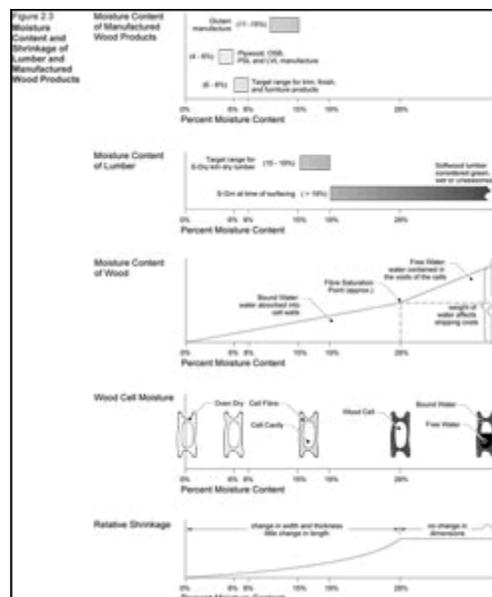


Moisture content

Wood will gain or lose moisture depending on the environmental conditions to which the wood is subjected. Changes in moisture affect wood products in two ways. First, change in moisture content causes dimensional changes (shrinkage and swelling) of the wood. Secondly, when combined with other necessary preconditions, excessive moisture can result in deterioration of wood by decay.

Moisture content (MC) is the weight of water contained in the wood compared to the wood's oven-dry weight. A change in the size of a piece of lumber is related to the amount of water it absorbs or loses. For moisture contents from 0 to about 28 percent, the moisture is held within the walls of the wood cells. At about 28 percent MC the cell walls reach their capacity or fibre saturation point (FSP) and any additional water must be held in the cell cavities.

Moisture Content and Shrinkage of Lumber and manufactured Wood Products



[Download this Figure as a PDF.](#)

Moisture content stamps

Lumber stamped 'S-Grn' (surfaced green) is lumber which had a moisture content exceeding 19 percent at the time of manufacture (planing or dressing). S-Grn lumber is also called unseasoned lumber or green lumber. Lumber stamped 'S-Dry' (surfaced dry) is lumber that had a maximum moisture content of 19 percent or less at the time of manufacture. The moisture content stamp will not indicate whether seasoning resulted from air drying or kiln drying. Some mills apply a

voluntary stamp, 'KD', indicating that the lumber was kiln dried. Both air dried lumber and kiln dried lumber have the same specified strengths used for engineering design. S-Dry lumber is up to 15 percent more expensive than S-Grn lumber, as a result of increased costs related to packaging and drying.

Moisture content measurement

Measurement of moisture content of wood products can be difficult, particularly if done in variable site conditions. Guidelines should be followed to measure and interpret results to correctly assess whether wood products are dry at installation time. For example, when measuring the moisture content of a piece of wood the following factors affect the individual result:

- type of test (oven dry is most accurate)
- type of meter (dielectric, DC resistance)
- product type
- temperature
- wood species
- variation of wood (wet pockets)
- frequency, location and depth of sampling to correctly represent the entire piece

The following factors should be considered when measuring and assessing the performance of a wood structure, under given end use conditions and moisture changes:

- moisture distribution throughout structure
- location(s) in which moisture will accumulate
- number of storeys
- construction type(s)
- orientation, exposure and shading
- sampling and analysis of individual results

For further information related to moisture and durability, refer to www.durable-wood.com