ADDENDUM 03

Project:	**IH Bear River Valley Hospital Outpatient Expansion**	Addendum Number:	**ADD-03**
FFKR #:	24023	Date:	**March 10, 2025**
Contractor:		Attention:	

The Addendum is for all persons preparing Bids for the above named project; and, as such, shall be made a part of the Documents. Changes, corrections, and deletions enumerated herein shall be included in the Contractor's Bid. Bidders should acknowledge receipt of the Addendum in the space provided in the Contractor's Bid Form. Failure to do so may subject the Bidder to disqualification. In case of any conflict between the drawings, specifications, and this addendum, this addendum shall govern.

Make Changes to Bid Documents as follows:

SPECIFICATIONS:

- Section 08 8000 – Glazing
  - Updated section 3.10-A; corrected Basis-of-Design product to list "Viracon", and removed reference to SolarBan 70

ARCHITECTURAL DRAWINGS:

A610 – DOOR AND WINDOW SCHEDULE:

- Details C4, C6, and D5: Updated mullion profile and dimensions to match the Trifab VG 601T called for in the specifications.

ATTACHMENTS:

Bidding RFI Questions & Responses (2 pages)

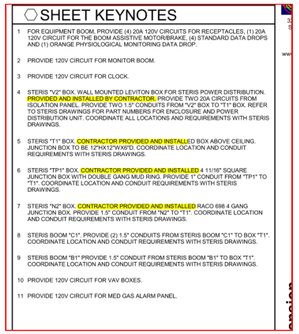
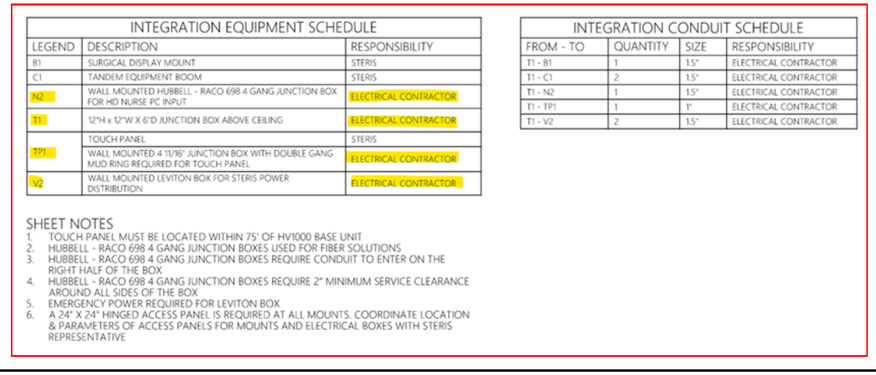
ARCHITECTURAL:

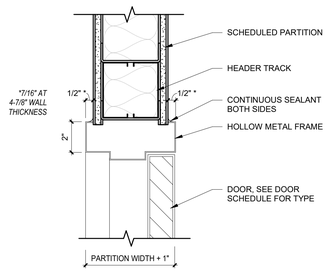
- Specification Section 08 8000 – Glazing
- (1) Architectural Sheet: A610

End of Addendum 03

Intermountain Healthcare - Bear River Valley Hospital Outpatient Expansion
Bidding Questions *responses in red

