

Paint: Exterior Paint Project Planning

Exterior Paint Project Planning: Wood Surfaces

A successful painting project relies heavily on proper and thorough project planning. Evaluating the substrate and testing different methods for washing the structure, removing paint and applying new paint are crucial to the primary goals of the project: ensuring strong adhesion while at the same time retaining historic paint wherever possible. Researching is also an important part of project planning and can help the project manager to determine previous colors used and if paint analysis has been conducted at the site. Review the project with colleagues and obtain all necessary internal reviews to promote full documentation for future painting projects.

Guidelines for Paint Project Planning

- Determine if approvals from a Historic District Commission are required prior to beginning work.
- Evaluate condition of substrate and determine if repairs are necessary.
- Evaluate scheduling constraints.
- Determine if additional projects can utilize staging.
- Determine the best method for washing the surface.
- Determine if removal of the paint layer is necessary.
- Determine an appropriate method for removal.
- Review what type of historic paint documentation exists for the structure and the need for new documentation.
- Determine the type of paint to use. (See “Exterior Paint Selection” White Paper)
- Determine the best application method.
- Review with landscape staff the recommended protection for shrubs and grass.
- The majority of paint finishes on historic buildings contain lead and removal should be done in compliance with all applicable EPA and OSHA regulations.
- Complete a project review form documenting the various aspects of the project and consult with the Paint Task Force.

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Technical Information for Exterior Paint Project Planning

Determine if approvals from a Historic District Commission are required prior to beginning work.

- If the property where work is occurring is located within a historic district, research the ordinance fully or call the local preservation planner to determine if this work requires review.
- Often painting the same color does not require review, but in some localities it requires an administrative or full commission review; if changing the color, review is more likely.

Evaluate condition of substrate and determine if repairs are necessary.

- If the substrate is damaged (i.e. split clapboards, damaged watertable, or rotting trim) determine if it is feasible to conduct those repairs prior to painting.
- Mitigating damage before covering it with a finish is always preferable; however there will be instances where painting a damaged surface becomes necessary. Fiscal limitations might not allow for the proper repair, but adding a protective coating can, in many cases, still help extend the life of the resource.

Evaluate scheduling constraints.

- Paint should not be applied when the temperature of the surface and surrounding areas is below 50° Fahrenheit.
- Ideally, painting should happen in the shoulder seasons prior to June 15 or post October 15.
- Special programs and events at the site should also be considered when scheduling work to ensure a safe environment for all involved parties.

Determine the best method for washing the surface.

- Referring to the White Paper on Washing Exterior Structures, determine the best method of washing for the surface.
- Test the different techniques and evaluate condition prior to selecting the method; note that the gentlest way is the best way.

Determine if removal of the paint layer is necessary.

- Whenever possible, paint should not be separated from the substrate; only when paint is physically failing should it be removed.¹
- Paint that is faded but otherwise intact should not be removed.
- In certain situations in order to provide a solid ground onto which to apply a new layer or series of layers, paint must be removed.
- The following should be considered when determining if paint removal is necessary:
 - Condition: Is the finish blistering or peeling? Has the substrate been exposed?
 - Can paint be removed to the next sound layer?
 - Documentation: Has paint analysis been performed?

¹ Kay D. Weeks & David W. Look, Preservation Briefs #10 *Exterior Paint Problems on Historic Woodwork*. The National Park Service: Washington, D.C., 1982. available at <<http://www.nps.gov/history/hps/tps/briefs/brief10.htm>>.

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Determine an appropriate method for removal.

