



SECTION 08330

OVERHEAD COILING DOORS AND GRILLES

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Upward coiling industrial sheet doors.
- B. Upward coiling commercial slat doors.
- C. Upward coiling service doors.
- D. Upward coiling insulated Industrial sheet doors.
- E. Upward coiling insulated commercial slat doors.
- F. Upward coiling insulated service doors.
- G. Upward coiling Quiet Glide Grilles.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Metal supports and headers.
- B. Section 09900 - Painting: Field applied finish.
- C. Section 16050 - Basic Electrical Materials and Methods: Service and connection to operator. Empty raceway for remote control and safety equipment.

1.3 REFERENCES

- A. ASTM A 1018 - Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability.
- B. ASTM B 241 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
- C. ASTM B 597 - Standard Practice for Heat Treatment of Aluminum Alloys.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. [[Product Data](#)]: Manufacturer's specifications and technical data including the following.
 - 1. Detailed specification of construction and fabrication, gauge and type of

- metal; parts list; name, address, and phone number of installing distributor; and operating and maintenance instructions.
 - 2. Include electrical characteristics of components and voltage requirements provided by other, but required to operate assembly.
 - 3. Installation methods including size and location of mounting bolts.
 - 4. Brochure.
- C. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, anchorage methods, hardware, including specific requirements indicated.
- 1. Indicate location of motor operator.
 - 2. Height and width dimensions, and jamb conditions.
 - 3. Opening sizes.
 - 4. Details of slats.
 - 5. Track, jambs, and hardware.
- D. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns, if requested.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
- 1. Acceptable to or licensed by manufacturer
- B. Regulatory Requirements: UL listed motor, controls and equipment.
- C. Mock-Up: Provide a mock-up for evaluation of fabrication and application workmanship.
- 1. Preview display available at Porvene.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. 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.

1.8 WARRANTY

- A. Contractor has responsibility for an extended Corrective Period for work of this Section for the period stated from date of Substantial Completion against all the conditions indicated below, and when notified in writing from Owner.
- 1. 15 months (Series 200, 300).
 - 2. 24 months (Series 400, 500, 600).
- B. Contractor shall promptly and without inconvenience and cost to Owner correct said deficiencies through installing dealer.

1. Failure due to defective materials and workmanship.
 2. Failure due to design or installation performance to resist wind loading.
- C. Manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Porvene Doors, Inc.; 14241 Grant St., Moreno Valley, CA 92553. ASD. Tel: (877) 906-3999. Fax: (877) 343-6677. Email: porvene@porvenedoors.com. Web: www.porvenedoors.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 INDUSTRIAL COILING DOORS

- A. Series 200 Continuous Sheet Door as manufactured by Porvene Doors, Inc.
1. Sheet construction: 26 gauge galvanized steel roll formed in continuous corrugation.
 2. Operation: Hand chain operated or manual push-up depending on size.
 3. Operation: (Chain-Thru-Wall) shall be chain hoist operated through the wall.
 4. Operation: Motor operated.
 5. Mounting: Interior face mounted on a prepared opening.
 6. Mounting: Outside mount. Curtain can be ordered inverted curtain or assembled inside out for outside mounting.
 7. Vision panel: 22 inches (559 mm) by 7-1/2 inches (191 mm) vision cutout through curtain covered by clear Lexan polycarbonate.
 8. Vent: 14 inch (356 mm) by 6 inches (152 mm) vent hole through bottom of curtain covered by louvers and wire mesh.
 9. Sloped bottom bar: Bottom bar shall conform to slope in finished floor.
 10. Hoods: 24 gauge galvanized steel with baked epoxy primer and baked polyester topcoat to enclose coil.
- B. Model 211 Commercial Sheet Door:
1. Hand chain operation or manual pushup depending on size.
 2. "Nylofelt" sidestripping.
 3. Wind load: Door construction designed to satisfy wind load of 10 psf (0.48kpa) or 63 mph (101 kph). up to 12 feet by 14 feet (3658mm x 4267mm).
- C. Model 231 Industrial Sheet Door:
1. Hand chain operation.
 2. "Nylofelt", polypropylene, or tempered steel and rubber depending on size.
 3. Wind load: Door construction designed to satisfy wind load of 15 psf (0.72 kpa) or 77.5 mph (124.7 kph) up to 14 feet by 18 feet (4267 mm by 5486 mm).
- D. Model 232 Insulated:
1. Rating: Overall thermal efficiency rating of R = 5.24 (U = 0.191).
 2. Cast reduction gear chain operation.
 3. Side strip, top draft stop, and factory installed side draft stop combination.

