



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
 GSD096416

PAGE  
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:  
 KRISTA FERRELL  
 304-558-2596

RFQ COPY  
 TYPE NAME/ADDRESS HERE

VENDOR

SHIP TO

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES DIVISION  
 BUILDING FOUR  
 112 CALIFORNIA AVENUE  
 CHARLESTON, WV  
 25305 304-558-2317

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/26/2008				

BID OPENING DATE: 12/11/2008 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 4		
				THIS ADDENDUM IS ISSUED TO:		
				1.) PROVIDE ANSWERS TO THE TECHNICAL QUESTIONS SUBMITTED PRIOR TO THE DEADLINE,		
				2.) ADD SECTION 07920 JOINT SEALANT SPECIFICATIONS,		
				3.) ADD SECTION 08800 GLAZING SPECIFICATIONS,		
				4.) ADD WINDOW TYPE DRAWING W/ DIMENSIONS,		
				5.) ADD WINDOW DETAIL DRAWING, AND		
				6.) EXTEND BID OPENING DATE.		
				BID OPENING DATE IS EXTENDED TO: 12/11/2008		
				BID OPENING TIME REMAINS: 1:30 PM		
				***** END ADDENDUM NO. 4 *****		
0001	1	LS		910-79		
				REPLACEMENT OF WINDOWS, BLDG#4		

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS  
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
5. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
15. **WEST VIRGINIA ALCOHOL & DRUG-FREE WORKPLACE ACT:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

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**INSTRUCTIONS TO BIDDERS**

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in case of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

**RFQ#GSD096416, Bldg#4 Window Replacement**  
**Technical Questions and Answers**

The following are questions submitted for the project, with their relevant answers. Please modify the original specifications accordingly to incorporate the information provided herein.

Question#1: Is the handout distributed at the pre-bid meeting to scale?

Answer#1: Please find attached the drawing (GSD096416 New and Existing Window Handout), now revised to show scale.

Question#2: Will there be liquidated damages on this project?

Answer#2: Please add the following language to the RFQ (Page 10, below the sentence beginning "Successful Bidder will be given..."):

"Liquidated damages will be imposed, at the rate of \$500.00 per day, for failure to complete the project within the designated allowable number of days."

Question#3: Will progress payments be allowable during the life of the project?

Answer#3: Please add the following, as a §5.b. under the General Specifications section of the RFQ (Page 11):

"Progress payments will be allowable on the basis of percentage of work completed, given they include the language and deduction of a five percent (5%) retainage until such time the final project is completed."

(Please also change the Room Number of the billing address in the original RFQ from MB60 to MB68).

Question#4: How will the disposal and salvage of existing removed windows be handled under the Contract?

Answer#4: Contractor will be required to remove the windows to a bin provided and located by the Owner, for disposal by the State Surplus Property unit. No requirement will be made of the Contractor to remove glass from the window frames prior to disposal in the bin, but this will in no way waive the Contractor's responsibilities to keep the project site clean and clear of debris.

Question#5: Will the project be done in phases?

Answer#5: The Contractor will provide the Owner or designee with a planned schedule for window removal within ten days after the Notice to Proceed. Contractor will also be required to contact the Owner within 48 hours of the beginning of any work, so that coordination may be made with the tenant agencies affected by the particular area of work.

Question#6: Will the Contractor be responsible for the moving of window treatments and furniture as windows are replaced?

Answer#6: Yes. The Contractor will remove all window treatments and furniture in the area to be affected by work, coordinating scheduling (as above) with the Owner. After window replacement, Contractor will be required to clean area before replacing window treatments and furniture.

Question#7: Will building be occupied during project? If so, how many openings will be made available per day?

Answer#7: Building will be occupied during project. Contractor will be allowed to work on as many openings as he will be able to complete within 24 hours, to minimize invasion and inconvenience of tenants.

Question#8: Will contract be required to repair plaster/drywall to original color and texture if any damage occurs to any interior surface during the removal of furniture or window treatments, removal of existing windows, installation of new windows, or reinstallation of window treatments or replacement of moved furniture?

Answer#8: Yes.

Question#9: Are there any specified work hours for the project?

Answer#9: 7:00am to 5:00pm, although this will be negotiable with Owner during life of project.

