



21CR Project 610-20050

Potential Benefits of Smart Refrigerant Distributors

Updated 17 April 2003

Objective:

Determine the cost benefits that could be derived if a perfectly “smart” refrigerant flow distribution system in air-source evaporators could be developed.

Information/items expected to result from this project:

This project will lead to general-purpose tools that can be used to design better performing evaporators. The main deliverable is an experimentally verified computer simulation model that can accurately predict the effect of refrigerant and air flow mal-distributions on the performance of air-source evaporators.

How are the results likely to be applied?

The results of this research will enable HVAC&R equipment manufacturers to design smaller and more efficient evaporators that ultimately will lead to a decrease in energy consumption.

Research subcontractor:

National Institute of Standards and Technology (NIST), Gaithersburg, MD (Principal Investigator: Piotr A. Domanski, Ph.D.; W. Vance Payne, Ph.D.)

Status:

Project was concluded in the second quarter of 2003 and a final report approved for release. The final report is available to download at no cost from the ARTI website.

Responsible 21CR Subcommittee: HVAC&R Energy Efficiency