

Perspective

Insights into EU Sustainability Regulations Promoting Wood as a Climate-Smart Construction Material

Csilla Mária Csiha 

Faculty of Wood Engineering and Creative Industries, University of Sopron, Bajcsy-Zsilinszky 4, 9400 Sopron, Hungary; csiha.csilla@uni-sopron.hu; Tel.: +36-9951-8180

Abstract

In response to the growing challenges of climate change and environmental degradation, the European Union announced the Green Deal on 11 December 2019, aiming for climate neutrality by 2050. To achieve this, a series of regulatory measures have been introduced to promote sustainability in the construction sector. This paper examines key EU regulations that, while not explicitly mandating wood, create conditions favorable to timber and wood-based products due to their low-carbon and renewable properties. The Carbon Removal Certification Framework (CRCF) encourages timber adoption through voluntary carbon removal incentives, whereas the new Construction Products Regulation (CPR) represents a mandatory intervention, embedding environmental and climate criteria directly into market standards. Additional regulations, including the Ecodesign for Sustainable Products Regulation (ESPR), the Energy Performance of Buildings Directive (EPBD), the Carbon Border Adjustment Mechanism (CBAM), the Nature Restoration Law (NRL), and the Regulation on Deforestation-Free Products (EUDR), further support wood by promoting resource efficiency, responsible sourcing, energy performance, and long-term carbon storage. Together, these measures form a multi-layered framework in which voluntary and binding instruments interact, indirectly supporting sustainable construction practices. Given its ability to store carbon over extended periods and achieve a net negative footprint in life cycle assessments, wood emerges as a strategic material for advancing the EU's climate objectives.

Keywords: wood; new CPR; sustainable construction; EU directives; CLT



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1. Introduction

In response to the urgent need to cut carbon emissions and achieve climate neutrality, the European Union launched the Green Deal on 11 December 2019, aiming to limit global warming, reduce greenhouse gas emissions, protect biodiversity, and promote a sustainable and resilient economy for Europe [1]. It is built around eight key pillars (Figure 1): a climate-neutral Europe, clean energy, sustainable industry, building and renovating, sustainable mobility, biodiversity and ecosystems, from farm to fork, and eliminating pollution. Together, these pillars guide actions across energy, transport, industry, agriculture, and other sectors to achieve climate neutrality and long-term sustainability. The construction sector is one of the largest consumers of energy and raw materials, as well as a significant source of greenhouse gas emissions. According to the European Commission and EU-level sources, buildings in the EU are responsible for about 40% of total energy consumption and 36% of energy-related greenhouse gas emissions, making the sector a major energy consumer and source of emissions [2]. One of the key reasons for introducing this strategy

is the need to promote sustainable construction practices, reducing the environmental footprint of buildings and infrastructure. By encouraging the use of renewable and low-carbon materials, such as timber and other bio-based products, the Green Deal seeks to lower greenhouse gas emissions and foster a circular economy within the construction sector.

