

**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. Fire Rated Overhead Coiling Counter 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.
		3. ASTM A666-00; 2000 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
		4. National Fire Protection Association NFPA 80, 2013 Edition - Standard for Fire Doors and Fire Windows.
		5. Underwriters Laboratories (UL) 10B, 1997 Edition - Standard for Fire Tests of Door Assemblies.
	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.

* + 1. Fire Rated Door Assemblies: Assemblies complying with NFPA 80 that are tested and labeled by a qualifying testing agency for fire protection ratings indicated and based on testing at as close to neutral pressure as possible according to UL 10B.
			1. Smoke Control: [Where indicated] [In corridors and smoke barriers], provide doors that are listed and labeled with the letter “S” on the fire rating label by a qualified testing agency for smoke- and draft-control based on testing according to UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. (0.01524 cu. m/s x sq. m) of door opening at 0.10-inch wg (24.9 Pa) for both ambient and elevated temperature tests.

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

* 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. Fire Rated Overhead Coiling Counter Doors
			1. Fire Door Construction: Conform to UL 10B.
			2. Installed Fire Door Assembly: Conform to NFPA 80.

\*\* 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 up to 20 cycles per day is standard for this product. Other options that are available are 20,000 and 50,000 life cycles. Delete 2 of the 3 options below.

* + - 1. Operation: Design complete door assembly including operator for usage of up to 20 cycles per day.
		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.
		2. Stainless Steel Sheet: ASTM A480/A480M or ASTM A666; Type 304, roll form temper.

\*\* 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. Fire Rated Overhead Coiling Counter Doors

\*\* NOTE TO SPECIFIER \*\* Fire Rated Overhead Coiling Counter Doors from C.H.I. Overhead Doors have a standard maximum width of 13’0” and standard maximum height of 8’4”. 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 | Color Options |
| 7522 | 22 gauge steel | Gray, White, Galvanized, Powder Coat |
| 7566 | 22 gauge stainless steel | #4 Stainless Steel Finish |

* + - 1. Basis of Design: C.H.I. Overhead Doors model 7566.
			2. Fire Rating Classification:

**\*\* NOTE TO SPECIFIER \*\* Select from the following 3 paragraphs based on requires of project. If more than one is selected, note which doors are associated with each requirement.**

* + - * 1. 3 hour rating, listed by Underwriters Laboratories (U.L.).
				2. 1-1/2 hour rating, listed by Underwriters Laboratories (U.L.).
				3. 3/4 hour rating, listed by Underwriters Laboratories (U.L.).
			1. Construction:
				1. Curtain: Constructed from interlocking slats formed from the following.

Material:

\*\* NOTE TO SPECIFIER \*\* Select one of the following 2 paragraphs and delete the paragraphs not required. Reference guide above to determine which material achieves the design requirements of the project.

22 gauge stainless steel **(model 7566)**

Finish:

#4 stainless steel

Profile:

Flat, non-insulated, 1-1/2 inches high by 1/2 inch deep.

Bottom bar:

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraphs. The standard bottom bar material is to match the curtain.

Steel angle bolted to curtain, with adjustable tubular compression weather seal. **(standard for model 7522)**

\*\* 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]

Stainless steel angle bolted to curtain, with adjustable tubular compression weather seal. **(standard for model 6566)**

Bottom Bar Finish:

#4 stainless steel

* + - * 1. Guides: Two piece, box shaped guides [and pack out angle]**(include pack out for between jamb mount application).**

\*\* NOTE TO SPECIFIER \*\*Retain one of the following 2 paragraphs. The standard guide material is to match the curtain.

Guide Material:

Steel. **(standard for model 7522)**

Guide 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.

Painted Black

Hot Dipped Galvanized

Cold Galvanizing

Powder Coat [RAL# ] [to match curtain]

Stainless Steel. **(standard for model 7566)**

Guide Finish: Mill finish

* + - * 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 \*\* Operation up to 20 cycles per day is standard for this product.

Designed for usage up to 20 cycles per day.

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

\*\* NOTE TO SPECIFIER \*\* Retain one of the following two paragraphs. The standard hood material is to match the curtain.

Hood Material:

Minimum 24 gauge galvanized steel **(standard for model 7522)**

Hood finish:

**\*\* NOTE TO SPECIFIER \*\* Retain one of the 3 color options below. Standard color for the hood is to match the coil side of the curtain. Option 2 can be selected if the color of the hood will differ from 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]

Minimum 24 gauge stainless steel **(standard for model 7566)**

Hood finish:

#4 polished stainless steel

Provide head plate covers to match hood.

