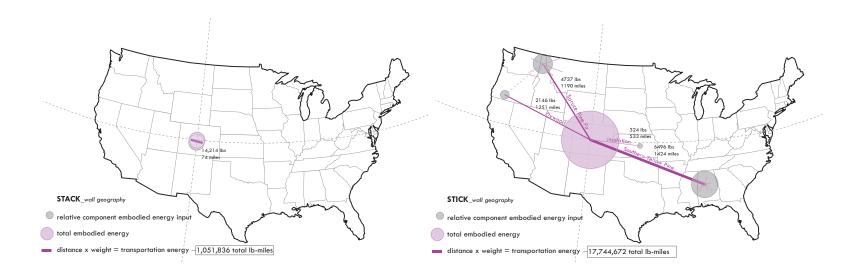
## STACKHAUS KIEL MOE



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Among contemporary residential construction techniques, the layered wall assembly remains largely unquestioned—an allegedly efficient system which can be deployed to different architectural ends and effects, but which is itself more or less inviolable. As a challenge to this assumption, Kiel Moe's StackHaus near Granite, Colorado, rethinks the layered wall assembly and proposes in its place a single, monolithic wall, comprised of stacked 6x8 spruce timbers. These timbers act as the structure, enclosure, finish material, and insulation of the building.

The material choice is possible in part because of the modesty of the project—a 360 sq ft multipurpose space, essentially a single room. There is neither plumbing nor HVAC, and the building has no energy input other than the sun and the wind. One of eight buildings constructed by Moe on the rural site, which sits at the base of the Collegiate Peaks and overlooks the Arkansas River, the building functions as a yoga and painting studio, a performance space, and a kind of mini-theater for recitals, plays, and readings.

But the seemingly inefficient use of solid wood construction is also a deliberate response to the site. The spruce is harvested, dried, and milled in the same valley as the project, yielding a surprisingly small transportation footprint. Moe compares this with the thousands of miles from which the materials in a typical "stick" construction assembly—framing, plywood, insulation, etc.—are trucked to the site. The building's straightforward construction also exceeds its apparent simplicity, using lower technology to yield higher performance. Although it has greater mass than a layered construction, its embodied energy is dramatically lower. Moe's design capitalizes on the low thermal conductivity of spruce to regulate temperatures in both summer and winter. Wood is also the only material that sequesters carbon, so this solid wood building ultimately yields a carbon surplus, sequestering twice as much carbon as it took to produce the building itself. And there is even a resultant "gain" in design time as a result of the simplified construction technique.

In this modest building Moe proposes a larger ecological argument, tackling what he terms "eco-logistics"—the practices and systems which are outside the domain of the object itself, but which have a meaningful impact on the architecture. In other words, how architecture impacts landscapes, economies, climate, and vice versa. These "extensive" architectural logics are often ignored or elided in the pursuit of design as the ultimate end. For Moe, however, they become primary considerations in the work and are themselves integrated into the design thinking. —AMANDA REESER LAWRENCE

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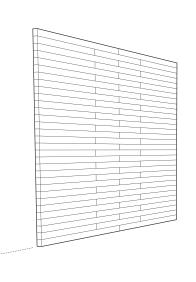
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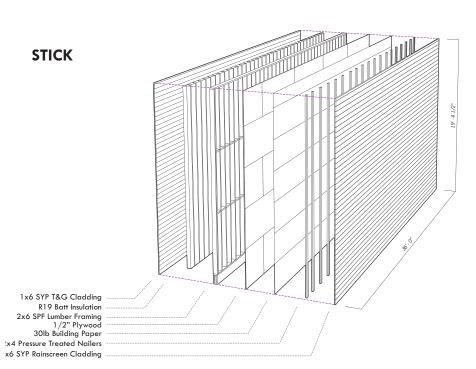
facing page: StackHaus's minimal transportation footprint as com-pared with that in typical "stick" construction directs more budget and resources into the building itself rather than its "externalities."

right: Two parallel, 19.5 ft tall solid wood beams provide the primary structure, enclosure, finish materials, and thermal strategy for StackHaus.

below: The simplicity of StackHaus's solid wood wall, at left, compared to the layered wall assembly that dominates contemporary residential construction.

