



### BENEFITS

- » Advanced spray gun technology provides consistent coverage and appearance while reducing waste
- » Four-stage filtration allows air to be safely released into the plant (no roof penetration required)
- » Negative air pressure inside the booth results in better containment and a cleaner mill environment
- » Tip access door lets operators service spray guns without entering the containment booth
- » Filter media location permits easy access by operators
- » Remote Access Monitoring option reduces the need for onsite visits to perform diagnostics and troubleshooting

### APPLICATIONS

- » Stacks of OSB or Plywood
- » Square edge or tongue and groove
- » Stack widths of 36" to 54"
- » Stack heights of 12" to 42"
- » Stack lengths of 6', 8', 9', 10', 12', 14' (longer stack lengths can also be accommodated)

## FLEXIBLE AUTOMATED SOLUTIONS

PRE-TEC's Robotic Spray Booth is designed to apply water-based sealer to the ends and sides of stacks of wood, with precision and accuracy, to save you time and money. The Robotic Spray Booth reduces waste and keeps mill interiors cleaner by using targeted sealer placement and advanced airflow management techniques. The stainless steel containment booth utilizes four-stage air filtration with down draft separation, allowing air to be safely exhausted back into the plant and eliminating the need for roof penetration.

### PRECISE APPLICATION

At the heart of the system is a six-axis, industrial robotic arm equipped with a bank of spray guns. The flexibility and accuracy of the robotic arm allows programming of complex spray patterns to ensure uniform coverage with minimal waste. Pump and fluid regulator pressures can be adjusted to further optimize spray transfer patterns.

A programmable logic controller (PLC) uses photo eyes and other devices to determine the

height and width of the stack as well as the stack location on the conveyor line. This allows the robot to properly position the spray guns for precise sealer application and transfer efficiency.

### STATE-OF-THE-ART CONTAINMENT

To assist with overspray containment, a slight negative air pressure inside the spray booth draws air through the in-feed and out-feed vestibules. This increases air velocity into the booth to prevent overspray from escaping into the plant environment.

Similarly, a PLC monitors airflow through the filter system, and as filters degrade, variable frequency drives (VFDs) automatically adjust the speed of the exhaust fans to compensate. This helps maintain constant airflow through the booth to maximize containment. When filter media need replacing, the operator is notified by a message on the interface and a light on top of the control panel. An alarm can also be sent to a secondary station in the control room if desired.



### COMPONENT OUTLINE

- » Six-axis Robotic Arm and Controller
- » Programmable Logic Controller (PLC)
- » Stainless Steel Containment Booth
- » Structural Steel Frames
- » Operator Access Doors
- » Windows for "in-process" operator viewing
- » Fluorescent Lights and Fixtures
- » Air Filtration System
- » Exhaust Air Fans
- » Fluid Supply System
  - › Supply Pump with Suction Hoses
  - › Fluid Filters and Regulators
- » Safety System
  - › Robotics Industries Association (RIA) 15.06 Standard Compliance
  - › Disconnects for lockout and tag-out protocols
  - › Personnel interlock switches on access doors that activate a safety stop command if opened during operation
- » Fully Integrated Conveyor
  - › Variable Frequency Drives
  - › Standard conveyor length is 26'
  - › Minimum conveyor pass height is 24" for proper airflow dynamics. Conveyor pass height above 24" can be specified to meet plant requirements
  - › Mechanical Drives
  - › Roller Chain: 81X
  - › Accommodates conveyor speeds up to 80 lineal feet per minute

*Note: The conveyor is built into the spray booth and is required for booth operation.*
- » Photo Eyes
- » Air Filters and Regulators
- » Automatic Electric Spray Guns
- » Lockable Air Supply Valves
- » Two (2) Operation Manuals

### STANDARD COMPONENTS

- » **Mechanical Drives:** Sew EuroDrive
- » **Motors:** Baldor, Toshiba or Weg
- » **Bearings:** Dodge, SKF or Link-Belt
- » **Pressure Switches:** Hydac or IFM
- » **Pneumatics:** Parker
- » **Pumps:** Graco Duraflow
- » **Fluid Regulators:** ARO
- » **High Pressure Filtration:** Rosedale
- » **Communications Protocol:** Ethernet I/P
- » **HMI:** PanelView +6 1000
- » **PLC:** Allen Bradley Compact Logix
- » **Enclosures:** Hoffman or Rittal

