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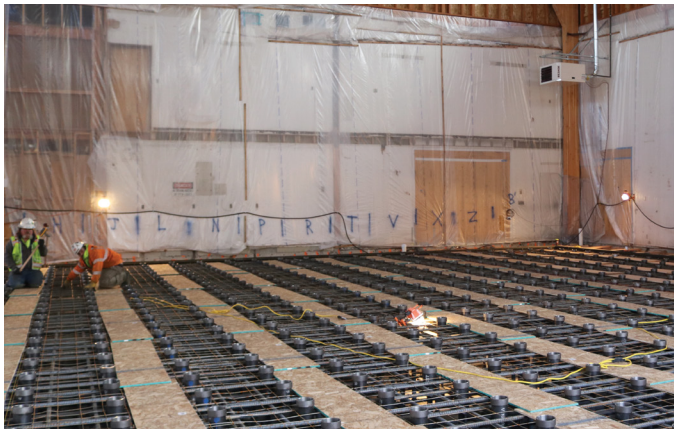
Renovated APA Laboratory Expands Testing Capabilities

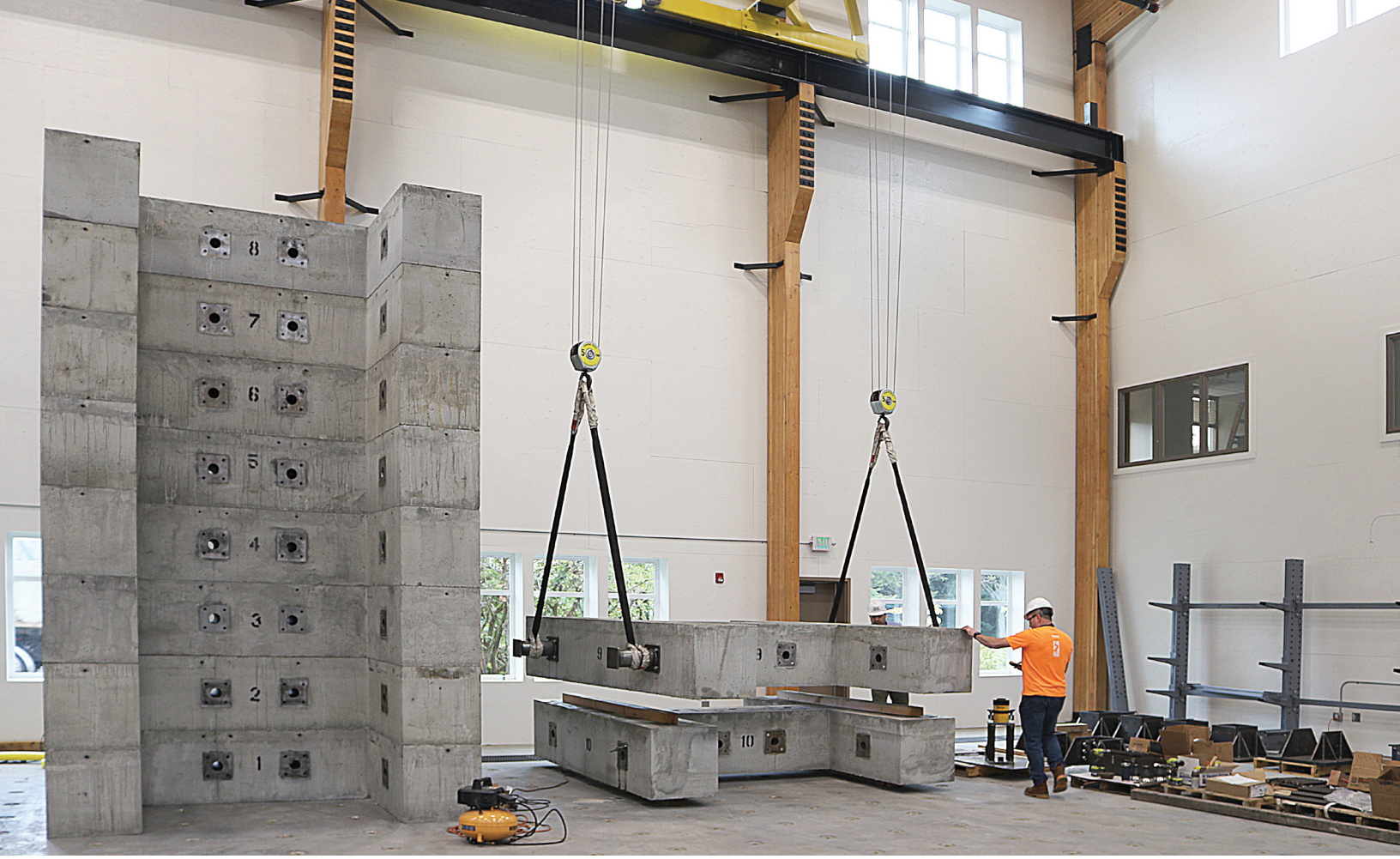
APA – The Engineered Wood Association recently expanded the research capabilities at its laboratory in Tacoma, Washington. The significant upgrades to APA's research and testing facilities will support innovative design and construction of timber structures using wood structural panels, engineered wood products and mass timber assemblies. Built in 1969, the 42,000-square-foot lab has long been recognized as one of the leading wood research facilities in North America. While the lab had been well maintained and updated over the years, the $4.5 million expansion raised a portion of the roof to 40 feet high and added a 4-foot-thick reinforced strong floor, 10 strong wall blocks with anchors, twin 5-ton cranes and new equipment to accommodate full-scale structural assembly testing.

