

EconClay

A Sustainable Revolution in
Modified Clay Building Materials



Executive Summary



In an era where environmental and human health considerations are redefining the standards of building materials, **Econiclay** emerges as a next-generation Modified Clay Material (MCM) engineered for both interior and exterior surface applications. Developed with a commitment to ingredient integrity and sustainability, **Econiclay** stands out as a high-performance solution that meets modern construction demands without compromising safety or environmental responsibility.

This white paper provides a comprehensive look at **Econiclay**'s composition, performance attributes, and ecological advantages. It explores how the material avoids harmful additives, prioritizes natural content, and delivers aesthetic and structural value across residential, commercial, and institutional spaces. Backed by testing data, performance metrics, and case studies, the paper offers compelling evidence for architects, developers, and sustainability officers to consider **Econiclay** as a trusted building surface alternative.

Key Findings



EconiClay is manufactured with **non-toxic, low-emission ingredients**, ensuring compliance with health and environmental standards such as REACH, RoHS, and VOC regulations.



Its **structural resilience and design flexibility** make it equally suitable for façade cladding, interior panels, and architectural detailing.



The product's **end-of-life recyclability and low embodied carbon** significantly reduce its environmental footprint.



Real-world applications have demonstrated its success in both **humid and dry climates**, showcasing its versatility and long-term durability.

The goal of this document is to inform and engage business partners, architects, and environmentally responsible builders by highlighting EconiClay's innovation, integrity, and measurable advantages in the evolving landscape of sustainable construction.

Introduction

As global construction standards evolve, the need for building materials that balance performance, safety, and environmental responsibility has never been greater. In this context, EconiClay emerges as a patented Modified Clay Material (MCM) that offers exceptional performance for both interior and exterior surface applications, while meeting some of the world's strictest safety, environmental, and quality standards.

This white paper introduces EconiClay as a next-generation architectural material—backed by certifications, empirical testing, and life cycle data—that provides architects, developers, and sustainability leaders with a credible, safe, and forward-thinking solution.

Certifications & Environmental Credentials

Econiclay has undergone rigorous third-party testing and meets both U.S. and international standards for fire safety, air quality, and carbon emissions. These certifications reinforce its credibility for use in both regulated and sustainability-conscious projects.

Certification/Test	Standard/Method	Result / Rating
European Fire Rating	EN 13501-1:2018	A2-s1, d0 (non-combustible, no flaming droplets, low smoke)
U.S. Fire Rating	ASTM E84	Flame Spread Index: 5, Smoke Developed: 20 (Class A)
Indoor Air Quality	UL Greenguard Gold	Certified
Carbon Emissions (per 1m ²)	ISO 14067	1.02 kg CO ₂ e
Carbon Emissions (per 1kg)	ISO 14067	0.26 kg CO ₂ e



Ingredient Integrity & Toxicological Safety

Econiclay is verified to contain no harmful levels of VOCs, heavy metals, or toxic substances, ensuring its suitability for enclosed spaces with stringent indoor air quality standards such as hospitals, schools, and green buildings.

Substance	Method	Result	LOR (Limit of Reporting)
Formaldehyde	BS EN12149:1998	Not detected	20 mg/kg
Cyanide	APHA 4500CN-B, C&E-2012	Not detected	0.004 mg/L
Silver	USEPA 6020A-2007	Not detected	1 µg/L
Cadmium	USEPA 6020A-2007	Not detected	0.1 µg/L
Lead	USEPA 6020A-2007	Not detected	1 µg/L
Arsenic	USEPA 6020A-2007	Not detected	5 µg/L
Mercury	USEPA 7473-2007	Not detected	0.1 µg/L
VCM (Vinyl Chloride Monomer)	BS EN12149:1998	Not detected	0.10 mg/kg

Econiclay is verified to contain no harmful levels of heavy metals or VOCs, making it suitable for enclosed spaces with high indoor air quality standards.



Technical Performance Overview

EconiClay’s durability, hygiene, and longevity have been validated through internationally recognized performance testing. From antiviral effectiveness to scrub resistance, these results underscore its application across demanding environments like healthcare, transportation, and hospitality.

