
SECTION 09 93 00 - STAINING AND TRANSPARENT FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Primers
2. Wood stains.
3. Transparent finishes.

B. Related Requirements:

1. Section 09 91 23 "Interior Painting" for stains and transparent finishes on concrete floors.
2. Section 09 96 00 "High-Performance Coatings" for transparent high-performance coatings on concrete floors and clay masonry.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each type of product.
2. Include preparation requirements and application instructions.
3. Indicate VOC content.

B. Samples for Initial Selection: Manufacturer's standard color sheets, showing full range of available colors for each type of exposed finish.

C. Samples for Verification: Sample for each type of finish system and in each color and gloss of finish required on representative samples of actual wood substrates.

1. Size: 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

E. Sustainable Design Submittals:

1. Third-Party Certifications: For each product.
2. Third-Party Certified Life Cycle Assessment: For each product.

1.3 FIELD CONDITIONS

- A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply finishes when relative humidity exceeds 85 percent, at temperatures of less than 5 deg F above the dew point, or to damp or wet surfaces.
- C. Do not apply exterior finishes in snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 STAINING AND TRANSPARENT FINISHING

See Interior Material Legend on Construction Drawings for Basis of Design.

- A. Material Compatibility:
 - 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. VOC Content, LEED v4: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:
 - 1. Primers, Sealers, and Undercoaters: 100 g/L.
 - 2. Clear Wood Finishes, Varnishes: 275 g/L.
 - 3. Clear Wood Finishes, Lacquers: 275 g/L.
 - 4. Shellacs, Clear: 730 g/L.
 - 5. Stains: 100 g/L.
- C. Low-Emitting Materials, LEED v4: For field applications that are inside the weatherproofing system, 90 percent of paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- D. Material Emissions and Pollutant Control: Not less than 85 percent of field-applied paints and coatings that are inside the weatherproofing system shall comply with the following:
 - 1. Low-Emitting Materials: VOC emissions shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers." Formaldehyde emissions shall not exceed 9 mcg/cu. m or 7 ppb, whichever is less.
- E. Emissions Requirements: Field-applied paints and coatings that are inside the weatherproofing system shall comply with either of the following:

1. Low-Emitting Materials: VOC emissions shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 2. VOC content shall not exceed limits of authorities having jurisdiction and the following:
 - a. Shellacs, Clear: 730 g/L.
 - b. Stains: 250 g/L.
 - c. Clear Wood Finishes (Varnishes, Sanding Sealers, and Lacquers): 275 g/L.
- F. VOC Emissions: For field applications inside the building, wall paints shall contain no more than half of the chronic REL of VOCs when tested according to the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers." The building concentration of formaldehyde shall not exceed half of the indoor recommended exposure limit or 33 mcg/cu. m and that of acetaldehyde shall not exceed 9 mcg/cu. m.
- G. Stain Colors: As selected by Architect from manufacturer's full range.

2.2 PRIMERS

- A. Alkyd Sanding Sealer, Interior, Solvent Based, Clear: Solvent-based, quick-drying, clear, sandable alkyd sealer used on new interior wood surfaces that are to be top-coated with an alkyd varnish.

2.3 WOOD STAINS

- A. Stain, Interior, Semitransparent, for Interior Wood: Solvent-based, oil or oil/alkyd, semitransparent, pigmented stain for new interior wood surfaces that are to be finished with a clear varnish.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Behr Paint Company (Behr Process LLC)
 - b. Pratt & Lambert; a subsidiary of The Sherwin-Williams Company
 - c. Rust-Oleum Corporation
 - d. Sherwin-Williams Company (The)
 - e. The Pittsburgh Paints Company

