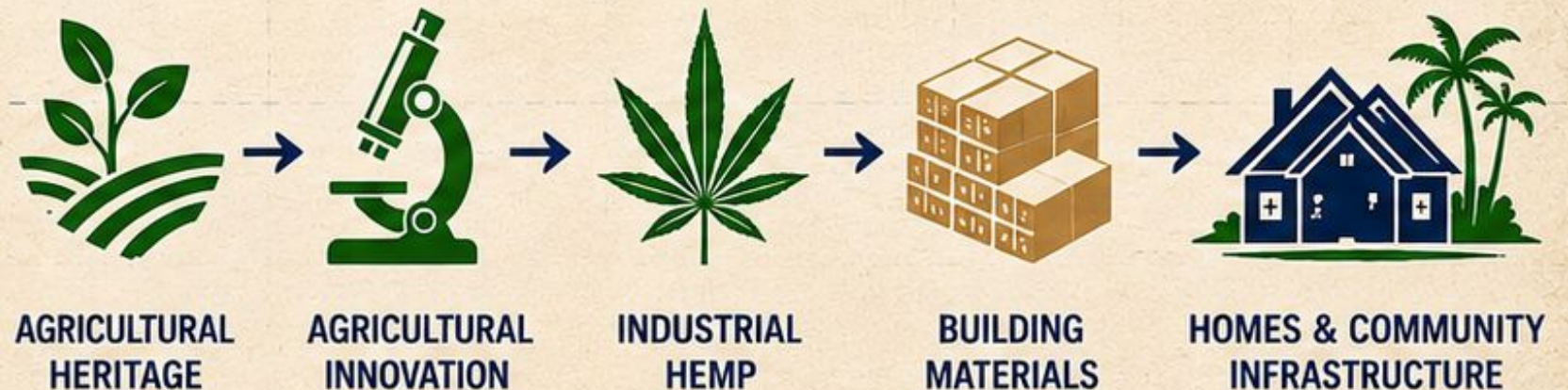


HEMP *TO* HOME

USVI

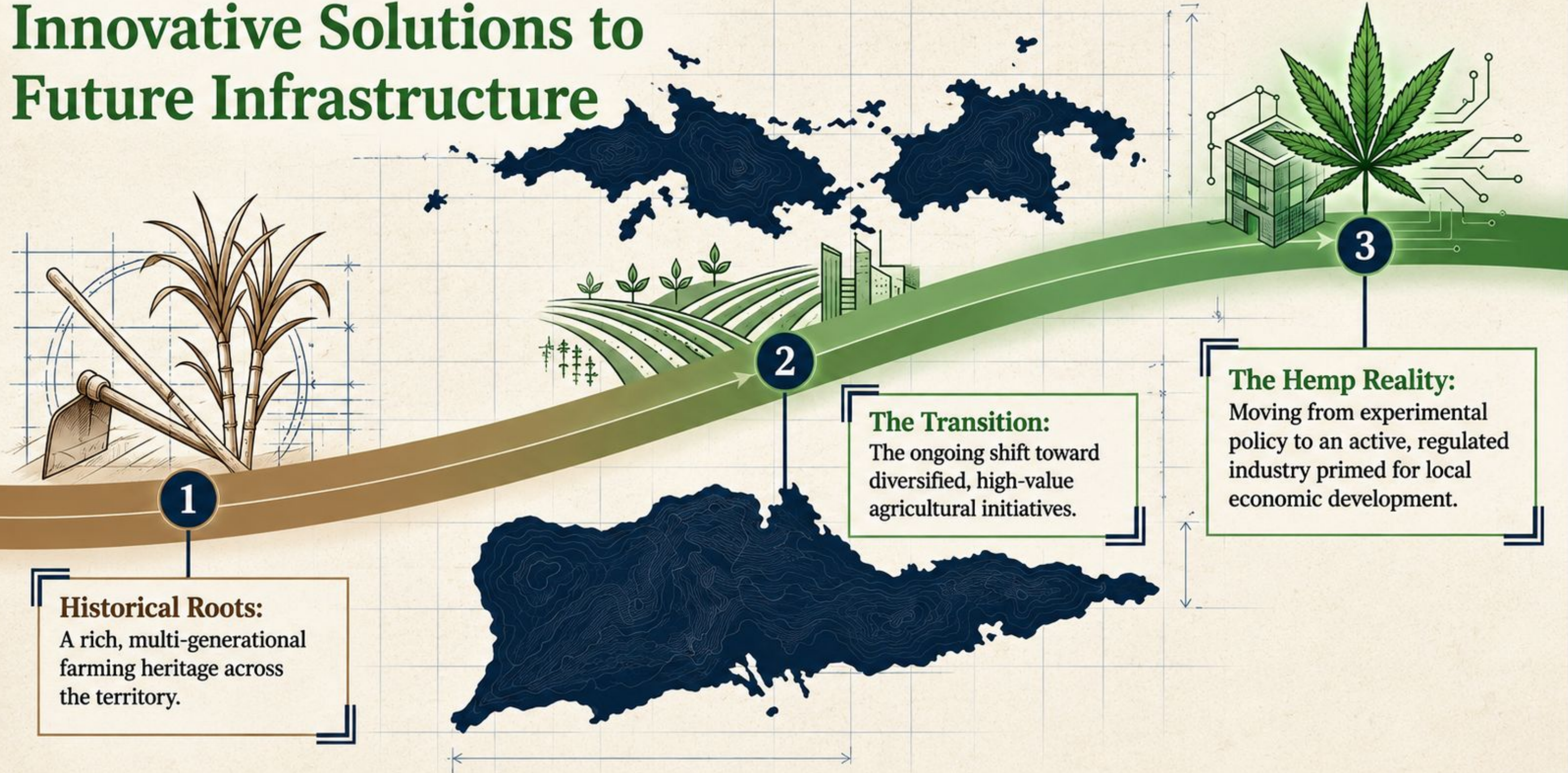


Bridging Biological Science and
Structural Engineering for the Tropics.



