

Gaps and Squeaks in flooring

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One of the most common complaints with wood flooring is board gaps and squeaking. There are in fact several factors that can contribute to this such as; normal seasonal changes due to *-weather* or low indoor humidity *-site related conditions* or installations over radiant heat or overly dry heating usually *-site or application related*, or installing a floor having width variations, not removing issue boards prior to installation *-installation related*. What can be done to prevent or minimize flooring gaps and squeaks? Here are a few Tips.

Seasonal gapping

In most cases gaps from board shrinkage is usually indicative of an indoor humidity imbalance. All wood products in your home will expand or contract as air moisture or humidity changes. During times of higher humidity such as summer months, or extended rainy days, wood components like doors and windows may swell and expand causing squeaking or sticking issues. In dry, colder weather, cracks and fine lines of separation may appear in cabinetry and furniture joints even in sheetrock. Wood flooring reacts in the same way. Like a porous "sponge" the natural characteristic or behavior of wood continually expands or contracts in relation to its environment. Therefore during dryer months or lower indoor humidity it is normal to have some gaps and squeaks even with properly installed laminates, cork, bamboo or wood flooring.

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From overly dry types of heating Gaps and squeaks can also occur from overly dry conditions or excessive heating temperatures, from under-floor radiant heat applications, furnaces, wood stoves, sun rooms and so on. **(pic1)** Without proper humidification wood flooring can become over-dry and shrink, squeak and gap, even promoting loose fitting locking-joints in floating floors often resulting in seam separation; the flooring can literally coming apart at the seams.

How to minimize due to seasonal changes?

The key is to maintain the proper indoor environment with target humidity levels of 30% -50% and temperatures of 60°- 80° degrees. Within this range wood products become relatively dormant, before, during and after installation. An inexpensive [hygrometer](#) can easily monitor humidity levels. **(pic2)**

A [whole house humidifier](#) may be required to maintain these indoor conditions; this will not only lesson the likelihood of gapping but will also promote a healthier inside air quality, beneficial to sinus sufferers! **(pic3)**

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WOOD QUALITY

Moisture- Material related gaps due to elevated moisture are rarely an issue. This is because kiln-drying schedules, moisture testing and weight samplings are all employed to ensure that materials are adequately dried before the flooring is ever milled (**pic1**). In addition, top finishes cannot be applied to wood exceeding predetermine moisture content (mc) of 6%-12%.

Milling- Wood flooring is manufactured or controlled to exacting tongue & groove, height and width profile tolerances (**pic2**). Nevertheless, wood is a plant with a cell structure. Unlike *-ceramic tiles-* wood shape and tolerances can be adversely affected by such things as shipping, storage, weather and acclimation. Therefore, verifying compliance to manufacturer's milling tolerances *-pass or fail-* cannot be determined at the job-site using micrometers or similar type digital devices. In view of the above, both NOFMA and the NWFPA - *governing bodies for domestic wood manufacture-* have published much data to enable flooring inspectors and end users to have reasonable expectations regarding milling compliance. At the job-site, a "visual" inspection is the standard procedure to determine product acceptance; either from a standing position or by a percentage amount of installed flooring as directed per the manufacturer's instructions.

Installation related gaps

Installers or diy'ers are the last link for "Quality assurance" responsible for final inspection of product quality, moisture testing the subfloor and wood flooring. During installation, use reasonable board selectivity and good judgment. From a standing position any individual board deemed unacceptable in appearance should not be used. Defects such as; tapered ends (**pic3**) cracks, end splits, width variations and so on should be cut off placing the remainder in closets or near walls. To minimize installed gapping, boards of similar widths should be placed together in the same row. If milling or quality is suspected stop the installation and contact the store/manufacturer. Most manufacturers agree that a reasonable amount of installed flooring is enough to stop and determine acceptable product quality, *see details in the instructions*. Because use constitutes acceptance, once the flooring is completely installed it is deemed free of visual problems and appropriate for use by all parties concerned. The manufacturer is not responsible for costs associated with repairing or replacing flooring installed with clear visible defects.

Normal Gaps?

Yes it is normal to have some degree of gaps in correctly installed flooring and these are often influenced by various factors such as; low indoor humidity, dry heating, seasonal changes and board size choice. Generally speaking wider flooring can have wider gaps. For example; wood flooring 2 1/4" wide shrinks appreciatively less that wider 6" flooring due to its mass of more wood. Wood cuts like plain sawn, quarter and rift sawn will shrink/swell in relation to the growth rings (**pic4**). Lighter flooring will show gaps more dramatically than darker

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styles or species. Normal “seasonal gaps” that can be hairline in size or can allow a dime to fit between the floor boards are within industry standards and will usually close back during seasons of higher humidity. More significant gaps like the thickness of a quarter or greater are indicative of over-dry in-home conditions and are to be expected in dryer low humidity regions of the country and in areas with extended heating seasons.

Other reasons for gaps and squeaks

System movement: when outside walls settle or a house’s center beam moves/sags

Over-drying: around heating ducts and vents

Improper subfloor or nail fastening schedule: Installing over an incorrect or poor subfloor, not following the manufacturer’s nail schedule or pattern.

Panelization- sometimes over-dry inhome conditions can cause subflooring to shrink (**pic1**). When this happens several rows of flooring nailed to the subfloor can “ride” along with the subfloor (**pic2**). When the subfloor moves so does the flooring attached to it. Panelization is usually caused by installing over plywood having elevated moisture content that eventually dries out and moves after installation.

More solutions

Replacing a floor to get rid of gaps is usually not necessary, adding humidification is most recommended.

For normal gaps; no repairs are practical. These spaces can close up with normal seasonal expansion. Any filler used can prevent or interfere with normal closure or can be pushed out as the wood naturally expands during this time. Allow one full season before using wood fillers.

For abnormal gaps; a professional contractor can properly repair floors. The time to initiate repair is midway between seasonal extremes. For much of the U.S., this means near the months of April or October.

Sanding/refinishing; (**pic3**) first ensure proper moisture levels in the flooring and stop unusual movement between strips. Strips may require face nailing to eliminate movement. Next, thoroughly clean the gaps. Old filler and trash should be scrap and vacuumed away. Proceed with refinishing.

For more information and assistance, please contact Lumber Liquidators Technical/Installation dept. 800-366-4204



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