

1 **SECTION 081416 – FLUSH WOOD DOORS**

2 **GENERAL**

3 **SUMMARY**

4 Provide the requirements of this Section in accordance with requirements of the Contract Documents.

5 Section Includes but is not limited to:

- 6 Five Ply wood veneer faced doors[and transom panels]for transparent finish
- 7 Five-ply flush wood doors [**and transom panels**] for opaque finish.
- 8 Fire-rated wood door frames.
- 9 Factory [**priming**] [**finishing**] flush wood doors.
- 10 Factory fitting flush wood doors to frames and factory machining for hardware.

11 Related Requirements:

- 12 Division 06 "Interior Architectural Woodwork" for wood door frames[**including 20 minute fire-rated**
- 13 **wood door frames**].
- 14 Division 06 Section ["**Flush Wood Paneling**"] ["**Interior Architectural Woodwork**"] for requirements
- 15 for veneers from the same flitches for both flush wood doors and flush wood paneling.
- 16 Division 08 Section "Hollow Metal Doors and Frames" for hollow metal frames.
- 17 Division 08 Section "Sound Control Door Assemblies" for acoustic flush wood doors.
- 18 Division 08 Section "Decorative Glazing" for glass view panels in flush wood doors.
- 19 Division 09 Section "Painting" for field finishing doors.
- 20 Division 13 Section "Radiation Protection" for lead-lined flush wood doors.

21 **PREINSTALLATION MEETINGS**

22 Preinstallation Conference: Conduct conference at Project site.

23 **ACTION SUBMITTALS**

24 Product Data: For each type of door, including the following:

- 25 Door core materials and construction.
- 26 Door edge construction
- 27 Door face type and characteristics.
- 28 Door louvers.
- 29 Door trim for openings.
- 30 Door frame construction.
- 31 Factory-machining criteria.
- 32 Factory-[**priming**] [**finishing**] specifications.

33 Sustainable Design Submittals:

- 34 Product Certificates for Credit [MR 3][MR 5]: For products and materials required to comply with
- 35 requirements for regional materials, certificates indicating location of material manufacturer and point of
- 36 extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost
- 37 for each regional material, and fraction by weight that is considered regional.
- 38 Product Certificates for Credit MR 5: For products and materials required to comply with requirements for
- 39 regionally manufactured[**and regionally extracted and manufactured**] materials. Include statement

indicating cost for each regionally manufactured material. First subparagraph below applies to LEED-CI Credit MR 5, Option 1 and Option 2.

Include statement indicating location of manufacturer and distance to Project for each regionally manufactured material.

Include statement indicating location of manufacturer and point of extraction, harvest, or recovery for each raw material used in regionally extracted and manufactured materials. Indicate distance to Project and fraction by weight of each regionally manufactured material that is regionally extracted.

Certificates for Credit [MR 3][MR 6][MR 7]: Chain-of-custody certificates indicating that flush wood doors comply with forest certification requirements. **[Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body.]** Include statement indicating cost for each certified wood product.

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

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

Laboratory Test Reports for Credit IEQ 4.1: For adhesives, 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."

Laboratory Test Reports for Credit IEQ 4.2: For paints and coatings, 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."

Laboratory Test Reports for 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."

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:

Door schedule indicating door **and frame** location, type, size, fire protection rating, and swing.

Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.

Details of frame for each frame type, including dimensions and profile.

Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.

Dimensions and locations of blocking.

Dimensions and locations of mortises and holes for hardware.

Dimensions and locations of cutouts.

Clearances and Undercuts.

Requirements for veneer matching.

Doors to be factory **[primed]** **[finished]** and finish requirements.

Fire-protection ratings for fire-rated doors.

Apply [AWI Quality Certification] [WI Certified Compliance] Program label to Shop Drawings.

Samples for Initial Selection: [plastic-laminate door faces] [polymer edging] [factory-finished doors] [and] [factory-finished door frames].

Samples for Verification:

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 range of color and grain to be expected in finished Work.]**

Plastic laminate, **6 inches (150 mm)** square, for each color, texture, and pattern selected.

90 Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges
91 representing actual materials to be used.

92 Provide Samples for each species of veneer and solid lumber required.
93 Provide Samples for each color, texture, and pattern of plastic laminate required.
94 Finish veneer-faced door Samples with same materials proposed for factory-finished doors.

