

# MAINTENANCE GUIDEBOOK VI - PAINTING MAINTENANCE

## CHAPTER ONE - INTRODUCTION

### SECTION A GENERAL

The purpose of painting is to preserve structures and equipment from premature deterioration and maintain them in appealing condition. Such maintenance should result in substantial savings to public agencies and housing authorities (jointly referred to as HAs), and a pleasant environment. Timely protection of components from deterioration minimizes or even eliminates costly repairs and replacements. Painting, therefore, should be an integral part of the HA's preventive-maintenance painting program.

These guidelines should enable HAs to organize their painting programs and effectively carry out their painting and decorating work. They also address the methodology of good painting and decorating practices. While they do not attempt to define the level of skill needed to execute any of the tasks referenced, it should be recognized that some of this work requires skills only available from properly trained personnel.

### SECTION B THE PURPOSE OF PAINTS AND COATINGS

The purpose of paints and coatings is to protect and beautify. Paints and coatings can protect surfaces from physical damage and substrates from corrosion and deterioration. They can beautify by enhancing color, adding color, and decorating otherwise drab or unsightly surfaces. They can highlight desirable architectural features, and can lessen the visual impact of undesirable ones.

Paints can enhance safety by increasing visibility through the use of established standard safety colors—for instance the yellow-and-black stripes used to suggest caution. Paints and coatings can protect by making surfaces easier to clean and stain resistant. The variety of maintenance paints and coatings includes the following:

- Fire-retardant and resistant coatings;
- Mildew- and fungus-resistant coatings;
- Wood rot-resistant coatings;
- Rust-inhibitive paint;
- Graffiti-resistant coatings;
- Lead encapsulants;
- Line-marking (traffic paints);
- Water-resistant and water-repellent coatings;
- Tile-like (epoxy) coatings.

The listing above might seem to imply that paints and coatings can do just about anything. But the fact is that all paints and coatings must be properly applied to a clean and sound surface if they are to perform as intended. Paints nor coatings are not designed to glue together or consolidate weak or crumbling plaster, decomposed gypsum board, or rotted wood. These substrates must be replaced or repaired before any attempt is made to repaint or recoat.

"Slapping on a coat of paint" to clean up a dirty surface or cover up a failing surface makes it difficult to correct any problem at a later date. The affected item deteriorates more quickly and its repair is more expensive than it would have been with timely repair.

## **SECTION C WHEN NOT TO PAINT**

All paint manufacturers require their paints be applied to a clean and sound surface or substrate. Examples of surfaces which are clearly not sound and should not be painted are the following:

- Rotted wood;
- Masonry with efflorescence or other contamination;
- Corroded metal surfaces;
- Surfaces contaminated with mildew, mold, or fungus;
- Wet or damp gypsum drywall, plaster, or wood;
- Any surface clearly in need of repair.

Most paint failures are caused by painting over dirty but otherwise sound paint surfaces.

## **SECTION D WHEN TO PAINT**

The painting of facilities should be timely to serve its purpose. It is time to paint when one of the following requires it:

- Peeling or otherwise failing paint;
- Scratched, marred, or worn out paint;
- Repaired surfaces;
- A rehabilitation program;
- A safety requirement;
- Redecoration.

The benefits of timely painting are:

- Reduction in or elimination of corrosion on exposed metal surfaces;
- Reduction in or elimination of deterioration to nonmetallic surfaces caused by their environments;
- Surfaces more easily and less expensively maintained;
- Safer surfaces and fewer accidents;
- Reduced cost because of less need to replace deteriorated components;
- An aesthetically more pleasing appearance.

## **SECTION E INSPECTION PROCEDURES**

Regular (at least annual) inspections by the HA should be an integral part of the painting maintenance program. Painting inspections should be conducted before, during, and after all paint jobs. Inspection is generally conducted at three levels:

- Pre-job—Identifying surface conditions that might require repair painting, and recommending the required repair, cleaning, and other surface preparation.
- Work-in-progress—Inspecting for compliance with specifications, which should include surface preparation, the removal or corrosion and loose paint, priming, the quality and type of paint used, the quality of the application, and for compliance with other HA's requirements, and any applicable regulations.
- Completion—Inspecting the completed painting work and requiring corrections if applicable.

Who does the inspection depends upon the size of the HA. In a small HA, it might be the supervisor, while a larger HA might have a staff or a contracted inspector. By law, it is the employer's (in this case the HA's) responsibility to comply with OSHA regulations on worker safety and EPA regulations on environmental protection and safety. This is also true of other federal, state, and local laws and regulations.