Question#10: Will there be space provided for onsite storage in road trailers?

Answer#10: Onsite storage space will be limited to an area of approximately 10 parking spaces each on the East and South sides of the building.

Question#11: Can Contractor use elevators for stocking windows on floors?

Answer#11: The Owners desires the installation to be performed from the exterior, to be less invasive to the interior operations of the building, so the answer to this question is "No."

Question#12: Is this project a LEED certified or "Energy Star" project?

Answer#12: No.

Question#13: Are any blinds to be replaced as part of this project?

Answer#13: No.

Question#14: Can Contractor provide a window that is one color outside and another color inside?

Answer#14: No.

Question#15: Can the Owner provide details for existing conditions/new conditions and accessories to be used to install windows?

Answer#15: See the aforementioned and attached "GSD096416 New and Existing Windows Handout" and the attached "GSD096416 Window Detail Drawing"

Question#16: Is the listed required warranty of 10 years for anodized windows accurate?

Answer#16: Yes.

Question#17: Can the Owner provide a window sealant specification?

Answer#17: See attach "GSD096416 07920 – Sealant Specification." All suggested products are listed for specification standardization only, and not meant to limit competition; hence, the "or equal" addition to lists of suggested manufacturers. All windows are to be installed per manufacturer's specifications, including the use of sealants.

Question#18: Can the Owner provide a cutting/patching specification?

Answer#18: All patching will be done to match original conditions prior to any removal work under this contract. No cutting should be applicable to this job.

Question#19: Can the Owner provide a louvre specification?

Answer#19: No louvers are to be replaced under this contract.

Question#20: Can the Owner provide a glass specification?

Answer#20: See attached "GSD096416 08800 – Window Glass Specification"

Question#21: Are the Basic Wind Speed (90 mph) listed in Part 1.2.B.1.a (Pg 14) and the required C30 Performance Class and Grade of Part 2.2.B.1 accurate specifications?

Answer#21: The Owner submits the specification as is.

## SECTION 07920 - JOINT SEALANTS

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. This Section includes joint sealants for the following applications:
  - 1. Exterior joints in vertical and horizontal surfaces around window frames.
  - 2. Interior joints in vertical and horizontal surfaces around windows and other disturbed surfaces.

## 1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

## 1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

## 1.4 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

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## 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

- B. Nonsag Polysulfide Sealant :

- 1. Acceptable products include, but are not limited to:
  - a. Pacific Polymers, Inc.; Elasto-Seal 227 Type II (Gun Grade).
  - b. Pecora Corporation; Synthacalk GC-2+.
  - c. Polymeric Systems Inc.; PSI-350.
  - d. PolySpec Corp.; T-2235-M.
  - e. PolySpec Corp.; T-2282.
  - f. PolySpec Corp.; Thiokol 2P.
  - g. Sonneborn, Division of ChemRex Inc.; Sonolastic Polysulfide Sealant; (or equal).
- 2. Type and Grade: M (multicomponent) and NS (nonsag).
- 3. Class: 25.
- 4. Use[s] Related to Exposure: NT nontraffic
- 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

- C. Single-Component Neutral-Curing Silicone Sealant

- 1. Acceptable products include, but are not limited to:
  - a. Dow Corning Corporation; 790.
  - b. GE Silicones; SilPruf LM SCS2700.
  - c. Tremco; Spectrem 1 (Basic).
  - d. GE Silicones; SilPruf SCS2000.
  - e. Pecora Corporation; 864.
  - f. Pecora Corporation; 890.
  - g. Polymeric Systems Inc.; PSI-641.
  - h. Sonneborn, Division of ChemRex Inc.; Omniseal.
  - i. Tremco; Spectrem 3.
  - j. Dow Corning Corporation; 791.
  - k. Dow Corning Corporation; 795.
  - l. GE Silicones; SilPruf NB SCS9000.

