This section includes insulated steel sectional overhead doors, manual or electric operation, with or without windows and pass doors, of stock configuration and hardware. This specification may be edited for model number TX380, TX450, TX450-20, TX500 and TX500-20.

This section includes performance, proprietary, and descriptive type specifications; edit text to avoid conflicting requirements. For more product information, contact: <http://www.upwardor.com> .

# General

## SECTION INCLUDES

In this article, select the components or assemblies that are intended to be part of the content of this section and will not be included in other sections.

### Overhead sectional door.

### Operating hardware and tracks.

### Electric operator.

## RELATED SECTIONS

In this article, indicate those sections that inter-rely on this section.  The listing below is only partial and should be edited to include those sections specific to the project that describe subjects or products that affect this section directly.

### Section 05 50 00 - Metal Fabrications: Steel [channel] [\_\_\_\_\_] opening frame.

### Section 06 10 13 - Wood Blocking and Curbing: Rough wood [framing] [blocking] for door opening.

### Section 07 92 00 - Joint Sealants: Perimeter sealant and backup materials.

### Section 08 71 00 - Door Hardware - General: Cylinder locks.

### Section 08 80 50 – Glass and Glazing: Glass for door lights.

### Division 26 - Electrical: Electrical service connection to door controller.

## REFERENCES

Edit this article after editing the rest of this section. Only list reference standards below, that are included within the text of this section, when edited for a project specification - delete other references that do not apply.

### ASTM A123/A123M-11 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

### ASTM A653/A653M-11 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

### CSA-C22.1-12 - Canadian Electrical Code, Part I (22th Edition), Safety Standard for Electrical Installations.

### CAN/CSA-C22.2 No. 100-04 (R2009) - Motors and Generators.

### NEMA MG1-2011 - Motors and Generators.

## SYSTEM DESCRIPTION

Use this article carefully; restrict statements to describe the combined result of the components used to assemble the system. Do not repeat statements made in the Section Includes article.

### Panels: Insulated steel, [with horizontal ribs] [plain - no ribs]; with [insulated windows] [full view insulated glazed sections] [pass door].

### Lift Type: [Standard lift] [Vertical lift] [High lift] [Low headroom] operating style with track and hardware.

### Operation: [Manual] [Electric] [Semi-automatic] [Fully automatic]. [Manual operation with maximum exertion of 110 N (25 lbs) force].

## SUBMITTALS FOR REVIEW

Do not request submittals if this specification section or drawings sufficiently describe the products of this section - or if proprietary specifying is used. This requested review of submittals increases the possibility of unintended variations to the contract documents, thus increasing a consultant's liability. The following submittals are intended for review to determine eligibility for the project.

### Section 01 33 00: Submission procedures.

### Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, installation details and [\_\_\_\_\_].

### Product Data: Provide component construction, anchorage method, hardware, and [\_\_\_\_\_].

Include the following paragraph for submission of physical samples for selection of finish, colour, texture, etc.

### Samples: Submit [two (2)] [\_\_\_\_\_] panel finish samples, [[\_\_\_\_\_] mm ([\_\_\_\_\_] inch)] in size, illustrating colour and finish.

## SUBMITTALS FOR INFORMATION

The following submittals are for information only; do not request these submittals if the information submitted will be assessed for acceptability.

### Section 01 33 00: Submission procedures.

When manufacturer's written instructions for specific installation requirements are referenced in Part 3 Execution, include the following request for submittal of those instructions. Edit the Part 3 statements to avoid conflict with manufacturer's written instructions.

### Installation Data: Manufacturer's installation requirements, special procedures and perimeter conditions requiring special attention.

Include the following ONLY if specifying for a LEED project. Specify only the technical requirements necessary to achieve the credits desired for this project.

### Sustainable Design:

#### Section 01 35 18: LEED documentation procedures.

#### Provide required LEED documentation for Product [recycled content] [regional materials].

#### Manufacturer's Certificate: Certify that Products meet or exceed [specified requirements] [\_\_\_\_\_].

## CLOSEOUT SUBMITTALS

The following submittals are for project closeout purposes; do not request these submittals if the information submitted will be assessed for acceptability.

