Wiremold’s Lean Journey

Mike Kijak
Plant Manager
Wiremold
Wiremold

• Leading manufacturer of pathways and cable management solutions that reduce installation and ownership costs
• Delivers the widest range of innovative ways to get from point A to point B
Wiremold – Early History
Wiremold – Early Products
Legrand – A Global Presence

- 70 subsidiaries and offices
- Sales in 180 countries

Market leading positions:
- 20% market share in wiring devices
- 15% market share in cable mgmt
- 67% of sales generated by products that are #1 or #2 in their market
- 5+% of revenues re-invested in R&D

34,000 employees worldwide

More than $6 billion in global net sales in 2014

Association for Manufacturing Excellence
the North American division

the Largest Division of Legrand

over 2,600 employees

over $1 billion in sales in 2013
Legrand North America Brand

CORPORATE BRAND:

PRODUCT LINES:

AUTONOMUS BRANDS:

Ortronics
Cablofil
Pass & Seymour
On-Q
Wiremold

electrorack
Middle Atlantic Products
WattStopper
NUVŌ Whole Home Audio

Quiktron Connections of Quality

GET CONNECTED

Share • Learn • Grow
Legrand – Commercial Buildings

Ortronics®

Middle Atlantic Wiremold®

Wiremold®

Wattstopper®

Wiremold® Pass & Seymour®

Cablofil®

Middle Atlantic Products®
North America Factory Map

OREM (BCS)
- Manufacturing, Distribution
- Size: 15,000 sq. ft.
- Headcount: 30

ANAHEIM (LDC)
- Manufacturing
- Size: 46,000 sq. ft.
- Headcount: 90

TIJUANA (EWS)
- Manufacturing
- Size: 227,000 sq. ft.
- Headcount: 680

CUIDAD JUAREZ (LDC)
- Manufacturing
- Size: 23,000 sq. ft.
- Headcount: 49

MASCOUTAH (EWS)
- Manufacturing, Distribution
- Size: 76,000 sq. ft.
- Headcount: 168

FAIRFIELD (CAV)
- Manufacturing, Distribution
- Size: 380,000 sq. ft.
- Headcount: 557

WEST HARTFORD (EWS)
- Manufacturing
- Size: 180,000 sq. ft.
- Headcount: 464

HICKORY (LDC)
- Manufacturing, Distribution
- Size: 56,000 sq. ft.
- Headcount: 88

CONCORD (EWS)
- Manufacturing, Distribution
- Size: 76,000 sq. ft.
- Headcount: 168

Totals:
- Size: 1,228,000 sq ft
- Headcount: 2395

Share•Learn•Grow
West Hartford Facility

Size and Information
• 5 buildings (built in 1920s, 30s, 40s, 60s & 70s)
• 180,000 square feet of manufacturing space
• 325 people, 2 shifts, 5 day operation

Core Competencies
• Roll Forming – 12 mills
• Metal Stamping – 50 stamping presses
• Metal Fabrication – 3 CNC punch presses, 1 laser, 12 brake presses, 7 welders, 6 aluminum saws
• Painting – Electrocoat, electrostatic spray, powder
• Electrical Assembly and Test – 20 wiring tables
Connecticut’s Competitiveness

**Connecticut**

Gross State Product **$249 B**
As of November 2014

+ Follow (0)

**At a Glance**
- Population: 3,596,700
- Governor: Dannel Malloy
- Median Household Income: $68,587
- Job Growth (2014): 0.7%
- Cost of Doing Business: **14.1% above nat’l avg**
- College Attainment: 37.2%
- Net Migration (2013): -1,500
- Moody’s Bond Rating: Aa3

**Forbes Lists**
- #36 Best States for Business
- #47 in Business Costs
- #20 in Labor Supply
- #37 in Regulatory Environment
- #44 in Economic Climate
- #28 in Growth Prospects
- #3 in Quality of Life

Source: 2014 The Best States for Business and Careers, Forbes
Why Connecticut?
West Hartford Lean Journey

Began in 1991 – Early activities
• Established the Just In Time Promotion Office
• Lean training came from the top down
• Lean training in Japan for management personnel
• Consultant led, 5 day kaizen events
• Eliminated “process villages” – formed product teams
• Focused on setup reduction and process flow
• Reduced the number of suppliers
• Fixed the order-taking process

Promise to our Union
“No one will lose their job as a result of kaizen.”

