TOWN OF GLASTONBURY

GL-2015-17

Window and Door Replacement - Gideon Welles School

ADDENDUM NO. 2

01/26/15

Bid Due Date: 01/29/15 @ 11:00A.M.

The attention of bidders submitting proposals for the above-referenced project is called to the following Addendum to the specifications. The items set forth herein, whether of omission, addition, substitution or other change, are all to be included in and form a part of the proposed Contract Documents for the work. Bidders shall acknowledge this Addendum in the Bid Proposal by inserting its number on Page BP-1.

Question 1: The drawings show the bricks being removed around all four sides of the existing louvers. Are the bricks above the lintels/louvers contaminated with PCBs too? If not do they still require removal?

Answer: Caulking would be at jambs, and sill only in contact with brick for louvers. The head if caulked will be from louver to lintel. As such the steel lintel can be cleaned to remove caulk and confirmed with testing, so there will be no need to remove brick above the lintels.

Question 2: There is no specification for insulated panels.

Answer: The specification for insulated panels is in Spec Section 08410/2.3/B/1, 2, 3, "Aluminum Entrances and Storefront Framing."

Question 3: There is no spandrel glass required?

Answer: No, spandrel glass is **not** required. Delete Section 08800 "Glazing" in its entirety and replace with revised Section 08800 "Glazing" attached to end of this Addendum.

Question 4: What is the extent of the electrical work?

Answer: The electrical work is to reconnect any devises that are mounted on doors or windows that are being removed or anything that is mounted on any of the brick being removed. I.e. alarm system, exit signs and any other minor electrical that might be around the new windows and doors.

Question 5: Is there a hardware specification?

Answer: Yes, there is a hardware specification, attached to the end of this Addendum.

Question 6: Drawing HM-02 note #3 refers to grass/soil and there is a line drawn that looks to be indicating area of grass/soil. Is this area to be removed by abatement contractor? Can you clarify the work related to the asphalt and soil removal by abatement contractor? For example can abatement contractor remove asphalt and GC or GC sub dig out the soil and prep for the new asphalt/base?

Answer: The abatement contractor is responsible for the removal and disposal of the asphalt perimeter as PCB Remediation Waste as indicated on drawings by note #3. Note 3 does not reference any scope of work for soil. Soil beneath the asphalt will be tested by EnviroScience following asphalt removal to verify no contamination. The note "grass/soil" is just to identify the locations of landscaping and not indicative of any scope of work. The cross hatch shows the extent of asphalt removal. The asphalt is in the form of a narrow apron around building perimeter at base of foundation.

Question 7: The door schedule on drawing A7 says to see specs for hardware, however there is no hardware spec or schedule within the spec book, please advise on hardware.

Answer: Specification section 08710 "Door Hardware" is attached to the end of this Addendum. This door hardware section includes the door hardware schedule.

Question 8: Allowance #3 calls for 500sq ft allowance of casing, should this be quantified in lineal feet? It also states 0-3/4" i think the casing there was 2-1/4"x3/4". Please advise.

Answer: Allowance No. 3, "Wood Trim Replacement Allowance", in Section 01019 "Contract Considerations" has been revised. Delete Section 01019 in its entirety and replace with revised Section 01019 attached to the end of this Addendum.

Question 9 In Section 02086 PCB Remediation it includes removal of interior caulk and substrates around the 2001 corridor windows as PCB Remediation Waste. Are these windows scheduled to be removed and replaced? How will the windows be disposed of and/or cleared for disposal as clean C&D? Note: we cannot remove the substrate without removing the window units.

Answer: 2001 Corridor windows are **not** scheduled to be replaced. If window removal is necessary, then contractor is responsible for reinstalling windows.
They can be cleaned and re-installed. The interior caulk, as well as brick/wood in contact with the caulk, is to be removed. The windows may need to be removed as noted to remove the adjacent masonry.

Question 10 Section 02086 PCB Remediation includes removal of the caulk and brick substrate around the louver vents. The specification indicates 48 vents. Can you provide the dimensions of the vents?

Answer: The Architectural drawings are scaled, and thus dimensions can be scaled from drawings.

Question 11 Will chemical/mechanical stripping of porous paint on the surface of the vents be required for clearance and reuse? What will be required for clearance of the vents for reuse?

Answer: If painted, paint will need to be removed. Visual inspection and wipe sampling will be used to demonstrate clean for re-use.

Question 12 Specification Section 02080 describes abatement of floor tile at the foot of the windows scheduled for removal. Will the abatement of the carpet/floor tile/mastic be performed at the interior of the building envelope under full containment with air clearances? Can any of this work be performed over weekends/vacations prior to the end of the school year?

Answer: Abatement of floor tile is not planned and as indicated in the specifications an allowance if the work would disturb or tiles are loose only. Work would be in full or mini-containment based on the extent of removal required on a case by case basis with clearance. The nature of the removal is as needed so there is no plan to do this removal ahead of the window replacement work. The work **can** be performed over weekends/vacations prior to the end of the school year, as long as it does not require shutting the school down (i.e. abatement activities which would impact community use).

Question 13 Concrete slabs that were in contact with PCB window caulk require encapsulation. Will the epoxy encapsulant interfere with the new flooring installation?

Answer: Determination will need to be made based on flooring manufacturer and the type of encapsulant utilized. According to Armstrong Industries' Technical help line, the epoxy encapsulant should not interfere with the installation of the VCT floor. They indicated that it is common for their VCT to be successfully installed over epoxy coatings. According to Mannington Mills technical help, the epoxy encapsulant will not interfere with the new flooring installation, either VCT or Carpet, as long as the epoxy encapsulant is scarified. It is recommended then, to scarify the epoxy encapsulant for the new flooring installation.

