

BOOK GROUP FILE CONSTRUCTION AND REVIEW STANDARDS

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This document contains a description of the file review process followed by RR Donnelley Book Digital Solution Centers. It also contains our recommended standards for file and page construction, as well as important art and design considerations. Unique manufacturing solutions offered by RR Donnelley—such as our “belt” presses or digital printing—have unique requirements that are detailed in separate documents. Likewise, specific requirements for an on-line workflow through InSite are documented separately.

Purpose of File Review at RR Donnelley

As quality-minded printers, it is the goal of RR Donnelley to faithfully reproduce the content of the files provided by our customers in adherence with generally accepted industry standards for quality book production.

In fulfilling that purpose, it is RR Donnelley's responsibility to provide the necessary design and technical information to prepare files that will reproduce well and meet the customer's expectations for quality in the finished book.

With such design and technical information provided, RR Donnelley works from the presumption that those recommendations have been followed, and that variation from those recommendations represents an intentional choice by the customer.

As the customer is the chief authority regarding content and design, it is more important for us to check those characteristics that might prevent us from faithfully reproducing what the customer has provided. Therefore, RR Donnelley will *not* check for conditions that represent customer choices, such as the color builds in tints, small type in multiple colors, etc.

Thus, file review by RR Donnelley focuses on our ability to run files with the information provided, and not on design or content checks within files or proofs. It is our presumption the customer has checked for proper design, content, and page setup. RR Donnelley checks for run-ability of files and audits a sampling of pages for proper print results. We will also inspect those aspects of setup for which we are responsible, like proper position and order, checking for blank pages, color trapping files (if required), managing versions based on file setup and customer instructions, etc.

Process of File Review at RR Donnelley

New files are checked for basic characteristics for success as they are processed, using software automation where possible. Pages in new titles will be spot checked for global page construction issues such as minimum margins and adequate bleed. (Our specific recommendations for file and page construction standards are detailed separately.)

RR Donnelley issues a report within two working days of receiving files only if we find problems in basic file or page construction. Our technicians can assist you in understanding and correcting any issues found.

File testing in advance of live files is strongly encouraged, as this will allow us to perform more in-depth analysis of potential design or print quality issues beyond the basic construction issues checked on live files.

File Testing

As noted earlier, file testing in advance of producing live files is strongly encouraged. This is the opportunity for in-depth analysis to reveal potential problems with reproduction resulting from file construction or design choices. File testing is, of course, only truly useful if there is still an opportunity to change how final live files are prepared. Once live files are received, we assume that our recommendations for reproduction have been followed and any variations in the files represent intentional choices by the customer.

A test should consist of up to thirty-two pages OR representative elements that repeat throughout the book. If more pages are received, we will select a sample for in-depth analysis. Since this is a detailed examination, we require somewhat more time to perform this review and prepare reports than we do with live files. Those customers who have already tested work with a given set of elements and a standard production process will likely not benefit from testing all such files.

Following are among the criteria we will evaluate during file testing:

File Construction

- File naming and organization that facilitate identification and processing
- Complete page sets received
- Trim size matches job instructions
- Fonts embedded in PDFs and Postscript
- Color space of files ready for proper separation
- Colors match instructions for printing
- Application files include all required files and are usable as is

Page Construction

- PDF documents set up as single pages, not spreads
- Continuous tone and linework art resolutions sufficient
- Design and type elements clear safety margins
- Bleeds—where needed—are sufficient
- Printer's marks are outside of bleed area
- OPI—Open Prepress Interface tagging—is not used in PDF files
- Pages align back-to-back correctly
- Overprint and knockout settings in the file do not create apparent problems
- Blank pages are inserted only where needed
- Keyline, ISBN, country of origin, and printer information are correct

Design Recommendations

- Images or type that span the gutter allow for binding method
- Fine type and rules in multiple colors
- Total area coverage in color values
- Black and white and 4/C halftone values are appropriate
- Black channel generation in 4/C halftones
- Tints and neutral tones built for reliability and repeatability
- NASTA spec adherence in designated textbooks
- Fine type and rules that reverse out of other colors
- Rich black used appropriately, or “weak” black overprinting color areas
- Files previously trapped
- Reliability of supplied color guidance meets expectations

