

NAVSEA  
STANDARD ITEM

FY-14

ITEM NO: 009-26  
DATE: 17 JAN 2013  
CATEGORY: II

1. SCOPE:

1.1 Title: Deck Covering Requirements; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 S9510-AB-ATM-010/(U), Nuclear Powered Submarine Atmosphere Control Manual

2.3 S9086-VG-STM-010/CH-634, Deck Coverings

3. REQUIREMENTS:

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

3.1.1 For deck coverings installed onboard submarines, NAVSEA-approved deck covering systems shall comply with the requirements of 2.2.

3.2 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-approved manufacturer's instructions.

3.3 Comply with the NAVSEA-approved manufacturer's instructions and procedures submitted in 3.1 for safety and health precautions during the removal, handling, and application of deck covering products.

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

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 Blank or plug drains 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. 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 found***, submit one legible copy, in approved transferrable media, of a report listing defects found in 3.6 to the SUPERVISOR.

3.7 Accomplish the requirements of 009-32 of 2.1 for surface preparation and paint application to each deck surface, including the adjacent vertical surfaces intersecting the deck up to one inch above the deck covering level. The minimum surface preparation level shall be power tool clean to bare metal (SSPC-SP 11).

3.7.1 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.

(I) "VISUAL INSPECTION"

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 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-approved manufacturer's instructions and procedure submitted in 3.1. Latex (Class 1) underlayment shall not be used for new installations.

3.9.1 The QPL for MIL-PRF-3135 currently lists no products for Type IV. Until the QPL is populated, applicators shall substitute Type I or II products from the QPL that meet the following:

3.9.1.1 MIL-PRF-3135, Type IV: General use, lightweight polymeric underlayment materials weighing no greater than 1.6 lbs/sf at 0.25-inch thickness that perform the functions normally provided by separate primer, underlayment, waterproof, and crack suppression membrane materials in one application.

3.10 Except where Type IV underlayment is used, install a waterproof membrane in accordance with Attachment A or B, in each wet space (as defined in 4.1.10 through 4.1.15).

(I)(G) "VISUAL INSPECTION"

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

3.11 Accomplish the requirements of Attachment A for the installation of new Unglazed Porcelain Tile Deck Covering System, using 2.3 for guidance.

3.12 Accomplish the requirements of Attachment B for the installation of new Wear Resistant Deck Tile Covering System, using 2.3 for guidance.

3.13 Accomplish the requirements of Attachment C for the installation of new, or the resurface of existing, Cosmetic Polymeric Deck Covering System, using 2.3 for guidance.

3.14 Accomplish the requirements of Attachment D for the installation of new Electrical Grade Sheets and Matting Deck Covering System, using 2.3 for guidance.

3.15 Accomplish the requirements of Attachment E for the installation of new Carpeting Deck Covering System, using 2.3 for guidance.

3.16 Accomplish the requirements of Attachment F for the installation of new Vinyl Composition Tile Deck Covering System, using 2.3 for guidance.

3.17 Accomplish the requirements of Attachment G for the installation of new or replacement of peel and stick nonskid system, using 2.3 for guidance.

3.18 For the installation of new Fatigue Reducing Deck Tile Covering System conforming to MIL-PRF-32170 Class 2, refer to Manufacturer Technical Specification Documents.

3.19 For the installation of new Mastic (Concrete) Deck System, refer to Manufacturer Technical Specification Documents.

3.20 Accomplish the requirements of 009-32 of 2.1 for High-Durability Deck Paint in accordance with MIL-PRF-32171.

3.20.1 The use of a waterproof membrane is not required in areas where MIL-PRF-32171 Type III products are used.

3.21 Accomplish the requirements of Attachment F for the selection and installation requirements of Solid Vinyl Tile.

3.22 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"

3.23 Accomplish a visual inspection of the completely installed and cured deck covering system. Ensure that each deck covering system is in accordance with the applicable Attachment, and is uniform and free of defects. Deck coverings with a sealer coat installed shall have a continuous surface, free of blotchy areas, puddling, air bubbles, ridge marks or runs, with no surface contaminants embedded. 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"

3.23.1 Remove blanks and plugs installed in 3.4.1 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.

3.23.2 Upon completion of deck covering installation, verify all deck DC fittings are free, removable, and operational.

#### 4. NOTES:

4.1 The following are the approved deck covering systems for use in the spaces listed. This listing supersedes Table 634-2-1 of 2.3 and NAVSEA Deck Coverings Messages issued prior to this publication.

