SECTION 08 33 00

COILING DOORS AND GRILLES

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2011 - 2020 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* Clopay Corporation; coiling doors, coiling grilles, insulated and non-insulated.
This section is based on the products of Clopay Corporation, which is located at:8585 Duke Blvd.Mason, OH 45040Toll Free Tel: 800-233-8366Tel: 513-770-4800Fax: 888-434-3193Email: [request info (marketing@clopay.com)](https://arcat.com/rfi?action=email&company=Clopay%252BCorporation&message=RE%253A%2520Spec%2520Question%2520(08330clo)%253A%2520&coid=31487&spec=08330clo&rep=&fax=888-434-3193)
Web: <https://www.clopaydoor.com> | <https://www.clopaycommercial.com>

 [ [Click Here](https://arcat.com/company/clopay-corporation-31487) ] for additional information.

Clopay entered the commercial and industrial upward acting door industry in 1966. For over 3 decades, Clopay has been providing the commercial sectional and coiling steel door market with creative solutions, innovative products, and superior customer service. With its emphasis on innovative design and application, combined with a unique combination of two trusted brands -- Clopay, and Ideal Door -- Clopay Corporation is distinguished from all its competitors.

See our SpecWizard: [Click Here](http://www.arcat.com/specwizard/08330clo/index.htm)

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete door types and model numbers not required.

* + 1. Service Doors:

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

* + - 1. Insulated Service Door. (Model CESD20).
			2. Non-Insulated Service Door. (Model CESD10).
			3. Labeled Fire Resistive Non-Insulated Door. (Model CERD10).
			4. Labeled Smoke Protection and Fire Resistive Non-Insulated Door. (Model CERD11).
			5. Labeled Fire Resistive Insulated Door. (Model CERD20).
			6. Labeled Smoke Protection and Fire Resistive Insulated Door. (Model CERD21).
		1. Counter Doors:

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

* + - 1. Standard Counter Door. (Model CESC10).
			2. Standard Counter Door with Integrated Frame. (Model CESC20).
			3. Standard Fire Rated Counter Door. (Model CERC10).
			4. Standard Fire Rated Counter Door with Integrated Frame. (Model CERC20).
		1. Security Grilles:

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

* + - 1. Overhead Glazed Rolling Grilles (Model: CESG11).
			2. Overhead Rolling Grilles (Model: CESG10 Straight Pattern).
			3. Overhead Rolling Grilles (Model: CESG12 Brick Pattern).
	1. RELATED SECTIONS

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

* + 1. Section 05 50 00 - Metal Fabrications. Door opening jamb and head members.
		2. Section 06 10 00 - Rough Carpentry. Door opening jamb and head members.
		3. Section 08 31 16 - Access Panels and Frames. Access doors.
		4. Section 08 70 00 - Hardware.
		5. Section 09 91 00 - Painting. Field painting.
		6. Division 26 - Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, installation of control station and wiring, and connection to alarm system.
	1. REFERENCES

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

* + 1. American Society of Civil Engineers (ASCE) 7 - Minimum Design Loads for Buildings and Other Structures.
		2. ASTM International (ASTM):
			1. ASTM A 123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
			2. ASTM A 653/A 653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
			3. ASTM A 924/A 924M - Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
			4. ASTM B 209/209M - Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
			5. AST) B 221/221M - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
			6. ASTM C 612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
			7. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
			8. ASTM D 3363 - Standard Test Method for Film Hardness by Pencil Test.
		3. National Electric Manufacturers Association (NEMA).
		4. National Fire Protection Association (NFPA) 80 - Standard for Fire Doors and Other Opening Protectives.
		5. National Fire Protection Association (NFPA) 105 - Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives.
		6. Underwriters Laboratory (UL) 1784 - Air Leakage Tests of Door Assemblies.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
			4. Operation and maintenance data.
		3. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work.
		4. Quality Assurance/Control Submittals:
			1. Provide proof of manufacturer ISO 9001:2008 registration.
			2. Provide proof of manufacturer and installer qualifications.
		5. Closeout Submittals:
			1. Operation and Maintenance Manual.
			2. Certificate stating that installed materials comply with this specification.
	2. QUALITY ASSURANCE
		1. Qualifications:
			1. Manufacturer Qualifications: ISO 9001:2008 registered and a minimum of five years experience in producing units of the type specified.
			2. Installer Qualifications: Manufacturer's approval.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Deliver all materials in their original sealed containers bearing manufacturer's name and identification of product.
		2. Do not store products in location with conditions outside manufacturer's absolute limits.
		3. Materials delivered to the site shall be examined for concealed damage or defects in shipping. Defects shall be noted and reported to the Owner's Representative in writing.
	4. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
	5. WARRANTY
		1. Standard Warranty: Two years from date of shipment against defects in material and workmanship.

\*\* NOTE TO SPECIFIER \*\* CESD10 only: Verify with manufacturer.

* + 1. Extended Warranty: Two year warranty against defects in materials and workmanship and five year finish warranty against fading, peeling, cracking, blistering, flaking or delaminating.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Clopay Corporation, which is located at:8585 Duke Blvd.Mason, OH 45040Toll Free Tel: 800-233-8366Tel: 513-770-4800Fax: 888-434-3193Email: [request info (marketing@clopay.com)](https://arcat.com/rfi?action=email&company=Clopay%252BCorporation&message=RE%253A%2520Spec%2520Question%2520(08330clo)%253A%2520&coid=31487&spec=08330clo&rep=&fax=888-434-3193);Web: <https://www.clopaydoor.com> | <https://www.clopaycommercial.com>

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

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

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

* 1. SERVICE DOORS
		1. Product:

\*\* NOTE TO SPECIFIER \*\* Service Doors (CESD) are manufactured from 2-5/8 inches (67 mm) wide metal slats roll formed to interlace together to create a continuous steel curtain. They are used to provide security against entry or weather protection at exterior or interior openings in industrial, commercial, institutional and other buildings. Delete model type not required.

* + - 1. Insulated Service Door: Model CESD20 as manufactured by Clopay Corporation.
			2. Non-Insulated Service Door: Model CESD10 as manufactured by Clopay Corporation.

\*\* NOTE TO SPECIFIER \*\* It is the responsibility of the Architect to check and coordinate applicable code for smoke detector and alarm system tie-in requirements. Fire Doors (CERD) available insulated and non-insulated, provide automatic closing in the event of fire detection with governed speed control. Fire doors also designed for use as a service door to provide security and access control in openings that are not part of a required means of egress. Delete model not required.

* + - 1. Labeled Fire Resistive Non-Insulated Door: Model CERD10 as manufactured by Clopay Corporation.
			2. Labeled Fire Resistive Insulated Door: Model CERD20 as manufactured by Clopay Corporation.

\*\* NOTE TO SPECIFIER \*\* Smoke Rated Doors (CERD) add tested smoke and draft control to fire doors and counter fire doors. Use to protect interior corridors and smoke barrier openings or any opening where life safety is a priority.

* + - 1. Labeled Smoke Protection and Fire Resistive Non-Insulated Door: Model CERD11 as manufactured by Clopay Corporation.
			2. Labeled Smoke Protection and Fire Resistive Insulated Door: Model CERD21 as manufactured by Clopay Corporation.
		1. Design Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete If wind resistance is not required.

* + - 1. Wind Loading: Supply doors to withstand up to \_\_ psf ( \_\_\_ Pa) maximum wind load.

\*\* NOTE TO SPECIFIER \*\* Delete cycling requirement not required. Fill in required frequency.

* + - 1. Cycle Life: Design doors of standard construction for normal use of up to 20 cycle per day maximum.
			2. Cycle Life: Design doors of special construction for high cycle use. Expected cycles of up to \_\_\_\_ per day.

\*\* NOTE TO SPECIFIER \*\* Delete If UL labeled fire door is not required.

* + - 1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification:

\*\* NOTE TO SPECIFIER \*\* Delete UL labeled fire door classification not required.

* + - * 1. FR Classification: 4 hr.
				2. FR Classification: 3 hr.
				3. FR Classification: 1 1/2 hr.
				4. FR Classification: 1 hr.
				5. FR Classification: 3/4 hr.

\*\* NOTE TO SPECIFIER \*\* Delete FM labeled fire door classification if not required. Not available for insulated labeled doors.

* + - * 1. FR Classification: Factory Mutual 3 hour fire rating label.

\*\* NOTE TO SPECIFIER \*\* Delete If UL labeled smoke protection is not required.

* + - 1. Provide doors with Underwriters' Laboratories, Inc. label for "Leakage Rated Assembly" or "S" label.
				1. Comply with NFPA 105 air leakage requirements.
				2. Pass UL test procedure 1784.

\*\* NOTE TO SPECIFIER \*\* Specific seismic calculations can be provided for all doors that are mounted Face of Wall or Between Jambs to steel or masonry. Seismic performance validation is per ASCE 7-05. Delete if not required.

* + - 1. Provide doors with seismic calculations for seismic performance per ASCE 7-05 to comply with Local Authority Having Jurisdiction (AHJ).
		1. Construction:

\*\* NOTE TO SPECIFIER \*\* Insulated non-label door. Delete if not required.

* + - 1. Insulated Curtain:
				1. Slat Design: No. 6F, (Exterior/Interior):

\*\* NOTE TO SPECIFIER \*\* Delete insulated door material not required.

* + - * 1. Material: Galvanized Steel/Galvanized Steel: Grade 40, ASTM A 653 galvanized steel zinc coating.

\*\* NOTE TO SPECIFIER \*\* Delete door material gauge not required.

Material thickness: 24/24 gauge.

Material thickness: 22/24 gauge.

Material thickness: 20/24 gauge.

Material thickness: 22/22 gauge.

Material thickness: 18/24 gauge.

* + - * 1. Material: Stainless Steel/Galvanized Steel: 22 gauge AISI type 304 series stainless steel/24gauge, Grade 40, ASTM A 653 galvanized steel zinc coating.
				2. Material: Stainless Steel/Stainless Steel: 22/22 gauge AISI type 304 series stainless steel.
				3. Material: Aluminum/Aluminum: 0.040 inch (1.016 mm) aluminum.
				4. Total Slat Thickness: 15/16 inch (24 mm).
				5. Insulation Material: 7/8 inch (22 mm) foamed-in-place, closed cell urethane.

Flame Spread Index of 0 and a Smoke Developed Index of 10 as tested per ASTM E84.

