

**SECTION 08 33 00**

 **Overhead Coiling Doors**

*To display hidden notes to specifier, select tools/ options/ view/ hidden text.*

\*\*This guide specification document is provided by C.H.I. Overhead Doors to assist design professionals in the preparation of specification documents for overhead coiling doors and is based on the products manufactured by C.H.I. Overhead Doors. For more information, contact C.H.I. at 1485 Sunrise Drive, Arthur, IL 61911; Toll Free AIA Hotline: (800) 590-0559; AIA Fax: (217) 543-4454; E-mail: AIA@chiohd.com; Website: www.chiohd.com.

\*\*Optional text requiring a selection by the user is enclosed within brackets, e.g.: “Section [09000] [ ]”.

\*\*Items requiring user input are enclosed within brackets, e.g.: “Section [ - ]”.

\*\*Optional paragraphs are separated by an “OR” statement, e.g.:

\*\*\*\*\*OR\*\*\*\*\*

\*\*”Green” requirements are included for projects requiring LEED certification and are included as green text. For additional information on LEEDS, visit the U.S. Green Building Council website at www.usgbc.org.

\*\*Products included in this document in the sequence in which they are listed are as follows. Delete sections that are not applicable to your project.

1. **Medium Duty Overhead Coiling Service Doors (Model 6241)**
2. **Non-Insulated Overhead Coiling Service Doors (Models 6180, 6181, 6200, 6201, 6220, 6221, 6244, 6266)**
3. **Insulated Overhead Coiling Service Doors (Models 6182, 6202, 6222, 6242)**
4. **Fire Rated Non-Insulated Overhead Coiling Service Doors (Models 7300, 7301, 7400, 7401)**
5. **Fire Rated Insulated Overhead Coiling Service Doors (Model 7302)**
6. **Overhead Coiling Counter Doors (Models 6522, 6544, 6566)**
7. **Fire Rated Overhead Coiling Counter Doors (Models 7522, 7566)**
8. **Specialty Overhead Coiling Doors (Combo Door/ Grille; Superimposed Door)**
9. GENERAL
	1. RELATED DOCUMENTS

\*\*NOTE TO SPECIFIER \*\* Retain or delete this article in all Sections of Project Manual.

* + 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Insulated Overhead Coiling Service Doors
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 10 00 - Structural Metal Framing.
		2. Section 06 10 00 - Rough Carpentry.
		3. Section 09 90 00 - Painting and Coating.
		4. Section 26 05 00 - Common Work Results for Electrical.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM A480/A480M-04; 2004 - Standard Specification for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
		2. ASTM A653/A653M-03; 2003 - Standard Specification for Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: For each type and size of overhead coiling door and accessory.
			1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.

**\*\* NOTE TO SPECIFIER \*\* Retain first subparagraph below for power operated doors.**

* + - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

**\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for fire rated doors.**

* + - 1. Include description of automatic closing device and testing and resetting instructions.
		1. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer’s product data.
			1. Include plans, elevations, sections, and mounting details
			2. Include details of equipment assemblies and indicate dimensions, required clearances, and components.
			3. Provide BIM models upon request.

**\*\* NOTE TO SPECIFIER \*\* Retain subparagraph below for fire rated doors only. Include detectors and fusible links as needed to reflect fire door requirements.**

* + - 1. Show controls, locking devices, [detectors] [fusible links], and other accessories.

**\*\* NOTE TO SPECIFIER \*\* Retain one or both paragraphs below. Retaining both paragraphs indicate “Two Stage Samples” process. Delete “Samples for Initial Selection” if colors have already been determined.**

* + 1. Samples for Initial Selection: Upon request, provide manufacturer’s finish charts showing full range of colors and textures available for units with factory applied finishes.
			1. Include similar samples of accessories involving color selection
		2. Samples for Verification: Upon request, provide for each type of exposed finish on the following components in manufacturer’s standard sizes.

**\*\* NOTE TO SPECIFIER \*\* Retain paragraphs below to suit project. Delete items not required.**

* + - 1. Curtain slats.
			2. Bottom bar.

\*\* NOTE TO SPECIFIER \*\* Include the following for projects requiring LEED certification. Credits are available for the use of recycled materials and also for regional materials if the project is located within a 500 mile radius of the C.H.I. manufacturing facility in Arthur, IL.

