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PAINTING CONTRACTORS ASSOCIATION

PCA INDUSTRY STANDARDS

INDUSTRY STANDARDS

PAINTING CONTRACTORS ASSOCIATION
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IN COOPERATION WITH

FCA INTERNATIONAL

INTRODUCTION TO THE PCA STANDARDS

PCA has developed these Standards to ensure that quality craftsmanship is performed, and product failures are diminished while creating protective or decorative longevity of the products and finishes installed for its Owner.

PCA Standards serve as guidelines for the accomplishment of painting, coating, and decorating work. Each Standard is a Consensus Standard. The Standards are drafted, presented, adopted, and reviewed in accordance with the procedures set forth in the PCA Standards Manual.

Consensus Standard development is carried out with the cooperation of all interested parties and for the benefit of all concerned including owners, managers, specifiers, designers, engineers, manufacturers, suppliers, trade associations, general contractors, and related specialty contractors. The Standards promote uniformity and consistent working practices from one area of the country to another.

The Standards are organized into seven sections: (1) Scope, (2) Significance and Use, (3) Definitions and Trade Terms, (4) Reference Documents and Standards, (5) Standard Specification, (6) Comments, and (7) Disclaimer of Liability. They cover a range of issues that often become the subject of misunderstandings or contract disputes; these Standards are developed to clarify and correct communication challenges that may exist when painting, coating, and decorating is involved in projects.

PCA Standards serve as suggested guidelines and are not intended to restrict or discourage the use of additional requirements. PCA Standards should not be considered as restrictions on the advancement and development of any new materials, techniques, or protocols.

Comments or questions regarding the Standards or their interpretation should be addressed to the Chair of the Standards Committee at PCA Headquarters.

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PCA STANDARDS SUMMARY

- **PCA Standard P1** establishes criteria for determining a properly painted surface, defines touch up and repair.
- **PCA Standard P2** establishes criteria for determining the qualifications of third parties charged with conducting inspections of coatings application work performed by painting contractors, as well as the procedures to be followed by inspectors in the performance of their duties. The establishment of inspection hold points by all parties to the agreement are an important part of this standard.
- **PCA Standard P3** describes the impact associated with the number and placement of paint colors and types of finishes. The standard is intended to provide guidance in those instances where the number and placement of paint colors and color ranges are either not specified in the bid documents or are unclear.
- **PCA Standard P4** establishes criteria for inspecting and approving of surfaces prior to painting, coating, or decorating.
- **PCA Standard P5** establishes a procedure for the submission and approval of Benchmark Samples which will serve to determine achievable quality from the specified preparation, paint, coating, or decorating system.
- **PCA Standard P6** establishes criteria for determining the acceptance of completed wallcovering installations.
- **PCA Standard P7** establishes criteria for the order of work performed by various parties on a construction project as it relates to the efficient and successful completion of painting, coating, and decorating work.
- **PCA Standard P8** establishes maintenance of painted and coated surfaces and prescribes procedures for inspecting and repainting previously painted surfaces that have since become aesthetically less pleasing in appearance.
- **PCA Standard P9** defines terms commonly used in the industry to describe work to be performed by Painting Contractors in the routine and ordinary course of their duties.
- **PCA Standard P10** prescribes a methodology for measuring surfaces for estimating & bidding painting, coating, and decorating work.

- **PCA Standard P11** defines painter's caulk to determine its suitability and establish its placement whether delineated, implied and/or not referenced in the specifications for painting.
- **PCA Standard P12** establishes consistent procedures for the specification of block filling and the application of block filler prior to painting paint grade smooth face concrete masonry units.
- **PCA Standard P13** the inspection and acceptance of architectural paints on the interior surfaces of structures when dry film thickness is specified.
- **PCA Standard P14** levels of surface preparation for repainting and maintenance projects receiving architectural coatings.
- **PCA Standard P15** establishes procedures for the evaluation of shop primer applied by an entity other than the painting contractor, including, but not limited to siding and other architectural features.
- **PCA Standard P16** establishes the various entities involved when wallcovering is removed by an entity other than the painting contractor in preparation for painting or replacement.
- **PCA Standard P17** establishes the various entities involved with smooth face tilt-up is field painted.
- **PCA Standard P18** is intentionally blank and discontinued; December 2022
- **PCA Standard P19** defines the field of Decorative Finishing.
- **PCA Standard P20** establishes procedures for the close out of painting, coating, and projects.
- **PCA Standard P21** establishes consistent procedures for the specification of stain and clear coating on new interior wood surfaces.
- **PCA Standard P22** establishes consistent procedures for the specification of utilizing pressurized water to clean surfaces or prepare surfaces for painting.
- **PCA Standard P23** identifies typical common items that are not implied to be a part of the Painting Contractor's work unless explicitly referenced in the specification or contract documents.

- **PCA Standard P24** establishes procedures for the inspection and acceptance of spot repairs made to existing finishes.
- **PCA Standard P25** is intentionally blank and discontinued; December of 2022

PCA P1

Touch Up Painting and Damage Repair, and Definition of a Properly Painted Surface

1. Scope

1.1 The purpose of this Standard is to define repair or correction of damage to finished painted surfaces.

2. Significance and Use

2.1 This Standard defines the repair and repainting of finished painted surfaces that have been damaged by events other than those caused by the Painting Contractor or its assigns. This type of damage is defined as damage caused by others.

2.2 The Painting Contractor will repair, repaint, or both, any damaged areas caused by itself or its assigns.

2.3 Latent damage is due to conditions beyond the control of the Painting Contractor. This damage is caused by conditions not apparent during painting procedures.

2.4 The Painting Contractor will produce a properly painted surface. A properly painted surface is one that is applied in accordance with the contract documents, the manufacturer's printed Technical Data Sheet(s) and is uniform in appearance, color, texture, hiding and sheen. It is virtually free of foreign material, lumps, skins, runs, sags, holidays, misses, or insufficient coverage. It is also a surface free of drips, splatters, spatters, spills, cracks or overspray caused by the Painting Contractor's workforce or its assigns. In order to determine whether a surface has been properly painted it shall be examined without magnification at a distance of thirty-nine (39) inches or one (1) meter, or more, under finished lighting conditions and from a normal viewing position.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 TOUCH UP: The Painting Contractor shall correct deficiencies in its workmanship to conform to the definition of a properly painted surface as defined in this Standard.

5.2 The acceptability of the surface shall be determined when viewed without magnification, at a distance of thirty-nine (39) inches or one (1) meter or more, under finished lighting conditions and from a normal viewing position.

5.3 Inspection lighting conditions will allow the finished surface to be viewed with minimal distortion which may be caused by the quality of the substrate preparation and/or illumination at an acute angle.

6. Comments

6.1 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.2 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P2

Third Party Inspections: Qualifications, Responsibilities, and Procedures

1. Scope

1.1 The purpose of this Standard is to establish third party inspection qualifications, responsibilities and procedures.

2. Significance and Use

2.1 Interest in the success of the project.

2.2 Effective third party inspection can contribute to the success of a project and reduce needless delays, rework and costs, general disruptions and tension between the contracting entity, Painting Contractor, and material supplier.

2.3 This Standard shall utilize standards already set forth by the Association for Materials Protection and Performance (AMPP) [the National Association of Corrosion Engineers (NACE) & The Society for Protective Coatings (SSPC)] and the American Society for Testing and Materials (ASTM), and as enumerated below.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 General Requirements for Inspection Personnel

5.1.1 Education, Training and Experience

5.1.1.1 As a minimum requirement, an inspector shall have successfully completed an education and training program from a recognized organization offering curriculum equivalent to the NACE Training Course Session 1 – Basic Coating Inspection Course or MPI Certified Architectural Coatings Inspector. Similar courses from AMPP, NACE, SSPC or MPI may be considered for the project.

5.1.1.2 An inspector shall have a minimum of three (3) years of experience in the painting industry related to the type of work to be inspected. A current resume of work experience of the inspector shall be available to all parties at the pre-job conference.

5.1.2 Physical Qualifications

5.1.2.1 An inspector should be examined annually to ensure natural or corrected near-distance visual acuity in at least one eye. The individual shall read the J-1 letters on a standard Jaeger chart, or equivalent, at a distance of not less than 12 inches with one or both eyes, uncorrected or corrected. An inspector shall also be examined for color perception using the Ishihara test or the Farnsworth D-15 test when being certified or recertified.

5.1.2.2 An inspector shall be physically capable of performing the required inspection work on industry standard, OSHA approved equipment as utilized by the Contractor.

5.1.2.3 Inspector's Safety Training: The inspector must show that he or she has received current training in all safety aspects that will be encountered during the execution of his or her duties on the project.

5.1.3 Functional Qualifications of Inspectors

5.1.3.1 An inspector shall have a current working knowledge of the operation and use of the inspection equipment required for the project.

5.1.4 Coating Knowledge

5.1.4.1 An inspector shall conduct a complete review of the coating specification and be capable of understanding the requirements of those documents.

5.1.5 Conflict of Interest Disclosure

5.1.5.1 Full disclosure shall be made by the inspector of any reasons that would prevent an impartial evaluation of the Painting Contractor's performance.

5.2 Job Coordination Requirements

5.2.1 A pre-job conference shall be held to review information pertinent to the job. The inspector shall be present with the contracting entity, material supplier (or representative) and Painting Contractor. At a minimum, the following topics shall be reviewed:

5.2.1.1 Scope of Work

5.2.1.2 Specification Requirements

5.2.1.3 Identification of Design Defects

5.2.1.4 Safety Data Sheets (SDS) formally known as Material Safety Data Sheets (MSDS) and Product or Technical Data Sheets

5.2.1.5 Pre-Bid Job Walk Minutes

5.2.1.6 Work Schedule

5.2.1.7 Acceptance Procedures

5.2.1.8 Inspector Qualifications

5.2.1.9 Inspector's Authority: Prior to job start, the Painting Contractor shall be advised as to the level and limits of authority and responsibility that the inspector will be exercising.

5.2.1.10 Testing Procedures and Instrumentation: If not specifically addressed in the specifications, testing procedures and the required list of instruments, including calibration, shall be determined at the pre-job conference.

5.1.6.11 Resolution of Disputes

5.1.6.12 Inspection Hold Points and Documentation

5.3 Resolution of Dispute Procedure

5.3.1 To ensure timely completion of the project, a procedure shall be written to resolve any dispute or conflict regarding specifications, manufacturers' literature, work in progress or completed work.

5.3.2 Minimum resolution procedure shall include:

5.3.2.1 Establishment of levels of communication and responsibility and authority of personnel.

5.3.2.2 Identification of personnel having levels of authority.

5.3.2.3 Time frame and procedure to identify and resolve disputes or conflicts.

5.4 Inspection Hold Points & Documentation

5.4.1 A schedule of hold points in the sequence of work operations shall be identified, after which timely inspections/testing procedures are to be performed prior to further work being completed. Inspections/testing procedures should not unreasonably delay the Painting Contractor's work.

5.4.2 The inspector shall understand the project schedule and shall perform activities in accordance with the Painting Contractor's schedule. Inspection hold points shall be mutually agreed upon to minimize disruption to the Painting Contractor's workflow.

5.4.3 Non-compliant conditions, or defective work phases shall be immediately reported in writing to the Painting Contractor's representative and the contracting entity.

5.4.4 The inspector shall provide the Painting Contractor with all QA/QC reports and documentation within twenty-four (24) hours of the inspection and concurrent with issuance to the contracting entity.

6. Comments

6.1 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.2 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P3

Impact of Paint Color

1. Scope

1.1 The purpose of this Standard is to advise that the number and placement of paint colors and color ranges impact project costs.

1.2 It is not the intent of this Standard to limit the number and placement of colors on a particular project.

1.3 This document describes and defines special finishes.

2. Significance and Use

2.1 The number and placement by substrate and sheen of paint colors and color ranges affect the Owner and Painting Contractor's costs in the performance of a project. As the number and placement of paint colors increase, labor productivity decreases. As paint colors deepen, application and additional material costs increase.

2.2 The number and placement of paint colors and color ranges should be indicated in the project bid documents, and ultimately in the contract documents.

2.3 When the number and placement of paint colors and color ranges are not designated in the bid documents, the Painting Contractor has a frame of reference.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The Number and Placement of Interior Paint Colors, unless specified otherwise.

5.1.1 Color Level I: One paint color shall be selected for all interior painted surfaces of the entire project.

5.1.2 Color Level II: No more than two interior paint colors shall be selected for the entire project. Only one paint color will be selected for the interior painted surfaces of any one room or area. The exact placement of the colors will be clearly specified in the bid documents, and ultimately in the contract documents.

5.1.3 Color Level III: Three or more paint colors shall be selected for the interior painted surface of any one room or area. No more than one paint color will be selected for any particular surface. The exact placement of the colors will be clearly specified in the bid documents, and ultimately in the contract documents.

5.1.4 Color Level IV: The selection of unlimited paint colors for interior painted surfaces. The placement of colors, the type and placement of special finishes will be clearly specified in the bid documents, and ultimately in the contract documents.

5.2 The Number and Placement of Exterior Paint Colors, unless specified otherwise.

5.2.1 Color Level I: One paint color shall be selected for all exterior painted surfaces of any structure or building.

5.2.2 Color Level II: No more than two exterior paint colors shall be selected for any structure or building. No more than one paint color will be selected for any particular surface. The exact placement of the colors will be clearly specified in the bid documents, and ultimately in the contract documents.

5.2.3 Color Level III: Three or more paint colors shall be selected for any structure or building. No more than one paint color will be selected for any particular surface. The exact placement of colors will be clearly specified in the bid documents, and ultimately in the contract documents.

5.2.4 Color Level IV: The selection of unlimited paint colors for any structure or building. The placement of colors, the type and placement of special finishes will be clearly specified in the bid documents, and ultimately in the contract documents.

5.3 Color Ranges, unless specified otherwise.

5.3.1 Interior Color Levels I, II and III will only permit the use of paint colors normally designated as off-whites or pastels.

5.3.2 Exterior Color Levels I, II and III will only permit the use of paint colors normally designated as off-whites, pastels or mid-tones.

5.3.3 The use of white, mid-tone, deep-tone and ultra deep-tone paint colors for interior use and white, deep-tone and ultra deep-tone paint colors for exterior use are limited to Color Level IV only. The exact placement of these color ranges will be specified in the bid documents, and ultimately in the contract documents.

5.4 Special Finishes

5.4.1 The use of special finishes including, but not limited to, graphics, murals, faux finishes and multi-colored coatings is designated Color Level IV. The exact placement of special finishes will be specified in the bid documents, and ultimately in the contract documents.

5.5 Paint Coverage

5.5.1 Color selection must be consistent with the paint specifications for the project, structure or building. The paint specified must be available in the color range selected.

5.5.2 The colors selected in the materials specified must be capable of achieving full and uniform coverage when the number of coats specified has been applied, as described in the PCA Standards and in accordance with the manufacturer's printed instructions, or application procedures.

5.6 Special Circumstances

5.6.1 In the event that the number and placement of paint colors and color ranges are not designated in the bid documents, then the Painting Contractor will assume that Color Level II will be selected for both interior and exterior use.

5.6.2 In the event the same color of a different paint material or sheen level is to be used on the same surface or substrate, the exact placement of different paint material or gloss level shall be specified in the bid documents, and ultimately in the contract documents.

6. Comments

6.1 This Standard establishes a system for the designation of interior and exterior paint colors and color ranges.

6.2 This Standard establishes a guide for the preparation of a paint bid when paint colors and color ranges are not specified in the bidding documents.

6.3 This Standard clarifies multi-color projects.

6.4 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.5 This Standard is a nationally recognized consensus document for the painting and coating industry.

7. Disclaimer of Liability

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PCA P4

Inspection and Acceptance of Surfaces Prior to Painting and Decorating

1. Scope

1.1 The purpose of this Standard is to establish responsibility for inspection and approval of surfaces prior to painting and decorating.

1.2 This Standard is intended for use on construction projects where the Painting Contractor applies paints, coatings or wallcoverings over an existing surface or surface assembled, constructed or prepared by others not under the Painting Contractor's control.

2. Significance and Use

2.1 The contracting entity is the final judge in all matters relating to the quality of appearance and acceptance of surfaces.

2.2 Quality of appearance is a subjective term governed by the contracting entity and established by specification and reference standards. It is controlled by sample review and approval along with jobsite inspections and approvals.

