Paint Problems and Solutions

PEELING PAINT ON ROLL DOORS

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All From 1 Supply Presentation - February 2, 2024

What Happened?
Why did it happen?
What can be done?

Presentation Main Objective

- General information on painting doors and a review of products.
- Where and when to use what products.
- How to approach refinishing doors that are peeling.
- A review of why or what caused the peeling.
- How to prevent future jobs from failing.
- And how to paint existing properties that show signs of peeling.

Product Failure vs Product Life Expectancy

- Product Life Expectancy
  - All coatings have a finite life expectancy and will ultimately **fail** at the end that life.
  - Most coatings are sacrificial in nature meaning they slowly degrade throughout their life then quickly “fall off a cliff” at the end.
  - Life expectancy is influenced by the environment it is subject to.
  - Life expectancy can be extended by proper care and maintenance.
  - Surfaces should be recoated PRIOR to the end of that life expectancy to avoid this ultimate “falling off the cliff” end of life failure!
- Product Failure:
  - Really when talking about product failures, mostly we are referring to “**Premature Product Failure”** which include fading, chalking, peeling, etc.
  - The most common type of premature catastrophic paint failure: **Peeling!**

Why Paint Fails Prematurely

Common Paint Failure Causes

1. Paint system was not robust enough for application (wrong paint specification)
   a. This is many times explained as using “cheap” paint, but mostly it is not using the proper paint and/or primer for the specific application. Example: using “stucco paint” to paint metal.
2. Inadequate surface preparation
   a. Surface not adequately cleaned to remove chalk, dirt, oil/grease and other surface contaminates before repainting.
   b. Not sanding/abrading the surface to create a surface profile on smooth, slick, and/or glossy finishes as required by the specific coating application guidelines.
3. Wrong or no primer used as required by specific coating specifications
4. Paint being applied during questionable weather conditions. i.e. too hot, too cold, too humid, during rain/fog, etc.
5. Improper modification of the coating (over reduction).
6. Inadequate or uneven film thickness.
7. Too much existing paint (typically after 5 – 6 coats of paint applied over a period of years the risk of failure increases significantly).
8. Existing substrate is allowed to weather and age too long before repainted.

Outcome:

Prior coatings failing due to any of the above reasons taking with it the newly applied paint. In some cases, the new paint becomes the preverbal “straw that breaks the camels back”.

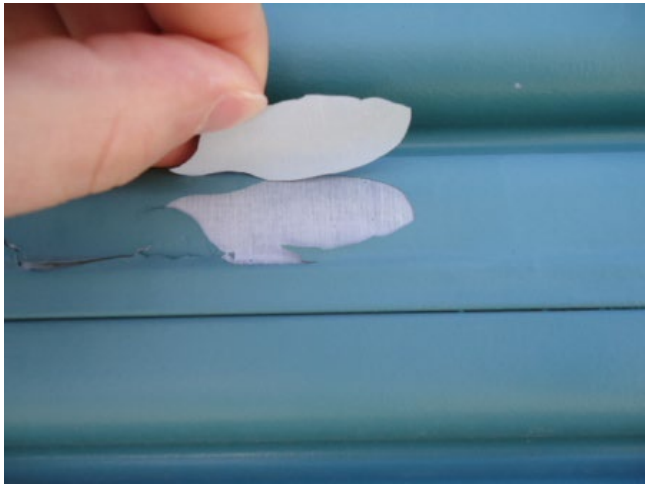
Wrong or Inadequate Specification

(Wrong product or procedure for that use)

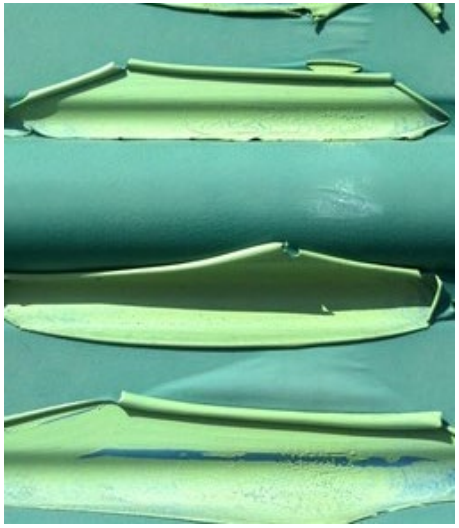
- Not all products are created equally. Select the best “system” for the application!
- “Specifications” are not the actual coating but a “system” that includes product, preparation requirements, and application guidelines covering things like:
  - Recommended, or approved substrates
  - Environmental conditions during application and for a period after
  - Surface preparation
  - Application methods
  - Priming and primers
  - Finish coat (including the number of coats required)
  - Film thickness, Etc.
- Failure to follow any aspect of a specification can result in premature failure.
- Just because a paint states it can be used for a particular application does not mean it is the best system for that application!

