

To: Whom It May Concern

Reference: Mannington Laminate Flooring – General Specification

The general standard that applies to Laminate flooring for the North American market is NALFA (North American Laminate Flooring Association) LF – 01 – 2003 and LF-02-2011. The full specifications can be down loaded from the website at www.nalfa.com. Mannington laminate flooring products including Restoration, Restoration Wide Plank, Laminate for Life, Diamond Bay, Revolutions Plank and Tile, Nature Form Plank, Coordinations, Value-Lock, Domestic, Fast Start Promotional Products are approved products. Mannington Laminate Flooring meets all FHA/HUD requirements.

The product consists of a backing layer, a core layer, a printed décor layer and a protective wear layer. The core is commonly referred to as a HDF or MDF (high or medium density fiber) board. It is composed of wood fibers and resins, cured under heat and pressure. The surface and backing layers are a build-up of paper and resins, merged together under heat and pressure. The decorative layer is typically a paper printed with pigments that provide a stable and color fast visual. The resin system, which is water based, along with the pigments utilized in the production of laminate flooring, typically does not require solvents nor heavy metal components. The composition of the wear layer more specifically is a melamine impregnated layer containing aluminum oxide for added wear and scratch resistance.

The total thickness of the laminate product is 8 mm thick or approximately 5/16th inches with the exceptions of Revolutions Plank—Diamond Bay, Restoration, Laminate for Life, and Restoration Wide Plank which are 12 mm thick or approximately ½ inches and Domestic which is 7mm thick or approximately ¼ inches. The majority of the thickness comprised of the core board. The composition of the core board is made up of primarily cellulosic fibers. The major component in laminate flooring is wood residue streams such as saw dust, panel trimmings etc, utilized primarily in the core layer.

It should be noted that Mannington Laminate flooring has been tested per ASTM E-648 *Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source* and passes with a Class 1 rating (CRF Value GT or equal to 0.45 watts per sqcm) as well as per ASTM E- 662 *Test Method for Specific Optical Smoke Density of Smoke Generated by Solid Materials* (passes with value LT 450). ASTM E 648 and E-662 are the more common fire test requirements for flooring materials and what building codes normally reference.

Laminate flooring has the following attributes:

- Low VOC emission levels
 - *The resins used to bind the HDF do contain small amounts of formaldehyde*
 - *It is generally known, trace levels of formaldehyde can exist in natural wood and timber, thus may be inherent in laminate flooring products.*
 - *Mannington products meet or are below even the prescribed phase 2 California Air Resources Board (CARB) emission levels.*
 - *All Mannington Laminate is FloorScore certified for indoor air quality*
- Utilizes a large percentage of renewable resource materials, primarily in core
- No heavy metal components
- Durable long lasting flooring
- Majority of laminate floors are installed glue-less
- Utilizes large amounts of wood and paper residue streams, providing upgraded use for normal waste streams
- Underlayment minimizes surface prep work required
- As of December 2013, 100% of Mannington Laminate Flooring is Made in the USA