## **SECTION F PLANNING PROCEDURES**

Planned periodic maintenance does not mean that all surfaces should be painted regardless of the condition of the existing paint. It is neither technically correct nor economically expedient to paint when there is no need for it. Some surfaces, like washable paints in living areas, might require only yearly washing or cleaning. Others (such as hallways or other public areas) might require monthly or bi-monthly washing or cleaning. Such consideration should be given to all accepted painted surfaces. The removal of surface contaminants can greatly prolong the life of a paint or coating.

In order to avoid premature and unnecessary painting, ensure that:

- There is realistic periodic painting;
- Steps are taken to prevent surface abuse, including graffiti;
- The right paint is specified;
- There is adequate surface preparation;
- Paint is properly applied.

A properly planned painting-maintenance program addresses all of these issues.

## **SECTION G PREVENTIVE MAINTENANCE INSPECTIONS**

### **1. THE IMPORTANCE OF REGULAR INSPECTIONS**

Perhaps a better heading for this section would be "How to Prevent Maintenance Painting." The best preventive maintenance should focus on timely correction of painting defects, which can be accomplished by inspections. The frequency of inspection should be in compliance with HUD's Public Housing Management Assessment Program (PHMAP), and as required by conditions in each development.

### **2. THE INSPECTION AND REPORT**

A good inspection report should include, but not be limited to, the following information:

- The unit/area examined;
- Identification of surface examined;
- The condition of surface;
- If the surface is in need of attention, can it be
  - Cleaned?
  - Touched-up? (Effective touch-up requires either a standard color/finish program or retention of samples of the paints used.)
  - Partially painted? (If so, what surface preparation will be needed?)
- If there was a paint failure, did it fail because of
  - Improper product selection? Questions to ask are:
    - Did the product deteriorate prematurely? (Records might determine that poor quality was used).
    - Was it used in an inappropriate location? (Records might reveal that a nondurable paint was used in a high-traffic area).
    - Was it an interior paint used outdoors? (Checking manufacturers recommendations could reveal misuse).

- Improper system selection? Some indications of this might be
  - Intercoat delamination;
  - Alligatoring;
  - Uneven sheen.
- Improper surface preparation? Indicators are many, for example:
  - Additional coats are required;
  - Coating blisters, flashes, wrinkles, or separates;
  - Mildew forms;
  - Fish eyes or cratering develop;
  - Surface is rough;
  - Surface cracks develop;
  - Iron or steel surfaces rust through the film;
  - Hydrocarbon wax bleeds through;
  - The whole paint system peels and falls off.
- Building/substrate damage. In addition to describing the cause of the paint failure, the report should recommend a specific approach to repairing the damage. For example:
  - Damage: water stain and crack in ceiling;
  - Probable cause: roof leak;
  - Remediation: repair roof, then repair ceiling before repainting.
- Correction recommendations
  - Does the area/surface need something other than paint?
  - What can be done to reduce frequency of repainting?

## **SECTION H MAINTENANCE PAINTING**

Repainting should only be done on an as-needed basis, as determined by inspection-identified surface damage, paint delamination, or graffiti. The following chapters of this guidebook deal in detail with the how-tos of painting. Chapter Two deals with pre-painting surface preparation for various materials, Chapter Three discusses the types and uses of paints and coatings, and Chapter Four describes proper application procedures. Chapters Six and Seven respectively define post-painting procedures and present some tips on solving paint and coating problems.

### **1. THE SUPPLIER AS AN INFORMATION SOURCE**

The HA should take advantage of any help offered by paint-products suppliers and manufacturers. Most offer services and information beyond that given on the product's label, including system specifications, product-use recommendations, product-performance criteria, product limitations, and warnings. There are also often recommendations for surface preparation, paint-mixing instructions,

and application and spread rates. Many suppliers also offer inspections and guarantees or warranties. In almost all cases, these services are available when asked, along with an assortment of paint caps, stirring paddles, can openers, and wet-paint signs.

The supplier must also supply Material Safety Data Sheets (MSDS) on all products delivered. The law requires that MSDSs be on the job site and available to all workers, including those doing the painting.

## **2. DEALING WITH GRAFFITI**

Graffiti should be addressed by some method other than by painting over it. The affected surfaces should be protected, for example, with commercially available graffiti-resistant coatings. Painting over graffiti only presents the "artist" with a new canvas, which usually results in additional defacement.

