SECTION 08 11 19 - STAINLESS-STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Stainless-steel, hollow-metal doors.
2. Stainless-steel, hollow-metal frames.

NOTE: The integration of the existing LAWA Security System into the steel door and frame work may be required. The Contractor shall be responsible for the total and complete coordination of the security system components of the work.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door design.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

C. Samples for Verification:

1. Finishes: For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).
2. Doors: Include section of vertical-edge, top, and bottom construction; core construction; glazing; and hinge and other applied hardware reinforcement.
3. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow-metal panels and glazing if applicable.

D. Schedule: Provide a schedule of stainless-steel, hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with a door hardware schedule.

1.3 INFORMATIONAL SUBMITTALS

A. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of stainless-steel, hollow-metal door and frame assembly.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain stainless-steel, hollow-metal work from single source from single manufacturer.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

C. Smoke- and Draft-Control Door Assemblies: At corridors, smoke barriers, and smoke partitions, provide assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at the tested pressure differential of 0.3-inch wg (75 Pa) of water.

D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies that are listed and labeled, by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9. Label each individual glazed lite. Install in compliance with NFPA 80.

E. Pre-installation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

B. Shipping Spreaders: Deliver welded frames with two removable spreader bars across bottom of frames, tack welded or mechanically attached to jambs and mullions.

C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (100-mm-) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.

1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

1.6 PROJECT CONDITIONS

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

1.7 COORDINATION

A. Coordinate installation of anchorages for stainless-steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 STAINLESS-STEEL DOORS AND FRAMES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Ambico Limited.
2. Ceco Door Products; an ASSA ABLOY Group company.
3. CURRIES Company; an ASSA ABLOY Group company.
4. Steelcraft; an Allegion product line.

NOTE: Make provisions for installation of electrical items specified elsewhere; arrange so wiring can be readily removed and replace. Provide all cutouts and reinforcements required for steel doors to accept security system components.

2.2 STAINLESS-STEEL DOORS

A. Description: Stainless-steel doors, not less than 1-3/4 inches (44 mm) thick, of seamless, hollow-metal construction. Construct doors with smooth, flush surfaces without visible joints or seams on faces.

1. Face Sheets: Fabricate from 0.078-inch- (1.98-mm-) thick, stainless-steel sheet.

2. Core Construction: Fabricate doors with core indicated.

a. Welded Steel-Stiffened Core: vertical stiffeners extending full-door height, spaced not more than 6 inches (152 mm) apart, spot welded to face sheets a maximum of 5 inches (127 mm) o.c. Fill spaces between stiffeners with mineral-fiber insulation.

b. Laminated Core: foam-plastic insulation fastened to face sheets with waterproof adhesive.

c. Fire-Rated Door Core: As required to provide fire-protection and temperature-rise ratings indicated.

3. Vertical Edges for Single-Acting Doors: Beveled 1/8 inch in 2 inches (3 mm in 50 mm).

4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm) radius.

5. Moldings for Glazed Lites in Doors: 0.038-inch- (0.95-mm-) thick stainless steel.

6. Loose Stops for Glazed Lites in Doors: 0.038-inch- (0.95-mm-) thick stainless steel.

7. Top and Bottom Channels: Closed with continuous channels, 0.062-inch- (1.59-mm-) thick stainless steel.

a. Securely fastened using adhesive.

8. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 866 with reinforcing plates from stainless steel.

9. Electrical Hardware Enclosures: Provide enclosures and junction boxes within doors for electrically operated door hardware, interconnected with UL-approved, 1/2-inch- (12.7-mm-) diameter conduit and connectors.

a. Where indicated for installation of wiring, provide access plates to junction boxes, fabricate from same material and thickness as face sheet and fasten with at least four security fasteners spaced not more than 6 inches (152 mm) o.c.

B. Performance: Level A, ANSI A250.4.

C. Materials:

1. Stainless-Steel Sheet: ASTM A240/A240M, austenitic stainless steel, Type 304 or 316 as indicated.

2. Steel Sheet: ASTM A1008/A1008M or ASTM A1011/A1011M, Commercial Steel (CS), Type B.

3. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

4. Foam-Plastic Insulation: Manufacturer's standard polystyrene board insulation with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E84. Enclose insulation completely within door.

5. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers.

D. 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.

2.3 STAINLESS-STEEL PANELS

A. Provide stainless-steel panels of same construction, materials, and finish as specified for adjoining stainless-steel doors.

