



Standards Australia

# Bamboo

Preliminary Research Report

September 2026



## About Standards Australia

---

Standards Australia is Australia's peak independent, non-government, not-for-profit standards organisation. We work with national, regional and international partners across various industry, government, academia, and consumer groups, to help address the challenges and opportunities that are common to all. Our vision is to ensure that communities have safe and reliable access to quality goods and services to support growth, resilience and development.

Standards Australia represents Australia at the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) and specialises in the development and adoption of internationally aligned standards. We endeavour for regional and international standards harmonisation to share the benefits with our regional neighbours and international community.

**Disclaimer:** *This document contains general information and is not formal advice. While every effort is made to ensure the accuracy of the information contained herein, Standards Australia Limited does not endorse or warrant the accuracy, reliability, or fitness for any purpose of any information provided or any opinions expressed by the authors. You should seek independent advice on any matter related to the use of the information. In no event will Standards Australia be liable for any loss or damage whatsoever arising from the use of the information and Standards Australia, accepts no liability for any errors, omissions or opinions expressed, and no responsibility is accepted with respect to the standing of any firms, companies or individuals mentioned.*

## Contents

---

|                                                                                                    |    |
|----------------------------------------------------------------------------------------------------|----|
| Abbreviations and Acronyms.....                                                                    | 4  |
| Executive Summary .....                                                                            | 5  |
| Introduction .....                                                                                 | 6  |
| Section 1: Australian Landscape .....                                                              | 8  |
| 1.1. Bamboo Sector .....                                                                           | 8  |
| 1.2. Standards .....                                                                               | 8  |
| 1.3. Certification .....                                                                           | 8  |
| 1.3.1. Responsible Wood.....                                                                       | 8  |
| 1.3.2. Green Star .....                                                                            | 8  |
| 1.3.3. Forest Stewardship Council (FSC) .....                                                      | 9  |
| 1.4. National Construction Code .....                                                              | 9  |
| Pathway 1) Performance solution .....                                                              | 9  |
| Pathway 2) Reference to Standards .....                                                            | 10 |
| Pathway 3) Listed Material .....                                                                   | 10 |
| 1.5. Key Stakeholders .....                                                                        | 10 |
| 1.5.1. Queensland Department of Primary Industries .....                                           | 10 |
| 1.5.2. New South Wales Department of Primary Industries and Regional Development (NSW DPIRD) ..... | 10 |
| 1.5.3. Clean Energy Finance Corporation (CEFC) .....                                               | 10 |
| 1.5.4. Northern Australia Infrastructure Facility (NAIF) .....                                     | 11 |
| 1.5.5. First Nations Groups.....                                                                   | 11 |
| 1.6. Policy Levers and Incentives .....                                                            | 11 |
| 1.6.1. Standards .....                                                                             | 11 |
| 1.6.2. Carbon Credits.....                                                                         | 11 |
| 1.6.3. Public Projects .....                                                                       | 11 |
| 1.6.4. Workforce Development and Training .....                                                    | 11 |
| Section 2: International Standards Landscape .....                                                 | 12 |
| 2.1. International Organization for Standardization (ISO) .....                                    | 13 |
| 2.2. International Bamboo and Rattan Organization (INBAR) .....                                    | 14 |
| 2.3. China .....                                                                                   | 15 |
| 2.4. India.....                                                                                    | 16 |
| 2.5. Indonesia .....                                                                               | 17 |
| 2.6. Ethiopia .....                                                                                | 18 |
| 2.7. Colombia .....                                                                                | 19 |
| Conclusion .....                                                                                   | 20 |
| References .....                                                                                   | 24 |

## Abbreviations and Acronyms

---

|              |                                                |
|--------------|------------------------------------------------|
| <b>ABCB</b>  | Australian Building Codes Board                |
| <b>CEFC</b>  | Clean Energy Finance Corporation               |
| <b>DTS</b>   | Deemed-to-satisfy                              |
| <b>FSC</b>   | Forest Stewardship Council                     |
| <b>ICC</b>   | International Code Council                     |
| <b>INBAR</b> | International Bamboo and Rattan Organization   |
| <b>ISO</b>   | International Organization for Standardization |
| <b>NAIF</b>  | Northern Australia Infrastructure Facility     |
| <b>NCC</b>   | National Construction Code                     |
| <b>SEB</b>   | Structurally Engineered Bamboo                 |
| <b>TC</b>    | Technical Committee                            |

## Executive Summary

---

As governments, industry and investors explore opportunities to strengthen domestic manufacturing and supply chains, bamboo is gaining recognition as a potential addition to Australia's construction materials toolkit, with opportunities to grow and process bamboo products locally. Structurally engineered bamboo (SEB) has emerged as a particularly promising innovation, combining high strength-to-weight performance with rapid renewability and potential environmental benefits. International experience shows that the successful uptake of bamboo-based products is underpinned by well-developed standards, certification frameworks and regulatory settings that provide assurance of quality, safety and fitness for purpose, while enabling industry growth and market confidence.

While Australia's bamboo industry remains in an early stage of development, several enabling conditions position the country to explore future opportunities in bamboo cultivation, processing and application. These include favourable growing conditions across parts of Australia, emerging bamboo certification activities, increasing demand for low-carbon and renewable construction materials, and a growing body of international standards and technical guidance. Together, these factors provide a foundation upon which Australia could assess the potential role of bamboo and structurally engineered bamboo in supporting future industry development, innovation and sustainability objectives.

A consistent finding throughout this report is the critical role of standards, certification systems and supporting regulatory frameworks in enabling the successful adoption of bamboo products. International experience demonstrates that market confidence, product consistency, safety assurance and regulatory acceptance are underpinned by well-developed standards ecosystems. In response, many countries have invested in national and international standardisation activities, certification pathways and supportive policy frameworks to facilitate the uptake of bamboo-based products and technologies. These approaches provide valuable insights for Australia, highlighting how standards can serve as a strategic enabler of innovation, support informed decision-making and create the conditions necessary for emerging industries and new technologies to be assessed, adopted and scaled within established regulatory and market environments.



## Introduction

Bamboo is gaining recognition as a versatile, renewable, fast-growing, and high-performing material that could contribute to the future of sustainable construction.

Its rapid growth, strength-to-weight ratio, and carbon sequestration capacity make it a promising addition to the range of conventional materials. Currently, the building and construction sector is one of the largest contributors to global carbon emissions, responsible for about 34%, with embodied carbon from materials such as steel and cement among the contributing factors.<sup>1</sup> In suitable applications, the use of bamboo could provide the industry with an additional opportunity to reduce its climate impact.

Bamboo is neither a typical grass nor a tree but a woody grass with extraordinary mechanical strength.<sup>2</sup> Its high yield and rapid growth rate position bamboo as a valuable addition to the range of materials available to the building and construction industry. Bamboo boasts a high carbon sequestration capacity and reaches full maturity and optimal strength within just 3-7 years. The strength of bamboo in its natural form can be compared to that of mild steel, cast iron, aluminium alloys, and wood.<sup>3</sup>



**Figure 1: Types of engineered bamboo<sup>4</sup>**

Over the past decade, various types of innovative bamboo-based materials, such as laminated bamboo lumber, flattened bamboo board, and bamboo scrimber, commonly referred to as *engineered bamboo*, have been introduced in the construction sector.<sup>5</sup>

Engineered bamboo is the overarching term for a variety of reconstituted composite materials produced by processing raw, round bamboo culms (stems) into consistent, straight-edged building materials.<sup>6,7</sup> Unlike natural, raw bamboo culms - which are susceptible to splitting and buckling under excessive loads due to natural variability and geometric limitations - engineered bamboo is produced through controlled industrial processes designed to enhance its strength, stability, durability, and usability.<sup>8</sup>

The main focus of this report is on structurally engineered bamboo (SEB), a term used by the International Code Council (ICC) and the Bamboo Society of Australia,<sup>9</sup> which refers to engineered

bamboo for structural applications such as beams, columns and flooring, as opposed to non-structural uses such as decoration and furniture. This report does however acknowledge other applications of bamboo such as charcoal and in products like straws, and its wider use internationally.