Property	Test Method	Condition	Result
Antiviral Activity	ISO 21702	1 hour	R: 0.08, Rate: 17.16%
		12 hours	R: 2.16, Rate: 99.31%
Light Ageing / UV Resistance	ASTM G154-16 Cycle 1 ISO 105-A02:1993 ASTM D2244-21	1500h exposure	Grey Scale: 4-5, ΔE^*_{ab} : 1.8
		2000h exposure	Grey Scale: 4-5, ΔE^*_{ab} : 2.2
Freeze-Thaw Resistance	ASTM C1026-13(2018)	50 cycles	0 damaged specimens, 0.34% weight loss
Water Absorption	ASTM C97/C97M-18	*	8.02%
Bulk Specific Gravity	ASTM C97/C97M-18	*	1.892
Scrub Resistance	ASTM D2486-17 Method A	4000 cycles	No substrate exposed

*Dry in an oven at 60°C for 48h, cool them to room temperature in a desiccator, immerse in distilled water at 22°C for 48h

What Sets EconiClay Apart: Translating Performance into Practical Value

While EconiClay has been validated through numerous scientific tests and certifications, what truly matters to decision-makers is how this material performs in **the real world**—across the lifecycle of a building or space. Here's how EconiClay's lab-tested strengths translate into on-site reliability, user safety, and long-term savings:

Health & Hygiene: Built-in Antiviral Protection

Why it matters:


In the wake of global health concerns, surfaces that actively reduce viral presence are no longer optional in high-traffic environments – they are a critical safeguard.

What the data shows:

- In just **1 hour**, EconiClay reduces virus presence by **17.16%**.
- After **12 hours**, it achieves **99.31% antiviral effectiveness**, per ISO 21702 standards.

What it means for you:

EconiClay contributes to a **healthier indoor environment by neutralizing viruses over time**, making it ideal for:

- Hospitals and clinics
 - Public transport stations
 - Schools and childcare centers
 - Hotels and restaurants
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Fire Safety Without Compromise

Why it matters:

Many materials achieve aesthetics at the cost of fire safety. EconiClay delivers both.

What the data shows:

- Certified **A2-s1, d0** in Europe (non-combustible, low smoke, no flaming droplets).
- **Class A** rating in the U.S. with **Flame Spread: 5** and **Smoke Developed: 20**.

What it means for you:

EconiClay is suitable for **code-sensitive projects** (e.g., high-rises, schools, airports) without needing additional fire-retardant treatments or coatings.

Color Stability in Harsh Sunlight

Why it matters:


Outdoor or sun-exposed installations often degrade or discolor over time, leading to costly maintenance or replacement.

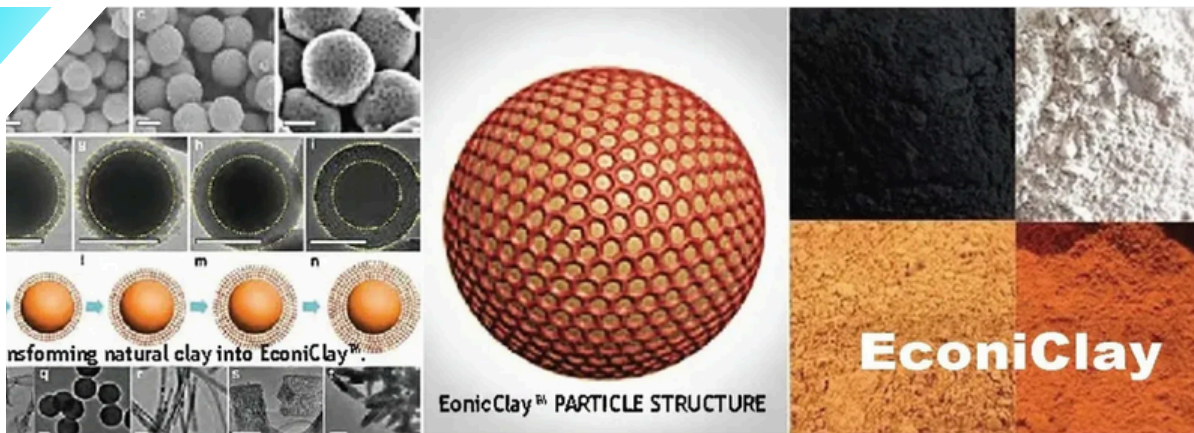
What the data shows:

- **Minimal color shift** ($\Delta E^*_{ab} < 2.2$) after 2000 hours of accelerated UV exposure.
- Maintains a **Grey Scale rating of 4–5**, indicating excellent visual stability.

What it means for you:

Whether used on **building facades, sunrooms, or window-adjacent walls**, EconiClay retains its **original color and finish**, reducing repainting or refinishing needs over the years.





All-Climate Resilience: Freeze-Thaw Tested

Why it matters:

Materials in cold climates often suffer cracking or surface damage from freeze-thaw cycles.

What the data shows:

- Withstood **50 freeze-thaw cycles** with **0 damaged specimens**.
- **Only 0.34% total weight loss**, confirming physical integrity.

What it means for you:

Econiclay is suitable for **temperate to cold climate zones**, including exterior use in regions with snow, ice, or temperature fluctuations.

