

# DIVISION 8

## Doors & Windows





## SECTION 08110 - STEEL DOORS AND STEEL FRAMES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Standard steel doors and frames.
  - 2. Assemblies for fire-rated openings.
  - 3. Insulated doors.
- B. Related Sections:
  - 1. Wood doors for installation in steel frames: Elsewhere in Division 8.
  - 2. Door hardware: Elsewhere in Division 8.
  - 3. Glass and glazing: Elsewhere in Division 8.
  - 4. Steel doors in wood frames: Elsewhere in Division 8.
  - 5. Painting: Division 9.

#### 1.3 REFERENCES

- A. ASTM A 153-82(87) -- Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 1982 (Reapproved 1987).
- B. ASTM A 366/A 366M-91(93) -- Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality; 1991 (Reapproved 1993).
- C. ASTM A 525-93 -- Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process; 1993.
- D. ASTM A 526/A 526M-90 -- Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality; 1990.
- E. ASTM A 568/A 568M-93a -- Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for; 1993.

- F. ASTM A 569/A 569M-91a -- Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality; 1991.
- G. ASTM A 591/A 591M-89 -- Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications; 1989.
- H. ASTM C 236-89(93) -- Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box; 1989 (Reapproved 1993).
- I. ASTM E 152-81a -- Standard Methods of Fire Tests of Door Assemblies; 1981.
- J. DHI A115 Series -- Specifications for Steel Door and Frame Preparation for Hardware; 1980-91.
- K. NFPA 80 -- Standard for Fire Doors and Windows; National Fire Protection Association; 1992 (with Errata dated October 6, 1992).
- L. SDI 100-1991 -- Recommended Specifications: Standard Steel Doors and Frames; Steel Door Institute; 1991.
- M. SDI 105-92 -- Recommended Erection Instructions for Steel Frames; Steel Door Institute; 1992.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's printed product information indicating compliance with specified requirements.
- B. Shop Drawings: Submit drawings for fabrication and installation of steel doors and frames, including the following information:
  - 1. Details of construction, joints, and connections.
  - 2. Details of each frame type, including anchorage.
  - 3. Elevations of each opening type.
  - 4. Conditions at openings, including coordination with glass and glazing requirements.
  - 5. Location and installation requirements of door hardware and reinforcements.
  - 6. Schedule of openings coordinated with numbering system used in contract documents.

- C. Quality Assurance Certification: Submit manufacturer's certification that products have been constructed and tested in full compliance with ANSI/SDI 100. As applicable, include test reports for core construction and reinforcing methods not specifically designated as acceptable by ANSI/SDI 100.

## 1.5 QUALITY ASSURANCE

- A. Quality Standard: Comply with SDI 100.
- B. Labeled Assemblies: At all locations where fire-rated door and frame assemblies are required, provide assemblies which comply with NFPA 80 and have been tested and labeled in accordance with ASTM E 152 by agency acceptable to governing authorities.
  - 1. Temperature rise rating: For fire-rated doors in stairwell enclosures, provide door construction tested and certified to limit temperature rise in thirty minutes to 450 degrees, F.
- C. Coordination: Transmit copy of final shop drawings to wood door manufacturer to allow prefabrication of wood doors to steel frames.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in crates or cartons suitable for storage at the site.
- B. Replace items damaged in delivery, unless damage is minor and can be repaired to match intact items, as determined by architect.
- C. Store products under cover, raised above ground level, and stacked to prevent warping and to promote air circulation.
  - 1. Prevent moisture from accumulating and remove saturated packaging before products can be damaged.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Provide products complying with requirements of the contract documents and made by one of the following:
  - 1. Benchmark
  - 2. Ceco Door Products.
  - 3. Curries Company/Essex Industries, Inc.
  - 4. Republic Builders Products Division/DESCO.
  - 5. Steelcraft.
  - 6. Therma-Tru.

- B. Substitutions: Comparable products of other manufacturers will be considered under standard substitution procedures.

## 2.2 MATERIALS

- A. Steel Sheets, Hot-Rolled: ASTM A 569 and ASTM A 568, commercial quality, pickled and oiled.
- B. Steel Sheets, Cold-Rolled: ASTM A 366 and ASTM A 568, commercial quality, matte finish exposed, oiled.
- C. Steel Sheets, Galvanized: ASTM A 591, electrolytic zinc-coated, Class A, mill phosphatized.
- D. Anchorages: Galvanized steel, minimum 18 gage.
- E. Fasteners and Inserts: Units standard with manufacturer.
  - 1. Exterior walls: ASTM A 153, hot-dip galvanized, Class C or D.
- F. Paint:
  - 1. Primer: Manufacturer's standard rust-inhibitive coating, suitable to receive finish coatings specified.

## 2.3 FABRICATION

- A. General: Shop-fabricate assemblies to greatest extent possible, assuring that installed units will be without warp, twist, bow, or other defect in appearance or function.
- B. Exposed Door Faces: Fabricate from cold-rolled steel.
- C. Frames: Fabricate from cold-rolled or hot-rolled steel.
- D. Edge Channels, Stiffeners, and Reinforcement: Fabricate from cold-rolled or hot-rolled steel.
- E. Seal top and bottom edges integrally with door construction, or use minimum 16 gage steel channels to form flush closure.
- F. Exterior Frames: Fabricate from galvanized steel.
- G. Exposed Screws and Bolts: Where required, provide only countersunk, flat Phillips-head fasteners.

- H. Hardware Preparation: Comply with DHI A115 series specifications for door and frame preparation, using final hardware schedule and templates from hardware supplier.
  - 1. Reinforcement: Reinforce doors and frames for field-installed exposed hardware items.
  - 2. Locations: Comply with final shop drawings.
- I. Shop Painting:
  - 1. Preparation: Clean surfaces thoroughly before beginning painting operations, removing rust, scale, oil, grease, and other contaminants.
  - 2. Primer: Apply primer evenly to achieve full protection of all exposed surfaces.

## 2.4 STEEL DOORS

- A. Refer to the drawings for door types.
- B. Mechanical Closet Door: Therma-Tru, 12-24 TR, 24 gauge insulated 6 panel door.
- C. General: Fabricate steel doors in accordance with requirements of SDI 100.

## 2.5 STEEL FRAMES

- A. General: Fabricate steel frames for scheduled openings.
  - 1. Frames: Double rabbet.
    - a. Interior doors: 1/2" profile both sides.
    - b. Exterior Entry Doors: 1/2" profile both sides. Transom openings to be non rabbeted frames. Provide glazing stop at mid point of frame to allow for Beechcraft transom frames to be installed over. See Section 08115 for glazing stops and muntins information..
  - 2. Minimum gage: As scheduled.
  - 3. Construction:
    - a. Interior doors: Mitered and mechanically fastened corners. Concealed fasteners as permitted.
    - b. Exterior Entry Doors: Mitered and welded corners. Concealed fasteners as permitted.
- B. Door Silencers: Drill stops to receive silencers, except on frames scheduled for weatherstripping.
  - 1. Provide for 3 silencers on strike jambs of single-swing frames.
  - 2. Provide for 2 silencers on heads of frames for pairs of doors.

- C. Guards: Weld protective covers to back of hardware openings at locations where grout, plaster, or other materials might interfere with hardware operation.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Install steel doors, frames, and accessories to comply with manufacturer's recommendations.
  - 1. Comply with detailed installation requirements of final shop drawings.
- B. Frame Installation:
  - 1. General: Adhere to provisions of SDI 105.
  - 2. Place frames after construction of enclosing elements to achieve plumb, planar installation. Leaving frames in smooth, undamaged condition.
  - 3. Anchors: Provide anchors per manufacturer's instructions.
  - 4. Fire-rated openings: Comply with requirements of NFPA 80.
  - 5. Wood stud partitions: Attach wall anchors to wood stud framing with screws.
- C. Door Installation:
  - 1. General: Comply with requirements and clearances specified in SDI 100.
  - 2. Fire-rated doors: Comply with NFPA 80 requirements and clearances.

### 3.2 ADJUST AND CLEAN

- A. Touch-Up: At locations where primer has been abraded or minor rusting has occurred, sand smooth and spray-apply compatible primer.
- B. Final Operating Adjustments: Check hardware at all openings for proper operation of doors, making final corrections as required to assure that work of this section is complete and undamaged.

END OF SECTION 08110



## SECTION 08115 – FIBERGLASS DOORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Fiberglass insulated doors.
  - 2. Prefitting by supplier.
- B. Related Sections:
  - 1. Metal door frames: Elsewhere in Division 8.
  - 2. Door hardware: Elsewhere in Division 8.
  - 3. Painting: Division 9.

#### 1.3 REFERENCES

- A. Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program; Architectural Woodwork Institute (AWI); 1988.
- B. ASTM E 152-81a -- Standard Methods of Fire Tests of Door Assemblies; 1981.
- C. How to Store, Handle, Finish, Install and Maintain Wood Doors; National Wood Window and Door Association (NWWDA); undated.
- D. NFPA 80 -- Standard for Fire Doors and Windows; National Fire Protection Association; 1992 (and Errata dated October 6, 1992).
- E. NWWDA I.S. 1-87 -- Wood Flush Doors; National Wood Window and Door Association; 1987.

#### 1.4 SUBMITTALS

- A. Product Data: Submit detailed technical information for each distinct product specified in this section.

- B. Shop Drawings: Prepare and submit shop drawings showing all relevant information, including:
  - 1. Dimensions and location of each product specified.
  - 2. Construction details for each distinct product type.
  - 3. Dimensions and location of blocking for hardware.
- C. Certification: Submit AWI "Architectural Quality Certification Program" Inspection Service Report; on-site inspection is not required.
- D. Preinstallation Report: Submit report indicating compliance with examination requirements specified in "Part 3."

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer: Member of AWI.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products as required to prevent damage or deterioration. Conform to manufacturer's recommendations, requirements of referenced standard, and recommendations of NWWDA I.S.1, Appendix, "How to Store, Handle, Finish, Install, and Maintain Wood Doors."
- B. Clearly label each door with opening number where door will be installed. Use removable, temporary labels or mark on door surface which will be concealed from view after installation.
  - 1. Coordinate door identification with shop drawing designations.

#### 1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not deliver or install products of this section before building's design temperature and humidity levels have been achieved and will be maintained at those levels.

