

SECTION 11 13 19 - STATIONARY LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Recessed loading dock levelers.
 - 2. Dock bumper
 - 3. Truck restraints.

1.2 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.

1.3 COORDINATION

- 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. Coordinate installation of cast-in-place items. Furnish setting drawings and templates.
- C. Electrical System Roughing-in: Coordinate layout and installation of loading dock equipment with connections to power supplies and interlocked equipment where used.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
 - 2. Review sequence of operation for each type of loading dock equipment.
 - 3. Review coordination of interlocked equipment specified in this Section and elsewhere.
 - 4. Review required testing, inspecting, and certifying procedures.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for stationary loading dock equipment.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: For stationary loading dock equipment.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of anchors and each field connection.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Welding certificates.
- C. Product Test Reports: For each dock leveler, for tests performed by manufacturer and witnessed by a qualified testing agency.
 - 1. Indicate compliance of dock levelers with requirements in MH 30.1 for determining rated capacity based on comprehensive testing within last two years of current products.
 - 2. Submittal Form: According to MH 30.1.
- D. Sample Warranty: For manufacturer's special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For stationary loading dock equipment to include in operation and maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
 - 1. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

1.9 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of construction contiguous with stationary loading dock equipment, including recessed pit dimensions, slopes of driveways and heights of loading docks, by field measurements before fabrication.

1.10 WARRANTY

- A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace dock levelers 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, load-bearing welds, and front and rear hinges.
 - b. Faulty operation of operators, control system, or hardware.
 - c. Deck plate failures including cracked plate or permanent deformation in excess of 1/4 inch between deck supports.
 - d. Hydraulic system failures including failure of hydraulic seals and cylinders.
 - 2. Warranty Period for Structural Assembly: 10 years from date of Substantial Completion.
 - 3. Warranty Period for Hydraulic System: 5 years from date of Substantial Completion.
 - 4. Warranty shall be for unlimited usage of leveler for the specified rated capacity over the term of the warranty.

PART 2 - PRODUCTS

2.1 RECESSED LOADING 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: Subject to compliance with requirements, provide Kelley; An Entrematic brand; AFX 6 x 7 foot Dock Leveler.
 - a. Lip Length: 20 inch extended lip.
 - b. Voltage: 115v.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Standard: Comply with MH 30.1.
- D. Rated Capacity: Capable of supporting total gross load of 50,000 lb without permanent deflection or distortion.
- E. Platform: Not less than 1/4 inch-thick, nonskid steel plate.
 - 1. Platform Width: 7 feet.
 - 2. Platform Length: 6 feet.
 - 3. Frame: Clean-pit type, designed to support leveler at sides of pit, with no supports at front of pit floor.
 - 4. Toe Guards: Equip open sides of dock leveler over range indicated with steel toe guards.
 - a. Toe-Guard Range: Entire upper operating range.
- F. Function: Dock levelers shall compensate for differences in height between truck bed and loading platform.
 - 1. Vertical Travel: Operating range above platform level of sufficient height to enable lip to extend and clear truck bed before contact with the following minimum working range:
 - a. Above Adjoining Platform: As indicated on Drawings.
 - b. Below Adjoining Platform: As indicated on Drawings.
 - 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. Lip Operation: Manufacturer's standard mechanism, which 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.
 - a. Length of Lip Extension: Not less than 12 inches measured from ramp edge.
 - 4. Interlock: Coordinate interlock functions of door, night lock truck restrain and dock shelter with Owner requirements.
- G. Air-Bag Operating System: Electric control from a remote-control station; pneumatic operation. High-volume, low-pressure lifting of ramp. Equip leveler with a packaged unit including a PVC-coated, reinforced polyester lifting bag and two-stage, single-speed electric fan of proper size, type, and operation for capacity of leveler indicated. Include dock-leveler supports controlled by release chain for lowering ramp below platform level without extending lip.
 - 1. Remote-Control Station: Weatherproof single-button station of the constant-pressure type, enclosed in NEMA ICS 6, Type 4 box. Ramp raises by depressing and holding button; ramp lowers at a controlled rate by releasing button.

- H. 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. 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.
 - 2. Maintenance Strut: Integral strut to positively support ramp in up position during maintenance of dock leveler.
- I. Integral Dock Bumper:
 - 1. Basis of Design Product: Kelley; VB420-11 Steel Faced.
 - 2. Size: 4 inch thick by 14 inch wide by 10 inch high.
 - 3. Number per Opening: 2.
- J. Materials:
 - 1. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
 - 2. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from steel plate complying with ASTM A572/A572M, Grade 55.
 - 3. Steel Tubing: ASTM A500/A500M, cold formed.
 - 4. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- K. Dock-Leveler Finish: Manufacturer's standard baked-on factory finish.
 - 1. Toe Guards: Baked-on factory finish.
- L. 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. Self-Forming Pan: Manufacturer's standard prefabricated, self-forming spray zinc metallized steel form system for poured-in-place construction of concrete pit.
 - 3. Side and rear weatherseals.

2.2 DOCK LEVELER SEALING SYSTEM

- A. General: Retrofit perimeter seal along the sides and rear of the dock leveler to block dirt, debris, insects and energy loss.
 - 1. Basis of Design Product: APS Resource; Energy Guard Dock Leveler Sealing System Retrofit.
- B. General: Perimeter seal along the sides and rear of the dock leveler to block dirt, debris, insects and energy loss.
- C. Side Seal Construction: The side seals are chemical resistant, 22 oz. PVC coated, polyester reinforced composite fabric. The fabric is rated to 30 degrees below zero (-30°F) with UV inhibitors and anti-mildew formulation and matte finish. The foam in the assemblies are triangular cut, 1 lb. per cubic foot, open cell polyurethane foam. The reinforcing bars are 1/8" x 1" aluminum bar stock, cut to the full length of the side seals to ensure maximum support. The side seal ends are sewn closed to minimize moisture absorption.
- D. Note: "Low Profile" version available for narrow pit gaps.
- E. Rear Hinge Seal Construction: For Kelley and Serco Brands, the rear seals are highly durable and resilient PVC-coated fabric with 2-ply polyester base fabric, also chemical resistant.

Monofilament is added to the weft to provide inherent memory. For other brands, a PVC-coated foam triangle provides an exceptional seal.

- F. Brush Seal Assembly: 1½" nylon brush weatherseal consisting of 1,000 bristles per inch. 1" nylon brush weatherseal included in "Low Profile" version.
- G. Brush Cup Seals: Nylon brush weatherseals provided to fill chain openings. Plugs also provided to fill miscellaneous holes in deck assembly.

2.3 TRUCK RESTRAINTS

- A. General: Manufacturer's standard device designed to engage truck's rear-impact guard and hold truck at loading dock. Restraint shall consist of an iron or steel restraining arm that raises until contacting rear-impact guard. Arm shall move vertically, automatically adjusting to varying height of truck due to loading and unloading operations.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Kelley; An Entrematic brand; Star 4 Vehicle restraint.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Standard: Comply with MH 30.3.
- D. Rated Capacity: Capable of supporting total gross load of 50,000 lb without permanent deflection or distortion.
- E. Power Operating System: Manufacturer's standard electromechanical or hydraulic unit.
 - 1. Remote-Control Station: Single-button station of the constant-pressure type, enclosed in NEMA ICS 6, Type 12 box. Restraint is engaged by depressing and holding button; restraint is released by releasing button.
 - 2. Interlock: Leveler does not operate while truck restraint is not engaged.
- F. Mechanical Operating System: Restraint operates by use of a lifting rod or hook to raise engagement device.
- G. Caution Signs: Exterior, surface mounted; designed to inform both dock attendant and truck driver; with sign copy as follows. Provide one sign at each truck-restraint location.
 - 1. Sign Copy in Forward and Reverse Text: Manufacturer's standard text permitting truck movement with green light.
- H. Light Communication System: Red and green illuminated signal-light sets, with lens approximately 4 inches in diameter, designed to indicate status to both dock attendant and truck driver. Equip system with steel control panel located at interior of dock that includes illuminated lights indicating status of exterior signal lights. Provide signal-light set and control panel at each location indicated for light communication system. Enclose exterior signal-light sets in steel or plastic housing with sunshade.
- I. Alarm: Audible and visual system indicating that rear-impact guard is not engaged, with manual reset.
- J. Materials:
 - 1. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
 - 2. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from steel plate complying with ASTM A572/A572M, Grade 55.
 - 3. Steel Tubing: ASTM A500/A500M, cold formed.

- 4. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- K. Truck-Restraint Finish: Hot-dip galvanized.
- L. Accessories:
 - 1. Interlock to dock leveler – coordinate with Owner.
 - 2. Key switch override.

2.4 FINISH REQUIREMENTS

- A. Finish loading dock equipment after assembly and testing.
- B. Hot-Dip Galvanizing: Comply with the following:
 - 1. ASTM A123/A123M for iron and steel loading dock equipment.
 - 2. ASTM A153/A153M or ASTM F2329/F2329M for iron and steel hardware for loading dock equipment.
- C. Spray Zinc Metallizing: ASTM B833.
- D. Electrodeposited Zinc Coatings: ASTM B633.
- E. Steel Prime Paint Finish: Clean, pretreat, and apply manufacturer's standard primer.
- F. Baked-on Factory Finish: Clean, pretreat, and apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - 1. Color: Per Architect from manufacturer's full range.
 - 2. Toe Guards: Paint to comply with ANSI Z535.1.

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 the Work.
- 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. 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.
- B. Set curb angles in concrete edges of truck-leveler recessed pits with tops flush with driveway. Fit exposed connections together to form hairline joints.
- C. Clean recessed pits of debris.

3.3 INSTALLATION, GENERAL

- A. Install loading dock equipment as required for a complete installation.
 - 1. Rough-in electrical connections.

3.4 INSTALLATION OF RECESSED LOADING DOCK LEVELERS

- A. Attach dock levelers securely to loading dock platform, flush with adjacent loading dock surfaces and square to recessed pit.

3.5 INSTALLATION OF TRUCK RESTRAINTS

- A. Attach truck restraints in a manner that complies with requirements for arrangement and height required for device to engage vehicle rear-impact guard. Interconnect control panel and signals with dock leveler.
 - 1. Wall-Mounted Units: Weld.
 - a. Weld truck restraints to steel curb angle embedded in loading dock edge.
 - b. Anchor truck restraints to face of loading dock with expansion anchors and bolts.
 - 2. Driveway-Mounted Units: Anchor truck restraints to driveway with expansion anchors and bolts.
 - 3. Pit-Mounted Units: Anchor truck restraints to concrete pit with expansion anchors and bolts.

3.6 ADJUSTING

- A. Adjust loading dock equipment to function smoothly and safely and lubricate as recommended by manufacturer.
- B. Test dock levelers for vertical travel and adjust to maintain operating range indicated.
- C. After completing installation of exposed, factory-finished loading dock equipment, inspect exposed finishes and repair damaged finishes.

3.7 MAINTENANCE SERVICE

- A. Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of loading dock equipment Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper loading dock equipment operation at rated speed and capacity. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

3.8 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain loading dock equipment.

END OF SECTION 11 13 19