

SFLC STANDARD SPECIFICATION 8636

TEMPORARY HULL ACCESSSES

1. SCOPE

1.1 Intent. This standard specification describes the requirements for the Contractor to install and close temporary accesses onboard Coast Guard vessels.

1.2 Acronyms and term definitions. Below are definitions and various acronyms and terms that are used in this standard or may be encountered in work item specifications.

- **Access cut:** Access cuts (sometimes referred to as access plates) are those sections of plating removed and later reinstalled for access and installation or removal of equipment. Access plates do not involve cutting of hull frames.
- **Butt:** A butt is a transverse or vertical plate edge connection in the shell, bulkhead, or deck plating (the plate butt is perpendicular to the plate seam).
- **Closure plate:** Similar to large access cuts wherein at least one transverse frame is cut.
- **Primary hull structure:** Primary hull structure consists of the main strength decks and shell plating and their supporting framing, principal longitudinal bulkheads, vertical keel, deep web girders and stiffeners designed to withstand the ship bending stress. This also includes primary support structure which consists of the collision bulkhead, main transverse and bent bulkheads, and foundations that are integral parts of the primary girder and primary support structure.
- **Seam:** A seam is a fore-and-aft or horizontal plate edge connection in the shell, bulkhead, or deck plating.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), Latest Revision, Welding and Allied Processes

OTHER REFERENCES

U.S. Code of Federal Regulations (CFR) Title 29, Part 1915, July 2019, Occupational Safety and Health Standards for Shipyard Employment
NAVSEA S0600-AA-PRO-160/CH16, Nov 2011, Underwater Ship Husbandry Manual, Chapter 16 Cofferdams
MIL-C-20079H, July 1987, Cloth, Glass; Tape, Textile Glass; and Thread, Glass and Wire-Reinforced Glass

3. REQUIREMENTS

3.1 Prior approval. Holes or openings, except those shown or indicated by drawings or specifications, must not be cut in any watertight bulkhead, deck, or shell plating except as approved by the KO. No cuts must be made in sheer, stringer or bilge strakes, major transverse framing, or in the flat keel unless approved by the KO, on a case-by-case basis, prior to making the cut.

3.2 Drawing submission. A minimum of five working days before creating a temporary structural access opening, the Contractor must submit one legible drawing of the proposed access to the KO for authorization. The drawing must include the following, as a minimum:

- A description of the temporary access, including interferences, and plans for the removal and reinstallation of the interferences.
- A plan and elevation view specifying the access opening shape and dimensions.
- Location of the access with respect to deck or distance above the ship's baseline, frame, and distance from the centerline, deck edge or existing longitudinal structure; in addition, show the location relative to adjacent penetrations, bulkheads, framing, and welds within 12 inches of the proposed cut.
- Identification (i.e. shell, deck, bulkhead), thickness and material of plating and structural members to be cut.
- Temporary structural reinforcement required to prevent distortion of ship's structure.
- Welding details and procedures for removal and reinstallation of access closure plates (including weld sequence, design and material of closure plate(s), and indication of any permanent or temporary weld backing straps, or ceramic backing materials).
- Indication of any cutback of existing welds forming the boundary of the access cuts and the welding sequence for (re)installation of the closure plate.
- Nondestructive inspections and Structural Boundary tests for completed installations.

3.3 Access cut boundaries. The Contractor must ensure that access cuts comply with the requirements and restrictions detailed in the following and in SFLC Std Spec 0740, and referenced codes.

3.3.1 Location of boundaries. Boundaries of access cuts and closure plates must, in general, be located between principal ship framing, bulkheads, and other structural members and must be at least three inches from any of these members or from the toes of other welds. A reduction in this three inch minimum may be approved by the KO on a case by case basis provided sufficient clearance is maintained for welding and inspection requirements. The boundaries of access cuts and closure plates should land on existing butts or seams, wherever practicable. The boundaries of prior access cuts should be utilized wherever possible. Boundaries may extend across one or more frames as required for the size of the opening.