Inadequate Surface Preparation

Surface not adequately cleaned to remove chalk, dirt, oil/grease, etc.



Under the peeling paint the old surface still has significant surface chalk that was not removed prior to painting, causing the paint to peel.



Chalking Paint

- Chalk is the residue left when paint degrades after exposure to the sun's ultraviolet radiation
- Must be completely removed before painting or clear coating

Inadequate Surface Preparation

Surface not adequately cleaned to remove chalk, dirt, oil/grease, etc.

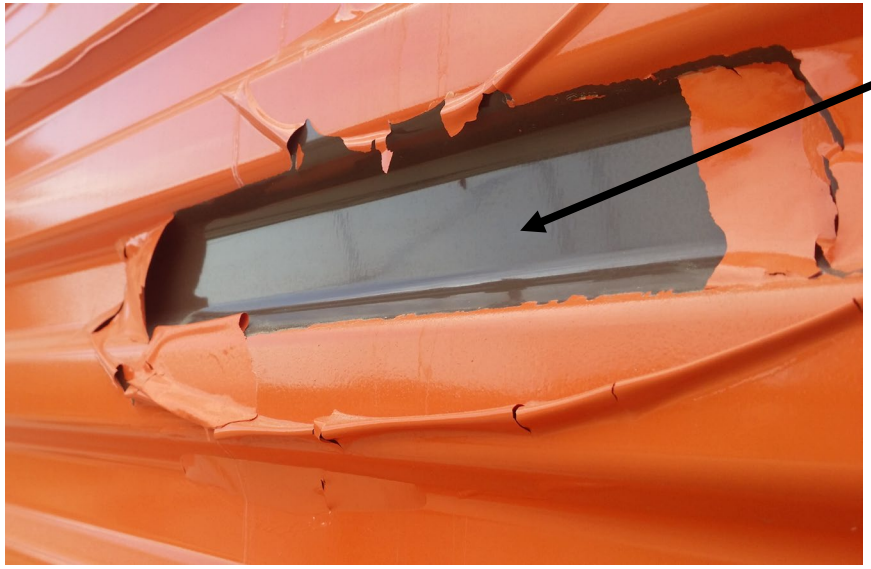
Painted directly over dirt and debris

Not preparing the entire door

Difficult or hard to reach areas like tops and bottoms of door not cleaned properly

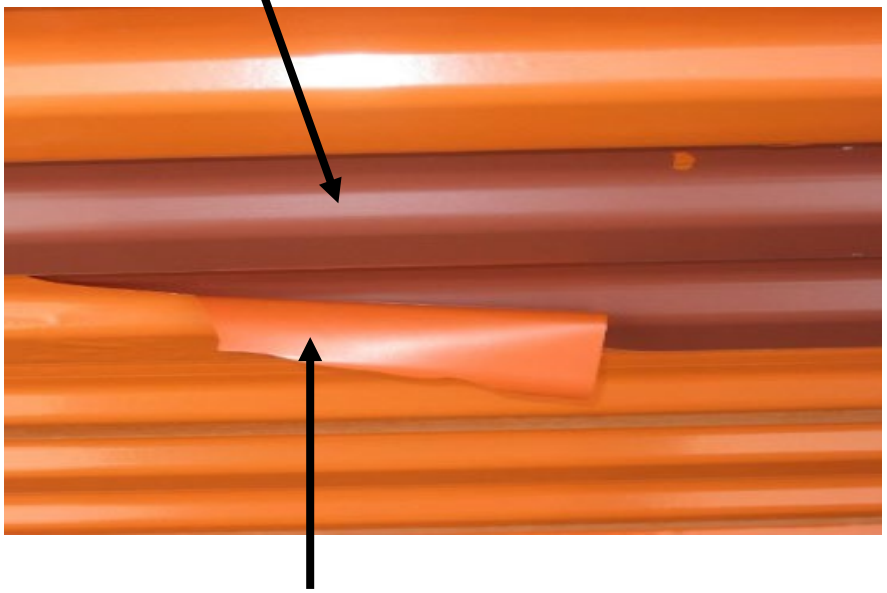
Inadequate Surface Preparation

Not sanding/abrading the surface to create a surface profile on smooth, slick, and/or glossy finishes as required by individual coating specifications



Painted without proper surface prep, mainly not abrading of surface. Paint broke loose during “freeze thaw” cycles.

