

***The Process of Making
& Specing Paper***

The Process of Making & Specifying Paper

HOW PAPER IS MADE:

“You take a lot of wood and you cut it into chips. You cook it in water and beat it until it kind of comes apart. You mix it with more water, and now it looks like oatmeal. You add bleach and dye and some chemicals called fillers and brighteners. You keep mixing it, and you add so much water that there is 99 times as much water as everything else. It’s very soupy. Then you pour it onto a huge wire screen that is vibrating like crazy. The water falls through the screen, and the fibers start to wriggle together to form paper. Next, you blot it between huge rollers, and then you dry it with heat, and iron it between some more huge rollers. In a couple of minutes, you start having paper.”

-PaperLogix: The SpecLogix Compendium of Paper and Printing

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DANDY ROLL

In paper-making this part of the process distributes the fibers more evenly. It is also where the paper patterns, like in laid, or a watermark are created.

CALENDARING

In paper-making where the paper is processed through a series of rollers that apply heat and pressure to achieve an even thickness in the sheet.

Calendaring affects the paper's surface, density and bulk, but not its weight.

SUPERCALENDARING

Adding more heat and pressure to the process, achieving an even harder, smoother surface.

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VIDEO ON PAPER-MAKING



<https://www.youtube.com/watch?v=E4C3X26dxbM>

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PAPER TYPES: PART 1

There are three types of paper:

1. Uncoated
2. Coated
3. Specialty Papers

Each type consist of fibers that when mixed with chemicals and water will create a sheet of desired properties of appearance, feel and printability.

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FIBER FROM TREES

Paper is made from the fibers in trees. There are two types of trees.

- 1.hardwood Trees
- 2.softwood Trees

HARDWOOD TREES

fibers are short, dense and smooth.

SOFTWOOD TREES

fibers are long and elastic, but unlike fibers from hardwood trees these fibers are rougher. This attribute allows added strength to paper.

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PAPER FIBER FACTS

LIGNIN

A tree is 50% fibers, 30% lignin, 20% water. Lignin is the substance that binds the fibers together in nature. In the paper making process lignin is normally separated from the fibers in a tree to create paper.

GROUNDWOOD

Made of pure wood. The fibers and lignin. The lignin is not removed. As a result, groundwood paper is a low economy sheet, like newsprint.

When specing this type of paper the longevity and conservation of this sheet is not important. Exposure to light will cause the sheet to yellow.

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VIRGIN FIBER/PULP

Fiber or pulp that has never been processed into paper; direct from the forest

RECYCLED FIBER

fiber that has been processed into paper, only to be reprocessed again into paper. This is more than likely the waste from printers and paper mills, that often do not make it into the hands of a consumer.

There are two types of recycled paper:

1. groundwood (newspapers and some magazines)
2. Lignin-free (office waste).

These 2 types are separated, prior to reprocessing, to maintain the quality standard of a given sheet.

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PRE- AND POST-CONSUMER WASTE

There is an arbitrary distinction as to when, within a paper's life-span, it is disposed of.

PRE-CONSUMER WASTE

Paper that has not been touched or used by any consumers.

If a vendor never sells the magazine and returns the magazine for credit, it is pre-consumer waste.

POST-CONSUMER WASTE

Paper that has been touched or used by consumers.

If a magazine is purchased and then tossed out, it is post-consumer waste.

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ALTERNATIVE FIBERS

fibers that were created from plants like, bamboo, hemp, kenaf and sugarcane, or fabric like, denim and cotton. These materials can be used alone or blended with other fibers to create paper.

INCLUSIONS

Whole fibers, plant or mineral particles that are included in pulp to add to the aesthetics of paper.

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PAPER TYPES: PART 2 :: UNCOATED PAPER

UNCOATED PAPER

Paper that has not been coated.

GROUNDWOOD SHEET

An uncoated paper made of pure wood, both the wood fibers and lignin. Newsprint is a perfect example of groundwood.

FACTOID:

Paper was made from cotton until the 1870s, when the production of paper from wood began.

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There are 4 types of finishes in uncoated sheets:

- 1.Columnar and Laid Pattern
- 2.Linen Pattern
- 3.Felt Pattern
- 4.Wove Pattern

FINISH (IN PAPER)

is a property in paper that refers to the surface texture.

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COLUMNAR AND LAID PATTERN

The patterns in these sheets are created in the formulation of the sheet. These techniques are put into the paper during the wet end of the paper machine to displace the fibers.

The difference between the sheets are the patterns.

LAID PATTERN

A ladder-like pattern.

COLUMNAR PATTERN

A pattern of columns.

LINEN PATTERN

This pattern is embossed into the sheet to simulate the look of a laid pattern.

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FELT PATTERN

In the paper making process, this historic method, showed marks from the felts of the press, which had not been smooth out.

Today the felt pattern is created by a rubber marking roll or it is simulated by an emboss.

WOVE PATTERN

This is a low-texture finish that is normally found in correspondence, writing and stationery. Using a Dandy Roll on the paper machine helps distributes and uniforms the paper fibers across the sheet.

