

File Resolution Guidelines:

Printing in large and grand format requires special attention to providing files that are both adequate in resolution and physically manageable.

Artwork may be created in two ways; Vector or Raster. They also may be combined into a single file.

Vector artwork appears as lines and curves with colors and patterns applied to these shapes. This "page description" can be scaled to any size and will print at the full resolution the printer is capable of. These files are created by "postscript" applications such as Illustrator, Freehand, Quark and Acrobat. File sizes are generally smaller than comparable Raster files.

Raster artwork is a "bit map". Each dot on the page is a specific color and size. The number of dots on the page is fixed and if the page is doubled in size, the dots must become twice as large to fill the space. This means that the resolution of the original artwork affects the quality of the output. Just as in traditional photographic printing, when blowing up a large poster from a small negative one loses sharpness, blowing up a low resolution raster file will produce a "pixilated" final image. These are the type of files generated by digital cameras or scanners and directly in programs such as Photoshop.

Resolution is determined by the scanner or digital printer or, if created on-screen, by the settings of the application. It is possible to increase or decrease the resolution of the original artwork, but this will not avoid the problem of loss of sharpness, it will merely blur the pixilation. This becomes more noticeable when the image is composed of lines and other sharp details, (a flower will hide the blurring better than an image of a map). It may be necessary to use this tactic when the image needs to be seen up close, but do not stray very far from the guidelines below, some images are just *too small!* (images pulled of a website nearly always fall into this category)

File sizes for Raster images can become quite large very quickly. One should minimize the areas containing Raster images whenever possible by placing the file into a postscript design application and setting all type and other imagery in postscript. This will assure that the type remains sharp at whatever size it's blown up to and the overall file size stays at a manageable size.

The main consideration in keeping files at a manageable size is to consider the viewing distance. Resolution in excess of these guidelines will not be visible beyond the viewing distance indicated:

Viewing distance:	Resolution:	Megs. / sq. ft. (CMYK)
1'	300 dpi	49.43
3'	200 dpi	21.97
4'	150 dpi	12.36
13'	100 dpi	5.49
18'	50 dpi	1.37
30'	20 dpi	.22

For example, a typical 24"x36" trade show poster viewed at 3' should be 200 dpi at full size, or a full uncompressed 131.82 megabyte CMYK file. ($6 \text{ sq ft} * 21.97 = 131.82$) The same poster viewed from 4' need only be 74 Megs to achieve the same result. Note that RGB files are smaller and this chart will not be representative. Convert your file to CMYK to get the correct file size and also to obtain a better view of the final output.

For Raster images placed into Postscript files, calculate the final size of the Raster area only, the Vector areas will always print at full resolution.