## 1.8 WARRANTIES

- A. Manufacturer's Warranty: Submit a written warranty signed by the manufacturer guaranteeing to correct failures in products which occur within the warranty period indicated below, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents. Failures are defined to include faulty workmanship; stile, rail, or core show-through (telegraphing); and warp (including bow, cup, and twist). Correction may include repair or replacement. Correct failures which occur within the following warranty period(s) after substantial completion:
  - 1. Lifetime.

## PART 2 - PRODUCTS

### 2.1 FIBERGLASS INSULATED DOORS

- A. Glass and Panel Door and matching sidelite:
  - 1. Model: Therma-Tru FC65, FC63SL door leafs only.
  - 2. Finish: Factory primed, opaque finish specified elsewhere.
  - 3. Construction: Manufacturer's standard.
  - 4. Core: Solid polyurethane.

### 2.2 ACCESSORIES

- A. Glazing Stops and Muntins.
  - 1. To be provided for light kits in doors, side lights and transoms in hollow metal frames.
  - 2. Hollow metal frame at transom to be fabricated without rabbet.
  - 3. Beechcraft, Door Molding with glazing stop and muntins secured as a complete unit.
    - a. Center routed out to allow for glazing thickness.
    - b. Mahogany on exterior doors.
    - c. Red Rider on interior doors.
- B. Glazing
  - 1. Minimum 1/2" insulated tempered glass.
  - 2. Glazing to be provided with between the glass muntins in pattern shown.

### 2.3 FABRICATION

- A. Doors: Fabricate to provide consistent clearances as indicated.

1. Hinge and lock edges: Provide 1/8-inch standard bevel at edges, unless standard bevel would not precisely match hardware bevel; provide proper bevel for hardware.
  2. Make neat mortises and cutouts for door hardware indicated.
  3. Prefitting: Fabricate and trim doors to size to coordinate with frame shop drawings and floor finishes as indicated in the finish schedule.
  4. Premachining: Make all mortises and cutouts required for hardware at the factory to conform to approved hardware schedule, hardware templates, and door frame shop drawings.
- B. Doors to Receive Finish Specified Elsewhere: Coordinate shop priming with requirements for field-applied finishes; prime doors at factory using appropriate products.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Inspect door frames and doors before beginning door installation.
1. Verify that frames are properly installed and aligned and are capable of providing trouble free support for doors throughout range of door swing.
  2. Do not install damaged or defective doors.
- B. Submit written report describing examination that has been performed and any conditions not conforming to requirements.
- C. Correct unsatisfactory conditions before installing products of this section. Commencement of installation indicates acceptance of conditions.

### 3.2 INSTALLATION

- A. Hardware Installation: Elsewhere in Division 8.
- B. Install doors in accordance with manufacturer's recommended procedures and requirements of referenced standard.
- C. Prefit Doors: Minimize field fitting to those procedures which are necessary to complete work unfinished during factory prefitting and to provide trouble free operation.
- D. Fitting of Doors:
1. Accurately align and fit doors for trouble free operation throughout range of door swing.

- E. Clearances:
  - 1. Clearance between door edge and head: 1/8 inch.
  - 2. Clearance between door edge and jamb: 1/8 inch.
  - 3. Clearance between door bottom edge and top surface of threshold: 1/4 inch.
  - 4. Clearance between door bottom edge and floor covering surface or finish (where threshold is not indicated): 1/8 inch.
  - 5. Clearance between meeting edges at pairs of doors: 1/8 inch.
  
- F. Field-Applied Finishes: Requirements are specified in Division 9.

### 3.3 ADJUSTING

- A. Adjust doors for proper operation; coordinate with hardware adjustment; replace doors which cannot be properly adjusted.
  
- B. Restore door finishes damaged during installation, in a manner which results in the door showing no evidence of the restoration. If refinished door cannot be made to match other doors, refinished door must be replaced at the contractor's expense.
  
- C. Protect installed work.

END OF SECTION 08115



## SECTION 08210 - WOOD DOORS

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Solid core wood-faced or hardboard-faced doors.
  - 2. Shop priming of doors which are to receive finish specified elsewhere.
  - 3. Prefitting by manufacturer.
  - 4. Premachining by manufacturer.
- B. Related Sections:
  - 1. Metal door frames: Elsewhere in Division 8.
  - 2. Door hardware: Elsewhere in Division 8.
  - 3. Painting: Division 9.

#### 1.3 REFERENCES

- A. Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program; Architectural Woodwork Institute (AWI); 1988.
- B. ASTM E 152-81a -- Standard Methods of Fire Tests of Door Assemblies; 1981.
- C. How to Store, Handle, Finish, Install and Maintain Wood Doors; National Wood Window and Door Association (NWWDA); undated.
- D. NFPA 80 -- Standard for Fire Doors and Windows; National Fire Protection Association; 1992 (and Errata dated October 6, 1992).
- E. NWWDA I.S. 1-87 -- Wood Flush Doors; National Wood Window and Door Association; 1987.

#### 1.4 SUBMITTALS

- A. Product Data: Submit detailed technical information for each distinct product specified in this section.
- B. Shop Drawings: Prepare and submit shop drawings showing all relevant information, including:
  - 1. Dimensions and location of each product specified.
  - 2. Construction details for each distinct product type.
  - 3. Dimensions and location of blocking for hardware.
  - 4. Fire ratings.
- C. Certification: Submit AWI "Architectural Quality Certification Program" Inspection Service Report; on-site inspection is not required.
- D. Preinstallation Report: Submit report indicating compliance with examination requirements specified in "Part 3."

#### 1.5 QUALITY ASSURANCE

- A. Flush Doors: Conform to the following, hereinafter referred to as referenced standard(s):
  - 1. NWWDA I.S. 1: "Wood Flush Doors," National Wood Window and Door Association (NWWDA).
  - 2. "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program," including Section 1300, "Architectural Flush Doors," Architectural Woodwork Institute (AWI).
    - a. Where the AWI standard indicates requirements that conflict with the NWWDA standard, comply with AWI.
- B. NWWDA Hallmark: Each door must bear the NWWDA Wood Flush Door Certification Hallmark.
- C. Molded-Hardboard-Faced Doors: Conform to NWWDA I.S. 1.
- D. Fire-Rated Doors:
  - 1. Provide doors which are precise duplicates of doors tested as part of fire-rated assemblies in accordance with requirements of ASTM E 152.
  - 2. Acceptable testing and inspection agencies:
    - a. Underwriters Laboratories Inc.
    - b. Warnock Hersey International Inc.
- E. Manufacturer: Member of AWI.



## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products as required to prevent damage or deterioration. Conform to manufacturer's recommendations, requirements of referenced standard, and recommendations of NWWDA I.S.1, Appendix, "How to Store, Handle, Finish, Install, and Maintain Wood Doors."
- B. Clearly label each door with opening number where door will be installed. Use removable, temporary labels or mark on door surface which will be concealed from view after installation.
  - 1. Coordinate door identification with shop drawing designations.

## 1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not deliver or install products of this section before building's design temperature and humidity levels have been achieved and will be maintained at those levels.

## 1.8 WARRANTIES

- A. Manufacturer's Warranty: Submit a written warranty signed by the manufacturer guaranteeing to correct failures in products which occur within the warranty period indicated below, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents. Failures are defined to include faulty workmanship; stile, rail, or core show-through (telegraphing); and warp (including bow, cup, and twist). Correction may include repair or replacement. Correct failures which occur within the following warranty period(s) after substantial completion:
  - 1. Solid core wood-faced interior doors: 2 years.

## PART 2 - PRODUCTS

### 2.1 WOOD DOORS - GENERAL REQUIREMENTS

- A. Fire Rated Doors:
  - 1. Construction: Conform to testing agency requirements for indicated fire rating.
  - 2. Labels: Permanently affixed to hinge stile.

## 2.2 SOLID CORE WOOD-FACED DOORS

- A. Manufacturers:
  - 1. Provide products complying with requirements of the contract documents and made by one of the following:
    - a. Mohawk Doors, Inc.
    - b. Masonite Doors, Inc.
  
- B. Solid Core Wood-Faced Flush Door :
  - 1. Label: As indicated on the drawings.
  - 2. Faces: Hardboard, manufacturer's standard.
  - 3. Finish: Factory primed, opaque finish specified elsewhere.
  - 4. Grade: AWI Custom.
  - 5. Construction: Manufacturer's standard.
  - 6. Prime-painted metal stops.
  
- C. Solid Core Wood-Faced Panel Door :
  - 1. Label: As indicated on the drawings.
  - 2. Faces: 2-panel style hardboard, smooth finish.
  - 3. Finish: Factory primed, opaque finish specified elsewhere.
  - 4. Grade: AWI Custom.
  - 5. Construction: Manufacturer's standard.
  - 6. Core: Particle and mineral core; manufacturer's standard construction.

## 2.3 ACCESSORIES

- A. Stops for Glazing and Louvers:
  - 1. For fire rated doors: Cold-rolled sheet steel of gage approved by testing agency for installation in fire-rated doors indicated.
  - 2. Prime-painted steel: Shop prime to receive finish specified elsewhere.

## 2.4 FABRICATION

- A. Doors: Fabricate to provide consistent clearances as indicated.
  - 1. Hinge and lock edges: Provide 1/8-inch standard bevel at edges, unless standard bevel would not precisely match hardware bevel; provide proper bevel for hardware.
  - 2. Make neat mortises and cutouts for door hardware indicated.
  - 3. Prefitting: Fabricate and trim doors to size at factory to coordinate with frame shop drawings and floor finishes as indicated in the finish schedule.

4. Premachining: Make all mortises and cutouts required for hardware at the factory to conform to approved hardware schedule, hardware templates, and door frame shop drawings.
- B. Doors to Receive Finish Specified Elsewhere: Coordinate shop priming with requirements for field-applied finishes; prime doors at factory using appropriate products; apply stain, first coat of paint system, or other sealing product as required.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Inspect door frames and doors before beginning door installation.
  1. Verify that frames are properly installed and aligned and are capable of providing trouble free support for doors throughout range of door swing.
  2. Do not install damaged or defective doors.
- B. Submit written report describing examination that has been performed and any conditions not conforming to requirements.
- C. Correct unsatisfactory conditions before installing products of this section. Commencement of installation indicates acceptance of conditions.

