# Ship Warfare Systems Integration Panel
# July 23, 2026

Perry Haymon, Panel Chair

*Huntington Ingalls Industries, Ingalls Shipbuilding*

# Agenda



## Panel Meeting

2026 NSRP Panel Meeting - HII Office Third Floor
300 M Street SE, Washington DC 20003
July 23, 2026 Host: Perry Haymon

*Room: Burke Conference Rm,*

| Time | Presentation | Speaker |
|---|---|---|
| 8:00 am | **Convene Meeting** | |
| 8:00 am | **Introduction / Panel Chair Welcome / Chair Report** | Haymon |
| 8:10 am | **NSRP Update** | ATI |
| 8:30 am | **SWSI Panel Update** | Haymon |
| 9:30 am | **Performance Improvement for 25Hz DSSM Spring Tray- Status** | Arturo |
| 10:00 am | **Improved Fasteners for False-Deck Panels** | McClellan |
| 11:00 am | **FO Cable Jacket Evaluation – Final Review** | Tomasi |
| 12:00 pm | **Lunch** | All |
| 1:00 pm | **FY26 Panel Project Solicitation Overview/Ideas** | All |
| 2:00 pm | **FY26 Panel Project Solicitation Overview/Ideas** | All |
| 4:30 pm | **Review Action Items / Closing Remarks** | Haymon |

# Panel Introduction

## Ship Warfare Systems Integration Panel

Perry Haymon, Panel Chair

*Huntington Ingalls Industries, Ingalls Shipbuilding*

# Background

- In 2012 PEO Integrated Warfare Systems (PEO IWS) was added as a funding sponsor for NSRP
- At the March 2012 ECB Meeting - ATI (Formally SCRA) was tasked with forming a Working Group
  - ATI with inputs from the Executive Control Board (ECB) and NAVSEA held a conference call to determine a way to better involve PEO IWS
  - Participants in the conference call agreed on the benefits of getting PEO IWS more involved with the shipyards.
- At the June 2012 quarterly meeting ECB voted to formally establish the NSRP IWS Working Group and fund associated travel expenses.
  - The First and only meeting of the Working group was held in DC on July 18, 2012
  - Present at the meeting included Six Shipyards, NAVSEA and PEO IWS.
  - It was recommended by the group that NSRP form an Integrated Warfare Systems Panel
- At the September 2012 ECB meeting the board voted to formally stand up the Ship Warfare Systems Integration Panel (SWSI).

SWSI providing the opportunity to look beyond just shipbuilder costs

# Organization

## Information, Design, & Integration

### Ship Design & Material Technologies

Chair: **Monika Skowronska** (NASSCO)
Vice Chair: **Victoria Dlugokecki** (Consultant)

### Ship Warfare Systems Integration

Chair: **Perry Haymon** (Ingalls)
Vice Chair: **Harold Howard** (NNS)

### Business Technologies

Chair: **Jamie Breakfield** (Ingalls)
Vice Chair: **Patrick Roberts** (ShipConstructor)

## Ship Production Technologies

### Electrical Technologies

Chair: **Jason Farmer** (Ingalls)
Vice Chair: **Walter Skalniak** (Ashby)

### Planning, Production Processes & Facilities

Chair: **Vacant**
Vice Chair: **Pat Cahill** (Cahill Consulting)

### Surface Preparation & Coatings

Chair: **Vacant**
Vice Chair: **Bob Cloutier** (Consulting)

### Welding Technology

Chair: **Paul Herbert** (NNS)
Vice Chair: **Kevin Roossinck** (Ingalls)

## Infrastructure, Logistics, & Support

### Workforce & Compliance

Chair: **Vacant**
Vice Chair: **Maurissa D'Angelo** (D'Angelo Technologies)

### Sustainment

Chair: **Kirsten Walkup** (BIW)
Vice Chair: **Kaipo Crowell** (Kakou Professional Development)

# SWSI Mission Statement

- Reduce the costs of integration and test for warfare and communication systems in ship construction and maintenance/ modernization.
- Facilitate communications among Navy programs, warfare system integrators, communication system integrators, ship designers, shipbuilders and other NSRP panels.

