

SECTION 11160 - LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Dock levelers (with integral dock bumpers)
 - 2. Dock seals.
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete work for recessed loading dock equipment.
 - 2. Division 5 Section "Metal Fabrications" for curb angles at edges of recessed pits.
 - 3. Division 16 Sections for electrical wiring and connections for loading dock equipment.

1.3 DEFINITIONS

- A. Operating Range: Maximum amount of travel above and below the loading dock level.
- B. Working Range: Recommended amount of travel above and below the loading dock level for which loading and unloading operations can take place.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, rated capacities, operating characteristics, furnished specialties, accessories, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, details, and attachments to other work.
 - 1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 2. Wiring Diagrams: Power, signal, and control wiring.

- C. Samples for Initial Selection: For each type of dock seal fabric indicated.
- D. Samples for Verification: For dock seals, in manufacturer's standard sizes.
- E. Qualification Data: For Installer.
- F. Product Test Reports: Based on evaluation of tests performed by manufacturer and supervised and verified by a qualified independent professional engineer, indicate compliance of dock levelers with requirements of MH 30.1 for determining rated capacity, which is based on comprehensive testing within the last two years of current products.
 - 1. Submittal Form: According to MH 30.1, Appendix A.
- G. Maintenance Data: For loading dock equipment to include in maintenance manuals.
- H. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
 - 1. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
- B. Source Limitations: Obtain each type of loading dock equipment through one source from a single manufacturer.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle dock seals in a manner to avoid significant or permanent damage to fabric or frame.
 - 1. Comply with manufacturer's written instructions for minimum and maximum temperature requirements for storage.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish recessed pit dimensions, slopes of driveways and heights of loading docks and proceed with fabricating loading dock equipment without field measurements.

Coordinate loading dock construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate installation of anchorages for loading dock equipment. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Recessed Loading Dock Equipment: Coordinate size and location of pits to ensure proper clearances and operation of equipment.
 - 1. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."
 - 2. Asphalt paving requirements are specified in Division 2 Section "Hot-Mix Asphalt Paving."
- C. Electrical Requirements: Coordinate wiring requirements and current characteristics of loading dock equipment with building electrical system. See Division 16 Sections.

1.9 WARRANTY

- A. Special Warranty for Dock Levelers: Manufacturer's standard form in which manufacturer agrees to repair or replace dock-leveler components that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracked or broken structural support members and load-bearing welds.
 - b. Deck plate failures including cracked plate or permanent deformation in excess of 1/4 inch between deck supports.
 - c. Hydraulic system failures including failure of hydraulic seals and cylinders.
 - d. Faulty operation of operators, control system, or hardware.
 - 2. Warranty Period for Structural Assembly: 10 years from date of Substantial Completion.
 - 3. Warranty Period for Hydraulic System: Five years from date of Substantial Completion.
 - 4. Warranty shall be for unlimited usage of the leveler for the specified rated capacity over the term of the warranty.

1.10 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of loading dock equipment Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication,

cleaning, and adjusting as required for proper equipment operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

1. Perform maintenance, including emergency callback service, during normal working hours.
 2. Include 24-hour-per-day, 7-day-per-week emergency callback service.
- B. Continuing Maintenance Service: Provide a continuing maintenance proposal from Installer to Owner, in the form of a standard yearly maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
 2. Basis-of-Design Product: The design for each type of loading dock equipment is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM 36/A 36M.
- B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from steel plate complying with ASTM A 572/A 572M, Grade 55.
- C. Steel Tubing: ASTM A 500, cold formed.
- D. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- E. Wood: DOC PS 20 dimension lumber, select structural grade, kiln dried.

2.3 RECESSED DOCK LEVELERS

- A. General: Recessed, hinged-lip-type dock levelers designed for permanent installation in concrete pits preformed in the edge of loading platform; of type, function, operation, capacity,

size, and construction indicated; and complete with controls, safety devices, and accessories required.

1. Basis-of-Design Product: Model DM-66, 15,000 Dynamic capacity / 30,000 comparative industry rating, as manufactured by Bondor Manufacturing Company or a comparable product by one of the following:
 - a. Beacon Industries, Inc.
 - b. Blue Giant Equipment Corporation; Subsidiary of TBM Holdings, Inc.
 - c. Chalfant Dock Equipment.
 - d. DLM, Inc.
 - e. Ellis Industries, Inc.
 - f. Flexon, Inc.
 - g. Kelley Company, Inc.; a United Dominion Company.
 - h. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.
 - i. Pentalift Equipment Corporation.
 - j. Pioneer Loading Dock Equipment.
 - k. POWERAMP; Division of Systems, Inc.
 - l. Rite-Hite Corporation.
 - m. Rol-Lift Corporation; Subsidiary of TBM Holdings, Inc.
 - n. Serco; a United Dominion Company.
 - o. Vestil Manufacturing.