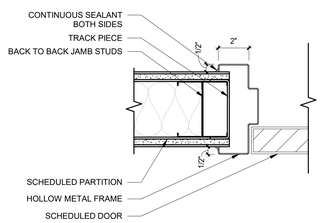
#	Scope	Reference	Question	Response
001	Electrical	EP101	Please provide vendor drawings showing connection points for Steris equipment.	Vendor drawings for the Steris equipment will be included as an attachment for Addendum #2, please see attached.
002	Fire Sprinkler		Fire sprinkler spec calls for concealed sprinklers while existing conditions have recessed sprinklers. Please confirm what is required.	Provide recessed flat plate concealed heads as specified in building addition and Cardiac Rehab Remodel area. Match existing semi-recessed heads in other locations. All sprinkler heads within a space shall be the same type.
003	Working Hours	Specification Sections 01 1000, 01 3100 & FDC.FORM.0700 PCRA ORIENTATION GUIDELINES	Please confirm allowable working hours for each area and if there will need to be any after hour work.	Working hours shall be coordinated during a Preconstruction Conference with the Owner, Architect, and Contractor (Section 01 3100 1.9 B). Per Section 01 1000 1.14 B, it is anticipated that the majority of work shall be limited to "normal business working hours of Monday through Friday" and work outside the normal working hours must be coordinated with and approved by the Owner. Please note that some after hours work may be required when tying into the existing building and systems. Per FDC.FORM.0700, Hours of Operation are listed as follows, but shall be confirmed with the hospital during the Preconstruction Conference:
004	Footings	S101	Note C calls for chipping out footing. Please confirm if this is a continuous footing and will need to be chipped out along the whole existing footing.	Footings are to be chipped out at new shear walls parallel to existing frost walls and at some spot footings where indicated by details cut on the plan. See details indicated on plan for clarification.
005	General	Bid Form & G000	The bid form does not have a spot for the breakout values. How would you like those handled? Please confirm the breakouts are from the base bid and are not supposed to be bid as	The Owner has confirmed that bidding breakouts will no longer be required; all areas of the project shall be submitted as one bid to project number "BRVH OP Expansion #10017631"
006	Excavation	See sheet S001 GSN / Foundation Criteria item 2.B	The plans show that the dirt in the footing areas needs to be all taken out and hauled off. What is going to be frost protection grade for footings up there, 30" or 42"? And it also shows putting 1' to 2' of drain rock under the footings, so should we take an additional 12" to 24" out even though that is below the fill grade?	Frost depth is 30 in. per Tremonton Building Department https://tremontoncity.org/wp-content/uploads/2024/04/BUILDING-DESIGN-CRITERIA.pdf See also geotechnical recommendations.
007	Excavation	See sheet S001 GSN / Foundation	The plans doesn't specify if we need to take the entire 3.5' of fill out of the entire inside down to bottom of footing and bring in all structural fill, should I plan on taking it all out and bringing all structural fill in and placing in lifts for compaction testing?	"ALL FOOTINGS + FOUNDATIONS TO BE PLACED ON PROPERLY PREPARED NATIVE SOILS AND/OR COMPACTED STRUCTURAL FILL" See also geotechnical recommendations.
008	MEP	M091	On Sheet M091 where we are dealing with FD/FSDs do we need someone certified to test them or are we just verifying that they are in working condition?	Testing & documentation anticipated to be performed by installing contractor. This is the standard NFPA requirements for install of FD/SD/FSD. It is included in drawings based on owner feedback that documentation furnished on past projects has been insufficient to meet their accreditation requirements.
