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1	ELECTROLYNX HARNESS {CH#10427719}	QC-C1500P		MK
1	DOOR POSITION SWITCH	DPS-M / W-BK		SU
1	PIN PAD/CARD READER (AS REQUIRED)	PROVIDED BY SECURITY SUPPLIER		
1	POWER SUPPLY	AQL SERIES (TYPE & SIZE AS REQUIRED)		SU
1	WIRING/POINT-TO-POINT DIAGRAM			
1	ELEVATION DIAGRAM			
1	RISER DIAGRAM			

NOTES:
-PROVIDE NECESSARY COLLARS/RINGS, CAMS AND TAILPIECES/SPINDLES FOR ALL CYLINDERS.
-COORDINATE WITH ELECTRICAL, ALARM AND SECURITY CONTRACTORS.
-ACCESS CONTROL PANEL, SECURITY MANAGEMENT SOFTWARE AND CREDENTIALS BY SECURITY CONTRACTOR.

OPERATIONAL NARRATIVE (LOCAL AHJ SHOULD ALWAYS BE CONSULTED AND SIGN OFF ON THE OPERATION):
1. DOOR NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY PIN PAD RETRACTING EXIT DEVICE LATCH FOR PREDETERMINED TIME LIMIT. EXIT DEVICE LATCH CAN BE ELECTRICALLY HELD RETRACTED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. REX SWITCH IN PUSH RAIL ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITORS OPEN/CLOSED STATUS.
6. EXIT DEVICE LATCH RELEASES (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 8.0
DOORS: 132A
DESCRIPTION: RIM EXIT DEVICE - CLOSER

3	HINGE, FULL MORTISE, HVY WT	T4A3386	US32D	MK
1	RIM EXIT DEVICE, PASSAGE	12 43 8815 ETB	US32D	SA
1	SURFACE CLOSER	281 P10	EN	SA
1	KICK PLATE	K1050 10" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	SWEEP	315CN X DOOR WIDTH		PE
1	THRESHOLD	271A X L.A.R. X MSES25SS		PE

SET: 9.0
DOORS: 206
DESCRIPTION: LOCK - CLOSER - PIN PAD

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	ELECTRIC POWER TRANSFER	EL-CEPT	630	SU
1	FAIL SECURE LOCK	LC RX 10XG71 LB	US26D	SA
1	CYLINDER/CORE	PER CITY STANDARDS FOR FIRE AND EMERGENCY SERVICES		
1	SURFACE CLOSER	281 REG / PA	EN	SA
1	KICK PLATE	K1050 10" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
3	SILENCER	608-RKW		RO
1	ELECTROLYNX HARNESS {CH#10427720}	QC-C**** (LENGTH / TYPE AS REQUIRED)		MK
1	ELECTROLYNX HARNESS {CH#10427721}	QC-C1500P		MK
1	DOOR POSITION SWITCH	DPS-M / W-BK		SU
1	PIN PAD/CARD READER (AS REQUIRED)	PROVIDED BY SECURITY SUPPLIER		
1	POWER SUPPLY	AQL SERIES (TYPE & SIZE AS REQUIRED)		SU
1	WIRING/POINT-TO-POINT DIAGRAM			
1	ELEVATION DIAGRAM			
1	RISER DIAGRAM			

NOTES:
-PROVIDE NECESSARY COLLARS/RINGS, CAMS AND TAILPIECES/SPINDLES FOR ALL CYLINDERS.
-CLOSERS SHALL NOT BE INSTALLED ON CORRIDOR SIDE OF DOORS, WHERE POSSIBLE INSTALL CLOSERS ON DOOR FOR OPTIMUM AESTHETICS.
-COORDINATE WITH ELECTRICAL, ALARM AND SECURITY CONTRACTORS.
-ACCESS CONTROL PANEL, SECURITY MANAGEMENT SOFTWARE AND CREDENTIALS BY SECURITY CONTRACTOR.