4.1.1 Dry interior spaces (living and working spaces, including offices, berthing, medical spaces, manned storerooms and passageways serving those spaces): A) Wear Resistant Deck Tile; B) Cosmetic Polymeric Type I or Type II, Class 2; C) Cosmetic Polymeric Type III; D) Cosmetic Polymeric Type V; E) Vinyl Composition Tile; F) High-Durability Type I or Type II deck paint; G) Solid Vinyl Tile. High-Durability deck paint shall not be used in medical spaces.

4.1.2 Pilot House and Control Stations, Chart Room, Combat Information Center, Barber Shop, and Ship's Store: A) Fatigue Reducing Deck Tiles; B) Cosmetic Polymeric Type I or Type II, Class 2; C) Cosmetic Polymeric Type III; D) Cosmetic Polymeric Type V; E) Wear Resistant Deck Tiles; F) Vinyl

Composition Tile; G) High-Durability Type I or Type II deck paint; H) Solid Vinyl Tile.

4.1.3 Dry interior spaces (Flag Quarters, CO and XO Quarters, other quarters of equivalent rank (such as Troop CO Quarters), Wardroom and CPO Lounges, and Chapel): A) Carpet; B) Wear Resistant Deck Tile.

4.1.4 Messing areas: A) Porcelain Tile; B) Wear Resistant Deck Tile; C) Cosmetic Polymeric Type I or Type II, Class 2; D) Cosmetic Polymeric Type III; E) Cosmetic Polymeric Type V; F) Vinyl Composition Tile; G) High-Durability Type III deck paint; H) Solid Vinyl Tile.

4.1.5 Laboratory and electrical/electronic workshops (electrical grade sheets are required in all designated electrical areas such as CCTV Control Rooms, Electric Power Conversions, IC and Gyro Rooms, Radar Rooms, and Control Rooms; electrical mats are required in all non-designated electrical areas where specific electrical hazards may exist): A) Electrical Grade Sheet; B) Wear Resistant Deck Tile (except in spaces where petroleum products are used), with Electrical Grade Mats in Electrical/Electronic Workshops; C) Cosmetic Polymeric, Type I or Type II, Class 2, with Electrical Grade Mats in Electrical/Electronic Workshops; D) Cosmetic Polymeric, Type III, with Electrical Grade Mats in Electrical/Electronic Workshops; E) Cosmetic Polymeric, Type V, with Electrical Grade Mats in Electrical/Electronic Workshops; F) High-Durability Type I or Type II deck paint with Electrical Grade Mats in Electrical/Electronic Workshops; G) Solid Vinyl Tile with Electrical Grade Mats in Electrical/Electronic Workshops.

4.1.6 Carpenter and machine shops, and other shops spaces: A) High Durability Type I deck paint, with peel and stick nonskid in front of machinery in accordance with Attachment G; B) Resin-based nonskid in front of machinery.

4.1.7 Side passageways (interior) only serving shop spaces (not main passageways): A) High Durability Type I or Type II deck paint.

4.1.8 Machinery spaces (excluding bilges) in working areas around machinery and electrical grade mats around electrical switchboards: A) High Durability Type I deck paint, with peel and stick nonskid in accordance with Attachment G; B) Resin-based nonskid.

4.1.9 Dry goods store rooms with storage racks installed: A) High Durability Type I or Type II deck paint.

4.1.10 Sanitary spaces (washrooms, water closets and showers): A) for all surface ships, **excluding PC-1 Class**, Porcelain Tile with a waterproof membrane (3x3 inch tiles) or Type IV underlayment; B) High-Durability Type III deck paint.

