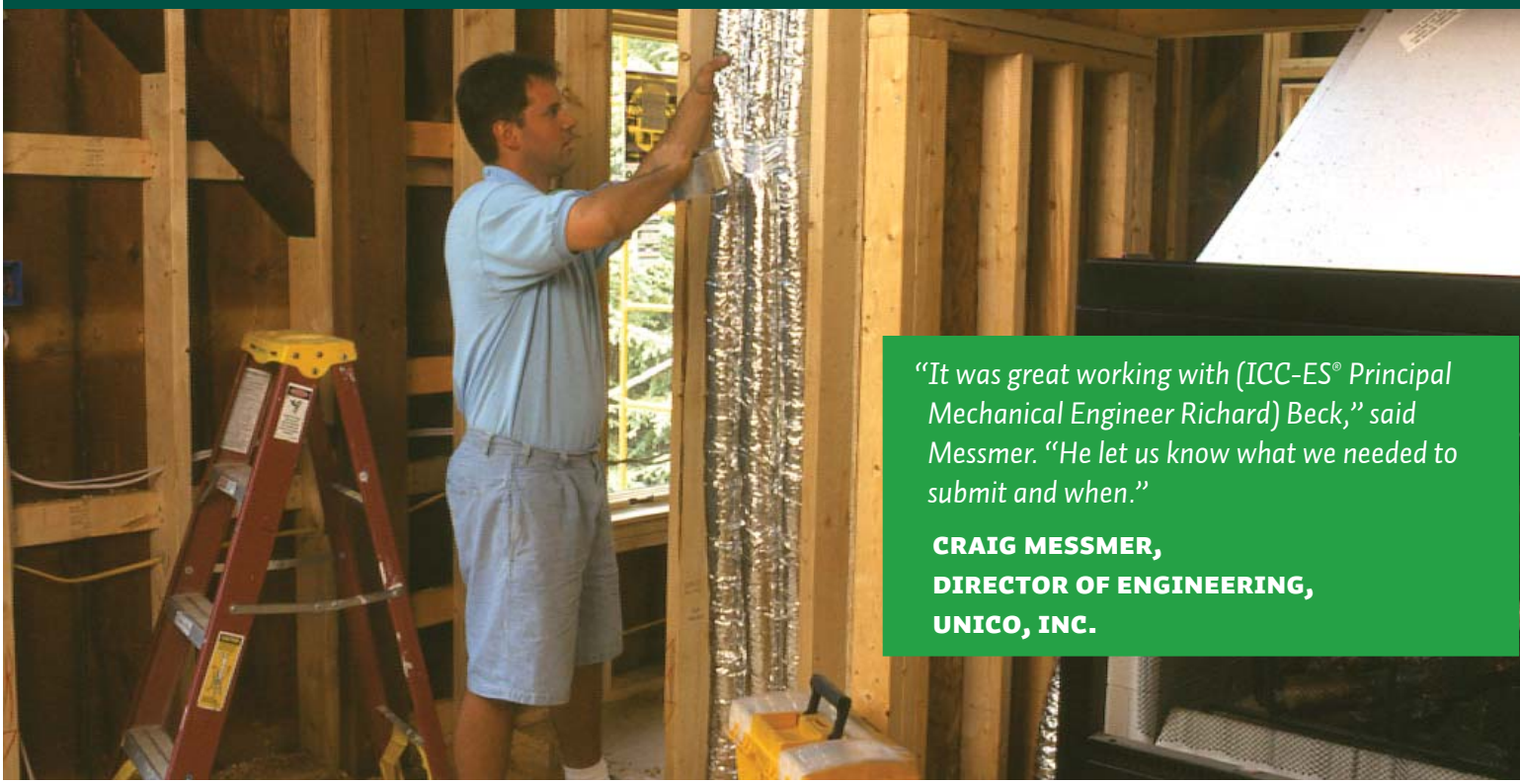

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CRAIG MESSMER,
DIRECTOR OF ENGINEERING,
UNICO, INC.

ICC-ES® PMG Listing Boosts High-Velocity Air System

You're familiar with movies, books or TV shows featuring burglars or spies crawling through a building's duct work to stealthily gain access from room to room. Better hope they don't encounter a building equipped with The Unico System, whose heating and air conditioning ducts are one-quarter standard size. That is one scene killer.

But what's bad news for thrillers is good news for consumers who want a custom system that offers greater efficiency and greater comfort. And The Unico System can be zoned – offering even greater energy savings.

