SECTION 099300 - STAINING AND TRANSPARENT FINISHING

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. SUMMARY

If this Section specifies only stains or transparent finishes, revise Section title to accurately reflect its content.

* + - * 1. Section includes surface preparation and application of wood stains and transparent finishes[.][ **on the following substrates**:]

Revise lists below to suit Project.

Exterior Substrates:

Exposed glued-laminated beams and columns.

Exposed framing.

Dressed lumber (finish carpentry or woodwork).

Wood-based panel products.

Wood decks and stairs.

Wood shingles and shakes (excluding roofs).

Interior Substrates:

Exposed glued-laminated beams and columns.

Exposed framing.

Dressed lumber (finish carpentry or woodwork).

Wood-based panel products.

Wood floors and stairs.

Wood shingles and shakes.

* + - * 1. Work under this Contract shall also include, but not necessarily be limited to:

Labor, materials, tools and other equipment, services and supervision required to complete all interior painting and decorating work as indicated on Finish Schedules and to the full extent of the drawings and specifications.

Moisture testing of substrates.

Surface preparation of substrates as required for acceptance of finishes, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to the limits defined under MPI Architectural Painting Manual preparation requirements.

Specific pre-treatments noted herein or specified in the MPI Architectural Painting Manual.

Sealing / priming surfaces for finishes in accordance with MPI Architectural Painting Manual requirements.

Provision of safe and adequate ventilation as required over and above temporary ventilation supplied by others, where toxic and/or volatile / flammable materials are being used.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 099123 "Interior Painting" for stains and transparent finishes on concrete floors.

Section 099600 "High-Performance Coatings" for transparent high-performance coatings on concrete floors and clay masonry.

* + - 1. REFERENCES
				1. Master Painters Institute Inc., MPI Architectural Painting Manual. www.specifypaint.us.
			2. DEFINITIONS

Retain this Article if materials are specified by manufacturers' trade names rather than by MPI paint numbers. Definitions of MPI Gloss Levels below are from "MPI Architectural Painting Specification Manual" (hereafter, "MPI Manual").

Retain terms that remain after this Section has been edited for a project.

* + - * 1. MPI Gloss Level 1 (Matte or Flat): Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.
				2. MPI Gloss Level 4 (Satin): 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.
				3. MPI Gloss Level 5 (Semi-Gloss): 35 to 70 units at 60 degrees, according to ASTM D523.
				4. MPI Gloss Level 6 (Gloss): 70 to 85 units at 60 degrees, according to ASTM D523.
				5. MPI Gloss Level 7 (High Gloss): More than 85 units at 60 degrees, according to ASTM D523.
			1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Painting Schedule: Cross-referenced Painting Schedule listing all exterior and interior substrates to be painted and specified finish paint type designation; product name and manufacturer, recommended primers and product numbers, and finish paint color designation for each substrate to be painted.

Designate exterior substrates by building name and number, substrate to be painted and surface location.

Designate interior substrates by building name and number, floor, room name and number, and surface to be painted.

* + - * 1. Product Data: For each type of product. Include preparation requirements and application instructions.

See "Writing Guide" Article in the Evaluations for discussion of first subparagraph below.

Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

Indicate VOC content.

* + - * 1. Sustainable Design Submittals:
				2. Samples for Initial Selection: For each type of product.

Delete "Samples for Initial Selection" paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" paragraph below with or without paragraph above.

* + - * 1. Samples for Verification: For each type of finish system and in each color and gloss of finish required.

Submit Samples on representative samples of actual wood substrates, 8 inches square or 8 inches long.

Apply coats on Samples in steps to show each coat required for system.

Label each coat of each Sample.

Label each Sample for location and application area.

* + - * 1. Product List: Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.
				2. Contractor’s Qualifications: Submit documentation demonstrating compliance with requirements in Quality Assurance Article.
				3. Certification of Volatile Organic Compounds: Submit certified list demonstrating compliance requirements in Quality Assurance Article.
			1. QUALITY ASSURANCE
				1. Volatile Organic Compounds (VOCs) Regulatory Requirements: Chapter III of Title 6 of the official compilation of Codes, Rules and Regulations of the State of New York (Title 6 NYCRR), Part 205 Architectural Surface Coatings.