Graffiti should be removed as soon as it is discovered, if possible while the paint is fresh, since the longer it remains on the surface the more difficult it is to remove. Immediate removal also discourages additions or responses to it. Depending on what the graffitied surface is, the kind of material applied, and how long it has been on the surface, some of the following methods may be effective for removal of graffiti.

- Waterless hand cleaner and garden hosing;
- Mild solvent (alcohol);
- Solvent-saturated newspaper taped to the graffitied surface for a few hours;
- Hot-water blasting or steam cleaning;
- Water blasting with bicarbonate of soda.

## **3. ACCOMPLISHING MAINTENANCE PAINTING**

### **a. In-House Painting**

In-house painting by HA employees is generally less expensive than contracting-out painting. For this reason, large HAs often have in-house painting crews to do their phased painting and to repaint vacant apartments quickly enough to meet reoccupancy goals. Small HAs, however, may not even have a dedicated painter, let alone a crew, and may need to consider means other than using regular employees to meet their painting needs.

One alternative which is often cost-effective is to offer residents the opportunity to paint their own units (see item c below). In determining whether this is truly cost-effective, however, the HA should factor in considerations such as the training and monitoring of residents required to ensure compliance with the HA's standards.

Even when it is cost-effective to use resident labor, there are occasions when this alternative is not feasible, such as when emergency repairs must be made quickly, or when the work required is on the exterior of a building, in common spaces, or in an unoccupied unit. In such cases, the choice is usually limited to using in-house labor or contracting-out the work.

**b. Painting by Residents**

Under adequately established procedures, it is cost effective to permit residents to paint their dwelling units. However, the HA is responsible for ensuring that the intent of the resident painting program is met, and that all applicable rules, regulations, safety, health, and environmental guidelines are followed.

After the HA determines that painting work needs to be done, it might be necessary to make pre-painting repairs usually performed by HA maintenance staff. Along with paint distribution, the residents should be given instructions on the work to be performed. They should also be given instruction if they are expected to do the pre-painting preparation work (see Chapter Two—Surface Preparation). For application of paints, coatings, and cleanup, residents should receive instruction from the HA on the contents of Chapter Four—Paint and Coating Application Procedures and Chapter Five—Post-Painting Procedures. The resident's attention also should be directed to the safety procedures discussed in Section J of this chapter. After residents have received instructions and materials, an inspection schedule should be set up. It is important to start this process off well; otherwise damage, danger, exposure to litigation, and a loss of pride by the resident can result.

**c. Painting by Contractors**

When painting is to be completed by non-HA forces, the work should be clearly specified and painting services procured in accordance with HUD's procurement regulations. Upon execution of the painting contract, the HA should appoint an Inspector to ensure that the work is completed in accordance with the specifications and all applicable regulations. Issues which should receive particular attention include:

- Inspection of paint to be used.

- Scraping and Sanding:

All scraping and sanding should be done in compliance with OSHA, EPA, and HUD regulations on managing dust, which can be a health hazard in addition to being messy. Dry scraping and sanding should be discouraged. Special attention needs to be given to lead-based paint removal and abatement.

- Surface Preparation Cleaning:

Washing a surface before painting is a normal part of surface preparation, which is particularly important when using latex paints. Latex paints contain surfactants which act like detergents and tend to dissolve or loosen any surface contamination not removed by cleaning. This increases the chances that paint will fail, and makes covering more difficult.

- **Paint Spraying:**

Extraordinary care must be taken to control spray-dust generation. Since overspray and drifting spray can damage surrounding property, the Inspector should ensure that the contractor has taken adequate care to move, cover, mask, or otherwise protect property from damage.

- **Contractor's Employees' Equipment:**

Contractors are bound by law to train their employees and to supply them with needed safety equipment. The inspector should promptly report any infraction of regulations to the proper authorities.

## **SECTION I HUD GUIDE**

"Managing Maintenance in Public Housing," published by the Department of Housing and Urban Development, provides guidance for the painting of dwelling units.

## **SECTION J COMPLIANCE WITH SAFETY REGULATIONS**

The painting work should be done in compliance with all safety regulations, with particular attention to:

- A hazard communication standard;
- A respiratory-protection program;
- Hazardous-waste handling;
- OSHA's ladders and stairways standard.

