

# IDAHO BUSINESS REVIEW

Idaho Business News

## School districts adopt 'daylighting' in building design

Posted: Monday, October 24, 2005

By Gaye Bunderson

Idaho Business Review

To teach your children well, we adults sometimes need a refresher course.

It's a philosophy certainly shared by Kevin Van Den Wymelenberg, director of the Idaho Design Lab in Boise, who wants to instruct school officials about the value of building high performance facilities that enhance student learning.

Approximately 12 school districts throughout the state have heard Van Den Wymelenberg, along with architects and engineers, explain why building more environmentally friendly schools is ultimately better for their bottom line and the comfort of students and staff.

The Idaho Design Lab is a cooperative program of BetterBricks, a nonprofit initiative of the Northwest Energy Efficiency Alliance based in Portland, Ore., the University of Idaho, Idaho Power Co., and the Idaho Department of Water Resources Energy Division.

IDL uses technology to help builders calculate how to take advantage of natural light and airflow to create more energy-efficient structures.

One of the biggest and earliest events of the schools project occurred in March 2004. A roundtable presentation was held to explore, with Nampa School District officials, the viability of making design changes in building programs to incorporate, among other things, daylighting - a process that positions buildings to capture sunlight for illumination.

"The district was going through construction on three different projects - a high school and two elementaries - and we had been consulting with them on each of them," said Van Den Wymelenberg.

The district ultimately incorporated some, but not all, of the green design elements into its plans. "They implemented a few of the things, not a lot. But it's a victory. The impact was there," he said.

Originally, design plans for the district's Columbia High School had been laid out to accommodate the school bus pick-up and drop-off schedule.

"We got (officials) to look at placing the building with orientation to the sun, rather than the bus route, and daylighting their property. Now, it's a building that lays out well for solar issues," Van Den Wymelenberg said.

John Maulin of CSHQA, who assisted in the design of Columbia High School as well as East Valley Middle School in Nampa, said daylighting and green design essentially mean creating structures that work with the environment, rather than structures that exist in spite of it.

"Studies have shown that learning is enhanced by a more symbiotic relationship with the environment," said Maulin. Van Den Wymelenberg cites studies conducted by California's Heschong Mahone Group Inc. ([www.h-m-g.com](http://www.h-m-g.com)) to confirm this.

The professional consulting firm, whose principals are trained and registered architects, has done a variety of studies on daylighting and productivity, in both classrooms and businesses. Reports are available on its website.

Changes to the Columbia High project included rooms with windows that let in more natural light and allow people inside more engagement with the exterior. As well as the psychological benefits, natural light "steps down the electric light levels ... and further reduces electrical and heating loads in the building," said Maulin.

Jim Coles, Design West Architects, worked heavily with school officials in the design of Nampa's Willow Creek Elementary. Because of the tight budget constraints most school districts are forced to work with, said Coles, it was determined that a LEED (Leadership in Energy and Environmental Design)-certified building could not be sufficiently funded, but that many high performance features could be integrated into the school.

Design West coordinated with BetterBricks, IDL and others to complete a study to determine how the plan could be modified. "Design West and the Integrated Design Lab created models of different spaces throughout the building, and these models were tested by the IDL to determine how to add natural lighting, while minimizing the impact to the construction budget," said Coles.

Other high performance and green elements incorporated into the design of the schools include: the use of recycled materials; durable materials that lower maintenance and extend the life of a building; economizers on HVAC systems; and glazing in windows to reduce glare, heat absorption and loss.

"I feel that natural lighting is superior to any other lighting, and

include Pocatello, Lewiston, Coeur d'Alene and Jerome, where daylighting and other concepts were included in the high school.

Phillips said building this way in more schools requires clients "to see the light."

Van Den Wymelenberg agrees, stating, "We're really just looking for a school district that wants to contact us. We're looking for somebody who wants to do this, wants help, has a decent budget, wants to be creative with the budget they do have and re-prioritize."

Architects argue that green elements, while slightly higher in cost initially, often extend the life of a building, eliminate waste, and cut down on electricity expenses.

"The building codes are also requiring more energy efficiency, which means that this cost should have been expected and therefore is not really an additional cost," Maulins said.

"From the big picture standpoint, the Earth and wasting resources, we also design into the buildings the use of recycled materials and omit unneeded extra materials," he said.

He noted that districts that use high-performance and green elements, ultimately prove to be good stewards of the public funds used to build schools and maintain them.