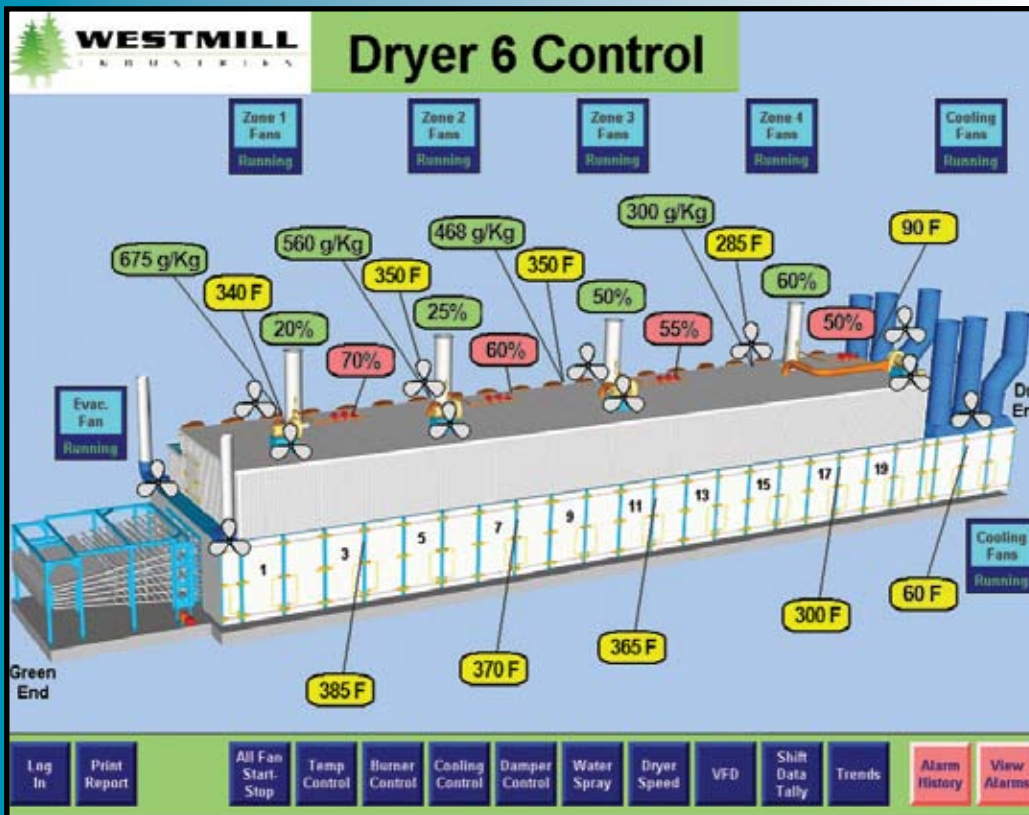


PLC-BASED DRYER CONTROL SYSTEM



Westmill's Dryer Control features include:

- Feeder and Unloader automation
- Open-source PLC-based programming
- VFD's for hot air circulation fans and cooler section fans
- Pre-programmed menu-based Drying "recipes"
- Production Data Display Screens (standard)
- Alarming and 8-hour trend tracking
- Remote access for troubleshooting (optional)
- Plug-up detection
- Components to ensure the latest in technology, speed and versatility

Realize your Dryer's full potential with a Westmill™ Dryer Control System. Even the latest mechanical technology will not maximize your veneer drying capacity without the latest in Dryer control.

With years of experience in automating cutting-edge Dryer technology, Westmill's engineers have hands-on knowledge of the veneer drying process. We know exactly how to achieve the best results via automated process control.



We replace old Dryer controls (above) with our modern PLC cabinet (right)



Plug-up detection system



Left: Variable Frequency Drive (VFD) panel.
 Below: Inside VFD panel (Emerson Control Techniques drive shown).



Product Features

Feeder and Unloader Automation: With simple but well planned upgrades, your existing equipment may surprise you with its material handling capabilities. Combine a Cam-to-Hydraulic Feeder Tipple conversion with a control system upgrade to significantly improve your material handling and feed rates.

Open-Source PLC-Based Programming: At Westmill™, we believe you should be able to do your own program changes without being held hostage by a machinery supplier. Our programs are written with simple, easy-to-follow ladder logic and include descriptors. To us, “black box” is a dirty word.

Variable Frequency Drives (VFD's) on Hot Air Circulation Fans: Without VFD's, the full power of the fan motors is only required during the cold start-up of a Dryer, when the cold air density is greater than at normal operating temperature. VFD's let you achieve constant maximum airflow by utilizing the motor's full output capacity, which would otherwise be wasted.

