



21CR Project 611-40050

## **The Role of Filtration in Maintaining Clean Heat Exchanger Coils**

Updated 5 October 2004

### **Objectives:**

- (1) To determine the change in air side heat transfer characteristics of commonly used extended surface type evaporator coils with dirt loading
- (2) To determine the overall particulate matter collecting effectiveness of the filter-coil combination and the impact on respirable particles in the conditioned air
- (3) To predict the system performance impact (capacity and energy usage) when operating with clean vs. dirty coils by use of existing computer modeling program
- (4) To determine and define the effect of several levels of filtration on the predicted energy usage

### **What information/items will result from this project:**

This project will determine whether or not higher quality filters will reduce overall systems O&M costs and save energy.

### **How are the results likely to be applied:**

Service technicians will use the information to justify energy and O&M costs savings for use of higher efficiency filters. Building owners will use the information to justify installation of higher efficiency filters. Educators will use the information to better train service technicians in reduced maintenance costs. High efficiency filter manufacturers will use the information to market higher efficiency filters for commercial and residential applications.

### **Research Subcontractor:**

Purdue University (Principle Investigators: James Braun, Ph.D. and Eckhard Groll, Ph.D.)

### **Status:**

The project was concluded in the third quarter and the final report approved for release. The final report is available for free downloading from the ARTI website.

**Responsible 21CR Subcommittee:** System Integration & Indoor Environmental Quality (formerly Building & Facility System Integration)