SECTION 08330

OVERHEAD DOORS

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\*\* NOTE TO SPECIFIER \*\* ASTA AMERICA by Janus International; industrial, commercial, service doors, and insulated rolling doors.
This section is based on the products of ASTA AMERICA by Janus International, which is located at:
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Cartersville, GA 30121
Toll Free Tel: 800-423-0659
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Web: <https://www.astaamerica.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos30/arc30685.html) ] for additional information.
ASTA AMERICA is a major supplier of rolling door products throughout the United States. ASTA's main manufacturing facility is located in Acworth, Georgia and was established in 1990. We have become a market leader through a tradition of quality and durability that has been the standard for all of our products. By producing a wide range of rolling door products at competitive prices, we provide effective solutions for our customers in today's marketplace.
ASTA AMERICA manufactures, Industrial Rolling Steel Doors, Insulated Rolling Steel Doors, Commercial Rolling Steel Sheet Doors, and Mini/Self-Storage Roll up Doors. We also offer a wide variety of other products including Rolling Steel Fire Doors, Counter Fire Shutters, and Commercial Sectional Doors. With an uncompromising commitment to cost effective reliability and over seventeen years' experience in engineering, manufacturing and innovation, ASTA AMERICA continues to provide our customers with a competitive edge in the market place.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Continuous corrugated rolling steel sheet doors. (200 Series)
		2. Commercial rolling steel service doors. (300 Series)
		3. Standard rolling steel service doors. (400 Series)
		4. Insulated rolling steel service doors. (600 Series)
		5. Rolling Steel fire doors. (500 Series)
		6. Rolling steel fire shutters. (550 Series)
		7. Rolling steel counter shutters. (700 Series)
		8. Rolling grilles. (800 Series)
		9. Electric operators.
	1. RELATED SECTIONS

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

* + 1. Section 05500 - Metal Fabrications: Metal supports and headers.
		2. Section 08310 - Access Doors and Panels.

\*\* NOTE TO SPECIFIER \*\* Delete if no field finishing required.

* + 1. Section 09900 - Painting: Field applied finish.

\*\* NOTE TO SPECIFIER \*\* Delete if motorized doors not required.

* + 1. Section 16050 - Basic Electrical Materials and Methods: Service and connection to operator. Empty raceway for remote control and safety equipment.
	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 International (ASTM):
			1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
			2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
		2. National Fire Protection Association (NFPA): NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data: Manufacturer's specifications and technical data including the following:
			1. Detailed specification of construction and fabrication, gauge and type of metal; parts list; name, address, and phone number of installing distributor; and operating and maintenance instructions.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below if motorized doors not required.

* + - 1. Include electrical characteristics of components and voltage requirements provided by other, but required to operate assembly.
			2. Installation methods including size and location of mounting bolts.
			3. Brochure.
		1. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, anchorage methods, hardware, including specific requirements indicated.
			1. Indicate location of motor operator.
			2. Height and width dimensions and jamb conditions.
			3. Opening sizes.
			4. Details of slats or corrugated sheets.
			5. Track, jambs, and hardware.
		2. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns, if requested.
	1. QUALITY ASSURANCE
		1. Installer Qualifications: Acceptable to or licensed by manufacturer.

\*\* NOTE TO SPECIFIER \*\* Delete if motorized doors not required.

* + 1. Regulatory Requirements: UL listed motor, controls and equipment.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of fabrication and application workmanship. Do not proceed with remaining work until workmanship is approved by Architect.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging until ready for installation.
		2. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
	2. PROJECT CONDITIONS
		1. Maintain environmental conditions, humidity, and ventilation within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
	3. WARRANTY
		1. Commercial Sheet Door Limited Warranty:
			1. This Limited Warranty gives you specific legal rights and you may also have other rights, which vary from state to state.
			2. ASTA AMERICA (ASTA), warrants this door and the attached hardware and fittings for twelve (12) months, from the purchase date (the Warranty Period), to be free of defects in materials and workmanship. Should any product be defective due to defect in material or faulty workmanship within the Warranty Period, ASTA, upon notification, shall correct this problem at its option by repairing or replacing such defective product. For complete details of our warranty visit our website at https://www.astaamerica.com.
			3. To obtain Warranty service, you must provide written notice of any alleged defect in material or faulty workmanship within the Warranty Period. Such notices shall be delivered via certified or registered mail, return receipt requested, and addressed to ASTA at the following address:
				1. Company: ASTA AMERICA by Janus International
				2. Attention: Customer Service.
				3. Address: 4255 McEver Industrial Drive, Acworth, GA 30101
		2. SELF-STORAGE DOOR LIMITED WARRANTY
			1. This Limited Warranty gives you specific legal rights and you may also have other rights, which vary from state to state.
			2. ASTA AMERICA (ASTA), warrants this door and the attached hardware and fittings for Thirty-six (36) months, from the purchase date, the Warranty Period, to be free of defects in materials and workmanship. Should any product be defective due to defect in material or faulty workmanship within the Warranty Period, ASTA, upon notification, shall correct this problem at its option by repairing or replacing such defective product. For complete details of our warranty visit our website at https://www.astaamerica.com.
			3. Warranty claims must be made to ASTA within the thirty-six month Warranty Period.
			4. To obtain Warranty service, you must provide written notice of any alleged defect in material or faulty workmanship within the Warranty Period. Such notices shall be delivered via certified or registered mail, return receipt requested, and addressed to ASTA at the following address:
				1. Company: ASTA AMERICA
				2. Attention: Customer Service.
				3. Address: 4255 McEver Industrial Drive, Acworth, GA 30101
		3. ROLLING STEEL SLAT DOOR LIMITED WARRANTY
			1. This Limited Warranty gives you specific legal rights and you may also have other rights, which vary from state to state.
			2. ASTA AMERICA (ASTA), warrants rolling steel model 300, 400, 500, and 600 doors and the attached hardware and fittings for twenty-four (24) months, from the purchase date, to be free of defects in materials and workmanship. Should any product be defective due to defect in material or faulty workmanship within the twenty-four month period, ASTA, upon notification, shall correct this problem at its option by repairing or replacing such defective product. For complete details of our warranty visit our website at https://www.astaamerica.com.
			3. Warranty claims must be made to ASTA within the thirty-six month Warranty Period.
			4. To obtain Warranty service, you must provide written notice of any alleged defect in material or faulty workmanship within the Warranty Period. Such notices shall be delivered via certified or registered mail, return receipt requested, and addressed to ASTA at the following address:
				1. Company: ASTA AMERICA.
				2. Attention: Customer Service.
				3. Address: 4255 McEver Industrial Drive, Acworth, GA 30101
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: ASTA AMERICA by Janus International, which is located at: 638 Cassville White Rd. N.W.; Cartersville, GA 30121; Toll Free Tel: 800-423-0659; Tel: 770-974-2600; Fax: 770-974-1455; Email: [request info (Steve.Jamell@astaamerica.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=ASTA+AMERICA+by+Janus+International&coid=30685&rep=&fax=770-974-1455&message=RE:%20Spec%20Question%20(08330adc):%20%20&mf=); Web: <https://www.astaamerica.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 01600.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CONTINUOUS CORRUGATED ROLLING STEEL SHEET DOORS

\*\* NOTE TO SPECIFIER \*\* Coordinate the general information in paragraph 2.2.A with selected door Models in following paragraphs. See manufacturer's literature for guidance in making selections. Delete models not required.