2.3 The Painting Contractor is not licensed, qualified, or obligated to render any final professional opinion regarding the quality of appearance of work performed by others out of its control.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Acceptance of Surfaces

5.1.1 The Painting Contractor is required to inspect surfaces to be finished only to determine, by reasonable and visible evidence, that the finish will satisfactorily adhere to surfaces provided by others and will perform as specified.

5.1.2 The contracting entity has the responsibility to determine that a surface is complete and that the quality of appearance is such that it is ready for finish painting or wallcovering.

5.1.3 When the previous trade has completed its work and notification to proceed has been given, such action will be construed as tacit evidence that all work has been inspected, and that it is warrantable, completed, and ready for finishing.

5.1.4 If quality of appearance of a surface, prior to finishing, is judged marginal or unacceptable by others conducting essential inspection, such alleged defective work must be corrected prior to priming and finishing so that all surfaces are made complete and ready for finishing.

6. Comments

6.1 The intent of this document is to ensure a higher level of quality and understanding by the parties.

6.2 Quality of appearance is achieved through quality control. Inspecting work in progress and taking necessary action at the appropriate time to make required corrections is imperative to ensure quality of appearance. This Standard encourages periodic inspections and corrective actions.

6.3 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.4 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P5

Benchmark Sample Procedures for Paint and Other Decorative Coating Systems

1. Scope

1.1 The purpose of this Standard is to provide a guideline to achieve approved Benchmark Samples of complete paint and coating systems for painting projects.

1.2 This Standard provides a protocol to establish an approved level of achievable quality for a specific paint and coating system.

1.3 It is intended that this Standard be used where the scope of the project is such that it is advisable to establish achievable levels of quality before beginning the job.

1.4 This Standard includes the surface preparation of typical areas of a project site in accordance with the applicable project specifications or contract documents.

2. Significance and Use

2.1 This Standard consists of the procedures and criteria whereby a Benchmark Sample for paint, coating and other decorative systems will be prepared and presented by the Painting Contractor for approval by the contracting entity.

2.2 Approved Benchmark Samples are established utilizing full scale, on-site surface areas. These shall be prepared using the complete specified or approved paint, coating or decorative system. The sample is to include surface preparation, and the application of the primer, intermediate, finish coat and touch up materials as specified.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Procedure

5.1.1 The contracting entity and the Painting Contractor shall select and designate sample sites to meet the criteria of this Standard.

5.1.1.1 The contracting entity and the Painting Contractor shall agree to a time schedule to prepare and approve Benchmark Samples. Samples shall be prepared only after permanent lighting, heating, venting and air conditioning equipment have been installed and activated.

5.1.1.2 The condition of the surface to be used as the sample area must be approved by the contracting entity prior to the preparation of the Benchmark Sample by the Painting Contractor.

5.1.1.3 After receiving approval from the contracting entity to proceed, the Painting Contractor shall prepare and apply the complete coating system as specified in the contract documents to produce the Benchmark Samples.

5.1.1.4 The Painting Contractor will produce a properly painted surface.

5.1.2 The recommended Benchmark Sample area should be approximately 100 square feet. Small areas, such as doors, handrails and trim, may have a more practical square footage arrangement, as agreed by the parties involved. The specific number, placement and size of samples will be clearly defined in the bid documents.

5.1.2.1 The substrate type and application method used to produce the Benchmark Sample must be representative of the specified application method(s) for substrate.

5.1.2.2 The Benchmark Sample shall leave exposed a sampling of the approved substrate, before and after any specified surface preparation for the system. In addition, there should be left a separate and individual sampling of each designated and subsequently applied coating and any intercoat surface preparation.

5.1.3 If the Benchmark Sample is impossible or impractical to achieve, then an alternate shall be agreed upon in writing by the contracting entity and Painting Contractor.

5.1.4 A separate Benchmark Sample area may be prepared for approval for each substrate and each coating system as required by the contract documents or as agreed by the contracting entity and the Painting Contractor. The specific number and placement of samples will be clearly defined in the bid documents, and ultimately in the contract documents.

5.1.5 Production work may proceed as soon as approval of the Benchmark Sample is received by the Painting Contractor from the contracting entity. Approval or rejection must be issued according to the time schedule agreed upon as outlined in section 5.1.1.1 above.

5.1.5.1 Approval of Benchmark Samples shall be granted by the contracting entity after the sample areas have been prepared and coated in accordance with the contract documents and this Standard.

5.1.5.2 Approval of the Benchmark Sample shall be documented in writing by the contracting entity and delivered to the Painting Contractor.

5.1.6 After final approval, the sample surface area shall be secured and clearly identified with signage reading: BENCHMARK SAMPLE! DO NOT PAINT, DEFACE, CHANGE OR ALTER IN ANY WAY WITHOUT MUTUAL CONSENT OF CONTRACTING ENTITY AND THE PAINTING CONTRACTOR.

5.1.7 Sample touch ups may be applied to the approved sample surfaces. The area of touch up shall be clearly identified, approved, and retained as part of the Benchmark Sample.

5.2 Benchmark Sample Procedure: The Painting Contractor shall prepare and paint a sample in accordance with the contract documents and as prescribed in this Standard.

5.2.1 The contracting entity or its designated representatives shall approve Benchmark Sample areas after confirming complete compliance with the contracting documents and/or in accordance with this Standard.

6. Comments

6.1 This Standard outlines procedures for onsite determination and approval of achievable quality from specified paint and coating systems.

6.2 This Standard clarifies areas of authority and responsibilities. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P6 Acceptance of Completed Wallcovering

1. Scope

1.1 The purpose of this Standard is to establish guidelines for the acceptance of wallcovering installations.

1.2 This Standard encompasses any project requiring the installation of wallcoverings.

2. Significance and Use

2.1 This Standard establishes a guideline for the acceptance of installation quality and is limited to proper seaming practices, pattern match, verticality, and cleanliness of appearance.

2.2 The contracting entity is the final judge in all matters related to the acceptance of the wallcovering installation.

2.3 Inspection and acceptance of surfaces and wallcovering material(s) prior to installation are separate from this Standard. Refer to related documents in Section 3.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The manufacturer and purchaser (or purchaser's agent) of the wallcovering shall inspect the wallcovering for defects prior to installation.

5.1.1 The purchaser must report any discrepancies in the wallcovering pattern, texture or color to the wallcovering manufacturer or distributor as soon as possible, to avoid installation disputes.

5.2 The contracting entity shall inspect surfaces prepared by others for compliance with the manufacturer and installer's surface requirements.

5.2.1 All wallcovering and paste materials are to be stored and applied in accordance with Manufacturer's Printed Technical Data and Instructions.

5.2.2 Wallcoverings are a prefinished item and should only be installed in a controlled environment where permanent heating is provided to maintain and guarantee ambient and substrate temperatures at a minimum of sixty-five (65) degrees Fahrenheit. If the contracting entity provides temporary heating to accelerate a building schedule, the temporary heating must be maintained in areas where wallcoverings have been installed, until ambient temperatures reach sixty-five (65) degrees Fahrenheit. Temperature must be maintained for at least three (3) weeks after the last strip has been installed.

5.3 Wallcovering is deemed properly installed when:

5.3.1 Adhesion is complete with no loose or curling edges, lifting seams, air bubbles or paste bumps.

5.3.2 Pattern match is achieved.

5.3.3 Wallcovering is installed plumb or square. Note: A pattern may appear out of square due to a substrate or construction defect that is beyond the control of the installer.

5.3.4 Wallcovering is free from visible shrinkage.

5.3.5 Seams are properly trimmed, with no frayed edges, allowing for pattern match and without evidence of excessive pressure that would score the substrate and affect adhesion.

5.3.6 Wallcovering surface is free from adhesive residue.

5.4 Color shading is inherent in natural and simulated natural materials and should be expected.

5.5 Upon completion, a visual inspection by the contracting entity should occur in order to determine compliance with this Standard.

5.5.1 The acceptability of the surface shall be determined when viewed without magnification, at a distance of thirty-nine (39) inches or one (1) meter or more, under finished lighting conditions and from a normal viewing position.

5.5.1.1 Inspection lighting conditions will allow the finished surface to be viewed with minimal distortion, which may be caused by the quality of the substrate preparation, illumination at an acute angle or both.

5.5.2 Damage caused by parties other than the Painting Contractor or its workforce is considered damage by others.

6. Comments

6.1 This Standard acknowledges the areas of wallcovering installation within the control of the Painting Contractor. Use of this Standard avoids time-consuming disputes pertaining to the wallcovering material that can only be resolved with the participation of the wallcovering manufacturer and/or distributor.

6.2 Latent damage is due to conditions beyond the control of the Painting Contractor. This damage is caused by conditions not apparent at the time of initial painting and decorating.

6.3 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.4 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P7

Job Sequencing

1. Scope

1.1 The purpose of this Standard is to recognize how job sequencing affects the completion of painting, coating and decorating work activities.

1.2 This Standard establishes job sequencing.

1.3 This Standard encompasses projects where the Painting Contractor applies paints, coatings, or wallcoverings to surfaces or substrates prepared by the contracting entity, another contractor, construction manager or trade not under the Painting Contractor's control.

1.4 This Standard is not intended to establish project schedules.

2. Significance and Use

2.1 Proper and effective job sequencing is vital to the work of (new construction, remodeling and repainting projects) the Painting Contractor. The Painting Contractor's cost and quality of work is affected by changes in job sequencing.

2.2 This Standard will help the Painting Contractor define the job conditions and sequencing necessary to complete its work in a timely and productive manner.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Interior General Conditions: The following requirements, supplied by others, must be in place prior to the start of work in order to ensure a successful installation by the Painting Contractor:

5.1.1 The structure shall be weather-tight including doors, windows, floors and roofing.

5.1.2 Permanent or temporary HVAC system shall maintain temperature and humidity levels within the guidelines set forth and approved by the materials suppliers of the products specified.

5.1.3 Unless otherwise agreed, permanent lighting, or temporary lighting comparable in intensity to the permanent lighting, shall be supplied. If temporary lighting is not comparable to the permanent lighting, inspections shall occur under the temporary lighting.

5.1.4 Unless specified otherwise, all pre-finished or non-painted items and furnishings shall be installed on painted/decorated surfaces or in painted/decorated areas after PCA Standard final finishes are applied. This shall apply to, but not be limited to, ceiling grid, door hardware, light fixtures, trim, base and carpet.

5.2 Exterior General Conditions: The following requirements, supplied by others, must be in place prior to the start of work in order to ensure a successful installation by the Painting Contractor.

5.2.1 Reasonable access to the area prior to the installation of any fencing, landscaping, or other obstacles that could prevent or hinder such access.

5.2.2 Acceptable weather and climate conditions of the project area to comply with the manufacturers' recommendations for application of materials.

6. Comments

6.1 Compliance with this Standard will promote a high quality of workmanship by the Painting Contractor for the contracting entity.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P8

Maintenance of Paints and Coatings

1. Scope

1.1 This Standard addresses an appropriate maintenance program. Proper paint and coatings maintenance (clear or pigmented) reduces the detrimental effects of time, abrasion, environment, impact and other forces on the aesthetic, identifying (color coding) and other protective properties of paints and coatings.

1.2 This Standard will improve communication between the Owner and the Painting Contractor for the purpose of keeping the paints and coatings intact and capable of performing their intended function(s).

1.3 This Standard describes the basic steps for the owner to implement an effective paint and coatings maintenance program.

2. Significance and Use

2.1 All surfaces that have previously had paints and coatings applied (which are intended to perform a decorative, identifying or protective function) benefit from timely inspection and repair.

2.2 Touch up or repainting becomes a maintenance procedure at the point in time after the Painting Contractor has fulfilled the warranty obligation of the original contract. Touch up is defined in PCA Standard P1, Touch up Painting and Damage Repair, and Definition of a Properly Painted Surface.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The Painting Contractor shall be responsible for the repair of any defects in its material or application during the warranty period stipulated in the original construction contract.

5.2 After the original warranty period has expired, periodic inspections of all painted and coated surfaces shall be conducted as required by type(s) of paint and coating

materials, area(s) of use and type of exposure. Inspections are the responsibility of the owner.

5.2.1 Corrective actions can extend to underlying causes of the paint or coating deterioration or failure including, but not limited to, moisture intrusion, damaged or missing caulking or sealant, container leaks, aggressive environment, substrate expansion and contraction and structure settlement.

5.2.2 All procedures necessary for the performance of the corrective actions shall be documented.

5.2.3 Corrective actions required to be performed by other trades prior to maintenance painting must be completed to avoid continued deterioration.

5.3 Maintenance procedures shall be scheduled and followed to ensure that all repainting or recoating adheres to manufacturers' instructions.

6. Comments

6.1 Paints or coatings that become damaged or suffer serious film degradation may exhibit reduced effectiveness of protection, decoration or identification of the substrate. When this occurs, neglect of maintenance places the substrate at risk for continued degradation and may lead to complete substrate removal and replacement.

6.2 Implementation of routine inspection and maintenance of paints and coatings will in most cases preserve the integrity of the paint and coating systems.

6.3 This Standard identifies the procedures required for a successful and cost-effective maintenance program.

6.4 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.5 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P9 Definition of Trade Terms

1. Scope

1.1 The purpose of this Standard is to define the trade usage of terms and phrases relating to the painting and coating industry.

1.2 It is also the intent of this Standard to prevent misunderstandings and conflicts by establishing criteria for the interpretation of documents consistent with painting and coating industry standards.

2. Significance and Use

2.1 The interpretation of terms and phrases affects the Painting Contractor's performance of a project.

2.2 Standardization of the definition of terms and phrases included in the documents provides the Painting Contractor with a frame of reference upon which to base its plan and estimate.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms.

3.1.1 ABRASIVES: Materials used for wearing away a surface by friction, such as powdered pumice, silica, sandpaper, metal shot, mineral slags, steel wool, or glass beads. Also, materials used for abrasive blast cleaning, e.g., sand, grit, carborundum, baking soda, rice hulls, ground walnut shells, etc.

3.1.2 ACCENT COLOR: A color used in the project color scheme to contrast or compliment the dominant color.

3.1.3 ACCEPTANCE: An agreement, either by express act or by implication from conduct to the terms of an offer so that a binding contract is formed. If an acceptance modifies the terms or adds new ones, it generally operates as a counteroffer. [Black's Law 1999]

3.1.4 ACCEPTANCE OF SURFACE: The act of agreement upon a condition of the surface.

3.1.5 ACCESSIBLE: Capable of being reached; being within reach. [Merriam-Webster's]

3.1.6 ACCESSIBILITY: The relative ease or difficulty required to reach an item.

3.1.7 ADDITIONAL COATS: Extra layers of paint applied beyond what was originally specified. Example would include an additional coat or coats needed in order for the paint to properly produce hide/coverage, all in the efforts of achieving the designated color.

3.1.8 ADHESION: The act or state of adhering. The property that makes a paint film stick to the surface. The degree of attachment between a coating film and the underlying material with which it is in contact. The latter may be another coat of paint (inter-coat adhesion) or any other material such as wood, metal, plaster, concrete, etc. (adhesion between a coating and a substrate). Adhesion should not be confused with cohesion.

3.1.9 ADJACENT: Having a common endpoint or border; being in close proximity. [Merriam-Webster's]

3.1.10 AGE: To become old; show the effects or the characteristics of increasing age. [Merriam-Webster's]

3.1.11 AGGRESSIVE ENVIRONMENT (CONDITION): Environments that will aggressively attack or cause severe corrosion of unprotected substrates. Examples include but are not limited to, frequent chemical exposures (splash, spillage, fumes), immersion service, marine service and geographical regions with wide temperature ranges, prolonged exposure to ultraviolet rays and high humidity. Also treated as an aggressive environment are those conditions where the cost of re-do would be excessive.

3.1.12 AIA: American Institute of Architects.

3.1.13 ALLOWANCE: An amount specified and included in a construction contract or specifications for a certain item of work whose details are not yet determined at the time of contracting.

3.1.14 AMPP: Association for Materials Protection and Performance. Association formed as a result of a 2020 merger between NACE and SSPC.

3.1.15 APPLICATOR: A person, whether contractor or tradesperson who applies a substance to a surface.

3.1.16 ARCHITECTURAL CAULKING: The application of caulking for aesthetic purposes to minimize joints created by construction design and/or deficiencies,

and adjacent to painted surfaces, such as: the perimeter of windows or window walls, expansion joints, casework/cabinetry, countertops, prefinished door/ window frames, prefinished trim, natural or stained wood, ceramic tile, wallcovering, rigid vinyl wallcovering, seamless floors, floor surfaces, vinyl base, ceiling grid, acoustical tile, electrical or mechanical cover plates, HVAC registers, or grilles, etc. See Painters Caulk.

