Quality Reproduction Workflow

Creating a high-quality publication is a team effort on the part of the advertiser, publisher and printer. All need to embrace the commitment, allocate the resources and put in the time needed to insure quality is established by following offset printing specifications.

This booklet will discuss how to achieve this by focusing on key areas of publishing and the specifications offset printers have arrived at by input of printers and the statistical information gathered by thousands of press runs.

The process that we will focus on is **NEWSPRINT WEB OFFSET PRINTING**. There are several calibration tools that a printer can use to insure quality print reproduction for newsprint web offset. Some examples would be to use density bars to measure for proper ink density, microscope to verify dot quality, I.C.C profiles to simulate print results, dot gain measurements to compensate for the type of press that is used and process control systems to insure crucial steps are not missed.

There are also tools a publisher can use, I will briefly mention dot gain, it is an extremely important factor in newsprint web offset printing that should be embedded in graphic files but rarely do we see it implemented. This specification is one of the biggest reasons a clients quality expectations are not met. Many would say they did not know about it or they thought the printer can adjust for it if they missed it. The reality is that certain responsibilities need to happen at certain stages from the publisher's just as the advertiser and printer have their responsibilities.

Our goal is to make web newsprint offset printing appealing so we can promote our industry and prove that web newsprint offset printing can be a vital method for readers to gather information. This paper will help explain what responsibilities a publisher should address or already have in place as part of their workflow.

Layout

A mock-up or dummy of the paper is an important piece of the puzzle. It allows for the paper to be assembled in a efficient manner. Ad layout is another type that needs attention as well. Things like were placement of 4 color ads and editorial stories happen at this stage. Another item that can be addressed at this point should be ink starvation, this happens when large patches of solid color make it impossible to maintain an even "lay down of ink." On any given offset press, but especially a newspaper press, there is only so much ink available to lay down per cylinder revolution. Borders on large ads may be hard to print consistently, screening back the percentages will help by not laying down to much ink at one time insuring plenty of ink is available for other parts of the page or plate.

Ink setoff can occur when an ads total ink levels has been exceeded. Typical newsprint can absorb 220% combination of ink before it stops absorbing ink and will cause it to imprint a reverse image on the opposing page.

Text that is intended to be black but has erroneous color in it is another big issue with offset printing. If one is going for a dark black using 100% black is all that is needed for newsprint web offset printing. Using other colors to punch up the black would work well for sheetfed printing but cause registration issues as well as total ink limits to be exceeded when done in newsprint web printing. If you copy and/ or paste text or graphics from the internet you are most likely passing on these bad blacks to the printer. The internet uses a color space of RGB. When converted to

CMYK for printers it almost always will become 100% of each cyan, magenta, yellow and black making the total ink limit 400%,not to mention low resolution. What would this do to an ad that is on the opposing page when it is folded and pressed through a series of rollers and folders?

Reversed or white type on any color background should be looked into to see if it can be reproduced with any level of quality. Is the type above 12 point? Are there serifs or other detail that will close up due to dot gain? If the background is black does it have any cyan, magenta or yellow to further complicate the printing? Is there a disclaimer with 6pt reversed text? Not only text elements should be adjusted for the type of printing used. A sheetfed press running 300LPI work would not use newspaper specs for photos just as we cannot use files designed for Internet pages. They each have unique specifications and standards to insure a certain level of quality.

Photos

There are 2 types of photos we will discuss, conventional and digital. Both can give high quality results and both can give unacceptable results. The main issue here is resolution. First we will discuss conventional. We will assume the photo has been scanned in at 300dpi and to size. If the 2 by 2 inch photo is 300 DPI and you place it or increase it size from the original to 4 by 4 inch size you will have reduced the resolution by half causing the photo to fall well below standards. If you were to take that same photo and place it at 1 by 1 inch it would be 600dpi and would make it acceptable for high end sheetfed work. You could also blow it up as much as 8 by 8inch, convert it to RGB and it would be fine for Internet use Conventional allows you to have better control and allows for specs to be embedded.

Digital photos take extra care because you have less control of the original input of the image. Some items need to be addressed. This can be color space, resolution, size and exposure time.

Most digital cameras work in RGB mode and need to be converted with Photoshop to CMYK or grayscale. Resolution needs to be addressed, was the camera set up to store more photos or to take fewer at a higher quality. What is the physical dimensions of the photos at 300dpi? Is the camera capable of 300dpi photos and at what physical size ?

The easiest way to a good reproduction is a good original. Contrast, clarity and sharpness are the key elements to a good photo and their importance can not be stressed upon enough. The graphic designers should be looking at these areas and alter them when needed using Photoshop to digitally correct them for the media it will be used for. Newspaper presses have the smallest printable gamut. Contrast needs to be adjusted to capture as much detail as possible. Image editing, using a number of tools Photoshop has, can make this a very easy job today. Sharpness can be helped with filters like unsharp mask or a number of third party plug- ins. The focus of the photo can be enhanced to give the image the effect that is intended.

Wether you use conventional or digital images the need to adjust them is crucial. The use of a program like Photoshop will make the difference here. To achieve a quality image it must be adjusted in photoshop and tagged with a profile for dot gain, press type and colo managment.

