



PDCA 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 in order to achieve a "properly painted surface."
- 1.2. This standard establishes criteria for estimating purposes.
- 1.3. 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.
- 1.4. 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. Reference Documents and Standards

- 3.1. ASTM D 4214 Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
- 3.2. ASTM D 3359 Standard Test Methods for Measuring Adhesion by Tape Test 3.3 Black's Law Dictionary, 7th Edition, Bryan and Garner, 1999
- 3.4. FSCT (Federation of Societies for Coatings Technology), Coatings Encyclopedia Dictionary, edited by Stanley LeSota, 1995
- 3.5. Master Painters Institute [MPI] Maintenance Repainting Manual

- 3.6. MPI, The Master Painters Glossary – Painting and Decorating Terminology, Version 4
- 3.7. Merriam-Webster's Collegiate Dictionary, Tenth Edition, Copyright 1993
- 3.8. PDCA Standard P1, Touch Up Painting and Damage Repair: Financial Responsibility
- 3.9. PDCA Standard P5, Benchmark Sample Procedures for Paint and Other Decorative Coating Systems
- 3.10. PDCA Standard P9, Definition of Trade Terms
- 3.11. Webster's New World Collegiate Dictionary, 4th Edition, 2002

4. Definitions

- 4.1. 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]
- 4.2. ACCESSIBLE: That which can be approached or entered. 2) Easy to approach or enter. 3) That can be got; obtainable. [Webster's]
- 4.3. ARCHITECTURAL COATING (PAINT): Coating (Paint) 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. They are protective and decorative finishes applied at ambient temperatures. [MPI]
- 4.4. ASTM: American Society for Testing and Materials. [PDCA Standard P9]
- 4.5. FINISH: An entire paint or coating system; the texture, color and sheen of a surface. [PDCA Standard P9]
- 4.6. MAINTENANCE PAINTING: Any coating work done subsequent to that associated with construction. [PDCA Standard P9]
- 4.7. NORMAL VIEWING POSITION: For the purpose of inspection, a normal viewing position shall be at eye level at a minimum of thirty-nine (39) inches or one (1) meter from the wall. [PDCA Standard P9]
- 4.8. PAINTING AND DECORATING CONTRACTOR: The individual or company contracted to apply paints, coatings, wallcoverings and other decorative

finishes. [PDCA Standard P9]

- 4.9. PREPARATION: The act or process of preparing. (Prepare, to make ready, usually for a specific purpose; make suitable) (Performance of the specified procedures prior to the application of paint, coating, wallcovering or other decorative finish.) [Webster's] [PDCA Standard P9]
- 4.10. 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]
- 4.11. 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]
- 4.12. 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." [MPI]
- 4.13. SURFACE: The substrate to which paints, coatings, or wallcoverings are applied; the finish obtained after the coating work has been completed. [PDCA Standard 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 is 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 3359 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 hydroblasting (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 project documents, the criteria for acceptance of finish painted surfaces shall be that of a properly painted surface as defined by PDCA Standard P1-04. It states: A "properly painted surface" is defined as uniform in appearance, color, texture, hiding and sheen. It is also free of foreign material, lumps, skins, runs, sags, holidays, misses, or insufficient coverage. It is also a surface free of drips, spatters, spills or overspray caused by the painting and decorating contractor's workforce. 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. 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 and decorating 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 and decorating 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 in the surrounding work area. This includes misplaced paint on hardware and other fixtures, surfaces damaged by others (for example, screening), damage to landscape and hardscape, and worn and weathered fixtures, hardware, and other items.
 - 5.8. Project specifications may require different levels of preparation on different surfaces for example, Level 4 on doors and trim and Level 2 on walls.
 - 5.9. Specifications 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 clarifies the level of surface prepara-

tion for estimating purposes.

- 6.3. This standard defines a protocol for the inspection and acceptance of finish painted surfaces on repaint and maintenance projects.
- 6.4. This standard defines pre-existing conditions that are beyond the responsibility of the painting and decorating contractor.
- 6.5. Existing coatings and substrates may contain materials such as lead and other RCRA metals, mold, asbestos, and PCBs. Though abatement of those materials may not be required, EPA, OSHA, state and local regulations regarding environmental, health and disposal requirements must be considered. nd disposal requirements must be considered.

7. Disclaimer of Liability

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