Identifying and Resolving Common Paint Problems
Premature Coating Failure

- Failures that occur before the anticipated service life ends can be caused by:
  - Improper surface preparation
  - Improper coating application procedures
  - Improper coating system selection
  - Improper formulation
  - Poor quality raw materials
Once Premature Failure Occurs…

- The investigation begins……
  - What was the cause of the premature coating failure?
  - What party was responsible for the failure?
  - What level of repair is required to ensure corrosion protection and integrity of the structure is acceptable?
Consequences of Coating Failures

• Financial impacts
• Litigation
• Substrate repair or replacement
• Costly rework and downtime
Substrate Repair or Replacement

• When a failure occurs, the substrate is exposed to the environment until the defect is detected
• Unprotected substrate is susceptible to corrosion and possible section loss
• Integrity of structure could be compromised if coating failure is not detected for an extended period of time
• Cost to repair substrate adds to the cost of the coating failure
Rework and Downtime

- Remobilization, surface preparation, coating application, and inspection of the repair or rework can be time consuming and costly.
- Hard to determine extent of rework needed.
  - Does the failure indicate total removal?
  - Can we get away with a spot repair?
Paint Problems

• Paint problems include a wide range of troubles found before or after painting
• Acid and alkali spotting cause an obvious discoloration of the surface
• Wash vehicle with detergent and water, followed by a vinegar bath
• Wet sand for minor spotting
• If spots have absorbed deep into finish, or down to the metal, sand and refinish
BLISTERING

Lifting of the paint film from the underlying surface, which appears as bubbles or blisters in The paint, usually caused by heat, moisture or a combination of both. This condition can Eventually lead to peeling of the paint if not corrected.

POSSIBLE CAUSES:

▪ Applying paint over a damp or wet surface
▪ Moisture passing through interior walls from common household sources such as bathrooms, kitchens and laundry rooms
▪ Exposure of paint film to high humidity or moisture/rain shortly after paint has dried
▪ Painting in direct sunlight or on a surface that is too hot

SOLUTION:

▪ If blisters do not go all the way down to the substrate: Remove blisters by scraping, and sanding, and repaint with a quality acrylic latex interior paint.
▪ If blisters go down to the substrate: Remove the source of moisture, if possible. Repair loose putty; consider installing vents or exhaust fans. Remove blisters as above, remember to prime before applying the top coat.
CHALKING

The formation of fine powder on the surface of the paint, due to weathering.

POSSIBLE CAUSES:

▪ Long-term exposure to moisture and sunlight
▪ Using a low-quality and highly pigmented paint
▪ Over thinning the paint or spreading it too thin
▪ Not priming and sealing a porous surface
▪ Use of an interior paint for an outdoor application.

Solutions

▪ First, remove as much of the chalk residue as possible, scrubbing with a stiff bristle brush (or wire brush on masonry) and then rinse thoroughly; or use power washing equipment. Check for any remaining chalk by running a hand over the surface after it dries. If noticeable chalk is still present, apply a quality latex primer (or comparable sealer for masonry), then repaint with a quality exterior coating; if little or no chalk remains and the old paint is sound, no priming is necessary.
CRACKING / FLAKING

The splitting of a dry paint film through at least one coat as a result of aging, which ultimately will lead to complete failure of the paint. In its early stages, the problem appears as hairline cracks; in its later stages, flaking occurs.

POSSIBLE CAUSES:
- Use of lower quality paint that has inadequate adhesion and flexibility. Over-thinning or overspreading the paint.
- Inadequate surface preparation, or applying the paint to bare wood without first applying a primer. Excessive hardening and embrittlement of alkyd paint as the paint job ages.

SOLUTION:
- Remove loose and flaking paint with a scraper or wire brush, sanding the surface and feathering the edges. If the flaking occurs in multiple layers of paint, use of a filler may be necessary. Prime bare wood areas before repainting. Use of a top quality primer and top coat should prevent a recurrence of the problem.
MILDEW

Black, gray or brown spots or areas on the surface of paint or caulk.

POSSIBLE CAUSES:

▪ Forms most often on areas that tend to be damp, or receive little or no direct sunlight (e.g., bathrooms, kitchens and laundry rooms).

▪ Use of an alkyd or oil-based paint, or lower quality latex paint.

▪ Failure to prime bare wood surface before applying the paint.

▪ Painting over a substrate or coating on which mildew has not been removed.