### Section 01 78 10: Submission procedures.

### Operation and Maintenance Data:

#### Include electrical control adjustments and [\_\_\_\_\_].

#### Include data for [motor] [transmission] [shaft and gearing] [lubrication frequency, spare part sources] [\_\_\_\_\_].

Coordinate the following paragraph with the WARRANTY article.

### Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

Include the following ONLY if specifying for a LEED project.

### Sustainable Design Closeout Documentation: [\_\_\_\_\_].

## MAINTENANCE MATERIAL SUBMITTALS

### Section 01 78 40: Maintenance and extra material requirements.

### Spare Parts: [\_\_\_\_\_].

### Extra Stock Materials: [\_\_\_\_\_].

### Tools: [\_\_\_\_\_].

## QUALITY ASSURANCE

This article includes statements that require quality applicable to the whole section.

### Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum [three (3)] [\_\_\_\_\_] years [documented] experience.

### Installer Qualifications: Company specializing in performing the work of this section with minimum [three (3)] [\_\_\_\_\_] years documented experience [and approved by the manufacturer].

## REGULATORY REQUIREMENTS

Only include this article when electrically operated door is specified and required by applicable code criteria.

### Conform to applicable code for motor and motor control requirements.

### Conform to [ULC] [UL] [FM] [Warnock Hersey] Assembly Design No. [\_\_\_\_\_].

### Products Requiring Electrical Connection: Listed and classified by [CSA] [UL] [testing firm acceptable to the authority having jurisdiction] as suitable for the purpose specified.

## WARRANTY

This article extends the warranty period beyond the one (1) year contract warranty period. Extended warranties add to construction cost and may present difficulties to the Owner by enforcing them. Specify with caution.

### Section 01 78 10: Warranties.

The following paragraph requests a manufacturer warranty; the request may not be effective as the manufacturer is outside the jurisdiction of the Owner/Contractor contract. Coordinate this paragraph with the Submittals at Project Closeout article.

### Provide [five (5)] [ten (10)] year manufacturer's warranty for degradation of finish, including cracking, rust through or delamination.

### Provide [five (5)] [ten (10)] year manufacturer's warranty for electric operating equipment.

# Products

## MANUFACTURERS

This article is for proprietary specifying with one manufacturer.

### Sectional Overhead Door: Thermalex 2000, Series [TX380] [TX450] [TX450-20] [TX500] [TX500-20]; manufactured by Upwardor..

### Substitutions: Not permitted.

## MATERIALS

Select one or more of the following door material paragraphs as required.

### Sheet Steel: ASTM A653/A653M galvanized to Z180 (G60), stucco embossed surface; pre-coated with silicone polyester finish.

### Aluminum Extrusions: ASTM B221M (ASTM B221), 6063-T6 alloy and temper.

Select from the following paragraphs as required.

### Glass: Float, [CAN/CGSB-12.3] [ASTM C1036], clear, 3 mm (1/8 inch) minimum thickness.

### Glazing Panels: [Acrylic] [Lexan], [3 mm (1/8 inch)] [\_\_\_\_\_]] [Translucent five wall polycarbonate panels, 16 mm (5/8 inch)] thickness; colour [clear] [light bronze] [dark bronze].

The following paragraph may be amended to require plastic foam to be manufactured with a non-CFC blowing agent.

### Insulation: Foam-type polyurethane core; nominal [RSI-2.5 (R-14)] [RSI-2.8 (R-16)] [RSI-3.2 (R-18)] thermal value.

### Metal Primer Paint: [Zinc chromate] [\_\_\_\_\_] type.

## PANEL CONSTRUCTION

Edit the following paragraphs appropriate for Series selected. TX450, TX450-20, TX500 and TX 500-20 have tongue and groove weather joints; TX380 has shiplapped weather joints.

Flush, no-ribs option is available only with TX450-20 and TX500-20.

