



A Guide to Understanding Walls and Applying Graphics to Walls

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Quick Start Tools
for the Customer and 3M Sales Representative

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Wall Graphics Customer Checklist

This form is a companion, not a substitute for understanding and following all 3M recommendations as described in the rest of this Instruction Bulletin, 5.37. **Failure to use the recommended 3M products and instructions will void the warranty.**

1. Wall Surface Texture

See pages 4–6 for details.

- Too much surface texture allows adhesive contact only with the high points of the wall, which does not provide sufficient contact for a good application.
- Graphics laminated with a stiff overlamine, such as graffiti-resistant overlamine, cannot conform to even slight wall texture and must not be used.
- The required wall texture for successful graphic application and adhesion is SMOOTH, properly primed, painted and cured wallboard that has little or no surface variation.

2. Wall Surface Preparation and Painting

See pages 7–8 for details.

- Repair any existing wall damage (holes, loose wallboard joints, chipped or peeling paint) to return it to like new condition.
- Clean the wall prior to priming and painting.
- Prime the wall with a primer that is compatible with the top paint coat. Two coats may be required.
- Paint the wall with a quality, semi gloss top coat. Do not use matte paint or paint with silicone, graffiti-resistant or texturizing additives.
- Use a short nap (1/4 inch) roller.
- Allow the primer and paint to dry/cure as recommended by the primer/paint manufacturer, but no less than **5 days**. Full curing requires at least 30 days in proper conditions.
- Do not apply graphics to any wall that does not have excellent paint to substrate bonding. Do not apply to wallpaper.

3. Perform the Initial Film Adhesion-to-Painted Substrate Test

See pages 9–10 for details.

- This test should be performed on the wall of each location in which a wall graphic will be applied.
- Clean an area on the same wall (properly painted and cured) on which the graphic will be applied. Use a clean cloth that has no cleaning agents.
- Use the 3M Wall Test Kit. Instructions are included with the kit.

4. Graphic Application

See pages 11–15 for general details.

See pages 16–18 for illustrated instructions.

- Clean the wall immediately prior to applying graphics.
 - For newly painted walls, use a soft, clean, lint-free cloth to thoroughly remove all dust.
 - For existing walls, wash with 1 ounce of synthetic detergent per gallon of luke-warm water. Avoid soaps or preparations that contain waxes, oils, lotions or conditioners. Allow to dry thoroughly (at least one hour) before proceeding.
- Use a DRY application method.
- Apply the film using a stiff nylon brush or 3M™ Rivet Brush Applicator RBA-1.
- Use straight (non-arc) overlapping strokes and use the brush to push the graphics into the texture of the wall to ensure good adhesion.
- Trim graphics 1/4 inch from inner and outer wall corners.
- ALWAYS finish the graphic by working the brush in small circles around the entire outer 3 inches of the graphic.

Questions to Ask Technical Service

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Questions to Ask Technical Service



Key to Success

Understanding the type of wall texture you have to work with helps you select the right film for the job.

Determining Type of Texture

Texture has a significant affect on film choice, ease of application, adherence and removal.

If the texture is too heavy, the direct application of 3M graphic films may not be possible.

Many walls consist of a *substrate*--the supporting structure--with a coating or covering such as paint, varnish, wall-paper or other surface finish. That finish becomes the wall's *application surface*. For other walls, the substrate is also the wall's application surface. For example, brick, concrete block, ceramic tile or laminate may function as both a substrate and the application surface.

Every application surface has some sort of texture. The texture might be as smooth as glass or as rough as heavily textured concrete--and everything in between.

Smooth textures. Little or no surface variation. Provides the easiest application since the adhesive can make contact with the entire surface.

Unsmooth texture. Has high spots and low spots, which range from just a little texture (like fine sand paper) to heavy texture (like brick). Extra effort and more time-consuming application techniques may be required to maximize the amount of film adhesion to the wall.

- **Medium.** Relatively equal distribution of moderately high and low spots.
- **Heavy.** Irregular and severe high spots and/or low spots.
- **Other.** Brick, concrete block, stucco and tile.

Identifying Wall Composition

This is the material that your wall is made of.

Brick. A kiln-dried, hard clay surfacing material, thicker than tile, for interior or exterior walls. Inherently smooth, but may be patterned or textured before firing.

Painted wallboard. Common interior wall surface, primed, painted and thoroughly dried. Texture varies depending on paint technique.

Concrete. A building material made from a mixture of portland cement, water, fine and coarse particles. Texture can range from smooth to heavy.

CMU (Concrete masonry/concrete block). A usually hollow building block made with concrete. May be painted or unpainted. Texture is usually medium.

Stucco. A cement or plaster mixture that is hand or machine applied to interior or exterior walls. Our example is between smooth and medium texture, although texture can range from smooth to heavy.

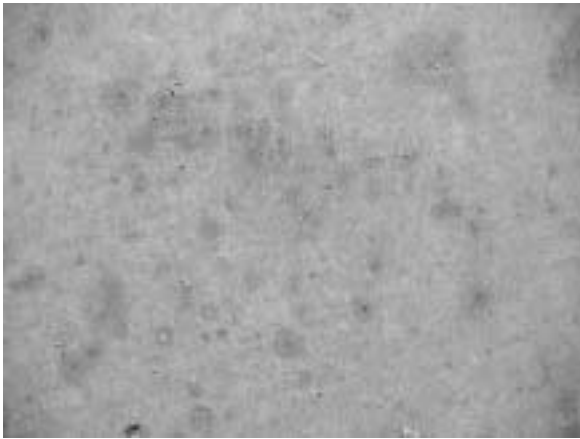
Tile. A kiln-dried, thin, hard clay surfacing material for interior or exterior walls. May be glazed or unglazed. Texture is usually smooth.

Vinyl wallcovering. A thin to heavyweight vinyl material used to cover interior walls. Texture can range from smooth to heavy.

About the Images on Pages 5 and 6

These descriptions and the images on the next two pages can help you determine both the texture and wall composition of your wall surfaces. These characteristics are important in selecting the right film as well as determining if the wall is not suitable for a successful graphic application.

