

## **Splits and Checks: the Hardwood Flooring Industry's Biggest Problem**

### **The Hardwood Flooring Summit**

Splits and checks are a huge problem in the hardwood flooring industry. In regards to the cause of splits and checks, there is conflicting information. Some industry experts point to manufacturing related issues as the source of splits and checks in hardwood floors. Other industry experts state that it is an environmental related issue, while still others claim that it is a natural phenomenon in hardwood.

The Hardwood Flooring Summit plans to highlight this problem by providing the industry with many answers. This will be done in two steps. First of all, this paper describes checks and splits in a technical manner. This paper also documents the kiln drying process of hardwood flooring. While this paper does provide technical information on one of the biggest problems facing the hardwood flooring industry, it does not aim to resolve the issue of splits and checks.

In order to work towards this resolution, The Hardwood Flooring Summit is holding a detailed discussion on splits and checks in hardwood flooring. Dr. Brian Bond (who is a professor at Virginia Tech's Department of Wood Science & Forest Products) is extremely knowledgeable (and highly educated) in regards to splits and checks in hardwood flooring, as well as the kiln drying process of hardwood. His input has provided much of the technical data supplied in this paper. Dr. Bond is scheduled to be a key speaker at the upcoming Hardwood Flooring Summit, which is the only educational conference dedicated to hardwood floors.

According to Dr. Bond, a face check in hardwood is defined as “a failure in the wood when the force exceeds the stress in tension”. Cupping (due to a lack of moisture) is often the cause for this excessive force placed on the boards. The bottom of boards absorb moisture, and expand against each other with tremendous force. This causes compression stress fractures, splits, and/or face checks.

Let's take a look at the kiln drying process, which all hardwood flooring undergoes. Naturally, these steps may not be exactly the same. Since hardwood flooring is manufactured in many locations throughout the world, and there are certainly some variations in the manufacturer's specifications in regards to kiln drying. That being said, the following explanation should provide a solid foundation of understanding on how the lumber drying process works:

Before the hardwood is placed in the kiln dryer, they are stacked with stickers. According to Dr. Bond, these generally range in measurement from 3/4” to 7/8” in thickness, and from 7/8 to 1 1/4” in width. The stacks are placed in outside yards, and allowed to air dry. The air drying process takes place over the course of three months—or even longer.

Stacking the wood in this way provides air flow through the packages. Once the air drying process is complete, the wood is transferred from the yard directly to a kiln. The hardwood is dried in the kiln.

The kiln is circulated with dry, heated air. The interior temperatures of the kiln generally range between 90°F to 180°F. The goal of placing the wood in the kiln is to have the wood

reach a moisture content that is comparable to the moisture content in the average North American home. A moisture content range (for the hardwood flooring) of between 6% to 9% is recommended by The National Wood Flooring Association.

During this drying process, splits and checks commonly close. As the splits and checks close, they become invisible to the naked eye. Boards are then cut down in size, and precision milled to a specific thickness and width. Many finish coats are applied in a pristine environment.

The boards are then inspected and graded, according to industry accepted rules and guidelines. Part of this inspection and grading process includes evaluating the wood with the manufacturer's moisture meters and human eyes before it is received by the end user.

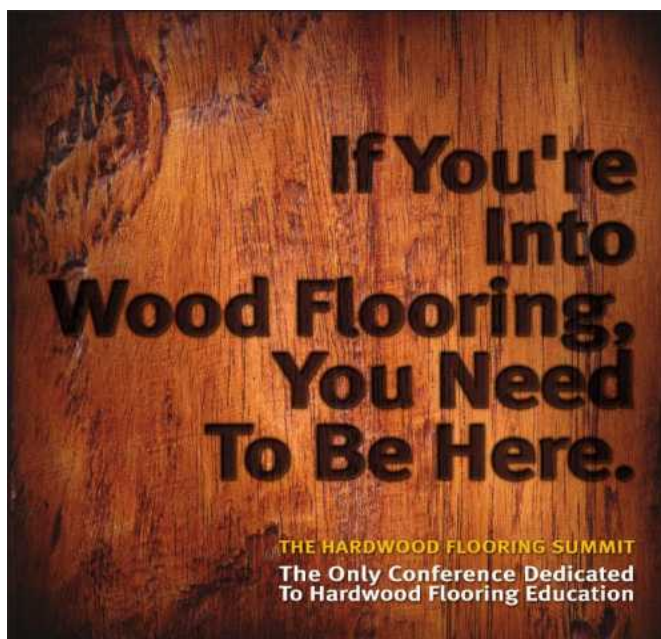
At The Hardwood Flooring Summit, Dr. Bond will focus on the formation of stresses that occur during drying process. He will cover the theory behind checks and splits in the drying process. He will also discuss stresses and forces caused by equilibrium moisture content (i.e. relative humidity) changes in installed flooring.

