

SECTION 11 13 19.13

LOADING DOCK LEVELERS

08/09, CHG 1: 05/19

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS C2.18 (1993; Errata 1993; R 2001) Guide for the Protection of Steel with Thermal Sprayed Coatings of Aluminum and Zinc and Their Alloys and Composites

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M (2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A143/A143M (2007; R 2020) Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement

ASTM A153/A153M (2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM D624 (2000; R 2020) Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

ASTM D2000 (2018) Standard Classification System for Rubber Products in Automotive Applications

ASTM D2632 (2015; R 2019) Standard Test Method for Rubber Property-Resilience by Vertical Rebound

MATERIAL HANDLING INDUSTRY OF AMERICA (MHI)

MHI MH30.1 (2015) Performance and Testing Requirements for Dock Leveling Devices

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code

1.2 DEFINITIONS

1.2.1 Industrial Dock Leveler

A manufactured structure designed to span and compensate space and height differentials between a loading dock and freight carrier to facilitate safe, efficient, freight transfer.

1.2.2 Adjustable Loading Ramp

Synonym for Fixed Type Industrial Dock Leveler.

1.2.3 Fixed Type Industrial Dock Leveler

A dock leveler that is permanently affixed to the dock structure, and usually incorporating a mechanical system to position the dock leveler with respect to the freight carrier at the lip end while being fixed at the opposite hinged end.

1.2.4 Carrier

A wheeled, enclosed trailer or container that, when attached to a heavy-duty truck or van, is used to carry bulk freight over long distances.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings; G, AE

SD-03 Product Data

Loading Dock Levelers; G, AE

SD-04 Samples

Dock Bumpers

Rubber

SD-07 Certificates

Hardware Items

SD-10 Operation and Maintenance Data

Loading Dock Levelers, Data Package 3; G, AE

SD-11 Closeout Submittals

Record Drawings; G, AE

1.4 QUALITY ASSURANCE

1.4.1 Manufacturer's Representative

Furnish services of Fixed Type Industrial Dock Leveler technicians, experienced in installation and operation of the type of system being provided, to supervise installation, testing, adjustment of system, and instruction to Government personnel.

1.4.2 Detail Drawings

Submit drawings depicting dimensions, tolerances, surface finishes, hardnesses, flush edge angles, method of mounting and anchoring, and control schematics and diagram. Show complete wiring, schematic diagrams, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Show proposed layout and anchorage of equipment and appurtenances on Drawing Sheet No. A102.

1.4.3 Record Drawings

Submit record as-built drawings depicting dimensions, tolerances, surface finishes, hardnesses, flush edge angles, method of mounting and anchoring, and control schematics and diagram, including mechanical and electrical components, testing and acceptance (one copy sepia transparency) for each industrial dock leveler.

1.5 DELIVERY, STORAGE, AND HANDLING

Matchmark and tag parts which are disassembled for shipment with metal tags. Provide waterproofed tags and markings. Protect the delivered equipment in storage from the weather, humidity and temperature variation, dirt and dust, or other contaminants.

1.6 EXTRA MATERIALS

After approval of the detail drawings, and not later than 1 months prior to the date of beneficial occupancy, provide spare parts data for each different item of material and equipment specified. Furnish a complete list of parts and supplies, with current unit prices and source of supply and a list of the parts recommended by the manufacturer to be replaced after 3 year(s) of service.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Standard Products

Submit data including a complete list of equipment and materials, manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Provide materials and equipment, which are the standard products of a manufacturer regularly engaged in the manufacture of the products, and that essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the site. Section 23 03 00.00 20 BASIC MECHANICAL MATERIALS AND METHODS, applies to this Section, with the additions and modifications specified herein.

2.1.2 Exposed Surfaces

All exposed metal surfaces and fastening materials shall fully comply with the minimum requirements of ASTM A123/A123M, ASTM A143/A143M, and ASTM A153/A153M.

2.1.3 Nameplate

Attach corrosion-resistant metal plate securely and legibly on the exterior surface of the dock leveler. Include the following information indented or embossed on the plate:

- a. Description of the equipment: Describe procedures for operating and services equipment, and warnings or cautions of hazardous procedures.
- b. Name of the manufacturer.
- c. Serial and model number.
- d. Rated capacity in pounds.
- e. Shipping weight.
- f. Date of manufacture (month and year).

2.2 LOADING DOCK LEVELERS

Provide permanent loading dock levelers in accordance with MHI MH30.1 with minimum performance characteristics based on the following:

- a. Fork Lift Loads:
 - (1) Design levelers to accommodate 4 wheel fork trucks.
 - (2) Design levelers to handle maximum 20,000 LBS gross dynamic load.

Provide loading dock leveler with mechanical type which is manually released at dock leveler and raises by spring action and is lowered by walk-on of dock operator. Make provision for maintenance access to understructure and lifting mechanism. Provide steel tread plate lip and platform, hinged and supported from beneath by steel framework that contains lifting, positioning, and lowering assembly. Ensure that platform surface is flush with surrounding floor surface of loading dock when not in service. Provide integral positive restraint when leveler is in maintenance position.

2.2.1 Design Requirements

Design, fabricate, and finish loading ramp to permit washing with water and detergents, and operating in an ambient temperature from 0 to plus 110 degrees F.

2.2.2 Dock Leveler Height Adjustment

Provide a ramp whose incline can be adjusted to suit the height of the freight carrier. Allow the loading ramp a minimum of 5" above and below dock.