### 3.2 INSTALLATION

- A. Hardware Installation: Elsewhere in Division 8.
- B. Install doors in accordance with manufacturer's recommended procedures and requirements of referenced standard.
  1. Fire-rated doors: Comply with NFPA 80 requirements.
- C. Prefit Doors: Minimize field fitting to those procedures which are necessary to complete work unfinished during factory prefitting and to provide trouble free operation.
- D. Fitting of Doors:
  1. Accurately align and fit doors for trouble free operation throughout range of door swing.
- E. Clearances:
  1. Clearance between door edge and head: 1/8 inch.

2. Clearance between door edge and jamb: 1/8 inch.
3. Clearance between door bottom edge and top surface of threshold: 1/4 inch.
4. Clearance between door bottom edge and floor covering surface or finish (where threshold is not indicated): 1/8 inch.
5. Clearance between meeting edges at pairs of doors: 1/8 inch.

F. Field-Applied Finishes: Requirements are specified in Division 9.

### 3.3 ADJUSTING

- A. Adjust doors for proper operation; coordinate with hardware adjustment; replace doors which cannot be properly adjusted.
- B. Restore door finishes damaged during installation, in a manner which results in the door showing no evidence of the restoration. If refinished door cannot be made to match other doors, refinished door must be replaced at the contractor's expense.
- C. Protect installed work.

END OF SECTION 08210

## SECTION 08305 – ROOF ACCESS DOOR

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Fire-rated attic access doors.
  - 2. Installation of access doors supplied by mechanical and electrical trades.
  - 3. Types of construction in which access doors are installed include:
    - a. Gypsum board.
  - 4. Exact locations and sizes of access doors may not be indicated on the drawings. Obtain specific locations and sizes for access doors from trades requiring access to concealed equipment.
  - 5. Where access doors must be used in fire-rated assemblies, use units of rating required by applicable codes.
- B. Related Sections:
  - 1. Painting of access doors: Division 9.
  - 2. Access doors supplied by mechanical trades: Division 15.
  - 3. Access doors supplied by electrical trades: Division 16.

#### 1.3 SUBMITTALS

- A. Product Data: Manufacturer's descriptive information for each access door assembly type including installation instructions, finishes, anchorage accessories, and latching/locking provisions.

#### 1.4 QUALITY ASSURANCE

- A. Fire Resistance:
  - 1. For fire-rated ceiling access doors, provide door assembly from manufacturer whose products have been tested by independent testing agency acceptable to the building official and have been found acceptable for fire ratings indicated.
    - a. Provide testing agency label on each fire-rated access door.

- B. Size Variations: Have architect approve manufacturer's standard access door sizes which are different than actual opening size necessary for access.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of access doors with other work to avoid delays.

#### 1.6 SEQUENCING AND SCHEDULING

- A. Coordination: Supply access door anchors to be sequenced with other work to the respective trade for installation.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Where products are named in the specifications, comparable products from other manufacturers will be considered for substitution. Comply with Division 1 requirements for substitutions.

#### 2.2 MANUFACTURED UNITS

- A. Attic Access Door:
  1. Location: Ceiling, one in each building.
  2. Product/Manufacturer:
    - a. Karp Associates, "36 x 36".
  3. Substrate: Gypsum board.
  4. One Hour Fire Rated Door.

#### 2.3 FABRICATION

- A. Access Doors and Frames:
  1. General: Fabricate access door components of continuous welded construction, with welds ground smooth.
    - a. Fabricate units of continuous welded steel construction.
  2. Frames:
    - a. Exposed frame: Fabricate frame with nominal 1-inch-wide exposed flange at door panel perimeter.
    - b. Concealed frames in gypsum board construction: Fabricate frame with perforated flanges and gypsum board finishing trim.

3. Doors:
  - a. Flush panel doors:
    - (1) Fabricate door panel from material and material gage indicated, with a smooth face, and with door edges installed square with door frame.
    - (2) Unit to be insulated flush doors, continuous piano hinge, and self-closing mechanism with interior side safety latch release in manufacturer's standard tested design for fire rating indicated for surrounding ceiling.
4. Provide weatherstripping that laps the joint between the door and frame.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install access doors in accordance with door manufacturer's instructions.
- B. Fasten access door assemblies securely in place with exposed surfaces located level and flush with substrate.

### 3.2 ADJUSTING

- A. Upon completion of installation, adjust door panels, hinges, and hardware to operate smoothly.
- B. Remove and replace damaged or warped doors or frames.

END OF SECTION 08305





## SECTION 08364 - SECTIONAL OVERHEAD DOORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Wood faced sectional overhead door and motor.
  - 2. Operation mechanisms.
  - 3. Locations for sectional overhead doors are indicated on the drawings.
- B. Related Sections:
  - 1. Electric service characteristics for motor operators: Division 16.

#### 1.3 REFERENCES

- A. NAGDM 102-1988 -- Specifications for Sectional Overhead Type Doors; National Association of Garage Door Manufacturers; 1988.

#### 1.4 SYSTEM DESCRIPTION

- A. Design Requirements:
  - 1. Sectional overhead doors standard: Comply with NAGDM 102.

#### 1.5 SUBMITTALS

- A. Product Data: Manufacturer's technical information and installation directions demonstrate that products comply with contract documents.
- B. Shop Drawings: Fully dimensioned and detailed drawings showing door elevation, complete installation with components, materials and finishes, and accessories indicated.
- C. Quality Control Submittals:
  - 1. Manufacturer's directions: Submit directions for installation and operation of door units; distribute a copy to installer before start of work.

- D. Contract Closeout Submittals:
  - 1. Operation and maintenance data: Door operation instructions and maintenance data for each door type.

## 1.6 WARRANTY

- A. Manufacturer's Product Warranty: Submit manufacturer's standard 5-year limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Comparable products from other manufacturers will be considered for substitution. Comply with Division 1 requirements for substitutions.

### 2.2 MANUFACTURED UNITS

- A. Steel Sectional Overhead Door:
  - 1. Product name/manufacturer:
    - a. Overhead Door, Inc: the Ranch House Collection Series 148 to match elevation on drawings.
  - 2. Steel door panels
  - 3. Wood face: A grade Redwood.
  - 4. Door finish: Stain finish specified under 09900.
  - 5. Glazing: Manufacturer's Standard Glazing.
  - 6. Decorative Hardware: (12) strap hinges #10.
  - 7. Insulation: 1 3/8" rigid foamed-in-place polyurethane.
  - 8. Counterbalancing mechanism: Torsion spring type.
  - 9. Rollers: Manufacturer's standard vinyl rollers.
  - 10. Electric operator: ZAP wall mounted motor.
    - a. Control station: Single push-button control station inside with remotes operation from vehicles.

## 2.3 COMPONENTS

### A. Tracks:

1. Manufacturer's standard 3" galvanized steel tracks and accessories designed to accommodate door size, weight, and clearances indicated from adjacent construction. If headroom constraints do not permit 3" track provide 2" track.
2. Tilt tracks from vertical to achieve closure at jambs when sectional door is closed. Weld or bolt to track supports.
3. Accessories:
  - a. Provide brackets, anchors and reinforcing for rigid support and smooth operation of roller guides, for door type, weight and size.
  - b. Provide isolation connections for track supports to structure. Isolation connections shall not provide a metal to metal connection.

### B. Counterbalancing Mechanisms:

1. Torsion spring:
  - a. Tempered steel torsion springs mounted on and secured to a hardened tubular steel shaft, with cable drums attached at each end of shaft.
  - b. Counterbalance supports: One ball-bearing bracket at each end of shaft and at midpoint, for shafts up to 16 feet long. Provide two additional brackets at third points to support shafts over 16 feet long.
  - c. Emergency door stop: Spring-loaded steel or bronze cam secured to bottom door rollers at each track.
  - d. Cushion door stop: Spring bumper attached at end of each horizontal track.

### C. Electric Door Operators:

1. ZAP wall mounted motor.
2. Emergency disconnect: Provide mechanism to allow transfer to manual hand chain operation, with safety device to lock out use of motor when chain is in use.
3. Provide the number of remotes for the operation of the door for tenants and Owner equal to the number of units in the building plus five (5) additional remotes.

## 2.4 ACCESSORIES

### A. Hardware:

1. Heavy duty hardware, made from noncorrosive metal and provided with noncorrosive fasteners, as required for door type.
2. Hinges:
  - a. Heavy steel hinges at each end and intermediate stile, of type recommended by manufacturer for size of overhead door.
  - b. Thru-bolt hinges to door sections at stiles and rails using lock washers and nuts, or rivets where access to nuts is not available.
3. Rollers:
  - a. Heavy duty ball-bearing rollers, in steel races. Mount rollers with projections from door surface as required to suit slope of track.
  - b. Roller tires: vinyl 3-inch diameter tires for 3-inch track, vinyl 2-inch diameter tires for 2-inch track; track size as recommended by door manufacturer for required door size.

### B. Weather stripping:

1. Provide top quality weather stripping at all edges for an air tight seal.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Verification of Conditions:

1. Examine openings to receive sectional overhead doors for conditions that will prohibit proper installation. Correct unacceptable conditions before start of installation.

### 3.2 PREPARATION

- A. Prepare surfaces at openings where sectional overhead doors will be installed in accordance with manufacturer's recommendations.

### 3.3 INSTALLATION

- A. Install complete overhead door assembly in compliance with manufacturer's instructions.
- B. Anchor vertical tracks to rough opening perimeter at minimum 24 inches on center.
- C. Horizontal Tracks: Support from overhead framing with welded or bolted steel angles or channels, including diagonal bracing as necessary for secure installation.

### 3.4 ADJUSTING

- A. After door installation is complete, examine door performance, test operation, and adjust installation to provide smooth and quiet operation.
- B. Adjust door operators for proper performance in accordance with manufacturer's instructions.

### 3.5 CLEANING

- A. Clean all door surfaces, tracks, springs, and operators, before final acceptance.

### 3.6 PROTECTION

- A. After installation and until final acceptance, protect door, equipment, and accessories from damage, and maintain in clean condition and operating properly.

