



pg case study



January 21, 2011

Installation of Frigitek Controller: On January 17th pg energy advisors Kirven Talone, John DiNenna, and Dave Peters completed the installation of princetongreen.org's product, Frigitek. The installation was performed at Handel's Homemade Ice Cream & Yogurt store of Berwyn, PA.

Frigitek is a commercial refrigeration product that focuses on fan motor efficiency in commercial refrigeration units. The product has

been on the market for several years, but with the advent of the highly efficient Electronically Commutated (EC) motors and a growing interest in green technology, Frigitek is selling extremely well in key regions nationally.



“What attracted us to the product was not only that it was proven technology, but that it is very easy to show a customer that the energy savings claims are real,” says Dave.

Kirven has been working with the owner of Handel's, Buck, for over a year. She first introduced and installed tCube on his walk-in which dramatically lowered the compressor cycle count and increased the units efficiency. Next, she introduced to him Frigitek. Kirven says, “It's my goal to pursue a long-term relationship with my customers, and I'm always seeking ways to introduce the best technologies to help them save energy.”

For this install, Kirven arranged for Buck's regular refrigeration service company, Almond

Refrigeration from Philadelphia, to do the install. This is a father-son company, and Tony Jr. came out to do the install.

“This experience confirmed to us how important it is to have the customer's own refrigeration company involved.” says John. Tony looked over the Frigitek unit and the installation manual and was ready to do it, saying, “This should be no problem at all to install.”

As an owner of a large-volume ice cream store, Buck knows that refrigeration is central to his business success. He was pleased that the technology got a quick thumbs up from his

trusted service company.



Dave observed, “It was great to see how quickly the Frigitek technology was embraced by a seasoned professional in the

refrigeration business. We feel that companies like Almond Refrigeration will be among the first to not only install the Frigitek technology, but also bring it to their customer base. This will become a very profitable opportunity for our pg energy advisors.”

Frigitek Controller explained

The Frigitek controller works in conjunction with 2-speed EC (electronically commutated) motors to maximize their efficiency and nearly double the energy savings provided by EC motors alone.

The Frigitek® ECMotor Controller functions by sensing the operational status of the cooling system, and controls the speed of the EC evaporator fans. When the thermostat is satisfied and the compressor cycles off, the Frigitek controller will sense the compressor off cycle and will switch the motors to the slower speed, thus maximizing savings potential.

After about ten minutes studying the manual, Tony began the installation process. First, he made an amperage reading of what the old shaded pole motors were currently drawing to establish a baseline so a savings percentage could be shown to Buck at the completion of the install. The reading was 3.47 amps.

Next, he removed the old shaded pole motors and replaced them with high efficiency 2-speed EC motors. Then, he installed the Frigitek controller and related sensors.



“I was a bit nervous, with this being our first install, that everything would work as advertised. As the install progressed, it was clear that AI and our friends at Energy Control Equipment who manufacture Frigitek really have their act together,” says John.

Tony was complimentary of the installation manual, but did offer some good suggestions as to how things could be a bit more clear for first-time installers.



With the Frigitek controller and new EC motors installed, it was time to test to make sure the controller/motors were working properly. The controller is designed to switch the speed of the 2-speed EC motors to the slower setting during the compressor off cycle. This is what maximizes the energy efficiency of the unit. Lab testing has shown that evaporator coils in a walk-in refrigerator fitted with a Frigitek controller and EC motors are usually about 85% more efficient.



The breaker was turned back on, and within 10 minutes it was confirmed that the motors and controller were working perfectly.



Now it was time to take the post-installation amperage readings. At high speed, the new EC motors were pulling .68 amps instead of 3.47 amps -- an 81% reduction. Then, at low speed the fan motors were only pulling .11 amps. That is a 97% reduction. **The overall reduction in energy use is approximately 87%.** This number takes into account that the fans will be running at the slower speed only when the compressor is off, which is about 60% of the time.

Dave said, “It was fun to see everything come together. Our customer was very pleased because he got to see his savings right on the meters. But I think the best part came when our installer, Tony, looked at the post-install meter reading and said, “This is damn impressive!”