At-A-Glance: Recommended Standards

File Standards

- File names follow naming convention*
- Files match job ticket pagination
- Correct trim size
- Page Setup Single page PDF (not spreads). Single page mode facing pages in application acceptable if individual pages can be printed.
- Fonts embedded
- Colors not allowed (RGB, LAB, CalGray, Cal RGB, ICC)
- Colors in files match written instructions
- Application Files All fonts and images supplied
- File Transfer Internet FTP, HTTP, Email, Wamnet, MassTransit. Media: CD, DVD. Please call customer service for other formats.
- PDF files encouraged
- Composite color (not separated)

Page Building Standards

- CT Image Resolution 300 dpi (200 min)
- LW image resolution 1200 dpi (600 min)
- Safety margin ¼ inch
- Bleeds 3/16 inch (1/8 min)
- Printers marks 18 pts outside trim or removed
- OPI not recommended
- Gutter margin (1 inch for side sewn and side stitched; 5/8 inch for Smyth, perf notch and adhesive bind; 11/16 inch for mechanical binding)
- Backup—constant page elements on back to back pages should be in same position
- Overprint Correct Appears as intended in Acrobat with overprint preview on
- Blank pages must be blank
- Country of Origin and Printer typesetting must be correct.
- **Keyline and ISBN typesetting must be correct.**

Design and Art Standards

- Spreads that cross over should be pulled toward foredge 1/4 for side-sewn, 3/32 for classic and perf-notch and 1/16 for adhesive bind. None for Smyth.
- Color Type 8 pt min when printing in two or more colors. Any text that is 4/C could result in some color variation throughout a run.
- Color Rules 1 pt min when printing in two or more colors
- Total area coverage (TAC) 300** [*This is an average—specific TAC depends upon specific printing stock*]
- Black and White Halftones (2-3% min, 5% crop, 92-96% shadow, linear tones)
- Black printer in process color images (Starts at 30-35% of 3-color gray balance)
- Tint Builds 4% min per separation. Repeating tints in CMYK should be built preferably with 2 colors and no more than 3 colors.
- Neutral Tints made as CMY should be avoided. Use black as dominant color.
- NASTA Margins are 5/8" foot, 1/2" front, 3/8" head from text block when needed for education titles.
- Rich Black build should be 100K + 40C + 30M + 30Y
- Reverse Type 8 pts min
- Reverse Rules 1 pt min

*Recommended naming conventions: Avoid any characters but alphanumeric, underscore, and period. Lead with folio range, next version, then customer, then abbreviated title. Example would be as follows: *001_r2_ABC_BookTitle.pdf*, where "001" is the folio (or range of folios, "r2" indicates the second revision of the page, "ABC" is a customer abbreviation, "BookTitle" is a shortened book title. Shortened customer and title works best. All pages should be named so that when viewed on a PC or Mac and sorted by filename, they fall in sequential order that matches book pagination. When needed, use leading zeros before page numbers so that they sort properly. If sending one file containing a range of pages, indicate the page range as 001-064, which would mean folios 1 through page 64. For Roman numeral front matter, start with "0000" followed by an underscore and then the folio in Arabic—"i" becomes "0000_1."

**Total Area Coverage, as defined by GRACoL. See www.gracol.org.

File Standards

Note that these file standards comprise what we consider the basic run-ability criteria for received files. Failure to meet these criteria could prevent us from processing job files.

File Names and Folder Organization

- Files must be consistent with pagination given in job instructions.
- Use only standard alphabetic characters, numbers, underscores and periods in filenames. Periods should appear only before the file extension at the end (.pdf).
- Avoid symbolic characters such as ! , * [] \ = / - `) (
- Use underscores instead of spaces
- Try to limit file names to 25 characters or less.

Recommended naming convention:

001_r2_ABC_BookTitle.pdf,

where “001” is the page number, “r2” means the second revision of that page, “ABC” is the customer, and “Book Title” is an abbreviated book title including version id when applicable. All pages should be named so that when viewed on a computer and sorted by file name, they fall in sequential order that matches book pagination. Use leading zeros before page numbers so that they sort properly. For Roman numeral pages, begin with “0000” followed by an underscore, then the front matter page position (e.g. “01” for Roman numeral “i”). If sending one file containing a range of pages, indicate the page range as:

001-064_ABC_BookTitle.pdf, which would mean page 1 through page 64.

Whenever folders are used to organize files, they must be logically organized so that we can effectively process the files.

Pagination

Ensure that all pages are included in file submission. If sending single page PDF files, ensure that the total count of files matches the pagination total. If sending a single multiple page PDF file, open it and check the total number of pages Acrobat displays. Supply revised pages as single page PDF files. See the file naming instructions for further explanation of proper sequencing when more than one PDF file is supplied. Include blank pages in PDF files as placeholders to ensure proper page order and page count.

