

# Panel Line Process Solutions Improve Quality, Schedule and Cost for DDG 51 Class Ships

**Status:** Implemented

## PROBLEM / OBJECTIVE

A significant amount of the ship structure is made from stiffened panels that are fabricated from steel plates and stiffeners in the panel line. The panel line has a number of challenges related to excessive distortion, wide weld joint gaps, suboptimal welding performance, excessive weld repairs and low throughput rates. The objective of this Navy Metalworking Center (NMC) project was to evaluate the equipment, processes and procedures related to the Ingalls Shipbuilding (Ingalls) panel line and to provide a plan to improve the line's overall performance. This project was supported by the DDG 51 Program Office (PMS 400D).

## ACCOMPLISHMENTS / PAYOFF

### **Process Improvement:**

Ingalls and the Naval Surface Warfare Center, Carderock Division assisted NMC in quantitatively defining the performance of panel line equipment and gathering information related to similar panel lines used in other organizations. The team analyzed the information, investigated alternative technologies and defined the recommended improvements for the panel line. Primary cost drivers targeted for improvement included fairing of excessive weld gaps, back side welding of plate joints and post-weld repair.

### **Implementation and Technology Transfer:**

Ingalls began implementing the project findings in the second quarter of calendar year 2013 during the construction of DDG 114. These improvements, which are in various stages of implementation ranging from potential to complete, will improve panel quality and reduce production schedule and cost. The solutions will also benefit other Navy programs at Ingalls, such as LPD and LHA amphibious ships and the U.S. Coast Guard's National Security Cutter since the panels on these vessels are similar and are constructed on the same panel line. The solutions may also be applicable to other military services and industries that use similar products and processes.



Equipment, process and procedure improvements have been implemented at Ingalls' panel line welding stations for DDG 51 Class ship production. (Ingalls photo)

### **Expected Benefits and Warfighter Impact:**

- Improved panel quality and reduced production schedule and cost
- Five-year savings of more than \$2.1 million related to process improvements

## TIME LINE / MILESTONE

Start Date: October 2012  
End Date: July 2013

## FUNDING

Navy ManTech Investment: \$200K

## PARTICIPANTS

Ingalls Shipbuilding  
DDG 51 Program Office  
Naval Surface Warfare Center, Carderock Division  
Navy Metalworking Center

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