OPERATIONAL NARRATIVE:
1. DOOR NORMALLY CLOSED AND SECURE.
2. AUTHORIZED ACCESS BY PIN PAD UNLOCKING LEVER TRIM FOR A PREDETERMINED TIME LIMIT. TRIM CAN REMAIN UNLOCKED FOR OPEN ACCESS.
3. EGRESS FREE FOR IMMEDIATE EXIT.
4. LOCK REX SWITCH ALLOWS AUTHORIZED EXIT WITHOUT ALARM CONDITION.
5. DOOR POSITION SWITCH MONITORS OPEN/CLOSED STATUS.
6. LEVER REMAINS LOCKED (FAIL SECURE) IN EVENT OF POWER LOSS. KEYED CYLINDER OVERRIDE FOR EMERGENCY ACCESS.

SET: 10.0
DOORS: 104, 106, 109, 110, 111, 138, 139, 204, 219, 222
DESCRIPTION: STOREROOM/CLOSET LOCK

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	LC 10XG04 LB	US26D	SA
1	CYLINDER/CORE	PER CITY STANDARDS FOR FIRE AND EMERGENCY SERVICES		
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
3	SILENCER	608-RKW		RO

NOTES:
-PROVIDE NECESSARY COLLARS/RINGS, CAMS AND TAILPIECES/SPINDLES FOR ALL CYLINDERS.

SET: 11.0
DOORS: 112, 216
DESCRIPTION: STOREROOM/CLOSET LOCK - CLOSER

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	STOREROOM/CLOSET LOCK	LC 10XG04 LB	US26D	SA
1	CYLINDER/CORE	PER CITY STANDARDS FOR FIRE AND EMERGENCY SERVICES		
1	SURFACE CLOSER	281 REG / PA	EN	SA
1	MOP PLATE	K1050 4" HIGH CSK BEV	US32D	RO
1	ARMOR PLATE	K1050 34" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

NOTES:
-PROVIDE NECESSARY COLLARS/RINGS, CAMS AND TAILPIECES/SPINDLES FOR ALL CYLINDERS.
-CLOSERS SHALL NOT BE INSTALLED ON CORRIDOR SIDE OF DOORS, WHERE POSSIBLE INSTALL CLOSERS ON DOOR FOR OPTIMUM AESTHETICS.

SET: 12.0
DOORS: 103, 105, 125, 207, 208, 209, 210, 211, 212
DESCRIPTION: ENTRY/OFFICE LOCK

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	ENTRY/OFFICE LOCK	LC 10XG05 LB	US26D	SA
1	CYLINDER/CORE	PER CITY STANDARDS FOR FIRE AND EMERGENCY SERVICES		
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	COAT HOOK	806	US26D	RO

NOTES:
-PROVIDE NECESSARY COLLARS/RINGS, CAMS AND TAILPIECES/SPINDLES FOR ALL CYLINDERS.

SET: 13.0
DOORS: 102, 107, 114, 126, 127, 128A, 128B, 203, 215, 218
DESCRIPTION: PRIVACY LOCK W/ INDICATOR - CLOSER

3	HINGE, FULL MORTISE	TA2314	US32D	MK
1	PRIVACY LOCK W/ INDICATOR	V21 8266 OB	US26D	SA
1	SURFACE CLOSER	281 REG / PA	EN	SA
1	MOP PLATE	K1050 4" HIGH CSK BEV	US32D	RO
1	KICK PLATE	K1050 10" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE

NOTES:
-CLOSERS SHALL NOT BE INSTALLED ON CORRIDOR SIDE OF DOORS, WHERE POSSIBLE INSTALL CLOSERS ON DOOR FOR OPTIMUM AESTHETICS.

SET: 14.0
DOORS: 131
DESCRIPTION: PAIR - PASSAGE LATCH

6	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
2	FLUSH BOLT	555 {CH#10427722}	US26D	RO
1	DUST PROOF STRIKE	570	US26D	RO
1	PASSAGE LATCH	10XU15 LB	US26D	SA
2	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	ASTRAGAL	357SP X DOOR HEIGHT		PE
2	SILENCER	608-RKW		RO

NOTES:
-PROVIDE WIDE THROW HINGES, IF REQUIRED, TO ALLOW DOOR(S) TO OPEN 180 DEGREES.
-DELETE ASTRAGAL IF PROVIDED BY THE DOOR MANUFACTURER.

