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Sustaining and Leveraging High-Impact Ergonomic Improvements

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Synopsis:

In complex service environments, many safety professionals have experienced ergonomic improvements that are short-lived or underutilized because the project team and operations managers did not plan for sustainment. Even projects that are well utilized can underperform if they are seen as a one-time intervention rather than as one step in the development of a more comprehensive set of solutions.

The Walt Disney Parks and Resorts ergonomics program has developed and evolved into an integral part of resort operations over the last 12 years. This article examines a selected set our ergonomic improvements to provide examples of the elements that support the sustainment of that specific solution or that leveraged the solution into a more comprehensive injury- prevention strategy.

Selected Ergonomic Improvements:

Redesign of Custodial Pan and Broom

From 1998 through 2005, Safety In Motion® focused on reducing the repetitive strain on hands, wrists, and elbows that is caused by daily use of the custodial pan and broom. However, the safety team faced significant challenges in convincing leaders of both East and the West Coast operations (essentially independent of each other) to buy into and take ownership of the project. This was due to the perception of the "traditional Disney pan and broom" as an important part of the Disney show heritage.

The outcome of the project was a new, lighter pan and broom that adjusts to fit the individual and reduces cumulative stress on the wrist, hand, and elbow by enabling the use of mid-range wrist alignment and a power grip. The educated use of this new pan and broom reduced recordable incidents and claims related to musculoskeletal pain in hands, arms, and shoulders.

Several important lessons about reducing resistance and creating a sustainable implementation came out of this project. First, recruiting both management and employee leaders, and then educating them to productively participate in the development of the new pan and broom, was essential.

Second, the proposed solutions were tested on a small scale. The test groups included individuals with a broad array of opinions and viewpoints. The ergonomics team kept the test groups well informed so they understood how their feedback affected the development of the solution. While piloting new solutions can be time consuming, it is valuable in the end as it reduces resistance and promotes sustained use of the solution.

Third, communications and training were carefully planned to support a large-scale implementation of the ergonomic improvement. Sustainment relies on letting employees know what is in it for them, who supports the change, and how/when the change will reach them. Finally, employees need training on how to best use the new tools, and this training must be designed to help them change long-established work habits.

Transportation of Outdoor Vending Carts

From 1998 to 2007, the resort engaged with Safety In Motion® with the goal of reducing the manual pushing and pulling forces required to move very large food vending carts and smaller supply carts. The initial ergonomic goal was to mechanize the transportation of the carts to reduce the physical strain involved in manually pushing, steering, and stopping the carts during the transit process.

The first ergonomic intervention involved the use of a low-boy trailer and a tugger to move the largest carts from the backstage cleaning and supply location to the on-stage vending location. This solution was well received by both cast members (employees) and managers because it reduced both physical strain and was economically more efficient. However, this solution could only be used before and after park operating hours. Some of the large vending carts and almost all of the smaller supply carts were moved and serviced during the hours the park was open to guests. This meant it was a good first step but not a comprehensive solution.

The first step to leveraging this solution was to measure the benefit (number of mechanized transits, number of labor hours saved, the reduction of recordable injuries) and to measure the remaining opportunity (number of non-mechanized transits, current injuries and costs). This reinforced the benefit of the ergonomic intervention. Moreover, it clearly identified the scope of the remaining opportunity – which was significant.

The next step was to ask the "why" questions. It turned out that two of the why questions focused the efforts of the safety team in two separate but productive directions.

The first productive "why" question was, "Why is it necessary to transport the large vending carts on and off stage?" The answer identified food safety regulations that required cleaning the carts daily in a central commissary. A team was assigned to see if a viable alternative was available. The alternative identified was a mobile cleaning unit that would bring the cleaning process to the large carts on stage. The safety team worked with the county health department to obtain approval, allowing the largest carts to be cleaned by a mobile unit. This eliminated the physical strain and other risks of moving these large carts and further increased business efficiencies.

The second productive "why" question was, "Why is the trailer-tugger solution limited to before and after park hours?" The primary reason was the resort's visual theme guidelines that do not allow the use of industrial-looking tractors or pushers during park operating hours. This focused efforts on identifying a small, quiet, motorized tugger and then artistically theming this tugger to meet resort standards. This effort eventually resulted in the current fleet of motorized supply, beverage, and ice carts.

In summary, the keys to leveraging the initial ergonomic intervention into further success included: 1) Measure and celebrate the initial success. 2) Measure and consider the remaining opportunity. 3) Identify the root-cause barriers that limited the initial success.