# SWSI Focus Areas

- Promote standardization of physical interfaces between GFE/CFE and shipboard spaces.
- Promote ship mission system infrastructure flexibility, modularity and scalability.

# Ship Warfare Systems Integration Panel's Purpose

- Reduce the costs of integration and test for warfare and **communication** systems in ship construction and maintenance/ modernization.
- Facilitate communications among Navy programs, warfare system integrators, **communication system integrators,** ship designers, shipbuilders and other NSRP panels.

# Panel's Purpose

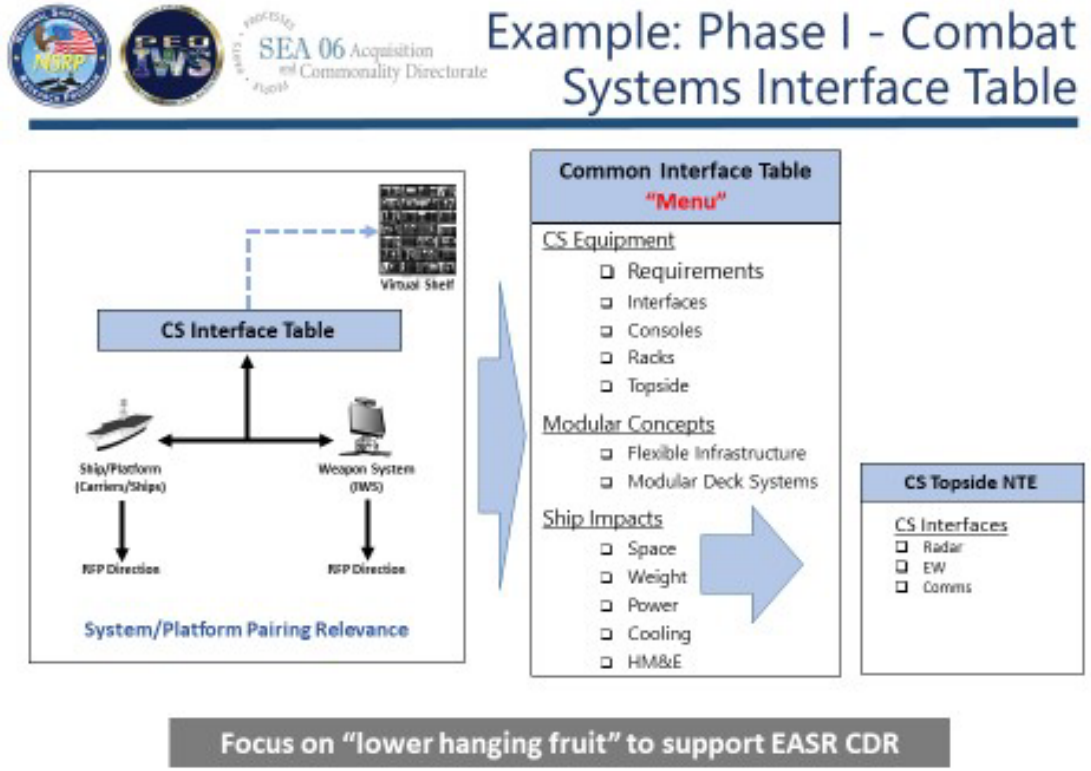
- What does the panel do?
  - Promote standardization of physical interfaces between IWS and C5ISR GFE/CFE and shipboard spaces.
  - Promote ship mission system infrastructure flexibility, modularity and scalability.
- Why?
  - To support the total ship cost reduction and integration of new technology efforts
- How?
  - The panel focuses on commonality
  - Works to identify opportunities to support the "Flexible Warship" concept
  - Works to increase involvement between the shipbuilder, C5ISR and IWS and the OEMs
  - Continually evaluate and share the results of SWSI Panel, RAs and specials projects and their benefits to the Navy, NSRP members and industry partners
  - Work to increase collaboration with other panel

