



# ENERGY STAR® Program Requirements for Commercial Refrigerators and Freezers

## Partner Commitments Version 2.0 - DRAFT 3

### Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified commercial refrigerators and freezers. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on commercial refrigerators and freezers and specifying the testing criteria for commercial refrigerators and freezers. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;

**Note:** Several stakeholders asked about the procedure for challenging manufacturer claims regarding ENERGY STAR performance. In the event that a manufacturer or other stakeholder brings forth a complaint, EPA asks that they also provide test data and any additional information on the product(s) in question. After reviewing the submitted information, EPA will then contact the manufacturer of the product(s) to resolve any data inconsistencies. This resolution may include additional testing and/or removal of the product from the ENERGY STAR qualifying product list, aka delisting. EPA will work with partners on a case by case basis. The stakeholder that brought forth the complaint will not be named in any correspondences with the manufacturer of the product(s) in question.

As suggested by one commenter, EPA is exploring the possibility of including a requirement for a signed declaration at the bottom of the Qualifying Products Information form stating that the product was tested according to the ENERGY STAR testing requirements outlined in Section 4, below, and the information provided on the form is accurate.

- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR labels and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;
- qualify at least one ENERGY STAR labeled commercial refrigerator or freezer model within one year of activating the commercial refrigerators and freezers portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;
- provide clear and consistent labeling of ENERGY STAR qualified commercial refrigerators and freezers. The ENERGY STAR label must be clearly displayed on the front/inside of the product, on the product packaging, in product literature (i.e., user manuals, spec sheets, etc.), and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed;
- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying commercial refrigerators and freezers. Once the Partner submits its first list of ENERGY STAR labeled commercial refrigerator and freezer models, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

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- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified commercial refrigerators and freezers shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., product type, volume, or other as relevant) for the United States (US). Partner is also encouraged to provide total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;
  - notify EPA of a change in the designated responsible party or contacts for commercial refrigerators and freezers within 30 days.

### 56 Performance for Special Distinction

57 In order to receive additional recognition and/or support from EPA for its efforts within the  
58 Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep  
59 EPA informed on the progress of these efforts:

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- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;
  - purchase ENERGY STAR labeled products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR labeled product information to employees for use when purchasing products for their homes;
  - ensure the power management feature is enabled on all ENERGY STAR qualified monitors and computers in use in company facilities, particularly upon installation and after service is performed. For assistance in doing so, go to [www.energystar.gov/powermanagement](http://www.energystar.gov/powermanagement);
  - provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR labeled product models;
  - feature the ENERGY STAR label(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at [www.energystar.gov](http://www.energystar.gov)). EPA may provide links where appropriate to the Partner Web site;
  - provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR labeled products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;

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- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message;
  - join EPA's SmartWay Transport Partnership to improve the environmental performance of the company's shipping operations. SmartWay Transport works with freight carriers, shippers, and other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse gases, and air pollution. For more information on SmartWay, visit [www.epa.gov/smartway](http://www.epa.gov/smartway);
  - join EPA's Climate Leaders Partnership to inventory and reduce greenhouse gas emissions. Through participation, companies create a credible record of their accomplishments and receive EPA recognition as corporate environmental leaders. For more information on Climate Leaders, visit [www.epa.gov/climateleaders](http://www.epa.gov/climateleaders);
  - join EPA's Green Power partnership. EPA's Green Power Partnership encourages organizations to buy green power as a way to reduce the environmental impacts associated with traditional fossil fuel-based electricity use. The partnership includes a diverse set of organizations including Fortune 500 companies, small and medium businesses, government institutions as well as a growing number of colleges and universities, visit <http://www.epa.gov/grnpower>.



# ENERGY STAR® Program Requirements for Commercial Refrigerators and Freezers

## Eligibility Criteria Version 2.0 - DRAFT 3

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Below is the **DRAFT 3** Version 2.0 product specification for ENERGY STAR qualified commercial refrigerators and freezers. A product must meet all of the identified criteria if it is to earn the ENERGY STAR.

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1) Definitions: Provided below are definitions of the relevant terms in this document.

A. Commercial Food-Grade Refrigerator: A refrigeration cabinet designed for storing food products at temperatures above 32 degrees Fahrenheit (F) but no greater than 40 degrees F which is intended for commercial use.