4. Wind load: Door construction designed to satisfy wind load of 15 psf (0.72 kpa) or 77.5 mph (124.7 kph) up to 14 feet by 16 feet (4267 mm by 4877 mm).
- E. Model 233 Wind-Lock:
1. Cast reduction gear chain operation.
 2. Tempered steel banding and rubber side strip.
 3. Wind load: Door construction designed to satisfy wind load up to 60 psf (2.87kpa) or 155 mph (249.4 kph) up to 12 feet by 18 feet (3658 mm by 5486 mm).
- F. Model 234 Insulated Wind-Lock:
1. Overall thermal efficiency rating of $R = 5.24$ ($U = 0.191$).
 2. Cast reduction gear chain operation.
 3. Side strip, top draft stop, and factory installed side draft stop combination.
 4. Wind load: Door construction designed to satisfy wind load up to 60 psf (2.87 kpa) or 155 mph (249.4 kph) up to 12 feet by 16 feet (3658 mm by 4878 mm).
- G. Model 291 Mini / Self Storage:
1. Push-up only.
 2. PVC side strip seal.
 3. Wind load: N/A.
 4. Torque tube: Formed with 30 gauge galvanized steel sheet rolled around and attached to stamped galvanized steel drums to resist deflection to 0.03 inch per foot (2.5 mm/m) of door width.
 5. Support brackets of 18 gauge galvanized steel.
 6. Curtain mini-lock: 5/16 inch (8 mm) round steel slide bolts attached to curtain suitable for padlocking. Padlock not provided.
 7. Guides: Roll-formed 18 gauge galvanized steel channels.
- H. Materials:
1. Steel sheet: 26 gauge ASTM A653.
 2. Insulation: Aluminum foil Polyethylene bubble insulation with wear-resistant Polyester treatment, laminated to corrugated sheet.
- I. Fabrication:
1. Bottom bar: Curtain shall be reinforced with a bottom bar consisting of a continuous 13 gauge galvanized roll-formed sheet steel angle with E.P.D.M. blade astragal.
 2. Bottom bar: Curtain shall be reinforced with a bottom bar consisting of a 2 inches by 2 inches by 3/16 inch (51 mm by 51 mm by 5 mm) structural steel angle with E.P.D.M. blade astragal.
 3. Side stripping: P.V.C. shall be attached to curtain edges.
 4. Side stripping: "Nylofelt" shall be attached to curtain edges for doors under 14 feet (4267mm) wide. Doors 14 feet (4267mm) wide and over provided with tempered steel and rubber side stripping. Side stripping shall be attached to curtain edges.
 5. Side stripping: Tempered steel and rubber side stripping. Side stripping shall be attached to curtain edges.
 6. Weather seal:
 - a. Side draft stop: Closed cell Ethafoam attached to edge of curtain. (Factory installed).
 - b. Top draft stop: E.P.D.M. seal attached to top of curtain to seal against header. (Field installed).
 7. Drum shall be stamped from 18 gauge galvanized steel.
 8. Torque tube: Formed with 30 gauge galvanized steel sheet rolled around and attached to stamped galvanized steel drums to resist deflection to 0.03 inch

