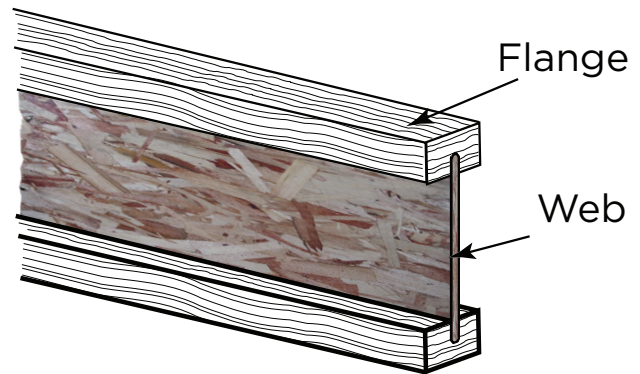


Engineered Floor Joists

Traditionally, floor joists are made from lumber sawn from trees. The cross-section is rectangular. Typical sizes are two-by-eights or two-by-tens. This is called dimensional lumber. While dimensional lumber makes excellent floor joists, there are two problems. First, it is getting harder and harder to find trees large enough to cut these profiles. Second, the rectangular cross-section does not make efficient use of wood fibers. Optimizing the cross-section to accommodate the stresses in the floor joist results in an 'I' shaped cross section. Manufacturers of engineered floor joists endeavor to concentrate the fibers at the maximum stress points, and to make a stronger and lighter product while minimizing wood waste.



Engineered Floor Joist

Not all engineered floor systems are 'I' shaped, but we will only be discussing the I-joist here because it is by far the most common.

Benefits

Longer clear spans: large open areas without a load bearing wall, beam or column.

Dimensional stability: less shrinkage, twisting and humps. The floors are perfectly flat from one side of the house to the other.

Fewer floor squeaks: hold their shape, resulting in fewer floor squeaks over the years.

A High Quality System

To some, engineered systems appear lower in quality than standard lumber. Clients have said, "these joists look cheap," or "this must be an inferior product because it uses less wood." In fact, these are high quality systems and the unit cost for engineered joists is more than for an equivalent piece of dimensional lumber. For many years, engineered wood was only used in high-end homes because of its expense. Today, more homes are using engineered floor systems as builders and buyers recognize the benefits.

How Does the Floor Feel?

Most home owners are interested in more than the floor's strength and deflection under a load. Some perceive engineered floor systems as "bouncy," or not as solid as sawn dimensional lumber. But engineered floor systems are just as stiff as, if not stiffer, than dimensional lumber floors. Engineered floor systems do, however, have different vibration characteristics, longer spans and longer continuous structural members. To some, these characteristics give the impression that the floors are bouncy.

Today, manufacturers of engineered floor joists can tune the floor to the demands of the builder, imparting a more solid feel for the comfort of the home owner.

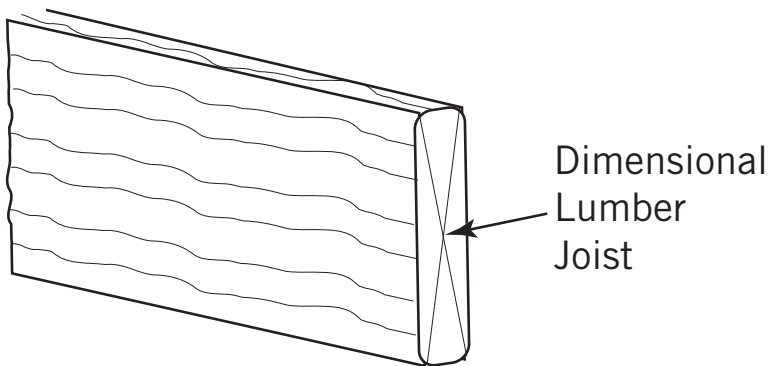
Here are a few tips for those sensitive to the vibration characteristics:

- Furniture dampens the vibrations. Do not evaluate the floor of an empty house.
- If you are buying a home under construction, ask your builder to select a system with more familiar vibration and deflection characteristics.
- If you own a home and perceive the floors as bouncy, consult an expert on ways to dampen the vibrations.

Be Careful with Modifications

You can drill holes through engineered floor joists as long as you follow specific rules, ones completely different from those for dimensional lumber. We often see engineered joists drilled or notched improperly. If you are not familiar with the rules, leave modifications to an expert. A single notch can compromise an entire floor joist.

The good news is, most engineered floor joist systems have "knock-outs" along the length - designated areas where you can knock out a piece of wood to run wires or pipes without worrying about compromising the system.



Engineered lumber has become very popular in some areas. Expect it to become more popular as large trees get harder and harder to find. The cost of dimensional lumber will go up and the cost of engineered lumber will be more attractive. Engineered floor joists are here to stay.