ADA Alternative and the Laser

The Americans with Disabilities Act (ADA) was passed to help create a more accessible public environment. Architectural guidelines were established that included signage specifications. Specifications included guidelines on the use of a matte finish substrate, raised lettering and Braille. Rowmark developed a product line, known as ADA Alternative, to help sign makers conveniently comply with those Federal regulations.

Fabrication methods utilizing rotary engravers were developed prior to the widespread use of lasers. Because of differences between rotary and laser engraving, new methods needed to be developed for lasering. Consult the ADA regulations, **www.usdoj.gov/crt/ada/adahom1.htm** for a complete list of design specifications and requirements. The signage portion of this document is very short. To better understand the practical application of these laws, an excellent resource can be purchased on-line at: **www.4adasigns.com**. The 'Access Signs' portion of that website offers a kit that includes information on working within the guidelines. It also includes information on state regulations, as well as a newsletter to help sign makers stay in touch with the latest information on ADA.

COLOR CONTRAST GUIDES

Designed to aid the visually-impaired, ADA-complaint signage requires a significant color contrast between lettering and background materials. To take the guesswork out of creating compliant signage, Rowmark's website - **www.rowmark.com** offers on-line assistance with its ADA Color Contrast Guides.

Rowmark offers several materials (*ADA Alternative Applique*, *ADA Alternative Substrate* and *Ultra-Matte Reverse Engravable*), that can be used to create ADA-compliant signage. Understanding which contrasting color combinations meet ADA requirements is as easy as clicking on "**Technical Help**" then "**ADA**". After choosing one of the product lines, the compliant color combinations appear. As a different appliqué color is selected, the compliant substrate colors are shown. This interactive guide is easily accessible and can be a valuable resource to sign-makers.

Reverse Engraving

Rowmark's Slickers, Ultra-Mattes Reverse-Engravable and LaserMark Reverse products can all be lasered and reverse engraved. Slickers have a glossy finish, while the others all have matte finishes. All are manufactured with the color cap on the back and a clear core on the front. When the cap is engraved from the back with the image reversed, the cap material in the design is entirely removed, leaving only the clear core.
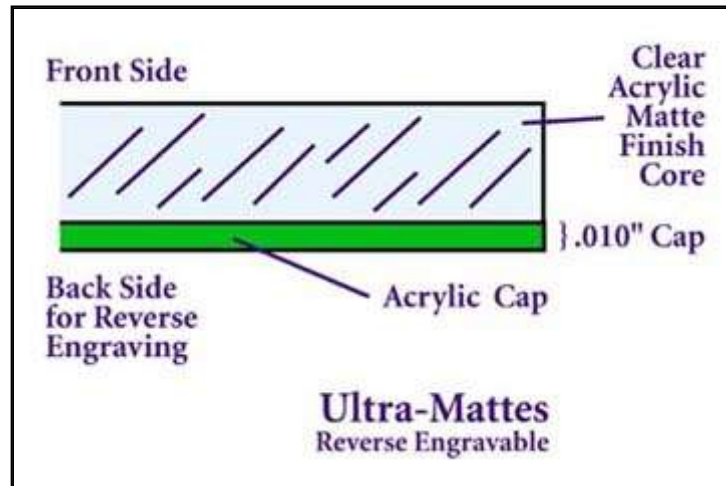
If viewed from the front, the design would appear right reading, but the image would be clear on a solid color background. If paint is applied from the back, those images could be filled with any color. A multicolor sign can also be created, comprised of the cap color with a variety of paint fill colors. In the Julia Child example shown here, the background color around her name is the cream color of the cap, and the individual letters of her name are paint filled.
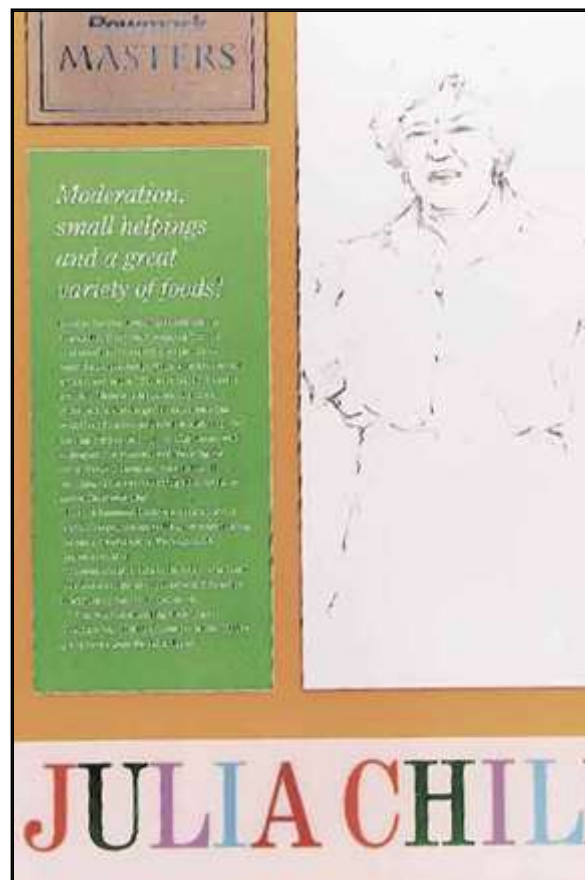
All three product lines (Slickers, Ultra-Mattes Reverse-Engravable and LaserMark Reverse) can either be laser or rotary engraved. LaserMark Reverse is best suited to lasering due to its thin (.001") cap. The .010" cap on the other two materials is laminated to an acrylic core and may be laser engraved as well, preferably using two passes.

