

SECTION 11 13 00
LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Loading dock bumpers.
 - 2. Dock seals.
 - 3. Dock shelters.
 - 4. Transparent strip door curtains.
 - 5. Dock levelers.
 - 6. Truck restraints.
 - 7. Light communication systems.
 - 8. Fall Protection Barrier Gates.

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 ACTION SUBMITTALS

- A. Product Data: Technical data for each type of product, including Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 2. Include electrical characteristics of blower motor.
- B. Shop Drawings: Submit plans, elevations, sections, details, and attachments to other work.
 - 1. Detail assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of anchors and field connection.
 - 2. Include diagrams for power, signal, and control wiring of inflatable blower motor.

1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

- B. 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, which is based on comprehensive testing within last two years of current products.
 - 2. Submittal Form: In accordance with MH 30.1.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit data for inflatable units to include in operation and maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with:
 - 1. AWS D1.1/D1.1M Structural Welding Code - Steel.
 - 2. AWS D1.3 Structural Welding Code - Sheet Steel.
- B. Installer Qualifications: Entity that is an authorized manufacturer representative having minimum 5 years documented experience 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.
- C. Source Limitations: Obtain each type of operable loading dock equipment from single source from single manufacturer.

1.7 COORDINATION

- A. Coordinate location of embedded items so that Work will comply with design requirements.
- B. Coordinate with manufacturers the sizes and location of all components with typical vehicle sizes to ensure no impact damage from incoming trucks, proper interface and seals, configurations and properties, such that all components will function to serve their intended purpose with proper clearances, receive all trucks for loading and unloading, seal and overall function. Propose any adjustments clearly annotated in submittals for any recommended adjustments coordinated with manufacturers.

1.8 DELIVERY, STORAGE, AND HANDLING

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

1.9 PROJECT CONDITIONS

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

1.10 WARRANTY

- A. Written warranty signed by manufacturer in which 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 (6 mm) 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.

1.11 MAINTENANCE SERVICE

- A. Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 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 loading dock equipment operation at rated speed and capacity. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. 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.
- B. Coordinate with manufacturers the sizes and location of all components with typical vehicle sizes to ensure no impact damage from incoming trucks, proper interface and seals, configurations and properties, such that all components will function to serve their intended purpose with proper clearances, receive all trucks for loading and unloading,

seal and overall function. Propose any adjustments clearly annotated in submittals for any recommended adjustments coordinated with manufacturers.

2.2 DOCK BUMPERS

- A. Dock Bumpers: Surface mounted bumpers; of type, size, and construction indicated; designed to absorb kinetic energy and minimize damage to loading dock structure.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Durable Corporation.
 - b. Hugger Dock Equipment Company; Columbus Foam Products, Inc.
 - c. Kelley; An Entrematic brand.
 - d. Rite-Hite Corporation.
 - e. Serco; An Entrematic brand.
- B. Molded Rubber Dock Bumpers: Fabricated from molded rubber compound reinforced with nylon, rayon, or polyester cord; with Type A Shore durometer hardness of 80, plus or minus 5, when tested according to ASTM D 2240; of size and configuration indicated. Fabricate units with not less than two predrilled anchor holes.
 - 1. Configuration: Indicated on Drawings.
 - 2. Thickness: Indicated on Drawings 6 inches (152 mm) minimum.
- C. 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) unless exceeded as Indicated on Drawings.
 - 2. Horizontal Style: 10 inches (250 mm) high by length indicated on Drawings.
 - 3. Vertical Style: 8 inches (203 mm) wide by 24 inches (610 mm) high unless exceeded as Indicated on Drawings.
- D. Anchorage Devices: 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. Hot dip galvanized in accordance with ASTM A 153/A 153M or ASTM F 2329.
- E. Materials: ASTM 36/A 36M for steel plates, shapes, and bars. Hot dip galvanize in accordance with ASTM A 123/A 123M.

