Avery Dennison® Instructional Bulletin 1.11
Converting and Applying Floor Graphics

Introduction

The Avery Dennison floor graphics portfolio consists of promotional, decorative and wayfinding solutions, that use structured overlaminates to achieve the required anti-slip properties for a durable solution. Promotional Floor marking solutions can also be achieved without an overlaminate utilising direct print textured films.

Due to the unique nature of floor graphics, particular attention needs to be paid to the preparation,type of application substrate, how the finished graphic is applied to the substrate and maintenance of the floor graphic post application.

Note: Failure to follow the guidelines set forth by this Instructional Bulletin, may void parts or all of the Avery Dennison ICS Performance Guarantee.

1.0 Recommended Films

See Table 1 for print (MPI) and overlaminate (DOL) graphic film recommendations:
- Use of removable adhesive films are for general purpose substrates such as flat, smooth and non-textured surfaces and flooring
- Use of permanent or super tack adhesive films are for substrates requiring more aggressive adhesion such as sealed concrete and ceramic tiles.

Table 1

Print Film	Face Film	Finish	Adhesive *	Durability**	Slip rating	Description
Print Media						
MPI 6021	White PVC	Matt Textured	Removable	1 month	P3	All-In-One printable media with anti slip-resistance. No overlaminate required.
MPI 3026 ST	White PVC	Matt	Super Tack Permanent	Depends on the overlaminate. Please refer to the below table.		High quality print media for Fabric / Carpet / Furniture.
MPI 3302	White PVC	Gloss	Removable			High quality print media for flat, smooth, non-textured surfaces & flooring.
MPI 3302 EA	White PVC	Gloss	Easy Apply Removable			
MPI 3041 PP	Transparent PVC	Gloss	Removable			
Overlaminates						
DOL 6000***	Transparent PVC	Textured	Permanent	9 months	P3	Floor Graphic overlaminates add anti slip resistance & protection to your printed images
DOL 5800	Transparent PVC	Textured	Permanent, High Tack	6 months	P3	
DOL 3100	Transparent PVC	Matt	Permanent	3 months	P3	

*As with all Avery Dennison products we recommend trialing & approving the product before installation.
**Durability is dependent on the volume of traffic, cleaning methods and chemicals used.
***DOL 6000 has an R10 rating covering dry inclined surfaces (ramp gradients less than 1:14) which is comparable to P3

Important Note: The information provided above is given as a guide only and does not constitute a warranty. Avery Dennison does not accept any liability arising from the interpretation and use of the information provided. Please refer to Product Data Sheets and Instructional Bulletins for more specific product information and AS/NZS 4586:2013 - Slip resistance classification of new pedestrian surfaces. In order to interpret the AS/NZS 4586:2013 classifications, please refer to Standards Australia Handbook 198, 'An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials'. These classifications are recommendations offered by Standards Australia and copies of test certificates are available upon request.

Graphics Solutions

2.0 Selection guidelines for recommended print (MPI) and overlaminate (DOL) films

It is important to select the appropriate laminate (DOL) based on the floor graphic location. The below chart provides detail on the recommended film slip rating for internal/undercover areas, that is cross referenced in the earlier Table 1, to select the suitable film.

Note: MPI 6021 is an all in one printable media with anti slip resistance, thus no overlaminate is required.

The below ratings are provided in accordance with AS/NZS 4586:2013 Slip resistance classification of new pedestrian surfaces and are interpreted from Standards Australia Handbook 198. This handbook provides the minimum wet pendulum test (P rating) *or* oil inclining platform test (R rating) classifications that are deemed-to-satisfy specific applications.

The industry standard is the wet pendulum test (P ratings). There is no requirement to test under both criteria.

Internal / Undercover Spaces	Examples	Slip ratings (wet pendulum test)		
		P1	P2	P3
Dry areas appropriate control measures ensure an area remains dry & clean when in use	Separate shops inside shopping centres Supermarket aisles (except Fresh Fruit areas)	✓	✓	✓
Transitional areas intended to be kept dry. General exposure to water must be maintained in a dry clean condition by a facilities manager.	Entry & access areas: hotels, offices, public buildings etc. Hotel apartments, kitchens & laundries	-	✓	✓
Wet areas may be either constantly or intermittently wet or otherwise contaminated.	Entry & access areas: hotels, offices, public buildings etc. Shop & Supermarket aisles (including Fresh Fruit areas) Fast food outlets, food courts, dining areas in Shopping centres Toilet facilities in offices, hotels & shopping centres Undercover concourse areas of sports stadiums. Undercover car parks	-	-	✓
	Serving areas behind bars in public hotels & clubs, cold stores & freezers. Undercover loading docks. Commercial Kitchens	-	-	-

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3.0 Converting and Processing of Floor Graphics

3.1 Printing

Avery Dennison MPI films can be printed by most digital Solvent, Latex, UV cured and traditional screen inks systems, depending on the material used. Please refer to following instructional bulletins:
- Instructional Bulletin Instructional Bulletin 4.14 - Introduction to Digitally Printed Graphics
- Instructional Bulletin 4.06 - Processing Tips for Laminating Films (DOL)
- Instructional Bulletin 3.03 - Guidelines for Screen printing

3.2 Laminating Conditions

After the desired graphic is printed on one of the recommended print films, it is necessary to overlaminate the material with a recommended overlaminate film as shown in Table 1.
- For Inkjet images refer to Instructional Bulletin 4.06 for overlamination instructions (the overlaminate on inkjet prints is recommended to overlap the image by at least 10mm).
- The use of varnishes or clear coats is not recommended and should not be used in lieu of the specially designed overlaminate, as varnishes do not have sufficient wear resistance and can quickly reduce any anti-slip properties they may possess.

3.3 Sign Cutting

Floor Graphics films can be cut on a flatbed plotter, using a sharp knife at a 45° angle. It is important to note that due to the thick calliper of the laminate construction a sharp blade will be critical. The thickness of the construction also inhibits designs that require sharp angles and fine details. The excess material should be weeded away as soon as possible after cutting.

4.0 Placement of the Graphic

- The floor surface to which the graphic is applied should be well secured, level, and free from cracks, chips, and missing and/or loose tiles or grout.
- The floor surface should also be free of silicone, as the presence of silicone will reduce the adhesion of the graphic to the floor surface.
- For safety, and to maintain the integrity of the graphic, it is important to place the graphic in a moderate traffic area, away from main doorways.
- As with any floor surface, the floor graphic will become slippery when wet. As a result, it is advised to keep the graphic away from areas where it can become wet.
- Avery Dennison floor graphics are suitable for use in warehouses provided the graphic is not applied to high traffic areas of heavy equipment.
- If applied in a warehouse environment, forklifts and other heavy equipment can compromise the integrity of the graphic.
- It is not recommended to bridge graphics over tile gaps and place the graphic in the middle of tiles rather than close to edges if possible.

5.0 Preparation of the Floor Surface

Note: For additional substrate cleaning and preparation, please see Instructional Bulletin 1.01.

Once the location of the graphic has been determined, it is necessary to prepare the substrate before applying the graphic. Proper preparation of the substrate is critical to the durability of the product.

Note**:** The substrate must be in good condition and must be cleaned thoroughly to remove all dirt, grime, grease, oil, wax, polish, copolymer or other contaminants.

5.1 Pre Cleaning Wash

● Remove all dirt and grime with water and detergent solution
● Do not use any polishes, waxes
● It is important to clean not only the area to which the graphic will be applied but also an additional 20-25 cm around all edges.
● Allow the substrate to dry thoroughly ensuring no water remains
● Take extra care and time to dry porous surfaces like grout lines in between floor tiles.
  Tip: The use of heat via an industrial heat gun can assist in speeding up the drying process.
● For any hard to remove grease, oil and wax, use a rag soaked in solvent, such as Isopropyl Alcohol (IPA), or Avery Dennison Surface Cleaner
● Carpeted surfaces should be cleaned using a vacuum to ensure all loose dirt is removed.

Note**:** The surface must be completely clean, smooth, and dry before final preparation.

Caution: Prior to cleaning with solvents, test the solvent on an inconspicuous area of the surface to check for potential damage from solvent usage.

5.2 Final Surface Cleaning and Preparation

● After following the pre-cleaning instructions above, the substrate should be thoroughly cleaned with Avery Dennison Surface Cleaner.
● Spray Surface Cleaner onto the substrate and allow it to dwell, remove using a clean, soft, lint-free cloth, remembering to rotate the cloth for each new area you clean.

or alternatively

● The substrate can be cleaned with an IPA and water solution (70% IPA and 30% water), using a lint-free cloth or microfiber towel soaked with the solution and then wiped off with a clean dry lint free cloth or microfiber towel, before the solution has time to evaporate, remembering to rotate the cloth for each new area you clean.

● It may be necessary to clean some areas more than once until the desired result is achieved

5.3 Final Check

● Check the floor substrate is clean and not slippery, otherwise, it should be cleaned again.

Note**:** There must be no dirt, grime, grease, oil, wax, polish, copolymer or ceramic coatings or solvent residue remaining on the substrate prior to application.

Note: Before installation of floor graphics, read and follow all manufacturers' instructions relevant to the chemical preparation of the floor surface. The labels and Material Safety Data Sheets (MSDS) should be read before using any cleaning solution. Be sure to follow all manufacturers' guidelines when using floor-cleaning equipment.

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6.0 Application of the Floor Graphics

Note: For additional application instructions please refer to Instructional Bulletin 1.14.

Locate the exact position on the floor where the graphic will be installed. Make sure that edges of the graphics are not along a tile edge, grout, or join in the floor. See Figures 1 and 2.
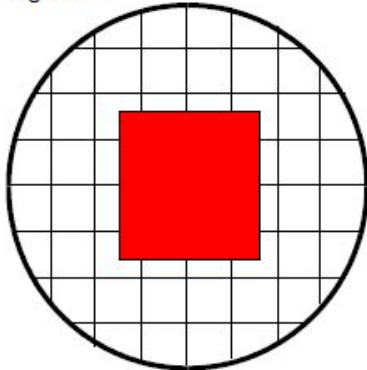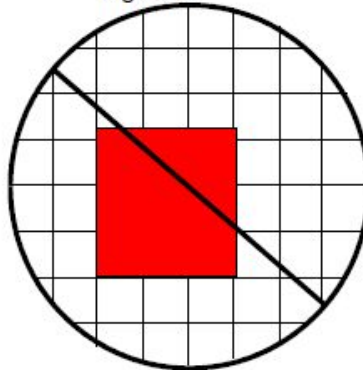
Figure 1.

Figure 2.

- Once the location of the graphic is aligned as shown in Figure 1, apply a masking tape hinge down one edge, with registration tabs applied down both adjacent edges. Cut registration tabs with a sharp blade, leaving half on decal and the other half on floor, then peel back the liner to expose adhesive and apply the graphic on the floor. Keeping the decal as close as possible to the floor, <u>do not</u> smooth the graphic out with your hands as this results in air entrapment. See Instructional Bulletin 1.14 Application Methods for Pressure sensitive adhesives - Large Size decals, for detail illustration.

- Using a hard plastic squeegee, make one firm stroke down the middle of the graphic. From the middle line, use firm strokes from the middle line to the edge. The strokes should be deliberate and overlapping, always working towards the outer edge of the graphic to avoid air entrapment.

- Ensure that the masking tape tabs on the decal align with matching tabs on the floor for correct registration with single decal application and for correct alignment with multiple overlapping decals.

- If the graphic is large, it may be necessary to carefully lift one of the ends of the graphic while squeegeeing from the centerline to the edges. Repeat this procedure on the other end.

Note: Make sure that adhesive contact is minimized; if necessary contact with the adhesive should be made only with clean hands or lint-free gloves.

- After the graphic is applied, re-squeegee the edges and corners again.

Note: Rounded corners on the graphic will help prevent premature lifting of the graphic due to tampering and scuffing. Should square corners start to lift, they can be removed to prevent further damage to the image.

- After applying the graphic, it is recommended that the image not be exposed to traffic for at least 8 hours. This time allows the adhesive to achieve a functional bond to the floor, minimizing premature lifting of the corners.

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- If applied to a waxed or treated surface, it is recommended that the surface of the floor graphic also be treated no sooner than 24 hours after application. In the case of commercial wood flooring that is either polyurethane coated or acrylic impregnated, it is not necessary to treat the floor graphic. This treatment recommendation is primarily for vinyl composition tile or vinyl inlay tile that is treated with "no-wax" floor polish.

  Note: Avery Dennison recommends trailing all floor graphics films to the floor surface to ensure compatibility in line with end users specification.

7.0 Maintenance of Floor Graphics

- Avery Dennison Floor Graphics have been designed to withstand daily cleaning with mild soapy water. Commercial buffers can also be used, but it is recommended that 4-5 coats of the floor polish be manually applied to the graphic the first time before using a buffer. It is also recommended that the graphics not be cleaned in any capacity within the first 24 hours. After the initial treatment of the graphic, treat the graphic as if it were part of the floor.

  Note: Commercial buffers are not recommended for textured films and non-laminated floor products like MPI 6021 anti slip floor, the later due to potential damage to the printed ink that has no protective overlaminate film.

- For the best performance, it is recommended that water not dwell around the graphic and the graphic not be exposed to oils and solvents for extended periods of time.

- Scuff marks on the graphic can be removed using soap and water, citrus cleaner, and, as a last resort, a scratch-free cleaning pad.

8.0 Removal of the Graphic

Note: For additional removal instructions, please refer to Instructional Bulletin #1.07.

- When removing the graphic, start at one of the corners and gently pull the graphic toward you at a 90°angle in a smooth motion. It may be necessary to use a putty knife to start the removal process. The graphic should be removed cleanly. In the event that there is some adhesive residue on the edge of the graphic, the adhesive can be removed by gently scraping with the putty knife or using a Avery Dennison Adhesive Remover. A small border of adhesive and dirt may also be evident after removal of the graphic; however, normal cleaning of the floor will remove these.

- Depending on where the graphic was placed, the area under graphic may appear darker or discolored compared to the surrounding area. Avery Dennison Floor Graphics will offer some UV protection to the floor underneath, as a result, the surrounding floor may fade to due to light sources, but the floor under the graphic will be protected.

- After the 6-month period, it may appear that there is no damage to the graphic and it does not need to be removed.

Note: If the graphic is removed after the specified time period, Avery Dennison will not be liable for any damage to the floor or any personal injuries incurred.

Note: The above information provides basic information on how to apply pressure-sensitive graphics. The Instructions are designed to help ensure success across a broad range of applications. Depending on the size and complexity of applications, a certain amount of expertise is needed.

Avery Dennison Graphics Solutions Asia Pacific

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Warranty and Limited Remedy

This instructional bulletin describes a technique. The information contained herein is believed to be reliable, but Avery Dennison makes no warranties, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. To the extent allowed by law, Avery Dennison shall not be liable for any loss or damages, whether direct, indirect, special, incidental or consequential, in any way related to the technique of making a graphic regardless of the legal theory asserted.

The above information provides basic information on how to apply pressure-sensitive graphics. The instructions are designed to help ensure success across a broad range of applications. Depending on the size and complexity of applications, a certain amount of expertise is needed.

Professional applicators can be hired to ensure proper application of finished graphics. When mounting graphics in remote geographic areas, professional applicators can offer the added benefit of local service.

Avery Dennison has a vast network of Certified Installers who have been specially trained and certified in accordance with our recommended techniques.

You can review the Certified Installer list here: Find a Graphics Installer

Consider hiring a professional whenever the application requires:
- Multiple panels to be registered
- Complex surfaces, such as rivet and corrugated trucks
- Harsh environmental conditions (i.e. outdoor applications in high heat climates)
- Remote geographic locations

For further information, contact your local Avery Dennison representative.