SECTION 083313 - COILING COUNTER DOORS

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Counter door assemblies.

Fire-rated counter door assemblies.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type and size of coiling counter door and accessory.

Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.

Manufacturer’s current installation instructions.

Retain first subparagraph below for power-operated doors.

Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

Retain subparagraph below for fire-rated doors.

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.

Include plans, elevations, sections, and mounting details.

Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.

Include points of attachment and their corresponding static and dynamic loads imposed on structure.

Retain option in first subparagraph below for fire-rated doors.

Show locations of controls, locking devices[**, detectors or replaceable fusible links**], and other accessories.

Retain subparagraph below if equipment includes wiring.

Include diagrams for power, signal, and control wiring.

* + - * 1. Samples: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.

Include similar Samples of accessories involving color selection.

* + - * 1. Quality Control Submittals:

Retain "Fire-Rated Door Inspector" subparagraph below, or delete and retain second subparagraph below. Certification in second subparagraph below should be acceptable by all authorities having jurisdiction. See the Evaluations.

Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, section 5.2.3.1.

Submit copy of DHI Fire and Egress Door Assembly Inspector (FDAI) certificate.

Retain "Oversize Construction Certification" paragraph below if oversize fire-rated doors are required and acceptable to authorities having jurisdiction.

Oversize Construction Certification: For door assemblies required to be fire-rated and that exceed size limitations of labeled assemblies.

* + - * 1. Contract Closeout Submittals

Maintenance Data: For coiling counter doors to include in maintenance manuals.

Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

Retain "Maintenance Proximity" subparagraph below if retaining "Maintenance Service" Article.

Maintenance Proximity: Not more than [**two**] <**Insert number**> hours' normal travel time from Installer's place of business to Project site.

* + - * 1. Fire-Rated Door Inspector Qualifications: Inspector for field quality control inspections of fire-rated door assemblies shall meet the qualifications set forth in NFPA 80, section 5.2.3.1 and the following:

Retain subparagraph below if requiring fire door inspectors to be certified under DHI's certification program. Verify, with authorities having jurisdiction, if other DHI certifications are acceptable, such as Architectural Hardware Consultant (AHC), Certified Door Consultant (CDC), and Architectural Openings Consultant (AOC).

Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.

1. PRODUCTS
	* + 1. MANUFACTURERS
				1. Source Limitations: Obtain coiling counter doors from single source from single manufacturer.

Retain subparagraph below or revise to suit Project.

Obtain operators and controls from coiling counter door manufacturer.

* + - 1. PERFORMANCE REQUIREMENTS

Retain "Fire-Rated Door Assemblies" paragraph below if applicable. Coiling counter doors are labeled by UL for sizes not exceeding 152 sq. ft., with no dimension exceeding 13 feet 6 inches. See the Evaluations.

* + - * 1. Fire-Rated Door Assemblies: Complying with NFPA 80; listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to [**NFPA 252**] [**or**] [**UL 10B**].

Retain "Oversize Fire-Rated Door Assemblies" subparagraph below if required by authorities having jurisdiction.

Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

Retain "Temperature-Rise Limit" subparagraph below if required. The IBC allows an exception for buildings equipped throughout with fire-suppression sprinklers.

Temperature-Rise Limit: [**Where indicated**] [**At exit enclosures and exit passageways**], provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.

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. of door opening at 0.10 inch wg for both ambient and elevated temperature tests.

Retain "Sound-Control Doors" paragraph below if acoustically rated doors are required.

* + - * 1. Sound-Control Doors: Assemblies tested in a laboratory for sound-transmission-loss performance according to ASTM E90, calculated according to ASTM E413, and rated for not less than the STC value indicated.
			1. COUNTER DOOR ASSEMBLY <**Insert drawing designation**>

Copy this article and re-edit for each non-fire-rated counter door unit. This article is intended as a guide if Project requires several units of varying sizes, characteristics, and capacities. For each door assembly, retain required options in this article and their related requirements in other Part 2 articles. Consult manufacturers for recommendations and availability.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Counter Door: Coiling counter door formed with curtain of interlocking metal slats.

Retain one of five options in "Operation Cycles" paragraph below. First option is standard with some manufacturers; second option is more commonly used. Last three options are for high-cycle operation, corrosive environments, and severe or abusive use. Consult manufacturer for recommendations.

* + - * 1. Operation Cycles: Door components and operators capable of operating for not less than [**10,000**] [**20,000**] [**50,000**] [**100,000**] [**200,000**] <**Insert number**>. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

Retain subparagraph below if high-cycle doors are specified.

Include tamperproof cycle counter.

Retain "STC Rating" paragraph below for acoustically insulated doors. Verify STC rating availability with manufacturers.

* + - * 1. STC Rating: [**26**] <**Insert value**>.

Retain "Curtain R-Value" paragraph below for thermally insulated doors.

* + - * 1. Curtain R-Value: [**4.5 deg F x h x sq. ft./Btu**] [**5.0 deg F x h x sq. ft./Btu**] [**6.0 deg F x h x sq. ft./Btu**] <**Insert value**>.
				2. Door Curtain Material: [**Galvanized steel**] [**Stainless steel**] [**Aluminum**].

Slat profile and sizes in "Door Curtain Slats" paragraph below vary among manufacturers. Revise size to a range if exact size is not important. Curved slats are not insulated.

* + - * 1. Door Curtain Slats: [**Curved**] [**Flat**] profile slats of [**1-1/4-inch**] [**1-1/2-inch**] <**Insert dimension**> center-to-center height.

