



21CR Project 605-20020

## **Assessment of the State-of-the-Art (SOA), and Potential Design Improvements, for Flat-Tube Heat Exchangers in Air-Conditioning and Refrigeration Applications – Phase I**

Updated 11 September 2001

### **Objective:**

Evaluate the air-side performance characteristics of several styles of serpentine fins used in conjunction with flat tubes in a fluid-to-air heat exchanger.

### **Information/items expected to result from this project:**

- (1) Literature review on flat-tube heat exchangers
- (2) Description on heat exchanger geometries found in the literature
- (3) Identification of heat transfer coefficient and air pressure drop correlations for each heat exchanger geometry (CFD analysis)
- (4) Recommendation on the most promising heat exchanger geometries for testing in Phase II.

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

The results will be used by HVAC&R equipment manufacturers to assess the potential benefit of flat-tube heat exchangers in air conditioning and refrigeration applications.

### **Research subcontractor:**

University of Illinois, Champaign, IL (Principal Investigator: Anthony M. Jacobi, Ph.D.)

### **Status:**

This project was concluded in the third quarter of 2001 and a final report approved for release. The final report is available free for downloading from the ARTI website.

**Responsible 21CR Subcommittee:** HVAC&R Energy Efficiency