IN-YARD INSPECTION OF SUPPLIES AND SERVICES

**Purpose:**

To define the system for inspection of supplies and services furnished by Ingalls Shipbuilding contractors and subcontractors.

Contractors and subcontractor shall be responsible for ensuring:

* The conduct and documentation of in-process and final inspections in accordance with the applicable purchase order/subcontract and approved quality programs, and the applicable section of Attachment A of this form.
* Performance of work and inspections in accordance with applicable subcontract/purchase order requirements.
* Utilization of the Craft System Release (CSR), Form SSF M0892, releasing completed work to the Ingalls Shipbuilding Quality Inspection (QI) department, as specified in the subcontract/purchase order.
* To promptly advise Ingalls Shipbuilding Ships Management of planned corrective action on all deficiencies and shall schedule rework completion as required to support the Ingalls Shipbuilding construction schedule.
* Documentation of material shortages may be documented on the Ingalls Shipbuilding Quality Deferred Work (DW) (SSF Q4739).

**Attachment A**

**Contractor / Subcontractor Prerequisite Inspection Instructions**

(Deck Covering, Refrigeration Spaces, Fixed CO2/HALON Firefighting System, Paint, Insulation and Electrical)

**1.0 Deck Covering**

1.1 Instructions:

1.1.1 Steel and/or aluminum decks to receive deck covering shall meet the requirements for fairness conditions as delineated in the applicable Work Authorization, referenced drawings, and this form (SSF Q8795). This will require a release to QI for inspection to the criteria of the attributes contained in “Subcontractor Work Inspection Checklist Attributes” refered to as “Attachment B” as applicable, prior to release to the subcontractor for underlayment installation.

1.1.2 U.S. Government (or customer) inspection of surface preparation and primer coating shall be prior to underlayment installation.

1.1.3 The completion of any scheduled testing shall be accomplished prior to the installation of underlayment or deck covering or insulation.

1.1.4 Unless otherwise specified, deck covering shall cover the entire deck area of a compartment. Deck covering shall not be installed under enclosed built-in furniture or under equipment with enclosed foundations.

1.1.5 Steel and/or aluminum decks requiring underlayment shall have an absolute minimum amount installed, and have a surface smoothness in accordance with 1.11 and the inspection attributes of Attachment B, as applicable.

1.1.6 Where possible, the use of MIL-D-3135 Type 1 (Dex-O-Tex-Subcoat #1 or equal) shall be utilized to effect weight savings.

1.1.7 After the installation of underlayment is completed, the Contractor / subcontractor shall release the area to QI for inspection prior to installing the required deck covering, using the attributes of Attachment B, as applicable, and the requirements of 1.1.11.

1.1.8 Final inspection of the deck covering installation shall be conducted by QI in accordance with the attributes of Attachment B, and the requirements of 1.1.11.

1.1.9 Inspection of painting associated with decks/deck covering shall be to the attributes of Ingalls Shipbuilding work instruction SSW Q4024.

1.1.10 Inspection of Quarry Tile installation shall be in accordance with Attachment B.

1.1.11 The appropriate deck covering drawing for the applicable contract.

**2.0 Refrigeration Spaces**

2.1 Instructions - Ingalls Shipbuilding Quality Inspection shall be contacted:

2.1.1 Prior to insulation to verify Attributes 27 – 35 of Attachment B.

2.1.2 After insulation to verify Attributes 36 – 41 of Attachment B.

2.1.3 After all remaining work is completed to verify Attributes 42 – 49 of Attachment B.

2.1.4 To witness and verify that disinfecting has been accomplished in accordance with Attribute 50 of Attachment B.

**3.0 Fixed CO2/HALON Firefighting System**

3.1 Instructions

3.1.1 Contractor / subcontractor shall have Weld Joint Inspection procedures.

3.1.2 Objective quality evidence that weld joint inspection procedures are being utilized shall be available for inspection.

3.1.3 Ingalls Shipbuilding Quality Inspection shall be notified when fit-ups, root passes, and final welds are being made in order to perform random inspections for proper fit-up, correct design, and complete penetration.

3.1.4 Ingalls Shipbuilding Quality Inspection shall be contacted when all work is completed to verify Attributes 51 – 59 of Attachment B.

**4.0 Paint**

4.1 Instructions

4.1.1 Ingalls Shipbuilding Quality Inspection shall be conducted in accordance with Ingalls Shipbuilding work instruction SSW Q4024. Required Contractor / subcontractor call outs are identified in Attachment B.

