

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-05  
DATE: 18 NOV 2016  
CATEGORY: II

1. SCOPE:

1.1 Title: Temporary Access; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 MIL-STD-1689, Fabrication, Welding, and Inspection of Ships Structure

2.3 29 CFR 1915, Occupational Safety and Health Standards for Shipyard Employment

3. REQUIREMENTS:

3.1 Submit one legible drawing or sketch of each proposed temporary access cut to the ship structure or engine enclosure and a list of each proposed bolted/riveted access removal to the SUPERVISOR 3 days prior to making the cuts or removing the bolted/riveted access. For a nuclear-powered vessel, submit drawing/sketch of each proposed temporary access cut to the SUPERVISOR 5 days prior to making cut or removing the bolted/riveted access.

3.1.1 Submittal of drawing or sketch is not required for those access cuts authorized on a NAVSEA-approved drawing.

3.1.2 The drawing or sketch shall include, as a minimum, the following information:

3.1.2.1 A plan and elevation view specifying the location of the access by deck, frame, and distance from the center line or deck edge and showing location of adjacent penetrations, bulkheads, framing, welds, and riveted joints within 12 inches of the proposed cut.

3.1.2.2 Location and number of previous cuts visible in each plate and the cutback of existing welds as required by 2.2.

3.1.2.3 Temporary structural reinforcement required to prevent distortion of ship structure.

3.1.2.4 Thickness and type of material of plating and structural members to be cut. Include source or document/drawing number which identifies material requirements.

3.1.2.5 A description of the temporary access closure or enclosure.

3.1.2.6 Include a copy of the weld procedure or approved weld procedure number with the proposed access sketch.

3.1.3 List of bolted/riveted access covers shall include location, designation, and classification as identified on ship's damage control book.

3.1.4 Provide all drawing titles and numbers (including applicable sub-tier), and technical documentation used to accomplish the requirements of 3.1.

3.1.5 Temporary accesses include access plates, small access plates, and closure plates as defined in Paragraph 3.33 of 2.2.

3.2 Ensure that access cut boundaries conform to the requirements of 2.2 and the following:

3.2.1 Boundaries may extend across one or more frames as required for size of opening.

3.2.2 Are sized and located to accomplish the requirements of the Job Order.

3.2.2.1 Verify access requirements on NAVSEA drawings conform to these same requirements.

3.2.3 Weld riveted plates using a single V-weld with glass cloth conforming to MIL-C-24576, Type One, Class One, to prevent fusion between backing member and plate.

3.2.3.1 Remove existing rivets within 6 inches of a cut and install new rivets in accordance with 2.2.

3.2.3.2 Round patches 2 feet in diameter or less shall be dished 1/16-inch to 1/8-inch.

3.2.4 Minimum width of small access plates shall be at least 4 times the material thickness of the plate being cut or 3 inches, whichever is greater.

3.2.5 Corners of small access plates between 3 inches minimum to 6 inches maximum in width shall have a radius of one-half the width. Exception to this corner radius criterion is where a boundary terminates on an existing hull longitudinal seam or transverse butt joint.

3.2.6 Corners of small access plates greater than 6 inches in width shall have a radius of 2 times the material thickness of the plate being cut or 3 inches, whichever is greater. Exception to this corner radius criterion is where a boundary terminates on an existing hull longitudinal seam or transverse butt joint.

3.2.7 Corners of access plates shall have a minimum radius of 6 inches. Exception to this corner radius criterion is where a boundary terminates on an existing hull longitudinal seam or transverse butt joint.

3.2.8 Utilize the same boundaries as used for prior cuts unless the requirements of this Standard Item have been violated.

3.2.8.1 Annotate violations on the drawing or sketch required by 3.1.

(V) (G) "INSPECT LAY OUT"

3.3 Lay out access on both sides of the structure to be cut, in accordance with the approved drawing or sketch.

3.4 Prior to cutting access in the ship/vessel's structure and after layout checkpoint, accomplish positive verification by drilling a pilot hole in the path of the cut to be accomplished.

3.5 Center punch access layout upon completion of verification in 3.4.

3.6 Accomplish the requirements of 2.3 for guarding of access openings.

3.6.1 Remove temporary guarding after installation of access plates. Chip and grind surfaces flush in way of removals.

3.7 Install a temporary coaming with a minimum height of 4 inches around access cuts through decks. Tack-weld the coaming to the deck and seal the deck joint with caulking compound.

3.7.1 Remove the temporary coaming after installation of access plate. Chip and grind surfaces flush in way of removals.

3.8 Cut access in accordance with the approved drawing or sketch.

3.9 Remove bolted/riveted access.

3.9.1 Clean and preserve gasket faying surfaces.

3.9.2 Chase and tap exposed threaded areas.

3.10 Protect ship from weather and contamination.

3.10.1 Fabricate temporary closures using fire retardant material, prior to removing plates or cutting access openings.

3.10.1.1 Closures shall be constructed to protect the access from inclement weather and entry of contaminants.

3.10.1.2 Horizontal deck closures shall support a minimum of 150 pounds per square foot.

3.10.1.3 Closures shall be fitted with fasteners that permit rapid installation and removal.

3.10.2 Install closures whenever access is not in use.

3.11 Maintain watertight integrity of waterborne ship.

3.11.1 Fabricate and install watertight enclosures prior to removing plates or cutting access openings that do not provide a minimum of 4 feet of freeboard.

3.11.1.1 Maintain watertight integrity to a level 4 feet above the maximum calculated draft.

3.12 Maintain watertight integrity of ship in dry dock.

3.12.1 Provide temporary access closure plates and fasteners prior to removing plates or cutting access openings below 4 feet of waterborne freeboard.

3.12.1.1 Closure plates shall be available on short notice for emergency sealing of the temporary access openings.

3.12.2 Seal access openings with closure plates when conditions warrant.

3.12.3 Secure openings at the end of each shift not immediately followed by another shift engaged in dry dock work.

3.13 Remove the temporary closures when no longer required.

3.14 Reinstall the temporary access removed in 3.8 in accordance with the approved drawing or sketch.

3.14.1 Accomplishment of welding, fabrication, and inspection requirements to support installation of a temporary access shall be in accordance with NAVSEA Standard Items (See Note 4.2)

3.14.2 Install the bolted/riveted access.

3.14.2.1 Use new gasket material conforming to MIL-PRF-900.

3.14.2.2 Install new rivets for riveted access plates in accordance with 2.2.

(V) "CHALK TEST"

3.15 Accomplish a chalk test on structural closure in way of temporary access. Chalk imprint shall be centered with 100-percent contact.

3.16 Accomplishment of structural boundary testing (e.g., cofferdam, vacuum box, air hose, water hose) of each watertight/airtight temporary access closure shall be in accordance with NAVSEA standard items (See Note 4.3).

4. NOTES:

4.1 Maximum Calculated Draft (MCD) - The maximum draft, calculated during the period in which ship's draft is affected due to evolutions which add, remove, or change weight. It represents the "worst case" cumulative effect at any one time on trim, list, or draft for the proposed weight changes throughout the period that hull penetrations are in a non-standard configuration. MCD shall be known and utilized by the SUPERVISOR and Ship's Force in scheduling work and testing during waterborne maintenance periods.

4.2 If welding, fabrication, or inspection for installation of a temporary access of 3.14.1 is required; the use of Category II Standard Item 009-12 "Welding, Fabrication, and Inspection Requirements; accomplish" of 2.1 will be specified in the Work Item.

4.3 If a structural boundary test (e.g., cofferdam, vacuum box, air hose, water hose) to support testing of a watertight/airtight temporary access closure is required; the use of Category II Standard Item 009-25 "Structural Boundary Test; accomplish" of 2.1 will be specified in the Work Item.

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<u>ITEM NO:</u>	<u>009-06</u>
<u>DATE:</u>	<u>18 NOV 2016</u>
<u>CATEGORY:</u>	<u>I</u>

1. SCOPE:

1.1 Title: Maintaining Protection and Cleanliness from Non-Radioactive Operations; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 MIL-STD-1623, Fire Performance Requirements and Approved Specifications for Interior Finish Materials and Furnishings (Naval Shipboard Use)

2.3 NFPA Standard 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

3. REQUIREMENTS:

3.1 Observe the following requirements, in addition to the specific requirements of the Job Order, for maintaining protection and cleanliness from non-radioactive operations on the ship, ship's equipment, components, and spaces for the duration of the availability.

3.1.1 Accomplish an inspection of the work area prior to installation of protective covering to identify the current condition of equipment, systems, and components, including any exposed cables, penetrations, stuffing tubes, bolted cover plates, and antennas.

3.1.1.1 Submit one legible copy, in hard copy or approved transferrable media, of a report listing results of the requirements of 3.1.1 to the SUPERVISOR.

3.2 Prevent contamination and damage of the ship's equipment, components, and spaces during contamination-producing operations.

3.2.1 Plug, blank, wrap, cover, seal, and mask equipment, components, cables, wireways, boots, and openings using fire retardant/water repellent material, and prevent entry of contaminants to components, systems and equipment.

3.2.1.1 Ensure plugging and blanking does not result in flooding or damage to ship's equipment.

3.2.1.2 Install Herculite or canvas covering conforming to A-A-55308, and/or fire retardant plywood conforming to Category 2, Type II, of MIL-L-19140, or other NAVSEA-approved fire retardant industrial protective material.

3.2.2 Install fire retardant industrial filter material meeting the minimum requirements of UL 900 Class 1, non-fire contributing material, on the intake of supply and exhaust end of ventilation systems that will be in use.

3.2.2.1 Remove existing and install new filter or clean the filter material when air flow is restricted.

(V) "VERIFY PROTECTIVE MEASURES"

3.2.3 All protective measures are to be in place prior to start of any contamination-producing operations and shall remain in place until the contamination-producing operations are complete.

3.2.4 Install double curtain baffles at the entrance of each access door where airborne contamination could occur during contamination-producing operations. Install a dirt collecting mat on the deck directly inside each door. The SUPERVISOR will select a maximum of 4 doors. Secure and mark doors not designated for access.

3.2.5 Temporary coverings shall not be removed during contamination-producing operations without permission of the SUPERVISOR.

(V) "INSPECT PROTECTIVE COVERING"

3.3 Inspect the integrity of the protective covering at the beginning of each shift in which contamination-producing operations will be accomplished. Ensure that equipment and machinery have not been infiltrated by contaminants. Notify the SUPERVISOR immediately by verbal means, followed on the next day in writing, if contamination or surface damage has occurred. Reseal to prevent further entry of contaminants or surface damage.

3.4 Maintain cleanliness of the work site, including bilges, free from accumulation of industrial debris caused by contractor and/or subcontractor employees on a continuous basis throughout the availability. Work spaces include those areas immediately under and adjacent, and those areas where service lines are run, and bilge areas in vicinity of the work site.

3.4.1 Cleaning shall be accomplished no later than at the end of each shift at a minimum, on a daily basis.

3.4.2 Remove and dispose of industrial debris from the ship at the end of each shift at a minimum, on a daily basis.

3.4.3 Vacuum cleaners shall be emptied of all debris at the end of each shift at a minimum, on a daily basis.

3.4.3.1 Use metal canister vacuum cleaners aboard the ship, except those used for regulated and controlled radiological and hazardous waste or hazardous material.

3.4.3.2 Permanently and legibly mark each vacuum cleaner with a company name or unique identifier.

3.4.4 Plastic trash cans are prohibited for trash collection onboard in spaces where industrial work is being performed. Plastic trash bags may be used onboard as a liner for metal trash cans.

3.5 Accomplish a cleanliness inspection on a daily basis whenever work is in progress. The inspection shall be made jointly with the SUPERVISOR and the Commanding Officer's designated representative. During inspection the responsible party shall be assigned. A written report of any unclean work sites/spaces shall be prepared by the contractor and copies distributed to the SUPERVISOR and Commanding Officer's designated representative within 4 hours after completion of the inspection. The inspection report shall list the responsible activity (contractor, ship, etc.) for each unclean site/area. Unclean sites/areas determined as contractor responsible shall be immediately cleaned.

3.5.1 Accomplish inspections and reporting during the daily fire prevention and housekeeping inspections in accordance with 009-07 of 2.1.

(V) (G) "FINAL CONTAMINATION/DAMAGE INSPECTION"

3.6 Remove protective covering installed in 3.2 upon completion of contamination-producing operations. Accomplish a final inspection of the work area to identify the presence of contamination and/or damage created by contamination-producing operations. Contamination/damage shall be documented on the inspection record.

3.6.1 Presence of contamination and/or damage created by contamination-producing operations is unacceptable and shall be corrected.

3.7 Remove from the ship and dispose of debris and foreign matter generated as a result of work being accomplished at the end of each shift at a minimum, on a daily basis. Comply with the requirements of federal, state, and local laws, codes, ordinances, and regulations or as specified elsewhere in the Job Order.

3.8 Non-fabric material used onboard for containment or as protective coverings shall be in accordance with 2.2. Fabrics used onboard for containment or as protective coverings shall be tested in accordance with and meet the requirements of 2.3 or be listed as an acceptable "Drapery or Curtain" in 2.2.