SET: 15.0
DOORS: 113, 116, 117, 118, 119, 121, 122, 123, 124, 220, 221
DESCRIPTION: PASSAGE LATCH

3	HINGE, FULL MORTISE	TA2714	US26D	MK
1	PASSAGE LATCH	10XU15 LB	US26D	SA
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
3	SILENCER	608-RKW		RO

SET: 16.0
DOORS: 214, 224A, 224B
DESCRIPTION: PUSH/PULL - CLOSER

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	PULL PLATE	BF 110 X 70C	US32D	RO
1	PUSH PLATE	70C-RKW	US32D	RO
1	SURFACE CLOSER	281 REG / PA	EN	SA
1	KICK PLATE	K1050 10" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
3	SILENCER	608-RKW		RO

NOTES:
-CLOSERS SHALL NOT BE INSTALLED ON CORRIDOR SIDE OF DOORS, WHERE POSSIBLE INSTALL CLOSERS ON DOOR FOR OPTIMUM AESTHETICS.

SET: 17.0
DOORS: 120
DESCRIPTION: PUSH/PULL - CLOSER - ARMOR PLATE

3	HINGE, FULL MORTISE, HVY WT	T4A3786	US26D	MK
1	PULL PLATE	BF 110 X 70C	US32D	RO
1	PUSH PLATE	70C-RKW	US32D	RO
1	SURFACE CLOSER	281 REG / PA	EN	SA
1	ARMOR PLATE	K1050 34" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
3	SILENCER	608-RKW		RO

NOTES:
-CLOSERS SHALL NOT BE INSTALLED ON CORRIDOR SIDE OF DOORS, WHERE POSSIBLE INSTALL CLOSERS ON DOOR FOR OPTIMUM AESTHETICS.

SET: 18.0
DOORS: 134
DESCRIPTION: PUSH/PULL PASSAGE LATCH - CLOSER

3	HINGE, FULL MORTISE, HVY WT	T4A3386	US32D	MK
1	PUSH/PULL PASSAGE LATCH	7815 PT	US32D	SA
1	SURFACE CLOSER	281 P10	EN	SA
1	ARMOR PLATE	K1050 F 34" HIGH CSK BEV	US32D	RO
1	DOOR STOP	409 / 446 AS REQUIRED	US32D	RO
1	GASKETING	S88BL (HEAD & JAMBS)		PE
1	SWEEP	315CN X DOOR WIDTH		PE
1	THRESHOLD	271A X L.A.R. X MSES25SS		PE

SET: 19.0
DOORS: S106, S107, S108, S110, S111, S112, S302, S303
DESCRIPTION: HBO

	ALL HARDWARE BY DOOR MANUFACTURER/SUPPLIER.			