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- m. GE Silicones; UltraPruf II SCS2900;  
(or equal)
2. Type and Grade: S (single component) and NS (nonsag).
  3. Class: 50
  4. Use Related to Exposure: NT (nontraffic).
  5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
  6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
- D. Single-Component Nonsag Urethane Sealant
1. Acceptable products include, but are not limited to:
    - a. Bostik Findley; Chem-Calk 900.
    - b. Bostik Findley; Chem-Calk 915. Products listed below are classified by manufacturers as suitable for Uses T and NT.
    - c. Sika Corporation, Inc.; Sikaflex - 1a.
    - d. Sonneborn, Division of ChemRex Inc.; Ultra.
    - e. Sonneborn, Division of ChemRex Inc.; NP 1.
    - f. Tremco; Vulkem 116. Pecora Corporation; Dynatrol I-XL.
    - g. Polymeric Systems Inc.; Flexiprene 1000.
    - h. Polymeric Systems Inc.; PSI-901.
    - i. Schnee-Morehead, Inc.; Permthane SM7100.
    - j. Schnee-Morehead, Inc.; Permthane SM7108.
    - k. Schnee-Morehead, Inc.; Permthane SM7110.
    - l. Sika Corporation, Inc.; Sikaflex 15LMg
    - m. Tremco; DyMonic.
    - n. Tremco; Vulkem 921.
    - o. Tremco; Vulkem 931.  
(or equal)
  2. Type and Grade: S (single component) and NS (nonsag).
  3. Class: 25.
  4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
  5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.
- E. Siliconized -Acrylic Latex Caulk
1. Acceptable Products include, but are not limited
 

Sonneborn, Division of Chemrex, Inc.; Sonolac, or comparable products by Tremco,, GE Silicones and others (or equal).
  2. Type and Grade: S (single component)
  3. Class: 25.



4. Use Related to Exposure: NT (Non-traffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

## 2.4 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C, closed-cell material with a surface skin, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

## 2.5 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
  1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.
    - a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose

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particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

- B. **Joint Priming:** Prime joint substrates, where recommended by joint-sealant manufacturer or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. **Masking Tape:** Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.2 INSTALLATION

- A. **Sealant Installation Standard:** Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. **Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.**
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- C. **Install sealants using proven techniques that comply with the following and at the same time backings are installed:**
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- D. **Tooling of Nonsag Sealants:** Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- E. **Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.**

## 3.3 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application Exterior joints in dimension stone cladding and aluminum window frames.
  - 1. Joint Sealant: Non-Sag Polysulfide Sealant; Single Component Neutral-curing Silicone Sealant; or Single Component Non-Sag Urethane Sealant and as recommended by Window manufacturer as being compatible with application.
  - 2. Joint-Sealant Color: As selected by Owner from manufacturer's full range.
  
- B. Joint-Sealant Application interior joints between aluminum window frames and interior finish materials:
  - 1. Joint Sealant: Siliconized Acrylic Latex Sealant
  - 2. Joint-Sealant Color: As selected by Owner from manufacturer's full range.

END OF SECTION 07920

## SECTION 08800 - GLAZING

## PART 1 - GENERAL

## 1.1 SUMMARY

1. This Section includes glazing for windows

## 1.2 DEFINITIONS

- A. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
- B. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- C. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
- D. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

## 1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
  1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the wind requirements specified elsewhere.

West Virginia Capitol Complex  
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C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 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.

#### 1.4 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

#### 1.5 WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form, made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: 10 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 GLASS PRODUCTS

A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.

1. Ultra-Clear (Low-Iron) Float Glass: Class I (clear); with a minimum 91 percent visible light transmission and a minimum solar heat gain coefficient of 0.87.

B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.

2. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is required.

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- C. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.
1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
  2. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
  3. Sealing System: Dual seal.
  4. Spacer Specifications: Manufacturer's standard spacer material and construction.
  5. Spacer Specifications: Manufacturer's standard spacer material and construction complying with the following requirements:
    - a. Spacer Material: Aluminum with mill or clear anodic finish, or Stainless steel.
    - b. Corner Construction: Manufacturer's standard corner construction.

## 2.2 GLAZING GASKETS

- A. Compression Gaskets: Molded or extruded gaskets of material indicated below and of profile and hardness required to maintain watertight seal:
1. Neoprene.
  2. EPDM,
  3. Silicone.
  4. Thermoplastic polyolefin rubber,
  5. Any material indicated above.