Features in "Perforated Slats," "Fenestrated Slats," and "Vision Panels" subparagraphs below are available from some manufacturers for specific slat materials and profiles. Verify availability and size with manufacturer; revise to suit Project.

Perforated Slats: Approximately [**1/16-inch pinholes**] [**3/32-inch pinholes**] [**7/8-inch-wide by 3/8-inch- high slots**] <**Insert dimensions**>.

Fenestrated Slats: Approximately [**3- by 5/8-inch**] [**4- by 5/8-inch**] [**10- by 1-5/8-inch**] <**Insert dimensions**> openings spaced approximately [**1-1/2 inches**] <**Insert dimension**> apart and beginning 12 inches from jamb guides.

Retain opening size and spacing in "Vision Panels" subparagraph below or revise to suit Project. Retain last option for use in thermally insulated doors.

Vision Panels: Approximately 10- by 1-5/8-inch openings spaced approximately 2 inches apart and beginning 12 inches from end guides; in [**two**] [**three**] <**Insert number**> rows of slats at height indicated on Drawings; installed with[**insulated**] vision-panel glazing.

Insulated-Slat Interior Facing: [**Metal**] [**Plastic**].

Feature in "Gasket Seal" subparagraph below is available from some manufacturers and can improve overall performance but may be less durable than entirely metal-on-metal slats. Verify availability with manufacturer.

Gasket Seal. Manufacturer's standard continuous gaskets between slats.

* + - * 1. Bottom Bar: Manufacturer's standard continuous channel or tubular shape, fabricated [**hot-dip galvanized steel**] [**stainless steel**] [**or**] [**aluminum extrusion**] and finished [**to match door**] <**Insert requirement**>.

Consult manufacturer for availability of last two options in "Curtain Jamb Guides" paragraph below, which are sometimes used with counter doors.

* + - * 1. Curtain Jamb Guides: [**Galvanized steel**] [**Stainless steel**] [**Aluminum**] with exposed finish matching curtain slats.[**Provide continuous integral wear strips to prevent metal-to-metal contact and to minimize operational noise.**][**Provide removable post(s) and jamb guides where indicated on Drawings.**]

Retain "Hood" or "Integral Frame, Hood, and Fascia" paragraph below.

* + - * 1. Hood: [**Match curtain material and finish**] [**Galvanized steel**] [**Stainless steel**] [**Aluminum**].

First option in "Shape" subparagraph below is standard. Verify availability of second option with manufacturer.

Shape: [**Round**] [**Square**] [**As indicated on Drawings**] <**Insert shape**>.

Mounting: [**Face of wall**] [**Between jambs**] [**As indicated on Drawings**].

Item described in "Integral Frame, Hood, and Fascia" paragraph below is available from some manufacturers; verify availability with manufacturer.

* + - * 1. Integral Frame, Hood, and Fascia: [**Galvanized**] [**Stainless**] steel.

Mounting: [**Face of wall**] [**Between jambs**] [**As indicated on Drawings**].

* + - * 1. Sill Configuration: [**No sill**] [**Integral metal sill**].

Retain one of first two options in "Locking Devices" paragraph below. Retain last option for chain-hoist-operated doors or emergency chain-hoist operation. The industry generally discourages using locks on motor-operated coiling doors; see the Evaluations.

* + - * 1. Locking Devices: Equip door with [**slide bolt for padlock**] [**locking device assembly**] [**and**] [**chain lock keeper**].

Retain "Locking Device Assembly" subparagraph below if retaining "locking device assembly" option in "Locking Devices" paragraph above.

Locking Device Assembly: [**Single-jamb side**] [**Cremone-type, both jamb sides**] locking bars, operable from [**inside with thumbturn**] [**outside with cylinder**] [**outside only, with cylinder**] [**inside and outside with cylinders**] <**Insert requirement**>.

Retain "Manual Door Operator" or "Electric Door Operator" paragraph below.

* + - * 1. Manual Door Operator: [**Push-up operation**] [**Chain-hoist operator**] [**Manufacturer's standard crank operator**] [**Awning-crank operator**].

Retain first subparagraph below for chain or crank operator if located on other side of wall from door curtain.

Provide operator with through-wall shaft operation.

Retain subparagraph below for crank operators if required.

Provide operator with manufacturer's standard removable operating arm.

* + - * 1. Electric Door Operator:

Retain one of four options in "Usage Classification" subparagraph below or revise to suit Project. Usage classification varies among manufacturers and for each operator design; it is a durability requirement separate from whole-door "operation cycles." Consult manufacturer for specific recommendations.

Usage Classification: [**Heavy duty, 25 or more cycles per hour and more than 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**] <**Insert classification**>.

Operator Location: [**Top of hood**] [**Front of hood**] [**Wall**] [**Bench**] [**Through wall**] [**As indicated on Drawings**].

Retain one of two options in "Motor Exposure" subparagraph below or revise to suit Project. The operating environment, including hazardous conditions, may require other motor types and enclosure modifications.

Motor Exposure: [**Interior**] [**Exterior, wet, and humid**].

Retain "Motor Electrical Characteristics" subparagraph below if characteristics are not indicated on Drawings.

Motor Electrical Characteristics:

Horsepower: [**1/2**] [**1**] [**2**] [**3**] <**Insert value**> hp.

Voltage:

Retain one of first two subparagraphs below for ac systems.

[**115-V ac**] [**208-V ac**] [**230-V ac**], single phase, 60 Hz.

