

6

sappi

The Standard

A Sappi Guide to Designing for Print:

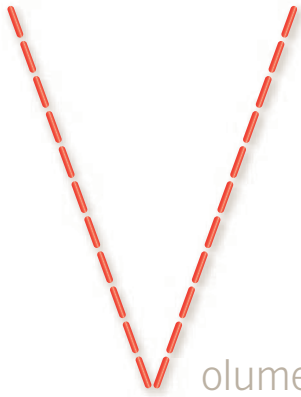
Tips, Techniques and Methods for

Achieving Optimum Printing Results

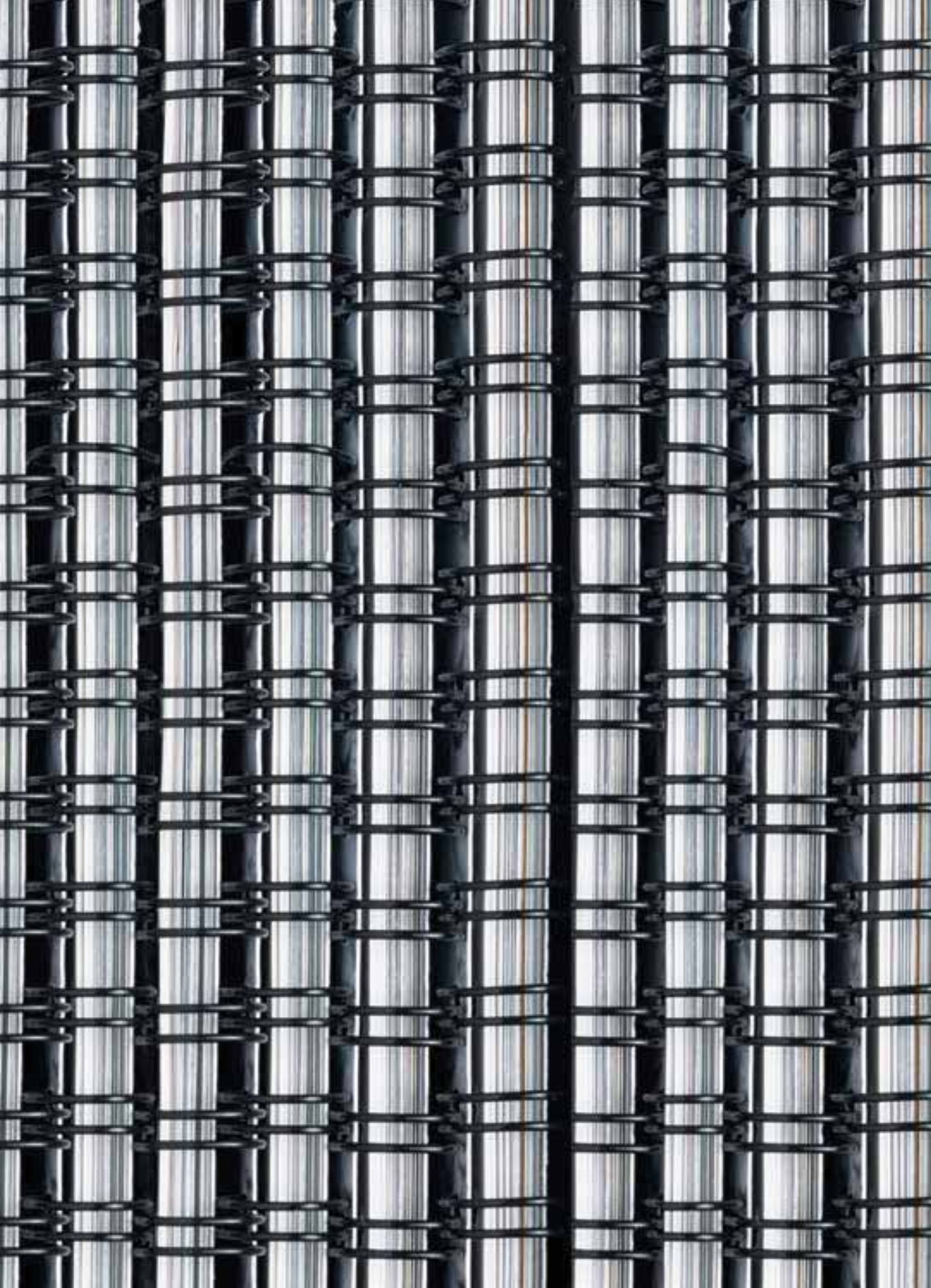


Bindery Techniques

TAPE COMB LOOP STITCH
SIDE STITCH
CASE
WIRE-0 SADDLE STITCH
SMYTH SEWNN
LAY FLAT
SADDLE STITCH
PERFECT
RUBBER BAND
SPIRAL



Volume 6 of **The Standard** looks at **binding techniques**, the all-important final stage of print production. The choice of binding method is frequently dictated by a book's physical size and thickness, functionality and cost, but within these parameters, **the design possibilities are numerous**. The Standard, an educational reference tool aimed at the interests of professionals in print communications, shows how technical considerations can direct and enhance creative decisions. This edition of The Standard is **printed on McCoy**, part of the Sappi family of eco-friendly, high-quality coated papers. McCoy joins Sappi's Opus, Somerset and Flo as some of the most frequently specified coated brands in North America.





HISTORY OF BINDING

From ancient manuscripts to mass-produced magazines, binding has served to keep pages together and in sequential order.



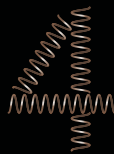
BINDING AS DESIGN

Binding can be inconspicuous and functional or it can be a key decorative accent that is integral to the design.



BINDING TECHNIQUES

Practical considerations play a critical role in choosing the right binding technique for the job.



GUIDE TO BINDING MATERIALS

A wide range of materials, colors, and sizes expands the design options for every binding technique.

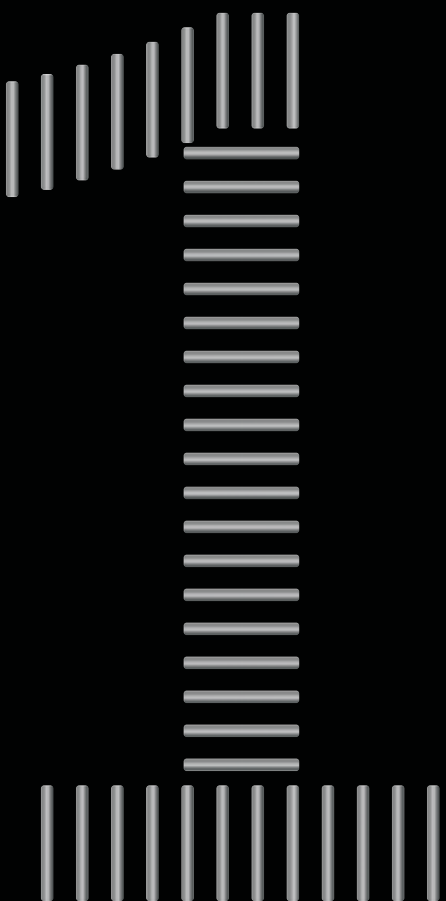


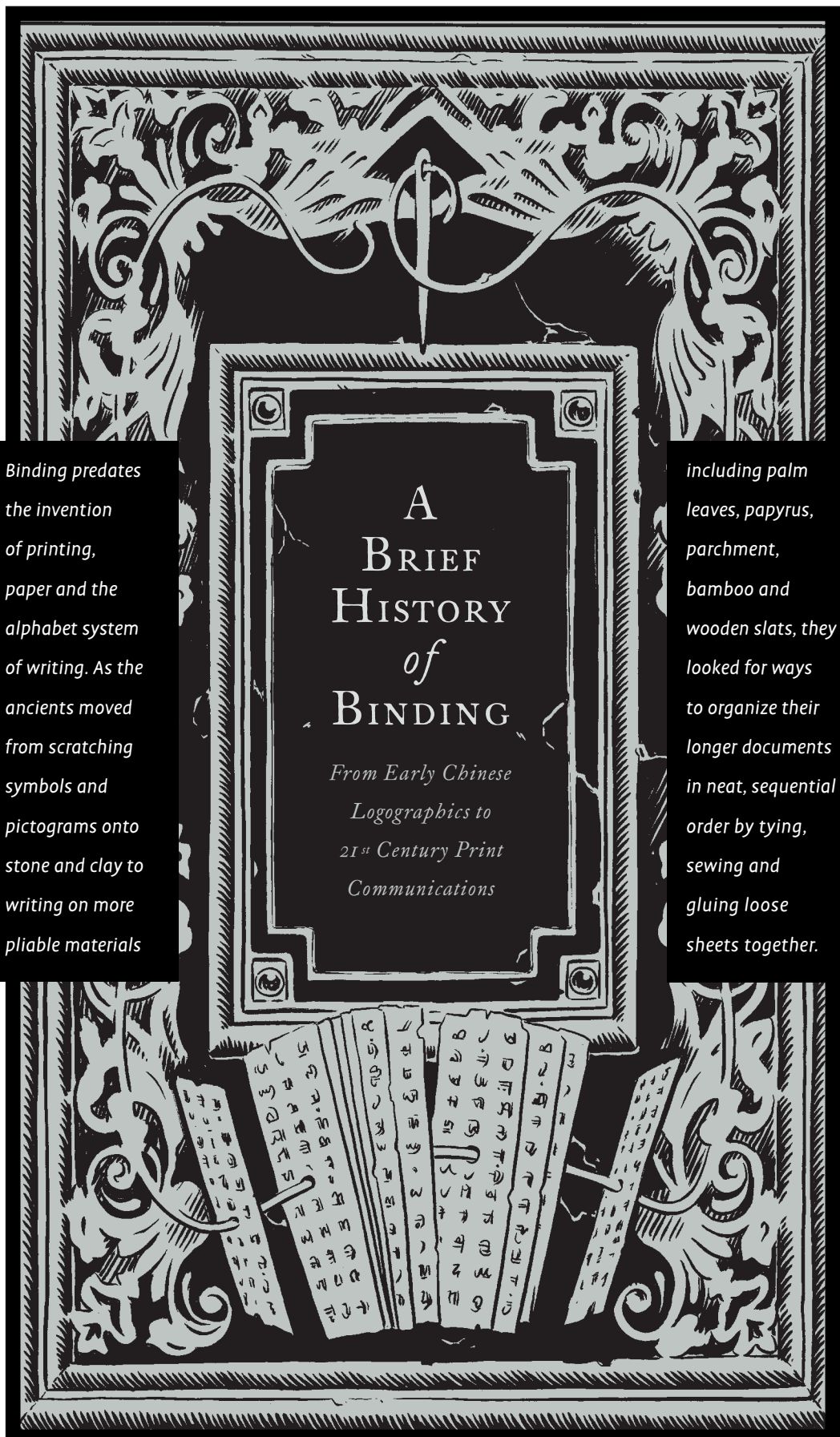
BINDING GLOSSARY

Bindery operators speak in a jargon all their own. Here are some terms you should know.



HISTORY OF BINDING





Binding predates the invention of printing, paper and the alphabet system of writing. As the ancients moved from scratching symbols and pictograms onto stone and clay to writing on more pliable materials

A BRIEF HISTORY of BINDING


*From Early Chinese
Logographics to
21st Century Print
Communications*

including palm leaves, papyrus, parchment, bamboo and wooden slats, they looked for ways to organize their longer documents in neat, sequential order by tying, sewing and gluing loose sheets together.

Ancient China developed a logographic system of writing more than 4,000 years ago. Long, narrow bamboo strips carried a single column of brush-stroke written text. Lengthy text required using thread to lace the bamboo strips together, so the columns could be read sequentially from top to bottom, right to left.

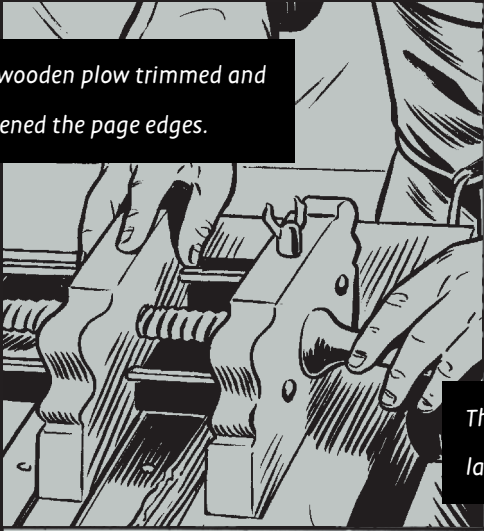
Chinese proofreaders used a small knife to scrape away mistakes and brush in corrections.



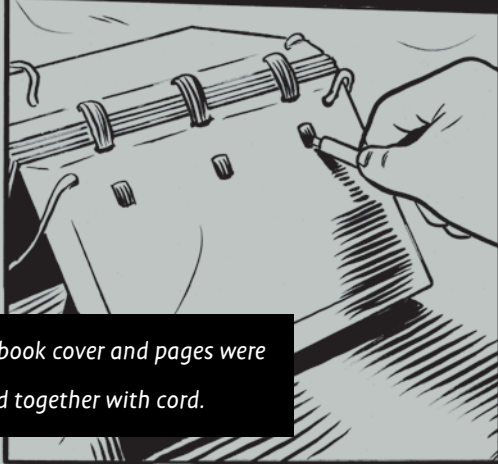


Introduced around the 12th century, the sewing frame quickly became an essential bookbinding tool. It consisted of a base, two uprights, and a crossbar that held raised cords at 90 degrees to the signatures while sewing. The spine of signatures was placed against the vertical cords and sewn through the center and around the cords; tapping down with a wooden block kept the results taut and firm.


Workmen used a heavy mallet to flatten and smooth down sheets made from calf skin (vellum) or cotton rag fibers.



A wooden plow trimmed and evened the page edges.




The book cover and pages were laced together with cord.




Wooden covers were attached to the spine with metal hinges.

Sewing cords left raised bands along the spine visible through the decorative cover.

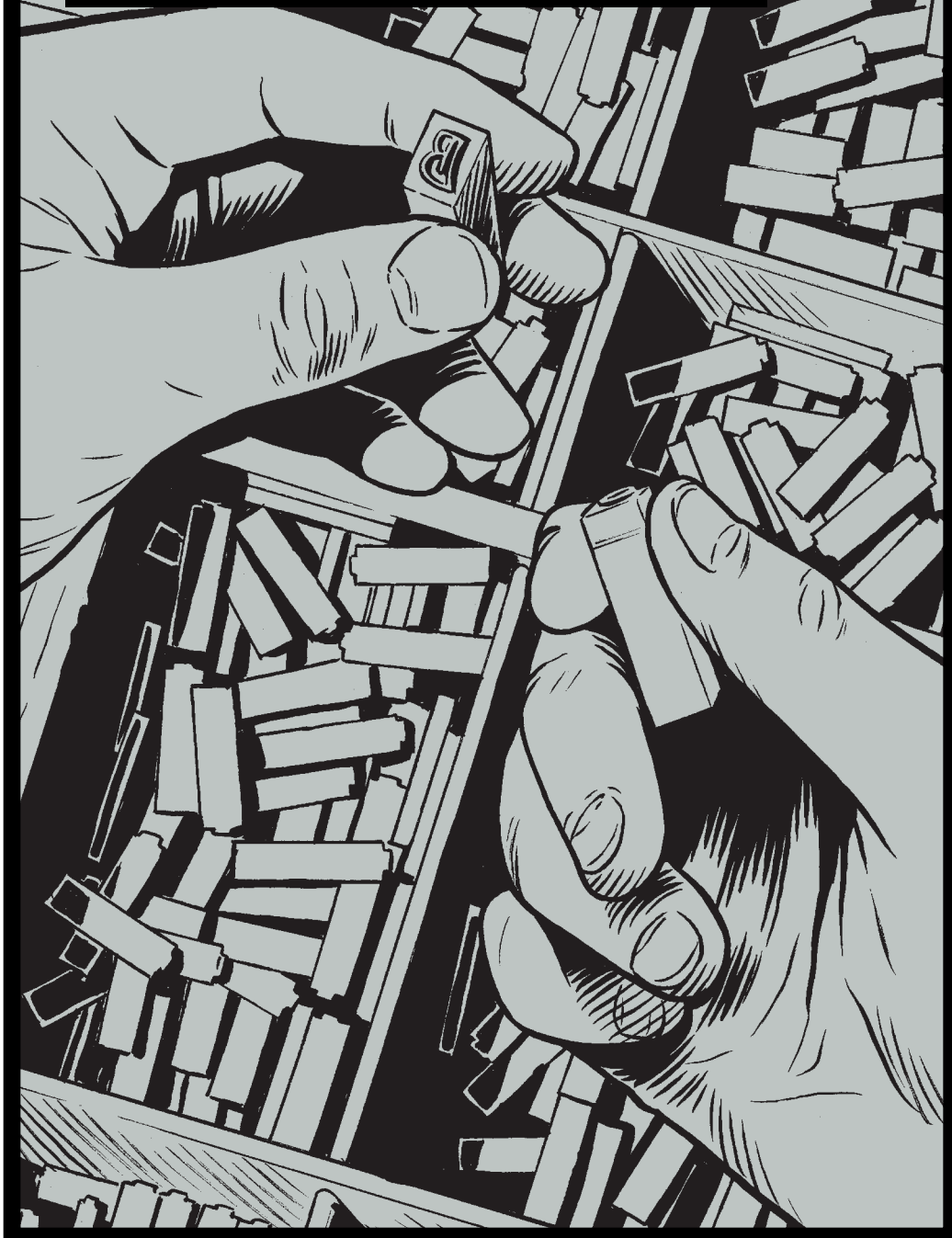


The device called an Archimedes drill was used to make holes.



Leather covers were trimmed by hand.

Circa 1450, Johannes Gutenberg's invention of movable metal type started a printing revolution that enabled the mass production of printed books. No longer dependent on medieval scribes to copy manuscripts laboriously by hand, mechanical printing presses could reproduce books by the hundreds. This not only lowered the cost of books but also stimulated literacy throughout society. The proliferation of books also saw the growth of bookbinding as an important trade.

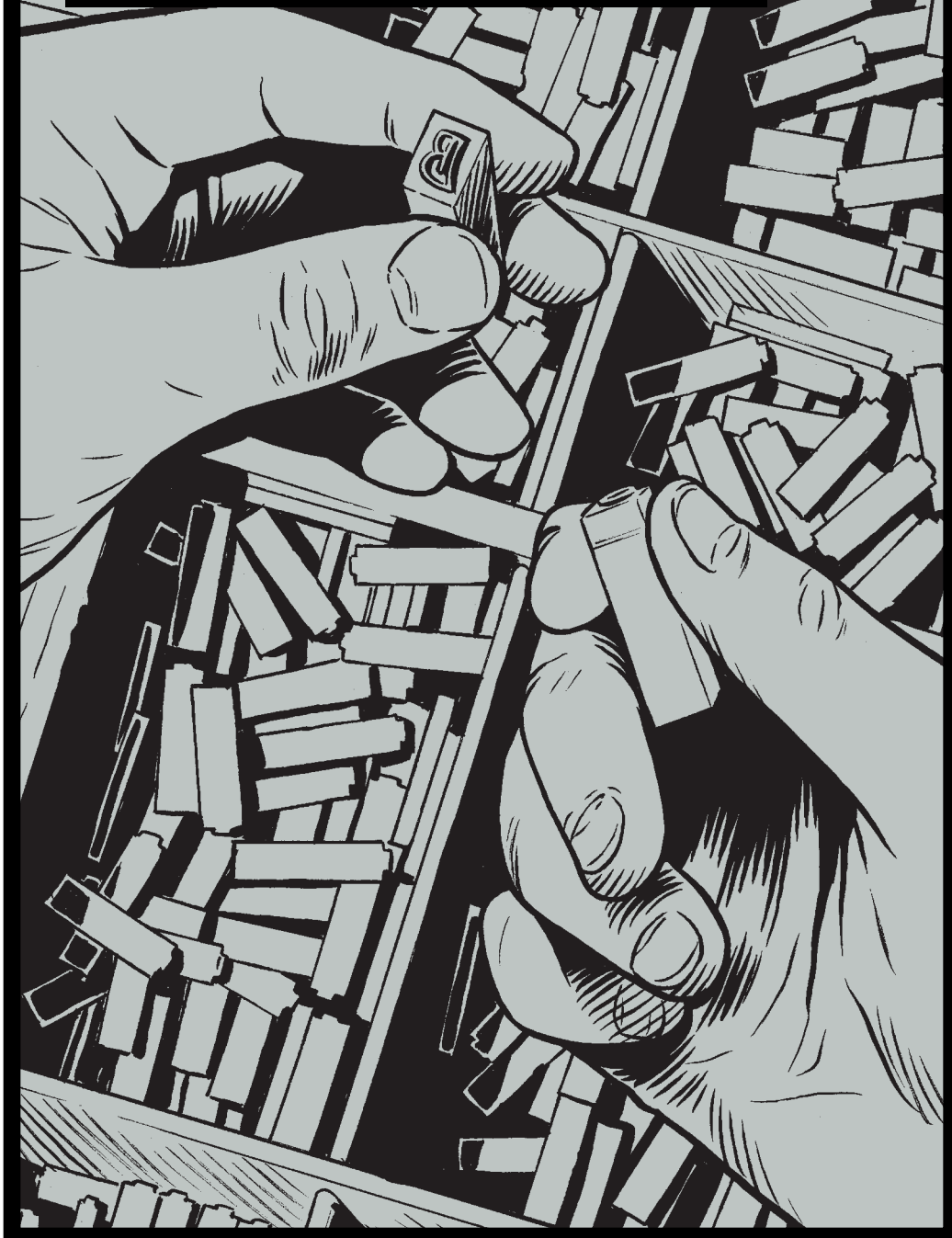


The printer pushes on a long handle that turns a large wooden screw to create an impression on paper.