- The following should be considered when selecting a finish removal method:
 - Type of Material: Is this finish applied to wood, stone, brick, or another material?
 - Condition: Is the area brittle or damaged?
 - Prior Treatments: What has been done before and was it successful?
- Whenever possible, paint should be removed by hand-scraping the surface.
 - Paint should only be removed until the next sound layer is reached.²
- Do not use abrasive blasting or power/pressure washing to remove paint from wood or masonry.
- If full paint removal is required, infrared strippers can be considered, but they are still a risk and should only be used by trained professionals using a high level of care.
- If a smaller architectural fragment has been detached from the structure and full paint removal has been deemed necessary, a heat gun may be used. Heat guns and infrared strippers should only be used with the utmost care.
 - Heat guns should never be used on an element when it is *in situ* and should always be used on the lowest setting.
- On rare occasions when full paint removal is required on an element no longer attached to the building, a chemical stripper can be considered.
 - When stripping paint using this method, Historic New England typically avoids using methylene chloride because it is highly caustic and requires strong neutralization.
 - Preference should be given to an environmentally-friendly stripper,
 - Always test the product on a small patch to see how it performs and determine if it will be the best removal method for the situation. Also determine the neutralization requirements of the stripper to ensure paint adhesion in the future.
 - Proper ventilation is a necessity when using chemicals for removal.
- Sanding
 - Sanding has a three-fold purpose in painting: it removes additional paint, scarifies the surface enabling better adhesion and provides a smooth transition from existing layers of paint to the substrate.
 - Hand sanding is always the preferred method.
 - Finish palm sanders or random orbital sanders are permitted when feathering edges and removing multiple layers of paint, but they must be used with extreme caution because they can easily mar the surface.
 - Plan on regular quality control inspections.
 - If using a random orbital sander, it should be placed on the substrate, turned on, then remain in contact with the substrate during the process, turned off and removed from the substrate.
 - Turning the sander “on” or “off” prior to making contact with the wood or after removing it from the wood can result in circular marks.

² Kay D. Weeks & David W. Look, Preservation Briefs #10 *Exterior Paint Problems on Historic Woodwork*. The National Park Service: Washington, D.C., 1982. available at <<http://www.nps.gov/history/hps/tps/briefs/brief10.htm>>.

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- Plan on regular quality control inspections.

Review what type of historic paint documentation exists for the structure and the need for new documentation.

- Retaining a record of paint history *in situ* is always preferable and standardized locations make finding complete areas of paint history simpler.
- Retaining representative paint samples in standardized locations aids future generations in finding complete examples of paint history. Samples are to be retained in the following locations whenever possible:
 - Windows: leave a 1" x 1" square in the upper right corner of the top rail and on the top right corner of the window hood or casing.
 - Siding: leave the upper three courses of siding intact with the original finishes.
 - Trim: leave a 3" x 3" square in the upper right corner of the trim element wherever possible.
- Not every architectural element falls into the above categories and will likely have to be addressed on a case-by-case basis.
 - In those instances, when determining a sample area, select a section which is shaded, protected (e.g. inside the raking molding or between dentils), and not prone to mildew growth.
- In situations where paint will be removed, documentation through the professional collection of paint samples for paint analysis is required.
- Always document areas where paint was retained in the project completion report.

Review with landscape staff the recommended protection for shrubs and grass.

- Always protect the landscape with plastic and collect paint fragments removed during surface preparation in accordance with applicable EPA & OSHA regulations.
- Emphasize staging areas with plastic only when work is physically happening.
 - Prolonged covering of grass and shrubs will cause damage to the vegetation below especially in areas receiving direct sun.
 - Be mindful during budgeting that grass may need to be reseeded.
 - Try to avoid damage to any plant larger than grass.

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Select paint and method for application best suited to the project.

- Select paint according to “Exterior Paint Selection” White Paper.
- To promote a long-lasting finish, the paint should be applied using the method recommended by the manufacturer, but finished with a brush unless a more modern approach is historically accurate.

The majority of paint finishes on historic buildings contain lead and removal should be done in compliance with all applicable EPA and OSHA regulations on the subject.

- Be mindful of lead paint hazards and perform all work that disturbs lead-containing paint in accordance with applicable federal, state and local laws & regulations.
- As of April 22, 2010 stricter laws involving lead paint removal took effect.

Complete all necessary internal reviews.

- Complete Project Review Form and submit for Paint Task Force Review.

Additional White Papers of Interest:

- Exterior Paint Overview
- Exterior Paint Selection
- Guidelines for Exterior Paint Application
- Project Documentation
- Bibliography
- Washing Exterior Surfaces