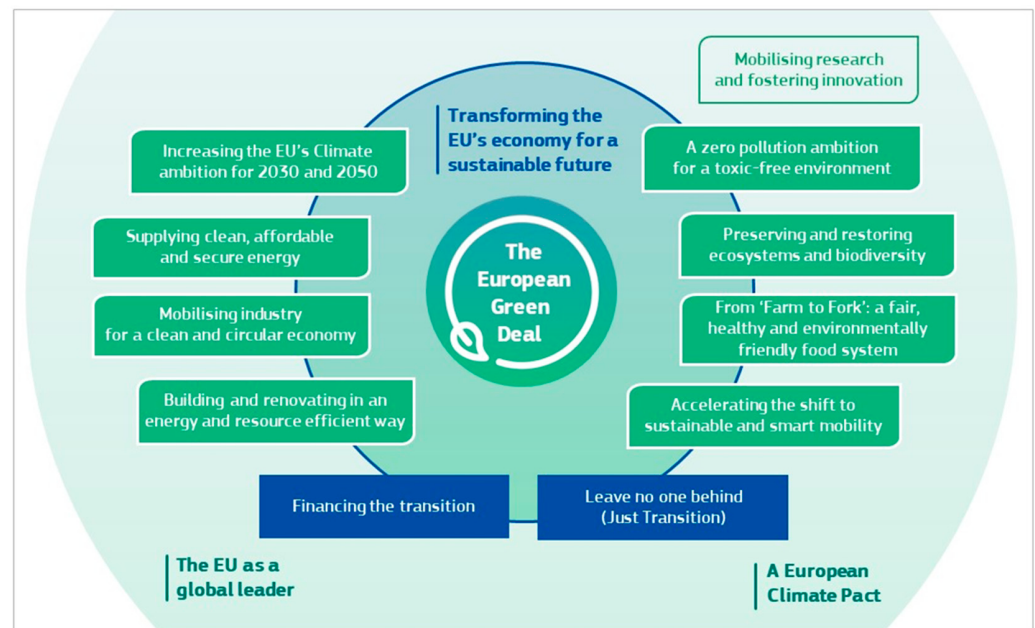


Figure 1. The pillars of the European Green Deal. Source: European Commission, “The European Green Deal,” COM (2019), available online at https://eur-lex.europa.eu/resource.html?uri=comnat:COM_2019_0640_FIN.ENG.xhtml.COM_2019_0640_FIN_ENG_12002.jpg (accessed on 26 November 2025).

To turn the vision of the Green Deal into concrete, enforceable measures, the European Commission proposed the Fit for 55 package on 14 July 2021 [3]. This package updates existing EU climate and energy legislation and introduces new initiatives to ensure that the EU can reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels.

The Carbon Border Adjustment Mechanism (CBAM) and the Energy Performance of Buildings Directive (EPBD) fall under the Fit for 55 legislative package, which implements the European Green Deal’s 2030 climate target. Several other Green Deal initiatives—including the Regulation on Deforestation-Free Products (EUDR), Ecodesign for Sustainable Products Regulation (ESPR), Nature Restoration Law, Carbon Removal Certification Framework (CRCF), and the Construction Products Regulation (CPR)—are separate measures that complement Fit for 55 by promoting circularity, sustainable materials, responsible sourcing, and carbon removals. Together, these legislative and complementary initiatives reinforce the Green Deal’s objectives and further strengthen the role of timber and wood-based products in a climate-neutral built environment.

This paper examines the key EU regulations under the Green Deal that, while wood or the use of wood is not explicitly mentioned, create conditions favorable to timber and wood-based products due to their renewable nature and low carbon footprint. The analysis considers both mandatory and voluntary regulations, highlighting differences in legal obligation, scope, and enforcement. Among these, the new CPR is particularly relevant for wood, as it is a mandatory regulation directly affecting construction products. However, although CPR became applicable in 2026, for most products listed in its Annex, sustainability declarations cannot yet be fully implemented in a legally harmonized way, because the necessary standards are still missing or incomplete. Moreover, while the CPR requires life cycle assessment-based evaluation covering all stages from raw materials to

end-of-life, other frameworks, such as the CRCE, focus only on baseline emissions and net carbon removal beyond business-as-usual scenarios, relying on a partial life cycle assessment rather than a full LCA of the product.

While each of the key EU regulations under the Green Deal is clearly defined on its own, several overlap in scope, targets, or environmental metrics, and in some cases run in parallel, creating a complex regulatory landscape, especially since none of these regulations explicitly refers to wood/wood-based products, making it more challenging for the wood community—including businesses, policymakers, and researchers—to recognize and interpret their implications for the sector. The aim of this paper is to support the synthesis of these overlapping regulations and to clarify the current gaps and ambiguities.

2. Insight into the Regulations

2.1. The Carbon Border Adjustment Mechanism (CBAM)

Regulation (EU) 2023/956, entered into force on 17 May 2023, introduces a carbon price on imports of emission-intensive materials like steel and cement, indirectly encouraging the substitution of these materials with lower-carbon alternatives such as sustainably sourced wood. The main objective of the CBAM is to prevent “carbon leakage” by ensuring that the EU’s greenhouse gas emissions reduction efforts are not offset by increased emissions outside the Union due to production shifting to countries with less ambitious climate policies, while also encouraging partner countries to establish carbon pricing to fight climate change [4]. By putting a price on the carbon content of emission-intensive materials, the CBAM indirectly makes lower-carbon alternatives like sustainably sourced wood more economically attractive, encouraging construction companies to adopt wood and other bio-based materials, thereby reducing greenhouse gas emissions and supporting the EU’s broader climate and circular economy objectives.

