

Implementation of Navy Standard Welding Procedures

SP-7 Welding Panel Meeting
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Background:

- EWI conducted an SP-7 Panel Project to reduce the cost of redundant qualification of welding procedures by:
 - defining the requirements to permit prime contractors to provide qualified welding procedures to their vendors and subcontractors
 - implementing standard welding procedures for Navy applications.
- The project was completed and a final report issued on April 28, 2010.



Use of Prime Contractors Procedures

- NAVSEA agreed to consider permitting a prime contractor to request approval to provide qualified welding procedures to their vendors and subcontractors. The request should include:
 - The processes, materials, and applications that will be covered by the procedures that will be used by the vendors and subcontractors.
 - A description of how the prime contractor will oversee the proper use of the procedures.
 - A configuration management plan that addresses control over changes to the procedures.
- NAVSEA will review the requests from prime contractors and provide approval where appropriate.
- One shipyard submitted a request.



AWS/NAVSEA Standard Welding Procedures for Naval Applications (SWPS-N)

- AWS B2D Subcommittee on Standard Welding Procedure Specifications agreed to support SWPS-N:
 - Documents will be approved by AWS B2D and B2 Committees.
 - AWS will publish documents as American National Standards (ANSI).
 - AWS/NAVSEA MOU defines agreement between parties. (in review).
- The Navy will modify their documents to permit use of SWPS-N's.



Develop AWS/NAVSEA Standard Welding Procedures for Naval Applications (SWPS-N)

- Twenty-five existing AWS SWPS were modified to include Navy requirements.
- Draft documents were reviewed by a Task Group of shipbuilders, NSWC-CD, NAVSEA, and AWS.
- Comments were received and drafts revised.
- NAVSEA approved the first two documents (#302 and #312) that are being balloted to the AWS B2 and B2D committees.
- Efforts will continue to gain approval for the remaining documents.



Standard Welding Procedure Specifications for Plate and Structural Applications

AWS /NAVSEA Document No.	Material and Thickness	Process
B2.1-1-301-XXXX	Carbon steel $\frac{1}{8}$ to $\frac{7}{8}$ in.	GTAW
B2.1-1-302-XXXX	Carbon steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	SMAW
B2.1-1-303-XXXX	Carbon steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	GTAW followed by SMAW
B2.1-1-304-XXXX	Carbon steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	FCAW-G, CO ₂ Gas-shielded
B2.1-1-305-XXXX	Carbon steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	FCAW-G, Ar-CO ₂ Gas-shielded
B2.1-8-308-XXXX	Stainless steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	GTAW
B2.1-8-309-XXXX	Stainless steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	SMAW
B2.1-8-310-XXXX	Stainless steel $\frac{1}{8}$ to $1\frac{1}{2}$ in.	GTAW followed by SMAW



Standard Welding Procedure Specifications for Pipe Applications

AWS /NAVSEA Document No.	Material and Thickness	Process
B2.1-1-311-XXXX	Carbon steel 1/8 to 1 1/2 in.	GTAW
B2.1-1-312-XXXX	Carbon steel 1/8 to 1 1/2 in.	SMAW
B2.1-1-313-XXXX	Carbon steel 1/8 to 1 1/2 in.	GTAW and SMAW
B2.1-1-314-XXXX	Carbon steel 1/8 to 1 1/2 in.	GTAW, Consumable Inserts
B2.1-1-315-XXXX	Carbon steel 1/8 to 1 1/2 in.	GTAW, Consumable Inserts followed by SMAW
B2.1-1-316-XXXX	Carbon steel 1/8 to 1 1/2 in.	GMAW Spray Ar 2% O ₂ Shielded
B2.1-1-317-XXXX	Carbon steel 1/8 to 1 1/2 in.	FCAW-G, Ar-CO ₂ shielded
B2.1-8-318-XXXX	Stainless steel 1/8 to 1 1/2 in.	GTAW
B2.1-8-319-XXXX	Stainless steel 1/8 to 1 1/2 in.	SMAW
B2.1-8-320-XXXX	Stainless steel 1/8 to 1 1/2 in.	GTAW followed by SMAW
B2.1-8-321-XXXX	Stainless steel 1/8 to 1 1/2 in.	GTAW, Consumable inserts
B2.1-8-322-XXXX	Stainless steel 1/8 to 1 1/2 in.	GTAW, Consumable Inserts followed by SMAW
B2.1-1/8-323-XXXX	Carbon to stainless steel 1/8 to 1 1/2 in.	GTAW
B2.1-1/8-324-XXXX	Carbon to stainless steel 1/8 to 1 1/2 in.	SMAW
B2.1-1/8-325-XXXX	Carbon to stainless steel 1/8 to 1 1/2 in.	GTAW followed by SMAW
B2.1-1/8-326-XXXX	Carbon to stainless steel 1/8 to 1 1/2 in.	GTAW, Consumable Inserts
B2.1-1/8-327-XXXX	Carbon to stainless steel 1/8 to 1 1/2 in.	GTAW, Consumable Inserts followed by SMAW