009	Millwork	Specification Section 06 4116	If an AWI certification can be provided, can contractors not in the specifications be used?	Manufacturers must be one of the approved manufacturers listed in the specifications. Any manufacturer not listed can be added to the list after review & approval by the Architect.
010	Excavation	Specification Section 00 3132	Is there an Geotechnical report of the site available?	The Geotechnical report (by AGEC dated 5/20/2024) is included in the specifications in Document 00 3132.
011	MEP	P101	Do you know if the Storm Drain needs to be double contained in these areas? What about the rest of the piping? I ask because the spec calls for double-containment piping for the Storm Drain over these areas "operating rooms, trauma rooms, sterile processing" and a couple of others.These areas look to me like operating rooms, and I want to make sure the Wound Exam Rooms aren't trauma rooms. The other question with this is that there appears to be water piping being routed above what I believe are the operating rooms. Would this need to be double-	Double containment piping is not required if the routing shown in the bid documents is followed. If gravity drain piping routes over GI Procedure 1 & 2, Endoscope Processing, or Electrical Closet then it is required. FYI - Double containment piping is an FGI requirement for drainage systems only (sanitary sewer & storm drain).
012	MEP	P501	I see the Pure Water System on the drawings and in the schedule. However, I see no piping going out from the Purer Water System to a piece of equipment. I see a little bit on Detail 9 Sheet P501 but that doesn't really show how far it goes. Please provide updated drawing.	The pure water system serves the S-3 (Steris Endo Reprocessing) sink only. The filters & UV sterilizer are surface mounted on the wall with the floor mounted DI tanks directly adjacent to the S-3 sink it serves.
013	Demo		Is there a designated area to put a crane for chiller wall demo? (For chillers and red iron in the chiller wall structure)	A designated area has not yet been identified, it is anticipated that construction site logistics (including where to locate the crane) shall be coordinated between the Contractor and the Owner during a Preconstruction Conference.
014	General		We are receiving significant pushback from key trades in response to the requirement that bids be valid for 60 days. This is caused by the volitilty/uncertanty in the markets because of proposed tarrifs. We cannot guarantee pricing can be held for 60 days.	As stipulated, the Owner prefers that subcontractors hold their bids for a period of 60 days. However, it is understood that due to the current tariff environment there may be exceptional circumstances where a key subcontractor cannot commit to this 60-day period but would still bring significant value to the project and Intermountain Health. In such cases, the general contractor is permitted to use that subcontractor, provided the deviation is clearly noted on their bid form. Please ensure that the subcontractor is willing to hold their bid for a minimum of 30 days.
015	Glazing	Specification Section 08 8000	In the glazing specification 088000-3.10-A, there are two different low-e coatings specified, one is the VNG-4022 coating from Viracon and one is SolarBan 70 by Vitro Architectural Glass. Please clarify which low-e coating is to be used.	The Viracon VNG-4022 is to be used. The attached specification has been updated for clarity.

