

Division 9 – Finishes

General

Reference Division 1 “*General Requirements*” for Interior Design (ID) parameters.

A complete interior design package shall be included in the Design Professional’s services. The full scope of the Interior Design Services shall be completed within budget and on schedule, including furniture and general artwork (not to be confused with Public Art). The Design Professional’s interior designer (DPID) shall be licensed to practice in the State of Texas by the passage of the National Council for Interior Design Qualification (NCIDQ exam). Any exceptions must be reviewed and approved by TTUS FP&C.

Finish selections should be presented to the TTUS FP&C Project manager and TTUS FF&E Manager for review before presentation to the client. The DPID should work cooperatively with TTUS FP&C in order to ensure that TTUS finish standards/guidelines are satisfied. The finishes presented should be high quality, durable, appropriate for higher education application, easy to maintain, and timeless (not trendy). The finishes should also represent the client’s needs and desires accurately. Color should be used appropriately for the project type. Color combinations that closely resemble those of other universities should be avoided if possible and will not be considered for athletic projects.

A comprehensive finish schedule and material finish samples shall be provided to TTUS FP&C for all rooms within the scope of a project. Any changes to the finish schedule should be documented and sent to TTUS FP&C for proper approval.

Non-Load Bearing Steel Framing

For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.

For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

For products having recycled content, include documentation indicating percentages by weight of postconsumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.

Studs and Runners: ASTM C 645. Use either steel studs and runners or dimpled steel studs and runners.

1. Steel Studs and Runners:

- a. Minimum Base-Metal Thickness: 0.018 inch.
2. Dimpled Steel Studs and Runners:
 - a. Minimum Base-Metal Thickness: 0.015 inch.

Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

Install studs so flanges within framing system point in same direction.

Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

Gypsum Board

Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install mockups for the following:
 - a. Each level of gypsum board finish indicated for use in exposed locations.
 - b. Each texture finish indicated.
2. Apply or install final decoration indicated, including painting and wall coverings, on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

Submit a full-size sample in 12-inch- long lengths for each trim accessory indicated.

Store materials inside under cover and keep them dry and protected from weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned. Provide mildew resistant panels if installation occurs prior to enclosing areas.

Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

Fire Walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected opening or penetrations shall be effectively and permanently identified with signs or stenciling in accordance with the International Building Codes.

For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile and where indicated on drawings.
3. Level 3: Where indicated on Drawings.
4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 9 Sections.
5. Level 5: Where indicated on Drawings.
 - a. Primer and its application to surfaces are specified in other Division 9 Sections.

Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

Specify moisture and mold resistant gypsum board in all bathrooms, mechanical rooms, janitor closets, and all other "wet" areas.

Gypsum board control joints for walls and ceilings shall meet or exceed ASTM C840.

Portland Cement Plastering

This section includes exterior portland cement plasterwork (stucco) on metal lath.

Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work.

For each type of colored and textured finish coat indicated, submit a sample; 12 by 12 inches, and prepared on rigid backing.

Before plastering, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

Exterior Plasterwork:

1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
2. Apply plaster when ambient temperature is greater than 40 deg F.
3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

Metal lath to be expanded-metal complying with ASTM C 847 with ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating, Diamond-Mesh Lath, flat where installed directly to framing members with wire ties and Self-furring where installed over a solid substrate, 3.4 lb/sq. yd.

Specify portland cement to comply with ASTM C 150, Type II.

Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.

Ceramic Tile

Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.

Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this section.

For each type of product indicated submit samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.

2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required. Make samples at least 12 inches square, but not fewer than 4 tiles. Use grout of type and color or colors approved for completed work.
3. Full-size units of each type of trim and accessory for each color and finish required.
4. Metal edge strips in 6-inch lengths.

Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

Obtain each of the products specified in this Section from a single manufacturer for each product.

Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

"Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

Acoustical Ceilings

Provide ceiling products that provide appropriate acoustical performance and interior finish in accordance with ASTM E 1264. The ceiling products selected should also be easily accessible and easy to maintain after installation.

For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

1. Acoustical Panel: Set of 6-inch- square Samples of each type, color, pattern, and texture.
2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- long Samples of each type, finish, and color.

Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with detailed labels describing contents.

Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning

characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

- a. Smoke-Developed Index: 450 or less.

Before installing acoustical panels, permit them to reach room temperature and stabilized moisture content.

Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

Resilient Floor Tile

Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

Project Conditions:

1. Maintain ambient temperatures within range recommended by manufacturer in spaces to receive floor tile.
2. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.
3. Close spaces to traffic during floor tile installation.
4. Close spaces to traffic after floor tile installation per manufacturer's instructions.
5. Install floor tile after other finishing operations, including painting, have been completed.

Do not install floor tiles until they are same temperature as space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

Provide protective liquid floor polish products as recommended by manufacturer. Verify with Owner if the polish shall be gloss or matte finish.

Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

FLOOR TILE INSTALLATION:

1. Comply with manufacturer's written instructions for installing floor tile.
2. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - a. Lay tiles square with room axis.
3. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - a. Lay tiles with grain direction as specified in the finish schedule. Have the design professional's interior designer (DPID) request in writing if that information is missing.
4. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
5. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
6. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, non-staining marking device.
7. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

RESILIENT TILE CLEANING:

1. Upon completion of tile installation, all tile and base should be cleaned as recommended by the tile manufacturer.
2. Follow manufacturer's written instructions for protection of floor tile.

Portland Cement Terrazzo Flooring

This section includes precast Terrazzo units at monumental stairs.

Submit samples for each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected.

Installer shall be a member of NTMA (National Tooling & Machining Association).

Obtain each color, grade, type, and variety of granular materials from one source with resources to provide materials of consistent quality in appearance and physical properties.

Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

Deliver materials to Project site in supplier's original wrappings and containers, labeled with sources or manufacturer's name, material or product brand name, and lot number if any. Store materials in their original, undamaged packages and containers, inside a well ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

Verify actual dimensions of construction contiguous with precast terrazzo by field measurements before fabrication.

Portland cement terrazzo shall comply with NTMA's "Terrazzo Specifications and Design Guide" for terrazzo type indicated for matrix and marble-chip and aggregate proportions and mixing.

For precast terrazzo units for stair treads, comply with NTMA's written recommendations for fabricating precast terrazzo units in sizes and profiles indicated. Reinforce units as required by unit sizes, profiles, and thicknesses and as recommended by manufacturer.

Comply with NTMA's written recommendations for terrazzo installation.

Clean and seal terrazzo surface in accordance with NTMA's written recommendations.

Resinous Matrix Terrazzo Flooring

This section includes thin-set epoxy-resin terrazzo flooring and base.

Submit samples for each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected.

Installer must be a qualified installer who is acceptable to the terrazzo manufacturer to install the manufacturer's products. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.

Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.

Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.

Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.

Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with terrazzo.

Test for moisture by anhydrous calcium chloride method according to ASTM E 1907. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

Flooring contractor should notify the owner of any conditions that may cause issues with cracking, etc.

Comply with NTMA's written recommendations for terrazzo and accessory installation.

Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions and NTMA's "Terrazzo Specifications and Design Guide."

Clean and seal terrazzo surface in accordance with NTMA's written recommendations.

Carpet

For each type of product, submit manufacturer's written data on physical characteristics, durability, fade resistance, and installation recommendations for each type of substrate. Samples of each carpet selected should be submitted to TTUS FP&C.

Furnish extra materials from the same product run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Where indicated, provide carpet identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.

Comply with CRI 104 for delivery, storage, handling, temperature, humidity, and ventilation limitations.

Special Warranty for Carpet: Manufacturer agrees to repair or replace components of carpet installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
3. Warranty Period: as specified beginning from date of Substantial Completion.

Specify adhesives to be water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended by carpet manufacturer for releasable installation.

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Examine carpet for type, color, pattern, and potential defects.

Verify that concrete slabs comply with ASTM F 710 and the following:

1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.

Comply with CRI 104, Section 7.3, "Site Conditions; Floor Preparation," and with carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.

Maintain dye lot integrity. Do not mix [carpet from different](#) dye lots in same area.

Comply with CRI 104 and carpet manufacturer's written installation instructions for installation.

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Protect installed carpet to comply with CRI 104, Section 16, "Protecting Indoor Installations."

