

**ORDER FOR SUPPLIES OR SERVICES**

**IMPORTANT: Mark all packages and papers with contract and/or order numbers.**

|   |                |   |  |   |                |  |
|---|----------------|---|--|---|----------------|--|
| 1. DATE OF ORDER<br>12/09/2009  |                | 2. CONTRACT NO. (If any)<br>DTMA1H10001     |  | 6. SHIP TO: J. Taddia   |                |  |
| 3. ORDER NO.<br>GAACTM10011   |                | 4. REQUISITION/REFERENCE NO.<br>PRSAR100213 |  | a. NAME OF CONSIGNEE<br>T.S. ENTERPRISE   |                |  |
| 5. ISSUING OFFICE (Address correspondence to)<br>DOT/Maritime Administration, Atlantic Division Acquisition<br>Office of Acquisition, MRG-7200<br>7737 Hampton Boulevard, Building 19, Suite 300<br>Norfolk VA 23505  |                |   |  | b. STREET ADDRESS<br>c/o Massachusetts Maritime Academy 101 Academy Drive   |                |  |
|   |                |   |  | c. CITY<br>Buzzards Bay   | d. STATE<br>MA | e. ZIP CODE<br>02532   |
| 7. TO:<br>a. NAME OF CONTRACTOR   |                |   |  | f. SHIP VIA   |                |  |
| b. COMPANY NAME<br>Crowley Technical Management, Inc.   |                |   |  | 8. TYPE OF ORDER  |                |  |
| c. STREET ADDRESS<br>9487 REGENCY SQ BLVD   |                |   |  | <input type="checkbox"/> a. PURCHASE<br>REFERENCE YOUR: _____<br>Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated. |                | <input type="checkbox"/> b. DELIVERY - Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract. |
| d. CITY<br>JACKSONVILLE   | e. STATE<br>FL | f. ZIP CODE<br>32225-8126                   |  | 10. REQUISITIONING OFFICE<br>DOT/Maritime Administration, South Atlantic Region   |                |  |
| 9. ACCOUNTING AND APPROPRIATION DATA<br>2009 - - X4303 - SPR 809 - 19 - AUKD - Y - 0000 - 000000 - 70 - 0919AU - KD - Y000 - 25431 - 6100 - 6600 -  |                |   |  | 11. BUSINESS CLASSIFICATION (Check appropriate box(es))   |                |  |
| <input type="checkbox"/> a. SMALL <input checked="" type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED<br><input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. EMERGING SMALL BUSINESS |                |   |  | 12. F.O.B. POINT<br>Destination   |                |  |
| 13. PLACE OF  |                | 14. GOVERNMENT B/L NO.                      |  | 15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)   |                | 16. DISCOUNT TERMS   |
| a. INSPECTION   | b. ACCEPTANCE  |   |  |   |                |  |

17. SCHEDULE (See reverse for Rejections)

| ITEM NO.<br>(a) | SUPPLIES OR SERVICES<br>(b) | QUANTITY ORDERED<br>(c) | UNIT<br>(d) | UNIT PRICE<br>(e) | AMOUNT<br>(f) | QUANTITY ACCEPTED<br>(g) |
|-----------------|-----------------------------|-------------------------|-------------|-------------------|---------------|--------------------------|
|                 | <b>SEE LINE ITEM DETAIL</b> |                         |             |                   |               |                          |

|                                     |   |                           |                      |  |                                   |
|-------------------------------------|---|---------------------------|----------------------|--|-----------------------------------|
| SEE BILLING INSTRUCTIONS ON REVERSE | 18. SHIPPING POINT  | 19. GROSS SHIPPING WEIGHT | 20. INVOICE NO.      |  | 17(h) TOT.<br>(Cont. pages)       |
|                                     | 21. MAIL INVOICE TO: Christy Remington                                    |                           |                      |  |                                   |
|                                     | a. NAME<br>DOT/ Enterprise Services Center (ESC) OFO/FAA, Oklahoma City   |                           |                      |  |                                   |
|                                     | b. STREET ADDRESS (or P.O. Box)<br>MARAD A/P Branch, AMZ-150 PO Box 25710 |                           |                      |  |                                   |
|                                     | c. CITY<br>Oklahoma City  | d. STATE<br>OK            | e. ZIP CODE<br>73125 |  | 17(i) GRAND TOTAL<br>\$464,578.00 |

|  |   |
|--|---|
| 22. UNITED STATES OF AMERICA BY (Signature)<br> | 23. NAME (Typed)<br>Milton G. Spears<br>TITLE: CONTRACTING/ORDERING OFFICER |
|--|---|



**ORDER FOR SUPPLIES OR SERVICES  
SCHEDULE - CONTINUATION**

PAGE NO.  
3 of 3

**IMPORTANT: Mark all packages and papers with contract and/or order numbers.**

|                             |                             |                          |
|-----------------------------|-----------------------------|--------------------------|
| DATE OF ORDER<br>12/09/2009 | CONTRACT NO.<br>DTMA1H10001 | ORDER NO.<br>GAACTM10011 |
|-----------------------------|-----------------------------|--------------------------|

| ITEM NO.<br>(a) | SUPPLIES OR SERVICES<br>(b)  | QUANTITY<br>ORDERED<br>(c) | UNIT<br>(d) | UNIT<br>PRICE<br>(e) | AMOUNT<br>(f) | QUANTITY<br>ACCEPTED<br>(g) |
|-----------------|--|----------------------------|-------------|----------------------|---------------|-----------------------------|
| 0001            | <p>QUARTERDECK MODS</p> <p>Within the funds limit authorized, the General Agent is to accomplish modifications to the TS Kennedy quarterdeck as identified in Crowley Liner Services specification entitled "TS Kennedy Quarterdeck Work Specification" dated July 20, 2009.</p> <p>These expenses include hazardous waste disposal, trash disposal, warehousing support activities, material handling, crew support activities, oil boom deployment and maintenance, pest control, reimbursable staff travel, repair work considered necessary, mandatory or essential to the safety of shipboard personnel, the safe operation of the vessel or affecting the readiness of the vessel.</p> <p>All completed work shall be to the satisfaction of the Contracting Officer's Technical Representative.</p> <p align="center"><i>Start Date</i>                      <i>End Date</i><br/>12/01/2009                      01/08/2010</p> <p>Reference Requisition: PRSAR100213</p> | 1.00                       | JOB         | 464,578.000          | 464,578.00    |                             |

**TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17i)** ➡ \$464,578.00

**T/S KENNEDY  
QUARTERDECK  
WORK SPECIFICATION**



**Crowley Technical Management  
9487 Regency Square Blvd. North  
Jacksonville, Florida 32225  
Tel: (904) 727-2200**

Date: 20 July 2009

## 1. ABSTRACT.

**1.1.** The intent of this specification is to modify the T.S. Kennedy Quarter Deck on Main Deck between frames 107 and 112 to provide a clear Quarter Deck for ship functions, including renewal of all the jointer work and overhead panels in the area. This shall entail relocating the Auxiliary Machinery Room (AMR) supply and exhaust ducting, currently located approximately 5 feet to starboard and port of centerline respectively, between frames 109 and 110, approximately 52” aft to sit flush against the Quarterdeck transverse after bulkhead at frame 112. The port and starboard entrances to the quarterdeck from the weather deck will also be modified to install a new environmental door and a new watertight door outboard of the environmental door. The DC Locker and Storage on port side will be reduced in size to accommodate modifications. Port side bulwark to be modified to have a gangway access similar to the starboard side gangway access.

## 2. R E F E R E N C E S .

### 2.1. General References.

- 2.1.1. National Shipbuilding Research Program (NSRP) 0354, The Standard Practice for the Selection and Application of Marine Deck Coverings.
- 2.1.2. Safety of Life at Sea, SOLAS II-2 Regulations 23, 24, 25 and 26.
- 2.1.3. Society of Naval Architects and Marine Engineers, SNAME T&R Bulletin No. 4-7.
- 2.1.4. American Society for Testing Materials (ASTM), F 722, Standard Specification for Welded Joints for Shipboard Piping Systems.
- 2.1.5. American Society for Testing Materials (ASTM), F 708, Practice for Design and Installation of Rigid Pipe Hangers.
- 2.1.6. U.S. Coast Guard regulations, 46 CFR Subchapter J, Part 110-113, Electrical Engineering.
- 2.1.7. American Bureau of Shipping Rules for Building and Classing Steel Vessels.
- 2.1.8. Illuminating Engineering Society of North America, IESNA RP-12-97 Marine Lighting.
- 2.1.9. Steel Structures Painting Council Standards, SSPC-SP 10-85 (Near White Metal Blast).
- 2.1.10. American Society for Testing and Materials (ASTM), F 1053, Standard Guide for Steel Hull Construction Tolerances.
- 2.1.11. American Society for Testing and Materials (ASTM), F1 166, Standards Practice for human Engineering Design for Marine Systems, Equipment, and Facilities.
- 2.1.12. MARAD Coating Guidelines, latest edition.

### 2.2. Guidance Drawings.

2.2.1. The Contract Conceptual Drawings are for guidance only. They disclose the basic technical information and performance requirements necessary for a Contractor to complete the detailed design required to develop and produce a working drawing. The Contractor shall verify and confirm all measurements prior to fabrication and installation. All dimensions shown are based on reference drawings and shall be confirmed prior to fabrication. All welding and weld sizing shall be in accordance with ABS Rules and all workmanship, materials and components shall conform to ABS and 46 CFR requirements.

JMS drawing 09-120-29 1 has been generated by JMS for reference within this specification.

### 2.3. List Of Materials

2.3.1. In conjunction with the following, refer to pertinent Guidance Drawings for materials and specifications.

## 3. ITEM LOCATION/DESCRIPTION.

### 3.1. Location.

3.1.1. Main Deck, frames 107 to 119.

### 3.2. Description.

3.2.1. The T.S. Kennedy intends to modify the arrangement of the Quarterdeck, located on main deck between frames 107 and 112. The modification will relocate the existing AMR supply and exhaust ducting currently located approximately 5' to starboard and port of centerline respectively, between frames 109 and 110. The ducting will be relocated approximately 52" aft, between frames 111 and 112 so that they are against the transverse bulkhead at frame 112.

3.2.2. The existing port and starboard entrances to the quarterdeck will be modified to add a vestibule at both entrances. A new watertight door will be installed outboard of the vestibule opening out onto the weather deck. An environmental door will be installed inboard of the vestibule.

3.2.3. The relocation of the AMR supply and exhaust ducting and the modification to the quarterdeck entrance will require additional modifications including, but not limited to, relocating the forward MSD vent piping and the Fuel Handling Room ventilation ducting, as well as modifying existing joiner, doorways, decks, bulkheads, overheads, and electrical systems.

3.2.4. Modify the port side, main deck bulwark for gangway attachment, to be similar but opposite that on stbd. Side [approx. fr.](#) 113-114.

## 4. OWNER FURNISHED EQUIPMENT/MATERIAL.

4.1. GFE. None.

4.2. GFM. Existing Conceptual/Design Drawings from JMS Naval Architects & Salvage Engineers.

4.3. GFS. Normal vessel lighting in area only.

## 5. STATEMENT OF WORK.

### 5.1. Modification of the T.S. Kennedy Quarterdeck

#### 5.1.1. Arrangement/Outfitting.

##### 5.1.1.1. Removals.

5.1.1.1.1. All existing ship's plaques, pictures, and memorabilia including, but not limited to, the existing Ship's Plaque, located on centerline along the Quarterdeck after bulkhead at frame 112, shall be removed by ship's force.