# Benefit to the Navy

- NSRP and SWSI provides a unique opportunity to connect the shipbuilder and the OEMs for combat system equipment and C5ISR equipment. Where before this connection did not exist
- SWSI bring the opportunity for shipbuilders and the OEMs to share perspective and potentially identify how small changes early in the design could have large saving in the future
- SWSI has help to identify opportunities that existed on other platforms and transition them to new classes of ships.
- SWSI is focused on the future changing today is hard but if shipbuilders and OEMs start talking now and understand what drives each others cost the future savings for the Navy could be significant

# Assistance to the state of the shipbuilding and ship repair industry

- SWSI is preparing for the future of shipbuilding
- As Combat and C5ISR system become more dependent on ship services (high power and demand of pulsed loads) SWSI is building the path for both
- By building these relationships now a foundation is being laid, so as the dependencies continue increase, between shipbuilders and OEMs, the relationship standard  that can grow stronger and more beneficial to the industry



# Past and Current Projects

- ~21 panels projects have been completed
- 1 project on going
- One Special Pilot Project – Common Interface Pilot Program (CIPP)
- The majority of the Project focused on physical Interfaces been equipment and ship structure
- These efforts helped transition technology found on the Ford Class to LHA 8 and LPD 29 and follow (Flexible Infrastructure)

- Improved Fasteners for False-Deck Panels –
  - This project seeks to find or develop an alternative method(s) to secure both the MIL-PRF-32664 composite false deck panels and legacy Nomex core panels used in false decks aboard US Navy vessels.
- Performance Improvement for 25Hz DSSM Spring Tray –
  - The overarching goal will be to improve the shock test fixture so that testing can extended to more platform's with one test.

