

§ 431.301

return to the integrated average temperature or lowest application product temperature, as applicable, after the 6 hour period without direct physical intervention.

2.3.3. *Calculations and Rounding.* In all cases, the primary rated energy consumption per day (E_D) must be calculated with raw measured values and the final result rounded to units of 0.01 kWh/day.

3. *Determination of Refrigeration Volume, Vendible Capacity, and Surface Area.*

3.1. *Refrigerated Volume.* Determine the “refrigerated volume” of refrigerated bottled or canned beverage vending machines in accordance with Appendix C, “Measurement of Volume,” of ANSI/ASHRAE 32.1 (incorporated by reference, see § 431.293). For combination vending machines, the “refrigerated volume” does not include any non-refrigerated compartment(s).

3.2. *Vendible Capacity.* Determine the “vendible capacity” of refrigerated bottled or canned beverage vending machines in accordance with the first paragraph of section 5, “Vending Machine Capacity,” of ANSI/ASHRAE 32.1 (incorporated by reference, see § 431.293). For combination vending machines, the “vendible capacity” includes only the capacity of any portion of the refrigerated bottled or canned beverage vending machine that is refrigerated and does not include the capacity of the non-refrigerated compartment(s).

3.3. *Determination of Surface Area.* Note: This section is not required for the certification of refrigerated bottled or canned beverage vending machines. Determine the surface area of each beverage vending machine as the length multiplied by the height of outermost surface of the beverage vending machine cabinet, measured from edge to edge excluding any legs or other protrusions that extend beyond the dimensions of the primary cabinet. Determine the transparent and non-transparent areas on each side of a beverage vending machine as the total surface area of material that is transparent or is not transparent, respectively.

[80 FR 45793, July 31, 2015]

Subpart R—Walk-in Coolers and Walk-in Freezers

SOURCE: 74 FR 12074, Mar. 23, 2009, unless otherwise noted.

§ 431.301 Purpose and scope.

This subpart contains energy conservation requirements for walk-in coolers and walk-in freezers, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

10 CFR Ch. II (1–1–23 Edition)

§ 431.302 Definitions concerning walk-in coolers and walk-in freezers.

Adaptive defrost means a factory-installed defrost control system that reduces defrost frequency by initiating defrosts or adjusting the number of defrosts per day in response to operating conditions (e.g., moisture levels in the refrigerated space, measurements that represent coil frost load) rather than initiating defrost strictly based on compressor run time or clock time.

Basic model means all components of a given type of walk-in cooler or walk-in freezer (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency; and

(1) With respect to panels, which do not have any differing features or characteristics that affect U-factor.

(2) [Reserved]

Dedicated condensing unit means a positive displacement condensing unit that is part of a refrigeration system (as defined in this section) and is an assembly that

(1) Includes 1 or more compressors, a condenser, and one refrigeration circuit; and

(2) Is designed to serve one refrigerated load.

Dedicated condensing refrigeration system means one of the following:

(1) A dedicated condensing unit;

(2) A single-package dedicated system; or

(3) A matched refrigeration system.

Display door means a door that:

(1) Is designed for product display; or

(2) Has 75 percent or more of its surface area composed of glass or another transparent material.

Display panel means a panel that is entirely or partially comprised of glass, a transparent material, or both and is used for display purposes.

Door means an assembly installed in an opening on an interior or exterior wall that is used to allow access or close off the opening and that is movable in a sliding, pivoting, hinged, or revolving manner of movement. For walk-in coolers and walk-in freezers, a

Department of Energy

§ 431.302

door includes the door panel, glass, framing materials, door plug, mullion, and any other elements that form the door or part of its connection to the wall.

Envelope means—

(1) The portion of a walk-in cooler or walk-in freezer that isolates the interior, refrigerated environment from the ambient, external environment; and

(2) All energy-consuming components of the walk-in cooler or walk-in freezer that are not part of its refrigeration system.

Freight door means a door that is not a display door and is equal to or larger than 4 feet wide and 8 feet tall.

Indoor dedicated condensing refrigeration system means a dedicated condensing refrigeration system designated by the manufacturer for indoor use or for which there is no designation regarding the use location.

K-factor means the thermal conductivity of a material.

Manufacturer of a walk-in cooler or walk-in freezer means any person who:

(1) Manufactures a component of a walk-in cooler or walk-in freezer that affects energy consumption, including, but not limited to, refrigeration, doors, lights, windows, or walls; or

(2) Manufactures or assembles the complete walk-in cooler or walk-in freezer.

Matched condensing unit means a dedicated condensing unit that is distributed in commerce with one or more unit cooler(s) specified by the condensing unit manufacturer.

Matched refrigeration system (also called “matched-pair”) means a refrigeration system including the matched condensing unit and the one or more unit coolers with which it is distributed in commerce.

