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Bainbridge's Loom House sets a new standard for sustainability

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Like threads on a loom, Loom House began with a vision of weaving: in this instance, a weaving together of people, property and place.

This striking 3,200-square-foot home on Bainbridge Island rests on .65-acre of beautifully landscaped bluff, nestled in a heavily forested area, overlooking Puget Sound and the Seattle skyline.

In January, the property became the world's first residential remodel to achieve International Living Future Institute's Living Building Challenge 4.0 certification.

This certification is the world's most ambitious and holistic green building achievement. In order to achieve 4.0 certification, projects must meet 20 sub-imperatives within the International Living Future Institute's seven performance categories, or “petals”: place, water, energy, health and happiness, materials, equity and beauty.

Loom House was designed by The Miller Hull Partnership. Work began on the reconstruction of this 1960s Moldstad home in 2018 and was completed in 2019. Miller Hull became involved with the project by recommendation of the client's long-term interior designer Charlie Hellstern. Knowing of her client's commitment to sustainability and equity, she suggested the firm.

Loom House is the fifth living building in Miller Hull's portfolio.

The homeowners were initially interested in a net-zero energy home but wanted to know what else was possible. Once Miller Hull learned more about their lifelong work in sustainability and equity, the firm began to see that the holistic regenerative design principles of the Living Building Challenge would be a better fit.

“We're really proud of this property and to get the certification,” explained Chris Hellstern, Living Building Challenge services director at Miller Hull. “Especially since this is the first residential



Photo by Ben Schauland [\[enlarge\]](#)

Loom House sits on a bluff on Bainbridge Island.



Photo by Kevin Scott [\[enlarge\]](#)

The interior includes a 60-year-old wisteria taken from the grounds of the property.

remodel to receive the certification. We think the project shows the possibilities and potential to renovate in a sustainable way,” he continued.

The original home was comprised of a main and guest residence, referred to as the South and the North houses respectively, linked by an outdoor patio. Miller Hull worked to improve the building envelope, provide self-sufficient systems and offer updated interiors while maintaining the original architectural character of the home. A 725-square-foot detached carport and storage area was added to house the owners' electrical vehicles and bicycles.

“All homes are woven into their place,” explain the homeowners in a blog post about the property. From the outset, Miller Hull worked to remodel Loom House in a way that created synergy between the home and the surrounding land and community.

Loom House has a biophilic design framework and plan. For Hellstern, working on this was one of the most memorable and rewarding parts of the project.

“Part of the requirements for the Living Building Certification is to complete an eight-hour workshop on biophilic design,” he explained. “With Loom House, we had this meeting very early on. The whole team came together with the owners and it actually became a really important bonding moment for us. We each reflected on how nature has impacted our lives and why sustainability in building matters to us. We came away from that meeting with a vision for how we could remodel the house in a way that allowed the property to ‘sit back’ in the natural surroundings and encouraged people to experience the environment.”

This vision included a design palette that responded to the natural site — beach rocks from the property at the base of stairs and a studio chandelier built from a 60-year-old wisteria that had grown through the railing of a deck on the property.

Other unique features of Loom House that helped meet the Living Building Certification requirements include:

- A locally sourced stone walk made from Cascade mountain granite.
- A mycological foraging forest that has introduced regionally appropriate and native gourmet mushroom mycelium in various forms.
- Two above-ground, 400-gallon rain barrels for rainwater harvesting, west of the carport.

Of course, every project comes with challenges and Loom House was no exception.

According to Hellstern, the two biggest challenges came with achieving the energy and water petals.

“One of the homeowners' goals was to keep the original character of the house intact. So when it came to the energy petal, we needed to upgrade the building envelope in a way that didn't compromise the look of the property.”

The water petal posed an even bigger challenge.

“We actually ended up having to work with the Bainbridge City Council to change the building codes in order to allow us to treat blackwater on site,” Hellstern revealed. “This process took about a year and ended up being a net positive for everyone. Loom House showed the council how houses that effectively look after themselves can take the pressure off the limited water treatment facilities on the island.”

The remodel of Loom House also began and was completed with the local community in mind. At the start of the project, the homeowners had expressed a desire to meet the petals in a way that promoted equity and they held frequent meetings for those on their street to keep everyone updated.

Miller Hull worked with local materials for landscape construction and the construction team took great efforts to hire local subcontractors. Many subcontractors from Bainbridge Island were brought on as part of the project. This included landscapers, electricians, water systems installers, custom casework fabricators and others. Local contractors were also heavily involved in the interior design of the property.

The result of all this work is a remodel with an impact that radiates beyond the square footage on which it sits and that sets a new standard for sustainability.

Miller Hull hopes that Loom House will create not only a local but a global impact by showing a path to Living Building Challenge certification for all residential remodels.

The firm is currently working on several other Living Building projects. These include a project for the Port of Seattle at Fishermen's Terminal that will help the port meet its goal of being the greenest port in North America.

The team for Loom House included: The Miller Hull Partnership, architect; Clark Construction, general contractor; Charlie Hellstern Interior Design; Ohashi Landscape Services; Quantum Consulting Engineers, structural; Seabold Engineering, civil; and Anne James Landscape Architecture.

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