

Frequently Asked Questions

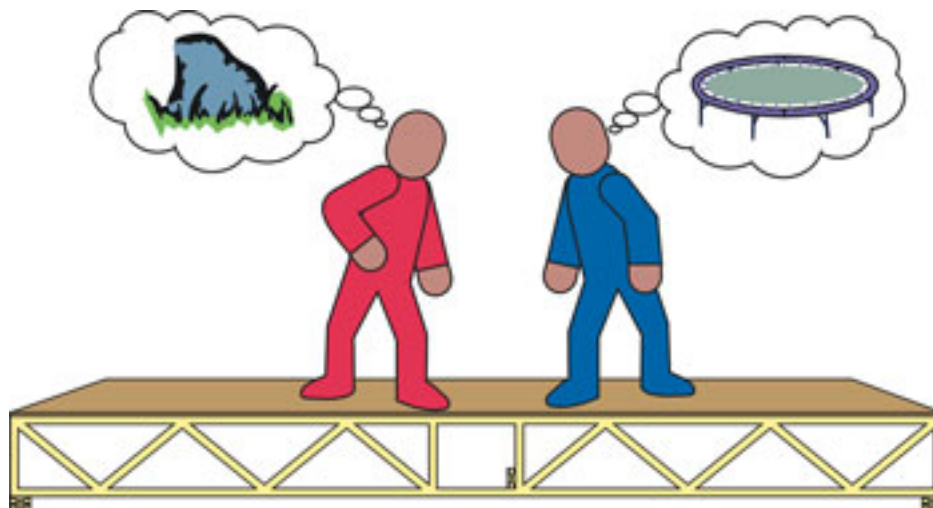
Floor Performance by Rachel Smith

Floor vibration, bounce, movement, springiness—call it anything you like, but for most new homeowners, it is an unwelcome guest. It is not something that can be easily designed out of a floor system by following the building codes. In fact, most experts in this area agree that designing to higher deflection criteria (using L/480 versus L/360) does not guarantee better floor performance. The problem with defining good floor performance is that it is highly subjective. What may be fine to one homeowner may be unacceptable to another. Research into floor performance from Trus Joist, A Weyerhaeuser Business, has found that homeowners moving from a slab-on-grade home to a wood floor framed home were very sensitive to floor movements. Once homeowners have been sensitized to the problem, it must be virtually eliminated before they will be satisfied. The trick is to build a floor that, from the outset, avoids the commonly understood causes to floor performance problems.

QUESTION:

How do you avoid floor performance problems?

ANSWER:



THE PROBLEM WITH DEFINING GOOD FLOOR PERFORMANCE IS THAT IT IS HIGHLY SUBJECTIVE. A FLOOR THAT SEEMS ROCK SOLID TO ONE HOMEOWNER MAY SEEM AS BOUNCY AS A TRAMPOLINE TO ANOTHER.

A multitude of factors may cause floor performance problems. These problems are not limited to wood framing either; steel bar joists and pre-stressed concrete floors can also experience performance problems. Here are some things to keep in mind when designing and installing wood

floor systems regardless if they are composed of trusses, I-joists or solid sawn lumber:

- Design for code plus. That is, design to a higher standard than what the building codes allow. Remember that building code minimums are just that—minimum allowables.
- Minimize the span-to-depth (length/depth) ratio. Aim for a ratio of 20 or less. Deeper floor framing means better performance.
- Thicker sheathing improves floor performance. Attach by glue and screws rather than nails. Contact APA-The Engineered Wood Association at www.apawood.org for sheathing and attachment details.
- Higher quality materials and construction will improve floor performance.
- Properly installed strongbacks in trusses improve floor performance.
- Directly applied gypsum board ceilings under floor framing improve floor performance.
- One continuous framing member over multiple supports gives better performance than smaller pieces spanning from support to support for the same length.
- Partition walls running perpendicular below floor systems dampen vibrations and improve performance but only if they are solidly attached to the floor system.
- Reducing on center spacing does little to improve floor performance.
- Concrete topping may not improve performance.
- Cross-bridging and blocking for I-joists and solid sawn joists only helps if it is carefully installed. If not, it may cause squeaks, which can contribute to the perception of bad floor performance.
- Floor framing systems supported by beams will exhibit more deflection than those supported by walls or foundations.

To pose a question for this column, email us at faq@woodtruss.com. To view other questions visit the [WTCA website](#).

[SBC HOME PAGE](#)

Copyright © 2001 by Truss Publications, Inc. All rights reserved. For permission to reprint materials from SBC Magazine, call 608/310-6706 or email editor@sbcmag.info.

The mission of Structural Building Components Magazine (SBC) is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing of structural building components to ensure growth and continuity, and to be the information conduit by staying abreast of leading-edge issues. SBC will take a leadership role on behalf of the component industry in disseminating technical and marketplace information, and will maintain advisory committees consisting of the most knowledgeable professionals in the industry. The opinions expressed in SBC are those of the authors and those quoted solely, and are not necessarily the opinions of any of the affiliated associations (SBCC, WTCA, SCDA & STCA).