

# Hill PHOENIX

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A DOVER<sup>™</sup> COMPANY

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## **FOR IMMEDIATE RELEASE**

### **NEW HARRIS TEETER STORE SHOWCASES FIRST HILL PHOENIX SECOND NATURE COMPACT CHILLER UNITS IN NORTH AMERICA**

*State-of-the-Art Technology to Reduce Refrigerant by 97 Percent*

CHARLOTTE, N.C., May 7, 2008 – When Matthews, N.C.-based Harris Teeter Inc. opens its newest store in Charlotte on May 7, the grocery retailer will not only showcase its latest high-end, full-service store, but it also will debut the first installation of Hill PHOENIX Second Nature Compact Chiller units in North America.

The Charlotte store, located at The Shoppes at Ardrey Kell, 16625 Lancaster Highway, is the first in a Harris Teeter pilot program to implement the Second Nature Compact Chiller technology developed by Hill PHOENIX, a leading designer and manufacturer of commercial refrigeration systems.



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The Second Nature Compact Chiller medium temperature technology is a sustainable refrigeration system using a state-of-the-art approach that reduces system refrigerant by 97 percent over a standard direct expansion system, and reduces the potential for refrigerant leaks to less than 1 percent throughout the life of the equipment.



“Hill PHOENIX has a deeply ingrained commitment to sustainability,” said Scott Martin, director of sustainable technologies for the company. “We’re focused on providing retailers with real answers that help them achieve their own sustainability goals, and the Second Nature Compact Chiller units are an example of that commitment.”

### **Evolving Customer Needs**

Hill PHOENIX’s focus on being responsive to retailer’s evolving needs and being in the forefront of the research and development of “green” technology led to the pilot program at Harris Teeter. Over the last couple of years, as part of ongoing discussions about refrigerant management, Michal Shepard, director of energy for Harris Teeter, challenged Hill PHOENIX to develop a simple, compact refrigeration technology that would substantially reduce the initial refrigerant charge and the potential for leaks over the life of the equipment.

According to Shepard, “We asked Hill PHOENIX to look at secondary refrigeration in a new way. Could they find or produce a refrigeration system that would simplify the typical secondary systems? Could they produce these systems as self-contained modules with small charges, no oil systems and simplified controls that could be stacked together to give us the refrigeration rack-style efficiencies we have today? We also wanted as close to a non-field serviceable unit as possible.”

Hill PHOENIX rose to the challenge. “We searched all over the world and were able to find similar technology being utilized in Sweden. We contacted the inventor and worked with him to create our proprietary Second Nature Compact Chiller units,” explained Brad Schwichtenberg, vice president of business development. “The Second Nature Compact Chiller units we developed were able to meet all of Harris Teeter’s goals. “

The standard Hill PHOENIX Second Nature medium temperature secondary refrigeration systems are air-cooled, parallel compressor systems connected to brazed plate heat exchangers that provide a chilled water and glycol mixture for cooling display cases and coolers. The Second Nature Compact Chiller units have been designed to provide this same cooling effect by paralleling the hydronics side of the secondary system as opposed to the refrigeration side of the system. The Second Nature Compact Chiller units also use a water and glycol mixture as a condensing fluid for compressor heat of rejection. This design allows a significant reduction in refrigerant charge. “The technology is simple: it’s like lining up several home refrigerators to make cold water,” Schwichtenberg noted.

The unique feature of the Second Nature Compact Chiller design is the Multi Channel Heat Exchanger. This patented heat exchanger, exclusive to Hill PHOENIX in the Americas, is actually three heat exchangers in one. One circuit is for cooling, another circuit is for condensing, and the third is a liquid sub-cooling circuit that also acts as a buffer between the cooling and condensing sections. In addition, the Second Nature Compact Chiller units employ even-sized scroll compressors and are pre-charged and factory tested.

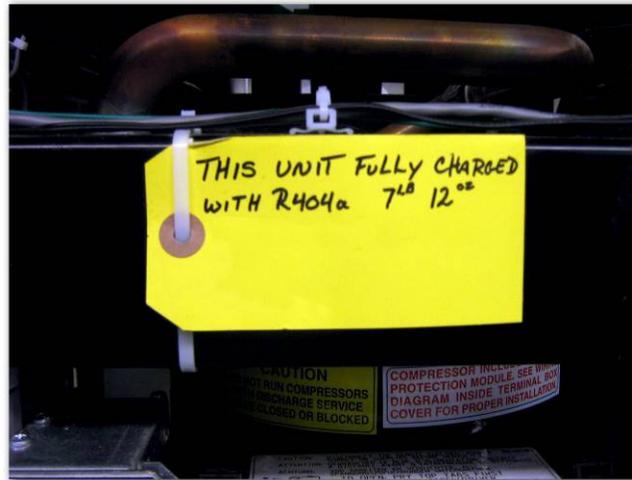


### **Maximum Refrigerant Management**

Standard Hill PHOENIX Second Nature medium temperature systems can reduce refrigerant required by 50 to 75 percent by eliminating refrigerant in long runs to case circuits around the store. Cooling at the display cases and coolers is achieved utilizing a 35 percent glycol solution that is delivered via loop piping. Because the medium temperature secondary refrigerant is not under high pressure like primary refrigerant in a direct expansion system, the Harris Teeter installation uses the Georg Fischer ABS plastic piping system instead of copper pipe.



Because the piping that contains HFC refrigerant for the Second Nature Compact Chiller units is measured in inches, the system is critically charged. The critical charge feature combined with the new Hill PHOENIX SmartValve™ electronic superheat management system allows a charge of less than eight pounds for a single unit. This further reduces refrigerant requirements and eliminates the need for excess amounts of refrigerant storage within the system that typically accommodates wide swings in ambient conditions.