3.1.17 ARCHITECTURAL COATING: Coating intended for on-site application to interior or exterior surfaces of residential, commercial, institutional, or light industrial structures as opposed to factory-applied or industrial coatings.

3.1.18 ASSOCIATED COSTS: Unless defined otherwise in the contract documents; miscellaneous job related costs, including but not limited to, expenses such as equipment, travel expenses, permits, bonds, specialized insurance, subcontracts, hazardous waste expenses, etc.

3.1.19 ASTM INTERNATIONAL: A nonprofit technical society (formerly known as the American Society for Testing and Materials) that develops and publishes standards, definitions of materials, methods for testing materials, recommended installation practices, and specifications for materials. [Dictionary of Architecture and Construction]

3.1.20 AS REQUIRED: A term requiring no action on the part of the Painting Contractor unless directed through references in the contract documents.

3.1.21 ATTIC STOCK: Extra materials indicated in the contract documents to be provided to the Owner for maintenance after completion of the project.

3.1.22 AWCI: Association of the Wall and Ceiling Industries International.

3.1.23 BACKER ROD: A flexible rod of foamed urethane, styrofoam or similar material inserted into wide joints or cracks (generally ranging from 3/8 inch to 3 inches or more) to stop the flow of caulking or sealant material through the joint being sealed.

3.1.24 BACK ROLLING: A method where freshly applied paint (wet) is smoothed out with an undipped roller to even the appearance, fill small voids, and improve uniformity.

3.1.25 BARRIER COAT: A coating or primer designed to shield or block the chemical or solvent interaction between a substrate and a finish coating.

3.1.26 BENCHMARK SAMPLE: A sample area of approximately 100 square feet in size that serves as a standard by which other work may be measured or judged.

3.1.27 BLOCK FILLER: A thick, medium to high solids heavily pigmented material used for application on concrete blocks for filling and smoothing the surface for subsequent finish coatings.

3.1.28 BOND BREAKER: A general name for any number of materials that prevent the permanent adhesion of one material to another. Bond breaking film formers are commonly used to facilitate the removal of forms for poured in place and tilt-up concrete construction.

3.1.29 BREAK (POINT): A change in direction of a plane; usually in reference to a wall. [Dictionary of Architecture and Construction]

3.1.30 BUG HOLES: Small surface cavities (usually not exceeding 15 mm in diameter) in formed concrete resulting from entrapment of air bubbles during placing, compaction, and curing.

3.1.31 CALIBRATE: To fix, check, or adjust to determine the indication of input or output of a measuring device with respect to that of a standard.

3.1.32 CAULKING COMPOUND: A soft, resilient, putty-like material used for filling cracks and holes or for sealing around flashings, frames, piping, etc. Available in single component tubes (gun) or as single and multiple-component materials for application by knife or spreader.

3.1.33 CERTIFICATION: Confirmation by document under hand or seal as being true and meeting a specific standard.

3.1.34 CHANGE ORDER: An agreement to modify or alter the original Contract. Adjustments to the Contract amount, or completion time, or both would be part of this agreement.

3.1.35 CHATTER MARKS: Intermittent transverse marks on a material due to vibration during rolling, extrusion, cutting, or drawing. [Dictionary of Architecture and Construction]

3.1.36 CISCA: Ceilings and Interior Systems Construction Association.

3.1.37 CLEAN: Free of dirt or pollution, i.e., contaminants.

3.1.38 CLEAR COATING: The application of a transparent coating to improve the appearance and/or to provide protection from abrasion, staining, chemicals, or solvents, etc.

3.1.39 CLOSELY FABRICATED: Characteristic of an item consisting of interwoven components, such as chain-link fencing.

3.1.40 COAT: A layer of paint, varnish, lacquer, or other material that is applied according to the paint manufacturers' wet film thickness range and then allowed to dry. To back roll or apply a wet-on-wet film still constitutes a single coat.

3.1.41 COATING: Generic term for paints, lacquers, enamels, printing inks, etc.; a liquid, liquefiable or mastic composition which is converted to solid protective, decorative or functional adherent film after application as a thin layer. It also refers to films applied to paper, plastics, or foils. [ASTM] [FSCT]

3.1.42 COATING APPLICATOR: One who applies a protective or decorative coating.

3.1.43 COATING DAMAGE: A reduction or loss of protective, aesthetic or identifying characteristics resulting from physical impact, intense heat, excessive moisture, chemical contact or other external factors. Damage includes, but is not limited to, blisters, rust bloom, chipping, cracking, peeling and other forms of delamination, color change and excessive wear.

3.1.44 COATING WORK: An all-inclusive term used to define operations performed to accomplish a protective or decorative coating job.

3.1.45 COLOR: One aspect of appearance; a stimulus based on visual response to light, and consisting of three dimensions of hue, saturation, and lightness. [FSCT]

3.1.46 COLOR RANGE: The extent of colors. This includes tints, tones and shades of basic hues and mixtures, thereof. Paint manufacturers' systems of color tint bases used in conjunction with colorants to produce a wide range of colors, including pastel, mid-tone, deep-tone, ultra-deep tone and variations thereof. [PDCA Craftsman's Manual 1995]

3.1.47 COLORANT: Any substance that imparts color to another material or mixture. Colorants can be either dyes or pigments. [PDCA Craftsman's Manual 1995]

3.1.48 COLORS TO BE SELECTED: The designation of paint colors in accordance with the finish schedule and/or the contract documents.

3.1.49 CONCEALED SPACE: An area, item or surface not visible from a position of normal use of the facility.

3.1.50 CONTAINMENT: The act, process, or means of containing. The action of keeping something inside a controlled environment.

3.1.51 CONTAMINANT: Something that contaminates. [Merriam-Webster's]

3.1.52 CONTAMINATE: To soil, stain, corrupt or infect by contact or association; to make inferior or impure by admixture; to make unfit for use by the introduction of unwholesome or undesirable elements. [Merriam-Webster's]

3.1.53 CONTRACT DOCUMENTS: Those documents that comprise a contract, e.g., in a construction contract, the owner-contractor agreement, conditions of the contract (general, supplementary, and other conditions), plans, and/or drawings, specifications, all addenda, modifications, and changes thereto, together with any other items stipulated as being explicitly included. [Dictionary of Architecture and Construction]

3.1.54 CONTRACTING ENTITY: The general contractor, owner of the property, construction manager, developer, or other entity legally responsible for the agreement or authorized agent of any of the above.

3.1.55 CRACKS: A break in the substrate and/or surface which can result in a subsequent break in the paint film.

3.1.56 COUNTERSINKING: To make a countersink on (a hole); to set the head of (as a screw) at or below the surface. [Merriam-Webster's]

3.1.57 COVERAGE: An ambiguous term that sometimes refers to hiding power and other times to spreading rate. (This term does not imply that a uniform color and/or sheen will be attained).

3.1.58 CUSTOM GRADE: Typically specified for and adequately covers most architectural woodwork, providing a well-defined degree of control over a project's quality of materials, workmanship, or installation.

3.1.59 DAMAGE: Abuse or injury to a paint film or substrate which would blemish its appearance or impair its usefulness or value.

3.1.60 DAMAGE CAUSED BY OTHERS: Damage caused by events or individuals other than those employed by the Painting Contractor or its assigns.

3.1.61 DECORATIVE (PAINT) FINISHES: Application of paints or glazes to adorn, decorate or embellish a surface as compared to a plain solid color, stain or varnish finish and as opposed to performing a protective function.

3.1.62 DECORATIVE PAINTING: Painting done primarily for appearance rather than protection.

3.1.63 DEEP (COLOR): Intense, strong color with no appearance of black. Colors that have a lower Light Reflectance Value. Also called an accent color. [PDCA Craftsman's Manual 1995]

3.1.64 DEEP-TONE BASE: Paint base used to develop deep colors. Might contain small amount of white. Also called an accent base. [PDCA Craftsman's Manual 1995]

3.1.65 DEFECTIVE: Any deficiency not in compliance with the contract documents.

3.1.66 DESIGN DEFECTS: A physical condition, created by the design of a structure, vessel, etc., that prevents meeting the specification requirements for surface preparation and/or coating application to a substrate by standard industry methods.

3.1.67 DEVIATION: Completed work that is not in accordance with the contract documents.

3.1.68 DOCUMENTATION: The assembling and dissemination of written information, communication directives or records in substantiation of work done or facts quoted.

3.1.69 DRY FILM THICKNESS: The depth or thickness of a coating in the dry state. Usually expressed in mils or microns. Often referred to as DFT.

3.1.70 DRY FILM THICKNESS GAUGE: A calibrated instrument that measures the actual film thickness of paint that has dried or coating applied to a wide variety of substrates. Instruments are either magnetic or ultrasonic in design to accommodate measurements on, but not limited to, metal, concrete, masonry, plaster, or gypsum drywall substrates.

3.1.71 DYE: A coloring agent that is soluble in the medium in which it is mixed (e.g. water, oil, solvent). This makes a dye distinct from a pigment, which is not soluble. Color soaks into the fibers of the wood instead of being left on top like pigment. Often used to evenly color wood before staining.

3.1.72 ECONOMY GRADE: Defines the minimum quality requirements for a project's workmanship, materials, or installation and is typically reserved for woodwork that is not in public view, such as in mechanical rooms and utility areas.

3.1.73 EFFLUENT: A discharge of a pollutant into a water source.

3.1.74 EIFS: Exterior Insulation and Finishing System. [Dictionary of Architecture and Construction]

3.1.75 ENVIRONMENT: The circumstances, objects, or conditions by which one is surrounded; the complex of physical, chemical and biotic factors that act upon an organism or structure and ultimately determine its form and survival. [Merriam-Webster's]

3.1.76 EROSION: The wearing away of a paint film through the abrasive action of wind, dust, and dirt. This condition can be accelerated by the degradation of the binder through UV light causing chalking.

3.1.77 EXPLICITLY: Fully revealed or expressed without vagueness, implication, or ambiguity; leaving no question as to meaning or intent. [Merriam-Webster's]

3.1.78 EXPOSED: A surface, area or object that is visible from a position of normal use of the facility.

3.1.79 EXPOSED CONSTRUCTION: Basic materials of construction such as joists, pipes, ducts, studs, etc. that are not encased by a finished wall or ceiling.

3.1.80 EXPOSED PAINTED/EXPOSED CONSTRUCTION PAINTED: A term that implies that exposed construction will be painted with the coatings specified for that particular surface or substrate.

3.1.81 EXTRA MATERIALS: See Attic Stock.

3.1.82 EXTRA: A desired item of construction which is beyond the intent of the drawings and specifications contained in a construction contract; an item of work involving additional cost. [Dictionary of Architecture and Construction]

3.1.83 FACTORY FINISHED: Finished at the point of manufacture, requiring no additional work or finish. See Pre-Finished.

3.1.84 FAUX FINISHES: In French, literally a "false" finish. A decorative finish applied to surfaces (wood, drywall, glass, etc.) to make them appear as different substrates. The general category may also include faux plaster (such as Venetian plaster, etc.) or faux brick finishes (which may use actual plaster formulations or brick facing) but which also can be simulated with decorative painted effects.

3.1.85 FIELD COAT: Coat or coats of paint that are applied at the jobsite. Also known as field application.

3.1.86 FILLER: A heavily bodied material used to fill voids, holes, pores, depressions, etc., in a substrate.

3.1.87 FINAL COMPLETION: The completion of work and all contract requirements by the contractor. [Dictionary of Architecture and Construction]

3.1.88 FINGER JOINT: A heading joint having interlaced, finger-like projection on the ends of the joined members. [Dictionary of Architecture and Construction]

3.1.89 FINISH: An entire paint or coating system; the texture, color and sheen of a surface. [PDCA Craftsman's Manual 1995]

3.1.90 FINISHED AREA: A broad term that does not imply that paints, coatings, or other decorative finishes are to be applied.

3.1.91 FINISH COAT: The last coat applied in a painting operation. A finish coat is formulated specifically for environmental resistance and appearance. [PDCA Craftsman's Manual 1995]

3.1.92 FINISHED LIGHTING: Finished lighting conditions are described as those in place when the project is finished. This includes, but is not limited to, design

lighting (e.g., wall washers, spots and floods, etc.) and natural lighting (e.g., skylights, clear view windows, window walls, window treatments, etc.).

3.1.93 FLOATING: The act of spreading or smoothing a plaster, gypsum board, concrete, or similar surface for finishing.

3.1.94 FSCT: Federation of Societies for Coatings Technology. [FSCT]

3.1.95 GA: Gypsum Association.

3.1.96 GENERAL CONTRACTOR: The prime contractor who is responsible for most of the work at the construction site, including that performed by the subcontractors. [Dictionary of Architecture and Construction]

3.1.97 GLOSS: The mirror-like reflectance of light from the surface of a coating or substrate. The shine or luster of a surface. The gloss of paint is generally measured at various standard degree angles such as 85, 60, 45 and 20 degrees from the surface. See specific Manufacturer's Sheen and Gloss Guide.

3.1.98 GOUGE: A groove or cavity scooped out; an excessive or improper extraction. [Merriam-Webster's]

3.1.99 GRAPHICS: Two or more colors decoratively applied to a surface in a clearly defined pattern. [MPI]

3.1.100 HARDWARE: Metal products used in construction, such as: bolts, nails, screws, hinges, locks, catches, knobs, handles, etc., that have a finished appearance as well as a function.

3.1.101 HIDING (Hiding Power): The degree or ability of an opaque coating, applied in a uniform film, to cover, mask or obscure the substrate to which it is applied, or the colors underneath. Hiding power is provided by the paint's pigment.

3.1.102 HOLD-OUT: The property (of a substrate or coating) that provides a low porosity surface which reduces the penetration of subsequently applied coatings. This improves the gloss and color uniformity of the finishing coats.

3.1.103 HOLD POINT: The point at which work must be stopped until inspection or testing is performed.

3.1.104 HOLIDAYS: Application defects whereby small areas are left uncoated. [FSCT]

3.1.105 HONEYCOMB: Voids in concrete.

3.1.106 HOT WATER: Water Temperature at or over 120° F. [EPA]

3.1.107 HYDRO BLASTING: Also referred to as Water Blasting or Jet Blasting. The process of using specialized water pumps to intensify the pressure and volume of water being delivered to remove surface contaminants from a substrate in preparation for painting or coating. Operating pressures range from 7500 – 40,000 psi.

3.1.108 INACCESSIBLE: Not accessible. [Merriam-Webster's]

3.1.109 INSPECTION LIGHTING: Illumination of the installed surface from an angle at an intensity sufficient to replicate Finished Lighting and eliminate any shadowing that may be caused by other illumination striking the surface at any angle.

3.1.110 INSPECTOR: A trained, qualified person who examines and documents materials used, and work performed to confirm adherence to accepted trade practices, standards and specifications.

3.1.111 INTEGRAL COLOR: Term implying that a surface or material does not require additional finish by the Painting Contractor.

3.1.112 INTERMEDIATE COAT: Any coating applied between the primer and the finish coat.

3.1.113 JOB SEQUENCE/SEQUENCING: An order of succession or continuity of progression of work activities.

3.1.114 LATENT DAMAGE OR DEFECTS: Damage to surfaces by causes beyond the control of the Painting Contractor. Examples of such include, but are not limited to, building settlement, cracks, water damage, earthquake or any natural disaster damage, nail and/or screw pops or expansion and/or contraction of substrate.

3.1.115 LUMP SUM: A contract in which a specific amount is set forth as the total payment for the performance of the contract. (Also known as stipulated sum). [Dictionary of Architecture and Construction]

3.1.116 MAINTENANCE: The act of maintaining; the state of being maintained; the upkeep of property or equipment. [Merriam-Webster's]

3.1.117 MAINTENANCE PAINTING: The selective repainting of surfaces on an ongoing cyclical basis with the focus on prevention of coating failure and subsequent substrate failure.

3.1.118 MATERIAL: Any consumable purchased for and used on a given project including, but not limited to, paint, wallcoverings, masking materials, sundries, etc.

3.1.119 MECHANICAL ADHESION: An interlocking of two materials because of shape, texture, etc., causing the two materials to remain affixed one to the other.

