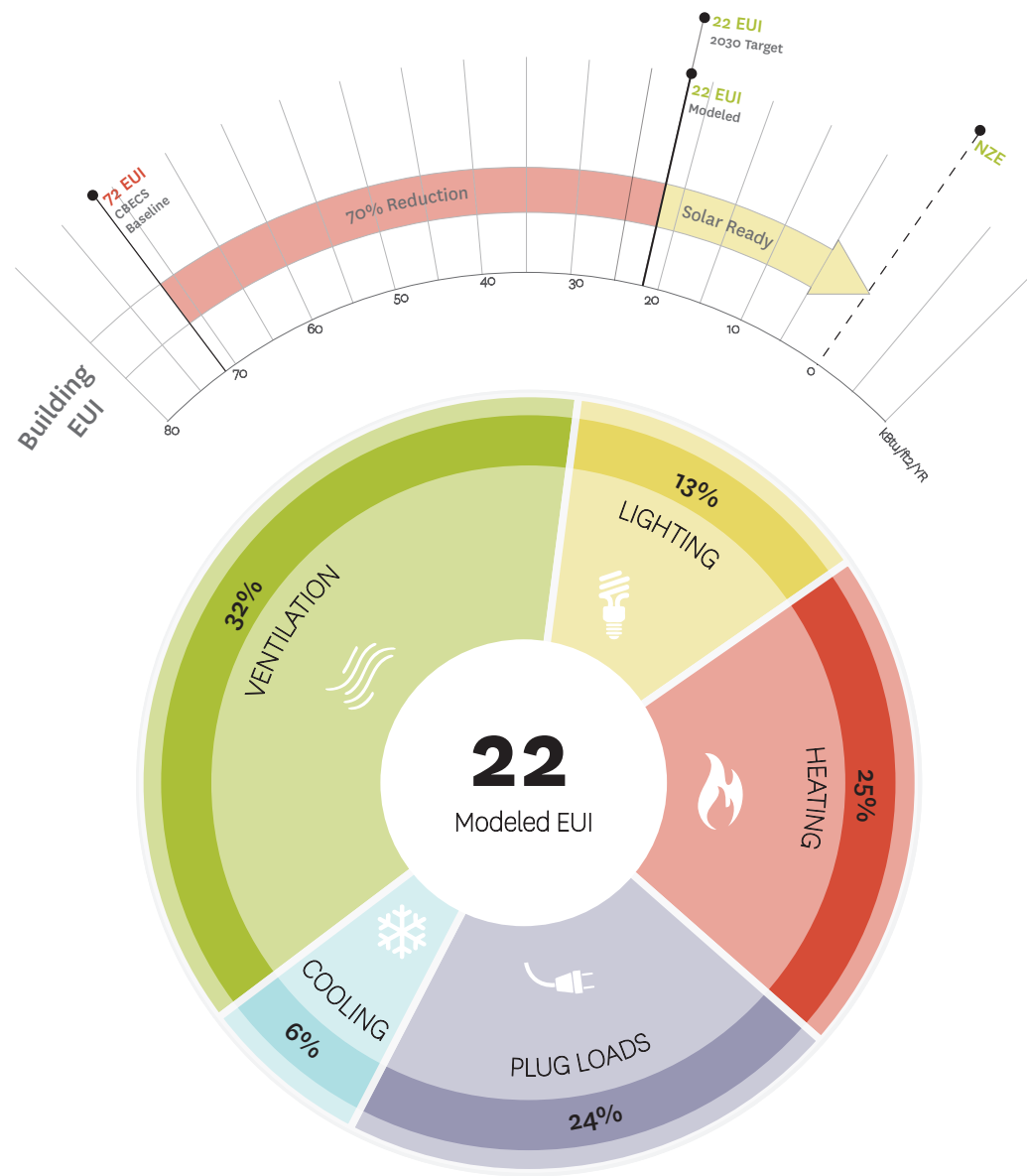


Oregon Episcopal School – New Lower School
Sustainability Summary

Project Type: K-12 Education
Location: Portland, Oregon
Built Area: 46,665 SF
Scope: New Building, completed 2016
Certification: 2030 Compliant, Net Zero Energy (NZE) Ready

Architect: Hacker
Energy Consultant: PAE



Design Summary

Oregon Episcopal School's new Beginning and Lower School provides a new entrance to the entire K-12 campus and opens up new green space for students of all ages. Hacker used the school's inquiry-based pedagogy as the driving theme for the building's overall design. The building is designed to be used as a teaching tool that encourages students to engage with their environment, sparking imagination and deeper investigation, and fostering connections between learning and play.

Key Sustainability Concepts

The design team focused on a number of sustainable design strategies for the school's design. Passive strategies include strategic solar orientation, natural daylighting, and natural ventilation. The building is intentionally oriented on an east/west axis to optimize daylight. We split the building's geometry in half lengthwise to allow for light and air to penetrate the center of the building. This strategy

results in classrooms that are naturally lit from two sides. Through energy modeling, it was determined that the classrooms could maintain an acceptable comfort level using a natural ventilation system. A stack ventilation system communicates via sensors with the user-operable windows and mechanical system (Direct Digital Control system).

The high-performance envelope is the most significant sustainable design strategy used on this building. The envelope includes high R-Value wall insulation (R-40) which far exceeds the Oregon code minimum of R-13 + R-3.8ci and high R-Value roof insulation (R-50ci) which is more than double that of Oregon code minimum R-20ci. A carefully detailed high performance air barrier (0.20 cfm/sf of wall area @ 75 Pa versus 0.40 cfm Oregon code minimum) reduces unwanted airflow penetration while intermittent cladding clips reduce thermal bridging. Low U-Value fiberglass double-glazed windows are used throughout.

The Lower School is located at the lowest part of the OES site. A water catchment vault collects, filters and retains the large amounts of storm water that gathers in this location. Rainwater is captured on the roof and routed to interactive features for children to engage.

Natural materials and finishes are used throughout the building, inside and out. Local Douglas Fir dimensional lumber creates the structure of the building and cedar siding clads the exterior. On the interior, low VOC and low allergen finishes promote a healthy indoor air environment. Instead of a traditional playground setting (typically using rubber or astroturf) more natural materials such as woodchips, pebbles, boulders, and logs are used to encourage natural play.