

*crop marks*

*bleed area*

# THE ANATOMY OF A PRINT READY PDF

## ***Don't let your project quality suffer!***

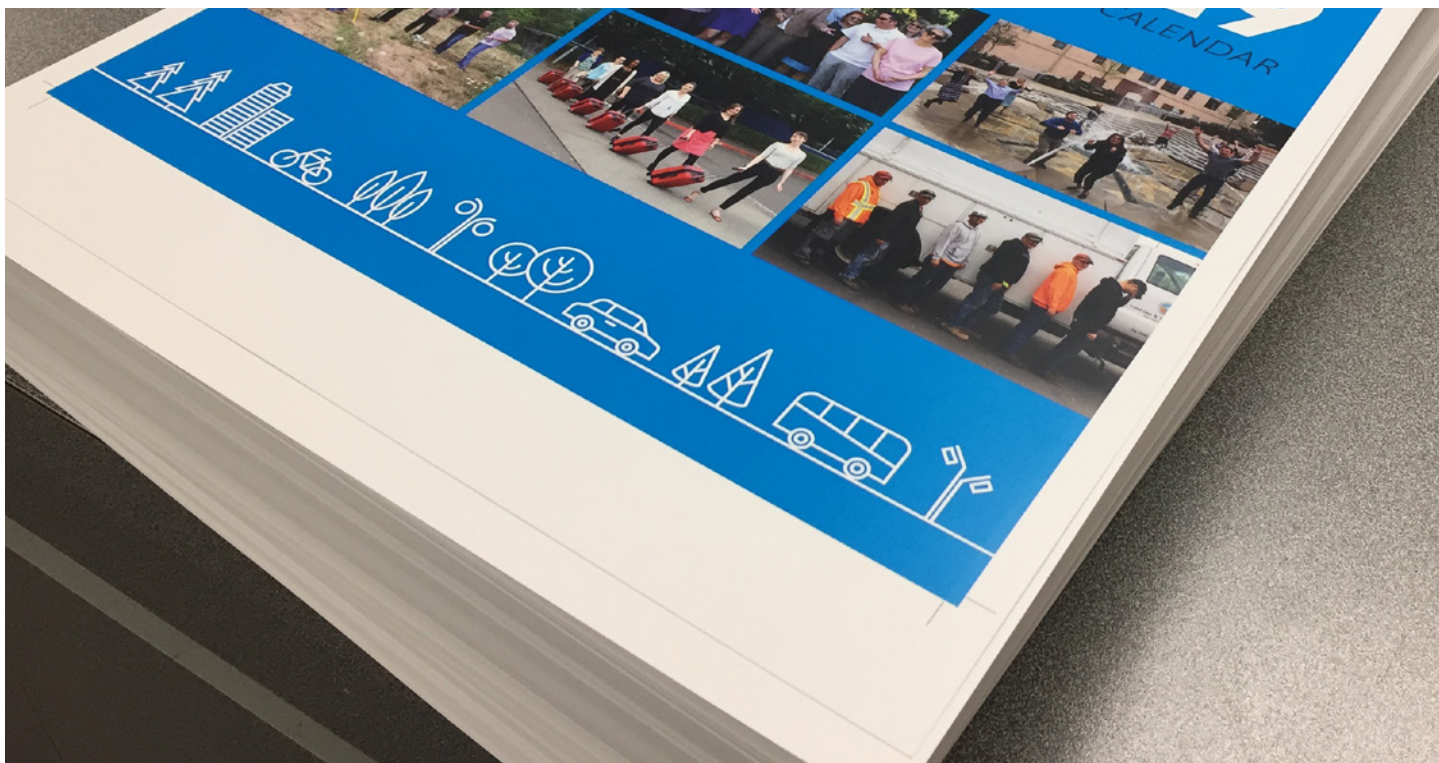
Gain control over your project outcomes,  
as well as save time & money. Learn how to  
optimize your PDFs for the best results on  
all of your printed materials.

*color mode???*

*margin area*



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# WHAT IS A PRINT-READY PDF?

## (& WHY DOES KNOWING HOW TO MAKE ONE MATTER?)

**If you've had to create artwork for printed materials, you probably know a bit about file types. You may have even been asked to provide a "print-ready PDF."**

Sending correctly set-up files is critical to ensuring your materials print exactly as you envision. Being able to create PDFs yourself means more control over your project outcomes, as well as saving time & money.

