
SPECIFICATION FOR ARCHITECTURAL WOOD DOORS

This document is intended to provide the architect and specification writer with a long-form specification for **Architectural Grade Doors** based on the AIA and CSI format.

The “Notes to the Specifier” are intended to provide additional information on various options available, or pertinent comments and recommendations relative to a particular part of the specification.

Haley manufactures a wide variety of wood doors for the architectural, commercial, and residential door markets. The architect should review the complete line of Haley wood doors before deciding which door type best fits the needs of the project being designed.

Haley’s Architectural Service Staff is available to answer questions and assist in the proper preparation of wood door specifications. If we can be of assistance, contact Haley by email at hb@haleybros.com or telephone at 800-854-5951 and ask for an Architectural Tech Representative.

**ARCHITECTURAL SPECIFICATIONS
FLUSH WOOD DOORS
SECTION: 08211**

PART 1 – GENERAL

1.1 DESCRIPTION

A. RELATED DOCUMENTS: Applicable portions of Bidding Requirements, Contract Forms, Conditions of the Contract, and Division 1 – General Requirements are a part of this section.

B. SCOPE: Provide labor, materials, facilities and administration required to furnish, install and complete all work covered by this section which may include, but not limited to:

1. Hollow-core and solid-core flush wood doors
2. Fire-rated flush wood doors
3. Acoustical flush wood doors
4. Lead-lined flush wood doors
5. Decorative laminate flush wood doors

C. RELATED SECTIONS: Coordinate related work specified in other parts of the Project Manual including, but not limited to:

1. Section 06200, "Finish Carpentry"
2. Section 08100, "Hollow Metal Doors and Frames"
3. Section 08275, "Door Louvers and Vision Lights"
4. Section 08710, "Finish Hardware"
5. Section 08800, "Glass and Glazing"
6. Section 09900, "Painting"
7. Section 13090, "Radiation Protections"

1.2 QUALITY ASSURANCE

A. STANDARDS: Wood doors shall be manufactured to meet or exceed one or more of the following standards:

1. Window and Door Manufacturing Association (W.D.M.A.), Industry Standard I.S.1A (latest edition).
2. Architectural Woodwork Institute (AWI), Quality Standards, Section 1300.
3. Woodwork Institute (W.I.) Section 20 – Quality Standard.
4. Door and Hardware Institute (DHI), Wood Door Hardware Standards, Series WDHS-1/WH DHS-3 and Series W1/W9, Installation Guide for Doors and Hardware.
5. National Electrical Manufacturers Association (NEMA), *Performance, Application, Fabrication, and Installation of High Pressure Decorative Laminates*.

B. REGULATORY AGENCIES: Wood fire doors shall be listed and labeled by a nationally recognized testing and certification agency in accordance with applicable building codes and acceptable to the AUTHORITY HAVING JURISDICTION. The listed doors shall meet or exceed the requirements of ASTM E-152, UBC, UL-10(b), or NFPA 252.

NOTES TO THE SPECIFIER

While specific technical requirements may be listed in other sections of the specifications, all wood doors should be specified in Section 08211 with reference to the related sections.

PART 1 – GENERAL (Cont.)

1. Warnock Hersey International (WHI), Underwriters Laboratories (UL) or California State Fire Marshall (CSFM) for classification markings where applicable.
2. National Fire Protection Association (NFPA), "Standard for Fire Doors and Windows" (NFPA #80), Fire & Life Safety Code (NFPA-101) Smoke & Draft Doors (NFPA-105).

NOTES TO THE SPECIFIER

C. CERTIFICATION: provide wood doors from a single manufacturer. Doors shall be marked as follows:

1. Provide each door with a label or stamp on the top edge which includes a project reference number.
2. Provide each fire-rated or sound-rated door with a label permanently attached to the top rail or hinge stile indicating the testing agency's approval for the rating classification required.

1.3 SUBMITTALS

A. SHOP DRAWINGS: See DIVISION 1 Requirements.

1. Indicate sizes, species, cut, grade, core construction, swings, and fire-rated label requirements.
2. Indicate hardware machining information.
3. Indicate dimensions and detail openings for lights and louvers.
4. Indicate any deviation that will void the manufacturer's warranty and/or fire label requirements.