Navy Permission to Use SWPS-N's

- NAVSEA and the American Bureau of Shipping (ABS) agreed to change to their procedure qualification requirements to permit the use of AWS/NAVSEA Standard Welding Procedures for Naval Applications.
- The 2010 revision of the Naval Vessel Rules (NVR) Part 8, Chapter 3, Section 4 includes this permission.
- NAVSEA will authorize use for other applications covered by TP248 prior to publication of AWS/NAVSEA SWPS-N documents.



2010 Revision NVR 8-3-4

Modify 4.2.3 Submittal for Approval as follows:

- The requirement for development and approval of qualification data does not apply to use of AWS/NAVSEA Standard Welding Procedure Specifications for Naval Applications (SWPS-N) provided that the using activity complies with the following:
 - Prior to use, the activity that will be responsible for production welding shall:
 - enter its company name, sign and date the document.
 - prepare one test weld following the SWPS-N that is inspected to the NDT requirements of 4.5 as demonstration of ability to produce required weld quality.
 - All other requirements of the fabrication document shall be met.
 - Each activity shall require its subcontractors using SWPS-N to submit a copy of each SWPS-N to be used and the supporting test report to the activity to verify compliance with the standard. Copies of SWPS-N shall be provided to the ABS Surveyor or Government, upon request and supporting test reports.



Base Materials for SWPS-N's

- SWPS-N's will be usable for S-1 and S-8 base materials in addition to those listed in TP's.
- Shipyards provided lists of “Navy approved materials” that is being reviewed by the navy and AWS B2C subcommittee.
- A “Navy approved materials” list will be included in AWS B2.1 and available on AWS web site.



NSRP News Bulletin on Project

If you are unable to see this email, view news bulletin here:

http://www.nsrp.org/News/news_bulletin/navy_standard_welding_procedures.html



NATIONAL SHIPBUILDING RESEARCH PROGRAM
ADVANCED SHIPBUILDING ENTERPRISE

Reducing Naval Ship Construction & Repair Costs

NSRP Team Identifies Cost-Savings Recommendations for Welding Procedures

Problem:

Fabrication documents for U.S. Navy ships require that every activity (i.e., contractor, vendor, and supplier) prepare and qualify their welding procedures to meet NAVSEA requirements. Once qualified, welding procedures must be reviewed and approved prior to production welding by Prime contractors and the Navy. Since there are a limited number of welding processes, materials, and consumables commonly used in ship construction, identical welding procedures are often redundantly prepared, tested, reviewed, and approved at significant cost to the government, estimated at approximately \$6 million per year.



Solution:

Edison Welding Institute identified the most common materials, processes and applications for welding procedures used by vendors and subcontractors for Navy work, then recommended a two-step plan for eliminating the redundant processes:

1. Permit prime contractors to provide qualified welding procedures to their vendors and subcontractors.
2. Work with the American Welding Society (AWS) to develop existing Standard Welding Procedures for Naval Applications.

As a result of this project, NAVSEA and the American Bureau of Shipping (ABS) have agreed to and implemented EWI's recommendations. A Task Group has also been formed to coordinate AWS, Navy and industry support in developing Standard Welding Procedures for Naval Applications. Twenty-five of these procedures are currently being reviewed for publication as AWS standards.

The Final Report can be requested from the [NSRP website](http://www.nsrp.org).

The [National Shipbuilding Research Program](http://www.nsrp.org) is managed by [Advanced Technology International](http://www.aticorp.org), an affiliate of [SCRA](http://www.scra.org)
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For more information, contact the [National Shipbuilding Research Program](http://www.nsrp.org) at nsrp@aticorp.org.



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Questions?

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