3.1.120 MID-TONE BASE: Paint base used to develop colors darker than a pastel. Tint strength of white has been reduced. Lighter than deep-tone base. [PDCA Craftsman's Manual 1995]

3.1.121 MOCK-UP: A physical, miniature in relation to Benchmark Sample and project size, representative sample of constructed finished surfaces or various substrates specified to receive painting or coating. A Mock-up, in type, size and complexity, should be specified in the contract documents. The Painting Contractor should apply finishes on the Mock-up in accordance with the specifications and finish schedule. Such completed Mock-up should be signed off, approved, or otherwise agreed to by the appropriate designated Owner, Owner's Representative, Architect, Engineer or General Contractor to ensure compliance with the contract documents. The Mock-up should be preserved as the basis for acceptance of project final finishes.

3.1.122 MPI: Master Painters Institute.

3.1.123 MULTI-COLOR FINISH: A speckled coating containing flecks of small, individual-colored particles different from the base color. Syn. Speckled Finish. [FSCT]

3.1.124 MURAL: A painting applied directly to a wall or ceiling; a wallcovering with a mural scene that continues over several strips to cover one wall without a repeat. Also called a scenic. [PDCA Craftsman's Manual 1995]

3.1.125 MUSHROOM: To well up and spread out laterally from a central source; to become enlarged or extended. [Merriam-Webster's]

3.1.126 NACE: National Association of Corrosion Engineers. See also 3.1.14.

3.1.127 NAWIC: National Association of Women in Construction.

3.1.128 NEUTRALIZATION: The process of reducing excess acidity or alkalinity from a material or substrate such as concrete, masonry, or plaster. To bring the pH balance to neutral (7.0).

3.1.129 NONCOMPLIANT: Any deficiency not in compliance with the contract documents.

3.1.130 NORMAL: According to a regular pattern; natural; according to an established rule or norm- setting a standard or norm. [Black's Law 1999]

3.1.131 NORMAL VIEWING POSITION: For the purpose of inspection a normal viewing position shall be perpendicular to the substrate at eye level at a minimum of thirty-nine (39) inches or one (1) meter from the substrate. Inspection lighting can be used as defined.

3.1.132 OBLIQUE: Neither perpendicular nor parallel; not straightforward. [Merriam-Webster's]

3.1.133 OFF-WHITE: Any number of light colors that are nearly white but contain minute amounts of color or toner. Off-white colors are used as base colors in interior paints for large surfaces such as walls. Lighter than a pastel.

3.1.134 OPINION: A belief not based on absolute certainty or positive knowledge but on what seems true, valid, or probable to one's own mind; judgment; an evaluation, impression, or estimation of the quality or worth of a person or thing; the formal judgment of an expert on a matter in which advice is sought. [Merriam-Webster's]

3.1.135 OSCILLATING: Swinging backward and forward like a pendulum; moving or traveling back and forth between two points. [Merriam-Webster's]

3.1.136 OTHERS: Any individual or group of individuals other than the Painting Contractor, its employees, or assigns.

3.1.137 OVERSPRAY: The paint that did not hit the intended surface during a spray application. This can appear as small, raised specks around the area sprayed and can give a halo effect on smooth surfaces. Or spray particles that are not wet enough to fuse when they reach the surface being sprayed.

3.1.138 OWNER: The architect's client and party to the owner-architect agreement; one who has the legal right or title to a piece of property. [Dictionary of Architecture and Construction]

3.1.139 PAINT: Any pigmented liquid, liquefiable, or mastic composition designed for application to a substrate as a thin layer, or becoming multiple layers, which is converted to an opaque solid film after application. A mixture or dispersion of opaque pigments or powders in a liquid or vehicle. In the general sense, paint includes all organic and inorganic coatings such as enamels, varnishes, emulsions, bituminous coatings, etc., too numerous to list.

3.1.140 PAINT ACCENT: See Accent Color.

3.1.141 PAINT DAMAGE: See Coating Damage.

3.1.142 PAINT SYSTEM: A succession of selected coats of materials applied in a prescribed order to protect a surface and provide a decorative finish.

3.1.143 PAINTER'S CAULK: The application of painter's caulk shall be as directed and as delineated in the contract documents. Absent direction or delineation, the following shall be assumed painter's caulk: Joints between wood or wood composite materials, trim, baseboard, molding, and casements. These joints include and are limited to wood to wood or wood composite substrates, and wood to gypsum drywall, plaster, or similar wall surfaces. These joints shall only be between field painted surfaces. Painter's caulk is applied to enhance the aesthetic appearance of the affected surfaces.

3.1.144 PAINTING CONTRACTOR: The individual or company contracted to perform surface preparations, apply paints, coatings, wallcoverings and other decorative or protective finishes.

3.1.145 PAINTING CONTRACTOR'S REPRESENTATIVE: An individual identified to the contracting entity as having authority, within stated parameters, to speak and act for the Painting Contractor.

3.1.146 PASTEL: A soft, pale shade of any color. Lighter than a mid-tone base. [Merriam-Webster's]

3.1.147 PCA: Painting Contractors Association (formerly the PDCA).

3.1.148 PDRA: Painting and Decorating Retailers of America.

3.1.149 PERCENT VOLUME SOLID: A measure of the volume of solid film-forming ingredients in a paint or coating; in other words, the material that is left behind on the substrate once the paint or coating has dried or cured.

3.1.150 PERCENTAGE OF ACCENT: An identified amount of accent colors by room, or other defined area of application.

3.1.151 PERPENDICULAR: Being at right angles (an angle of 90°) to a given line or plane. [Merriam-Webster's]

3.1.152 PH: The measurement of the hydrogen ion activity in an aqueous solution. A measure of acidity or alkalinity. A pH of 7 is considered neutral, below 7 is acidic, and above 7 is alkaline. The mathematical scale used is a logarithmic one, so a change of one pH unit represents a tenfold change in hydrogen ion activity.

3.1.153 PIN HOLE: A minute hole in a paint film that resembles a pore or pin prick, often due to improper solvent release during drying or the trapping of air or gas in the film during setting.

3.1.154 POINTING: The shaping of joints between bricks or blocks by using a shaping tool on the wet mortar.

3.1.155 POROSITY: The absorption of a paint by the surface being coated. The ability of a surface to absorb a liquid, vapor or gas. A measure of the degree of voidage in an object expressed as a fraction of the total object's volume. The major consideration in the absorption of paint, liquid, vapor, or gas by the surface. [PDCA Craftsman's Manual 1995] [MPI]

3.1.156 POTABLE: Suitable for drinking. [Merriam-Webster's]

3.1.157 POWER WASHING: Methods using pressurized water to remove surface contaminants from a substrate in preparation for painting or coating. Generally operated at delivery pressures between 600 – 5000 psi. Can also be referred to as low or high pressure washing. See Hydro Blasting.

3.1.158 PRIME CONTRACTOR: Any contractor on a project having a contract directly with the owner. [Dictionary of Architecture and Construction]

3.1.159 PRIME COAT: The first coat on a substrate. Often used as a sealer, stain blocker, filler or bond coat.

3.1.160 PRIMER: The first of two or more coats of paint, varnish, or lacquer. It is applied to improve adhesion and maximize performance of the succeeding coat or coats and/or to provide passive corrosion resistance to a metal surface.

3.1.161 PRE-FINISHED: A completely finished product requiring installation only, finished by an entity other than the Painting Contractor. A term sometimes used to define Factory Finished.

3.1.162 PRE-CONDITIONER: See Wash coat.

3.1.163 PREMIUM GRADE: Selectively used in the most visible and high-profile areas of a project, such as reception counters, boardrooms, and executive areas, providing the highest level of quality in materials, workmanship, or installation.

3.1.164 PREPARATION: The action or process of making something ready for use or service or of getting ready for some occasion, test, or duty; a state of being prepared; a preparatory act or measure. Performance of the specified procedures prior to the application of paint, coating, wallcovering or other decorative or protective finish.

3.1.165 PRE-SEALER: A product applied prior to the application of subsequent coats specified. For example, but not limited to, stain for the purpose of evening the porosity of the soft wood to which it is applied. See Wash Coat.

3.1.166 PRESSURIZE: To confine the contents under a pressure greater than the atmosphere. [Merriam-Webster's]

3.1.167 PROFILE DEPTH: Average distance between the top of the peaks and the bottom of the valleys on the surface of a substrate.

3.1.168 PROFESSIONAL: Of or relating to or characteristic of a profession; characterized or conforming to the technical or ethical standards of a profession; exhibiting a courteous, conscientious, and generally businesslike manner in the workplace; having a particular profession as a permanent career. [Merriam-Webster's]

3.1.169 PROPERLY PAINTED SURFACE: A properly painted surface is one that is applied in accordance with the contract documents, the manufacturer's printed Technical Data Sheet(s) and is uniform in appearance, color, texture, hiding and sheen. It is virtually free of foreign material, lumps, skins, runs, sags, holidays, misses, or insufficient coverage. It is also a surface free of drips,

splatters, spatters, spills, cracks or overspray caused by the Painting Contractor's workforce or its assigns.

3.1.170 PUNCH LIST: A checklist of all items on a construction project that are unfinished, or incomplete, have not been done at all, require replacement or repair, or require additional work to achieve an acceptable level of workmanship. Such a list is often established as a result of periodic inspections at the job site during construction and may be included in field reports. [Dictionary of Architecture and Construction]

3.1.171 QUALIFICATION: Any quality, skill, knowledge, experience, etc. that fits a person for a position, office, profession, etc.; requisite. [Merriam-Webster's]

3.1.172 QUALIFIED INSPECTOR: A person who has successfully completed training, and refresher courses as required, to hold current and valid certification levels from a recognized Training Organization, Agency, or Department and who examines and documents materials used and work performed to confirm adherence to the contract documents, accepted trade practices, Standards and specifications. There are varying levels of Qualified Inspectors in the Painting and Coating Industry.

3.1.173 QUALITY OF APPEARANCE: Aesthetics; conception of beauty, a particular taste for or approach to what is pleasing to the senses and especially sight. [Merriam-Webster's]

3.1.174 QUALITY ASSURANCE (QA): Verification of the conformance of materials and methods of application to the governing specification in order to achieve a desired result. [PDCA Craftsman's Manual 1995]

3.1.175 QUALITY CONTROL (QC): Administrative and engineering procedures employed to attain the desired level of quality assurance. [PDCA Craftsman's Manual 1995]

3.1.176 REFINISH: To give (as furniture) a new surface. [Merriam-Webster's]

3.1.177 REFURBISH: To brighten or freshen up; renovate. [Merriam-Webster's]

3.1.178 RE-GLAZE: To replace defective or missing glazing compound or apply a decorative finish. To furnish or fit with glass. [Merriam-Webster's]

3.1.179 REFER TO: Direct attention to another section of the specifications.

3.1.180 ROOM FINISH SCHEDULE: A table or chart showing individual rooms and the substrate, and the finishes required.

3.1.181 RUNS: Narrow downward movement of a paint film resulting in an irregular surface. [PCA Craftsman's Manual 1995]

3.1.182 SANDING: The act of abrading a surface (painted or bare) with an abrasive coated paper or cloth, by hand or machine, to smooth or remove surface defects or to improve the mechanical adhesion of a coating.

3.1.183 SANDING SEALER: A clear or pigmented lacquer or alkyd used to seal a porous wood substrate or an applied wood filler. Designed to be easily sanded prior to application of finishing lacquer or varnish. Sanding sealers are being developed based on other solvents.

3.1.184 SAGS: A coating irregularity similar to runs but often broader in scope. [PDCA Craftsman's Manual 1995]

3.1.185 SCOPE OF WORK: An overview or abstract outlining the work to be performed within a specification per the contract documents.

3.1.186 SCORING: Lines (as scratches or incisions) made with or as if with a sharp instrument. [Merriam-Webster's]

3.1.187 SHADING: Variation created in the manufacturing process, in the color, texture or gloss within the same strip of a wallcovering. [ASTM]

3.1.188 SHEEN: An attribute of object mode of appearance which is similar to luster; gloss with poor distinctness-of-image reflectance. In the paint industry the term sheen is generally used synonymously with gloss measured or observed at a grazing angle, such as 85 degrees off the perpendicular. Sheen is therefore frequently evaluated in terms of gloss measurements made on an 85 degrees gloss meter. Not infrequently there are coatings that are high in sheen but have a low gloss when illuminated and viewed at or near the perpendicular. [FSCT]

3.1.189 SHOP PRIMED: A prefabricated article that has been primed at the factory. A prime coat applied before jobsite delivery by an entity other than the Painting Contractor. Also known as shop coated.

3.1.190 SOLIDS BY VOLUME: The total volume percentage of non-volatile material. Also known as volume solids. The solids by volume is used to calculate the dry film thickness (DFT) of a coating from wet film measurements taken during

application (i.e. where WFT= wet film thickness, VS = percent volume solids, DFT= WFT X VS).

3.1.191 SOLVENT: A volatile organic liquid in which another solid or semi-solid substance (such as a resin or polymer) may be dissolved. The most common solvents used for paints include aliphatic and aromatic hydrocarbons, alcohols, esters, ketones, acetates, water and ethers. Solvents are used to control the consistency, drying properties, and in part, the stability of the liquid paint material and to regulate its application properties. Under normal ambient conditions, solvents evaporate from the coating and are not part of the dry film. Various types of solvents are also used as cleaning agents, often in combination with surfactants.

3.1.192 SPALLING: The chipping or fragmenting of surface or surface coating caused, for example, by differential thermal expansion or contraction. Spalling, in concrete substrates, is generally attributed to the absorption of water with subsequent freezing, although it also occurs due to the rusting and subsequent expansion of reinforcing bar (rebar) close to the surface.

3.1.193 SPECIAL FINISHES: Paints and coatings requiring special tools or techniques for application, e.g., faux finishes, decorative finishes, graphics, multi-color or murals.

3.1.194 SPECIFICATION: A clear accurate description of the technical requirement for material products, or services, which specifies the minimum requirement for quality and construction of materials and equipment necessary for an acceptable product. In general, specifications are in the form of written descriptions, drawings, prints, commercial designations, industry standards and other descriptive references. [FSCT]

3.1.195 SPOT FINISHING: Repairing a small area on a dry painted (or otherwise finished) surface by blending a fresh coat of paint with the dry coating. [Dictionary of Architecture and Construction]

3.1.196 SQUARE FEET: A unit of area measurement equal to a square measuring one foot on each side. A common unit of measure of surface area determined in accordance with standard methods of always rounding up.

3.1.197 SSPC: The Society for Protective Coatings. See also 3.1.14.

3.1.198 STAIN: A solution or suspension of coloring matter in a vehicle designed to color a surface by penetration without hiding it or leaving a continuous film. True stains are classified as water stains, non-grain raising stains, oil stains, or spirit stains, according to the nature of the vehicle.

3.1.199 STAIN CONDITIONER: See Pre-Sealer.

3.1.200 STANDARD: Something established for use as a rule or basis of comparison in measuring or judging capacity, quantity, content, extent, value, quality, etc. The type, model or example commonly or generally accepted or adhered to; criterion set for usages or practices. [Merriam-Webster's]

3.1.201 SUBCONTRACTOR: A person or organization that has a direct contract with a prime contractor to perform a portion of work at the site. [Dictionary of Architecture and Construction]

3.1.202 SUBSTANTIAL COMPLETION: Substantial completion is the stage in the progress of the work when the work or designated portion is sufficiently complete in accordance with the contract documents so that the owner can occupy or utilize the work for its intended use. [AIA]

3.1.203 SUBSTRATE: A variant of substratum. In painting, any surface to be painted, including wood, concrete, masonry, steel, other metals, and various other materials or previous paints. A substrate can, therefore, be bare or covered. A previously unpainted surface sometimes is called the "original substrate."

3.1.204 SURFACE: The substrate to which paints, coatings, or wallcoverings are applied; the finish obtained after the coating work has been completed. [PDCA Craftsman's Manual 1995]

3.1.205 SURFACE AREA: The measurement of the area of surface to be finished.

3.1.206 SURFACTANT: An acronym for Surface Active Agent. Used to break down the surface tension of liquids to make them more miscible, such as in oil and water emulsions. Surfactants are divided into smaller classes that are relative to their functionality such as dispersants, emulsifiers, detergents, defoamers, etc. Surfactants have an electrochemical charge associated with them and can be classified by the polarity of the charge; anionic – negative, cationic – positive, nonionic – no charge and amphoteric – positive or negative depending on certain conditions (pH, phase, etc.)

