NSRP

Press Release

For Immediate Release

Executive Control Board awards $2.5M for R&D Project Portfolio

September 22, 2016 -- The Executive Control Board of the National Shipbuilding Research Program (NSRP) has selected 17 panel projects for award, as part of the Program's continuing mission to reduce costs associated with U.S. shipbuilding and ship repair. These new projects, valued at over $2.5M, were among those proposed in response to the Panel Project Solicitation, issued in April 2016. Abbreviated descriptions follow:

ROXTEC Resilient Mechanical Bulkhead Pipe Transits for Navy Applications

HII-Newport News Shipbuilding |ROXTEC | DWM Services, LLC
NSRP Investment: $149K
Duration: 12 Months

Objective
Qualify commercially available resilient mechanical bulkhead pipe transits for US Navy applications and quantify the benefits for their use. Benefits are expected to include: eliminating the need for delicate bi-metallic welding of pipe sleeves to pipe spools in fabrication shops and eliminating the need for shipboard welding of pipe sleeves to bulkheads.

Flexible Infrastructure Bulkhead Track Improvements

HII-Ingalls Shipbuilding |National Technical Systems | Hilti North America
NSRP Investment: $149K
Duration: 12 Months

Objective
Based on results from the previous NSRP RA Project shock and vibration testing, improvements to the design need to be analyzed and tested for test articles that did not meet the acceptance criteria of the previous tests. The goal is to test methods with proposed improvements so that the flexible infrastructure support system provides the Navy with a complete package track systems and attachments that have been tested for all relevant shock and vibration criteria. This will allow the benefits of the use of flexible infrastructure on Navy surface combatants and amphibious assault ships to be fully realized.

Distributed Temperature Sensing for Inspection of Electrical Panels on Navy Ships

Penn State Electro-Optics Center | **HII Ingalls Shipbuilding** | Naval Sea Systems Command's Supervisors of Shipbuilding | Gulf Coast | NSWCPD | HII Newport News Shipbuilding
NSRP Investment: $150K
Duration: 12 Months

Objective
Determine the applicability of a fiber optic Distributed Temperature Sensing (DTS) system to perform inspection of onboard medium/high voltage electrical infrastructure so that 100% coverage of all connections is provided and is not hampered by internal obstructions within the cabinet or coverings over the connection points. Provide a proof of concept demonstration that shows the potential for DTS to provide safe, accurate and continuous monitoring of the state of electrical panels. Establish the trade space criteria for implementation in Navy ships, including the relative merits of the different technologies and identifying suppliers of systems.

Retention of Type VI Epoxy under UHS Epoxy

HII-Ingalls Shipbuilding| Elzly Technology |Bath Iron Works
NSRP Investment: $142K
Duration: 12 Months

Objective
Project will involve a Project Team composed of the NSRP Representatives, Member Shipyards, Coating Suppliers, and Navy Technical Community (Technical Advisors and Technical Warrant Holders). This team will define requirements, identify candidate coatings, conduct testing, and deliver a report showing whether the proposed coating methods meets the requirements.

Commodity Variation and Standardization Analysis on Navy 525 Valves

HII-Newport News Shipbuilding |HII-Ingalls Shipbuilding |GD-Electric Boat | Bath Iron Works | NASSCO| Bollinger Shipyards | NAVSEA 06 | NSWCPD
NSRP Investment: $150K
Duration: 9 Months

Objective
Reduce unnecessary variation stemming from contract requirements, shipyard requirements, and detailed design documentation; and establish equivalent relationships between shipyard part numbers, vendor part numbers, and NSNs for Navy 525 valves.

Power Panel and Breaker Commonality

Bath Iron Works
NSRP Investment: $150K

Objective
Determine where opportunities exist for breaker and panel consolidation. Test components that represent candidates for consolidation, but are not currently certified to meet specific military requirements. Recommend 30% reduction of overall variant breaker and panel usage rate, if deemed feasible. Given existing usage rates and applications, assess what benefits would be earned through coordinated consolidation efforts. Recommend changes, as applicable, to existing standards and requirements that would facilitate the future consolidation of power distribution hardware.

Improving the 3D CAD-to-FEM Interface for Shipbuilder Needs

HII-Ingalls Shipbuilding | ATA Engineering | Collier Research | Gibbs & Cox
NSRP Investment: $149K

Objective
Reduce the man-hours (and cost) required to translate 3D solid geometry within the computer-aided design (CAD) environment, to a deliverable that is more suitable for the finite element mesh creation step in the analysis process. While an earlier project focused on changes within FEMAP, this project will focus on changes within the translation required structural modifications back to Ship Constructor for updating the CAD model. Reduce the man-hours required to accurately and reliable transfer other information useful to analysis to the analysis model. Implement the shipbuilder specific Translation Tool to make the Ship Constructor export process more applicable to existing shipbuilder analysis and design-cycle processes.

Mechanical Property and Fabrication Cost Comparison of Purchased HFRW Structural Shapes vs GMAW Fabricated Structural Shapes

EWI | Electric Boat
NSRP Investment: $149K

Objective
Demonstrate equivalency between a purchased HY-80 HFRW tube vs. the corresponding baseline fabricated GMAW tube in terms of physical strength and to compare fabrication costs. Specific goals for this project include: Demonstrate and compare impact strength. Demonstrate and compare fatigue strength. Quantify purchased tube cost and compare to fabrication costs.

