

SECTION 00 9111
ADDENDUM NUMBER 1

PARTICULARS

DATE: December 7, 2017

PROJECT: 1629 BHS Window Replacement

PROJECT NUMBER: 1629

Owner : Brandywine School District

ARCHITECT: ABHA Architects, Inc.

TO: PROSPECTIVE BIDDERS :

NOTICE: Attach this Addendum to the Project Manual for this project. It modifies and becomes a part of the Contract Documents. Work or materials not specifically mentioned herein are to be as described in the main body of the Specifications and as shown on the Drawings.

Acknowledge receipt of the Addendum in the space provided on the Bid Form. This Addendum is being transmitted to all contractors who have received Contract Documents. If there are any problems with legibility or content, please contact ABHA Architects, Inc. (302) 658-6426.

ATTACHMENTS

SECTION 08 1116 - ALUMINUM DOORS AND FRAMES

SECTION 08 1416 - FLUSH WOOD DOORS

SECTION 08 4313 - ALUMINUM FRAMED STOREFRONT

SECTION 08 0671- DOOR HARDWARE SCHEDULE

SECTION 08 7100 - DOOR HARDWARE

SECTION 08 8000 - GLAZING

DRAWINGS: G-001, A-110, A-111, A-112, A-120, A-121, A-122, A-130, A-131, A-201, A-301, A-302, A-320, A-501, A-502, A-503, A-504, A-510, A-511, A-520, A-521, A-522, A-601, A-602

CHANGES TO THE PROJECT MANUAL - SPECIFICATIONS :

SECTION 01 1000 - SUMMARY

Article 1.03, Paragraph A: change to read:

A. Scope of Work:

- a. Provide windows and doors as shown on the Drawings.
- b. Provide wood blocking as required for installation of windows and doors.
- c. Provide sealant as required for installation of windows and doors.
- d. Provide decorative perforated metal at breezeway as detailed.
- e. Provide custom fabricated aluminum trim at main entrance and vestibule as detailed.
- f. Provide aluminum sills as detailed.
- g. Coordination with General Works Contractor.
- h. Coordination with Abatement Contractor.
- i. Coordinate with Electronic / Security Hardware Contractor.
- j. Coordinate Breezeway Adhered Vinyl Graphics with Signage Contractor.

SECTION 05 7500 - DECORATIVE FORMED METAL

Article 2.03, Paragraph C, change to read:

C. Material and supplier:

1. Round Perforated Sheet, .063 Gauge Aluminum, 1/8" Round on 3/16" Staggered
 - a. Product No. 1718316341
 - b. Supplier: McNichols Co.
2. Sheet, 14 Gauge Aluminum
 - a. Finish to match Aluminum Storefront - See Section 08 4313 Aluminum - Framed Storefront.

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

Article 1.03:

Delete Article.

Article 2.01, Paragraphs A.2, A.3 and A.4:

Delete Paragraphs.

Article 2.04, Paragraph D:

Delete Paragraph.

SECTION 08 1116 - ALUMINUM DOORS AND FRAMES

Insert new section included in this addendum.

SECTION 08 1416 - FLUSH WOOD DOORS

Insert new section included in this addendum.

SECTION 08 4313 - ALUMINUM FRAMED STOREFRONT

Delete existing section and insert new section included in this addendum.

SECTION 08 0671- DOOR HARDWARE SCHEDULE

Insert new section included in this addendum.

SECTION 08 7100 - DOOR HARDWARE

Insert new section included in this addendum.

SECTION 08 8000 - GLAZING

Delete existing section and insert new section included in this addendum.

CHANGES TO THE DRAWINGS:

REPLACE THE FOLLOWING (ATTACHED) SHEETS IN THEIR ENTIRETY:

DRAWINGS: G-001, A-110, A-111, A-112, A-120, A121, A-122. A-130, A-131, A-201, A-601, A-602

DELETE THE FOLLOWING SHEETS:

DRAWINGS: FPE-101

INSERT THE FOLLOWING SHEETS:

DRAWINGS: A-301, A-302, A-320, A-501, A-502, A-503, A-504, A-510, A-511, A-520, A-521, A-522

END OF ADDENDUM NUMBER 1

SECTION 08 0671
HARDWARE SCHEDULE

HARDWARE SET 1

DOOR # B101

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Elec. Cont. Hinge	780-224 HD RETW	Clear	HAG
1 ea.	Rim Exit Device	4601 MLR (night latch - NL)	US32D	HAG
1 ea.	Rim Cylinder	Match Existing System (for NL)	US26D	-
1 ea.	Off-set Pull	11J	US32D	HAG
1 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
1 ea.	Drop Plate	5110 (as required)	ALUM	HAG
1 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	412S	MIL	HAG
1 ea.	Power Supply	2909	-	HAG

Weather-strip and sweeps by door manufacturer.

120VAC power, conduit and wiring by Division 26.

Card Reader by Division 28.

Description of Operation: Door normally closed and locked. Key retracts latch. Removing the key leaves the door locked. Upon proper card validation the latch is temporarily retracted by a motor to allow access. In the event of a power failure the door remains locked (fail secure).

Free egress at all times.

HARDWARE SET 2

DOOR # B101A

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Elec. Cont. Hinge	780-224HD RETW	Clear	HAG
1 ea.	Continuous Hinge	780-224 HD	Clear	HAG
1 ea.	Elec. Rim Exit Device	4601 MLR (night latch - NL)	US32D	HAG
1 ea.	Rim Exit Device	4601 EO (cylinder dogging - CD)	US32D	HAG
1 ea.	Rim Cylinder	Match Existing System (for NL)	US26D	-
1 ea.	Mortise Cylinder	Match Existing System (for CD)	US26D	-
2 ea.	Off-set Pulls	11J	US32D	HAG
1 ea.	Keyed Rem. Mullion	4900T	USP	HAG
1 ea.	Rim Cylinder	Match Existing System (for KRM)	US26D	-
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG

1 ea. Threshold	412S	MIL	HAG
1 ea. Power Supply	2909	-	HAG

Weather-strip and sweeps by door manufacturer.

120VAC power, conduit and wiring by Division 26.

Card Reader by Division 28.

Description of Operation: Doors normally closed and locked. Key retracts latch on active leaf. Removing the key leaves the doors locked. Upon proper card validation the latch is temporarily retracted by a motor to allow access. In the event of a power failure the door remains locked (fail secure). Free egress at all times. Inactive (non-electrified) exit device has cylinder dogging.

HARDWARE SET 3

DOOR # B101B

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Continuous Hinge	780-224 HD	Clear	HAG
2 ea.	Rim Exit Device	4601 EO (CD)	US32D	HAG
2 ea.	Mortise Cylinder	Match Existing System (for CD)	US26D	-
2 ea.	Off-set Pulls	11J	US32D	HAG
1 ea.	Keyed Rem. Mullion	4900T	USP	HAG
1 ea.	Rim Cylinder	Match Existing System (for KRM)	US26D	-
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	412S	MIL	HAG

Weather-strip and sweeps by door manufacturer.

HARDWARE SET 4

DOOR # C101A, C101B

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Continuous Hinge	780-224 HD	Clear	HAG
2 ea.	Flush Bolts	282D	US26D	HAG
1 ea.	Aux Dbl. Cyl. Deadbolt	3832S (less cylinders)	US26D	HAG
2 ea.	Mortise Cylinder	Match Existing System	US26D	-
2 ea.	Push/Pulls Bar	157V	US32D	HAG
	Center push bar in door stiles			
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG

1 ea. Threshold	655S (less floor closer preps)	MIL	HAG
Threshold design to cover existing preparations			

Weather-strip and sweeps by door manufacturer.

HARDWARE SET 5

DOOR # C102, C103, C104, C105

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Continuous Hinge	780-224 HD	Clear	HAG
1 ea.	Intruder Classroom	3857 x ARS (less cylinders)	US32D	HAG
2 ea.	Mortise Cylinder	Match Existing System	US26D	-
1 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
1 ea.	Drop Plate	5110 (as required)	ALUM	HAG
1 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	655S (less floor closer preps)	MIL	HAG

Threshold design to cover existing preparations

Weather-strip and sweeps by door manufacturer.

