



Hardwood Troubleshooting

No matter what we call them — complaints, call-backs, objections, problems, troubles, issues etc.—we all have to deal with them sooner or later. The primary objective is to minimize these occurrences. Know your product; use certified flooring; follow directions; do it right the first time; and educate the customer.

But, what do we do when the trouble occurs? First, address the issue head on. Complaints will not magically go away. If we delay a response, the troubles will only get worse.

What to do when we go to check the trouble? Question those involved, ask them to specifically state/show their objections. Be courteous. Listen. Allow the customer to finish saying what they have to say. If you must interrupt, do so only to ask questions to help clarify the objection. When your response is requested, first acknowledge the issue: “I see the gaps you are pointing out;” “I see that the flooring is cupped;” “I can feel that the finish is not smooth;” “Yes, that is a split, a knot, a streak, a different looking board;” “I hear the noises, squeaks, creaking.”

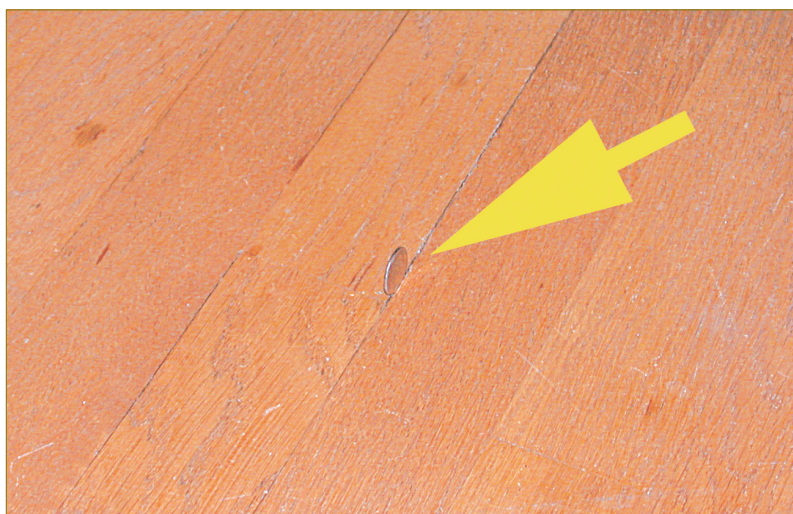
Do not draw conclusions before

investigating. Avoid comments such as: “Those are the worst gaps I have ever seen, the flooring was green when installed;” “The cupping is from excessive moisture, the flooring was put in green;” “Had to be defective finish, it bubbled too much;” “That is a defective piece;” This is not #1 Common, too much color;” “The noises are from a loose match, defective material.”

Too often, statements such as these are made without additional data or checks. Don’t make excuses; don’t point fingers at other parties;

don’t assume the cause from observation without checks and data to back you up. Calling a product “defective” says the product needs to be replaced. Characterizing conditions as “excessive” implies the flooring cannot be repaired.

In my experience, gaps and cupping are the most common cause for complaints. Other common complaints include issues of quality not meeting expectations, noises and squeaks, finish conditions, and a laundry list of other items. How to handle problems associated with



This nickel-sized gap closes seasonally; this is a normal gap.

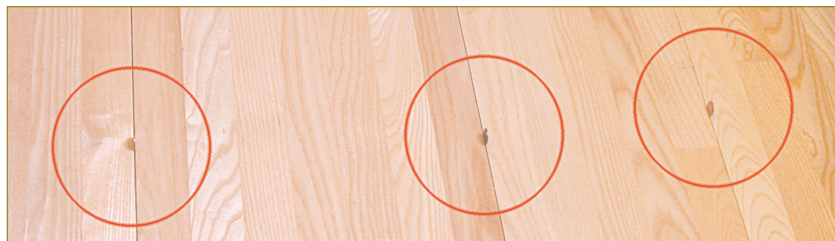
cupping was covered in an earlier column (see FCI, May 2003).

This month we'll discuss trouble shooting gaps: First the definition: Gaps are spaces that occur between boards or strips. The condition most often occurs between the edges and less frequently between ends. The condition often becomes apparent during the first winter or heating season.

There are normal gaps, permanent gaps, and abnormal gaps. Normal gaps are those that open and close seasonally. A normal gap can be any size so long as it closes seasonally. Permanent gaps are those that generally occur during the first year for a new structure or after an event such as a major remodel, a leak, or a flood. These are often related to structural acclimation and movement. Permanent gaps will be present year round though they may change in size with the seasons. Abnormal gaps are permanent gaps that are prominent and noticeable from the standing position when observed during the most humid season, normally the summer.

