

Janicki Building 10

Project Case Study



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Janicki Building 10 Shows How Mass Timber Supports Healthier Forests

After landing a lucrative contract with a client in spring of 2022, Janicki Industries—an aerospace manufacturer in the Pacific Northwest—needed a new building on its campus to house the work. The trick? That building needed to be online and operational by the following summer. With COVID supply chain disruptions, the lead time for the steel structural system components that are often used in such structures would have put them behind by more than a year—not to mention out of a contract.

But John Janicki, President of Janicki Industries, wasn't ready to accept defeat. John called upon his training as an architect, his family history in the logging industry, and his years of conversations with local construction industry executives to make a radical pivot to a new material system to realize the project in time: mass timber. The switch not only enabled the project to get done on schedule, it also generated the largest mass timber industrial building in the country. And by using wood from national forests, the project also helped contribute to the forest stewardship of public lands in the Pacific Northwest, where the Janicki campus is located.



A Pivot for Building 10

Buildings are most successful when they realize the needs of the client while also serving the users within and the community around them. Often, that is achieved through an additive process—compiling wish lists of outcomes and prioritizing them to best overall effect. Janicki Building 10, however, is a study in how a series of restrictions—from timelines to open span requirements to connections—can also be used as the guiding principles of design.

Initially conceived as a 65,000-square-foot structure when the contract was won in 2022, the building grew to 185,000 square feet by the time it was completed in June 2023. A 60-foot-tall manufacturing facility that required heavy gantry cranes suspended over 80- to 120-foot bays, the building is designed for practicality: hard-use and flexible space for building aeronautical machine parts for the new contract on the first floor, with offices to coordinate that work on the second.

John had been having conversations with Russ Vaagen—then of Vaagen Timbers, a local mass fabricator now owned by Vaagen Brothers Lumber—for years, wondering if wood was a viable material for industrial buildings. So, when steel lead times became prohibitive, he asked his nephew Jordan Janicki, a principal at Facet NW, the engineering firm in Burlington, Washington, that executed the structural design of the building: “Can we just do this whole thing out of wood and work with Russ to start

making glulams before you even know exactly how you’re going to use them?” John says. “He said: Yeah, we can do it.”

Working backward from the known spans needed for the industrial space, John and Jordan Janicki worked with Vaagen Timbers so that fabrication could begin on long-span structural members while the design was still in progress, rather than waiting for a final drawing set. This flexible design/build approach helped to speed the timeline significantly. In fact, the time from proceeding with schematic design to pulling a building permit was just four months because of this dual design- and fabrication-stream approach. The completed building hosted an open house just a year later.

Until Building 10 was built on campus, Janicki Industries had relied on tried-and-true steel long-span beams and tilt-up concrete walls for its industrial sheds. They had the design of these structures, largely directed by John himself, and the engineering, headed by Jordan, down to a science. But John and Jordan each had experience with wood systems from other work they had done in their careers, and when the pivot to mass timber became necessary, they marshalled their trusted design/build team to meet the moment. And though the construction crew involved with the project had no direct mass timber experience, the kit-of-parts approach eased the learning curve.



"The team on this project has been working for Janicki Industries on their buildings for the better part of 10 years, so there is an innate trust between myself and the contractor and the HVAC guys and the willingness to coordinate as a team to make this happen," Jordan says. "It really comes down to this cohesive design/build team that is willing to do what it takes to make the project happen and in the timeframe that it has to happen."

In the end, Building 10 didn't just get completed on time for successful execution of the company's new contract, it also exceeded expectations. John recalls a conversation with a colleague who has been doing similar work for 20 years: "He goes: 'John, I've been in aerospace factories all over the world and this is the nicest building I've ever seen.'"



A Prefabricated, Carbon-Saving Structural Material

Mass timber is a descriptor for a family of engineered wood products that comprise multiple wood layers adhered together to produce a structural material with exceptional strength and stability that provides a low-carbon alternative to concrete and steel. In the case of the Janicki project, this includes glued-laminated timber columns and beams, or glulam—a series of layers of lumber laminated together with adhesive in the same direction to create a much stronger structural unit than a regular 2x lumber could provide. The project also used cross-laminated timber, or CLT—larger, structural sheets formed from layers of dimensional lumber glued together with the wood in each layer running perpendicular to the wood in the layers above and below, forming a slab with structural properties that allow it to be used in place of a concrete slab.

Because all mass timber structural elements are prefabricated before they arrive at the building site, construction timelines are greatly reduced, as the time for

concrete to pour and cure and the time to cut and assemble steel onsite is replaced by the ability to quickly fasten pre-planned connectors in place with a smaller crew.