4.1.11 Small enclosed spaces attached to sanitary spaces (e.g., closets containing hot water heaters): A) Porcelain Tile; B) High Durability Type III deck paint; C) Cosmetic Polymeric Type V.

4.1.12 Food service spaces (galley, scullery, butcher shop, bakery, meat preparation rooms, food service lines): A) Quarry Tiles; B) Porcelain Tile (6x6 or 8x8 inch); C) Cosmetic Polymeric Type I or II, Class 1 or 3; D) Cosmetic Polymeric, Type III; Cosmetic Polymeric Type V.

4.1.13 Trash compactor rooms: A) Porcelain Tile (6x6 or 8x8 inch); B) Mastic (concrete) deck system; C) Cosmetic Polymeric Type V.

4.1.14 Other wet working spaces (Nixie Rooms, etc): A) High Durability Type III deck paint in walking areas in accordance with Attachment G; B) Resin-based nonskid in walking areas.

4.1.15 Laundry facilities: A) Porcelain Tile (6x6 or 8x8 inch) with Waterproof Membrane and Epoxy Adhesive and Grout only; (B) Cosmetic Polymeric Type I or Type II, Class 1 or 3; C) Cosmetic Polymeric, Type III; Cosmetic Polymeric Type V.

4.1.16 Unmanned spaces (wet or dry): A) High Durability Type III deck paint.

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 receive partial replacement or resurfacing/resealing shall also be indicated as such in the invoking Work Item (e.g., replacing carpet over existing underlayment, etc.).

4.4 The intent of 3.23.2 is to verify that 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 and are removable and operational.

ATTACHMENT A  
UNGLAZED PORCELAIN TILE

1. Porcelain tile shall be installed in locations listed in 4.1, including the Bakery, CO Pantry, Galley and Scullery, Solid Waste Processing Room, Filter Cleaning Shop, Plastic Waste Equipment Room and Storeroom, sanitary spaces, storerooms where heavy condensation is common, Mess rooms, small enclosed spaces attached to sanitary spaces (e.g., closets containing hot water heaters), Trash Compactor Rooms, Laundry Facilities, and all other difficult to clean wet spaces.

A. Porcelain 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 C 1028.

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. Waterproof membrane. If MIL-PRF-3135, Type III underlayment is selected, an epoxy based waterproof membrane shall be applied between the underlayment and the tile in all wet spaces. 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. MIL-PRF-3135, Type IV underlayment does not require application of a waterproof membrane.

E. Concrete.

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

(2) Apply concrete (DEX-O-TEX A-70 or DEX-O-TEX A-70 (VLW)) 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 when concrete is cured sufficiently in accordance with 2.3.

F. Mortar and tile.

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

(2) Porcelain tiles 75 mm by 75 mm (3-inch by 3-inch) shall be installed in all sanitary spaces.

(3) Porcelain tiles with 150 mm or 200 mm (4-inch by 4-inch or 6-inch by 6-inch) squares shall be installed in other spaces.

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

(5) The tiles must be stored flat.

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

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

(8) Tiles, mortar 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.

(9) The deck should be protected from traffic for 24 hours after installation, and decks must not be washed for 48 hours.

#### G. 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.

H. Deck drain sealant installation. In the area between the tile, mortar, and collar joint, install a waterproof sealant conforming to SAE-AMS-S-8802, Class B, 3M 5200 Fastcure Marine Sealant, or NAVSEA-approved equivalent, around the entire circumference of the deck drain to the tile and mortar interface.



ATTACHMENT B  
WEAR RESISTANT DECK TILE

1. Wear resistant deck tiles shall be installed in locations listed in 4.1, including all living and working spaces, including: Offices, Battle Dressing Stations, Barber Shop, Automated Data Processing Rooms, Bunkrooms, Pilot House and Control Stations, Training Room/ Library, Chart Room, Living Spaces, Recreation Rooms, Ship Store, Lounges, Issue Rooms, Labs, Morgue, Staterooms, One-man Baths (e.g., Flag Quarters, CO and XO Baths), Manned Storerooms, and passageways serving those spaces.

