

**ORANGE COUNTY PUBLIC SCHOOLS**  
**200 Dailey Dr, Orange, VA 22960, United States**  
**Phone: 1-540-661-4550**

**ADDENDUM-02**  
**OCTOBER 25, 2024**

**REFERENCE: GORDON-BARBOUR ELEMENTARY SCHOOL DINING ADDITION**  
500 W Baker Street Gordonsville, VA 22942. Architect Project Number 177920025

This addendum includes revisions or clarifications to the bidding documents.  
All other bidding documents, terms, and conditions not included in this addendum remain unchanged.

**THIS ADDENDUM IS ONE (1) PAGE AND MAY INCLUDE ATTACHMENTS.**

- The bid date and time remains UNCHANGED and is still OCTOBER 31, 2024, @ 2:00 P.M.

**1. ATTACHED REVISIONS OR CLARIFICATIONS.**

- **SPECIFICATION**
  - 08 71 00 Door Hardware
  - 08 80 00 Glazing
- **SHEETS**
  - A6.100
  - A6.200
  - A7.100

**2. GENERAL REVISIONS OR CLARIFICATIONS.**

- Specification 08 80 00 Glazing. Revise to read as follows.
  - 2.2.B. **Fritted Glass: Sandblasted. Opac. Privacy Level 5/5. ASTM C1048, Kind FT (fully tempered), Type I, Condition C, Quality-Q3.**
  - 2.7.F. Opacifier: At **fritted** glass, provide an opacifier. **Sandblasted. Opac. Privacy Level 5/5.**
  - 2.9.A. Glass Type **IG1**: Insulating glass - clear.
  - 2.9.B. Glass Type **IG2**: Insulating glass – **fritted, sandblasted opac.**
- Specification 08 71 00 Door Hardware
  - **2.1.A.** Revise to read as follows.
    - **Change Basis of Design Exit Devices from Precision to Von Duprin.**
      - **Precision remains approved**
    - **Change Basis of Design Door Closers from Dorma to LCN.**
      - **Dorma remains approved**
    - **Change Basis of Design Hinges from Stanley to Select.**
      - **Stanley remains approved**
  - **Add Interchangeable Cores to Hardware Set #01**

**3. REVISIONS OR CLARIFICATIONS BASED ON QUESTIONS PER THE INVITATION FOR BID.**

**Q-010:** The door specs state that the supplier must be FSC certified for chain of custody of the wood doors, can this spec be deleted?

**A-010:** Maintain specification requirements.

**Q-011:** What is the liquidated damages amount and terms?

**A-011:** Liquidated Damages will be assessed at \$500 for each day past the contractual Substantial Completion date until Substantial Completion is achieved. Final Completion is due 30 days after Substantial Completion. If the project does not reach Final Completion 30 days after Substantial Completion, then Liquidated Damages will be assessed at \$500 for each day until Final Completion is achieved.

**Q-012:** What is the retainage on the project?

**A-012:** 5%.

**Q-013:** Clarify what ceiling grid will be used in the existing cafeteria. Demo plan shows to salvage existing & new reflected ceiling plan shows 2x2 ACT.

**A-013:** Revise note on AD201 from D21 to D6.  
Demolish existing ceiling and replace with new 2x2 ACT.

**Q-014:** Confirm owner BAS control company.

**A-014:** Vendor is ABM.  
See also SECTION 254002 - BUILDING AUTOMATION SYSTEM (BAS). Control products, communication media, connectors, repeaters, hubs, and routers shall comprise a BACnet internetwork. Controller and operator interface communication shall conform to ANSI/ASHRAE Standard 135, BACnet.

**END ADDENDUM.**

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SECTION 08 71 00 - **DOOR HARDWARE**

PART 1 - GENERAL

1.1 SUMMARY:

- A. Section Includes: Finish Hardware for door openings, except as otherwise specified herein.
  - 1. Door hardware for steel (hollow metal) doors.
  - 2. Door hardware for aluminum doors.
  - 3. Door hardware for wood doors.
  - 4. Keyed cylinders as indicated.
  
