



N4SLAB

A sustainably efficient model used for the built environment.

Project Proposal by Dannielle Geneus

Web Development 1, INMD 114-01

Prototype: Flexible Slab Material

This proposal outlines a **sustainable, flexible, and durable slab material** designed for modern construction, integrating eco-friendly processing and recyclability for long-term efficiency.

The prototype is designed as a rectangular slab made of natural ingredients, featuring smooth rounded edges and a matte finish. It contains natural resources that contribute to its flexibility and wooden structure.

Uses: Interior and Exterior projects, Circular Construction

This material is a modern prototype offering an alternative approach to material use in construction. It provides versatility in building structures due to its flexible nature, making it a reliable resource for both intricate and simple projects.

Originators

Primary Materials:

Black Locust Hardwood



Image Source: [The Rise of Black Locust Lumber — Black Locust Lumber](#)

A hardwood (hardness approx. 1,700 lbf, 7,560 N) is naturally resistant to decay, offering enhanced durability compared to other construction woods. Sourced from sustainable cultivators in the *Appalachian region* and the Midwest.

Bendy Plywood



Image source: [Flexible plywood trade - Bendy Plywood - BBS Timbers](#)

An engineered plywood used for structures with curved features, produced through sustainable chemical processes:

- **Steam Bending:** Uses plant-based *lignin* and soy-based gluing.

- **Bio-Based Resin Impregnation:** Furfuryl alcohol enhances flexibility.
- **Water-Based Thermo Treatment:** Incorporates cellulose-based plant fibers.
- **Enzyme Softening:** Xylanase & laccase enzymes for a smoother lamination process.

Additional Component:

- **Recycled Ferrite Magnets (Iron Oxide):** Provides magnetic applications within the structure.

Modern Slab Features

This sustainable and eco-friendly material ensures durability while being lightweight. Despite its hardness, the slab is moldable, similar to play dough, allowing for versatile shaping. It is suitable for both interior and exterior projects.

Usage Process

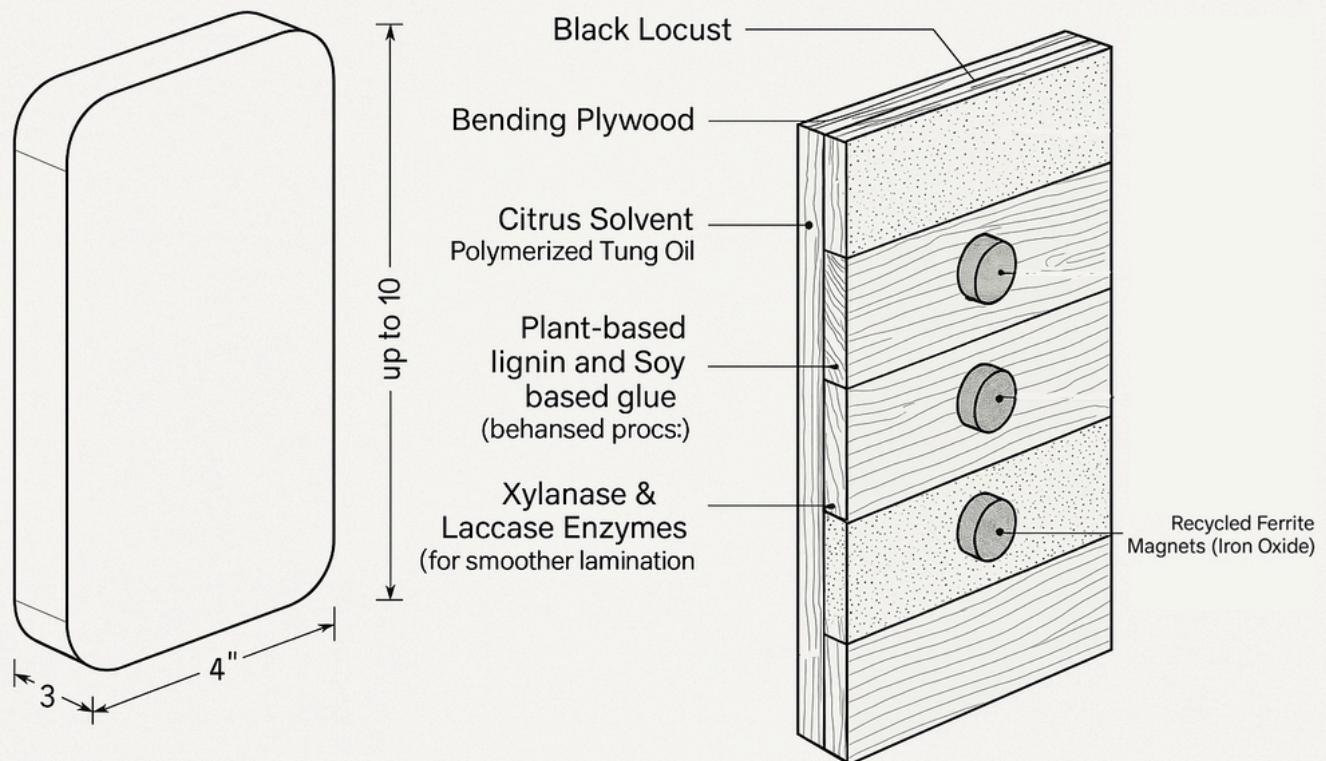
1. The slab is initially presented in its original form.
2. Using hand pressure, users can mold the material into desired shapes or angles.
3. Once shaped, the slab retains its form but can return to its original shape if needed.
4. Three embedded cylindrical magnets allow the slabs to be stacked securely.