It is important to understand each manufacturer's procedure for fire doors will vary depending on what has been tested and approved by the listing agency.

B. PRODUCT DATA:

1. Include manufacturer's door construction data for each core construction specified.
2. Include manufacturer's warranty sheet along with delivery and storage procedures.
3. Include data sheets from the door supplier, manufacturer or distributor, stating the doors to be supplied meet all requirements of the specifications. Variances from the specifications must be listed.

There are many material and construction options which a manufacturer may choose in the manufacturing of their products. The specifications must *clearly* define exactly what is required to meet the project's design objectives

C. SAMPLES:

1. Submit corner samples (if requested) showing face, edge and core construction for each type specified.
2. Submit plywood or veneer samples approximately 8" x 10" representing each species and cut specified. Submit samples with manufacturer's factory finish or factory prime coat applied if applicable.
3. Extra doors will be required for verification of specification compliance as directed by the architect.

In order to verify the products supplied do meet the specs, the architect should require one or two extra doors for those door types of large quantity. The actual doors selected for verification should be pulled from the doors supplied by random selection.

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PART 1 – GENERAL (Cont.)

1.4 DELIVERY, STORAGE AND HANDLING

A. STANDARD: W.D.M.A.: “How to Store, Handle, Finish, Install and Maintain Wood Doors.”

B. DELIVERY:

1. Doors shall be factory wrapped in polyethylene bags, unitized and palletized. Each pallet is to be shrink or stretch wrapped and have corner guards for protection.
2. Each door is to be marked with architectural opening number for distribution and installation. Upon receipt of wood doors, the contractor is to inspect materials for defects of damage and immediately report any doors that require replacement.
3. Do not deliver doors to the project until proper storage space is available.

C. STORAGE:

1. Store doors in an assigned space having controlled temperature and humidity as recommended by W.D.M.A.
2. Store doors flat on factory pallets or on three full 2X4's, one centered and the other two 12 " from each end.
3. Protect doors from construction activity with plywood and store away from direct sunlight.
4. Notify architect that manufacturer's storage procedures are followed.

D. HANDLING:

1. Always handle doors with clean hands or gloves.
2. Do not drag doors across one another.
3. Maintain factory packaging or other means of protection of doors until date of substantial completion.

1.5 WARRANTIES

A. Provide manufacturer's limited warranty against manufacturing defects (i.e. warp, delamination, telegraphing) as outlined by W.D.M.A. I.S.1.1. Copy of manufacturer's standard warranty to be included with architectural submittals.

B. WARRANTY IN EFFECT FOR THE FOLLOWING TIME PERIODS.

Construction	Interior Use	Exterior Use
Hollow Core	One Year	N/A
Solid Core	Lifetime	N/A
Lead Lined	Lifetime	N/A
Mineral Core	Lifetime	N/A
Acoustical	Lifetime	N/A

NOTES TO THE SPECIFIER

Wood doors are a perishable product and are easily damaged. Therefore they should be delivered and installed during the final finishing phase of the project in order to reduce the possibilities for damage by other building trades on the project.

Doors manufactured for use as interior architectural grade wood doors should be covered by a lifetime warranty without an extra charge, including a stated allowance for re-hanging and refinishing.

PART II – PRODUCTS

NOTES TO THE SPECIFIER

2.1 ACCEPTABLE MANUFACTURERS

Subject to compliance with section requirements, provide the doors from a single manufacturer as follows:

Haley Bros., Inc.
6291 Orangethorpe Ave.
Buena Park, CA 90620
TEL. 714-670-2112
FAX 714-994-6971

or other manufacturers approved by the architect 30 days prior to bid date.

