RAYNOR - FireCoil
SECTION 08 33 23 - ROLLING FIRE DOORS

"Specifier Notes" may be hidden or shown by using "Tools"/"Options"/"View"/"Hidden Text".

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Rolling Fire Doors.

B. Electric Operators

1.2 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications.

B. Section 06 10 00 - Rough Carpentry. Door opening jamb and head members

C. Section 08 71 53 - Security Door Hardware.

D. Section 09 90 00 - Painting and Coating.

E. Section 11 12 00 - Parking Control Equipment.

F. Section 26 05 00 - Common Work Results for Electrical.

G. Section 26 05 33 - Conduit for Electrical Systems (Conduit from fire alarm system)

H. Section 284600 - Fire Detection and Alarm

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM) A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. American Society for Testing and Materials (ASTM) A 240 Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, Strips.

C. ANSI/DASMA 105 - American National Standard Institute Test Method for Thermal Transmittance and Air Infiltration of Garage Doors

D. ANSI/DASMA 204 - American National Standards Institute Specifications for fire rated rolling doors published by Door & Access Systems Manufacturers Association International.

E. ASTM A 123 – Standard Specification for Zinc (hot-dipped galvanized) coatings on iron and steel products.

F. ASTM A 229 - Steel wire, oil-tempered for mechanical springs.

G. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-

Coated by the Hot-Dip Process.

H. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

I. NFPA-80 – Standard for Fire Doors and Fire Windows

J. UL 10B - Fire Tests of Fire Door Assemblies

K. NFPA 252 - Fire Tests of Fire Door Assemblies

L. BS 476 - Fire Tests on Building Materials and Structures

M. ISO 3008 - Fire Resistance Tests - Door and Shutter Assemblies

N. CAN4 S-104-M80 - Canadian National Standard for Fire Doors

O. FM 4100 - Factory Mutual Research Corporation - Fire Door Assemblies

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. 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.

C. Shop Drawings:
1. Provide drawings indicating guide details, head and jamb conditions, anchorage, accessories, finish colors, patterns and textures, operator mounts and other related information.
2. Regulatory Requirements and Approvals: Provide shop drawings in compliance with local Authority Having Jurisdiction (AHJ).

D. Certifications:
1. Submit manufacturer's certificate that products meet or exceed specified requirements.
2. Submit installer qualifications.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Utilize an authorized installer of door manufacturer who has demonstrated experience on projects of similar size and complexity.

B. Manufacturer Qualifications: Company with a minimum of five-year experience in producing the specified type of doors.

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. Raynor warrants the door and its component parts for one (1) year against defects in material and workmanship.

B. Raynor warrants the electrical operator and its component parts for two (2) years against defects in material and workmanship.

C. Raynor warrants the electrical operator and its component parts for three (3) years against defects in material and workmanship, on the operator only, when purchased with any model of Raynor rolling service door.

D. Raynor warrants ArmorBrite™ powder coat finish against cracking or peeling for three (3) years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Raynor, which is located at: 1101 East River Rd. P. O. Box 448 ; Dixon, IL 61021-0448; Toll Free Tel: 800-4-RAYNOR; Tel: 815-288-1431; Fax: 888-598-4790; Email: architectsupport@raynor.com; Web: www.raynor.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 ROLLING FIRE DOORS

A. FireCoil as manufactured by Raynor Garage Doors:
   1. Doors:
      a. Operation:
         1) Provide doors designed for push-up operation.
         2) Provide doors designed for hand chain operation.
         3) Provide doors designed for hand crank operation.
         4) Provide doors designed for electric motor operation.
      b. Fire Resistance Rating:
         1) 3-hour rating, listed by Factory Mutual (FM).
         2) 1 1/2-hour rating, listed by Factory Mutual (FM).
         3) 3/4-hour rating, listed by Factory Mutual (FM).

4) 4-hour rating, listed by Underwriters Laboratories (UL).
5) 1 1/2-hour rating, listed by Underwriters Laboratories (UL).
6) 3/4-hour rating, listed by Underwriters Laboratories (UL).
7) 4-hour rating, approved by California State Fire Marshal (CSFM).
8) 1 1/2-hour rating, approved by California State Fire Marshal (CSFM).
9) 3/4-hour rating, approved by California State Fire Marshal (CSFM).
10) 4-hour rating, approved by City of New York Material and Equipment Acceptance (MEA).
11) 1 1/2-hour rating, approved by City of New York Material and Equipment Acceptance (MEA).
12) 3/4-hour rating, approved by City of New York Material and Equipment Acceptance (MEA).
13) 4-hour rating, listed by International Standards Organization (ISO 3008).
14) 4-hour rating, listed by British Standards (BS476).

c. Smoke Control Label: Provide door with a type “S” label, air leakage rating not greater than 3.0 CFM per Sq. Ft.

