

Summary Checklist for Quality Drying in a Hardwood Lumber Predryer

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

Predryer _____

Date _____

Standard Operating Practices

1. Maintenance and Inspection Low High

- 1.a. Proper location of dry-bulb sensors 1 2 3 4
- 1.b. Influence of side vents of recorded ry-bulb temperatures 1 2 3 4
- 1.c. Proper location of the relative humidity (RH) sensor 1 2 3 4
- 1.d. Influence of side vents on recorded RH values 1 2 3 4
- 1.e. Use of wet-bulbs to determine RH values 1 2 3 4
- 1.f. Use of EMC sensor to determine humidity in predryer 1 2 3 4
- 1.h Drip pans positioned below roof vents 1 2 3 4
- 1.i. Condensation of water on predryer floor 1 2 3 4
- 1.j. Removal of dirt and debris from predryer floor 1 2 3 4
- 1.k. Roof is free of leaks 1 2 3 4
- 1.l. Traps checked for proper operation and plumbed for ease of checking 1 2 3 4
- 1.m. Circulating fans turning in proper direction and lubricated properly 1 2 3 4
- 1.n. Exhaust fans turning for proper airflow and lids closing properly 1 2 3 4
- 1.o. Proper functioning of side vents 1 2 3 4
- 1.p. General building inspection 1 2 3 4
- 1.q. Heating coils clean and free of debris 1 2 3 4

2. Moisture Content Monitoring and Recordkeeping Low High

- 2.a. Knowledge of history of lumber before going into predryer 1 2 3 4
- 2.b. Use of sample boards (kiln samples) to monitor moisture content 1 2 3 4
- 2.c. Disposition of lumber after removal from predryer 1 2 3 4
- 2.d. Identification of packages of lumber in predryer 1 2 3 4

3. Learning Opportunities Low High

- 3.a. Opportunities to visit other sites and meet other operators 1 2 3 4
- 3.b. Attend Dry Kiln Association meetings and drying workshops 1 2 3 4

Control Room

4. Environmental Conditions in Control Room Appropriate Low High

- 4.a. Temperature and relative humidity controlled for good working conditions of personnel and control instrumentation 1 2 3 4

5. Instrument Charts Low High

- 5.a. Correct instrument charts are used 1 2 3 4
- 5.b. Chart record is clear and legible 1 2 3 4

Lumber Stacking and Loading of Predryer

6. Sticker and Bolster Thickness Low High

- 6.a. Sticker thickness uniformity 1 2 3 4
- 6.b. Bolster thickness uniformity 1 2 3 4

6.c. Uniformity of sticker straightness	1 2 3 4
6.d. Lumber thickness variation	1 2 3 4
6.e. Painted lines on floor help proper positioning of stacks	1 2 3 4
6.f. Plenum width adequate	1 2 3 4
6.g. Spacing between lumber piles	1 2 3 4

Operational Checks

7. Dry-Bulb Temperature **Low High**

7.a. Appropriate range of operating temperatures	1 2 3 4
7.b. Accuracy of dry-bulb sensors	1 2 3 4
7.c. Daily variation of dry-bulb temperature	1 2 3 4
7.d. Dry-bulb temperature variation within control zone	1 2 3 4
7.e. Selecting "controlling zone" dry-bulb temperature	1 2 3 4
7.f. Possible shut-down of predryer when main door is open	1 2 3 4

8. Wet-Bulb Temperatures, RH, or EMC **Low High**

8.a. Accuracy of wet-bulb sensor	1 2 3 4
8.b. Accuracy of relative humidity sensor(s)	1 2 3 4
8.c. Daily variation of wet-bulb temperature	1 2 3 4
8.d. Possible shut-down when the main door is open	1 2 3 4
8.e. RH limits in predryer when loading wet lumber	1 2 3 4

9. Fan Operation and Air Velocity **Low High**

9.a. Fans turning for proper airflow	1 2 3 4
9.b. Average air velocity through the load	1 2 3 4
9.c. Air velocity uniformity/variation	1 2 3 4
9.d. Use of baffles in plenum space	1 2 3 4
9.e. Use of end baffles	1 2 3 4
9.f. Use of tapered floor bolsters	1 2 3 4
9.g. Burlap wrap for thick lumber.	1 2 3 4
9.h. Fan control within a control zone	1 2 3 4

10. Monitoring Drying Rate and Degradation Formation **Low High**

10.a. Use of sample boards to monitor drying rate	1 2 3 4
10.b. Monitoring for presence of surface checking on incoming lumber	1 2 3 4
10.c. Recording of final moisture content	1 2 3 4
10.d. Initial set point conditions of dry kiln for lumber from predryer	1 2 3 4

"Quality Drying of Softwood Lumber Guidebook/Checklist;" USDA Forest Service; Forest Products Laboratory; FPL-IMP-GTR-3 1993