Minimum Sound Transmission Class (STC) rating of 26 as tested per ASTM E90.

Minimum R-value of 8.0 (U-factor of 0.125) as calculated using the ASHRAE Handbook of Fundamentals.

Insulation to be CFC Free with an Ozone Depletion Potential (ODP) rating of zero.

* + - * 1. Bottom Bar: Reinforced extruded aluminum interior face with full depth insulation and exterior skin slat to match curtain material and gauge.

\*\* NOTE TO SPECIFIER \*\* Insulated labeled door. Delete if not required.

* + - 1. Insulated Labeled Curtain:
				1. Slat Design: No. 6F, (Exterior/Interior):

\*\* NOTE TO SPECIFIER \*\* Delete insulated door material not required.

* + - * 1. Material: Galvanized Steel/Galvanized Steel: Grade 40, ASTM A 653 galvanized steel zinc coating.

\*\* NOTE TO SPECIFIER \*\* Delete door material gauge not required.

Material thickness: 24/24 gauge.

Material thickness: 22/22 gauge.

* + - * 1. Material: Stainless Steel/Stainless Steel: 22/22 gauge AISI type 304 series stainless steel.
				2. Total Slat Thickness: 15/16 inch (24 mm).
				3. Insulation: 7/8 inch (22 mm) thick fire retardant mineral wool, ASTM C665-95 or ASTM C612-93.

Flame Spread Index of 0 and a Smoke Developed Index of 0 as tested per ASTM E84.

Minimum Sound Transmission Class (STC) rating of 27 as tested per ASTM E90. Results shall be indicative of testing a complete/operable door assembly.

Minimum R-value of 2.75as calculated using the ASHRAE Handbook of Fundamentals.

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

* + - * 1. Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) structural steel angles.
				2. Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) AISI 300 series stainless steel angles.

\*\* NOTE TO SPECIFIER \*\* Non-insulated slat. 18 gauge is an available option for any door width. Refer to manufacturer's literature for lighter gauge recommendations. Delete curtain slates not required.

* + - 1. Curtain:
				1. Curtain Slats: No. 5F, Grade 40 steel, ASTM A 653 galvanized steel zinc coating.

\*\* NOTE TO SPECIFIER \*\* Delete door material gauge not required.

Material thickness: 22 gauge.

Material thickness: 20 gauge.

Material thickness: 18 gauge.

Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) structural steel angles.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled doors.

* + - * 1. Curtain Slats: No. 5P, 20 gauge, Grade 40 steel, ASTM A 653 galvanized steel zinc coating perforated with 0.062 inch (1.6 mm) diameter openings at 0.094 inch (2.4 mm) staggered centers, approximately 22 percent free area.

Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) structural steel angles.

* + - * 1. Curtain Slats: No. 5F, 20 gauge AISI type 304 series stainless steel.

Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) AISI 300 series stainless steel angles.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled doors.

* + - * 1. Curtain Slats: No. 5F, 0.050 inch (1.270 mm) aluminum.

Bottom Bar: Two 2 inches by 2 inches by minimum 1/8 inch (51 by 51 by 3.2 mm) aluminum angles.

\*\* NOTE TO SPECIFIER \*\* Specify RapidResponse configuration for fast repair after impact. Select 3 feet of extra slats or 6 feet of extra slats. RapidResponse impactable bottom bar. RapidResponse guide configuration. Delete curtain configuration not required.

* + - 1. Curtain Configuration: Standard Curtain configuration.
			2. Curtain Configuration: RapidResponse configuration with 3 feet (914 mm) of extra slats.
			3. Curtain Configuration: RapidResponse configuration with 6 feet (1829 mm) of extra slats.
			4. Bottom Bar Configuration: Standard Bottom Bar Configuration.
			5. Bottom Bar Configuration: RapidResponse Impactable Bottom Bar consisting of 2 steel angles with flexible connecting members.

\*\* NOTE TO SPECIFIER \*\* Not available for insulated doors or labeled doors. Delete if not required.

* + - 1. Breakaway Curtain Bottom Section: Bottom 25 inches (635 mm) of door curtain to be constructed of a reinforced vinyl laminated woven polyester fabric panel with a breakaway bottom bar constructed of back to back structural steel angles. Color of assembly to be safety orange. Design section to release upon impact avoiding most damage from accidents involving forklift trucks or other vehicles.
			2. Guide Configuration: Standard Guide Configuration.
			3. Guide Configuration: RapidResponse Guide Configuration with a 56 inches (1422 mm) removable lower guide section.

\*\* NOTE TO SPECIFIER \*\* Exposed moving operator components lower than 8 feet (2438 mm) above floor level that create possible pinch points are required to be covered per UL 325. Specify an operator cover whenever this field condition exists. Delete if not required.

* + - 1. Operator and Bracket Mechanism Cover: Provide sheet metal cover to provide weather resistance and to enclose exposed moving operating components at coil area of unit. Finish and material to match door hood.

\*\* NOTE TO SPECIFIER \*\* Select nylon endlocks below for doors up to 21 feet-5 inches (6.528 m) distance between guides and cast iron for larger doors. Steel endlocks are required for UL labeled fire doors. Cast iron endlocks required for insulated labeled doors.

* + - 1. Nylon Endlocks: Fabricate interlocking sections with high strength nylon endlocks on alternate slats each secured with two 1/4 inch (6.35 mm) rivets.
			2. Cast Iron Endlocks: Fabricate interlocking sections with high strength cast iron endlocks on alternate slats each secured with two 1/4 inch (6.35 mm) rivets.
			3. Steel Endlocks: Fabricate interlocking continuous slat sections with high strength steel endlocks secured with two 1/4 inch (6.35 mm) rivets per UL requirements.

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

* + - 1. Windlocks: Provide windlock bars of same material as guide material when windlocks are required to meet specified wind load.

\*\* NOTE TO SPECIFIER \*\* Delete slate finish not required. Select and designate finish for corresponding material on each side of insulated slat.

* + - 1. Slat Finish: Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding, light gray baked-on polyester base coat and a light gray baked-on polyester finish coat. Components include a limited two year finish warranty.
			2. Slat Finish: Coating System and phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.

\*\* NOTE TO SPECIFIER \*\* Not available for insulated curtain.

* + - 1. Slat Finish: Galvanized Steel - Phosphate and bonding treatment only, (no paint finish).
			2. Slat Finish: Stainless steel: No. 4 finish.
			3. Slat Finish: Aluminum - Mill finish.
			4. Slat Finish: Aluminum - Clear anodized.
			5. Slat Finish: Aluminum - Medium bronze anodized.
			6. Slat Finish: Aluminum - Dark bronze anodized.
			7. Slat Finish: Aluminum - Black anodized.

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

* + - 1. Bottom Bar Finish: Steel: Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			2. Bottom Bar Finish: Steel - Phosphate treatment followed by corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			3. Bottom Bar Finish: Steel - ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.
			4. Bottom Bar Finish: Steel - Phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.
			1. Bottom Bar Finish: Stainless steel - No. 4 finish.
			2. Bottom Bar Finish: Aluminum - Mill finish.
			3. Bottom Bar Finish: Aluminum - Clear anodized.
			4. Bottom Bar Finish: Aluminum - Medium bronze anodized.
			5. Bottom Bar Finish: Aluminum - Dark bronze anodized.
			6. Bottom Bar Finish: Aluminum - Black anodized.

\*\* NOTE TO SPECIFIER \*\* Uninsulated guide material. Delete guide material not required. Aluminum not available for labeled fire doors.

* + - 1. Guide Material: Fabricate with 3/16 inch (4.8 mm) structural steel angles.
			2. Guide Material: Fabricate with 3/16 inch (4.8 mm) stainless steel angles.
			3. Guide Material: Fabricate with 3/16 inch (4.8 mm) aluminum angles.

\*\* NOTE TO SPECIFIER \*\* Insulated labeled guide material. Delete if not required.

* + - 1. Guide Material: Fabricate with 1/4 inch (6.35 mm) structural steel angles.
			2. Top of inner and outer guide angles to be flared outwards to form bellmouth for smooth entry of curtain into guides. Provide removable guide stoppers to prevent over travel of curtain and bottom bar.

\*\* NOTE TO SPECIFIER \*\* If standard structural steel guides are selected above, add the following sentence below regarding removable top section. Delete if selecting stainless steel or aluminum guide angles.

* + - 1. Guide Top 16-1/2 inches (419 mm) of coil side guide angles shall be removable for curtain installation and curtain service.
			2. Guide Finish: Steel: Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			3. Guide Finish: Steel: Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			4. Guide Finish: Steel: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.
			5. Guide Finish: Steel: Phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.

\*\* NOTE TO SPECIFIER \*\* Mill finish structural stainless steel guide angles are used for stainless steel guide components over 12 feet-0 inches (3.66 m) high and on units wider than 21 feet-4 inches (6.50 m).

* + - 1. Guide Finish: Stainless steel: No. 4 finish.
			2. Guide Finish: Stainless steel: Mill finish.
			3. Guide Finish: Aluminum - Mill finish.
			4. Guide Finish: Aluminum - Clear anodized.
			5. Guide Finish: Aluminum - Medium bronze anodized.
			6. Guide Finish: Aluminum - Dark bronze anodized.
			7. Guide Finish: Aluminum - Black anodized.
			8. Counterbalance Shaft Assembly:
				1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
				2. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque.

\*\* NOTE TO SPECIFIER \*\* Delete 3/16 inch bracket if labeled fire door required.

* + - 1. Brackets: Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.

\*\* NOTE TO SPECIFIER \*\* Delete 1/4 inch bracket if labeled fire door not required.

* + - 1. Brackets: Fabricate from minimum 1/4 inch (6.35 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.

\*\* NOTE TO SPECIFIER \*\* Delete bracket finish not required. Steel bracket finish only. Delete all if stainless or aluminum.

* + - 1. Bracket Finish: Steel - Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			2. Bracket Finish: Phosphate treatment followed by corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			3. Bracket Finish: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.
			4. Bracket Finish: Phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.
			1. Hood: with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag.

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

* + - 1. Hood Material: 24 gauge galvanized steel.
			2. Hood Material: 24 gauge stainless steel.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled fire doors.