END OF SECTION 08364



## SECTION 08400 – ALUMINUM ENTRANCES AND STOREFRONTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 Summary

- A. Section Includes: Kawneer Architectural Aluminum Entrance and Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
  - 1. Types of Kawneer Aluminum Storefront Systems include:
    - a. Miscellaneous Framing Storefront System, 2" x 6" nominal dimension, with Glass Stop Assembly.
  - 2. Types of Kawneer Aluminum Entrances include:
    - a. 500 Swing Door; Wide stile, 5" (127) vertical face dimension, 1-3/4" (44.5) depth, high traffic applications.

#### 1.3 System Description

- A. Storefront System Performance Requirements:
  - 1. Wind loads: Provide storefront system; include anchorage, capable of withstanding wind load design pressures of 100 lbs./sq. ft. inward and. The design pressures are based on the International Building Code; 2003 Edition.
  - 2. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft<sup>2</sup> (0.3 l/s · m<sup>2</sup>) at a static air pressure differential of 6.24 psf (300 Pa).
  - 3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf (383 Pa) as defined in AAMA 501.

4. Uniform Load: A static air design load of 20 psf (958 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
5. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
  - a. Glass to Exterior – 70<sub>frame</sub> and 69<sub>glass</sub> (low-e) or 69<sub>frame</sub> and 58<sub>glass</sub> (clear).
  - b. Glass to Center – 62<sub>frame</sub> and 68<sub>glass</sub> (low-e) or 63<sub>frame</sub> and 56<sub>glass</sub> (clear).
  - c. Glass to Interior – 56<sub>frame</sub> and 67<sub>glass</sub> (low-e) or 54<sub>frame</sub> and 58<sub>glass</sub> (clear).
6. Sound Transmission Class (STC) and Outdoor-Indoor Transmission Class (OITC): When tested to AAMA Specification 1801 and in accordance with ASTM E1425 and ASTM E90, the STC and OITC Rating shall not be less than:
  - a. Glass to Exterior – 38 (STC) and 31 (OITC)
  - b. Glass to Center – 37 (STC) and 30 (OITC)
  - c. Glass to Interior – 38 (STC) and 30 (OITC)

B. Entrance Performance Requirements:

1. Air Infiltration: For single acting offset pivot or butt hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E 283 at a pressure differential of 6.24 psf (300 Pa) for single doors and 1.567 psf for pairs of doors. A single 3'0" x 7'0" (915 x 2134) entrance door and frame shall not exceed 0.50 cfm per square foot. A pair of 6'0" x 7'0" (1830 x 2134) entrance doors and frame shall not exceed 1.0 cfm per square foot.
2. Structural: Corner strength shall be tested per the Kawneer dual moment load test procedure and certified by an independent testing laboratory to ensure weld compliance and corner integrity [Testing procedure and certified test results available upon request].

1.4 Submittals

A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."

B. Quality Assurance/Control Submittals:



1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

C. Shop drawings of all openings showing dimensions and proposed framing and doors.

#### 1.5 Warranty

A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.

B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for storefront system as follows:

1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Kawneer. In addition, welded door corner construction shall be supported with a limited lifetime warranty for the life of the door under normal use.

#### 1.6 Quality Assurance

A. Qualifications:

1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
2. Manufacturer Qualifications: Manufacturer capable of providing structural calculations, applicable independent product test reports, installation instructions, a review of the application method, customer approval and periodic field service representation during construction.

B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

#### 1.7 Delivery, Storage, and Handling

A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

B. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

## PART 2 - PRODUCTS

### 2.1 Manufacturer

- A. Acceptable Manufacturers: Kawneer Company, Inc.
  - 1. Product: Kawneer Aluminum Storefront Systems.
    - a. Kawneer Aluminum Storefront System.
    - b. Series: Miscellaneous Framing Storefront System.
    - c. Framing Member Profile: 2"x6" nominal dimension; Center Glazed (Type B); Provide the most economical connection system for the conditions from the manufacturer's standards as follows, Screw Spline, Shear Block, Stick or Punched Opening Fabrication.
    - d. Glass Stop Assembly: 027-368 Setting Block with 069-197 Face and 069-195 Gutter.
    - e. Insulated aluminum clad bottom panels.
    - f. Finish/Color: (See 2.06 Finishes)
    - g. Glazing: 1" Low E/Argon insulated double pane glass using Cross Rail muntins in the pattern shown on the drawings. See elevations.
    - h. Muntins: 5/16" Cross Rail with 1" Infill glazing stops.
  - 2. Product: Kawneer Aluminum Entrances.
    - a. Series: 500 Swing Doors
    - b. Vertical Stile and Top Rail: 5".
    - c. Bottom Rail: 7 1/2".
    - d. Cross Rail: 3 1/2".
    - e. Insulated aluminum clad bottom panel.
    - f. Finish/Color: (See 2.06 Finishes)
    - g. Glazing: 1/4" single pane glass using Cross Rail muntins for the pattern shown on the drawings. See elevations.
    - h. Muntins: 5/16" Cross Rail.
- B. Substitutions:
  - 1. General: Refer to Substitutions Section for procedures and submission requirements.
    - a. Substitutions: Submit written request in order to avoid storefront installation and construction delays.

2. Substitution Documentation
  - a. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
  - b. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for storefront system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum storefront for a period of not less than ten (10) years.
  - c. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
  - d. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.
3. Substitution Acceptance: Acceptance will be in written form on submitted material.

## 2.2 Materials

- A. Aluminum (Framing, Entrances and Components):
  1. Material Standard: ASTM B 221; 6063-T6 alloy and temper
  2. Member Wall Thickness: Each framing member shall provide structural strength to meet specified performance requirements.
  3. Major portions of the door members to be 0.125" (3.2) nominal in thickness and glazing molding to be 0.05" (1.3) thick.
  4. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront and entrance members are nominal and in compliance with AA Aluminum Standards and Data.
- B. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
- C. Provide adjustable glass jacks to help center the glass in the door opening.

## 2.3 Accessories

- A. Fasteners: Where exposed, shall be aluminum, stainless steel or plated steel.
- B. Gaskets: Glazing gaskets shall be extruded EPDM rubber.
- C. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

#### D. Standard Entrance Hardware

1. Weatherstripping:
  - a. Meeting stiles on pairs of doors shall be equipped with an adjustable astragal utilizing wool pile with polymeric fin.
  - b. The door weathering on a single acting offset pivot or butt hung door and frame (single or pairs) shall be Kawneer Sealair® weathering. This is comprised of a thermoplastic elastomer weathering on a tubular shape with a semi-rigid polymeric backing.
2. Sill Sweep Strips: EPDM blade gasket sweep strip in an aluminum extrusion applied to the interior exposed surface of the bottom rail with concealed fasteners (Necessary to meet specified performance tests).
3. Threshold: Extruded aluminum, one piece per door opening, with ribbed surface.
4. Butt Hinge: Kawneer Standard is Stainless Steel w/ Powder Coating & Non Removable Pin (NRP) (NOTE: EL Hinge available for access control)
5. Push/Pull: Style CO-9.
6. Exit Device: Panic Guard®.
7. The guard device of the Panic Guard exit system shall have a 1" x 1-3/4" retractable aluminum astragal bar with 1/2" (13) locking throw extending full height of the doors.
8. Closer: P&P LCN 2030/ No HO.
9. Security Lock/Dead Lock: Active Leaf.
10. Cylinder(s)/Thumbturn: See Hardware Specification 08710.

#### 2.4 Related Materials

- A. Sealants: Refer to Joint Treatment (Sealants) Section.
- B. Glass: Refer to Glass and Glazing Section.

#### 2.5 Fabrication

- A. General:
  1. Fabricate components per manufacturer's installation instructions and 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.

B. Entrance System Fabrication:

1. Door corner construction shall consist of mechanical clip fastening, SIGMA deep penetration plug welds and 1-1/8" (29) long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with EPDM glazing gaskets reinforced with non-stretchable cord.
3. Prepare components with internal reinforcement for door hardware.

2.6 Finishes

A. Factory Finishing, provide one of the following finishes in a matching color to the selected window colors. Colors to be provided during the submittal process.

1. Fluropon® (70% PVDF), AAMA 2605, Fluoropolymer Coating.
2. Kawneer Permادize® (50% PVDF), AAMA 2604, Fluoropolymer Coating.
3. Interpon® D2000, AAMA 2604, Powder Coating.

2.7 Source Quality Control

A. Source Quality: Provide aluminum storefront specified herein from a single source.

1. Building Enclosure System: When aluminum storefront is part of a building enclosure system, including entrances, entrance hardware, windows, curtain wall system and related products, provide building enclosure system products from a single source manufacturer.

B. Fabrication Tolerances: Fabricate aluminum storefront in accordance with framing manufacturer's prescribed tolerances.

PART 3 - EXECUTION

3.1 Examination

A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive storefront system and sill plate is level in accordance with manufacturer's acceptable tolerances.

1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

### 3.2 Installation

- A. General: Install framing and entrance system in accordance with manufacturer's instructions and AAMA storefront and entrance guide specifications manual.
  - 1. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
  - 2. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
  - 3. Weathertight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of construction.
  - 4. Provide alignment attachments and shims to permanently fasten system to building structure.
  - 5. Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.
  - 6. Set thresholds in bed of mastic and secure.
  - 7. Adjusting: Adjust operating hardware for smooth operation.
  
- B. Related Products Installation Requirements:
  - 1. Sealants (Perimeter): Refer to Joint Treatment (Sealants) Section.
  - 2. Glass: Refer to Glass and Glazing Section.
    - a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

### 3.3 Field Quality Control

- A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
  - 1. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
    - a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft<sup>2</sup>, which ever is greater.

- b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 psf (300 Pa).
- B. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

### 3.4 Protection and Cleaning

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants. Remove and replace damaged aluminum entrances at no extra cost.
- B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 08400





## SECTION 08615 - WINDOWS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SECTION INCLUDES

- A. Shop fabricated aluminum clad windows and sliding glass doors with fixed and operating sashes; shop glazed. Double hung, awning, round and sliding glass doors.
- B. Shop fabricated wood double hung windows.
- C. Operating hardware and insect screens.
- D. PVC surrounds in Fiber Cement Board siding.

#### 1.3 RELATED SECTIONS

- A. Section 06100 – Rough Carpentry.
- B. Section 07900 - Joint Sealers: Perimeter sealant and back-up materials.
- C. Section 09900 - Painting.