3.1.207 TACIT: Not expressed or declared openly, but implied or understood. [Merriam-Webster's]

3.1.208 TEXTURE: Texture as used in a Properly Painted Surface means the texture of the paint or coating system. Texture has to do with how an object looks or feels and its finished ingredients.

3.1.209 THIRD PARTY: An independent contractor or business entity that is not a principal or employee or subsidiary of a principal, to the contract for decorative or protective coatings application work.

3.1.210 TIME AND MATERIAL: The time and total cost of all materials required to complete a construction job; often used where the cost of the job is difficult to estimate. [Dictionary of Architecture and Construction]

3.1.211 TOUCH UP: The correction of deficiencies in the specified work. The act of repainting, by application of similar or same coating (i.e., preferably from the same batch) to finish small areas of unpainted surface to an integral condition. The appearance of a touch up should not be noticeable because of application method, color, sheen, or texture differences from the adjacent area not touched up. Also see Damage Caused By Others or Latent Damage which are distinct from touch up.

3.1.212 TRAINED: Having undergone instruction, discipline, or drill. [Merriam-Webster's]

3.1.213 TRAINING: The process or experience of being trained. To instruct so to make proficient or qualified. [Merriam-Webster's]

3.1.214 TYPICAL: Conforming to or like a known or common condition. A term that is subject to individual interpretation and requires further clarification from the contracting entity if it is to describe the scope of work.

3.1.215 ULTRAVIOLET: Light of short wavelength (generally below 360 millimicrons) which is invisible but has a destructive effect on the chemical components of substrates and finishing materials.

3.1.216 ULTRA-DEEP BASE: Paint base used to develop deep intense colors with no apparent white. Deeper than a mid-tone base. [PDCA Craftsman's Manual 1995]

3.1.217 UNIT PRICE: An amount stated in a contract as the price per unit of measurement for materials or services as described in the contract documents. [Dictionary of Architecture and Construction]

3.1.218 VERTICALITY: Vertical at a right angle to the plane of the horizon; upright, straight up or down, etc.; upright position. [Merriam-Webster's]

3.1.219 VOID: Holidays or holes in a coating or surface.

3.1.220 WALLCOVERING, syn. WALLPAPER: Any type of paper, vinyl, fabric or specialty material that is pasted or installed onto a wall or ceiling for decoration and/or protection. Wallcoverings come in a wide array of colors, patterns, textures and performance characteristics, such as washability, acoustical values and abrasion resistance. [PDCA Craftsman's Manual 1995]

3.1.221 WALLCOVERING CONTRACTOR: The company contracted to perform all wallcovering operations.

3.1.222 WALLCOVERING INSTALLER, syn. PAPERHANGER: The individual performing the installation of wallpaper or wallcoverings of any kind.

3.1.223 WARRANTY: A guarantee or an assurance, explicit or implied, of something having to do with a contract, as of sale; esp., the seller's assurance to the purchaser that the goods or property is or shall be as represented and if not, will be replaced or repaired. [Merriam-Webster's]

3.1.224 WASH COAT: A reduced finish that is applied over raw wood to reduce stain penetration, or over stains and fillers to promote adhesion of the next coat.

3.1.225 WET FILM THICKNESS: Or WFT is the measured thickness of any applied wet paint or coating in its liquid and uncured form.

3.1.226 WHITE: A basic paint color as described by coatings manufacturers. ASTM D1535 "Standard practice for specifying color by the Munsell System," 3.2.5 Munsell Value, N-10 – Ideal White. ASTM E313, indexes of whiteness. [ASTM]

3.1.227 WORK LIST: A vague term sometimes implying a preliminary punch list generated to provide an indication of work remaining to be completed.

3.1.228 WOOD FILLER: An aggregate of resin and strands, shreds, or flour of wood, which is used to fill openings in wood and provide a smooth, durable surface. [AWS]

4. Reference Documents and Standards

4.1 Reference Documents and Standards [intends the most current printings of]

4.1.1 American Institute of Architects; commonly referred to as AIA

4.1.2 AIA Document A 101, Standard Form of Agreement Between Owner and Contractor (fixed price)

4.1.3 AIA Document A 102, Standard Form of Agreement Between Owner and Contractor (cost plus)

4.1.4 AIA Document A 104, Standard Abbreviated Form of Agreement Between Owner and Contractor (fixed price or cost plus)

4.1.5 AIA Document A 105, Standard Short Form of Agreement Between Owner and Contractor (small or residential project size)

4.1.6 AIA Document A 110, Standard Form of Agreement Between Owner and Contractor for a Custom Residential Project (fixed price or cost plus)

4.1.7 AIA Document A 201, General Conditions of the Contract for Construction

4.1.8 AIA Document A 305, Contractor's Qualification Statement

4.1.9 AIA Document A 401, Standard Form of Agreement Between Contractor and Subcontractor

4.1.10 AIA Document D 101, Methods of Calculating Areas and Volumes of Buildings

4.1.11 AIA Document G 701, Change Order (owner, contractor, architect)

4.1.12 AIA Document G 701S, Change Order (contractor to subcontractor)

4.1.13 AIA Document G704, Certificate of Substantial Completion

4.1.14 Architectural Woodwork Standards (AWS)

4.1.15 ASTM International - American Society for Testing Materials

4.1.16 ASTM Book of Standards Volume 6.01 Paint – Tests for Chemical, Physical and Optical Properties

4.1.17 ASTM C840, Standard Specification for Application and Finishing of Gypsum Board

4.1.18 ASTM D16, Standard Terminology for Paint, Related Coatings, Materials, and Applications

4.1.19 ASTM D3359, Standard Test Methods for Measuring Adhesion by Tape Test

4.1.20 ASTM D4214, Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films

4.1.21 ASTM D4258, Standard Practice for Surface Cleaning Concrete

4.1.22 ASTM D4262, Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces

4.1.23 ASTM D4537, Standard Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating and Lining Work Inspection in Nuclear Facilities

4.1.24 ASTM D7234, Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers

4.1.25 ASTM E12, Standard Color and Appearance

4.1.26 ASTM E284, Standard Terminology of Appearance

4.1.27 ASTM E313, Yellowness and Whiteness Indices

4.1.28 ASTM, F1141/1141M, Standard Specification for Wall Covering

4.1.29 Black's Law Dictionary

4.1.30 Coating Encyclopedic Dictionary, Federation of Societies for Coatings Technology (FSCT); Edited by Stanley LeSota

4.1.31 Construction Specifications Institute (CSI) Master Format

4.1.32 Dictionary of Architecture and Construction

4.1.33 Environmental Protection Agency (EPA) Model Ordinance

4.1.34 Federal Acquisition Regulations, commonly referred to as FAR

4.1.35 FAR Part 36 Construction and Architect – Engineering Contracts

4.1.36 FAR 36.502 Differing Site Conditions

4.1.37 FAR 36.505 Material and Workmanship

4.1.38 Merriam-Webster's Collegiate Dictionary

4.1.39 NACE International Coating & Inspection Training and Certification Program

4.1.40 NAWIC, Construction Dictionary, published by Greater Phoenix, Arizona Chapter 98 of The Nationals Association of Women in Construction

4.1.41 Painting and Decorating Encyclopedia, Goodheart-Wilcox

4.1.42 Paint Handbook, edited by Guy E. Weismantel

4.1.43 Parry's Graining & Marbling, Brian Rhodes & John Windsor

4.1.44 PCA Definitions and Trade Terms

4.1.45 PCA Reference Documents and Standards

4.1.46 PCA Standards

4.1.47 PDCA Painting and Decorating Craftsman's Manual and Textbook

4.1.48 PCA Estimating Guide Volume 1, Practices and Procedures

4.1.49 PCA Estimating Guide Volume 2, Rates and Tables

4.1.50 PDRA Wallcovering Problem Solver

4.1.51 Power Washers of North America (PWNA) Cosmetic Cleaning BMPs based on the EPA's Model Ordinance 2011

4.1.52 Professional Painted Finishes, Ina Marx, Allen Marx and Robert Marx

4.1.53 Recipes For Surfaces, Mindy Drucker & Pierre Finkelstein

4.1.54 Recommended Levels of Gypsum Board Finish, GA214, published by the Gypsum Association and endorsed by AWCI, PCA, GA and CISCA

4.1.55 Society for Protective Coatings, commonly referred to as SSPC, see also 3.1.14

4.1.56 SSPC Painting Manual Volume 1, Good Painting Practice

4.1.57 SSPC Painting Manual Volume 2

4.1.58 SSPC Coating Lining Inspection Training

4.1.59 SSPC Protective Coatings Glossary

4.1.60 SSPC Surface Preparation Standards, Paint Application (PA Guide 5), Guide to Maintenance Painting Programs

4.1.61 SSPC-PA2 Measurement of Dry Coating Thickness with Magnetic Gauges

4.1.62 SSPC-SP1 Solvent Cleaning

4.1.63 SSPC- SP12/ NACE No. 5 Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating

4.1.64 SSPC-SP13/ NACE No. 6 Surface Preparation of Concrete

4.1.65 The Art of Faux, The Complete Sourcebook of Decorative Painted Finishes, Pierre Finkelstein

4.1.66 The Master Painters Glossary – Painting and Decorating Terminology

4.1.67 The New Lexicon Dictionary of the English Language, Encyclopedic Edition

4.1.68 The New Paint Magic, Jocasta Innes

4.1.69 Tilt-Up Concrete Association, Mount Vernon, IA., Tilt Tips-Painting Tilt-Up Panels

4.1.70 Wallcovering Hanging Instructions (joint publication of the Wallcovering Association, Painting Contractors Association, Wallcovering Installers Association and Painting and Decorating Retailers Association)

4.1.71 Webster's New World Collegiate Dictionary

5. Standard Specification

5.1 The interpretation of terms and phrases affects the Owner's end result, the Painting Contractor's performance, and the overall durability, aesthetics, and longevity of all applications of any kind installed on any given project.

5.2 Standardization of the definitions and trade terms, reference documents, standards and phrases included provides the Owner, Architect and Painting Contractor with a frame of reference upon which to base its plan for performance.

5.3 This Standard's intent is in reference to the latest version or revision of any aforementioned definition, trade term, reference document, standard or publication.

6. Comments

6.1 Bid documents and final contract documents contain terms and phrases that must be interpreted by the Painting Contractor.

6.2 This Standard establishes definitions of terms and phrases for the purpose of clarifying those terms.

6.3 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.4 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P10

Measurement of Surface Area for Estimating Painting and Decorating Work

1. Scope

1.1 The purpose of this Standard is to establish consistent procedures for measuring painting and decorating work.

1.2 It is also the intent of this Standard to prevent misunderstandings and conflicts when painting and decorating work is bid on a unit cost basis by clearly defining methods used by the professional painting estimator for measuring surface area.

2. Significance and Use

2.1 Because there is a relationship between surface area and the amount of labor and materials required for painting and decorating work, methods used to measure surface area during the estimating process must be consistent to be meaningful. When consistent methods are used to measure surface area, then labor production rates and material spread rates may be accurately determined from past painting and decorating work and used as a basis for estimating labor and material requirements for bidding future painting work.

2.2 Consistent methods in measuring surface area of work to be painted, as defined by this Standard, should be used to determine quantities of painting and decorating work bid.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 No object is considered less than one linear foot wide and shall be measured as one square foot per linear foot.

5.2 Pipes, rods, structural steel, lumber and other items to be finished whose circumference or perimeter is less than one foot is measured as one foot, otherwise the actual measurement is used.

5.3 Items having similar surface, finishes, application methods and accessibility may be grouped together and an appropriate production rate may be applied to the entire group.

5.4 When items that do not have all grouping factors in common are adjacent, they should be listed separately on the quantity take-off and measured at no less than one square foot per linear foot.

5.5 When items having equivalent surface, finishes, application method and accessibility change direction at sharp angles and continue for a significant distance in the new direction, then measurement of the object increases by the length of the new direction, but usually not less than ½ of a square foot per linear foot.

5.6 When measuring non-uniformly shaped and curved items, the added length of the surface due to its curvature, change of direction or non-uniformity must be measured.

5.7 Closely fabricated items, such as chain-link fence, open web joists and grating, should be measured as being solid. If both sides of a closely fabricated item are finished, double the surface area. When a closely fabricated item is attached to framework, measure the framework separately as described in 5.2.

5.8 When a small opening interrupts a continuous surface, the opening is disregarded and considered part of the continuous surface. Any openings extending from floor to ceiling and exceeding five feet in width shall be deducted. All openings 100 square feet or larger are deducted.

5.9 Cabinets, tubs, showers and other items that restrict movement or access shall not be deducted from the measurement of total surface area.

6. Comments

6.1 PDCA's Cost & Estimating Guides Volumes I and II contain supplemental information regarding appropriate applications and examples.

6.2 PDCA has published estimating guidelines for the painting industry since the late 1930's. The Standards stated in Section 5 represent uniform estimating practices used for many decades.

6.3 When requesting proposals for painting and decorating on a unit-cost basis, requests should include sufficient descriptive information (e.g., surface, finishes, application methods and accessibility, proximity to work items, and minimum quantities) to price such work. Items that vary in surface, finishes, application method, accessibility, production rate, proximity to work items, and minimum quantities should be priced separately.

6.4 Estimating painting and decorating cost involves specific measurement of color placement since it affects painting and decorating costs. Refer to PCA Standard P3, Designation of Paint Colors for pertinent information.

6.5 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.6 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P11

Painter's Caulk

1. Scope

1.1 The purpose of this Standard is to define painter's caulk, determine its suitability and establish its placement whether delineated, implied or not referenced in the contract documents for painting.

1.2 It is the intent of this document to specifically address by inclusion or exclusion, joints, cracks, junctions and voids in relation to the application of painter's caulk whether defined, implied or not referenced in the bid documents or contract documents.

2. Significance and Use

2.1 The Painting Contractor, Owner, General Contractor and specifying entity are affected by the extent to which painter's caulk is applied, to what surfaces it is applied, and to what extent it is applied when not specifically referenced in the painting specifications or in the absence of a written specification.

2.2 The extent of caulking, the suitability of the caulking material and the performance of the applicator all have an effect on the appearance and performance of the surfaces to which the caulk is applied.

2.3 The type and quality of the caulking material, the extent of its use and the substrates to which it is applied have an effect on the Painting Contractor performing its work, both from a material and labor perspective.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The application of painter's caulk shall be as directed in the contract documents, typically found in Division 9, Painting, or in the absence of direction or delineation, the following shall be assumed within the scope of work:

5.1.1 The caulking material is limited to paintable acrylic/latex or urethane-modified caulk.

5.1.2 The joints to be caulked shall only be between field painted surfaces.

5.1.3 The joints to be caulked are limited to joint voids of 1/8 inch or less.

5.1.4 The joints to be caulked are limited to those between wood or wood composite materials, and between wood or wood composite materials and painted wall or ceiling substrates such as gypsum drywall, plaster, or similar surfaces; in certain geographic areas, caulking of painted hollow metal members to painted wall surfaces is also included.

5.1.5 Painter's caulk is to be applied to enhance the aesthetic appearance of the affected surfaces. It is not the responsibility of the applicator of painter's caulk to waterproof a surface, joint or void, nor is it the responsibility of the applicator of painter's caulk to conceal, eliminate, minimize, or disguise shrinkage or movement of joints or voids.

5.2 The following is not considered painter's caulk unless specifically directed or delineated otherwise, in the plans or contract documents:

5.2.1 Architectural caulking.

5.2.2 Caulk and sealant application included in Division 7, Caulking and Sealing.

5.2.3 Caulking, sealing or repair of crumbling or spalling masonry or plaster surfaces.

5.2.4 All caulk and sealant applications on exterior surfaces, whether for aesthetic purposes or for waterproofing a building envelope.

5.2.5 Application or insertion of backer rod in any joint, crack or void.

5.2.6 Items, trims or objects installed in new construction prior to the application of gypsum drywall, plaster or other wall or ceiling surfaces.

6. Comments

6.1 This Standard is intended to clarify the application or placement of painter's caulk when not specifically directed in the bid documents and contract documents or in the absence of a written painting specification.

6.2 This Standard is intended to establish a guide for inclusion or exclusion of painter's caulk in the preparation of a bid or quotation.

6.3 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.4 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P12

Levels of Block Filler

1. Scope

1.1 This Standard establishes consistent procedures for the specification of block filling and the application of block filler prior to painting paint grade smooth face concrete masonry units.

1.2 The purpose of this Standard is to prevent misunderstandings and conflicts when the application of block filler is required.

