

# Preparing Lumber for Kiln Drying

Best Practices for quality and efficiency

## Outline of Best Practices;

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- Lumber quality assurance
  - Handling at the stacker
  - Yarding procedures
  - Kiln sample considerations
  - Kiln maintenance
  - Kiln loading
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# Lumber Thickness & Uniformity

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- Proper and uniform thickness is critical to maintain the quality of lumber.
  - The sawmill and yard staff should be engaged in observing this fundamental quality aspect of the lumber.
  - Measure the thickness, width and length of the lumber from all the machine centers in the mills and yards on a regular and routine basis. Make adjustment when lumber is out of tolerance.
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## Lumber Trimming

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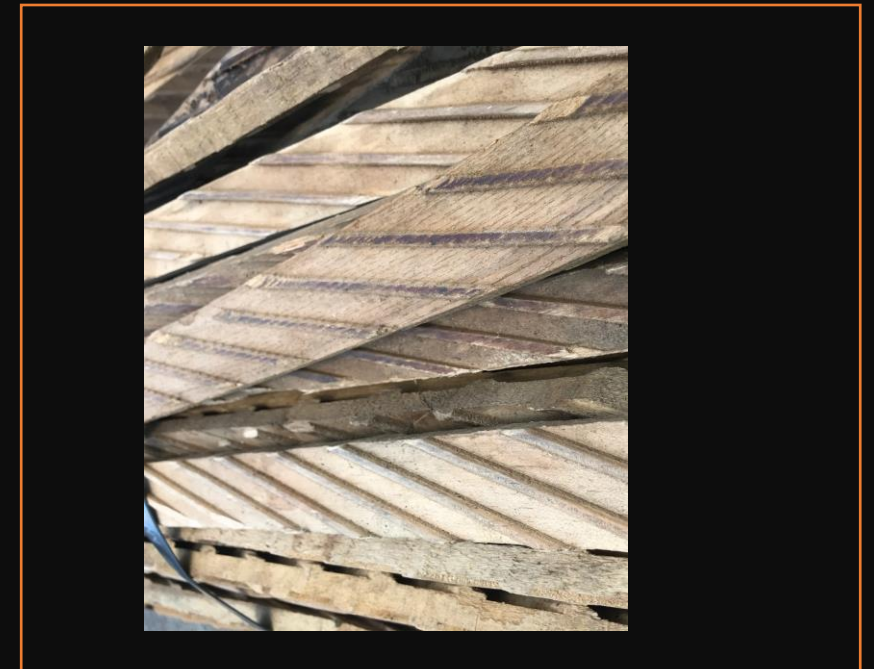
- DET- precision double end trimming of lumber will improve the quality of the lumber going to the yard and increase the yield of the finished product. Depending on kiln size and specifications on final products the exact length and amount of over-length will vary.



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# Kiln Sticks

- Kiln Sticks
  - Type;
    - a. Flat
    - b. Fluted
    - c. Air Flow
  - Quality;
    - Set standards for stickers to be discarded, if under standard length, thickness or straightness.
  - Alignment;
    - Is stacking equipment in good condition? Does it produce a straight and square stick pack? Does stacker operator have time to make good courses and stick layers have time to place sticks properly?



# Stacker Process



- As the unit courses are made the stickers are then laid between each layer in increments of 1' or 2' depending on species and location. Sticks are to line up vertically within each unit.
- Sticks out of align will cause board warpage issue and de-value the lumber.



## Kiln Bolsters

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- Bolsters need to be uniform in size, straight and in good condition like kiln sticks.
- Fluted bolsters for use on white woods will reduce the amount of sap stain.
- Bolster alignment is critical for maintaining flat lumber during drying.



## Straight and Square Stick Packs

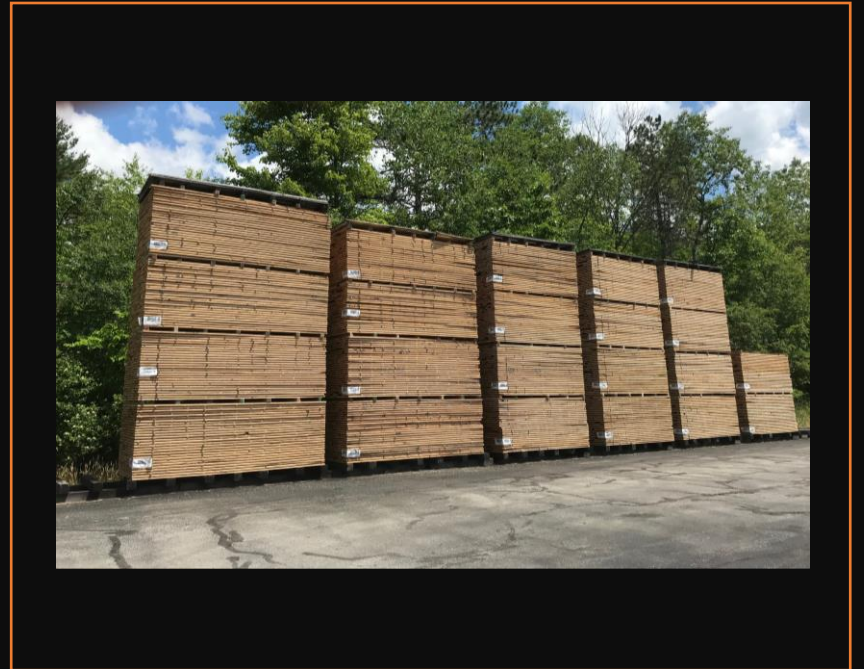
- Stick pack quality is fundamental to drying high quality lumber.
- The proper function of the stacking equipment is important to producing a good stick pack.
- Employees should understand what the standards are and be provided the support needed to get the job done.
- Full length boards top, bottom and on sides and tight courses are important.
- End wax lumber promptly after end trimming and stacking to prevent end checks and splits.