1. Sustainable Design Submittals:
	* + 1. Recycled products: Indicate percentage of recycled material used in the manufacturing of products and percentage classified as post-consumer.
			2. Regional products: Indicate location of product manufacturer and distance from manufacturing facility to project site.
2. Closeout Submittals:
	* + 1. Operation and maintenance data.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications:
			1. Company specializing in the manufacturing of products specified in this section and with a minimum of five years experience.
		2. Installer Qualifications: Installer shall be authorized and qualified to install overhead door systems on the type and scope of project specified.

\*\* NOTE TO SPECIFIER \*\* Retain “Maintenance Proximity” subparagraph below if retaining “Maintenance Service” article in Part 3 of this document. Delete paragraph if maintenance service is not required.

* + - 1. Maintenance Proximity: Not more than [insert number] hours normal travel time from installers place of business to project site.

\*\* NOTE TO SPECIFIER \*\* Delete the following if fire rated doors are not required.

\*\* NOTE TO SPECIFIER \*\* Delete the following if acoustically rated doors are not required.

* + 1. Sound-Control Doors: Assemblies tested in a laboratory for sound-transmission-loss performance according to ASTM E 90, calculated according to ASTM E 413, and rated for not less than the STC value of 25.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging until ready for installation.
		2. Store and dispose of all materials in accordance with federal, state and local laws.
	2. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
	3. COORDINATION
		1. Coordinate with other operations and installation of adjacent materials to avoid damage to installed materials.
	4. WARRANTY

\*\* NOTE TO SPECIFIER \*\* Include the following warranty paragraph for model 6241 Standard Duty Overhead Coiling Service Door.

* + 1. Warranty: Manufacturer’s warranty that all parts and components are to be free from defects in materials and workmanship for 1 year.

\*\* NOTE TO SPECIFIER \*\* Include the following warranty paragraph for all Industrial Duty Service Doors, Fire Rated Service Doors, Counter Shutters, and Fire Rated Counter Shutters.

* + 1. Warranty: Manufacturer’s warranty that all parts and components, except counterbalance spring and finish, are to be free from defects in materials and workmanship for 5 years. Counterbalance springs to be warrantied for 1 year.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: C.H.I. Overhead Doors, which is located at: 1485 Sunrise Dr. ; Arthur, IL 61911; Toll Free Tel: 800-590-0559; Fax: 217-543-4454; Email: AIA@chiohd.com; Web: [www.chiohd.com](http://www.chiohd.com).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* Delete any of the following product categories that don’t apply to your project.

Paragraph A = Medium Duty Service Doors; (Model 6241)

Paragraph B = Non-Insulated Service Doors; (Models 6180, 6181, 6200, 6201, 6220, 6221, 6244, 6266)

Paragraph C = Insulated Service Doors; (Models 6182, 6202, 6222, 6242)

Paragraph D = Fire Rated Non-Insulated Service Doors; (Models 7300, 7301, 7400, 7401)

Paragraph E = Fire Rated Insulated Service Doors; (Model 7302)

Paragraph F = Counter Doors; (Models 6522, 6544, 6566)

Paragraph G = Fire Rated Counter Doors; (Models 7522, 7566)

**Paragraph H =** **Specialty Overhead Coiling Doors (Combo Door/ Grille; Superimposed Door)**

* + 1. Insulated Overhead Coiling Service Doors

\*\* NOTE TO SPECIFIER \*\* The following stated wind load is standard for this product.

* + - 1. Wind Loads: Design door assembly to withstand a minimum of 20 psf in accordance with ASTM E330 using a 1.0 factor of safety.

\*\* NOTE TO SPECIFIER \*\* Retain "Seismic Performance" Paragraph below if required for Project. Nonstructural architectural components in Seismic Design Category A are exempt from seismic design requirements; and in Seismic Design Category B, nonstructural architectural components are generally exempt if the Component Importance Factor is 1.0. Coordinate requirements with Project's structural engineer.

* + - 1. Seismic Performance: Overhead coiling doors shall be evaluated for seismic performance to withstand the effect of earthquake motions determined according to ASCE/SEI 7.

\*\* NOTE TO SPECIFIER \*\* Operation of 20,000 cycles is standard for this product. Other options that are available are 50,000 and 100,000 cycles. Delete 2 of the 3 options below.