- B. Related Sections:
  - 1. Division 6: Rough Carpentry.
  - 2. Division 8: Aluminum Doors and Frames
  - 3. Division 8: Hollow Metal Doors and Frames
  - 4. Division 8: Wood Doors
  - 5. Division 26 Electrical
  - 6. Division 28: Electronic Security
  
- C. References: Comply with applicable requirements of the following standards. Where these standards conflict with other specific requirements, the most restrictive shall govern.
  - 1. Builders Hardware Manufacturing Association (BHMA)
  - 2. NFPA 101 - Life Safety Code
  - 3. NFPA 80 - Fire Doors and Windows
  - 4. ANSI A156.1 - Butts and Hinges
  - 5. ANSI A156.2 - Bored and Preassembled Locks and Latches
  - 6. ANSI A156.3 - Exit Devices
  - 7. ANSI A156.4 - Door Controls - Closers
  - 8. ANSI A156.5 - Cylinders and Input Devices for Locks
  - 9. ANSI A156.6 - Architectural Door Trim
  - 10. ANSI A156.7 - Template Hinge Dimensions
  - 11. ANSI A156.8 - Door Controls – Overhead Stops and Holders
  - 12. ANSI A156.13 - Mortise Locks & Latches
  - 13. ANSI A156.16 - Auxiliary Hardware
  - 14. ANSI A156.17 - Self Closing Hinges & Pivots
  - 15. ANSI A156.18 - Materials and Finishes
  - 16. ANSI A156.21 - Thresholds
  - 17. ANSI A156.22 - Door Gasketing and Edge Seal Systems
  - 18. ANSI A156.25 - Electrified Locking Devices
  - 19. ANSI A156.26 - Continuous Hinges
  - 20. ANSI A156.28 - Recommended Practices for Mechanical Keying Systems
  - 21. ANSI A156.31 - Electric Strikes and Frame Mounted Actuators
  - 22. UL10C – Positive Pressure Fire Test of Door Assemblies
  - 23. ANSI-A117.1 – Accessible and Usable Buildings and Facilities 2009
  - 24. DHI /ANSI A115.IG – Installation Guide for Doors and Hardware

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D. Intent of Hardware Groups

1. Should items of hardware not definitely specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
2. Where items of hardware aren't definitely or correctly specified, are required for completion of the Work, a written statement of such omission, error, or other discrepancy to be submitted to Architect, prior to date specified for receipt of bids for clarification by addendum; or, furnish such items in the type and quality established by this specification, and appropriate to the service intended.

E. Allowances

1. Refer to Division 1 for allowance amount and procedures.

F. Alternates

1. Refer to Division 1 for Alternates and procedures.

1.2 SUBSTITUTIONS:

- A. Comply with Division 1.

1.3 SUBMITTALS:

- A. Comply with Division 1.

- B. Special Submittal Requirements: Combine submittals of this Section with Sections listed below to ensure the "design intent" of the system/assembly is understood and can be reviewed together.

- C. Product Data: Manufacturer's specifications and technical data including the following:

1. Detailed specification of construction and fabrication.
2. Manufacturer's installation instructions.
3. Wiring diagrams for each electric product specified. Coordinate voltage with electrical before submitting.
4. Submit 6 copies of catalog cuts with hardware schedule.
5. Provide 9001-Quality Management and 14001-Environmental Management for products listed in Materials Section 2.2

- D. Shop Drawings - Hardware Schedule: Submit 6 complete reproducible copy of detailed hardware schedule in a vertical format.

1. List groups and suffixes in proper sequence.
2. Completely describe door and list architectural door number.
3. Manufacturer, product name, and catalog number.
4. Function, type, and style.
5. Size and finish of each item.
6. Mounting heights.
7. Explanation of abbreviations and symbols used within schedule.

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8. Detailed wiring diagrams, specially developed for each opening, indicating all electric hardware, security equipment and access control equipment, and door and frame rough-ins required for specific opening.
- E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
  1. Templates, wiring diagrams and "reviewed Hardware Schedule" of electrical terms to electrical for coordination and verification of voltages and locations.
- F. Samples: (If requested by the Architect)
  1. 1 sample of Lever and Rose/Escutcheon design, (pair).
  2. 3 samples of metal finishes
- G. Contract Closeout Submittals: Comply with Division 1 including specific requirements indicated.
  1. Operating and maintenance manuals: Submit 3 sets containing the following.
    - a. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
    - b. Catalog pages for each product.
    - c. Name, address, and phone number of local representative for each manufacturer.
    - d. Parts list for each product.
  2. Copy of final hardware schedule, edited to reflect, "As installed".
  3. Copy of final keying schedule
  4. As installed "Wiring Diagrams" for each piece of hardware connected to power, both low voltage and 110 volts.
  5. One set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.4 QUALITY ASSURANCE

