

Mastering Mounting

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Photo Substrates

Photographs, photographs, photographs—between lumps, scratches, mounting, removing, knowing what to use, and how to use it, it seems the questions about them never end. The major issues that haunt framers over photographs involve their visual appearance after mounting. Framers are often perfectionists—and well they should be.

Lumpy Looking Photos a.k.a. Orange Peel

Those of you who have read my articles and books or have attended my classes have heard me soapbox about orange peel. Framers often think that the lumpiness (called orange peel) is the result of a mounting error on their part. In reality, the solution to lumpy looking photos is as simple as the board it is mounted to, rather than the process itself. Regardless of wet, spray, pressure-sensitive (PS), or dry mounting, the lumps that result when mounting a photo may be intensified or lessened by the selected mounting technique (and pressure), but more often by the substrate to which the photo has been mounted.

Orange peel can be controlled by material selection, pressure during application, and release materials. The papers and boards for mounting photographs should have minimal or very little surface texture for both aesthetic and conservation reasons. Warm mounting temperatures relax photos so that they conform into the highs and lows of substrate surfaces, which encourages orange peel (see Diagram 1). Cold mounting on

smoother boards with less pressure produces less visual texture, thus less orange peel. The operative words here are warm temperatures and less pressure. However, there are inherent problems with eliminating heat or utilizing less pressure.

Mounting Methods

The issue of longevity must be considered when mounting nonporous items such as RC (resin-coated) photos. If the photo is to stay mounted for a long time, then dry mounting or PS methods have the greatest longevity of the mounting methods. An adhesive must be allowed to partially soak into, or saturate, both the item being mounted and the substrate in order to bond it all together into the most permanent bond. If one of the surfaces is not able to be saturated, the mounting will only be as good as the chemical bond between the materials.

With dry mounting, heat is introduced to soften the layers so they are more able to bond without spaces. As I said before, to relax the photo into the highs and lows of the board results in orange peel. PS mounting with a high tack adhesive and maximum pressure will probably ensure the longevity of the bond, but may also result in orange peel because of the additional pressure required to crush the layers into a more perfectly unified bond.

So with a nonporous RC photo, the decision is to cut down on the orange peel, or to tolerate more orange peel and go for longevity. Color RC photos are often portraits and family memories that

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will fade and be damaged by exposure to light and humidity as a display photo. This means it will probably need to be replaced in the future. My suggestion is to go for the great presentation and reframe another image in future years when the adhesive has let go. That means the smoothest substrate possible.

Substrate Basics and Sizes

Whether used for mounting a photo or a poster, the main purpose of backing boards or substrates is to provide rigidity. The Europeans continue to use a great deal of grey chipboard and masonite for their framing, which is much less common in the United States.

Generally, a four-ply board will mount photos smaller than 11"x14"; 3/8" thicknesses are recommended for mounting photos up to 16"x20"; 3/16" for images up to 32"x40"; and 1/2" for oversized. The oversized substrates might also require a more rigid board, such as Gatorfoam or MightyCore. Also be aware of the higher acidity when using regular mount board, chipboard, masonite, or plywood as a substrate.

Using too thin a substrate for too large a mounting will encourage warping of the mounted board. This may be countered by mounting something similar onto the back, but it is better to select a heavier board for larger pieces. (See more on counter mounting in "Mastering Mounting," August 1999).

Foam Boards

Foam board has become known for its lightness, rigidity, and ease of cutting. It is available as regular clay

coated, colored surface paper, acid-free, and 100% cotton rag. Regular boards are available with both white and black core foam, and a variety of both white and black surface papers in an assortment of sizes with thicknesses of 1/8", 3/16" and 1/2".

This extensive selection allows each framer to choose the correct



Diagram 1: Here is an illustration of orange peel. This occurs when heat and pressure relax an RC photo into the highs and lows of the substrate.

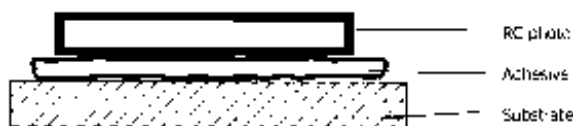


Diagram 2: An RC photo will never absorb adhesive for long-term bonding, but a fiber-based photo will. An adhesive must saturate both the item to be mounted and the substrate.

board to fit their needs. Foam boards are probably used more than any other board for mounting in the United States, as the grey-board is in Europe.

Acid-free foam boards are also frequently used as filler or backing board behind hinged conservation-quality four-ply boards in preservation applications. They are noted as the current foam board of choice. Using acid-free foam board creates more of a consistency of selected materials in a framing package if all the mats and boards are acid-free or

acid-buffered. Specialty niches have been filled by manufacturers as new demands have emerged.

Black-surfaced foam boards work well for color control when color tinting or control of ghosting is required. It is a great choice for posters with exposed bevel edges because it gives a more finished look to the mounting. Those with colored surface papers are good when attempting to control ghosting from lettering on the opposite side. By selecting the mounting surface to match the dominant verso color, ghosting is drastically reduced.