4. NOTES:

4.1 Definitions:

4.1.1 Cleanliness means the removal of all industrial debris (industrial trash, waste material, weld rods/tips, fasteners, rags, lagging waste, job scrap, wire, litter, rubbish, etc.) at the end of each shift, leaving the areas broom clean and electronic spaces vacuum clean. Adjacent/surrounding machinery, equipment, etc., shall be cleaned free of all resulting debris.

4.1.2 Daily means at least once per every calendar day.

4.1.3 Non-radioactive operations include but are not limited to:

4.1.3.1 Operations liable to produce particulates to become airborne during accomplishment of the work scope, i.e., abrasive blasting, mechanical cleaning, spray painting, hot work operations, and air blowdowns.

4.1.3.2 Operations liable to produce fluid contamination of equipment as a result of external leakage of piping systems during testing.

4.1.3.3 Operations liable to produce fluid contamination of equipment as a result of external leakage of piping systems during waterjetting.

4.1.3.4 Operations liable to produce industrial debris such as, but not limited to, industrial trash, waste material, weld rods/tips, fasteners, rags, lagging waste, job scrap, wire, litter, rubbish, etc.

4.2 The SUPERVISOR will coordinate operation of ventilation systems, as requested by the contractor, to maintain a positive pressure within the vessel's envelope and to create an outward flow of air through crevices or around penetrations.

4.3 The cleanliness goal is to turn over all areas of the ship in the same condition or better as at beginning of the availability.

4.4 Ship's Force responsibility:

4.4.1 Ship's Force is responsible for dust that collects as a matter of course throughout the availability and for any Ship's Force job site maintenance including monitoring job sites being worked by intermediate maintenance activities, Alteration Installation Teams (AIT), and any contractor services that the ship has arranged.

4.4.2 Ship's Force is responsible to maintain cleanliness of their areas of responsibility broom clean at the end of each shift, on a daily basis.

4.4.3 Ship's Force will report cleanliness concerns to the SUPERVISOR for contractor responsible areas.

4.4.4 Ship's Force will work continually throughout the availability to keep bilges and other general areas of the ship clean where the Contractor is not working.

4.5 Ship's Force and the Contractor will familiarize each other with their scope of work (any other work being performed on board the ship not pursuant to contractor authorized work under the Job Order is considered Ship's Force work). The affected locations and aspects of the work and/or ship conditions (i.e., blasting, grinding, preservation, hot work, insulation removals, decking replacement, hydroblasting, weight tests, electrical cable replacement, etc.) will be identified. Each responsible party will clean site in locations where both parties will be working, on a daily basis. Communications must be continuous and active 2 ways.

4.6 Diligence in inspection will ensure that action is taken by the responsible party prior to any area becoming unsatisfactory.

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ITEM NO: 009-25  
DATE: 01 OCT 2017  
CATEGORY: II

1. SCOPE:

1.1 Title: Structural Boundary Test; accomplish

2. REFERENCES:

2.1 S9AA0-AB-GOS-010, General Specifications for Overhaul of Surface Ships (GSO), Chapter 192

3. REQUIREMENTS:

(I) (G) "COMPLETION AIR TEST"

3.1 Accomplish a completion air test of spaces in accordance with Section 192 of 2.1 and the following:

3.1.1 Install 2 independent pressure gages.

3.1.1.1 Gage range shall be such that the test pressure is in the middle third of the scale.

3.1.2 Install 2 relief valves set at a maximum of 10 percent above test pressure.

3.1.3 Install one vent valve.

3.1.4 The air source shall not exceed 25 PSIG and shall have a supply capability less than the exhaust capability of either relief valve.

3.1.5 Pressurize the tank/void/space to be tested to the pressure specified in the invoking Work Item.

3.1.5.1 Isolate the pressure source and hold pressure for 15 minutes for temperature stabilization prior to commencing the pressure drop test.

3.1.5.2 Measure the pressure drop of the tested space for 10 minutes. Allowable pressure drop shall be as specified in the invoking Work Item.

(I) "UNOBSTRUCTED FLOW"

3.1.6 Accomplish unobstructed airflow test of air escape and overflow piping.

(V) "VISUAL INSPECTION"

3.1.7 Accomplish a visual inspection of disturbed mechanical joints for leakage upon completion of filling each tank. Allowable leakage: None.

(I) (G) "RUNNING AIR TEST"

3.2 Accomplish a running air test of spaces in accordance with Section 192 of 2.1, and the following:

3.2.1 Install 2 independent pressure gages.

3.2.1.1 Gage range shall be such that the test pressure is in the middle third of the scale.

3.2.2 Install 2 relief valves set at a maximum of 10 percent above test pressure.

3.2.3 Install one vent valve.

3.2.4 The air source shall not exceed 25 PSIG and shall have a supply capability less than the exhaust capability of either relief valve.

3.2.5 Apply a soapy solution to the opposite side of the structure, associated tank piping, overflow and air escape piping, and inspect for leaks.

3.2.6 Inspect for leakage by observing for formation of bubbles. Allowable leakage: None.

(I) "UNOBSTRUCTED FLOW"

3.2.7 Accomplish unobstructed airflow test of air escape and overflow piping.

(V) "VISUAL INSPECTION"

3.2.8 Accomplish a visual inspection of disturbed mechanical joints for leakage upon completion of filling each tank. Allowable leakage: None.

(I) (G) "AIR HOSE TEST"

3.3 Accomplish a local air hose test in accordance with Section 192 of 2.1 and the following:

3.3.1 Air hose nozzle shall be placed at less than 3 inches, but greater than zero inches, from the area to be tested and pressure directed at the structure under test in a manner most likely to disclose leaks.

3.3.1.1 The minimum nozzle diameter shall be 3/8 inch and the nozzle pressure shall be 90 **plus or minus** 5 PSIG as monitored at the nozzle.

3.3.2 Apply a soapy solution to the opposite side of the structure and inspect for leaks.

3.3.3 Inspect joint or fitting for leakage by observing for formation of bubbles. Allowable leakage: None.

(I) (G) "WATER HOSE TEST"

3.4 Accomplish a water hose test in accordance with Section 192 of 2.1 and the following:

3.4.1 Use a one and one-half inch hose with a minimum nozzle diameter of one-half inch. Pressure at the nozzle shall be 50 to 55 PSIG at a maximum distance of 10 feet from the surface being tested.

3.4.2 The stream of water shall be directed against the structure in a manner most likely to disclose leaks. The opposite side of the structure shall be inspected to detect and locate leaks. Allowable leakage: None.

(I) (G) "VACUUM BOX TEST"

3.5 Accomplish a local vacuum box test in accordance with Section 192 of 2.1 and the following:

3.5.1 Apply a soapy solution to the structure being tested.

3.5.2 Install a vacuum box with a clear cover over the entire joint or fitting being tested.

3.5.2.1 Install the vacuum box so that the pressure differential is in the direction of an air test.

3.5.3 Draw a vacuum of at least 10.2 inches of mercury and inspect for leaks.

3.5.3.1 Inspect the joint or fitting for leakage by observing through the clear cover for no formation of bubbles.

(I) (G) "COFFERDAM TEST METHOD"

3.6 Accomplish a cofferdam test in accordance with Section 192 of 2.1 and the following:

3.6.1 Install the cofferdam over the joint or fitting to be tested so that the pressure differential will be in the same direction of an air test.

3.6.2 Pressurize the air space inside the cofferdam to the test pressure specified for the air test.

3.6.3 Apply a soapy solution to the opposite side of the structure being tested.

3.6.4 Inspect the joint or fitting for leakage by observing for formation of bubbles. Allowable leakage: None.

3.6.5 If the opposite side of the structure is inaccessible, an alternate method of proving tightness is to measure the drop in pressure within the cofferdam over a 10 minute period. The gasket and fittings in the cofferdam should be checked for leakage using a soapy solution. Allowable drop in pressure: None.

(I) (G) "CHALK TEST"

3.7 Accomplish a chalk test of each knife edge and gasket on watertight doors, hatches, and scuttles.

3.7.1 A chalk test may only be used as a preliminary test.

3.7.2 Apply chalk to the bearing surface of the knife edge and close the door, hatch or scuttle by normal procedure.

3.7.3 When the door, hatch or scuttle is opened, the chalk from the knife shall have been transferred to the gasket.

3.7.4 The chalk imprint shall be in the center three-fifths of the width of the gasket with 100 percent continuous contact of knife edge to gasket.

3.8 Repaired areas requiring a structural boundary test shall remain uninsulated and unpainted until completion of successful inspection and test.

#### 4. NOTES:

4.1 Associated tank piping is defined as, "An assembly of pipe, tubing, valves, fittings, and related components forming a whole or a part of a system which starts or terminates in subject area, thus being common to and associated with same."

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-26  
DATE: **01 OCT 2017**  
CATEGORY: II

1. SCOPE:

1.1 Title: Deck Covering; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 MIL-STD-1623, Fire Performance Requirements and Approved Specifications for Interior Finish Materials and Furnishings (Naval Shipyard Use)

3. REQUIREMENTS:

3.1 All deck coverings materials specified herein shall conform to the fire performance requirements of 2.2.

3.2 Maintain a current copy of the NAVSEA-reviewed Shipbuilders and Marine Paints and Coatings Product/Procedure Data Sheet (ASTM F718) for the NAVSEA-approved deck covering system specified in the invoking Work Item for reference by the SUPERVISOR. Where the ASTM F718 does not exist for a product, maintain a copy of the manufacturer's technical data sheets.

3.2.1 Submit one legible copy, in approved transferrable media, of specific documents when requested by the SUPERVISOR.

3.2.2 All deck covering materials that are qualified to performance specifications (MIL-PRF) are to be applied in accordance with the manufacturer's NAVSEA-reviewed ASTM F718 product data sheet. The dry film thickness (DFT), temperature, relative humidity, and surface preparation requirements stated herein take precedence over the NAVSEA-reviewed ASTM F718 data sheets if there is a conflict. The NAVSEA-reviewed ASTM F718 data sheets shall supersede any other manufacturer's ASTM F718 data sheets for that product, even if it is newer (more recent) than the NAVSEA-reviewed ASTM F718 data sheets. Copies of the NAVSEA-reviewed ASTM F718 data sheets are available from the Naval Surface Treatment Center (NST Center) website: <http://www.nstcenter.biz>.

3.2.3 Comply with the NAVSEA-reviewed ASTM F718s, manufacturer's Safety Data Sheet (SDS) and/or manufacturer's instructions submitted in 3.2 for safety and health precautions during the removal, handling, and application of deck covering products.

3.2.3.1 Ensure that harmful vapors, fumes, and mists are ventilated to the exterior of the vessel.

3.3 Deck covering materials shall be stored in a cool, dry place, not exposed to freezing temperatures or direct sunlight, and shall be stored in accordance with NAVSEA-reviewed ASTM F718s and/or manufacturer's instructions.

3.4 Accomplish an unobstructed flow test of each deck drain, using clean fresh water prior to the disturbance of existing deck covering. Verify that all deck DC fittings are free, removable, and operational.

3.4.1 If any defects are identified in 3.4, submit one legible copy, in hard copy or approved transferrable media, of a report listing defects found to the SUPERVISOR.

3.4.2 Blank or plug each drain to prevent entry of contaminants.

3.5 Accomplish removal of the existing deck covering in its entirety (including base cove where installed) for locations requiring installation of a complete deck covering system.

3.5.1 Remove unused remnants, clips, brackets, and weldments from decks and vertical surfaces receiving new deck coverings.

3.5.1.1 Chip and grind surfaces flush and smooth in way of removals.

3.6 Accomplish a visual inspection of each exposed piping penetration, deck drain, deck plating and bulkheads for structural integrity, deterioration, pitting, cracks, and areas of damage or distortion.

3.6.1 If any defects are identified in 3.6, submit one legible copy, in hard copy or approved transferrable media, of a report listing defects identified to the SUPERVISOR.

3.7 Accomplishment of cleaning and painting for each deck surface, including up the adjacent vertical surfaces intersecting the deck up to one inch above the complete deck covering system level shall be in accordance with NAVSEA Standard Items (See Note 4.4).

3.7.1 If solvent is used to clean the deck at any point in the installation process, the deck shall be allowed to dry before application of any coating. No visible solvent shall be present on deck surfaces prior to proceeding with the next process step.

3.7.2 Where waterproof membranes are to be installed, the required surface preparation and primer application shall be completed 5 inches up the adjacent vertical surfaces intersecting the deck.



3.7.3 Decks receiving a MIL-PRF-3135 underlayment may also be primed using the primer or bond coat qualified as part of the deck covering system or MIL-DTL-24441, Type IV, Formula 150 at 4 to 6 mils.

3.7.4 Prior to the installation of MIL-PRF-3135, Type III or IV, underlayment, the surface preparation shall be an SSPC-SP 3 substrate (i.e. direct-to-substrate without primer).

(I) "VISUAL INSPECTION" (See 4.3)

3.8 Accomplish a visual inspection of the exposed base coat or underlayment surfaces (after removing the top coats in accordance with the applicable Attachment) for a deck covering system repair that requires resurfacing or partial replacement and not a complete installation.

3.9 Installation of deck coverings.

3.9.1 Install new rings and/or collars around each sounding tube and deck drain. New rings shall be CRES Grade 316, 3/8-inch high by 3/16-inch thick and installed 1/4-inch peripherally to sounding tube or deck drain. Seal each ring and/or collar to the deck, using epoxy compound conforming to MIL-PRF-24176.