[**208-V ac**] [**230-V ac**] [**460-V ac**], three phase, 60 Hz.

Emergency Manual Operation: [**Push-up**] [**Chain**] [**Crank**] type.

Retain "Obstruction-Detection Device" subparagraph below if required.

Obstruction-Detection Device: Automatic [**photoelectric sensor**] [**electric sensor edge on bottom bar**] [**pneumatic sensor edge on bottom bar**] [**; self-monitoring type**] <**Insert type**>.

Retain "Sensor Edge Bulb Color" subparagraph below if retaining second or third option in "Obstruction-Detection Device" subparagraph above.

Sensor Edge Bulb Color: [**Black**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Indicate on Drawings which side of door is exterior face if it is not obvious.

Control Station(s): [**Interior-side mounted**] [**Exterior-side mounted**] [**Where indicated on Drawings**] <**Insert location**>.

Other Equipment: <**Insert device**>.

See "Curtain Accessories" Article for where each option in "Curtain Accessories" paragraph below is used.

* + - * 1. Curtain Accessories: Equip door with [**smoke seals**] [**weatherseals**] [**astragal**] [**push/pull handles**] [**pull-down strap**] [**pole hook**] [**and**] [**automatic closing device**] <**Insert item**>.
				2. Door Finish:

Retain one of first four subparagraphs below. These include advertised materials and finishes; available materials and finishes vary with each manufacturer. If retaining more than one, indicate location of each on Drawings or by inserts.

Second option in "Aluminum Finish" subparagraph below is standard; verify availability of other aluminum finishes with manufacturer.

Aluminum Finish: [**Mill**] [**Clear anodized**] [**Light bronze anodized**] [**Medium bronze anodized**] [**Dark bronze anodized**] [**Black anodized**] [**Anodized color matching Director’s Representative's sample**] [**Anodized color as selected by Director’s Representative from full range of industry colors and color densities**] <**Insert color**>.

Baked-Enamel or Powder-Coated Finish: [**Color as indicated by manufacturer's designations**] [**Color matching Director’s Representative's sample**] [**Color as selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Factory Prime Finish: Manufacturer's standard color.

Second option in "Stainless Steel Finish" subparagraph below is standard; verify availability of other stainless steel finishes with manufacturer.

Stainless Steel Finish: [**ASTM A480 No. 2B (bright, cold rolled)**] [**ASTM A480 No. 4 (polished directional satin)**] <**Insert finish**>.

Retain "Interior Curtain-Slat Facing" subparagraph below for insulated door curtains. Indicate on Drawings which side of door is exterior face if it is not obvious.

Interior Curtain-Slat Facing: [**Match finish of exterior curtain-slat face**] [**PVC plastic**] <**Insert finish**>.

* + - 1. FIRE-RATED COUNTER DOOR ASSEMBLY <**Insert drawing designation**>

Copy this article and re-edit for each fire-rated counter door unit. This article is intended as a guide if Project requires several units of varying sizes, characteristics, and capacities. For each door assembly, retain required options in this article and their related requirements in other Part 2 articles. Consult manufacturers for recommendations and availability.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Fire-Rated Counter Door: Overhead fire-rated coiling door formed with curtain of interlocking metal slats.

Retain one of five options in "Operation Cycles" paragraph below. First option is standard with some manufacturers; second option is more commonly used. Last three options are for high-cycle operation, corrosive environments, and severe or abusive use. Consult manufacturer for recommendations.

* + - * 1. Operation Cycles: Door components and operators capable of operating for not less than [**10,000**] [**20,000**] [**50,000**] [**100,000**] [**200,000**] <**Insert number**>. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

Retain subparagraph below if high-cycle doors are specified.

Include tamperproof cycle counter.

Verify availability of temperature-rise limit option in "Fire Rating" paragraph below before retaining. This temperature-rise limit is required by codes for some locations.

* + - * 1. Fire Rating: [**3/4 hour**] [**1 hour**] [**1-1/2 hours**] [**3 hours**] [**4 hours**] [**with temperature-rise limit**] [**and**] [**with smoke control**].

Retain "STC Rating" paragraph below for acoustically insulated fire-rated doors. Verify STC rating availability with manufacturers.

* + - * 1. STC Rating: [**27**] <**Insert value**>.

Retain "Curtain R-Value" paragraph below for thermally insulated doors.

* + - * 1. Curtain R-Value: [**4.5 deg F x h x sq. ft./Btu**] [**5.0 deg F x h x sq. ft./Btu**] [**6.0 deg F x h x sq. ft./Btu**] <**Insert value**>.
				2. Door Curtain Material: [**Galvanized**] [**Stainless**] steel.

Slat profile and sizes in "Door Curtain Slats" paragraph below vary among manufacturers. Revise size to a range if exact size is not important. Curved slats are not insulated.

* + - * 1. Door Curtain Slats: [**Curved**] [**Flat**] profile slats of [**1-1/4-inch**] [**1-1/2-inch**] <**Insert dimension**> center-to-center height.

Features in "Vision Panels" and "Insulated-Slat Interior Facing" subparagraphs below are available from some manufacturers, for specific slat materials and profiles. Verify availability and size with manufacturer; revise to suit Project.

Retain opening size and spacing in "Vision Panels" subparagraph below or revise to suit Project.

Vision Panels: Approximately 10- by 1-5/8-inch openings spaced approximately 2 inches apart and beginning 12 inches from end guides; in [**two**] [**three**] <**Insert number**> rows of slats at height indicated on Drawings; installed with fire-rated vision-panel glazing.