# Air Drying Yard

- Yard layout is important, it should consider prevailing wind direction and travel routes for forklifts
- Roadway integrity is important for maintaining pack quality while moving lumber.
- Some yards have T-sheds others use pile covers to protect the top layers of lumber. Regardless flat, straight and secure pile bottoms are necessary.
- Shade-dry fabric is a tool to use when air flow is too high, particularly when drying thick stock.



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# Air Drying Lumber

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- Air drying lumber can be very effective in reducing the total cost to dry lumber. It can be the best way to reduce total drying time.
- Monitoring the lumber condition while A/D is critical. Seasonal defects such as sap stain and checks can develop quickly.
- Most white woods need to have high air flow during the warmer months to retain bright color.
- Fan sheds can help maintain color in white woods and pre-dryers are effective in maintaining color and drying rate in oak lumber.
- Proper rotation of lumber from the A/D yard to the kilns is important.
- Keeping lumber columns properly aligned vertically and not mixing lengths is part of yarding best practices.



## Examples of good Air Dry Yarding

- Yard with pile covers protecting top course
- T-shed with uniform length columns
- Level + properly spaced pile bottoms for support

# Examples of poor stacking and Air-Dry yard practices



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# Selecting Kiln Samples

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- Samples should be representative of the kiln charge.
- Identifying the range of moisture content in the charge is important.
- Sampling from a range of stick packs helps ensure coverage.
- Thickness, grain pattern, stain and checks are all factors that should be considered when choosing samples.

# Pre-loading kiln maintenance review

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- Floor condition/cleaning
  - Bolster condition
  - Baffle condition top and side
  - Sensor accuracy
  - Wet bulb wicks
  - Steam traps
  - Fan greasing and rotation check
  - Vent operation
  - Doors and carriers sealing and working
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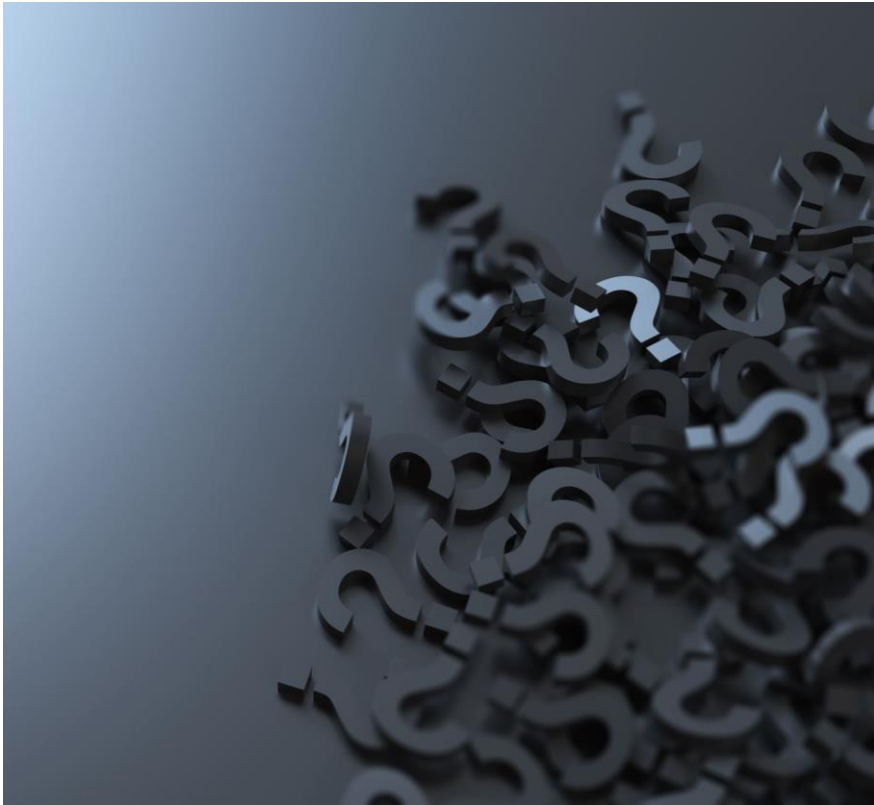


# Kiln Loading

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- Review available lengths and diagram a loading plan.
  - Load with full height columns of uniform length whenever possible, don't mix lengths.
  - Load full width with minimum space between columns.
  - Leave a small uniform gap between rows of lumber.
  - Use side baffles to keep lumber columns close on outside row.
  - If full width columns are not possible stagger gaps and keep outside rows as full as possible.
  - If mixing species make sure schedules are compatible and run kiln accordingly.
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Questions and  
Comments

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