- per foot (2.5 mm/m) of door width.
9. Torque tube: Formed with 26 gauge galvanized steel sheet rolled around and attached to stamped galvanized steel drums to resist deflection to 0.03 inch per foot (2.5 mm/m) of door width.
 10. Torque tube: Formed with 26 gauge galvanized steel sheet for doors 20 feet (6096 mm) wide and smaller, otherwise 24 gauge, rolled around and attached to stamped galvanized steel drums.
 11. Springs shall be oil tempered, grease packed helical torsion type designed to cycle 12,500 times with an overload factor of 25 percent. Springs shall be mounted on a 1 5/16 inches (33 mm) black steel pipe of minimum Schedule 40.
 12. Support Brackets: 3/16 inch (5 mm) thick structural steel angles and a 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
 13. Guides: Roll-formed 16 gauge galvanized steel channels for doors up to 14 feet (4267mm) high.
 14. Guides: Roll-formed 13 gauge galvanized steel channels for up to 14 feet (4267mm) wide doors, 12 gauge galvanized steel channels otherwise.
 15. Guides: Roll-formed 12 gauge galvanized steel channels.
 16. Wind lock guides: Roll-formed 12 gauge galvanized steel channels with welded 13 gauge Wind-Lock 105 degree insert. Wind lock of 10 gauge galvanized Wind-Lock 75 degree clips riveted to door curtain edge.
 17. Wicket Door: 3 feet by 6 feet 8 inches (914mm by 2032mm).
 - a. Frame: 2 inches (51 mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Guide: Formed with 13 gauge galvanized steel channels for up to 14 feet 0 inch (4267mm) wide sheet doors, 12 gauge galvanized steel channels otherwise.
 - d. Transom Panel:
 - 1) 18 gauge galvanized steel
 - e. Locking:
 - 1) Pedestrian door shall be key lock on exterior. Option of standard interconnected deadbolt with interchangeable core or panic hardware.
 - 2) Wicket frame lock shall be 1/2 inch (13 mm) diameter steel cane bolt.
 18. 295 Roll-A-Way Mullion: Designed to roll aside and provide a clear opening. Mullion to roll on track assembly and floor caster wheel. Mullion lock shall be 1/2 inch (13 mm) diameter steel cane bolts inserted to header bracket and steel base plate. Mullion to engage onto tongue tube insert on mounting plate assembly.

J. Finish:

1. Finished with baked epoxy primer and baked polyester topcoat.
2. Un-galvanized surfaces: Shop coated with rust reducing black prime paint.

K. Operation:

1. Rope pull of 5/16 inch (8 mm) polyester rope attached to bottom angle up to 10 feet by 10 feet (3048 mm by 3048 mm) doors.
2. Chain hoist of cast iron pocket wheel drive with machine link hand chain for 10 feet by 10 feet (3048 mm by 3048 mm) and larger doors.
3. Reduced gear chain hoist: Cast iron pocket wheel gear-reduced drive with machine link hand chain.
4. Jackshaft operator: Motor with manual machine link hand chain.

- L. Locks:
 - 1. Hand Chain Lock: Bracket shall be mounted on wall for chain operated doors.
 - 2. Curtain Lock:
 - a. Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock not included.
 - b. Cylinder Lock. Use electric interlock switches with motorized doors.

