Schedule C - Bi-Directional Continuous Kiln Heat Treatment Questions and Answers

Section	Question	Answer
BDCK interruptions **Variable push rate**	When a BDCK is operating at variable push rates, which value should I use for the Kiln Specific Time (KST) and Kiln Specific Delay (KSD) tables?	For KST, Table 1 (option A) use the highest push rate of the previous 2 hours and Table 2 (option D) use the highest push rate of the previous 6 hours. For KSD in tables 1 and 3 (option A) use the highest push rate of the 2 hours prior to the deactivation of the pusher, in tables 2 and 4 (option D) use the highest push rate of the 6 hours prior to the deactivation of the pusher. For KSD in Table 5 (option A) use the highest push rate of the 6.5 hours prior to the deactivation of the pusher, in Table 6 (option D) use the highest push rate of the 12 hours prior to the deactivation of the pusher. After KSD, the push rate cannot exceed the applied push rate before the kiln is deemed in normal operating conditions.
BDCK Initial Start up	When following Procedure 1, how much overlap is needed to adequately block air flow?	All kilns are different. CLSAB interprets overlap to be at least 4 feet in length.
BDCK Bulb location tolerance	Is there a tolerance on the positioning of the DB1 and DB2 sensors? For example, if a DB needs to be in the first half of the mid third can it be a couple feet outside of the acceptable zone?	The tolerance on the location of the sensor is 1 foot.
BDCK Heat Treatment Zone	If my DB1 is in the first half of the mid third, but my DB2 is not in the second half of exit third, can I start my HTZ at the beginning of the mid third until the position of the DB2?	Yes. Same could be done if DB2 is in the second half of exit third, but DB1 is outside of first half of mid third; the HTZ starts at position of DB1 and ends at the end of the exit third.
BDCK restarting	How can we confirm that restarting temperature is above 126°F?	When restarting the fans, if the kiln temperature is clearly above 126°F in 30 minutes or less, then the restarting temperature is above 126°F
BDCK KST and KSD tolerance	What is the tolerance on KST and KSD to produce tables 1 through 6 with rounded numbers?	There is no tolerance on the KST and KSD
BDCK KST and KSD	Can I use the formula to use exact minutes instead of the tables?	The tables provided by the CLSAB BDCK report generator are available in 60 minutes increments. An Agency could provide a facility with smaller KST or KSD increments as long as the tables produced are verified by CLSAB.
All continuous kilns	What about unidirectional continuous Kilns?	They are not covered by PI-07 or BDCK guidelines. They must be evaluated by a Heat Treatment evaluator.

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Schedule C	Are fan reversals necessary if the temperature is monitored on the EXIT air of the heat treatment chamber?	No, The exit air is the coolest air, so monitoring the exit air would be the equivalent to monitoring fan reversals.
Schedule C	Site specific schedules for some mills reference PI-07 requirements (option A) but say the dry bulb can be located no more than 8 feet from either end (meaning one end). PI-07 says from each end, does this mean both ends?	Yes, a dry bulb must be located no more than 8 feet from each end.
Schedule C (airflow)	Can there be a tolerance on minimum sticker thickness when airflow is kept above 100ft/min?	No. The volume of air per minute is the important element. Volume of air depends on both air velocity and thickness of stickers.
Schedule C (verification)	What is an adequate method for an annual heat sensor verification?	There are many ways to verify and/or calibrate temperature probes. There are calibration devices for Resistance Temperature Detectors (RTDs). Alternately, the sensors can be compared to a temperature sensing system that is known to be within certain tolerances. (Glass Stem Thermometer in water bath, Psychrometer, Thermocouple Thermometer, etc.).
Schedule C (Thickness)	Is there a tolerance for size? Example: for option C, first dimension listed is up to 1 1/8", can pieces have an average of 1 1/8" with a few sections at 1 3/16".	No. The dimension stated is a maximum. It was set to 1 1/8" to cover rough 1" lumber. The tolerance on a 1" product is 1/8".
Schedule C (Option A)	In option A, dry bulbs need to be located no more than 8ft from each end of the chamber. In a front-loading kiln, are ends the side walls or the front door?	The length of the kiln is perpendicular to air flow. The ends of the Kiln are parallel to air flow.
Schedule C (Option A and B)	Options A and B, the "Minimum Final Wet-Bulb Temperature", is it the Final Wet-Bulb at the end of the ≥140°F portion or the Final Wet-Bulb at the end of the total heat treatment run time?	Final Wet-Bulb Temperature is at the end of the "Minimum Heat treatment run time."

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Schedule C (Option C)	In option C, "Minimum time at the End of the Treatment". For 2" stock, is it the end of the 6 hrs over 140° or the end of the 18hrs? i.e. start with 12h over 126°, then finish with 6h over 140°, or the 6 hour period (@140°) can be anytime during the total 18 hour runtime?	"The Minimum Time at the End of the Treatment" should be included in the last portion of the "Total Dry Bulb Temperature Run Time". Therefore the last 6 hours of the 18 hours for 2" stock. The heat treatment processes developed and incorporated within PI-07 are based on a continual rise and buildup of heat within the wood.
Schedule C (Options B-C-D)	What's an acceptable test to prove moisture reduction below the fiber saturation point of the wood (approximately 30% MC)?	This could be Hot Checks, In-kiln probes, planer mill MC check, etc. The method employed to verify final MC is to be defined in the facility's HT manual.
Schedule C (Options B-C-D)	Some options are defined as "with moisture reduction", can they still be used if the lumber is already dry and there is no moisture to extract?	Yes. The moisture reduction process does not influence the rate of heat treating. It is the amount of water in lumber absorbing energy that influences the HT rate.