SECTION 08 36 33 – bi-fold vertical lift doors

1. General
   1. summary
      1. This Section includes requirements for supply and installation of the following:
         1. Hydraulic bi-fold glazed vertical lift doors, complete with associated hardware, frames, guides, operators, to suit openings and provide a complete system.
         2. Complete shop drawings are to be provided prior to fabrication indicating construction and installation details.
   2. RELATED REQUIREMENTS
      1. Section 05 50 00 – Metal Fabrications.
      2. Section 07 42 73 – Cementitious Wall Panels.
      3. Section 08 44 13 – Glazed Aluminum Curtain Walls.
      4. Section 08 80 00 – Glazing.
   3. QUALITY ASSURANCE
      1. Design sectional overhead insulated metal doors to operate at 1 kPa wind pressure, without any detrimental effects.
      2. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
      3. Installer Qualifications: Authorized representative of the manufacturer with minimum five (5) years documented experience.
      4. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.
   4. SUBMITTALS
      1. Submit submittals in accordance with Section 01 33 00 – Submittal Procedures.
      2. Samples:
         1. Selection Samples: For each finish product specified, two (2) complete sets of colour chips representing manufacturer's full range of available colours and patterns.
         2. Verification Samples: For each finish product specified, two (2) samples, minimum size 150mm (6") square, representing actual product, colour, and patterns.
      3. Shop Drawings:
         1. Submit detailed shop drawing showing fabrication and installation requirements.
      4. Operating and Maintenance Data:
         1. Provide operating and maintenance data for incorporation into the Operating and Maintenance Manual.
   5. STORAGE, DELIVER, HANDLING AND PROTECTION
      1. Co-ordinate deliveries to comply with construction schedule and arrange ahead for off the ground, under cover storage location. Do not load any area beyond the design limits.
   6. warranty
      1. Warrant work of this section against defects in materials and workmanship in accordance with General Conditions but for two (2) years. Agree to make good promptly any defects which occur within this period.
2. Products
   1. MANUFACTURERS
      1. Basis of Design of this specification is based on Hydraulic Bi-Fold System HS200 by by Corflex Inc.
      2. The following manufacturers shall also be accepted provided they conform in general with specified requirements:
         1. Modernfold Styles Inc.
   2. Materials
      1. Construct panel and frame sections with structural steel tube framing to comply with applied wind code.
      2. Frames shall be constructed of structural steel tubing and other structural steel shapes and designed to the same loading requirements for live, dead and wind loads as the surrounding construction with a maximum CTC form vertical and horizontal member of 1524mm (60”) and 1219mm (48”) respectively.
      3. Panel frame shall be designed so that no center cane bolt is required in the floor.
      4. Panel frame shall not exceed 127 mm (5") thickness. Bottom truss, if required, shall not exceed 305 mm (12”) thickness.
      5. Panel frames shall be factory-welded at all joints and connections, with smooth welds not to exceed 6mm (1/4”) thickness.
      6. Panel frame shall be primed with rust-resistant red oxide to provide corrosion resistance and be prepared for field finishing by Section 09 90 00 – Painting.
      7. Panel Infill: Insulated glazing unit, as specified in Section 08 80 00 – Glazing.
      8. Factory-Supplied neoprene seals/weather stripping will be shipped loose for field-install to protect against damage during transport.
   3. Operation
      1. The hydraulic bi-fold system shall be extended / retracted in the opening using a constant hold push button or key switch, operating hydraulic cylinders mounted to the door window frame.
      2. The hydraulic bi-fold system shall be operated by hydraulic cylinders that are mechanically fastened to the panel frame.
         1. Cylinders are to be located on the top half of the door only. Cylinder will be designed to carry the required loads during operation, open position and close position. Internal stops will be installed as not allow over-extension of the cylinders, therefore not allowing the system to open or close beyond its limit.
         2. Lift straps or cables, horizontal top and bottom drive shafts, pulleys and straps or cable “kick outs” are unacceptable.
         3. System speed shall be no less than 5486mm (18’ per minute.)
         4. System shall be locked closed by means of the hydraulic cylinders providing a minimum of 1000 lbs of closing force.
   4. Power Operator
      1. All electrical controls meet Canadian Electrical Code.
      2. Standard voltage is 220V single phase.
         1. Hydraulic power unit, 220V, single phase, "up-down" push button or key switch stations for separate mounting.
         2. Power unit to power (2) hydraulic cylinders which open and close the door. Power unit to be pre-wired, factory-tested and provided with supply cabled for final hook-up (by others).
         3. ‘’Open-Close’’ control units will be wired for constant-hold operation.
         4. Each door operator shall have thermal overload protection for the motor.
   5. Finishes
      1. Shop applies zinc rich primer to repair damaged zinc coatings arising from fabrication; cure primer fully before shipping to site; include compatible primer for site finishing and correction of surface abrasions to zinc coatings and factory applied primer.
         1. Remove weld slag and splatter from exposed surfaces.
         2. Fill and sand smooth tool marks, abrasions and surface blemishes to present smooth uniform surfaces.
      2. Sanding is required prior to topcoat. Ready for finish painting by Section 09 90 00 – Painting.
      3. Isolate where necessary to prevent electrolysis due to dissimilar metal-to-metal contact or metal-to-masonry and concrete contact. Use bituminous paint, butyl tape or other approved divorcing material.
   6. Accessories
      1. Optional photo eyes or lead-edge sensor that stops (or stops and reverses) the downward movement of the door.
      2. Remote receiver with transmitter.
      3. 24v DC battery back-up system.
      4. Automatic electric locks.
   7. REINFORCEMENTS AND SUPPORTS
      1. Provide galvanized steel reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity and to ensure against sag, sway and detrimental vibration during opening and closing of doors.
      2. Support horizontal tracks with continuous angle in accordance with manufacturer's specification for size and weight of door.
3. Execution
   1. EXAMINATION
      1. Examine all areas of Work that affect the work of this section. Report in writing all errors, defects, and discrepancies immediately to the Consultant.
      2. Commencement of work of this section implies acceptance of surfaces and conditions.
   2. INSTALLATION
      1. Install bi-fold doors, tracks and operating equipment complete with necessary hardware, jamb and head mould stops, anchors, brackets, and accessories.
      2. Fasten track assembly to framing at maximum 24" O.C.
      3. Install weather seals at heads, jambs and door bottoms as recommended by door manufacturer to form a continuous weathertight seal at door perimeter.
      4. Doors shall fit snugly to all edges of jambs and heads of frames and shall operate smoothly and freely under all conditions of operation. Door shall sit in any position in door opening and shall not drift upward or downward.
   3. ADJUSTMENT AND DEMONSTRATION
      1. Upon completion of work of this section, and when directed by the Consultant, adjust and lubricate hydraulic bi-fold doors, check and adjust controls, ensure that all equipment and mechanisms are operating smoothly, and demonstrate the operation, control and safety features of each door to the Consultant and the Owner.
   4. CLEANING AND PROTECTION
      1. Clean and make good to the Consultant's approval, surfaces soiled or otherwise damaged in connection with the work of this section. Contractor shall pay the cost of replacing finishes or materials that cannot be satisfactorily cleaned.
      2. On completion of the work of this section, remove all debris, equipment and excess material from the site that results from the work of this section.
      3. Do not permit construction traffic through door openings after adjustment and cleaning.
      4. Protect installed products until completion of project.

END OF SECTION