2.3 COMMERCIAL SLAT COILING DOORS

- A. Series 300 as manufactured by Porvene Doors, Inc.
 - 1. Mounting: Interior face mounted on a prepared opening.
 - 2. Mounting: Outside mount. Curtain can be ordered curve slat for exterior mounting.
 - 3. Flat Slat: 22 or 24 gauge Flat shaped cold roll formed in continuous lengths of 2 3/8 inch (60.3mm) by 3/4 inch (19mm) galvanized steel. Galvanized according to A.S.T.M. A653 and finished with baked epoxy primer and baked polyester topcoat.
 - 4. Curved Slat: 22 or 24 gauge Curved shaped cold roll formed in continuous lengths of 2 13/16 inches (71.4mm) by 3/4 inch (19mm) galvanized steel. Galvanized according to A.S.T.M. A653 and finished with baked epoxy primer and baked polyester topcoat.
 - 5. Wind load: Door construction designed to satisfy wind load of 20 psf (0.96 kpa) or 87 mph (140 kph). Doors over 16 feet wide offer no wind load ratings.
 - 6. Operation:
 - a. Chain hoist operation using gear reduction.
 - b. Electric motor.
 - 7. Weather Seal: Vinyl or brush clip-on weather stripping to clip onto guide channel and seal against outside of slat on doors under 14 feet by 14 feet (4267 mm by 4267 mm), otherwise jamb-mounted.
 - 8. Top Draft Stop: E.P.D.M. seal riveted to curtain to seal against header. (Field installed).
 - 9. Sloped bottom bar: bottom bar shall conform to slope in finished floor. As indicated on drawings.
 - 10. Hoods: 24 gauge galvanized steel with baked epoxy primer and baked polyester topcoat to enclose coil.
 - 11. Vents: Flat slats to have vent cutouts 5 inches (127mm) wide by 7/8 inch (22 mm) high. Spaced typically 3 inches (76 mm) apart.
 - 12. Vision Lites: Flat slats to have vent cutouts 5 inches (127mm) wide by 7/8 inch (22 mm) high. Spaced typically 3 inches (76 mm) apart and covered with clear Lexan polycarbonate.
- B. Fabrication:
 - 1. Endlocks: Each end of alternate slats shall be fitted with stamped galvanized steel endlocks or composite endlocks to provide a wearing surface in the guides and to maintain slat alignment. Windlocks are required for 13 foot doors or wider to satisfy specified wind load of 20 psf. Fastened with 1/4 inch rivets.
 - 2. Bottom bar: Curtain shall be reinforced with a bottom bar consisting of a 2 inches by 2 inches by 3/16 inch (51 mm by 50.8mm by 4.75mm) structural steel angle with E.P.D.M. blade astragal.
 - 3. Drum shall be stamped from 18 gauge galvanized steel. Drum end bearings shall be self-lubricating ball bearings.
 - 4. Torque Tube: Formed with 24 gauge galvanized steel sheet for doors over 12 feet 3658 mm) wide, otherwise 26 gauge, rolled around and fastened to stamped galvanized steel drums to resist deflection to 0.03 inch/ft (2.5mm/m) of door width.

5. Springs shall be oil tempered, grease packed helical torsion type designed to cycle 12,500 times with an overload factor of 25 percent. Springs are shall be mounted on a 1 5/16 inches (33 mm) black steel pipe of minimum Schedule 40.
6. Support brackets: 3/16 inch (5 mm) thick structural steel angles and a 1/4 inch (6 mm) thick steel diagonal brace welded in a triangular form to support ends of drum assembly.
7. Guides: Roll formed 13 gauge galvanized steel channels. 12 gauge guides on doors requiring wind locks.
8. Guide wall angles: 1/8 inch (3.18mm) thick structural steel angles.
9. Wicket door: 3 feet 0 inch by 6 feet 8 inches (914 mm by 2032 mm) minimum.
 - a. Frame: 2 inches (50.8mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Guides: 13 gauge galvanized steel channels.
 - d. Transom Panel:
 - 1) 18 gauge galvanized steel
 - e. Locking:
 - 1) Pedestrian door shall be key lock on exterior. Option of standard interconnected deadbolt with interchangeable core or panic hardware.
 - 2) Wicket frame shall be 1/2 inch (13 mm) diameter steel cane bolt.
10. Pass Door: 3 feet 0 inch by 6 feet 8 inches (914mm by 2032mm) minimum.
 - a. Frame: 2 inches (51mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Guides: 1/8 inch (3 mm) thick steel channels.
 - d. Locking:
 - 1) Swing frame lock shall be 1/2 inch (13 mm) diameter steel cane bolt.
 - 2) Pedestrian door shall be key lock on exterior. Option of standard interconnected deadbolt with interchangeable core or panic hardware.

C. Finish:

1. Finished with baked epoxy primer and baked polyester topcoat.
2. Ungalvanized surfaces shop coated with rust reducing black prime paint.
3. Option to Powder coat

D. Operation:

1. Chain hoist: Cast iron reduction gear for doors up to 14 feet by 14 feet, otherwise roller chain reduction. Pull not to exceed 35 lb (156N).
2. Chain Thru Wall shall be chain hoist operated through the wall.
3. Electric operator: Electric motor with emergency manual machine link hand chain depending on model.