Outdoor dedicated condensing refrigeration system means a dedicated condensing refrigeration system designated by the manufacturer for outdoor use.

Panel means a construction component that is not a door and is used to construct the envelope of the walk-in, i.e., elements that separate the interior refrigerated environment of the walk-in from the exterior.

Passage door means a door that is not a freight or display door.

Refrigerated means held at a temperature at or below 55 degrees Fahrenheit using a refrigeration system.

Refrigerated storage space means a space held at refrigerated (as defined in this section) temperatures.

Refrigeration system means the mechanism (including all controls and other components integral to the system's operation) used to create the refrigerated environment in the interior of a walk-in cooler or walk-in freezer, consisting of:

(1) A dedicated condensing refrigeration system (as defined in this section); or

(2) A unit cooler.

Single-packaged dedicated system means a refrigeration system (as defined in this section) that is a single-package assembly that includes one or more compressors, a condenser, a means for forced circulation of refrigerated air, and elements by which heat is transferred from air to refrigerant, without any element external to the system imposing resistance to flow of the refrigerated air.

U-factor means the heat transmission in a unit time through a unit area of a specimen or product and its boundary air films, induced by a unit temperature difference between the environments on each side.

Unit cooler means an assembly, including means for forced air circulation and elements by which heat is transferred from air to refrigerant, thus cooling the air, without any element external to the cooler imposing air resistance.

Walk-in cooler and walk-in freezer mean an enclosed storage space refrigerated to temperatures, respectively, above, and at or below 32 degrees Fahrenheit that can be walked into, and has a total chilled storage area of less than 3,000 square feet; however the terms do not include products designed and marketed exclusively for medical, scientific, or research purposes.

Walk-in process cooling refrigeration system means a refrigeration system that is capable of rapidly cooling food or other substances from one temperature to another. The basic model of such a system must satisfy one of the following three conditions:

§ 431.303

10 CFR Ch. II (1–1–23 Edition)

(1) Be distributed in commerce with an insulated enclosure consisting of panels and door(s) such that the assembled product has a refrigerating capacity of at least 100 Btu/h per cubic foot of enclosed internal volume;

(2) Be a unit cooler having an evaporator coil that is at least four-and-one-half (4.5) feet in height and whose height is at least one-and-one-half (1.5) times the width. The height of the evaporator coil is measured perpen-

dicular to the tubes and is also the fin height, while its width is the finned length parallel to the tubes, as illustrated in Figure 1; or

(3) Be a dedicated condensing unit that is distributed in commerce exclusively with a unit cooler meeting description (2) or with an evaporator that is not a unit cooler, *i.e.*, an evaporator that is not distributed or installed as part of a package including one or more fans.

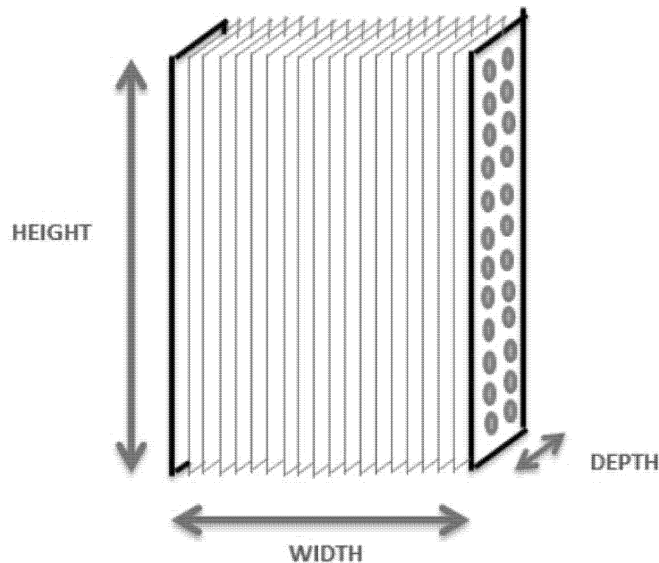


Figure 1: Evaporator Coil Dimensions

[74 FR 12074, Mar. 23, 2009, as amended at 76 FR 12504, Mar. 7, 2011; 76 FR 21604, Apr. 15, 2011; 76 FR 33631, June 9, 2011; 79 FR 32123, June 3, 2014; 81 FR 95801, Dec. 28, 2016]

TEST PROCEDURES

§ 431.303 **Materials incorporated by reference.**

(a) *General.* Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a)

and 1 CFR part 51. Any amendment to a standard by the standard-setting organization will not affect the DOE regulations unless and until amended by DOE. Material is incorporated as it exists on the date of the approval. To enforce any edition other than that specified in this section, the U.S. Department of Energy must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved material is available