SECTION 08 56 53

SECURITY WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Vision security windows.
   2. Fixed, transaction security windows.

1.2 ACTION SUBMITTALS

A. Product Data: Technical data including construction details, material descriptions, dimensions of individual components and profiles, weights and finishes for window units.

B. Shop Drawings: Submit plans, elevations, sections, and attachment details.
   1. Full size section details of framing members, including internal armoring, reinforcement, and stiffeners.
   2. Location of weep holes.
   3. Hardware for sliding window units.
   4. Glazing details.
   5. Details of deal tray transaction counter speaking aperture and intercom where indicated.

C. Samples: Submit samples for each type of exposed finish required, prepared on Samples of sizes indicated:
   1. Framing: 12 inch (305 mm) long sections of frame members.
   2. Transaction Drawer: 6 inches (150 mm) square.

D. Cutaway Sample: Corner of security window, made from 12 inch (305 mm) lengths of full size components, and showing details of the following:
   1. Joinery.
   2. Anchorage.
   3. Glazing.
   4. Flashing and drainage.

E. Delegated Design Submittal: Submit for security windows indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: Submit for Installer.

B. Welding certificates.

C. Product Test Reports: Submit for each type of security window and accessory indicated as ballistics or forced entry resistant, for tests performed by a qualified testing agency.

D. Configuration Disclosure Drawing: Submit for each type of forced entry resistant security window, complying with ASTM F1233.

E. Examination reports documenting inspections of substrates, areas, and conditions.

F. Anchor inspection reports documenting inspections of built-in and cast-in anchors.

G. Field Quality Control Reports: submit reports documenting inspections of installed products.
   1. Field quality control certification signed by Contractor.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Entity having minimum 5 years documented experience who is an authorized representative, trained and approved by manufacturer for installation of units required.

B. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1M, Structural Welding Code - Steel.
   2. AWS D1.2/D1.2M, Structural Welding Code - Aluminum.
   3. AWS D1.3/D1.3M, Structural Welding Code - Sheet Steel.
   4. AWS D1.6, Structural Welding Code - Stainless Steel.

C. Preinstallation Conference: Conduct conference at project site.

1.5 COORDINATION

A. Coordinate installation of anchorages for security windows. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in adjacent construction. Deliver items to site for installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Pack security windows in wood crates for shipment. Crate glazing separate from frames unless factory glazed.

B. Label security window packaging with drawing designation.

C. Store crated security windows on raised blocks to prevent moisture damage.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.8 SEQUENCING

A. Field Painting: Except where security windows have been preglazed before installation, complete field painting of security windows before glazing installation.

1.9 WARRANTY

A. Written warranty signed by manufacturer in which manufacturer agrees to repair or replace components of metal framed skylights that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures including deflections exceeding 1/4 inch (6 mm).
      b. Failure of welds.
      c. Excessive air leakage.
      d. Faulty operation of sliding window hardware.
      e. Faulty operation of transaction drawers.
      f. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
   2. Warranty Period: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Attack Resistance: Provide units identical to those tested for compliance with requirements indicated, and as follows:
   1. Ballistics Resistance: Level 3 when tested according to UL 752.

B. Structural Loads: Security windows shall withstand the effects of wind loads, deflection and other loads with no permanent deformation or breakage of components within window assembly when tested according to ASTM E330/E330M.

2.2 VISION SECURITY WINDOWS

A. Provide vision security windows with framing on four sides and no operable sash or ventilator.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Action Bullet Resistant Corp.
      b. American Vault Corporation.
      c. Armortex.

d. Chicago Bullet Proof Systems.
e. Creative Industries, Inc.
f. Hamilton Safe.
g. Krieger Specialty Products Company.
h. National Bullet Proof, Inc.
i. Norshield Products Group.
j. Overly Door Company.
k. Quikserv Corp.
l. Ross Technology Corporation.
m. SABIC Innovative Plastics IP BV.
n. Seibold Security of Florida Inc.
o. Total Security Solutions (TSS). Inc.
p. United States Bullet Proofing, Inc.

B. Framing: Fabricate perimeter framing, mullions, and glazing stops from aluminum:
1. Profile: Narrow, with minimum face dimension indicated.
a. Minimum Face Dimension: 2 inches (50 mm).
2. Depth: Indicated on Drawings.
3. Provide relative construction for aluminum framing.

C. Glazing and Glazing Materials: Comply with requirements in Section 08 88 53.

D. Materials:
1. Mild Steel Plates, Shapes, and Bars: ASTM A36/A36M.
2. Cold Rolled Steel Sheet: ASTM A1008/A1008M, CS (Commercial Steel), Type B; suitable for exposed applications.
3. Metallic Coated Steel Sheet: ASTM A653/A653M, CS (Commercial Steel), Type B; with G60 (Z180) zinc (galvanized) or A60 (ZF180) zinc-iron-alloy (galvannealed) coating designation.
4. Hot Rolled Steel Sheet: ASTM A1011/A1011M, CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
5. Stainless Steel Sheet, Strip, Plate, and Flat Bars: ASTM A666 or ASTM A240/A240M, austenitic stainless steel, Type 304.
6. Aluminum Extrusions: ASTM B221 (ASTM B221M). Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength.
7. Aluminum Sheet and Plate: ASTM B209 (ASTM B209M).

