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**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes:
  - 1. Interior and exterior all-glass entrance systems.
  - 2. Interior and exterior all-glass storefronts systems.
- B. Related Requirements:
  - 1. Division 1 Section "Sustainable Design Requirements".
  - 2. Division 5 Section "Metal Fabrications" for overhead-steel support for all-glass systems.
  - 3. Division 7 Section "Joint Sealants" for joint sealants installed at interface of all-glass systems and other building components.
  - 4. Division 8 Section "Door Hardware" for lock cylinders installed in all-glass entrance locksets.
  - 5. Division 8 Section "Glazed Aluminum Curtain Walls" for curtain-wall systems that incorporate all-glass entrances.
  - 6. Division 8 Section "Glazing".
  - 7. Division 8 Section "Automatic Door Operators".

**1.3 QUALITY ASSURANCE**

- A. The work of this section shall be performed by a company which specializes in the type of all-glass entrances and storefronts work required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
  - 1. Work shall be performed in compliance with Owner's insurance underwriters' requirements and UL approvals and testing for materials, assemblies and procedures.
- B. Manufacturer shall specialize in manufacturing the type of all-glass entrances and storefronts specified in this section, with a minimum of 10 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty.
- C. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- D. Testing Agency Qualifications: Qualified according to ASTM E699 for testing indicated and accredited by IAS or ILAC Mutual Recognition Arrangement as complying with ISO/IEC 17025.
- E. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.
- F. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
  - 1. Evidence of "patching" after removal of tags or marks is not acceptable.

**1.4 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design all-glass entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of all-glass entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

- C. Provide systems, including anchorage, capable of withstanding loads indicated without structural failure, deflection exceeding specified limit, support components transferring stresses to glazing, and glazing-to-glazing or glazing-to-support contact as determined by structural analysis.
  - 1. Structural Loads:
    - a. Wind Load:
      - 1) As specified in Division 8 Section "Glazed Aluminum Curtain Wall".
      - 2) As required by Transbay Tower Wind Cladding Pressures Report.
  - 2. Deflection Normal to Glazing Plane: As specified in Division 8 Section "Glazed Aluminum Curtain Wall".
- D. Thermal Movements: As specified in Division 8 Section "Glazed Aluminum Curtain Wall".
- E. Seismic Performance: All-glass entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI7 and as indicated on Structural drawings.

### 1.5 ACTION SUBMITTALS

- A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.
- B. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for all-glass system.
- C. LEED Submittals:
  - 1. Product Data for Credit IEQ 4.1: For glazing sealants used inside the weatherproofing system, documentation including printed statement of VOC content.
- D. Shop Drawings: Show fabrication and installation details, including the following:
  - 1. Plans, elevations, and sections.
  - 2. Details of fittings and glazing, weeps and drainage paths.
  - 3. Hardware quantities, locations, mounting heights, and installation requirements.
  - 4. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
  - 5. Include details to maintain and coordinate continuity of water proofing at transition to adjacent trades.
- E. Fabrication Sample: Patch fitting at sill on pivot side only or continuous rail fitting at bottom, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:
  - 1. Joinery.
  - 2. Anchorage.
  - 3. Glazing.
- F. Samples:
 

Item No.	Quantity	Size	Description
S1	5	6" x 6"	Rail sections with glass to show construction, and exposed edge finish.
S2	5	6" long	Push/pull units.
S3	5	6" long	Glass setting materials.
S4	5	8"x8"	Finished cladding material.
- G. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors sidelights, transoms, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- H. Delegated-Design Submittal: For all-glass systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- I. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

- J. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, testing agency, and professional engineer.
- B. Product Test Reports: For all-glass systems, for tests performed by manufacturer and witnessed by a qualified testing agency.
- C. Sample Warranty: For special warranty.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For all-glass systems to include in maintenance manuals.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with General Conditions and Division 1 Section "Product Requirements".

#### 1.9 WARRANTY

- A. Comply with General Conditions and Division 1 Section "Product Requirements".
- B. Special Warranty: Manufacturer agrees to repair or replace components of all-glass systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, air infiltration, or water leakage greater than specified limit.
    - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - c. Failure of operating components to function normally.
  2. Rough, difficult, or noisy operation.
  3. Loose or missing parts.
  4. Spontaneous glass breakage.
  5. Excessive leakage or air infiltration greater than specified limit.
  6. Excessive deflections of metals.
  7. Defects in accessories, weatherstripping, and other components.
  8. Noticeable deterioration or unevenness of finish.
  9. Warranty Period: Five years from date of Substantial Completion, except as follows:
    - a. Concealed Floor Closers: 10 years from date of Substantial Completion.