2.3 FOAM PAD DOCK SEALS

- A. Dock Seals: Dock seals consisting of fabric covered foam pads designed to compress 4 inches 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: Subject to compliance with requirements, provide products by Kelley, An Entrematic brand. Subject to compliance with requirements,

determination of equal products by the Architect and overall acceptance by the Owner for maintenance considerations, products by one of the following may also be acceptable:

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Beacon Industries, Inc.
 - b. Blue Giant Equipment Corporation.
 - c. McGuire; A Division of Systems, Inc.
 - d. Nordock Inc.
 - e. Pentalift Equipment Corporation.
 - f. Rite-Hite Corporation.
 - g. Serco; An Entrematic brand.
 - h. Super Seal Mfg. Ltd.
- B. Stationary Head Pad: 12 inches (305 mm) high and same depth as jamb pads; sized for opening width.
- C. Jamb Pads: Square.
 1. Nominal Size: 12 inches (305 mm) wide unless exceeded as Indicated on Drawings and sized for opening height.
- D. Construction: Consisting of single ply 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. Steel Support Frame: Steel channel frame of standard weight, shape, and finish; with steel mounting hardware.
- E. Materials:
 1. Cover Fabric: Neoprene coated nylon with minimum total weight of 40 oz./sq. yd. (1356 g/sq. m).
 - a. Color: Selected by Architect.
 2. Guide Strips: 4 inch (102 mm) wide, coated, nylon guide strips on jamb pads.
 3. Pleated Protectors: On face of jamb pads of overlapping layers of coated fabric attached to base fabric; 8 inch (203 mm) wear exposure.
 - 4.
 5. Pressure Treated Wood: DOC PS 20 dimension lumber, select structural grade, kiln dried, and pressure treated with waterborne preservatives to comply with AWPA U1; Use Category UC3.
 - a. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- F. Steel Finish: Hot dip galvanize components:
 1. ASTM A 123/A 123M for iron and steel support framing.
 2. ASTM A 153/A 153M or ASTM F 2329 for iron and steel hardware and anchors.

2.4 FRAME TYPE DOCK SHELTERS

- A. Dock Shelter: Dock shelters designed to form a seal with sides and top of truck body while leaving entire width and height of truck's rear opening unobstructed; of type, size, and construction indicated.
1. Basis of Design: Subject to compliance with requirements, provide products by Kelley, An Entrematic brand. Subject to compliance with requirements, determination of equal products by the Architect and overall acceptance by the Owner for maintenance considerations, products by one of the following may also be acceptable:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Blue Giant Equipment Corporation.
 - b. McGuire; A Division of Systems, Inc.
 - c. Nordock Inc.
 - d. NOVA Technology International, L.L.C.
 - e. Pentalift Equipment Corporation.
 - f. Rite-Hite Corporation.
 - g. Serco; An Entrematic brand.
 - h. Super Seal Mfg. Ltd.
- B. Rigid Frame Type: Fabricated from fabric covered side and top panels attached to fixed supporting framework. Provide head and side curtains with built in flexible stays, wind straps between head curtain and side frame, pleated protectors on head curtain, and a yellow aim patch on side curtains. Slope head frame from center for drainage. Provide replaceable, fabric covered, tapered, foam bottom pads and protective steel bumpers of size and type required for application shown.
- C. Flexible Frame Type: Fabricated from fabric covered side and top panels attached to retractable supporting framework with independent spring-tension extension arms. Provide head and side curtains with built in flexible stays, pleated protectors on head curtain, and a yellow aim patch on side curtains. Provide replaceable, fabric covered, tapered, foam-bottom pads of size and type required for application shown.
- D. Head Pad Height: 18 inches (457 mm) unless otherwise indicated on the Drawings.
- E. Construction: Fabricate framework, pads, bumpers, fabric for curtains and panels, and other components to sizes and shapes indicated or required to fit door opening sizes shown, and allow for not less than 18 inches (457 mm) of truck body penetration when truck is docked.
1. Steel Framework: Zinc plated steel tubing of size and thickness recommended by manufacturer, with joints welded.
 2. Top and Side Panels: White, translucent vinyl, weighing 14 oz./sq. ft. (4272 g/sq. m).
 3. Tapered Side Panels: Taper side panels to angle required to accommodate sloped loading dock approach grades, and make sealing edge of dock shelter parallel to back edge of truck. Taper for approach.

- F. Materials:
 - 1. Cover Fabric: Hypalon coated nylon with minimum total weight of 40 oz./sq. yd. (1356 g/sq. m).
 - a. Color: Selected by Architect.
 - 2. Pleated Protectors: Overlapping layers of same fabric as cover.
- G. Steel Finish: Hot dip galvanize components to comply with the following:
 - 1. ASTM A 123/A 123M for iron and steel support framing.
 - 2. ASTM A 153/A 153M or ASTM F 2329 for iron and steel hardware and anchors.
- H. Accessories:
 - 1. Buffer flaps.
 - 2. Bottom filler curtain.
 - 3. Bottom seal pads.