Composition of the Slab Material

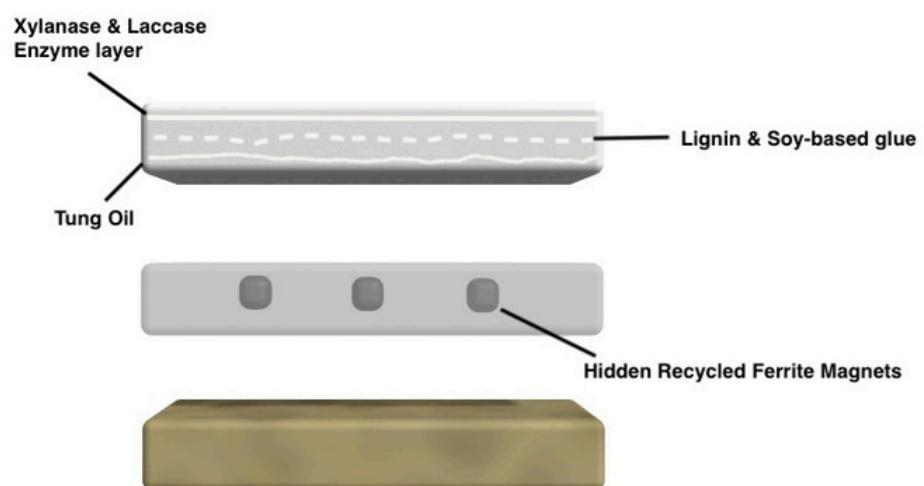
- **Black Locust Hardwood** (for durability)

- **Bendy Plywood** (for flexibility)
- **Citrus Solvent & Polymerized Tung Oil** (sustainable sealing with natural oils)
- **Plant-Based Lignin & Soy-Based Glue** (bio-based steaming process)
- **Furfuryl Alcohol** (bio-based coating for enhanced flexibility)
- **Plant Fibers** (cellulose-based fibers for water-based thermo treatment)
- **Xylanase & Laccase Enzymes** (for smoother lamination process)

PROTOTYPE: FLEXIBLE SLAB MATERIAL



Blueprint Created from AI



3D Model Created from AI

Color Variants

Honey



Walnut



Iron (Marine Gray)



Durability

- ✓ Maintains integrity for **20-40 years** before requiring reapplication.
- ✓ Compatible with **DIY modifications** like painting and shaving.
- ✓ End-of-life recyclability allows slabs to be returned for refurbishment and reuse.



How is it a *fictitious* model?

THERE ARE NO MATERIAL OUT THERE that can sustain the earth LIKE THIS ONE.

This product allows versatile *adjunction* and *propositions* that are not scientifically implacable in common sustainable materials used in the built environment. Though the wooden materials used in this slab provide some framework for flexible structuring, in reality, the elastic effects of the wood will not be possible with additional plywood alone.

The product also defies the processes of gravity, having structures simply held in place due to its magnetic features despite the overall mass and density of the products and eliminating further processes needed to ensure durability and overall planning of projects.

Pricing

Estimated pricing for each product

Single-user: \$15 per slab, \$375 per 150 (bulk)

Company, Commercial-use: \$1435 per 600 (bulk)

Why this product can be a next *success* in the built environment:

Noting the sustainable practices, simplistic mobilities, and re-usable options, this product would not only be a healthier approach for our environment, as the slabs would adhere to carbon sequestration and lower pollution in construction but will also be economically suitable, as it can lower the percentage of mass production and material use in the built environment.

Research and sources used for this project:

⊕ Black Locust

⊕ 50 Shades of Black Locust Color: What decking looks like after 5 years in use. — Black Loc...

⊕ What are Black Locust Lumber prices like compared to other types of wood? — Black Loc...

⊕ Flexible Wood Types: Unlock Endless Design Possibilities

⊕ Durable, flexible, and environmentally friendly wood sourced,...

⊕ Mass Timber Solving the Pains of Civil Construction - Urbem