2.2.3 Dock Leveler Extension and Retraction

Extend non-fixed end of the dock leveler from a retracted position behind the line of the loading dock platform bumpers to at least 12 inches beyond the forward edge of the dock platform bumpers so as to rest on the bed of the freight carrier. The difference in length of the platform from its fully retracted position to its fully extended position shall be practically constant throughout the ramp, including the ramp extension.

2.2.4 Safety Devices

2.2.4.1 Dock Bumpers

Submit certificates showing conformance with the referenced standards contained in this section. Provide ramp and load dock face with laminated rubber, tire-fabric, or equivalent dock bumpers recommended by the dock leveler manufacturer. Submit one typical Loading Dock Bumper completely assembled with supporting rods, end angles, bolts, and nuts. (This may be the smallest size bumper required.) One section of 8 inches wide by full depth and height of bumper including one end angle with the opposite end exposed for inspection. Solid Rubber pieces conforming to ASTM D2000, Grade 4AA612A13B13F17 may be used instead of rubberized fabric.

2.2.4.1.1 Finish

Metal for dock bumpers, including Hardware Items, shall be hot-dip galvanized conforming to ASTM A123/A123M.

2.2.5 Rated Capacity

Minimum 20,000 pounds roll over capacity.

2.3 OPERATION

2.3.1 Mechanical Control

Mechanical chain-activated, with extension-spring operation and counter-balance non-manual, raising and lowering system. Once the freight carrier has departed, manually return the platform to the stored, level position. Ensure the ramp, in its stored position capable of being lowered below dock platform level without extending the lip of the ramp.

2.4 CONSTRUCTION AND MATERIALS

Construct all load carrying parts of forged or welded steel. The entire live load carrying surface of the ramp and rear attachment shall be not less than 1/4 inch thick, 55 ksi minimum yield strength, low alloy, nonskid steel tread plate. Provide minimum 5/8 inch vertical projections on the live load carrying surface. Bevel the lip or ramp extension. Design load carrying surfaces to permit free movement of powered hand or platform trucks, low lift pallet trucks, and fork lift trucks. Fabricate lip hinge of not less than 1/4 inch wall seamless steel tubing.

2.5 ACCESSORIES

2.5.1 Dock Bumpers

Provide bumpers in accordance with ASTM D2632 and ASTM D624 that are capable of sustaining repeated impacts from trucks or trailers without

damage to the dock, dock levelers, or bumpers.

PART 3 EXECUTION

3.1 EXAMINATION

After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Contracting Officer of any discrepancy before performing the work.

3.2 INSTALLATION

Install and adjust in accordance with NFPA 70, manufacturer's approved detail drawings, and as-built system assembly drawings. Install controls so operator can see dock leveler while manipulating controls. Do not pour the pit for the adjustable loading ramp until the design and detail drawings have been approved. If the pit size is limited by construction conditions involved, alter the dock leveler equipment to fit the pit. Clearly indicate these alterations or modifications on the drawings. Check and verify the appropriate measurements at the building. Do not exceed 2 inch clearances between the ramp and pit.

3.3 CLEANING, TREATMENT AND PAINTING

In accordance with manufacturer's standard practice, shop clean, treat and paint ferrous surfaces including platform, lip, frame, springs, cylinders, and any other non-cadmium plated or non-galvanized surface (but not including bearings, gear contact surfaces, parts protected by lubrication, or other surfaces not usually painted or coated). Clean ferrous surfaces, shot pen, and protect the base metal with an application of 99.9 percent pure zinc coating with a thickness of 0.010 to 0.012 in accordance with AWS C2.18 and protect the base metal with an application of a paint manufactured with rust inhibiting chemical additives to a thickness of 2.5 to 3 mils followed by a final coat of standard primer with a thickness of 2.5 to 3 mils. Protect nonferrous parts against corrosion as necessary.

3.3.1 Workmanship

Conduct field touch-up work as to avoid damaging other surfaces and public property in the area. Do not apply field applied paint during foggy, damp, rainy weather, or the ambient temperatures below 45 degrees F and above 95 degrees F.

3.3.2 Dissimilar Metals Protection

Insulate control surfaces by electrolytically inactive materials.

3.4 FIELD TESTS

Provide personnel, instruments, materials, and equipment, including test vehicles, for the administration and direction of the tests. Correct defects and repeat tests under the cognizance of the Contracting Officer and the dock leveler manufacturer. The Contracting Officer is responsible for certifying the test load.

3.4.1 Roll-Over Load Tests

Move roll-over load of 20,000 pounds over the dock leveler between the bed of a freight carrier and the building loading dock surface for 10 cycles.

With the ramp extension retracted and the ramp platform leveled with the building loading dock surface, run a 20,000 pound roll-over load over the ramp in various directions for 20 cycles. Do not allow permanent deformation or hydraulic system leakage to occur subsequent to examination after these roll-over tests.

3.5 INSTRUCTION TO GOVERNMENT PERSONNEL

Upon completion of the work and at a time designated by the Contracting Officer, provide the services of a competent Technician regularly employed or authorized by the manufacturer of the dock leveler to instruct Government personnel in the proper operation, maintenance, safety, and emergency procedures of the dock leveler. A minimum of one and no more than two eight-hour working days of instruction is required. Conduct the training at the job site or at any other location mutually satisfactory to the Government and the Contractor.

3.6 OPERATING MANUALS

Operating manuals shall detail the step-by-step procedures required for system startup, operation, and shutdown. Operating manuals shall include the manufacturer's name, model number, parts list, and brief description of all equipment and their basic operating features. List routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides in the maintenance manuals. Also include piping and equipment layout and simplified wiring and control diagrams of the system as installed.

-- End of Section --

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