2.4 TRANSPARENT FINISHES

- A. Varnish, Marine Spar, Exterior, Gloss: Solvent-based, phenolic-modified clear varnish for exterior wood surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Sherwin-Williams Company (The)
 - Gloss Level: Manufacturer's standard gloss finish.
- B. Varnish with UV Inhibitor, Exterior, Gloss: Solvent-based, alkyd-type, clear gloss varnish stabilized against UV deterioration for exterior wood surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Sherwin-Williams Company (The)
 - 2. Gloss Level: Manufacturer's standard gloss finish.
- C. Varnish with UV Inhibitor, Exterior, Semigloss: Solvent-based, alkyd-type, clear semigloss varnish stabilized against UV deterioration for exterior wood surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Sherwin-Williams Company (The)
 - 2. Gloss Level: Manufacturer's standard semigloss finish.
- D. Varnish, Interior, Polyurethane, Oil Modified, Satin: Solvent-based, one-component, oil-modified polyurethane clear satin varnish for new or previously varnished or stained interior wood surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Behr Paint Company (Behr Process LLC)
 - b. Benjamin Moore & Co.
 - c. Rodda Paint Co.
 - d. Rust-Oleum Corporation
 - e. Sherwin-Williams Company (The)
 - f. The Pittsburgh Paints Company

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but are not limited to, the following:

- a. Benjamin Moore & Co.
- b. Lenmar Lacquers; Benjamin Moore & Co.
- c. Sherwin-Williams Company (The)
- d. The Pittsburgh Paints Company

2. Gloss Level: Manufacturer's standard semigloss finish.

I. Varnish, Interior, Water Based, Clear, High Gloss: Water-based clear high-gloss coating for interior wood trim, frames, doors, paneling and cabinetry.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Benjamin Moore & Co.
- b. Lenmar Lacquers; Benjamin Moore & Co.
- c. Sherwin-Williams Company (The)
- d. The Pittsburgh Paints Company

2. Gloss Level: Manufacturer's standard gloss finish.

PART 3 - EXECUTION

3.1 EXTERIOR WOOD-FINISH-SYSTEM SCHEDULE

A. Wood Substrates, Glued-Laminated Construction:

1. Solid-Color, Solvent-Based Stain System :

- a. Prime Coat: Primer, alkyd for exterior wood.
- b. Intermediate Coat: Stain, exterior, solvent based, solid hide, matching topcoat.
- c. Topcoat: Stain, exterior, solvent based, solid hide.

2. Varnish over Semitransparent Stain System :

- a. Stain Coat: Stain, exterior, solvent based, semitransparent.
- b. First Intermediate Coat: Varnish matching topcoat.
- c. Second Intermediate Coat: Varnish matching topcoat.
- d. Topcoat: Varnish, with UV inhibitor, exterior, **semigloss**.

3. Water-Based Varnish System :

- a. Prime Coat: Water-based varnish matching topcoat.
- b. Intermediate Coat: Water-based varnish matching topcoat.
- c. Topcoat: Water-based varnish, **semigloss**.

4. Varnish System :
 - a. Prime Coat: Varnish matching topcoat.
 - b. First Intermediate Coat: Varnish matching topcoat.
 - c. Second Intermediate Coat: Varnish matching topcoat.
 - d. Topcoat: Varnish, with UV inhibitor, exterior, **semigloss**.
 5. Clear, Two-Component Polyurethane Varnish over Stain System:
 - a. Stain Coat: Stain, exterior, solvent based, semitransparent.
 - b. First Intermediate Coat: Varnish, aliphatic polyurethane, two component, matching topcoat.
 - c. Second Intermediate Coat: Varnish, aliphatic polyurethane, two component, matching topcoat.
 - d. Topcoat: Varnish, aliphatic polyurethane, two component, gloss.
 6. Clear, Two-Component Polyurethane Varnish System :
 - a. Prime Coat: Varnish, aliphatic polyurethane, two component, matching topcoat.
 - b. Topcoat: Varnish, aliphatic polyurethane, two component, gloss.
- B. Wood Substrates, Architectural woodwork and Doors:
1. Solid-Color, Water-Based Stain System :
 - a. Prime Coat: Primer, alkyd for exterior wood.
 - b. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
 - c. Topcoat: Stain, exterior, water based, solid hide.
 2. Solid-Color, Solvent-Based Stain System :
 - a. Prime Coat: Primer, alkyd for exterior wood.
 - b. Intermediate Coat: Stain, exterior, solvent based, solid hide, matching topcoat.
 - c. Topcoat: Stain, exterior, solvent based, solid hide.
 3. Water-Based Semitransparent Stain System :
 - a. Prime Coat: Stain, exterior, water based, semitransparent, matching topcoat.
 - b. Intermediate Coat: Stain, exterior, water based, semitransparent, matching topcoat.
 - c. Topcoat: Stain, exterior, water based, semitransparent.
 4. Semitransparent Stain System :
 - a. Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.
 - b. Topcoat: Stain, exterior, solvent based, semitransparent.