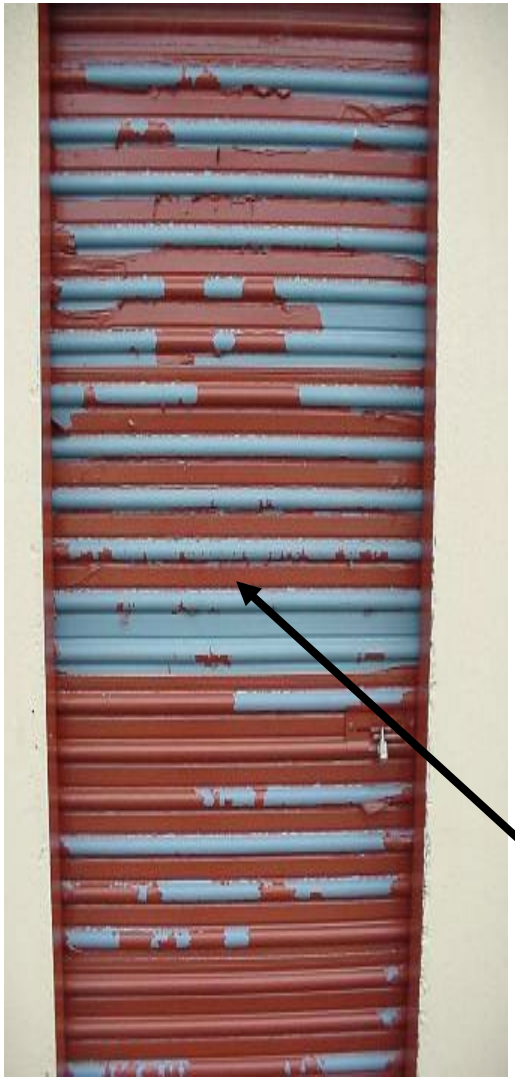
Surface still has sheen, no visible sanding “scratching”



Back Side same color as front, no primer visible”

No Primer

(Especially when using a latex paint over factory finish)

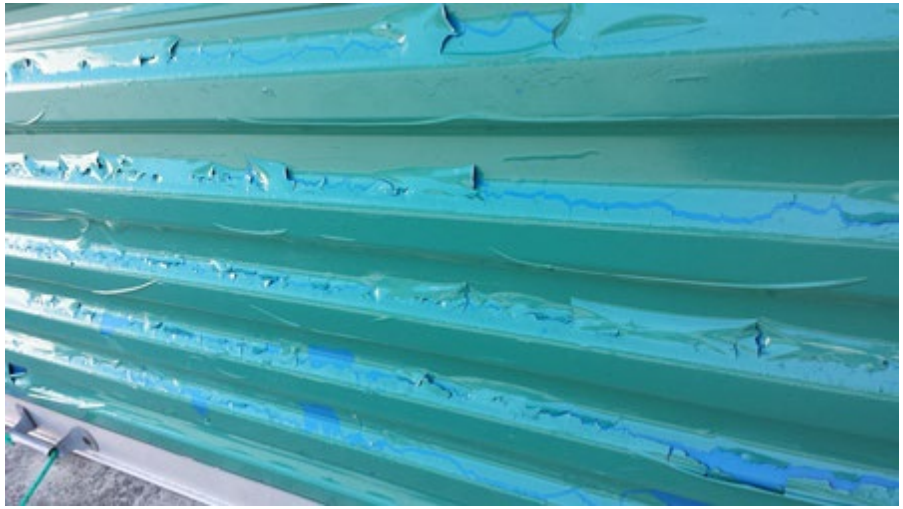


Typical signs that latex was painted over factory finish with no primer:

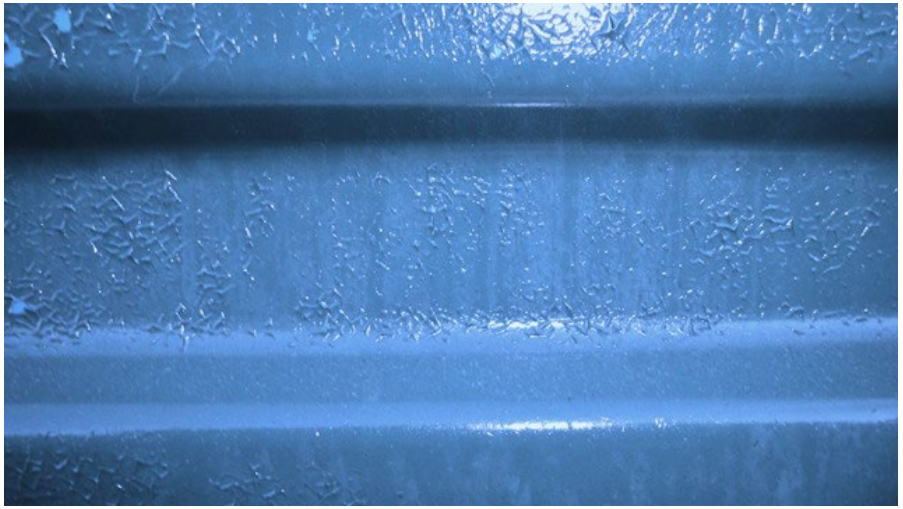
- On peeled paint no primer is visible on the back side
- Comes off uniformly across whole door
- Peeled paint is elastic (stretchable)
- Seem to accelerate after wet weather

Applied in Adverse Environmental Conditions

- Humidity/surface moisture too high (temp within 5% of dew point)
- Too hot (air/surface temperature above 110 degrees)
- Too cold (air/surface temperature below 50 degrees)
- Rain, dew or snow too soon after application (Paint needs to cure)



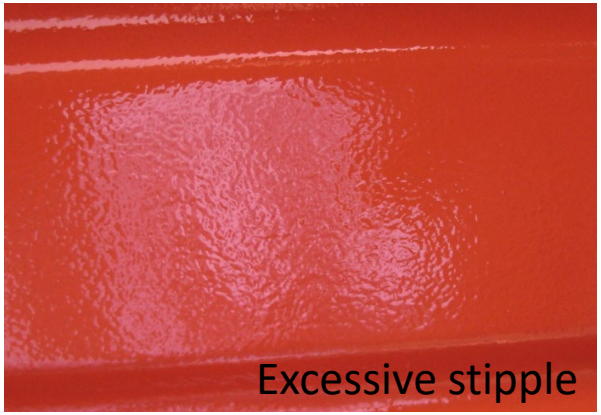
Snowed day after applied, snowplow pushed snow against the door.

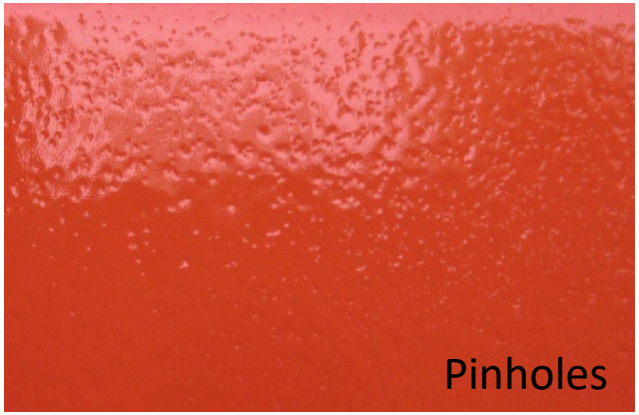


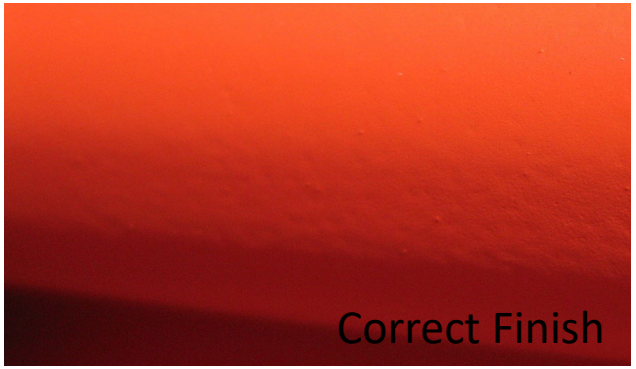
Was applied when humidity was 95% and paint did not adequately dry before “dew” occurred