A. Wear resistant deck tiles shall be a Chlorine Free Tile System certified to meet the performance requirements of MIL-PRF-32170, Class 1.

(1) Type I - Deck tile system for general use

(2) Type II - Deck tile system for use onboard submarines.

B. For 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, where there is an increased likelihood of water penetration under the deck covering (e.g., around refrigerated vending machine foundations, AC spot cooler drains, etc.), a waterproof membrane underlayment meeting MIL-PRF-3135 Type IV or a two-part resin based membrane that meets the vapor transmission requirements of ANSI 118.10. The membrane shall be applied in a continuous stripe a minimum of 100 mm (4 inches) up the vertical surfaces and 100 mm (4 inches) away from the joint along the deck. This membrane or Type IV underlayment shall be applied before installation of any other underlayment required to fair the deck in 3.9.

C. 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 relative humidity maximum of 75 percent. The temperature and relative humidity shall be stabilized 24 hours prior to and after installation.

D. 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 must be stored flat.

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

(4) Do not spring wear resistant deck tiles into position. Tiles requiring hand cutting must 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.

E. 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.

F. Tile system imperfections found, which may cause premature failure, shall be corrected before the tile system is accepted. Slight imperfections in the tile system are allowable, as long as they will not result in premature failure of the tile system in the immediate vicinity of the imperfection. Such slight imperfections should be left intact, as trying to correct them could result in damage to the surrounding tile system.

ATTACHMENT C  
COSMETIC POLYMERIC DECK COVERING

1. Cosmetic polymeric deck coverings shall be installed in locations listed in 4.1, including all living and working in areas where moisture is to be expected and a level of clinical cleanliness must be maintained such as Casualty Decontamination Station, Cleaning Gear Lockers, Medical and Dental Spaces (including Triage, Surgical Pre-Op, Scrub Room, and Medical X-ray Exposure Room), Oil and Water Test Laboratory, Laundry, and Explosive Ordnance Disposal Work Center. Medical and Dental Spaces, only Type I, Class 2 or Type II, Class 2 cosmetic polymeric deck types shall be used.

A. All cosmetic polymeric products shall conform to the appropriate Type and Class of MIL-PRF-24613. A 50 mm to 100 mm (2-inch to 4-inch) high cove shall be installed.

- Type I has a primary matrix consisting of epoxy resin and aggregate or topping material of suitable size such that it need not be ground before the applications of the sealer coats.
- Type I, Class One, is an epoxy matrix material and colored quartz aggregate.
- Type I, Class 2, is an epoxy matrix material and color flake topping.
- Type I, Class 3, is an epoxy matrix material and marble as the primary aggregate.
- Type II has a primary matrix consisting of urethane resin and aggregate or topping material of suitable size such that it need not be ground before the applications of the sealer coats.
- Type II, Class 2, is a urethane matrix and color flake topping.
- Type III has a primary matrix consisting of polymeric resin (such as epoxy, polyester or polyurethane) **and aggregates** and is applied as a single trowel step, requiring no sealer or topcoat.
- ***Type V has a primary matrix consisting of epoxy and aggregates that is applied in a single trowel step, requiring no sealer or topcoat at any time throughout its service life.***

B. If aggregate is required to meet the coefficient of friction (COF) requirements of the MIL-PRF-24613, 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 must be stored and mixed at a temperature between 60 degrees Fahrenheit and 80 degrees Fahrenheit for best mixing and application properties.

D. Maintain deck surface and room temperature in accordance with the NAVSEA-approved manufacturer's instructions and procedures submitted in 3.1 for proper curing during application and for at least 24 hours after installation.

