PAINTING THE WOOD EXTERIOR OF YOUR HISTORIC BUILDING

Paint is one of many architectural finishes that endure some of the harshest effects of weathering. Sun, wind, and moisture are all elements that can contribute to the deterioration of paint and possibly shorten the life of the paint as well. Many historic buildings are adorned with intricate woodwork that needs special care when undertaking paint maintenance. Knowing how to recognize potential problems and how to manage these problems can extend the longevity of exterior paint.

A long-lasting paint job is a result of proper preparation and according to recent research the use of a three-part application process consisting of a high quality, paintable pre-treatment, primer and finish paint. It is not unreasonable to expect a 10 to 15 year life from a quality paint job applied to a renewed wood surface with periodic touchup. This requires total removal of all existing layers of oil/alkyd paint. All oil/alkyd paints will eventually fail. They become stiff and brittle as they age eventually losing their adhesion. Research, on those oil-based paints which contain vegetable oils, are found to actually provide nourishment to the fungi, which promote decay.

The following information is intended to inform and aid owners of historic buildings about the appropriate methods to utilize when planning to paint their historic building. All recommendations are within the guidelines of the Secretary of the Interior’s Standards (The National Park Service has available a series of Preservation Briefs. #10 Exterior Paint Woodwork Problems on Historic Woodwork should be reviewed and used in conjunction with this guide.) The topics that are addressed in this bulletin are:

- Identifying common paint defects
- Methods of paint removal
- Primary causes for paint failure
- Steps to enhance the durability for a long-lasting paint job

COMMON PAINT DEFECTS

**Alligatoring:** Identified by criss cross cracks. Caused by aging of oil/alkyd paint as they become brittle and shrink. Also caused by painting in direct sunlight, or applying second coat before first coat has dried. **Treatment:** Strip to bare wood.
**Blistering:** Bubbles on surface caused by water vapor seeping through walls or damp/wet wood, also caused by applying paint in direct sun. **Treatment:** If caused by moisture; locate source and eliminate. Strip to bare wood.

**Chalky Paint:** Dull paint-instead of coming off in flakes more of a chalk consistency. Caused by weathering of the paint as it ages, or a result of using inexpensive paint. **Treatment:** Wash with TSP and rinse.

**Cracks:** Horizontal cracks through many layers of paint. Caused by too many layers of paint. Related to alligatoring. **Treatment:** Strip to bare wood.

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**PAINT REMOVAL**

**PREPARATION:**

The first question a building owner needs to ask him/herself is how much of the paint needs or is desired to be removed? It is common practice to remove the failed paint to the next sound layer and then cleaning this area before a fresh coat is applied.

However, if cracking, peeling or blistering is apparent throughout each paint layer then complete paint removal of these areas is recommended. Complete paint removal can prove to be a large task to take on, and can be very expensive and time consuming. However if a long-lasting paint job is desired total and complete paint removal is required.

A building owner should be aware of the potential hazard of lead, which was a common component in paint until 1987. There are numerous publications about working around lead painted surfaces and the proper disposal of lead paint residue. Anyone who is thinking or currently undertaking paint removal is encouraged to take the proper precautions. There are various different methods used to remove paint off of wood, masonry and metal surfaces. Remember to document all previous layers of paint by performing a thorough paint color analysis prior to any paint removal down to a bare surface.
Though some methods prove to be less “messy” than others the decision is ultimately left up to the building owner.

Below are three paint removal methods:

I. **Abrasive Methods**
   This method often requires manual work by removing paint with a putty knife or paint scraper. After the paint has been removed, the uneven portions of the surface should be sanded by use of sandpaper or sanding block. Mechanical methods are the use of a belt or orbital sander operated by a skilled operator. Several methods not recommended are the use of sand or bead blasting, waterblasting or using rotary drill attachments.

   Paint shaving the siding, another abrasive method, can actually resurface the siding as well as removing the old paint. This presents the best surface for repainting. In addition, if one uses the dust collector attachment it can pickup 95% of the debris while it is shaving. This makes it useful whenever lead paint may be involved. As with the other mechanical methods, a paint shaver should only be operated by a skilled operator.

II. **Thermal Methods**
   Using a heat gun or electric plate to “loosen” paint from the surface. Both methods are effective if complete paint removal is needed. Using heat between 500-800 degrees Fahrenheit the paint will blister and soften the paint. Using a heatplate or heat gun requires full attention when in operation so that the historic fabric does not get burned or catch on fire due to the intense amount of heat directed at it. A blowtorch is not recommended as an effective or safe means of removing paint.

   A new technology recently available is the use of infra-red heat to soften the paint. This is similar to the use of a heat gun or electric plate but uses a much lower temperature of 500 degrees in lieu of 1200 to 1500 degrees delivered by the heat gun or electric plate. It is sometimes referred to as the “silent paint remover”. In addition because of the low operating temperature it prevents plumbic gases (lead) that may be present in the paint from being released.

III. **Chemical**
   Chemical means are implemented usually on “hard to reach” areas that the operator can not get to with the thermal methods. Also used on delicate and complicated exterior woodwork or for varnish removal. Chemicals that are solvent-based or caustic have the ability to soften many layers of paint by applying the chemical directly on them, then using a putty knife or paint scraper to remove the softened paint.

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