Printing changed little in the 300 years following Gutenberg's design of a hand-operated wooden press that applied pressure to transfer impressions of metal type onto paper. This so-called Common Press was used by Benjamin Franklin to print his Poor Richard's Almanack and The Pennsylvania Gazette in Colonial America. In 1800, introduction of a cast-iron press helped to reduce by 90 percent the amount of human physical force required to print, and in 1810, steam engine-powered presses made printing even less labor-intensive.

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Finishing room to fit cover, paste fly-leaves, trim edges

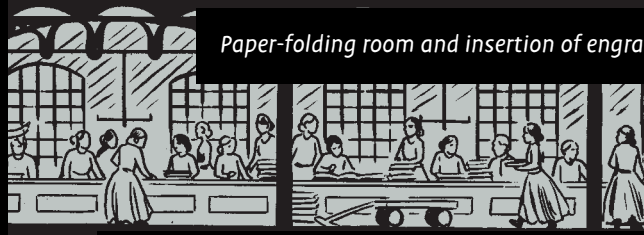
In 1855, Harpers & Brothers proudly devoted an entire periodical to the inner workings of its then state-of-the-art publishing establishment in New York City. Harpers created an illustration of a cross-section of each floor to show how efficiently its operations were laid out in the seven-story building.



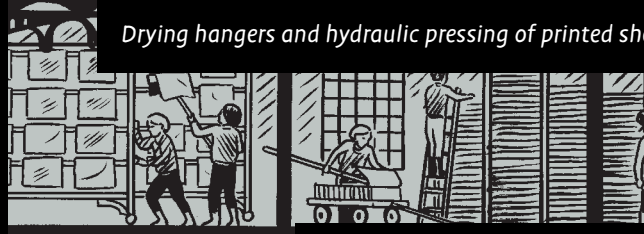
Sewing and stitching room



Paper-folding room and insertion of engravings



Drying hangers and hydraulic pressing of printed sheets



Workers feed paper into printing presses one sheet at a time



Engine room with axles and pulleys



Typesetting room where manuscripts are set by hand into hot metal type



ges



Marbling and gilding process

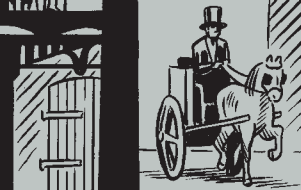
Hydraulic press to flatten folded sheets and saw grooves



ings



Hoistway to carry sheets to next level

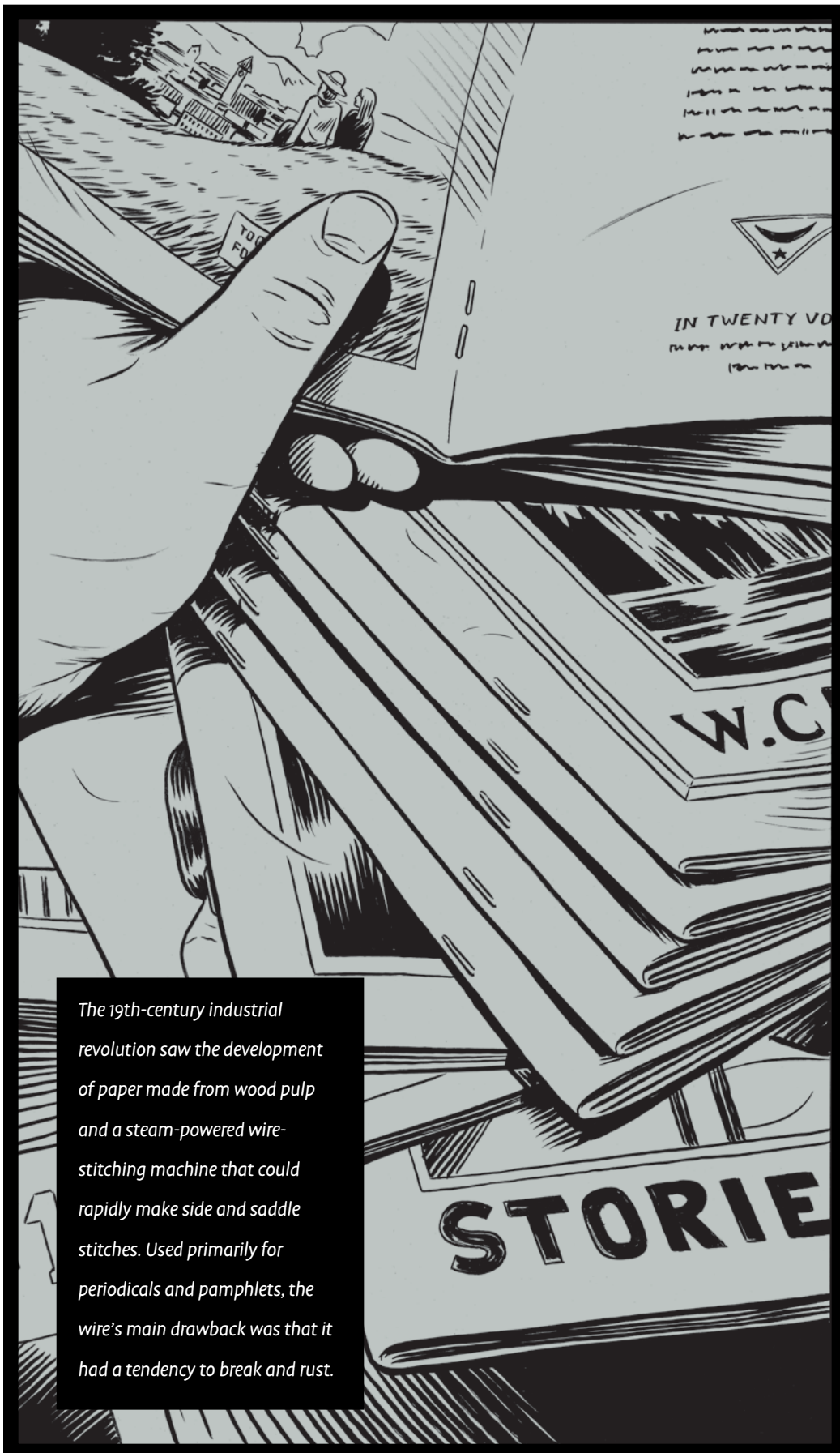


Courtyard for paper deliveries

In 1878, inventor David McConnell Smyth created the first sewing machine designed specifically for bookbinding. The machine sewed signatures together through the fold, resulting in a durable and flexible method of binding that is still valued for its longevity.



Smyth also developed machines for gluing, trimming and case-making.



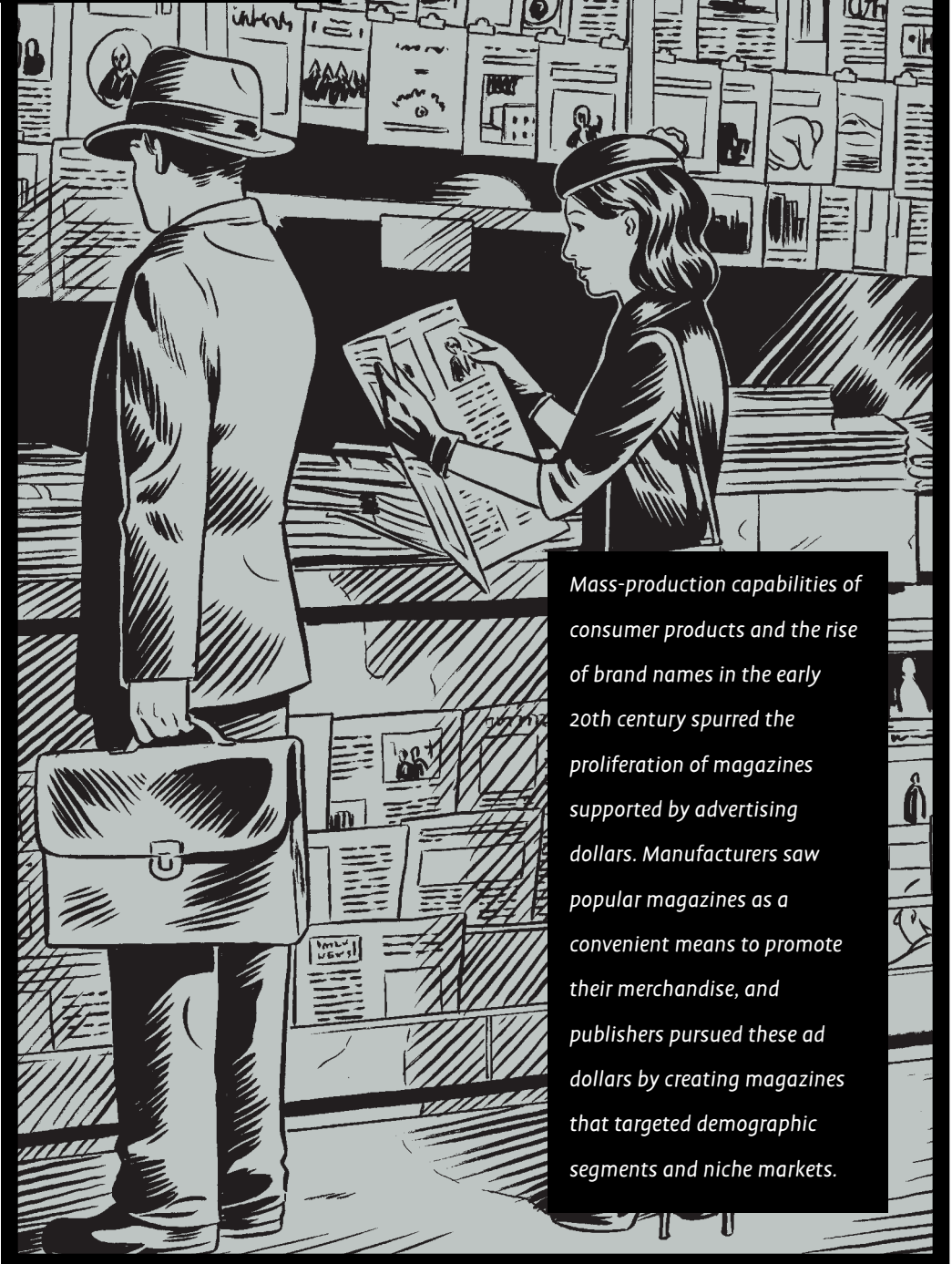
The 19th-century industrial revolution saw the development of paper made from wood pulp and a steam-powered wire-stitching machine that could rapidly make side and saddle stitches. Used primarily for periodicals and pamphlets, the wire's main drawback was that it had a tendency to break and rust.

Pulp-fiction magazines provided amusement to young working-class Americans in the early 20th century. Sold for a dime, “pulp” got their name because the less-than-literary short stories were printed on cheap groundwood pulp paper glued together at the spine. By the 1920s, pulp magazines became so popular that some sold more than a million copies per issue.



NEWSSTAND

Magazines for every interest – fashion, home décor, sports, teen concerns – let advertisers speak to most-likely customers.

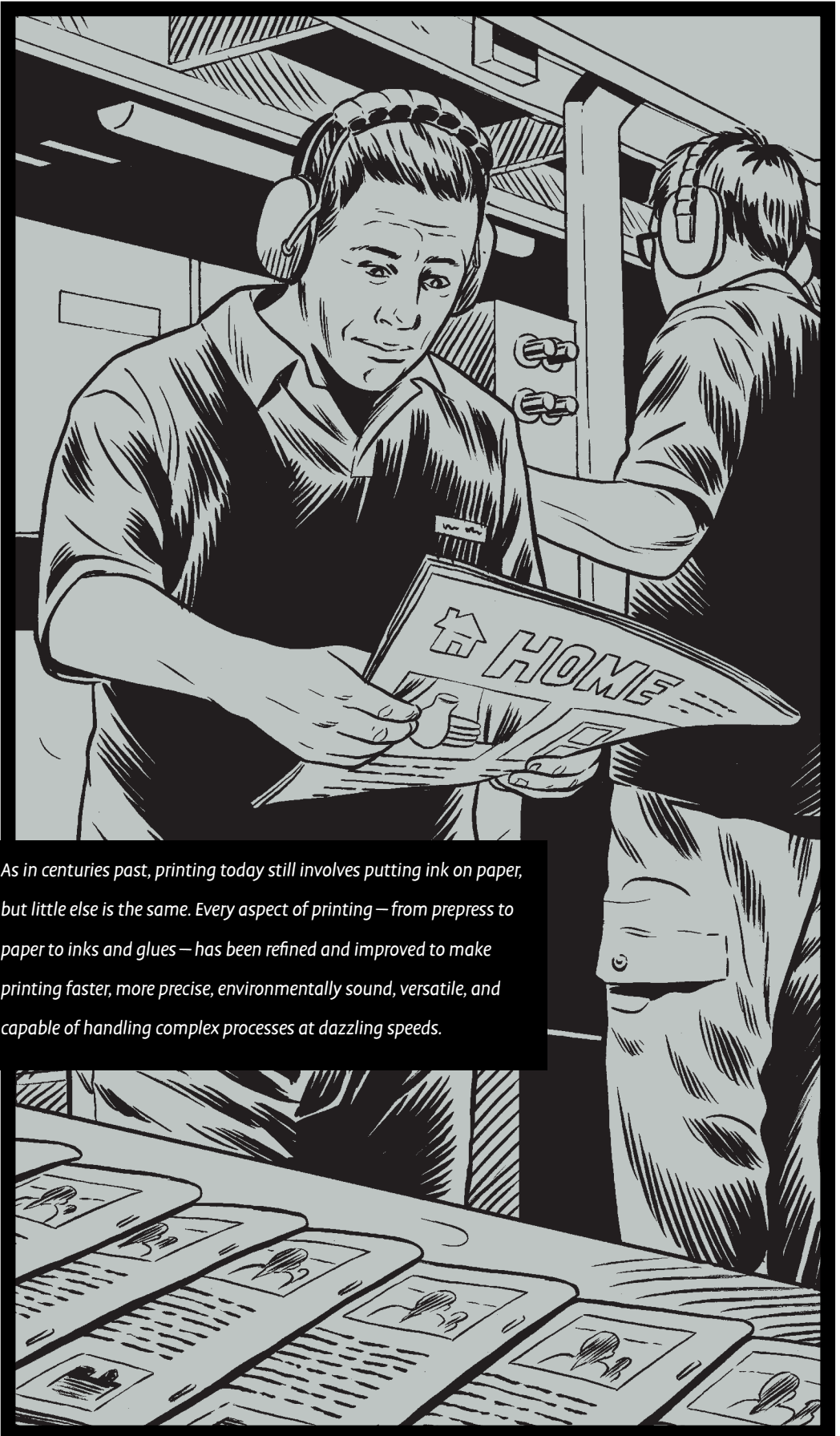


Mass-production capabilities of consumer products and the rise of brand names in the early 20th century spurred the proliferation of magazines supported by advertising dollars. Manufacturers saw popular magazines as a convenient means to promote their merchandise, and publishers pursued these ad dollars by creating magazines that targeted demographic segments and niche markets.

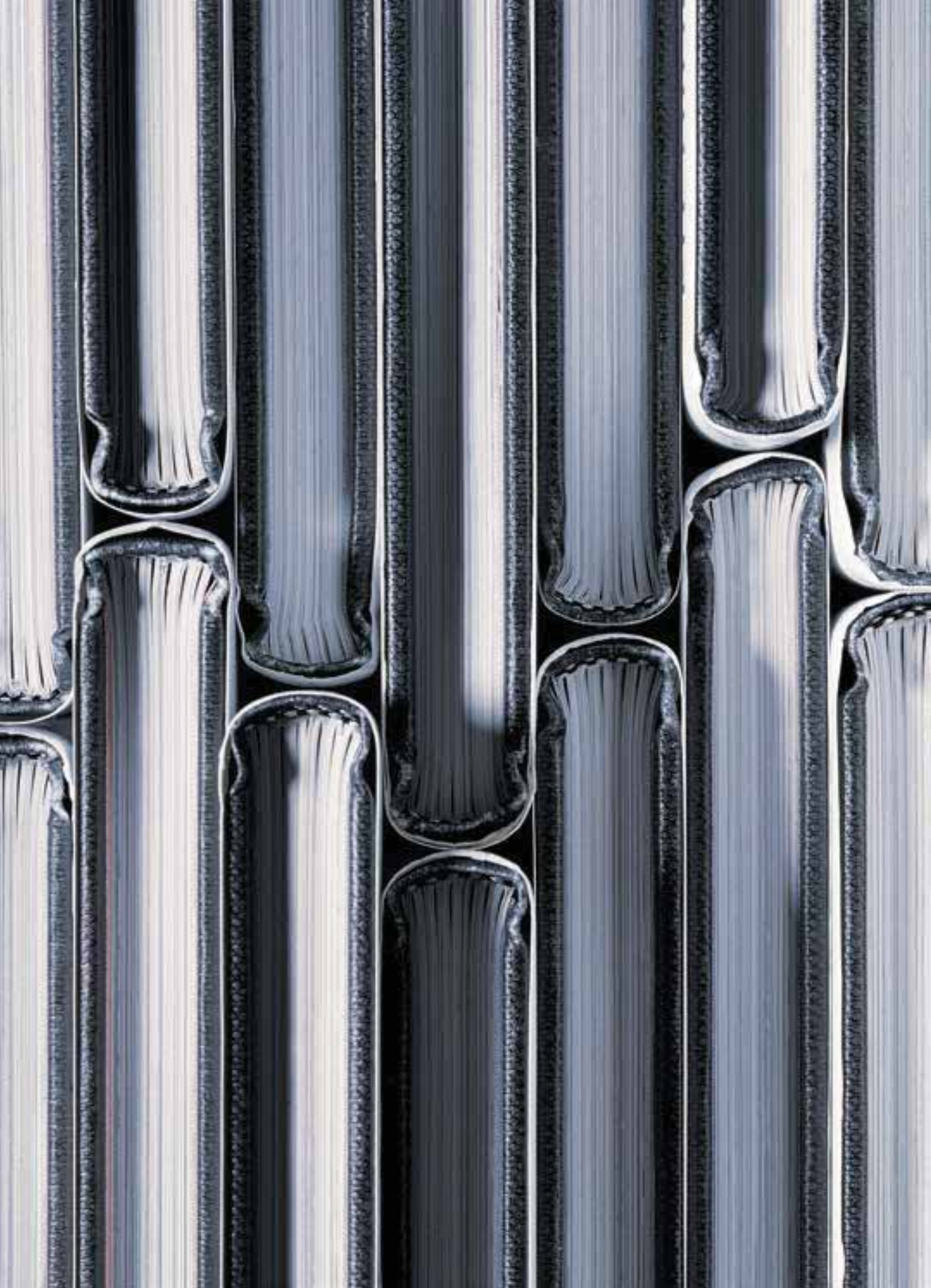
By the end of the 1960s, offset lithography all but replaced letterpress operations. The efficiency, quality, economy, and diverse capabilities of offset enabled the growth of mass media in every print category – magazines, newspapers, catalogs, books, directories, packaging, direct mail, corporate brochures, etc.

The introduction of offset web presses made it possible to transform a continuous roll of paper into a fully printed, folded, cut, collated, and bound book within seconds.

