

SPECIFICATIONS FOR  
**2020 RENOVATIONS TO  
GLOUCESTER COUNTY INSTITUTE OF TECHNOLOGY  
1360 Tanyard Road  
Sewell, New Jersey 08080**

for

**THE BOARD OF EDUCATION OF THE  
SPECIAL SERVICES SCHOOL DISTRICT AND THE  
VOCATIONAL SCHOOL DISTRICT OF THE  
COUNTY OF GLOUCESTER  
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Sewell, New Jersey 08080**

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**BOOK 2 OF 2**



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## SECTION 08100 – FRP FIBERGLASS DOORS

### 1.0 GENERAL DESCRIPTION

- A. **WORK INCLUDED:** The fiberglass doors and aluminum sub-frames required for this work are indicated on the drawings and include, but is not necessarily limited to:
  - 1. The installation of new opening systems that include aluminum sub-frames, fiberglass doors, fiberglass panels, door hardware and glass.
  - 2. Only wide stile fiberglass doors are to be used.

### 1.1 QUALITY ASSURANCE

- A. **MANUFACTURER'S CERTIFICATION:** Manufacturer is to have a minimum of 10 years experience in the production of pre-installed hardware and pre-assembled door systems, using the type of materials specified for this project.
- B. **DISSIMILAR METALS:** Wherever aluminum is in contact with steel, concrete or other materials potentially creative of electrolytic action, provide all required permanent isolation of the aluminum by back painting with first-quality bituminous paint.
- C. **INSTALLER'S QUALIFICATIONS:** For the installation of the entrance systems, use only mechanics who are thoroughly trained and experienced in the skills required and who are completely familiar with the manufacturer's recommended methods of installation plus the requirements of this work.
- D. **WARRANTY:**
  - 1. System manufacturer will guarantee THE ENTIRE SYSTEM FOR A PERIOD OF 10 YEARS.
  - 2. The Fiberglass doors are guaranteed for 10 YEARS AGAINST CORE RELATED PRODUCT FAILURE.
  - 3. Warranties are to be in writing and MUST be submitted before final invoices for payment will be reviewed.

### 1.2 TESTING AND PERFORMANCE REQUIREMENTS

- A. Entrance systems to be supplied and installed that will comply with requirements for system performance characteristics as determined by the testing methods listed.
- B. Copies of recent test reports must accompany the Product Data Submittal package, the reports required for this project are as follows:
  - 1. Thermal Performance Test
  - 2. Structural Performance Test
  - 3. FRP Face Sheet Test
- C. Thermal Performance for complete Door and Frame Entry System:
  - 1. Thermal Transmission: U-value of not more than 0.28,BTU/HR-FT-F per AAMA 1503.1-1988.

SECTION 08100 – FRP FIBERGLASS DOORS

2. Air Infiltration: Not more than 0.26 CFM/FT, per ASTM E283-91.

D. FRP FACE SHEETS AND CORE PERFORMANCE:

1. Materials to be tested in accordance with (per ASTM E84) Ratings will be as follows: (per ASTM E84-79a)

	FLAME SPREAD	SMOKE DEVELOPED
<u>FRP EXTERIOR</u> (Class C)	145	345
<u>FRP INTERIOR</u> (Class A)	10	320
<u>POLYSTYRENE CORE</u>	15	125

2. IMPACT STRENGTH OF FRP Face Sheets-per ASTM D256-Izod Impact Strength, Maintains 95% of physical Flexural Strength after 30 months of outdoor exposure. 13.5
3. Barcol Meter Hardness test on FRP Face Sheets-not more than 50, per ASTM D2583.
4. COLOR RETENTION of FRP Face Sheets-Color will not change more than 5.0 DE units after exposure to 500,000 Langleys.

