MANUFACTURER

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DESCRIPTION

INSPECTOR RESPONSIBILITIES

1. The Inspector shall serve as Client's representative to appear, approve and accept subject work when performed in accordance with Client's work scope, specifications and schedule, and the requirements of the materials supplier(s).

2. The Inspector shall receive and accept the request and/or orders from a designated Client representative and execute assignments for work with the Contractor Personnel as outlined by Client's work order for labor, equipment and materials.

3. The Inspector shall examine all equipment and materials before job starts and exercise proper control over them.

4. The Inspector must have a complete knowledge of the extent of work the Client requires on the project and be familiar with the specification documents and contract personnel. Additionally, he must know the requirements of the job specifications and their implications, and must be willing to accept direction from Client's representative.

5. The Inspector shall be safety conscious at all times and be familiar with all various Regulatory agencies' safety requirements. The Inspector is responsible for their personal safety; and should report any unsafe conditions/practices to the safety coordinator or supervisor.

6. The Inspector should be an expert in all phases of coating operations, including the effects of "wrong" procedures and corrective measures.

7. The Inspector shall have a copy of materials supplier's data and safety data sheets and maintain such with him at the job site.

8. The Inspector shall be aware of the quality of work that is done through all phases to make a close visual observation and survey the overall job. A workable inspection schedule should be coordinated with the Contractor's superintendent to avoid delays of work and promote orderly conduct

9. The Inspector shall be familiar with the procedures and use of required laboratory testing and field inspection equipment, i.e.

a. Film thickness equipment (wet & dry)
b. Holiday detection equipment
c. Adhesion testing equipment
d. Vacuum testing equipment
e. Coring and dye testing equipment
f. Field specimen preparation and required testing standards

10. The Inspector must be familiar with premature failures, their causes, effect, repair problems and procedures. They should be able to detect the characteristics of misapplied/installed products, or products that have been improperly ratioed or mixed.

11. The Inspector must report any work that is not done in strict conformance with the job requirements, specifications and schedule.

12. The Inspector must keep up-to-date, accurate and detailed reports to be submitted to the Client's representative on a regular basis as designated by the Client. The information to be recorded shall include, but is not limited to, the following:
    a. The exact materials used, batch or lot numbers, quantity used and procedure used for installation.
    b. The quality and type of surface preparation equipment/procedures used.
    c. Total film thickness achieved, for each coat if applicable.
    d. Notes of any deviation from the specifications or normal procedure, reason for deviation and name of party approving such changes.
    e. Atmospheric conditions (temperature, rainfall, etc.)

13. The standards of effective performance are considered acceptable when:
    a. The Contractor's equipment has been inspected and approved prior to being used on the project.
    b. The equipment and materials have been protected and stored properly.
    c. All surfaces are inspected for conformance to specifications prior to installation and after installation is complete.
    d. Site is evaluated for damage/reconstruction.

14. The Inspector shall familiarize himself with, and/or retain, copies of Client's specification, schedule and supplier's data sheets.

15. The Inspector shall attend and participate in the pre-construction meeting between Client and Contractor. Inspector's responsibilities and authority for that project shall be defined at that meeting. Inspector should clarify and understand all responsibilities including required recordkeeping and reporting.

INSPECTION & TESTING

Four recommended means of inspection and testing:

1. Thickness of Coating
2. Holiday Detection
3. Adhesion

4. Visual Inspection

Thickness of Coating

Wet Film Thickness Gauge

During application a wet film thickness gauge, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gauges, shall be used to ensure a monolithic coating and uniform thickness during application. Application personnel will periodically test WFT during spray application of the epoxy.

Dry Film Thickness

After the coating installation is completed, adhesion testing will be performed. A micrometer will be used to measure the thickness of the coating adhered to any dollies used during adhesion testing. Note – this method of inspecting thickness is destructive, it is not recommended to make multiple cores to determine specification compliance regarding coating thickness. Ideally, the assurances of proper thickness should be gained through wet film thickness testing and evaluation of material use record keeping.

Ultrasonic Thickness Gauges

The use of an ultrasonic thickness gauge should only be performed by personnel trained in ultrasonically evaluating the thickness of thick-film coatings (>100 mils) on non-ferrous substrates. Equipment such as a Positector 100D may be utilized. The equipment should have SSPC PA-2 capability in order to calculate the average of a set of readings to determine specification compliance.

Holiday Detection

After the protective coating has set hard to the touch it can be inspected with high-voltage holiday detection equipment. Surfaces must be dry in order to properly inspect. An induced holiday shall then be made on to the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at that particular area. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of film thickness applied but may be adjusted as necessary to detect the induced holiday (refer to NACE RPO188-99). All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional protective coating material can be hand applied to the repair area. All touch-up/repair procedures shall follow the protective coating manufacturer's recommendations.

Note: Excessive moisture or any electrically conductive material in or on the surface of the coating system can cause appreciable leakage currents, which may lower the effective testing voltage or cause erroneous holiday indication.[1]

Adhesion Testing

Measurement of adhesion of the protective coating to the substrate can be made at regular intervals and along different sections of the structure (i.e. crown of pipe, wall, and invert). Adhesion can be measured in accordance with ASTM D4541. The Project Engineer shall evaluate any areas detected to have inadequate adhesion. Further tests may be performed in that area to determine the extent of potentially deficient bonded area and repairs shall be made by Applicator in strict accordance with manufacturer's recommendations.

Analyzing Results[2]: Test results can be considered 100% valid when the coating is completely removed from the substrate and remains adhered to the adhesive on the dolly. When only a portion of the coating is removed, specific results should be analyzed including the fracture pattern to determine the cohesive properties of the coating and the adhesion properties between the dolly and the adhesive, adhesive and coating, distinct coating layers, and coating and substrate.

An understanding between Owner and Applicator should be made prior to testing taking place regarding "inadequate adhesion". There are many variables that play a part in analyzing the results of an adhesion test.

Visual Inspection

The Inspector and Applicator should make a final visual inspection. Any deficiencies in the finished coating should be marked and repaired by Applicator according to the manufacturer's recommendations.

[1] NACE RPO274-98
[2] DeFelsko PosiTest Adhesion Tester Instruction Manual v1.0