95 Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
96 Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

97 INFORMATIONAL SUBMITTALS

98 Qualification Data: For door inspector.

99 Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
100 Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
101 Submit copy of DHI's Fire and Egress Door Assembly Inspector (FDAI) certificate.

102 Field quality-control reports.

103 Sample Warranty: For special warranty.

104 Woodwork Association Quality Assurance Program Documentation.

105 CLOSEOUT SUBMITTALS

106 Special warranties.

107 Quality Standard Compliance Certificates: [AWI Quality Certification] [WI Certified Compliance] Program
108 certificates.

109 Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door
110 accesses.

111 Certified Compliance Program Submittals:

112 Provide a Woodwork Institute Certified Compliance Certificate indicating the products installed and the
113 installation of these products fully meets the requirements of the Grade or Grades specified.

114 Monitored Compliance Program Submittals:

115 Provide a Woodwork Institute Monitored Compliance Certificate indicating the products installed and the
116 installation of these products fully meets the requirements of the Grade or Grades specified.

117 QUALITY ASSURANCE

118 Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standard," Latest Edition,
119 for grades of interior architectural woodwork, construction, finishes, and other requirements.

120 Architectural Woodwork Institute (AWI) Quality Programs:

121 Provide AWI Quality Certification Program [labels][certificates] indicating that woodwork[,
122 including installation,] complies with requirements of grades specified.
123 This project has been registered as AWI/QCP Number <Insert Number Here>.
124 Upon award of contract, register the Work under this Section with the AWI Quality Certification
125 program. (800-449-8811).

Woodwork Institute (WI) Quality Programs: Fees charged by the Woodwork Institute for their compliance programs are the responsibility of the millwork manufacturer and/or installer and shall be included in their bid.

Certified Compliance Program (CCP):

Before delivery to the jobsite, the woodwork supplier shall provide a Woodwork Institute CCP Certificate indicating the millwork products being supplied fully meet the requirements of the Grade or Grades specified.

Monitored Compliance Program (MCP):

Millwork and the installation thereof for this project shall be monitored for compliance to the Contract Documents by a Woodwork Institute Director of Architectural Services.

particulars of the Woodwork Institute MCP may be found at the Institute web site at www.woodworkinstitute.com or by calling the administrative office at (916) 372-9943.

Millwork, installation, or both found to be non-compliant (and not corrected) will be rejected.

Manufacturer Qualifications: A firm with no less than 5 years' experience in producing architectural woodwork similar to that indicated for this Project and whose products have a record of successful in-service performance, as well as sufficient production capacity to produce required units complying with the requirements of this Section.

Shop is a licensee of WI's Certified Compliance Program.

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

Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:

DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:

DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

DELIVERY, STORAGE, AND HANDLING

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

Package doors individually in [plastic bags or cardboard cartons] [cardboard cartons and wrap bundles of doors in plastic sheeting].

Mark each door on [**top and**] bottom rail with opening number used on Shop Drawings.

FIELD CONDITIONS

Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, 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] [43 and 70] [17 and 50]** percent during remainder of construction period.

WARRANTY

Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Delamination of veneer.

Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.

Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.

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

Warranty Period for Solid-Core Interior Doors: Life of installation.

Warranty Period for Solid-Core Exterior Doors: Two years from date of Substantial Completion.

PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following :

Marshfield-Algoma , by Masonite Architectural

Eggers Industries.

Oshkosh Door Company.

VT Industries, Inc.

Source Limitations: Obtain flush wood doors[**indicated to be blueprint matched with paneling**] [**and wood paneling**] from single manufacturer.

[Provide wood veneers of the species, cut, match and grain direction required, obtained from the same flitch as specified for Division 06 Section "Interior Architectural Woodwork".]

PERFORMANCE REQUIREMENTS

Fire-Rated Wood Door[**and Frame**] Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings, [**and temperature-rise limits**] indicated, based on testing at positive pressure according to [UL 10C] [or] [NFPA 252].

Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

Temperature-Rise Limit: At vertical exit enclosures, exit passageways, and elsewhere as indicated, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

200 **FLUSH WOOD DOORS[AND FRAMES], GENERAL**

201 Quality Standard: In addition to requirements specified, comply with [[AWI'S]/[AWMAC/WT's] "**Architectural**
202 **Woodwork Standards.**"] [WDMA I.S. 1A.]

203 Provide [labels] [and] [certificates] from [AWI] [WI] certification program indicating that doors[and
204 frames] comply with requirements of grades specified.