HARDWARE SET 6

DOOR # G101A, G101B, G101C

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Elec. Cont. Hinge	780-224HD RETW	Clear	HAG
2 ea.	Elec. Rim Exit Device	4601 MLR (night latch RHR only)	US32D	HAG
1 ea.	Rim Cylinder	Match Existing System (for NL)	US26D	-
2 ea.	Off-set Pulls	11J	US32D	HAG
1 ea.	Keyed Rem. Mullion	4900T	USP	HAG
1 ea.	Rim Cylinder	Match Existing System (for KRM)	US26D	-
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	655S (less floor closer preps)	MIL	HAG

Threshold design to cover existing preparations

1 ea.	Power Supply	2909	-	HAG
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Weather-strip and sweeps by door manufacturer.

120VAC power, conduit and wiring by Division 26.

Card Reader by Division 28.

Description of Operation: Doors normally closed and locked. Key retracts latch on active leaf. Removing the key leaves the doors locked. At door #G101C, upon proper card validation the

latch is temporarily retracted by a motor to allow access. In the event of a power failure the door remains locked (fail secure). Free egress at all times.

HARDWARE SET 6A

DOOR # G101A, G101B, G101C

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Key Switch	29KS-2LED	US32D	HAG
1 ea.	Mortise Cylinder	Match Exist. System (Key Switch)	US26D	-

Description of Operation: Key switch used to electrically dog all devices for push and pull function for events.

HARDWARE SET 7

DOOR # G102A, G102B, G102C

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Cont. Hinge	780-224HD	Clear	HAG
2 ea.	Push/Pull Bars	157V	US32D	HAG
2 ea.	Center push bar in door stiles			
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	655S (less floor closer preps)	MIL	HAG

Threshold design to cover existing preparations

Weather-strip and sweeps by door manufacturer.

HARDWARE SET 8

DOOR # G103A, M101

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Cont. Hinge	780-224HD	Clear	HAG
1 ea.	Elec. Cont. Hinge	780-224HD RETW	Clear	HAG
1 ea.	Rim Exit Device	4601 EO (cylinder dogging -CD)	US32D	HAG
1 ea.	Elec. Rim Exit Device	4601 MLR (RHR)	US32D	HAG
1 ea.	Rim Cylinder	Match Existing System (for NL)	US26D	-
1 ea.	Mortise Cylinder	Match Existing System (for CD)	US26D	-
2 ea.	Off-set Pulls	11J	US32D	HAG
1 ea.	Keyed Rem. Mullion	4900T	USP	HAG
1 ea.	Rim Cylinder	Match Existing System (for KRM)	US26D	-
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG

2 ea. Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea. Threshold	655S (less floor closer preps)	MIL	HAG
	Threshold design to cover existing preparations		
1 ea. Power Supply	2909	-	HAG

Weather-strip and sweeps by door manufacturer.

120VAC power, conduit and wiring by Division 26.

Card Reader by Division 28.

Description of Operation: Doors normally closed and locked. Key retracts latch on active leaf. Removing the key leaves the doors locked. Upon proper card validation the active leaf latch is temporarily retracted by a motor to allow access. In the event of a power failure the door remains locked (fail secure). Free egress at all times. Inactive (non-electrified) exit device has cylinder dogging.

HARDWARE SET 9

DOOR # G103B

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Cont. Hinge	780-224HD	Clear	HAG
2 ea.	Push/Pull Bars	157V	US32D	HAG
2 ea.	Center push bar in door stiles			
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	655S (less floor closer preps)	MIL	HAG
	Threshold design to cover existing preparations			

Weather-strip and sweeps by door manufacturer.

HARDWARE SET 10

DOOR # M101A, M101B, M101C, M101D

Each opening to receive:

Qty	Type	Description	Finish	
2 ea.	Elec. Cont. Hinge	780-224HD RETW	Clear	HAG
2 ea.	Elec. Rim Exit Device	4601 MLR (night latch RHR only)	US32D	HAG
1 ea.	Rim Cylinder	Match Existing System (for NL)	US26D	-
2 ea.	Off-set Pulls	11J	US32D	HAG
1 ea.	Keyed Rem. Mullion	4900T	USP	HAG
1 ea.	Rim Cylinder	Match Existing System (for KRM)	US26D	-
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG

1 ea. Threshold	655S (less floor closer preps)	MIL	HAG
	Threshold design to cover existing preparations		

1 ea. Power Supply	2909	-	HAG
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Weather-strip and sweeps by door manufacturer.

120VAC power, conduit and wiring by Division 26.

Card Reader by Division 28.

Description of Operation: Doors normally closed and locked. Key retracts latch on active leaf. Removing the key leaves the doors locked. At door #M101D, upon proper card validation the latch is temporarily retracted by a motor to allow access. In the event of a power failure the door remains locked (fail secure). Free egress at all times.

HARDWARE SET 10A

DOOR # M101A, M101B, M101C, M101D

Each opening to receive:

Qty	Type	Description	Finish	
1 ea.	Key Switch	29KS-2LED	US32D	HAG
1 ea.	Mortise Cylinder	Match Exist. System (Key Switch)	US26D	-

Description of Operation: Key switch used to electrically dog all devices for push and pull function for events.

HARDWARE SET 11

DOOR # M102

Each opening to receive:

Qty	Type	Description	Finish	
6 ea.	Hinges	BB1168 4.5" x 4.5"	US26D	HAG
1 ea.	SVR Fire Exit Device	4501 F SVR LBR	US32D	HAG
1 ea.	Exit Device Trim	45BE ARC	US26D	HAG
2 ea.	Elec Hold Open Closer	4040SE	ALUM	LCN
2 ea.	Drop Plate	(as required)	ALUM	LCN
2 ea.	Blade Stop Spacer	(as required)	ALUM	LCN
1 ea.	Threshold	412S	MIL	HAG
1 ea.	Power Supply/transformer	(as required)	-	LCN
1 ea.	Gasket	Head and jambs by HM frame manufacturer.		
1 set	Astragal Weather-strip	756SV 2 x door height	MIL	HAG
2 ea.	Sweeps	751SW x door width	MIL	HAG

120VAC power, conduit and wiring by Division 26.

Connection to fire alarm by Division 28.

Description of Operation: Doors normally held open with single point closer holder, connected to the fire alarm to release upon alarm activation. In the event of a power failure the doors will release (fail secure).

HARDWARE SET 12

DOOR # M102A, M102B, M102C, M102D

Each opening to receive:

Qty	Type	Description	Finish	
6 ea.	Hinges	BB1168 4.5" x 4.5"	US26D	HAG
2 ea.	Push/Pull Bars	157D	US32D	HAG
2 ea.	Center push bar in door stiles			
2 ea.	Closer w/hold open	5100 HDHOCS	ALUM	HAG
2 ea.	Drop Plate	5110 (as required)	ALUM	HAG
2 ea.	Blade Stop Spacer	5113 (as required)	ALUM	HAG
1 ea.	Threshold	655S (less floor closer preps)	MIL	HAG
1 ea.	Threshold design to cover existing preparations			
1 ea.	Gasket	Head and jambs by Alum. frame manufacturer.		
1 ea.	Astragal Weather-strip	772SW x door height (in one leaf)	MIL	HAG
1 ea.	Door Sweeps	751S x door width	MIL	HAG

All electrified hardware to be coordinated with the Brandywine School District's system integrator, Advantech, Inc.

END OF SECTION

SECTION 08 1116
ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum frames.