#### 1.4 REFERENCES

- A. ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
- B. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- C. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. ANSI/NWWDA IS-2 - Wood Windows.
- E. ANSI/NWWDA IS-4 - Water Repellant Preservative Non-Pressure Treatment for Millwork.

- F. ASTM D1784 - Rigid Poly (Vinylchloride) (PVC) Compounds and Chlorinated Poly (Vinylchloride) (CPVC) Compounds.
- G. FS L-S-125B - Screening, Insect, Nonmetallic.
- H. FS RR-W-365A - Wire Fabric (Insect Screening).

#### 1.5 SYSTEM DESCRIPTION

- A. Windows: Wood sections, shop fabricated, vision glass, related flashings, anchorage and attachment devices.

#### 1.6 PERFORMANCE REQUIREMENTS

- A. Conform to performance requirements of ANSI/NWWDA IS-2, Class 60.
- B. Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
- C. Limit member deflection to flexure limit of glass; with full recovery of glazing materials.
- D. System to accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
- E. Limit air leakage through assembly to 0.10 cfm/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E283.
- F. Vapor Seal with Interior Atmospheric Pressure of 1 inch sp, 72 degrees F, 40 Percent RH: No failure.
- G. Water Leakage: None, when measured in accordance with ASTM E331 with a test pressure difference of 2.86 lbf/sq ft.
- H. Maintain continuous air and vapor barrier throughout assembly, primarily in line with inside pane of glass and inner sheet of infill panel and heel bead of glazing compound.
- I. Drain water entering joints, condensation occurring in glazing channel, or migrating moisture occurring within system, to the exterior by a weep drainage network.

## 1.7 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work; installation requirements; and details.
- C. Product Data: Provide component dimensions, anchorage and fasteners, glass, internal drainage details.
- D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

## 1.8 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI/NWWDA IS-2.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Protect pre-finished surfaces with standard wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

## 1.10 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

## 1.11 WARRANTY

- A. Warranty: Provide 10 year warranty including coverage for delamination or separation of finish cladding from window member and glazing seal failure.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Eagle Windows and Doors. Provide windows with "Coastal Package" for installation in a coastal situation.

### 2.2 MATERIALS

- A. Wood: Clear ponderosa pine species, clear preservative treated to ANSI/NWWDA IS-4 of type suitable for opaque interior finish.
- B. Fasteners: Galvanized steel.
- C. Window surrounds for windows without Radius Top in Fiber Cement Board Siding and Panels
  1. Manufacturer materials: AZEK or equal.
  2. Head Casing: PVC 5/4x8
    - a. Surrounds in Fiber Cement Siding only to have AZEK Ram Crown, AZM-6934 at top of head casing.
  3. Jamb Casing: PVC 5/4X4.
  4. Sill Casing: AZEK Historic Sill AZM-6930.
  5. Provide integral J-Track to receive siding.
  6. All corners mitred.
  7. Surround to be shop fabricated with welded or glued corners and trim.
  8. Provide nailing fin or trim clip for blind fastening.
  9. Shop paint with paint specified in section 09900.

### 2.3 WINDOWS

- A. Refer to the drawings for window models and locations.
- B. Double Hung windows to be E-Tilt Double Hung Windows.
- C. Transom windows to be same profile of window below it.

### 2.4 COMPONENTS

- A. Frames and sashes:
  1. Exterior Windows.
    - a. Exterior side: Aluminum clad wood frames.
    - b. interior side: Wood frames.
  2. Casing:
    - a. In Architectural Stone veneer provide Sill Nosing.

- B. Jamb Liners.
  - 1. Exterior windows: Vinyl jamb liners with painted aluminum inserts for the exterior side and wood veneer wrapped vinyl inserts on the interior side.
  - 2. Interior frames: Vinyl jamb liners with wood veneer wrapped vinyl inserts on both side.
  - 3. Color: beige.
- C. Muntins:
  - 1. Exterior Windows: MDL, 1 1/8" profiled aluminum Between-the-Glass-Grilles muntin bars with exterior and interior applied 1 1/8" exterior simulated divided light grill in pattern shown on drawings. Between the glass muntin to be white.
- D. Sills:
  - 1. Exterior Windows: Aluminum Clad 1-5/8 inch nominal thickness, metal clad, sloped for positive wash; fit under sash to project 1-1/2 inch beyond wall face; one piece full width of opening.
- E. Insect Screens: Half screens. FS RR-W-365, woven fiberglass mesh.
- F. Operable Sash Weather Stripping: Resilient PVC; permanently resilient, profiled to effect weather seal.
- G. Fasteners: Galvanized steel.
- H. Jamb Extensions: Factory-applied to match wall width the window is installed in.
- I. Provide window manufacturer's standard nailing flanges for installation of windows in wood construction.

## 2.5 GLASS AND GLAZING MATERIALS

- A. Glass and Glazing Materials:
  - 1. Glass in Exterior Lights: Eagle Maximizer Plus, Type Low E insulated glazing with Argon gas.
  - 2. Provide tempered glass in sliding glass doors, inswing doors, windows in stairs, windows above tubs, in windows within 12" from edge of door and in windows within 18" from finished floor or from exterior grade.

## 2.6 SEALANT MATERIALS

- A. Sealant and Backing Materials: Manufacturer's standard.

## 2.7 HARDWARE

- A. Manufacturer's Corrosion Resistant Hardware except stainless steel rollers for the sliding glass doors.

## 2.8 FABRICATION

- A. Fabricate framing, mullions and sash members with mortise and tenon joints. Glue joints to hairline fit, weather tight.
- B. Finger joints permitted if wood matches in color and grain texture.
- C. Form sills in one piece. Slope sills for wash.
- D. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- E. Assemble insect screens of rolled aluminum rectangular sections. Miter and reinforced frame corners. Fit mesh taut in frame into frame and secured. Fit frame with two spring loaded plastic pins.
- F. Double weatherstrip exterior operable units.
- G. Shop glaze window units.

## 2.9 FINISHES

- A. Exterior Surfaces: Aluminum Clad Finish AAMA 2604.
  - 1. Refer to Memo Exterior Colors for window colors selected from manufacturer's standard colors.
- B. Interior Surfaces: Manufacturer's standard white primer.
- C. Screens: Charcoal color.
- D. Screen Frames: Match finish on sash
- E. Operators
  - 1. Windows: White
  - 2. Sliding glass doors and inswing doors: Brushed chrome.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify site opening conditions under provisions of Section 01039.
- B. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

### 3.2 INSTALLATION

- A. Install window frames, glass and glazing and hardware in accordance with manufacturers instructions. Provide window flashing as indicated on drawings.
- B. Attach window frame to perimeter opening to accommodate construction tolerances and other irregularities.
- C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances, aligning with adjacent work.
- D. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- E. Coordinate attachment and seal of perimeter air and vapor barrier materials.

### 3.3 ADJUSTING

- A. Adjust work to comply with manufacturer's specifications.
- B. Adjust operating hardware for smooth operation.

### 3.4 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove protective material from pre-finished surfaces.
- C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

END OF SECTION





## SECTION 08710 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. All door hardware, except that to be furnished by the door manufacturer and that specified elsewhere.
  - 2. Furnish and deliver all finish hardware necessary for all doors, also hardware as specified herein and as enumerated in hardware sets and as indicated and required by actual conditions at the building. The hardware shall include the furnishing of all necessary screws, bolts, expansion shields, drop plates and all other devices necessary for the proper application of the hardware.
- B. Related Sections:
  - 1. Steel Doors and Steel Frames: Elsewhere in Division 8.
  - 2. Standard Steel Doors and Wood Frames: Elsewhere in Division 8.
  - 3. Wood Doors: Elsewhere in Division 8.
  - 4. Hollow Core Flush Wood Doors: Elsewhere in Division 8.
  - 5. Division 6 Section " Finish Carpentry"
  - 6. Division 16 Section " Electrical"
- C. Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets.
  - 1. Windows
  - 2. Cabinets of all kinds, including open wall shelving and locks.
  - 3. Signs, except as noted.
  - 4. Toilet accessories of all kinds including coat hooks.
  - 5. Overhead doors (except cylinders where scheduled).

#### 1.3 REFERENCES

- A. BHMA A156.3-1989 -- American National Standard for Exit Devices; 1989.
- B. BHMA A156.7-1988 -- American National Standard for Template Hinge Dimensions; 1988.

- C. BHMA A156.12-1986 -- American National Standard for Interconnected Locks & Latches; 1986.
- D. BHMA A156.14-1991 -- American National Standard for Sliding and Folding Door Hardware; 1991.
- E. BHMA A156.16-1989 -- American National Standard for Auxiliary Hardware; 1989.
- F. BHMA A156.18-1987 -- American National Standard for Materials and Finishes; 1987.
- G. Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute (DHI); 1990.
- H. NFPA 80 -- Standard for Fire Doors and Windows; National Fire Protection Association; 1992 (with Errata dated October 6, 1992).
- I. Applicable state and local building codes.
- J. NFPA 101 – Life Safety Code
- K. NFPA 105 – Smoke and Draft Control Door Assemblies
- L. ICC (CABO)/ANSI A117.1 – Accessible and Usable Buildings and Facilities
- M. ADA – Americans with Disabilities Act
- N. DHI – Door and Hardware Institute, Sequence and Format for the Hardware Schedule
- O. Recommended Locations for Builders Hardware

#### 1.4 SUBMITTALS

- A. Make the following submittals in the order indicated, unless submitted simultaneously.
- B. Supplier Qualifications: To the architect, for information.
- C. Product Data: Manufacturer's data for each different piece of hardware, with installation instructions.

- D. Hardware Schedule: Show manufacturer's complete identification for every item for every door.
  - 1. Cross-reference to item names and designations in contract documents.
  - 2. Indicate door/frame materials and sizes.
  - 3. Explain number codes and abbreviations.
  - 4. Indicate hardware mounting heights or locations, if different from those specified.
  - 5. Indicate finish for each item.
  - 6. Preliminary schedule will be reviewed if accompanied by product data.
- E. Operation and Maintenance Data: For operating parts and finishes.
- F. Catalog Cuts: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- G. Key Schedule: After a keying meeting between representatives of the Owner, Architect, hardware supplier, and, if requested, the representative for the lock manufacturer, provide a keying schedule, listing the levels of keying, as well as an explanation of the key system's function, the key symbols used, and the door numbers controlled.
- H. Samples: If requested by the Architect, submit samples of each type of exposed hardware unit in the finish indicated, and tagged with a full description for coordination with the schedule.
  - 1. Samples will be returned to the supplier in like-new condition. Units that are acceptable to the Architect may, after final check of operations, be incorporated into the Work, within limitations of key coordination requirements.
- I. Templates: After final approval of the hardware schedule, provide templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware.
- J. Wiring Diagrams: After final approval of the hardware schedule, submit wiring diagrams as required for the proper installation of all electrical, electromechanical, and electromagnetic products.