Click to play
video

Agriculture, Heritage, and Innovative Solutions to Future Infrastructure



HEMP CRETE

FEATURES, ADVANTAGES & BENEFITS

Hempcrete is a high-performance, bio-composite building material made from the inner core of the hemp plant, lime, and water. It creates durable, comfortable, and sustainable structures built for the future.



CARBON NEGATIVE

Hemp absorbs CO₂ as it grows, and hempcrete locks it away for the life of the building.



EXCELLENT INSULATION

High thermal performance keeps buildings cooler in the heat and warmer in the cool—reducing energy use year-round.



MOISTURE REGULATING

Allows walls to breathe by absorbing excess moisture and releasing it when the air is dry—preventing mold and mildew.



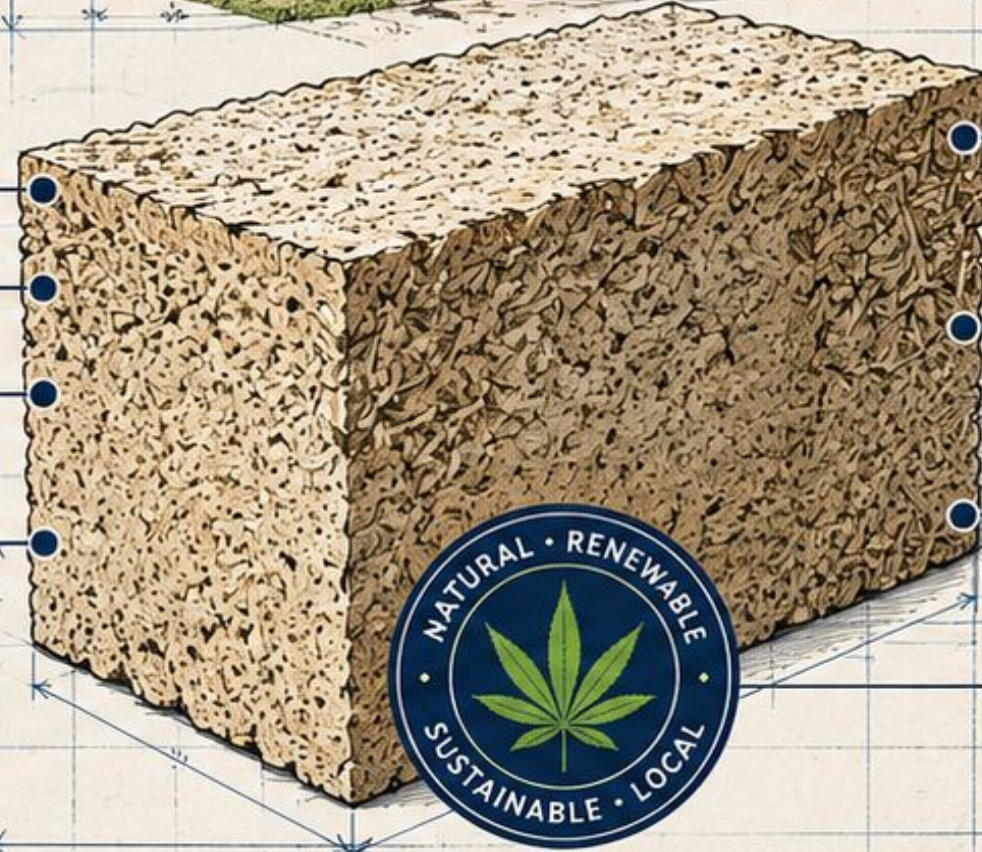
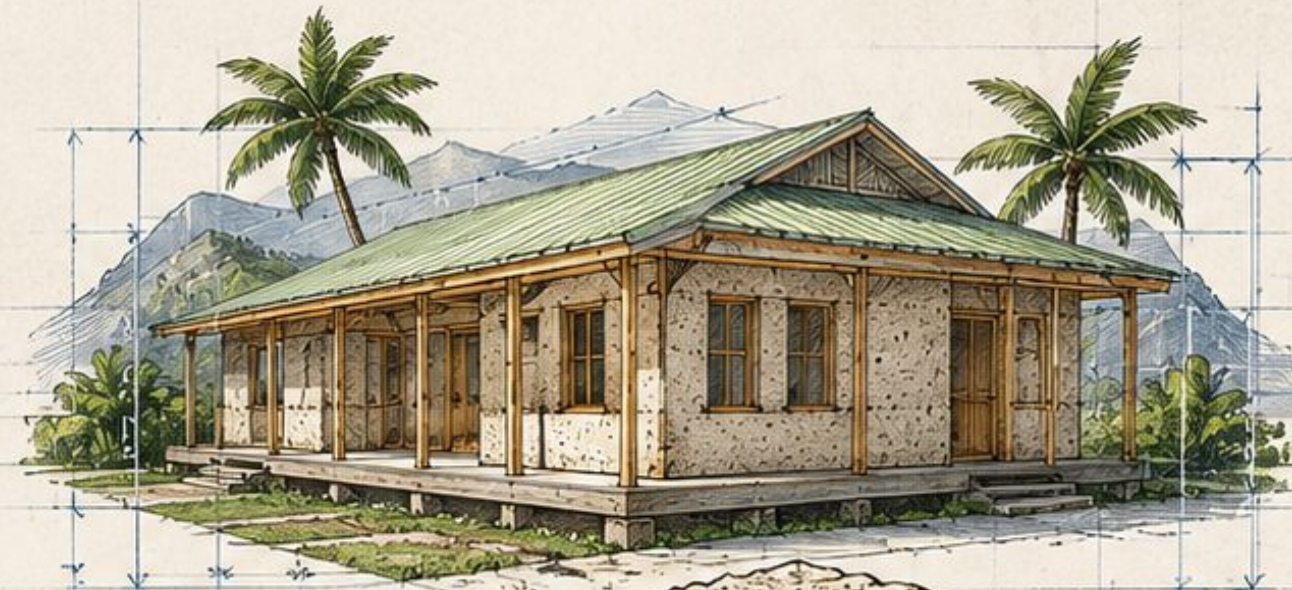
FIRE RESISTANT