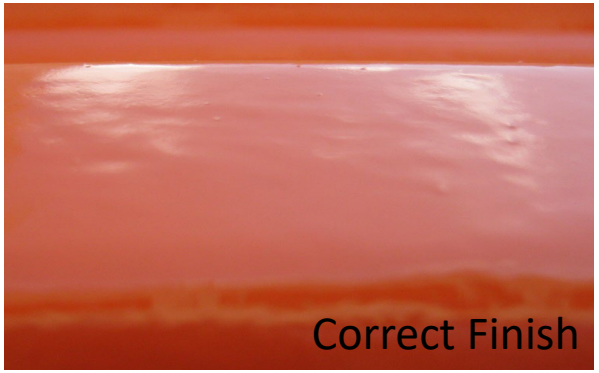
Improper Application Method or Technique

which leads to inadequate or uneven film thickness









Existing Paint Aged Too Long Before Repainted

As paint weathers it becomes thinner and brittle with age.

When paint is allowed to age past its life expectancy before being recoated it requires an additional level of preparation and increases the risk of future paint failures.

Other Situations

Peeling Clear Coat

A clear coat was applied over an aged door but was not properly cleaned and/or was applied too thin and is now peeling.

Crazing/Cracking

Original factory “SMP” finish develops “spider” cracking (crazing) that when painted over eventually telegraphs through the new paint.

Peeling Paint, What to do?

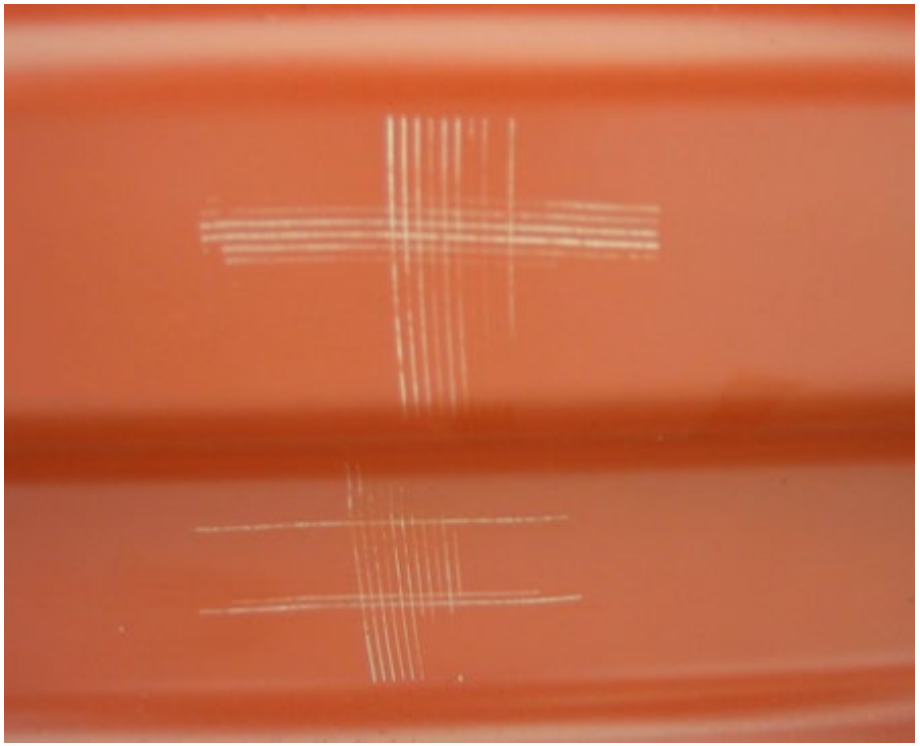
- Now that you know many of the reasons why paint peels the question is what can you do once it starts?
- The facts are:
  - Paint that has lost its adhesion will continue to peel
  - New paint will not glue back up old paint
  - In some cases applying a new coat of paint over failing paint can actually accelerate the peeling process.
  - The total removal of all previously applied failing paint is the only absolute way to eliminate the problem but in most cases is not economically feasible.
  - In many situations the best you can do is try and slow the rate through extensive preparation, proper priming, and using a flexible top coat, generally a waterborne acrylic like Endura-Crylic.