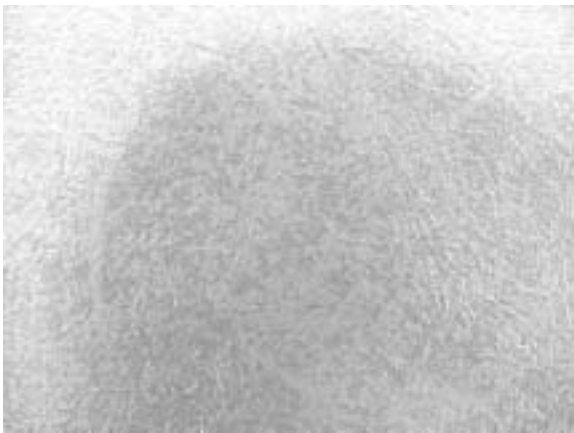
Smooth Concrete



Medium Concrete



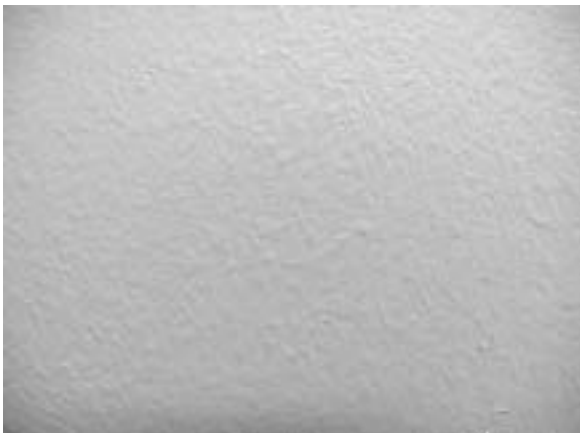
Smooth Vinyl Wallcovering



Medium Vinyl Wallcovering



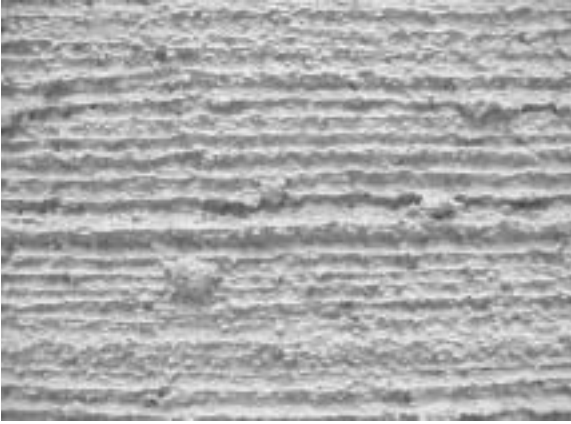
Smooth Painted Wallboard



Medium Painted Wallboard



Heavy Concrete



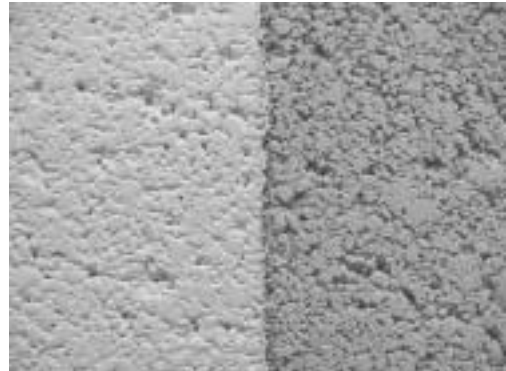
Other - Tile Glazed



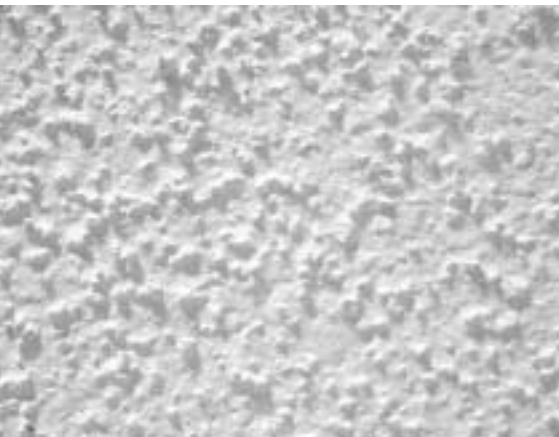
Heavy Vinyl Wallcovering



**Other - CMU/Concrete
Block Painted and Unpainted**



Heavy Painted Wallboard



Other - Brick



Other - Stucco



Inspecting and Repairing Walls



Key to Success

Inspecting and repairing walls before you apply the film eases installation and helps ensure good removal.

Common Wall Problems

Each of the following problems can contribute to poor graphic adhesion and damage during graphic removal if the problem is not repaired or considered prior to graphic application.

- Too highly textured paint
- Poor initial paint bond.
- Poorly painted wall edges.
- Patched areas that have not been primed.
- Moisture behind the wallboard, which can cause the wallboard paper to release. Watch for walls that back up to cooling systems, water pipes, overhead windows or water pipes that could drip on the graphic and boarded up windows. These areas are prone to condensation that may not be obvious at the time of installation.
- Dust, dirt or vehicle exhaust contamination on the wall.
- Wallpaper that is not securely bonded to the wall in all areas.
- Vinyl wall covering as a substrate: always test the surface for acceptable adhesion characteristics.
- Contamination by other products on the wall that was not properly cleaned.
- Cuts made to the graphic during the installation that penetrate both the film and substrate.

Unsound or Damaged Wall Surfaces

An unsound wall surface is one that shows signs of a loose, inconsistent or damaged surface finish. This may include loose paint, mixed surface finishes, abrasion, gouges, etc.

Poured concrete wall systems may look sound but upon using the wall test kit, you may find that the film strip pulls off the paint and the very fine top surface of the poured concrete. This is due to the way the concrete surface sets up at the first 0.5-1.0 mm of depth. The top layer is often loosely bonded together, even though it does not appear to be. When paint bonds tightly to this surface, the force used in pulling off an adhesive product may fracture the concrete layer, pulling it and the paint off.

Every effort should be made to repair unsound or damaged wall surfaces before applying the film. If this is not done, the application may be more time consuming, the applied graphic may not look satisfactory, and the surface may be damaged when the graphic is removed.

Paint and Primer Recommendations



Key to Success

Choosing and using the right primer and paint can have a significant affect on film adhesion.

When possible, we recommend using primer and paint from the same manufacturer, since the products are usually designed to work together. The goal is to achieve a good bond between the substrate, primer and paint.

Laboratory tests using Pittsburgh® Paints and Sherwin-Williams™ Paints have provided acceptable film adhesion and removability characteristics on sound surfaces, although paint from other manufacturers may be satisfactory. 3M does not endorse any particular paint manufacturer.

About Outgassing

As a wall finish dries, it releases certain gases until it is fully dried and cured. Applying a graphic before the finish has cured can result in lifting, bubbles and premature graphic failure.

Air Quality Regulations

State Volatile Organic Compound (VOC) regulations may prohibit the use of certain cleaning solutions. For example, the California South Coast Air Quality Management District prohibits use of certain solvent-based solutions without a permit and other California AQMD's prohibit use of certain solutions without a permit or a regulatory exemption. You should check with your State environmental authorities to determine whether use of this solution is restricted or prohibited.

