

MAINTENANCE GUIDEBOOK VI - PAINTING MAINTENANCE

CHAPTER SIX - PAINT PROBLEM-SOLVING

SECTION A GENERALIZED PAINT FAILURES

It has been estimated that over 80% of paint failures can be attributed to poor, improper, or no surface preparation, which may result in peeling, chalking, discoloration, blistering, and cracking of the paint film. In general, when such problems appear throughout the structure, they can best be corrected by the complete removal of the failed paint, proper surface preparation, and repainting.

SECTION B LOCALIZED PAINT FAILURES

Most localized failures can be attributed to moisture penetration, the source of which must be discovered and corrected before the surface can be prepared and repainted. Moisture may enter a structure as a result of faulty flashing, roof leaks, inadequate or missing caulking, leaking or overflowing gutters and downspouts, roof-edge ice dams, piled snow, inadequate grading and drainage at the foundation, and cracked or ruptured paint film.

Water or moisture from interior sources can cause both interior and exterior paint failures. Often these localized paint failures are found adjacent to the moisture source—perhaps on the opposite side of the ceiling or wall. Sources of itinerant interior water and moisture may include leaky plumbing fixtures, water or sewage backup, water overflowing or chronically spilling from plumbing fixtures, condensation, inadequate ventilation, and excessive humidification.

SECTION C SURFACE PROBLEMS

Some problems frequently identified with paint are actually problems with the surfaces painted rather than paint failures. Examples are mildew, surfactant exudation (sometimes called surfactant leaching), and efflorescence on concrete, stone, masonry, stucco, or plaster.

1. MILDEW

Mildew is a fungus which can grow on virtually any surface, usually in a dark and moist location with limited air movement. It can be removed by washing with a solution of one or two cups of household bleach per gallon of warm water, and allowing the solution to do its work (generally ten or fifteen minutes) before rinsing thoroughly with clean water. After the surface has thoroughly dried, it may be painted in the customary fashion. The recurring presence of mildew is usually a

sign of a chronic water problem—a leak, overflowing water, condensation, etc.—which will need to be discovered and remedied before the mildew problem can be permanently solved. Painting a mildewed surface, even with a paint containing a mildewcide, will not by itself solve a mildew problem.

2. SURFACTANT EXUDATION OR LEACHING

Surfactant exudation or leaching is the development of shiny spots on surfaces newly painted with latex paint, occurring when a constituent of the latex solvent is deposited on the surface as the latex dries. This does no harm to the surface and will either wash away in time or can be washed off using a mild detergent in warm water, followed by a clean water rinse.

3. EFFLORESCENCE

Efflorescence is crystallized salts, usually white and powdery, deposited on the surface of stone, concrete, masonry, and sometimes plaster or stucco walls. The problem generally occurs either on newly built concrete, stone, or masonry walls, or on older surfaces experiencing water penetration.

a. Causes

Efflorescence is formed when soluble salts contained in mortar, plaster, or cement are dissolved by water and carried to the surface, where they are deposited and crystallize as the water evaporates. Although efflorescence is unsightly, it is generally harmless to the surface it forms on, and quite often, especially on newly built walls, is washed away by rain. Even though efflorescence is harmless, it should not be painted over, since it will prevent a proper bond between the paint and its substrate, causing subsequent paint failure.

Proper preparation of a surface experiencing efflorescence involves locating and correcting the source of the problem before attempting to remove the efflorescence itself. On newly constructed walls the problem is usually a temporary one, caused by the wetting of a wall under construction. Once the salts have been brought to the surface and the wall has dried out, the problem disappears, and the efflorescence is washed off the wall by rain.

Occasionally the materials used to build a wall are contaminated with sodium chloride or other salts, and the wall will continue to effloresce for a year or more, until it has deposited all the contaminating salts.

Faulty or failed construction is usually the cause of efflorescence in older structures, and should be remedied before the surface is painted. A thorough inspection of the wall will reveal

a source of water penetration—broken coping, deteriorated or penetrated flashing, faulty waterstops, or hydrostatic pressure against an inadequately waterproofed wall—which will need to be repaired before surface preparation can proceed.

b. Surface Preparation

Efforts to remove efflorescence should begin with the mildest remedies and proceed to the stronger ones only as necessary. Most efflorescence can be removed by dry-brushing with a stiff-bristled brush, followed by flushing with clean water. If the brushing is not effective, light sandblasting followed by flushing with clean water is usually sufficient. Sandblasting is not recommended for plaster or stucco, since it can pit the surface.

In the most extreme cases, it may be necessary to apply a dilute solution of muriatic acid (5 to 10 percent, or 2 percent for integrally colored concrete or plaster). Since the acid solution can be drawn deeply into the wall and cause damage there, the wall should always be dampened before application so the acid will stay on the surface. Other dangers posed by muriatic acid include changes to the surface texture and color. **ALWAYS TEST AN ACID SOLUTION ON AN INCONSPICUOUS PORTION OF THE WALL BEFORE GENERAL APPLICATION.** Begin testing the weakest dilution likely to have the desired effect (2 to 5 percent) and work up to the strongest solution (10%). Since acid solutions may cause slight changes in the color of the wall, the entire wall may have to be treated.

Apply the solution to not more than 4 square feet at a time, working from the top down, and systematically from one side of the wall to the other. Allow the solution to remain on the wall about five minutes before brushing off the efflorescence with a stiff-bristled brush, and flush the area immediately with clean water to remove all acid. Areas to be painted should be neutralized first by washing with a 10 percent solution of ammonia or potassium hydroxide, or allowed to weather for at least a month. Flush the surface with water immediately after applying the neutralizing agent. **CAUTION! ALWAYS WEAR PROTECTIVE CLOTHING, RUBBER GLOVES, AND SAFETY GOGGLES WHEN USING MURIATIC ACID OR A NEUTRALIZING AGENT.**

SECTION D PROBLEM-SOLVING RESOURCES

Many paint problems and failures can be identified and resolved with the help of a manual called "Paint Problem Solver," available from the Painting and Decorating Contractors of America. Chapters are devoted to major paint-problem types, including descriptions and photographs, and there are recommendations for their correction. Included are chapters on adhesion, application, discoloration, peeling, and miscellaneous problems. This manual is available from:

Painting and Decorating Contractors of America
3919 Old Lee Highway, Suite 33B
Fairfax, VA 22030
1-800-332-7322.

END OF CHAPTER SIX