1.02 RELATED REQUIREMENTS

- A. Section 07 9200 - Joint Sealants: Sealing joints between door frames and adjacent construction.
- B. Section 08 1416 - Flush Wood Doors: Wood doors to be installed in aluminum frames specified in this section.
- C. Section 08 7100 - Door Hardware: Hardware for aluminum doors.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's descriptive literature for each type of frame; include information on fabrication methods.
- C. Shop Drawings: Include elevations of each opening type.
 - 1. Verify dimensions by field measurements before fabrication and indicate on shop drawings.
- D. Selection Samples: Complete set of color and finish options, using actual materials, for Architect's selection.
- E. Manufacturer's Qualification Statement.
- F. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver aluminum components in manufacturer's standard protective packaging, palletted, crated, or banded together.
- B. Inspect delivered components for damage and replace. Repaired components will not be accepted.
- C. Store components in clean, dry, indoor area, under cover in manufacturer's packaging until installation.
- D. Protect materials and finish from damage during handling and installation.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide ten year manufacturer warranty for defects in workmanship and materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Aluminum Frames:
 - 1. Doormerica: Interior Aluminum Frames: www.doormerica.com
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FRAMES

- A. Aluminum Frames for Doors, Sidelights, or Transoms: Extruded aluminum, non-thermally broken hollow or C-shaped sections; no steel components.
- B. Aluminum Frames for Doors: Extruded aluminum, non-thermally broken hollow or C-shaped sections.
 - 1. Frame Depth: To fit wall thicknesses as indicated on drawings.
 - 2. Frames for Fire-Rated Doors Specified Elsewhere: Tested in accordance with NFPA 252, listed and labeled by UL (DIR), ITS (DIR), or testing agency acceptable to authorities having jurisdiction.
 - 3. Finish: Class I - Natural anodized.

2.03 COMPONENTS

- A. Frames: Extruded aluminum shapes, not less than 0.062 inch thick, reinforced at hinge and strike locations.
 - 1. Corner Brackets: Extruded aluminum, fastened with stainless steel screws.
 - 2. Trim: Extruded aluminum, not less than 0.062 inch thick, removable snap-in type without exposed fasteners.

2.04 FINISHES

- A. Class I Natural Anodized Finish: Clear anodic coating; AAMA 611 AA-M12C22A41, minimum dry film thickness 0.7 mils.

2.05 ACCESSORIES

- A. Fasteners: Aluminum, non-magnetic stainless steel, or other material warranted by manufacturer as non-corrosive and compatible with aluminum components.
- B. Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible, otherwise, non-magnetic stainless steel or steel hot-dip galvanized in compliance with ASTM A123/A123M.
- C. Bituminous Coating: Cold-applied asphaltic mastic, compounded for 30-mil thickness per coat.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that wall surfaces and openings are ready to receive frames and are within tolerances specified in manufacturer's instructions.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Perform cutting, fitting, forming, drilling, and grinding of frames as required for project conditions.
- B. Replace components with damage to exposed finishes.

- C. Separate dissimilar metals to prevent electrolytic action between metals.

3.03 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and approved shop drawings.
- B. Set frames plumb, square, level, and aligned to receive doors. Anchor frames to adjacent construction in strict accordance with manufacturer's recommendations and within specified tolerances.
- C. Where aluminum surfaces contact metals other than stainless steel, zinc, or small areas of white bronze, protect from direct contact by painting dissimilar metal with heavy coating of bituminous paint.
- D. Hang doors and adjust hardware to achieve specified clearances and proper door operation.
- E. Install door hardware as specified in Section 08 7100.

3.04 CLEANING

- A. Upon completion of installation, thoroughly clean door and frame surfaces in accordance with AAMA 609 & 610.
- B. Do not use abrasive, caustic, or acid cleaning agents.

3.05 PROTECTION

- A. Protect products of this section from damage caused by subsequent construction until Date of Substantial Completion.
- B. Replace damaged or defective components that cannot be repaired to a condition indistinguishable from undamaged components.

END OF SECTION

SECTION 08 1416
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush glazed configuration; fire-rated and non-rated.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood Blocking
- B. Section 08 1416 - Flush Wood Doors.
- C. Section 08 7100 - Door Hardware.
- D. Section 08 8000 - Glazing.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- C. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- D. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
 - 1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
- D. Samples: Submit two samples of door veneer, 6 inch by 6 inch in size illustrating wood grain, stain color, and sheen.
- E. Certificate: Submit labels and certificates required by quality assurance and quality control programs.
- F. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.
- C. Quality Certification:

1. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
2. Provide designated labels on shop drawings as required by certification program.
3. Provide designated labels on installed products as required by certification program.
4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Wood Veneer Faced Doors:
 1. Eggers Industries; ____: www.eggersindustries.com.
 2. Graham Wood Doors; ____: www.grahamdoors.com.
 3. Marshfield DoorSystems, Inc; ____: www.marshfielddoors.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOORS

- A. Doors: Refer to drawings for locations and additional requirements.
 1. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 1. Provide solid core doors at each location.
 2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.

2.03 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.
- B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

2.04 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Red oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
 - 1. Vertical Edges: Same species as face veneer.
 - 2. "Running Match" each pair of doors and doors in close proximity to each other.

2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
 - 1. Provide solid blocks at lock edge for hardware reinforcement.
 - 2. Provide solid blocking for other throughbolted hardware.
- C. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
- D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- F. Provide edge clearances in accordance with the quality standard specified.

2.06 FACTORY FINISHING - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
 - 1. Transparent:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Stain: As selected by Architect.
 - c. Sheen: Flat.

2.07 ACCESSORIES

- A. Aluminum Door Frames: As specified in Section 081116
- B. Glazing: As specified in Section 08 8000.
- C. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.
- D. Door Hardware: As specified in Section 08 7100.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
 - 1. Install fire-rated doors in accordance with NFPA 80 requirements.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.
- E. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

3.05 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 08 4313
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aluminum-framed storefront, with vision glass.
- B. Aluminum doors and frames.
- C. Weatherstripping.
- D. Door hardware.

1.02 RELATED REQUIREMENTS

- A. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.
- B. Section 08 8000 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

- A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; 2015.
- B. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.
- C. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2014 (2015 Errata).
- D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2013.
- E. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- G. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2013.
- J. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- K. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.
- L. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of other components that comprise the exterior enclosure.
- B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details.
- C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.
- D. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
- E. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.
- F. Manufacturer Qualifications Statement.
- G. Installer Qualifications Statement.
- H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Handle products of this section in accordance with AAMA CW-10.
- B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- D. Provide twenty year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

- A. Center-Set Style, Thermally-Broken:
 - 1. Basis of Design: Kawneer Company Inc.; Trifab 451T.
 - 2. System Dimensions: 2 inches wide by 4-1/2 inches deep.

- B. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:
 - 1. YKK AP America Inc: www.ykkap.com.
 - 2. United States Aluminum Corp..
- C. Substitutions: See Section 01 6000 - Product Requirements.
 - 1. For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.02 BASIS OF DESIGN -- FRAMING FOR MONOLITHIC GLAZING

- A. Center-Set Style:
 - 1. Basis of Design: Kawneer Company Inc.; Trifab 451.
 - 2. System Dimensions: 2 inches wide by 4-1/2 inches deep.
- B. SSG Style:
 - 1. Basis of Design: Kawneer Company Inc.; Trifab 45.
 - 2. System Dimensions: 2 inches wide by 4-1/2 inches deep.
- C. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:
 - 1. YKK AP America Inc: www.ykkap.com.
 - 2. United States Aluminum Corp..
- D. Substitutions: See Section 01 6000 - Product Requirements.

2.03 BASIS OF DESIGN -- SWINGING DOORS

- A. Wide Stile, Monolithic Glazing:
 - 1. Basis of Design: Kawneer Company Inc.; 500 Heavy Wall Wide Stile Entrance.
- B. Wide Stile, Insulating Glazing, Thermally-Broken:
 - 1. Basis of Design: Kawneer Company Inc.; 560 Thermal Entrance Wide Stile Entrance.
- C. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:
 - 1. C.R. Laurence Company, Inc; U.S. Aluminum: www.crl-arch.com/sle.
 - 2. YKK AP America Inc: www.ykkap.com.
- D. Substitutions: See Section 01 6000 - Product Requirements.
 - 1. For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.04 STOREFRONT

- A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
 - 1. Glazing Rabbet: For 1 inch insulating glazing.
 - 2. Glazing Rabbet: For 1/4 inch monolithic glazing.
 - 3. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
 - 4. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
 - 5. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.

6. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
 7. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
 8. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
- B. Performance Requirements:
1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
 - a. Design Wind Loads: Comply with requirements of ASCE 7.
 - b. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
 2. Water Penetration Resistance: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.
 3. Air Leakage: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

2.05 COMPONENTS

- A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.
1. Glazing Stops: Flush.
- B. Glazing: As specified in Section 08 8000.
- C. Swing Doors: Glazed aluminum.
1. Finish: Same as storefront.