Question 14 Where carpet removal is required to access the floor tile/mastic that has to be abated – what are the replacement requirements?

Answer: Replace the carpet in kind.

Question 15 How thick is the asphalt scheduled for removal as PCB Remediation Waste?

Answer: 4-5 inches maximum.

Question 16 Will the PCB Remediation Plan submitted to the EPA for approval be available prior to bidding?

Answer: PCB Remediation Plan will be provided to selected Vendor upon request.

Question 17 Alternate 4 – Requires Part A be completed by August 2015 and Part B be completed by August 2016. Is the base bid for completing A & B both by August 2015? Will multiple shifts be allowed over the summer 2015 if necessary?

Answer: The base bid is **not** for completing both **A** and **B** by August 2015. The base bid requires completion of **A** by August 2015, and **B** by August 2016.
Yes, the building will be available 24 hours per day and multiple shifts will be allowed over the summer of 2015, if necessary.

Question 18: We are wondering what the intent is on PCB brick and block removal. Is the intent to:

1. tooth in the next course or
2. fill in as it is removed.

Answer: Expectation is all removal of hazmat, confirm with samples by EuroScience and Fuss and O'Neill, and then re-build, toothing in bricks removed, not cutting bricks.

Question 19 The spec calls for the floor tile (ACM VCT) to be removed one section of tile in from the window and as the spec reads it implies full containment of the classroom. But the area is about 4 ft. x 1 ft. This is a significant cost for such a small area for so many windows. Is this the approach that is going to be used to remove the floor tile?

Answer: The tile removal is as needed only (for loose tile or where new window installation will require removal due to the wider window assembly. Anything over 3 SF requires full containment. Quantity will be as determined by necessity and we are not planning removal of one row in front of each and every window. Drawings have the note, but the quantity in spec identifies it is on an as needed basis only more of an allowance item.

Question 20 Also, it calls for shot blasting with minimal use of chemical removal around the edges to remove mastic. Much of the tile is under radiators and even if not, there is no shot blaster that can run that close to the vertical surface of the window to remove mastic affectively. Would it be possible to use another method to remove the mastic?

Answer: We are seeking methods which will limit chemical usage which could interfere with any new installations of tile, mastic and/or encapsulants. Agreed use of blast tract may be limited but intent is an abrasive removal so use of hand held grinders would also be acceptable.

SUMMARY OF REVISED SPECIFICATION SECTIONS AND DRAWINGS

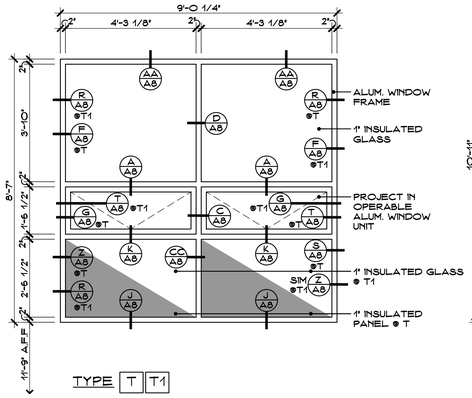
1. Delete Section 01019 "Contract Considerations" in its entirety and replace with revised Section 01019 "Contract Considerations" attached to the end of this Addendum.
2. Delete Section 08800 "Glazing" in its entirety and replace with revised Section 08800 "Glazing" attached to end of this Addendum.
3. Delete Drawing A-7 and replace with revised Drawing A-7, attached to the end of this Addendum.

SUMMARY OF ADDED SPECIFICATION SECTIONS

1. Specification section 08710 "Door Hardware" is attached to the end of this Addendum. This door hardware section includes the door hardware schedule.

Note: This addendum consists of 31 pages including the above text, and one (1) Drawing.

END OF TEXT



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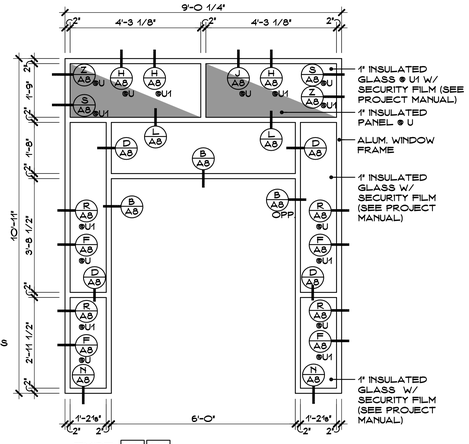

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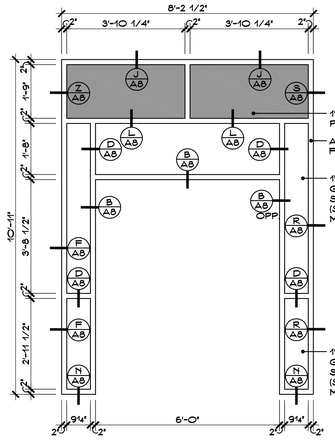

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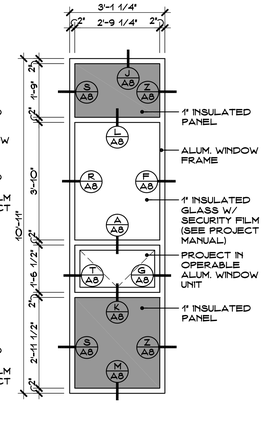

