PRIN*tips*

Using Photographs in Documents & Newsletters

When used properly, photographs can greatly enhance the appearance, impact, and reader comprehension of a printed piece. Crisp, clear, or eye-catching photographs also give your documents a professional look. And what newsletter isn't dotted with photographs of people, places, and activities?

As your printer, we have the same goal you do – to be sure all photographs are reproduced in the highest quality possible. But to accomplish this objective, we need your help. Read this issue of **Printips** to learn more about photographs in documents.

What constitutes a good image?

The single most important thing you can do for photo quality is to begin with a good image. This means an image that is sharply focused, has good contrast between highlights and shadows, and is well composed.

If your document is a company newsletter or other publication in which photographs of people will be a regular feature, take care in how you compose the shots. Create interest by using some unusual angles. For instance, instead of shooting at eye level, take the shot either way below or way above. Lie flat on your back and look up as you shoot the subject, or stand on a raised area or balcony and shoot with the subject looking up at you.

If your document is a brochure or a general purpose newsletter, you might consider using stock photographs rather than taking the photos yourself or hiring a professional photographer. The cost of stock photos is determined by the image resolution and the royalty fee. Single photos are available, as are collections. Call us at (513) 248-2121 and we'll give you the names of some sources we use for stock photography.

Image resolution

Another important factor in determining the quality of your photographs is the image resolution.

As a general rule, images used for commercial printing require a resolution of at least 300 ppi (pixels per inch) when the image is at 100% of the size it will appear in the document. If you are using a digital camera to take photographs, be sure to set the image capture at the highest resolution. Be aware that this may limit the total number of photos you can take before changing the image storage card. Also, we recommend that you use a digital camera with a minimum of 2.2 megapixels of data capture.

When scanning a photograph, you will be able to select from a range of resolution settings, usually

between 72 and 6000 ppi. Although a higher ppi generally means higher resolution, it also means a larger file size. Seek to find an optimum balance between adequate resolution and small file size. A good rule of thumb is to scan photos at 300 ppi at 100%. And remember to keep the glass on your scanner clean and check for blemishes in the original (wrinkles, smears, scratches) that will affect the quality of the scan.

A word about photos downloaded from the web. To save file size, and because computer monitors have limited pixel resolution, photos displayed on web sites typically have been scanned at 72 ppi. In addition, they are often saved in JPEG, a loss compression format. (Loss compression means that pixels are thrown out in order to make file size smaller; once pixels are discarded, they cannot be recovered.) For best results, we recommend avoiding 72 ppi JPEG files for commercial printing.

"If your image is low resolution to begin with, the extra pixels simply don't exist..."

Also be aware of the effect of upsampling. Upsampling occurs when PhotoShop or other image manipulation software resizes digital images to increase the size or resolution. When you enlarge a digital photo, you are seeking the extra information that typically is compressed (the extra pixels that don't appear on the computer monitor). If your image is low resolution to begin with, the extra pixels simply don't exist and your computer will synthesize the missing pixels. This almost always results in a blurry or pixelated image. If you find you must change the size of a photograph after it is brought into a document, it is much better to re-scan at the new size.

"...we will be able to open and edit the images as needed to improve output quality."

Color

Although we try our best to match the color in your photographs on the final printed piece, we are not always successful. This is largely related to the difference between color gamuts, the term for the range of color that a color system can describe.

The Red, Green, Blue (RGB) color system is projected color such as appears on a computer

A Picture is Worth 1000 Words

monitor or television screen.

CMYK is a subtractive color system and is used to define ink pigments. Cyan, magenta and yellow inks are combined with black ink (K) to create full color.

In order to print color on a printing press, RGB color files must be converted to CMYK. Once the conversion is complete, you no longer can rely on your monitor's color display to select, correct or proof for color – the colors you see on screen may be very different from the colors we produce on press. To help you check final color, we will provide a color proof printed from your CMYK files before we go to press with your project.

Image manipulation

It is best to complete image manipulation (enlarging, reducing, cropping, rotating) with image manipulation software such as PhotoShop prior to placing the images in your document. If you edit after image placement, you will increase the size of the file as well as risk producing unexpected results when we output the file. We also prefer that you place the images as linked files in a page layout software program. When you link images rather than embedding them in the document, we will be able to open and edit the images as needed to improve output quality.