E. Locks:

1. Hand chain lock: Bracket, shall be mounted on guide angle or wall for chain operated doors.
2. Curtain lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock not included.

2.4 SERVICE COILING DOORS

A. Series 400 as manufactured by Porvene Doors, Inc

1. Mounting: Interior face mounted on a prepared opening.
2. Mounting: Outside mount. Curtain can be assembled inverted upside down for

- outside mounting.
 - 3. Mounting: Between jamb mounted on a prepared opening
 - 4. Wind load: Door construction designed to satisfy wind load of 20 psf (0.96 kpa) or 87 mph (140 kph). Consult factory for available sizes and corresponding wind loads.
 - 5. Flat Slat: Slats shall be flat shaped cold roll-formed in continuous lengths of 2-1/8 inches (54 mm) by 3/4 inch (19 mm) galvanized steel. Galvanized according to A.S.T.M. A653 and finished with baked epoxy primer and baked polyester topcoat.
 - 6. Curved Slat: Curved shape cold roll formed in continuous lengths of 2 13/16 inch (71 mm) by 3/4 inch (19 mm) galvanized steel. Galvanized according to A.S.T.M. A653 and finished with baked epoxy primer and baked polyester topcoat.
- B. Series 400:
- 1. Slat construction: 24, 22, 20, or 18 gauge galvanized steel cold roll-formed in continuous lengths. (18 Gauge Curved Slat Only)
 - 2. Vents: Flat slats to have vent cutouts 5 inches wide by 7/8 inch high. Spaced typically 3 inches apart.
 - 3. Vision Lites: Flat slats to have vent cutouts 5 inches wide by 7/8 inch high. Spaced typically 3 inches apart and covered with clear Lexan polycarbonate.
 - 4. Operation:
 - a. Chain hoist operation using roller chain gear reduction.
 - b. Between-jamb chain hoist.
 - c. Thru-the-wall chain hoist.
 - d. Electric motor.
 - e. Awning crank
- C. Materials:
- 1. Steel Sheet: ASTM A653
 - 2. Insulation: 3/4 inch Tufcote Polyethurethane foam strips adhered to back of flat slat. R = 3.0, (U = 0.333).
- D. Fabrication:
- 1. Endlocks: Each end of alternate slats shall be fitted with endlocks to provide a wearing surface in the guides and to maintain slat alignment. Fastened with 1/4 inch rivets.
 - a. Stamped End-locks: Stamped end-locks shall be fitted onto every other slat.
 - b. Malleable Iron End-locks: Malleable or "cast" iron end-locks shall be fitted onto every other slat.
 - 2. Stamped Wind-Locks: Stamped wind-locks shall be fitted into every 4th slat.
 - 3. Malleable Iron Wind-Locks: Malleable or "cast" iron wind-locks shall be fitted onto every other slat.
 - 4. Bottom Bar: Curtain shall be reinforced with a bottom bar consisting of two 2 inch by 2 inch by 1/8 inch (50.8 mm by 50.8mm by 3.21 mm) structural steel angle with P.V.C. bulb astragal.
 - a. Sloped bottom bar shall conform to slope in finished floor.
 - 5. Barrel shall be a steel pipe of diameter and wall thickness to restrict maximum deflection to 0.03 inch per foot (2.5mm/m) of door width. End bearings shall be self-lubricating ball bearings or oil impregnated bronze bushings.
 - 6. Springs shall be oil tempered, grease packed helical torsion type designed with an overload factor of 25 percent. Springs mounted on a cold rolled steel inner shaft
 - a. 20,000 Cycle Springs: spring design is to last at least 20,000 cycles.
 - b. 50,000 Cycle Springs: spring design is to last at least 50,000 cycles.