### Panels: Steel construction; outer steel sheet of [0.46 mm (26 gauge)] [0.91 mm (20 gauge)] thickness, [flush - no ribs] [horizontally ribbed] profile; inner steel sheet of 0.46 mm (26 gauge) thickness, [flush - no ribs] [horizontally ribbed] profile; continuous sheet steel reinforcement strips, 32 mm (1-1/4 inch) wide by 0.91 mm (20 gauge) thick mounted top and bottom for hinge mounting, [tongue and groove] [shiplapped] weather joints at meeting rails; insulated.

### Door Thickness: Nominal [38 mm (1-1/2 inches)] [45 mm (1-3/4 inches)] [50 mm (2 inches)] thick.

Selected from the following glazing options. Select the first paragraph if glazing is specified in the Glazing section.

### Glazing: Glass, insulating type as specified in Section [08 80 50].

### Glazing: Double insulating sealed unit windows with moulded plastic (PVC) frame; nominal size [450 x 200 mm (18 x 8 inches)] [600 x 300 m (24 x 12 inches)] [\_\_\_\_\_]; overall thickness 13 mm (1/2 inch).

### Full View Glazing Sections: [Five wall polycarbonate] [Lexan] [Acrylic] [\_\_\_\_\_], [single pane] [double insulating sealed units] with extruded aluminum frame, set in place with removable moulding; section size [[\_\_\_\_\_] mm ([\_\_\_\_\_] inch)] [as shown on Drawings], overall thickness 13 mm (1/2 inch).

Select the following article for door hardware components installed in standard environments. For installations in high humidity environments, use door hardware components specified in article 2.5.

## DOOR HARDWARE COMPONENTS

### Track:

#### Rolled galvanized steel with Z180 (G60) zinc coating designation, [1.9 mm (14 gauge)] [2.7 mm (12 gauge)] base metal thickness mounted to [continuous one-piece galvanized angle, minimum 1.9 mm (14 gauge) thickness] [adjustable galvanized steel jamb brackets, minimum 3 mm (11 gauge) thick].

#### Track size [50 mm (2 inch) with maximum 300 mm (12 inch) track radius] [75 mm (3 inch) with maximum 380 mm (15 inch) track radius].

### Hinge and Roller Assemblies:

For 4875 mm (16 ft) wide doors and over, specify double end hinges

#### Heavy duty [double end] hinges and adjustable roller holders of galvanized steel.

#### Rollers: [50 mm (2 inch)] [75 mm (3 inch)] floating hardened steel bearing rollers, located at top and bottom of each panel, each side.

#### Bottom Bracket: Galvanized steel, minimum 2.66 mm (12 gauge) thick with removable aluminum roller holder.

Specify higher cyclage if required to maximum 125,000 cycles.

### Lift Mechanism: Torsion springs fitted on 25 mm (1 inch) [continuous hollow tube shaft, 1.9 mm (14 gauge) thickness] [cold rolled solid shaft], keyed and mounted on ball bearings, and supported by heavy gauge gusset plates; oil tempered with [10,000] [\_\_\_\_\_] standard cyclage.

### Cable Drums: Suitable for lift type specified, with galvanized steel aircraft grade lifting cables designed to suit door weight at a safety factor of 5:1.

For high humidity areas where corrosion is a concern, use the following article.

## DOOR HARDWARE COMPONENTS - CORROSION PACKAGE

### Track:

#### Rolled steel with corrosion resistant powder coat finish, [1.9 mm (14 gauge)] [2.7 mm (12 gauge)] base metal thickness mounted to [continuous one-piece powder coated angle, minimum 1.9 mm (14 gauge) thickness] [adjustable powder coated steel jamb brackets, minimum 3 mm (11 gauge) thick].

#### Track size 75 mm (3 inch) with maximum 380 mm (15 inch) track radius.

### Hinge and Roller Assemblies:

#### Heavy duty powder coated hinges and adjustable roller holders.

#### Rollers: 75 mm (3 inch) floating bearing less Nystroll nylon rollers with stainless steel shaft, located at top and bottom of each panel, each side.

#### Bottom Bracket: Powder coated steel, minimum 2.66 mm (12 gauge) thick with removable aluminum roller holder.

Specify higher cyclage if required to maximum 125,000 cycles.

