

# 1998 STANDARD for

# ROOM FAN-COILS



**Standard 440**

## **IMPORTANT**

### ***SAFETY RECOMMENDATIONS***

It is strongly recommended that the product be designed, constructed, assembled and installed in accordance with nationally recognized safety requirements, appropriate for products covered by this standard.

ARI, as a manufacturers' trade association, uses its best efforts to develop standards, employing state-of-the-art and accepted industry practices. However, ARI does not certify or guarantee safety of any products, components or systems designed, tested, rated, installed or operated in accordance with these standards or that any test conducted under its standards will be non-hazardous or free from risk.

### **ARI CERTIFICATION PROGRAM PROVISIONS**

#### **Scope of the Certification Program**

The Certification Program includes room fan-coils as defined in Section 3, having air-delivery capacities 1500 cfm [708 L/s] or less.

Room fan-coils employing volatile-refrigerant coils or steam coils, central-station air-handling units as defined in ARI Standard 430, and unit ventilators as defined in ARI Standard 840 are not included.

#### **Certified Ratings**

The following Certification Program ratings are verified by test at the standard rating conditions for cooling capacity (see paragraph 6.3.1), and for power input (see paragraph 6.3.4):

1. Total Cooling Capacity, Btu/h [W],
2. Sensible Cooling Capacity, Btu/h [W],
3. Power Input, Watts [W].

Conformance to the requirements of the Insulation Efficiency Test and the Low Voltage Test (see Section 8) are also verified by test.

Note:

This standard supersedes ARI Standard 440-97.

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# ROOM FAN-COILS

## Section 1. Purpose

**1.1 Purpose.** The purpose of this standard is to provide for room fan-coils: definitions; classifications; requirements for testing and rating; minimum data required for published ratings; operating requirements; marking and nameplate data; and conformance conditions.

**1.1.1 Intent.** This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

**1.1.2 Review and Amendment.** This standard is subject to review and amendment as technology advances.

## Section 2. Scope

**2.1 Scope.** This standard applies to room fan-coils, defined in Section 3, having air-delivery capacities of 1500 cfm [708 L/s] or less.

**2.2 Exclusions.**

**2.2.1** This standard does not apply to central-station air-handling units as defined in ANSI/ARI Standard 430.

**2.2.2.** This standard does not apply to unit ventilator units as defined in ARI Standard 840.

**2.2.3** This standard does not apply to room fan-coils employing:

- a. volatile-refrigerant coils
- b. steam coils

## Section 3. Definitions

**3.1 Definitions.** All terms in this document will follow the standard industry definitions in the current edition of ASHRAE *Terminology of Heating, Ventilation, Air Conditioning and Refrigeration* unless otherwise defined in this section.

**3.2 Capacity.**

**3.2.1 Cooling Capacity.** The total heat-removal capacity is the sum of the sensible and latent heat-removal capacities, expressed in Btu/h [W].

**3.2.2 Heating Capacity.** The total heat added, expressed in Btu/h [W].

**3.2.3 Latent Heat.** The change of enthalpy during a change of state, expressed in Btu/h [W]. It occurs with no change in dry-bulb temperature.

**3.2.4 Sensible Heat.** Heat associated with a change in dry-bulb temperature, expressed in Btu/h [W].

**3.3 Fan.** A device for moving air which utilizes a power-driven rotating impeller.

**3.4 Forced-Air Circulation.** Air circulation caused by a difference in pressure produced by a fan.

**3.5 Grille.** Lattice or grating covering the delivery or intake opening of an air passage.

**3.6 Non-Volatile Refrigerant Coil.** A coil in which the cooling fluid (usually water) remains in the liquid state during its passage through the coil.

**3.7 Published Rating.** A statement of the assigned values of those performance characteristics, under stated rating conditions, by which a unit may be chosen to fit its application. These values apply to all units of like nominal size and type (identification) produced by the same manufacturer. As used herein, the term "published rating" includes the rating of all performance characteristics shown on the unit or published in specifications, advertising or other literature controlled by the manufacturer, at stated rating conditions.

**3.7.1 Standard Rating.** A rating based on tests performed at Standard Rating Conditions.

**3.7.2 Application Rating.** A rating based on tests performed at application rating conditions (other than Standard Rating Conditions).

**3.8 Room Fan-Coil (cooling, heating, or cooling and heating coil(s)).** A factory-made assembly which provides the functions of cooling, heating, or cooling and heating, coil(s), but which does not include the source of cooling or heating. This device is designed for free-delivery of air into a room, but may be applied with minimal duct work having a static resistance generally not exceeding 0.25 in. of H<sub>2</sub>O gauge [0.062 kPa]. These devices may be designed for furred-in application, or with an enclosure for application within the conditioned space.