Insulated-Slat Interior Facing: Metal.

* + - * 1. Curtain Jamb Guides: [**Galvanized**] [**Stainless**] steel with exposed finish matching curtain slats.

Retain "Hood" or "Integral Frame, Hood, and Fascia" paragraph below.

* + - * 1. Hood: [**Match curtain material and finish**] [**Galvanized steel**] [**Stainless steel**].

First option in "Shape" subparagraph below is standard. Verify availability of second option with manufacturer.

Shape: [**Round**] [**Square**] [**As indicated on Drawings**] <**Insert shape**>.

Mounting: [**Face of wall**] [**Between jambs**] [**As indicated on Drawings**].

Item described in "Integral Frame, Hood, and Fascia" paragraph below is available from some manufacturers; verify availability with manufacturer.

* + - * 1. Integral Frame, Hood, and Fascia: [**Galvanized**] [**Stainless**] steel.

Mounting: [**Face of wall**] [**Between jambs**] [**As indicated on Drawings**].

* + - * 1. Sill Configuration: [**No sill**] [**Integral metal sill**] [**Fire-rated, laminate counter**].

Retain "High-Pressure Decorative Laminate" subparagraph below only if retaining last option in "Sill Configuration" paragraph above.

High-Pressure Decorative Laminate: Match color, pattern, and finish [**as indicated by manufacturer's designations**] [**of Director’s Representative's sample**] [**as selected by Director’s Representative from manufacturer's full range**] <**Insert requirement**>.

Retain one of first two options in "Locking Devices" paragraph below. Retain last option for chain-hoist-operated doors or emergency chain-hoist operation. The industry generally discourages using locks on motor-operated coiling doors; see the Evaluations.

* + - * 1. Locking Devices: Equip door with [**slide bolt for padlock**] [**locking device assembly**] [**and**] [**chain lock keeper**].

Retain "Locking Device Assembly" subparagraph below if retaining "locking device assembly" option in "Locking Devices" paragraph above.

Locking Device Assembly: [**Single-jamb side**] [**Cremone-type, both jamb sides**] locking bars, operable from [**inside with thumbturn**] [**outside with cylinder**] [**outside only, with cylinder**] [**inside and outside with cylinders**] <**Insert requirement**>.

Retain "Manual Door Operator" or "Electric Door Operator" paragraph below.

* + - * 1. Manual Door Operator: [**Push-up operation**] [**Chain-hoist operator**] [**Manufacturer's standard crank operator**] [**Awning-crank operator**].

Retain first subparagraph below for chain or crank operator if located on other side of wall from door curtain.

Provide operator with through-wall shaft operation.

Retain subparagraph below for crank operators if required.

Provide operator with manufacturer's standard removable operating arm.

* + - * 1. Electric Door Operator:

Retain one of four options in "Usage Classification" subparagraph below or revise to suit Project. Usage classification varies among manufacturers and for each operator design; it is a durability requirement separate from whole-door "operation cycles." Consult manufacturer for specific recommendations.

Usage Classification: [**Heavy duty, 25 or more cycles per hour and more than 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**] <**Insert classification**>.

Operator Location: [**Top of hood**] [**Front of hood**] [**Wall**] [**Bench**] [**Through wall**] [**As indicated on Drawings**].

Retain one of two options in "Motor Exposure" subparagraph below or revise to suit Project. The operating environment, including hazardous conditions, may require other motor types and enclosure modifications.

Motor Exposure: [**Interior**] [**Exterior, wet, and humid**].

Retain "Motor Electrical Characteristics" subparagraph below if characteristics are not indicated on Drawings.

Motor Electrical Characteristics:

Horsepower: [**1/2**] [**1**] [**2**] [**3**] <**Insert value**> hp.

Voltage:

Retain one of first two subparagraphs below for ac systems.

[**115-V ac**] [**208-V ac**] [**230-V ac**], single phase, 60 Hz.

[**208-V ac**] [**230-V ac**] [**460-V ac**], three phase, 60 Hz.

Emergency Manual Operation: [**Push-up**] [**Chain**] [**Crank**] type.

Retain "Obstruction-Detection Device" subparagraph below if door is used as an automatic garage door; consider retaining it for other door uses.

Obstruction-Detection Device: Automatic [**photoelectric sensor**] [**electric sensor edge on bottom bar**] [**pneumatic sensor edge on bottom bar**] [**; self-monitoring type**] <**Insert type**>.

Retain "Sensor Edge Bulb Color" subparagraph below if retaining second or third option in "Obstruction-Detection Device" subparagraph above.

Sensor Edge Bulb Color: [**Black**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Indicate on Drawings which side of door is exterior face if it is not obvious.

Control Station(s): [**Interior-side mounted**] [**Exterior-side mounted**] [**Where indicated on Drawings**] <**Insert location**>.

Other Equipment: <**Insert device**>.

See "Curtain Accessories" Article for where each option in "Curtain Accessories" paragraph below is used.

* + - * 1. Curtain Accessories: Equip door with smoke seals, automatic closing device, [**astragal**] [**push/pull handles**] [**pull-down strap**] [**pole hook**] [**and**] <**Insert item**>.
				2. Door Finish:

Retain one of first three subparagraphs below. These include advertised materials and finishes; available materials and finishes vary with each manufacturer. If retaining more than one, indicate location of each on Drawings or by inserts.

