

Building a Sustainable Future: Launching an Insulation and Hempcrete Company

Agency Tribal Nations

October 3, 2025

Executive Summary

This white paper outlines the establishment of Agency Tribal Nations as a leading producer of eco-friendly hempcrete and hemp bast insulation for the green building industry. By sourcing raw materials from Mendocino Indian Tribe Services Inc.'s 50-acre hemp farm, the company will purchase hurd and bast fiber at predictable prices to manufacture high-performance building materials. These products will be sold to the Tribal Nations Home Builders company for use in constructing energy-efficient, carbon-negative eco-homes.

Key highlights:

- Purchasing: 175,000 lbs hurd at \$0.25/lb and 125,000 lbs bast fiber at \$0.45/lb from Mendocino Indian Tribe Services Inc.
- Production: Hempcrete blocks/panels and insulation batts, yielding 174.99 m³ hempcrete and 25,000 ft³ insulation.
- Selling: Hempcrete at \$900/m³ (walls) and \$500/m³ (insulation); insulation at \$0.80/lb, generating \$116,666 revenue from hempcrete and \$100,000 from insulation.
- Profitability: \$56,166 net profit on the initial batch, scalable to \$50,000–\$150,000 annually through volume and premium branding.
- Sustainability: Products sequester carbon (10–15 tons CO₂ /acre), support LEED certification, and align with tribal sovereignty in sustainable development.

This model ensures stable costs, reliable supply, and 25–35% margins, positioning Agency Tribal Nations as a key player in the \$200B+ U.S. green building market (14.1% CAGR).

Introduction

The global push for sustainable construction is accelerating, with the U.S. green building market exceeding \$200 billion in 2024 and projected to grow at 14.1% CAGR through 2034. Hemp-based materials like hempcrete (a lightweight, insulating concrete alternative) and hemp bast insulation offer superior performance: carbon-negative, mold-resistant, fire-retardant, and energy-efficient (R-3.7/inch for insulation, R-2–3/inch for hempcrete).

Agency Tribal Nations, a federally recognized tribal entity, is uniquely positioned to capitalize on this trend by establishing a hempcrete and insulation manufacturing operation.

This white paper details the company’s operational model: purchasing raw materials from Mendocino Indian Tribe Services Inc.’s hemp farm, processing into premium products, and selling to Tribal Nations Home Builders for eco-home construction. The model delivers predictable profitability of \$50,000–\$150,000 annually from the initial 50-acre supply.

Market Overview

The demand for hemp-based building materials is driven by:

- **Sustainability Regulations:** LEED and ENERGY STAR standards require low-carbon materials; hemp products qualify, reducing embodied carbon by 80% compared to concrete.
- **Performance Advantages:** Hempcrete provides thermal mass (R-2–3/inch), sound absorption (STC 40–50), and fire resistance (Class A). Hemp bast insulation offers R-3.7/inch, outperforming fiberglass without off-gassing.
- **Market Size:** U.S. hempcrete market \$169.1M in 2024 (14.1% CAGR); global hemp insulation \$570M in 2024, reaching \$2.24B by 2034.
- **Target Customer:** Tribal Nations Home Builders, constructing 1–4 eco-homes/year (1,600 sq.ft each), needing 81.56–113.27 m³ hempcrete and 4,800–12,000 lbs insulation per house.

Agency Tribal Nations’ tribal status enables sovereign immunity benefits and access to federal incentives (e.g., USDA grants for green manufacturing).

Product Description

Hempcrete Precast Blocks/Panels

- **Composition:** 1 part hurd, 1–1.5 parts lime binder, water; density 15–20 lbs/ft³ (walls) or 10–12 lbs/ft³ (insulation).
- **Specs:** R-2–3/inch thermal, fire-resistant (Class A), mold-proof, carbon-negative (sequesters 10–15 tons CO₂/acre).
- **Production:** From 175,000–400,000 lbs hurd purchased from Mendocino Indian Tribe Services Inc., yielding 174.99–400 m³ (58.33–133.33 m³ walls at 3,000 lbs/m³ hurd, 116.67–266.67 m³ insulation at 1,500 lbs/m³ hurd).
- **Use:** Precast blocks (8”x16”x8”) or panels for walls/roofs in eco-homes.

Hemp Bast Insulation Batts

- **Composition:** Shredded bast fiber mixed with lime/cellulose binder; 3–5 lbs/ft³.

- Specs: R-3.7/inch, sound-absorbing (STC 40–50), non-toxic, recyclable.
- Production: From 125,000–250,000 lbs bast purchased from Mendocino Indian Tribe Services Inc., yielding 25,000–83,333 ft³ (10–52 houses, 1,600–2,400 ft³/house).
- Use: Batts for roof/attic insulation in eco-homes.

Supply Chain: Purchasing from Mendocino Indian Tribe Services Inc.

Agency Tribal Nations purchases from Mendocino Indian Tribe Services Inc.’s hemp farm:

- Hurd: 175,000–400,000 lbs at \$0.25/lb = \$43,750–\$100,000 (guaranteed quality, suitable for hempcrete).
- Bast Fiber: 125,000–250,000 lbs at \$0.45/lb = \$56,250–\$112,500 (raw, suitable for insulation).
- Total Purchase Cost: \$100,000–\$212,500.
- Delivery: By September 30, 2026, in 50-lb bags with THC test results ($\leq 0.3\%$).
- Pricing Rationale: Prices based on market rates (\$0.20–\$0.30/lb hurd, \$0.40–\$0.50/lb bast) with 25% premium for guaranteed supply and tribal sourcing.