205 This project has been registered with AWI as AWI Quality Certification Program Number <Insert
206 number>.

207 Contractor shall register the Work under this Section with the AWI Quality Certification Program
208 at www.awiqcp.org or by calling 855-345-0991.

209 The Contract Documents contain requirements that are more stringent than the referenced quality standard.
210 Comply with the Contract Documents in addition to those of the referenced quality standard.

211 Regional Materials: Flush wood doors shall be manufactured within 500 miles (800 km) of Project site from
212 materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of
213 Project site.

214 Regional Materials: Flush wood doors shall be manufactured within 500 miles (800 km) of Project site.

215 Certified Wood: Flush wood doors shall be certified as "FSC Pure"[or "**FSC Mixed Credit**"] according to
216 FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard
217 for Chain of Custody Certification."

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

220 Low-Emitting Materials: Fabricate doors with composite wood products and adhesives that comply with the testing
221 and product requirements of the California Department of Health Services' "Standard Practice for the Testing of
222 Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

223 WDMA I.S.1-A Performance Grade: [Extra Heavy Duty] [Heavy Duty] [Standard Duty] [As indicated].

224 WDMA I.S.1-A Performance Grade:

225 Heavy Duty unless otherwise indicated.

226 Extra Heavy Duty: [Classrooms] [public toilets] [janitor's closets] [assembly spaces] [exits] [and] [patient
227 rooms] <Insert locations>[and where indicated].

228 Standard Duty: [Closets (not including janitor's closets)] [and] [private toilets] <Insert locations>[and
229 where indicated].

230 <Double click to insert sustainable design text for regional materials.>

231 <Double click to insert sustainable design text for certified wood.>

232 <Double click to insert sustainable design text for adhesives.>

233 <Double click to insert sustainable design text for composite wood products.>

234 Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.

235 Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply
236 with specified requirements for exposed edges.

237 Pairs Edge Construction:

238 Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-
 239 steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified
 240 requirements for exposed edges.
 241 Provide formed-steel edges and astragals with intumescent seals.
 242 Finish steel edges and astragals with baked enamel[**same color as doors**].
 243 Finish steel edges and astragals to match door hardware (locksets or exit devices).

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

246 Particleboard-Core Doors:

247 Particleboard: ANSI A208.1, Grade LD-2, made with binder containing no urea-formaldehyde.
 248 Particleboard: Straw-based particleboard complying with ANSI A208.1, Grade LD-2 or M-2, except for
 249 density.
 250 Blocking: Provide wood blocking in particleboard-core doors as[**needed to eliminate through-bolting**
 251 **hardware.**][**follows:**]

252 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
 253 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or
 254 armor plates.
 255 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.

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

258 Structural-Composite-Lumber-Core Doors:

259 Structural Composite Lumber: WDMA I.S.10.

260 Screw Withdrawal, Face: 700 lbf (3100 N).
 261 Screw Withdrawal, Edge: 400 lbf (1780 N).

262 Mineral-Core Doors:

263 Core: Noncombustible mineral product complying with requirements of referenced quality standard and
 264 testing and inspecting agency for fire-protection rating indicated.
 265 Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors
 266 of fire-protection ratings indicated as[**needed to eliminate through-bolting hardware.**][**follows:**]

267 5-inch (125-mm) top-rail blocking.
 268 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
 269 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
 270 [4-1/2-by-10-inch (114-by-250-mm) lock blocks] [5-inch (125-mm) midrail blocking], in doors
 271 indicated to have exit devices.

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

274 Screw-Holding Capability: [550 lbf (2440 N)][475 lbf (2110 N)][400 lbf (1780 N)] per
 275 WDMA T.M.-10.

276 **veneer-faced doors for transparent finish**

277 Exterior Solid-Core Doors <Insert drawing designation>:

278 Grade: [Premium, with Grade AA faces.][Custom (Grade A faces).]

Species: [Refer to Finish Legend][Anigre][Select white ash][Figured select white ash][Select white birch][Select red birch][Cherry][Select red gum][Figured select red gum][Select white maple][Red oak][White oak][Persimmon][Sapele][Sycamore] [Walnut]<Insert species>.
 Cut: [Rotary cut.] [Plain sliced (flat sliced).] [Quarter sliced.] [Rift cut.]
 Match between Veneer Leaves: [**Book**][**Slip**] match.
 Assembly of Veneer Leaves on Door Faces: [**Center-balance**] [**Balance**] [**Running**] match.
 Pair and Set Match: Provide for doors hung in same opening[**or separated only by mullions**].
 Exposed Vertical and Top Edges: [Same species as faces or a compatible species - edge Type A] [Same species as faces - edge Type A] [Applied wood-veneer edges of same species as faces and covering edges of faces - edge Type B] [Applied wood edges of same species as faces and covering edges of crossbands - edge Type D].
 Core: Structural composite lumber.
 Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
 Adhesives: Type I per WDMA T.M.-6.

Interior Solid-Core Doors <Insert drawing designation>:

Grade: [Premium, with Grade AA faces.][Custom (Grade A faces).]
 Species: [Refer to Finish Legend][Anigre] [Select white ash] [Figured select white ash] [Select white birch] [Select red birch] [Cherry] [Select red gum] [Figured select red gum] [Select white maple] [Red oak] [White oak] [Persimmon] [Sapele] [Sycamore] [Walnut] <Insert species>.
 Cut: [Rotary cut] [Plain sliced (flat sliced)] [Quarter sliced] [Rift cut].
 Match between Veneer Leaves: [**Book**][**Slip**] match.
 Assembly of Veneer Leaves on Door Faces: [**Center-balance**][**Balance**][**Running**] match.
 Pair and Set Match: Provide for doors hung in same opening[**or separated only by mullions**].
 Room Match: Match door faces within each separate room or area of building. Corridor-door faces do not need to match where they are separated by [**10 feet (3 m)**] [**20 feet (6 m)**] <Insert dimension> or more.
 Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
 Transom Match: [Continuous match][End match][As indicated].
 Blueprint Match: Where indicated, provide doors with faces produced from same flitches as adjacent wood paneling and arranged to provide blueprint match with wood paneling. Comply with requirements in Division 06 Section ["**Flush Wood Paneling.**"]["**Architectural Woodwork.**"]
 Exposed Vertical and Top Edges: [Same species as faces or a compatible species - edge Type A] [Same species as faces - edge Type A] [Applied wood-veneer edges of same species as faces and covering edges of faces - edge Type B] [Applied wood edges of same species as faces and covering edges of crossbands - edge Type D].
 Core: [Particleboard.] [Structural composite lumber.]
 Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

DOORS FOR OPAQUE FINISH

Exterior Solid-Core Doors <Insert drawing designation>:

Grade: [**Premium**][**Custom**].
 Faces: [MDO] [Any closed-grain hardwood of mill option].
 Apply MDO to [standard-thickness, closed-grain, hardwood face veneers] [or] [directly to high-density hardboard crossbands].
 Exposed Vertical[, **bottom**,] and Top Edges: Any closed-grain hardwood.
 Core: Structural composite lumber.
 Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

328 Adhesives: Type I per WDMA T.M.-6.

329 Interior Solid-Core Doors <Insert drawing designation>:

330 Grade: [**Premium**] [**Custom**].

331 Faces: [MDO] [Any closed-grain hardwood of mill option] [Hardboard or MDF].

332 Apply MDO to [standard-thickness, closed-grain, hardwood face veneers] [or] [directly to high-

333 density hardboard crossbands].

334 Hardboard Faces: ANSI A135.4, Class 1 (tempered) or Class 2 (standard).

335 MDF Faces: ANSI A208.2, Grade 150 or Grade 160.

336 Exposed Vertical[, **bottom**,] and Top Edges: Any closed-grain hardwood.

337 Core: [Particleboard.] [Structural composite lumber.]

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

339 veneering. Faces are bonded to core using a hot press.

340 **PLASTIC-LAMINATE-FACED DOORS**

341 Interior Solid-Core Doors <Insert drawing designation>:

342 Grade: [**Premium**][**Custom**].

343 Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS.

344 Colors, Patterns, and Finishes: [As indicated]<insert color, pattern and finish>.

345 Exposed Vertical[, **bottom**,] and Top Edges: [Hardwood edges for staining to match faces] [Hardwood

346 edges for painting] [Plastic laminate that matches faces, applied before faces] [Impact-resistant polymer

347 edging, applied after faces].

348 Polymer Edging Color: [**Beige**] [**Brown**] [**Same color as faces**].

349 Core: [Particleboard][Structural composite lumber].

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

351 faces and crossbands are applied. Faces are bonded to core using a hot press.

352 **LIGHT FRAMES AND LOUVERS**

353 Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise

354 indicated.

355 Wood Species: [Same species as door faces] [Species compatible with door faces] [Any closed-grain

356 hardwood].