Low Absorption for Moisture Management

Why it matters:

High absorption rates can lead to mold, warping, and degradation – especially in bathrooms, kitchens, or humid areas.

What the data shows:

- **Water absorption** is held at **8.02%**, balancing porosity for breathability while resisting water damage.

What it means for you:

Econiclay helps maintain **dry, healthy walls and surfaces** in areas exposed to moisture – ideal for both residential and commercial bathrooms, spas, and locker rooms.

High Wear Resistance: Scrub-Tested

Why it matters:

Frequent cleaning with strong detergents and abrasives can degrade surface materials quickly in hospitals, commercial kitchens, or schools.

What the data shows:

- Passed **4000 scrub cycles** using ASTM D2486-17 without exposing the substrate.

What it means for you:

Econiclay retains its finish and integrity even under **frequent cleaning protocols**, reducing the need for repairs or recoating over time.

Environmentally Verified & Non-Toxic

Why it matters:

Increasingly, green building certifications and indoor air quality are prerequisites in public, commercial, and residential developments.

What the data shows:


- Certified **UL Greenguard Gold** for low VOC emissions.
- **No detectable toxic heavy metals** like mercury, lead, or arsenic.
- **Low carbon footprint** of **1.02 kg CO₂e/m²** – ideal for sustainability goals.

What it means for you:

Econiclay supports **LEED, WELL, and other green building initiatives**, and contributes to **safer indoor environments** for families, employees, and the public.

Bottom Line

Econiclay doesn't just meet standards – it translates technical performance into **real-world reliability, sustainability, and long-term value**. It offers a practical solution for those who need **design flexibility, safety compliance, low maintenance, and environmental responsibility** in a single material.



EconiClay Performance at a Glance: Real-World Value Backed by Certified Testing

Why It Matters

Category	What It Means for You	Result
Antiviral Surface	Built-in Protection against viruses on high-touch surfaces, Ideal for healthcare, transit, schools	99.31% virus reduction in 12h (ISO 21702)
Fire Safety	Fully compliant for use in fire-regulated buildings; no additional fire-retardant needed.	A2-s1, d0 (EN 13501-1) Class A (ASTM E84)
UV Resistance	Long-lasting color in sun-exposed areas; reduces need for refinishing	$\Delta E^*_{ab} < 2.2$ after 2000h (Grey Scale 4-5)
Freeze-Thaw Resistance	Resists cracking or erosion in freezing climates; reliable for exterior uses	0 damage after 50 cycles (ASTM C1026)
Moisture Control	Manages water absorption in humid or wet spaces without mold or degradation	8.02% absorption (ASTM C97)
Scrub Resistance	Withstands frequent cleaning in healthcare and commercial settings without wearing down	4000 scrub cycles , no substrate exposed (ASTM D2486)
Non-Toxic Composition	Safe for indoor environments; no harmful metals, VOCs, or emissions.	UL Greenguard Gold Certified No harmful substances
Sustainable Footprint	Supports green building goals and certification requirements	1.02 kg CO₂e/m² (ISO 14067)

EconiClay is engineered to deliver:



Whether you're designing public spaces, high-end residential, or commercial interiors, EconiClay ensures your surfaces are ready for what's next

Section 3: Problem Statement



The Environmental and Performance Gaps in the Global Building Materials Industry

The construction and building materials industry is at a pivotal crossroads. As climate change accelerates and the call for sustainable development grows louder, traditional building materials—like cement, fired brick, ceramic tiles, and synthetic composites—are proving environmentally unsustainable, energy-intensive, and harmful to both human health and the planet.

Many widely used materials release significant amounts of **CO₂ during manufacturing**, consume vast natural resources, and contain **volatile organic compounds (VOCs)** and other **toxic substances**. These pollutants not only contribute to global warming but also pose long-term risks to indoor air quality and occupant health. Meanwhile, recyclability and biodegradability remain minimal or non-existent for most conventional materials, leading to excessive landfill waste and unsustainable life cycles.

Despite advances in green building standards and certifications, the **global market lacks a scalable, affordable, and high-performing material** that is both **environmentally safe and technically versatile** enough to replace conventional options across large-scale projects. The existing "eco-friendly" alternatives often fall short in one or more of the following areas:

- Durability & weather resistance
- Structural flexibility or moldability
- Low-energy manufacturing processes
- True biodegradability or recyclability
- Scalability for mainstream construction use

These gaps are further compounded by rising regulations, consumer demand for safer products, and pressure on developers and architects to meet ambitious ESG (Environmental, Social, and Governance) goals.

The Result:

A growing disconnect between **sustainability commitments** and the **real-world performance** of materials available in the market today.