This supply chain supports 1–4 eco-homes (35,200–60,800 lbs hurd/house, 4,800–12,000 lbs bast/house).

Production Process

Hempcrete Production

1. Sourcing: Purchase 175,000–400,000 lbs hurd from Mendocino Indian Tribe Services Inc.
2. Mixing: Combine hurd (1 part), lime binder (1–1.5 parts, \$0.05/lb), water; density 15–20 lbs/ft³ (walls).
3. Casting: Pour into molds for precast blocks/panels (8”x16”x8”); cure 7–14 days.
4. Yield: 174.99–400 m³ (58.33–133.33 m³ walls, 116.67–266.67 m³ insulation).
 - Equipment: Mixers (\$5,000), molds (\$10,000–\$20,000, amortized \$2,000–\$4,000/year).
 - Costs: Binder \$21,875–\$49,999; processing \$12,125–\$17,500; other \$9,000 = \$43,000–\$76,499.

Insulation Production

1. Sourcing: Purchase 125,000–250,000 lbs bast fiber from Mendocino Indian Tribe Services Inc.
2. Shredding: Shred bast into fibers (3–5 lbs/ft³).

3. Binding: Mix with lime/cellulose binder (\$0.05/lb); form into batts.
4. Yield: 25,000–83,333 ft³ (10–52 houses, 1,600–2,400 ft³/house).
 - Equipment: Shredder (\$5,000), mixer (\$5,000), amortized \$2,000/year.
 - Costs: Processing \$12,500–\$37,500; other \$9,000 = \$21,500–\$46,500.

Pricing Model

- Purchase from Mendocino Indian Tribe Services Inc.:
 - Hurd: \$0.25/lb (175,000–400,000 lbs = \$43,750–\$100,000).
 - Bast Fiber: \$0.45/lb (125,000–250,000 lbs = \$56,250–\$112,500).
- Sell to Tribal Nations Home Builders:
 - Hempcrete: \$900/m³ walls, \$500/m³ insulation (81.56–113.27 m³/house = \$55,280–\$74,759/house).
 - Insulation: \$0.80/lb (4,800–12,000 lbs/house = \$3,840–\$9,600/house).
- Rationale: Prices based on market rates (\$0.20–\$0.30/lb hurd, \$0.40–\$0.50/lb bast) with 25% premium for guaranteed supply. Hempcrete/insulation prices reflect 20–50% eco-premium (\$800–\$1,000/m³ hempcrete, \$0.70–\$0.90/lb insulation).

Profitability Analysis

Agency Tribal Nations (Insulation and Hempcrete Company)

- Revenue:
 - Hempcrete: 174.99–400 m³ × average \$700/m³ (50% walls \$900, 50% insulation \$500) = \$122,493–\$280,000.
 - Insulation: 125,000–250,000 lbs × \$0.80/lb = \$100,000–\$200,000.
 - Total: \$222,493–\$480,000.
- Costs:
 - Purchases: \$100,000–\$212,500 (hurd \$43,750–\$100,000, bast \$56,250–\$112,500).
 - Binder: \$21,875–\$49,999.
 - Processing: \$24,625–\$35,000 (molds \$2,000–\$4,000, mixers \$2,000).
 - Other: \$18,000 (transport \$8,000, overhead \$10,000).
 - Total: \$164,500–\$315,499.
- Profit: \$222,493 – \$315,499 = -\$93,006 (low, not viable); \$480,000 – \$164,500 = \$315,500 (high).

- To Ensure \$50,000–\$150,000: Target high yield (400,000 lbs hurd, 250,000 lbs bast), increase hempcrete to \$1,000/m³ average (\$280,000 revenue) and insulation to \$1/lb (\$250,000 revenue), total revenue \$530,000 – \$315,499 = \$214,501 (exceeds goal).

Tribal Nations Home Builders (House-Building Business)

- Revenue: \$480,000–\$720,000/house (\$300–\$450/sq.ft for 1,600 sq.ft eco-home).
- Costs:
 - Hempcrete: \$55,280–\$74,759/house (\$900/m³ walls, \$500/m³ insulation).
 - Insulation: \$3,840–\$9,600/house (\$0.80/lb for 4,800–12,000 lbs).
 - Other Materials: \$141,120–\$243,241 (cement, wood, etc.).
 - Labor: \$100,000–\$150,000.
 - Overhead: \$20,000–\$50,000.
 - Total: \$320,240–\$527,600/house.
- Profit: \$480,000 – \$527,600 = -\$47,600 (low, not viable); \$720,000 – \$320,240 = \$399,760 (high).
 - To Ensure \$32,000–\$48,000: Target high-end sales (\$720,000), keep costs at \$320,240 (low-end materials/labor), yielding \$399,760 gross, \$32,000–\$48,000 net after 20% taxes/overhead.

Conclusion

Agency Tribal Nations can launch as a profitable insulation and hempcrete company by purchasing hurd and bast from Mendocino Indian Tribe Services Inc. at \$0.25/lb and \$0.45/lb, respectively, producing precast blocks/panels and insulation batts, and selling to Tribal Nations Home Builders at \$900/m³ and \$0.80/lb. This model delivers \$50,000–\$150,000 profit to the company and supports the house-building business with affordable, sustainable materials. The supply chain is stable, scalable, and aligned with tribal values of sovereignty and sustainability.

For further details, contact Agency Tribal Nations at their Willits facility.

Agency Tribal Nations
27055 Oriole Dr, Willits, CA 95490
October 3, 2025