Image editing in Photoshop can be done by the numbers. Verify colors by reading values with the color picker in the tool palette. If you are going for brighter colors make sure you do not read any black in the ink combination. The standard recycled newsprint paper has a low brightness value. The paper itself is similar to adding 2-3 % black to the color itself, if you can, see if your printer has an I.C.C. profile for the paper you are using. A calibrated monitor and an I.C.C. paper profile loaded into Acrobat or Photoshop for Digital proofing is a powerful combination for seeing a close representation of what the final print will reproduce like.

Whatever your source is for images there are a few qualifications they should have for a quality reproduction. The image should have adequate and even lighting throughout. There should be a defined white and Black point keeping a full tonal range within the photo. The photo should have enough contrast between highlights, midtones and shadows. Image prep is a key ingredient to produce a quality reproduction.

Scanning

Every scanner is different and should be understood completly before using. If there are color casts due to the scanner a Photoshop curve should be made and applied to all images to help color correct it.

A previously printed image will most likely scan in with a moire in it and a halftone scanner would need to be used.

Scan and crop the image to the final size and resolution being used in the publication.

Any items that originate from an inkjet printer,fax, laser printer or pulled from a web page are not suitable since they have been degraded and will not be able to meet dpi standards.

Image Prep

Time must be taken to insure images are utilized at the highest quality possible. All images need to be adjusted for white and black point. The white point should have all colors or dots removed but not to much were detail will suffer in detailed whites. The black point should not overpower the image and create a loss in tonal range. The idea here is to open the tonal range that can be printed without giving the image an artificial or flat look. The problem here is that an original photo can have a printable density between 3.0 and 4.0 but once used for offset printing will only have a printable density between .05 to 1.1.

Midtones are another area that almost always will need to be adjusted for offset printing. There are Value sheets that can be used so target combinations of color can be checked and adjusted by the numbers. After the midtones are adjusted you will need to go back and restore the blackpoint.

You will need to use the color sampler or picker to verify results. Knowing what color can be expected by obtaining values is the only way to understand what to expect. If you go with what you see on the monitor or inkjet printer, neither which will give you close results unless calibrated with 3rd party software and I.C.C. profiles generated from them. Time and experience with reading color values and knowing what the end result will have to happen if a closed loop color management system is not used and the colors are not printing as expected. Today printers can print by the numbers and as long as SNAP or similar standards are utilized in the press room than what color was made will be printed on the sheet. Remember though that the brightness of the paper will affect the color so obtain an I.C.C. profile from your printer for the paper to be used.

Color Management

Every scanner, printer and monitor sees color differently, that is why I.C.C. profiles are important. They tell each device how they should see it and reproduce it for that device. A closed loop system is the best one to have. This enables all the hardware devices to render the expected colors as they will appear by deciding which colors can not be reproduced and replacing them with what will be reproduced, neon colors are a good example since they can only be reproduced with the RGB color space an I.C.C. profile will adjust it to what can be expected.

To implement a closed loop color management system is difficult. It will require capital investments that most companies may find to difficult to allocate. The publisher will need to understand that this is a complicated area, a huge time requirement will need to be invested along with dedication and resources made available to the staff in charge of implementing a color management system.

On the printers side there is a large amount of press time that needs to be allocated to test and retest to insure the gap in color differences are as slight as possible. There is also a huge expense to be expected in training technicians on how to use and implement color management. The hardware and software needed to implement a color management system does not come cheap. The saying if you have to ask how much it is than it most likely is not a financial option for you. That all said, if color is important to the point you say “Iam not satisfied with my results” than a color management system is not an option for you. Today printing can be done by the numbers, the numbers or color combinations that are made in the page layout program will be the same numbers the press will use to print the publication in most cases.The question to ask if you think your publication was not printed to the “numbers” would be, “Did the printer use a spectrophotometer to verify the ink density “ and “Did I accurately read color values and interpret those values properly to understand what the end result will be?”

My realization is that years of experience of trail and error is the only way to understand color and all of its nuances to the point were punches will not be pulled when you see the final product.

Preflighting

The most important part of the publication process is the preflight. I can not stress enough the benefits of performing this. With the technology today one can be put less time in the compilation and mechanics of the files being built as long as a program that will not only preflight but can correct or allow editing with in the PDF file. A good preflight program will allow a profile to be used to check and compare the file to. This may mean checking for RGB elements, fonts that are not embedded or ink saturation limits. Profiles are used in good preflight programs, these profiles such as a “PDFX1a for Newspapers”. This profile will make sure specs are met for offset web printers and if not will correct them to were they need to be as well as warn if a font will not reproduce or convert RGB to CMYK. The PDFX1a format was made and agreed upon by printers like us in the industry and have been embraced as a standard for a good file. If the file can not meet the extensive list of specs than it will not make the PDF file in a PDFX1a format. This lets us know immediately if we have a good working file or one that may not meet our specifications and may cause problems or delays later down in the printing process.

If your publication is a revenue generating publication than preflighting, or insuring that the file meets certain standards is not an option. Think of it as insurance that you will not have to correct an issue that your printer calls you about or experience delays. Please remember that the printer only wants to print your publication to the highest quality possible. Keep in mind that the responsibility for good, clean files that meet the industry standards is the publishers and graphic artists responsibility and reproducing good clean copy is the printers. Just as you would not expect the printer to have you come in to help run the job on press or output plates the printer does not anticipate having to fix or change something that should have been addressed in the production of the paper.