3.9.2 Install resin-based underlayment conforming to MIL-PRF-3135, Type III or IV, in way of low spots, dish pans, and high points that cannot be ground flush, to provide a smooth and fair surface. Slope and fair as required to ensure positive draining to deck drains where installed. See additional requirements in the applicable Attachment. Underlayment shall be installed in accordance with NAVSEA-reviewed ASTM F718s and/or manufacturer's instructions and procedure submitted in 3.2 beneath the following deck covering materials: wear resistant deck tile, **chemical-resistant floorings**, solid vinyl tile, vinyl composition tile, porcelain tile, and quarry tile.

3.9.2.1 If the deck may cause a tripping hazard or promote premature failure of the deck covering (i.e. not level, high weld seams), a MIL-PRF-3135 underlayment may be installed beneath carpet and electrical sheeting/matting as directed by the SUPERVISOR.

3.9.3 Except where MIL-PRF-3135, Type IV underlayment is used, install a waterproof membrane in each wet space (as defined in Table 2) and in locations adjacent to wet space bulkheads where the coaming to deck joint is not 100 percent seam welded, and any other locations identified in the individual Work Item or as directed by the SUPERVISOR, where there is an increased likelihood of water penetration under the deck covering (e.g., around refrigerated vending machine foundations, AC spot cooler drains, spaces leading to the weather, etc.).

3.9.3.1 The membrane shall be in accordance with ANSI A118.10, and be certified by the manufacturer to be compatible with both the underlayment and the installed deck covering. The membrane shall be one

continuous barrier covering the entire deck, including the cove base 100 mm (4 inches) up each vertical surface.

3.9.3.2 The use of a waterproof membrane is not required in areas where **MIL-PRF-32584, Types I, II or III** products are used.

(I) (G) "VISUAL INSPECTION"

3.9.3.3 Accomplish a visual inspection of the completely installed and cured waterproof membrane. Ensure that the waterproof membrane is installed in accordance with 3.9.3 and is uniform and free of defects.

3.9.4 Where the prevention of condensation on certain decks, e.g. above ballast tanks, or to reduce heat flow to decks located over hot machinery spaces, especially where these decks form the deck tops of living spaces, insulating deck covering material shall be installed where designated by the SUPERVISOR. Install insulating deck covering material conforming to MIL-D-18873 or MIL-D-23134 in accordance with NAVSEA-reviewed ASTM F718s and/or manufacturer's instructions.

3.9.5 Accomplish the requirements of Attachment A for the installation of new unglazed porcelain tile deck covering system, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.6 Accomplish the requirements of Attachment B for the installation of new wear resistant deck tile covering system, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.7 Accomplish the requirements of Attachment C for the installation of new, or the resurface of existing, **chemical-resistant flooring systems**, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.8 Accomplish the requirements of Attachment D for the installation of new electrical grade sheeting and matting deck covering system, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.8.1 Electrical grade sheeting is a continuous deck covering acting as the primary deck covering system across the entire deck of a space.

3.9.8.2 Electrical grade matting is installed over the primary deck covering system in localized areas in way of electrical hazards.

3.9.9 Accomplish the requirements of Attachment E for the installation of new carpeting deck covering system, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.10 Accomplish the requirements of Attachment F for the installation of new vinyl composition and solid vinyl tile deck covering systems, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.11 Accomplish the installation of new light-weight concrete deck covering system, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.12 Accomplishment of cleaning and painting for each **MIL-PRF-32584, Types I, II or III** high durability deck **coating** and MIL-PRF-24667 nonskid applications shall be in accordance with NAVSEA Standard Items (See Note 4.4).

3.9.12.1 Accomplish the requirements of Attachment G for the installation of new or replacement of **MIL-PRF-24667, Type XI nonskid**, using the NAVSEA-reviewed ASTM F718 and/or the manufacturer's instructions.

3.9.13 MIL-DTL-15562 matting is required in areas where specific electrical hazards may exist in non-designated electrical spaces as designated by the SUPERVISOR.

3.9.14 Newly installed deck covering systems shall be allowed to stabilize at room temperature for 24 hours prior to foot traffic and must not be washed for 48 hours.

(I) (G) "VISUAL INSPECTION"

3.9.15 Accomplish a visual inspection of the completely installed and cured deck covering system. Ensure that each deck covering system is in accordance with Tables One and 2, and is uniform and free of defects. Deck coverings with a sealer coat installed shall have a continuous surface, free of blotchy areas, pooling, ridge marks or runs, with only negligible embedded surface contaminants. Air bubbles in the seal coat are acceptable; however, they shall not penetrate any other layers of the deck covering system. Imperfections that may cause premature failure or do not meet the above requirements shall be corrected before the surfaces are accepted.

(I) "UNOBSTRUCTED FLOW TEST AND POSITIVE DRAINING INSPECTION"

3.9.15.1 Remove each blank and plug installed in 3.4.2 and accomplish an unobstructed flow test of each deck drain (where installed), using clean, fresh water. No obstruction allowed. For wet space decks, accomplish a positive draining inspection, using a sufficient amount of clean, fresh water throughout each deck surface to ensure that new deck covering system slopes to the drains. Water shall flow to drains and not stand or puddle.

3.9.15.2 Upon completion of deck covering installation, verify all deck DC fittings are free, removable, and operational. Ensure deck drain covers, remote operating gear deck box covers, and other DC

fittings have not been sealed over during the installation of sealer coats and/or deck covering installation are removable and operational.

4. NOTES:

4.1 Table One provides the deck covering systems for dry interior spaces. Table 2 provides the deck covering systems for wet interior spaces. Wet interior spaces are defined as interior compartments that are exposed to wet conditions or potential immersion resulting from equipment in space, exposure to weather, or other service conditions of the space. Column A lists the approved decking materials for each group of spaces. Column B lists where electrical grade sheeting or matting, MIL-DTL-15562, shall be used for non-designated electrical spaces where electrical hazards may exist in accordance with 3.9.13. Column C lists where nonskid shall be used in working areas around machinery and walking areas in accordance with 3.9.12.

4.2 The SUPERVISOR will select type, color, and pattern of deck coverings (with input from Ship's Force when possible), using all available samples supplied by the manufacturer.

4.3 The exact location of work will be indicated in the invoking Work Item, including the type (and grade or class) of deck covering, the location (space name and number and if entire space, within the coaming, not under furniture, etc.) and the required Table, Line, and Column from 009-32 of 2.1 for surface preparation. Locations that are to retain underlayment or base coats shall also be indicated as such in the invoking Work Item (e.g., replacing deck covering down to existing underlayment or base coats, replacing deck covering systems down to bare substrate or partial replacement of existing deck covering system).

4.4 If cleaning and painting of 3.7 or 3.9.12 is required; the use of Category II Standard Item 009-32 "Cleaning and Painting Requirements; accomplish" of 2.1 will be specified in the Work Item.

ATTACHMENT A  
CERAMIC TILE (QUARRY AND PORCELAIN)

1. Ceramic tile includes both porcelain and quarry tiles and shall be installed in locations listed in Table 2.

A. Ceramic tile shall meet the requirements of ANSI A137.1 (available from the Tile Council of North America) and be unglazed, with a minimum coefficient of friction (COF) of 0.7 dry and 0.6 wet when tested in accordance with ASTM C1028.

B. Adhesive and grout shall both be epoxy, chemical resistant, and water cleanable, in accordance with ANSI A118.3.

C. The underlayment shall be in accordance with 3.9.

D. Concrete.

(1) Fabricate and install box units around hard to reach areas, i.e., vent ducting, stuffing tubes, and pipe brackets.

(2) Apply concrete by pouring into boxed area to produce slope towards deck drains and to provide vertical surfaces and square corners that suit application of cove tiles.

(3) Remove box units after concrete is cured.

E. Adhesive (mortar) and tile.

(1) Apply an ANSI A118.3 epoxy adhesive to the deck and on vertical surfaces up 4 inches from the deck.

(2) Ceramic cove base and bull nose top pieces shall be used on the vertical portions of the tile system.

(3) The tiles shall be stored flat.

(4) The application and installation of adhesive and tile may have to be accomplished in sections if the area is so large as to prevent laying tiles within adhesive pot-life.

(5) Periodically lift a set tile and inspect to ensure that 100 percent contact between adhesive and tile is achieved and that there is no entrapped air in the adhesive.

(6) Tiles, adhesive and deck shall be allowed to stabilize to a temperature as close as practicable to room temperature, but in all cases between 64 degrees Fahrenheit and 81 degrees Fahrenheit for a period of 24 hours before, during, and after installation.

(7) The deck should be protected from traffic for 24 hours after installation and shall not be washed for 48 hours following installation.

F. Grout.

- (1) Mix and apply an ANSI, A118.3 epoxy grout by working it into tile seams to ensure air pockets are eliminated.
- (2) Clean epoxy grout residue from the surface of the tile.
- (3) Protect tile from foot traffic for a minimum of 24 hours.

G. Deck drain sealant installation. In the area between the tile, adhesive, and collar joint, install a waterproof sealant conforming to SAE-AMS-S-8802, Class B; MIL-A-46106, Group I, Type I; 3M 5200 Fastcure Marine Sealant; or NAVSEA-approved equivalent, around the entire circumference of the deck drain to the tile and adhesive interface.

ATTACHMENT B  
WEAR RESISTANT DECK TILE

1. Wear resistant deck tiles shall be installed in locations listed in Table One.

A. The wear resistant deck tile materials shall be qualified under MIL-PRF-32170.

B. The adhesive shall be as recommended by the manufacturer. For adhesive application, the substrate temperature shall be between 64 degrees Fahrenheit and 81 degrees Fahrenheit, with a maximum relative humidity of 75 percent. The temperature and relative humidity shall be stabilized for 24 hours prior to installation and for 24 hours following the installation.

C. Tile:

(1) Tiles, adhesive and sub-floor should be allowed to stabilize to a temperature as close as practicable to room temperature, but in all cases shall be between 64 degrees Fahrenheit and 81 degrees Fahrenheit for a period of 24 hours before, during and after tile installation.

(2) The tiles shall be stored flat.

(3) The deck should be protected from traffic for 24 hours after tile installation and shall not be washed for 48 hours following installation.

(4) Do not spring wear resistant deck tiles into position. Tiles requiring hand cutting shall not be cut oversize and then sprung (forced) into position. The tile shall be cut such that they fit neatly into position without a gap between them and not requiring bending or application by force. Tiles can be taped together with masking tape to pull joints together during curing of the adhesive.

(5) The deck should be rolled initially by hand with a vinyl seam roller. Two to 4 hours after application of the adhesive, but prior to adhesive setting, the tiled surface should be rolled with a 100 lb. floor tile roller to ensure a good bond between the tiles, adhesive, and sub-floor.

(6) Clean away excess adhesive before it is allowed to dry. For water based adhesive use a soft cloth moistened with denatured alcohol. Do not use mineral spirits, which will cause swelling and have a tendency to curl.

D. Seal all edges of the tile including penetrations for pipes, foundations, vents, and other structures with a waterproof sealant conforming to SAE-AMS-S-8802, Class B; MIL-A-46106, Group I, Type I; 3M 5200 Fastcure Marine Sealant; or NAVSEA-approved equivalent.

ATTACHMENT C  
**CHEMICAL-RESISTANT FLOORINGS**

1. **Chemical-resistant floorings** shall be installed in locations listed in Tables One and 2.

A. The **chemical-resistant flooring** materials shall be qualified under **MIL-PRF-32584, Types IV or V**, and listed on the QPL.

B. If aggregate is required to meet the coefficient of friction (COF) requirements of **MIL-PRF-32584**, an aggregate (e.g., white aluminum oxide or glass beads) shall be included in the final seal coat to provide slip resistance.

C. The materials shall be stored at a temperature between 60 degrees Fahrenheit and 80 degrees Fahrenheit for best application properties.

D. Maintain deck surface and room temperature in accordance with the NAVSEA-reviewed manufacturer's instructions and procedures submitted in 3.2 for proper curing during application and for at least 24 hours after installation.

E. For complete replacement of color-flake deck coverings, apply base coat, color coat, color chips and sealer coat (as applicable for the specified Class) in accordance with NAVSEA-reviewed ASTM F-718s and/or manufacturer's instructions submitted in 3.2. Color chips shall be applied to the color coat in an even distribution, at an approximate 20 percent color chip area to total color coat area ratio. When multiple sealer coats are required, lightly abrade each sealer coat and solvent wipe the abraded surface before applying the next coat.

F. For resealing of color-flake deck coverings, abrade the existing sealer coat. Apply new color chips to maintain the approximately 20 percent chip coverage of the color coat and sealer coat in accordance with NAVSEA-reviewed ASTM F-718s and/or manufacturer's instructions. Repair localized areas of torn, punctured or defective base coat to achieve a consistent appearance. When multiple sealer coats are required, lightly abrade each sealer coat and solvent wipe the abraded surface before applying the next coat.



ATTACHMENT D  
ELECTRICAL GRADE SHEETING AND MATTING

1. Electrical grade sheeting and matting shall be installed in locations listed in Table One.

A. The electrical grade sheeting and matting materials shall be qualified under MIL-DTL-15562.

B. The electrical grade sheeting adhesive shall be installed over the entire deck in accordance with manufacturer's instructions.