* + - 1. Operation: Design complete door assembly including operator for use of not less than [20,000] [50,000] [100,000] cycles
		1. Source Limitations: Provide overhead coiling doors from one manufacturer for each type of door. Provide operators and other accessories from source acceptable to overhead coiling door manufacturer.
	1. MATERIALS

\*\* NOTE TO SPECIFIER \*\* Select material used in construction. Delete any of the following 3 paragraphs that do not apply. Aluminum is not applicable to fire doors.

* + 1. Galvanized Steel Sheet:
			1. Galvanized commercial steel, (CS type) per ASTM A653/A653M, G90 and G60 coating class.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for projects requiring LEED certification.

* + 1. LEED Requirements:
			1. Recycled content: Minimum [ ] percent with minimum [ ] percent classified as post-consumer.
	1. DOOR ASSEMBLY

\*\* NOTE TO SPECIFIER \*\* Delete any of the following product categories that don’t apply to your project.

Paragraph A = Medium Duty Service Doors; (Model 6241)

Paragraph B = Non-Insulated Service Doors; (Models 6180, 6181, 6200, 6201, 6220, 6221, 6244, 6266)

Paragraph C = Insulated Service Doors; (Models 6182, 6200, 6220, 6242)

Paragraph D = Fire Rated Non-Insulated Service Doors; (Models 7300, 7301, 7400, 7401)

Paragraph E = Fire Rated Insulated Service Doors; (Model 7302)

Paragraph F = Counter Doors; (Models 6522, 6544, 6566)

Paragraph G = Fire Rated Counter Doors; (Models 7522, 7566)

* + 1. Insulated Overhead Coiling Service Doors

\*\* NOTE TO SPECIFIER \*\* Insulated Overhead Coiling Service Doors from C.H.I. Overhead Doors have a standard maximum width of 32’4” and standard maximum height of 24’4”. For larger sizes, call our Toll Free AIA Hotline: (800) 590-0559 or email us at AIA@chiohd.com to check availability.

Model numbers are based on curtain material. Use the following guide to determine the correct model for the basis of design.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Curtain Material | R-Value | Standard Maximum width and height | Color Options |
| 6182 | 18 gauge steel | R-4.7 / R-6.7 | 24’4” max width and 24’4” max height | Gray, White, Galvanized, Powder Coat |
| 6202 | 20 gauge steel | R-7.2 | 32’4” max width and 24’4” max height | Gray, White, Galvanized, Powder Coat |
| 6222 | 22 gauge steel | R-7.2 | 24’4” max width and 24’4” max height | Gray, White, Tan, Brown, Galvanized, Powder Coat |
| 6242 | 24 gauge steel | R-7.2 | 24’4” max width and 16’4” max height | Gray, White, Tan, Brown, Galvanized, Powder Coat |

* + - 1. Basis of Design: C.H.I. Overhead Doors model 6182.
			2. Construction:
				1. Curtain: Constructed from interlocking slats formed from the following.

Front Slat Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 4 paragraphs and delete the paragraphs not required. Reference guide above to determine which material achieves the design requirements of the project.

18 gauge galvanized steel. **(model 6182)**

**(model 6242)**Finish: Hot-dipped galvanized in accordance with ASTM A653 and with baked on enamel primer coat and polyester finish coat.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 subparagraphs and specific color if known. Polyester top coat is standard. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.

Polyester Finish: [Gray], [White]

Powder Coat: [RAL# ] [Custom Color Match]

Back Slat Material:

24 gauge galvanized steel.

Finish: Hot-dipped galvanized in accordance with ASTM A653 and with baked on enamel primer coat and polyester finish coat.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 subparagraphs and specific color if known. Polyester top coat is standard. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.

Polyester Finish: [Gray], [White], [Tan], [Brown], [Galvanized]

Powder Coat: [RAL# ] [Custom Color Match]

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 subparagraphs. Model numbers that is standard for each profile is listed in notes following each option.

Insulation:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 subparagraphs. a) is standard and b) is optional for 18 gauge doors (model 6182). c) is standard for all other models.

Fill slats with laid in place polyurethane insulation board complying with maximum flame spread and smoke developed indexes of 75 and 450 respectively, according to ASTM E84 or UL 723. Enclose and bond insulation within slat faces. **(alternate option only for 18 gauge with R-value of 6.7)**

Profile:

Flat, insulated, 2-1/2 inches high by 13/16 inch deep. **(models 6182)**

End locks: Galvanized malleable iron, attached to every other slat to act as wearing surface and prevent lateral movement.