5.1.1.1.2. All joiner work installed on the Quarterdeck, on Main Deck between frames 107 and 112 shall be removed, forward, aft, port and stbd. This is including, but not limited to, joiner surrounding AMR supply and exhaust ducting, joiner along Quarterdeck after bulkhead at frame 112 and forward bulkhead at frame 107 both extending approximately 17' to port and starboard, and joiner along the quarterdeck port and starboard longitudinal bulkheads located approximately 28' to port and starboard of centerline respectively, between frames 108 and 111.

5.1.1.1.3. Joiner along the Watch Office, 1-105-3, forward transverse bulkhead at frame 108 and starboard outboard longitudinal bulkhead located approximately 30 feet to starboard of centerline, between frames 105 and 108, shall be removed.

5.1.1.1.4. Joiner along the Regimental Office forward transverse bulkhead at frame 108 and port outboard longitudinal bulkhead located approximately 30 feet to port of centerline, between frames 105 and 108, shall be removed.

5.1.1.1.5. All removed joiner material to be carefully removed and given to vessel C/E to be retained for spares. Material to be stowed by vessel crew. (see 7.2.1)

5.1.1.1.6. Remove all deck tiling within the boundaries of the Quarterdeck. Space is approximately 574 square feet.

5.1.1.1.7. Carefully remove all overhead paneling in the vicinity of the Quarterdeck. Space is approximately 574 square feet and give to C/E to be retained for spares. Material to be stowed by vessel crew. (see 7.2.1)

5.1.1.1.8. All insulation on Upper Tween Deck and Main Deck in way of deck and overhead modifications described in this specification shall be removed.

#### 5.1.1.2. Modifications/Relocations.

- 5.1.1.2.1. The existing emergency key holder located on Main Deck in passageway 1-112-4 at frame 115 approximately 10' port of centerline approximately 5' above the deck shall be relocated aft 48".
- 5.1.1.2.2. Existing transverse joiner bulkhead located between frames 115 and 116, 5' to port of centerline, separating DC Locker 1-112-2 and Storage 1-115-2 shall be relocated 24" aft.
- 5.1.1.2.3. Existing joiner door to DC Locker 1-112-2 located in passageway 1-112-4 at frame 113 shall be relocated 48" aft.
- 5.1.1.2.4. Existing joiner surrounding DC Locker 1-112-2 shall be modified such that the DC Locker extends forward from the relocated joiner bulkhead between frames 116 and 117 to frame 114.

#### 5.1.1.3. Installations.

- 5.1.1.3.1. The Quarterdeck, located on Main Deck between frames 107 and 112 shall have a Terrazzo, high buff, epoxy flooring system with integral cove edges installed in accordance with Para 7.4.5 and Reference 2.1.1. Make/model, color, and pattern shall all be submitted for approval by the vessel Master and Crowley Port Engineer.
  - 5.1.1.3.1.1. Final deck shall be perfectly smooth and flat. Deck level shall have a maximum 1/16" unevenness over 3 ft. span. (Using a yard stick and feeler gauge and measure in all directions.) Final deck finish must be high glaze and properly sealed as per manufacturers instructions.
- 5.1.1.3.2. The Contractor shall provide and install overhead ceiling panels on the Quarterdeck, located on Main Deck between frames 107 and 112. Space is approximately 574 square feet.
  - 5.1.1.3.2.1. The Contractor shall be responsible for providing and installing all hangers and fittings associated with installation of the overhead panels.
  - 5.1.1.3.2.2. The finished side of the overhead panels shall be such that the clear vertical height between the finished deck and the overhead is 6'-1 1".
  - 5.1.1.3.2.3. Overhead ceiling panels shall be JMMS type C-74, B-0 class, hard panel or Crowley approved equal.
- 5.1.1.3.3. Contractor shall install new joiner paneling around all interior spaces of quarterdeck area, including but not limited to relocated ducting, vents, pipes, diesel exhaust trunk, etc.

5.1.1.3.3.1. Contractor to renew door panels on the WTD cabinet with new joiner material or Owner's Rep. approved panel doors.

5.1.1.3.3.2. Joiner paneling to be marine grade, approved by vessel Master and Crowley P/E as to material and color

5.1.1.3.4. Contractor shall install new joiner paneling in the Watch Office 1-105-3, from entry door along the interior starboard deckhouse to side shell and forward transverse (outbd.) bulkhead. Joiner shall be installed around the newly installed window in accordance with Sheet 6 of JMS drawing 09-120-291.

5.1.1.3.4.1. Remove PA system panel for new work and reinstall when joiner work is complete.

5.1.1.3.5. Contractor shall install joiner paneling in the Regimental Office along the interior port deckhouse from entry door to side shell and forward transverse (outbd.) bulkhead. Joiner shall be installed around the newly installed window in accordance with Sheet 6 of JMS drawing 09-120-291.

Note: Coordinate with Crowley Port Engineer and vessel Officers, (Capt., C/M, C/E) to obtain approval of all materials and colors for joiner, overhead and deck materials, etc. as soon as possible after award as lead time may be critical.

## 5.1.2. Structural.

### 5.1.2.1 .Removals.

5.1.2.1.1. Crop and remove both P & S existing water-tight doors.

5.1.2.1.1.1. This should only be done when areas can be secured from weather, i.e. when new "dog house" with new WTD has been installed.

5.1.2.1.1.2. Cropped doors are to be carefully removed and delivered to vessel C/E to be retained as spares. Vessel will attend to storage of removed doors. (see 7.2.1)

### 5.1 .2.2. Modifications/Relocations.

5.1.2.2.1. Existing 30" x 77" door to passageway 1-112-4, located in the Main Deck transverse bulkhead at frame 112 approximately 10' to port of centerline, shall be removed. The existing bulkhead penetration shall be sealed using 1/4" Grade A plate and 3" x 2" x 1/4" L stiffening.

5.1.2.2.1.1 All removed doors to be retained by vessel for spares. (see 7.2.1)

5.1.2.2.2. The steel plate and stiffening on the Main Deck stair tower 3-112-0 port side longitudinal bulkhead between frames 112 and 114 shall be cropped out in way of a rough opening suitable for a

new 30" x 77" A-60 fire door. The rough opening shall be no larger than necessary to accommodate the specified door. Adjacent structural stiffening shall be suitably modified to accommodate the new door. This shall include moving/relocating adjacent vertical stiffening and headers and footers where appropriate. Handrails within the stair tower shall be cropped/capped and suitably modified to accommodate the new opening size.

5.1.2.2.3. The 48" x 77" A-60 fire door, shall be cropped out from its existing location in the Main Deck transverse bulkhead at frame 112, approximately 8' to starboard of centerline. The existing bulkhead penetration shall be sealed using 1/4" Grade A plate and 3" x 2" x 1/4" L stiffening.

5.1.2.2.4. The 48" x 77" A-60 fire door shall be cropped out from its existing location in the Main Deck transverse bulkhead at frame 112, approximately 1' to port of centerline. The existing bulkhead penetration shall be expanded to starboard such that the bulkhead is cropped out in way of a rough opening suitable for a new 56" x 77" A-60 double fire door. The rough opening shall be no larger than necessary to accommodate the specified door. Adjacent structural stiffening shall be suitably modified to accommodate the new door. This shall include moving/relocating adjacent vertical stiffening and headers and footers where appropriate.

5.1.2.2.5. The Main Deck steel plate and stiffening between frames 110 and 112, approximately 5' to starboard of centerline, shall be cropped out in way of a rough opening suitable for 70" x 20" HVAC ducting. The rough opening shall be no larger than necessary to accommodate the specified HVAC ducting. Adjacent structural stiffening shall be suitably modified to accommodate the ducting. This shall include moving/relocating adjacent horizontal stiffening and headers and footers where appropriate. Cropped stiffeners shall be tied into adjacent structure via opening headers. The rough opening shall be faced with a 4" x Y2" face plate extending 2" above the deck. Corners shall be radiused 3". Opening will need to be bigger than the duct to accommodate radius. A Y2" doubler plate shall be installed around the cutout extending out 10" all around with 3/8" fillets. Corners shall be radiused 3".

5.1.2.2.6. The Main Deck steel plate and stiffening between frames 110 and 112, approximately 5' to port of centerline, shall be cropped out in way of a rough opening suitable for 70" x 20" HVAC ducting. The rough opening shall be no larger than necessary to accommodate the specified HVAC ducting. Adjacent structural stiffening shall be suitably modified to accommodate the ducting. This shall include moving/relocating adjacent horizontal stiffening

and headers and footers where appropriate. Cropped stiffeners shall be tied into adjacent structure via opening headers. The rough opening shall be faced with a 4" x Y2" face plate extending 2" above the deck. Corners shall be radiused 3". Opening will need to be bigger than the duct to accommodate radius. A Y2" doubler plate shall be installed around the cutout extending out 10" all around with 3/8" fillets. Corners shall be radiused 3".

5.1.2.2.6.1. This is an A class deck penetration and should be to all applicable requirements.

5.1.2.2.7. All existing deck and bulkhead penetrations for relocated ducting shall be sealed using plate and stiffening in kind with the surrounding structure. The sealed penetrations shall be fair and flush with the surrounding structure. No doublers or lapped plate shall be permitted.

5.1.2.2.8. In the Watch Office 1-105-3, the radiused steel plate and stiffening on the starboard deckhouse side shell shall be cropped out between frames 107 and 108, approximately 42" above the deck, in way of a rough opening suitable for a 22" X 28" window. The rough opening shall be no larger than necessary to accommodate the specified window. Adjacent structural stiffening shall be suitably modified to accommodate the new window. This shall include moving/relocating adjacent vertical stiffening and headers and footers where appropriate. Refer to Sheet 2 of JMS drawing 09-120-291.

5.1.2.2.9. In the Regimental Office, the radiused steel plate and stiffening on the port deckhouse side shell shall be cropped out between frames 107 and 108, approximately 42" above the deck, in way of a rough opening suitable for a 22" X 28" window. The rough opening shall be no larger than necessary to accommodate the specified window. Adjacent structural stiffening shall be suitably modified to accommodate the new window. This shall include moving/relocating adjacent vertical stiffening and headers and footers where appropriate. Refer to Sheet 2 of JMS drawing 09-120-291.

5.1.2.2.10. The existing watertight door installed in the Main Deck port side deckhouse side shell between frames 108 and 110 approximately 28' to port of centerline shall be cropped out from its existing location.

5.1.2.2.11. The existing bulkhead penetration for the watertight door removed in Para 5.1.2.2.10 shall be modified to fit a 42" x 78" environmental door. Steel plate and stiffening shall be modified such that the rough opening is no larger then necessary to

accommodate the specified door. This shall include moving/relocating/installing adjacent vertical stiffening and headers and footers where appropriate.