2.2. The Energy Performance of Buildings

Directive (EU) 2024/1275 (EPBD), enforced on 28 May 2024, sets updated requirements to improve the energy performance of buildings across the EU, including stricter minimum energy performance standards and enhanced digital tools for monitoring and reporting [5]. Its main objective is to reduce energy consumption and associated greenhouse gas emissions in the building sector, supporting the EU’s climate and energy targets by promoting energy efficiency, the use of renewable energy sources, and the renovation of existing buildings. By raising energy performance standards and encouraging the deployment of sustainable technologies, the EPBD contributes to lowering operational emissions, reducing overall energy demand, and creating healthier, more sustainable built environments. The directive also encourages the use of sustainable building materials, such as wood, which can reduce embodied carbon, making buildings both operationally and materially more sustainable. Embodied carbon refers to the greenhouse gas emissions associated with the extraction, production, transport, and construction of building materials, which under the EPBD are considered collectively at the whole-building level over the building’s life cycle. EPBD inherently raises awareness of material impacts, introducing a requirement to calculate and disclose issues in energy performance, certifying the life-cycle global warming potential (GWP) of buildings, which includes both operational and embodied emissions. It is meant to start being implemented for new buildings larger than 1000 m² from 1 January 2028 and for all new buildings from 1 January 2030. By linking energy performance requirements to material choices and life-cycle carbon considerations, the EPBD promotes designs that prioritize low-carbon and renewable materials, supporting reductions in both operational and embodied emissions.

2.3. The Regulation on Deforestation-Free Products (EUDR)

Regulation (EU) 2023/1115, enforced on 29 June 2023, establishes binding EU rules to ensure that certain commodities and products—including wood, and products derived from them—placed on the EU market or exported from it do not contribute to deforestation or forest degradation worldwide. It applies to relevant commodities such as cattle, cocoa, coffee, oil palm, rubber, soya, and wood, as well as products derived from them, and requires operators and traders to carry out due diligence and provide verifiable evidence that these products were not produced on land deforested or degraded after 31 December 2020 and comply with the laws of the country of production. By prohibiting the marketing or export of non-compliant products, the regulation aims to minimize the EU's contribution to global deforestation and associated greenhouse gas emissions, thereby supporting biodiversity and climate goals. Compliance deadlines for economic operators have been phased in, with obligations now due to apply by the end of 2025/2026 for larger and smaller companies respectively [6]. The regulation is directly relevant to the construction sector because it covers timber and wood products, ensuring that wood used in buildings placed on the EU market comes from legal, deforestation-free sources. By enforcing due diligence on wood supply chains, the EUDR promotes the use of sustainably sourced timber in construction, supporting both environmental protection and sustainable building practices.

2.4. The Ecodesign for Sustainable Products Regulation (ESPR)

Regulation (EU) 2024/1781, which was enforced on 18 July 2024, establishes a comprehensive EU framework for setting ecodesign requirements to improve the environmental sustainability of products placed on the EU market and put into service. It replaces and significantly expands the previous Ecodesign Directive by extending the scope from only energy-related products to virtually all physical goods, enabling requirements that address product durability, reparability, recyclability, resource and energy efficiency, recycled content, and environmental footprints over the product life cycle. The regulation also introduces Digital Product Passports, provisions to prevent the destruction of unsold goods, and supports mandatory Green Public Procurement criteria [7].

Under the ESPR framework, the European Commission will adopt delegated acts setting specific ecodesign requirements for prioritized product groups over time, harmonizing sustainability standards across the internal market and fostering a more circular economy [8].

The regulation is relevant to the building sector and wood products because it covers construction-related goods (e.g., furniture or intermediate products) and may set future sustainability requirements for wood-based materials and components. By promoting durability, resource efficiency, and reduced environmental footprints, the ESPR can influence how wood products and construction components are designed, marketed, and documented, supporting more sustainable material choices in buildings alongside other EU sustainability frameworks [9].

2.5. The Nature Restoration Law

(Regulation (EU) 2024/1991), which was enforced on 18 August 2024, establishes the first EU-wide legal framework to restore degraded ecosystems and habitats across the Union by implementing effective restoration measures covering at least 20% of land and sea areas by 2030, bringing all ecosystems in need of restoration into a good ecological state by 2050. These targets include restoring forests, rivers, wetlands, grasslands, and marine areas, with the aim to reverse biodiversity loss, enhance ecosystem services, contribute to climate mitigation and adaptation, and improve resilience against natural disasters. Member States are required to develop and implement national restoration plans to meet

these obligations [10]. The law's objectives to improve forest ecosystem health, biodiversity, and carbon storage are indirectly relevant to the building sector with wood, as healthier and restored forests support sustainable wood supplies, increase carbon sequestration associated with timber used in buildings, and complement other EU policies encouraging the use of responsibly sourced wood in construction [11].