Baked-Enamel or Powder-Coated Finish: [**Color as indicated by manufacturer's designations**] [**Color matching Director’s Representative's sample**] [**Color as selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Factory Prime Finish: Manufacturer's standard color.

Second option in "Stainless Steel Finish" subparagraph below is standard; verify availability of other stainless steel finishes with manufacturer.

Stainless Steel Finish: [**ASTM A480 No. 2B (bright, cold rolled)**] [**ASTM A480 No. 4 (polished directional satin)**] <**Insert finish**>.

Retain "Interior Curtain-Slat Facing" subparagraph below for insulated door curtains. Indicate on Drawings which side of door is exterior face if it is not obvious.

Interior Curtain-Slat Facing: [**Match finish of exterior curtain-slat face**] <**Insert finish**>.

* + - 1. MATERIALS, GENERAL

Retain this article for motorized operator.

* + - * 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
			1. DOOR CURTAIN MATERIALS AND FABRICATION

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

* + - * 1. Door Curtains: Fabricate coiling counter door curtain of interlocking metal slats in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:

Retain one or more of "Steel Door Curtain Slats," "Stainless Steel Door Curtain Slats," and "Aluminum Door Curtain Slats" subparagraphs below for required slat materials. Consult manufacturers' data and revise subparagraphs to specify other materials if needed. Verify sheet thicknesses with manufacturer.

Steel Door Curtain Slats: Zinc-coated (galvanized), cold-rolled structural-steel sheet; complying with ASTM A653, with G90 zinc coating; nominal sheet thickness (coated) of 0.028 inch; and as required.

Stainless Steel Door Curtain Slats: ASTM A240 or ASTM A666, Type 304; sheet thickness of 0.025 inch; and as required.

Aluminum is not applicable to fire-rated assemblies.

Aluminum Door Curtain Slats: ASTM B209 sheet or ASTM B221 extrusions, alloy and temper standard with manufacturer for type of use and finish indicated; thickness of 0.050 inch; and as required.

Retain "Vision-Panel Glazing" subparagraph below if vision panels are required for curtain slats. Vision-panel availability may be limited to some manufacturers and according to type of slat. Verify availability with manufacturer.

Vision-Panel Glazing: Manufacturer's standard clear glazing, fabricated from transparent acrylic sheet or fire-protection-rated glass as required for type of door; set in glazing channel secured to curtain slats.

Retain "Insulation," "Metal Interior Curtain-Slat Facing," and "Plastic Interior Curtain-Slat Facing" subparagraphs below as required for thermally or acoustically insulated doors; revise to suit Project.

Insulation: Fill slats for insulated doors with manufacturer's standard thermal insulation complying with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E84 or UL 723. Enclose insulation completely within slat faces.

"Metal Interior Curtain-Slat Facing" and "Plastic Interior Curtain-Slat Facing" subparagraphs below describe different interior facings for insulated slats; facing in first subparagraph is most common. Indicate on Drawings which side of door is exterior face if it is not obvious.

Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face.

"Plastic Interior Curtain-Slat Facing" subparagraph below is not applicable to fire-rated assemblies. Retain one flame-spread index; verify availability with manufacturer.

Plastic Interior Curtain-Slat Facing: Extruded PVC plastic with maximum flame-spread index of [**25**] [**75**] [**200**] and smoke-developed index of 450, according to ASTM E84 or UL 723.

* + - * 1. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

Retain "Removable Posts and Jamb Guides" subparagraph below for removable post and guides separating multiple counter door installations that require a clear opening.

Removable Posts and Jamb Guides: Manufacturer's standard.

* + - 1. HOODS

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

Retain "General" paragraph below if coiled curtain and operating mechanism are exposed (not concealed in ceiling or soffit); consider retaining a hood even if coiled door is above ceiling.

* + - * 1. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.

Retain required material(s) in "Galvanized Steel," "Stainless Steel," and "Aluminum" subparagraphs below. Thicker steel sheet is available from some manufacturers; verify availability.

Galvanized Steel: Nominal 0.028-inch- thick, hot-dip galvanized-steel sheet with G90 zinc coating, complying with ASTM A653.

Stainless Steel: 0.025-inch- thick, stainless steel sheet, Type 304, complying with ASTM A240 or ASTM A666.

"Aluminum" subparagraph below is for non-fire-rated doors only. Clear- and color-anodized finishes are available.

Aluminum: 0.040-inch- thick aluminum sheet complying with ASTM B209, of alloy and temper recommended by manufacturer and finisher for type of use and finish indicated.

Retain subparagraph below for fire-rated assemblies.

Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.

Item described in "Integral Frame, Hood, and Fascia" paragraph below is available from some manufacturers for counter doors or fire-rated counter doors; sill is optional. Verify availability with manufacturer.

* + - * 1. Integral Frame, Hood, and Fascia: Welded sheet metal assembly of the following sheet metal(s):

Retain required material(s) in "Galvanized Steel" and "Stainless Steel" subparagraphs below.

Galvanized Steel: Hot-dip galvanized-steel sheet with G90 zinc coating, complying with ASTM A653.

Stainless Steel: Type 304, complying with ASTM A240 or ASTM A666.

Retain "Removable Metal Soffit" paragraph below for concealed installations only. Metal soffit is not often used. Indicate location, details, and size on Drawings.

* + - * 1. Removable Metal Soffit: Formed or extruded from same metal and with same finish as curtain if hood is mounted above ceiling unless otherwise indicated.
			1. LOCKING DEVICES

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

Retain one of or both "Slide Bolt" and "Locking Device Assembly" paragraphs below for required locking device(s); revise to suit Project. First paragraph is standard for push-up doors; revise if no padlock is required or if manufacturer's standard is a bolt on one side. Second paragraph describes a locking device with choice of locations and operation as retained in counter door assembly articles in Part 2.

