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Open for education

by Alison Ryan
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To a casual observer, the tall, light-filled lobby of the newest addition to the Portland State University campus is but an attention-grabbing architectural feature. But for students, the five-story space is also an example of how book learning translates into real buildings.



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Photo

The Northwest Center for Engineering, Science and Technology, a 130,000-square-foot laboratory, classroom and office building at Southwest Fourth Avenue and Hall Street, saw its first classes in January. But the research and learning that will be facilitated by the new space is just beginning, college officials say.

Open is a big word for the space, both in its design and the possibilities for educational interaction. For the first time ever, departments previously located in six buildings across the campus are all in one spot, said John Thompson, design principal at Zimmer Gunsul Frasca.

"Before, if somebody asked you where the engineering college was, you'd have to have six arms to point to all the different places," Thompson said.

A nuclear location makes interaction between students and researchers, students and students and researchers and researchers easier than ever before, said Robert Dryden, dean of the Maseeh College of Engineering and Technology. Breakout spaces for students to congregate and work are scattered throughout the building. On the levels that house faculty offices, student work cubicles are clustered right outside.

"Faculty will have their students right there in the same suite they're in, so it'll encourage more faculty-student interaction, and make that interaction even easier," Dryden said. "It isn't so much the bricks and mortar as it is the design, to encourage this kind of interactivity."

Center's infrastructure teaches lessons, too

Design elements also encourage educational aspects. The eye-catching atrium is but one of the building features meant to show students exactly how elements of engineering and science operate. The lobby stair system is made of precast concrete and suspended by a high-strength steel system. Columns and beams that would normally have been obscured by fireproofing and gypsum board have been left bare and sprayed with intumescent paint - as have welded connections. And the building's natural ventilation system is obviously at work in the lobby as well, as operable louvers and a large fan system help with both heating and cooling.

"Part of the idea was to expose that building science, that structural science, to the students," said ZGF's Thompson. "It's kind of a subtle thing, but one of the compelling reasons to do it was it really did relate to students who were studying structures."

Other building features tap into other areas of study. A lab at the penthouse level, Dryden said, allows experimentation with the building efficiency controls. A rooftop system funnels harvested rainwater to another lab, where it's tested, filtered and treated, then used in the toilets on the first and second floors.

The building's construction was a learning process as well. Because the building went up on top of an existing parking garage - one that had to stay occupied during construction - the steel construction was a little trickier, said Matt Pearson, project manager at general contractor Lease Crutcher Lewis.

"They were utilizing the garage while we were constructing steel over their heads," he said.

Working within the very urban environment was a challenge in itself, Pearson said. Site limitations meant use of a tower crane was out, and a 360-ton mobile crane had to be custom engineered to move the steel beams - some in excess of 50,000 pounds - into place, Pearson said. Drilling two wells for the building's geothermal well system within the confines of a 30-foot space was also difficult. But the final product, which is aiming for a Leadership in Energy and Environmental Design gold rating, is a successful - and green - addition to the cityscape.

"I think everybody can take a lot of pride in creating something that is giving back to the environment instead of taking away from the environment," Pearson said.

A recent visit by Congressman David Wu let the project team, as well as researchers and students, show off the finished product. Asking a question a minute, Wu explored the school's heat transfer lab, the surface tension lab, intelligent transportation lab and hydrology lab. The building shows that Portland State is serious about education, serious about research, and serious about attracting students to the school, said Debbie Murdock, PSU assistant to the president for government relations. Wu's fascination with the space, she said, is exactly the reaction the school is aiming for.

"This is an example of what happened when a student comes for the first time," she said. "They get engaged and excited about the work going on."