## 2.3 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select 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.
  2. Suitability: Comply with sealant and glass manufacturers' written 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 (EPA Method 24).
  4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Elastomeric Glazing Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing

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ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

## 2.4 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 with a Shore, Type A durometer 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).

## 2.5 FABRICATION OF GLAZING UNITS

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

## 2.6 INSULATING-GLASS UNITS

- A. Solar-Control Low-E Insulating-Glass Units:
  - 1. Overall Unit Thickness and Thickness of Each Lite: One (1") inch.
  - 2. Interspace Content: Argon.
  - 3. Outdoor Lite: Class 1 (clear) float glass, Kind FT (fully tempered).
  - 4. Indoor Lite: Class 1 (clear) float glass. Kind HS (heat strengthened).
  - 5. Low-E Coating: Sputtered on third surface, Solar-Ban 60 or equal.
  - 6. Visible Light Transmittance: 40 percent minimum.
  - 7. Winter Nighttime U-Factor: 0.31 maximum.
  - 8. Summer Daytime U-Factor: 0.32 maximum.
  - 9. Solar Heat Gain Coefficient: 0.40 maximum.
  - 10. Outdoor Visible Reflectance: 0.34 percent maximum.

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## PART 3 - EXECUTION

### 3.1 GLAZING

- A. General: Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
1. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
  2. 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.
  3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
  4. 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.
  5. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
  6. Provide spacers for glass lites where length plus width is larger than 50 inches.
  7. 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.
- B. Gasket Glazing (Dry): Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
1. 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.
  2. 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.
  3. Install gaskets so they protrude past face of glazing stops.

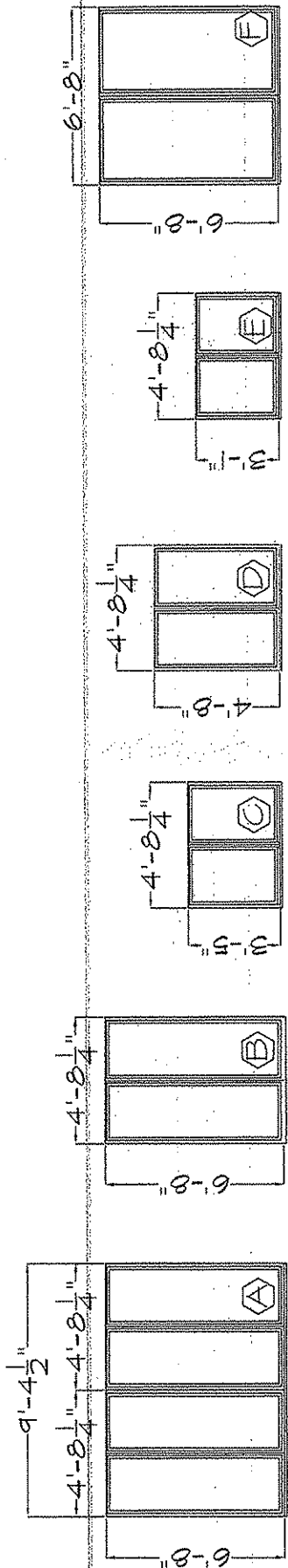
### 3.2 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces. 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 by glass manufacturer.
- B. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.



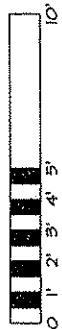
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END OF SECTION 08800

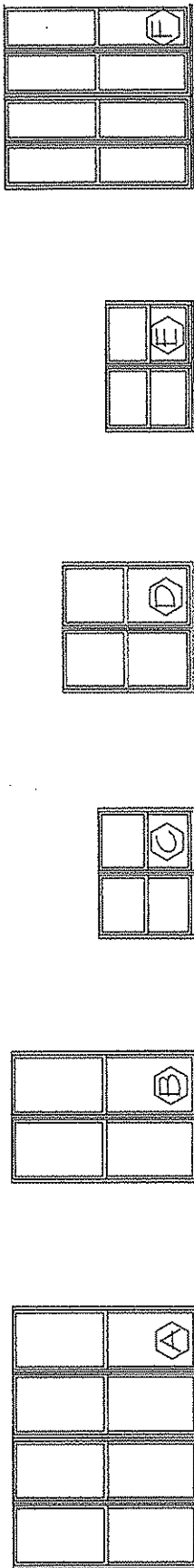


Contractor to verify all dimensions.