* + - 1. Hood Material: 0.040 inch (1.016 mm) aluminum.
			2. Hood Finish: GalvaNex Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding, light gray baked-on polyester base coat and a light gray baked-on polyester finish coat. The scientific organic material composition and chemical bonding process of GalvaNex produces a superior finish against corrosion and abrasion. GalvaNex components include a limited two year finish warranty.
			3. Hood Finish: GalvaNex Coating System and phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.
			1. Hood Finish: Stainless steel: No. 4 finish.
			2. Hood Finish: Aluminum - Mill finish.
			3. Hood Finish: Aluminum - Clear anodized.
			4. Hood Finish: Aluminum - Medium bronze anodized.
			5. Hood Finish: Aluminum - Dark bronze anodized.
			6. Hood Finish: Aluminum -Black anodized.

\*\* NOTE TO SPECIFIER \*\* Non labeled doors. Delete if not required.

* + 1. Weatherstripping:

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

* + - 1. Bottom Bar: Replaceable, bulb-style, compressible EDPM gasket extending into guides.
			2. Bottom Bar, Motor Operated Doors: Weather/sensing edge as specified.
			3. Guides: Vinyl strip sealing against fascia side of curtain.
			4. Hood: Neoprene/rayon baffle to impede air flow above coil.
			5. Lintel Seal: Nylon brush seal fitted at door header to impede air flow.

\*\* NOTE TO SPECIFIER \*\* Weather/sensing edge is recommended with non labeled door, motor operated units. Delete if not desired. Smoke Seal/sensing edge is required with labeled door, motor operated units. Manual smoke protection doors require smoke seals specified elsewhere. Delete if not required.

* + 1. Weather/Smoke Seal - Sensing Edge:
			1. Provide an electric sensing edge device. Provide automatic control by an automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar.

\*\* NOTE TO SPECIFIER \*\*Delete response not desired.

* + - 1. Response: Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position.
			2. Response: Contact before door fully closes shall cause door to immediately stop downward travel.

\*\* NOTE TO SPECIFIER \*\*Delete type not desired.

* + - 1. Type: Provide a self-monitoring wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator. Supervised system alters normal door operation preventing damage, injury or death due to an inoperable sensing edge system.
			2. Type: Provide a wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator.
			3. Type: Provide an electric sensing edge device.

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

* + - * 1. Provide self-coiling cable connection to control circuit.
				2. Provide retracting safety cord and reel connection to control circuit.
			1. Type: Provide a pneumatic sensing edge device.

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

* + - * 1. Provide self-coiling cable connection to control circuit.
				2. Provide retracting safety cord and reel connection to control circuit.

\*\* NOTE TO SPECIFIER \*\* Include the following smoke seals when labeled smoke protection is required. Check code for smoke detector and alarm system tie-in requirements. Delete item if not required.

* + 1. Smoke Seals:

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

* + - 1. Bottom Bar, Manual Operated Doors: Two, replaceable, UL listed, nylon pile smoke seals.
			2. Bottom Bar, Motor Operated Doors: Combination smoke seal/sensing edge as specified.
			3. Guides and Head: Replaceable, UL listed, nylon pile smoke seals sealing against fascia side of curtain.

\*\* NOTE TO SPECIFIER \*\* Fire doors are normally not locked, but may be if desired. Delete if not required.

* + 1. Locking:

\*\* NOTE TO SPECIFIER \*\* Standard locking methods for Manual Push-Up and Manual Crank Hoist are listed below. Delete locking method not required.

* + - 1. Locking: Manual Push-Up and Manual Crank Hoist - Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides.
			2. Locking: Manual Push-Up and Manual Crank Hoist - Padlockable slide bolt on fascia side of bottom bar at each jamb extending into slots in guides.
			3. Locking: Manual Chain Hoist - Padlockable chain keeper on guide.

\*\* NOTE TO SPECIFIER \*\* Available locking options on all doors; consult Clopay commercial information assistance for other options.

* + - 1. Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides. Provide interlock switches on motor operated units.
			2. Padlockable slide bolt on fascia side of bottom bar at each jamb extending into slots in guides. Provide interlock switches on motor operated units.
			3. Masterkeyable cylinder operable from coil side of bottom bar. Provide interlock switches on motor operated units.
			4. Masterkeyable cylinder operable from fascia side of bottom bar. Provide interlock switches on motor operated units.
			5. Masterkeyable cylinder operable from both sides of bottom bar. Provide interlock switches on motor operated units.

\*\* NOTE TO SPECIFIER \*\* Vision panels are available in slat design 5F only. Show number and placement on drawings. Minimum spacing is 1-1/2 inches (40 mm) apart, 12 inches (305 mm) in from guides. Delete below if not required.

* + 1. Vision Panels: 10 x 1-5/8 inches (254 x 41.28 mm) oval acrylic panes set with double sided foam glazing tape and secured with retaining clips and rivets. Refer to drawings for number and placement.

\*\* NOTE TO SPECIFIER \*\* Vision panels are available on UL rated doors through 4 hours. Show number (6 maximum per door) and placement on drawings. Minimum spacing is 5 inches (127 mm) apart, 12 inches (305 mm) in from guides. Delete if not required.

* + 1. Rated Vision Panels: 10 inches x 1-5/8 inches x 3/16 inch (254 x 41 x 4.76 mm) thick oval glass panes set in metal frames and mechanically fastened to slat. Refer to drawings for number and placement.

\*\* NOTE TO SPECIFIER \*\* Pass doors with hinged frames are available. Consult Clopay commercial information assistance for other options. Not available on labeled fire doors. Delete if not required.

* + 1. Pass Doors: Provide pass door with hinge frame and hardware as scheduled.

\*\* NOTE TO SPECIFIER \*\* Graphic door image height limit is 10 feet (3048 mm). Delete if not required.

* + 1. Graphics Door Image:
			1. Flat face surface of door curtain slats, hood and fascia, as indicated, to include a factory applied color process, 2 mil (0.05 mm) thick vinyl graphic image, 3M or equal.
			2. Color Process: 2 color.
			3. Color Process: 4 color.
			4. Graphic image to be selected and electronically supplied by customer.

\*\* NOTE TO SPECIFIER \*\* Manual operation for non-labeled doors. Delete if not required.

* + 1. Manual Operation/Non Labeled Doors:

\*\* NOTE TO SPECIFIER \*\* Delete operation not required. Manual Push-Up not available for insulated door.

* + - 1. Manual Push-Up: Provide lift handles on bottom bar and pole with hook.
			2. Manual Chain Hoist: Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide.
			3. Manual Crank Hoist: Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

\*\* NOTE TO SPECIFIER \*\* Door controls for labeled and non-labeled motor operated doors. Most common control stations are listed below; consult Clopay commercial information assistance for other options. Doors without bottom weather/sensing edge shall be wired for constant pressure on the "close" button.

* + 1. Control Station:
			1. Motor Control Station: Surface mounted, "Open/Close/Stop" push buttons; NEMA 1.
			2. Motor Control Station: Surface mounted, "Open/Close" push buttons; NEMA 1.
			3. Motor Control Station: Flush mounted, "Open/Close/Stop" push buttons; NEMA 1B.
			4. Motor Control Station: Flush mounted, "Open/Close" push buttons; NEMA 1B.
			5. Motor Control Station: Flush mounted, "Open/Close" key switch; NEMA 1B.
			6. Motor Control Station: Flush mounted, "Open/Close" key switch with "Stop" push button; NEMA 1B.
			7. Motor Control Station: Surface mounted, "Open/Close" key switch; NEMA 3R.
			8. Motor Control Station: Surface mounted, "Open/Close" key switch with "Stop" push button; NEMA 3R.
			9. Motor Control Station: Surface mounted, "Open/Close/Stop," push buttons with keyed lock-out, not masterkeyable; NEMA 4.

\*\* NOTE TO SPECIFIER \*\* Motor operators for non-labeled doors. Delete if not required.

* + 1. Motor Operators/Non Labeled Doors:

\*\* NOTE TO SPECIFIER \*\* Select model MG operators for units that will routinely cycle less than 20 times per day and require no more than 3/4 hp. Select SG operators for units that will cycle more than 20 times per day and for large size units that will require greater than 3/4 hp.

* + - 1. Motor Operator: Supply Clopay Model MG, industrial duty - rated for a maximum of 20 cycles per hour, cULus listed, Totally Enclosed Non Ventilated gear head operator(s) rated hp as recommended by door manufacture for size and type of door. Volts and Phase as available and scheduled.
				1. Provide complete with:

Electric motor and factory pre-wired motor control terminals.

Maintenance free solenoid actuated brake.

Control station(s).

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

Emergency manual chain hoist.

Operator shall be equipped with a disconnect cable for auxiliary push-up operation.

* + - * 1. Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position.
				2. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.
				3. Operator drive and door driven sprockets shall be provided with #50 roller chain.

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

* + - * 1. Provide an integral Motor Mounted Interlock system to prevent damage to door and operator when mechanical door locking devices are provided.
				2. Operator shall be capable of driving the door at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.
			1. Motor Operator: Supply Clopay Model SG, continuous duty, cULus listed, totally enclosed fan cooled gear head operator(s) rated hp as recommended by door manufacture for size and type of door. Volts and Phase as available and scheduled.
				1. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist provided up to 2 hp and control station(s).
				2. Motor shall be high starting torque, industrial type, with overload protection. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist.
				3. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain. Operator shall be capable of driving the door at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. The motor shall be removable without affecting the limit switch settings. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

\*\* NOTE TO SPECIFIER \*\* Door operation for labeled fire doors. Delete if not required.

* + 1. Motor Operators/Labeled Fire Doors:
			1. Motor Operated: Model CFD, UL listed and FM approved, NEMA 1 enclosure rating, horsepower as recommended by manufacture. Voltage and phase as available and scheduled. Provide open drip-proof motor, removable without affecting setting of limit switches; UL listed thermal overload protection; solenoid brake; planetary reduction gearing and rotary limit switches; transformer with 24 v control secondary; and all integral electrical components prewired to terminal blocks.

\*\* NOTE TO SPECIFIER \*\* Delete activation mechanism not required.

* + - * 1. Automatic closure shall be activated by fusible link.
				2. Automatic closure shall be activated by a local smoke/fire detector by means of a fail-safe releasing device. Doors shall not require a releasing device when activated by an alarm signal.
				3. Automatic closure shall be activated by a central smoke/fire alarm system by means of a fail-safe releasing device. Doors shall not require a releasing device when activated by an alarm signal.
				4. Doors shall maintain an average closing speed of not more than 9 inches (229 mm) per second during automatic closing. When automatic closure is activated, electric sensing edge and push button are inoperable.