Paint and Primer Application Tips

- Use two coats of primer, if necessary, to get good coverage.
- Use a roller or high pressure spray system to apply primer and paint. These tools provide better coverage than a brush. A short nap (1/4 inch) paint roller generally provides a smoother coating. A long nap roller tends to apply a heavier coat of paint, producing a texture that may be too heavy for direct application of 3M graphic films.
- Always follow the drying and curing times recommended by the paint manufacturer. Paint may continue to dry over a period of several days and up to a month. Graphics applied to an uncured paint may lift or fall off.

Primer		
Type of Primer	Considerations	Recommendations
Oil based, high quality	Good coverage	Kilz® brand primers have shown excellent results.
Tinted primers	May bleed through certain films or be stained by the film's adhesive	Use the highest quality paint to reduce staining or bleed through problems

Paint		
Type	Considerations	Recommendations
Solvent based	Good film adhesion	Perform standard paint/primer adhesion tests
Latex		
Powder-coated		
Urethane		
Baked Enamel Paints	Excellent film adhesion and removability	
Semi-gloss	Best universal surface	

Paint Additives		
Type	Film-to-Paint Adhesion Characteristics	Recommendations
Low luster, matte or satin	Usually good film adhesion	Determine if matting agents reduce bonding characteristics. Perform both paint/primer tests.
Silicone or graffiti-resistance agents	May inhibit good film adhesion	Perform standard paint/primer adhesion tests
Migrating particles*	May inhibit good film adhesion, may stain	
Textured paint	Too heavy a texture may not allow direct application of 3M graphic film. Always test the surface for acceptable initial adhesion results. For further assistance contact CG Technical Service at 1-800-328-3908.	

*Some particles in a paint's chemistry can migrate over time. Although it is difficult to know if this will be a problem until the graphic is removed, you should be aware of it.

Film Adhesion Tests – Using the 3M Wall Test Kit



Key to Success

This test is quick and easy. It is the best way to evaluate how well a 3M graphic film bonds to your selected wall surface.

Purpose of Test

This test is designed to show *initial adhesion capability* of selected 3M films to various wall surfaces.

Before You Do the Test

1. Complete the Worksheet, page 2.
2. Make sure you understand wall surfaces and the variables that influence film adhesion, pages 4–8.

Limitations of Test

This test is designed to show initial adhesion capability of selected 3M films to various wall surfaces. It may not detect, and thus 3M cannot be responsible for, problems with pre-existing variations in the substrate or poor paint-to-substrate bond. Such problems may result in poor long term adhesion as well as surface damage upon attempted removal of a graphic.

This test does not guarantee clean graphic removal.

These are common surface problems encountered in testing:

- Pre-cast concrete material can have an oily surface and be speckled with dust because of the production process. These characteristics inhibit good adhesion.
- Poor paint-to-substrate bond. This may be visible by signs of peeling, lifting or bubbling of the paint.
- Some poor paint-to-substrate bonding may not be readily apparent. If there are multiple layers of paint on the substrate, the bond of one or more layers to another layer may not be adequate.

Tools

- 3M Wall Test Kit, includes:
 - Film/overlaminatesheet “A” with 5 test strips
 - Film/overlaminatesheet “B” with 5 test strips
 - Film/overlaminatesheet “C” with 5 test strips
 - Film/overlaminatesheet “D” with 5 test strips
 - Film/overlaminatesheet “E” with 5 test strips
- Spring scale. Any of the following are sufficient. Available from: Ohaus 29 Hanover Rd., Florham Park, N.J. 07932; 1-800-672-7722, www.ohaus.com.
 - 0-500 grams, part number 8002-MA (less than \$10)
 - 0-1000 grams, part number 8003-MN
 - 0-2000 grams, part number 8004-MA
- Scotch-Brite™ High Performance Cleaning Cloth
- Scotch-Brite™ Heavy Duty Scour Pad
- 3M™ Plastic Applicator PA-1 (Blue or Gold*)

- 3M™ Low Friction Sleeve SA-1*
- 3M™ Rivet Brush RBA-1* and RBA-3**

Making Your Own Film Test Strips

If you would like to test a specific film of your choosing, prepared as your intended graphic (film, printing, overlaminate/clear), it must be 1 inch (± 0.01 inch) by 10 inches. Note this construction on the test strip and on the Worksheet, page 2.

As with the films supplied with this kit, it is intended to demonstrate initial adhesion capability but is not a guarantee of satisfactory results.

Procedure

1. Mark each individual strip with the appropriate letter (A through E). Refer to Figure 1.
2. Wipe the wall where the test will be conducted. We recommend using a Scotch-Brite cloth. If the wall is more than dusty, see Substrate Cleaning and Preparation, page 7.
3. For each film that you plan to test, cut three 1 inch x 10 inch strips.
4. For each film strip, fold over the top one inch of the strip, liner to liner, and punch a hole in the double thickness that is large enough to slide the spring scale’s hook through. Remove at least two inches of the liner and refold the exposed film adhesive to adhesive, to make a tab.

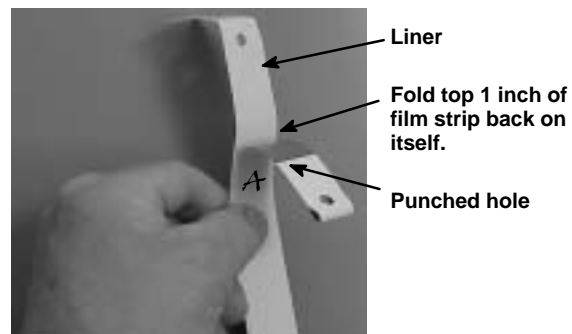
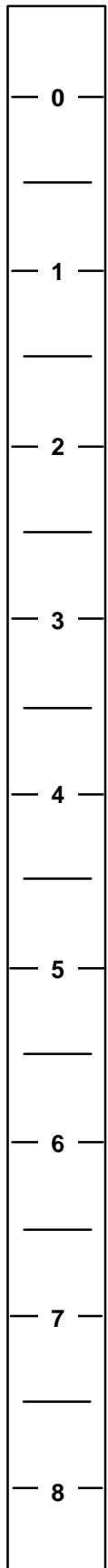


Figure 1. Making a Punched Tab in Test Strip

5. On a 8–inch piece of paper, mark with reference lines at 1 inch increments. This will be used to help estimate the speed at which you remove the test film strips, for example, 1 inch of distance in 5 seconds. The example shown in the right margin of this page is accurate.
6. Remove the rest of the liner from a film test strip and apply to the clean test area. Use your thumb or a PA-1 squeegee with sleeve to adhere the film to the wall. Repeat for the other two film test strips, placing them within a couple of inches of each other.



7. Now use the rivet brush on the test strips. Work in the long direction of the test strip three times, using firm pressure and a circular motion. See Figure 2.

