

BY TED CUSHMAN

## Dumping Heat to the Pool

**In summer, the big power hog** in most homes is probably the air conditioner. But for homes with pools, heating pool water is often a significant factor too.

This raises the obvious question: When you're using lots of power to cool the house at the same time as you're spending money to heat the pool, shouldn't there be a way to capture the heat you're taking out of the home's indoor air, and put that heat into the pool water?

Lindsay Scott, currently an energy auditor in Austin, Texas, had that same thought back when

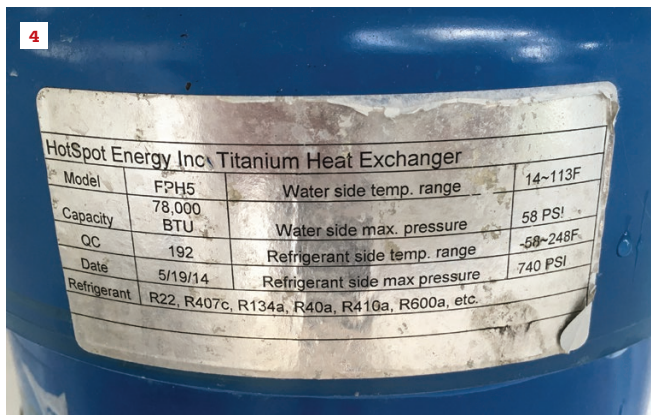
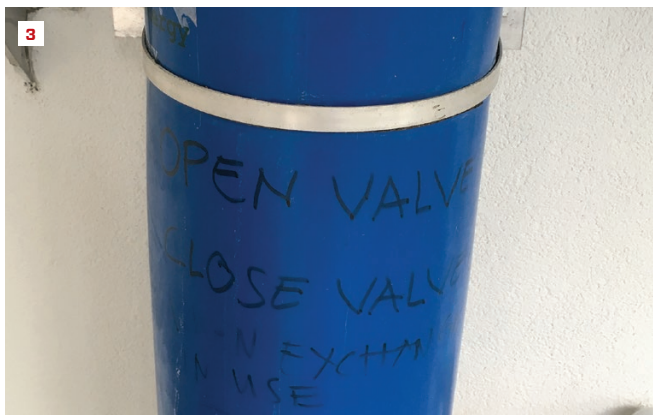
he was a builder in the Cayman Islands. Electricity is expensive in the Caymans, and Scott's customers wanted high-performance homes with low energy bills. But they also wanted swimming pools. Scott's answer was to heat the pools with waste heat from the houses, using a heat transfer system called the HotSpot FPH (for "free pool heater"), from HotSpot Energy (hotspotenergy.com).

The system is simple in concept: You just install a secondary condenser in the air-conditioner or heat-pump refrigerant line. When the air conditioner is running, if the pool needs heat,

This Cayman Islands custom home, constructed with insulating concrete forms (ICFs), used waste heat from the air conditioning to heat the pool for free (see next page).



Photos courtesy of Lindsay Scott



This custom-home swimming pool (1) gets its heat from waste heat recovered using a condenser spliced into the air conditioning system’s refrigerant line (2). The heated water is directed into the small spa pool in the center, which then overflows into the main pool. The HotSpot FPH unit (3, 4) is rated for 78,000 Btu and is wired to kick in and draw heat whenever the pool needs heating.

the secondary system cuts in and pulls heat from the air conditioning’s coolant loop.

John Williams, the CEO of HotSpot Energy, said his product sells nicely by word of mouth. “We’ve never advertised,” said Williams. “We’re engineering types, not marketing types.” But Williams was happy to explain the concept to JLC in a phone call. “It’s basically just a conventional commercial heat-recovery system, adapted for use with a swimming pool,” he said. “The only differences are some minor differences in controls, and of course we upgraded to a titanium heat exchanger to deal with salts or corrosive chemicals that could be in the pool water.”

“In a regular air conditioner,” said Williams, “you have a fan, and you blow outdoor air across a coil, and the heat gets thrown away into the backyard. When our system is active, the refrigerant uses the alternative water-cooled condenser, and instead of a fan,

we use the existing pool pump to push water across the titanium coil, which puts the heat into the pool instead of throwing it away.”

The system takes a week or 10 days to warm the pool up at the start of the cooling season (which, conveniently, is also the outdoor swimming season, Williams noted). But once the pool is warm, the HotSpot keeps it warm continuously. Said Williams, “You could never afford to keep a pool heated continuously like that with a paid-energy pool heater. Your bills would be \$5,000 for the season.”

And, Williams explained, the HotSpot recovers the mechanical energy of the air-conditioner compressor as well as the waste heat from the house. “It makes your air conditioner more efficient,” he said, “and it heats the pool for free.”

*Ted Cushman is a senior editor at JLC.*