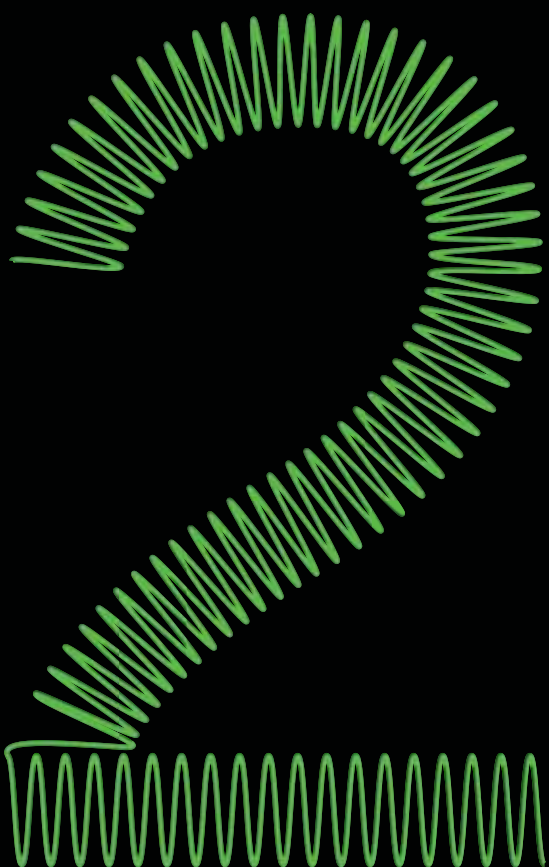




As in centuries past, printing today still involves putting ink on paper, but little else is the same. Every aspect of printing – from prepress to paper to inks and glues – has been refined and improved to make printing faster, more precise, environmentally sound, versatile, and capable of handling complex processes at dazzling speeds.



BINDING AS DESIGN





f all the overlooked

design options, choice of binding technique ranks near the top. Typically, **binding decisions** are based on such practical matters as page count, number of critical crossovers, bulk and weight of the stock, print quantity, shipping and distribution method, usage and, of course, budget. These are all important considerations; however, within these parameters, it is possible to choose a binding technique that imparts its **own graphic look** to a book, or becomes **integral to the editorial content**. The right binding can make pages more interactive, and give low-budget pieces unpretentious style. The way a book is bound can also **bring cohesiveness and logic to subjects** that, at first, seem only tangentially related. Binding choice need not be a result of how you design, but can be **a design solution** in itself.

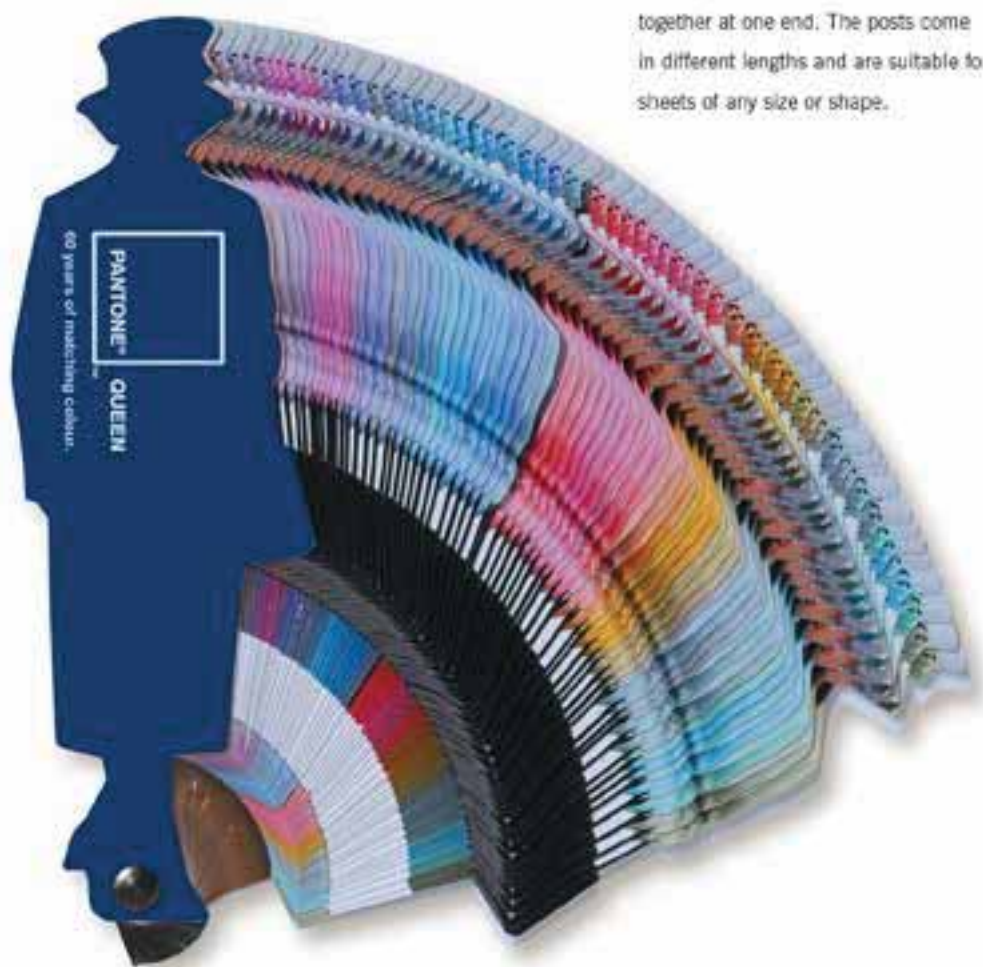
60 years of matching colour.

PANTONE®
QUEEN





To celebrate the Queen's Diamond Jubilee, marking Elizabeth II's 60 years on the British throne, Leo Burnett London and Pantone® turned her trademark color-matched outfits into a color wheel. Each outfit lists a Pantone number and the date she wore it. Digitally printed in a limited edition, the "Pantone Queen" fan deck was packaged in its own royal-blue rectangular box.



An aluminum post, also known as a Chicago screw, secures loose sheets together at one end. The posts come in different lengths and are suitable for sheets of any size or shape.

FAN DECK

Aluminum screw posts are available in black, silver and gold finishes, in lengths ranging from 1/8 inch to 4 inches. Color swatchbooks, architectural drawings and price listings often favor Chicago screw binding because sheets can be fanned out for at-a-glance comparisons and individual pages can be changed out easily.



"WA"—a Japanese concept meaning harmony—is a philosophy expressed in the book "WA: The Essence of Japanese Design" by Rossella Menegazzo and Stefania Piotti. The concept of harmony is evoked not only through the visual content but also through the design of the book. Suggesting a handmade quality, "WA" is constructed using Japanese stab binding with red silken thread and French-folded pages for double thickness to keep stab holes from tearing and inks from bleeding through.

Blocks and bands of solid red serve as section dividers and accents throughout the book.



The corners of the book are wrapped with binding tape and the spine title is affixed to the cover.



Red, printed on the French-folded pages, shows on the edge when the book is closed.

WA

WA

The image shows a white background with several large, irregular, overlapping red shapes scattered across it. These shapes vary in size and orientation, some resembling teardrops or rounded rectangles. The overall effect is a minimalist, abstract composition. The text 'WA' is printed in a bold, black, sans-serif font, appearing twice: once on the left side of the image and once in the center.





Donald Albrecht's "Designing Home: Jews and Midcentury Modernism" served as the catalog for the 2014 exhibition "Jews and Midcentury Modernism" at the Contemporary Jewish Museum in San Francisco. The inner pages are Smyth sewn. The spine is taped at the edge with a cloth binding tape and printed boards are affixed to the flyleaf to form a hard front and back cover.



Available in a range of colors, thermal adhesive tape protects the sewn edges. Here, the title is foil stamped.



MODIFIED CASE BINDING



"Schiaparelli & Prada: Impossible Conversations" is the title of a book and exhibition at the Metropolitan Museum of Art. The words of the two iconic Italian designers are blended into a series of imaginary conversations, presented on short pages between spreads of fashion photographs. The casebound Smyth-sewn book is wrapped with a printed cloth cover onto which is affixed a short-page glossy fashion photograph.



Tan-colored stock is used to clearly distinguish the short pages of text and Smyth-sewn flush bottom with the full-size photographic pages of the book.

SCHEPARELLA & PRADA
MODERNE SOUTHERNS



BOUND BY OUR COMMITMENT
... Developing the environment

bardessono
HOTEL RESTAURANT SPA

FABRICS, FURNISHINGS & FINISHES
BOUND BY OUR COMMITMENT

bardessono
HOTEL RESTAURANT SPA



In the guest booklet for Bardessono Hotel in the Napa Valley, the positioning of the staples made it possible to create two books out of one. Full-color photographs of guest facilities and amenities are shown in the larger horizontal portion. Detailed text information about the hotel's sustainability practices is printed on the narrow vertical section created by positioning the staples two inches in from the left side.

The cover is diecut on the left side to form a tab that reveals headings for each page.



The copper staples and a channel score direct the reader's eye to the side book and add interest to the simple earth-tone cover.



"Shapes" by Xavier Deneux is a book for toddlers and preschoolers, and as such, every page is made invitingly tactile, with scooped out diecuts combined with raised shapes. To withstand rough handling by little fingers, the entire book is made of heavy-weight duplex sheets laminated together. No stitching or side glue is used for binding.



Each spread of the book has a raised shape glued to the left side and a diecut echoing the same shape on the facing page, so that when the book is closed, the pages rest flatly against each other.





EM

शकुल

Arctype did not try to disguise the utilitarian purpose of its type specimen book, but let the modest production impart its own style. Produced on newsprint, the gathered sheets are merely folded in half and held together by a single stitch line down the middle. The white thread becomes a decorative touch for the cover's rounded spine.



The thicker the book, the greater the tendency for inner pages to extend beyond the outer ones when folded, requiring an adjustment for creep.



Needle height and type of sewing machine used vary, depending on the thickness of a center-sewn book.







This piece for Immigrant Services Calgary combines a 24-page, saddle-stitched annual report and a deck of individual cards presenting the stories of some of the immigrant constituents it serves. Both the book and cards are notched at the top and bottom, so a rubber band could be used to hold the package together.



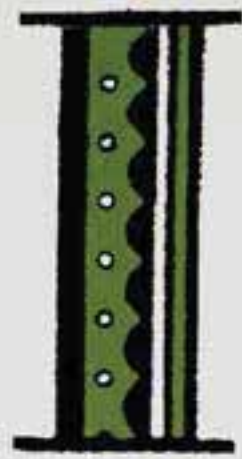
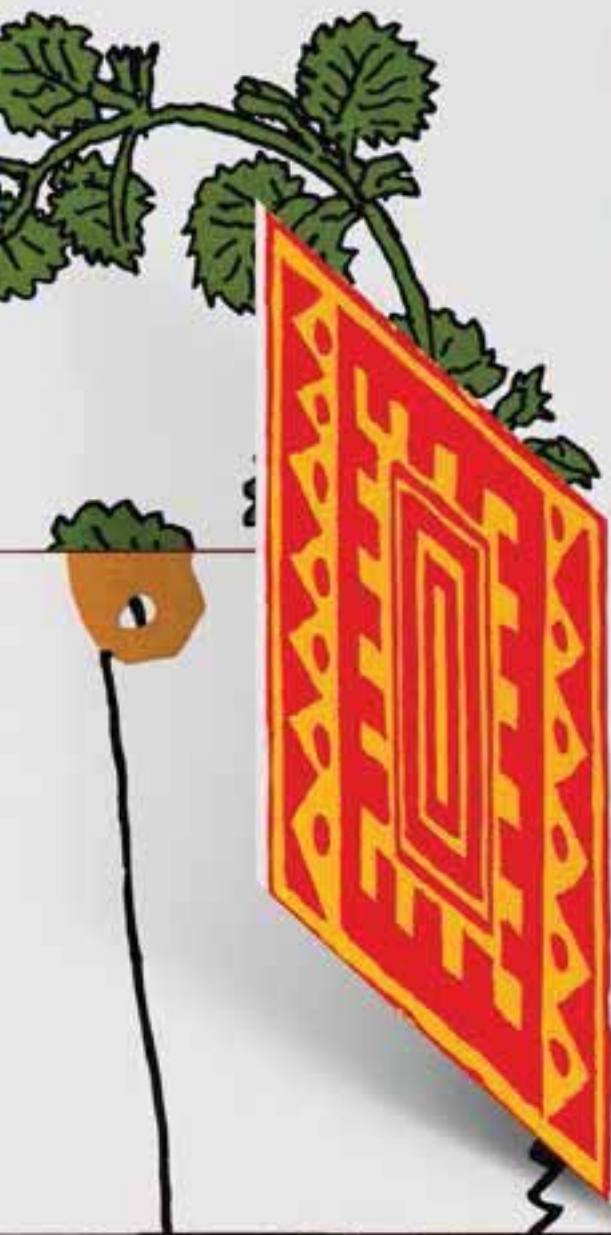
RUBBER BAND

"One"—the strong one, the brave one, the one who gives her time, etc.—is the theme for this printed piece. The black number "1" printed in the center of the annual report cover fits a rubber band of the same width.

THE STRONG ONE. THE BRAVE ONE. THE COLLECTIVE ONE. THE INSPIRING
ONE. THE DETERMINED ONE. THE ONE WHO GIVES HER TIME. THE ONE WHO
GIVES HIS HEART. THE ONE WHO CREATES. THE ONE WHO LENDS
AN EAR. THE ONE WHO OFFERS A SHOULDER. THE ONE WHO
MAKES SURE THAT NO ONE GOES WITHOUT.

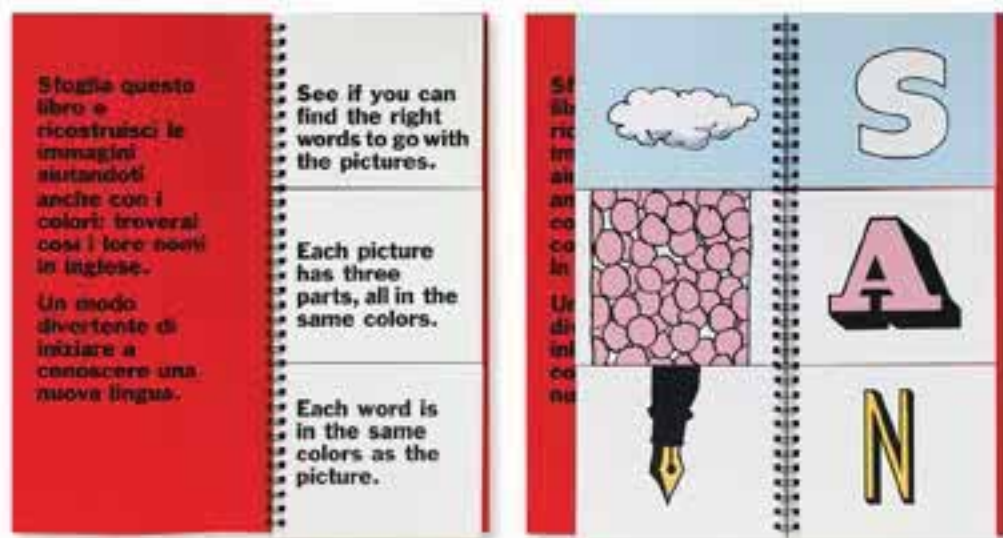


We are Immigrant Services Calgary and we are committed to making sure that everyone in the community has access to the things they need. Every volunteer, immigrant and dedicated staff member has a unique and powerful voice. It's when we put them together that we can really be heard.

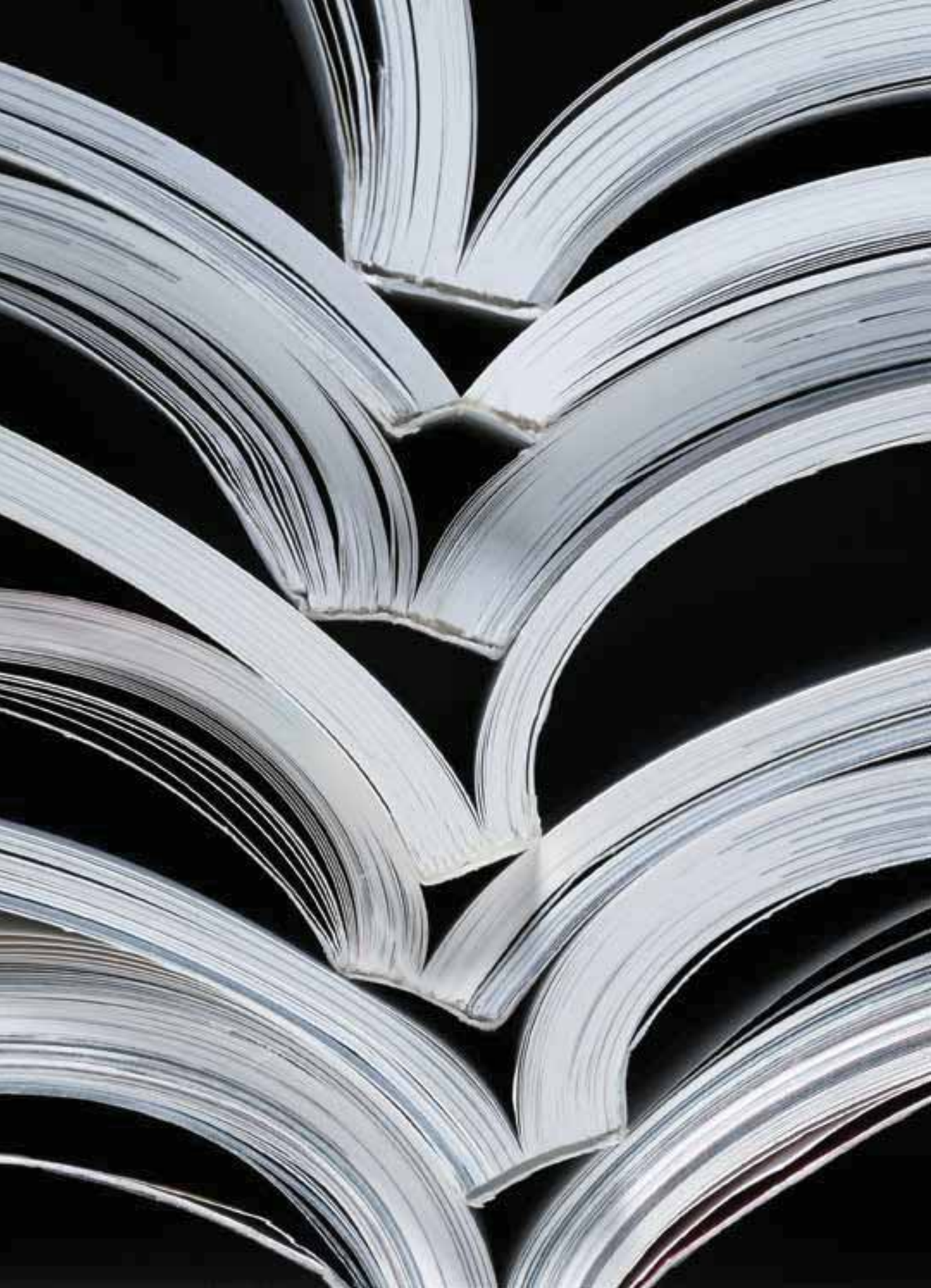




Bob Gil's "A to Z" children's alphabet book is cut horizontally into three sections so that images of everyday objects and words can be mixed and matched by flipping over different sections. The game is to find the right words to go with the pictures. The cut pages are secured with Wire-O® binding, which lets each section open independently and lie flat.