Historically, a typical direct expansion refrigeration installation (total low and medium temperature) at Harris Teeter required approximately 4,400 pounds of refrigerant. The Ardrey Kell installation, which employs medium temperature Second Nature Compact Chiller units, requires approximately 1,200 pounds, the majority of which is utilized by the low-temperature systems. This is nearly a 73 percent reduction in total store refrigerant. Of great significance is the fact that the medium temperature system usually requires around 3,300 pounds. In this store the medium temperature systems requires only 100 pounds of refrigerant; and the units were pre-charged at the factory in a controlled environment. This is a 97 percent reduction in required refrigerant for the medium temperature systems.

If all goes according to plan with this first installation, a second installation will utilize Hill PHOENIX Second Nature Compact Chiller units for both low and medium temperature. This too will be state of the art Second Nature advanced secondary coolant technology. When this occurs, the total refrigerant reduction will be approximately 95 percent.

As for leak potential, all refrigerant is confined to the machine room with Second Nature Compact Chiller units. The most any “system” can lose is 7.75 pounds compared to nearly 1,800 pounds on a typical direct expansion system. As a result, leak potential is less than 1 percent.

Rick Rogers of Rogers Refrigeration, the installing contractor at the Harris Teeter store, believes that the Hill PHOENIX Second Nature Compact Chiller secondary coolant technology is to date the most effective way to reduce the amount of refrigerant in a supermarket. “There is currently not another technology available that reduces refrigerant more than what the Hill PHOENIX Compact Chiller units can do,” he said.

### **Lower Maintenance and Cost Savings**

Another key advantage to the Second Nature Compact Chiller units is lower refrigeration maintenance cost. By using “plug-and-play” product architecture, Hill PHOENIX is reducing or eliminating maintenance because the units can be either worked on in a non-emergency environment or returned to the factory for service. “There are no service ports on the refrigeration side. If there is ever a problem on the refrigeration side, units are simply replaced and returned to the factory,” Schwichtenberg pointed out. Additionally, each Second Nature Compact Chiller unit has its own Hill PHOENIX exclusive control system that enables easier diagnostics.

In addition to reduced refrigerant usage and leak potential, the Compact Chiller units are also expected to provide cost savings to Harris Teeter, such as reduced installation costs over standard direct expansion systems and lower maintenance and energy costs. Added Schwichtenberg, “Traditionally, our standard Second Nature secondary coolant systems cost 75 percent less to maintain than traditional direct expansion systems. We expect to see the Second Nature Compact Chiller technology meet or exceed that figure.” The system will also reduce costs because refrigerant loss is virtually eliminated for the life of the equipment.

## **A Greener Approach**

One of the most important impacts of the Hill PHOENIX Second Nature Compact Chiller units is their role in reducing the environmental footprint of the new Harris Teeter store. “Reducing the overall refrigerant load in the store is a key to our sustainable focus. We believe that through secondary systems this can be done without increasing our energy footprint,” said Shepard. “The Second Nature Compact Chiller units are helping us find new solutions that cut down the amount of potential refrigerant emissions. That’s a crucial step.”

According to Hill PHOENIX, the anticipated impact on the environment is impressive. An average 50,000-square-foot U.S. supermarket with conventional direct expansion refrigeration requires 4,000 pounds of refrigerant at start-up. Considering the average supermarket loses more than 25 percent of that refrigerant charge annually, and each pound lost equates to approximately 3,800 pounds of CO<sub>2</sub> emissions, saving thousands of pounds of refrigerant equates to:

- 373 passenger cars not driven for one year
- 196,000 gallons of gasoline not consumed
- 580 tons of waste recycled instead of going to landfills
- electric use at 221 average households eliminated for one year

“Over the 10 to 15 year life expectancy of the Second Nature Compact Chiller units, the environmental impact is remarkable,” summed up Schwichtenberg.

## **A Look Ahead**

The new Harris Teeter store will also employ Hill PHOENIX Coolgenix™ dome cases for both meat and service seafood. The unique design of the Coolgenix cases accentuates the display of the product and extends product life. Red meat bloom is maintained longer and seafood maintains freshness and color longer as a result of the unique characteristics of the Coolgenix technology. As the first display cases designed for secondary coolant technology, they have no moving parts, providing ease of cleaning and maintenance.



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The use of these Hill PHOENIX exclusive technologies, Second Nature Compact Chiller units and Coolgenix, is part of Harris Teeter's commitment to initiatives that help promote sustainability in the company's daily operations. Dawn Reeves, manager of environmental sustainability for Harris Teeter, added, "One of the cornerstones of sustainability is our impact on the global climate. Limiting the potential release of greenhouse gases by using the Second Nature Compact Chiller technology is an integral part of our plan."

Shepard said the company is committed to testing the Second Nature Compact Chiller units in several additional stores in the future and plans to eventually roll it out company-wide if it provides the right answers.

**About Hill PHOENIX**

Hill PHOENIX Inc., a Dover Company, is based in Conyers, Ga. The company designs and manufactures commercial refrigerated display merchandisers, refrigeration systems, integrated power distribution systems and walk-in coolers and freezers. Visit the company on the Web at [www.hillphoenix.com](http://www.hillphoenix.com) or call 800-283-1109.

**About Harris Teeter**

Harris Teeter Inc., headquartered in Matthews, N.C., is a subsidiary of Ruddick Corp. (NYSE:RDK) of Charlotte. The company has 168 stores across the Southeast. [www.harristeeter.com](http://www.harristeeter.com)

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