STAINLESS STEEL DOORS AND DOOR FRAMES

PART 1 – GENERAL

1.1 SUMMARY

A. This Section Includes the Following:

1. Void-Free Stainless Steel Door Panels
2. Stainless Steel Door Frames

1.2 RELATED SECTIONS

A. Related Sections Include the Following:

1. Division 4 - Unit Masonry
2. Division 6 – Rough Carpentry
3. Division 8 - Finish Hardware
4. Division 8 – Glazing

1.3 QUALITY ASSURANCE

A. Doors to be acceptable, based on review of chemical constituents against appropriate USDA and FDA regulations, for incidental food contact, if applicable to this project

B. Manufacturer Qualifications: A company specialized in the manufacture of specialty doors with stainless steel frames as specified herein with a minimum of 35 years documented experience and with a record of successful in-service performance for the applications as required for this project.

C. Installer Qualifications: An experienced installer who has completed stainless steel door and frame installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.

D. Source Limitations: Obtain stainless steel doors and stainless-steel frames through one source fabricated by a single manufacturer.

E. Source Limitations: Hardware and accessories for all stainless-steel doors as specified in Section 08710 should be provided by the stainless-steel door and frame Manufacturer. Hardware shall ship from the factory with all hardware pre-installed whenever possible.

F. Source Limitations: Glass and glazing for windows in doors shall be furnished and installed by door and frame manufacturer in accordance with related section, Division 8, Glazing, and shall have USDA compliant attributes for necessary break protection, abrasion resistance, and condensation mitigation unless otherwise specified.

1.4 SUBMITALS

A. Submit shop drawings and product data under provisions of Section 01300.

B. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware,
reinforcement and finish.

C. Indicate door elevations.

D. Submit manufacturer's product literature, fabrication descriptions and installation instructions under provision of Section 01300.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling and Unloading: Package door opening assemblies in manufacturer's standard containers.

B. Store door assemblies in manufacturer's standard containers, on end, to prevent damage to face, corners and edges.

1.6 MANUFACTURER'S WARRANTY

A. Lifetime warranty against mechanical seam separation in the door panel
B. 5-year warranty against failure due to corrosion from specified environment
C. 5-year warranty against failure due to materials and workmanship

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Weiland, Inc., Norfolk, Nebraska. Telephone: (402) 454-2106. Fax: (402) 454-6508. Website: www.weilanddoors.com.

B. There is no equal

2.2 STAINLESS STEEL DOORS

A. Description:
Stainless-steel doors, not less than 1-3/4 inches (44 mm) thick, of seamless,
Initial hollow-metal style construction. Construct doors with smooth, flush surfaces without visible joints or seams. All faces to feature WeldWrap™ technology: Box construction TIG welded shut on all 4 sides with vertical welds ground smooth and polished to match #4 brushed finish of face sheet.

1. Face Sheets: Fabricate from 0.050-inch- (1.27-mm-) thick, stainless-steel sheet.

2. Core Construction: Fabricate doors with cores indicated.

a. All door panels to be made completely void free with CleanCor™ technology: injected 2 lb. polyurethane must be injected into the box cavity to achieve true void-less construction, and consistent R-Value and STC value edge-to-edge. Pre-formed "board" core material is not acceptable in hygienic environments unless required to achieve a fire rating.

b. Core materials consisting of pre-formed insertable polyurethane and polystyrene foam core material, as well as insertable honeycomb cores made from thermoplastic, organic fiber, paper, or card-board material are not acceptable.

c. Fire rated door cores as required to achieve fire rating.

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

4. Moldings/Frames for Glazed Lites in Doors:

a. Standard vision panel single-flush integrated frameless vision panel on one side of door with 16 Ga. Stainless steel vision panel in all doors separating moderate environmental differences.

b. Minimum 0.038-inch- (0.95-mm-) thick stainless steel double sloped frames involving insulated glass.

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

6. Top/Bottom Channels: Closed with continuous channels, 0.062-inch- (1.59-mm-) thick stainless steel, and welded completely shut.

7. Injection and air evacuation ports: After foam is cured, ports must be welded closed to mitigate moisture penetration, and microbial propagation.

8. Visible TIG welds visible on the top and bottom edges of the door panel must be chemically cleaned with a stainless-steel weld neutralizer to remove any impurities and discoloration.

9. 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.

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

C. Materials:

1. Stainless-Steel Sheet: ASTM A 240/A 240M, austenitic stainless steel, Type 304.

2. Foam-Plastic Insulation: Manufacturer's injectable 2 lb. per cubic foot, polyurethane closed cell foam. Fully cured insulation has maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within door.

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 FRAMES

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

1. Door Frames: Machine mitered and full welded.

a. Weld frames according to HMMA 820.

2. Door Frames for Openings 48 Inches (1219 mm) Wide or Less: Fabricate from 0.078-inch-(1.98-mm-) thick, stainless-steel sheet.

2. Door Frames for Openings More Than 48 Inches (1219 mm) Wide: Fabricate from 0.078-inch- (1.98-mm-) thick, stainless-steel sheet.

3. Glazing Stops: Formed integral with stainless-steel frames, minimum 5/8 inch (16 mm) high, unless otherwise indicated.

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

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

6. Head Reinforcement: 0.109-inch- (2.78-mm-) thick, stainless-steel channel or angle stiffener for openings widths more than 48 inches (1219 mm).

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

C. Materials:

1. Stainless-Steel Sheet: ASTM A 240/A 240M, austenitic stainless steel, Type 304.

2. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

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

4. Inserts, Bolts, and Anchor Fasteners: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group 1 or 4) for bolts and nuts.
5. Floor Anchors: Not less than 0.079-inch- (2.01-mm-) nominal thickness metallic coated steel.

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

7. Plaster Guards: Not less than 0.022-inch- (0.56-mm-) nominal thickness metallic-coated steel.

2.4 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. 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 and no visible welds during normal operation.

2. Exterior Doors: Doors must be welded closed with no seams for water penetration on all 4 sides.

3. Stops and Moldings: Factory punch or cut openings in doors. Provide stops and moldings around glazed moldings. Single flush stops and moldings to be fully welded with no seams. Moldings for lites requiring insulated glass to have hairline miters at each corner of the molding sealed from the back with siliconized polyurethane sealant.

    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.

4. 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.

5. Hardware Installation: All hardware to be curated and installed according to manufacturer's preferences to ensure door system is as durable, corrosion resistant, hygienic, and sustainable as possible.

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

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

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

PART 3 – EXECUTION

3.1 INSTALLATION CONDITIONS

A. Verification of Conditions

1. Openings are correctly prepared to receive doors and frames.

2. Openings are correct size and depth in accordance with shop drawings or submittals.

B. Installer's Examination

1. Have the installer examine conditions under which construction activities of this section are to be performed and submit a written report if conditions are unacceptable.

2. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.

3.2 INSTALLATION

A. Install door-opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.

B. Field alteration of doors or frames to accommodate field conditions is strictly prohibited without written authorization from a manufacturer's principal.

C. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's installation instructions.

3.3 ADJUSTING

A. Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence.

B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.

3.4 CLEANING

Clean surfaces of door opening assemblies and exposed door hardware in accordance with respective manufacturer's maintenance instructions.

3.5 PROTECTION OF INSTALLED PRODUCTS

Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.