But what makes a PDF "print-ready" for most commercial printers? There are many elements to consider when creating a PDF for print.

Without adequate margins, your logo could be trimmed off. Without crop marks & bleeds, you can't achieve the professional "borderless printing" look that you desire. And without selecting the right color mode, your colors could come out looking far different from what you expect...

**Don't let your project quality suffer** - learn what these terms mean, how they work together, & how to use them to create files that work.

## Let's dive in!

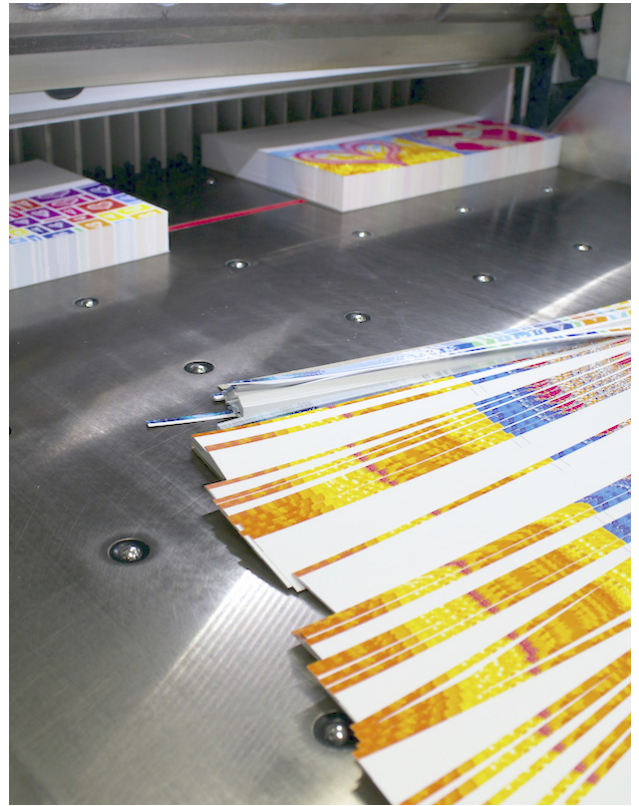
# BLEED

Let's start with **bleed**. Simply put, 'bleed' describes when printed elements or images go to the very edge of the paper. When a document has bleed, it must be printed on a larger sheet of paper & trimmed down to its final size.

Most print equipment can't print to the edge of a piece of paper – there is a white margin around the sheet, which is where the printer grips the paper to move it through the machine.

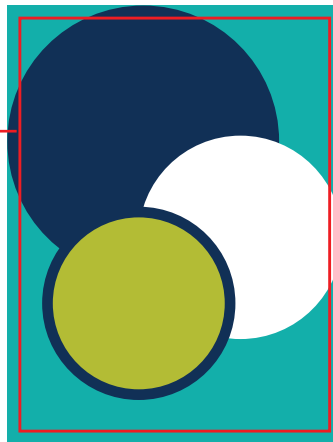
In professional printing, items are printed on a larger sheet of paper, & cut to final size. When a document does not have bleed built into the file correctly, the smallest shift in a stack of paper will result in white showing around the edges after trimming is complete.

To achieve the look of expert "to the edge printing," you need to add bleed to files to allow for a clean print with no white margins. For most layouts, a .125" bleed is a safe standard.



Pictured above are stacks of cards on a cutting machine. The strips of paper in the foreground show the bleed area after being trimmed from the final pieces.

**Anything printed outside the red line is part of the bleed - this area gets cut away, leaving an edge with no white margin.**



Before Trimming



After Trimming

**Think of it like a cookie cutter** – you roll out the dough into a sheet. If you cut on the edge of the sheet, it's almost impossible to get the entire shape.

There needs to be a little room between the cutter & the edge to ensure a whole cookie with clean edges.

