RAYNOR – Sectional Overhead Doors
SECTION 08 36 13 - SECTIONAL OVERHEAD DOORS

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

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Commercial sectional doors.

B. Electric Operators

1.2 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications: Miscellaneous for steel supports.

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

C. Section 08 71 00 - Door Hardware: Hardware, locks, access panels.

D. Section 09 90 00 - Painting: Field painting.

E. Section 11 12 00 - Parking Control Equipment: Parking control equipment for remote door controls.

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

1.3 REFERENCES

A. 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. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

C. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

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

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 E 330 - Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.

H. ASTM E 413 - Classification for Rating Sound Insulation

I. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.

J. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

K. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

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

M. ANSI/DASMA 108 - Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference

N. ANSI/DASMA 102 - Specifications for Sectional Overhead-Type Doors

O. ANSI/DASMA 115 - Standard Method for Testing Sectional Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure

P. FDA 21 CFR 177.1520 - Olefin polymers

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

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. Performance Standards: Provide test data validating the following:
   1. Door Section: Gloss retention, fade resistance, FDA compliance, cold crack performance, load to rebound, dent resistance impact.
   2. Drive Train: Spring cycle life, track, hinges, rollers, cable assembly, cable strength.
   3. Door Assembly: Thermal performance, deflection, wind load.

D. Shop Drawings:
   1. Provide drawings indicating track details, head and jamb conditions, spring shafts, 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).

E. Certifications:
   1. Submit manufacturer's certificate that products meet or exceed specified requirements.

2. Submit installer qualifications.

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

G. 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.

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 recommended limits.

1.8 WARRANTY

A. Provide manufacturer’s standard warranty against defects in material and workmanship, as further described with each model in Part 2 of this Section.

B. Raynor warrants ControlHoist electrical operator and component parts for two (2) years against defects in material and workmanship when purchased as operator only.

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

D. Raynor warrants Onyx (OXJ, OXH & OXT) electrical operator for five (5) years against defects in material and workmanship.

E. Raynor warrants Onyx Light – Trolley (OLT) electrical operator for (1) year against defects in material and workmanship.

F. Raynor warrants Onyx Light – Jackshaft (OLD & OLS) electrical operator for (2) years against defects in material and workmanship.

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 01600.

2.2 SECTIONAL THERMAL SANDWICH DOORS

A. FlexFit FF175 as manufactured by Raynor Garage Doors:

1. Doors:
   a. Operation:
      1) Provide doors designed for manual operation.
      2) Provide doors designed for hand chain operation.
      3) Provide doors designed for electric motor operation.
   b. Jamb Construction:
      1) Steel jambs with self-tapping fasteners.
      2) Wood jambs with lag screw fasteners.
      3) Masonry jambs with anchor bolt fasteners.
   c. Structural Performance Requirements:
      1) Wind Loads: Uniform pressure of: _____ psf.
2. Sections:
   a. **FF175**:
      1) Sections shall contain 1.44 inch expanded polystyrene insulation sandwiched between interior and exterior panels. End stiles to be 12-gauge galvanized steel.
      2) Material: Sandwich construction, 1-3/4 inches (44 mm) thick. Exterior skin shall be constructed of 1/8 inch (3 mm) non-conductive, UV stabilized pultruded fiberglass reinforced polymer (FRP) material with additional anti-yellowing UV protective coating. Interior skin shall be constructed of 1/8 inch extruded HDPE and manufactured with materials in compliance with FDA regulation 21 CFR 177.1520. Skins will be bolted together around 1.5 inch (38 mm)x 1/8 inch (3 mm) square tube framing constructed of pultruded fiberglass reinforced polymer (FRP). Bolts shall be carriage style heads on exterior and blind-head style on interior to reduce risk of injury.
         a) Interior and exterior skins shall be one contiguous piece without splices up to 20 feet 2 inches (6146 mm) in length.
         b) Square tube frame rails shall be one contiguous piece without splices up to 20 feet 2 inches (6146 mm) in length.
      3) Finish: Exterior and interior skins to have smooth finish.
         a) Color: White.
      4) Insulation: Expanded polystyrene with door R-value of 9.68.
   b. Seals: Intermediate sections will incorporate white fabric reinforced section joint seals. Bottom of door to have flexible cloth reinforced U-shaped EPDM rubber seal and 3 inch (76 mm) brush seal. Header shall have dual-durometer vinyl blade seal on top section to prevent airflow above header. Jambs shall

have 1 inch (25 mm) brush seals to prevent airflow. Brush seals will be mounted into continuous (no splices) extruded aluminum retainers.

c. Trussing: Not applicable.