1.3 MANUFACTURERS

- A. ACCEPTABLE MANUFACTURERS: The products outlined in this specification are not the exclusive property of any one manufacturer. However, it should be noted that the manufacturers, listed in this specification, will have to make some modifications to their standard products, and, that new dies and designs may be required to adhere to the demands of this specification.

Products are to be from FRP Architectural Doors, Inc Series Heavy Wall FD55. Fire Rated FRP Doors Series FR45/60/90. Other acceptable manufactures provided they adhere to specification are Curries Assa/Abloy or approved equal. FRP doors must incorporate Kemlite RFP face sheet with extended U/V protection or approved equal.

1.4 SUBMITTALS

A. PRODUCT DATA:

1. Submit manufacturer's technical data for each type stile classification of door. Include all frame sections, elevations and details.
2. Include details of: Main frame corner joint construction on doors, stile and rail size, core material, vision lite moldings, louvers and factory finishing specifications.



## SECTION 08100 – FRP FIBERGLASS DOORS

3. Submit two samples of each door stile classification that shows rails, stiles, core, joint construction, edge trim and closer reinforcing.
  4. Submit manufacturer of FRP face sheets.
- B. TEST REPORTS: Two copies of current test reports are to be included with the submittals.
- C. SHOP DRAWINGS: Submit signed and sealed shop drawings and calculations by a NJ registered professional engineer for the fabrication and installation of the Doors and Frames, and associated components of the work. Include wall elevations and detail sections of every typical composite member. Show frame anchoring, frame repairs to existing frames, glazing details, interior and exterior wall repairs and any other component or accessory required to complete each door opening.

### 1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. IDENTIFICATION: Each door and frame will be tagged with a mark or number which correlates with designation system used for shop drawings.
- B. PROTECTION: All materials will be protected during transit and storage from soiling and deterioration.

### 2.0 DOORS, FRAMES AND PANELS

#### 2.1 CLASSIFICATIONS OF DOOR SYSTEMS, FRAMES AND PANELS:

- A. Door systems for this project are based on the following stile classification. Pre-approved manufacturers who have a standard product offering in that classification are listed.
- B. Classifications are as follows:

FRP Architectural Doors, Inc Series Heavy Wall FD55. Fire Rated FRP Doors Series FR45/60/90. Other acceptable manufactures provided they adhere to specification are Vale V600, Curries Assa/Abloy or approved equal.

#### 2.2 MATERIALS

- A. ALUMINUM MEMBERS:
1. Doors, sub-frames, miscellaneous components and entrance systems accessories are to be **by the same manufacturer**.
  2. Provide alloy and temper as recommended for resistance to corrosion and color control. Aluminum member references are ASTM B 221 for extrusions and ASTM B 209 for sheets.

## SECTION 08100 – FRP FIBERGLASS DOORS

### 2.3 ALUMINUM FRAMES & CLADDING:

- A. Refer to Storefront Specification Section 08411 for door frame requirements including signed and sealed shop drawings and calculations.
  - 1. VERTICAL MEMBERS-All sub-frames will be full height of opening.
- B. ALUMINUM COLOR FINISH: As specified in Storefront Specification Section 08411.

### 2.4 FIBERGLASS (FRP) FACE SHEETS

- A. THICKNESS AND COLOR:
  - 1. FRP face sheets will be .120 minimum thickness with a pebble-like surface with aluminum or galvanized steel backing sheet to meet current IBC code requirements. Face sheets shall be manufactured by Kemlite with extended UV protection or approved equal.
  - 2. COLOR shall be selected from the full range of available manufacturer's options.

### 2.5 FIBERGLASS (FRP) PANELS

- A. ALUMINUM EDGED FIBERGLASS (FRP) PANELS:
  - 1. CONSTRUCTION: Panels will be constructed of two sheets of .120 fiberglass sheets bonded to 3/4" core material. Panel thickness will be 1-3/4". A 1-3/4" x 2" x 1/8" wall thickness aluminum frame surrounds the perimeter of the panel.  
  
