



kdt construction inc.



Cell: 435.703.1832

Fax: 435.673.7378

Email: [kdt@infowest.com](mailto:kdt@infowest.com)

Website: [kdtconstruction.com](http://kdtconstruction.com)

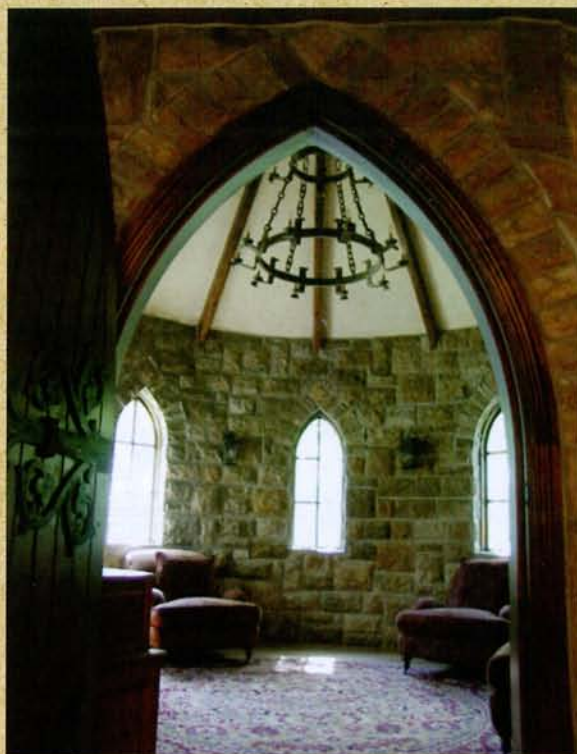


By James M. Williams

# Timberrrrr!

**S**equoias are the world's largest trees by volume. Bristlecone pines are the oldest, with some estimated to be 5,000 years and counting. Redwood trees live on the average of only 500 to 700 years, although some have lived as long as 2,000 years. The redwoods, however, are the tallest with a record height of 367.8 feet. That is nearly the height of a 40-story building! All of these trees can be found in the western United States.

We were hungry, and tired of riding in the car. It was well past noon. This was one of our first family outings to a national park. We pulled off of the road; our parents decided we would eat a picnic lunch amongst the stately redwoods. No sooner had we started to eat our sandwiches, when all of a sudden, on a beautiful sunny day, we heard roaring thunder. I don't know any kid who isn't a little nervous when exposed to lightning and thunder. Following the thunder was a sudden rushing of air that seemed to last forever. After that, there was a



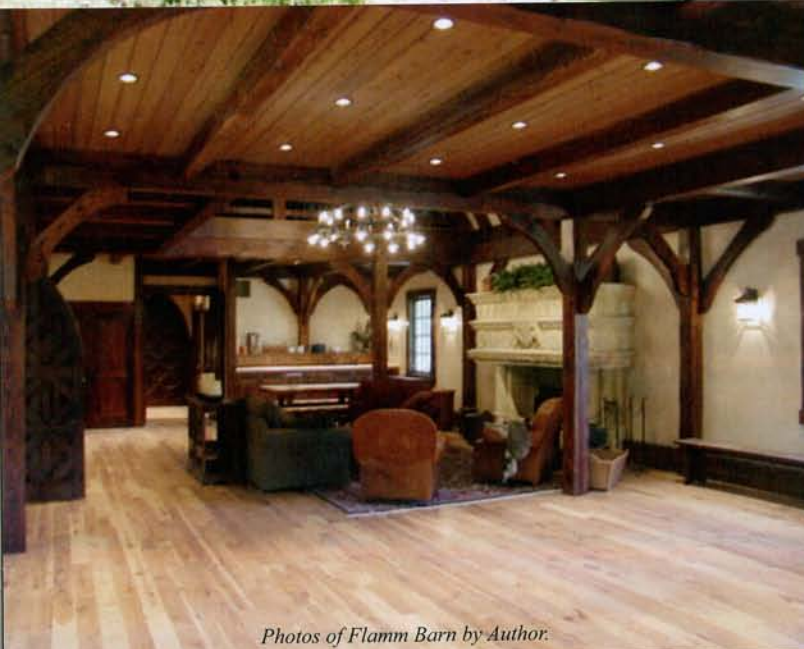
splintering crash and the ground shook – like an earthquake. In my mind the world was coming to an end. In reality, the top of a redwood tree had fallen within 50 yards of where we were sitting. The diameter of the fallen tree top was so large I couldn't climb it without some much-needed assistance from my father.

Many other countries build their homes of masonry. In the United States we construct our homes primarily with wood. The types of wood construction include conventional wood framing, log construction, timber frame and “trimber” framing. By conventional framing, I am referring to modern construction techniques which utilize engineered wood products and fasteners.

Timber framing is labor intensive and expensive. Timber framing originated in



Legacy Lodge at Park City, Utah



*Photos of Flamm Barn by Author.*

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Europe and dates back to between 500 B.C. and 200 B.C. True timber framing does not rely on nails, bolts or steel plates to make connections. All the connections are done with mortise-and-tenon jointing. One way to reduce the cost, but maintain the look of timber framing is to construct with conventional framing and then finish or trim-out the interior with non-structural timbers, thus "trimmer" framing. Another way to reduce the cost of timber framing is to use timbers in conventional framing, leaving them exposed. Costs can also be reduced by limiting the amount of timber framing used.

With the current building code requirements and the need for structures to resist lateral forces due to wind and seismic, it is difficult to construct a building that is 100 percent timber frame. Most timber frames are constructed with conventional framing (wood or masonry shear walls) artistically hidden within the structure. We were fortunate to design and engineer the Flamm Barn and the Tillotson Barn which are both constructed in this fashion. As the designers and engineers, we worked closely with the timber subcontractors and manufacturers. All wood structures today, whether they are timber frame or conventional construction should be properly engineered.

The Legacy Lodge at the Park City Mountain Resort is conventional construction and has large exposed timber trusses, supported on 16 x 16-inch timber columns. The trusses have top chords that are double 8 x 18-inch timbers. Each truss has its members bolted together with 1" diameter bolts and steel plates. Each truss has approximately 12 tons (24,000 pounds) of steel in its connections alone. Snow drifting on the lodge can weigh as much as 350 pounds per square foot. That is equal to seven automobiles stacked on top of each other. The timber appears to be as old as Park City itself; however the timber trusses were cut and assembled in Washington where they were carefully weathered before being shipped and reassembled in Utah. The steel plates were treated with an acid wash as well.

Natural wood comes in a variety of colors, tones, grains and textures. It can be used for; exposed structural elements, siding, fine or rustic finishes, flooring, doors, windows, moldings, cabinets, and furniture. However used, wood always has a warm, charming, natural quality that we are all drawn to. It is difficult, if not impossible, for man to imitate the materials that nature supplies. Wood is a renewable building material that we must manage and use responsibly.