END OF SECTION

SECTION 088000
GLAZING

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Insulating glass units.
B. Glazing units.
C. Plastic sheet glazing units.
D. Glazing compounds.
1.02 REFERENCE STANDARDS
A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
B. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).
C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
D. ASTM C1036 - Standard Specification for Flat Glass; 2025.
E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.
F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.
G. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.
H. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2024.
I. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.
J. GANA (SM) - GANA Sealant Manual; 2008.
K. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.
L. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.
M. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2026.
1.03 ADMINISTRATIVE REQUIREMENTS
A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.
1.04 SUBMITTALS
A. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
B. Samples: Submit two samples 12 by 12 inch (305 by 305 mm) in size of glass and plastic units.
C. Manufacturer's qualification statement.
D. Installer's qualification statement.
E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience and approved by manufacturer.
1.06 FIELD CONDITIONS
A. Do not install glazing when ambient temperature is less than 40 degrees F (4 degrees C).
B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.
1.07 WARRANTY
A. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.
B. Polycarbonate Sheet Glazing: Provide a five (5) year manufacturer warranty to include coverage for breakage, coating failure, abrasion resistance, including providing products to replace failed units.
PART 2 PRODUCTS
2.01 MANUFACTURERS
A. Float Glass Manufacturers:
1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
2. Guardian Glass, LLC: www.guardianglass.com/#sle.
3. Pilkington North America Inc: www.pilkington.com/na/#sle.
4. Saint Gobain North America: www.saint-gobain.com/#sle.
5. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES
A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
1. Design Pressure: Calculated in accordance with ASCE 7.
2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
4. Glass thicknesses listed are minimum.
B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
1. In conjunction with weather barrier related materials described in other sections, as follows:
a. Air Barriers: See Section 072700.
2. To utilize inner pane of multiple pane insulating glass units for continuity of vapor retarder and/or air barrier seal.
3. To maintain a continuous vapor retarder and/or air barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.
C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.
2.03 GLASS MATERIALS
A. Float Glass: Provide float glass based glazing unless otherwise indicated.
1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
4. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.
2.04 INSULATING GLASS UNITS
A. Manufacturers:
1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
2. Guardian Glass, LLC: www.guardianglass.com/#sle.
3. Pilkington North America Inc: www.pilkington.com/na/#sle.Pilkington North America Inc: www.pilkington.com/na/#sle.
4. Viracon, Apogee Enterprises, Inc: www.viracon.com/#sle.
5. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
B. Fabricator: Certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.
C. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Metal-Edge Spacers: Aluminum, bent and soldered corners.
4. Spacer Color: Black.
5. Edge Seal:
a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
b. Color: Black.
6. Purge interpane space with dry air, hermetically sealed.
D. Type IG-1 - Insulating Glass Units: Vision glass, double glazed.
1. Applications: Exterior glazing unless otherwise indicated.
2. Space between lites filled with air.
3. Outboard Lite: Annealed float glass, 1/4 inch (6.4 mm) thick, minimum.
a. Tint: Clear.
b. Coating: Low-E (passive type), on #2 surface.
4. Metal edge spacer.
5. Inboard Lite: Annealed float glass, 1/4 inch (6.4 mm) thick, minimum.
a. Tint: Gray.
6. Total Thickness: 1 inch (25.4 mm).
7. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.28, nominal.
8. Visible Light Transmittance (VLT): 32 percent, nominal.
9. Solar Heat Gain Coefficient (SHGC): 0.27, nominal.
10. Glazing Method: Dry glazing method, gasket glazing.
11. Basis of Design: VitroArchitectural Glass; Solarban 70 (2) Solargray + Clear; www.vitroglazings.com.
E. Type IG-3 - Insulating Glass Units: Safety glazing.
1. Applications:
a. Glazed lites in exterior doors.
b. Other locations required by applicable federal, state, and local codes and regulations.
c. Other locations indicated on drawings.
2. Space between lites filled with air.
3. Glass Type: Same as Type IG-1 except use fully tempered float glass for both outboard and inboard lites.
4. Tint: Gray.
5. Total Thickness: 1 inch (25.4 mm).
6. Metal edge spacer.
7. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.28, nominal.
8. Glazing Method: Dry glazing method, gasket glazing.
9. Basis of Design: VitroArchitectural Glass; Solarban 70 (2) Solargray + Clear; www.vitroglazings.com.
2.05 GLAZING UNITS
A. Type G-2 - Monolithic interior Vision Glazing:
1. Applications: As scheduled.
2. Glass Type: Annealed float glass except use fully tempered float glass where indicated or required.
3. Tint: Clear.
4. Thickness: 1/4 inch (6.4 mm), nominal.
5. Glazing Method: Wet/dry glazing method, preformed tape and sealant.
2.06 PLASTIC SHEET GLAZING UNITS
A. Type P-1 - Polycarbonate Flat Sheet: Ultraviolet (UV) stabilized.
1. Applications: Locations as indicated on drawings.
2. Type: Monolithic (single layer solid) sheet.
3. Silicone abrasion resistant coating for scratch resistance.
4. Thickness: Nominal 1-1/8 inch (30 mm).
5. Basis of Design: SABIC Innovative Plastics; Lexan Thermopanel Sheet; www.sabic-ip.com.
a. Color: Match VitroArchitectural Glass; Solarban 70 (2) Solargray + Clear; www.vitroglazings.com..
2.07 GLAZING COMPOUNDS
A. Butyl Sealant: Single component; ASTM C920 Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.
2.08 ACCESSORIES
A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot (25 mm for each square meter) of glazing or minimum 4 inch (100 mm) by width of glazing rabbet space minus 1/16 inch (1.5 mm) by height to suit glazing method and pane weight and area.
B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch (75 mm) long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
1. Width: As required for application.
2. Thickness: As required for application.
3. Spacer Rod Diameter: As required for application.
D. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.
PART 3 EXECUTION
3.01 VERIFICATION OF CONDITIONS
A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
B. Verify that the minimum required face and edge clearances are being provided.
C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.
D. Verify that sealing between joints of glass framing members has been completed effectively.
E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.
3.02 PREPARATION
A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.
3.03 INSTALLATION, GENERAL
A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.
F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, and paint.
3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)
A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.
B. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) from corners.
C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.
3.05 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)
A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.
B. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.
C. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) from corners.
D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.
E. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.
F. Carefully trim protruding tape with knife.
3.06 INSTALLATION - WET/DRY GLAZING METHOD (PREFORMED TAPE AND SEALANT)
A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.
B. Cut glazing tape to length and set against permanent stops, 3/16 inch (5 mm) below sight line. Seal corners by butting tape and dabbing with butyl sealant.
C. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
D. Place setting blocks at 1/4 points with edge block no more than 6 inch (152 mm) from corners.
E. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
F. Install removable stops, with spacer strips inserted between glazing and applied stops 1/4 inch (6.4 mm) below sight lines.
1. Place glazing tape on glazing pane of unit with tape flush with sight line.
G. Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch (9 mm) below sight line.
H. Apply cap bead of sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.
3.07 FIELD QUALITY CONTROL
A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
B. Monitor and report installation procedures and unacceptable conditions.
3.08 CLEANING
A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
B. Remove nonpermanent labels immediately after glazing installation is complete.
C. Clean glass and adjacent surfaces after sealants are fully cured.
D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.
3.09 PROTECTION
A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 088813
FIRE-RATED GLAZING - SAFTI