WOOD EDGED PANELS WILL NOT BE ACCEPTED.
  - 2. CORE MATERIAL: Core Insulation will be high density expanded polystyrene. Core to have compressive strength ASTM D1621 - 25psi density with a nominal R-Value of 6.5. Core material must have a proven record for use in door fabrication without delaminating. Fill all openings, including frames.  
  
POLYSTYRENE CORES ARE REQUIRED.
  - 3. COLOR shall be selected from the full range of available manufacturer's options.
  - 4. FIXED FRP PANEL: Panel will be two sheets of .120 fiberglass sheets bonded to 3/4" core material. Panel thickness shall be 1".

### 3.0 EXECUTION and INSTALLATION

- A. SIZES AND PROFILES: the sizes for door and frame units and profile requirements as listed or shown in these Specifications are approximate. All bidders are responsible for visiting job site and measuring each tag for bidding purposes.
- B. EXACT ORDER SIZES: ALL PROPER MEASURING AND ORDERING OF MATERIALS IS THE SOLE RESPONSIBILITY OF THE SUPPLIER/INSTALLER.

SECTION 08100 – FRP FIBERGLASS DOORS

- C. TOLERANCES between doors and frames are 1/8” around all sizes of single doors and 1/8” on hinge jambs and header with 3/16” in center of pairs, ¼” at threshold.
- D. NOTIFY OWNER at least 48 hours before schedule date of installation for each opening and for each day of work.
- E. PROVIDE barrier protection and warning signs around each opening before starting to work. This protection is for the people who may be using the building while the work is in progress.
- F. COMPLY with all life safety code procedures that effect the use of the opening while work is being done. These procedures will be provided by an official of the building being worked on.
- G. SET NEW THRESHOLDS in a bed of cement and press to a level line. However, never let threshold be raised more than an extra ½” on any one side.
- H. PERIMETER CAULK new door frame on both sides of frame and with a matching color caulk to the finish of the frame.
- I. INSTALLERS ARE TO CLEAN up every day leaving area in a safe and usable condition.

END OF SECTION 08100



## SECTION 08110- STEEL DOORS AND FRAMES

### 1.1 GENERAL

- A. Submit Product Data for each type of door and frame specified.
- B. Quality Assurance: Comply with ANSI/SDI 100.
- C. Fire-Rated Door Assemblies: NFPA 80, identical to assemblies tested per ASTM E 152, and labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

### 1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
  - 1. Amweld Building Products, Inc.
  - 2. Benchmark Commercial Doors.
  - 3. Ceco Door Products.
  - 4. Copco Door Co.
  - 5. Curries Co.
  - 6. Deansteel Manufacturing Co.
  - 7. Fenestra Corp.
  - 8. Kewanee Corp.
  - 9. Mesker Door, Inc.
  - 10. Pioneer Industries.
  - 11. Republic Builders Products.
  - 12. Steelcraft.
  - 13. Or approved equal.
- B. Cold-Rolled Steel Sheets: ASTM A 366 (ASTM A 366M), commercial quality, or ASTM A 620 (ASTM A 620M), drawing quality.
- C. Galvanized Steel Sheets: ASTM A 526 (ASTM A 526M), commercial quality, or ASTM A 642 (ASTM A 642M), drawing quality, with A 60 or G 60 (Z 180 or ZF 180) coating designation, mill phosphatized.
- D. Steel Doors: Provide 1-3/4-inch- (44-mm-) thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:
  - 1. Interior Doors: Grade II, heavy-duty, Model 2, seamless design, minimum 16 gage thick cold-rolled steel sheet faces.
  - 2. Exterior Doors: Grade III, extra heavy-duty, Model 2, seamless design, minimum 16 gage thick galvanized steel sheet faces with insulation core to have a minimum R Value of 11.25.