- c. 100,000 Cycle Springs: spring design is to last at least 100,000 cycles.
 - 7. Bracket Plates: 1/4 inch (6 mm) minimum thickness steel plates to sustain and enclose ends of door assembly.
 - 8. Drive end bracket plate: Fitted with a self-aligning sealed ball bearing.
 - 9. Guides shall be structural steel angles 3/16 inch (4.76 mm) minimum thickness with removable head stops.
 - a. Provide weather seal clip-on vinyl or brush weather stripping to seal against slat.
 - 10. Guide wall angles: 3/16 inch (4.76 mm) minimum thickness structural steel angles.
 - 11. Hoods shall be 24 gauge galvanized steel with baked epoxy primer and baked polyester top coat.
 - a. Hood baffle shall be 8 (203 mm) inches P.V.C. baffle riveted inside of hood.
 - 12. Hood reinforcing: shall be 1/4 inch (6 mm) thick steel brackets for supporting hoods on doors over 16 feet-0 inches (4877mm) wide.
 - 13. Wicket door: 3 feet 0 inch by 6 feet 8 inches (914 mm by 2032 mm) minimum.
 - a. Frame: 2 inches (50.8mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Wicket Door Guide: shall be roll formed 1/8 inch (3 mm) steel channel
 - d. Transom Panel:
 - 1) 18 gauge galvanized steel
 - e. Locking:
 - 1) Pedestrian door shall be key lock on exterior. Option of standard interconnected deadbolt with interchangeable core or panic hardware.
 - 2) Wicket frame shall be 1/2 inch (13 mm) diameter steel cane bolt.
 - 14. Pass Door: 3 feet 0 inches by 6 feet 8 inches (914mm by 2032mm) minimum.
 - a. Frame: 2 inches (51 mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Guides: 1/8 inch (3 mm) thick steel channels shall be roll formed 1/8 inch (3 mm) steel channels.
 - d. Locking:
 - 1) Frame lock shall be 1/2 inch (13 mm) diameter steel cane bolt.
 - 2) Pedestrian door shall be key lock on exterior door handle. Interconnected deadbolt with interchangeable core or Panic Hardware.
- E. Finish:
- 1. Standard Baked-On Finish: Baked epoxy primer and baked polyester topcoat.
 - 2. Powder Coat Finish: Powder coating in manufacturer's standard color as selected.
 - 3. Ungalvanized Surfaces: Shop coated with rust reducing black prime paint.
- F. Operation:
- 1. Chain hoist: shall be roller chain gear reduction. Pull not to exceed 35 lb (156 N).
 - 2. Thru Wall chain shall be chain hoist operated through the wall for doors up to 16 feet by 14 feet (4877 mm by 4267 mm).
 - 3. Electric operator: Electric motor with emergency manual release and with manual machine link hand chain depending on model.
- G. Locks:

1. Hand chain lock: Bracket, shall be mounted on guide angle or wall for chain operated doors.
2. Curtain lock: Optional hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock not included.

2.5 INSULATED COILING DOOR

- A. Model 622/24 Therm Master /Rolling Steel Backed Insulated Door:
 1. Wind load: Door construction designed to satisfy wind load of 20 psf (0.96 kpa) or 87 mph (140 kph).
 2. Slats: cold roll formed in continuous lengths of 22 GA. (front) and 24 GA. (back) galvanized steel, unless other front slat gage selected.
 3. Mounting: Interior, exterior face mount or between jamb on a prepared opening.
 4. Operation:
 - a. Chain hoist operation using roller chain gear reduction.
 - b. Electric motor.
- B. Materials:
 1. Steel Sheet: ASTM A653.
 2. Insulation: Polyisocyanurate. Aluminum facer on both sides of insulation. Effective thermal insulating value shall be $R = 5.4$, $U = 0.185$.
- C. Fabrication:
 1. End locks: Each end of alternate slats shall be fitted with end locks to provide a wearing surface in the guides and to maintain slat alignment. Fastened with 1/4 inch rivets.
 2. Bottom bar: Curtain shall be reinforced with a bottom bar consisting of two 2 inch by 2 inch by 1/8 inch (51 mm by 51 mm by 3.18 mm) structural steel angle with P.V.C. bulb astragal.
 3. Barrel: Steel pipe of diameter and wall thickness to restrict maximum deflection to 0.03 inch per foot (2.5 mm/m) of door width.
 4. Springs: Oil tempered, grease packed helical torsion type designed to cycle 20,000 times with an overload factor of 25 percent. Springs are mounted on a cold rolled steel inner shaft and have cycle life of:
 - a. Cycle 20,000 spring life.
 - b. High cycle 50,000 spring life.
 - c. High cycle 100,000 spring life.
 5. End Bearings: Self-lubricating ball bearings or oil impregnated bronze bushings.
 6. Bracket Plates: 1/4 inch (6 mm) minimum thickness steel plates to sustain and enclose ends of door assembly.
 7. Drive End Bracket Plate: Fitted with a self-aligning sealed ball bearing.
 8. Guides: Structural steel angles 3/16 inch (5 mm) minimum thickness with removable head stops.
 9. Guide wall angles: 3/16 inch (5 mm) minimum thickness structural steel angles.
 10. Guide weather seal: Non-coil side shall receive vinyl weather seal.
 11. Hoods: 24 gauge galvanized steel with baked epoxy primer and baked polyester topcoat to enclose coil. 8 inches (203 mm) P.V.C. baffle shall be riveted inside of hood.
 12. Hood Support Bracket: 1/4 inch (6 mm) thick steel brackets for strengthening hoods on doors over 16 feet 0 inch (4877 mm) wide.
 13. Wicket door: 3 feet 0 inch by 6 feet 8 inches (914 mm by 2032 mm) minimum.
 - a. Frame: 2 inches (50.8mm) welded structural steel tubing.