Hempcrete is naturally fire retardant and can provide up to 2–4 hours of fire resistance.



SOUND ABSORBING

Dense yet porous structure reduces sound transmission for quieter, more peaceful interiors.



TERMITE & PEST RESISTANT

The alkaline nature of lime and hemp creates an environment that deters termites, rodents, and pests.



WATER RESISTANT

Hempcrete walls resist water penetration and perform exceptionally well in humid and tropical climates.



DURABLE & LONG-LASTING

Building with hempcrete creates strong, resilient structures that stand the test of time with minimal maintenance.



HEALTHY & NON-TOXIC

Made from natural, non-toxic materials that promote healthier indoor air quality for occupants.



COST & RESOURCE EFFICIENT

Uses locally sourced, abundant materials, reducing transportation costs and supporting local economies.



SUSTAINABLE

Uses renewable resources with a low environmental impact.



EASY TO BUILD

Lightweight and easy to work with using simple tools and techniques.



REGENERATIVE

Supports soil health, biodiversity, and a regenerative future.



DISASTER RESILIENT

Performs well in hurricanes, earthquakes, and extreme weather conditions.

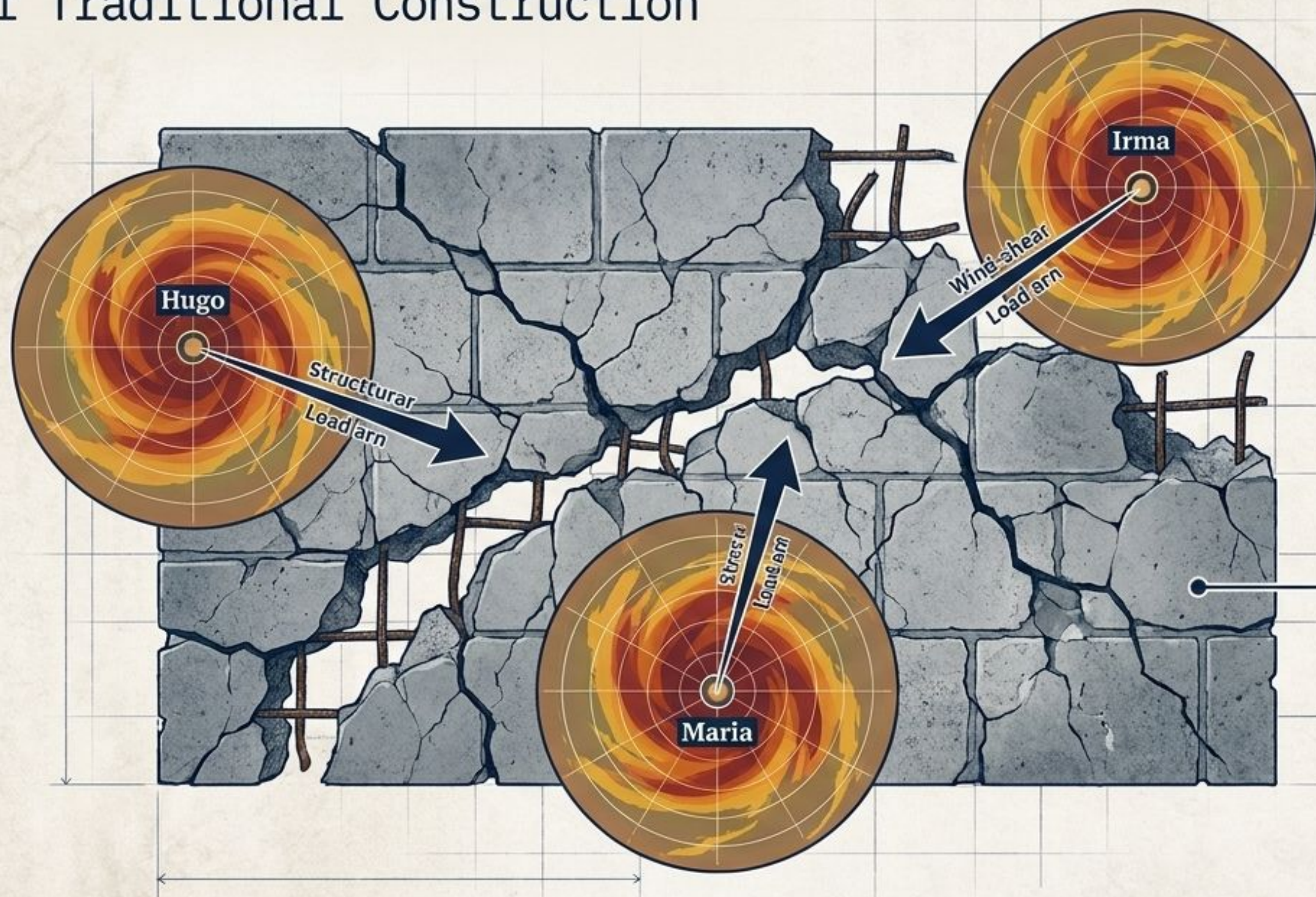


LOCALLY EMPOWERING

Encourages local hemp agriculture and reduces dependence on imports.