Doors shall be fail-safe and close upon power failure.

Resetting of spring tension or mechanical dropouts shall not be required. Upon restoration of power, replacement of fusible link or clearing of the alarm signal, doors shall immediately reset by opening with the push button.

The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

\*\* NOTE TO SPECIFIER \*\* Include F-BBU battery back-up system to FS motor operators to add a four hour time delay to auto-closing upon power failure. This system does not provide for power opening of the unit. Delete if not required.

* + - 1. Battery Back-up System: Provide Model F-BBU Battery Back-Up System for CFD Motor Operator. Provides four hours of door open holding time in the event of a power failure. Can power local detectors and warning appliances. Allows for programming open/close obstruction cycling should the sensing edge encounter a stationary obstruction in the opening during AC power, alarm signal closing.

\*\* NOTE TO SPECIFIER \*\* Door operation for labeled fire doors. Delete if not required.

* + 1. Manual Operation/Labeled Fire Doors:

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

* + - 1. Manual Chain Hoist: Provide combination chain / controlled closing system operator including endless steel chain, geared reduction unit and chain keeper.

\*\* NOTE TO SPECIFIER \*\* Delete close mechanism not required.

* + - * 1. Provide a wall mounted Push To Close station located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.
				2. Provide a combination close operation / automatic drop test cable located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.
			1. Manual Crank Hoist: Provide combination crank / controlled closing system operator including removable hand crank and geared reduction unit.

\*\* NOTE TO SPECIFIER \*\* Delete close mechanism not required.

* + - * 1. Provide a wall mounted Push To Close station located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.
				2. Provide a wall mounted combination close operation / automatic drop test cable located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.

\*\* NOTE TO SPECIFIER \*\* Not available for insulated labeled doors. Delete if not required.

* + - 1. Manual Push-Up with Conventional Spring Release System: Provide lift handles on bottom bar and pole with hook.
			2. Automatic closure shall maintain an average closing speed of not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second during automatic closing per NFPA 80. Resetting of spring tension and mechanical dropouts by a trained door systems technician is required.

\*\* NOTE TO SPECIFIER \*\* Delete activation mechanism not required.

* + - * 1. Automatic closure shall be activated by fusible link.
				2. Automatic closure shall be activated by a local smoke/fire detector by means of a fail-safe releasing device.
				3. Automatic closure shall be activated by a central smoke/fire alarm system by means of a fail-safe releasing device.

\*\* NOTE TO SPECIFIER \*\* Fire detectors are available for use with automatic closing fire doors. Coordinate with building fire alarm design and FA System specification. Detectors may be specified in FA System specification. Delete if not required.

* + 1. Fire Detectors:
			1. Provide Photoelectric Smoke/Heat Detector: UL listed.
			2. Provide Ionization Smoke Detector: UL listed.

\*\* NOTE TO SPECIFIER \*\* Fire emergency annunciators are available for use with a motor operator and Firegard series release devices. Horn/strobe available with motor operator and all Firegard series devices; voice warning module available with type BV device only. Delete if not required.

* + 1. Fire Emergency Annunciator:

\*\* NOTE TO SPECIFIER \*\* Delete annunciator device not required.

* + - 1. Provide ADA compliant horn/strobe fire emergency annunciator to give advanced warning that the fire door is about to close. Warning signal to activate upon alarm signal.
			2. Provide Voice Warning Module fire emergency annunciator to give advanced warning that the fire door is about to close. Warning signal to activate upon alarm signal.

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

* + 1. Automatic Closing and Speed Governor Mechanism:

\*\* NOTE TO SPECIFIER \*\* Following option is for motor operated doors only. Verify bottom bar sensing edge is selected. Delete if not required.

* + - 1. Motor Operated System:
				1. Activation: As specified.
				2. Operation: Motor operator shall close door upon signal from fire detector, power outage or melting of fusible link as specified.
				3. Closing Speed: Not more than 9 inches (229 mm) per second.
				4. Reset Procedure: Operation of control station after alarm is cleared or power is restored or replace fusible link. Resetting of spring tension or mechanical dropouts shall not be required.

\*\* NOTE TO SPECIFIER \*\* Following option is for manual operated doors only. Bottom bar sensing edge not required. Delete manual operation type not required.

* + - 1. Manual Operation System:
				1. Operation: Hand chain and hand crank operation as scheduled and use of a wall mounted Push To Close station or combination close operation / automatic drop test cable as specified, located at floor level for normal use. When automatic closing is activated, integral brake and operator shall disengage. Integral governor controls closing speed.

Activation: As specified.

Average Closing Speed: Not more than 9 inches (229 mm) per second.

Reset Procedure: Resetting of spring tension or mechanical dropouts shall not be required.

If tested by activating Push To Close station or automatic drop test cable, reset by releasing controller.

If activated by an automatic reset release device, clear alarm and/or restore power.

If tested by activating a floor level reset release device, pull and hold floor level release reset cable for 3 seconds once alarm is cleared and/or power is restored.

If tested by melting / cutting of fusible link, replace fusible link.

\*\* NOTE TO SPECIFIER \*\* Following option is for manual push-up doors only. Not available in insulated doors. Bottom bar sensing edge not required. Delete Push-up release device not required.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link.

Activation: Melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard AR-D Release Device.

Activation: Central alarm system or local smoke and heat detectors or power outage in excess of 10 seconds or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard AR-D or replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard BB Release Device.

Activation: Central alarm system or local smoke and heat detectors or power outage in excess of 72 hours or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard BB or replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard DC Release Device.

Activation: Central alarm system or local smoke and heat detectors or DC alarm system power outage or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard DC or replace fusible link.

\*\* NOTE TO SPECIFIER \*\* Rolling Counter doors (also called counter shutters) secure openings above counters and other similar finished openings on interior and exterior walls. These doors can also be used for smaller door openings and close to the floor when the more compact door components are required. Delete if not required.

* 1. COUNTER DOORS
		1. Product:

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

* + - 1. Counter Door: Model CESC10 as manufactured by Clopay Corporation.
			2. Counter Door with Integrated Frame: Model CESC20 as manufactured by Clopay Corporation.

\*\* NOTE TO SPECIFIER \*\* It is the responsibility of the Architect to check and coordinate applicable code for smoke detector and alarm system tie-in requirements. Delete model not required.

* + - 1. Labeled Fire Resistive Door: Model CERC10 as manufactured by Clopay Corporation.
			2. Labeled Fire Resistive Door with Integrated Frame: Model CERC20 as manufactured by Clopay Corporation.
		1. Design Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete If wind resistance is not required.

* + - 1. Wind Loading: Supply doors to withstand up to [ \_\_ psf ( \_\_\_ Pa) maximum wind load.

\*\* NOTE TO SPECIFIER \*\* Delete cycling requirement not required. Fill in required frequency.

* + - 1. Cycle Life: Design doors of standard construction for normal use of up to 20 cycle per day maximum.
			2. Cycle Life: Design doors of special construction for high cycle use. Expected cycles of up to \_\_\_\_ per day.

\*\* NOTE TO SPECIFIER \*\* Fire Resistive: Delete If UL labeled fire door is not required.

* + - 1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification:

\*\* NOTE TO SPECIFIER \*\* Delete UL labeled fire door classification not required. 3 hr, available with CERC10 and CERC11 only. Not available with CERC20.

* + - * 1. FR Classification: 3 hr.
				2. FR Classification: 1 1/2 hr.
				3. FR Classification: 1 hr.
				4. FR Classification: 3/4 hr.

\*\* NOTE TO SPECIFIER \*\* Available with CERC11 only. Smoke Protection: Delete If UL labeled smoke protection is not required.

* + - 1. Provide doors with Underwriters' Laboratories, Inc. label for "Leakage Rated Assembly" or "S" label.
				1. Comply with NFPA 105 air leakage requirements.
				2. Pass UL test procedure 1784.

\*\* NOTE TO SPECIFIER \*\* Specific seismic calculations can be provided for all doors that are mounted Face of Wall or Between Jambs to steel or masonry. Seismic performance validation is per ASCE 7-05. Delete if not required.

* + - 1. Provide doors with seismic calculations for seismic performance per ASCE 7-05 to comply with Local Authority Having Jurisdiction (AHJ).

\*\* NOTE TO SPECIFIER \*\* CESC20 and CERC20 counter doors only. Delete if not required.

* + - 1. Integrated Frame Fabrication: Factory weld components into a single unit, fully assembled, ready for installation.

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

* + - * 1. Integrated Frame Type: Built-in type.
				2. Integrated Frame Type: Slip-in type.
		1. Construction:
			1. Curtain: Continuous interlocking slat sections with galvanized steel endlocks riveted to slats as per UL requirements.

\*\* NOTE TO SPECIFIER \*\* Delete slats types not required.

* + - * 1. Slat Type: Galvanized steel, No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, 22 gauge ASTM A 653, Commercial Quality, galvanized steel with plain steel bottom bar and vinyl astragal.
				2. Slat Type: Stainless Steel, No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, 22 gauge AISI type 304 series stainless steel with stainless steel bottom bar and vinyl astragal.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled counter doors

* + - * 1. Slats: No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, 0.040 inch (1.016 mm) aluminum with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled counter doors

* + - * 1. Slats: No. 1P ScreenGard interlocked flat-faced, perforated slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, 22 gauge ASTM A 653, Commercial Quality, galvanized steel perforated with 0.062 inch (1.6 mm) diameter openings at 0.094 inch (2.4 mm) staggered centers, approximately 22 percent free area with extruded aluminum tubular bottom bar, continuous lift handle and vinyl astragal.

\*\* NOTE TO SPECIFIER \*\* CESC10 and CESC20 unrated counter doors only. Delete if not required.

* + - * 1. Nylon Endlocks: Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats.

\*\* NOTE TO SPECIFIER \*\* CERC10, CERC11 and CERC20 labeled counter doors only. Delete if not required.

* + - * 1. Steel Endlocks: Fabricate interlocking slat sections with high strength galvanized steel endlocks riveted to slats per UL requirements.

\*\* NOTE TO SPECIFIER \*\* Delete slat finish not required.

* + - * 1. Slat Finish: GalvaNex Coating System.

Compliance: ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for a chemical bonding.

Base Coat: Light gray baked-on polyester base coat.