- A. Comply with Division 1.
  1. Statement of qualification for distributor and installers.
  2. Statement of compliance with regulatory requirements and single source responsibility.
  3. Distributor's Qualifications: Firm with 3 years experience in the distribution of commercial hardware.
    - a. Distributor to employ full time Architectural Hardware Consultant (AHC) for the purpose of scheduling and coordinating hardware and establishing keying schedule.
    - b. Hardware Schedule shall be prepared and signed by an AHC.
  4. Installer's Qualifications: Firm with 3 years experienced in installation of similar hardware to that required for this Project, including specific requirements indicated.
  5. Regulatory Label Requirements: Provide testing agency label or stamp on hardware for labeled openings.

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- a. Provide UL listed hardware for labeled and 20 minute openings in conformance with requirements for class of opening scheduled.
  - b. Underwriters Laboratories requirements have precedence over this specification where conflict exists.
6. Single Source Responsibility: Except where specified in hardware schedule, furnish products of only one manufacturer for each type of hardware.

- B. Review Project for extent of finish hardware required to complete the Work. Where there is a conflict between these Specifications and the existing hardware, notify the Architect in writing and furnish hardware in compliance with the Specification unless otherwise directed in writing by the Architect.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: Comply with Division 1.

1. Deliver products in original unopened packaging with legible manufacturer's identification.
2. Package hardware to prevent damage during transit and storage.
3. Mark hardware to correspond with "reviewed hardware schedule".
4. Deliver hardware to door and frame manufacturer upon request.

- B. Storage and Protection: Comply with manufacturer's recommendations.

1.6 PROJECT CONDITIONS:

- A. Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
- B. Review Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.7 WARRANTY:

- A. Refer to Conditions of the Contract

- B. Manufacturer's Warranty:

1. Closers: Twenty-five years
2. Exit Devices: Five years mechanical
3. Locksets: Ten years
4. Cylinders: Three years
5. Hinges: Limited lifetime
6. All other Hardware: One year

1.8 OWNER'S INSTRUCTION:

- A. Instruct Owner's personnel in operation and maintenance of hardware units.

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1.9 MAINTENANCE:

- A. Extra Service Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals Section.
  - 1. Special Tools: Provide special wrenches and tools applicable to each different or special hardware component.
  - 2. Maintenance Tools: Provide maintenance tools and accessories supplied by hardware component manufacturer.
  - 3. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra service materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. The following manufacturers are approved subject to compliance with requirements of the Contract Documents. Approval of manufacturers other than those listed shall be in accordance with Division 1.

<u>Item:</u>	<u>Manufacturer:</u>	<u>Approved:</u>
Hinges	Stanley	McKinney, Ives
<b>Continuous Hinges</b>	<b>Select</b>	<b>Stanley, ABH</b>
Locksets	Schlage	Best, Sargent
Cylinders	MATCH EXISTING SCHLAGE KEY SYSTEM	
<b>Exit Devices</b>	<b>Von Duprin</b>	<b>Precision, Detex</b>
<b>Closers</b>	<b>LCN</b>	<b>Dorma, Norton</b>
Push/Pull Bars	Trimco	Burns, Rockwood
Protection Plates	Trimco	Burns, Rockwood
Door Stops	Trimco	Burns, Rockwood
Flush Bolts	Trimco	ABH, Burns
Threshold & Gasketing	National Guard	Reese, Pemko

2.2 MATERIALS:

- A. Hinges:
  - 1. Template screw hole locations
  - 2. Minimum of 2 permanently lubricated non-detachable bearings
  - 3. Equip with easily seated, non-rising pins
  - 4. Sufficient size to allow 180-degree swing of door
  - 5. Furnish hinges with five knuckles and flush [concealed] bearings
  - 6. Provide hinge type as listed in schedule.
  - 7. Furnish 3 hinges per leaf to 7 foot 6 inch height. Add one for each additional 30 inches in height or fraction thereof.
  - 8. Tested and approved by BHMA for all applicable ANSI Standards for type, size, function and finish
  - 9. UL10C listed for Fire rated doors.
- B. Geared Continuous Hinges:

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1. Tested and approved by BHMA for ANSI A156.26-1996 Grade 1
2. Anti-spinning through fastener
3. UL10C listed for 3 hour Fire rating
4. Non-handed
5. Lifetime warranty
6. Provide Fire Pins for 3-hour fire ratings
7. Sufficient size to permit door to swing 180 degrees

C. Mortise Type Locks and Latches:

1. Tested and approved by BHMA for ANSI A156.13, Series 1000, Operational Grade 1, Extra-Heavy Duty, Security Grade 2 and be UL10C.
2. Furnish UL or recognized independent laboratory certified mechanical operational testing to 4 million cycles minimum.
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Fit ANSI A115.1 door preparation
5. Functions and design as indicated in the hardware groups
6. Solid, one-piece, 3/4-inch (19mm) throw, anti-friction latchbolt made of self-lubricating stainless steel
7. Deadbolt functions shall have 1 inch (25mm) throw bolt made of hardened stainless steel
8. Latchbolt and Deadbolt are to extend into the case a minimum of 3/8 inch (9.5mm) when fully extended
9. Auxiliary deadlatch to be made of one piece stainless steel, permanently lubricated
10. Provide sufficient curved strike lip to protect door trim
11. Lever handles must be of forged or cast brass, bronze or stainless steel construction and conform to ANSI A117.1. Levers that contain a hollow cavity are not acceptable
12. Lock shall have self-aligning, thru-bolted trim
13. Levers to operate a roller bearing spindle hub mechanism
14. Mortise cylinders of lock shall have a concealed internal setscrew for securing the cylinder to the lockset. The internal setscrew will be accessible only by removing the core, with the control key, from the cylinder body.
15. Spindle to be designed to prevent forced entry from attacking of lever
16. Each lever to have independent spring mechanism controlling it
17. Core face must be the same finish as the lockset.

D. Cylindrical Type Locks and Latchsets:

1. Tested and approved by BHMA for ANSI A156.2, Series 4000, Operational Grade 1, Extra-Heavy Duty, and be UL10C listed.
2. Provide 9001-Quality Management and 14001-Environmental Management.
3. Fit modified ANSI A115.2 door preparation.
4. Locksets and cores to be of the same manufacturer to maintain complete lockset warranty
5. Locksets to have anti-rotational studs that are thru-bolted
6. Keyed lever shall not have exposed "keeper" hole
7. Each lever to have independent spring mechanism controlling it
8. 2-3/4 inch (70 mm) backset
9. 9/16 inch (14 mm) throw latchbolt
10. Provide sufficient curved strike lip to protect door trim
11. Outside lever sleeve to be seamless, of one-piece construction made of a hardened steel alloy
12. Keyed lever to be removable only after core is removed, by authorized control key
13. Hub, side plate, shrouded rose, locking pin to be a one-piece casting with a shrouded locking lug.



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14. Locksets outside locked lever must withstand minimum 1400 inch pounds of torque. In excess of that, a replaceable part will shear. Key from outside and inside lever will still operate lockset.
15. Core face must be the same finish as the lockset.
16. Functions and design as indicated in the hardware groups.

E. Exit Devices shall:

1. Tested and approved by BHMA for ANSI 156.3, Grade 1
2. Provide 9001-Quality Management and 14001-Environmental Management.
3. Furnish UL or recognized independent laboratory certified mechanical operational testing to 10 million cycles minimum.
4. Provide a deadlocking latchbolt
5. Non-fire rated exit devices shall have cylinder dogging.
6. Touchpad shall be "T" style
7. Exposed components shall be of architectural metals and finishes.
8. Lever design shall match lockset lever design
9. Provide strikes as required by application.
10. Fire exit devices to be listed for UL10C
11. UL listed for Accident Hazard
12. Shall consist of a cross bar or push pad, the actuating portion of which extends across, shall not be less than one half the width of the door leaf.
13. Provide vandal resistant or breakaway trim

F. Cylinders:

1. Provide the necessary cylinder housings, collars, rings & springs as recommended by the manufacturer for proper installation.
2. Provide the proper cylinder cams or tail piece as required to operate all locksets and other keyed hardware items listed in the hardware sets.
3. Coordinate and provide as required for related sections.