BUILDING STRONGER COMMUNITIES • RESTORING OUR PLANET • CREATING A BETTER FUTURE

Historic Storms Expose the Limits of Traditional Construction



Structural & Ecological Toll
Devastating impacts from recurring category 5 systems.

The Lingering Challenge
Persistent vulnerabilities, structural decay, and the inescapable reality that rigid traditional builds remain vulnerable to intense, cyclical weather systems.

HURRICANE DAMAGE

TO FUTURE SOLUTIONS FOR REBUILDING

Building Resilience Today for a Stronger Tomorrow

Hurricanes will continue to challenge our communities. Hempcrete construction offers a proven path forward—stronger, safer, smarter, and sustainable.

THE PROBLEM: VULNERABLE BUILDINGS

THE SOLUTION: HEMPCRETE BUILDINGS



HIGH WINDS

Traditional buildings can suffer roof failure, wall collapse, and structural damage.



HEAVY RAIN & FLOODING

Water intrusion leads to mold, rot, and long-term structural deterioration.



STORM SURGE

Saltwater causes rapid corrosion, foundation damage, and material breakdown.



COSTLY DAMAGE

Repairs are expensive, disruptive, and often repetitive after every storm.



SLOW RECOVERY

Communities face long delays in rebuilding, keeping families displaced and businesses closed.



WIND & IMPACT RESISTANT

Hempcrete walls are strong, lightweight, and stay intact under extreme wind loads.



WATER & MOLD RESISTANT

Breathable yet water-resistant, hempcrete prevents mold growth and withstands heavy rains.



SALTWATER RESILIENT

Naturally alkaline and non-corrosive, hempcrete resists salt damage and erosion.



LOWER COST, LONG TERM

Durable, low-maintenance buildings reduce repair costs and last for generations.



FASTER RECOVERY

Stronger buildings mean faster rebuilding, safer communities, and quicker return to normal.

FUTURE SOLUTIONS WITH HEMPCRETE



RESILIENT HOMES

Built to endure hurricanes and protect what matters most—our families.



STRONGER COMMUNITIES

Schools, clinics, and shelters that stay standing when they're needed most.



LOCAL JOBS & ECONOMY

Hemp construction creates local jobs and keeps resources in our communities.



SUSTAINABLE & CARBON NEGATIVE

Hempcrete locks in carbon, reduces emissions, and supports a healthier planet.



BUILT FOR THE CARIBBEAN

Designed for our climate. Built with local materials. Built for our future.

STRONGER BUILDINGS • SAFER COMMUNITIES • RESILIENT FUTURE

The Anatomy of a Structural Bio-Composite



Component 1 (Hurd/Shiv):

The woody core. Provides lightweight insulation and aggregate mix.

Component 2 (Binder):

Natural Hydraulic Lime (NHL) + local volcanic ash (pozzolans).

Component 3 (Water):

Mixed precisely to a 'damp soil' consistency.

The Result:

A stone-like, breathable wall insulation that actively captures carbon.

Engineered for Tropical Survival and Hygrothermal Health



Thermal Mass

Dramatic reduction in indoor temperatures and HVAC energy loads. Acts as a thermal buffer, unlike standard concrete which conducts heat rapidly.



Hygrothermal Health

Vapor-permeable (breathable).
Zero off-gassing. Actively

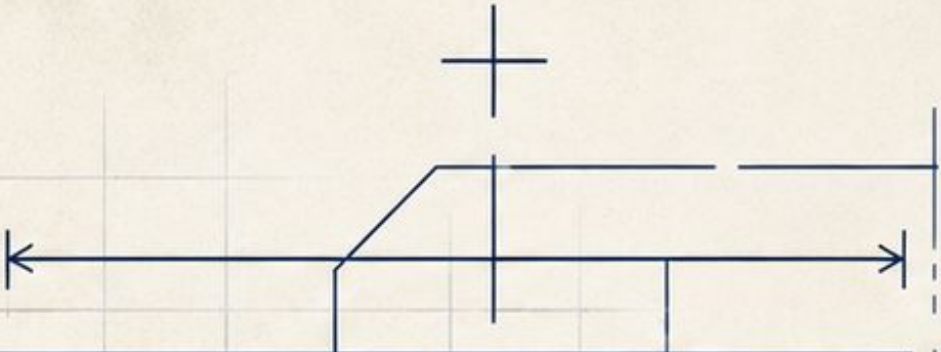
dynamically absorbs and releases ambient humidity, eliminating trapped moisture and preventing toxic mold.