Trim Size

Files should be created to the actual trim size. Deviation from this standard may require resubmission of files. Use a consistently defined media size. Avoid using a default letter size.

Fonts

- All fonts used in a PDF file must be embedded. If a font can't be embedded due to licensing restrictions, we will need to be informed in advance so the font can be purchased.
- In cases when a file requires a font that is not embedded and is no longer available, the Publisher may ask RR Donnelley to substitute our version of the font with the publisher approving proofs of the pages.
- Donnelley recommends embedding all fonts with no subsetting.
- If a customer provides files—PDF or otherwise—without fonts, it may be possible for RR Donnelley to embed required fonts (only at the customer's specific request). This carries with it a risk—assumed by the customer—the results may not match proofs/files as submitted by the customer. RR Donnelley will always recommend the customer see proofs—at their cost—for such files, but whether the customer reviews proofs or not they assume the risk for any related defects in the final output.

Color Spaces

CMYK, Grayscale and Spot color are acceptable. Avoid RGB, LAB, CalGray and CalRGB colors. Embedded ICC profiles, intended to manage color and print characteristics, will not be honored in processed pages.

RR Donnelley does not supply ICC profiles for color management. All output is managed to conform to GRACOL G7 standards for density and dot gain.

RR Donnelley color technicians can assist you with color management according to these standards. We recommend the following link for color management ICC profiles: [Profiles.zip](#)

Colors in Files

Colors must match colors intended on press as specified on the job ticket. When jobs contain spot colors, ensure that spot color names match exactly (spelling, case, spaces and suffixes) for imported graphics and page layout elements.

If substituting a process color for a spot color in files, the color on proofs will appear to be the process color you used. On press, the spot color ink will match the color swatch you choose.

PDF Standard

The recommended file format for all job submissions is PDF. We support and recommend PDF/X-1a standard, an accredited PDF standard specifically intended for press. Application files and PostScript files are accepted but not recommended file formats.

Application Files

Application files must be organized logically and include all supporting images and fonts. Some applications support plug-in software—also called add-ons or Xtensions—that must be supplied to RR Donnelley if they are required to output the files and if they are not included in the standard software installation. If application files will be transmitted instead of sent on disk, all files should be packaged together and compressed as a .sit or .zip archive before transmission. This packaging, or compression, should be done on a local drive and not a networked server.

Please refer to information posted at our website—prepress.rrd.com—about converting application files to PDFs, or contact your Technical Service Analyst.

Composite Color

Composite color PDF files are a requirement of the PDF/X-1a standard. Our prepress system is tuned to efficiently and reliably process composite files.

Due to the nature of color separated files, processing options are limited and imposition is sometimes impossible. If color separations are the only possible way to send files, contact RR Donnelley to discuss options. We may request test files to ensure compatibility.

Visual Inspection

We suggest visually inspecting a representative sample of the various styles of pages used in your book before submitting PDF files to us. There are several advantageous options in Acrobat that should be turned on in order to inspect overprints and bleeds.

- First, turn on overprint preview. Check the documentation that came with Acrobat to enable this feature. Verify overprint elements create desired result.
- Second, in preferences, turn on the checkbox for “Show art, trim & bleed boxes” in the Page Display category. Some page layout applications transfer the trim size to the PDF file as non-printing information that Acrobat will display as guides, but not print, for your convenience.
- Third, turn on thumbnail view. You can quickly see if there are inconsistently rotated pages in this view.

Page Building Standards

Note that these standards encompass aspects of design or composition that we feel are important to producing a quality printed product, but do not affect our ability to process the files or print a title. New page files are spot checked for these criteria, but it is impractical to check all pages in all files. If we discover that submitted files fail to meet these criteria, we would alert the customer that quality may be compromised, but we can continue to use the files "as is" if the customer wishes.

Page Setup

PDF documents must be submitted in single page setup, as opposed to spreads. Page size and positioning must be consistent for all PDF files.

Contone Image Resolution

Contone images should be 300 dpi resolution with a minimum of 200 dpi. Scaling images in a page layout program alters the resolution, so it is best to limit scaling in this manner.

Linework Resolution

Linework images should be 1200 dpi resolution with a minimum of 600 dpi. Scaling images in a page layout program alters the resolution, so it is best to limit scaling in this manner.

Safety Margin

- The minimum distance from trim for any elements that do not bleed is 1/4".
- Saddlewire bound jobs should have a minimum margin of 3/8".