Certificate of Compliance: List of each paint product to be delivered and installed. List shall include written certification stating that each paint product listed complies with the VOC regulatory requirements in effect at the time of job site delivery and installation.

* + - * 1. Contractor shall have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of work that he will maintain a qualified crew of painters throughout the duration of the work. When requested by the Director’s Representative, Contractor shall provide a list of the last three comparable repainting jobs including, name, location, specifying authority / project manager, start / completion dates and value of the work.
				2. All materials, preparation and workmanship shall conform to the standards contained in the latest edition of the Master Painters Institute (MPI) Architectural Painting Manual (herein referred to as the MPI Manual).
				3. The painting contractor shall receive written confirmation of the specific surface preparation procedures and primers used for all fabricated steel items from the fabricator / supplier to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting such work.
				4. Mockups: Apply mockups of each finish system indicated and each color selected to verify preliminary selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Director’s Representative will select one surface to represent surfaces and conditions for application of each type of finish system and substrate.

Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..

Other Items: Director’s Representative will designate items or areas required.

Final approval of stain color selections will be based on mockups.

If preliminary stain color selections are not approved, apply additional mockups of additional stain colors selected by Director’s Representative at no added cost to the State.

* + - 1. REGULATORY REQUIREMENTS
				1. Conform to work place safety regulations for storage, mixing, application and disposal of all paint related materials to requirements of those authorities having jurisdiction.
				2. To reduce the amount of contaminants entering waterways, sanitary / storm drain systems or into the ground the following procedures shall be strictly adhered to:

Retain cleaning water for water based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.

Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

Return solvent and oil-soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.

Empty paint cans are to be dry prior to disposal or recycling (where available).

Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire safe area at moderate temperature.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver painting materials in sealed, original labeled containers bearing manufacturer's name, brand name, type of paint or coating and color designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.
				2. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

Maintain containers in clean condition, free of foreign materials and residue.

Remove rags and waste from storage areas daily.

If necessary, insert special requirements for fire protection, heating, ventilation, and other conditions for storage areas on-site.

* + - * 1. Where toxic and/or volatile / explosive / flammable materials are being used, provide adequate fireproof storage lockers and take necessary precautions and post adequate warnings (e.g. no smoking) as required.
				2. Take necessary precautionary and safety measures to prevent fire hazards and spontaneous combustion and to protect the environment from hazard spills. Materials that constitute a fire hazard (paints, solvents, drop clothes, etc.) to be stored in suitable closed and rated containers or removed from the site on a daily basis.
				3. Comply with requirements of authorities having jurisdiction, in regard to the use, handling, storage and disposal of hazardous materials.
			1. FIELD CONDITIONS
				1. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.
				2. Do not apply finishes when relative humidity exceeds 85 percent, at temperatures less than 5 deg F above the dew point, or to damp or wet surfaces.
				3. Do not apply exterior finishes in snow, rain, fog, or mist.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and Masterworks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. MATERIALS, GENERAL
				1. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products List."
				2. Material Compatibility:

Systems could fail if materials used for individual coats are incompatible. MPI's finish systems take product compatibility into consideration.

Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

For each coat in a paint system, products shall be recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

* + - * 1. Stain Colors: [**As selected by Director’s Representative from manufacturer's full range] [Match Director’s Representative's samples] [As indicated in a color schedule**].
			1. MANUFACTURERS
				1. [Manufacturers:](http://www.specagent.com/Lookup?ulid=11177) Subject to compliance with requirements, provide products by the following:

Behr Paint

Benjamin Moore & Co.

Pratt & Lambert.

PPG Architectural.

Sherwin-Williams.

Or equal.