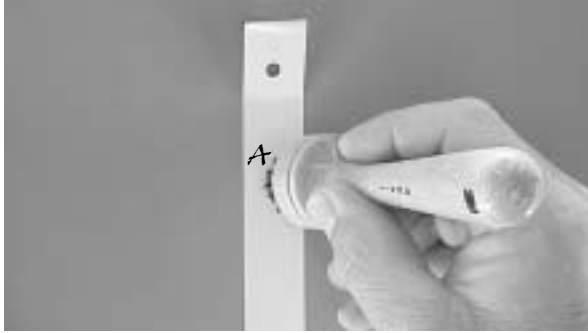


Figure 2. Firmly Adhering Film Strip To Wall

8. Tape the marked reference strip of paper next to one of the film strips. Refer to Figure 4.
9. Wait a full 15 minutes before proceeding with the test.
10. READ THIS STEP THOROUGHLY BEFORE REMOVING THE TEST STRIP.
 - a. Make sure the spring scale is reset to 0. To do this, hold the scale upright (logo at the top) and push or pull the aluminum tab at the top of the tool. See Figure 3.

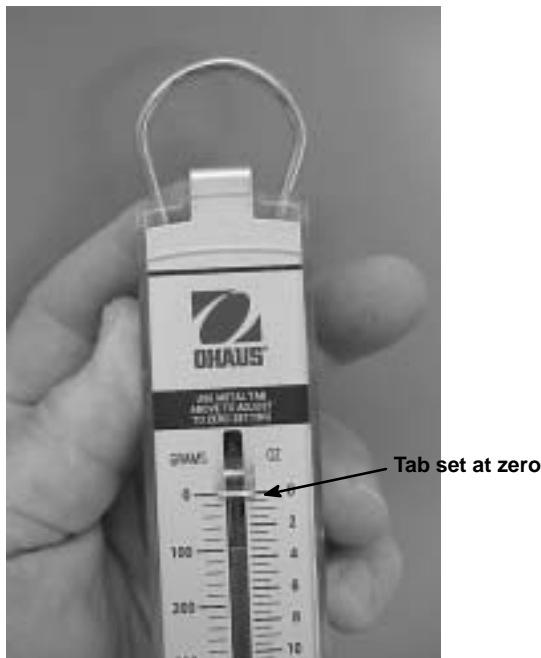


Figure 3. Reset Scale to 0 (zero)

- b. Hold the scale so the gauge faces you.
- c. Slide the S hook through the punched hole in the test strip. See Figure 4.
- d. Pull down on the test strip at an angle, keeping it as parallel to the wall as possible without any portion of the scale or your hand contacting the wall during the test. See Figure 4.

- e. Pull in a steady motion at a rate of about 1 inch in 5 seconds, using the reference paper increments as a guide. Refer to Figure 4. DO NOT STOP once you have started.
- f. As you pull off the test strip, take note of:
 - the release characteristics as the film pulls away from the wall;
 - the grams/inch registering on the scale.
- g. Repeat for the other test strips.

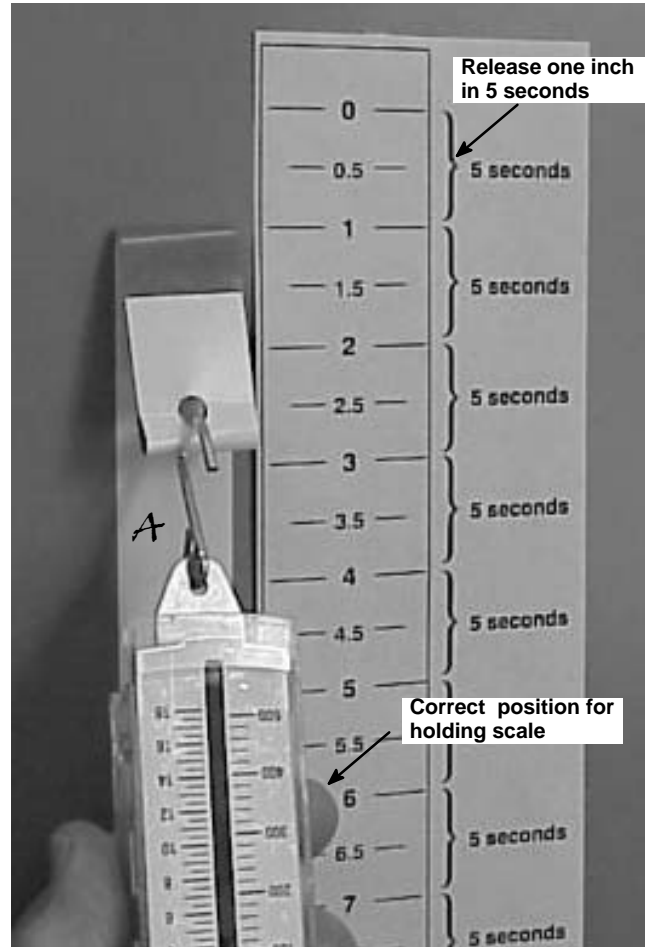


Figure 4. Technique for Releasing Film from Wall

11. Evaluate the test results. See the next section.

Wall Test Evaluation

Test Conditions

Freshly cleaned, smooth, semi-gloss painted wallboard that has cured at least 30 days and is located in an environmentally controlled area.

Averaging Test Results

If two or three out of three test strips perform the same way, those are the characteristics by which you judge the suitability of that particular film for your wall.

Continued on the next page.

Scale Value	Release Characteristics	Recommendation
0-250 grams/inch	Removes too easily; little or no resistance	Unacceptable adhesion; try another film; see Enhancing Adhesion for possible remedy
250-450 grams/inch	Smooth, consistent; no jerkiness	Acceptable adhesion; some film may be successfully removed
450+ grams/inch	Smooth, consistent; no jerkiness but more difficult to remove; sample may stretch or break	Acceptable adhesion for a permanent graphic; not recommended for removable graphics
450+ grams/inch then drops	Pulls inconsistently; seems jerky	Unacceptable adhesion; try another film

Factors in Unsatisfactory Test Results

- Test strip removes jerkily, unevenly
 - Inconsistent or low adhesion value; due to high and low spots in the surface texture, the film's adhesive does not make consistent contact
 - Cold surface and air temperature, which doesn't allow adhesive to flow or contact as it is designed

- Test strip pulls paint off wall
If any paint or surface finish is pulled off with the test strip, the paint is not sufficiently bonded to the substrate and graphics should not be applied until the problem is corrected and the wall test is performed again with satisfactory results.
- Wrong film for the job
If the first type of film you tried does not perform acceptably, try a different film and repeat the tests.