2. Significance and Use

2.1 An inadequately written specification can create confusion in both the bidding and execution of block filler work. Prior to specification, the specific appearance, performance and weather resistance of the work to be block filled should be assessed and specified in the bid documents, and ultimately the contract documents for a project in accordance with the levels of block filler established by this Standard.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The degree of block filler achieved should not be assessed until all specified paint coats have been applied, as finishing coat(s) will contribute to the degree of fill. It is recommended that a Benchmark Sample showing specified level of block fill on entire sample and finish coat(s) on a portion of the sample be prepared and approved according to PCA Standard P5 to demonstrate the result of block filling to the specified level.

5.2 The use of some materials and some block profiles cause air entrapment resulting in unavoidable pin holes. A void or discontinuity visible to the substrate is a system defect.

5.3 Levels of Block Filler

5.3.1 Level 1 – Economy Fill: One coat applied with equipment specified by the coating manufacturer. This level reduces the quantity of paint required for succeeding paint coats. It reduces some irregularities in masonry profile depth. It is normal that voids will remain, depending on the porosity and profile depth of the block. The block filler shall be applied at the spreading rate recommended by the manufacturer. This level is normally used in spaces that are not occupied by the public and in stairways of high rise buildings.

5.3.2 Level 2 – Standard Fill: One coat applied with equipment specified by the coating manufacturer. Back rolling will be performed as necessary to attempt to fill deep irregularities. Masonry profile depth will be slightly reduced. Joints will be visible as tooled. Number of voids will be minimized, but voids may remain depending on the porosity of the block. A maximum of ten voids per square foot of surface area shall be deemed to be acceptable. The block filler shall be applied at the spreading rate recommended by the manufacturer. This level is normally used in finished areas that are occupied by the public.

5.3.3 Level 3 – Premium Fill: Two or more coats of high performance block filler manufactured to be applied at a high dry film build. Block filler shall be back rolled to eliminate voids and reduce the majority of the masonry profile depth. This system, with an appropriate paint finishing system, produces a surface that is easier to clean to meet health regulations. Exterior use of this level of block filler, with an appropriate paint finishing system, will reduce water intrusion at exterior walls.

5.4 Specifications not specifically stating the level of block filler to be attained will be assumed to imply a Level 2 Standard Fill.

5.5 The acceptability of the Level 2 Standard Fill surfaces shall be determined when viewed without magnification, at a distance of thirty-nine (39) inches or one (1) meter or more, under finished lighting conditions and from a normal viewing position.

5.6 The acceptability of the Level 3 Premium Fill surfaces shall be determined when viewed with magnification of 5X.

6. Comments

6.1 Since the number of coats and application techniques required for block filling impact project costs, the painting specification should incorporate the appropriate level(s) of block filler as defined by this Standard.

6.2 The masonry specification should properly define all cleaning and detailing of new masonry prior to block filler and painting work. Unless specified otherwise, this work is not the responsibility of the Painting Contractor.

6.3 The result of any particular level of block filler will vary due to the fact that concrete masonry units vary greatly in profile depth and porosity. The filling of holes is not the responsibility of the Painting Contractor and should be pointed up by others prior to the application of block filler.

6.4 Proper specification of masonry materials, such as requiring graded aggregates to minimize masonry porosity, is required to achieve the best appearance and performance of the block filler and paint system specified. This Standard outlines procedures for on-site determination and approval of achievable quality from specified paint and coating systems applied to paint grade smooth face concrete masonry units.

6.5 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.6 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P13

The Inspection and Acceptance of Architectural Paints on the Interior Surfaces of Structures When Dry Film Thickness is Specified

1. Scope

1.1 This Standard establishes procedures for the inspection and acceptance of architectural paints on the interior surfaces of structures when dry film thickness is specified.

1.2 This Standard establishes a procedure for measuring and testing the thickness of interior architectural paints to determine compliance with the manufacturer's technical application instructions and the painting specifications.

1.3 This Standard establishes a procedure for the calculation of paint dry film thickness (DFT) when specified by the painting specifications.

1.4 It is intended that this Standard be used where the painting specifications require a paint dry film thickness.

1.5 This Standard does not address the inspection and acceptance of industrial protective coatings and linings or exterior paints.

2. Significance and Use

2.1 The criteria to be used to inspect and accept the application of paint to interior surfaces of architectural structures may be unclear and ill-defined in the project documents. This condition creates confusion for both the Painting Contractor and the contracting entity which results in extraordinary costs and time delays.

2.2 When interior surfaces of structures are painted with architectural paints, then a properly painted surface defined by PCA Standard P1 should be the criterion for inspection and acceptance.

2.3 Dry film thickness should be a criterion for inspection and acceptance when industrial protective coatings and linings and exterior paints are applied on metal substrates.

2.4 When dry film thickness is to be considered a criterion for the inspection and acceptance of architectural paints on the interior surfaces of structures, then a method for measurement must be established.

2.5 The paint manufacturer's technical data regarding the specific products utilized shall determine the dry film thickness requirements of a coat of paint.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Unless otherwise clearly defined in the contract documents, acceptance of architectural paints on interior surfaces is a properly painted surface, PCA Standard P1. A properly painted surface is one that is applied in accordance with the contract documents, the manufacturer's printed Technical Data Sheet(s) and is uniform in appearance, color, texture, hiding and sheen. It is also virtually free of foreign material, lumps, skins, runs, sags, holidays, misses, or insufficient coverage. It is also a surface free of drips, splatters, spatters, spills, cracks, or overspray caused by the Painting Contractor's workforce or its assigns.

5.2 When the bid documents, and ultimately the contract documents clearly state that the measurement of dry film thickness shall be a criterion for acceptance of painted interior surfaces of architectural surfaces or structures, then the following conditions shall apply:

5.2.1 A third party inspector as defined and meeting the requirements of PCA Standard P-2 shall be utilized for the inspection and acceptance of architectural paints on the interior surfaces of structures whose expense shall be borne by the contracting entity.

5.2.2 The dry film thickness of each coat required shall be based on the manufacturer's percent solids by volume. The formula DFT = % SBV X 1604/SF shall be used to calculate the thickness of each coat where DFT is the dry film thickness in mils; % SBV is the percent solids by volume of the specific material, and SF is the manufacturer's recommended spreading rate for that material. In the event of a conflict between the manufacturer's data and the bid documents, the current manufacturer's data shall prevail.

5.2.3 Non-destructive methods shall be used to measure the dry film thickness of architectural paints on the interior surfaces of structures to avoid damage to the painted surfaces.

5.2.4 Measuring devices should be properly calibrated prior to use. The accuracy of the instrument shall be verified by measuring reference standards that cover the range of the expected dry film thickness.

5.2.5 Precise locations to be tested shall be selected randomly and shall be geometrically representative of the surface being tested.

5.2.6 Three measurements shall be made in close proximity, within a two inch diameter circle, and averaged to determine a spot measurement. Any unusually high or low readings that are not repeatable shall be discarded.

5.2.7 One spot measurement shall be made for every 100 square feet of surface area of various substrates, where the measurement of surface area is in accordance with PCA Standard P10.

5.2.8 It is recognized that it is not possible to field apply paints at a consistent dry film thickness. Therefore, the dry film thickness for any spot shall be at least 80% of the specified dry film thickness as defined by 5.2.2 and the average of all spot measurements shall be at least 95% of the specified dry film thickness. If a maximum thickness is specified, then the average of all spot measurements shall not be greater than 105% of the maximum thickness.

5.2.9 If any spot is not in compliance with the requirements of 5.2.8, then the area containing that spot shall be repainted to the nearest break to achieve compliance.

5.2.10 When a Benchmark Sample is prepared in accordance with PCA Standard P5, then dry film measurements shall be made on the sample and the accepted values will be used as a basis for acceptance

6. Comments

6.1 This Standard establishes a consistent method for the inspection and acceptance of architectural paints on the interior of structures.

6.2 This Standard establishes that visual appearance is the prime criterion for the acceptance of architectural paints on the interior of structures.

6.3 This Standard defines a protocol when the measurement of dry film thickness is a criterion for the acceptance of architectural paints on the interior surfaces of structures.

6.4 The measurement of dry film thickness on porous surfaces such as drywall or concrete block may be inaccurate due to porosity of the substrate and surface profile.

6.5 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.6 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P14

Levels of Surface Preparation for Repainting and Maintenance Projects Receiving Architectural Coatings

1. Scope

1.1 The purpose of this Standard is to identify and describe various levels of preparation for repainting or refinishing previously painted/finished surfaces to achieve a properly painted surface, unless specified otherwise in the contract documents.

1.2 This Standard identifies common pre-existing conditions in surfaces and surrounding areas and the impact on the final quality of appearance and acceptability of a repaint or maintenance project.

1.3 This Standard clarifies the definition of a properly painted surface when referring to repainting and maintenance projects.

2. Significance and Use

2.1 The level of surface preparation performed can determine the appearance of a finish painted surface. Therefore, the level of surface preparation selected should be done considering both appearance and cost.

2.2 This Standard identifies and defines four levels of surface preparation.

2.3 This Standard identifies criteria when restoration and resurfacing are performed.

2.4 This Standard identifies typical pre-existing conditions in coatings and substrates and describes how they can impact the adhesion, durability, appearance and cost of the finish painted surface.

2.5 This Standard identifies common pre-existing conditions in surrounding work areas which impact final appearance and acceptability of the project.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The MPI Repaint Manual describes the condition of various paintable surfaces and substrates and rates them in order of degree of surface degradation (DSD) as follows:

- DSD-0 Sound Surface
- DSD-1 Slightly Deteriorated Surface
- DSD-2 Moderately Deteriorated Surface
- DSD-3 Severely Deteriorated Surface
- DSD-4 Substrate Damage

The MPI Repaint Manual further describes various repaint surface preparation techniques labeled RSP 1 through RSP 13 that may be appropriate depending upon the condition of the surfaces to be painted.

5.2 This Standard recognizes that project specifications detailing the type and extent of surface preparation to be performed shall take precedence over other considerations.

5.3 This Standard recommends that specifications be modeled after the MPI Maintenance Repainting Manual.

5.4 Levels of Surface Preparation

5.4.1 Level 1: Basic: This surface preparation level requires basic cleanliness of surfaces to ensure the adhesion of new finishes to the surfaces to which they are applied with less concern for the adhesion of existing paint coats and quality of appearance of the finished surfaces. Preparation shall include the removal of surface dust, dirt, obvious loose paint and other surface contaminants by washing, light power washing or pressure washing (MPI RSP-5), hand cleaning (MPI RSP Painting 1) including the use of a duster brush or broom, and mildew treatment (MPI RSP-9). This level of preparation should ensure that subsequently applied coats of paint will adhere to existing paint coats. This level of surface preparation does not warrant that previously applied paint coats are well adhered to each other or are well adhered to the substrate. Under this level of preparation no alteration of the existing surface profile shall be attained. It is recommended that tests should be performed on exterior surfaces in accordance with ASTM D 4214 Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films. This level of surface preparation is normally recommended only on surfaces rated DSD-0 or DSD-1.

5.4.2 Level 2: Standard: This surface preparation level requires basic cleanliness of surface to ensure the adhesion of new finishes to the surfaces to which they are applied as well as the examination of existing coatings to assess their adhesion. With this level of surface preparation, good adhesion and longevity of finish is of primary concern and appearance of secondary concern. This level of surface preparation includes that described in Level 1 plus other procedures necessary to create a sound surface for repainting including solvent cleaning (MPI-RSP-2), basic patching/filling, caulking, light sanding/abrading, and "feather edge" sanding. Under this level of surface preparation, it is recommended that adhesion by tape tests be performed in general accordance with ASTM Standard D3359 or its equivalent, Permacel P99 tape, to assess the adhesion of previously applied paints. It is recommended that at least three tests be performed at randomly selected locations where it is apparent that different paint systems have been previously applied. When poor results are obtained (ratings of 0 or 1), at isolated locations, then more aggressive surface preparation methods including power tool cleaning (MPI RSP-4), high pressure washing and hydro blasting (MPI- RSP-5), chemical stripping (MPI RSP-6) and abrasive blasting (MPI RSP-7) may be recommended at these isolated locations. If it is determined that the poor adhesion of existing coatings is not isolated, but is widespread, then restoration/resurfacing is required. It should be recognized that many factors may affect the adhesion of the entire coating system that is applied including the properties of the coatings selected, their permeability, etc. Therefore, while the performance of adhesion tests provides some indication of the adhesion of existing coatings, they may not predict the overall adhesion of the total coating system after new coats have been applied. Under this level of preparation the surface profile is not altered unless due to the removal of unsound previously applied paint, and that only obvious existing defects causing abrupt surface profile differences exceeding 1/8 inch or 125 mils will be corrected. This level of surface preparation is normally recommended only on surfaces rated DSD-0, DSD-1 or DSD-2.

5.4.3 Level 3: Superior: This surface preparation level incorporates the requirements of Levels 1 and 2 with added emphasis on the quality of appearance of finish painted surfaces. This level of surface preparation includes filling, patching, taping cracks in drywall and properly dealing with nail pops, approximate matches to existing textures, and thorough sanding to minimize existing runs, sags, brush/roller marks, and the surface profile of cracked and peeling areas, and other existing surface defects. Under this level of preparation, the general surface profile is retained but defects causing abrupt surface profile differences exceeding 1/16 inch or 62.5 mils will be corrected. This level of surface preparation is normally recommended only on surfaces rated DSD-0, DSD-1 or DSD-2.

5.4.4 Level 4: Supreme: This surface preparation level incorporates the requirements of Levels 1, 2 and 3 with even more emphasis on the quality of appearance of finish painted surfaces. Under this level of surface preparation, all necessary preparation techniques will be employed to improve the quality of appearance except restoration/resurfacing. Thorough filling and sanding will be accomplished to eliminate defects causing abrupt surface profile differences exceeding 1/32 inch or 31 mils. This level of surface preparation is normally recommended only on surfaces rated DSD-0, DSD-1 or DSD-2.

5.5 Restoration/Resurfacing: This degree of surface preparation is required when existing conditions indicate that the surfaces are severely deteriorated (DSD-3) or there is substrate damage (DSD-4). Existing coatings may be completely, or nearly completely removed (for example stripping to repaint rather than stripping to stain). Abrasion, chemical removers or applied heat may be employed in order to remove a failed coating and/or to expose a failing substrate. Substrates may have to be completely replaced, repaired or resurfaced.

5.6 Inspection and Acceptance: Unless otherwise clearly defined in the contract documents, the criteria for acceptance of finish painted surfaces shall be that of a properly painted surface as defined by PCA Standard P1. However, it should be understood that when applied to this Standard for repaint and maintenance painting, the defects listed above are not allowed in the newly applied coats applied by the Painting Contractor, but depending on the level of preparation selected, may still be visible from previously applied existing coatings. When Level 4 is selected as the level of surface preparation required, then the criteria for inspection and acceptance may include smoothness to "touch and feel" on interior handrails, doors and easily accessible trim.

5.7 The Painting Contractor shall be responsible to provide adequate protection of existing surfaces from misplaced paint being applied, but unless specifically indicated in the project specifications or contract, is not responsible for pre-existing conditions.

5.8 Contract documents may require different levels of preparation on different surfaces, for example, Level 4 on doors and trim and Level 2 on walls.

5.9 Contract documents not specifically stating the level of preparation to be attained will be assumed to imply Level 2.

6. Comments

6.1 This Standard establishes and describes levels of surface preparation on repainting and maintenance projects.

6.2 This Standard defines a protocol for the inspection and acceptance of finish painted surfaces on repaint and maintenance projects.

6.3 This Standard defines pre-existing conditions that are beyond the responsibility of the Painting Contractor.

6.4 Existing coatings and substrates may contain materials such as lead and other RCRA (Resource Conservation and Recovery Act) metals, mold, asbestos, and PCBs (Polychlorinated Biphenyls'). Though abatement of those materials may not be required, any and all EPA, OSHA, state, governmental, and local regulations regarding environmental, health and disposal requirements must be considered and followed.

6.5 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.6 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P15

Painting of Shop Primed Substrates

1. Scope

1.1 The purpose of this Standard is to establish procedures for the evaluation of shop primer applied by an entity other than the Painting Contractor.

1.2 This Standard identifies responsibilities of various entities involved when field coating of shop primed substrates is required.

1.3 This Standard defines criteria to determine if the shop primer is defective.

1.4 This document applies to shop primed materials including wood, hardboard, medium density fiberboard, metal, synthetics, cementitious materials, and other compositional substrates.

