

Q: Can I get a copy of the AEER presentation?

A copy of the whitepaper and the presentation can be downloaded from our website at:

<http://www.emersonclimate.com/energy/>

Q: Are there any government energy regulations for refrigeration condensing units?

For commercial refrigeration applications, energy regulations apply to the entire system. The white paper “The State of Energy-Consumption Legislation for Commercial Refrigeration Applications” was updated in January 2008 and is available for download at <http://www.emersonclimate.com/energy/papers.htm>. This paper explains the energy regulations that pertain to most commercial refrigeration equipment, including ice machines, reach-ins, walk-ins, and display cases.

Since EER can be calculated for a condensing unit, so can AEER. Different condensing units will have different energy efficiency due to the choice of components (including compressor and fan motor), amount and type of condenser used, and refrigerant.

Q: Will wet bulb calculation / bin numbers be available for use so that you can compare air-cooled versus evaporative condensers?

The examples presented utilized air-cooled condensing units. Outdoor humidity has no effect on the performance of an air-cooled condensing unit. The performance of evaporative condensers, however, does vary with humidity. An evaporative condenser acts much like a cooling tower. Water is typically sprayed over the condenser. Much of the heat is taken up in the evaporation process.

The evaporative condenser may operate as a traditional air-cooled condenser until the condensing temperature reaches a pre-set temperature, such as 80 degrees F. The dominant factor in cooling tower performance is the outdoor wet bulb temperature. The drier the air is, the better the cooling tower will perform. More fan HP is required when the air is more humid. In arid climates, cooling towers offer the promise of significant energy savings.

The Emerson software program does not taken humidity into account when calculating performance. However, cooling tower manufacturers often offer tools which can be used to evaluate the performance of these units.

Q: When will this tool be available?

Emerson Climate Technologies plans to release the software tool in October 2008.

Q: There are Digital Scroll compressors by Emerson; is here Digital Discus coming into service?

Copeland Discus™ Digital will allow tighter suction pressure control, more consistent system operation, and energy savings. Cycling is reduced to extend component life. Watch our website in early 2009 or contact your Emerson Climate Technologies sales manager for more information or visit:

http://www.emersonclimate.com/NEWS/News/CC_001760.htm

Q: Do you have the same energy calculations for industrial refrigeration applications?

Emerson Climate Technologies offers screw compressors for larger industrial refrigeration applications. Operating conditions may differ, but the method is the same and is still relevant.

Q: Will cycling calculations be applicable for air conditioning compressors when the white paper is published?

The AEER methodology was developed for refrigeration applications only. Both SEER and IPLV are better indicators than EER of which commercial A/C units will use less electricity over the course of an entire cooling season. AHRI standard ARI 550/590 describes the calculation and use of IPLV. The AHRI standard *ARI 550/590-2003: Performance Rating of Water Chilling Packages Using the Vapor Compression Cycle* can be downloaded from www.ari.org. This standard describes the calculation and use of IPLV.

Q: How does use of AEER compare with IPLV?

IPLV is an abbreviation for Integrated Part Load Value. IPLV is most often used with commercial air-conditioning equipment greater than 65,000 Btu/hr. IPLV is a seasonal efficiency rating method based on standard commercial loads on an annual basis. Both SEER and IPLV are better indicators than EER of which commercial A/C units will use less electricity over the course of an entire cooling season.

IPLV measures the efficiency of a system while operating at 25%, 50%, 75% and 100% of capacity and at different ambient temperatures. The part-load conditions attempt to match the outdoor ambient with a required load. IPLV values do not take into account the actual ambient conditions of a location. AHRI standard ARI 550/590 describes the calculation and use of IPLV. The AHRI standard *ARI 550/590-2003: Performance Rating of Water Chilling Packages Using the Vapor Compression Cycle* can be downloaded from www.ari.org. This standard describes the calculation and use of IPLV.

Q: How effective would AEER be for places where humidity is high? Can any reference AEER be used for estimating compressor requirements for similar place and if yes, how closely does the same match with actual operating conditions?

In comfort cooling applications, both latent (dehumidification) and sensible cooling loads must be taken into account. In refrigeration applications, typically only the sensible cooling load is considered. However, one can see by the need for defrost cycles and drain pans that some latent cooling is performed even in the tightest refrigeration system.

Anytime the evaporator load can be accurately determined, then the AEER method of BIN analysis could provide a useful comparison.

As far as a reference AEER, our examples are location specific. Our calculation tool will allow the user to pick a representative city from over 500 world locations. In this way actual operating conditions can be closely approximated.

Q: Would you please provide a detailed example of how to run through the calculation? Perhaps using the example provided in the webinar, I'm interested in looking at the formula used to calculate the EER and AEER values. Thanks.

A detailed description of the AEER calculation is available in the AEER white paper. Please download the whitepaper at: <http://www.emersonclimate.com/energy>