SECTION 08450

ALL-GLASS ENTRANCES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Swinging All-Glass Entrances.

B. Balanced All-Glass Entrances.

C. Sliding All-Glass Entrances.

D. All-Glass Vision Assemblies.

1.2 RELATED SECTIONS

A. Section 05400 - Cold-Formed Metal Framing.

B. Section 08710 - Door Hardware.

C. Section 09260 - Gypsum Board Assemblies.

1.3 REFERENCES

A. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

B. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

C. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric).

D. ASTM B 455 - Standard Specification for Copper-Zinc-Lead (Leaded Brass) Extruded Shapes.

E. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.

F. ASTM C 1036 - Standard Specification for Flat Glass.

G. ASTM C 1048 - Standard Specification for Heat Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.

H. NAAMM Metal Finishes Manual; National Association of Architectural Metal Manufacturers.

1.4 SYSTEM DESCRIPTION

A. Design Requirements: Exterior all-glass entrance assemblies to resist the following windload pressures:
   1. Positive pressure: _____ pounds per square inch (___ kPa).
   2. Negative pressure: _____ pounds per square inch (___ kPa).

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's descriptive literature for each component in all-glass entrance assembly.

C. Shop Drawings: Dimensioned drawings as follows:
   1. Plans: Indicate layout of all-glass entrance assemblies.
   2. Elevations:
      a. Appearance of all-glass entrance layouts.
      b. Locations and identification of manufacturer-supplied door hardware and fittings.
      c. Locations and sizes of cut-outs and drilled holes for other door hardware.
   3. Details:
      a. Interface with adjacent construction; include requirements for support and bracing at openings.
      b. Installation details.
      c. Appearance of manufacturer-supplied door hardware and fittings.
   4. Schedule: Listing of each type component in all-glass entrance assemblies, cross-referenced to shop drawing plans, elevations, and details.

D. Selection Samples: Two sets, representing manufacturer's full range of available metal materials and finishes.

E. Verification Samples: Two samples, minimum size 2 inches (50 mm) by 3 inches (76 mm), representing actual material and finish of sight-exposed metal.

F. Quality Assurance Submittals:
   1. Design data: Design calculations, bearing seal and signature of structural engineer licensed to practice in the State in which the project is located, documenting compliance of exterior all-glass entrance assemblies to design requirements specified in SYSTEM DESCRIPTION Article in PART 1 of this section.

2. Certificates: Contractor's certification that installer of entrance assemblies meets specified qualifications.

G. Closeout Submittals: Operation and maintenance data for manufacturer-supplied operating hardware.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Minimum three (3) years installing entrance assemblies similar to that specified in this section.
B. Pre-Installation Meetings:
1. Convene at job site seven (7) calendar days prior to scheduled beginning of construction activities of this section to review requirements of this section.
2. Require attendance by representatives of the following:
a. Installer of this section.
b. Other entities directly affecting, or affected by, construction activities of this section.
3. Notify Architect four (4) calendar days in advance of scheduled meeting date.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products of this section in manufacturer's unopened packaging until installation.

1.8 PROJECT CONDITIONS

A. Field Measurements: When construction activities permit, take field measurements at locations to receive products of this section; note discrepancies on submitted shop drawings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: ACI Distribution, located at one of the following addresses:
1. West of Rocky Mountains: 9010 S. Norwalk Boulevard, Santa Fe Springs CA 90670; ASD. Tel. (800) 285-3677 or (562) 908-8893, Fax. (562) 695-8496.

2. East of Rocky Mountains: 129000 Nicholson Road, Farmers Branch TX 75234; ASD. Tel. (800) 284-4527 or (972) 484-3691, Fax. (972) 247-6457.

B. Requests for substitution will be considered in accordance with provisions of Section 01600.

C. Substitutions: Not permitted.

2.2 MATERIALS

A. Aluminum Components: Conforming to ASTM B 221/ASTM B 221M, Alloy 6063, Temper T5.

B. Stainless Steel Components: Conforming to ASTM A 666, Type 304.

C. Brass Components: Conforming to ASTM B 455, UNS C38500, Architectural Bronze.

D. Sealant: One-part silicone sealant, conforming to ASTM C 920, _____ color; product indicated in shop drawings.

2.3 SWINGING ALL-GLASS ENTRANCES

A. Doors:
1. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
a. Thickness: 3/8 inch (10 mm).
b. Thickness: 1/2 inch (12 mm).
c. Thickness: 3/4 inch (19 mm).
d. Color: Clear, Class 1.
e. Color: Bronze tint, Class 2, Style B.
f. Color: Grey tint, Class 2, Style B.
g. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
h. Polish edges that will be sight-exposed in finished Work to bright flat polish.
i. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
2. Fittings:
a. Type: Patch rail at top and bottom pivot corners of door.
b. Type: Patch rail at top and bottom pivot corners and top leading corner of door.

c. Type: Patch rail at top and bottom pivot corners and bottom leading corner of door.
d. Type: Patch rail at top pivot corner of door; continuous rail at bottom of door.
e. Type: Continuous rail at top and bottom of door.
f. Rails:
1) Cross-section: 1-3/4 inches (44.4 mm) wide by 3-1/2 inches (88.9 mm) high.
2) Profile: Tapered.
3) Profile: Tapered flat.
4) Profile: Curved.
5) Profile: Square.
g. Sight-exposed metal:
1) Material: Extruded aluminum.
2) Material: Stainless steel cladding; __ inch (__ mm) thickness.
3) Material: Brass cladding; __ inch (__ mm) thickness.
4) Finish: Clear anodized.
5) Finish: Bronze anodized.
6) Finish: Black anodized.
7) Finish: Clear anodized.
8) Finish: Number 4, satin polish.
9) Finish: Number 8, mirror polish.
10) Finish: Satin oxidized oil rubbed finish.
11) Finish: clear baked enamel finish .
12) Finish: Painted finish, _____ type, in manufacturer's standard color _____.
13) Finish: Painted finish, _____ type, in color selected from manufacturer's full range of standard colors.
14) Finish: Painted finish, _____ type, in custom color matching Architect's sample.
15) Finish: NAAMM designation _____.

B. Door Hardware: Specified in Section 08710.

C. Door Hardware:
1. Supplied by manufacturer as follows:
a. Hinges: _____.
b. Closers: _____.
c. Push/pulls: _____.
d. Locksets: _____.
e. Exit devices: _____.
2. Finish of sight-exposed metals: Matching finish of fittings.
3. All other door hardware: Specified in Section 08710.

D. Sidelites:
1. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
a. Thickness: 3/8 inch (10 mm).
b. Thickness: 1/2 inch (12 mm).
c. Thickness: 3/4 inch (19 mm).
d. Color: Clear, Class 1.
e. Color: Bronze tint, Class 2, Style B.
f. Color: Grey tint, Class 2, Style B.
g. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
h. Polish edges that will be sight-exposed in finished Work to bright flat polish.
i. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
2. Rails:
a. Cross-section: Same as specified for doors.
b. Cross-section: 1-3/4 inches (44.4 mm) wide; top rail 3-1/2 inches (88.9 mm) high, bottom rail 4 inches (101 mm) high.
c. Match profile, material, and finish of rails specified for doors.
3. Channels: Extruded aluminum, for recessed installation in adjacent construction above and below glazing panels.

4. Supply top and bottom installation track for sidelite installation.

2.4 BALANCED ALL-GLASS ENTRANCES

A. Doors:
1. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
a. Thickness: 3/8 inch (10 mm).
b. Thickness: 1/2 inch (12 mm).
c. Thickness: 3/4 inch (19 mm).
d. Color: Clear, Class 1.
e. Color: Bronze tint, Class 2, Style B.
f. Color: Grey tint, Class 2, Style B.
g. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.

h. Polish edges that will be sight-exposed in finished Work to bright flat polish.
i. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.

2. Fittings:
   a. Rails: Continuous rail at top and bottom of door:
      1) Cross-section: 1-3/4 inches (44.4 mm) wide by 4 inches (101 mm) high.
      2) Profile: Tapered.
      3) Profile: Tapered flat.
      4) Profile: Curved.
      5) Profile: Square.
   b. Sight-exposed metal:
      1) Material: Extruded aluminum.
      2) Material: Stainless steel cladding; __ inch (__ mm) thickness.
      3) Material: Brass cladding; __ inch (__ mm) thickness.
      4) Finish: Clear anodized.
      5) Finish: Bronze anodized.
      6) Finish: Black anodized.
      7) Finish: Clear anodized.
      8) Finish: Number 4, satin polish.
      9) Finish: Number 8, mirror polish.
      10) Finish: Satin oxidized oil rubbed finish.
      11) Finish: Clear baked enamel finish .
      12) Finish: Painted finish, _____ type, in manufacturer's standard color _____.
      13) Finish: Painted finish, _____ type, in color selected from manufacturer's full range of standard colors.
      14) Finish: Painted finish, _____ type, in custom color matching Architect's sample.
      15) Finish: NAAMM designation _____.
   c. Hinge tube cladding for sight-exposed hinge tube: Same material and finish as rails.
   d. Hinge tube jamb for concealed hinge tube: Cross-section 2-3/4 inches (69.8 mm) by 5-1/2 (139.7 mm) inches, 1/8 inch (3 mm) wall thickness; same material and finish as rails.

B. Door Hardware:
   1. Supplied by manufacturer as follows:
      a. Top and bottom arm assemblies:
         1) Material: Extruded aluminum.
         2) Material: Cast bronze.

3) Material: Stainless steel.
4) Pivot bearings: Rated for door weight of 1770 pounds (801.8 kg), with radial load of 2000 pounds (906 kg).

b. Closers: LCN overhead closers, with hydraulic backcheck and full stroke checking, integrally header-mounted; adjustable speed, closing speed, backcheck, and spring power without requiring header removal.
c. Hinge tube: Carbon steel tube, 5/32 inch (3.9 mm) minimum wall thickness.
d. Threshold: Extruded aluminum.
e. Threshold: Cast bronze.
f. Threshold: Stainless steel.
g. Floor plate: Extruded aluminum.
h. Floor plate: Cast bronze.
i. Floor plate: Stainless steel.
j. Push/pulls: _____.
k. Locksets: _____.
l. Exit devices: _____.

2. Finish of sight-exposed metals: Matching finish of fittings.
3. All other door hardware: Specified in Section 08710.

C. Sidelites:
1. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
a. Thickness: 3/8 inch (10 mm).
b. Thickness: 1/2 inch (12 mm).
c. Thickness: 3/4 inch (19 mm).
d. Color: Clear, Class 1.
e. Color: Bronze tint, Class 2, Style B.
f. Color: Grey tint, Class 2, Style B.
g. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
h. Polish edges that will be sight-exposed in finished Work to bright flat polish.
i. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.

2. Rails:
a. Cross-section: Same as specified for doors.
b. Cross-section: 1-3/4 inches (44.4 mm) wide; top rail 3-1/2 inches (88.9 mm) high, bottom rail 4 inches (101 mm) high.

c. Match profile, material, and finish of rails specified for doors.

D. Channels: Extruded aluminum, for recessed installation in adjacent construction above and below glazing panels.

E. Supply top and bottom installation track for sidelite installation.

2.5 SLIDING ALL-GLASS ENTRANCES

A. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
1. Thickness: 3/8 inch (10 mm).
2. Thickness: 1/2 inch (12 mm).
3. Thickness: 3/4 inch (19 mm).
4. Color: Clear, Class 1.
5. Color: Bronze tint, Class 2, Style B.
6. Color: Grey tint, Class 2, Style B.
7. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
8. Polish edges that will be sight-exposed in finished Work to bright flat polish.
9. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.

B. Rails: Continuous rail at top and bottom of door:
1. Cross-section: 1-3/4 inches (44.4 mm) wide by 4 inches (101 mm) high.
2. Profile: Tapered.
3. Profile: Tapered flat.
4. Profile: Curved.
5. Profile: Square.
6. Sight-exposed metal:
a. Material: Extruded aluminum.
b. Material: Stainless steel cladding; __ inch (__ mm) thickness.
c. Material: Brass cladding; __ inch (__ mm) thickness.
d. Finish: Clear anodized.
e. Finish: Bronze anodized.
f. Finish: Black anodized.
g. Finish: Clear anodized.
h. Finish: Number 4, satin polish.
i. Finish: Number 8, mirror polish.

j. Finish: Satin oxidized oil rubbed finish.
k. Finish: clear baked enamel finish .
l. Finish: Painted finish, _____ type, in manufacturer's standard color _____.
m. Finish: Painted finish, _____ type, in color selected from manufacturer's full range of standard colors.
n. Finish: Painted finish, _____ type, in custom color matching Architect's sample.
o. Finish: NAAMM designation _____.

C. Bottom Track:
1. Type: Slider, for sliding doors with bottom-mounted roller assemblies.
2. Cross-section, dual track: 5 inches (127 mm) wide by 1/2 inch (12 mm) height.
3. Cross-section, single track: 2-1/2 inches (63.5 mm) wide by 1/2 inch (12 mm) height.

D. Top Track:
1. Type: Slider, for sliding doors with bottom-mounted roller assemblies.
2. Cross-section: Dual channel, 5 inches (127 mm) wide by 1-3/8 inch (34.9 mm) height, with insert-mounted weatherstrip both sides of channel openings.
3. Cross-section: Single channel, 2-1/2 inches (63.5 mm) wide by 1-3/8 inch (34.9 mm) height, with insert-mounted weatherstrip both sides of channel opening.
4. Type: Box channel, designed for support of sliding doors with overhead-mounted roller assemblies.
5. Cross-section: 3-3/8 inches (85.7 mm) wide by 3-3/16 inch (84 mm) height.

E. Bottom Mounted Roller Assembly: Tandem rollers, concealed within bottom rail.

F. Overhead Mounted Roller Assembly: Twin roller assembly, concealed within top track, with adjustable connector to draught strip, which connects to top rail using concealed fasteners.

G. Latching Hardware: Manufacturer's standard flush bolt assemblies, concealed within bottom rail of indicated panels, prepared for lock cylinders specified in Section 08710.

2.6 ALL-GLASS VISION ASSEMBLIES

A. Doors:

1. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
    a. Thickness: 3/8 inch (10 mm).
    b. Thickness: 1/2 inch (12 mm).
2. Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
    a. Thickness: 3/8 inch (10 mm).
    b. Thickness: 1/2 inch (12 mm).
    c. Thickness: 3/4 inch (19 mm).
    d. Color: Clear, Class 1.
    e. Color: Bronze tint, Class 2, Style B.
    f. Color: Grey tint, Class 2, Style B.
    g. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
    h. Polish edges that will be sight-exposed in finished Work to bright flat polish.
    i. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
    j. Thickness: 3/4 inch (19 mm).
    k. Color: Clear, Class 1.
    l. Color: Bronze tint, Class 2, Style B.
    m. Color: Grey tint, Class 2, Style B.
    n. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
    o. Polish edges that will be sight-exposed in finished Work to bright flat polish.
    p. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
3. Fittings: Indicated in shop drawings; including, but not limited to:
    a. Cover caps for door hardware.
    b. Glazing mullions.
    c. Clamp fittings.
    d. Panel corner patches.
    e. Sight-exposed metal:
        1) Material: Extruded aluminum.
        2) Material: Stainless steel cladding; __ inch (__ mm) thickness.
        3) Material: Brass cladding; __ inch (__ mm) thickness.
        4) Finish: Clear anodized.
        5) Finish: Bronze anodized.
        6) Finish: Black anodized.

7) Finish: Clear anodized.
8) Finish: Number 4, satin polish.
9) Finish: Number 8, mirror polish.
10) Finish: Satin oxidized oil rubbed finish.
11) Finish: clear baked enamel finish .
12) Finish: Painted finish, _____ type, in manufacturer's standard color _____.
13) Finish: Painted finish, _____ type, in color selected from manufacturer's full range of standard colors.
14) Finish: Painted finish, _____ type, in custom color matching Architect's sample.
15) Finish: NAAMM designation _____.

B. Door Hardware: Specified in Section 08710.

C. Sidelite Glazing: Float glass meeting requirements of ASTM C 1036, Type 1, Quality q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
1. Thickness: 3/8 inch (10 mm).
2. Thickness: 1/2 inch (12 mm).
3. Thickness: 3/4 inch (19 mm).
4. Color: Clear, Class 1.
5. Color: Bronze tint, Class 2, Style B.
6. Color: Grey tint, Class 2, Style B.
7. Prepare glazing panels for indicated fittings and hardware before tempering; alteration of glazing panels after tempering is not permitted.
8. Polish edges that will be sight-exposed in finished Work to bright flat polish.
9. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.

2.7 FABRICATION

A. Prepare components for specified hardware.

B. Apply strippable protective materials to finished surfaces.

C. Assemble components to extent practical, considering shipping limitations.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared openings are in accordance with shop drawings.

B. Installer's Examination:
   1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
   2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
   3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
   4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 INSTALLATION

A. Installation of cold-formed metal framing for openings is specified in Section 05400.

B. Installation of metal framing for openings is specified in Section 09260.

C. Install components of all-glass assemblies in accordance with shop drawings.

D. Site Tolerances:
   1. Variation from level, horizontal components and sight lines: 1/8 inch in 10 feet (3 mm in 3 m), non-cumulative.
   2. Variation from plumb, vertical components and sight lines: 1/8 inch in 10 feet (3 mm in 3 m), non-cumulative.
   3. Variation from plane, installed assembly: Maximum 1/16 inch (1.5 mm)

E. Installation of door hardware not supplied by manufacturer is specified in Section 08710.

3.3 ADJUSTING

A. Adjust entrance doors to swing correctly, without binding to frame, sill, or adjacent doors.

B. Adjust door hardware to operate correctly.

3.4 CLEANING

A. Immediately prior to Substantial Completion, remove strippable protective materials from metal surfaces; clean metal surfaces free of adhesive residue and other foreign substances, using cleaning materials and methods recommended by fabricator of this section.

3.5 PROTECTION

A. Protect finished installation from damage by subsequent construction activities until Substantial Completion.

B. Repair components damaged by subsequent construction activities in accordance with manufacturer's recommendations; replace damaged components that cannot be repaired to Architect's acceptance.

END OF SECTION