HOMEOWNER REPAIR GUIDE

INTRODUCTION TO CARPENTRY

All About Wood

Wood is among the most versatile building materials in the world. Besides its inherent beauty, wood has a much higher ratio of strength to stiffness than iron, steel, or concrete. With your hands and some tools, you can form wood to create anything that your mind can conceive. But, before you can start down the road to calling yourself a carpenter, you need to know a few things about the material with which you'll be working. Understanding wood will make it easier for you to work with it, and will give you better results when finished.

PROPERTIES OF WOOD

Wood has several properties that you need to be aware of.

First, there is a certain amount of moisture in all wood. Since wood is porous, it will absorb additional moisture, given a chance. As wood adds or sheds moisture, its dimensions will change. As a result, the wood will push towards or pull away from where it is attached.

Second, as the sun or other heat sources evaporate the moisture in wood, the wood has a tendency to warp, buckle, or cup – all terms for the uneven way in which wood can twist as the moisture is dried from it. To help keep this from happening, store wood out of the sun and away from other sources of heat, until it is used and fastened into place. You should also prevent it from absorbing as much moisture as is practical.

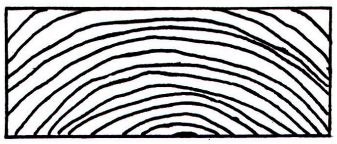
STORE WOOD CAREFULLY

It's as bad to lay wood directly on the ground or leave it out in the rain as it is to expose it to the direct sun. As little as one day under any one of these extremes can be enough to permanently affect the wood – and often make it unusable.

PREVENTING WARPING, SPLITTING, AND CHIPPING

There are several ways to minimize the chances that a piece of wood will warp, split or chip:

1. As you look at the end of a board, you will notice a series of rings. These are the growth rings of the tree from which the board was cut (see illustration). If you nail the board in place with the rings pointing down, the board will be less likely to cup.



Growth rings pointing down

2. Nailing close to the end of a board tends to split it. You can usually avoid this by turning the nail over and blunting its end with a hammer.
3. When cutting a board, put the side that you intend to see down, and cut from the back of the board. That way, the board will not chip or splinter along its face as much.
4. Where it is important to maintain a tight joint without a gap between pieces of molding or other wood, use some white glue on the edges to be joined.

5. And finally, seal wood with paint, sealer, or varnish where applicable, to help stabilize its moisture content and maintain its dimensions, regardless of the environment.

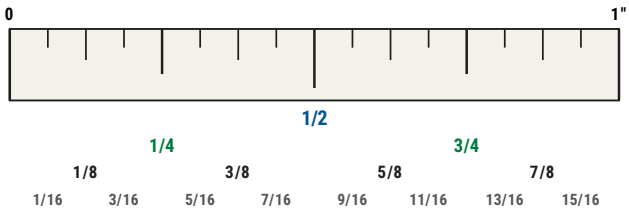
PLYWOOD

For some carpentry projects, you may use plywood – a versatile form of wood made by gluing several thinner layers ("plies") of wood together. The direction of the wood grain alternates in each layer, resulting in a sheet of wood (usually 4′ by 8′ standard) that is resistant to splitting when nailed through. Plywood comes in varying thicknesses, from 1/8″ to 1″. Although there are probably a hundred or more types, you will most likely use the three or four most common to a home. The basic differences are:

1. The number of layers that make up a sheet	1/2″-thick plywood can be made of 3 to 5 layers, and still be 1/2″ thick. The more layers used, the stronger the sheet produced, and the less likely it is to warp.
2. The glue used	Plywood is designated "exterior" or "interior," depending on the glue that bonds the layers together. Use exterior plywood inside in high-moisture or water-prone areas, to prevent the layers from ungluing ("delaminating").
3. Rough or smooth finish	Each side of the plywood can be rough or smooth, so you can have any combination: two smooth sides, two rough sides, or a rough and a smooth. The price goes up with the number of layers and with the quality of smoothness.

MEASURING

Making wood work for you depends on your ability to cut it accurately. To do that, you have to be able to mark and measure it accurately. The basic unit for measurement in woodworking is one inch, usually divided into 16ths. It is important that you feel comfortable using the divisions of your ruler (see illustration), because these relate directly to the finished quality of your job. Practice makes perfect here.



Breakdown of an inch by 16ths

TOOLS AND PRACTICE

You will also need to understand which tools work best, for which projects. A radial saw, a table saw, a circular saw, a saber saw, and a hand saw will all cut wood – but each one is designed to be used at a certain time, and knowing which tool to use for your particular situation will give you the best results.

Most of this knowledge of tool use comes from experience. So, you need to practice, starting on small projects and working your way up. Soon you will be proud to call yourself a carpenter.

Home Repair Resource center

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

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