

Paper Characteristics Part 1

One of the most important decisions in any print project is the choice of paper. Paper typically accounts for 30 to 50% of the total printing cost. Equally important, paper conveys an essential part of the impression you will create. Add in considerations of runnability and end use requirements and it's clear that selecting the right stock is a critical decision.

Geographics offers many resources to help you find the right paper for a project. So, be sure to engage your account manager in a discussion about budget, the desired impression and how a piece will be used. We can provide paper samples, mock-ups and even printed examples on recommended stocks. In addition to expertise and materials, we offer this Service Note describing paper properties.

Basis Weight

Basis weight is the weight in pounds of 500 sheets (a ream) of paper in the *trade size* for that grade. So, 500 sheets, 25 x 38 inches in size, of 70# offset paper will weigh 70 pounds. Different grades have different basic sizes.

Grade	Basic Size inches	Area Sq inches	Popular Weights
Bond	17 x 22	374	20# to 24#
Book & Offset	25 x 38	950	50# to 100#
Text	25 x 38	950	60# to 80#
Cover	20 x 26	520	60# to 100#

The *M weight* is the weight in pounds of 1,000 sheets. Determine the M weight by

rounding the ream weight to the nearest pound or half pound and multiplying by 2.

Paper Types

Paper can also be described in terms of its intended use. The most frequently specified grades include:

Bond- commonly used for letterhead, forms and office copies. Designed to be written on by pen or pencil. Can be cleanly erased. Often includes cotton fiber.

Book and Offset- most commonly used printing grade. Further described as coated or uncoated. Coatings reduce ink absorption so printed images are sharper on coated stock. Coatings can add gloss, brightness, color and smoothness. Coated paper also provides excellent strength, dimensional stability and stiffness.

Uncoated papers are selected to create diverse emotional effects. Printed text on uncoated paper is easier to read.

Text- high quality paper available in a variety of textures and colors. Often treated with sizing to improve print by Lithography.

Cover- Made to complement Text grades but designed for higher bulk and stiffness. Typically used as an outside cover or insert. Cover stock of the same basis weight as Text stock will be about twice as thick.

Physical and Mechanical Properties

Brightness

In this context, Brightness Grade refers to the minimum GE brightness of a coated

Offset paper. Brightness is a different property than whiteness. Brighter paper reflects more light, so printed images will have more contrast and snap. Paper cost goes down with decreasing brightness. Paper grades are classified in decreasing brightness from 1 to 4 as specified by the American Forest and Paper Association.

Grade classifications

Coated free sheet	GE Brightness
Number 1	91.0 or more
Number 2	87.0 to 90.9
Number 3	82.0 to 86.9
Number 4	81.9 or less

Caliper- a measure of sheet thickness usually expressed in thousands of an inch. For book grades, thickness is often stated in PPI (pages per inch).

Formation- a measure of the uniformity of fiber distribution within a sheet. Poor formation can cause mottle and uneven ink absorption.

Grain- The orientation of the majority of fibers in a sheet. Long grain paper refers to paper with fibers oriented parallel to the longest dimension. Paper folds better parallel to the grain. Grain direction is always a manufacturing concern for registration, folding and tear resistance.

Opacity- Measures the amount of light passing through a sheet of paper in values from 1 to 100% (most opaque). A paper with high opacity will have less show-through from printing on the reverse side or the sheet below.

Environmental Considerations

You need not compromise great print for good ethics. We offer Forest Stewardship Council certified papers that range in

recycled fiber content from 10% to 100% post consumer. We have paper produced in a carbon neutral process. Green seal, Green-E, Elemental Chlorine Free- we can satisfy your environmental concerns with affordable stocks that perform to your expectations.

CN- Carbon Neutral

Thermal emissions in the mill are offset through verified emission reduction credits and purchased renewable energy credits.

ECF- Elemental Chlorine Free

Pulp bleached by processes that do not cause harmful chlorine contamination.

FSC- Forest Stewardship Council

Independent certification that wood and wood products are responsibly harvested and processed.

SFI- Sustainable Forestry Initiative

A land stewardship initiative that has improved forestry practices.

PCW- Post Consumer Waste

An abbreviation for recycled fiber made by reprocessing waste paper recovered after being used by a consumer.

Beyond the characteristics you can see and feel, it is important to match properties such as Grain, Tear strength, Pick resistance and dozens more to the requirements of your project. Does it fold? Is it addressed later? Does it mail? Will fingerprints be objectionable?

Geographics can help you make the best paper selection to satisfy the overall concerns of presentation, performance and price. Draw on our expertise and buying power.