# FY 26 Panel Projects

| # | Project | Lead | Shipyards Involved | Panel | NSRP Funding | Est. Cost Share | Duration (mos.) | SELECT | STANDBY | Running Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Autonomous Equipment in a Shipyard Environment | Pratt & Miller Engineering & Fabrication | Austal, HII-NNS, HII-Ingalls | JOINT - PPPF & SPC | $200,000 | $63,258 | 12 | x | | $200,000 |
| 31 | Improving Shock M&S Requirements and Criteria | HII-NNS | HII-NNS, HII-Ingalls | JOINT - SDMT & SWSI | $150,116 | $0 | 12 | x | | $350,116 |
| 12 | Development and Implementation of an AI Island within a Shipyard Network | GD-NASSCO | GD-NASSCO GD-EB, GD-BIW | SDMT | $200,000 | $0 | 12 | x | | $550,116 |
| 13 | Comparison of Laser Ablation to SSPC-SP Surface Preparation of Bare Steel | Elzly Technology Corp | HII-NNS | SPC | $199,994 | $0 | 12 | x | | $750,110 |
| 26 | EASE - Exoskeleton Assistance for Shipyard workforce Enhancement | Austal | Austal | WFD | $198,724 | $0 | 12 | x | | $948,834 |
| 14 | 1K Oxsol (PCBTF) Free MIL-PRF-24635F Type V Comp 1 Coatings in OE Shipyards | Elzly Technology Corp | HII-NNS, BAE Jacksonville | SPC | $199,978 | $0 | 12 | x | | $1,148,812 |
| 21 | Improved Fasteners for False-Deck Panels | HII-Ingalls | HII-Ingalls, HII-NNS | SWSI | $199,208 | $0 | 12 | x | | $1,348,020 |
| 24 | Improving Impact Properties of Resistance Flash Butt | HII-Ingalls | HII-Ingalls | WELD | $196,127 | $0 | 12 | x | | $1,544,147 |
| 5 | Multiphysics-Driven Arc-Fault Detection for Shipboard Electrical Systems | New Jersey Institute of Technology | HII-Ingalls | ELEC | $200,000 | $0 | 12 | x | | $1,744,147 |
| 6 | Evaluate Nord-Lock Wedge Washers for Electrical Applications on Navy Ship | HII-Ingalls | HII-Ingalls, HII-NNS | ELEC | $193,747 | $0 | 12 | x | | $1,937,894 |
| 7 | Use of Nanotechnology-Based Fire Boundaries on U.S. Navy Ships | HII-NNS | HII-NNS, HII-Ingalls | PPPF | $156,769 | $0 | 12 | x | | $2,094,663 |
| 16 | Defect Characterization of Navy Ship Pipe Elbows with Active UMI Technology | Antech Systems | Norfolk Naval Shipyard | SUST | $199,993 | $7,758 | 12 | x | | $2,294,656 |
| 17 | Flexible Digital Detector Array Radiographic Testing of Weld Joints | PSU ARL | GD-BIW | SUST | $200,000 | $0 | 12 | x | | $2,494,656 |
| 25 | Accelerated Workforce Readiness via Dynamic Workforce Modeling | AMPP | BAE Systems, GD-BIW, Portsmouth Naval Shipyard | WFD | $149,857 | $77,200 | 12 | x | | $2,644,513 |
| 29 | Shore Power Connector Testing Prototype System | D'Angelo Technologies | HII-Ingalls | JOINT - ELEC & WFD | $200,000 | $35,000 | 12 | x | | $2,844,513 |
| 10 | Smart Supports - AI-Enhanced Navy Pipe Hanger Standardization | Hawk Technologies | Fincantieri, Austal | SDMT | $199,763 | $10,500 | 12 | x | | $3,044,276 |
| 20 | Modular Overhead Grid System Applicability Assessment | HII-NNS | HII-NNS, HII-Ingalls | SWSI | $140,271 | $0 | 12 | x | | $3,184,547 |
| 1 | Robotic Arc Welding Digital Transformation Roadmap | EWI | HII-NNS | BT | $199,754 | $0 | 12 | x | | $3,384,301 |
| 8 | Plug-and-Play Plasma Blast CoBotics | Hawk Technologies | Fincantieri | PPPF | $199,939 | $38,400 | 12 | | x | $3,584,240 |
| 19 | Combat Systems Standard Foundations Expansion | HII-NNS | HII-NNS, HII-Ingalls | SWSI | $144,105 | $0 | 12 | | x | $3,728,345 |
| 22 | Contact Sensor Technology for Robotic Temperature | EWI | HII-NNS | WELD | $199,796 | $0 | 12 | | x | $3,928,141 |
| 23 | Optimized Weld Records Phase Three | TRU Solutions | HII-Ingalls | WELD | $198,185 | $0 | 12 | | x | $4,126,326 |

# FY26 Panel Project Selection- Standby projects

For Panel Leadership updates to

Ship Maintenance Office Discovery Panel

# Ship Warfare Systems Integration Panel

*Perry Haymon*

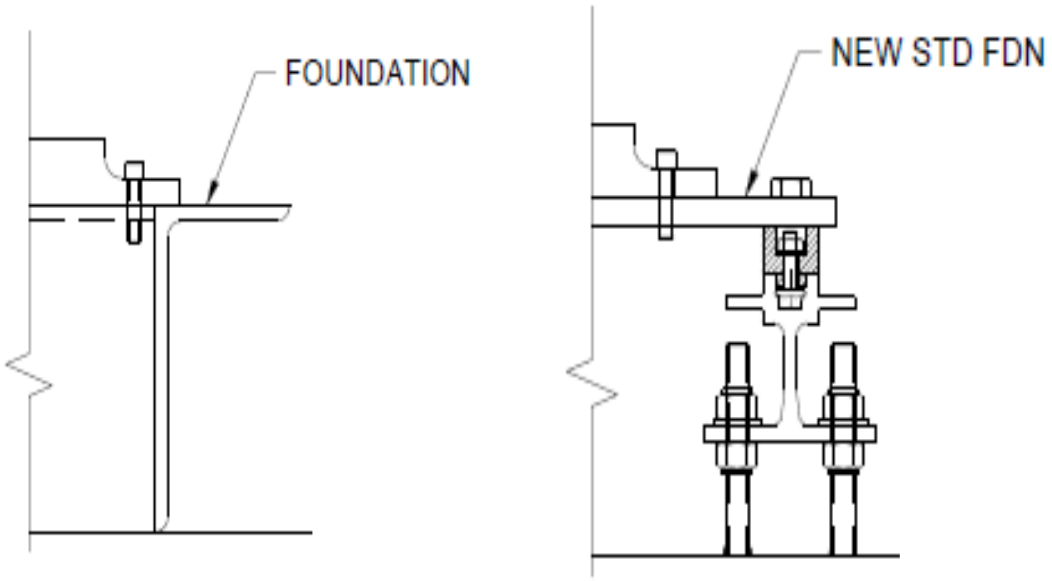
# Combat Systems (CS) Standard Foundations Expansion

