

PAINT ADHESION FAILURE

Adhesion is normally defined by 2 parameters:

- Cohesive strength which is the inherent strength of the film, and
- Adhesive strength, which is the strength between the 2 films.

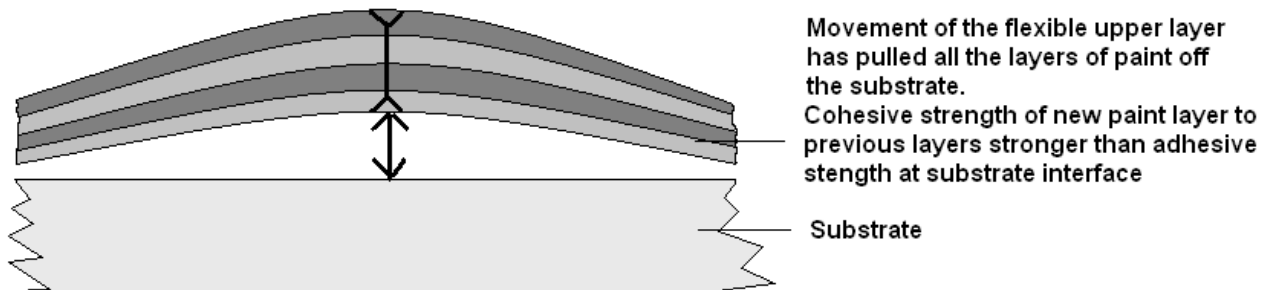
All failures can be classed as either adhesive - break between the 2 films, or cohesive – breakdown of one of the films.

When paint bubbles or peels, close inspection at the point of failure can show the cause of failure. An ideal paint system would have substrate, primer and topcoat at the recommended film build. This is normally not possible, and most paint is applied over previous coatings. Perfect surface preparation cannot always save failures from occurring.

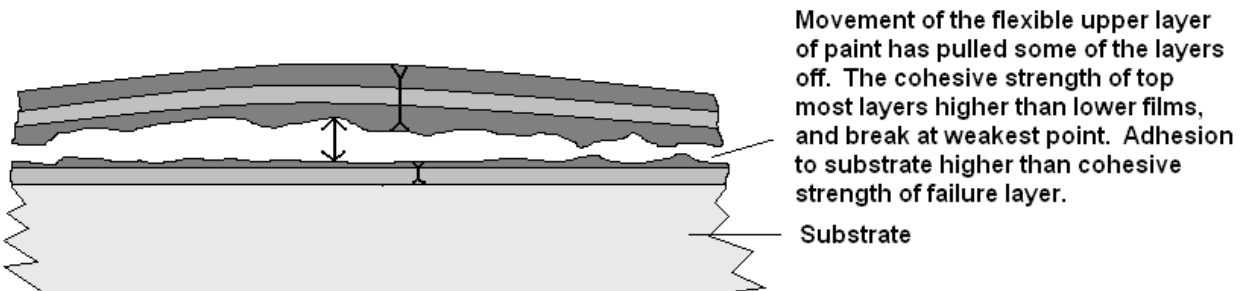
As paint films age, they become brittle and rigid. Water based systems are flexible and tend to expand and contract according to local conditions. Under normal circumstances the adhesion of the new coating onto the existing coating is very good and so cause stresses on the older brittle coating with every movement. This will eventually cause the old paint to be lifted from the substrate by the movement of the new coating.

Take a magnifying glass and have a look at the paint film left on the substrate and the underside of the flakes/bubbles pulled off.

- The substrate is almost clean and ready to be painted again. All the layers came off in one thick layer.



- There is some paint from one of the layers visible on both the substrate surface and the underside of the flakes/bubbles pulled off.



Local repair can be carried out by sanding back to sound substrate, spot prime if necessary and then repaint affected areas. It must be noted that failure may occur in other areas as time progresses.