* + 1. Continuous Corrugated Rolling Steel Sheet Doors: Series 200 as manufactured by ASTA AMERICA.
			1. Description: 26 gauge galvanized steel curtain with baked epoxy primer and polyester topcoat.
			2. Operation:

\*\* NOTE TO SPECIFIER \*\* Delete operations not required.

* + - * 1. Rope Pull: Operated by 1/4 inch (6 mm) polyester rope attached to bottom angle for manual operation.
				2. Chain Hoist with Reduction Drive: Cast iron pocket wheel drive with machine link hand chain.
				3. Chain Thru Wall: Chain hoist operated through the wall.
				4. Electric Operator: Electric motor with emergency manual machine link hand chain.

\*\* NOTE TO SPECIFIER \*\* Delete mounting not required. Interior face is standard.

* + - 1. Mounting: Interior face mounted on a prepared opening.
			2. Mounting: Exterior Outside mount. Inverted curtain.
			3. Steel mounting plates: For lateral jamb extension to provide door support.

\*\* NOTE TO SPECIFIER \*\* Delete hoods if not required.

* + - 1. Vision Panels (WxH): 22 x 7 inch (559 x 178 mm) high Lexan windows for view to exterior.

\*\* NOTE TO SPECIFIER \*\* Sloped bottom bar is optional. Delete if not required.

* + - 1. Sloped Bottom Bar: Conforming to slope in finished floor, as indicated on drawings, maximum slope 6 inch (30 mm).
			2. Hoods: 24 gauge galvanized steel with baked epoxy primer and baked polyester top coat.
			3. Locks:
				1. Hand Chain Lock: Lockable bracket, mounted on guide angle or wall.
				2. Curtain Lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock by others.
			4. Finishes:
				1. Galvanized Steel: Baked epoxy primer and baked polyester topcoat.
				2. Ungalvanized Surfaces: Shop coated with rust reducing black prime paint.
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 201 Commercial Sheet Doors as manufactured by ASTA AMERICA.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - 1. Operation: Rope pull operated for doors up to 10 feet by 10 feet (3048 mm by 3048 mm).
			2. Operation: Chain hoist with lock bracket for doors over 10 feet by 10 feet (3048 mm by 3048 mm).
			3. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized, Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: Wear Strip attached to curtain edges.
				3. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
			4. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O. D. hot rolled steel tubing, 13 gauge steel tubing for doors up to 10 feet, otherwise 11 gauge up to 12 feet (3658 mm) wide.
				3. Support brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			5. Guides: Roll formed 14 gauge galvanized steel channels, 2-1/2 inches (63.5 mm) deep per side.

\*\* NOTE TO SPECIFIER \*\* Weatherseals are optional. Delete weatherseals option not required or delete both.

* + - 1. Weatherseals: Top draft stop; EPDM weatherseal riveted to curtain and seals against header. Field Installed.
			2. Weatherseals: Side draft seal, aluminum retainer with brush seal. Field installed.
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 201 HD Commercial Sheet Doors as manufactured by ASTA AMERICA.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - 1. Operation: Rope pull operated for doors up to 10 x 10 ft (3048 x 3048 mm).
			2. Operation: Reduction gear chain hoist with lock bracket standard on all doors over 10 x 10 ft (3048 x 3048 mm).
			3. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: Wear Strip attached to curtain edges.
				3. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
			4. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O.D. hot rolled steel tubing; 13 gauge steel tubing for doors up to 10 feet ( mm), otherwise 11 gauge up to 16 foot (4877 mm) wide doors; doors greater than 16 feet (4877 mm) wide shall have 1-5/16 inch (32 mm) O.D. schedule 80 black pipe.
			5. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			6. Guides: Roll formed 12 gauge galvanized steel channels, 3-1/2 inches (89 mm) deep per side.

\*\* NOTE TO SPECIFIER \*\* Delete optional weatherseals if not required.

* + - 1. Weatherseals: Top draft stop; EPDM weatherseal riveted to curtain and seals against header. Field installed.
			2. Weatherseals: Side draft seal, aluminum retainer with brush seal. Field installed.
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 202 Insulated Commercial Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Reduction gear chain hoist standard on all sizes with lock bracket.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: Wear strip attached to curtain edges.
				3. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
				4. Insulation: Mylar and polyethylene insulation laminated to corrugated steel sheet with an efficiency ' R' rating of 2.
			3. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O. D. hot rolled steel tubing, 13 gauge steel tubing for doors up to 10 feet (3048 mm), otherwise 11 gauge up to 12 foot (3658 mm) wide doors.
			4. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			5. Guides: Roll formed 14 gauge galvanized steel channels, 2-1/2 inches (64 mm) deep per side.
			6. Weatherseals: Standard.
				1. Top Draft Stop: EPDM weatherseal riveted to curtain and seals against header. Field installed.
				2. Side Draft Seal: Aluminum retainer with brush seal. Field installed.
		2. Continuous Corrugated Rolling Steel Sheet Doors: Model 202 HD Insulated Commercial Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Reduction gear chain hoist standard on all sizes with lock bracket.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: PVC rubber attached to curtain edges.

\*\* NOTE TO SPECIFIER \*\* Delete door size not required.

* + - * 1. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
				2. Insulation: Mylar and polyethylene insulation laminated to corrugated steel sheet with an efficiency ' R' rating of 2.
			1. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O. D. hot rolled steel tubing, 13 gauge steel tubing for doors up to 10 feet ( mm), otherwise 11 gauge up to 16 foot (4877 mm) wide; doors greater than 16 feet (4877 mm) shall be 1-5/16 inch (32 mm) schedule 80 black pipe.
			2. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			3. Guides: Roll formed 12 gauge galvanized steel channels, 3-1/2 inches (89 mm) deep per side.
			4. Weatherseals: Standard.
				1. Top Draft Stop: EPDM weatherseal riveted to curtain and seals against header (field installed).
				2. Side Draft Seal: Aluminum retainer with brush seal (field installed).
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 203 Windlock Commercial Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Reduction gear chain hoist standard on all sizes with lock bracket.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: Wear strip attached to curtain edges.
				3. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
				4. Windlocks: 10 gauge galvanized 110 degree clips, riveted to door curtain edge.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for approved door sizes for higher windloads. Higher windload ratings are provided on doors that are less than 14 feet (4877 mm) wide.

