

# The Pitch: Local engineer develops lumber alternative using hemp

[Sam Raudins](#)

[TJ Fiala](#) was looking for a way to prevent deforestation when he discovered the capabilities of hemp.

The construction industry is a huge consumer of lumber. An acre of hemp, a plant in the cannabis family that's grown for its fiber and edible seeds, can produce up to four times the amount of biomass that an acre of trees can.

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"Using that logic, basically I came up with a prototype and fabricated it, and the prototype came out so good. It exceeded all my expectations," he said.

Now Fiala has a patent-pending design on hemp lumber, and

he's looking for places to test the product so it can be used in construction by architects, engineers and builders.

"I need to understand its material characteristics. How much weight can it hold? Is it going to perform like a traditional two-by-four or a sheet good?" he said. "You can make two-by-fours, two-by-sixes, two-by-eights, two-by-10s. And you can make it into sheet goods, such as OSB or plywood. But I need to know how each of those products are going to perform."

**The technology/product:** A hemp-based lumber created from layers of industrial hemp canvas around a core that can be scaled in strength and dimension — like as two-by-fours, plywood sheets and more. It's intended to be used in place of wood lumber in the construction industry. Industrial hemp lumber is self-extinguishing, rot resistant and insect resistant.

**How the idea makes money:** After establishing valuable, proven products, the suite of goods and techniques established by Fiala's company, Structural BioComposites, could be franchised to establish textile mills and industrial hemp lumber manufacturing hubs.

**Size of the market:** Wood framing uses sawmill lumber for construction. The market size, measured by revenue, of the

wood framing industry is \$24.9 billion in 2023, according to industry statistics website [IBISWorld](#). The market size of the lumber wholesaling industry — wood often sold to hardware stores for home renovation — is \$175.7 billion in 2023.

**Competition:** Other hemp-based lumber products are used for aesthetic features but not load bearing construction.

**Competitive advantage:** The lumber is intended to be used in commercial and residential construction. Initial testing indicates it will be able to bear weight, scale to size and dimension, and be fire resistant. Further testing is necessary to determine its exact properties.

**Business/technology it could disrupt:** Timber industry, commercial/residential construction, farming. Hemp-based lumber is not yet a cost effective option but could be in the future once the growing infrastructure is in place.

**Managers and their background:** [TJ Fiala](#), CEO and inventor, is an engineer by trade.

**Capital raised:** \$50,000 grant from FuzeHub manufacturing grant alongside CITEC Business Solutions, a not-for-profit business consulting organization.

**A closer look**

**Company name:** Structural BioComposites

**Headquarters:** Rotterdam/Schenectady

**Year founded:** 2018

**CEO:** [TJ Fiala](#)

**Employees:** 1

**Website:** [structuralbiocomposites.com](http://structuralbiocomposites.com)