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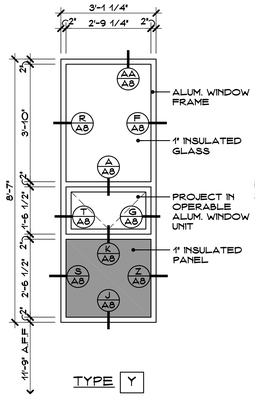

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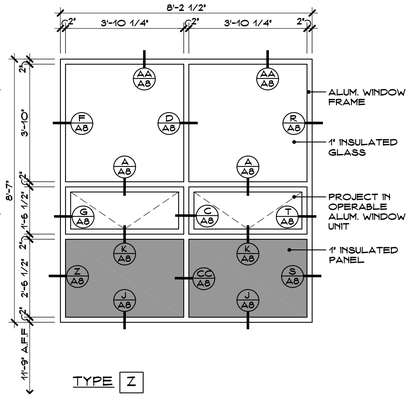

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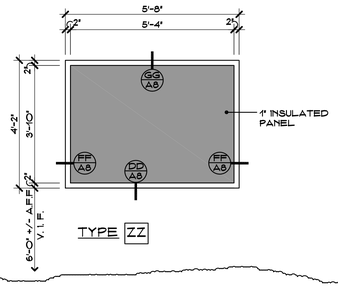

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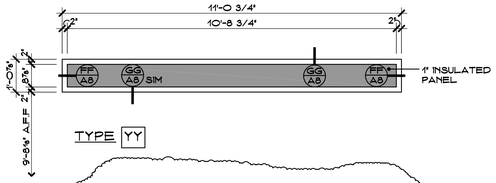

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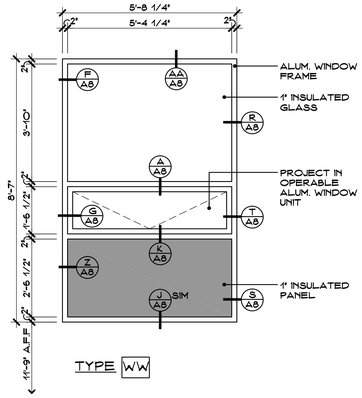


TYPE WW

DOOR SCHEDULE

DOOR NUMBER	SIZE: DOUBLE LEAF DOOR	SIZE: 3'-0" X 7'-0"	SIZE: 2'-4" X 7'-0"	SIZE:	SIZE:	SIZE:	SIZE:	SPECIAL - SEE REMARKS	DOOR: TYPE	DOOR: MATERIAL	DOOR: GLAZING	FRAME: TYPE - SEE FRAME ELEV.	FRAME: MATERIAL	FRAME: DETAIL/SHEET NO.: HEAD DETAIL	FRAME: DETAIL/SHEET NO.: JAMB DETAIL	FRAME: DETAIL/SHEET NO.: SADDLE DETAIL	HARDWARE - SEE SPEC.: FIRECODE: PANIC RELEASE LATCH	FIRECODE: LATCHING/LOCKABLE	FIRECODE: AUTOMATIC CLOSER	FIRECODE: ELECTRO-MECH. CLOSER	FIRECODE: DELAYED ACTION CLOSER	FIRECODE: PUSH/PULL/LOCKABLE	DISABLED REQ.: LEVER HANDLES/LOCK.	DISABLED REQ.: ARMOR PLATES	DISABLED REQ.: TACTILE WARNING	DISABLED REQ.: ACCESSIBLE THRESHOLD	DISABLED REQ.: SIGNAGE	DISABLED REQ.: KICK PLATES	REMARKS
101	●	●						1	AL.	1" INSUL/TEMP. W/ SF		U	AL.	B/A8	B/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3
102		●						2	AL.			L	AL.	B/A8	OVER/A8	P/A8	●	●			●		●		●	●	NOTE: 1,2,3
103	●	●	●					2/3	AL.			K	AL.	B/A8	O/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3
104	●	●	●					1/3	AL.	1" INSUL/TEMP. W/ SF		K	AL.	B/A8	O/A8	P/A8	●	●			●		●		●	●	NOTE: 1,2,3
105	●	●	●					1/3	AL.	1" INSUL/TEMP. W/ SF		K	AL.	B/A8	O/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3
106	●	●	●					2/3	AL.			K	AL.	B/A8	O/A8	P/A8		●			●	EX			●	●	NOTE: 1,3,4
107	●	●	●					2/3	AL.			K	AL.	B/A8	O/A8	P/A8		●			●	EX			●	●	NOTE: 1,3,4
108	●	●	●					2/3	AL.			K	AL.	B/A8	O/A8	P/A8	●	●			●				●	●	NOTE: 1&3
109	●	●	●					2/3	AL.			P	AL.	B/A8	U/A8	P/A8	●	●			●				●	●	NOTE: 1&3
110	●	●	●					2/3	AL.			N	AL.	B/A8	U/A8	P/A8	●	●			●				●	●	NOTE: 1&3
111	●	●	●					2/3	AL.			N	AL.	B/A8	U/A8	P/A8	●	●			●				●	●	NOTE: 1&3
112	●	●	●					2/3	AL.			N	AL.	B/A8	U/A8	P/A8	●	●			●		●		●	●	NOTE: 1,2,3
113	●	●	●					2/3	AL.			N	AL.	B/A8	U/A8	P/A8	●	●			●				●	●	NOTE: 1&3
114	●	●	●					2/3	AL.			N	AL.	B/A8	U/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3
115	●	●	●					2/3	AL.			N1	AL.	B/A8	U/A8	P/A8		●			●		●		●	●	NOTE: 1&3
116	●	●						1	AL.	1" INSUL/TEMP. W/ SF		V	AL.	B/A8	B/A8	P/A8	●	●			●				●	●	NOTE: 1&3
117		●						1	AL.	1" INSUL/TEMP. W/ SF		F	AL.	B/A8	OVER/A8	P/A8	●	●			●		●		●	●	NOTE: 1,2,3
118		●						1	AL.	1" INSUL/TEMP. W/ SF		F	AL.	B/A8	OVER/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3
119		●						2	AL.			F	AL.	B/A8	OVER/A8	P/A8	●	●			●		●			●	NOTE: 1&3
120		●						2	AL.			F	AL.	B/A8	OVER/A8	P/A8	●	●			●		●			●	NOTE: 1&3
121	●	●						1	AL.	1" INSUL/TEMP. W/ SF		U1	AL.	B/A8	B/A8	P/A8	●	●			●		●		●	●	NOTE: 1&3