## SECTION 08110- STEEL DOORS AND FRAMES

3. INTERIOR WOOD GRAINED EMBOSSED DOORS: Grade I, heavy-duty, Model 2, seamless design, minimum 16 gage thick, wood grain pattern, engraved with factory painting/staining with UV protective topcoat to be selected from manufacturer's full range of finish selections, including custom finish to match Owner's established building standard. NOTE: Factory finishing process and final finish must meet or exceed that established by Steelcraft Graintech Series. Owner/Architect reserve the right to reject any noticeably different or less aesthetically acceptable specialty finish by others.
- E. Frames: Provide frames for doors, sidelights, borrowed lights, and other openings that comply with ANSI/SDI 100; fabricate to be rigid, neat in appearance, and free from defects, warp, or buckle.
1. For interior frames provide units with mitered or coped and continuously welded corners, formed from 16 gage thick cold-rolled steel.
  2. For exterior frames provide units with mitered or coped and continuously welded corners, formed from 16 gage thick galvanized steel sheet.
  3. Door Silencers: 3 on strike jambs of single-door frames and 2 on heads of double-door frames.
  4. Plaster Guards: Provide where mortar might obstruct hardware operation and to close off interior of openings.
  5. For new frame install in existing opening. Knock down frame is allowed to secure to existing opening.
  6. Grout: As specified in Division 4 Section "Unit Masonry."
- F. Tolerances: Comply with SDI 117.
- G. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.
- H. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to SDI 107 and the hardware specification.
- I. Glazing Stops: Minimum 0.0359-inch- (0.9-mm-) thick steel or 0.040-inch- (1-mm-) thick aluminum.
1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
  2. Provide screw-applied, removable, glazing beads on inside of glass, louvers, and other panels in doors.
- J. Finishes, General: Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
1. Apply primers to doors and frames after fabrication.
- K. Galvanized Steel Sheet Finishes: Comply with SDI 112 and the following:

## SECTION 08110- STEEL DOORS AND FRAMES

1. Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified to comply with ASTM A 780.
  2. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight.
  3. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning and pretreatment.
    - a. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.
  4. Field Painted Finish: Immediately after cleaning and pretreating, apply 2-coat finish consisting of prime coat and finish coat. See Section 09900, "Painting."
    - a. Color and Gloss: Match Architect's sample.
- L. Steel Sheet Finishes: Comply with SSPC-PA 1, "Paint Application Specification No. 1."
1. Surface Preparation: Solvent-clean surfaces according to SSPC-SP 1. Remove mill scale and rust to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
  2. Pretreatment: Immediately after surface preparation, apply a conversion coating suited to organic coating applied over it.
  3. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.
    - a. Color and Gloss: Match Architect's sample.

### 1.3 EXECUTION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
  1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.
  2. Install at least 3 anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
  3. In-place gypsum board partitions, install knock-down, slip-on, drywall frames.
  4. Install fire-rated frames according to NFPA 80.
  5. Coordinate installation of all required wiring/conduit prior to frame installation.

## SECTION 08110- STEEL DOORS AND FRAMES

- C. Door Installation: Fit exiting hollow-metal doors accurately in new hollow-metal frames, within clearances specified in ANSI/SDI 100, including new door in existing frame.
  - 1. Fire-Rated Doors: Install with clearances specified in NFPA 80.
  - 2. Smoke-Control Doors: Comply with NFPA 105.
- D. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- E. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.
- F. Labeling of the Existing Doors and Frames: The doors and frames indicated on the drawings are to remain and be repaired so that they may meet the label standard for the indicated fire rating per NFPA80. The work is to include the repair of existing hollow metal frames, fill holes in frames by installing steel plugs of the same gauge and thickness as the metal frame, provide new filler plates, secure frame to sub-frame, repair door surface, fill holes, replace hardware, replace glazing and glazing frame, fit existing door in frame, provide intumescent seal and all notes as shown on the drawings. The Contractor shall prime and repaint the entire frame to match the existing frames or the Owner's color selection. It is the Contractor's responsibility to repair / modify the doors and frames to obtain the fire rating. When the work is completed, the Contractor shall contact one of the following testing labs or approved equal, for field inspections, required documentation and required door/frame labels. All associated costs to certify and label modified doors/frames shall be paid for by the Contractor.
  - 1. Guardian Fire Testing Laboratories, Inc., Wenonah Terrace, Tonawanda, NY 14150, Telephone (716) 835-6880, Facsimile (716) 835-5682
  - 2. Intertek Testing Services, NA, Inc., Antioch Industrial Park, 2200 Wymore Way, Antioch, CA 94509, Telephone (925) 756-6606, Facsimile (925) 756-6094
  - 3. Or approved equal.

