RECOMMENDATION FOR REPAIRING FAILING POLYURETHANE OR POLYUREA

Coatings in Sanitary Sewer Structures with Raven 405

It is always preferable to remove all original coatings prior to applying a new coating. However, when circumstances require a new coating to repair surfaces where the original coating failed, this summary procedure provides an application guideline.

Recommended Assessment Procedure:

- Dewater and clean structure to provide access for repair work.
- Remove all failed coating that has completely disbonded from the surface.
- Examine the edges of remaining coating on the substrate and estimate the degree of bond to the substrate and/or primer.
- All loosely adhered coating should be marked for removal and removed as described in the following section.
- All tightly adhered coating (which cannot be lifted from the substrate using medium pressure applied with a screwdriver or other acceptable determining methods) shall be left in place and prepared as stated in the following section.
- An assessment must be made of the amount of coating to be removed versus left in place in order to determine the efficiency of patchwork repairs.

In cases where there is a relatively high percentage of disbondment, it may be more efficient to totally remove and replace all of the coating or at least all of the coating between failed areas. This will minimize or eliminate the interface between the existing and new coating, thus reducing the likelihood of future problems.

For example: In a bar screen structure having new equipment installed the existing coating was found to have blisters and was disbonded in certain areas. The problem areas were marked for repair and removal of disbonded coating began. Once the coating was cut and being removed it was noticed that nearly all of the polyurethane coating below the water line could be removed with little effort. However, the project did not have the funds to replace the additional areas, so the disbonded coating was only partially removed and a “patchwork” repair was made with an epoxy coating. The client acknowledged future problems may occur where the repair coating overlapped onto remaining suspect urethane coating.

Repair Procedure:

- Coating surfaces to be repaired shall be outlined and then cut to the substrate using a 4-1/2” angle grinder using a masonry-cutting disk.
- The failed or poorly adhered coating within the repair shall be removed using a paint scraper or other suitable device.
- Any tightly adhered coating within the repair areas shall be left in place and shall be abraded using a 4-1/2” angle grinder with a 60-80 grit oxide disk.
- The edges of all repair areas shall be examined for bond. Any edges, which are not adhered to the substrate, shall be cut back further until the existing coating exhibits acceptable bond to the substrate and/or primer.
- A key shall be cut along the edge of all remaining coating into the substrate at least 1/8” in depth and width.
- All edges outlining the repair areas shall be abraded using the 60-80 grit disks a distance of at least two inches back from the coatings edge.
- All exposed concrete surfaces shall be thoroughly prepared to an CSP3 to CSP5 surface profile using a minimum 5000 psi water blaster utilizing a zero degree, rotating nozzle at held at a distance no greater than twelve inches from the concrete surface.
Repair of Elastomeric Coatings

- Any substantial defects in the concrete substrate shall be repaired using a high early strength mortar and then re-cleaned as stated above after cure.
- The entire structure shall be rinsed clean of all debris and dust and the surfaces allowed to dry.
- An epoxy primer, such as Raven 155, 171 or 171FS shall be applied to all exposed concrete surfaces and allowed to cure according to manufacturer’s recommendations.
- All repair areas shall be masked off using duct tape leaving only the repair area and abraded coating exposed.
- Raven 405 shall then be spray applied to all repair areas.
- The duct tape masking shall be removed immediately after the coating is applied (prior to gelatin of the epoxy coating).
- All coated surfaces shall be holiday detected using a High Voltage Holiday tester to ensure a holiday free coating.
- All repairs shall be made within 24 hours. (Repairs made after 24 hours require abrading and cleaning the coating surface per manufacturers recommendations).

The repair coating warranty will cover all areas where the repair coating has been applied except where failures propagate from failures of the original coating.