

# The Power to Save

Preserve our environment and make some change

## The Next Generation: Fossil Ridge High School

*Fort Collins Utilities' Integrated Design Case Study*

### Focus on Students

Fossil Ridge High School (FRHS) is the latest evolution in Poudre School District's sustainably designed schools. The design team met the district's challenge and built a school that performs even better than the award-winning Zach and Bacon Elementary Schools.

***"Most people don't notice all the sustainable features used in the building. They do notice that when you walk into the school, it just feels good."***

*-Michael Spearnak, AIA,  
Poudre School District*

The new challenge:

- provide students with the best learning environment possible, including comfortable, healthy and productive classrooms;
- create a small school feel but have all the amenities of a large school;
- make the school more flexible to adapt to changing needs over time;
- cut operating costs so district dollars stay in the classroom;
- let the school be a teaching tool for environmental stewardship; and, of course
- build it for no added cost and open the school on time.



Photo courtesy of RB+B Architects, Inc.

### Design for Success

The design team met this challenge by using integrated design to create whole-building solutions with sustainable outcomes. Integrated design relies on many people pooling their knowledge to come up with a solution that would not have been possible with the input of only a few.

The district started the design process by forming a "Green Team" that included architects, engineers, teachers, maintenance staff and others.

### Costs of Integrated Design

The design team built on strategies developed during recent elementary school designs, so the district did not have to pay a premium for design fees. Construction costs were within the budget set in 2000 for a typical high school in the district.

### Integrated Design Assistance

This project received support from Fort Collins Utilities' Integrated Design Assistance Program. The program offers staff support and expertise during the design process and financial assistance to supplement the incremental cost of energy consultants.

## How Low Can You Go?

There is one big cost difference between a typical school and Fossil Ridge High School—energy bills. Based on energy models and the first few months of operation, the school is expected to save the district at least \$60,000 per year through lower energy costs.

“Fossil Ridge energy bills will be about one-third less than the newest high school in the district of the same size,” said Stu Reeve, energy manager for the district. “The dollars saved go right back into the classroom.”

Careful choices for window size and placement provide daylight spaces, minimize glare and reduce the need for electric lighting during the day. Ice thermal storage systems use low-cost night energy to serve the air conditioning needs of the building.

## Every Drop Counts

The school also provides excellent examples of water conservation techniques. Synthetic turf playing fields provide more hours of play in less space, with no water and little maintenance required. A new pond provides raw water for the Xeriscaped grounds at Fossil Ridge, nearby Zach Elementary and two City parks.



Photo courtesy of RB+B Architects, Inc.

*By rotating windows to the north, glare is reduced in eye-level windows on west facing walls.*

## Project Details

### Facility

Poudre School District Fossil Ridge High School  
(opened August 2004)

### Size

1,800 student capacity  
296,375 square feet total

### Location

Fort Collins, CO

### Project Cost

\$122 per square foot

### Energy Use (energy model)

Approximately 30 kBtu per square foot annually for gas and electricity

### Design Team

- Architect: RB+B Architects, Inc., Fort Collins
- General Contractor: Haselden Construction, Inc., Denver
- Daylighting Consultant: Ensar Group, Boulder
- LEED Consultant: Institute for the Built Environment, CSU, Fort Collins
- Commissioning: Architectural Energy Corp., Boulder
- Energy Modeling: EMC Engineers, Inc., Golden

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## The Next Generation

“We owe it to the next generation to build healthy, flexible and productive schools that don’t deplete precious water, energy and material resources,” said Michael Spearnak, AIA, director of planning, design and construction at Poudre School District. “And, the next generation is learning this first-hand at Fossil Ridge High School.”