357 Profile: [Flush rectangular beads] [Recessed tapered beads] [Recessed tapered beads with exposed

358 banding] [Lipped tapered beads] [Manufacturer's standard shape].

359 At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips

360 approved for such use.

361 Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered

362 noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating

363 indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating

364 indicated.

365 Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of **0.048-inch-** (1.2-

366 **mm-**) thick, cold-rolled steel sheet; [**factory primed for paint**] [**with baked-enamel- or powder-coated**] finish;

367 and approved for use in doors of fire-protection rating indicated.

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

369 Wood Species: [Same species as door faces] [Species compatible with door faces] [Any closed-grain
370 hardwood].

371 Metal Louvers:

372 Manufacturers: Subject to compliance with requirements, provide products by one of the following :

373 Air Louvers, Inc.
374 Anemostat; a Mestek company.
375 L & L Louvers, Inc.
376 McGill Architectural Products.

377 Blade Type: [Vision-proof, inverted V] [Vision-proof, inverted Y] [Darkroom-type, double inverted V].
378 Fire-Rated Doors: Metal louvers with fusible link and closing device, listed and labeled for use in doors
379 with fire-protection rating of 1-1/2 hours and less.
380 Metal and Finish: Hot-dip galvanized steel, 0.040 inch (1.0 mm) thick, [factory primed for paint] [with
381 baked-enamel- or powder-coated] finish.

382 FABRICATION

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

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

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

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

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

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

396 Openings: Factory cut and trim openings through doors.

397 Light Openings: Trim openings with moldings of material and profile indicated.
398 Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable
399 requirements in Division 08 Section "Glazing."
400 Louvers: Factory install louvers in prepared openings.

401 Exterior Doors: Factory treat exterior doors with water repellent after fabrication has been completed but before
402 [shop priming] [factory finishing].

403 Flash top of outswinging doors with manufacturer's standard metal flashing.

404 SHOP PRIMING

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

407 Doors for Transparent Finish: Shop prime faces and all four edges with stain (if required), other required
408 pretreatments, and first coat of finish as specified in Division 09 Section "Painting." Seal edges of cutouts and
409 mortises with first coat of finish.

410 **FACTORY FINISHING**

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

413 Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom
414 edges, edges of cutouts, and mortises.

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

416 Use only paints and coatings that comply with the testing and product requirements of the California Department of
417 Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using
418 Small-Scale Environmental Chambers."

419 Transparent Finish:

420 Grade: [**Premium**] [**Custom**].
421 Finish: AWT's, AWMAC's, and WT's "Architectural Woodwork Standards" [System 5, conversion varnish]
422 [System 9, UV curable, acrylated epoxy, polyester, or urethane] [System 10, UV curable, water based] [or]
423 [System 11, catalyzed polyurethane] <Insert finish designation>.
424 Staining: [Match Architect's sample] [None required].
425 Effect: [Open-grain finish] [Filled finish] [Semi-filled finish, produced by applying an additional finish
426 coat to partially fill the wood pores].
427 Sheen: [**Satin**] [**Semigloss**].

428 Opaque Finish:

429 Grade: [**Premium**] [**Custom**].
430 Finish: AWT's, AWMAC's, and WT's "Architectural Woodwork Standards" [System 5, conversion varnish]
431 [System 9, UV curable, acrylated epoxy, polyester, or urethane] [System 10, UV curable, water based] [or]
432 [System 11, catalyzed polyurethane] <Insert finish designation>.
433 Color: [Match Architect's sample] <insert color>.
434 Sheen: [**Satin**][**Semigloss**][**Gloss**].

435 **EXECUTION**

436 **EXAMINATION**

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

438 Verify that installed frames comply with indicated requirements for type, size, location, and swing
439 characteristics and have been installed with level heads and plumb jambs.
440 Reject doors with defects.

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

442 **INSTALLATION**

443 Hardware: For installation, see Division 08 Section "Door Hardware."

444 Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality
445 standard, and as indicated.

446 Install fire-rated doors according to NFPA 80.
447 Install smoke- and draft-control doors according to NFPA 105.

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

451 Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2
452 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where
453 threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless
454 otherwise indicated.

455 Comply with NFPA 80 for fire-rated doors.

456 Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
457 Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and rails only to extent
458 permitted by labeling agency.

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

460 Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

461 **ADJUSTING**

462 Operation: Rehang or replace doors that do not swing or operate freely.

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

465 **END OF SECTION**