- b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Wicket Door Guide: shall be roll formed 1/8 inch (3 mm) steel channel
 - d. Transom Panel:
 - 1) 18 gauge galvanized steel
 - e. Locking:
 - 1) Pedestrian door shall be key lock on exterior. Option of standard interconnected deadbolt with interchangeable core or panic hardware.
 - 2) Wicket frame shall be 1/2 inch (13 mm) diameter steel cane bolt
14. Pass Door: 3 feet 0 inch by 6 feet 8 inches (914mm by 2032mm) minimum.
- a. Frame: 2 inches (51 mm) welded structural steel tubing.
 - b. Threshold: 1/4 inch (6 mm) thick flat steel bar maximum. ADA compliant.
 - c. Frame: shall be mounted onto 3-piece structural steel guides.
 - d. Guides: shall be roll formed 10 gauge galvanized steel channels.
 - e. Locking:
 - 1) Hand chain lock: Chain keeper mounted on wall for chain operated doors.
 - 2) Curtain lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking Padlock not included.
 - 3) Pedestrian Door: Key lock on exterior door handle.
 - a) Standard latch.
 - b) Interconnected deadbolt with interchangeable cylinder or panic hardware.
 - 4) Swing frame lock 1/2 inch (13 mm) diameter steel cane bolt.

D. Finish:

- 1. Finished Mohegan white with baked epoxy primer and baked polyester topcoat.
- 2. Un-galvanized Surfaces: shall be shop coated with rust reducing black prime paint.
- 3. Powder coating.

E. Operation:

- 1. Electric motor.
- 2. Roller chain gear reduction. Hand Chain: shall be galvanized machine link. Pull not to exceed 35 lb (156 N).

F. Locks:

- 1. Hand chain lock: Bracket, shall be mounted on wall for chain operated doors.
- 2. Curtain lock: Hardened galvanized steel slide bolts attached to bottom angle suitable for padlocking. Padlock not included.
- 3. (Axford) Guide-mounted locks.

2.6 COILING GRILLES

A. Series 500 Rolling Grille Doors as manufactured by Porvene Doors, Inc.

- 1. Mounting:
 - a. Interior or exterior face mounted on a prepared opening.
 - b. Between jamb on a prepared opening
- 2. Operation:
 - a. Chain hoist. Galvanized machine link. Pull not to exceed 35 lb (156 N).
 - b. Awning crank up to 16 feet by 10 feet (4877 mm by 3048 mm).
 - c. Thru-wall chain hoist up to 16 feet by 14 feet (4877 mm by 4267 mm).
 - d. Motor operated.

