Section 08 14 00 - Flush Wood Doors

This section is written utilizing WDMA Premium grade as the quality standard. Refer to WDMA I.S. 1A-11 and LEED 2009 v3. Marshfield doors are used as the base for this section. Provision is made for adding other proprietary names of equivalent quality products.

The WDMA I.S. 1-A standard is a general industry standard that provides quality levels for the construction of architectural wood flush doors. Function, performance and aesthetics are combined in producing a wood flush door for a particular opening. WDMA standards require the designation of a performance duty level in addition to an aesthetic grade. Performance duty levels are based on the amount and severity of use. There are three levels of duty based on performance values of eight different attributes. It is the responsibility of the Specifier to select the best door for each application and environment.

Door types included in this section are solid core wood doors; non-rated and fire-rated, both neutral and positive pressure rated flush or glazed design; with or without louvers; wood veneer and high pressure door laminate; factory fitting, machining and factory finishing.

For additional information visit our web site http://www.marshfielddoors.com.

This section includes special door types such as acoustic and lead lined.

Section numbers are from MasterFormat 2004 Edition.

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid core veneer-faced doors.
2. High Pressure Decorative Laminate faced doors.
3. Low Pressure Decorative Laminate faced doors.
4. High impact acrylic modified vinyl faced doors.
5. Fire-resistant composite core doors.
6. Acoustic (STC) rated wood doors
7. Radiation shielded wood doors
8. Factory finishing.
9. [Factory glazing installation.] [Glazing stops and preparation of flush doors to receive glazing.]
10. Sizing by manufacturer.
11. Machining by manufacturer.

B. Related Requirements:
1. [Section 062023 "Interior Finish Carpentry] [Section 064800 "Wood Frames"] for wood door frames [including fire-rated wood door frames].
2. Section 083473 "Sound Control Door Assemblies" for acoustic flush wood door assemblies over STC 47.
3. Section 088000 "Glazing" for glass view panels in flush wood doors for [factory] [field] installation.
4. [Section 099123 "Interior Painting"] [and] [Section 099300 "Staining and Transparent Finishing"] for field finishing doors.
5. Section 134900 "Radiation Protection" for lead-lined flush wood doors not specified in this section.

1.3 PREINSTALLATION MEETINGS
A. Preinstallation Conference: Conduct conference at [Project site] <Insert location>.

1.4 ACTION SUBMITTALS
A. Product Data: For each type of door. Include details of core and edge construction, [louvers,] and trim for openings. [Include factory-finishing specifications.]

B. LEED Submittals:
1. Product Data: for Credit MR-4. For products having recycled content, provide documentation indicating percentage by weight of post-consumer and pre-consumer/post-industrial recycled content.

   a. Provide statement indicating cost for each material having recycled content.
   b. Provide third party certification for recycled content.

2. Product Data for Credit MR 5: For products and materials that comply with requirements for regional materials, documents indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material that contributes towards this credit. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.

3. Certificates for [Credit MR 6, LEED Core & Shell] [Credit MR 7]: Provide certificates of chain-of-custody by manufacturers, supplier, and distributors certifying that the products specified to be made from certified wood were made from wood.
obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2 Principals and Criteria. Include evidence that mill and distributor is certified for chain-of-custody by an FSC-accredited certification body. Include certification number. Wood products with FSC certification shall have material cost separated from other wood products. Installers of wood products are not required to have chain-of-custody certification.

4. Product Data for Credit IEQ 4.4: For adhesives and composite wood products, documentation indicating that product contains no added urea formaldehyde.

5. Laboratory Test Reports for LEED for Schools Credit IEQ 4.4: For composite wood products, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers." All composite wood and agrifiber products must meet this requirement. Provide products that are third party certified through SCS Indoor Advantage Gold.

C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Requirements for veneer matching.
6. Doors to be factory finished and finish requirements.
7. Fire-protection ratings for fire-rated doors.

D. Samples for Initial Selection: For [high pressure decorative laminate door faces] [and] [factory-finished doors].

E. Samples for Verification:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. [For each wood species and transparent finish, provide set of three samples showing typical examples of color and grain to be expected in finished work.]
2. Provide construction samples of doors, approximately 5 by 5 inches (125 by 125 mm), with door faces and vertical edges representing actual construction to be used.
   a. Provide unfinished samples for each species of veneer and required if factory furnishing is not required, approximately 8 by 10 inches (200 by 250 mm).
3. Louver blade and frame sections, minimum 6 inches (150 mm) long, for each material and finish specified.
4. Frames for light openings, minimum 6 inches (150 mm) long, for each material, type, and finish required.

