

BuildingName
The Description of the Project
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SPECIFICATION DIVISION 8

NUMBER SECTION DESCRIPTION

DIVISION 08 OPENINGS

SECTION 081416 - FLUSH WOOD DOORS

END OF CONTENTS TABLE

DIVISION 08 OPENINGS
SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

SEPTEMBER, 2005 - EXTENSIVE REVISIONS TO UPDATE QUALITY STANDARDS AND MANUFACTURERS, REALIGN STANDARDS FOR DOOR VENEERS, AND MODIFY INFORMATION ABOUT CORE CONSTRUCTION.

1.1 SUMMARY

- A. Work of this Section includes new solid core wood flush doors.

DELETE BELOW IF FACTORY FINISH IS DESIRED - FACTORY FINISH REQUIRES PRE-FIT DOORS.

- B. Work of Other Sections:

1. Hollow metal door frames are provided under Division 08 Section "Hollow Metal Doors and Frames."
2. Door hardware is provided under Section Division 08 Section "Door Hardware".

OMIT BELOW IF NO OTHER GLAZING IS INCLUDED IN PROJECT. IF ONLY INTERIOR GLAZING IS INCLUDED, CHANGE SECTION 088000 "GLAZING" AND SECTION 088010 "GLAZING (INTERIOR APPLICATIONS)".

3. Glass view panels in doors provided under Division 08 Section "Glazing".
4. Field finishing of wood doors is included in Division 09 Section "Painting".

USUALLY OMIT BELOW AND INCLUDE LOUVERS IN THIS SECTION, OR ELIMINATE IF NONE.

5. Door louvers provided under Division 08 "Louvers and Vents".

1.2 QUALITY ASSURANCE

- A. Woodworking Standards: In addition to requirements specified, comply with the latest edition of AWI "Architectural Woodwork Quality Standards Illustrated".

RETAIN PARAGRAPH BELOW IF FIRE-RATED DOORS ARE REQUIRED.

- B. 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 as close to neutral pressure as possible according to NFPA 252.
- C. Manufacturer: Obtain doors from a single manufacturer to ensure uniformity in quality of appearance and construction, unless otherwise indicated.

1.3 SUBMITTALS

- A. Product Data: Mfr's literature indicating compliance with requirements and installation instructions.

- B. Shop Drawings: Provide schedules and drawings indicating location, size, fire ratings, face materials, core construction, finishes, and elevations for each door required.

DELETE BELOW IF NO GLASS LITES OR OTHER CUTOUTS IN WOOD DOORS.

- 1. Coordination Drawings: Provide coordination drawings for each wood door. Indicate size and location of mortises and cut-outs, including those required for door hardware preparation, glass lites, louvers, and similar openings. Indicate any conditions that would violate manufacturer's special product warranty.
- C. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
- D. Samples for Verification: Factory finishes applied to actual door materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of 3 samples showing typical range of color and grain to be expected in the finished work.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced ANSI standard, as well as with manufacturer's instructions.

1.5 PROJECT CONDITIONS

- A. Environmental limitations: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with requirements of the referenced quality standard.

1.6 SPECIAL PRODUCT WARRANTY

- A. Provide the following special product warranty:
 - 1. On door mfr's standard form, signed by mfr, Installer and Contractor, agreeing to repair or replace defective doors as defined by referenced standards.
 - 2. Warranty shall be in effect during life of installation.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - Algoma Hardwoods Inc.
 - Eggers Industries, Architectural Products Div.
 - Haley Brothers, Inc.
 - Ipik Door Co.

Marshfield Door Systems Inc.
Mohawk Flush Doors Inc.
Oshkosh Architectural Door Co.
VT Industries, Inc.
Custom millwork firm complying with indicated requirements.

2.2 WOOD DOORS, GENERAL

BELOW FOR DOORS WITH TRANSPARENT FINISH. INCLUDE "B" BELOW FOR DOORS WITH PAINT GRADE FACES.

- A. Provide solid core interior flush doors for transparent finish and as follows:

1. Construction: AWI Custom, unless noted otherwise.
2. Exposed Surfaces: Same veneer on both faces of each door, and as follows:

SELECTIONS BELOW REPRESENT COMMONLY AVAILABLE VENEERS WITH A REASONABLE BALANCE BETWEEN APPEARANCE AND COST. SELECT ONE OR MORE PARAGRAPHS BELOW OR MODIFY SPECIES FOR A DIFFERENT APPEARANCE, BUT BE AWARE THAT UPGRADES MAY SIGNIFICANTLY ADD TO COST. BALANCED IN LIEU OF RUNNING MATCH CAUSES SUBSTANTIAL UPCHARGE DUE TO WASTE; AND RIFT OR QUARTER SAWN IN LIEU OF PLAIN SLICED OR ROTARY CUT MAY RESULT A SIGNIFICANT UPCHARGE.

- a. Faces: Plain sliced Red Oak veneer, A Grade; running; book or slip matched.
- b. Faces: Plain sliced White Maple, A Grade; running; book or slip matched.
- c. Faces: Plain sliced Walnut, A Grade; running; book or slip matched.
- d. Faces: Rotary cut White Birch (all sapwood); running; book or slip matched).

SELECT ONE OF THE FOLLOWING EDGE TYPES.

- e. Edges: Manufacturer's standard hardwood.
- f. Edges: Hardwood species matching faces.

SELECT APPROPRIATE CORE CONSTRUCTION TYPES FROM LIST BELOW. NOTE SPECIAL DOOR FOR LARGE CUT-OUTS LISTED BELOW.

3. Core Construction: Provide doors fabricated with core construction types as follows:

SELECT BELOW FOR MOST PROJECTS FOR SMOOTHER FACES, STANDARD MATCHING HARDWOOD EDGES, FINER EDGE DETAIL (2-PLY SKIN VS 3-PLY SKIN), AND BONDED CORE.

- a. Core Construction: PC-5 (Particleboard core, 5 ply); ANSI A208.1, Grade 1-LD-2.

DELETE ABOVE AND SELECT BELOW IF ECONOMY IS OF PARAMOUNT IMPORTANCE FOR PROJECT. PC-7 IS CONSIDERED TO BE LOWER QUALITY CONSTRUCTION.

- b. Core Construction: PC-5 or -7 (Particleboard core, 5-ply or 7-ply, at Contractor's option); ANSI A208.1, Grade 1-LD-2.

- c. Provide doors with structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

FOR DOORS WITH LARGE GLASS LITES SELECT CORE BELOW AND VERIFY AVAILABILITY WITH MANUFACTURERS. MOST PARTICLEBOARD CORE DOORS HAVE LIMITED GLASS SIZES AS A REQUIREMENT TO MAINTAIN WARRANTY.

- d. Core Construction: SCL-5 with special warranty for full glass application (Structural Composite Lumber, 5-ply).

BELOW FOR HOSPITAL PROJECTS ONLY.

- e. Core Construction: SCL-5 or -7 (Structural Composite Lumber, 5 or 7 ply).

DELETE BELOW IF NO WOOD FIRE DOORS.

- f. Fire Door Core Construction: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
 - 1) Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
 - 2) Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

DELETE ANY PARAGRAPHS BELOW WHICH DO NOT APPLY.

- 3) Fire Core Construction: FD 1-1/2 (90 min. fire door).
- 4) Fire Core Construction: FD 3/4 (45 min. fire door).
- 5) Fire Core Construction: FD 1/3 (20 min. fire door).

INCLUDE BELOW FOR PAINT-GRADE DOORS.

- B. Provide solid core interior flush doors for painted finish and as follows:

- 1. AWI Grade: Paint.
- 2. Exposed Surfaces: Medium Density Overlay.
- 3. Core Construction: PC-5 or -7 (Particleboard core, 5 or 7-ply).

DELETE BELOW IF NO FIRE-RATED PAINT-GRADE DOORS.

- 4. Fire Door Core Construction: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
 - a. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as need to eliminate through-bolting hardware.

- b. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

DELETE ANY PARAGRAPHS BELOW WHICH DO NOT APPLY.

- 1) Fire Core Construction: FD 1-1/2 (90 min. fire door).
- 2) Fire Core Construction: FD 3/4 (45 min. fire door).
- 3) Fire Core Construction: FD 1/3 (20 min. fire door).

2.3 LOUVERS AND LIGHT FRAMES

DELETE THE FOLLOWING IF NO LOUVERS OR LIGHT FRAMES ARE REQUIRED. RETAIN APPLICABLE TYPES. COORDINATE DRAWINGS IF MORE THAN ONE TYPE IS REQUIRED.

- A. Wood Louvers: Door manufacturer's standard solid wood louvers, species and finish to match door veneer, unless otherwise indicated, and of size indicated.
- B. Metal Louvers: Size, type, and profile shown and fabricated from the following:

SELECT APPLICABLE MATERIAL. DELETE OTHERS.

- 1. Galvanized Steel: 0.0396 inch (1.0 mm) thick; hot dip, zinc coated, and factory primed for paint finish.
- 2. Natural Aluminum: Extruded aluminum with natural-anodized finish complying with AA-M12C22A31, Class II.
- 3. Color-Anodized Aluminum: Extruded aluminum with AA-M12C22A32/34, Class II finish.
 - a. Color: Standard aluminum industry color(s) as indicated.

RETAIN APPLICABLE COLOR SELECTION ABOVE OR BELOW, OR DELETE BOTH AND INSERT SELECTED FINISH.

- b. Color: Match Architect's sample.

INSERT REQUIREMENTS FOR OTHER KINDS OF LOUVERS, GRILLES, AND VENTS AS REQUIRED.

- C. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.0478-inch- (1.2-mm-) thick cold-rolled steel sheet, factory primed for paint finish, and approved for use in doors of fire-protection rating indicated.

DELETE ABOVE OR BELOW OR BOTH IF NO LIGHT OPENINGS. IF FRAMES FOR NON-FIRE-RATED DOORS ARE REQUIRED, INSERT REQUIREMENTS. OTHER TYPES OF FRAMES ARE AVAILABLE FROM SOME MFRS. SEE EVALUATIONS.

- D. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered non-combustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated.