Graphics That Require Greater Adhesion Level

- Graphics exposure to interior environmental changes, such as direct sun light or close proximity heat sources
- Overlaminated graphics
- Graphics made with film having 3M's Comply™ Performance feature
- Larger graphics

For Questions About the Kit, Test Procedures or Results

For questions, call us at 1-800-328-3908.

For assistance in reviewing your film qualification test results. Fax or mail the completed worksheet to:

Attn: Wall Surface Evaluation
 Technical Service
 3M Center
 Building 207-1W-022
 St. Paul, MN 55114-1000

Film Adhesion Characteristics

Adhesion is the ability of the film's adhesive to bond to the substrate. The amount of both initial and final adhesion varies with the type of adhesive used on the film, the substrate/surface, and the application temperature and application techniques. The bond builds with time. Film may never achieve its full bond if the graphic is poorly applied or you are using the wrong film/adhesive for the substrate.

- **Adhesion, final.** The maximum amount of bond achieved by a film, usually in 24 to 48 hours after application except in cool temperatures.
- **Adhesion, initial.** The amount of bond needed to hold the graphic in place during application.
- **Size of graphic.** The larger the graphic, the greater the adhesive bond to the wall must be to support the weight of the graphic.
- **Imaging method.** Can affect adhesion characteristics. Refer to the film's Product Bulletin.
- **Stretching film.** Films stretched during application may later shrink. This decreases wall adhesion and the graphic may fall off prematurely.

Effect of Overlamine on Adhesion

Finished graphics must retain some flexibility in order to achieve maximum adhesion. Do not use a stiff or thick overlamine on the graphic, such as 3M's Scotchgard™ Graphic and Surface Protection Film 8991.

Enhancing Adhesion

There are two possible ways to improve film adhesion to a wall surface if the test strips showed less than 250 grams adhesion. Use these techniques only with agreement of the graphic customer and graphic installer.

- Use a Scotch-Brite scour pad to lightly roughen the wall surface. This technique may alter the surface gloss.
- Apply a secondary smooth surface. The secondary surface is attached to the existing textured surface and the graphic films are applied to the secondary surface.

How to use the Scotch-Brite Scour Pad

1. Hold the pad lightly against the wall and wipe it up and down a couple of times. Then wipe it sideways. Do this for the entire graphic application area. See Figure 5.



Figure 5. Scuffing Wall to Enhance Film Adhesion

2. Wipe the wall with a clean Scotch-Brite cleaning cloth to be sure all dust has been cleaned off.
3. Retest the surface to confirm that adhesion has been enhanced.

Film Processing Considerations

The common methods for processing large format graphics include screen printing, electrostatic imaging, thermal ink jet printing and piezo ink jet printing. Many films are designed exclusively for one processing method, while other films may be suitable for a variety of processing methods.

Processing methods and conditions may affect the film application and performance. Always refer to the film's Product Bulletin for details.

Removal Factors



Key to Success

Before selecting a film, be sure you understand the customer's requirements for removal.

Removing a graphic can damage the wall's surface or substrate. You can reduce or eliminate removal damage by:

- Inspecting the wall and repairing any damage before applying the film.
- Clean the walls according to 3M guidelines in Instruction Bulletin 5.1 before applying the film.

Determining Graphic Removability

√ Important Note

Due to the great variety of wall surfaces/substrates, there is no guarantee against damage-free removal. However, experience suggests that films that adhere to substrates having sound surface characteristics and within the adhesion range of 250-450 grams/inch, should provide reasonable removal characteristics. Typically, the greater the adhesion level, the greater the risk for removal damage.

Changeable/removable films. Some 3M films used for interior wall graphics have a removable adhesive designed to make film removal clean and easy within a warranted period.

Permanent films. Many films that are suitable for application to a wall have a permanent adhesive. Films with permanent adhesive are very difficult to remove from a smooth wall surface and may result in surface damage. However, these same films often have characteristics that may make them a good choice for highly textured wall surfaces.

The ease of graphic removal depends on factors such as film properties, type of substrate/surface, initial adhesion test values, graphic imaging method and ambient exposure characteristics. However, wall texture is the most important factor in removability.

- Most graphics are easier to remove from a textured surface than a smooth surface since there is less adhesive contact. However, outdoor exposure conditions and how long the graphic has been up can decrease the ease of removal.
- Wall destruction can occur when cuts and moisture problems are hidden under the graphic.

Basic Graphic Removal Technique

1. Cut the graphic into strips 16 inches wide or less. Be careful not to cut the wall surface.
2. Use a minimum 150° pull angle to reduce the amount of adhesive residue that remains on the surface.
3. Pull the graphic off slowly while maintaining the pull angle.

Applying Graphics to Walls



Key to Success

Read all instructions before you start: this application may be different than you have done before.

These instructions are for applying graphics to walls. For any other type of application, please refer to 3M Related Literature in the base film's Product Bulletin, or visit our website at www.scotchprint.com.

Who Can Install Graphics?

Poster-size graphics may be installed by a non-professional installer with relative ease. Larger graphics can be more difficult to handle and align, and multi-panel graphics require skill that is acquired only through practice. Therefore, we recommend contacting a professional graphics installer for assistance with larger graphics.

Two people are required to apply most graphics. Notice the dark and light hands in the Application Methods illustrations later in this bulletin.

Know the Film Used in Your Graphic

The type of **wall surface** and its **texture** affect how well film adheres, and if required for your job, how easily it can be removed. Be sure the graphics manufacturer tells you what film was used, and that you apply the graphic to a surface and texture for which that film is intended. Refer to the base film's Product Bulletin for recommended application surfaces.

Health and Safety



Caution

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information.

To obtain MSDS sheets for 3M products:

- By fax, call 1-800-364-0768 in the US and Canada or 1-650-556-8417 for all other locations.
- Electronically, visit us at <http://www.3M.com/msds>.
- By mail, or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.



Caution

Any activity performed for a long period of time in an awkward position or with a high amount of force is potentially a risk for causing musculoskeletal strain, pain or injury. When applying graphics, follow these practices to improve comfort and avoid injury:

- Alternative your tasks during the application.
- Schedule regular breaks.
- Perform stretches or do exercises to improve circulation.
- Avoid awkward reaching.

Tools and Supplies

- Scotch™ Masking Tape, 2 inch wide
- Nylon bristle brush: Use a stiff nylon brush (e.g., household cleaning brush, floor brush) when applying graphics directly to wall surfaces. The brush should be kept to a maximum surface area of 18 square inches or about a 6 inch x 3 inch face.
- Scotch-Brite™ High Performance Cleaning Cloths
- Scotch-Brite™ Heavy Duty Scour Pad
- 3M™ Rivet Brush RBA-1* and RBA-3**
- 3M™ Air Release Tool 391X
- Cutting tools, such as a razor blade with a safety holder
- Industrial heat gun; *must be capable of attaining 500 ° to 750 °F (260 ° to 399 °C), or equivalent*

*Available from 3M Commercial Graphics Division

** Available from Sharpline Covering Inc. 1-800-888-4888

Note: 3M™ Plastic Applicator PA-1 (Blue or Gold*) is not a recommended tool for application to wall surfaces since they are less effective when applying film to a textured surface.

Application Tapes

The use of application tape (commonly called premasking tape) is **NOT RECOMMENDED**.

If your application absolutely cannot be applied without a premasking tape, please note that the premask tape may have a greater adhesive bond to the base film than the base film has to the wall surface. Removing the premasking tape generally lifts the graphic from the wall surface and compromises the adhesive bond of the graphic. If premask tape is used, you must thoroughly rebrush the entire graphic and all edges after removing the premasking tape.

General Instructions

Substrate Cleaning and Preparation

Clean the substrate immediately before applying film. Dust and other contaminants can collect quickly on the substrate and prevent the film from adhering properly.

- If the substrate has any contaminants-dust, dirt, grease, loose paint, etc., the film will stick to that rather than the substrate, leading to graphic failure.
 - Pay extra attention to cleaning wall edges and corners.
 - **Wallboard, except if soiled or greasy.** Wipe down the entire surface with a *clean* lint-free cloth. We recommend Scotch-Bright™ High Performance Cleaning Cloth. Follow the product directions for cleaning the cloth.
 - **Other wall surfaces and greasy painted wallboard.**
 - **For interior walls where grease and/or oil is present on the substrate:** Wash the substrate with a solution of trisodium phosphate (TSP) and lukewarm water. Prepare the solution according to the manufacturer's written instructions.
 - **For most other surfaces, interior or exterior:** Wash the substrate with 1 ounce of synthetic detergent per gallon of lukewarm water. Avoid soaps or preparations that contain waxes, oils or lotions. Some window cleaners contain waxes.
- Smooth poured concrete walls or concrete block walls may require power washing or hand washing with a stiff brush and a detergent cleaner followed by a clean water rinse to remove grease and/or exhaust contaminants. Allow the surface to dry thoroughly (at least 24 hours) before applying the graphics. Brush the substrate lightly after drying and immediately before film application to remove any dust that may have collected
- Dry thoroughly with clean, lint-free paper towels. Porous materials absorb moisture and must have time to dry.

Wet or Dry Application Method?

- **Dry application.** All wall films must be applied using a dry application method.
- **Wet application.** This method is not recommended for walls. The only exception is for walls that may be exposed to grease-like contamination where a cleaning solution may be required for graphic maintenance. Smooth wall surfaces are easier to clean. If a cleaning solution is used, the wet wall surface must be allowed enough time to properly dry. Recommended dry time is a minimum of 24 hours. If the surface absorbs moisture, longer dry time may be necessary.

Plan Your Layout

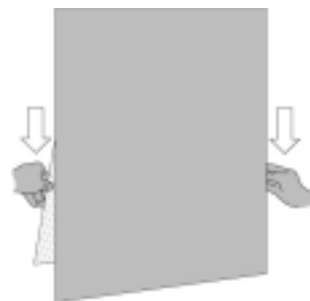
To minimize application problems, which wastes time, test your layout by temporarily positioning the graphic on the substrate using masking tape.

Moisture that has penetrated wallboard will destroy the painted surface when graphics are removed. Remember that, especially in remodeling jobs, wallboard may have been placed over windows, cooling pipes, etc., that may produce moisture that is transferred to the wallboard.

Liner Removal Technique

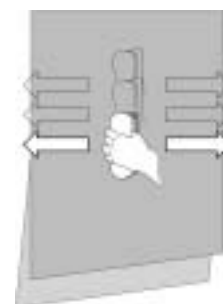
Use two hands when pulling the liner from the film, using care not to stretch the film.

Note: Always remove the liner from the graphic rather than the graphic from the liner.



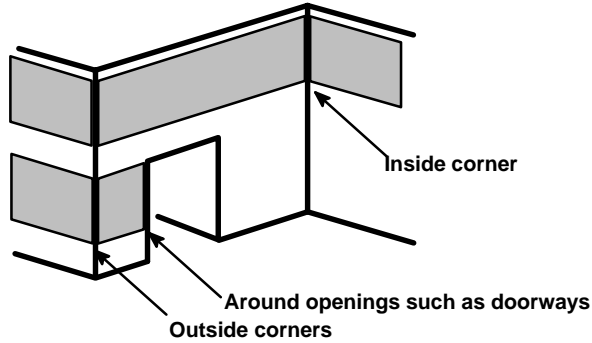
Application Technique

- Pull the brush with your hand, don't push it across the graphic, which stretches the film.
- Move the brush in a straight line-not in an arc.
- Use firm, overlapping brush strokes.
- Re-brush all edges after applying the graphic.



Trimming Requirements

Certain areas of your graphic applications are more prone to damage than others from people or equipment rubbing against the edges. This includes areas around doors, openings such as vents, outside corners of walls and inside corners. To reduce the risk of damage and lifting, trim the graphic 1/8 to 1/4 inch from the edge. After application, rebrush all edges of the graphic to help ensure good edge adhesion.



Finishing the Graphic Edges

Usually, the area with the least adhesive bond is the outer few inches of the graphic. Always re-brush the edges in small circular movements before you consider the job done. Always grasp the film as far into graphic as possible without wrinkling the film to avoid transferring body oil and dirt to the adhesive, which can cause adhesion problems.

Selecting the Right Application Method

Read and follow all **General Instructions** before proceeding. Then select the **Application Method** that best matches the orientation of your graphic and printing method.

Graphic Orientation	Printing Method	Application Method
Vertical <i>Height greater than width</i>	All printing methods	Method 1 <i>see page 16</i>
Horizontal A with tape <i>width greater than height</i>	All methods, but electrostatic only if using Trident transfer paper	Method 2 <i>see page 17</i>
Horizontal B without tape <i>width greater than height</i>	All printing methods*	Method 3 <i>see page 18</i>

* **If using 3M™ Wear Coat and Image Transfer Media 8604 ES or 8605 ES:** Any tape applied to the imaged side of graphics made with this media may lift off the graphic's toner and wear coat when the tape is removed. Use only Application Method 1 or Method 3.

Application Method 1

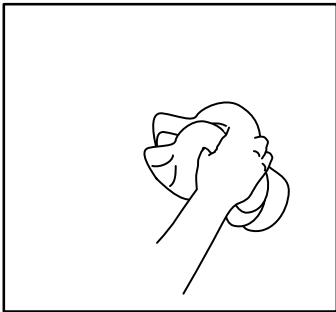
Orientation: Vertical (*graphic is taller than it is wide*)

Imaging Method: Screen printed, Electrostatically imaged, Offset printed

Please review the General Instructions and this Method before applying the film.

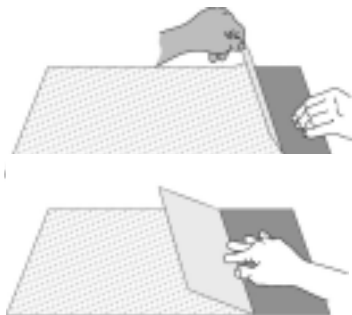
1

Wipe the wall, removing dust and any obvious contaminants.




2

Lay the graphic image side down on a flat surface. Pull back about 6 inches of the liner. Sharply crease the liner.



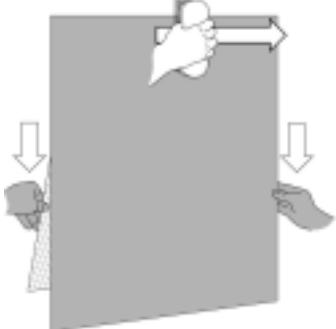
3

Align the graphic on the wall and use finger pressure to tack it in place.



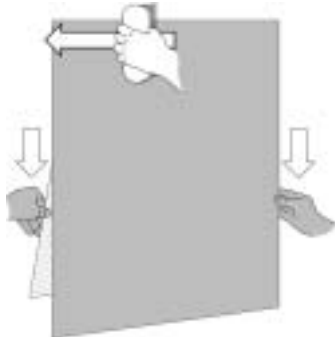
4

Brush from the center to the right edge.



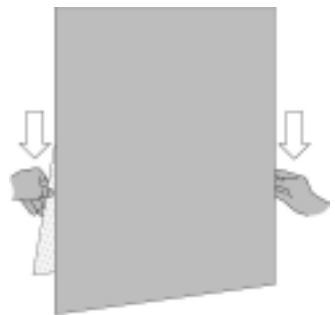
5

Return to the center and brush to the left edge.




6

Pull the liner down as needed, using two hands.



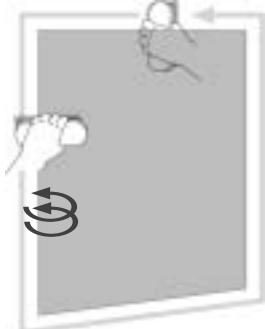
7

Move the brush down a couple of inches and continue stroking right and left, pulling the liner down as needed. Repeat to the bottom.



8

Re-brush the outer 3 inches of the entire graphic, using a small circular motion, to ensure good edge adhesion.



Application Method 2

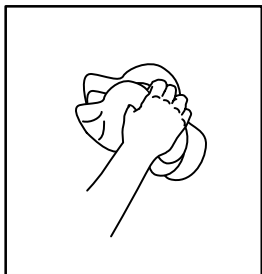
Orientation: Horizontal (*graphic is wider than it is tall*)

Imaging Method: Screen printed, Offset printed (*see Method 3 also*)

Please review the General Instructions and this Method before applying the film.

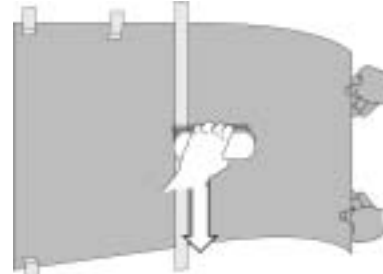
1

Wipe the wall, removing dust any obvious contaminants.



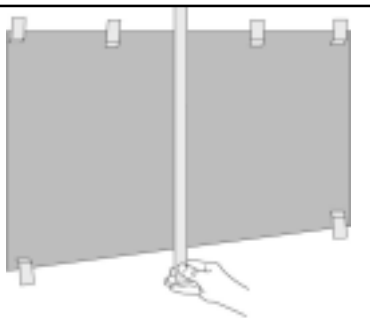
6

Return to the center, and brush down.



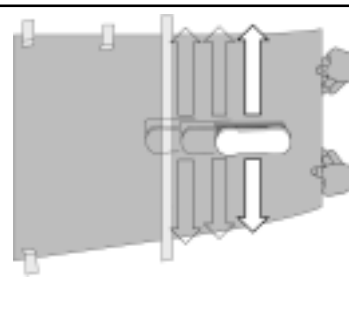
2

Align the graphic on the wall, and tape it in place as shown. Place a long strip of masking tape as shown.



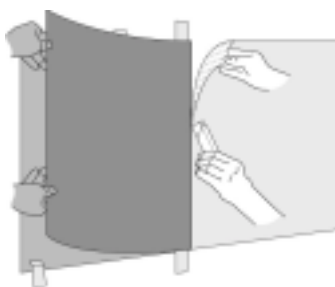
7

Move the brush about two inches left. Repeat Steps 6 and 7 across the graphic, allowing more of the graphic to lay against the wall as you work to the left.



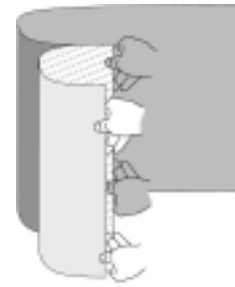
3

Remove the short strips of tape from one side. Pull the film away from the liner all the way to the long strip of tape. Carefully cut off the liner.



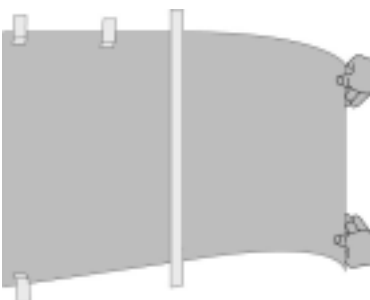
8

Remove the remaining masking tape. Lift the right side of the film and remove the remaining liner.



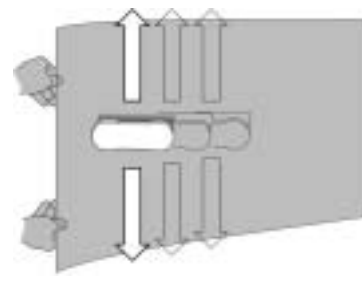
4

Allow the part of the graphic near the center tape to lie against the wall. Gently hold the rest of the graphic away from the wall.



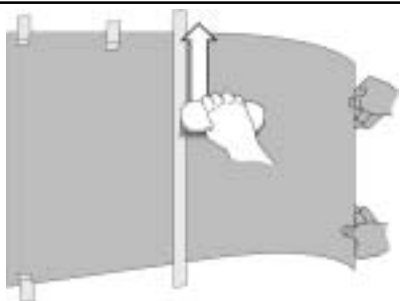
9

Repeat Steps 5, 6, and 7 across the other side of the graphic.



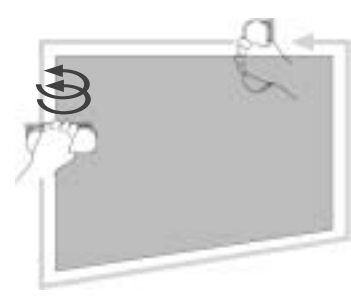
5

Begin at the center and brush up.



10

Re-brush the outer 3 inches of the entire graphic, using a small circular motion, to ensure good edge adhesion.



Application Method 3

Orientation: Horizontal (*graphic is wider than it is tall*)

Imaging Method: Screen printed, Offset printed (*see Method 3 also*); Electrostatically printed

This method, which uses no masking tape, is required if your graphic was made with wear coat and image transfer media 8604 ES or 8605 ES. The use of tape pulls off the toners and wear coat.

Please review the General Instructions and this Method before applying the film.

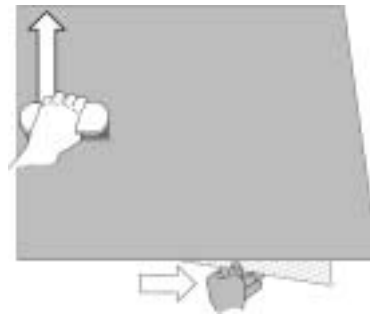
1

Wipe the wall, removing dust and any obvious contaminants.



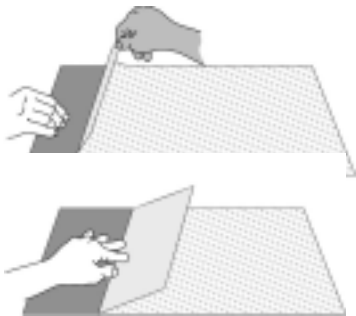
5

Return to the center and brush to the top edge.



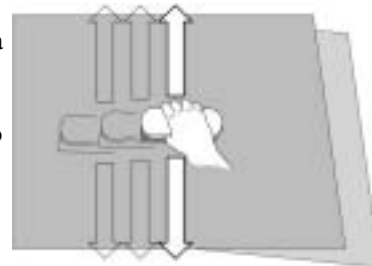
2

Lay the graphic image side down on a flat surface. Pull back about 6 inches of the liner. Sharply crease the liner.



6

Move the brush over a couple of inches and continue stroking center to top, center to bottom, as the helper pulls the liner away from the film.



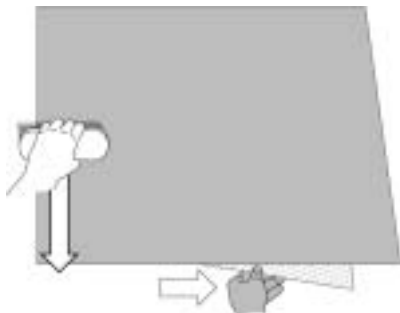
3

Bring the graphic to the wall and align it along the vertical edge. Use finger pressure to tack it in place. **DO NOT USE TAPE**



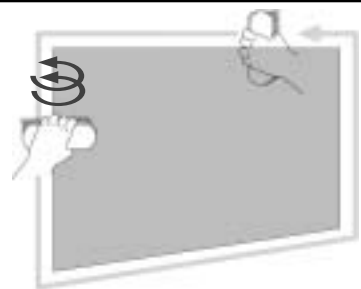
4

Brush from the center to the bottom edge.



7

Re-brush the outer 3 inches of the entire graphic, using a small circular motion, to ensure good edge adhesion.



Graphic Cleaning, Maintenance and Removal

- Not all films are designed to be removable; refer to the base film's product bulletin for details.
- Even when you use a removable film, clean removal from any painted wallboard may be difficult. If the bond of the film to the paint is greater than the bond of the paint to the wallboard, the paint and possibly the paper covering on the wallboard could be damaged during graphic removal.
- Moisture that has penetrated wallboard will destroy the painted surface when graphics are removed. Remember that, especially in remodeling jobs, wallboard may have been placed over windows, cooling pipes, etc., that may produce moisture that is transferred to the wallboard.
- Removing wall graphics is significantly different than removing graphics from semi-trailers and vehicles.
- Using two hands, start at the top of the graphic and pull it down slowly at a 120 to 180 degree angle.
- Whenever large graphics are difficult to remove, cutting the graphic into strips may ease the removal process. Just be careful not to cut the substrate.
- Chemicals are not used for interior wall graphic removals. Chemicals may be used for some exterior graphic removals from concrete and painted metal structures. When chemicals are needed, refer to Instruction Bulletin 6.5.
- Heat may be helpful if the substrate is not wallboard. Heating a graphic eases removal of almost any film. The heat softens the adhesive, which reduces the pull-off force.
- If the substrate appears stained after graphic removal, it is usually the result of one of the following: poor quality paint, exposure to heat and light, migrating particles in the paint, and adhesive residue.

See Instruction Bulletin 6.5 for more details.

Disposal of Film Liners and Used Graphic Film

These products may be incinerated or may also be safely disposed of in a landfill per US Environmental Protection Agency guidelines.



Commercial Graphics Division
 3M Center, Building 220-12E-04
 PO Box 33220
 St. Paul, MN 55133-3220 USA
 General Info. 1-800-374-6772
 Technical Info. 1-800-328-3908
 Fax 1-651-736-4233

Fax-on-Demand 1-800-364-0768 US/Canada or 1-651-732-6506 International
 Fax-on-Demand document: 7037
 www.scotchprint.com

3M Canada
 P.O. Box 5757
 London, Ontario
 Canada N6A 4T1
 1-800-265-1840
 Fax 519-452-6245

3M México, S.A. de C.V.
 Av. Santa Fe No. 55
 Col. Santa Fe, Del. Alvaro Obregón
 México, D.F. 01210
 52-55-52-70-04-00
 Fax 52-55-52-70-22-77

3M Puerto Rico, Inc.
 Puerto Rico Industrial Park
 P.O. Box 100
 Carolina, PR 00986-0100
 787-620-3000
 Fax 787-750-3035

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3M Related Literature

Before starting any job, be sure you have the most recent product and instruction bulletins.

Listed below is related 3M technical literature that may be of interest. You may view and print these Bulletins from our Web site at www.scotchprint.com, or order them via our Fax-on-Demand (FOD) system. Call one of these phone numbers to order the desired bulletins, and specify the FOD document number provided in the chart.

United States or Canada: 1-800-364-0768
 International: 1-651-732-6506

Subject	Bulletin No.	FOD No.
Films Please visit our website or all our Fax on Demand system to identify and select the film bulletins you need.		
Storage, handling, maintenance, removal	6.5	8505

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Bulletin Change Summary

The overlamine mentioned in the construction for Test Strip A (see page 2) has been changed from 8911 to 8520.