2. Significance and Use

2.1 The shop primer applied to various substrates should be in a condition ready to receive the finish coats specified.

2.2 This Standard applies when shop primer applied to various substrates is unsuitable for finish painting.

2.3 This Standard applies when remedial measures, such as sanding, stripping, and re-priming are required to be performed prior to the application of specified finish coats.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Unless specified otherwise, the shop primer shall have the following characteristics:

5.1.1 The shop primer shall be of the generic type that is recommended for the substrate material to which it will be applied.

5.1.2 The shop primer used shall possess the properties appropriate for the substrate material including stain blocking, alkali resistance, corrosion resistance, and hold out.

5.1.3 The shop primer applied shall be directly compatible with the finish coats specified without the need for a barrier coat or intermediate coat.

5.1.4 The shop primer shall be applied at a dry film thickness that is recommended by the manufacturer of the shop primer.

5.1.5 The shop primer shall have good adhesion to the substrate material to which it was applied.

5.2 Unless specified otherwise, conditions for the application, shipment, and storage of shop primed materials:

5.2.1 Prior to the application of the shop primer, the applicator of the shop primer shall conduct testing to ensure that the moisture content of the substrate material is within the range specified by the manufacturer of the shop primer.

5.2.2 The shop primer must be free of defects such as foreign material, lumps, skins, runs, sags, holidays, misses, insufficient coverage, drips, spatters, spills or overspray so that a properly painted surface as defined by PCA Standard P1 may be obtained when finish coats are applied.

5.2.3 All butt ends and edges of members receiving shop primer shall be fully primed.

5.2.4 The shop primer shall be properly and fully cured prior to shipment from the shop.

5.2.5 Shop primed items shall be properly packaged so that the primer is not damaged during shipment.

5.2.6 Shop primed items shall be stored at both the shop and the jobsite in a manner that prevents degradation and erosion of the primer.

5.2.7 If damage or defects occur to the shop primer as a result of installation, then such damage and defects shall be corrected by an entity other than the Painting Contractor, unless specified otherwise.

5.3 Any shop primer that is not in full compliance with the conditions listed in paragraphs 5.1 and 5.2 shall be considered defective.

6. Comments

6.1 This Standard establishes criteria for shop priming various substrates.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P16

Wallcovering Removal in Preparation for New Finishes or Wallcovering

1. Scope

1.1 This Standard defines criteria to determine if wallcovering has been properly removed.

1.2 It is the intent of this document to apply to all substrates including drywall, plaster, wood, hardboard, metal, plastic, compositional materials, etc., to which any type of wallcovering has been previously applied and is to be removed in preparation for new finishes or wallcovering.

2. Significance and Use

2.1 It is not uncommon for other entities to remove wallcovering in preparation for subsequent work to be performed by the Painting Contractor.

2.2 The contract documents are often unclear about specific scope of work functions to be completed by the entity removing wallcovering in preparation for new finishes or wallcovering. This Standard clarifies that concern.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Unless directly specified otherwise, wallcovering removal shall include the performance of the following work functions:

5.1.1 All wallcovering material will be physically removed from designated surfaces.

5.1.2 All wallcovering material shall be properly disposed in accordance with local and federal codes and requirements.

5.1.3 All wallcovering adhesive shall be removed from the surfaces to subsequently receive new finishes or wallcovering.

5.1.3.1 Water-soluble adhesives shall be removed by thoroughly washing with clean potable water that may contain detergents or enzymes to aid in adhesive removal. All surfaces shall be thoroughly rinsed with clean potable water to remove any residue.

5.1.3.2 Adhesives that are not water soluble shall be removed using appropriate solvents or equipment as recommended by the adhesive manufacturer.

5.1.4 When wallcovering is removed by an entity other than the Painting Contractor, sanding of the adhesive in lieu of removal is not acceptable as surface preparation.

5.1.5 Any mildew, other organic material, or other contaminant present on the surface after the wallcovering is removed shall be eradicated in a manner consistent with the specific contaminant.

5.1.6 Surfaces from which wallcovering is physically removed are often damaged during the removal process. All required patching, filling, floating, or replacement of surfaces (including finish quality sanding) shall be a part of the scope of work of wallcovering removal. It is recognized that the extent of the work operations necessary to complete substrate repair is usually not foreseeable until the wallcovering has been removed. The materials used for patching, filling, floating, or replacement must have sufficient adhesive and cohesive strengths to support the paint system or wall covering specified to be applied by the Painting Contractor.

5.1.7 At the completion of wallcovering removal, all designated surfaces should be ready to receive new finishes or wallcovering. When the surface from which the wallcovering was removed is gypsum board, the specified level of finish shall be attained. If quality of appearance of a surface, prior to finishing, is judged marginal or unacceptable by others conducting essential inspection, such alleged defective work must be corrected by others prior to the Painting Contractor beginning work.

6. Comments

6.1 This Standard establishes criteria for proper wallcovering removal in preparation of new finishes or wallcovering.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P17 Field Painting of Vertical Concrete

1. Scope

1.1 The purpose of this Standard is to clarify the various entities involved when vertical concrete is field painted.

1.2 This Standard defines criteria to determine if vertical concrete has been properly prepared to receive field applied paint.

2. Significance and Use

2.1 Numerous paint failures have occurred when vertical concrete is field painted.

2.2 The project documents are often unclear about the specific responsibilities of the various entities involved when vertical concrete is field painted.

2.3 The purpose of this Standard is to develop a protocol to follow when vertical concrete is field painted.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Bond breakers and curing oils that interfere with coating adhesion are often employed in the manufacture of vertical concrete panels. The project documents should specify the surface preparation method necessary and the entity responsible for this operation. Unless specified in the contract documents, removal of bond breaker materials and curing oils is not the responsibility of the Painting Contractor.

5.2 The surface profile of the tilt-up or vertical concrete panels may be very smooth providing little, if any, mechanical adhesion of coatings. The project documents should specify the surface preparation method necessary and the entity responsible.

5.2.1 It is recommended that the Painting Contractor prepare a Benchmark Sample of the specified coating system on the surface of the vertical concrete panels in accordance with PCA Standard P5. After the coating has cured, then adhesion by tests in accordance with ASTM D3359 or ASTM D7234 or their equivalents shall be conducted.

5.2.2 If results obtained are deemed to be unsatisfactory, then additional surface preparation is necessary.

5.3 Prior to applying coatings, the Painting Contractor should determine the pH of the surface of vertical concrete in accordance with ASTM D4262 or its equivalent.

5.3.1 Coating application should not be initiated until the surface pH is within the coating manufacturer's recommended range for the specific coating system specified.

5.4 When vertical concrete panels are manufactured there are often small voids commonly referred to as bug holes or honeycomb which can affect the quality of appearance.

6. Comments

6.1 This Standard establishes criteria for field painting of vertical concrete.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1. PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P18

Recommended Protocol for Documenting Extra Work to a Contract

Standard P18 is intentionally blank and discontinued; December of 2022

PCA P19

Definition and Application of Decorative Finishes

1. Scope

1.1 The purpose of this Standard is to define the Skilled Trade of Decorative Finishing.

1.2 It is also the intent of this document to:

1.2.1 Identify a representative sample and describe its use.

1.2.2 Establish criteria for acceptance of substrate and surface preparation for decorative finishing.

1.2.3 Establish criteria for acceptance of a decorative finish.

1.2.4 Define responsibilities of the various parties of a contract when decorative finishes are to be applied.

2. Significance and Use

2.1 The decorative finishes on a project should be applied by the Painting Contractor, its assigns, or another contractor that specializes in decorative finishes.

2.2 Conflicts can arise between the contractors providing decorative finishes if other entities are providing subsequent surface preparation and base coats and the specified finishes or functions are absent clarity.

2.3 All parties providing decorative finishes or subsequent surface preparations must have clear criteria upon which to base the division of work on and criteria for the acceptance of such completed work.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Prior to the application of primer and base coats, surfaces shall be inspected and approved in accordance with PCA Standard P4.

5.2 The specifications shall indicate the number and type of primer and base coats to be applied by the Painting Contractor in the contract documents.

5.3 The Painting Contractor shall apply the specified paint coats to produce a properly painted surface as defined in PCA Standard P1.

5.4 The contractor that will apply decorative finishes on the project shall inspect painted surfaces for suitability to receive decorative finishes.

5.5 Representative Sample

5.5.1 A sample board or Mock-up can be rendered in scale to give a representation of how the completed finish should appear. The size should be at least 11" x 14" or large enough to illustrate one full repeat of the design.

5.5.2 The sample board or Mock-up is used to determine whether the colors and technique(s) are acceptable before any related work commences.

5.5.3 Upon mutual agreement of the contractor providing decorative finishes and the contracting entity, a Benchmark Sample shall be produced in accordance with PCA Standard P5.

5.6 Criteria for Acceptance of a Decorative Finish.

5.6.1 If the approved sample board or Mock-up is a reasonable representation of the completed work throughout the area of application, then the work shall be deemed to be acceptable.

5.6.2 If, on the approved board or Mock-up, the pattern size had to be scaled down due to dimensional limitations, but the predetermined scale to actual scale is accurate, then the finish is deemed to be acceptable.

6. Comments

6.1 This Standard is intended to define the field of decorative finishing.

6.2 This Standard is intended to establish criteria for acceptance of the substrate and surface preparation for decorative finishing.

6.3 This Standard is intended to establish criteria for acceptance of a decorative finish.

6.4 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.5 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P20

Recommended Protocol for Job Close Out of Painting and Decorating Projects

1. Scope

1.1 The purpose of this Standard is to establish procedures for the close out of painting and decorating projects.

1.2 This Standard identifies the various entities involved when the project specifications do not define specific job close out procedures.

2. Significance and Use

2.1 It is important that the close out of painting and decorating projects be accomplished in an orderly and timely procedure to eliminate misunderstandings and conflicts.

2.2 This Standard applies when job close out procedures are not detailed in the contract documents.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Projects where the Painting Contractor is a subcontractor unless specified otherwise in the contract documents:

5.1.1 The owner or its designated representative may prepare an initial punch list.

5.1.1.1 The initial punch list, if any, shall be prepared prior to substantial completion.

5.1.1.2 Unless otherwise agreed, the Painting Contractor shall work diligently to complete the items on the initial punch list within a reasonable amount of time and will, upon request, provide documentation that will support completion of the initial punch list.

5.1.2 At the time of substantial completion, a final punch list shall be prepared by the owner or its designated representative.

5.1.2.1 Unless otherwise agreed, the Painting Contractor shall work diligently to complete the items on the final punch list within a reasonable amount of time and will, upon request, provide documentation that will support completion of the final punch list.

5.1.3 Punch lists should address specific items at specific locations rather than general descriptions.

5.1.4 If the final punch list is redistributed after its initial distribution, it shall be based on the items listed on the final punch list.

5.2 Projects where the Painting Contractor is a prime contractor:

5.2.1 The Painting Contractor shall prepare an initial punch list, a comprehensive list of outstanding items to be completed or corrected when the Painting Contractor deems the project to have attained substantial completion.

5.2.1.1 Unless otherwise agreed, the Painting Contractor shall work diligently to complete the items on the initial punch list within a reasonable amount of time and will, upon request, provide documentation that will support completion of the initial punch list.

5.2.1.2 When the Painting Contractor deems the project to be complete, a final punch list may be prepared by the owner or its designated representative.

5.2.2 Unless otherwise agreed, the Painting Contractor shall work diligently to complete the items on the final punch list, if any, within a reasonable amount of time and will, upon request, provide documentation that will support completion of the final punch list.

5.2.3 Punch lists shall address specific items at specific locations rather than general descriptions.

5.2.4 The appearance of painted surfaces shall be judged in accordance with P9 Section 3.1.169 a properly painted surface.

5.2.5 If the final punch list is redistributed after its initial distribution, it shall be based on the items listed on the final punch list.

5.3 The punch list process may be performed for various phases of the project in accordance with the project schedule. The punch lists provided shall be unique to that phase.

5.4 At final acceptance of the work, the Painting Contractor shall provide the following:

5.4.1 Attic stock or extra materials as required by the contract documents.

5.4.2 Record drawings, generally a schedule of paint, coating and wallcovering finishes as required by the contract documents.

5.4.3 Maintenance instructions as required by the contract documents.

5.4.4 Warranties as required by the contract documents.

5.4.5 Final releases of lien as required by the contract documents.

6. Comments

6.1 This Standard establishes a protocol for the close out of painting and decorating projects.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P21

Designation of Stain and Clear Coating on New Interior Wood

1. Scope

1.1 This Standard establishes consistent procedures for the specification of stain and clear coating on new interior wood surfaces.

1.2 The purpose of this Standard is to prevent misunderstandings and conflicts when the application of stain and clear coating to interior wood surfaces is required.

2. Significance and Use

2.1 An inadequately written specification can create confusion in both the bidding and the application of stain and clear coatings to interior wood surfaces. The specific appearance, wood species, grain, grade, and color should be assessed and specified in the bid documents in accordance with this Standard.

2.2 This Standard establishes systems of stain and clear coating on interior wood surfaces.

2.3 This Standard establishes the responsibilities of various parties when stain and clear coatings are applied to new interior wood.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Wood is a natural material with variations in color, texture, and grain which are a result of the natural growing process. The color of wood within a particular tree varies between the outer layers of the tree and the inner layers. There will be variations of grain patterns within any selected species. When the applied finishes are transparent or semi-transparent, some visual differences between and within individual wood members are to be expected.

5.2 Interior wood specified to receive stain and clear coating shall have the following characteristics:

5.2.1 The wood shall be free of finger joints.

5.2.2 The wood shall be made essentially finish-ready by others including sanding and the removal of blemishes, scuff marks, water stains, mill marks, and other surface imperfections.

5.2.3 The Painting Contractor shall be required to perform light hand sanding only as preparation for finishes.

5.3 This Standard establishes the following systems of stain and clear coating to be assumed when the specifications do not define the number and coats or types of clear finishes:

5.3.1 On rough sawn wood – One coat of stain only.

5.3.2 On smooth wood – One coat of stain and two coats of clear finish.

5.4 Stained wood shall have differences in appearance due to natural variations of wood, including hard wood, soft wood, veneers, composites, and coloration of wood species.

5.5 All wood members should be previously unfinished.

5.6 Wood samples used for color matching purposes shall be made from the same wood to be utilized on the project.

5.7 The Painting Contractor shall perform light hand sanding prior to application of finishes and between coats, as required, with appropriate sandpaper.

5.8 On smooth wood, the Painting Contractor shall putty nail holes with colored putty or stainable filler that approximates the color of the finished wood. Putty shall be applied before the final coat of clear finish. Nail holes may also be filled using colored wax sticks after the wood is finished.

5.9 The acceptability of finish on smooth wood shall be determined when viewed without magnification, at a distance of no less than thirty-nine (39) inches or one (1) meter under finished lighting conditions and from a normal viewing position. The surface shall be smooth in appearance and feel, with only minimal evidence of brush strokes or orange peel.

6. Comments

6.1 Since the level of stain and clear coating impact the Painting Contractor, the project specification should incorporate the appropriate system(s) of stain and clear coating as defined by this Standard.

6.2 It is recommended that Benchmark Samples be employed in accordance with PCA Standard P5, Benchmark Sample Procedures for Paint and Other Decorative Coating Systems. Multiple samples of the same finish could indicate the range of appearance differences to be expected. Approval of samples should be in accordance with the provisions of that Standard.

6.3 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.4 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P22 Cleaning Surfaces Using Pressurized Water

1. Scope

1.1 This Standard establishes consistent procedures for the specification of utilizing pressurized water to clean surfaces or prepare surfaces for painting.

1.2 This Standard establishes a concise methodology for the use of pressurized water in cleaning and preparing surfaces.

1.3 This Standard establishes performance criteria using a consistent protocol to be followed when pressurized water is used to clean surfaces.

1.4 This Standard establishes performance criteria when the project specifications do not provide explicit (adequate or complete) instructions regarding the elements that affect cleaning action when using pressurized water.

2. Significance & Use

2.1 For the scope of this Standard, the term pressurized water refers to cleaning and paint preparation. Terms commonly used are power washing, pressure cleaning, pressure washing, water cleaning, water blasting, and water jetting.

2.2 This Standard applies to all surfaces, both previously coated and uncoated.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Cleaning with pressurized water is performed both for cleaning surfaces only and as preparation for both sealing and painting.

