Door construction guide

Whether hollow core, solid core, metal clad or fiberglass, a door is not just a door. Construction methods, door materials and price, have extreme variation. Read this guide to understand the various options for door construction and materials.
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Basic door construction is pretty simple. The frame is made of vertical boards that run the height of the door on the sides — the stiles — and horizontal boards at the top, bottom and possibly the middle — the rails.

Rails and Stiles
Rails and stiles are typically made from chunks of boards glued together with finger joints rather than solid, single boards. The grain in each chunk of wood is alternated, giving the board stability against warping. By comparison, a single, solid piece of wood could warp and distort the door.

The rails and stiles are glued together with an interlocking joint, such as mortise and tenon. The stiles anchor the hinges and latch.

The frame is finished one of two ways:

1. with panels — a panel door
2. with a solid skin — a flush door

Panel Doors
In panel doors, the interior of the doorframe is filled with one or more panels that sit into grooves in the rails and stiles. Rails in the middle of the door can divide the door into two or more rows of panels. A door also may be divided vertically by one or two boards, called mullions (also called muntins), that form one or more columns of panels. The more intricate the panels, the more costly the door.

The panels may be flat or have a raised pattern. Panels can be replaced by glass, which in doors are called “lights”, or more commonly, “lites”.

Flush Doors
A flush door is flat on both sides, with the frame covered by some type of skin. A flush door can be either hollow core or solid core. Flush doors generally are less costly than panel doors.

In a hollow-core door, the interior of the door is filled with a honeycomb of corrugated cardboard that helps give the door some strength. These doors often are used as interior doors.

A solid-core door is filled with either particleboard or foam. They are a more substantial door and provide both weather and sound insulation. Solid-core doors tend to cost more than hollow-core doors.
Skins
Flush doors can be covered with skins of wood veneer, plywood, vinyl or melamine, and metal. Doors also can be molded, in which fiberboard is pressed to mimic the shape of a paneled door. For protection against the elements, exterior doors often are covered, or clad in metal or fiberglass on the outside.

Paint/Stain Grade
Wood doors will be classified as either paint- or stain-grade. Paint-grade doors have flaws that make them unsuitable for staining, such as glue spills along the seams. The glue may not be visible, but it has affected the wood so that it does not take stain evenly.