* + - 1. PAINT MATERIALS

Manufacturers' names and product designations can be inserted in paragraphs in this article. Paints in these paragraphs are specified by referencing MPI paint categories and optional MPI numbers. Note that each paint category below is unique within this Section and is identical to that used in the maintenance repainting schedules at the end of Part 3.

If retaining paragraphs below, first revise the maintenance repainting schedules; then retain, delete, and insert appropriate paint products in paragraphs to correspond with paint systems specified in the maintenance repainting schedules.

* + - * 1. Primers and Sealers:

Alkyd, Sanding Sealer, Clear: A solvent based, quick drying, clear, sandable alkyd sealer used on new interior wood surfaces that are to be top-coated with an alkyd varnish. Also used for spot priming bare spots in previously varnished work that is to receive an alkyd varnish. Not recommended for use with Type IPV-3 polyurethane varnish.

Type ITS-P: Alkyd, Sanding Sealer, Clear  MPI #102. Provide one of the following:

PPG Architectural: DEFT Sanding Sealer Interior Oil Based.

Pratt & Lambert: Alkyd Sanding Sealer Clear.

Sherwin-Williams: MINWAX Sanding Sealer

Or equal.

Stain, Semi-Transparent, for Interior Wood: A solvent based, oil or oil/alkyd, semi transparent, pigmented stain for new interior hard and softwood trims, doors, paneling, glue laminated beams and dimension lumber, that are to be finished with a clear varnish. Used in residential, commercial and public locations. Can be top coated with Type IV-1, Type IV-2, Type IPV-3, oil modified polyurethane varnishes, or as a finish itself. Must also be compatible with wood fillers and Type ITS-P alkyd sanding sealer.

Type ITOS: Stain, Semi-Transparent, for Interior Wood  MPI #90. Provide one of the following:

PPG Architectural: DEFT Interior Oil-Based Wood Stain.

Pratt & Lambert: Tonetic Interior Oil Wood Stains.

PPG Architectural: MINWAX Performance Series Tintable Interior Wood Stain 250 VOC.

Or equal.

Stain, Semi Transparent Modified Oil or Alkyd for Exterior Wood: A solvent or water based, modified oil or alkyd type, semi-transparent, penetrating stain for exterior dimensional wood decking. Primarily specified for new construction work in residential and light traffic commercial areas.

Type EDS: Stain, Semi Transparent Modified Oil or Alkyd for Exterior Wood: MPI #33. Provide one of the following:

Benjamin Moore: Arborcoat Premium Alkyd Stain Alkyd Semi-Transparent Deck & Siding.

PPG Architectural: Flood Pro Series Semi-Transparent Alkyd/Oil Stain

Sherwin-Williams: Superdeck Modified-Oil Semi-Transparent Wood Stain

Or equal.

Alkyd for Exterior Wood: An alkyd/oil based primer for exterior wood siding and trim. This product is used for new and repainting work in residential, commercial and light industrial areas. This primer is used on woods prone to extractive bleeding, such as cedar and redwood, and must have bleeding resistance when applied to dry (less than 15% moisture content) wood substrates. Finish coatings, used over this primer include latex, alkyd and alkyd/oil based paints. The straight alkyd products are faster drying than the oil/alkyd type primer.  Must be mildew resistant.

Type EAP: Primer, Alkyd for Exterior Wood:  MPI #5. Provide one of the following:

Benjamin Moore & Co.: Fresh Start All-Purpose Primer.

PPG Architectural: Seal Grip Interior/Exterior Acrylic Universal Primer/Sealer.

Sherwin-Williams: Exterior Oil-Based Wood Primer .

Or equal.

* + - * 1. Solvent-Based Stains:

Stain, Exterior, Solvent Based, Semitransparent: A solvent based, oil (or oil/alkyd), semi-transparent, pigmented stain for new vertical wood surfaces on residential and commercial buildings e.g. exterior wood siding.

Type EWS: Stain, Exterior, Solvent Based, Semitransparent: MPI #13. Provide one of the following:

Behr Paint: Transparent Oil-Base Waterproofing Wood Finish.

