PRACTICE Greenhealth

Suggested Environmental Considerations for Ice Machines and Water Coolers

Ice Machines

Commercial ice machines have three different condenser types: air-cooled, water-cooled and remote-cooled condensers. According to Building Green, water-cooled models should be avoided since they use up to ten times the amount of water as air-cooled compressors. Energy Star does not certify water-cooled ice machines nor do they certify models that make flake or nugget ice.

The Consortium for Energy Efficiency (CEE) notes that water-cooled machines must be installed using a closed loop system or systems with a remote evaporative condenser, i.e., cooling tower, to meet CEE qualifications. Units installed on once-through or pass-through cooling systems do not meet the requirements.

Water Coolers

According to Energy Star, a standard hot and cold water cooler can use more energy than a large refrigerator. Energy Star qualified water coolers can result in 50% savings over standard models.

Suggested Environmental Considerations – Ice Machines and Water Coolers

#	Question	Preferred Answer	Definition	Rationale
	Ice Machines			
1	Is this commercial ice machine ENERGY STAR qualified? (Yes/No)	Yes	Version 2.0 ENERGY STAR Program Requirements for Automatic Commercial Ice Makers (effective Feb 2013) ENERGY STAR certifies air-cooled batch-type and continuous-type models. Includes ice making head, remote condensing unit and self contained unit designs with ice harvest rates between 50 and 4,000 pounds of ice per day, depending on equipment type. For detailed criteria, http://www.energystar.gov/index.cfm?c=comm_ice_machines.pr_crit_comm_ice_machines	ENERGY STAR certified commercial automatic ice machines are on average 15% more energy efficient and 23% more water efficient than standard models. See list of qualified products, http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CIM

2	Is this commercial ice machine qualified under the Consortium for Energy Efficiency (CEE) Tier 2 or higher? (Yes/No)	Yes	CEE leverages the Energy Star program and qualified machines at Tier 2 or higher would be above the minimum energy efficiency for Energy Star. For details, see http://www.cee1.org/content/cee-tiers-and-energy-star	The Consortium for Energy Efficiency's High Efficiency Specifications for Commercial Ice Makers can be found at http://library.cee1.org/sites/default/files/library/4280/CEE_Ice_Machines_Spec_Final_Effective_01Jul2011_0.pdf and lists of qualifying machines http://library.cee1.org/content/commercial-kitchens-ice-machines-qualifying-product-list
3	Does this device include a water filtration system certified to meet at least one of the following NSF/ANSI Standards: 42, 44, 53, 55, 58 and/or 62, for drinking water? (Yes/No) If yes, list NSF/ANSI Standards met	Yes	NSF/ANSI Standards for water filtration include: • NSF/ANSI Standard 42 (aesthetic effects, taste) • NSF/ANSI Standard 44 (removes hard water chemicals) • NSF/ANSI Standard 53 (removes health-related contaminants such as *Cryptosporidium*, *Giardia*, lead, volatile organic chemicals (VOCs), MTBE (methyl tertiary-butyl ether)) • NSF/ANSI Standard 55 (ultraviolet microbiological water treatment) • NSF/ANSI Standard 58 (reverse osmosis systems) • NSF/ANSI Standard 62 (reducing contaminants, including total arsenic, chromium, mercury, nitrate/nitrite, and microorganisms)	To learn more these standards, see http://nsf.org/business/drinking_water_treatment/standards.asp?program=DrinkingWatTre. For certified products, visit http://www.nsf.org/Certified/DWTU/
4	Is this product free of HCFC as a refrigerant? (Yes/No)	Yes	EPA has issued mandates as part of the Clean Air Act to phase out the use of HCFC as a refrigerant to reduce the impact to greenhouse gas emissions.	HCFC refrigerants are potent greenhouse gases. An alternative to HCFC is hydrocarbons, which are not greenhouse gases. For more information, see EPA's website http://www.epa.gov/ozone/title6/phaseout/hcfc.html . Washington Post article on refrigerants, http://www.washingtonpost.com/wp-dyn/content/article/2010/12/26/AR2010122602363.html
	Water Coolers			
5	Is this water cooler ENERGY STAR qualified? (Yes/No)	Yes	ENERGY STAR water coolers result in 50% savings over standard models. See ENERGY STAR purchasing savings calculator and list of qualified products, http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=WA	Water coolers in homes and businesses consume about 7 billion kWh/year. ENERGY STAR water coolers use about half of the energy of conventional models.
6	If the water storage tank is plastic, is the tank free of intentionally added phthalates: DEHP, BBP, DnHP, DIDP, and DBP? (Yes/No/NA) If no, please specify the phthalates	Yes/NA	Phthalates are esters of phthalic acid mainly used as plasticizers (substances added to plastics to increase their flexibility, transparency, durability, and longevity). They are used primarily to soften polyvinyl chloride (PVC). Di-2-ethyl hexyl phthalate (DEHP) CAS 117-81-7, Benzylbutylphthalate (BBP) CAS 85-68-7, Di-n-hexyl phthalate (DnHP) CAS 84-75-3, Di-isodecyl phthalate (DIDP) CAS 68515-49-1 or 26761-40-0, Dibutyl phthalate (DBP) CAS 84-74-2	People can be exposed through the use of products containing these chemicals. In 2002, the FDA issued a Public Health Notification for PVC devices containing DEHP. DEHP is also listed as a carcinogen on the Prop 65 list. The National Research Council has also noted the importance of looking at cumulative exposure from multiple phthalates. These five phthalates are listed as reproductive toxicants by Prop 65.
7	If the water storage tank is plastic, is the product free of intentionally added Bisphenol A (BPA) or BPA derived plastics (such as	Yes/NA	Bis(4-hydroxyphenyl)propane, or Bisphenol A (BPA), is an organic compound used to make polycarbonate plastic, epoxy resins and for other applications.	People can be exposed through the use of products containing these chemicals. BPA is one of the highest volume chemicals produced worldwide. Laboratory studies have shown

