"If You Can't Stand The Heat...Cold Mount"

by Chris A Paschke, CPF

As we near the millennium, technological advances continue to improve and expedite printing, photocopying, and photographic processes. These advances may make our businesses more efficient, but they also create a few headaches for framers. If we are surviving on a 'need to know basis' then we need to know as much as possible about all the potential problems waiting in the wings.

We are living in a disposable society. Felt pens were designed for ease and short term use. Then we discovered that signatures written with felt pens will fade from certificates. Thermographic tickets allow us immediate purchasing access to almost any event, but were made for admittance into today's event—not to be framed for long-term posterity.

THERMOGRAPHIC PROCESSES

Thermographic is a term defining heat generated items, deriving from the Greek "therme," meaning heat; and "graphikos," meaning of or relating to the art of printing; together they mean heat printing. Any process that uses heat or heat-sensitive paper will be affected, turning black (photo 1) if there is any application of heat during tacking or mounting. Sometimes the photos or copies are easily identifiable by sight or touch. Papers are smooth, slick, and shiny.

Testing must always be done to verify an unknown,especially if there is uncertainty about its origin. Gently touching the edge of the item with the side of a warm tacking iron (diagram 1) will immediately turn a heat-sensitized item, but the item will not otherwise be damaged.

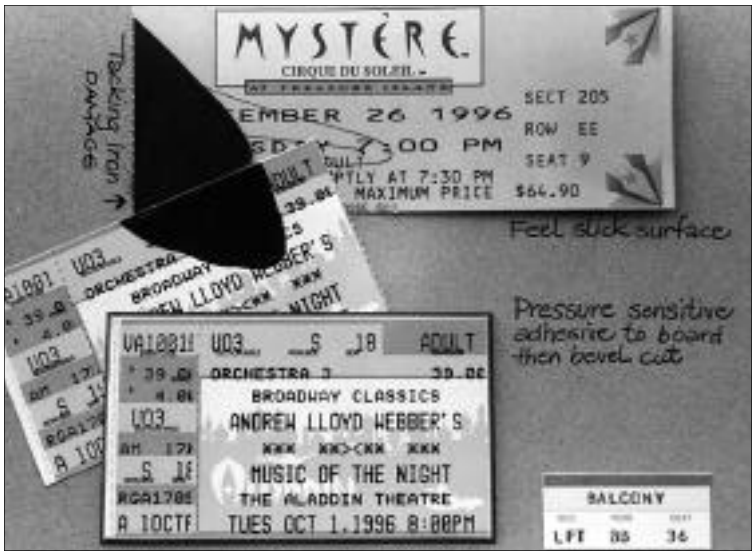
WHERE IT ALL BEGAN

Thermographics were first noted as framing disasters with the onset of fax machines and has since spread to sporting events, the theater, and even airline travel (diagram 2).

INTERIOR ENVIRONMENT HEATING

Any application of heat, directly or indirectly, intentional or nonintentional, can cause heat sensitive paper to darken. Even the areas that have already been darkened by the thermographic printing source may continue to darken into a nearly illegible gray.

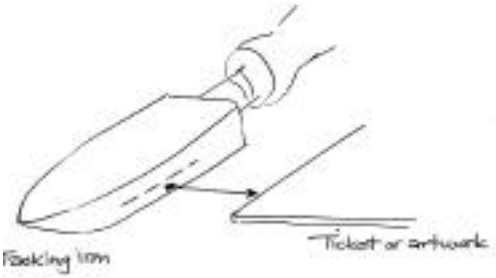
In other words, if a thermographic ticket is placed into a shadow box for constant viewing, and is allowed to heat up everyday as the sun bakes the outside wall the artwork is displayed



The warm tacking iron was directly laid on the surface of the ticket and is blackened in the duplicate shape of the iron.

on, the ticket will continue to darken or even seem to disappear due to heat transfer. This occurs when the thermal material which composes the ticket is naturally activated by the increased heat of the environmental temperature within the frame.

No special glazing, rag materials or acrylic spray can prevent day to day warmth from aging and darkening it. If the ticket has potential dollar value as a collectible, it should not be framed at all. Only storing it in a cold place, such as a refrigerator or freezer, will delay the inevitable process of darkening. A potential solution to this dilemma would be to frame a duplicate, a four-color copy perhaps.



Hold the side of the iron to the outer side edge of the test item to check for blackening.

