Handling & Framing Giclée Prints

BY PAUL MACFARLAND, CPF, GCF

Since the inception of fine art digital printing the proper presentation systems for the work have been in question. As with any artwork, a combination of factors determine the correct course of action. The inks (dyes or pigments), the substrate (paper or textile), and the presentation environment (relative humidity, light intensity, and temperature) all must be considered, each work in conjunction with another and therefore define the framing parameters.

Working with giclées requires all the care of dealing with originals—along with some special considerations.

Recognition

It is important that the framing technician be familiar with the type of digital print and its specific preservation and presentation requirements. In most cases the provenance provided with the artwork will cover the basic information needed. But if there is any question about any condition or procedure, the artist or printer should be contacted. Different digital processes may require different courses of action, and new products and techniques are constantly becoming available.

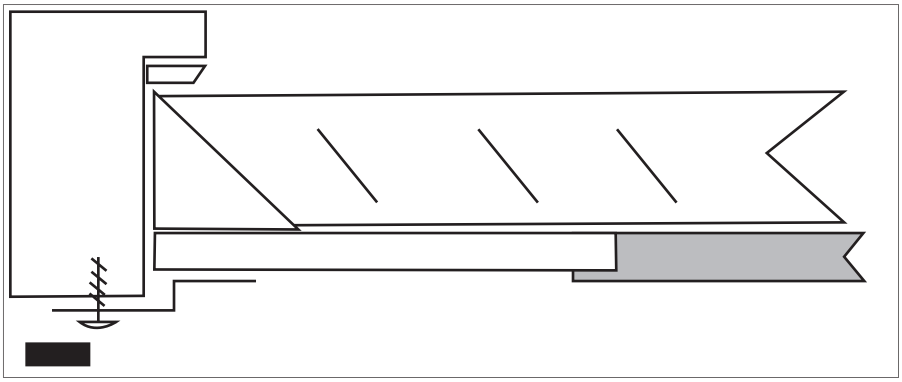
Knowing the type of ink and the specific substrate employed in the printing process are the first requirements for framing.

The inks used for digital prints are either dyes or pigments. Depending upon the desired results the printer will choose between the two. Dyes are transparent color molecules that dissolve in water while pigments are insoluble particles or clumps of dye molecules that suspend in water. Although some pigments that contain particles are very small (less than half the wavelength of visible light, 200 nanometers) and transparent, most pigments are opaque.

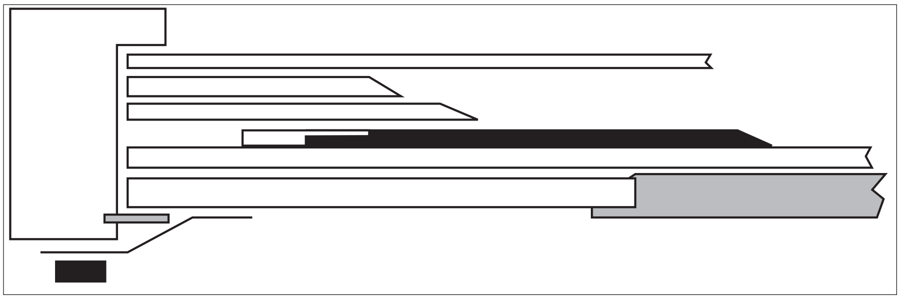
Transmitted light (light that passes through a dye-based colorant) appears more vivid and generally delivers a broader color spectrum than large particle pigmented ink, which tends to scatter light. Because they dissolve in water, dyes perform well in most ink jet printers and are compatible with absorbent watercolor papers. However, dye-based inks are more prone to fading in both ultraviolet and visual light than are pigmented inks.

Pigmented inks perform best on a glossy surfaced paper that holds the ink on the surface, but they cannot be used in continuous flow printing systems, limiting it to piezo or thermal printers at this time.

