

Laminated Wood - Types of Laminate Flooring

Floor covering with a surface layer consisting of one or more thin sheets of a fibrous material (usually paper), impregnated with aminoplastic, thermosetting resins (usually melamine). These sheets are either pressed as such (HPL,CPL,Compact) and in case of HPL or CPL bonded on a substrate (usually wooden-based panels) or in case of DPL directly pressed on a substrate (usually wood-based panels).

The product is usually finished with a backing (e.g. HPL, CPL, impregnated papers,veneers), primarily used as a balancing material.

- ☒ HPL laminate flooring product with a surface layer made from decorative high-pressure laminate
- ☒ CPL laminate flooring product with a surface layer made from continuously pressed laminate
- ☒ DPL directly pressed laminate flooring with a surface layer made from laminates fabricated in a short-cycle press process

Technical Info

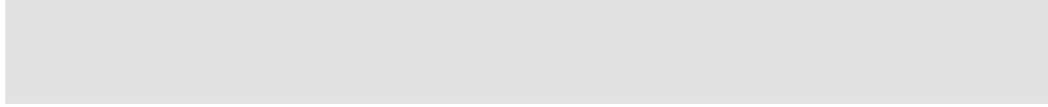
Laminate flooring comes in both planks and square tiles. Laminate flooring is constructed with several different layers of various materials that are thermo fused together to form the laminated flooring planks and tiles.

The four basic laminate flooring construction layers:

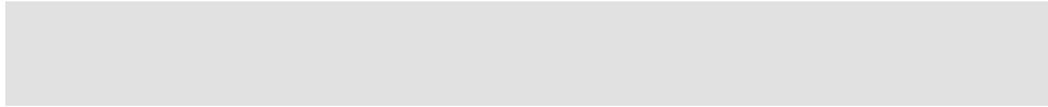
- **Wear Layer** - This is the transparent top surface that protects the floor from scratching, staining, scuffing and also protects the printed design layer below. The wear layer is a combination of **melamine with aluminum oxide particles** which makes it extremely durable.
- **In-Register Embossing** - Many of manufacturers have developed specialized methods of texturizing the top layer (called in-register embossing) to add more authentic realism to the flooring. Many also offer beveled plank edges to give the floors even more of a realistic appearance.
- **AC Ratings** - Laminate flooring manufacturers have also adopted a method of scoring the durability of the top layer to help consumers with choosing the right laminate floor for their situation. This is called the AC Ratings. The **AC** stands for **Abrasion Coefficient**. The **AC Ratings go from AC1 to AC5, with AC5** being the best. Both the in-store samples and laminate flooring cartons should have their AC Rating marked for consumers

to see. For very active areas and kid's play rooms it's best to choose a laminate floor with an AC Rating of AC3 or greater.

- **Photographic Image Layer** - This is the photographic image layer of a real hardwood plank, ceramic tile, stone or some other material. The photographic images are extremely clear, vibrant and realistic. Combined with texturizing the top layer this creates a true, authentic looking, natural floor appearance. For example, some laminate designs are actually photographic images of old historical floors.



- **Inner Core Layer** - The inner core is generally made from high-density fiberboard and also used to form the tongue and groove edges for locking laminated planks together. The core is also the base for the photographic image and wear layer. Most manufacturers also saturate the inner core with melamine resins or a water-resistant sealer to help protect the inner core from moisture.



