File Recommendations for Large Format printing.

While there isn't any one magic file type for large format printing, there are some guidelines that should prove helpful when communicating to the customer what is required for successful output.

File types can be broken up different ways. The two most common differentiators that we deal with are Vector vs. Raster, and the color mode that is used.

Vector vs. Raster

Vector graphics generally provide better quality if the artwork lends itself to a vector format – outlines that define the graphics. Vector artwork is absolutely necessary for plotter cut graphics. It also works great for large format printed graphics, as the job will have essentially the same file size whether it is scaled at 1 inch high, 1 foot high or 10 feet high.

Raster graphics are picture types of images. Bitmap is another popular term to describe this kind of graphic. Some graphics can be represented equally well in both formats. When this is the case, a vector format is preferred.

- Popular vector file formats include Adobe Illustrator's .AI, Gerber's .PLT, and AutoCAD's .DXF
- Popular raster formats include Tagged Image Format - .TIF, Joint Photographic Experts Group - .JPG (or .JPEG), and Bitmap – BMP. Others that aren't used much in the sign industry, but may show up include: .GIF, .PNG, Exif, and more.
- Some file formats can contain both vector and raster information. These include Encapsulated Post Script files - .EPS, Adobe Portable Document File - .PDF, Newer Gerber (2.5 and up) .PLT files, and FlexiSignPro .FS files.

Vector information is most useful when packed in an .EPS or .PDF format. Some software can also make use of .AI files – check your import/export list to see what is available. Since vector artwork is scalable, there is no discussion of resolution here. The same vector artwork can be used equally well on a word processing document as well as a billboard graphic.

Raster information is best saved as a .JPEG or TIFF. Since .JPEG's have the ability to compress some of the information, the file size tends to be smaller (sometimes considerably so) than a comparable .TIFF file. Care must be taken not to compress a .JPEG file too much as image quality can deteriorate. The quality of a .JPEG image can also degrade slightly each time the image is opened and resaved. .BMP files also used to be commonly used, but are generally not as good as a high quality .JPEG or a .TIFF.

Resolution on images files should be 100 – 150 dpi (or PPI) at full size for today's sign printers that utilize a 600 – 720 dpi print resolution. Higher image resolutions will only increase the file size with no improvement in output quality.

Color Mode – RGB vs CMYK

The two color modes that are most commonly used are RGB and CMYK. The natural inclination is to think that since the printer is a CMYK device then the CMYK color mode is the logical one to use. This is a bad idea for a couple of reasons. This reasoning applies to both Vector and Raster files.

Primarily, RGB is preferred because the range of colors in an RGB file is greater than in a CMYK file. The most common (and usually default) CMYK profile is the SWOP CMYK profile. This is used in offset printing and has a much smaller gamut than what most inkjet printers have. If you use the SWOP CMYK color space when designing, you will be eliminating a large number of colors that your printer is capable of printing. In turn, prints will generally look muted compared to an RGB image. The other reason RGB is preferred is that the file size will be smaller than an identical CMYK image.

Other common color formats include L-a-b, and Pantone. Briefly, L-a-b is a color standard that is not device dependant. This means that L-a-b color specifications will produce the same color no matter what device you are printing them on provided that you use a correct color profile for your device. You also need an ICC profile for you monitor if you want "What You See is What You Get" results.

The Pantone color system was developed long ago as a way to specify color for the offset printing industry. It consists of 20 base colors and produces a wide variety of colors by mixing different amounts of the 20 base colors. Obviously,

if you're working with 20 colors, you can create many more colors that if you're printing with just 4 (CMYK) or 6 or 8 (depending on the printer). If your RIP software utilizes a Pantone look-up table, you will get colors that match the Pantone matching standard (within the limits of your 4, 6 or 8 color printer). If your RIP software does not support Pantone colors with a Pantone lookup table, then you most likely will be using RGB or L-a-b equivalents for the Pantone color. This will be less accurate, but should be acceptable for most colors. A great tool here is the Pantone bridge book. It will give you an idea of which Pantone colors can be expected from a process color printer.

What's it all Mean?

In order to keep from driving yourself insane or driving your customers away thinking that you don't know what you're doing, you need to establish expectations for your customers. Many designers are familiar with desktop publishing and the file requirements for that. Large format is a different ball game. Educate your customers by establishing what works best for you. It is very impractical to have all the software out there that might be used so that you can open any and every file that may come your way. Decide what works best for you and let your customers know what you need from them based on what software you have. Also let them know that if any time is needed on your part to make the files work, they will be billed for that time – this will usually get them to pay attention to the standards that you've set. You might offer a small amount of time – say 15 minutes or so – to tweak the file. Beyond that, bill them for the valuable work that you do.

Here's a good place to start for your standards. Obviously, the more software that you own and learn to use well, the more you'll be able to deal with and the more flexible you can be with your specifications:

Vector Graphics in EPS or PDF format: RGB colors work best. Pantone works well if your RIP supports it with a Pantone look up table.

Raster (Photographic) Graphics in RGB colors: Resolution must be 100 – 150 dpi at final size. (If the image will be viewed from farther away, a lower resolution can be used, but I wouldn't recommend it unless file size is a concern.)