TECHNICAL REPORT 101

THE IMPORTANCE OF KILN DRYING

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Kiln drying has long been a controversial issue in log homes. The evidence is clear that 'favored procedures are those that bring the wood to moisture content corresponding to the average atmospheric condition to which it will be exposed," according to the USDA guidelines.

Given this acknowledged reality, why don't all producers kiln dry their logs? First, there is the very expensive investment in purchasing, building and operating a kiln. Second, there is the reality that moisture removal and the subsequent shrinkage geometry is such that it is very challenging to properly kiln dry a round log, especially if you try to do it quickly. Third, it is very costly and time consuming to dry large timbers. Finally, some wood species have such a high moisture content that it just wouldn't be economically feasible to dry them. Since sapwood has a much higher moisture content than heartwood, those species with large sapwood rings - such as pine - are even more difficult to dry.

To mitigate these problems, many producers opt to use a wide variety of adjustable bolts, 'settling blocks', springs, slipjoints and other mechanical devices to accommodate the uneven shrinking and settling that results from having a log exposed to two entirely different environments -- the inside of the home and the external elements. While some are better than others, there are still problems of checking and splitting that cannot be controlled.

When splitting and checking voids occur, the voids then become havens for rot, fungus, mildew and decay. While the hardy pioneers who inspired the American Log Home may have had the time for ongoing maintenance programs, most homeowners do not have that luxury today. With the exception of kiln drying, there simply isn't an effective method to overcome moisture content. Even on the same tree, there can be a wide variance in the moisture content of the boards.

At Town & Country, we use Equilibrium Moisture Content (EMC) kilns. EMC is defined as the point at which the wood is neither gaining nor losing moisture. Our kilns continually add and withdraw moisture from our lumber until it reaches the EMC point. In most of the U.S., that point will be between 6% and 11%. Technically speaking, lumber may be labeled as 'kiln dried' at 19%, but that is not the same as EMC. Our custom designed dehumidification kilns are more akin to those used for preparing wood for manufacturing fine furniture. We have to accommodate a variety of lumber sizes simultaneously. We operate our state-of-the-art kilns on natural gas for maximum efficiency. Because we maintain a large timber supply, our logs air dry first to equalize their moisture content and reduce kiln drying time. This 'air drying', while a good prelude to kiln drying, does not by itself achieve the USDA guidelines for wood drying in home manufacturing.

BUYER TIPS:

- Before buying, ask your provider for the moisture content and drying method of the lumber used to build your home.
- Before buying, ask your provider how he will manage your concerns with cracks or checking after the home is completed.
- Keep in mind it is nearly impossible to eliminate all checks and cracks, even in kiln dried lumber.
- Beware checks or cracks in large logs or timbers which extend from the outer perimeter of the log into the center core of the log. These can potentially jeopardize the load bearing capability of the structure. However, if the logs are used for finish products only, the checks and cracks are simply a matter of personal preference or aesthetics. Ask your builder which logs/timbers are load bearing and which are not before you build.

For additional information, please contact your Town & Country Sales Consultant at 800.968.3178.