2. Curtain: Interlocking roll-formed slats as specified below. Endlocks shall be attached to each of alternate slat to prevent lateral movement.
   a. Slat Type(s):
      1) Flat slats
         a) Steel 18 gauge (0.047 inch minimum thickness).
         b) Steel 20 gauge (0.036 inch minimum thickness).
         c) Steel 22 gauge (0.030 inch minimum thickness).
         d) Stainless steel 20 gauge (0.036 inch minimum thickness).
         e) Stainless steel 22 gauge (0.030 inch minimum thickness).
         f) Light-duty 24 gauge steel (0.023 inch minimum thickness).
      2) Large curved slats
         a) Steel 18 gauge (0.047 inch minimum thickness).
         b) Steel 20 gauge (0.036 inch minimum thickness).
         c) Steel 22 gauge (0.030 inch minimum thickness).
      3) Small curved slats
         a) Steel 20 gauge (0.036 inch minimum thickness).
         b) Steel 22 gauge (0.030 inch minimum thickness).
      4) Insulated flat slats with 24 gauge backer
         a) Steel 18 gauge (0.047 inch minimum thickness)
         b) Steel 20 gauge (0.036 inch minimum thickness)
         c) Steel 22 gauge (0.030 inch minimum thickness)
         d) Steel 24 gauge (0.023 inch minimum thickness).
         a) Insulation: Mineral wool with R-value 4.0 and U-value 0.250.
   b. Material:
      1) Commercial quality hot-dipped galvanized (G-90) steel in accordance with ASTM A-653.
      2) Stainless steel in accordance with ASTM A-240, type 304.
   c. Color and Finish:
      1) One finish coat of gray polyester paint applied over one coat of primer.
      2) One finish coat of tan polyester paint applied over one coat of primer.
      3) One finish coat of white polyester paint applied over one coat of primer.
      4) Galvanized finish.
      5) Stainless steel #4 finish.
      6) ArmorBrite Powdercoat finish.
         a) Color: _____.
3. Endlocks: Zinc-plated malleable cast iron endlocks fastened with two zinc-plated steel

rivets.

4. Bottom Bar: Two structural angles, minimum 2 inches by 2 inches by 3/16 inch (50.8 mm x 50.8 mm x 4.8 mm).
   a. Material and finish:
      1) Structural steel angle bottom bar to receive one coat of black rust-inhibitive primer.
      2) Structural stainless steel angles mill finish.
      3) Structural steel angle bottom bar to receive one coat of ArmorBrite Powdercoat finish.
         a) Color: _____.
5. Guide Assemblies: Three structural angles, minimum 3 inches by 2 inches by 3/16 inch (76 mm by 50.8 mm by 4.8 mm) and fitted with removable curtain stops.
   a. Material and Finish:
      1) Structural steel to receive one coat of black rust-inhibitive primer.
      2) Structural steel to receive one coat of hot-dipped galvanized.
      3) Structural stainless steel with a mill finish.
      4) Structural steel to receive ArmorBrite Powdercoat finish.
         a) Color: _____.
6. Guide Smoke Seals: Seals to inhibit smoke infiltration between the guide and the curtain.
      1) Brush seal with an aluminum retainer attached to the guide assembly.
7. Counterbalance:
   a. Barrel: Minimum 4-1/2 inches (114.3 mm) O.D. and 0.120 inch (3.1 m) wall thickness structural steel pipe. Deflection of pipe under full load shall not exceed 0.03 inch (0.8 mm) per foot of span.
   b. Counterbalance: Provide counterbalance mechanism with helical torsion springs, grease packed and mounted on a continuous steel torsion shaft.
      1) Standard 10,000 cycles.
      2) High _____ cycles.
8. Brackets: 3/16 inch (4.8 mm), minimum, steel plate, attached to wall angle of guide assembly with 1/2 inch (12.7 mm) diameter Grade 5 bolts. Inside of drive bracket fitted with sealed ball bearing.
   a. Finish:
      1) Provide brackets with one coat of rust-inhibitive primer.
      2) Provide brackets with one coat of hot-dipped galvanized.
      3) Provide brackets with one coat of ArmorBrite Powdercoat finish.
         a) Color: _____.
9. Enclosures:
   a. Hood Type:
      1) Round Hood.
      2) Square Hood.
   b. Bracket Covers: Covers to enclose door mechanisms as required.
   c. Material:
      1) 24 gauge steel (0.022 inch minimum thickness) commercial quality hot-dipped galvanized steel in accordance with ASTM A-653.
      2) 24 gauge stainless steel (0.024 inch minimum thickness) in accordance with ASTM A-240, type 304.
   d. Color and Finish:
      1) Gray polyester paint to match curtain finish.
      2) Tan polyester paint to match curtain finish.
      3) White polyester paint to match curtain finish.
      4) Galvanized to match curtain finish.