1.5 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.
1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body when FSC Certified wood is specified.
   2. A qualified manufacturer that is a member in good standing of the Window and Door Manufacturers Association.

B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body when FSC Certified wood is specified.

C. Product Performance: Provide documents showing compliance to the following WDMA attributes, validating the specified WDMA Performance Duty Level:
   1. Adhesive Bonding Durability: WDMA TM-6
   2. Cycle Slam: WDMA TM-7
   3. Hinge Loading: WDMA TM-8
   4. Screw Holding: WDMA TM-10
      a. Door Face
      b. Vertical Door Edge
      c. Horizontal Door Edge (applies when hardware is attached)

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package factory-finished doors individually in manufacturer's standard plastic bags, stretch wrap, or cardboard cartons.

C. Mark each door on top rail with opening number used on Shop Drawings. Include manufacturer's order number and date of manufacture.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during remainder of construction period.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.
b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.

2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Marshfield DoorSystems, Inc. flush wood doors or a comparable product by one of the following:

1. Algoma Hardwoods, Inc.
2. Eggers Industries.
3. Marshfield DoorSystems
4. <Insert manufacturer's name>.

B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 FLUSH WOOD DOORS, GENERAL


B. Regional Materials: Where available based on inclusive list of approved manufacturers, flush wood doors shall be manufactured within 500 miles (800 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.

C. Certified Wood: Flush wood doors shall be certified according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard for Chain of Custody Certification." FSC claims are to be based on "new" wood contribution only. All recycled, reclaimed, and recovered material, even if it is FSC Recycled, must be applied towards the MR 4 credit.

D. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain added urea formaldehyde.

E. Low-Emitting Materials: Fabricate doors that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers." All composite wood and agrifiber products must meet this requirement. Prefer products that are third party certified through SCS Indoor Advantage Gold.

F. WDMA I.S.1-A Performance Grade: [Extra Heavy Duty] [Heavy Duty] [As indicated].
1. [All doors must meet specified WDMA Performance Duty Level, including face screw holding requirement. Surface applied hardware shall be installed with screws; through bolts are not acceptable.] [All doors must meet specified WDMA Performance Duty level, with the exception of face screw holding requirement. Surface applied hardware shall be installed with through bolts.]

G. WDMA I.S.1-A Performance Grade:
   1. Heavy Duty unless otherwise indicated.
   2. Extra Heavy Duty: [Classrooms] [public toilets] [janitor's closets] [assembly spaces] [exits] [and] [patient rooms] <Insert locations> [and where indicated].
      a. [All doors must meet specified WDMA Performance Duty Level, including face screw holding requirement. Surface applied hardware shall be installed with screws; through bolts are not acceptable.] [All doors must meet specified WDMA Performance Duty level, with the exception of face screw holding requirement. Surface applied hardware shall be installed with through bolts.]

H. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to [NFPA 252] [or] [UL 10C].
   1. Temperature-Rise Limit: [Where indicated] [At vertical exit enclosures and exit passageways], provide doors that have a maximum transmitted temperature end point of not more than 250 deg F (121 deg C) above ambient after 30 minutes of standard fire-test exposure.
   2. Cores: Provide core specified or fire-resistant composite core as needed to provide fire-protection rating indicated.
   3. Blocking: Provide composite blocking approved for use in doors of fire-protection ratings indicated as needed to maintain WDMA performance level and eliminate through-bolting hardware.
   4. Edge Construction: [Category A - intumescents included in door construction where required] [Category B - intumescents applied to frames by door installer where required].
   5. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals.
   6. Pairs: Provide formed-steel edges and astragals with intumescent seals as required.
      a. Provide steel edges and astragals primed for field painting.
      b. Provide veneer wrapped steel edges and astragals. Veneer shall be same specie as face.
      c. Finish steel edges and astragals with baked enamel, color as selected from manufacturer's standard offering.
      d. Provide stainless steel edges and astragals.

I. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

J. Dutch Doors:
   1. Provide Dutch doors with internal wood blocking, flush cut as required [without shelf] [with shelf. Shelf width shall be [8 inch] [10 inch] [12 inch] [as shown].
2. Provide 20 minute fire rating where indicated on door schedule.

K. Integrated Functional Surface Doors:
1. Basis of Design: “Marshfield Workable Surface Door”.
2. Provide surface specified on wide or narrow side of door as shown.
3. Surface shall be recessed into door face and factory installed with brass screws and matching molding. Surface dimension as shown and selected from manufacturer’s standard sizes.
4. Surface shall be [Bulletin Board, color as selected from manufacturers standard offering] [White Dry Erase Board] [White Magnet/Dry Erase Board] [Mirror]

L. Acoustic Rated Wood Doors – STC 30-47:
1. Provide core indicated or special construction core as required to meet STC rating indicated on door schedule. All STC ratings must be tested as operable.
2. Provide gasketing and [door shoe] [mortise door bottom] as required to meet manufacturers tested acoustic rating.
3. Hollow metal frames shall be fully grouted or packed with mineral wool where acoustic rated wood doors are installed.
4. The Sound Transmission Class (STC) specified shall be certified by the manufacturer to be based on tests conducted at an independent testing agency in accordance with ASTM E90-90 and E413-87.

M. Radiation Shielded Wood Doors
1. Provide manufacturer's standard construction radiation shielded doors with lead thickness of [1/16 inch (1.6 mm)] [1/8 inch (3.2 mm)] [as indicated in door schedule].
2. Provide wood/lead astragals on radiation shielded pairs in lead thickness indicated. Finish astragals to match face [veneer] [laminate].

N. Wood-Based Particleboard-Core Doors:
1. Provide wood-based particleboard core doors with a minimum density per ANSI A208.1, Grade LD-2 as required to meet WDMA Performance Duty level specified without added blocking.

O. Structural-Composite-Lumber-Core Doors:
1. Provide Structural Composite Lumber core as required to meet WDMA Performance Duty Level specified
2. [Provide Structural Composite Lumber core for doors with glass openings as required to meet stile dimensions shown on door schedule and elevations] [Provide Structural Composite Lumber core for all doors with the exception of 45-90 minute fire rated and sound rated doors]
   a. Screw Withdrawal, Face: 700 lbf (3100 N).
   b. Screw Withdrawal, Edge: 400 lbf (1780 N), or as required to meet WDMA performance level specified.
2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marshfield DoorSystems; "Signature Series" or a comparable product by one of the following:
   a. Algoma Hardwoods.
   b. Eggers Industries.
   c. <Insert manufacturer name>

2. Veneer Grade: [AA] [A].

3. Species: [African Mahogany] [Anigre] [Select white ash] [Select white birch] [Cherry] [Select white maple] [Red oak] [White oak] [Sapele] [Walnut] <Insert species>.

4. Cut: [Rotary cut] [Plain sliced (flat sliced)] [Quarter sliced] [Rift cut].


6. Assembly of Veneer Leaves on Door Faces: [Center-balance] [Balance] [Running] match.

7. Pair and Set Match: Provide for doors hung in same opening [or separated only by mullions], Provide sets up to four doors.

8. Special Veneer Selection: [None Required.] [Select veneers for similar color.] [Select veneers for similar grain.] [Select veneers for compatible grain.] [Select veneers for compatibility to control sample.] [Select veneers from <insert veneer supplier> lot/flitch number <insert lot/flitch number>.] [Select veneers for <insert number> inch wide inner flitch leaf widths.]


10. Exposed Vertical Edges: [Veneer of same species as face, bonded to structural composite lumber, concealing edges for crossband.] [Hardwood, of same or compatible species as face, minimum thickness of 1/2 inch (13 mm), bonded to structural composite lumber, leaving edges of crossband exposed.] [1/8 inch (3.2 mm) high impact edge bonded to structural composite lumber, color or wood grain as selected from manufacturer's standard offering.]

11. Horizontal Edges: Structural composite lumber. [Bond smooth PVC edgeband to structural composite lumber, providing cleanable surface.]

12. Core: Wood-based Particleboard, Structural composite lumber, fire-resistant composite, or specialty core as required per Article 2.2 and schedule.

13. Construction: Five plies. Stiles and rails are bonded to core, and then entire unit is abrasive planed before veneering.

14. WDMA I.S.1-A Performance Grade: As specified in Article 2.2.

2.4 DOORS FOR OPAQUE FINISH

A. Interior Solid-Core Doors <Insert drawing designation>:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Marshfield DoorSystems; "Signature Series" or a comparable product by one of the following:
   a. Algoma Doors
b. Eggers Industries

c. <Insert manufacturer name>

2. Grade: [Premium] [Custom].

3. Faces: MDO.

   a. Apply MDO directly to high-density fiberboard crossbands.