REMARKS
- ● - INDICATES NEW WORK
- ○ - INDICATES EXISTING TO REMAIN
- □ - INDICATES EXISTING TO BE REMOVED & REPLACED
- ■ - INDICATES EXISTING TO BE REMOVED

LEGEND

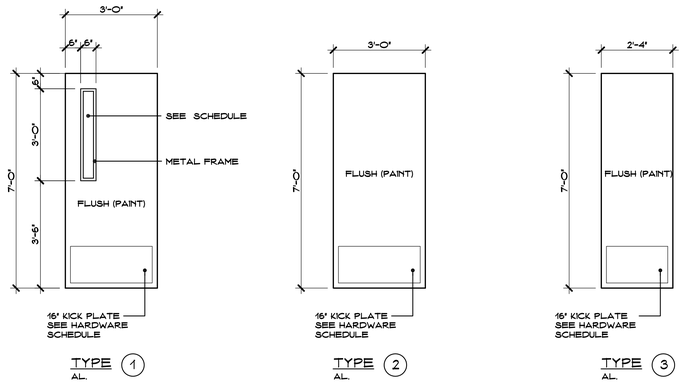
INSUL. - INSULATED
TEMP. - TEMPERED
AL - ALUMINUM
SF - SECURITY FILM
EX - EXISTING

GENERAL NOTES

1. ALL NEW GLAZING TO BE 1" INSUL. TEMPERED AT EXTERIOR DOORS AND SIDELIGHTS.
2. SEE FLOOR PLANS FOR DEMOLITION NOTES.
3. CONTRACTOR TO FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
4. FOR ALL HEAD AND JAMB TYPES LISTED ON THE DOOR SCHEDULE SEE DRAWING A8.
5. ALL DOUBLE DOORS ONLY TO HAVE ONE EXTERIOR LEVER

NOTES

1. DOOR TO BE INSULATED
2. PROVIDE ELECTRONIC HINGE FOR ACTIVE LEAF. RUN WIRE THROUGH JAMB OF DOOR AND LEAVE LOOP OF WIRE IN CEILING. OWNER TO CONNECT CARD ACCESS AND POWER SUPPLY.
3. CONTRACTOR RESPONSIBLE TO RECONNECT ALL ALARM SYSTEMS AT NEW DOORS. WIRING TO BE CONCEALED IN NEW FRAMES
4. REUSED EXISTING LOCKSET. ALL OTHER HARDWARE TO BE NEW



DOOR ELEVATIONS — A/A7
SCALE: ¼" = 1'-0"

Project Title:
Window & Door Replacement at:
Gideon Welles School
1029 Neipsic Road
Glastonbury, Connecticut 06033

SILVER / PETRUCELLI + ASSOCIATES
Architects and Engineers
3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
	ISSUED FOR BID	DECEMBER 2ND, 2014	
	ISSUED AS ADDENDA	JANUARY 23RD, 2015	

Drawing Title:
Window Elevations & Door Schedule
TOWN PROJECT NUMBER: GL-2015-17
STATE PROJECT NUMBER: TMP-054-JVML

Date: FEBRUARY 21ST, 2014
Scale: 1/2" = 1'-0"
Drawn By: D. LOMBARDI
Project Number: 10.138
Drawing Number: A7

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Allowances
B. Schedule of Values
C. Application for Payment
D. Change procedures
E. Measurement and Payment – Unit Prices
F. Alternates

1.2 RELATED SECTIONS

A. Section 01300 – Submittals: Schedule of Values
B. Section 01600 – Material and Equipment: Product substitutions and alternates

1.3 ALLOWANCES

A. Costs Included in Allowances: Cost of Product to Contractor or Subcontractor, less applicable trade discounts; delivery to site and applicable taxes and all markups, overhead and profit.

B. Architect Responsibilities:

1. Consult with Contractor in consideration and selection of Products, suppliers and installers.
2. Select Products in consultation with Owner and transmit decision to Contractor.
3. Prepare Change Order.

C. Contractor Responsibilities:

1. Assist Architect in determination of scope of work, selection of Products, suppliers and installers.
2. Obtain proposals from suppliers and installers and offer recommendations.
3. On notification of selection by Architect execute purchase agreement with designated supplier and installer.
4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
5. Promptly inspect Products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

D. Funds will be drawn from Allowances only by Change Order.

E. Allowances listed are to be included in the base bid as listed on the Bid Form. Their values will be tracked during the course of the project, with deletions from

the contract price by change order should the listed quantities not be removed or installed; or added to the contract price by change order should quantities exceeding those referenced in the Allowances be required by field conditions.