Benjamin Moore & Co.: Arborcoat Exterior Oil Stain Semi Transparent.

PPG Architectural: Flood Pro Series Semi-Transparent Alkyd/Oil Stain.

Or equal.

* + - * 1. Solvent-Based Varnishes:

Varnish, with UV Inhibitor, Exterior, Semigloss (Gloss Level 5): A solvent based, alkyd type, clear varnishes for exterior wood doors, frames and trim. Stabilized against UV deterioration for exterior finishing with a UV inhibitor. Systems using these coatings will be specified for new and repainting work in residential and commercial applications, primarily in areas of moderate contact and abrasion. Recommended for trim, doors or windows and frames.

Type EV: Varnish, with UV Inhibitor, Exterior, Semigloss (Gloss Level 5) MPI #30. Provide one of the following:

Behr Paint: Oil-Based Spar Urethane Semi-Gloss.

Sherwin-Williams: Minwax Helmsman Spar Urethane Semi-Gloss.

Or equal.

Varnish, Marine Spar, Exterior, Gloss (Gloss Level 7): A solvent based, phenolic modified clear varnish for exterior wood surfaces. Highly water resistant but can show some yellowing and gloss loss from high UV exposure. Suitable for dark or dark stained wood doors.

Type ESV: Varnish, Marine Spar, Exterior, Gloss (Gloss Level 7) MPI #28. Provide one of the following:

Behr Paint: Oil-Based Spar Urethane Gloss.

Sherwin-Williams: Minwax Helmsman Spar Urethane Gloss.

Or equal.

Varnish, Interior, Flat (Gloss Level 1): A solvent based, alkyd type, clear varnishes used on new or properly prepared, previously varnished interior wood surfaces. These coatings are specified primarily in residential and light commercial locations. Used for interior hard and softwood trims, doors, paneling, glue-laminated beams and dimension lumber, trim, molding, frames and doors. Must be compatible with Type ITS-P alkyd sanding sealer or Type ITOS semi-transparent stain.

Type IV-1: Varnish, Interior, Flat (Gloss Level 1) MPI #73. Provide one of the following:

Behr Paint: Fast Drying Oil-Based Polyurethane Flat.

Sherwin-Williams: Minwax Performance Series Fast-Dry Oil Varnish Satin.

Or equal.

Varnish, Interior, Gloss (Gloss Level 6): A solvent based, alkyd type, clear varnishes used on new or properly prepared, previously varnished interior wood surfaces. These coatings are specified primarily in residential and light commercial locations. Used for interior hard and softwood trims, doors, paneling, glue-laminated beams and dimension lumber, trim, molding, frames and doors. Must be compatible with Type ITS alkyd sanding sealer or semi-transparent stain (Type ITOS).

Type IV-2: Varnish, Interior, Gloss (Gloss Level 6) MPI #75. Provide one of the following:

Behr Paint: Fast Drying Oil-Based Polyurethane Gloss.

Sherwin-Williams: Minwax Performance Series Fast-Dry Oil Varnish Gloss.

Or equal.

* + - * 1. Polyurethane Varnishes:

Varnish, Interior, Polyurethane, Oil-Modified, Gloss (Gloss Level 6): A solvent based, one component, oil modified polyurethane clear 'gloss' varnish for new or previously varnished or stained, interior wood surfaces in residential and commercial buildings. Uses include floors, cabinetry, moldings, doors and trim. These products are intended as "self-sealing" materials on new wood surfaces or bare areas in repainting. Not recommended for use over sealers containing stearates.

Type IPV-3: Varnish, Interior, Polyurethane, Oil-Modified, Gloss (Gloss Level 6):  MPI #56. Provide one of the following:

Behr Paint: Fast Drying Oil-Based Polyurethane Gloss.

PPG Architectural: Deft Polyurethane Interior Oil Based 350.

Sherwin-Williams: Fast-Drying Polyurethane Clear Gloss.