Wind locks: Per design and wind load requirements

Bottom bar:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs. Two steel angles are standard for this product.. Extruded tubular aluminum bottom bar is available for doors up to 20’ wide and are sometimes preferred for manual operated doors when cylinder locks are required.

Two steel angles bolted back-to-back, with adjustable tubular compression weather seal.

Bottom Bar Finish:

\*\* NOTE TO SPECIFIER \*\*Retain one of the following 4 subparagraphs. Painted medium black is standard. Hot dipped galvanizing, cold galvanizing, and powder coat are optional. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.

Painted Black

Hot Dipped Galvanized

Cold Galvanizing

Powder Coat [RAL# ] [to match curtain]

\*\* NOTE TO SPECIFIER \*\*Aluminum bottom bar is not available for certified wind loaded product and is not suitable for use in conjunction with vinyl guide seal. If the aluminum bottom bar and weather seal are both required, specify brush seal in weather seal section below.

Extruded aluminum tube type bottom bar.

Bottom Bar Finish

\*\* NOTE TO SPECIFIER \*\*Retain one of the following 2 options. Clear anodized aluminum is standard. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.

Clear Anodized Aluminum

Powder Coat [RAL# ] [to match curtain]

\*\* NOTE TO SPECIFIER \*\* Select one of the following options if required or delete both options if not required.

Vision Lites: Provide rectangular lites, approximately 5 inches wide by 1-1/8 inch high, spaced 7 inches on center, and with clear acrylic glazing.

Pattern: [As shown on drawings] [[ ] lites wide by [ ] lites high] at [ ] feet above finished floor.

* + - * 1. Guides: Structural angles bolted together to form guide and mounting surface.

Guide Material:

Steel

Guide Finish:

\*\* NOTE TO SPECIFIER \*\*Retain one of the following 4 subparagraphs. Painted medium black is standard. Hot dipped galvanizing, cold galvanizing, and powder coat are optional. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.

Painted Black

Hot Dipped Galvanized

Cold Galvanizing

Powder Coat [RAL# ] [to match curtain]

* + - * 1. Head Plate: Rectangular steel plate, with precision sealed ball bearings supporting drive side axle.
				2. Barrel Assembly: Steel pipe sized for maximum deflection under full load not to exceed 0.03” per foot of span with threaded rings or lugs welded to barrel assembly for curtain attachment.
				3. Springs: Spring tension assembly supported within barrel by precision ball bearings. Curtain weight counterbalanced by oil tempered, helically wound torsion springs; grease packed and mounted on steel torsion shafts with cast spring plug.

\*\* NOTE TO SPECIFIER \*\* 20,000 cycles is standard for this product. Other options that are available are 50,000 and 100,000 life cycles. Delete 2 of the 3 options below.

Designed for minimum 20,000 cycles.

Designed for minimum 50,000 cycles.

Designed for minimum 100,000 cycles.

* + - * 1. Hood: Shaped to fit within the head plates and with intermediate supports as required.

Hood Material:

Minimum 24 gauge galvanized steel

Hood Color:

**\*\* NOTE TO SPECIFIER \*\* Select one of the 3 following options. Standard color for the hood is to match the coil side of the curtain. Powder coat finish is available in 188 standard RAL colors with an additional option for custom color match.**

Match curtain finish

Polyester Finish: [Gray], [White], [Tan], [Brown], [Galvanized]

Powder Coat: [RAL# ] [to match curtain]

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if coiling door does not require a pedestrian door to be built into it.**

* + - * 1. Weather Seal:

**\*\* NOTE TO SPECIFIER \*\* Select any of the following options that apply. Tubular bottom weather seal, vinyl guide weather seal, and hood baffle are standard for insulated doors.**

Tubular vinyl bottom seal

Vinyl guide seal with rubber hood baffle.

**\*\* NOTE TO SPECIFIER \*\* Guide brush seal is an alternate to vinyl guide seal and should be used if specifying an extruded aluminum tubular bottom bar. Header brush seal can be utilized as an alternative or in addition to a rubber hood baffle.**

Guide brush seal.

Header brush seal.

* + - * 1. Locking Mechanism:

**\*\* NOTE TO SPECIFIER \*\* Select one of the following four options. Two plated steel slide bolt locks is standard for manual push up doors. Chain keepers are standard for chain hoist operated doors. The aluminum bottom bar option should only be selected if it was specified as the bottom bar above. Motor operated doors are locked through their drive train however other locking mechanisms can be added for additional security if used in conjunction with an interlock switch for each lock.**

Two plated steel slide bolt locks with padlock provisions.