2.6. The Carbon Removals Certification Framework (CRCF)

Regulation (EU) 2024/3012 establishes the first EU-wide voluntary certification framework for permanent carbon removals, carbon farming, and carbon storage in products, supporting the EU's climate neutrality objectives by enhancing transparency, credibility, and environmental integrity of removal activities. The framework sets out quality criteria including quantification, additionality (the removals must go beyond what would have happened anyway), permanence (long-term storage), proper measurement, and overall environmental sustainability (including biodiversity, ecosystem protection, etc.) and requires independent verification to ensure that certified activities deliver real net carbon removal or soil emission-reduction benefits. It applies to a range of carbon removal activities, including permanent removal technologies, carbon farming practices, and carbon storage in long-lasting products such as wood-based construction materials that store carbon for defined minimum periods. By providing a standardized way to certify and register carbon storage in products, the CRCF helps recognize the climate value of sustainably sourced wood used in buildings, where long-lasting wood elements act as carbon storage for decades [12].

The way of carbon storage in wood products: trees absorb carbon dioxide (CO_2) from the atmosphere during photosynthesis. Carbon is converted into organic compounds, mainly cellulose, hemicellulose, and lignin, which make up the wood's structure. When a tree is harvested and turned into a wood product (e.g., timber for construction, furniture, or panels), the carbon remains "locked" in the wood, and this carbon is physically stored as part of the solid wood. If the wood is burned or decomposes, the stored carbon is released back into the atmosphere as CO_2 . The length of carbon storage depends on the product's lifespan (Figure 2). CRCF sets a minimum lifespan requirement for carbon storage in product category: wood materials must store carbon for at least 35 years to qualify.

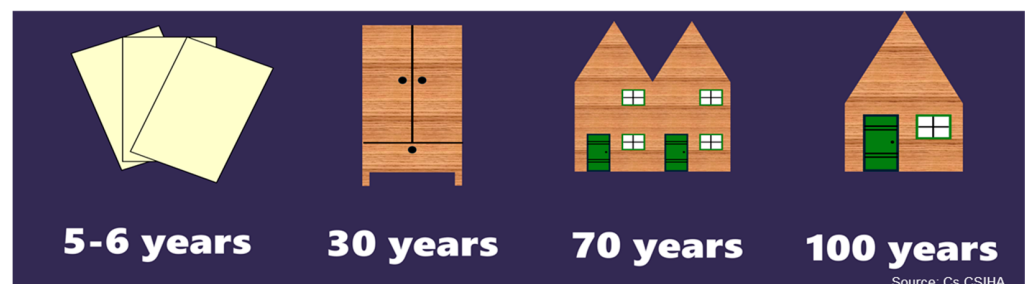


Figure 2. Length of carbon storage in different wood-based products: paper, furniture, building. Graph created by Cs. Csiha, based on data from IPCC/GHG Protocol reporting and lifecycle accounting guidelines [13].

For timber or engineered wood in buildings, CRCF calculates the amount of carbon stored long-term in the product, expressed in CO_2 equivalent (CO_2e), taking into account product lifespan and durability criteria.

2.6.1. Calculation of Carbon Stored in a Wood Product

Although carbon content in wood varies by species and tissue, dry wood is commonly approximated to contain about 50% carbon by weight [14], which allows the calculation of stored carbon and its conversion to CO_2 equivalent based on molecular weight ratios. To convert the amount of carbon stored in a material to its carbon dioxide equivalent (CO_2e),

the mass of carbon is multiplied by the ratio of the molecular weight of CO₂, being 44, to that of carbon, being 12, reflecting the additional oxygen atoms in CO₂. For example, one kilogram of carbon corresponds to about 3.67 kg of CO₂e when expressed as carbon dioxide equivalent [15].

2.6.2. Carbon Removals Under the CRCF

The calculation is based on quantifying carbon captured and stored for a defined period (e.g., ≥35 years for wood products). According to Article 4 of the regulation, the general core calculation logic is as follows:

$$\text{Net carbon removal benefit} = CR_{\text{baseline}} - CR_{\text{total}} - GHG_{\text{associated}} > 0 \quad (1)$$

CR_{baseline} —the amount of carbon removals under the baseline.

CR_{total} —the total amount of carbon removals of the activity.

$GHG_{\text{associated}}$ —the increase in direct and indirect greenhouse gas emissions due to implementation.