* + - * 1. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on both left and right jamb sides, operable from coil side.
				2. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.

Retain one of first three options in "Lock Cylinders" subparagraph below.

Lock Cylinders: As [**specified in Section 087100 "Door Hardware"**] [**standard with manufacturer**] [**and keyed to building keying system**].

Retain "Keys" subparagraph below if cylinders are provided by door manufacturer.

Keys: [**Two**] [**Three**] <**Insert number**> for each cylinder.

Retain "Chain Lock Keeper" paragraph below for chain-hoist-operated doors or emergency chain-hoist operation.

* + - * 1. Chain Lock Keeper: Suitable for padlock.

Retain "Safety Interlock Switch" paragraph below for power-operated doors.

* + - * 1. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.
			1. CURTAIN ACCESSORIES

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

Retain "Smoke Seals" paragraph below for fire-rated doors.

* + - * 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.

Retain "Weatherseals" paragraph below if required.

* + - * 1. Weatherseals: Equip door with weather-stripping gaskets fitted to entire perimeter of door for air-resistant installation unless otherwise indicated.

At door head, use 1/8-inch- thick, replaceable, continuous-sheet baffle secured to inside of hood or field-installed on the header.

At door jambs, use replaceable, adjustable, continuous, [**flexible, 1/8-inch- thick seals of flexible vinyl, rubber, or neoprene**] [**nylon brushes**] <**Insert material**>.

* + - * 1. Astragal: Equip each door bottom bar with a replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene as a cushion bumper.

Retain "Push/Pull Handles" paragraph below for push-up-operated doors or emergency push-up operation.

* + - * 1. Push/Pull Handles: Equip each push-up-operated or emergency-operated door with lifting handles on each side of door, finished to match door.

Retain "Pull-Down Strap" or "Pole Hooks" paragraph below if required. Consult manufacturer for recommendations.

* + - * 1. Pull-Down Strap: Provide pull-down straps for doors more than 84 inches high.
				2. Pole Hooks: Provide pole hooks and poles for doors more than 84 inches high.

Retain "Automatic-Closing Device" paragraph below for fire-rated doors.

* + - * 1. Automatic-Closing Device: Equip each fire-rated door with an automatic-closing device or holder-release mechanism and governor unit complying with NFPA 80 and an easily tested and reset release mechanism.[**Testing for manually operated doors shall allow resetting by opening the door without retensioning the counterbalance mechanism.**][**Release mechanism for motor-operated doors shall allow testing without mechanical release of the door.**] Automatic-closing device shall be designed for activation by the following:

Retain one or more of four subparagraphs below and insert others if required to suit Project. If more than one type of activation (or combination) is required, identify primary and secondary closing devices. Verify requirements of authorities having jurisdiction. See the Evaluations.

Retain first subparagraph below to comply with NFPA 80 requirement for fusible links on both sides of door opening. Revise if not required on both sides of door opening or to add fusible-link ceiling unit for use with suspended ceilings.

Replaceable fusible links with temperature rise and melting point of [**165 deg F**] <**Insert temperature**> interconnected and mounted on both sides of door opening.

Manufacturer's standard UL-labeled smoke detector and door-holder-release devices.

Manufacturer's standard UL-labeled heat detector and door-holder-release devices.

Building fire-detection, smoke-detection, and -alarm systems.

Insert other accessories to suit Project.

* + - * 1. <**Insert requirements**>.
			1. COUNTER DOOR ACCESSORIES

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

Retain "Integral Metal Sill" paragraph below if required. Stainless steel with ASTM A480 No. 4 finish is standard. Verify availability of other finishes with manufacturer.

* + - * 1. Integral Metal Sill: Fabricate sills as integral part of frame assembly of Type 304 stainless steel in manufacturer's standard thickness with [**ASTM A480 No. 4**] <**Insert finish**> finish.

Product in "Fire-Rated, Laminate Counter" paragraph below is available from some manufacturers and may be specified for interior openings in lieu of integral sheet-metal sills.

* + - * 1. Fire-Rated, Laminate Counter: Fire-door manufacturer's high-pressure, decorative laminate-covered countertop; UL or ITS tested and labeled for 1-1/2-hour fire rating for approved use with fire-door assembly.

Insert other accessories to suit Project.

* + - * 1. <**Insert requirements**>.
			1. COUNTERBALANCE MECHANISM

Retain this article for all doors.

* + - * 1. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

In "Counterbalance Barrel" paragraph below, retain "seamless" option for greatest durability and "welded" option for lower cost and smaller doors. Consult manufacturer for recommendations.

* + - * 1. Counterbalance Barrel: Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, [**seamless**] [**or**] [**welded**] carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. of span under full load.
				2. Counterbalance Spring: One or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Secure ends of springs to barrel and shaft with cast-steel barrel plugs.

Fire-Rated Doors: Equip with auxiliary counterbalance spring and prevent tension release from main counterbalance spring when automatic closing device operates.

* + - * 1. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
				2. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.
			1. MANUAL DOOR OPERATORS

Retain this article for manually operated doors, not including emergency manual operation for electric door operators.

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

* + - * 1. General: Equip door with manual door operator by door manufacturer.

Requirement in "Push-up Door Operation" paragraph below is common for doors with area of not more than 80 sq. ft.; counter depth is also a factor.

