SECTION 111300 - 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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Dock levelers.
2. Truck restraints.
3. Master control system.
4. Dock lights.
5. Dock bumpers.

B. Related Sections:

1. Division 03 Section "Cast-in-Place Concrete" for concrete work for recessed loading dock equipment.
2. Division 08 Sections for coiling and other overhead doors electrically interlocked to dock levelers.
3. Division 26 Sections for electrical wiring for, and connections to, 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: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for loading dock equipment. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For loading dock equipment. Include plans, elevations, sections, details, and attachments to other work.
1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection. 

2. Wiring Diagrams: For power, signal, and control wiring. 

C. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency; indicate compliance of dock levelers with requirements in MH 30.1 for determining rated capacity, which is based on comprehensive testing within last two years of current products. 

1. Submittal Form: According to MH 30.1, Appendix A. 

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

E. Warranty: Sample of special warranty. 

1.5 QUALITY ASSURANCE 

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project. 

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. 

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: Verify actual dimensions of construction contiguous with loading dock equipment, including recessed pit dimensions and heights of loading docks, by field measurements before fabrication. 

1.8 WARRANTY 

A. Warranty for Dock Equipment: Manufacturer's standard form in which manufacturer agrees to repair or replace dock-equipment 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, 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 (6 mm) between deck supports.

2. Warranty Period shall be a minimum of one (1) year from date of Substantial Completion.
3. Warranty shall be for unlimited usage of leveler for the specified rated capacity over the term of the warranty.

PART 2 - PRODUCTS

2.1 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 (380).

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.

F. Pressure-Treated Wood: DOC PS 20 dimension lumber, select structural grade, kiln dried, and pressure treated with waterborne preservatives to comply with AWPA C2.

2.2 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: Subject to compliance with requirements, provide SPX Dock Products - Kelly; HP Hydraulic Dock Leveler or comparable product by one of the following:

   a. Blue Giant Equipment Corporation.
   b. Chalfant Dock Equipment.
   c. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.
   d. Pioneer Loading Dock Equipment.
   e. Rite-Hite Corporation.
   f. SPX Dock Products - Serco.

B. Standard: Comply with MH 30.1.
C. Rated Capacity: Capable of supporting total gross load of 40,000 lbs. minimum without permanent deflection or distortion.

D. Platform: Not less than 3/16-inch- (5-mm) thick, nonskid steel plate.
   1. Platform Size: 6 feet wide by 8 feet long.
   2. Frame: Manufacturer's standard.
   3. Toe Guards: Equip open sides of dock leveler over range indicated with metal toe guards.
      a. Toe-Guard Range: Entire upper operating range.

E. Hinged Lip: Not less than 1/2-inch- (13-mm-) thick, nonskid steel plate.
   1. Hinge: Full width, piano-type hinge with heavy-wall hinge tube and greased fittings, with gussets on lip and ramp for support.
   2. Safety Barrier Lip: Designed to protect material-handling equipment from an accidental fall from loading platform edge of the dock leveler when the leveler is not in use.

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: 12 inches (305 mm).
      b. Below Adjoining Platform: 12 inches (305 mm).
   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 (102 mm) 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.
      a. Length of Lip Extension: 18 inches (457 mm).
   5. Automatic Ramp Return: Automatic return of unloaded ramp, from raised or lowered positions to stored position, level with platform, as truck departs.
   6. Interlock: Leveler will not operate while overhead door is in closed position and truck restraint is not engaged.

G. Hydraulic Operating System: Electric control from a remote-control station; fully hydraulic operation. Electric-powered hydraulic raising and hydraulic lowering of ramp. 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 (76 mm).

1. Remote-Control Station with Emergency Stop: Multibutton control station with an UP button of the constant-pressure type and an emergency STOP button of the momentary-contact type, enclosed in NEMA ICS 6 box. Ramp raises by depressing and holding UP button; ramp lowers at a controlled rate by releasing UP button. All ramp movement stops, regardless of position of ramp or lip, by depressing STOP button. Normal operation resumes by engaging a manual reset button or by pulling out STOP button.

   a. Master Panel: Control panel with integral fused disconnecting means for operating dock leveler, dock door, and truck restraints.