There is no equation provided by the regulation but in CRCF-aligned methodologies, biogenic carbon storage is quantified by multiplying the dry mass of biogenic material by its carbon content and a conversion factor of 44/12 to express carbon as CO₂, in accordance with standard carbon accounting [16]. Net certified removals are then derived by subtracting project emissions, baseline emissions and leakage, and accounting for permanence/risk adjustments as defined in the CRCF methodology drafts.

$$\text{Certified biogenic carbon removal} = (C_{\text{stored}} \times \frac{44}{12}) - E_{\text{project}} - E_{\text{baseline}} - E_{\text{leakage}} - R_{\text{risk}} \text{ (t-CO}_2\text{e)} \quad (2)$$

$C_{\text{stored}} = M_{\text{biomass}} \times C_{\text{fraction}} \times S_{\text{stability}}$.

M_{biomass} = dry mass of biogenic material (t).

$C_{\text{fraction}} \approx 0.45\text{--}0.55$ (material-specific).

$S_{\text{stability}}$ = fraction expected to remain stored over the certified time horizon.

E_{project} = project emissions (processing, transport, construction).

E_{baseline} = baseline emissions (e.g., natural decay).

E_{leakage} = displaced emissions outside project boundary.

R_{risk} = risk/reversal buffer.

The calculation of biogenic carbon stored in wood and wood-based products is calculated based on EN 16449:2014 [17].

$$m_{\text{oven-dry}} = \frac{(q_{\omega} \cdot V_{\omega})}{1 + \frac{\omega}{100}} \quad (3)$$

where

$m_{\text{oven-dry}}$ = oven-dry mass of the wood (kg).

q_{ω} = wood density at moisture content ω (kg/m³).

V_{ω} = wood product volume at moisture content ω (m³).

ω = moisture content of wood (%).

$$C_{\text{stored}} = m_{\text{oven-dry}} \cdot c_f \quad (4)$$

where

c_f = carbon fraction of oven-dry wood (≈ 0.5).

$$\text{CO}_2 \text{ stored} = C_{\text{stored}} \cdot \frac{44}{12} \quad (5)$$

By merging the upper equations, with Equation (2), the following formula results under CFCR for the calculation of biogenic carbon removal of wood and wood-based products.

$$\text{Net certified removal} = \left(\left(\frac{44}{12} \right) \cdot c_f \cdot \frac{(Q_\omega * V_\omega)}{1 + \frac{\omega}{100}} \cdot S_{\text{stability}} \right) - E_{\text{project}} - E_{\text{baseline}} - E_{\text{leakage}} - R_{\text{risk}} \quad (6)$$

2.6.3. Carbon Credits Based on Carbon Removals

Under the CRCF, carbon credits are based on net carbon removals rather than just the physical carbon stored. First, the amount of carbon physically stored in a product or ecosystem (e.g., wood) is calculated using standard methods such as EN 16449. This stored carbon is then converted to CO₂ equivalents and adjusted for the expected permanence of storage. Next, all project-related emissions, baseline emissions, leakage, and risk buffers are subtracted to determine the net certified carbon removal, which represents the amount of CO₂ that can be issued as CRCF-certified voluntary carbon credits. Each ton of net removal corresponds to one carbon credit, reflecting the actual climate benefit achieved [18]. The carbon removals certified under CRCF can be used in voluntary markets or for voluntary claims.

2.7. The Construction Products Regulation

(EU) 2024/311, published in the Official Journal on 18 December 2024 and enforced on 7 January 2025, establishes harmonized EU-wide rules for placing construction products on the single market, replacing the previous Regulation (EU) No 305/2011.

While CBAM, EPBD and other Green Deal instruments (EUDR, ESPR, Nature Restoration Law and CRCF) influence sustainability through trade measures, building performance, supply-chain controls or ecosystem objectives, the mandatory Construction Products Regulation (EU) 2024/3110 is uniquely relevant for wood in construction, as it establishes legally binding, harmonized sustainability information requirements for construction products themselves, directly affecting material choice and market comparability.

Because the new CPR is an EU regulation, it automatically applies in all EU Member States without the need for separate national adoption or transposition. The old CPR (2011) required only declarations of physical performance, such as mechanical strength or fire resistance. The new CPR (EU 2024/3110) [19] makes environmental and sustainability performance declarations mandatory for the selected construction products, based on life cycle assessment (LCA) and allows the definition of threshold levels and performance classes for environmental characteristics. The new Construction Products Regulation is a gamechanger for the construction sector. It helps builders, architects, engineers, consumers and public authorities to make the right choices based on the sustainability of construction products.