2.4 FABRICATION

A. Fabricate flush wood doors in sizes indicated. Produce doors complying with following requirements:

1. Produce doors for job-site fitting, except as otherwise required for fire-rating labeling.

RETAIN BELOW FOR PREFINISHED DOORS AND FIRE-RATED DOORS. FOR NON-RATED NON-PREFINISHED DOORS, FACTORY FITTING IS OPTIONAL.

IF BOTH JOB-SITE FITTED AND FACTORY-PREFIT AND PREMACHINED DOORS ARE INCLUDED, BE SURE TO SPECIFY TYPE FOR EACH DOOR IN THE DOOR SCHEDULE.

2. Factory-prefit and premachine fire-rated doors and other doors as indicated to fit frame opening sizes indicated.
 - a. Comply with requirements in NFPA 80 for fire-rated doors. Smoke and draft control door assemblies must be tested in accordance with UL 1784. Provide fitting clearances as required to meet the testing requirements of UL 1784 without the use of applied gasketing.

COORDINATE SIZES OF LIGHT OPENINGS WITH REQUIREMENTS OF MANUFACTURERS' WARRANTY. USE SCL CORE FOR OPENINGS EXCEEDING THE FOLLOWING:

DOOR LITE IS LESS THAN 42-INCHES ABOVE FLOOR AND DOOR STILE IS LESS THAN 10-INCHES WIDE.

CUT-OUT IS MORE THAN 40 PERCENT OF THE DOOR SURFACE AREA.

ANY CUT-OUT IS MORE THAN 54-INCHES IN LENGTH.

3. Openings: Cut and trim openings through doors in factory to comply with applicable requirements of referenced standards for kinds of doors required. Trim light openings with hardwood moldings of species matching door veneer and mfr's standard profile, except where metal trim is required for indicated fire rating.

FOR FIRE-RATED DOORS, ALWAYS RETAIN PARAGRAPH BELOW. FOR NON-RATED DOORS, FACTORY GLAZING IS RECOMMENDED.

- a. Factory install glazing.

THE FOLLOWING IS A MICHIGAN BARRIER FREE CODE REQUIREMENT.

- b. Regardless of cut-out locations shown on Drawings, provide flush panel at the bottom 10 inches of each door, in compliance with State of Michigan barrier-free design requirements.

RETAIN THIS ARTICLE IF FACTORY-FINISHING IS NOT REQUIRED FOR OPAQUE DOORS. FACTORY FITTING IS RECOMMENDED TO MINIMIZE DAMAGE TO SHOP-PRIMED DOORS.

2.5 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime doors with one coat of wood primer specified in Division 09 Section "Painting". Seal all four edges, edges of cutouts, and mortises with primer.

**DELETE ARTICLE BELOW IF FACTORY FINISHING IS NOT REQUIRED.
FACTORY PRE-FINISH CAN RESULT IN SUPERIOR QUALITY AND
COVERAGE.**

2.6 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, all four edges, edges of cutouts and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts and mortises.
- B. Finish wood doors at factory.

**BELOW IS FOR TRANSPARENT FINISH. OPAQUE FINISH ALSO AVAILABLE
- SEE AIA MASTERSPEC.**

- C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
1. Grade: Custom.
 2. Finish: AWI System TR-6 catalyzed polyurethane.

SELECT 1 REQUIREMENT FROM 2 BELOW.

3. Staining: None required.
4. Staining: Match approved sample for color.

**SELECT 1 REQUIREMENT FROM 2 BELOW. USUALLY RETAIN FILLED
FINISH.**

5. Effect: Open-grain finish.
6. Effect: Filled finish.

SELECT 1 REQUIREMENT FROM 2 BELOW.

7. Sheen: Satin.
8. Sheen: Semigloss.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
1. Verify that frames comply with indicated requirements for type, size, location and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
- B. Install wood doors to comply with manufacturer's instructions, referenced AWI standard, and as indicated.
 - 1. Install doors after installation of carpeting or other flooring materials.
 - 2. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

INCLUDE THE FOLLOWING FOR MOST PROJECTS.

- C. Job-Fit 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. Machine doors for hardware. Seal cut surfaces after fitting and machining.

RETAIN BELOW IF NON-FIRE-RATED DOORS ARE INCLUDED IN PROJECT.

- 1. Fitting Clearances for Non-Rated Doors: Provide 1/8-inch maximum at jambs, heads and at meeting stiles for pairs of doors; 1/2-inch maximum from bottom of door to top of decorative floor finish or covering; and 3/4-inch maximum from top of non-combustible floor unless otherwise indicated. Where threshold is shown or scheduled, provide 3/8-inch clearance from bottom of door to top of threshold.
- 2. Bevel non fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
- 3. Fitting Clearances for Fire-Rated Doors: Smoke and draft control door assemblies must be tested in accordance with UL 1784. Provide fitting clearances as required to meet the testing requirements of UL 1784 without the use of applied gasketing. Installation and clearances shall be in accordance with NFPA 80.

USUALLY DELETE BELOW - RETAIN IF DOORSE VERY RARE FOR UNIVERSITY WORK.

- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors which do not swing or operate freely.
- B. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 081416