**5.0 Joiner/Insulation**

5.1 Instructions

5.1.1 Ingalls Shipbuilding Quality Inspection shall be conducted in accordance with Ingalls Shipbuilding work instruction SSW Q5059. Contractor / subcontractors are required to contact Ingalls Shipbuilding Quality Inspection prior to lockouts and for final inspections.

**6.0 Electrical**

6.1 Instructions

6.1.1 Ingalls Shipbuilding Quality Inspection shall be conducted in accordance with Ingalls Shipbuilding work instruction SSW Q4062.

**Attachment B**

### Contractor/Subcontractor Work Inspection Checklist Attributes

**(Decks, Quarry Tile, Refrigeration Spaces, and Fixed CO2/HALON Fire Extinguishing System)**

| **NO.** | **ATTRIBUTES** | **DEFECT CODE** |
| --- | --- | --- |
|
| **1** | Prior to application of deck covering material and underlayment, check surface preparation for the following.* Check for removal of attachments and completion of penetrations in the deck to be covered.
* Check that area is free of burrs, gouges and scars and temporary attachments have been removed.
* Check that all welding and hot work is complete on both sides of surface to which deck covering is to be applied.
* Check that areas to be covered by deck covering are free of rust, grease, oil, scale, loose paint or other extraneous matter before any deck covering is installed.
* Check that deck has been sanded smooth to remove localized high points and rough spots that could show through deck covering after installation.
* Verify that surface of deck prior to installation of underlayment or deck covering meets fairness criteria of Ingalls Shipbuilding work instruction SSW Q4056.
* Verify that deck is clean and proper primer paint is applied.
* Verify that the environmental conditions (including air and surface temperatures and surface temperature relative to the dew point) are in accordance with the deck coating manufacturer’s recommendations. This information can be found on the deck coating label. Environmental conditions should be checked every four hours to ensure compliance throughout the coating process.
 | X01 |
| **2** | Verify that all deck drains are properly plugged to prevent clogging with deck materials including underlayment/installation. | N01 |
| **3** | Verify that after installation of underlay material, latex mastic, terrazzo, ceramic tile, interior/ exterior seamless deck covering surfaces do not exceed 3/8" between high and low points for any 36" length, 1/4" in 24" length, or 1/8" in 12" length. | H01 |
| **4** | Verify that decks are faired by minimal use of underlay in way of laps, rivet heads, depressions in deck plating, weld seams and similar conditions. Welds in excess of 1/16" high shall be ground down to not more than 1/16". | H01 |
| **5** | Verify that, where possible, the use of light weight underlayment (MIL-D-3135G, Type I, Dex-O-Tex Sub-Coat #1 or Equal) and underlay material for ceramic tile is resin based, MIL-D-3135G Type I, Class 2. | C06 |
| **6** | Verify that surface is sloped for drainage as required. | E05 |
| **7** | For underlayment, verify that surface is smooth and crack free. | C06 |
| **8** | For Latex Mastic and Terrazzo check that surface is dense, smooth, free of open pores, or gouges, cleaned and sealed, with 2" to 4" high cove molding installed. | C06 |
| **9** | Check that color is correct as specified. | C06 |

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| --- | --- | --- |
| **10** | Verify that there is uniform thickness of mastic/Terrazzo with a minimum of at least 1/4" thick above the steel deck. | E05 |
| **11** | Check that surfaces are free of cracks, voids, holidays, and that surfaces are adequately covered with the material. | C06 |
| **12** | For Slip Resistant Deck Covering check the following* Check that materials are applied to the thickness specified by drawing (1/32" to 1/16").
* Check that the application is across all welds, but longitudinally in areas other than welds.
* Check that top coating is not used on slip resistant deck covering.