2.2 MATERIALS AND COMPONENTS

- A. CORE:** Refer to drawings and door schedule for size, thickness type. Use Type II adhesive unless otherwise noted. Stiles and rails shall be bonded to core material where indicated.
1. Standard Hollow Core shall be manufactured of expanded corrugated kraft fiber and have uniform thickness throughout core field.
 2. Particleboard Solid Core shall be manufactured per ANSI A208.1 "Mat-Formed Wood Particleboard," Grade 1-L-1 as modified by W.D.M.A. Stiles and rails bonded to core.
 3. Stave Lumber Solid Core shall be manufactured of a single species of kiln-dried softwood lumber, staves tightly fitted and edge glued together under pressure. Joints to stagger in adjacent rows. Stiles and rails bonded to core.
 4. Mineral-core fire doors shall be constructed with manufacturer's incombustible mineral core of a single or tightly fitted sections. Core may not contain asbestos. Stiles and rails bonded to core.
 5. Lead-lined doors shall be fabricated with lead extending the full width and height of the door. Thickness of lead determined by the architect, refer to Section 13090 of the specification documents. Stiles and rails bonded to core.
 6. Acoustical-Rated Doors shall be of the manufacturer's tested and approved assemblies for the Sound Transmission Class specified. Stiles and rails bonded to core. All STC-rated doors shall be tested in accordance with ASTM E90-83 or latest edition. Doors tested prior to 1983 will not be acceptable. Provide copy of manufacturer's test report with submittals. Manufacturers recommendations for gasketing system must be followed.

The specifier is to select the type of door construction to be used. With proper selection and application of the various construction options available, more than one type of core construction will be used. Refer to Haley's "Wood Door Selection Guide" for more complete information.

Actual design, construction method and materials used for fire-rated doors will vary for each manufacturer depending on their research, product development and door testing by the labeling agency.

The specifier should include a reference to the edition of ASTM E90. Earlier editions did not require door, and gasketing assembly to be tested in an operating condition. If there is a question, the architect should request a copy of the test report to verify acoustical rating of the doors supplied. If all the components for the acoustical-rated opening are not supplied by one distributor or manufacturer, then careful attention to details and installation must be used in order to assure the acoustical performance of all the components in the opening. **Proper installation is critical to achieving the STC rating indicated.**

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PART II – PRODUCTS (Cont.)

B. VERTICAL EDGE STILE:

1. Edge stiles shall be mill option species of W.D.M.A. I.S.1A minimum thickness. Doors to receive transparent finish shall have hardwood edge bands matching species of door face veneer.
2. Fire-rated 45, 60 and 90 minute doors shall have manufacturer's special edge stiles for improved screw holding and split resistance without use of salt treatment. 1" minimum hinge stile and ¾" lock stile are required.
3. Pairs of 20-minute doors shall have manufacturer's approved meeting stiles without use of metal edge guards. Pairs which will receive transparent finish are to have matching veneer edge-banding on the meeting stiles and ½" matching hardwood on the hinge stiles.
4. Plastic laminate faced doors shall have matching plastic laminated over mill option stiles. Plastic edges are to be applied after faces.

C. RAILS:

1. Doors shall have rails of mill option species. Minimum thickness per W.D.M.A 1.S.1A.
2. Fire-rated 45, 60 and 90 minute doors to have rails constructed of manufacturer's special material for improved screw holding without use of salt treatment. Top rail to be ¾" minimum thickness, bottom rail to be 1" minimum thickness.
3. Fire-rated 45, 60 and 90 minute doors shall have 5" top rails for screw mounting of surface closers. High frequency use openings require blocking and through bolts with washers or backer plate.

D. BLOCKING: All blocking to be full core thickness as follows:

1. Hollow core doors shall have one 2 5/8" X 18" lockblock each side.
2. Mineral core fire doors shall be specified with proper interior hardware blocking for surface mounted closures, flush bolts, pivots, kick plates, mortise locks, and exit devices. Refer to "Fire-Rated Products" guide in Haley's General Catalog for more detailed information.

E. FACE VENEERS:

1. Doors to receive transparent finish: Faces per W.D.M.A. I.S.1A as follows:

NOTES TO THE SPECIFIER

The specifier should also indicate the design of the edge stile construction, i.e. one piece, laminated, acceptability of the finger joints, etc. The design of edge stiles will vary with each manufacturer. Cost and quality level expected often dictate type of stile construction used. Fire-rated doors are unique to each manufacturer depending on the expected performance for which the doors are intended. The architect should review the manufacturer's technical literature to determine which door meets the project requirements.

Size of top or bottom rail should take into consideration requirements for hardware installation and field cutting of doors to meet field conditions, i.e. undercut at floor or clearance adjustments due to "out-of-square" frames.

It is extremely important for mineral core doors to be specified with factory installed blocking to provide sufficient screw holding power and solid support for hardware. Failure to specify required blocking may void door warranty.

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PART II – PRODUCTS (Cont.)

