



Designers are people with a desire to create. By combining practical knowledge with artistic ability, designers are able to turn abstract ideas into formal designs by creating visual solutions to solve your unique communications problem.

A good designer's work will make something:

- work better
- look better
- sell better
- shed new light on an old topic

How is this accomplished?

Graphic designers use computer software to develop the overall layout and production design of magazines, journals, corporate reports, and other publications. They also produce promotional displays and marketing brochures for products and services, design distinctive logos for products and businesses, and develop signs and signage systems—called environmental graphics—for business and government.

The introduction of computer technology in the early 1980s has dramatically transformed the graphic arts industry. With features such as print-on-demand, NAILBA member agencies, carriers and vendors can print materials faster, quicker and better. In an effort to formulate hassle-free relationships with your graphic designer and printer, I've outlined several layout and printing formats that are industry standards.

### Page Layout Formats

Years ago, "camera-ready" art was called a "mechanical." Printing plates were burned with acid onto a water-repellent plate from film negatives. Negatives were photographed from black-on-white boards or "mechanicals." A separate mechanical was required for each color plate. The mechanical contained peripheral data like crop marks and registration marks for proper alignment.

Today "camera-ready" art is a digital file created with page layout applications such as QuarkXPress, InDesign, PageMaker and Publisher. These programs automate the mechanical production process. The computer monitor becomes the layout board. The artist places text and graphics on the board electronically. Graphics are created separately and

## File Formats Made Easy

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saved in an importable format. The page layout programs have powerful text formatting capabilities and require separate individual files for all of the different fonts used in the design.

These programs automatically add crop marks and registration marks and separate color so a designer can create without having to visualize what the final design will look like. The monitor very closely represents the final printed piece. I say closely because even very high resolution monitors cannot exactly reproduce the quality of the printed piece. One reason is the way in which color is represented. The printing press uses four colors—cyan, magenta, yellow, and black—to "build" a spectrum of color. The computer monitor creates color by emitting light through red, green, and blue phosphors.

Consequently, several files make up the final print job: the page layout file, all imported graphics, and all font files.

### Platform Dependence

Page layout applications provide a high degree of flexibility in art creation. They have powerful document creation capabilities such as pagination and indexing. They also make revision and updating a snap. They are not, however, drawing programs. They only support the creation of very basic graphics such as

charts and tables. And, they are platform dependent. For the most part, in order to print a job created by a page layout program, you need to use the same platform and the same application. Fortunately, the industry is fairly standardized and most large printers can accommodate multiple platforms and applications. The Macintosh platform is preferred because it will accept most files created on a Windows platform. QuarkXPress, InDesign and PageMaker will convert most of each others files with only minor problems, provided the files are not too complex.

For these reasons, platform independent file formats are desirable. Ads can be created using illustration programs such as Adobe Illustrator and Aldus Freehand. These are vector image programs with very powerful text manipulation capabilities.

The printing industry is moving in the direction of making PDF (Portable Document Format) a standard format for all printed materials. Adobe created Acrobat, an application for the creation, manipulation and viewing of PDFs. Acrobat Reader, the viewing utility, is available to anyone with a computer and access to the internet. PDFs are taking the place of hard-copy proofing. E-mail delivery of PDF proofs is saving companies the cost of expensive color proofs as well as express mail and courier costs.

### Graphic File Formats

Vector images are made up of mathematically defined lines and curves called vectors. Vector images are resolution-independent. They can be scaled to any size without quality degradation. Vector images are created with applications such as Adobe Illustrator and Aldus Freehand and are saved in encapsulated postscript or EPS format for placement in the page layout program.

Raster images consist of a grid, or raster, of small squares, known as pixels. Raster images are resolution-dependent. They are created or scanned at a specific resolution and the quality degrades when enlarged from their original size. Raster images are created with applications such as Adobe Photoshop, Corel Draw, and Paint and are saved in TIFF format for placement in the page layout program.

PDF, EPS and TIFF formats are the only for-

mats acceptable for print production. Other formats such as JPEG, GIF, PICT, BMP, and WMF should never be used for a print job. JPEG and GIF files are primarily for the Web. PICT, BMP and WMF files are fine for desktop printers but not sufficient for high-quality printing. The good news is that most of these formats can be easily converted to TIFF format.

**Font Files**

Font files consist of a “printer file” which draws the type character on the page, and the “screen file” which draws the type character on the monitor. Most Windows and Mac fonts are not interchangeable. However, a new font format has been created by Adobe and Microsoft called Open Type, which operates on both the Windows and Mac platforms.

**Glossary of Terms**

**Vector Images** – made up of mathematically defined lines and curves called vectors.

Vector images are resolution-independent. They can be scaled to any size without quality degradation. Vector images are created with illustration applications such as Adobe Illustrator and Aldus Freehand.

**EPS** – Encapsulated Postscript, a programming language which describes lines and curves called vectors. EPS files are resolution-dependent.

**Raster Images** – consists of a grid or raster of small squares known as pixels. Raster images are resolution-dependent. They are



NAILBA logo as EPS vector file, greatly enlarged, with no degradation of quality.



NAILBA logo as TIFF raster file, greatly enlarged. Notice the “bitmapping” of the edges.

created or scanned at a specific resolution and the quality degrades when enlarged more than 120 percent of original size. Raster images are created with applications

such as Adobe Photoshop, Corel Draw and Paint. Raster images use .tif, .jpg, .gif, .pic file name extensions.

**TIFF** – a raster image file format for high quality, resolution-dependent photographs and line art.

**JPEG** – a raster image compression format enabling full color photo representation for the Internet at a manageable file size.

**Image Resolution** – refers to the spacing of pixels in the image and is measured in pixels (ppi) or dots per inch (dpi). The higher the resolution, the more pixels or dots in a square inch. Higher resolutions allow for more detail and subtle color transitions in an image.

**Screen Frequency** – also known as screen ruling, refers to the number of halftone cells per inch in the halftone screen used to print a grayscale image or color separations. Screen frequency is measured in lines per inch (lpi). The detail in a printed image results from a combination of resolution and screen frequency.

Mary E. Flannery is president of Flannery Studios, a full-service design firm. For over 10 years, she has served as art director of NAILBA Magazine. Clients include the federal government, corporate businesses and trade associations. With over 25 years of experience, she has witnessed the transformation of mechanical “camera-ready” art to digital “camera-ready” art. She can be reached at 301-590-0994 or [flannerystudios@comcast.net](mailto:flannerystudios@comcast.net) for more information.