Note: Color topping for visual landing aids marking and danger circles may be applied, provided that the color topping material is by the same manufacturer as the slip resistant deck covering. | C06 |
| **13** | For Unglazed Porcelain Ceramic Tile check the following.* Check that tiles are 1/4" thick standard grade one inch squares, and that pattern and color are correct.
* Check that formed cove base (approximately 4" high) is sealed with epoxy grout as required.
* Verify that the adhesive and grout being used is the proper type.
 | C06 |
| **14** | For Deck Tile/Stratica installation check the following.* Check that free edges are water-proofed with beading sealer when required.
* Check that tiles fit flush at weld seams adjacent to vertical surfaces.
* Check that tiles are thoroughly secured to the deck surface on underlayment, with all tiles butted tight against each other at time of installation.
* Check that tiles are free of gouges. Excessive adhesive shall be removed from tile outer surfaces.
 | C06 |
| **15** | For installation of Electrical Grade Mat or Sheet (EGM/EGS) check the following.* Check that exposed corners of mats are rounded.
* Check that covering is lying flat and is free of damage and excess adhesive.
* Check that sheet coverings are butted tightly against each other and flush and fit against vertical surfaces. For EGS, heat seam all butts and seams and utilize bead sealer around perimeter and penetrations. For EGM, utilize di-electric tape (3M Scotchrap No. 5) for seams.
* Check that where seams occur in portable mats, the seams are sealed on the underside with 20 mil thick (PVC) tape.
* Check that a 36" minimum width of covering is installed in way of insulated work benches.

Note: No seams shall be within 3 feet of electrical/electronic equipment, panels and workbenches. If this is unavoidable, seams shall be heat welded or chemically sealed to provide a continuous surface free of seams, craters, or porosities. | C06 |
| **16** | For installation of carpet check the following.* Check that carpet is cemented to deck or underlay without use of padding and is the color specified.
* Check that installation is bulkhead to bulkhead and neatly trimmed around all permanently installed enclosed furniture.
* Check that material is fit tightly against all bulkheads and equipment, and any seams are butted tightly to each other.
* Check that no adhesive is on the surface of the carpet.
* Check that metal carpet strips are installed on the abutting edges of other deck covering materials.
 | C06 |
| **17** | For installation of Slip Resistant Treads check the following.* Check for correct size of treads (6" x 24").
* Check that edges are sealed with beading sealer.
* Check that treads are free of paint.
 | C06 |
| **18** | For installation of Vinyl Sheets check the following.* Check that correct thickness of material is installed.
* Check that material is securely installed with no adhesive on exposed surfaces.
* Check that installation is free of humps and wrinkles.
 | C06 |
| **19** | For Interior/Exterior Seamless Deck covering and Interior Seamless deck covering for panels check the following.* Check that coating is dense, smooth, free of open pores, cleaned and sealed.
* Verify from subcontractor's records that correct thickness is installed.
 | C06 |
| **20** | Interior Seamless Deck covering for panels verify the following.* Verify application of edge sealing compound (Dynatron Bondo TT-F-003220 or equal).
* Verify di-electric tape (3M Scotchrap No. 5) 20 mils thick over the top edge of support angles at panel seams.
* Verify installation of permanent fasteners and potted ferrules.
 | C06 |
| **21** | For installation of Synthetic Rubber Compound check the following.* Check that material is installed with staggered seams, two 1/16" thick layers.
* Check that material is tightly adhered to substrate with no evidence of humps, depressions or ripples.
* Check that seams are tightly abutted to each other and to surrounding structure.
 | C06 |
| **22** | Prior to installation of Quarry Tile, check that deck penetrations and drain installations are complete. Deck drain penetration height should be at least 3/4" high. | E05 |
| **23** | Check that epoxy underlayment is level to the deck and fully cured prior to installation of tile. | C06 |
| **24** | For installation of Quarry Tile check the following* Check to ensure proper mixing of epoxy glue.
* Check application of epoxy glue to ensure proper coverage.
* Check that tiles are of the style and grain as specified by the customer.
* Check that tiles are set utilizing a pattern rack and rubber hammer where possible, repeating the process until the field is laid.
* Check that dry fit around legs of equipment and edge installation are performed the following day if feasible, without damaging the tile.
 | X13 |
| **25** | For installation of Cove Base for Quarry Tile check the following.* Check that coves are installed using the same epoxy compound as the deck.
* Check blast profile of shower coamings after vacuum blast in way of ARC cove treatment.
 | C06 |
| **26** | For grouting of Quarry tile check the following.* Check that grouting is not performed until tiles have set 24 hours.
* Check that grout is mixed in accordance with manufacturing instructions.
* Check for adequate installing of grout in tile joints.
* Check that excess grout is removed and the overall surfaces are properly cleaned.
 | C06 |
| **27** | Verify from objective quality evidence or on-site observation that the correct paint coating system is applied in the compartment prior to the installation of insulation. (Refrigeration spaces) | C04 |
| **28** | Verify that overhead, bulkhead and deck support clips are installed per drawing requirements. (Refrigeration spaces) | X13 |
| **29** | Check completed welding for appearance, removal of slag, splatter and arc strikes. (Refrigeration spaces) | H09 |
| **30** | Check that all hot work is complete on both sides of overhead, bulkhead and deck surfaces prior to the installation of insulation. (Refrigeration spaces) | X01 |
| **31** | Verify that the wood to be used for furring and framing is the proper type and has been dried to the proper moisture content (12% ± 3%) prior to installation. (Refrigeration spaces) | X04 |
| **32** | Check that the wood furring and framing is installed as per drawing requirements. (Refrigeration spaces) | X13 |
| **33** | Check that fasteners are of correct material as required by the drawing and that none are loose or missing. (Refrigeration spaces) | P02 |
| **34** | Check that plywood sheathing is installed as per drawing requirements (DDG Overhaul only). (Refrigeration spaces) | X13 |
| **35** | Check that all wood that is faired, bored or cut, has been heavily brush coated with preservative MIL-W-18142 on the affected areas. (Refrigeration spaces) | C04 |
| **36** | Check that the insulation is approved polyurethane foam, MIL-I-24172, and is as specified and installed per drawing requirements. (Refrigeration spaces) | S07 |
| **37** | Check that the density of the insulation is per drawing requirements. (Refrigeration spaces) | S07 |
| **38** | Check that the metal sheathing is the correct material and is installed per drawing requirements. (Refrigeration spaces) | X04 |
| **39** | Check that overhead and bulkhead sheathing lap joints have silicon sealant applied per drawing requirements. (Refrigeration spaces) | X13 |
| **40** | Check fit-up of deck sheathing is satisfactory to minimize distortion prior to welding out. (Refrigeration spaces) | E05 |
| **41** | Check deck sheathing after welding out to ensure any distortion is within acceptable limits. (Refrigeration spaces) | H01 |
| **42** | Check to ensure that deck sheathing and bulkheads up to 12" up from the deck have been welded watertight. (Refrigeration spaces) | H09 |
| **43** | Check that arrangement of shelving, cooling coils and cooling coil protection are installed per drawing requirements. (Refrigeration spaces) | X13 |
| **44** | Check that fixed bulkhead protective battens are installed per drawing requirements. (Refrigeration spaces) | S08 |
| **45** | Check that deck and overhead gratings are properly installed and that deck gratings are stamped per drawing and compartment diagram requirements. (Refrigeration spaces) | E05 |
| **46** | Check that doors fit properly and seal correctly, and that door safety devices are installed and operate properly. (Refrigeration spaces) | E05 |
| **47** | Check to ensure that there are no rough or sharp edges. (Refrigeration spaces) | H06 |
| **48** | Check to ensure that all cracks which may harbor dirt or vermin are correctly sealed. (Refrigeration spaces) | X13 |
| **49** | Check all drawing details and general notes to ensure that all affecting the fabrication have been complied with. (Refrigeration spaces) | X13 |
| **50** | Verify that disinfecting has been accomplished per SSW 0503-02. Forward information to Quality Engineering for CDRL submittal. (Refrigeration spaces) | X13 |
| **51** | Check CO2/HALON pipe system to ensure it is installed in accordance with drawing and good shipbuilding practices. (Fixed CO2/HALON Fire Extinguishing System) | X13 |
| **52** | Check that piping run is installed to avoid low points and pockets. (Fixed CO2/HALON Fire Extinguishing System) | F22 |
| **53** | Check that cylinders are installed to facilitate removal for periodic weighing and inspection. (Fixed CO2/HALON Fire Extinguishing System) | EN4 |
| **54** | Check that nozzles are arranged to give uniform gas distribution in all areas of the protected compartment. (Fixed CO2/HALON Fire Extinguishing System) | F22 |
| **55** | Check that controls for these systems are located outside of the compartment protected; one adjacent to the access and one at a position which will remain tenable with a fire in the compartment along the route of egress from the space. (Fixed CO2/HALON Fire Extinguishing System) | EN4 |
| **56** | Check to ensure that where egress from the space is through a trunk, that the remote control station shall be located outside the trunk. (Fixed CO2/HALON Fire Extinguishing System) | E05 |
| **57** | Check that carbon dioxide/HALON equipment installed in any one ship is furnished by the same manufacturer to ensure inter-changeability of parts and cylinders. (Fixed CO2/HALON Fire Extinguishing System) | X04 |
| **58** | Check that Contractor’s / Subcontractor’s inspection process is in compliance with it’s internal inspection procedures and that required records and product quality are in compliance. | X13 |
| **59** | Where accessible, inspect system internals for cleanliness and weld joint quality. | P07 |