- a. Grade: Custom A-Grade (default), Premium AA-Grade
 - b. Cut: (optional, select one) Rotary, Plain Sliced, Rift Cut, Comb Grain Rift Cut, Quarter Sliced.
 - c. Species: (optional, select one) Red Oak, White Oak, Birch, Mahogany-Honduras, Mahogany-African, Walnut, Cherry, Maple, Teak, Ash or other commercially available species as selected by architect.
 - d. Veneers shall be book matched with minimum of 1/50" (.020) thickness before field sanding.
 - e. Cross bands: Shall be thoroughly dried hardwood or hardboard, extending the full width and height of the door. Provide 2 or 3-ply as required to reduce core telegraphing.
 - f. High-Pressure Decorative Laminate faces (HPDL) shall be GP-50, .050" thickness, as selected by the architect from Wilsonart, Formica, Nevamar or Pionite. Faces will be selected from a standard range of solid colors, wood grains and textures unless noted otherwise. Cross bands may be omitted on particleboard core doors.
 - g. Pairs: Provide pair matching (color & grain pattern) veneers as specified above. Color match only on rotary cut veneers
 - h. Transom Panels: Where no transom bar is used shall be continuous matched with meeting rail rabbeted with top of door. Where transom bar is used, panel shall be end matched to door. Doors and panels shall be clearly marked to assist contractor in proper installation. No visible fasteners allowed.
2. Doors to receive opaque finish: Faces to be Sound Grade or better per W.D.M.A. I.S.1A
 - a. Medium Density Overlay (MDO)
 - b. Hardboard
 - c. Close grain hardwood, mill option
 - d. Cross bands: Shall be thoroughly dried hardwood or hardboard, extending full width and height of the door. Provide 2 or 3-ply as required to reduce core telegraphing where applicable.

F. FACTORY FINISHING: Provide finish on both faces and vertical edges. Top and bottom rails to be factory sealed. Architect to select from manufacturer's standard colors or provide sample for matching of custom finish.

1. Doors to receive transparent finish shall be pre-finished at the factory utilizing manufacturer's system which meets or exceeds the performance requirements of WDMA TR-6 catalyzed polyurethane.

NOTES TO THE SPECIFIER

Actual "cut" of wood face veneer should be chosen with care and knowledge of wood characteristics. Certain specs require much longer lead times and higher costs due to availability. Consult with a manufacturer if not sure of specifications.

Book matching is the most available of veneer assembly methods. Other methods, i.e. slip match, running match, etc. are explained in detail in Haley's full spec. catalog.

Because of the wide range of cost savings in the manufacturing (lay-up) methods for the door face, **the specification writer and architect should be very specific in what is acceptable.** For more detailed information, refer to Haley's "Wood Door Selection Guide" and AWI's (Architectural Woodwork Institute) quality standard for architectural wood doors and veneers. Sections 200 and 1300.

**ARCHITECTURAL SPECIFICATIONS
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PART II – PRODUCTS (Cont.)

NOTES TO THE SPECIFIER

MINIMUM PERFORMANCE REQUIREMENTS

TEST	RESULT
a. Adhesion – ASTM D3359 Cross-hatch tape	no failure
b. Scrub check – ASTM D2486 3% trisodium phosphate	no effect
c. Cold check – ASTM D1211 10 cycles	no effect
d. Abrasion – ASTM D968 Falling sand	7 liters
e. Sward hardness	29

2. Transparent finished doors to have medium sheen of 35% to 50% as measured on 60 degree gloss meter.
3. Doors to receive an opaque, painted finish shall be sanded and primed for painting by others. Painter shall sand all doors before proceeding. Doors for transparent finish shall be sanded & finished in accordance with manufacturer's and/or industry recommendations for field finishing. Failure to follow these recommendations may void door manufacturer's warranty.

Actual finishing method and materials used by each manufacturer will vary in accordance with the type of finishing equipment used and the performance or quality level of the finish expected by the manufacturer. The architect should request standard test data similar to that shown in Paragraph F.1 of this document.

Most manufacturers offer prime painted doors for opaque finishes. Care should be taken to make sure the paint used for field finishing is compatible to the prime paint used by the door manufacturer. The best possible surface for opaque paint finishing would be that provided by medium density overlay (MDO) over a wood veneer manufactured with Type 1 adhesives.

