



## Update on the Regulation of Ozone Depleting Substances

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Ottawa, ON – February 2003 - BOMA Canada's Energy and Environment Committee and The Heating Refrigeration Air-conditioning Inst. / Refrigerant Management Canada (HRAI / RMC) have been monitoring proposed ODP regulations submitted for public review by the Federal Government and all Provinces.

Current Status As of February 22, 2003 only the Province of Quebec has reported to have completed its public consultation phase (although they have not published final regulations). Ontario will be reaching the public consultation phase "in the near future". All other Jurisdictions are at various stages of the review process.

History and intent of these proposed regulations These proposed Regulations are intended to promote the removal of CFCs from Chillers, Mobile refrigeration, Commercial A/C, and the Halon sector in Canada as soon as possible after January 1, 2005.

The original proposal to ban all refilling or topping up of a chiller after January 1, 2008 was changed to a phaseout over time based on the next major overhaul after January 1, 2005. The change was supported by BOMA and other user groups. BOMA Canada had recommended the most reasonable time for an owner to convert or replace a chiller was during the next scheduled major overhaul after January 1, 2005. The normal time frame between major overhauls would be every 6 to 10 years. The advantage would be that an owner would not be required to convert or replace a chiller at any time other than when they had already planned to spend \$50,000.00 to \$150,000.00 on a major overhaul. Unfortunately, BOMA's recommendation was not accepted and the word "scheduled" was not included in the definition in proposed federal regulations.

While intent of the definition of a major overhaul is that minor repairs will not trigger conversion / replacement this may be the case! The wording of this clause may be different in every jurisdiction. Depending on the wording used and what your service provider understands it to mean, the definition may prevent some minor repairs from being carried out without triggering the need to replace or convert the chiller. This would pose a risk for owners who choose to continue operating CFC chillers after 1 January 2005.

BOMA Canada's Energy and Environment committee's recommendation is to plan now for replacing or converting all CFC chillers with non CFCs.

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### Annex A

#### Notes on Forthcoming CFC Regulations

Before December 31, 2003 all chillers would be required to have installed high efficiency purges, (a purge that removes no more than 0.1Kg. of ODP per. 1Kg. of air removed) estimated cost of \$5,000.00 to \$17,000.00 per installation.

Many existing purges that were sold as Hi Efficiency purges will not meet the new standard.

After January 1, 2005 an owner may not refill or add to the charge of a chiller with CFCs if that chiller requires a major overhaul (each jurisdiction having authority may write its own definition of a major overhaul). Most buildings will be regulated by the jurisdiction in which they are located.



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A clause to define a major overhaul that may be used by any one of the jurisdictions and may contain similar language to:

Note: The wording of this clause is extremely controversial and the exact wording and resultant meaning may vary between jurisdictions and may not be known until after the public consultation phase has been completed. What is written here may not be the exact words used by any jurisdiction.

A major overhaul of a chiller shall be defined as one of any combination of the following service related procedures or conditions:

- (a) The required internal inspection based on the manufacture's recommendations;
- (b) The procedure or repair which requires the replacement or modification of any internal sealing devices or any internal mechanical parts; or
- (c) The procedure or repair required to fix an evaporator or condenser heat exchanger tube failure.

Ban on Topping up Some jurisdictions may after January 1, 2015 include a clause that states no chiller may be topped up or refilled with CFCs. (It is possible that this could be rewritten as a ban on the use of CFCs if the number of conversions or replacements do not meet expectations).

New proposals under discussion in some jurisdictions. A chiller using a CFC refrigerant that fails during the cooling season (after Jan. 1, 2005) and requires repairs as defined by the major overhaul clause, could be repaired and refilled on the condition that it be converted or replaced within 6 - 12 months.

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### Annex B

#### Other Requirements Resulting from these Proposed Regulations

Converting an existing chiller plant from CFCs to HCFCs (R123) or HFCs (R134a) may require up grading of the mechanical room to meet the CSA B52 code. (Increased ventilation and safety)

Lower efficiency and reduced cooling capacity may be experienced when converting from CFC R11 to HCFC R123. On heat reclaim chillers improved heating ability has been reported.

Some chillers may not be suitable for conversion but still have many good years left in them. These chillers may require special attention. This group may include R113 chillers of any make and some chillers manufactured by Carrier or McQuay. Most Trane and York chillers can be converted.

#### Planning for CFC Phaseout

Place chillers into groups All chillers should be sorted into groups by, age, general condition, manufacture, refrigerant type or refrigerant that could be used as a result of work already completed, (R123 conversion.) Close attention should be given to the condition of condenser and evaporator tubes.

#### Develop a Plan

Building owners and manager should develop a plan now with their service providers to phase out CFC refrigerant use. Some possible options are noted below.

Newer Chillers That are in Good Condition and Can be Converted Chillers that are less than 30 years old and are



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in good operating condition and can operate on CFC, R11 or HCFC, R123 and were not subject to a major overhaul in the last 6 to 10 years could be retrofitted for R-123 before January 1, 2005. Alternatively they could then be operated on R-11 until the next major overhaul. For some chillers that could be 2015 and / or the end of their economic life. (See comments on Efficiency of converted R-11 chillers)

**Newer Chillers That are in Good Condition but Cannot be Converted** Chillers using CFCs that have many years of useful economic life but cannot be converted to another refrigerant may benefit from a overhaul before the cooling season of 2004, (the repair company should have a warrantee period that includes a cooling season) not 2005. The warrantee may be of no value if the chiller cannot be refilled with CFCs after a repair under the warrantee in the summer of 2005. Provisions should be made for the connection of a rental chiller should this chiller fail during the cooling season. Past history should be the best guide as to how reliable the chiller has been after a major overhaul. Some chillers in this group could be relied upon until 2014.

**Chillers Needing Replacement** Chillers that are near the end of their economic life and cannot be converted should be replaced with a new R-123 or new R134a chillers. Chillers that are greater than 25 years old may require up to 1 kw of electrical energy per. ton of chilled water produced. Newer chillers may be designed to achieve less than 0.5 kw of electrical energy per. ton of chilled water produced.

**Other Issues to be Aware of**  
Refrigerant Management Canada is a non-Government agency operated by HRAI for the sole purpose of destroying surplus stocks of CFCs returned to wholesalers and is done at little or no cost to the owners of chillers. (Contact your service provider for information on how you may access this program.) Distributors of HCFCs (primarily R-22) contribute \$1.00 per kg for each kg. Sold to pay for the destruction of all CFCs collected. The cost to destroy 1 kg. of R-11 returned by the chiller sector has been estimated at \$13.00. The \$1.00 per kg. levy is also charged on HCFC R123. The remaining \$12.00 is being made up by the R22 market. The cost of purchasing HCFCs or disposing of CFCs is likely to increase in the near future.

For more information on this and related subjects please contact your chiller service representative or the following organizations.

Environment Canada  
Refrigerant Management Canada

<http://www.ec.gc.ca/ozone/index.htm>  
<http://www.hrai.ca/rmc/>

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