



Flush Door Specifications

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Stile and Rail Specifications

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Substitution Request Form

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Welcome to our Architectural Specifications Section

Being a unique Wooden Architectural Door manufacturer, Cambridge Door Inc. is able to produce Architectural Flush, Stile & Rail Doors as well as a variety of frames & jambs that may be required for your project.

We are providing these basic specifications as a guide to aid in adapting your specific project requirements into a clear, comprehensive construction document.

1. Architectural Flush Doors
C.S.I. Section 8200 - A.W.I. Section 1300
2. Architectural Stile & Rail Doors
C.S.I. Section 8200 – A.W.I. Section 1400
3. Architectural Frames & Jambs
C.S.I. Section 8200 – A.W.I. Section 900

Also, in this section you will find our substitution request form for projects that we may not be in the original specification as well as our Certificate of Compliance.

In order to serve you better we suggest that you visit our web site at www.cambridgedoor.com for an electronic version of the following specifications with convenient drop down boxes to help you specify the exact product that you require.

PART 1 - GENERAL

1.1 INCLUDED SECTIONS

- A. Interior flush wood doors.
 - 1. 5/7-ply construction, bonded particle core.
 - 2. 5/7-ply construction, bonded structural composite lumber (SCL) core.
 - 3. 5/7-ply construction, fire rated, bonded mineral core.
 - 4. 5/7-ply construction, lead lined, bonded core.
 - 5. 5/7-ply construction, sound retardant, bonded core.

1.2 RELATED SECTIONS

- A. Section 06200 – Installation of wood doors & hardware.
- B. Section 06460 – Wood Frames.
- C. Section 08100 – Metal Frames.
- D. Section 08710 – Door Hardware.
- E. Section 08800 – Glazing.
- F. Section 10225 – Door Louvers.

1.3 REFERENCE STANDARDS

- A. AWI / AWMAC - Quality Standards of the Architectural Woodwork Institute (AWI) and the Architectural Woodwork Manufacturers Association of Canada (AWMAC)
- B. CAN / CSA-0132.2.2.0-90 General Requirements for wood flush doors
- C. NFPA 80 - Standard Methods for Fire Door Installations.
- D. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies.
- E. Underwriters' Laboratories - UL 10B (neutral pressure) and UL 10C (positive pressure) - Fire Tests of Door Assemblies.
- F. ITS (Warnock Hersey) - Certification Listings for Fire Doors.
- G. FSC - Forest Stewardship Council guidelines for environmentally certified wood doors.

1.4 SUBMITTALS

A. Product Data:

Submit the following manufacturer's technical data:

- 1. Specifications of construction and fabrication.
- 2. All glue types used.
- 3. Blocking details for hardware attachment.
- 4. Trim for light opening details and similar components.
- 5. Product details of factory finish.
- 6. Any or all performance data.
- 7. Installation instructions for each type of door.

B. Shop Drawings:

Submit the following information:

- 1. Door type(s).
- 2. Door size(s).
- 3. Fire Rating(s).
 - a) Neutral pressure – CAN/ULC S104, UL 10B
 - b) Positive pressure - UL 10C
- 4. Hardware types and locations.

5. Hardware blocking requirements and locations.
6. Vision panel or louver sizes and locations.
7. Pre-finish system type and approved colour(s).

C. Specific Product Warranty:

Provide manufacturers written warranty with the following conditions.

1. Doors shall be free of manufacturing defects such as delamination, warping, cupping or twisting.
2. Warranty shall provide for repair or replacement of the door(s) as originally furnished.
3. Manufacturer shall elect to repair or replace defective door(s) and may, per its discretion, use either its own or third party resources to resolve warranty claims.

D. Samples:

Provide manufacturers samples not less than 8" X 11" in size.

1. Construction samples.
 - a) Corner sections of a door with the face, edge, and core representing the specified door type(s).
2. Finish samples.
 - b) Factory finish applied to a veneer sample representing the various natural characteristics of the specie specified, and of the colour requested.