- B. Quality Standard: MH 30.1, "Safety, Performance and Testing of Dock Leveling Devices."

- C. Rated Capacity: Capable of supporting total gross load indicated without permanent deflection or distortion, as determined by actual tests according to MH 30.1.

- D. Function: Dock levelers shall compensate for differences in height between truck bed and loading platform in the following manner:
 1. Vertical Travel: Provide operating range above platform level of sufficient height to enable lip to extend and clear truck bed before contact.
 2. Automatic Vertical Compensation: Floating travel of ramp with lip extended and resting on truck bed shall compensate automatically for upward or downward movement of truck bed during loading and unloading.
 3. Automatic Lateral Compensation: Tilting of ramp with lip extended and resting on truck bed shall compensate automatically for canted truck beds of up to 4 inches over width of ramp.
 4. Lip Operation: Manufacturer's standard mechanism that automatically extends and supports hinged lip on ramp edge with lip resting on truck bed over dock leveler's working range, allows lip to yield under impact of incoming truck, and automatically retracts lip when truck departs.
 5. Automatic Ramp Return: Automatic return of unloaded ramp, from raised or lowered positions to stored position, level with platform, as truck departs.

- E. Hydraulic Operating System: Electric-powered hydraulic raising and hydraulic lowering of ramp, controlled from a remotely located push-button station. Equip leveler with a packaged unit including a unitized, totally enclosed, nonventilated electric motor, pump, manifold reservoir, and valve assembly of proper size, type, and operation for capacity of leveler indicated. Include means for lowering ramp below platform level with lip retracted behind dock bumpers. Provide a hydraulic velocity fuse connected to main hydraulic cylinder to limit loaded ramp's free fall to not more than 3 inches.
1. Remote-Control Station: Single-button station of the constant-pressure type, enclosed in NEMA ICS 6, Type 12 box. Ramp raises by depressing and holding button; ramp lowers at a controlled rate by releasing button.
- F. Construction: Fabricate dock-leveler frame, platform supports, and lip supports from structural- or formed-steel shapes. Weld platform and hinged lip to supports. Fabricate entire assembly to withstand deformation during both operating and stored phases of service. Chamfer lip edge to minimize obstructing wheels of material-handling vehicles.
1. Clean-Pit Frame: Designed to support leveler at sides of pit, with no side-to-side supports at front of pit floor.
 2. Hinged Lip: Full width, piano-type hinge with heavy-wall hinge tube and greased fittings, with gussets on lip and ramp for support.
 3. Toe Guards: Equip open sides of rising ramp over range indicated with metal toe guards mounted flush with ramp edges and projecting below ramp.
 - a. Finish: Factory finish dock levelers after assembly and testing. Paint toe guards yellow to comply with ANSI Z535.1.
 4. Cross-Traffic Support: Manufacturer's standard method of supporting ramp at platform level in stored position with lip retracted. Provide a means to release supports to allow ramp to descend below platform level.
 5. Maintenance Lockout/Tagout Strut: Integral strut to positively support ramp in up position during maintenance of dock leveler.
 6. Integral Laminated-Tread Dock Bumpers: Fabricated from 4 ½ inch- thick multiple, uniformly thick plies cut from fabric-reinforced rubber tires. Laminate plies under pressure on not less than two ¾ inch diameter, steel supporting rods that are welded at one end to ¼ inch thick, structural steel end angle and secured with a nut and angle at the other end. Fabricate angles with predrilled anchor holes and sized to provide not less than 1 inch of tread plies extending beyond the face of closure angles.
- G. Accessories:
1. Curb Angles: 3-by-3-by-1/4-inch galvanized steel curb angles for edge of recessed leveler pit, with 1/2-inch- diameter by 6-inch- long concrete anchors welded to angle at 6 inches o.c.
 2. Bumper Mounting Plate: 3-by-12-by14-14 inch galvanized bumper mounting plate with ½" diameter by 6 inch long concrete anchors welded to plate. Provide minimum of 4 anchors per plate.