016	Storefront	A610	There is a discrepancy between the drawings and the specification sections for the aluminum framed glazing system. Specification section 084114-2.2-A indicates that we should be using the Trifab VG 601T storefront system from Kawneer (this storefront system has a 2" profile and a 6" depth), however C4 and C6 on sheet A610 clearly show the framing system should have a 2 1/2" profile and a 6" depth, which seems to depict a curtain wall system. Please clarify whether a curtain wall or storefront system will be used.	The Trifab VG 601T storefront system will be used, as listed in the specifications. Please see updated sheet A610 correcting the dimensions of the profile.
017	Steris Equipment	EP101	The following items are shown on EP101 as needing to be provided by the electrical contractor. However, when the subcontractors reached out to Steris, they were told that Steris is providing these directly to Intermountain. Can you please confirm if that is accurate, and if the contractor is to provide the installation only?  SHEET KEYNOTES 1 FOR EQUIPMENT BOOM, PROVIDE (4) 20A 120V CIRCUITS FOR RECEPTACLES, (1) 20A 120V CIRCUIT FOR THE BOOM ASSISTIVE MOTOR/BRAKE, (4) STANDARD DATA DROPS AND (1) ORANGE PHYSIOLOGICAL MONITORING DATA DROP. 2 PROVIDE 120V CIRCUIT FOR MONITOR BOOM. 3 PROVIDE 120V CIRCUIT FOR CLOCK. 4 STERIS "V2" BOX, WALL MOUNTED LEVITON BOX FOR STERIS POWER DISTRIBUTION. **PROVIDED AND INSTALLED BY CONTRACTOR.** PROVIDE TWO 20A CIRCUITS FROM ISOLATION PANEL. PROVIDE TWO 1.5" CONDUITS FROM "V2" BOX TO "T1" BOX. REFER TO STERIS DRAWINGS FOR PART NUMBERS FOR ENCLOSURE AND POWER DISTRIBUTION UNIT. COORDINATE ALL LOCATIONS AND REQUIREMENTS WITH STERIS DRAWINGS. 5 STERIS "T1" BOX. **CONTRACTOR PROVIDED AND INSTALLED** BOX ABOVE CEILING. JUNCTION BOX TO BE 12"HX12"WX6"D. COORDINATE LOCATION AND CONDUIT REQUIREMENTS WITH STERIS DRAWINGS. 6 STERIS "TP1" BOX. **CONTRACTOR PROVIDED AND INSTALLED** 4 11/16" SQUARE JUNCTION BOX WITH DOUBLE GANG MUD RING. PROVIDE 1" CONDUIT FROM "TP1" TO "T1". COORDINATE LOCATION AND CONDUIT REQUIREMENTS WITH STERIS DRAWINGS. 7 STERIS "N2" BOX. **CONTRACTOR PROVIDED AND INSTALLED** RACO 698 4 GANG JUNCTION BOX. PROVIDE 1.5" CONDUIT FROM "N2" TO "T1". COORDINATE LOCATION AND CONDUIT REQUIREMENTS WITH STERIS DRAWINGS. 8 STERIS BOOM "C1". PROVIDE (2) 1.5" CONDUITS FROM STERIS BOOM "C1" TO BOX "T1". COORDINATE LOCATION AND CONDUIT REQUIREMENTS WITH STERIS DRAWINGS. 9 STERIS BOOM "B1" PROVIDE 1.5" CONDUIT FROM STERIS BOOM "B1" TO BOX "T1". COORDINATE LOCATION AND CONDUIT REQUIREMENTS WITH STERIS DRAWINGS. 10 PROVIDE 120V CIRCUIT FOR VAV BOXES. 11 PROVIDE 120V CIRCUIT FOR MED GAS ALARM PANEL.	The highlighted items you have listed are to be **provided and installed by the electrical contractor**. This is also called out on the Steris equipment drawings, as shown below.  INTEGRATION EQUIPMENT SCHEDULE LEGEND / DESCRIPTION / RESPONSIBILITY B1 — SURGICAL DISPLAY MOUNT — STERIS C1 — TANDEM EQUIPMENT BOOM — STERIS N2 — WALL MOUNTED HUBBELL - RACO 698 4 GANG JUNCTION BOX FOR HD NURSE PC INPUT — ELECTRICAL CONTRACTOR T1 — 12"H x 12"W X 6"D JUNCTION BOX ABOVE CEILING — ELECTRICAL CONTRACTOR TOUCH PANEL — STERIS TP1 — WALL MOUNTED 4 11/16" JUNCTION BOX WITH DOUBLE GANG MUD RING REQUIRED FOR TOUCH PANEL — ELECTRICAL CONTRACTOR V2 — WALL MOUNTED LEVITON BOX FOR STERIS POWER DISTRIBUTION — ELECTRICAL CONTRACTOR INTEGRATION CONDUIT SCHEDULE FROM - TO / QUANTITY / SIZE / RESPONSIBILITY T1 - B1 — 1 — 1.5" — ELECTRICAL CONTRACTOR T1 - C1 — 2 — 1.5" — ELECTRICAL CONTRACTOR T1 - N2 — 1 — 1.5" — ELECTRICAL CONTRACTOR T1 - TP1 — 1 — 1" — ELECTRICAL CONTRACTOR T1 - V2 — 2 — 1.5" — ELECTRICAL CONTRACTOR SHEET NOTES 1. TOUCH PANEL MUST BE LOCATED WITHIN 75' OF HV1000 BASE UNIT 2. HUBBELL - RACO 698 4 GANG JUNCTION BOXES USED FOR FIBER SOLUTIONS 3. HUBBELL - RACO 698 4 GANG JUNCTION BOXES REQUIRE CONDUIT TO ENTER ON THE RIGHT HALF OF THE BOX 4. HUBBELL - RACO 698 4 GANG JUNCTION BOXES REQUIRE 2" MINIMUM SERVICE CLEARANCE AROUND ALL SIDES OF THE BOX 5. EMERGENCY POWER REQUIRED FOR LEVITON BOX 6. A 24" X 24" HINGED ACCESS PANEL IS REQUIRED AT ALL MOUNTS. COORDINATE LOCATION & PARAMETERS OF ACCESS PANELS FOR MOUNTS AND ELECTRICAL BOXES WITH STERIS REPRESENTATIVE