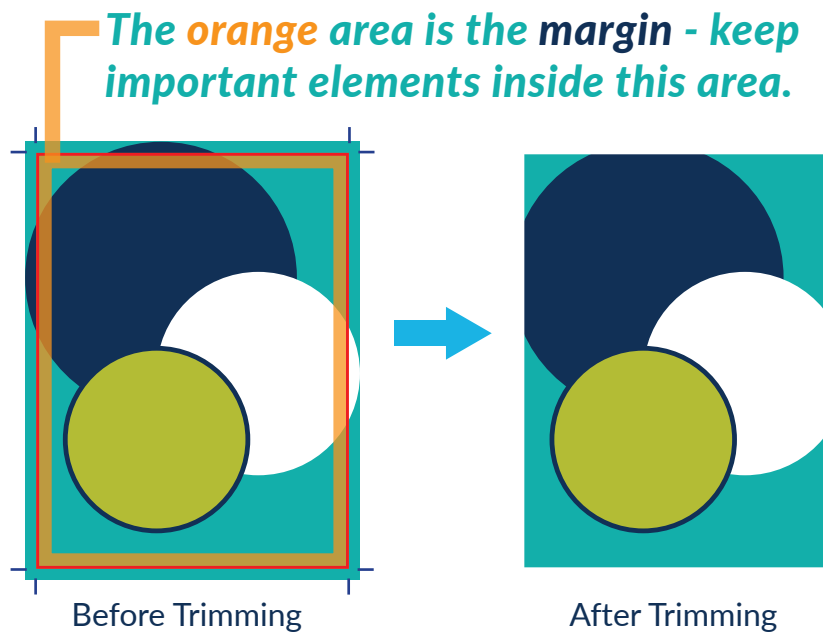


# MARGINS

The **margin** of a layout is the area around the edges, there to mark the “safe zone” for important information like text & logos. **Margins are necessary to ensure nothing is unintentionally cut off, or ends up too close to the edge.**

**Margins are also important for readability.** Text sitting too close to the edge, or cut off, is difficult to read. A safe margin for smaller pieces, such as business cards, is .125” on all sides. For sheet sizes 8.5 x 11” or above, a margin of .25” is a good standard. As the size of the piece increases, so should the width of your margins.

Since prints can shift during production, margins help to ensure your layout looks balanced & properly aligned – so your final pieces look the way you designed them.



AS YOU CAN  
SEE BY THIS  
EXAMPLE WITH  
NO MARGINS...

...HAVING  
PROPER  
MARGINS  
IS PRETTY  
IMPORTANT.



# CROP MARKS

The third critical part of creating a Print Ready PDF is **crop marks**. These are the small lines that extend past the corners of a printed piece.

**Crop marks communicate where to cut.**

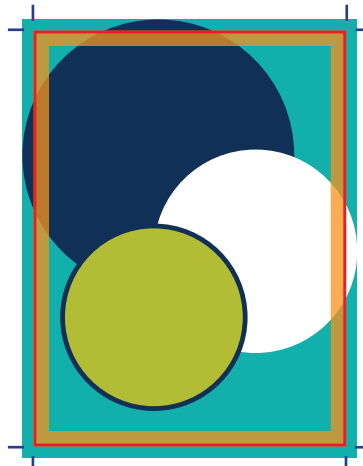
Without them, there would be no definitive way to know the final size of the piece.

Elements that bleed should extend past the crop marks, by .125". But even pieces without bleed need to have crop marks.



Even prints with no bleed need to have crop marks – like these white ink on dark purple digital prints. The crop marks also print in white, so they can easily be seen for cutting.

*The purple marks are the crop marks - they indicate where the final piece will be trimmed.*



Before Trimming



After Trimming



These flyers were printed side by side to be more cost effective. The crop marks on each corner & inbetween prints will make sure every piece is trimmed to the same size.

# IMAGES & GRAPHICS

**A picture is worth a thousand words – but the quality of that picture speaks volumes!**

A pixilated image or blurry logo instantly makes any piece feel unprofessional, no matter how good the design or photography.

