

## Laser Image Projection

### *Technology Shows Big Savings for VCS Program*

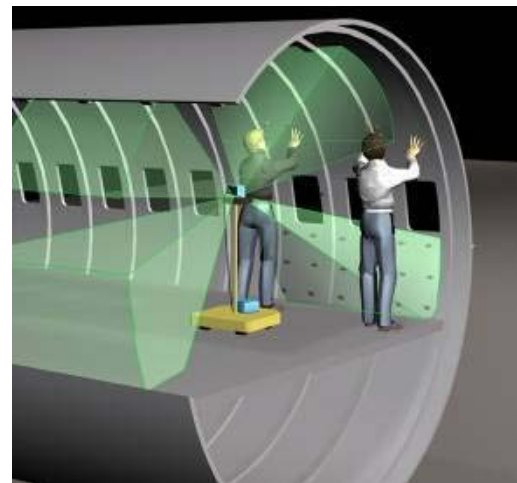
Electric Boat (EB) has successfully piloted a new laser imaging system that enables EB's Quonset Point facility to automate the layout of attachments during early outfitting stages of VIRGINIA-Class Submarine (VCS) construction. The EB project team used an innovative laser image projection system to locate and attach over 4,800 electrical and ventilation hangers, installing approximately 8,860 studs in 21 VCS hull segments. A savings of 7,700 man-hours per ship is expected – reducing labor by 85% compared to the traditional method.

The previous process for locating attachments and penetrations onboard a VCS hull was labor-intensive and lacked automation. However, new layout technologies and the availability of 3D ship design data provided by the *OneStop* database presented opportunities for considerable reduction in labor hours and cycle time.

The EB team discovered that image projection technology could automate layout processes, thus significantly reducing the labor hours and span times and eliminating the use of antiquated paper templates and string measurements. Ultimately, the automation was successful and enabled production workers direct access to the CAD model information needed to locate and mark points of attachment.

Much of this project's success can be attributed to its ability to utilize the *OneStop* CAD Database that was produced under another CNST-funded effort, EB's *Product Centric* project. This tool enables the extraction of positional data from EB's product model to determine the quantity and specific location information of various attachments.

This project ended in June 2008 but the EB project team continues to evaluate additional uses of this technology. The cylindrical shape of the submarine's hull is ideally suited for this technology, but other naval platforms are also being considered and could result in additional cost savings for the Navy. One technology that was considered by the EB Team during this project, Indoor Global Positioning System (iGPS), was proposed as a follow-on project, *Automating the Install of Studs*. This EB and CNST project is scheduled to begin in November 2008.



*Illustration of Laser Image Projection applied to aircraft outfitting.*

### **About CNST**

CNST is a Navy ManTech Center of Excellence, chartered by the Office of Naval Research (ONR) to identify, develop and deploy, in U.S. shipyards, advanced manufacturing technologies that will reduce the cost and time to build and repair Navy ships. For additional information on this and other CNST projects, please visit [www.cnst.us](http://www.cnst.us).

11/14/2008