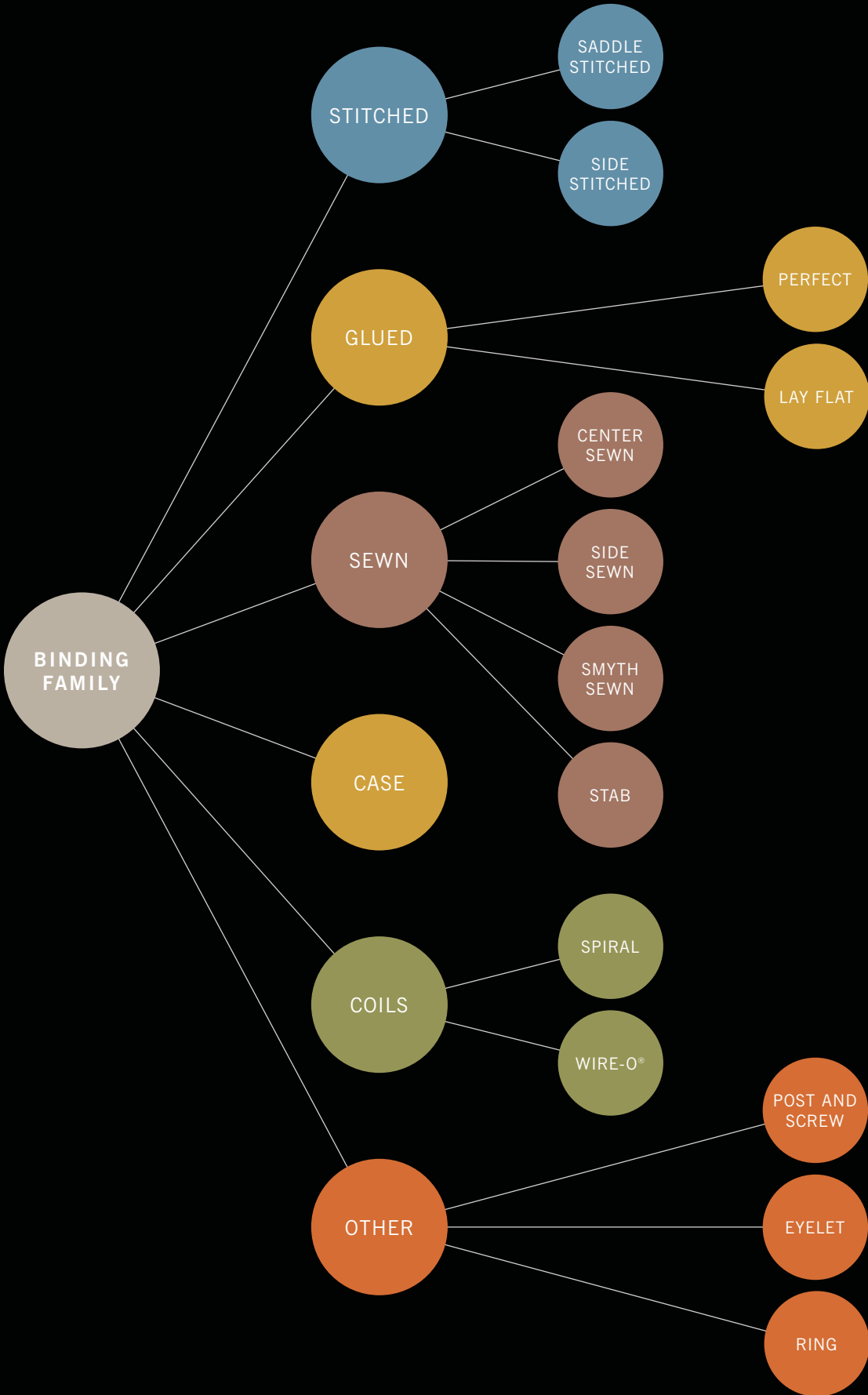


To make this into a flipbook, but still allow for a smooth printed spine, the inner pages are Wire-O® bound to the right edge of the cover sheet, which is turned into a tri-fold that wraps around the book.



BINDING TECHNIQUES







It may seem that there are myriad ways to bind a book, but in reality, the binding family includes about a half dozen types from which variations exist. **Each method has advantages and drawbacks.** The right choice for the project usually depends on evaluating usage, thickness of the book, cost, production speed, durability and appearance. Some methods are cost-effective for small quantities, but prohibitively expensive for large runs. During the design phase, be sure to **ask your printer for a bound paper dummy** made with the actual paper stock in the correct weights and finishes. This will allow you to preview the look, feel and size of the finished book to confirm that this is what you actually want.

SIGNATURE



BINDING BASICS

Bindery operators don't look at print jobs in the same way that designers and printers do. Their primary concern is making sure that the layout of each press sheet groups pages so they can be folded, trimmed, bound and cut properly and efficiently.

The imposition (placement and direction of pages on a signature) may have pages appearing upside down on a press sheet, which is why binderies keep close tabs on the imposition of the press sheet. Before running a job, printers normally rule-up the press sheet to make sure margins and page numbers are correct and everything aligns.

The specifications for **book dimensions must always state the binding side last**. Example: 10x14 indicates that the book must be bound along the 14-inch edge; whereas 14x10 indicates the spine side is along the 10-inch edge. For nonstandard binding jobs, such as the use of short sheets, be sure to check with the bindery early-on to learn where the pages can be inserted.

SADDLE STITCH



Saddle stitch is one of the simplest, least-expensive and most-frequently used commercial binding methods. It is the most popular binding choice for soft-cover booklets, direct mailers, catalogs, manuals, newsletters, programs, and other less permanent materials. It accommodates books of various sizes, as small as a pocket guide and as large as a road atlas. Most printers have saddle-stitching capabilities in-house and turnaround time is generally quite fast.

PROS

- Can be used for short production runs, as well as long ones.
- Easily accommodates crossovers and gatefolds.
- Handles a wide range of sizes and formats.
- Accommodates both self cover or separate cover.

CONS

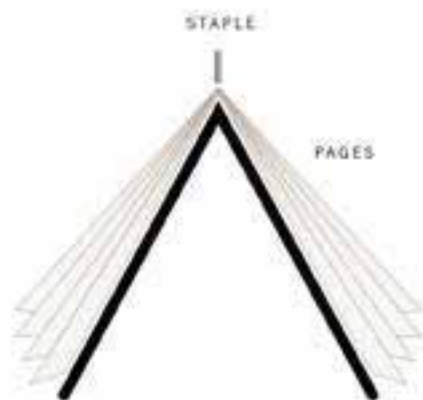
- Page count must be in multiples of four (unless there are foldouts).
- Lacks printable spine.
- Thickness limitations dictate number of pages and weight of paper stock.



IT OPENS FLAT



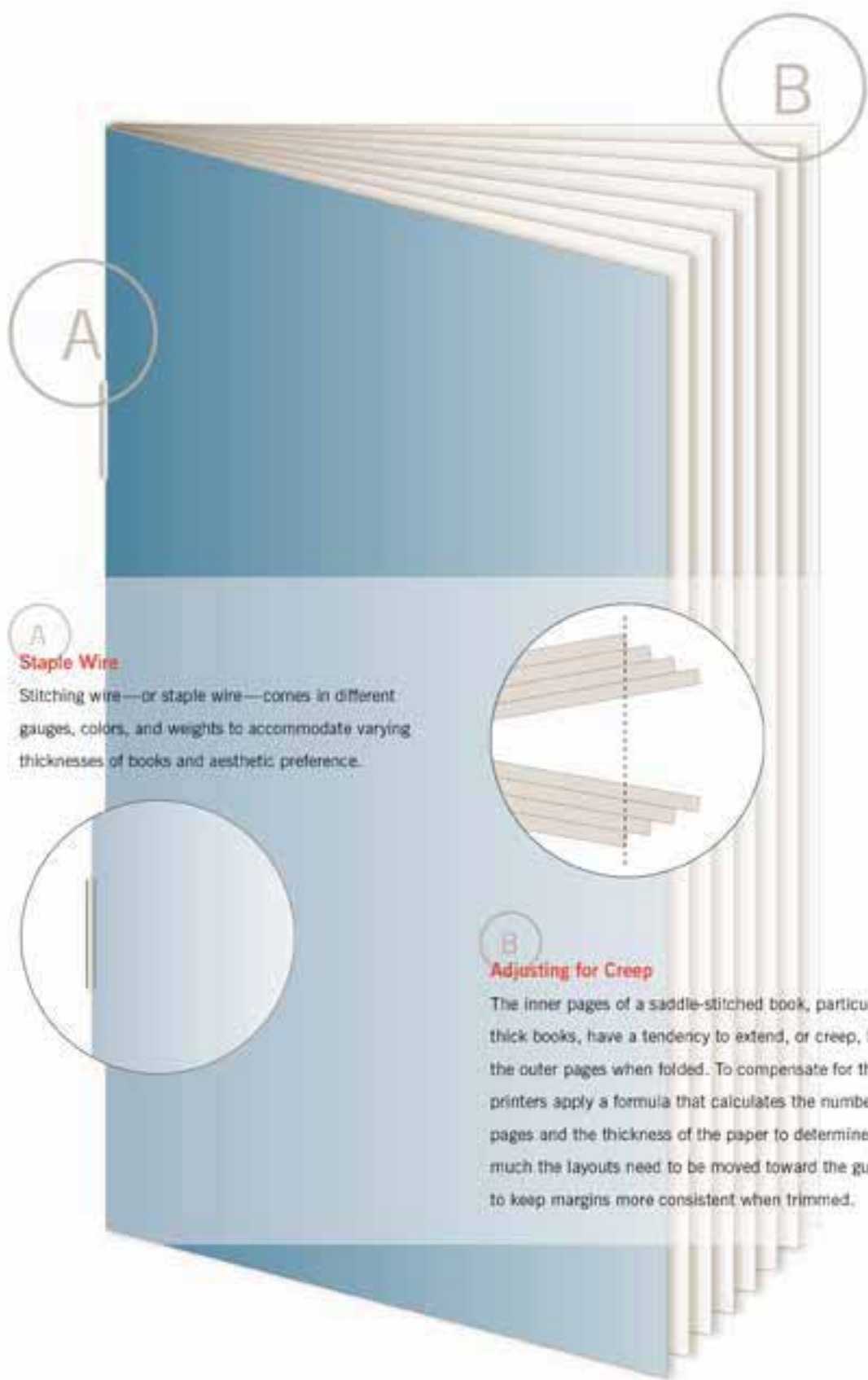
IT CAN BE BOUND UP TO 3/8"



PROCESS

- Printed and folded signatures are stacked in pockets on a gathering device.
- The gathering device begins transferring signatures to a saddle bar, starting with the innermost signature, and working outward to the cover.
- The assembled publication is carried to the stitching heads where staples are driven down the spine fold.
- After stitching, bound publications are transferred to a three-knife trimmer, which trims the nonbinding edges.

ANATOMY OF SADDLE STITCH

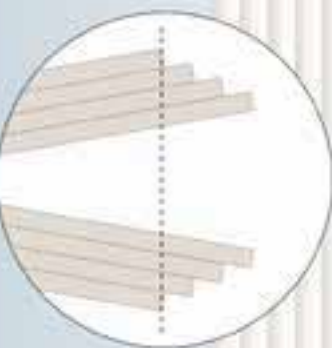


A

A

Staple Wire

Stitching wire—or staple wire—comes in different gauges, colors, and weights to accommodate varying thicknesses of books and aesthetic preference.



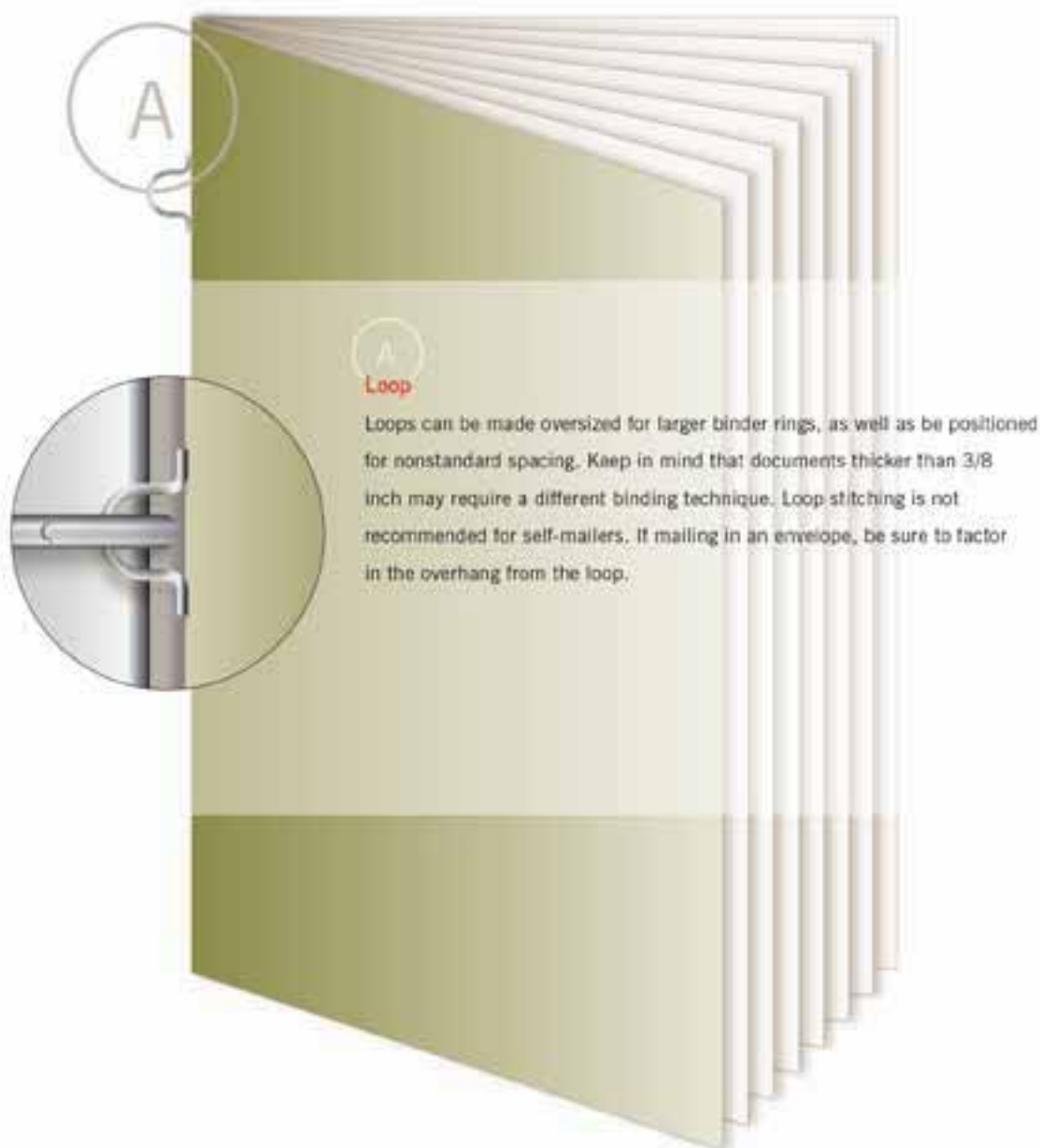
B

Adjusting for Creep

The inner pages of a saddle-stitched book, particularly thick books, have a tendency to extend, or creep, beyond the outer pages when folded. To compensate for this, printers apply a formula that calculates the number of pages and the thickness of the paper to determine how much the layouts need to be moved toward the gutter to keep margins more consistent when trimmed.

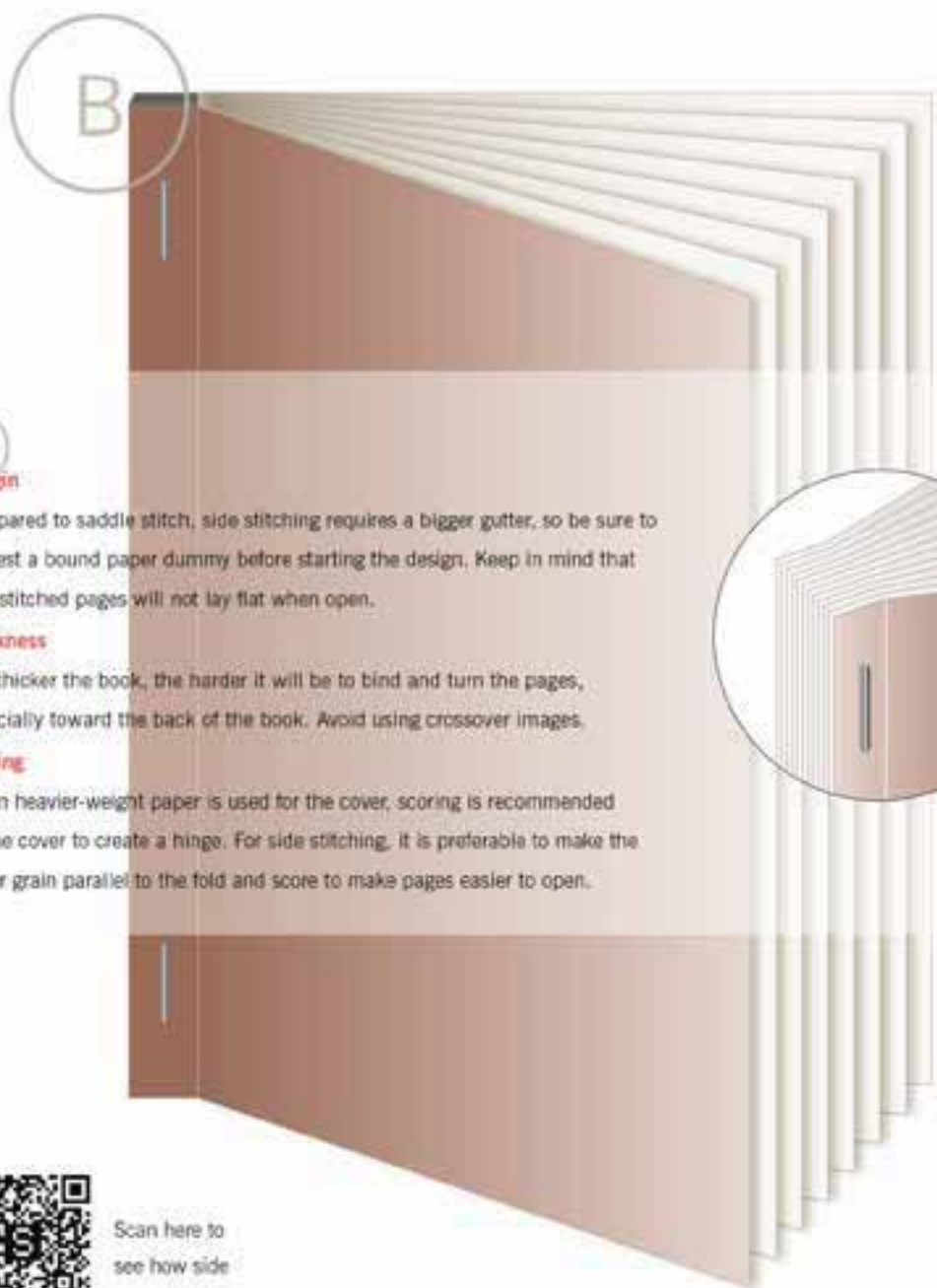
LOOP STITCH

A variation on saddle stitching, loop stitching extends the staple wire beyond the spine to form a loop that can be slipped onto the rings of a three-ring binder without the need to punch holes. This makes it ideal for reference materials and training manuals. Loop stitching allows stitched materials to lie flat in a ring binder and does not require adjusting gutter margins to avoid holes getting punched into text or images.



SIDE STITCH

As its name implies, side stitching involves stapling folded signatures or cut sheets parallel to the spine of the book. Fast, economical and strong, side stitching is often favored for manuals and digitally produced materials. It offers the ability to interleave pages of different stock or color between sections, and can be produced with a wraparound cover or finish-tape binding to hide the raw edges of the spine.



B

Margin

Compared to saddle stitch, side stitching requires a bigger gutter, so be sure to request a bound paper dummy before starting the design. Keep in mind that side-stitched pages will not lay flat when open.

Thickness

The thicker the book, the harder it will be to bind and turn the pages, especially toward the back of the book. Avoid using crossover images.

Scoring

When heavier-weight paper is used for the cover, scoring is recommended on the cover to create a hinge. For side stitching, it is preferable to make the paper grain parallel to the fold and score to make pages easier to open.



Scan here to see how side stitching is done.

PERFECT BINDING



Perfect binding is an adhesive binding process that involves trimming and roughing the edge of the spine and gluing the roughed up sheets to the cover with a hot-melt adhesive. When introduced in the late 1920s, it enabled the mass production of inexpensive magazines, directories and paperback books. Compared to saddle stitching, perfect binding does not result in creep or bulging in the center, and forms a flat printable spine. Perfect-bound books should be 16 pages or more; if fewer, check with your printer. Also, keep in mind that perfect binding must always have a separate cover to hide the glued spine.

PROS

- A perfect-bound book has a neater appearance than saddle-stitched ones.
- Flat edge allows printing a title on the spine.
- Easier for stacking, packaging and handling.

CONS

- Doesn't lay flat when open.
- Cover fold must be parallel to the paper grain.
- For a crisp, perfect-bound edge, minimum thickness should be greater than 1/8 inch.
- Maximum thickness is roughly 2 3/8 inches; caliper of paper will determine number of allowable pages.