The adoption of SEB has faced a range of challenges internationally. Common barriers include limited market awareness, preference for established construction materials, availability of engineered bamboo products, investment in cultivation and processing capacity, and the absence of standards, certification pathways or regulatory mechanisms to support adoption. These challenges highlight the important role that standards and supporting frameworks can play in facilitating the consideration of emerging construction materials.

While it is important to be aware of these challenges, the focus should remain on the wide range of potential economic and environmental benefits that SEB can offer. Benefits realised by markets internationally have included: <sup>10,11,12,13</sup>

- minimised production waste
- more cost-effective transportation and installation due to its lighter weight
- accelerated return on investment due to quicker harvest cycles
- stronger carbon-storage and low embodied carbon, enabling carbon finance and embodied-carbon savings
- local value-add and manufacturing opportunities
- regional/rural job creation

Given bamboo's emergence as a sustainable building material alternative, this report aims to understand the potential of developing the bamboo industry in Australia from a standards perspective, providing an overview of the standards landscape in key bamboo markets across the globe (China, India, Indonesia, Ethiopia, and Colombia). These jurisdictions have been selected based on three criteria: the area planted with bamboo, the presence of commercial cultivation and processing activities, and the extent of bamboo use in construction. The report also explores the current situation in Australia, including the challenges, policies, and opportunities for bamboo industry growth.

Further, Standards Australia's standardisation guidelines encourage the development of performance-based standards that do not unnecessarily restrict innovation or the adoption of new technologies. They also prompt committees to consider whether standards remain suitable for new and emerging applications. In this context, understanding international approaches to bamboo standardisation provides insight into how standards frameworks can support the assessment and potential uptake of emerging construction materials.

In *A Review of Codes and Standards for Bamboo Structural Design*, Amede et al. (2021) concludes that the development of standardised bamboo designs, construction standards and codes of practice benefit society and trade and enhance the status of bamboo as an engineering material. According to the research, the use of bamboo for structural design has been restricted previously because of an absence of standards, and that developing standards paves a way to promote the use and application of bamboo in the construction industry and "reaping its competitive advantages through ongoing studies and testing protocols." <sup>14</sup>

## Section 1: Australian Landscape

---

### 1.1. Bamboo Sector

According to the Bamboo Society of Australia's *Bamboo Breakthrough – The Next Frontier 2026–2035 – Report and Roadmap*, Australia could, under a high-growth scenario, establish a nationally significant engineered bamboo industry by 2035, unlocking substantial economic opportunities, including:

- Contributing approximately **A\$906 million** to Australia's GDP.
- Generating an **annual market value of A\$847 million**.
- Creating approximately **1,840 additional jobs** across the value chain.
- Reducing upfront embodied emissions in the built environment by an amount equivalent to approximately **1.5% of Australia's current total**.

Currently there are no commercial scale bamboo plantations in Australia. Most growers operate on a small scale, supplying plants, occasional edible shoots, or poles for decorative and cultural purposes. However, according to the Bamboo Society of Australia, interest in plantation scale cultivation is emerging particularly in Queensland and the Northern Territory, which offer ideal conditions for bamboo's growth.<sup>15</sup> It also grows commercially in tropical and subtropical regions of New South Wales.<sup>16</sup>

### 1.2. Standards

At the time of writing, Australia is not a member state of the International Bamboo and Rattan Organization (INBAR), nor has it adopted any international bamboo standards. Australia is not a member of ISO/TC 296, Bamboo and rattan, and has not adopted any of their published standards, and while it is a participating member of ISO/TC 165, Timber structures, has not adopted its bamboo-related standards. Participation in these international standards forums can provide valuable insights into emerging market developments, technical requirements and standardisation approaches relevant to the Australian context.

### 1.3. Certification

#### 1.3.1. Responsible Wood

This research has not identified an obvious pathway for certifying bamboo as a commodity under the Responsible Wood Certification Scheme, and there do not appear to be any previous cases of this occurring. However, it was noted during a meeting between Standards Australia and Responsible Wood that AS/NZS 4708 allows for the certification of non-wood forest products. As such, it may be possible to explore bamboo certification under this standard, given there are no valid technical reasons why bamboo could not be certified as a sustainably managed resource.

It was also noted that, internationally, several forest certification schemes already provide certification for sustainably managed bamboo, including by the China Forest Certification Council (CFCC).

#### 1.3.2. Green Star

Green Star is an internationally recognised Australian sustainability rating and certification system. Bamboo itself does not receive Green Star certification; rather, building projects can achieve Green Star ratings by earning points across a range of sustainability categories.

Sustainably sourced engineered bamboo products may contribute toward achieving Green Star credits where they meet the requirements of the relevant rating tool, such as demonstrating responsible sourcing, environmental performance, or other project-specific sustainability criteria. Eligibility ultimately depends on the specific Green Star tool, the intended application of the bamboo product, and the supporting evidence provided.<sup>17</sup>

Third-party certification and verification mechanisms such as FSC certification, Global GreenTag certification, and Environmental Product Declarations (EPDs) may also help demonstrate sustainable sourcing, environmental performance, and lifecycle impacts of engineered bamboo products. While these mechanisms do not automatically provide eligibility within building rating tools or certify bamboo as a material category, they can provide supporting evidence that may assist projects seeking sustainability credits, green building recognition, or procurement approval pathways.

**Case study:** Bamboo flooring, made from strips of bamboo assembled under extreme pressure to ensure hardness and durability, was selected for installation at the Box Hill Institute of TAFE in Melbourne to assist with the facility's Green Star accreditation.<sup>18</sup>

### 1.3.3. Forest Stewardship Council (FSC)

The FSC (Forest Stewardship Council Aus NZ) certification can be applied to cultivated bamboo plantations, within forests. It covers "products that can be harvested from a forest, but which are not made from trees" which includes bamboo products.<sup>19</sup> There are over 20 companies with FSC bamboo certification in Australia.<sup>20</sup>

**Case study:** Simmonds Lumber is a timber wholesaler specialising in globally sourced products for the housing industry, commercial construction, home renovations and industrial markets. The company states that it is committed to sustainable and responsible timber production with locations across Australia and New Zealand.<sup>21</sup> Recently the company began selling bamboo decking with FSC certification.<sup>22</sup>

## 1.4. National Construction Code

An additional challenge for SEB is that bamboo is not currently recognised as a structural material in the National Construction Code (NCC), with its status as a grass rather than a wood hindering its adoption.<sup>23</sup> However, there are three potential pathways to the NCC recognition of SEB:

### Pathway 1) Performance solution

The NCC is a performance-based code and allows materials outside the specified deemed-to-satisfy provisions (DTS) to be used if a builder can demonstrate compliance with the performance requirements of the code through a 'performance solution'. Performance solutions are used for innovative or non-standard designs and requires demonstrating through assessment methods that the proposed design meets the mandatory requirements.<sup>24</sup>

Assessment methods include:

- Evidence of suitability
- Comparison with the DTS provisions
- Verification methods (tests, inspections, calculations)
- Expert judgement

CLT (cross-laminated timber) was originally used under performance solutions before dedicated standards were established.<sup>25</sup>

## Pathway 2) Reference to Standards

If Australia adopted international bamboo standards, the Australian Building Codes Board (ABCB) can decide to reference them in the NCC (Part A4 Referenced documents) and set out testing and performance criteria for a new material.

## Pathway 3) Listed Material

The third pathway is the longest and would likely follow pathways 1 and 2 and involves the ABCB specifying bamboo as a DTS solution in the NCC and prescribing exactly how it can be used in building and construction, once there are Australian standards and sufficient performance evidence to reference.