G. Door Closers shall be:

1. Tested and approved by BHMA for ANSI 156.4, Grade 1
2. UL10C certified
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Conform to ANSI 117.1
5. Maximum 2 7/16 inch case projection with non-ferrous cover
6. Separate adjusting valves for closing and latching speed, and backcheck
7. Provide adapter plates, shim spacers and blade stop spacers as required by frame and door conditions
8. Full rack and pinion or cam and roller type closer as specified
9. Mount closers on non-public side of door, unless otherwise noted in specification
10. Closers shall be non-handed, non-sized and multi-sized.

H. Door Stops: Provide a dome floor or wall stop for every opening as listed in the hardware sets.

1. Wall stop and floor stop shall be wrought bronze, brass or stainless steel.
2. Provide fastener suitable for wall or floor construction.
3. Coordinate reinforcement of walls where wall stop is specified.
4. Provide dome stops where wall stops are not practical.

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- I. Overhead Stops: Provide a Surface mounted or concealed overhead when a floor or wall stop cannot be used or when listed in the hardware set.
  - 1. Concealed overhead stops shall be heavy duty bronze or stainless steel.
  - 2. Surface overhead stops shall be heavy duty bronze or stainless steel.
- J. Push Pull Bars: Provide ANSI J504, 1" Dia. Pull and push bar model and series as listed in hardware set. Provide proper fasteners for door construction.
- K. Kickplates: Provide with four beveled edges ANSI J102, 10 inches high by width less 2 inches on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- L. Mop plates: Provide with four beveled edges ANSI J103, 6 inches high by width less 1 inch on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- M. Door Bolts: Flush bolts for wood or metal doors.
  - 1. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 25 for hollow metal label doors.
  - 2. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 27 at wood label doors.
  - 3. Manual flush bolts, Certified ANSI/BHMA 156.16 at openings where allowed local authority.
  - 4. Provide Dust Proof Strike, Certified ANSI/BHMA 156.16 at doors with flush bolts without thresholds.
- N. Quick Connect Power Transfer: Power transfer device shall be a steel housing and flexible tube. Secure and inconspicuous channel is to bring power from the frame to the door.
  - 1. Precision EPT-12C
  - 2. Tube shall contain 12 Wire bundle with Stanley Quick Connect Connectors one 4 wire connector consisting of two 18AWG wires and 2 24AWG wires and one 8 wire connector with 8 24AWG wires.
- O. Power Supply: UL Listed, Field Selectable 12VDC or 24VDC output. The power supply will specifically designed to support electric locks and access controls. The power supply uses 115 VAC at 800mA input. The power shall be able to be expanded to four station controls. The filtered and regulated output power is field selectable for 12 or 24 VDC.
  - 1. Fire Alarm/Life Safety emergency release included in power supply.
  - 2. Available options for multiple door options four or more control stations, Adjustable Time delay relay, Battery charging, Battery Back up.
- P. Electric Door Strike: Certified by ANSI/BHMA 156.31, Grade 1. and listed for Burglary Protection ANSI/UL1034 Grade 1.
  - 1. For General use provide fail-secure electric strike and with fire-rated device.
  - 2. Listed UL10C for Fire Door assemblies
  - 3. Latchbolt monitor switch option when specified in hardware sets.
  - 4. Provide the electric strike in the appropriate model that will accept a 5/8" or 3/4" latchbolt.
- Q. Door Position Switch: Provide door position switch for door status monitoring as indicated in hardware sets.
  - 1. At all fired rated doors the door and frames, position switch preparation will be provided by the door and frame manufacturer or by an authorized label service agent.

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- R. Seals: All seals shall be finished to match adjacent frame color. Seals shall be furnished as listed in schedule. Material shall be UL listed for labeled openings.
- S. Weatherstripping: Provide at head and jambs only those units where resilient or flexible seal strip is easily replaceable. Where bar-type weatherstrip is used with parallel arm mounted closers install weatherstrip first.
  - 1. Weatherstrip shall be resilient seal of Neoprene, Polyurethane, Vinyl, Pile, Nylon Brush, or Silicone as specified
  - 2. UL10C Positive Pressure rated seal set when required.
- T. Door Bottoms/Sweeps: Surface mounted or concealed door bottom where listed in the hardware sets.
  - 1. Door seal shall be resilient seal of (Neoprene, Polyurethane, Nylon Brush, Silicone)
  - 2. UL10C Positive Pressure rated seal set when required.
- U. Thresholds: Thresholds shall be aluminum beveled type with maximum height of ½” for conformance with ADA requirements. Furnish as specified and per details. Provide fasteners and screws suitable for floor conditions.
- V. Silencers: Furnish silencers on all interior frames, 3 for single doors, 2 for pairs. Omit where any type of seals occur.