* + - 1. Windload Certified: Design to satisfy windload of 35 psf ( kPa), based on 14 foot (4877 mm) wide test door with certification up to 20 feet (6096 mm) wide with less windload rating.
			2. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O. D. hot rolled steel tubing, 13 gauge steel tubing for doors up to 10 feet, otherwise 11 gauge up to 16 feet (4877 mm) wide; doors greater than 16 foot (4877 mm) side shall be 1-5/16 inch (32 mm) schedule 80 black pipe.
			3. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			4. Guides: Roll formed 12 gauge galvanized steel channels with toggle locked 12 gauge windlock inserts, 3-1/2 inches (89 mm) deep per side.

\*\* NOTE TO SPECIFIER \*\* Weatherseals are options Delete weatherseals option not required or delete both.

* + - 1. Weatherseals: Top draft stop; EPDM weatherseal riveted to curtain and seals against header. Field installed.
			2. Weatherseals: Side draft seal, aluminum retainer with brush seal. Field installed.
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 204 Windlock/Insulated Commercial Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Reduction gear chain hoist standard on all sizes with lock bracket.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Side Stripping: Wear strip attached to curtain edges.
				3. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
				4. Windlocks: 10 gauge galvanized 110 degree clips, riveted to door curtain edge.
				5. Insulation: Mylar and polyethylene insulation laminated to corrugated steel sheet with an efficiency ' R' rating of 2.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for approved door sizes for higher windloads.

* + - 1. Windload Certified: Door construction designed to satisfy windload of 35 psf (1.68 kPa), based on 14 foot (4877 mm) wide test door with certification up to 20 feet (6096 mm) wide with less windload rating. Higher windload ratings are provided on doors that are less than 14 feet (4877 mm) wide.
			2. Drum Assembly:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1-5/16 inch (32 mm) O. D. hot rolled steel tubing, 13 gauge steel tubing for doors up to 10 feet, otherwise 11 gauge up to 16 feet (4877 mm) wide; doors greater than 16 feet (4877 mm) side shall be 1-5/16 inch (32 mm) schedule 80 black pipe.
			3. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
			4. Guides: Roll formed 12 gauge galvanized steel channels with toggle lock 12 gauge windlock inserts, 3-1/2 inches (89 mm) deep per side.

\*\* NOTE TO SPECIFIER \*\* Delete weatherseals if not required.

* + - 1. Weatherseals: Standard.
				1. Top Draft Stop: EPDM weatherseal riveted to curtain and seals against header. Field installed.
				2. Side Draft Seal: Aluminum retainer with brush seal. Field installed.
		1. Continuous Corrugated Rolling Steel Sheet Doors: Model 281 Mini/Self-Storage Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Rope pull.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
			3. Spring Counterbalance:
				1. Drum: 26 gauge, 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered wire, helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1 inch (25 mm) 12 gauge, galvanized steel tubing.
			4. Support Brackets and Tension Assembly: Cast steel tension wheel attached to door axle interacts with the tension pawl mounted on the support bracket for spring tension adjustment.
			5. Guides: Roll formed 18 gauge galvanized steel channels, 2 inches (51 mm) deep with dual guide wear strip.
		2. Continuous Corrugated Rolling Steel Sheet Doors: Model 282 Mini/Self-Storage Insulated Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Rope pull.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
				3. Insulation: Mylar and polyethylene insulation laminated to corrugated steel sheet with an efficiency ' R' rating of 5.24.
			3. Spring Counterbalance:
				1. Drum: 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered wire, helical torsion type with 12,500 cycles and an overload factor of 25 percent. Mounted on 1 inch (25 mm) 14 gauge galvanized steel tubing.
			4. Support Brackets and Tension Assembly: Cast steel tension wheel attached to door axle interacts with the tension pawl mounted on the support bracket for spring tension adjustment.
			5. Guides: Roll formed 18 gauge galvanized steel channels, 2 inches (51 mm) deep with dual guide wear strip.
		3. Continuous Corrugated Rolling Steel Sheet Doors: Model 283 Mini/Self-Storage Windlock Sheet Doors as manufactured by ASTA AMERICA.
			1. Operation: Rope pull.
			2. Curtain:
				1. Sheet: 26 gauge ASTM A653-G60 galvanized Grade 80 full hard steel roll formed in continuous corrugation. Finished with baked epoxy primer and baked polyester topcoat.
				2. Bottom Bar: 2 x 1-1/2 inch (51 x 38 mm) 12 gauge galvanized steel angle fastened to aluminum retainer with bottom weather seal.
			3. Spring Counterbalance:
				1. Drum: 26 gauge, 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16 gauge galvanized drums with ball bearings, supported by 14 or 11 gauge 1-5/16 inch (32 mm) O.D. steel tube.
				2. Springs: Oil tempered wire, helical torsion type with 12,500 cycles and an overload factor of 25 percent; mounted on 1 inch (25 mm) 12 gauge minimum galvanized steel tubing.
			4. Support Brackets: Support Brackets and Tension Assembly: Cast steel tension wheel attached to door axle interacts with the tension pawl mounted on the galvanized steel support bracket for spring tension adjustment.
			5. Guides: Roll formed 18 gauge galvanized steel channels 2 inches (51 mm) deep with dual guide wear strip.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. COMMERCIAL ROLLING STEEL SERVICE DOORS
		1. Commercial Rolling Steel Service Doors: 300 Series as manufactured by ASTA AMERICA.
		2. Model and size limitation.

 \*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Product: Model 324 Commercial Slat Door/24 Gauge.
				1. Curtain Slats (WxH): 24-gauge, 16 x 16 ft ( mm) maximum size.
			2. Product: Model 322 Commercial Slat Door/22 Gauge.
				1. Curtain Slats (WxH): 22-gauge, 12 x 12 ft ( mm) maximum size.
			3. Operation:

\*\* NOTE TO SPECIFIER \*\* Delete operations not required.

* + - * 1. Reduction gear chain hoist with lock bracket; hand chain shall be galvanized machine link, pull not to exceed 35 lb (156 N).
				2. Chain Thru Wall: Chain hoist operated through the wall.
				3. Electric Operator: Electric motor with emergency manual machine link hand chain.
				4. Motor Thru Wall: Electric motor operated through the wall.

\*\* NOTE TO SPECIFIER \*\* Delete mounting not required. Interior face is standard.

* + - 1. Mounting: Interior face mounted on a prepared opening.
			2. Mounting: Exterior Outside mount; curtain assembled inverted upside down.
			3. Curtain:

\*\* NOTE TO SPECIFIER \*\* Delete slat type not required. Vision Lite Rolling Steel Door Model 400 must have flat slats.

