



HOW TO STORE, HANDLE, FINISH, INSTALL AND MAINTAIN WOOD DOORS

WHY ARCHITECTS AND HOMEOWNERS CHOOSE WOOD DOORS

Beauty, style, performance and adaptability are some of the reasons to choose wood doors. To preserve the fine qualities of these doors and a lifetime of superior service, proper storage, handling, finishing and installation is important. The following guidelines will help to maintain the high quality products supplied by wood door manufacturers.

STORAGE AND HANDLING

1. Store doors flat on a level surface in a dry, well-ventilated building. Doors should not come in contact with water. Doors should be kept at least 3-1/2" off the floor and should have protective coverings under the bottom door and over the top. Covering should protect doors from dirt, water and abuse but allow for air circulation under and around the stack.
2. Avoid exposure of interior doors to direct sunlight. Certain species (e.g., cherry, mahogany, walnut, teak) in an unfinished state are more susceptible to discoloration if exposed to sunlight or some forms of artificial light. To protect doors from light damage after delivery, opaque wrapping of individual doors may be specified.
3. Do not subject interior doors to extremes of heat and/or humidity. Do not allow doors to come in contact with water. Prolonged exposure may cause damage. Buildings where humidity and temperature are controlled provide the best storage facilities (recommended conditions 25%-55% RH and 50°F to 90°F).
4. Do not install doors in buildings that have wet plaster or cement unless they have been properly finished. Do not store doors in buildings with excessive moisture content - HVAC systems should be operating and balanced.
5. Doors should always be handled with clean hands or while wearing clean gloves.
6. Doors should be lifted and carried when being moved, not dragged across one another.
3. Certain species of wood, particularly oak, may contain extractives which react unfavorably with foreign materials in the finishing system. Eliminate the use of steel wool on bare wood, rusty containers or other contaminants in the finishing system.
4. A thinned coat of sanding sealer may be applied prior to staining to promote a uniform finish and avoid sharp contrasts in color or a blotchy appearance. **Door manufacturers are not responsible for the final appearance of field finished doors.** It is expected that the painting contractor will make adjustments as needed to achieve desired results.
5. All exposed wood surfaces must be sealed including top and bottom rails. Cutouts for hardware in exterior doors must be sealed prior to installation of hardware and exposure to weather.
6. Dark colored finishes should be avoided on all surfaces if the door is exposed to direct sunlight, in order to reduce the chance of warping or veneer checking.
7. Water-based coatings on unfinished wood may cause veneer splits, highlight joints and raise wood grain. If used on exterior doors, the coating should be an exterior grade product. When installed in exterior applications, doors must be properly sealed and adequately protected from the elements. Please follow the finish manufacturer's recommendations regarding the correct application and use of these products.
8. Be sure the door surface being finished is satisfactory in both smoothness and color after each coat. Allow adequate drying time between coats. Desired results are best achieved by following the finish manufacturer's recommendations. Do not finish doors until a sample of the finish has been approved.
9. Certain wood fire doors have fire retardant salts impregnated into various wood components that make the components more hygroscopic than normal wood. When exposed to high moisture conditions, these salts will concentrate on exposed surfaces and interfere with the finish. Before finishing the treated wood, reduce moisture content below 11% and remove the salt crystals with a damp cloth followed by drying and light sanding. For further information on fire doors, see the NWWDA publication regarding *Installing, Handling & Finishing Fire Doors*.

FINISHING

1. Wood is hygroscopic and dimensionally influenced by changes in moisture content caused by changes within its surrounding environment. To assure uniform moisture exposure and dimensional control all surfaces must be finished equally.
2. Doors should not be considered ready for finishing when initially received. Before finishing, remove all handling marks, raised grain, scuffs, burnishes and other undesirable blemishes by block sanding all surfaces in a horizontal position with a 120, 150 or 180 grit sandpaper. Solid core flush doors due to their weight naturally compress the face veneer grain while in the stack. Therefore, sanding of the overall surface will be required to open the veneer grain to receive a field applied finish evenly. To avoid cross grain scratches, sand with the grain.

