



SECTION 14350 SHOPPING CART CONVEYOR

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The primary scope of work under this section is engineering, design, and equipment supply of Cartveyor® shopping cart conveyors, including drive units, controls, gates, and signage as shown on project drawings and as specified herein. Related scope of work by other subcontractors as set forth at PART 3 herein below, including Examination, Installation, Permits and Tests, and preventative maintenance contract.

1.02 RELATED SECTIONS

- A. Section 03300 – Cast in Place Concrete: relates to pit formations, floor openings, inserts, and anchoring devices in concrete.
- B. Section 05110 – Structural Steel Framing Fabrication: relates to attachment plates, angle brackets, and other preparation of structural steel to support Cartveyor trusses.
- C. Section 09250 – Gypsum Board: relates to enclosures and finishes applied to exterior of Cartveyor.
- D. Section 14300 – Escalators: relates to supply of any required floor plates and Coordination of Cartveyor layout, shipment, and installation. Escalator contractor to provide one (1) complete set of submittals to Cartveyor manufacturer. Cartveyor manufacturer to provide one (1) complete set of submittals to escalator contractor. Escalator contractor to supply floor plates for Cartveyor landings to match escalator landings.
- E. Sections of Division 16: Relates to supply of electrical service to the Cartveyor.

1.03 REFERENCES

- A. ASME – American Society of Mechanical Engineers. Shopping cart conveyors shall be designed to meet the requirements of ASME B20.1 – latest edition.
- B. NEMA – National Electrical Manufacturer’s Association.

1.04 SUBMITTALS

- A. Product Data
 - 1. Product Data: Submit latest edition Cartveyor dimensional information and shopping cart worksheet with the proposal.
 - 2. Completed Cartveyor dimensional information and shopping cart worksheet to be provided by General Contractor/Owner at time of award.
- B. Shop Drawings:
 - 1. Submit General Arrangement Drawing for approval within 2 weeks of executed subcontract or purchase order, including plans, elevations, landing details and pit dimensions.
 - 2. Submit Specification Sheet for approval within three weeks of executed subcontract and purchase order, including scope of work, operating voltages, conveying speed, cladding type, and any special project notes.
 - 3. Shopping Cart Drawing.
- C. Seismic Requirements: If required, submit Seismic Report per IBC 2003 stamped by a professional engineer licensed in the appropriate jurisdiction.
- D. Closeout Submittals provided with equipment:
 - 1. Electric Schematic Drawing including control panel layout.
 - 2. Operation Manual including operating instructions, maintenance schedule, service, troubleshooting, and fault diagnostics guidelines.
 - 3. Submit any "as built" revisions to mechanical or electrical drawings upon completion of start-up.

1.05 QUALITY ASSURANCE

- A. Manufacturer must have a minimum of five (5) years experience in manufacture of shopping cart conveyors.
- B. Manufacturer and Installer must guarantee compliance with ASME B20.1.
- C. Installer shall have the approval of the manufacturer and have a minimum of five (5) years experience in the installation of conveyors or escalators.

1.06 WARRANTY

- A. The manufacturer shall warrant the Cartveyor to be free from manufacturing defects as follows:
 - 1. Purchased Components: One (1) year parts and labor.
 - 2. Warranty period begins after completion of installation (not to exceed sixty (60) days after date of shipment).

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Cartveyor is manufactured by
PFlow Industries, Inc.
6720 N. Teutonia Avenue
Milwaukee, WI 53209
PH: 414/352-9000, contact Mark Beggs at extension 125.
- B. Substitutions: Not permitted.