Disaster Resilience

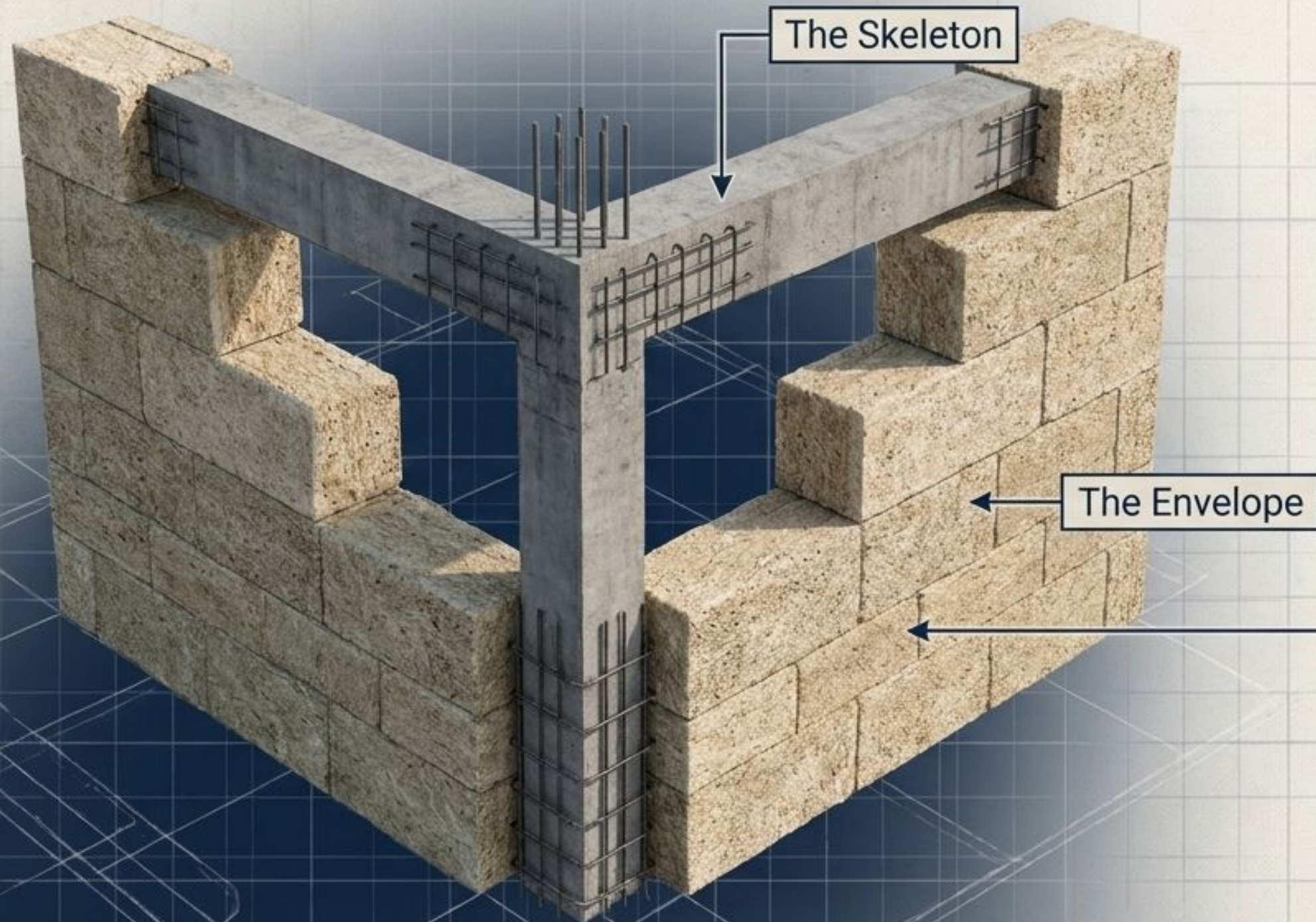
Class A fire resistance, pest/termite proof (will not rot like wood), and boasts a negative carbon footprint.

Material Realities Demand a Shift in Engineering Paradigms



	Concrete	Hempcrete
Compressive Strength	20-40+ MPa	0.5-3.5 MPa
Load-Bearing Profile	Multi-story gravity & roof loads	Non-load bearing infill only
Flexibility	Rigid, fractures under sudden seismic/thermal shifts	Quasi-ductile, absorbs dynamic wind sway without catastrophic failure
Thermal Transfer	Conducts heat rapidly, 15-20x faster	Acts as a thermal buffer