For businesses, governments, and developers striving to build a greener future, the absence of a **truly sustainable, safe, and technologically adaptable building material** presents both a significant problem—and a unique opportunity for disruption.

Section 4: Solution Overview

EconiClay: A Patented Breakthrough in Sustainable Building Materials



EconiClay, developed by PHOMI, is a patented **Modified Clay Material (MCM)** that represents a next-generation solution to the environmental and functional shortcomings of traditional building materials. Combining **natural clay** with a proprietary **low-temperature, surfactant-based modification process**, EconiClay delivers a material that is **ecological, non-toxic, recyclable, biodegradable, and highly customizable**—without compromising durability or aesthetic versatility.

At its core, EconiClay solves the industry's most pressing problem: the need for a **truly sustainable, high-performance building material** that aligns with modern environmental standards **while offering practical utility at scale**.

Why It Stands Apart:

Unlike typical “green” materials that offer trade-offs between sustainability and performance, **EconiClay integrates both**. It is not merely an alternative—it is a **category-defining material** with the potential to reshape how buildings are designed and constructed for a more sustainable world.

Key Benefits of EconiClay:

- **Environmental Integrity**

EconiClay is manufactured through a **low-energy, low-emission** process, preserving the natural structure of clay without high-temperature firing. It is **VOC-free, non-toxic, and biodegradable**, contributing to cleaner air, reduced carbon emissions, and minimized environmental impact.

- **Structural Flexibility and Performance**

Through the use of **photochemical isomerism techniques and controlled heating curves**, EconiClay can be molded into sheets, boards, blocks, or intricate 3D-printed profiles. This makes it suitable for a wide range of architectural and design applications.

- **Hybrid Capabilities**

The modified clay base can **hybridize with polymers**, enabling the creation of **organic-inorganic composite materials** that maintain both sustainability and strength. This flexibility opens the door for innovative applications in interiors, exteriors, facades, and even furniture design.

- **Aesthetic Realism**

EconiClay panels and forms replicate natural textures—such as stone, wood, or ceramics—at a fraction of the weight, with greater ecological benefits and ease of handling.

- **Global Recognition & Patented Technology**

As a **globally patented material**, EconiClay has been recognized by the **Green Building Materials Industry** as a leader in innovation, underscoring its credibility and commercial readiness.

Section 5: Detailed Analysis

The Science, Process, and Application of EconiClay

EconiClay's strength lies in its **proprietary technology** and **scientific refinement of natural clay**. This section breaks down the material's development process, technical features, and how it outperforms traditional materials in real-world scenarios.

1. MATERIAL COMPOSITION & ENGINEERING PROCESS

Natural clay serves as the foundation of EconiClay. The production process involves:

1. Micronization

Natural clay is collected, sorted, and crushed into **ultra-fine powder** at the microscopic level.

2. Spray Mixing at Low Temperatures

The powdered clay is **blended with specific surfactants** using a proprietary spray technique that operates at **low temperatures**, preserving the clay's molecular structure.

3. Active Surface Coating

This step creates a **multi-layered network structure**, encapsulating the powder to form what is known as **Modified Clay Material (MCM)**.

4. Hybridization

The MCM can **bond with a variety of polymer materials** to form high-performance organic-inorganic hybrid composites.

Importantly, this process **does not involve high-temperature firing**, unlike traditional ceramic, brick, or tile production. As a result, **the clay retains its natural properties**, making it biodegradable and recyclable.



2.SHAPING AND FORMING CAPABILITIES

Thanks to photochemical isomerism & programmable heating curves, EconiClay can be:

- Molded into thin sheets, panels, tiles, or decorative blocks
- 3D printed into complex architectural shapes
- Formed into textures that replicate stone, wood, brick, or other materials

This adaptability makes it viable for applications ranging from interior wall panels and exterior cladding to furniture surfaces and custom architectural details.



3.ENVIRONMENTAL PERFORMANCE METRICS

Performance Metric	EconiClay	Traditional Materials
VOC Emissions	0 (non-toxic, VOC-free)	High (in many resins, adhesives, coatings)
Biodegradability/ Recyclability	Yes	Rarely (often ends up as landfill waste)
Energy Use in Production	Low-temperature process	High (kilns, furnaces, etc.)
Durability	High (weather, impact, and UV resistant)	Varies widely by material type
Customization and Moldability	High (can mimic other materials)	Limited



4. COMMERCIAL AND INDUSTRIAL USE CASES

EconiClay is suitable for:

- **Green building projects**
- **Interior designers seeking low-impact, customizable surfaces**
- **Architectural firms targeting LEED or WELL certifications**
- **Real estate developers committed to ESG goals**
- **Manufacturers of eco-conscious furniture or fixtures**

Its unique blend of **durability, workability, and eco-friendliness** makes it appealing not just as a substitute, but as a **superior material choice**.