NOTE: Make provisions for installation of electrical items specified elsewhere; arrange so wiring can be readily removed and replace. Provide all cutouts and reinforcements required for steel doors to accept security system components. Provide welded on sheet metal boxes with metal conduit or raceway to permit wiring from electric hinge to other electric door hardware.

2.4 STAINLESS-STEEL FRAMES

A. Description: Fabricate stainless-steel frames of construction indicated, with faces of corners mitered and contact edges closed tight.

1. Door Frames: Saw mitered and full (continuously) welded.
    a. Weld frames according to HMMA 820.
2. Sidelight Transom and Borrowed-Light Frames: Saw mitered and full (continuously) welded.
3. Door Frames for Openings 48 Inches (1219 mm) Wide or Less: Fabricate from 0.078-inch- (1.98-mm-) 0.109-inch- (2.78-mm-) thick, stainless-steel sheet.
4. Door Frames for Openings More Than 48 Inches (1219 mm) Wide: Fabricate from 0.109-inch- (2.78-mm-) thick, stainless-steel sheet.
5. Borrowed-Light Frames: Fabricate from 0.078-inch- (1.98-mm-) thick, stainless-steel sheet.
6. Sidelight and Transom Frames: Fabricate from stainless-steel sheet of same thickness as adjacent door frame.
7. Glazing and Panel Stops: Formed integral with stainless-steel frames, minimum 5/8 inch (16 mm) high, unless otherwise indicated.
8. Loose Stops for Glazed Lites and Panels: 0.038-inch- (0.95-mm-) thick stainless steel.
9. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 866 with reinforcing plates from stainless steel.
10. Head Reinforcement: 0.109-inch- (2.78-mm-) thick, stainless-steel channel or angle stiffener for openings widths more than 48 inches (1219 mm).

11. Jamb Anchors:

    a. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.062-inch- (1.59-mm-) thick stainless steel with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.156 inch (4.0 mm) thick.

    b. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.050-inch- (1.27-mm-) thick stainless steel.

    c. Compression Type for Slip-on Frames: Fabricate adjustable compression anchors from stainless steel.

    d. Post-installed Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- (9.5-mm-) diameter, stainless-steel bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

12. Floor Anchors: Not less than 0.078-inch- (1.98-mm-) thick stainless steel, and as follows:

    a. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

    b. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (50-mm) height adjustment. Terminate bottom of frames at finish floor surface.

13. Ceiling Struts: Minimum 3/8-inch-thick by 2-inch- (9.5-mm-thick by 50-mm-) wide from stainless steel.

14. Plaster Guards: Not less than 0.019-inch- (0.48-mm-) thick stainless steel.

B. Performance: Level A, ANSI A250.4.

C. Materials:

1. Stainless-Steel Sheet: ASTM A240/A240M, austenitic stainless steel, Type 304 or 316 as indicated.

2. Steel Sheet: ASTM A1008/A1008M or ASTM A1011/A1011M, Commercial Steel (CS), Type B.

3. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

4. Frame Anchors: Stainless-steel sheet. Same type as door face.

5. Frame Anchors: Steel sheet, hot-dip galvanized according to ASTM A153/A153M, Class B.

6. Inserts, Bolts, and Anchor Fasteners: Stainless-steel components complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 (ASTM F738M and ASTM F836M, Alloy Group 1 or 4) for bolts and nuts.

7. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

D. 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.

2.5 ACCESSORIES

A. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

B. Grout: Comply with ASTM C476, with a slump of not more than 4 inches (102 mm) as measured according to ASTM C143/C143M.

C. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

D. Mineral Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers.

2.6 FABRICATION

A. Stainless-Steel Door Fabrication: Stainless-steel doors to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal.
    1. Seamed Edge Construction: Both vertical door edges joined by visible, continuous interlocking seam (lock seam) full height of door.
    2. Seamed Edge Construction: Both vertical door edges joined by visible seam that is projection, spot, or tack welded on inside edges of door at minimum 6 inches (152 mm) o.c.
    3. Seamless Edge Construction: Door face sheets joined at vertical edges by continuous weld extending full height of door; with edges ground and polished, providing smooth, flush surfaces with no visible seams.
    4. Exterior Doors: Close top edges flush and seal joints against water penetration. Provide weep-hole openings in bottom of exterior doors to permit moisture to escape.
    5. Stops and Moldings: Factory cut openings in doors. Provide stops and moldings around glazed lites. Form corners of stops and moldings with butted or mitered hairline joints.
        a. Glazed Lites: Provide fixed stops and moldings welded on secure side of door.
        b. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

6. Hardware Preparation: Factory prepare stainless-steel doors to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Section 087100 "Door Hardware."

    a. Reinforce doors to receive non-templated mortised and surface-mounted door hardware.