Reverse engraving using a rotary engraver generally produces a sharper image. The laser tends to leave minute cutting grooves in the engraved surface of the core, and this tends to slightly diffuse the color reflection of the paint fill. Making a final pass with the laser slightly out of focus will remedy that problem.

Plastic is naturally somewhat translucent, especially in thicknesses of .010" or less. On occasion, especially with lighter colored material, the application of dark paint to the back of the cap can create slight shadowing when viewed from the front. One remedy (other than being very careful to only fill the design itself with paint) is to send both an outline and filled version of the design to the laser. Keep the factory masking on the cap side of the material and vector cut the outline of the design, in reverse of course, through the masking only. This will require some testing and careful laser adjustments in order not to burn into the cap. Once cut, peel away the masking from the areas to be engraved and send the engraving file to burn away the cap in the areas where the masking has been removed. Paint fill the engraved areas, let the paint dry, then peel away the remainder of the masking. The paint should only remain in the engraved areas, thus eliminating any shadowing.

A simpler solution is to apply paint to the entire back of the sign. The shadowing effect would be universal and not appear as halos around the artwork. Of course the background color would be slightly altered, but perhaps not by enough to make a difference, depending on the sign.

By engraving too deeply below the cap, the color was protruding above the inside of the background color and reflecting back onto its surface, thus creating a halo effect. To avoid that problem, minimize the engraving depth. Once the cap has been burned away, try not to remove much more of the clear substrate.

Reverse engraving opens the door to creating multicolor signs and can often provide a solution when color matching to current décor or previously made signs. Paint colors can be mixed or selected to match existing colors and then applied to the sign. In cases where the sign's background color needs a custom color, we can supply a clear matte sheet without a cap that can be painted from the back. In most cases the applied color can be engraved through and then back filled if needed.

Another advantage to reverse engraved signs is that the text and graphics are on the reverse side of the sign and out of harm's way. Signs are smooth on the front and easy to clean (great for hospital signage). In addition, the Ultra-Mattes Reverse-Engravable products are widely used for ADA signage, since they are surface compliant, and like our ADA line, are also available in 1/16" and 1/32" thicknesses (with or without adhesive). They offer an interesting and unique

appearance for raised graphics and text, and using this product greatly expands color choices.

Very few instances have been reported in which spray paint for back filling caused any damage to Rowmark materials. We have used Krylon spray paint without adverse effects, but many other brands work effectively as well. Be sure to test the product first since damage from spray paint will probably be immediately apparent. Many sign makers report they paint, roll, or squeegee acrylic paint over the engraved areas with excellent results. Deka Sign Enamels have been found to adhere well, cover well and wear well. This approach certainly improves air quality. The application of sign vinyl also works well as a color fill. No matter how the color is applied, the effects achieved are well worth the minimal labor involved.
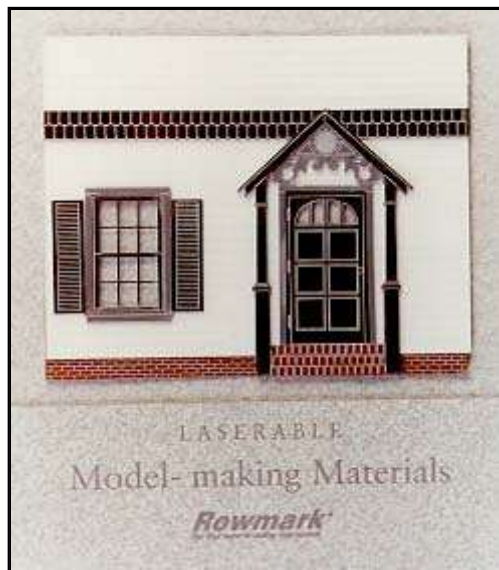
Model Making

A specialized use of Rowmark products is model making. Rowmark supplies white and clear acrylic sheet goods from .010" to .020" thick that are perfect for raster engraving and vector cutting using a laser. When combined with our other product lines, they provide great versatility for model making and miniaturization. Architects, advertising studios, and film production studios are regularly involved in model making.