Wood shrinkage and system movement are the primary causes of gaps. Shrinkage of wood products occurs with any loss of moisture from about 28 percent moisture content (fiber saturation) to 0 percent moisture content (oven dry). In most areas of the US and Canada, interior seasonal environmental change results in a 3 percent or less overall moisture change. The associated normal gaps in strip flooring are generally small—about 1/32-inch wide. In some areas with wide seasonal environmental changes, a significant heating season and humid summers with light air conditioning, such as Maine or the Great Lakes areas, the overall moisture change can be 5 percent to 6 percent. The associated normal gaps can be 1/16-inch wide, +/- . Educating the customer (FCI January and February 2004) and choosing appropriate product can help prevent objections to normal gapping.

Many conditions can contribute to shrinkage and gaps: improper han-



Quarter-sized gaps showing panelizing; most close seasonally.

HighPROTM TOOLS

Your Hardwood Flooring Specialist



- Durable
- Lightweight
- Powerful
- Superior speed
- Professional quality
- Uses industry standard fasteners

No Other Tool is So Versatile!

Available as a
Cleat Nailer or Stapler

HighPRO Tools
The best tools
you've ever used,
GUARANTEED!

Model AE-4000
5/16" to 5/8"
Engineered or Solid
Tongue & Groove Flooring

**Call toll-free to order or request information
on HighPRO's full line of pneumatic tools**

888-232-2460



NOFMA TIP SHEET

dling and storage, jobsite moisture, high moisture content at manufacture, high moisture in the subfloor, and environmental drying, to name a few. This is why it is necessary to check for moisture conditions and moisture content of site materials before delivery and to check the moisture content of the flooring when delivered.

Checking if oversize installation is the problem.

Improper handling and storage may be to blame if the flooring has been stored in a moist or wet condition at the warehouse, in the garage, in the basement, on the wet subfloor, on wet concrete. Like any wood product, flooring will absorb the available abnormal/elevated/excessive moisture, expand in size and if not allowed to acclimate, it will be installed oversize. After the structure is completed, the conditions of occupancy allow for drying and associated shrinkage,



This floor was oversized by 3/4-inch at the time of installation; there are 21 runs in 48 inches; nominal measure is 47 1/4 inches.

resulting in permanent gaps.

A good way to check for oversize installation is to measure groups of flooring strips, say 20 runs. If the total measure (from the leading edge of board 1 to the leading edge of board 21) is significantly oversize, the flooring was installed at a higher than manufactured moisture content. 45 inches is the nominal size for 20 runs of 2 1/4-inches strip flooring. A measurement of 45 5/16-inches would show that the strips were on average 1/64-inch oversize when

installed. Review of the chain of custody would identify the most likely place the moisture gain occurred.

Checking if high moisture content at manufacture is the problem.

NOFMA certified 2 1/4-inch strip flooring has a specified manufactured moisture content of 6 percent – 9 percent with up to 5 percent of the pieces allowed to be up to 12 percent moisture content. If flooring is manufactured “heavy”, at significantly higher moisture content, and later loses this moisture through normal environmental change, shrinkage will result in undersize pieces. Pieces of oak strip flooring at 1/32-inch undersize show a loss of about 4 percent moisture. Over drying can also result in undersize pieces so moisture readings have to be made to eliminate the too dry condition. Can you automatically say observed gaps have resulted from

Installation Essentials

Delmhorst Moisture and RH meters are necessary tools for flooring professionals. Determine the moisture content in sub-floors and wood floors to guarantee proper installation and avoid call-backs.

DELMHORST
INSTRUMENT CO.

When Accuracy is the Point
1-800-222-0838 delmhorst.com

FCI
Classifieds

Contact
Dale Ilmi
For More Information
800-837-7370
x 6414



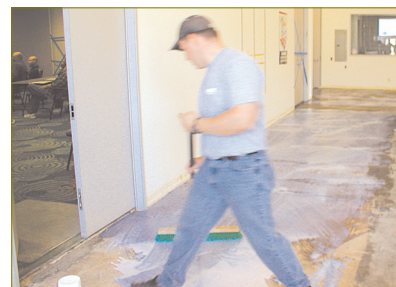
NOFMA TIP SHEET

heavy flooring? Not if you haven't checked the moisture content and size of the strips around the gap.

Check to see if wet subflooring is the cause of gaps.

A wet subfloor (usually 4-by-8 panels) will often cause flooring to expand and cup. This can result in gaps later as

the flooring dries, shrinks, and crowns. However, as the subflooring dries it also shrinks along panel dimensions. The most obvious indicator that this is the culprit is larger gaps will occur near the 48-inch intervals and will generally extend along a run or two across the room. End gaps can also occur as panels shrink in the 8-foot



5-inch Plank 4/64-inch undersize, 7 percent present moisture content, manufactured 10-10 1/2 percent moisture content, within the 5 percent allowed.

dimension. Gaps can also result as the structure moves either by moisture change or from settling. Panel joints frequently occur near under-floor beams and girders. A structure will move the most during its first year and as the structure settles gaps may occur along these structural components. In addition, the panels may be pulled in opposite directions and form gaps associated with racking of the flooring, commonly known as "cross-pull" gaps. Check out the structure and location of structural components.

This a good time to address engineered flooring, as it is generally made of wood plies similar to plywood. A similar amount of shrinkage occurs both in width and length. Since the width dimension is small, gaps from shrinkage along the edges are very minor. Since the length is the greatest



Wider gaps at 0 inches and 48 inches, due to higher subfloor moisture content at installation.



Get It Down Right!

Carpeting and Padding

Easy Operation
Efficient Performance
Durability



Proven!

HT50™ TOMAHAWK™

Nothing puts down carpet padding like the ARROW TOMAHAWK™.

- All-Steel Patented Jam-Proof Mechanism
- Retractable Striking Edge
- Ergonomic Wrap Around Grip
- Loads 2 Full Strips (170) of Heavy Duty ARROW Staples — 5/16", 3/8", 1/2"

For Padding, Metal Lath, even Insulation and Roofing Felt.

New!

Electric ET150™ ProShot.2

Easily install carpet, upholstery and drapery. Specially designed profile gets between risers.

- 14 Amps — Drives into Hard Wood
- Shoots 3 Sizes of (3/16" Wide) Narrow Crown Staples: 3/8", 1/2", 9/16"
- Extended Solid Steel Nose: No Movement or Deflection — even under pressure or constant use
- Drive Depth Control
- Quick Release Staple Chamber Latch
- 18-Foot Power Cord

...Tools for Contractors and Installers that Last and Last.




Arrow Fastener Company, Inc., 271 Mayhill Street, Saddle Brook, New Jersey 07663
Canada: Jandel Distributors, Inc., 6505 Metropolitan Blvd. East, Montreal, Quebec H1P 1X3
United Kingdom: Arrow Fastener (U.K.) Ltd., 14 Barclay Road, Croydon, Surrey CR0 1JN
www.arrowfastener.com © 2001 Arrow Fastener Company, Inc.

CIRCLE 8



Note gap under door and near straight edge. There is a gap in both rooms along the subfloor panel edge.

dimension, gaps will most often occur between the ends. It is difficult to determine how much end shrinkage has occurred since the exact length of manufacture may not be known. Moisture readings of the flooring can help. When the readings are very low end gaps can result, but measuring how much change has taken place may not be possible.

Environmental drying is another cause of gaps.

Flooring shipped to Colorado, Idaho, Arizona and similar arid areas will generally shrink due to the area environment. The NOFMA standard of manufacture for solid wood flooring is on average 7 1/2 percent moisture content, the environmental average for these areas can be 5 percent to 6 percent moisture content. In these areas, extra time should be allowed for acclimation. The 20 run measure for strip in these areas will most likely be around 44 7/8-inch +/-, showing shrinkage before installation. A 45-inch or greater measure will most likely indicate acclimation was not completed before installation.

Of course, gaps can result from one or more of the above issues in a single floor and this is frequently the case. As a contractor or distributor you can make an intelligent call on the more obvious problems with proper data. But, to make a definitive assessment on a more complicated system, an inspection by a NOFMA-Certified



3 1/4-inch Strip 3/64-inch undersize, less than 6 percent present moisture content, manufactured less than 9 1/2 - 10 percent moisture content, within the NOFMA specification standards.

Wood Flooring Inspector might be called for. NOFMA Certified Wood Flooring Inspectors have undergone extensive training in all issues related to flooring performance and are the most qualified individuals to assess the true cause of any flooring performance issue. The inspection will give a basis for repair and or remediation and most likely not to tear out and start all over. When in doubt, seek expert help. **FCI**

About the Author: Mickey Moore is currently the technical director of the Wood Flooring Manufacturers Association (NOFMA), a position he has held since 1988. Prior to joining NOFMA, Moore worked as a remodeling sub-contractor and QC inspector for a general contractor. Moore is a graduate of the University of Memphis with a degree in wood working technology and biology.

QuietWarmth

Radiant Heat Underlayment



You'll love the comfort!

- Floating radiant heat designed for laminate, tile, and wood flooring

- Much easier to install than most other systems

- No need to bury components in thick concrete



From the makers of
QuietWalk™ underlayment.

**Midwest
Padding**

"A Sound Choice"

(888)379-9695

www.midwestpadding.com

CIRCLE 9