#### 1.10 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

### **PART 2 PRODUCTS**

#### 2.1 UNAUTHORIZED MATERIALS

- A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

#### 2.2 ACCEPTABLE MANUFACTURERS

- A. Products of the manufacturers specified in this section establish the minimum functional, aesthetic and quality standards required for work of this section.
- B. Basis of Design: Subject to compliance with requirements, product specified product by CRL/Blumcraft, or similar product by other manufacturers.
- C. Substitutions: Comply with General Conditions using form in Division 1 Section "Substitution Request Form".

**2.3 METAL COMPONENTS**

- A. Product: CRL/Blumcraft 1301 Series all-glass doors.
- B. Fitting Configuration:
1. Manual and Automatic Swinging, All-Glass Entrance Doors Sidelights and Transoms: Continuous low-profile rail fitting at top and bottom.
- C. Rail Fittings:
1. Material: Stainless-steel-clad aluminum.
  2. Height:
    - a. Top Rail: 3/4" high, as indicated on drawings.
    - b. Bottom Rail: 3/4" high, as indicated on drawings.
  3. Profile: Square as indicated.
  4. End Caps: Manufacturer's standard precision-fit end caps for rail fittings.
- D. Accessory Fittings: Match rail-fitting metal and finish for the following:
1. Overhead doorstop.
  2. Center-housing lock.
- E. Anchors and Fastenings: Concealed.
- F. Weather Stripping: Pile type; replaceable without removing all-glass entrance doors from pivots.
- G. Materials:
1. Aluminum: ASTM B221 (ASTM B221M), with strength and durability characteristics of not less than Alloy 6063-T5.
  2. Stainless-Steel Cladding: ASTM A666, Type 304.
    - a. Finish: No. 4 directional satin finish.
- H. VOC Content: Adhesive and sealants used inside the waterproofing system and applied onsite shall have VOC content equal to or less than the applicable VOC limits. Refer to Section 01 81 13 / Sustainable Design Requirements for additional information.

**2.4 GLASS**

- A. Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated surfaces), low iron, Type I (transparent), tested for surface and edge compression per ASTM C1048 and for impact strength per 16 CFR 1201 for Category II materials.
1. Class 1: Clear monolithic, low iron, Glass Type GL-8.
    - a. Thickness: 3/4 inch (19 mm) or as required to meet structural and wind load requirements.
    - b. Locations: As indicated.
  2. Exposed Edges: Machine ground and flat polished.
  3. Butt Edges: Flat ground.
  4. Corner Edges: Mitered.

**2.5 HARDWARE**

- A. **Door Number 42:** Pair of 3'-0" x 8'-2" (Stainless Steel and Glass) Public Lobby from Retail 2, One Leaf Accessible.

Description	Qty.	Manufacturer
Push Pull	2 each	CRL/Blumcraft DBL-100-FX630
Floor Closer	1 each	Rixson H28 90deg NHO extended spindle x 630
Bottom Arm	2 each	Blumcraft
Top Pivot	2 each	Blumcraft
Strike	2 each	Blumcraft S100D
Floor Stop	2 each	Elmes UT-1-HLN x 630
Mortise Cylinder	2 each	By Hardware Supplier
Position Sensor/ Magnetic	2 each	By Security Subcontractor
Threshold	1 each	Custom Stainless Steel, 8" x 6'-8"

- B. **Door Number 100, 102** Interior: A Single 3'-0" x 8'-10 1/2" (Glass and stainless Steel) Passage 5 to Passage 1 (05), Passage 2 to Passage 1 (05).

Description	Qty.	Manufacturer
Exit Device	1 each	CRL/Blumcraft/H-100F x 630
Electric Strike	1 each	Folger Adams 310-1 with 3/4" straight keeper without signal switch (24 VDC) fail safe
Strike	1 each	CRL/Blumcraft ES-100D
Floor Closer	1 each	Rixson H28 90deg NHO extended spindle x 630
Bottom Arm	1 each	Rixson
Top Pivot	1 each	Rixson H340
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x 630
Threshold	1 each	Custom Full Width, Stainless Steel, 8" x 3'-4"
Motion Sensor/ Request to Exit	1 each	By Security Subcontractor
Position Sensor/ Magnetic	1 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier

- C. **Door Number 200** Interior: Single 3'-0" x 8'-10 1/2" (Glass and Stainless Steel) Lobby to Retail 2.

