PEFC Project Certification of Notre-Dame de Paris: committed to sustainable forest management.
The forest and the cathedral of Notre-Dame de Paris, two symbols to preserve.

The decision to rebuild Notre-Dame Cathedral in Paris as it was originally built, respecting the original materials, shows the strong link between French forests and this building made of stone, glass and, of course, wood.

The soul of Notre-Dame de Paris comes from France’s forests, where the oaks used to build the cathedral have grown for centuries.

These two masterpieces of nature and human achievement share a common vocabulary and imagination, a common challenge and ultimately a common destiny. They are living, but fragile, symbols of our cultural heritage that need saving for future generations.
As carbon sinks, havens for biodiversity, green spaces for leisure and sources of timber products, we rely on forests and need to conserve them.

Sustainable Forest Management (SFM) enables forestry practices that are adapted to the challenges of preservation. It takes account of the latest industry knowledge while respecting the unique characteristics of each forest.

Responsible management balances the forests’ economic, social and environmental functions by maintaining their diversity, vitality, productivity and capacity to regenerate.

A sustainably managed forest is a forest where biodiversity, soil health, water courses and wetlands are preserved. It is healthy and able to renew itself, while providing a range of benefits including timber and timber products, carbon sequestration and opportunities for leisure activities.

**KEY FIGURES**

- Forests cover more than a 1/4 of the planet’s land surface
- 2/3 of all terrestrial plant and animal species live in forests
- 30% of global greenhouse gas emissions are stored by forests
- 300 MILLION people live in and around forests
- 1.8 BILLION people directly depend on forests for their livelihoods

*PEFC sources*
The role of PEFC certification.

PEFC guarantees SFM practices and ensures that timber used in PEFC certified products comes from sustainably managed forests and controlled sources.

PEFC sets global sustainability benchmarks for SFM certification to ensure that forests meet today’s requirements, while protecting them for future generations. PEFC is committed to continuous improvement. Every five years, its forest management standard is reviewed and revised to reflect new environmental, economic and societal developments and the effects of climate change.

PEFC certification around the WORLD*

- 3/4 of all certified forests globally are PEFC certified
- 2/3 of community forests are PEFC certified
- 100% of France’s state-owned forests are PEFC certified and 20% of private forests are PEFC certified
- 2/3 of French wood production is PEFC certified
- + 80,000 forest owners are certified to PEFC standards
- + 1 MILLION forest owners have committed to PEFC SFM certification
- + 2,4 MILLION hectares of forests are PEFC certified in French Guyana are also PEFC certified
- + 20,000 companies sell PEFC certified products in 80 countries
- + 5.7 MILLION hectares of forests are PEFC certified in mainland France, a third of the total forest area
- + 2.4 MILLION hectares certified in mainland France
- + 3,100 companies in the forest-wood-paper industry are PEFC Chain of Custody certified
- + 280 MILLION hectares of forests are PEFC certified
- IN 44 COUNTRIES
- PEFC has approved SFM standards

*source: PEFC
Certification of Notre-Dame de Paris Cathedral

01
Timber Sourcing from Sustainably Managed Forests

In January 2021, under the supervision of the public body Rebuilding Notre-Dame de Paris and supported by an AMO (assistant project manager) for wood, the chief architects from historic monuments set out the specifications for the parts required to rebuild the frames. The tree selection process then began.

The aim was to find the straightest trees possible, enabling restorers to work on logs measuring between 7-20m, with diameters ranging from 50-110cm, while still having the strength required to support several hundred tonnes. The trees had to be between 80 - 150 years old, with some over 200 years old. The first trees were identified by visual inspection and their geolocation recorded, to ensure complete traceability. Trees with these unique characteristics can only be found in sustainably managed forests.

175*
The number of PEFC certified forests involved in the SFM campaign.

02
Careful selection and harvesting of the trees (SFM Certification)

After several visits to the forests and a dialogue between owners, forest managers, architects and carpenters, the final tree selection was agreed. While the trees had to meet the project’s specifications, they also had to be harvested in a way that respected the existing area. For example, all the trees cut for Notre-Dame de Paris had reached maturity and had already seeded the surrounding soil, enabling a new generation of trees to replace those harvested. Most of the selected oak trees came from either state-owned, communal, or privately owned PEFC certified forests.

On 5 March 2021, the first trees were felled in the Bercé state forest (Sarthe) in accordance with SFM practices. Each log was numbered to ensure complete traceability.

On 8th February 2023, the final oak, required to rebuild the medieval framework of the nave and choir, was felled in the Bellême state forest (Orne).

