

# TIMBER

## F R A M E B Y F R A M E

It seems that in almost every design magazine you open, there's an article about a timber frame home. While the term timber frame is pretty generic, there are actually a number of materials, techniques and costs that make up timber frame construction.

Probably the most identifiable construction technique is the standard frame using new cut lumber. All true timber frames form the structural system to support the roof and floors and to form the walls of a home. The interior and exterior walls are not carrying any loads and are framed with standard framing materials. Timbers, both columns and beams, are cut to size depending on the structural requirements and with aesthetics in mind. Because in some situations, when the loads are very light, the members are upsized so that they either match other load bearing members, or so that they look like they are loaded, to complete the picture.

The traditional timber frame is supported by an intricate series of wood to wood connections that involve mortises and tenon connections, notching members to each other and holding the members in place with wood pegs. The most common image of this type of construction is the traditional barn raising photos seen in history books and timber frame manuals. The wood used in this type of construction is

generally Douglas fir or oak. Other woods can be used but may be limited by structural requirements, availability and, of course, price. Some more contemporary frames use glulams, which are beams and columns made by laminating many smaller members into one larger structural element. Using glulams allows for longer spans, larger members and incorporating arches and curves into the frames.

A variation of the traditional timber frame is the use of metal for the wood to wood connections. The connections can be concealed by using knife plates and covering the bolts with wood plugs to mimic traditional construction. They can be exposed using off the shelf components, or become design features themselves with the use of custom cut brackets, hammered metals and pinned connections and collars. As with frames,



more contemporary structures use the metal connections as design elements that are connected by wood members.

A wide variety of woods and finishes can be used in timber frame building. The most common—and affordable—is the use of standard, new-cut lumber. It can be used in stock sizes or custom cut depending on the application. The wood surface can be smooth, rough sawn to give it texture and pattern, media blasted to raise the grain, or hand hewn to give the appearance of an old beam. With hand hewing, hand or power tools can be used lightly or aggressively to achieve the desired finish: edges can be

rounded, holes drilled to mimic older reused beams, stain or faux finishes applied to achieve a desired look.

In the past, the use of reclaimed beams and framing members was done exclusively for aesthetic reasons. Now it is also done as a green construction technique, since using reclaimed materials reduces the impact on landfills and protects the old growth and larger trees from harvesting for timber production. As with new timber there are many options. Timbers salvaged out of old warehouses can be used as is, with the original saw marks, bolt holes, stains and splits intact. They can also be resawn to remove the surface

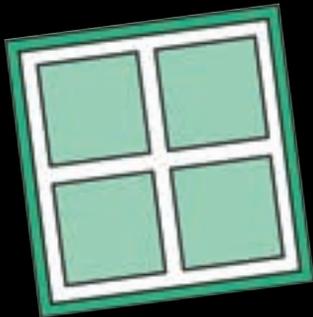
imperfections, but retain the bolt holes, deep checks and stains. Resawing also gives a more uniform appearance, and can highlight the tight grain found in old growth timber.

Another variation on reclaimed timber is the use of hand-hewn beams that are used as they come from an original structure. The beauty—and the curse—of this technique is that no two members are the same. Sizes vary from member to member, surface techniques vary greatly depending on the ability of the original timberwrights (timbercraft master) and the wood species can be different in a single building. This style also can get more costly due to limited availability, the engineering inspections required for structural members, and more complicated and time-consuming construction detailing required to incorporate them into modern construction.

As with any phase or element in a design/construction project, there are many elements to consider, timber frames being no exception. The selection of a stock or custom frame, the extent of the frame, connection techniques, new material or reclaimed, wood species, surface finishes, and the availability of materials will all affect scheduling and the cost of a project. The help of a design professional and a reputable contractor is essential to guide you through the myriad choices out there.

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