3. Windows: 12 x 4 inches (305 x 102 mm) window with 1/8 inch (3.1 mm) polycarbonate lite.
4. Track:
   a. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weather seal.
   b. Configuration Type: Normal Headroom.
   c. Configuration Type: Vertical Lift.
   d. Configuration Type: Lift-Clearance.
   e. Track Size: 3 inches (76 mm).
      1) Jamb Type: Steel, wood, or masonry.
         a) Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 2-5/16 x 4 inches (59 x 102 mm)
         b) Mounting: Floor-to-shaft angles. 13 gauge (2.2 mm) minimum continuous angles from floor, past header, up to door shaft. Angle Size: 2-5/16 x 4 inches (59 x 102 mm).
   f. Finish:
      1) Galvanized.
5. Counterbalance:
   a. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs on a continuous ball-bearing cross-header shaft.
      1) Spring Cycle Requirements: Standard high cycle 25,000 cycles.
      2) Spring Cycle Requirements: Extended cycle: _____ cycles.
6. Hardware:
   a. End Stile Hinges and Brackets: Fabricated from galvanized steel.
   b. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.
   c. Locks: Door furnished with one spring-loaded interior lock with dead bolt provided with hole to receive padlock provided by Owner.
7. FlexFit Limited Warranty: Raynor warrants the door sections against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.

2.3 ELECTRIC OPERATORS

A. ControlHoist as manufactured by Raynor Garage Doors:
   1. Model:
      a. Raynor ControlHoist Optima:
         1) Type: Jackshaft with manual chain hoist.
         2) Type: Trolley.
         3) Motor Horsepower Rating: Continuous 1/2 HP.

4) Motor Horsepower Rating: Continuous 3/4 HP.
5) Motor Horsepower Rating: Continuous 1 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: 30 cycles/hour or 300 cycles/day.
13) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.
    a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
    b) Custom wiring.
14) Entrapment protection:
    a) Wired Monitored electric reversing edge extending full width of door.
    b) Wireless Monitored electric reversing edge extending full width of door.
    c) NEMA 1 Monitored photo electric eyes mounted on jambs.
    d) NEMA 4X Monitored photo electric eyes mounted on jambs.

b. Raynor ControlHoist Standard:
1) Type: Jackshaft.
2) Type: Jackshaft with manual chain hoist.
3) Type: Trolley.
4) Motor Horsepower Rating: Continuous 1/3 HP.
5) Motor Horsepower Rating: Continuous 1/2 HP.
6) Motor Horsepower Rating: Continuous 3/4 HP.
7) Electrical Requirements: 115 volt single phase.
8) Electrical Requirements: 230 volt single phase.
9) Electrical Requirements: 208-230 volt three phase.
10) Electrical Requirements: 460 volt three phase.
11) Duty Cycle: 30 cycles/hour or 300 cycles/day.
12) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.
    a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
    b) Custom wiring.
13) Entrapment protection:
    a) Wired Monitored electric reversing edge extending full width of door.
    b) Wireless Monitored electric reversing edge extending full width of door.
    c) NEMA 1 Monitored photo electric eyes mounted on jambs.

d) NEMA 4X Monitored photo electric eyes mounted on jambs.

c. Raynor ControlHoist Basic:
   1) Type: Jackshaft.
   2) Type: Jackshaft with manual chain hoist.
   3) Type: Trolley.
   4) Motor Horsepower Rating: Intermittent 1/2 HP.
   5) Electrical Requirements: 115 volt single phase.
   6) Duty Cycle: 14 cycles/hour.
   7) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.
      a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
   8) Entrapment protection:
      a) Wired Monitored electric reversing edge extending full width of door.
      b) Wireless Monitored electric reversing edge extending full width of door.
      c) NEMA 1 Monitored photo electric eyes mounted on jambs.
      d) NEMA 4X Monitored photo electric eyes mounted on jambs.

B. ONYX and ONYX LIGHT commercial operators:
   1. Raynor ONYX:
      a. Type:
         1. Jackshaft without manual chain hoist or chain release.
         2. Jackshaft with manual chain release.
         3. Jackshaft with manual chain hoist.
         4. Trolley.
      b. Rating:
         1. 700 lb. (1/2 hp equivalent)
         2. 1200 lb. (3/4 hp equivalent)
         3. 2200 lb. (1-½ hp equivalent)
      c. Electrical Requirements:
         1. 120 volt single phase.
         2. 240 volt single phase or three phase.
         3. 480 volt three phase.
         4. 208 volt single phase or three phase (via transformer).
         5. 600 volt three phase (via transformer).
      d. Duty Cycle:
         1. 20 cycles per hour / 90 cycles per day.
         2. 30 cycles per hour / 150 cycles per day.
      e. Accessory power: 24 VDC.
      f. Control:
         1. Wall controller: 3 button floor level with LCD display.
         2. Provisions for timer to close.
         3. Mid stop.
         4. Momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
      g. Motor: DC type with soft start and stop.
      h. Brake:

1. Dynamic braking.
2. Electromechanical holding brake.

i. Battery backup:
1. Two 4.5AH batteries.
2. Two 7.0AH batteries.

j. Enclosure: NEMA Type 1.
k. Circuit board: solid state logic.
l. Diagnostics: Onboard.
m. Wi-Fi: Built in.
n. Internet connectivity: myQ and myQ Facility.
o. Security: Security+ 2.0.
p. Entrapment protection:
1. Monitored entrapment protection inputs: Three.
a. NEMA 1 Monitored photo electric eyes mounted on jambs.
b. NEMA 4X Monitored photo electric eyes mounted on jambs.
c. Monitored light curtain.
d. Wireless Monitored electric reversing edge extending full width of door.
e. Wired Monitored electric reversing edge extending full width of door.

q. Cable protection monitoring: Input on board to add two.
r. Limit system: Electronic Limits.
s. Inputs: Programmable.
t. Remote controls

2. Raynor ONYX Light:
a. Light Duty Jackshaft for Commercial Sectional Doors
1. Type: Jackshaft without manual chain hoist
2. Rating: 14 foot maximum height, 16 foot maximum width, 650 pounds maximum
3. Electrical Requirements: 120 volt single phase.
4. Duty Cycle: Maximum 10 cycles per hour and 25 cycles per day.
5. Control: One push button type.
6. Motor: DC type with soft start and stop.
7. Battery Back-up capable
8. Enclosure: NEMA Type 1.
9. Circuit Board: solid state logic.
10. Diagnostics: Onboard.
11. Wi-Fi: Built in.
12. Internet connectivity: myQ and myQ Facility.
13. Security: Security+ 2.0
14. Entrapment protection:
a. Monitored entrapment protection inputs: One.
1. NEMA 1 Monitored photo electric eyes mounted on jambs.
2. Monitored light curtain.
15. Limit system: Electronic Limits.
16. Remote controls
17. Cable tension monitor.
18. Automatic power door lock.
19. Remote LED light.

b. Light Duty Jackshaft for Commercial Sectional Dock Doors

1. Type: Jackshaft without manual chain hoist
2. Rating: 14 foot maximum height, 16 foot maximum width, 300 pounds maximum
3. Electrical Requirements: 120 volt single phase.
4. Duty Cycle: Maximum 10 cycles per hour and 25 cycles per day.
5. Control:
    a. Three push button type.
    b. Provisions for timer to close.
6. Motor: DC type with soft start and stop.
7. Battery Back-up capable
8. Enclosure: NEMA Type 1.
9. Circuit Board: solid state logic.
10. Diagnostics: Onboard.
11. Wi-Fi: Built in.
12. Internet connectivity: myQ and myQ Facility.
13. Security: Security+ 2.0
14. Entrapment protection:
    a. Monitored entrapment protection inputs: One.
        1. NEMA 1 Monitored photo electric eyes mounted on jambs.
        2. Monitored light curtain.
15. Auxiliary box (connect up to 5 sensors to monitor dock levelers and other accessories thru myQ Facility)
16. Limit system: Electronic Limits.
17. Remote controls.
18. Cable tension monitor.
19. Automatic power door lock.
20. Remote LED light.

c. Light Duty Trolley for Commercial Sectional Doors
1. Type: Trolley.
2. Rating: 14 foot maximum height, 16 foot maximum width, 650 pounds maximum
3. Electrical Requirements: 120 volt single phase.
4. Duty Cycle: Maximum 8 cycles per hour and 25 cycles per day.
5. Control: single push button, NEMA 1 enclosure.
6. Enclosure: NEMA Type 1.
7. Circuit Board: solid state logic.
8. Wi-Fi: Built in.
9. Internet connectivity: myQ.
10. Security: Security+ 2.0
11. Entrapment protection:
    a. Monitored entrapment protection inputs: One.
        1. NEMA 1 Monitored photo electric eyes mounted on jambs.
        2. Monitored light curtain.
12. Limit system: Electronic Limits.
13. Remote controls

PART 3 EXECUTION

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, track 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. Lubricate bearings and sliding parts, assure weather tight fit around door perimeter and adjust doors for proper operation, balance, clearance and similar requirements. Protect installed products until completion of project.

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

END OF SECTION