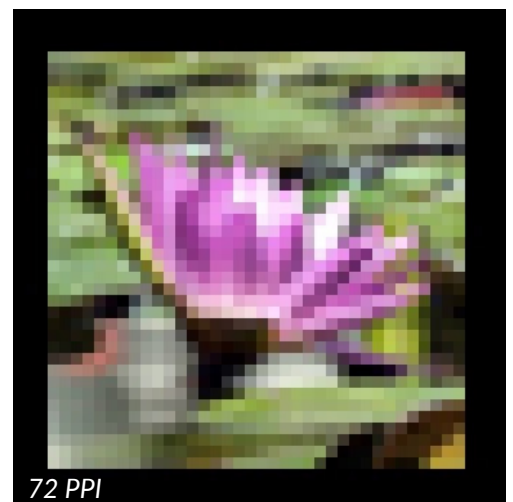
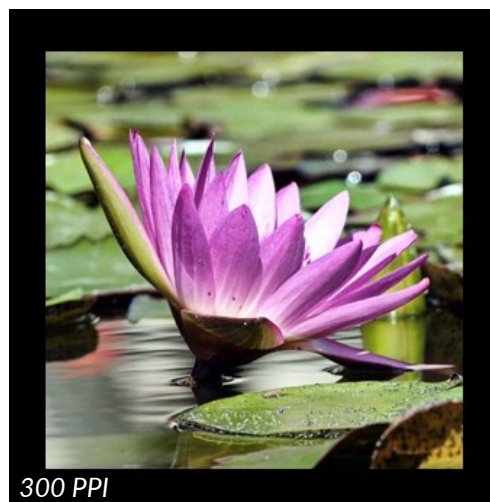
You can prevent poor quality images & graphics on your printed materials by knowing the difference between raster & vector graphics, & being mindful of image resolution.

## RASTER IMAGES

**Raster images, such as digital photographs, or scanned artwork, are pictures comprised of many small squares called pixels.** JPEG, PNG, & GIF files are all examples of raster image file formats – they all use pixels to create an image.

Raster images are measured by pixels-per-inch (PPI) – this refers to the number of pixels within one square inch of the image. This PPI measurement is called the **image resolution**.

Each individual pixel is a unique color. The more of them & the smaller they are, the less our eyes can define each pixel & the clearer the picture looks. Therefore, the higher the image resolution, the better the quality.



*Above are two representations of the same photograph printed at two different resolutions.*

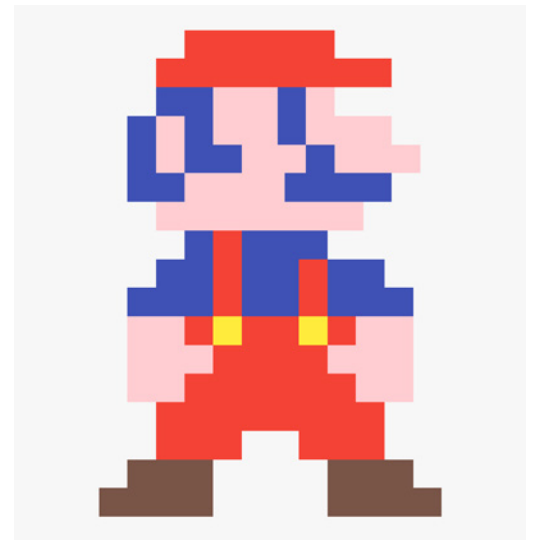
*The higher resolution 300 PPI image is much clearer & shows more detail, while the lower resolution 72 PPI image is fuzzy & difficult to see.*

# RASTER IMAGES (CONT'D)

For professional & commercial printing, the resolution for raster images should be at least 300 PPI to produce a quality print.

When the resolution of an image is lower than 300 PPI, we start to see an effect known as **pixelation**. This is typically seen when an image is enlarged from its original size.

In order to enlarge the image, the pixels increase in size until they appear as individual squares, giving the image that blocky, 8-bit look we're all familiar with from the early days of video game graphics.



*An example of an 8-bit graphic, created with solid color pixels as building blocks. Look familiar?*

## Is it ever okay to print a raster image that is less than 300 PPI?



Raster images on Large Format materials – like this photo printed on a storefront billboard – can print at a lower resolution & still look good from the sidewalk below.

**Short answer? Sometimes.**

You can check the printed quality of an image by asking your printer for a physical proof at-size, so you can determine if the quality of the final output is adequate for your project.

Raster images can be used for Large Format projects at lower resolutions of around 150-200 PPI. The distance from where these materials are viewed helps to 'blend' the image together visually – like on a billboard, for example.

As raster images cannot be enlarged without losing image quality, check with your designer or printer to confirm that your photographs or other raster graphics will print well at the size you want them to be, before you use them.



# VECTOR GRAPHICS

The name **vector** comes from the mathematical equations that create these types of digital illustrations. They are created with vector graphic editing programs, like Adobe® Illustrator, Inkscape, DrawPlus, & others. File types for vector graphics are AI (Adobe® Illustrator), EPS, SVG, & PDFs that have been saved with editing capabilities.

