Choosing and Using Kiln Controllers

Presentation Objectives

• Highlight some of the details that will determine how well a control system matches your needs
• Answer questions about our kiln control upgrade project
• Have you awake for the next presentation
Presentation Topics

- The controls that we replaced
- Details important to us
- The controls we installed
- Did it produce the expected results?
- What details did we fail to address?
- Modifications made to achieve objectives
- What would we do differently?

The controls that we replaced

- Nine kilns with capillary tube chart controllers, mechanical fan reversing timers, poor air circulation, and generally leaky construction.
- Drying partially air dried hardwoods with modest amounts of eastern white pine
Details important to us

• Increase speed of drying
• Data logging, reliable temperature measurement and capable of using variable speed circulation fans was required.
• Improve quality of drying – control of kiln conditions

The controls that we installed

• We selected the SII Sample Watch system, completing installation in batches over 3 years.
• Control room PC on network with individual kiln PLC equipped controls.
• 4 sample platforms in each kiln with front and rear RTD dry bulbs, rear RTD wet bulb.
• Initially no variable frequency drives on any kiln circulation fans.
• Separate PC with digital scale using Excel spreadsheets to track samples by weight.
How it works (more or less)

Did it produce the expected results?

- Yes and No – depends on who you ask.
  - We did cut drying time
  - We had more information
  - We still had a spraying problem
- We needed to learn how our kilns worked.
Modifications made to achieve objectives

• Control spraying at inopportune moments
  – Programming change from SII – depression control average front and rear dry bulbs

• High EMC – reaching wet bulb set point
  – Reverse flow power vents in each vent every kiln

• Better conditioning
  – Installed a larger spray valve & feeder to boost spray capabilities

• Heat –
  – Installed additional steam heat radiation in several kilns
What details did we fail to address?

• Kiln alarms to protect lumber.
• What happens when a sample falls off the platform.
• Equipment failure – what does the operator need to know.
• Future flexibility (energy management, smarter alarms).

What would we do differently?

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