



## Maximizing Employee Potential to Create a Lean, Quality-Focused Culture

*Helping Your Bottom Line Series*

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A key concept of Lean manufacturing philosophy is differentiating between value-added and non value-added activity. Within that category is the concept of necessary non value-added activity or activities that are necessary, but don't add value to the products being built. Supervision is considered a necessary, non value-added activity. While management involvement in the production process has not disappeared at Burton Industries, its management team has questioned how much supervision is really necessary if employees are trained in the "why" behind their jobs and understand how they interrelate to the production process.

This philosophy has driven cross-training efforts that have created a more nimble, flexible workforce able to work in multiple production jobs as production demand dictates. This training focus has evolved over multiple years into a program known as Learn 2 Earn, that increases team members' compensation as their skills proficiency increases. In some cases, team members are trained in skills applicable to multiple processes in individual work cells; in other cases they are trained to work as a cohesive team in a single work cell.

For example, in Burton Industries' Surface Mount Device (SMD) area, the Company moved away from the traditional model of machine operators and inspectors supported by engineering and quality assurance managers. Instead, SMD team members are expected to obtain and possess skill level and training equal to process engineers. Each team member now has a training plan designed to accomplish that. To incentivize that extra effort, these positions some of the highest paid in the facility and training is company-paid.

The SMD area has been a central point of focus for two reasons. First, on average, 90 percent of the components placed in the facility are surface mount parts. Second, production is predominately focused on high mix, low-to-medium volume manufacturing for customers with variable demand. To best support customer requirements, the SMD area needs to have a team that can flexibly move around the area as daily demand changes.

Within the SMD area there are five position classification to better identify the level of expertise each team member has achieved:

- Entry level
- Intermediate level
- Advanced level
- Expert level
- Advanced Expert

Entry level associates complete approximately 22 hours of job specific training, including basic operating procedures on every piece of equipment in the SMD area. They complete another 9 hours of training related to OSHA and general workplace safety training. At the Intermediate level, training expands to include documentation packages, equipment maintenance, inspection procedures, quality concepts and processes and customer satisfaction. Those in the Intermediate classification also pursue IPC-A-610 certification. At the Advanced level, training moves to machine programming and rework procedures. At the Expert level, associates receive manufacturer's provided training on all equipment in the work cell plus start to train in the procedures related to support of the area such as software validation and

incoming material inspection procedures. They also pursue IPC certification in repair/rework. At the Advanced Expert level, associates become a mentor/trainer to the team and pursue SMTA Process Certification. They are responsible for SMD area process decisions, maintaining zero defects, managing continuous improvement efforts and equipment validation. As currently envisioned, the total process requires nearly two years to complete required training and associated testing.

This approach provides a number of benefits. Since team members can shift among equipment, it makes it easier to maintain the same level of productivity when someone is on sick leave or vacation. It provides job enrichment, since team members are doing different activities day-to-day. It is also growing the skills base of each team member, which is career-enhancing long-term. However, the biggest benefit has been on continuous improvement. Team members understand their role in driving customer satisfaction and the “why” behind the activities they perform. As a result, the combined team is taking a pit crew approach in looking for ways to improve their interaction and reduce changeover time to be more responsive for customers. Visual factory tools are in use and downtime is measured with stop clocks so the team can review metrics and improve their processes.

For example, the team set a goal for daily machine uptime in the work cell of at least 70%. The challenge is that jobs changeover on an average of 7 times per day. In higher running jobs, reel changes must be done if parts run out mid-job, which also adds downtime. Changing a reel adds at least five minutes of downtime. While that may not seem like much, on a larger printed circuit board assembly (PCBA) there could five reel changes over the course of the production run, which tracks to 20 minutes of downtime.

To address that the team developed a splicing technique that can be done during a production run with zero downtime and taught it to everyone in the cell.

The team also focused on reducing its changeover downtime from an average of 20-30 minutes to 15 minutes to improve the total uptime percentage. While number of changeovers per day continue to drive variation in the overall uptime metric, every member of the team understands the reason changeover time needs to be reduced and works toward the goal.

Burton Industries’ Quality and IT departments have also contributed tools to make it easier for associates to access the information they need to do their jobs. The Quality Management System (QMS) is stored in a central repository, enabling team members to access up-to-date procedures and work instructions from any computer. There is even an app for that. The IT department developed a Manufacturing Dashboard app. Using the app, an employee can check everything from the history of a serial number to the number of vacation days they have. They can also access work instructions, procedures and tools via the app menu.

Burton Industries’ commitment to training is ongoing.

Associates involved in PCBA assembly throughout the factory are trained to the IPC-A-610 workmanship standard and IPC 7711/7721 rework and repair standards. Upon completion, associates will become Certified IPC Specialists. The training also helps the team focus on the complexity, density and thermal demands that newer technologies are adding to selective soldering processes.

MMTC Northern Initiatives provides Lean manufacturing training. Newer associates are trained as Lean Manufacturing Practitioners and associates who are already advancing through Burton Industries’ Learn 2 Earn program receive training as Lean Manufacturing Champions. Additionally, 2021’s training

schedule includes SMD associate training through Universal Instruments designed to help them better utilize the SM Operator Suite SMT optimization software resident in the Fuzion pick and place machines. American Society for Quality (ASQ) curriculum is also included in 2021 training activities.

The team at Burton Industries believes staying in front of the technology needs and expectations of its customers. They also understand that making equipment investments alone, isn't enough. Programs such as Learn 2 Earn are helping harness the power of every associate in the quest to work smarter and embrace an internal culture where every associate recognizes the important role they play in helping customers succeed.

### ***About Burton Industries***

*For more than 40 years, Burton Industries, Inc. has provided customized manufacturing solutions to OEMs in the medical, industrial, motor control, specialized consumer, security, building controls, defense and professional tool markets. We support the full product lifecycle from product development through end market support services.*

*We've built our business by listening to customer needs and efficiently supporting high mix, variable demand projects at both PCBA and higher level assembly (HLA) stages. Our manufacturing strategy includes:*

- *Extraordinary communication with customers*
- *Teaming with suppliers*
- *Optimizing test*
- *Eliminating hidden cost drivers.*

*Our primary manufacturing location is in Ironwood, MI and additional HLA manufacturing capability is located in Hazelhurst, Wisconsin.*