This feature also allows you to slow the Dryer fans during stoppages, plug ups or other problems where fans usually run at full speed. It also allows you to modulate air impingement speed on veneers, especially useful on delicate hardwoods.

VFD's on Cooler Section Fans: Westmill's thermal sensor measures sheet temperature after the Cooler section in order to modulate Cooler fan speed. If sheets are too hot, the fan speed is raised – only possible with VFDs. The fan motors can be sped up past 60 Hz if the fan's top speed is not achieved. This results in cooler veneers, and a significant savings on glue costs and reduction in glue-based delaminations. In cooler winter months, the fan speed can be slowed, saving electricity costs and improving moisture meter performance.

Menu-Based Drying “Recipes”: We pre-program our Touchscreens with Dryer settings that are selected by the Dryer supervisor and password-protected. The Dryer operator simply presses a button to select the product to run (e.g. 1/8” Douglas Fir Heart). The PLC automatically sets and monitors the Dryer's temperature, damper position, humidity level and conveyor speeds, and makes adjustments to compensate for fluctuations.

Production Information: Westmill's standard, out-of-the-box Touchscreen displays all relevant production information (downtime per shift, sheet count fed per minute, or per hour, etc.). Others charge extra for this Management Information System (MIS) option.

Alarming and Trending: Westmill's Touchscreen logs all events and Dryer stoppages, and records the time of the incident. Our convenient 8-hour trend screens eliminate any speculation about your Dryer's performance.

Remote Access: Our PLC systems can include a remote access dial-in Ethernet switch, allowing Westmill™ to troubleshoot and fix your system immediately at any time, from any location. That means less downtime and significant savings. And when the system is working fine, the dial-up is disconnected, ensuring that your system and network is secure.

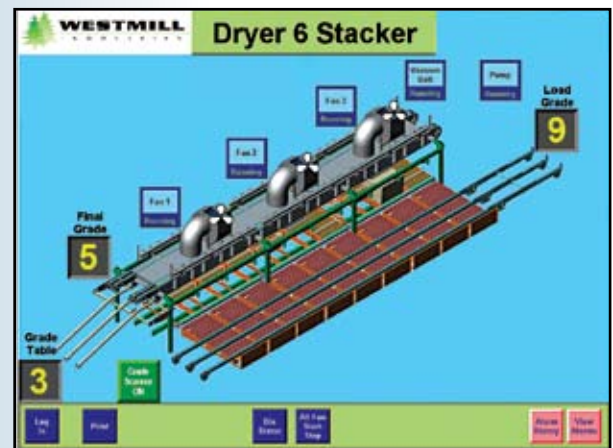
Plug-Up Detector: Westmill's unique Plug-Up Detector system is PLC-based and a 'non-relay' type. Our system reduces plug-up severity and down-time by immediately notifying the operator of locations of possible plug-ups. When tied to the Dryer's main Controller, the system can also data-log all alarms – useful for planning future maintenance and problem prevention.

Additional Components: Westmill's Dryer Control Systems and upgrades include components that provide you with the latest in technology, speed and future versatility.

- PLC cabinet complete with ControlLogix L61 processor, rack, power supply, and all appropriate cards (other types of processors available based on mill preference)
- Machine and console-mounted Flex I/O to simplify installation, reduce cabling costs
- PLC modules to replace any existing obsolete plug-up detection electronics
- Feeder operator large LED display station cycling through Dryer status items: temperature, piece count, alarms, stoppages, etc.
- Infeed and Outfeed control consoles

PRODUCTION SETUP			DRYER PERFORMANCE	
65 Damper Zone 1 (%)	380 Temperature Zone 1	READY	250 Dryer Up Time (Min)	96 %
40 Damper Zone 2 (%)	360 Temperature Zone 2	HEART	321 Feeder Up Time (Min)	62 %
15 Damper Zone 3 (%)	320 Temperature Zone 3	LIGHT SAP	30 Sheets Fed Per Min.	
4.5 Drying Time (1/10 Min)	PRESS TO LOAD DATA	SAP	240 Total Time (Min)	
		HEAVY SAP	2143 Sheet Count - East	97 %
			2185 Sheet Count - Centre	98 %
			2121 Sheet Count - West	98 %
			12 Dryer Steps - Infeed	
			7 Dryer Steps - Feeder	
			4 Dryer Steps - Outfeed	

Drying “recipe” and production data as displayed on Touchscreen.



Westmill's Touchscreen display of a controls retrofit to an existing Stacker. Westmill™ upgraded from PLC5 to ControlLogix, and supplied new Touchscreen, machine-mounted I/O, and operator training.