END OF SECTION 08110



## SECTION 08211 - FLUSH WOOD DOORS

### 1.1 GENERAL

- A. Submittals: In addition to product data, submit the following:
1. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
  2. Samples of actual materials in small sections for each face material and finish.
- B. Quality Standard: Comply with the following standard:
1. NWWDA Quality Standard: I.S.1-A, "Architectural Wood Flush Doors," of the National Wood Window and Door Association.
  2. AWI Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute.
- C. Fire-Rated Wood Doors: Provide wood doors labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction. Provide certification for fire rating required acceptable to authorized agencies having jurisdiction for oversize fire rated doors over 4'-0" wide
- D. Warranty
1. Provide manufacturer's warranty to the following term:
    - a. Interior Solid Core Doors: "Full Life of Original Installation" including rehang and refinish if door(s) do not comply with Warranty tolerance standards.

### 1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide doors by one of the following or approved equal:
1. Marshfield Door Systems, Inc., quality as defined in this section.
  2. Algoma Wood Doors Inc., quality as defined in this section.
  3. Eggers Wood Doors Inc., quality as defined in this section.
  4. Mohawk Wood Doors Inc., quality as defined in this section.
  5. V-T Industries Inc., quality as defined in this section.
  6. Buell Door Company, quality as defined in this section.
  7. Or approved equal.
- B. Interior Solid Core Doors for Transparent Finish: As follows:  
**NOTE: ALL WOOD VENEER MUST APPEAR UNIFORM AND LIGHT IN APPEARANCE**
1. Faces: Select White Oak, plain sliced.
  2. Grade: "A" Select White ONLY

## SECTION 08211 - FLUSH WOOD DOORS

3. Construction: 5 plies.
  4. Core: Structural composite lumber (engineered composite core)
  5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.
- C. Interior Fire-Rated Solid Core Doors: As follows:
1. Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
  2. Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance.
  3. Pairs: Furnish formed-steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
  4. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.
- D. Pairs and Sets: Provide pair matching and set matching.
- E. Fabricate flush wood doors to comply with following requirements:
1. In sizes indicated for job-site fitting.
  2. Factory fit doors to comply with clearance requirements of referenced quality standard. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
  3. Factory machine doors for hardware that is not surface applied.
    - a. Metal Removable Mullions: Pre-machine locks and formed-steel edges for hardware for pairs of doors requiring removable mullions. See the Hardware Schedule.
  4. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
    - a. Light Openings: Trim openings with moldings of material and profile indicated to match the door veneer.
    - b. Louvers: Factory install louvers in prepared openings.
  5. Provide metal flashing at top of out swinging units.
- F. Finish wood doors at factory as factory finished.
1. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
    - a. Grade: Custom.
    - b. Finish: Manufacturer's standard finish with performance requirements comparable to either AWI System TR-2 catalyzed lacquer or AWI System TR-4 conversion varnish.
    - c. Staining: Match the existing schools' wood doors.
    - d. Effect: Filled finish.

## SECTION 08211 - FLUSH WOOD DOORS

e. Sheen: Semigloss.

G. Provide soundproof seal as noted in the Hardware Schedule. Adjust Hardware and frame to align properly to have the best acoustical effect.

