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Best Practices

Using Continuous Improvement Events in an Ergo Program

By Deepesh Desai, CPE

Underestimated, underused and untapped is the best way to describe the power of continuous improvement events in the field of ergonomics. Ergonomics and SH&E professionals typically focus on a traditional approach of in-depth ergonomic assessment, high-end engineering improvement and justifying the cost of the improvement to management. This process usually takes 6 to 8 months, after which the most important phase begins: implementing the improvement. Depending on the engineering complexity, the implementation phase may take another 3 to 4 months.

While this process has its merits, making changes on the shop floor in this manner can be slow and time consuming. Unfortunately, this process tends to be a reactive approach of identifying operations to be evaluated based on injury reports (too late), and it works as an individual silo with no synchronization with other company departments.

Continuous improvement events with a focus on ergonomics can accelerate the process of implementing improvements and achieve quick and sustainable results.

What Are Continuous Improvements Events?

Many North American companies have begun to adopt lean manufacturing in their cultures, which is an evolution of the Toyota Production System (TPS). One of the most important tools of TPS is the kaizen event (a continuous improvement event). A kaizen event typically lasts 2 to 10 days, and concentrates on improving work cells and setups or streamlining processes.

These events can also be referred to as RAPID Team Events. They consist of 4 days of focused effort, resulting in multiple, real-time ergonomic improvements, supplemented by action plans for additional improvements and quick follow-up by the team. During these events, those involved follow a simple process of finding issues, fixing those issues and checking for success with emphasis on fixing issues by implementing practical solutions. A team that is comprised of individuals from various levels in the company, with skill sets from various departments, works toward a common goal of improving ergonomics on the work floor.

Based on experience conducting these events in diverse environments ranging from pharmaceuticals to steel mills to heavy construction equipment manufacturing, the author and his colleagues have observed that at least 50% of the issues on the floor can be resolved by making simple, rapid improvements to the workplace. However, 50% is a conservative number; depending on the environment, this number could be as high as 80%.

During a RAPID Team Event, the focus is on identifying and implementing simple rapid improvements; however, organizations reap additional benefits from this process.

What's In It for Me?

Continuous improvement events have several benefits: Companies proactively achieve accelerated risk reduction on the floor, respectfully engage the operators to obtain buy-in and create a synergistic culture within the company.

Risk Reduction

Based on experience facilitating these 4-day continuous improvements events, companies typically identify between 65 and 80 improvements, depending on the environment, and implement 40 to 50 of them within 4 days. The remaining improvements are completed

after the event with an appropriate follow-up process. In one particularly successful event, a company identified 157 improvements and implemented 109 of them in the same week. Undoubtedly, they reduced risk and potentially increased productivity as a result.

One of the many real-life examples of success from a continuous improvement event comes from a small manufacturing facility in Wisconsin. As production of a particular product intensified, operators complained of sore wrists related to manually threading components together. A low-cost tool was developed to assist the operators with the threading task. Using the tool relieved the operators' sore wrists, and output increased by 15%.

Another example comes from a 160-person manufacturing plant in Almont, MI. The company had identified a five-person work cell as its leading injury area, with 10 recordable incidents in 1 year alone. The company identified and implemented 12 low-cost, high-impact ergonomic improvements, which reduced ergonomic risks and drove injuries to zero within 2 years. In addition, the output of the cell increased by 25% with no additional staffing.

In short, continuous improvement events enable companies to implement rapid improvements, thus reducing risk and potentially increasing productivity.

Buy-In

Operators possess a wealth of knowledge on both job challenges and potential job improvements resulting from years of experience. Improvements identified and implemented during continuous improvement events are generated by teaming with the operators to identify problems, receiving their feedback and respectfully engaging them-inviting them to act on improvement opportunities as part of a continuous improvement team. This results in the implementation of their improvements, and they have ownership.

While the workforce can be resistant to change, the idea of working together to improve the operation, thereby improving the quality of their work life, tends to result in buy-in from most people.

Synergistic Culture

In a recent experience at a company in New Jersey, the team identified a problem with lifting heavy chains. The company's 5S team had previously installed chain hooks to remove clutter from the floor; however, operators now had to lift 81-lb chains above shoulder height to hang them on the hooks located 75 in. above the floor. Due to the heavy lifting above shoulder height, most ergonomic assessment tools would categorize this as a high-risk task. It quickly became apparent that the 5S team successfully removed clutter from the floor by installing the hooks, but did not account for operator working height and, thus, installed them too high.

This scenario is typical in many companies, as different departments work in their own silos. 5S personnel focus on reducing clutter, quality assurance personnel focus on higher product quality, safety and ergonomics personnel focus on working safely, and so on. Ideally, everyone works to reduce clutter, everyone pursues quality, and everyone focuses on safety and ergonomics. Figure 1 depicts these two different cultures. Continuous improvement events enable personnel from various departments to work together to create an ongoing improvement culture with common goals focused on reducing the undesired facets of risk, quality and production.