2.3 FIXED, TRANSACTION SECURITY WINDOWS

A. Provide fixed, transaction security windows with operable sash or ventilator capable of allowing transfer of currency and documents.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Armortex.

b. C.R. Laurence Co., Inc.
c. Chicago Bullet Proof Systems.
d. Creative Industries, Inc.
e. Krieger Specialty Products Company.
f. National Bullet Proof, Inc.
g. Norshield Products Group.
h. Overly Door Company.
i. Protective Structures, Ltd.
j. Quikserv Corp.
k. Ready Access.
l. Ross Technology Corporation.
m. SABIC Innovative Plastics IP BV.
n. Total Security Solutions.

B. Configuration: Indicated on Drawings.

C. Framing: Fabricate perimeter framing, mullions, and glazing stops from aluminum:
1. Profile: Narrow, with minimum face dimension indicated.
a. Minimum Face Dimension: 2 inches (50 mm).
2. Depth: Indicated on Drawings.
3. Provide construction for aluminum framing.

D. Head and Jamb Framing: Designed for gasket glazing.

E. Glazing and Glazing Materials: Comply with requirements in Section 08 88 53.

F. Materials:
1. Mild Steel Plates, Shapes, and Bars: ASTM A36/A36M.
2. Cold Rolled Steel Sheet: ASTM A1008/A1008M, CS (Commercial Steel), Type B; suitable for exposed applications.
3. Metallic-Coated Steel Sheet: ASTM A653/A653M, CS (Commercial Steel), Type B; with G60 (Z180) zinc (galvanized) or A60 (ZF180) zinc-iron-alloy (galvannealed) coating designation.
4. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, CS (Commercial Steel), Type B; free of scale, pitting, or surface defects; pickled and oiled.
5. Stainless Steel Sheet, Strip, Plate, and Flat Bars: ASTM A666 or ASTM A240/A240M, austenitic stainless steel, Type 304.
6. Aluminum Extrusions: ASTM B221 (ASTM B221M). Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength.
7. Aluminum Sheet and Plate: ASTM B209 (ASTM B209M).

2.4 FABRICATION

A. Fabricate security windows to provide a complete system for assembly of components and anchorage of window units.

1. Provide units that are reglazable from the secure side without dismantling the attack side of framing.
2. Prepare security windows for field glazing unless preglazing at the factory is indicated.

B. Provide weep holes and internal water passages for exterior security windows to conduct infiltrating water to the exterior.

C. Framing: Miter or cope corners the full depth of framing; weld and dress smooth.

1. Fabricate framing with manufacturer's standard, internal opaque armoring in thicknesses required for security windows to comply with ballistics resistance performance indicated.

D. Glazing Stops: Finish glazing stops to match security window framing.

1. Attack Side (Exterior) Glazing Stops: Welded or integral to framing.
2. Secure Side (Interior) Glazing Stops: Removable, coordinated with glazing indicated.

E. Welding: Weld components to comply with referenced AWS standard. To greatest extent possible, weld before finishing and in concealed locations to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

F. Metal Protection: Separate dissimilar metals to protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

G. Factory-cut openings in glazing for speaking apertures.

H. Preglazed Fabrication: Preglaze window units at factory, where required for applications indicated. Installation orientation of glazing to meet performance requirements. Comply with requirements in Section 08 88 53.

2.5 FINISH REQUIREMENTS

A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Aluminum Finishes:
   1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

E. Stainless Steel Finishes:
   1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
   2. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
      a. Run grain of directional finishes with long dimension of each piece.
      b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
      c. Directional Satin Finish: No. 4.

2.6 ACCESSORIES

A. Recessed, Nonricochet Deal Trays: Formed from stainless steel; fabricated with recessed bullet trap to ricochet bullets away from secure side, with exposed flanges for recessed installation into horizontal surface.
   1. Clear Opening Size: 12 inches wide by 11 inches deep by 1-1/2 inches high (305 mm wide by 279 mm deep by 38 mm high) unless otherwise indicated on the Drawings.
   2. Bullet Trap Location: Both sides.
   3. Ballistics Resistance: UL Level 3.
   4. Listed and labeled as bullet resisting according to UL 752.

B. Speaking Apertures: Fabricate from stainless steel, designed to allow passage of speech at normal speaking volume without distortion.
   1. Shape: Circular.
   2. Ballistics Resistance: UL Level 3.
   3. Listed and labeled as bullet resisting according to UL 752.