Finish Coat: Light gray baked-on polyester finish coat.

Finish Warranty: Limited two year finish warranty.

* + - * 1. Slat Finish: GalvaNex Coating System and phosphate treatment followed by baked-on polyester powder coat.

ASTM D 3363 Pencil Hardness: H or better.

Thickness: Minimum 2.5 mil (0.065 mm) cured film thickness.

\*\* NOTE TO SPECIFIER \*\* Delete options for specifying finish color not required.

Color: As selected by Architect from manufacturer's standard color range, minimum 32 colors.

Color: Custom color as selected by Architect.

* + - * 1. Slat Finish: Stainless steel, No. 4 finish.

\*\* NOTE TO SPECIFIER \*\* Not available for fire rated doors

* + - * 1. Slat Finish: Aluminum - Clear anodized.
				2. Slat Finish: Aluminum - Medium bronze anodized.
				3. Slat Finish: Aluminum - Dark bronze anodized.
				4. Slat Finish: Aluminum - Black anodized.

\*\* NOTE TO SPECIFIER \*\* Delete bottom bar finishes not required. Steel bottom bar for labeled counter door only.

* + - * 1. Bottom Bar Finish: Steel, Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.

\*\* NOTE TO SPECIFIER \*\* Not available on CERC20.

* + - * 1. Bottom Bar Finish: Steel, Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
				2. Bottom Bar Finish: Steel, ASTM A 123, Grade 85 zinc coating, hot-dip galvanized.
				3. Bottom Bar Finish: Steel, Phosphate treatment followed by baked-on polyester powder coat.

ASTM D-3363 Pencil Hardness: H or better.

Thickness: Minimum 2.5 mil (0.065 mm) cured film thickness.

\*\* NOTE TO SPECIFIER \*\* Delete finish color not required.

Color: As selected by Architect from manufacturer's standard color range, minimum 32 colors.

Color: Custom color as selected by Architect.

* + - * 1. Bottom Bar Finish: Stainless steel, No. 4 finish.

\*\* NOTE TO SPECIFIER \*\* Aluminum not available for labeled counter doors.

* + - * 1. Aluminum Bar/Steel Slat with Baked Enamel Coating: Clear anodized.
				2. Aluminum Bar/Aluminum Slat: Match slat finish.
				3. Aluminum Bar/Steel Slat with Powder Coating: Match slat powder coating.

\*\* NOTE TO SPECIFIER \*\* Integrated frame: CESC20 and CERC20 only. Delete if not required. Units are designed to fit minimum 4 inches (102 mm) thick walls to maximum 13 inches (330 mm) wall thickness.

* + - 1. Integrated Head and Jamb Frame: Integral welded with guide groove incorporated into jamb design.
				1. Wall Thickness: As indicated on Drawings.

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

* + - * 1. Material: Steel, 16 gauge formed shapes.
				2. Material: Stainless steel, 16 gauge AISI 300 series formed shapes.

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

* + - * 1. Finish: Light gray shop prime coat; minimum 0.6 mil (0.015 mm) cured film thickness, steel.
				2. Finish: No. 4 finish, stainless steel.

\*\* NOTE TO SPECIFIER \*\* Integrated frame counter doors CESC20 and CERC20 have integral guides. Delete guide material provisions. Delete guide material not required.

\*\* NOTE TO SPECIFIER \*\* Aluminum not available for labeled counter doors.

* + - 1. Guide Material: Fabricate with heavy duty extruded aluminum sections with snap-on cover to conceal fasteners. Provide polypropylene pile runners on both sides of curtain to eliminate metal to metal contact between guides and curtain.
			2. Guide Material: Fabricate with 12 gauge formed steel shapes.
			3. Guide Material: Fabricate with 12 gauge formed stainless steel shapes.

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

* + - 1. Guide Finish: Aluminum Guide (for Steel Slat with Baked Enamel Coating): Clear anodized.
			2. Guide Finish: Aluminum Guide (for Steel Slat with Powder Coating): Match slat powder coating.
			3. Guide Finish: Aluminum Guide (with Aluminum Slat): Match slat finish.
			4. Guide Finish: Steel: Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			5. Guide Finish: Steel: Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			6. Guide Finish: Steel: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.
			7. Guide Finish: Steel: Phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

* + - * 1. Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.
				2. Color: Custom color as selected by Architect.
			1. Guide Finish: Stainless steel: No. 4 finish.

\*\* NOTE TO SPECIFIER \*\* Exposed moving operator components lower than 8 feet (2438 mm) above floor level that create possible pinch points are required to be covered per UL 325. Specify an operator cover whenever this field condition exists. Delete if not required.

* + - 1. Operator and Bracket Mechanism Cover: Provide sheet metal cover to provide weather resistance and to enclose exposed moving operating components at coil area of unit. Finish and material to match door hood.

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

* + - 1. Counterbalance Shaft Assembly:
				1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
				2. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N), heel for applying and adjusting spring torque.

\*\* NOTE TO SPECIFIER \*\* CESC10 option only. Delete if not required.

* + - 1. Tube Motor Shaft Assembly:
				1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
			2. Brackets: Fabricated from plate with bearings at rotating support points to support counterbalance shaft assembly and form end closures for hood.

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

* + - * 1. Bracket Material: Steel.
				2. Bracket Material: AISI 300 series stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete bracket finish not required. Gray primer only option with CESC20 and CERC20.

* + - * 1. Bracket Finish: Steel - Light gray shop prime coat; minimum 0.6 mils (0.015 mm) cured film thickness.
				2. Bracket Finish: Steel - Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
				3. Bracket Finish: Phosphate treatment followed by corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
				4. Bracket Finish: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.
				5. Bracket Finish: Phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.

Color: Custom color as selected by Architect.

* + - * 1. Bracket Finish: No. 4 finish, stainless steel.

\*\* NOTE TO SPECIFIER \*\* CESC10, CERC10, CERC11 only. Not CESC20 and CERC20. - see below. Delete if not required.

* + - 1. Hood and Fascia: With reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag.

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

* + - * 1. Hood and Fascia Material: 24 gauge stainless steel.
				2. Hood and Fascia Material: 24 gauge steel.

\*\* NOTE TO SPECIFIER \*\* Not available for labeled counter door.

* + - * 1. Hood and Fascia Material: 0.040 inch (1.016 mm) aluminum.

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

* + - * 1. Hood and Fascia Finish: GalvaNex Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding, light gray baked-on polyester base coat and a light gray baked-on polyester finish coat. The scientific organic material composition and chemical bonding process of GalvaNex produces a superior finish against corrosion and abrasion. GalvaNex components include a limited two year finish warranty.
				2. Hood and Fascia Finish: GalvaNex Coating System and phosphate treatment followed by baked-on polyester powder coat, minimum 2.5 mil (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

\*\* NOTE TO SPECIFIER \*\* Delete color provision not required.

Color: Color as selected by Architect from manufacturer's standard color range, minimum 32 colors.

Color: Custom color as selected by Architect.

* + - * 1. Hood and Fascia Finish: Stainless steel: No. 4 finish.
				2. Hood and Fascia Finish: Aluminum - Mill finish.
				3. Hood and Fascia Finish: Aluminum - Clear anodized.
				4. Hood and Fascia Finish: Aluminum - Medium bronze anodized.
				5. Hood and Fascia Finish: Aluminum - Dark bronze anodized.
				6. Hood and Fascia Finish: Aluminum -Black anodized.

\*\* NOTE TO SPECIFIER \*\* CESC20 and CERC20 only. Delete if not required.

* + - 1. Hood and Fascia: Sheet brake metal with reinforced top and bottom edges.

\*\* NOTE TO SPECIFIER \*\* Delete material and finish not required.

* + - * 1. Hood and Fascia Material: 16 gauge stainless steel.
				2. Hood and Fascia Material: 16 gauge steel.
				3. Hood and Fascia Finish: Stainless steel: No. 4 finish.
				4. Hood and Fascia Finish: Steel - Light gray shop prime coat; minimum 0.6 mils (0.015 mm) cured film thickness.

\*\* NOTE TO SPECIFIER \*\* CERC11 only. Include the following smoke seals when labeled smoke protection is required. Check code for smoke detector and alarm system tie-in requirements. Delete if not required.

* + 1. Smoke Seals:

\*\* NOTE TO SPECIFIER \*\* CERC11 only. Delete bottom bar smoke seal not required.

* + - 1. Bottom Bar, Manual Operated Doors: UL Tested PVC double bulb seal.
			2. Bottom Bar, Motor Operated Doors: Combination smoke seal/sensing edge as specified.
			3. Guides and Head: Replaceable, UL listed, nylon pile smoke seals sealing against fascia side of curtain.

\*\* NOTE TO SPECIFIER \*\* Weather/sensing edge is recommended with non labeled door, motor operated units. Delete if not desired. Smoke Seal/sensing edge is required with labeled door, motor operated units. Manual smoke protection doors require smoke seals specified elsewhere. Delete if not required.

* + 1. Weather/Smoke Seal - Sensing Edge:
			1. Provide an electric sensing edge device. Provide automatic control by an automatic sensing switch within neoprene astragal extending full width of door bottom bar.

\*\* NOTE TO SPECIFIER \*\*Delete response not desired.

* + - 1. Response: Contact before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position.
			2. Response: Contact before door fully closes shall cause door to immediately stop downward travel.

\*\* NOTE TO SPECIFIER \*\*Delete type not desired.

* + - 1. Type: Provide a self-monitoring wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator. Supervised system alters normal door operation preventing damage, injury or death due to an inoperable sensing edge system.
			2. Type: Provide a wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator.
			3. Type: Provide an electric sensing edge device.

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

* + - * 1. Provide self-coiling cable connection to control circuit.
				2. Provide retracting safety cord and reel connection to control circuit.
		1. Locking:

\*\* NOTE TO SPECIFIER \*\* Select thumb wing latch with galvanized steel or aluminum curtain units. Delete locking options not required.

* + - 1. Locking: Locking thumb wing latch located on coil side of bottom bar at each jamb extending lock bolt through slots in guides. Keyed alike but not master keyed.

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

* + - * 1. Switches: Interlock switches on motor operated units.

\*\* NOTE TO SPECIFIER \*\* Select padlockable slide bolt with stainless steel curtain units. Delete locking options not required.

* + - 1. Locking: Padlockable slide bolt on coil side of bottom bar at each jamb extending into slots in guides.

