

**SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD**

PART 1: GENERAL

1.01 Section Includes:

1. Vertical reciprocating conveyor, Hydraulic straddle VRC.
 - a. Machine, controller, platform, structural steel hoist frame.
 - b. Wire mesh enclosure and gates.

Related Sections

1. Division 16 - Equipment Wiring Systems:
 - a. Electrical characteristics and wiring connections.
 - b. Electrical service to main disconnect at machine location.
 - c. Electrical service for machine.
 - d. Empty conduit to lift equipment devices remote from machine.

1.02 References:

1. ANSI/ASME B20.1/ASME A17.1 - Safety Standard For Conveyor and Related Equipment.
2. ASTM A36 - Structural Steel.
3. ASTM A 325 - High Strength Bolts for Structural Steel Joints.
4. AWS D1.1 - Structural Welding Code.
5. IEEE C1 - National Electrical Safety Code.

1.03 System Description:

1. Characteristics of Materials Lift as follows:
 - a. Type: Hydraulic Straddle Lift.
 - b. Capacity: 3500 lbs.
 - c. Lift height: 14'-5".
 - d. Landings: Two; Third floor (Track Level) and Fourth floor (Catwalk Level).
 - e. Speed: 20 fpm.
 - f. Platform size: 7'-0"between masts x5'-9"parrallel to masts.
 - g. Loading/unloading pattern: "C".
 - h. Enclosure and Gates: Wire mesh.
 - i. Machine Location: Adjacent to Lift in room 4.134A, Third floor.
 - j. Structure: Self-supporting steel hoistway frame.

SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD

- k. Operation: Electric traction machine with counterweights.
- l. Controls: Self-maintained, 3-button momentary contact.
- m. Accessories: Approach ramp.

1.04 Operation:

- 1. Raising and lowering of Carriage: Provide through push button remote control station at each landing which control two cylinders mounted on unit; transmission of lifting force through wire rope attached to cylinders and Carriage in a manner that produces a 4:1 ratio of Carriage movement to cylinder stroke.
- 2. Upward travel of Carriage: Provide positive mechanical stops to assure positive leveling with upper level.
- 3. Uncontrolled Decent: Protect against with dual safety cams attached to lifting cables.
- 4. Redundant Overload: Provide to prevent raising of Carriage if loaded more than 105% of rated capacity.
- 5. Interlocks: Electrically interlock gates to prevent a gate from being opened unless Carriage is at that level and to prevent Carriage movement if one of gates is not fully closed.

1.05 Submittals:

- 1. Submit under provisions established in the project specifications, Division One requirements.
- 2. Shop Drawings: Indicate the following information:
 - a. Driving machine, controller, selector, governor and other component locations.
 - b. Include elevations, dimensions, materials, finishes, accessories, and attachment to adjacent construction.
- 3. Product Data:
 - a. Manufacturer's specifications, rough-in diagrams, and installation instructions.
 - b. Electrical characteristics and connection requirements.

1.06 Project Record Documents:

- 1. Submit under provisions established in the project specifications, Division One requirements.

SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD

2. Accurately record actual locations of concealed items, conduit, and locations of components.

1.07 Operation and Maintenance Data:

1. Submit under provisions established in the project specifications, Division One requirements.
2. Include a parts catalog with complete list of equipment replacement parts; identify each entry with equipment description and identifying code.
3. Provide technical information for servicing operating equipment.
4. Include legible schematic wiring diagrams of installed electrical equipment, and changes made in the Work. List symbols corresponding to identity or markings on machine room and hoistway apparatus.
5. Provide one copy of master schematic and one copy of lubrication chart, framed, with clear plastic; mount on machine room wall.

1.08 Quality Assurance:

1. Perform Work in accordance with ASME B20.1, AWS D1.1, and IEEE C1.

1.09 Qualifications:

1. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.
2. Installer: Company specializing in performing the work of this section and approved by lift equipment manufacturer.
 - a. Maintain service facility locally, within 50 miles of project site.

1.10 Field Measurements:

1. Verify that field measurements are as indicated on shop drawings.

1.11 Warranty:

1. Provide two-year warranty under provisions established in the project specifications, Division One requirements.

**SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD**

2. Warranty: Include coverage for straddle lift system, operating equipment, and devices.
- 1.12 Maintenance Service:
1. Furnish service and maintenance of Straddle Lift system and components for Ninety- (90) Days from date of Substantial Completion.
 2. Examine monthly, clean, adjust, and lubricate all equipment.
 3. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original equipment.
 4. Provide emergency call back service during working hours during this maintenance period.
 5. Perform maintenance work using competent personnel, under the supervision of the Straddle Lift installer.
 6. Maintenance service shall not be assigned or transferred to any agent or Subcontractor.