* + - * 1. Flat Slat: Flat shaped cold roll-formed in continuous lengths of 2-5/8 x 5/8 inch (67 x 16 mm). ASTM A653-G60 galvanized steel. Finished with baked epoxy primer and baked polyester topcoat.
				2. Curved Slat: Curved shaped cold roll-formed in continuous lengths of 2-13/16 x 3/4 inch (71 x 19 mm) ASTM A653-G60 galvanized steel. Finished with baked epoxy primer and baked polyester topcoat.
				3. Nylon Endlocks: Ends of alternate slats be fitted with nylon endlocks providing a wearing surface in guides and to maintain slat alignment. Fastened with 1/4-inch (6 mm) rivets.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for approved door sizes for higher windloads.

* + - * 1. Windload: 20 psf (0.96 kpa) or 87 mph (140 kph) or 87 mph (140 kph).
				2. Certified doors available in flat slat only. Windload ratings are based on 16 foot (4877 mm) wide test door. Higher ratings provided on doors that are less than 16 feet (4877 mm) wide.

Windload: +40 / -37 psf on 24-gauge slats.

Windload: + 41.4/- 38.4 psf on 22-gauge slats.

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar not required.

* + - * 1. Bottom Bar: 2 x 1-1/2 inch (52 x 38 mm) x 12-gauge galvanized steel angle fastened to aluminum retainer with bulb astragal.

\*\* NOTE TO SPECIFIER \*\* Sloped bottom bar is optional. Retain paragraph above and delete sloped bottom bar if not required.

* + - * 1. Sloped Bottom Bar: Conforming to slope in finished floor, as indicated on Drawings; maximum 6 inch (30 mm).
			1. Drum Assembly:
				1. Drum/Axle Assembly. 26 gauge 12 inch (305 mm) diameter galvanized steel spiral torque tube attached to 16-gauge galvanized drums with ball bearings, supported by 1-5/16 inch (33 mm) O.D. steel tube.

\*\* NOTE TO SPECIFIER \*\* Delete door size not required for torque tube.

* + - * 1. Torque Tube for Doors up to 12 Feet (3658 mm) Wide: 26-gauge galvanized steel sheet rolled around and attached to stamped 16-gauge galvanized steel drums to restrict deflection to 0.03 inch per foot (2.5 mm per meter) of door width.
				2. Springs: Oil tempered, grease packed helical torsion type with 12,500 cycles. Mounted on 1-5/16-inch (38 mm) Schedule 80 black steel pipe.
				3. Drum Bearings: Self-lubricating ball bearings.
			1. Support Brackets: 3/16 inch (5 mm) thick steel angles and 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.

\*\* NOTE TO SPECIFIER \*\* Delete guide assembly not required.

* + - 1. Guide Assembly: Roll formed 12 gauge galvanized steel channels, 3-1/2 inches (64 mm) deep per side.
			2. Windload Certified Guide Assembly: 3-piece structural steel windlock guides.

\*\* NOTE TO SPECIFIER \*\* Delete optional weatherseals if not required.

* + - 1. Weatherseals: Header Seals. Top draft stop; EPDM weatherseal riveted to curtain and seals against header, or header seal 6-1/4 inch (159 mm), mounted to header. Either to be field installed.
			2. Weatherseals: Guide Seals. Aluminum retainer with brush seal fastened to jamb on non-coil side. Field installed.

\*\* NOTE TO SPECIFIER \*\* Dlete finish options not required.

* + - 1. Finish: Galvanized Steel.
			2. Finish: Gray topcoat.
			3. Finish: White topcoat.
			4. Finish: Tan topcoat.
			5. Finish: Ungalvanized surfaces. Shop coated with rust reducing black prime paint.
			6. Finish: Powder Coat RAL No. \_\_\_\_\_\_\_\_\_\_\_
			7. Hand Chain Lock: Lockable bracket, mounted on guide angle or wall, to accept padlock, by others.
			8. Curtain Lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock by others.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. STANDARD ROLLING STEEL SERVICE DOORS

\*\* NOTE TO SPECIFIER \*\* Coordinate the following specifications with selected rolling steel door models below. See manufacturer's literature.

* + 1. Rolling Steel Service Doors: 400 Series as manufactured by ASTA AMERICA.
		2. Model and Size Limitations:

\*\* NOTE TO SPECIFIER \*\* Larger sizes are available, contract customer service for details. Delete options not required.

* + - 1. Model 424: 24 gauge in flat or curved slat up to (WxH): 20 x 16 ft (6.1 x 4.88 m).
			2. Model 422: 22 gauge in flat or curved slat up to (WxH): 24 x 24 ft (7.32 x 7.32 m).
			3. Model 420: 20 gauge in flat or curved slat up to (WxH): 26 x 26 ft (7.92 x 7.92 m)
			4. Model 420: 20 gauge in flat or curved slat up to (WxH): 40 x 14 ft (12.19 x 4.27 m).
			5. Model 418: 18 gauge in flat or curved slat up to (WxH): 30 x 30 ft (9.14 x 9.14 m)
			6. Model 418: 18 gauge in flat or curved slat up to (WxH): 44 x 18 ft (13.41 x 5.49 m).

\*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Operation:

\*\* NOTE TO SPECIFIER \*\* Reduced drive chain hoist is standard. Delete operation options not required.

* + - * 1. Reduced Drive Chain Hoist: Roller chains and sprockets; hand chain galvanized machine link. Pull: Not to exceed 35 lbs (156 N).
				2. Chain Thru Wall: Chain hoist operated through the wall.
				3. Electric Operator: Electric motor with emergency manual machine link hand chain.
				4. Crank: Crank operated at waist height.
				5. Motor through Wall: Electric motor operated through the wall.
			1. Mounting:

\*\* NOTE TO SPECIFIER \*\* Delete mounting not required. Interior face is standard.

* + - * 1. Interior face mounted on a prepared opening.
				2. Outside mount: Curtain shall be assembled inverted upside down for exterior mounting.
				3. Between jamb, under lintel; fascia required.
				4. Between jamb, face of wall mounted.
			1. Curtain:

\*\* NOTE TO SPECIFIER \*\* Delete slat design not required. Vision Lite Rolling Steel Door Model 400 must have flat slats.

* + - * 1. Flat Slat: Slats shall be flat shaped cold roll-formed in continuous lengths of 2-5/8 x 5/8 inch (66.68 x 15.88 mm) galvanized steel. Galvanized according to ASTM A653-G90 and finished with baked epoxy primer and/or baked polyester topcoat.
				2. Curved Slat: Curved shape cold roll formed in continuous lengths of 2-13/16 x 3/4 inch (71 x 19 mm) galvanized steel. Galvanized according to ASTM A653-G90 and finished with baked epoxy primer and baked polyester topcoat.
				3. Endlocks: Ends of alternate slats fitted with malleable iron endlocks providing a wearing surface in the guides and to maintain slat alignment. Fastened with 1/4-inch (6 mm) rivets.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for approved door sizes for higher windloads.

