

Summary Checklist for Quality Drying of Softwood Lumber

Rate on a scale of 1-4 where 1 is low and 4 is high

Kiln _____

Date _____

Standard Operating Practices

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|---|---------------------|
| 1. Maintenance and Inspection | Low High |
| 1.a. Equipment above fan deck inspected regularly | 1 2 3 4 |
| 1.b. Air velocity checks made regularly | 1 2 3 4 |
| 1.c. Traps checked for proper operation and plumbed for ease of checking | 1 2 3 4 |
| 1.d. Air supply to kiln controllers checked at regular intervals | 1 2 3 4 |
| 1.e. Regular maintenance program for steam valves | 1 2 3 4 |
| 1.f. Regular calibration of each temperature sensing device and indicator | 1 2 3 4 |
| 1.g. Wet-bulb wicks changed on a regular schedule | 1 2 3 4 |
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2. Moisture Content Monitoring and Recordkeeping |
Low High |
| 2.a. Moisture checks on each charge made as standard practice | 1 2 3 4 |
| 2.b. In-kiln MC monitoring equipment is used when available | 1 2 3 4 |
| 2.c. Control charts are saved and filed for reference | 1 2 3 4 |
| 2.d. Records of MC checks are kept with control charts | 1 2 3 4 |
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3. Discussion and Feedback from Planer Operators and Graders |
Low High |
| 3.a. Regular communication with planer operators and graders | 1 2 3 4 |
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4. Learning Opportunities |
Low High |
| 4.a. Opportunities to visit other sites and meet other operators | 1 2 3 4 |
| 4.b. Attend Dry Kiln Association meetings and drying workshops | 1 2 3 4 |

Control Room

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| 5. Valves Operate Properly | Low High |
| 5.a. Steam heat valves fully open and close | 1 2 3 4 |
| 5.b. Steam spray valve fully opens and closes | 1 2 3 4 |
| 5.c. Manual vents are used appropriately | 1 2 3 4 |
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6. Controls Operate Properly |
Low High |
| 6.a. Vents and spray are not on at the same time | 1 2 3 4 |
| 6.b. Control charts show fan reversals occur | 1 2 3 4 |
| 6.c. Setpoint changes are made according to the schedule | 1 2 3 4 |
| 6.d. Correct control charts are used | 1 2 3 4 |

Fan Deck and Kiln Roof

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|---|---------------------|
| 7. Fans | Low High |
| 7.a. Fans and shrouds are well maintained | 1 2 3 4 |
| 7.b. Fans turning for proper airflow | 1 2 3 4 |
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8. Heat Distribution Systems |
Low High |
| 8.a. Steam heating coils clean and free of debris | 1 2 3 4 |
| 8.b. Steam heating coil baffles present | 1 2 3 4 |

8.c. Direct-fired, heat distribution system structurally sound and clean 1 2 3 4

9. Vents Low High

9.a. Vent lids open and close fully 1 2 3 4

9.b. Vent actuators and linkages operate properly 1 2 3 4

Yard Area

10. Sticker and Bolster Thickness Low High

10.a. Sticker thickness uniformity 1 2 3 4

10.b. Bolster thickness uniformity 1 2 3 4

10.c. Green lumber inventory control 1 2 3 4

Inside an Empty Kiln

11. Inside a Cold Kiln Low High

11.a. Condensation or other water inside kiln 1 2 3 4

11.b. Reheat (center) coils clean and free of debris 1 2 3 4

11.c. Proper wet-bulb wick is used 1 2 3 4

11.d. Adequate water flowing to wet-bulb 1 2 3 4

12. Kiln Operational Checks Low High

12.a. Heating coils and steam pipe free of steam or water leaks 1 2 3 4

12.b. Steam spray free of liquid water 1 2 3 4

12.c. Steam spray uniformly distributed 1 2 3 4

While Preparing Charges and Loading the Kiln

13. Lumber Quality and Package Loading Low High

13.a. Lumber thickness variation 1 2 3 4

13.b. Package arrangement to accommodate short packages 1 2 3 4

14. Package Support Low High

14.a. Bottom load support uniformity 1 2 3 4

14.b. Rails (track-loaded kilns) 1 2 3 4

During Kiln Startup and Operation

15. During Kiln Startup Low High

15.a. Adequate airflow across wet-bulb 1 2 3 4

15.b. Confirm that traps are functioning 1 2 3 4

16. While Kiln Is Operating Low High

16.a. Doors, walls, and roof free of leaks 1 2 3 4

16.b. Confirm fan reversal by feeling airflow direction 1 2 3 4

After Drying Is Completed

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|---|-----------------|
| 17. Before Unloading Kiln | Low High |
| 17.a. Pile height uniform | 1 2 3 4 |
| 17.b. Baffles used properly | 1 2 3 4 |
| 17.c. Adequate plenum width | 1 2 3 4 |
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| 18. Before Plies Are Broken Down | Low High |
| 18.a. Spot check MC with a moisture meter | 1 2 3 4 |
| 18.b. Dry end covered | 1 2 3 4 |

Evaluate Stacking and Its Effect on Drying Quality

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| 19. Sticker Placement | Low High |
| 19.a. Sticker alignment | 1 2 3 4 |
| 19.b. Stickers missing | 1 2 3 4 |
| 19.c. Stickers on edge | 1 2 3 4 |
| 19.d. Double stickers (one on top of the other) | 1 2 3 4 |
| 19.e. Sticker placement at ends of packages | 1 2 3 4 |
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| 20. Board Placement In Packages | Low High |
| 20.a. Packages are square at both ends | 1 2 3 4 |
| 20.b. Sides of package even | 1 2 3 4 |
| 20.c. Overlapped boards in package | 1 2 3 4 |
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| 21. Package and Bolster Placement | Low High |
| 21.a. Bolster (bunk) placement | 1 2 3 4 |
| 21.b. Package (crib) placement on supports | 1 2 3 4 |
| 21.c. Chimney allowance between packages when loading kiln trucks | 1 2 3 4 |
| 21.d. Packages placed at edge of kiln trucks | 1 2 3 4 |

Drying Defects and Drying Problems Reported

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|--|-----------------|
| 22. Drying Defects | Low High |
| 22.a. Drying defects related to stickering and stacking | 1 2 3 4 |
| 22.b. Drying defects related to overdrying .. | 1 2 3 4 |
| 22.c. End checking or end splits visible in stickered lumber | 1 2 3 4 |
| 22.d. Stain related to drying conditions | 1 2 3 4 |
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| 23. Lumber Moisture Content and Degrade Problems Reported | Low High |
| 23.a. Planer operators and graders report of problems | 1 2 3 4 |
| 23.b. Moisture content reports from planer | 1 2 3 4 |

"Quality Drying of Softwood Lumber Guidebook/Checklist;" USDA Forest Service; Forest Products Laboratory; FPL-IMP-GTR-1 1991