feel free to contact me should you have any questions or wish additional information or assistance.

Sincerely,



David J. Misiuk, P.E.
CCHRC Wood Energy Specialist

Professional Member International Code Council (ICC)
Member ASTM E06.54 Committee on Solid Fuel Burning Appliances