2.3. ACCESSORIES

A. VISION PANEL FRAMES: Refer to SECTION 08800 for glass (by others) and installation.

1. Fire-Rated Doors:
 - a. Type: Provide listed and labeled pre-fabricated steel units of sufficient gauge required for classification. Field drill doors for through-bolts if required.
 - b. Opening Sizes: Provide sizes at locations shown on the drawings or in the schedules. Care must be taken to avoid voiding manufacturer's warranty due to relationship of cutouts to door edges, hardware preparations and to each other.
 - c. Finish: Provide factory prime coating on all units. Finish paint by others per SECTION 09900.
 - d. 20-Minute Option: Specially constructed wood stop assembly approved for use in 20-minute rated doors may be used in lieu of metal vision panel.
2. Non-Rated Doors:
 - a. Type: Factory milled wood strips, mitered at corners, manufacturer's standard profile.
 - b. Material: Hardwood species to be compatible with face veneer at transparent finished doors and mill option close-grain hardwood at plastic laminate or opaque finished doors.

The surface trim for mortise and surface mounted exit devices may interfere with the metal glass lite frame if the glass cutout and location of the hardware are too close. Careful coordination with the hardware supplier is required to avoid a problem during the installation of the doors and hardware at the jobsite.

PART II – PRODUCTS (Cont.)

NOTES TO THE SPECIFIER

- c. Provide sizes and locations shown on the drawings or in the schedules. Care must be taken to avoid voiding manufacturer's warranty due to relationship cutouts to door edges, hardware preparations and to each other.

- 3. Lead-Lined Doors: Provide lead-lined vision panel frames, if required, to maintain radiation protection indicated. Hardware cutouts must be properly shielded. Shielding covered under SECTION 13090.
- 4. Acoustical-Rated Doors: Provide gasketed vision frames and acoustical glass per manufacturer's recommendations.

B. DOOR LOUVERS: Refer to SECTION 8275. Provide louvers as follows:

- 1. Fire-Rated Mineral Core Doors:
 - a. Type: Provide listed and labeled pre-fabricated, factory primed steel units with fusible links as approved by the labeling authority.
 - b. Opening Sizes: As scheduled or as shown on drawings.
 - c. Louvers not allowed in 20-minute rated doors.
- 2. Non-Rated Wood Doors:
 - a. Type: Provide manufacturer's sight-proof wood louver, factory installed in the doors.
 - b. Material: Hardwood compatible with face veneer in transparent, finished doors; close grain hardwood at plastic laminate or or opaque finished doors.
 - c. Opening Sizes: As scheduled or as shown on drawings.

Louvers should never be used in an opening where the passage of smoke or products of combustion would create a danger to life safety. Louver requirements (size & type), should be detailed on architectural door detail sheet and door schedule. This information would be in addition to that provided in the HVAC drawings.

C. Notify the architect of any size or location indicated for lights and/or louvers which will void the manufacturer's warranty or label classification.

D. METAL EDGES AND ASTRAGALS: Provide at pairs of mineral-core, fire-rated doors.

- 1. Provide listed and labeled pre-fabricated, pre-machined and primed metal edges and astragal assemblies approved for the fire-classification scheduled. Some pairs may be provided without overlapping astragals. 20-minute pairs do not require metal edges or astragals provided you use G.P. Firestop meeting stiles. However, all 45, 60, and 90-minute pairs must have metal edges unless specified as otherwise.
- 2. Provide cutouts for latch and/or lock face plate, strike plate, flush bolts and pre-punch for flathead mounting screws.
- 3. Astragals and/or metal edges must be supplied by projects door supplier, but do not have to be shipped by the door manufacturer.

The omission of the metal edges and/or astragals on a pair of fire-rated doors could void the label and subject the owner, architect contractor and door supplier to serious financial liabilities in the event of fire. Make sure these items are installed where required.

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PART III – EXECUTION

3.1 MACHINING AND FITTING

Refer to W.D.M.A. I.S.1.A and to SECTION 08700.

All wood doors shall be factory machined by manufacturer or qualified distributor for cut outs, hinges, locks, mortise lock function holes and all hardware requiring routing and/or mortising.

