

# Enabling Earlier Outfitting Expected to Save Future Aircraft Carrier Construction Costs

**Status:** Implemented

## PROBLEM / OBJECTIVE

The build strategy for CVN 78 required much of the ship outfitting activities to be completed in the dry dock, in areas that were difficult to access. Identifying outfitting activities that can be done earlier in the shipbuilding process can save construction costs. A Navy Metalworking Center (NMC) project team identified systems and specific construction areas of future aircraft carriers that could benefit from pre-outfitting concepts, which improve construction efficiencies. The team also identified systems and subsystems for rafting and developed structural concepts for construction in shops, rather than concurrent with the structural assembly.

## ACCOMPLISHMENTS / PAYOFF

### **Process Improvement:**

This project identified areas of the ship that would benefit from pre-erection outfitting and benchmarked the best practices of other shipbuilding programs and commercial industry to determine concepts that could be applicable to shipbuilding. Accomplishments include addressing issues that were encountered completing CVN 78 and the development of a sequence for complete outfitting of multiple berthing spaces on the Final Assembly Platen (FAP), a first for CVN construction.

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

Pre-outfitting of targeted areas was implemented in the planning of future aircraft carriers. Work packages that reflect the new strategy are currently being completed at Newport News Shipbuilding (NNS). One space has already been completed and inpected by NNS on the platen, prior to erection.

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Efficiencies can be realized by increasing the amount of construction work done prior to erection. (NNS photo)

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

- Pre-outfitting will allow greater access for equipment and workers, and will reduce congestion and conflicting work and testing on hull after erection.
- Cost reductions are based on the 1-3-8 rule (shop/platen/post-erection construction costs) and possible reduction in build duration.
- Two benefits analyses, using different methodologies, were utilized to project the benefits:
  - NNS analysis indicates a nearly \$4M benefit.
  - The NMC/Hepinstall analysis indicates a nearly \$7M benefit.

## TIME LINE / MILESTONE

Start Date: April 2014  
End Date: December 2015

## FUNDING

Navy ManTech Investment: \$1.23M

## PARTICIPANTS

PMS 379  
Supervisor of Shipbuilding-Newport News  
NNS  
Hepinstall Consulting Group, Inc.  
NMC  
ONR Navy ManTech