

DOE and Private-Sector Partners Introduce a New Money-Saving Specification for Commercial Air Conditioners

In January 2011, the U.S. Department of Energy (DOE) joined industry partners to release a design specification for 10-ton capacity commercial air conditioners, also known as rooftop units (RTUs). The specification resulted from DOE coordination with an array of building owners and operators aiming to catalyze the market introduction of cost-effective, energy-saving RTUs.

RTUs built according to the specification are expected to reduce energy use by as much as 50 percent compared to the current ASHRAE 90.1 standard, depending on location and facility type. Nationwide, if all 10-20 ton commercial units were replaced with units built to this specification, businesses would save about \$1 billion each year in energy costs.

Members of DOE's Commercial Building Energy Alliances (CBEAs) are highly engaged throughout this project and are a key to its success. The CBEAs, composed of leading building owners and operators throughout the United States, receive technical support from DOE and its national laboratories on a broad range of projects intended to spur market adoption of energy-savings tools, technologies, and best practices that can make buildings more efficient, productive, and affordable.



The DOE RTU design specification strongly signals suppliers on commercial buyer support for rooftop air conditioning units manufactured in compliance with innovative, energy-efficient specifications.

The CBEAs are leveraging the expertise and purchasing power of their membership—representing broad swaths of the retail, commercial real estate, higher education, and healthcare sectors—to demonstrate market demand for high-performance RTUs.

Benefits for All Stakeholders

The development of buyer-driven, high-performance RTUs will result in big wins for both building owners and manufacturers, as the former save energy and money, and the latter receive a strong market signal for a common set of advanced equipment requirements across major potential purchasers. Participants also support the nation's progress toward energy independence and enhance their own reputations as responsible environmental stewards.

As a public signal of their support, participating CBEA members jointly announced that they would strongly consider purchasing units that:

- Comply with the specification
- Are consistent with CBEA cost-effectiveness criteria
- Align with CBEA procurement time frames.

A Holistic Approach for Enabling Market Adoption

To help drive deployment of these best-in-class rooftop units, DOE national laboratories have developed a lifecycle cost calculator tool for potential purchasers to compare RTUs, as well as robust testing requirements to ensure that the specification is met.

To date, two manufacturers, McQuay International and Carrier Corporation, have submitted entries. Verification testing of their units against the specification is expected to get underway by mid-2012. DOE will then facilitate the demonstration of a specification-compliant unit in a CBEA-member building to capture performance data in actual operating conditions.

Based on this experience, how-to guidance for installing, commissioning, metering and operating the RTU will be disseminated so that others can successfully replicate this project. The aim of this holistic approach is to

significantly lower many of the hurdles facing early adopters of new products, and therefore spur much more aggressive market adoption than would otherwise occur.

What is in the Specification?

The specification covers hardware, performance, and controls, including information detailing basic RTU elements and various equipment options intended to help ensure that the unit operates at top energy and operational performance levels throughout its service life.

Primary Features of the Specification

- High-performance Integrated Energy Efficiency Rating (IEER) of 18
- Direct digital controls
- Operational fault detection

How to Participate

For the CBEAs to encourage manufacturers to develop high-performance RTUs, widespread building owner support for the specification is key. Many CBEA members have already signaled their support through the “signatures” of their corporate logos on the DOE announcement, which indicates their strong interest in potentially purchasing products that comply with the specification. The CBEAs encourage all members and manufacturers of entire RTU systems (rather than individual component suppliers) to take advantage of this unique opportunity. For more information on how to join either the CBEAs or to submit a candidate RTU, please visit http://www1.eere.energy.gov/buildings/alliances/rooftop_specification.html.

A diverse and growing list of CBEA members support the specification.



A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.