**\*\* NOTE TO SPECIFIER \*\* Retain the following paragraph if smoke seals and labels are required.**

* + - * 1. Smoke Seals: Equip each fire rated door with replaceable smoke seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.

Smoke Label: Provide doors with U.L. “S” label in addition to the fire door label to certify smoke control listing.

* + - * 1. Weather Seal:

Tubular vinyl bottom seal

* + - * 1. Locking Mechanism:

**\*\* NOTE TO SPECIFIER \*\* Locks are standard for manually operated doors. Select one of the following two options. Option one for plated steel slide bolt locks is standard for all models. Stainless steel slide locks are optional.**

Plated steel slide bolt locks with padlock provisions.

Stainless steel slide bolt locks with padlock provisions.

**\*\* 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.
			1. Jamb Construction:
				1. Solid Masonry

Provide anchor bolt fasteners complying with fire door listing.

* + - * 1. Hollow Masonry

Provide through bolt fasteners and crush plates complying with fire door listing.

* + - * 1. Stacked Brick

Provide through bolt fasteners and crush plates complying with fire door listing.

* + - * 1. Steel Jambs

Provide self tapping fasteners complying with fire door listing.

* + - * 1. Steel Frame Covered With Gypsum

Provide self tapping fasteners complying with fire door listing.

* + - * 1. Wood Jambs

Provide wood lag bolts complying with fire door listing.

* + - 1. Automatic Closing Device: Equip each fire rated door with an automatic closing device or release holder mechanism and governor unit complying with NFPA 80. Automatic closing device shall be designed for activation by the following:

**\*\* NOTE TO SPECIFIER \*\* Retain one or more of the paragraphs below to meet project requirements and the requirements of the Authority Having Jurisdiction. If more than one option is required, identify primary and secondary closing devices.**

 **Paragraph one for fusible links complies with NFPA 80 requirements for fusible links on both sides of the door opening. Revise paragraph if not required on both sides of the door opening or to add fusible link ceiling unit for use with suspended ceilings. Rating of 165 degrees Fahrenheit is standard for rolling steel fire doors.**

* + - * 1. Fusible links with melting point of [165] degrees Fahrenheit, interconnected and mounted on both sides of door opening.
				2. Manufacturer’s standard UL labeled [ionization] [photo electric] smoke detectors on both sides of the wall and door holder release device.
				3. Manufacturer’s standard UL labeled heat rise detectors on both sides of the wall and door holder release device.
				4. Connected to building fire detection, smoke detection, and alarm systems through manufacturer’s UL labeled release device.

**\*\* NOTE TO SPECIFIER \*\* Retain following paragraph if automatic closing device specified included a release holder.**

Release Holder: Provide fail safe release holder as an interface between the detection device specified and fire rated door.

**\*\* NOTE TO SPECIFIER \*\* Select all options required.**

Provide adjustable time delay for up to 10 seconds.

**\*\* NOTE TO SPECIFIER \*\* The following option should be included if the release holder needs to be equipped with a stand-alone battery backup system. If backup power is available from building alarm system, the release holder can receive backup power from that source and does not require a built in battery backup feature.**

Provide battery back-up system.

Provide speaker and verbal warning when activated.

Provide warning strobe light when activated.

Provide warning horn when activated.

* + - 1. Manual Operation

**\*\* NOTE TO SPECIFIER \*\* Manual push up is available for doors up to 10 feet 4 inches wide and 8 feet 4 inches high. Awning crank operation or motor operation is available on all sizes.**

* + - * 1. Manual push up operated, utilizing partial spring tension release to initiate closure.

Governor: If required by the size of manual push up door, provide a governing device to maintain the closing speed in a range from 6 inches to 24 inches per second per NPFA 80 requirements.

* + - * 1. Awning crank operated, utilizing partial spring tension release to initiate closure.

Governor: If required by the size of manual chain hoist operated door, provide a governing device to maintain the closing speed in a range from 6 inches to 24 inches per second per NPFA 80 requirements.

**\*\* 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 fail safe operator unit that is listed and approved for use on door. Operator to be of size and capacity recommended and provided by door manufacturer for door, maintains spring tension when activated by alarm, and be easily reset from the floor without requiring tools.
				1. Usage Classification: Electric operator and components capable of operating for not less than number of cycles indicated for each door.
				2. Operator Location:

Externally mounted on drive side of shutter.

* + - * 1. Power Supply:

115 VAC, single 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 is standard.**

NEMA 1 Surface mounted for interior.

NEMA 1 Flush mounted for interior.

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