FACSIMILES

Derived from the Latin facsimile "made like," fax refers to the process of reproducing graphic material at a distance. The image is scanned by a light-sensitive device to produce an electric signal that is sent over telephone lines. Reproduction of the received copy can be on photographic, electricity-sensitive, or thermal (heat-sensitive) paper.

Like the thermal paper tickets, thermal Fax paper has a slick feel to it with a slightly shiny appearance. If the fax is not on slightly absorbent-feeling paper (photo 2), it is probably a thermal paper and cold mounting methods should be employed. If the paper is very thin, then the drier pressure-sensitives would be the best solution (photo 3).

Even airline tickets are being printed on thermographic (heat-sensitive) paper stock. Note warning on end tab which reads: Document is heat sensitive. Do not expose to prolonged periods of excessive heat or light.

THERMOGRAPHIC PRINTING

In printing; thermography, meaning 'heated printing,' is

a raised-letter printing process that simulates engraved printing by applying a fusible powder to an oily, slow-drying wet ink prior to drying. The sheet is then passed under a heater to fuse the ink and powder. Some inks contain an expansion agent when exposed to heat and create a raised letter effect.

Inexpensive business cards, stationery and wedding invitations with raised plastic thermographic lettering will actually melt and flatten out into illegible blobs of ink if exposed to heat. Cold mounting methods of wet or spray or pressure-sensitive applications are suggested.

THERMOGRAPHIC PHOTOCOPYING

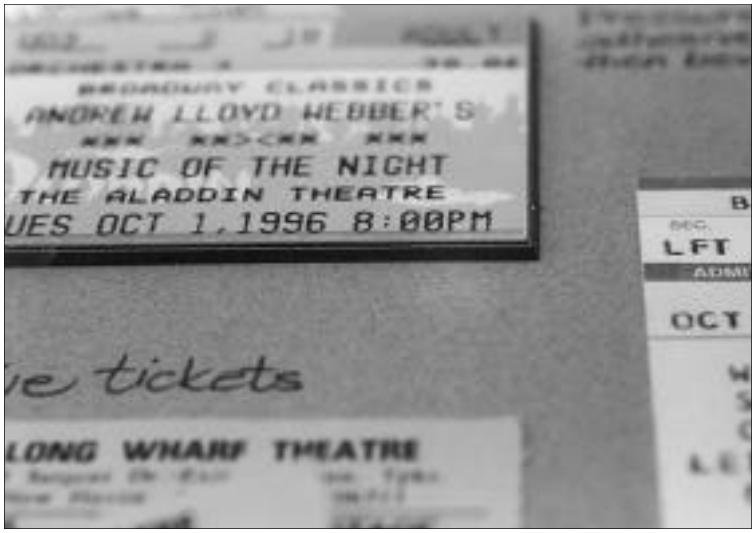
In thermographic photocopying or 'writing with heat,' an original document and a sheet of special copy paper are passed together through a machine that exposes them to heat, or infrared rays. The ink used on the original must contain a metallic or carbon compound in order to absorb the infrared radiation.

The copy paper contains a heat-sensitive substance fused between a transparent sheet of paper and a white, waxy backing. The original heats the darkened areas of print and transfers the image to the copy sheet.

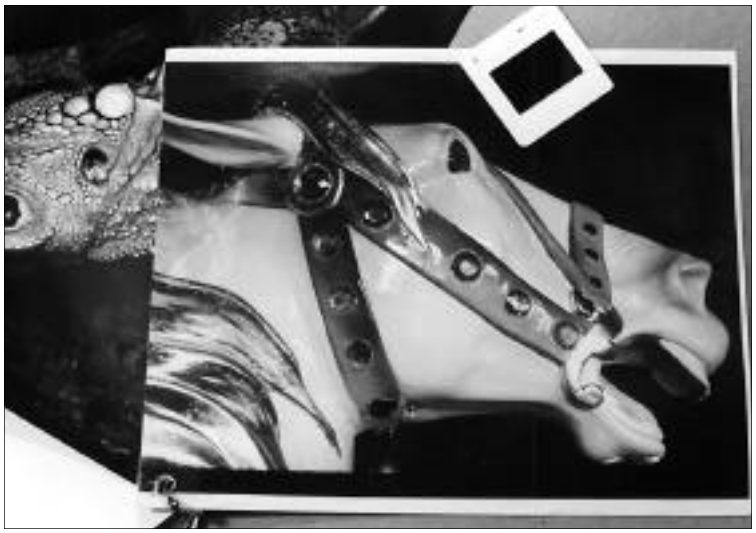
THERMAL OR NON-IMPACT PRINTERS

Impact printers and dot matrix printers use an inked ribbon and pressure to apply an image to a sheet of plain paper. Nonimpact printers require thermal or electrostatic transfers of the original image rather than mechanical means.