## 1.5. Key Stakeholders

The development of any emerging industry is influenced by a range of stakeholders across government, finance, standards, certification and industry. Understanding the role of these stakeholders provides insight into the existing enabling environment for bamboo in Australia, as well as the mechanisms that could support future industry development. The stakeholders below have been identified as key organisations currently involved in, or potentially relevant to, the progression of bamboo-related activities in Australia.

### 1.5.1. Queensland Department of Primary Industries

The Queensland Department of Primary Industries' (formerly Department of Agriculture and Fisheries) engagement with bamboo focuses primarily on biosecurity management. Bamboo is not classified as a prohibited or restricted invasive plant under the Biosecurity Act 2014, but all landowners have a general biosecurity obligation (GBO) to take reasonable measures to minimise risks associated with invasive bamboo species under their control.<sup>26</sup> As the industry develops, the Department of Primary Industries' role could include engagement on standardisation and certification around durability testing of engineered bamboo, as the Bamboo Society of Australia suggests in their 10-year roadmap.<sup>27</sup>

### 1.5.2. New South Wales Department of Primary Industries and Regional Development (NSW DPIRD)

The New South Wales Department of Primary Industries and Regional Development (NSW DPIRD) is a relevant stakeholder in the potential development of a domestic bamboo industry. Recent industry analysis has identified the North Coast and Mid North Coast regions of New South Wales as areas with suitable growing conditions and potential for future bamboo cultivation and processing activities.<sup>28</sup> As the agency responsible for supporting primary industries, regional development, agricultural research and industry growth across New South Wales, NSW DPIRD could play an important role in supporting industry development, stakeholder engagement and the consideration of future policy, research and market opportunities associated with bamboo.

### 1.5.3. Clean Energy Finance Corporation (CEFC)

The CEFC is Australia's specialist climate investor, mandated to invest more than \$32 billion on behalf of the Australian Government in clean energy and economy-wide decarbonisation to achieve net zero by 2050. The CEFC committed a record \$4.7 billion in new investments in its most recent financial year to June 2025.<sup>29</sup> This included significant investment in reducing the cost for farmers to undertake Environmental Planting projects under the Australian Carbon Credit Units Scheme.<sup>30</sup>

The 10-year roadmap also outlines how engagement with the CEFC on policy advocacy and stakeholder engagement is important for laying the foundations for the Australian bamboo industry.<sup>31</sup>

Given the CEFC's focus on decarbonisation, bamboo offers a significant investment opportunity.

#### 1.5.4. Northern Australia Infrastructure Facility (NAIF)

The NAIF is a Commonwealth Government financier providing concessional loans for infrastructure projects in Queensland, Western Australia, the Northern Territory, and the Indian Ocean Territories. The NAIF promotes economic growth and jobs in Northern Australia, supporting regional employment. Projects financed have included sectors including resources and agriculture which may be relevant to bamboo industry development.<sup>32</sup> Again, the 10-year roadmap mentions that engagement with the NAIF would be beneficial.

#### 1.5.5. First Nations Groups

Recommendations outlined by Mansfield Advisory and the Bamboo Society of Australia urge the engagement of First Nations to pilot SEB projects. However, engagement should follow Free, Prior and Informed Consent protocols for agroforestry on significant land holdings (protected areas).<sup>33</sup>

First Nations Groups' cultural knowledge of caring for Country can "guide bamboo's drought resilience and erosion control, enhancing adaptation to extreme heat and humidity - projected to increase by 14.8 hot days annually by 2050."<sup>34</sup>

### 1.6. Policy Levers and Incentives

#### 1.6.1. Standards

Joining ISO's bamboo-related technical committees and directly adopting or modifying international standards to suit the Australian market is a recommended first step to establishing a bamboo industry here. Building to international standards improves safety and marketability of bamboo as a construction material. ISO standards have helped at least four International Bamboo and Rattan Organization (INBAR) member states to develop their own national building codes for bamboo.<sup>35</sup>

#### 1.6.2. Carbon Credits

The *Australian Carbon Credit Unit (ACCU) Scheme* encourages emissions reduction and carbon sequestration projects, providing financial incentives through tradeable credits.<sup>36</sup> Currently, there is a forestry plantation method for the commercial harvesting of wood products which outlines the conditions which need to be met to benefit from the scheme. While bamboo is not specified under this method and there appears to be no precedent set, efforts could be made to include bamboo under the ACCU scheme given its high environmental value in sequestering carbon.

In China, for example, reports in 2020 discuss how in the Zhejiang region alone, 27,000 hectares of planted bamboo forests produced millions of certified carbon credits,<sup>37</sup> delivering financial benefits back to bamboo farmers.<sup>38</sup>

#### 1.6.3. Public Projects

Mandating or giving preference to low-carbon materials (like SEB) in government building procurement, and funding pilot social-housing or school projects built with SEB could create visibility, trust and promote the industry. In Colombia, certified bamboo contractors work on public projects,<sup>39</sup> while China has used major public programs to scale bamboo product demand.<sup>40</sup>

#### 1.6.4. Workforce Development and Training

With any new construction material, certified skills development and workforce training is essential to ensure trust, safety and reliability of bamboo products and structures. In India, for example,

the *National Bamboo Mission* has put emphasis on capacity building and skills training which is implemented by the State Bamboo Development Agency.<sup>41</sup>

In Australia, funding TAFE (Technical and Further Education) courses to produce a skilled workforce and promote SEB as a viable construction material could promote the use of bamboo. Knowledge transfer initiatives and technical training in bamboo processing technologies can also help build the workforce capabilities needed for a competitive bamboo manufacturing sector.

## Section 2: International Standards Landscape

---

In parts of the world, bamboo is being engineered into multi-storey buildings, structural panels, and composite materials and is increasingly recognised for its potential in climate-resilient infrastructure.<sup>42</sup> Bamboo scrimber delivers compressive and tensile strengths on par with steel, and a strength-to-weight ratio superior to timber. Multi-storey buildings, including the world's first six-storey engineered bamboo structure in China, demonstrate the material's viability and performance.<sup>43</sup>



*The world's first 6-storey engineered bamboo building, completed in Hangzhou, China (2024)* <sup>44</sup>

In 2025, the global market for engineered bamboo was valued at approximately AUD \$38.9 billion and is projected to exceed AUD \$62 billion by 2035.<sup>45</sup> While there is limited credible, up-to-date data on what markets have the biggest bamboo industries globally, China, India and Indonesia are consistently mentioned across multiple sources as the largest.<sup>46,47</sup> Ethiopia and Colombia are much smaller in comparison, but have been consistently growing.<sup>48</sup> This research has mapped a total of 81 international and national standards related to bamboo across key producing markets.