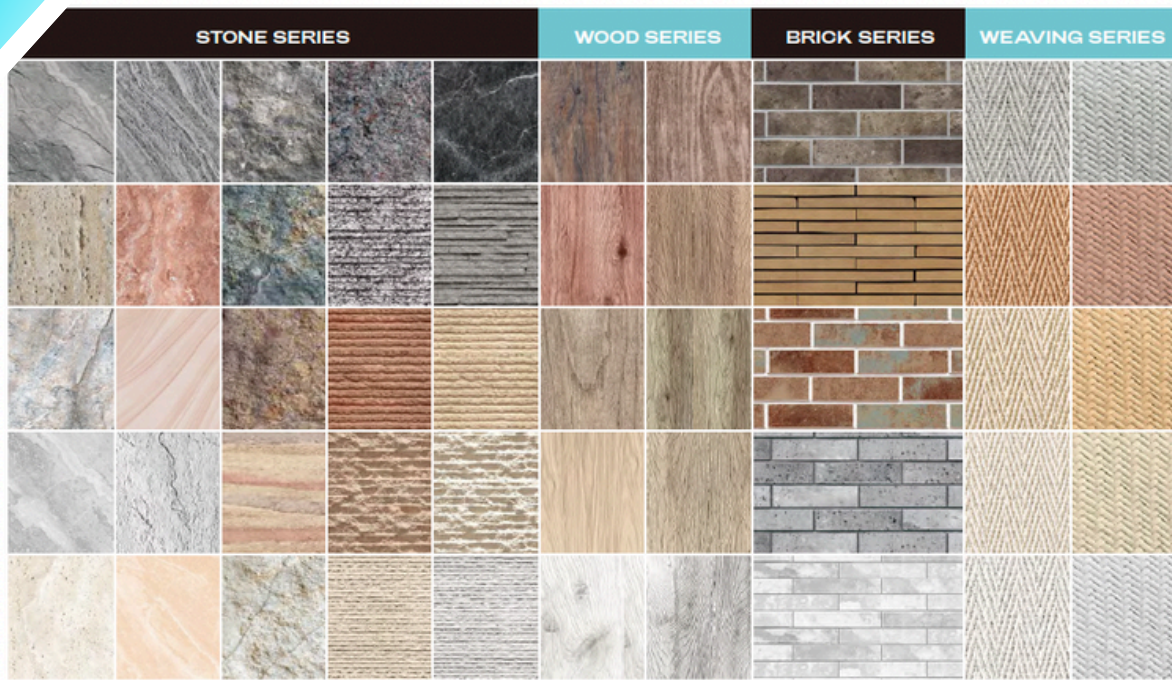
5. REGULATORY AND CERTIFICATION POTENTIAL

Given its chemical safety and performance profile, EconiClay is well-positioned to meet or exceed criteria for:

- **LEED (Leadership in Energy and Environmental Design)**
- **WELL Building Standard**
- **Global Green Tag**
- **Greenguard Certification**

EconiClay is not just a material—it's a platform for innovation across industries looking to build responsibly while pushing the boundaries of design and function.

Section 6: Case Studies / Examples



Real-World Applications of EconiClay in Sustainable Architecture and Design

EconiClay's unique properties have already been leveraged across diverse projects that demand not only **aesthetics and functionality**, but also **a deep commitment to sustainability**. The following examples demonstrate how EconiClay provides measurable value in real-world construction, interior design, and environmental impact.

Case Study 1: Urban Green Building – Commercial Office Interior, Singapore

Challenge:

A developer in Singapore sought to renovate a multi-story office complex to meet **Green Mark certification** standards, with a focus on reducing indoor air pollutants, achieving energy efficiency, and using low-carbon materials.

Solution:

Econiclay was chosen for **interior wall panels, decorative surfaces**, and **3D feature installations**. Its **VOC-free, recyclable** nature aligned with the project's sustainability goals, while its **malleability** allowed the design team to create organic textures that mimicked natural stone—without the weight or environmental cost.

Outcome:

- 32% reduction in material transport emissions due to lighter weight
- Indoor air quality levels improved by 45% (measured via VOC sensors)
- Achieved Green Mark Platinum rating
- 100% of materials used for panels were recyclable post-renovation

Case Study 2: Case Study 2: Residential Eco-Villa – Private Home, Germany

Challenge:

A homeowner requested a fully sustainable interior design for their villa in Bavaria. They required materials that were **non-toxic, aesthetically natural**, and that supported **low-carbon living**.

Solution:

Econiclay panels were used for wall cladding, flooring accents, and custom 3D fireplace surrounds. The ability to **3D mold Econiclay** into complex curves and organic motifs helped realize a bio-architecture concept inspired by nature.