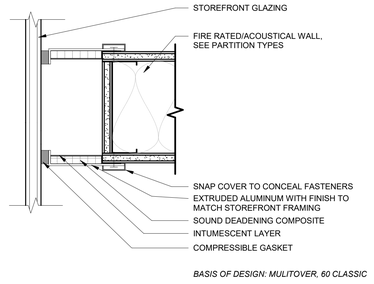
D1 TYPICAL HM DOOR HEAD DETAIL

SCALE: 3" = 1'-0"



D2 TYPICAL HM DOOR JAMB DETAIL

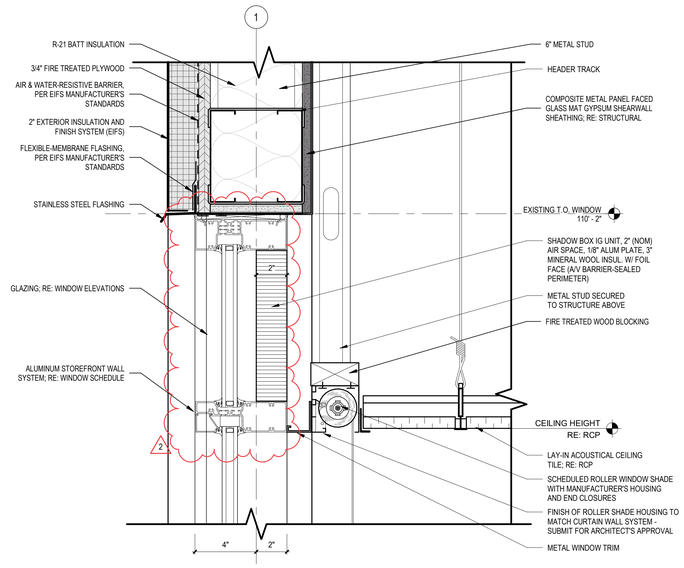
SCALE: 3" = 1'-0"



BASIS OF DESIGN: MULITOVER, 60 CLASSIC

D3 RATED PARTITION @ WINDOW

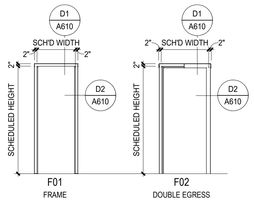
SCALE: 3" = 1'-0"



D5 TYPICAL ROLLER SHADE AND SHADOW BOX DETAIL

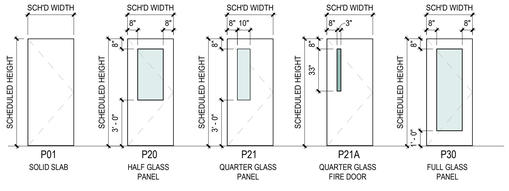
SCALE: 3" = 1'-0"

DOOR AND FRAME SCHEDULE													
	DOOR							FRAME					
	SIZE						OPENING GLAZING TYPE						
DOOR NUMBER	WIDTH	HEIGHT	THICK	LEAF 1 TYPE	LEAF 2 TYPE	MATERIAL		TYPE	MATERIAL	FIRE RATING	HW Set	NOTES	REVISIONS
LEVEL 1													
A100	7' - 8"	7' - 0"	1 3/4"	P21A	P21A	WD	GL-3	F01	HM	90	2.0	W/ ACTUATOR. DOOR BELL/REMOTE OPEN AT NURSE STATION	
A102	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		8.0	W/ OCCUPANCY INDICATOR	
A106	4' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		9.0		
A107	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		6.0		
A108A	3' - 0"	7' - 0"	1 3/4"	P21		WD	GL-2	F01	HM		12.0		
A108B	3' - 0"	7' - 0"	1 3/4"	P21		WD	GL-2	F01	HM		12.0		
A108C	3' - 0"	7' - 0"	1 3/4"	P21		WD	GL-2	F01	HM		3.0	W/ WAVE ACTUATOR ON ROOM SIDE	
A109	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		4.0		
A110	4' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		9.0		
A111	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		4.0		
B001	8' - 0"	7' - 0"	1 3/4"	P01	P01	WD	-	F01	HM		7.0		
B100A	4' - 0"	7' - 0"	1 3/4"	P21A		WD	GL-3	F01	HM	90	5.0		
B100B	3' - 0"	7' - 1"	1 3/4"	P30		ALUM	GL-1	-	ALUM		1.0	NO HARDWARE ON EXTERIOR SIDE	
B101	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		8.0	W/ OCCUPANCY INDICATOR	
B103	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		4.0		
B105	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		11.0		
B107	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		11.0		
B113	4' - 0"	7' - 0"	1 3/4"	P21		WD	GL-2	F01	HM		10.0		
B119	3' - 0"	7' - 0"	1 3/4"	P20		WD	GL-2	F01	HM		4.0		
B121	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		11.0		
B122	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		4.0		
B123	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		11.0		
B124	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		4.0		
B125	3' - 0"	7' - 0"	1 3/4"	P01		WD	-	F01	HM		8.0	W/ OCCUPANCY INDICATOR	