5.1.2.2.12. The existing watertight door installed in the Main Deck starboard side deckhouse side shell between frames 108 and 110 approximately 28' to starboard of centerline shall be cropped out from its existing location. (see 7.2.1)

5.1.2.2.13. The existing bulkhead penetration for the watertight door removed in Para 5.1.2.2.11 shall be modified to fit a 42" x 78" environmental door. Steel plate and stiffening shall be modified such that the rough opening is no larger than necessary to accommodate the specified door. This shall include moving/relocating/installing adjacent vertical stiffening and headers and footers where appropriate.

NOTE: Doublers which must be installed through a vertical bhd., the areas must be cropped to allow doubler to fit and be welded continuous all around. The penetrated bhd. must then be seal welded closed. V-box or water test of welding is required, USCG, ABS may be required. Crowley P/E must witness and approve of all testing. All requirements for "Hot Work" must be followed

5.1.2.2.14. The existing door located behind the joiner in the transverse bulkhead on Main Deck at frame 112 on centerline shall be removed. (see 7.2.1)

5.1.2.2.15. The existing vessel bulwark on the port side shall be modified between frames 110 and 112 to create a gate as currently installed in the vessel's starboard side bulwark. The bulwark shall be cropped out and fitted with proper hinges and a sliding lock.

#### 5.1 .2.3.Installations.

5.1.2.3.1. A new 30" x 77" A-60 Fire door shall be installed in the Main Deck stair tower 3-112-0 port side transverse bulkhead, between frames 112 and 114, opening outboard in the inboard most bulkhead. The fire door shall be installed in the bulkhead such that there is a 1 inch sill above the finished floor in the passageway. See Sheet 2 of JMS drawing 09-120-291.

5.1.2.3.2. A new 56" x 77" A-60 double fire door shall be installed in the rough opening cropped out in Para 5.1.2.2.4, such that it opens in the forward direction. The fire door shall be installed in the bulkhead such that there is a 1 inch sill above the finished floor in the passageway. See Sheet 2 of JMS drawing 09-120-291. The door shall be installed with a manufacturer provided mechanical door coordinator.

5.1.2.3.3. New 22" X 28" windows shall be installed in the rough openings cropped out in Para 5.1.2.2.8 and Para 5.1.2.2.9. The windows shall be installed with a hinged, interior dead light cover. See Sheet 2 of JMS drawing 09-120-291.

5.1.2.3.3.1. Dead Light Cover shall be provided with closing dampers and hold open hook. Hook arm to be attached to secure overhead area (overhead panels are not acceptable) and loop to be securely attached to dead light. Hook and loop to be stainless steel.

5.1.2.3.4. A new 42" x 78" environmental door shall be installed in the rough opening cropped out in Para 5.1.2.2.10.1. The door shall be installed such that a 1" sill is above the finished floor on the quarterdeck and swings outboard and aft. Door shall be provided with hydraulic closer and hold open hook. Hook arm to be attached to secure bhd. area and loop to be securely attached to door. Hook and loop to be stainless steel.

5.1.2.3.5. A new 42" x 78" environmental door shall be installed in the rough opening cropped out in Para 5.1.2.2.11.1. The door shall be installed such that a 1" sill is above the finished floor on the quarterdeck and swings outboard and aft. Door shall be provided with hydraulic closer and hold open hook. Hook arm to be attached to secure bhd. area and loop to be securely attached to door. Hook and loop to be stainless steel.

5.1.2.3.6. A vestibule shall be installed outboard of the existing house structure, approximately 28' to port of centerline between frames 108 and 110. See Detail 1 on Sheet 5 of JMS drawing 09-120-291.

5.1.2.3.6.1. A new longitudinal bulkhead, 93-1/2" high, shall be installed 31'- 6" to port of centerline such that it extends 56-7/8" in length from frame 108 towards frame 110. The bulkhead shall be 3/8" ABS Grade A plate with 4" x 3" x 5/16" L stiffening. A 44"x 68" rough opening shall be cropped out of the steel plate as shown on Sheet 5 of JMS drawing 09-120-291.

5.1.2.3.6.2. A new transverse bulkhead, 90" high, shall be installed at frame 108 extending outboard 45" in length, connecting with the longitudinal bulkhead installed in Para 5.1.2.3.6.1 and the existing deckhouse side shell, standing 28' to port of centerline. The bulkhead shall be 3/8" Grade A plate with 4" x 3" x 5/16" L stiffening.

5.1.2.3.6.3. A 44-5/8" x 60-1/4" steel overhead plate shall be installed on top of the bulkhead installed in Para 5.1.2.3.6.2 and connected to the bulkhead installed in Para 5.1.2.3.6.1. The overhead shall be installed such that it attaches to the

existing transverse bulkhead at frame 108 93" above the deck creating a 3 degree downward slope in the aft direction. The overhead shall be 3/8" ABS Grade A plate with 4" x 3" x 5/16" L stiffening.

5.1.2.3.6.4.A 5-1/4" x 93-1/2" ABS Grade A steel plate shall be installed at a 130 degree angle to the longitudinal bulkhead installed in Para 5.1.2.3.6.1. The bulkhead shall connect the existing transverse bulkhead at frame 108 with the longitudinal bulkhead installed in Para 5.1.2.3.6.1.

5.1.2.3.6.5.A new 42" x 66" TIMCO Marine Model T-104, 6-dog, quick acting watertight door, or Crowley approved equivalent, shall be installed in the rough opening described in Para 5.1.2.3.6.1. The door shall be such that it has a 15" sill and swings outboard and aft. Door shall be provided with a hold open hook. Hook arm to be attached to secure bhd. area and loop to be securely attached to door. Hook and loop to be stainless steel.

5.1.2.3.6.6.A runoff drain shall be installed approximately 3" above the door using 3"x 2"x 1/4" angle steel. The angle steel shall be installed in two 22" sections. Each section shall be installed with a 10 degree slope downward away from the door with the two sections joining approximately 5-3/8" above the midpoint of the watertight door.

5.1.2.3.7. A vestibule shall be installed outboard of the existing house structure, approximately 28' to starboard of centerline between frames 108 and 110. See Detail 1 on Sheet 5 of JMS drawing 09-120-291.

5.1.2.3.7.1.A new longitudinal bulkhead, 93-1/2" high, shall be installed 31'- 6" to starboard of centerline such that it extends 5-7/8" in length from frame 108 towards frame 110. The bulkhead shall be 3/8" ABS Grade A plate with 4" x 3" x 5/16" L stiffening. A 44"x 68" rough opening shall be cropped out of the steel plate as shown on Sheet 5 of JMS drawing 09-120-291.

5.1.2.3.7.2.A new transverse bulkhead, 90" high, shall be installed at frame 108 extending outboard 45" in length, connecting with the longitudinal bulkhead installed in Para 5.1.2.3.7.1 and the existing deckhouse side shell, standing 28' to starboard of centerline. The bulkhead shall be 3/8" ABS Grade A plate with 4" x 3" x 5/16" L stiffening.

5.1.2.3.7.3.A 44-5/8" x 60-1/4" steel overhead plate shall be installed on top of the bulkhead installed in Para 5.1.2.3.7.2 and connected to the bulkhead installed in Para 5.1.2.3.7.1. The

overhead shall be installed such that it attaches to the existing transverse bulkhead at frame 108 93" above the deck creating a 3 degree downward slope in the aft direction. The overhead shall be 3/8" ABS Grade A plate with 4" x 3" x 5/16" L stiffening.

5.1.2.3.7.4.A 5-1/4" x 93-1/2" ABS Grade A steel plate shall be installed at a 115 degree angle to the longitudinal bulkhead installed in Para 5.1.2.3.7.1. The bulkhead shall connect the existing transverse bulkhead at frame 108 with the longitudinal bulkhead installed in Para 5.1.2.3.7.1.

5.1.2.3.7.5.A new 42" x 66" TIMCO Marine Model T-104, 6-dog, quick acting watertight door, or Crowley approved equivalent, shall be installed in the rough opening described in Para 5.1.2.3.7.1. The door shall be such that it has a 15" sill and swings outboard and aft. Door shall be provided with a hold open hook. Hook arm to be attached to secure bhd. area and loop to be securely attached to door. Hook and loop to be stainless steel.

5.1.2.3.7.6.A runoff drain shall be installed approximately 3" above the door using 3"x 2"x 1/4" angle steel. The angle steel shall be installed in two 22" sections. Each section shall be installed with a 10 degree slope downward away from the door with the two sections joining approximately 5-3/8" above the midpoint of the watertight door.

### 5.1.3. Mechanicals/Fluids.

5.1.3.1 .Removals. None.

5.1.3 .2.Modifications/Relocations.

5.1.3.2.1. Forward MSD Unit Vent

5.1.3.2.1.1.The forward MSD unit vent pipe, currently penetrating the deck of Main Deck just forward of frame 112 approximately 10' to starboard of centerline, shall be relocated. The MSD vent pipe is currently routed through the Upper Tween Deck via the pipe trunk on Upper Tween Deck at frame 103 approximately 21' to starboard of centerline. The vent pipe is routed in the overhead of Upper Tween Deck, penetrating the Main Deck between frames 111 and 112, approximately 9' to starboard of centerline. See JMS drawing 09-120-291.

5.1.3.2.1.2.The existing MSD vent piping shall be cut back approximately 6 feet to starboard such that the vent pipe penetrates the Main Deck, between frames 111 and 112, approximately 13' to starboard of centerline as shown on Sheets 2-3 of JMS drawing 09-120-291.

- 5.1.3.2.1.3.A 1/2" doubler plate shall be installed around the new deck penetration for the MSD vent pipe such that it extends out 3" all around.
- 5.1.3.2.1.4.The existing MSD vent piping extending from the Upper Tween Deck to the Upper Deck shall be removed. All deck penetrations shall be sealed with plate and stiffening in kind with surrounding decks and overheads. The sealed penetrations shall be fair and flush with the surrounding structure. No doublers or lapped plate shall be permitted.
- 5.1.3.2.1.5.MSD Vent piping shall be 6" diameter seamless, ASTM-A53, schedule 40, steel. Fittings shall be butt welded, ASTM-A234, carbon steel. Flanges where required shall be steel, ASTM-A105, 150 lbs.
- 5.1.3.2.2. 1" ship's service air system piping located in the overhead of the Upper Tween Deck in passageway 2-112-2, penetrating the bulkhead at frame 119 approximately 7' from centerline and 8' off the deck shall be modified in accordance with JMS drawing 09-120-291. The piping shall be rerouted such that it turns 90 degrees to starboard and penetrates the longitudinal bulkhead at frame 113. The pipe shall be routed forward approximately 5' off centerline such that it penetrates the transverse bulkhead at frame 112 and connects to the existing 1" piping located 12" forward of frame 112, 12" to port of centerline. The rerouted piping shall maintain the existing piping's height off the deck. Existing penetrations shall be sealed with plate in kind with the surrounding bulkhead. New bulkhead penetrations shall be in accordance with applicable ABS and USCG regulations.
- 5.1.3.2.2.1.New piping to be hydro-tested to satisfaction of Regulatory Bodies and vessel C/E.
- 5.1.3.2.3. HVAC
- 5.1.3.2.3.1.Existing 70" x 20" AMR supply ducting located approximately 5' to starboard of centerline, penetrating the Upper Tween Deck between frames 111 and 112 and penetrating the Main Deck between frames 109 and 110 shall be modified. The AMR supply ducting shall be modified such that it penetrates the Upper Tween Deck between frames 111 and 112, as currently installed, and continues vertically, penetrating the Main Deck between frames 111 and 112 through the deck penetration installed in Para 5.1.2.2.5. and running flush against the bulkhead at frame 112. Above the drop ceiling, approximately 7' above the Main Deck, the HVAC ducting shall be routed forward 52" to connect to the existing HVAC AMR supply ducting,

penetrating the Upper Deck between frames 109 and 110. Refer to Sheets 2-4 of JMS drawing 09-120-291.

