Nick Barrett

| 604.671.8344
| nbarrett@sicamsystems.com
SiCam Expertise

- Dedicated Lumber Size Control Systems
- Industry Wide SPC Training
- Manufactured Defect Analysis
- Intelligent Closed Loop Systems

Founded in 1990

Trusted Industry Leaders in Quality Control
Manual Tools

Realtime Scanning

Intelligent Adjustments

“Touch the Wood”

“Scan the Wood”

SiCam Systems
Control Performance

| Eliminate “Special Variation”
| Identify issues quickly
| Alarm and Stop!

Improve Performance

| Reduce “Common Variation”
| Identify trends/opportunities
| Automatically Adjust Equipment
<table>
<thead>
<tr>
<th>Quality Control</th>
<th>Calibration and Laser Measurement Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trending Information</td>
<td>Focus on equipment behavior</td>
</tr>
<tr>
<td>Industry Training</td>
<td>Corporate Partnerships and Mill Training</td>
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</tbody>
</table>

**Profile**

<table>
<thead>
<tr>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSIZE</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Secondary</td>
</tr>
<tr>
<td>Trimmer</td>
</tr>
</tbody>
</table>

**Closed Loop**

- **Wireless Caliper**
- **Handheld Computer**
- **Cant Width**
- **Sideboard Thick**
- **Small Log Line**
- **Opening Face**
- **Closed Loop**
- **Board Width**
- **Edge Wane**
- **Positioner Error**
- **Closed Loop**
- **Board Thick**
- **Edge Wane**
- **Fence Accuracy**
- **Paddle Analysis**
- **Length Gauge**
- **PET Accuracy**
- **Piece Drop out**
MEASURE

- LSIZE Caliper Size Control
- Machine Specific Scanning
- Integrate with Existing Systems
  - Optimizer Data
  - Theoretical Faces
  - Saw Deviation Monitoring
ANALYZE

- Interpret Key Quality Indicators
  - Size & Standard Deviation
  - Key Performance Indicators
- Sawmill Size & Shape analysis
- Identify Manufacturing Defects
- Trend Machine Behavior

Profile  Technology  Closed Loop

SiCam Systems
ADJUST

- Custom Feedback
  - Operators & Production
  - Quality Control
  - Management

- Intelligent Systems
  - Automatically Adjust
  - Preventative Maintenance
  - Predict Machine Behavior
Measure and Trend Size Performance
Measure and Trend Face/Wane Performance
Determine Correct Equipment to Adjust
Minor Adjustments to Maintain Performance
Move Cutting Tools to Maintain Size/Quality
Track Adjustments Over Time
Size Control
| Measure Sizes By Sawline
| Trend and Reset Values after Adjustments

Open Face
| Ensure Chip Faces are Balanced or Match Optimizer
Size Control | Measurement trends by Sawline (CNS)
| **Primary Breakdown** | **Canter, Bandmill MPX**  
| Primary source of widths  
| Measure: *Cant Width, Open Face, Sideboard Thickness* |
| **Secondary Breakdown** | **Board Edger MPX**  
| Often neglected or can run offsize without notice  
| Measure: Board Width, Board Wane, Positioner error |
| **Trimmer** | **Fence Verification SPX**  
| Primary source of length issues  
| Challenging to diagnose |
* Cut Closer to Target or Target Size Reduction Opportunity

**Canter Twin (DLI)**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Target Size Reduction (in.)</td>
<td>0.010</td>
</tr>
<tr>
<td>Cut Closer to Target (in.)</td>
<td>0.010</td>
</tr>
<tr>
<td>Depth of Cut (in.)</td>
<td>9.00</td>
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<tr>
<td>Length of Cut (ft.)</td>
<td>16</td>
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<tr>
<td>Sawlines</td>
<td>1</td>
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<tr>
<td>Pieces /shift</td>
<td>5,000</td>
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<tr>
<td>Shifts /yr.</td>
<td>500</td>
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0.020” Opportunity

**Board Edger**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Value</th>
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<tbody>
<tr>
<td>Target Size Reduction (in.)</td>
<td>0.010</td>
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<tr>
<td>Cut Closer to Target (in.)</td>
<td>0.015</td>
</tr>
<tr>
<td>Depth of Cut (in.)</td>
<td>1.70</td>
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<tr>
<td>Length of Cut (ft.)</td>
<td>16</td>
</tr>
<tr>
<td>Sawlines</td>
<td>1.70</td>
</tr>
<tr>
<td>Pieces /shift</td>
<td>8,500</td>
</tr>
<tr>
<td>Shifts /yr.</td>
<td>500</td>
</tr>
</tbody>
</table>

0.025” Opportunity

**Cost Benefit Analysis Summary (Recovery Analysis)**

*Company:*

*Site: Some Division*

*Date: October 9, 2018*

<table>
<thead>
<tr>
<th>Machine Center</th>
<th>Gross Benefit</th>
<th>Added Process Cost</th>
<th>Net Benefit</th>
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</thead>
<tbody>
<tr>
<td>1. Canter Twin (DLI)</td>
<td>$125,100.00</td>
<td>-$15,000.00</td>
<td>$110,100.00</td>
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<tr>
<td>2. Board Edger</td>
<td>$85,363.38</td>
<td>-$10,235.42</td>
<td>$75,127.96</td>
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</tbody>
</table>

**Total:** $185,227.96

**Additional Payback Items**

- Closed Loop

**Global Variables**

- Shifts Per Year: 500
- Lumber Price ($/MBM): $375.00
- Chip Price ($/BDU): $50.00
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