Avery® Instructional Bulletin 1.61
Overview of Interior Wall Graphics Applications

1.0 Overview
This overview relates to wall Graphics products used for applications on interior walls.

Refer to Avery IB 1.6 Printing, Processing & Application of Interior Wall Graphics & IB 4.14 Printing and Finishing of Solvent Inkjet Graphics) for detail listing of the following:
2.0 Recommended Films, Printers & Graphics Protection
2.1 Long-term Solvent & UV Inkjet App (up to 4- 7 years)-2.1.1 MPI Media & 2.1.2 Graphics Protection
2.2 Short-term Solvent & UV Inkjet App (up to 1-3 years)- 2.2.1 MPI Media & 2.2.2 Graphics Protection
2.3 Recommended Solvent Printers and Inks,
2.4 Recommended Overlaminates and Clearcoats
3.0 Print Processing Procedures

4.0 Consult Product Data Bulletin
Before starting the application be sure to consult the appropriate product data bulletin for information regarding minimum and maximum application temperatures, recommended substrates, and immediate service conditions before and after application.

5.0 Surface Preparation / 5.1 Paint Surfaces Definitions / 5.2 Non-recommended Paint surfaces /
5.3 Paint and Painted Surface Precautions
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.
NOTE: It is the responsibility of the end-user/applicator to ensure all painted substrates have been processed and cured (7 days –ambient conditions) as per the paint manufacturer's requirements, prior to graphic film application. Failure to follow paint manufacturer requirements can lead to graphic failures and/or removal problems. NOTE: It has been documented that some paints can take months to fully cure.

- Proper cleaning and surface preparation conditions must be followed prior to application. Failure to adhere to these requirements can cause adhesion loss and therefore reduce the durability and performance level of the printed graphic. The following conditions are relevant to properly prepared paint systems processed correctly per paint manufacturer specifications.
- Glossy paints provide a smooth shiny finish, which provides a good surface for graphics application. Gloss painted surfaces are the best surfaces for graphics application. Semi-gloss paints provide a smooth somewhat shiny finish, which provides a good surface for graphics application, Satin or low luster paints should be tested, as well as Flat paints, due to potential for lower adhesion.
- Avoid using flat or matte finishes, paints containing migratory agents, such as Teflon, chlorinated waxes and silicones, heavily textured paints, all latex paints on wooden substrates, oil alkyd primers and enamels, and wallpaper. These surfaces can potentially provide lower adhesion.
- Chalked and otherwise weathered paint surfaces must be refurbished.
- Primer and paint should be compatible. Check with manufacturer for details.
- Always test adhesion and paint/adhesive compatibility prior to production use. Any defects on the substrate such as loose paint can cause adhesion loss and therefore reduce the durability and performance level of the graphic.
- Adhesion can be tested by applying a small strip of film in an inconspicuous area and allowed to dwell for 2-3 days, properly preparing wall prior to test. Film should be moderately difficult to remove without causing damage to the wall surface.

5.4 Inspecting, Cleaning, and Preparing the Substrate / 5.4.1 Inspect/ Repair Substrate
- The surface to which Avery Dennison™ films are applied must be sound, completely clean, smooth, dry, free of any contaminates such as dust, dirt, grease, or migratory agents that can reduce film adhesion, prior to decal application.
- It is important to repair any wall damage and return it to like new condition. A wall that is not properly repaired could cause poor graphic adhesion or additional wall damage during removal of the graphic.
- Examples of an unsound wall surface include: loose paint, damaged surface, cracks, or inconsistent surface (texture), holes in wall, loose wallboard joints, too much texture in the paint (The surface may be smoothed down with sandpaper or scouring pad & walls must be primed and painted after this completed), paint chipped, loose, flaking or peeling, moisture behind the wallboard (Pay special attention to areas prone

to condensation such as walls surrounding cooling units, water pipes, overhead windows, or any water pipes that could drip on the graphic) dust, dirt, or vehicle exhaust contamination on the wall, wallpaper that is not securely bonded to the wall in all areas (It is recommended that graphics not be applied over wallpaper) contamination by other products on the wall that was not properly cleaned & cuts made to the graphic during the installation that penetrates both the film and substrate.

5.4.2 Cleaning

- Clean the wall prior to priming and painting. For most interior painted drywall surfaces simply wiping down the substrate with a clean lint free towel will be sufficient. However, some surfaces may require extra cleaning. If the surface is greasy using a solution of trisodium phosphate (TSP), mixed according to the manufacturer's directions, may be necessary. (TSP can be purchased at most hardware stores).
- For surfaces other than painted drywall remove all dirt and grime with a commercial synthetic detergent solution and warm water (2 drops per litre). Avoid detergents with lotions, waxes, creams, or oils. Be aware some window cleaners have waxes.
- Smooth poured concrete walls or concrete block walls (interior only)
  - It may be necessary to clean with a power washer or hand wash with a stiff brush and detergent and rinsed with clean water. Dry the surface with clean, lint-free paper towels –for at least 24 hours before graphics are applied. Brush the surface immediately before application to remove any dust or dirt that may have collected during the drying period.
- Textured Walls
  - Too much surface texture allows adhesive contact only with the high points of the wall, which does not provide sufficient contact for a proper application. In some cases a cast film with an overlaminate can be used on these surfaces. Using a heat gun and rivet brush to work the film into the crevasses.
  - Textured walls can be smoothed down using sandpaper or a scouring pad. After sanding the wall must be properly primed, painted and cured before the graphics are installed.

5.4.3 Preparing Substrate/ Painting Recommendations

- For a smooth paint surface use a short nap roller (approximately 6mm), a sponge roller or spray unit to apply paint.
- Prime the wall with a primer that is compatible with the paint to be used. It may be necessary to apply two coats of primer to ensure good coverage. Reference manufacturer's instructions for recommended cure time and sanding preparation (i.e. 240 grit) between coats.
- Paint the wall with a quality, gloss or semi-gloss paint. NOTE: Do not use matt paint or paint with silicone, graffiti-resistant, texture or other additives that will cause our Avery decals to loose adhesion when applied to theses paints.
- Allow the final coat of paint to dry for at least 7 days (at ambient dry conditions) before applying graphics to the wall. Reference the paint manufacturer's instructions for actual cure time and curing temperature / Humidity recommendations for the paint.

NOTE: If the paint is not allowed to cure properly out gassing may occur. Out gassing takes place during the drying/curing process of the paint where certain gases are released. If a graphic is applied before the paint is allowed to cure these gasses will become trapped and can result in lifting, air bubbles and premature graphic failure.

- Do not apply graphics to any wall that does not have excellent paint to substrate bonding.

NOTE: If the paint or primer is not adequately bonded to each other or the substrate, then this can lead to pre-mature graphics failure, lifting, or upon any de-installation (future removal of the graphics) the weak bonded layers could come away with the graphics.

- Post Cleaning – Final preparation of painted surfaces prior to wall graphics application. The painted substrate should be wiped with mild solvent i.e. IPA (Isopropyl Alcohol) soaked lint free cloth, and cleaned off with a dry clean lint free cloth before the IPA has time to evaporate.

NOTE: When possible, Avery Graphics recommends 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. Avery Graphics does not endorse any particular paint manufacturer. **It is also recommended test painted surface before applying wall graphics.**

6.0 Choosing the Correct Film

6.1 Calendered

Calendered films are designed for short to medium life applications where conformability of the film is not required making them idea for smooth walls. Calendered films do exhibit memory for its original shape. Subsequently, when heating and stretching the film, shrinkage can be induced. As a calendered film shrinks some tenting and lifting can be expected in areas such as recessed areas of textured walls.

6.2 Cast

Cast films are designed for durable applications where conformability is a necessity. Cast films are recommended for textured or cinder block walls where conformability is needed. Cast materials can exhibit tenting when over stretched or heated. Reference the Product Data Bulletin for specific amounts of acceptable shrinkage.

7.0 Application Tools - see IB 1.6 Printing, Processing and Application of Interior Wall Graphics

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8.0 Temperature
- Refer to Product Bulletins for film used. Monitor Ambient Air (room) and Surface temperature (wall). <u>Higher temperatures</u> will make the film soft and more pliable. However, the high temperature also makes the adhesive more aggressive, which can lead to pre-tack and increased stretching if it is necessary to reposition the film. <u>Lower temperatures</u> will make the film more rigid and reduce the tack of the adhesive.

9.0 Application Guidelines - 9.1 Application Notes
- Before starting the application use masking tape to temporarily tape up all panels to ensure graphic size, position & hinging technique see section 9.4.1/2 Large Horizontal & Vertical Panel Centre or Top Hinges.
- When handling the graphics be sure to hold the film as far into the graphic as possible, without wrinkling the film. This will help avoid transferring oil from fingers and dirt to the edges of the graphic, which could result in peeling edges or lifting, which can cause eventually adhesion problems.
- 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.
- Pull the squeegee or rivet brush across graphic. Pushing it will cause the film to stretch.
- Move the squeegee or rivet brush in a straight line-not in an arc.
- Initially use light to medium squeegee pressure with overlapping strokes, taking care not to stretch the graphic and loose printed image registration between print drops and overall image.
- Once the graphic is applied:
    - Firmly re-squeegee all of the graphics in particular the edges to help ensure good adhesion. This will reduce the risk of damage and lifting at the edges of the graphic.
    - Trim graphics 3mm to 6mm from inner and outer wall corners.
    - Finish the graphic by working a rivet brush in small circles around the entire outer 75mm of the graphic.
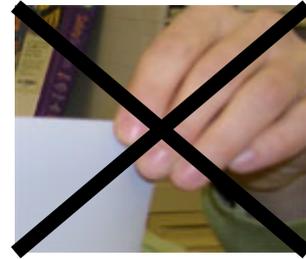
9.2 Application Method
- Applying wall graphics by the "dry application method". Do not use application fluid or the "wet method". Water or application fluid can cause damage to the wall and cause premature graphics failure.

9.3 Overlap of Multi-Panel Graphics
Use a pencil, pen, or marking tape, to mark the graphic location on the application surface. If a chalk line has been used, replace all chalk marks with pencil or pen lines. Remove the chalk dust before applying the graphic. When overlapping multi-panel graphics the actual overlap should be at least 0.5 in (13mm).

9.4 Application of Wall Graphics
The following instructions describe a step-by-step procedure for installing large premasked markings onto a wall. For questions regarding application procedures contact Avery Dennison's Technical Marketing Support. Read through all of the application instructions and then choose the application method that best matches your graphic.

9.4.1 /2 Application of Large Vertical or Horizontal Panels (Top or Centre Hinge) - see IB 1.6 Printing, Processing and Application of Interior Wall Graphics
**9.4.1.2 Centre Hinge (Large Vertical Panels)**   **9.4.2.1 Centre Hinge (Large Horizontal Panels)**

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10.0 Trimming Requirements
- Areas of the graphic around doors, openings, outside and inside corners of walls, and high traffic areas are susceptible to damage. To reduce the risk of damage and lifting of the graphic, it is important to trim the graphic 3mm to 6mm from the edge of the graphic.
- After application and trimming it is necessary to brush the edges with a rivet brush to ensure good adhesion of the graphic edges.

Inside corner

Around openings such as doorways

Outside corners
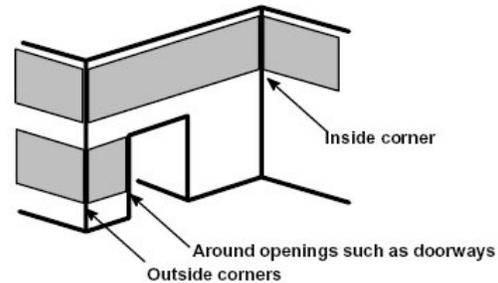
11.0 Professional Application Services
See IB 1.6 Printing, Processing and Application of Interior Wall Graphics

12.0 Graphic Removal
Avery Graphics does not warrant damage to the interior wall surface caused by removing film even if a removable adhesive was used. Removing a graphic can cause damage to the wall. This is especially true if a permanent adhesive is used. Due to the variety of wall surfaces Avery Graphics cannot guarantee damage free removal. The amount of damage can be reduced or eliminated by following the inspection, cleaning and preparation guidelines provided at the beginning of this bulletin.

12.1 Removable Films
Removable adhesives are designed to make the film removal clean and easy within a warranted period. The removability of a film may vary depending on the substrate and how it was prepared. Reference sections 12.3 & 12.4 of this document for notes and tips on removing graphics.

12.2 Permanent Films
Permanent adhesives are designed to provide optimum adhesion to a variety of substrates. They are generally difficult to remove and may cause damage to some wall surfaces. Films with permanent adhesives are a good choice for textured wall surfaces.

12.3 Removal Notes
- Most graphics are easier to remove from a textured surface than a smooth surface since there is less adhesive contact.
- Not all films are designed to be removable, and no Avery graphic film is warranted for removal when directly applied to interior walls.
- Clean removal from any painted wallboard may not be possible, even when using a removable film. 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.

12.4 Removal Tips
- Start at the top of the graphic and pull it away from the wall at a 120-180 degree angle.
- Do NOT use chemicals for interior wall graphic removals.
- Heat may be used if the substrate is not wallboard.
- If the substrate appears stained after graphic removal, it is usually the caused by poor quality paint, exposure to heat and light, migrating particles in the paint, and adhesive residue.
- To make removal easier, graphics can be cut into 300-600mm strips. Take care not to cut the surface underneath.

13.0 Graphic Repair

If the wrong film is used, the substrate is improperly prepared, the paint gives low adhesion with the graphic decal or the edges were not properly finished during application then edges of the graphic may lift. If this occurs there are options for reattaching the lifted edges to extend the life of the graphic and improve appearance. Note that these "fixes" are aggressive and may damage the application surface.
- OPTION 1: Apply a strip of two-sided adhesive (the double sided tape for making banners will work well) to the backside of the graphic, as close to the edge as possible without having a reveal of the tape on the graphic print side. Reapply using a rivet brush.
- OPTION 2: Use liquid adhesives that cure and affix the graphics to the painted wall substrate.
- OPTION 3: Use mechanical fasteners such as staples.

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