* + - * 1. Push-up Door Operation: Design counterbalance mechanism so that required lift or pull for door operation does not exceed [**25 lbf**] <**Insert value**>.

Items in "Chain-Hoist Operator" and "Crank Operator" paragraphs below are common for manually operated, industrial doors with area of more than 80 sq. ft.

* + - * 1. Chain-Hoist Operator: Consisting of endless steel hand chain, chain-pocket wheel and guard, and gear-reduction unit with a maximum [**25-lbf**] [**30-lbf**] <**Insert value**> force for door operation. Provide alloy-steel hand chain with chain holder secured to operator guide.

"Awning" and "box" are the two types of crank operators. Indicate required type in door assembly articles retained in Part 2.

* + - * 1. Crank Operator: Consisting of crank and crank gearbox, steel crank drive shaft, and gear-reduction unit, of type indicated. Size gears to require not more than [**25-lbf**] [**30-lbf**] <**Insert value**> force to turn crank. Fabricate gearbox to be oiltight and to completely enclose operating mechanism. Provide manufacturer's standard crank-locking device.
			1. ELECTRIC DOOR OPERATORS

Retain this article for electric door operators, including emergency manual operation, and for larger units and remotely controlled or frequently operated doors. Coordinate with Project's electrical engineer for interface of electric door operators and equipment with fire-protection system.

Retain requirements in this article to suit Project. If retaining multiple requirements for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

* + - * 1. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

Consider naming a door-operator model or manufacturer or basis-of-design door-operator model or manufacturer only if known and available from coiling-door manufacturer and other operators are unacceptable. Specific operators may not be available from all door manufacturers; operator features may not be common to all operator manufacturers. Consult door manufacturers for recommendations.

Comply with NFPA 70.

Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V ac or dc.

Durability requirement in "Usage Classification" paragraph below is separate from "operation cycles," which apply to the whole door system and are specified in door assembly articles.

* + - * 1. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
				2. Door Operator Location(s): Operator location indicated for each door.

Retain one or more of five subparagraphs below to suit Project. Delete all subparagraphs if operator location(s) is indicated on Drawings.

Top-of-Hood Mounted: Operator is mounted to the right or left door head plate with the operator on top of the door-hood assembly and connected to the door drive shaft with drive chain and sprockets. Headroom is required for this type of mounting.

Front-of-Hood Mounted: Operator is mounted to the right or left door head plate with the operator on coil side of the door-hood assembly and connected to the door drive shaft with drive chain and sprockets. Front clearance is required for this type of mounting.

Wall Mounted: Operator is mounted to the inside front wall on the left or right side of door and connected to door drive shaft with drive chain and sprockets. Side room is required for this type of mounting. Wall-mounted operator can also be mounted above or below shaft; if above shaft, headroom is required.

Bench Mounted: Operator is mounted to the right or left door head plate and connected to the door drive shaft with drive chain and sprockets. Side room is required for this type of mounting.

Through-Wall Mounted: Operator is mounted on other side of wall from coil side of door.

Retain option in "Motors" paragraph below unless external controller (disconnect switch) is indicated on Drawings. Coordinate with Project's Electrical Engineer.

* + - * 1. Motors: Reversible-type motor[**with controller (disconnect switch)**] for motor exposure indicated for each door assembly.

Speed in "Electrical Characteristics" subparagraph below is for standard-speed doors. Consult manufacturer and revise for higher-speed operation.

Electrical Characteristics: Minimum as indicated for each door assembly. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec, without exceeding nameplate ratings or service factor.

Revise "Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring" subparagraph below if required; coordinate requirements with Project's Electrical Engineer. Verify which electrical devices, connections, and wiring, if any, are furnished or installed by other than coiling-door manufacturer; these devices must comply with requirements for electrical devices and connections specified elsewhere.

Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.

Coordinate wiring requirements and electrical characteristics of motors and other electrical devices with building electrical system and each location where installed.

* + - * 1. Limit Switches: Equip each motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.

Retain "Obstruction-Detection Devices" paragraph below if required; revise if required for fire-rated door applications according to requirements of authorities having jurisdiction.

* + - * 1. Obstruction-Detection Devices: External entrapment protection consisting of indicated automatic safety sensor capable of protecting full width of door opening.[**For non-fire-rated doors, activation of device immediately stops and reverses downward door travel.**][**For fire-rated doors, activation delays closing.**]

Retain one of or both "Photoelectric Sensor" and "Electric Sensor Edge" subparagraphs below to suit Project.

Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.

Retain "Self-Monitoring Type" subparagraph below if a self-monitoring system to detect failure of sensing device is required.

Self-Monitoring Type: Designed to interface with door operator control circuit to detect damage to or disconnection of sensing device. When self-monitoring feature is activated, door closes only with sustained or constant pressure on close button.

Electric Sensor Edge: Automatic safety sensor edge, located within astragal mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.

Retain "Self-Monitoring Type" subparagraph below if a self-monitoring system to detect failure of sensing device is required.

Self-Monitoring Type: Four-wire-configured device designed to interface with door operator control circuit to detect damage to or disconnection of sensor edge.

Device in "Pneumatic Sensor Edge" subparagraph below may be limited to a width of 18 feet; verify availability with manufacturer.

Pneumatic Sensor Edge: Automatic safety sensor edge, located within astragal mounted to bottom bar. Contact with sensor activates device.