Tickets that have a lightly toothed surface are probably printed on plain paper stock and are safe to dry mount.



Detail of thermal paper ticket, pressure-sensitive mounted to surface tiered four-ply mat board then bevel trimmed for display.



This is a four-color electrostatic photocopy printed from a slide. Colors are not heat-sensitive nor is the paper, but the glass finish was heat set making it sen - sitive to dry mounting.

Any process of mounting that does not use heat is considered cold mounting. Wet, spray and pressure-sensitive boards and films all fit into this category whether a cold vacuum system is used with them or not.

Bubble-jet printers (ink-jet printers) squirt heated ink through a matrix of holes to duplicate images. Laser printers form an image on a selenium-coated drum using laser light that transfers output from the drum to the paper. Thermal-wax-transfer printers and dye-sublimation printers use heat to transfer color pigment from ribbons to special papers.

Documents and images produced on impact and dot matrix printers may be heat mounted. Items produced by any of the above mentioned nonimpact printers that utilize heat processes are heat-sensitive and must be mounted using only cold methods.

PHOTOCOPIES

Heat and laminate tolerances of four-color copies were the subjects of the reported study in the last *PFM* (March, April) two-part series "Color Copies—Lightfastness to Laminates" and "Color Copies: Part II." Refer to them for additional information on dry mounting and suggested procedures.

Clockwise from lower left: black and white RC photos (2), color RC (3), Polaroid print (1), Ilfochrome Classic (lizard), four-color photocopy (horse), tickets. All have same basic heat-sensitivity whether as produced orange-peel, themo - graphic inks or paper.

The most common processes of photocopying uses an electrostatic technique to copy previously printed and pictorial material. It is a dry method of printing that uses dry granular ink called toner. This is a copying process that uses static electricity or the attractive force of electric charges to transfer the image to a charged plate or drum.

Light reflecting off white areas of the image being copied erases the charge on the corresponding areas of the plate. Negatively charged powder toner is sprayed against the drum and sticks to the charged areas of the plate, creating a reverse image. The inked image is then transferred to paper and fixed by heat to create a permanent positive image copy (photo 4).

Though electrostatic photocopying doesn't use thermal papers, it does use a heat-set ink process. It is therefore best to select a cold mounting technique when mounting is

required. Keep in mind that wet and spray adhesives could contain too much moisture for thin copier paper stock to produce an unbuckled cold mounting, leaving pressure-sensitive the likely technique of choice.

COLD MOUNTING REVIEW

Any mounting technique not requiring heat or electricity, only adhesive and pressure to create the bond between item and substrate, is considered cold mounting (photo 5). It generally refers to the use of pressure-sensitive adhesives. A thin sheet of adhesive film, or film with carrier, may be hand or machine applied.

Cold vacuum mounting uses a combination of adhesive and vacuum suction to create the bond. Wet, spray, and pressure-sensitive adhesives (or boards) all may be used with this process, and the bond is greatly improved.

MOUNTING FOR THE MILLENNIUM

There's more to thermographics than just a quick easy source for communication. Don't risk blackening the special business fax or Super Bowl memorabilia by slapping it into a heat press simply because it appears to be on a regular piece of paper. The key is to really see what you are looking at and feel what you are touching.

Heat sensitive items come camouflaged and often masquerade as photograph look alikes, theater tickets, or memos (photo 6). Though cold mounting is the viable option for many of these nonlimited edition mountings, preservation approaches will also always be applicable. When affixing a potentially heat-sensitive project to a substrate is the mounting of choice, remember, if it can't stand the heat—cold mount.

Chris A. Paschke, CPF, owns Designs Ink, Oxford, Connecticut, featuring commercial and retail custom framing, product consultation, design and education. Specializing in mounting, matting and design creativity she works with numerous industry leaders including Bienfang, Crescent Cardboard, Fletcher-Terry, Larson-Juhl, PFM, PPFA, and Seal Products. Watch for her new book, The Mounting and Laminating Handbook, scheduled for release this summer. ■