C. Heat welded electrical seams shall provide a continuous surface to prevent a path for grounding. Where seams are inaccessible they shall be sealed with a waterproof sealant conforming to SAE-AMS-S-8802, Class B; MIL-A-46106, Group I, Type I; 3M 5200 Fastcure Marine Sealant; or NAVSEA-approved equivalent. Electrical matting seams shall not be within 914 mm (3 ft) of electrical/electronic equipment, panels, and workbenches. If this is unavoidable, heat-weld the seams to provide a continuous surface free of seams, craters, or porosities.

D. Seal all edges of the electrical sheet including penetrations for pipes, foundations, vents, and other structures with a waterproof sealant conforming to SAE-AMS-S-8802, Class B; MIL-A-46106, Group I, Type I; 3M 5200 Fastcure Marine Sealant; or NAVSEA-approved equivalent.

2. Exposed corners of electrical grade matting shall be rounded off.

A. Installation of the mat with adhesive is optional, but if the mat is installed without adhesive, an outline of the area covered by the mat shall be stenciled on the deck. Inside the outlined area the following shall be stenciled in 20 mm (0.8 inch) or larger letters: "ELECTRICAL GRADE MAT REQUIRED WITHIN MARKED LINES".

B. Over removable deck plates, the mats shall be installed without adhesive and marked as detailed above. Seams shall be backed with 20 mil thick polyvinyl chloride tape, with a high-tack adhesive, 7 kN/m (40 lb/in) breaking strength, a dielectric strength of 20,000 volts in accordance with ASTM D1000, and with a 50 mm (2-inch) minimum overlap under each side of the seam.

ATTACHMENT E  
CARPETING

1. Carpeting shall be installed in locations listed in Table One.

A. Carpets shall cover the deck completely, but shall be fitted around all permanently installed furniture.

B. Carpets shall be installed without pad over **underlayment**, primed steel or aluminum deck by a tackless procedure, or with an adhesive as recommended by the carpet manufacturer. For DDG 51-Class ships, acoustic insulation is authorized for use under carpeting in CO and XO cabins.

C. A clean, bright CRES or aluminum transition strip shall be installed to secure the edges of the carpet in foot traffic areas where the carpet abuts other deck covering.

ATTACHMENT F  
SOLID VINYL AND VINYL COMPOSITION TILE

1. Solid vinyl and vinyl composition tile shall be installed in locations listed in Table One.

A. Vinyl composition deck tiles shall conform to ASTM F1066, Class 2, and shall be 1/8-inch thick for maximum durability. Solid vinyl tile shall conform to ASTM F1700, Class III (commercial), Type B.

B. Vinyl tile epoxy adhesive shall be a qualified proprietary part of the new deck covering system applied in accordance with NAVSEA-reviewed manufacturer's instructions and procedures submitted in 3.2.

C. Installations shall be bulkhead to bulkhead and squared off on adjacent stiffeners and stanchions. Where the exposed edge fails to butt up against a fitting or bulkhead, a vinyl beveled edge strip or a stainless/brass strip (one inch by 0.08 inch) shall be installed (with epoxy adhesive) to the deck to protect the edge.

D. Seal all edges of the tile including penetrations for pipes, foundations, vents, and other structures with a waterproof sealant conforming to SAE-AMS-8802, Class B; MIL-A-46106, Group I, Type I; 3M 5200 Fastcure Marine Sealant; or NAVSEA-approved equivalent.

ATTACHMENT G  
**MIL-PRF-24667, Type XI NONSKID**(PEEL AND STICK)

1. **MIL-PRF-24667, Type XI nonskid** shall be installed in locations listed in Tables One and 2. Exterior applications for **MIL-PRF-24667, Type XI nonskid** are located in Table 2 of 009-32 of 2.1.

A. The **MIL-PRF-24667, Type XI nonskid** materials shall be qualified under MIL-PRF-24667, Type XI, Comp PS.

B. Spaces between adjacent pieces shall have a minimum gap of 1/2 inch and maximum gap up to 1-1/2 inches. This spacing should align with weld seams to the maximum extent practicable so as to avoid the material from bridging these seams.

C. For exterior applications only, seal all free edges of the **MIL-PRF-24667, Type XI nonskid** with the manufacturer's approved sealer. Verify that the sealer bead covers both the edge of the product and the substrate surface. The edge sealer shall be dry to the touch in accordance with ASTM D1640 prior to permitting foot traffic.

D. **MIL-PRF-24667, Type XI nonskid** shall not be used in areas frequently contaminated with hydrocarbons (e.g. hydraulic fluid, fuel, oil) as well as pallet jack, and fork truck traffic areas.

E. Corners of **MIL-PRF-24667, Type XI nonskid** shall be rounded.

2. If approved by the SUPERVISOR, existing areas of **MIL-PRF-24667, Type XI nonskid** can be repaired by removing worn or damaged areas. Product removal shall be accomplished in accordance with the manufacturer's instructions.

3. Surfaces shall be prepared to a minimum surface preparation level of SSPC-SP 11 and be painted prior to application of the **MIL-PRF-24667, Type XI nonskid**.

A. If approved by the SUPERVISOR, for areas where the paint is intact, surface preparation and painting is not required. The surface shall be cleaned of all loose debris and be detergent washed or solvent wiped to remove all surface contaminants. Any existing areas of paint damage shall be touched up.

4. **MIL-PRF-24667, Type XI nonskid** shall be installed in accordance with manufacturer's documentation.

5. Color topping is authorized as required for safety markings.

NOTES OF TABLES ONE AND 2 FOR SURFACE SHIPS

- (1) High durability deck **coating, MIL-PRF-32584, Types I and II**, have significantly lower total ownership costs than all other decking materials.
- (2) Chemical-resistant flooring, MIL-PRF-32584, materials qualified to Type V do not require an underlayment to create a coaming or slope to a drain and therefore have a lower total ownership cost than Type IV materials which require an underlayment.
- (3) When no products are listed on wear resistant deck tiles, MIL-PRF-32170, Class 1, qualified products database (QPD), solid vinyl tile in accordance with Attachment F may be substituted.
- (4) Listed spaces may be designated as an electrical space, requiring electrical grade sheeting, MIL-DTL-15562. (For example: If the pilot house is designated an electrical space, the entire floor will require MIL-DTL-15562 sheeting.)
- (5) If MIL-DTL-15562, Type I, electrical grade sheeting is not installed in designated electrical spaces, then localized installation of MIL-DTL-15562, Type II or III matting is required in areas where specific electrical hazards may exist in accordance with 3.9.13.
- (6) Install **MIL-PRF-24667, Type XI nonskid** in working areas around machinery.
- (7) INTENTIONALLY LEFT BLANK
- (8) Two-inch square, three-inch square, or four-inch square tiles shall be used.
- (9) Quarry tile shall be 0.5-inch by six-inch by six-inch.
- (10) Four-inch square, six-inch square, or eight-inch square tiles shall be used.
- (11) **Apply one coat of MIL-PRF-32584, Type I or II high durability deck coating following air blasting cleaning in accordance with ASTM D4258.**

TABLE ONE DRY INTERIOR SPACES	LINE	A PRIMARY DECK COVERING	B ELECTRICAL GRADE SHEETING OR MATTING	C <b>NONSKID, MIL-PRF- 24667, TYPE XI</b>
LIVING AND WORKING SPACES (E.G. OFFICES AND BERTHING), MAIN PASSAGEWAYS, MESSING AREAS, BARBER SHOP, MANNED STOREROOMS AND SHIP'S STORE  SEE NOTE (1)	1	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)	ELECTRICAL GRADE SHEETING OR MATTING, MIL-DTL-15562, TYPE I, II OR III  SEE NOTES (4) & (5)	
	2	HIGH DURABILITY DECK <b>COATING, MIL-PRF- 32584, TYPE I</b>	SAME AS LINE ONE	
	3	WEAR RESISTANT DECK TILE, MIL-PRF-32170, CLASS 1 - OR -SOLID VINYL OR VINYL COMPOSITION TILE  SEE NOTE (3)	SAME AS LINE ONE	
PILOT HOUSE AND CONTROL STATIONS, CHART ROOM AND COMBAT INFORMATION CENTER  SEE NOTE (1)	4	<b>CHEMICAL RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)	SAME AS LINE ONE	
	5	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>	SAME AS LINE ONE	
	6	WEAR RESISTANT DECK TILE, MIL-PRF-32170, CLASS 1 - OR -SOLID VINYL OR VINYL COMPOSITION TILE  SEE NOTE (3)	SAME AS LINE ONE	
FLAG QUARTERS, CO AND XO QUARTERS, TROOP CO QUARTERS  SEE NOTE (1)	7	CARPET		
	8	HIGH DURABILITY DECK <b>COATING, MIL-PRF- 32584, TYPE I</b>		
	9	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		
	10	WEAR RESISTANT DECK TILE, MIL-PRF-32170, CLASS 1 - OR - SOLID VINYL OR VINYL COMPOSITION TILE  SEE NOTE (3)		

TABLE ONE DRY INTERIOR SPACES	LINE	A PRIMARY DECK COVERING	B ELECTRICAL GRADE SHEETING OR MATTING	C <b>NONSKID, MIL-PRF- 24667, TYPE XI</b>
WARDROOM, CPO LOUNGE, LIBRARY, CLASSROOM AND CHAPEL  SEE NOTE (1)	11	<b>CHEMICAL RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		
	12	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>		
	13	WEAR RESISTANT DECK TILE, MIL-PRF-32170, CLASS 1 - OR -SOLID VINYL OR VINYL COMPOSITION TILE  SEE NOTE (3)		
MEDICAL AND DENTAL SPACES  SEE NOTE (1)	14	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTES (2)		
	15	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>		
LABORATORY SPACES, DESIGNATED ELECTRICAL SPACES (E.G. CCTV CONTROL ROOMS, ELECTRIC POWER CONVERSIONS, IC AND GYRO ROOMS, RADAR ROOMS, AND CONTROL ROOMS), AND ELECTRICAL/ELECTRONIC WORKSHOPS  SEE NOTE (1)	16	ELECTRICAL GRADE SHEETING, MIL-DTL-15562, TYPE I  SEE NOTE (5)		
	17	HIGH DURABILITY DECK <b>COATING, MIL-PRF- 32584, TYPE I</b>	SAME AS LINE ONE	
	18	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)	SAME AS LINE ONE	
CARPENTER AND MACHINE SHOPS AND OTHER SHOP SPACES	19	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>	SAME AS LINE ONE	NONSKID, MIL-PRF-24667, TYPE XI, COMP PS  SEE NOTE (6)
SIDE PASSAGEWAYS (INTERIOR) ONLY SERVING SHOP SPACES (NOT MAIN PASSAGEWAYS)	20	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>		
CARGO AMMUNITION HOLDS (BETWEEN DUNNAGE TRACKS)	21	<b>LATEX CONCRETE, MIL-PRF-32584, TYPE VI</b>  <b>SEE NOTE (11)</b>		SAME AS LINE 19
MACHINERY SPACES (EXCLUDING BILGES) IN WORKING AREAS	22	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE I</b>	SAME AS LINE ONE	SAME AS LINE 19

TABLE ONE DRY INTERIOR SPACES	LINE	A PRIMARY DECK COVERING	B ELECTRICAL GRADE SHEETING OR MATTING	C <b><i>NONSKID, MIL-PRF- 24667, TYPE XI</i></b>
DRY GOODS STOREROOMS	23	HIGH DURABILITY DECK <b><i>COATING, MIL-PRF-32584, TYPE I</i></b>		
AIR LOCKS AND LIGHT TRAPS	24	HIGH DURABILITY DECK <b><i>COATING, MIL-PRF-32584, TYPE I</i></b>		
OTHER INTERIOR SPACES	25	HIGH DURABILITY DECK <b><i>COATING, MIL-PRF-32584, TYPE I</i></b>	SAME AS LINE ONE	SAME AS LINE 19



TABLE 2 WET INTERIOR SPACES	LINE	A PRIMARY DECK COVERING	B ELECTRICAL GRADE SHEETING OR MATTING	C <b>NONSKID, MIL-PRF- 24667, TYPE XI</b>
SANITARY SPACES (WASHROOMS, WATER CLOSETS, AND SHOWERS)  SEE NOTE (1)	1	PORCELAIN TILE  SEE NOTE (8)		
	2	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		
	3	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		
SMALL ENCLOSED SPACES ADJOINING SANITARY SPACES (HOT WATER HEATER SPACES, CG LOCKER, ETC.)  SEE NOTE (1)	4	<b>CHEMICAL-RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		
	5	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		
FOOD SERVICE SPACES (GALLEY, SCULLERY, BUTCHER SHOP, BAKERY, MEAT PREPARATION ROOMS, FOOD SERVICE LINES)  SEE NOTE (1)	6	QUARRY TILE  SEE NOTE (9)		
	7	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		
	8	PORCELAIN TILE  SEE NOTE (8)		
TRASH COMPACTOR ROOMS  SEE NOTE (1)	9	<b>CHEMICAL RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		NONSKID, MIL-PRF-24667, TYPE XI, COMP PS  SEE NOTE (6)
	10	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		SAME AS LINE 9
	11	QUARRY TILE  SEE NOTE (9)		SAME AS LINE 9
WALKING AREAS OF OTHER WET WORKING SPACES (NIXIE ROOMS, ETC.)	12	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		SAME AS LINE 9

