

ARTICLE XV – STAIR REPAIRS

15.1 GENERAL – The work to be done under this Article consists of furnishing all labor, materials and equipment necessary to replace the stairs and guardrails as shown on the project plans.

- A. In general, the work includes, but is not necessarily limited to the following:
 - 1. Demolish, haul and dispose of existing stairs and related appurtenances. Properly salvage any items as directed by Harbors.
 - 2. Furnish and install new stairs, guardrails, connections, and related appurtenances.
- B. All work shall be in accordance with the following sections of the Standard Specifications except as modified or supplemented herein:

Section 202 Removal of Structures and Obstructions
Section 501 Steel Structures

Sections on Materials referenced in the above sections are hereby incorporated.

15.2 MATERIALS

- A. Structural Steel
 - 1. Structural steel shall be Type 316 stainless steel, unless otherwise noted.
 - 2. Bolts shall conform to ASTM F593, Type 316, stainless steel, unless otherwise noted.
 - 3. Welding electrodes shall be E70xx.
- B. Epoxy Grout - Epoxy for grouting of anchor bolts shall be Set 3G by Simpson Strong-Tie, or approved equal.
- C. Non-Shrink Grout – Non-shrink grout to be installed under base plates shall be a premixed non-metallic formula, capable of developing a minimum compressive strength of 3,000 psi in 1 day and 5,000 psi in 28 days.
- D. Metal Grating – Metal grating shall be 1-1/4"x3/16" 15 space Type 316 stainless steel bar grating.

15.3 CONSTRUCTION METHODS

A. Demolition and Removal of Existing Stairs

1. The Contractor shall remove the existing stairs as shown on the plan. Removed material shall be disposed of away from the project site in a lawful manner at no cost to the State. The Contractor will not be allowed to deposit removed material into State waters or rubbish bins.
2. Survey for Hazardous Areas – The Contractor shall survey the entire area around the project site to ensure that no hazardous vapors are present. The Contractor shall certify in writing that the project site shall be safe for hot work and free of hazardous vapor. No open flame, hot cutting, welding or other hot work will be permitted without the certification.

B. Concrete Spall Repair – Repair concrete spalls prior to installation of stairs per Article XIV. Areas shall be confirmed with the Harbors Construction Engineer.

C. Structural Steel

1. Fabrication and erection of structural steel shall conform to The American Institute of Steel Construction Manual of Steel Construction, Fifteenth Edition.
2. Welds and welding procedures shall conform to the structural welding code AWS D1.1 and D1.6 of the American Welding Society.
3. Welding shall be performed by welders prequalified for welding procedures to be used.

D. Epoxy Grouting – Blow holes completely clean of all concrete debris to allow for adequate bonding of the epoxy. The holes shall be filled with epoxy gel before inserting and turning the anchor bolts to displace the grout.

E. Installation

1. The new stairs and guardrails shall be properly installed in accordance with the drawings.
2. Base plates for the guardrails shall be set on a bed of non-shrink grout. The grout shall be finished in such a manner as to prevent water from seeping under the base plate.

F. Guardrail Painting – The guardrail shall be painted as described in Article XVI of these specifications.

G. Clean-Up

1. The Contractor shall maintain the job site in a neat and orderly condition during the progress of the work. Upon completion, the Contractor shall remove all surplus material, debris, equipment, tools, etc. belonging to it and leave the premises in a neat and orderly condition.

15.4 PAYMENT - Payment for stair repairs shall be made as described in Article X of these Specifications.