There are two distinct markets for digital printing as it relates to the framing technician. The first is the fine art original and limited edition reproduction market; the second is the decorative poster market. Both are valid



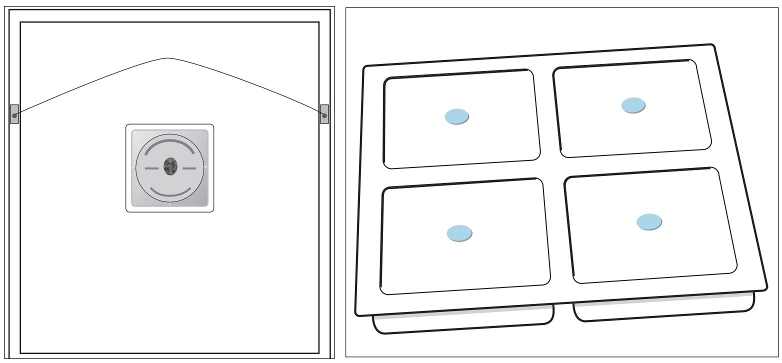
A canvas giclée print, above, can be mounted to a panel of 1/2-inch foam center board or archival corrugated plastic and presented like a painting, using a liner and frame.. Framing paper giclée prints, below, requires the print (heavy black) to be on a mounting board, with matting and UV glass or acrylic glazing.



users of the medium, and both have different requirements. The fine art market's framing needs are primarily the guaranteed archival quality of all the materials involved in the framing process. The poster market's needs are for a high quality, cost effective presentation.

Handling

Because of their sensitive and water soluble nature, digital prints require the highest level of care when handling and framing. White gloves should always be worn when working with the prints, and the artwork should be handled and transported on a clean rigid support sheet, such as archival corrugated plastic or foam center board. Never stack digital prints, covered or uncovered, and store them in metal print drawers.



Desiccant disks and tiles can be mounted in a frame to control humidity effects.

During the design and framing process, paper-borne artwork should be covered by a sheet of Dupont Mylar D. Work with it to prevent any moisture from coming into contact with the art (microscopic droplets of saliva produced in the course of normal conversation can do irreversible damage). Use linen tape to cover the sharp edges of the Mylar, or secure it between two window mats. To ensure that the Mylar hasn't built up a static charge, use an anti-static brush, such as the Kinetronics Corporation's StaticWisk sw-140. The print surface should never be brushed or dusted because of the potential for damaging, scratching, or smearing the surface.

Canvas-based digital prints should be handled in the same manner, although most have a treated surface rendering them more durable than their paper equivalent.

Condition reports

Condition reports are standard procedure in most museums and galleries and should be employed when working with a digital print to ensure the initial condition of the artwork. The condition report includes a list of potential damage that may occur to the print or canvas. Smudges, moisture damage, fingerprints, creases and folds, evidence of fading, and other damage should be noted and the location marked on a grid representing the artwork. Complete the condition report in the presence of the client to avoid any question as to the origin of the damage.

Environmental conditions

Several environmental conditions play an important role in the preservation and longevity of digital prints:

1) Relative humidity (RH) is a key factor. Most current and historic ink jet prints are highly susceptible to irreparable damage at moisture levels above 65 percent relative humidity, even when exposed for brief periods of time. Every attempt should be made to moderate the seasonal humidity cycles that occur in most northern climates— humid in the summer, dry in the winter. The spikes in humidity that can occur when a print is moved from one area to another should also be avoided. Storage areas should be monitored routinely for excess humidity. Thoughtful positioning of the artwork on inside walls and away from air conditioning and heat sources as well as frame back vapor barriers and desiccants will help reduce the effects of high relative humidity.

2) Light intensity is also a major problem. Ultraviolet (200-400 nm) as well as visible light (400-700 nm) can degrade a digital image, especially if it is printed with dye-based inks. The reciprocity law of light (intensity x time = total exposure) explains that bright light for a brief period will do as much damage as low light over an extended period of time. UV filtering glazing and lower display area lighting (less than 450 lux) is important to the long-term stability of the work.