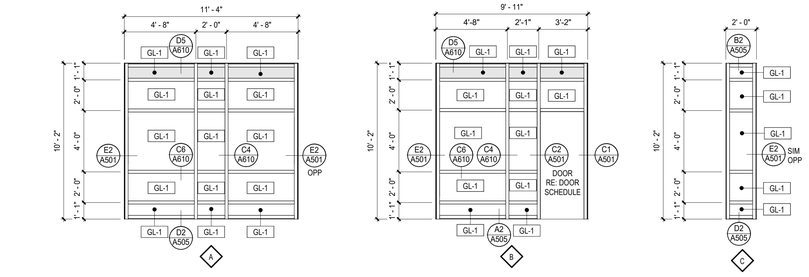
DOOR FRAMES

SCALE: N.T.S.



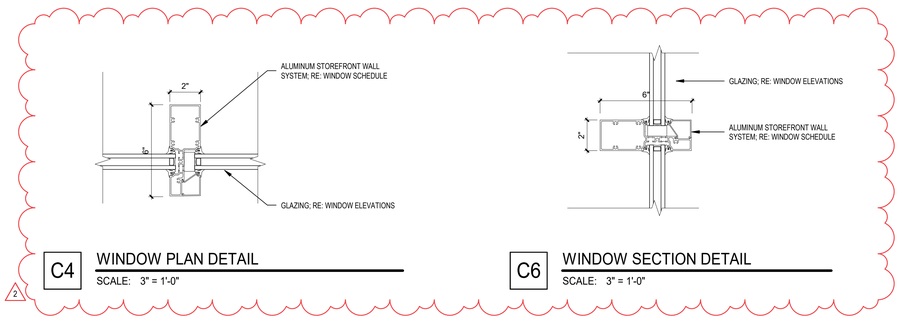
DOOR PANELS

SCALE: N.T.S.



WINDOW SCHEDULE

SCALE: 1/4" = 1'-0"



C4 WINDOW PLAN DETAIL

SCALE: 3" = 1'-0"

C6 WINDOW SECTION DETAIL

SCALE: 3" = 1'-0"

GLAZING SCHEDULE

GL-1 GLAZING TYPE

GL-1 1" EXTERIOR INSULATED GLAZING UNIT WITH CLEAR, TEMPERED GLASS & LOW-E COATING

GL-2 CLEAR, FULLY TEMPERED FLOAT GLASS

GL-3 CLEAR, 90 MIN FIRE PROTECTIVE RATED GLASS

SHADOW BOX, RE: D5/A610

FFKR ARCHITECTS
730 Pacific Avenue · Salt Lake City, Utah 84104
O 801.521.6186 · FFKR.COM

Intermountain Health

Bear River Valley Hospital - Outpatient Service Expansion
905 N 1000 W, Tremonton, UT 84337
INTERMOUNTAIN HEALTHCARE
BID SET

STATE OF UTAH · CHRISTINA LOUISE HAAS · No. 6364715-0301 · 11/19/2026 · REGISTERED ARCHITECT

△	DATE	REVISION
2	03/10/25	Addendum 03

PROJECT NUMBER 24023

DOOR AND WINDOW SCHEDULE

A610

3/10/2025 3:37:15 PM

SECTION 08 8000 - GLAZING

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. Glass for windows, doors, interior borrowed lites, and storefront framing.
2. Glazing sealants and accessories.

B. Related Requirements:

1. Section 08 8813 "Fire-Rated Glazing."

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C1036.