Life cycle assessment evaluates the environmental impacts of a product, material, or system across its entire life cycle, from raw material extraction, manufacturing, and transportation to use and end-of-life (the “cradle-to-grave” or “cradle-to-cradle” approach).

Starting with 8 January 2026, manufacturers must initially declare the Global Warming Potential (GWP) of their construction products.

Global warming potential is a specific impact category within LCA. It quantifies how much a system contributes to climate change by aggregating greenhouse gas emissions (such as CO₂, CH₄, and N₂O) into a single metric, typically expressed as kg CO₂-equivalent over a defined time horizon (commonly 100 years).

During an LCA, all greenhouse gas removals (and emissions) occurring at each life-cycle stage of the product are inventoried. These flows are then converted into CO₂-equivalents using GWP characterization factors, allowing their climate impacts to be compared and summed.

The GWP result of an LCA indicates the total climate impact of the assessed system. A positive GWP means net greenhouse gas emissions, while a negative GWP (as observed for wood-based materials) indicates net carbon storage or sequestration over the assessed life cycle.

2.7.1. Indicators of the CPR

For sustainability assessment, the CPR relies on the core environmental indicators (Table 1) listed in Annex B of EN 15804 [20].

Table 1. The mandatory (core) impact indicators for LCA of construction products.

Environmental Impact Category Indicator	Components of GWP Total	Characterization Unit
1. Climate change–total (GWP total)		kg CO ₂ eq
	1.1 Climate change–fossil (GWP-fossil)	kg CO ₂ eq
	1.2 Climate change–biogenic (GWP-biogenic)	kg CO ₂ eq
	1.3 Climate change–land use and land use change (GWP-LULUC)	kg CO ₂ eq
2. Ozone depletion (ODP)		kg CFC-11 eq
3. Acidification (AP)		mol H ⁺ eq
4. Eutrophication–freshwater (EP-freshwater)		kg P eq
5. Eutrophication–marine (EP-marine)		kg N eq
6. Eutrophication–terrestrial (EP-terrestrial)		mol N eq
7. Photochemical ozone formation–human health (POCP)		kg NMVOC eq

EN 15804 + A2 also includes resource use, waste, and output flow indicators, which are mandatory to report but not “impact categories”. may have a footer.

Following the mandatory declaration of the GWP of selected construction products, other core environmental indicators will be introduced in staged phases over the coming years; for example, EU sources indicate that a second set of environmental attributes will become mandatory around 2030 and a full suite of indicators by 2032 as harmonized standards and reporting frameworks mature under the regulation.

All information on sustainability throughout the products’ lifecycle together with product’s identity, conformity, and performance will be communicated through the digital passport of the products [7]. Digital Product Passports (DPPs) will provide all information on construction products, including the declaration of performance and conformity, safety information and instructions for use. This will also make it possible to calculate an entire building’s carbon footprint reliably.

When it comes to life cycle assessment (LCA), wood is among the few construction materials capable of achieving a negative carbon footprint in a full life cycle assessment (LCA), giving it a distinct climate advantage over conventional materials.

2.7.2. List of Products Covered

The declaration of environmental performance is phased and was prioritized according to product relevance and market significance, rather than solely based on climate impact. In the first phase, priority is given to common or widely used construction products, such as cement, concrete, insulation materials, steel, and wood-based products including doors and windows (Table 2). Subsequent phases will gradually extend reporting requirements to all other construction products.

Table 2. Prioritized list of product families under Annex VII.

Priority Code	Product Family
1	Precast normal/lightweight/autoclaved aerated concrete products
2	Doors, windows, shutters, gates and related building hardware
3	Membranes, including liquid applied and kits
4	Thermal insulation products, composite insulating kits/systems
5	Structural bearings, pins for structural joints
6	Chimneys, flues and specific products
7	Gypsum products
8	Geotextiles, geomembranes, and related products
9	Curtain walling/cladding/structural sealant glazing
10	Fixed fire-fighting equipment
11	Sanitary appliances
12	Circulation fixtures: road equipment
13	Structural timber products/elements and ancillaries
14	Wood-based panels and elements
15	Cement, building limes and other hydraulic binders
16	Reinforcing and prestressing steel for concrete (and ancillaries)
...	... up to a total of 36 product families

However, under the new Construction Products Regulation (CPR-2024), a product family is only in the “harmonized zone” (and thus fully subject to the new CPR obligations such as environmental declarations) once a harmonized technical specification (hTS) covering that family has been published/adopted.