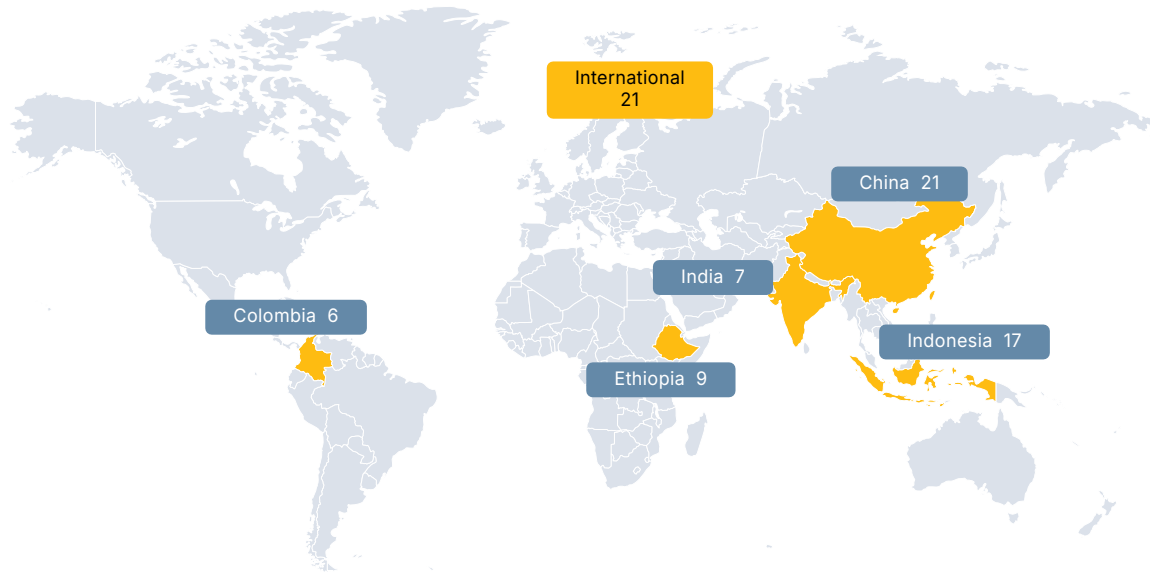


Figure 3: Number of standards mapped by country

## 2.1. International Organization for Standardization (ISO)

Through its technical committees ISO/TC 296, Bamboo and rattan, and ISO/TC 165, Timber structures, the International Organization for Standardization (ISO) has published 17 standards with an additional four standards currently under development. The majority of ISO's standards have been developed in the past five years, emphasising bamboo as a growing opportunity. While the focus of this report is on structural bamboo, standards have been mapped to a number of other areas of the bamboo industry. Along with nine structural and construction standards, ISO's portfolio covers bamboo-based activated carbon and bamboo charcoal, bamboo products (mats, veneers, straws), and terminology.

**Case study:** By following ISO 22516, *Bamboo structures - Bamboo culms - Structural design*, architect Anna Zanetti designed a residential bamboo building in Italy, copying designs used to build the same structure in Costa Rica. The case study highlights why the use of international standards is very important to regulate the characteristics, design, and the verifications to be performed for bamboo culms and connection.<sup>49</sup>

| Designation      | Standard Title                                                                                         | Category                  |
|------------------|--------------------------------------------------------------------------------------------------------|---------------------------|
| ISO 5946:2022    | Bamboo-based activated carbon - General specifications                                                 | Activated Carbon/Charcoal |
| ISO 21626-1:2020 | Bamboo charcoal - Part 1: Generalities                                                                 | Activated Carbon/Charcoal |
| ISO 21626-2:2020 | Bamboo charcoal - Part 2: Fuel applications                                                            | Activated Carbon/Charcoal |
| ISO 21626-3:2020 | Bamboo charcoal - Part 3: Purification applications                                                    | Activated Carbon/Charcoal |
| ISO 6128:2023    | Laminated products made of bamboo strips for indoor furniture purposes - Requirements and test methods | Products                  |
| ISO 16830:2025   | Specification of bamboo drinking straws                                                                | Products                  |
| ISO/AWI 25977    | Bamboo mat                                                                                             | Products                  |
| ISO/AWI 25982    | Bamboo veneer                                                                                          | Products                  |
| ISO/AWI 25983    | Bamboo winding composite pipe                                                                          | Products                  |

| Designation      | Standard Title                                                                                                                      | Category                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| ISO/AWI 25984    | Bamboo-based packing products for cooling tower                                                                                     | Products                       |
| ISO 5942:2024    | Bamboo-wood composite for container flooring                                                                                        | Structural and Construction    |
| ISO 21629-1:2021 | Bamboo floorings - Part 1: Indoor use                                                                                               | Structural and Construction    |
| ISO 21629-2:2022 | Bamboo floorings - Part 2: Outdoor use                                                                                              | Structural and Construction    |
| ISO 5257:2023    | Bamboo structures - Engineered bamboo products - Test methods for determination of mechanical properties using small size specimens | Structural and Construction    |
| ISO 7567:2024    | Bamboo structures - Glued laminated bamboo - Product specifications                                                                 | Structural and Construction    |
| ISO 19624:2018   | Bamboo structures - Grading of bamboo culms - Basic principles and procedures                                                       | Structural and Construction    |
| ISO 22156:2021   | Bamboo structures - Bamboo culms - Structural design                                                                                | Structural and Construction    |
| ISO 22157:2019   | Bamboo structures - Determination of physical and mechanical properties of bamboo culms - Test methods                              | Structural and Construction    |
| ISO 23478:2022   | Bamboo structures - Engineered bamboo products - Test methods for determination of physical and mechanical properties               | Structural and Construction    |
| ISO 38200:2018   | Chain of custody of wood and wood-based products                                                                                    | Supply Chain                   |
| ISO 21625:2020   | Vocabulary related to bamboo and bamboo products                                                                                    | Terminology and Classification |

## 2.2. International Bamboo and Rattan Organization (INBAR)

The International Bamboo and Rattan Organization (INBAR) is an intergovernmental development organisation that promotes environmentally sustainable development using bamboo. It does this through several services including capacity building and training, technology transfer, project development, and market development.<sup>50</sup> INBAR has 52 member states, with the majority in the Global South, and is headquartered in Beijing.

INBAR is also closely involved in the development of international bamboo standards. INBAR is the convenor of Working Group 12 on Structural Uses of Bamboo under ISO/TC 165, and is in liaison with ISO/TC 296, ISO/TC 89, Wood-based panels, and ISO/TC 287, Sustainable processes for wood and wood-based products. INBAR promotes the use and adoption of ISO standards, holds workshops, and has helped member countries to develop their own standards including Kenya, Ghana and Ethiopia.<sup>51</sup>

**Case Study:** With support from INBAR, Ethiopia adopted several new national standards in 2023 covering various bamboo applications: furniture, bicycles, scaffolding, incense sticks, bamboo-based activated carbon, bamboo culm grading. These standards are expected to not only lay the foundation for various bamboo products produced in the country but also contribute to their safety, durability and applicability.<sup>52</sup>

Australia is not currently a member of INBAR but joining would provide an opportunity to access global expertise and a market understanding.<sup>53</sup>

### 2.3. China

China dominates the global bamboo sector, accounting for over half of global trade in engineered bamboo<sup>54</sup> and has used it in major infrastructure, for example in the 20,000 m<sup>2</sup> of high-tolerance bamboo decking on the Hong Kong - Macao Bridge.<sup>55</sup>



*Chinese engineers used bamboo in the world's longest sea bridge* <sup>56</sup>

Over the years, China has had a number of government policies to grow and develop the bamboo industry, which can vary by province. The most significant in recent years is the *Bamboo as a Substitute for Plastic Initiative (2023-2025)*. This aims to tackle climate change and curb pollution by replacing plastic products with bamboo alternatives. Under the plan, the quality, variety, scale and profitability of bamboo substitutes will be improved.<sup>57</sup> Substitutes have included dishware, drinking straws, garden grids, and buttons.<sup>58</sup>

Under a recent policy, China is encouraging the use of green materials for construction projects through government procurement with the condition that green materials should be no less than 40% of the total used in the project.<sup>59</sup> However, it is unclear whether bamboo is considered a green material for this initiative.