* + - * 1. Windload: 20 psf or 90 mph.
				2. Windload Certified Flat Slat Profile:

Flat slat in 24, 22, 20 or 18 gauge up to 32 ft ( mm) wide.

(WxH): 16 x 30 ft: +55 / -60 psf. Higher windloads for smaller doors.

(WxH): 24 x 30 ft ( mm) flat slat: +28.8 / -31.5 psf

(WxH): 32 x 30 ft ( mm) flat slat: +18.4 / -20.2 psf

* + - * 1. Windload Certified Curved Slat Profile:

Curved slat in 24, 22, 20 or 18 gauge

(WxH): 16 x 21 ft ( mm), 24 gauge: +31 / -31 psf

(WxH): 24 x 21 ft ( mm), 24 gauge: +16 / -16 psf

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar option not required.

* + - * 1. Bottom bar: Curtain to be reinforced with a bottom bar consisting of two steel angles bolted back-to-back with bottom astragal, painted black (powder coat optional).
				2. Sloped Bottom Bar: conforming to slope in finished floor, as indicated on the Drawings, maximum 6 inch (30 mm).
				3. Barrel: Steel pipe of diameter and wall thickness to restrict maximum deflection to 0.03 inch per foot (2.5 mm per meter) of door width.
				4. Springs: Oil tempered, grease packed helical torsion type designed to cycle 25,000 times. Springs are to be mounted on a cold rolled steel inner shaft.
				5. High Cycle Springs: 50,000 or 100,000 cycle springs optional for 22, 20 and 18 gauge slats (not available on 24 gauge slats). Cycle counter required for warranty.
				6. End Bearings: Self-lubricating ball bearings or oil impregnated bronze bushings.

\*\* NOTE TO SPECIFIER \*\* Delete spring design not required.

* + - 1. Bracket Plates: 1/4 inch (6 mm) minimum thickness steel plates that enclose ends of barrel assembly.
			2. Drive End Bracket Plate: Fitted with a self-aligning sealed ball bearing.
			3. Guides:
				1. Wall Angles: 3/16 inch (5 mm) minimum structural steel angles.
				2. Guides: 3/16 inch (5 mm), minimum, structural steel angle guides with removable head stops and 30 inch (762 mm) service cut out.

\*\* NOTE TO SPECIFIER \*\* Delete optional weatherseal if not required.

* + - * 1. Guide Weatherseal: Non-coil side shall be vinyl weather seal.
			1. Hood: 24-gauge galvanized steel with baked epoxy primer and/or baked polyester topcoat; provide 1/4-inch (6 mm) steel support brackets for doors over 16 feet (4877 mm) wide.

\*\* NOTE TO SPECIFIER \*\* Delete optional hood baffle if not required.

* + - 1. Hood Baffle: 8 inch (203 mm) PVC baffle riveted to inside of hood.
			2. Curtain Slats and Hoods Finish: Hot-dipped galvanized, per ASTM A 653, with baked on epoxy primer and polyester finish.

\*\* NOTE TO SPECIFIER \*\* Delete topcoat options not required.

* + - * 1. Topcoat: Satin white.
				2. Topcoat: Gray.
				3. Topcoat: Tan.
				4. Galvanized.
				5. Powder Coat RAL No. \_\_\_\_\_\_
				6. Hand Chain.
			1. Lock: Lockable bracket, mounted on guide angle or wall, to accept padlock, by others.

\*\* NOTE TO SPECIFIER \*\* Delete lock option not required.

* + - * 1. Slide Bolt Lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking, padlock by others.
				2. Cylinder locks.
			1. Vision Lite:
				1. Curtain Slats: 22-gauge flat slat.
				2. Vision Lites: Flat slats with vision lites having vent cutouts (WxH) 5 x 7/8 inch (127 x 22 mm), spaced typically 3 inches (76 mm) apart and covered with clear Lexan polycarbonate.
	1. INSULATED ROLLING STEEL SERVICE DOORS

\*\* NOTE TO SPECIFIER \*\* Coordinate the following specifications with selected insulated slat door models below. See manufacturer's literature.

* + 1. Insulated Rolling Steel Service Doors: 600 Series as manufactured by ASTA AMERICA.
		2. Model and size limitation.
		3. NOTE TO SPECIFIER \*\* Delete models not required.
			- 1. Model 624: FIP 24/24 ga (WxH) 24 x 16 ft (7.32 x 14.88 m).
				2. Model 622: LIP/FIP 22/24 ga (WxH) up to 24 x 16 ft (7.32 x 4.88 m).
				3. Model 620: LIP/FIP 20/22 ga (WxH) up to 26 x 26 ft (7.92 x 7.92 m)
				4. Model 620: LIP/FIP 20/22 ga (WxH) up to 32 x 20 ft (9.75 x 6.1 m).
				5. Model 618: LIP/FIP 18/22 ga (WxH) up to 26 x 26 ft (7.92 x 7.92 m)
				6. Model 618: LIP/FIP 18/22 ga (WxH) up to 31 x 24 ft (9.45 x 7.32 m).
				7. Note: For larger sizes not listed contact customer service for details.
			1. Operation:

\*\* NOTE TO SPECIFIER \*\* Delete operations not required.

* + - * 1. Chain Hoist: Drive shall consist of roller chains and sprockets; hand chain shall be fabricated from galvanized machine link, pull not to exceed 35 lbs (156 N).
				2. Chain Thru Wall: Chain hoist operated through the wall.
				3. Electric Operator: Electric motor with emergency manual machine link hand chain.
				4. Crank: Crank operator mounted at waist height.
				5. Motor Through Wall: Electric motor operated through wall.

\*\* NOTE TO SPECIFIER \*\* Delete mountings not required. Interior face is standard.

* + - 1. Mounting: Interior face mounted on a prepared opening.
			2. Mounting: Outside mount; curtain shall be assembled inverted upside down for exterior mounting.
			3. Mounting: Between jambs under lintel.
			4. Mounting: Between jambs face of wall.
			5. Curtain:
				1. Slats: Flat continuous length cold roll-formed ASTM A653-G90 galvanized steel slats on front and back of curtain, 2-5/8 x 5/8 inch (67 by 16 mm). Finished with baked epoxy primer and baked polyester topcoat.
				2. Insulation: Laid in place (LIP) polystyrene strips adhered to flat slat with an efficiency ' R' rating of 5.0 and 'U' rating of 0.25.
				3. Insulation: Optional foamed in place urethane (FIP) with an efficiency ' R' rating of 7.2 and 'U' rating of 0.139.
				4. Endlocks: Ends of alternate slats fitted with malleable iron endlocks providing a wearing surface in the guides and to maintain slat alignment. Fastened with 1/4-inch (6 mm) rivets.

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for approved door sizes for higher windloads.

* + - * 1. Windload: 20 psf or 90 mph.
				2. Windload Certified Flat Slat Profile:

Flat slat: 24, 22, 20 or 18 gauge up to 32 ft ( mm) wide.

(WxH): 16 x 40 ft (4.88 x 9.14 m); +55 / -60 psf. Higher windloads for smaller doors.

(WxH): 24 x 30 ft (7.32 x 9.14 m); +28.8 / -31.5 psf.

(WxH): 32 x 30 ft (9.75 x 9.14 m); +18.4 / -20.2 psf.

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar and finish options not required.

* + - * 1. Bottom bar: Curtain reinforced with a bottom bar consisting of two steel angles bolted back-to-back with bottom astragal.

Finish: Painted black.

Finish: Powder coat.

* + - * 1. Sloped Bottom Bar: Conforming to slope in finished floor, as indicated on Drawings, maximum 6 inch (30 mm).
			1. Barrel Assembly:
				1. Barrel: Steel pipe of diameter and wall thickness to restrict maximum deflection to 0.03 inch per foot (2.5 mm per meter) of door width.
				2. Springs: Oil tempered, grease packed helical torsion type designed to cycle 25,000 times. Mount springs on a cold rolled steel inner shaft.

\*\* NOTE TO SPECIFIER \*\* High cycle springs are optional Delete if not required.

High Cycle Springs: 50,000 or 100,000 cycle springs. Cycle counter required for warranty.

\*\* NOTE TO SPECIFIER \*\* Delete end bearing design not required.

* + - * 1. End Bearings: Self-lubricating ball bearings
				2. End Bearings: Oil impregnated bronze bushings.
			1. Bracket Plates: 1/4 inch (6 mm) minimum thickness steel plates that enclose ends of barrel assembly.
			2. Drive End Bracket Plate: Fitted with a self-aligning sealed ball bearing.
			3. Guides:
				1. Wall Angles. 3/16 inch (5 mm) minimum structural steel angles.

Guides: 3/16 inch (5 mm), minimum, structural steel angle guides with removable head stops.

Guide Weatherseal: Non-coil side shall be vinyl weather seal.

* + - 1. Hood: 24 gauge galvanized steel with baked epoxy primer and baked polyester top coat; provide 1/4 inch (6 mm) steel support brackets for doors over 16 feet (4877 mm) wide.
			2. Hood Baffle: 8 inch (203 mm) PVC baffle riveted to inside of hood.
			3. Curtain Slats and Hoods
			4. Finish: Hot-dipped galvanized, per ASTM A 653, with baked on epoxy primer and polyester finish.

\*\* NOTE TO SPECIFIER \*\* Delete topcoat options not required.

* + - * 1. Topcoat: Satin white.
				2. Topcoat: Gray.
				3. Topcoat: Tan.
				4. Galvanized.
				5. Powder Coat RAL No. \_\_\_\_\_\_.
			1. Lock: Lockable bracket, mounted on guide angle or wall, to accept padlock, by others.

\*\* NOTE TO SPECIFIER \*\* Delete type option not required.

* + - * 1. Type: Slide bolt locks. Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking, padlock by others.
				2. Type: Cylinder locks.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ROLLING STEEL FIRE DOORS
		1. Rolling Steel Fire Doors: Series 500 as manufactured by ASTA AMERICA.

\*\* NOTE TO SPECIFIER \*\* Sizes cannot exceed 600 sq ft (55.74 sq m). Not available in curved slats. Delete model options not required.

* + - 1. Model 522: Flat Slat 22 ga chain hoist. (WxH): 16 x 16 ft (4.88 x 4.88 m).
			2. Model 520: Flat Slat 20 ga chain hoist. (WxH): 16 x 16 ft (4.88 x 4.88 m).
			3. Model 518: Flat Slat 18 ga chain hoist. (WxH): 16 x 16 ft (4.88 x 4.88 m).
			4. Model 522: Flat Slat 22 ga motor. (WxH): 18 x 24 ft (5.45 x 7.32 m).
			5. Model 520: Flat Slat 20 ga motor. (WxH): 24 x 24 ft (7.32 x 7.32 m).
			6. Model 520: Flat Slat 20 ga motor. (WxH): 30 x 20 ft (9.14 x 6.1 m).
			7. Model 518: Flat Slat 18 ga motor. (WxH): 24 x 24 ft (7.32 x 7.32 m).
			8. Model 520: Flat Slat 18 ga motor. (WxH): 30 x 20 ft (9.14 x 6.1 m).

\*\* NOTE TO SPECIFIER \*\* 4 hour fire rating applies to Model 518 only. Delete fire rating not required.

* + - 1. Fire Rating: As scheduled and indicated on Drawings.
			2. Fire Rating: 45 minutes.
			3. Fire Rating: 1-1/2 hours.
			4. Fire Rating: 3 hours.
			5. Fire Rating: 4 hours.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - 1. Operation: Chain hoist; with test features, auto re-set handle.
				1. Locking: Chain hoist keeper.
			2. Operation: Provide optional motor operation, with test feature.
			3. Mounting: Interior face mounted on a prepared opening or between jamb mount application under lintel (fascia required) or between jamb face of wall.
			4. Curtain: Flat Slat: Slats shall be flat shaped cold roll-formed in continuous lengths of 2-5/8 x 5/8 inch (67 x 16 mm) galvanized steel. Galvanized according to ASTM A653-G90 and finished with baked epoxy primer and/or baked polyester topcoat.

\*\* NOTE TO SPECIFIER \*\* Delete optional bottom bar if not required.

* + - 1. Bottom Bars: Fabricated from two steel angles bolted back to back. Tubular bottom astragal standard.
			2. Barrel Assemblies:
				1. Barrels: Minimum 4-1/2 inches (114 mm) O.D. pipe.

Deflection Under Full Load: 0.03 (0.76 mm) per ft of span, max.

Barrel provided with threaded rings or lugs welded to the barrel assembly for curtain attachment.

* + - * 1. Springs: Tension assembly supported within barrel by precision ball bearings.
			1. Head Plates: For mounting curtain, hood and barrel assemblies.
				1. Construction: Minimum 1/4 inch (6.4 mm) steel plates.
				2. Drive Side of Barrel: With precision sealed ball bearing in cast iron housing.
			2. Releases: Closing speed regulated by viscous governor. Closing speed to be between 6 to 24 inches (152 to 610 mm) per second per NFPA 80.

\*\* NOTE TO SPECIFIER \*\* Type 165-degrees fusible links are standard. Delete type options not required.