“DeepTIG” Wire for Improved Pipe Welding

EWI | Vigor Shipyards| HII-Ingalls Shipbuilding| HII-Newport News Shipbuilding | NSWC-CD
NSRP Investment: $149K

Objective:
Reduce the time required to prepare pipe joints for welding. Reduce time to make pipe welds. Provide an average of double the productivity of welding. Reduce cost of rework by increasing first-time quality. Reduce total cost by increasing throughput and shortening lead times.

Partial Blast of Ultra High Solids Coated Tanks Phase II

Elzly Technology Corporation | BAE Southeast Shipyards
NSRP Investment: $149K

Objective
The project would continue to develop the partial blast concept for use on surface ships. Specifically, the following objectives would be accomplished: Perform condition assessments on documented partial blast coated areas (including the NSRP demonstration area). Perform at least one additional demonstration on a surface ship tank. Continue to share experiences with the Navy submarine community on partial blast projects. Help develop implementation practices which would help planners determine when a “partial blast” approach provides reasonable benefits at minimum risk.

Development of a Requirements Framework for the Fabrication and Inspection of Naval Parts Using Additive Manufacturing (AM)

HII-Newport News Shipbuilding
NSRP Investment: $150K

Objective
Define a framework for the requirements for fabrication and inspection of naval parts using additive manufacturing. Integral with this framework will include areas interest, lessons learned, and research gaps germane to the potential future qualification of parts using AM. Project benefits are expected to: Support the reduction of a development timeline for future AM guidance documentation. Identify research gaps in AM (for future potential investigation) for naval part fabrication and inspection processes identified during this review. Document lessons learned from Industry and other reviews germane to future AM fabrication and inspection guidance documentation.

High Deposition Out of Position Mechanized GMAW-Pulse

HII-Newport News Shipbuilding| Ingalls Shipbuilding | Lincoln Electric Co. | Weld Revolution LLC | Miller Electric Co.
NSRP Investment: $148K

Objective
Research and develop a high deposition welding process utilizing mechanized GMAW-P in the overhead, vertical, and horizontal positions, also including the 5G and 6G pipe welding positions. Increasing the deposition rate will improve the travel speed of the welding process, which will reduce the overall welding time required for these types of welds using today's current methods. In this project, five different process improvements will be investigated. The list of these include: Using a larger diameter welding consumable (0.052" or 1/16"). Utilizing a twin arc or tandem arc process (two welding arcs in the same weld pool). A hot wire method, which adds an additional wire to the welding pool. A hybrid process such as laser or plasma arc being used in conjunction with GMAW-Pulse. An equipment evaluation for welding machines on the market that have high deposition functions utilizing the same diameter filler metal (i.e. 0.045").

3-D Vision for Welder Training and Production Welding

Visible Welding, LLC | Intertest, Inc.| Rumble Dev | Old Dominion University | Bollinger Shipyards | Austal USA | Electric Boat | HII- Ingalls Shipyard | HII- Newport News Shipbuilding | Lincoln Electric | Wolf Robotics | NSWCCD
NSRP Investment: $150K

Objective:
Provide an incentive to attract and retain young welders. Reduce training time to achieve proficiency at required quality level. Provide a TRL-6 Subsystem Demonstration, and preferably TRL-7, System Demonstration, solid enough to be deployed in shipyard training facilities and welding schools. Provide software with open-source flexibility to support future weld researchers and robotics developers with a ready 3D platform for their innovations.

Laser Surface Cleaning

HII-Newport News Shipbuilding | Bollinger Shipyards
NSRP Investment: $150K

Objective:
Identify & Benchmark Production Rates for Laser Cleaning Equipment in 2017. Assess Substrate Quality, Post-cleaning. Conduct Business Case(s) for Incorporating Laser Cleaning into Shipbuilding & Ship Repair Processes.

Advanced Composite False-Deck Material Systems for Rapid Modular Compartment Reconfiguration

Materials Sciences Corporation | Lockheed Martin| Huntington Ingalls| Bath Iron Works| DDG Planning Yard
NSRP Investment: $150K

Objective
Establish production-ready design concepts for low-cost composite false-deck panels that: Minimize ship yard installation time/costs and provide ROI over current installation methods, Support compartment reconfiguration throughout life of the craft without permanent modification, also resulting in ROI through life-cycle cost reduction. Meet all Navy prescribed structural and environmental performance requirements.

Providing Shipbuilding Suppliers with Digital Design and Manufacturing Information

HII-Newport News Shipbuilding | HII-Ingalls Shipbuilding | Electric Boat Shipyard | Bath Iron Works | NSWCCD
NSRP Investment: 149K

Objective
Define the requirements for providing shipbuilding suppliers with digital design and manufacturing Information; and identify a secure exchange medium that is readily accessible by suppliers for retrieving digital information during the procurement process.

Develop Common Supplier Technical Assessment Criteria and Scoring Methodology

HII-Newport News Shipbuilding | Electric Boat Shipyard | Bath Iron Works | NASSCO | Bollinger Shipyard
NSRP Investment: 149K

Objective
The shipbuilding supply base is spread throughout the United States and many suppliers are used by multiple Primes. Standard criteria and scoring parameters are needed to help ensure fairness and accuracy, and to allow sharing the assessments between Primes, which would reduce overall costs to implement and cut down on the disruption at the suppliers' facilities. Establish criteria for identifying complex/critical and risky parts and suppliers. Standardize technical assessment criteria and scoring. Share assessments amongst Primes to reduce overall cost, minimize supplier burden and effectively increase complex/critical supply base.