SprayWall Inspection Protocol Guidelines

Date of Issue: October 2018

Purpose

1. To provide an inspection protocol for completed SprayWall applications in which the material has cured.
2. To provide an inspection protocol for partially completed SprayWall applications in which the portion to be inspected has cured.

Scope

This standard applies to all SprayWall applications.

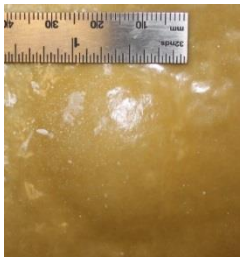
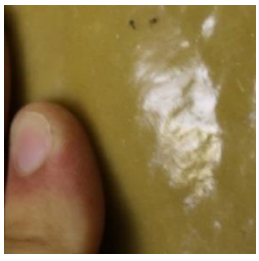
Terminology

Runs and Sags – This occurs when the material is either applied at too fast of a rate in a specific area, and/or when the application gun is too close to the surface. Runs will cause thickness variations in the coating. Thickness variations can lead to lessening in protection of the substrate, cracking from uneven cooling, and an uneven profile. They can also cause flow restrictions as debris is caught on the protrusions.

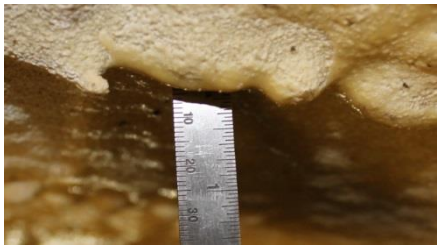
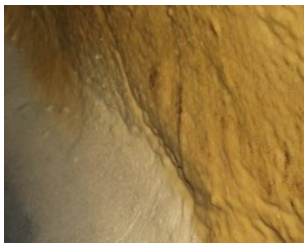



Blistering and Cissing – This occurs when surface contaminates are present. Water, oil, dirt, etc. Blisters and cissing will cause a poor bond and subsequently separation of the coating from the substrate. Blisters are often a sign of a larger section of surface separation.

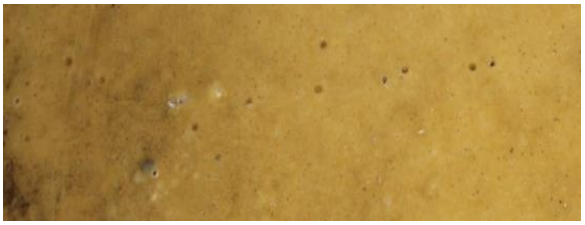
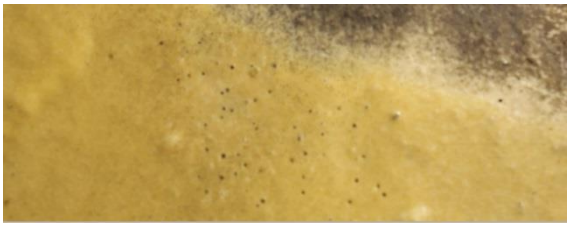


Cratering – This occurs when applying a coating to an uneven substrate. Similar to the effects caused by runs and sags, cratering can lead to weak points in the coating due to thickness variations. Thickness variations promote lessening in protection of the substrate, cracking from uneven cooling, and an uneven finished profile.

Pinholes – This occurs when gases are released from the substrate immediately after the coating is applied. Typically, these gases are caused by moisture on or in the substrate reacting with the coating. Pinholes penetrate completely through the coating which allows contaminates to access the substrate, promoting corrosion. Contaminates will flow through the pinholes by a capillary action and reach the substrate even without the effect of gravity.

Foaming – This occurs when a coating is applied to an overly moist surface such as standing water or visibly saturated surfaces. Foaming occurs instantly and is highly visible. It is often much lighter in color and possesses a bubbled or froth like profile. The action of foaming occurs when components within the chemical make-up of the coating react violently and quickly with the present water. This results in an off-ratio product that lacks the characteristics of the coating, such as its corrosion resistance and structural integrity. Foaming also will prevent ***<u>any</u>*** adhesion to the substrate.



Overspray – This is an issue of technique and environmental factors such as wind or drafts. This occurs when atomized particles from the spray fan, find their way past the intended area being coated. These small particles land on a surface then cure. At this point they have an effect on things like; surface

profile, further lifts ability to adhere, and material cooling/curing. Over time, overspray can collect debris which may build up, causing obstructions and corrosion issues.

Cracking – This occurs under a few different circumstances. Cracks can form from thermal shock. This is when the material is cooled too quickly i.e. water being reintroduced to a line before the material is cured. Cracks can form from uneven application, as is seen in cratering and runs. SprayWall of an uneven thickness will cool at different rates and this can lead to stress cracks. Uneven spraying can be a result of poor spray technique on the part of the applicator. Spraying out side of the High Mil Build Protocol can cause significant cracks due to shrinkage.

<u>Defect Identification</u>

Visually Identifiable:

- Runs and Sags
- Cracking
- Blisters and Cissing
- Overspray
- Cratering
- Large Pinhole

Testing Equipment or Destructive Testing required:

- Pinholes
- Foaming

<u>Resolution and Repair for Visually Identified Defect</u>

Runs and Sags – Sand or grind the runs down until a uniform profile is achieved. Clean all contaminates and debris from the surface. Apply LORD 7701 to all areas effected by sanding and spray over the affected area to regain a smooth, monolithic finish. Spray as needed to reach the specified thickness. If

250 mils or more is needed, follow the High Mil Build Protocol. **It should be noted that this type of defect can be avoided by applying proper spraying techniques at the start of the project.**

Cracking – All material that has separated from the substrate must be removed completely. Once all of the cracked and delaminated material is removed, the substrate and surrounding areas of SprayWall must be cleaned and prepared. This may include substrate profiling as parts of the substrate may have been broken along with the SprayWall. The substrate must be clean and dry with a uniform profile before the repair can begin. The remaining SprayWall surrounding the exposed substrate must be sanded with 40-60 grit sand paper, no less than 6 inches and up to 12 inches from the perimeter of the defect. LORD 7701 must be applied to the sanded SprayWall areas. Once all of this is accomplished use the patch kit, SR6100, to repair the defect.

Blisters and Cissing, Cratering – The resolution here is the same method used to repair Cracking. **It should be noted that these types of defects can be avoided by applying proper surface preparation techniques at the start of the project.**

Repair for Defects Found in Equipment or Destructive Testing

Foaming – This defect is highly visible at the onset of the coating application but cannot be seen if it is sprayed over and covered. If the coating application is completed, foaming can be observed by conducting "pull tests" or examining the underside of delaminated material. Testing for voids with a holiday meter can reveal material separation from the substrate. Being that foamed material will not adhere to the substrate, void tests are a good way to identify this defect. If foamed material is detected, all of the material must be removed. At that point the same resolution used in crack repair should be implemented. **It should be noted that this type of defect can be avoided by applying proper surface preparation techniques at the start of the project.**

Pinholes – This defect can sometimes be observed at the start of the application but not always. To check for pinholes, a holiday tester is used. A high voltage pulse holiday meter would be used in this application. The high voltage meters are used here because they work on moist surfaces and can be used in testing thicker applications. It is very important that the inspector is familiar with holiday meters and their operation. A mis-calibrated holiday meter can give false results. The resolution and repair procedure can range from completely recoating the project to patch work. The needed repair will depend on the thickness of the material, pervasiveness of the pinholes, and specifications for the project. It is advised to remove the pinholes and then follow the repair procedure used in crack repair.

Please refer to SSPC SP-13/NACE No. 6, Surface Preparation of Concrete Standards for further detail on the best practices for concrete substrate preparation procedures.

Kyle T. Warren
Director of Operations and Training
Sprayroq, Inc.