B. Commercial Food-Grade Freezer: A refrigeration cabinet designed for storing food products at temperatures of 0 degrees F which is intended for commercial use.

C. Refrigeration Cabinet: A refrigerator or freezer used for storing food products at specified temperatures, with the condensing unit built into the cabinet, and designed for use by commercial or institutional facilities, other than laboratory settings. These units may be vertical or chest configurations and may contain a worktop surface.

D. Closed Refrigerator: A display or holding refrigerator where product is accessible for removal by opening or moving doors or panels<sup>1</sup>.

E. Solid Door Cabinet: A refrigeration cabinet in which 50% or greater of the surface area on the front face of all outer doors on one side of the unit is solid. These doors may be sliding or hinged.

F. Glass Door Cabinet: A refrigeration cabinet in which greater than 50% of the surface area on the front face of all outer doors on one side of the unit is glass. These doors may be sliding or hinged.

**Note:** Some stakeholders were concerned that pass-through models were not fairly treated due to the total number of doors in the front and back of these units. In response to these concerns, EPA is proposing that the surface area referenced in the definitions for both solid and glass door cabinets consider only the front face on one side of the unit when classifying products. Under these new definitions, pass-through cabinets with a full-size glass door on one side and a solid door on the other would be considered a glass door unit (i.e., >50% surface area of the front face on one side of the unit is glass). Under the previous definition (i.e., 50% of the surface area of *all* outer doors) these types of units would have been considered solid door units.

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G. Worktop Surface: A solid working surface. The working surface may be a cutting board, a stainless steel work surface, or a stone slab. This surface may not add to the total energy consumption of the unit.

**Note:** In response to a stakeholder comment that worktops may not always have a backsplash EPA removed the reference to a backsplash in the definition for worktop surface.

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<sup>1</sup> Definition from ANSI/ASHRAE Standard 72-2005, Method of Testing Commercial Refrigerators and Freezers, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. 2005.

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### Test Procedure Requirements

H. AHAM Volume: The interior volume of a refrigerator as calculated by AHAM Standard Household Refrigerators/Household Freezers (ANSI/AHAM HRF-1-2004)<sup>2</sup>.

**Note:** One stakeholder questioned whether the use of AHAM volume was the appropriate method for measuring interior volume, suggesting that non-movable features within cabinets, such as drawers, should not be considered when calculating internal volumes. It is EPA's understanding that AHAM volume is the appropriate method for calculating gross interior volume for self-contained refrigeration equipment. AHAM volume is the required measurement for self-contained equipment under the ASHRAE 72 -2005 test procedure, which is referenced in Section 4 of this specification. Furthermore, the Natural Resources Canada dataset that EPA used to derive the proposed requirements based on volume in Section 3 below uses AHAM volume as the measure for equipment internal volume. Therefore in this draft, EPA continues to require that manufacturers measure the interior volume of their units according to the AHAM Standard.

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I. Integrated Average Product Temperature: The integrated average of all test package temperatures, recorded at 15-minute intervals, as determined using the test method prescribed in Section 4, Test Criteria.

### Testing/Standards Organizations

J. AHAM: Association of Home Appliance Manufacturers.

K. ANSI: American National Standards Institute.

L. ASHRAE: American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.

M. NSF: NSF International.

N. UL: Underwriters Laboratories, Inc.

2) Qualifying Products: For the purposes of ENERGY STAR, only those products that meet definitions 1.A through 1.G, above, are eligible for qualification. Examples of product types that may be eligible for qualification include: reach-in, roll-in, or pass-through units; merchandisers; undercounter units; milk coolers; back bar coolers; bottle coolers; glass frosters; deep well units; beer-dispensing or direct draw units; and bunker freezers.

Drawer cabinets, prep tables, and open air units are **not** eligible for ENERGY STAR under this Version 2.0 specification.

**Note:** This specification is intended for commercial food-grade refrigeration equipment only. At this time, laboratory-grade refrigeration equipment cannot qualify for ENERGY STAR.

Solid and glass door refrigerators and freezers qualifying under this Version 2.0 specification must be third-party certified to applicable requirements set forth in the following quality and safety standards:

(1) ANSI/NSF International Standard for Food Equipment – Commercial Refrigerators and Freezers (ANSI/NSF 7-2007) and

(2) UL Standard for Commercial Refrigerators and Freezers (UL-471)

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<sup>2</sup> Ibid.