Description	Qty.	Manufacturer
Push Pull	1 each	CRL/Blumcraft DBL-100-F x 630
Strike	1 each	CRL/Blumcraft S-100D
Floor Closer	1 each	Rixson H28 90deg NHO extended spindle x 630
Bottom Arm	1 each	Blumcraft
Top Pivot	1 each	Blumcraft
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x 630
Position Sensor/ Magnetic	1 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier

Refer to Division 8 Section "Door Hardware", for balance of Door Hardware information.

- D. **Door Numbers 503** Exterior: Single 3'-4" x 9'-0" (Stainless Steel and glass) Exterior from Floor 1 Lobby, Accessible.

Description	Qty.	Manufacturer
Exit Device	1 each	CRL/Blumcraft H-100F with Key Entry x 630
Electric Strike	2 each	Folger Adams 310-1 with 3/4" straight keeper without signal switch (24 VDC) fail safe
Strike	1 each	CRL/Blumcraft ES-100D
Under Floor Automatic Door Operator	1 each	Besam SW200i-16 electro-mechanical underfloor system. Interfacing Center Hung Doors (Re: 08 71 13 / Automatic Door Operators).
Bottom Arm	1 each	Blumcraft
Top Pivot	1 each	Blumcraft
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x US32D
Actuator	2 each	LCN 7930-291RF (1 exterior, 1 interior)
Position Sensor/ Magnetic	1 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier
Card Reader	1 each	By Security Subcontractor

E. **Door Numbers 501, 502, 504** Exterior: Single 3'-4" x 9'-0" (Stainless Steel and glass) Exterior from Floor 1 Lobby.

Description	Qty.	Manufacturer
Exit Device	1 each	CRL/Blumcraft H-100F with Key Entry x US32D
Strike	1 each	CRL/Blumcraft ES-100D
Under Floor Automatic Door Operator	1 each	Besam SW200i-16 electro-mechanical underfloor system. Interfacing Center Hung Doors (Re: 08 71 13 / Automatic Door Operators).
Bottom Arm	1 each	Blumcraft
Top Pivot	1 each	Blumcraft
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x 630
Position Sensor/Magnetic	1 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier

Refer to Division 8 Section "Door Hardware", for Balance of Hardware information.

F. **DOOR NUMBER 507** Exterior: Pair of 3'-0" x 8'-5 1/2" (Stainless Steel and Glass) Exterior from Public Lobby.

Description	Qty.	Manufacturer
Exit Device	2 each	CRL/Blumcraft H-100-F with Key Entry x 630
Electric Strike	2 each	Folger Adams 310-1 with 3/4" straight keeper without signal switch (24 VDC) fail safe
Strike	2 each	CRL/Blumcraft ES100D
Under Floor Automatic Door Operator	1 each	Besam SW200i-16 electro-mechanical underfloor system. Interfacing Center Hung Doors (Re: 08 71 13 / Automatic Door Operators).
Bottom Arm	2 each	Blumcraft
Top Pivot	2 each	Blumcraft
Mortise Cylinder	2 each	by Hardware Supplier
Floor Stop	2 each	Elmes UT-1-HLN x US32D
Actuator	2 each	LCN 7930-291RF (1 exterior, 1 interior)
Motion Sensor/Request to Exit	2 each	By Security Subcontractor
Position Sensor/Magnetic	2 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier

G. **DOOR NUMBERS 505, 506, 513, 514, 516, 517, 518** Exterior: Single 3'-0" x 9'-0" (Glass and Stainless Steel) Exterior from Retail 1 and 2 (01), Exterior from Retail 1 (05). **(N.I.C.)**

Description	Qty.	Manufacturer
Push Pull	1 each	CRL/Blumcraft DBL-100F x 630
Strike	1 each	CRL/Blumcraft S-100D
Bottom Arm	2 each	Blumcraft
Top Pivot	2 each	Blumcraft
Mortise Cylinder	2 each	by Hardware Supplier
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x 630

Refer to Division 8 Section "Door Hardware", for balance of Door Hardware information.