2.06 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M).
- B. Sheet Aluminum: ASTM B209 (ASTM B209M).
- C. Structural Supporting Anchors Attached to Structural Steel: Design for bolted attachment.
- D. Fasteners: Stainless steel.
- E. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, compatible with flashing material.
- F. Sealant for Setting Thresholds: Non-curing butyl type.
- G. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.07 FINISHES

- A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.
- B. Superior Performing Organic Coatings: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride (PVDF) system.
1. Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness of 0.9 mil; color and gloss as scheduled.

- C. Color: As indicated on drawings.

2.08 HARDWARE

- A. See drawings for hardware schedule.
- B. For each door, include weatherstripping, sill sweep strip, and threshold.
- C. Other Door Hardware: Storefront manufacturer's standard type to suit application.
 - 1. For each door, include pull handle, exit device, closer, and continuous hinge.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
- G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.
- H. Spray foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Set thresholds in bed of sealant and secure.
- J. Install hardware using templates provided.
- K. Install glass in accordance with Section 08 8000, using glazing method required to achieve performance criteria.
- L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.02 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.03 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for independent testing and inspection requirements. Inspection will monitor quality of installation and glazing.

3.04 ADJUSTING

- A. Adjust operating hardware for smooth operation.

3.05 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

- C. Remove excess sealant by method acceptable to sealant manufacturer.
- D. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.06 PROTECTION

- A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes furnishing and installation of door hardware for doors specified in "Hardware Sets" and required by actual conditions. Including screws, bolts, expansion shields, electrified door hardware, and other devices for proper application of hardware.
- B. Where items of hardware are not specified and are required for intended service, such omission, error or other discrepancy to be submitted to Architect fourteen calendar days prior to bid date for clarification by addendum.
- C. Products supplied but not installed under this Section:
 - 1. Hardware for aluminum doors will be furnished under this Section, but installed under Division 08 Openings
 - 2. Electrified hardware will be furnished under this Section, but installed by the security contractor.
- D. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- E. Related Divisions:
 - 1. Division 08 Openings
 - 2. Division 13 Special Construction
 - 3. Division 26 Electrical
 - 4. Division 28 Electronic Safety and Security (NIC) - Advantech directly to the school district.

1.02 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
 - 1. ANSI/BHMA A156.1 Butts & Hinges (2006)
 - 2. ANSI/BHMA A156.3 Exit Devices (2014)
 - 3. ANSI/BHMA A156.4 Door Controls - Closers (2008)
 - 4. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2014)
 - 5. ANSI/BHMA A156.6 Architectural Door Trim (2010)
 - 6. ANSI/BHMA A156.7 Template Hinge Dimensions (2009)
 - 7. ANSI/BHMA A156.8 Door Controls - Overhead Stops and Holders (2010)
 - 8. ANSI/BHMA A156.13 Mortise Locks & Latches (2005)
 - 9. ANSI/BHMA A156.15 Closer Holder Release Devices (2011)
 - 10. ANSI/BHMA A156.16 Auxiliary Hardware (2008)
 - 11. ANSI/BHMA A156.18 Materials & Finishes (2006)
 - 12. ANSI/BHMA A156.21 Thresholds (2009)
 - 13. ANSI/BHMA A156.22 Door Gasketing Systems (2012)
 - 14. ANSI/BHMA A156.26 Continuous Hinges (2006)
 - 15. ANSI/BHMA A156.28 Keying Systems (2007)
 - 16. ANSI/BHMA A156.29 Exit Locks and Alarms (2007)
 - 17. ANSI/BHMA A156.36 Auxiliary Locks (2010)
 - 18. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames (2014)
 - 19. ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames (2006)

- B. International Code Council/American National Standards Institute (ICC/ANSI)/ADA:
 - 1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities 2009
 - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- C. Underwriters Laboratories, Inc. (UL):
 - 1. UL 10C Positive Pressure Fire Test of Door Assemblies
 - 2. UL 1784 Air Leakage Test of Door Assemblies
 - 3. UL/ULC Listed
- D. Door and Hardware Institute (DHI):
 - 1. DHI Publication - Keying Systems and Nomenclature (1989)
 - 2. DHI Publication - Abbreviations and Symbols
 - 3. DHI Publication - Installation Guide for Doors and Hardware
 - 4. DHI Publication - Sequence and Format of Hardware Schedule (1996)
- E. National Fire Protection Agency (NFPA)
 - 1. NFPA 70 National Electrical Code 2014
 - 2. NFPA 80 Standard for Fire Doors and Other Opening Protective's 2013
 - 3. NFPA 101 Life Safety Code 2015
 - 4. NFPA 105 Standard for the Installation of Smoke Door Assemblies 2013
- F. Building Codes
 - 1. IBC International Building Code 2015
 - 2. Local Building Code

1.03 SUBMITTALS

- A. Submit in accordance with Conditions of the Contract and Division 1 Administrative Requirements.
- B. Shop Drawings:
 - 1. Organize hardware schedule organized in vertical format illustrated in DHI Publications Sequence and Formatting for the Hardware Schedule. Include abbreviations and symbols page according to DHI Publications Abbreviations and Symbols. Complete nomenclature of items required for each door opening as indicated.
 - 2. Coordinate final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
 - 3. Architectural Hardware Consultant (AHC), as certified by DHI, who shall affix seal attesting to completeness and correctness, shall review hardware schedule prior to submittal.
- C. Submit manufacturer's catalog sheet on design, grade and function of items listed in hardware schedule. Identify specific hardware item per sheet, provide index, and cover sheet.
- D. Coordination: Distribute door hardware templates to related divisions within fourteen days of receiving approved door hardware submittals.
- E. Electrified Hardware: Provide electrical information to include voltage, and amperage requirements for electrified door hardware and description of operation.
 - 1. Description of operation for each electrified opening to include description of component functions including location, sequence of operation and interface with other building control systems.
 - 2. Wiring Diagrams: Detail wiring for power, signal, and control system and differentiate between manufacturers installed and field installed wiring. Include the following:

- a. System schematic
 - b. Point to point wiring diagram
 - c. Riser diagram
 - d. Elevation of each door
3. Detail interface between electrified door hardware and fire alarm, access control, security, and building control systems.
4. Provide junction boxes, relays and terminal blocks as needed for proper door operations and connections.
- F. Upon door hardware submittal approval, furnish for each electrified opening, three copies of point to point diagrams.
- G. Closeout Submittals: Submit to Owner in a three-ringed binder or CD if requested.
 1. Warranties.
 2. Maintenance and operating manual.
 3. Maintenance service agreement.
 4. Record documents.
 5. Copy of approved hardware schedule.
 6. Copy of approved keying schedule with bitting list.
 7. Door hardware supplier name, phone number and fax number.

1.04 QUALITY ASSURANCE

- A. Listed and Labeled electrified door hardware as defined in NFPA 70, Article 100, by a testing agency acceptable to authority having jurisdiction.
- B. Hardware supplier shall employ an Architectural Hardware Consultant (AHC) as certified by DHI and a member of the seal program who shall be available at reasonable times during course of work for Project hardware consultation.
 1. Electrified Door Hardware Supplier Qualifications: Experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Door hardware conforming to ICC/ANSI A117.1. : Handles, Pulls, Latches, Locks and operating devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
- D. Fire Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and or labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL 10C, unless otherwise indicated.
- E. Fire Door Inspection: Prior to receiving certificate of occupancy have fire rated doors inspected by an independent certified Fire and Egress Door Assembly Inspector (FDAI), as certified by Intertek (ITS), a written report shall be submitted to Owner and Contractor. Doors failing inspection shall be adjusted, replaced or modified to be within appropriate code requirements.
 1. Use for buildings under IBC 2009
- F. Smoke and Draft Control Door Assemblies: Where smoke and draft control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