### **1. THE FEDERAL HAZARD COMMUNICATION STANDARDS**

These standards are also known as HAZ-COM, HAZCOMM, and the "Right To Know Law." Officially they are identified as The Federal Hazard Communication Standards, 29 CFR 1910.1200, 29 CFR 1926. In general this regulation requires the following:

- Compiling an inventory list of materials used;
- Collecting a Material Safety Data Sheet (MSDS) for each material;
- Determining which materials on the inventory list are considered hazardous under the Hazard Communication Standards by reviewing the MSDSs;
- Inspecting containers to make sure that each pail, drum, package, and tube is labeled with the



- name of the product and who manufactures or distributes it, and an appropriate hazard warning;
- Developing a written Hazard Communications program which describes how the requirements of the standard will be met;
- Providing information and training to employees, covering the requirements of the standard and specific hazard information.

## **2. RESPIRATORY PROTECTION PROGRAM**

In general, the need for respiratory protection is covered in the Material Safety Data Sheets for the specific materials being used. Respiratory protection is also covered in OSHA regulation 29 CFR 1926.013. In addition to following the regulations, points to remember are:

- If possible, substitute a safer material for one requiring respiratory protection;
- Reduce exposure levels by increasing ventilation using fans or by other means;
- If respirators are still necessary, select the correct type for the job;
- Persons who must wear respirators must usually be medically certified annually as able to work safely while wearing the device;
- All respirator users must be trained in the proper fitting, use, inspection, and maintenance of their devices;
- Provisions should be made to clean and store respirators between uses.
- All facial hair (beards, sideburns, mustaches) which affect the seal of the respirator to the skin must be shaved;
- Each respirator must be fit-tested on the individual to whom it is assigned.

## **3. HAZARDOUS WASTE HANDLING**

Since the handling of hazardous waste is regulated, Has should identify the types of waste they generate, the chemicals they use, and such characteristics as ignitability, toxicity, corrosiveness, or reactivity. If hazardous material (for instance, old paint) is removed from a building, structure, or equipment, even by a contractor, the responsibility for properly disposing of the waste remains the owner's, in this case the HA's. Even if the contractor agrees to remove the hazardous material from the premises, the HA is still considered a co-generator. The HA cannot contract away its responsibility for the proper disposal of hazardous waste.

Waste is considered hazardous if it is:

- Ignitable (with a flash-point of less than 140 degrees F),
- Corrosive (with a pH below 2.0 or above 12.5),
- Reactive (capable of exploding or creating toxic vapors),
- Toxic (by EPA definition of toxicity).

#### **4. OSHA'S LADDERS AND STAIRWAY STANDARDS**

OSHA's ladders and stairways standards can be found in the Construction Standard, 29 CFR 1926, Sub L "Scaffolding" and Sub X "Stairways and Ladders." Some of the more pertinent and often overlooked sections of the regulations are:

- Select the proper ladder for the job.
- Do not allow more than one person on a ladder at a time.
- When working with tools on a ladder, always use a tool hanger or holder.
- Don't carry tools while climbing a ladder; use a rope to hoist them.
- Always face the ladder when climbing it.
- Always keep at least one hand on the ladder when working.
- Do not step on the top two steps of a stepladder.
- Do not step on the top four steps of a single or extension ladder.
- Wear shoes with non-skid soles.

### **SECTION K LEAD-BASED PAINT ABATEMENT AND MANAGEMENT**

Compliance with the Lead-Based Paint Poisoning Prevention Act of 1968 is regulated at 24 CFR Parts 35, 905, and 965. Lead-based paint abatement and management should be guided by the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, issued by HUD.

In addition, the congressional mandates of Title X—Lead-Based Paint Hazard Reduction Act of 1992, which was signed into law on October 28, 1992, must be heeded. In federally funded housing, this requires inspection, evaluation, and reduction of lead-based paint. It provides for notification to occupants, potential residents, and purchasers when lead-based paint is present, and explanation of the risks associated with it. The act also requires the development of guidelines for the conduct of federally funded work involving risk-assessment, inspection, interim controls, and abatement.

Special notice should be taken of these requirements:

- All buildings constructed before 1978 should be tested for lead;
- Only properly qualified and trained personnel may work on or with any surface or item which potentially contains lead or lead compounds;
- All workers who may potentially come into contact with lead-based paint must be tested for the presence of lead in their blood. Actions which must be taken in response to certain blood-lead levels are stipulated by the Environmental Protection Agency, the Occupational Safety and Health Act, and HUD, and are also addressed in several federal, state, and local regulations.
- The testing of Blood Lead Levels (BLL) in children, at various ages or school-grade levels, is covered in various laws and regulations which include actions to be taken in their housing or day-care facilities