



SUSTAINABLE CONSTRUCTION and BUILDING MANAGEMENT POLICY

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Sustainable Construction and Building Management Policy Vanachai Group Public Company Limited and Subsidiaries

Vanachai Group Public Company Limited and its subsidiaries (“the Company”) recognize that the construction and building management sector plays a vital role in driving a low-carbon economy and promoting sustainable development.

As a manufacturer of sustainable wood-based materials, the Company is **committed to developing and promoting environmentally friendly and low-carbon construction innovations**, as well as encouraging the use of eco-friendly and circular materials to support the transition toward sustainable construction and energy-efficient buildings, while minimizing environmental impacts throughout the value chain.

The Company continues to invest in Green Innovation, advancing the development of sustainable materials and solutions that comply with international environmental standards, while supporting customers, architects, and project developers in achieving green building certifications.

This policy **aligns with the Company’s sustainability strategy, “FOREST | FUTURE | TOGETHER for a Sustainable Living”**, reflecting the Company’s long-term vision and **commitment** to integrating sustainability principles into every stage of product design, manufacturing, construction, and building management.

Through this approach, the Company strives to be a leader in Sustainable Construction Innovation, creating lasting value for society, the environment, and all stakeholders.

1) Objectives

- Integrate sustainability principles into all construction and building management processes to minimize environmental impacts throughout the building life cycle.
- Promote the use of Vanachai’s sustainable wood-based products, which are eco-efficient, low-carbon, recyclable, and environmentally friendly.
- Advance the circular economy by reducing waste and improving resource efficiency across the entire product life cycle.
- Encourage sustainable building design and operations to enhance energy and water efficiency, as well as effective waste and emission management within buildings.
- Support internationally recognized green building standards, including LEED, BREEAM, and TREES, to promote sustainable building certification.
- Foster collaboration among architects, contractors, suppliers, and building owners to jointly develop and implement sustainable construction practices.

- Align with FTSE Russell ESG Indicators, GRI Standards (102, 103, 301, 303, 306), and Thailand's BCG (Bio-Circular-Green Economy) framework to ensure comprehensive sustainability integration across projects and operations.

2) Policy Alignment with International Standards

- **United Nations Sustainable Development Goals (SDGs):** 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 13 (Climate Action)
- **Environmental Management System ISO 14001**
- **Relevant Green Building Standards:** e.g., LEED, TREES, EDGE, and BREEAM
- **GRI Standards:** GRI 2-23, GRI 2-24, GRI 2-27, GRI 3-3, GRI 301, GRI 302, GRI 303, GRI 305, GRI 306, GRI 308 and GRI 101, with future alignment to GRI 102 and GRI 103 from 1 January 2027.
- **Energy Management System ISO 50001**
- **FTSE Russell ESG Indicators:**
 - Energy: ECC31
 - Pollution: EPR01
 - Waste: EPR02
 - Resource Use: EPR03
 - Water: EWT13
 - COD Disclosure: EWT43
 - Sustainable Building and Property Portfolio Management: ESC22, ESC23, ESC24, ESC25, ESC26, ESC27, ESC28, ESC29, ESC30, ESC31, ESC32 and ESC58, where applicable to Vanachai's owned, managed or reported property portfolio
 - Biodiversity: EBD17

3) Scope

This policy applies to:

- All products and materials manufactured or supplied by the Company that are used in construction and building management.
- The Company's operations, subsidiaries, and joint ventures under its operational control.
- All suppliers, contractors, and business partners involved in design, construction, and building management activities within the Company's value chain.

4) Definitions and References

- **Sustainable Construction:** The process of planning, designing, procuring, constructing, and delivering buildings with consideration of environmental, social, and

economic impacts throughout the building life cycle. The objective is to minimize resource use and waste while enhancing energy and water efficiency.

- **Sustainable Building Management:** The management of buildings during their operational phase to achieve optimal energy and environmental performance, covering maintenance, utilities management, waste handling, and indoor environmental quality (IEQ).
- **Life Cycle Assessment (LCA):** A methodological framework used to evaluate the environmental impacts of a product or building across its entire life cycle, from raw material extraction, production, and transportation to usage and end-of-life, in accordance with ISO 14040/14044 standards.
- **Circular Design:** A design approach that extends the lifespan of products and buildings by reducing waste and enabling repair, disassembly, reuse, and material recovery.
- **Circular Economy:** An economic system that optimizes resource efficiency by minimizing waste, promoting reuse, and maximizing resource recovery to reduce environmental impact.
- **Low-Carbon Construction Materials:** Materials with total life-cycle greenhouse gas emissions lower than benchmark standards and/or verified through Environmental Product Declarations (EPD).
- **Eco Products:** Products designed for durability, safety, recyclability, and resource efficiency, with minimal environmental impact throughout their life cycle.
- **Chemical Oxygen Demand (COD) Load:** A key indicator measuring the amount of organic matter in wastewater (expressed in mg/L or per ton of product), used to assess the efficiency of wastewater treatment.
- **Sustainable Forest Management (SFM):** The management of forests and plantation wood that conserves ecological, social, and economic values, supported by credible certification and traceability systems.
- **International Performance Measurement and Verification Protocol (IPMVP):** It is a global standard developed by the Efficiency Valuation Organization (EVO) for measuring and verifying energy and water savings in projects such as building retrofits, sustainable construction, and energy management systems.
- **Vanachai Integrated Materiality and Risk Assessment (V-IMRA)**
An internal assessment process used by the Company to identify and prioritize sustainability-related issues by integrating impact and financial materiality perspectives, supporting enterprise risk management, strategic planning, and management decision-making.

5) Governance and Accountability

- **Board of Directors:** Approves the policy and oversees the Company's strategic direction on Sustainable Construction and Building Management.
- **Sustainability Committee:** Policy owner reporting to Board of Directors and Managing Director, responsible for integration and implementation of international standards.
- **Sustainable Development Task Force:** Implements and monitors sustainable design and construction initiatives, ensuring alignment with international standards and the Company's sustainability strategy.
- **Management and Project Teams:** Accountable for execution, achieving targets, and reporting on performance related to sustainable construction and building operations.
- **Senior Executives:** Sustainability and environmental performance indicators are incorporated into executive performance evaluations and compensation systems.
- **Employees, Designers, and Contractors:** All employees are required to strictly comply with this policy. Designers, architects, and contractors are encouraged and supported through guidance and collaboration to ensure their projects align with this policy.

6) Commitments and Principles

6.1 Sustainable Design and Materials (ESC22):

- Apply life-cycle assessment (LCA) principles in material selection and building design.
- Promote eco-friendly, renewable, and recyclable materials, prioritizing certified sustainable wood and low-carbon products with Ensuring traceable, sustainable sourcing to prevent deforestation.
- Integrate circular economy concepts into building product design and procurement with Add value to rubberwood and agricultural by-products to reduce waste.
- Prioritize circular or recovered wood, agricultural residues, and renewable substitutes.

6.2 Energy and Resource Efficiency (ECC31, EPR03):

- Design and manage buildings to reduce energy intensity by at least 20% by 2030 (compared to 2020 baseline).
- Increase renewable energy adoption (solar, biomass, or equivalent) in building operations.
- Optimize resource efficiency through smart technologies and green innovations.

6.3 Water and Waste Management (EWT13, EPR02, EWT43):

- Reduce water consumption intensity by 15% by 2030 and increase water reuse within facilities.

- Treat and disclose COD load per tonne of output from construction-related operations annually.
- Apply the 5Rs principle – Reduce, Reuse, Recover, Repair, and Reject – across all construction sites and operations.

6.4 Pollution Prevention and Air Quality (EPRO1):

- Prevent and minimize dust, VOCs, and particulate emissions during construction and renovation.
- Use low-VOC materials, non-toxic finishes, and eco-certified adhesives.
- Maintain noise, air, and wastewater quality within national and international standards.

6.5 Biodiversity and Green Spaces (EBD17):

- Integrate biodiversity-friendly landscaping and maintain green open spaces in all projects.
- Avoid ecological disruption and implement mitigation measures in line with the mitigation hierarchy: Avoid, Minimize, Restore, Compensate.
- Promote reforestation and tree-planting initiatives to offset land-use impacts.