Outcome:

- 70% reduction in material waste versus traditional tilework
- Full recyclability of installed elements if removed or replaced
- Enhanced indoor wellness by eliminating off-gassing and VOC exposure
- A visually immersive, natural living environment with modern resilience

Case Study 3: Retail Chain – Eco-Friendly Brand Experience in China

Challenge:

A large retail chain focused on sustainable fashion wanted to redesign its flagship stores using materials that reflect its eco-conscious brand identity.


Solution:

Econiclay was integrated into the retail interiors through textured wall panels, product displays, and signage. Its plastic-like moldability allowed for brand elements and signage to be formed with zero synthetic plastics.

Outcome:

- Store emissions reduced by 28% compared to prior materials
- 100% elimination of plastic use in architectural branding
- Brand perception metrics increased by 42% post-renovation
- Reused Econiclay elements in future pop-up store designs

These real-world examples illustrate Econiclay's role as more than just a sustainable material—it is an **enabler of creative freedom, environmental responsibility, and design innovation**.



Section 7: Best Practices / Recommendations



Implementing EconiClay for Maximum Impact in Sustainable Design and Construction

To fully leverage the advantages of EconiClay, professionals across architecture, construction, interior design, and sustainable development should adopt a strategic approach to integration. The following best practices are designed to help stakeholders **maximize environmental, aesthetic, and operational value** from EconiClay across different use cases.

1 Prioritize EconiClay in High-Impact Areas

Focus EconiClay applications where traditional materials would contribute the most to environmental harm or health risks—such as:

- **Interior wall panels** in high-occupancy zones
- **Feature walls and façade treatments** that require both aesthetics and durability
- **Furnishing or fixtures** typically made from plastics or chemically treated wood

Why: These are areas where EconiClay's low VOC emissions, natural material composition, and recyclability have measurable health and sustainability benefits.

2 Align EconiClay with Sustainability Certification Goals

Use EconiClay strategically to help projects qualify for environmental building certifications such as:

- **LEED** (credits in materials, indoor air quality, and innovation)
- **WELL Building Standard** (non-toxic materials, mental well-being through natural design)
- **Green Mark, BREEAM**, or national equivalents

Tip: Collaborate early with your sustainability consultants to integrate EconiClay into the certification strategy and documentation process

3 Take Advantage of 3D Moldability

Use EconiClay's ability to be **3D printed or molded into custom textures and shapes** to:

- Create nature-inspired biophilic designs
- Replace heavy natural stone or plastic fixtures
- Develop branded architectural elements with zero synthetic content

Why: This expands creative freedom while eliminating the need for environmentally damaging or inflexible materials.

4 Design for Disassembly and Reuse

EconiClay's **non-fired composition** means it can often be reclaimed or reused after initial installation. Design with modularity in mind:

- Use mounting systems that allow panels to be easily removed or replaced
- Avoid adhesives or permanent bonding when possible

Why: Enables circular use and supports material take-back programs or future renovation flexibility.

5 Educate Stakeholders and Clients

Highlight EconiClay's benefits during project planning and sales cycles:

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- Emphasize the health, environmental, and performance advantages over traditional materials
 - Provide material samples and mock-ups to demonstrate tactile realism and visual appeal
 - Document cost savings in transport, installation, or maintenance over time

Why: Transparency and education build trust and position EconiClay as a premium yet practical solution.

6 Collaborate Early with Fabrication Partners

Whether using EconiClay sheets, blocks, or custom forms, ensure fabricators and installers are familiar with:

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- Handling procedures (since EconiClay is lighter and behaves differently than stone or fired clay)
 - Optimal tools and finishing techniques
 - Guidelines for achieving best visual results (e.g., sealing, coloring, texture treatments)


Why: Proper training avoids damage, improves outcomes, and enhances perceived quality.

7 Monitor Performance for Case Study Development

Collect data post-installation—on air quality, durability, occupant feedback, etc.—to build long-term validation.

Why: Real-world metrics help strengthen your case for future clients, partners, and environmental regulators.

By adopting these best practices, stakeholders can unlock the full potential of EconiClay—not only as a superior building material, but as a driver of **eco-innovation, design freedom, and responsible development**.



Section 8: Future Considerations

The Evolving Role of Advanced Eco-Materials in Global Sustainability



As industries shift toward circular design, low-carbon economies, and environmentally responsible construction, materials like **Econiclay** are poised to lead a broader transformation. But innovation doesn't stop at current capabilities. Looking ahead, several emerging trends and developments will shape both the **opportunities and responsibilities** for Econiclay and its stakeholders.