Retain "Control Station" paragraph for control stations in fixed locations. A sustained- or constant-pressure (in lieu of a momentary-contact) switch may also be required for opening cycles according to authorities having jurisdiction; revise requirements and counter door assembly articles retained in Part 2 as needed.

* + - * 1. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and sustained- or constant-pressure push-button control labeled "Close."

Retain "Type" subparagraph below for interior, clean, and dry installations. Revise to suit Project.

Type: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.

* + - * 1. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed [**25 lbf**] [**30 lbf**] <**Insert value**>.
				2. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
				3. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

Insert additional equipment for door operation if required; verify availability with manufacturer.

* + - * 1. <**Insert requirements**>.
			1. GENERAL FINISH REQUIREMENTS
				1. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
				2. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
			2. ALUMINUM FINISHES

Retain finishes in this article to suit Project. If retaining more than one for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2. Revise finish designation if custom anodized finish is required and availability is verified.

* + - * 1. Mill Finish: Manufacturer's standard.

Retain one of two options in "Clear Anodic Finish" paragraph below. Class II finish is standard with many manufacturers; Class I finish is heavy anodized. Verify availability with manufacturer.

* + - * 1. Clear Anodic Finish: AAMA 611, [**AA-M12C22A41, Class I, 0.018 mm**] [**AA-M12C22A31, Class II, 0.010 mm**] or thicker.

Retain one of two options in "Color Anodic Finish" paragraph below. Verify availability with manufacturer.

* + - * 1. Color Anodic Finish: AAMA 611, [**AA-M12C22A42/A44, Class I, 0.018 mm**] [**AA-M12C22A32/A34, Class II, 0.010 mm**] or thicker.

"Baked-Enamel or Powder-Coat Finish" paragraph below references AAMA standard for pigmented organic coating on extrusions and panels.

* + - * 1. Baked-Enamel or Powder-Coat Finish: AAMA 2603. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
			1. STEEL AND GALVANIZED-STEEL FINISHES

Revise article title if galvanized surfaces are not finish painted.

Retain "Factory Prime Finish" or "Baked-Enamel or Powder-Coat Finish" paragraph below, or both. If retaining both paragraphs for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

* + - * 1. Factory Prime Finish: Manufacturer's standard primer, compatible with field-applied finish. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.
				2. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

For exact finish, insert names of coating manufacturers and products.

* + - * 1. <**Insert requirements**>.
			1. STAINLESS STEEL FINISHES
				1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

Retain "Polished Finishes" or "Bright, Cold-Rolled, Unpolished Finish" paragraph below, or both. Directional satin finish is the standard stainless steel finish for all manufacturers. Verify availability of other finishes with manufacturer. If retaining more than one for different doors and to identify optional requirements for a single door, revise requirements below and insert text as needed in counter door assembly articles retained in Part 2.

* + - * 1. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

Retain first subparagraph below for directional finishes.

Run grain of directional finishes with long dimension of each piece.

When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

Directional Satin Finish: ASTM A480 No. 4.

Retain "Bright, Cold-Rolled, Unpolished Finish" paragraph below for nondirectional finish.

* + - * 1. Bright, Cold-Rolled, Unpolished Finish: ASTM A480 No. 2B.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates areas and conditions, with Installer present, 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 unsatisfactory conditions have been corrected.
			2. INSTALLATION, GENERAL
				1. Install coiling counter doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
				2. Install coiling counter doors, hoods, controls, and operators at the mounting locations indicated for each door.

Retain "Fire-Rated Doors" and "Smoke-Control Doors" paragraphs below if required.

* + - * 1. Fire-Rated Doors: Install according to NFPA 80.
				2. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.
			1. FIELD QUALITY CONTROL

Retain "Testing Agency" paragraph below to identify who shall perform tests and inspections. If retaining second option below, retain "Field quality-control reports" paragraph in "Informational Submittals" Article.

* + - * 1. Testing Agency: [**Director’s Representative will engage**] [**Engage**] a qualified testing agency to perform tests and inspections and to furnish reports to Director’s Representative.
				2. Perform the following tests and inspections[**with the assistance of a Company Service Advisor**]:

Test door release, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed door. Reset door-closing mechanism after successful test.

Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80, section 5.2.

* + - * 1. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
				2. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
				3. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in [**NFPA 80**] [**and**] [**NFPA 101**].
			1. STARTUP SERVICE
				1. Engage a Company Service Advisorto perform startup service.

Complete installation and startup checks according to manufacturer's written instructions.

After electrical circuitry has been energized, operate doors to confirm proper motor rotation and door performance.

Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

* + - 1. ADJUSTING
				1. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
				2. Lubricate bearings and sliding parts as recommended by manufacturer.

Retain paragraph below if smoke-control doors are required.

* + - * 1. Adjust seals to provide tight fit around entire perimeter.
			1. MAINTENANCE SERVICE

Verify with Director’s Representative that maintenance service is required for Project.

* + - * 1. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include [**three**] [**six**] [**nine**] [**12**] months' full maintenance by skilled employees of coiling-door Installer. Include [**monthly**] [**quarterly**] preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

Retain one of two subparagraphs below. Generally, retain second subparagraph, which adds appreciable cost, only for critical locations.

Perform maintenance, including emergency callback service, during normal working hours.

Include 24-hour-per-day, seven-day-per-week, emergency callback service.

* + - 1. DEMONSTRATION
				1. Engage a Company Service Advisor to train Director’s Representative's maintenance personnel to adjust, operate, and maintain coiling counter doors.

END OF SECTION 083313