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New net zero Bush School comes together with mass plywood panels

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It won't open until next spring, but an addition to The Bush School in Seattle is already teaching lessons in green construction.

The 20,000-square-foot building is under construction on Bush's upper campus at Hillside Drive East and Lake Washington Boulevard East. It will serve high school kids with 10 seminar-style classrooms, casual break-out areas, a 400-seat multipurpose room with pre-function space, student lounge, student/faculty collaboration center, catering kitchen, administrative offices and a faculty workroom.



Photos from Exxel Pacific [\[enlarge\]](#)

The addition faces Lake Washington Boulevard East, with the school's historic Gracemont building behind it.

Project architect Mithun describes the building and adjacent landscape as “learning laboratories” that will maximize natural light and healthy materials, as well as conserve water and energy. The Seattle-based architect's website says the project is tracking to be the first Passive House school on the West Coast.

Exxel Pacific is building the project, which will also pursue net zero and Salmon Safe certifications.

Exxel says complying with Passive House standards requires an extremely tight building envelope, with air leakage below .06 cubic feet per minute, per square foot. This is nearly seven times more efficient than current standards for most U.S. commercial buildings, according to Exxel.

Other energy-sipping measures include: an additional air barrier using Intello wrap on the interior drywall in addition to the exterior air barrier; external insulation outside the basement walls and heated below-grade area, as well as more insulation on the exterior envelope and roof; and triple-pane fiberglass windows, curtain wall and storefront systems.

Getting to net zero will be accomplished with some of the above-mentioned measures plus two large on-site solar arrays that will produce the same amount of energy as the building uses. The building will also have energy-efficient mechanical systems.

Exxel is managing water runoff during construction as a Salmon Safe measure, and the finished building will have a network of bioretention planters that will naturally filter stormwater runoff. A rendering of the project shows a green roof.

Exxel is also using environmentally friendly building materials on the school, including a relatively new component called mass plywood panels. A lot of MPP is being installed as structural decking components and roof panels, with the natural wood exposed as the finish.

MPP is an engineered wood laminate that Exxel hasn't used before. It is made by Freres Lumber Co. of Lyons, Oregon, from renewable timber that more efficiently uses the raw tree than sawn lumber, according to an article by Edward Running of FFA Architecture and Interiors that ran in the DJC's April special section covering higher education.

Freres' website describes MPP as a type of cross-laminated timber panel. It says each 1-inch lamella used to construct the panels consists of nine layers of 1/8-inch veneer. The layers are engineered and oriented to enhance the natural strength of the wood, allowing MPP to outperform traditional CLT panels of similar dimensions, according to Freres.

Other team members on the Bush project are: KPFF Consulting Engineers, civil; DCI Engineers, structural; JLR Design Group, kitchen design; PAE, mechanical/electrical/plumbing engineer; Stantec, acoustical engineer and lighting design; Bush, Roed & Hitchings, surveyor; Terracon, geotechnical and shoring engineer; and Bloom Projects, owner's rep. Mithun is also in charge of landscape design.



[\[enlarge\]](#)

Mass plywood panels and glulam beams are on full display inside the building.

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