AHRI Standard 810 (I-P) with Addendum 1

2016 Standard for

Performance Rating of Automatic Commercial Ice-makers

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Performance Rating of Automatic Commercial Ice-makers

January 2018

Addendum 1 of AHRI Standard 810-2016, is provided as follows. The following changes have been incorporated (deletions are shown by ~~strikethroughs~~ and additions by shading) into the already published 2016 version of AHRI Standard 810 to avoid confusion:

The changes include:

1) Edits to Certified Ratings and Section 3.2.

Certified Ratings

The following Certification Program ratings are verified by test at the Standard Rating Conditions:

a. Ice Harvest Rate, lb/24 h
b. Potable Water Use Rate, gal/100 lb of ice (Batch Type Ice-makers only)
c. Condenser Water Use Rate, gal/100 lb of ice
d. Energy Consumption Rate, kWh/100 lb of ice
e. ~~Bin Theoretical Storage Capacity~~Bin Measured Internal Volume, ~~lb~~ ft^3 (Self-contained Model Ice-makers only)
f. Ice Hardness Factor, % (Continuous Type Ice-makers only)

3.2 *Bin ~~Theoretical Storage Capacity~~ Measured Internal Volume*. For Self-contained Model Ice-makers only, the ~~*theoretical storage capacity*~~ *measured internal volume* and the storage effectiveness of the ice storage bin shall be determined in accordance with AHRI Standard 820 (I-P). For these models, the internal volume is the volume calculated up to the intended shut-off level. The intended shut-off level is defined as the height of the thermostat bulb; the bottom of the curtain or the height of the electric eye, depending upon the mechanism used to shut off the ice-maker.

2) Added Section 3.5.1.

3.5.1 *Adjusted Energy Consumption Rate.* Total energy input rate adjusted by the Ice Hardness Factor, stated in kW·h/100 lb of ice expressed in multiples of 0.01 kW·h/100 lb of ice according to Code of Federal Regulations (CFR) Title 10 §431.134 for Continuous Type Ice-makers.

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3) Edits to Section 5.2.2.

5.2.2 *Standard Ratings.* Standard Ratings shall include Bin ~~Theoretical Storage Capacity~~ Measured Internal Volume, Condenser Water Use Rate, Energy Consumption Rate, Ice Hardness Factor, Ice Harvest Rate and Potable Water Use Rate. To calculate Ice Hardness Factor, use Equation 1. To calculate Adjusted Energy Consumption Rate for Continuous Type Ice-makers, use Equations 1 and 2 to calculate ice hardness adjustment factor (I_{HAF}) then multiple I_{HAF} and Energy Consumption Rate to calculate the Adjusted Energy Consumption Rate.

~~$\text{Ice Hardness Factor} = \left(\frac{\text{Net Cooling Effect per lb}}{144\frac{\text{Btu}}{\text{lb}}}\right) \cdot 100$~~ $I_{HF} = \left(\frac{CE_N/m}{K}\right) \cdot 100$ 1

$$I_{HAF} = \left[\frac{K+C}{K \cdot \left(\frac{I_{HF}}{100}\right) + C}\right] \quad 2$$

Where:

CE_N = Net Cooling Effect, Btu
I_{HAF} = Ice hardness adjustment factor, Unitless
I_{HF} = Ice Hardness Factor, %
m = Mass, lb
C = 38 Btu/lb (Constant)
K = 144 Btu/lb (Constant)

4) Added a New Reference under Appendix A.

A1.6 Title 10, Code of Federal Regulations (CFR), Part 431, Subpart H, §431.134, *Uniform Test Method for the Measurement of Energy and Water Consumption of Automatic Commercial Ice Makers*, U.S. National Archives and Records Administration, 8601 Adelphi Road, College Park, MD 20740-6001 or www.ecfr.gov.

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