Chain keeper suitable for padlocking.

Cylinder lock mounted to double angle bottom bar.

Keyed on exterior of door with thumb turn on interior.

Keyed on both sides of the door.

Extruded aluminum tube type bottom bar with cylinder locking.

Keyed on exterior of door with handle throw on interior.

Keyed on both sides of the door.

**\*\* NOTE TO SPECIFIER \*\* Select the following option if specifying locks on motor operated doors. Delete if door is manually operated or does not require locks.**

Interlock Switches: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

* + - 1. Mounting:

**\*\* NOTE TO SPECIFIER \*\* Select one of the following 4 mounting options. Face of wall and above lintel is most common.**

* + - * 1. Face of wall and above lintel.
				2. Face of wall and under lintel.
				3. Between jamb and above lintel.
				4. Between jamb and under lintel.

**\*\* NOTE TO SPECIFIER \*\* Include the following paragraph if manual chain hoist operation is required.**

* + - 1. Manual Operation
				1. Chain Hoist.

**\*\* NOTE TO SPECIFIER \*\* Include the following paragraph if electric motor operation is required. Delete the entire paragraph if not required.**

* + - 1. Electric Motor Operator: Provide operator unit, UL listed and UL labeled, size as recommended by manufacturer, capable of driving door at a speed of no less than 8 inches per second nor more than 12 inches per second.

**\*\* NOTE TO SPECIFIER \*\* Select one or more of the four following options based on estimated usage of the motor. If more than one is selected, note which doors are associated with each requirement.**

* + - * 1. Usage Classification

Heavy duty; 25 or more cycles per hour and over 90 cycles per day.

Standard duty; up to 25 cycles per hour and up to 90 cycles per day.

Medium duty; up to 12 cycles per hour and up to 50 cycles per day.

Light duty; up to 10 cycles per hour.

* + - * 1. Operator Location:

**\*\* NOTE TO SPECIFIER \*\* Select one or more of the four following options based on requirements. If more than one is selected, note which doors are associated with each requirement.**

Mounted on front of hood.

Wall mounted.

Mounted on opposite side of the wall with connection through wall.

As shown on drawings.

* + - * 1. Operator Exposure:

**\*\* NOTE TO SPECIFIER \*\* Select one of the following applications. If more than one is selected, note which doors are associated with each requirement.**

Interior.

Exterior; wet and humid.

Provide operator cover to protect operator from weather.

**\*\* NOTE TO SPECIFIER \*\* Select one of the two following options. If more than one is selected, note which doors are associated with each requirement. Cover finish matching the hood is standard for front of hood mounted operators. Galvanized finish is standard for covers for wall mounted operators.**

Operator cover finish to match hood.

Operator cover to be galvanized finish.

* + - * 1. Power Supply:

**\*\* NOTE TO SPECIFIER \*\* Select one of the 5 following options.**

115 VAC, single phase

230 VAC, single phase

208/230 VAC, three phase

460 VAC, three phase

575 VAC, three phase

* + - * 1. Control Station:

**\*\* NOTE TO SPECIFIER \*\* Select one of the 4 following options. Three button control station with open, close, and stop buttons is standard.**

24 V three button control station with open, close, and stop buttons

24 V three button control station with open, close, and stop buttons and keyed lockout.

24 V key control station with open and close contacts.

24 V key control station with open/close contacts and stop button.

**\*\* NOTE TO SPECIFIER \*\* Select one of the 4 following options. Surface mounted for interior is standard.**

NEMA 1 Surface mounted for interior.

NEMA 1 Flush mounted for interior.

NEMA 4 Surface mounted for exterior.

NEMA 4 Flush mounted for exterior.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if remotes are not required.**

* + - * 1. Remote Controls:

**\*\* NOTE TO SPECIFIER \*\* Three button remote controls can operate up to doors or can be programed to function as Open/ Close/ Stop control.**

Provide radio receiver and [single] [three] button remote control(s).

Provide […..] transmitters.