In addition to its speed of construction benefits, it also offers environmental advantages. According to Vaagen Timbers, the mass timber used in Janicki Building 10 kept 4,348 metric tons of carbon from entering the atmosphere—the equivalent to keeping 937 cars off the road for a year. And because North American wood is plentiful and renewable, Vaagen Timbers estimates that North American forests—including our national forests—grew this much wood in 569 seconds or just shy of 10 minutes.

The lumber came from the equivalent of 250 acres of restored federal and private forests. And in addition to the avoided environmental impact, the project also had a positive economic one: The lumber used helped support at least \$300,000 of timber value and avoided at least \$300,000 of costs if no markets for that lumber had been available.





A Beautiful and Durable Industrial Space

Speed was the major factor in consideration at Janicki Building 10, but John Janicki had been interested in the possibility of using wood in industrial building for some time. As a member of a logging family, he was well versed in the material and “it’s beautiful,” he says.

That beauty has other benefits beyond aesthetic—specifically on the experience of the Janicki Industries employees who work in Building 10. “In an industrial building, you don’t normally have windows, so there’s no natural light,” John says. But if you have exposed mass timber columns and beams, “it changes everything. It’s not just the color and tone, it’s that it’s not uniform—there are knots and cracks. It just feels natural,” he says. “People don’t even know why they feel better. People even say it smells better.”

The impact on his employees exceeded John’s expectations: “I thought it would be cool looking, but I didn’t think it would draw people so much and affect their psyches so much,” he says. “I have a lot of happy employees. They’re like: ‘We love working here.’”

Durability is also a factor. In a space like Building 10 that will receive a lot of wear-and-tear—from forklifts bumping walls, to dings caused by moving heavy equipment and materials—the durability of the vertical mass timber shear walls has benefits that pay dividends over time. In an industrial space, “you have to have some separation walls. And they’re tall—sometimes 20, 30 feet,” John says. “CLT works great for that because I can have wood on both sides. My alternative is steel studs and drywall, and if you’re going to go up more than 20 feet it’s not cheaper, it doesn’t look as good, and it’s slower.” With CLT, he says, “I don’t paint it and you can drive a forklift into it—nobody’s going to care because it’s very repairable.”



A Material's Connection to Sustainable Forestry

It's easy to think of building materials as ready-to-use products, like lumber stacked at a Home Depot. But the reality is that all building materials are intrinsically linked to a wider cycle of impact—from extraction, to fabrication, to transportation to a building site. A truly renewable building material, wood in the United States is sourced from lands managed by a combination of owners—public (federal and state lands), private, and tribal land—including the 193 million acres of U.S. national forest land.

The wood for Janicki Building 10 was sourced from the Colville National Forest in northeast Washington—a 1.7-million-acre forest overseen by Forest Supervisor Josh White of the Forest Service, an agency of the U.S. Department of Agriculture. Colville has a land resource management plan dating back to 2019 that was created with public engagement through the National Environmental Policy Act process. White says that in Colville, like in other National Forests, sustainable forestry is “about multiple use and about sustained yield—all of those things that we need to ensure that we have a sustainable growth of trees and the ability to sustainably harvest the national forest, but that we’re doing so in a way that actually helps restore wildlife habitat, ensure clean water, and ensure recreational values are maintained. This land management plan guides everything that we do.”

Rather than being purely extractive, sourcing wood from federal lands can contribute to the management and restoration of national forests. Many think a healthy

forest should look like a uniform carpet of green trees, but a healthy forest actually has more texture and variation and relies on a balanced mix of species that can be upset by invasive ones. The reality is that “these landscapes evolved under a fire regime,” White says “We don’t have the luxury anymore to just allow fire to do its thing—not without allowing damage to communities and valuable infrastructure. We need to remove undesirable species that are growing because that fire hasn’t come through in order to maintain and create that healthy forest.”

Because its strength is derived from layering lumber, mass timber is a vehicle for using some of the smaller diameter trees removed in this process that may not be big enough to generate large quantities of the dimensional lumber we think of from home improvement stores. By working to create markets for mass timber and wood products in the construction sector, the Forest Service is finding ways to use trees that are removed to restore the lands and promote forest health—a form of effectively using the wood. “When you have this product that nobody wants, maybe we put a bunch of money into transporting it somewhere, maybe it’s piled up and then burned later, maybe we pay to have it shipped and used somewhere else,” White says. Instead, finding markets for the otherwise undesirable products like small diameter trees allows the Forest Service to sell those products and put that money back into more sustainable forest management.

“We have an issue where our forests are in dire need of management and the best way to manage them is through this idea of finding market for our product, and mass timber is one,” White says. “The more places we can send our final wood product, the less the taxpayer has to put in to managing our forests.”

Sustainable forestry not only helps the natural ecosystems, but it also helps the social ones—driving local and rural economies “by doing more work on the ground, having more people driving trucks, more people working in the woods, all the people that support those people,” White says. “Having more places for the products resulting from our forest active management to go just allows us to do more.”





Public Private Partnerships Support Forest Restoration

The sheer amount of public forest land that requires management is immense, and partnerships with private industry can help further amplify that effort.

To expand the number of acres that can be actively managed each year, the Forest Service has entered partnerships with private companies like Vaagen Timbers, which fabricated the mass timber for Building 10. In the Colville forest, about 900,000–950,000 acres of the 1.7 million total acres are available for timber harvest. That said, the budget available allows for timber harvest to occur on just 14,000 acres per year, according to White.

That leaves a lot of acreage to manage, and wood products companies with a commitment to sustainable forestry and forest restoration can help expand the footprint of what can be managed each year.

“Our best tool for forest management right now is really wise, well-planned and well-executed active management often through timber harvest or the harvest or removal of other biomass that may not have that same

market value that we would’ve seen in the past,” White says. “The real value of having mass timber as this other destination for our wood is that it makes it economically feasible for someone to come out and work with us to manage the forest.”

With projects like [A to Z Conservation projects](#), for example, private industry can step up to help with restoration on tracts of land in the forest that are simply not within the area that can be reached by the Forest Service annually. Groups like Vaagen Brothers Lumber and Vaagen Timbers—which have trained foresters on staff—can create a conservation plan for a tract of federal land in need of management for approval by the Forest Service. After the plan is deemed sound, the private company can then pay for and carry out the conservation work on that land—strategically harvesting only the trees that would help overall forest health—in exchange for the lumber they pull from the site. Done under careful oversight, these projects result in healthy and resilient tracts of forest, with new recreation pathways that serves both the ecosystem and the surrounding community.

The first A to Z project, completed by Vaagen Brothers Lumber and Vaagen Timbers, encompassed 54,000 acres. "That size of project was unique because the Forest Service was doing small projects, says Russ Vaagen, formerly of Vaagen Timbers. "We really wanted to have a landscape-level project because it gave us the most impact on forest health. But it also allowed us some efficiencies built into the process over time."

Those efficiencies allowed the Vaagen team to minimize impact. "We weren't moving equipment in and out, and the contractors also got to understand the landscape better," Vaagen says. "When you had the equipment out there to cut the trees, move the trees, build the roads, fix the roads, fix the culverts, put in the bridges, why aren't they the same ones doing the trails work? That was our theory that we tested, and it worked."

"I think it helps also for people to understand that our national forests are a resource, but it doesn't have to be an extractive resource," Vaagen says. "We can go out there, actually create a better, healthier forest and turn those byproducts of healthy forest conservation into these beautiful buildings as we did with the Janicki project."

And without these partnerships, "what we're left with is a situation where we have to put in a bunch of taxpayer dollars—money given to the agency by Congress—in order to do the work," White says. "When we have a healthy timber industry like we do in northeast Washington, the product has value and actually can pay for more management on the ground."



A Future for Mass Timber Industrial Buildings

All told, the benefits of mass timber for industrial spaces have impressed Janicki Industries such that mass timber will continue to be a fixture in a hybrid system on as many of their future projects as possible. “There’s almost always a cheaper way of doing it, but it wouldn’t really match up,” John Janicki says. “I’m pretty bullish on mass timber in general. I think we do have a lot of opportunity,” even while there are still issues to work out to make it a 1:1 substitute at scale.

Already underway is Building 12, adding another nearly 200,000 square-foot industrial space. While this one is not entirely mass timber, like Building 10, it does incorporate 40,000 square feet of mass timber office space—larger than many stand-alone office buildings. Building 10’s mass timber structure “is something that everybody needs to know about because it’s possible, it’s beautiful,” Jordan Janicki says. “And the people that are working in there regularly talk about how happy they are to be able to work in that building. Beyond just the engineering, being tied into nature is something that can’t be understated.”

To grow markets and strengthen industry, the Forest Service is investing through the Wood Innovations program. With its [Wood Innovations grants](#)—which encourage wood use in new construction—as well as its [Community Wood](#) and Wood Products Infrastructure Assistance grants, which support creating the infrastructure necessary to process the wood products that end up in buildings, the Forest Service is growing

markets for wood construction products that will continue to help maintain the health and safety of our federal forest land. Notably, the Forest Service has invested in Vaagen Lumber and Vaagen Timbers, along with other mass timber manufacturers and their mill infrastructure, through these programs.

“For those out there that really want an eco-friendly building sourced from the best possible sourcing,” Vaagen says, “I think that anything that’s managed from a forest restoration purpose or a forest conservation purpose is really the highest level of sourcing because you’re focused on outputs of healthier forests.”

Project Details

Project Name: Janicki Building 10

Location: Hamilton, WA

Owner: [Janicki Industries](#)

Architect: [Carletti Architects](#)

Structural Engineer: [Facet NW](#)

General Contractor: [Chad Fisher Construction](#)

Size: 185,000 square feet

Photo Credit: Janicki Industries



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