

GREEN BUILDING INITIATIVE™

CASE STUDY



OWNER: Poudre School District
ARCHITECT: RB+B Architects
CONTRACTOR: Dohn Construction, Inc.
MECHANICAL ENGINEER: Shaffer Baucom Engineering
ELECTRICAL ENGINEER: Shaffer Baucom Engineering
STRUCTURAL ENGINEER: JVA, Incorporated



BETHKE ELEMENTARY SCHOOL

Green Building is Elementary!

POUDRE SCHOOL DISTRICT'S NEW BETHKE ELEMENTARY SCHOOL HAS ALREADY SCORED HIGH MARKS BEFORE EVEN OPENING ITS DOORS—

for achievements in sustainable design and construction. Located in Timnath, Colo., this new high-performance structure was the first elementary school in the country to receive a rating of three Green Globes from the Green Building Initiative, and is among the country's best examples of buildings that teach.



RATING: THREE GREEN GLOBES

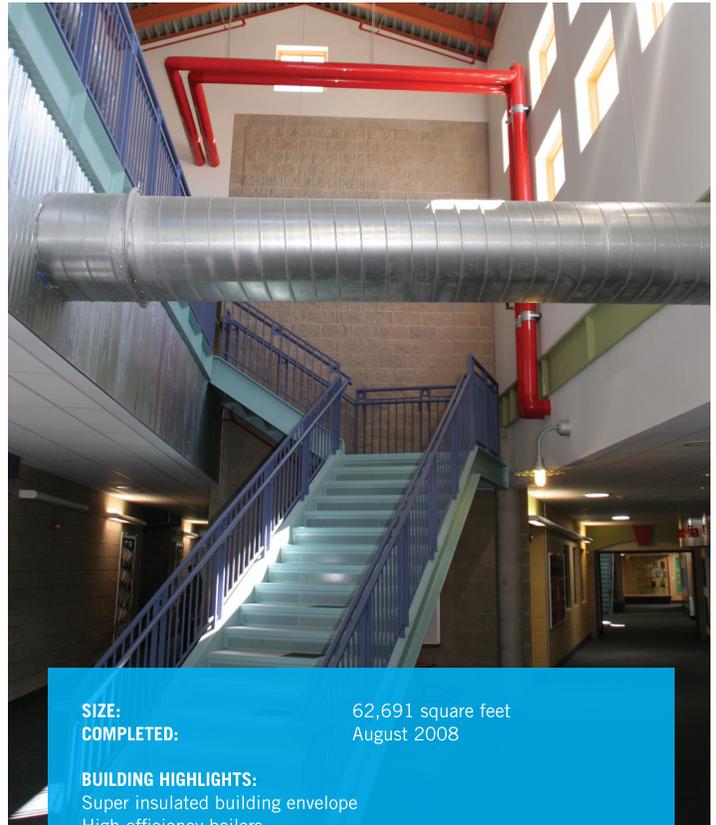
The 63,000 square foot, two-story building will use roughly 40 to 50 percent less energy to operate than a comparable school designed without sustainability features. Among other things, it includes a state-of-the-art evaporative system to address its cooling load and allow for year round air-conditioning, a super insulated building envelope, high-efficiency boilers and operative windows that provide daylighting to 90 percent of the building's interior.

Other **energy-efficient features** include building orientation, site design, displacement air strategies and carbon dioxide sensors to control ventilation. Using a "micro-loaded" strategy, the building also reduces heating and cooling costs by about half compared to a conventionally designed building. The school is divided into two zones—"passive" and "active"—with classrooms on one side providing a quiet, distraction-free learning environment, and the gym, cafeteria, music room, media center and playground on the other.

Focused on the principle that buildings themselves can teach, Bethke Elementary is also designed to demonstrate the effectiveness of green construction to generations of students. Many of the systems that are typically hidden, such as structure and mechanical systems, fire sprinkler riser and piping, data management equipment, and building monitoring equipment, are instead exposed to indicate their functions and provide dozens of educational opportunities.

The team also earned high marks for its **integrated design approach**, which is one in which all of the disciplines involved in a project work together from the outset—including the architect, engineers, contractor, building owner, and others. One of its main benefits is the fact that synergies are often achieved when the various parties can contribute their advice and expertise from the earliest design stage, and are able to perform their own functions with increased knowledge of the building as a whole.

The result is a building designed to promote greater student and staff productivity, less absenteeism and better health, to have less impact on the environment, and provide operational cost savings.

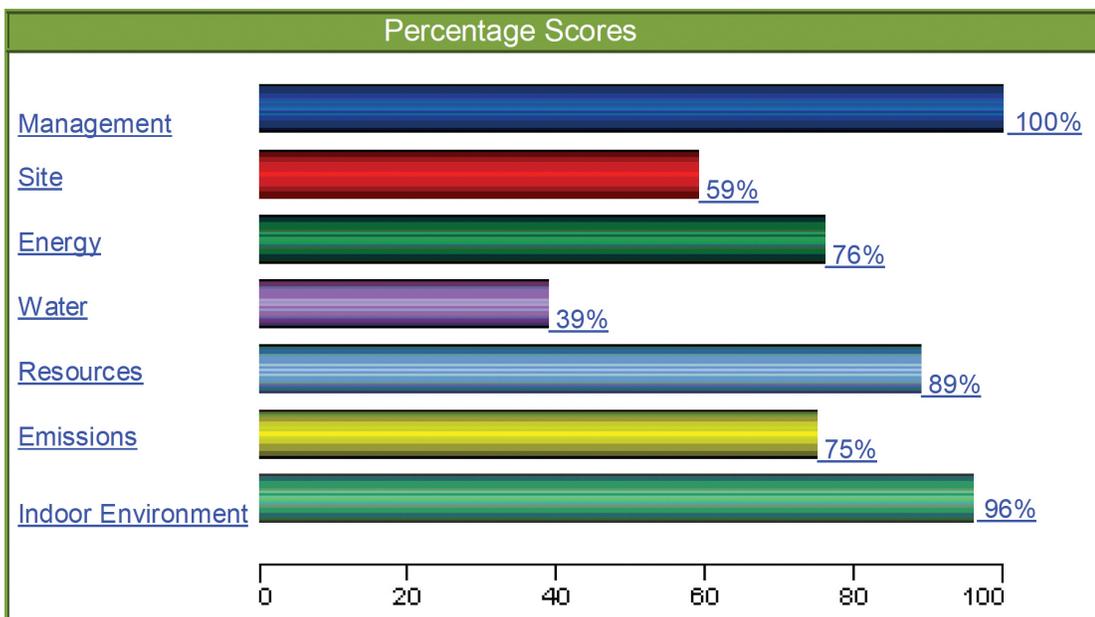


SIZE: 62,691 square feet
COMPLETED: August 2008

BUILDING HIGHLIGHTS:
 Super insulated building envelope
 High-efficiency boilers
 Direct/indirect condensing evaporative cooling
 Displacement air ventilation in gym and cafeteria
 Operative windows
 90% of spaces daylight

ENERGY FACTS:
 ENERGY STAR rating: 95 out of 100
 Energy use intensity: 26.9 KBTU/S.F./YR. (Colorado average = 70)
 Percent CO2 reduction: 61 tons

OPERATING COST:
 \$0.55/S.F./YR (Colorado average = \$1.20 TO \$2.00)
 Peak KW = 137.6 (62.8% Savings over ASHRAE 90.1-2001)



Bethke Elementary School achieved an overall rating of 77%.