**\*\* NOTE TO SPECIFIER \*\* Include the following subparagraph if you have specified a three button remote control and Open/ Close/ Stop function is required.**

Program remote controls to Open/ Close/ Stop the door.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if special controls are not required or retain items listed below that are required. There are many methods in which special controls can be implemented into the operation of the door and may determine which entrapment protection devices are specified. Sequence of operation is another factor that may determine which controls are best suited to provide the desired operation. Call our Toll Free AIA Hotline: (800) 590-0559 or email us at** **AIA@chiohd.com** **for additional information.**

* + - * 1. Special Controls:

Keypad Entry System.

Mounting post.

Card Reader System.

Mounting post.

Internet Connectivity

Door Timer.

Loop Detector.

Pull Cord.

Vehicle Detector.

* + - * 1. Primary Entrapment Protection Devices

**\*\* NOTE TO SPECIFIER \*\* For operators complying with UL 325, one of the following monitored entrapment protection devices must be connected or constant contact on the 3-button station “Close” button is required to lower the door. Select one of the following and delete options not required.**

NEMA 1 Monitored Photo Sensors: Photo eyes fully monitored, non-contact, infrared beam photo sensor system shall reverse a closing door to the full open position when an obstruction is sensed; photo sensors shall be mounted no higher than 6 inches (152 mm) maximum above the floor.

NEMA 4 Monitored Photo Sensors: Photo eyes fully monitored, non-contact, photo beam reversing photo sensor system with NEMA 4 watertight enclosure shall reverse a closing door to the full open position when an obstruction is sensed; photo sensors shall be mounted no higher than 6 inches (152 mm) maximum above the floor.

Monitored Electric Sensing Edge: Electric sensing edge fully monitored and connected to the operator shall reverse a closing door to the full open position when an obstruction is sensed.

* + - * 1. Ancillary Entrapment Protection Devices:

**\*\* NOTE TO SPECIFIER \*\* Ancillary entrapment protection devices are optional and can be used to supplement, but not replace, primary entrapment protection devices for operators complying with UL 325. Select one of the following if required and delete any or all options not required.**

Non-Monitored Electric Sensing Edge: Non-monitored electric sensing edge shall reverse a closing door to the full open position when an obstruction is sensed.

 Pneumatic Sensing Edge: Pneumatic sensing edge shall reverse a closing door to the full open position when an obstruction is sensed.

* + - 1. Wind load: Design door assembly to withstand a minimum of 20 psf in accordance with ASTM E330 using a 1.0 factor of safety.
1. EXECUTION
	1. EXAMINATION
		1. Examine substrates, areas, and conditions for compliance with requirements for substrate construction and other conditions affecting performance of the work.
		2. Examine locations of electrical connections.
		3. Proceed with installation only after all unsatisfactory conditions have been corrected.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Anchor to adjacent construction without distortion or stress.
		3. Fit and align door and shutter assembly including hardware, plumb, level and square to ensure smooth operation.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph(s) if fire rated doors and or smoke rated doors are not required.**

* + 1. Complete wiring from operator to controls and components.
		2. Coordinate installation of electrical service from power supply to operator.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if doors and shutters are manually operated.**

* + 1. Complete wiring from operator to controls and components.
		2. Coordinate installation of electrical service from power supply to operator.
	1. ADJUSTING
		1. Adjust hardware and moving parts so that doors operate smoothly throughout full operating range.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if weather seal is not included on project.**

* + 1. Adjust seals to provide a tight fit around the entire perimeter.

**\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if maintenance service is not required for this project.**

* 1. MAINTENANCE SERVICE

**\*\* NOTE TO SPECIFIER \*\* Maintenance service frequency should be determined by the usage of the door and the environment in which they are installed.**

* + 1. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include [three] [six] [nine] [twelve] months full maintenance by skilled employees of installing company. Include [monthly] [quarterly] preventive maintenance, repair or replace of worn or defective components, lubrication, cleaning, and adjusting as required for door operation. Parts and supplies shall be manufacturer’s authorized replacement parts and supplies.

**\*\* NOTE TO SPECIFIER \*\* Retain one of the following two paragraphs. The second paragraph adds appreciable cost and is general retained only for critical locations**

* + - 1. Perform maintenance, including emergency callback service, during normal working hours.
			2. Include 24 hour per day, seven days per week, emergency callback service.
	1. DEMONSTRATION
		1. Demonstrate proper operation to Owner.

**\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph only if fire doors are required.**

* + 1. Perform fire door and shutter drop tests in presence of Owner or owner's representative. Require signature for manufacturer supplied drop test form.

END OF SECTION