5.1.3.2.3.2. Existing 70" x 20" AMR exhaust ducting located approximately 5' to port of centerline, penetrating the Upper Tween Deck between frames 111 and 112 and penetrating the Main Deck between frames 109 and 110 shall be modified. The AMR exhaust ducting shall be modified such that it penetrates the Upper Tween Deck between frames 111 and 112, as currently installed, and continues vertically penetrating the Main Deck between frames 111 and 112 through the deck penetration installed in Para 5.1.2.2.6. and running flush against the bulkhead at frame 112. Above the drop ceiling to be installed, approximately 7' above the Main Deck, the HVAC ducting shall be routed forward 52" to connect to the existing HVAC AMR exhaust ducting, penetrating the Upper Deck between frames 109 and 110. Refer to Sheet 2-4 of JMS drawing 09-120-291.

5.1.3.2.4. Existing 12" diameter fuel room HVAC supply ducting located approximately 10' to starboard of centerline (outboard of the existing 70" x 20" HVAC supply ducting), penetrating the Upper Tween Deck between frames 111 and 112 and penetrating the Main Deck between frames 109 and 110 shall be modified. The fuel room supply ducting shall be modified such that it penetrates the Upper Tween Deck between frames 111 and 112, as currently installed, and continues vertically penetrating the Main Deck between frames 111 and 112. Above the drop ceiling to be installed, approximately 7' above the Main Deck, the HVAC ducting shall be routed forward 52" to connect to the existing HVAC fuel room supply ducting, penetrating the Upper Deck between frames 109 and 110. Refer to Sheets 2-4 of JMS drawing 09-120-291.

5.1.3.2.5. Existing 10" diameter fuel room HVAC exhaust ducting on Upper Tween Deck approximately 10' to starboard of centerline (outboard of the existing 70" x 20" HVAC supply ducting), penetrating the Upper Tween Deck between frames 111 and 112 and penetrating the Main Deck between frames 109 and 110 shall be modified. The fuel room exhaust ducting shall be modified such that it penetrates the Upper Tween Deck between frames 111 and 112, as currently installed, and continues vertically penetrating the Main Deck between frames 111 and 112. Above the drop ceiling to be installed, approximately 7' above the Main Deck, the HVAC ducting shall be routed forward 52" to connect to the existing HVAC fuel room exhaust ducting, penetrating the Upper Deck between frames 109 and 110. Refer to Sheets 2-4 of JMS drawing 09-120-291.

Note: Any insulation required is to be as per A class bhd.

5.1.3.2.6. The access hatch for the diesel generator exhaust pipe located on Main Deck between frames 111 and 112, approximately 15' to starboard of centerline, shall be relocated approximately 90 degrees such the access hatch faces forward. See Sheet 2 of JMS drawing 09-120-291.

#### 5.1 .3.3.Installations.

5.1.3.3.1. Drains shall be installed in the vestibules installed in Para 5.1.2.3.6 and Para 5.1.2.3.7. The drains shall be installed immediately forward of frame 110 approximately 31' to port and starboard of centerline respectively such the drain lies in the outer, after, most section of the vestibule.

5.1.3.3.2. Drain lines from the drains installed in Para 5.1.3.3.1 shall tie in to the existing gray water drain lines in the overhead of Upper Tween Deck between frames 109 and 110 approximately 28 to port and starboard of centerline.

5.1.3.3.2.1.Drains to be pitched down to drain without leaving any standing water.

5.1.3.3.2.2.Deck to be fitted with a self-sealing inverted cup deck drain fitting.

#### 5.1.4. Electrical.

5.1.4.1 .Removals. None.

#### 5.1 .4.2.Modifications/Installations.

5.1.4.2.1. The wireway extending transversely in the overhead of cadet berthing 2-92-1 just forward of frame 112 shall be relocated forward approximately 30" such that it is clear of the AMR supply ducting to be rerouted. Wires shall be pulled back and replaced as necessary. No additional junction boxes or wire splicing is permitted.

5.1.4.2.2. The existing bulkhead penetration for the wireway described in Para 5.1.4.2.1 shall be relocated approximately 30" forward. The existing penetration shall be sealed in kind with the surrounding bulkhead. The new penetration shall be in accordance with ABS and USCG regulations. Wires shall be pulled back and replaced as necessary.

5.1.4.2.2.1 .Old penetration is to be inserted as original, to all applicable requirements.

5.1.4.2.3. Lighting fixtures located in the overhead of Main Deck at frame 111, one approximately 1' to port of centerline and the other 3' to starboard of centerline, shall be relocated approximately one frame forward to frame 110, maintaining their

respective positions off centerline. Crop brackets and weld in at new location. Coordinate with vessel C/E to correctly position.

5.1.4.2.4. Two space heaters located in the existing joiner surrounding the AMR supply and exhaust ducts shall be removed and given to vessel C/E for vessel spares. (see 7.2.1) New vessel C/E approved heaters of similar make and capacity are to be provide and installed aft approximately 50" in the newly installed joiner along the Quarterdeck after bulkhead just forward of frame 112 such that they blow air in the forward direction, into the area of the Quarterdeck.

5.1.4.2.4.1. Wiring will require new A class penetrations. Old penetration to be cropped and area inserted as original to all applicable regulations.

5.1 .4.2.4.2. Renew wiring from source junction box.

5.1.4.2.5. The electromagnetic fire door release system installed on the main deck fire rated door, removed in Para 5.1.2.2.4, shall be repositioned to accommodate the new 56" x 77" fire door installed in Para 5.1.2.3.2.

5.1.4.2.6. The electromagnetic fire door release system installed on the main deck fire rated door, removed in Para 5.1.2.2.3, shall be repositioned to accommodate the existing single door located in the transverse bulkhead approximately 13' -6" off centerline between frames 118 and 120 and the new door installed in Para 5.1.2.3.1.

5.1.4.2.6.1. A total of 4 doors are to be fitted with electro-magnetic hold-backs, one double door and two single doors.

5.1 .4.2.6.2. All the electromagnetic fire door release systems shall be fitted with manual overrides to allow closing of individual doors.

5.1.4.2.6.3. Rewire from existing power supply to door releases. (Requires A class bhd. Penetrations.)

5.1.4.2.7. Installations. None.

5.1.5. Electronics.

5.1.5.1 .Removals. None

5.1.5 .2. Modifications/Relocations.

5.1.5.2.1. The fire detection pull station, located on Main Deck in passageway 1-112-4 at frame 115 approximately 10' to port of centerline and 4' off the deck, shall be relocated aft 48".

5.1.5.3 .Installations. None.

5.1.6. Preparation of Drawings/Documentation.

5.1.6.1 .The Contractor(s) shall be responsible for providing documentation, including inventory, installed weights and drawings of all provided and/or installed articles, fittings, equipment, materials and supplies. The Contactor shall obtain and provide documentation of all necessary inspections and surveys during construction in maintenance of Classification. The Contractor(s) shall provide the appropriate operational and maintenance manuals for equipment and machinery. The Contractor(s) shall generate or amend and provide copies of drawings reflecting any changes or modifications ready for “As Built” to be completed by JMS.

5.1.7. Inspection/Test.

5.1.7.1 .The Contractor shall verify the correct installation, operation and capability of the entire system and its components in all possible modes of operation. The testing shall be performed in accordance with the applicable drawing and installation procedures. The testing must validate that the system and its components as installed are suitable for the intended service.

5.1.7.2. Inspection by the owner and operator is for the purpose of verifying the proper function of the Contractor’s quality control (QC) measures and is not to be used as a substitute for control of quality by the Contractor.

5.1.7.3. All ducts & piping reworked or re-routed within the scope of this Specification is to hydro-tested to the satisfaction of Regulatory Bodies and Owner’s Rep.

5.1.8. Painting.

5.1.8.1 .All new and disturbed surfaces, normally painted shall be coated as per MARAD Coating Guidelines to match existing color scheme.

5.1.8.2. All decks shall be pretreated in accordance with Reference 2.1.1 and 2.1.9 prior to the installation of terrazzo.

5.1.9. Marking. As described

6. PERFORMANCE CRITERIA/DELIVERABLES.

6.1. Within five working days after contract award the Contractor shall submit electronic copies of the project time-scale logic, Production Gantt Chart, calendar summary and table of activity constraints for approval. The Crowley Port Engineer reserves the right to review the Contractor’s project schedule and manning projections. The Owner’s Representative will require Contractor justification for work sequences, start and finish dates, manpower loading or other information that appears unrealistic. If the CLS Port Engineer still finds portion of the information or data to be unrealistic, the contractor shall have two working days to provide justification or to modify the items in question and to resubmit for approval.

6.2. Provide the Progress Gantt Chart to the Crowley Port Engineer weekly.

- 6.3. Provide four (4) copies of Manuals, Operating Instructions and Spare Parts list of all equipment installed.
- 6.4. Upon completion of all work, demonstrate proper operation of all disturbed, installed and modified systems to satisfaction of Crowley, MARAD, and vessel representatives.
- 6.5. Once satisfactorily tested to vessel representatives, coordinate and schedule test operation for regulatory bodies. Satisfactorily demonstrate operation of all new and modified systems to satisfaction of USCG and ABS.
- 6.6. Charges and fees associated with this testing are for Contractor's account.
- 6.7. The Quarterdeck area is intended to be a show place. To that end, all finished joinery work and overheads must be free of marring, discoloration, or other defects that are a result of Contractor damage, errors, or improper installation or preservation. The finished decking must be level with no deviation or undulation of greater than 1/16 in. over a 3 ft. span. This to be measured with a yardstick and feeler gage. No layer laid down may be greater than 1/4 in. thick maximum. Finished surface to be of high glaze. Finished work to be to satisfaction of vessel Master.

## 7. NOTES .

### 7.1. General.

- 7.1.1. During modification and before delivery, protection shall be provided for the vessel and all associated items intended for use on the vessel.
- 7.1.2. Vessel working hours are 0700 to 1800, Monday thru Saturday. Contractor may not work vessel outside of these hours, or during legal holidays.

### 7.2. Material.

- 7.2.1. All parts and material removed from the ship shall be provided to, and stored in a place designated by, the ship's Chief Engineer.
- 7.2.2. All articles, fittings, equipment, machinery, materials and supplies used in the modifications/conversions and outfitting of the vessel shall be new, free of defects and imperfections, and be the standard product of reputable manufacturers. All items shall be suitable for marine application and meet the latest requirements of standard specifications published by national authorities. Contractor furnished material shall be new. No salvaged materials shall be used. Spare parts and services shall be readily obtainable.
- 7.2.3. Hardware shall be of manufacturer's stock material so that replacement components can be easily obtained. Material compliance with regulatory requirements shall be designated in the bill of materials on the working drawings, interface drawings, or vendor drawings. Material shall comply with commercial standards.
- 7.2.4. If galvanizing is required, the hot dip process shall be used. If materials cannot be hot dip galvanized, zinc silicate coating may be substituted.

7.2.5. The faying surfaces of dissimilar metals which are attached shall be separated with a dielectric material at least 1.6 mm (0.0625 in) thick extending 6.3 mm (0.25 in) beyond the edge of the faying surface. The dielectric material shall be attached by adhesive to provide a watertight seal and also provide a barrier between the dissimilar metals.

7.2.6. All threaded fasteners shall be coated with anti-seize compound.

7.2.7. For weather exposed equipment and machinery, corrosion resistant or monel metal pressure grease fittings shall be used. Fittings shall be accessible, either with elbow bodies or extensions, and shall be threaded and suitable for use with high pressure grease guns.

### 7.3. Non-Structural Bulkheads, Partitions & Sheathing.

7.3.1. The Contractor shall supply and install bulkheads and linings in accordance with this specification. The Contractor shall supply all furring, hangers, moldings, framing, etc with primed or baked enamel or powder coating finishes, as necessary for the erection of joiner bulkheads and linings.

7.3.2. All double face joiner bulkheads shall be non-modular USCG approved joiner divisional bulkheads, 2” thick, with decorative finish both sides and to the extent required by this specification.

7.3.3. All single face joiner bulkheads shall be non-modular USCG approved joiner linings, 1” thick, with decorative finish one side and approved backing sheet on the hidden side and to the extent required by this specification.

7.3.4. The Contractor shall include access panels to accommodate access to pipe valves, HVAC controls and electrical connection boxes in way of Contractor furnished joiner work.

7.3.5. The Contractor shall install all joiner materials in a first class manner and in accordance with good shipbuilding practice and make every effort to avoid rattles and excessive noise from the installations.

### 7.4. Deck Covering.

7.4.1. Deck covering shall not be installed until all required testing for water tightness and all fastening of machinery, equipment, furniture, etc has been completed. Deck covering shall not be painted to hide stains and discolorations.

7.4.2. Deck covering appropriate for the service shall be selected from Reference 2.1.1.

7.4.3. Deck covering shall not be installed under built in furniture, but shall be scribed and fit to sub-bases. The Contractor shall not install deck coverings over other deck appurtenances, including but not limited to furniture tie downs and deck drains.

7.4.4. Coverings shall be carried up 100 mm (4 in) high around the perimeter of newly floored spaces and areas.

## GENERAL NOTES

1. ALL HVAC MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH ABS, USCG, AND SOAS RULES AND REGULATIONS.
2. ALL 10 GA. HVAC DUCT SPOOL PIECES FOR A-C CLASS BULKHEAD PENETRATIONS TO EXCEED 18" EACH SIDE OF BULKHEAD UNLESS OTHERWISE NOTED.
3. ALL HVAC DUCTING ELBOWS TO HAVE A CENTERLINE RADIUS OF 1.5X OR 1.5D UNLESS OTHERWISE NOTED.
4. ROUND HVAC DUCT 12" IN DIAMETER AND BELOW TO BE 24GA., ROUND AND RECTANGULAR DUCT UP TO 24" (LONG SIDE) SHALL BE 22 GA., ALL OTHER DUCT TO BE 20 GA. UNLESS OTHERWISE NOTED.
5. PENETRATIONS OF BEAMS/GIRDERS FOR HVAC DUCTING TO HAVE A CIRCULAR RECTANGULAR SIZE 2" LARGER THAN THE DUCT SIZE (1" ALL AROUND)
6. ALL HVAC DUCTING TO BE GALVANIZED
7. ALL HVAC DUCTING SHALL BE PROVIDED ACCESS DOORS FOR ACCESS TO ALL DAMPERS, FILTERS, INSTRUMENTATION, CONTROLS, ETC. PROVIDE ADDITIONAL ACCESS DOORS AS REQUIRED FOR INSPECTION AND CLEANING OF DUCTS.
8. ALL PIPING SHALL BE IN ACCORDANCE WITH ABS AND USCG RULES AND REGULATIONS, AND GOOD STEERING PRACTICES.
9. THE MINIMUM OF RADIUS OF PIPE BENDS SHALL BE AT LEAST THREE TIMES THE NOMINAL DIAMETER OF THE PIPE. ONLY STEEL PIPE SHALL BE BENT.
10. PIPING PENETRATIONS THROUGH BULKHEADS, DECKS, AND TANK TOPS SHALL MAINTAIN THE WATER-TIGHT, FIRE-TIGHT, AND SMOKE-TIGHT INTEGRITY OF THE BULKHEAD, DECK, OR TANK TOP.
11. WINTER PIPING IS SUBJECT TO HIGHER QUALITY IT SHALL BE ADEQUATELY PROTECTED.
12. ALL PIPE WELDING, ASSOCIATED INSPECTION AND NON DESTRUCTIVE TESTING SHALL BE IN ACCORDANCE WITH MSS-SP-9103 AND MANUFACTURER AND REGULATORY BODY REQUIREMENTS. NO SLAC OR WELD BUILD UP IS PERMITTED INSIDE THE PIPING.
13. PIPE HANGERS SHALL BE INSULATED SO AS NOT TO RESTRICT PIPE MOVEMENT DUE TO THERMAL EXPANSION.
14. ALL ELECTRICAL CABLES SHALL BE IN ACCORDANCE WITH USCG AND ABS RULES AND REGULATIONS.
15. CABLE PENETRATIONS OF FIRE RATED STRUCTURE SHALL UTILIZE FIRE STOPS WHICH MAINTAIN THE FIRE PROTECTION LEVEL ASSOCIATED WITH THE FIRE ZONE PENETRATED.
16. ALL NEW CABLES SHALL BE TACED AND LABELED ON EQUIPMENT TERMINATION END AND BOTH SIDES OF BULKHEAD AND DECK PENETRATIONS
17. ALL WELDING SHALL BE IN ACCORDANCE WITH ABS AND USCG RULES AND REGULATIONS
18. ALL STEEL DECKS, BULKHEADS AND STRUCTURE TO BE GRADE "A" MILD STEEL.
19. FRAME SPACING FOR FRAME 195 IS 30" AND IS 24" FOR FRAME 195
20. ALL DECK BEAMS TO BE BRACKETED TO BULKHEAD STIFFENERS.
21. ALL INTERIOR STEEL BULKHEADS TO BE 16.2# PL WITH L3-1/2"x2-1/2"x1/4" STIFFENERS
22. DIMENSIONS OF WINDOWS AND DOORS ARE APPROXIMATE ONLY. ACTUAL SIZE SHALL BE DETERMINED FROM TEMPLATES OF WINDOW AND DOOR COUPLINGS.

## REVISIONS

| REV | DESCRIPTION  | DATE    | APPROVED |
|-----|--|---------|----------|
| 01  | INCORPORATED SHIP'S COMMENTS                           | 6/24/08 |          |
| 02  | 1. MODIFIED COIL ENTRYWAY<br>2. ADDED JOINDER PAINTING | 7/07/08 |          |

## REFERENCES

| REF | DESCRIPTION                | DRAWING          |
|-----|----------------------------|------------------|
| 01  | BENDER HVAC A & J          | 5401V-001-514-01 |
| 02  | BENDER GENERAL ARRANGEMENT | 540 V-001-801-01 |

**CROWLEY LINER SERVICES**  
**JACKSONVILLE, FL**  
**USTS KENNEDY**  
**MASSACHUSETTS MARITIME ACADEMY**

**JMS**  
**NAVAL ARCHITECTS**  
**SALVAGE ENGINEERS**  
 34 Water Street  
 Mystic, CT 06355  
 voice 860.536.0009  
 fax 860.539.9117  
 jms@jmsnet.com

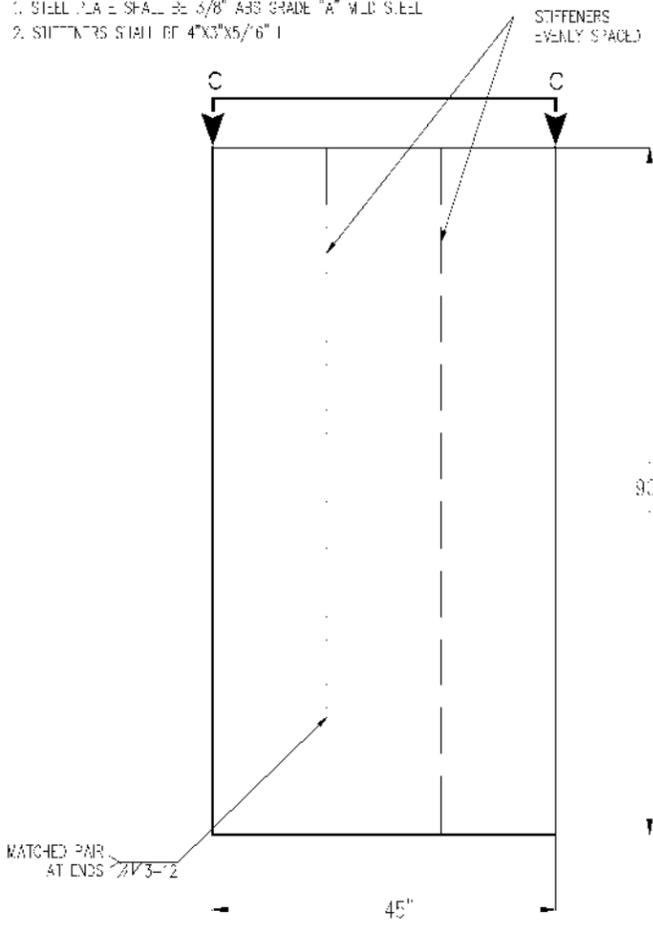
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**QUARTER-DECK ARRANGEMENT-NI**

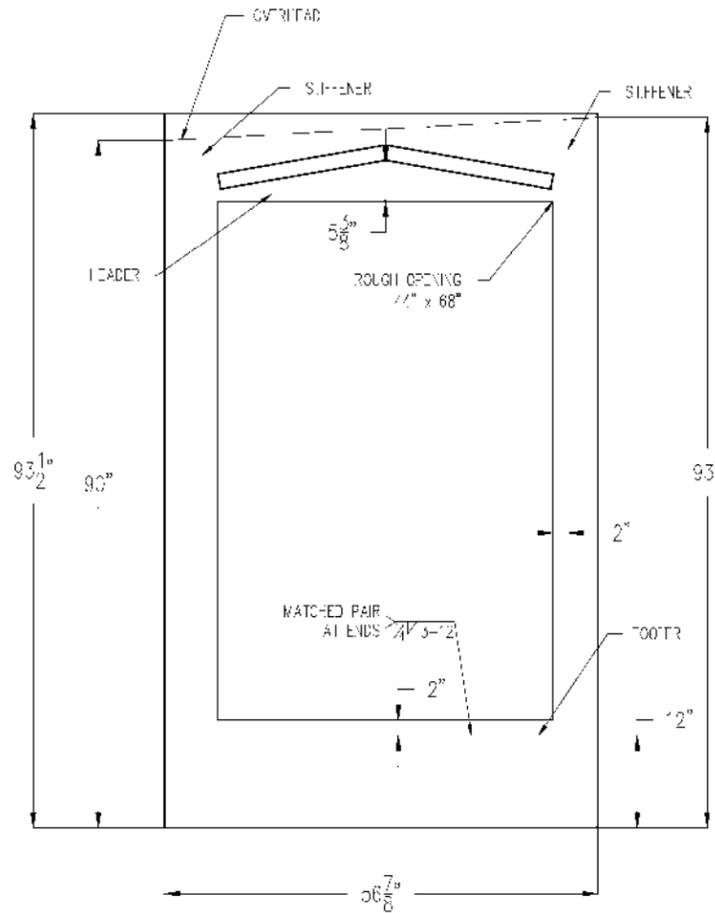
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| DRAWING NO:<br>08-20-29 | REVISION:<br>02    | SHEET:<br>1 OF 8  |

