

ADHESION TESTING

GENERAL

- Adhesion testing provides a standardized method for evaluating the adhesion of Duro-Shield® roof coatings to eligible substrates. Consult Duro-Shield PDS, SDS, and supplemental technical documentation available under the Duro-Shield Coatings category on the [Duro-Last® website](http://duro-last.com).
- The contractor is responsible for determining substrate suitability **prior** to installing any Duro-Shield products.
- A project-specific Adhesion Kit can be requested from the Coatings Team.

Adhesion Kit Contents

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| <ul style="list-style-type: none"> ○ Chip brush ○ Can opener ○ Gloves ○ Fish scale ○ Paint stir ○ Polyester fabric strip(s) ○ Scotch-Brite® pad | <ul style="list-style-type: none"> ○ 1-Quart (0.9 L) containers – 4 maximum <ul style="list-style-type: none"> ▪ Multi-purpose Primer (TPO Primer) ▪ Silicone Coating (Bright White) ▪ Universal 2-Part Epoxy Primer ▪ Acrylic Coating (Brilliant White) ▪ Acrylic Primer |
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- Perform testing as both unprimed and primed.
- It is recommended that contractors consult with the Coatings Team about adhesion test results.

TEST METHOD	
Field Peel Adhesion	
General Information	<ul style="list-style-type: none"> • Testing is recommended prior to bidding • Testing is required for warranty projects that include labor • Conduct 4 tests for every 10,000 ft², and another test for each additional 10,000 ft² <ul style="list-style-type: none"> ○ Select adhesion testing in degraded areas based on factors that may affect adhesion: <ul style="list-style-type: none"> ▪ Any combination of UV, exhaust fumes, or chemical and/or biological exposure ▪ Aged existing membrane ▪ Repair areas • Test patches must be labeled and photographed for retained records
Overview	<ul style="list-style-type: none"> • Procedures follow ASTM D903 “180° Peel Adhesion” • Primers and enamels may also be evaluated by a similar test called ASTM D3359 “Tape Adhesion”
Preparation	<ol style="list-style-type: none"> 1. Make a mock-up of the intended system. <ol style="list-style-type: none"> a. Adhesion tests must be conducted with the exact proposed coating system, including a primer, if required. 2. Duplicate any mechanical substrate preparation. 3. Simulate cleaning and pressure washing. <ol style="list-style-type: none"> a. Clean a 12- x 12-inch (305- x 305-mm) area with a Scotch-Brite pad or equivalent b. Apply an approved solution to clean heavily soiled areas, if necessary 4. Apply an approved primer or Duro-Shield Bleed Block as required.
Dry Adhesion Test Method	<p>Testing should be completed in the same atmospheric conditions as Duro-Shield products will be installed.</p> <ol style="list-style-type: none"> 1. Brush apply the Duro-Shield coating over a 2- x 6-inch (52- x 152-mm) area, at a rate of 100 ft²/gal (2.5 m²/L) to yield 16 wet mils (0.41 mm). 2. While coating is still wet, embed 6-inches (152 mm) of a 1- x 12-inch (25- x 305-mm) strip of Polyester Fabric Strip into the test patch, leaving the other dry 6 inches (152 mm) extending past the test patch. 3. Apply an additional 16 wet mils (0.41 mm) of coating to fully encapsulate the embedded 6-inch (152-mm) fabric. 4. Allow the test patch to cure. <ul style="list-style-type: none"> ○ Warm weather: 1 day may be sufficient ○ Cold weather: 5 days may be required

TEST METHOD: FIELD PEEL ADHESION

Quantitative Evaluation (Best Practice)

Qualitative Evaluation

- Once Duro-Shield coating has cured:
 1. Attach the exposed fabric to the end of an appropriate fish scale.
 2. Pull the fabric at a 180° angle, flat against the substrate, back through the test area.
 3. Pull steadily and evenly, with gradually increasing force, until the fabric begins to dislodge from the coating.
 4. Resume pulling until 50% of fabric has peeled from the coating, and record this measurement.
 5. Again, resume pulling until the fabric is removed from the coating to ensure consistent cohesion.

Good (Pass): 70% or greater cohesion (2 lbf (8.9 N) or greater)



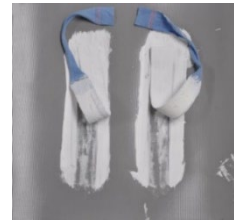
- Testing results must pass both of the following:
 1. A minimum 2 lbf (8.9 N) of pull resistance must be achieved before fabric tape is removed from the coating.
 2. In addition to achieving the desired pull resistance, a test is deemed successful when the base layer of coating remains attached to the substrate after the fabric is removed. There should be less than 30% of original surface visibility.
- If the adhesion test FAILS, contact a coatings technical services representative for assistance.

NOTE: NO WORK will be performed until test results indicate appropriate adhesion.

MATERIAL AND LABOR WARRANTED APPLICATION:

- Test results must be recorded in the Pre-Sales Consultation available within the [Duro-Last Portal](#) or contact the Coatings Team at DuroLast-Coatings@amrize.com.

Fair (Failure): 50 – 69% cohesion (1 – 2 lbf (4.4 – 8.9 N))



Poor (Failure): 10 – 49% cohesion (1 lbf (4.4 N) or greater)



Fail: Less than 10% cohesion (Less than 1 lbf (4.4 N))



180° Fish Scale Tester