3) High display area temperature damages digital prints by accelerating chemical aging and compounding the effects of high humidity as well as promoting mold growth. Room temperatures as well as storage temperatures should be maintained below 75 degrees F at all times. The interior temperature of a framed artwork may be higher than the display area if spot or picture lights are placed too close to the work or if it is in direct proximity to a heat source or opposite a window.

Clients must be informed of the specific requirements for display and maintenance of the work and understand that it is their responsibility to assure the longevity of the print.

Matting paper artwork

In addition to aesthetic considerations, the window mat works in conjunction with the mount to secure the artwork. The mat and mount should be of matching archival quality materials—for example, use rag mat and rag mount board. Mats also provide air space between the artwork and the glazing.

The minimum spacing between art and glazing is a double four-ply mat (at .100 inches). Large prints should have additional spacing so there is no possibility that the print will bow outward if placed face down. Or, if the work has been glazed with acrylic, that the glazing will not bow inward and touch the framed print.

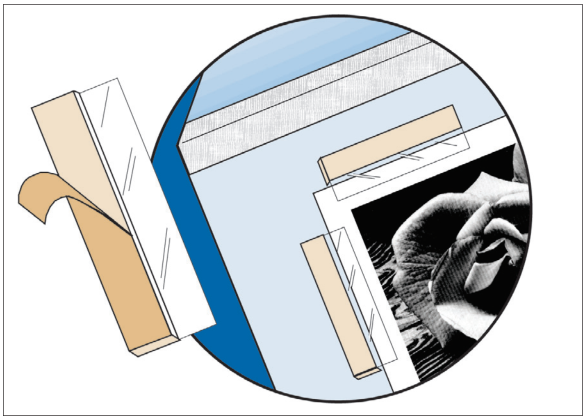
Mounting paper substrates

For all fine art prints and posters with a potential of future value, the mounting method chosen must be totally reversible, meaning that the artwork comes out of the frame at a future date in the same condition it went in. This eliminates permanent mounting methods, such as heat-activated dry mounting, laminating, spray adhesives, pressure sensitive tapes, and any other method that imparts adhesive into the substrate fibers or hinders reversibility in any other way. The mounts must be affixed to the perimeter of the artwork in a manner that does not restrict the minor movement of the paper and does not extend into the image field on the front or back of the work.

Traditional starch paste and oriental paper suspension hinges, perimeter mounts, or corner pockets are the mounting methods of choice. There is a simple theoretical test (don't actually use clients' work for this) to determine which mounting method is required. Form a tube out of the artwork by rolling it until the edges of the short axis touch top to bottom on a horizontal image or side to side on a vertical image. In theory, the two touching edges are taped together at one spot in the center. When the tube is placed upright on one end and supports itself, a perimeter mount may be used. If the tube cannot support its weight, as with lightweight oriental paper, a traditional paste-and-paper hinge is required.

Most paper-borne digital images can be mounted with perimeter strips, such as Lineco See-Thru Mylar D mounting strips, or Lineco polypropylene corner pockets. The pockets or mounting strips should be applied as per the manufacturer's specifications. Some Mylar D mounting products have sharp corners that should be rounded over before using. On smaller images, corner pockets may be placed on one diagonal only instead of at all four corners. This makes removal simple and eliminates dog ears.

If the print needs to be hinged, apply the paste for the hinges at a separate location to avoid moisture near the artwork. The hinges should be attached with the print face up because of the sensitivity of the artwork, never allowing the hinge to come within one inch of the image field.



Mylar D perimeter mounting strips are used for archival mounting of many digital paper prints.

Artwork on canvas

Although many canvas prints are sold prestretched on strainer or stretcher bars, not all canvas prints may need them. Often a canvas print may be mounted to a panel of 1/2-inch foam center board or archival corrugated plastic and presented like a painting, using a liner and frame. (For information on stretching digital prints on textiles, see "Stretching Fine Art Canvas" by P. MacFarland, *Picture Framing Magazine*, October 2000.)

