Royal Wine’s food processing and distribution center authorities responded to employee wintertime requests for a warmer shipping area, but received a bonus when the six dock door air curtains appropriated for air comfort also significantly reduced operational energy costs.

Sub-freezing days near open shipping doors previously required heavy clothing, hampered worker productivity and caused chilling air drafts regardless of portable truck and dock seals, according to Abraham Wechter, plant engineer, Royal Wine Corp., Bayonne, N.J.

Royal Wine, the world’s leading Kosher winemaker, imports and produces more than 60 brands of wine, manufactures the renowned Kedem fruit juices brand, and also operates Herzog Wine Cellars with vineyards in Oxnard, California.

Wechter is satisfied with the air curtain performance and energy savings, and he plans to order another IDC12 for a remotely-located shipping door.
Charles Cino, sales engineer at manufacturer representative SRS Enterprises, Middletown, N.J., and Wechter collaborated on shipping door options. Cino assessed the application for separating the outdoor from indoor environments during the dozens of daily shipping door cycles. He then submitted an air curtain equipment type and sizing strategy based on a consultation with Sales Manager Stephen Benes, Berner International, New Castle, Pa., the U.S.’s leading air curtain manufacturer. Miller Mechanical Corp., Sayreville, N.J. was the installation contractor.

**Cino selected six Berner Industrial Direct Drive, model IDC-12 air curtains with indirect gas-fired heat for the 8 x 10-foot roll-up door openings.** Each USA made air curtain incorporates three 1/2-hp, single-speed dual-shaft motors that drive blower wheel assemblies delivering 4,443 CFM. The result is a laminar air stream that returns 70 to 80-percent of the indoor energy back into the space while blocking outdoor temperatures infiltration.

**Wechter and Cino also selected supplementary heat options for the air curtain retrofits to maintain shipping area temperatures at 70°F, regardless of outdoor temperatures and open door time duration.** Berner International supplied one 200-Mbh indirect gas-fired unit heater per air curtain delivering a 32°F temperature rise to the air stream. Berner’s custom metal shop also fabricated, powder coated and factory-attached a 14-ga aluminized steel duct plenum transition to the air curtain inlet that aesthetically matches each unit heater. Thus, the unit heater discharges heat toward the plenum and each air curtain draws it through for uniform distribution.

The heat option helps supplement Royal Wine’s existing multiple installations of unit heaters by Reznor/Nortek Global Ltd., Memphis, Tenn., and infrared heaters by Detroit Radiant Re-Verber-Ray® Warren, Michigan. Also helpful in moving static heat from the ceiling are High Volume/Low Speed (HVLS) fans by Rite-Hite Corp., Milwaukee, Wis.

Typically, many industrial shipping door air curtains incorporate internal hot water, steam or electric coils for area heating. However, the gas unit heater/air curtain arrangement Cino selected was the best option because the gas service was nearby and cost effective to operate.

Each air curtain’s control package includes a factory mounted and wired UL listed motor control panel, complete with a Rotary Non-Fused disconnect switch, time delay relay, 24V transformer and a remote-mounted Hand Off/Auto–Summer-Winter combination switch and thermostat. The air curtains are activated through a 24V heavy duty, floor-mounted magnetic reed switch that activates the air curtain when the overhead roll up/canister doors go up. The heaters are activated by a thermostat.

Royal Wine plans to keep the air curtains activated year round, because the plant uses several 20-ton rooftop HVAC units, manufactured by York–div. Johnson Controls, Norman, Okla., to maintain temperatures for optimum wine/juice storage. In addition to stable temperatures, summertime door protection will help eliminate flying insect and dust infiltration, an important sanitation factor for juice and wine facilities.