-Art Byrne, CEO, 1991
West Hartford Lean Journey

Growth Strategy
• Insource where possible to improve flow
• Buy up small companies with similar product lines
• Rapidly develop new products

Yearly Expectations
• Reduce defects by 50 percent
• Improve productivity by 20 percent
• Deliver 100 percent of products exactly on time
• Increase inventory turns to a minimum of 20 per year
• Increase profit sharing to 20 percent of straight wages
First Shipment Fill Rate

% Fill Rate by Line

1. 78 Hour
2. 48 Hour Target
3. 24 Hour Target
Inventory Turnover

Turns (12 Month Ave.)

263% Improvement Since 1991

2000 On - Consolidations and Migrations of other Businesses into the Wiremold facility
Setup Reduction

100 TON PRESS
After Kaizen 1 (Nov ‘91)

1. Separate internal & external work
2. Standard tools
3. Standard clamps
4. Common shut height (no adjustment)

91% Improvement

17 Minutes
Results: 1990-1999

- Sales up +4.1X
- Hourly workforce – no increase
- Operating Profit up +13.7X
- Inventory decreased by 75%
- Floor space reduced by 50%

Company acquisitions:
Economic Changes: 2000-2014

- Focus shifted to cost reduction opportunities

**Plant consolidations:**

- Airey-Thompson 2002
- Walker Systems 2004
- Brooks Electronics 2005
- Carlisle Operations 2009
- Fergus, Ontario 2010

- Many opportunities to establish lean processes
Legrand Growth: 2005-2014

**Acquisitions:**
- On-Q Home 2005
- Cablofil 2006
- PW Industries 2008
- Middle Atlantic Products 2011
- Electrorack 2011
- NuVo Technologies 2012
- Lastar 2014

- Many more opportunities to establish lean processes
Reaching New Heights In Innovation

HI Connect Design
People’s Choice Award Winner

2013 TED Magazine
Best of the Best In Marketing

2012 FORBES
World’s 100 Most Innovative Companies

EC&M Product of the Year
Category Winner 13

IIDEA Bronze Award Winner

Interior Design Magazine’s 2012 Best of the Year Awards Finalist

Today’s Facilities Manager 2013 Reader’s Choice Award

2013 Building Magazine’s Money Saving Award Winner

2014 True Value’s 2012 Supplier of the Year

2014 TED Magazine Best of the Best In Marketing
New Products Since 2012

West Hartford manufactured products

- 15 New Products or Product Families
- Sales of $4,923,500
Lean at Wiremold Today

- Approximately 1500 kaizen events since we started
- 275 kaizen events over the past 4 years
- Used to drive most of our productivity gains
- Learn by doing – use data and trystorm
- Mentor other Legrand businesses
2014 Kaizen Results

- 50 kaizen events (most were 4 or 5 day events)
- Training – 1 to 1.5 hours before events
- Daily report outs in the cell
- "Yokoten" – employees share what they learned during final presentation
- Focus on total employee involvement and leadership development
  - 160 different participants – 95 hourly, 28 salary, 33 office, 4 other
  - 40 different leaders
Lean Walkaround (Bi-weekly)

Each team reviews the following:

• Training matrix

• Productivity results (Department & key cells)

• Modified policy deployment matrix to set/confirm kaizen events

• Kaizen activity and followup

• ISO14001 recycling results
Pull Systems

• Heijunka mailboxes
• WPICS tickets
Pull Systems

- Kanban cards
- Second link cards
# Recycling Program

ISO 14001 Waste Audit Inspections
Factory Area Audit Sheet

<table>
<thead>
<tr>
<th>Area</th>
<th>Landfill Waste</th>
<th>Paper &amp; Cardboard</th>
<th>Plastic</th>
<th>Bottles &amp; Cans</th>
<th>Wood</th>
<th>Repackaging Materials</th>
<th>Metal</th>
<th>Aerosol Cans</th>
<th>5 Randomly Selected Personal Landfill Bins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building #4A-B</td>
<td>40%</td>
<td>93%</td>
<td>93%</td>
<td>87%</td>
<td>100%</td>
<td>93%</td>
<td></td>
<td></td>
<td>44%</td>
</tr>
<tr>
<td>Factory</td>
<td>45%</td>
<td>99%</td>
<td>98%</td>
<td>83%</td>
<td>100%</td>
<td>94%</td>
<td>94%</td>
<td>100%</td>
<td>70%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Departmental Scoring</th>
<th>Total Bins</th>
<th>Total Score</th>
<th>Avg. Score</th>
<th>Department Compliance</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building #4A-B Totals</td>
<td>38</td>
<td>138</td>
<td>3.63</td>
<td>73%</td>
<td>5</td>
</tr>
</tbody>
</table>