TABLE 2 WET INTERIOR SPACES	LINE	A PRIMARY DECK COVERING	B ELECTRICAL GRADE SHEETING OR MATTING	C SLIP RESISTANT DECK COVERING
LAUNDRY FACILITIES SEE NOTE (1)	13	<b>CHEMICAL RESISTANT FLOORING, MIL-PRF-32584, TYPES IV OR V</b>  SEE NOTE (2)		SAME AS LINE 9
	14	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		SAME AS LINE 9
	15	PORCELAIN TILE  SEE NOTE (10)		SAME AS LINE 9
AFFF STATIONS	16	AFFF STATION DECK COATING, MIL-PRF- 32171, TYPE IV		
OTHER MANNED SPACES	17	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		SAME AS LINE 9
OTHER UNMANNED SPACES	18	HIGH DURABILITY DECK <b>COATING, MIL-PRF-32584, TYPE II</b>		

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-37  
DATE: 01 OCT 2017  
CATEGORY: II

1. SCOPE:

1.1 Title: General Procedure for Woodwork; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 0900-LP-015-1010, Wood: A Manual for Its Use as a Shipbuilding Material, Basic Wood Technology Applicable to Boat and Shipbuilding

2.3 0900-LP-015-1020, Wood: A Manual for Its Use as a Shipbuilding Material, Techniques and Practices Applicable to Preservation and Storage

2.4 0900-LP-015-1030, Wood: A Manual for Its Use as a Shipbuilding Material, Technical Data Applicable to Boat and Ship Design

2.5 0900-LP-015-1040, Wood: A Manual for Its Use as a Shipbuilding Material, Boat and Ship Construction Techniques

2.6 MIL-STD-1623, Fire Performance Requirements and Approved Specifications for Interior Finish Materials and Furnishings (Navy Shipboard Use)

3. REQUIREMENTS:

3.1 Accomplish the requirements of 2.2 through 2.5 for performing general woodworking procedures.

3.2 Install flush fitted wood plugs/dowels in holes resulting from the removal of fasteners.

3.2.1 Drill out holes to sound wood and install plugs/dowels. Plugs/dowels shall be set in a commercial grade phenol and resorcinol resin base adhesive.

3.2.2 Where deterioration and decay exists around the perimeter of the fastener holes and where through-bolt holes have been elongated, enlarge the holes by drilling to a size (diameter) that will remove the deterioration, decay, and elongation, prior to installing plugs/dowels.

3.2.2.1 Clean-bore drill bit diameter shall not be more than one inch larger than the original fastener hole diameter, unless otherwise specified.

3.2.3 Plugs/dowels shall be of the same wood species as the member being repaired, with their grain installed parallel with the grain of the existing wood, and then driven the full depth of the hole being repaired.

3.2.4 Soak plugs/dowels for a minimum of 10 minutes and saturate the exposed fastener holes with copper naphthenate wood preservative applied in accordance with manufacturer's instructions, and allow to dry to a moisture content of 15 percent or less prior to installation of plugs/dowels.

3.3 Install new fasteners in accordance with NAVSEA Standard Items 2.1.

3.3.1 Aluminum and aluminum alloy components and structural members shall be installed using CRES, Grade 304 or 316 fasteners.

3.3.1.1 Fasteners with compositions of copper alloys shall not be used in contact with aluminum and aluminum alloy components and structural members.

3.3.1.2 Install non-metallic (epoxy plastic, phenolic, polyimide [nylon], Teflon) sleeves over CRES fasteners where they come in contact with the aluminum and aluminum alloy components and structural members.

3.3.1.3 Install insulation tape, minimum thickness 20 mils, conforming to MIL-I-24391 (2 thicknesses) between faying surfaces of aluminum/aluminum alloy-to-CRES to extend approximately 1/4-inch beyond the faying surfaces.

3.3.1.4 Ensure that the surfaces of aluminum and aluminum alloy components and structural members which will come in contact with wood members and CRES fasteners are protected with a minimum of 2 coats of epoxy polyimide primer conforming to MIL-PRF-23236.

3.3.1.5 Apply one coat of phenolic modified clear varnish on wood members which will come in contact with aluminum and aluminum alloy components and structural members. Refer to the Master Painters Institute (MPI) Approved Product List, MPI #28, for procurement of exterior marine spar varnish.

3.3.2 To avoid bi-metallic corrosion, fastener material composition shall be the same material composition as that of the metal components and structural members that they are fastening except as noted in 3.3.1.

3.4 Accomplish installation of new fasteners as follows:

3.4.1 Drill pre-bored pilot holes for screws and fetter ring nails prior to installation to prevent damage to wood members.

3.4.1.1 Diameter of pilot holes shall not exceed 70 percent of the root diameter of screws for soft woods, and 90 percent for hard woods. For screw shanks, the hole in the material to be fastened shall be 100 percent shank diameter.

3.4.1.2 Maximum depth of pilot holes shall not exceed 90 percent of the length of screws.

3.4.1.3 Holes for fetter ring nails shall be pre-bored not to exceed 60 percent of the nail diameter.

3.4.2 Screws shall not be impact driven. The last ¼-inch of screws shall be hand-tightened.

3.4.2.1 Fasteners shall be set snug but not so tight as to weaken the material by rupture of wood fibers adjacent to the fasteners.

3.4.3 Bolt holes shall be drilled for a tight fit.

3.4.4 Where watertight integrity shall be maintained, the fasteners shall be body bound.

3.4.5 Through-bolts and hull plank fasteners shall be bedded in marine oakum conforming to T-O-56 or caulking cotton, and a NAVSEA approved natural bedding compound such as Interlux 214 or Dolchem 3400.

3.4.6 Counterbore wood fastener holes to permit the installation of a wood plug (bung) over the fasteners, unless otherwise specified. Install wood plugs over fasteners.

3.4.6.1 The depth of counterboring is fixed by the thickness of the planking, which in turn fixes the depth of the wood plug (bung) used. The depth (thickness) of a bung plug shall be one-half to two-thirds its diameter to ensure that it will stay in place. The rule for counterboring for bung plugs is that the plug diameter shall be no larger than necessary to allow the largest part of the fastener to enter the hole.

3.4.6.2 Plugs shall be of the same wood species as the member being plugged and their grain shall be installed parallel with the grain of the existing wood.

3.4.6.3 Soak plugs for a minimum of 10 minutes and saturate the fastener holes with wood preservative conforming to copper naphthenate, applied in accordance with manufacturer's instructions, and allow to dry for a minimum of 4 days prior to installation of plugs.

3.4.6.4 Coat plugs on faying surfaces with a NAVSEA approved natural bedding compound such as Interlux 214 or Dolchem 3400, prior to

installation and cut level and smooth with surrounding surfaces, unless otherwise specified.

3.5 New wood materials shall conform to the following requirements, unless otherwise specified.

3.5.1 Wood materials used for new interior finish materials and furnishings shall conform to the requirements of MIL-L-19140 and 2.6.

3.5.2 Types, grades, and species of wood (lumber) shall be as specified in the invoking Work Item.

3.5.3 Lumber shall conform to the specified grade after seasoning to the required moisture content and after being sized to the approximate dimensions of the members to be fashioned from it.

3.5.4 New wood members shall be finished smooth on each side.

3.5.5 Uncaulked seams, joints, and faying surfaces shall be fair and in continuous contact when assembled, except where specifically exempted, such as for hull sheathing.

3.5.6 New wood members, when assembled in place, shall show no rupture as a result of overstraining.

3.5.7 Laminated member construction shall conform to MIL-W-15154 for red or white oak.

3.5.7.1 When bonding together wood surfaces which rely on mechanical fastening for main strength, commercial grade phenol and resorcinol resin base adhesive shall be used.

3.5.8 Plywood shall conform to MIL-P-18066, Class 3A.

3.5.9 Moisture content of new wood materials shall fall within the following parameters.

3.5.9.1 New lumber shall have a moisture content of 13 percent, plus or minus 5 percent, at the time of installation.

3.5.9.2 New plywood shall have a moisture content of 10 percent, plus or minus 5 percent, at the time of installation.

3.6 New lumber and plywood shall be soaked for 10 minutes in wood preservative after boring, shaping, and fairing operations have been completed.

3.6.1 Apply one soaking brush coat of wood preservative on bare wood surfaces exposed by removals and machining operations before surfaces are covered.

3.6.2 Wood preservative shall conform to copper naphthenate, applied in accordance with manufacturer's instructions, unless otherwise specified.

3.6.3 Allow preservative-treated wood to dry to a moisture content of 15 percent or less prior to gluing and/or painting operations.

3.7 Apply a heavy coating of a NAVSEA approved natural bedding compound such as Interlux 214 or Dolchem 3400 on the top surfaces of deck beams, frames headers, fillers, planking side of frames, deck beam ends, seams, and butts (except those to be caulked), and other faying (joining) surfaces before the faying surfaces are covered, except as follows: In between inner and outer layers of hull planking of crafts that do not have caulking seams, a wood bedding/sealant compound conforming to 3M-5200 shall be installed.

3.7.1 Install one layer of canvas conforming to PIA-C-419, Type III (8 ounces or heavier) between faying surfaces of new leveling foundation pads installed on weather decks, in addition to a NAVSEA approved natural bedding compound such as Interlux 214 or Dolchem 3400.

3.7.2 Remove surplus bedding/sealing compound after squeeze-out.

3.8 No new butt joints shall be established in any planking strake (hull shell or deck) that will leave a portion that is less than 12 feet in length. No new portion of a planking strake shall be installed which is less than 12 feet in length.

3.8.1 Butt joints in adjacent strakes shall be separated by a minimum of 3 strakes.

3.8.2 Butt joints in the same frame space shall be separated by a minimum of 3 frame spaces.

3.8.3 Planking strakes may be scarf-joined to maintain butt joint schedule. Scarfing shall be in accordance with 2.2 through 2.5.

3.9 Wood members requiring caulking seams shall be installed with their faying surfaces tight and with an outgauge (special bevel for caulking) in the side(s) to be caulked.

3.10 Accomplish the following work to ensure watertight integrity of caulked seams (including butt and rabbet seams).

3.10.1 Reef out by hand, defective caulking compound and loose and decayed caulking (cotton/oakum) from existing caulking seams requiring installation of new caulking and caulking compound.

3.10.1.1 Exercise care when reefing out caulking compound and caulking to preclude damage to existing caulking seams. Power tools shall not be utilized for the reefing out process.

3.10.2 Where existing caulking is identified to be sound and in good condition, set the existing caulking deeper into the seam opening to ensure that it is driven solidly home and to make room for additional caulking.

3.10.2.1 Set the existing caulking by driving the caulking uniformly, to the same hardness in each seam. To prevent a wedging effect it shall be set to a hardness that would not allow an awl to penetrate more than 3/8-inch.

3.10.3 Caulking seams shall be clean and dry before installing new caulking and caulking compound.

3.10.4 Caulk deck planking caulking seams using treated caulking cotton and spun-type marine oakum conforming to T-O-56. Treat the caulking cotton as follows.

3.10.4.1 The untreated caulking cotton shall be undyed, of not less than 3/4-inch staple length, and shall be free from oil, fire-damaged or scorched cotton, added waste, and substantially free from linters.

3.10.4.2 The untreated caulking cotton shall be soft and fully opened and contain no sizing. The amount or size of specks shall not be objectionably noticeable upon casual examination.

3.10.4.3 The untreated caulking cotton shall be well carded to form a sliver and shall consist of not less than 9 nor more than 12 slivers laid parallel to form a composite untwisted strand. Each sliver untreated shall measure approximately 500, plus or minus 50 feet, to the pound.

3.10.4.4 Treat the caulking cotton with a solvent solution of copper naphthenate-asphaltum to produce caulking cotton having a minimum of one percent metallic copper and 1-1/2 percent, plus or minus 1/2 percent, asphalt, based on the weight of the treated cotton. The copper shall be uniformly distributed throughout the cotton.

3.10.4.5 The treated caulking cotton shall be dry to the touch prior to installation.

3.10.5 Caulk hull shell planking caulking seams using treated caulking cotton conforming to the requirements outlined in 3.10.4.1 through 3.10.4.5 and spun-type marine oakum conforming to T-O-56.

3.10.5.1 Drive one to 2 strands of caulking cotton into the bottom of the seams, prior to installing marine oakum, to ensure that deep/tight seams are filled.

3.10.6 Caulking cotton and marine oakum caulking shall be looped, tucked, and hard-driven to a depth that provides space for installation of seam caulking compound.



3.10.6.1 The size of the seam in width and depth determines the required amount of cotton/oakum caulking and shall be filled to within 1/4-inch to 3/8-inch of the plank surface.

3.10.6.2 The amount of cotton/oakum caulking inserted shall be carefully controlled to limit the possibility to "caulk off" a plank from its frames if too much is driven in and forced beyond the outgauge bevel.

3.10.6.3 The cotton/oakum caulking shall be driven uniformly, to the same hardness and depth in each seam, to prevent a wedging effect. It shall be set to a hardness that would not allow an awl to penetrate more than 3/8-inch.

3.10.6.4 Butt caulking seams shall be caulked ahead of adjoining longitudinal caulking seams to ensure that short ends of caulking will be locked in place.

