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The Key to Correctly Preparing and Installing a Squeak-less Subfloor

A sub-floor is a layer of plywood or planks installed directly over a home's floor joists. The sub-floor provides the base for applying the finished flooring; carpet, tile, hardwood, or other materials. During the construction stage, a home's sub-floor is a vital element of the interior. If the sub-floor is not level and stable, any finishing materials installed on top will not meet expectations for beauty or durability.

Until a few years ago, sub-floors consisted of diagonal or straight planks of wood. It is more common now for plywood to be used because it is less expensive, easier to install, and lighter to work with. Occasionally cement is used for a sub-floor, but wood is essential if the finished flooring will need to be fastened with staples, screws or nails.

Wood Sub-Flooring:



- **Type:** The most commonly used wood for sub-floors is C-D grade interior-use 3/4" thick plywood. This material comes in 4' x 8' panels designed to be installed quickly and to cover large areas in a minimum of time. On this plywood, the C indicates the grade of finish on one side of the panel; the D is the grade of the other. The C grade is a better quality of finish and should be placed up when installed.
- **Rating:** In addition to the finish grading, plywood will be rated based on its suitability for differing joist spacings. Joists can be spaced between 16" and 48" apart and the greater the spacing, the thicker the plywood must be.
- **Grading:** Sub-floor plywood is also graded by its intended use. Plywood panels that will be covered by carpeting and padding will be categorized differently than if the finished flooring will be vinyl or tile.

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- **Edging:** Plywood panels for sub-floors are available with two different types of edging. Square-edge is usually less expensive and easier to install, but this type may require blocking between the joists to provide support. The tongue-and-groove type of edging is typically more expensive, but due to its interlocking properties usually will not require additional support.

Installation:

- **Compliance:** Determine local building codes before you begin installing your sub-floor. Some municipalities have strict regulations regarding methods and materials.
- **Estimate:** When you estimate the amount of plywood necessary for your sub-floor, you need to measure to the wall plates. The exception would be in an attic space, where you need to only extend far enough into the eave space to support knees walls. In an attic, sub-flooring does not need to reach from wall plate to wall plate, unless you will be using space behind the knee walls for storage.
- **Acclimate:** At least two days before installation, bring the panels into the location. This will allow the plywood to acclimate to the humidity and temperature of the space where they will be installed.
- **Test:** Temporarily arrange the sub-floor panels to test how well they will fit. Avoid an arrangement that results in a small piece being needed to fill a space.
- **Best face up:** Place the plywood with the best graded side up and the longest length of the panel extending at right angles to the joists. This makes the most of the strength of the plywood which runs with the grain.
- **Align and stagger:** Place the center of the first panel to be installed in the center of the room; making sure both ends are aligned with the center of a joist. You may want to use a chalk line to mark the center of the joists. The ends of all panels must be centered on a joist or it will be necessary to add support blocking. Stagger the panels so there are no places where four panel corners meet. Place the sub-floor panels outward from the center of the floor. This provides a solid platform for you to work from. Periodically check that the floor is remaining level.
 - **Note:** Plywood panels are heavy so it is not recommended you pick up the entire panel. You can lift one edge and slide it into place.
- **Spacers:** You will need to add 1/4" spacers between the wall plates and the adjacent sub-floor panels. This provides room for contraction and expansion. The spacers are

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temporary and will be removed after the installation is complete. Some manufacturers also recommend leaving a 1/8" gap between all square-edge panels.

- **Attach:** The panels can be nailed or screwed into place. Attach two corners and check the positioning and fit before completely securing the panel. Use a tapping block to achieve a tight and even seam between panels, and always stagger the seams to increase the strength and stability of the floor. Along the ends and edges of the sub-floor panels, it is recommended you apply nails or screws at 6-inch intervals. Along the joints, 10-inch spacing is recommended. You may also first apply a bead of construction-grade adhesive along the top of each joist.
 - **Note:** It is possible when hammering in nails to cause damage to ceilings below the sub-floor. For this reason, an automatic nailer is highly recommended.

