

How can I make sure that films will stick to walls that are painted with low-VOC paint?



Joe Walton, 3M advanced technical service engineer

This is a question that's being asked by installers everywhere. As paint manufacturers have changed the chemistry of their paints to lower the levels of Volatile Organic Compounds, or VOCs, the ability of any manufacturer's graphic film to adhere to the newer paints has changed dramatically.

But don't despair. Just as you'd expect from 3M, we have analyzed this problem and developed a solution that is remarkably simple, inexpensive and highly effective. The key is in how the surface is prepared, and then taking just a few more minutes to test the adhesion of the films you plan to use. Here's our best practice for ensuring that you can easily and successfully adhere almost any wall film to nearly any painted wall.

Preparing the Surface

Start with the 3M™ Enhanced Adhesion Cleaning Method. This method, which involves an isopropyl alcohol (IPA) and water solution and two cleaning steps, will greatly increase a film's adhesion to a low-VOC paint.

- Prepare a cleaning solution with 70 percent IPA and 30 percent water (essentially rubbing alcohol) in a spray bottle.
- Soak a clean, lint-free cloth with the cleaning solution until it is dripping wet.
- Clean the test (or application) area with overlapping strokes. Especially in the first cleaning, you may notice some migrated paint particles on the cloth (see photo at right).
- Thoroughly soak another clean, lint-free cloth with the cleaning solution and wash the wall again. Researchers at 3M have found that cleaning the wall TWICE with a mixture of 70 percent IPA and 30 percent water can significantly boost adhesion for nearly any wall film applied to a painted substrate.



NOTE: Change the cleaning cloths as often as needed to avoid transferring contaminants from one spot on the wall to another.

- Touch the wall immediately. It will feel cooler to the touch than an unwashed area, due to the alcohol in the cleaning solution. When it no longer feels cool, it is dry and you can proceed with the film adhesion test or, if you are ready, with the film installation.

NOTE: The typical time for cleaning a wall with this method is just 30 minutes for 125 square feet. And, it's OK to wash the walls as long as three days before your installation without significantly reducing the enhanced film adhesion.

Testing Film Adhesion

- Now prepare three strips of the same film for each of the films you plan to use for a given job. You'll need all three so you can average the results of your test.
 - Cut three 1-inch by 10-inch strips of the graphic film(s).
 - Remove about 2 inches of liner, fold down one inch, and then punch a hole in the tab you've created (see photo at right).



NOTE: It's important to test each wall where graphics will be installed. Because paints can easily be color matched, you may not be able to tell if one wall of a room has been painted with a different formula than the others.

- Remove the liner and apply the test strips to the cleaned surface so the punched hole is at the top. Use the 3M™ Rivet Brush RBA-1 to go over the strips three times to ensure good adhesion.
- After 15 minutes, remove the test strips by pulling with a spring scale attached to the film strip tab. Try to pull at a rate of 1 inch every 5 seconds and observe both the value on the scale and the smoothness with which the film releases from the wall (see photo below).



Here is how to assess your test results:

- Unacceptable adhesion: The film measures less than 300 grams/inch on the scale and releases with little or no resistance.
- Acceptable adhesion: The film measures 300-1000 grams/inch on the scale and releases smoothly and consistently with some resistance. May be removable with heat/chemicals but may cause wall damage.
- Excellent adhesion: The film measures greater than 1000 grams/inch on the scale and releases smoothly and consistently with substantial resistance. Will cause wall damage if removed.

A film that pulls inconsistently or jerkily indicates that the adhesive is not making full contact with the substrate, even if it measures in the acceptable to excellent range. We do not recommend using a film that exhibits jerky removal.

For more detailed information on the 3M™ Enhanced Adhesion Cleaning Method and wall film adhesion testing, refer to [Instruction Bulletin 5.37, "A Guide to Understanding and Applying Graphics to Common Smooth and Textured Walls."](#)

Tip from the 3M Pros

Here is a quick tip to consider when prepping large wall surfaces. Divide the wall into sections using a 3M masking tape. Prep one section at a time to make sure an area isn't missed.



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