H. **DOOR NUMBERS 512** Exterior: Single 3'-0" x 8'-11-1/2" (Glass and Stainless Steel) Exterior from Exit Passage 1.

Description	Qty.	Manufacturer
Exit Device	1 each	CRL/Blumcraft H-100 x 630
Strike	1 each	CRL/Blumcraft S-100D
Floor Closer	1 each	Rixson CWF H28 90 deg NHO extended spindle x 630
Bottom Arm	1 each	Blumcraft
Top Pivot	1 each	Blumcraft
Mortise Cylinder	1 each	By Hardware Supplier
Position Sensor	1 each	By Security Subcontractor

Refer to Division 8 Section "Door Hardware", for balance of Door Hardware information.

I. **DOOR NUMBERS 515, 519** Exterior: Single 3'-0" x 9'-0" (Glass and Stainless Steel) Exterior to Passage 4 and 5 (05), Accessible.

Description	Qty.	Manufacturer
Exit Device	1 each	CRL/Blumcraft H-100F with Key Entry x 630
Electric Strike	1 each	Folger Adams 310-1 with 3/4" straight keeper without signal switch (24 VDC) fail safe
Strike	1 each	CRL ES-100D
Under Floor Automatic Door Operator	1 each	Besam SW200i-16 electro-mechanical underfloor system. Interfacing Center Hung Doors (Re: 08 71 13 / Automatic Door Operators).
Bottom Arm	1 each	Blumcraft
Top Pivot	1 each	Blumcraft
Floor Stop	1 each	Elves UT-1 HLN x US32D
Actuator	2 each	LCN 7930-291RF (1 exterior, 1 interior)
Mortise Cylinder	1 each	By Hardware Supplier
Position Sensor/Magnetic	1 each	By Security Subcontractor
Card Reader	1 each	By Security Subcontractor
Wiring Diagram	1 each	By Hardware Supplier

Refer to Division 8 Section "Door Hardware", for balance of Door Hardware information.

J. **DOOR NUMBERS 520** Exterior: Single 3'-0" x 9'-0" (Glass and Stainless Steel) Exterior from Guard Room.

Description	Qty.	Manufacturer
Push Pull	1 each	CRL/Blumcraft DBL-100F x 630
Strike	1 each	CRL/Blumcraft S-100D
Bottom Arm	2 each	Blumcraft
Top Pivot	2 each	Blumcraft
Mortise Cylinder	2 each	by Hardware Supplier
Mortise Cylinder	1 each	By Hardware Supplier
Floor Stop	1 each	Elmes UT-1-HLN x 630

Refer to Division 8 Section "Door Hardware", for balance of Door Hardware information.

**2.6 FABRICATION**

- A. Provide holes and cutouts in glass to receive hardware, fittings, and accessory fittings before tempering glass. Do not cut, drill, or make other alterations to glass after tempering.
  - 1. Fully temper glass using horizontal (roller-hearth) process, and fabricate so that when glass is installed, roll-wave distortion is parallel with bottom edge of door or lite.
- B. Factory assemble components and factory install hardware and fittings to greatest extent possible.

**2.7 STAINLESS-STEEL FINISHES**

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Remove tool and die marks and stretch lines or blend into finish.
  - 2. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches.
    - a. Run grain with long dimension of each piece.
- B. Stainless-Steel Finish: Drawing Designation **SS-5**.
  - 1. Brushed finish; finish level and grain orientation to be determined with sample submittal.
- C. When polishing is completed, passivate and rinse surfaces.
  - 1. Remove embedded foreign matter and leave surfaces chemically clean.
- D. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.
- E. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLATION**

- A. Install all-glass systems and associated components according to manufacturer's written instructions.
- B. Set units level, plumb, and true to line, with uniform joints.
- C. Maintain uniform clearances between adjacent components.
- D. Lubricate hardware and other moving parts according to manufacturer's written instructions.
- E. Set, seal, and grout floor closer cases as required to suit hardware and substrate indicated. Provide continuous seal around perimeter to achieve air and watertight interface with adjacent construction.

**3.3 ADJUSTING AND CLEANING**

- A. Adjust all-glass entrance doors and hardware to produce smooth operation and tight fit at contact points and weather stripping.
  - 1. For all-glass entrance doors accessible to people with disabilities, adjust closers to provide a three-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch measured to the leading door edge.
- B. Remove excess sealant and glazing compounds and dirt from surfaces.

**END OF SECTION**