SOLUTION:

▪ Test for mildew by applying a few drops of household bleach to the area; if it is bleached away, the discolored is probably mildew. Remove all mildew from the surface by scrubbing with a diluted household bleach solution (one part bleach, three parts water) then rinse thoroughly. To protect against mildew, use a top quality latex paint, and clean when necessary with bleach/detergent solution. Consider installing an exhaust fan in high moisture areas.
EFFLORESCENCE

Crusty, white salt deposits, leached from mortar or masonry as water passes through it.

POSSIBLE CAUSES:
- Failure to adequately prepare surface by removing all previous efflorescence.
- Excess moisture escaping through the exterior masonry walls from behind.

SOLUTION:
- If excess moisture is the cause, eliminate the source by repairing and sealing any cracks in the masonry with a high quality, water-based all-acrylic paint.
- If moist air is originating inside the building, consider installing vents or exhaust fans. Remove the efflorescence and all other loose material with a wire brush or power washer; then thoroughly rinse the surface. Apply a quality water-based or solvent-based masonry sealer or primer, and allow it to dry completely; then apply a coat of top quality paint, masonry paint or elastomeric wall coating.
PEELING

Loss of paint due to poor adhesion. Where there is a primer and top coat, or multiple coats of paint, peeling may involve some or all coats.

POSSIBLE CAUSES:

▪ Seepage of moisture through puttied joints, worn caulk and leaks in roof or walls.
▪ Excess moisture escaping through the exterior walls
▪ Inadequate surface preparation.
▪ Use of lower quality paint.
▪ Applying paint over a wet surface.

SOLUTION:

▪ Try to identify and eliminate source of moisture. Prepare surface by removing all loose paint with scraper or stiff wire brush, sand roughly, and apply appropriate primer. Repaint with a top quality acrylic latex paint for best adhesion and water resistance.
WRINKLING

A rough, crinkled paint surface occurring when paint forms a “skin.”

POSSIBLE CAUSES:
- Paint applied too thickly (more likely when using oil-based paints).
- Painting a hot surface or in very hot weather.
- Exposure of uncured paint to rain, dew, fog or high humidity levels.
- Applying top coat of paint to insufficiently dried first coat. Painting over contaminated surface (e.g., dirt or wax).

SOLUTION:
- Scrape or sand substrate to remove wrinkled coating. Repaint, applying an even coat of top quality paint. Make sure the first coat or primer is dry before applying the top coat.
- Apply paints at the manufacturer’s recommended spread rate (two coats at the recommended spread rate are better than one thick coat). When painting during extremely hot, cool or damp weather, allow extra time for the paint to dry completely.
Fading / Poor Color Retention

Premature and/or excessive lightening of the paint color that typically occurs on surfaces with a southern exposure. Fading/poor color retention can also be a result of chalking of the paint film.

POSSIBLE CAUSES:

• Use of a low-quality paint, or interior grade of paint for an exterior application
• Use of a paint color that is prone to ultraviolet deterioration (e.g., bright reds, blues and yellows)
• Painting masonry surfaces, that are not cured properly, resulting in alkali “burn”
• Tinting a white paint that has not been designed to be tinted or adding too much colorant to a light or medium paint base

Solutions

• When fading/poor color retention is a result of chalking, it is necessary to remove as much of the chalk as possible.
• When fading/poor color retention is a result of alkali “burn,” the surface should first be primed with an alkali-resistant primer before applying the finish coat.
• When repainting, be sure to use a high-quality paint and colors that are recommended for exterior use.
PICTURE FRAMING

A non-uniform color effect that can appear when the corners are first cut in with a brush, and then the walls are rolled. The brushed areas generally appear darker, resembling the “frame” of a picture. Also, sprayed areas may be darker than adjacent sections that are brushed or rolled.

POSSIBLE CAUSES:

▪ Heavier or lighter application of the paint when cutting in corners, trim, and ceiling areas. Usually a coverage effect (brushing will generally result in a thicker film than rolling)

▪ Not maintaining a wet edge while painting.

▪ Improperly mixing paint, causing it to not be uniform.

Solutions

▪ Make sure that the paint is applied evenly when brushing and rolling.

▪ Prime the drywall before painting.

▪ Cut in as narrow an area as needed with your brush, usually 1" to 2", and get your roller as close to the corners as possible.

▪ Use the feather-edge brushing technique in corners or along edges.