Or equal.

Varnish, Polyurethane, Moisture-Cured, Gloss (Gloss Level 6): A solvent based, moisture curing polyurethane clear-coating with a gloss finish for interior brick, block, concrete, plaster, wood and metal surfaces, where chemical and solvent resistance is required. Systems using this coating will be specified for new and repainting work in residential, commercial and industrial applications in areas of high contact and abrasion.

Type IMPV-3: Varnish, Polyurethane, Moisture-Cured, Gloss (Gloss Level 6) MPI #31. Provide one of the following:

Benjamin Moore & Co.: Corotech Aromatic Moisture Cured Urethane Clear.

Sherwin-Williams: Protective & Marine Armorseal, Rexthane I MCU.

Or equal.

See lists of products currently approved by MPI in its "MPI Approved Products List," www.paintinfo.com. See "Writing Guide" Article in the Evaluations for further discussion. Retain "Products" paragraph below and insert lists of manufacturers and products in wood finish systems schedules to require specific products or a comparable product from other manufacturers.

* + - * 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in wood finish systems schedules for the product category indicated.
			1. SOURCE QUALITY CONTROL

Retain this article for large projects or critical coatings where additional control is desired. Delete if tests are not required.

* + - * 1. Testing of Materials: The Director’s Representative reserves the right to invoke the following procedure:

The Director’s Representative will engage the services of a qualified testing agency to sample wood finishing materials. Contractor will be notified in advance and may be present when samples are taken. If materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.

Testing agency will perform tests for compliance with product requirements.

The Director’s Representative may direct Contractor to stop applying wood finishes if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and refinish surfaces finished with rejected materials. Contractor will be required to remove rejected materials from previously finished surfaces before refinishing with complying materials if the two finishes are incompatible or produce results that, in the opinion of the Director’s Representative, are aesthetically unacceptable.

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
				2. Maximum Moisture Content of Exterior Wood Substrates: 15 percent, when measured with an electronic moisture meter.

Coordinate requirement in "Maximum Moisture Content of Interior Wood Substrates" paragraph below with Sections where wood substrates are specified. Maximum moisture content of interior wood substrates will depend on the type of wood substrates that are to be finished. Kiln-dried finish lumber is available with maximum moisture content of 15 percent for some species and 12 percent for others. Kiln-dried softwood moldings are generally limited to 15 percent moisture content and hardwood moldings to 9 percent. For woodwork, the Architectural Woodwork Institute recommends a maximum moisture content of 13 percent for damp coastal areas and 10 percent for the rest of the United States except for dry southwestern states, for which it recommends 9 percent.

* + - * 1. Maximum Moisture Content of Interior Wood Substrates: [**15**] [**13**] [**10**] [**9**] percent, when measured with an electronic moisture meter.
				2. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
				3. Proceed with finish application only after unsatisfactory conditions have been corrected.

Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

* + - 1. PREPARATION

For renovation projects, consult "MPI Maintenance Repainting Manual" and revise first paragraph below and finish systems specified in the "Exterior Wood-Finish-System Schedule" and "Interior Wood-Finish-System Schedule" articles.

* + - * 1. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
				2. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

* + - * 1. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.

Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.

Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.

* + - * 1. Exterior Wood Substrates:

Scrape and clean knots, and apply coat of knot sealer before applying primer.

Prime edges, ends, faces, undersides, and backsides of wood.

For solid hide stained wood, stain edges and ends after priming.

For varnish-coated stained wood, stain edges and ends and prime with varnish. Prime undersides and backsides with varnish.

Avoid using steel nails under a stain because of rust. Revise subparagraph below if noncorrosive nails are specified in other Sections; delete if not required.

Countersink steel nails, if used, and fill with putty or plastic wood filler tinted to final color. Sand smooth when dried.

* + - * 1. Interior Wood Substrates:

Scrape and clean knots, and apply coat of knot sealer before applying primer.

Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth, glasslike finish.

