

NEVADA SURE BET PROGRAM

Offered By: NV Energy

Administered By: KEMA Services, Inc.

Seeking LEED[®] Silver in a Laundry Processing Warehouse

Facility Description

Boyd's laundry facility is located in Henderson, Nevada in a single story, 100,000 square foot existing warehouse that has been renovated to expand their commercial-duty laundry processing. The laundry facility currently serves all of Boyd's operations in Nevada with increasing loads expected as the Echelon Resort project comes into service. The project is seeking Silver certification under the U. S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program in addition to demonstrating their corporate commitment to being resource conscious, protecting employee's health, and enhancing the local community.

The following components make the Boyd laundry facility a stand-out among its counterparts in the community.

Process efficiency enhancements

- Automated sortation and railing systems
- State of the art wash desk utilizing tunnel washers
- Tunnels provide for a superior wash while not putting undo wear and tear on the products
- Washers utilizing enzymes which allow lower water temperatures to produce the same cleaning while requiring less cleaning product and reducing wear and tear on linens
- Clean sort railing system and finish
- Designed to avoid linens ever touching the floor
- High-capacity production capabilities
- Able to handle over 200,000 pounds of washing per day
- Includes dry cleaning services for uniforms
- Full transportation and logistics capabilities

Construction renovation highlights

- Original concrete floor and exterior asphalt removed and debris reused
- Reuse of building materials from Boyd's renovated Industrial Road corporate office
- Construction and demolition debris diverted from land-fill and recycled

Resource-conserving measures

- energy-efficient evaporative cooling units with duct-sock distribution system
- skylights installed allowing daylighting in production area
- lighting system redesign and upgrade with energy-efficient lamps, ballasts, controls
- low-volume water-flow lavatories, dual-flush toilets and waterless urinals

- cool roof of light-colored, insulating roofing material to reduce heat transfer in the summer

Process-water reduction and reuse

- 20 million gallons saved annually by rinse water filtering and reuse
- 33% less potable water demand due to tunnel technology
- 66% reduction in wastewater outflows

Environmental friendly practices and program efforts

- “green” chemicals and enzyme cleaning products which allow lower wash temperatures and protect employees from exposure to harmful substances
- robust recycling program including repurposing worn linens, reducing operational supplies, and recycling of site-generated wastes
- educational program at Boyd gaming hotels to educate visitors about the importance of water conservation and raise awareness of their on-going efforts to save water
- partnership with Regional Transportation Commission to introduce Club Ride Program encouraging employees to use alternative transportation while guaranteeing access to a vehicle
- employee carpool and fuel-efficient vehicle preferred parking at facility
- increased ventilation to improve worker comfort and productivity

Project Description

The Boyd Group set out to build an environmental-friendly building and incorporate many of the key indicators of sustainability addressed in the LEED rating system. Upon verification by the USGBC, the facility hopes to achieve Silver-level certification through a combination of resource conserving strategies along with many health and productivity measures centering on their employees well-being.

Resource Efficiency Comes First

By targeting the reduction of resources necessary to meet the demands of a commercial laundry facility, the owner decided to investigate the best combination of efficiency strategies and tasked the design team with simulating many different energy-efficient and water-conserving options.

The design process included six energy modeling simulations, all comparing a minimally compliant baseline building formulated following ASHRAE 90.1-2004 Appendix G standards. The baseline building model was run in comparison to a number of different parametric options. Each run was done incrementally adding energy efficiency features to select the best combination. Based on this integrated energy analysis, the laundry facility has the potential to achieve a 39% reduction in annual energy use in comparison to a minimally compliant building with standard laundry processing facility. Some of the energy-efficient technologies and strategies used to enhance the performance of the building include:

- window film applied to the existing dual-pane, clear glass windows to reduce solar heat-gain
- skylight openings equal to 0.2% of the roof area in order to reduce the use of electrical lighting
- reduced overall lighting power density (LPD) at 0.36W/sf through the use of daylighting controls and occupancy sensors
- six evaporative-cooling units to serve the production area and two high-efficiency 10-ton rooftop air conditioning units with outside air economizers serving the office area

Making the Water – Energy Connection in the Process

Clearly, the water consumed by a laundry facility is one of the most resource-demanding portions of the process. Through state-of-the-art conservation techniques, Boyd’s facility reduced water demand by 66% and created new opportunities to reuse and recycle water. In addition, it was discovered that the process loads of the facility represent the majority of the overall energy consumption as these loads are associated with washing and drying an

estimated 150,000 pounds of laundry per day. With its two-shift, seven-day-per-week operations, the reduction of the demand for water and energy became one of the top priorities for this optimization project.

Standard laundry processes use water once and then discharge it as waste at a rate of approximately three gallons per pound of linen washed. To close the loop of the water-cycle, the cleaning process at Boyd's was redesigned to begin by filling machines with reclaimed-process discharge water instead of sending once-used water to the sewer. This facility reduces its discharge to approximately one gallon per pound of laundry by means of filters on the rinse-cycle system. In addition, this reuse allows for heat recovery from hot wastewater that can pre-heat clean incoming water via a heat exchanger.

Connecting to employees and the community

Many employers are beginning to see the quantifiable benefits of investing in their employee's comfort. By providing access to fresh air, plenty of balanced sunlight, as well as protecting the quality of indoor air, facility owners are creating more comfortable, committed, and productive staff. In Boyd's facility, access to daylight through skylights, increased ventilation of filtered fresh air, and by taking steps to keep chemicals and fumes out of indoor spaces, this facility has the potential to deliver productivity benefits that may be on a scale much greater than the significant energy-cost savings.

The community also benefits from efforts employed at the laundry facility. By specifying and using local building products, Boyd's is supporting the growth of local businesses and the community's economic growth while protecting the local environment by reducing transportation and the associated fossil-fuel emissions. The project will also seek to support the growing renewable energy industry by subsidizing renewable energy generation through purchasing "green power" at a small premium to provide encouragement to this emerging industry.

Through its comprehensive and innovative approach to commercial laundry processing, the Boyd laundry facility earned an incentive payment of \$87,000 from NV Energy's Sure Bet New Construction Program and may see savings of 713,000 kWh per year with their efficient systems and operations. At current energy charges, this leads to year-over-year electricity cost savings of \$60,605 (based on average cost of \$0.085 per kWh).