

Lamination, Application & Maintenance of Floor Graphics

Health and Safety



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 go to 3M.com/MSDS, or 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.

Air Quality Regulations

State Volatile Organic Compound (VOC) regulations may prohibit the use of certain cleaning chemicals with VOC's in graphic arts coatings and printing operations. 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. Check with your State environmental authorities to determine whether use of this solution may be restricted or prohibited.

Compatible Products

Screen Printing

- 3M™ Controltac™ Graphic Film Series 162
- 3M™ Controltac™ Graphic Film 164

Electrostatic Printing

- 3M™ Controltac™ Graphic Film Series 8660 ES

Piezo Inkjet Printing

- 3M™ Controltac™ Graphic Film IJ162-10 or IJ162-114
- 3M™ Controltac™ Graphic Film RG162-10

Graphic Protection Required

- 3M™ Scotchcal™ Luster Overlaminates 3645
- 3M™ Scotchcal™ High Gloss Overlaminates 3648

Cold Roll Lamination

Start up

Lamination is a required step in the production of finished and warranted floor graphics. This process provides durable, scuff-resistant protection to the graphics. This bulletin gives specific instructions for cold laminating floor graphics created with these films.

1. Make sure the rolls of the laminator are clean.
2. Set the motor controls to RUN and FORWARD. Set the SPEED to approximately 2 feet per minute (61 cm per minute).
3. Thread the overlaminates film into the laminator.
 - a. Tape the liner to the top of the clutch roll, if the laminator is provided with one.
 - b. Pull the film through the nip until it is about 1 foot (25 cm) past the roll.
4. Adjust the pressure control settings. See *Laminator Design and Pressure Gage Control Settings* in the next section.
5. Lower the roller.
6. As the film is moving out of the nip, make sure there are NO WRINKLES in the web.

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7. Increase the web speed to approximately 15 feet per minute (4.5 m per minute).
8. Feed the graphic from the front of the laminator using the guide bar.
9. Cut the finished graphic from the web using a safety knife.
10. Trim the graphic and store stacked or rolled with image side out until the time for shipment.

Note: There may be some delamination of the liner when the graphics are rolled due to the thickness of the assembly. This does not affect the graphic or its application.

Laminator Design and Pressure Gage Control Settings

11. Generally, the pressure gage control setting of the laminator air cylinder should be adjusted to a nominal 30 pounds per square inch (2.1 kg/cm²). This setting is a minimum recommended value. The value is based on results obtained from a laboratory laminator.

The laboratory laminator has the following design attributes.

- 3 inch (8 cm) diameter rolls
- 30 inch (76 cm) wide roll face
- 70 durometer (hardness) rolls
- 2 air cylinders, 1 inch (2.5 cm) in diameter

If the design of your laminator differs from the above attributes, adjust the pressure control settings as needed. For example, at the nominal 30 pounds per square inch gauge (psig) setting, a 2 inch (5 cm) diameter air cylinder produces a higher nip pressure than the 1 inch (2.5 cm) diameter cylinder equipped on the laboratory laminator. If wrinkles occur, the pressure control setting may be too high; reduce it to achieve the desired results.

If the graphic is screen printed with 3M™ Four Color Screen Printing UV Ink Series 9800 and areas of the graphic have a dot coverage less than 20%, you may need to increase the pressure control settings to remove trapped air.

In these situations, a roller heated to 95° to 105°F (35° to 41°C) may be used for better lamination results.

Warranted Application Surfaces



WARNING

The safety and performance of these films are warranted or assured only on the surfaces listed below. Any other surface must be approved in writing by 3M Commercial Graphics Technical Service prior to application.

FOR INDOOR USE ONLY.

Approved Floor Application Surfaces

- Waxed vinyl
- Sealed concrete
- Marble
- Ceramic tile
- Sealed wood
- Terrazzo

Condition of Floor Application Surfaces

In general, the floor surface must be secure and in good condition.

- Avoid installing floor graphics over loose tile.
- Avoid installing floor graphics over uneven tile.
- Be sure the floor finish is well bonded to the floor surface. Floor finishes that are not well bonded to the surface may separate or release, resulting in premature lifting of the graphic. In addition, the floor finish may come off with the graphic when the graphic is removed, requiring the reapplication of the floor finish. Some types of floor finishes include concrete sealer, wood sealer, paint, and wax.
- Properly clean the floor surface, including removing any silicone coatings, except in grout line area of tile.
- The floor surface application temperature range is 50° to 100°F (10° to 38°C).

Location of Floor Graphics



Any floor surface, including floor graphics, that is wet due to rain, snow, or other contaminants may become slippery. To avoid personal injury due to slipping:

- Place floor graphics far enough away from entryways that they stay dry.
 - Use doormats to reduce moisture at entryways.
 - Clean up water, spills, or other contaminants immediately.
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Floor graphics may be damaged by pallets or heavy equipment such as forklifts as well as by dragging heavy items across the top of the graphic. If possible, locate floor graphics out of the main stream flow of pallet or heavy equipment traffic. Minor edge chipping is unavoidable.

Surface Preparation

All floor surfaces must be cleaned prior to applying floor graphics, including surfaces that are sealed, waxed or painted.

To clean the floor, use the system kit #75-5100-1138-2 for floor graphics. If this kit is not available, or if the graphic is very large or the floor is very dirty, use the following procedure.

Surface Cleaning

1. Spray the floor area where the graphic will be applied. Use a solution of 20 drops of detergent per pint (400 ml) of water. Do not use soaps or enzyme detergents.
2. Clean an area that is 6 to 8 inches (15 to 20 cm) larger than the graphic.
3. Wipe the floor clean and then dry it with a lint-free paper towel, such as 3M™ Perfect-it™ Wipe, Kaydry Excel 6009, or the equivalent. Be sure you remove all soil and grit.
4. Remove any oil or grease by wiping the floor with a clean, lint-free paper towel that has been moistened with rubbing alcohol that contains no lotions. To avoid leaving a residue, wipe the surface completely dry with a lint-free paper towel before the alcohol evaporates.

Seaming

Use butt seams when the graphic has more than one panel. Overlapped seams are not recommended or warranted.

Cutting

We recommend cutting radiuses on any sharp corners after lamination. This helps prevent premature lifting of the graphic after application.

The following are common cutting methods. See Instruction Bulletin 4.1 for details.

- Bandsawing
- Hot kiss cutting
- Drum-type electronic cutting
- Flat-bed electronic cutting
- Guillotine
- Hand cut
- Cold and hot steel-rule die cutting

Graphic Application

General Application Technique

- Use a blue 3M™ Applicator PA-1.
- Use firm pressure and overlapping strokes.
- Always stroke across the shortest, edge-to-edge distance.

Application Procedure

Important Note!

We recommend cutting radiuses on any sharp corners after lamination. This helps prevent premature lifting of the graphic after application.

1. This graphic is positionable and does not require a premasking or prespacing tape.
2. Position the graphic on the clean floor.
 - Avoid aligning the edges of the graphic on grout lines of tile.
 - Do not smooth the graphics with your hands because this entraps air.
3. Peel back one half of the liner to expose the adhesive. Carefully cut off that part of the liner while holding the graphic away from the surface.
4. Make one stroke across the center of the graphic.
5. Continue stroking edge-to-edge across the shortest distance until that half of the graphic is applied.
6. Lift the other end of the graphic and remove the remaining liner.
7. Continue stroking edge-to-edge across the shortest distance until that half of the graphic is applied.

Finishing the Application

The application is not finished until you **re-squeegee the edges and the corners**. This ensures a good edge seal.

Using the applicator, re-squeegee the outer 4 to 6 inches all around the graphic, using firm, overlapping strokes. This works the adhesive into the application surface to provide better bonding.

Wax the Graphic Soon After Application

If you apply the graphic to a floor that is routinely maintained using buffing or scrubbing equipment, wax the graphic as soon as possible after applying it to the floor. This protects the graphic from premature wear due to routine floor maintenance. Following the application and waxing, if used, keep the graphic and surrounding floor surface clean and dry for at least four hours; do not scrub or buff the area during that time.

Maintenance and Cleaning



To reduce the risk of tripping, remove and replace the entire graphic if there is any lifting from the floor surface.

Routine Maintenance

Use routine floor maintenance procedures and equipment to maintain the graphic.

1. Select a floor finish or wax that meets or exceeds the 0.5 Static Coefficient of Friction value using the ASTM D 2047 test procedure.
2. Clean the graphic prior to waxing it.
3. Follow the manufacturers' recommendations for applying the floor finish or wax.
4. Do not use buffing equipment over graphics unless they are waxed regularly.

If high-speed, propane-type buffers are used, we recommend that you apply four to six coats of wax to the graphic before buffing it. The multiple coatings of wax reduce the chance of the edge of the graphic wearing prematurely during buffing.

Removal

1. Remove the graphic by lifting one edge and pulling it off at a sharp angle with smooth, even tension. A scraper, such as a putty knife, may be used to lift the edge, if needed.
2. The floor wax under the graphic may also be removed in this process; therefore, the area may have to be rewaxed.

Warranty and Limited Remedy

The information contained and techniques described herein are believed to be reliable, but 3M makes no warranties, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. 3M shall not be liable for any loss or damages, whether direct, indirect, special, incidental or consequential, in any way related to the techniques or information described herein.

3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Controltac™ Film Series 162	PB	162
3M™ Controltac™ Graphic Film IJ162-10 (all versions)	PB	PIJ162
3M™ Controltac™ Graphic Film 164	PB	164
3M™ Controltac™ Graphic Film Series 8660 ES	PB	8660
3M™ Scotchcal™ Luster Overlamine 3645	PB	3645
3M™ Scotchcal™ High Gloss Overlamine 3648	PB	3648
3M Graphics Center Warranty Brochure	go to www.3Mgraphics.com	

Bulletin Change Summary

Combined Instruction Bulletins 5.19 and 5.26 for greater ease of use. Changed the approved overlamine for film 8660 from 8945 to 3645. Overlamine 3648 is also approved for all constructions. A reference to ink series 9700UV was changed to the new UV ink series 9800. Black bars in margin indicate text has been added or changed.



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