H. Accessories:

1. Curb Angles: 3-by-3-by-1/4-inch (76-by-76-by-6-mm) galvanized-steel curb angles for edge of recessed leveler pit, with 1/2-inch- (13-mm-) diameter by 6-inch- (152-mm-) long concrete anchors welded to angle at 6 inches (152 mm) o.c.

2. Night Locks: Manufacturer's standard means to prevent extending lip and lowering ramp when overhead doors are locked.

3. Side and rear weatherseals.

4. Abrasive skid-resistant surface.

I. Finish: Paint dock levelers after assembly.

1. Toe Guards: Paint yellow to comply with ANSI Z535.1.

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 SPX Dock Products - Kelly; STAR® 4 Vehicle Restraint or comparable product by one of the following:

   a. Blue Giant Equipment Corporation.

   b. Chalfant Dock Equipment.

   c. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.

   d. Pioneer Loading Dock Equipment.

   e. Rite-Hite Corporation.

   f. SPX Dock Products - Serco.

B. Standard: Comply with MH 30.3.

C. Rated Capacity: Capable of supporting total gross load of 30,000 lbs. minimum without permanent deflection or distortion.
D. Operating Range: Capable of restraining rear-impact guards within a range from:
   1. Vertical: 30 inches (762 mm) above driveway.
   2. Horizontal: 12 inches (305 mm) in front of dock bumpers.

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 will not operate while truck restraint is not engaged.

F. Rear-Impact-Guard Sensor: Detects presence of rear-impact guard and automatically returns to
   stored position if rear-impact guard is not engaged.

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.
   2. Interior Sign Copy: 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 (102 mm) 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.
   1. Automatic Operation: System is activated automatically by limit switch mounted on
      overhead door track. Provide on-off switch located on master control panel.

I. Alarm: Audible system indicating that rear-impact guard is not engaged, with manual reset.

J. Accessories: Interlock to dock leveler.


2.4 MASTER CONTROL SYSTEM

A. All dock equipment at each dock shall be controlled by a single master control system with
   interlocks to the truck restraint, overhead door and dock leveler.
   1. Basis-of-Design Product: Subject to compliance with requirements, provide SPX Dock
      Products - Kelly; Master Control Panel or comparable product by one of the following:
      a. Blue Giant Equipment Corporation.
      b. Chalfant Dock Equipment.
      c. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.
d. Pioneer Loading Dock Equipment.
e. Rite-Hite Corporation.
f. SPX Dock Products – Serco.

2.5 DOCK LIGHTS

A. General: Provide dock lights for each location indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Rite Hite; Rite-Lite HD LED Dock Light or comparable product by one of the following:
   b. APS Resource

2.6 DOCK BUMPERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

2. Durable Corporation.
3. Hugger Dock Equipment Company; Division of Columbus Foam Products, Inc.
5. Rite-Hite Corporation.
6. SPX Dock Products - Kelley.
7. SPX Dock Products - Serco.

B. Laminated-Tread Dock Bumper: Fabricated from multiple, uniformly thick plies cut from fabric-reinforced rubber tires. Laminate plies under pressure on not less than two 3/4-inch- (19-mm-) diameter, steel supporting rods that are welded at one end to 1/4-inch- (6-mm-) 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 (25 mm) of tread plies extending beyond the face of closure angles.

1. Thickness: 6 inches (152 mm).
2. Horizontal Style: 10 inches (250 mm) high by 18 inches (460 mm) long minimum.

C. Anchorage Devices: Hot-dip galvanized-steel anchor bolts, nuts, washers, bolts, sleeves, cast-in-place plates, and other anchorage devices as required to fasten bumpers securely in place and to suit installation type indicated.

2.7 FOAM-PAD DOCK SEALS

A. General: Dock seals consisting of fabric-covered foam pads designed to compress 4 to 5 inches (102 to 127 mm) 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: Subject to compliance with requirements, provide Rite Hite; TP Platinum Dock Seal or comparable product by one of the following:
a. Blue Giant Equipment Corporation.
b. Chalfant Dock Equipment.
c. Fairborn U.S.A., Inc.
d. Hugger Dock Equipment Company; Division of Columbus Foam Products, Inc.
e. McGuire, W. B. Co., Inc.; Division of Overhead Door Corporation.
f. Pioneer Loading Dock Equipment.
g. SPX Dock Products - Kelley.
h. SPX Dock Products - Serco.

B. Door Opening Size: As indicated on Drawings.

C. Stationary Head Pad: 18 inches (457 mm) high and same depth as jamb pads; sized for opening width.

D. Jamb Pads: Square.
   1. Nominal Size: 12 inches (305 mm) wide and sized for opening height.

E. 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. Pressure-Treated Wood Support Frame: Factory painted; with steel mounting hardware.
   2. Cover Fabric: Hypalon-coated nylon with minimum total weight of 40 oz./sq. yd. (1356 g/sq. m).
      a. Color: As selected by Architect from manufacturer's full range.

2.8 GENERAL FINISH REQUIREMENTS

A. Finish loading dock equipment after assembly and testing.

2.9 STEEL FINISHES

A. Galvanizing: Hot-dip galvanize components as indicated to comply with the following:
   1. ASTM A 123/A 123M for iron and steel loading dock equipment.
   2. ASTM A 153/A 153M or ASTM F 2329 for iron and steel hardware for loading dock equipment.

B. Steel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat in manufacturer's standard color.
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 control stations, wiring, safety devices, light-communication systems, and accessories as required for a complete installation.

1. Rough-in electrical connections according to requirements specified in Division 26 Sections.

B. Recessed Dock Levelers: Attach dock levelers securely to loading dock platform, flush with adjacent loading dock surfaces and square to recessed pit.

C. Truck Restraints: 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 truck restraints to steel mounting plate embedded in loading dock edge.

D. Dock Lights: Attach at each dock door jamb in accordance with manufacturers written instructions. Mount arm 80” above finished floor.
E. 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. Welded Attachment: Plug-weld anchor holes in contact with steel inserts and fillet weld at other locations.

F. 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

A. Adjust loading dock equipment to function smoothly and safely, and lubricate as recommended by manufacturer.

B. Test dock levelers for vertical travel within operating range indicated.

C. After completing installation of exposed, factory-finished loading dock equipment, inspect exposed finishes and repair damaged finishes.

3.5 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 111300
PART 1 - GENERAL

1.1 OVERVIEW

A. Master Specification 111300 Loading Dock Equipment is based on a standard 48” high truck dock. Additional dock equipment may be required for other dock heights.

B. Refer to Master Specification 111300 for detailed requirements.

PART 2 - DESIGN CRITERIA

2.1 WARRANTY

A. No special warranty requirement.

2.2 GENERAL DESIGN CONSIDERATIONS

A. Any modifications or deviations from this Design Guideline direction shall require written approval from the Owner.

B. Verify with Cleveland Clinic what types of delivery vehicles are anticipated prior to design of any truck dock. More than one dock height may be required to accommodate a wide variety of delivery vehicles.

C. All docks shall be designed with an interlocked control system. System interlock shall include overhead door, dock leveler and truck restraint.

PART 3 - PRODUCTS

3.1 GENERAL

A. Any equipment required in addition to those included in the Master Specification shall be chosen based on required function, level of durability and Cleveland Clinic’s approval.

3.2 MANUFACTURERS: Subject to compliance with final requirements of Design Team, acceptable manufacturers are:

A. As listed in Master Specification 111300 Loading Dock Equipment.

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