In addition to this, The Hardwood Flooring Summit will host an expert panel, which will participate in an open debate on the causes of splits and checks in hardwood flooring. Dr. Bond, Rick Jones (Technical Director at Scandian Wood Floors), Tony Miralde (Technical Director at Somerset), and Don Conner (President of National Wood Flooring Association Certified Professionals, and prior Technical Director at Mullican Hardwood) are all slated to participate in this panel discussion. For information on checks and splits in hardwood flooring, or for more information on attending The Hardwood Flooring Summit, call the number below.

The list of speakers scheduled to present at The Hardwood Flooring Summit includes:

- Brian H. Bond, Ph.D., Virginia Tech University, Professor of Wood Science
- Dennis Szczybor, Mohawk, National Product Director of Hard Surfaces
- Brian Carson, Mohawk, President Mohawk Residential, Hard Surfaces
- Carl Cothran, Mohawk, Technical Director
- Ed Korczak, CAE, National Wood Flooring Association, Executive Director/CEO
- D. Christopher Davis, World Floor Covering Association, President & CEO
- Don Finkell, Anderson Hardwood Floors, President & CEO
- Rick Jones, Scandian, Technical Director
- Dan Natkin, Mannington, Hardwood Business Manager
- Jack Racine, BR 111, Technical Director
- Lew Migliore, Floor Covering News Columnist, Claims File
- Todd Schutte, BonaKemi, Director of Sales
- Don Conner, National Wood Flooring Association,  
Director of Certification and Technical Services
- Scott Sandlin, Shaw, Vice President Hard Surface
- Steve Lima, Bostik (Adhesives), Technical Director
- Len Daubler, Anderson Hardwood Floors, Technical Director
- Tony Miraldi, Somerset Wood Products, Technical Director
- Carl Williams, Academy of Textiles and Flooring, President
- Dan Blake, All Flooring Inspections, Owner & NWFA Instructor
- Lee Phillips, Professional Testing Labs, Lab Supervisor

- John Himes, Wood Flooring International, President
- Sonny Callaham, Parachem (Adhesives), Technical Director
- Chesty West, Zickgraf, Technical Director
- Steve Marley, Johnson Premium Hardwood, Technical Director
- Charles Peterson, GE, Protimeter Moisture Meters
- Dave Posey, Wagner Moisture Meters
- Kevin Mullany, Benchmark Wood Floors, Owner, NWFA Instructor
- Jack Bosch, MP Global Products (Underlayment), Director of Sales & Marketing
- Bill Jopling, Wood Flooring International, CEO
- Martin Heimerdinger, Lingnomat Moisture Meters
- Taylor Distributors, Spokesperson for Delmhorst Moisture Meters
- Andy Cambell, DNA Floor Surgeons, Owner & NWFA Instructor
- Erin McCall, Anderson Hardwood Floors
- Joe Amato, Mannington, Award Winning Wood Flooring Designer
- Mike Sundell, RM Design, Sand and Finish Expert
- Dan Prewitt, Radiant Heating Specialist
- Jeffrey P. Blake, Associated Press, Award Winning Professional Photographer



Never before have 40 hardwood experts come together to share their wisdom and experience. Call today to register for the 1st Annual Hardwood Flooring Summit.

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