Lean in our organization

Sturgeon Electric Company, Inc. Since 1912
1. Why are we doing it?
2. Who is engaged
3. Goals
4. Challenges
5. What we have learned
6. Take away
1st - Why are you here?
Why are we doing it?

Our industry is broken

Opportunity in waste reduction – looking for stuff example
### Why are we doing it?

<table>
<thead>
<tr>
<th>Breaks</th>
<th>Preparation</th>
<th>Waiting</th>
<th>Unnecessary Movement</th>
<th>Defects</th>
</tr>
</thead>
</table>
| • Taking a break  
• Going to the bathroom  
• Taking a smoke  
• Taking a coffee break  
• Small talk with colleagues  
• Private cell phone conversation  
• Going early to lunch  
• Coming back late from lunch | • Problem solving  
• Preparation of material  
• Preparation of tools  
• Measuring & marking  
• Cleaning tools  
• Cleaning work place  
• Double check measurements  
• Unpacking material | • Waiting on colleague  
• Waiting on machine to finish  
• Waiting on others to finish their work | • Walking to job site  
• Walking to another job location  
• Walking to find tools  
• Walking to find material  
• Walking to find colleague  
• Forgetting material/tools and going back for it  
• Moving material  
• Moving tools  
• Unloading material from truck | • Breakdown of tool  
• Redo work  
• Damaged material  
• Loss or careless handling of material  
• Theft |

<table>
<thead>
<tr>
<th>Incorrect Processing</th>
<th>Excess Inventory</th>
<th>Unused Employee Creativity</th>
<th>Overproduction</th>
<th>Unnecessary Transports</th>
</tr>
</thead>
</table>
| • Throwing away scrap due to incorrect shaping of material | • Too much material  
• Too many tools | • Not reported in the empirical study | • Not reported in the empirical study | • Not applicable. Not reported in the empirical study |
Why are we doing it?

Whose money is it anyway?

Unpredictable/unreliable
Who is engaged?

President → Precon

Precon → Colorado & Arizona

Colorado & Arizona → Operations

Operations → Project Managers

Project Managers → Field Workers

Field Workers → President
Goals

Culture

Discover a New way

Rocks in the Road

Education

Develop Others

What we already do

Executives, Sr. Managers

Foreman, Project Engineers, Project Managers

Huddles, SIS, Prefab
Challenges

Partners

Day Job

Conventional Wisdom

Not Easy

Blind People

Back Sliding

Don’t have Time

Our position

Success

The Wannabe
What Have we Learned?

• Education, growth, developing ourselves, and developing others is one of, if not the most important aspect of the process.

• By teaching, training, coaching, and being open to sharing what we’ve learned, we have been able to measurably demonstrate a better way of forward planning and reducing waste - Rocks in the Road planning – Redefine what's possible.

• 6 week short interval schedule window instead of a 3 week look ahead. We convinced our clients to change their standard 3 week format to a 6 week format. Also Added 8 productivity drivers:
  1. Tools
  2. Materials
  3. Manpower
  4. Equipment
  5. Access
  6. Coordination
  7. Information
  8. Safety/PPE
What Have we Learned?

Identifying constraints on a daily basis - able to demonstrate to our client how a slow response to RFI’S was preventing efficient work flow in the field.

By presenting Lean methodologies and principles to various clients, we have been able to participate in projects outside our home market.

By learning and understanding Lean principles, we are collectively better equipped to recognize waste and take steps to mitigate or minimize.

By adjusting our “Foreman’s Morning Huddle” to incorporate Lean principles, we have been able to unite the new with the old and produce a more effective huddle.

<table>
<thead>
<tr>
<th>Categories of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contracts/CO’s</td>
</tr>
<tr>
<td>2. Client Change</td>
</tr>
<tr>
<td>3. Submittals</td>
</tr>
<tr>
<td>4. Arch/Eng/Design/RFI</td>
</tr>
<tr>
<td>5. Schedule/Coordination</td>
</tr>
<tr>
<td>6. Prior work complete - Others</td>
</tr>
<tr>
<td>7. Prior Work Complete - Self</td>
</tr>
<tr>
<td>8. Qualified Staff Availability</td>
</tr>
<tr>
<td>9. Materials/Supplies Availability</td>
</tr>
<tr>
<td>10. Equipment</td>
</tr>
<tr>
<td>11. Weather</td>
</tr>
<tr>
<td>12. Site Conditions</td>
</tr>
<tr>
<td>13. Incorrect Time Estimate</td>
</tr>
<tr>
<td>14. Off Project Demands</td>
</tr>
<tr>
<td>15. Toox</td>
</tr>
</tbody>
</table>
What Have we Learned?

• By applying Lean principles to our warehouse and prefabrication shop, we are in the process of reorganizing and restructuring our work flows and resources to reduce wastes.