

DoD Ergonomics Working Group NEWS



Issue 78, April 2008

www.ergoworkinggroup.org

Applied Ergonomics Conference & Expo: Ergo Cup® Competition

What is the Ergo Cup®?

The internationally recognized Ergo Cup®, sponsored by the Ergonomics Center of North Carolina and presented by the Institute of Industrial Engineers at their annual conference, provides an exciting opportunity for companies to highlight their successful ergonomic solutions. Any organization that can demonstrate an effective ergonomics solution or education initiative within the 24-month period December 2006 - December 2008 is eligible to compete for the 2009 Cup. The general theme is innovation and three Ergo Cups® are awarded annually for outstanding solutions through training, engineering, and teamwork.

Ergo Cup® 2008: The Navy participated!



Team members (from left to right): James Piner, Sheet Metal Mechanic; Glenda Aultowski, Certified Occupational Health Nurse Specialist; Richard Borcicky, Ergonomics Program Manager and Engineer; and Angela Smith, Sheet Metal Worker.

Fleet Readiness Center (FRC) East in Cherry Point, North Carolina—one of six FRCs operated by the U.S. Navy—entered the competition with an Electrical Adjustable Sawhorse.

Details of this successful ergonomic intervention are on pages 2-3. Find out how FRC East achieved these results:

- 52% reduction in neck discomfort
- 55% reduction in shoulder discomfort
- 67% reduction in back discomfort
- 70% reduction in knee discomfort
- 48% increase in job satisfaction

Ergo Cup® 2009: Will you be competing?

Registration forms will be available summer 2008. Enter to win!

Specific details regarding the competition are at www.appliedergo.org

Continued on page 2

Electrical Adjustable Sawhorse: Supporting the Warfighter

Fleet Readiness Center East, Cherry Point, North Carolina

By Rich Borcicky, FRC East Ergonomist

Fleet Readiness Center (FRC) East provides comprehensive maintenance and engineering support to Navy and Marine Corps aviation, as well as other armed services, federal agencies, and foreign governments. Our skilled workforce uses state-of-the-art technology to ensure that the FRC East provides unparalleled quality, cost-effective support for rotary wing aircraft. Our artisans take a great deal of pride in their work, and this professional spirit is evident in the high-quality products for which FRC East is well known.

Our Continuous Process Improvement (CPI) initiative—which incorporates the tools and methodologies of Lean, Theory of Constraints and Six Sigma—is the motivating factor behind ergonomic changes throughout FRC East. A CPI event within the Sea Knight Helicopter (H-46) hangar in 2006 identified the need for ergonomic intervention in the Sheet Metal Shop, where approximately 45 artisans are responsible for conducting airframe repairs, modifications, and service changes on removable components from the CH-46, AV-8, CH-53, C-130, H-1, and H-3 aircraft. Artisans used stationary wooden sawhorses to hold H-46 stub wings that had incurred battle damage. Stub wings measure approximately 9 x 5 x 3.5 feet and weigh 250 pounds. Prolonged awkward postures were associated with reaching and examining all interior and exterior surfaces of stub wings, and excess force was used to steady tools while bending and squatting. The design of stub wings also requires workers to place head and shoulders inside small cavities to repair the interior, and artisans stood or knelt beneath the stub wings to accomplish these processes.



A team of sheet metal mechanics, supervisors, safety personnel, and the ergonomist brainstormed options, which included a variety of knee pads, adjustable stools, sit/lean stools, and creepers. Artisans preferred standing and wanted to avoid bringing additional equipment into a busy aircraft hangar. Height adjustable desks and industrial tables were a recent addition to FRC East, and artisans wanted this idea applied to sawhorses. The ergonomics team went to work researching available alternatives. With no commercial options available, companies were contacted for help in developing a prototype. The original design incorporated a platform for holding tools, but the platform was quickly dismissed as being unwieldy. Ultimately, an industrial adjustable sawhorse table was constructed of horizontal steel frames supporting a wood beam with tubular stabilizers and bases. The electrically controlled height adjustable sawhorse table provides 750 pounds of lift at a speed of 2 inches per second. Overall adjustment is from 28 inches to 48 inches.

The installation of electrical sawhorses at FRC East resulted in restructured work processes, with artisans performing tasks in neutral standing postures. A stub wing balances and can be maneuvered easily on the sawhorse. Tasks are brought to the height of workers with the touch of a button. Artisans avoid repetitive reaching and bending, as well as compression to knees, buttocks, and arms previously required to accomplish tasks.

Artisans were asked to rate their level of discomfort for neck, lower back, shoulders, and knees at the end of an 8-hour shift pre- and post-intervention. Discomfort was rated from one to five with the higher number indicating the greater amount of discomfort. There was a reported 52% reduction in neck discomfort, 55% reduction in shoulder discomfort, 67% reduction in back discomfort, and 70% reduction in knee discomfort. Brief surveys were developed locally to gauge how ergonomic factors related to job satisfaction. Surveys completed pre- and post-intervention indicated a 48% increase in job satisfaction among shop personnel.

Cost savings have also been realized. The shop supervisor reports additional artisans from adjacent shops are no longer required to assist with tasks on stub wings since artisans who previously could not complete tasks due to physical limitations are now able to do so. For the two years preceding the intervention, there were seven major ergonomically related workers compensation claims for the shop. Thus far in 2008, following implementation of the electrical adjustable sawhorses in the shop, there have been no ergonomically related workers' compensation claims.



The electrical adjustable sawhorses are applied to a variety of tasks throughout FRC East and are now commercially available through Ergonomics Concepts® in Clayton, North Carolina.

If you'd like more information about the sawhorse solution, or have questions for the FRC East ergonomist, contact Rich Borcicky at richard.borcicky@navy.mil.

FRC East's Ergo Cup® Participation

FRC East competed in the Team-driven Workplace Solutions I Category with their electrical adjustable sawhorse.

The FRC East booth generated a great deal of excitement from ergonomists interested in implementing this workplace solution within their companies. ***The Department of Defense was well represented by this innovative team!***

Use of company or trademarked names does not imply endorsement by the Department of Defense, but is intended only to assist in the identification of a specific product.