### Lift Mechanism: Galvanized torsion springs fitted on zinc-plated 25 mm (1 inch) continuous hollow tube shaft/coupler, 1.9 mm (14 gauge) thickness] [zinc-plated cold rolled solid shaft], keyed and mounted on ball bearings, and supported by heavy gauge galvanized gusset plates; oil tempered with [10,000] [\_\_\_\_\_] standard cyclage.

### Cable Drums: Suitable for lift type specified, with stainless steel aircraft grade lifting cables designed to suit door weight at a safety factor of 5:1.

### Fasteners: Stainless steel.

## ACCESSORIES

### Sill Weatherstripping: Low temperature resilient vinyl astragal, one-piece; fitted to retainer at bottom of door panel, full length contact.

### Jamb Weatherstripping: Roll formed end stile section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

### Head Weatherstripping: Low temperature, one-piece full length top retainer/seal.

### Panel Joint Weatherstripping: Bulb-type, one-piece full length resilient weatherseal.

In the following paragraph, a locking door is usually associated with manually operated door assemblies; an electric disconnect is usually used with electric door assemblies.

### Lock: Inside [centre] [side] mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; [interior] [exterior] handle; lock [keyed alike] [keyed differently] [master keyed] [keyed to Section 08 71 00].

### Pass Doors: Manufacturer's standard pass doors where indicated on Drawings, with glazing, operating hardware, and mortise lock; of same material, design, and finish as sectional door assembly.

## DOOR OPERATOR

### Manufacturers: Product: Pow'Air'Dor, manufactured by Upwardor

### .

#### Substitutions: Alternative products not permitted.

Operators are 40 or 50 mm depending on weight and size of door.

### Corrosion resistant anodized aluminum operator with 40-50 mm (1-1/2 to 2 inch) pneumatic rod-less cylinders, sealed closed loop system with adjustable cushioning at end of cycle.

#### Internally guided with only one (1) moving part; complete with mounting brackets, fittings, tubing and connecting arm.

#### Slow down speed 600 mm (2 ft) from open and close limit (Model # CB).

#### Trolley operator for standard lift applications (Model # T).

#### Side Mount Trolley for high lift or full vertical lift applications (Model # SMT).

### Operation:

Select from the following three operation options.

Pneumatic operation is suitable for explosive environments, or other non-automated environments that do not have an electrical power source. This comes with control panel and FRL Unit (filter/regulator/lubricator).

#### Model # AOVP: Pneumatic operation only; no electrical controls or devices.

##### Lever valve to activate open and close cycle; constant or momentary signal.

##### Pneumatic open and close push buttons mounted on control box cover; constant or momentary signal.

Electrically controlled panels are suitable for all types of overhead door applications. It is specifically designed to handle all types of corrosive and high cycle environments and can operate up to 1500 mm (5 ft) per second, with minimal maintenance and a low energy footprint.

#### Model # EVP: Electric vale panel complete with directional valve, speed control valve, noise suppression muffler, FRL unit, transformer 120 vac to 24 vac, fittings, tubing, LED indicating lights for visual troubleshooting, in NEMA 4X enclosure with clear view cover for walk by inspections.

Select one or more of the following options.

##### Reversing pressure switch to reverse door upon contact with object; safety edge on bottom of door not required.

##### NEMA 4X thru beam photo eye with water proof housings for safety reverse when photo eye is obstructed.

##### Emergency pneumatic panel mounted push buttons for open and close functions in the event of power failure.

##### Compressor auto drain with variable timer to drain compressor of water and debris from tank.

##### NEMA 4X push button station for open/close.

##### 3/8 ports for systems using 50 mm (2 inch) operator.

#### Model # CVP: Fully automated control valve panel with directional valve, two-speed control valves, one (1) for open and one (1) for close, noise suppression muffler, FRL unit, Auto/Man selector switch, transformer 120 vac to 24 vac, timer to close, panel mount NEMA 4X pushbuttons for open/close, fittings, tubing, LED indicating lights for visual trouble shooting in NEMA 4X enclosure with clear view cover for walk by inspections.

Select one or more of the following options.