* + - * 1. Type: Standard, 165-degree fusible links provided.
				2. Type: Fail-safe time delay releases.
				3. Type: Smoke detectors.
				4. Type: Audible warning devices.
				5. Type: Visual warning devices.
			1. Guides Assemblies: Guide angles include curtain stops and flared guides.
				1. Construction: Three structural steel angles, minimum 3/16 inch (4.8 mm) bolted together to form guide channel.

\*\* NOTE TO SPECIFIER \*\* Delete finishes not required.

* + - * 1. Finish: Hot dipped galvanized guides.
				2. Finish: Cold sprayed galvanized guides.
				3. Finish: Powder Coat.
			1. Hoods: Fabricated from minimum 24 gauge galvanized steel sheet.
				1. Shaped to fit within the headplates.
				2. Intermediate hood supports furnished as required.
			2. Finishes:
				1. Curtain Slats and Hoods Finish: Hot-dipped galvanized, per ASTM A 653, with baked on epoxy primer and polyester finish.

Satin White Topcoat

Gray topcoat.

Tan topcoat.

Galvanized.

Powder Coat RAL No. \_\_\_\_\_\_.

* + - * 1. Locks: None (not available on fire door)
				2. Guides and Headplates Finish:

Shop painted black standard.

Hot dipped galvanized.

Powder coat optional.

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar finishes if not required.

* + - * 1. Bottom Bars Finish:

Shop painted black standard.

Hot dipped galvanized.

Powder coat optional.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ROLLING STEEL FIRE SHUTTERS
		1. Rolling Steel Fire Shutters: Series 550 Series as manufactured by ASTA AMERICA.
		2. Model 550 22 gauge curtain (WxH) 10 x 8 ft (3.05 x 2.44 m) high.

\*\* NOTE TO SPECIFIER \*\* Delete fire rating not required.

* + - 1. Fire Rating: As scheduled and indicated on Drawings.
			2. Fire Rating: 45 minutes.
			3. Fire Rating: 1-1/2 hours.
			4. Fire Rating: 2 hours.

\*\* NOTE TO SPECIFIER \*\* Delete operation option not required.

* + - 1. Operation: Manual push-up operation standard through ten feet wide. Awning crank available for all sizes.
			2. Operation: Manual push-up operation standard through ten feet wide. Awning crank available for all sizes.
			3. Mounting: Interior face mounted on a prepared opening.
			4. Releases: Closing speed regulated by viscous governor.
				1. Compliance: Closing speed to be between 6 inches to 24 inches (152 mm to 610 mm) per second per NFPA 80.

\*\* NOTE TO SPECIFIER \*\* Delete type if not required.

* + - * 1. Type: Standard, 165-degree fusible links provided.
				2. Type: Provide optional fail-safe time delay releases.
				3. Type: Provide optional smoke detectors.
				4. Type: Provide optional audible warning devices.
				5. Type: Provide optional visual warning devices.
			1. Guides: Boxed shaped guides fabricated from 11 gauge steel or No. 4 polished stainless steel with integral bell mouths and curtain stops.
			2. Hood: Fabricated from minimum 24 gauge galvanized steel sheet shaped to fit within the headplates. Intermediate hood supports furnished as required.
			3. Locking: Manual push-up doors furnished with interior slide bolts locks with padlock provision standard.

\*\* NOTE TO SPECIFIER \*\* Battom bars are options. Hot-dipped galvanized steel bottom bars are standard. Delete bottom bar option if not required or delete both.

* + - 1. Bottom Bars: Hot-dipped galvanized steel angles bolted to curtains.
			2. Bottom Bars: Stainless steel angles bolted to curtains.
			3. Barrel Assemblies:
				1. Barrel: 4-1/2 inches (114 mm) O.D. pipe minimum.

Deflection Under Full Load: Less than 0.03 inch (0.76 mm) per ft of span.

Threaded rings or lugs welded to barrel assembly for curtain attachment.

* + - * 1. Springs: Spring tension end of barrel assembly fabricated with self-aligning ball bearing assembly.

Curtain weight counterbalanced by oil-tempered, helically wound torsion springs, greased packed and mounted on steel torsion shaft.

* + - 1. Head Plates: For mounting curtain, hood and barrel assemblies fabricated from minimum 1/4 inch (6.4 mm) steel plate.
				1. Drive side of barrel to be provided with precision sealed ball bearing in cast iron housing.
			2. Finishes:
				1. Curtain Slats and Hoods Finish: Hot-dipped galvanized, per ASTM A 653, with baked on epoxy primer and powder coating.

\*\* NOTE TO SPECIFIER \*\* Delete guides and headplates finish option not required.

* + - * 1. Guides and Headplates Finish: Shop painted medium gloss black.
				2. Guides and Headplates Finish: Powder coated.
				3. Shutter Curtains, Guides, Hoods, and Bottom bars: Stainless steel furnished No. 4 polished finish.
			1. Curtains:
				1. Interlocking Curtain Slats: Roll-formed from 22 gauge galvanized steel.
				2. Flat Slats: (FS) cover 1-1/2 inches high by 1/2 inch deep (39 mm by 13 mm).
				3. Lateral slat movement and curtain wear controlled by galvanized malleable cast endlocks fastened to every other slat.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ROLLING STEEL COUNTER SHUTTERS
		1. Rolling Steel Counter Shutters: 700 Series as manufactured by ASTA AMERICA.
		2. Sizes available (WxH): Up to 14 x 8 ft (4.27 x 2.44 m) high.

\*\* NOTE TO SPECIFIER \*\* Delete model if not required.

* + - 1. Model 722: Rolling Counter Shutter. 22 Gauge Painted Steel.
			2. Model 722A: Rolling Counter Shutter. Clear Anodized Aluminum.
			3. Model 722S: Rolling Counter Shutter. 22 Gauge Stainless Steel.

\*\* NOTE TO SPECIFIER \*\* Manual push up operation is standard. Delete operation not required.

* + - 1. Operation: Manual push-up. Up to 10 ft-4 inches ( mm) wide, otherwise awning crank operation.
			2. Operation: Reduced drive awning crank when manual lift standard.
			3. Operation: Concealed tube motor.
			4. Mounting: Interior face mounted on a prepared opening, between jamb under lintel, between face of wall.
			5. Curtains:
				1. Slats / Endlocks: Lateral slat movement and curtain wear controlled by steel endlocks fastened to every other slat.
				2. Slat Profile (HxD): 1-1/2 by 1/2 inch (39 by 13 mm).

\*\* NOTE TO SPECIFIER \*\* Delete material options not required.

Material: Extruded, interlocking aluminum.

Material: Roll-formed, Interlocking 22 gauge steel.

Material: No. 4 finish polished stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar options not required.