Before painting any roll-up door you should first determine if there are adhesion issues

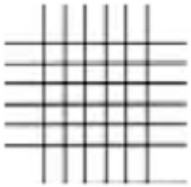
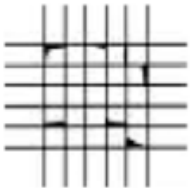
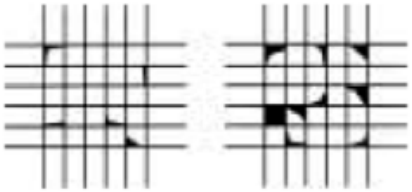
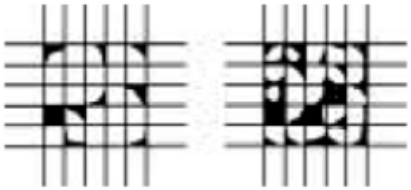
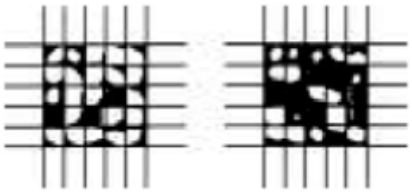
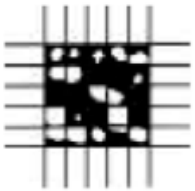
At the least perform a simple tape test using duct tape

Performing a simple adhesion test

- Spray Windex over 2” X 24” area along the rib and valley
- While area is wet, use a scotch bright pad to clean the door surface
- Spray Windex over the surface and wipe dry with clean dry cloth
- At several points on the door especially, where it looks like there might be problems, and at several different locations on the property score through all layers of paint with a sharp utility knife in a right angle lattice (checkerboard) pattern, 10 cuts in each direction, roughly 3/32” apart
- Brush off any detached flakes of paint



- Apply a strip of high quality general purpose masking tape or duct tape to the area and several inches on either side, firmly press and rub into the valley & onto the rib sections. Then using a pencil eraser firmly rub the tape over the incisions to adhere the tape as securely as possible. Leave a small portion of the tape available to grab onto
- Remove the tape by pulling it off rapidly back over itself as close to an angle of 180º possible
- This is a quick pass or fail test
- Acceptable adhesion is 95% as a small percentage of the paint will pull off where the door was scored. If whole squares between the score lines come off then the coating has adhesion issues
- Pull Tests are not 100% foolproof. Example is a latex paint applied on glossy surface will generally adhere UNTIL it is wet.
- Compare to the following slide for results

ISO Class: 0/ASTM Class: 5B The edges of the cuts are completely smooth; none of the squares of the lattice is detached.	
ISO Class: 1/ASTM Class: 4B Detachment of small flakes of the coating at the intersections of the cuts. A cross-cut area not significantly greater than 5% is affected.	
ISO Class: 2/ASTM Class: 3B The coating has flaked along the edges and/or at the intersections of the cuts. A cross-cut area significantly greater than 5%, but not significantly greater than 15%, is affected.	
ISO Class: 3/ASTM Class: 2B The coating has flaked along the edges of the cuts partly or wholly in large ribbons, and/or it has flaked partly or wholly on different parts of the squares. A cross-cut area significantly greater than 15%, but not significantly greater than 35%, is affected.	
ISO Class:4/ASTM Class: 1B The coating has flaked along the edges of the cuts in large ribbons, and/or some squares have detached partly or wholly. A cross-cut area significantly greater than 35%, but not significantly greater than 65%, is affected.	
ISO Class: 5/ASTM Class: 0B Any degree of flaking that cannot even be classified by classification 4.	