Ship Warfare Systems Integration Panel

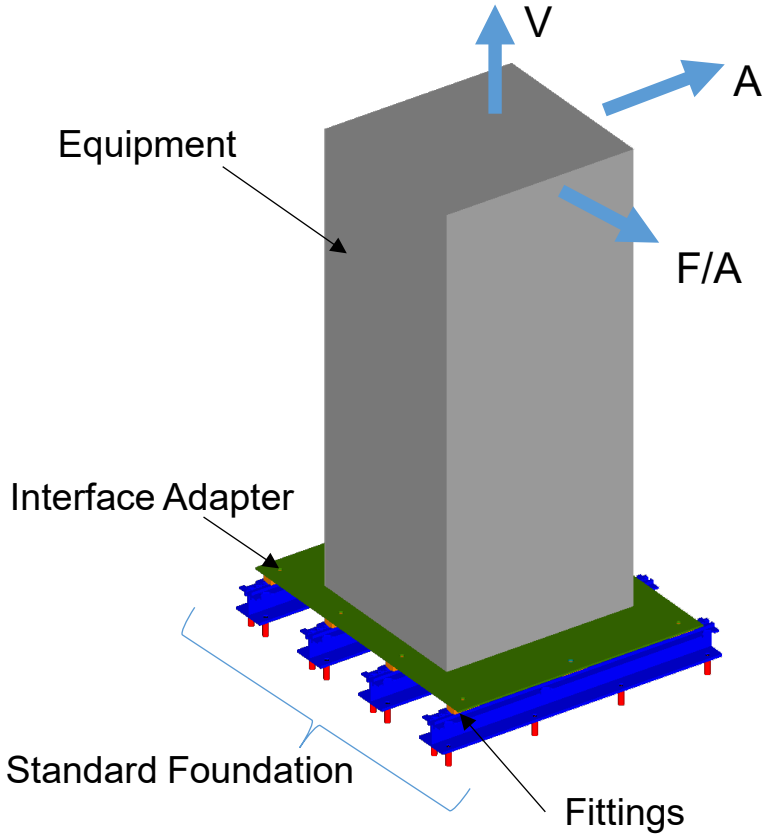


| PROJECT INFORMATION | OBJECTIVE |
|---|---|
| Prime/Lead: HII - Newport News Shipbuilding<br><br>Team Members: HII - Ingalls Shipbuilding, NAVSEA O5P2<br><br>Duration: 12 Months TRL: 3 to 5 | The proposed CS Standard Foundations Expansion Project aims to reduce schedule pressures for shipyards and PARMs by eliminating hot-work and minimizing impacts to adjacent spaces and disciplines during equipment upgrades in the repair/availability phase for surface ships across Navy platform |
| **DELIVERABLES/BENEFITS/ROI** | **FINANCIAL** |
| • Deliverables: Develop & provide NAVSEA an OQE data package that meets shock requirements for the enhanced CS STD FDN.<br>• Design Analysis Tool that calculates optimal CS STD FDN design utilizing equipment parameters to reduce NRE.<br>• Standard Guidance Drawing to aid Design Agents in developing installation drawings for CS STD FDN use cross-platform<br>• Project Final Report<br>• Benefits: Reduce lifecycle cost & schedule, and increase operational availability through automation, standardization, and the elimination of hot-work when mounting CS equipment. | Program Funds: $144K<br>Cost Share: $0K |