\*\* NOTE TO SPECIFIER \*\* Applicable to motorized units. Delete if not required.

* + - * 1. Switches: Interlock switches on motor operated units.
			1. Masterkeyable cylinder in bottom bar.

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

* + - * 1. Configuration: Operable from coil side of bottom bar.
				2. Configuration: Operable from fascia side of bottom bar.
				3. Configuration: Operable from both sides of bottom bar.

\*\* NOTE TO SPECIFIER \*\* Applicable to motorized units. Delete if not required.

* + - * 1. Switches: Interlock switches on motor operated units.

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

* + 1. Graphics Door Image:
			1. Flat face surface of door curtain slats, hood and fascia, as indicated, to include a factory applied color process, 2 mil (0.05 mm) thick vinyl graphic image, 3M or equal.

\*\* NOTE TO SPECIFIER \*\* Delete color press not required.

* + - 1. Color Process: 2 color.
			2. Color Process: 4 color.
			3. Graphic image to be selected and electronically supplied by customer.
		1. Countertops:

\*\* NOTE TO SPECIFIER \*\* Stainless steel countertops are available for openings up to 11 feet-2 inches (3.40 m) wide with sill depths up to 20 inches (508 mm).

* + - 1. Countertops: Integral, 14 gauge AISI 300 series stainless steel formed shape; No. 4 finish.

\*\* NOTE TO SPECIFIER \*\* Plastic laminate countertops are available for openings up to 15 feet-0 inches (4.57 m) wide. 12 inches (305 mm) minimum sill depth; 36 inches (914 mm) maximum sill depth.

* + - 1. Countertop: Plastic laminate covered, 1-1/4 inches (32 mm) thick, of size and configuration for opening size and wall construction. Color as selected by Architect from standard range of Wilson Art or Formica plastic laminates.
			2. Labeled Countertops: Non-Integral, 1-1/2 Hour UL Labeled, 1-5/8 inches (41 mm) thick, laminate covered, of size and configuration made for opening size and wall construction. Color as selected by Architect from standard range of manufacturer approved WilsonArt or Formica laminates.

\*\* NOTE TO SPECIFIER \*\* Manual operation for non-labeled doors. Delete if not required.

* + 1. Manual Operation/Non Labeled Counter Doors:

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

* + - 1. Manual Push-Up: Provide lift handles on bottom bar or pole with hook.
			2. Manual Crank Hoist: Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

\*\* NOTE TO SPECIFIER \*\* Door controls for labeled and non-labeled motor operated doors. Most common control stations are listed below; consult Clopay commercial information assistance for other options. Doors without bottom weather/sensing edge shall be wired for constant pressure on the "close" button.

* + 1. Control Station:
			1. Motor Control Station: Surface mounted, "Open/Close/Stop" push buttons; NEMA 1.
			2. Motor Control Station: Surface mounted, "Open/Close" push buttons; NEMA 1.
			3. Motor Control Station: Flush mounted, "Open/Close/Stop" push buttons; NEMA 1B.
			4. Motor Control Station: Flush mounted, "Open/Close" push buttons; NEMA 1B.
			5. Motor Control Station: Flush mounted, "Open/Close" key switch; NEMA 1B.
			6. Motor Control Station: Flush mounted, "Open/Close" key switch with "Stop" push button; NEMA 1B.
			7. Motor Control Station: Surface mounted, "Open/Close" key switch; NEMA 3R.
			8. Motor Control Station: Surface mounted, "Open/Close" key switch with "Stop" push button; NEMA 3R.
			9. Motor Control Station: Surface mounted, "Open/Close/Stop," push buttons with keyed lock-out, not masterkeyable; NEMA 4.

\*\* NOTE TO SPECIFIER \*\* Motor operators for non-labeled doors. Delete if not required.

* + 1. Motor Operators/Non Labeled Counter Doors:

\*\* NOTE TO SPECIFIER \*\* Select model MG operators for units that will routinely cycle less than 20 times per day and require no more than 3/4 hp.

* + - 1. Motor Operator: Supply Clopay Model MG, industrial duty - rated for a maximum of 20 cycles per hour, cULus listed, Totally Enclosed Non Ventilated gear head operator(s) rated hp as recommended by door manufacture for size and type of door. Volts and Phase as available and scheduled.
				1. Provide complete with:

Electric motor and factory pre-wired motor control terminals.

Maintenance free solenoid actuated brake.

Control station(s).

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

Emergency manual chain hoist.

Operator shall be equipped with a disconnect cable for auxiliary push-up operation.

* + - * 1. Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position.
				2. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.

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

* + - * 1. Provide an integral Motor Mounted Interlock system to prevent damage to door and operator when mechanical door locking devices are provided.
				2. Operator shall be capable of driving the door at a speed of 6 to 9 inches per second (15 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

\*\* NOTE TO SPECIFIER \*\* CESC10 only. Delete if not required.

* + - 1. Motor Operator: Supply Tube Motor Operator - rated for a maximum of 10 cycles per day, cULus recognized, rated as recommended by door manufacturer for size and type of door, 110 Volts, 1 Phase. Provide complete with electric tube motor, maintenance free electric brake, emergency manual crank hoist and control station(s). Motor shall be protected against overload with an auto-reset thermal sensing device. Operator shall be equipped with an emergency manual crank hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual crank hoist. Operator shall be capable of 10-14 RPM. Fully adjustable, mechanical internal worm limit switch mechanism shall synchronize the operator with the door. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

\*\* NOTE TO SPECIFIER \*\* Not available on CERC20 (Push-up) operation only. Door operation for labeled fire doors. Delete if not required.

* + 1. Motor Operators/Labeled Fire Doors:
			1. Motor Operated: Model FS, UL listed and FM approved, NEMA 1 enclosure rating, horsepower as recommended by manufacture. Voltage and phase as available and scheduled. Provide open drip-proof motor, removable without affecting setting of limit switches; UL listed thermal overload protection; solenoid brake; planetary reduction gearing and rotary limit switches; transformer with 24 v control secondary; and all integral electrical components prewired to terminal blocks.

\*\* NOTE TO SPECIFIER \*\* Delete automatic closure not required.

* + - * 1. Automatic closure shall be activated by fusible link.
				2. Automatic closure shall be activated by a local smoke/fire detector by means of a fail-safe releasing device. Doors shall not require a releasing device when activated by an alarm signal.
				3. Automatic closure shall be activated by a central smoke/fire alarm system by means of a fail-safe releasing device. Doors shall not require a releasing device when activated by an alarm signal.
				4. Doors shall maintain an average closing speed of not more than 9 inches (229 mm) per second during automatic closing. When automatic closure is activated, electric sensing edge and push button are inoperable.

Doors shall be fail-safe and close upon power failure.

Resetting of spring tension or mechanical dropouts shall not be required. Upon restoration of power, replacement of fusible link or clearing of the alarm signal, doors shall immediately reset by opening with the push button.

The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.

\*\* NOTE TO SPECIFIER \*\* Include F-BBU battery back-up system to FS motor operators to add a four hour time delay to auto-closing upon power failure. This system does not provide for power opening of the unit. Delete if not required.

* + - 1. Battery Back-up System: Provide Model F-BBU Battery Back-Up System for FS Motor Operator. Provides four hours of door open holding time in the event of a power failure. Can power local detectors and warning appliances. Allows for programming open/close obstruction cycling should the sensing edge encounter a stationary obstruction in the opening during AC power, alarm signal closing.

\*\* NOTE TO SPECIFIER \*\* Fire emergency annunciators are available for use with an FDCL motor operator and Firegard Series release devices. Horn/strobe available with FDCL operator and all Firegard series devices; voice warning module available with type by device only. Delete if not required.

* + - 1. Fire Emergency Annunciator: fire emergency annunciator to give advanced warning that the fire door is about to close. Warning signal to activate upon alarm signal.

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

* + - * 1. Fire Emergency Annunciator Type: ADA compliant horn/strobe.
				2. Fire Emergency Annunciator Type: Provide Voice Warning Module.

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

* + - 1. Fire Detection: Ionization Smoke Detector UL listed.
			2. Fire Detection: Photoelectric Smoke/Heat Detector UL listed.

\*\* NOTE TO SPECIFIER \*\* Door operation for labeled fire doors. Delete if not required.

* + 1. Manual Operation/Labeled Fire Doors:

\*\* NOTE TO SPECIFIER \*\* Not available for CERC20. Delete manual operation not required.

* + - 1. Manual Chain Hoist: Provide combination chain / controlled closing system operator including endless steel chain, geared reduction unit and chain keeper.

\*\* NOTE TO SPECIFIER \*\* Delete close mechanism not required.

* + - * 1. Provide a wall mounted Push To Close station located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.
				2. Provide a combination close operation / automatic drop test cable located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.

\*\* NOTE TO SPECIFIER \*\* Not available for CERC20. Delete manual operation not required.

* + - 1. Manual Crank Hoist: Provide combination crank / controlled closing system operator including removable hand crank and geared reduction unit.

\*\* NOTE TO SPECIFIER \*\* Delete close mechanism not required.

* + - * 1. Provide a wall mounted Push To Close station located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.
				2. Provide a wall mounted combination close operation / automatic drop test cable located at floor level. Integral to the unit is a locking mechanism to hold the door at any position of travel during normal door operation mode and a governor to control automatic closing speed.

\*\* NOTE TO SPECIFIER \*\* Not available for insulated labeled doors. Delete if not required.

* + - 1. Manual Push-Up with Conventional Spring Release System: Provide lift handles on bottom bar and pole with hook.
				1. Automatic closure shall maintain an average closing speed of not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second during automatic closing per NFPA 80. Resetting of spring tension and mechanical dropouts by a trained door systems technician is required.

\*\* NOTE TO SPECIFIER \*\* Delete activation mechanism not required.

* + - * 1. Automatic closure shall be activated by fusible link.
				2. Automatic closure shall be activated by a local smoke/fire detector by means of a fail-safe releasing device.
				3. Automatic closure shall be activated by a central smoke/fire alarm system by means of a fail-safe releasing device.

\*\* NOTE TO SPECIFIER \*\* Fire emergency annunciators are available for use with an FDCL motor operator and Firegard Series release devices. Horn/strobe available with FDCL operator and all Firegard series devices; voice warning module available with type by device only. Delete if not required.

* + - 1. Fire Emergency Annunciator: fire emergency annunciator to give advanced warning that the fire door is about to close. Warning signal to activate upon alarm signal.