1.5 QUALITY ASSURANCE

- A. **Manufacturer:** Must be a member in good standing of the Architectural Woodwork Manufacturers Association of Canada.
 1. A company specializing in manufacturing products specified with a minimum of five years documented experience.
 2. A company capable of manufacturing all doors for the entire project.
- B. **Quality Standard:** Architectural Woodwork Quality Standards, Eighth Edition, 2003. Section 1300.
- C. **Fire Ratings:** Fire-rated wood doors to comply with NFPA-80 requirements and according to building code standards having local jurisdiction.
 1. Neutral Pressure - CAN/ULC S104; UL10B, NFPA 252, and ASTM E-152
 2. Positive Pressure - UBC 7-2-97 or UL10C to be approved when aesthetic situations are required, such as no metal edges for pairs or transoms.
- D. **Label Certification:** All doors requiring fire ratings will carry either UL or ITS (Warnock Hersey) label. Manufacturer's certification labels may be used for door size variations if approved by AHJ (Authority Having Jurisdiction).
- E. **Environmental Certification:** When requiring environmental certification, the manufacturer must provide a Forest Stewardship Council (FSC) authorized certification, e.g. Smartwood approval and certificate number.
- F. **Delivery/Storage/Handling:** Store and protect doors in accordance with manufacturer's recommendations which must include the following;

1. Do not subject doors to extremes in either heat or humidity. HVAC systems must be operational and balanced, providing a temperature range of 10 to 25 degrees Celsius with relative humidity between 30 to 50%.
2. Store doors 3 ½" off the floor on a flat level surface in a dry, well-ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.
3. Protect doors from exposure to light (artificial or natural) with a dark protective cover after delivery.
4. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean gloves.

1.6 WARRANTY

Provide manufacturer's signed warranty covering manufacturing or material defects for the life of the original installation, including repair, replacement, machining details or pre-finishing, as a part of the manufacturer's warranty.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

The following manufacturers are pre-approved for work in this section:
Cambridge Door Inc.
Premdor Inc.
Sauder Industries Ltd.

2.2 DOOR CONSTRUCTION

A. STANDARD RATED AND NON-RATED DOORS

General Grade Specification – Refer to the Architectural Woodwork Quality Standards Section 1300 for more specific grade definitions.

Grade Specified:

- Premium Grade
- Custom Grade

Premium - The highest grade commercially available in both material and workmanship. This is intended for the finest commercial, industrial and institutional buildings.

Custom - The typical and normal grade in both material and workmanship. This grade is intended for high-quality work.

- 1) Construct with either 5/7 Ply materials securely bonding the stiles and rails to the core using radio frequency methodology.
- 2) Abrasive plane bonded core materials prior to face application.

1. Core Materials:

- ❑ PC 5/7 using LD-2 Particle Core.
- ❑ SCLC 5/7 using Structural Composite Lumber Core.
- ❑ ENVC 5/7 using LD-1 Agrifibre Core
- ❑ FD 5/7 using Fire Proof Mineral Core.
- ❑ HC 5/7 using Honey Comb Cell Cardboard Core.

a. Particleboard Core - (PC-5/7) to comply with ANSI Standard A208.1 LD-2, with screw holding power of 125 lbs., modulus of rupture of 800 psi, modulus of elasticity of 150,000 psi and density of 30-35 lbs. per cubic foot.

b. Structural Composite Lumber Core - (SCLC-5/7) Structural composite lumber an engineered hardwood composite material with performance levels for screw holding power of 540 lbs, modulus of rupture of 6,500 psi, modulus of elasticity of 1,300,000 psi and density of 38 lbs per cubic foot.

c. Agrifibre Core – (ENVC-5/7) to comply with ANSI Standard A208.1 LD-1 with NO urea formaldehyde used in the composition.

d. Mineral Core - (FD-5/7) Non-combustible mineral composite material that is necessary for fireproof ratings.

e. Hollow Core - (HC-5/7) a pre-manufactured cardboard honeycomb cell product with cells not less than 1” in width.

2. Cross bands - wood-based composites with a maximum thickness of 1/16” having properties with an internal bond of 100 psi and a density of 50 lbs. per cubic foot.

3. Stiles (Vertical Edges) – Outer stiles must be one-piece ¼” hardwood (after trimming) laminated to 1” structural composite lumber. Doors supplied with veneered outer stiles will be rejected.

Stile Type Specified:

- ❑ Matching
- ❑ Compatible
- ❑ Plastic Laminate

a. Matching - Same species as face veneer.

b. Compatible – Hardwood selected for compatibility with the face veneer

c. Plastic Laminate - Matching laminate applied to the stiles prior to faces, when specifying plastic laminated doors.

4. Rails (Horizontal Edges) – Rails must be 1 3/8” structural composite lumber for 5 ply doors. 1 3/8” FJ Pine allowed for 7 ply doors. Fire doors must be as per manufacturers specifications for rating required.



5. Hardware Blocking – When blocking is required for hardware applications, structural composite lumber is to be used on non-rated doors. Fire doors must be of a mineral product capable of providing rating required as well as improved screw holding power.

Blocking Requirements Specified:

- Minimum 5 in. Top Rail
- Minimum 5 in. Bottom Rail
- Minimum 5 in. Center Rail
- Minimum 5 in. x 18 in. Lock Block

6. Face Veneers –

a. 7-ply products will be hardboard for opaque finishes. Wood veneer can be P/S Red Oak B/R, or Rotary Birch B/R, (Natural or White).

b. 5-ply products will be Medium Density Overlay, (MDO) for opaque finishes. All foreign or domestic wood veneer must be 1/50" (0.5mm) in thickness with 12% moisture content.

Veneer Cut Specified:

- Rotary Cut
- Plain Sliced
- Rift Cut
- Quarter Cut

Veneer specie Specified:

Select desired specie

Veneer Match Specified:

- Book
- Slip

Veneer Assembly Specified:

- Balance
- Center
- Running

Face Grade Specified:

- AA Grade
- A Grade

7. Door Pairs

For 5-ply product, openings with pairs of doors must be pair matched.

8. Set or Sequence Match

When more than one pair of doors are in close proximity of each other, all faces must be set matched. This includes doors separated by a mullion. If set matching is not possible, then sequence matching shall be acceptable.

9. Transom Panels

Option to be supplied with continuous or end matching.

ENVIRONMENTALLY CERTIFIED DOORS –

Environmentally certified doors must be authorized under authority of the Forest Stewardship Council (FSC) to meet FSC requirements as pertaining to certified sourcing, content and chain-of-ownership requirements for materials used in construction of the doors.

B. Special Function Doors

- 1) **Sound Transmission Classification (STC)** – STC ratings must be determined through testing to comply with ASTM E90-90 methods. The door manufacturer must supply any accessories required to meet the specified acoustical rating.
STC Rating Specified:
 - STC-44

- 2) **Lead-Lined** – All specified lead doors to have continuous lead sheeting from edge to edge between the cross banding and the core on both faces. Lead thickness as specified below.
 - 1/32 in. Sheets
 - 1/16 in. Sheets

- 3) **Bullet Resistant** – Bullet resistant doors to be manufactured with special ballistic rated materials within the core assembly. Protection levels per UL752 as specified below.
 - Level 1 Bullet Resistance
 - Level 2 Bullet Resistance
 - Level 3 Bullet Resistance

2.3 DOOR FABRICATION

- A. Factory-prefit and bevel doors** (3°) to suit frame sizes indicated, with 1/4" pre-fit in width, + 0"/- 1/32", tolerances. Prefit top of door 1/8" +1/16"/-0", and undercut as designated by floor condition. For fire-rated doors comply with NFPA 80 for pre-fits and undercuts.

- B. Factory pre-machine doors for hardware** that is not surface applied. Locations and hole patterns to comply with specified hardware requirements as per NFPA 80 standards for specified doors and to maintain door manufacturer's warranty.
 1. Specific hardware preps will be per hardware schedule(s) provided. Hardware preps to be neatly and cleanly squared as required per hardware templates.
 2. Metal astragals and channels to be supplied where fire-ratings will not allow metal-free edge(s).

- C. Factory Preparation for Light Openings and Louvers** - Cut and trim openings through doors to comply with NFPA 80 requirements where indicated and to maintain door manufacturer's warranty.

1. **Wood beads** to match face veneer. Profiles to match throughout project, both rated and non-rated doors from manufacturer's standard selection.
 2. **Wood louvers** to match face veneer.
 3. **Metal vision panels and louvers** to be supplied pre-primed.
- D. Surface Applied Mouldings** - Factory applied moulding frames to be the same specie as the face veneer. Profile and configuration per door manufacturers standard. Moulding frames to be applied with both glue and nail(s).

2.4 Finishing

- A. Factory Finishing** – All doors to be factory finished with UV cured Catalyzed Polyurethane. The performance characteristics must be equivalent to TR-6 or OP-6 per AWI Section 1500 Premium grade. Factory finished doors to be individually protected with either transparent or (opaque for, cherry, mahogany, teak, walnut) poly-wrap at the factory.

PART 3 - EXECUTION

3.1 Examination

- A.** Confirm that frames comply with type, size, location and swing requirements and that they are installed plumb and square.
- B.** Inspect doors for any damage, manufacturing defects or prefinished inconsistency, e.g. wrong color or poor finish.

3.2 Installation

Install doors after examination is completed and in accordance to door manufacturers installation instructions and NFPA 80 regulations.

3.3 Adjusting and Protecting

- A.** Ensure that doors swing freely and that hardware functions properly.
- B.** If required, protect doors after installation from damage that may occur due to project completion.



PART 1 - GENERAL

1.1 INCLUDED SECTIONS

- A. Interior/Exterior stile and rail wood doors.
- B. Factory finishing for stile and rail wood doors.
- C. Factory fitting stile and rail wood doors to frames and machining for hardware.

1.2 RELATED SECTIONS

- A. Section 06200 – Installation of wood doors & hardware.
- B. Section 06460 – Wood Frames.
- C. Section 08100 – Metal Frames.
- D. Section 08710 – Door Hardware.
- E. Section 08800 – Glazing.
- F. Section 10225 – Door Louvers

1.3 REFERENCE STANDARDS

- A. AWI / AWMAC – Quality Standards of the Architectural Woodwork Institute (AWI) and the Architectural Woodwork Manufacturers Association of Canada (AWMAC).
- B. ANSI / WDMA Quality Standard current edition.
- C. NFPA 80 – Standard Methods for Fire Door Installations.
- D. NFPA 252 – Standard Methods of Fire Tests for Door Assemblies.
- E. Underwriters Laboratories – UL 10B (neutral pressure) and UL 10C (positive pressure) – Fire Tests of Door Assemblies.
- F. ITS (Warnock Hersey) – Certification Listings for Fire Doors.
- G. FSC – Forest Stewardship Council guidelines for environmentally certified wood doors.

1.4 SUBMITTALS

A. Product Data:

Submit the following manufacturer's technical data:

1. Specifications of construction and fabrication.
2. All glue types used.
3. Product details of factory finish.
4. Any or all performance data.
5. Installation instructions for each type of door.

B. Shop Drawings:

Submit the following information:

1. Door type(s).
2. Door size(s).
3. Fire Rating(s).
 - a) Neutral pressure – CAN/ULC S 104, UL 10B
 - b) Positive pressure – UL 10C
4. Hardware types and locations.
5. Cope and stick details.
6. Panel details.
7. Grain directions.
8. Pre-finish system type and approved colour(s).

C. Specific Product Warranty:

Provide manufacturers written warranty with the following conditions.

1. Doors shall be free of manufacturing defects such as delamination, warping, cupping or twisting.
2. Warranty shall provide for repair or replacement of the door(s) as originally furnished.
3. Manufacturer shall elect to repair or replace defective door(s) and may, per its discretion, use either its own or third party resources to resolve warranty claims.

D. Samples

Provide manufacturers samples not less than 8" X 11" in size.

1. Construction Samples.
 - a) Corner section of a door showing the cope and stick with the specified panel inserted.
2. Finish samples.
 - a) Factory finish applied to a veneer sample representing the various natural characteristics of the specie specified, and the colour requested.

1.5 QUALITY ASSURANCE

A. Manufacturer: Must be a member in good standing of the Architectural Woodwork Manufacturers Association of Canada.

1. A company specializing in manufacturing products specified with a minimum of five years documented experience.
2. A company capable of manufacturing all doors for the entire project.

B. Quality Standard: Architectural Woodwork Quality Standards, Eighth Edition, 2003. Section 1400.

C. Fire Ratings: Fire-rated wood doors to comply with NFPA-80 requirements and according to building code standards having local jurisdiction.

1. Neutral Pressure – CAN/ULC S104: UL 10B, NFPA 252, and ASTM E-152.
2. Positive Pressure – UBC 7-2-97 or UL 10C to be approved when aesthetic situations required, such as no metal edges for pairs or transoms.

D. Label Certification: All doors requiring fire ratings will carry either UL or ITS (Warnock Hersey) labels. Manufacturers certification labels may be used for door size variations if approved by AHJ (Authority Having Jurisdiction).

E. Environmental Certification: When requiring environmental certification, the manufacturer must provide a Forest Stewardship Council (FSC) authorized certification, e.g. Smartwood approval and certificate number.

- F. Delivery/Storage/Handling:** Store and protect doors in accordance with manufacturer's recommendations which must include the following;
1. Do not subject doors to extremes in either heat or humidity. HVAC systems must be operational and balanced, providing a temperature range of 10 to 25 degrees Celsius with relative humidity between 30 to 50%.
 2. Store doors 3 ½" off the floor on a flat level surface in a dry, well ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.
 3. Protect doors from exposure to light (artificial or natural) with a dark protective cover after delivery.
 4. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean gloves.

1.6 WARRANTY

Provide manufacturer's signed warranty covering manufacturing or material defects including repair, replacement, machining details or pre-finishing as a part of the manufacturer's warranty.

- A. **INTERIOR DOORS** - for the life of the original installation.
- B. **EXTERIOR DOORS** - for three years.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

The following manufacturers are pre-approved for work in this section:

Cambridge Door
The Maiman Company
Madawaska Doors

2.2 DOOR CONSTRUCTION

Refer to the Architectural Woodwork Quality Standards Section 1400 for specific grade definitions.

A. Interior non-rated Doors

1. Stiles and rails must be constructed using structural composite lumber (SCL) core, laminated to ¾" outer hardwood edges matching 1/16" grade "A" face veneer.
2. Standard joints shall have ½" X 4" grooved dowels in addition to the standard cope and stick joinery.
3. All muntin bars must have ¼" X 2 ¼" dowels at every joint.
4. Flat panels to be 5/8" thick veneered medium density fibreboard.
5. Raised panels to be 1 1/8" thick rim banded with mitred hardwood.
6. Doors must be assembled under pressure using type-1 glue.

B. Interior Rated Doors

1. Cores to be constructed using fire proof materials for ratings required up to 90 minutes.
2. Doors to look like non-rated doors.

C. Exterior Doors

1. Stiles and rails must be constructed using solid lumber.
2. The top, middle and bottom rails must be joined using mortise and tenon dovetail joinery.
3. Standard joints shall have ½" X 4" grooved dowels in addition to the standard cope and stick joinery.
4. All muntin bars must have ¼" X 2 ¼" dowels at every joint.
5. Flat panels are to be 5/8" thick with an exterior grade core.
6. Raised panels must be 1 5/8" in total thickness.
7. Raised panels to be constructed using two outer plies of solid wood with an inner ply of flexible material. The joints of the solid wood outer plies are to stagger from face to face.
8. Doors must be assembled under pressure using type-1 waterproof glue.
9. If factory finished, panel raises or edges must be pre-finished and have a bead of silicone caulking around their perimeter prior to assembly.

2.3 FABRICATION

- A. Fabricate stile and rail wood doors in sizes indicated for Project-site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard and NFPA 80 for fire-rated doors for fitting.
- C. Factory machine doors for hardware that is not surface applied.
- D. Glazed Openings: Glaze doors at factory with glass of type and thickness indicated, complying with Division 8 Section "Glazing." Glaze doors using solid wood moldings for non-rated and 20 minute fire-ratings. For 45, 60 and 90 minute fire-rated doors, glaze using veneered fireproof materials.
- E. Transom and Side Panels: Fabricate panels to match adjoining doors in materials, finish, and quality of construction.

2.4 FACTORY FINISHING

- A. Finish interior doors at factory with conversion varnish having performance characteristics equivalent to TR-6 per AWI Section 1500 premium grade.
- B. Finish Exterior doors at factory with a high-grade exterior finish system.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Confirm that frames comply with type, size, location, swing requirements and that they are installed plumb and square.
- B. Inspect doors for any damage, manufacturing defects or pre-finished inconsistency, e.g. wrong color or poor finish.

INSTALLATION

Install doors in after proper examination is complete and in accordance to manufacturers installation instructions and NFPA 80 regulations

3.3 ADJUSTING and PROTECTION

- A. Ensure that doors swing freely and that hardware functions properly.
- B. If required, protect doors after installation from damage that may occur due to project completion.



Cambridge Door Inc.
SUBSTITUTION REQUEST FORM
(Fax To: 519-621-0059)

Date: _____

Request Number: _____

Project: _____

From: _____

To: _____

Specification Type: _____

Proposed Substitution: _____

Manufacturer: Cambridge Door Inc. 111 Savage Rd. Cambridge Ontario, Can. N1T 1S5

PH: 519-621-0550

FX: 519-621-0059

Attached data includes product description, specifications, drawings, and test data adequate for evaluation of the request.

The undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal to, or superior to, in all aspects of the specified products.
- An upgraded or equivalent warranty will be furnished for proposed substitution.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and/or functional clearances.

Reason for not providing specific material: _____



Cambridge Door Inc.
SUBSTITUTION REQUEST FORM

(Fax To: 519-621-0059)

Cambridge Door Inc. is an active member of A.W.I. and W.D.M.A. (N.W.W.D.A.). All of our products meet or exceed the specification for the above named project. We have supplied other projects of similar scope and have had favorable results. Cambridge Door Inc, is one of the oldest door manufacturers in North America and has survived the test of time with knowledge and experience.

Below is a list of projects supplied by Cambridge Door Inc.

- _____ Distributed by _____
- _____ Distributed by _____
- _____ Distributed by _____
- _____ Distributed by _____
- _____ Distributed by _____

Submitted by: _____

Address: _____

PH: _____ FX: _____

Signed by: _____