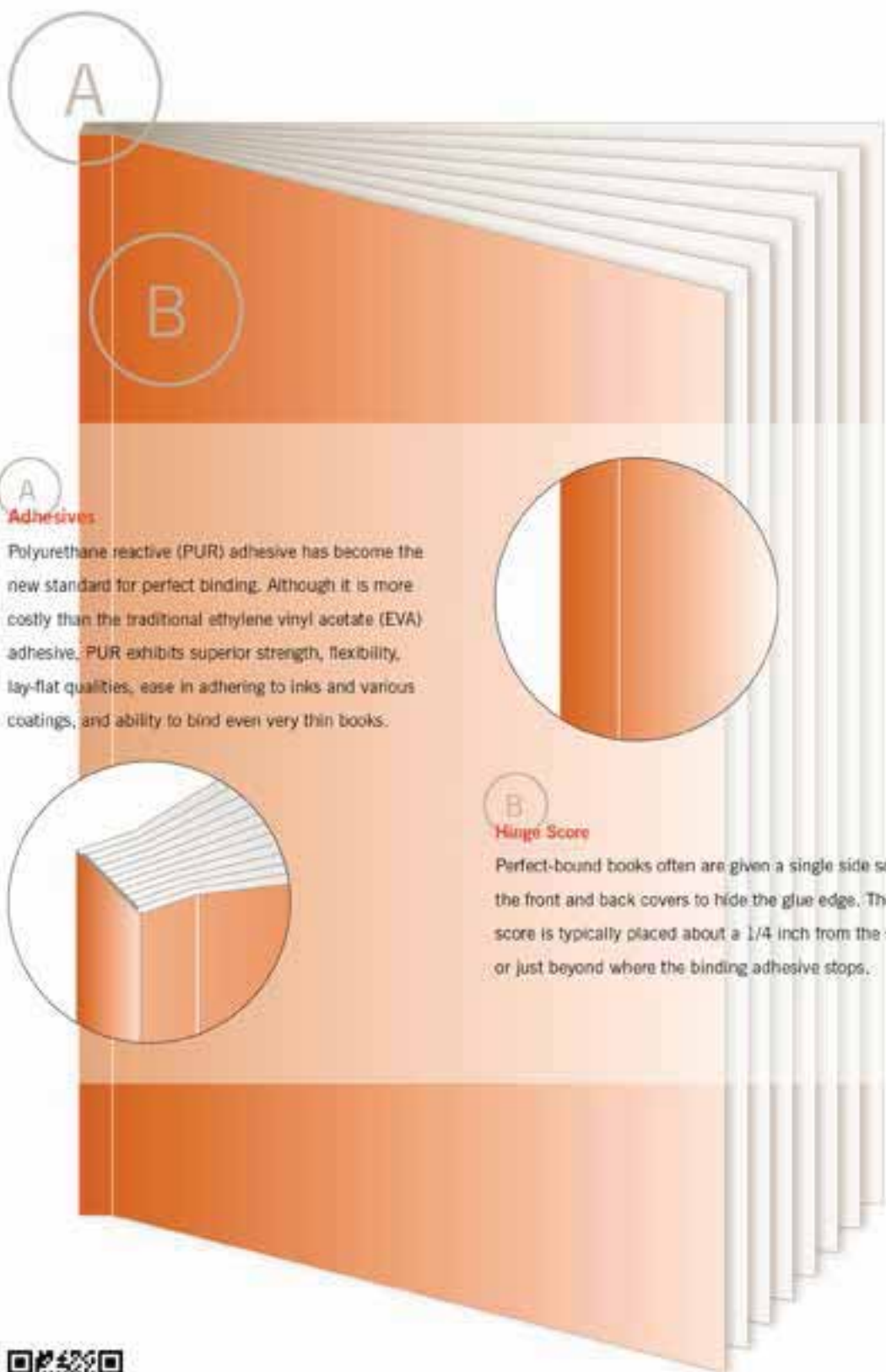
PROCESS

- Folded signatures or single leaves are stacked neatly in page order.
- The spine side is trimmed to remove the folded edges and roughed up to expose more paper fibers and increase the bonding area for the glue.
- A strong yet flexible thermal glue is applied along the spine edge.
- The book cover is wrapped around the block of pages and made to adhere to the glue along the spine.
- After the glue sets, the head, face and foot of the book are trimmed with a three-knife trimmer.



IT DOES NOT OPEN FLAT

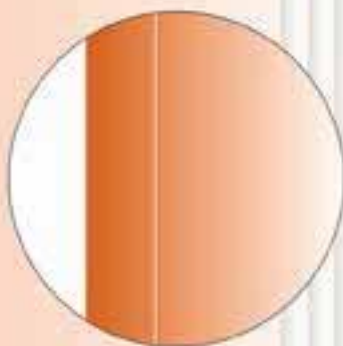
ANATOMY OF PERFECT BINDING



A

Adhesives

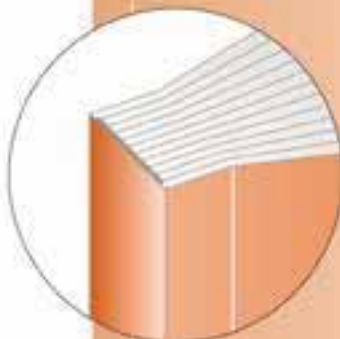
Polyurethane reactive (PUR) adhesive has become the new standard for perfect binding. Although it is more costly than the traditional ethylene vinyl acetate (EVA) adhesive, PUR exhibits superior strength, flexibility, lay-flat qualities, ease in adhering to inks and various coatings, and ability to bind even very thin books.



B

Hinge Score

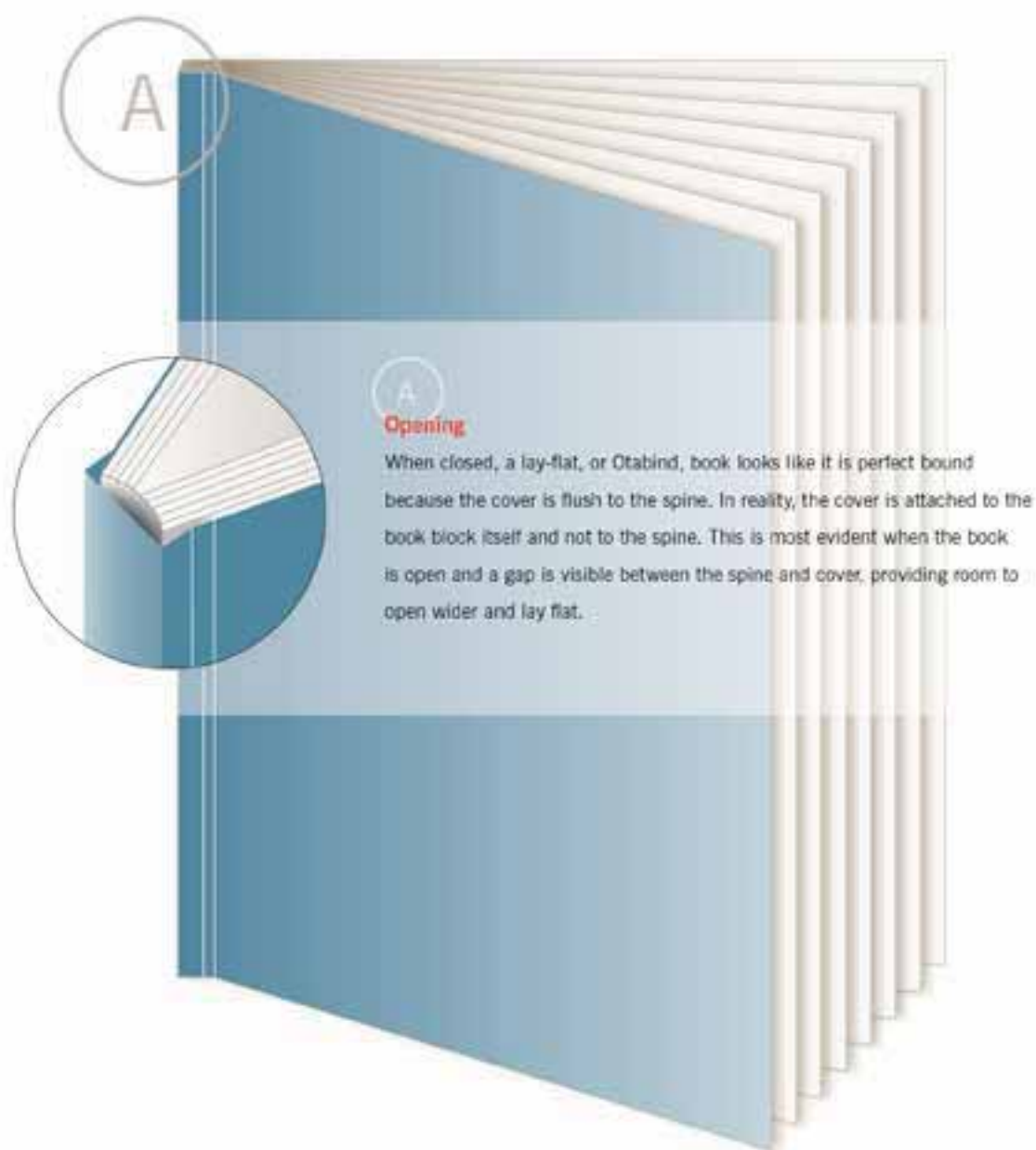
Perfect-bound books often are given a single side score on the front and back covers to hide the glue edge. The hinge score is typically placed about a 1/4 inch from the spine or just beyond where the binding adhesive stops.



Scan here to
see how perfect
binding is done.

LAY FLAT

Unlike perfect binding, lay-flat binding is not glued to the spine of the book, but floats free of it, thus allowing the book to lay flat on a table. Originally patented in the 1980s, the Otabind process involves adhering a book block to a paper crepe liner at the spine. Glue is used to hold pages together, creating a spine that is extremely pliable. The book cover is glued to both sides of the crepe liner, so it doesn't actually touch the spine.



NOTCH BINDING

Notch binding is a method of perfect binding softcover books, except that folded and gathered signatures are notched in alternating bands. The crossover tabs of paper connect every page to another, offering better durability. The notches allow the spine glue to move into the signature.

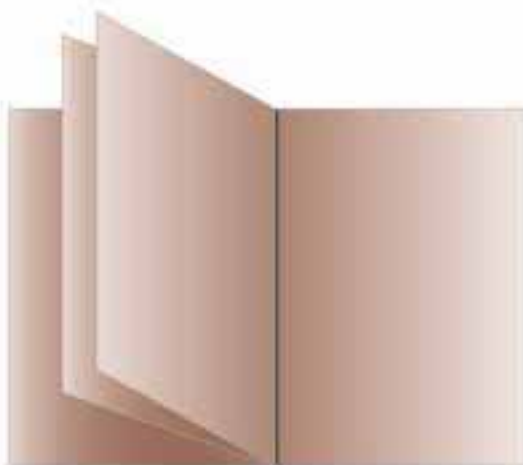


Notching

Notching the spine at intervals helps to fasten the leaves and create grooves that allow glue to penetrate deeper into the signatures. A "shark tooth" appearance is often visible at the top and bottom of the notched book spine.

INLINE GLUE BINDING

Inline gluing allows production of 8-, 12- and 16-page booklets, envelopes, pockets and the like in a single pass through the folder. With glue binding, a web press or folder applies thin strips of glue along fold lines. When the sheet is folded, glued creases meet glued folds to create a bond. The finished books are then stacked and trimmed in a three-knife trimmer.

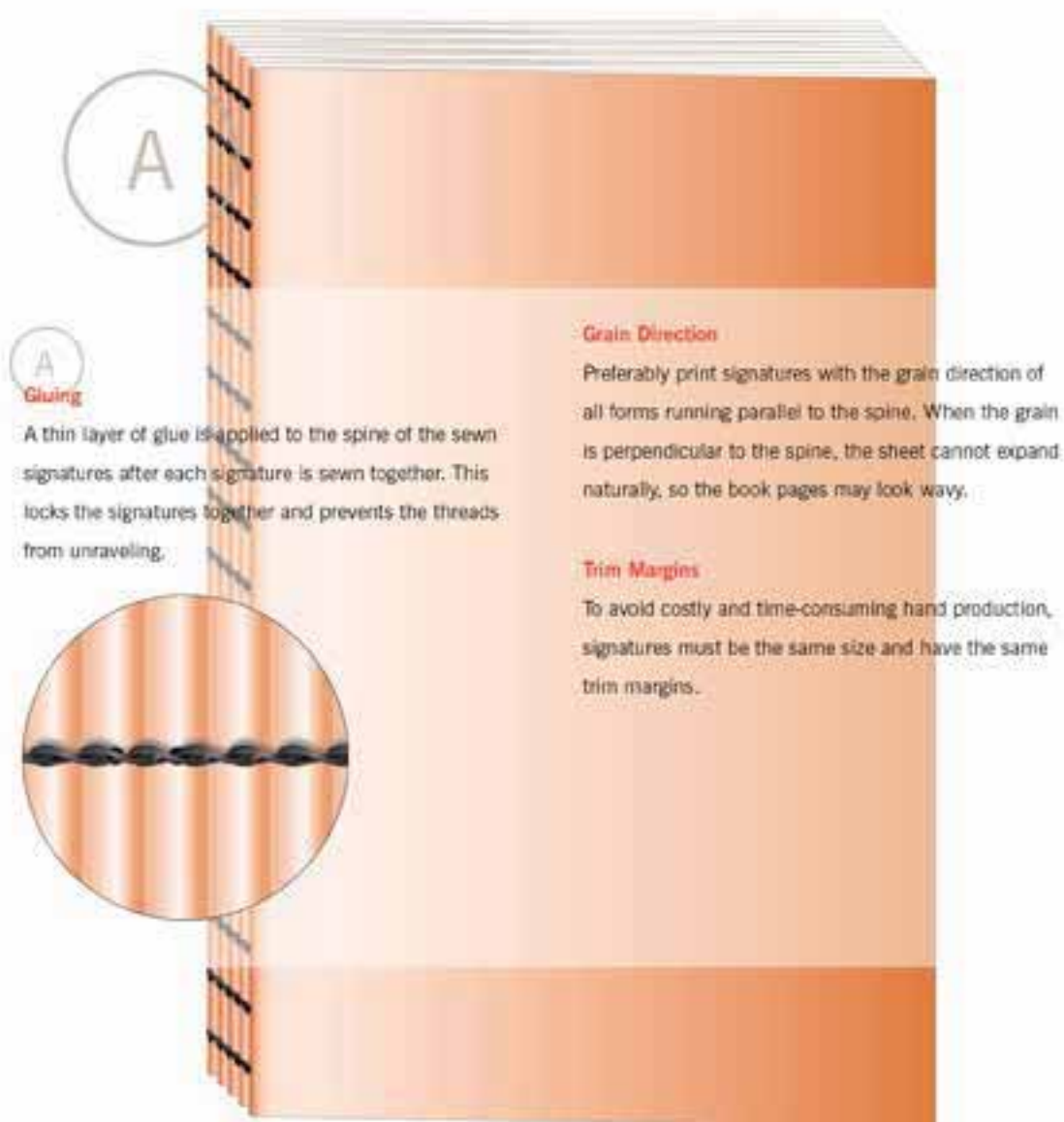


Fast and inexpensive, inline gluing is cost-effective for many types of direct-mail pieces, as well as for self-cover books. The upper limit of glue-bound pages, however, depends on the bulk of the paper and capabilities of the press or folder. High-bulk paper may be too thick to glue more than 16 pages.

SMYTH SEWN



Smyth sewn is considered the highest quality book binding available today. Preferred by libraries and for collectible coffee-table art books, smyth-sewn books are durable, withstand frequent handling, and open flat. The process involves using thread to first sew through the fold of each signature, then sewing the stacked group of signatures together to form a book block, and finally gluing flannel on the spine to set the thread and attach the cover.



Grain Direction

Preferably print signatures with the grain direction of all forms running parallel to the spine. When the grain is perpendicular to the spine, the sheet cannot expand naturally, so the book pages may look wavy.

Trim Margins

To avoid costly and time-consuming hand production, signatures must be the same size and have the same trim margins.

CENTER SEWN

As its name implies, center-sewn books use thread to sew a single straight line through the center of nested signatures. Often used as a decorative accent, the stitching is made more prominent by choosing a contrasting color or thicker thread.



One Signature

Center-sewn books require only one signature, and are best-suited for thin projects such as brochures and marketing materials. Books with more than one signature will bulge open slightly at the center spread.

Creep

Center-sewn books need to be adjusted for creep by making the trim margins for the inner signatures narrower than the outer signatures. The thicker the book, the more pronounced the creep.

SIDE SEWN

Side sewing uses nested signatures, stacked signatures or individual sheets. The thread is sewn through the side of signatures, close to the spine, making for an exceptionally strong book block.



Wide Gutter

A wide gutter is needed for side-sewn books because the book is held together tightly by the stitches, making it difficult to open.



Scan here to
see how side
sewing is done.

CASE BINDING



Case binding is the most common type of binding for a hardcover book. First, the pages are arranged in signatures and sewn or glued together to form a book block. The block is then trimmed and placed into a cardboard cover, called a case, which is covered with paper, cloth, leather or other type of substrate. End sheets are used to glue the inside covers and attached to the first and last signature of the book with a thin strip of glue.

PROS

- Signatures can be sewn, perfect bound, or side stitched.
- Able to use special materials (e.g., cloth) to create the case.
- Exceptionally strong and durable.
- Looks impressive.

CONS

- Most costly of all automated binding types.
- Requires longer production time, depending on quantity.

SPINE VARIATIONS

Rounded

Rounded spines are made with a thin card stock to give it a slightly convex shape at the spine. Cloth, paper or leather wrapper encases the entire cover.

Flat Backed

Perfect-bound and side-sewn book blocks must be flat- or soft-backed. Flat backs must have a minimum spine width of 1/4 inch. The spine board is the same thickness as the rest of the cover.

Soft Spine

Soft spines do not have cardboard on the spine. A tape is wrapped around the spine and a hard cover then is attached. This allows the use of materials different from the spine on the front and back cover.



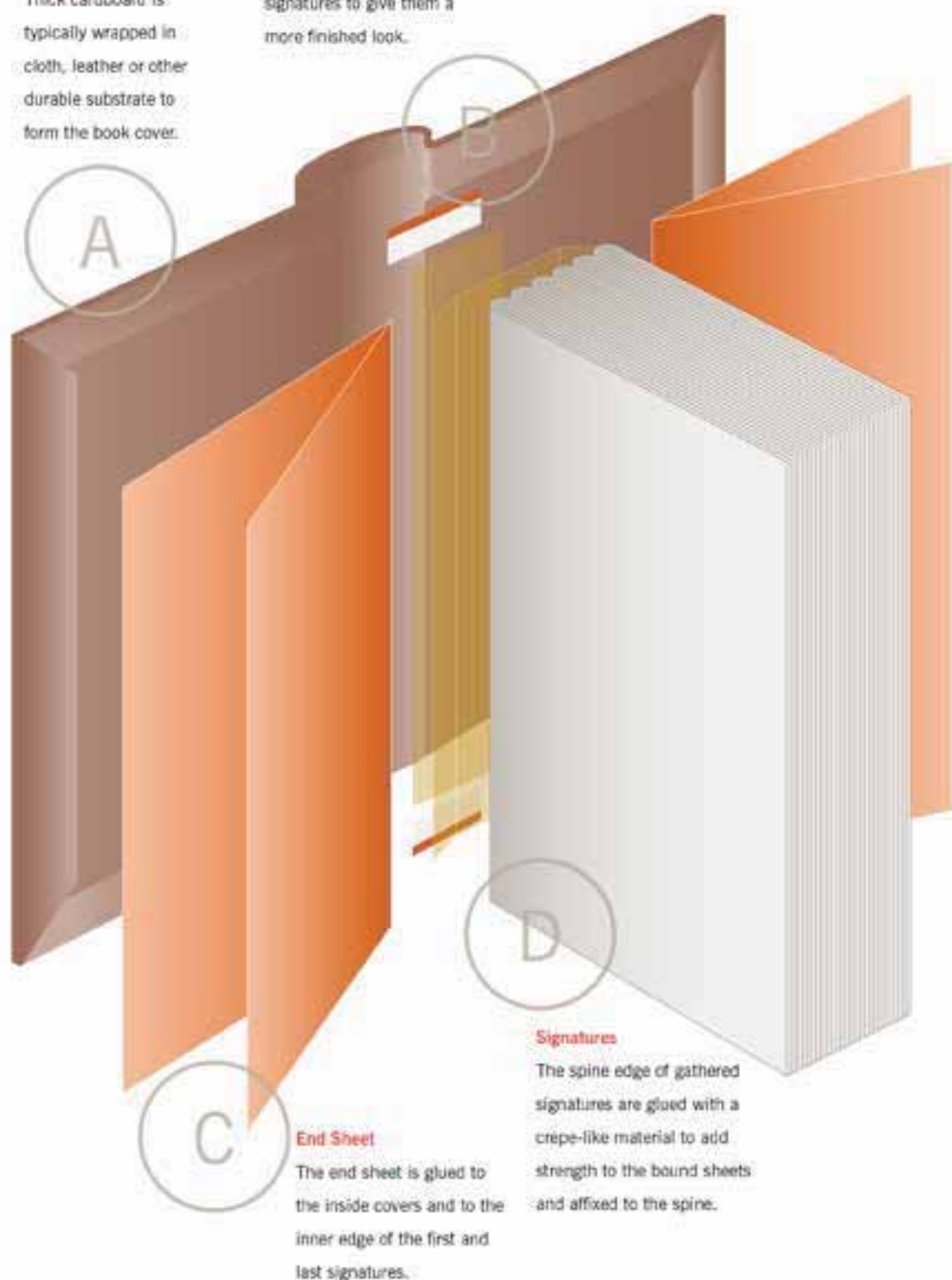
ANATOMY OF CASE BINDING

Cover Board

Thick cardboard is typically wrapped in cloth, leather or other durable substrate to form the book cover.