##### Reversing pressure switch to reverse door upon contact with object; safety edge on bottom of door not required.

##### NEMA 4X thru beam photo eye with water proof housings for safety reverse when photo eye is obstructed.

##### Emergency pneumatic panel mounted push buttons for open and close functions in the event of power failure.

##### Compressor auto drain with variable timer to drain compressor of water and debris from tank.

##### NEMA 4X panel-mounted push buttons for open/close.

##### NEMA 4X push button station for open/close.

##### 3/8 ports for systems using 50 mm (2 inch) operator.

##### In-ground vehicle loop detector for automatic open.

##### Motion detector for automatic open.

##### Transmitter/receiver.

##### Traffic lights for signalling traffic.

## ELECTRICAL CHARACTERISTICS

Include and edit this article for electric operation. Select one or more of the following subparagraphs appropriate to the equipment requirements.

### Electrical Characteristics:

#### Motor: [250 W (1/3 hp)] [375 W (1/2 hp)] [\_\_\_\_\_], [[\_\_\_\_\_] rated load amperes]; manually operable in case of power failure, transit speed of [300 mm (12 inches)] [\_\_\_\_\_], per second.

#### Power Supply: [\_\_\_\_\_] volts, [single phase] [three-phase], 60 Hz.

#### Refer to Section 26 05 80 - Equipment Wiring: Electrical connections.

### Motor: [Refer to Section 23 05 13] [CAN/CSA-C22.2 No. 100, Type [\_\_\_\_\_]] [NEMA MG1, Type [\_\_\_\_\_]].

### Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to CSA-C22.1.

## FINISHES

Exterior precoated surface colours are available as follows:

TX3800, TX450: Brown, Bright White and other custom painted colours.

TX450-20, TX500, TX500-2-: Bright White and other custom painted colours.

Edit the following according to door model selected.

### Exterior Surfaces: Precoat, colour [Brown] [Bright White] [Custom paint colour [\_\_\_\_\_]].

### Interior Surfaces: Precoat, colour Bright White.

### Aluminum Window Extrusions: Painted [Brown] [Bright White] [Custom paint colour [\_\_\_\_\_]].

# Execution

## EXAMINATION

### Section 01 70 00: Verify existing conditions before starting work.

### Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

### Verify that electric power is available and of the correct characteristics.

## PREPARATION

### Prepare opening to permit correct installation of door unit to perimeter air and vapour barrier seal.

### Apply primer to wood frame.

## INSTALLATION

Only include the following paragraph if a manufacturer actually publishes installation instructions - many do not. If the manufacturer does NOT publish such a document, ensure all install criteria that is important to the project, is specified below.

### Install door unit assembly to manufacturer's written instructions.

### Anchor assembly to wall construction and building framing without distortion or stress.

### Securely brace door tracks suspended from structure. Secure tracks to structural members only.

### Fit and align door assembly including hardware.

Include the following two paragraphs when electrically operated doors are specified.

### Install operator including electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.

### Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

### Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 92 00.

### Install perimeter trim [and closures].

## ERECTION TOLERANCES

Do not assume that there are industry standards for tolerances. Specify tolerances below as appropriate to the nature or character of the project. Verify that such tolerances are realistic and realizable.

### Section 01 73 00: Tolerances.

### Maximum Variation from Plumb: [1.5 mm (1/16 inch)] [\_\_\_\_\_].

### Maximum Variation from Level: [1.5 mm (1/16 inch)] [\_\_\_\_\_].

### Longitudinal or Diagonal Warp: Plus or minus [3 mm (1/8 inch)] [\_\_\_\_\_], from 3 m (10 ft) straight edge.

### Maintain dimensional tolerances and alignment with adjacent work.

## ADJUSTING

### Lubricate and adjust door assembly to smooth operation and in full contact with weatherstripping.

## CLEANING

This article is intended to supplement cleaning requirements specified in Division 01 sections. Edit this article to supplement Division 01 statements.

### Clean doors, frames [and glass].

### Remove [temporary] labels and visible markings.

## PROTECTION OF FINISHED WORK

### Section 01 78 40: Protecting installed work.

### Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION