

# CASE STUDY

## How a Las Vegas Hospital Reclaimed Refrigeration Efficiency from Aging Equipment



What do you do when a refrigeration rack system isn't performing properly in Las Vegas heat? That's the problem a hospital in Nevada had when they realized their walk-in coolers were not holding the proper temperatures. To find a solution, St. Rose Dominican Hospital's Siena Campus in Henderson, Nevada decided to take action and restructure their fourteen-year-old kitchen.

The hospital created a fantastic team to help in the creation of its new tower and brought in A2O Foodservice Design & Consulting to redesign the hospital's kitchen. The original, air-cooled refrigeration rack was located on the loading dock, essentially in a tunnel with very little air circulation in the steamy Las Vegas heat.

Needless to say, this was one of the reasons the equipment was not doing its job and holding proper temperatures. In addition, there was not much money allocated in the budget to update the existing refrigeration unit and move it to a different location. In effect, the existing equipment had simply aged out of efficiency.



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"I was in a meeting where it was mentioned that money had been allocated to re-locate the existing rack from the loading dock to the fourth-floor roof as part of a separate project," said Andrew DeLage, President at A2O Foodservice Design & Consulting. "Since our team intended to keep all the existing walk-in coolers, freezers and a blast chiller in place, we also planned to keep the existing refrigeration rack system and simply add new refrigeration to handle the new walk-in coolers and freezer. I recommended that the refrigeration project be put on hold long enough to do a study to see if we could replace that rack with a new one for less money."

**Updating from the existing fourteen-year-old rack serving five walk-ins to the RDT Eco-Cool system serving eight walk-ins would save nearly \$5,000 per year in addition to adding cooled storage space.**

The kitchen redesign allowed for the addition of three new walk-ins, which would be added at different phases throughout the construction of the new hospital tower. In order to make it all work together, a rack with modular ability was also needed to add more systems in various phases. After DeLage brought the energy study idea to the owner, an engineering firm was hired to do the study.

Affiliated Engineers, Inc. (AEI) conducted the energy cost study comparing the existing system and new equipment to a brand new RDT Eco-Cool system. The study found that updating from the existing fourteen-year-old rack serving five walk-ins to the RDT Eco-Cool system serving eight walk-ins would save nearly \$5,000 per year in addition to adding cooled storage space.

"This project was designed to allow St. Rose Dominican Hospital to almost double their storage capacity without increasing their operational costs," said Brett McQuillan, a performance analysis specialist at AEI. "The analysis includes capacity for an additional blast chiller, future freezer, two future coolers in the new system, and an additional compressor to provide redundancy. The analysis was very conservative, leaving out heat rejection and assuming the old air-cooled condenser and Eco-Cool run at design conditions."



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RDT's Eco-Cool system allows an application that would typically require ten compressors to now utilize two digital scroll compressors. It also includes a back-up compressor for 100 percent redundancy. Because of the Eco-Cool's modular ability, St. Rose Dominican Hospital was able to immediately replace its existing unit, and as the construction of the new tower proceeded, add the extra walk-ins later. The compressor is able to initially operate at a fraction of its ultimate capacity, and as more systems are brought online in various phases, the system will ultimately reach its 100 percent capacity. This ability makes the Eco-Cool system a perfect replacement for remodels or even replacement of aging equipment.



"One of the most interesting aspects of aging equipment is that most people don't realize our Eco-Cool system can actually save more money than replacing parts on their old existing unit," said Brent Dyess, President at Refrigeration Design Technologies (RDT). "Aging equipment tends to have more compressors, more refrigerant, and more electrical consumption, all of which are things our Eco-Cool system greatly reduces."

"The RDT Eco-Cool has been a great solution and a much better use of the hospital's capital," said DeLage. "Having the ability to go from a 14-year-old rack that was servicing five walk-ins to a new unit servicing eight walk-ins and using less energy is a huge advantage."

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