E. For complete installations, apply base coat, color coat, color chips and sealer (as applicable for the Type being installed) in accordance with NAVSEA-approved manufacturer's instructions. For color-flake systems, installation of the color chips shall be approximately 20 percent of the color coat area. When the NAVSEA-approved manufacturer's instructions require multiple coats of sealer to be applied, lightly sand the entire deck surface before applying the final seal coat to remove high points (remove all sanding residue prior to application of the final seal coat).

F. For resurface installations, mechanically abrade the existing sealer, color coat and color chips, exposing the base coat. Repair torn, punctured or defective base coat areas with primer (see 3.7) and new base coat. Apply new color coat, color chips (20 percent of the color coat area) and sealer coats in accordance with the NAVSEA-approved manufacturer's instructions and procedures submitted in 3.1. Lightly abrade the entire deck surfaces between sealer coats to remove high points (remove all sanding residue before applying the next coat of sealer).

G. Resealing operations shall be conducted in accordance with the NAVSEA-approved manufacturer's instructions and procedures submitted in 3.1.

ATTACHMENT D  
ELECTRICAL GRADE SHEETS AND MATTING

1. Electrical grade sheets shall be installed in locations listed in 4.1, including all designated electrical areas. Electrical grade mats shall be installed in locations listed in 4.1, including all non-designated electrical areas where electrical hazards may exist.

A. Electrical grade sheet deck covering shall conform to MIL-DTL-15562, Type I, and the fire resistance requirements of MIL-STD-1623.

B. 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.

C. 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.

2. Electrical grade matting shall conform to MIL-DTL-15562, Type II or III, and meet the fire resistance requirements of MIL-STD-1623. Exposed corners shall be rounded off.

A. Cementing of the mat is optional, but if the mat is not cemented, 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 cement 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 D 1000, 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 4.1.

A. Carpets shall be wool, velvet weave, woven through the back, conforming to the fire requirements of MIL-STD-1623. With the exception of Submarine Installations, carpets shall be treated with a soil retardant treatment such as 3M Brand Carpet Protector or equal prior to use.

B. The carpet shall be either single cut pile (17 N/m<sup>2</sup> (52 oz./yd<sup>2</sup>) pile), single level loop pile - woven through back (13.9 N/m<sup>2</sup> (42 oz./yd<sup>2</sup>) pile), or multilevel loop pile - woven through back (14.6 N/m<sup>2</sup> (44 oz./yd<sup>2</sup>) pile), or be specifically approved by the SUPERVISOR.

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

D. Carpets shall be installed without pad over a 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.

E. A clean, bright CRES or aluminum metal strip shall be installed to tie down 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 4.1.

A. Vinyl composition deck tiles shall conform to ASTM F 1066, Class 2, and shall be 1/8-inch thick for maximum durability. Solid vinyl tile shall conform to ASTM F 1700, Class III, Type B. Tiles must also conform to MIL-STD-1623 (Fire Test Requirements).

B. Vinyl tile epoxy cement shall be a qualified proprietary part of the new deck covering system applied in accordance with NAVSEA-approved manufacturer's instructions and procedures submitted in 3.1.

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 cemented (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  
PEEL AND STICK NONSKID

1. Peel and stick nonskid shall be installed in locations listed in 4.1, including exterior and interior spaces and passageways where nonskid is specified.

A. Peel and stick nonskid shall conform to MIL-PRF-24667 Type XI, or other material as approved by NAVSEA.

B. Spaces between adjacent pieces **shall have a minimum gap of ½ 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. Seal all free edges of the peel and stick nonskid with the manufacturer's approved sealer. Verify that the sealer bead covers both the edge of the product and the substrate surface. Allow the edge sealer to dry.

D. Peel and stick nonskid shall not be used in areas frequently contaminated with hydraulic fluids as well as pallet jack, and fork truck traffic areas.

E. Corners of peel and stick nonskid shall be rounded.

2. If approved by the SUPERVISOR, existing areas of peel and stick 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 peel and stick 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. Peel and stick nonskid shall be installed in accordance with manufacturer's documentation.