### 1.3 EXECUTION

#### A. Examination

1. Verify substrate-openings conditions.
2. Verify that opening sizes and tolerances are acceptable and ready to receive this work.
3. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

#### B. Installation

1. Install fire-rated and non-rated doors in accordance with NFPA 80, manufacturers' instructions and fire rated labeling requirements.
2. Trim non-rated door width by cutting equally on both jamb edges.
3. Trim door height by cutting bottom edges to a maximum 3/4 inch (19mm).
4. Trim fire door height at bottom edge only, in accordance with fire rating requirements.
5. Pilot drill screw and bolt holes using templates provided by hardware manufacturer. (Use threaded through bolts for half surface hinges.)
6. Coordinate installation of doors with installation of frames and hardware.
7. Coordinate installation of glass and glazing.
8. Install door louvers and light kits plumb and level.
9. Reseal or refinish any doors that required site alteration.

#### C. Warranty Tolerances

1. Conform to WDMA standards and testing methods for warp, cup, bow and telegraphing.

#### D. Adjusting

1. Adjust work under provisions Division 1.
2. Adjust doors for smooth and balanced door movement.

#### E. Door and Frame Components Schedules

1. Refer to door and frame schedule.

END OF SECTION 08211



## SECTION 08330 - ROLLING COUNTER SHUTTERS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Manual rolling counter doors

#### 1.2 SUBMITTALS

- A. Reference Specification Section 01300 - Submittals; 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 below
    - c. Provide manufacturer's installation instructions
  - 4. Closeout Submittals: See Specification Section 01700 – Project Closeout.
    - a. Operation and Maintenance Manual
    - b. Certificate stating that installed materials comply with this specification

#### 1.3 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Manufacturer Qualifications: ISO 9001:2015 registered and a minimum of five years' experience in producing counter doors of the type specified
  - 2. Installer Qualifications: Manufacturer's approval

#### 1.4 DELIVERY STORAGE AND HANDLING

- A. Follow manufacturer's instructions.

#### 1.5 WARRANTY

- A. Special Warranty: Provide Two (2) years from date of Substantial Completion.
- B. Maintenance: Submit for owner's consideration and acceptance of a maintenance service agreement for installed products

### PART 2 PRODUCTS

#### 2.1 MANUFACTURER

- A. Manufacturer:

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1. Cornell: 24 Elmwood Avenue, Mountain Top, PA 18707. Telephone: (800) 233-8366.
2. Cookson
3. Clopay Building Products
4. Approved equal

### 2.2 PRODUCT INFORMATION

- A. Model: ESC10 by Cornell or approved equal

### 2.3 MATERIALS

A. Curtain:

1. Slat Configuration:

- a. Aluminum: No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by 1/2 inch (13 mm) deep, minimum 0.055 inch extruded aluminum with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal.

2. Finish:

- a. SpectraShield® Coating System (or approved equal) : Zirconium treatment followed by baked-on polyester powder coat, color 20-7042 black family; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

B. Endlocks:

1. Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats.

C. Guides:

1. Fabrication: Aluminum: 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. Finish: SpectraShield® Coating System (or approved equal): Zirconium treatment followed by baked-on polyester powder coat, color 20-7042 black family; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

D. Shaft Assembly:

1. Counterbalance Shaft Assembly:

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- a. Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width
  - b. 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
- E. Brackets: Fabricate from reinforced steel plate with bearings at rotating support points to support counterbalance shaft assembly and form end closures
- 1. Finish: SpectraShield® Coating System (or approved equal): Zirconium treatment followed by baked-on polyester powder coat, color 20-7042 black family; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better
- F. Hood and Fascia: Minimum 0.040 inch (1.016 mm) aluminum with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets.
- 1. Finish: SpectraShield® Coating System (or approved equal): Zirconium treatment followed by baked-on polyester powder coat, color 20-7042 black family; minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better

### 2.4 OPERATION

- A. Manual Operation: Crank Hoist: 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.