6.6 Sustainable Building Operations and Logistics (ESCO2-ESCO5, ESCO9):

- Prioritize energy-efficient systems (lighting, HVAC, water reuse) and smart monitoring technologies.
- Adopt green logistics by optimizing transport routes, reducing empty trips, and using low-emission vehicles.
- Incorporate sustainable procurement policies for all building maintenance and renovation projects.

6.7 Green Innovation, R&D, and Certification

- Invest in research and development to enhance green innovation in construction and materials technology.
- Achieve and maintain ISO 14001 certification for all major facilities.
- Encourage clients and partners to pursue LEED, BREEAM, or TREES certification.

6.8 Stakeholder Engagement and Collaboration

- Collaborate with regulators, local communities, professional associations, and NGOs to promote sustainable construction.
- Provide training and awareness programs for employees, suppliers, architects, and contractors.
- Disclose performance and achievements annually through the Vanachai Sustainability Move Report.

7) Risk, Impact, and Dependency

The risks, impacts, and dependencies associated with the matters addressed in this policy are identified, analyzed, and prioritized through the Company's Vanachai Integrated Materiality and Risk Assessment (V-IMRA) process. V-IMRA is an internal assessment framework that considers both impact materiality and financial materiality across the value chain.

- The results of V-IMRA are integrated into the Enterprise Risk Management (ERM) system to support policy formulation, strategic decision-making, the setting of risk appetite, and the creation of long-term sustainable value.
- Identify, analyze, and assess risks throughout the entire project life cycle (design–construction–operation–deconstruction), covering physical risks (e.g., flooding, heatwaves, storms, air quality) and transition risks (e.g., environmental regulations, carbon pricing, green building standards, and stakeholder expectations), as well as reputational and operational risks at project sites.
- Apply ISO 14001 and the Company's Enterprise Risk Management framework to identify, assess, manage and monitor environmental risks and impacts across the project life cycle. Climate-related risks shall be assessed in alignment with TCFD / IFRS S2, including physical and transition risks, scenario analysis, and integration into strategic planning and capital allocation. Nature-related dependencies and biodiversity impacts shall be assessed with reference to TNFD LEAP, GRI 101 and the mitigation hierarchy, where applicable.
- Assess resource dependencies (e.g., access to clean water, renewable energy, traceable timber, and logistics routes) and ecosystem sensitivity or high-value areas using the LEAP approach (Locate–Evaluate–Assess–Prepare) when addressing nature-related impacts.
- Develop risk control and response plans, incorporating climate-resilient design measures (e.g., flood-proofing, heat-resilient design), energy and water efficiency, low-carbon material substitution, and the Mitigation Hierarchy (Avoid–Minimize–Restore–Offset) for biodiversity-related impacts.
- Integrate assessment results into the Enterprise Risk Management (ERM) system, CapEx approval criteria, design and construction standards, and project team KPIs, supported by After-Action Reviews following major events and annual evaluations for continuous improvement.

8) Targets and Metrics

- Reduce energy intensity by 20% by 2030, compared with the 2020 baseline year.
- Reduce water intensity by 15% by 2030.
- Achieve Zero Process Waste to Landfill by 2035.

- Ensure that at least 30% of buildings achieve Green Building Certification (LEED, BREEAM, or TREES) by 2035.

9) Supply Chain and Partner Responsibility

- Establish environmental requirements in contracts and tender documents for contractors, suppliers, and logistics providers – including on-site waste management plans, dust and noise control measures, safe chemical storage, and wastewater prevention plans. Designers and architects are encouraged and guided to adopt relevant green building standards (LEED, BREEAM, TREES) according to project suitability.
- Practice sustainable procurement: Source timber and wood-based products from sustainably managed and traceable plantations (e.g., certified under credible standards); the proportion of circular or recovered materials, and prioritize materials with Environmental Product Declarations (EPD) and Life Cycle Assessments (LCA).
- Enhance supplier standards: Encourage key suppliers to implement ISO 14001 Environmental Management Systems, ISO 50001 Energy Management Systems, and GHG measurement and reporting. Strategic suppliers are expected to set emission reduction targets consistent with the Science Based Targets initiative (SBTi), where appropriate.
- Conduct regular supplier audits and assessments, accompanied by training and capacity-building programs (e.g., low-carbon site management, waste segregation, low-VOC materials, and COD control in component manufacturing wastewater). Establish an environmental grievance mechanism to ensure transparency and continuous improvement in supplier environmental performance.