# Combat Systems Standard Foundations Expansion




Legacy Foundation vs Standard Foundation




Standard Foundation - Stud Mounted & Scalable

# Combat Systems Standard Foundations Expansion

Ship Warfare Systems Integration Panel

- CS equipment undergo changes often and currently use specialized foundations for installation, requiring frequent hot work (cutting, grinding, and welding) for upgrades.
- A National Shipbuilding Research Program (NSRP) CS Standard Foundation Qualification And Optimization project pursued standard foundations to streamline the installation process for CS equipment onboard Navy platforms and promote commonality cross-platform.
- The NSRP CS Standard Foundations Expansion Project aims to build on the success of the previous project to expand the standard foundation design to include multiple height foundations to suit various CS spaces and raised deck heights on Navy Platforms.
- The Standard Foundation Project will significantly reduce rework by allowing for the completion of hot work in the normal construction sequence.
- The NSRP CS Standard Foundations Qualification And Optimization Project held a final meeting with the Navy Technical Warrant Holder (TWH), and the project analysis are currently with NAVSEA O5P2 for review. Any outstanding analysis will also be completed in this Phase along with the above mentioned tasks to approve & expand the applicability of Standard Foundations on Navy platforms.

# Modular Overhead Grid System Applicability Assessment

Ship Warfare Systems Integration Panel



| PROJECT INFORMATION | OBJECTIVE |
|---|---|
| Prime/Lead: HII - Newport News Shipbuilding<br><br>Team Members: HILTI North America, NAVSEA O5Z44<br><br>Duration: 12 Months TRL: 3 to 5 | The project aims to assess the suitability of the HILTI MT Overhead Grid System as the Weapons Magazine Overhead Protective Grid System as well as other overhead attachments on Navy platforms. The objective is to minimize manual welding by using shot studs and mechanical attachment connections onboard the ship. This approach can significantly reduce skilled trade man-hours and inspection points in sustaining/ repairing Naval ships. |
| **DELIVERABLES/BENEFITS/ROI** | **FINANCIAL** |
| • Deliverables: Develop & provide NAVSEA an OQE data package for the HILTI Overhead Grid System defining load capabilities for applicable shipboard configurations.<br>• Documented lessons learned from Lab Demo/Test<br>• Project Final Report.<br>• Benefits: Eliminate significant hot-work/inspection points/re-work onboard the ship during ship-alts & equipment refresh.<br>• Potential benefits available in multiple applications through cross-platform implementation. | Program Funds: $140K<br>Cost Share: $0K |

# Modular Overhead Grid System Applicability Assessment

Ship Warfare Systems Integration Panel

- The shipbuilding industry has traditionally sought ways to reduce the amount of welding, or optimize the welding process performed, onboard a ship during construction. This is due to historical data showing cost savings when work can be moved from the ship to the shop (Referred to as the 1-3-8 Rule when work is performed Shop-FAP-SHIP)
- Therefore, any process that eliminates welding onboard the ship can have a significant impact on man-hours and the cost of construction.
- Universal Weapons Magazine compartments are labor-intensive to construct due to the extensive amounts of manual welding required. The Overhead Protective Grid System also requires a significant amount of welding to configure the steel, square-tube grid system that protects other overhead systems from damage during munitions exercises. The TWH has committed to supporting this task.
- This project will evaluate the use of Hilti North America's stud-mounted products to construct overhead grid systems with a focus on overheads densely populated with welded attachments. Additionally, cost saving opportunities in various configurations of lightweight equipment, cables, lighting, etc., will also be evaluated.
- Hilti North America has developed a new Hilti MT System that offers cost savings by eliminating the serrated lip of the strut and integrating the clamping mechanism into the fittings, thereby reducing manufacturing costs of the HILTI MT Strut over the currently shipboard approved HILTI MQ strut.