Headbands

Decorative headbands are glued to the top and bottom edge of the signatures to give them a more finished look.



A

B

C

End Sheet

The end sheet is glued to the inside covers and to the inner edge of the first and last signatures.

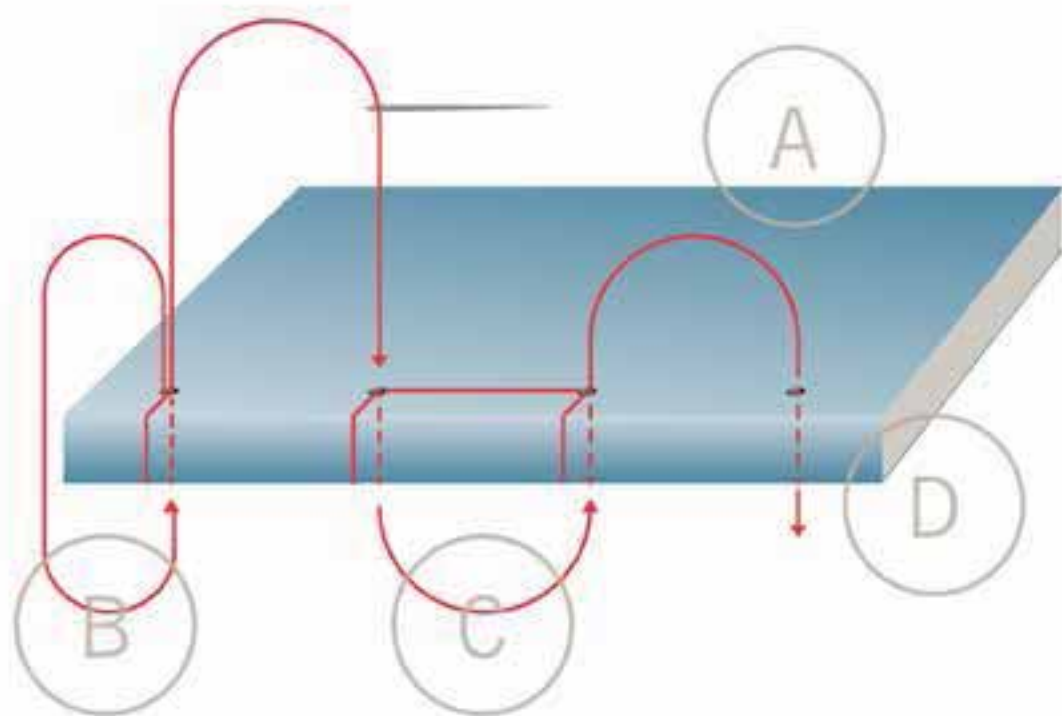
D

Signatures

The spine edge of gathered signatures are glued with a crepe-like material to add strength to the bound sheets and affixed to the spine.

JAPANESE STAB BINDING

Although China and Korea first developed stab binding, Japan adopted and perfected the technique, which is why it has become known as Japanese stab binding. The technique is often associated with Japanese handmade papers and colorful silken thread that give these books a unique Asian aesthetic. Stab binding is simple to learn yet time-consuming to do.



A

Book Block

Leaves are assembled as a book block, and a template is made to position holes, which are punched through with an awl.

B

Series of Loops

Thread is pulled through a hole and looped around the spine and through the same hole from the reverse side, moving onto the next hole and repeating the steps.

C

Thread

Choice of thread is very much part of the cover design. Silk thread, twine, yarn and string may be used as long as it is sturdy.

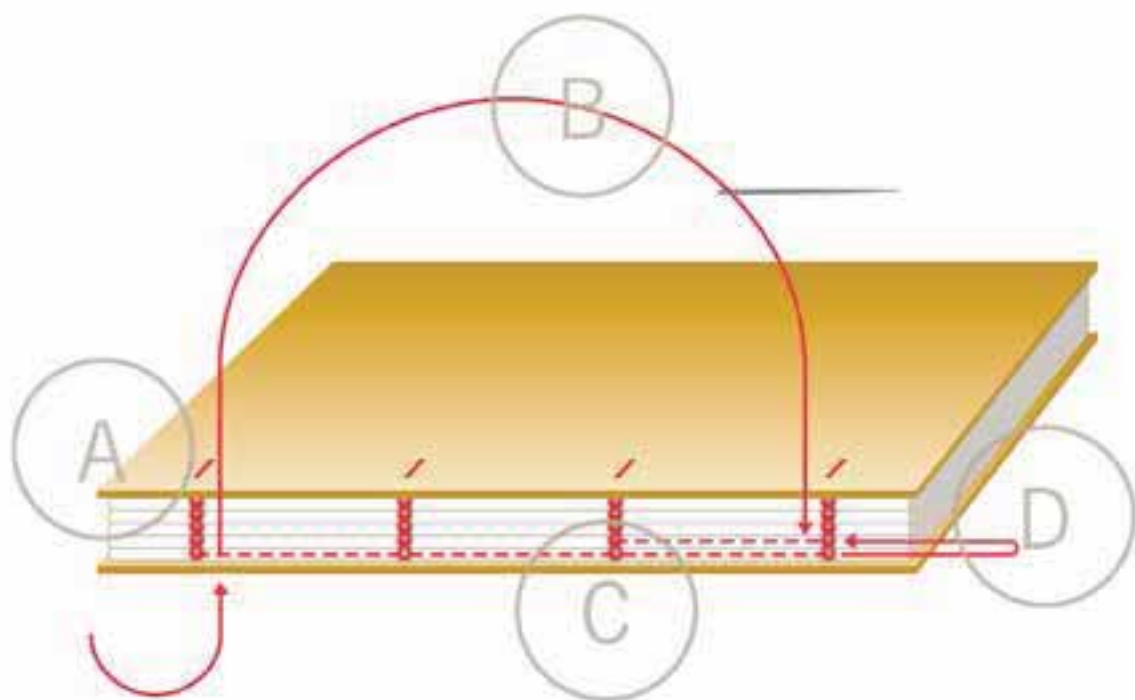
D

No Signatures

Stab binding works with loose leaves, and the thread is pulled through the entire book from cover to cover.

COPTIC BINDING

Coptic binding is the method of binding used by the early Christians (Gopts) in Egypt around the second century A.D. This is a hand-stitched process that resembles chain stitches in embroidery. Coptic stitching is flexible enough to open to a full 360 degrees and lay completely flat. It is often favored for keepsakes like personal journals and albums.



A

Template Guide

A template is used to precisely mark the placement of the holes. Then an awl is used to punch the holes.

B

Needle and Thread

The entire book is bound with a connected stitch from a single length of heavy thread or twine.

C

Sewing

Only one signature is sewn at a time. Each stitch is inserted twice through the same hole, once from the inside out, then looped and sewn from the outside back in before moving to the next hole.

D

One Signature

The sewing process is repeated one signature at a time, until all of the signatures are connected with a chain stitch.

SPIRAL BINDING

Also called coil binding, spiral binding is commonly used for business presentations, proposals and manuals. Spiral-binding machines punch evenly spaced holes along the length of the spine and then insert a wire or plastic coil through the holes to create a flexible spine. Plastic comes pre-coiled, and wire comes in a single strand that is spiraled onto the book as it is bound.



PROS

- Spiral binding offers the advantage of opening a book back on itself without breaking the spine. This allows one page to be viewed at a time.
- Spiral can be fully concealed or partially concealed with a wraparound cover.
- Limited quantities of documents can be spiral bound in-office on a portable binding machine.

CONS

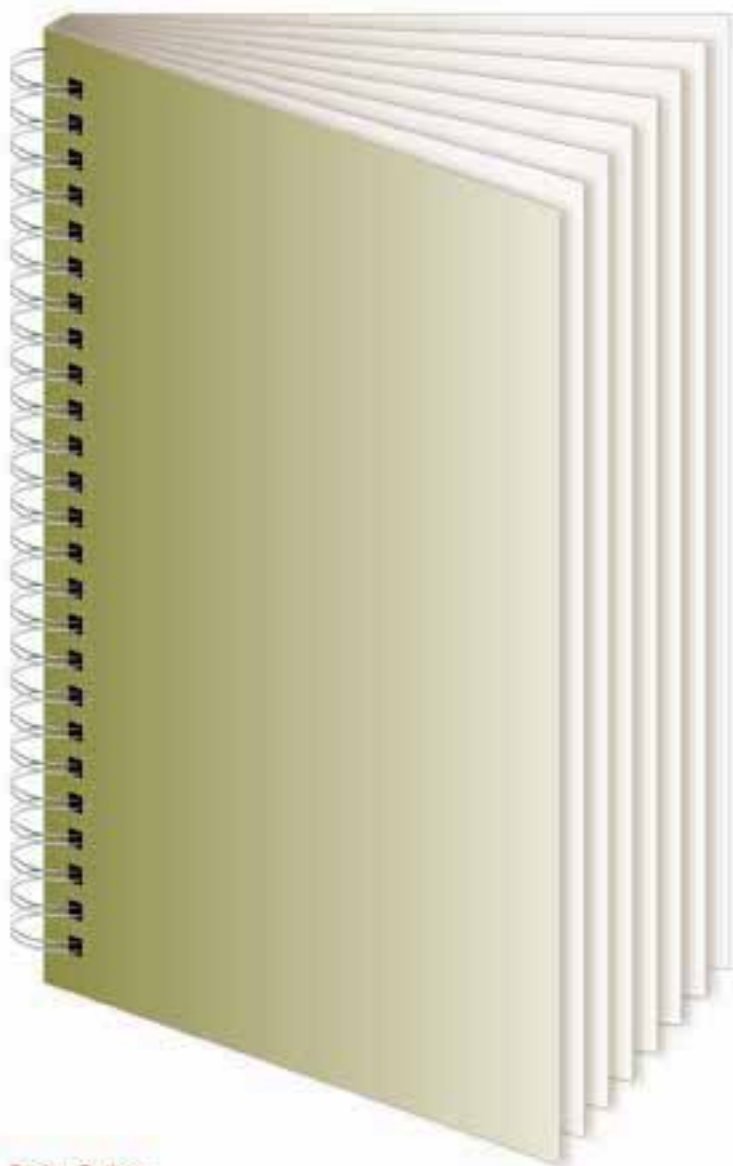
- Pages tend to "step up" when the book is open, so crossover images may not align.
- Spiral often suggests in-office assembly, and not one done by a professional bindery.

Scan here to see how Wire-O binding is done.



WIRE-O® BINDING

Also called double-loop binding, Wire-O uses pre-formed wire loops that run down the spine of a book and can come in match colors. Wire-O binding opens without joggling pages up, so it will work for books with crossover images. Unlike spiral, Wire-O will accommodate books as thick or thicker than 2 inches. Portable Wire-O machines are also available for in-office use, and can produce single copies.



Design Options

Books may be bound in signature form, as single leaves, or in combination. This provides the flexibility to bind different kinds and weights of paper and materials together and accommodate variably sized leaves, foldouts, diecuts, tabs, and bindings.



Split-back

Split-back covers that leave the Wire-O binding exposed are the most economical option, but they do not permit printing on the spine.



Semi-concealed

To print on the spine, it is possible to create a semi-concealed cover by double scoring and binding the back cover.



Fully concealed

Fully concealed Wire-O covers are created using a gatefold cover and binding it to the text pages.

EYELET AND GROMMET

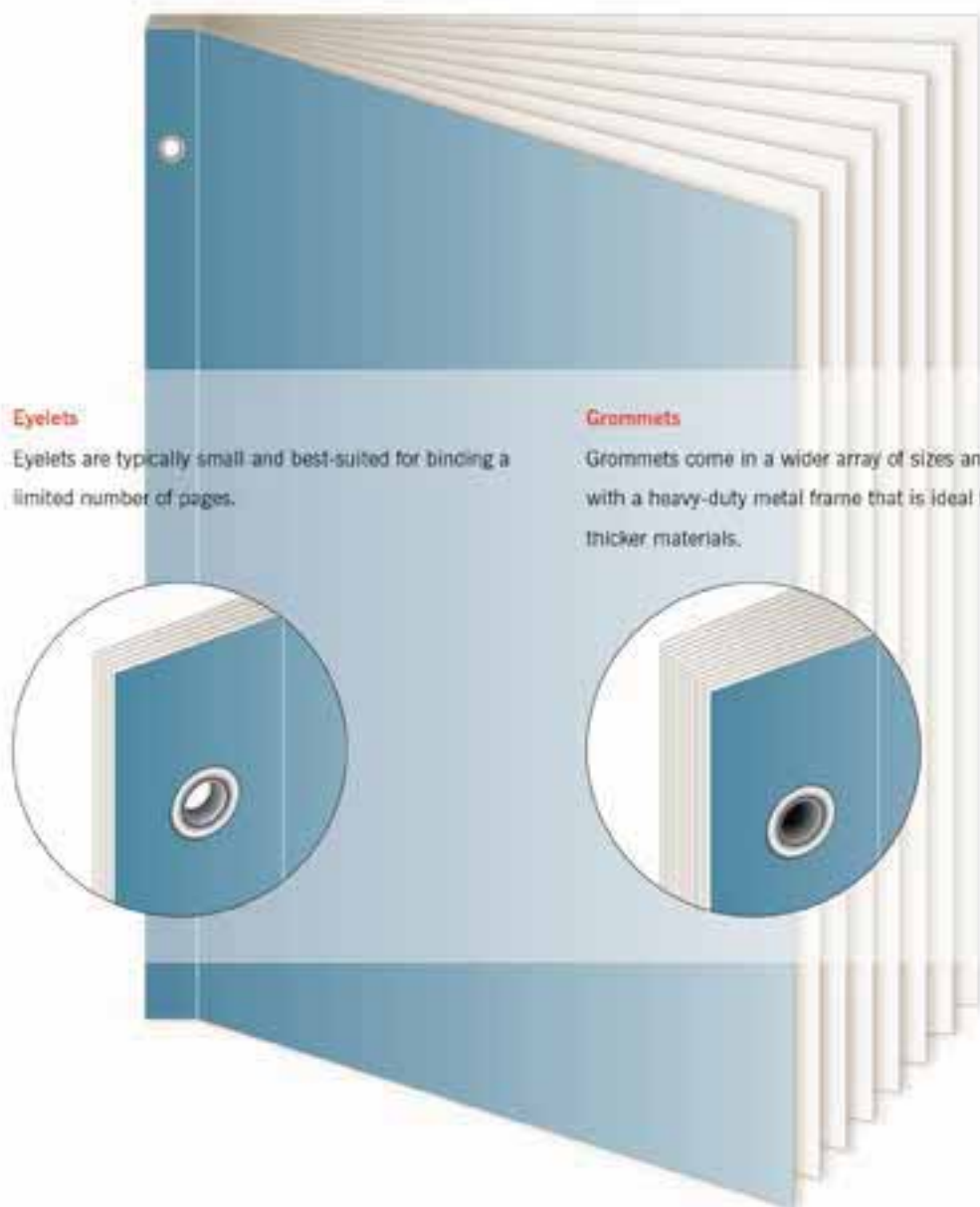
Although they look somewhat the same, there is a difference between eyelets and grommets. An eyelet is one piece. When pressed down, the "throat" bends out securing the bind. Grommets, on the other hand, have two pieces that clamp together using the pressure of a grommet press.



Grommets



Eyelets



Eyelets

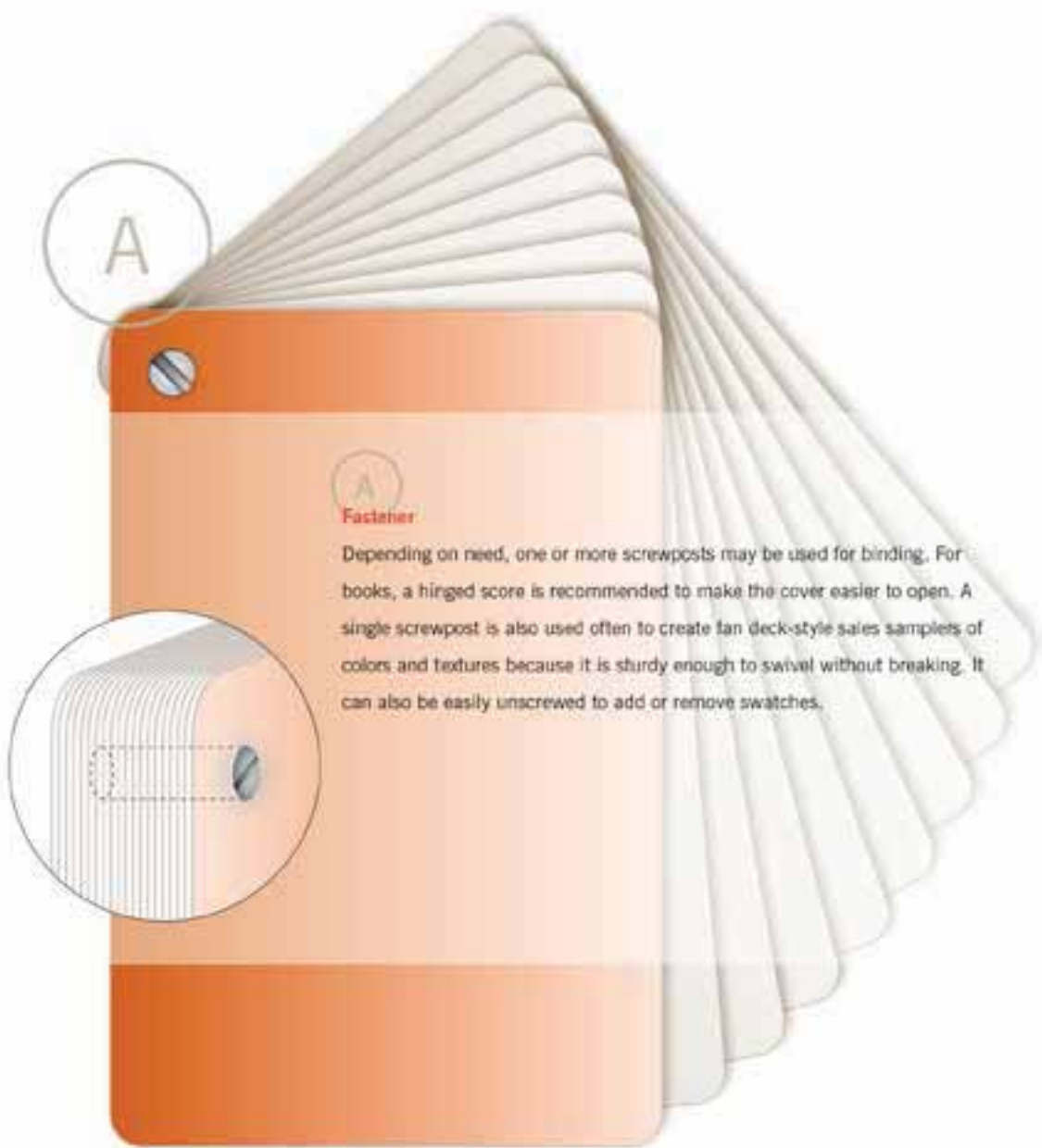
Eyelets are typically small and best-suited for binding a limited number of pages.

Grommets

Grommets come in a wider array of sizes and are made with a heavy-duty metal frame that is ideal for piercing thicker materials.

POST AND SCREW

Often referred to as a Chicago Screw, screwposts come in a wide array of metals and plastics and various post lengths to accommodate different thicknesses. Screwposts are typically used for swatchbooks, design portfolios, menus, scrapbooks, photo albums and other printed materials that may need to be updated frequently. All it requires is a standard flat-bladed screwdriver to unscrew the binding and add or remove pages.



SMALL-RUN BINDING

For limited print quantities or custom binding within an office, dozens of binding options exist. These jobs are often produced on digital color printers and assembled as individual leaves and not in signatures. For the most part, they can be put together as needed and allow some content to be common to all copies or customized by adding or changing out pages.

TAPE BINDING

Tape binding gives a more aesthetically pleasing look to Smyth sewn or perfect bound book blocks that do not have a cover. Tape comes in various widths and colors.