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

* + - * 1. Fire Emergency Annunciator Type: ADA compliant horn/strobe.
				2. Fire Emergency Annunciator Type: Provide Voice Warning Module.

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

* + - 1. Fire Detection: Ionization Smoke Detector UL listed.
			2. Fire Detection: Photoelectric Smoke/Heat Detector UL listed.

\*\* NOTE TO SPECIFIER \*\* Labeled counter doors only. Delete if not required.

* + 1. Automatic Closing and Speed Governor Mechanism:

\*\* NOTE TO SPECIFIER \*\* Following option is for motor operated doors only. Verify bottom bar sensing edge is selected. Delete if not required.

* + - 1. Motor Operated System:
				1. Activation: As specified.
				2. Operation: Motor operator shall close door upon signal from fire detector, power outage or melting of fusible link as specified.
				3. Closing Speed: Not more than 9 inches (229 mm) per second.
				4. Reset Procedure: Operation of control station after alarm is cleared or power is restored or replace fusible link. Resetting of spring tension or mechanical dropouts shall not be required.

\*\* NOTE TO SPECIFIER \*\* Following option is for manual operated doors only. Not available for CERC20. Bottom bar sensing edge not required. Delete manual operation type not required.

* + - 1. Manual Operation System:

\*\* NOTE TO SPECIFIER \*\* Not available for CERC20.

* + - * 1. Operation: Hand chain and hand crank operation as scheduled and use of a wall mounted Push To Close station or combination close operation / automatic drop test cable as specified, located at floor level for normal use. When automatic closing is activated, integral brake and operator shall disengage. Integral governor controls closing speed.

Activation: As specified.

Average Closing Speed: Not more than 9 inches (229 mm) per second.

Reset Procedure: Resetting of spring tension or mechanical dropouts shall not be required.

If tested by activating Push To Close station or automatic drop test cable, reset by releasing controller.

If activated by an automatic reset release device, clear alarm and/or restore power.

If tested by activating a floor level reset release device, pull and hold floor level release reset cable for 3 seconds once alarm is cleared and/or power is restored.

If tested by melting / cutting of fusible link, replace fusible link.

\*\* NOTE TO SPECIFIER \*\* Following option is for manual push-up doors only. Not available in insulated doors. Bottom bar sensing edge not required. Delete Push-up release device not required.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link.

Activation: Melting of fusible link.

Average Closing Speed: not less than 6 inches (152 mm) or more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard AR-D Release Device.

Activation: Central alarm system or local smoke and heat detectors or power outage in excess of 10 seconds or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard AR-D or replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard BB Release Device.

Activation: Central alarm system or local smoke and heat detectors or power outage in excess of 72 hours or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard BB or replace fusible link.

* + - * 1. Operation: Manual Push-Up.

Product: Fusible Link with FireGard DC Release Device.

Activation: Central alarm system or local smoke and heat detectors or DC alarm system power outage or melting of fusible link.

Average Closing Speed: Not less than 6 inches (152 mm) nor more than 24 inches (610 mm) per second.

Reset Procedure: Reset spring tension and mechanical dropouts; reset FireGard DC or replace fusible link.

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

* 1. SECURITY GRILLES

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

* + 1. Product: Overhead Glazed Rolling Grille: Model: CESG11 as manufactured by Clopay Corporation.
		2. Product: Overhead Rolling Grille: Model: CESG10 Straight Pattern as manufactured by Clopay Corporation.
		3. Product: Overhead Rolling Grille: Model: CESG12 Brick Pattern as manufactured by Clopay Corporation.
		4. Design Requirements:

\*\* NOTE TO SPECIFIER \*\* Select model CESG10 for straight pattern grilles or model CESG12 for grilles that will be routinely cycled more than 5 times per day or when a brick pattern curtain configuration is desired. Delete cycling requirement not required. Fill in required frequency.

* + - 1. Cycle Life: Design grilles of standard construction for normal use of up to 5 cycles per day maximum.
			2. Cycle Life: Design grilles of special construction for high cycle use. Expected cycles of up to \_\_\_\_ per day.

\*\* NOTE TO SPECIFIER \*\* Delete open design curtain if not required.

* + 1. Curtain Construction - Open Design:

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

* + - 1. Straight Pattern (Model CESG 10):

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

* + - * 1. Horizontal Rods: Solid 5/16 inch (8 mm) diameter, 5056 H32 aluminum alloy.
				2. Horizontal Rods: Solid 5/16 inch (8 mm) diameter, AISI 300 series stainless steel.
				3. Horizontal Rods: Solid 5/16 inch (8 mm) diameter galvanized steel.
				4. Vertical Spacing: 2 inches (50.8 mm) on center.
				5. Vertical Chains: Grommetted links, 3/4 inch (19 mm) wide, positioned by E-rings. Provide double E-rings on horizontal bars on both sides of end chains to retain curtain in guides.

\*\* NOTE TO SPECIFIER \*\* Select aluminum chain links below for aluminum and galvanized rods and stainless steel links for stainless steel rods. Delete chain link material not required.

* + - * 1. Vertical Chain Material: Aluminum.
				2. Vertical Chain Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Delete chain spacings not required.

* + - * 1. Vertical Chain Spacing: 9 inch (228.6 mm) centers.
				2. Vertical Chain Spacing: 6 inch (152.4 mm) centers.
				3. Vertical Chain Spacing: 3 inch (76.2 mm) centers.

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

* + - 1. Brick Pattern (CESG 12):
				1. Horizontal Rods: Solid 5/16 inch (8 mm) diameter, 5056 H32 aluminum alloy sleeved with horizontal aluminum tube spacers to separate vertical links.
				2. Vertical Spacing 2 inches (50.8 mm).
				3. Vertical Links: Heavy duty aluminum links, 3/4 inch (19mm) wide, positioned by tube spacers on 9 inch (228.6 mm) staggered centers. End links to be held in place by self-locking retaining rings.
			2. Bottom Bar: 2 inches by 3-1/2 inches (50.8 mm by 88.9 mm) extruded aluminum tubular section.

\*\* NOTE TO SPECIFIER \*\* Include reinforcing angles noted below on grilles over 27 feet 4 inches (8.33 m) wide.

* + - 1. Reinforce bottom bar with 3 inches by 2 inches by 3/16 inch (76.2 by 50.8 by 4.76 mm) aluminum angle(s).

\*\* NOTE TO SPECIFIER \*\* Select aluminum curtain and bottom bar below for model CESG12 brick pattern grilles. Stainless and galvanized finishes are not available with brick pattern curtains.

* + - 1. Finish:
				1. Aluminum Curtain and Bottom Bar:

Curtain: Aluminum - Mill finish.

Curtain: Aluminum - Clear anodized.

Curtain: Aluminum - Medium bronze anodized.

Curtain: Aluminum - Dark bronze anodized.

Curtain: Aluminum - Black anodized.

Bottom Bar: Aluminum - Mill finish.

Bottom Bar: Aluminum - Clear anodized.

Bottom Bar: Aluminum - Medium bronze anodized.

Bottom Bar: Aluminum - Dark bronze anodized.

Bottom Bar: Aluminum - Black anodized.

* + - * 1. Stainless Steel Curtain with Aluminum Bottom Bar:

Curtain: Factory polished.

Bottom Bar: Clear anodized.

Bottom Bar: Mill finish.

* + - * 1. Stainless Steel Curtain with Stainless Steel Bottom Bar: Factory polished.
				2. Galvanized Steel Rods with Aluminum Chains and Bottom Bar:

Rods: Galvanized steel, unpainted.

Chains and Bottom Bar: Mill finish.

Chains and Bottom Bar: Clear anodized.

\*\* NOTE TO SPECIFIER \*\* Delete panel design curtain if not required.

* + 1. Curtain Construction - Clear Panel Design (CESG 11):
			1. Horizontal Rods: Solid 5/16 inch (8 mm) diameter, 5056 H32 aluminum alloy at 3 inches (76.2 mm) on center.
			2. Panel Module: 12 inches by 3 inches by 1/8 inch (304.8 by 76.2 by 3.2 mm) thick clear, flame retardant polycarbonate, secured to bronze colored molded nylon links. Lock end chains into guides to retain curtain ends.
			3. Bottom Bar: 2 inches by 3-1/2 inches (50.8 by 88.9 mm) extruded aluminum tubular section.

\*\* NOTE TO SPECIFIER \*\* Include reinforcing angles noted below on grilles over 27 feet 4 inches (8.33 m) wide.

* + - 1. Reinforce bottom bar with 3 inches by 2 inches by 3/16 inch (76.2 by 50.8 by 4.76 mm) aluminum angle(s).
			2. Finish:

\*\* NOTE TO SPECIFIER \*\* Delete curtain finish not required.

* + - * 1. Curtain: Mill finish rods with bronze colored nylon links and clear polycarbonate panels.
				2. Curtain: Medium bronze anodized rods with bronze colored nylon links and clear polycarbonate panels.
				3. Curtain: Clear anodized rods with bronze colored nylon links and clear polycarbonate panels.

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

* + - * 1. Bottom Bar: Medium bronze anodized.
				2. Bottom Bar: Clear anodized.
				3. Bottom Bar: Mill finish.

\*\* NOTE TO SPECIFIER \*\* Delete wall mounted guide type if not required.

* + 1. Guides, Wall Mounted: Heavy duty extruded sections.
			1. Guide Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete cover and mounting angle options not required.

* + - 1. Provide snap-on cover to conceal fasteners on both sides of curtain.
			2. Provide snap-on cover to conceal fasteners and polypropylene pile runners on both sides of curtain.
			3. Provide steel mounting angle as required for face of wall installation.
			4. Provide aluminum mounting angle as required for face of wall installation.

\*\* NOTE TO SPECIFIER \*\* Delete tube mounted guide type if not required.

* + 1. Guides, Tube Mounted: Heavy duty extruded aluminum sections. Provide tubes, floor saddles and hardware as recommended by manufacturer to support grille.

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

* + - 1. Guide Material: Steel.
			2. Guide Material: Aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete cover and mounting angle options not required.

* + - 1. Provide snap-on cover to conceal fasteners on both sides of curtain.
			2. Provide snap-on cover to conceal fasteners and polypropylene pile runners on both sides of curtain.
			3. Provide steel mounting angle as required for face of wall installation.
			4. Provide aluminum mounting angle as required for face of wall installation.

