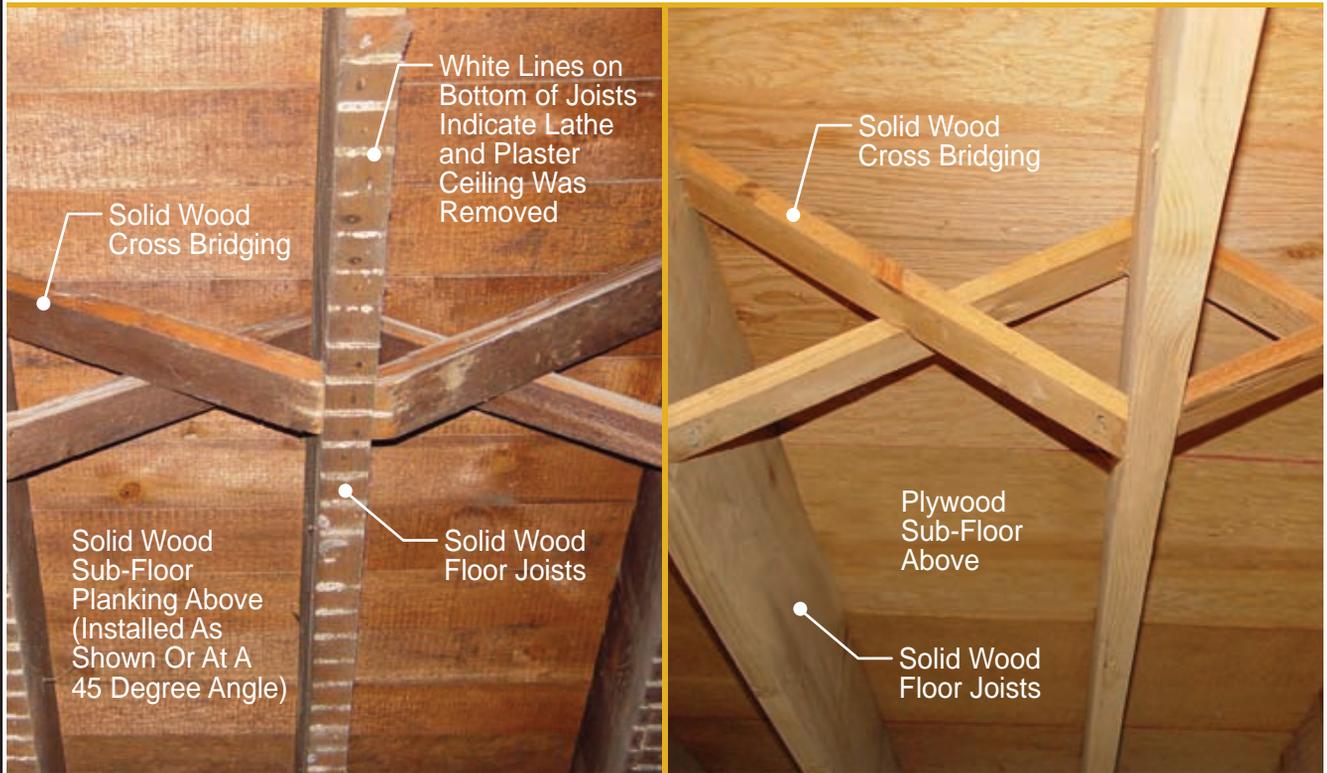


# SFSafeTraining.com

## Solid Wood Joists



### Basic Description

Use of solid wood floor joists has been the norm since wood framing began, and is still practiced today. But use of solid wood is lessening as lumber resources diminish and new engineered lumber products are introduced. Originally milled lumber was rough sawn to full dimensions (for example, a 2 by 10 joist was actually a full two inches by ten inches), but over the years the mills have planed lumber to a smooth finish, taking a 2 by 10 down to 1-1/2 inches by 9-1/4 inches. Sub-flooring has gone from using solid boards (see picture, above left) to using plywood sheathing (see picture, above right) or oriented strand board (OSB). The installation of trades, such as ductwork, wiring, and piping, requires better planning as making large penetrations through floor joists compromises the strength of the joist and the floor system.

### Firefighter's Notes

**1. Solid Wood Joists Provide a Low Surface Area to Mass Ratio...and That's a Good Thing.** This translates into less surface area potentially exposed to fire for the given mass of the joist. Homes built prior to the 1980's will generally have floor systems built with solid wood joists, but neighborhood surveys will still be helpful to determine where lightweight engineered products may have been introduced into newly built homes or through home additions and remodels.

**2. Solid Wood Joists Protected From Below by Finished Drywall Provide a Compartmentalized Floor System.** The individual compartments formed by the solid floor joists, the floor system above, and the ceiling below naturally slow the spread of fire within the floor system. But,

if the joists are not protected from below, as they often are not in basements, this "built-in" safety feature is lost. Homeowners need to be made aware that by protecting their floors from below, they are protecting the occupants above.

**3. Any Floor System Will Become Unsafe, Given Enough Time to Burn.** But the sturdy compartmentalized construction of older homes will generally allow fire fighting operations a longer span of time to operate within a burning home. The key is...know the home and educate yourself on the general burn times of such structures. Circumstances of each fire will vary, but these factors will help you make a more informed decision on your approach to fighting the fire given the circumstances you face.

Be Safe Out There.