Research has mapped 21 national Chinese standards related to bamboo under various categories, with seven categorised as Structural and Construction. Most standards were published by the national standards authority, SAC, with some developed by the State Forestry Grassland Administration.

| Designation     | Standard Title                                                                            | Category                       |
|-----------------|-------------------------------------------------------------------------------------------|--------------------------------|
| GB/T 26900-2011 | Bamboo charcoal for air-purification                                                      | Activated Carbon/Charcoal      |
| GB/T 26913-2025 | Bamboo charcoal                                                                           | Activated Carbon/Charcoal      |
| GB/T 43212-2023 | Bamboo charcoal board                                                                     | Activated Carbon/Charcoal      |
| LY/T 3294-2022  | Bamboo activated carbon / energy & production metrics                                     | Activated Carbon/Charcoal      |
| GB/T 23114-2020 | Bamboo woven household articles                                                           | Products                       |
| GB/T 32444-2015 | General technical requirements for bamboo furniture                                       | Products                       |
| GB/T 40241-2021 | Outdoor reconstituted bamboo                                                              | Products                       |
| LY/T 3204-2020  | Flattened bamboo sheet                                                                    | Products                       |
| GB/T 20240-2017 | Glued laminated bamboo flooring                                                           | Structural and Construction    |
| GB/T 40487-2021 | Bamboo engineered materials for structural use                                            | Structural and Construction    |
| LY/T 3194-2020  | Structural reconstituted bamboo                                                           | Structural and Construction    |
| LY/T 3201-2020  | Flattened bamboo flooring                                                                 | Structural and Construction    |
| GB/T 30364-2024 | Bamboo scrimber flooring                                                                  | Structural and Construction    |
| JGJ 254-2011    | Technical code for safety of bamboo scaffold in construction                              | Structural and Construction    |
| GB/T 40247-2021 | Bamboo scrimber                                                                           | Structural and Construction    |
| LY/T 3164-2024  | Comprehensive energy consumption of production for wood and bamboo flooring products      | Sustainability                 |
| GB/T 36394-2018 | Terminology of bamboo products                                                            | Terminology and Classification |
| JG/T 199-2017   | Testing methods for physical and mechanical properties of bamboo used in building         | Testing and Quality Control    |
| GB/T 30762-2014 | Quality grading standards of main bamboo shoot                                            | Testing and Quality Control    |
| GB/T 15780-1995 | Testing methods for physical and mechanical properties of bamboos                         | Testing and Quality Control    |
| GB/T 35378-2017 | Test method for tensile mechanical performance of single plant fiber (incl. bamboo fiber) | Testing and Quality Control    |

## 2.4. India

India has the largest bamboo cultivation area in the world, covering 13% of its forested land.<sup>60</sup> In most hilly states of India, bamboo is widely used as a construction and building material.<sup>61</sup>

In 2017, the Indian government amended the *Indian Forest Act of 1927*, removing restrictions on the felling and interstate transportation of bamboo grown in non-forest areas. This move was intended to promote bamboo cultivation outside forest regions, increase bamboo commercialisation, create new income streams, and generate employment opportunities.<sup>62</sup> Further, in 2022, the government amended its Forest Rights Act of 2006 to classify bamboo as a grass, making it easier for farmers to cultivate and trade bamboo.<sup>63</sup>

The *National Bamboo Mission 2018* aims to strengthen India's green economy through bamboo. The policy promotes cultivation, processing and marketing across India by supporting farmers and MSMEs (Micro, small, and medium enterprises) through financial assistance, farmer producer organisation (FPO) formation, and skill development.<sup>64</sup> Achievements of the mission so far include over 400 new bamboo nurseries (14 accredited), 60,000 hectares of non-forest area covered under bamboo

plantation, over 500 new product development and processing units, and 130 market infrastructure facilities for bamboo trade.<sup>65</sup> The government sets out next steps for the mission as mandating the use of bamboo in “government construction projects such as schools, healthcare centres, railways, and barracks.”<sup>66</sup>

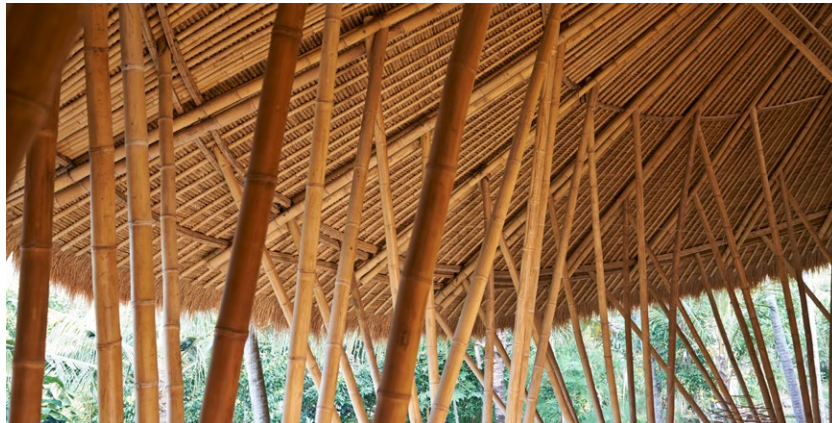
Research has mapped seven standards from the Bureau of Indian Standards (BIS) related to bamboo, including two focused on structural uses.

| Designation   | Standard Title                                                                 | Category                       |
|---------------|--------------------------------------------------------------------------------|--------------------------------|
| IS 15476:2004 | Bamboo Mat Corrugated Sheets -Specification                                    | Products                       |
| IS 17571:2021 | Flattened Bamboo Board - Specification                                         | Products                       |
| IS 17572:2022 | BWP Grade Bamboo Mat-Veneer Composite Board-Specification                      | Products                       |
| IS 15912:2018 | Structural Design Using Bamboo - Code of Practice                              | Structural and Construction    |
| IS 9096:2006  | Preservation of bamboo for structural purposes - Code of practice              | Structural and Construction    |
| IS 707:2011   | Timber Technology And Utilization of Wood, Bamboo and Cane - Glossary of Terms | Terminology and Classification |
| IS 6874:2008  | Method of tests for bamboo                                                     | Testing and Quality Control    |

## 2.5. Indonesia

Like China and India, bamboo is found abundantly in Indonesia. The Southeast Asian nation is estimated to have over one million hectares of bamboo plantations, but only 25,000 hectares have been managed as bamboo forests or plantations. The rest grows sporadically.<sup>67</sup> With industry developed strategically, according to the Nusra Economic Council, Indonesia’s bamboo industry could reach US\$4 billion by 2035.<sup>68</sup>

Across Indonesia, bamboo is increasingly in demand for construction, interior design, and hospitality. Resorts and eco-tourism destinations in the provinces of Bali, Lombok, and Java have demonstrated the potential of bamboo as both a practical material and an aesthetic asset.<sup>69</sup> The trend of green tourism and sustainable construction is likely to continue to grow, further emphasising bamboo’s importance as a building material.



*“A first of its kind” - the Arc in Bali was engineered from bamboo*<sup>70</sup>

The Government of Indonesia appears to be committed to developing bamboo use as an alternative to timber forest products. Supported by the Ministry of Environment and Forestry, the *1000 Bamboo Village Initiative* was launched to “empower communities to efficiently manage and restore their landscape, standardise agroforestry practices, and create economic incentives that facilitate the expansion of bamboo markets and restoration economy.”<sup>71</sup>

Indonesia’s standards body, BSN, has developed five standards related to bamboo, including two modified adoptions of ISO standards.

| Designation             | Standard Title                                                                               | Category                       |
|-------------------------|----------------------------------------------------------------------------------------------|--------------------------------|
| <b>SNI 9301:2025*</b>   | Bamboo-based activated carbon — General specifications                                       | Activated Carbon/Charcoal      |
| <b>SNI 7555.22:2011</b> | Furniture - Part 22: Guest Chairs - Bamboo                                                   | Products                       |
| <b>SNI 9277:2024*</b>   | Laminated products made of bamboo slats for indoor furniture — Requirements and test methods | Products                       |
| <b>SNI 7944:2014</b>    | General use laminated bamboo                                                                 | Structural and Construction    |
| <b>SNI 8020:2014</b>    | Uses of bamboo                                                                               | Terminology and Classification |

Additionally, Indonesia has identically adopted 12 of ISO’s bamboo standards, including its bamboo structures standards.