4. Exposed Vertical Edges: [Any closed-grain hardwood veneer, bonded to structural composite lumber.] [Any closed grain hardwood, minimum of 1/2 inch (13 mm), bonded to structural composite lumber.] [1/8 inch (3.2 mm) high impact edge bonded to structural composite lumber, color as selected from manufacturer's standard offering.]

5. Horizontal Edges: Structural composite lumber. [Bond smooth PVC edge band to structural composite lumber, providing cleanable surface.]

6. Core: Wood-based Particleboard, Structural composite lumber, fire-resistant composite, or specialty core as required per Article 2.2 and door schedule.

7. Construction: Five plies. Stiles and rails are bonded to core, and then entire unit is abrasive planed before veneering.

8. WDMA I.S.1-A Performance Grade: As specified in Article 2.2.

2.5 HIGH PRESSURE DECORATIVE LAMINATE-FACED DOORS

A. Interior Solid-Core Doors <Insert drawing designation>:

   1. Basis-of-Design Product: Subject to compliance with requirements, provide Marshfield DoorSystems,; "Signature Series" or a comparable product by one of the following:

      a. Algoma Hardwoods
      b. Eggers Industries
      c. <Insert manufacturer name>

2. Grade: [Premium] [Custom].

3. HPDL Faces: High-pressure decorative laminates complying with NEMA LD 3, [Grade HGS]. Vertical and post formable grade laminates are not acceptable.

4. Colors, Patterns, and Finishes: [As indicated] [As selected by Architect from laminate manufacturer's full range of products] [As selected from Wilson Art full range of products].

5. Exposed Vertical Edges: [High-pressure decorative laminate that matches faces, applied to structural composite lumber stile after faces] [1/8 inch (3.2 mm) impact-resistant edging, applied after faces, color selected from manufacturer's standard offering].

6. Horizontal Edges: Structural composite lumber. [Bond smooth PVC edge band to structural composite lumber, providing cleanable surface.]

7. Core: Wood-based Particleboard, Structural composite lumber, fire-resistant composite, or specialty core as required per Article 2.2 and door schedule.

8. Construction: Three plies. Stiles and rails are bonded to core, and then entire unit is abrasive planed before faces are applied.

9. WDMA I.S.1-A Performance Grade: As specified in Article 2.2.
2.6 HIGH IMPACT, ACRYLIC MODIFIED VINYL FACED DOORS

A. Interior Solid-Core Doors: <Insert drawing designation>:

1. Basis-of-Design Product: Subject of compliance with requirements, provide Marshfield DoorSystems; "Durable Door" or a comparable product by one of the following:
   a. Algoma Hardwoods
   b. Eggers Industries
   c. Marshfield DoorSystems “Durable Door”
   d. <Insert manufacturer name>

2. Grade: [Premium] [Custom].
3. WDMA Performance Grade I.S.1-A: Extra Heavy Duty.
4. Faces: Chemical-and stain-resistant, high-impact, acrylic modified vinyl faces. Color as selected from manufacturer’s full range of [solid colors] [wood grain patterns]
5. Vertical edges shall be 1/8 inch (3.2 mm) matching high impact acrylic material bonded to structural composite lumber. Removable edges are not permitted.
6. Horizontal Edges: Structural composite lumber [Bond smooth PVC edge band to structural composite lumber providing cleanable surface].
7. Core: Wood-based particleboard, structural composite lumber, fire-resistant composite, or specialty core as required per Article 2.2 and door schedule.
8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before faces and crossbands are applied.

2.7 LOW PRESSURE DECORATIVE LAMINATE FACED DOORS

A. Interior Solid-Core Doors: <Insert drawing designation>:

1. Basis-of-Design Product: Subject of compliance with requirements, provide Marshfield DoorSystems; "Perfect Match" or a comparable product by one of the following:
   a. Maiman
   b. Marshfield DoorSystems “Perfect Match Door”
   c. <Insert manufacturer name>

2. Grade: [Premium] [Custom].
3. WDMA Performance Grade I.S.1-A: [Heavy Duty] [Extra Heavy Duty]
5. Vertical edges shall be matching high impact acrylic material bonded to structural composite lumber.
6. Horizontal Edges: Structural composite lumber. [Bond smooth PVC edge band to structural composite lumber, providing cleanable surface.]
7. Core: Wood-based particleboard or fire-resistant composite as required per Article 2.2.
8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before faces and crossbands are applied.
2.8 LIGHT FRAMES AND LOUVERS

A. Factory Glazing: Refer to Section 088000 “Glazing” for glass view panels in flush wood doors. Factory install glass [as required] [in fire rated doors only]. Fill glazing bead nail holes in factory finished doors.

B. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard flush wood beads unless otherwise indicated.

1. Wood Species: [Same species as door faces] [Species compatible with door faces] [Any closed-grain hardwood].
2. Profile: [Flush rectangular beads, profile per Marshfield W-6] [Flush rectangular beads, profile per Marshfield W-7] [Flush rectangular beads, profile per Marshfield W-8] [Lipped tapered beads, profile per Marshfield W-2] [Lipped tapered beads, profile per Marshfield W-3] [Manufacturer's standard shape].
3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips as required and approved for such use.

C. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated. Profile per Marshfield Veneer Clad Light Bead, matching non-rated W-6 profile.

D. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch- (1.2-mm-) thick, cold-rolled steel sheet; [factory primed for paint] [with baked-enamel- or powder-coated finish]; and approved for use in doors of fire-protection rating indicated.

E. Wood Louvers: Door manufacturer's standard solid-wood louvers unless otherwise indicated.

1. Wood Species: [Same species as door faces] [Species compatible with door faces] [Any closed-grain hardwood].
2. Louver Type: [Flat slat] [Round slat] [Sight proof V-slat] [As indicated].

F. Metal Louvers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Air Louvers, Inc.
   b. Anemostat; a Mestek company.
   c. <Insert manufacturer's name>.
2. Blade Type: Vision-proof, inverted Y.
3. Metal and Finish: 18 gauge cold rolled steel, [factory primed for paint] [with manufacturer's standard color baked-enamel- or powder-coated] [with custom color baked enamel or powder coated] finish.

G. Louvers for Fire-Rated Doors: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire-protection rating of 1-1/2 hours and less.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Air Louvers Inc.
   b. Anemostat; a Mestek company.
   c. <Insert manufacturer's name>.

2. Metal and Finish: 18 gauge cold rolled steel, [factory primed for paint] [with manufacturer's standard color baked-enamel- or powder-coated] [with custom color baked enamel or powder coated] finish.

2.9 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.

1. Fabricate door and transom panels with full-width, solid-lumber[, rabbeted,] meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.

D. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in fire rated [and in doors indicated to be factory finished]. Comply with applicable requirements in Section 088000 "Glazing."

2.10 SHOP PRIMING

A. Doors for Opaque Finish: Shop prime faces and vertical edges with one coat of wood primer specified in [Section 099113 "Exterior Painting."] [Section 099123" Interior Painting."]

B. Doors for Transparent Finish: Factory finish door faces and vertical stile edges with stain (if required).
2.11 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces and vertical edges, seal top and bottom edges as required for warranty purposes

B. Factory finish doors.

C. Factory finish doors that are indicated to receive transparent finish.

D. Factory finish doors where indicated in schedules or on Drawings as factory finished.

E. Transparent Finish:

1. Grade: [Premium] [Custom].
2. Finish: Manufacturer's standard UV cured polyurethane, equal to WDMA TR-6 catalyzed polyurethane.
3. Staining: [Match Architect's sample] [As selected by Architect from manufacturer's full range] [None required].

F. Opaque Finish:

1. Grade: [Premium] [Custom].
3. Color: [Match Architect's sample] [As selected by Architect from manufacturer's full range].

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.

1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs. Any deficiencies must be corrected prior to door installation.
2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation, see [Section 087100 "Door Hardware."] [Section 087111 "Door Hardware (Descriptive Specification)."]
B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

1. Install fire-rated doors according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
   a. Comply with NFPA 80 for fire-rated doors.
   
2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
3. Trim bottom rail only to extent permitted by labeling agency.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

E. Factory-Finished Doors: Do not trim factory finished doors for width.

3.3 ADJUSTING

A. Operation: Correct any deficiency that prohibits the door from swinging or operating freely. Do not remove hinge screws after initial insertion. Shims used for alignment purposes must be inserted between hinge and frame. Do not insert shims between hinge and door.

B. To prevent stile failure, insure that door closers are properly adjusted and do not limit the door opening swing. Limit door opening swing only with a properly located stop.

C. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416