

Neotipi Framework

Marie Seshat Landry

May 28, 2025

What is the Neotipi Framework?

The Neotipi Framework defines the design, construction, and operational standards of the neotipi mini-homes that form the residential core of the New Pyramids prototype on Spruce Island. These are 30-foot diameter tipis built with Seshat's Composites to provide sustainable, resilient, and comfortable housing capable of enduring any weather conditions. The framework emphasizes organic materials, energy efficiency, and modularity.

Neotipi Construction

- **Dimensions:** Approximately 30 feet in diameter with a height of 25–30 feet.
- **Materials:** Seshat's Composites panels form the structural framework, combining hemp carbon and hemp oil for exceptional strength, insulation, and durability.
- **Modularity:** Components are prefabricated for rapid assembly and scalability.
- **Foundations:** Elevated platforms constructed from recycled hemp-based composites to protect from moisture and pests.

Tipi Structure and Environmental Controls

The neotipi are designed for durability, comfort, and environmental harmony. Key features include:

- **Outer Shell:** Constructed from Seshat's Composites panels providing weather resistance, structural strength, and insulation.
- **Inner Liner:** A breathable, moisture-wicking, antimicrobial organic fabric liner lines the interior walls, enhancing insulation while allowing vapor diffusion to reduce condensation.

- **Air Circulation:** Passive ventilation is achieved via strategically placed adjustable vents near the base and apex of the tipi, enabling convection currents that continuously refresh interior air without drafts.
- **Moisture Control:** The breathable liner combined with moisture barriers integrated within composite panels prevents water ingress while allowing internal moisture to escape. Elevated flooring with drainage channels directs ground moisture away.
- **Pest Prevention:** Fine mesh screens over all vents and windows prevent insect ingress. Door seals use overlapping flaps and magnetic strips to maintain a bug-tight closure.
- **Tips and Insights:**
 - Orient tipis with entrances facing prevailing winds to optimize natural airflow.
 - Regularly inspect and maintain vents and seals to ensure continued performance.
 - Utilize organic repellents and natural predator habitats nearby to minimize insect populations.

Integrated Systems

Energy & Power

Each neotipi is equipped with solar panels integrated into the composite panels and roof sections to supply clean electricity. Energy storage is provided via solid-state batteries designed for long lifecycle and safety. Energy-efficient LED lighting and smart energy management systems optimize consumption.

Stove System

- Multi-functional biomass stove designed for cooking, heating, and electricity generation
- Fuel sources: sustainably sourced dead wood and **organic whole-hemp briquettes**
- High-efficiency combustion with low emissions to maintain indoor air quality
- Thermoelectric generator integrated to convert heat into supplemental electricity (approx. 100–300 W output)
- Heat recycling system to warm the living space during cold weather
- Designed for easy cleaning and ash disposal; biochar ash can be used as soil amendment

Amenities

- Full kitchen and bathroom facilities powered and heated sustainably
- High-speed wifi and smart home integration
- Insulated sleeping lofts with natural hemp fiber mattresses
- Composting toilets and greywater recycling systems to minimize environmental impact
- Secure storage and personal workspace areas

Weather Resilience

Neotipi are engineered to withstand heavy rain, snow loads, high winds, and temperature extremes. The composite panels provide superior insulation and structural integrity, while the ventilation and moisture control systems ensure internal comfort and health.

Scalability and Maintenance

Designed for easy repair and upgradeability, the neotipi framework supports the modular addition of components such as expanded solar arrays, battery packs, or smart sensors. Maintenance protocols emphasize organic and non-toxic materials and practices.