

PREVENTING CRACKS

IN NEW WOOD FLOORS

(from US Dept. Agriculture Leaflet No. 56)

CRACKS IN THE MAKING

At the time flooring is delivered, usually the plastering has been finished, most of the trim is up, and the windows and exterior doors have been fitted and are in place.

Sometimes the flooring is delivered on a damp day or even during rain, so that the exposed boards and ends of others in the bundles absorb more or less moisture. If laid in this condition, the flooring will shrink a few months later and show cracks.

Very bad results may also be expected if the flooring is laid or even stored inside the house before plaster or masonry of the walls has had time to dry thoroughly. Moisture evaporates from damp walls into the air within the house. Then some of it will be absorbed by the flooring. It is prudent to accept a delay in completion rather than to have the floor laid while the walls are still damp and thus risk unsatisfactory results.

Another condition that causes flooring to pick up moisture during construction, is less obvious but more common. Between the time the floor is laid and the house occupied, the general temperatures within the house both day and night are likely to be lower and the humidities higher than they would be if the house were occupied. At this stage, the house should be heated to keep relative humidity low enough to avoid absorption of moisture by the wood.

COMPRESSION SET

If several days of damp weather occur immediately after the floor is laid (fig. 2, A) and before the finish such as varnish, shellac, or floor seal can be applied, the moisture content of the floor is likely to increase greatly. Absorption of moisture is much slower after a floor has received even the first coat of its finish.

Even moderate absorption of moisture from the air can cause boards to press against one another as they swell. Heavy pressure of this sort can result in some crushing of wood fiber. Technically known as compression set (fig. 2, B), this crushing is the common cause of floor cracks. A relatively narrow margin of each board has to take the brunt of the compression, though the whole board takes up some of it. After a board has once been compressed this way, it never completely recovers.

When the flooring loses moisture after the house is occupied, each board shrinks away from its neighbors (fig. 2, C). The width of the crack is roughly equal to

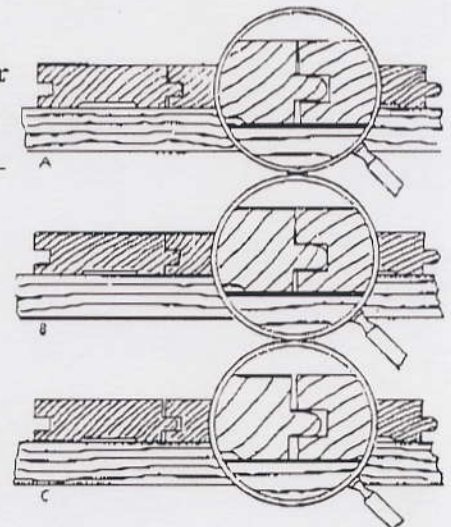


FIGURE 2.—How compression set makes cracks. A, Flooring when laid; B, the same flooring after it has absorbed moisture as a result of damp conditions in the unfinished house; C, the same flooring after subsequent drying. The inverted V-shaped joint is permanently deformed, and there is a wide crack.

the amount of crushing, or "set," the board underwent while at the higher moisture content. The drying and shrinkage are most likely to occur during the winter when the house is heated. The average humidity is then lower than it was during the construction period.

Any subsequent pressure contact between the boards as a result of moisture changes will increase the compression set, and the width of the cracks, when the wood again dries out. Such pressure may occur during a period when the house is unoccupied or unheated for several weeks during cold or damp weather. Foreign matter in the cracks adds to the pressure. A kitchen floor of exposed boards, in which repeated scrubblings cause the cracks to grow wider and wider as the floor grows older, shows the effects of a series of compression sets.

HOW TO PREVENT FLOOR CRACKS

The cure for cracks in a floor lies wholly in preventing them. See to it that the floor is put down dry, and then see that compression set does not occur afterwards.

- (1) Assure yourself that the dealer has properly protected the stock while it was in his hands.
- (2) Do not allow it to be delivered on a rainy day.
- (3) Make sure that the plaster or masonry walls are dry before the flooring is delivered.
- (4) Discard all badly crooked boards or use them in inconspicuous places. Cutting them to shorter lengths helps lessen the crook in each piece.
- (5) Most important, prevent moisture absorption by the flooring after it is delivered to the house.

Air humidity can be lowered, and flooring kept dry, by maintaining some heat in the house from the time the workmen leave until they return on the next workday, even during warm summer weather. Whenever possible, the heating plant should be installed before the interior trim goes in, so as to be available for supplying the necessary heat. Otherwise, a temporary heating stove should be used. It is good practice to open the bundles and spread the flooring out so that all surfaces are exposed to the air for at least 4 days. This allows time for the flooring to reach a moisture equilibrium with the air in the heated house before it is laid. The temperature inside the house should be maintained at least 15° F. above outdoor temperatures and should not be allowed to cool below about 70° F. during the summer or 62° to 65° F. when the outdoor temperatures are below freezing. Temperatures a little higher than this will do no harm, but severe overheating must be avoided. After the floor receives its protective coat of finish, temperatures should be kept approximately the same as they will be when the house is occupied. Very little heat, of course, is required in warm, dry weather, but spells of damp or cool weather are likely to occur in any month of the year.

The recommended temperature conditions will tend to reduce the hazard of carelessness in the preliminary seasoning or storage of the flooring after manufacture.

Another important reason for keeping down moisture in a house nearing completion is that better and smoother floors are obtained with mechanical sanders when the floor and the atmosphere are dry. Furthermore, protecting the flooring in this way also gives protection for other interior woodwork and finish, such as doors, trim, and cabinets.

5/30/75

CRACKS