2.3 FINISH:

- A. Designations used in Schedule of Finish Hardware - 3.05, and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 including coordination with traditional U.S. finishes shown by certain manufacturers for their products
- B. Powder coat door closers to match other hardware, unless otherwise noted.
- C. Aluminum items shall be finished to match predominant adjacent material. Seals to coordinate with frame color.

2.4 KEYS AND KEYING:

- A. Provide keyed brass construction cores and keys during the construction period. Construction control and operating keys and core shall not be part of the Owner's permanent keying system or furnished in the same keyway (or key section) as the Owner's permanent keying system. Permanent cores and keys (prepared according to the accepted keying schedule) will be furnished to the Owner.
- B. Permanent keys and cores: Stamped with the applicable key mark for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Do Not Duplicate."
- C. Transmit Grand Masterkeys, Masterkeys and other Security keys to Owner by Registered Mail, return receipt requested.
- D. Furnish keys in the following quantities:

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1. 4 each Masterkeys
  2. 2 each Change keys each keyed core
  3. 15 each Construction masterkeys
- E. The Owner, or the Owner's agent, will install permanent cores and return the construction cores to the Hardware Supplier. Construction cores and keys remain the property of the Hardware Supplier.
- F. Keying Schedule: Arrange for a keying meeting, and programming meeting with Architect Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying and programming complies with project requirements.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Verification of conditions: Examine doors, frames, related items and conditions under which Work is to be performed and identify conditions detrimental to proper and or timely completion.
1. Do not proceed until unsatisfactory conditions have been corrected.

**3.2 HARDWARE LOCATIONS:**

- A. Mount hardware units at heights indicated in the following publications except as specifically indicated or required to comply with the governing regulations.
1. Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames, by the Door and Hardware Institute (DHI).
  2. Recommended locations for Architectural Hardware for flush wood doors (DHI).
  3. WDMA Industry Standard I.S.-1A-04, Industry Standard for Architectural wood flush doors.

**3.3 INSTALLATION:**

- A. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- B. Conform to local governing agency security ordinance.
- C. Install Conforming to ICC/ANSI A117.1 Accessible and Usable Building and Facilities.
1. Adjust door closer sweep periods so that from the open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door.
- D. Installed hardware using the manufacturers fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.

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3.4 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

- A. Contractor/Installers, Field Services: After installation is complete, contractor shall inspect the completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final shop drawings.
1. Check and adjust closers to ensure proper operation.
  2. Check latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
    - a. Verify levers are free from binding.
    - b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.
  3. Report findings, in writing, to architect indicating that all hardware is installed and functioning properly. Include recommendations outlining corrective actions for improperly functioning hardware if required.

3.5 SCHEDULE OF FINISH HARDWARE:

**Option List**

<u>Code</u>	<u>Description</u>
FL	Fire Exit Hardware
CSK	COUNTER SINKING OF KICK and MOP PLATES
MCS	Mullion Cap Spacer (other Finishes)
MLR	MOTORIZED LATCH RETRACTION
J-MTG	"J" MTG (SHOULDER BOLT) - QTY. OF 2
10-025	STRIKE-ANSI, 1 3/4" DRS., 1 1/4" X 4 7/8
EPT Prep	EPT Prep (full mortise)
L-MD MTG	"L" BTB MTG. - METAL DOORS - QTY. OF 2
50-211-CK	CONSTRN KEYED (MASTER KEY CHG REQ)
50-210-GMK	GRAND MASTERKEYED
50-211-CMK	CONSTRUCTION MASTERKEYED
8RO-OUTSIDE	RHODES LEVER KNURLED - OUTSIDE
10-025 X 7/8"	STRIKE-ANSI, SPECIAL LIP, 7/8"
1/4-20 SSMS/EA	STAINLESS MACHINE SCREWS/EXPANSIONANC.

