



A GREEN PRINTING PRIMER

One of the first things clients ask us about is ‘green printing’. Environmentally sensitive printing practices are making, collectively, an astonishing difference in the responsible stewardship of our natural resources. Today, organizations can achieve sustainable printing results without sacrificing quality, cost, or time versus conventional printing methods.

We’re indebted to the many progressive printing firms that we work with in Vermont, who have been leading the green wave for years. This article covers just some of what they’ve taught us.

There’s much to be said about this topic, but I think most of the key points fall into the following four categories, which serve as the organizing structure for this article:

- I. Printing Methods & Inks
- II. Design Considerations
- III. Paper
- IV. Resources

I. PRINTING METHODS & INKS

Offset printing is still the predominant form of high volume printing. It hasn’t changed much in a century, and relies on the principle that oil and water don’t mix. Liquid inks are poured into towers or wells of a printing press. Metal plates are etched with the image to be printed on the paper. Parts of the plates are then coated with a water based solution. Then the oil-based inks are applied to the plates, and adhere only to the sections that have not been coated with water. The ink is then transferred to the paper, color-by-color. The ink dries, and the job is done.

Digital printing is either based on the use of toner or ink-jet methods. Toner based printing does not use ink, but rather uses a dry powder that is ‘baked’ onto the paper with heat. Your office laser printer is small scale toner based printer. Ink jet printing sprays a water and solvent ink onto the paper, which is sometimes cured or dried with ultraviolet light. Both methods are good for small jobs,

customized printing, or in the case of inkjet printing, large format work (bus wraps, billboards, trade show booths and banners). In general, digital printing is friendlier to the environment than offset printing.

Offset printing, however, is what most organizations will choose for high volume printing. The other options are still not cost effective for big projects. Nevertheless, there are important things customers can do to lessen environment impact.

1. Stay away from alcohol. Remember the 'water and oil don't mix' principle for offset printing? Well, that water isn't pure water. Traditionally, it's been mostly alcohol. And that alcohol, after it has been applied to the plate, 'flashes off' and evaporates into the air. Alcohol is 100% VOCs, very bad for air quality and health. It used to be that when you walked into a print shop your eyes would sting and you'd cough. Imagine being a press operator doing a 10 hour shift every day. Not good.

Today, progressive printers use less volatile compounds that produce dramatically reduced off-gassing. *Look for a printer that does not use alcohol.*

2. Direct to plate. Many printers are making or have made the switch to direct to plate printing. The metal plates used in offset printing were traditionally produced using many rounds of film. This film uses a lot of silver, a toxic compound, and most of it ends up in landfills. Direct to plate printing eliminates the film, and takes hundreds of tons of silver out of the waste stream every year. It's also faster, and after the printer amortizes the cost of the equipment, cheaper. *Find a printer that goes direct to film.*
3. Vegetable based inks. Today almost all printers are using vegetable based inks, like soy ink, rather than petroleum inks, but there are a few holdouts. All inks must dry for the piece to be finished. Petroleum inks evaporate toxic VOCs when they dry. Veggie inks don't. Better for the environment, and the health of the people doing the printing. *Specify vegetable inks for your job.*
4. Consider digital printing. For small jobs, or custom printing (for example, a direct mail piece where each piece must be personalized), digital printing is greener than offset printing. No alcohol or volatile compounds are used. Toner produces zero off-gassing, and ink jet is almost as good. *Digital printing may be an alternative for you, so ask.*

II. DESIGN CONSIDERATIONS

Before laying out a piece, the designer should consult with her production manager or printer rep. This is good practice for two reasons:

1. There are usually ways to make subtle changes in the design of a piece that result in a greener print job.
2. Printing with green methods can be a little different than traditional printing, and it's best to know about these up-front.

Take the example of printing corporate letterhead. The traditional size for a letter sheet is 8 ½ x 11 inches. A printer will print this job 'four up', which means that a sheet of paper 25 x 38 inches will be passed through the press, upon which four sheets of letterhead will be printed. Then the excess is trimmed off, and goes into the waste stream. However, if the designer slightly reduces the size of the letterhead by ¼ inch, to 8 ½ x 10 ¾, the printer will be able to use a significantly smaller sheet (that's because sheets come in standard sizes, and the next one down is much smaller), reducing wasted paper. Most people will never notice the slightly smaller letterhead size. And it costs less. But if you print 3,000, 25 page catalogs, you'll conserve hundreds of pounds of paper.

Another example: recycled papers today produce print quality on par with virgin paper stocks. However, they have some different characteristics that your printer can make you aware of. Inks tend to absorb more deeply into recycled stocks and spread a little more as they dry. So, for example, very fine type reversed out of a solid ink color might benefit from a slightly increased font size. Or close tolerances between lines or shapes should be held apart a little more to compensate.

So call your printer before designing. Good printers want to work with their customers this way and welcome the call.

III. PAPER

Sustainable paper production and forestry practices are seeing steady growth. Five years ago there were as few as 20 good quality and commercially viable recycled stocks available. Today, there are literally thousands of stocks that contain recycled fiber, and 100+ stocks are 100% post consumer content, or produced cradle-to-grave in a sustainable fashion.

A quick word about the term 'recycled': By the EPA's standards, any coated paper that contains at least 10% recycled content and any uncoated stock that contains at least 30% recycled content can bear the term 'recycled'. So recycled can mean a lot of things.

A better measure is the amount of post consumer recycled content. For many applications, there are 100% post consumer recycled stocks that print beautifully.

Even more compelling than post consumer recycled content percentages are the various e-certifications used in the forest product industry today. These certifications are usually 'chain of custody' and ensure that the most sustainable production methods have been followed from cradle to grave, from timber growing and harvesting to transportation, manufacturing and printing. This is the best way to be sure that your paper didn't originate in a 1,000 acre clear-cut.

Two prominent certifications are FSC (Forestry Stewardship Council) and SFI (Sustainable Forestry Initiative). There are different levels of certification for each, and you can even buy paper that is milled with wind power and made carbon neutral with offsets. Only certified printers (a very stringent process) can print on certified papers. If you do choose to use a certified printer, you are eligible to use the certification logos on your printed materials.

If you're going to print a multi-page brochure or catalog, certified printing can make a surprising difference. Many paper company web sites provide calculators to quantify the impact of going green. For example, for a print job that uses 500 lbs of paper, Mohawk's calculator shows the following savings achieved by using 100% post consumer recycled, wind-energy produced stock versus a similar, traditional stock:



Pretty impressive stuff for only 500 lbs of paper!

IV. RESOURCES

There's a wealth of information available online. The following resources are a good start for learning more about green printing. Thanks for your interest, and keep on Making Good!

- ♻️ The forestry Stewardship Council (FSC): <http://www.fscus.org/>
- ♻️ The Sustainable Forestry Initiative (SFI): <http://www.sfiprogram.org/>
- ♻️ Mowhawk Paper Company (download the Environmental Calculator): <http://www.mohawkpaper.com/>
- ♻️ Environmental Defense (a very rich site, check out the paper calculator): <http://www.environmentaldefense.org/papercalculator/>

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