10) Integration with Corporate Strategy

- **FOREST:** Source sustainable wood materials and protect project green spaces.
- **FUTURE:** Promote innovation in low-carbon construction materials, circular design, and digital integration such as Digital Twin and BIM-LCA.
- **TOGETHER:** Collaborate with communities, regulators, and industry partners to raise collective standards in sustainable construction.

11) Implementation and Management Tools

- **Integration into Management Systems:** Integrate this policy into the Company's Environmental Management System (EMS) in accordance with ISO 14001 and the Energy Management System (ISO 50001) across all operations and project sites. Apply Commissioning (Cx) and Measurement & Verification (M&V) procedures following the IPMVP framework for building performance evaluation.

- **Supporting Resources:** Allocate sufficient budget, personnel, and technology resources, and establish a cross-functional team (Engineering, Procurement, Environment, Logistics, and Marketing) to lead implementation and oversight.
- **Capacity Building:** Conduct training programs and develop site-specific guidelines such as the Site Environmental Plan, Waste Segregation Manual, Erosion & Sediment Control Plan, and Low-Carbon Construction Playbook. Communicate progress and outcomes to stakeholders transparently.
- **Key Implementation Tools:**
 - BIM + LCA: for circular design integration and life cycle impact assessment of buildings and materials.
 - EPD/Material Database: for selecting low-carbon and low-VOC materials.
 - Energy/Water Management System: equipped with metering, IoT sensors, and dashboards for real-time intensity tracking.
 - Logistics Tracking System (GPS/Telematics): to monitor route efficiency and fuel performance.

12) Monitoring, Targets, and Review

- The Company continuously monitors and evaluates the performance of its Sustainable Construction and Building Management initiatives, covering key areas such as energy, water, waste, greenhouse gas emissions, material use, and building environmental quality.
- Performance data and indicators are collected and assessed in accordance with international frameworks, including GRI Standards (102, 103, 301, 303, 306), FTSE Russell ESG Indicators (ECC31, EPR01, EPR02, EPR03, EWT13, EWT43), and ISO 14001 Environmental Management System.
- The Company discloses performance results in the Vanachai Sustainability Move Report annually, providing quantitative data on energy and water consumption, GHG emissions, and circular or recovered material ratios, ensuring transparency, verifiability, and year-on-year comparability of progress.
- Progress, achievements, and best practices related to green building projects, green logistics, and environmental innovations are communicated through the Company's public platforms to promote shared learning and advancement within the industry.

13) Review and Continuous Improvement

- The Company shall review this policy at least every two (2) years, or earlier if there are changes in legislation, international standards, or stakeholder expectations.

- The Company shall enhance and strengthen its commitments in alignment with the latest global frameworks and standards, including FTSE Russell ESG Indicators, GRI Standards, ISO 14001, and LEED/BREEAM/TREES Green Building Standards.
- The Company shall promote knowledge sharing, best practices, and the exchange of outcomes from pilot projects both internally and with business partners, in order to advance sustainable construction and building management standards across the industry.

14) Sustainable Construction and Building Management Policy

Revision History

Version	Date	Policy Owner	Approved by	Key Changes / Comments
1.0	11 November 2024	Sustainable Development Task Force	Board of Directors	First issue of the Sustainable Construction and Building Management Policy expressing the Group's commitment not only as a wood-based product manufacturer but as a driver of sustainable construction innovation supporting green building development.
2.0	11 November 2025	Sustainability Committee	Board of Directors	Revised to align with FTSE Russell ESG criteria. Added commitments on energy (ECC31), pollution (EPR01), waste (EPR02), resource use (EPR03), water (EWT13), and COD disclosure (EWT43). Strengthened biodiversity, green logistics, R&D investment, ISO 14001 certification, and stakeholder engagement.

This policy is approved and issued for acknowledgement and implementation by all relevant parties.