- G. Door hardware certified to ANSI/BHMA standards as noted, participate and be listed in BHMA Certified Products Directory.
 - H. Substitution request: Include the reason for requesting the substitution, clear catalog copy highlighting the proposed product and options, compliance statement, technical data, product warranty and lead time, to show how the proposed can meet or exceed established level of design function and quality. Approval of request is at the discretion of the owner, architect and their designated consultants.
 - I. Pre-installation Meeting: Comply with requirements in Division 1 Section "Project Meetings."
 - 1. Convene meeting seven days before installation. Participants required to attend:
 - a. Contractor, installer, material supplier, manufacturer representatives, electrical contractor, security consultant and fire alarm consultant. Security/Fire by Advantech directly to S.D.
 - 2. Include in conference decisions regarding proper installation methods and procedures for receiving and handling hardware.
 - 3. Review sequence of operation for each type of electrified door hardware, inspect, and discuss electrical roughing-in and other preparatory work performed by other trades.
 - 4. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - J. Within fourteen days of receipt of approved door hardware submittals contact Owner with representative from hardware supplier to establish a keying conference. Verify keyway, visual key identification, number of master keys and keys per lock. Provide keying system per Owners instructions.
 - K. Installer Qualifications: Specialized in performing installation of this Section and have five years minimum documented experience.
 - L. Hardware listed in 3.07- Hardware Schedule is intended to establish type and grade.
- 1.05 DELIVERY, STORAGE AND HANDLING
- A. Provide clean, dry and secure room for hardware delivered to Project but not yet installed.
 - B. Furnish hardware with each unit marked and numbered in accordance with approved finish hardware schedule. Include door and item number for each type of hardware.
 - C. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.
 - D. Waste Management and Disposal: Separate waste materials for reuse or recycling in accordance with Division 1.
- 1.06 WARRANTY
- A. General Warranty: Owner may have under provisions of the Contract Documents and be an addition and run concurrently with other warranties made by Contractor under requirements of the Contract documents.
 - B. Special Warranty: Warranties specified in this article shall not deprive Owner of other rights.
 - 1. Ten years for manual door closers.
 - 2. Five years for mortise, auxiliary and bored locks.
 - 3. Five years for exit devices.
 - 4. One year for electromechanical door hardware.

- C. Replace or repair defective products during warranty period in accordance with manufacturer's warranty at no cost to Owner. There is no warranty against defects due to improper installation, abuse and failure to exercise normal maintenance.
- D. Maintenance Tool and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, removal and replacement of door hardware.

PART 2 - PRODUCTS

2.01 HINGES

- A. Hinges, electric hinges of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Products to be certified and listed by the following:
 - 1. Butts and Hinges: ANSI/BHMA A156.1
 - 2. Template Hinge Dimensions: ANSI/BHMA A156.7
- C. Butt Hinges:
 - 1. Hinge weight and size unless otherwise indicated in hardware sets:
 - a. Doors up to 36" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .134" and a minimum of 4-1/2" in height.
 - b. Doors from 36" wide up to 42" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .145" and a minimum of 4-1/2" in height.
 - c. For doors from 42" wide up to 48" wide and up to 1-3/4" thick provide hinges with a minimum thickness of .180" and a minimum of 5" in height.
 - d. Doors greater than 1-3/4" thick provide hinges with a minimum thickness of .180" and a minimum of 5" in height.
 - e. Width of hinge is to be minimum required to clear surrounding trim.
 - 2. Base material unless otherwise indicated in hardware sets:
 - a. Exterior Doors: 304 Stainless Steel, Brass or Bronze material.
 - b. Interior Doors: Steel material.
 - c. Fire Rated Doors: Steel or 304 Stainless Steel materials.
 - d. Stainless Steel ball bearing hinges to have stainless steel ball bearings. Steel ball bearings are unacceptable.
 - 3. Quantity of hinges per door unless otherwise stated in hardware sets:
 - a. Doors up to 60" in height provide 2 hinges.
 - b. Doors 60" up to 90" in height provide 3 hinges.
 - c. Doors 90" up to 120" in height provide 4 hinges.
 - d. Doors over 120" in height add 1 additional hinge per each additional 30" in height.
 - e. Dutch doors provide 4 hinges.
 - 4. Hinge design and options unless otherwise indicated in hardware sets:
 - a. Hinges are to be of a square corner five-knuckle design, flat button tips and have ball bearings unless otherwise indicated in hardware sets.
 - b. Out-swinging exterior and out-swinging access controlled doors shall have non-removable pins (NRP) to prevent removal of pin while door is in closed position.
 - c. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
 - d. Electric Through Wire (ETW) to have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware and certified to

handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.

- e. Provide mortar boxes for frames that require any electrically modified hinges if not an integral part of frame.
- f. When shims are necessary to correct frame or door irregularities, provide metal shims only.

5. Acceptable Manufacturers:

	Standard Weight	Heavy Weight
a. Hager Companies	BB1279/BB1191	BB1168/BB1199
b. Bommer	BB5000/BB5002	BB5004/BB5006
c. McKinney	TA2714/TA2314	T4A3786/T4A3386

2.02 CONTINUOUS HINGES

- A. Continuous hinges of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Products to be certified and listed by the following: Continuous Hinges: ANSI/BHMA A156.26 Grade 1
- C. Continuous Geared Hinges:
- D. Determine model number by door and frame application, door thickness, frequency of use, and fire rating requirements according to manufacturer's recommendations.
 - 1. Length of hinge shall be 1" less door height unless otherwise stated in hardware sets.
- E. Material and Design:
- F. Base material: Anodized aluminum manufactured from 6063-T6 material, unexposed working metal surfaces shall be coated with TFE dry lubricant
- G. Bearings:
 - 1. Vertical loads shall be carried on Lubriloy RL bearings for non Fire Rated doors.
 - 2. Continuous hinges shall have a minimum spacing between bearings of 2-9/16". Typical door from 80" to 84" in height to have a minimum of 32 bearings.
 - 3. Options:
 - a. Removable Electric Through-Wire (RETW) shall have appropriate number of wires to transfer power through door frame to door for proper connection of finish hardware. Provide RETW in a form that can be removed for connection, servicing without removing entire hinge from door and frame, and certified to handle an amperage rating of 3.5AMPS/continuous duty with 16.0AMPS/intermittent duty.
 - b. When full width of opening is required, use hinges that are designed to swing door completely from opening when door is opened to 95 degrees.
 - c. Fire rated hinges shall carry UL certification, up to and including 90-minute applications for wood doors and up to 3-hour applications for metal doors.

H. Acceptable Manufacturers:

	Heavy Duty
1. Hager Companies	780-224HD
2. Bommer	FM120HD
3. Zero	914A

2.03 FLUSH BOLTS AND COORDINATORS

- A. Flushbolts of one manufacturer as listed for continuity of design and consideration of warranty.

- B. Standards: Manufacturer to be listed by the following: Auxiliary Hardware: ANSI/BHMA A156.16
- C. Labeled openings: Provide automatic or constant latching flush bolts per hardware schedule for inactive leaf of pairs of doors. Provide dust proof strikes for bottom bolt.
- D. Non-Labeled openings: Provide two flush bolts for inactive leaf of pairs of doors per hardware schedule. Top bolt shall not be more than 78" centerline from floor. Provide dust proof strike for bottom bolt.
- E. Acceptable Manufacturers:
- | | Manual Flush Bolt | Auto Flush Bolt | Dust Proof Strike |
|--------------------|-------------------|-----------------|-------------------|
| 1. Hager Companies | 282D | 292D/295W/296W | 280X |
| 2. Rockwood | 555 | 1942 | 570 |
| 3. Trimco | 3917 | 3815 | 3911 |
- F. Coordinators: Provide for labeled pairs of doors with automatic flush bolts or with vertical rod exit device with a mortise-locking device per hardware schedule. Provide filler piece to extend full width of stop on frame. Provide mounting brackets for closers and special preparation for latches where applicable.
- G. Acceptable Manufacturers:
- | | Coordinator | Bracket | Bracket for stops greater than 2-1/4" |
|--------------------|-------------|---------|---------------------------------------|
| 1. Hager Companies | 297 | 297M | 297N |
| 2. Rockwood | 1600 | 1601AB | 1601C |
| 3. Trimco | 3094 | 3095 | 3096 |