189 **Note:** ANSI/NSF 7-2007 exempts equipment from some temperature performance requirements  
190 based on the type of food that is intended to be stored in the unit. Examples of equipment that would  
191 be exempt from the temperature performance requirements of this Standard include: refrigerators  
192 intended only for the storage or display of non-potentially hazardous bottled or canned products and  
193 refrigerators intended only for the display of unprocessed produce. Please refer to ANSI/NSF 7-2007  
194 to determine the applicable requirements for a specific equipment type.

**Note:** As stated in Draft 2, EPA's intention in requiring products to meet ANSI/NSF-7 and UL-471 standards is to further delineate commercial food-grade equipment, which is eligible for ENERGY STAR under this specification, from laboratory-grade equipment, which is not. Stakeholders noted that some equipment types, such as merchandisers used to store bottled soda products, may be exempt from some of the performance requirements under NSF-7. EPA verified this assertion with NSF and added clarifying language to this section indicating that equipment must meet only those requirements in the NSF-7 Standard that apply to the particular type of equipment based on intended application.

It was further noted by one stakeholder that there should be different energy consumption requirements for units that are exempt from certain performance requirements in NSF-7 and units for which NSF-7 performance requirements are mandatory (i.e., food storage units used to store potentially-hazardous open food products). After discussions with a number of stakeholders, EPA determined that the design differences between these units have minimal impact on the energy consumption of the equipment when tested under ASHRAE 72-2005. EPA also confirmed that a mix of equipment would be able to qualify under the proposed requirements. For example, of the eight glass door refrigerators between 30 and 50 cubic feet that would meet the proposed requirement, two models are listed as merchandisers, intended for display of **non-potentially** hazardous packaged food, which are exempt from certain performance requirements under NSF-7. Six of the eight models that would qualify are intended for storage of potential hazardous food products and are required to meet the NSF-7 performance requirements.

The dataset used to derive the proposed requirements is available on the ENERGY STAR Web site at [www.energystar.gov/productdevelopment](http://www.energystar.gov/productdevelopment), click on "Revisions to Existing Specifications" link then "Commercial Solid Door Refrigerator and Freezer Specification". Percentages of products that would meet each proposed requirement are noted in text boxes on each graph. In addition, the numbers of manufacturers that are represented under the proposed requirements and total number of manufacturers with products in each category are similarly noted on the graphs.

One commentor reiterated their concern regarding the exclusion of NFPA 70 as a requirement for this specification. EPA continues to exclude reference to this standard because it refers to installation requirements. As stated in Draft 2.0, equipment installation is out of manufacturers' control and outside the scope of this specification. It is up to the customer to perform due diligence regarding the product they purchase to ensure the installation complies with any applicable standards.

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197 3) Energy-Efficiency Specifications for Qualifying Products: Commercial food-grade refrigerators and  
198 freezers must meet the requirements provided in Table 1, below, to qualify as ENERGY STAR.  
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Table 1: Maximum Daily Energy Consumption (MDEC) Requirements (kWh/day) for ENERGY STAR Qualified Commercial Food-Grade Refrigerators and Freezers		
Product Volume (in cubic feet)	Refrigerator	Freezer
<b>Vertical Configuration</b>		
<i>Solid Door Cabinets</i>		
0 < V < 15	≤ 0.089V + 1.411	≤ 0.400V + 1.100
15 ≤ V < 30	≤ 0.037V + 2.200	≤ 0.077V + 5.940
30 ≤ V < 50	≤ 0.056V + 1.635	≤ 0.327V – 1.550
50 ≤ V	≤ 0.060V + 1.416	≤ 0.140V + 7.800
<i>Glass Door Cabinets</i>		
0 < V < 15	≤ 0.118V + 1.382	≤ 0.214V + 1.286
15 ≤ V < 30	≤ 0.140V + 1.050	≤ 1.100 V – 12.000
30 ≤ V < 50	≤ 0.088V + 2.625	≤ 0.250V + 13.500
50 ≤ V	≤ 0.110V + 1.500	≤ 0.450V + 3.500
<b>Chest Configuration</b>		
<i>Solid or Glass Door Cabinets</i>	≤ 0.125V + 0.475	≤ 0.270V + 0.130

Note: V = AHAM volume (see definition in Section 1) in cubic feet (ft<sup>3</sup>).