**NOTES**

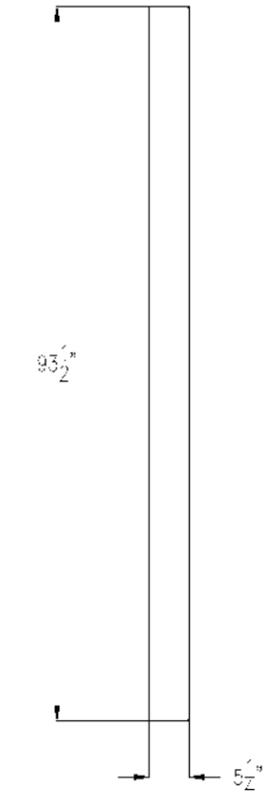
1. STEEL PLATE SHELL IS 3/8" A36 GRADE "A" MILD STEEL
2. STIFFENERS SHALL BE 4"x5/6" I



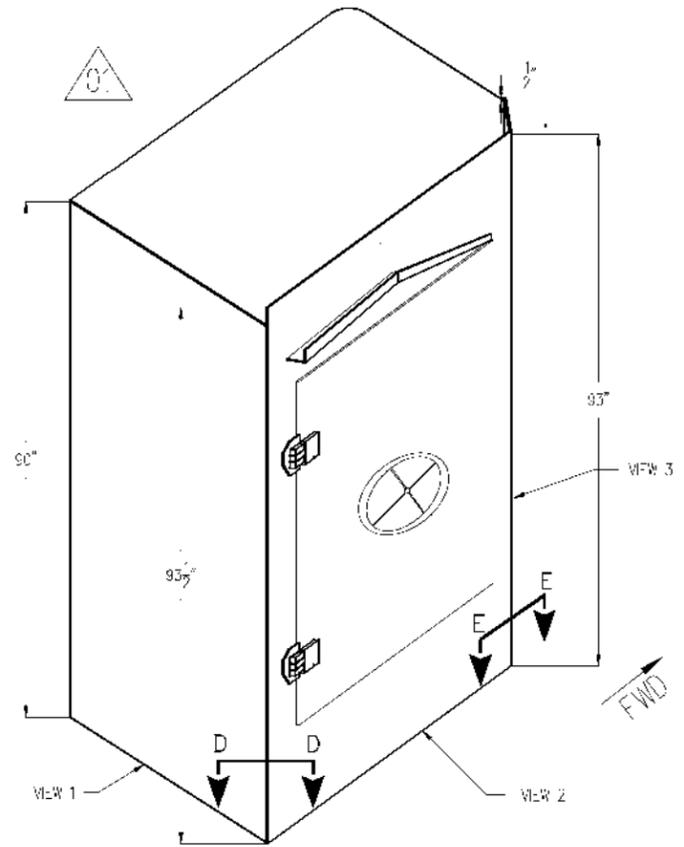
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ELEVATION LKG FWD  
SCALE 1/2" = 1'  
SEE PARA 5.1.2.3.6.2, 5.1.2.3.7.2



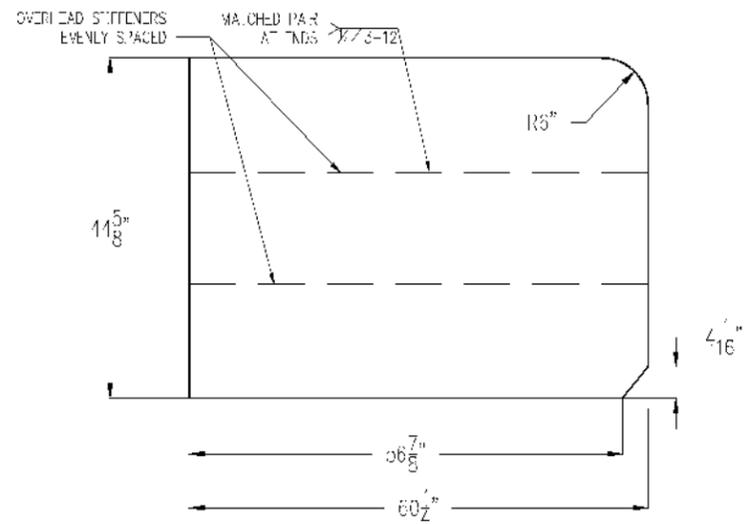
**VIEW 2**  
ELEVATION LKG IB  
SCALE 1/2" = 1'  
SEE PARA 5.1.2.3.6.1, 5.1.2.3.7.1



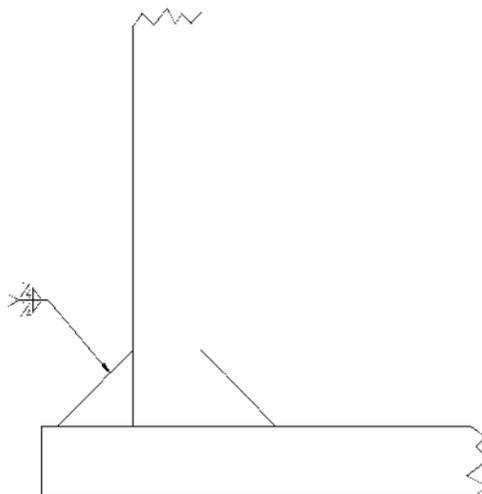
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SCALE 1/2" = 1'  
SEE PARA 5.1.2.3.6.4, 5.1.2.3.7.4



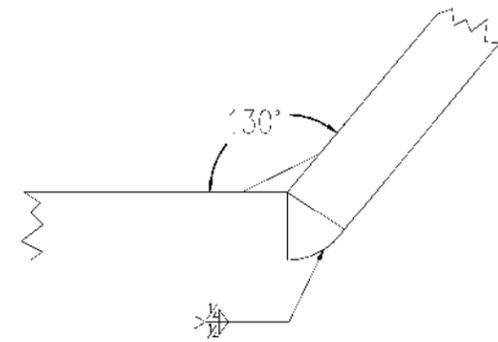
**DETAIL 1**  
QUARTERDECK DOGHOUSE  
SCALE NTS  
STBD SIDE SHOWN,  
PORT SIM BUT OPP



**PLAN C-C**  
SCALE 1/2" = 1'  
SEE PARA 5.1.2.3.6.3, 5.1.2.3.7.3



**SECTION D-D**  
SCALE 1" = 1'



**SECTION E-E**  
SCALE 1" = 1'

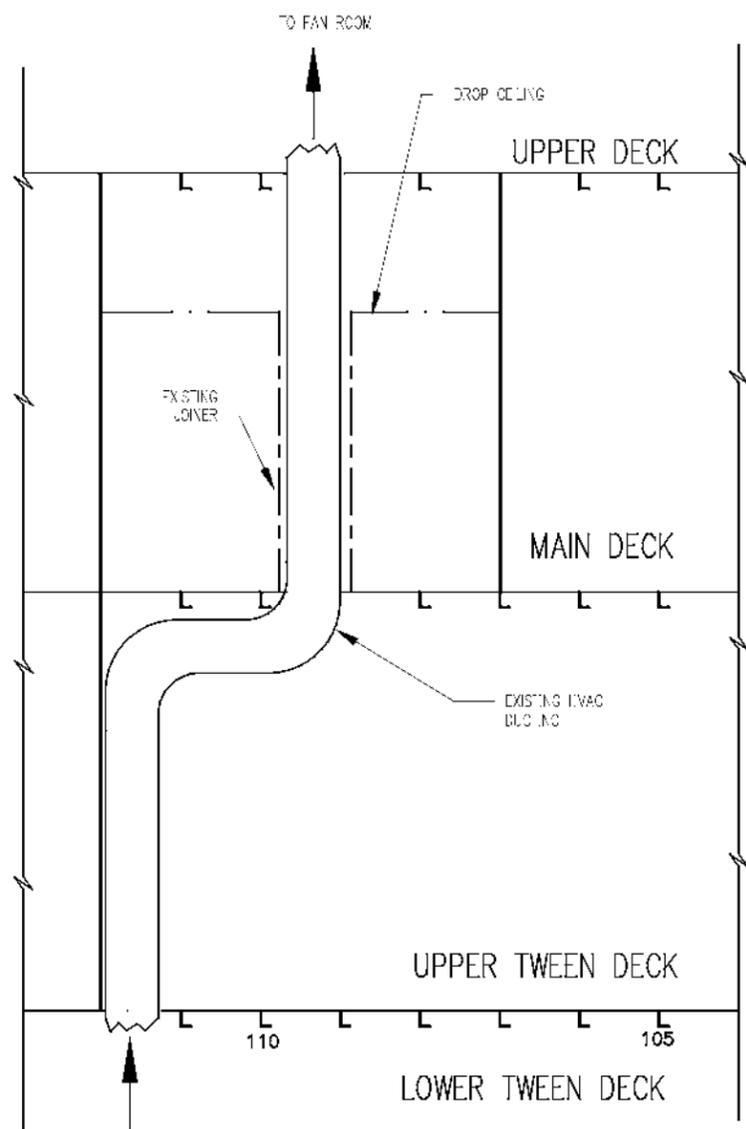
CROWLEY LINER SERVICES  
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**JMS**  
NAVAL ARCHITECTS  
SALVAGE ENGINEERS  
34 Water Street  
Mystic, CT 06355  
voice 860.536.0009  
fax 860.539.9117  
jms@jmsnet.com

