



Project Spotlight: Edy Ridge E.S. & Laurel Ridge M.S.

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Photo by Gary Wilson

Hot, flat and crowded. Sherwood School District needed more space for its increasing student body. Growing pains led to the design and construction of Edy Ridge Elementary School and Laurel Ridge Middle School, a LEED Gold project in the outskirts of Portland, Oregon.

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What project challenges became important lessons learned?

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Associated credits [EQc8.1](#), [EQc8.2](#)

On the upper floor, we included clerestory windows that allow daylight to penetrate deep into the back of the classroom and light the corridors. The lower floor did not have this opportunity, so we increased the floor-to-floor height to allow taller daylight windows at the perimeter. An on-site evaluation of classroom daylighting was conducted, during which daylight footcandles were measured on a grid in four classrooms to compare across different orientations and floor levels. Although clerestories in the upper-floor classrooms worked well to wash the back wall with daylight, there was less measured daylight in the middle of the classroom than we expected. We were surprised to find that the high ceilings and windows worked so well to allow daylight into the middle and back of the lower-floor classrooms.



Daylighting was an important design consideration. Classroom wings are oriented on an east/west axis to allow for north/south exposure and large windows offer both view and daylighting. Aluminum shading devices, light shelves, and high ceilings allow daylight to penetrate deep into the room while reducing glare and solar heat gain.

However, with large windows, there are challenges with glare and heat build-up. We've done a post-occupancy evaluation in which some teachers have said the room is too bright or has glare. Even though we used sunscreens on the outside and light shelves on the inside, glare is often controlled by blinds that get closed and not re-opened, thereby blocking off all natural daylight. This also means the daylight sensors and related energy savings can't be as effective as intended. Another issue, due to the amount of transparency between the classroom and hallways or shared areas, is that security is more challenging and lock-down is more difficult. This needs to be carefully reviewed during the design phases.

Since learning this lesson, on a more recent two-story elementary school project I'm working on, we've been putting a lot of effort into orienting all glazing toward

the north; 80-90% of classroom glazing is north-oriented, which is much simpler to control glare. We didn't do any clerestory efforts toward the back and are depending on getting daylighting out of the higher ceilings and daylighting windows.

From conducting post-occupancy surveys, DOWA has learned that building occupants need to understand energy conservation measures and how to properly operate their new building. For example, occupants can defeat energy saving measures provided by light shelves by storing curriculum materials on them, thereby blocking daylight; window blinds can get closed and forgotten in daylit spaces, and windows can remain closed at times when the monitoring system signals they can be open. By understanding how the building is intended to function, students learn important concepts that will lead their generation of decision makers toward a more sustainable future.

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