

Lend

A HELPING HAND

New technologies make work easier and safer for Boeing employees

By Marcy Woodhull



Sanding paint from the underside of an airplane wing with hand-held tools can be hard on the shoulders.

It requires a person to stand underneath the wing and reach overhead in an awkward posture. Hand-held sanders vibrate, strain wrists and require a finger grip that causes fatigue.

Boeing's John Amell set out to change this.

"We worked with employees and management and tried several different things over the past 10 years, such as robots, remote control, custom handles and sanders on a stick," said Amell, an Associate Technical Fellow and ergonomist with Boeing Research & Technology.

so can cleaning Boeing facilities.

Ask Chandelle Osborne, who knows too well how stooping, reaching and standing all day can take a toll.

"When cleaning restrooms, we had a cart for all our cleaning products and equipment. And it required a lot of bending, kneeling, reaching and lifting heavy trash bags," said Osborne, team leader for Factory Services, part of Shared Services Northwest Facilities.

But today, a machine developed by a creator of no-touch cleaning systems is replacing those carts.

"It's like a pressure washer, and is far more effective than manual cleaning," Osborne said.

The machine not only cuts the work

said Melissa Findlay, a Boeing Research & Technology ergonomist who leads implementation of this software. "We are able to mitigate risk and prevent injuries by focusing our resources on solutions in the areas at highest risk for injury."

For those Boeing wing sanders, the solution was a mechanical arm that allows them to maneuver objects as if they were weightless.

Working with the company that created the tool, Amell and his Boeing colleagues developed an attachment for the mechanical arm to hold the sander. It's easy to grip, and employees can maintain better posture when sanding with far less shoulder stress and exposure to vibration. Boeing Research & Technology is looking at opportunities to



"We are supporting technology development, embedding ergonomics and safety analysis into the design of products, and using ergonomic tools and processes."

— Missy Brost, senior manager for Boeing Research & Technology

"Nothing worked adequately."

But Amell and his colleagues eventually found a solution by working with a company that manufactures a "zero gravity" mechanical arm.

It's just one of many examples of how Boeing is improving workplace safety.

New technologies are being developed and introduced in various areas of the enterprise as part of Safety Now, a companywide effort to reduce workplace injury rates over five years, said Amy May, Safety and Health senior manager in Environment, Health and Safety.

"We want to keep people safe to enjoy their work and enjoy their time away from work," explained Missy Brost, senior manager for Boeing Research & Technology. "We are supporting technology development, embedding ergonomics and safety analysis into the design of products, and using ergonomic tools and processes."

Just as sanding an airplane wing can be demanding and hard on the body,

time by a third but also reduces risk factors associated with repetitive motion, awkward movements, bending and lifting heavy buckets. It also reduces costs for chemicals and equipment.

"And, most important, it does an amazing job," Osborne said. "We've had so many compliments on the cleanliness of the restrooms, and we've had more than 175 days without a lost workday due to injury. The staff goes home feeling more energetic and not aching after a day at work."

While new technology is making it easier for employees to do their jobs, it's also important to have a better understanding of where technology can help make a difference.

At the Everett, Wash., site, for example, advanced data-visualization software is being used to understand the relationship between injury data and production data.

"This is allowing us to understand where we have the highest risk of injury,"

replicate this solution throughout Boeing manufacturing processes.

"We're always working," Amell said, "on better tools and design processes to help people do their jobs without injuries." ■

marcy.woodhull@boeing.com

To learn more about Boeing efforts to improve workplace safety and find improvement resources, visit the Safety Now website at <http://safetynow.web.boeing.com> on the Boeing intranet.

PHOTOS: (From far left) In Everett, Wash., Chuck Olinzock uses a mechanical "arm" for safer sanding of a 787. GAIL HANUSA/BOEING In Renton, Wash., Factory Services' Chandelle Osborne uses an indoor pressure washer that reduces the risk of ergonomic injury. MARIAN LOCKHART/BOEING In Everett, Wash., 747 Final Assembly mechanic Scott DeLack uses a rivet squeezer that is ergonomically safer than a rivet gun. ED TURNER/BOEING