WOVE PATTERN SUPER SMOOTH

Wove pattern with a smooth surface.

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PAPER TYPES: PART 3 :: COATED PAPER

COATED PAPER

coated paper is paper that has an added surface/coating. The coating consist of starch or latex binders. In the paper-making process once the coating is applied to the sheet, the paper undergoes buffing which smooths out the coating and provides a shiny and sleek surface.

FACTOID:

Less than 125 years ago, coated paper was invented.

There are three basic types of finishes in coated sheets:

1. Gloss
2. Dull
3. Matte

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GLOSS

“Paper with a gloss finish is created by calendering after the coating operation. Calendering smooths and densifies the paper by running the paper, under pressure, between two steel rolls.”¹

DULL

“Paper which lacks gloss or luster, it is said to have a dull finish.”¹

MATTE

“A non-glossy appearance resulting from coating with little to no supercalendering, creating the least glossy paper surface available.”

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PAPER TYPES: PART 4 :: SPECIALTY PAPER

CAST COATED

A coating method that applies a wet coating to the web, providing a high-gloss mirror like surface to the paper.

SPECIALTY PAPER

Any type of paper that uses special or non-traditional fibers. Specialty paper can be uncoated or coated.

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PAPER TYPES: PART 5 :: PAPER CHARACTERISTICS

WATERMARK

Traditionally a watermark is an identifier of fine paper; normally a seal or logo of the paper maker. Similar to how companies identify their products.

Found in bond and writing stocks (stationery)

Although it is more common to find watermarks of the paper maker's seal or logo, it is now popular for companies and organization to have personalize watermarks of their seals or logos.

A watermark is not a printing technique.

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PAPER GRAIN

Grain is the alignment of fibers in a sheet.

The grain of a sheet determines the placement of collateral on a sheet when printing, how collateral is folded, torn or scored. It also determines the stiffness of a sheet.

PAPER OPACITY

The opacity of paper is the amount of light that is prevented from transmitting through in a sheet.

This is important feature in selecting paper because paper with low opacity will show the print from the backside of the sheet.

This may not be of importance in some low-end jobs, but high-end job may result in the piece looking cheap.

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PAPER TYPES: PART 6 :: “SPEC”ING PAPER

PAPER SURFACE

Although coated and uncoated paper has various types of finishes. When specing paper, it is important to identify whether the paper is coated or uncoated; smooth, vellum or the pattern.

SMOOTH

When the surface of a sheet is leveled by a steel roll using heat and pressure to provide a smooth surface.

VELLUM

Paper that has a toothy or coarse finish from the natural imprint of the paper machine felts.

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PAPER WEIGHTS

Paper is identified by its weight. The weight of a sheet is also known as the caliber of the sheet.

The weight/caliber is basically the thickness of a single sheet of paper. The caliber of a sheet is measured with a hand-held micrometer or mic.

PAPER WEIGHT CLASSIFICATIONS:

- Cover: 65#; 80#; 100#; 120#; 130#
- Text: 60#; 65#; 70#; 80#; 100#
- Stationery: 24#; 28#

Although some weight classifications have the same weight number, there is a difference between 65# Text and 65# cover.

Then there are instances where it is hard to differentiate between two weights like a 100# Text and 80# cover may be very close in weight when comparing by hand.

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SHEET SIZE

North American sheet sizes and International Standards Organization (iso), are the two measurement guidelines paper mills refer to for the trim size for paper sheet sizes for American and international printing presses.

NORTH AMERICAN SHEET SIZES: (INCHES)

- 8.5 x 11
- 11 x 17
- 17.5 x 22.5 • 19 x 25
- 23 x 35
- 25 x 38

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WHO DETERMINES THE SHEET SIZE:

more than likely it is the printer, who determines the sheet size. They are printing the job; it is their machines they will be running the paper through.

Sometimes it is the client. Companies who use a great deal of paper (think book publishers, hallmark, magazines with large print runs {any condé nast publication}) will purchase their paper directly from the mills to save on the cost of paper. This cuts out the middle man, the printer, who when ordering paper for a client will mark-up the price.

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NOT ALL PAPERS ARE TRIMMED EQUALLY

Although there are standard sheet sizes, paper mills do not offer all standard sizes with all brands of paper that they produce.

Within a paper sample book, it is common to find a listing of the North American Sheet Sizes or the ISO sizes.

Designers, Printers and Production managers can use this to determine the maximum size of a piece of collateral, but remember the printer needs to have the equipment that is large enough to print on that size paper.

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PAPER COLOR

simply stated, is the color of the paper.

In paper making dyes are added to the pulp to create color in a sheet. The color is throughout the sheet and is permanent. It should not rub off, or when cut or ripped the side of the sheet is the same color.

PAPER BRIGHTNESS

Paper brightness is the amount of light that is reflected off of a sheet of paper.

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PAPER TYPES: PART 7 :: PAPER DISTRIBUTION

PAPER COMPANY

A company that is in the business of manufacturing and selling paper. A Paper company owns many mills that may create various brands/types of paper.

PAPER MILL

Location where paper is made from tree to sheet.

The paper mill supplies paper to both Paper Houses and Printers.

PAPER HOUSE

This is a vendor that stores paper from the different paper mills. The paper house orders paper from the mills and supplies the printer the paper.

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PRINTERS

Printers normally purchase paper from local Paper houses, but if supply is low or not available through the Paper house, they will purchase the paper directly from the mill.

DESIGNERS + FREE SAMPLES

Paper companies and houses want you to use their product, so they all have what is called a sample Department.

SAMPLE DEPARTMENT

A department within the Paper company or house, that will provide designers samples of paper to the designer. The samples include swatch books, paper sheets, printed samples, and dummies.

DUMMY

A sample document that was created with blank pages that follows the spec of a publication. This is created to give the client and designer a sense of what the end result will be.

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PAPER MILL

APPLETON

BECKETT PAPERS

CRANE PAPER CURIOUS

COLLECTION DOMTAR

FINCH PAPER

FOX RIVER PAPER

FRENCH PAPER

GEORGIA-PACIFIC

GMUND PAPER

GRUPPO CORDENONS

HAMMERMILL PAPERS

INTERNATIONAL PAPER

MOHAWK PAPERS

MONADNOCK PAPER
MILLS

M-REAL USA CORP

NEENAH PAPER NEW
LEAF PAPER NEWPAGE

REICH PAPER RIVERSIDE
PAPER SAPPI FINE PAPER
SMART PAPERS

STORA ENSO

STRATMORE

WAUSAU PAPER

WEYERHAEUSER
COMPANY

YUPO CORPORATION

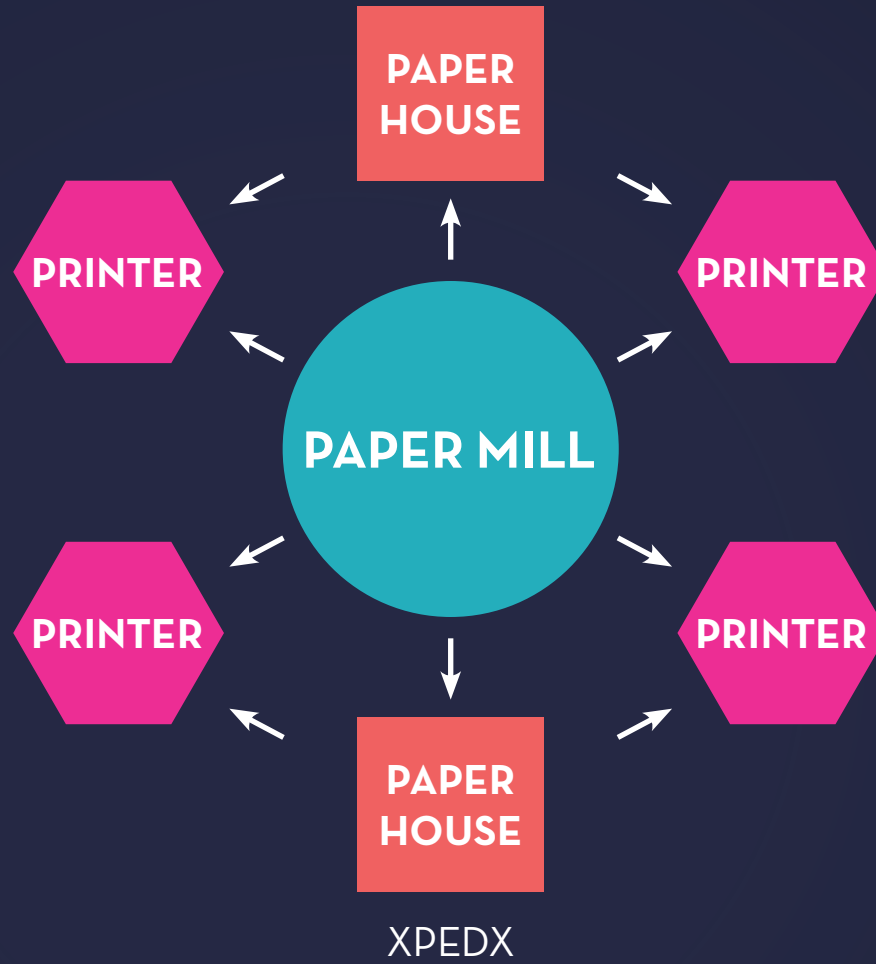
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FRANK PARSONS PAPER



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HOW TO GET IT FOR FREE!

All paper companies have a sample departments that offer free sheets of paper, swatches and print samples.

FRANK PARSONS

<http://pops.frankparsons.com/samples.nsf>

FRANK PARSONS STORES

<http://www.frankparsons.com/company/locations.html>

You can also contact the paper manufacturer to order sample sheets, but be aware you will have to pay for shipping.

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SMALL QUANTITY BUYS :: PAYING FOR IT

ENVELOPE MALL

www.envelopemall.com/

GLODAN.COM

www.paperpurchase.com/glodan2/

THE PAPER MILL STORE

www.thepapermillstore.com

ENVELOPE MALL

www.envelopemall.com