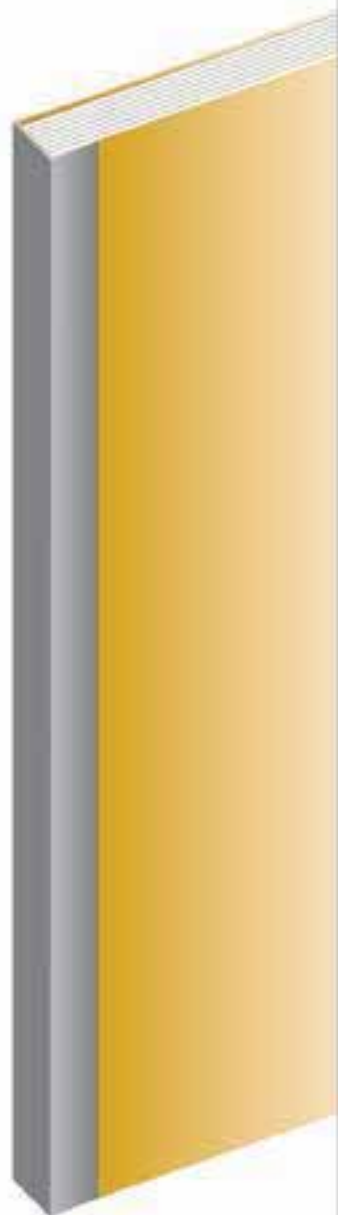
PRONG FASTENER

An inexpensive way to organize papers, two-piece prong fasteners made for a standard two-hole punch come in different sizes and finishes.



PLASTIC GRIP

An off-the-shelf solution for binding reports and other documents, plastic grips can simply be slid onto the spine.



RUBBER BAND

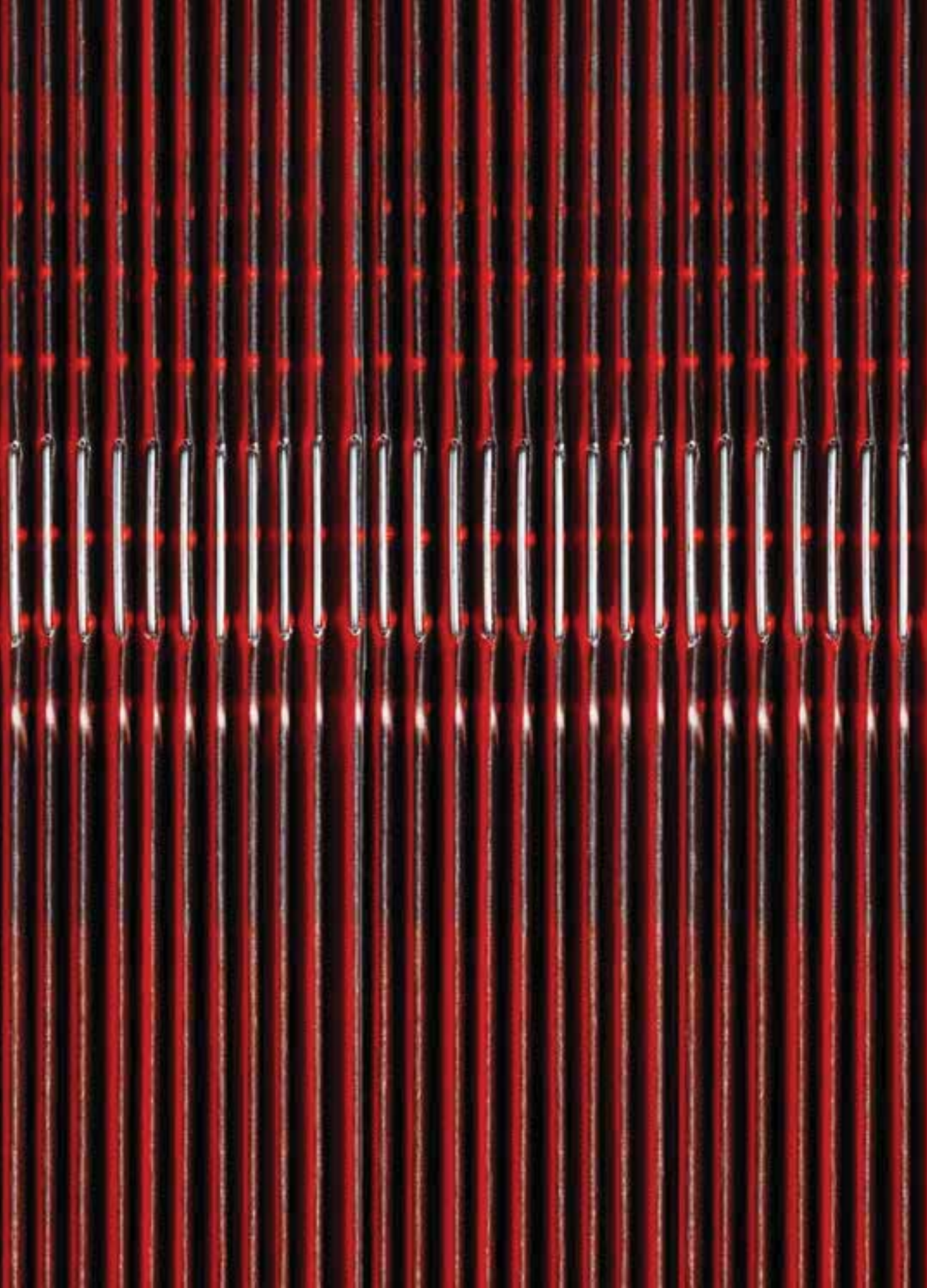
A die-cut notch is required to keep a heavy-duty rubber band in place if used to secure the book block. Rubber bands come in various colors and can be preprinted.



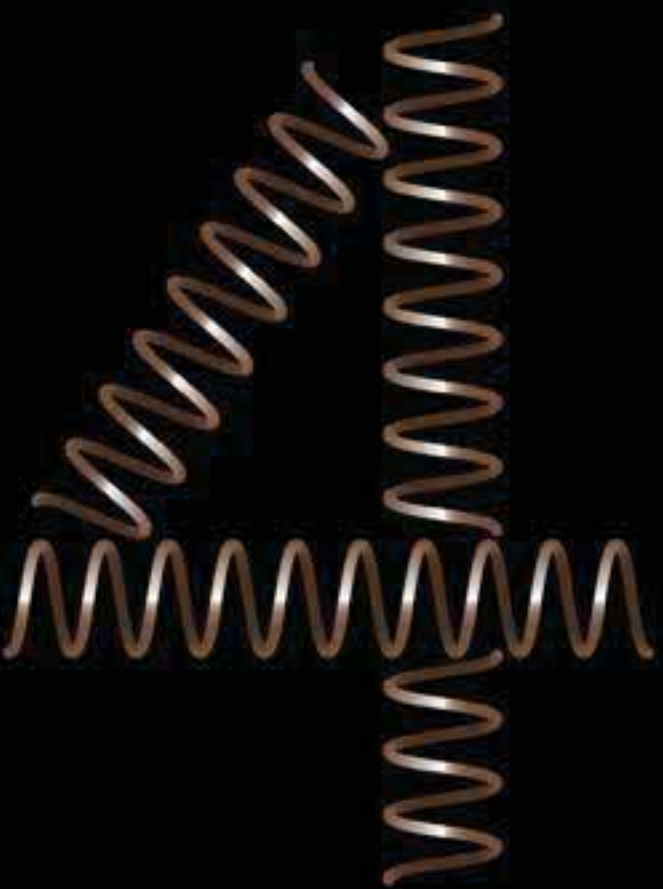
COMB BINDING

An economical, low-tech way to bind manuals and books that need to lay flat, comb binding has rectangular holes punched on the spine side, and a plastic ring with comb "teeth" that are threaded through the holes.





GUIDE TO BINDING MATERIALS



STAPLES

REGULAR



LOOP



STITCHES

0.125"

0.25"

0.375"



FASTENER



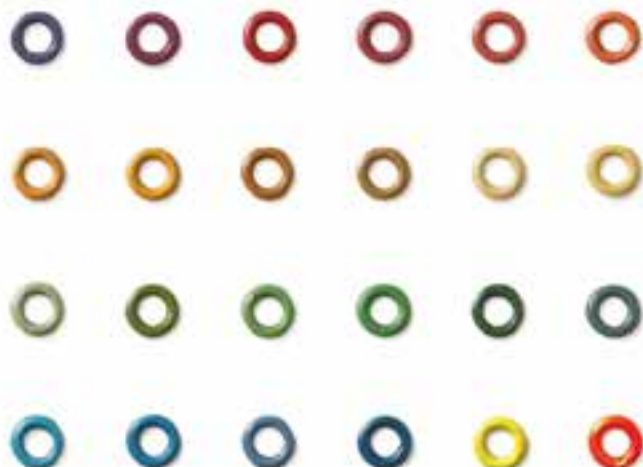
THREADS



BINDING TAPES



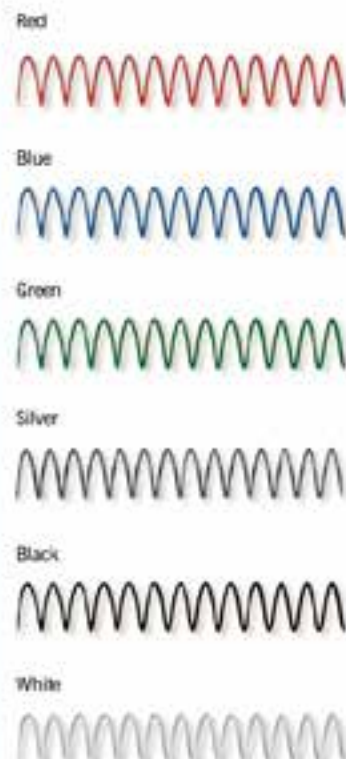
EYELETS



RIBBON BAR

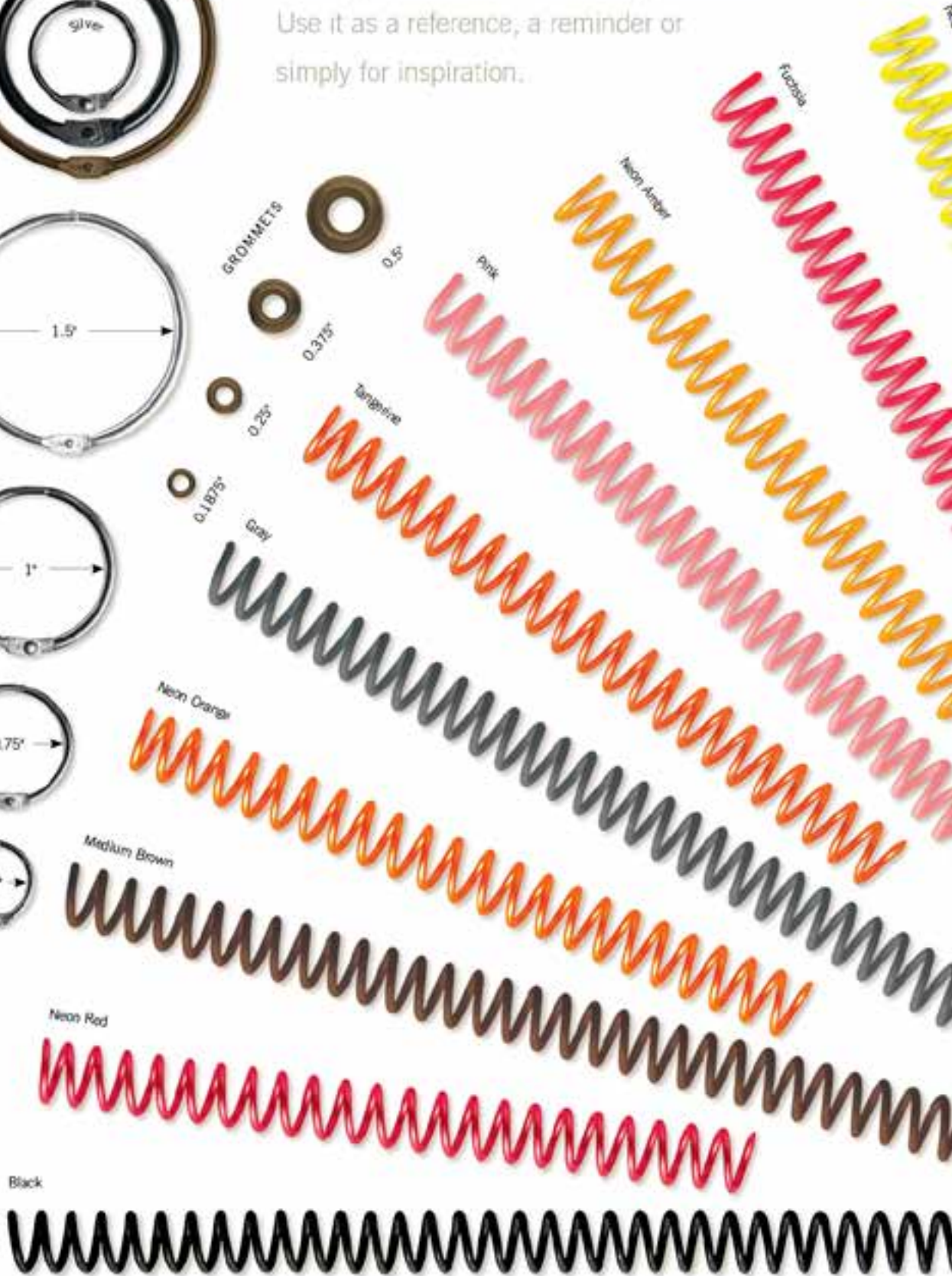


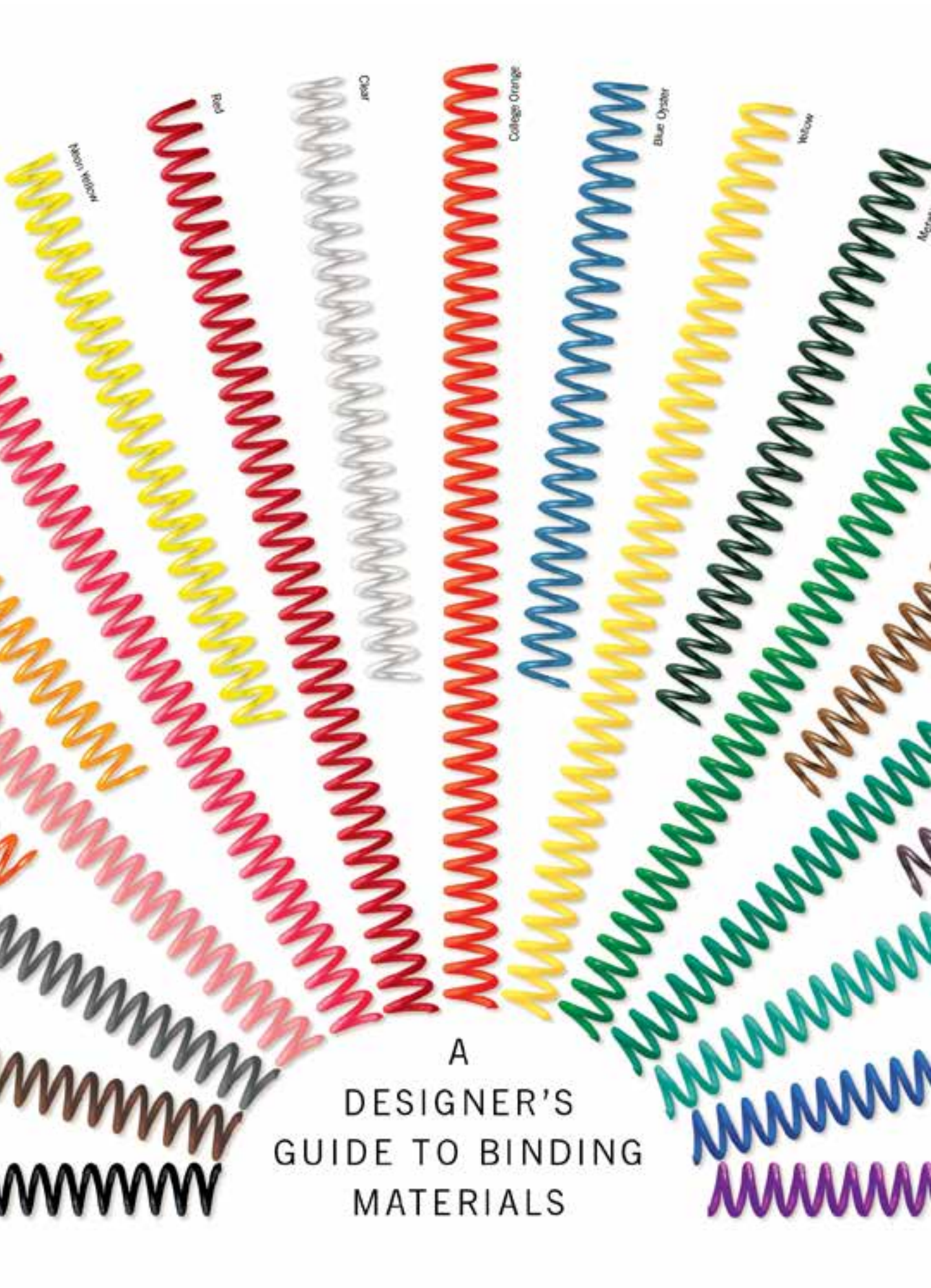
METAL SPIRALS





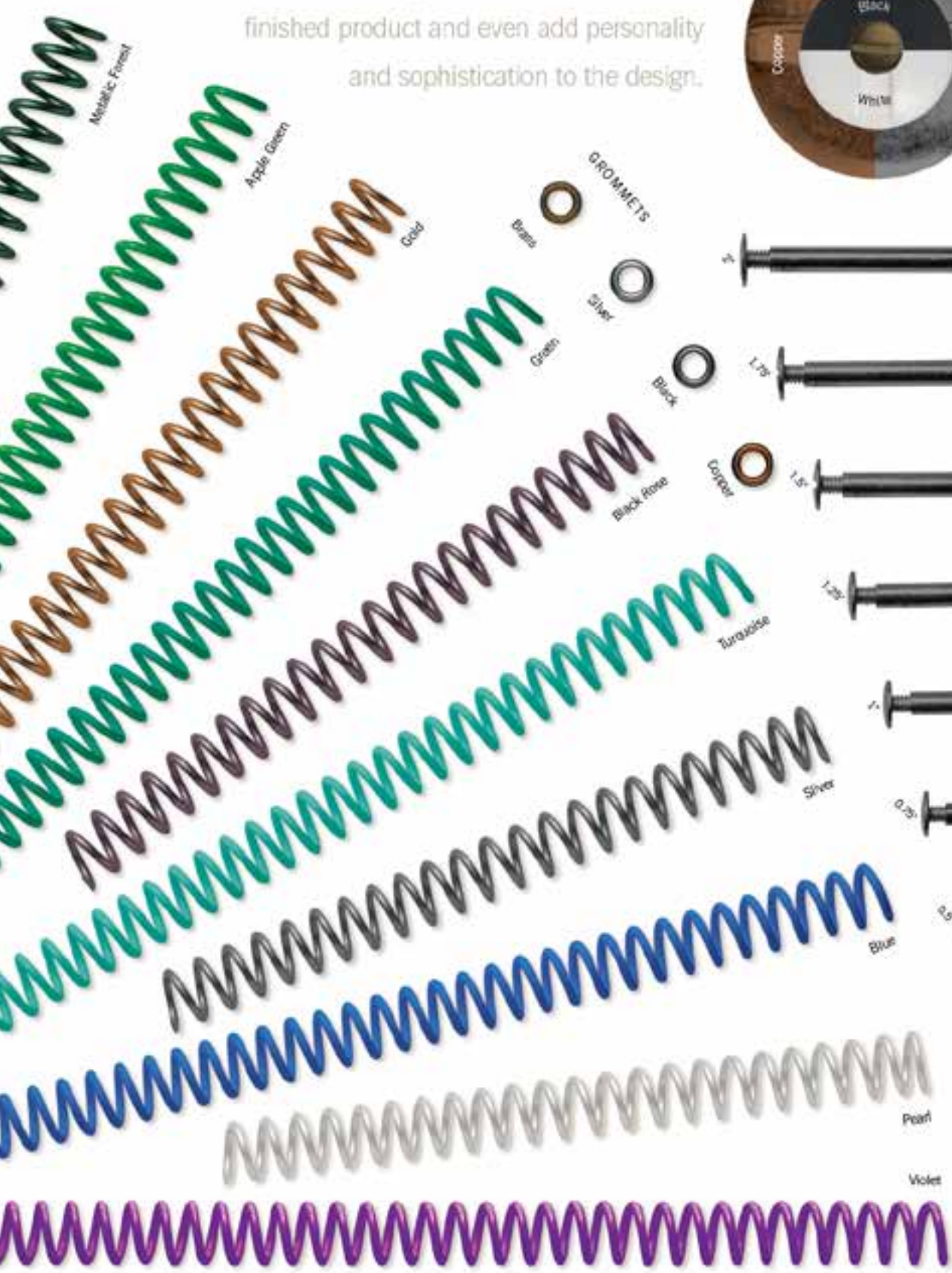
Shown here is a sampler of the various binding materials that are readily available. Use it as a reference, a reminder or simply for inspiration.