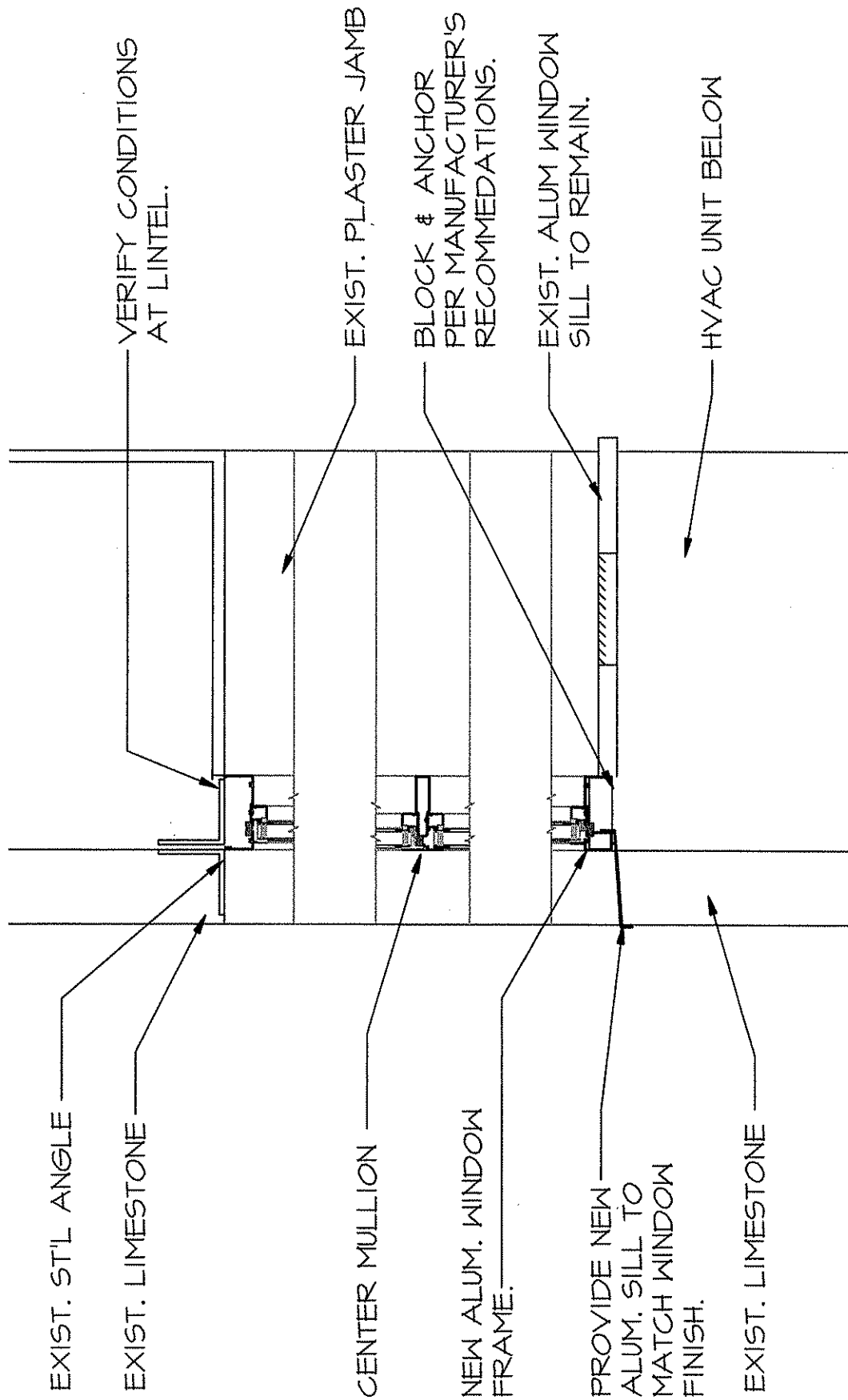
# NEW WINDOW TYPES



Scale: 1/4" = 1' - 0" on 11"x17"  
1/8" = 1' - 0" on 8.5"x11" paper



# EXISTING WINDOW TYPES



# WINDOW DETAILS