A. Clearances as follows unless otherwise recommended by the frame manufacturer:

1. Hinge Stile: 1/8"
2. Lock Stile: 1/8"
3. Top Rail: 1/8"
4. Bottom Rail: 1/4" above floor or threshold as required to comply with fire-label classification, unless otherwise specified.
5. Meeting Stiles on pairs of doors: 1/8"

B. Bevels: 1/8" in 2" stile on doors; (exception) strike stile on inactive leaf of pairs of doors shall have square edge.

3.2 INSTALLATION

Refer to SECTION 06200. Do not proceed with installation unless suitable MATERIALS and CONDITIONS exist. Installer should be familiar with referenced standards and codes. Doors, frames & hardware to be installed in accordance with the Door & Hardware Institute Publication, "Installation Guide for Doors & Hardware."

A. Acclimatization: Allow doors to become acclimated prior to hanging.

B. Fitting: Fit doors to tolerances specified. Frames must be plumb and square.

C. Hardware:

1. Install doors using scheduled hardware. Install using threaded-to-the-head wood screws as supplied by the hardware manufacturer or as required for fire-label classification.
2. Drill proper size pilot holes for all screws.
3. Mortise or drill any additional hardware preparations which must be completed in the field for proper installation.

D. Fire-Rated Doors: Installation of fire doors shall be in accordance with labeling agency, NFPA #80, NFPA #101, NFPA #105 and the AUTHORITY HAVING JURISDICTION. Labels must not be removed for any reason.

NOTES TO THE SPECIFIER

Where the wood doors are to be prefit and pre-machined by the door manufacturer, the architect should require the general contractor to verify that all frames are set plumb and square, prior to advising the door manufacturer to proceed with the machining and finishing of the wood doors.

The manufacturer strongly recommends the doors be installed in accordance with Door and Hardware Institute's "Installation Guide for Doors, Frames and Hardware."

PART III – EXECUTION (Cont.)

NOTES TO THE SPECIFIER

E. Maintenance:

1. Adjusting: Adjust door and hardware for proper function smooth operation.
2. Cleaning: Exposed surfaces shall be free of all scratches, tool marks, stains, dirt and any other damage or defect.
3. Finish of doors shall be adequately protected during all construction phases in order to prevent damage to the doors or their finish prior to turn over to owner.
4. The door supplier shall provide owner's representative with copies of manufacturer's product catalog, specification sheets, warranty, and proper maintenance procedure for wood doors and their finish.

GENERAL NOTE

If the architect or specification writer has a question or has a specific application, which may require additional information, you can call Haley direct at (800) 854-5951 and ask to speak to an Architectural Representative.

HALEY'S COMPLETE LINE OF FLUSH WOOD DOORS

- Standard Hollow Core
- Standard Solid Core
- Architectural Structural Core
- Mineral-Core, Fire-Rated
- Radiation, Lead-Lined Doors
- Architectural Hollow Core
- Architectural Solid Core
- Architectural Lumber Core
- 20-Min. Fire-Rated Solid or Lumber Core
- Acoustical Rated

HALEY'S ARCHITECTURAL REFERENCE GUIDES

- Architectural Binder
- Product Catalog
- Wood Door Selection Guide
- Fire-Rated Products Guide
- Specialty Door Brochure
- Specifications Check List
- Short-Form Specifications
- Long-Form Specifications

Contact Your Local Haley Distributor or Sales Representative

ARCHITECTURAL SPECIFICATIONS
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- Particle Board
- Lumber Core
- Structural Composite Core
- Mineral Core
- Special-Purpose Core

Stiles and Rails Bonded to Core**Stiles Laminated with
Matching Hardwood Edges****Architectural Premium
Grade Face Veneer**

Haley's Architectural Wood Doors are manufactured to meet the most demanding performance criteria. All material used are of the highest quality available. The new pressurized-bonded core construction unitizes the stiles, rails, and core into a stabilized stress-free assembly. The entire bonded core assembly is then finish sanded, prior to final door assembly. This process assures a flat, smooth surface of uniform thickness, which virtually eliminates telegraphing problems.

Haley's architectural wood doors are backed by a comprehensive lifetime warranty, including an allowance for re-hanging and refinishing, should replacement of a door ever be necessary.

When client satisfaction is important, specify Haley Architectural Wood Flush Doors.

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