Ask us for help

We want to help ensure the best possible result when printing photographs in your documents. If you need help in evaluating your photographs, recommendations for scanning, or converting from RGB to CMYK, please let us know. Our customer service representatives, and our prepress technician, will be happy to provide assistance.

Digital Camera Basics

Q. How can I get the best images from a digital camera?

A. In many respects, a digital camera and a regular camera are identical. Both have a lens, a camera body, and a light sensor. Photography techniques (getting close to your subject, watching for overly bright or dark background, holding the camera still during exposure, separating your subject from the background, framing your subject) are also the same for conventional or digital cameras.

However, digital cameras don't have the area resolution (total number of pixels in the image) of film and therefore cannot capture detail in the same way. For best results, use a camera with at least 2.2 megapixels of resolution, and frame the shots so that you will be keeping most of the image area in the final photograph. Use the zoom, or move in to your subject so you fill the frame.

Digital cameras also lack the tonal range (contrast between dark and light areas) capability of film. Dark areas turn black, and white areas turn white much faster than on film. This means you will need to be careful of subjects with extreme contrast, perhaps even avoiding them altogether. Be especially cautious of photographing a subject with a very bright or dark background.

Finally, learn how to use the image quality settings of the camera. Remember that high resolution and high storage capability are mutually exclusive. High resolution, high quality images take up much more storage space, resulting in a low number of images. For best results, use the highest quality setting available on your digital camera, and carry extra storage cards to expand the number of images you will be able to capture.

A Vocabulary of the Graphic Arts

Area resolution: the total number of pixels in an image. In digital photography, an indicator of the amount of data available for defining the elements of a photo.

CMYK color mode: a color model constructed of four grayscale channels. Used for printing on commercial printing presses and desktop color printers.

Keyline: a thin line surrounding a photograph.

Image manager: software that creates and stores thumbnail versions of photographs; allows viewing, copying, moving, and deleting the originals.

JPEG: Joint Photographic Expert Group. A pixel-based format commonly used on the web for viewing and image transfer.

PPI: Pixels per inch. Used to express the resolution of a digital image, measured both horizontally and vertically. Sometimes called dpi (dots per inch).

RGB: Red, Green, Blue. A color model used to capture and view color images. Constructed of three grayscale channels. Scanners, digital cameras, and monitors work in RGB mode. RGB images must be converted to CMYK for commercial printing.

Tagged Image File Format: a general, pixel-based format used in commercial printing for grayscale and CMYK images at 200-300 ppi. One of the most universally-used formats, TIFF files can be opened on both Macintosh and PC platforms and by many programs.

Unsharp mask: A software filter used to increase the sharpness (focus) of an image. Images captured by digital cameras and scanners often need to have sharpening applied to return to their original focus.

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TRICKS **&** tips

"More people read captions than read body copy."

Inserting Photographs Properly

Here is the recommended way to insert photographs into your document:

- **Assemble the photographs in digital form.** Select the photographs from your digital camera storage card, photo disks, or stock photography. If using prints, scan them at a minimum resolution of 300 dpi at 100% of the size to be used in the document. Using an image-manipulation program (such as PhotoShop), size each photo to approximately the size you expect to use – such as 2x3 inches – at 300 dpi. Finally, convert RGB photographs to CMYK.

- **Save your photo in an appropriate file format.** Save your photos in a file format that can be recognized by page layout software (such as Quark XPress, Adobe PageMaker, InDesign or MS Publisher). The standard file formats are Tagged Image File Format (TIFF), or Joint Photographic Expert Group (JPEG).

- **Place photos in the document.** Open your page layout program and place the photos where they will appear. Check to be sure the placed photos are close to the size they were made in the image manipulation program.

- **Adjust photos on the document page.** To improve the appearance of the photos on the page, don't make them too small. Though you may be tempted to fill your newsletter page with lots of small photos, the result will be confusion and loss of interest by the reader. Also consider adding a keyline (a thin line bordering the entire photograph) to make lighter photos stand out or to add definition.

- **Add captions.** Be sure to add captions to your photos. More people read captions than read body copy.