## 1.5 QUALITY ASSURANCE

- A. Substitutions: Products are to be those specified to ensure a uniform basis of acceptable materials. Requests for substitutions must be made in accordance with Division 1 requirements. If proposing a substitute product, submit product data for the proposed item with product data for the specified item and indicate basis for substitution and savings to be made. Provide sample if requested. Certain products have been selected for their unique characteristics and particular project suitability.
1. Items specified as "no substitution" shall be provided exactly as listed.
  2. Items listed with no substitute manufacturers listed have been requested by the Owner or Architect to match existing for continuity and/or future performance and maintenance standards or because there is no know equal product.
  3. If no other products are listed in a category, then "no substitution" is implied.
- B. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Supplier Qualifications: A recognized architectural hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an accredited Architectural Hardware Consultant (AHC), who is available to the Owner, Architect, and Contractor, at reasonable times during the course of the Work for consultation.
- D. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.
- E. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwrites Laboratories, Intertek Testing Services, Factory Mutual, or other testing and inspecting organizations acceptable to the authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

- F. Provide permanent labels on all hardware except hinges, indicating the listing agency and conditions of the listing.
- G. Electronic Security Hardware: When electrified hardware is included in the hardware specification, the hardware supplier must employ an individual knowledgeable in electrified components and systems, who is capable of producing wiring diagrams and consulting as needed. Coordinate installation of the electronic security hardware with the Architect and electrical engineers and provide installation and technical data to the Architect and other related subcontractors. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

#### 1.6 PROJECT CONDITIONS

- A. Sequence submittal of hardware schedule and door and frame submittals, allowing adequate time for review and resubmittal, if required, so that construction is not delayed; provide adequate information for review.
- B. Provide hardware installation templates to installers of hardware and to fabricators of other work which is required to be prepared in the shop or factory for hardware installation.
- C. Coordinate shop drawings of other work so that proper preparation is made.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hardware at the times and to the locations required for timely installation.
- B. Package each item separately or in container with items of same set only.
- C. Mark each item or package with hardware set number from hardware schedule.
- D. Provide a locked storage area controlled by the contractor for hardware not yet installed; take special care to prevent loss of long-lead items.

## 1.8 WARRANTY

- A. When warranties are required, verify with Owner's counsel that special warranties stated in this Article are not less than remedies available to Owner under prevailing local laws. Coordinate with Division 1 Section "Warranties."
- B. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- C. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or faulty operation of operators and door hardware.
  - 2. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- D. Provide manufacturer's warranties as follows:
  - 1. Locksets 3 years Grade 1 & 2, 1 year for Grade 3.
  - 2. Closers: 10 years, except electronic closers, 2 years.
  - 3. Exit Devices: 3 years, except electrified devices, 1 year.
  - 4. Hinges: Life of the building.
  - 5. Continuous Hinges: 10 years.
  - 6. All other hardware: 1 year.
- E. No liability is to be assumed where damage or faulty operation is due to improper installation, improper use, or abuse.
- F. Products judged to be defective during the warranty period shall be replaced or repaired in accordance with the manufacturer's warranty, at no additional cost to the Owner.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Approval of manufacturers other than those listed shall be in accordance with paragraph 1.5.

- B. Note that even though an acceptable substitute manufacturer may be listed, the product must provide all the functions and features of the specified product or it will not be approved.

Item	Scheduled Manufacturer	Acceptable Substitute
Hinges	Hager	Stanley, Ives
Locksets & Deadlocks	Schlage (SCH)	Sargent, Yale
Cylinders & Keying	Schlage (SCH)	
Exit Devices & Mullions	Monarch	Von Duprin
Door Closers	Dorma, LCN	Dor-o-Matic
HC Door Operator	Von Duprin, LCN	
Push & Pull Plates & Bars	Hager	Ives, Rockwood
Flush Bolts & Coordinators	Rockwood	Hager, Ives
Protection Plates	Hager	Ives, Rockwood
Stops & Holders	Hager, Rockwood	Ives
Silencers	Ives	Hager, Rockwood
Thresholds & Weatherstrip	Hager	National Guard, Pemko, Reese
Key Cabinets	Telkee (TEL)	Lund, HPC

- C. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown. Where the hardware specified is not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having the same operation and quality as the type specified, subject to the Architect's approval.

## 2.2 MATERIALS - GENERAL

- A. Manufacturer's Names and Trade Names: Display of names, logos, or other identification is acceptable on lock or hinge edge of door, but not where visible on either face of door.
  - 1. Exception: Required fire labels.
  - 2. Exception: As directed by or acceptable to the architect.
  - 3. Exception: Manufacturer's name or other identification on rim of lock cylinders.
- B. Fasteners: Provide hardware prepared by the manufacturer with fastener holes for machine screws, unless otherwise indicated.
  - 1. Provide all fasteners required for secure installation.
  - 2. Select fasteners appropriate to substrate and material being fastened.
  - 3. Use flathead Phillips screws unless otherwise indicated.
  - 4. Use wood screws for installation in wood.
  - 5. Use fasteners impervious to corrosion outdoors and on exterior doors.
  - 6. Exposed screws: Match hardware finish.
  - 7. For hardware exposed when door is closed, use concealed fasteners unless otherwise indicated, and unless stock units of the item specified are not available for installation with concealed fasteners.
  - 8. Where it is not possible to reinforce substrate adequately for screws, use through-bolts with sleeves or use sex bolts.
    - a. Do not use where head or nut would be exposed on face of door, unless specifically indicated or made necessary by other requirements.
    - b. Finish exposed heads and nuts the same as hardware on that side of the door.
- C. Finish on All Exposed Metal Items: 626 satin chrome, except 625 bright chrome for interior of toilet rooms and bathrooms.
  - 1. Hinges: Where steel hinges are acceptable, use matching plated finish.
  - 2. Items specified with the same finish shall match as closely as possible using standard manufactured products.



3. Provide finishes matching BHMA A156.18 designations.

## 2.3 HINGES

### A. Manufacturers:

1. Butt hinges: Provide products complying with requirements of the contract documents and made by one of the following:
  - a. Hager Hinge Company.
  - b. Stanley Hardware Division/The Stanley Works.

### B. Butt Hinges: Hager Hardware.

1. Hager Hardware.
2. Products of other manufacturers listed above, provided they comply with requirements of the contract documents, will be considered.
3. Dimensions: As indicated, within limits prescribed by ANSI/BHMA A156.7.
  - a. Size(s): 4 1/2 by 4 1/2 inches, except at inside unit doors which shall be 3 1/2 by 3 1/2 inches.
  - b. Exception: Where both leaves are to be installed into wood, template size units are not required.
4. Hinge pins: Unless otherwise indicated:
  - a. Use steel pins for steel hinges.
  - b. Use stainless steel pins for nonferrous hinges.
  - c. Provide nonremovable pins or safety studs for out-swinging doors with keyed lock or exit only function.
  - d. Provide nonrising pins for interior doors.

## 2.4 LOCKS, LATCHES, AND BOLTS

### A. Manufacturers:

1. Locksets and latchsets: Provide products complying with requirements of the contract documents and made by one of the following:
  - a. Schlage Lock Company.
  - b. Yale Security, Inc.

### B. Bored Locksets and Latchsets: "L Series", Schlage Lock Company; "ND Series", Schlage Lock Company; "D Series", Schlage Lock Company; "S Series", Schlage Lock Company; "F Series", Schlage Lock Company.

1. Style: "07" for "L" Series; "Athens" for "D" Series; "Champagne" for "S" Series; "Champagne" for "F" Series.
2. Products of other manufacturers, provided they comply with requirements of the contract documents, will be considered for substitution.

- C. Strikes: Provide strike for each latch bolt and lock bolt.
  - 1. Finish to match other hardware on door.
  - 2. Use wrought box strikes with curved lips unless otherwise indicated.
  - 3. Open strike plates may be used on interior wood door frames.
- D. Electric Strikes: Provide as noted in electrical specifications.
  - 1. Finish to match other hardware on door.
  - 2. Coordinate electrical requirements with electrical work.
- E. Cylinder Locks: Provide for exit devices. Coordinate with door manufacturer.

## 2.5 LOCK CYLINDERS

- A. Cylinders: Minimum 5-pin pin tumbler cylinders.
  - 1. Construction: All parts brass, bronze, nickel silver or stainless steel.
  - 2. Provide standard cylinders for locks on all doors, unless otherwise indicated.
  - 3. Construction keying: Provide for lock-out of construction keys without replacement of cylinders, by using a construction master key.
  - 4. Provide construction keying for locks on all exterior doors.

## 2.6 DOOR CONTROL DEVICES

- A. Surface-mounted closers: Provide products complying with requirements of the contract documents and made by one of the following:
  - 1. Dor-o-Matic Inc..
  - 2. Dorma Door Controls Inc.
  - 3. LCN.
  - 4. Sargent, Inc.
- B. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron or cast aluminum cylinder. Cylinder body shall be 1 1/2" in diameter, and double heat-treated pinion shall be 11/16" in diameter.
- C. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.

- D. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
- E. All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
- F. Closers shall not incorporate a pressure relief valve.
- G. Closer cylinders, and arms shall have a powder coating finish which has been certified to exceed 100 hours salt spray testing by an independent testing laboratory used by BHMA for ANSI certification. For metal components that can't be powder coated, a special rust inhibiting finish (SRI) must be used.
- H. Unless closer mounting is specifically identified in hardware sets, closers shall be mounted on the side of the door which is least exposed to public view.