### 2.5 ACCESSORIES

- A. Locking: Center mount thumb-turn cylinder lock: Operable from coil side of bottom bar.

## 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. Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports
- B. Follow manufacturer's installation instructions

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### 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 CLEANING

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

### 3.5 DEMONSTRATION

- A. Demonstrate proper operation to Owner's Representative
- B. Instruct Owner's Representative in maintenance procedures

END OF SECTION



## SECTION 08520 - ALUMINUM WINDOWS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, Special Conditions and other Division-0 and Division-1 Project Manual Sections, apply to this Section.

#### 1.2 DESCRIPTION OF WORK

- A. This Section includes architectural-grade aluminum window units of the performance class indicated. Window types required include:
  - 1. Fixed glass window unit. AW-PG80-FW (or approved equal)

#### 1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum window units that comply with performance requirements specified, as demonstrated by testing manufacturer's corresponding stock systems according to test methods indicated.
- B. Design Requirements: Comply with structural performance, air infiltration, and water penetration requirements indicated in GS-001 for type, grade, and performance class of window units required.
  - 1. Design wind velocity at the project site is 100 mph.
  - 2. The wind load design pressures for this project are 27.5 psf @ non-corner zones and 35 psf @ corner zones.
- C. Testing: Test each type and size of required window unit through a recognized independent testing laboratory or agency, in accordance with ASTM E 330 for structural performance, with ASTM E 283 for air infiltration, and with both ASTM E 331 and ASTM E 547 for water penetration. Provide certified test results.
- D. Fixed Windows
  - 1. Test Units.
    - a. Air, water and structural test unit size of 5'-4" x 6'-0" (fixed frame), conformance "A", shall conform to requirements set forth in AAMA GS.001.
    - b. Thermal test unit sizes shall be 4'-0" x 6'-0". Unit shall consist of a single typical fixed window.
  - 2. Test Procedures and Performance.
    - a. Windows shall conform to all AAMA GS.001 requirements for the window type referenced. In addition, the following specific performance requirements shall be met.

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- i. Air Infiltration Test.
  - ii. With window sash and ventilators closed and locked, test unit in accordance with ASTM E283 at static air pressure difference of 6.24 psf.
  - iii. Air infiltration shall not exceed .06 cfm per foot of perimeter crack length.
- b. Water Resistance Test
  - i. With window sash and ventilators closed and locked, test unit in accordance with a ASTM E331/ASTM E547 at static air pressure of difference of 15.0 psf.
  - ii. There shall be no uncontrolled water leakage.
- c. Uniform Load Structural Test
  - i. With window sash and ventilators closed and locked, test unit in accordance with ASTM E330 at static air pressure difference of 240.0 psf positive pressure and 240.0 psf negative pressure.
  - ii. At conclusion of test there shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms, nor any other damage which would cause the window to be inoperable.
- d. Condensation Resistance Test (CRF)
  - i. With window sash and ventilators closed and locked, test unit in accordance with AAMA 1503.1-1988.
  - ii. Condensation Resistance Factor (CRF) shall not be less than 65.
- e. Thermal Transmittance Test (Conductive U-value)
  - i. With window sash and ventilators closed and locked, test unit in accordance with AAMA 1503.1.
  - ii. Conductive thermal transmittance (U-value) shall not be more than .48 BTU/hr/sf/degrees F.

### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Section 01300.
  1. Shop drawings for each type of window required. Include information not fully detailed in manufacturer's standard product data and the following:
    - a. Layout and installation details, including anchors.
    - b. Elevations of continuous work at 1/4-inch scale and typical window unit elevations at 3/4-inch scale.
    - c. Full-size section details of typical composite members, including reinforcement.
    - d. Hardware including operators.
    - e. Glazing details.
    - f. Accessories.