SECTION 133423 - FABRICATED STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY
   A. Section includes prefabricated steel control booths.

1.2 PERFORMANCE REQUIREMENTS
   A. Structural Performance: Control booths shall withstand the effects of gravity loads and
      the following loads and stresses within limits and under conditions indicated according
      to [ASCE/SEI 7] <Insert requirement>:
      2. Wind Loads: <Insert loads>.
      3. <Insert loads or load combinations>.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of product indicated.
   B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other
      work.
   C. Samples: For control booths with factory-applied color finishes.
   D. Delegated-Design Submittal: For control booths indicated to comply with performance
      requirements and design criteria, including analysis data signed and sealed by the
      qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS
   A. Welding certificates.
   B. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS
   A. Maintenance data.

1.6 QUALITY ASSURANCE
   A. 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."

B. Regulatory Requirements: Comply with applicable provisions in [the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines] [and] [ICC/ANSI A117.1].

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Safety Glazing Products: Category II materials complying with testing requirements in 16 CFR 1201.

E. Preinstallation Conference: Conduct conference at [Project site] <Insert location>.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace wall panels that fail in materials or workmanship within specified warranty period.

1. Warranty Period: [Five] <Insert number> years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:

1. Extruded Shapes: ASTM B 221.

B. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, commercial quality, G90 coating designation; mill phosphatized.

C. Galvanized, Rolled Steel Tread Plate: ASTM A 786/A 786M, rolled from steel plate complying with ASTM A 572/A 572M, Grade 55; hot-dip galvanized according to ASTM A 123/A 123M.

D. Steel Structural Tubing: ASTM A 500, Grade B.

E. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

F. Steel Mechanical Tubing: ASTM A 513, welded steel mechanical tubing.
G. Zinc-Coated (Galvanized) Steel: Hot-dip galvanized according to ASTM A 123/A 123M.

H. Stainless-Steel Sheet: ASTM A 666, Type 304.

I. Plastic Laminate: NEMA LD 3, HGS or HGL grade.

J. Plywood: DOC PS 1, Exterior grade.

K. Particleboard: ANSI A208.1, Grade M-2.

L. Clear Float Glass: ASTM C 1036, Type I, Class 1, Quality q3.

M. Clear Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, and Quality q3.

N. Insulating Glass: Units complying with ASTM E 774 for Class CBA and consisting of two lites of 2.5-mm-thick clear float glass and dehydrated air space, with a total overall unit thickness of 7/16 inch and with manufacturer's standard dual seal.

O. Ballistics-Resistant Glazing: Comply with requirements specified in Section 088000 "Glazing."

P. Anchorages: Anchor bolts; [hot-dip galvanized according to ASTM A 153/A 153M or ASTM F 2329] [stainless steel].

2.2 PREFABRICATED CONTROL BOOTHS, GENERAL

A. General: Provide a complete, integrated set of mutually dependent components that form a completely assembled, prefabricated control booth, ready for installation on Project site.

1. Building Style: [Standard square corners] [Radius corners] [Round corners] [Butt-glazed corners] [Wraparound type, with single rounded building end] [Wraparound type, with both building ends rounded] [As indicated on Drawings].

2. Doors: [Sliding door on one side] [Sliding doors on both sides] [Swinging door on back] [As indicated on Drawings].

B. Windows: Extruded-aluminum sash frames glazed with [6-mm-thick, clear tempered glass] [clear insulating glass] [ballistics-resistant glazing, UL 752 Level <Insert number>].

1. Frame Finish: [Mill] [Clear anodic].

2. Provide insect screens for each operable window.

3. Provide galvanized-steel security screens for each window.

4. Corner Shape: [Square] [Round].

C. Horizontal Sliding Windows: Extruded-aluminum sash frames glazed with 3-mm-thick, clear tempered float glass. Equip windows with cam locks, weather stripping, and [stainless-steel] [nylon] ball-bearing rollers.
1. Frame Finish: [Mill] [Clear anodic].
2. Provide insect screens for each operable window.
3. Corner Shape: [Square] [Round].

D. Work Counters: Full width of control booth, reinforced; with 16-inch-wide [storage] [cash] drawer below each counter, and an access opening for electrical cords at each rear corner of counter.

1. Material: [0.078-inch thick, stainless-steel sheet] [0.079-inch nominal-thickness, galvanized-steel sheet] [1/2-inch thick particleboard with plastic-laminate finish].
2. Depth: [22 inches] [20 inches] [18 inches].

E. Electrical Power Service: 125-A, 120/240-V ac, single-phase, three-wire [load center, with no fewer than four open circuits] [service with 8-16 circuit-breaker panel]; located under one end of work counter. Run copper wiring in 1/2-inch EMT conduit.

1. Provide [one] <Insert number> 120-V [ground-fault circuit interrupter (GFCI)] power receptacle(s).

F. Lighting Fixtures: [One] [Two] ceiling-mounted fluorescent lighting fixture(s), 48 inches long, with acrylic lens and two 40-W lamps [in each fixture]. Provide single-pole switch mounted adjacent to door to control lighting fixture.

G. Heating Unit: [Wall] [Roof]-mounted, thermostatically controlled, 110-V, 1500-W electric heater with fan-forced operation and with capacity of not less than 5000 Btu/h. Enclose in enameled-steel cabinet [and mount under work counter].

H. Cooling Unit: [Wall] [Roof]-mounted, thermostatically controlled air conditioner with cooling capacity of not less than [13,500 Btu/h] <Insert value>. Enclose in enameled-steel cabinet.

I. Accessories: Provide the following for each control booth:

1. Through-wall transaction drawers [and speaking apertures].
2. Antifatigue mats.
3. Exterior stainless-steel counter.
4. [Floor] [Wall-mounted] safe.
5. Signage: <Insert requirements>.
7. Intercom.
8. Traffic control lights.

2.3 PREFABRICATED STEEL CONTROL BOOTHS

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

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B. **Basis-of-Design Product**: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. AustinMohawk and Company, Inc.
2. B.I.G. Enterprises, Inc.
3. Canada Kiosk; an NRB company.
7. Mardan Fabricators.
11. <Insert manufacturer's name>.

C. Structural Framework: Fabricated from 2-by-2-by-0.075-inch steel structural or mechanical tubing. Connect framework by welding.

D. Base/Floor Assembly: [4-inch-] [3-inch-] high assembly consisting of perimeter frame welded to structural framework of booth. Fabricate frame from 2-by-4-inch galvanized-steel structural tubing; 0.108-inch nominal-thickness, C-shaped, galvanized-steel sheet channels; or galvanized structural-steel angles. Include anchor clips fabricated from 1/4-inch-thick galvanized-steel plate, predrilled and welded to exterior of integral floor frame.

1. Finished Floor: 0.108-inch nominal-thickness, galvanized, rolled steel tread plate.
2. Subfloor and Finished Floor: Assembly consisting of 0.079-inch nominal-thickness, galvanized-steel sheet underside with rigid insulation core; covered by 0.125-inch-thick, aluminum rolled tread plate; with overall assembly thickness of 2 inches.
3. Subfloor and Finished Floor: Assembly consisting of [one] [two] layer(s) of 3/4-inch-thick plywood or oriented strand board with [0.125-inch- thick, aluminum rolled tread plate] [vinyl composition flooring] [carpeting].

E. Base/Floor Assembly: No perimeter frame, with finished floor fabricated from 0.108-inch nominal-thickness, galvanized, rolled steel tread plate.

F. Base/Floor Assembly: No perimeter frame, with surface of supporting concrete base as finished floor.

G. Wall Panel Assembly: Assembly consisting of exterior face panel fabricated from 0.079-inch nominal-thickness, galvanized-steel sheet; and interior face panel fabricated from [0.064-inch] [0.052-inch] nominal-thickness, galvanized-steel sheet; with [2-inch-] [3-inch-] <Insert dimension> thick, rigid fiberglass or polystyrene board insulation in cavity between exterior and interior face panels.

H. Flat Roof/Ceiling Assembly: Consisting of exterior roof panels, interior ceiling panels, and insulation between exterior and interior panels; sloped to drain at booth perimeter.

1. Exterior Roof Panel: Fabricated from [0.079-inch][0.064-inch] nominal-thickness, galvanized-steel sheet; with [painted finish][EPDM membrane], continuously welded seams, and full-perimeter gutter.

2. Interior Ceiling Panel: Fabricated from 0.079-inch nominal-thickness, galvanized-steel sheet; with fiberglass insulation in cavity between ceiling and roof.
   

3. Insulated Exterior/Interior Panel: Fabricated from [0.028-inch nominal-thickness, galvanized-steel][0.032-inch thick, aluminum] sheet faces and expanded-foam insulation core.
   

4. Canopy Fascia: Fabricated from 0.079-inch nominal-thickness, galvanized-steel sheet, of [manufacturer's standard design][custom design indicated on Drawings].
   
   a. Height: [6 inches][8 inches] <Insert dimension>.
   b. Overhang: [3 inches beyond] [<Insert dimension> beyond] [Flush with] face of walls below.

5. Downspouts: Integral, extending 3 inches beyond booth walls.

6. Roof scuppers.

7. Rooftop finial.

I. Sliding Door: Top suspended from aluminum track with ball-bearing rollers; 1-3/4 inches thick; tubular-frame design fabricated from [clear-anodized aluminum][galvanized steel]; with top half of door glazed. Equip door with deadlock, lock support, guide hardware, and full weather stripping.

   1. Glazing: [Fixed][Horizontal sliding] unit with 6-mm-thick, clear tempered float glass.
   2. Deadlock: Mortised, laminated-hook bolt type with removable cylinder capable of being master keyed.

J. Swinging Door: 1-3/4 inches thick; tubular-frame design fabricated from [clear-anodized aluminum][galvanized steel]; with top half of door glazed. Equip door with deadlock, three butt hinges, closer, and full weather stripping.

   1. Glazing: [Fixed][Horizontal sliding] unit with 6-mm-thick, clear tempered float glass.
   2. Deadlock: Mortised, with lever handle and removable cylinder capable of being master keyed.
K. Finish: Finish exposed metal surfaces, including structural framework, walls, canopy, and ceiling with rust-inhibitive primer and one finish coat of industrial air-dry [acrylic][polyurethane] enamel.

1. Color: [As indicated by manufacturer's designations] [Match Architect's samples] [As selected by Architect from manufacturer's full range].

2.4 FABRICATION

A. Fabricate control booths completely in factory.

B. Preglaze windows and doors at factory.

C. Prewire control booths at factory, ready for connection to service at Project site.

D. Fabricate control booths with [forklift pockets in base of booth] [removable lifting eye centered in roof].

E. Accessible Control Booths: Where indicated to be accessible, fabricate control booths as follows:

1. Provide service windows located no higher than 34 inches above exterior grade.

2. Provide door opening with minimum 32-inch clear width.

3. Provide minimum 60-inch clear turning spacing within the booth.

4. Provide minimum 27-inch clearance beneath interior work surfaces. Locate work surfaces 28 inches minimum and 34 inches maximum above the floor.

5. Locate controls and operable parts no lower than 15 inches and no higher than 48 inches above the floor where reach is unobstructed. Where side reach is obstructed, locate controls and operable parts no lower than 15 inches and no higher than 46 inches above the floor.

2.5 FINISHES

A. [Steel] [and] [Galvanized-Steel] Factory Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.

1. Color and Gloss: [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color and gloss>.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install control booths according to manufacturer's written instructions.
B. Accessible Control Booths: Install with interior floor surface at same elevation as adjacent paved surfaces.

C. Set control booths plumb and aligned. Level baseplates true to plane with full bearing on concrete bases.

D. Fasten control booths securely to [cast-in anchor bolts] [concrete bases with expansion anchors].

E. Connect electrical power service to power distribution system.

F. Adjust doors, operable windows, and hardware to operate smoothly, easily, properly, and without binding. Confirm that locks engage accurately and securely without forcing or binding.

G. Lubricate hardware and other moving parts.

H. After completing installation, inspect exposed finishes and repair damaged finishes.

END OF SECTION 133423