

Crystal Mountain Resort & Spa
Thompsonville, Michigan

"Sustainability is important to Crystal Mountain. Conserving water helps preserve our wells and reducing hot water usage saves energy,"

Description:

Crystal Mountain Resort & Spa is one of Michigan's most popular four-season recreational destinations. The resort offers championship golf, an alpine slide, and water park in the spring, summer and fall and excellent skiing during the winter. Crystal Mountain is also a member of the Green Spa Network with one of just eight Silver LEED-certified spas in the U.S. – the only such spa in the Midwest.

Goals:

Management understands the value of saving water and reducing consumption. The Resort has its own wells and does not incur a water or sewer bill. However, there are still costs attached to pump the water and treat the sewage.

After determining the energy cost to heat the water value became even more important. Leadership realized that upgrading sinks and showers with new fixtures would produce a reasonable return on investment. With that information, management was quick to give the renovation a green light.

Solutions:

The J. Norman Company recommended installing shower flow controllers on all the resort's existing showerheads. This would reduce the water use from 2.5 gallons-per-minute (gpm) to 2 gpm. It was also recommended the resort install aerators on kitchen sinks to further reduce water consumption from 2 gpm to 1.5 gpm. The same type of aerator would be installed on the resort's bathroom sinks reducing consumption from 2 gpm to 1 gpm.

Test fixtures were installed to evaluate the changes allowing management to verify the actual water savings and, more importantly, the functionality of the converted fixtures.

Upon review, it was agreed that the projected renovations would produce a reasonable payback.

Components:

Because of Crystal Mountain's reputation for quality and comfort, functionality and guest satisfaction was vital in their approach to the project. All conversions had to be considered as performance upgrades.

Shower flow controllers were installed on all existing showers using over 2.5 gpm. The existing shower heads were in good condition and did not require replacement. These shower heads now deliver a full 2 gpm, providing a comfortable shower and maintain guest satisfaction.

The 1.0 gpm aerators were installed in bathroom sinks providing ample water. The 1.5 gpm aerators were installed in the kitchens providing a good flow rate.

Results:

By reducing water consumption in Crystal Mountain's 649 showers by .5 gpm the resort will save an estimated 56,138 gallons of water per month. The reduction within the resort's 218 kitchen sinks by .5 gpm saves approximately 9,810 gallons of water per month. Changes to the resort's 516 bathroom sinks will reduce water usage by 1.0 gpm providing an estimated savings of 58,275 gallons of water per month.

Added together, the resort's total water savings are estimated to be 124,223 gallons per month - over 1.49 million gallons per year. Over half of the savings is from heated water which amounts to about 62,111 gallons per month.

Total energy savings is over \$1,212 per year and does not include the savings on water distribution. This represents a return on investment of 28.76% with a capital recovery period of 42 months.

Environmental:

According to the Michigan Green Environmental Impact Calculator, reducing hot water usage for this project has eliminated 24,360 pounds of CO2 per year - the equivalent of planting 74 trees or removing three cars from the road.

Contact:

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