**Finish List**

<u>Code</u>	<u>Description</u>
AL	Aluminum
26D	Satin Chrome
32D	Satin Stainless Steel
600	Primed for Painting
626	Satin Chromium Plated
630	Satin Stainless Steel
689	Aluminum Painted
630W	Stainless Steel, Weatherized
GREY	Grey
BLACK	Black

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**Hardware Sets**

**SET #01 - ACS EXTERIOR PR EXITS AL KEY REM MUL AND INTERCCHANGABLE CORES**

Doors: D1, D6, D7

2	Continuous Hinge	661HD UL 83" EPT Prep	AL	SL
2	Power Transfer	EPT-12C		PR
1	Removable Mullion	KR822 MCS	689	PR
1	Exit Device	MLR 2103 x 1703A	630	VD
1	Exit Device	MLR 2102 x 1702A	630	VD
2	Rim Cylinder	20-022 50-210-GMK 50-211-CK	626	SC
2	Closer	TS9315 SPT	689	LC
2	Floor Stop	1209	630	TR
1	Gasketing	BY DOOR MANUFACTURER		BY
1	Saddle Threshold	424 X LAR 1/4-20 SSMS/EA	AL	NA
2	Position Switch	9540	BLACK	RC
1	Infrared Egress Switch	915-B	BLACK	RC
1	Card Reader	BY ACCESS CONTROL INTEGRATOR		BY
1	Harness	WH-12		ST
1	Harness	WH-192P		ST
1	Power Supply	RPSMLR2BB		PR

NOTE: COORDINATION WITH ELECTRICAL AND SECURITY REQUIRED.

OPERATION DESCRIPTION: Doors normally closed, latched and secure. Momentary access by presenting valid credential to reader or by mechanical key. Scheduled unlocking for access by ACS (Access Control System.) With loss of power or building Lockdown, secure (key) side of door will be locked. Immediate free egress at all times.

**SET #2 - PR FIRE WALL UL 90 MINUTE RATED**

Doors: D3, D4, D8

6	Hinges	CB168 4.5" x 4.5" NRP	26D	SL
1	Removable Mullion	FLKR822	600	PR
1	Exit Device	FL 2101 x 4901	630	VD
1	Exit Device	FL 2110VI X V4908A	630	VD
3	Rim Cylinder	20-022 50-210-GMK 50-211-CK	626	SC
2	Closer	TS9315 T	689	LC
2	Kick Plate	K0050 - 10" x 2" LDW CSK	630	TR
2	Floor Stop	7280	630	TR
1	Gasketing	5050 CL-20 20'		NA
1	Mullion Seal	5100 S		NA

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**SET #3 - ANNEX**

Doors: D5

3 Hinges	CB179 4.5" x 4.5"	26D	<b>SL</b>
1 Office Lock	ND53P RHO 10-025 50-210-GMK 50-211-CK	626	SC
1 Wall Bumper	1270CVSV	626	TR
3 Silencers	1229A	GREY	TR

**SET # NO HARDWARE - CASSED OPENING FRAME**

Doors: FS1, FS2

**END SECTION 08 71 00**

## SECTION 088000 - GLAZING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes glazing for:
  - 1. Flush wood doors.
  - 2. Aluminum framed entrances and storefront.

#### 1.2 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Interspace: Space between lites of an insulating-glass unit.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Design glass to comply with ASTM E 1300 and International Building Code according to the following requirements:
  - 1. Design Wind Pressures: As indicated on structural Drawings.
  - 2. Design Snow Loads: As indicated on structural Drawings.
  - 3. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
  - 4. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
  - 5. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
  - 1. For monolithic-glass lites, properties are based on units with lites 1/4 inch thick.
  - 2. For insulating-glass units, properties are based on units with lites 1/4 inch thick and a nominal 1/2-inch- wide interspace.
  - 3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
    - a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F.
    - b. Solar Heat Gain Coefficient: NFRC 200.



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- c. Solar Optical Properties: NFRC 300.
- E. Product Data: For each glass product and glazing material indicated.
- F. Sustainable Design Submittal:
  - 1. Sealant shall have a VOC content of 250 g/L or less.
    - a. Product Data: For sealants, indicating VOC content.
    - b. Laboratory Test Reports: For sealants, indicating compliance with requirements for low-emitting materials.
- G. Glass Samples: For each type of the following products; 12 inches square.
  - 1. Insulating glass.
- H. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- B. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
  - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- C. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- D. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's printed instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's printed recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F.