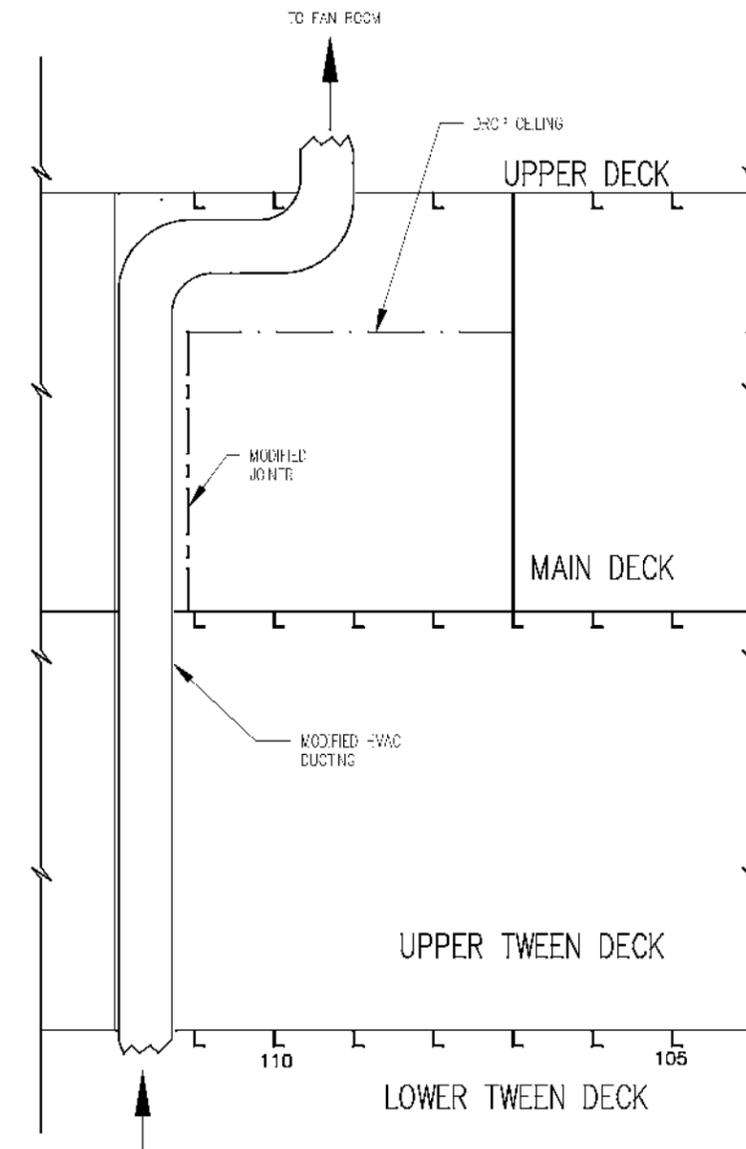
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QUARTERDECK ARRANGEMENT-NI

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**CURRENT  
ARRANGEMENT**  
ELEVATION A-A



**PROPOSED  
ARRANGEMENT**  
ELEVATION B-B

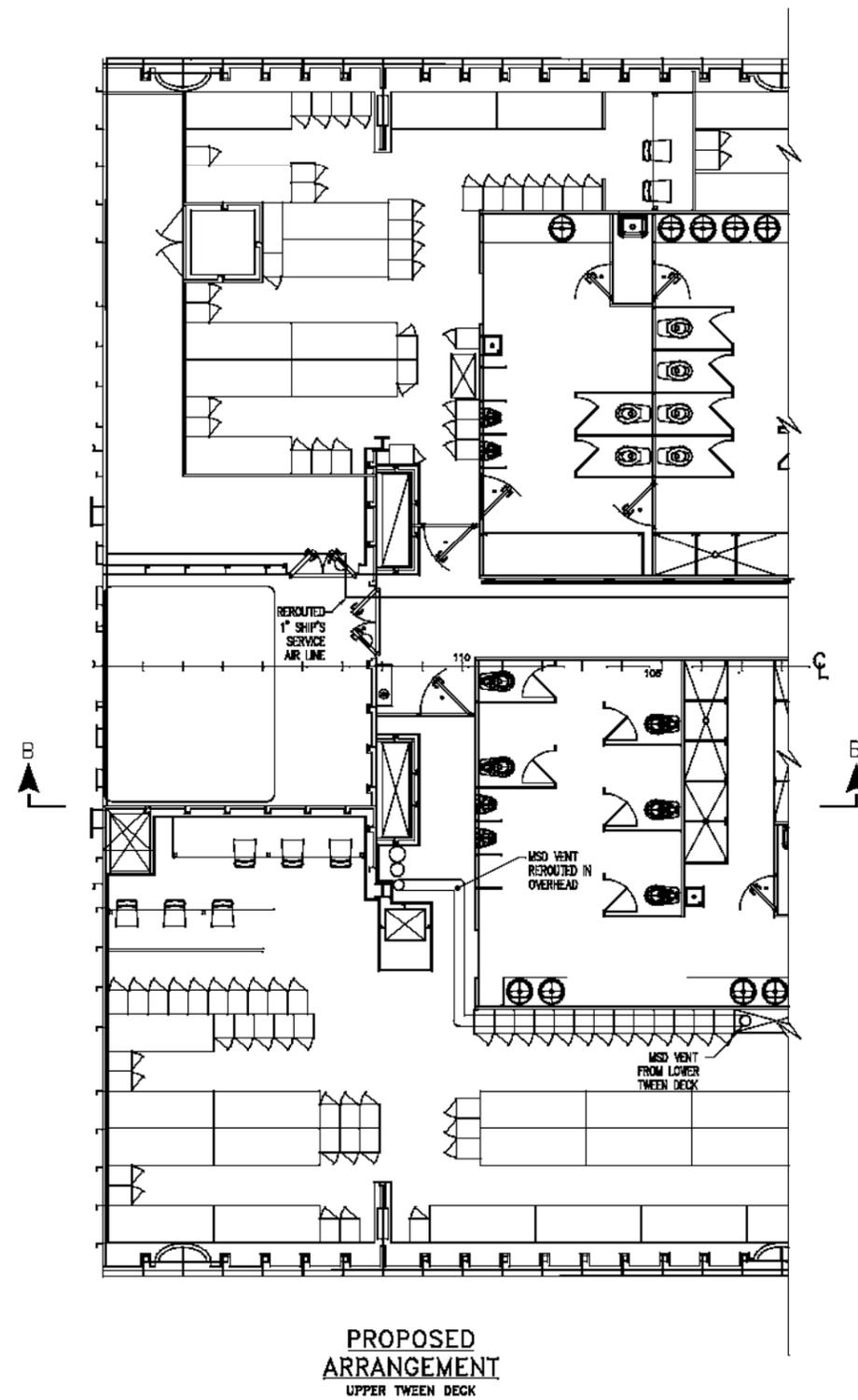
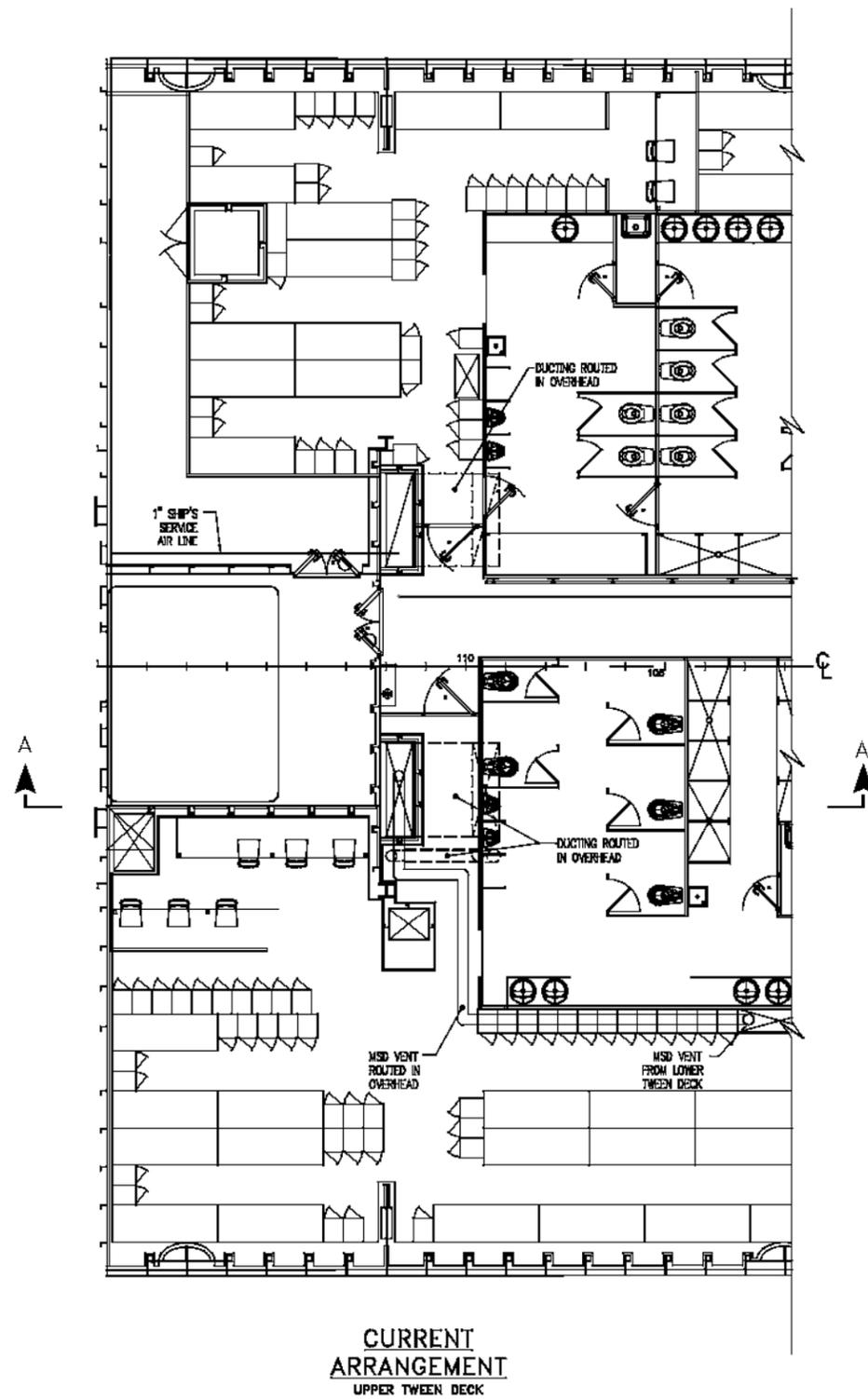
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SALVAGE ENGINEERS  
34 Water Street  
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voice 860.536.0009  
fax 860.539.9117  
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QJAR-RD-CK ARRANGEMENT-NI