5. Varnish over Stain System :
 - a. Stain Coat: Stain, exterior, solvent-based, semitransparent.
 - b. First Intermediate Coat: Varnish matching topcoat.
 - c. Second Intermediate Coat: Varnish matching topcoat.
 - d. Topcoat: Varnish, with UV inhibitor, exterior, **semigloss**.
6. Water-Based Varnish System :
 - a. Prime Coat: Water-based varnish matching topcoat.
 - b. Intermediate Coat: Water-based varnish matching topcoat.
 - c. Topcoat: Water-based varnish, **semigloss**.
7. Varnish System :
 - a. Prime Coat: Varnish matching topcoat.
 - b. First Intermediate Coat: Varnish matching topcoat.
 - c. Second Intermediate Coat: Varnish matching topcoat.
 - d. Topcoat: Varnish, with UV inhibitor, exterior, **semigloss**.
8. Clear, Two-Component Polyurethane Varnish System :
 - a. Prime Coat: Varnish, aliphatic polyurethane, two component, matching topcoat.
 - b. Topcoat: Varnish, aliphatic polyurethane, two component gloss.

3.2 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

A. Wood Substrates, **Architectural Woodwork** and **Doors**:

1. Semitransparent Stain System :
 - a. Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.
 - b. Topcoat: Stain, exterior, solvent based, semitransparent.
2. Water-Based Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Water-based varnish matching topcoat.
 - c. Second Intermediate Coat: Water-based varnish matching topcoat.
 - d. Topcoat: Varnish, water based, clear, **semigloss**.
3. Water-Based Varnish System :
 - a. Prime Coat: Water-based varnish matching topcoat.
 - b. Intermediate Coat: Water-based varnish matching topcoat.
 - c. Topcoat: Varnish, water based, clear, **semigloss**.

4. Alkyd Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: **[Alkyd, sanding sealer, clear][Shellac, clear]**.
 - c. Second Intermediate Coat: Varnish matching topcoat.
 - d. Topcoat: Varnish, interior, **[flat][gloss]**.
5. Alkyd Varnish System :
 - a. Prime Coat: **[Alkyd, sanding sealer, clear][Shellac, clear]**.
 - b. Intermediate Coat: Varnish matching topcoat.
 - c. Topcoat: Varnish, interior, **[flat][gloss]**.
6. Polyurethane Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Second Intermediate Coat: Polyurethane varnish matching topcoat.
 - d. Topcoat: Varnish, interior, polyurethane, oil modified, **[satin][gloss]**.
7. Polyurethane Varnish System :
 - a. Prime Coat: Polyurethane varnish matching topcoat.
 - b. Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Topcoat: Varnish, interior, polyurethane, oil modified, **[satin][gloss]**.
8. Moisture-Cured Clear Polyurethane over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - c. Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - d. Topcoat: Varnish, polyurethane, moisture cured, gloss.
9. Moisture-Cured Clear Polyurethane System :
 - a. Prime Coat: Moisture-cured polyurethane matching topcoat.
 - b. Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - c. Topcoat: Varnish, polyurethane, moisture cured, gloss.
10. Clear, Two-Component Polyurethane System :
 - a. Prime Coat: Two-component polyurethane matching topcoat.
 - b. Intermediate Coat: Two-component polyurethane matching topcoat.
 - c. Topcoat: Varnish, aliphatic polyurethane, two component, gloss.
11. Danish Oil System :
 - a. Prime Coat: Danish oil matching topcoat.
 - b. Topcoat: Danish oil.