F. Allowances:

1. **Electrical Device Relocation Allowance**: Include in the base bid, based on the Contractor's hourly unit price, an allowance for Electrician(s) to Relocate Electrical Devices on window walls or at doors (includes all manpower, tools and materials.) The special protection allowance shall be Two Thousand Dollars ($2,000). The rerouting of the electrical raceways will be made cooperatively with the Owner or Architect only. The hours and therefore factored cost for this allowance will be tracked on an hourly/daily basis using time tickets.
2. **Ceiling Tile Replacement Allowance:** Include in the base bid the cost (based on the unit price an allowance) to replace damaged ceiling tiles that cannot be salvaged for reinstallation. The removal and reinstallation of ceiling tiles affected by the windows is included in the base bid, but only the replacement ceiling tiles (labor and material) are part of this allowance. A quantity of 100 square feet of 2 x 2 ceiling tiles are to be included in this allowance.
3. **Wood Trim Replacement Allowance**: Include in the base bid the cost (based on the unit price an allowance) to replace damaged wood trim at window heads) that cannot be salvaged for reinstallation. The removal and reinstallation of wood trim affected by the windows is included in the base bid, but only the replacement wood trim (labor and material) are part of this allowance. A quantity of 500 linear feet of 0-¾" thick pine trim, width to match existing, painted and in place, is to be included in this allowance.
4. Allowances that are unused or omitted from the Contract, shall be credited to the Owner at the Unit Price value less 5 percent.

1.3 SCHEDULE OF VALUES

A. Submit typed schedule on AIA Form G703 – Application and Certificate for Payment Continuation Sheet.

B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement established in Notice to Proceed.

C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds and insurance.

D. Include within each line item, a direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application for Payment.

1.4 APPLICATIONS FOR PAYMENT

A. Submit three copies of each application on AIA Form G702 – Application and Certificate for Payment.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Provide insurance certificates and verification of material in storage included in the application for payment.

D. Include all forms required by Owner.

1.5 CHANGE PROCEDURES

A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 1997 Edition, Article 7.4 by issuing supplemental instructions on AIA Form G710.

B. The Architect may issue a Proposal Request or Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 7 calendar days.

C. The Contractor may propose changes by submitting a request for change to the Architect, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.

D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed or maximum price quotation or Contractor's request for a Change Order as approved by Architect.

E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Authorization. Changes in Contract Sum/Price or Contract

Time will be computed as specified for Time and Material Change Order.

F. Construction Change Authorization: Architect may issue a directive, on AIA Form G714 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.

H. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

I. Change Order Forms: AIA G701 Change Order.

J. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.6 MEASUREMENT AND PAYMENT – UNIT PRICES

A. Authority: Measurement methods are delineated in the individual specification sections.

B. Take all measurements and compute quantities. The Architect will verify measurements and quantities.

C. Payment Includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.7 ALTERNATES

A. Voluntary alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify work as required.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

B. Related Sections:

1. Section 08410 "Aluminum Entrances and Storefront Framing" for aluminum doors to receive hardware.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Details of door hardware.

C. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
c. Content: Include the following information:

1) Identification number, location, hand, fire rating, size, and material of each door and frame.
2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
4) Fastenings and other pertinent information.

5) Explanation of abbreviations, symbols, and codes contained in schedule.
6) Mounting locations for door hardware.
7) List of related door devices specified in other Sections for each door and frame.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For electrified door hardware, from the manufacturer.

1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

C. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for door hardware on doors located in accessible routes.

D. Warranty: Special warranty specified in this Section.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Source Limitations: Obtain each type of door hardware from a single manufacturer.

C. 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 labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.

D. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.

E. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

F. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
2. Comply with the following maximum opening-force requirements:

   a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
   b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than ½ inch high.
4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least three (3) seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

G. Keying Conference: Conduct conference at Project site." In addition to Owner**,** Contractor, and Architect, conference participants shall also include Installer's Architectural Hardware Consultant. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2. Preliminary key system schematic diagram.
3. Requirements for key control system.
4. Requirements for access control.
5. Address for delivery of keys.

H. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Review required testing, inspecting, and certifying procedures.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

C. Deliver keys to Owner by registered mail or overnight package service.

1.8 COORDINATION

A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

C. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including excessive deflection, cracking, or breakage.
b. Faulty operation of doors and door hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

2. Warranty Period: Three (3) years from date of Substantial Completion, unless otherwise indicated.

a. Exit Devices: Two (2) years from date of Substantial Completion.
b. Manual Closers: Ten (10) years from date of Substantial Completion.

1.10 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

B. Maintenance Service: Beginning at Substantial Completion, provide six (6) months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door and door hardware operation. Provide parts and supplies that are the same as those used in the manufacture and installation of original products.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products, where allowed.
2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

2.2 HINGES

A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on aluminum storefront doors and hollow-metal frames.

1. Basis of Design:

a. Markar; Div. of Assa Abloy; FM 300.

2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Hager Companies.
b. McKinney Products Company; an ASSA ABLOY Group company.
c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

2.3 CONTINUOUS HINGES

A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

B. Continuous Electrified Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

2.4 BUTT HINGES **(NOT USED)**

A. Provide five-knuckle, ball bearing hinges.

1. Manufacturers and Products:
   a. Scheduled Manufacturer and Product:
      1) Ives 5BB series.
   b. Acceptable Manufacturers and Products:
      1) Bommer BB5000 series.
      2) McKinney TA/T4A series.