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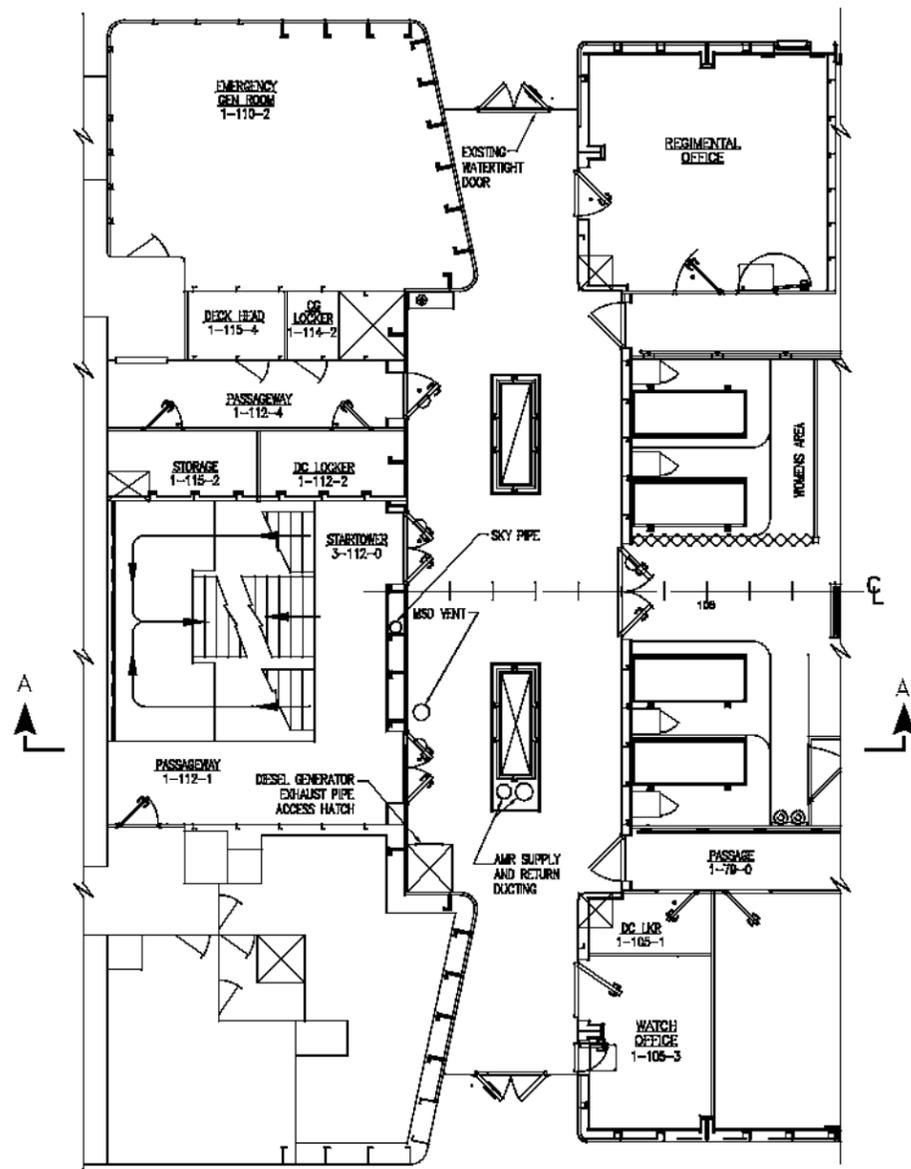
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34 Water Street  
Mystic, CT 06355  
voice 860.536.0009  
fax 860.539.9117  
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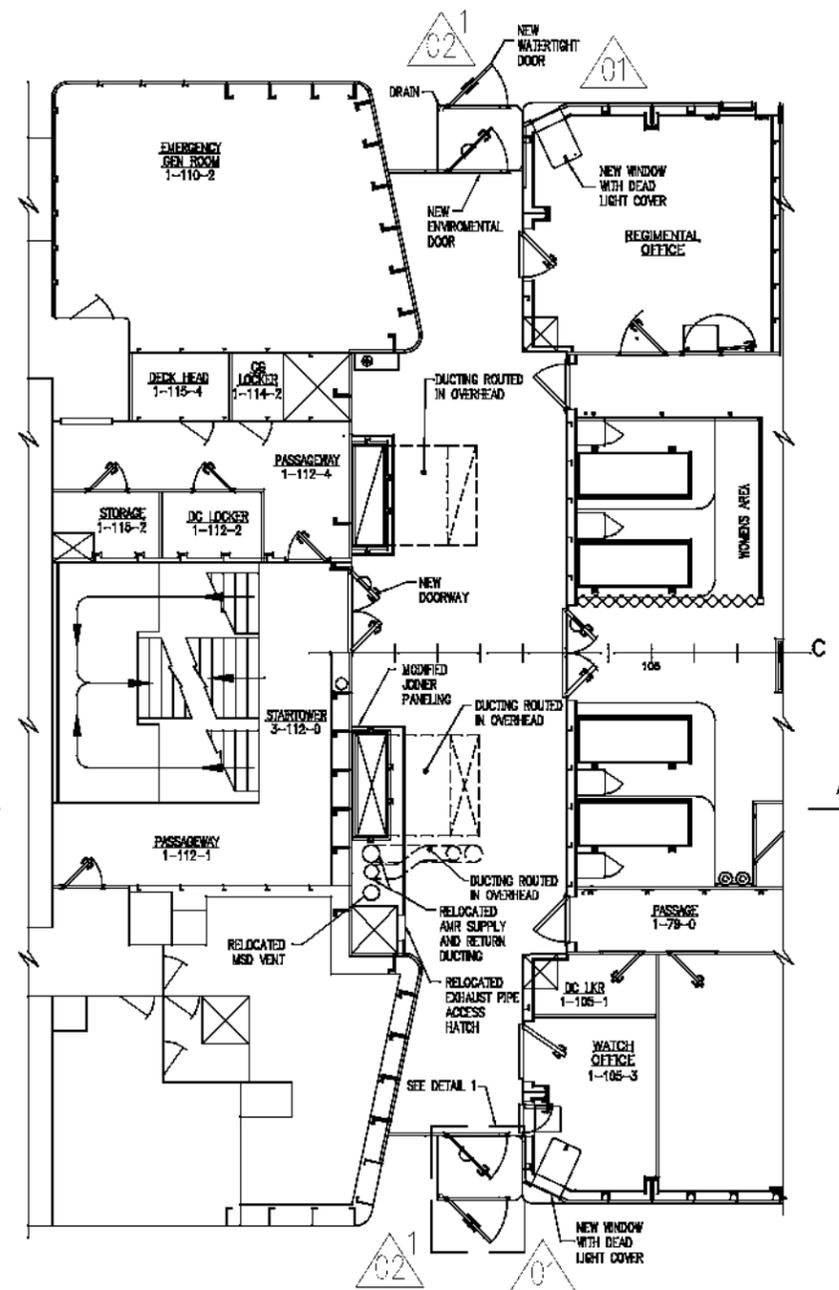
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**CURRENT  
ARRANGEMENT**  
MAIN DECK



**PROPOSED  
ARRANGEMENT**  
MAIN DECK

FWD

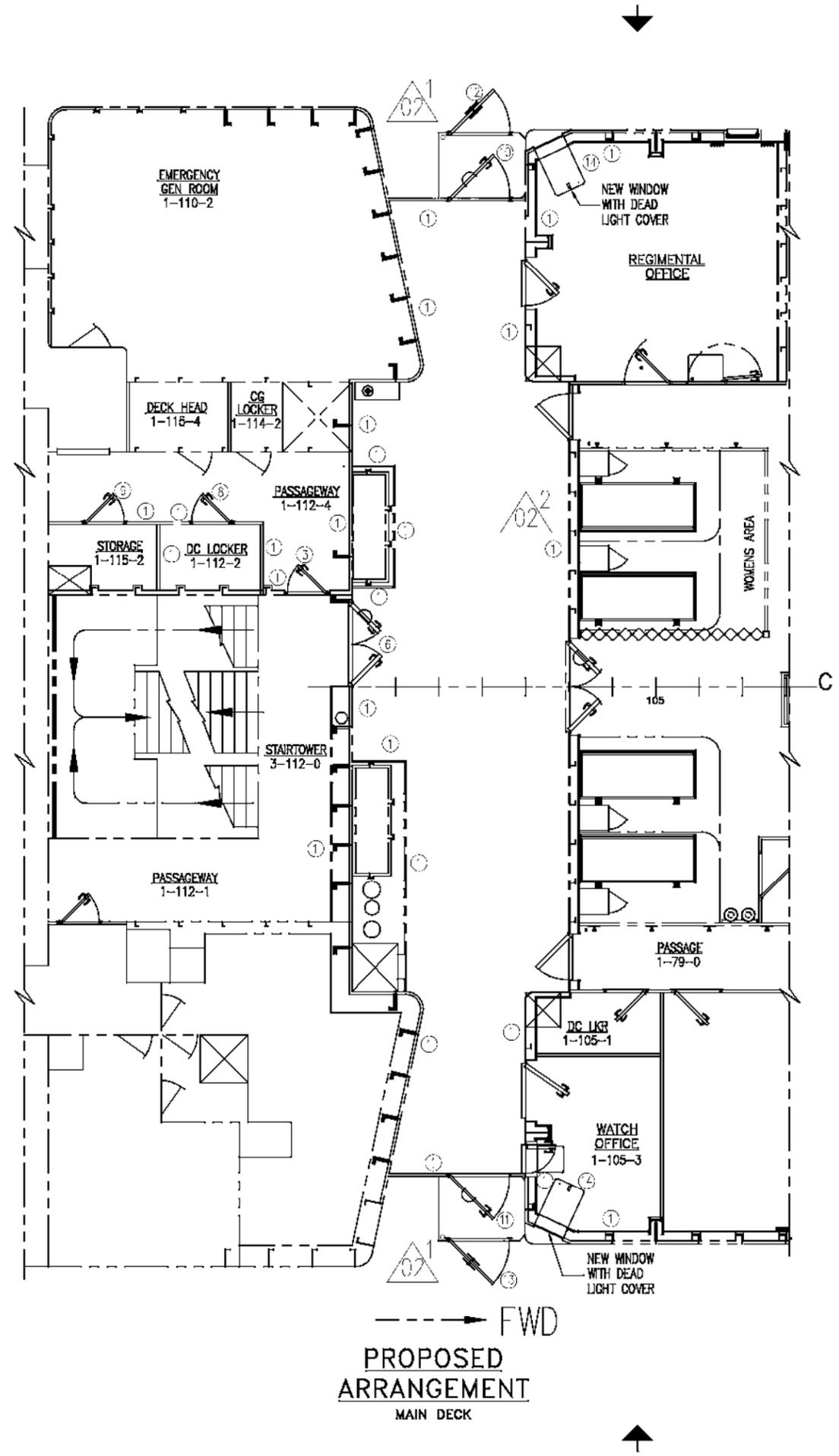
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NAVAL ARCHITECTS  
SALVAGE ENGINEERS  
34 Water Street  
Mystic, CT 06355  
voice 860.536.0009  
fax 860.539.9117  
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---> FWD  
**PROPOSED  
ARRANGEMENT**  
MAIN DECK

**BILL OF MATERIALS**

| ITEM | NO. | DESCRIPTION   |
|------|-----|---|
| 1    | -   | 1" LINING PANEL, INEXA IN-1, NON MODULAR TYPE 2S        |
| 2    | -   | 2" DIVISION BULKHEAD, INEXA IN-1, NON MODULAR TYPE 2S   |
| 3    | 1   | 30"x77" A-60 DOOR*, R-H, 10"x10" FIXED LIGHT, HOSE PORT |
| 4    | 2   | 30"x77" A-60 DOOR*, L-H, 10"x10" FIXED LIGHT, HOSE PORT |
| 5    | 2   | 48"x77" A-60 DOOR*, DBL, 10"x10" FIXED LIGHT, HOSE PORT |
| 6    | 1   | 56"x77" A-60 DOOR*, DBL, 10"x10" FIXED LIGHT, HOSE PORT |
| 7    | 2   | 36"x77" B-15 DOOR*, R-H                                 |
| 8    | 1   | 26"x77" B-15 DOOR*, R-H, 400 SQCM LOUVER                |
| 9    | 1   | 26"x77" B-15 DOOR*, L-H, 400 SQCM LOUVER                |
| 10   | 1   | 42"x77" ENVIRONMENTAL DOOR, LHR                         |
| 11   | 1   | 42"x77" ENVIRONMENTAL DOOR, RHR                         |
| 12   | 1   | 42"x66" WATER TIGHT DOOR, LHR                           |
| 13   | 1   | 42"x66" WATER TIGHT DOOR, RHR                           |
| 14   | 2   | 22"x28" WINDOW, DEAD LIGHT COVER                        |
|      |     | *STC 0N 2.  |

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