PART 1 GENERAL
1.01 REFERENCE STANDARDS
A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).
B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.
C. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2026.
D. GANA (SM) - GANA Sealant Manual; 2008.
E. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
F. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.
G. NFPA 257 - Standard on Fire Test for Window and Glass Block Assemblies; 2022.
H. UL 9 - Standard for Fire Tests of Window Assemblies; Current Edition, Including All Revisions.
I. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
J. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
1.02 SUBMITTALS
A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data on Glazing Units: Identify structural, physical, and environmental characteristics, fire-rated application and size limitations, and special handling and installation requirements.
C. Product Data on Glazing Compounds and Accessories: Identify chemical, functional, and environmental characteristics, application and size limitations, and available colors.
D. Installer's qualification statement.
1.03 WARRANTY
A. Manufacturer Warranty for Monolithic Fire-Protective Glazing Units: Manufacturer's limited lifetime warranty.
PART 2 PRODUCTS
2.01 MANUFACTURERS
A. Fire-Protection-Rated Glass:
1. SAFTI FIRST, a division of O'Keeffe's Inc: www.safti.com/#sle.
2. Substitutions: See Section 016000 - Product Requirements.
2.02 FIRE-RATED GLAZING UNITS
A. Markings for Fire-Protection-Rated Glazing Assemblies: Provide permanent markings on fire-protection-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
1. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
2. "OH" - meets fire window assembly criteria, including hose stream test of NFPA 257 or UL 9 fire test standards.
3. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire tests standards.
4. "XXX" - placeholder represents fire-rating period, in minutes.
B. Type FRG-1 - Fire-Resistance-Rated Glazing: Glazing that blocks radiant heat and contains flames and smoke, as required to achieve indicated fire rating period exceeding 45 minutes when tested in accordance with ASTM E119, with hose stream, where applicable.
1. Applications: Locations indicated on the drawings.
2. Glazing Method: As required for fire rating.
3. Glass Type: 60-minute fire-resistive units, tempered.
a. Product: SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XL 60: www.safti.com/#sle.
2.03 ACCESSORIES
A. Glazing Accessories: As recommended by glazing manufacturer and conforming to listed assemblies.
B. Setting Blocks: Calcium silicate.
C. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Continuous by one half the height of glazing stop by thickness to suit application, self-adhesive on one face.
PART 3 EXECUTION
3.01 INSTALLATION
A. Install glazing in strict compliance with requirements of tested assemblies and written instructions of glass and framing manufacturers.
B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
C. Do not exceed edge pressures around perimeter of glass lights as stipulated by glass manufacturer.
D. Set glass lights of system with uniform pattern, draw, bow, and similar characteristics.
E. Set coated glass lights in correct orientation so coatings face exterior or interior in accordance with requirements of tested assembly.
F. Prevent glass from contact with contaminating substances that may result from construction operations including, but not limited to, weld spatter, fire safing, plastering, and mortar droppings.
3.02 FIELD QUALITY CONTROL
A. Manufacturer Services: Provide services of glass and glazing manufacturer's field representative to observe installation.