C. Concealed Bolts: ASTM A307, Grade A unless otherwise indicated.

D. Cast in Place Anchors in Concrete: Fabricated from corrosion resistant materials capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E488/E488M, conducted by a qualified testing agency; of type indicated below.
   1. Threaded or wedge type; galvanized ferrous castings, either ASTM A27/A27M cast steel or ASTM A47/A47M malleable iron. Provide bolts, washers, and shims as required; hot dip galvanized according to ASTM A153/A153M or ASTM F2329/F2329M.

E. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16 inch (4.8 mm) thick; with minimum 1/2 inch (12.7 mm) diameter, headed studs welded to back of plate.

F. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

G. Glazing Strips and Weather Stripping: Replaceable components.

1. Compression Type: Molded EPDM or neoprene gaskets complying with ASTM D2000, Designations 2BC415 to 3BC620; molded PVC gaskets complying with ASTM D2287; or molded, expanded EPDM or neoprene gaskets complying with ASTM C509, Grade 4.
2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon fabric backing.

H. Miscellaneous Glazing Materials: Provide material, size, and shape complying with requirements of glass manufacturers and with a proven record of compatibility with surfaces contacted in installation.

1. Cleaners, Primers, and Sealers: Type recommended by sealant or gasket manufacturer.
2. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
3. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
4. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

I. Anchors, Clips, and Window Accessories: Stainless steel; hot dip, zinc coated steel or iron, complying with ASTM B633; provide sufficient strength to withstand design pressures indicated.

J. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D1187/D1187M.

K. Sealants: For sealants required within fabricated security windows, provide type recommended by manufacturer for joint size and movement. Sealant shall remain permanently elastic, nonshrinking, and nonmigrating.

2.7 COMMUNICATION INTERCOM

A. Intercom: 2 way communication intercom through window mounted speaker with microphones on secure side of the security window.

1. Electronic 2 way communication, hands free operation.
2. Provide 2 headsets with installation.
3. Two voice channels with automatic listen mode.
4. 4 inch diameter window mounted speaker with flexible microphones, operator headset, microphone amplifier, VOX switch Compressor, attenuator controls and bridge amplifier.
5. Basis of Design: SC 100 Two-Way Communication / Through a partition by Haven Technology Corp..

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of security windows.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations of security window connections before security window installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of security windows.

D. Inspect built in and cast in anchor installations, before installing security windows, to verify that anchor installations comply with requirements. Prepare inspection reports.

1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Reinspect after repairs or replacements are made.
2. Perform additional inspections to determine compliance of replaced or additional work. Prepare anchor inspection reports.

E. For factory installed glazing materials whose orientation (secure or attack side) is critical for performance, verify installation orientation.

F. Proceed with installation after correcting unsatisfactory conditions.

3.2 PREPARATION

A. Coordination: Furnish layouts for cast in place anchors, clips, and security window anchors whose installation is specified in other Sections.

1. Furnish cast in place anchors and similar devices to other trades for installation well in advance of time needed for coordinating other work.

3.3 INSTALLATION

A. Fastening to In Place Construction: Provide anchorage devices and fasteners where necessary for securing security windows to in-place construction. Include threaded fasteners for inserts, security fasteners, and other connectors.

1. Install an attached or integral flange to secure side of security windows extending over rough in opening gap so that gap has same forced entry resistance and ballistics resistance performance as security window.

B. Glazed Framing: Provide sealant or gasket glazed framing as indicated. Comply with installation requirements in Section 08 88 53.

C. Removable Glazing Stops and Trim: Fasten components with security fasteners.

D. Fasteners: Install security windows using fasteners recommended by manufacturer with head style appropriate for installation requirements, strength, and finish of adjacent materials. Provide stainless steel fasteners in stainless steel materials.

E. Sealants: Comply with requirements in Section 07 92 00 for installing sealants, fillers, and gaskets.

1. Set continuous sill members and flashing in a full sealant bed to provide weathertight construction unless otherwise indicated.
2. Seal frame perimeter with sealant to provide weathertight construction unless otherwise indicated.

F. Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended in writing by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

3.4 FIELD QUALITY CONTROL

A. Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.

B. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.

C. Prepare field quality-control certification that states installed products and their installation comply with requirements in the Contract Documents.

3.5 ADJUSTING

A. Adjust horizontal-sliding, transaction security windows to provide a tight fit at contact points for smooth operation and a secure enclosure.

B. Adjust transaction drawers to provide a tight fit at contact points for smooth operation and secure enclosure.

C. Remove and replace defective work, including security windows that are warped, bowed, or otherwise unacceptable.

3.6 CLEANING AND PROTECTION

A. Clean surfaces promptly after installation of security windows. Take care to avoid damaging the finish. Remove excess glazing and sealant compounds, dirt, and other substances.

1. Lubricate sliding security window hardware.
2. Lubricate transaction drawer hardware.

B. Clean glass of preglazed security windows promptly after installation. Comply with requirements in Section 08 88 53 for cleaning and maintenance.

C. Provide temporary protection to ensure that security windows are without damage at time of Substantial Completion.

3.7 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain security windows with transaction drawers.

END OF SECTION

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