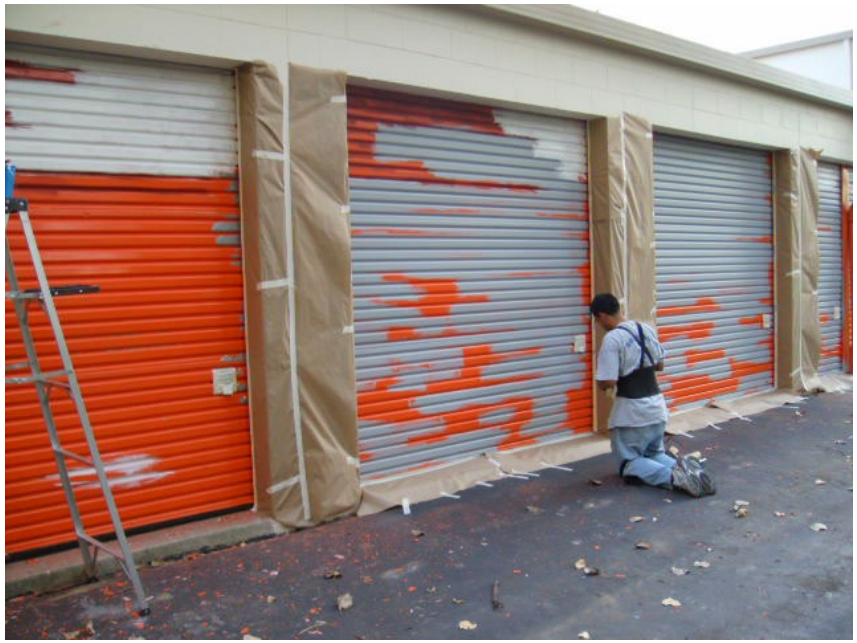
ASTM Adhesion Standards

This would rate a “2B” and would indicate moderate adhesion issues.

Repainting a job that has peeling paint

Remove Paint

- Remove as much of the failing paint as possible
- It is not always possible to remove all the paint so it is imperative that the paint adhere to both the bare metal and over the existing paint.

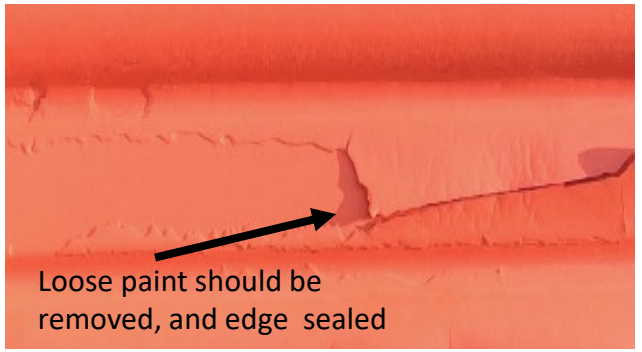


Prime and Top Coat

- All bare metal and areas where peeling paint was removed should be primed.
- A “peel stop” type primer should be brushed on all edges.
- Any curled or lifted edges need additional scraping then sealed.

All edges where the peeling occurred should be sealed with no curling or raised edges

- After applying the 1st coat of paint, peeling areas should be inspected and any raised or curling edges should be scraped, primed with Peel Stop using a **brush**, and touched up by **brush to completely seal the edge.**



What paint to use?

- Some types of paints can actually cause additional failure when applied over an existing coat of paint that has adhesion issues
- Generally a high quality acrylic latex paint that has excellent bonding and adhesion characteristics, retains good elasticity and has good touch up characteristics like Endura-Crylic are the best options.

- Avoid alkyds, polyurethanes, epoxies and other hard finish products which can exacerbate an existing problem.
- The Chem-Bake system is not recommended for doors that have peeling or adhesion issues.

Annual or semi-annual touch-up

- Even after all of these steps are taken it is likely that some areas will continue to peel.
- If left bare, peeling will accelerate if the peeled edges are left exposed to the weather. What was once small and isolated will quickly spread.
- A yearly or semi-yearly touch-up of all peeled areas should be done before this happens.

How to prevent future coating failures

- Understanding the situation and the application the coating is being used for
- Using the right product for that situation or application
- Knowing and following all application specifications including:
  - Proper surface preparation
  - Applying the product during the appropriate environmental conditions
  - Quality workmanship in the actual application
  - Proper care, including refinishing again before the coating reaches its maximum life expectancy
- The cost of shortcuts will literally never go away until the door is replaced

How to evaluate workmanship quality

- Basic things to evaluate while the job is in progress
  - You can tell a lot about a crew by just observing. Some of these things may seem trite but can give you an idea of the quality of the crew and their professionalism which often reflects in their workmanship.
  - What is the weather like? Does it meet the environmental conditions?
  - Job organization - Does the crew appear to be efficient? Is the jobsite organized/clean? How are they dressed.
  - Prep-work - Evaluate the doors just prior to being painted.
  - Overspray - When sprayed at the proper pressure Endura-Clad coatings produce very little overspray. If the applicator is covered in overspray he probably is not spraying correctly.
- Do not overlook poor workmanship!