2.04 REMOVABLE MULLIONS

- A. Keyed and non-keyed removable mullions of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Manufacturer to be listed by the following: UL/cUL/Warnock Hersey for fire rated pairs of doors up to 8 feet tall x 8 feet wide opening.
- C. Material and Design:
- For use with rim exit devices on non-rated and fire rated pairs of doors. Mullion 2"x 3"x 11 gage steel tube.
 - Top Fitting:
 - Mullion locked in place without use of a key.
 - Deadlock on fire rated device
- D. Acceptable manufacturers for keyed removable mullions:
- | | Keyed Fire Rated | Keyed Non-Fire Rated |
|---------------------|------------------|----------------------|
| 1. Hager Companies: | 4900TF | 4900T |
| 2. Von Duprin: | KR9954 | KR4954 |
| 3. Sargent: | 12- L980 | L980S |
- E. Acceptable manufacturers for removable mullions:
- | | Fire Rated | Non-Fire Rated |
|---------------------|------------|----------------|
| 1. Hager Companies: | 4900UF | 4900U |
| 2. Von Duprin: | 9954 | 4954 |
| 3. Sargent: | 12- 980 | 980S |

2.05 LOCKS AND LATCHES (GRADE 1 MORTISE)

- A. Locks and latches of one manufacturer as listed for continuity of design and consideration of warranty.
 - 1. ANSI/BHMA A156.13 Series 1000 Certified to Grade 1 for Operational and Security.
 - 2. UL/cUL Labeled and listed up to 3 hours for single doors up to 48" in width and up to 96" in height.
 - 3. UL10C/UBC 7-2 Positive Pressure Rated.
 - 4. ICC/ANSI A117.1.
- B. Lock and latch function numbers and descriptions of manufactures series as listed in hardware sets.
- C. Material and Design:
 - 1. Lock cases from fully wrapped, 12 gauge steel, Zinc dichromate for corrosion resistance.
 - 2. Non-handed, field reversible without opening lock case.
 - 3. Break away spindles to prevent unlocking during forced entry or vandalism.
 - 4. Levers, Zinc cast, Forged Brass or Stainless Steel and plated to match finish designation in hardware sets.
 - 5. Sectional Roses, solid Brass or Stainless Steel material and have a minimum diameter of 2-7/16".
 - 6. Escutcheons, of solid Brass or Stainless Steel material.
 - 7. Armor fronts, self-adjusting to accommodate a square edge door or a standard 1/8" beveled edge door.
- D. Latch and Strike:
 - 1. Stainless Steel latch bolt with minimum of 3/4" throw and deadlocking for keyed and exterior functions.
 - 2. Strike is to fit a standard ANSI A115 prep measuring 1-1/4" x 4-7/8" with proper lip length to protect surrounding trim.
 - 3. Deadbolts to be 1-3/4" total length with a minimum of a 1" throw and 3/4" internal engagement when fully extended and made of Stainless Steel material.
- E. Electric Locks
 - 1. Fail Safe (power lock) Outside trim is locked when power is applied and unlocked when power is removed. Lockset will unlock in the event of a power failure. (EL)
 - 2. Fail Secure (power unlock) Outside trim is locked when there's no power and unlocked when power is applied. Lockset will be locked in the event of a power failure. (EU)
 - 3. Latchbolt monitoring: Single switch SPDT mounted inside lockset monitors full extension of latchbolt. (LM)
 - 4. Door Position Monitor: Single switch SPDT Reed magnetic switch mounted inside lockset monitors whether door is fully closed. (DPM)
 - 5. Request to Exit: Monitors inside lever rotation. (RX)
- F. Acceptable Manufacturers:
 - 1. Hager Companies: 3800 Series.
 - 2. Best: 45 series
 - 3. Sargent: 8200 Series

2.06 MORTISE DEADBOLTS

- A. Mortise deadbolts of one manufacturer as listed for continuity of design and consideration of warranty.

- B. Standards: Manufacturer to be certified by the following:
- C. ANSI/BHMA A156.13 Series 2000 Grade 1 Operational and Security
 - 1. UL/cUL listed for functions up to 3 hours for "A" label
 - 2. UL10C/UBC 7-2 Positive Pressure Rated
 - 3. ADA - Thumbturn
- D. Deadbolt function numbers and descriptions of manufactures series as listed in hardware sets.
- E. Material and Design:
 - 1. Latch bolt projection 1"throw
 - 2. Case steel, zinc dichromate
 - 3. Armor front 5-9/16", case dimension 4-5/16" x 3-9/16" x 1"
- F. Acceptable Manufacturers:
 - 1. Hager Companies: 3830 Series.
 - 2. Best
 - 3. Sargent: 4870 Series

2.07 EXIT DEVICES (GRADE 1)

- A. Exit Devices of one manufacturer as listed for continuity of design and consideration of warranty. Touch pad type, finish to match balance of door hardware
- B. Standards: Manufacturer to be certified and or listed by the following:
 - 1. BHMA Certified ANSI A156.3 Grade 1
 - 2. UL/cUL Listed for up to 3 hours for "A" labeled doors
 - 3. UL10C/UBC 7-2 Positive Pressure Rated
 - 4. UL10B Neutral Pressure Rated
 - 5. UL 305Listed for Panic Hardware
- C. Material and Design:
 - 1. Touch pad shall extend a minimum of one half-door width. Freewheeling lever design shall match design of locks levers. Exit device to mount flush with door.
 - 2. Latchbolts:
 - a. Rim device - 3/4" throw, Pullman type with automatic dead-latching, stainless steel
 - b. Surface vertical rod device - Top 1/2" throw, Pullman type with automatic dead-latching, stainless steel. Bottom 1/2" throw, Pullman type, held retracted during door swing, stainless steel.
 - 3. Fasteners: Wood screws, machine screws and thru-bolts.
- D. Lock and Latch Functions: Function numbers and descriptions of manufacturer's series and lever styles indicated in door hardware sets.
- E. Acceptable Manufacturers:
 - 1. Hager Companies: 4500 Series/4600 Series
 - 2. Von Duprin: 99 Series/ 33 series
- F. Electric Modifications:
 - 1. Electric Motor Latch Retraction: Motors retract the latch bolt for momentary or maintained periods of time.
 - 2. Provide Request to Exit (REX) switches as scheduled.

2.08 CYLINDERS AND KEYING

- A. Cylinders of one manufacturer as listed for continuity of design and consideration of warranty.

- B. Standards: Manufacturer shall meet the following:
 - 1. Auxiliary Locks: ANSI/BHMA A156.5
 - 2. DHI Handbook "Keying systems and nomenclature" (1989)
- C. Cylinders:
 - 1. Manufacturer's standard tumbler type.
 - 2. Furnish with cams/tailpieces as required for locking device that is being furnished for project.
- D. Keying:
 - 1. Conduct a keying meeting the owner's representative, to establish their requirements.
 - 2. Copy of Owners approved keying schedule submitted to Owner and Architect with documentation of which keying conference was held and Owners sign-off.
 - 3. Provide a bitting list to Owner of combinations as established, and expand to twenty five percent for future use or as directed by Owner.
 - 4. Key into Owner's existing keying system.
 - 5. Keys to be shipped to Owner's representative, individually tag per keying conference.
 - 6. Provide visual key control identification on keys.
- E. Acceptable manufacturers:
 - 1. Hager Companies
 - 2. Schlage

2.09 PUSH/PULL BARS AND OFF-SET PULLS

- A. Push/Pull bars and pulls of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Manufacturer to be certified by the following:
 - 1. Architectural Door Trim: ANSI/BHMA A156.6
 - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- C. Push Pull Bar Sets: 1" round bar stock with 2 1/2" clearances from face of door. Offset 3", 90-degree standard. Center to center size should be door width less 1 stile width.
- D. Acceptable Manufacturers:

	Push/Pull Bar	Off-set Pull
1. Hager Companies:	157	11J
2. Rockwood		
3. Trimco		

2.10 CLOSERS (CAST IRON BODY GRADE 1)

- A. Closers of one manufacturer as listed for continuity of design and consideration of warranty. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendation for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating.
- B. Standards: Manufacturer to be certified and or listed by the following:
 - 1. BHMA Certified ANSI A156.4 Grade 1
 - 2. ADA Compliant ANSI A117.1
 - 3. UL/cUL Listed up to 3 hours.
 - 4. UL10C Positive Pressure Rated
 - 5. UL10B Neutral Pressure Rated
- C. Material and Design:
 - 1. Provide cast iron non-handed bodies with full plastic covers.

