



George "Skip" Trostle, Installation and Maintenance Supervisor, Sheetz, Inc.

"We're Saving a Bundle on Refrigeration"

"Sierra refrigeration equipment is actually better than Russell claims; we're saving more than they said we would," says Skip Trostle of Sheetz, Inc., 1994's convenience stores of the year. "I've installed nothing but Russell Sierra since I first tried them."

"Russell said we should use 10% less refrigerant. We're averaging 20% less. And, since Sierra uses floating head technology, our energy savings increase as the outdoor temperature goes down. Plus, Russell never mentioned the savings we're realizing during installation because Sierras come with the thermostat, solenoid and expansion valve already mounted. There's nothing better for us."

There's nothing else like Sierra on the market. The patent-pending design moves the receiver

capacity from a separate tank into additional receiver/condenser tubes. So you use the minimum possible refrigerant charge. Sierra also includes floating head pressure to provide as much as 35% energy savings. Overall, Sierra provides up to 20% more heat transfer capacity with less refrigerant and lower operating costs. See your sales rep or wholesaler and ask for details.



Russell

TECHNOLOGY LEADERSHIP

221 S. Berry St., Brea, CA 92621
(714) 529-1935 • Fax (714) 529-7203

New refrigeration system saves energy for Sheetz store

A 16% savings in electricity was experienced by a Sheetz Inc. convenience store in Altoona, Pa., as measured by local power company GPU Energy, from the use of a new refrigeration system applying a "unique" counter flow defrost design.

The measured savings were on top of an approximately 30% additional power savings already being realized from other new refrigeration system design features.

All those savings were in addition to improved freezer dryness and temperature stability advantages gained from the extremely rapid defrost of the new system.

"This is certainly the refrigeration equipment we'll be using in all of our new stores and retrofits," said George (Skip) Trostle, equipment buyer and installation supervisor for Sheetz.

"This is the driest freezer we ever had, it holds temperature to closer tolerances, and saves us money to boot."

"Sierra" refrigeration systems, patented and available only from Russell, are designed specifically for the 1/2 through 5 hp needs of convenience stores and fast food outlets. The systems move the function of the receiver from a separate tank to the condenser coil. This provides a larger condensing

surface, saving approximately 10% in power consumption, the company says.

COMMERCIAL Refrigeration

The system design also requires 20% less refrigerant, which provides one-time savings of roughly \$180. And since the system design also uses floating head technology, it can offer up to 30% additional power savings as the outside ambient temperature drops.

With the various valves, controls, and accessories factory installed and no need for electric heater wiring, contractors save time and approximately \$150 on equipment installation, the company says.

The design may even offer additional savings through a need for a slightly smaller-hp system for the identical application.

STILL GREATER EFFICIENCIES

Russell's new "High Sierra" design adds a counterflow defrost to the Sierra design. This variation on a two-pipe, hot gas defrost requires much less power than traditional electric defrost, and is only possible because of the basic Sierra

design, the company says.

With no melting frost falling on heating elements, the design also eliminates steaming, thus helping avoid the unsafe ice build-ups common in many freezers. Since the defrost is extremely rapid, taking 3 to 5 min in most applications, less heat is introduced into the freezer and temperatures are maintained very closely.

The new counter-flow defrost



Walk-in freezer in the Sheetz convenience store that's experiencing the many savings of Russell's High Sierra.

requires only the standard liquid and suction lines, with no special piping or control lines, so it's simple to install.

The advantages of a dryer freezer and close maintenance of product temperature may, together, be of greater value than the savings.



George (Skip) Trostle, equipment buyer and installation supervisor, Sheetz Inc., says, "Defrost is so quick it's the way we're going in the future."

All together, based on a conservative 10-year equipment life, Russell computes that the savings of High Sierra systems can actually pay for themselves.

GPU Energy figures show that the Beal Ave. Sheetz store freezer used 241.82 kWh during the study, while the Galleria store cooler used 288.96, for savings of 16%, or \$29.44 in a month. This study compared a 3 hp High Sierra system in the Beal store with a 3-hp Sierra system in the Galleria store.

The monitoring also showed a significantly lower peak amperage (61 to 245) with accompanying advantages. The stores are both located in the Altoona area, so ambient temperature differences were minimal.

QUICK DEFROST

"This freezer goes in and out of defrost so quick, the product doesn't have a chance to warm up," adds Trostle.

"We were concerned about any new design and did every thing we could to make it fail. But it passed every test with no problems. We're ordering these on a regular basis from now on."

Russell computed some figures based on a 5-hp High Sierra system located in a cold climate, such as Minnesota (45° average annual temperature) and power costs of \$0.10/kWh. These show an annual energy savings of \$234 from the shorter defrost cycle, \$140 from the larger condenser-subcooler surface, and \$280 from floating-head technology, for annual savings of \$654.

There also would be \$180 installation savings from the smaller refrigerant charge, and \$150 savings from the factory piped accessories and reduced electrical wiring. Over 10 years, this would add up to \$6,540 (10 x \$654) plus \$330 (installation savings of \$180 and \$150), for total savings over a 10-year equipment life of \$6,870.

That's much more than the equipment cost to begin with.

Russell High Sierra refrigeration systems are available with hermetic, semi-hermetic, or discus compressors in the "Minicon" design condensing units. The systems use AllTemp²B Series evaporators and can be ordered compatible with R-404A or -22, in low-, medium-, or high-temp designs. Contact the company at P.O. Box 1030, Brea, Calif. 92822-1030; 714-529-1935; 714-529-7203 (fax).