#### Mixed Solid/Glass Door Equipment

For equipment designed with two or more compartments contained in a single cabinet with the same operating temperature, that have different exterior door types<sup>3</sup> (i.e., one is glass and one is solid) on the same side of the cabinet, the maximum daily energy consumption (MDEC) shall be the sum of all individual compartment MDEC values.

The volume of each individual compartment shall be measured and its MDEC limit determined, based on the compartment's volume and door type, as listed in Table 1. The sum of the volumes of each compartment must be equivalent to the total AHAM volume of the cabinet. The following information must then be reported on the Qualifying Product Information (QPI) form for these types of units: the total energy consumption for the entire cabinet, the total volume of the cabinet, and the volume for each compartment.

**Example:** Consider a vertically-configured refrigeration cabinet with a total volume of 50 cubic feet with one glass half door and one solid half door on the same side. The maximum daily energy consumption (MDEC) of the equipment would be the sum of the MDEC for the two compartments. The requirement used to calculate the MDEC for each compartment is based on the compartments volume and door type:

$$\text{Glass Door MDEC: } (25 \text{ cu. ft.} \times 0.140) + 1.050 = 4.550 \text{ kWh/day}$$

$$\text{Solid Door MDEC: } (25 \text{ cu. ft.} \times 0.037) + 2.200 = 3.125 \text{ kWh/day}$$

$$\text{MDEC for entire cabinet: } 4.550 \text{ kWh/day} + 3.125 \text{ kWh/day} = 7.675 \text{ kWh/day}$$

**Note:** EPA has updated its data set to reflect the Natural Resources Canada (NRCAN) database as of October 27, 2008. The levels proposed in Table 1, above, are based on an analysis using this new data set.

<sup>3</sup> For purposes of mixed solid/glass door equipment, a solid door is a door where 50% or greater of the surface area on the front face is solid. A glass door is a door where greater than 50% of the surface area on the front face is glass.

**Note, cont.:**

As with Draft 2, EPA filtered the product data by excluding multiple model numbers under the same manufacturer with identical volume and energy consumption results as the representative model. In addition, models that do not meet the Federal minimum efficiency standard scheduled to take effect in January, 2010 were also removed from the dataset. Please refer to the October 18, 2005, Federal Register Notice, 70 FR 60407, for the Final Rule enacting Federal minimum efficiency standards for this equipment. Exclusion of models which do not meet the Federal standard ensures that this Draft 3 specification represents only those models that will continue to be available for sale in the United States in 2010, which is on or about when this specification will take effect (i.e., proposed for November 1, 2009). As a result of this filtering, a total of 484 models were included in the Draft 3 analysis (85 more models than were included in the Draft 2 analysis).

Products were then categorized based on door type, configuration, and application. As with Draft 2, EPA did not consider setting more specific requirements based on other equipment attributes (i.e., defrost cycle, sliding doors) since this did not result in functional differences between units.

The performance levels proposed in Table 1 represent approximately the top 25% of models listed by subcategory in EPA's current data set. When choosing levels, EPA also made sure that multiple manufacturers were represented to allow for choice for purchasers. For further details on the data analysis, please refer to the dataset, mentioned in a previous note box, available on the ENERGY STAR Web site. [Please note that it is not EPA's intention to write a specification that represents 25% of each manufacturer's product offerings, but rather for the specification to represent 25% of all models for which data is available at the time the specification is set, while also ensuring that at least two or more manufacturers are able to meet the requirements so as to provide end users with choices.](#)

One commenter noted that very few models will be able to meet the proposed requirements in the Version 2.0 specification and that the number of ENERGY STAR qualified products will decrease significantly. As stated above, EPA set the proposed requirements such that approximately 25% of models currently on the market will qualify, using the 484 datapoints from the Natural Resources Canada dataset. It is EPA's intention that, over time, manufacturers will redesign products to achieve greater energy efficiency, thereby providing for more product models that qualify for ENERGY STAR.

**Use of NRCAN database**

Several commentors questioned the actual availability for purchase of certain models listed in the NRCAN database. EPA confirmed the availability of product models whose energy consumption values were significantly different from the majority of the product data in the subcategory to ensure requirements were based on available product models.