PART 2: PRODUCTS

- 2.01 Manufacturers:
1. Wildeck, Inc. P.O. Box 89, Waukesha, WI. 53187; 800/325-6939.
 2. Substitutions: Under provisions of Section 01600.
- 2.02 Materials:
1. Structural Mast: Rolled Steel Sections, Shapes, Rods: ASTM A36.
- 2.03 Equipment:
1. Motor, Controller, Controls, Buttons, Wiring and Devices, Indicators: Required by IEEE C.1 and ASME B20.1.
 2. Guide Rails, Wire Ropes, Counterweights, Sheaves, Attachment Brackets and Anchors: Purpose designed, sized according to code with safety factors.
- 2.04 Electrical Characteristics and Components:

**SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD**

1. Electrical Characteristics:
 - a. Motor: 5 HP.
 - b. 6.7 AMP.; 10 AMP. full load.
 - c. Voltage: 460/208.
2. Disconnect Switch: Factory mount disconnect switch on equipment under provisions of Division 16.

2.05 Electrical Components:

1. Boxes, Conduit, Wiring, and Devices: Required by IEEE C1-National Electrical Safety Code.
2. Fittings: Steel compression type for electrical metallic tubing. Fittings with set screws are acceptable only when a separate grounding conductor is also installed across the joint.
3. Do not use armored flexible metal conduit as a grounding conductor.
4. Provide additional components and wiring to suit machine layout.
5. Electrical Control:
 - a. Control station at each Level: 24 volt; push button station marked "UP," "DOWN," AND "EMERGENCY STOP".

2.06 Lubrication:

1. Grease Fittings: For lubricating bearings requiring periodic lubrication.
2. Grease Cups: Automatic feed type.
3. Lubrication Points: Visible and easily accessible.

2.07 Carriage Fabrication:

1. Frame: Rigid rolled steel sections, braced.
2. Flooring: Min. 1/4" thick steel checkered plate.
3. Railings for non-operating sides:
 - a. Fabricate from 1-1/2" dia. round steel pipe. Make bends uniform and free from buckles or other defects.
 - b. Miter and cope intersections within 2 degrees, fit to within 1/8 inch and weld all around.

SECTION 14500 - MATERIALS LIFT CONSTRUCTION STANDARD

- c. Weld connections.
 4. Provide chains on operating side.
- 2.08 Enclosure and Gate Construction:
1. Height: 8'-0"; provide at each landing.
 2. Wire: Steel wire woven into diamond mesh of gauge and size which will reject a ball 3/4" diameter, securely clinched to frames and gates.
 3. Frames:
 - a. Vertical frames: 1-1/4" x 5/8" cold rolled "C" section channels with 1/4" bolt holes at 12"o.c.
 - b. Horizontal frames: 1" x 1/2" cold rolled channels, with joints mortised and tenoned.
 4. Hinged gate frames: 1-1/4" x 1/2" channel with 1-1/4" x 1/8" flat bar cover three sides, 1-3/8" x 3/4" x 1/8" angle riveted to lock side. Provide 1-1/2" pairs butt hinges riveted to both gate and frame.
- 2.09 Finishes And Signs:
1. Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime one coat of Manufacturer's standard high solids industrial enamel.
 2. Signs: At each point of operation and access, provide signage to read "RIDING THE CONVEYER IS FORBIDDEN".

PART 3: EXECUTION

- 3.01 Installation:
1. Install system and components in accordance with ASME B20.1.
 2. Arrange equipment in room so equipment can be removed for repairs or replaced without dismantling or removing other equipment components.
 3. Connect equipment to building utilities.
 4. Provide conduit, boxes, wiring and accessories within machine room, hoistway and signal outlets.

SECTION 14500 - MATERIALS LIFT
CONSTRUCTION STANDARD

5. Field Welds: Chip and clean away oxidation and residue, wire brush and apply two coats of primer.

3.02 Adjustments:

1. Adjust work under provisions established in the project specifications, Division Three requirements.
2. Adjust for smooth acceleration and deceleration of Lift.
3. Adjust feature at each landing.

3.03 Cleaning:

- A. Project Closeout: Cleaning installed work.
- B. Remove protective coverings from finished surfaces.
- C. Clean surfaces and components ready for inspection.

3.04 Protection of Finished Work:

1. Project Closeout: Protecting installed work.
2. Do not permit construction traffic within lift after cleaning.

3.05 Demonstration and Instructions:

1. Project Commissioning: Demonstrating installed work.
2. Demonstrate equipment operation in presence of Owner's representative.

END OF STANDARD 14500