The Engineering Solution Separates Frame from Infill

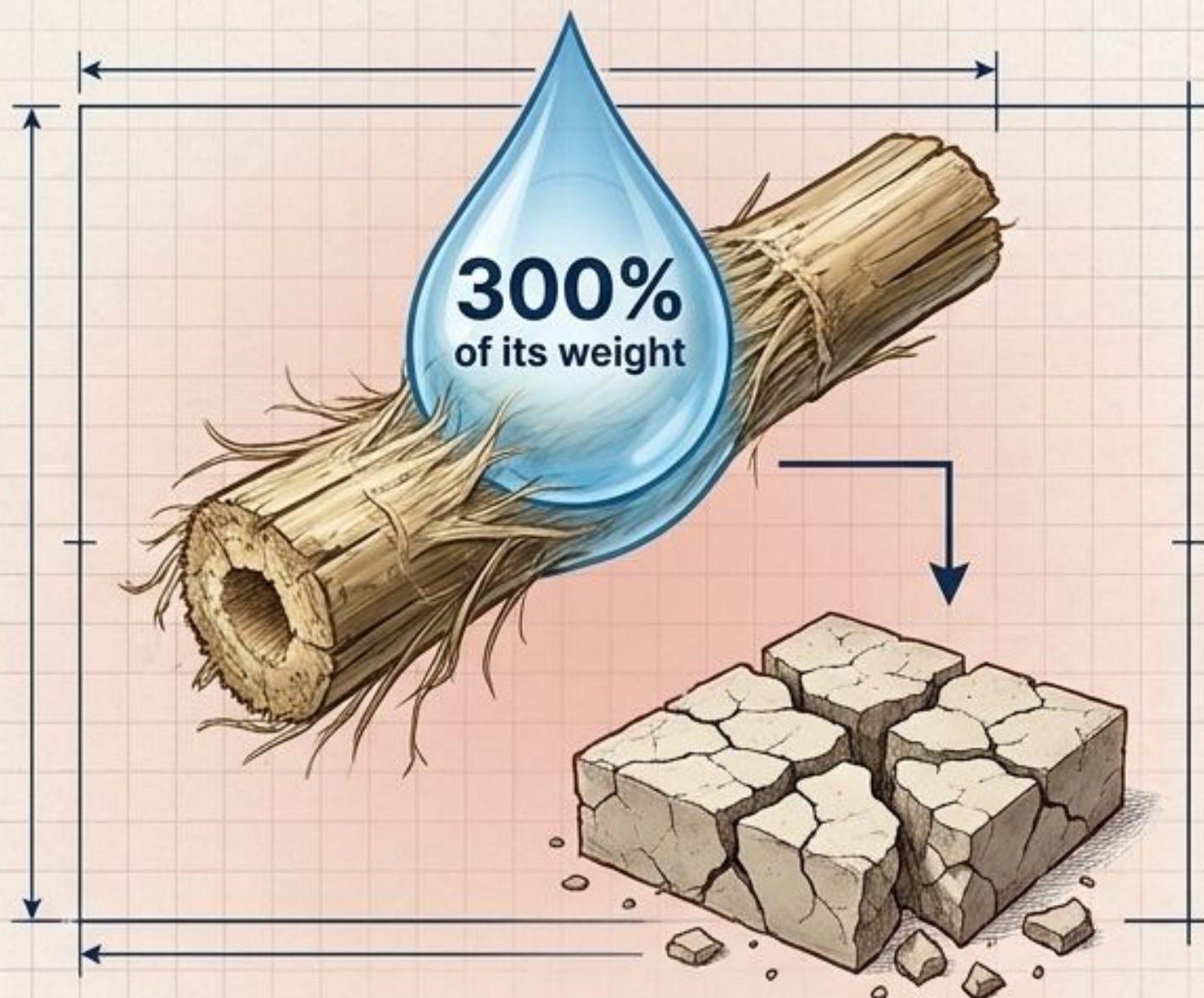


The Absolute Rule

Hempcrete is an insulation and envelope material, NEVER a direct structural substitute.

The Execution

The reinforced skeleton (tie-beams, columns) carries all hurricane-force wind-shear and uplift loads. The hemp block encases the frame, creating a continuous, protective, breathable solid wall.



The Threat

Unmanaged, raw shiv pulls critical moisture away from the lime binder during mixing, ruining the chemical set.

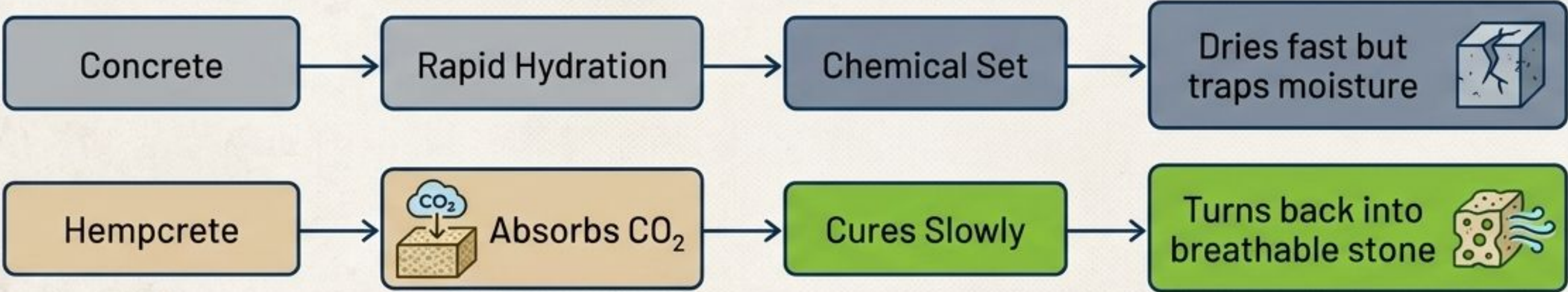


The Solution

Precise water engineering. The mix must achieve an exact “damp soil” consistency—coating the shiv completely without drowning it.

