

CHAPTER 7685
DEPARTMENT OF PUBLIC SERVICE
COOLING SYSTEMS

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7685.0100 AUTHORITY, APPLICABILITY, AND PURPOSE.

Subpart 1. **Authority.** The commissioner is authorized by Minnesota Statutes, section 446A.21, subdivision 2, to establish energy efficiency criteria for replacement cooling systems.

Subp. 2. **Applicability.** This chapter applies to all applications for loans for replacement of once-through cooling systems with environmentally acceptable cooling systems under Minnesota Statutes, section 446A.21.

Subp. 3. **Purpose.** Loans for replacement of once-through cooling systems with environmentally acceptable cooling systems under Minnesota Statutes, section 446A.21, must not be approved unless the system complies with the energy efficiency criteria of part 7685.0130.

Statutory Authority: *MS s 446A.21*

History: *18 SR 1443*

7685.0120 DEFINITIONS.

Subpart 1. **Scope.** The definitions in this part apply to parts 7685.0100 to 7685.0140.

Subp. 2. **CFC.** "CFC" means a chlorofluorocarbon refrigerant.

Subp. 3. **Commissioner.** "Commissioner" means the commissioner of public service.

Subp. 4. **Cooling efficiency.** "Cooling efficiency" means an expression of energy or energy performance in items A to C.

A. Kilowatts per ton (kW/ton) is the total electrical input (kW) divided by the net cooling capacity (in tons).

B. Coefficient of performance is the net cooling capacity divided by the energy input rate, when both are expressed in the same unit of measure.

C. One ton of cooling capacity equals 12,000 Btu per hour, or 3.516 kilowatts.

Subp. 5. **Once-through cooling system.** "Once-through cooling system" means a once-through system that has been issued a permit by the Department of Natural Resources to use in excess of 5,000,000 gallons of water annually from a groundwater source.

Subp. 6. **Once-through system.** "Once-through system" means a space heating, ventilation, air conditioning (HVAC), or refrigeration system used for any type of temperature or humidity control application, using groundwater that circulates through the system and is then discharged without reusing it for a higher priority purpose.

Statutory Authority: *MS s 446A.21*

History: *18 SR 1443*

7685.0130 ENERGY EFFICIENCY CRITERIA.

Subpart 1. **Cooling efficiency.** All systems must meet the cooling efficiency criteria established in this subpart.

A. The cooling efficiency of a new centrifugal or rotary screw chiller must be 0.61 kW/ton or less (or equivalent if other energy sources are used) at standard rating conditions specified in ARI Standard 550-1992.

B. The cooling efficiency of a previously used (existing) centrifugal or rotary screw chiller that has been rebuilt or modified must be 0.70 kW/ton or less (or equivalent if other energy sources are used) at standard rating conditions specified in ARI Standard 550-1992.

C. The coefficient of performance of a new absorption chiller must be at least 0.90 at standard rating conditions specified in ARI Standard 560-1992.

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D. The cooling efficiency of district cooling systems must be at least one kW/ton based on seasonal performance of the district cooling system.

Subp. 2. **Noncompliance of CFC systems.** A system using CFC refrigerants does not comply with the energy efficiency criteria of this part.

Subp. 3. **Cooling efficiency certification.** The cooling efficiency of a system must be certified by a mechanical engineer registered in Minnesota using data provided by the equipment manufacturer.

Statutory Authority: *MS s 446A.21*

History: *18 SR 1443*

7685.0140 INCORPORATIONS BY REFERENCE.

Subpart 1. **Incorporated items.** The standards in items A and B are incorporated by reference.

A. ARI Standard 550–1992, Standard for Centrifugal and Rotary Screw Water–Chilling Packages.

B. ARI Standard 560–1992, Standard for Absorption Water Chilling and Water Heating Packages.

Subp. 2. **Availability.** The standards incorporated by reference are available for public inspection at the Minnesota State Law Library and through the Minitex interlibrary loan system. In addition, ARI standards are available through the Air–Conditioning & Refrigeration Institute, 4301 North Fairfax Drive, Suite 425, Arlington, VA 22203.

Statutory Authority: *MS s 446A.21*

History: *18 SR 1443*