Rather than being comprised of pixels, **vector graphics** are made up of digital paths, outlines, & solid fills of color. They can emulate aspects of raster images – such as creating gradient transitions of color – but true vector graphics are composed of line art (sometimes called wireframes) filled with solid color.

**Vector graphics are independent of resolution & can therefore be enlarged to any size without a loss of quality.** Because of this, vector graphics are ideal for branding assets (like logos) that are used in a variety of ways, from business cards to storefront signage. Vector graphics can be quite elaborate & artistic, or they can be very simple.



*This colorful landscape is an example of a more elaborate piece of artwork created with vector graphics.*



*In contrast, this simple vector graphic is created with a single black line.*

You can combine raster & vector graphics in the same print-ready PDF. For example, you might want to print a full-color piece that features high-resolution photography, with your vector graphic logo & text over the top of it.

**Save print-ready PDFs at a resolution of 300 PPI or higher to preserve the quality of your images & graphics for print.**



*The above design features both raster & vector elements – the flowers are a photograph, while the box & text are vector graphics.*



# COLOR

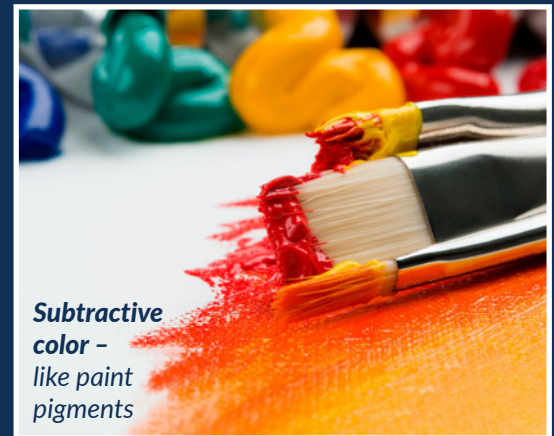
Understanding how color works, & the different color modes, will help you set up files correctly to create the colors you want to see for different applications.

The two main color modes designers use are based on the concepts of additive & subtractive color.

**Additive colors** are the result of transmitted light directly hitting our eyes – such as a computer or TV screen. Colors start as black, & the primary colors Red, Green, & Blue are **added** in various intensities to create the full color spectrum.

**Subtractive colors** are the result of reflected light, bouncing off physical media (such as paint or ink) & into our eyes. Colors start as white, & each layer of pigment **subtracts** from the brightness to create a new color. This includes digital printing, which uses four colors to create the full spectrum.

*This color mode is called...*



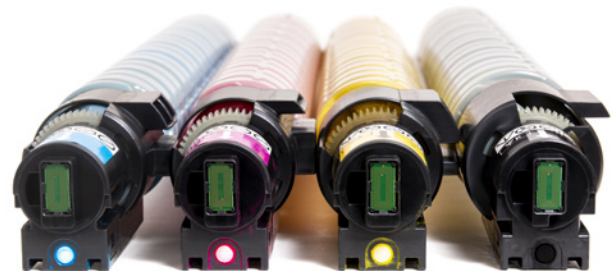
## CMYK

Commonly referred to as “4-color” or “full-color” printing, **CMYK** is the color mode primarily used for print – its initials stand for **Cyan, Magenta, Yellow, & Black (K)**.

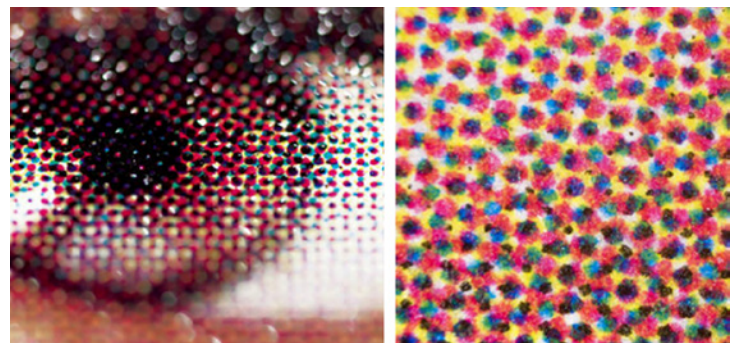
This process of printing uses four pigments to create the full spectrum of color on paper.

During printing, ink or toner is laid down in clusters of small dots, which when viewed together as a whole creates an array of colors & the final image – similarly to how pixels make up a raster image.