1.7 WARRANTY

- A. Manufacturer's Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's printed instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass, includes replacement of failed units.
  - 1. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
  - 1. Minimum Glass Thickness for Exterior Lites: Not less than 1/4 inch.
- B. Strength: Where float glass is indicated, provide Fully Tempered (FT) heat-treated float glass.
- C. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of [the SGCC] [the SGCC or another certification agency acceptable to authorities having jurisdiction] [or] [manufacturer]. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- D. Recycled Content:
  - 1. Recycled Content of Glass Products: Provide products with minimum pre- or post-consumer recycled content not less than 25 percent.

2.2 GLASS PRODUCTS

- A. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- B. **Fritted Glass: Sandblasted. Opac. Privacy Level 5/5. ASTM C1048, Kind FT (fully tempered), Type I, Condition C, Quality-Q3.**

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- C. Sputter-Coated (Low E), Glass: Clear Fully Tempered (FT) Float Glass with a coating on surface as indicated.
  - 1. Products: Subject to compliance with requirements, provide one of the following meeting the requirements of the Basis-of-Design Products:
    - a. Vitro Architectural Glass Inc., Solarban 60: Basis-of-Design Products.
    - b. AGC Inc.
    - c. Viracon, Inc.
    - d. Guardian Glass

2.3 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
  - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
  - 2. Spacer: Aluminum with black color anodic finish.
  - 3. Desiccant: Molecular sieve or silica gel, or blend of both.
  - 4. Provide Fully Tempered (FT) glass.
- B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Insulating-Glass Types" Article.

2.4 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded black gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
  - 1. EPDM complying with ASTM C 864.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene, EPDM, silicone, or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
  - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.5 GLAZING SEALANTS

- A. General:
  - 1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

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2. Suitability: Comply with sealant and glass manufacturers' printed instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  3. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
  4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Dow Corning Corporation; 790.
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
    - c. May National Associates, Inc.; Bondaflex Sil 290.
    - d. Pecora Corporation; 890.
    - e. Sika Corporation, Construction Products Division; SikaSil-C990.
    - f. Tremco Incorporated; Spectrem 1.
  2. Applications: Exterior glazing unless indicated otherwise.

2.6 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

2.7 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Opacifier: At **fritted** glass, provide an opacifier. **Sandblasted. Opac. Privacy Level 5/5.**

## 2.8 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with printed instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

## 2.9 GLASS TYPES

- A. Glass Type **IG1**: Insulating glass - clear.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the following or a comparable product:
    - a. Vitro Architectural Glass Solarban 60.
  - 2. Overall Unit Thickness: 1 inch.
  - 3. System: 1/4-inch (6 mm) clear Fully Tempered (FT) Float Glass with Solarban 60 low-e coating on #2 surface / 1/2-inch (12 mm) air space / 1/4-inch (6 mm) clear Fully Tempered (FT) Float Glass.
  - 4. Provide safety glazing labeling.
  - 5. Locations: Typical Exterior Insulated Glazing Unit
- B. Glass Type **IG2**: Insulating glass – **fritted, sandblasted opac.**
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the following or a comparable product:
    - a. Vitro Architectural Glass Solarban 60.
  - 2. Overall Unit Thickness: 1 inch.
  - 3. System: 1/4-inch (6 mm) clear Fully Tempered (FT) Float Glass with Solarban 60 low-e coating on #2 surface / 1/2-inch (12 mm) air space / 1/4-inch (6 mm) clear Fully Tempered (FT) Float Glass with an opacifier applied to the #4 surface.
  - 4. Provide safety glazing labeling.
  - 5. Locations: Typical Exterior Insulated Spandrel Glazing Unit
- C. Glass Type **GL-3**: Fully Tempered (FT) float glass units - clear.
  - 1. Thickness: 1/4-inch nominal.
  - 2. Provide safety glazing labeling.
  - 3. Locations: Typical interior glazing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep systems.
  - 3. Minimum required face and edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

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3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

- A. Comply with combined printed instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches.
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

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3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant, if required by manufacturer.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Locations: Glazing in hollow metal doors, hollow metal frames, and wood doors.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.
- F. Locations: Glazing in aluminum storefronts, glazed aluminum curtain walls, and sound control windows.

3.6 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

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- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project prior to Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

**END OF SECTION 08 80 00**