| Designation                 | Standard Title                                                                                                                         | Category                       |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>SNI ISO 21626-1:2021</b> | Bamboo charcoal – Part 1: general                                                                                                      | Activated Carbon/Charcoal      |
| <b>SNI ISO 21626-2:2021</b> | Bamboo charcoal – Part 2: fuel applications                                                                                            | Activated Carbon/Charcoal      |
| <b>SNI ISO 21626-3:2021</b> | Bamboo charcoal – Part 3: purification applications                                                                                    | Activated Carbon/Charcoal      |
| <b>SNI ISO 19624:2018</b>   | Bamboo structure - Bamboo culm sorting - Basic principles and procedures                                                               | Structural and Construction    |
| <b>SNI ISO 21629-1:2021</b> | Bamboo flooring — Part 1: Indoor use                                                                                                   | Structural and Construction    |
| <b>SNI ISO 21629-2:2022</b> | Bamboo flooring — Part 2: Outdoor use                                                                                                  | Structural and Construction    |
| <b>SNI ISO 22157:2019</b>   | Bamboo structure - Determination of physical and mechanical properties of bamboo culms - Test methods                                  | Structural and Construction    |
| <b>SNI ISO 23478:2022</b>   | Bamboo structures – Engineered bamboo products – Test methods for determination of physical and mechanical properties                  | Structural and Construction    |
| <b>SNI ISO 5257:2023</b>    | Bamboo structures – Engineered bamboo products – Test methods for determination of mechanical properties using small size test samples | Structural and Construction    |
| <b>SNI ISO 5942:2024</b>    | Bamboo-wood composite for container flooring                                                                                           | Structural and Construction    |
| <b>SNI ISO 7567:2024</b>    | Bamboo structure – Laminated bamboo – Product specification                                                                            | Structural and Construction    |
| <b>SNI ISO 21625:2020</b>   | Vocabulary related to bamboo and bamboo products                                                                                       | Terminology and Classification |

## 2.6. Ethiopia

Ethiopia has the largest bamboo coverage in Africa, with over 1 million hectares of bamboo forests.<sup>72</sup> Ethiopian bamboo is widely used in construction, furniture, handicrafts, energy, medicine and food, showcasing significant market potential. The industry combines traditional crafts such as bamboo weaving and carving with modern bamboo processing technologies, such as bamboo panels and fibres.<sup>73</sup> The bamboo industry in Ethiopia provides livelihoods for about 750,000 people, and due to its role in reducing poverty is regarded here as the *millennium grass*.<sup>74</sup>

In 2019, the government introduced the *Bamboo Development Strategy and Action Plan (2019-2030)*.<sup>75</sup> The action plan outlines that through enhanced resource management, technological development, increased R&D investment and improvements to the value chain, Ethiopia's bamboo industry can achieve sustainable growth, contributing to both economic and environmental protection.<sup>76</sup> The strategy also outlines the need to establish standards and certification systems for bamboo plantations.

With the support of INBAR, Ethiopia developed the below seven standards in 2021,<sup>77</sup> and in 2023 directly adopted two ISO standards.<sup>78</sup>

| Designation  | Standard Title                                   | Category                    |
|--------------|--------------------------------------------------|-----------------------------|
| ES 6971:2022 | Bamboo based furniture-Specification             | Products                    |
| ES 6972:2022 | Bamboo bicycle frames –specification             | Products                    |
| ES 6974:2022 | Bamboo Incense sticks — Specification            | Products                    |
| ES 6418:2021 | Preservation bamboo for non-construction purpose | Products                    |
| ES 6973:2022 | Bamboo scaffolding- Requirements                 | Structural and Construction |
| ES 6416:2021 | Design of bamboo structures                      | Structural and Construction |
| ES 6417:2021 | Preservation bamboo for construction purpose     | Structural and Construction |

| Designation       | Standard Title                                                                | Category                    |
|-------------------|-------------------------------------------------------------------------------|-----------------------------|
| ES ISO 5946:2022  | Bamboo-based activated carbon - General specifications                        | Activated Carbon/Charcoal   |
| ES ISO 19624:2022 | Bamboo structures — Grading of bamboo culms - Basic principles and procedures | Structural and Construction |

## 2.7. Colombia

In Colombia, bamboo is commonly referred to by its species name *Guadua angustifolia* or simply Guadua. Guadua is native to South America and abundant in Colombia.<sup>79</sup> It is considered to be the hardest and best bamboo variety for building and construction. Traditionally, indigenous communities used bamboo for construction, furniture, tools and utensils. Today, it holds immense potential to drive sustainable development, boost the economy, and tackle environmental challenges.<sup>80</sup>

The Colombian government classifies Guadua as a tree and protects it from deforestation. Permits for commercial harvesting are required and difficult to obtain. While this protects the plant, it also creates a barrier for industry.<sup>81</sup>

The Colombian Institute of Technical Standards and Certification (ICONTEC) is the national standards

body of Colombia, and has produced six standards related to bamboo cultivation, construction, sustainability, terminology and testing.

| Designation   | Standard Title                                                                                                                                | Category                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| NTC 5300:2020 | Harvest and post-harvest of <i>Guadua angustifolia</i> culm                                                                                   | Cultivation and Harvest        |
| NTC 5301:2018 | Preservation and drying of <i>Guadua angustifolia</i> Kunth                                                                                   | Cultivation and Harvest        |
| NTC 5407:2018 | Joints in <i>Guadua</i> structures                                                                                                            | Structural and Construction    |
| NTC 6100:2014 | Colombian Environmental Seal - Environmental label criteria for <i>Guadua</i> products                                                        | Sustainability                 |
| NTC 5727:2021 | Terminology applied to <i>Guadua</i> and its products                                                                                         | Terminology and Classification |
| NTC 5525:2021 | Test methods for physical and mechanical properties of <i>Guadua angustifolia</i> Kunth (Test methods for physical and mechanical properties) | Testing and Quality Control    |

## Conclusion

---

This report demonstrates that structurally engineered bamboo (SEB) represents a credible, scalable and climate positive opportunity for Australia's construction sector. International experience shows that, when supported by clear standards, certification pathways and public policy, bamboo can perform as a high strength structural material while delivering significant environmental, economic and social benefits. Countries such as China, India, Indonesia, Ethiopia and Colombia illustrate how coordinated government action, international standard adoption and market stimulation have enabled bamboo to move from a traditional material to a modern engineered solution used in buildings and infrastructure.

Australia is well positioned to follow a similar trajectory. Suitable growing conditions, emerging industry interest, existing FSC certification uptake and alignment with national decarbonisation goals provide a strong foundation. However, the absence of recognised standards, limited regulatory pathways under the National Construction Code, and lack of formal engagement with international bodies such as ISO and INBAR are primary constraints to industry development.

Addressing these gaps through targeted policy levers - such as adopting international bamboo standards, enabling certification pathways, supporting pilot public projects, and exploring carbon credit eligibility - would materially reduce risk and accelerate market confidence. Engagement with key stakeholders, including First Nations groups, standards bodies, financiers and training institutions, will be essential to ensure development is inclusive, credible and durable.

With coordinated action, bamboo has the potential to transition from a niche product to a mainstream low-carbon construction material in Australia, supporting regional development, reducing embodied emissions, and contributing meaningfully to national net-zero objectives.



