

# READERS' FORUM

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## Right Sizing Is Only Part of the Story

Dear Editor,

Thank you for summarizing the results of our study in the August 2006 issue of *EDU* ["Part-Load Latent Capacity Degradation"]. The article provided a good overview of the project scope and results; however, a few clarifications may help avoid some confusion regarding certain aspects of the project:

- The project was actually sponsored by the US Department of Energy, with 20% co-funding by FSEC and CDH Energy.
- The times required for the first drop of moisture to drain from the unit (e.g., 15 to 30 minutes), as shown in Table 1 and described in the text, are measured starting from a completely dry cooling coil. This time will be shorter if the coil is already partially wet at the beginning of the compressor On cycle (e.g., with Auto fan control).
- As you noted in the article, right sizing is important in terms of reducing latent capacity degradation due to cycling. However, that is only part of the story. FSEC has recently completed a study retrofitting right-sized units into three new Florida homes that were originally equipped with oversized units. The results do not show the energy benefits of earlier studies. We theorize that this is due to newer equipment with improved part-load performance (lower  $C_D$ ). Right-sized equipment with greater runtime can lead to increased duct air leakage and heat transfer loads which can overwhelm the benefits provided by the new, lower  $C_D$  equipment. So while right sizing is important for improving the dehumidifica-

tion performance of the air conditioner, installing an airtight air handler and ductwork (preferably located in the conditioned space) is equally important for proper operation and space condition control.

Thanks again for highlighting this project for your readers.

Don Shirey, Florida Solar Energy Center  
Hugh Henderson, CDH Energy

## On Salvaged Stainless-Steel Tanks

Dear Martin,

Thanks for the coverage on our site-built tank ["Back Page," September 2006]. On recent projects, we've been using stainless-steel tanks salvaged from the dairy industry for solar storage tanks. The tanks are insulated with InsulSoy 1.7-lb. low-permeance foam to about R-90. The tanks are relatively easy to install indoors in a basement room before the first floor is on. We just installed one about a month ago underground, outdoors, with 13 inches of InsulSoy plus PolyUrea waterproofing.

While overall, I would like anyone interested to see the advance in these systems, a small part of me also doesn't want our hard work and research to be usurped by, say, Pulte Homes. But hey, if that happens, I'd be excited and appreciative. We have four "big tank" jobs in the works, including retrofit and new construction. Stainless steel is definitely the way to go, and I would say our superinsulation approach is undervalued by Industrial Solar Technology, who built Ron Larson's

tank. I think that is part of Ron's experience -- he's losing heat from that big tank too easily.

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