## 2.7 HC DOOR OPERATOR

- A. Doors with lockset (Where shown and if shown on drawings):
  - 1. This door shall be operable in three ways. Like a standard door with a key and then turn lever to open the door, the strike released through the intercom and then turn lever to open the door or by activating the actuator with a key on the outside and a push plate on the inside and the door automatically opened. See the hardware schedule on the drawings for the related hardware. The items listed here encompass the HC Door Actuator for each door.
    - a. (1) Power supply: Von Duprin, PS873 X2 AO.
    - b. (1) Closer: LCN, 4631 STD, Brass finish.
    - c. (1) Wall Plate : LCN, 7910-956.
    - d. (1) Key switch (outside): Locknetics, 653-0405, 619 finish, w/ Schlage 20-061 cylinder.

## 2.8 BIFOLD DOOR HARDWARE

- A. Bifolding Doors: Provide manufacturer's standard overhead track package
  - 1. Comply with requirements of BHMA A156.14.
  - 2. Track: Extruded aluminum.
  - 3. Hinges: Adjustable pivots at jambs; butt hinges between leaves

4. Top guide: Wheeled trolley or nylon guide.
5. Door aligners.
6. Bumpers.
7. Wire Pulls: One for each side of bi-fold opening.
8. Wire Pulls: 1"x4" Bright Brass install horizontally.

## 2.9 LATCH PROTECTOR

- A. The latch protector width shall be sufficient to cover latch. Material shall be steel shop primed ready to be painted in the field.

## 2.10 EXIT DEVICES

- A. Exit devices shall be touchpad type, fabricated of brass, bronze, stainless steel, or aluminum, plated to the standard architectural finishes to match the balance of the door hardware.
- B. All exit devices shall incorporate a fluid damper or other device which eliminates noise associated with exit device operation. Touchpad shall extend a minimum of one half of the door width. End-cap will have two-point attachment to door. Touch-pad shall match exit device finish, and shall be stainless steel for US32D finish. Only compression springs will be used in devices, latches, and outside trims or controls.
- C. All devices to incorporate a security deadlatching feature.
- D. Provide roller strikes for all rim and surface mounted vertical rod devices, ASA strikes for mortise devices, and manufacturer's standard strikes for concealed vertical rod devices.
- E. Mechanism case shall sit flush on the face of all flush doors, or spacers shall be furnished to fill gaps behind devices. Where glass trim or molding projects off the face of the door, provide glass bead kits.
- F. All non-fire-rated exit devices shall have hex key dogging.
- G. Removable mullions shall be of aluminum tube construction. Where scheduled, mullion shall be of a type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
- H. Where lever handles are specified as outside trim for exit devices, provide heavy duty lever trims with forged or cast escutcheon plates. Where scheduled, provide vandal-resistant levers that will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set. Lever style will match the lever style of the locksets.

- I. Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be UL labeled fire exit hardware.
- J. Provide electrical options as scheduled.
- K. Exit devices shall be successfully cycle-tested and certified for 1 million cycles by an independent testing laboratory.

#### 2.11 PUSH PLATES

- A. Push Plates: 8" wide x 16" high x .050" thick. Where door stile does not allow 8" wide plates, 4" wide plates may be used.

#### 2.12 DOOR PULLS AND PUSH BARS

- A. Door Pulls & Push Bars: Solid bar stock, diameter and length as scheduled. Push bars shall be of sufficient length to span from center to center of each stile.

#### 2.13 PROTECTION PLATES

- A. Protection Plates: Provide kick, mop, or armor plates as scheduled, with 4 beveled edges. Furnish with machine or wood screws, finished to match plates. Sizes of plates shall be as follows:

#### 2.14 DOOR STOPS AND HOLDERS

- A. It shall be the responsibility of the hardware supplier to provide door stops for all doors in accordance with the following requirements:
- B. Wall stops shall be used wherever possible.
- C. Where wall stops cannot be used, provide dome type floor stops of the proper height.
- D. At any opening where a wall or floor stop cannot be used, a heavy duty overhead stop must be used.
- E. Unit interior doors to have three hinge stops per door.

#### 2.15 THRESHOLDS AND WEATHERSTRIP

- A. Thresholds: Aluminum HC accessible threshold sized to match depth of associated frame.

## 2.16 SILENCERS

- A. "Push-in" type silencers for each hollow metal or wood frame, 3 for each single frame, 2 for each pair frame. Omit where gasketing is scheduled.

## 2.17 ELECTRIC MAGNETIC HOLDERS

- A. Magnetic Holders: Provide wall- or floor-mounted electromagnetic door release with a minimum of 25 pounds of holding force, and a positive release button to initiate the closing motion. Projection of holder and armature must be coordinated with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Where magnetic holders are used on fire-rated doors, they must be wired into the fire control panel for fail-safe operation.

## 2.18 ELECTRIC MAGNETIC LOCKS

- A. Magnetic Lock: Provide frame mounted electromagnetic door lock. Electromagnetic door locks shall be released by a key switch for entry and then reset upon entry. Magnetic locks are used on egress doors, so they must be wired into the fire control panel for fail-safe operation. When fire alarm is activated door lock must release for normal operation of the door without a key.
  1. (1) Key switch (garage side): Locknetics, 653-0405, 619 finish, w/ Schlage 20-061 cylinder.

## 2.19 KEYING

- A. Key System: Schlage Everest patented keyway, non-interchangeable core typically with interchangeable core type operating cylinders for panic hardware. Key blanks available only from factory-direct sources, not available from after-market key blank manufacturers. For estimate use factory GMK charge. Initiate and conduct meeting(s) with Owner to determine system keyway(s) and structure. Furnish Owner's written approval of the system.
  1. New factory registered master key system.
  2. Non-I.C. construction keying: inserted type partial key. At substantial completion, remove inserts in Owner's presence. Demonstrate consequent non-operability of construction key. Give all removed inserts and all construction keys to Owner.
  3. Furnish 10 construction keys.
  4. Furnish 2 construction control keys.
  5. Furnish 1 extractor tool 35-057.

6. Re-combine entire project at no extra expense to Owner if missing any key.
- B. Locks and cylinders: keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders same manufacturer.
- C. Permanent keys: secured shipment direct from point of origination to Owner.
- D. Bitting List: secured shipment direct from point of origination to Owner.
- E. Keying: Obtain the Owner's keying instructions.
  1. Key each lock as directed by the Owner.
  2. Provide 3 keys per lock, and a total of 6 master keys for each group.
  3. Provide 5 grandmaster keys.
  4. Extra blanks: 1 for each lock.

## 2.20 KEY CONTROL SYSTEM

- A. Provide a key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the Project.
  1. Provide complete cross index system set up by the hardware supplier, and place keys on markers and hooks in the cabinet as determined by the final key schedule.
  2. Provide hinged-panel type cabinet for wall mounting.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Non-fire-rated wood doors and wood frames may be field-prepared for installation; all other types of doors and frames are to be factory- or shop-prepared.

### 3.2 INSTALLATION

- A. Follow hardware manufacturer's recommendations and instructions.
- B. Install surface-mounted items after substrates have been completely finished; install recessed items and recessed portions of items before finishes are applied and provide suitable, effective protection.

1. When surface-mounted items are installed before final finish, remove, store, and reinstall, or apply suitable effective protection.
  - C. Mount at heights specified in the Door and Hardware Institute's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
    1. Exception(s):
      - a. As required by applicable regulations.
  - D. Install hardware in correct location, plumb and level.
  - E. Reinforce substrates as required for secure attachment and proper operation.
- 3.3 ADJUSTMENT
- A. Adjust each operable unit for correct function and smooth, free operation.
  - B. Adjust door closers to overcome air pressure produced by HVAC systems.
  - C. If hardware adjustment is completed more than one month before substantial completion, readjust hardware not more than one week before substantial completion.
- 3.4 INSTRUCTION OF OWNER'S PERSONNEL
- A. Instruct the owner's personnel in operation and maintenance of hardware, including finishes.
- 3.5 CLEANING
- A. Clean hardware; clean other work soiled during hardware installation.
- 3.6 CONTRACT CLOSEOUT
- A. Deliver all keys to the owner.
  - B. Deliver extra blanks to the owner.

END OF SECTION 08710



## SECTION 08800 - GLAZING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract from the front of the Specification book, including General Conditions, Supplementary General Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Monolithic glass.
  - 2. Insulating glass.
  - 3. Glazing gaskets.
  - 4. Glazing sealants.
  - 5. Glazing accessories.
- B. Types of work in this section include work for:
  - 1. Exterior doors.
  - 2. Interior doors.
- C. Related Sections:
  - 1. Glazing for exterior doors: Elsewhere in Division 8.
  - 2. Glazing for interior doors: Elsewhere in Division 8.

#### 1.3 REFERENCES

- A. AAMA 800-92 -- Voluntary Specifications and Test Methods for Sealants; American Architectural Manufacturers Association; 1992.
- B. ASTM C 509-93 -- Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material; 1993.
- C. ASTM C 834-91 -- Standard Specification for Latex Sealants; 1991.
- D. ASTM C 864-93 -- Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 1993.
- E. ASTM C 920-87 -- Standard Specification for Elastomeric Joint Sealants; 1987.

- F. ASTM C 1048-92 -- Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 1992.
- G. ASTM E 163-84 -- Standard Methods of Fire Tests of Window Assemblies; 1984.
- H. ASTM E 774-92 -- Standard Specification for Sealed Insulating Glass Units; 1992.
- I. Building Materials Directory; Underwriters Laboratories Inc. (UL); 1994.
- J. Glazing Manual; Flat Glass Marketing Association (FGMA); 1990.
- K. Sealant Manual; Flat Glass Marketing Association (FGMA); 1990.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Exterior Glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weathertightness, or deterioration.
  - 1. Design to accommodate thermal movement resulting from:
    - a. Air temperature range of 120 degrees F.
    - b. Material temperature range of 180 degrees F.
  - 2. Design to withstand wind loading as specified by applicable code for parts/portions of buildings.
    - a. Statistical probability of breakage: 8 per 1000, maximum, at 60-second wind load.
    - b. Failure includes loss or breakage of glass, due to wind load, exceeding that reasonably expected under the performance requirements specified.
- B. Deterioration includes:
  - 1. For insulating glass:
    - a. Moisture or dirt between panes.
    - b. Development of condensation between panes.
    - c. Damage to internal coating, if any.
    - d. Development of other visible indication of seal failure.
  - 2. For coated glass: Development of visible defects in coating.

#### 1.5 SUBMITTALS

- A. Product Data: Manufacturer's data, describing product characteristics, installation instructions and recommendations, and maintenance procedures.