3.3.2 Access hole dimensions and arrangements. Holes or access cuts must be the minimum size necessary and must be in accordance with the following:

- Rectangular access cuts and closure plates welded into primary hull structure must be at least 12 inches wide in the lesser dimension.
- For circular access cuts, the minimum diameter must be $4T$, where T = thickness of the involved structural member, but not less than three inches.
- Circular closure plates for access cuts less than two feet in diameter must be dished $1/16$ to $1/8$ inch to allow for shrinkage when welded.
- Corners of rectangular access cuts and closure plates must have a minimum radius of 6 inches except when a boundary lands on an existing hull longitudinal seam or transverse butt weld.

- Corners at an existing seam or butt must intersect at a 90 degree angle.
- Cuts that are to cross existing butts or seams must do so at an angle of 90 degrees plus or minus 15 degrees.
- In primary hull structure, existing welds forming the boundary of a cut must be cut back 3 inches beyond the toe of the access cut, except that the cut back must not intersect or cross an existing weld, frame, or structural member. In which case, the cut back may be reduced to a minimum of two inches in length.
- Existing welds crossed by the cut must not be cut back..

3.3.3 Primary hull structure. Primary Hull Structure includes the shell, main strength decks, principal longitudinal bulkheads, vertical keel, deep web girders and stiffeners designed to withstand the ship bending stress.

3.3.4 Mechanically fastened joints. Welding closer than six inches to a mechanically fastened joint should be avoided. When access cuts cross or come within six inches of a mechanically fastened joint, the fasteners must be checked for tightness and if necessary, loose fasteners must be seal welded or removed, and replaced for a distance of 6 inches beyond the edge of the cut. When a cut crosses a mechanically fastened seam the cut plates must be repaired using single V welds backed with glass tape (MIL-C-20079) to prevent fusion between the mechanically fastened plates.

3.4 Ship integrity maintenance. The Contractor must maintain safety and ship integrity by installing temporary guarding and coaming, in addition to weathertight and watertight closures. Remove these temporary fabrications after closing the hull access, and grind surfaces flush in way of removals. For shell plating cuts made at or below the waterline where temporary closures are impractical, the Contractor must secure each vulnerable compartment and subdivision to minimize potential damage to the extent permitted by the scope and urgency of the work.

3.4.1 Guarding. Install temporary guards in accordance with 29 CFR 1915.73.

3.4.2 Coaming. Ensure that in areas where flammable liquids may be stored, a 4 inch high metal coaming must be installed on the surface of the deck with tack welds and fully sealed with caulking compound. The coaming must encircle the access cut in the deck.

3.4.3 Weathertight and contamination closures. Fabricate temporary closures, using fire retardant material, before cutting access openings and install closures whenever access is not in use. Closures must be:

- Constructed to protect the access from inclement weather and entry of contaminants (must include a coaming or dam on the deck to redirect rain runoff away from the opening).
- Fitted with fasteners that permit rapid installation and removal.
- Able to support a minimum of 150 pounds per square foot for horizontal deck closures.
- Where the access opening is in way of a removed hatch, scuttle or door, the closure must be configured to allow normal passage of ship's personnel and equipment.

3.4.4 Watertight closures. Ensure that access openings created four feet or less above the maximum anticipated waterline must include temporary watertight closures when the vessel is waterborne.

NOTE

NAVSEA S0600-AA-PRO-160/CH16 provides requirements for design, fabrication, and installation of temporary watertight closures.

3.5 Closure plate restoration. The Contractor must remove any temporary closures when no longer required, and install permanent closure plates in accordance with the applicable authorized drawings. Access closure plate weld joints must be 100% efficient full penetration welds. Welds in primary hull structure or in watertight boundaries, must be full penetration welds without permanent backing straps.

3.6 Welding, testing and inspection. All welding must be in accordance with SFLC Std Spec 0740. All compartment/boundary testing and NDE must be in accordance with SFLC Std Spec 0740, Appendix C.

4. NOTES

This section is not applicable to this Standard Specification.