2.02 MECHANICAL SPECIFICATION:

- A. Basic Characteristics
 - 1. Load Capacity: The Cartveyor shall be rated at a live load capacity of 150 lbs. per cart with a total capacity of 1000 lbs.
 - 2. Speed: The Cartveyor shall have a conveying speed of approximately 80 feet per minute.
 - 3. Vertical Travel (Rise): See project drawings for applicable operating floor levels and floor-to-floor elevations.
 - 4. Angle of inclination: 30°.
 - 5. Installation: Indoors, adjacent to escalators, as shown on project drawings.
 - 6. Power Supply: 460 volt, 3-phase, 60 Hz. Other power options are available.
 - 7. Safety Devices:
 - a. Entrance and exit locking safety gates to restrict access.
 - b. Entrance and exit monitors.
 - c. 1/2" thick by minimum 24" high acrylic safety barriers mounted into balustrade top to shield customers on escalator.
- B. Special Features:
 - a. Touch screen display with text and graphics for user instruction and system diagnostics.
 - b. Program to archive shopping cart thru-put, number of hours running, and fault occurrences.
 - c. Sleep timer prevents continuous running and minimizes energy use.
 - d. Caster guides.
 - e. Tray beneath discharge end to catch debris.
- C. Performance:
 - 1. Each unit shall be capable of operating at rated speed in designated travel direction for 24 hours per day, seven days a week.
- D. Structural Components:
 - 1. Truss: Heavy structural steel construction with extensions to match escalator dimensions.
 - 2. Conveyor frame: Heavy-gauge formed steel construction.
 - 3. All unfinished carbon steel surfaces shall be coated with industrial enamel finish over gray-oxide primer – finish color is PFlow Blue. Prior to painting, all dirt, mill scale, oil, and grease shall be removed from carbon steel surfaces by a combination of brushing, wiping, and use of solvents.
- E. Drive assembly:
 - 1. 5 HP motor mounted to hollow shaft helical beveled gear reducer.
 - 2. Heavy-duty spring-loaded chain take-up assembly with limit switches monitoring minimum, maximum, and mid-travel.
 - 3. Sheet metal drip pans.

- F. Loading zone:
 - 1. Each cart conveyor loading zone will have archway constructed of stainless steel, satin finish to provide visual and physical guide to inhibit carts with overhanging load.
 - 2. Each loading zone will include bi-parting “locking” swing gates to restrict access.
- G. Signs:
 - 1. Universal pictograms with lettering a minimum of 1” high.
- H. Balustrades and Decking:
 - 1. Inner Balustrade and Cap: Stainless steel, satin finish.
 - 2. Deck Boards: Stainless steel, satin finish.
 - 3. Trim and Moldings: Black industrial grade plastic.
 - 4. Exterior Cladding to cord line: Stainless steel, satin finish.

2.03 CONVEYOR ELECTRICAL SPECIFICATION

- A. Electric Motor:
 - 1. Motor horsepower shall be sized for the rated live load and specified speed, with a minimum of 5 Hp.
 - 2. All motors are three-phase and shall be designed for continuous-duty at ambient temperatures from 32° F to 130° F.
 - 3. The motor shall not automatically restart when the overload device is reset.
- B. Controls:
 - 1. Infeed landing shall be equipped with a touch screen display.
 - 2. Discharge landing shall be equipped with a warning light and buzzer.
 - 3. An internally pre-wired, NEMA 4 rated main control panel shall be provided with PLC based controls logic, and field wiring terminal block.
 - 4. Auto-start function when cart is presented – “Sleep” mode is required to conserve energy when carts are not present.
 - 5. Equipment control voltage to be 110 VAC and 24VDC with transformer and power supply provided by the manufacturer.
 - 6. Step-down transformer shall be remote-mounted to the truss.
- C. Power Source:
 - 1. Owner shall terminate three-phase high voltage operating power at a disconnect junction box in an area to be determined by site conditions.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Prior to Cartveyor shipment and installation, the installer shall visually inspect wellway openings, pits and structural support points as constructed. Verify applicable dimensions with respect to all project drawings. Notify General Contractor in writing of any dimensional discrepancies or other conditions detrimental to the proper installation or performance of conveyor work. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer and manufacturer. Arrange for electrical power to be available for installation work and testing of conveyor components.

3.02 INSTALLATION

- A. Coordination: Coordinate Cartveyor unloading at job-site, handling, and installation with escalator installation and work with other trades.
- B. Comply with manufacturer's detailed installation instructions when installing the equipment.
- C. Touch up all scratches, abrasions, and other defects in the pre-finished surfaces including buffing and polishing if necessary.
- D. Remove and dispose of all rubbish and debris resulting from work under this section.

3.03 PERMITS AND TESTS

- A. The installer shall obtain and pay for all necessary permits relating to installation and operation of the Cartveyor, and perform any tests required by governing authorities.

3.04 ACCEPTANCE

- A. Startup Services: Provide the services of a factory-authorized service technician to provide on-site start-up services. Inspect installation to verify compliance with Parts 1, 2, and 3 of this Section:
 - 1. Test and adjust controls and safeties. Verify that Cartveyor operation conforms to all performance and safety requirements herein.
 - 2. Operating Test: Conduct performance test at rated speed and capacity in the presence of Owner's designated personnel with loaded carts provided by Owner.
 - 3. Train Owner's maintenance personnel on procedures relating to startup and shutdown, troubleshooting, maintenance, service, and emergencies.
 - 4. Review Cartveyor Operation Manual with Owner's designated personnel.
 - 5. Consult Owner on requirements for preventive maintenance program.

End of Section