

WHY DIRTT USES EUROPEAN TIMBER

IS PURCHASING TIMBER FROM EUROPE MORE SUSTAINABLE THAN PURCHASING FROM NORTH AMERICA?

DIRTT's decision to source timber from Switzerland and Germany was based on numerous factors. Considerations such as supply chain risks, the consistency and performance of the materials along with social, environmental and economic factors were weighed carefully. In the end, DIRTT chose European engineered wood products because of their superior quality.

Through extensive research we determined that different harvesting and drying methods used in Europe have the biggest affect on the overall quality of engineered wood products and how sustainable they are, in significant ways.

HOW DOES EUROPEAN TIMBER DIFFER FROM ITS NORTH AMERICAN EQUIVALENT?

PRODUCT CHARACTERISTICS

There are several important characteristics that are evaluated to determine the overall quality of engineered wood products, including:

Moisture Content

The moisture content in European timber is lower due to the difference in drying methods. This leads to a more stable and consistent end product, which is key to the successful operation of DIRTT's CNC machinery. In Switzerland, trees are harvested during the winter months, which is the driest time of the year. These trees are then milled and left to air dry for several months. After air drying, the individual boards are then kiln dried three times to remove any remaining moisture.



In North America, trees are harvested during the spring and summer months when they retain a higher level of moisture. The boards are not left to air dry, and are only dried in a single kiln. This process dries the outer layers of the wood but leaves moisture in the centre, resulting in engineered wood products that are typically 2% to 4% more moist than comparable European material.

Appearance

Because of the difference in moisture content, North American timber is more prone to shrinkage, checking, and warping than European timber. Additionally, it is common practice in Europe to inspect individual boards for knots, failures, and other defects, and remove these undesirable aspects from the finished product. In many cases, these off-cuts are then repurposed as wood fibre, or biomass for energy production.

SUSTAINABILITY OF TIMBER MATERIALS

Carbon Storage

Carbon storage is the amount of carbon dioxide a single tree stores over its life span; carbon storage is measured in kilograms per cubic metre of carbon dioxide equivalent ($\text{kg/m}^3 \text{CO}_2$). European engineered wood products store more carbon than comparable North American products, due to both selective harvesting practices, and felling slow growth trees. Additionally, the carbon footprint for DIRTT to ship timbers from Europe is 38% less than from comparable North American suppliers, when measured in terms of carbon dioxide equivalent emitted per kilometre travelled.

Trees will eventually stop storing carbon dioxide after a number of years. The length of time varies depending on the species of tree, but typically ranges from 80 to 120 years. By felling trees only after they no longer absorb carbon dioxide, forests become carbon sinks— an asset to carbon mitigation.

Harvesting Practices

One of the most sustainable ways to harvest trees is selective harvesting, whereby specific trees are identified for harvesting, as opposed to clearcutting a whole area. Selective harvesting results in the preservation and enhancement of wildlife habitat; forests become more resistant to disease; fire risk is managed; recently harvested areas still look like natural forests; and the growth of other desirable tree species and plant life is supported.

Selective harvesting is standard practice throughout Europe where clearcutting and other detrimental harvesting methods are banned. In fact, European forests are growing in size each year, providing a truly renewable resource for sustainable construction.

Other Considerations

In North America, there is no standardized training for forestry workers. In contrast, Switzerland requires all forestry workers begin with a three-year apprenticeship. When this apprenticeship is complete, employees can choose to take additional professional development classes.

The region in which a company operates has an effect on the types of environmental certifications they require, or choose to have, and what is included in the certifications. While not all certifications in Europe and North America are directly comparable, equivalency is achievable. All engineered wood products offered by DIRTT are harvested from FSC® or PEFC™ certified forests, and manufactured according to prevailing European codes and standards.