Glazing

The use of UV (300-400 nanometers) filtering glazing is a requirement, not an option, when framing digital images. Glass and acrylic glazing is available with a wide variety of filtering capabilities as well as anti-reflective, non-glare, and abrasion-resistant surfaces.

Acrylic has a much higher impact resistance than glass. It is a relatively good thermal insulator, so it is not as likely as glass to develop condensation on the inside with fluctuations in humidity and temperature.

If the artwork is to be shipped or hung in a high traffic office, public space, child's play room, kitchen, or other area where potential breakage is an unacceptable liability, acrylic glazing should be used.

Because of its flexibility, acrylic glazing is subject to deflection. In an upright frame with ample window mats to serve as a bearing surface, there is little risk of the sheet bowing enough to come in contact with the artwork or cause noticeable distortion. However, the amount of horizontal deflection can be significant. A sheet of 1/8-inch acrylic 48 inches square can bow up to 1/2-inch. For this reason framed work should not be laid flat. Care should be taken to keep acrylic-glazed artwork vertical during shipping. The use of a Tiltwatch indicator on a crate will register improper handling.

Fitting and backing the frame

The rabbet of the frame should be sealed using an aluminum barrier tape such as Lineco frame sealing tape. The most efficient method is to apply the tape to the individual frame rails prior to joining.

The glazing, artwork, mats, mount board, and backing should easily fit into the frame with at least 1/8 inch overall of extra space between the rabbet and frame package.

To buffer fluctuations in relative humidity, it is important to apply a vapor barrier or frame desiccant to the back of the frame. Marvelseal 360 is an aluminized polyethylene and nylon puncture resistant barrier sheet that limits the transmission of water vapor and atmospheric gases when applied to the back of the frame and sealed with double sided tape, such as 3M No. 415.

Frame desiccants are installed in

the backing board instead of using a vapor barrier. Arten Tiles are 7-1/8-inch square and 7/16-inch thick units containing 150 grams of silica gel conditioned to 50 percent relative humidity. The Desiccant Disc for Archival Framing is a 4-1/2 inch square, 5/16-inch thick unit that employs a molecular sieve that buffers up to 600 square inches. Both desiccants should be periodically monitored and replaced according to manufacturer specifications. Seal the backing board/frame perimeter with aluminum barrier frame-sealing tape.

For unglazed canvas prints, use an archival grade rabbet padding felt or archival foam, such as Volara polyethylene pressure sensitive tape, to prevent the artwork from coming into direct contact with the frame rabbet.

Canvas prints on stretcher bars or panels should be installed in the frame with offset clips if the canvas does not fit flush with the frame back or turnbuckles if it does. It is not recommended to nail or screw into the stretcher bars. The hardware should be secured to the frame or liner only with a 1/8-inch gap between the bars and frame on all four sides. To prevent damage to the back of the canvas print, back the frame with a sheet of Coroplast corrugated plastic, foam center board, or other rigid backing. The backer may be attached to the liner or frame with offsets, turnbuckles, or with Velcro hook and loop fasteners for easy removal. Desiccants may be installed in the backer if necessary.

Documenting & periodic inspection

It is recommended that the framer attach an information sheet to the back of the frame documenting the materials used in the piece. This includes type of glazing, mats and mounting method, special applications such as desiccants, as well as when and where it was done.

Digital prints should be checked at least every three years to assure that the frame package is state of the art and to identify any potential problems. These periodic inspections should be documented on the information sheet. ◆

Paul MacFarland has been designing presentation and preservation systems for computer generated artwork for 10 years. He has been a master framer for more than 25 years and is an industry consultant, trainer, and frequent contributor to trade publications and technical journals.

Special thanks for assistance on this article go to Mark McCormick, president of McCormick-Goodhart Inc. and director of research at Wilhelm Imaging Research.

For more about Lineco and desiccant products, contact University Products at 800-628-1912 or visit www.universityproducts.com. For Tiltwatch indicators, call Masterpak at 800-922-5522 or visit www.masterpak-usa.com.