Lockheed Martin Aeronautics Improves Handling of C-130 Wing-Parts; Reduces Waste

If you visited the material handling area of the C-130 production facility in Marietta, Ga., earlier this year, you wouldn't recognize it today.

Just three months ago, you would likely witness a chaotic scene of workers maneuvering fork lifts and cranes in between stacks of long wooden crates covering thousands of square feet of floor space.

Today, it's gone. *All of it.*

Now, the C-130 wing stingers and panels arrive on reusable wheeled containers that roll directly onto the production floor. A cross-functional team devised the novel solution to improve production efficiency, eliminate safety hazards and reduce waste.

If it sounds simple, it is — now that it's in operation. However, preparing for implementation was a complex process requiring a concerted effort by a determined team.

"The old process was very inefficient, and it was something the material operations people wanted to change for years," says Dave Yenowine, supply chain management director at the site and project sponsor. "This time, everything came together. We had F-35 work coming on and we needed the floor space. We had new C-130 programs starting that were tripling the amount of work. And we have a strong focus on safety."

The project started in 2007 with a process mapping event with representatives from material operations, production and procurement. The group looked at everything from how the parts were received from the supplier, processed through the warehouse, issued to production and handled by the mechanics on the production floor.

In the course of the exercise, Kristin Bell, a Supply Chain Management operations engineer and co-lead on the project, realized there was an aspect of the process that hadn't been given much thought — the volume of waste it generated.

Wood from the crates was recycled, but sometimes the recycling yard reached capacity, causing nearly 100 tons needing to be taken to a landfill each year. And with the production rate increase of the C-130 program, the waste volume would balloon as well.

"We had never even thought about getting rid of the wood containers until we mapped out the process," Bell says. "But when we started asking questions about how we receive the parts and dispose of the waste, that's when we brought ESH [Environment, Safety and Health] into the project."

Bell took Mike Beauchamp, the site's ESH engineering manager, down to the floor to see the existing process, and Beauchamp quickly saw an opportunity.

EESH became one of the project's biggest supporters and helped move it forward. Also contributing to the business case was the potential money savings by avoiding the purchase of a replacement stacker crane, foregoing the cost of activating a new warehouse, and reducing the number of employee hours spent stacking, uncrating and moving parts. The total overhead cost savings (not including the capital cost avoidance) came out to about $250,000 a year.

Once the project got the go-ahead, Bell and her co-lead, Marsha Childs, and the technical lead, Mike Fulp, set to the task of identifying the optimal solution and bringing it to fruition.

The Solution:
The parts are shipped from suppliers to a third party logistics company, Boneal Incorporated, located in Kentucky, within a one-day drive of the Marietta plant. The company, which is a small business located in a federal HUBZone, uncrates the parts, sorts them, and loads them into a wheeled transportation container.

Based on a schedule provided by Lockheed Martin, Boneal ships two containers at a time to reduce truckloads.

Upon arrival, the containers roll off the truck onto a loading dock and then onto the production floor just in time to support the wing shop's manufacturing schedule. Once the parts have been loaded into assembly jigs, the containers are returned to the logistics company for reloading.

The transportation containers, which are approximately 50 feet long, were custom designed and supplied by a local veteran-owned small business selected through competitive bidding. They feature hinged arms that swing out as each stacked part is lifted vertically from the container, making the next part readily accessible.

"This process change was a really big deal," Bell says. "We needed everyone involved and we had to test it on the floor to prove that it was going to make production more efficient, not disrupt it."

Since the process has been implemented, the plant has been able to reclaim 60,000 square feet of "beach front real estate" needed to rearrange the production floor to support F-35 production.

Another huge benefit of the project extends far beyond the C-130 program, says Beauchamp. "We're going to be able to take the lessons learned from this project and use it over and over again on similar initiatives," he says. "It demonstrated that ESH objectives and production efficiency really do go hand in hand when everybody works together toward a common goal."