

Printing Tips

YOUR GUIDE TO UNDERSTANDING PRINTING



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Consider the End from the Beginning: Allowing for Bindery Functions

Are you familiar with the term *bindery*? That's the department in our company where we create the final product from flat press sheets – products like a folded brochure, a booklet, a pad, a numbered invoice, pages with holes ready for a ring binder, a spiral bound manual, or a ticket with perforations to make a tear-off stub. The bindery is where we trim business cards to final size and trim the edges of booklets to make them even. It's where we apply the glue that makes individual sheets of carbonless paper into a set. It's where we package the order and do the final quality control check. So even though we rarely mention the bindery when talking to you about a project, it is a very important part of the printing process.

Bindery operations

If you have ever cut, folded, stapled or punched holes in sheets you've printed, then you are familiar with bindery operations. We perform these operations using stand alone equipment for sheets printed on our offset presses, and with add-on modules to our digital printing equipment to collate multi-page documents, staple sets, and even make booklets. Having these inline capabilities adds a level of efficiency that can mean a faster turnaround time for your job.

Allowing for bindery operations when creating documents

You will get the best results for your project if you understand that some

bindery functions require an adjustment to the layout of the document file. The three most common are allowances for trimming, folding and document binding.

Trimming

If your document contains a *bleed* – an image or line or solid color that extends all the way to the edge of the sheet – the layout will need adjusting. This is because we can't print an image to the edge of the sheet. What looks like printing to the edge is really a printed image that has been extended past the final size, then trimmed to the final size. The standard allowance for a bleed is 1/8 inch (0.125) beyond the finished size. So if the final size of your printed product is 8.5 x 11, then set the document size at 8.75 x 11.25, set trim marks at 8.5 x 11, and extend the image that will bleed .125 inches past the trim lines.

When preparing a file for an item such as a business card where more than one can fit on a press sheet, then include trim marks that show us what you intend for the final size. Depending on what is being printed, we may prefer to have just one image with trim marks rather than several images on the sheet. The process of positioning images to print on the press sheet is called *imposition*; we may want to determine the imposition plan ourselves based on production considerations.

Idea Corner

The cover of your document – the first thing the reader sees – is a very important part of the finished product. To safeguard the cover from scuffing and wear, consider these means of protection:

- **Coating.** Coatings are applied after printing as a protective layer. Some commonly-used coatings are varnish, aqueous and UV coating. Coatings can be applied to one or both sides of the cover.
- **Overlay.** Use a clear plastic sheet over the top of the cover. The sheet will normally only be necessary over the front cover where the most protection is needed.
- **Die cutting:** instead of printing on the cover, cut a window through which text on the title page will show through. This technique also increases the range of stocks you can consider for the cover since it won't have to feed through a copier, digital printer or press.



Folding

When you are preparing a document like a trifold brochure, remember that the size of panels that fold in must be slightly smaller to produce a completely flat and even fold. The adjustment is particularly critical when the image from one panel abuts the image from an adjacent panel. To compute the adjustment mathematically, determine the width of single panel if all were the same size, reduce the width of the panel that folds in by at least 1/8th inch (or more, depending on the thickness of the paper being used for the job), divide by two and add that amount to each of the outside panels. Here's an example:

8.5 x 11 sheet of paper folded in thirds to produce a brochure measuring 8.5 x 3.67 after folding.

- 11 divided by 3 = 3.667 (the width of a panel if all were equal)
- To determine the width of the inner panel, subtract 0.125 (1/8th inch) from 3.667 = 3.542
- To determine the width of the outer panels, divide 0.125 by 2 = 0.063. Add this amount to 3.667 = 3.73
- Result: the panel that folds in (the inner panel) has a width = 3.542; the two outer panels have a width of 3.73

Remember that the position of the inside panel changes from the front to the reverse. In the example above, the inner panel moves from the left to the right depending on whether you are working on the outside or inside of the finished brochure. To see this easily, fold an 8.5 x 11 sheet of paper in thirds, make a mark on both sides of the inner panel, then unfold.

Drilling/Punching

To put holes in paper, we may use a spindle drill (similar to a wood drill) or a punch (in line on the digital printer or for mechanical binding such as plastic comb or coil). When you are setting the margins for an item that will be drilled or punched, you must allow extra space from the edge of the sheet to where the image begins to accommodate the drill or punch pattern. A half inch clear space is recommended for an 8.5 x 11 sheet, so shift the margin to the right for one-sided pages. For two-sided pages, shift right for odd-numbered and left for even-numbered pages.

Booklet making

Booklets consisting of more than two or three flat press sheets before being made into the booklet can present a problem known as *shingling* or *page creep*. To illustrate page creep, fold ten sheets of

paper in half. Gather them into a booklet and examine the booklet's outer right hand edge. Notice that the pages are uneven (shingled). This is the result of page creep. To eliminate the unevenness, the final step in making a booklet is to trim the face (*i.e.* the outer right hand edge). If there has not been an adjustment for page creep, it is possible that text, page numbers, or other images may be trimmed away during the face trim.

Making exact adjustments for page creep requires complicated mathematical computations. A less accurate though simpler method is to make a dummy booklet: fold the exact number of press sheets that will make up the booklet, gather them into a booklet and stitch (staple) in the center fold. Make the face trim, then disassemble the booklet. Measure the width of the inner-most sheet (the one that will have the center spread) and set page margins accordingly.

Do it yourself or ask us for help

The instructions we've given to adjust for trimming, folding and mechanical binding are standards in the printing industry, so they are worth learning. However, if the software program you are using doesn't have the tools to make the adjustments easily, then we suggest you let us do it for you. Give us a Word file with text, tell us

where you would like photos or graphics placed, and let us do the final layout. The cost is small compared to what you'll save yourself in time and frustration.

