



Doolittle Safety Brothers, Murphy and Finley

Accident Prevention Through Engineering Design-III

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Safety vs. Accident Prevention

- Up to now, we have focused on safety in the wood shop as it relates to optimum operation of tools and in wearing gear.
- Another element to safety is preventing accidents due to wood failure in projects and tools.

Wood has 3 dimensions

- Longitudinal
- Radial (from center of tree out)
- Tangential (perpendicular to radial)

Shrinkage

- Longitudinal, very small
- Radial
- Tangential (1.5 to 2.5 times radial)
- The closer the ratio of the radial shrinkage to the tangential is to 1 to 1.6, the less cracking and cupping will occur during drying and the more stable the board will be in a project.
- Ratios greater than 2 introduce problems (oak)

Flat surfaces

- Quartersawn boards have less shrinkage (radial orientation) than flat sawn
- Hence quartersawn is more stable

Recommendations

- Watch your design and orient your wood to optimize the grain
- Wood selection also will optimize the shrinkage, see Hoadley's book...Walnut and Ash are better than Oak and Manzanita