In addition, some stakeholders commented on the applicability of the NRCAN database for the US market. Although EPA agrees that the NRCAN database does not represent every model available in the US market, nor is there 100% overlap between the US and Canadian markets in general, this dataset is the most accurate and reliable representation as it lists products' energy consumption with all auxiliary features turned "on." No similar list specific to the US market exists. Furthermore, during the May stakeholder meeting at the National Restaurant Association Show, most stakeholders suggested that EPA use the NRCAN product database to base proposed levels. In addition to using the NRCAN list, manufacturers were encouraged to provide additional product data to augment the dataset, however only a few additional product data were received.

**Note, cont.:**

### **Chest Refrigerators and Freezers**

Comments were received questioning the inclusion of chest refrigerators and freezers in this specification, in particular, whether the same test procedure is applicable to these units and if there was enough data to draw realistic requirements. The scope of ASHRAE 72 covers chest, or horizontal units, in addition to vertical units. The dataset used in the analysis represented 64 chest freezer units and 36 chest refrigerator units. This as an adequate amount of data from which to derive MDEC levels. In addition, the dataset shows a wide range of efficiencies such that the proposed performance level serves to differentiate top energy performers.

### **Small Volume Units**

Some stakeholders noted that the proposed requirements were based on a small number of models. In the case of vertical, solid door freezers less than 15 cubic feet, EPA had data on only two available models which would meet the Federal minimum efficiency standard. Because of the limited data for this category, the proposed MDEC requirement was drafted to be only slightly more stringent than the Federal Standard. As a result both models in this category meet the proposed requirement. This MDEC requirement will be revisited after one year if additional product data for this category are submitted to NRCAN or EPA.

Another commentator suggested further subcategories for small volume units. When possible, EPA was consistent with the volume subcategorizing across the equipment types.

Several commentators questioned why the proposed MDEC requirements for small volume glass door units, for both freezers and refrigerators, were more stringent in certain volume ranges than those for small volume solid door units. All requirements in Table 1 are based on product data reported to NRCAN. For this Draft 3, EPA revised the equations in Table 1 so that they reflect the top 25% of energy performers using the most recent NRCAN dataset. As a result, the requirement for small volume glass door refrigerator units is now less stringent than that for small volume solid door refrigerator units. The requirement for small volume glass door freezer units represent approximately 25% of the dataset, but due to the unique nature of the dataset for small volume solid door freezer units, as detailed above, their requirement continues to be more stringent than that for their solid door counterparts.

### **Mixed Solid/Glass Door Equipment**

Stakeholders questioned how cabinets with both solid and glass doors would be considered in the specification. EPA reviewed how these cabinets are dealt with by the Department of Energy in the in Standards for commercial refrigeration equipment (10 CFR Part 431) and offered similar guidance above. Stakeholders are encouraged to provide feedback on the new approach described above, particularly on its clarity and proper use of terminology.

An alternative approach could be to use a ratio of solid and glass doors to the total number of doors on one side of the cabinet (e.g., 1 glass door, 4 doors total = 25% glass) to calculate the percentage of the total cabinet volume that should be attributed to that specific door type. Manufacturers would then apply the calculated volume based on that particular door type in Table 1 to determine MDEC for that portion of the cabinet. The product's total MDEC should be the sum of the MDECs for the different door types. Stakeholders are encouraged to provide feedback on these or other potential approaches.

### **Interior Lights**

One commentator noted that the MDEC levels proposed would penalize those units that require interior lights to be on throughout the test procedure (i.e., merchandisers) and favor those units that have interior lights that only switch on when the door is open. It is EPA's understanding that lighting is a relatively small portion of the total energy used by merchandisers and that there are lighting technologies available today that would significantly reduce the amount of energy used. EPA encourages manufacturers to explore these more efficient lighting technologies in determining how their models could qualify for ENERGY STAR in the future.

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- 3) Test Criteria: Manufacturers are required to perform tests to self-certify those product models that meet the ENERGY STAR guidelines. The test results must be reported to EPA using the Commercial Refrigerator and Freezer Version 2.0 QPI form. In addition to test results, product specification sheets (i.e. cut sheets) are required to be submitted for each qualifying product model.

**Note:** One stakeholder suggested the specification should include a requirement for low power mode options, as this provision is included in the ENERGY STAR specification for refrigerated beverage vending machines. It is EPA's understanding that low power mode options would not exist in refrigeration cases which hold potentially hazardous food products because the equipment must continuously maintain temperature at the required levels. Because a low power mode option would not apply to all equipment covered, EPA does not intend to add this requirement to the specification.