## References

- 1 United Nations Environment Programme (UNEP), "Global Environmental Data Strategy," 2024, <https://wedocs.unep.org/handle/20.500.11822/47214>.
- 2 Hosseini, M. et al., "Engineered bamboo building materials: Types, production and applications," 2025, [https://www.researchgate.net/publication/390692296\\_Engineered\\_Bamboo\\_Building\\_Materials\\_Types\\_Production\\_and\\_Applications](https://www.researchgate.net/publication/390692296_Engineered_Bamboo_Building_Materials_Types_Production_and_Applications).
- 3 Ibid.
- 4 Mashrah, W. et al., "Comprehensive review of engineered bamboo in structural engineering: Comparative insights into laminated bamboo and bamboo scrimber," 2025, <https://www.sciencedirect.com/science/article/pii/S2352012425007106>.
- 5 Ibid.
- 6 Liu, X., et al. "Nomenclature for engineered bamboo," 2016, [https://www.researchgate.net/publication/288230667\\_Nomenclature\\_for\\_Engineered\\_Bamboo](https://www.researchgate.net/publication/288230667_Nomenclature_for_Engineered_Bamboo).
- 7 Jafarnia, N., & Mofidi, A. "Engineered Bamboo for Sustainable Construction: A Systematic Review of Characterization Methods," 2025, <https://www.mdpi.com/2071-1050/17/13/5977>.
- 8 Jafarnia, N., & Mofidi, A. "Engineered Bamboo for Sustainable Construction: A Systematic Review of Characterization Methods."
- 9 International Code Council (ICC), "The next frontier: Structural engineered bamboo," 2024, <https://www.iccsafe.org/building-safety-journal/bsj-technical/the-next-frontier-structural-engineered-bamboo>.
- 10 Mahdi Hosseini et al., "Engineered Bamboo Building Materials: Types, Production and Applications," 2025, [https://www.researchgate.net/publication/390692296\\_Engineered\\_Bamboo\\_Building\\_Materials\\_Types\\_Production\\_and\\_Applications](https://www.researchgate.net/publication/390692296_Engineered_Bamboo_Building_Materials_Types_Production_and_Applications).
- 11 Fund for Youth Employment, "From Forest to Future: Creating Jobs and Sustainable Growth in Ethiopia through Bamboo Agroforestry," 2024, <https://fundforyouthemployment.nl/from-forest-to-future-creating-jobs-and-sustainable-growth-in-ethiopia-through-bamboo-agroforestry/>.
- 12 MDPI Forests, "Bamboo-Based Construction Materials and Their Role in Sustainable Development," 2025, <https://www.mdpi.com/1999-4907/16/4/662>.
- 13 Carbon Bamboo Registry, "What We Do," n.d., <https://carbonbambooregistry.org/what-we-do/>.
- 14 Ermias, A. et al., "A Review of Codes and Standards for Bamboo Structural Design," 2021, <https://onlinelibrary.wiley.com/doi/10.1155/2021/4788381>.
- 15 The Fifth Estate, "Engineered Bamboo: The Time Has Come," 2025, <https://thefifthestate.com.au/columns/spinifex/engineered-bamboo-the-time-has-come/>.
- 16 Australian Bamboo Plantations, <https://australianbambooplantations.com.au/>
- 17 Green Building Council Australia, "Rating system," <https://new.gbca.org.au/green-star/rating-system/>.
- 18 Eco Flooring Systems Australia, "Box Hill TAFE Targets 5 Star Green Star Rating with Bamboo Flooring," 2014, <https://ecoflooring.com.au/box-hill-tafe-targets-5-star-green-star-rating-with-bamboo-flooring/>.
- 19 Forest Stewardship Council Australia & New Zealand, "What Can Be FSC® Certified," n.d., <https://anz.fsc.org/what-can-be-fsc-certified>.
- 20 FSC, "FSC Certificates Public Dashboard," n.d., <https://app.powerbi.com/view?r=eyJrJoiN2U3NGMyNWwE5LTZTAXNS00MzVhLWExNmMtOTlhZjQ4MWNkLiwiIDCl6jEYyNGU2OWRlWVwvNjUtNDk2Yi05NmE5LTkNTZiZWx2ZDI5MSIsImMiOiJ9>.
- 21 Simmonds Lumber, "About Us," n.d., <https://www.simmondslumber.com.au/about-us/>.
- 22 Simmonds Lumber, "SIMDeck Bamboo Decking Brochure," n.d., [https://www.simmondslumber.com.au/wp-content/uploads/2024/09/SIMDeck-Brochure\\_webversion.pdf](https://www.simmondslumber.com.au/wp-content/uploads/2024/09/SIMDeck-Brochure_webversion.pdf).
- 23 Mansfield Advisory, "Bamboo: Unlocking Climate Solutions with Australia's Sustainable Finance Taxonomy," 2025, <https://www.mansfieldadvisory.com.au/bamboo-unlocking-climate-solutions-with-australias-sustainable-finance-taxonomy>.
- 24 SP Building Surveyors, "Performance-Based Assessment," n.d., [https://www.spbuildingsurveyors.com.au/consult\\_service/performance-based-assessment/](https://www.spbuildingsurveyors.com.au/consult_service/performance-based-assessment/).
- 25 Australian Building Codes Board, "Back to the Future – Forte Apartment Building – Docklands Melbourne," 2013, [https://ircc.info/new%20page/Workshops/Documents/Austria2013\\_04Savery\\_workshops.pdf](https://ircc.info/new%20page/Workshops/Documents/Austria2013_04Savery_workshops.pdf).
- 26 Queensland Government, "Bamboo: A Guide for Queensland," 2025, <https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/f447a592-cea9-4caa-aa0b-b85ad5fc3cfe/bamboo.pdf>.
- 27 Net Zero Commission NSW, "2025 consultation," 2025, <https://www.netzerocommission.nsw.gov.au/sites/default/files/2025-07/Mansfield%20Advisory%20and%20Bamboo%20Society.pdf>.
- 28 Deloitte, "Room to Grow: The Engineered Bamboo Opportunity in Australia," 2026.
- 29 Clean Energy Finance Corporation, "CEFC Reports Record-Breaking Year of Scale, Impact and Leverage in the Push to Net Zero," 2025, <https://www.cefc.com.au/media/media-release/cefc-reports-record-breaking-year-of-scale-impact-and-leverage-in-the-push-to-net-zero/>.
- 30 Ibid.
- 31 Net Zero Commission NSW, "2025 consultation," 2025, <https://www.netzerocommission.nsw.gov.au/sites/default/files/2025-07/Mansfield%20Advisory%20and%20Bamboo%20Society.pdf>.
- 32 Northern Australia Infrastructure Facility, "Northern Australia Infrastructure Facility," n.d., <https://www.naif.gov.au/>.
- 33 Net Zero Commission NSW, "2025 consultation," 2025, <https://www.netzerocommission.nsw.gov.au/sites/default/files/2025-07/Mansfield%20Advisory%20and%20Bamboo%20Society.pdf>.
- 34 Ibid.
- 35 International Network for Bamboo and Rattan, "Inspiring Sustainable Development with Bamboo," 2017, <https://southsouth-galaxy.org/wp-content/uploads/2019/03/Inspiring-Sustainable-Development-with-Bamboo-INBAR-2017.pdf>.
- 36 Australian Government Department of Agriculture, "Carbon Farming Initiative," 2020, <https://www.agriculture.gov.au/agriculture-land/farm-food-drought/climatechange/cfi>.
- 37 Dialogue Earth, "Fighting Climate Change with Bamboo," 2020, <https://dialogue.earth/en/climate/fighting-climate-change-with-bamboo/>.
- 38 CGTN, "How China's Carbon Trading Market Is Delivering Mountains of Gold," 2025, <https://news.cgtn.com/news/2025-08-13/How-China-s-carbon-trading-market-is-delivering-mountains-of-gold-1FO9fj6XNjW/p.html>.
- 39 Guadua Bamboo, "Building to Code: Guadua Bamboo in Public Projects," 2024, <https://www.guaduaibamboo.com/blog/building-to-code-guadua-bamboo-in-public-projects>.
- 40 International Network for Bamboo and Rattan, "Bamboo: A Strategic Resource for Sustainable Development," 2020, <https://www.inbar.int/wp-content/uploads/2020/05/1529475037.pdf>.
- 41 Press Information Bureau of India, "Cabinet Approves National Bamboo Mission," 2025, <https://www.pib.gov.in/PressNoteDe->

- [tails.aspx?Noteld=155112&ModuleId=3.](#)
- 42 The Fifth Estate, "Engineered Bamboo: The Time Has Come," 2025, <https://thefifthestate.com.au/columns/spinifex/engineered-bamboo-the-time-has-come/>.
- 43 Ibid.
- 44 MaterialDistrict, "The World's First Tall Building Made of Engineered Bamboo," 2024, <https://materialdistrict.com/article/the-worlds-first-tall-building-made-of-engineered-bamboo/>.
- 45 Deloitte, "Room to Grow: The Engineered Bamboo Opportunity in Australia," 2026.
- 46 World Bank WITS, "Exports of Bamboo (HS 140110)," n.d., <https://wits.worldbank.org/trade/comtrade/en/country/ALL/year/2019/tradeflow/Exports/partner/WLD/product/140110>.
- 47 Jagran Josh, "List of 7 Largest Bamboo Producing Countries in the World," 2025, <https://www.jagranjosh.com/general-knowledge/list-of-largest-bamboo-producing-countries-in-the-world-1820002691-1>.
- 48 Kidance, B. et al., "Innovation and Entrepreneurship in the Bamboo Sector," 2024, <https://innovation-entrepreneurship.springeropen.com/articles/10.1186/s13731-024-00406-3>.
- 49 Donini, G. et al., "Structural Design of an Italian Bamboo House in an Italian Regulatory Context," 2022, [https://www.researchgate.net/publication/357818499\\_Structural\\_design\\_of\\_an\\_Italian\\_bamboo\\_house\\_in\\_an\\_Italian\\_regulatory\\_context\\_Revisiting\\_a\\_small\\_building\\_built\\_in\\_Costa\\_Rica\\_with\\_tropical\\_bamboo](https://www.researchgate.net/publication/357818499_Structural_design_of_an_Italian_bamboo_house_in_an_Italian_regulatory_context_Revisiting_a_small_building_built_in_Costa_Rica_with_tropical_bamboo).
- 50 International Network for Bamboo and Rattan, "INBAR Member States," n.d., <https://www.inbar.int/inbar-member-states/>.
- 51 International Network for Bamboo and Rattan, "Bamboo Standards," n.d., <https://www.inbar.int/?s=standards>.
- 52 International Network for Bamboo and Rattan, "Bamboo Standards in Ethiopia," 2023, <https://www.inbar.int/bamboo-standards-ethiopia-2023/>.
- 53 Net Zero Commission NSW, "2025 consultation," 2025, <https://www.netzerocommission.nsw.gov.au/sites/default/files/2025-07/Mansfield%20Advisory%20and%20Bamboo%20Society.pdf>.
- 54 Sun, X., He, M., Li, Z., "Novel engineered wood and bamboo composites for structural applications: State-of-art of manufacturing technology and mechanical performance evaluation," 2020, <https://www.sciencedirect.com/science/article/abs/pii/S095006182030756X>.
- 55 China Daily, "Bamboo Embraces Bigger Eco-Friendly Role," 2025, <https://www.chinadaily.com.cn/a/202502/17/WS67b2d-b66a310c240449d5aaa.html>.
- 56 South China Morning Post, "How Chinese Engineers Used Bamboo in Major Infrastructure Projects," 2025, <https://www.scmp.com/news/china/science/article/3298963/how-chinese-engineers-used-bamboo-worlds-longest-sea-bridge-and-more>.
- 57 China Daily, "Bamboo Embraces Bigger Eco-Friendly Role," 2024, <https://govt.chinadaily.com.cn/s/202401/12/WS65ac-c846498ed2d7b7ea5e82/bamboo-embraces-bigger-eco-friendly-role.html>.
- 58 Zhao, X. et al., "Bamboo as a substitute for plastic: Research on the application performance and influencing mechanism of bamboo buttons," 2024, <https://www.sciencedirect.com/science/article/abs/pii/S0959652624007443>.
- 59 People's Daily Online, "Bamboo Industry Gains Momentum in China," 2025, <https://en.people.cn/n3/2025/0111/c90000-20264933.html>.
- 60 Li, Y., et al., "Development of the bamboo forest economy: Reviewing China's 'bamboo as a substitute for plastic initiative' and its development," 2025, <https://www.sciencedirect.com/science/article/pii/S2773139125000096>.
- 61 Press Information Bureau of India, "Cabinet Approves National Bamboo Mission," 2025, <https://www.pib.gov.in/PressNoteDetails.aspx?Noteld=155112&ModuleId=3>.
- 62 Li, Y., et al., "Development of the bamboo forest economy: Reviewing China's 'bamboo as a substitute for plastic initiative' and its development," 2025, <https://www.sciencedirect.com/science/article/pii/S2773139125000096>.
- 63 Ken Research, "India Bamboo Market Outlook," 2024, <https://www.kenresearch.com/industry-reports/india-bamboo-market>.
- 64 Press Information Bureau of India, "Cabinet Approves National Bamboo Mission," 2025, <https://www.pib.gov.in/PressNoteDetails.aspx?Noteld=155112&ModuleId=3>.
- 65 Ibid.
- 66 Ibid.
- 67 Ministry of Economic Affairs of Indonesia, "Pengembangan Bambu Berkelanjutan," 2021, <https://www.ekon.go.id/publikasi/detail/2966/pengembangan-bambu-berkelanjutan>.
- 68 NUSRA Council, "Indonesia's Bamboo Future: Building a Global Industry by 2035," 2025, <https://nusracouncil.org/indonesias-bamboo-future-building-a-global-industry-by-2035>.
- 69 Ibid.
- 70 IBUKU, "Portfolio," n.d., <https://ibuku.com/portfolio/>.
- 71 United Nations Environment Programme, "Arief Rabik: Founder of the 1000 Bamboo Village Initiative," 2022, <https://www.unep.org/resources/newsletter/arief-rabik-founder-1000-bamboo-village-initiative-and-indonesian-farmer>.
- 72 Kassahun, T., "Review of the Bamboo Value Chain in Ethiopia," 2014, <https://scispace.com/pdf/review-of-bamboo-value-chain-in-ethiopia-48o269j8yi.pdf>.
- 73 Ibid.
- 74 Li, Y., et al., "Development of the bamboo forest economy: Reviewing China's 'bamboo as a substitute for plastic initiative' and its development," 2025, <https://www.sciencedirect.com/science/article/pii/S2773139125000096>.
- 75 Environmental Protection Authority Ethiopia, "Ethiopia Bamboo Development Strategy and Action Plan," 2019, [https://www.epa.gov.et/images/PDF/Bambbo/Ethiopia\\_Bamboo\\_Development\\_Strategy\\_Action\\_Plan.pdf](https://www.epa.gov.et/images/PDF/Bambbo/Ethiopia_Bamboo_Development_Strategy_Action_Plan.pdf).
- 76 Li, Y., et al., "Development of the bamboo forest economy: Reviewing China's 'bamboo as a substitute for plastic initiative' and its development," 2025, <https://www.sciencedirect.com/science/article/pii/S2773139125000096>.
- 77 International Network for Bamboo and Rattan, "Bamboo Standards in Ethiopia," n.d., <https://www.inbar.int/bamboo-standards-ethiopia/>.
- 78 International Network for Bamboo and Rattan, "Six new standards to support Ethiopia's bamboo sector," 2023, <https://www.inbar.int/bamboo-standards-ethiopia-2023>.
- 79 Ermias, A. et al., "A Review of Codes and Standards for Bamboo Structural Design," 2021, <https://onlinelibrary.wiley.com/doi/10.1155/2021/4788381>.
- 80 International Network for Bamboo and Rattan, "Guadua: A Strategic Pillar for Colombia's Sustainable Development," 2024, <https://www.inbar.int/guadua-a-strategic-pillar-for-colombias-sustainable-development/>.
- 81 Bambu Batu, "Guadua Bamboo in Colombia," 2024, <https://bambubatu.com/guadua-bamboo-in-colombia/>.

**standards.org.au**