On any material that is .020" or less, the detail achievable with vector cutting is phenomenal. As shown in this example, openings in the window frame of a miniaturized architectural detail left the supporting slats in the frame intact. These are the approximate thickness of human hair. Carefully controlling laser settings is the key to achieving such results. Also in this sample are examples of highly detailed engraving in which the pattern (such as the bricks or siding) is etched into the surface of clear .015" material. Paint is applied to the etched surface and wiped clean, leaving the paint in the grooves of the etching. The back is then painted the desired color such as the red of the bricks.

If thicker material can be used, similar effects can be achieved more easily using a laminate material such as white/black FlexiColor or 1/32" Ultra-Mattes Reverse-Engravable. Also, even thicker materials can be used to structurally build walls, roofs, etc. of model buildings.

This is a fairly specialized use of Rowmark products, but one that should not be overlooked. The speed of the laser combined with the engravability and the degree of detail that can be achieved in vector cutting make Rowmark's products ideal for these applications.

Framing

Below are samples of how our products can be used as frames to greatly enhance a sign. The simplest type of framing involves adhering the sign to a background material that is larger and sized to create equidistant margins. This background can contrast in color and/or finish and provides a good opportunity to explore interesting combinations that can enhance the message being delivered.
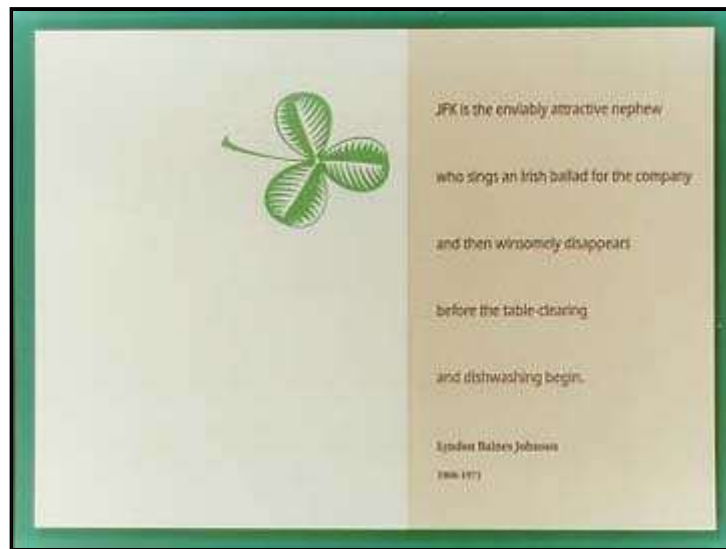
A similar method involves raising the sign off of such a background, by first adhering the sign to 1/8" material cut to a size smaller than the sign itself. These are then adhered to the background. The 1/8" material is not visible behind the sign, therefore the sign appears to be floating above the surface of the sign.
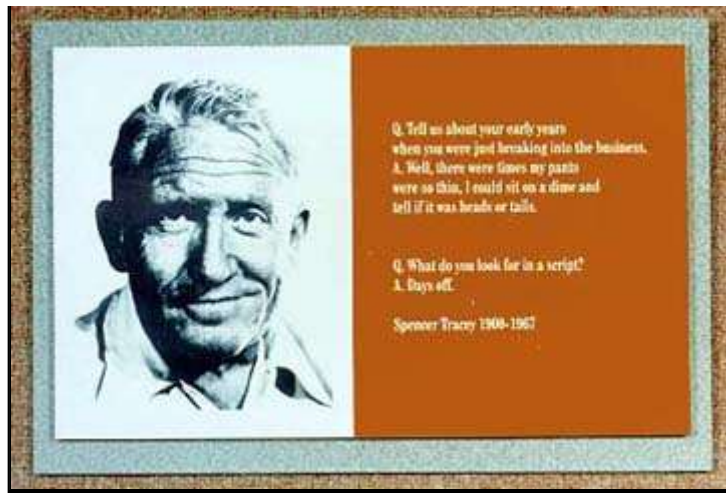
It is also possible to cut a window slightly larger than the sign, out of a larger piece sized to match a background like those mentioned above only with wider margins. This frame is then adhered to the background leaving an opening into which the sign is placed. The sign can be positioned flush or so that a slight, equidistant gap forms between the sign and this mat-like frame. Again, the possibilities for combining materials is wide open as long as the framing enhances the sign rather than competing with it.

Finally, a frame can be used as a base allowing a variety of engraved or cut materials to be combined, butted together or layered on top. (Please visit the **Gallery** to explore possibilities.)