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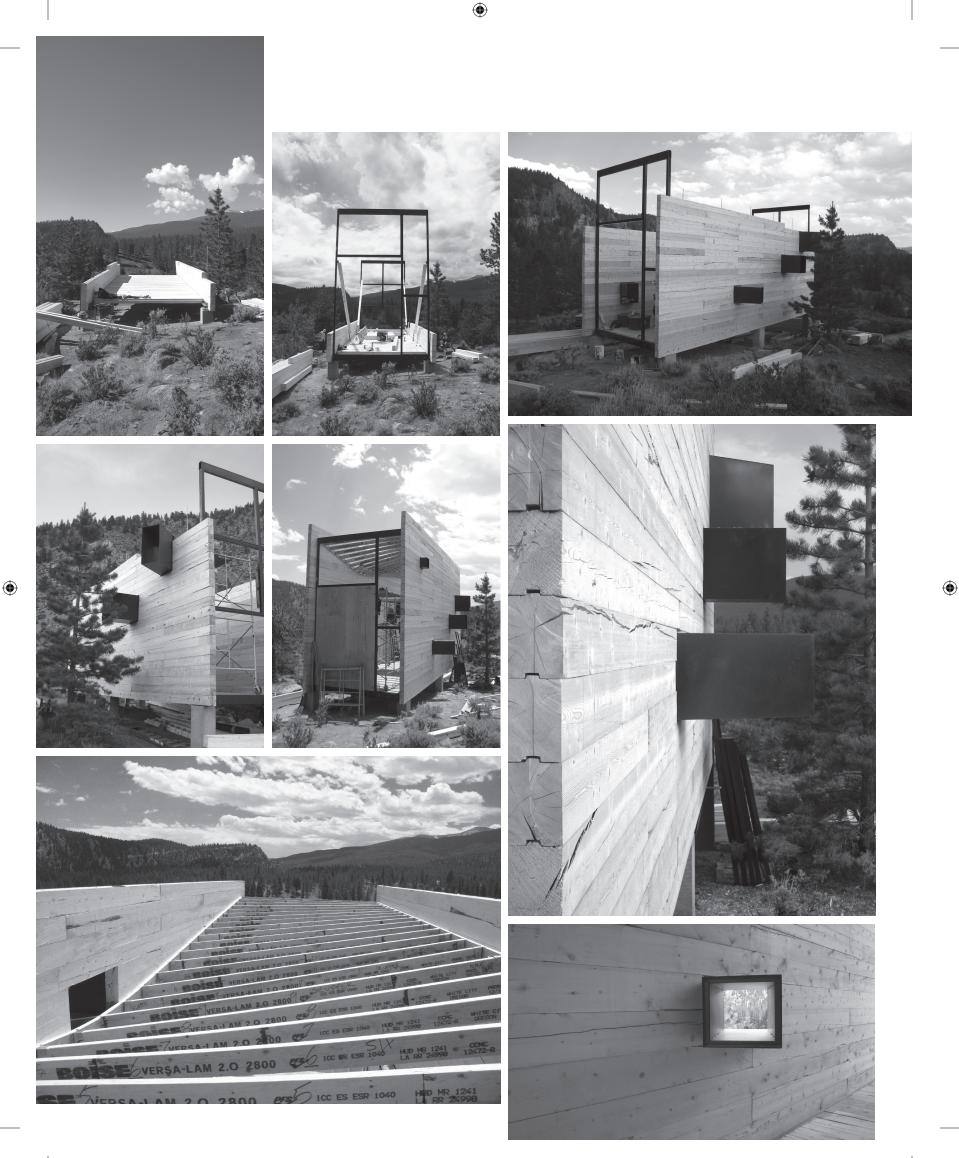


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6x8 Spruce Timbers

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STICK



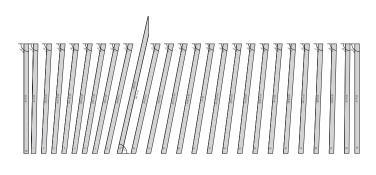
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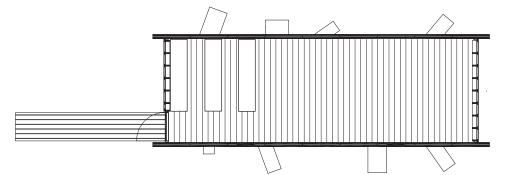
facingpage: 6x8 spruce timbers support the ruled surface roof. Once a timber is installed, it is largely complete. The spruce walls will shrink about 2 in. as they dry. A series of tunable, threaded rods compress the timbers as the material shrinks around slotted connections to the steel moment frames and window boxes.

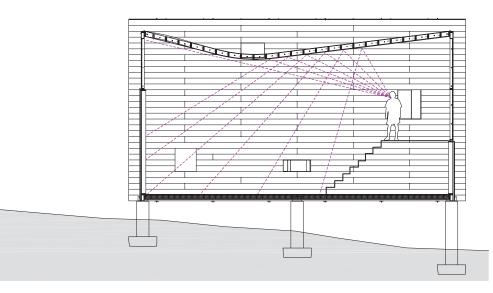
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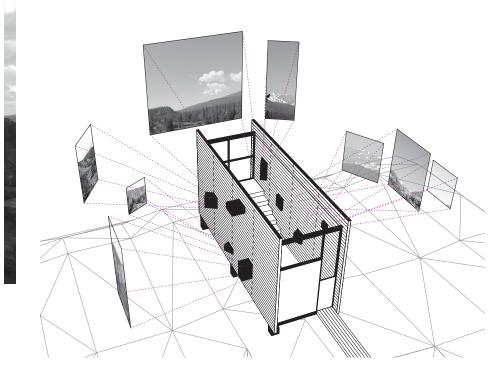
left: A series of steel boxes inserted into the spruce wall provide views and cross ventilation.

below: Roof framing, plan, and section. The asymmetrical belly of the ruled surface roof distributes light and sound in the interior while draining rain and snow from the roof above.









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