C. IBC: International Building Code.

D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PREINSTALLATION MEETINGS

A. 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. Review temporary protection requirements for glazing during and after installation.

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Glass Samples: For each type of the following products; 12 inches square.

1. Monolithic glass.
2. Insulating glass.

C. Glazing Accessory Samples: For sealants, in 12-inch lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.

D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer manufacturers of insulating-glass units with sputter-coated, low-E coatings and sealant testing agency.

B. Product Certificates: For glass.

C. Product Test Reports: For coated glass, insulating glass, and glazing sealants, for tests performed by a qualified testing agency.

1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

D. Sample Warranties: For special warranties.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written 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 written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.10 FIELD 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 are below 40 deg F.

1.11 WARRANTY

A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

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

B. Manufacturer's Special Warranty for 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 written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. AGC Glass Company North America, Inc.

2. Cardinal Glass Industries.
3. Guardian Glass; SunGuard.
4. Pilkington North America.
5. Viracon, Inc.
6. Vitro Architectural Glass.

B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 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. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E1300.

1. Design Wind Pressures:

    a. As indicated on Drawings.
    b. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.

        1) Wind Design Data: As indicated on Drawings.

2. Design Snow Loads: As indicated on Drawings.
3. 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.
4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

C. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.

3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: "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."

B. Safety Glazing Labeling: Where safety glazing 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.

C. Plastic Glazing Labeling: Identify plastic sheets with appropriate markings of applicable testing and inspecting agency, indicating compliance with required fire-test-response characteristics.

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.

E. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

1. Minimum Glass Thickness for Exterior Lites: 6 mm.
2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

F. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 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.

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

2.5 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E2190.

1. Sealing System: Dual seal, with polyisobutylene and polysulfide or polyisobutylene and silicone primary and secondary sealants.
2. Perimeter Spacer: Aluminum with powdered metal paint finish in color selected by Architect.
3. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.6 GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they 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. Sealant shall have a VOC content of 250 g/L or less.
4. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
5. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Glazing Sealant:

1. Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 25, Use NT.

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

1) Bostik, Inc.
2) GE Construction Sealants; Momentive Performance Materials Inc.
3) Pecora Corporation.
4) Sika Corporation.
5) The Dow Chemical Company.

2.7 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 C1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.8 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, with 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:

1. Silicone with a Shore A durometer hardness of 85, plus or minus 5.

D. Spacers:

1. Neoprene blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks:

1. Silicone with a Shore A durometer hardness per manufacturer's written instructions.

F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.9 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 written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

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.

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 leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. 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.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. 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.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. 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.

G. 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.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

J. 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.

K. 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.

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, then to jambs. Cover horizontal framing joints by applying tapes to jambs, 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.

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. Apply cap bead of elastomeric sealant over exposed edge of tape.

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.

3.6 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified third party testing agency to perform tests on the building envelope assembly and to submit reports.

3.8 CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. 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.

1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.9 MONOLITHIC GLASS SCHEDULE

A. Glass Type GL-2: Clear, fully tempered float glass.

1. Minimum Thickness: 6 mm.
2. Safety glazing required.
3. Locations: As indicated on drawings.

3.10 INSULATING GLASS SCHEDULE

A. Glass Type GL-1: Low-E-coated, clear, tempered, insulating glass.

1. Basis-of-Design Product: Viracon Architectural Glass; VNG-4022, or equal.
2. Overall Unit Thickness: 1 inch.
3. Minimum Thickness of Each Glass Lite: 6 mm.
4. Outdoor Lite: Fully tempered float glass.
5. Color: Clear ~~Solarban 70~~, to match existing.
6. Interspace Content: Argon.
7. Indoor Lite: Clear heat-strengthened float glass.
8. Low-E Coating: Sputtered on second surface.
9. Winter Nighttime U-Factor: 0.24 maximum.
10. Summer Daytime U-Factor: 0.20 maximum.
11. Visible Light Transmittance: 40 percent minimum.
12. Solar Heat Gain Coefficient: 0.18 maximum.
13. Locations: As indicated on drawings.

END OF SECTION 08 8000