

"YOUR OLD HOUSE" - Paint

By Ken Marchtaler, Certified Coatings Consultant

Your Heritage Paint Project

The materials used in constructing heritage buildings are often considered well above the standards found in those built today. This is just one of the reasons why heritage restoration is considered a good investment. But exposure to the environment, in some cases for over one hundred years, will eventually cause some structural wear, especially where regular maintenance has not been done. Realizing that each heritage painting project will be different, it is safe to say that unless houses have been properly maintained, each will have encountered similar problems during its lifetime. Unless proper remedies were applied, it is possible that these problems still exist and should be corrected before a new coat of paint is applied. About 85 percent of coating failures are the result of poor preparation of surfaces.

The goal of this booklet is to promote proper preparation by identifying the basic problems and providing solutions that will ensure adequate protection of the structural material or substrate. In many cases, the solutions will be more expensive initially but will reduce the amount of future maintenance.

Once proper paint restoration has been completed, ongoing maintenance is important. By keeping the same colour scheme, it is necessary only to recoat the worn or failing areas. For example, the south and southeast sides of homes in Victoria receive continual wear from sun, wind and rain. New coats of paint should be applied more frequently in such areas to ensure that the elements do not reach the structural materials. On the other hand, the northern and shaded areas are more prone to mold and mildew growth and should be washed regularly with a solution of TSP (trisodium phosphate), bleach and water. Mildew feeds on the oils in solvent-based paints and on the thickeners in water-based paints. Controlling its growth will promote coating life.

General Painting Guide

- Identify any existing or potential problems as outlined in this brochure. Remedies provided are guidelines and should not replace a manufacturer's specification or guarantee.
- Ensure all surfaces have been cleaned with a solution of TSP, household bleach and water. This provides a clean surface for painting and helps to kill the mildew spores that may remain after washing. (See Mildew - Remedies for recommended procedures.)
- Ensure that pressure washers are set no greater than 500 pounds per square inch (psi). Use of higher pressure could result in damage to wood fibres or create moisture problems. Both may affect the performance of a new coat of paint.

- Remove all loose paint by scraping and sanding or by using organic strippers. Consult your local paint store expert for options.

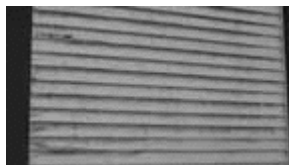
The restoration of heritage homes at times involves removal of materials that may be hazardous to your health. Before sanding or removing old paint, it is best to ensure that proper safety equipment is being used. We recommend reading Canada Mortgage and Housing Corporation's pamphlet "Lead in Your Home". A copy can be obtained by calling their Victoria office at (250) 363-8040 or by calling your local CMHC office.

- Fill any holes in wood smaller than 1/4" with a flexible filler such as linseed oil putty. For larger imperfections, it is advisable to use a non-shrinking two-part epoxy-based filler.
- Use exterior primers to prime bare wood prior to applying a topcoat. Most exterior oil-based primers contain resins that allow some penetration and breathability. They are more flexible than interior types and may also contain stronger mildewcides and fungicides. They are a good choice for blocking out stains such as cedar tannins that may leach through water-based coating.
- Apply a topcoat of either a high quality acrylic or oil-based paint. The 100 percent acrylic paints are considered to have more flexibility, are able to breath and have a longer life when exposed to direct sunlight. On the downside, they tend to be less abrasive than oil-based paints and are not recommended for areas where pooling water may accumulate (e.g., window sills).
- Follow the coating manufacturer's recommendations for regular maintenance.

While these general guidelines apply to most paint projects, you may be faced with problems that require more attention. The following are the challenges faced at the beginning of many paint projects, plus the recommended remedies.

Controlling Mildew Growth

Mildew is a fungus that will grow on any organic compound. It likes moisture and warm climates. It feeds on the oil in solvent-based paints or the thickeners in water-based paints. The spores are microscopic and are present in the air around us. They can remain dormant indefinitely and can grow underneath



Remedy-

On a cool, cloudy day:

- Apply a solution of 1/2 cup TSP, 1 quart household bleach and 3 quarts of water to the affected areas.
- Agitate with a scrub brush.
- Let stand on the surface for at least 45 minutes.
- Rinse off with a garden hose.
- Allow surface to dry completely.

coatings if not removed.

Chalking

Chalking is the breakdown of a coating binder due to exposure to the ultraviolet (UV) rays of the sun. Causes include:

- . Failure to properly prime and seal a surface
 - ii. Over thinning the paint
 - iii. Spreading the paint too thinly

Oil-based paints are more prone to chalking than acrylics. While it is normal for paint to wear over time, excessive chalking must be resolved to ensure that the new coat of paint will bond.



- Top coat with a mildew-resistant paint.

Remedy-

Wipe your hand across the surface. If chalk appears, do the following:

- Wash surface with a mild solution of TSP and water.
- Agitate with a stiff brush.
- Rinse with clean water.
- After the surface has completely dried, rub it with your finger.
- If no chalk is evident, surface may be re-coated.
- If chalk residue remains, a surface conditioner should be used prior to the coating. Consult your paint expert to see which products are recommended.

Peeling of Water-Based Topcoats

Peeling of water-based topcoats is the result of a failure of the new coating to bond to previous coatings. Some causes are:

- . Application directly to gloss oil paints
 - ii. Poor surface preparation
- . Damage from abrasion or scratching during curing period (7 to 21 days)



Remedy-

- Glossy surfaces should be dulled by sanding prior to coating.
- Gloss oil surfaces should be primed with oil-based primer prior to applying a latex topcoat.
- Allow acrylic paints to cure for a minimum of 21 days before heavy use or cleaning.