	polycarbonate plastic and resins)? (Yes/No/NA)		Polycarbonate plastic is derived from BPA. Resin derived from BPA is used to line metal food containers and in thermal paper for impact printing purposes. Intentionally added means a substance is deliberately added in the production of the product.	widespread health effects, at least in part through endocrine disruption mechanisms. The National Toxicology Program has some concern for the effects on the brain, behavior, and prostate gland in fetuses, infants, and children at current human exposures to Bisphenol A.
8	Does this device include a water filtration system certified to meet at least one of the following NSF/ANSI Standards: 42, 44, 53, 55, 58 and/or 62, for drinking water? (Yes/No) If yes, list NSF/ANSI Standards met	Yes	NSF/ANSI Standards for water filtration include: • NSF/ANSI Standard 42 (aesthetic effects, taste) • NSF/ANSI Standard 44 (removes hard water chemicals) • NSF/ANSI Standard 53 (removes health-related contaminants such as *Cryptosporidium*, *Giardia*, lead, volatile organic chemicals (VOCs), MTBE (methyl tertiary-butyl ether)) • NSF/ANSI Standard 55 (ultraviolet microbiological water treatment) • NSF/ANSI Standard 58 (reverse osmosis systems) • NSF/ANSI Standard 62 (reducing contaminants, including total arsenic, chromium, mercury, nitrate/nitrite, and microorganisms)	To learn more these standards, see http://nsf.org/business/drinking_water_treatment/standards.asp?program=DrinkingWatTre. For certified products, visit http://www.nsf.org/Certified/DWTU/
9	Is this a bottle-less water cooler so water is supplied by direct link to the buildings water supply? (Yes/No)	Yes	Bottle-less water coolers use water from the building's water supply. Bottles of water do not need to be delivered.	Bottle-less water coolers will not require additional transportation/delivery services, reducing associated impacts, and utilize public water systems with more regulated water quality controls, testing and disclosure requirements than bottled water.
10	Is this product free of HCFC as a refrigerant? (Yes/No)	Yes	EPA has issued mandates as part of the Clean Air Act to phase out the use of HCFC as a refrigerant to reduce the impact to greenhouse gas emissions.	HCFC refrigerants are potent greenhouse gases. An alternative to HCFC is hydrocarbons, which are not greenhouse gases. For more information, see EPA's website http://www.epa.gov/ozone/title6/phaseout/hcfc.html . Washington Post article on refrigerants, http://www.washingtonpost.com/wp-dyn/content/article/2010/12/26/AR2010122602363.html
11	Can this product adjust the dispensed water temperature to save energy (such as cold water from 50-65˚F to 70˚F)? (Yes/No)	Yes	Hot and cold water controls may be adjustable to save energy. Out of the factory, most coolers have temperatures set but they can be adjusted.	Some facilities may want to set a requirement for hot/cold water temperatures at installation of water cooling products so that they are consistent and not using the maximum amount of energy.
12	Does this product offer either a low power mode or a timer to shut off heating or refrigeration during periods of low use? (Yes/No)	Yes	Low power mode means the product is consuming less power than it would in active/ready mode. (See page 8, http://enduse.lbl.gov/info/LBNL-54202.pdf for clarity of definitions as applied to different products)	There are various modes of reduced power use (standby, low power, and sleep mode) and this question refers generically to all of them since they each are tiered from higher to lower power use. Products that offer reduced power option at low periods of use may save more energy.

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