What makes The Unico System different "is all about how we deliver the air," said Craig Messmer, director of engineering for the 29-year-old family-owned HVAC manufacturer out of St. Louis, Missouri. Instead of vents, The Unico System features outlets that consist of a five-inch diameter face plate with two-inch holes connected to similar sized ducts delivering heated or cooled air. "How many (holes) depends on how large the room is," Messmer explains. Ceiling ventilation comes through ducts twice as large (or 4 inches) because of insulation.

Unobtrusive duct work is fabulous for renovation, especially for older homes and buildings. "It doesn't harm aesthetics," Messmer explains. But it's just as popular in new home and building construction. One rather interesting challenge The Unico System tackled was providing heat and air conditioning to the Lisa Marie, Elvis' former jet and a grounded but popular destination at Graceland in Memphis.

Surprisingly, small-duct high-velocity air distribution systems have been around for years – but they are a niche product. Code officials unfamiliar with how they work are often wary of just taking the manufacturer's word – possibly just so much "hot air."

But now The Unico System is recognized through the trusted ICC Evaluation Service® PMG listings, the first in their field to be so. ICC-ES® Plumbing, Mechanical and Fuel Gas listings verify that new or innovative building products meet code requirements. And that is exactly what Unico Inc. needed.

"We're a small part of a very large industry," said Messmer, whose product is made in the United States and whose employees number less than 100. "We had problems with some inspectors not familiar with our product, because they didn't see any mention of it in their code books. Small-diameter high velocity duct design is not addressed in the model codes."

"Some codes require duct work to be designed in a way that is not appropriate for Unico's duct work," added Randy Niederer, head of Unico Inc. marketing. "After reviewing our engineering calculations, the ICC-ES® PMG Listing (PMG-1002) has stated that, although unique, our design is allowable."

Many states also require a certain R-value (measure of thermal resistance) in duct work. A higher R-value means thicker insulation and less heat leakage. But previous codes only took flat-walled ducts into account. The equation works differently when comparing round ducts of varying diameters. "For small ducts, the standard equations grossly underestimate thermal resistance of our high velocity system. Unico worked with ICC-ES® to develop a table that would compare duct's R-values based on heat gain, at various lengths of a standard system's six-inch diameter versus equivalent R-values in Unico's two-inch diameter, round ducts. For example, at a length of ten feet in an attic, if the code requires R8, the Unico high velocity duct equivalent is R6," said Messmer.

Unico Inc. started the certification process with BOCA in 2002-2003. "There was no PMG listing back then," said Niederer. "Then BOCA became one of the legacy groups that formed ICC. We kept renewing our BOCA report as a legacy report, and then officials at ICC-ES® said, 'let's turn this into a PMG listing."

That sounded good to Unico Inc., but being one of the first meant there wasn't a listing criteria. So ICC-ES® and Unico worked together to create a one. "We want good competitors," said Messmer. "If it's good for the industry, it's good for us."

The listing process with ICC-ES® took just over a year. "It was great working with Beck," said Messmer. "He let us know what we needed to submit and when."

Messmer is referring to Richard Beck, ICC-ES® Principal Mechanical Engineer. Beck echoed, "It was great working with Mr. Messmer. He helped explain the various issues to the PMG Listing Committee who refined and ultimately approved the listing criteria. Unico was quick to provide the necessary documentation and worked closely with us in development of the listing."

Unico Systems is not done with ICC-ES® PMG. "We plan to add to our PMG listing as time moves on," said Messmer. Also, Unico Inc. is interested in another evaluation service ICC-ES® offers—SAVE™ reports.

"SAVE™ reports do not currently evaluate for code compliance," said Beck. "They evaluate a manufacturer's claims of sustainable attributes if the product falls within nine guidelines that were developed with industry input." SAVE™ stands for Sustainable Attributes Verification and Evaluation. In other words: green. "Yes, we are green," said Messmer. "We're a silver sponsor for the St. Louis chapter of U.S. Green Building Council and a member of the Green Manufacturers Association. But our energy efficiency rating doesn't look quite so very green. We fall into the green because we save on space and reduce humidity levels and thermal losses. We're actually a tremendous energy saver. You have to consider the system as a whole, how we heat and cool the house, not just the equipment efficiency."

To find out more about this product, view **PMG-1002: The Unico System small-duct high-velocity heating and cooling systems www.icc-es-pmg.org/Listing_Directory/pdf/PMG-1002.pdf,** which was issued August 1, 2008. All ICC-ES® PMG Listings can be accessed and downloaded free of charge at **www.icc-es-pmg.org/Listing_Directory**

** This article is intended to provide information on a product for which an ICC-ES® PMG listing has recently been issued. It should not be construed as a product endorsement or a recommendation of its use.*