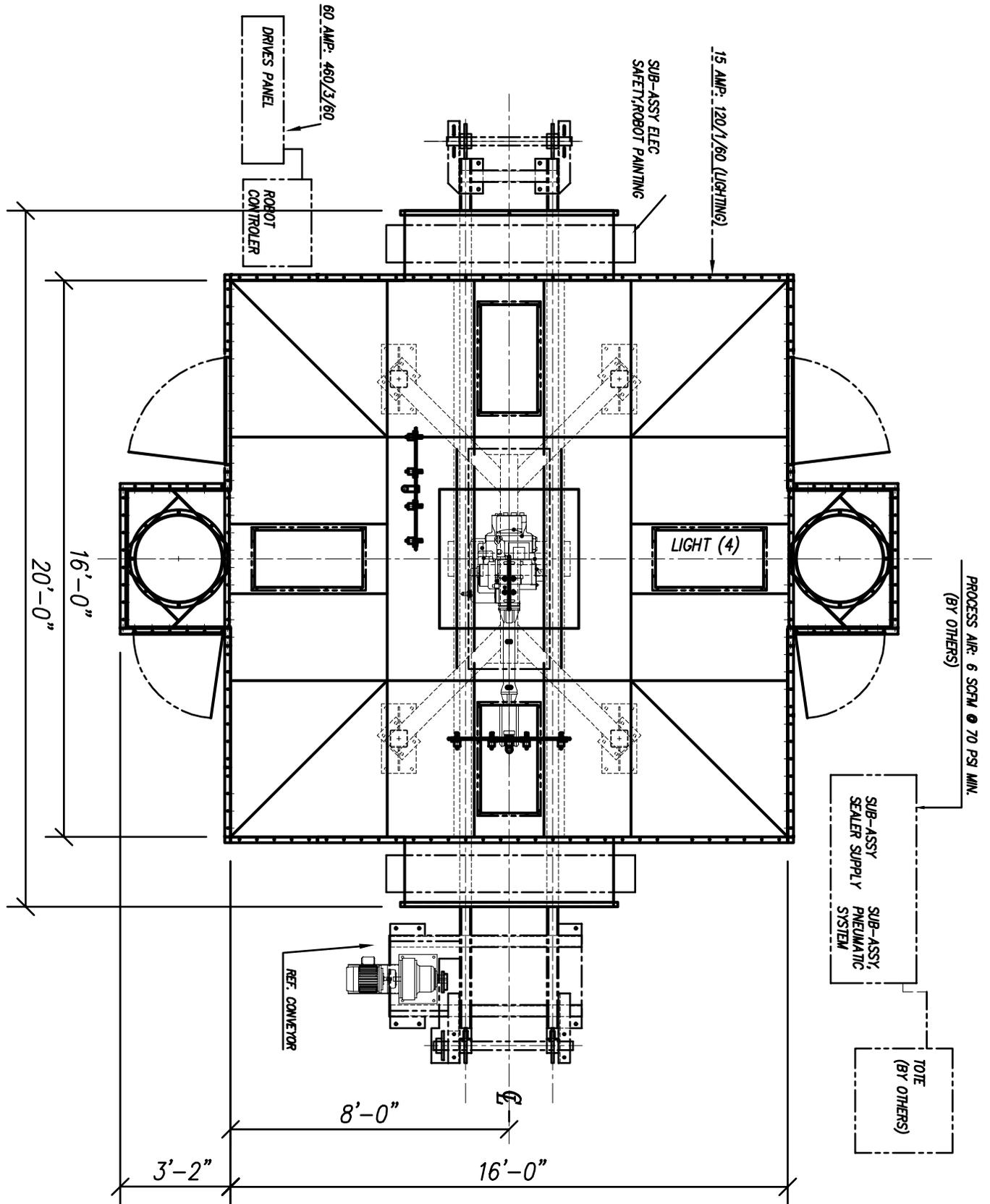
### OPTIONS

- » Remote Access Monitoring (recommended)
- » A complete 2nd color system from the paint supply tote to the robot head plate
- » Extended Conveyor Lengths
- » Three-chain Conveyors
- » Allen Bradley Control Logix PLC

### REMOTE ACCESS MONITORING

Get help when you need it! PRE-TEC can provide remote assistance as an optional addition to the Robotic Spray Booth system. The Remote Access Monitoring hardware enables PRE-TEC employees to help mill personnel with troubleshooting and diagnostics without requiring a costly, onsite visit. Remote Access Monitoring connects to the system's main PLC via Ethernet. Mill personnel activate the Remote Access Monitoring system through a mobile connection (a mobile access signal at the mill is required).

## ROBOTIC SPRAY BOOTH LAYOUT



## SPECIFICATIONS

**System Height** (varies by installation): 19'

**System Length** (between conveyor shaft centers): 26'

**System Width** (to outside of plenums): 22'4"

**Power Requirements** (one drop):

USA: 480VAC, 3PH, 60 amps

Canada: 575VAC, 3PH, 50 amps

**Grounding Requirements:**

Ground rod(s) 100 Ohms or less

**Floor Requirements:**

Substantially sound and level concrete

**Foundation Requirements:** None

**Process Air** (dry, clean):

Approx. 6 scfm @ 70 psi, duty cycle 60%

**Anchoring Requirements:**

Epoxy anchors: (16) 3/4" x 7 1/2" long,

(8) 5/8" x 6" long

Expansion anchors: (12) 3/8" x 3" long

PRE-TEC is the largest custom robotic solution provider on the West Coast. Whether you are considering automation to increase efficiency, ensure manufacturing safety, or improve quality, PRE-TEC has the expertise to make your next project a success.



## SEQUENCE OF OPERATION

1. The conveyor moves a stack to a pre-determined position and stops.
2. The height, width and linear position of the stack are determined.
3. The robotic arm sprays the leading end and sides of the stack.
4. The robotic arm sprays the trailing end of the stack. If the stack is longer than 8 feet, the stack is moved to a new position and the spray process is completed.
5. The robotic arm returns to its HOME position.
6. The stack is released and proceeds on to the next operation. The process is repeated with the next stack.

*Note: The booth does not have guarding to protect it from misaligned stacks. Stacks need to be center justified to within +/- one inch.*

## CYCLE TIMES

The Robotic Spray Booth can process a 4' X 8' square edge stack in approximately 60 seconds; it can process a 4' x 8' tongue and groove stack in approximately 70 seconds. Cycle time starts when the stack is fully on the paint booth conveyor. The cycle time is completed once the load is entirely on the out-feed conveyor.

Factors that can affect cycle time include:

- » In-feed/out-feed conveyor speed
- » Multi-tasking of robot and conveyor control systems via PLC
- » Integration optimization

Call 800.205.9826 for an engineering review of your project.  
Or visit [pre-tec.com](http://pre-tec.com) to see demonstration videos, project history and more.