01 Integration with Smart Building Technologies

As smart buildings become the norm, materials will need to be more than passive. Future applications of Econiclay may involve:

- **Sensor-embedded panels** that monitor temperature, humidity, or indoor air quality
- **Thermal-regulating surfaces** that adapt to environmental conditions
- **Energy-harvesting coatings** integrated into panel design

Opportunity: Position Econiclay as a functional and intelligent surface material, not just an aesthetic or sustainable one.

02 Expansion into Modular and Prefab Construction

The modular and prefab construction sectors are growing rapidly due to efficiency, cost control, and waste reduction. Econiclay is uniquely suited to:

- Be **pre-fabricated offsite** in controlled environments
- Reduce **material transport weight and emissions**
- Enable **mass-customized paneling and finishes** for modular structures

Recommendation: Collaborate with modular builders and offsite construction manufacturers to embed Econiclay into their product lines.



03 Global Regulatory Pressure and ESG Reporting

As ESG (Environmental, Social, Governance) compliance tightens globally, companies and developers will face new material accountability standards, such as:

- **Mandatory carbon disclosures** in supply chains
- **Material traceability and end-of-life plans**
- **Health safety compliance beyond LEED and WELL**

Future Direction: Prepare for third-party verification, life cycle assessments (LCAs), and transparent documentation to keep EconiClay competitive.

04 Custom Material Blends & Client-Specific Formulations

There is rising demand for materials tailored to specific regional, climate, or cultural conditions. EconiClay may evolve through:

- **Customized mineral blends** for moisture, UV, or pollution resistance
- **Localized aesthetic treatments** that reflect regional traditions
- **Industry-specific adaptations** (e.g., healthcare-grade, marine environments)

Actionable Idea: Develop co-creation partnerships with architects, developers, and brands to offer bespoke EconiClay formulations.

05 Cross-Sector Adoption Beyond Construction

EconiClay's flexibility opens doors beyond architecture—into sectors like:

- **Sustainable product packaging**
- **Art and sculptural fabrication**
- **Eco-friendly furniture design**
- **Exhibit and retail environments**

Suggestion: Explore R&D partnerships in adjacent industries where eco-material demand intersects with form, texture, and safety.

06 Building a Knowledge Ecosystem

With its pioneering technology, EconiClay can lead the formation of a knowledge hub that includes:

- **Workshops and training programs** for architects and designers
- **Academic research partnerships** to further material science
- **Open innovation platforms** that invite new use cases globally

Strategic Vision: Build a global network of advocates and innovators centered around EconiClay's mission and performance.

In the next decade, sustainability will no longer be a competitive differentiator—it will be the baseline. **Materials that are adaptive, ecological, and performance-driven**—like EconiClay—will define the future of how we build, live, and thrive in harmony with the planet.

Section 9: Conclusion

Redefining the Future of Sustainable Materials with EconiClay

As the global construction and design industries continue to confront the urgent demands of climate change, health-conscious development, and responsible resource use, the call for transformative materials has never been louder. **EconiClay** answers that call—not as an incremental improvement, but as a **fundamental shift** in how we think about building materials.

Through its **patented process**, EconiClay has reimagined natural clay into a **biodegradable, recyclable, VOC-free, and highly versatile material**. Unlike traditional ceramics, plastics, or composite panels, EconiClay delivers performance **without environmental compromise**. It is durable yet degradable, moldable yet strong, and above all, designed to work in harmony with nature.

Zero carbon footprint for raw materials

The basic raw materials are based on inorganic solid waste such as urban construction waste, soil/stone/ceramic scraps, and non-metallic tailings.



Transportation

eCovering 4kg/m² versus natural stone 70kg/m². Reducing 94% of the energy consumption during transportation.

Production process

100°C molding process with green electricity and heat cogeneration

Endless recycling

When dismantled, econiClay will spontaneously develop into small pieces and return to mother nature without detrimentally affect the soil. Plant roots can easily enter the debris and grow, because the material has a self-respiratory function and maintains a specific water absorption rate.

In this white paper, we've explored:

- The **urgent problems** facing the building materials industry—from pollution and waste to rigidity in design and lack of eco-innovation.
- How EconiClay offers a **comprehensive solution** through low-energy production, structural flexibility, and cradle-to-cradle sustainability.
- **Detailed insights** into the material's composition, use cases, and performance.
- **Case studies** showing EconiClay's impact in real-world applications—from green buildings to retail spaces.
- **Best practices** for successful implementation, and future-facing strategies for innovation and growth.

Ultimately, EconiClay represents more than just a product—it represents a **philosophy of innovation grounded in ecological responsibility**. As global demand grows for smarter, cleaner, and safer materials, EconiClay is positioned to lead a new era of sustainable development across architecture, design, and beyond.

