SECTION 083303 – INSULATED ROLLING FIRE DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Electric operated, automatic closing, overhead rolling fire doors with SmokeShield®UL leakage rated assembly label.

B. Related Sections:

1. 055000–Metal Fabrications. Door opening jamb and head members.
2. 061000–Rough Carpentry. Door opening jamb and head members.
3. 083100–Access Doors and Panels. Access doors.
4. 087000–Hardware. Padlocks. Masterkeyed cylinder.
5. 099100–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 systems.

C. Products That May Be Supplied, But Are Not Installed Under This Section:

1. Control Station
2. Annunciator

1.2 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification, 1 1/2 hr
2. Provide doors with Underwriters' Laboratories, Inc. label for “Leakage Rated Assembly” or “S” label
   a. Comply with NFPA 105 air leakage requirements
   b. Pass UL test procedure 1784

1.3 SUBMITTALS

A. Reference Section 013300–Submittal Procedures; submit the following items:

1. Product Data
2. Shop Drawings**:** Include special conditions not detailed in Product Data. Show interface with adjacent work.
3. Quality Assurance/Control Submittals:
   a. Provide manufacturer ISO 9001:2015 registration.
   b. Provide manufacturer and installer qualifications - see 1.4 below.
   c. Provide manufacturer's installation instructions.
4. Closeout Submittals:
   a. Operation and Maintenance Manual.
   b. Certificate stating that installed materials comply with this specification.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: ISO 9001:2015 registered and a minimum of five years experience in producing fire and smoke control units of the type specified.
2. Installer Qualifications: Manufacturer's approval.

1.5 DELIVERY STORAGE AND HANDLING

A. Reference Section 01 66 00–Product Storage and Handling Requirements.

B. Follow manufacturer's instructions.

1.6 WARRANTY

A. Standard Warranty: Two years from date of shipment against defects in material and workmanship.

B. Maintenance: Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Basis of Design: Model ERD21 as manufactured by Cookson: 1901 South Litchfield Road, Goodyear, AZ 85338. Telephone: (800) 294-4358. Other acceptable manufacturers are:
   1. Cornell
   2. Amarr
   3. Clopay

2.2 MATERIALS

A. Curtain:
   1. Slats: No. 6M
      a. Galvanized Steel with Finish as Described Below: No. 6M, face slat with Galvanized Steel back cover; minimum 22 gauge, Grade 40 steel, ASTM A 653 galvanized steel zinc coating
   2. Mineral Wool Insulated Door Material:
      a. Mineral Wool Insulated Door Material: 7/8 inch (22 mm) thick fire retardant mineral wool, ASTM C665-95 or ASTM C612-93
      b. Flame Spread Index of 0 and a Smoke Developed Index of 0 as tested per ASTM E84.
      c. R-value: Minimum R-Value 5.3 (U-value of 0.189) as calculated using the ASHRAE Handbook of Fundamentals
   3. Slat Finish (Interior/Exterior):
      a. SpectraShield® Coating System (Color Selected by Architect)**:**
         1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding, gray baked-on base coat and gray baked-on polyester finish coat
         2) Zirconium treatment followed by baked-on polyester powder coat, with custom color as selected by Architect; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

B. Endlocks:
   Assemble interlocking slat sections with high strength cast iron combination endlock/windlocks on alternate slats each secured with a minimum of two ¼" (6.35 mm) rivets per UL requirements.

C. Bottom Bar:
   1. Configuration:

a. Structural Steel Angles: 2 structural steel angles minimum 2”x2”x1/8” (50x50x3.2 mm)

2. Finish:

a. Powder Coat (Color Selected by Architect): Zirconium treatment followed by baked-on polyester powder coat, custom color as selected by Architect; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.

D. Guides:

1. Fabrication:

a. Minimum 1/4 inch (6.35 mm) structural steel angles. 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. Top 16 ½” (419.10 mm) of coil side guide angles to be removable for ease of curtain installation and as needed for future curtain service.