B. Wood Substrates, **[Wood Paneling][and][Casework]**:

1. Semitransparent Stain System :
 - a. Prime Coat: Stain, exterior, solvent based, semitransparent, matching topcoat.
 - b. Topcoat: Stain, exterior, solvent based, semitransparent.
2. Water-Based Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Water-based varnish matching topcoat.
 - c. Second Intermediate Coat: Water-based varnish matching topcoat.
 - d. Topcoat: Varnish, water based, clear, [**satin**][**semigloss**][**gloss**].
3. Water-Based Varnish System :
 - a. Prime Coat: Water-based varnish matching topcoat.
 - b. Intermediate Coat: Water-based varnish matching topcoat.
 - c. Topcoat: Varnish, water based, clear, [**satin**][**semigloss**][**gloss**].
4. Alkyd Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: [**Alkyd, sanding sealer, clear**][**Shellac, clear**].
 - c. Second Intermediate Coat: Varnish matching topcoat.
 - d. Topcoat: Varnish, interior, [**flat**][**gloss**].
5. Alkyd Varnish System :
 - a. Prime Coat: Alkyd, sanding sealer, clear [**Shellac, clear**].
 - b. Intermediate Coat: Varnish matching topcoat.
 - c. Topcoat: Varnish, interior, [**flat**][**gloss**].
6. Polyurethane Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Second Intermediate Coat: Polyurethane varnish matching topcoat.
 - d. Topcoat: Varnish, interior, polyurethane, oil modified, [**satin**][**gloss**].
7. Polyurethane Varnish System :
 - a. Prime Coat: Polyurethane varnish matching topcoat.
 - b. Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Topcoat: Varnish, interior, polyurethane, oil modified, [**satin**][**gloss**].
8. Moisture-Cured Clear Polyurethane over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - c. Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - d. Topcoat: Varnish, polyurethane, moisture cured, gloss.

9. Danish Oil System :
 - a. Prime Coat: Danish oil matching topcoat.
 - b. Topcoat: Danish oil.
- C. Wood Substrates, Traffic Surfaces, Including **[Floors][and][Stairs]**:
 1. Polyurethane Varnish over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Second Intermediate Coat: Polyurethane varnish matching topcoat.
 - d. Topcoat: Varnish, interior, polyurethane, oil modified, gloss.
 2. Polyurethane Varnish System :
 - a. Prime Coat: Polyurethane varnish matching topcoat.
 - b. Intermediate Coat: Polyurethane varnish matching topcoat.
 - c. Topcoat: Varnish, interior, polyurethane, oil modified, gloss.
 3. Moisture-Cured Clear Polyurethane over Stain System :
 - a. Stain Coat: Stain, semitransparent, for interior wood.
 - b. First Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - c. Second Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - d. Topcoat: Varnish, polyurethane, moisture cured, gloss.
 4. Moisture-Cured Clear Polyurethane System :
 - a. Prime Coat: Moisture-cured polyurethane matching topcoat.
 - b. Intermediate Coat: Moisture-cured polyurethane matching topcoat.
 - c. Topcoat: Varnish, polyurethane, moisture cured, gloss.
 5. Clear, Two-Component Polyurethane System :
 - a. Prime Coat: Two-component polyurethane matching topcoat.
 - b. Intermediate Coat: Two-component polyurethane matching topcoat.
 - c. Topcoat: Varnish, aliphatic polyurethane, two component, gloss.
- D. Wood Substrates, Wood Shingles and Shakes:
 1. Solid-Color Latex Stain System :
 - a. Prime Coat: Primer, latex for exterior wood.
 - b. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
 - c. Topcoat: Stain, exterior, water based, solid hide.
 2. Solid-Color, Solvent-Based Stain System :
 - a. Prime Coat: Stain, exterior, solvent based, solid hide, matching topcoat.
 - b. Topcoat: Stain, exterior, solvent based, solid hide.

- 3. Semitransparent Stain System :
 - a. Prime Coat: Stain, semitransparent, matching topcoat.
 - b. Topcoat: Stain, semitransparent, for interior wood.

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