Gutter Margins

- Mechanical binding, such as spiral and comb-bind, require special consideration for placement of text so it does not get drilled through during the binding process. The requirement for text gutter margins is that they must be set to a minimum of 1/4 inches from punch holes.
- If 3-hole or 5-hole drilling is required or combined with workbook perforations, consult with your plant representative on the required margin.
- Side-sewn and side-stitched binding should have 1-inch type margins in the gutter.
- Smyth, perf-notch and adhesive-binding should have 5/8 " type margins in the gutter.

Bleeds

Any page elements designed to print off the page, or bleed, must extend past the trim 3/16 "; 1/8" is the minimum allowed.

Printers Marks

Printer's marks (registration marks, trim marks, page id's, etc.) must be positioned 18 points or farther outside trim. Some software does not provide control over how far such marks are placed outside trim. In those cases leave printers marks off.

OPI

OPI or Open Prepress Interface, a technique of substituting high resolution images with proxies and then later inserting the high resolution images before final output, is not supported.

Backup

When a page design contains elements that are intended to backup, the compositor should carefully place those elements with exact precision to achieve backup accuracy.

Overprints

RR Donnelley honors overprint and knockout settings in files. In some cases, RR Donnelley fixes small black text set to knockout of color. Other than this common problem, RR Donnelley does not attempt to alter overprint and knockout settings in files.

In Acrobat use the overprint preview setting and print proofs with this setting engaged in the print output options to accurately represent how the page will print with respect to overprinting elements.

Blank Pages

Do not put anything on blank pages. Before sending files verify that blank pages are really blank. Include blank pages in the proper position for printing.

Country of Origin and Printer

Be certain to follow trade and import laws if books are not printed in the same country in which they are sold.

Keyline and ISBN

Ensure that keyline and ISBN typesetting are accurate and. RR Donnelley commonly alters keylines and can add ISBNs upon request.

Design and Art Standards

The standards described here cover choices made in the design of a title or in the handling of artwork that can affect the quality of the final printed product. However, these are also standards that customers can—and often do—choose to violate if it suits their needs. As such, we assume live files provided by a customer already reflect their choices with respect to these criteria, and so live files are NOT checked for adherence to these standards. Test files, however, would be reviewed for elements that violate these standards.

Spreads

Spread elements that cross-over should be pulled back away from the gutter to avoid loss of critical text or image that must print in book. The amount of pull back depends on binding styles.

- 1/4" for side-sewn
- 3/32" for classic and perf-notch
- 1/16" for adhesive
- None for Smyth

Color Type and Rules

- Whenever very thin or small objects such as rules or text are in two or more separations, variation becomes more pronounced.
- To reduce chances of undesirable registration problems use sans serif, bold fonts, and set type size to 8 points or larger and rules to one point or larger. Any text that is 4/C could result in some color variation throughout a run.
- Use as few separations as possible to achieve the color you want. For example, use two separations if that will do instead of three.

Total Area Coverage

Total print density, maximum ink coverage and total area coverage (TAC) are synonyms. They all refer to the upper limit of the amount of ink that should be applied on paper. If ink coverage exceeds this maximum amount, various printing problems are likely to happen.

Paper	Grades #1 & #2 gloss/dull coated	Premium text & cover	Grade #3 publication	Grade #5 publication	SuperCal SCA+	SuperCal SCA	SuperCal SCB
TAC	340%	260%	310%	300%	280%	260%	240%

Source: page 3, <http://www.idealliance.org/filefolder/GRACoLSpec2007errata.pdf>

Black and White Halftones

Halftones should be prepared with the following characteristics: 2–3% highlight, 5% crop, 92–96% shadow, and linear tones between highlight and shadow.

4/c Black Halftones

4/c halftones that appear to be black and white but use other process colors to add richness and density should be built as full range black with CMY values starting at 1% when the black value is 25–30% and peaking at the shadow of the black at 20% maximum CMY values. In short, the black channel will have a full tonal range, while the CMY channels will be limited.

Black Printer

In a process color image, the black component should start at 30–35% of three-color gray balance.

Tint Builds

- Tint builds should contain a minimum of 4% for each color separation. For example, a process color build of 2% cyan, 20% magenta, 30% yellow and 5% black would fail to comply because the cyan is less than 4%.
- For repeating tint builds, as when using a color palette, ensure that the colors are easily distinguishable from each other. A rule of thumb to follow is to ensure that the dominant color separation, yellow excluded, is 20% or more different from one tint build to another and to ensure that a sub-dominant color separation, yellow excluded, is 15% or more different from one tint build to another.

