

MEASURE, LAYOUT, AND INSTALL SHIP COMPONENTS USING 3D LASER SCANNING TOOL

The Center for Naval Shipbuilding Technology has awarded General Dynamics Electric Boat (EB) a rapid response project to identify and recommend the most cost efficient and least labor intensive solution to install ship components with the use of a 3D laser scanning tool. EB has significant experience in this area and believes the commercially available metrology systems are now mature technologies that could support EB imaging demands. EB has been evaluating 3D laser scanning tools since 2001 to support SSGN conversion ship checks. Current evaluation of the 3D laser scanning tools show a marked increase of functionality to capture more accurate spatial orientation data and there are more advanced post processing software applications commercially available now to quickly process 3D as-built models. The desired 3D laser scanner is a non-contact measuring device, which eliminates expensive manual targeting and staging requirements; this is a potential labor savings opportunity, as collecting the data today requires manual intervention processes.

This project will involve leasing vendor services with laser scanner rental and post processing of data. It will also involve combining commercial technologies to meet requirements, selecting equipment, and conducting a cost benefit analysis for each potential solution. Process metrics will be defined to collect, document, and report for the process using the 3D laser scanning tool and post processing software applications. An implementation path is in place, as EB is targeting system use for fabrication activities as soon as possible, anticipating a late spring trial use and expedient new construction and repair applications already identified. EB expects to use the metrology system(s) at their Groton facility and potentially at their Quonset Point (QP) facility as well. EB anticipates a conservative savings of \$63K per VCS hull.



Surphaser 25HSX 3D Laser Scanning Tool
from Basis Software, Inc.

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.