2.4 FOAM-PAD DOCK SEALS

- A. General: Dock seals consisting of fabric-covered foam pads designed to compress 4 to 5 inches under pressure of truck body to form an airtight seal at jambs and head of loading dock openings; of type, size, and construction indicated.
1. Basis-of-Design Product: Model T-1D/P10/B12-8/STD8Wx10H or a comparable product by one of the following:
 2. Available Manufacturers:
 - a. air Locke Dock Seal; Division of O'Neal Tarpaulin Co.
 - b. Beacon Industries, Inc.
 - c. Chalfant Dock Equipment.
 - d. Chase Doors.
 - e. DLM, Inc.
 - f. Fairborn USA Inc.
 - g. Flexon, Inc.
 - h. Hugger Dock Equipment Company.
 - i. Kelley Company, Inc.; a United Dominion Company.
 - j. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.
 - k. Pentalift Equipment Corporation.
 - l. Pioneer Loading Dock Equipment.
 - m. Rite-Hite Corporation.
 - n. Rotary Products Inc.
 - o. Serco; a United Dominion Company.
 - p. Super Seal Mfg. Ltd.
 - q. Vestil Manufacturing.
- B. Adjustable Head Pad: Manufacturer's standard hardware and tension spring or counterweight mechanism for adjusting height of pad.
- C. Construction: Consisting of single- or double-ply, coated, fabric-covered, urethane-foam core with supporting frame. Fabricate jamb and head pads of same depth and sized for opening width.
1. Wood Support Frame: Factory painted, with steel mounting hardware.
 2. Cover Fabric: Vinyl-coated nylon or polyester with minimum total weight of 22 oz./sq. yd.
 3. Guide Strips: 4-inch- wide, coated, nylon guide strips on jamb pads.
 4. Pleated Protectors: Protectors on face of jamb pads of overlapping layers of coated fabric attached to base fabric.

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Finish loading dock equipment after assembly and testing.
- C. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - 1. ASTM A 123/A 123M for iron and steel loading dock equipment.
 - 2. ASTM A 153/A 153M for iron and steel hardware for loading dock equipment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of loading dock equipment.
- B. Examine roughing-in for electrical systems for loading dock equipment to verify actual locations of connections before equipment installation.
- C. Examine walls and floors of pits for suitable conditions where recessed loading dock equipment is to be installed. Pits shall be plumb and square and properly sloped for drainage from back to front of loading dock.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordinate size and location of loading dock equipment indicated to be attached to or recessed into concrete or masonry, and furnish anchoring devices with templates, diagrams, and instructions for their installation.
- B. Set curb angles in concrete edges of dock-leveler recessed pits with tops flush with loading platform. Fit exposed connections together to form hairline joints.
- C. Clean recessed pits of debris.

3.3 INSTALLATION

- A. General: Install loading dock equipment, including motors, pumps, control stations, wiring, safety devices and accessories as required for a complete installation.
 - 1. Rough-in electrical connections according to requirements specified in Division 16.
- B. Dock Bumpers: Attach dock bumpers to face of loading dock in a manner that complies with requirements indicated for spacing, arrangement, and position relative to top of platform and anchorage.

1. Bolted Attachment: Attach dock bumpers to preset anchor bolts embedded in concrete or to cast-in-place inserts or threaded studs welded to embedded-steel plates or angles. If preset anchor bolts, cast-in-place inserts, or threaded studs welded to embedded-steel plates or angles are not provided, attach dock bumpers by drilling and anchoring with expansion anchors and bolts.
- C. Recessed Dock Levelers: Attach dock levelers securely to loading dock platform, flush with adjacent loading dock surfaces and square to recessed pit.
- D. Dock Seals: Attach dock-seal support frames securely to building structure in proper relation to openings, dock bumpers, and dock levelers to ensure compression of dock seals when trucks are positioned against dock bumpers.

3.4 ADJUSTING AND CLEANING

- A. Adjust loading dock equipment for proper, safe, efficient operation.
- B. Test dock levelers for vertical travel within operating range indicated.
- C. Restore marred, abraded surfaces to their original condition.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain loading dock equipment. Refer to Division 1 Section "Closeout Procedures."

3.6 LOADING DOCK EQUIPMENT SCHEDULE

- A. Recessed Dock Leveler:
 1. Operation: Hydraulic operating system with single-button remote-control station.
 2. Rated Capacity: 15,000 dynamic capacity / 30,000 comparative industry rating.
 3. Platform Size: 6'-0" x 6'-0".
 4. Vertical Travel: Minimum working range of 12 inches above and 12 inches below adjoining platform.
 5. Length of Lip Extension: 16 inches.
 6. Compensation Capacity: Automatic vertical and lateral.
 7. Platform: 3/16-inch- thick, nonskid steel plate.
 8. Hinged Lip: 1-inch- thick, nonskid steel plate.
 9. Frame: Manufacturer's standard type.
 10. Toe-Guard Range: Entire upper working range.
 11. Accessories:
 - a. Interlock to overhead door.
 12. Finish: Painted in manufacturer's standard color.

B. Foam-Pad Dock Seal:

1. Beveled Jamb Pads: 12 inches wide at exterior face, tapered to reduce opening width, and sized for opening height.
2. Adjustable Head Pad: 24 inches high and same depth as jamb pads; sized for opening width.
3. Door Opening Size: 8' w x 10' H.
4. Cover Fabric: Vinyl-coated nylon or polyester.
 - a. Color: As selected by Architect from manufacturer's full range.
5. Guide Strips: Required.
6. Pleated Protectors: 4-inch wear exposure.
7. Support Frame Construction: Untreated wood.

END OF SECTION 11160