Neutral Tints

Tints made up of three colors, usually C-M-Y, that attempt to produce a gray color, should be avoided. Using multiple colors to produce gray will result in the gray taking on different shades of color throughout the run. We recommend creating a gray color by using black as the dominant color.

NASTA Margins

Schoolbooks that must follow NASTA specifications should have the following margins: 5/8" foot, 1/2" front, 3/8" head, all from text block.

Reversed Type and Rules

- Reversed type should be a minimum of 8 points to avoid diminished legibility that happens when ink spreads into the type and when mis-registration on press fills in white type. To further reduce these problems, use sans serif, bold type.
- Reversed rules should be a minimum of 1 point to avoid unwanted thinning of already thin lines that happens when ink spreads into the rule and when mis-registration on press reduces width.

- To limit problems with reversed out elements, build background fill colors with as few separations as possible.
- When reversing type and rules out of background tint, set the background tint to 30% or more.

Additional Recommendations

Rich Black

When printing in process colors it is sometimes desirable to create a richer looking black. Our recommendation is to create rich black with 100% black, 40% cyan, 30% magenta and 30% yellow.

Trapping

- Donnelley prefers to trap your files. If supplied files already contain traps, ensure that you supply them as PDF/X-1a files, which will indicate the trap status. In any event, if you know the files are trapped, please inform us so that we don't attempt to trap them again.
- If Photoshop images are supplied and the image should be trapped, it should be done so in Photoshop. We do not apply trap within rasterized images.
- Files created through copydot scanning of film cannot be trapped. The trap in the film will be carried to the files.

Guidance

This topic outlines the usage parameters and quality expectations for the range of proofs that are provided to RR Donnelley for guidance to either content or color. This information must serve both our customers and our press crews. RR Donnelley Book Publishing Services serves a large number of customers with a broad range of subject matter and printing expectations. **Note that it is not always necessary to provide proofs with files—please consult with your Customer Service Representative or Technical Service Representative regarding working proofless.**

Any type of proof may be deemed acceptable guidance by the customer based upon their needs, but our use of those proofs as press guidance is dependent upon the characteristics of those proofs. Below we describe different categories of proofs and how we will use them as press guidance.

Level One Proofs

Level One Proofs are halftone dot proofs that are certified to the GRACoL G7 standard for color guidance on press.. They can be digital or analog (see charts on following page). When RR Donnelley is supplied with this type of proof for color guidance, the first priority will

be to match the proof as closely as possible. However, if RR Donnelley has to vary more than .10 density to match the guidance, the Quality Department and/or Press Supervisor will be notified to determine a course of action.

With respect to level 1 proofs, ensure the proofing system used is calibrated to GRACoL G7 reproduction. Do not make any further adjustments attempting to “predict” dot gain beyond what is inherent to the that specification.

Level Two Proofs

Level Two Proofs may or may not be certified for press color guidance. Their intent is to give a visual representation of the color that is expected in the final printed piece. These proofs cannot be analyzed with a loupe for process color values because they are not halftone dot proofs. When using these proofs, RR Donnelley's first priority will be to utilize “Measured Print” and print within existing industry print characteristics of density, dot gain, print contrast, and ink trap. Then, if the Press Crew can get visually closer to the proofs by adjusting color, they will do so. However, they will not make huge shifts while attempting to match proof color as there may be variation inherent in the proofs themselves.

Level Three or Color Position Proofs

Level Three Proofs provide a guide for color breaks and content only. The press color-match guide should be “Measured Print” characteristics only. The Press Crew will not try to match the color of these proofs on press. PMS Colors: Pantone PMS colors can be simulated using 4/c process colors. In order to ensure the best quality proof possible, only Level One proofing devices should be used for this purpose. Simulated process color proofs will show an approximation of the Pantone color but will not be an exact color match. Please request an ink draw down of the Pantone color for a representation of how the color will print.

Components

Covers, dust jackets, tab inserts, and a variety of other components require specialized knowledge that is too detailed for thorough coverage in this document. If a compositor is unsure about how to create any type of component, please contact your Customer Service Representative for assistance.

Helpful Reference Links

For help with settings for specific applications when creating files, visit our website at prepress.rrd.com. For information on the PDF/X-1a specification, visit www.iso.org, or the Ghent PDF Workgroup at www.gwg.org For information on color separations and color reproduction in print, visit www.gracol.org.