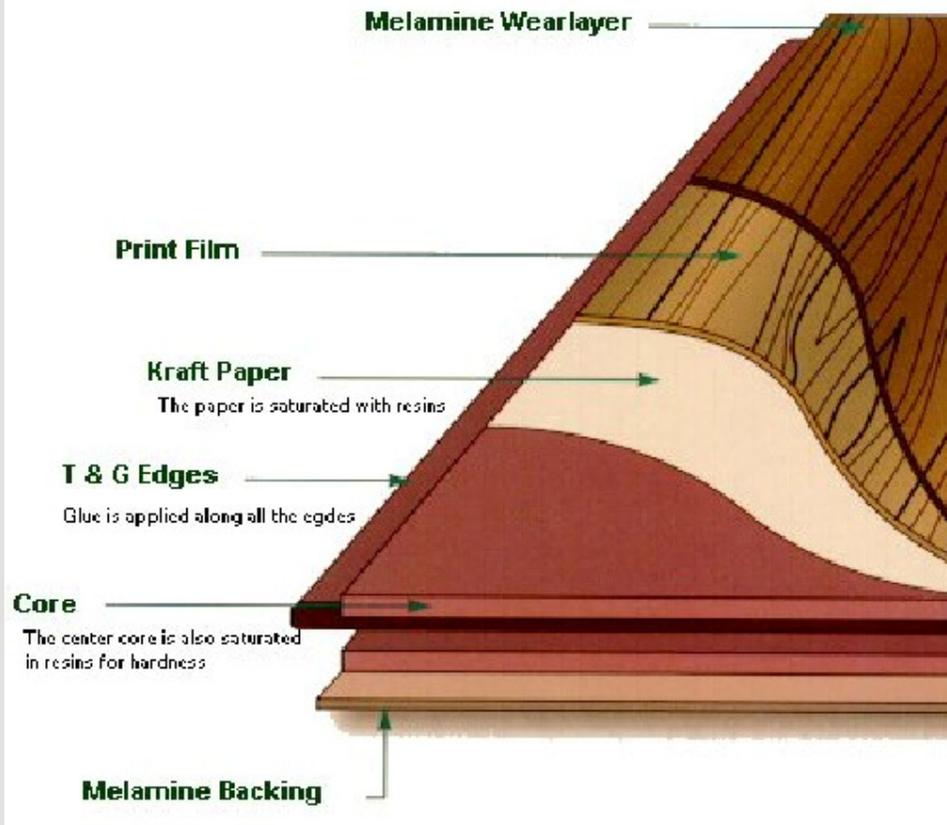
- **Backing Layer** - is fused to the Inner Core to add stability and create a barrier that helps protect the planks from moisture and warping. Like the Inner Core the backing is also treated with some sort of water-resistant sealer.

Note: The Inner Core combined with the Backing layer is what really makes up the overall thickness of each plank. Planks generally range from 8 mm to 12 mm in thickness. The thicker planks are more rigid and help overcome minor irregularities in the sub-flooring.

The laminated planks are usually fused together in either a one or two step process. In the two-step process several layers are first glued together and then these layers are combined with the remaining materials and than glued and fused into a plank. This method is called **High Pressure Laminate (HPL)**. The other method is where all materials are fused together in one step and this is called **Direct Pressure Laminate (DPL)**.

Laminate Construction

This photo is compliments of Mannington Laminate Floors



AC Ratings Overview

- AC1 - floors with this rating are suitable for low traffic areas, such as bedrooms.
- AC2 - floors suitable to low to medium traffic, such as living rooms or dining rooms
- AC3 - floors suitable for most areas in homes, including hallways and light commercial
- AC4 - any where in the home as well as commercial buildings. For example: an office or store
- AC5 - can be used in heavy traffic commercial areas.

Laminate Flooring Installation Systems

The planks have tongue and grooved edges on all 4 sides to secure the planks together. Today, most laminate floors use some sort of glue less locking system, often referred to as "click" floors. Glue less laminate floors can go almost anywhere in the home and are ideal for do-it-yourself projects.

The two main glue less locking systems either involve a tongue and groove that is

reinforced from underneath by an aluminum, mechanical locking system or a tongue-and-groove glue less locking system built right into the middle core that allows the planks to snap or click together during installation.

Some other laminate floors have a tongue that was pre-glued at the factory with specially formulated, water-resistant glue. Once the tongue is moistened with a wet sponge it activates the glue and locks the planks together. Laminate floors are also offered that require specially formulated glue to be applied to the tongue and groove at the time of the installation to secure the planks to one another.

Laminate Flooring Definitions for some Commonly Used Terms

- Backing - is usually a melamine plastic layer used to give additional structural stability and added moisture protection to the planks.
- Core - generally made from high-density fiber board (HDF), particle board, or plastic, the core adds impact resistance, and forms the tongue and groove locking system. Melamine plastic resins are also impregnated in the core by some of the manufacturers to improve the moisture resistance of the core.
- Melamine - is a plastic-type resin used throughout the construction process to add durability, and stability to the laminated planks.
- Print Film - which is also called the decorative layer gives the floor the appearance of a real hardwood or tile. Some manufacturers have been able to replicate the old wood floors found only in some old historical buildings.
- Wear layer - is a tough clear melamine layer with aluminum oxide particles. Using heat and pressure the wear layer becomes an incredibly hard and durable finish. The resin-filled wear layer is so dense it becomes extremely difficult to stain, scratch, or burn.
- Underlayment - is a clear thin plastic sheet that is installed over the substrate before the laminate floor is floated. The plastic sheet helps the laminate floor to float freely above the substrate.