The building itself is a demonstration of wood's strength, built with laminated veneer lumber studs and purlins and glulam columns supporting a roof structure framed with curved glulam beams. Wood structural panel sheathing was used on the walls and roof. OSB lap siding was used as the exterior cladding.



APA LABORATORY AND EQUIPMENT UPGRADES:

Physical and Equipment Limits	Previous Facilities	New Facilities
Ceiling Height (ft.)	24	40
Maximum Test Assembly Height (ft.)	10	30
Strong Floor Area (sq. ft.)	0	70x75 = 5,250
Load Actuator (lbf)	55,000	220,000
Hydraulic Stroke (in.)	±10	±15
Pump Capacity (gal./min.)	55	150
Overhead Crane(s) (tons)	2	2x5 = 10



New Testing Capabilities Address Market Opportunities

The following marketplace opportunities and research initiatives are likely to be among the first undertaken with the new testing capabilities:

- Larger dimension structural member testing for innovative floor and roof assemblies. This could include high-strength frame construction or the development of high-load shear wall assemblies. The first tests will also include full-scale floor diaphragms with wood I-joist framing sheathed with wood structural panel sheathing.
- For cross-laminated timber (CLT), evaluation of shear wall capacities for fundamental design tables applicable to both shear walls and diaphragms. Tests would evaluate product thickness and varying aspect ratios.
- Evaluation of hybrid construction of portal frames with engineered wood and other structural materials for multi-story non-residential buildings.
- Testing that accounts for the benefit of wood structural panels and engineered wood products in multi-story buildings, such as the use of tall wall sheathing and engineered wood framing.
- Interior shear wall testing to accommodate cantilevered diaphragms in multi-story buildings.

HOW MUCH **STEEL** AND **CONCRETE** DOES IT TAKE TO BREAK **ENGINEERED WOOD?**

Strong Wall: 20 feet high, made up of 10 blocks, each block weighing more than 19,000 pounds

Strong Floor: 28 tons of steel rebar, 830 tons of concrete, 868 anchors (100,000 lbf capacity for each anchor) at 2 feet on center throughout the 70-foot-by-75-foot strong floor

For more information about the lab's capabilities, please contact the APA Help Desk.