Wood Substrates & Moisture

Peeling can result when wood expands and contracts from moisture, eventually causing a paint coating to loosen. Moisture reaches painted wood a number of ways:

- i. Through uncaulked joints
- ii. Through worn-out caulk
- iii. Gutters full of ice or debris
- iv. From moisture inside the building
- v. Through damp basements
- vi. Painted boards too close to ground
- vii. Plant growth
- viii. Leaky roofs

Peeling can also result when painting over wood that has had insufficient drying time after exposure to moisture from rain, dew or pressure-washing.



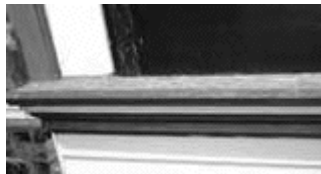
Remedy-

- i. Eliminate the source of moisture:
 - a. Remove and replace loose and worn caulk.
 - b. Install vents/fans to remove moisture from inside the building.
 - c. Waterproof the foundations.
 - d. Remove wood touching the ground.
 - e. Clean out gutters and downspouts.
 - f. Install wedges under siding boards.
- ii. Allow damp or wet wood to dry for 3 to 5 days before painting.
- iii. If pressure-washing above 500 psi (not recommended), allow up to 3 weeks' drying time.
- iv. Remove all loose paint.
- v. Feather any rough edges with sandpaper.
- vi. Spot-prime all bare areas with exterior primer.

For more information regarding moisture inside homes and possible remedies, we recommend obtaining a copy of Canada Mortgage and Housing Corporation's "Moisture and Air - Problems and Remedies" by calling their Victoria office at (250) 363-8040 or by calling your local CMHC office.

Peeling Window Sills & Frames

Water sitting on windowsills will eventually penetrate a paint film through cracks and openings in the coating.



Remedy-

- i. Remove all loose paint by scraping.
- ii. Feather all rough edges with sandpaper.
- iii. Remove old glazing and reglaze.

- iv. Caulk joints at a 45-degree angle.
 - v. Spot-prime with exterior primer.
 - vi. Use oil-based gloss paints for surfaces exposed to standing rain and snow.
 - vii. Leave a 1/16" edge of paint on the pane of the window to prevent water from getting behind the paint film.
- Use of storm windows helps prevent peeling from reoccurring.

Bubbles & Blisters

There are two main types of blisters: those caused by moisture and those caused by heat. Moisture blisters can be caused when moisture from inside a building is drawn to the outside walls because it has no where else to go. In summer, the sun heats the siding, and the water behind the film vaporizes. Blistering can also result when painting over a surface that has had insufficient drying time after exposure to moisture from rain, dew or pressure-washing. Unlike peeling problems, the moisture blisters may actually disappear afterwards and remain almost undetectable.

Heat blisters result when the sun causes the outside of the coating to dry too quickly, trapping solvents or water between the old and new coats of paint.



Remedy-

- Determine which type of blister exists.
- Break open one of the bubbles. If bare wood shows, the blister is likely caused by **moisture**. If another layer of paint shows, it is likely caused by **heat**.

If caused by moisture:

- i. Locate source of moisture.
- ii. Repair worn or loose caulking.
- iii. Install ventilation devices.
- iv. Install siding vents under siding boards.

If caused by heat:

- i. Do not paint new coat in direct sunlight or extreme heat.
 - ii. Remove blisters.
 - iii. Feather the edges with sandpaper.
 - iv. Spot-prime bare wood with oil-based primer.
- Apply topcoat.

Checking, Cracking & Flaking

Checking is a pattern of breaks in the top layer of a coating. Cracking and flaking are advanced stages of checking. Checking results when a coating begins to lose its elasticity, developing small narrow breaks due to expansion and contraction. These breaks are on the surface and do not penetrate to the substrate. They usually follow the pattern of the grain. Further exposure will result in wider breaks or cracks in the coating that eventually reach the substrate. As time goes on, the coatings begin to flake off.



Remedy-

- Remove as much loose paint as possible.
- Use an exterior spackling compound to level uneven areas.
- If many layers are involved, remove right down to bare wood.
- Prime all bare wood with exterior primer.
- Cracking down to the substrate usually means complete removal of the existing coatings.
- Apply a flexible topcoating such as water-based acrylic.

Ken Marchtaler is president of Diversified Mortgage Corporation in Victoria. Prior to this, he spent many years with Colormart Paint Stores. He has been a regular guest speaker with several organizations, covering such topics as paint problems and procedures as well as colour forecasting. His written articles have been published in the USA and Canada.

Victoria Heritage Foundation (VHF) was established in 1983 by the City of Victoria to administer a program of grants for exterior and structural restoration of legally protected heritage houses. Of 267 such properties, more than 200 have received VHF grants, and 45 owners have won Hallmark Society Awards for superb restoration. VHF's Education Committee conducts a variety of projects aimed at raising heritage awareness among citizens and visitors to Victoria, and educating owners of heritage structures on sympathetic methods and materials for restoration.

Vancouver Heritage Conservation Foundation (VHCF) is a private, non-profit, charitable organization created by the City of Vancouver in 1992 to assist in the conservation of Vancouver's built heritage, in recognition of its public benefit. The Foundation has a professional staff and is governed by a citizen board appointed by Vancouver City Council. In 1999, the Foundation commenced a building grants project, True Colours, that assists owners of designated houses with exterior maintenance, while emphasizing the importance of authentic period colour schemes.

Heritage Society of British Columbia (HSBC) is a non-profit umbrella organization that represents more than 300 group, individual and corporate members from all parts of BC.

Incorporated in 1981, the society's purpose is to provide leadership and encouragement for heritage conservation in BC.

British Columbia Heritage Trust (BCHT) has provided financial assistance to this project to support the conservation of our heritage resources, gain further knowledge and increase public understanding of the complete history of the province of British Columbia.

Credits

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