5) Stainless steel #4 finish.
6) ArmorBrite Powdercoat finish.
a) Color: _____.

e. Flame Baffle: Provide flame baffle to comply with listing agency.

10. Automatic Closing Device: Automatic closing of rolling fire door under a fire condition to be initiated by the following:
a. Fusible links.
b. Electro-Thermal-Manual links (ETM) with junction box.
c. Electro-Thermal-Manual links (ETM) without junction box.
d. Solid State Release Device Units LM21 Model XP.
e. Solid State Release Device Units LM21 Model XPBB.
f. Solid State Release Device Units LM21 Model AFCB.
11. Detection Type: Smoke detector used in conjunction with the automatic closing device type to initiate the automatic closing of a rolling fire door shall be the following:
a. Photoelectronic with heat sensor detector.
12. Header Smoke seal: Provide a “Z” shape brush seal to inhibit smoke infiltration between the header and the curtain.
13. Locks: Furnish door system with the following:
a. Locking Bar: For push-up doors and doors operated with hand chain or hand crank, to receive padlock provided by Owner.
b. Locking Bar for Motor Operated Doors: Provide interlock switch with locking bar.
c. Hand Chain Lock: To receive padlock provided by Owner; for doors operated with hand chain.
d. Cylinder Lock: For push-up doors and doors operated with hand chain and hand crank operated doors.
e. Cylinder Lock for Motor Operated Doors: Provide interlock switch with cylinder lock.

2.3 ELECTRIC OPERATORS

A. FireHoist as provided by Raynor Garage Doors:
1. Model:
a. Raynor FSEP model:
1) Type: Jackshaft with automatic closure by fusible link, detector or fire alarm system. Allows automatic closing without loss of door spring tension thus allowing for ease of resetting of door after testing or alarm. Operates as a standard rolling door operator when not in a fire situation.
2) Motor Horsepower Rating: Per the manufacturer’s recommended size for door.
3) Motor Horsepower Rating: Continuous 1/3 HP.
4) Motor Horsepower Rating: Continuous 1/2 HP.
5) Motor Horsepower Rating: Continuous 3/4 HP.
6) Motor Horsepower Rating: Continuous 1-1/2 HP.
7) Motor Horsepower Rating: Continuous 2 HP.
8) Electrical Requirements: 115 volt single phase.
9) Electrical Requirements: 230 volt single phase.
10) Electrical Requirements: 208-230 volt three phase.
11) Electrical Requirements: 460 volt three phase.
12) Duty Cycle: Restricted duty cycles.
13) Control Wiring: 24 volt control with provisions for connection of a monitored reversing device.

a) Provide three button momentary contact "open-stop", constant pressure close, with provisions for momentary pressure to close.
b) Monitored electric reversing edge on door.
c) Monitored photo electric eyes mounted on jambs.

b. Raynor FGH model:
1) Type: Jackshaft with automatic closure by fusible link. Allows automatic closing without loss of door spring tension thus allowing for “Easy-Reset” of door after testing.
2) Motor Horsepower Rating: Per the manufacturer’s recommended size for door.
3) Motor Horsepower Rating: Continuous 1/2 HP.
4) Motor Horsepower Rating: Continuous 1 HP.
5) Motor Horsepower Rating: Continuous 1-1/2 HP.
6) Motor Horsepower Rating: Continuous 2 HP.
7) Motor Horsepower Rating: Continuous 3 HP.
8) Electrical Requirements: 115 volt single phase.
9) Electrical Requirements: 230 volt single phase.
10) Electrical Requirements: 208-230 volt three phase.
11) Electrical Requirements: 460 volt three phase.
12) Electrical Requirements: 575 volt three phase.
13) Duty Cycle: Restricted duty cycles.
14) Control Wiring: 24 volt control with provisions for connection of a monitored reversing device.
a) Provide three button momentary contact "open-stop", constant pressure close, with provisions for momentary pressure to close.
b) Monitored electric reversing edge on door.
c) Monitored photo electric eyes mounted on jambs.

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared. Verify that site conditions are acceptable for installation of doors, operators, controls and accessories. Ensure that openings are square, flush and plumb.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. General: Install door, guides and operating equipment complete with all necessary accessories and hardware according to shop drawings, manufacturer's instructions.

B. Lubricate bearings and sliding parts and adjust doors for proper operation, balance, clearance and similar requirements.

3.4 PROTECTION

A. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove and legally dispose of construction debris from project site.

B. Remove temporary coverings and protection of adjacent work areas. Repair or replace installed products damaged prior to or during installation.

C. Protect installed products until completion of project.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION