

# PAPER GLOSSARY

## A

### **Abrasion Resistance**

The level at which paper can withstand continuous scuffing or rubbing.

### **Absorption**

The properties within paper that cause it to absorb liquids (inks, water, etc.) which come in contact with it.

### **Accordion Fold**

A binding term describing a method of folding paper. When unfolded it looks like the folds of an accordion.

### **Acetate Proof**

A transparent, acetate printing proof used to reproduce anticipated print colors on a transparent acetate sheet. Also called color overleaf proof.

### **Acid Free**

Paper made in a neutral pH system, usually buffered with calcium carbonate. This increases the longevity of the paper.

### **Acidity**

Degree of acid found in a given paper substance measured by pH level. From 0 to 7 is classified acid as opposed to 7 to 14, which is classified alkaline.

### **Against the Grain**

A right angle to which the fiber direction of a piece of paper lies. Folding with, not against, the grain is recommended.

### **Airdried Paper**

Paper that is dried by circulating hot air around it with little or no tension or restraint on the paper. This gives the paper a hard cockle finish typical of bond papers.

### **Alcohol/Alcohol Substitutes**

Liquids added to the fountain solution of a printing press to reduce the surface tension of water.

### **Aluminum Plate**

A metal press plate used for moderate to long runs in offset lithography to carry the image.

### **Announcement Cards**

Cards of paper with matching envelopes generally used for social stationery, announcements, weddings, greetings, etc.

### **Antique Finish**

A paper finish, usually used in book and cover papers, that has a tactile surface. Usually used in natural white or creamwhite colors.

### **Apron**

Extra space at the binding edge of a foldout, usually on a French fold, which allows folding and tipping without interfering with the copy

### **Archival**

Acid free or neutral paper that includes a minimum of 2% calcium carbonate to increase the longevity of the paper.

### **Artificial Parchment**

Paper produced with poorly formed formation.

### **Artwork**

A general term used to describe materials prepared and readied for print.

### **Ascenders**

The tops of lower case letters such as: b, d, h and t.

## B

### **Back Cylinder Pressure**

Additional pressure applied through the impression cylinder assisting the image transfer to the press sheet.

### **Backbone**

The back of a bound book; also called the spine.

### **Backing Up**

Printing the reverse side of a sheet already printed on one side.

### **Bagasse**

Crushed sugar cane or fiber used in two ENVIRONMENT® Papers: Tortilla and Mesa White.

### **Baggy Roll**

Mill roll defect usually associated with a variation in caliper and/or basis weight across the web; stretched paper results, which tends to cause problems in the forms manufacturing process. Rolls are normally checked for baggy areas by striking with a baton and listening for variations in audible pitch.

### **Band**

(1) A strip of paper, printed or unprinted, that wraps around loose sheets (in lieu of binding with a cover) or assembled pieces. (2) The operation of putting a paper band around loose sheets or assembled pieces. (3) Metal straps wrapped around skids of cartons or materials wrapped in waterproof paper, to secure the contents to the skid for shipment.

### **Barium Sulfate**

Substance used as a standard for white, in lieu of the availability of a practical 100 percent reflecting diffuser.

### **Baronial Envelope**

An envelope generally used with announcements.

### **Base Color**

A first color used as a background on which other colors are printed.

### **Base Stock**

Manufactured paper that will be further processed as laminated, Duplex Cover, Bristol Cover, or off machine embossed papers.

**Baseline**

In typesetting, the invisible line on which letters and numbers set.

**Basic Size**

The standard sheet size of a given grade.

**Basis Weight**

The weight in pounds per ream of paper cut to its basic size in inches. A metric system is used outside of North America.

**Beater**

Blendertype machine used to pulverize pulp and for mixing additives and color to the stock.

**Beater Sized**

Process of adding sizing material to the pulp in the beater.

**Bindery**

A process of perforating, folding, trimming and eventually binding a printed piece.

**Binding**

(1) Attaching sheets into a single unit by adhesives, sewing, stitching, metal prongs, snaps, etc. The operations that comprise collating, perforating, and folding the elements of a form into the finished product. (2) That portion or edge of a book of forms which is bound.

**Binding Edge**

The edge where the binding will be done.

**Black Printer**

In fourcolor process printing, the black plate made to give definition to neutral tones and detail.

**Blanket**

In offset lithography, the rubbercoated fabric clamped around the blanket cylinder, which transfers the image from plate to paper.

**Blanket Contamination**

Unwanted matter that becomes attached to the offset blanket and interferes with print quality.

**Blanket Creep**

Movement of the blanket surface that comes in contact with the printing plate or paper.

**Blanket Cylinder**

The printing press cylinder on which the blanket is mounted.

**Blanket Pull**

The tack between blanket and paper.

**Bleach**

Chemical, usually chlorine, used to whiten pulp.

**Bleaching**

Chemical treatment to brighten, whiten, purify, refine, and balance pulp fiber.

**Bleed**

(1) In printing, printed image that runs off the edges of a page. (2) The migration of ink into unwanted areas.

**Blind Embossing**

A printing technique in which a basrelief design is pushed forward without foil or ink.

**Blocking**

The shearshim of piled printed sheets caused by wet ink.

**Blocking Out**

Eliminating portions of negatives by opaquing the image.

**Blowup**

Enlargement from the original size.

**Blueprint**

In printing, a type of photoprint used as a proof. It can be folded to show how the finished printed product will look.

**Boldface**

Thicker, visually heavier type vs. thin visually light type. Darker type.

**Bond Paper**

Strong, durable writing paper, consisting of wood, cotton, or both, most commonly used for letterheads, stationery, business forms, etc... NEENAH® Bond; ATLAS™ Bond.

**Bonding Strength**

The strength of the paper fibers to resistance of picking or tearing during offset printing.

**Book Paper**

A general term used to define papers that are most suitable for book manufacture.

**Booklet**

A printed piece bound together, containing a few pages.

**Brightness**

A technical measurement of the light reflected back from a paper.

**Bristol Board**

A high quality heavy weight paper, sometimes made with cotton fiber prepared or glued together, usually with a caliper thickness of 0.006" and up.

**Broke**

Machine trim or undesirable paper that is returned to the beaters.

**Broken Carton**

An open carton of paper with some of its contents removed.

**Bulk**

Sheet thickness. Highbulk sheets have fewer sheets per inch than lowbulk.

**Bulking Dummy**

Unprinted sheets of actual paper folded in the signature size and signature number of a given job, to determine bulk.

**Bursting Strength**

The point to which paper can withstand pressure without rupturing.

**Butted Joint**

Joining two webs of paper, placing them endtoend and pasting a strip over and under to make a continuous sheet without overlapping.

# C

## **Caking**

When printing, the spots of ink pigments on printing plates or press rollers, due to the vehicle carrying the ink not being able to hold the pigment in suspension.

## **Calcium Carbonate, CaCo3**

Chemical used as a filler.

## **Calender Stacks**

A vertical series of steel rolls at the end of the paper machine to increase the smoothness of the paper.

## **Calendering**

To impart a smooth finish on paper by passing the web of paper between polished metal rolls to increase gloss and smoothness.

## **Caliper**

The thickness of a sheet paper, in thousandths of an inch (points or mils).

## **Camera-Ready Art**

Art work ready to be imaged onto film by the film house or printer's camera department.

## **Casebound**

A book bound with a hard, cover.

## **Cellulose**

For paper manufacturing, the primary component of the cell walls of wood fibers.

## **Cellulose fiber**

The fiber remaining after bleaching and pulping of wood used in making paper.

## **Center spread**

The facing pages in the center of a bound signature.

## **Chain lines**

The lines on laid paper parallel with the grain; also referred to as "chain marks".

## **Chalking**

Improper drying of ink. Ink vehicle has been absorbed too rapidly into the paper leaving a dry, weak pigment layer which dusts easily.

## **Character**

A type fonts letter, number, symbol or a blank space in typesetting.

## **Character count**

The number of characters in a line of text, page or group of text.

## **Chemical Ghosting**

A light duplication of a printed image on the other side of the same sheet, created by chemical reaction by the ink during the drying stages; also referred to as "Gas ghosting".

## **Chemical Pulp**

Wood fiber cooked using chemicals producing a pulp used to manufacture numerous printing papers and paperboard products. Papers manufactured with chemical pulp are called "free-sheet" papers.

## **Chip Board**

An inexpensive thick one-ply cardboard, typically made from recycled paper stock.

## **Chlorine**

Chlorine and its compounds were commonly used to bleach fibers. This has been mostly eliminated. Virgin fibers are generally ECF, meaning no elemental chlorine or TCF meaning the bleaching is done with hydrogen peroxide, oxygen or ozone. Recycled fibers are generally PCF, meaning they were put back into the paper without the use of any chlorine or its compounds. Environmental Defense approves calling 100% post consumer fiber produced without chlorine, TCF.

## **Choke**

In preparing film negatives, the process used to reduce the thickness of the printed image.

## **Chromalin Proofs**

A proofing process used in printing. This process utilizes photosensitized clear plastic which is exposed to the image and processed in layers of color to simulate the final printed image.

## **Cibachrome**

A full-color positive photographic print made from a transparency.

## **Clear Formation**

Describes paper fibers that are uniformly dispersed within a sheet of paper -a characteristic of quality paper.

## **Close Formation**

Uniform density in a sheet of paper.

## **Cloudy Formation**

Same as cloud effect; cloudy. Opposite of close formation. Indicates unevenness and lack of uniformity of fiber structure.

## **Cloudy Formation**

A spotty, non-uniform collection of paper fibers, the opposite of clear formation.

## **Cockle Finish**

A rough, uneven, hard paper finish. Most frequently manufactured in bond papers.

## **Cold Color**

A color on the bluish side.

## **Collate**

In binding, gathering sections (signatures) in sequence for binding.

## **Color Bars**

Printed bars of ink colors used to monitor a print image. These bars show the amount of ink to be applied by the press, the registration, and the densities across the press sheet.

## **Color Comp**

A mockup of a proposed layout used for presentations.

## **Color Correction**

Any method to improve color rendition.

## **Color Fastness**

The ability of dyed paper to maintain in the presence of exposure to light, heat etc.

## **Color Guide**

Instructions attached to artwork or disc with the location, percentage, and type of color required.

**Color Key**

An overlay proof with just one color per sheet of acetate (3M Company Trademark)

**Color Process Printing**

Printing done using cyan, magenta, yellow, and black inks, each requiring its own negative and plate. Also called process color or four-color process.

**Color Proofs**

Initial printed pieces pulled off the press for final approval.

**Color Scanner (electronic scanner)**

A scanner that makes the color separation required in full color processing printing.

**Color Separation**

The method used in breaking down the primary colors needed to prepare plates for printing color work.

**Commercial Match**

Paper manufactured to within acceptable tolerances of a sample provided to the mill.

**Commodity Papers**

A classification of low-quality bond and offset papers.

**Composite Image**

Multiple pictures images placed together to form a single, combined picture.

**Comprehensive Layout**

A simulation of a layout by a designer to show how the finished art work would appear.

**Comprehensive Proof**

Final proof presented in the format the printed piece will take.

**Condensed Face or Condensed Type**

A particular typeface that allows more print per line, as though the letters were squashed at their sides.

**Conditioning**

Allowing paper to adjust itself to the temperature and humidity of the printing plant prior to use.

**Conservation**

The preservation and responsible use of our natural resources to ensure they endure. ENVIRONMENT® Papers are an excellent choice because they conserve trees, water, chemicals, energy and landfill space.

**Continuous Tone**

Tonal gradation without use of halftone dots.

**Converter**

Company that converts paper from its original form to usable products such as envelopes, label stock, announcements etc.

**Correspondence Papers**

Writing papers in attractive finishes, weights or colors.

**Cotton Content Paper**

Papers utilizing cotton fabrics and cotton linters. Today most cotton content papers are made for letterhead applications.

Papers made with cotton range from 25% to 100% cotton content. NEENAH® Bond; ATLAS™ Bond; OLD COUNCIL TREE® Bond; CLASSIC COTTON®.

**Cotton Linters**

The cotton fibers that adhere to the cottonseed used to produce pulp for cotton fiber papers.

**Couch Roll**

On a paper making machine the equipment that helps remove excess water from the moving web of paper prior to the wet press section of a paper machine.

**Cover Paper**

Durable, heavier weight papers, available in a variety of finishes and colors, used for the cover of pamphlets, annual reports, business cards, etc...

**Crop Marks**

Specifically placed marks attached to artwork that show the area to be printed.

**Crop Residue**

An alternative source of fiber for paper making. Although rigorous use does have some environmental consequence, they are a clean and renewable source of cellulose. Neenah Paper has two colors in ENVIRONMENT® Papers that are made with sugar cane or bagasse.

**Cropping**

Resizing original photographs or illustrations to a different size.

**Cross Direction**

The opposite direction of the grain of the paper.

**Cross Grain Fold**

A fold at a right angle to the direction of the grain in the paper.

**Cross**

machine direction A line perpendicular to the direction the paper travels through the papermaking machine. Also referred to as Cross direction or Cross grain.

**Curl**

Undesirable distortion or waviness occurring to the paper due to the presence of excess moisture or humidity.

**Cut Size**

Papers cut 8 ½ x 11, 8 ½ x 14, or any other size 11 x 17 or smaller.

**Cut to Register**

Term used for watermarked letterhead papers to indicate the watermark will be cut to appear in a predetermined position on the finished sheet. Also referred to as a localized watermark.

**Cutter Dust**

Paper dust resulting from cutting or trimming the paper which can transfer to printing blankets causing problems during a press run.

**Cyan (process blue)**

One of the four-process colors.

# D

## **D.T. Cover**

Double-thick" describes a sheet of paper made by bonding two thicknesses of paper together resulting in an extra-stiff sheet.

## **Damp Streaks**

Streaks caused by uneven pressing of drying during paper manufacturing.

## **Dampeners**

In lithography, cloth covered, parchment paper or rubber rollers that distribute the dampening to the press plate.

## **Dampening**

Water, gum buffered acid, and various types of etches used to keep the non-image areas of the plate moist, and preventing them from accepting ink, in the lithographic printing process; also called fountain solution.

## **Dandy Roll**

(1) A plain roll situated above the wet web of the paper to provide a smoothing action to the top surface of the paper as it passes under the roll. (2) A watermarking dandy roll is a roll of skeletal structure, sheathed in a wire cloth that has designs, letters or figures affixed to it. As the wet paper web passes under the turning watermark dandy the designs are impressed into the paper and a permanent watermark is left in the sheet.

## **Day-Glo**

Trade name for inks and papers containing fluorescent pigments.

## **Debossing**

The process in which the image is recessed into the paper.

## **Deckle**

On the wet end of the paper machine the straps or deckle rulers that prevent the fiber from overflowing the sides of the machine. The deckle determines how wide the paper on a particular machine will be.

## **Deckle Edge**

Refers to the feathered edge on paper produced when fibers flow against the deckle or edge of the web. Deliberately produced for aesthetic purposes, a deckle edge is found especially on formal stationery and announcements. A deckle edge can be created by an air jet, or also by a stream of water.

## **Decurler**

A device on a web press or sheeter used to remove paper curl.

## **Decurling**

A paper decurling station on a sheeter or web press, used to remove paper curl.

## **De-Inking**

A process which removes ink, toner, coatings and most fillers from recovered paper. The environmental priority is to make this process TCF, totally chlorine free. All of the post consumer fiber used in ENVIRONMENT® Papers is manufactured TCF.

## **Dirt Count**

The average amount of dirt in a specific size of paper area. Both virgin and recycled sheets have "dirt," although recycled paper has significantly higher dirt counts. The dirt should always be small enough not to interfere with the quality of the finished printed piece.

## **Delamination**

A separation of the paper's surface.

## **Delivery**

Area of the originating press where the freshly printed sheets are piled as they leave the impression section.

## **Densitometer**

Reflection instrument measuring the density of colored ink to determine its consistency throughout a press run.

## **Density**

Identifies the weight of paper compared to the volume; it is directly related to the paper's absorbency, stiffness, and opacity.

## **Descender**

The parts of lower case letters that extend below the baseline.

## **Die**

A design, letters, or pattern cut in metal for stamping, embossing or for diecutting.

## **Die-Cutting**

Male and female dies are used to cut out paper or board in desired shapes.

## **Digester**

Pressure vessel in which wood chips are cooked to separate fibers from each other and to remove detrimental particles.

## **Dimensional Stability**

Characteristic of paper to retain its dimensions in all directions under the stress of production and adverse changes in humidity.

## **Dirt**

Dirt in paper consists of any imbedded foreign matter or specks, which contrast in color to the remainder of the sheet.

## **Dished**

Concave rather than flat pile of paper. Also refers to roll ends of paper that are not flat.

## **Distributor**

Company which purchases paper from mill for resale to printers and end-users. Usually a distributor has protected or franchised product lines and territories. Inventory, warehousing, distribution and transportation of product are among the many services offered to paper buyers. Also called a merchant.

## **Dividers**

Tabbed sheets of index or other heavy stock, used to identify and separate specific sections of a book; used in loose-leaf and bound books.

## **Dot**

Individual element of a halftone printing plate.

## **Dot Etching**

Handwork on engravings and lithographic screened (halftone) negatives for correcting tonal values in either black-and-white or color work.

## **Dot Slurring**

Smearing or elongation at the trailing edges of halftone dots.

## **Dot Spread**

When halftone dots print larger than they were supposed to print.

**Dots, Halftone**

The individual subdivisions of a printed surface created with a halftone screen.

**Double Burning**

Combining the images on two or more films onto a single film to create a single image.

**Double Varnish**

Two applications of press varnish.

**Double-Black Halftone Printing**

A means of extending the range of density available with printing ink by printing twice with black ink, using two specially prepared halftone negatives. Also called double-black duotone.

**Double-Deckle Paper**

A paper having parallel deckle edges.

**Double-Dot Halftone**

Two halftone negatives combined onto one printing plate, having greater tonal range than a conventional halftone negatives. One negative reproduces highlight and shadows, the other middle tones. This is not to be confused with duotone or double-black printing.

**Double-Thick Cover Stock**

A cover stock composed of two sheets of 65 lb. Cover stock laminated together.

**Doubling**

(1) In printing, a press problem that generally occurs when sheets make contact with the blanket twice, once just before the impression point and the second time at the impression point, resulting in a double image. At times, with certain papers, the feeder will feed two sheets instead of one, and when pressures are extreme or out of balance, the blanket may slip at the pressure point, resulting in a slur or double image. (2) In stamping, a double impression in which the second impression or "hit" does not register perfectly over the first one.

**Doughnut Hickey**

A printing defect consisting of a solid printed area surrounded by an unprinted area.

**Downtime**

Duration of an unscheduled stoppage of machines or equipment (printing presses, papermaking machines, typesetting equipment, etc.), usually caused by malfunction.

**Drag**

Register trouble when the dot is enlarged toward the back (nongripper edge) of the sheet. See Slur.

**Draw-Down**

A term used to describe an ink chemist's method of roughly determining coating or ink. The application (by a blade or a bar) of a thin film of coating or ink to a piece of paper.

**Drier**

Any substance used to hasten drying of ink on paper.

**Driers**

Wet paper passes through these large cylindrical steam heated rolls that dry paper webs. The dry-end of the paper machine.

**Drilling**

Piercing of stacks of papers in a precision manner with round hollow drills at high speeds. Loose-leaf notebook paper is an example of drilled paper.

**Drop-Out**

In printing, halftone with no screen dots in the highlights or background. Also, color not sensed by optical reading devices. Also, ink colors which will not image a photographic plate.

**Dry Back**

The color change which occurs when ink dries.

**Dry-End**

On the paper machine, it is the section where the dryers, cutters, slitters and reels are located.

**Dryer (drying oven)**

Oven on web offset press through which the web of printed paper passes after it leaves the final printing unit. The drying process, standard when heat-set inks are used, heats the web to about 350 degrees Fahrenheit. Either gas or electricity dries the vehicles and air blasts drive off the volatile gases.

**Drying Time**

The time it takes for an ink to become rub- or tack-free.

**Dummy**

Page or set of pages assembled in the exact position, form and style desired for the finished piece of printed work. Used as a model or sample for the printer.

**Duotone**

Two-color halftone reproduction from black-and-white original.

**Duplex**

Paper having a different color on each side.

**Dusting**

The accumulation of loose particles from the paper on the nonimage areas of the blanket. Particles are of very small size.

**Dye**

An ink colorant that is soluble in vehicle or solvent.

**Dye Transfer**

Similar in appearance to a color photograph but different in the important respect that it is produced from a transparency by printing continuous tones of color dyes.

**Dylux**

A stable print specially sensitized on two-sided papers for proofing.

# E

## **ECF Elemental Chlorine Free**

Pulp bleached without the use of elemental chlorine. Generally this is virgin fiber bleached with chlorine dioxide.

## **E.C.H. Will Sheeter**

Continuous automatic cut-size sheeter, ream wrapper, ream labeler, ream accumulator, case packer, lidder, bander and palletizer.

## **EPA**

The U.s. Environmental Protection Agency, which publishes guidelines for minimum recycled product content for use by federal agencies for purchasing standards. Many state and local governments and businesses have voluntarily adopted these. The EPA is charged with most of the environmental responsibility for guidance, direction, monitoring and enforcement in the United States.

## **Electronic Color Scanner**

High speed computer, which instantly calculates the necessary color correction by measuring the original copy.

## **Electronic Printing**

In digital printing, any technology that reproduces pages without the use of traditional ink, water or chemistry.

## **Electrostatic Copying**

Process using an intermediary plate or drum (like Xerography) or coated take-off sheet (like Electrofax™) which is electrically charged to attract powder or liquid developer only to the image area.

## **Elliptical Dot**

In halftone photography, elongated dots, which give improved gradation of tones particularly in middle tones and vignettes - also called chain dots.

# F

## **Fadeout Halftone**

A general reduction in the overall contrast of a halftone, to allow type to be easily readable when printed over it.

## **Fake Duotone**

A two-color reproduction, using single halftone negative, usually blank, and a halftone screen tint for the background, usually in color.

## **Fanfold**

Continuous multiple ply form manufactured from a single wide web which is folded longitudinally.

## **Fanout**

In printing, distortion of paper on the press due to waviness in the paper caused by absorption of moisture at the edges of the paper, particularly across the grain.

## **Fast-Drying Ink**

An ink that dries soon after printing.

## **Feathering**

Tendency of an ink image to spread with a fuzzy, "feather like" edge.

## **EM**

In composition, a unit of measurement exactly as wide and high as the point sizes being set. So named because the letter "M" in early fonts was usually cast on a square body.

## **Embossed Finish**

A finish imparted to a web of paper through an embossing machine. The paper will take on a raised or depressed surface resembling wood, cloth, leather, or other pattern.

## **Embossing**

Impressing an image in relief to achieve a raised surface; either over printing or on a blank paper (called blind embossing).

## **EN**

In composition, one-half the width of an em.

## **Encapsulated PostScript (EPS)**

In digital prepress, a file format used to transfer graphic images within compatible applications. A file containing structured PostScript code, comments and a screen display image.

## **End-Leaf Paper**

Strong, fine quality papers, either plain or coated and sometimes colored or marbled used at both ends of a book. Also called sheets.

## **Engraving**

Printing by the intaglio process. Ink is applied to the paper under extreme pressure resulting in a printed surface being raised. Used for fine letterheads, wedding invitations, etc.

## **Feed Rollers**

On a printing press, the rubber wheels that move the sheets of paper from the feed pile to the grippers.

## **Feeder**

The section of a printing press that separates the sheets and feeds them into position for printing.

## **Feel**

Term expressing an individual's impression of a paper's finish and stiffness or suppleness.

## **Feet-Per-Minute**

Abbreviated FPM, this term refers usually to the speed of a papermaking machine in terms of how many feet per minute the forming web of paper traverses the length of the machine.

## **Felt Finish**

A finish applied to the paper at the wet end of the paper machine by using felts of a distinctive weave rather than standard or regular wove felts. ENVIRONMENT® Papers.

## **Felt Side**

Top side of the paper, opposite from the wire side or underneath. The "right side of the paper".

**Felt**

Woven, endless belt made of wool, cotton or synthetic materials used to transport the paper web on the paper machine, during manufacture. Felts act as a conveyor while at the same time removing water from paper as it progresses through the paper machine.

**Fiber Orientation**

Refers to the alignment of the fibers in the sheet. The degree of alignment can be controlled in the paper making process.

**Fiber**

The small strands of wood, cotton or other cellulose product that is used to make the paper. In the premium paper market all of the fiber is lignin free. Fiber before it is made into the finished product is referred to as pulp.

**Fibrillae**

String-like elements that are loosened from the paper fibers during the beating process. They aid in the bonding processes when paper is being manufactured.

**Fibrillation**

Act of loosening the fibrillae during the mechanical process of beating the fibers in preparation for papermaking.

**Filler**

Minerals, such as clay and other white pigments, added to pulp to improve the opacity, smoothness, brightness, and printing capabilities of paper.

**Filling In**

A condition in offset lithography where ink fills the area between the halftone dots or plugs up the type; also known as plugging or filling up.

**Fill**

Maximum width of paper that can be made on any given paper machine.

**Film Mechanical**

A mechanical on which type and design elements in the form of film positives are stripped into position on a sheet of base film.

**Final Negatives**

Negatives that are right reading, emulsion down.

**Fine Merchant, Fine Paper Distributor**

Firm which confines its sales and distribution activities to fine printing papers only.

**Fine Papers**

Types of papers used for writing, printing, and cultural purposes.

**Finish**

The physical look and feel of the paper's surface. These include smooth, felt, laid, linen and others.

**Finished Art**

Hand lettering, charts, color blocks, illustrations, photographs, etc., ready for camera.

**Finishing Broke**

Discarded paper resulting from any finishing operation.

**First Color Down**

The first color printed as the sheet passes through the press.

**Flag**

A strip of paper protruding from a roll or skid of paper. May be used to mark a splice in a roll of paper or used to mark off reams in a skid.

**Flash Exposure**

In halftone photography, the supplementary exposure given to strengthen the dots in the shadow areas of negatives.

**Flat Color**

Printing two or more colors without overlaying color dots (i.e. without color trap); individual color matching. This differs from process color, which is a blending of four colors to produce a broad range of colors.

**Flat Etching**

The chemical reduction of the silver deposit in a continuous-tone or halftone plate, brought about by placing it in a tray containing an etching solution.

**Flat**

In offset lithography, the assembled composite of negatives, usually on goldenrod paper, ready for platemaking. Also, a photograph or halftone that is lacking contrast.

**Flatbed Press**

A press on which plates are positioned along a flat metal bed against which the paper is pressed by the impression cylinder, as compared to a rotary press which prints from curved plates.

**Flatbed Scanner**

A device that scans images in a manner similar to a photocopy machine; the original art is positioned face down on a glass plate.

**Flexography**

Letterpress printing using a form of relief printing; formally called aniline printing. Synthetic or rubber relief plates, special inks, presses procedures.

**Flop**

To reverse a negative or positive, to bring the underside out on top. A negative that must be flopped has emulsion on the wrong side.

**Flow**

The property of ink which causes it to level out when still a liquid; "short" inks have poor flow, and "long" inks have good flow.

**Fluorescent Inks**

Extremely brilliant inks containing fluorescent pigments.

**Flush Cover**

Cover of a book that has been trimmed to the same dimensions as the text papers.

**Flyleaf**

Unprinted page that is part of a printed signature. It also can be a synonym for end-leaf.

**Fog**

An undesirable neutral density in the clear areas of a photographic film or paper, in which the image is either locally or entirely veiled by a deposit of silver. Fog may be due to flare, unsafe darkroom illumination, age, or processing conditions.

**Foil**

A tissue-like material in sheet or roll form covered on one side with a metallic coloring used for stamping.

**Folding Endurance**

A paper test which measures the number of double (back and forth) folds that can be made on a sheet of paper under tension, before it breaks.

**Foldout**

A page that exceeds the dimensions of a single page. It is folded to page size and included in the book, sometimes bound in and sometimes tipped in (pasted).

**Folio**

Refers to sheet size 17x22 or larger. Also, page numbers.

**Foot**

The bottom of a page of printed information.

**Formation**

Refers to the uniformity or lack of it in the distribution of the fibers when manufacturing paper; can be observed by looking through the sheet; a good formation is uniform or "Close", while a poor formation is not.

**Fountain Solution**

In lithography, a solution of water, a natural or synthetic gum and other chemicals used to dampen the plate and keep non-printing areas from accepting ink.

**Fountain**

The unit on a press that contains ink to be fed to the distributing system, and the part that feeds the fountain solution to the dampening system.

**Four-Color Process**

The four basic colors of ink (yellow, magenta, cyan, and black), which reproduce full-color photographs or art.

**Fourdrinier**

A paper machine developed by Louis Robert and financed by Henry and Sealy Fourdrinier that produces a continuous web of paper; also the term for the section of the paper machine which is a continuous "wire" or belt screen, through which the first removal of water occurs. The point of formation.

**Four-Sided Trim (trim 4)**

After the job is printed and folded, a trim will be taken off all four sides to remove any reference or registration marks and give a clean edge to the pile of sheets.

**For Position Only (FPO)**

In digital imaging, typically a low-resolution image positioned in a document to be replaced later with a higher resolution version of the same image.

**Free-Sheet**

Paper made with pulp created in a kraft process that has removed the lignin. Freesheet paper has more longevity than groundwood which contains lignin. (Newspaper is made with groundwood)

**French Fold**

A sheet printed on one side and folded first vertically and then horizontally to produce a four-page folder.

**Furnish**

The mixture of fiber and other materials that is blended in the water suspension, or slurry, from which paper or board is made; usually about 1% solid material with 99% or the balance being water.

**FSC - Forest Stewardship Council**

An independent, international, environmentally and socially oriented forest certification organization. It trains, accredits and monitors third-party certifiers around the world and works to establish international forest management standards. ENVIRONMENT® Paper has four colors that are FSC certified.

**Fuzz (fluff)**

Loose fibers projecting from a paper's surface.

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# G

**Gang Printing**

Grouping related jobs using same paper and inks. Grouping more than one job on a single plate.

**Gatefold**

A four-page insert, having foldouts on either side of the center spread.

**GATF**

Graphic Arts Technical Foundation

**Gathering**

Collating folded signatures in consecutive order.

**GCR**

Gray Component Replacement

**Gear Streaks**

In printing, parallel streaks appearing across the printed sheet at same interval as gear teeth on the cylinder.

**Generation**

Each succeeding stage in reproduction from original copy.

**Genuine Watermark**

Watermark made with a dandy roll.

**Ghost Halftone**

A light halftone that may be overprinted with solid copy.

**Ghosting**

Ghost images are unwanted images that reduce print value. Mechanical ghosting develops during the delivery of the printed sheet and is traceable to on-press conditions, ink starvation, form layout, and even to the blanket itself. Chemical ghosting, which occurs during the drying process of ink on paper, is especially bothersome because the condition cannot be detected until the job has been completed.

**Gild**

To cover the trimmed edges of a book with gold or other metallic leaf.

**Glass**

Brief or magnifying glass.

**Gloss Ink**

An ink containing an extra quantity of varnish, which gives a glossy appearance when dry.

**Glued-On Cover**

A cover fastened to the text with glue.

**Gluing Off**

The process of applying glue to the spine of a book to be casebound, after sewing and smashing, and before trimming.

**Grade**

The classification given to paper due to its unique characteristics, which includes brightness, opacity, cotton content, etc...

**Grain Direction**

The direction of the fibers in paper.

**Grain Long**

Term used to designate that the grain of the paper is parallel to the longest measurement of a sheet of paper. The fibers are aligned parallel to the length of the sheet.

**Grain Short**

Opposite of grain long. Grain of the paper runs at the right angles to the longest dimension of the sheet. Fiber alignment in grain short paper parallels the sheet's shortest dimension.

**Grainy Printing**

Printing characterized by unevenness, particularly of halftones.

**Grammage**

The basis weight of paper stated in metric terms of grams per square meter and expressed as g/m<sup>2</sup>. Thus a sheet of paper 17 x 22 with a basis weight of 20 lbs. For 500 sheets would be expressed metrically as 75 g/m<sup>2</sup>. To convert from basis weight to grams per square meter (g/m<sup>2</sup>), multiply basis weight by 1406.5 (a constant factor) and divide by the number of square inches in base sheet.

**Graphic Designer**

A person in the graphic arts who puts together art, text, and other visuals to produce professional printed results.

**Gravure**

An intaglio printing process in which the image area is etched below the surface of the printing plate and is transferred directly to the paper by means of pressure.

**Gray Balance**

The dot values or densities of cyan, magenta, and yellow that produce a neutral gray.

**Gray Level**

The number of gray values that can be distinguished by a color separation filter-usually 28 or 256.

**Gray Scale**

A strip of standard gray tones, ranging from white to black, placed at the side of original copy during photography to measure tonal range and contrast (gamma) obtained.

**Gripper**

A row of clips that holds a sheet of paper as it speeds through the press.

**Gripper Edge**

Leading edge of a sheet of paper as it passes through the printing press.

**Gripper Margin**

Unprintable back edge of a sheet of paper on which grippers bear, usually 1/2 inch or less.

**Grippers**

In sheetfed printing presses, metal fingers that clamp on paper and control its flow as it passes through.

**Groundwood**

Paper made from pulp created in one of several processes that use virtually the whole tree. Sometimes chemical and heating processes are used in the pulping. Groundwood paper retains the lignin from the trees, which causes the paper to yellow and deteriorate relatively quickly.

**Gross Weight**

The total weight of merchandise and shipping container.

**Guide Edge**

The edge of a printed sheet at right angles to the gripper edge, which travels along a guide on the press or folder. This edge, like the gripper edge, should never be altered or mutilated between the printing and folding operations. It is the shorter edge of the sheet.

**Guide Marks**

A method of using crossline marks on the offset press plate to indicate trim, centering of the sheet, centering of the plate, etc.; these are sometimes called register marks.

**Guide Roller**

Sometimes called a cocking roller. Located on the roll stand between the roll of paper and the dancer roll. Can be cocked to compensate for certain paper roll conditions.

**Guide Side**

The side the press uses to guide the sheet to the exact side toward the operator; also known as operator or control side.

**Guillotine**

Device that is used to cut or trim stacks of paper to the desired size.

**Gum Streaks**

Streaks, particularly in halftones, produced by uneven gumming of plates which partially desensitizes the image.

**Gumming**

In platemaking, the process of applying a thin coating of gum to the non-printing areas of a lithographic plate.

**Gutter**

The blank space or inner margin on a press sheet from printing area to binding.

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# H

**Hairline Register**

Register within  $\pm 1/2$  row of dots.

**Halation**

In photography, a blurred effect, resembling a halo, usually occurring in the highlight areas or around bright objects.

**Half Binding**

A style of binding wherein the shelf-back and the corners are bound in a different material from that used on the sides.

**Halftone Negative Artwork (screened negative)**

The negative film produced when continuous-tone artwork is shot through a halftone screen.

**Halftone Positive Artwork (screened positive)**

A photographic positive containing a halftone image.

**Halftone Screen**

An engraved glass through which continuous tone copy is photographed and reduced to a series of dots for halftone printing.

**Halftone**

Reproduction of continuous tone artwork with the image formed dots of various sizes.

**Handmade Finish**

Paper with a rough finish resembling handmade paper.

**Hard (dot)**

a halftone dot characterized by a sharp, clean cut edge.

**Hardbound**

Another term for casebound.

**Hardcover (casebound, edition binding)**

Nonflexible book binding made of thick, glazed board.

**Hard-Sized**

Paper that has been treated with a large amount of size to increase its resistance to moisture. Slack-sized is the opposite.

**Hard-Wood**

Wood from deciduous trees having short fibers.

**Head Trim**

The amount allowed for the top trim.

**Headband**

A small strip of silk or cotton used for decoration at the top of a book between the sheets and the cover. In hand binding, a real tape to which the signatures are sewn.

**Headbox**

On a paper machine, the box that dispenses the appropriate amount of furnish (pulp) into the papermaking process.

**Head**

The top of a page of text which can be a chapter heading, title line, etc...

**Head-to-Head Imposition**

An imposition which requires that pages be laid out with the top of a page (head) positioned across the top of the page (head) opposite it on the form.

**Head-to-Tail Imposition**

An imposition which requires that pages be laid out with the top of a page (head) positioned across the from the bottom (tail) of the page opposite on the form.

**Heat-Set Inks**

Inks used in high-speed web offset. They set rapidly under heat and are quickly chilled.

**Hickeys**

In offset, spots or imperfections in the printed image traceable to such things as dirt on the press, dried ink skin, paper particles, dust, etc...

**High Bulk**

A paper (normally book paper) specifically manufactured to retain a thickness not found in papers of the same basis weight. Frequently used to give thickness to a book with minimal amount of pages.

**High Contrast**

In photography, describes a reproduction in which the difference in darkness between neighboring areas is greater than in the original.

**High Finish**

A term referring to a paper that has a smooth, hard finish applied through calendering or other processes.

**High Key Picture**

A continuous tone photo made up of predominantly highlight (white) areas.

**Highlight Halftone**

The lightest or whitest parts in a photograph represented in a halftone reproduction by the smallest dots or the absence of all dots.

**High-Speed Printer**

Computer which prints in excess of 300 lines per minute.

**Hinges**

The flexible joint where the covers of a hardbound book meet the spine, permitting the covers to open without breaking the spine of the book or breaking the signatures apart.

**Hit**

An impression from a stamping die.

**Holdout**

A term referring to papers that retain much of the resinous ink components on the surface of the sheet rather than absorbing them into a fiber network. Papers with too much holdout cause problems with setoff.

**Hue**

In color, the main attribute of a color which distinguishes it from other colors. See Chroma.

**Humidity**

Moisture condition of the air. Relative humidity is the percent of moisture relative to the actual amount which air at any given temperature can retain without precipitation.

**Hydra Pulper**

Vat with a special type of agitator used to hydrate and prepare pulp for papermaking.

**Hydration**

A papermaking process that involves beating the pulp so as to increase its ability to hold water and produce a paper with the proper moisture content.

**Hydrophilic**

Describes paper with an affinity for water.

**Hydrophobic**

Describes paper that tends to be water repellent.

**Hygroscopic**

Describes paper that readily absorbs moisture.

**Imitation Parchment**

Paper made with irregular distribution of fibers.

**Imsetter**

In digital imaging, an imagesetter capable of outputting a film flat with 4, 8 or more pages in imposed position.

**Impression Cylinder**

In printing, the cylinder on a printing press against which the paper picks up the impression from the inked plate in direct printing, or the blanket in offset printing.

**Impression**

Pressure of type of blanket as it comes in contact with paper.

**Imprint**

To print other information on a previously printed piece by running it through a press again.

**Imprinter**

An auxiliary printing unit, usually employing rubber letterpress plates; imprints copy on top side of web and permits imprint copy to be changed while press is running at full speed.

**Indicias**

Mailing permit imprints that are preprinted on envelopes, mailing cartons, etc.

**Ink Absorption**

Extent of ink penetration into paper.

**Ink Absorption**

The degree with which paper will absorb ink.

**Ink Dot Scum**

On aluminum plates, a type of oxidation scum characterized by scattered pits that print sharp, dense dots.

**Ink Drum**

A metal drum, either solid or cored; a part of an inking mechanism; used to break down the ink and transfer it to the form rollers.

**Ink Fountain**

In printing presses, the device which stores and supplies ink to the inking rollers.

**Ink Holdout**

An important printing paper quality - the ability to keep ink on top of the paper's surface. An inked image printed on paper with a high degree of ink holdout will dry by oxidation rather than absorption.

**Ink Jet Printing**

In digital printing, a plateless printing system that produces images directly on paper from digital data using streams of very fine drops of dyes which are controlled by digital signals to produce images on paper.

**Ink Receptive**

Having the property of being wet by greasy ink, in preference to water.

**Ink Resistance**

Resistance to the penetration of the ink vehicle; also called ink hold-out.

**Inking Mechanism**

On a printing press, the ink fountain and all the parts used to meter, transfer, break down, distribute, cool or heat, and supply the ink to the printing members. Also called inking system.

**In-Line**

Denotes a production line of machinery, as required for the more or less complete manufacturing of a given product.

**Insert**

A printed piece prepared for insertion into a publication or another printed piece.

**Intaglio**

Type or design etched into a metal plate as opposed to raised letters as in letterpress.

**Intensity**

The extreme strength, degree or amount of ink.

**Interleaves (slip sheets)**

Paper inserted between sheets as they come off the printing press to prevent transfer of wet ink from one to the other. Also, accessory sheets between parts in a form.

**Jog**

To align sheets of paper into a compact pile.

**Joint**

The flexible hinge where the cover of a casebound book meets the spine, permitting the cover to open without breaking the spine of the book or breaking apart the signatures; also called a hinge.

**Jordan**

Proper name for the beater on the paper machine. In the Jordan, the pulp is pulverized, causing the pulp and water to mix in a uniform manner.

**Junior Carton**

A package of reamed sealed, cut size paper packed 8 to 10 reams per carton.

**Justify**

Fitting a line of type to both margins.

# K

## **Kerning**

A method in composition of changing the spacing between type; brings the type closer together.

## **Key Plate**

In color printing, the plate used as a guide for the register of other colors. It normally contains the most detail.

## **Keyline**

In artwork, an outline drawing of finished art to indicate the exact shape, position and size for such elements as halftones, line sketches, etc...

## **Kiss Impression**

Printing performed with only slight pressure. The normal procedure for quality printing.

## **Kiss Pressure**

The minimum pressure at which proper ink transfer is possible.

## **Kiss-Cut**

Partial cut through.

## **Kraft Process**

A chemical pulping process that cooks down the tree to remove lignin, retaining the fibers for paper making. Free sheet papers are made in the kraft process.

# L

## **Label Paper**

Paper coated on one side, used for labeling applications.

## **Laid Dandy Roll**

A dandy roll made for the purpose of imparting a laid finish to paper. It is composed of wires running parallel to the roll's axis and attached to the frame by evenly spaced chain wires that encircle the circumference of the roll. The laid wires are affixed on top of the transverse chain wires, rather than being wove over and under them.

## **Laid Lines**

Lines seen in a laid sheet which are the result of the design on the dandy roll.

## **Laid Paper**

The closely "lined" appearance in the finish of writing and printing papers created during manufacture by a dandy roll.

## **Laid Wires**

Parallel wires in a dandy roll that produce the laid watermark and run in the cross grain direction.

## **Laid Writing**

Paper used for writing and correspondence purposes that has a laid mark.

## **Laid**

Term describes the finish imparted by a dandy roll which features wires parallel to its axis that impress the paper during manufacture to produce a permanent watermark. The wires which produce the laid effect are situated parallel on the dandy roll and are not interwoven with the traverse chain wires which encircle the dandy roll's circumference, meaning the cross direction. CLASSIC® Laid Papers.

## **Laminated**

Paper that is developed by fusing one or more layers of paper together to the desired thickness and quality. Often other substances like thin sheets of metal, plastic, etc...are fused to paper.

## **Lap**

The slightly extended areas of printing surfaces in color plates, which make for easier registration of color.

## **Lap Register**

A register achieved by overlaying a narrow strip of the second color over the first color, at the points of joining.

## **Last Color Down**

The last color printed.

## **Layout**

The drawing or sketch of a proposed printed piece. In platemaking, a sheet indicating the settings for a step-and-repeat machine.

## **Layout Sheet**

The imposition form; it indicates the sequence and positioning of negatives on the flat, which corresponds to printed pages on the press sheet. Once the sheet is folded, pages will be in consecutive order.

## **Leaders**

In composition, rows of dashes or dots to guide the eye across the page. Used in tabular work, programs, tables of contents, etc...

## **Length**

The ability of an ink to flow.

## **Letterpress Printing**

Also known as relief typographic printing, letterpress printing employs the use of type or designs cast or engraved in relief (raised) on a variety of surfaces which can include metal, rubber, and wood. Opposite of intaglio printing, in letterpress printing the ink is applied to the raised printing surface. Non-printing areas or spaces are recessed. Impressions are made in various ways. On a platen press the impressions are made by pressure against a flat area of type or plate. Flat-bed cylinder press printing uses the pressure of a cylinder rolling across a flat area of type or plate to create the impression. A rotary web press uses a plate that has been stereotyped (molded into a curved form) which presses against another cylinder carrying the paper.

## **Levelness**

The evenness of a paper determined by the fiber distribution.

**Library Binding**

A book bound in accordance with the standards of the American Library Association, having strong endpapers, muslin-reinforced end signatures, sewing with four-cord thread, cotton flannel backlining, and covers of Caxton buckram cloth, with round corners.

**Lift**

Maximum number of sheets handled by operator of guillotine cutting machine or by paper handler loading paper for printing.

**Lightfastness**

The degree to which a paper or printed piece will resist a change in color when exposed to light.

**Lignin**

The "glue" that binds the cells of the tree and creates its structure. This product is removed in the kraft process. Approximately one third of the tree is lignin.

**Likesidedness**

Noticeably similar side-to-side color and finish of a sheet of paper.

**Line Copy**

Any copy suitable for reproduction without using a halftone screen.

**Line Drawing**

A drawing containing no grays or middle tones. In general, any drawing that can be reproduced without the use of halftone techniques.

**Line Negative**

A negative made from line copy.

**Linear Paper**

A watermarked sheet with lines to guide the user.

**Linen Finish Paper**

A paper embossed to have a surface resembling linen cloth. CLASSIC® Linen Papers.

**Lining**

The material which is pasted down on the backbone (spine) of a book to be casebound, after it has been sewn, glued off, and then rounded. It reinforces the glue and helps hold signaturestogether.

**Lint**

Small fuzzy particles in paper.

**Lip**

The allowance for overlap of one-half of the open side edge of a folded section, needed for sewn and saddlestitch binding, for feeding the sections; also called lap.

**Lithographic Image**

An ink-receptive image on the lithographic press plate; the design or drawing on stone or a metal plate.

**Lithographic Papers**

See offset papers

**Lithography**

A generic term for any printing process in which the image area and the nonimage area exist on the same plane (plate) and are separated by chemical repulsion.

**Localized Watermark**

Achieved by arranging the design on the dandy roll to leave a watermark at a predetermined place on the sheet.

**Logo**

A mark or symbol created for an individual, company, or product that translates the impression of the body it is representing into a graphic image.

**Long Grain**

Paper made with the machine direction in the longest sheet dimension.

**Long Ink**

An ink that has good flow on ink rollers of a press. If the ink is too long, it breaks up into filaments on the press, and causes flying as on a newspaper press.

**Longevity**

Degree of permanence.

**Longfold**

To fold a sheet lengthwise in the direction of the grain.

**Loose Back**

A popular style of binding, in which the spine binding material is not glued to the binding edge of the sheets.

**Loose Register**

Color that fits "loosely"; positioning (register) is not critical.

**Low Bulk**

Refers to papers somewhat thinner than the usual papers of the same weight, having a smooth surface, and which is a "thin" sheet.

**Low-Key Picture**

A continuous tone photo made up of predominantly shadow areas of the same tone.

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# M

**M**

Symbol in the paper industry designating 1,000. Usually used to designate 1,000 sheets or two reams of fine paper.

**Machine Direction**

Establishes the grain direction, which is always parallel with the travel of the paper over the wire.

**Machine Dried**

Process of drying paper on the paper machine as opposed to air drying the paper after removal from the machine.

**Machine Finish**

Finish that is obtained while the paper is on the paper machine. Expressed as M.F. Different finishes are obtained by the number of times paper is passed through the rollers, either dry or wet.

**Magenta**

Hue of a subtractive primary and a 4-color process ink. It reflects or transmits blue and red light and absorbs green light.

**Magenta Screen**

A dyed contact screen, used for making halftones.

**Makeready**

In printing presses, all work done prior to running; adjusting the feeder, grippers, side guide, putting ink in the fountain, etc. Also, in letterpress, the building up of the press form, so that the heavy and light areas print with the correct impression.

**Making Order**

A paper that is not available off the supplier's shelf, but they will produce it when ordered. Making orders for special sizes, colors and weights of paper are subject to small minimums.

**Margins**

The unprinted area around the edges of a page. The margins as designated in book specifications refer to the remaining margins after the book has been trimmed.

**Mask**

In color separation photography, an intermediate photographic negative or positive used in color correction. In offset lithography, opaque material used to protect open or selected areas of a printing plate during exposure.

**Mechanical (paste-up)**

Camera-ready assembly of all type and design elements together with instructions and ready for the plate-maker.

**Mechanical Pulp**

In papermaking, groundwood pulp produced by mechanically grinding logs or wood chips. It is used mainly for newsprint and as an ingredient of base stock for lower grade publication papers.

**Metallic Inks**

Ink containing metal substances, used to produce special printed output.

**Middle Tones**

The tonal range between highlights and shadows of a photograph or reproduction.

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# N

**Negative**

In photography, film containing an image in which the values of the original are reversed so that the dark areas in the subject appear light on the film and vice versa.

**Neutral pH**

Offset papers manufactured with a pH of 6.0 to 8.0 on a scale of .0 to 14.0. Neutral pH factors are built into paper as a minimum value, to increase stability and improve permanence for use in printing of archival records.

**Oblong**

In binding, a booklet bound on the short dimension.

**Offline**

Pertaining to equipment not under direct control of the central processing unit.

**Off-Press Proofs**

Proofs made by photomechanical or digital means in less time and at lower cost than press proofs.

**Mill Brand**

Paper which is brand-named by the manufacturer as opposed to the merchant house, which is known as a "private brand".

**Mixed Office Waste**

Wastepaper generated from offices, such as letters, memos, invoices, etc. which are collected and sorted for paper qualities. This is the major source of post consumer fiber used in ENVIRONMENT® Papers.

**Moiré**

Geometric pattern caused when two screened images are superimposed at certain angles. Occurs when making a halftone from a halftone image.

**Moisture Content**

Refers to the amount of moisture found in a sheet of paper. Average amount ranges from 5 to 8%. This figure varies from sheet to sheet since paper will emit or absorb moisture according to the condition of the surrounding atmosphere. Moisture loss is realized in the form of shrinkage, which begins at the edges of the paper and moves across the grain causing the sheet to tighten and curl.

**Monotone**

Printed in one color only.

**Montage**

In Artwork, several photographs combined to form a composite illustration.

**Mottled Finish**

Finish, which exhibits high and low spots, or glossy and dull areas on the printed sheet.

**Mullen Tester**

Device that measures the bursting strength of paper. Sometimes referred to as the pop test or pop tester.

**Nominal Weight**

Refers to the basis weight of the paper. Unless otherwise stipulated by the mill and customer, a tolerance of plus or minus 5% is allowed when calculating the nominal weight.

**Non-Impact Printers**

Forms an image without impact.

**Offset**

See set-off. In printing, the process of using an intermediate blanket cylinder to transfer an image from the image carrier to the substrate. Short for offset lithography.

**Offset Lithography (photolithography, offset)**

The most common form of lithographic printing in which the image area and the nonimage area exist on the same plane (plate), separated by chemical repulsion. To print, the ink is "offset" (transferred) from the plate onto a rubber blanket and then to the paper.

**Offset Paper**

Coated or uncoated paper specifically for offset printing.

**Offset Press (sheet fed)**

Indirect rotary press with plate cylinder, blanket cylinder and an impression cylinder.

**Offset Printing**

Process of printing utilizing a lithographic plate on which the images or designs are ink receptive while the remainder of the plate is water receptive. Ink is transferred from the plate to a rubber blanket on the printing press and this rubber blanket transfers the image to paper. It is sometimes referred to as offset lithography or photo-offset.

**One-Up, Two-Up, etc**

Printing one (two, three, etc.) impressions of a job at a time.

**Onionskin**

A lightweight, cockle finish paper used for making copies of correspondence.

**Online**

Pertaining to equipment under direct control of the central processing unit of a computer.

**Opacity**

The amount of "show through" in a sheet from one side to the other. The higher the opacity the less likely that the printing on one side will be visible from the other side.

**Opaque**

The more opaque a sheet of paper is, the less transparent it is. High opacity in printing papers is a good characteristic as print from the other side of a printed leaf has less "show-through".

**Opaque Ink**

An ink that conceals all color beneath it.

**Open End Envelope**

An envelope that opens on the short dimension.

**Optical Brightness**

Optical brighteners or fluorescent dyes are extensively used to make high, bright blue-white papers. They absorb invisible ultraviolet light and convert to visible light, falling into the blue to violet portion of the spectrum, which is then reflected back to our eyes.

**Optical Whitener**

A dye that is added to the fiber stock or applied to the paper surface at the size press to enhance its brightness.

**Orange Peel**

A granular surface on coated or printed paper that looks like orange peel.

**Out-of-Register**

(1) Descriptive of pages on both sides of the sheet which do

not back up accurately. (2) Two or more colors are not in the proper position when printed; register does not "match."

**Out-of-Round Rolls**

Paper rolls that are not suitable for the web offset press because they are not perfectly round and will cause uneven feeding tension.

**Out-of-Square**

Refers to paper that has been trimmed improperly thus causing the corners to be less or more than 90 degrees. This leads to difficulty during the printing process and often results in misregister of the printed piece. Also called off-square.

**Outline Halftone (silhouette halftone)**

A halftone image which is outlined by removing the dots that surround it.

**Overhang Cover**

A cover larger in size than the pages it encloses.

**Overinked**

Describes printing when too much ink has been used, resulting in heavy print that tends to blur toward the back of the press sheet.

**Overlay**

In artwork, a transparent covering over the copy where color break, instructions or corrections are marked. Also, instead of dots coexisting on the same sheet of acetate, each color—magenta (red), cyan (blue), yellow and black—is represented on a different acetate overlay. Since this acetate is virtually transparent, the combination of four overlays will make a full-color image.

**Overpacking**

Packing the plate or blanket to a level that is excessively above the level of the cylinder bearer.

**Overpressure**

Too much pressure, causing ink to tend to plug letters, especially halftone dots.

**Overprinting**

Double printing; printing over an area that already has been printed.

**Overrun**

Quantity of paper that is manufactured beyond the quantity specified. In printing, copies printed in excess of the specified quantity.

**Oxidation**

A chemical reaction which hardens the ink vehicle and makes the film of ink reasonably rub-proof. The process of combining with oxygen.

# P

## **Packing**

In printing presses, the paper or other material used to underlay a press blanket or plate, to bring the surface to the desired height; the method of adjusting squeeze pressure.

## **Packing Gauge**

a device for determining the relationship between the height of the plate or blanket, and the cylinder bearers.

## **Padding Glue**

A flexible glue used in padding loose sheets.

## **Page Flex**

The number of flexes a book page can withstand before loosening from the binding.

## **Page Makeup**

In stripping, assembly of all elements to make up a page. In digital imaging, the electronic assembly of page elements to compose a complete page with all elements in place on a video display terminal and on film or plate.

## **Page Proofs**

Initial impression of a page pulled for checking purposes before the entire job is run.

## **Pages-Per-Inch (ppi)**

In book production, the number of pages contained in a one-inch stack of paper.

## **Pagination**

In computerized typesetting, the process of performing page makeup automatically.

## **Palette**

The collection of colors or shades available to a graphic system or program.

## **Pallet**

A wooden platform with stringers wide enough to allow a fork lift to drive into it and lift; used to pack cartons for shipment, if specified by the customer. Pallets are usually not reusable.

## **Panchromatic**

A type of film equally sensitive to light in all colors.

## **Pantone Matching System**

See PMS.

## **Paper Machine**

Machine on which paper is manufactured, dried, wound on rolls and slit to appropriate lengths.

## **Paper Master**

A paper printing plate used on an offset-duplicator. The image is made by hand drawing, typewriter or electrophotography.

## **Paper Surface Efficiency**

Measure of the printability of a sheet of paper which is dependent upon the amount of ink the paper absorbs, the smoothness of its surface, and the evenness of its caliper.

## **Paperbound**

A paper-covered book; also called paperback or soft cover.

## **Papeterie**

A paper used for greeting cards, stationery, etc...which is distinctive from regular stock in that special watermarks and embossing may be used.

## **Paraded Watermark**

(See watermark).

## **Parallel Fold**

Any series of folds in sequence, made in parallel fashion.

## **Paste Drier**

In inkmaking, a type of dryer, usually a combination of drying compounds.

## **Pasted**

Pasted grades are those grades of paper or paperboard made up of layers pasted together. The process is machine operation used to combine sheets of the same or different papers into a single thickness.

## **Paste-Up**

Assembling on one page for photographing various art elements for a print order.

## **PCF - Process Chlorine Free**

This is generally a recycling decolorizing and bleaching done without the use of chlorine or chlorine compounds. The usual chemicals are peroxide, ozone and oxygen.

# Q

## **Quick-Set Inks**

Those inks that set-up faster and dry faster, usually from top to bottom. These inks are used when sheets have to be sent back through the press faster than normal drying time will allow.

## **Quadratone**

Printing with four half-tone images at different screen angles using four different colors. Usually the four colors would have a color slant or cast towards a selected tone or color; for example a sepia-tone or overall brown slant or cast.

## **Quarter Tone**

In printing, a printing dot that has a percentage that is close to the 25% printing dot size.

# R

## **Rag Paper**

Today it is usually referred to as cotton fiber paper. It is made from cotton cuttings and linters.

## **Rag Pulp**

Pulp made by disintegrating new or old cotton or linen rags and cleaning and bleaching fibers.

## **Random Watermark**

(See watermark).

## **Ream**

Five hundred sheets of printing paper.

## **Ream Marked**

Pile of paper is ream marked by the insertion of small slips of paper or "ream markers" at intervals of every 500 sheets.

## **Ream Marker**

Piece of rectangular shaped paper used to mark off the reams in a stack of paper.

## **Ream Weight**

Weight of a given ream of paper.

## **Ream Wrapped**

Paper which has been separated into reams and individually packaged or wrapped.

## **Recovered**

Scrap paper collected for remanufacturing into recycled paper. EPA's definition for recovered is the most widely accepted and does not include scrap paper created in the initial papermaking process, but does include scrap created in a mill after the paper comes off the paper machine. Printing waste and envelope trim are also recovered fiber.

## **Recycleable**

This means the product can be recycled. This applies to most paper even if it is coated, waxed or other wise treated.

## **Recycled**

Paper made at least in part from recovered fibers. There is no universally acceptable definition so requirements vary by specific circumstances. EPA requires post consumer content in recycled papers purchased by federal agencies. But the FTC does not require post-consumer content in papers labeled recycled. Most US governments and companies use the EPA standards, but there is no requirement. In Canada most companies use the terra-choice definition for recycle which does require minimum levels of post-consumer fiber.

Neenah Paper in all of the CLASSIC® Brands and the ENVIRONMENT® Brand specify the amount of recycled fiber and the amount of post consumer.

## **Reducers**

In printing inks, varnishes, solvents, oily or greasy compounds used to reduce the consistency for printing. In photography, chemicals used to reduce the density of negative or positive images or the size of halftone dots (dot etching).

## **Refining**

The mechanical treatment of pulp fibers to develop their papermaking properties.

## **Reflection Copy**

In photography, illustrative copy that is viewed and must be photographed by light reflected from its surface. Examples are photographs, drawings, etc...

## **Register**

In printing, register is the placement of two or more images on the same paper in such a manner as to make them in perfect alignment with each other. When a printing job is in exact register succeeding forms or colors can be printed in the correct position relative to the images already printed on the sheet.

## **Register Mark**

Mark placed on a form to assist in proper positioning of after-printing operations. Two short lines at right angles are called an angle mark. Also, bulls-eye marks placed on camera-ready copy to assist in registration of subsequent operations.

## **Registration**

Alignment of one element of a form in relation to another. Also, alignment of printed images upon the same sheet of paper.

## **Relative Humidity (RH)**

The amount of water vapor present in the atmosphere expressed as a percentage of the maximum that could be present at the same temperature.

## **Repeatability**

The ability to keep photo film and the images thereon in proper register. Repeatability is usually measured in micrometers.

## **Rerun**

A term referring to printing again from standing negatives.

## **Retarders**

Chemicals that slow setting time of printing inks.

## **Reverse**

When the background is completely printed, and the design area is left unprinted.

## **Rewinder**

Equipment which slits and rewinds paper webs into smaller rolls.

## **Right Side of Paper**

The felt side of a sheet, also the side on which the watermark, if any, may be read.

## **Right-Angle Fold**

Term used for two or more folds that are at 90 degree angles to each other.

## **Right-Read Image**

Image similar to the original or intended final copy.

## **Rigidity**

Stiffness, resistance to bending.

## **Roll**

Web of paper. Paper wound around a core or shaft to form a continuous roll or web of paper.

## **Roller Stripping**

In lithography, a term denoting that the ink does not adhere to the metal ink rollers on a press.

## **Rosin Size**

A size added to paper to make it water resistant.

## **Rotary Press**

Printing press in which the plate is wrapped around a cylinder. There are two types, direct and indirect. Direct presses print with a plate cylinder and an impression cylinder. Indirect rotary presses (sheet-fed offset presses) combine a plate cylinder, a blanket cylinder and an impression cylinder.

**Rotogravure**

Intaglio process. The image is below the surface of the plate. (Letterhead image is raised the offset image is flat)

**Rub-Off**

1) Ink on printed sheets, after sufficient drying, which smears or comes off on the fingers when handled. (2) Ink that comes off the cover during shipment and transfers to other covers or to the shipping carton or mailer; also called Scuffing.

**Rub-Proof**

In printing, an ink that has reached maximum dryness and does not mar with normal abrasion.

# S

**Saddle Stitch**

Binding process for pamphlets or booklets, which works by stapling through the middle fold of the sheets (saddle wire).

**Saddle Wire Binding**

To fasten a booklet by wiring the middle fold of the printed sheets of paper.

**Scanner**

Optical scanner, also electric device used in making color separation.

**Scanning**

Point-by-Point electronic scanning of color separations under computer control.

**Schopper's Tester**

An instrument for testing the folding endurance of paper.

**Score/Scoring**

The process and the resulting line or crease mechanically impressed in the paper to facilitate folding while guarding against cracking of paper and board. Scoring is essential when heavyweight papers are to be folded across the grain.

**Screen**

The ruling used to determine the dots per unit area in developing tonal values in the printed piece. Screens from which letterpress halftones of photographs are made range from 60 lines-per-inch for printing on newsprint to 150 lines for printing on coated paper. Offset halftones for printing on most surfaces range from 133 lines to 200 lines.

**Screen Angles**

In color reproduction, angles at which the halftone screens are placed with relation to one another, to avoid undesirable moire patterns. A set of angles often used is: black 45°, magenta 75°, yellow 90°, cyan 105°.

**Screen Process Printing**

This printing process uses a screen of fine-mesh silk (thus the common name silk screen printing) tautly stretched across a frame. A squeegee drawn across the screen forces ink through the open image areas which are cut-out by hand using lacquered tissue prior to its adherence to the silk. Special photographic negatives are adhered to the screen when faithful reproduction of intricate designs are sought.

**Screen Range**

The density difference between the highlight and shadow areas of copy that a halftone screen can reproduce without a flash exposure.

**Rubylith**

A separable two-layer acetate film of red or amber emulsion on a clear base. It has dozens of uses in graphics, most often for color separations by hand in the composition or stripping departments.

**Rule Weight**

Thickness of lines; hairline rule; medium rule (1/2 point); heavy rule (1 point).

**Runnability**

Paper's performance on a press and its ability to withstand the stresses of a running press unaltered. Not the same as printability.

**Screen Ruling**

The number of lines or dots per inch on a halftone screen.

**Screened Print**

A print made from continuous-tone copy that was screened during exposure.

**Screenstone**

A halftone film having a uniform dot size over its area, and rated by its approximate printing dot size value, such as 20 percent, 50 percent, etc.; also called screen tint.

**Scuffing**

See rub-off, The disrupted appearance of an ink film as a result of abrasion to either the wet or dry ink film.

**Scumming**

A term referring to the press plate picking up ink in the nonprinting areas for a variety of reasons, basically due to spots or areas not remaining desensitized.

**Sealed**

Term often applied to cut size sheets which are packaged "ream sealed", 500 sheets to the package.

**Seasoning**

Process of allowing paper to adjust to atmospheric conditions of the plant in which it will be used.

**Secondary Fiber**

A term used for wastepaper, also referred to as paper stock.

**Self Cover**

A cover that matches the inside text pages.

**Semi-Chemical Pulping**

Pulp made using a combination of chemical and mechanical methods and usually used for corrugated mediums.

**Semi-Concealed Cover**

A cover for mechanical binding that is a single piece scored and slotted or punched for combining with the mechanical binding device, formatting a closed backbone on bound units.

**Sensitivity Guide**

A narrow, calibrated continuous tone gray scale with each tone scale numbered.

**Separation Negative**

One of the images of a color set.

**Serif**

Short cross line at the ends of the stroke of a Roman letter.

**Setback**

In platemaking, the distance from the front edge of the press plate to the image area, to allow for clamping to the cylinder and also for the gripper margin.

**Set-Off**

The undesirable transfer of ink from freshly printed sheets of paper to another. (Also called off-set).

**Set-Up Sheet**

A sheet drawn in Plate Prep on the Craftsman table from computer specifications; used as a master for the layout and positioning of pages on the job for which it was drawn.

**Sewn Book**

A popular style of bookbinding; in which the signatures are gathered in sequence and then sewn individually in 8s, 16s, or 32s. The sewing threads are visible at the center of each signature.

**Sewn-On Tapes**

Strips of reinforcing cloth sewn to the spine of the book sections and extending slightly past the edge of the spine; used to strengthen the binding of a casebound book.

**Shadow**

The darkest parts in a photograph, represented in a halftone by the largest dots.

**Sharpen**

To decrease in color strength, as when halftone dots become smaller; opposite of dot spread or dot gain.

**Sharpness**

A photographic term for perfectly defined detail in an original, negative and reproduction.

**Shave**

To cut a slight trim from bound books or paper, printed or blank.

**Sheet**

Term which may be applied to a single sheet, a grade of paper, or a description of paper, i.e. coated, uncoated, offset, letterpress, etc.

**Sheet Delamination**

Directly related to poor surface strength in that if the sheet has poor surface strength, delamination will occur in the printing process. Sheet delamination could also create a problem of a blanket smash. If the delamination is large enough and thick enough, as the press continues to run, it will create a depression in the blanket, so that when the delamination buildup is removed from the blanket the depression will remain, rendering the blanket unusable. These defects pertain to both sheet-fed and web-fed equipment.

**Sheeter**

In paper manufacture, rotary unit over which the web of paper passes to be cut into sheets. In printing, rotary knife at the delivery end of web press that slices press lengths.

**Sheet-Fed**

Any printing press requiring paper in a sheet form as opposed to printing in rolls.

**Sheeting**

The process of cutting a roll or web of paper into sheets.

**Sheetwise**

To print one side of a sheet of paper with one plate, then turn the sheet over and print the other side with another plate using same gripper and opposite side guide.

**Shell**

(1) A slip case for holding bound volumes of a set. (2) The copper (or nickel) duplicate of type or engravings produced in the plating tanks on impressions in wax or other molding mediums.

**Sheridan Saddle Stitcher-Trimmer**

A machine used to gather, cover, stitch, and trim saddle stitch books.

**Shives**

Undercooked wood particles that are removed from the pulp before manufacture of paper begins. Sometimes shives will appear as imperfections in the finished sheets.

**Short-Grained Paper**

Paper in which the predominant fiber orientation is parallel to the shortest sheet dimension.

**Show-Through**

In printing, the undesirable condition in which the printing on the reverse side of a sheet can be seen through the sheet under normal lighting conditions.

**Shrinkage**

Decrease in the dimensions of a sheet of paper or loss incurred in weight between the amount of pulp used and paper produced.

**Side Guide**

On sheet-fed presses, a guide on the feed board to position the sheet sideways as it feeds into the front guides before entering the impression cylinder.

**Sidestitch**

A method of binding in which the folded signatures or cut sheets are stitched with wire along and through the side, close to the gutter margin. Pages cannot be fully opened to a flat position; also called side wire.

**Signature**

Section of book obtained by folding a single sheet of printed paper in 8, 12, 16 or 32 pages.

**Silhouette**

Halftones from which the screen around any part of the image has been removed.

**Silk-Screen**

Print from a stencil image maker where the ink is applied by squeegee through a silk screen.

**Silk-Screen Printing**

Another name for screen process printing

**Silverprint**

A proof print made from single negatives that are used to produce the final proof prior to printing.

**Size or Sizing**

Additive substances applied to the paper either internally through the beater or as a coating that improves printing qualities and resistance to liquids. Commonly used sizes are starch and latex.

**Size Press**

Part of the paper machine, near the end, where sizing agents are added.

**Size Tub**

Container holding sizing material during the tub sizing process.

**Skid**

(1)A reusable platform support, made of wood, on which sheets of paper are delivered, and on which printed sheets or folded sections are stacked. Also used to ship materials, usually in cartons which have been strapped (banded) to the skid. (2)A quantity of paper, usually about 3000 lbs., skid-packed.

**Slack Size**

A paper that is slightly sized and therefore will be somewhat water resistant.

**Slip-Sheeting**

Placing pieces of paper between folded sections prior to trimming four sides, to separate completed books.

**Slitter**

A sharp disk which cuts a paper into pre-determined widths.

**Slitting**

Cutting printed sheets into two or more sections by means of cutting wheels on a folder.

**Slur-Gauge (The GATF Slur Gauge)**

A combination dot gain and slur indicator supplied in positive or negative form. It is a quality control device that shows at a glance dot gain or dot loss. It also demonstrates whether the gain or the loss occurs in contacting, platemaking, proofing or on the press.

**Slurring**

The smearing or elongation of halftone dots or type and line images at their trailing edges.

**Slurry**

Watery suspension of pigments, etc...which is used in coating or papermaking.

**Smashed or Weak Blanket**

An area of a blanket that is no longer firm and resilient, and that gives a light impression in the center of a well printed area. Usually caused by physical damage of the blanket at impression.

**Smashing (nipping, compressing)**

The binding operation following sewing in which the folded and sewn sheets are compressed to tighten the fold free of air to make the front and back of the sheets the same thickness.

**Smearing**

A press condition in which the impression is slurred and unclear, because too much ink was used or sheets were handled or rubbed before the ink was dry.

**Smooth Finish**

A finish on paper that has been made smooth by passing through various rollers. CLASSIC CREST® Papers.

**Smoothing Press**

Prior to reaching the driers, the paper web is smoothed, if necessary, by two rolls working together.

**Smoothness**

The flatness of a sheet of paper, which generally determines the crispness of the image printed upon it.

**Smyth Sewing**

A method of fastening side-by-side signatures so that each is linked with thread to its neighbor, as well as saddlesewn through its own centerfold. Smyth-sewn books open flat. The stitching is on the back of the fold.

**Soda Pulp**

A chemical pulp that has been derived from wood chips

digested in a solution of caustic soda. Both hardwoods and softwoods can be used in this process.

**Soft Dot**

A camera term describing halation or fringe around the edge of a dot which is excessive and almost equals the area of the dot itself.

**Soft Ink**

A term that describes the consistency of lithographic inks.

**Softcover**

Another term for paperback or paperbound books.

**Softwood**

Wood from coniferous trees having long fibers.

**Solid**

An area completely covered with ink, or the use of 100% of a given color. In composition, type set without space (leading) between the lines.

**Spacing**

Intervals between lines of type.

**Spec'd (specified)**

Spec'd copy gives details of items such as paper, bindery techniques, type, etc., which have been determined for a given job.

**Specialty Papers or Boards**

Paper or board that is manufactured, or subsequently converted, for a specific use. These grades usually cannot be used for anything other than their intended special purpose.

**Specifier**

The designer or printing production worker who determines the types of paper to be used under various circumstances.

**Spectrophotometer**

Sophisticated instrument that measures color across a visible spectrum and produces data describing the color of a given sample in terms of the three parameters in color space.

**Spectrum**

The complete range of colors in the rainbow, from short wavelengths (blue) to long wavelengths (red).

**Spine**

Backbone of a book.

**Spiral Binding**

Wires in a spiral form inserted through specially punched holes along the binding edge.

**Splice**

An overlapping joint used to join the ends of webs together.

**Splice Tag**

Tab or marker giving the location of a splice.

**Split Fountain**

A technique for simultaneously printing two colors from the same ink fountain.

**Spot**

Smallest visible point that can be displayed or printed. The smallest diameter of light that a scanner can detect, or an image-setter or printer can image. Dot should not be confused with spot.

**Spot Varnish**

Press varnish applied to a portion of the sheet, as opposed to an overall application of the varnish.

**Spotting Out**

Fine opaquing such as in removing pinholes or other small transparent defects in a negative; also called Opaquing.

**Spray Powder**

A powder used at press to prevent setoff (offset) of wet ink; also called anti-offset spray.

**Square Halftone (square-finish halftone)**

A halftone whose four sides are straight and perpendicular to one another.

**Square Sheet**

A sheet which is equally strong and tear resistant with and against the grain.

**Stabilize**

A term used to describe paper that has been seasoned so that the moisture content is the same as the air surrounding it.

**Stacker**

Device attached to delivery conveyor to collate, compress and bundle signatures.

**Stamping**

Pressing a design onto a book cover using metal foil, colored foil, or ink, applied with metal dies.

**Standards (paper)**

Terms used to indicate the manufactured specifications of a paper. Includes color, basis weight, sheet dimensions, and grain direction.

**Starch**

Material used as a sizing agent for paper. Usually made from corn.

**Static Electricity**

An electrical charge frequently found in paper which is too dry or which has been affected by local atmospheric conditions.

**Static Neutralizer**

In printing presses, an attachment designed to remove the static electricity from the paper to avoid ink setoff and trouble with feeding the paper.

**Steel Engraving**

An engraved plate used in relief printing.

**Step-and-Repeat**

Technique of affixing multiple images on a film or plate to extremely close tolerances.

**Stepover**

In multiple imposition on a lithographic press plate, the procedure of repeating the exposure of a flat by stepping it along the gripper edge; side-by-side exposure.

**Step-Up**

In multiple imposition on a lithographic press plate, the procedure of repeating the exposure of a flat by stepping it back from the gripper edge of the plate; up-and-down exposure.

**Stiff**

An ink with too much body.

**Stiffness**

Property of paper and paperboard to resist bending.

**Stitched Book**

A popular method of sewing the signatures of a book together by stitching all the sheets at one time, either through the center of the inserted sheets or side-stitched from front to back. A very strong style of binding but not flexible as compared with sewing.

**Stitching**

Use of wire fastenings as a permanent fastening for continuous forms.

**Stochastic Screening**

A digital screening process that converts images into very small dots (14-40 microns) of equal size and variable spacing. Second order screened images have variable size dots and variable spacing. Also called Frequency Modulated (FM) screening.

**Stock**

General term with many meanings. (1) Paper or board that is on hand in inventory. (2) Paper or board that has been designated for a particular use and only awaits the printing or converting process. (3) Pulp which has been processed to a state where dilution is the only step necessary for it to be made into paper or board. (4) At any stage in manufacture wet pulp is referred to as stock. (5) Wastepaper.

**Stock Sizes**

Standard sizes of paper or board.

**Stock Weights**

Weights of papers stocked by mills and merchants.

**Stocking Items**

Papers manufactured in popular sizes, weights, colors, etc. on a regular basis to maintain adequately stocked inventories in mill warehouses.

**Stocking Merchant**

Paper distributor that stocks in his own warehouse facilities enough paper to immediately fill anticipated orders in the market. This eliminates the delay of ordering from the paper manufacturer, taking delivery, and delivering to the customer.

**Stopping Out**

An application of opaque to photographic negatives; also the application of special lacquer to protect areas in positives in dot etching; staging of halftone plates during relief etching; protecting certain areas of deep-etched plates so that no ink will be deposited on the protected areas.

**Stream Feeder**

A type of press feeder that keeps several sheets of paper, overlapping each other, moving toward the grippers.

**Stretch**

Describes the "give" of a sheet of paper when it is subjected to tensile pressure.

**Stretch Resistance**

Stretch properties are essential for paper to fold well and to resist stress in use. Stretch resistance is measured on tensile testing instruments.

**Strike-In**

Penetration of printing ink into a sheet of paper.

**Strike-Through**

Penetration of printing ink through a sheet of paper.

**String and Button Envelope**

An envelope made with two reinforced paper buttons, one on the flap and the other on the back of the envelope. To close, a string which is locked under the flap button is wound alternately around the two buttons.

**Strip-In**

A negative which must be combined with another, to give a single page negative which contains all components; also called set-in.

**Stripping**

In offset: negatives are properly positioned on a masking sheet (goldenrod masking paper). In photoengraving: film containing the photographic image from the wet-plate is moved and turned.

**Substance Weight**

Same as basis weight.

**Sucker**

A rubber suction cup on machine feeding devices.

**Suction Box**

Device that removes water from the paper machine by a suction action located beneath the wire at the wet end.

**Suction Feed**

A term applied to suction grippers which feed paper.

**Sulphate**

Alkaline process of cooking pulp also known as the kraft process. Wood chips are cooked to a high brightness without fiber degradation in a substance of sodium sulfate and sodium sulfide.

**Sulphite**

Acid process of cooking pulp. Wood chips are cooked in a solution of bisulphite.

**Supercalender**

Off machine calender rolls that heat and iron paper to provide a high gloss finish.

**Supercalendering**

Alternating rolls of highly polished steel and compressed cotton in a stack. During the process the paper is subjected to the heated steel rolls and "ironed" by the compressed cotton

rolls. It imparts a high, gloss finish to the paper. Supercalender stacks are not an inherent part of the paper machine whereas the calender rolls are.

**Surface Plate**

One of the two basic types of lithographic press plates; a colloid image is formed on the light-sensitized metal plate by the action of actinic light passing through photographic negatives.

**Surface Sized**

Term applied to paper that has been sized by applying a sizing agent when the web of paper is partially dry. Purpose is to increase resistance to ink penetration.

**Surface Texture**

The relative roughness, smoothness or unevenness of the paper surface.

**Surprint**

An additional printing over the design areas of previously printed matter. Its equivalent in stripping uses overlay positive films on negatives, or photographic contact procedures to produce such overprints as "Sale," "\$1.98" "Sample," etc. Also called overprint.

**Swatchbook**

Same as sample book. A grouping of papers, usually in bound form, that displays the weights, colors, finishes and other particulars of a collection of papers to aid in the selection of grades.

# T

**T4S**

Abbreviation indicating that the paper has been guillotine trimmed on all four sides. Literal translation: trimmed four sides.

**Tabbing**

During binding, the cutting or adhering of tabs on the edges of pages.

**Tack**

The pulling power or separation force of ink causing picking or splitting of weak papers.

**Tagged Image File Format (TIFF)**

A file format for graphics suited for representing scanned images and other large bitmaps. TIFF is a neutral format designed for compatibility with all applications. TIFF was created specifically for storing grayscale images, and it is the standard format for scanned images such as photographs—now called TIFF/IT.

**Tear Test**

A test to determine the tearing resistance of paper.

**TCF - Totally Chlorine Free**

Includes both virgin and post-consumer fibers that are bleached without any chlorine containing compounds.

**Tearing Strength**

The ability of a paper to resist tearing when subjected to rigorous production demands of manufacturing, printing, binding and its conversion from flat sheets into envelopes, packaging materials, etc.

**Tensile Strength**

Tensile strength relates to the stress and strain to which paper is subjected in its many end use applications. It is defined as the maximum force required to break a paper strip of a given width under prescribed laboratory conditions. Tensile strength is usually defined as pounds-per-inch width of the testing strip, or as kilograms per 15-millimeter width. Tensile strength is measured in both the grain and cross-grain directions, however, it is always greater in the grain direction.

**Text Paper**

A general term applied to various grades of printing paper designed for deluxe printed booklets, programs, announcements and advertising. May be watermarked.

**Thermography**

Letterpress printing in which a special ink, while still wet, is dusted with a retinous powder. Then the sheets are baked fusing the powder with the ink, giving it a raised effect.

**Thermomechanical Pulp**

Made by steaming wood chips prior to and during refining, producing a higher yield and stronger pulp than regular groundwood.

**Thickness**

Measurement in thousandths of an inch.

**Tint**

Shading of an area in a form.

**Tint Plate**

Printing plate with customized surfaces to print solid colors or patterns, stipple line or dot arrangements in tints of inks. Tint blocks are also used to deepen colors in an illustration.

**Tinting**

An all-over color tint on the press sheet in the nonimage area of the sheet, caused by ink pigment dissolving in the dampening solution.

**Titanium Dioxide**

Chemical substance used as loading or coating material to increase the whiteness and brightness of a sheet and contribute to its opacity.

**Tolerance**

Permissible degree of variation from a pre-set standard.

**Tooth**

Characteristic of paper. A slightly rough paper which permits acceptance of ink readily.

**Top**

Designates the felt side of a sheet of paper. The top side of a sheet is the side not against the wire during manufacture. (2) In paperboard, the top is the side that exhibits the best quality.

**Top-Sizing**

Tub sizing of paper which has previously been beater sized.

**Translucency**

Ability to transmit light without being transparent.

**Translucent Papers**

Papers that will allow information to be seen through them but not totally clear like acetate; UV/ULTRA® II Translucent Papers.

**Transparency**

Photographic positive mounted in a clear or transparent image.

**Transparent Ink**

A printing ink which does not conceal the color beneath. Process inks are transparent so that they will blend to form other colors.

**Trapping**

The ability to print a wet ink film over previously printed ink. Dry trapping is printing wet ink on dry paper or over dry ink. Wet trapping is printing wet ink over previously printed wet ink.

**Trim**

Excess of the paper allowed a printed sheet for gripper and bleed.

**Trim Margin**

The margin of the open side, away from the bind; also called thumb, face or outside margin.

**Trim Marks**

In printing, marks placed on the copy to indicate the edge of the page where to cut or trim.

**Trim Size**

The final size of a printed piece after trimming.

**Trimmed Size**

The final size of a printed piece after all bleeds and folds have been cut off.

**Trimmer**

Machine equipped with a guillotine blade that can cut paper to the desired size.

**Tub-Sized (surface-sized)**

Sizing added to the surface of paper by passing a web through a tub or bath of sizing, removing the excess, and drying.

**Tumble**

Head to foot printing.

**Twin-Wire Machine**

A paper machine with two wires instead of one producing paper with less two-sidedness.

**Two-Sheet Detector**

In printing presses, a device for stopping or tripping the press when more than one sheet attempts to feed into the grippers.

**Two-Sidedness**

In paper, the property denoting difference in appearance and printability between its top (felt) and bottom (wire) sides.

**Two-Up**

Printing the same page or group of pages from two sets of plates, thereby producing two impressions of the same matter at one time.

**Two-Up Binding**

Printing and binding in such a way that two books are bound as one, then cut apart into separate books.

**Type Face**

A design of letters of the alphabet intended to be used in combination.

# U

## **Unbleached**

Paper not treated to bleaching; it has a light brown hue.

## **Uncoated**

Paper that has not been coated. Nevertheless a given coated sheet can be made in a variety of finishes.

## **Undercolor Removal**

To improve trapping and reduce ink costs in the process color web printing, color separation films are reduced in color in areas where all three colors overprint and the black film is increased an equivalent amount in these areas.

## **Underrun**

Term refers to an order produced or delivered that is less than the quantity specified by the customer. Allowances are permitted in trade practices for under-runs.

## **Undertrimmed**

Trimmed to a size smaller than the specified trim size.

## **Uniformity**

Being uniform in the structure of the paper, the color and finish.

## **Unit**

Refers to the combination of inking, plate and impression operations to print each color. A 4-color press has 4 printing units each with its own inking, plate and impression functions.

## **UV**

Ultra Violet radiation method of drying process color inks on high-speed multicolor offset presses.

## **UV Curing**

The drying of UV inks by a light reaction, rather than by heat and/or oxidation.

## **UV Inks**

In printing, solventless inks that are cured by UV radiation. They are used extensively in screen printing, narrow web letterpress and flexographic printing.

# V

## **Varnish**

Thin, protective coating applied to a printed sheet of paper for protection or improved appearance.

## **Vehicle**

The liquid part of an ink that gives it flow, enabling it to be applied to a surface.

## **Vellum**

Term usually applied to a paper finish that exhibits a toothy surface which is very similar to eggshell or antique finishes. A vellum finish is relatively absorbent to provide good ink penetration.

## **Vellum Paper**

Very strong, good quality cream colored or natural paper made to impersonate calfskin parchment. Also, the term is often applied to the finish of paper rather than a grade of paper. Stationery is often referred to as vellum. Also, tracing paper used by architects and artists.

## **Velox**

A black and white print for proofing or for display.

## **Vignette**

Halftone whose background gradually fades away to blend with the surface of the paper.

## **Virgin**

Paper made from the fibers in their first use, usually from wood pulp.

## **Virkotyping**

Another name for thermography or raised printing.

## **Viscosity**

Broad term that encompasses the properties of tack and flow as applied to inks.

# W

## **Walk-Off**

Deterioration of part of image area on plate during printing.

## **Warm Color**

Color of ink falling in the red-orange-yellow family.

## **Wash-Up**

Operation between ink/color changes. Time required between ink color changes.

## **Water Ball Roller**

A roller which runs in the fountain solution pan.

## **Water Fountain**

The metal trough on a lithographic press which holds the dampening solution.

## **Water in Ink**

A press condition of too much water, which breaks down ink.

## **Water Resistance**

Quality of a sheet of paper to resist penetration by water from one surface to the other.

## **Waterless Plate**

In platemaking, printing on a press using special waterless plates and no dampening system.

**Watermark**

A term referring to the impression of a design, pattern or symbol in a sheet while it is being formed on the paper machine wire. It appears in the finished sheet as either a lighter or darker area than the rest of the paper. Two types of watermarks are available. A shaded watermark is produced by a dandy roll located at or near the suction box on the Fourdrinier. The desired design is pressed into the wire covering the surface of the dandy roll similar to an intaglio engraving. As the wet pulp moves along the web the dandy roll presses down and creates an accumulation of fibers, thus the watermark is seen as being darker than the rest of the sheet.

The second type of watermark, called a wire mark, is accomplished by impressing a dandy roll with a raised surface pattern into the moving paper web in a similar manner to the shaded mark. This creates an area with less fiber making it lighter and more translucent.

Watermarks come in a variety of placement styles. Random, the least expensive to create, is a watermark that appears repetitively throughout the sheet in no particular order. A localized watermark is one that appears in a predetermined position on each sheet. Paraded watermarks appear in a line, either vertically or horizontally on each sheet. A staggered watermark pattern consists of several watermarks on each sheet in a predetermined fashion. (See dandy roll)

**Waviness**

Characteristic of a pile of sheets when the outer edges retain more moisture from the air than the center does or when the center retains more moisture than the outer edges do. It is a form of paper curl.

**Wavy Edges**

A warping, "wave like" effect in paper which is the result of the edges of the sheet having picked up moisture and expanded to a larger size.

**Web**

Roll of paper used in web or rotary presses and most often folded, pasted and converted in one continuous form. Also a ribbon of paper as it unwinds from a roll and threads through the press.

**Web Break**

Break in a roll of paper while it is on the machine during manufacturing or while on the printing press during production.

**Web Offset Paper**

Paper that is made to be printed in a continuous manner from a roll. It can be coated or uncoated and must be strong enough to withstand the rigors of web offset printing at high speeds.

**Web Press**

An offset press that uses web paper as opposed to sheet fed paper.

**Web Tension**

Amount of pull applied in direction of the travel of a web of paper by the action of a web-fed press.

**Weight Tolerance**

Acceptable degree of variation in a paper's shipped weight, usually within 5 percent of the paper's nominal weight.

**Well-Closed Formation**

Bonding of fibers in a sheet that provides an overall uniformity. Opposite of wild.

**Well-Sized**

Hard sized.

**Wet Rolls**

Water or dampness on the edge of the roll can weld or bond

the paper together, which will then break on the infeed, a problem easily determined by the press crew.

**Wet Rub Test**

A test of the moisture resistance of paper.

**Wet Strength**

The strength retained by a sheet when completely wetted with water; generally, tensile strength.

**Wet-End -**

water.

**Wet-End Finish**

Category of finishes such as antique, eggshell, vellum applied to the wet paper web by machine rolls and the presses at the wet end of the papermaking machine.

**Wet-Strength**

Wet strength is measured most accurately as the percentage ratio of wet-tensile strength to dry-tensile strength. Example: a paper containing 30% wet strength actually possesses 30% of its original dry-tensile strength.

**Wet-Strength Papers**

Once wet, ordinary papers lose most of their original dry-strength properties. Wet strength papers possess properties that resist disintegration and rupture when saturated with water. Papers are classified wet strength when they retain 15% or more of their dry-tensile strength. Superior quality wet strength papers may retain as much as 50% or more dry strength following immersing in water. Wet strength papers range in weight from tissue to paperboard.

**Wetting Agent**

A material capable of lowering the surface tension of water and water solutions and increasing their wetting powers.

**White Paper**

A term often applied to printing and writing grade papers and envelopes.

**Whiteness**

Whiteness of pulp and paper is generally indicated by its brightness.

**Whitewater**

Water that has been used in the papermaking process that is milky in color.

**Wholesaler**

(See Distributor)

**Winder**

Unit at the end of the paper machine that takes the paper web from the reel, trims it, winds it into rolls and slits it to make smaller rolls if desired.

**Wire**

At the wet end of the paper machine, a copper, bronze or synthetic screen that receives the suspension of water and fiber from the head-box. The wire moves the suspension along to the dry end of the machine. The wire terminates at the couch roll at which point the paper web is 90% water and can be transferred to the wet felt. In business forms, to stitch or fasten sheets to form a book or fastened set; may be side or saddle wired.

**Wire Binding**

A continuous double series of wire loops running through punched slots along the binding side of a booklet.

**Wire Mark**

On the bottom or wire side of the paper, these are impressed traces of the machine wire.

**Wire Side**

Opposite of felt side, this is the side of the paper that was against the wire during manufacture. A watermark will read backward from this side of the sheet.

**With the Grain**

Parallel to the direction in which the paper fibers lie.

**Woodfree Pulp**

Chemical pulp.

**Work and Turn**

To print one side of a sheet of paper then turn the sheet over from left to right and print the second side. The same gripper and plate are used for both sides.

**Work and Tumble**

To print one side of a sheet of paper, then turn it over from gripper to back using the same side guide and plate to print the second side.

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**Wove**

Finish characterized by the impressions of a felt dandy roll covered in woven wire and without laid lines. ENVIRONMENT® Papers.

**Wove Dandy**

A dandy roll without a watermarked design.

**Wrinkles**

(1) Creases in paper occurring during printing or folding. (2) In inks, the uneven surface formed during drying.

**Writing Paper**

A general term applied to papers used for writing purposes.

**Wrong-Read Image**

A mirror image such as that appearing on the blanket in offset printing.

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# X

**Xerography**

Copying process that uses a selenium surface and electrostatic forces to form an image.

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# Y

**Yankee Dryer**

A device that dries paper as it comes off the wet end of the papermaking machine by pressing one side against a cylinder that steam-heats it and imparts a glazed finish at the same time.

**Yellow**

Hue off a subtractive primary and a 4-color process ink. It reflects red and green light and absorbs blue light.

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**Yellowing**

Describes a transformation inherent to all vegetable fibers which is caused by aging. Paper made of vegetable fibers will turn various degrees of yellow as its environment couples with aging to produce this phenomenon. Yellowing is very evident in groundwood papers and only a few hours in direct sunlight is enough to yellow newspaper.

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# Z

**Zig-Zag Folding**

Folding used with continuous forms with alternating position (head and foot). Commonly used to convert roll paper to easily managed flat-back.

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