2. Closers shall have separate staked adjustable valve screws for latch speed, sweep speed, and backcheck.
3. Provide Tri-Pack arms and brackets for regular arm, top jamb, and parallel arm mounting.
4. One-piece seamless steel spring tube sealed in hydraulic fluid.
5. Double heat-treated steel tempered springs.
6. Precision-machined heat-treated steel piston.
7. Triple heat-treated steel spindle.
8. Full rack and pinion operation.

D. Mounting:

1. Out swing doors use surface parallel arm mount closers except where noted on hardware schedule.
2. In swing doors use surface regular arm mount closers except where noted on hardware schedule.
3. Provide brackets and shoe supports for aluminum doors and frames to mount fifth screw.
4. Furnish drop plates where top rail conditions on door do not allow for mounting of closer and where backside of closer is exposed through glass.

E. Size closers in compliance with requirements for accessibility (ADDAG). Comply with following maximum opening force requirements.

1. Interior hinged openings: 5.0 lbs.
2. Fire rated and exterior openings use minimum opening force allowable by authority having jurisdiction.

F. Fasteners: Provide self-reaming and self-tapping wood and machine screws and sex nuts and bolts for each closer.

G. Acceptable manufacturers:

1. Hager Companies: 5100 Series
2. LCN: 4040 Series
3. Sargent: 281 Series

2.11 SENTRONIC CLOSERS

A. Sentronic closers of one manufacturer as listed for continuity of design and consideration of warranty. Unless otherwise indicated on hardware schedule, comply with manufacturer's recommendation for size of closer, depending on width of door, frequency of use, atmospheric pressure, ADAAG requirements, and fire rating.

B. Standards: Manufacturer to be certified and or listed by the following:

1. BHMA Certified ANSI A156.15 Grade 1
2. ADA Compliant ANSI A117.1
3. UL/cUL Listed up to 3 hours.

C. Material and Design:

1. Provide cast iron non-handed bodies with full plastic covers.
2. Closers separate staked adjustable valve screws for latch speed, sweep speed, and backcheck.
3. 24V or 120V
4. Adjustable hold-open force
5. Momentary on/off switch board assembly for testing door release
6. Concealed or surface wiring
7. Interfaces with alarm systems

- D. Mounting:
 - 1. Mounts either (stop face) push or (hinge) pull side
 - 2. Single point hold open
- E. Size closers in compliance with requirements for accessibility (ADDAG). Comply with following maximum opening force requirements.
 - 1. Interior hinged openings: 5.0 lbs.
 - 2. Fire rated and exterior openings shall have minimum opening force allowable by authority having jurisdiction.
- F. Fasteners: Provide self-reaming and self-tapping wood and machine screws and sex nuts and bolts for each closer.
- G. Acceptable manufacturer:
 - 1. LCN 4040SE

2.12 PROTECTIVE TRIM

- A. Protective trim of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Size of protection plate: Single doors, size two inches less door width (LDW) on push side of door, and one inch less on pull side of door. For pairs of doors, size one inch less door width (LDW) on push side of door, and ½ inch on pull side of door.
 - 1. Kickplates 10" high or sized to door bottom rail height
- C. Standards: Manufacturer shall meet requirements for:
 - 1. Architectural Door Trim: ANSI/BHMA A156.6
 - 2. UL
- D. Material and Design:
 - 1. 0.050" gage stainless steel
 - 2. Corners square, polishing lines or dominant direction of surface pattern shall run across door width of plate.
 - 3. Bevel top, bottom and sides uniformly leaving no sharp edges.
 - 4. Provide countersink holes for screws for all protection plates. Screws holes shall be spaced equidistant eight inches CTC, along a centerline not over ½ inch in from edge around plate. End screws maximum of 0.53 inch from corners.
- E. UL label stamp required on protection plates when top of plate is more than 16 inches above bottom of door on fire rated openings. Verify door manufactures UL listing for maximum height and width of protection plate to be used.
- F. Acceptable Manufacturers:
 - 1. Hager Companies: 190S B4E CSK
 - 2. Trimco
 - 3. Burns

2.13 STOPS AND HOLDERS

- A. Stops and holders of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Wall Stops: Provide door stops wherever necessary to prevent door or hardware from striking an adjacent partition or obstruction. Provide wall stops when possible. Door stops and holders mounted in concrete floor or masonry walls have stainless steel machine screws and lead expansion shields.

- C. Standards: Manufacturer shall meet requirements for:
1. Auxiliary Hardware: ANSI/BHMA A156.16
- D. Acceptable Manufacturers:
- | | Convex | Concave |
|--------------------|--------|---------|
| 1. Hager Companies | 232W | 236W |
| 2. Rockwood | | |
| 3. Burns | | |
- E. Overhead Stops and Holders: Provide overhead stop and holders for doors that open against equipment, casework sidelights and other objects that would make wall stops/holders and floor stops/holders inappropriate. Provide sex bolt attachments for mineral core wood door applications.
- F. Standards: Manufacturer shall be certified by the following:
1. Overhead Stops and Holders: ANSI/BHMA A156.8 Grade 1
- G. Acceptable Manufacturers:
- | | Heavy Duty Surface | Heavy Duty Concealed |
|--------------------|--------------------|----------------------|
| 1. Hager Companies | 7000 SRF Series | 7000 CON Series |
| 2. Glynn Johnson | 90 Series | 100 Series |
| 3. Sargent | 590 Series | |

2.14 KEY SWITCHES

- A. Key switches of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Material and Design:
1. Single gang, wall mounted, recessed mortise cylinder.
 2. Tamper resistance spanner screws.
 3. 20 gauge stainless steel faceplate.
- C. Functions:
1. Momentary (MO)
 2. Timed actuation (1-60 seconds)
 3. Alternate action (on/off) (AA)
- D. Options:
1. Anti-tamper switch (ATS)
 2. One (1) green LED (LEDG)
 3. One (1) red LED (LEDR)
 4. One (1) green LED and one (1) red LED (2LED)
- E. Acceptable Manufacturers:
- | | (AA) SPDT | (MO) SPDT | (AA) DPDT | (MO) DPDT |
|--------------------|-----------|-----------|-----------|-----------|
| 1. Hager Companies | 29KS ASD | 29KS MSD | 29KS ADD | 29KS MDD |
| 2. SDC | 701 | 702 | 705 | 706 |
| 3. RCI | | | | |

2.15 POWER SUPPLY (FOR MODULAR ACCESS CONTROL)

- A. Power supplies of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Standards: Manufacturer shall meet requirements for:

1. UL Listed

C. Design:

1. Use with modular access control systems
2. Field selectable filtered and regulated 12 VDC or 24 VDC constant voltage
3. 2 AMP load capacity
4. Circuit breaker protected AC input voltage, secondary output PTC protected
5. Fire alarm input provides simultaneous release of Fail Safe locks and holders
6. Interface relay
7. LED status indicators provide information regarding AC input, DC output, and battery backup status.
8. Separate inputs for activation switch on entry and egress and ingress side of opening.
9. 5 amp hour battery backup
10. Input 115 VAC (230 VAC optional)
11. Optional dual 12 VDC or 24 VDC output

D. Acceptable Manufacturer:

1. Hager Companies 2909

2.16 DOOR GASKETING AND WEATHERSTRIP

- A. Door gasketing and weather-strip of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing where indicated on hardware schedule. Provide non-corrosive fasteners for exterior applications.
 1. Perimeter gasketing: Apply to head and jamb, forming seal between door and frame.
 2. Meeting stile gasketing: Fasten to meeting stiles, forming seal when doors are in closed position.
 3. Door bottoms: Apply to bottom of door, forming seal with threshold or floor when door is in closed position.
 4. Sound Gasketing: Cutting or notching for stop mounted hardware not permitted.
 5. Drip Guard: Apply to exterior face of frame header. Lip length to extend 4" beyond width of door.