2.5 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in Part 3 “Door Hardware Schedule”.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Bored Locks **(NOT USED)**: Minimum ½-inch latchbolt throw.
2. Mortise Locks: Minimum ¾-inch latchbolt throw.

C. Lock Backset: 2¾ inches, unless otherwise indicated.

D. Lock Trim:

1. Levers: Cast.
2. Escutcheons (Roses): Wrought.
3. Dummy Trim: Match lever lock trim and escutcheons.
4. Operating Device: Lever with escutcheons (roses).

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.

F. Bored Locks **(NOT USED)**: BHMA A156.2; Grade 1; Series 4000.

1. Basis of Design:

   a. Schlage Commercial Lock Division; an Ingersoll-Rand company; **ND Series – Rhodes, Vandlgard** functions

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Corbin Russwin Architectural Hardware; n ASSA ABLOY Group Company.
   b. Medeco Security Locks, Inc.; an ASSA ABLOY Group company.
   c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

G. Mortise Locks: BHMA A156.13; [**Operational**] and [**Security**] Grade [**1**]; stamped steel case with steel or brass parts; Series 1000.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
    b. Arrow USA; an ASSA ABLOY Group company.
    c. Corbin Russwin, Inc.; an ASSA ABLOY Group company.

2.6 MANUAL FLUSH BOLTS **(NOT USED)**

A. Manual Flush Bolts: BHMA A156.16; minimum ¾-inch throw.

1. Basis-of-Design Product:

    a. Door Controls International, Inc.; **790F,** designed for mortising into door edge.

2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Glynn-Johnson; an Ingersoll-Rand company.
    b. IVES Hardware; an Ingersoll-Rand company.
    c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

2.7 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

1. Basis-of-Design Product:

    a. Corbin Russwin; a Corbin Russwin company; **Series ED5000.**
    b. No substitutions.

B. Coordinate exit device operation with cylinder locks and electrified latching where specified.

C. All exit devices shall be provided with cylinder dogging hardware for manual keying.

D. All exit devices shall be provided with concealed vertical rod, top only, **ED5800**.

E. All exit devices shall be provided with electric latch pullback.

F. All exit devices shall be provided with sex nuts and bolts.

2.8 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturer: Same manufacturer as for locking devices.

B. Standard Lock Cylinders: BHMA A156.5; Grade 1; permanent cores that are removable; face finished to match lockset.

C. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide ten (10) construction master keys.

2.9 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.

1. Great-Grand Master Key System: Change keys, a master key, a grand master key, and a great-grand master key operate cylinders.

B. Keys: Brass.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: "DO NOT DUPLICATE."

2. Quantity: In addition to one (1) extra key blank for each lock, provide the following:

a. Great-Grand Master Keys: Five (5).

2.10 KEY CONTROL SYSTEM

A. Key Control Cabinet: BHMA A156.5; metal cabinet with baked-enamel finish; containing key-holding hooks, labels, two (2) sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers; with key capacity of one hundred fifty percent (150%) of the number of locks.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the the following:

a. American Key Boxes and Cabinets.
b. GE Security, Inc.
c. Lund Equipment Co., Inc.
d. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

2. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.

2.11 OPERATING TRIM **(NOT USED)**

A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

1. Basis-of-Design Product:

a. Rockwood Manufacturing Company

1) Push Plates**(NOT USED)**: **70C 4x16**
2) Pulls **(NOT USED)**: **RM4410-12**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Burns Manufacturing Incorporated
    b. IVES Hardware; an Ingersoll-Rand company
    c. Substitutions: Under provisions of Section 016000 “Material and Equipment”.

2.12 ACCESSORIES FOR PAIRS OF DOORS

A. Coordinators: BHMA A156.3; consisting of active-leaf, hold-open lever and inactive-leaf release trigger; fabricated from steel with nylon-coated strike plates; with built-in, adjustable safety release.

B. Carry-Open Bars: BHMA A156.3; prevent the inactive leaf from opening before the active leaf; provide polished brass or bronze carry-open bars with strike plate for inactive leaves of pairs of doors unless automatic or self-latching bolts are used.

C. Astragals: BHMA A156.22.

2.13 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Basis-of-Design Product:

    a. LCN Closers; an Ingersoll-Rand company; **4040 Series.**
    b. Norton Closers.

B. Door closers, marked closer, shall be **Smoothee** series, with delayed action cylinder, sized to the door leaf size.

C. Door closers, marked closer/stop shall be **Cush-N-Stop** series, with delayed action cylinder, sized to the door leaf size.

D. Door closers are to be mounted on the least conspicuous side of the door. The hardware supplier shall consult with the Architect to verify applications, and note mounting locations on the hardware schedule.

