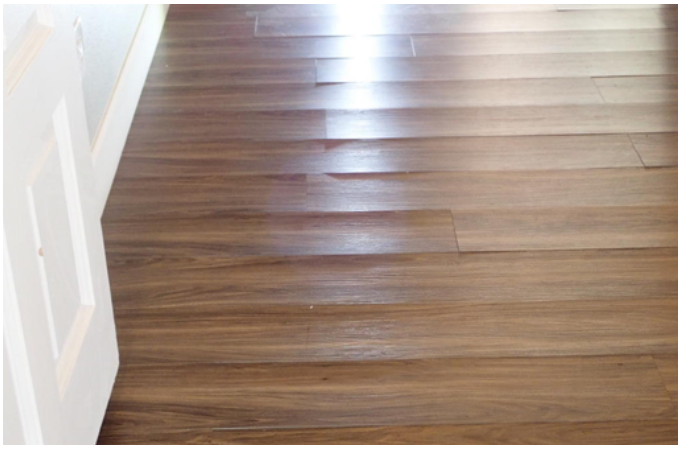
TECHNICAL BULLETIN

Understanding Cupping in Solid Hardwood Flooring

Hardwood flooring is a natural product that reacts to environmental variations, especially humidity. One of the most common reactions to moisture imbalance is **cupping**. This bulletin explains what cupping is, what causes it, and how it can be addressed, based on guidance from the **NWFA (National Wood Flooring Association)** and our own installation standards.

WHAT IS CUPPING ?

Definition NWFA:
Cupping occurs when the edges of a solid hardwood board rise higher than the center, creating a concave shape across its width. This condition generally develops gradually and indicates a moisture imbalance within the board.



CAUSES OF CUPPING

Cupping is primarily caused by **excessive moisture on the underside** of the flooring. This creates a moisture differential within the board.

Common sources include:

- Building or plumbing leaks
- Poor drainage or insufficient ventilation
- Damp or wet basements and crawlspaces
- Leaks from household appliances (dishwashers, refrigerators, etc.)
- Uncured concrete subfloors
- Elevated moisture content in plywood subfloors
- Improper or malfunctioning HVAC systems
- Lack of proper acclimation before installation
- Improper maintenance by the owner, including:
  - using water-saturated mops
  - applying cleaning products directly to the floor surface

Note: Rapid surface drying can also cause cupping and may be accompanied by gaps as the wood shrinks.

PREVENTION AND INSTALLER RESPONSABILITIES

To minimize the risk of cupping, both the installer and the homeowner must ensure proper job-site conditions before and during installation.

Subfloor Moisture Requirements

- Subfloor moisture content must not exceed 12%
- The moisture content difference between the flooring and subfloor must be:
  - ≤ 4% for boards < 3" wide
  - ≤ 2% for boards ≥ 3" wide

Environmental Requirements:

- The owner is responsible for maintaining indoor relative humidity between 35% and 55% year-round, including in the basement.
- A vapor barrier with permeability between 0.7 and 10 (ASTM E-96 A) must be used for nailed or stapled installations.
- Installation must occur under normal living conditions.

Inspection

- A final inspection of the flooring must be completed before installation.
- Once installed, the flooring is considered accepted by both the installer and the owner.

CURE AND REMEDIATION

Do not attempt to repair a cupped floor until all moisture sources have been identified and eliminated, which must be verified with a moisture meter capable of reading both the flooring and subfloor.

If the wood is not permanently deformed
The boards will often return to their original shape once moisture levels stabilize.

This process may take:

- Several weeks
- Several months
- or even a full heating season

Running a continuous-use dehumidifier in the basement, connected to the main drain, is strongly recommended.

Important:
Sanding a cupped floor before it is fully dry can cause crowning, where the center becomes higher than the edges after drying.

To determine whether the floor is still drying:

- Measure moisture at different depths in the board.
- A difference of 1% or more between the top and bottom indicates ongoing drying.

IN SUMMARY

Cupping is the natural reaction of solid hardwood to an internal moisture imbalance. Its prevention depends on proper installation practices and the owner's responsibility to maintain stable humidity levels within the home. Corrective action begins with identifying and eliminating the source of moisture, followed by allowing the flooring to stabilize over time.

For further assistance or questions, don't hesitate to contact our technical support team.

Lauzon Team