

I. Relationship between binding and finishing department and previous processes

- A. An acceptable finished job is dependent on the proper collaboration between the prepress, press, and finishing departments.**
- B. An error or oversight in any previous stage can prevent a printed job from being properly finished and bound.**
- C. Examples of potential problem areas that may prevent successful binding/finishing**
 - 1. Planning a job*
 - a) Neglecting to build-in creep or thrust
 - b) Neglecting to build in proper binding allowances for whatever binding process is to be used
 - (1) Extra binding allowance needed for mechanical binding, side stitching, or perfect binding*
 - c) Improper grain direction
 - (1) Especially on cover or other heavy papers*
 - 2. Art, copy preparation, desktop publishing*
 - a) Failure to build in proper bleeds
 - b) Failure to build in proper trim and fold lines
 - 3. Film assembly/imposition*
 - a) Errors in pagination
 - b) Use of folding dummy that is incorrectly folded
 - c) Use of a folding dummy that is made with the wrong paper.
 - d) Failure to account for lips

- e) Failure to account for grain direction
- f) Incorrect step-and-repeats
- g) Incorrect front-to-back alignment of images
- h) Combination layout that cannot be cut apart
- i) Inaccurate or missing trim marks
- j) Inaccurate or missing fold marks

4. *Presswork*

- a) Failure to maintain proper registration sheet to sheet
- b) Failure to maintain proper registration front to back
- c) Quality control problems that decrease usable number of sheets
- d) Failure to print correct amount of sheets of each signature
 - (1) *Incorrect number of work-and-turn sheets printed (failure to account for the need for only half the number of such signatures)*
- e) In-line folder improperly set or doesn't hold register (see overhead) on web press
 - (1) *Paper folded parallel to the web by former board and former nose, then nipped*
 - (2) *Paper folded perpendicular to the web by jaw folders*
 - (3) *Paper cut to size by cutoff knife*
 - (4) *Delivers bundles of folded signatures rather than flat sheets*
- f) Other in-line processes completed incorrectly
 - (1) *Diecutting*

- (2) *Embossing/debossing*
- (3) *Trimming*
- (4) *Perforations (parallel and cross-perfs)*
- (5) *Inserting of other documents*
- (6) *Application of scents, scratch-offs, etc.*

II. Overview of binding

- A. Binding is a labor-intensive area that can add dramatically to the cost (and profit-margin) of jobs.**
- B. Press sheets are delivered to the bindery as**
 - 1. *A stack of single sheets from a sheetfed or webfed press*
 - 2. *Bundles of folded signatures from a web press*
- C. Stacks of sheets or bundles placed on skids or palettes (describe) and moved by fork lifts or skid or palette jacks.**
- D. Bindery personnel must check incoming goods for both quality and quantity.**
- E. Cutting, trimming, and jogging**
 - 1. *Press sheets often need to be cut before further processing*
 - a) *Multiple-up*
 - b) *Work-and-turn or -tumble*
 - c) *Remove color bars*
 - d) *Before cutting, sheets must be accurately jogged to transfer registration from press to cutter (show overhead).*
 - 2. *Guillotine cutters are used (show overhead)*

- a) Registration transferred to cutter by aligning properly jogged head and side guide sides of the paper to the cutter before making the first cut (use overhead of cutter)
3. *Improving productivity and health and safety of workers*
- a) Lifts raise heavy paper to cutter-bed level
 - b) Joggers align sheets neatly for accurate cutting
 - c) Air blasts in cutter bed help paper glide along without excessive force
 - d) Back gauge can be programmed to automatically step to the next cut
4. *Cutting refers to cutting flat sheets, while trimming refers to cutting folded signatures or bound book(let)s.*
- a) Cutting is almost always done with a guillotine cutter.
 - b) Trimming can be done with a guillotine cutter or with a dedicated three-knife trimmer.

F. Folding

1. *Most folding is done by machine*
- a) Only very short-run and specialized jobs (pop-up books) are folded by hand
- (1) *Hand folding is often done in third-world countries*
2. *Folding to print*
- a) Folding machine set to fold on lines (usually dotted) inserted by the stripper or by imagesetter
3. *Folding to paper*
- a) If there are no fold marks, or if the product is to stand alone (such as a four-page signature, greeting card, or letter-fold) without subsequent trimming after folding, the job is folded to paper.

4. *Parallel and right-angle folding (demonstrate)*
5. *Some basic types of folds (show overhead)*
 - a) Accordion
 - b) 8-page signature
 - c) Gate
 - d) Over and over
 - e) French
 - f) Letter
6. *Types of folders (show overheads)*
 - (1) *Knife*
 - (a) Used for thicker papers
 - (2) *Buckle*
 - (a) Used for thinner papers
 - (3) *Combination: buckle for first parallel folds and knife for subsequent right-angle folds*
 - (a) Buckle for when paper is thinner
 - (b) Knife for thicker wad of pre-folded paper

G. Assembling a job

1. *Assembling individual sheets is called collating.*
 - a) Used for mechanically bound books and loose-leaf books
 - b) Can be done by hand or by collating machine (see overhead)
2. *Assembling signatures one on top of another in proper sequence is called gathering.*

- a) Side-stitched, perfect-bound, case-bound books
- b) Done by hand or
- c) Done by gathering machine
 - (1) *Up to 30 or more hoppers or pockets*
 - (a) One for each signature
 - (2) *Signatures are placed into hoppers*
 - (3) *The gathering machine gathers the signatures automatically*
 - (4) *May be coupled to trimming and binding stations*

3. *Assembling signatures one inside another is called inserting.*

- a) Saddle-bound or center sewn booklets
- b) Can be done by hand
- c) Can be done by machine that is similar to a gathering machine, except it places open signatures on a saddle rather than on top of one another.
 - (1) *We have such a machine in the printing plant*
 - (2) *May be coupled to trimming and binding stations*