2.14 MECHANICAL STOPS AND HOLDERS **(NOT USED)**

A. Wall- and Floor-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.

1. Basis-of-Design Product:

    a. IVES Hardware; an Ingersoll-Rand company; **407 and 436 or 438**

1) Provide wall bumpers wherever possible. Provide floor stops where the use of wall bumpers is not feasible, provided the location of the stop is not a stumbling hazard or would cause the door to rack at the hinges.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Glynn-Johnson; an Ingersoll-Rand company.
b. Door Controls International, Inc.
c. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.15 OVERHEAD STOPS AND HOLDERS **(NOT USED)**

A. Overhead Stops and Holders: BHMA A156.8.

1. Basis-of-Design Product:

a. Glynn-Johnson; an Ingersoll-Rand company; **90S.**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Architectural Builders Hardware Mfg., Inc.
b. Rockwood Manufacturing Company.
c. SARGENT Manufacturing Company; an ASSA ABLOY Group company.
d. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.16 SMOKE SEALS FOR SMOKE AND FIRE RATED DOORS **(NOT USED)**

1. Basis-of-Design Product:

a. Pemko Manufacturing Co.; an ASSA ABLOY Group company

1) Smoke Rated Doors: **S88D** at the jambs and heads.
2) Fire Rated Doors: Provided by the door manufacturer.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. National Guard Products.
b. Zero International.
c. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.17 WEATHERSTRIPPING (DOOR GASKETING)

A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Basis-of-Design Product:

a. Zero International

1) Head and Jamb: **#328AA**, solid neoprene in an extruded aluminum housing.
2) Sill: **#339AA** with extruded aluminum housing, solid neoprene.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. National Guard Products.
b. Pemko Manufacturing Co.; an ASSA ABLOY Group company.
c. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.18 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. Basis-of-Design Product:

a. Pemko Manufacturing Co.; an ASSA ABLOY Group company; **2005AT**

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. National Guard Products.
b. Zero International.
c. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.19 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel; with manufacturer's standard machine or self-tapping screw fasteners.

1. Basis-of-Design Product: Burns Manufacturing Incorporated.

a. Kick Plates: 16 inches high.
b. All plates are 2 inches less width of door on single doors, 1 inch less width of door on pairs.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. IVES Hardware; an Ingersoll-Rand company.
b. Rockwood Manufacturing Company.
c. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.20 AUXILIARY DOOR HARDWARE

A. Auxiliary Hardware: BHMA A156.16.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Hager Companies.
b. Rockwood Manufacturing Company.
c. Stanley Commercial Hardware; Div. of The Stanley Works.
d. Substitutions: In accordance with Section 016000 “Material and Equipment”.

2.21 FABRICATION

A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Fire-Rated Applications:

a. Wood or Machine Screws: For the following:

1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors and frames.
2) Strike plates to frames.
3) Closers to doors and frames.

b. Steel Through Bolts: For the following unless door blocking is provided:

1) Surface hinges to doors.
2) Closers to doors and frames.
3) Surface-mounted exit devices.

3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.22 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the 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 the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 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. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one (1) hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with removable cores as indicated in keying schedule.
2. Furnish permanent cores to Owner for installation.

E. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

F. Thresholds: Set thresholds for doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

G. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

H. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
   1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DOOR HARDWARE SCHEDULE

A. Provide hardware as specified in the previous articles in sets according to the following schedule and as indicated in the Door Schedule on the Drawings.

B. The hardware supplier shall meet with the Architect and/or Owner to determine lock functions and keying requirements.

HW-1: SINGLE LEAF DOORS 102, 117, 118, 119, 120.

EACH TO HAVE:
1 CONTINUOUS HINGE (ELECTRONIC AT 102, 117 ONLY)
1 MORTISE CYLINDER
1 LEVER
1 PANIC RELEASE LATCH
1 CLOSER
1 KICKPLATE
1 ACCESSIBLE THRESHOLD (102, 117 & 118 ONLY)
SILENCERS

HW-2: DOUBLE LEAF DOORS 101, 104, 105, 112, 113, 121.

EACH TO HAVE:
2 CONTINUOUS HINGES (1 PER LEAF), (ELECTRONIC AT 104 & 112 ONLY)
1 MORTISE CYLINDER
1 LEVER
2 PANIC RELEASE LATCH (1 PER LEAF)
1 ASTRAGAL, CARRY OPEN BAR, COORDINATOR
2 CLOSER
2 KICKPLATE (1 PER LEAF)
2 ACCESSIBLE THRESHOLD (1 PER LEAF)
SILENCERS

HW-3: DOUBLE LEAF DOORS 103, 106, 107, 108, 109, 110, 111, 114, 116.

EACH TO HAVE:
2 CONTINUOUS HINGES (1 PER LEAF)
1 MORTISE CYLINDER
1 ASTRAGAL, CARRY OPEN BAR, COORDINATOR
2 CLOSER (1 PER LEAF)
2 KICKPLATE (1 PER LEAF)
2 ACCESSIBLE THRESHOLD (1 PER LEAF)
SILENCERS

HW-4: DOUBLE LEAF DOOR 115.

EACH TO HAVE:
2 CONTINUOUS HINGES (1 PER LEAF)
1 MORTISE CYLINDER
1 LEVER (INTERIOR)
1 LEVER (EXTERIOR)
1 ASTRAGAL, CARRY OPEN BAR, COORDINATOR
2 CLOSER (1 PER LEAF)
2 KICKPLATE (1 PER LEAF)
2 ACCESSIBLE THRESHOLD (1 PER LEAF)
SILENCERS

END OF SECTION 087100

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Insulated glazing units for doors and windows
C. Security window film

1.2 RELATED SECTIONS

A. Section 07900 – Sealants: Sealant and back-up material
B. Section 08410 – Aluminum Entrances and Storefront Framing
C. Section 08520 – Aluminum Windows

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

E 330-02	Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
E 773-01	Accelerated Weathering of Sealed Insulating Glass Units
E 774-97	Classification of the Durability of Sealed Insulating Glass Units

2. Glazing Association of North America (GANA) Publications:

2006	Glazing Reference
2004	Glazing Manual
1990	Sealant Manual

3. Federal Specifications (FS) Publications:

A-A-272B-05	Caulking Compounds

1.4 PERFORMANCE REQUIREMENTS

A. Glass and glazing materials of this Section shall provide continuity of building enclosure vapor and air barrier:

1. In conjunction with materials described in Section 07900.
2. To utilize the inner pane of multiple pane sealed units for the continuity of the air and vapor seal.

3. Maintain continuous air and vapor barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.

B. Limit glass deflection to flexure limit of glass with full recovery of glazing materials, whichever is less.

C. Components shall be sized to withstand dead and live loads caused by snow loads and positive and negative wind pressure acting normal to plane of glazing as calculated in accordance with the 2003 International Building Code and 2000 Supplement for Connecticut to prescribed design pressures as measured in accordance with ANSI/ASTM E 330.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data on Glass Types Specified: Provide structural, physical and environmental characteristics, size limitations and special handling or installation requirements.

C. Samples: Submit two samples, 12 x 12 inch in size, illustrating glass units, coloration and reinforcement.

D. Security Film Product Data including certified third party test data indicating compliance with specified requirements, and provider's recommended installation procedures.

1. Samples of product as a mock up of actual installation
2. Maintenance and Cleaning Instructions
3. Schedule for installation

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual, Sealant Manual and Glazing Reference and SIGMA for glazing installation methods.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not install glazing when ambient temperature is less than 50 degrees F.
B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.8 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop Drawings.

1.9 COORDINATION

A. Coordinate the Work with glazing frames, wall openings and perimeter air and vapor seal to adjacent Work.

1.10 WARRANTY

A. Provide five year manufacturer's warranty under provisions of Section 01700.

B. Provide a 10 year manufacturer’s warranty covering security film materials and installation labor, against adhesive failure, film discoloration and distortion, peeling or delamination, and on film protected units that are intentionally broken.

2 PART 2 – PRODUCTS

2.1 MANUFACTURERS – SEALED INSULATING GLASS MATERIALS

A. Spectrum Glass Company, Inc., Woodinville, WA (425.483.6699)
B. Ford Glass
C. Viracon, Inc.
D. Substitutions: Under provisions of Section 01600

2.2 SEALED INSULATING GLASS MATERIALS

A. Insulated Glass Units – Low E, Argon Filled: ASTM E 773 and E 774; double pane with polyisobutylene primary seal and a secondary silicone edge seal; outer pane of ¼" heat treated, tinted glass in color as selected by Owner and Architect; inner pane of ¼" heat treated clear glass cover plate, interpane space purged dry hermetic air; total unit thickness of minimum of 1 inch. Panes of glass to be tempered at doors and sidelights.

2.3 GLAZING COMPOUNDS

A. Butyl Sealant: FS A-A-272; Shore A hardness of 10 – 20 black color; non-skinning.

B. Silicone Sealant: Class A; single component; solvent curing; capable of water immersion without loss of properties; cured Shore A hardness of 15 – 25; clear color.

2.4 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 – 90 Shore A durometer hardness, 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 – 60 Shore A durometer hardness, 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: Preformed butyl compound with integral resilient tube spacing device; 10 – 15 Shore A durometer hardness; coiled on release paper; black color.

D. Glazing Clips: Manufacturer's standard type.

2.5 SECURITY WINDOW FILM

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. 3M Corporation.
   2. Llumar, Incorporated.
   3. Saint Gobain Corporation.

B. Properties:

1. Thickness:	8 mils
2. Color:	Clear
3. Tensile Strength:	30,000 psi
4. Visible Light Transmittance:	85%
5. Total UV rejected:	99%
6. Total Solar Energy Rejected:	21%
7. Visible Reflection:	Less than 8%
8. Tear Resistance:	Greater than 780 lbs.
9. Abrasion Resistance:	Less than 6% in Haze
10. Surface Burn Characteristics:	Class A Interior Use
11. Anchoring System:	Manufacturer’s standard

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify prepared openings under provisions of 01300.
B. Verify that openings for glazing are correctly sized and within tolerance.
C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions and ready to receive glazing.

3.2 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

3.3 EXTERIOR – WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

A. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with butyl sealant.

B. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.

C. Place setting blocks at ¼ points with edge block no more than 6 inches from corners.

D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.

E. Install removable stops, with spacer strips inserted between glazing and applied stops, ¼ inch below sight line. Place glazing tape on glazing pane or unit with tape flush with ¼ inch below sight line.

F. Fill gap between glazing and stop with silicone type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.

G. Apply cap bead of silicone type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.4 INTERIOR – WET/DRY METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.

B. Place setting blocks at ¼ points with edge block no more than 6 inches from corners.

C. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.

D. Install removable stops, with spacer shims inserted between glazing and applied

stops at 24 inch intervals, ¼ inch below sight line.

E. Fill gaps between pane and applied stop with silicone type sealant to depth equal to bite on glazing, to uniform and level line.

F. Trim protruding tape edge.

3.5 SECURITY WINDOW FILM

A. Install in accordance with manufacturer's recommendations and instructions, with strict adherence to local environmental conditions.
B. Clean the film and surrounding areas after installation per manufacturer's requirements in the stipulated submittals.

3.6 CLEANING

A. Clean work under provisions of 01700.
B. Remove glazing materials from finish surfaces.
C. Remove labels after work is complete.
D. Clean glass.

3.7 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01500.
B. After installation, mark pane with an 'X' by using removable plastic tape or paste.

END OF SECTION