2.5 RECESSED DOCK LEVELERS

- A. Dock Leveler: 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: Subject to compliance with requirements, provide HK Series Hydraulic Dock Leveler by Kelley, An Entrematic brand. Subject to compliance with requirements, determination of equal products by the Architect and overall acceptance by the Owner for maintenance considerations, products by one of the following may also be acceptable:
 - a. Blue Giant Equipment Corporation.
 - b. McGuire; A Division of Systems, Inc.
 - c. Nordock Inc.
 - d. Pentalift Equipment Corporation.
 - e. Rite-Hite Corporation.
- B. Standard: Comply with MH 30.1, except for structural testing to establish rated capacity.
- C. Rated Capacity: Capable of supporting total gross load of 30,000 pounds per MH 30.1 without permanent deflection or distortion unless otherwise noted on the Drawings.
- D. Platform: Not less than 1/4 inch (6 mm) thick, nonskid steel plate.
 - 1. Platform Sizes: Indicated on Drawings.
 - 2. Frame: 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 5/8 inch (16 mm) thick, nonskid steel plate.

1. Hinge: Full width, piano type hinge with heavy wall hinge tube and grease 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: 18 inches (457 mm) or otherwise exceeded as Indicated on Drawings.
 - b. Below Adjoining Platform: 14 inches (356 mm) unless otherwise exceeded 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. 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: 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: 18 inches (457 mm) unless otherwise Indicated on Drawings.
 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 does not operate while overhead door is in closed position, leveler night lock is engaged 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: Weatherproof 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, Type 4 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. Dual Panel Control Station: Remote control station for operating side by side dock levelers.

2.6 TRUCK RESTRAINTS

- A. Truck Restraints: 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: Subject to compliance with requirements, provide products by Kelley, An Entrematic brand. Subject to compliance with requirements, determination of equal products by the Architect and overall acceptance by the Owner for maintenance considerations, products by one of the following may also be acceptable:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Blue Giant Equipment Corporation.
 - b. DLM; A Division of Systems Inc.
 - c. McGuire; A Division of Systems, Inc.
 - d. Nordock Inc.
 - e. NOVA Technology International, L.L.C.
 - f. Pentalift Equipment Corporation.
 - g. Rite-Hite Corporation.
 - h. Vestil Manufacturing Company.
- B. Standard: Comply with MH 30.3.
- C. Rated Capacity: Capable of supporting total gross load of 32,000 pounds 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: 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. Rear Impact Guard Sensor: Detects presence of rear impact guard and automatically returns to stored position if rear impact guard is not engaged.
- H. 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: Text permitting truck movement with green light.

2. Interior Sign Copy: Text permitting truck movement with green light.
- I. 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 magnetic switch mounted on overhead door track. Provide on/off switch located on truck restraint control panel.
 2. Mounting: Wall.
- J. Alarm: Audible and visual system indicating that rear impact guard is not engaged, with manual reset.
- K. Materials:
 1. Steel Plates, Shapes, and Bars: ASTM 36/A 36M.
 2. Rolled Steel Floor Plate: ASTM A 786/A 786M, rolled from steel plate complying with ASTM A 572/A 572M, Grade 55 (380).
 3. Steel Tubing: ASTM A 500/A 500M, cold formed.
 4. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
- L. Truck Restraint Finish: Standard finish.
- M. Accessories: Interlock to dock leveler and Key switch.

2.7 LIGHT COMMUNICATION SYSTEMS

- A. Communication system consisting of signal light sets, caution signs, alarms, and controls for each location indicated.
 1. Basis of Design: Subject to compliance with requirements, provide products by Approved Truck Restraint Manufacturer.
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Beacon Industries, Inc.
 - b. Kelley, An Etreumatic Brand.
 - c. Nordock Inc.
 - d. Rite-Hite Corporation.
 - e. Vestil Manufacturing Company.
- B. Caution Signs: Surface mounted; designed to inform both dock attendant and truck driver; with sign copy as follows:
 1. Exterior Sign Copy in Forward and Reverse Text: Text permitting truck movement with green light.
 2. Interior Sign Copy: Text permitting truck movement with green light.

- C. Signal Light Sets: 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 that includes illuminated lights indicating status of exterior signal lights; locate control panel at interior of dock. Provide signal light set and control panel at each location indicated for light communication system. Enclose signal lights in steel or plastic housing, with exterior signal light sets equipped with sunshade.
 - 1. Automatic Operation: Lights are activated automatically by magnetic switch mounted on overhead door track. Provide on-off switch located on control panel.

- D. Materials:
 - 1. Steel Plates, Shapes, and Bars: ASTM 36/A 36M.
 - 2. Rolled Steel Floor Plate: ASTM A 786/A 786M, rolled from steel plate complying with ASTM A 572/A 572M, Grade 55 (380).
 - 3. Steel Tubing: ASTM A 500/A 500M, cold formed.
 - 4. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

2.8 FALL PROTECTION BARRIER GATE

- A. Fall Protection Barrier Gates:
 - 1. Vertical lifting Dock Door Gate, adjustable length, 90 degree vertical assisted lift.
 - 2. Assisted Lift Pedestal 26 inches in width, 11 inches depth, 52 inches in height; shall not restrict the clear opening of overhead doors.
 - 3. Railing Height: 42 inches.
 - 4. Railings: Twin double tube adjustable horizontal rails with tubular post with vertical lifting capability and Lift Assist Pedestal. All materials shall be free of sharp edges and snag points
 - 5. Lift Assist pedestal with Pneumatic shock absorbers to assist vertical opening and closing of gates.
 - 6. Gate auto-locks in upright position.
 - 7. Finish: Powder-coated safety yellow.
 - 8. Accessories:
 - a. Stainless steel expansion anchors for securing plates to concrete floor.
 - 1) Where anchorage is within 3 inches of concrete edge, provide stainless steel threaded rods and chemical anchors.
 - 9. Structural Load: 200 lb (90.7 kg), minimum, in any direction to all components in accordance with OSHA Regulation 29 CFR 1926.502
 - 10. Basis Of Design Product: YellowGate XL Barriers Gate by Yellowgate.

2.9 FINISH REQUIREMENTS

- A. Finish loading dock equipment after assembly and testing.
- B. Electrodeposited Zinc Coatings: ASTM B633.

- C. 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: Match Architect's sample from manufacturer's standard range.
 - 2. Toe Guards: Paint to comply with ANSI Z535.1.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the work.
- B. Examine roughing in for electrical systems for inflatable units to verify actual locations of connections before installation.
- C. Examine walls and floors of pits for suitable conditions where recessed loading dock equipment is installed. Verify pits are plumb and square and properly sloped for drainage from back to front of loading dock.
- D. Proceed with installation after correcting unsatisfactory conditions.

3.2 INSTALLATION

- A. 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.
- B. Dock Shelters: Attach dock shelters securely to building structure in proper relation to openings, dock bumpers, and dock levelers to ensure an effective seal of dock shelter curtains with sides and top of truck body when trucks are positioned against dock bumpers.
- C. Dock Bumpers: Attach dock bumpers to face of loading dock complying 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.
- D. Dock Levelers: Install loading dock equipment as necessary for a complete installation. Rough in electrical connections.
 - 1. Recessed Dock Levelers: Attach dock levelers securely to loading dock platform, flush with adjacent loading dock surfaces and square to recessed pit.
 - 2. 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.
 - a. Wall Mounted Units: Anchor truck restraints to face of loading dock with expansion anchors and bolts.

- A. Install all fall protection items in accordance with manufacturer's recommendations unless exceeded herein. Provide Stainless steel expansion anchors for securing plates, posts and other components to concrete floors. Where anchorage location is within 3 inches of concrete edge, provide stainless steel threaded rods and chemical anchors to avoid cracking concrete. Any damage to concrete shall be repaired by the contractor at the direction of the Architect at no additional cost to the Project.

3.3 FALL PROTECTION BARRIER GATE INSTALLATION

- A. Provide fall protection barrier gates at all locations indicated on the Drawings.
- B. Install all units in compliance with the manufacturer's recommendations and approved shop drawings.
- C. Barrier gates locked in the vertical position shall not impede on the clear opening of adjacent overhead doors, operating mechanisms, emergency door opening devices or loading dock equipment.
- D. Barrier gates when closed shall provide sufficient fall protection at all installed locations and comply with OSHA regulations including but not limited to OSHA Regulation 29 CFR 1926.502.

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. Train Owner's maintenance personnel to adjust, operate, and maintain loading dock equipment.

END OF SECTION