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Sustainability in Construction



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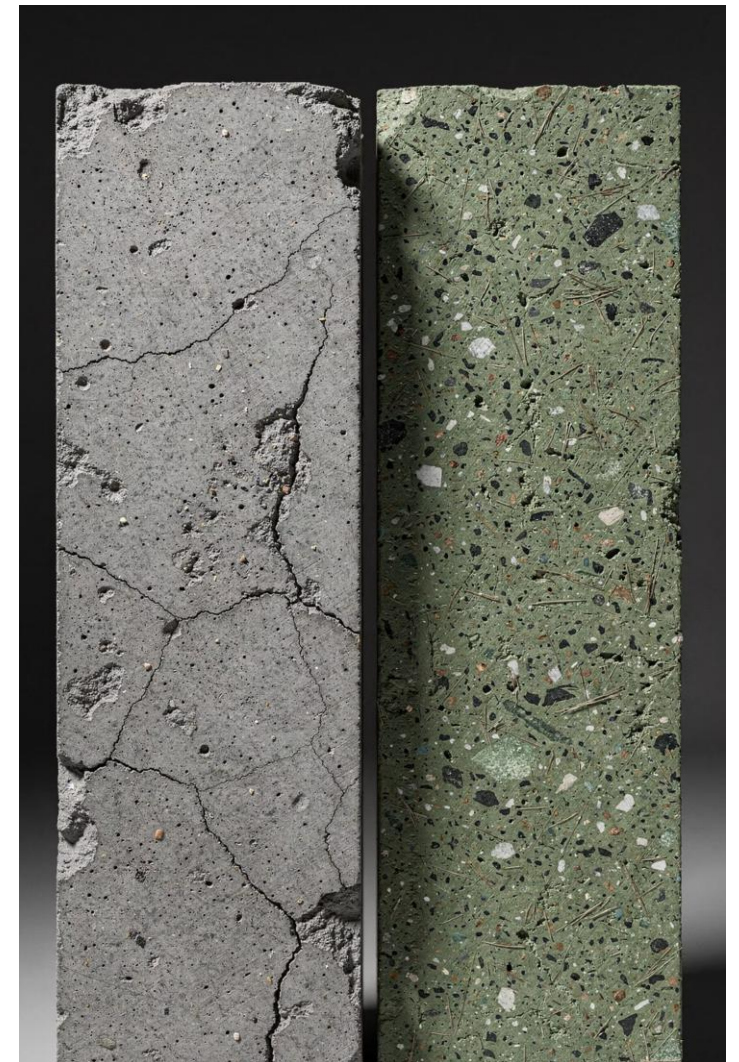
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Traditional vs Eco-Friendly Concrete

Understanding the fundamental differences between conventional concrete production and emerging sustainable alternatives is critical for stakeholders across the construction industry. This comparison reveals not only environmental impacts but also the practical, legal, and insurance considerations that influence project outcomes.

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Traditional Concrete

Concrete is the most widely used construction material globally, with approximately 14 billion cubic meters produced annually. However, this massive production comes at a significant environmental cost that the industry can no longer ignore.

The cement manufacturing process alone results in roughly 2.5 billion tons of carbon dioxide emissions each year, accounting for approximately 8% of global CO₂ emissions. Beyond carbon impact, concrete production consumes 10% of the global industrial water supply, placing enormous pressure on freshwater resources worldwide.

Additionally, the industry faces growing scarcity of essential raw materials, particularly sand and gravel, as natural deposits become depleted and environmental regulations restrict extraction activities.

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Eco-Friendly Concrete Technologies



The construction industry is witnessing a rapid evolution in sustainable concrete alternatives, each offering unique environmental benefits while introducing new technical and legal considerations.

- **CO2-Infused Concrete**

Captures carbon dioxide during curing, reducing overall carbon footprint

- **Low-Carbon Cement Formulations**

Substitutes traditional Portland cement with supplementary materials like fly ash or slag

- **Self-Healing Concrete**

Contains bacteria or polymers that automatically repair cracks, extending lifespan

- **3D Printed Construction**

Reduces material waste through precision placement and optimized designs

- **Hempcrete**

Bio-based material using hemp fibers, offering carbon sequestration benefits



The Insurance Landscape

As eco-friendly concrete technologies emerge, insurance carriers and risk managers face unique challenges in underwriting construction projects that incorporate these innovative materials. Understanding how insurers approach coverage for sustainable building practices is essential for all project stakeholders.

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Specialized Manuscript Policies or Endorsements?



Current Industry Approach

In most cases, specialized manuscript policies or endorsements are **not necessary** for projects using eco-friendly concrete technologies. Standard construction insurance policies typically provide adequate coverage when properly structured and underwritten.