*Source : ONF, France Bois Forêt, Etablissement public Rebâtir Notre-Dame de Paris

*Sources : ONF, France Bois Forêt, Etablissement public Rebâtir Notre-Dame de Paris
Sawmilling: the heart of material processing (Chain of Custody certification)

The sawing operations took place from September 2021 to June 2022. Sawmills across France were mobilised to saw and transform the oaks into structural sections. This operation is called cutting. The number of the log and of the cut corresponding to the sawing is recorded on a plate, to be affixed to the sawn pieces. In all, more than 2,000 oak trees, the equivalent of 4,000m³ of logs, were needed to rebuild the spire and the framework of the choir and nave.

→ 0.2%
The 2,000 oak trees harvested represent less than 0.2% of the quantity of oak trees harvested annually in France.

→ 1,500m³
France’s oak forests regenerate 1,500m³ of wood per hour.

→ 35
The number of participating PEFC certified sawmills.

Skidding and transporting logs: a little-known but critical stage in the SFM process

Once harvested, the logs were extracted and transported to the edge of the forest for storage or loading. This operation is known as skidding. To meet PEFC standards, skidding requires planning and the use of specialist techniques and equipment to minimise impact on the soil and forest environment. The logs, each weighing between 10 and 15 tonnes, were then loaded onto trucks and transported to their initial destination – sawmill, warehouse, or processing site.

→ 6 weeks*
The identification, harvesting and skidding phase took 6 weeks, lasting until around 15th March 2021, before the trees began to sap.

*Source: ONF
The certified timber arrives at Notre-Dame de Paris

On 11th July 2023, the first trusses (large wooden triangular, load bearing beams 14m wide and 12m high, weighing over 7 tonnes and essential to the structure of the building) for the transepts were transported on an 80m long barge along the River Seine to the foot of the construction site. They were then lifted by crane high above the cathedral’s vaults to their final positions at the top of the cathedral. Reconstruction of all the roof structures was completed on 8th March 2024.

In total, more than 100 trusses make up the roof structure of the great roof (nave, choir and transept).

End of structural rebuilding work

05
Frameworks: when reconstruction comes to life

The first phase of the project began with the reconstruction of the spire and two transept arms designed by Viollet-le-Duc, using 19th-century techniques. The second phase involved rebuilding the medieval frameworks of the choir and nave, which required mastery of traditional, medieval carpentry skills, including squaring — a technique for cutting beams with an axe, which follows the direction of the wood fibres and makes each piece unique. Prior to installation, parts are pre-assembled (blank assembly) on-site to check for perfect alignment and reliable lifting methods.

06
The certified timber arrives at Notre-Dame de Paris

8th April 2024
End of structural rebuilding work

Source: ONF, France-Bois Forêt, Etablissement public Rebâtir Notre-Dame de Paris

Frames of the nave and chancel. David Bordes © Rebâtir Notre-Dame de Paris
Focus on the noble oak.

Oak, the queen of the French forest, was the only species able to meet the requirements of this unique project. SFM ensured that while this project’s timber needs were met, the forests can continue to meet future requirements.

3.8 MILLION HECTARES of the 17 million ha of French forest, i.e. 22% of the surface area, are oak.

The total volume of standing oak is estimated at 615 MILLION M³, or 1.2 BILLION TREES.

Annual biological oak production is estimated at 12.8 MILLION M³, of which only 6.5 million m³ are harvested, i.e. around 50% of annual production. The oak stock therefore increases by more than 6 million m³ annually.

Source: ONF, France Bois Forêt
Conclusion

The construction sector accounts for around a quarter of CO² emissions in France and 40% worldwide.

To help reduce a project’s carbon footprint, construction companies can choose PEFC certified material. In France, 87% of timber used in construction is PEFC certified*. The reconstruction of the frame, spire, choir, nave, and transept of Notre Dame de Paris cathedral in their original materials, has been awarded PEFC Project Certification. This type of certification ensures that the PEFC certified wood used in the project represents at least 70% of the total volume of wood used, with the remainder coming from controlled, (non-controversial) sources. The implementation of the PEFC Chain of Custody in Project Certification also ensures that all parties involved in the construction or renovation project – whether certified companies or subcontractors – have applied the PEFC Chain of Custody traceability principles. The application of PEFC principles for SFM and traceability has enabled PEFC certification to be awarded for the entire Notre-Dame de Paris timber reconstruction project, demonstrating the commitment of all stakeholders to SFM and the use of environmentally, socially and economically responsible timber.
PEFC (Programme for Endorsement of Forest Certification)

PEFC is an international non-profit organisation, dedicated to promoting Sustainable Forest Management (SFM) through independent certification. Around the world, more than 280 million hectares of forest area are managed in compliance with PEFC’s internationally recognised Sustainability Benchmarks. PEFC certification provides assurances that forests are managed in line with demanding environmental, social and economic requirements.

From the forest, traceability is achieved through over 28,000 certified company sites in 80 countries. Certified timber is a key requirement in building projects around the world, including the many structural applications using mass timber for contemporary architecture, roof trusses and joinery products, and for restoration projects such as the iconic Notre-Dame de Paris.

You can learn more about PEFC’s global programme by visiting:

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