INSTALLATION

1. The utility or structural strength of the doors must not be impaired when fitting to the opening, in applying hardware, in preparing for lights, louvers, plant-ons or other detailing.
2. Use two hinges for solid core doors up to 60 inches in height, three hinges up to 90 inches in height and an additional hinge for every additional 30 inches of height or portion thereof. Interior hollow core doors weighing less than 50 pounds and not over 7'6" in height may be hung on two hinges. Use heavy weight hinges on doors over 175 lbs. Pivot hardware may be used in lieu of hinges. Consult hinge or pivot hardware manufacturer with regard to weight and size of hinges or pivots required.
3. Clearances between top and hinge door edges and door frame should be a minimum of 1/8" (3.2mm). For a single door latch edge the clearance should be 1/8" (3.2mm). For a pair of doors the meeting edge clearance should be 1/16" (1.6mm) per leaf. The bottom edge should be 3/4" (19mm) maximum from the top of a non-combustible floor and 3/8" (10mm) maximum from the top of a non-combustible sill.
4. All hardware locations, preparations and methods of attachment must be appropriate for the specific door construction. Templates for specific hardware preparation are available from hardware manufacturers or their distributors.
5. When light or louver cutouts are made for exterior doors, they must be protected in order to prevent water from entering the door core.
6. Pilot holes must be drilled for all screws that act as hardware attachments. Threaded to the head screws are preferable for fastening hardware to non-rated doors and are required on fire-rated doors.
7. In fitting for height, do not trim top or bottom edge by more than 3/4 inches unless accommodated by additional blocking. Trimming of fire-rated doors must be in accordance with NFPA 80.

8. Doors and door frames should be installed plumb, square and level.

CLEANING AND TOUCHUP

1. Inspect all wood doors prior to hanging them on the job. Repair noticeable marks or defects that may have occurred from improper storage and handling.
2. **Field repairs and touchups are the responsibility of the installing contractor upon completion of initial installation.** Field touchup shall include the filling of exposed nail or screw holes, re-finishing of raw surfaces resulting from job fitting, repair of job inflicted scratches and mars, and final cleaning of finished surfaces.
3. When cleaning door surfaces, use a non-abrasive commercial cleaner designed for cleaning wood door or paneling surfaces, that do not leave a film residue that would build-up or effect the surface gloss of the door finish.

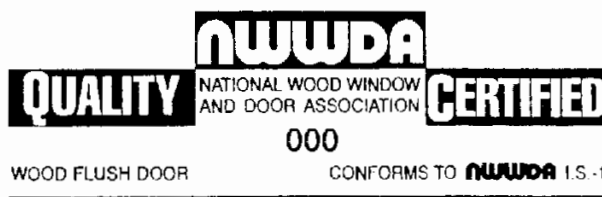
ADJUSTMENT AND MAINTENANCE

1. Insure that all doors swing freely and do not bind in their frame. Adjust the finish hardware for proper alignment, smooth operation and proper latching without unnecessary force or excessive clearance.
2. Review with the owner/owner's representative how to periodically inspect all doors for wear, damage and natural deterioration.
3. Review with the owner/owner's representative how to periodically inspect and adjust all hardware to insure that it continues to function as it was originally intended.
4. Finishes on exterior doors may deteriorate due to exposure to the environment. In order to protect the door it is recommended that the condition of the exterior finish be inspected at least once a year and re-finished as needed.



HALLMARK CERTIFIED WOOD FLUSH DOORS

NWWDA certifies firms which have demonstrated the ability to manufacture wood flush doors according to *NWWDA Industry Standard for Wood Flush Doors I.S. 1*. Each NWWDA certified manufacturer's plant is inspected by NWWDA to determine if their production facilities and procedures conform to the Standard including all adhesives used to meet the requirements of a Type I (exterior) or Type II (interior) adhesive in accordance with the NWWDA Test Method T.M. 6. The Hallmark provides door manufacturers, purchasers, and specifiers with an easily recognizable means of identification.



The NWWDA Hallmark identifies manufacturers who meet all the requirements of the NWWDA Hallmark program for wood flush doors according to *NWWDA Industry Standard I.S. 1 for Wood Flush Doors*.

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