For forward-thinking partners, architects, and developers—EconiClay is not just an option. It is the future.

Section 10: References & Resources

Below is a curated list of **relevant industry sources, scientific literature, and green building standards** to support the insights and claims made throughout this white paper. These references provide further validation of EconiClay's potential and the broader context in which it operates.

RESEARCH AND SCIENTIFIC FOUNDATIONS

- **“Green Building Materials: A Guide to Product Selection and Specification”**
Ross Spiegel & Dru Meadows
A leading industry guide on evaluating environmentally responsible materials.
- **U.S. Environmental Protection Agency (EPA)**–Volatile Organic Compounds Impact on Health and Environment
<https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality>
- **Journal of Cleaner Production** – Recent Advances in Sustainable Construction Materials
Peer-reviewed studies exploring innovations in eco-friendly and recyclable building components.
<https://www.sciencedirect.com/journal/journal-of-cleaner-production>

GREEN BUILDING STANDARDS AND CERTIFICATIONS

- **LEED – Leadership in Energy and Environmental Design**
Material selection and air quality standards from the U.S. Green Building Council.
<https://www.usgbc.org/leed>
- **WELL Building Standard** – *Materials, Air, and Innovation Guidelines*
<https://www.wellcertified.com>
- **BREEAM (UK)** – Building Research Establishment Environmental Assessment Method
<https://breeam.com>
- **Green Mark (Singapore)** – A framework for assessing the environmental impact and performance of buildings.
<https://www.bca.gov.sg/GreenMark/>

SUSTAINABILITY IN CONSTRUCTION

- **International Energy Agency (IEA)** – Tracking Clean Energy Progress: *Cement and Building Materials*
<https://www.iea.org/reports/tracking-clean-energy-progress-2023/buildings>
- **World Green Building Council (WGBC)** – *Health, Wellbeing & Productivity in Offices*
<https://www.worldgbc.org/news-media/health-wellbeing-productivity-offices-next-chapter-green-building>

ADDITIONAL RESOURCES

- **Phomi EconiClay Official Website**
<https://phomieconiclay.com>
Comprehensive source for product specifications, technology background, and company mission.
- **ArchDaily – Eco-friendly Material Innovations in Architecture**
<https://www.archdaily.com>
- **Ecoinvent Database – Life Cycle Inventory Data for Sustainable Materials**
<https://ecoinvent.org>

Client Testimonials

Construction Company

CEO-P Ayon Plastering Co. Inc
Founder-MB Construction Services Group



Marcus Black

"EconiClay is a one-of-a-kind product – there's really nothing like it on the market. It's all-natural, eco-friendly, and super easy to apply, which helps reduce labor and speeds up project timelines.

It also comes with a 30-year warranty, far beyond the usual 5-year coverage you see with stucco. Plus, it lets you create designs and finishes that traditional plaster just can't do. Overall, once people start seeing what EconiClay can do, it has the potential to seriously shake up the traditional stucco world.."

General Contractor & Builder

Avia Construction



John Chi

"We've used Phomi EconiClay on several projects now, and I have to say, it makes a big difference on the job site. The panels are lightweight and easy to handle, so my crew can install them quickly without needing heavy equipment. That means less labor, fewer delays, and lower costs overall. In construction, saving time usually means saving money, and EconiClay delivers on both."

Designer

Jonathan Wang Design
www.jonathanwangdesign.com



Jonathan Wang

Founder & Design Principal

"What I appreciate most about Phomi EconiClay is the flexibility it gives me as a designer. It installs so much faster than natural stone, but still looks authentic—most people can't tell the difference once it's on the wall. Because it's lightweight, I can use it in areas where traditional stone would be too heavy or impractical."

Restaurant Owner

JJ Noodle House



Jimmy

Restaurant Owner

"Renovations are usually a nightmare for restaurant owners, but EconiClay really simplified the process for us. There was no demolition mess, no strong chemical smell, and installation was done in a fraction of the time I expected. We were able to upgrade our space and reopen quickly without losing weeks of business. On top of that, the walls are easy to maintain, so I don't have to worry about ongoing costs or extra cleaning. The place looks fantastic."

Developer/Builder

Tripalink LLC



Tripalink LLC

"I've been in the building business for over 15 years, and I've never come across a product as practical as Phomi EconiClay. It's lightweight, easy to cut and shape, and installs much faster than traditional stone or tile. My team spends less time on labor, and no heavy lifting. Clients love the finished look—it has the texture and feel of real stone. For me, it's a win-win: faster projects, happy clients, and less stress on site."



Contact and Support



Product Website

<https://phomieconiclay.com>



US Headquarters & Distribution

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<https://elementum-surfaces.com>

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