7. Locate hardware as indicated, or if not indicated, according to HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

8. Tolerances: Fabricate doors to tolerances indicated in ANSI/NAAMM-HMMA 866.

B. Stainless-Steel Frame Fabrication: Fabricate stainless-steel frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

1. Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames.

2. Mullions Rails and Transom Bars: Provide closed tubular members with no visible face seams or joints. Fasten members at crossings and to jambs by butt welding according to joint designs in HMMA 820.

    a. Provide false head member to receive lower ceiling where frames extend to finish ceilings of different heights.

3. Provide countersunk, flat-, or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

4. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.

5. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Two anchors per jamb up to 60 inches (1524 mm) in height.

        2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) in height.

        3) Four anchors per jamb from 90 to 96 inches (2286 to 2438 mm) in height.

        4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof more than 96 inches (2438 mm) in height.

    b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) in height.

2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) in height.

3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) in height.

4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof more than 96 inches (2438 mm) in height.

5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

c. Compression Type: Not less than two anchors in each jamb.

d. Post-installed Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

6. Head Reinforcement: For frames more than 48 inches (1219 mm) wide, provide continuous head reinforcement for full width of opening, welded to back of frame at head.

7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.

   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.

   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

8. Stops and Moldings: Provide stops and moldings around glazed lites and solid panels where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

   a. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.

   b. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each lite is capable of being removed independently.

   c. Coordinate rabbet width between fixed and removable stops with type of glazing or panel and type of installation indicated.

9. Hardware Preparation: Factory prepare stainless-steel frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Section 087100 "Door Hardware."

   a. Reinforce frames to receive non-templated mortised and surface-mounted door hardware.

   b. Locate hardware as indicated, or if not indicated, according to HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

10. Plaster Guards: Weld guards to frame at back of hardware mortises and mounting holes in frames to be grouted.

11. Tolerances: Fabricate frames to tolerances indicated in ANSI/NAAMM-HMMA 866.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of stainless-steel doors and frames.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations of stainless-steel, door-frame connections before frame installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Prior to installation and with installation spreaders in place, adjust and securely brace stainless-steel door frames for squareness, alignment, twist, and plumb to the following tolerances:

1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.

C. Drill and tap doors and frames to receive non-templated mortised and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install stainless-steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with ANSI/NAAMM-HMMA 866 and manufacturer's written instructions.

B. Stainless-Steel Frames: Install stainless-steel frames of size and profile indicated.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    a. At fire-protection-rated openings, install frames according to NFPA 80.

b. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

c. Install frames with removable glazing stops located on secure side of opening.

d. Install door silencers in frames before grouting.

e. Remove temporary braces necessary for installation only after frames have been properly set and secured.

f. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

g. Apply corrosion-resistant coating to backs of grout-filled frames.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors, if so indicated and approved on Shop Drawings.

3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.

4. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

5. In-Place Gypsum Board Partitions: Secure frames in place with post-installed expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.

7. Grouted Frames: Solidly fill space between frames and substrate with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.

8. Installation Tolerances: Adjust stainless-steel frames for squareness, alignment, twist, and plumb to the following tolerances:

a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

C. Stainless-Steel Doors: Fit non-fire-rated doors accurately in frames with the following clearances:

1. Non-Fire-Rated Doors:
    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).
2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
3. Smoke-Control Doors: Install doors according to NFPA 105.

D. Glazing: Install glazing in sidelights, transoms, and borrowed lights to comply with installation requirements in Section 08 80 00 "Glazing."

1. Secure stops with countersunk, flat-, or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c., and not more than 2 inches (50 mm) o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work including stainless-steel doors or frames that are warped, bowed, or otherwise unacceptable.

B. Clean grout and other bonding material off stainless-steel doors and frames immediately after installation.

C. Stainless-Steel Touchup: Immediately after erection, smooth any abraded areas of stainless steel and polish to match undamaged finish.

END OF SECTION 08 11 19