

## Economical and Eco-friendly Copper Tubes Prove Highly Efficient in Design Study

*Computer-Aided Coil Design Toolkit Optimizes Fins and Tubes for Most Effective Heat Transfer*

**New York, NY (August 2, 2010)** — The International Copper Association (ICA) today announced performance analysis results for heat exchanger coils with small diameter copper tubes. The coil designs were developed with the aid of design software that optimizes copper tubes and advanced fins for both condensers and evaporators in residential air-conditioner applications. The performance analysis showed that coils designed with small tubes require significantly less tube and fin material than conventional designs.

“These design tools enable the manufacture of optimized heat exchangers that are more efficient, are lower in cost and use less copper material in every unit,” says Hal Stillman, director of technology for ICA. “The results allow OEM product design engineers around the world to produce cost-effective and efficient heat exchangers using well-understood and widely used copper-tube plate-fin technology. Some manufacturers are already launching products developed on the basis of the results.”

Heat transfer from the tubes to the fins was simulated and optimized over a wide range of parameters. The performance was systematically analyzed by varying one parameter at a time and calculating the changes in input power, flow rate and heat transfer.

Advanced statistical analysis was applied to allow for a sampling of the design space across many fin parameters. Fin designs of various dimensions and spacing were simulated for various small diameters of tubes.

Performance simulations were carried out at the School of Energy and Power Engineering, Xi’an Jiao Tong University (SJTU), Xi’an, China, one of the leading air-conditioning and heat-transfer research facilities in the world. The research was sponsored in part by the International Copper Association.

Stillman says, “These designs demonstrate the inherent advantages of cost-effective, eco-friendly copper tubes and provide high energy efficiency in a compact package.”

For more information about the tube simulations, simulation software and related software code for smaller diameter copper tube coils, visit [www.microgroove.net](http://www.microgroove.net). For more information about heat exchanger coils made with small tube copper, visit [www.microgroove.net](http://www.microgroove.net).

### About ICA

The International Copper Association, Ltd. (ICA) is the leading organization for promoting the use of copper worldwide. ICA’s mission is to promote the use of copper by communicating the unique attributes that make this sustainable element an essential contributor to the formation of life, to advances in science and technology, and to a higher standard of living worldwide. Visit [www.copperinfo.com](http://www.copperinfo.com) for more information about ICA.

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