3.10.6.5 The ends of sound existing caulking and new caulking shall be drawn out and tapered so as to be married in a continuous bulk and then be installed as stated in 3.10.6 through 3.10.6.4.

3.10.6.6 Hull shell planking caulking seams of heavy planked ships shall have the caulking set firmly home by means of a heavy horsing iron driven into the seams with a heavy mallet known as a beetle. This is a 2-man operation that requires one man to hold the long-handled horsing iron while the second man swings the horsing beetle. This operation ensures that the caulking will be well seated, will not work loose, and is the final means to stiffen the hull.

3.10.7 Pay (fill) deck planking caulking seams with polyurethane caulking compound conforming to MIL-S-24340, Type I, or marine glue MIL-G-413, as specified in the invoking Work Item.

3.10.7.1 The depth of the seam caulking compound shall be one to 1-1/2 times the width of the seam but no deeper than 3/8-inch.

3.10.7.2 Seal the surfaces of the seams and the installed cotton caulking with a seam primer that is compatible with the caulking compound.

3.10.7.3 Install one-inch wide masking tape on both sides of each caulking seam to keep the caulking compound from penetrating the open grain areas of the deck planking.

3.10.7.4 Remove the tape installed in 3.10.7.3 upon completion of caulking operations.

3.10.8 Pay hull shell planking caulking seams with caulking compound in accordance with the following requirements.

3.10.8.1 Pay underwater hull caulking seams with Interlux 30 brown underwater seam compound (oleoresinous material cut with an aromatic solvent).

3.10.8.2 Pay hull caulking seams above the waterline with Interlux 31 white seam compound (oleoresinous material cut with an aromatic solvent).

3.10.8.3 The depth of the seam caulking compound shall be one to 1-1/2 times the width of the seam.

3.10.8.4 Paint the surfaces of the seams and the installed cotton/oakum caulking with anti-fouling paint conforming to MIL-PRF-24647, Type II, Class 1, prior to filling underwater hull shell planking seams with caulking compound.

3.10.8.5 Seal the surfaces of the seams and the installed cotton/oakum caulking with a seam primer that is compatible with the caulking compound on hull shell planking seams existing above the waterline.

3.10.9 Prior to paying the caulking compound installed in 3.10.7 and 3.10.8, seams shall be thoroughly cleared and cleaned of foreign matter.

3.10.9.1 The caulking compound may be applied with a caulking gun but shall be handworked into the seams to eliminate air pockets and voids in the seams.

3.10.9.2 Remove surplus caulking compound from surrounding surfaces.

3.10.9.3 Pay and complete seams daily, leaving no exposed cotton/oakum caulking at the end of each work shift to ensure the cotton/oakum caulking remains dry and clean.

3.10.9.4 When installing caulking compound and its compatible primer, the manufacturer's instructions shall be strictly adhered to. Seams greater than 1/2-inch width shall be payed in 2 applications spaced 24 hours apart.

3.11 Blank openings resulting from removals and relocations, unless otherwise specified, in accordance with the following.

3.11.1 Blank deck planking as follows:

3.11.1.1 Route a 3/8-inch deep indentation on both the top and underside of the deck planking, centered over the area to be blanked.

3.11.1.2 The routed area shall extend a minimum of 3 inches beyond the perimeter of the area to be blanked.

3.11.1.3 Fit and install a Douglas Fir insert in the area to be blanked.

3.11.1.4 Fit and install a 3/8-inch thick plywood insert in each routed-out indentation.

3.11.1.5 Bed faying surfaces of the inserts with a NAVSEA approved natural wood bedding compound such as Interlux 214 or Dolchem 3400, and secure with round head bolts to ensure watertight integrity. Remove surplus wood bedding compound left after squeeze-out.

3.11.2 Blank plywood bulkheads and plywood decks as follows:

3.11.2.1 Enlarge the hole to be blanked to a minimum of 4 inches square.

3.11.2.2 Install a fitted plywood insert in the resulting opening in the deck or bulkhead.

3.11.2.3 Install a plywood lap cover on one side of and centered over the area to be blanked. The lap cover shall extend a minimum of 3 inches beyond the perimeter of the area to be blanked.

3.11.2.4 Bed faying surfaces of the insert and the lap cover in a NAVSEA approved natural wood bedding compound such as Interlux 214 or Dolchem 3400, and secure with round head bolts to ensure watertight integrity. Remove surplus wood bedding compound left after squeeze-out.

3.11.3 Blank double-sheathed bulkheads as follows:

3.11.3.1 Enlarge the opening in the inner sheathing to a minimum of 4 inches square.

3.11.3.2 Enlarge the opening in the outer sheathing to a size that extends a minimum of 3 inches beyond the perimeter of enlarged inner sheathing opening.

3.11.3.3 Install a fitted plywood insert in each opening. The plywood inserts shall be the same thickness as the sheathing.

3.11.3.4 Install one layer of canvas conforming to PIA-C-419, Type III (8 ounces or heavier), between the 2 inserts, the same size as the larger insert.

3.11.3.5 Bed faying surfaces of the inserts and the canvas in a NAVSEA approved natural wood bedding compound such as Interlux 214 or Dolchem 3400, and secure with round head bolts to ensure watertight integrity. Remove surplus wood bedding compound left after squeeze-out.

3.11.4 Sand new plywood blanks and disturbed surfaces to fair in with surrounding areas.

3.11.4.1 Accomplishment of cleaning and painting for bulkhead sheathing sanded surfaces shall be in accordance with NAVSEA Standard items (See Note 4.1).

4. NOTES:

4.1 If cleaning and painting for bulkhead sheathing sanded surfaces of 3.11.4.1 is required; the use of Category II Standard item 009-32 "Cleaning and Painting Requirements; accomplish" of 2.1 will be specified in the Work Item.

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-77  
DATE: 01 OCT 2017  
CATEGORY: II

1. SCOPE:

1.1 Title: Cofferdam Installation; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 S0600-AA-PRO-160/CH-16, Underwater Ship Husbandry Manual, Cofferdams

3. REQUIREMENTS:

3.1 Maintain watertight integrity to a level 4 feet above the maximum calculated draft, including but not limited to the following operations: access openings, hull plating replacement, welding to the hull when pre-heating is required, modifications or repairs to damage or deterioration that will degrade watertight integrity or stability, or piping and mechanical repairs that are expected to result in less than double-valve protection.

3.2 Accomplishment of a Process Control Procedure (PCP) to support installation of a cofferdam (e.g., plug, patch, dry chamber, stern tube seal) shall be in accordance with NAVSEA Standard Items (See Note 4.4) and include the following:

3.2.1 Include the Operational Checklist, Table 16-9 of 2.2, in the PCP.

3.2.2 Prior to the start of the PCP, any time the installed cofferdam will serve as the only barrier to the sea (single valve protection), ensure Ship's Commanding Officer sign-off via the SUPERVISOR, as required by Paragraph 16-4.7.1.4 (plugs), or Paragraph 16-5.2.10 (patches), or Paragraph 16-6.6 (dry chambers), or Paragraph 16-7.6.5 (stern tube seals) of 2.2.

3.2.2.1 The first page of the PCP shall be stamped SINGLE VALVE PROTECTION, at the top, in minimum one-half inch letters.

3.2.2.2 Attachment A shall be used to document single valve isolation signatures.

3.3 Submit one legible copy, in approved transferrable media, of the design and maintenance records in accordance with Paragraph 16-5.2.7 (patches), or Paragraph 16-6.6.4 (dry chambers), or Paragraph 16-7.6.3 (stern tube seals) of 2.2 to the SUPERVISOR.

3.4 Prior to the start of the PCP, submit one legible copy, in approved transferrable media, of Ship's Force notification in accordance with Paragraph 16-4.7.1.3 (plugs), or Paragraph 16-5.2.9 (patches), or Paragraph 16-6.6 (dry chambers), or Paragraphs 16-7.6.5 and 16-7.6.8 (stern tube seals) of 2.2 to the SUPERVISOR.

3.5 Prior to the removal of the cofferdam, submit one legible copy, in approved transferrable media, of Ship's Force notification in accordance with Paragraph 16-4.7.1.3 (plugs), or Paragraph 16-5.2.9 (patches), or Paragraph 16-6.6 (dry chambers), or Paragraphs 16-7.6.5 and 16-7.6.8 (stern tube seals) of 2.2 to the SUPERVISOR.

(I) (G) "REMOVAL OF COFFERDAM"

3.6 Remove each cofferdam (plug, patch, dry chamber, or stern tube seal) and all associated components upon completion of repairs.

4. NOTES:

4.1 2.2 and associated forms are available at:

<http://www.navsea.navy.mil/Portals/103/Documents/SUPSALV/UWSH/chap16.pdf>  
<https://secure.supsalv.org/00C5publications.asp>

4.2 Attachment B is provided as an aid to cofferdam PCP development.

4.3 Maximum Calculated Draft (MCD) - The maximum draft, calculated during the period in which ship's draft is affected due to evolutions which add, remove, or change weight. It represents the "worst case" cumulative effect at any one time on trim, list, or draft for the proposed weight changes throughout the period that hull penetrations are in a non-standard configuration. MCD shall be known and utilized by SUPERVISOR and Ship's Force in scheduling work and testing during waterborne maintenance periods.

4.4 A PCP to support installation of a cofferdam (e.g., plug, patch, dry chamber, stern tube seal) is required; the use of Category II Standard Item 009-09 "Process Control Procedure (PCP); provide and accomplish" of 2.1 shall be specified in the Work Item.

## AUTHORIZATION FOR SINGLE VALVE ISOLATION

Date \_\_\_\_\_

Subj: PROVIDE NOTIFICATION OF SINGLE VALVE ISOLATION REQUIREMENT AND PROVIDE PRECAUTIONARY PROCEDURES TO BE EMPLOYED DURING REPAIRS/ALTERATIONS TO SEA-CONNECTED SYSTEMS.

Ref: (a) OPNAVINST 3120.32 Series

1. The procedures involved in this repair/alteration will subject the affected area to a flooding hazard during the time the repair is being accomplished. The purpose of this notification is to outline the responsibilities for precautionary measures placed upon the contractor and the ship while the repairs/alterations are in progress.
2. System: The repairs/alterations to be accomplished to the following system:  
 \_\_\_\_\_ Component/Space \_\_\_\_\_
3. Prior to Commencing work, the contractor shall provide:
  - a. A procedure, in accordance with the requirements of NAVSEA Standard Item 009-77, has been developed and approved by the SUPERVISOR (Copy Attached).
  - b. The sequence of repairs to be accomplished, including drawings of the system and valve locations. The proposed system isolation must be discussed and mutually agreed upon between the ship, SUPERVISOR, and the contractor.
  - c. Identify possible hazards of single valve isolation failure. \_\_\_\_\_
  - d. Expected start \_\_\_\_\_ and completion \_\_\_\_\_ for single valve isolation evolution.
  - e. Watertight boundaries have been defined, sighted, tagged out and verified. \_\_\_\_\_
4. During the period of this repair, the following minimum precautions are required:
  - a. Ship's Supervisor, E-7 or above, must be present to verify single valve isolation and breaking of pressure boundary.
  - b. Ship's Force will provide a watch on the affected system and monitor for leaks, etc.
  - c. Ship will maintain appropriate state of damage control readiness.
5. See attached drawing of system and valve locations.