* + - * 1. Bottom Bar: Extruded aluminum angle bottom bar with astragal for aluminum and steel curtains
				2. Bottom Bar: Tubular aluminum bottom bar.
				3. Bottom Bar: Stainless steel angles with astragal standard for stainless curtains.
			1. Barrel Assemblies:
				1. Barrels: Fabricated from minimum 4-1/2 inch (114 mm) O.D. pipe.

Deflection Under Full Load: Less than 0.03 inch (0.76 mm) per ft of span.

Curtain Attachment: Barrel provided with threaded rings or lugs welded to the barrel assembly.

* + - * 1. Springs:

Spring tension assembly supported within barrel by precision ball bearings.

Curtain weight counterbalanced by oil-tempered, helically wound torsion springs, grease packed.

Mounted to steel torsion shaft with cast spring plug.

\*\* NOTE TO SPECIFIER \*\* Delete assembly type if not required.

Assembly Type: Standard spring assembly for 20,000 cycle life springs.

Assembly Type: Provide optional higher cycle spring assembly.

* + - 1. Head Plates:
				1. Headplates for mounting curtain, hood and barrel assemblies fabricated from steel plates plate.
				2. Drive side of barrel to be provided with precision sealed ball bearing in cast iron housing.
			2. Guide Assemblies:

\*\* NOTE TO SPECIFIER \*\* Delete guides not required.

* + - * 1. Guides: Standard, extruded, clear anodized aluminum; box shaped two piece configurations with soft brush guide runners, bell mouths and travel stops.
				2. Guides: For stainless steel shutters; box shaped, No. 4 polished stainless steel with integral bell mouths and curtain stops.
			1. Hoods: Minimum 24 gauge galvanized steel, aluminum or stainless steel sheet shaped to fit within the headplates.
				1. Intermediate hood supports furnished as required.

\*\* NOTE TO SPECIFIER \*\* Delete locking options not required.

* + - 1. Locking: Manual push-up doors; thumb turn lock and handle.
			2. Locking: Stainless steel shutters; stainless steel slide locks provided with stainless steel curtains.
			3. Locking: Cylinder locking.
			4. Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete options below according to materials not required.

* + - * 1. Extruded Aluminum Curtains: Guides and bottom bar to be clear anodized.
				2. Extruded Aluminum Curtains: Guides and bottom bars, provide with optional powder coating.
				3. Steel Curtain Slats and Hoods: Hot-dipped galvanized per ASTM A 653 with baked on epoxy primer and polyester finish coat in grey and white.
				4. Steel Curtain Slats and Hoods: Hot-dipped galvanized per ASTM A 653 with baked on epoxy primer and with optional powder coating.
				5. Stainless Steel Shutters: No. 4 polished finish curtain, guides, and bottom bar.

\*\* NOTE TO SPECIFIER \*\* Delete curtain slats and hoods finishes if not required.

* + - * 1. Painted Curtains: Furnished with clear anodized extruded aluminum boxed guides and bottom guide.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ROLLING STEEL GRILLES
		1. Rolling Steel Grilles: 800 Series Lift Ready Rolling Grilles as manufactured by ASTA AMERICA.
		2. Model 800 (WxH): Available in 29 x 16 ft (8.88 x 4.88 m) high.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required. Manual is standard.

* + - 1. Operation: Manual.
			2. Operation: Hand chain hoist. Galvanized machine link. Pull not to exceed 35 lbs (156 N).
			3. Operation: Motorized.

\*\* NOTE TO SPECIFIER \*\* Delete mounting not required.

* + - 1. Mounting: Interior face mounted on a prepared opening.
			2. Mounting: Between jamb mounted on a prepared opening.
			3. Curtain Assemblies:
				1. Curtains: 5/16 inch (8 mm) diameter extruded aluminum rods spaced 1-3/4 inches (39 mm) on center vertically by 1/8 x 5/8 x 4-1/4 inches (3 x 8 x 108 mm) aluminum links horizontally spaced 9 inches (229 mm) on center and covered by 1/2 inch (13 mm) aluminum spacer tubes on every other rod.
				2. End Links: Extruded aluminum end links spaced 1-3/4 inches (44.5 mm) o.c.
				3. Windload: No windload.
				4. Bottom Bar: Tubular aluminum extrusion with PVC bulb astragal.
			4. Barrel Assemblies:
				1. Barrel: Aluminum with enclosed helical torsion spring, sized to grille weight with maximum deflection of 0.03 inch (0.76 mm) per ft of width.
				2. Springs: Oil tempered, grease packed helical torsion type with grease sealed ball bearings or self-lubricating graphite bearings for rotating members, sized to designed to cycle 20,000 times; mounted on a cold rolled steel inner shaft.
				3. End Bearing: Self-lubricating ball bearings or oil impregnated bronze bushings.
			5. Bracket Plates: 3/8 inch (9.5 mm) thick by 15 inches (381 mm) front-loading off-set steel plate. Finish is grey metallic powder coat paint.
			6. Guide Assemblies:
				1. Wall Angles: Face of wall mount or structural steel tubes.
				2. Guides: Extruded aluminum, 3 x 1-1/2 inches (76 x 39 mm) with shoulders for curtain retention fitted with vinyl stripping both sides of curtain and with removable headstops.
				3. Windload: Does not satisfy any specified windloading.

\*\* NOTE TO SPECIFIER \*\* Delete hoods options not required.

* + - 1. Hoods: Standard, none.
			2. Hoods: Provide optional hood, 26-gauge galvanized steel, baked epoxy primer.
			3. Hoods: Provide optional hood, 26-gauge aluminum, baked epoxy primer.
			4. Reinforcing: 1/4 inch (6.35 mm) thick steel brackets for wider grilles when needed.

 \*\* NOTE TO SPECIFIER \*\* Cylinder locking is standard. Delete locking option not required.

* + - 1. Locking: Cylinder locking.
			2. Locking: Thumb turn locks. Require the rod protection pattern.

 \*\* NOTE TO SPECIFIER \*\* Delete tube supports not required.

* + - 1. Tube Supports: Telescoping tubes, aluminum.
			2. Tube Supports: Telescoping tubes, unpainted steel.
			3. Tube Supports: Face of wall mount angles, aluminum.
			4. Tube Supports: Face of wall mount angles, unpainted steel.
			5. Finishes: Clear anodized aluminum finish on curtains, bottom bars and guides.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until openings have been properly prepared. Verify electrical service supply.
		2. Verify clearance for operator and jamb width prior to fabrication of doors.
		3. Verify empty race way for controls and safety equipment is completed.
		4. If opening preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Install doors plumb, true, and square in a rigid manner.
		3. Install related conduits and electrical/control wiring for complete installation for power source indicated.
			1. Adjust hardware and automatic closing equipment.
			2. Verify and coordinate terminal requirements with electrical.

END OF SECTION