5.2 The cleaning action achieved when utilizing pressurized water is a function of nine elements;

1) The pounds per square inch (PSI)
2) The gallons per minute (GPM)
3) The tip size (the appropriate tip size selection is determined by GPM & PSI)
4) The distance of the tip from the surface being cleaned and angle in which the gun/tip is held in relation to the surface
5) Nozzle type
6) Chemicals (pre-spray or injection into the pressure stream)
7) Temperature of the water
8) Abrasive injected into the water stream, i.e. blasting media such as silica sand, baking soda, and volcanic ash)
9) Speed at which the tip passes over the surface

5.2.1 In general, as the PSI is increased, while keeping all other elements the same, the cleaning intensity is increased. However, as the PSI is increased, damage to softer or malleable substrates may occur. A trained professional operator must understand the cause and effect of changing the PSI. Gun/tip distance and angle and speed at which water stream passes over substrate must be adjusted accordingly.

5.2.2 In general, as the GPM is increased, while keeping all other elements the same, the cleaning production is increased with less potential damage to softer or malleable substrates. A trained professional operator must understand the cause and effect of changing the GPM. Gun/tip distance and angle and speed at which water stream passes over substrate must be adjusted accordingly.

5.2.3 Various tip sizes may be utilized when cleaning with pressurized water. For effective cleaning performance, appropriate tip size and type must be matched to the surface material, substrate material, and contaminants being removed. Consideration of PSI and GPM is essential.

5.2.4 The specification and/or the trained professional operator of the equipment using pressurized water must determine:

5.2.4.1 The optimal distance that the tip must be held from the surface.

5.2.4.2 The gun/tip angle in relation to the surface. The GPM and PSI of the equipment.

5.2.4.3 The size and type of tip.

5.2.4.4 The chemicals/surfactants if necessary. The temperature range of the water.

5.2.4.5 The appropriate containment and disposal of the effluent water.

5.2.5 Various tips (nozzle) types are used when cleaning with pressurized water including:

5.2.5.1 Fan tips between the approximate angles of 15 to 40 degrees may be used for general cleaning of all surfaces to remove loose surface contaminants. These tips may be used to avoid damage to relatively soft or malleable substrates.

5.2.5.1.1 Common spray angles are: 0, 15, 25, and 40 degrees. Many American and European manufacturers color code tips: red (0°), yellow (15°), green (25°), and white (40°).

5.2.5.1.2 As fan tips progressively decrease from 40 degrees, the impact produced is increased, which may damage softer or malleable substrates and remove more tightly bonded contaminants.

5.2.5.1.3 Zero degree tips typically produce a bullet point pattern with the greatest surface impact. For effective cleaning and/or preparation, zero degree tips must only be used at distances far enough away from the surface being cleaned so that damage does not occur.

5.2.5.1.4 The use of a larger tip size lowers the PSI.

5.2.5.2 Zero degree oscillating or spinner tips, commonly called turbo nozzles, rotate so that the cleaning is maximized. Oscillating tips combine high impact with a larger cleaning area and are commonly used to remove loose and marginally adhered paints and coatings. These tips may be most effective on substrates that have sufficient hardness, such as concrete and steel, so that scoring and gouging damage does not occur.

5.2.5.2.1 Zero degree oscillating nozzles have different grades similar to the grades of sand paper grit; soft, medium, and hard, varying water impact.

5.2.5.2.2 Some zero degree tips have an adjustable spray angle.

5.2.5.3 Hand held or walk behind surface cleaning heads may be used for cleaning horizontal or slightly sloped surfaces. These units usually contain multiple rotating tips that may be positioned close to the surface being cleaned. Surface cleaning heads may be commonly used to clean concrete, masonry, tile and roof surfaces.

5.2.5.4 Chemical injector tips are commonly used to apply chemical cleaners using machines equipped with downstream and nozzle chemical injection systems. These tips siphon the chemical cleaner into the water stream for application to the surface. Injector tips often have variable fans so that chemical cleaner distribution may be maximized and surface/ substrate damage may be minimized. Chemical injector tips are commonly low pressure tips.

5.2.5.4.1 X-Jet tip (Nozzle Injection System): The X-Jet is the original injector and comes with a short range tip for close-up work. The M-5 is a variation on the original X-Jet and features a variable nozzle that allows the operator to change patterns without stopping, moving closer to, or farther away, from the surface/substrate. The nozzle has the capability to inject and proportion strong cleaners at high or low pressure without chemically exposing the pump, hose, gun, or lance. The M-5 X-Jet tip propels chemicals up to 40' and holds its pattern for cleaning and rinsing.

5.2.5.4.2 Downstream injection system: In order for downstream injection systems to work, the pressure must be dropped at the nozzle, which creates a venturi vacuum at the chemical injector often located at the beginning of the high pressure hose. The pressure is normally dropped at the nozzle with one of the following methods:

1) Changing the high pressure nozzle for a low pressure nozzle (normally #20 or larger, sometimes called a soap nozzle, frequently color coded black).
2) Using a roll over or double headed nozzle.
3) Using a double lance wand (sometimes referred to as variable pressure wand or a dual wand).

5.2.5.4.3 Double (dual) wand or variable pressure wands: This is a wand that has two lances, one high pressure nozzle, and one large low pressure nozzle, and a valve for turning the wand on and off. As the valve is opened, the pressure lowers; the dual wand on/off feature allows the pressure to be controlled at the wand. Double wands are most often used for chemical injection with a venturi feature providing pressure control at the wand.

5.2.6 Chemical cleaners are commonly used with pressurized water to remove various contaminants and must be applied in accordance with Manufacturer's printed Technical Data and Instructions. Chemicals may be applied with special tips (described above), mixed in holding tanks/reservoirs at an appropriate concentration and pumped into the pressure washing equipment, or cleaners may be applied directly to the surface prior to washing by some other means (i.e. low pressure spray applied, brush applied or flooding). Commonly used chemical cleaners include:

5.2.6.1 Sodium hypochlorite, frequently applied for removing exterior mildew and mold.

5.2.6.2 Degreasers are used to remove oily contaminants including airborne pollutants and road grime.

5.2.6.3 Muriatic acid, frequently applied for etching cementitious surfaces, removing efflorescence, and surface cleaning.

5.2.6.4 Sodium metasilicate, a phosphate free alternative detergent which may often be applied where trisodium phosphate was formerly used.

5.2.6.5 Citralic acid, which may often be used to restore the natural color to wood.

5.2.6.6 Sodium carbonate, frequently applied for light or mild cleaning of wood.

5.2.6.7 Sodium hydroxide, often used for heavy duty removal of wood finishes.

5.2.6.8 Oxalic and citric acid, which may often be used for removing ferrous rust stains.

5.2.6.9 Surfactants composed of various soaps and chemical combinations including, but not limited to the chemicals listed above.

5.2.6.10 Specialized chemicals are used to remove non-visible forms of contamination such as chloride, sulfate and nitrate (CSN) soluble salts. CSN salts that are left on the surface/substrate typically cause newly applied coatings to fail by osmotic blistering.

5.2.7 Hot water and/or high temperature water is often employed when pressurized water is used for cleaning. On some substrates or with some contaminants, hot water may replace chemical cleaners or hot water may accentuate chemical cleaner's effectiveness including contaminate emulsification. Caution must be used on surfaces and substrates that soften when heated to avoid damage.

5.2.8 Various grade sands, soda, or other types of abrasives may be injected into the stream of pressurized water. The abrasive action created may be used to remove well adhered contaminants including, but not limited to graffiti. Injecting abrasives into a stream of pressurized water will increase the potential damage to existing paints and/or softer substrates.

5.2.9 It is not recommended to rest a tip, regardless of size, in one place since a pattern in the surface or substrate is likely to occur. A trained professional must establish a consistent motion that does not cause surface damage.

5.3 Performance criteria:

5.3.1 Cleaning for Repainting/Restaining:

5.3.1.1 The cleaned surface must be free of visible contamination such as chalk, mildew, dust, dirt, oil, grease, etc., to the level recommended by the coating manufacturer.

5.3.1.2 The cleaned surface must be free of all loose substrate such as spalling concrete, rust on steel, mill scale, rotten wood, etc., to the level recommended by the coating manufacturer.

5.3.1.3 The cleaned surface must be free of all loose and peeling coating or any other loose detrimental foreign matter.

5.3.1.4 Surface integrity must not be damaged in any way such as gouging of wood or raising of the wood grain.

5.3.2 Cleaning Only:

5.3.2.1 The cleaned surface must be free of visible contamination such as chalk, mildew, dust, dirt, oil, grease, etc.

5.3.2.2 Some stains may be visible after cleaning is performed due to penetration into substrate. Removal of substrate to eliminate these stains is not required unless explicitly specified.

5.4 When details of the nine elements listed in paragraph 5.2 are not explicitly specified, then the trained professional operator will determine the combination of the nine

elements while in compliance with Manufacturer's printed Technical Data and Instructions to meet the desired performance criteria.

5.5 It is recommended that a Benchmark Sample(s) showing specified level of cleaning be prepared and approved according to PCA Standard P5.

5.6 The acceptability of the cleaning performed shall be determined when viewed without magnification, at a distance of thirty-nine (39) inches or one (1) meter or more, under finished lighting conditions and from a normal viewing position.

5.7 Cleaning with pressurized water is subject to containment requirements. According to EPA, DOE and HUD regulations, the work area must be isolated so that no dust, debris, or wastewater leaves the work area. Erected containments must not interfere with occupant and worker egress in an emergency. The integrity of containments must be maintained ensuring that any plastic or other impermeable materials are not torn or displaced. The appropriate containment and disposal of the effluent water shall be in accordance with the PWNA's Cosmetic Cleaning BMPs based on the EPA's Model Ordinance.

5.8 The contractor shall comply with all applicable OSHA and other local, state and federal regulations regarding the health and safety of workers. All protective equipment shall be supplied and worn as necessary.

6. Comments

6.1 Since the cost of using pressurized water to clean surfaces is greatly influenced by many factors, the bid specifications and ultimately the contract documents must clearly define project requirements and intended results.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

7.1 PCA does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any of the information contained herein.

PCA P23

Painting and Decorating Contractors Typical Exclusions from Scope of Work

1. Scope

1.1 The purpose of this Standard is to identify typical common items that are not implied to be a part of the Painting Contractor's work unless explicitly referenced in the specification or contract documents for painting or finishing.

1.2 It is the intent of this document to clarify the scope of work of the Painting Contractor when the specifications and contract documents are not clear.

2. Significance & Use

2.1 Specifications and contract documents are often unclear or are silent regarding listing specific items that are to be field painted or finished.

2.2 Specific substrates may be cited such as wood, metal, plaster, etc., but specific items are often not listed.

2.3 This Standard lists specific items that are not included in the Painting Contractor's scope of work unless specifically stated in the contract documents.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 The following items are typically excluded from the Painting Contractor's scope of work unless specified otherwise in the contract documents:

5.1.1 Acoustical tile and sprayed acoustic ceiling surfaces and related hardware.

5.1.2 Vents, grilles, switch plates, louvers, speakers and covers.

5.1.3 Cabinets, shelves, poles, and related hardware.

5.1.4 Closet interiors when performing repaint or maintenance work.

5.1.5 Mechanical ducts, pipes, conduit, screens and equipment, and areas inside ducts.

5.1.6 Electrical equipment, boxes, raceways, and conduit.

5.1.7 Concealed spaces.

5.1.8 Caulking and sealant not implied by PCA Standard P11 Painter's Caulk.

5.1.9 Exposed steel and concrete ceilings.

5.1.10 Fire sprinkler piping and associated hardware.

5.1.11 Natural finish items such as stone, etc.

5.1.12 Prefinished items.

5.1.13 Furniture and associated hardware.

5.1.14 Floors.

5.1.15 All roof surfaces and roof mounted items including flashing, gutters, downspouts, pipes, equipment, vents, stacks.

5.1.16 Fences and gates.

5.1.17 Miscellaneous exterior landscape items such as light poles, benches, signage, mailboxes, planters, and gazebos.

5.1.18 Finishing, waterproofing, or sealing of EIFS materials.

5.1.19 Tops of interior doors except when they are exposed to public view; bottoms of doors.

5.1.20 Countersinking fasteners.

5.1.21 All items not explicitly referenced in the specification or contract documents for painting or finishing.

5.2 The Painting Contractor is not responsible for latent damage including, but not limited to, the bleeding of wood knots, and the mushrooming around fasteners on medium density fiberboard (MDF).

6. Comments

6.1 This Standard is intended to clarify the scope of work of the Painting Contractor.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P24 Recommended Protocol for Spot Repairing Existing Finishes

1. Scope

1.1 This Standard establishes procedures for the inspection and acceptance of spot repairs made to existing finishes. The purpose of this Standard is to explain the consequences of spot repairing existing finishes.

1.2 The purpose of this Standard is to outline reasonable characteristics and expectations of spot repairing of existing finishes. This Standard establishes procedures for the inspection and acceptance of spot repairs made to existing finishes.

2. Significance and Use

2.1 Existing substrates and finishes will age differently than new substrates and newly applied finishes.

2.2 It is important that all parties to the contract be made aware that the appearance of spot finishes will change with the passage of time.

2.3 This Standard describes various options when spot repairing of finishes is performed.

3. Definitions and Trade Terms

3.1 Definitions and Trade Terms see P9.

4. Reference Documents and Standards

4.1 Reference Documents and Standards see P9.

5. Standard Specification

5.1 Small spot finish on a surface that does not have natural break points.

5.1.1 The spot to be finished shall be kept as small as possible to minimize the size of the repair area.

5.1.2 The Painting Contractor shall provide a reasonable match of the color of the spot repair material to the existing color of the adjacent surface.

5.1.3 The Painting Contractor shall provide a reasonable match of the gloss of the spot repair material to the existing gloss of the adjacent surface.

5.1.4 The Painting Contractor shall provide a reasonable match of the texture of the spot repair to the existing texture of the adjacent surface.

5.1.5 The acceptability of the spot finish shall be determined when viewed perpendicular to the spot finish without magnification, at a distance no less than thirty-nine (39) inches under finished lighting conditions.

5.1.6 When viewed at an oblique angle, a spot finish on a surface that does not have natural break points will be visible. As the gloss of the spot repair material is increased, the visibility of the spot finished area will be more pronounced.

5.2 Spot finish on a surface that does have natural break points but does not include the entire room.

5.2.1 The color of the spot repair material shall be a reasonable match to the existing color of the same surface in the remainder of the room.

5.2.2 The gloss of the spot repair material shall be a reasonable match to the existing gloss of the same surface in the remainder of the room.

5.2.3 The texture of the spot repair shall be a reasonable match to the existing texture of the same surface in the remainder of the room.

5.2.4 The acceptability of the spot finish shall be determined when viewed without magnification, at a distance no less than thirty-nine (39) inches under finished lighting conditions and from a normal viewing position in accordance with PCA Standard P1.

5.3 Spot finish of a surface in an entire room.

5.3.1 The color of the spot repair material shall be a reasonable match to the existing color of the same surface in the room.

5.3.2 The gloss of the spot repair material shall be a reasonable match to the existing gloss of the same surface in the room.

5.3.3 The texture of the spot repair shall be a reasonable match to the existing texture of the same surface in the room.

5.3.4 The acceptability of the spot finish shall be determined when viewed without magnification, at a distance no less than thirty-nine (39) inches under finished lighting conditions and from a normal viewing position in accordance with PCA Standard P1.

5.4 As both the spot repair materials and the existing finishes age, it is likely that the appearance of the spot repaired areas and the existing finishes will be different due to different materials being utilized and varying exposure to ultraviolet light, number of paint coats, etc.

5.5 The visual difference between spot repaired areas and existing finishes is more pronounced when stain and clear wood finishes on wood are involved. Refer to PCA Standard P21 for designation of stain and clear finishes.

5.6 When colors, glosses and textures are reasonably matched, there will still likely be visible differences between spot finished areas and existing finishes.

5.7 As the type of spot finish process progresses from small spot finish on a surface that does not have natural break points to spot finish on a surface that does have natural break points but does not include the entire room to spot finish of a surface in an entire room, the resultant visual appearance will be more uniform.

6. Comments

6.1 This Standard establishes a protocol for spot repairing existing finishes.

6.2 This Standard clarifies areas of responsibility. Improved communication reduces misunderstandings.

6.3 This Standard is a nationally recognized consensus document for the painting and coating industry's work practices.

7. Disclaimer of Liability

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PCA P25

Allowance for Reasonable Damage Repair Painting

Standard P25 is intentionally blank and discontinued; December of 2022