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In performing the tests, manufacturers must use ANSI/ASHRAE Standard 72-2005, "Method of Testing Commercial Refrigerators and Freezers", to measure the daily energy consumption of commercial refrigerators and freezers with the temperature specifications listed in Table 2.

Table 2: Temperature Specifications for Testing	
Product Type	Integrated average product temperature
Commercial food-grade refrigerator	38 degrees ± 2 degrees F
Commercial food-grade freezer	0 degrees ± 2 degrees F

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Only those test procedures in ANSI/ASHRAE 72-2005 relevant to closed refrigerators are applicable to this specification. Manufacturers should report the total energy consumption of the product, which includes both the auxiliary energy and refrigeration energy consumption. In addition, manufacturers must test equipment according to ANSI/ASHRAE 72-2005 with all factory-installed accessories (lighting, perimeter heat, pan heater, etc.) in the "ON" position if they are manually-controlled.

**Note:** Equipment with energy management devices permanently installed such that the operator is not able to adjust the settings may be operational if the energy management device will never change to a new integrated average product temperature after the test has been concluded. Manufacturers should refer to the official interpretation on ANSI/ASHRAE Standard 72-2005 (Interpretation IC 72-2005-1), dated October 4, 2006, for further guidance.

**Note:** Some stakeholders questioned whether accessories controlled by hardwired, energy management devices need to be enabled while equipment is being tested. In Draft 3, EPA sought to provide further clarification that factory-installed, manually-controlled accessories are subject to this requirement. As indicated in the Note above, manufacturers should refer to the interpretation provided by ASHRAE concerning hardwired controls that cannot be adjusted by the operator.

In response to stakeholder questions, EPA also provided a clarification that manufacturers need to report only the total energy consumption (kWh/day) of the equipment. The auxiliary and refrigeration energy consumption values need not be reported separately.

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- 5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. Any previously executed agreement on the subject of

249 ENERGY STAR qualified commercial refrigerators and freezers shall be terminated effective  
250 **November 30, 2009.**

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252 A. Qualifying and Labeling Products under Version 2.0: The ENERGY STAR for Commercial  
253 Refrigerators and Freezers Specification Version 2.0 shall go into effect on **December 1,**  
254 **2009.** All products, including models originally qualified under the previous commercial  
255 refrigerator and freezer specification, with a date of manufacture on or after December 1,  
256 2009, must meet the new Version 2.0 requirements in order to qualify for ENERGY STAR  
257 (including additional manufacturing runs of models originally qualified under the previous  
258 specification). The date of manufacture is specific to each unit and is the date (e.g., month  
259 and year) on which a unit is considered to be completely assembled. **Note:** Glass door  
260 cabinets, as defined in Section 1 above, may begin qualifying for ENERGY STAR on March  
261 1, 2009.

**Note:** When revising ENERGY STAR specifications, EPA typically allows manufacturers at least 9 months to transition to the new specification requirements. In the case where product categories are eligible for qualification for the first time, such as glass door cabinets, EPA will allow manufacturers to qualify and promote ENERGY STAR units immediately upon finalization of this revised specification, anticipated on March 1, 2009.

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263 6) Future Specification Revisions: ENERGY STAR reserves the right to revise the specifications should  
264 technological and/or market changes affect its usefulness to purchasers, industry, or the environment.  
265 In keeping with current policy, revisions to the specification are arrived at through discussions with  
266 stakeholders. In the event of a specification revision, please note that the ENERGY STAR  
267 qualification is not automatically granted for the life of a product model. To qualify with the energy  
268 efficiency criteria of ENERGY STAR, a product model must meet the ENERGY STAR specification in  
269 the effect on the date of manufacture.

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271 **Drawer Cabinets:** EPA will monitor industry efforts to develop a test procedure to measure and  
272 compare the energy performance of refrigerated drawer cabinets. Based on the availability of an  
273 industry accepted test procedure and performance data, EPA may consider adding this product  
274 category in future versions of this specification.

275  
276 **Laboratory Grade Refrigerators and Freezers:** EPA is currently working with manufacturers of  
277 laboratory grade refrigerators and freezers to develop separate requirements for equipment designed  
278 for and used in laboratory environments. Once these requirements are finalized, EPA may amend  
279 this Version 2.0 specification to include laboratory grade refrigerators and freezers.