\_\_\_\_\_  
Ship's SRA Coordinator

\_\_\_\_\_  
Engineering Officer

\_\_\_\_\_  
Commanding Officer/approval

\_\_\_\_\_  
Ship Repair Officer (SRO)/Project Management Officer (PMO) (Notification made to Waterfront Operations Officer)

(Held on site for SBS Review)

**ATTACHMENT B**  
**COFFERDAM PCP REVIEW GUIDE**  
 Minimum Requirements and Critical Factors

References

1. NAVSEA STD ITEM 009-01, General Criteria; accomplish
2. NAVSEA STD ITEM 009-09, Process Control Procedure (PCP); provide and accomplish
3. S0600-AA-PRO-160 Underwater Ship Husbandry Manual, Chapter 16 (Appendix C, D, E, F, G; Table 16-9)
4. NAVSEA STD ITEM 009-77, Cofferdam Requirements
5. NAVSEA STD ITEM 009-24, Authorization, Control, Isolation, Blanking and Tagging Requirements; accomplish
6. MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships or 802-5959353, MIL-STD-777 Modified for DDG-51 Class
7. NAVSEA STD ITEM 009-04, Quality Management System; provide

All cofferdam PCPs shall include the following MINIMUM criteria, including Critical Factors<sup>1</sup>, as appropriate, preferably in the order shown below (for further elaboration, see the applicable Reference):

Criteria	Ref	Justification	YES	NO	N/A
1. ADMINISTRATIVE CONTROLS.					
1.1. SHIP'S NAME	1	3.2.4.1			
1.2. SHIP'S HULL NUMBER	1	3.2.4.1			
NUCLEAR VESSEL?					
1.3. CONTRACTOR'S NAME	2 2	3.1.1 Attachment A			
1.4. CONTRACTOR'S ADDRESS	2 2	3.1.1 Attachment A			
1.5. WORK ITEM AND PARAGRAPH	2 1	Attachment A 3.2.4.1			
1.6. PCP TITLE	2 2	3.1.2 Attachment A			
1.7. PCP NUMBER (WITH REVISION)	2 2	3.1.2 Attachment A			
1.8. DATE OF PCP DEVELOPMENT	2 2	3.1.2 Attachment A			
1.9. PCP SUBMISSION DATE	2 2 1	3.1.10 Attachment A 3.2.4.4			
1.10. TITLE OF CONTRACTOR'S REPRESENTATIVE. The individual responsible for creating the PCP.	2 1	3.1.10 3.2.4.4			
1.11. APPROVAL SIGNATURE	2 2	3.1.10 Attachment A			



**ATTACHMENT B**  
**COFFERDAM PCP REVIEW GUIDE**  
Minimum Requirements and Critical Factors

2. PURPOSE/SCOPE. Describe the process and: (a) Type of cofferdam (b) Affected hull opening (c) Affected equipment/system(s)	2 2 3	3.1.3 Attachment A Appendix C			
3. PERSONNEL QUALIFICATIONS.	2 2 3	3.1.4 Attachment A 16-10.2.3			
3.1. Diver Training Plan. Note the Diving Contractor's Training Plan & documentation complies with Reference 3, 16-10.2.1 & 10.2.2.	3 3 3 3 3	16-10.2.1 16-10.2.2 16-10.2.4.1 16-10.2.4.2 16-10.2.4.3			
3.2. Diver Competency. Note the Divers: (a) Are ADCI recognized with 7 years (min.) commercial diving experience; (b) Have current medical physical screening; (c) Have current CPR and First Aid certification; (d) Have cofferdam program qualification; (e) Have performed six (6) cofferdam installations; (f) Have performed a cofferdam installation within the past six (6) months.	3 3 3 3 3	16-1.6 16-10.2.3.3.1 16-10.2.3.3.2 16-10.2.4.2.5 16-10.2.4.2.8			
3.2.1. Minimum Diver Cofferdam Training Requirements. Require the completion of Reference 3, Appendix E demonstrating Diver fundamental cofferdam knowledge.	3 3 3 3	16-5.2.20 16-10.2.2 16- 10.2.3.3.4.(c) Appendix E			
3.3. Engineering. Specify NON-standard cofferdam(s) <sup>2</sup> were designed by a degreed Engineer or Professional Engineer.	3 3	16-3.11 16-10.2.3.1			
3.4. Fabrication Personnel. Note Contractor Welders are qualified to Company's approved welding procedure.	3 3	16-10.2.3.2 16-10.2.4.3			
4. SAFETY GUIDELINES.					
CF 4.1. Personnel Protective Gear. Note that the minimum required PPE will be used and provide several examples.	2	Attachment A			
4.2. Hazardous Materials. Note Hazardous Material Identification and minimization methods comply with NAVSEA STD ITEM 009-03, Toxic and Hazardous Substances; control, as required.	2 2	3.1.9 Attachment A			

**ATTACHMENT B**  
**COFFERDAM PCP REVIEW GUIDE**  
 Minimum Requirements and Critical Factors

	<p>4.3. Emergency Flooding Plan. Whenever single-valve protection is in place, include in the written notification to the ship a specific plan for immediate installation of a replacement piping component or internal sealing blank. Provide a note indicating that S/F is responsible for developing an on-site Emergency Flooding Plan (dewatering response), which includes additional emergency dewatering equipment that shall be operationally ready before commencing work and available for the entire time single valve protection is in place.</p>	<p>3 3 3 3 3</p>	<p>16-4.7.1.5 16-5.2.10 16-7.6.5 16-10.2.6 16-10.2.6.9</p>			
	<p>4.4. Joint Safety Brief. Note participation in a pre-job Joint Safety Brief, if Contractor attendance was required.</p>	<p>2</p>	<p>3.4</p>			
CF	<p>4.5. Posted Safety Precautions – Warning Signs. Specify and describe each of the following (e.g., figure, sketch, etc.):</p>					
	<p>4.5.1. Warning Sign posted at Quarter Deck to space that contains the system impacted by the PCP.</p>					
	<p>4.5.2. Warning Sign posted at entrance to space that contains the system impacted by the PCP.</p>					
	<p>4.5.3. Warning Sign posted at seawater supply manifold (eductor), if applicable.</p>					
	<p>4.5.4. Warning Sign at deck edge in way of cofferdam support rigging, if applicable.</p>					
	<p>5. COFFERDAM AND INTERNAL BLANK DESIGN.</p>	<p>2</p>	<p>3.1.3</p>			

**ATTACHMENT B**  
**COFFERDAM PCP REVIEW GUIDE**  
Minimum Requirements and Critical Factors

<p>5.1. Cofferdam Design. Specify a suitable capacity cofferdam, including:</p>	<p>3 3 3 3</p>	<p>16-3.7 16-3.8.(7) 16-10.2.4.5 Appendix C: 1-7</p>			
<p>5.1.1. Supporting Documentation. Require design and maintenance records that comply with Reference 3, Paras. 16-5.2.7 (patches), or 16-6.6.4 (dry chambers), or 16-7.6.2 (stern tube seals), including, as necessary:</p> <p>(a) Fabrication drawing(s)  (b) Inspections  (c) Engineering Calculations  (d) Cofferdam Rated depth  (e) Maximum hull opening size  (f) Gasket requirements  (g) Eductor and vent line requirements  (h) Patch specific hull opening  (i) Attachment and alignment requirements</p> <p>Note: Commercially procured plugs from an approved manufacturer do not require a design sketch. Cofferdam designs from NAVSEA approved DWGs or Reference 3 do not require engineering calculations.</p>	<p>4 3 3 3 3</p>	<p>3.2.1 16-5.2.7 16-5.2.8 16-6.6.4 16-6.7.4</p>			
<p>5.1.2. Identification. Require an installed data plate or engraved serial number on cofferdams, corresponding to supporting documentation.</p>	<p>3 3</p>	<p>16-5.2.7 16-6.6.4</p>			
<p>5.1.3. Templating. Note the cofferdam is contoured to fit the hull curvature, as necessary.</p>	<p>3 3 3 3 3 3 3 3 3</p>	<p>16-2.1.2.2 16-2.1.2.3 16-3.10 16-5.3.3 16-6.7.3 16-7.7.3 16-8.1 16-8.2 Appendix C</p>			
<p>5.1.4. Overall Dimensions. Specify the gross dimensions of the cofferdam<sup>3</sup>.</p>	<p>3 3</p>	<p>16-10.2.4.5 16-3.8</p>			
<p>5.1.5. Material Types and Thicknesses. Specify the appropriate material types and thicknesses conforming to Reference 3, Section 9<sup>3</sup>.</p>	<p>3 3</p>	<p>16-3.8 16-10.2.4.5</p>			
<p>5.1.6. Stiffeners. Specify the size and spacing of the stiffeners, as necessary<sup>3</sup>.</p>	<p>3 3 3 3 3 3 3</p>	<p>16-2.1.2.2 16-3.8 16-5.1.1 16-6.2 16-9.1.1.2 16-9.2.3.7 16-9.5.4</p>			

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	<p>5.1.7. Eductor, Air Supply and Vent. Specify:</p> <p>(a) As necessary, attachment locations of the eductor, air supply and vent, including suction side closure valves<sup>3</sup>.</p> <p>Note: All patch pipe nipples used to attach external vent lines must have valves installed to secure the space when dewatering is complete.</p> <p>(b) As necessary, size and type of eductor, air supply and vent<sup>3</sup>.</p> <p>Note: External vent lines shall be non-collapsible hoses.</p> <p>(c) As necessary, that the cofferdam shall be vented to atmosphere by an internal vent or an external non-collapsible vent line.</p> <p>Note: When using an internal vent, communications must be established between topside and internal space workers to ensure that the internal vent valve is open prior to eductor operation.</p> <p>(d) As necessary, that a vent line (internal or external) must be installed and opened before dewatering to prevent a vacuum and overloading the patch.</p> <p>(e) As necessary, a caution tag on all internal vents stating: "EXTERNAL COFFERDAM VENT VALVE. IF WATER PRESENT OR PRESSURIZED AIR RELEASED WHEN OPENED, TAKE ACTION TO CONFIRM COFFERDAM ADEQUACY."</p>	<p>3</p> <p>3</p> <p>3</p> <p>3</p> <p>3</p>	<p>16-3.8</p> <p>16-3.9</p> <p>16-5.2.2</p> <p>16-5.2.14</p> <p>16-5.3.4</p>			
	<p>5.1.8. Gasket Design. Require gasket to be fabricated from ASTM D 1056-00 Type 2, Class B or C, Grade 1 or 2 closed cell foam and a minimum of 3 inches in width (complying with Reference 3, 16-9.3.1 or 16-9.3.2, as applicable).</p>	<p>3</p> <p>3</p> <p>3</p>	<p>16-3.8</p> <p>16-9.3.1</p> <p>16-10.2.4.5</p>			
CF	<p>5.1.9. Gasket Adhesive. Specify that a marine-grade adhesive was used to mount the gasket to the cofferdam flange.</p>	<p>3</p>	<p>16-5.1.1</p>			
	<p>5.1.10. Positive Securing Device Design. Specify the method used to secure the cofferdam to the hull (e.g., J-bolt, hogging lines, etc.)</p>	<p>3</p> <p>3</p>	<p>16-3.8</p> <p>Appendix F</p>			
	<p>5.1.10.1. J-Bolt Minimum Requirements. Refer to, and include, Reference 3, Appendix F if a j-bolt is used.</p>	<p>3</p> <p>3</p>	<p>16-9.2.3.4</p> <p>Appendix F</p>			
	<p>5.1.11. Mechanical Fasteners. Specify the fastener type, as necessary.</p>	<p>3</p> <p>3</p>	<p>16-3.8</p> <p>16-9.4</p>			

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<p>5.2. Internal Sealing Blank Design and Documentation. If an internal sealing blank is necessary, require the installation of a less than ½-inch vent valve in the blank and specify:</p> <p>Note: Vent lines shall be less than ½” IPS or else a temporary reducer shall be installed to make the opening less than ½” IPS.</p>	<p>3 3 3 3 3 3 3</p>	<p>16-3.4.2.1.(2) 16-4.7.1.1 16-4.7.1.2 16-4.7.1.5 16-5.2.1 16-5.2.2 App D: 2, 19</p>			
<p>5.2.1. Blank conforms to Standard DWG# 845-4612172(latest applicable revision).</p>	<p>5</p>	<p>3.6.1</p>			
<p>5.2.2. Gasket conforms to MIL-PRF-1149 (latest revision).</p>	<p>5 6</p>	<p>3.6.1 Cat D-1 &amp; D-3</p>			
<p>5.2.3. Fasteners conform to with MIL-DTL-1222J.</p>	<p>5 6</p>	<p>3.6.1 4.15</p>			
<p>5.2.4. Positive attachment of a Danger Tag.</p>	<p>3 5</p>	<p>Appendix D: 19 3.6.1.1</p>			
<p>5.2.5. Require the blank to be documented on a certified check-off sheet (Reference 3, Appendix D) verifying its installation and removal.</p>	<p>3</p>	<p>App D: 2, 19, 22, 23</p>			
<p>5.3. Rigging Plan. Specify a rigging plan to positively secure the cofferdam to the hull, including, as necessary:</p> <ul style="list-style-type: none"> <li>(a) Lifting requirements</li> <li>(b) Suitable rigging equipment (e.g., chainfalls, turnbuckles, shackles, bellybands, hogging lines, chafing gear, counterweights)</li> <li>(c) Securing and attachment requirements (e.g., padeye dimensions and locations) and consideration of rigging load requirements, per Reference 3, Section 9</li> <li>(d) Manufacturer and weight testing requirements (Lifting Straps, Padeyes, Wire)</li> <li>(e) Direction and magnitude of expected loads from installation, use, and removal of the cofferdam</li> <li>(f) Rigging points and supporting structure designed with the factors of safety from Reference 3, Table 16-6.</li> </ul> <p>Note: If rigging to existing ship structure include the following statement: "All existing ship structure selected for rigging purposes, in accordance with this procedure, shall be visually inspected, before its use, for any questionable indications that would appear to compromise its strength (e.g., cracks, unintentional holes, severe corrosion) or items or structure that appear insufficient to carry the intended load(s). This authorization is ONLY applicable to the installation and removal of the cofferdam of this procedure." If Contractor personnel are unclear or unsure as to whether an item is acceptable to rig from, contact the SUPERVISOR immediately for clarification / approval.</p>	<p>3 3 3 3 3 3</p>	<p>16-3.12 16-5.2.6 16-9.2.3.4 16-9.5.2 16-10.2.5.2</p>			
<p>5.4. PREPARATION.</p>					