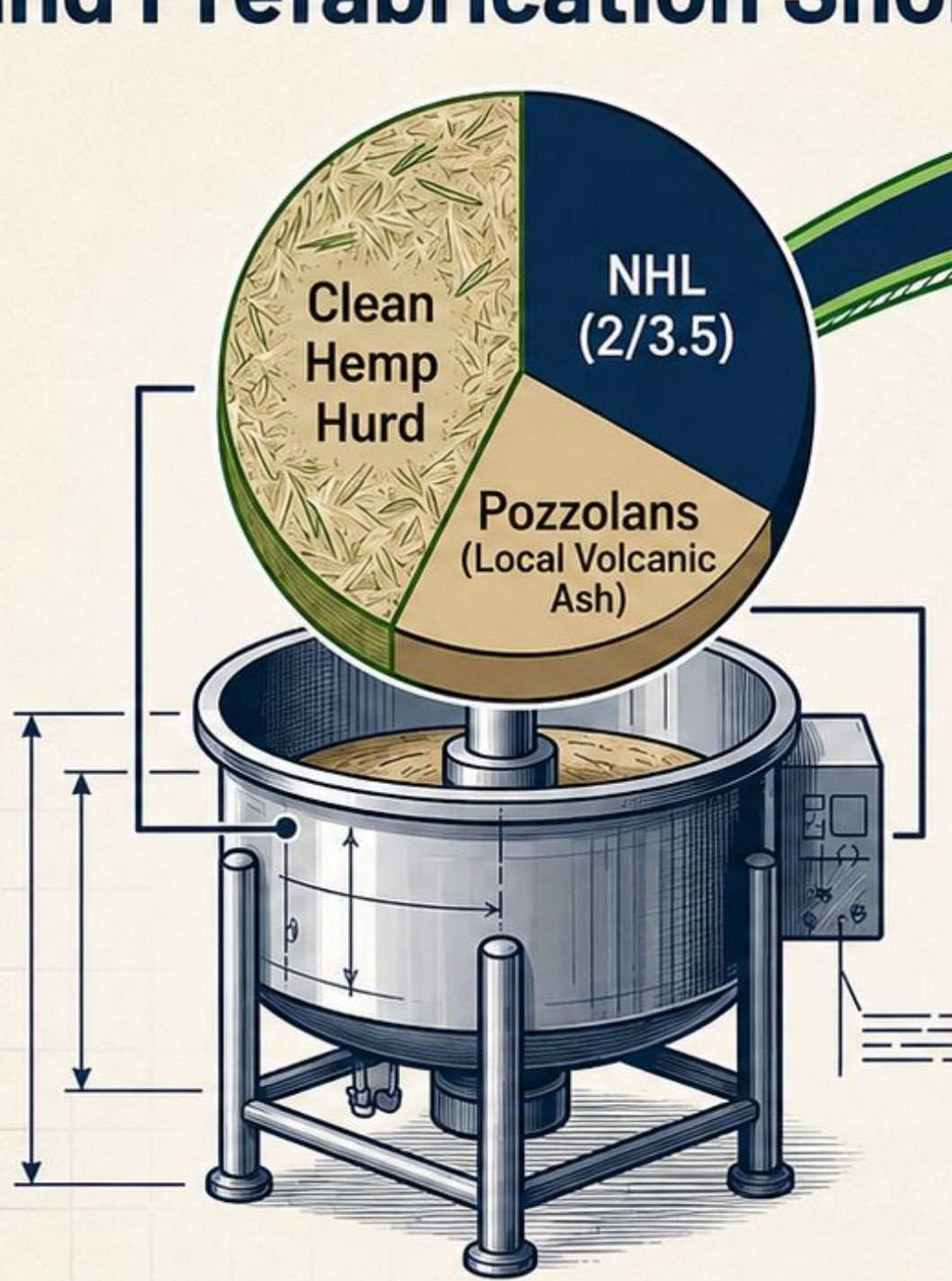
Slow Carbonation Curing Requires Strict Tropical Protocols

The Curing Paradox



The Hurdle	The On-Site Protocol
High ambient humidity and stagnant air drastically slow the carbonation process.	Keep initial pours shaded. Execute strict damp-curing for days 1-7 under breathable burlap. Enforce mandatory cross-ventilation.

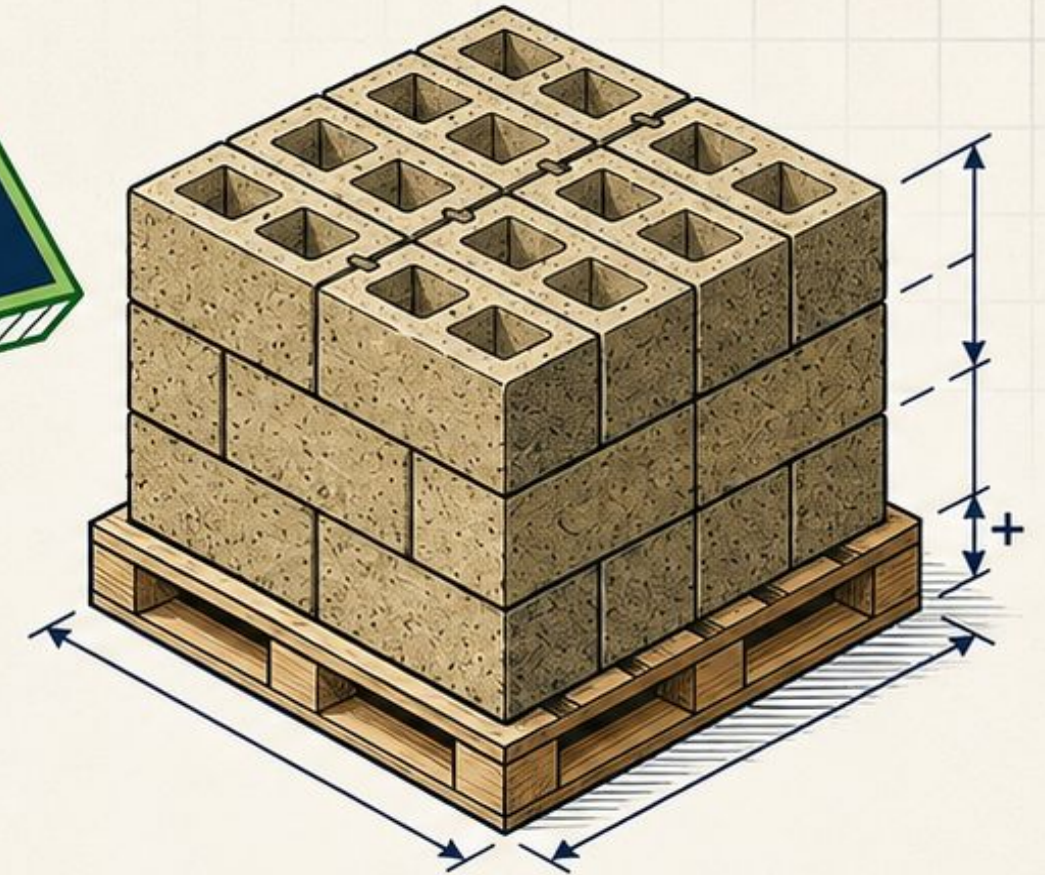
The Official USVI Structural Recipe and Prefabrication Shortcut