Additional Submission Requirements

However, contractors should expect more extensive effort during the insurance submission process, including:

- Completion of additional technical questionnaires detailing material specifications
- Submission of manufacturer certifications and testing documentation
- Addition of "subjectivity" clauses to insurance quotes, allowing carriers to adjust terms based on final material choices
- Enhanced underwriting review periods to assess novel material risks



What Can a Contractor Do?

Proactive contractors can significantly reduce insurance complications and potential coverage disputes by implementing comprehensive documentation and validation practices throughout the construction process.

Proactively Address Mix Analysis

Obtain and review the concrete supplier's detailed mix analysis before installation. Ensure all components meet specified environmental and performance standards and verify compatibility with project requirements.

Document Installation Comprehensively

Maintain meticulous records throughout the installation process. Photograph each stage, document weather conditions, record testing results, and obtain proper sign-offs on standard operating procedures (SOPs) and any additives used.

Establish Clear Responsibility

Be prepared to validate that any deficiencies lie with the design specifications or mis-production of the concrete mix, not with installation practices. This documentation protects contractors from liability for supplier or design failures.

Validate Geotechnical Compliance

Confirm that all geotechnical reports and guidance were properly addressed during installation. Ensure soil conditions, drainage, and foundation preparations align with engineering specifications.



Possible Exclusions

Insurance carriers may apply specific exclusions or limitations to policies covering projects with eco-friendly materials. Understanding these potential gaps in coverage allows contractors and owners to address risks through alternative means or negotiate broader protection.



Communicable Disease Exclusions

Carriers must verify that new materials are genuinely "green" and not hazardous. Materials with unproven health safety records may trigger communicable disease or pollution exclusions.



LEED Premium Costs

Additional labor and material costs specifically associated with achieving green certifications may be excluded from standard coverage. These costs are sometimes available through excess policy endorsements.



SOP Deviation Penalties

Carriers can amend endorsements to exclude coverage if field practices diverge from approved SOPs. Non-adherence to manufacturer installation guidelines may void material coverage entirely.



Real Challenges

Beyond policy exclusions, contractors and project owners face practical insurance challenges that can impact project budgets and timelines when working with eco-friendly concrete technologies.

Increased Insurance Costs

The unknowns associated with novel materials are typically addressed through premium upcharges. Since premiums are calculated based on total cost of work, more expensive sustainable materials automatically increase insurance costs. Additionally, carriers may apply surcharges ranging from 5-15% to account for unproven performance track records and limited claims data.

Delay in Startup Losses

Projects face potential delays when new eco-friendly materials become unavailable as expected. Supply chain disruptions for sustainable materials can be more severe than for traditional concrete due to limited production capacity and fewer suppliers. These delays are usually addressed as procurement issues between the owner and general contractor before escalating to insurance claims, but they can trigger delay-in-startup coverage provisions.



Common Legal Issues

Legal issues in eco-friendly construction stem from several interconnected challenges that frequently result in disputes, claims, and litigation. Understanding these issues helps stakeholders implement preventive strategies and allocate contractual responsibilities appropriately.



Breach of Contracts

Failure to deliver specified sustainable performance or materials



Failed Green Certifications

Projects that don't achieve promised LEED or similar certifications



Greenwashing Claims

False marketing claims about sustainability triggering FTC violations





Understanding "Greenwashing"

"**Greenwashing**" describes the deceptive use of green marketing to promote a false perception that a company's policies, products, goods, and/or services are "environmentally friendly." This practice has become increasingly scrutinized as sustainability claims proliferate across the construction industry.

- ❏ The Federal Trade Commission (FTC) intervenes when businesses misrepresent their products, goods, services, or practices. Companies found guilty of greenwashing face significant financial penalties, reputational damage, and potential legal liability.

In 1992, the FTC issued *Guides for the Use of Environmental Marketing Claims* ("**Green Guides**"), which outline general principles that apply to all environmental marketing claims. Last updated in 2012, there are ongoing reports of further revisions to address emerging sustainability technologies and evolving market practices.

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The Green Guides: Core Principle

"It is deceptive to misrepresent, directly or by implication, that a product, package or service offers a general environmental benefit. Unqualified general claims of environmental benefit are difficult to interpret, and depending on their context, may convey a wide range of meanings to consumers. In many cases, such claims may convey that the product, package or service has specific and far-reaching environmental benefits."

The FTC's guidance makes clear that vague, unsubstantiated claims are legally problematic. Terms like **"eco-friendly," "natural,"** or **"sustainable design"** without specific, verifiable support constitute what industry critics call **"Sustain-a-Babble"** — meaningless marketing jargon that misleads consumers and project stakeholders.