Gatorfoam, Nucor, and Others

One step tougher than foam-board and a terrific substrate is Gatorfoam. It is a rigid polystyrene foam with wood fiber veneer applied to either side, making it stronger and more durable than other foam products. It is extremely smooth, rigid, and resistant to warping, which makes it good for oversized mountings. One drawback, however, is the difficulty in cutting it. You can overcome this by using adaptable wall cutters designed for cutting heavy board.

Since substrate smoothness is a large issue when dry mounting photographs, this substrate resists denting and scratching, and its smooth surface better prevents orange peel. It is available in white, natural, and black in thicknesses from 3/16" to 1/2" in 4'x8' sheets.

Savage's Nucor is a product with the rigidity of Gator and the cutting ease of traditional foam. Also, Hartman Plastics makes Harty, which is more rigid than its

standard foam board, while being just as smooth. No special tools are needed for cutting it and it is available in both white and black. Check with your favorite manufacturers for additional rigid boards designed to reduce orange peel and enforce rigidity.

Pre-Adhesived Boards

Adhesives already applied to foam boards are found in both pressure-sensitive and heat activated types. They are available from a number of manufacturers and differ from the previously discussed foams in that the adhesive is already applied to the surface of the foam board.

The substrate structure, rigidity, and ease of sizing all remain consistent as with any foam board. Heat-activated boards are priced comparable to a regular foam board, plus sheet adhesive, and could be the answer when mounting posters in volume. Crescent Super Smooth is a hard-surfaced board available with or without adhesive, and makes a good photo board, as do any boards specifically slated for photo use.

Types of Photo Substrates

Since the surfaces of most photographs begin smooth and the desired end product should also

appear smooth, a smooth surface mount board is more visually harmonious. Selection of the appropriate mounting board is as important as the mounting method and release papers. Boards produced for photos focus on a number of aspects—some for smoothness, some to meet competition standards, and some for their non-buffered content.

All have a texture of some kind. I repeat—all have a texture of some kind! Textures which appear subtle at first may turn out to be a rocky creek bed when placed beneath a smooth high gloss photograph. Substrate textures are best determined by lightly running the fingertips across the board surface to feel for its lumpy irregularities.

Smooth Clay-Coated Boards,

But Non-Porous

Smooth-surfaced boards, such as regular clay-coated foam board, MightyCore, and Gatorfoam all make slick surfaces for mounting. The clay-coated or polyester film on the surface of many of these boards are what give them the smoother surface. However, this may reduce the porosity of the substrate. Since a photo is also non-porous, you may need to take addi-

tional steps or variations to standard porous mounting when working with some heat vacuum systems. A two-step photo mounting process can be very helpful when vacuum mounting.

Since no adhesive can absorb into either photo or coated surface, there is no saturation into any porous paper fibers. During the cold mounting, using pressure-sensitive applications on foam substrates allows for better control of mounting pressure through hand application, without the concern for porosity. PS adhesives allow for hand application onto foam boards, and while they don't address the longevity issues, they better control orange peel.

Porous Boards, But Textured

There is a range of nicely porous and rigid materials, but some may have still more texture than desirable. Chipboard, masonite, MDF, matboard, photo competition boards, and standard mount boards are all wonderful for adhesive absorption during bonding, and breathe well for dry mounting, but many are acidic, and most have lumpy surfaces. This is orange peel waiting to happen.

It's sometimes a trade-off

between orange peel, more neutral pH, or porosity. Therefore, materials may need to be chosen based on visual end result, and longevity when used with display photos.

Photo Substrates

There are numerous boards available that claim smoothness, neutrality, and are unbuffered. Boards targeted for use with photographs are often smoother because the manufacturers have the prevention of orange peel in mind. Some are

designed for photos because they meet photo competition standards and specific requirements of thickness and rigidity. Some are unbuffered just in case there is any impact from calcium carbonate on the protein emulsion of a developed color RC photo, which still remains in debate. (See “Buffered vs. NonBuffered Matboard,” *PFM*, June 2000).

The fact is, there are many boards that claim they are special for photos. However, not all of

them will solve lumpy problems. In fact, a few photo boards seem to add to it, like some photo competition boards I’ve seen. Often photo boards are more rigid for better protecting the photo and are smoother by their two-ply plus two-ply heated fusion to increase their rigidity.

First we must take into account the type of photograph we are mounting. If it is porous, then it will bond more permanently to the substrate regardless of the mounting method selected. An RC photo will never absorb adhesive to help hold it to the substrate, but a fiber-based photo will (see Diagram 2).

Selecting the right board as a photo substrate is as important as selecting the correct adhesive and mounting procedure. Knowing your materials, as well as what is available, is a very important part of your job.

Basic Upson boards, X, 3X, U, 2U, and photo competition boards will probably be around for a long time and are frequently used substrates—often because of price alone. There are sometimes situations where only the old standby will work, along with issues of familiarity and confidence. Remember, the best presentation is often controlled by selecting the right substrate for the job.

With photos, the issue is porosity and smoothness, so select carefully. The right long term mounting method may hold the photo for two decades, but the sacrifice could be the lumps of orange peel. You decide. Or better yet, create in-store samples and let your customers decide what is most important to them. ■