MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**DOOR INSTALLATION**

BRG:MGB 1 of 6 APPR:SCK:DLS:05-22-25

**a. Description.** This work consists of installing a door on the northwest stair tower in accordance with the standard specifications, the plans, and as specified herein. This door is designated as "Door 04" on the original contract plans. This work includes installing the door, door frame, door hardware, accessories, and door signage.

**b. Submittals.** Submit the following:

1. Manufacturer's Product Data. Submit manufacturer's product data, fabrication specifications, installation, shipping, and handling instructions substantiating compliance with the specifications.

2. Shop Drawings. Submit shop drawings for door and frame that includes details of frame type, elevation of door design, conditions of opening, anchor details to surrounding construction, type, location, and installation of finish hardware, reinforcements, and details of joints and connections. Include the field measurements of the door opening on the shop drawings.

Include details for signage, including size, location of sign, font, and wording with the shop drawings.

3. Samples. Furnish a finished sample of welded frame corner, 18 by 18 inches. Furnish a sample corner of door type showing internal components and welded edge treatment including reinforcement and stiffeners.

4. Qualifications. Submit qualifications of installer and manufacturer as required herein.

**c. Quality Assurance.**

1. Furnish a door installer with workers trained and approved by the manufacturer.

2. Furnish a manufacturer with 10 years of experience or more in the fabrication of heavy intermediate steel doors and is a member of the Steel Door Institute (SDI).

3. Furnish door, frame, and accessories from a single source manufacturer specializing in the production of commercial doors and complying with *ANSI A250.8* *Specifications for Standard Steel Doors and Frames* and the voluntary standards of the Hollow Metal Manufacturers Association and Steel Door Institute.

4. Conduct a pre-installation conference at the project site to comply with requirements of this special provision and the project plans.

**d. Field Verification.** Verify door opening size in the field before fabrication. Notify the Engineer immediately if the field measurements vary from those shown on the plans.

**e. Materials.**

1. Door and Frame. Construct door and frame to meet or exceed the physical endurance level of *ANSI/SDI A250.8* and *ANSI/SDI A250.4, Level 4* and *Physical Performance Level A, Model 1 (Full Flush) 2 (Seamless)*. Fabricate in accordance with *SDI 117* *Manufacturing Tolerances for Standard Steel Doors and Frames*.

Comply with applicable requirements in *ANSI/SDI A250.6* and *ANSI/BHMA A156.115* for door and frame preparation for hardware.

Fabricate door and frame from 12-gauge (0.1094 inch thick) *ASTM A240/A240M, Type 316* stainless steel with a No. 4 satin finish.

Insulate door with a core of foamed in place polyurethane (2.0 to 2.5 pcf density) permanently bonded between vertically stiffened stainless steel core members.

Furnish minimum 1/16-inch cold rolled concealed stiffeners adequately spaced to preserve alignment with approved means, by welding or rivets that do not impair the surface finish.

Reinforce the top and bottom edges of door with inverted flush channels. Continuously heli-arc weld edges of door and ground smooth to achieve a watertight, completely seamless appearance.

Reinforce door and frame to receive surface-applied hardware.

Furnish exterior scribe moldings fabricated from a minimum 14 gauge (0.781-inch thick) material.

Fabricate frame with mitered for coped and continuously welded corners and seamless face joints, ground to a smooth uniform finish. Ensure direction of stainless steel grain is vertical on frame jamb faces and horizontal on the frame header face.

Miter and reinforce frame by interlocking and welding. Furnish frame with integrally formed caulking stops and filler pieces wherever possible or completely concealed factory stops elsewhere.

Fabricate concealed stiffeners, reinforcement, and edge channels from a minimum 3/16-inch thick stainless steel.

Furnish concealed weep hole openings in the bottom edge of door to permit the escape of entrapped moisture.

Emboss hinge reinforcements with extruded hinge holes pre-tapped for the finish hardware and continuously welded to door edges. Minimum average pull-out resistance strength of 1600 pounds per hole is required.

2. Hardware. Furnish hardware and locations that comply with *ANSI A177.1* and the *ANSI/BHMA A156* Series.

A. General. Furnish hardware that is the manufacturer’s highest grade, entirely free of imperfections in manufacture and finish.

Do not use manufacturer's products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with *UL* labels. Manufacturer's identification is permitted on rim of lock cylinders only.

Furnish necessary screws, bolts, or other fastenings of suitable size and type to anchor hardware in position and match hardware as to material and finish. Furnish Phillips flat-head screws except as otherwise specified.

Do not use through-bolts for installations where bolt head or nut opposite face is exposed in other work. Use of hex bolts is prohibited.

Plans show direction of swing or hand of door. Furnish each item of hardware for proper installation and operation of door movement as specified. Furnish items of type and quality suitable for service needed and comparable to adjacent hardware.

B. Hinges. Furnish full mortise, template, 5-knuckle, heavy duty, button tip hinges with non-rising loose pins and sealed ball type bearings.

Furnish door with stainless steel, extra heavy weight hinges with non-removable pins or security studs. Furnish three hinges that are 5 inches by 4½ inches wide.

C. Locksets and Latch Sets. Series 1000, Operational Grade 1. Furnish heavy-duty mortise locksets and latch sets.

Furnish one-piece 3/4-inch stainless steel, anti-friction latch bolts, and stainless steel deadbolt with hardened steel roller inserts.

Hand of lock is to be easily field reversible without opening lock body case.

Thru-bolt lever trim through door and lock case.

Cylinder collars for mortise locks to be cast.

Equip locksets with Best Lock cylinders with interchangeable cores. Furnish cores for approval by the Engineer. Furnish locks and cylinders with manufacturer’s standard 7-pin tumblers that comply with *ANSI A156.5*, unless otherwise specified. Ensure lock cylinder parts are made from brass/bronze, stainless steel, or nickel silver.

Furnish manufacturer's standard wrought box strike for each latch set and lockset with curved lip extended to protect frame and finish that matches the hardware set.

3. Overhead Closer. Furnish Grade I, surface mounted or concealed overhead closer with fully hydraulic rack and pinion operation, high strength cast iron cylinder, and one piece forged steel piston. Ensure minimum diameter of pinion shaft is 11/16 inch. Surface mounted closer must project no more than 2⅛ inch from mounting surface. Ensure closer is sealed and filled with all-weather fluid. Supply appropriate forged steel arm assembly for each closer so that closer body and arm are mounted on non-public side of door opening and on interior side of exterior openings, except where otherwise specified. Ensure parallel arm mounted closer is factory indexed to insure proper installation.

Closer must have positive, self-aligning stop arms. Closer to have adjustable spring power and separate tamper resistant, brass, non-critical regulating screw valves for closing speed, latching speed and back-check control as a standard feature.

Furnish complete with rectangular, full metal cover, necessary brackets, and fasteners for top of door surface mounted units. Ensure finish is powder coated, custom colored to match door finish.

4. Kick Plate. Furnish stainless steel kick plate that is 18 gauge (0.0478 inch) and 10 inches by 38 inches. Fasten kick plate using countersunk or concealed fasteners. Bevel kick plate on three edges.

5. Floor-Mounted Stop. Furnish stainless steel dome stop with riser of necessary thickness for proper operation.

6. Surface-Mounted Overhead Holder. Furnish heavy-duty stop holder designed around 1/2-inch diameter 300 Series stainless steel bar with shock absorber.

7. Door Bottom Seal. Furnish a continuous door bottom seal to prevent the infiltration of water beneath the door. Furnish resilient or flexible sealing material that is easily replaceable and readily available during the projected life of installation.

8. Threshold. Furnish extruded aluminum, 6063-T5 alloy threshold that extends full width of opening. Miter both ends of threshold as necessary to suit project conditions.

9. Keys. Furnish keying that is compatible with existing doors and key system. Verify keying requirements with the Engineer.

10. Bolts and Fasteners. Furnish manufacturer's standard stainless steel items.

11. Spreader Bars. Furnish removable spreader bars across the bottom of door frame. Tack weld spreader bars to jambs.

12. Signage. Furnish aluminum reflective painted exterior grade permanent room sign for door. Sign size, colors, and font to match existing door signage.

Mount sign using double-sided foam tape suitable for exterior application.

13. Lumber. Use pressure-treated lumber that complies with *AWPA Standard U1, Use Category 3 (UC3)*.

14. Stainless Steel Flashing. Use Type 316 stainless steel flashing. Use nails that are compatible with the stainless steel and are recommended by the manufacturer.

15. Caulk. Use silicone caulk that is recommended by the manufacturer for the conditions in the field.

**f. Construction.**

1. Delivery, Storage, and Handling. Deliver doors and frames palletized, wrapped, or crated to furnish protection during transit and project-site storage. Do not use non-vented plastic. Furnish additional protection to prevent damage to finish of door and frame.

Deliver welded frame with two removable spreader bars across bottom of frame, tack welded to jambs.

Store door and frame under cover at the project site. Place unit in a vertical position with head up on minimum 4-inch-high wood blocking. Avoid using non-vented plastic or canvas shelter that could create a humidity chamber. If wrapper on door becomes wet, remove carton immediately. Furnish minimum 1/4-inch space around door to permit air circulation.

2. Coordination. Coordinate installation of anchorages for steel frame. Furnish setting drawings, templates, and directions for installing anchorages. Deliver these items to project site in time for installation.

3. Door Installation. Install door frame in accordance with *ANSI/SDI A250.11*, unless otherwise specified. Set frame accurately in position, plumbed, aligned, and braced securely until installation is complete.

Furnish at least three anchors per jamb. Install anchors adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frame and secure to adjacent construction with bolts and anchorage devices. Ensure frame is mortar-filled.

Install door in accordance with *ANSI/SDI A250.8*. Fit door accurately in frame and within clearances specified in *ANSI/SDI A250.8*. Shim as necessary to comply with *SDI 122*.

Ensure that installation of door is weather-tight and that all tolerances are acceptable. Immediately before final inspection, remove protective wrappings and labels from door and frame.

4. Door Hardware Installation. Examine door, frame, and hardware for conditions that would prevent proper installation of hardware. Correct conditions detrimental to timely and proper execution of the work. Do not proceed until unsatisfactory conditions have been corrected. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

Drilling and tapping for surface-applied hardware may be done at project site.

Securely install finish hardware items in compliance with templates furnished with hardware.

Furnish metal fasteners of type and size which will not work loose as a result of normal door use, and which are compatible with metal materials of hardware item and doors and frames. Furnish only smooth exposed fastener heads, which do not constitute a snagging hazard to clothing. Finish of exposed fastener must match finish of hardware item.

Install mortised items flush with adjacent surfaces.

Install lockset, surface mounted closer, and trim after finishing of doors and frame is complete. Wherever cutting and fitting is needed to install hardware onto or into surfaces which are later to be finished, install each item completely and then remove and store in a secure place during finish application. After completion of finishes, reinstall each item.

Locate items on door in compliance with the Door and Hardware Institute publication *Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames*. Ensure mounting heights are measured from the finished floor.

Install floor-mounted stop at location shown on the plans. Install floor stop with risers as needed for proper relationship to door.

Before final completion, adjust hardware so door operates in perfect order. Test and adjust hardware for quiet, smooth operation, free of sticking, binding, or rattling. Adjust closer for proper, smooth operation.

Carefully clean exposed hardware by methods not injurious to finish, immediately preceding occupancy. Replace defective, damaged, or missing hardware.

At completion, properly tag and identify keys and deliver to the Engineer.

5. Signage. Measure location of existing sign on existing door. Mount new sign on new door in the same location.

**g. Measurement and Payment.** The completed work, as described, will be measured as a lump sum and paid for at the contract price using the following pay item:

**Pay Item Pay Unit**

Door Installation (Structure Identification) Lump Sum

**Door Installation (Structure Identification)** includes the fabricating, furnishing, and erecting door frame, door, door hardware, door sealant, and door signage. The removal of the existing door, door frame, and accessories is not included with this item.