Summary

Ergonomic injuries occur over time; therefore, overlooking continuous improvement events as a venue to proactively reduce risk is clearly a missed opportunity. In addition to the positive effects that these events have on ergonomic injuries, they also break down barriers to productivity, safety and quality while respectfully engaging employees. These events help organizations create a synergistic culture by involving personnel from all departments who share the responsibilities.

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Hand Tool

According to the Bondhus Corp., the new Ergonic screwdriver conforms to the user's hand to increase comfort and torque transmission capability. Product is available in standard and insulated versions.

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Modified Mouse

Euro Office recently introduced the Trackbar Emotion 2008, a modified computer mouse designed to reduce strain on the user. According to manufacturer, device is built on the principle that centering the mouse between the user and the keyboard diffuses aches in the arm and shoulder, and eliminates reaching arm movements that can exacerbate or contribute to the development of carpal tunnel syndrome. Product has a six-button mouse and a built-in microphone, and is compatible with PC and Mac.

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Ergo Cart

Designed to reduce bending and reaching during loading and unloading, Model MOD 72L linen cart, from Meese Orbitron Dunne Co., features a square center cutout opening that spans entire width of cart to provide access to towels, sheets and table linens. Ergonomically designed cart is ideal for use in laundries, hotels, resorts, restaurants, hospitals, correctional facilities and health clubs.

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Handle Grip

KN-7 Ergonomic Cable Splicing Knife, made by Jonard Industries Corp., is ideal for slicing through cables and insulation. It is extremely sharp and requires less use of force, reducing strain on the user. Ergonomic handle is made of thermoplastic rubber, and provides an easy gripping surface for increased control and decreased hand fatigue. The tough steel blade measures 13/4 in. in length, and the overall length of the knife is 61/4 in.

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Rivet Tool

Emhart Teknologies has launched the new POP ProSet 3400, a high-capacity pneumatic rivet tool. Designed specifically to set all size 4, 5, 6 and 8 blind rivets, including high strength and stainless steel, this new tool delivers 4,148 lb (18.5 kN) of pulling power with a force-to-weight ratio of 990 lbf/lb (9.74 kN/kg). Ergonomic features include a strong yet lightweight polymer handle, comfortable two-finger, low-activation-force trigger, rounded grip and adjustable air exhaust to keep cold air away from the user, all of which increase comfort and health.

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Materials Handling

C&H Distributors' EUROKRAFT hand truck features dual ergonomic handles and stair gliders to help workers move loads up to 440 lb. High frame allows higher load stacking and easy pullback. Unit features lightweight aluminum frame and 10-in. pneumatic tires, which roll easily and smoothly even when fully loaded.

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Office Chair

The ArmorSeat series, by Biofit Engineered Products, features high-end ergonomic office chairs engineered to provide comfort and support. Innovative design includes contoured lines and a waterfall seat front set at an incline of 6º, reducing the tendency to slip and slouch when seated. According to manufacturer, the chairs have a no-wax stipple finish, which increases resistance to dirt and bacteria. Product is reportedly environmentally friendly, containing less plastic, oil and other harmful substances.

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Work Surface

AFC Industries introduces the Ergo Tier Deluxe, an innovative ergonomic radiology reading station. Unit features fully tilt- and height-adjustable work surface, as well as monitor arms. Designed for maximum comfort, convenience and safety, unit is also electronically height adjustable. Dimensions and surface shape may be customized for the user's needs. It comes in a range of colors and finishes. The corner model can help user make the most use of limited space.

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Ergonomic Design Handbook

The Handbook of Ergonomic Design Guidelines, published by Humantech Inc., provides the technical data needed to design and maintain a world-class work environment. Developed by certified professional ergonomists, the new full-color handbook offers specific, practical and application-oriented guidelines with a focus on functional anthropometrics. The 271-page handbook covers topics including workstations, manual

materials handling, hand tools, controls and displays, and environment.

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Tactile Sensors

Hoggan Ergo has released its Human Hand Sensor System, the latest innovation to the highly successful ErgoPak Portable Analysis Toolkit, designed for ergonomists, safety engineers, industrial engineers, healthcare professionals and researchers. With this system, ErgoPak now provides tactile sensors that measure pressure. The sensors are stretchable and fit snugly over the digits, thumb and palm, maximizing dexterity and providing user with the mobility needed to perform tasks. The multiple sensor system for fingertips and palm accurately measures and quantifies applied forces to help understand how humans interact with tools, machines, products, job task processes and other hand applications.

Request 29 at www.psads.info.

Vacuum Lifter

The Anver VT Series Tube Lifter is a vacuum lifter from Anver Corp. that features an extended handle with a release assist valve for handling heavy porous loads and fully adjustable suction cups. Designed for loading cartons onto skids, the extended handle pivots 45° up and 75° down. Stationary and pivoting portions are offered in several different lengths. Equipped with an aluminum beam with adjustable cross sections and vacuum cups, product can accommodate cartons weighing up to 400 lb, depending upon model. Suitable for various applications, this ergonomic lifter is available with electric or compressed air-powered vacuum pumps and a wide range of suction cups.

Request 30 at www.psads.info.