Image resolution determines how many clusters of dots are printed, how small they are, & how close together. The more of them & the smaller they are, the better quality the image will print.



CMYK toner cartridges for a commercial laser printer.



A close-up view of CMYK toner dot clusters – layered together to create a full-color image. (Left: close-up of dots creating image of an eye. Right: extreme close-up of CMYK dots overlapping to create clusters.)

# RGB

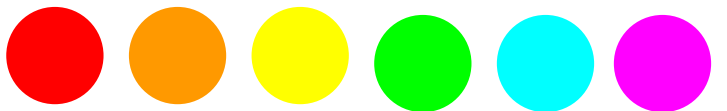
**RGB** color is used for digital media, like websites, TV & social media graphics.

Because of the wider spectrum of this color mode, you can achieve brighter, more vibrant colors on-screen with RGB. Because RGB & CMYK colors are built using two different models, there are not always equivalent colors between the two – in fact, there are some colors that can only be created using one mode or the other!

**When creating graphics that will appear both on-screen & in print, it can be helpful to start with CMYK color mode to avoid print color substitutions.**

Converting from print to screen often yields better results than trying to convert RGB colors to printable CMYK variations. A bright, neon green color might look great on your website, but the CMYK equivalent will print as a significantly duller hue.

## WHAT YOU SEE ON-SCREEN IN RGB



## HOW IT WILL PRINT IN CMYK

# PANTONE® & SPOT COLORS

As you now know, CMYK is the right color mode for print files – however, there are some drawbacks to using the 4-color digital process. For example, it's nearly impossible to replicate a CMYK-produced color time after time, as the color build is impacted by so many factors. Variables like machine calibration, ink or toner density levels, or even the level of humidity in the room can impact the visual results of full-color printing.

The answer to more exact color matching is a collection of standardized printing inks called the **Pantone® Matching System**. The PMS® color system is widely accepted & used around the world throughout a variety of industries including print, fashion, homegoods, & more.

### RGB



### CMYK



### PMS



# SPOT COLORS (CONT'D)

Pantone® inks are mixed following an exact, replicatable color formula, ensuring that every batch of ink matches, giving printers the ability to produce a specific color over & over again – even years or countries apart.

For this reason, most companies select Pantones® for their brand colors, knowing that brand consistency is key to building recognition with customers.

Did you know that Mattel's Barbie® has her own trademarked Pantone® color of pink? Many companies do this to protect the integrity of their branding – those recognizable colors become a valuable asset once consumers relate them with the brand on sight. **Pantones® make it possible to print them consistently.**

When using a Pantone® color in your print files, it is referred to as a **spot color**. Spot colors can be used by themselves, or together with CMYK elements to create full-color prints that feature an exact color match.

Coca-Cola



Fiskars



Home Depot



Slip 'N Slide



Caterpillar



Mars (Reese's)



T-Mobile



Mattel (Barbie)



Owens-Corning



Qualitex



3M (Post-It)



Tiffany



*Examples of trademarked Pantone® colors owned by their respective brands. How many do you recognize?*

## PUTTING IT ALL TOGETHER

Now that you know the terminology & what it all means, we're ready to put it together into what a complete "Print-Ready PDF" looks like.

- ▶ When you save a PDF for print, your file should be in **CMYK color mode**. If your file includes any Pantone® colors, you have them set as **spot colors**.
- ▶ You've checked that any **raster images** are at a resolution of at least **300 PPI**.
- ▶ Your file has **visible crop marks** to denote the final size, & if any elements are meant to **bleed**, they extend past the crop marks by at least .125".
- ▶ All important information, like your text & logo, are safely within the **margins**, at least .125" – .25" away from all edges to avoid any accidental trimming.

Once you've checked for all these elements, you're ready to send your PDF off to the printer!



# IT'S OKAY TO ASK FOR HELP

**There are many things to consider when creating & saving artwork for print.**

Bleeds, crops, & margins are three of the most important aspects to consider when building any print piece, & help ensure your final products are beautiful & professional looking.

Now that you know how to create files that will yield the best print results, you'll benefit from faster turnaround times on your in-house designed materials, & be able to send your printer the files they need to produce them exactly as you envision.

**Have any questions, or need some additional support around your next project?**

**Give us a call!**

We're ready to help you figure it out.



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