**Ask Jon Eakes**

# How to stabilize a floor made out of only 2x4's.

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Pat has an 80 year old house and the previous owner built an addition onto it. The floor is tiled and when Pat looked underneath the floor to find out why it was so bouncy, she discovered (see the photo) that the floor joists were 2x4's turned flat! That's not a floor, that's a trampoline, and one that could break right through. Pat wants to know if she can prop it up or whether she has to tear it all out.

She definitely cannot leave it as is. This is beyond a "springy" floor and into a dangerous floor, especially with heavy tiles on top of it as well. Floors are usually supported with 2x8 or even 2x10 joists. The picture shows just how much less support you get from a flat 2x4 than from a 2x8 on edge. What you can't see in a photo is how much the flat 2x4 springs while the 2x8 on edge does not. Something that fulfills the requirements of the code span tables must be put under this strange floor, or the entire floor riped out and rebuilt right. (Some engineered wood floor joists could give you the same strength with less depth than the 2x8s.) An important detail is that the joists themselves must be supported by something that will carry the weight down to the walls of the foundation, or at least to the floor of the basement. If you measure how far the joists must span between supports, someone with the span table book could tell you exactly what size lumber at what spacing is necessary to make a proper floor. You can get your own copy of the Span Tables from the Canadian Wood Council in Ottawa.

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