END OF SECTION

SECTION 089100
LOUVERS

PART 1 GENERAL
1.01 SECTION INCLUDES
A. Louvers, frames, and accessories.
1.02 REFERENCE STANDARDS
A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
B. AMCA 511 - Certified Ratings Program Product Rating Manual for Air Control Devices; 2021, with Editorial Revision (2022).
C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
D. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.
1.03 SUBMITTALS
A. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.
B. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, and tolerances; head, jamb and sill details; blade configuration, screens, blank-off areas required, and frames.
C. Samples: Submit two samples 2 by 2 inches (50 by 50 mm) in size illustrating finish and color of exterior and interior surfaces.
D. Test Reports: Independent agency reports showing compliance with specified performance criteria.
E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
F. Maintenance Data: Include lubrication schedules, adjustment requirements.
1.04 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.
B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.
1.05 WARRANTY
A. Provide five year manufacturer's warranty against distortion, metal degradation, and connection failures of louver components.
1. Finish: Include twenty year coverage against degradation of exterior finish.
PART 2 PRODUCTS
2.01 MANUFACTURERS
A. Louvers:
1. Airolite Company, LLC: www.airolite.com/#sle.
2. American Warming and Ventilating: www.awv.com/#sle.
3. Basis of Design: Greenheck Fan Corporation: www.greenheck.com.
4. Industrial Louvers, Inc: www.industriallouvers.com/#sle.
5. Ruskin Company: www.ruskin.com/#sle.
6. United Enertech: www.unitedenertech.com/#sle.
2.02 LOUVERS
A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.
1. Wind Load Resistance: Comply with ASCE 7, Risk Category IV.
2. Wind Load Resistance: Design to resist positive and negative wind load of 25 psf (of 1.2 kPa) without damage or permanent deformation.
3. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.
4. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.
B. Louvers: Aluminum outer frames, louver end frames only, non-thermally broken, air ventilator with overlapping louvers.
1. Free Area: 50 percent, minimum.
2. Blades: Drainable.
3. Frame: Extruded aluminum; dimensions as indicated on Drawings.
4. Aluminum Thickness: Frame 12 gauge, 0.0808 inch (2.05 mm) minimum; blades 12 gauge, 0.0808 inch (2.05 mm) minimum.
5. Aluminum Finish: Superior performing organic coatings; finish welded units after fabrication.
6. Frame Size: As indicated on drawings