For more information or a cost estimate, call us at **970-245-1294** or go to our website at **www.ppgj.com** where you can submit a request for a quote.

Tips & Tricks

A fold will be smoother and more resilient when the grain of the paper is parallel to the fold. Paper grain is the direction of the wood fibers on the sheet. Paper folds smoothly with the grain and roughens or cracks against the grain (also called cross grain). Paper is also stiffer in the grain direction and expands or contracts more in the cross direction when exposed to moisture.

As a rule, we print on the sheet so that folds will be with the grain. When this is not possible, we score the paper fibers to break them evenly before folding. Scoring is usually necessary for all cover weight papers, for some text weight papers, and when an area of heavy ink coverage crosses through a fold or color break.

Vocabulary

Against the grain: folding paper at right angles to the grain direction. Results in broken paper fibers and a rougher finish to the fold than when folding with the grain.

Bleed: an additional amount of an image that extends beyond the edge of the page.

Crop: to eliminate portions of the image, usually on a photograph. Often indicated by crop marks that print on the press sheet.

Finished size: the exact dimension of the printed piece when trimmed and folded.

Flat size: the exact dimension of the document or page after trimming but before folding. The flat size dimension always includes compensation for folding.

Folding dummy: a sheet or sheets assembled and folded to finished size.

FPO: an acronym for *for position only*. A low resolution image placed in a document, to be replaced before printing with a high-resolution version.

Hand fold: folding styles that must be done partially or completely by hand. A hand fold can follow a mechanical fold.

Imposition: in booklet or book making, the placement of pages on a signature so that after printing, folding and cutting, the pages will appear in proper sequence.

Mechanical binding: holding pages together by stitching, plastic comb, plastic or wire spiral, stitching with tape binding or other means.

Mechanical fold: a fold that can be made with a folding machine.

Paper grain: the orientation of paper fibers. During paper making, most fibers line up with their length parallel to that of the paper making machine.

Saddle stitching: applying one or more staples in the fold of a booklet.

Shingling: in image assembly and layouts, the center or gutter margin that is adjusted according to the position of the page in the signature and the bulk of the paper.

Signature: in booklet or book making, a group of pages on a single press sheet that have been positioned so that after printing, folding and binding, the pages appear in proper sequence. Placement of pages in a signature is determined by using a folding dummy.

Spread: two pages meant to be viewed as one.

Trim marks: marks placed on the copy to indicate the edge of the page or image.

Q&A

What is the best way to bind a booklet or manual?

There is no best way, as each binding method has its own strengths and drawbacks. Here is a brief summary:

Saddle stitching/saddle binding: applying one or more staples on the fold. Printers distinguish between stapling and stitching. A stitching machine forms a staple from a length of wire that can be adjusted depending on the number of sheets in the booklet. A staple is a fixed length and therefore has a maximum number of pages that can be stapled. Saddle stitched books

and manuals will lie flat. Once stitched, no additional pages can be added. A stitched booklet requires an allowance for shingling/page creep.

Comb binding: inserting coiled plastic "fingers" attached to a length of plastic that acts as a spine. Because holes for the "fingers" must be punched at about 3/8 inches from the binding edge of the sheet, it is best to keep that area clear of all text and diagrams. Comb bound books and manuals will lie flat. Comb binding can be removed so additional pages can be added,

but this requires a special punch and comb binding machine. Comb binding requires that text be a minimum of 3/8" from the bound edge of the sheet/page.

Spiral binding: similar to comb binding except the binding device is a length of coiled wire or plastic threaded through holes drilled on the binding side of the sheet. Spiral bound books will lie flat when opened, the spiral can be removed and rebound, and text must be a minimum of 3/8" from the bound edge of the sheet/page.

May I have a word?



Randy Greathouse
General Manager

One of the things I like most about the print shop is the manufacturing process. As much as I appreciate the ease and productivity that digital functions have brought to prepress and printing, I have a soft spot for old fashioned mechanical processes – cutting, folding, binding, numbering, scoring, perforating, die cutting – all the things we do to create a finished product.

The industry term for these functions is *bindery* and we've got a lot of machines that help us get the work done. Some of these, like our cutter, takes into account the fact that a stack of paper behaves like a block of wood. For example: though it is easy to cut a single sheet of paper with scissors, a stack of paper skews and therefore limits the amount that can be cut at once. Our precision cutter has an ultra sharp blade (called a knife) and a clamp. The clamp holds the stack of paper (called a lift) immobile while the cut is made. And the knife does not drop straight down – it drops at an angle like a guillotine, smoothly slicing its way through the lift.

Our bindery workers are not only skilled at operating these machines, they have an eye for detail and zero tolerance for imperfection. That's why every brochure is folded exactly the same and stacks neatly and every business card is exactly the same dimension. Next time you're in the shop, ask to see our bindery – we'd be glad to show you.

Is *your* website easy to use on a smartphone?

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Lighter Side

"Doctor to patient: I have good news and bad news. The good news is that you are not a hypochondriac."

A young business woman was driving back from an important meeting in Arizona when she saw an elderly Native American woman walking. She stopped to offer her a ride, and the woman got in. Noticing a bag in the back seat, the elderly lady, after a while, asked what was in it. The young lady said it was a bottle of wine she got for her husband. After a brief pause, the woman commented in a soft wise tone, "Good trade".

"Quotable"

"Weakness of attitude becomes weakness of character."

– Albert Einstein

"Time flies like an arrow, fruit flies like a banana."

– Groucho Marx

To our customers and friends... *Seasons Greetings!*

To allow our staff to enjoy the holiday season with their friends and families, Precision Printing will be closed on the following dates:

Christmas Week: December 26th, 27th, 28th, 29th & 30th

New Year's Holiday: January 2nd

Holiday Closures



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