Regardless of the care taken during installation, the house will settle and the panels will dry out, causing the wood to shrink and/or warp slightly. If the sub-floor has been attached with nails, the panels may pull away from them. This allows the boards to slide against the nails, causing annoying squeaks and creaks. The dried panels may also begin to rub against each other, adding to the noise.

Adding glue, shims, sister or bridge joists, or more nails to the underside of the floor will lessen the squeaks, but each has its own risks and difficulties. This may be an especially unpleasant undertaking if the underside of the floor must be accessed through a crawl space. Adding screws or nails from the top is not always an easy fix if the sub-floor is covered with carpet or tile.

Prevention is the best solution and can be handled easily during initial installation.

Building squeak-less subfloors during construction is largely accomplished based upon the type of fasteners used. New SubLoc[®] SCRAIL[®] collated fasteners from The BECK Fastener Group[®] are designed specifically for sub-floor applications.

SubLoc[®] SCRAIL[®] is a performance-driving crossover between a nail and a screw featuring an adhesive coating and thin threads along the shank to dramatically improve holding power when compared to ring shank nails.



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The use of SubLoc[®] SCRAIL[®] fasteners enhances installation speed since they are **collated** and can be installed with most common conventional nail guns. Fine threads make adjustment or removal easy, should it be necessary.

SubLoc[®] SCRAIL[®] Technical Data:

- *Material:*
 - Standard Steel
- *Finish:*
 - Electro-galvanized finish for interior applications and moderate exterior corrosion protection.
 - FasCoat™ finish is available by request for exterior applications under all but extreme salinity and humidity conditions. Tests conducted by accredited labs in the U.S. and Europe demonstrated the ability of FasCoat™ to withstand more than 2,000 hours before the first signs of red rust.
- *Diameter:*
 - .113"/.120"
- *Length:*
 - 2 ¼"
- *Collation:*
 - 20° Plastic Strip SCRAIL[®]
 - 33° Plastic Strip SCRAIL[®]
 - 15° Wire Coil SCRAIL[®]
- *Drive:*
 - Versa drive: combination of a #2 Phillips and a #2 Square head

The innovative SubLoc[®] SCRAIL[®] collated sub-floor fastener is just one of many versatile SCRAIL[®] fasteners available.

The breadth of the SCRAIL[®] fastener lineup makes an entire range of construction projects easier with their versatility, and can be used almost anywhere ordinary screws are used. They save time and labor

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costs, are easily adjusted and quickly removed, and their holding power is dramatically stronger than that of nails. When applied with a pneumatic nailer, SCRAIL® collated fasteners can be driven at a rate *twice as fast* as collated screws and *eight times faster* than bulk screws.

The extensive line of SCRAIL® collated fasteners meets construction demands for decking, siding, crating, fencing, millwork, light gauge steel construction, and of course the SubLoc® variety for installing squeak-less subflooring, and includes the following additional specialty items:

- InvisiDeck® - a hidden fastening system for grooved and non-grooved applications.
- Mini-Scrail® fasteners - perfect for furniture manufacturing applications.
- BeckDeck® fasteners - featuring a double thread design that dramatically reduces the unsightly mound of material around a fastener head that is referred to as “volcanoeing” or “mushrooming.”

SCRAIL® and SubLoc® SCRAIL® sub-floor fasteners are distributed by [Fasco America, Inc.](#), the American distribution arm for BECK Group products. The BECK Fastener Group® has been in business for more than 100 years and continues their tradition of focusing on consistent quality and innovative thinking to satisfy each customer’s unique needs.

Fasco America is located in Muscle Shoals, Alabama, and employs an experienced staff of regional sales managers located throughout North America. Fasco America is proud to be active members of the ISANTA and NADRA trade associations.

To learn more about SubLoc® SCRAIL® and the other fasteners available through Fasco America, Inc. and the BECK Fastener Group®, [contact](#) our main office or the regional manager serving your area. Additional information is also available on the SCRAIL® [Facebook Page](#) and videos are available on [YouTube](#).

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