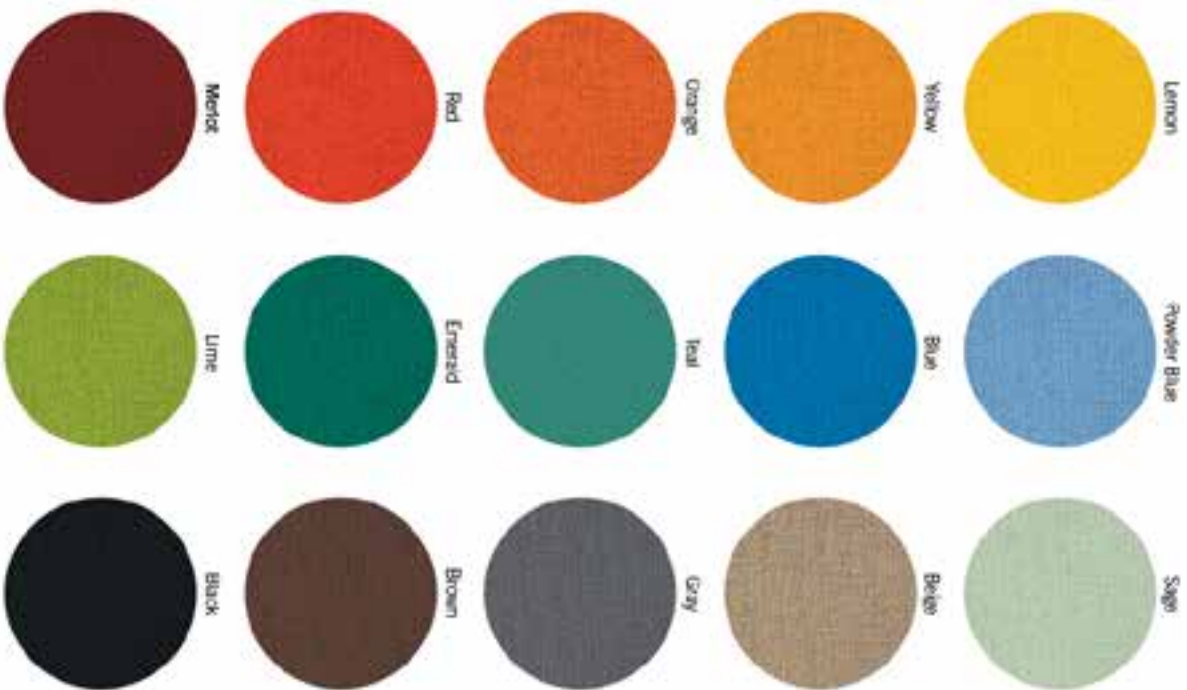
A
DESIGNER'S
GUIDE TO BINDING
MATERIALS

Binding is more than a mechanical process; it is an often overlooked design tool that can finesse the finished product and even add personality and sophistication to the design.

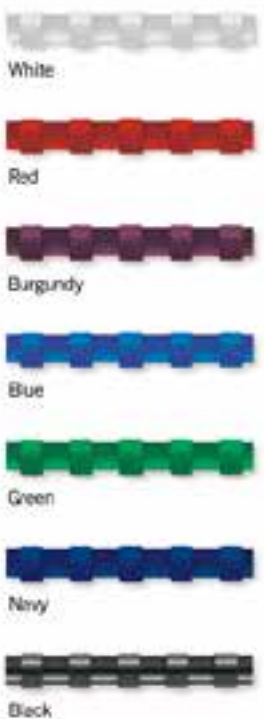


Pearl
Violet

BOOK CLOTH

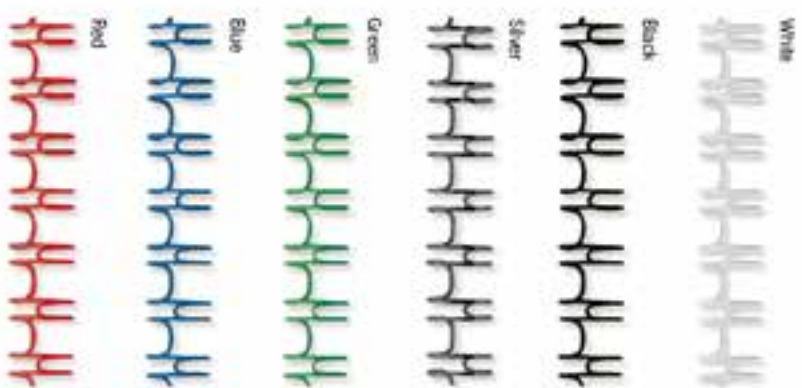


PLASTIC COMBS



WIRE-O

COLORS

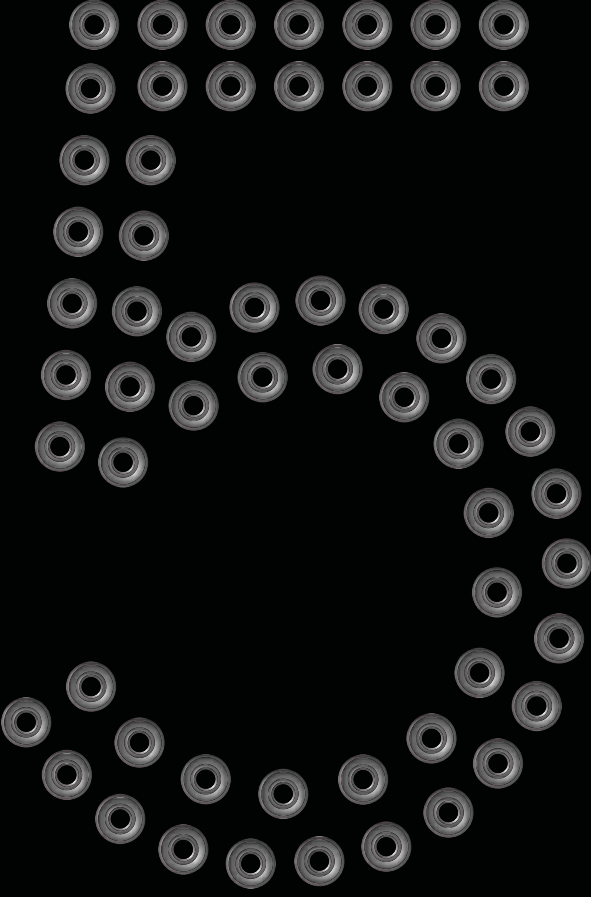


SIZES



HEADBANDS





BINDING GLOSSARY

Glossary of Binding Terms



Adhesive binding

Versatile method of binding in which pages are adhered together with glue.



Bench sewing

Signatures sewn together through the fold by hand.

Binding dummy

A paper dummy of the book made of the actual paper stock to be used in the exact weight, finish, and size, and assembled in the chosen binding method.

Bulking sample

Blank book made of the actual stock to be used to show the thickness of the entire book.



Caliper

Thickness of an individual sheet of paper; must be considered when determining the most efficient method of binding.

Case

Book cover produced separately from the inner pages and later attached by case binding, made of two covered boards.

Case binding (edition binding)

Signatures are bound together and attached to the case by end sheets (flyleaf), used for hardcover books.

Codex

Ancient book made of folded sheets of papyrus or parchment bound together at one edge.

Comb binding

Sheets with a row of rectangular holes are placed over an open plastic comb, which is then closed.

Compensation

Printers will compensate for creep by adjusting the inner margins of the innermost spreads incrementally, so that edges will be even.

Cover board

A hard cardboard, sometimes called binder's board, used to make book covers.

Creep (push out)

Tendency of the inner pages of a saddle-stitched or sewn book to extend further from the spine than outer pages. The more pages, the more likely that this will occur.



Flush-trim

All of the pages are cut flush to the face. Foldouts require special attention.

Flyleaf

The end or last freestanding leaves in a book.



Grind-off

Used in perfect binding, the spine is trimmed roughly to improve adhesion to the cover.

Gutter margin

Margin between two facing pages of a book; wider gutters are required for thicker books.



Hinge score

A score made at the point where the end sheet and flyleaf meet and join the spine to make it easier to open the book without cracking.



Lay-flat binding

Stack of pages is adhered to a "cap" which binds the covers of the book so the pages move independently from the spine.

Leaf

Individual sheet of paper which creates two pages; not to be used interchangeably with pages.

Loop stitch

Folded signatures are bound by a wire that forms small circular loops extending beyond the spine, intended for insertion into a 3-ring binder.



Mechanical binding

Any binding technique, including the use of combs and coils, that does not involve adhesives, sewing, or stitching.



Perfect binding

Method of binding in which the spine of a stack of pages is roughened and adhesive binds the cover to the spine.

Perforate

Small holes or slots in paper used to accommodate binding coils or improve adhesion to covers or between pages. If the fold is complicated, the bindery may perforate the head, foot, or spine to let out air that may be trapped in the fold.

Post-and-screw binding (Chicago screw)

Barrel post runs through holes drilled into the book and a cap screw is added to keep the pages and covers together.

PPI (Pages per inch)

The calculation can be used to determine the spine thickness.



Rule up

Before starting the press, the prep foreman pulls a sheet and rules it into its final dimension to check for sheet position, imposition accuracy, and other factors to make sure it can be folded and bound properly.



Saddle stitch

Folded signatures are bound along the fold line; primarily used for books less than 1/4 inch thick.

Scoring

Process of creating a ridge on paper to produce an accurate fold and prevent cracking. The width of the score should equal the caliper of the paper.

Sewn binding

Any method that uses thread to sew the signatures together.

Side stitch

Folded signatures or individual sheets are bound on the side of the spine near the gutter margin.

Signature

Also called a press form, a large sheet of paper printed with several pages, which upon folding become a section or all of a book. Folded signatures are gathered or inserted into one another to make a larger book.

Smyth sewn

A method of machine-sewing together folded, gathered, and collated signatures with a single thread through the folds of individual signatures.

Spiral binding

A continuous spiral coil runs through a series of holes near the gutter, may have single loop of either plastic or wire.

Stab binding

A traditional Japanese method of binding that involves stabbing holes along the spine of the book and using thread, twine, or ribbon to make exposed stitches that become a decorative element.



Tape binding

Tape wraps around the spine of the book; signatures are usually stitched together before taping for reinforcement.

Text block

Bound block of trimmed signatures, including end sheets, which is then attached to the case.

Trim

Straight cut intended to remove excess paper or folds of signatures.



Wire-O®

A pre-coiled double-loop wire binding that will handle books larger than 2 inches and will open flat without joggling pages up. Comes in many colors.

Production Notes

Four-color process

All images are printed in four-color process with UV inks, unless noted.

Binding

5/8-inch black Wire-O®



Front and Back Covers

Paper: McCoy Gloss Cover 100lb/270gsm
Four-color process + match red and yellow touch plates + gloss UV coating + sandpaper textured coating + soft touch coating + gloss, satin, and dull varnishes + gloss UV and soft touch UV coating.



Inside Front and Back Covers

Paper: McCoy Gloss Cover 100lb/270gsm
Black and match gray duotone + second black + spot gloss and dull varnishes.



Page 1

Paper: McCoy Silk Text 100lb/148gsm
Black + match gray and red + gloss varnish.



Page 2

Paper: McCoy Silk Text 100lb/148gsm
Four-color process + gloss and dull varnishes.



Page 3

Paper: McCoy Silk Text 100lb/148gsm
Black + match silver, gold, copper, dark silver, fluorescent green, and gray + gloss UV coating + strike-through dull varnish.



Page 4

Paper: McCoy Silk Text 100lb/148gsm
Four-color process + match yellow touch plate + gloss varnish.

Section 1 Binding

Side stitching with 1-inch copper staple



Page 5

Paper: McCoy Matte Cover 100lb/270gsm
Four-color process + match silver + gloss UV coating + strike-through dull varnish.



Pages 6–19

Paper: McCoy Matte Cover 100lb/270gsm
McCoy Matte Text 100lb/148gsm
2 blacks + match pearl green.



Page 20

Paper: McCoy Matte Cover 100lb/270gsm
Four-color process + dull varnish.

Section 2 Binding

Side sewn with fluorescent orange thread



Page 21

Paper: McCoy Silk Cover 100lb/270gsm
Four-color process + fluorescent green
+ gloss UV coating + strike-through
dull varnish.



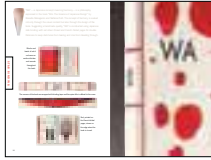
Pages 22–23

Paper: McCoy Silk Cover 100lb/270gsm
McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red + match red touch plate.



Pages 24–25

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red.



Pages 26–27

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red + match red touch plate.



Pages 28–29

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red.



Pages 30–31

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red + match red touch plate.



Pages 32–33

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red.



Pages 34–35

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red.



Pages 36–37

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red + match red touch plate.



Pages 38–39

Paper: McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red.



Pages 40–41

Paper: McCoy Silk Cover 100lb/270gsm
McCoy Silk Text 100lb/148gsm
HUV four-color process + match gray
and red + match red touch plate.



Page 42

Paper: McCoy Silk Cover 100lb/270gsm
HUV four-color process.

Section 3 Binding

Perfect binding



Page 43

Paper: McCoy Silk Cover 100lb/270gsm
Four-color process + match gold
+ gloss UV coating + strike-through
dull varnish.



Pages 44–45

Paper: McCoy Silk Cover 100lb/270gsm
McCoy Silk Text 100lb/148gsm
Four-color process + match gray,
green, blue, brown, orange, and khaki
+ gloss UV coating + strike-through
dull varnish.



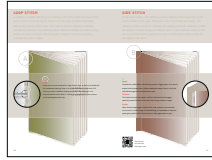
Pages 46–47

Paper: McCoy Silk Text 100lb/148gsm
Black + match red and gray + dull
varnish + warm gray tinted varnish.



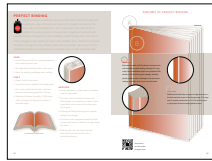
Pages 48–49

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, and blue +
warm gray tinted varnish + dull varnish.



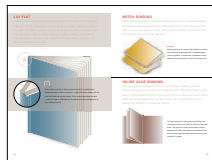
Pages 50–51

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, green, and
brown + warm gray tinted varnish +
dull varnish.



Pages 52–53

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, and orange +
warm gray tinted varnish + dull varnish.



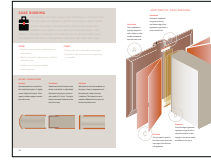
Pages 54–55

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, blue, khaki,
and brown + warm gray tinted varnish
+ dull varnish.



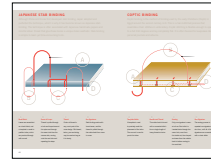
Pages 56–57

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, orange, green,
and khaki + warm gray tinted varnish
+ dull varnish.



Pages 58–59

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, orange, khaki,
and brown + warm gray tinted varnish
+ dull varnish.



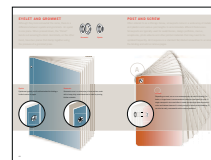
Pages 60–61

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, blue, and khaki
+ warm gray tinted varnish +
dull varnish.



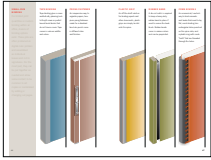
Pages 62–63

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, orange, and
green + warm gray tinted varnish +
dull varnish.



Pages 64–65

Paper: McCoy Silk Text 100lb/148gsm
Black + match red, gray, blue, and
orange + warm gray tinted varnish +
dull varnish.



Pages 66–67

Paper: McCoy Silk Cover 100lb/270gsm
 McCoy Silk Text 100lb/148gsm
 Black + match gray, green, blue, brown, orange, and khaki + dull varnish.



Page 68

Paper: McCoy Silk Cover 100lb/270gsm
 Four-color process + satin varnish.



Page 69

Paper: McCoy Silk Cover 100lb/270gsm
 Four-color process + match copper + gloss UV coating + strike-through dull varnish.



Page 70

Paper: McCoy Silk Cover 100lb/270gsm
 Black + match gray and red + gloss varnish.



Page 71

Paper: McCoy Silk Cover 80lb/216gsm
 Four-color process UV Kaleido Ink™ + match fluorescent lemon, yellow, tangerine, orange, and red + match silver, brass, and copper + gloss UV coating + reticulating varnish, dull and gloss varnishes + sculptured emboss.



Page 72

Paper: McCoy Silk Cover 80lb/216gsm
 Match yellow + satin varnish.



Page 73

Paper: McCoy Silk Cover 100lb/270gsm
 Four-color process + match dark silver + gloss UV coating + strike-through dull varnish.



Pages 74–75

Paper: McCoy Silk Cover 100lb/270gsm
 McCoy Silk Text 100lb/148gsm
 Black + match red.

Sappi Portfolio of Papers

Sappi has a perfect match for all of your printing needs. Just check out the handy table at right to find the grade that suits your project in the weights and finishes you want. Sappi papers are manufactured with sustainability in mind, with third-party certifications from SFI[®], FSC[®], PEFC, and Green-e[®]. Swatchbooks and printed samples are readily available from Sappi sales representatives and your local paper merchant. Or you can call 1.877.Sappi.Help to ask a Sappi technical expert any print-related questions on Sappi papers. You can learn more about Sappi North America at www.sappi.com/na.

PRODUCT			TEXT	COVER	CERTIFICATION
McCoy	Digital*	Gloss	80, 100	80, 100, 120	SFI®, FSC®, and Green-e® certified (all finishes)
		Silk	80, 100	65, 80, 100, 120	
	Sheet	Gloss	80, 100	80, 100, 120	SFI®, FSC®, and Green-e® certified (all finishes)
		Silk	80, 100	80, 100, 120, 130	
		Matte	80, 100	65, 80, 100	
	Web	Gloss	80, 100	80	SFI®, FSC®, and Green-e® certified (all finishes)
		Silk	80, 100	80	
		Matte	80, 100	80	
	Opus DX	Digital	Gloss	80, 100	65**, 80, 100, 120
Dull			80, 100	65**, 80, 100, 120	
Opus	Sheet	Gloss	70, 80, 100	65, 80, 100, 120, 130	SFI®, FSC®, and Green-e® certified (all finishes)
		Dull	70, 80, 100	65, 80, 100, 120, 130	
		Matte	60, 70, 80, 100	65/7pt, 80	
	Web	Gloss	60, 70, 80, 90, 100	65, 80	SFI®, FSC®, and Green-e® certified (all finishes)
		Dull	60, 70, 80, 100	65, 80	
		Satin	60, 70, 80, 100	65, 80	
		Matte	60, 70, 80, 100	65/7pt	
	Opus PS	Sheet	Gloss	105/7pt	70/7pt, 85/9pt
Matte			80/9pt		
Web		Gloss	105/7pt	70/7pt, 78, 85/9pt	SFI®, FSC®, and Green-e® certified (all finishes)
Dull	70, 78, 85/9pt				
Matte	80/9pt				
Somerset	Web	Gloss	45, 50, 55, 60, 70, 80, 90, 100	70/7pt, 80/7pt	SFI® certified (all finishes) FSC® and PEFC available upon request
		Satin	45, 50, 60, 70, 80	64/7pt, 80/7pt	
		Matte	45†, 50†, 60†, 70, 80, 100, 105/7pt	65, 80/9pt	
Flo	Digital	Gloss	80, 100	80/7pt, 100/9pt	SFI®, FSC®, and Green-e® certified (all finishes)
		Dull	80, 100	80/7pt, 100/9pt	
	Sheet	Gloss	60, 70, 80, 100	80/7pt, 100/9pt	SFI®, FSC®, and Green-e® certified (all finishes)
		Dull	70, 80, 100	80/7pt, 100/9pt	
		Matte	60, 70, 80, 100, 110/7pt	80/9pt	
	Web	Gloss	40, 43, 45, 50, 60, 70	SFI® certified (all finishes) FSC® and PEFC available upon request	
		Matte	40, 45†, 50†		

* Includes McCoy for HP Indigo.

** Opus DX 65lb. cover gloss and Opus DX 65lb. cover dull are available with a 10,000lb. order minimum.

† Meets NASTA specifications.

Credits

Design

Studio Hinrichs
415.543.1776
www.studio-hinrichs.com

Text

Delphine Hirasuna
415.495.7573
www.hirasunaeditorial.com

Photography

Terry Heffernan
www.heffernanfilms.com

History of Binding

Illustrations

Niklas Asker
www.richardsolomon.com/artists/
/niklas-asker/

History of Binding

Consultant

Tim James
www.bookbindersmuseum.org

Binding Techniques

Illustrations

An Luc
www.anluc.net

Illustrations for Title Pages

Dang Nguyen

Printing

Printed on an eight-unit 40" UV press
with anilox coating system.

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WA: The Essence of Japanese Design by
Rosella Menegazzo and Stefania Piotti
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Designing Home: Jews and Midcentury Modern Design

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Touch Think Learn: Shapes

Xavier Deneux
Hand Print Books/Chronicle Books

Arktype.nl

René Knip and Janno Hahn

1, Immigrant Services Calgary

Annual Report

Designed by Foundry Communications

A to Z with a Split Binding

Designed and Illustrated by Bob Gill
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