2. Finish:

a. Powder Coat (Color Selected by Architect): Zirconium treatment followed by baked-on polyester powder coat, custom color as selected by Architect; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

E. 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.

F. 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

1. Finish:

a. Powder Coat (Color Selected by Architect): Zirconium treatment followed by baked-on polyester powder coat, custom color as selected by Architect; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

G. Hood:

Minimum 24 gauge galvanized steel with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets

1. Finish:

a. SpectraShield® Coating System (Color Selected by Architect):

1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding, gray baked-on base coat and gray baked-on polyester finish coat

2) Zirconium treatment followed by baked-on polyester powder coat, with custom color as selected by Architect; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

H. Combination Weather/Smoke Seals**:**
1. Bottom Bar:
a. Motor Operated Doors: Combination smoke seal/sensing edge
2. Guides and Head: Replaceable, UL listed, nylon brush smoke seals sealing against fascia side of curtain

2.4 OPERATION

A. Motor Operation:

1. FireGard™ Fire Door Motor Operation: UL listed NEMA 1 enclosure, horsepower as recommended by manufacturer, 120 Volt, 1 phase service. Provide a totally enclosed non ventilated motor, removable without affecting the setting of limit switches; thermal overload protection, planetary gear reduction, adjustable rotary limit switch mechanism and a transformer with 24v secondary output. All internal electrical components are to be prewired to terminal blocks.
a. Provide an internal solenoid brake mechanism to hold the door at any position during normal door operation.
b. Equip operator with an emergency manual chain hoist assembly that provides emergency operation during non-alarm power failure.
c. Activate automatic closure by separation of a fusible link, activation of a failsafe release device by notification from central alarm system, notification from local detectors or power outage exceeding 6 hours with a battery backup system.
d. Delay automatic closure for no more than ten seconds when electrically notified.
e. Control automatic closure speed with a variable rate centrifugal governor without the use of electrical pulsation, oscillation type or constant rate viscosity governors.
f. Maintain automatic closure speed at an average of 12” (304mm) per second.
g. Ensure that electrical sensing edge and push button control station are inoperable during automatic closure.
h. Reset door system by reconnecting fusible links or by re-engaging failsafe release device from floor level.
i. Provide minimum #50 roller chain for drive connection from operator output shaft to the door drive shaft.
j. Ensure that manual resetting of spring tension or mechanical dropouts will not be required.
k. Install system only with manufacturer supplied or specified fasteners.
l. Notify electrical contractor to mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the door system wiring instructions.
m. Drop test and reset door system twice by all means of activation and comply fully with NFPA 80 Section 5.

2.5 ACCESSORIES

A. Locking:
1. None

B. Battery Back-Up:
   1. Model R-BBU Battery Back-Up System for AlarmGard Motor Operator:
      a. Prevent gravity closure for a minimum of four hours due to power failure.

C. Fire Emergency Annunciator:
   1. ADA compliant horn/strobe fire emergency annunciator to give advanced warning that fire shutter is about to close, activating warning signal upon alarm.

D. Operator and Full Bracket Mechanism Cover:
   1. Provide minimum 24 gauge stainless steel sheet metal cover to enclose exposed moving operating components lower than 8 feet above floor level at coil area of unit. Finish to match door hood

E. Floor Level Test Device: For FireGard™ Motor, Chain or Crank operator.
   1. Provide assembly that allows activation and reset from floor level.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.
B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
C. Commencement of work by installer is acceptance of substrate.

3.2 INSTALLATION

A. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

B. Comply with NFPA80 and NFPA 105 and follow manufacturer's installation instructions.

3.3 ADJUSTING

A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.4 FIELD QUALITY CONTROL

A. Site Test: Test doors for normal operation and automatic closing. Coordinate with authorities having jurisdiction to witness test and sign Drop Test Form.

3.5 CLEANING

A. Clean surfaces soiled by work as recommended by manufacturer.
B. Remove surplus materials and debris from the site.

3.6 DEMONSTRATION

A. Demonstrate proper operation, testing and reset procedures to Owner's Representative.
B. Instruct Owner's Representative in maintenance procedures.

END OF SECTION 083303