At present (January 2026) no harmonized technical specification has been published for any product family. Until an hTS is published, the old regulation applies to that product family (until then, there is no obligation to declare GWP for it).

Some wood products, such as doors and windows, will be subject to regulations sooner than others, like CLT wall panels, but the process will clearly demonstrate that wood is among the few construction materials capable of achieving a net negative carbon footprint. It can be expected that both designers and end-users will increasingly favor wood for its unique advantages in carbon storage and sustainable construction.

Delegated acts defining harmonized standards for sustainability declarations and LCA rules are expected to have direct implications for wood-based construction products. Some examples of this are as follows.

Carbon storage accounting: Harmonized rules may specify how the service life of timber products (e.g., panels, sawn wood, furniture) is used to calculate stored carbon, which could affect reported carbon benefits depending on product type and end use.

Embodied emissions: Standardized LCA methodologies could require wood producers to include all upstream processes, such as timber harvesting, processing, and transport, in a consistent way. Variations in allocation rules or energy mix assumptions may significantly change reported GWP values.

Compliance documentation: Delegated acts may set specific reporting templates, digital formats, or verification procedures for sustainability declarations. Wood manufacturers may need to collect and submit detailed supply-chain data, track product provenance, and ensure that LCA calculations align with the harmonized standard to achieve CPR compliance.

3. Gaps and Recommendations

Although the new CPR is mandatory and is applicable from 2026, most products listed in its Annex cannot yet be fully assessed due to missing or incomplete harmonized standards (hENs/EADs). In the absence of a common European LCA software platform, the same product could generate different GWP results depending on the software used, as different LCA software use different calculation engines, default datasets, allocation rules, and assumptions. Without a common platform, it is hard to ensure that two products' GWP values are directly comparable, which is critical for transparency and market enforcement. Data inconsistency can be treated by using similar datasets. The work on the "CPR Acquis" is still ongoing and as part of this process, this outstanding question has to be addressed.

Furthermore, the first LCA indicator required under the CPR, the GWP, is highly sensitive to variations in key parameters, such as material transport distances, energy mix, or production changes, etc. These fluctuations would necessitate frequent reassessment of the product's sustainability performance and reissuance of the corresponding CPR sustainability documentation, posing a significant administrative and technical burden, particularly for SMEs.

For production technologies in which key GWP-related parameters vary frequently, the use of weekly, monthly, or annual averages of such parameters could be considered as a potential option to reduce the frequency of reassessment.

Furthermore, supply-chain risks—including the availability of sustainably sourced timber, transport variability, and fluctuating market demand—may affect both the economic viability and the reliability of sustainability claims.

4. Conclusions

The analysis of EU climate and sustainability regulations shows a clear, though varied, encouragement of wood use in construction. While the CRCF promotes timber in a voluntary context through carbon removal incentives, the new Construction Products Regulation acts as a mandatory gamechanger, embedding sustainability and climate criteria directly into the market. Other measures, such as the Ecodesign for Sustainable Products Regulation, the Energy Performance of Buildings Directive, the Carbon Border Adjustment Mechanism, the Nature Restoration Law, and the Regulation on Deforestation-Free Products, also support wood indirectly by enhancing resource efficiency, energy performance, responsible sourcing, and long-term carbon storage, but their influence is more supplementary. Collectively, these regulations create a layered framework in which voluntary incentives coexist with binding rules, providing both flexibility and systemic impact. Importantly, although most of these measures do not explicitly reference wood, they reinforce its advantages as a renewable, low-carbon, and durable material, creating favorable market conditions and regulatory recognition for its use in sustainable construction. This indirect support, combined with the intrinsic carbon storage capacity of wood, encourages designers, builders, policymakers and customers to favor timber over more carbon emission-intensive materials. Ultimately, by combining voluntary incentives, mandatory requirements, and supporting regulations, the EU creates a favorable environment for wood in construction, due to the fact that it is among the few construction materials capable of achieving a negative carbon footprint in a full life cycle assessment (LCA), giving it a distinct climate advantage over conventional materials.

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Data Availability Statement: This study uses publicly available data, which are cited and referenced within the article. No new datasets were generated.

Conflicts of Interest: The author declares no conflict of interest.

Abbreviations

The following abbreviations are used in this manuscript:

EU	European Union
CRCF	Carbon Removal Certification Framework
CPR	Construction Products Regulation
CBAM	Carbon Border Adjustment Mechanism
EPBD	Energy Performance of Buildings Directive
EUDR	Regulation on Deforestation-Free Products
LCA	Life Cycle Assessment
GWP	Global Warming Potential

References

1. The European Green Deal Sets Out How to Make Europe the First Climate-Neutral Continent by 2050. Available online: https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_19_6691/IP_19_6691_EN.pdf (accessed on 26 November 2025).
2. New Rules for Greener and Smarter Buildings Will Increase Quality of Life for All Europeans. Available online: https://commission.europa.eu/news-and-media/news/new-rules-greener-and-smarter-buildings-will-increase-quality-life-all-europeans-2019-04-15_en (accessed on 27 November 2025).
3. Fit for 55: Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality. Available online: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3541 (accessed on 29 January 2026).
4. Council Agrees on the Carbon Border Adjustment Mechanism (CBAM). Available online: <https://www.consilium.europa.eu/en/press/press-releases/2022/03/15/carbon-border-adjustment-mechanism-cbam-council-agrees-its-negotiating-mandate/> (accessed on 1 December 2025).
5. Energy Performance of Buildings Directive (EPBD)—European Commission Energy-Efficiency Overview. Available online: https://energy.ec.europa.eu/topics/energy-efficiency/energy-performance-buildings/energy-performance-buildings-directive_en (accessed on 1 December 2025).
6. European Commission—Regulation on Deforestation-Free Products (EUDR) Overview. Available online: https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en (accessed on 21 December 2025).
7. EUR-Lex: Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 Establishing a Framework for the Setting of Ecodesign Requirements for Sustainable Products. Available online: <https://eur-lex.europa.eu/eli/reg/2024/1781/oj> (accessed on 6 December 2025).
8. European Commission—Ecodesign for Sustainable Products Regulation (ESPR) Overview. Available online: https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products-regulation_en (accessed on 21 December 2025).
9. EUR-Lex: Ecodesign Requirements for Sustainable Products—Summary of Regulation (EU) 2024/1781. Available online: <https://eur-lex.europa.eu/EN/legal-content/summary/ecodesign-requirements-for-sustainable-products.html> (accessed on 6 December 2025).
10. EUR-Lex: Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on Nature Restoration and Amending Regulation (EU) 2022/869. Available online: <https://eur-lex.europa.eu/eli/reg/2024/1991/oj> (accessed on 6 December 2025).
11. European Commission—Nature Restoration Law Overview. Available online: https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-law_en (accessed on 6 December 2025).
12. EUR-Lex: Establishing a Union Certification Framework for Permanent Carbon Removals, Carbon Farming and Carbon Storage in Products—Summary of Regulation (EU) 2024/3012. Available online: <https://eur-lex.europa.eu/EN/legal-content/summary/establishing-a-union-certification-framework-for-permanent-carbon-removals-carbon-farming-and-carbon-storage-in-products.html> (accessed on 6 December 2025).
13. Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GHG Protocol). Harvested Wood Products (HWP) Guidance. Available online: <https://ghgprotocol.org/sites/default/files/standards/global-protocol-community-scale-ghg-inventories-guidance.pdf> (accessed on 6 December 2025).

14. Lamblom, S.H.; Savidge, R.A. A reassessment of carbon content in wood: Variation within and between 41 North American species. *Biomass Bioenergy* **2003**, *25*, 381–388. [[CrossRef](#)]
15. Open University (The OpenLearn Team). Converting carbon to CO₂ (or CO₂e) emissions. In *Environment: Treading Lightly on the Earth*; Open University OpenLearn: London, UK, 2025. Available online: <https://www.open.edu/openlearn/nature-environment/environmental-studies/environment-treading-lightly-on-the-earth/content-section-1.3.1> (accessed on 21 December 2025).
16. European Commission (Carbon Removals Expert Group). *Quantification of the Total Carbon Removals*; European Commission: Brussels, Belgium, 2023.
17. EN 16449:2014; Wood and Wood-Based Products—Calculation of Biogenic Carbon Content and Conversion to CO₂. CEN: Bruxelles, Belgium, 2014; pp. 1–24.
18. Köhler, J.; Gütschow, J.; Brönnimann, S. An Empirical Comparison of Carbon Credit Projects under the Clean Development Mechanism and Verified Carbon Standard. *Climate* **2018**, *6*, 49. [[CrossRef](#)]
19. Construction Products Regulation (CPR) 2024/3110. Available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R3110> (accessed on 2 January 2026).
20. EN 15804:2012+A2:2019; Sustainability of Construction Works—Environmental Product Declarations—Core Rules for the Product Category of Construction Products. European Committee for Standardization (CEN): Brussels, Belgium, 2019.

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