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

* + 1. Guide Finish:
			1. Aluminum: Mill finish.
			2. Aluminum: Clear anodized.
			3. Aluminum: Medium bronze anodized.
			4. Aluminum: Dark bronze anodized.
			5. Aluminum: Black anodized.

\*\* NOTE TO SPECIFIER \*\* Use powder coat finish for exposed steel guide components and unpainted when steel guide components are recessed in the wall.

* + - 1. Steel: Unpainted.
			2. Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			3. Phosphate treatment followed by a corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.

\*\* NOTE TO SPECIFIER \*\* Exposed moving operator components lower than 8 feet (2438 mm) above floor level that create possible pinch points are required to be covered per UL 325. Specify an operator cover whenever this field condition exists. Delete if not required.

* + 1. Operator and Bracket Mechanism Cover: Provide sheet metal cover to provide weather resistance and enclose exposed moving operating components at coil area of unit as required or indicated. Finish matching grille hood.

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

* + - 1. Cover Material: 24 gauge galvanized steel.
			2. Cover Material: 24 gauge stainless steel.
			3. Cover Material: .0.040 inch (1.0 mm) aluminum.
		1. Counterbalance Shaft Assembly:
			1. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
			2. Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of grille to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque.
		2. Brackets: Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.

\*\* NOTE TO SPECIFIER \*\* Delete bracket finish not required.

* + - 1. Bracket Finish: Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			2. Bracket Finish: Phosphate treatment followed by corrosion inhibitive baked-on zinc-rich gray polyester powder coat; minimum 2.5 mil (0.065 mm) cured film thickness.
			3. Bracket Finish: ASTM A 123, Grade 85 zinc coating, hot-dip galvanized after fabrication.

\*\* NOTE TO SPECIFIER \*\* Hoods are not normally provided for coil above ceiling application, delete hood below if not desired.

* + 1. Hood and Fascia: With reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag.

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

* + - 1. Hood Material: 24 gauge galvanized steel.
			2. Hood Material: 24 gauge stainless steel.
			3. Hood Material: 0.040 inch (1.016 mm) aluminum.

\*\* NOTE TO SPECIFIER \*\* Delete hood finish not required.

* + - 1. Hood Finish: GalvaNex Coating System to include an ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation of a chemical bonding, light gray baked-on polyester base coat and a light gray baked-on polyester finish coat. The scientific organic material composition and chemical bonding process of GalvaNex produces a superior finish against corrosion and abrasion. GalvaNex components include a limited two year finish warranty.
			2. Hood Finish: Stainless steel: No. 4 finish.
			3. Hood Finish: Aluminum - Mill finish.
			4. Hood Finish: Aluminum - Clear anodized.
			5. Hood Finish: Aluminum - Medium bronze anodized.
			6. Hood Finish: Aluminum - Dark bronze anodized.
			7. Hood Finish: Aluminum - Black anodized.
		1. Locking:

\*\* NOTE TO SPECIFIER \*\* To provide security, a locking mechanism is required on all grilles. Most common locking methods are listed below; consult Clopay architectural design services for other options. Emergency egress lock must be used with emergency egress system. Delete locking method not required.

* + - 1. Manual Push-Up: Keyed cylinder locking into both jambs operable from both sides of curtain.
			2. Manual Crank Hoist: Keyed cylinder locking into both jambs operable from coil side of curtain.
			3. Motor Operated: Keyed cylinder locking into both jambs operable from both sides of curtain with motor interlock cutout switches.
			4. Emergency Egress Lock: Key cylinder locking from public side, thumb turn cylinder locking from tenant side, locking into both jambs. Provide an additional security panel in curtain.

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

* + - 1. Provide motor interlock cutout switches on motorized units.

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

* + 1. Manual Operation:

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.
\*\* NOTE TO SPECIFIER \*\* Pole with hook. Suitable for model ESG10 aluminum grilles up to 16 feet (4.88 M) wide and up to 10 feet (3.05 M) high and model ESG12 aluminum grilles up to 14 feet (4.27 M) wide and up to 10 feet (3.05 M) high. Suitable for model ESG11 glazed grilles up to 10 feet (3.05 M) wide and up to 10 feet (3.05 M) high.

* + - 1. Manual Push-Up: Provide pole with hook.

\*\* NOTE TO SPECIFIER \*\* EZ lift construction package extends the width range of all standard construction push-up grilles by approximately 33%. Use for push-up grilles that exceed the size limits for standard push-up construction listed above. Although possible to build, Clopay does not recommend push-up operation for units taller than 10 feet (3.05 m) high. Consult Clopay architectural design services for EZ lift limitations on galvanized and stainless steel grilles.

* + - 1. Manual Push-Up with EZ Lift Construction Package: Provide pole with hook.
			2. Manual Crank Hoist: Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

\*\* NOTE TO SPECIFIER \*\* Sensing edge is recommended with motor operated units. Grilles without bottom sensing edge shall be provided with controls that have a constant pressure on the "close" button. Delete if not desired.

* + 1. Sensing Edge:
			1. Provide an electric sensing edge device. Provide automatic control by an automatic sensing switch within neoprene or rubber astragal extending full width of grille bottom bar.

\*\* NOTE TO SPECIFIER \*\*Delete response not desired.

* + - 1. Response: Contact before grille fully closes shall cause grille to immediately stop downward travel and reverse direction to the fully opened position.
			2. Response: Contact before grille fully closes shall cause grille to immediately stop downward travel.

\*\* NOTE TO SPECIFIER \*\*Delete type not desired.

* + - 1. Type: Provide a self-monitoring wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator. Supervised system alters normal grille operation preventing damage, injury or death due to an inoperable sensing edge system.
			2. Type: Provide a wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator.
			3. Type: Provide an electric sensing edge device.

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

* + - * 1. Provide self-coiling cable connection to control circuit.
				2. Provide retracting safety cord and reel connection to control circuit.

\*\* NOTE TO SPECIFIER \*\* Most common control stations are listed below; consult Clopay commercial information assistance for other options. Grilles without bottom sensing edge shall be wired for constant pressure on the "close" button.

* + 1. Control Station:
			1. Motor Control Station: Flush mounted, "Open/Close" push buttons; NEMA 1B.
			2. Motor Control Station: Flush mounted, "Open/Close" key switch; NEMA 1B.
			3. Motor Control Station: Surface mounted, "Open/Close" push buttons; NEMA 1.
			4. Motor Control Station: Surface mounted, "Open/Close" key switch; NEMA 3R.
			5. Motor Control Station: Flush mounted, "Open/Close/Stop" push buttons; NEMA 1B.
			6. Motor Control Station: Flush mounted, "Open/Close" key switch with "Stop" push button; NEMA 1B.

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

* + 1. Motor Operators:

\*\* NOTE TO SPECIFIER \*\* Select model MG operators for units that will routinely cycle less than 20 times per day and require no more than 3/4 hp. Select SG operators for units that will cycle more than 20 times per day and for large size units that will require greater than 3/4 hp.

* + - 1. Motor Operator: Supply Clopay Model MG, industrial duty - rated for a maximum of 20 cycles per hour, cULus listed, Totally Enclosed Non Ventilated gear head operator(s) rated hp as recommended by grille manufacture for size and type of grille. Volts and Phase as available and scheduled.
				1. Provide complete with:

Electric motor and factory pre-wired motor control terminals.

Maintenance free solenoid actuated brake.

Control station(s).

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

Emergency manual chain hoist.

Operator shall be equipped with a disconnect cable for auxiliary push-up operation.

* + - * 1. Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the grille in any position.
				2. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.
				3. Operator drive and grille driven sprockets shall be provided with #50 roller chain.

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

* + - * 1. Provide an integral Motor Mounted Interlock system to prevent damage to grille and operator when mechanical grille locking devices are provided.
				2. Operator shall be capable of driving the grille at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the grille. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead grille wiring instructions.

\*\* NOTE TO SPECIFIER \*\* Following emergency egress system can be used with MG motor operators. Delete if not required.

* + - * 1. Emergency Egress System: Provide wall mounted manual release system pull handle to disengage motor operator and automatically open grille for emergency egress without the use of electrical power. Release of pull handle will reset grille to normal motor operation.
			1. Motor Operator: Supply Clopay Model SG, continuous duty, cULus listed, totally enclosed fan cooled gear head operator(s) rated hp as recommended by grille manufacture for size and type of grille. Volts and Phase as available and scheduled.
				1. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist provided up to 2 hp and control station(s).
				2. Motor shall be high starting torque, industrial type, with overload protection. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the grille in any position. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist.
				3. Operator drive and grille driven sprockets shall be provided with minimum #50 roller chain.
				4. Operator shall be capable of driving the grille at a speed of 8 to 9 inches per second (20 to 23 cm/sec). Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the grille. The motor shall be removable without affecting the limit switch settings. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead grille wiring instructions.
1. EXECUTION
	1. EXAMINATION
		1. Examine wall and overhead areas, including opening framing and blocking, with installer present, for compliance with requirements for installation tolerances, clearances, and other conditions affecting performance of Work in this Section.
		2. If preparation is the responsibility of another installer, notify Architect of deviations from manufacturer's recommended installation tolerances and conditions.
		3. Do not proceed with installation until substrates have been properly prepared and deviations are corrected.
		4. Commencement of installation constitutes acceptance of conditions.
	2. INSTALLATION
		1. General: Install unit and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

\*\* NOTE TO SPECIFIER \*\* Fire doors only. Delete if not required.

* + 1. Comply with NFPA 80 and follow manufacturer's installation instructions.

\*\* NOTE TO SPECIFIER \*\* Include NFPA 105 when labeled smoke protection is required. Smoke and fire doors. Delete if not required

* + 1. Comply with NFPA80 and NFPA 105 and follow manufacturer's installation instructions.
	1. ADJUSTING
		1. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

\*\* NOTE TO SPECIFIER \*\* Labeled doors only. Delete if not required.

* 1. FIELD QUALITY CONTROL
		1. Site Drop Test: Test units for normal operation and automatic closing. Coordinate with authorities having jurisdiction to witness test and sign Drop Test Form.
	2. DEMONSTRATION
		1. Demonstrate proper operation to Owner's Representative.
		2. Instruct Owner's Representative in maintenance procedures.
	3. CLEANING
		1. Clean surfaces soiled by work as recommended by manufacturer.
		2. Remove surplus materials and debris from the site.
	4. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION