

# Laminating and Mounting Techniques

By Al Boese



Albert B Boese is manager of The Post Print Finishing Alliance, which operates under the umbrella of the Specialty Graphic Imaging Association (SGIA).

The Alliance is dedicated to expanding the awareness and application of print finishing and supporting providers of print finishing services. Finishing includes but is not limited to: lamination, mounting, cutting, routing, seaming, vinyl welding, grommeting and sewing.

The title of this article is correct to a point, however, before we get into the “How-To” aspects of this piece, let’s consider the “Why” aspects. After all,

if an endeavor like learning lamination techniques is to be considered worthy of one’s time and attention one should know why. The answer may surprise you because it is not about you. It is about your customer.

## CUSTOMER FIRST

It all begins when your customer comes to you to produce a print. What the customer really wants is actually a product. Further, he wants a finished, usable product that can be immediately put to use — not just a print.

So, why should you learn more about laminating? Well, I’ll just tick off some of the more salient reasons: your customer wants a finished product, lamination is a key element of the finishing processes which provides value-added service, it’s

an added revenue stream, an added profit margin and it satisfies customers. And satisfied customers most often become return customers.

Now, for some hands-on information on three key applications — tradeshow graphics, giclée graphics and backlit displays — as well as tips on how to handle temperature and humidity variables. For the nuts and bolts information in each of these areas we solicited advice from experts representing four well-known lamination equipment manufacturers: Neschen America (David Threadgill), Drytac (Susan Doyon), GBC (Tom Snooks) and AGL (David Goetter)

## TRADESHOW GRAPHIC TIPS

—By David Threadgill, Regional Technical Services Manager, Neschen Americas

Flexible, digitally printed graphics have become an integral part of today’s tradeshow exhibit designs. There are two standard methods for making a flexible tradeshow panel from a digital print: A two-part construction using a vinyl or polyester print media and a laminating film on the face; or a three-part construction using print media (paper, vinyl or polyester) sandwiched between an opaque backing film and a laminate on top.

Laminating film manufacturers offer a wide range of both heat-activated and pressure-sensitive films that can be used to create durable, flexible panels. Considering that pressure-sensitive laminating films are growing in popularity for many of today’s finishing applications, here are some important tips to remember to ensure optimum results when using pressure-sensitive films to produce flexible tradeshow graphics.



Try to use a laminating film that is the same width as your media, or one that is slightly narrower than your media sheet, but wider than the live area of the print. (Image courtesy of Neschen Americas)

- *Use your printer's take-up roller* — Be sure to use your printer's take-up shaft to wind-up the output to keep it from pooling on the floor where it can pick up dust. Dust on the face of your print can get trapped under the laminate and ruin the job.

- *Use your laminator's lower unwind shaft to feed prints (if available)* — If you are using the two-part construction of media and laminate, use the lower unwind shaft on your laminator to feed the print. Web the media as if you were loading a laminating film (image side facing up as it enters the rollers). This will minimize handling of the media by the operator, and reduce the chance of dust or a mis-feed.

- *Line up your media and laminate* — With the two-part process, try to use a laminating film that is the same width as your media, or one that is slightly narrower than your media sheet, but wider than the live area of the print. Since you are not encapsulating in this application, there is no requirement for the laminate to extend beyond the edge of the media. You can use a laminate that is slightly wider than your media, but extra care should be taken to prevent the excess laminating film from contacting the exit table or wrapping around the rollers as it leaves the laminator. For short prints, hold the materials up as they exit. For longer prints, experienced operators often feed a thin "sled" material, such as Kraft paper, under the print media as it enters the rollers.

- *Mind the brakes* — Supply-shaft brake tension is particularly important in the three-layer process where a laminate is being applied to the front and back of the print. Too much tension, and the laminating film will stretch. Once the stretched film is applied to the media it will want to return to its original shape and cause the finished graphic to curl. In an application where laminating films are applied to both sides, varying tensions on the opposing laminates can cause a variety of curling or warping issues. When this

happens, the very advantage of flexible graphics — the ability to roll them for easy shipping and then have them lay flat in application — has been defeated. The solution, in all applications, is to use minimum brake tension to get a smooth finish exiting the laminator.

- *Heat improves performance, but watch your tension* — Experienced operators know that applying a little heat to pressure-sensitive laminating films can prevent silvering and improve lay-down performance. It is especially important to use *minimum* brake tension on the supply-shafts when running pressure-sensitive films with heat-assist. The combination of heat and excessive tension can magnify curl.

## GICLÉE GRAPHIC TIPS

—By Susan Doyon, Product Manager of the Framing Division, Drytac

In the first few years of fine art, or digital *giclée* printing, options for protection consisted of applied liquid coatings, brushed on or sprayed on with an aerosol can. However, there is a host of problems: uneven coatings, incompatibility of aqueous coatings with ink, health concerns about solvent sprays and the tendency for many clear coatings to crack when stretched over stretcher bars.

Instead, try applying a thin (2-mil) conformable clear protective film over the canvas image using a heated vacuum or dry-mount press. This approach creates a virtually invisible moisture barrier of a uniform thickness that enhances the underlying canvas texture and gloss levels (depending on the finish type). In addition to providing significant UV protection, dry mounted film defends against damage from moisture and scratches (Drytac offers a product called ArtShield designed for this application).

Mounting prints to display board is also common with fine art displays, but remember that mounting adhesives are intended to be permanent. While

some mounting adhesive products are "removable", in most applications, prints mounted with these products are usually only removed from a board in the event of a problem, only to be remounted to another surface. Removal is achieved by reheating the adhesive and carefully removing the print from the mount board which takes some skill and practice.

It is good to realize that many "removable" mounting adhesives, or products used to remove mounting adhesives (solvents), may leave behind some residue on the back of the print. We do not recommend applying an adhesive (permanent or "removable") to any print, photo, painting, drawing, image, etc. which one knows in advance will need to be removed at sometime in the future or which value is solely based on its original state.

Similar to dry-mounting, laminating an original work of art, limited edition, collectable posters, etc. likely will decrease its value, but laminating increases the value of commercial posters, inkjet prints,



Sometimes clear coatings used on a giclée can crack when stretched over stretcher bars. An alternative is to dry mount a thin (2-mil) conformable clear protective film over the canvas image using a heated vacuum or dry-mount press. (Image courtesy of Drytac)

## Lamination Techniques

photos for display purposes. Why this difference?

Collector items are valued based on their “original state” and laminating changes the original state permanently. However, for most other items — such as posters, photos, inkjet giclée output, signs, etc. — an film laminate with UV protection will increase longevity and enhance aesthetics.

Most laminates at some point will show signs of aging. Generally, acrylic adhesives will outperform rubber-based and hot-melt adhesives; and higher-quality PVC vinyls incorporating UV stabilizers and absorbers will outlast some of the cheaper vinyls on the market. That being said, depending on the location and the exposure of the print output, many

professionally mounted and laminated prints will last well in excess of 30 years, and possibly many years longer than an un-mounted, un-laminated print.

### INDOOR BACKLIT DISPLAY TIPS

—By Tom Snooks, Field Support Manager, GBC

Diversifying your portfolio with simple-to-create applications is an excellent way to increase profitability. Backlit graphics are an affordable solution with high profit potential. Today, any sign shop or quick printer with an inkjet printer and a laminator can create graphics to use in backlit displays.

**Backlit construction** — Let’s focus on two methods of creating indoor backlit displays. The first is constructed by inserting or sandwiching a graphic. The second uses a face-mounted graphic. In both methods, the graphic is viewed behind a clear substrate like glass or acrylic with a light behind it to illuminate the image.

For both types, an image printed on translucent media is laminated to protect the ink surface from damage. This can be done with a pressure-sensitive film (10 mil is recommended) applied only to the image side. Or, the image can be laminated with thick thermal laminates on both sides to add protection and rigidity allowing the graphics to be easily slipped into the light box or slid between sheets of acrylic or glass. This method is excellent for menu boards, mall signage, and other displays that require frequent changes.

When creating a mounted

backlit graphic, an image is printed on translucent media and run through a laminator to apply a mount adhesive to the image side. To avoid the loss of image quality, an optically clear mounting adhesive is recommended. Next, the graphic is mounted onto the glass or acrylic with a roll laminator to ensure a smooth, bubble-free graphic. The mount adhesive’s release liner is removed during the mounting process. Finally, the mounted graphic is placed in the light box.

Since a mounted graphic is a more permanent solution than an inserted/sandwiched graphic, it is ideal for use in long-term displays like directories, gaming machines and retail displays.

**Choosing materials** — In choosing the right materials, it is important to evaluate the requirements of the job to determine the proper combination of materials. There are many choices of media, laminate finishes, and mounting adhesives for creating backlit displays. Manufacturers and distributors can help determine the best solution for various applications.

**Important details** — If backlit graphics are printed on an aqueous inkjet printer, pigmented inks should be chosen since they are more resistant to premature fading.

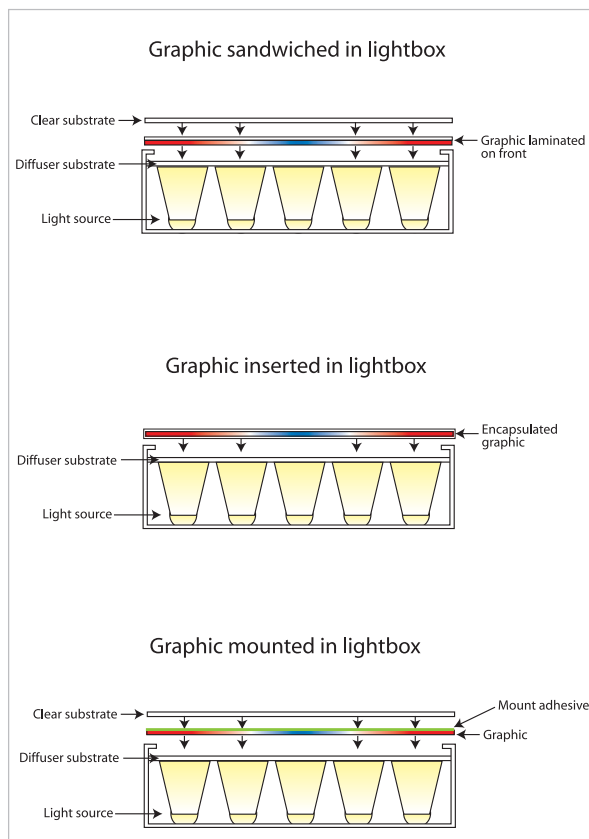
Cleanliness is extremely important when creating backlit graphics. Be sure to use a cleaning roller or tack cloth to remove any dust or particles from the print and substrate prior to finishing.

### GARBAGE IN, GARBAGE OUT

—By David Goetter, Director of Concept Development, AGL

Many novice lamination technicians are quick to blame the equipment when prints get ruined during the lamination process. I wish they’d stop. One must, at some point, take ownership for garbage-in garage-out. Let me explain.

Living in Florida, I’ve learned quite a bit about humidity and its effects on paper flatness.



Three different approaches to creating an indoor backlit display. (Illustration courtesy of GBC)



So, if you're struggling with getting prints through your laminator without flexing and buckling and ending up in the trash, read on.

We first have to understand a little about temperature and humidity. For the record, we have lots of both where I live (want some?). Temperature is a way of measuring the excitement of gas molecules. Raise the temperature and they expand, and so does their respective volume.

Humidity present in the air or water vapor is measured several ways. But let's focus on the most important one: relative humidity. At a specific temperature, air can only hold so much water vapor. But when the temperature goes up, so can the relative humidity. Come to Florida in August if you want a live demonstration.

But what does this have to do with the waves, wrinkles; and the way the laminator keeps eating prints? Many people fail to recognize the dramatic swings in temperature and relative humidity in their own production facility and its impact on paper prints, and even on pressure-sensitive vinyl release liners.

To keep this short and simple, paper contains a fair percent of wood fibers and is, by nature, very porous. Like a sponge, paper aspires to receive surrounding moisture. Think about it. Why do your rolls of paper come in a plastic bag? Higher quality photo base papers are PE coated to resist moisture and help the large sheets lay flatter. Unfortunately, there are too many cheaper papers out there that say "alternative photo base", or worse, say "photo base" and they aren't!

- Proper climate control and quality photo base imaging media can save you thousands of dollars and countless do-overs. Instead of blaming the laminator, look around and be observant. Do you bag

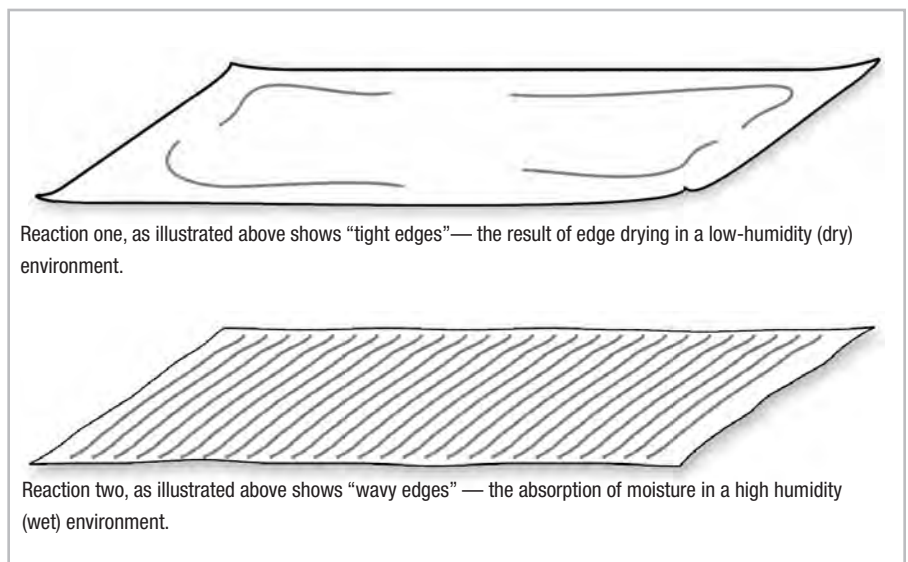
your media after changing from one roll to another? Do you control the humidity and temperature in your production space independently? Consider the changes in "conditioned air" that happen from winter to summer. Heaters in cold months have a dryer, lower humidity, whereas air conditioning is pulling out moisture and lowering the temperature.

- Do you still leave prints laying out flat on a table to dry—only to find out that because of the high humidity or dryer air, your prints are now looking like the rolling sand dunes of the Sahara desert? Don't expect the laminator to "iron" out those waves. This will only have the image buckling up and down prior to entering the nip (rollers point of contact), no matter how hard you try and hold them back, resulting in air entrapment (bubbles) under the overlaminate, or worse, wrinkles. So, your savings of a few dollars on cheap paper just turned into hundreds in the

dumpster. Of course, you can do the same with improper pressure on crowned rollers, but that's another story.

To see this for yourself, take a roll of fresh inkjet paper and roll it out onto a 4' x 8' table. Cut off a 4' x 8' sheet and let it rest (acclimate) to your relative humidity and temperature in your shop. The greater the difference between the moisture content of the fresh paper, your temperature, and relative humidity, the less time it will take to see the two reactions.

Both of these will inevitably make it more difficult to process through the laminator. Remember this: a quality authentic photo base paper with instant dry properties gives you a longer window in which the paper will stay flat prior to finishing. Or you'll have to invest in better climate controls, both for temp and relative humidity. Or continue to print two just to keep one, a costly way to run a business. DB



Depending on humidity and temperature levels in your shop, fresh paper will react in one of two ways (Illustration courtesy of AGL)

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