The Shortcut

The Local Ratio:

- 1 part NHL (2/3.5)
- 1 part pozzolans (local volcanic ash to counteract humidity)
- 4-5 parts clean hemp hurd

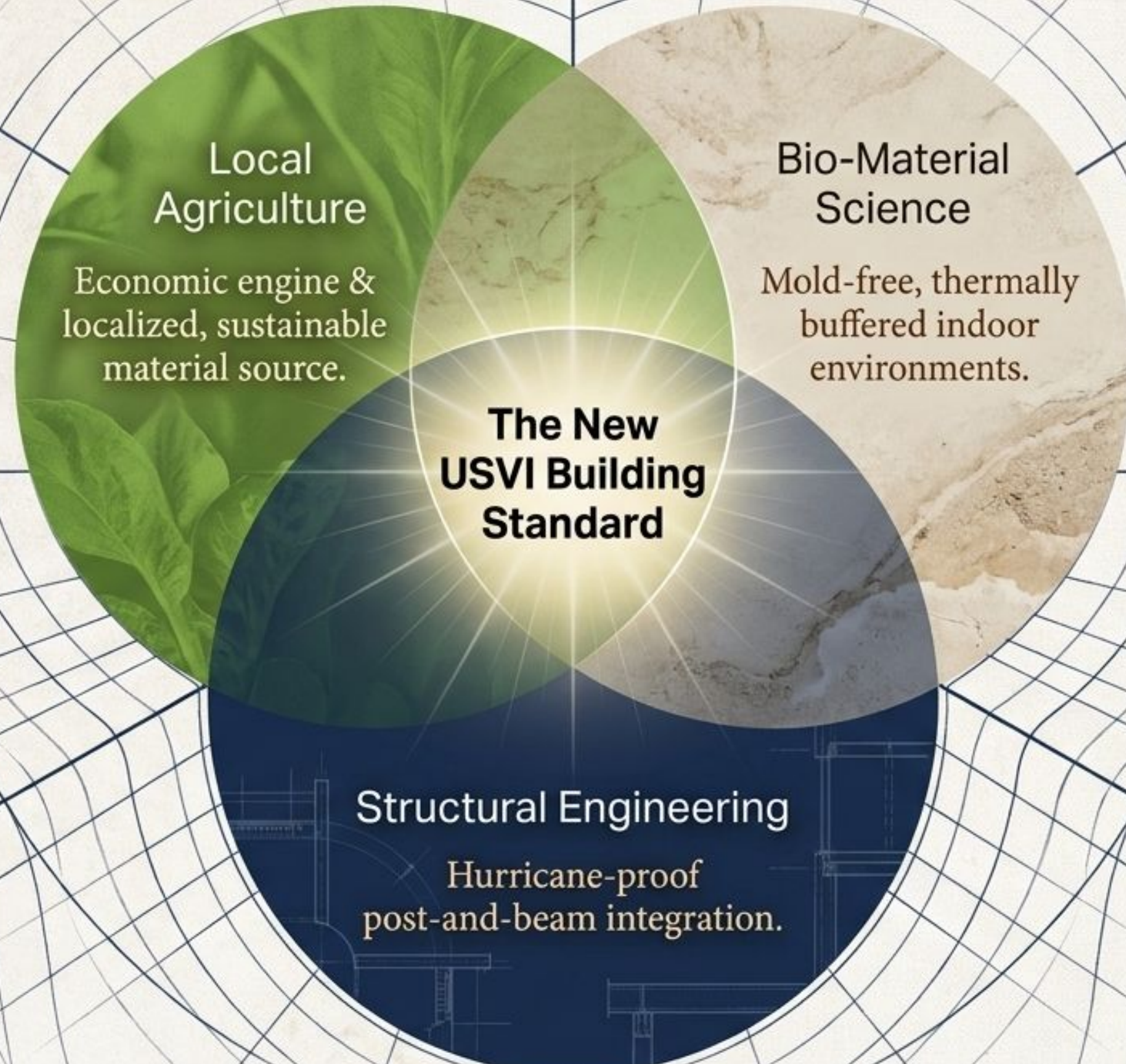


Factory-cured Hemp Blocks bypass on-site wet-season curing delays entirely.

The Finish

Breathable lime/silicate renders are mandatory. They protect against driving rain while allowing internal vapor to escape.

A Unified Approach to Island Resilience



Join the Coalition to Rewrite Territorial Building Codes



The Vehicle

Hempcrete Forum VI (Dedicated Working Group).

The Mission

Spearhead the legal, legislative, and logistical frameworks required for mass adoption.

The Ultimate Goal

Fully integrate hemp construction into the territorial USVI building codes.

Contacts

Dr. Kim Crawford (WANTEDLLC) & Tropical Painting and Construction.