- B. Certification by contractor, installer, glass fabricator, or manufacturer that glass thickness and heat treatment have been selected to provide the strength required to meet specified structural performance requirements.
- C. Certificates for each product, from manufacturer stating that product used on the project complies with specified requirements.
- D. Insulating Unit Warranty.
- E. Weathertight Warranty.

#### 1.6 QUALITY ASSURANCE

- A. Standard for Sealed Insulating Glass Units: ASTM E 774, with compliance certified by independent certification program.
  - 1. Label each unit permanently on spacer or on one pane.
  - 2. Certification agency:
    - a. Insulating Glass Certification Council (IGCC).
    - b. Associated Laboratories, Inc. (ALI).
    - c. Other agency acceptable to the architect.
- B. Standard for Fire-Resistance Rated Glass: ASTM E 163; each piece labeled by:
  - 1. Underwriters Laboratories Inc. (UL).
  - 2. Other agency acceptable to governing authorities.
- C. Certified Safety Glazing: Provide Category II products which comply with test requirements of 16 CFR 1201 and ANSI Z97.1 and permanently marked with label of:
  - 1. Safety Glazing Certification Council (SGCC).
  - 2. Other agency acceptable to governing authorities.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect products in accordance with manufacturer's recommendations; specifically, avoid damage to glass edges; prevent damage due to temperature changes, sunlight, and moisture.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Do not install glazing when either air or substrate temperature exceeds the range recommended by manufacturer or when substrate is wet, damp, or covered with snow, ice, or frost.

- B. Install bulk sealants only at air and substrate temperatures above 40 degrees F.

## 1.9 WARRANTY

- A. Submit a written warranty guaranteeing to correct failures in glazing which occur within the period indicated after substantial completion, without reducing or otherwise limiting any other rights to correction which the owner may have under the contract documents.
  - 1. Warranty on insulating glass: 5 years.
  - 2. Weathertight warranty: Signed by installer and contractor, for 5 years. Failure is defined as water leakage through glazing assembly. Correction may include repair or replacement.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Glass Manufacturers - General:
  - 1. Obtain materials from only one manufacturer or fabricator for each type; obtain tinted primary glass (if any) used for each type from only one manufacturer.
- B. Manufacturers:
  - 1. Insulating glass units: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
    - a. AFG Industries, Inc.
    - b. Cardinal IG Company.
    - c. Falconer-Lewistown, Inc.
    - d. Guardian Industries Corporation.
    - e. HGP Industries, Inc.
    - f. Inde-Pane, Inc.
    - g. Spectrum Glass Products, Inc.
    - h. Tempglass Division/Indal Ltd.
    - i. Viracon, Inc.

2. Primary float glass: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
  - a. AFG Industries, Inc.
  - b. Ford Glass Division/Ford Motor Company.
  - c. Guardian Industries Corporation.
  - d. Libbey-Owens-Ford Company.
  - e. Saint Gobain.
  
3. Heat-treated glass: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
  - a. AFG Industries, Inc.
  - b. Guardian Industries Corporation.
  - c. HGP Industries, Inc.
  - d. Spectrum Glass Products, Inc.
  - e. Tempglass Division/Indal Ltd.
  - f. Viracon, Inc.

## 2.2 GLASS TYPES

- A. Glass Types - General: Provide glass types fabricated of the glass products indicated.
  1. Select products to comply with performance requirements indicated, in accordance with manufacturer's recommendations.
  2. Exterior glass thickness: 6 mm (1/4 inch nominal), minimum.
  3. Interior glass thickness: 6 millimeter (1/4 inch nominal), unless otherwise indicated.
  4. Heat treatment for exterior glass: As recommended by glass manufacturer to provide strength necessary to resist specified loads.
    - a. Exception: Safety glazing requirements supersede this strength requirement.
  5. Fabricate glass with bite and edge clearance dimensions, including tolerances, as recommended by manufacturer and FGMA "Glazing Manual."
  6. Cut tempered glass to size and shape and drill holes prior to tempering.

- B. Glass Type I - 1 : Sealed insulating units.
  - 1. Total thickness: 5/8 or 3/4 inch, coordinate with glass frame.
  - 2. Exterior pane: Low-emissivity coated glass.
    - a. Fully tempered float glass.
    - b. Color: Clear.
    - c. Coating: Pyrolytic deposition type.
  - 3. On second surface.
  - 4. Interior pane: Transparent float glass.
    - a. Fully tempered float glass.
    - b. Color: Clear.
  - 5. Acceptable glazing methods:
    - a. Compression gaskets, both sides.
  - 6. Between the glass muntins in configuration shown on drawings.
  
- C. Glass Type S - 1 : Fire-resistance rated glass.
  - 1. Product: Wire glass, 20 minute rated, 1/4" thick.
  - 2. Wire in glass to be horizontal and vertical.
  - 3. Acceptable glazing methods:
    - a. Sealant, both sides.
  
- D. Interior Glass : Single pane units.
  - 1. Total thickness: 1/4 inch, nominal.
  - 2. Pane: Transparent float glass.
    - a. Fully tempered float glass.
    - b. Color: Clear.
  - 3. Acceptable glazing methods:
    - a. Compression gaskets, both sides.

## 2.3 BASIC GLASS PRODUCTS

- A. Sealed Insulating Units: Factory-assembled multiple panes separated by and sealed to spacers forming air-tight, dehydrated air space(s).
  - 1. ASTM E 774, Class A.
  - 2. Spacer seals: Manufacturer's standard.
  - 3. Spacer corner construction: Manufacturer's standard.
  - 4. Drying agent: Manufacturer's standard.
  
- B. Float Glass: Quality q3, unless otherwise indicated.
  - 1. Heat-strengthened: ASTM C 1048, Kind HS, Type I.
  - 2. Fully tempered: ASTM C 1048, Kind FT, Type I.
    - a. Tong marks are not permitted on any piece.

## 2.4 INSTALLATION MATERIALS

- A. Installation Materials - General: Select products which have appropriate performance characteristics as recommended by glass and glazing materials manufacturers and which are compatible with all materials with which they will come into contact.
- B. Exterior Glazing Sealant: Solvent-release curing butyl or acrylic sealant, or silicone or urethane sealant complying with ASTM C 920.
  - 1. Demonstrate compatibility and adhesion by preconstruction testing.
  - 2. Colors: As selected by the architect from manufacturer's standard colors.
- C. Heel and Toe Bead Sealant: Noncuring, nonskinning, minimum 75 percent solids, butyl or polyisobutylene rubber, complying with 802.3, Type II ductile back bedding compound, as described in AAMA 800.
- D. Interior Glazing Sealant: One-part, nonsag, acrylic-latex emulsion sealant complying with ASTM C 834, paintable.
- E. Sealant Tape: Precured, 100 percent solids butyl polyisobutylene rubber with internal spacer rod or of composition limiting compression to a maximum of 50 percent, complying with 806.3 or 807.3 tape, as described in AAMA 800.
  - 1. Size tape so that it is under compression when glazing is fully installed.
- F. Dense Compression Gaskets: Preformed neoprene, EPDM, or thermoplastic polyolefin rubber, complying with ASTM C 864.
  - 1. Select style and size so that soft gasket will be compressed at least 25 percent when glazing is fully installed.
- G. Soft Compression Gaskets: Black, preformed closed-cell neoprene, complying with ASTM C 509, Type II; shape and density to maintain seal.
  - 1. Sealant tape may be used in lieu of soft gaskets, at contractor's option.
- H. Glazing Blocks: Neoprene, EPDM, or silicone.
  - 1. Setting blocks: 80 to 90 Shore A hardness.
  - 2. Spacers: As required to provide face and edge clearances recommended by FGMA "Glazing Manual," unless greater clearances are recommended by glazing manufacturer.

- I. Backer Rods: Flexible, nonabsorbent, compressible polyurethane foam, either open-cell or non-gassing closed-cell, unless otherwise restricted by sealant manufacturer; preformed to appropriate size and shape.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine frames and rabbets in which glazing is to be installed for conditions that could be detrimental to the longevity of the glazing. In particular, check for conditions that would void the manufacturer's warranty.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean surfaces to receive glazing just before installation of glazing.

### 3.3 INSTALLATION - GENERAL

- A. Comply with recommendations for installation contained in the FGMA "Glazing Manual" and "Sealant Manual" except when specifically not recommended or prohibited by the glass or glazing material manufacturer; comply with manufacturer's recommendations.
- B. Protect glazing from edge damage during handling and installation.
- C. Do not install glass that has edge damage or defects that reduce glass strength or performance or diminish appearance.
- D. Install glass so that visual characteristics, such as pattern, bow, and roll wave distortion, are uniform.

### 3.4 GLAZING IN FRAMES

- A. Use continuous heel or toe bead at all exterior glazing.
- B. Permanently adhere setting and edge blocks to frame.
- C. Do not block weep holes.
- D. Sealants:
  1. Remove applied coatings from surfaces, unless such coatings have been tested to show acceptable adhesion and compatibility.



2. Use continuous spacers.
    - a. Exception: For lights of less than 100 united inches, non-continuous spacers may be used, with backer rods to form proper sealant shape.
  3. Use primer where required for proper adhesion.
  4. Tool sealant, eliminating air pockets, with a definite slope away from glazing.
- E. Sealant Tape: Install tape continuously, located so that when compressed the exposed face will be flush with the face of the framing.
1. Do not use joints in tape, except at corners.
  2. Seal joints with compatible sealant.
- F. Compression Gaskets: Secure gaskets so they will not work out under normal movement.
1. Install so they fit tightly at corners, allowing for stretch during installation.
  2. Do not use joints in gaskets, except at corners.
  3. Miter-cut corners and seal joint with sealant.
  4. Install gaskets so they protrude slightly past face of framing.

### 3.5 PROTECTION AND CLEANING

- A. Do not apply tape or labels to glazing; remove temporary labels.
- B. Protect glazing during subsequent construction operations; remove dirt, contaminants, staining agents and other deposits promptly using manufacturer's recommended procedures.
  1. Clean off excess sealants as work progresses using methods which will not damage glazing.
- C. Replace glazing that is damaged.
- D. Wash both sides of glazing, using manufacturer's recommended procedures not more than 10 days before inspection for substantial completion.

END OF SECTION 08800