Major contamination: Recyclable goods were found in the landfill waste bins throughout the department except cardboard, plastic, and paper. Personal landfill waste bins were contained with recyclable goods. Plastic bins were contaminated with trash. Martha assisted with the inspection.
Recycling Efforts

2014 Results:
• Non-ferrous (copper, SS, aluminum) – 53 tons
• Cardboard / Plastic – 97 tons
• Steel – 2000 tons
• Pallets – Zero to landfill
• Total annual savings - $1.1M

• Trash to Landfill – 69 tons (down from 86 tons in 2011)

• Recycling rate – 97%, 99.3%
Energy Reduction Program

Rankings: Average Retail Price of Electricity to Residential Sector, December 2014 (cents/kWh)

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Average Retail Price of Electricity to Residential Sector (cents/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hawaii</td>
<td>34.59</td>
</tr>
<tr>
<td>2</td>
<td>Connecticut</td>
<td>19.69</td>
</tr>
<tr>
<td>3</td>
<td>Massachusetts</td>
<td>19.66</td>
</tr>
<tr>
<td>4</td>
<td>New York</td>
<td>19.26</td>
</tr>
<tr>
<td>5</td>
<td>New Hampshire</td>
<td>18.52</td>
</tr>
<tr>
<td>6</td>
<td>Alaska</td>
<td>18.45</td>
</tr>
<tr>
<td>7</td>
<td>California</td>
<td>17.08</td>
</tr>
</tbody>
</table>

The map shows the average retail price of electricity for different states, with darker shades indicating higher prices.
Better Buildings®
CHALLENGE
U.S. DEPARTMENT OF ENERGY

Energy Performance

Goal
25% Reduction in Energy Intensity by 2020

Commitment
14 Facilities, including 5 plants, covering 1.5 million square feet

Progress  ✓ Goal Achieved
32% Cumulative (vs Baseline)
4% Annual (2013)

New Goal (Starting in 2012)
20% Reduction in Energy Intensity by 2022

Data
View Details on Legrand’s Progress to Date

Showcase Project
Legrand, North American Headquarters
West Hartford, CT

Implementation Model
Legrand’s Playbook
Submetering Initiative and Energy Dashboards

RELATED LINKS
- Legrand Sustainability: Learn more about Legrand, North America’s sustainability initiatives.
Energy Reduction Projects

- “Turn It Off” Now campaign
- Recommissioning program
- Boiler replacements
- Paint line makeup air changes
- Paint line insulation
- Submeters
- Weatherization
- Lighting controls
- Restroom motion sensors
- Demand control ventilation CO2 sensors
- Re-lamping of all office areas (32w to 25w)
- Small compressor – overnight runs
- Inductive lighting in parking lots
- Air leak repair program

Ranked #48
Visibility

Many important visitors:

West Hartford Energy Task Force

State Senator Beth Bye (Asst. Majority Leader)

Congressional staffs from:
CT, NH, IL, MS, TN, AK, DE

Legrand recognition / publication features:

Recognition from US Dept of Energy, World Energy Engineering Congress, IETC Award
Energy Marathon

- West Hartford recognized for a 20% reduction in off-hour energy usage
- ISO Team performed energy audits and issued energy citations
Energy Costs
West Hartford Factory
(Electricity, Fuel, and Water)

2007: $1,084,029
2008: $1,126,175
2009: $933,511
2010: $849,557
2011: $784,961
2012: $716,736
2013: $651,209
2014: $651,010
2015: $678,640

Goal

2015 Goal
Results: 2007-2014

• Sales down 5%
• Variable Costs down 37%
  (Production labor, services and supplies)
• Fixed Costs down 41%
  (Salary wages, support labor, building services, depreciation)
• Energy Costs down 40%
• Average Capital Employed down 50%
• Adjusted Operating Income up 62%

Breaking Through Walls

“You either change or you don’t. You have to recognize that there are inherent risks. It’s scary. But so is doing nothing and waiting for the company to die slowly.”

- Art Byrne, CEO, 2000
In 2009, in addition to the team incentive plan payout, a one-time, $1,000 incentive was paid to union associates.
Better Communities Program

Rebuilding Together Hartford Fall Cleanup (2014)

• 10 Volunteers spent 4 hours cleaning up an elderly Hartford woman’s home

• Raked leaves, trimmed hedges, cleaned gutters, pressure washed siding and gathered debris from back yard
Better Communities Program

The Arc of the Farmington Valley (2014)
Thank You!
A link to the full conference survey will be emailed to you Tuesday afternoon.

Session Code: VS-2
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