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New Nampa school set up to test energy

High-performance classrooms also use ‘green' materials on floors, walls

The first thing visitors notice when they visit Nampa's new Endeavor Elementary School is all the natural light.
It filters into the school, set to open this fall, through an abundance of windows and skylights in classrooms, hallways and even the gymnasium/multipurpose room.
What visitors can't see at first glance are two classrooms that have been designed to provide a pleasant learning environment with optimal energy efficiency, including light sources and cooling and heating.
These two classrooms are part of a study designed by the University of Idaho Integrated Design Lab in Boise and architect Jim Coles, president of Design West Architects in Meridian. Called high-performance classrooms, they will be compared to two regular classrooms within the building over a period of 18 months to two years to see exactly what works and what is most efficient.
Architecture Professor Kevin Van Den Wymelenberg, Integrated Design Lab director, said one goal is to improve the energy efficiency by 40 percent beyond what is required by code.
"We're talking about pushing performance to the next level," he said. "This sort of test could lead to a whole building being constructed using this technology."
Sue Seifert, senior energy specialist for the energy division of the Idaho Department of Water Resources, said the state will be able to take the comparison data and "market it to other schools in Idaho so they'll consider building a whole school (with high performance features.)"
Making schools more energy efficient is an issue for superintendents, Seifert said, because the cost is higher than regular construction.
"But we're saying, is it really?" she said. "We're hoping this data shows the benefit and that the cost (even in the short term) could be minimal."
If the high-performance classrooms meet expectations in the pilot period, the district will look at using the technology in future schools and in retrofitting existing schools, Nampa School District Chief Operations Officer Harmon Hurren said.
Features of the high-performance classrooms include:
• Skylights augmented by lights that turn on automatically — but only when daylight is low and then only as bright as needed. In fact, the teacher cannot turn on the lights, Coles said. Regular classrooms have two sets of light switches to control the number of lights on at any one time.
• Energy-recovery heating, ventilation and air conditioning systems with evaporative cooling units instead of condenser units. Evaporative cooling adds more humidity to the air, said Van Den Wymelenberg. "When it's hot here, it's dry, and you can afford to add some water to the air."
• A heat-recovery ventilation system that uses air vented from the classroom to help heat the fresh air directed into the room.
• Marmoleum flooring — a "green" product made from linseed oil, wood flour, rosin, jute and limestone — is used for easier cleaning and to reduce allergies. The regular classrooms will be carpeted.
• Other "green" finish materials include natural fiberboard core for cabinetry, low- and no-VOC (volatile organic compounds) paints and adhesives, recycled-content ceiling tiles and natural fabric panels.
Monitoring equipment has been permanently installed as part of the energy management system, said Van Den Wymelenberg. Equipment also has been installed to access comfort levels.
The school also will monitor student performance to see if the "green" classrooms lead to increased productivity and attendance compared to standard classrooms, Coles said.
Van Den Wymelenberg estimated that the district will get about $30,000 from Idaho Power's New Commercial Incentive program to set up the high-performance classrooms.
Idaho Power paid Integrated Design Lab $8,500 for data analysis and long-term monitoring, and the Northwest Energy Efficiency Alliance Better Bricks program gave $10,000 to Integrated Design to pay for measurement and verification equipment.
Other energy-saving features throughout the building include lights that go off when there is no movement in rooms and individual heat and air conditioning units for each classroom, said Coles.
To get the most daylight and energy efficiency throughout the year, south facing windows are protected by an overhang on hot days.
The same windows get more direct light and warmth when the sun is lower in the winter.
North-facing classrooms have more window space, Coles said, "because there is no direct sun."
The school uses an "H" design, and Design West has used the same basic floor plan for 11 other elementary schools in Nampa, Caldwell, Middleton and Twin Falls, said Coles. Each time, they work to improve the design.
It's not just about energy savings, but also for the well-being of the students and teachers, said Coles. "You can't put a dollar value on that kind of space."
"You can walk in and imagine, gee, a student might like to come here," said Van Den Wymelenberg.
Nampa School District has been working to improve energy efficiency and create better learning environments, Hurren said. Willow Creek Elementary, which opened in 2005, and Lake Ridge and Lone Star, both under construction, have more skylights and classroom windows.
"This gave us the opportunity to pilot a program and see if we could implement what we learn," he said.
Skylights have been particularly useful in the new schools' gymnasiums, which are full size so the district can use them for junior high and high school practices, and the city can use them for recreation department activities, Hurren said.
"On a nice day, you don't even have to turn on the lights (in the gyms)," he said
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