Carpet Tile

For each type of product, submit manufacturer's written data on physical characteristics, durability, fade resistance, and installation recommendations for each type of substrate. Samples of each carpet selected should be submitted to TTUS FP&C.

Furnish extra materials from the same product run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.

Comply with CRI 104 for delivery, storage, handling, temperature, humidity, and ventilation limitations.

Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
3. Warranty Period: as specified beginning from date of Substantial Completion.

Specify adhesives to be water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.

Verify that concrete slabs comply with ASTM F 710 and the following:

1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.

Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.

Maintain dye lot integrity. Do not mix [carpet from different](#) dye lots in same area.

Comply with CRI 104 and carpet tile manufacturer's written installation instructions for installation.

Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."

Wall Coverings

Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates according to test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Surface-Burning Characteristics: As follows:
 - a. NFPA 101 Life Safety Code – Class A.
 - b. ASTM – E84/NFPA 286 Corner Burn Test compliant for flame spread, smoke developed, and flashover.

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Provide rolls of each type of wall covering from same print run or dye lot.

Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.

Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.

1. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.

Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

Cut wall-covering strips in roll number sequence. Change roll numbers at partition breaks and corners.

Install strips in same order as recommended by manufacturer.

Exterior Painting

For each type of product, submittal shall include preparation requirements and application instructions.

Submit for each type of paint system, texture, and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 9X12 inches.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

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.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

Apply paints only when temperature of surfaces to be painted and ambient air temperatures are

between 50 and 95 deg F.

Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

Provide materials for use within each paint 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.

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

Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint 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.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

For concrete substrates, remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

For steel substrates, remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

For shop-primed steel substrates, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

For galvanized-metal substrates, remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

For aluminum substrates, remove loose surface oxidation.

Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual." Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, or other surface imperfections. Cut in sharp lines and color breaks.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

Interior Painting

For each type of product, submittal shall include preparation requirements and application instructions.

Submit for each type of paint system, texture, and each color and gloss of topcoat:

1. Submit Samples on rigid backing, 9X12 inches.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Interior paint quality should be consistent with the use of the facility. If high performance paints are specified, they must be justified.

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.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

Maximum Moisture Content of Substrates: Per manufacturer's recommendation.

Provide materials for use within each paint 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.

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

Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint 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.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

For concrete substrates, remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

For masonry substrates, remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

For steel substrates, remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

For shop-primed steel substrates, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

For galvanized-metal substrates, remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

For wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, or other surface imperfections. Cut in sharp lines and color breaks.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

Staining and Transparent Finishing

Submit product data for each type of product indicated. Include preparation requirements and application instructions.

Submit samples for verification for each type of finish system and in each color and gloss of finish indicated.

1. Submit Samples on representative samples of actual wood substrates, 8 inches square.
2. Label each Sample for location and application area.

Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.

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.

Do not apply exterior finishes in snow, rain, fog, or mist.

Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

Provide materials for use within each finish 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.

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

Owner reserves the right to invoke the following procedure:

1. Owner 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.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying wood finishes if test results show materials being used does not comply with product requirements. Contractor shall remove

non-complying 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 Architect, are aesthetically unacceptable.

Maximum moisture content of exterior wood substrates when measured with an electronic moisture meter shall be 15 percent.

Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Beginning finish application constitutes Contractor's acceptance of substrates and conditions.

Preparation shall comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

FRP Wall Panels

Submit product data indicating material specifications, characteristics, installation instructions and accessories required.

Submit samples on rigid backing, 9X12 inches.

Submit maintenance data and recommended cleaning and stain removal methods and cleaners required.

Manufacturer shall be a company specializing in the manufacture of products specified in this Section with minimum three years of experience.

Installer shall be a company specializing in applying the work of this Section with minimum five years of experience.

Inspect substrate prior to application of panels.

Beginning of installation means installer accepts existing conditions.

Follow manufacturer's guidelines for storage and preparation.

Securely attach panels to substrate with anchors and adhesives in strict accordance with manufacturer's written instructions and recommendations.

At completion of installation, clean all panels per manufacturer's guidelines and remove all debris and miscellaneous materials from the site.