Inventing the Bed Wedge

From 2006 through 2008 the Safety team worked to reduce lifting forces involved in putting the corners of sheets on (or cornering) hotel mattresses. As part of marketing and guest satisfaction trends across the hotels industry, Disney hotels moved to the use plush mattresses and pillows. This lead to a steady increase in the lifting force required when housekeepers are tucking and cornering sheets. The invention of the bed wedge, a hand tool used by housekeepers to first lift the mattress and then hold it while the cast member moves around to corner the make the bed, has reduced the force required to lift the corner of a mattress from 50 to 5 lbs.

While creating the bed wedge, some important lessons became apparent. First, teamwork makes a big difference. The core members of the bed wedge team included a creative safety manager with a strong mechanical shop background. Another member was a housekeeping supervisor who rose through the ranks and was well respected by both workers and management. Supporting this team was the hotel executive manager, the safety department ergonomist, and several engineering and shop staff.

Second, a simple yet strong business case for intervention was made, which was understood well by staff and management.

Third, persistence pays off. The team was not deterred when they found no commercially available solution. As Disney cast members have done for many years, the team went into a creative brainstorming mode, ultimately leading to the initial design of the wedge used today.

Finally, the safety culture at Disney had evolved in to a point where ergonomics was viewed as an integral part of continuous operational improvement. This meant all executives, operational staff, safety staff and engineers were familiar with the fundamental injury prevention principles and language of ergonomics and Safety In Motion®, and all were committed to protecting the health and safety of staff as part of operational excellence.

Selection of Child Stroller Used Company-Wide

The final case study took place from 2007-2008, in which SIM worked to reduce physical strain of storing and deploying thousands of strollers each day. The challenges encountered in this ergonomic improvement were twofold. First, each theme park had unique approaches to stroller storage, deployment, and recovery. This meant that finding one product that could meet varying needs would be a difficult. Second, the operations team responsible for the specification and evaluation of the criteria for purchasing strollers traditionally considered cost, durability and guest safety; however, it historically did not consider employee ergonomics.

With ergonomic and Safety In Motion® (SIM) principles fresh on their minds from a resort-wide roll-out of SIM in 2006, the operations team responsible for purchasing strollers successfully added employee ergonomics to the overall purchasing requirements. The result was a resort-wide roll out of a standard stroller. Through the ergonomic improvements, the reach envelope (leverage zone) for stacking strollers was improved and a device to stand up and lay the strollers over stacks of strollers was developed.

To leverage and sustain improvements, it is important to recognize opportunities to integrate important lessons learned. Be opportunistic—incorporate ergonomics criteria into equipment evaluation and purchasing criteria. Make the ergonomic criteria simple and easy for team members to use, compare and measure. For example, weight, leverage zone and manual lifting.

Summary of Key Lessons Learned

Education is a Key Precursor for Sustaining Ergonomic Improvements

The documentation, communication and employee training needed to sustain ergonomic improvements usually requires a cross-functional team (safety professionals, managers, and operators). This requires that operations managers understand basic ergonomic principles and how these principles benefit operations. It also prepares leaders to observe and reinforce better use of ergonomic improvements.

Prepare all SH&E professionals on staff, regardless of their professional role or focus, to integrate ergonomic principles into all safety training – for example food safety, construction safety, emergency response, incident investigation, etc. Why? Because food safety professionals often identify ergonomic issues in kitchen and food service areas. Construction safety experts can help identify facility design ergonomic issues early. Emergency response teams face ergonomic challenges, and health care professionals are often well positioned to identify ergonomic hot spots.

Success Breeds Success

Demonstrating and communicating how an ergonomic improvement benefits the individual employee and day-to-day operations is the first step to leveraging that improvement into support for future improvements. Demonstration means providing a clear before-and-after comparison. For example, the demonstration can be a physical experience where utilizing an ergonomic principle immediately reduces unnecessary physical stress and strain on a specific part of the body.

Another key to building support for more challenging or expensive ergonomic improvements is starting with initial changes that are quick, inexpensive wins. This is a proven strategy with long-term advantages. Even if the quick-win ergonomic improvements do not address the most severe stressors, early successes build positive expectations and project momentum, and provide meaningful examples that leaders can use to recruit support, both monetary and otherwise, for more challenging projects.

Build Executive Support

Executives are motivated to support ergonomic improvements when they believe the proposed investment solves a real problem, is likely to be successful, and protects financial performance.

Make your case using the big three: data (incidents, claims, health care statistics, and absenteeism), media (photos, video clips), and testimonials that clearly demonstrate both the problem and the prospect for success.

Executives often look carefully at who the key players will be. Sharp execs will often talk with key players to see if they are fully behind the project. So frame up who will lead and support the improvement. And, make sure your key players understand both the business benefits (potential financial return, operational improvements and efficiencies, and the value to employee relations, community relations, brand, and good will) as well as the safety and health benefits.

Finally, frame up how the investment will be sustained in the operating environment. Briefly define the communications, training, supervision, and maintenance that are planned.