- e. Manual Push-up 10 feet by 10 feet (3048 mm by 3048 mm) maximum. Curtain shall be free to raise and lower manually. Aluminum hook included to reach door in tall openings.
- B. Materials:
- 1. Guide support:
 - a. 3/16 inch (5mm) minimum thickness structural steel angles
 - b. Structural steel tubes: 3 inch by 3 inch (76 mm by 76 mm), 4 inch by 4 inch (102 mm by 102 mm) drilled and tapped
 - 2. Curtain rods: ASTM A1018 cold rolled 1/4 inch (6 mm) steel rods.
 - 3. Curtain rods: Stainless steel optional.
 - 4. Curtain: Aluminum plate and tubes. Aluminum complying with ASTM B 241. Heat treated after fabrication to comply with ASTM B 597 - Temper T5.
- C. Fabrication:
- 1. Grille curtain: 1/4 inch (6 mm) horizontal steel rods spaced 2 inch (51 mm) on center covered with seamless aluminum spacer tubes. Connected by aluminum vertical links spaced 9 inches (229 mm) apart.
 - 2. End links: Designed to retain curtain in guides.
 - 3. Bottom Bar: Curtain shall be reinforced with extruded Aluminum hollow or semi-hollow shape with anti-wear Nylon end-blocks for quiet operation.
 - 4. Counterbalance: Housed in a steel pipe of diameter and wall thickness to restrict maximum deflection to 0.03 inch per foot (2.5 mm/m) of door width.
 - 5. Springs: Helical torsion type with an overload factor of 25 percent. Springs shall be mounted on a cold rolled steel inner shaft.
 - a. 12,500 Cycle Springs: Spring design is to last at least 12,500 cycles.
 - b. 50,000 Cycle Springs: Spring design is to last at least 50,000 cycles.
 - c. 100,000 Cycle Springs: Spring design is to last at least 100,000 cycles.
 - 6. Spring Tensions: Adjustable spring tension wheel accessible from outside of end bracket plate.
 - 7. Bracket Plates shall support and enclose ends of barrel assembly and shall be no less than 1/4 inch (6 mm) thick.
 - 8. Drive end bracket plate shall be fitted with a self-aligning sealed bearing.
 - 9. Guide support: Structural steel tubes 3 inches (76 mm) by 3 inches (76 mm) or 4 inches (102 mm) by 4 inches (102 mm).
 - 10. Guides: Extruded Aluminum semi-hollow shape fitted with a polyethylene insert for sound suppression and ease of operation.
 - 11. Guide wall angles: 3/16 inch (5 mm) minimum thickness structural steel angles.
 - 12. Hoods (optional): 24 gauge galvanized steel with baked epoxy primer and baked polyester top coat. Quarter inch (6 mm) thick steel brackets for strengthening hoods on doors over 16 feet 0 inch (4877mm) wide.
- D. Finish:
- 1. Aluminum finish: Clear Anodize standard on curtain, bottom bar and guides except mill finished curtain links.
 - 2. Aluminum finish: Color Anodized curtain, bottom bar and guides.
 - a. Gold.
 - b. Dark Bronze.
 - c. Light Bronze.
 - d. Black.
 - 3. Ungalvanized Surface: To consist of a shop coat of rust inhibiting metallic primer on exposed ferrous surfaces.
- E. Locks:
- 1. Cylinder Lock: Designed for maximum security and safety. A keyed cylinder

outside and thumb turn inside, protected by screened security columns. Choice of dual side or single center locks. Use electric interlock sensors for motor operated doors.

2. Hand Chain Lock: Lockable chain keeper, mounted on wall for chain hoist operated doors.
3. Slide bolts attached to bottom bar suitable for padlocking. Padlock not included.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings have been properly prepared. Verify electrical service size and wiring is complete.
- B. Verify clearance for operator and jamb width prior to fabrication of doors.
- C. Verify empty race way for controls and safety equipment is completed.
- D. If opening preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install doors plumb, true, and square in a rigid manner.
- C. Install related conduits and electrical/control wiring for complete installation for power source indicated.
 1. Adjust hardware and automatic closing equipment.
 2. Verify and coordinate terminal requirements with electrical.

END OF SECTION