Sand surfaces exposed to view and dust off.

After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dry.

* + - 1. APPLICATION
				1. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

Use applicators and techniques suited for finish and substrate indicated.

Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.

Do not apply finishes over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

* + - * 1. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.
			1. CLEANING AND PROTECTION
				1. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
				2. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
				3. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Director’s Representative, and leave in an undamaged condition.
				4. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

This Section may be edited using Deltek's SpecBuilder and the MPI Architectural Painting Decision Tree. [<Double click here to connect.>](http://www.arcomone.com/mpi?mf04=099300&format=1&version=11489)

* + - 1. EXTERIOR WOOD-FINISH-SYSTEM SCHEDULE

Finish systems in this article are based on "MPI Architectural Painting Specification Manual" (hereafter, "MPI Manual"). For renovation projects, consult "MPI Maintenance Repainting Manual" and revise finish systems accordingly.

* + - * 1. Wood Substrates: Glued-laminated construction.

Varnish over Semitransparent Stain System MPI EXT 6.1D:

Stain Coat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

Varnish System MPI EXT 6.1K:

Prime Coat: Varnish matching topcoat.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

* + - * 1. Wood Substrates: Exposed framing.

Semitransparent Stain System MPI EXT 6.2L:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

Varnish over Stain System MPI EXT 6.2E:

Stain Coat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

Varnish System MPI EXT 6.2K:

Prime Coat: Varnish matching topcoat.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

* + - * 1. Wood Substrates: [**Wood trim] [architectural woodwork] [doors] [windows] [wood board siding] [and] [wood fences]**.

Semitransparent Stain System MPI EXT 6.3D:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

Varnish over Stain System MPI EXT 6.3E:

Stain Coat: Stain, exterior, solvent-based, semitransparent, MPI #13. Type EWS.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

Varnish System MPI EXT 6.3F:

Prime Coat: Varnish matching topcoat.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

* + - * 1. Wood Substrates: Wood-based panel products.

Semitransparent Stain System MPI EXT 6.4D:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

Varnish over Stain System MPI EXT 6.4J:

Stain Coat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type EWS.

Varnish System MPI EXT 6.4H:

Prime Coat: Varnish matching topcoat.

First Intermediate Coat: Varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, with UV inhibitor, exterior, semi-gloss (MPI Gloss Level 5), MPI #30. Type EV.

Topcoat: Varnish, marine spar, exterior, gloss (MPI Gloss Level 7), MPI #28. Type ESV.

* + - * 1. Wood Substrates: Traffic surfaces including lumber decking and stairs.

Deck Stain System MPI EXT 6.5F:

Prime Coat: Stain, for exterior wood decks, matching topcoat.

Top coat: Stain, for exterior wood decks Type ESD.

* + - * 1. Wood Substrates: Wood shingles and shakes (excluding roofs).

Semitransparent Stain System MPI EXT 6.6F:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

This Section is intended to be edited using Deltek's SpecBuilder and the MPI Architectural Painting Decision Tree, located at www.Deltekone.com/MPI. [<Double click here to connect.>](http://www.arcomone.com/mpi?mf04=099300&format=1&version=11489)

* + - 1. INTERIOR WOOD -FINISH-SYSTEM SCHEDULE

Finish systems in this article are based on "MPI Architectural Painting Specification Manual" (hereafter, "MPI Manual"). For renovation projects, consult "MPI Maintenance Repainting Manual" and revise finish systems accordingly.

* + - * 1. Wood Substrates: Glued-laminated construction.

Semitransparent Stain System MPI INT 6.1G:

Prime Coat: Stain, semitransparent, matching topcoat.

Topcoat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

Alkyd Varnish over Stain System[ **MPI INT 6.1K] [ MPI INT 6.1P**]:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

Retain one of two "First Intermediate Coat" paragraphs below. First corresponds to MPI INT 6.1K; second corresponds to MPI INT 6.1P.

First Intermediate Coat: Varnish matching topcoat.