H. Binding methods

1. *Stitching*

- a) The centerfolds of the signatures are not cut off
- b) Stitching can be done by manually operated machine, or by automated machine.
- c) Saddle stitching
 - (1) *Thin booklets, brochures, folders, leaflets*

- (2) *The paper used for the first few pages also forms the last few pages (TV guide story)*
- (3) *Stitches look like staples, except they're formed from a roll of wire rather than pre-made staples*
- (4) *Cover and body are stitched at the same time*
- (5) *Top, bottom, and right sides are then trimmed*
- (6) *Finished product opens completely and lies flat*

d) Side stitching

- (1) *Can bind thicker documents than saddle stitching*
- (2) *The last few pages of the document do not have to be the same paper as the first few pages.*
- (3) *Bind signatures or flat paper products using either preformed staples or stitching wire through the left side of the booklet near the backbone.*
- (4) *After binding, the books are trimmed three sides.*
- (5) *Booklet does not open completely and does not lie flat (has a tendency to close by itself).*
- (6) *Side-stitches consume much of the inner margin, so additional margin must be built-in during copy preparation and stripping.*
- (7) *Covers are usually attached separately from the body (show National Geographic)*
- (8) *Side stitching is more durable than saddle stitching, but saddle stitching is more common because saddle-bound booklets look better, lie flat, and allow more printed information per page.*

2. Case Binding

- a) Thread sewing
- b) High-quality books to last a long time

- c) The centerfolds of the signatures are not cut off.
- d) Can be side- or saddle-sewn
 - (1) *Side-sewn: pass a thread through the side of the binding edge*
 - (2) *Saddle-sewn: binding a signature or signatures through the centerfold.*
 - (3) *Smyth sewing*
 - (a) Combination of side and saddle sewing
 - (b) Binds a signature to itself and to other signatures
 - (c) A thread passes several times through the centerfold of each signature, then from one signature to another.
- e) After binding, the books are trimmed three sides.
- f) Covers are glued to the trimmed body through the use of end papers.
 - (1) *The cover does not hold the book together*
- g) The bound book lies reasonably flat and is very durable.

3. *Adhesive (perfect) binding*

- a) Cheap, square-backed, paperback books with wrap-around paper covers
- b) Centerfolds of signatures are cut off to expose each sheet to adhesive.
 - (1) *Need for extra trim margin during the stripping process*
- c) Binding edge is roughened to make sheets more receptive to adhesive
- d) Hot-melt adhesive is applied to binding edge and cover applied.

(1) *The glue holds the book and cover together*

- e) After binding, the books are trimmed three sides.
- f) Adhesive-bound books open easy and lie reasonably flat, but do not last long (the glue hardens and pages fall out).

4. *Mechanical*

- a) Gathered sheets are trimmed prior to binding, then drilled or punched with a series of round, square, or oblong holes

(1) *If pages are printed as signatures, the centerfolds must be trimmed off (need additional trim margin)*

- b) These binds are usually the easiest to open and most likely to remain flat without damaging the backbone
- c) All these processes require additional binding margin to accommodate holes or slots.
- d) It is easy for pages to be torn out of mechanical bindings.
- e) Types (examples and overhead)

(1) *Spiral*

- (a) Wire or thread threaded through pre-punched or drilled holes

(2) *Comb*

- (a) Comb is opened by a special machine, then pre-punched pages are placed over the opened comb segments.

(3) *Closed ring (wire-o)*

- (a) Parallel wire loops placed through pre-punched holes in paper, then crimped shut.

(4) *Loose-leaf*

- (a) Sheets are drilled and then placed into a three-ring binder

- (b) 4 1/4" center to center, at least 1/4" away from the edge of the sheet, center hole centered top to bottom.

(5) *Post*

- (a) Holes drilled through paper
- (b) Screw-type binding post (see overhead)
- (c) Acco-press-type binding post
- (d) Velobind (use overhead)

I. Finishing lines

1. *Slitting, folding, cutting can be done in-line on a web press*
2. *Perfing, scoring can be done in-line with web or sheetfed-press*
3. *Numbering and imprinting can be done in-line with web press*
4. *Gathering and inserting machines can be connected in-line with three-knife trimmers (use overhead) and binding machines*
5. *A saddle-binder has an in-line combination of automatic inserters, saddle stitchers, trimmers, addressing and mailing units.*
 - a) Addressing done by ink-jet printer driven by computer database
 - b) Usually performed in zip-code order
6. *Finishing lines can create demographic editions of publications by combining specialized signatures into standard editions for persons of a particular job category, income level, geographic location, or other factors.*
 - a) Computer Data Base Drives Various Functions Of The Finishing Line: which signatures to insert, which name/address to imprint, etc.

III. Overview of Finishing

A. Not binding processes, but decorative processes that add distinctiveness to a job.

B. Examples:

1. *Diecutting*
2. *Embossing/debossing*
3. *Foil stamping*

IV. Supplemental processes/machines

A. Drilling

1. *Single-spindle drill*
2. *Multiple-spindle drill*

- B. Round-corner machine**
- C. Laminators**
- D. Shrink-wrap machines**
- E. Manually-operated stitchers**
- F. Dedicated scoring, slitting, and perfining machine**
- G. Roll slitting/cutting machines**
- H. Numbering**
- I. Carton assembly and gluing machines**
- J. Tab machine**
- K. Padding press/padding machine (somewhat like perfecting binding)**
- L. Hand processes**
 - 1. Assembling products such as point-of-purchase displays (Posters, Inc.)*
 - 2. Assembling several printed products into one package*
 - 3. Fulfillment*