Construction professionals must ensure all environmental claims are specific, measurable, and supported by credible third-party testing or certification to avoid FTC enforcement actions and private litigation.

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Common Dispute Categories

Legal disputes involving eco-friendly concrete and sustainable construction technologies typically fall into three primary categories, each with distinct liability implications and contractual considerations.

1. Energy Savings Failures

Projects that fail to achieve promised energy performance targets, resulting in financial losses and potential damages to building owners

2. Material Installation Defects

Improper installation of new eco-friendly materials due to lack of experience, inadequate training, or unclear manufacturer guidelines

3. Missed Environmental Standards

Financial penalties, lost tax credits, and contractual damages resulting from failure to achieve specified green certifications or regulatory compliance

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Legal Claims and Liability Categories

Breach of Contract

Failure to achieve specific, contracted sustainability certifications, energy performance targets, or material specifications explicitly outlined in project agreements.

Greenwashing and Misrepresentation

False or exaggerated claims about a project's environmental benefits, leading to consumer protection lawsuits, investor disputes, and FTC enforcement actions with substantial penalties.

Performance Failures

Claims and damages related to the failure of sustainable systems to perform as intended, such as HVAC systems not reducing energy usage to promised levels or green materials degrading prematurely.

Construction Defects

Liability arising from the misuse or failure of novel green materials, improper installation techniques, or inadequate quality control during construction with unfamiliar products.

Regulatory Compliance

Non-compliance with evolving building codes, environmental regulations, or municipal ordinances specifically governing sustainable construction practices and green building standards.



Root Causes of Legal Disputes

Contractual Ambiguity

Vague terms like "**environmentally friendly**" or "**sustainable performance**" in contracts lead to litigation when expectations differ from outcomes. Without specific, measurable definitions, parties interpret obligations differently, creating inevitable disputes over compliance.

Third-Party Certification Issues

Disputes frequently arise over responsibility allocation when a third-party organization or municipal authority denies certification. Questions emerge about who bears financial liability for re-work, whether designers or contractors failed to meet standards, and how certification costs should be distributed.

📌 **KEY POINT:** To mitigate these risks, contracts must be highly specific, outlining clear responsibility for certifications, quantifiable energy savings targets, detailed material requirements, and testing protocols to ensure liability is unambiguously defined before disputes arise.

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Case Study: First Known LEED Lawsuit

The first known LEED-related lawsuit provides critical lessons about the importance of contractual precision and understanding regulatory implications in green construction projects.

In ***Southern Builders v. Shaw Development***, No.: 19-C-07-011405, Circuit Court, Somerset Co., Md. (2008), the general contractor agreed to build a \$7.5 million, 23-unit condominium project designed to obtain "**LEED Silver certification.**"

The Failure

When the contractor failed to deliver a LEED Silver building and a certificate of occupancy within the time required under Maryland's green building tax credit program, the owner forfeited more than **\$600,000 in tax credits.**

This case illustrates how regulatory deadlines tied to financial incentives create time-sensitive obligations that must be explicitly addressed in construction contracts.

The Lesson

The parties **failed to recognize the risks implicated by the applicable regulatory scheme** and agreed to an imprecise contract that didn't allocate responsibility for certification timing, documentation, or compliance verification.

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Best Practices: LEED Contract Provisions

Contract documents should expressly assign LEED certification responsibilities to the appropriate party or parties, eliminating ambiguity that leads to disputes and financial losses.

- 1 Registration Responsibility**
Clearly designate which party will register the project with USGBC and manage ongoing registration requirements
 - 2 Documentation Management**
Assign responsibility for compiling and maintaining all documentation necessary to obtain LEED credits throughout construction
 - 3 Certification Application**
Specify who will prepare and submit the formal certification application, including timeline requirements
 - 4 USGBC Communication**
Designate the party responsible for responding to all USGBC requests for additional information or clarification
 - 5 Appeal Process Management**
Assign responsibility for prosecuting appeals if initial certification is denied, including cost allocation
- Consider adjusting retainage terms** to coincide with issuance of LEED certification. This ensures continued involvement of architect and contractor, as entitlement to certain LEED points can only be established after construction completion and commencement of facility operations.



Risk Management Strategies

Effective risk management for eco-friendly concrete projects requires a comprehensive approach combining thorough documentation, clear communication protocols, and sophisticated contractual protections. By implementing proactive strategies, construction professionals can minimize exposure to legal disputes, insurance complications, and financial losses while successfully delivering sustainable projects.

The following slides outline best practices for documentation standards, stakeholder communication frameworks, and essential contractual provisions that protect all parties throughout the project lifecycle.

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Questions?

Thank you for your attention. We welcome your questions about insurance considerations, legal implications, risk management strategies, or any other aspects of eco-friendly concrete technologies in construction.

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