First Intermediate Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Alkyd Varnish System MPI INT 6.1C:

Prime Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1:

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2

Polyurethane Varnish over Stain System MPI INT 6.1J:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Polyurethane Varnish System MPI INT 6.1D:

Prime Coat: Polyurethane varnish matching topcoat.

Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Moisture-Cured Clear Polyurethane over Stain System MPI INT 6.1S:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

* + - * 1. Wood Substrates: Exposed framing.

Alkyd Varnish over Stain System MPI INT 6.2K:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Alkyd Varnish System MPI INT 6.2P:

Prime Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Polyurethane Varnish over Stain System MPI INT 6.2J:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Polyurethane Varnish System MPI INT 6.2H:

Prime Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Moisture-Cured Clear Polyurethane over Stain System MPI INT 6.2N:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

* + - * 1. Wood Substrates: [**Wood trim] [architectural woodwork] [doors] [windows] [and] [wood board paneling**].

Semitransparent Stain System MPI INT 6.3C:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

Alkyd Varnish over Stain System MPI INT 6.3D:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Alkyd, sanding sealer, clear, MPI #102 Type ITS-P.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Alkyd Varnish System MPI INT 6.3J:

Prime Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Polyurethane Varnish over Stain System MPI INT 6.3E:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Polyurethane Varnish System MPI INT 6.3K:

Prime Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Moisture-Cured Clear Polyurethane over Stain System MPI INT 6.3Y:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

Moisture-Cured Clear Polyurethane System MPI INT 6.3X:

Prime Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

* + - * 1. Wood Substrates: [**Wood paneling] [and] [casework**].

Semitransparent Stain System MPI INT 6.4C:

Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.

Topcoat: Stain, exterior, solvent based, semitransparent, MPI #13. Type EWS.

Alkyd Varnish over Stain System MPI INT 6.4D:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Alkyd Varnish System MPI INT 6.4G:

Prime Coat: Alkyd, sanding sealer, clear, MPI #102. Type ITS-P.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Varnish matching topcoat.

Retain one of two "Topcoat" subparagraphs below.

Topcoat: Varnish, interior, flat (MPI Gloss Level 1), MPI #73. Type IV-1.

Topcoat: Varnish, interior, gloss (MPI Gloss Level 6), MPI #75. Type IV-2.

Polyurethane Varnish over Stain System MPI INT 6.4E:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Polyurethane Varnish System MPI INT 6.4J:

Prime Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Moisture-Cured Clear Polyurethane over Stain System MPI INT 6.4V:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

* + - * 1. Wood Substrates: Traffic surfaces including floors and stairs.

Polyurethane Varnish over Stain System MPI INT 6.5B:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Polyurethane Varnish System MPI INT 6.5C:

Prime Coat: Polyurethane varnish matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Polyurethane varnish matching topcoat.

Topcoat: Varnish, interior, polyurethane, oil modified, gloss (MPI Gloss Level 6), MPI #56. Type IPV-3.

Moisture-Cured Clear Polyurethane over Stain System MPI INT 6.5J:

Stain Coat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

First Intermediate Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires second intermediate coat; delete "Second Intermediate Coat" subparagraph below for a Budget Grade system.

Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

Moisture-Cured Clear Polyurethane System MPI INT 6.5K:

Prime Coat: Moisture-cured polyurethane matching topcoat.

For a Premium Grade system, "MPI Manual" requires intermediate coat; delete "Intermediate Coat" subparagraph below for a Budget Grade system.

Intermediate Coat: Moisture-cured polyurethane matching topcoat.

Topcoat: Varnish, polyurethane, moisture cured, gloss (MPI Gloss Level 6), MPI #31. Type IMPV-3.

* + - * 1. Wood Substrates: Wood shingles and shakes.

Semitransparent Stain System MPI INT 6.6C:

Prime Coat: Stain, semitransparent, matching topcoat.

Topcoat: Stain, semitransparent, for interior wood, MPI #90. Type ITOS.

END OF SECTION 099300