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	5.4.1. Patch and Plug Inspection. Include Reference 3, Appendix C Patch and Plug Inspection Checklist and require its completion confirming cofferdam inspection.	3 3 3 3 3 3 3 3 3	16-3.7.3.(b) 16-3.8.(7) 16-4.7.1.3 16-4.7.1.6 16-5.2.8 16-5.2.11 16-6.6.5 16-6.7.4 Appendix C			
	5.4.2. Freeboard. Note that watertight integrity of 4-foot (MIN) above the maximum anticipated draft shall be maintained.	4	3.1			
CF	5.4.3. Hull Opening or Access Cut Location. To locate cofferdam, specify, as necessary:					
	5.4.3.1. Hull Opening Item #. Referenced on docking drawing.					
	5.4.3.2. Hull Opening Size. Referenced on docking drawing.					
	5.4.3.3. Hull Fairing. Referenced on docking drawing.					
	5.4.3.4. Hull Opening Strainer Bars. Detailed on the seachest drawing and referenced on the piping drawing.					
	5.4.3.5. Access Cut. In lieu of hull opening, detail the location and access cut size.					
	5.4.3.6. Surface Preparation. Inspect and clean hull surfaces to obtain a 100% seal.	3 3 3 3 3 3	16-4.8.6 16-4.9.2 16-5.4.2 16-6.8.1 16-7.8.1 Appendix C			
CF	5.4.3.7. Sealing Surface, Hull. A 3-inch minimum sealing surface on the hull around the opening to accommodate the minimum cofferdam gasket width.	3 3	16-9.3.1.(b) App D: 5			
	5.4.4. Briefing. Specify a method ensuring cognizant personnel shall have direct knowledge of the requirements before starting the process.	2 2	3.1.7 Attachment A			

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<p>5.4.5. On-site Documentation. Specify that the following on-site documentation shall be available for the duration of the process, separately or as part of the PCP.</p> <p>(a) Applicable System Drawings.          (b) Docking Plan Drawing.          (c) Approved PCP          (d) Reference 3          (e) Applicable Standard Forms. Including but not limited to, Reference 3, Appendices C, D and G, as necessary          (f) Rigging Plan          (g) Cofferdam Design Package          (h) Emergency Flooding Plan          (i) Diving Contractor's Safe Practices Manual</p>	<p>2 2 3</p>	<p>3.1.7 Attachment A 16-10.2.6</p>			
<p>5.4.6. PCP Control. Specify a method establishing administrative control of the authorized PCP for the duration of the process, including a record of the data demonstrating satisfactory completion of the procedure.</p> <p>Note: This is normally accomplished by a First-Line Supervisor ensuring all personnel shall maintain compliance with PCP requirements.</p>	<p>2 2 2</p>	<p>3.1.8 3.2 Attachment A</p>			
<p>5.4.7. Notifications.</p>					
<p>5.4.7.1. Government. Notify the Government (G) of the start of the process, in compliance with Reference 7, Para 3.8.2. Label the notification sign-off as: "(V)(G) START OF PROCEDURE".</p>	<p>2 2 2 7</p>	<p>3.1.11 4.1 Attachment A 3.8.2</p>			

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	5.4.7.2. Ship's Force Notification of Cofferdam Installation (Location) and Single Valve Protection. Include, and complete, as required, Reference 3, Appendix G Report of Ship's Responsibility for Patch Installation and/or Single Valve Protection confirming the Ship's C.O. or Designated Representative have been notified and acknowledge the cofferdam's location (if installed) and level of valve protection. Note: Unlike single/double valve protection, weld repairs to the hull do not require App. G as implied by Ref. 3, 16-10.2.6.6.	4 4 3 3 3 3 3 3 3 3 3 3 3 3 5	3.2.2 3.2.4 16-4.7.1.3 16-4.7.1.4 16-5.2.1 16-5.2.2 16-5.2.9 16-5.2.10 16-6.6.10 16-7.6.5 16-7.6.6 16-10.2.6.6 3.1			
	5.4.8. Leak Rate. Specify an appropriate leak rate.	3 3 3	16-4.7.1.8 16-5.2.17 16-7.6.6			
	5.4.9. Inspection Dive. Note a pre-installation inspection dive shall be accomplished verifying existing conditions.	3 3	16-3.6 16-7.7.4			
CF	5.4.10. Communications. Specify mandatory two-way communication (e.g., hand-held radio, sound powered telephone) between the Contractor (Surveillance Personnel) and Ship's Force (Quarterdeck or OOD Station) for the duration of the process.	3 3 3 3 3 3	16-3.4.2.6 16-4.8.4 16-5.2.14 16-5.5.1 16-10.2.5.1 App D: 14, 21			
CF	5.4.11. Dewatering.					
	5.4.11.1. Dewatering. If necessary, require installation, tagging (as required) and inspection of all vent lines, eductors and air supply lines (dry chambers), in accordance with Reference 3, Appendix D, as necessary.	3 3 3 3 3 3 3 3 3 3 3	16-5.2.2 16-5.2.14 16-5.2.15 16-5.2.18.1 16-5.2.18.2 16-5.3.4 16-6.6.7 16-6.7.5 16-7.6.6 Appendix D			
CF	5.4.11.2. Pumping, Seawater Supply. If necessary, require maintenance of a seawater supply (supply valve wired open and either a backup fire pump or secondary fire main).					
CF	5.4.12. Operational Compliance Check-List. Include, and complete, the Operational Check-List, Reference 3, Table 16-9.	4 3	3.2.3 16-10.3.1			



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5.5. INSTALLATION.					
	5.5.1. Installation Checksheet. Include Reference 3, Appendix D Patch and Plug Installation Check sheet and complete only those steps pertaining to cofferdam installation.	3 3 3 3 3 3	16-3.13 16-4.7.1.3 16-4.7.1.9 16-5.2.11 16-5.2.19 Appendix D		
	5.5.2. Verify System and Hull Opening. Verify the removed valve or system corresponds to the system blanked and the hull opening.	3	16-5.4.1		
CF	5.5.3. Locate and Position Cofferdam. Require: (a) Cofferdam to be located in conjunction with the Rigging Plan and Inspection Dive. (b) A 4-foot minimum freeboard (conforming to GOS, S9AA0-AB-GOS-010, Section 045) (c) A 6-inch minimum clearance between the cofferdam side and hot work area, if applicable. If the 6-inch minimum clearance cannot be maintained provide written justification.	4 3 3 3 3 3 3	3.1 3.6 3.12 5.3.5 6.7.6 7.7.5 App C: 1b, 1c App D: 1		
CF	5.5.4. Verify Cofferdam Seal (Watertight Integrity). Require Divers to verify cofferdam's watertight integrity, and, if necessary, retightening of the primary means of cofferdam attachment to establish a watertight seal.	3	Appendix D		
	5.5.4.1. Notification of Cofferdam Seal. Require Lead Shop notification that a seal has been established.	3	Appendix D		
CF	5.5.5. Internal Seal Blank. If necessary, require: (a) The installation of an internal seal blank, conforming to the specified design requirements, immediately after removal of the damaged (or repair) component (internal piping or watertight boundary is opened) to maintain double-valve protection. (b) The Contractors to confirm that an internal seal blank with a less than ½" diameter vent valve has been installed immediately after removal of the damaged (or repair) component.	3 3 3 3 3 3 3	16-3.4.2.1.(2) 16-4.7.1.1 16-4.7.1.2 16-4.7.1.5 16-5.2.1 16-5.2.2 App D: 2, 19		

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CF	5.5.6.	Test & Inspection Plan; Acceptance & Rejection Criteria. Include a Test & Inspection Plan denoting the relevant acceptance and rejection criteria, in compliance with Reference 7, Paras. 3.4.1 and 3.5.1.	2 2 7 7	3.6.1 Attachment A 3.4.1 3.5.1			
	5.5.7.	Monitoring. Require cognizant personnel (e.g., Divers or Ship's Force) to monitor watertight integrity of all applicable cofferdams (with dewatering equipment secured) while actually providing single or double-valve protection at intervals no greater than every 7 days for patches and continuously for dry chambers (when occupied).  Note 1: The vent valve on internal seal blanks facilitates internal vent cofferdam monitoring.  Note 2: The blank vent valve may be left shut when not temporarily opened by the ship's sounding and security detail for patch or plug seal monitoring or, upon <u>approval by the Ship</u> , the blank vent valve may be left continuously open to maintain cofferdam differential pressure.	3 3 3 3	16-5.2.2 16-5.2.18 16-6.7.2 Appendix D: 19			
	5.6.	REMOVAL.					
	5.6.1.	Removal Checklist. Remove cofferdam and complete those remaining steps in Reference 3, Appendix D Patch and Plug Installation Checksheet applicable to the removal phase of the cofferdam procedure.	3 3 3 3 3 3 3 3 3 3	16-3.13 16-4.7.1.3 16-4.7.1.9 4.8.1 4.9.7 16-5.2.11 16-5.2.19 5.5 7.9 Appendix D			
CF	5.6.2.	Removal/Reinstallation Equipment, On-site. Equipment to move/manipulate the component shall be available on-site.					
CF	5.6.3.	Cofferdam Seal Verification. Either open the ½-inch vent valve or loosen blank fasteners to slightly spread (open) the seal and verify the cofferdam is holding back sea pressure. If leakage exists correct cofferdam seal.	3 3 3	4.8.9 4.8.10 Appendix D			
CF	5.6.4.	Internal Sealing Blank. Remove internal sealing blank and retain on-site for immediate installation, if necessary.	3	Appendix D			
CF	5.6.5.	Double Valve Protection. Verify reestablishment of double-valve protection after component has been installed and 24-hour surveillance or diver stand-by for single-valve protection is no longer required.	3	Appendix D			

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CF	5.6.6. Divers Stand-By, Removal. Require Divers to be on stand-by during removal of internal blank and re/installation of component.	3	Appendix D			
CF	5.6.7. Verify System Integrity. Require loosening of cofferdam after the component is installed to verify the flange seal is tight (zero leaks) and, if not, the Divers shall retighten the cofferdam to reestablish watertight integrity of the component. When seal is verified, remove the cofferdam.	3	Appendix D			

Notes.

1. Items referenced to this note are considered “critical factors, which have direct bearing on the process quality and safety” in accordance with Reference 2, Para. 3.1.3 and are either only generally implied in the References or are not readily specified but are nevertheless considered critical and required for a successful cofferdam process. These Items are marked “CF” in this Review form.
2. Non-standard cofferdams are cofferdams other than those provided by Reference 4, Section 9.
3. Can be included as part of design sketch.

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-78  
DATE: 18 NOV 2016  
CATEGORY: II

1. SCOPE:

1.1 Title: Passive Countermeasures System (PCMS) Material; repair

2. REFERENCES:

2.1 Standard Items

2.2 RIM 05T1, Passive Countermeasures System (PCMS) Repair/Installation Methods

2.3 PHS&T 05T1, Passive Countermeasures System Packaging, Handling, Storage and Transportation Plan

2.4 ACD 05P1, Passive Countermeasures System (PCMS) Access, Material Control and Disposal Manual

3. REQUIREMENTS:

3.1 Remove existing and install new PCMS material in accordance with 2.2 through 2.4.

3.1.1 Accomplish additional PCMS material handling and storage requirements in accordance with 2.3.

(V) "ENVIRONMENTAL REQUIREMENTS"

3.1.2 Verify the environmental requirements of Section C.1 of 2.2 are met prior to application of primers, tiles, caulking, and paint.

(V) "WELD FAIRING"

3.1.3 Verify the fairing of weld seams is in accordance with Section C.3 of 2.2.

(V) (G) "FINAL INSPECTION"

3.1.4 Accomplish a final inspection of newly installed PCMS material to verify correct installation.

3.1.5 Accomplish surface preparation and preservation for topcoat of new PCMS material in accordance with Section C.6 of 2.2.

3.2 Accomplishment of cleaning and painting for new and disturbed surfaces shall be in accordance with NAVSEA Standard Items (See Note 4.1).

4. NOTES:

4.1 If cleaning and painting for new and disturbed surfaces are required; the use of Category II Standard item 009-32 "Cleaning and Painting Requirements; accomplish' of 2.1 will be specified in the Work Item.

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-89

DATE: **01 OCT 2017**

CATEGORY: I

1. SCOPE:

1.1 Title: Contractor Furnished Anode Purchase and Inspection;  
accomplish

2. REFERENCES:

2.1 None.

3. REQUIREMENTS:

3.1 Purchase of zinc anodes shall meet the requirements of **MIL-DTL-18001**.

3.2 Purchase of aluminum anodes shall meet the requirements of MIL-DTL-24779.

3.3 Accomplish a visual inspection to ensure that each anode displays the following information:

3.3.1 MILSPEC revision letter

3.3.2 Manufacturer name or logo

3.3.3 Heat or melt number

3.4 Maintain a chain of custody record for pencil-type anodes that are unable to display the information listed in 3.3.

3.5 Submit one legible copy, in hard copy or approved transferrable media, of the chemical analysis of each heat or melt number for each anode furnished.

3.6 Maintain segregation of anodes by lot numbers.

4. NOTES:

4.1 None.

NAVSEA  
STANDARD ITEM

FY-19

ITEM NO: 009-118

DATE: 18 JUL 2014

CATEGORY: I

1. SCOPE:

1.1 Title: CG Deck Loading; accomplish

2. REFERENCES:

2.1 671-8416047, CG47 Class Topside Laydown Areas & Load Limits

3. REQUIREMENTS:

3.1 Accomplish the requirements of 2.1 for topside deck loading of contractor equipment and supplies.

3.1.1 Submit one legible drawing or sketch of a proposed deck loading plan to the SUPERVISOR for review and acceptance 3 days prior to the start of the availability.

3.1.1.1 Submit updated or changed plans to the SUPERVISOR as they occur.

4. NOTES:

4.1 None.