

Thermally Modified Lumber

Resource-efficient technology improves performance and appearance of wood.

Naturally decay resistant, nontoxic

Dimensionally stable, durable, uniform coloration

Domestically-sourced alternative to imported hardwoods

Northland Forest Products operates the first Perdure oven in the United States to produce thermally modified lumber. The Perdure thermal modification process, a clean and energy efficient technology, uses high heat in a controlled atmosphere to improve both the dimensional stability and the decay resistance of wood by permanently altering its chemical and physical properties. By processing wood produced from America's well-managed hardwood forests, Cambia provides an affordable, domestically-sourced, environmentally-friendly alternative to imported hardwoods that often are illegally harvested from endangered tropical rainforests.

The thermal modification process limits the ability of wood to absorb moisture, so Cambia products are more dimensionally stable and less prone to cup, warp and twist with changes in relative humidity. This increase in dimensional stability significantly extends the service life of applied finishes, reducing maintenance costs. The thermal modification process also removes those nutrients in wood that would otherwise provide a food source for insects and wood-destroying fungi. As a result, Cambia products do not contain any toxic chemicals to improve longevity and performance.

The thermal modification process sequesters carbon within the wood, giving Cambia products a rich brown color. The appearance and uniform coloration of Cambia products rival that of many imported tropical hardwood species.

Cambia's thermally modified wood products may be the first truly green lumber resource that performs better and costs less than alternative products developed to replace wood. Cambia products are available as FSC®-certified and will qualify for 100% valuation under the LEED "certified wood credit" (MRC7).

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The mark of
responsible forest
management

CAMBIA by NFP®

Cambia
by NFP®

wood. made better.

GENERAL DESCRIPTION

The thermal modification treatment can be applied to just about any wood, so exact characteristics will vary by species.

BEST-SELLING SPECIES

White Ash
4/4, 5/4, 6/4, 8/4, plus strips

Yellow Poplar
4/4, 5/4, 6/4, 8/4, plus strips

Soft Maple
4/4, 5/4, 6/4, 8/4

Red Oak
4/4, quartersawn and strips

COMMON USES

Siding and Trim
Low maintenance, finishes last longer

Doors, Windows and Moulding
Dimensionally stable, decay resistant

Flooring
Dimensionally stable, decay resistant

Outdoor Furniture
Durable, low maintenance

Spas and Tub Surrounds
Decay resistant, low maintenance

Playgrounds
No toxic chemicals, resists splintering

Technical Properties

PARAMETER

CAMBIA by NFP® THERMALLY MODIFIED LUMBER

Color	The color of thermally modified wood is determined by treatment time and temperature. Color may vary from light brown to a deep roasted brown.
Dimensional Stability	Thermally modified wood significantly reduces the ability of the modified wood to absorb water. This limits the amount of swelling or shrinking associated with non-thermally modified kiln-dried wood.
Density	Thermally modified wood has a slightly lower density than non-thermally modified kiln-dried wood. This is mainly due to the removal of sugars and other non-essential organic compounds during the treatment process.
Permeability	Thermally modified wood is 20–30% lower in permeability than that of normal kiln dried samples.
Thermal Conductivity	Thermally modified wood has a thermal conductivity that is 20–25% lower compared to untreated wood.
Resistance to Insect Attack	Thermally modified wood has no food source for wood-destroying insects. Insects may bore into a piece of thermally modified wood, but will not infest the piece due to the lack of a food source.
Fire Resistance	Thermal modification does not significantly alter resistance to fire.
Biological Durability	Thermally modified wood demonstrates a remarkable ability to resist decay by brown rot. Test results do indicate that thermally modified wood should not be used in ground contact applications where structural performance is required.
Weather Resistance	Thermally modified wood will change color over a period of time from the original brown to a grayish weathered color and may also develop light surface checking when exposed to direct sunlight. The original color and surface integrity may be preserved with pigmented or UV-protective nontoxic coatings.
Leachate	Thermally modified wood is not subject to chemical leaching issues.
Surface Hardness	Thermal modification does not significantly change the surface hardness of wood of the same species.
Bending Strength	Thermally modified wood has a slightly reduced modulus of rupture, though no significant reduction in modulus of elasticity when compared to kiln-dried wood of the same species.
Compression Strength	The thermal modification process has no significant effect on the compression strength values.
Splitting Strength	The thermal modification process can cause some reduction in the splitting strength.
Screw Extraction	The thermal modification process has no significant effect on screw extraction resistance.