2.17 STANDARDS: MANUFACTURER SHALL MEET REQUIREMENTS FOR:

- A. Door Gasketing and Edge Seal Systems: ANSI/BHMA A156.22
- B. BHMA certified for door sweeps, automatic door bottoms, and adhesive applied gasketing. (721)
- C. Smoke-Labeled Gasketing: Comply with NFPA 105 listed, labeled, and acceptable to authorities having jurisdiction, for smoke control indicated.
- D. Provide smoke labeled gasketing on 20 minute rated doors and on smoke rated doors.
- E. Fire-Rated Gasketing: Comply with NFPA 80 listed, labeled, and acceptable to Authorities Having Jurisdiction, for fire ratings indicated.
- F. Refer to Section 08 1416 Wood Doors for Category A or Category B. Comply with UBC 7-2 and UL10C positive pressure where frame applied intumescent seals are required. Provide Hager # 720 for single and 720 x 724 for a pair of doors.
- G. Acceptable Manufacturers:
 1. Meeting Stile Weatherstrip:

- a. Hager Companies: 772SW 756SV
- b. K.N. Crowder:
- c. Reese:
- 2. Door Bottom Sweeps:
 - a. Hager Companies: 751SW
 - b. K.N. Crowder:
 - c. Reese:

2.18 THRESHOLDS

- A. Thresholds of one manufacturer as listed for continuity of design and consideration of warranty.
- B. Set thresholds for exterior and acoustical openings in full bed of sealant with lead expansion shields and stainless steel machine screws complying with requirements specified in Division 7 Section "Joint Sealants". Notched in field to fit frame by hardware installer. Refer to Drawings for special details.
- C. Standards: Manufacturer to be certified by the following:
 - 1. Thresholds: ANSI/BHMA A156.21
 - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- D. Acceptable Manufacturers:
 - 1. Hager Companies: 412S 655S
 - 2. K.N. Crowder
 - 3. Reese

2.19 SILENCERS

- A. Where smoke, light, or weather seal are not required, provide three silencers per single door frame, two per double door frame and four per Dutch door frame.
- B. Standards: Manufacturer shall meet requirements for:
- C. Auxiliary Hardware: ANSI/BHMA A156.16
- D. Acceptable Manufacturers:

	Hollow Metal Frame	Wood Frame
1. Hager Companies:	307D	308D
2. Rockwood:		
3. Trimco:		

2.20 FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if within range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples.
- B. Comply with base material and finish requirements indicated by ANSI/BHMA A156.18 designations in hardware schedule.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install hardware per manufacturer's instructions and in compliance with:
 - 1. NFPA 80.
 - 2. NFPA 105.
 - 3. ICC/ANSI A117.1.
 - 4. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames
 - 5. ANSI/BHMA A156.115W Hardware Preparation in Wood Doors with Wood or Steel Frames
 - 6. DHI Publication - Installation Guide for Doors and Hardware
 - 7. UL10C/UBC7-2
 - 8. Local building code.
 - 9. Approved shop drawings.
 - 10. Approved finish hardware schedule.
- B. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

3.03 FIELD QUALITY CONTROL

- A. Material supplier to schedule final walk through to inspect hardware installation ten business days before final acceptance of Owner. Material supplier shall provide a written report detailing discrepancies of each opening to General Contractor within seven calendar days of walk through.

3.04 ADJUSTMENT, CLEANING AND DEMONSTRATING

- A. Adjustment: Adjust and check each opening to ensure proper operation of each item of finish hardware. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application at no cost to Owner.
- B. Cleaning: Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no cost to Owner.
- C. Demonstration: Conduct a training class for building maintenance personnel demonstrating the adjustment, operation of mechanical and electrical hardware. Special tools for finished hardware to be turned over and explained usage at this meeting.

3.05 PROTECTION

- A. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts Project as complete.

3.06 HARDWARE SET SCHEDULE

- A. Guide: Door hardware items have been placed in sets which are intended to be a guide of design, grade, quality, function, operation, performance, exposure, and like characteristics of door hardware, and may not be complete. Provide door hardware required to make each set complete and operational.

- B. Hardware schedule does not reflect handing, backset, method of fastening and like characteristics of door hardware and door operation.
- C. Review door hardware sets with door types, frames, sizes and details on drawings. Verify suitability and adaptability of items specified in relation to details and surrounding conditions.

END OF SECTION

SECTION 08 8000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulating glass units.
- B. Monolithic glass units.
- C. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 08 4313 - Aluminum-Framed Storefronts: Glazing furnished as part of storefront assembly.
- B. Section 08 5113 - Aluminum Windows: Glazing furnished by window manufacturer.

1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2015).
- C. ASTM C1036 - Standard Specification for Flat Glass; 2016.
- D. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.
- F. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2015.
- G. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.
- H. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.
- I. GANA (SM) - GANA Sealant Manual; 2008.
- J. ICC (IBC) - International Building Code; 2015.
- K. ITS (DIR) - Directory of Listed Products; current edition.
- L. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2014.
- M. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2014.
- N. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2014.
- O. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

- C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Product Data and Shop Drawings on Laminated Graphics.
- E. Certificate: Certify that products of this section meet or exceed specified requirements.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.06 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 40 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
- C. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including replacement of failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Float Glass Manufacturers:
 - 1. Cardinal Glass Industries: www.cardinalcorp.com.
 - 2. Guardian Glass, LLC: www.guardianglass.com.
 - 3. Pilkington North America Inc: www.pilkington.com/na.
 - 4. PPG Industries, Inc: www.ppgideascales.com.

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

- A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
 - 1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
 - 2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
 - 3. Glass thicknesses listed are minimum.
- B. Thermal and Optical Performance: Provide glass products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:

1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless noted otherwise.
1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality-Q3.
 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048, Kind HS and FT.
 3. Tinted Type: ASTM C1036, Class 2 - Tinted, Quality-Q3, color and performance characteristics as indicated.
 4. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

2.04 INSULATING GLASS UNITS

- A. Manufacturers:
1. Any of the manufacturers specified for float glass.
- B. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
 2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
 3. Warm-Edge Spacers: Polypropylene and stainless steel.
 - a. Spacer Width: As required for specified insulating glass unit.
 - b.
 4. Spacer Color: Black.
 5. Edge Seal:
 - a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
 6. Color: Black.
 7. Purge interpane space with dry air, hermetically sealed.
- C. Type IG-1 - Insulating Glass Units: Vision glass, double glazed.
1. Applications: Exterior glazing unless otherwise indicated.
 2. Space between lites filled with argon.
 3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
 - a. Tint: Gray.
 - b. Coating: Low-E (passive type), on #2 surface.
 4. Inboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
 - a. Tint: Clear.
 5. Total Thickness: 1 inch.
 6. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.29, nominal.
 7. Visible Light Transmittance (VLT): 51 percent, nominal.
 8. Solar Heat Gain Coefficient (SHGC): 0.23, nominal.
 9. Glazing Method: Dry glazing method, gasket glazing.
- D. Type IG-3 - Insulating Glass Units: Spandrel glazing.

1. Applications: Exterior spandrel glazing unless otherwise indicated.
2. Space between lites filled with argon.
3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
 - a. Tint: Gray.
4. Inboard Lite: Fully tempered float glass, 1/4 inch thick.
 - a. Tint: Clear.
 - b. Opacifier: Ceramic frit, on #4 surface.
5. Total Thickness: 1 inch.
6. Glazing Method: Dry glazing method, gasket glazing.

2.05 GLAZING UNITS

- A. Type G-1 - Monolithic Exterior Vision Glazing:
 1. Applications: as shown on drawings.
 2. Glass Type: Laminated float glass.
 3. Tint: Clear.
 4. Thickness: 1/4 inch, nominal.
 5. Glazing Method: Dry glazing method, gasket glazing.
- B. Type G-3 - Fire-Resistance-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and blocks radiant heat, as required to achieve indicated fire-rating period exceeding 45 minutes.
 1. Applications:
 - a. Glazing in fire-rated door assembly.
 2. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
 3. Safety Glazing Certification: 16 CFR 1201 Category II.
 4. Fire-Rating Period: 60 minutes.
 5. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
 6. Products:
 - a. SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XLM 60:
www.safti.com/#sle.
 - b. Substitutions: Refer to Section 01 6000 - Product Requirements.

2.06 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
- D. Glazing Splines: Resilient polyvinyl chloride extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.
- E. Adhered Vinyl Window Graphics:
 1. Coordinate with Signage Contractor

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 PREPARATION

- A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

- A. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

- A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 CLEANING

- A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
- B. Remove non-permanent labels immediately after glazing installation is complete.
- C. Clean glass and adjacent surfaces after sealants are fully cured.
- D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.06 PROTECTION

- A. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION