

SECTION 08 05 00 – COMMON WORK RESULTS FOR DOORS AND WINDOWS

Part 1: General

1.01 Summary

1.02 Related Sections

1.03 Definitions

1.04 Submittals Required

1.05 Quality Assurance

A. ENERGY EFFICIENCY REQUIREMENTS

1. Window frames shall have thermal break for energy conservation.
2. Windows specified shall be thermally efficient and all glass shall be minimum double pane insulating glass.
3. Thermal Transmittance: Provide windows and curtain walls with a U-factor maximum in accordance with NFRC 100.
4. Solar Heat-Gain Coefficient: Provide windows with a whole-window SHGC maximum of 0.40 determined according to NFRC 200 procedures.
5. Energy Efficiency: Provide Energy Star labeled products as appropriate to climate zone.
6. Perform Work in accordance with the following: NFPA 80, NFPA 101, ADAAG (ADA), Manufacturer's Instructions, IBCO 2006, NFPA 252

B. WARRANTY: Submit written agreement on door manufacturer's standard form, signed by manufacturer, installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) more or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3 inch span, or do not comply with tolerances in referenced quality standard for life of installation.

1.06 Scheduling

1.07 Delivery, Storage, and Handling

- A. Do not store in damp or wet areas or in areas where sunlight might bleach veneer. Open packaging to permit ventilation.
- B. Stored in an upright position under cover. Place units on at least 4 inch wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create a humidity, chamber and promote rusting. Provide ¼ inch space between the products to promote air circulation.
- C. Assembled frames shall be stored in a vertical position, five units maximum in a stack. Provide a ¼ inch space between frames to promote air circulation.
- D. Do not deliver or install wood/interior doors until building (door storage area) is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
- E. Use removable tags or concealed markings.
- F. Rust on frames or doors will constitute rejection of assembly in full.

1.08 Regulatory Requirements

- A. Observe environmental precautions based on conditions.

1.09 Head Detail – to be flashed per following sketch.

- A. Extend sill flashing to back of face block, with 1" vertical on exterior and ½" diagonal bend. At head: extend flashing to back of CMU and provide ½" back vertical. Provide ½" front lip.

Division 8 Openings 1

Part 2: Products

Division 8 Openings 2

2.01 Manufacturers

2.02 Products

- A. See Divisions 00 and 01 for general sustainability requirements.

Part 3: Execution

3.01 Preparation

- A. Prepare and hang doors when temperature and humidity range of spaces is consistent with final use and maximum 55 percent humidity.

3.02 Installation

- A. Set steel frames accurately, straight and free of twist with head level and jambs plumb. Rigidly anchor to walls and partitions and securely brace until surrounding work is completed.
- B. Field Welds full length of joints. Remove splatter; grind exposed welds to match adjacent surfaces.
- C. Leave spreader bars in place until frames are securely anchored.
- D. Jambs will be filled with grout where frames occur in masonry walls. Coat throat of frames in masonry walls with bituminous coating.
- E. Jambs, heads, and sills in construction will be filled with minimal expanding foam spray.
- F. Install doors to clear finished flooring over which door leaf swings. Do not trim stiles and rails in excess of limits set by manufacturer.
- G. Tolerances:
 - 1. Maximum Diagonal Distortion (Warp), measured with straight edge, corner to corner:
 - i. Metal / FRP: 1/16 inch
 - ii. Wood: 1/4 inch over an imaginary 3 foot – 6 inches x 7 foot surface area.
 - 2. Maximum Vertical Distortion (Bow): ¼ inch measured with straight edge or taut string, top to bottom, over an imaginary 3 foot – 6 inches x 7 foot surface area.
 - 3. Maximum Width Distortion (Cup): ¼ inch measured with straight edge or taut string, edge to edge, over an imaginary 3 foot – 6 inches x 7 foot surface area.
- H. Clearances of Doors in Frames:
 - 1. Non-Fire Rated Openings:
 - i. Jambs:
 - a. Metal / FRP: 3/32 inch
 - b. Wood: 1/8 inch, 1/8 inch bevel in 2 inches
 - ii. Heads:
 - a. Metal / FRP: 3/32 inch
 - b. Wood: 1/8 inch
 - iii. Between Double Doors: 1/8 inch maximum
 - iv. Bottom:
 - a. Metal / FRP: 1/4 inch Above Finished Floor and Thresholds
 - b. Wood: 3/8 inch (decorative floor); 1/8 inch (threshold)
 - 2. Rated Openings: Comply with NFPA Standard No. 80; job cutting and fitting not permitted, except bottom edge only.
 - 3. Frame Anchors: Minimum 2 per 3 feet at each jamb as follows:

<u>Frame Height</u>	<u>Masonry/Concrete</u>	<u>Stud Frame</u>
to 7 feet	3 per jamb	4 per jamb
to 8 feet	4 per jamb	5 per jamb
over 8 feet	Not Permitted	Not Permitted
- I. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

Division 8 Openings 3

- J. Adjust doors for smooth and balanced door movement.
 - K. Packaged Vision Lights REQUIRED with Integral Blinds PREFERRED OVER SURFACE MOUNTED BLINDS ON DOORS: All window kits made or used by approved door manufacturers will be considered for approval, all window kits should be approved by PSD Lockshop on each project to ensure they match existing; all glass selections shall be approved by PSD Carpentry.
 - 1. The window kits should be in a submittal package with a drawing of the profile.
 - L. Louvers: All louvers made by approved manufacturers will be considered for approval. All louvers shall be approved by PSD Lockshop on each project to ensure they match existing.
- ### 3.03 Cleaning and Protection
- A. All doors shall be protected from damage during construction. If work is going on inside of room/area and equipment is being moved in and out of opening, the doors shall be removed or protected in such a manner as to preserve original condition. Any damage to doors must be repaired and doors refinished to match factory finish prior to damage.
 - B. Existing and new doors must be cleaned thoroughly after completion of work to match original or factory cleanliness.

SECTION 08 11 00 – METAL DOORS AND FRAMES**Part 1: General**

1.01 Summary

- A. Steel Doors and Frames.
- B. Fire Rated and Non-Rated Installations.
- C. Interior Borrowed Lights.
- D. Fixed Hollow Metal Panels.
- E. Glazing Stops.
- F. Custom door designs must be submitted and approved by the PSD Lockshop. All hardware used in custom doors must be from PSD approved manufacturers.

1.02 Related Sections

1.03 Definitions

1.04 Submittals Required

- A. Shop Drawings
- B. Product Data
- C. Templates for Hardware

1.05 Quality Assurance

1.06 Scheduling

1.07 Delivery, Storage, and Handling

1.08 Regulatory Requirements

Part 2: Products

2.01 Manufacturers

- A. Curries Company.
- B. Republic Builders Products.
- C. Steelcraft Manufacturing Co.

Division 8 Openings 4

D. Ceco

2.02 Products

A. DOORS AND FRAMES

1. Exterior doors and frames shall be certified to exceed two million, full load operating cycles by a recognized independent testing laboratory. Doors, frames, and frame components shall be manufactured from hot-dipped galvanized steel having an A60 zinc coating conforming to ASTM specification A924. Galvanized steel shall be treated to insure proper paint adhesion. All component parts used in galvanized doors and/or frames shall meet the galvanize specification.

B. DOORS

1. Exterior doors shall be 14 gauge.
2. Interior doors shall be 16 gauge.
3. Kitchen Screen Door: HM Doors with a screen installed into the window kit for venting and air flow. Screen to be of highest quality and most impact resistant.
 - i. The screen is to be reinforced with expanded metal on both sides. Proper lite kit must be ordered to hold this arrangement tightly in place.
 - ii. Architect to get PSD approval prior to bid.
4. Construction of Doors:
 - i. Flush doors shall be full flush or full flush seamless construction.
 - ii. Doors shall have beveled 1/8" in 2" hinge and lock edges.
 - iii. Top and bottom steel reinforcement channels shall be 14-gage and spot welded to both panels. Top channel must be flush with no holes or openings, top caps are acceptable if no holes or openings are exposed, bottom must be inverted.
 - iv. Hinge reinforcements shall be 7 gauge for 1-3/4" doors. Lock reinforcements shall be 16 gage and closer reinforcements 14 gage box minimum 20" long. Hinge and lock reinforcements shall be projection welded to the edge of the door. Galvanized doors

- shall have galvanized hardware reinforcements. Adequate reinforcements shall be provided for other hardware as required.
- v. All cutouts in doors shall have 14 gauge steel reinforcement in the cut out of the door.
- vi. Continuous hinge reinforcement shall be full length.
- 5. Steel Panels: Hollow metal insulated steel panels shall conform to material and construction requirements for steel doors.
- C. FRAMES
 - 1. Exterior frames shall be 14 gage galvanized.
 - 2. Interior frames shall be 16 gauge, provide 14-gage steel for frames over 42 inches wide.
 - 3. Construction of Frames:
 - i. Flush frames shall be formed from 16 or 14 gage cold-rolled or galvanized steel.
 - ii. Metal plaster guards shall be provided for all mortised cutouts and on hinge side of frames receiving full length continuous hinges and for all hardware mounted to frame.
 - iii. Hinge reinforcements shall be 1/8" steel. Strike reinforcements shall be 16 gauge steel. All hinge and strike reinforcements shall be projection welded to the door frame.
 - iv. Reinforcements for surface closer shall be 14-gage steel. Adequate reinforcements shall be provided for other hardware when required. Galvanized frames shall have galvanized hardware reinforcements.
 - v. All exposed frame anchors must be flush filled.

Division 8 Openings 5

- vi. Continuous hinge reinforcement shall be full length, 14-gage plate and face or rabbet of frame.
- vii. Drill stop of lock jamb of each interior frame for installation of rubber door silencers.
- viii. Install ½" flexible conduit in door frame plaster boxes that have electrical or pneumatic products attached to them. Attach flexible conduit to rigid conduit that runs to accessible ceiling. **WIRE IS NOT TO BE GROUTED INTO FRAME.**

Part 3: Execution

3.01 Preparation

3.02 Installation

3.03 Cleaning and Protection

- A. All doors shall be protected from damage during construction. If work is going on inside of room/area and equipment is being moved in and out of opening, the doors shall be removed or protected in such a manner as to preserve original condition. Any damage to doors must be repaired and doors refinished to match factory finish prior to damage.
- B. Existing and new doors must be cleaned thoroughly after completion of work to match original or factory cleanliness.

END OF SECTION 08 11 00

Division

SECTION 08 41 13 – ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

Part 1: General

1.01 Summary

A. Section Includes:

1. Aluminum Storefront Framing and Glazing.
2. Break Metal Sills.

Division 8 Openings 10

3. Anchorage.
4. Foam Insulation around frames.
5. Aluminum and FRP doors
6. Glazed aluminum curtain walls

B. The following entrances and storefronts not permitted:

1. Stainless Steel
2. Bronze
3. All-Glass
4. Revolving Doors
5. Balanced Doors

1.02 Related Sections

1.03 Definitions

1.04 Submittals Required

- A. Shop Drawings
- B. Product Data
- C. Samples

1.05 Quality Assurance

A. QUALIFICATIONS

1. Manufacturer: Single manufacturer with five year successful in-service performance in the fabrication of assemblies of the type and quality required.
2. Installer: Firm where work has resulted in construction with five year successful in-service performance in the installation of systems similar to those required, and approved by the manufacturer.

B. WARRANTY

1. Five (5) years.

C. ERECTION TOLERANCES

1. Maximum Variation from Plumb: 0.06 inches every 3 feet non-cumulative or 1/16 inches per 10 feet, whichever is less.
2. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

D. PERFORMANCE REQUIREMENTS (**Glazed Aluminum Curtain Walls only**)

1. System Assembly: Accommodate without damage to components or deterioration of seals, movement within system
2. Air Infiltration: Limit air leakage as measured in accordance with ASTM E283.
3. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing sealant.
4. Water Leakage: None when measured in accordance with ASTM E331
5. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components and anchorage.
6. Allow for building deflection at head.
7. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.
8. Sound Attenuation through Wall System (Exterior to Interior): STC 50, measured in accordance with ASTM E413.
9. Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

Division 8 Openings 11

- 1.06 Scheduling
- 1.07 Delivery, Storage, and Handling
- 1.08 Regulatory Requirements
 - A. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

Part 2: Products

- 2.01 Manufacturers
 - A. Kawneer Co., Inc.
 - 1. "Tri Fab 451T" Aluminum
 - 2. FRP
 - B. Tubelite, "T14000, Thermally Improved". All members other than doors and door frames must be two part chemically curing unfilled polyurethane casting resin poured in place and debridged.
 - C. Special Lite (FRP Doors)
 - D. Manko – aluminum storefront and windows
- 2.02 Products
 - A. Aluminum Doors
 - 1. Kawneer Co. "Tri Fab 451T", with SL301 built in adjustable door bottom brush sweep; pairs to have adjustable weather seal on meeting stiles. All frame stops to have built in weather seal.
 - 2. Tubelite, "T14000, Thermally Improved". All members other than doors and door frames shall be two part chemically curing unfilled polyurethane casting resin poured in place and debridged, pairs to have adjustable weather seal on meeting stiles, all frame stops to have built in weather seal.
 - B. FRP Doors
 - 1. Special Lite, with SL301 built in adjustable door bottom brush sweep, pairs to have adjustable weather seal on meeting stiles; all frame stops to have built in weather seal.
 - 2. Kawneer FRP, with SL301 built in adjustable door bottom brush sweep, pairs to have adjustable weather seal on meeting stiles; all frame stops to have built in weather seal.
 - C. MATERIALS
 - 1. Fasteners: Aluminum non-magnetic stainless steel; concealed.
 - 2. Bituminous Coatings: 30 mil cold applied asphalt mastic.
 - 3. Sealants and Gaskets: Permanently elastic; non-shrinking; weatherproof. Recommended by manufacturer and required in fabrication, assembly and installation of work.
 - 4. Treated wood blocking, shims, fillers and nailers for a secure installation.
 - 5. Fiberglass insulation between frames and adjacent construction.
 - D. COMPONENTS
 - 1. Door: A clear race way must be provided from wire transfer location on hinge stile to junction location of any electrified hardware on door.
 - i. All doors must have an 8" top rail – minimum.
 - 2. Frame: 2 x 4-1/2 inch nominal dimension; thermally broken with interior tubular section insulated from exterior; flush glazing stops; end dams, drainage holes and internal weep drainage system.
 - i. A clear race way must be provided from above ceiling height to any pneumatic or electrical hardware junction/transfer locations for wire or tubing to be ran.
 - ii. No blade stops are to be used. **THIS IS NOT BEING FOLLOWED! No substitution unless PSD approved PRIOR to bid.**

Division 8 Openings 12

- iii. All stops are to be 2" wide and properly constructed to be drilled and tapped for frame mounted door hardware.
- 3. Reinforced Mullion: Of shape and structural characteristics to meet wind load requirements.
- 4. Infill Panel: Mapes or Approved Equal:
 - i. Outer Face: Aluminum; 8 feet above finished floor and lower: 14 gauge. Above 8 feet high: 18 gauge.

- ii. Core: Polyisocyanurate, 1 inch thick.
 - iii. Inner Face: Aluminum; 8 feet above finished floor and lower: 14 gauge. Above 8 feet high: 18 gauge.
 - iv. Smooth face, finish to match storefront.
- 5. Flashings: Aluminum; Finish to match framing sections where exposed.
- E. GLASS AND GLAZING MATERIALS
 - 1. Glazing Materials: Type to suit application to achieve weather, moisture, and air infiltration requirements.
- F. FABRICATION
 - 1. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
 - 2. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
 - 3. Prepare components to receive anchor devices. Fabricate anchors.
 - 4. Arrange fasteners and attachments to conceal from view.
 - 5. Reinforce framing members for imposed loads.
- G. FINISHES
 - 1. Clear Anodized Aluminum Surfaces: Conforming to AAMA 611.
 - 2. Concealed Steel Items: ASTM A123 galvanize to 2.0 ounces/square foot.
 - 3. Apply bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar metals.
 - 4. Extent of Finish:
 - i. Apply factory coating to all surfaces exposed at completed assemblies.
 - ii. Apply finish to surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.
 - iii. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

Part 3: Execution

3.01 Preparation

- A. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

3.02 Installation

- A. If installation is going to be completed by a sub-contractor, than the doors and hardware installation shall be completed by a qualified installer of the product specified. If installer is also going to install hardware on the doors/openings they must have attended the pre-installation meeting for the project and meet the qualifications for an acceptable hardware installer.
- B. Pre-installation training meeting shall be conducted prior to installation of hardware at project site. Meet with the Owner, Contractor, installer, (all installers shall be required to have 3 years or more experience installing door hardware used in schools and/or similar facilities) and manufacturer's representatives.

Division 8 Openings 13

- C. A separate pre-installation meeting on site before work is performed shall be conducted prior to the installation of electronic security hardware with the electrical AND security contractors and/or integrator sub to review templates, installation instructions, and the approved hardware schedule. Survey installation procedures and workmanship, with special emphasis on unusual conditions, as to ensure correct technique of installation and coordination with other work.
 - 1. Notify required attendees at least ten, (10) working days before meeting.
 - 2. Theory of operation will be determined and a plan to accomplish it will be finalized and become the expectation for this project. Any work added, not in the bid documents, may be discussed as extra UNLESS team determines final approach is per documents or an equal approach to what was bid.
 - 3. Attendees of the pre-installation meeting and the on-site meeting, shall receive a card confirming their presence at the preinstall meeting and only individuals carrying the card shall perform hardware and door installation work for PSD projects. INSTALLERS are required to attend – not just the general contractor.

4. All standards, methods, and expectations discussed at pre-installation meeting shall be the same standards, methods, and expectations to which the jobs are inspected after completion.
 - D. PRECONSTRUCTION CONFERENCE REQUIRED. DO NOT BEGIN WORK WITHOUT CONSENSUS ON METHODS AND MATERIALS OF INSTALLATION.
 - E. Mock-up of all various setups required (in place mock-up is acceptable)
- 3.03 Cleaning and Protection
- A. All doors shall be protected from damage during construction. If work is going on inside of room/area and equipment is being moved in and out of opening, the doors shall be removed or protected in such a manner as to preserve original condition. Any damage to doors must be repaired and doors refinished to match factory finish prior to damage.
 - B. Existing and new doors must be cleaned thoroughly after completion of work to match original or factory cleanliness.

END OF SECTION 08 41 13

SECTION